

# TEST REPORT

## CERTIFICATE OF CONFORMITY

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

**Report No.:** RFBAPP-WTW-P23030958

**FCC ID:** PD5-NWA1100

**Product:** Indoor Wireless AP

**Brand:** Nile Global

**Model No.:** NWA1100

**Received Date:** 2023/3/31

**Test Date:** 2023/4/20 ~ 2023/5/13

**Issued Date:** 2023/7/5

**Applicant:** Delta Electronics, Inc.

**Address:** 31-1 Shien Pan Rd., Kuei San Industrial Zone, Taoyuan City 333, Taiwan

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

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

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

**FCC Registration /** 788550 / TW0003

**Designation Number:**

Approved by: \_\_\_\_\_

*Jeremy Lin*

Jeremy Lin / Project Engineer

, Date: \_\_\_\_\_

2023/7/5

This test report consists of 105 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The test results in the report only apply to the tested sample. The test results in this report are traceable to the national or international standards.

Prepared by : Gina Liu / Specialist



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

## Table of Contents

<b>Release Control Record</b> .....	<b>4</b>
<b>1 Certificate</b> .....	<b>5</b>
<b>2 Summary of Test Results</b> .....	<b>6</b>
2.1 Measurement Uncertainty .....	6
2.2 Supplementary Information .....	6
<b>3 General Information</b> .....	<b>7</b>
3.1 General Description .....	7
3.2 Antenna Description of EUT .....	8
3.3 Channel List .....	9
3.4 Test Mode Applicability and Tested Channel Detail .....	10
3.5 Duty Cycle of Test Signal .....	11
3.6 Test Program Used and Operation Descriptions .....	15
3.7 Connection Diagram of EUT and Peripheral Devices .....	15
3.8 Configuration of Peripheral Devices and Cable Connections .....	16
<b>4 Test Instruments</b> .....	<b>17</b>
4.1 RF Output Power .....	17
4.2 Power Spectral Density .....	17
4.3 6 dB Bandwidth .....	17
4.4 Conducted Out of Band Emissions .....	17
4.5 AC Power Conducted Emissions .....	17
4.6 Unwanted Emissions below 1 GHz .....	18
4.7 Unwanted Emissions above 1 GHz .....	19
<b>5 Limits of Test Items</b> .....	<b>20</b>
5.1 RF Output Power .....	20
5.2 Power Spectral Density .....	20
5.3 6 dB Bandwidth .....	20
5.4 Conducted Out of Band Emissions .....	20
甲、 AC Power Conducted Emissions .....	20
5.5 Unwanted Emissions below 1 GHz .....	21
5.6 Unwanted Emissions above 1 GHz .....	21
<b>6 Test Arrangements</b> .....	<b>22</b>
6.1 RF Output Power .....	22
6.1.1 Test Setup .....	22
6.1.2 Test Procedure .....	22
6.2 Power Spectral Density .....	22
6.2.1 Test Setup .....	22
6.2.2 Test Procedure .....	22
6.3 6 dB Bandwidth .....	23
6.3.1 Test Setup .....	23
6.3.2 Test Procedure .....	23
6.4 Conducted Out of Band Emissions .....	23
6.4.1 Test Setup .....	23
6.4.2 Test Procedure .....	23
6.5 AC Power Conducted Emissions .....	24
6.5.1 Test Setup .....	24
6.5.2 Test Procedure .....	24
6.6 Unwanted Emissions below 1 GHz .....	25
6.6.1 Test Setup .....	25
6.6.2 Test Procedure .....	26
6.7 Unwanted Emissions above 1 GHz .....	27
6.7.1 Test Setup .....	27
6.7.2 Test Procedure .....	27
<b>7 Test Results of Test Item</b> .....	<b>28</b>



7.1	RF Output Power.....	28
7.2	Power Spectral Density .....	32
7.3	6 dB Bandwidth .....	36
7.4	Conducted Out of Band Emissions .....	40
7.5	AC Power Conducted Emissions .....	64
7.6	Unwanted Emissions below 1 GHz .....	68
7.7	Unwanted Emissions above 1 GHz.....	72
<b>8</b>	<b>Pictures of Test Arrangements .....</b>	<b>104</b>
<b>9</b>	<b>Information of the Testing Laboratories .....</b>	<b>105</b>



## Release Control Record

Issue No.	Description	Date Issued
RFBAPP-WTW-P23030958	Original release.	2023/7/5

## 1 Certificate

**Product:** Indoor Wireless AP

**Brand:** Nile Global

**Test Model:** NWA1100

**Sample Status:** Engineering sample

**Applicant:** Delta Electronics, Inc.

**Test Date:** 2023/4/20 ~ 2023/5/13

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

**Measurement** ANSI C63.10-2013

**procedure:** 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 -3.35 dB at 0.36600 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -4.4 dB at 65.89 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.1 dB at 2484.20 MHz
15.203	Antenna Requirement	Pass	Antenna connector is Ipex(MHF) 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	3.59 dB
	30 MHz ~ 1 GHz	3.6 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	2.29 dB
	18 GHz ~ 40 GHz	2.29 dB

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

### 2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

### 3 General Information

#### 3.1 General Description

Product	Indoor Wireless AP
Brand	Nile Global
Test Model	NWA1100
Status of EUT	Engineering sample
Power Supply Rating	100-240V, 50/60Hz 54 Vdc (From POE)
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in VHT mode 1024QAM for OFDMA in 11ax mode only
Modulation Technology	DSSS, OFDM, OFDMA
Transfer Rate	802.11b:11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11n (HT20/40): up to 600Mbps VHT20/40: up to 800Mbps 802.11ax: up to 1147.1Mbps
Operating Frequency	2.412 GHz ~ 2.462 GHz
Number of Channel	For Radio 1 802.11b, 802.11g, 802.11n (HT20), VHT20, 802.11ax (HE20): 11 802.11n (HT40), VHT40, 802.11ax (HE40): 7 For Radio 3 802.11b, 802.11g, 802.11n (HT20), VHT20: 11 802.11n (HT40), VHT40: 7
Output Power	For Radio 1 674.807 mW (28.29 dBm) For Radio 3 282.184 mW (24.51 dBm)

Note:

1. The EUT uses following accessories.

POE (Support unit)		
Brand	Model	Specification
NETGEAR	GS305Pv2	DC Output : 54V,1.25A

2. There are four modules for the EUT.

Function	Radio
WLAN 2.4G (TX/RX)	1
WLAN 5G (TX/RX)	2
WLAN 2.4G & 5G & 6G (TX/RX)	3
BT LE	4
WLAN 6G (TX/RX)	5

3. Simultaneously transmission condition.

Condition	Technology		
1	WLAN 2.4G (Radio 1)	WLAN 5G (Radio 2)	WLAN 6G (Radio 5)
2	WLAN 2.4G (Radio 3)	WLAN 5G (Radio 3)	WLAN 6G (Radio 3)

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

4. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

### 3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna Connector		Ipex(MHF)					
Antenna No.	Antenna Type	Gain (dBi)					
		2.4~2.4835GHz	5.15~5.25GHz	5.25~5.35GHz	5.47~5.725GHz	5.725~5.85GHz	
Radio 1	2G1	dipole	6.9	-	-	-	-
	2G2		6.9	-	-	-	-
	2G3		7.7	-	-	-	-
	2G4		6.4	-	-	-	-
Radio 2	5G1		-	6.7	6.7	7.2	6.6
	5G2		-	6.7	6.7	6.7	7.1
	5G3		-	7.2	7.2	7.6	7.1
	5G4		-	6.6	6.6	7.3	7.0
Radio 3	TB1	PIFA	5.1	7.2	7.2	5.9	5.9
	TB2		4.7	5.6	5.6	5.9	6.8
Radio 4	BLE		5.9	-	-	-	-

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

2. The EUT incorporates a MIMO function:

2.4 GHz Band				
Radio	Modulation Mode	Beamforming Mode	TX & RX Configuration	
1	802.11b	Not Support	4TX	4RX
	802.11g	Not Support	4TX	4RX
	802.11n (HT20)	Support	4TX	4RX
	802.11n (HT40)	Support	4TX	4RX
	VHT20	Support	4TX	4RX
	VHT40	Support	4TX	4RX
	802.11ax (HE20)	Support	4TX	4RX
	802.11ax (HE40)	Support	4TX	4RX
3	802.11b	Not Support	2TX	2RX
	802.11g	Not Support	2TX	2RX
	802.11n (HT20)	Not Support	2TX	2RX
	802.11n (HT40)	Not Support	2TX	2RX
	VHT20	Not Support	2TX	2RX
	VHT40	Not Support	2TX	2RX

Note:

- All of modulation mode support beamforming function except 802.11b/g modulation mode.
- 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.  
The modulation and bandwidth are similar for 802.11n mode for 20 MHz (40 MHz) and VHT mode for 20 MHz (40 MHz), therefore the manufacturer will control the power for 802.11n/VHT mode is the same as the 802.11ax or more lower than it and investigated worst case to representative mode in test report.



### 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:	The EUT had been pre-tested on the positioned of each 3 axis (X-axis/ Y-axis/ Z-axis). Pre-scan these ways and find the worst case as a representative test condition.
Worst Case:	Y-axis for Mode A, X-axis for Mode B

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

Test Item	EUT Configure Mode	Mode	Signal Mode	Tested Channel	Modulation	Data Rate Parameter
RF Output Power	A	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
		802.11g	CDD	1, 6, 11	BPSK	6Mb/s
		802.11ax (HE20)	CDD & Beamforming	1, 6, 11	BPSK	MCS0
		802.11ax (HE40)	CDD & Beamforming	3, 6, 9	BPSK	MCS0
	B	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
		802.11g	CDD	1, 6, 11	BPSK	6Mb/s
		VHT20	CDD	1, 6, 11	BPSK	MCS0
		VHT40	CDD	3, 6, 9	BPSK	MCS0
Power Spectral Density / 6 dB Bandwidth / Conducted Out of Band Emissions	A	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
		802.11g	CDD	1, 6, 11	BPSK	6Mb/s
		802.11ax (HE20)	CDD	1, 6, 11	BPSK	MCS0
		802.11ax (HE40)	CDD	3, 6, 9	BPSK	MCS0
	B	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
		802.11g	CDD	1, 6, 11	BPSK	6Mb/s
		VHT20	CDD	1, 6, 11	BPSK	MCS0
		VHT40	CDD	3, 6, 9	BPSK	MCS0
AC Power Conducted Emissions	A	11b	CDD	1	DBPSK	1Mb/s
	B	11g	CDD	6	BPSK	6Mb/s
Unwanted Emissions below 1 GHz	A	11b	CDD	1	DBPSK	1Mb/s
	B	11g	CDD	6	BPSK	6Mb/s
Unwanted Emissions above 1 GHz	A	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
		802.11g	CDD	1, 6, 11	BPSK	6Mb/s
		802.11ax (HE20)	CDD	1, 6, 11	BPSK	MCS0
		802.11ax (HE40)	CDD	3, 6, 9	BPSK	MCS0
	B	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
		802.11g	CDD	1, 6, 11	BPSK	6Mb/s
		VHT20	CDD	1, 6, 11	BPSK	MCS0
		VHT40	CDD	3, 6, 9	BPSK	MCS0
EUT Configure Mode:	A	2.4G Radio 1				
	B	Scan Radio 3				

### 3.5 Duty Cycle of Test Signal

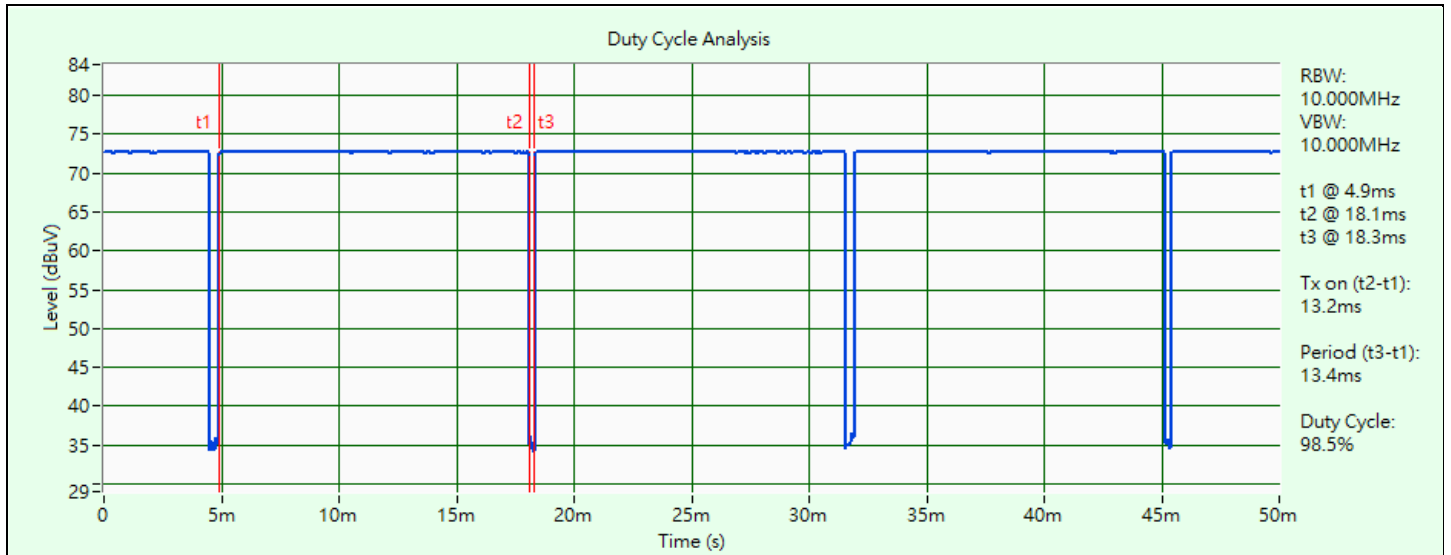
#### Mode A

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

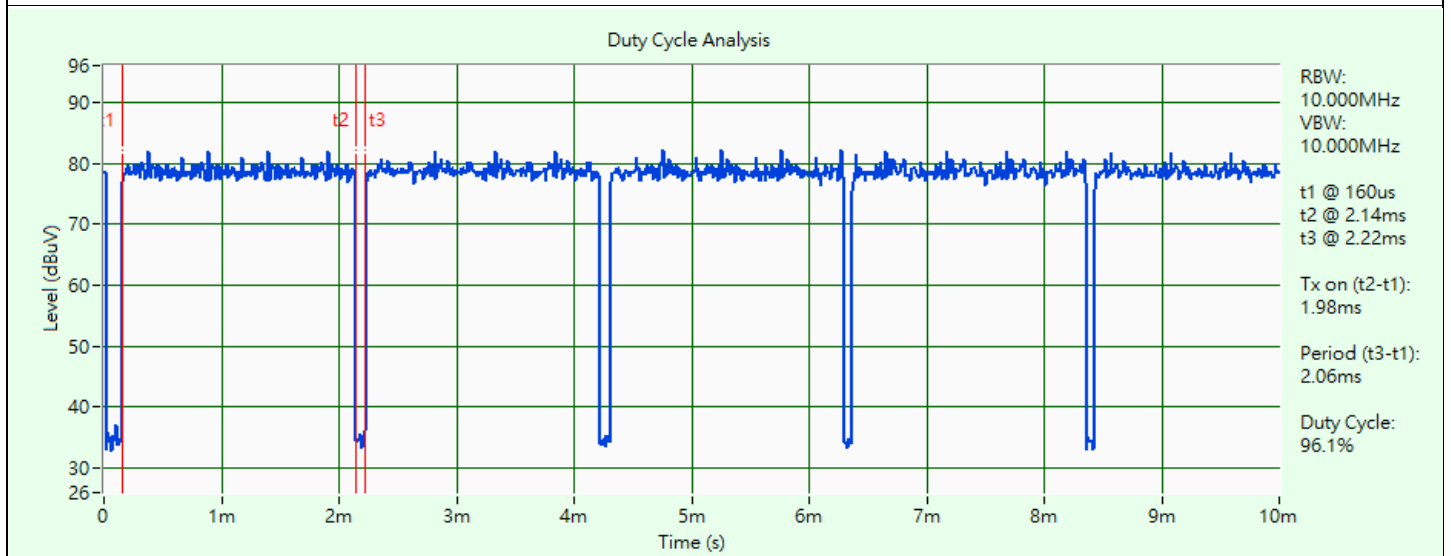
**802.11g:** Duty cycle = 1.98 ms / 2.06 ms x 100% = 96.1%, duty factor = 10 \* log (1/Duty cycle) = 0.17 dB

**802.11ax (HE20):** Duty cycle = 5.48 ms / 5.82 ms x 100% = 94.2%, duty factor = 10 \* log (1/Duty cycle) = 0.26 dB

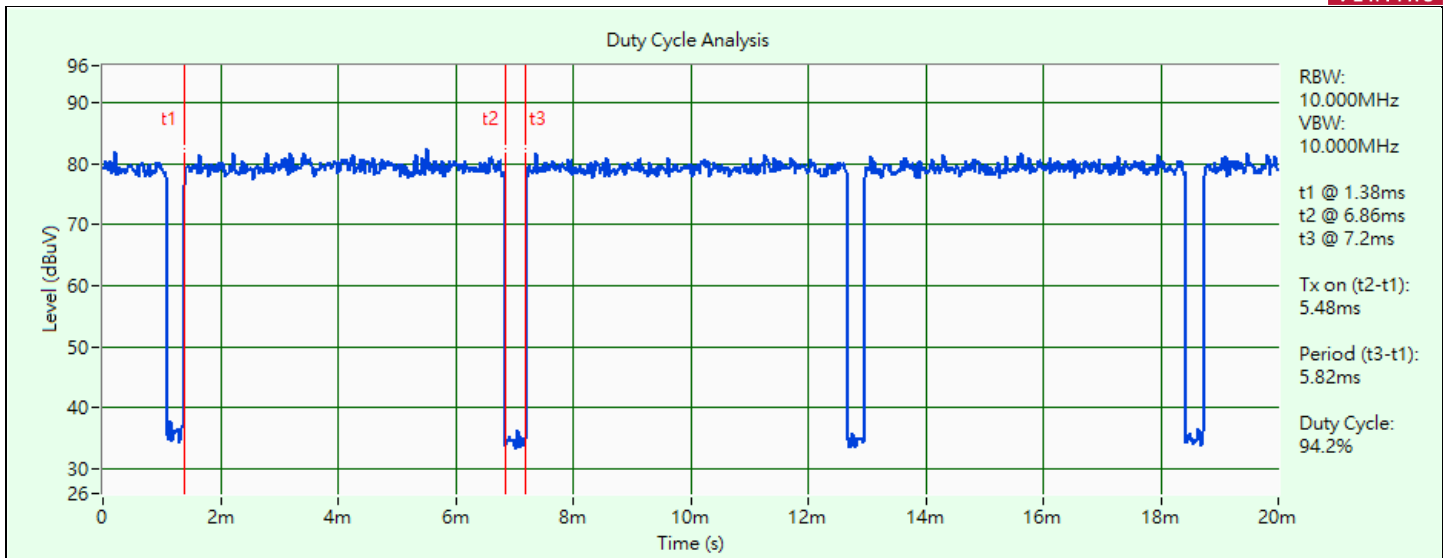
**802.11ax (HE40):** Duty cycle = 5.46 ms / 5.8 ms x 100% = 94.1%, duty factor = 10 \* log (1/Duty cycle) = 0.26 dB



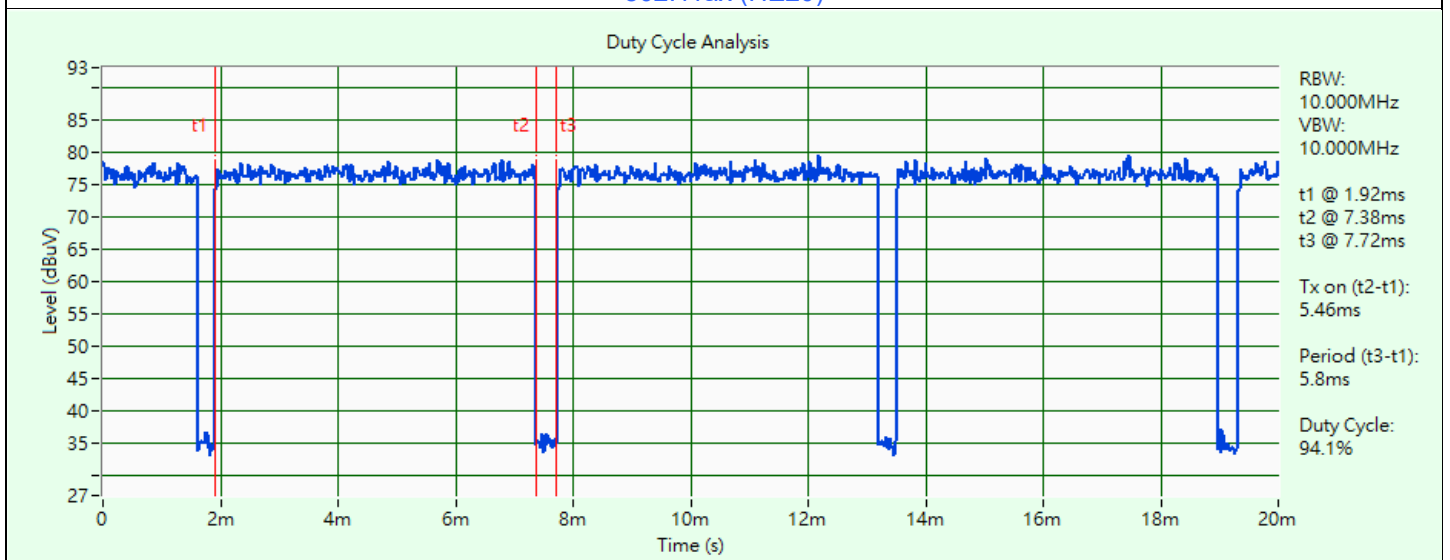
802.11b



802.11g



802.11ax (HE20)



802.11ax (HE40)

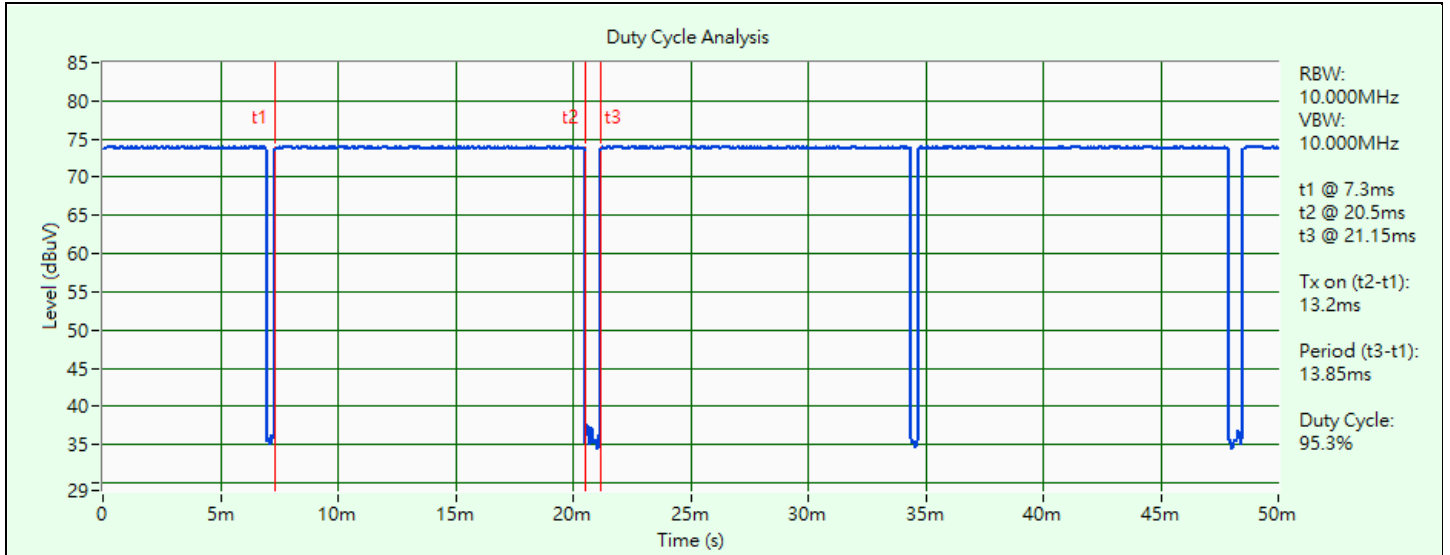
**Mode B**

**802.11b:** Duty cycle = 13.2 ms / 13.85 ms x 100% = 95.3%, duty factor =  $10 \cdot \log(1/\text{Duty cycle}) = 0.21 \text{ dB}$

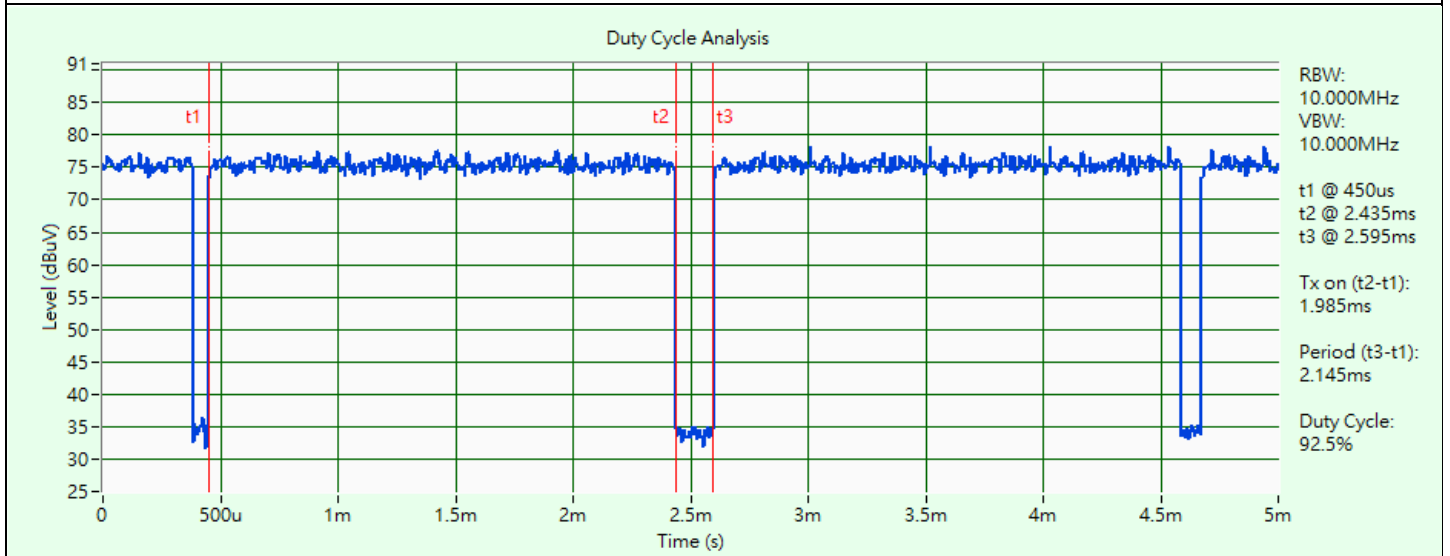
**802.11g:** Duty cycle = 1.985 ms / 2.145 ms x 100% = 92.5%, duty factor =  $10 \cdot \log(1/\text{Duty cycle}) = 0.34 \text{ dB}$

**VHT20:** Duty cycle = 5.46 ms / 5.88 ms x 100% = 92.9%, duty factor =  $10 \cdot \log(1/\text{Duty cycle}) = 0.32 \text{ dB}$

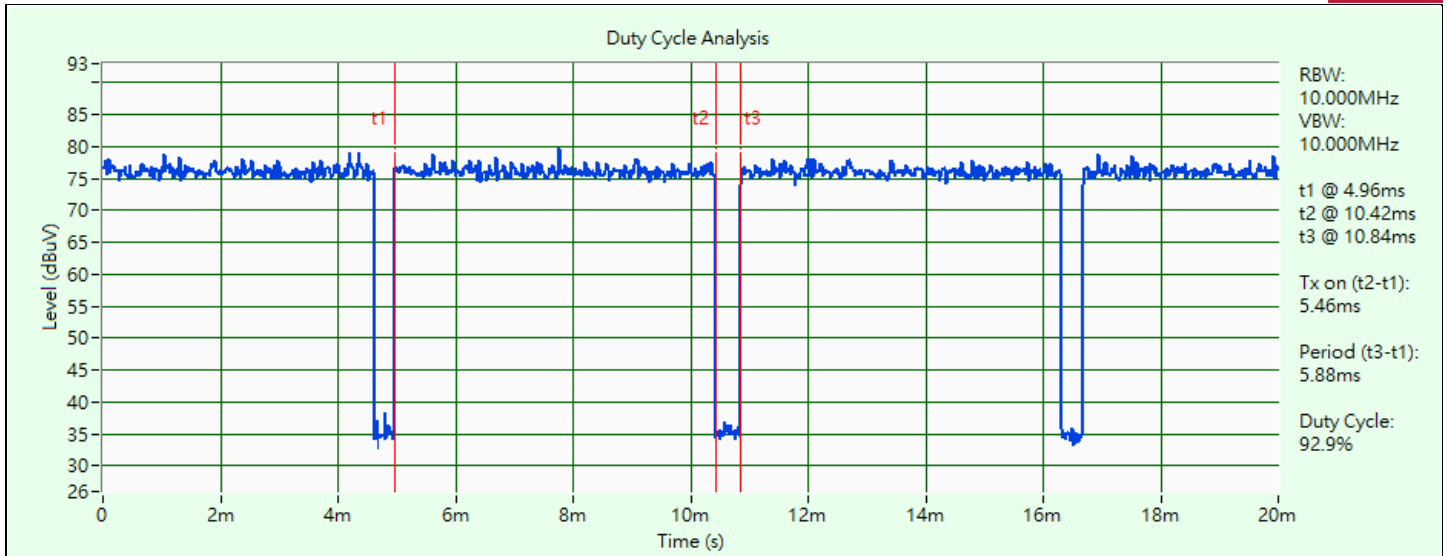
**VHT40:** Duty cycle = 5.44 ms / 5.84 ms x 100% = 93.2%, duty factor =  $10 \cdot \log(1/\text{Duty cycle}) = 0.31 \text{ dB}$



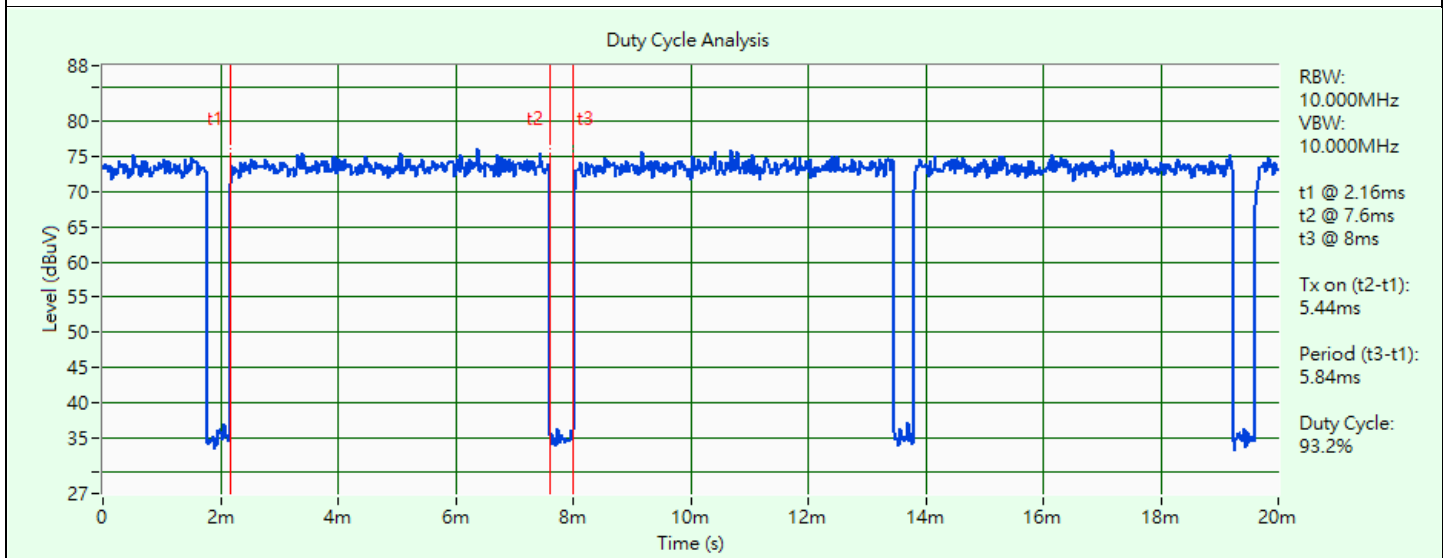
802.11b



802.11g



VHT20



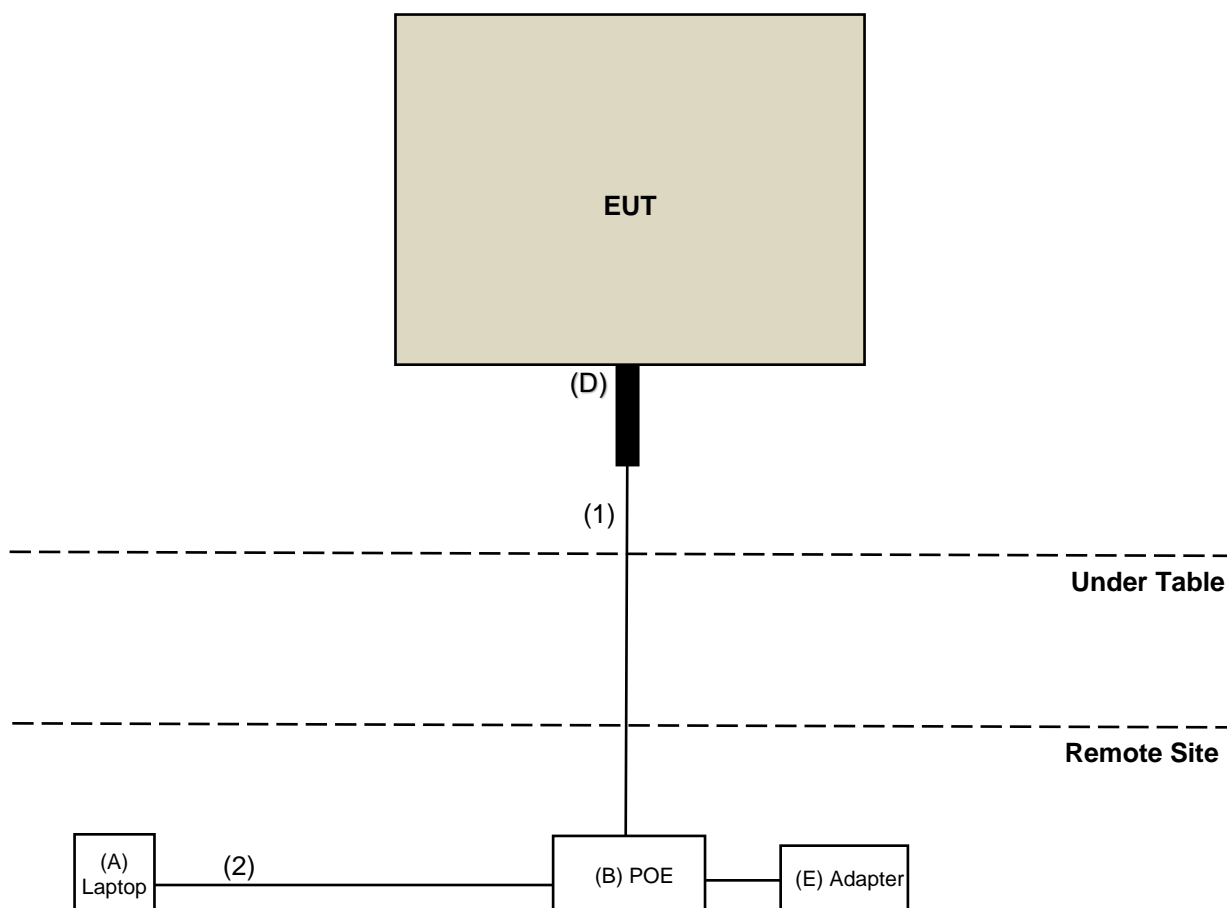
VHT40

### 3.6 Test Program Used and Operation Descriptions

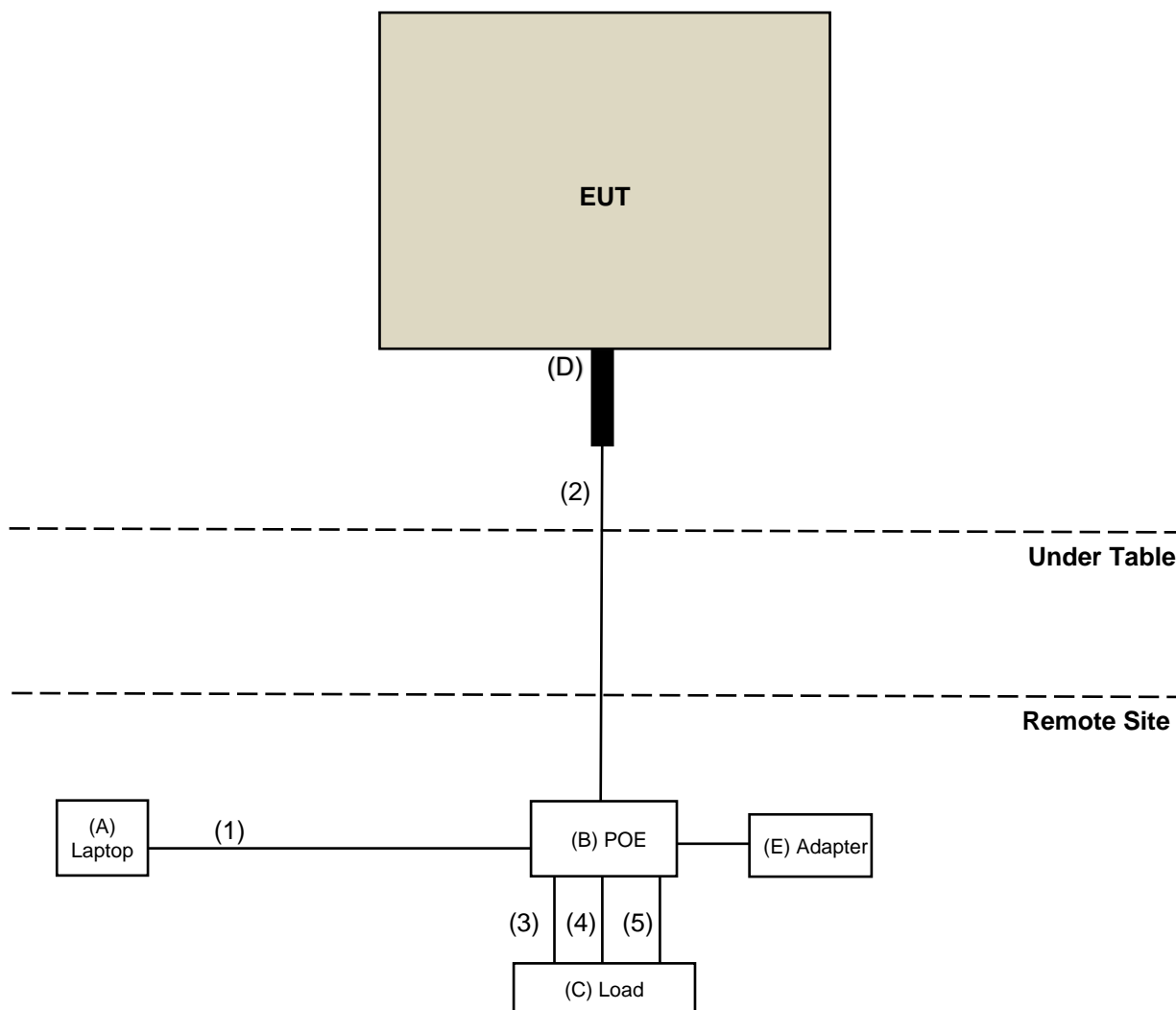
Controlling software QSPR Version 5.0-00197 has been activated to set the EUT under transmission condition continuously at specific channel frequency.

### 3.7 Connection Diagram of EUT and Peripheral Devices

For All test (Conducted Emissions test excluded)



For AC Power Conducted Emissions only



### 3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Laptop	Lenovo	L470	PF0XEHC5	N/A	Provided by Lab
B	POE	NETGEAR	N/A	N/A	N/A	Supplied by applicant
C	Load	N/A	N/A	N/A	N/A	Provided by Lab
D	LAN port extension	N/A	N/A	N/A	N/A	Supplied by applicant
E	Adapter	N/A	N/A	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	RJ-45 Cable	1	6.0	N	0	Provided by Lab
2	RJ-45 Cable	1	1.5	N	0	Provided by Lab
3	RJ-45 Cable	1	1.5	N	0	Provided by Lab
4	RJ-45 Cable	1	1.5	N	0	Provided by Lab
5	RJ-45 Cable	1	1.5	N	0	Provided by Lab



## 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
USB Wideband Power Sensor Keysight	U2021XA	MY55050005/MY55190004/MY55190007/MY55210005	2022/7/13	2023/7/12

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2023/5/13

### 4.2 Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Signal & Spectrum Analyzer R&S	FSV3044	101105	2023/2/22	2024/2/21
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2023/5/13

### 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
EMI Test Receiver R&S	ESCI	100613	2022/12/5	2023/12/4
LISN R&S	ENV216	101826	2023/3/23	2024/3/22
	ESH3-Z5	100311	2022/9/12	2023/9/11
RF Coaxial Cable Woken	5D-FB	Cable-cond1-01	2023/1/7	2024/1/6
Software BVADT	BVADT_Cond_ V7.3.7.4	N/A	N/A	N/A
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: 2023/5/9

#### 4.6 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn BV ADT	AT100	AT93021705	N/A	N/A
Bi_Log Antenna Schwarbeck	VULB 9168	9168-160	2022/10/20	2023/10/19
Loop Antenna Electro-Metrics	EM-6879	269	2022/9/19	2023/9/18
Loop Antenna TESEQ	HLA 6121	45745	2022/7/27	2023/7/26
MXE EMI Receiver Keysight	N9038A	MY55420137	2023/5/3	2024/5/2
Preamplifier Agilent	8447D	2944A10638	2023/5/7	2024/5/6
Preamplifier EMCI	EMC001340	980201	2022/9/23	2023/9/22
RF Coaxial Cable EMCI	5D-NM-BM	140903+140902	2023/1/7	2024/1/6
RF Coaxial Cable Woken	8D-FB	Cable-CH9-01	2023/5/7	2024/5/6
Signal & Spectrum Analyzer R&S	FSW43	101867	2022/12/30	2023/12/29
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 4.
2. Tested Date: 2023/5/10

#### 4.7 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn BV ADT	AT100	AT93021705	N/A	N/A
Boresight antenna tower fixture BV	BAF-02	5	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-1169	2022/11/13	2023/11/12
	BBHA 9170	9170-480	2022/11/13	2023/11/12
		BBHA9170243	2022/11/13	2023/11/12
MXE EMI Receiver Keysight	N9038A	MY55420137	2022/4/27 2023/5/3	2023/4/26 2024/5/2
Notch Filter Micro-Tronics	BRM17690	004	2023/1/11	2024/1/10
	BRM50716	060	2023/1/11	2024/1/10
Preamplifier Agilent	8449B	3008A02367	2023/2/15	2024/2/14
Preamplifier EMCI	EMC 184045	980116	2022/10/1	2023/9/30
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	2022/7/9	2023/7/8
	EMC102-KM-KM-3000	150929	2022/7/9	2023/7/8
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	2023/1/7	2024/1/6
RF Coaxial Cable HUBER+SUHNER&EMCI	SUCOFLEX 104& EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	2023/1/7	2024/1/6
Signal & Spectrum Analyzer R&S	FSW43	101867	2022/12/30	2023/12/29
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 4.
2. Tested Date: 2023/4/20 ~ 2023/5/6

## 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  $\geq 40$  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

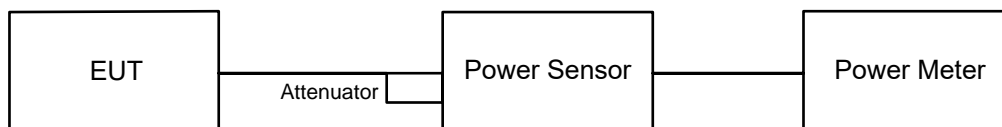
Notes:

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



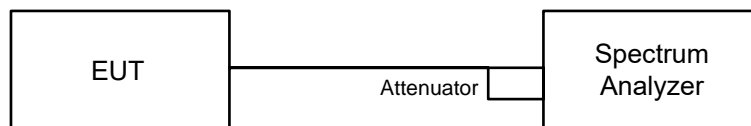
#### 6.1.2 Test Procedure

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

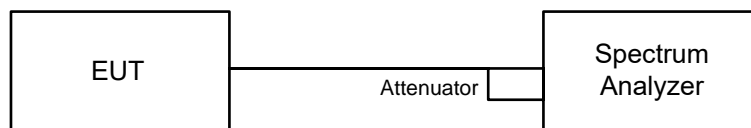


#### 6.2.2 Test Procedure

- 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

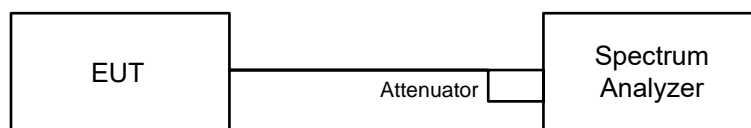


### 6.3.2 Test Procedure

- 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

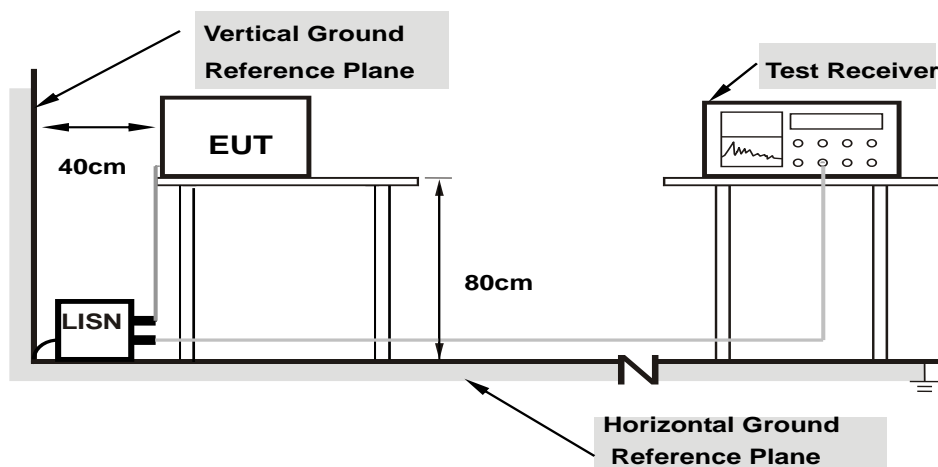
- Set the RBW = 100 kHz.
- Set the VBW  $\geq 300$  kHz.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

#### MEASUREMENT PROCEDURE OOB

- Set RBW = 100 kHz.
- Set VBW  $\geq 300$  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.

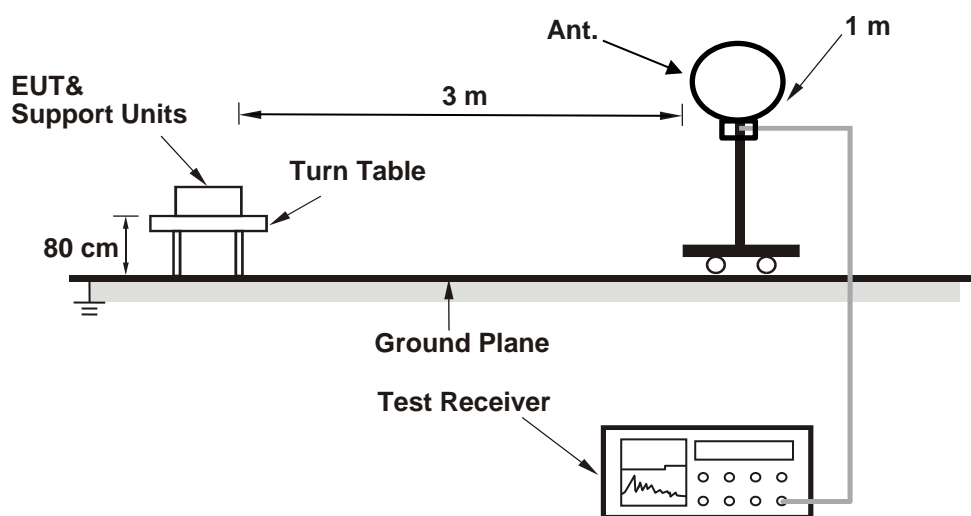
Note: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz-30 MHz.



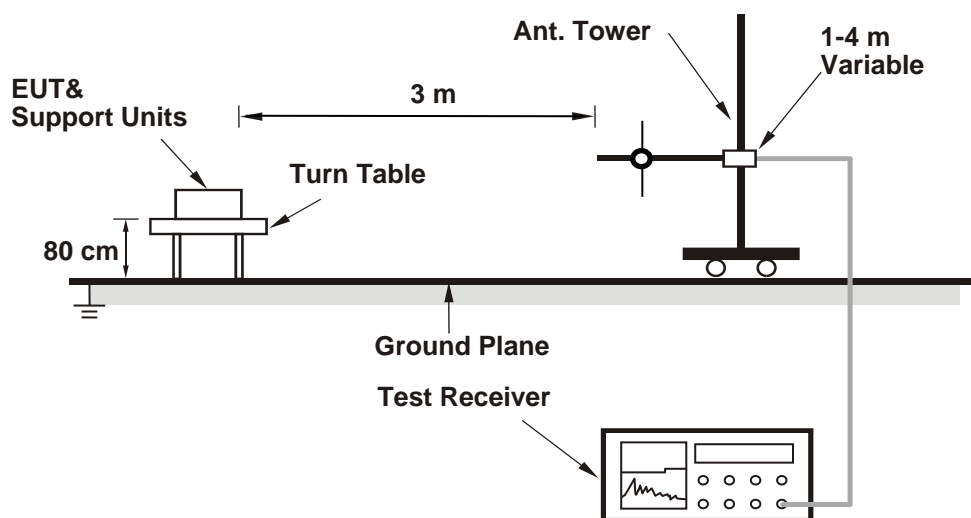
## 6.6 Unwanted Emissions below 1 GHz

### 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

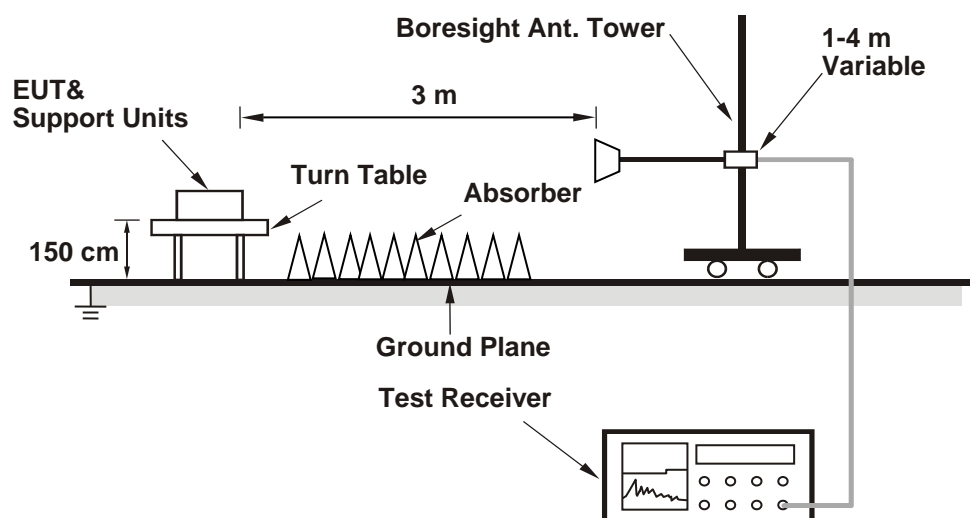
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the 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:	54 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Matthew Yang
--------------	--------	---------------------------	--------------	------------	--------------

#### Mode A

#### 802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	22.55	22.36	22.24	21.91	<b>674.807</b>	<b>28.29</b>	28.3	Pass
6	2437	22.52	22.11	21.99	21.68	646.56	28.11	28.3	Pass
11	2462	22.61	21.94	21.95	21.93	651.335	28.14	28.3	Pass

#### Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 7.7 dBi > 6 dBi, so the output power limit shall be reduced to  $30 - (7.7 - 6) = 28.3$  dBm.

#### 802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	20.11	19.96	20.05	20.04	403.732	26.06	28.3	Pass
6	2437	22.22	22.05	22.11	21.94	645.919	28.10	28.3	Pass
11	2462	19.10	18.57	18.87	18.56	302.098	24.80	28.3	Pass

#### Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 7.7 dBi > 6 dBi, so the output power limit shall be reduced to  $30 - (7.7 - 6) = 28.3$  dBm.

#### 802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	17.78	17.71	17.52	17.44	230.955	23.64	28.3	Pass
6	2437	22.48	22.07	22.02	22.03	656.884	28.17	28.3	Pass
11	2462	16.64	16.43	16.51	16.35	178.009	22.50	28.3	Pass

#### Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 7.7 dBi > 6 dBi, so the output power limit shall be reduced to  $30 - (7.7 - 6) = 28.3$  dBm.

### 802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	16.92	16.64	16.34	16.52	183.263	22.63	28.3	Pass
6	2437	17.42	17.15	17.10	17.03	208.84	23.20	28.3	Pass
9	2452	15.21	15.01	14.64	14.88	124.753	20.96	28.3	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 7.7 dBi > 6 dBi, so the output power limit shall be reduced to  $30 - (7.7 - 6) = 28.3$  dBm.

### 802.11ax (HE20) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	16.81	16.74	16.55	16.40	184.017	22.65	22.99	Pass
6	2437	16.99	16.60	16.54	16.57	186.188	22.70	22.99	Pass
11	2462	16.64	16.43	16.51	16.35	178.009	22.50	22.99	Pass

Notes:

1. Directional gain =  $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20} + 10^{\text{Chain2}/20} + 10^{\text{Chain3}/20})^2 / 4]$
2. The directional gain is 13.01 dBi > 6 dBi, so the output power limit shall be reduced to  $30 - (13.01 - 6) = 22.99$  dBm.

### 802.11ax (HE40) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	16.92	16.64	16.34	16.52	183.263	22.63	22.99	Pass
6	2437	16.90	16.68	16.65	16.58	187.273	22.72	22.99	Pass
9	2452	15.21	15.01	14.64	14.88	124.753	20.96	22.99	Pass

Notes:

1. Directional gain =  $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20} + 10^{\text{Chain2}/20} + 10^{\text{Chain3}/20})^2 / 4]$
2. The directional gain is 13.01 dBi > 6 dBi, so the output power limit shall be reduced to  $30 - (13.01 - 6) = 22.99$  dBm.

Input Power:	54 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Matthew Yang
--------------	--------	---------------------------	--------------	------------	--------------

**Mode B**
**802.11b**

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	12.41	12.47	35.078	15.45	30	Pass
6	2437	11.26	11.28	26.794	14.28	30	Pass
11	2462	10.81	10.93	24.438	13.88	30	Pass

**Notes:**

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 5.1 dBi < 6 dBi, so the output power limit shall not be reduced.

**802.11g**

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	17.36	17.42	109.658	20.40	30	Pass
6	2437	21.48	21.51	282.184	24.51	30	Pass
11	2462	16.76	16.83	95.619	19.81	30	Pass

**Notes:**

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 5.1 dBi < 6 dBi, so the output power limit shall not be reduced.

**VHT20**

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	16.96	17.02	100.009	20.00	30	Pass
6	2437	21.03	21.11	255.887	24.08	30	Pass
11	2462	15.97	16.04	79.716	19.02	30	Pass

**Notes:**

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 5.1 dBi < 6 dBi, so the output power limit shall not be reduced.

**VHT40**

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
3	2422	16.24	16.13	83.093	19.20	30	Pass
6	2437	16.88	16.94	98.184	19.92	30	Pass
9	2452	15.47	15.52	70.882	18.51	30	Pass

**Notes:**

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 5.1 dBi < 6 dBi, so the output power limit shall not be reduced.

## 7.2 Power Spectral Density

Input Power:	54 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Matthew Yang
--------------	--------	---------------------------	--------------	------------	--------------

### Mode A

#### 802.11b

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)				Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3			
1	2412	-6.28	-6.34	-6.75	-6.68	-0.49	0.99	Pass
6	2437	-6.44	-6.63	-6.97	-6.74	-0.67	0.99	Pass
11	2462	-6.63	-6.73	-6.75	-6.49	-0.63	0.99	Pass

#### Notes:

- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain =  $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20} + 10^{\text{Chain2}/20} + 10^{\text{Chain3}/20})^2 / 4]$
- The directional gain is 13.01 dBi > 6 dBi, so the power density limit shall be reduced to  $8 - (13.01 - 6) = 0.99$  dBm/3kHz.

#### 802.11g

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)				Duty Factor (dB)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	-12.23	-12.33	-12.51	-12.54	0.17	-6.21	0.99	Pass
6	2437	-11.79	-11.67	-12.11	-11.27	0.17	-5.51	0.99	Pass
11	2462	-13.67	-13.35	-13.14	-12.98	0.17	-7.08	0.99	Pass

#### Notes:

- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain =  $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20} + 10^{\text{Chain2}/20} + 10^{\text{Chain3}/20})^2 / 4]$
- The directional gain is 13.01 dBi > 6 dBi, so the power density limit shall be reduced to  $8 - (13.01 - 6) = 0.99$  dBm/3kHz.

#### 802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)				Duty Factor (dB)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	-18.51	-18.23	-18.45	-18.54	0.26	-12.15	0.99	Pass
6	2437	-15.44	-15.47	-15.21	-15.46	0.26	-9.11	0.99	Pass
11	2462	-19.39	-19.31	-19.55	-19.02	0.26	-13.03	0.99	Pass

#### Notes:

- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain =  $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20} + 10^{\text{Chain2}/20} + 10^{\text{Chain3}/20})^2 / 4]$
- The directional gain is 13.01 dBi > 6 dBi, so the power density limit shall be reduced to  $8 - (13.01 - 6) = 0.99$  dBm/3kHz.

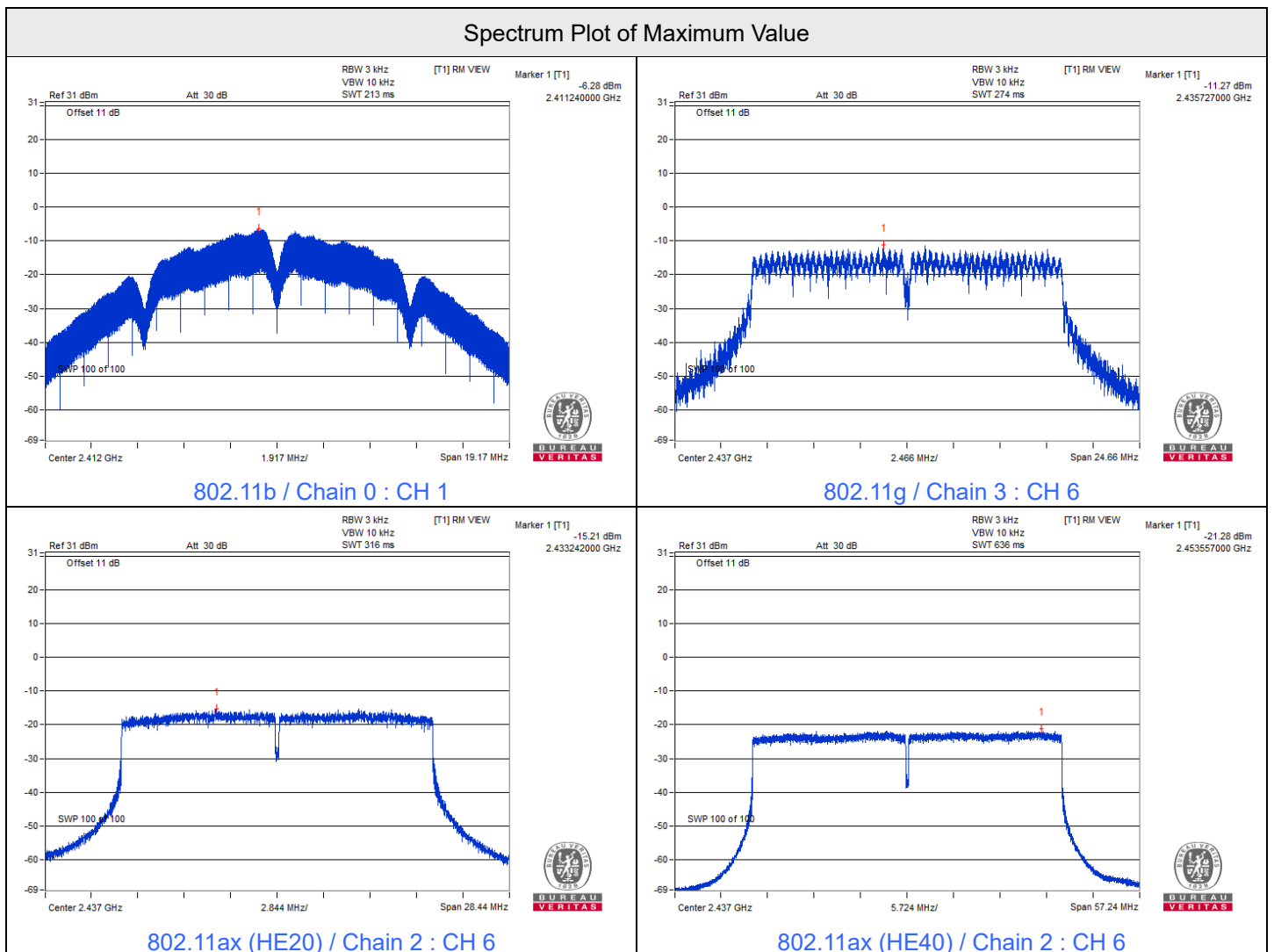


802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)				Duty Factor (dB)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	-21.90	-21.75	-21.58	-22.10	0.26	-15.55	0.99	Pass
6	2437	-21.79	-21.46	-21.28	-21.45	0.26	-15.21	0.99	Pass
9	2452	-23.74	-23.64	-23.24	-23.07	0.26	-17.13	0.99	Pass

Notes:

- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain =  $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20} + 10^{\text{Chain2}/20} + 10^{\text{Chain3}/20})^2 / 4]$
- The directional gain is 13.01 dBi > 6 dBi, so the power density limit shall be reduced to  $8 - (13.01 - 6) = 0.99$  dBm/3kHz.



Input Power:	54 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Matthew Yang
--------------	--------	---------------------------	--------------	------------	--------------

### Mode B

#### 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	-15.18	-15.41	0.21	-12.07	6.09	Pass
6	2437	-16.22	-16.47	0.21	-13.12	6.09	Pass
11	2462	-17.16	-17.07	0.21	-13.90	6.09	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 7.91 dBi > 6 dBi, so the power density limit shall be reduced to  $8-(7.91-6) = 6.09$  dBm/3kHz.

#### 802.11g

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)		Duty Factor (dB)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1				
1	2412	-14.66	-14.98	0.34	-11.47	6.09	Pass
6	2437	-9.47	-9.54	0.34	-6.16	6.09	Pass
11	2462	-15.31	-15.52	0.34	-12.07	6.09	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 7.91 dBi > 6 dBi, so the power density limit shall be reduced to  $8-(7.91-6) = 6.09$  dBm/3kHz.

#### VHT20

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	-16.59	-16.75	0.32	-13.34	6.09	Pass
6	2437	-12.34	-12.35	0.32	-9.01	6.09	Pass
11	2462	-17.36	-17.60	0.32	-14.15	6.09	Pass

#### Notes:

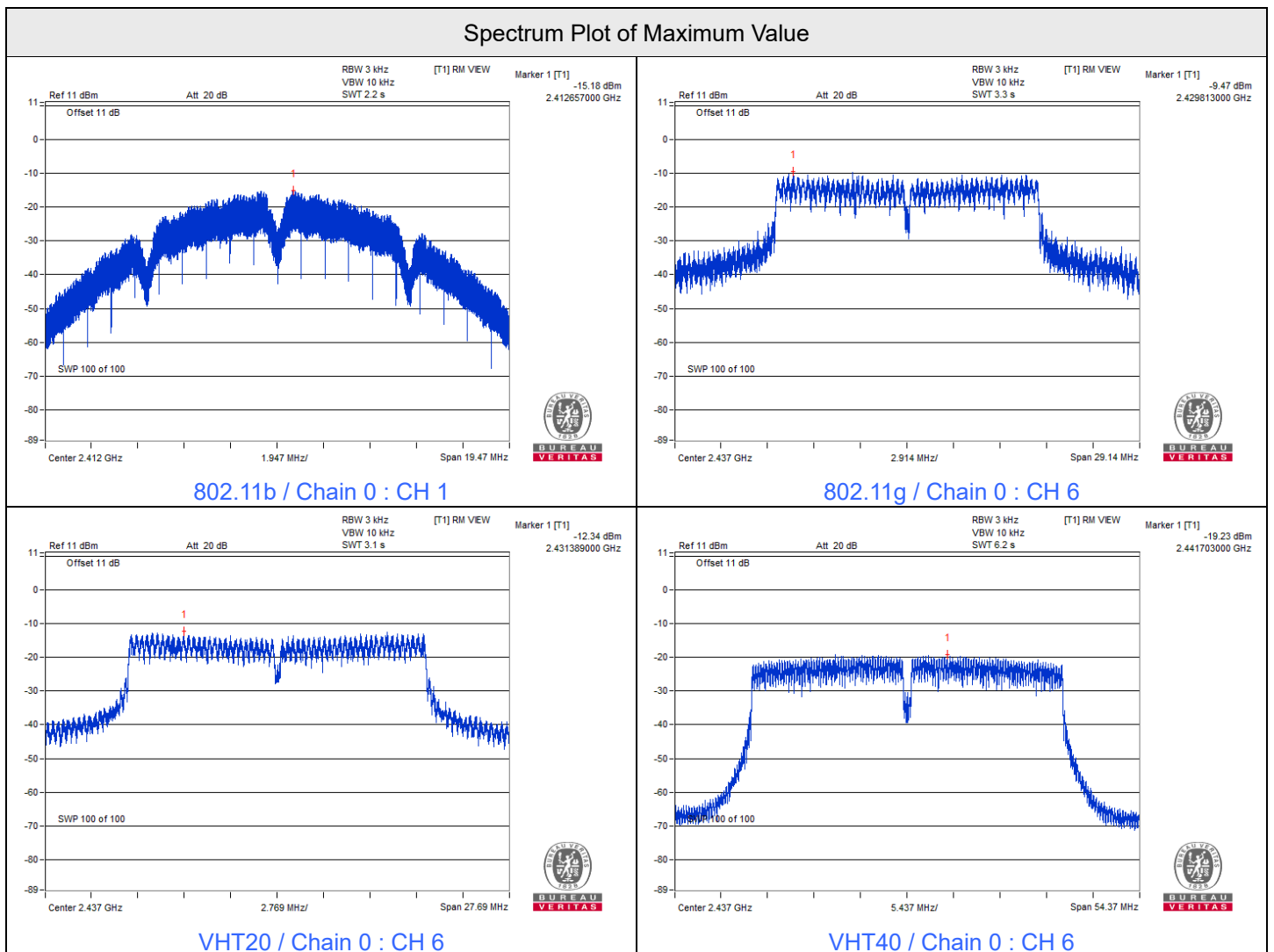
1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain =  $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
3. The directional gain is 7.91 dBi > 6 dBi, so the power density limit shall be reduced to  $8-(7.91-6) = 6.09$  dBm/3kHz.

VHT40

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	-20.27	-20.13	0.31	-16.88	6.09	Pass
6	2437	-19.23	-19.52	0.31	-16.05	6.09	Pass
9	2452	-20.85	-20.67	0.31	-17.44	6.09	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 7.91 dBi > 6 dBi, so the power density limit shall be reduced to  $8 - (7.91 - 6) = 6.09$  dBm/3kHz.



### 7.3 6 dB Bandwidth

Input Power:	54 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Matthew Yang
--------------	--------	---------------------------	--------------	------------	--------------

#### Mode A

##### 802.11b

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)				Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	8.06	8.05	7.12	8.05	0.5	Pass
6	2437	8.08	8.09	8.09	8.08	0.5	Pass
11	2462	7.59	8.09	8.09	7.60	0.5	Pass

##### 802.11g

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)				Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	16.09	16.00	16.11	16.35	0.5	Pass
6	2437	16.35	16.36	16.40	16.40	0.5	Pass
11	2462	16.10	16.10	15.98	16.08	0.5	Pass

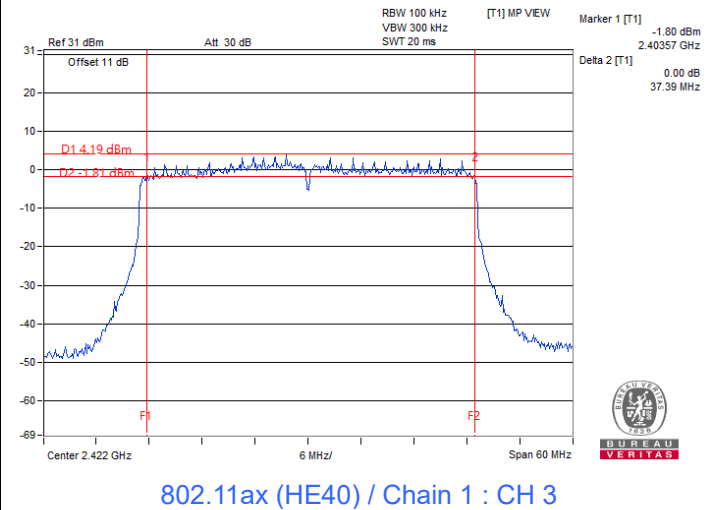
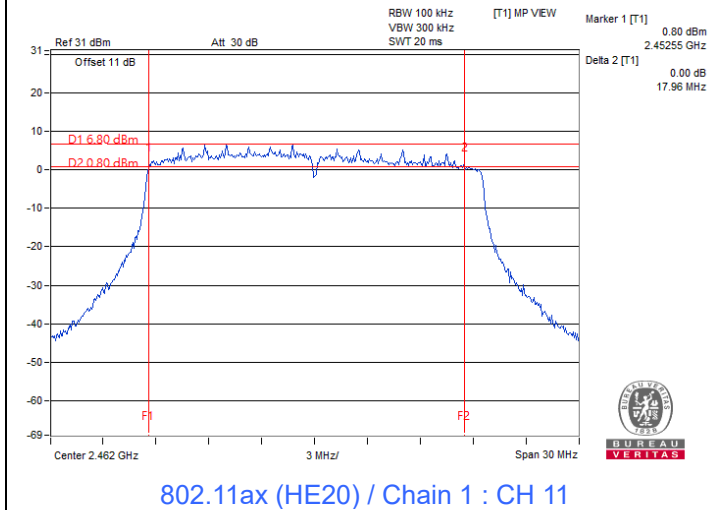
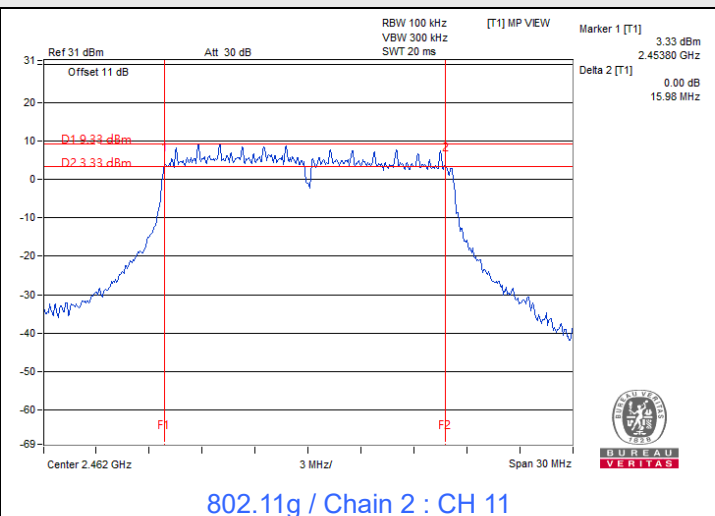
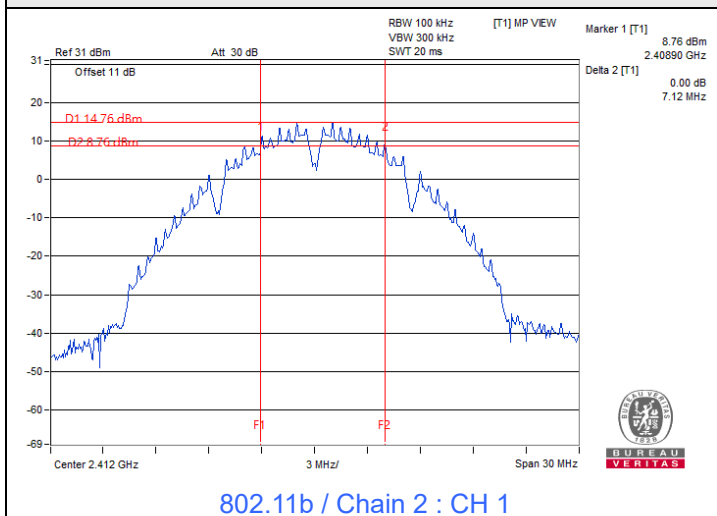
##### 802.11ax (HE20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)				Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	18.97	18.83	18.51	18.85	0.5	Pass
6	2437	19.01	19.03	18.93	18.93	0.5	Pass
11	2462	18.88	17.96	18.67	18.54	0.5	Pass

##### 802.11ax (HE40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)				Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
3	2422	37.62	37.39	37.75	38.11	0.5	Pass
6	2437	38.07	38.20	38.08	38.20	0.5	Pass
9	2452	37.47	37.97	37.40	37.69	0.5	Pass

### Spectrum Plot of Minimum Value



Input Power:	54 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Matthew Yang
--------------	--------	---------------------------	--------------	------------	--------------

**Mode B**
**802.11b**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	8.15	7.64	0.5	Pass
6	2437	8.12	8.12	0.5	Pass
11	2462	7.12	8.12	0.5	Pass

**802.11g**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	16.42	16.42	0.5	Pass
6	2437	16.38	16.41	0.5	Pass
11	2462	16.41	16.43	0.5	Pass

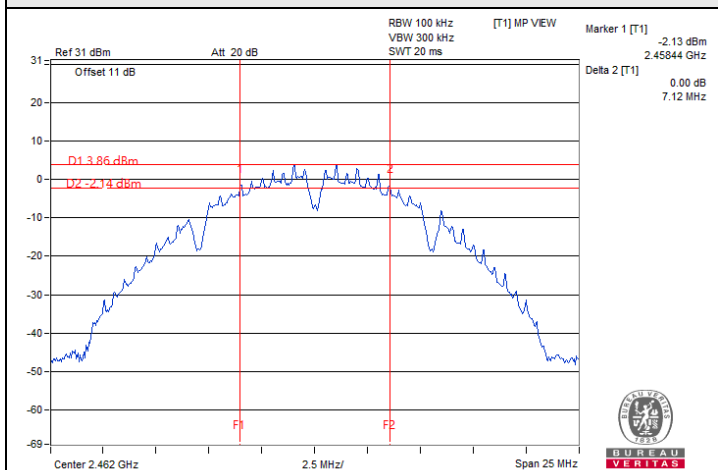
**VHT20**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	17.65	17.65	0.5	Pass
6	2437	17.66	17.65	0.5	Pass
11	2462	17.66	17.67	0.5	Pass

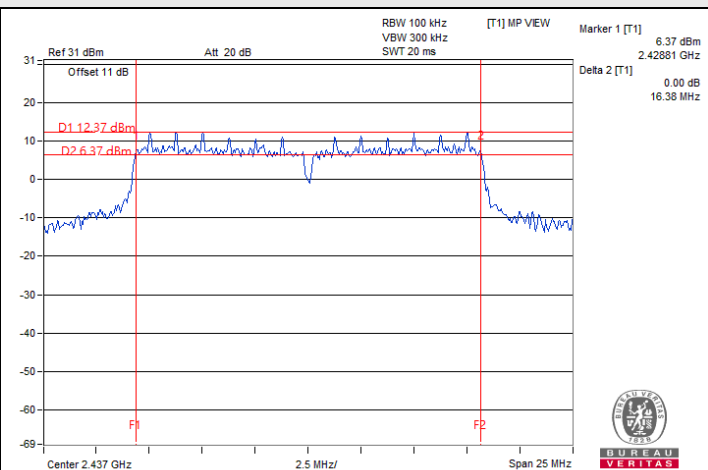
**VHT40**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
3	2422	35.73	35.33	0.5	Pass
6	2437	35.72	35.77	0.5	Pass
9	2452	35.78	35.49	0.5	Pass

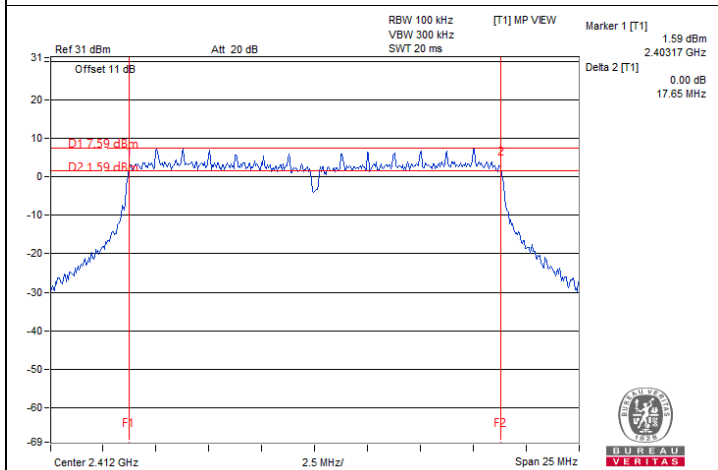
### Spectrum Plot of Minimum Value



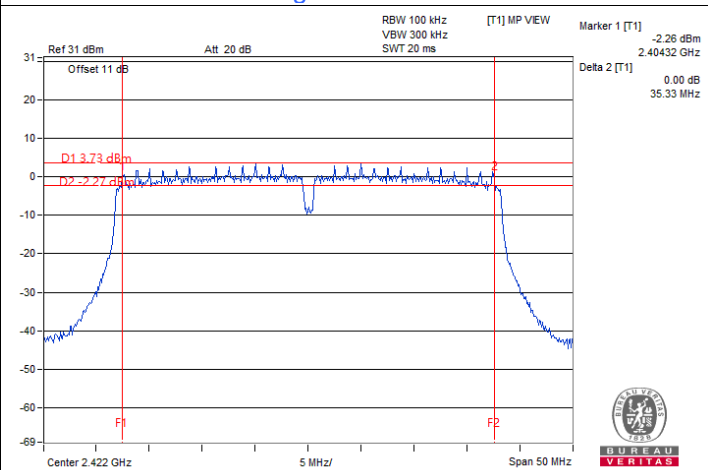
802.11b / Chain 0 : CH 11



802.11g / Chain 0 : CH 6



VHT20 / Chain 0 : CH 1



VHT40 / Chain 1 : CH 3

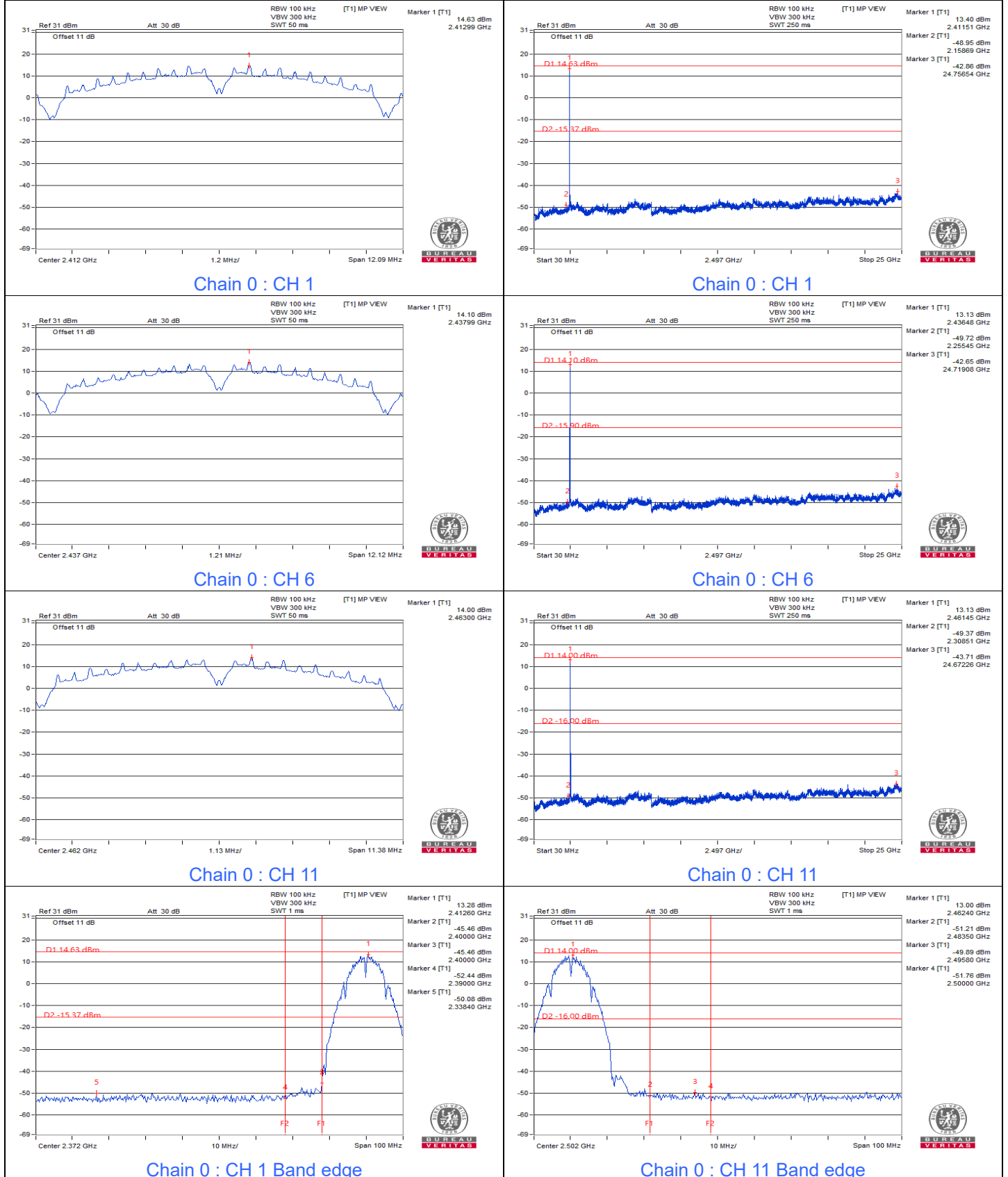


### 7.4 Conducted Out of Band Emissions

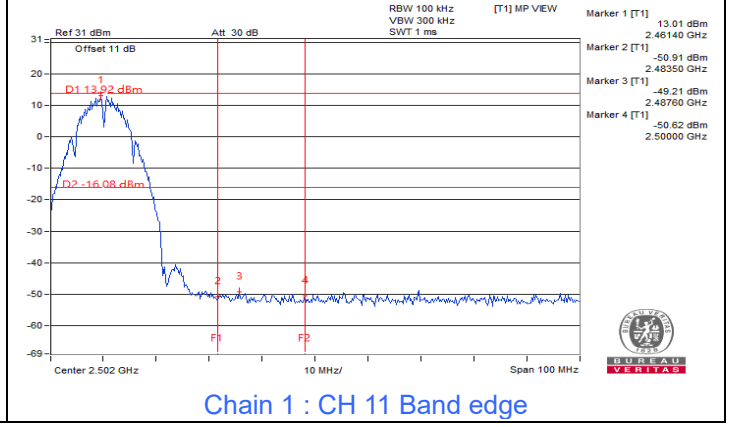
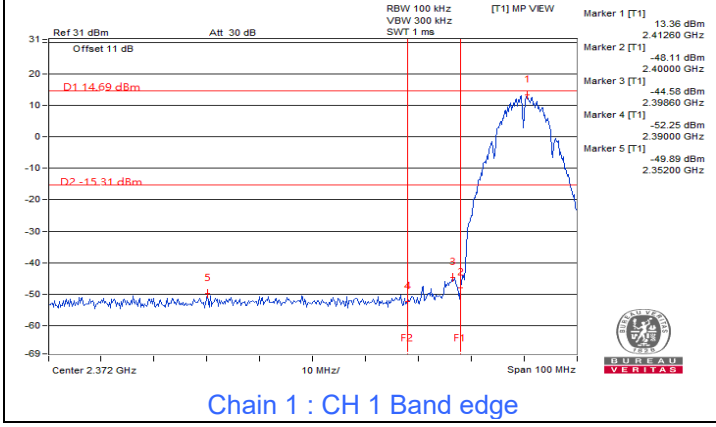
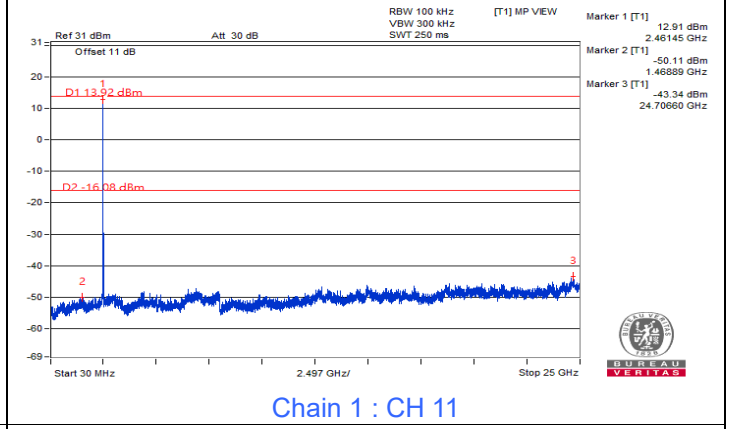
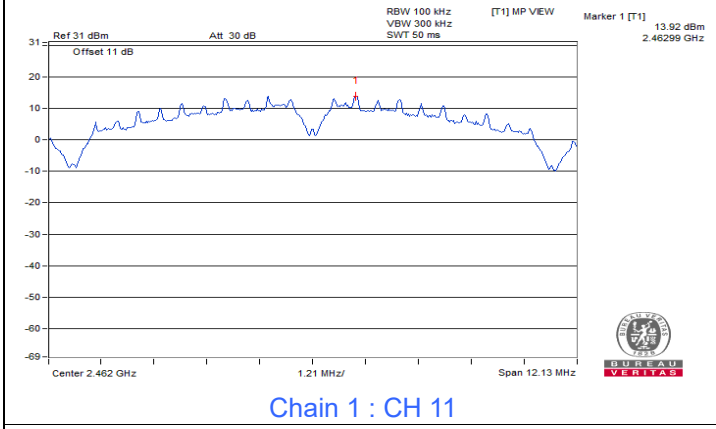
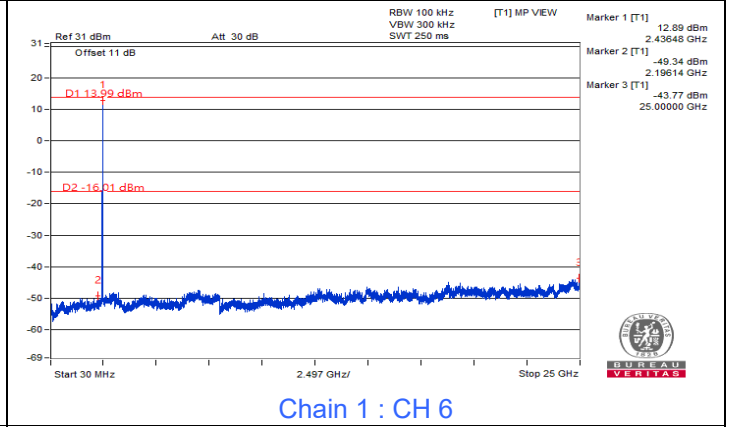
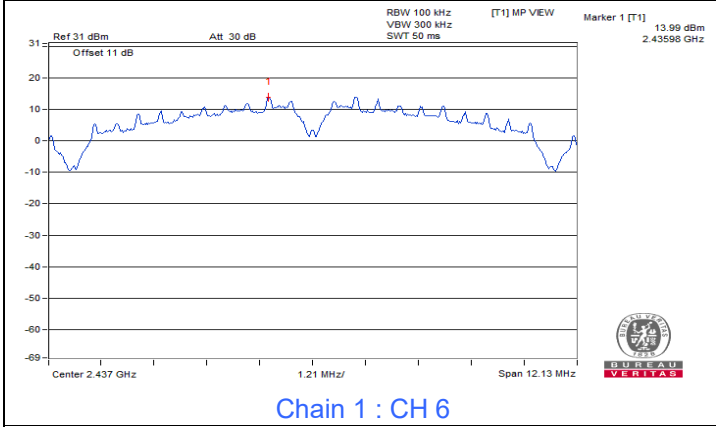
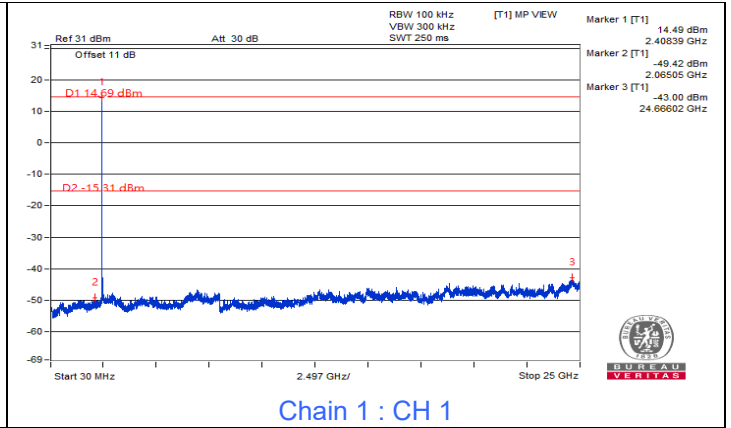
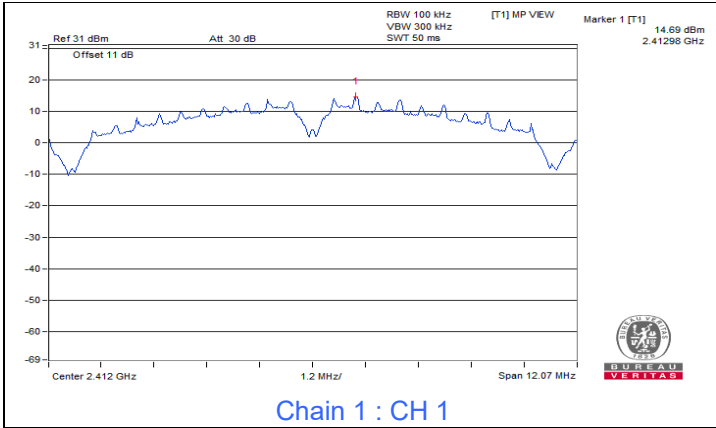
Input Power:	54 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Matthew Yang
--------------	--------	---------------------------	--------------	------------	--------------

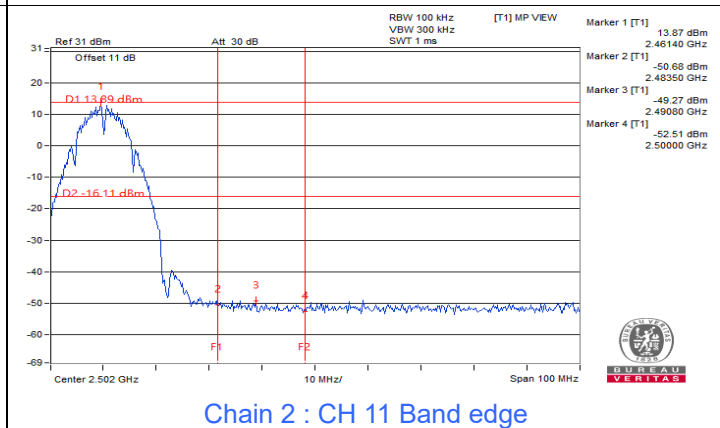
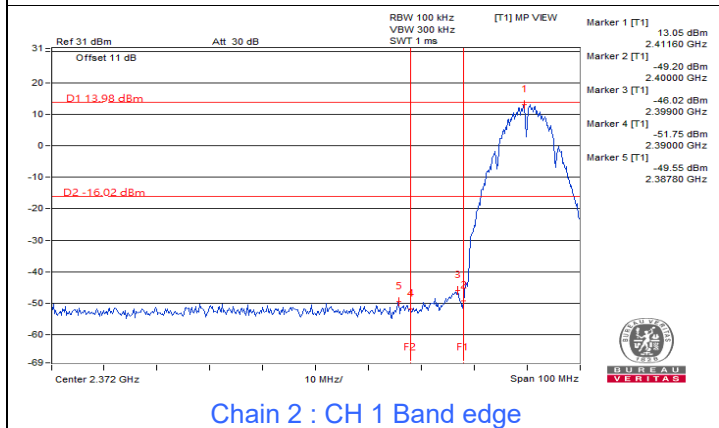
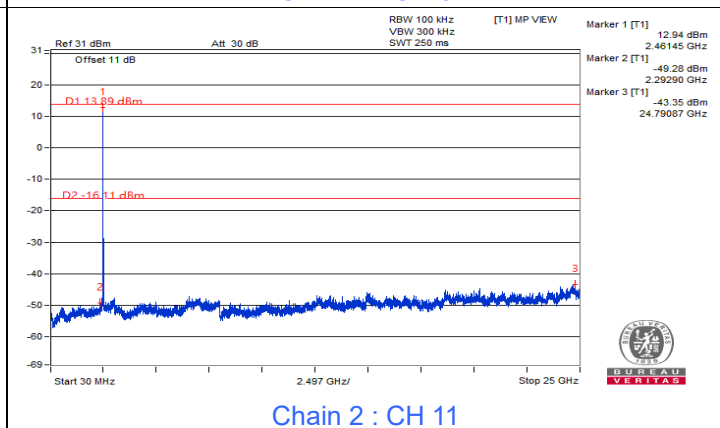
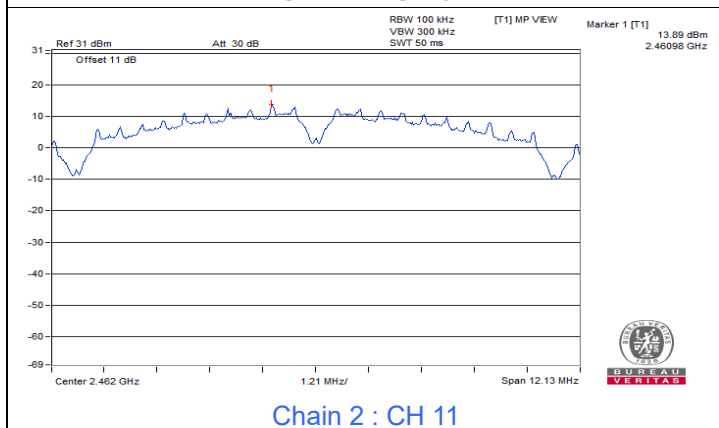
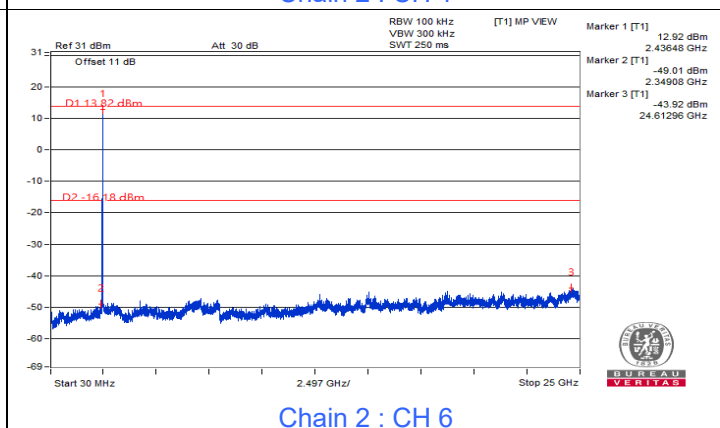
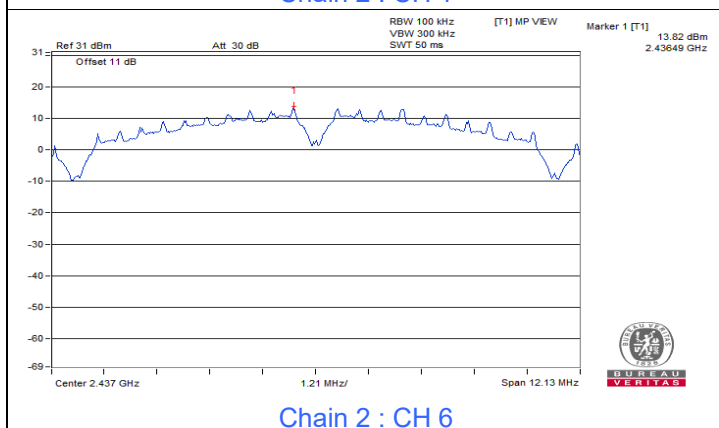
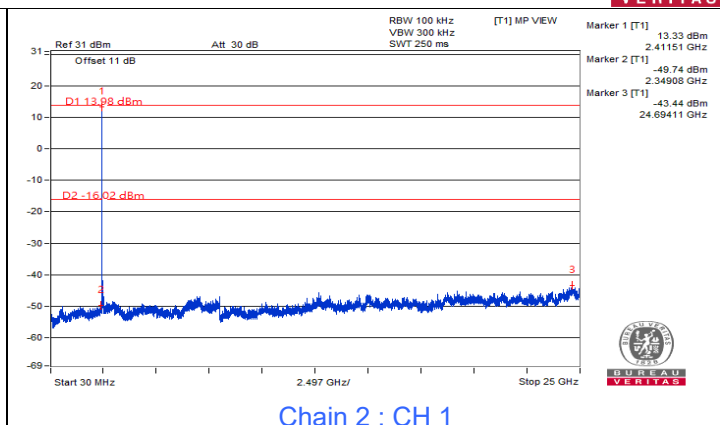
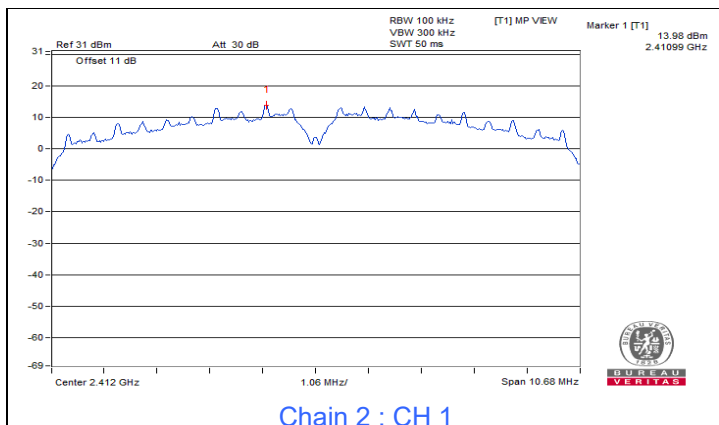
#### Mode A

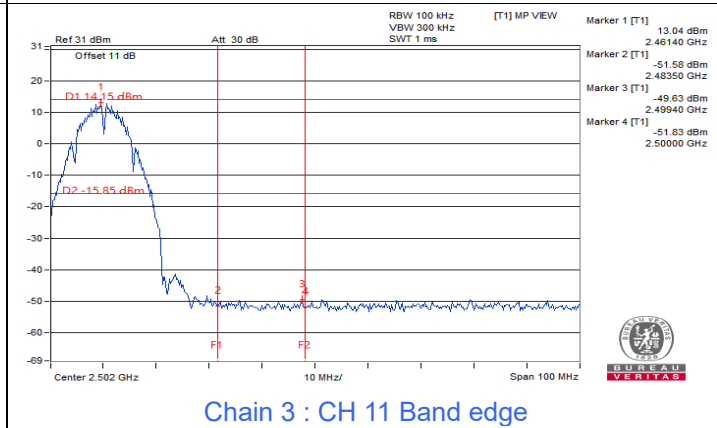
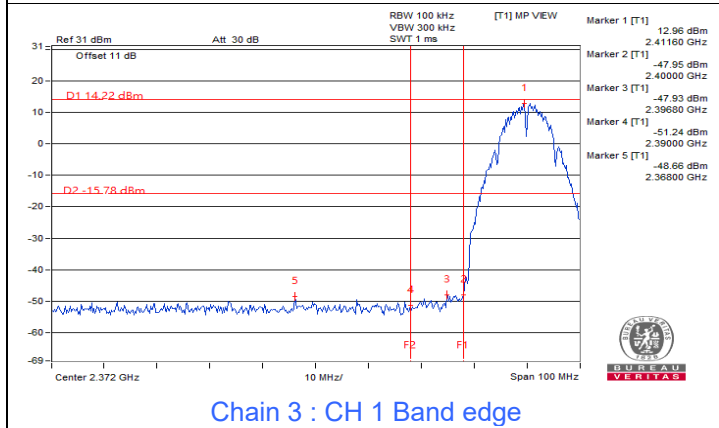
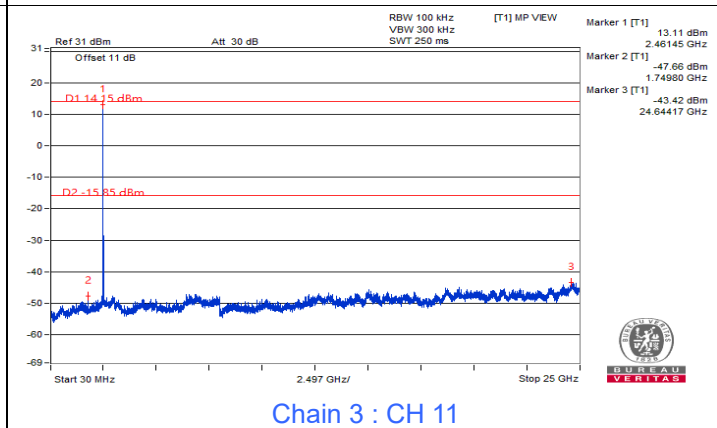
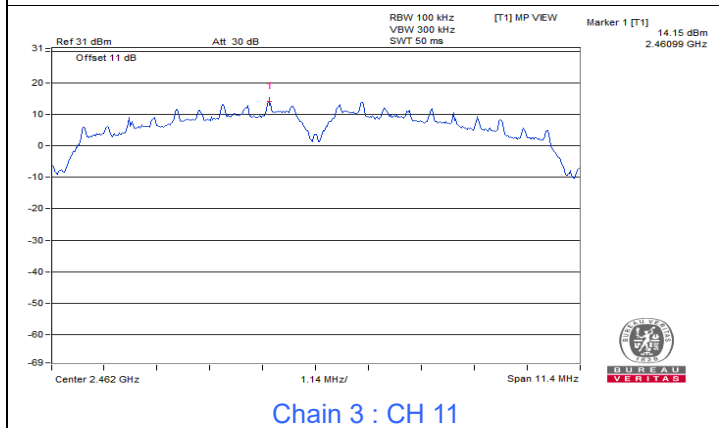
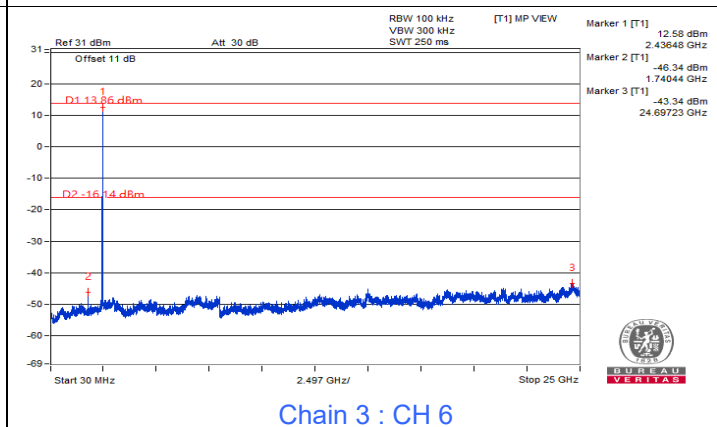
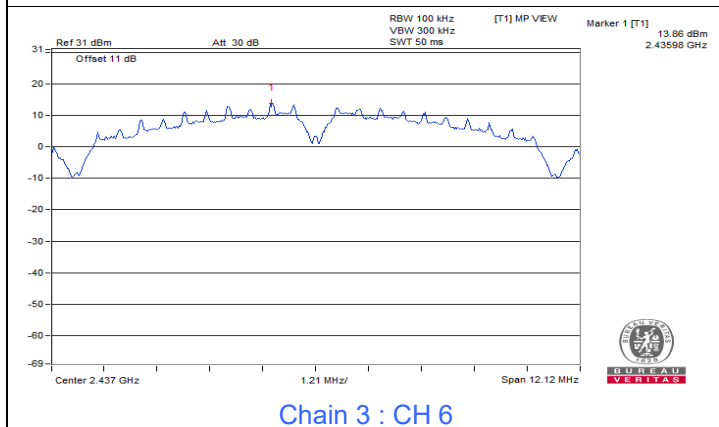
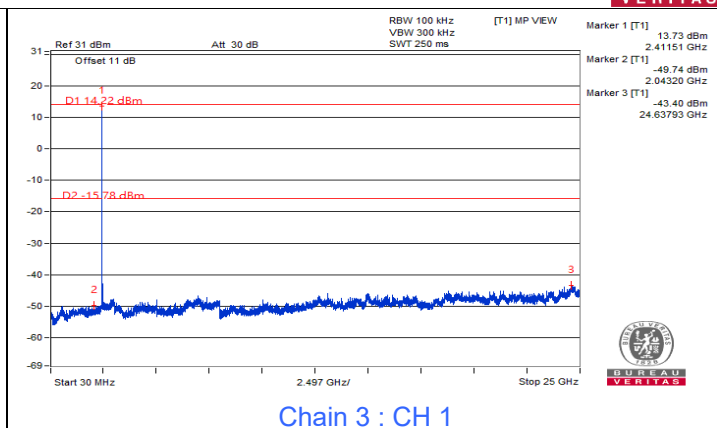
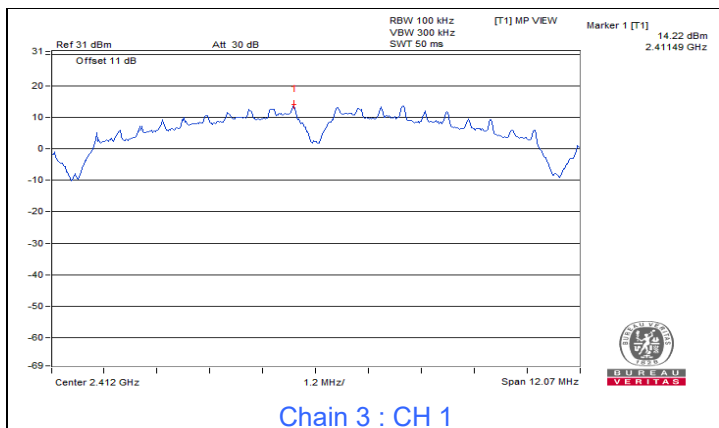
#### 802.11b





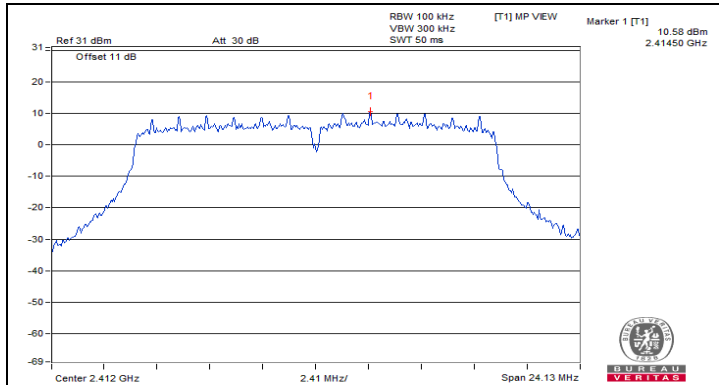




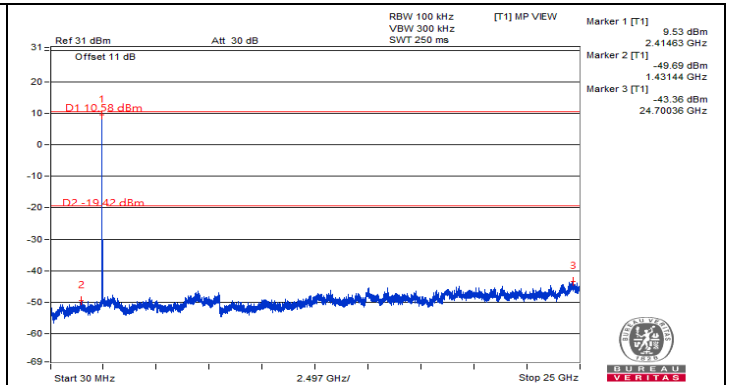




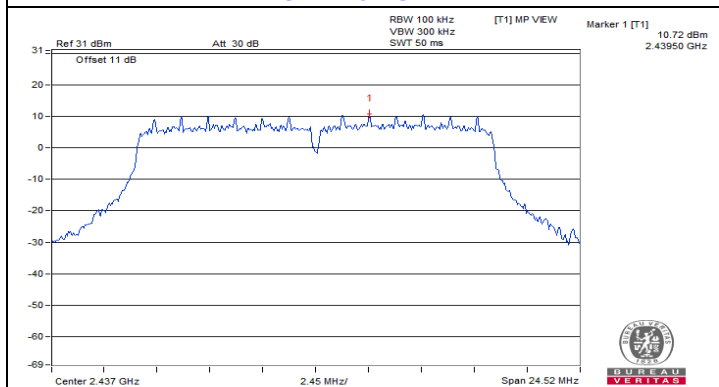
# 802.11g



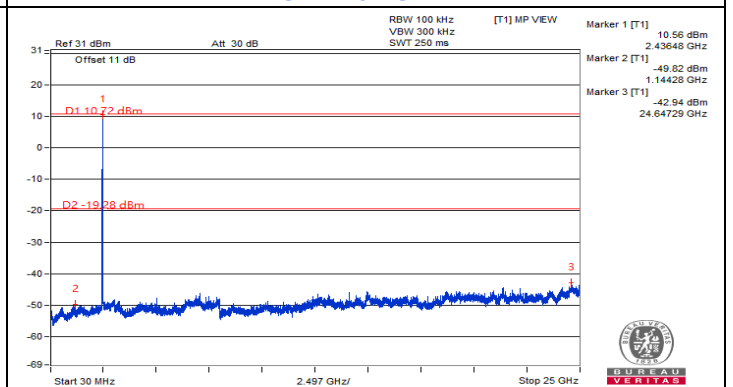
Chain 0 : CH 1



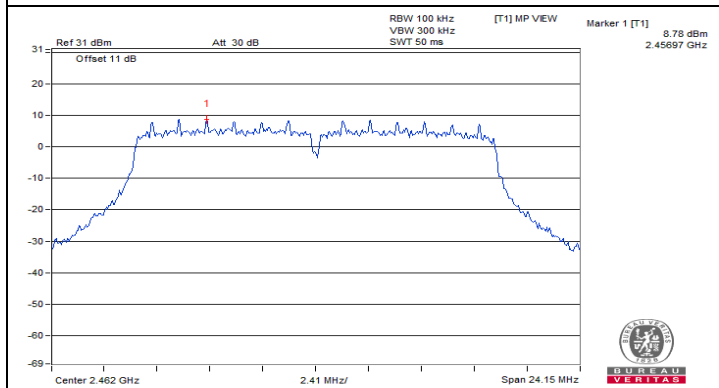
Chain 0 : CH 1



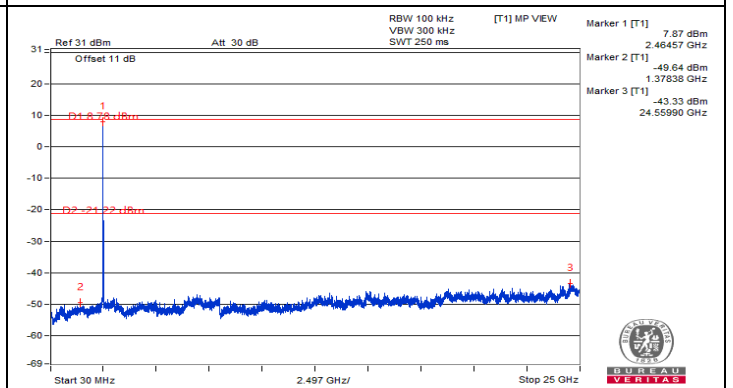
Chain 0 : CH 6



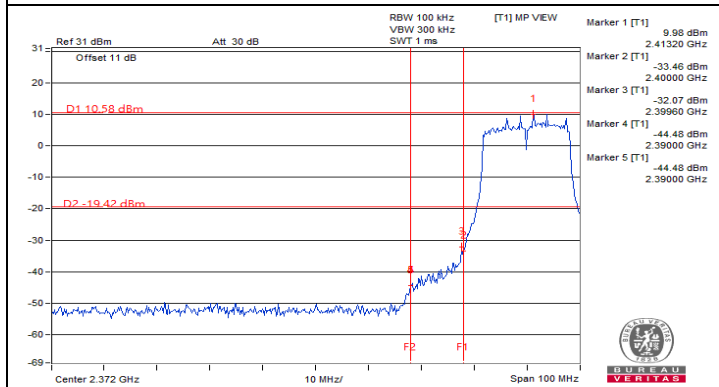
Chain 0 : CH 6



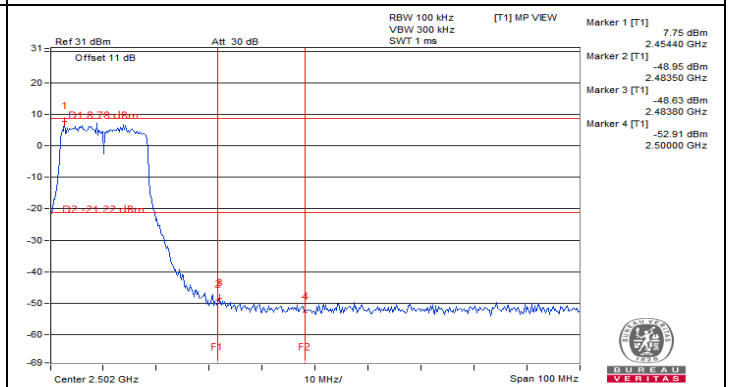
Chain 0 : CH 11



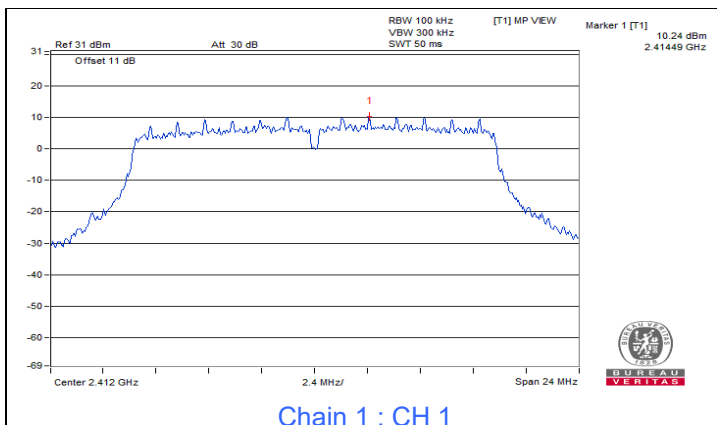
Chain 0 : CH 11



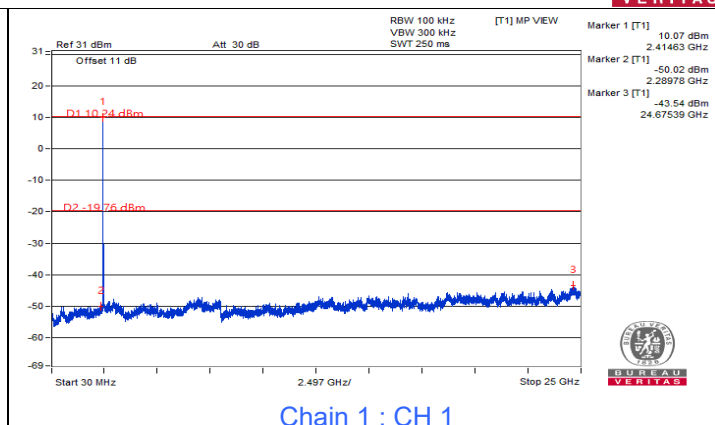
Chain 0 : CH 1 Band edge



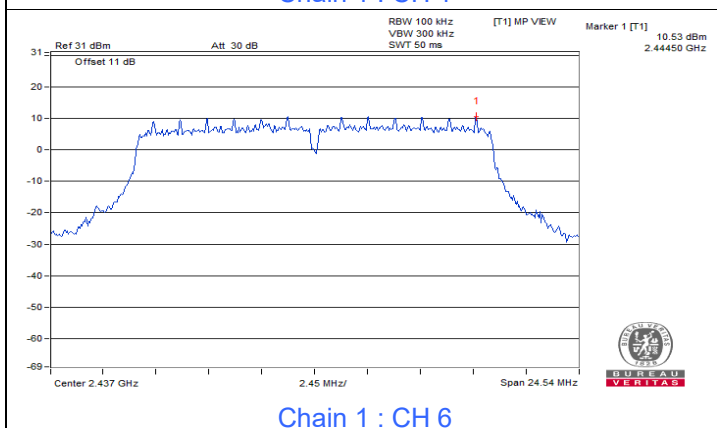
Chain 0 : CH 11 Band edge



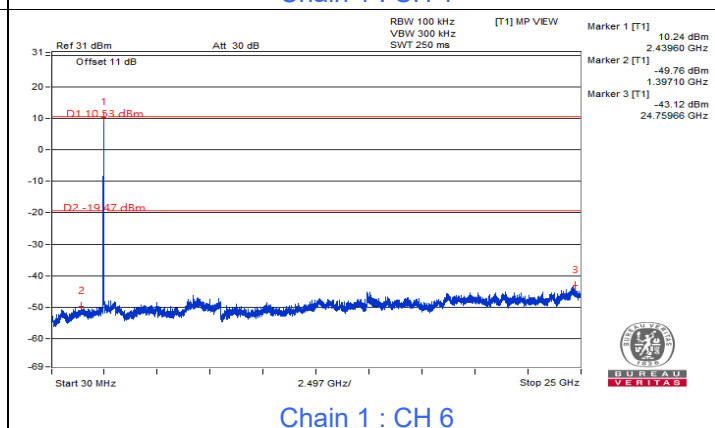
Chain 1 : CH 1



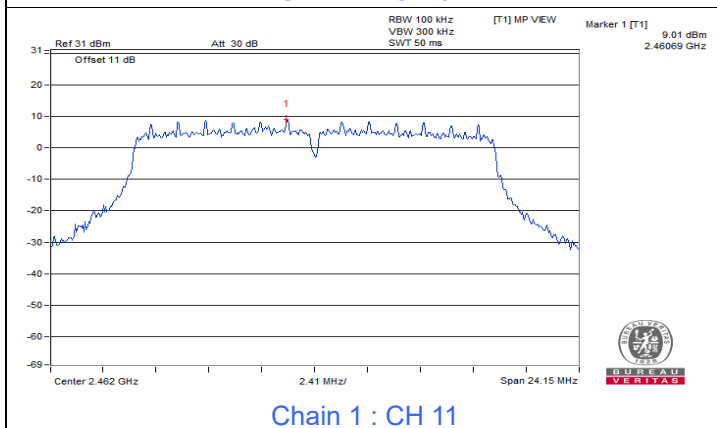
Chain 1 : CH 1



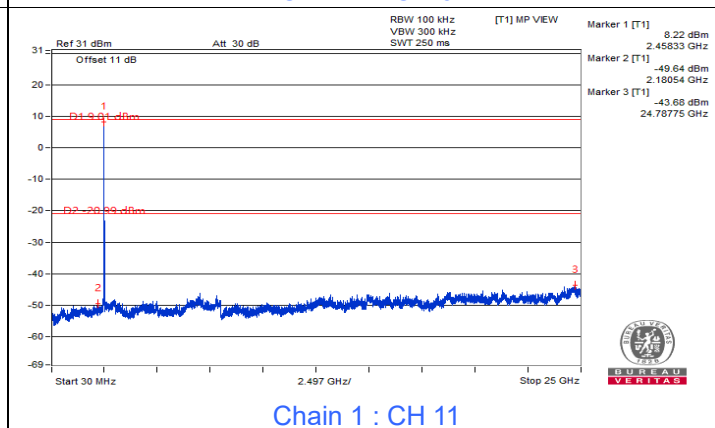
Chain 1 : CH 6



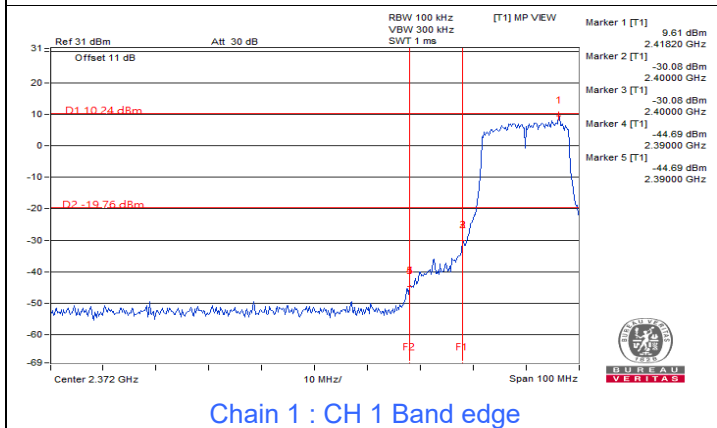
Chain 1 : CH 6



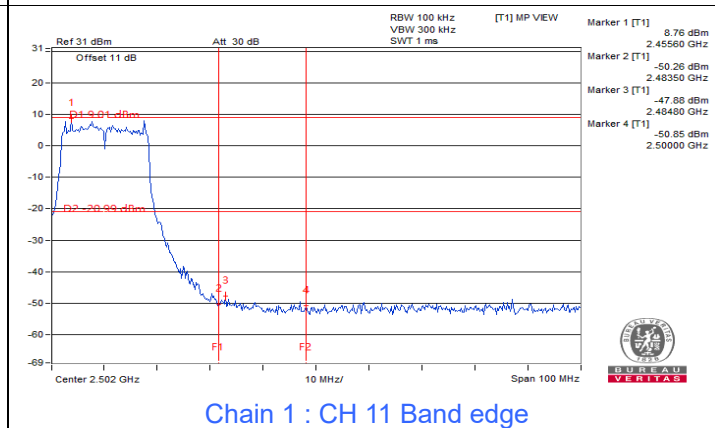
Chain 1 : CH 11



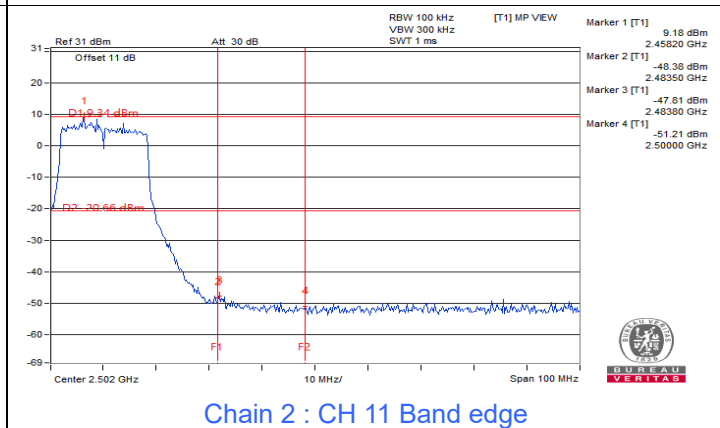
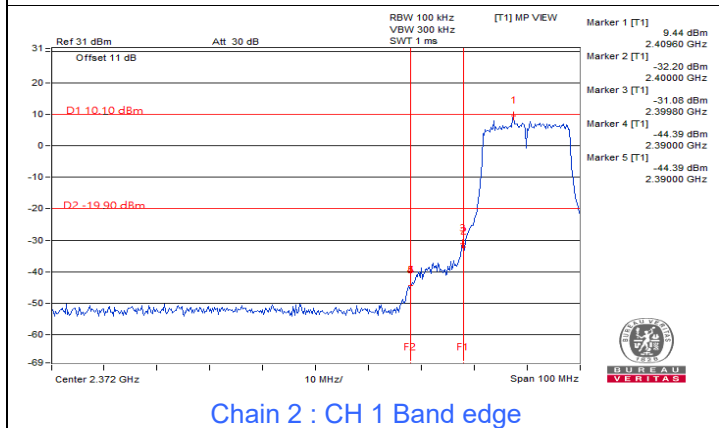
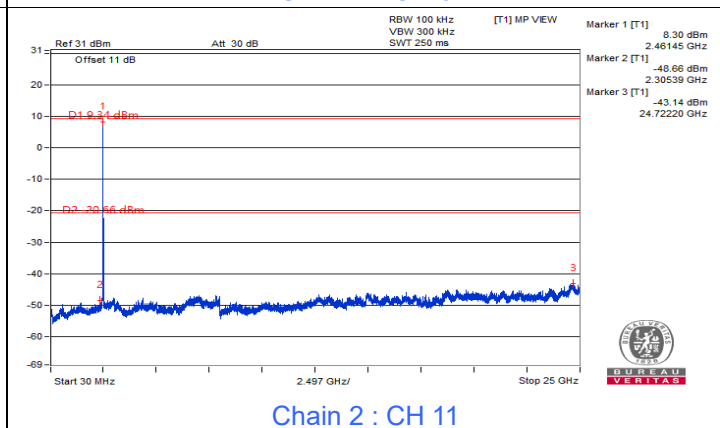
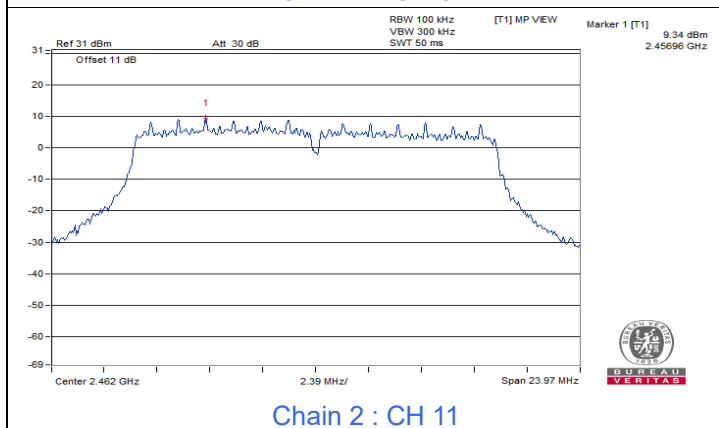
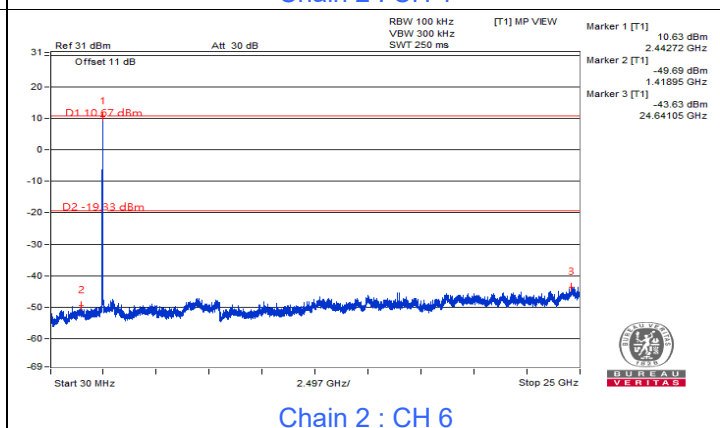
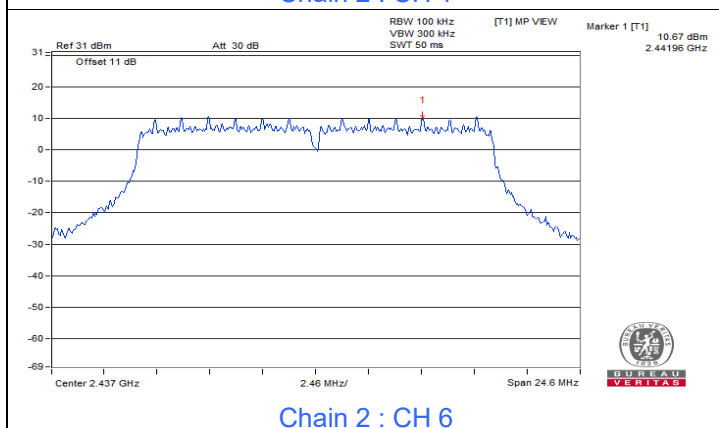
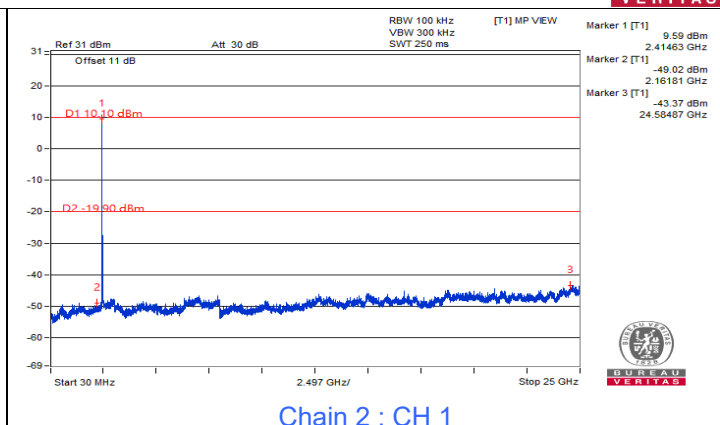
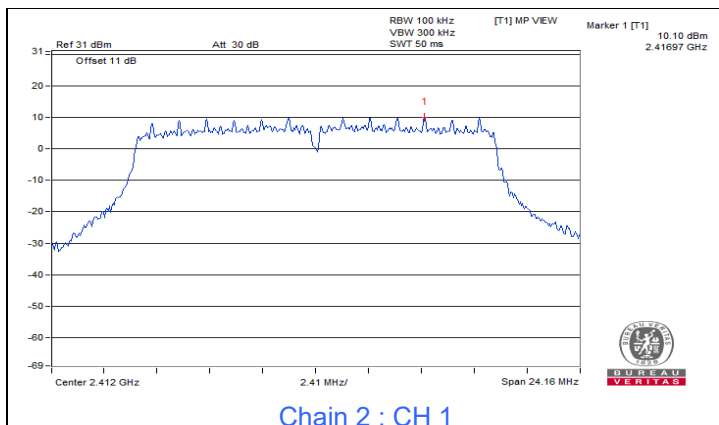
Chain 1 : CH 11

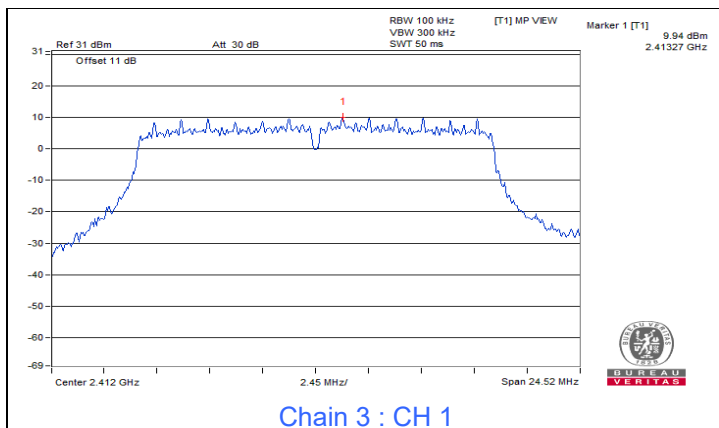


Chain 1 : CH 1 Band edge

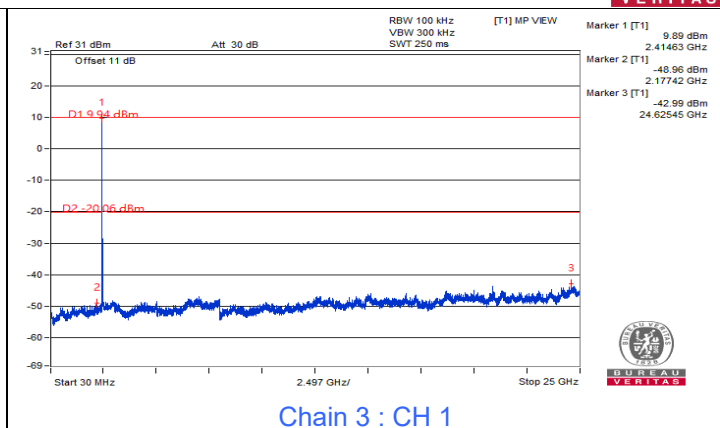


Chain 1 : CH 11 Band edge

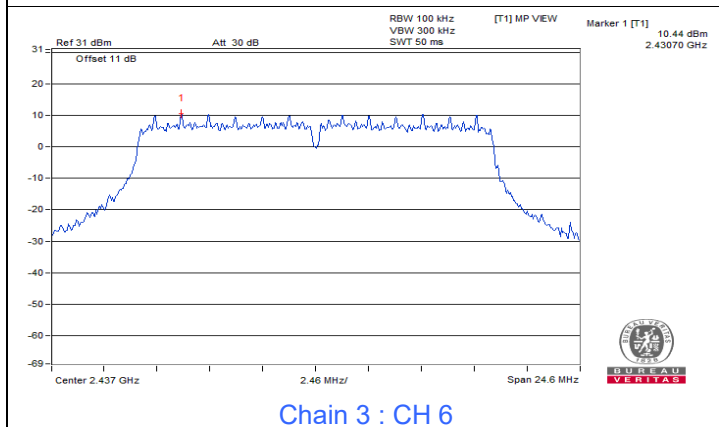




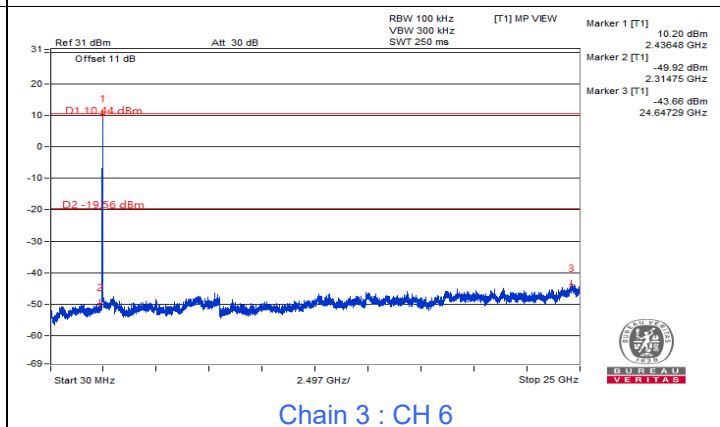
Chain 3 : CH 1



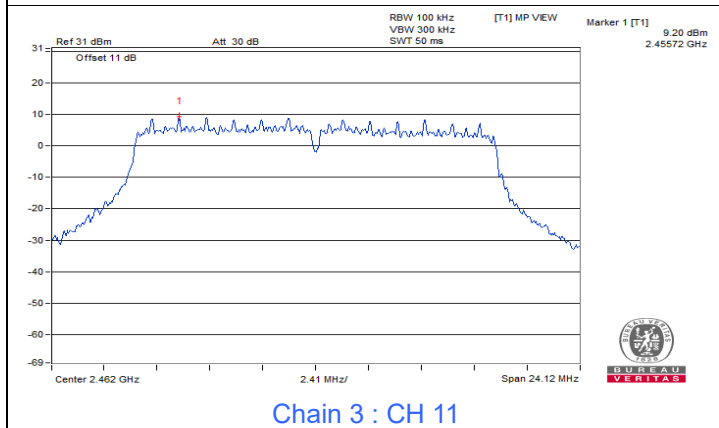
Chain 3 : CH 1



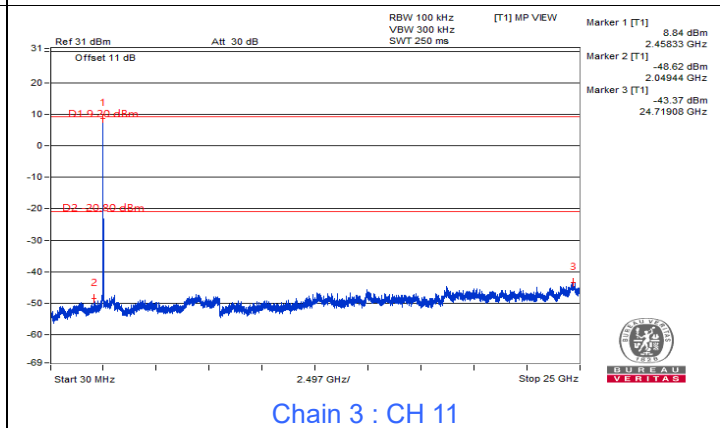
Chain 3 : CH 6



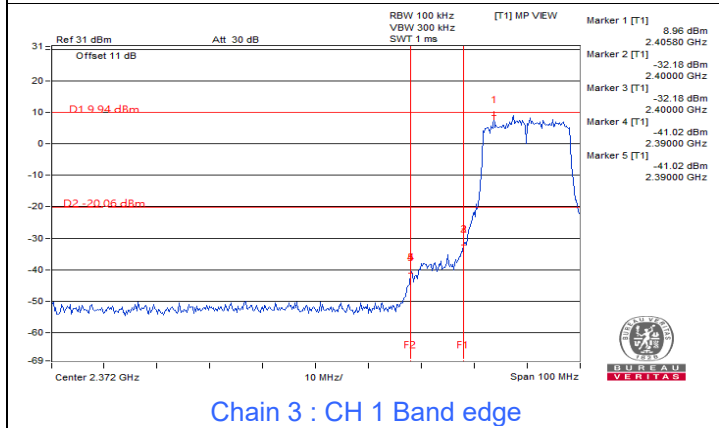
Chain 3 : CH 6



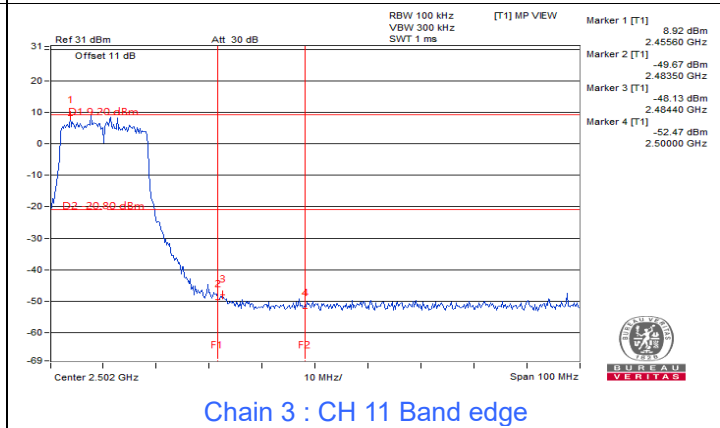
Chain 3 : CH 11



Chain 3 : CH 11



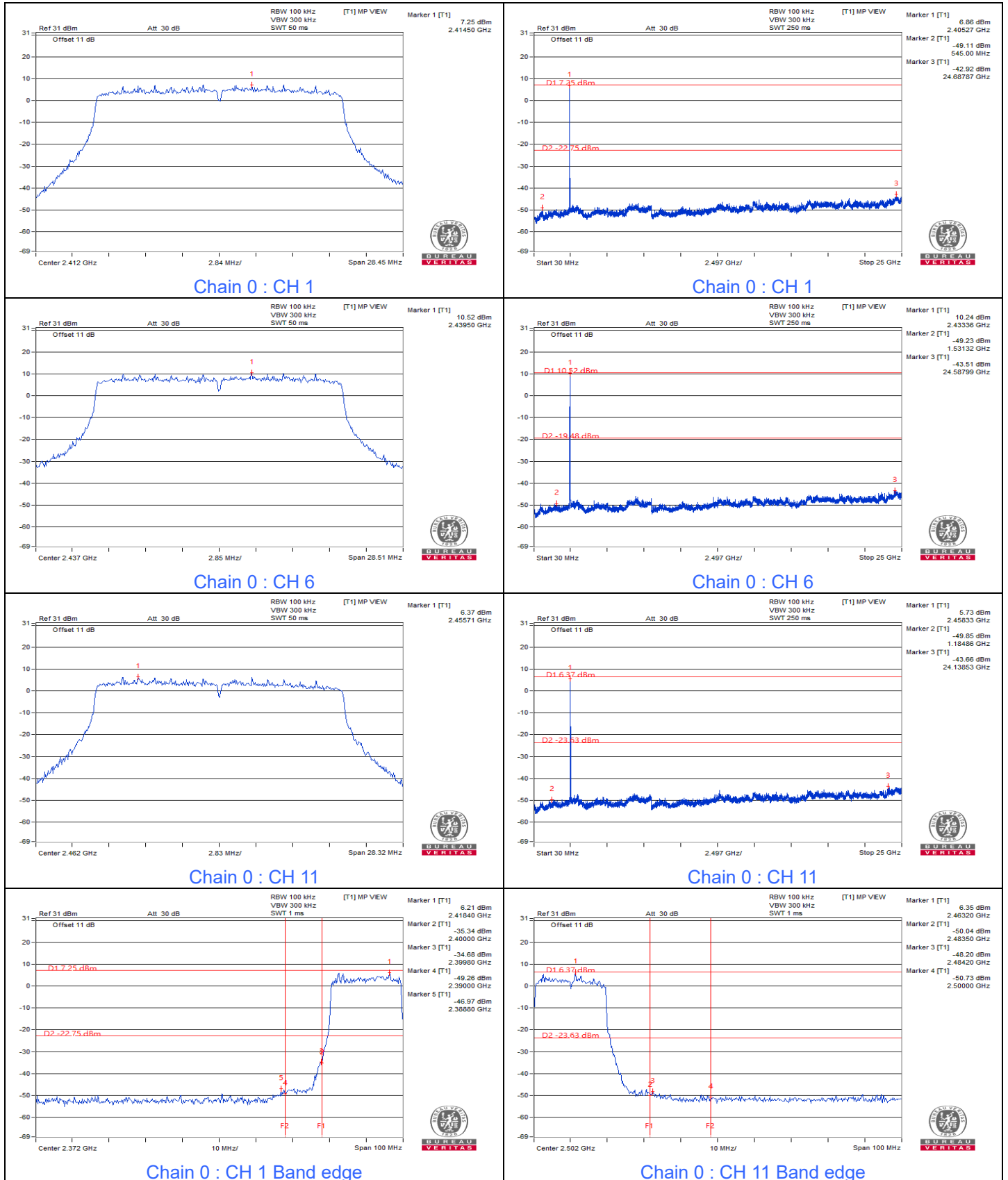
Chain 3 : CH 1 Band edge



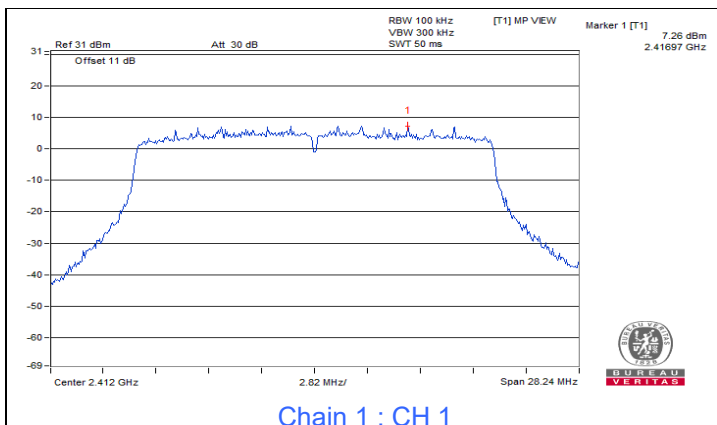
Chain 3 : CH 11 Band edge



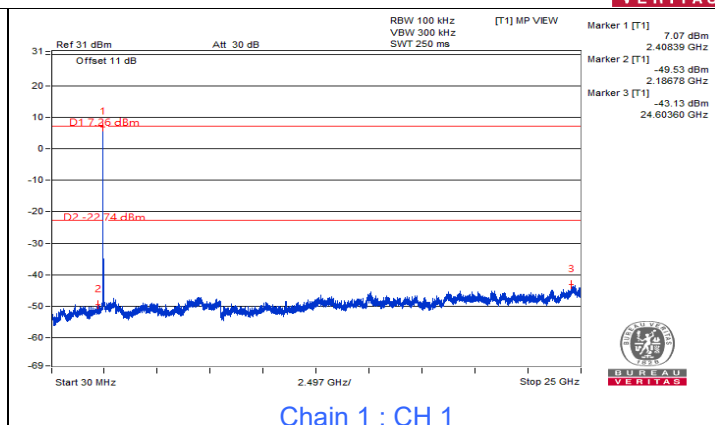
### 802.11ax (HE20)



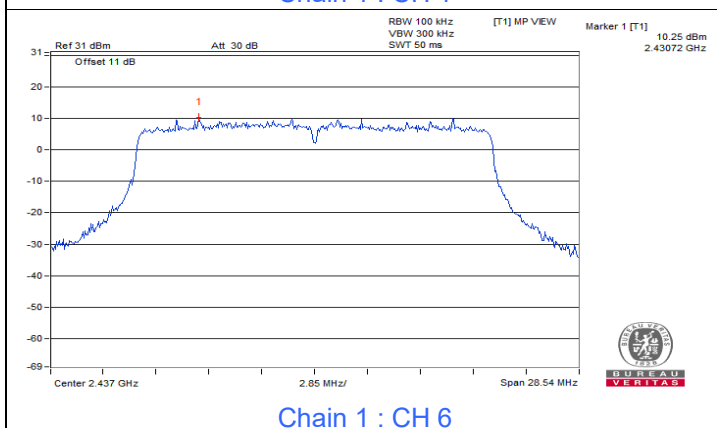




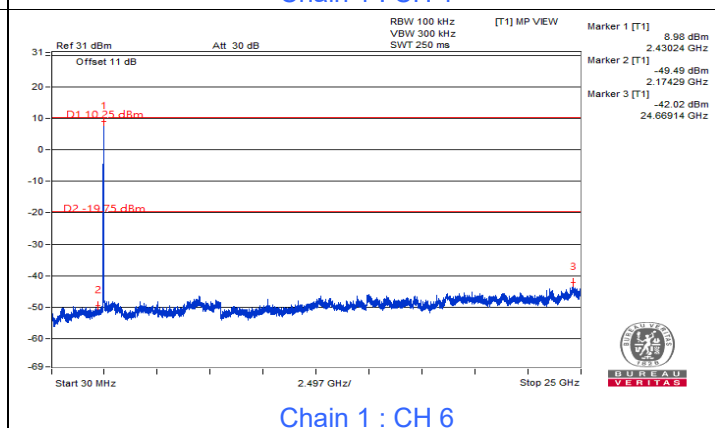
Chain 1 : CH 1



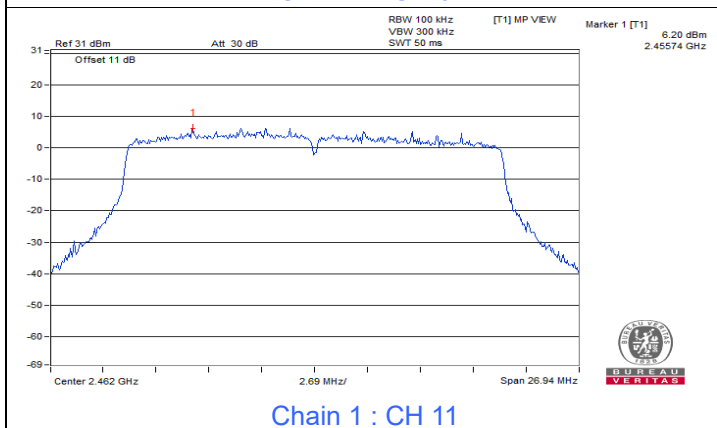
Chain 1 : CH 1



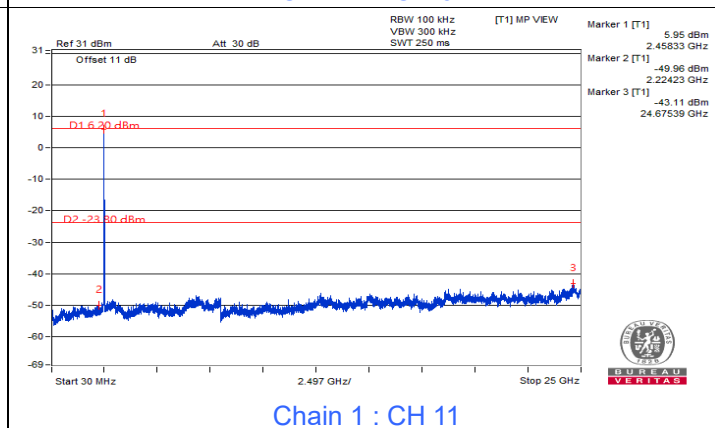
Chain 1 : CH 6



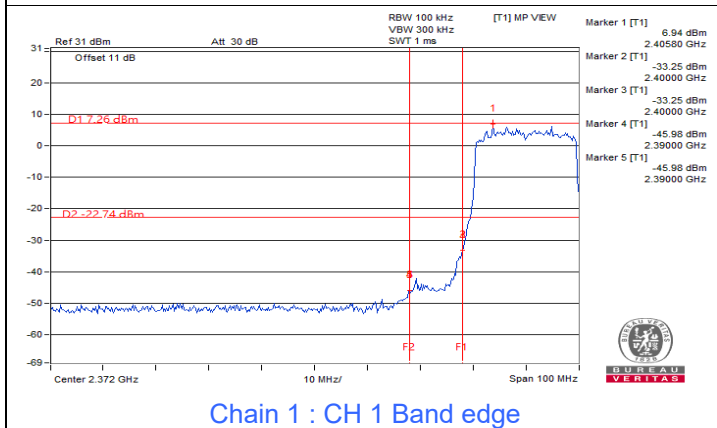
Chain 1 : CH 6



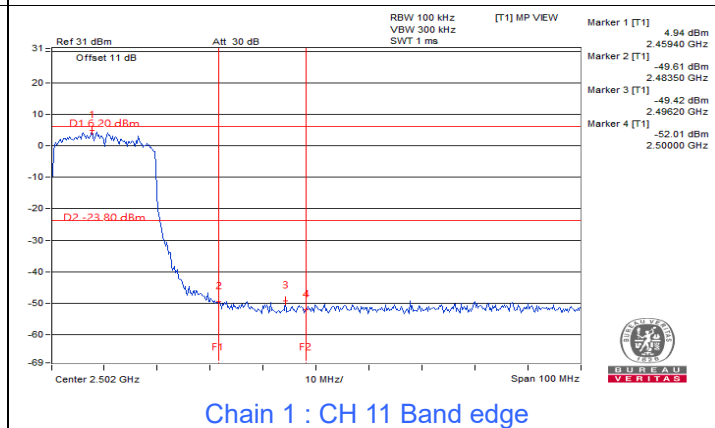
Chain 1 : CH 11



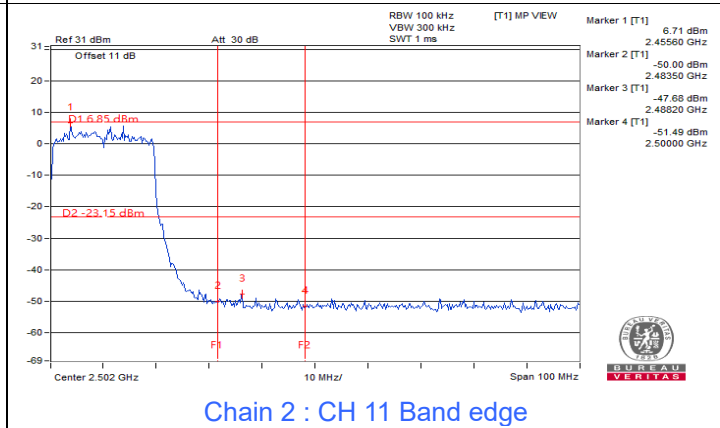
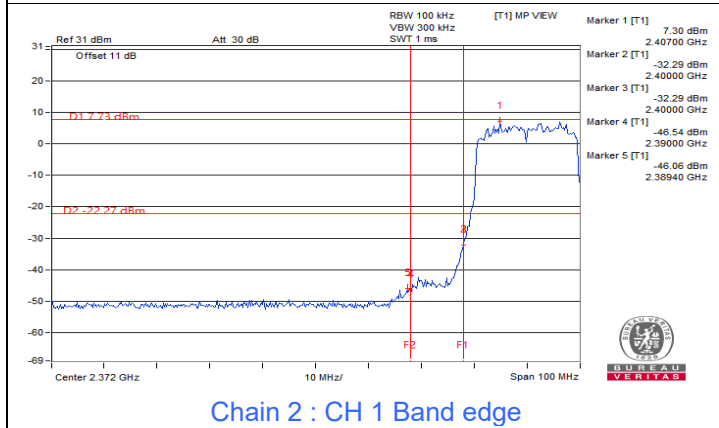
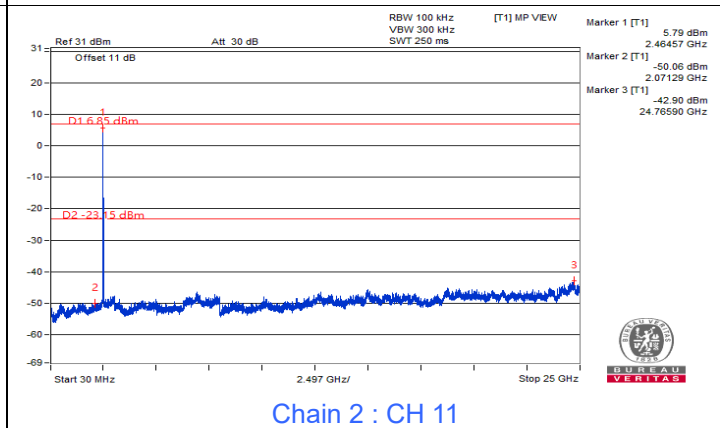
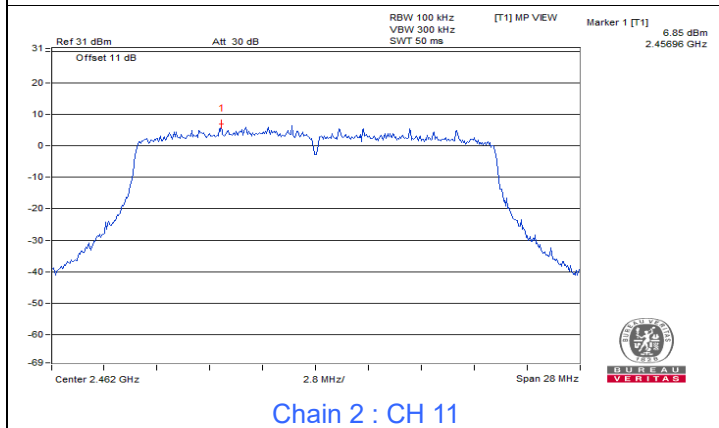
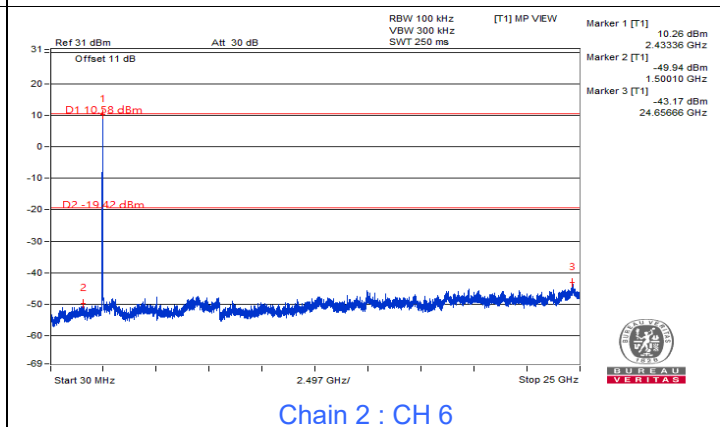
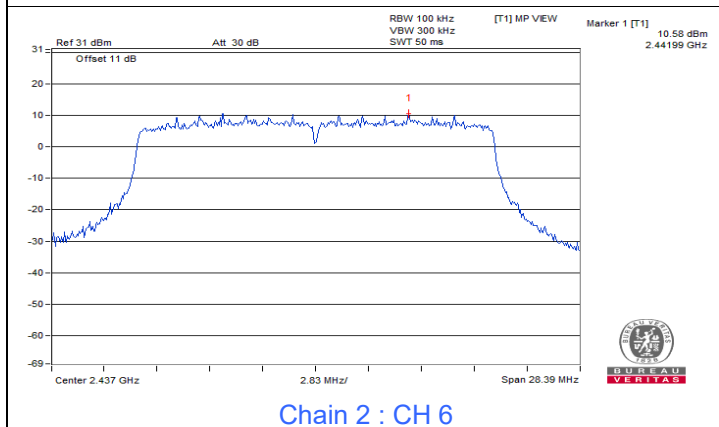
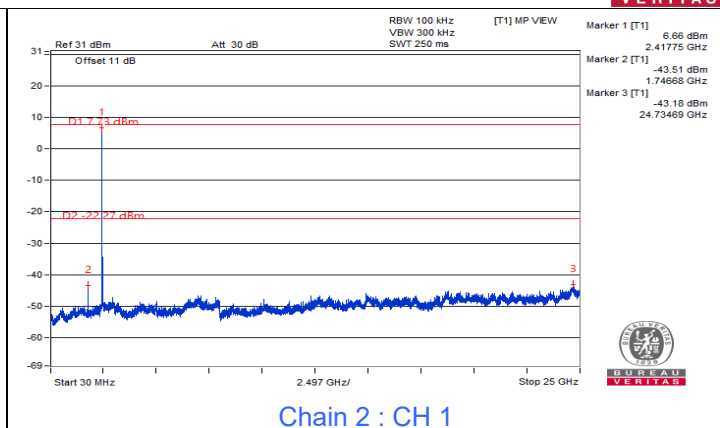
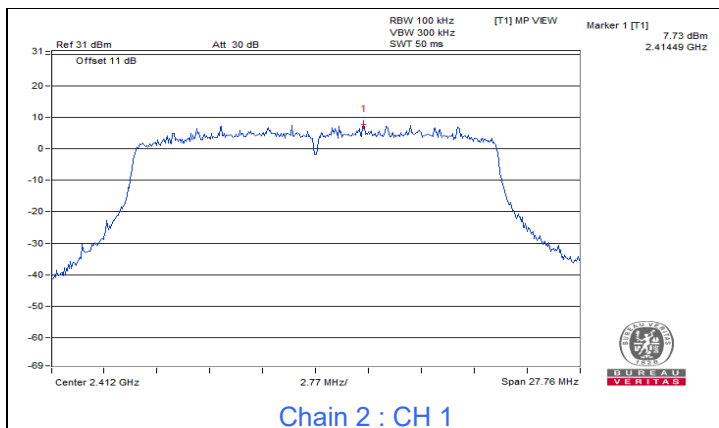
Chain 1 : CH 11

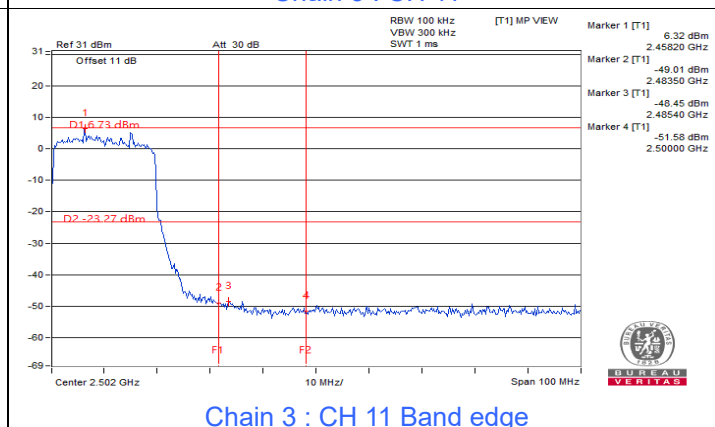
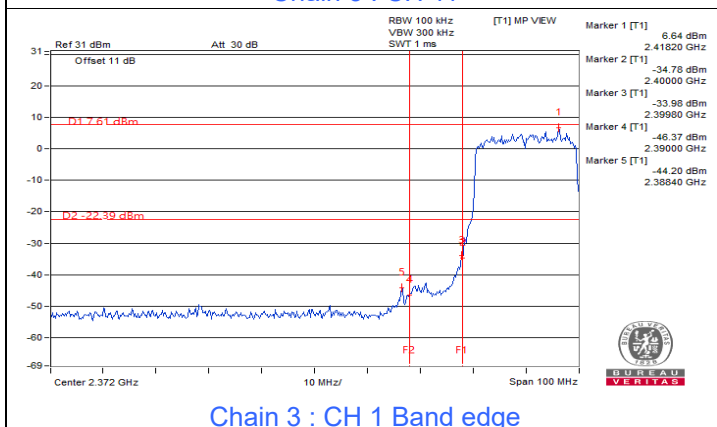
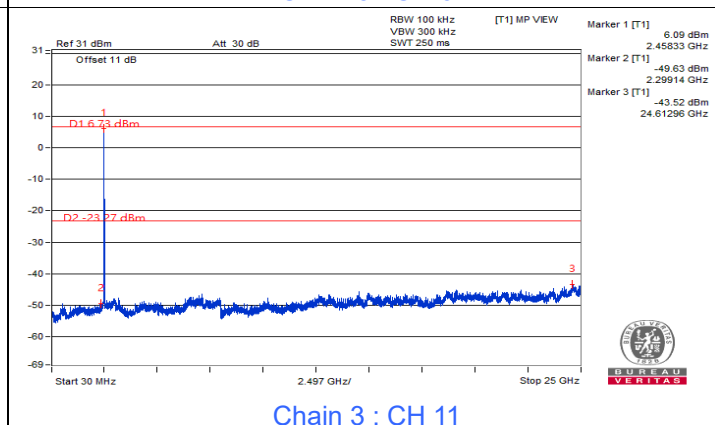
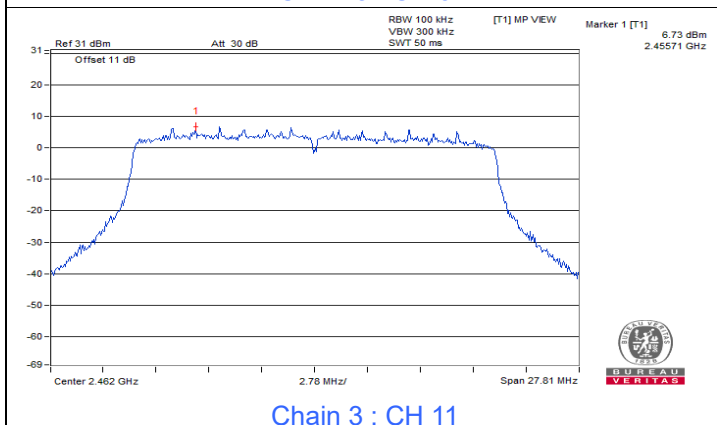
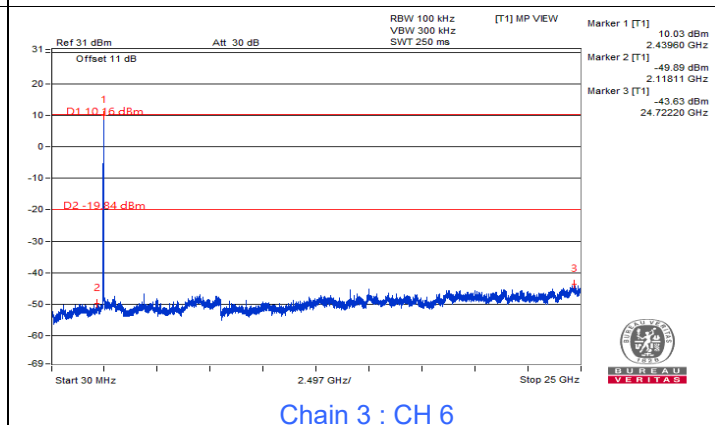
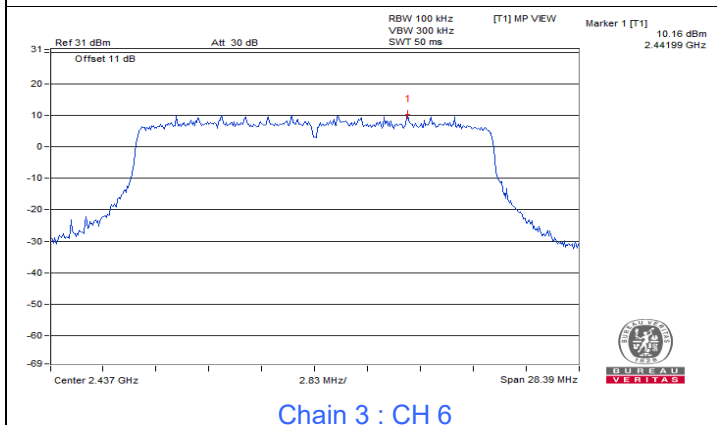
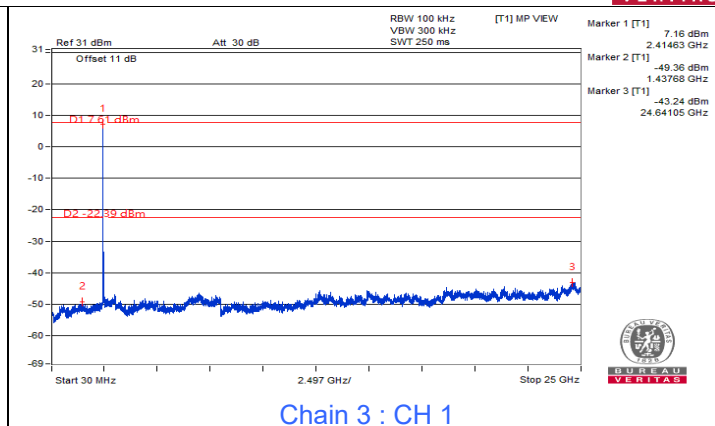
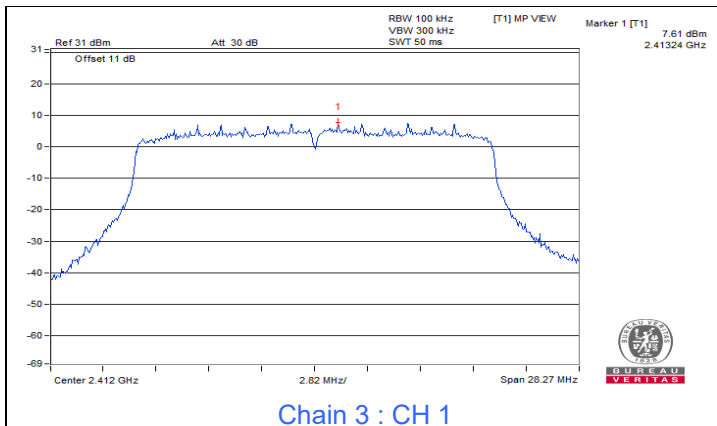


Chain 1 : CH 1 Band edge



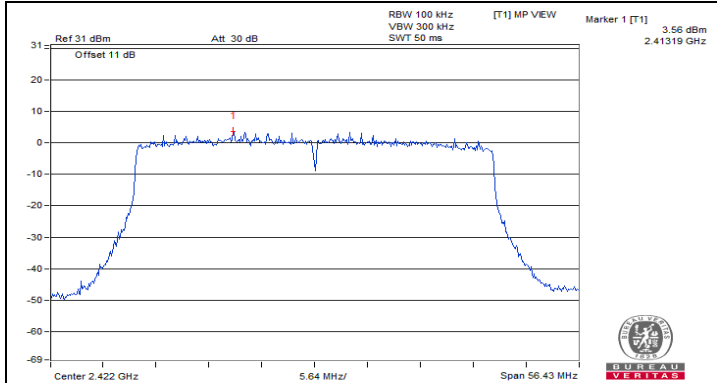
Chain 1 : CH 11 Band edge



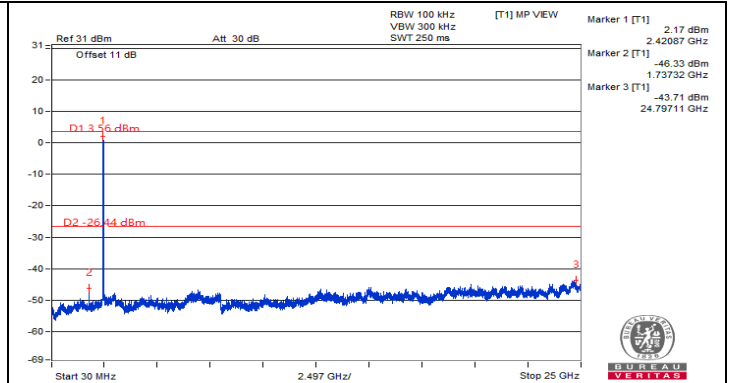




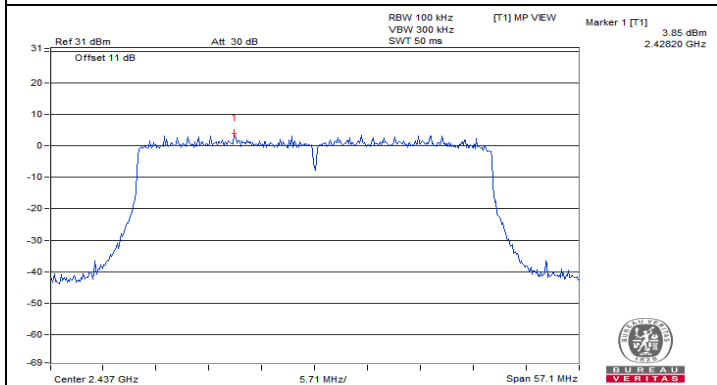
### 802.11ax (HE40)



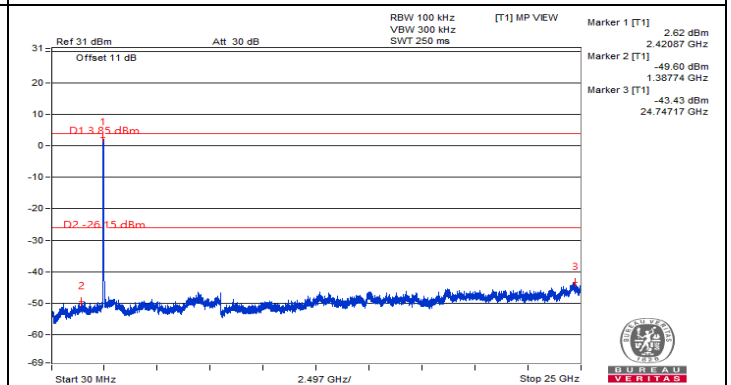
Chain 0 : CH 3



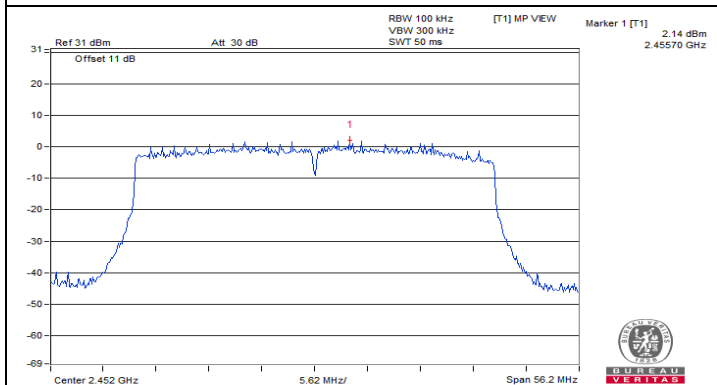
Chain 0 : CH 3



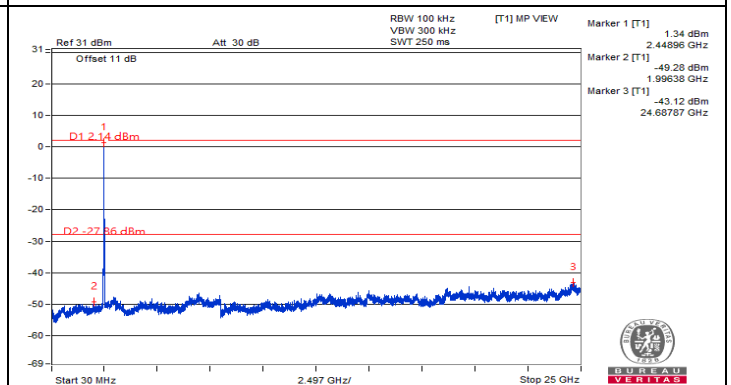
Chain 0 : CH 6



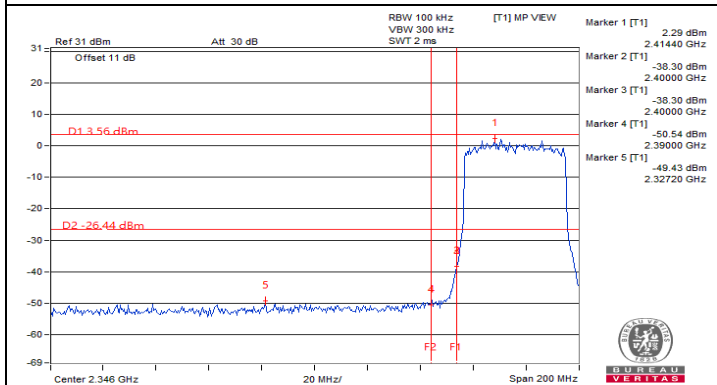
Chain 0 : CH 6



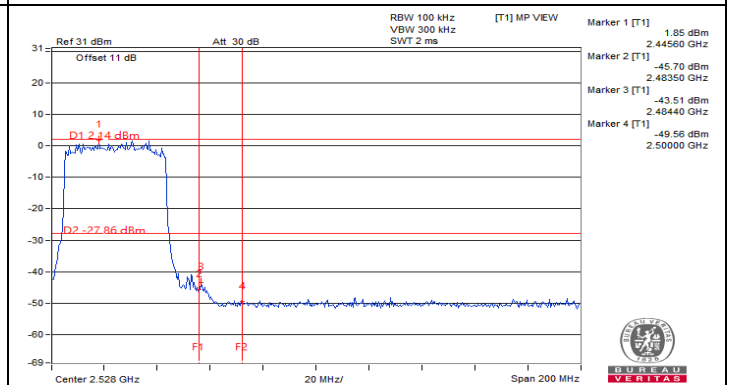
Chain 0 : CH 9



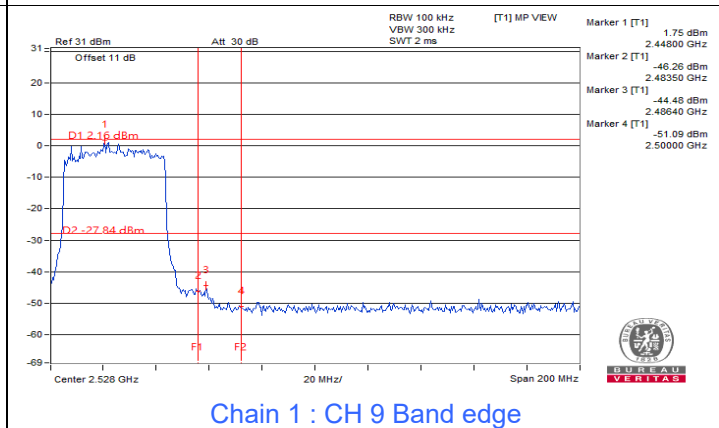
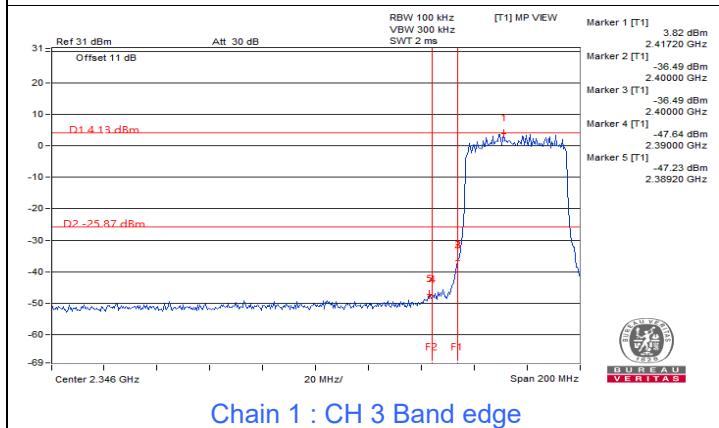
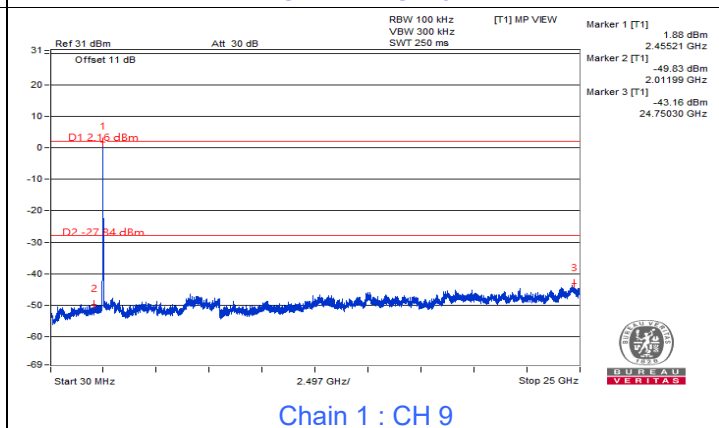
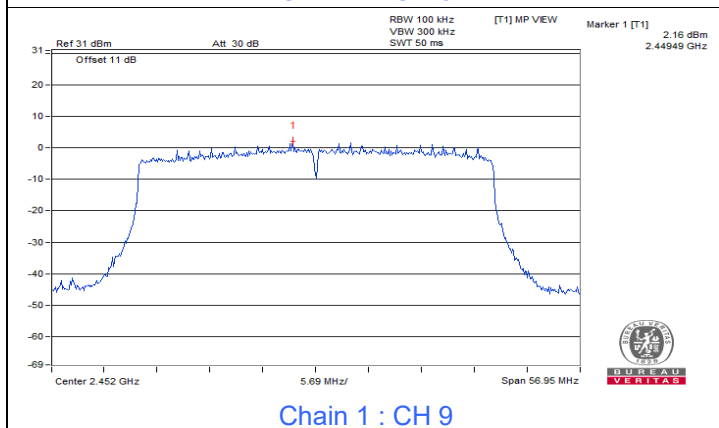
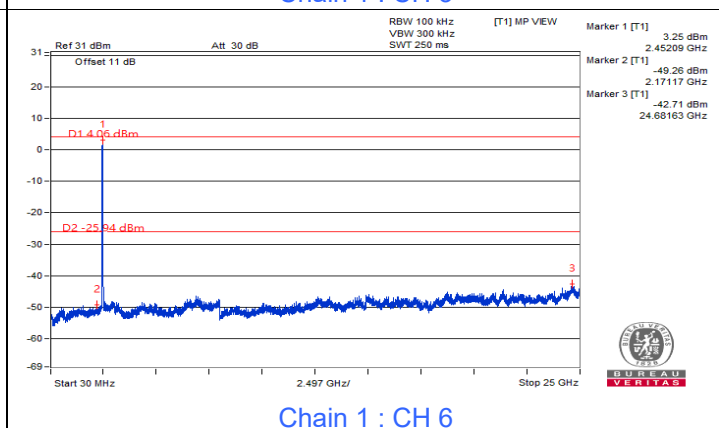
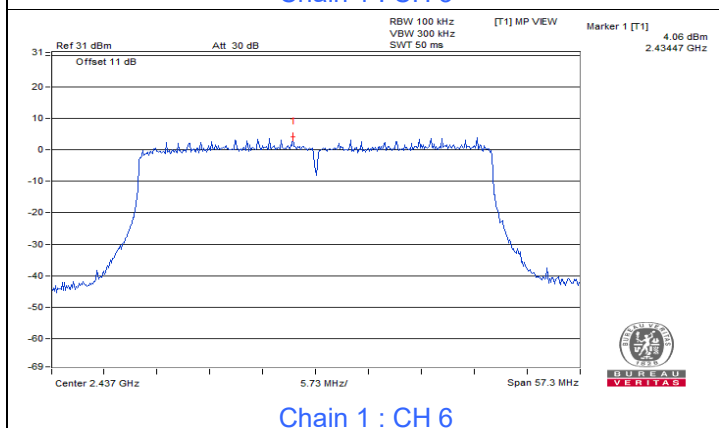
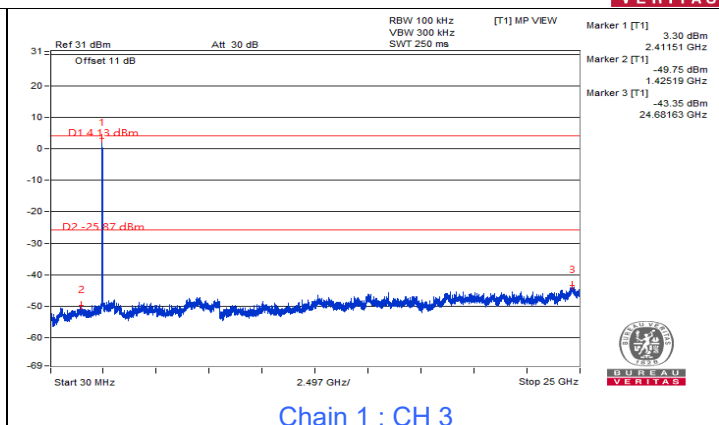
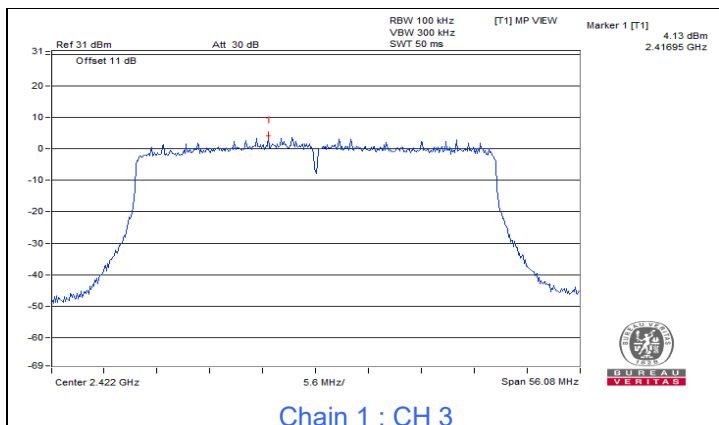
Chain 0 : CH 9

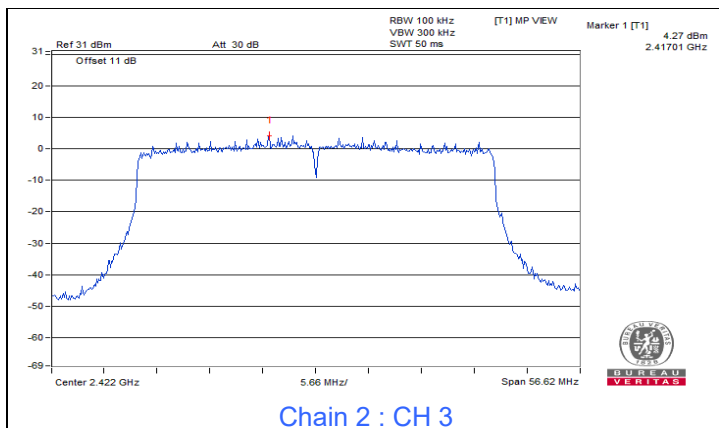


Chain 0 : CH 3 Band edge

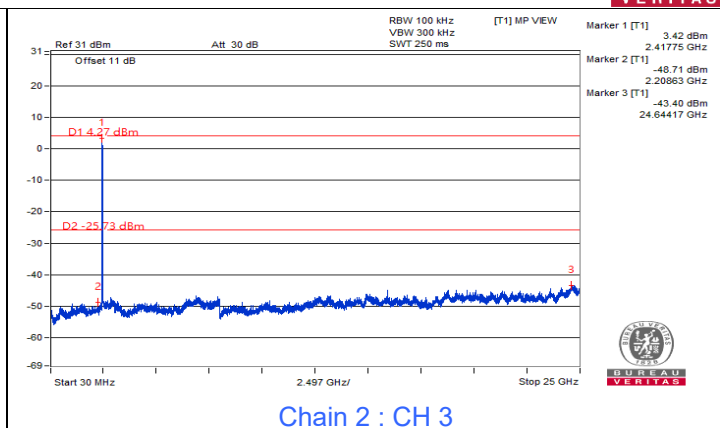


Chain 0 : CH 9 Band edge

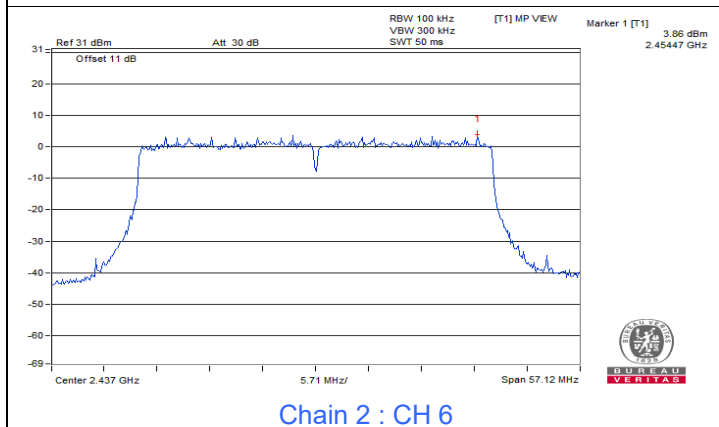




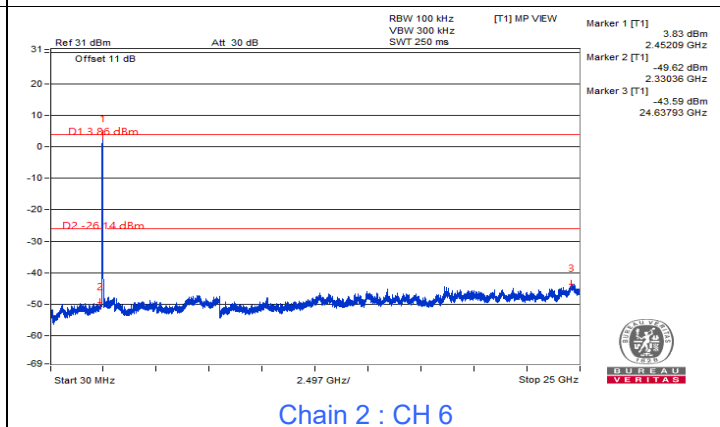
Chain 2 : CH 3



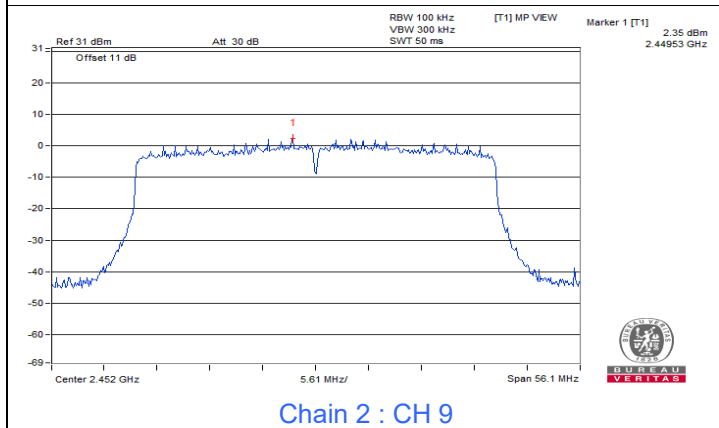
Chain 2 : CH 3



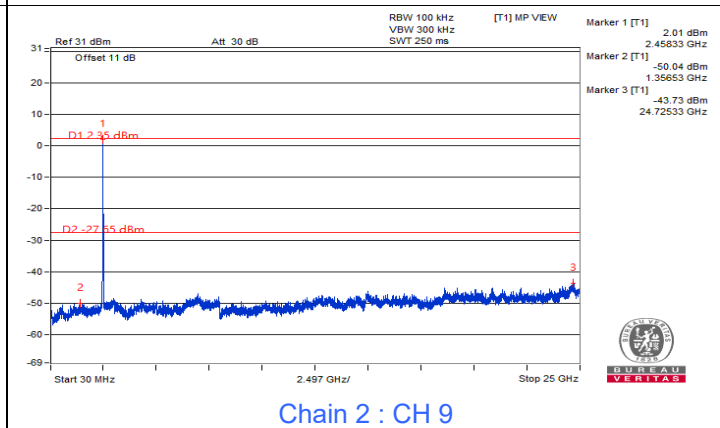
Chain 2 : CH 6



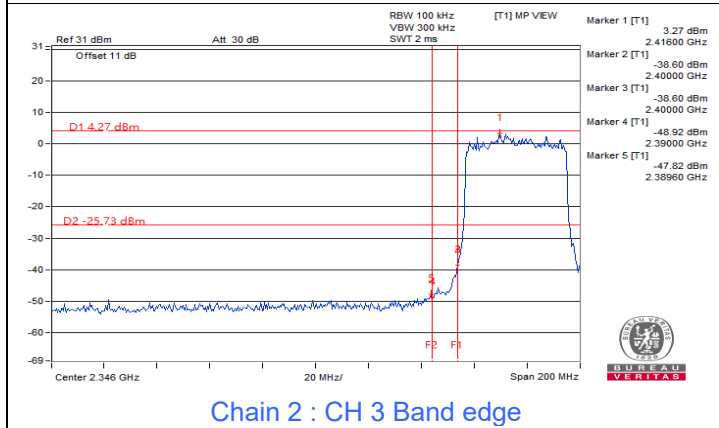
Chain 2 : CH 6



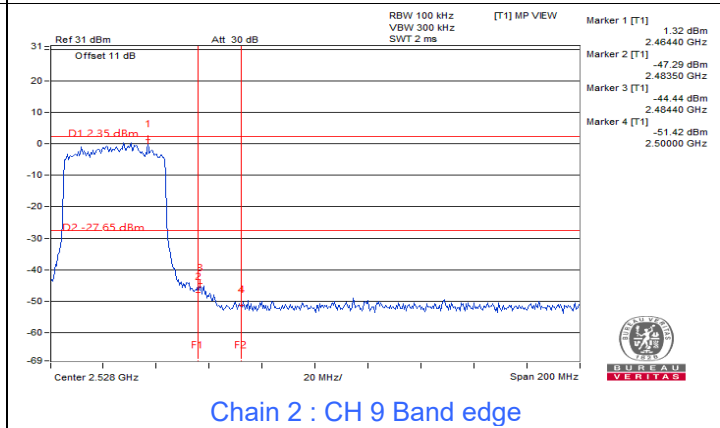
Chain 2 : CH 9



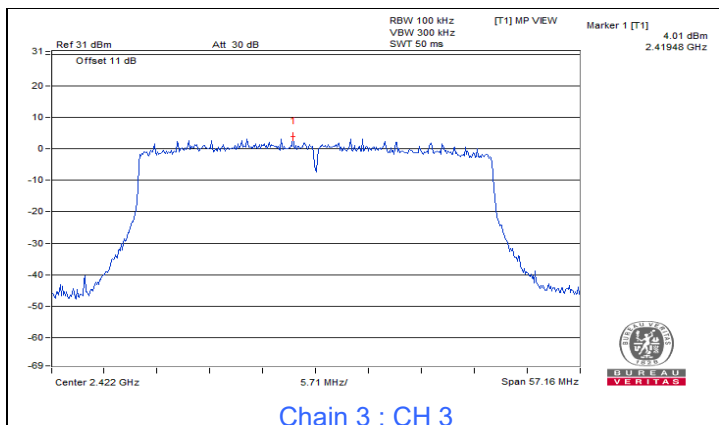
Chain 2 : CH 9



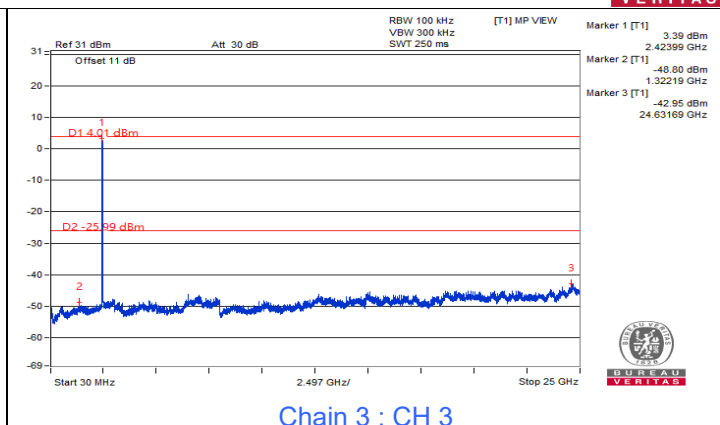
Chain 2 : CH 3 Band edge



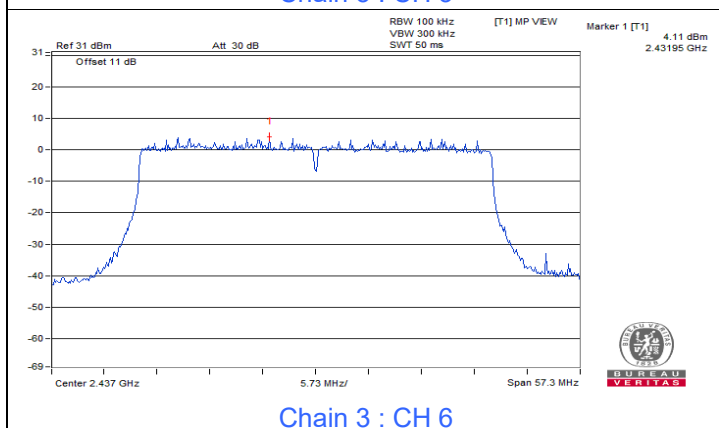
Chain 2 : CH 9 Band edge



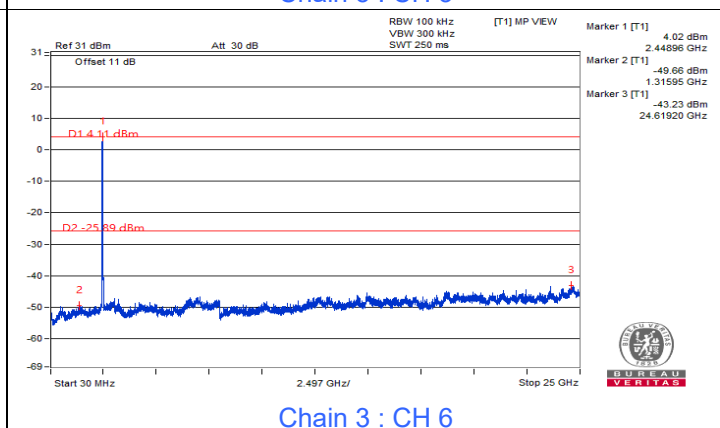
Chain 3 : CH 3



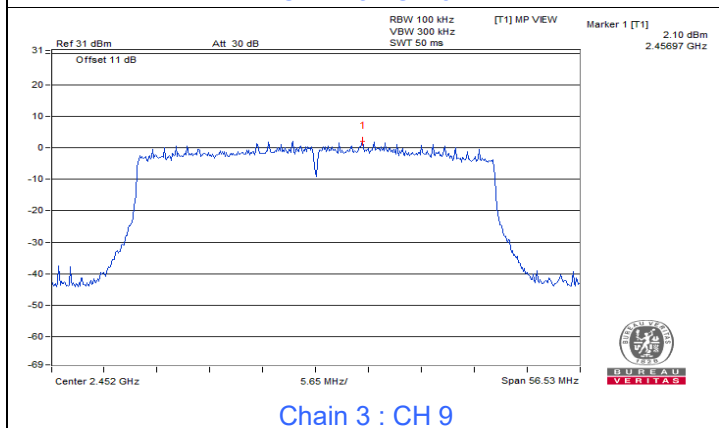
Chain 3 : CH 3



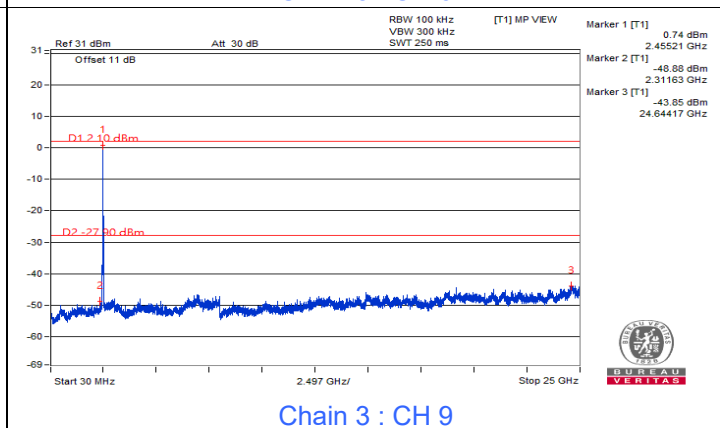
Chain 3 : CH 6



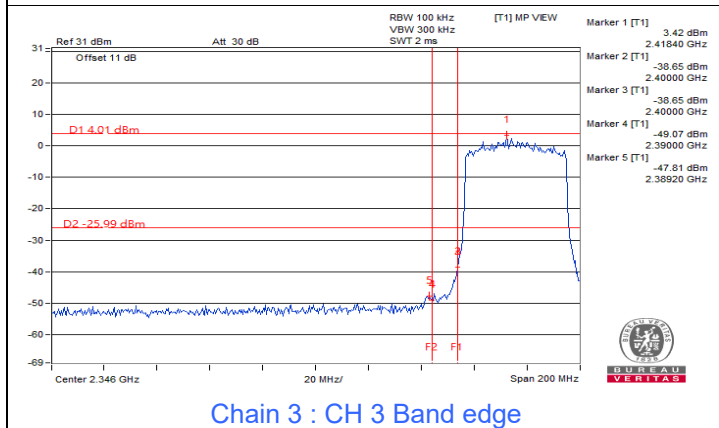
Chain 3 : CH 6



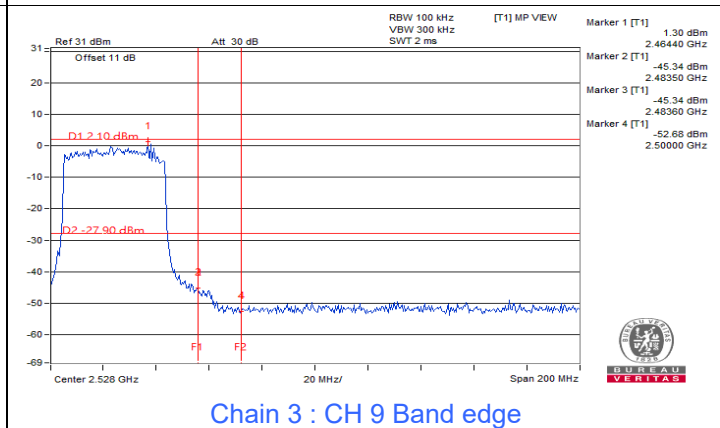
Chain 3 : CH 9



Chain 3 : CH 9



Chain 3 : CH 3 Band edge



Chain 3 : CH 9 Band edge

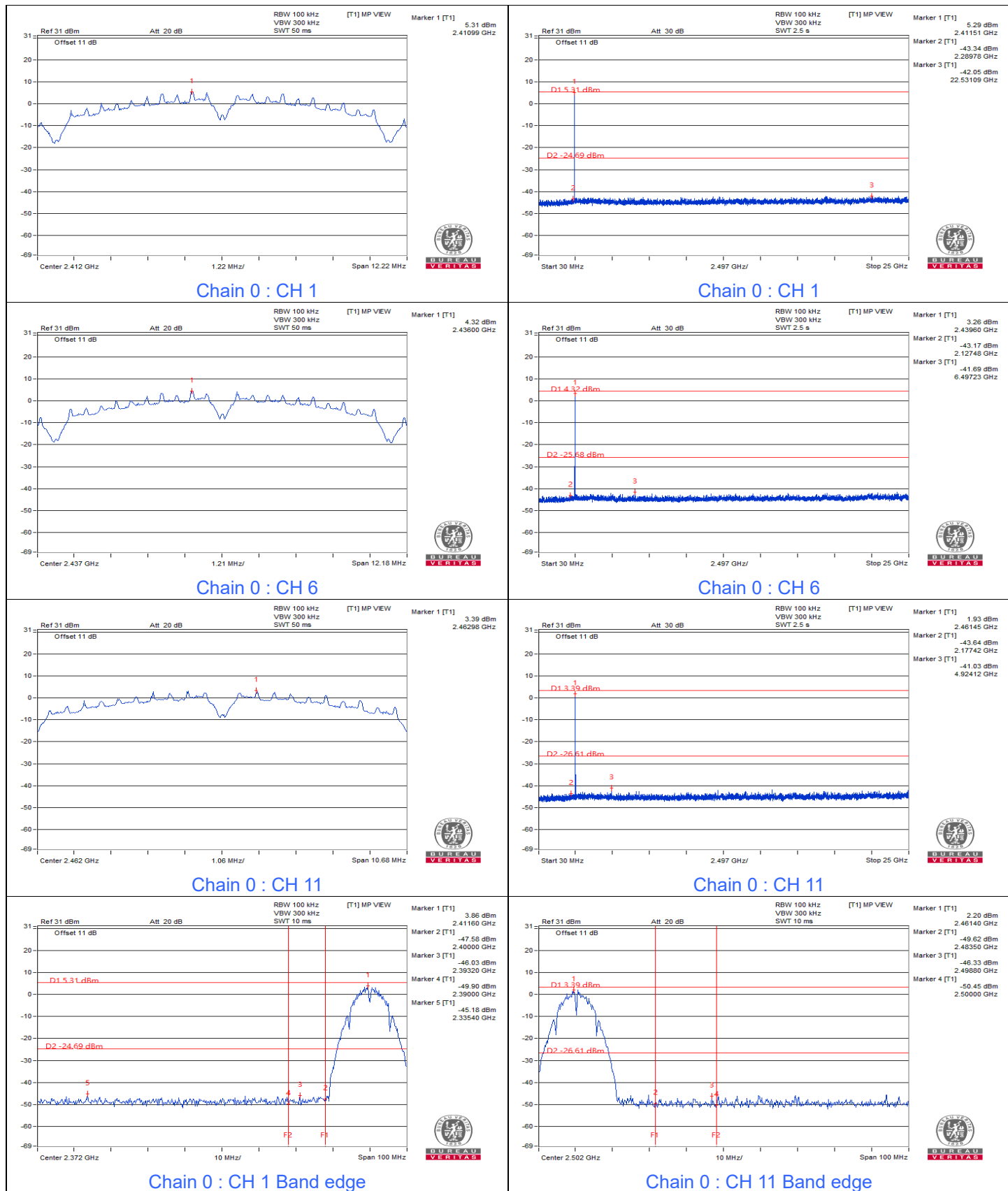


BUREAU VERITAS

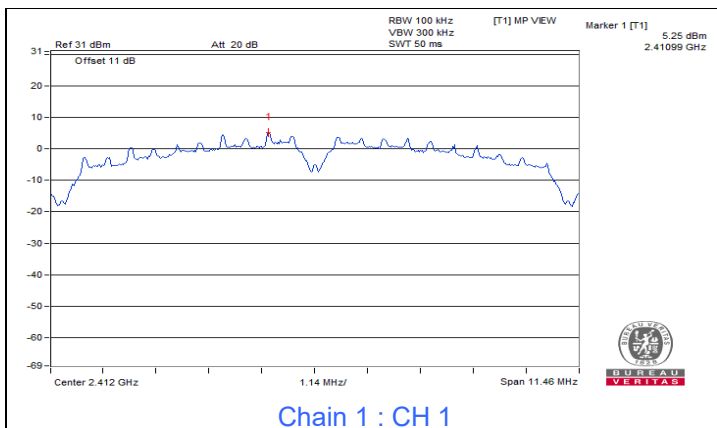
Input Power:	54 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Matthew Yang
--------------	--------	---------------------------	--------------	------------	--------------

### Mode B

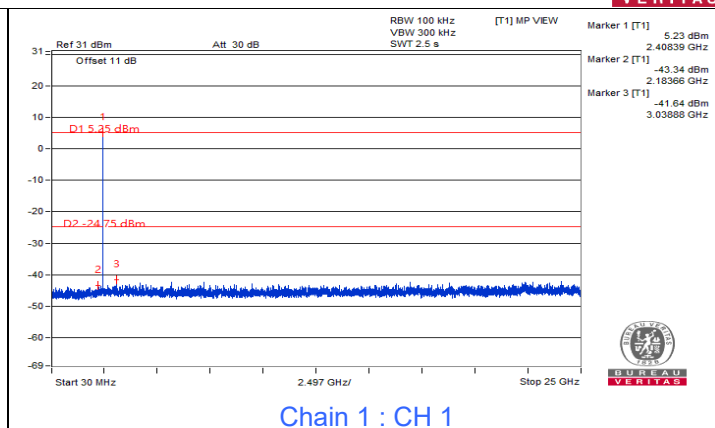
### 802.11b



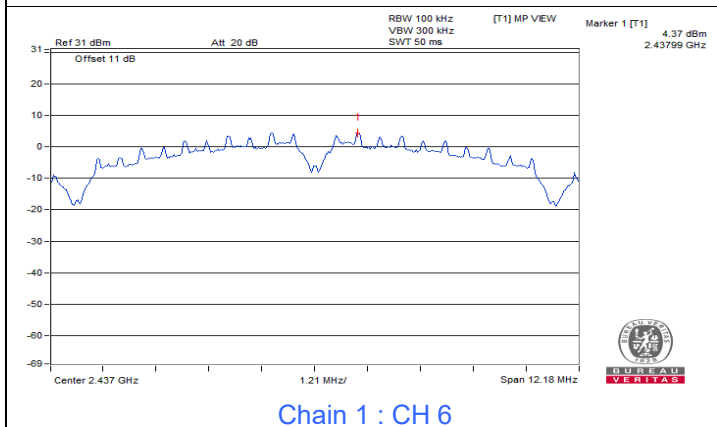




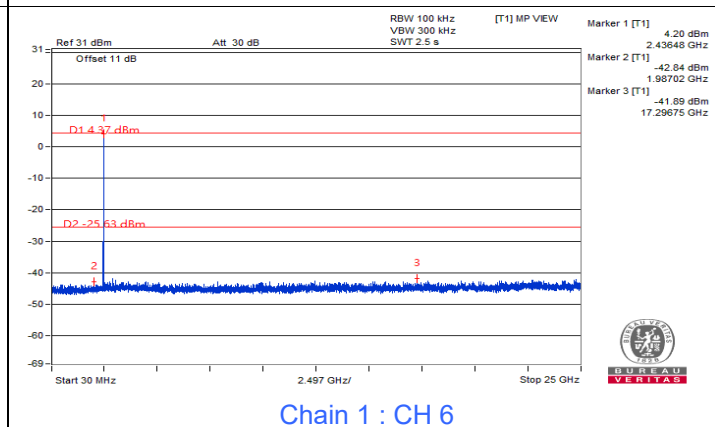
Chain 1 : CH 1



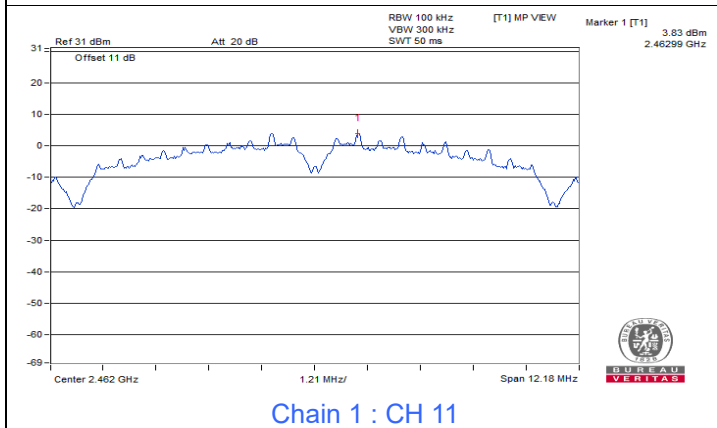
Chain 1 : CH 1



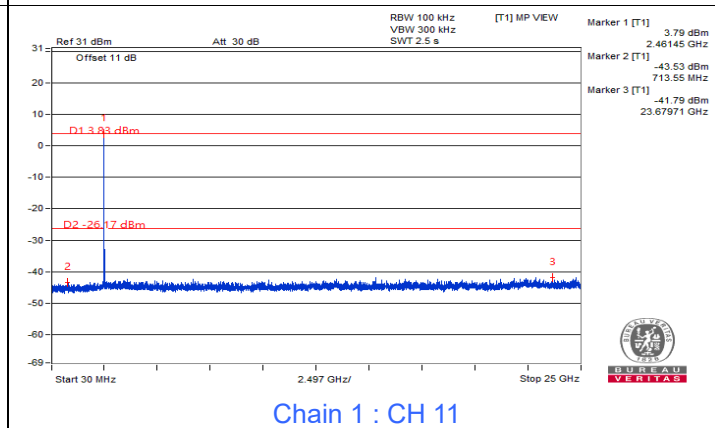
Chain 1 : CH 6



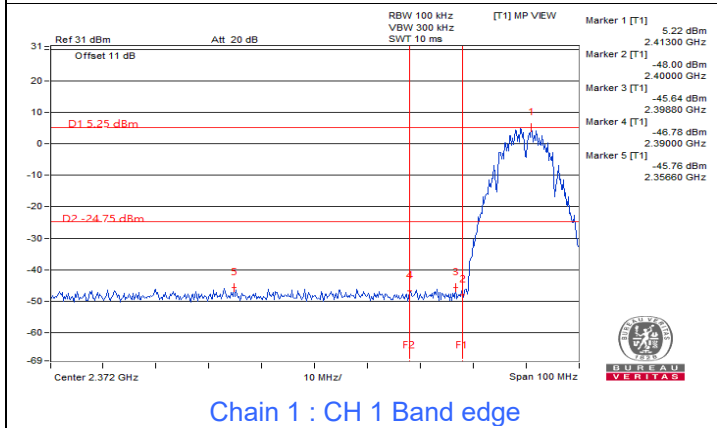
Chain 1 : CH 6



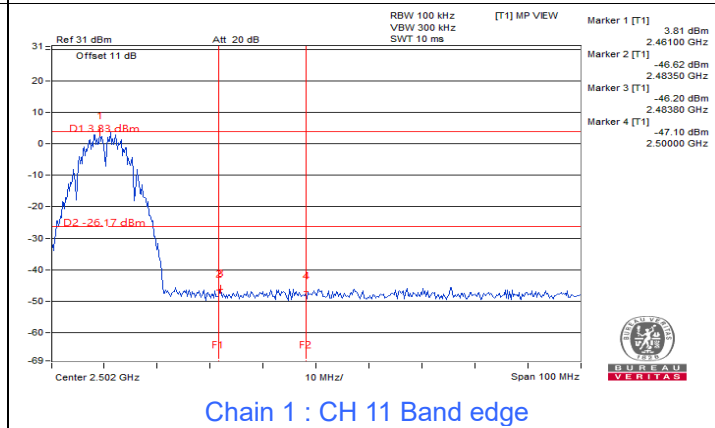
Chain 1 : CH 11



Chain 1 : CH 11



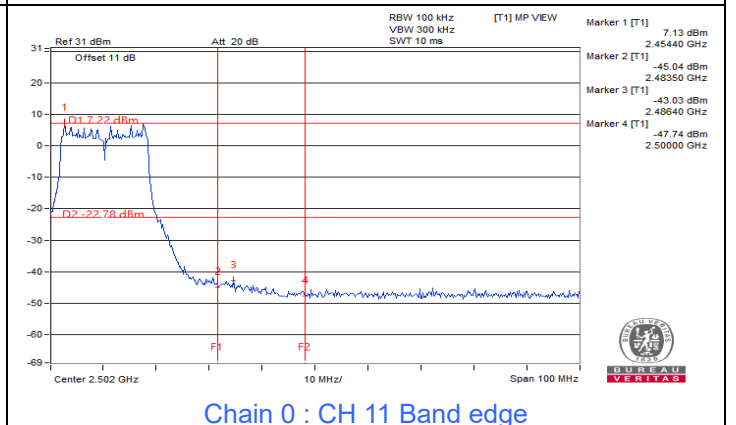
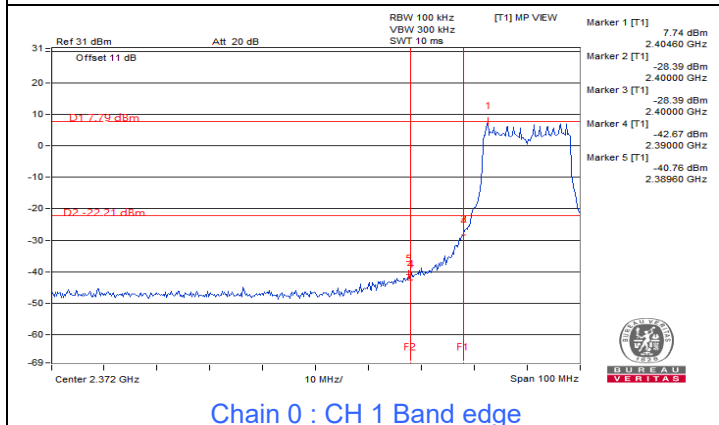
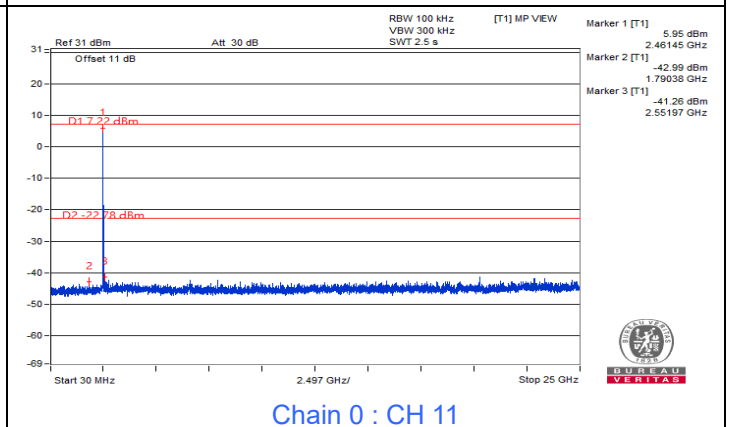
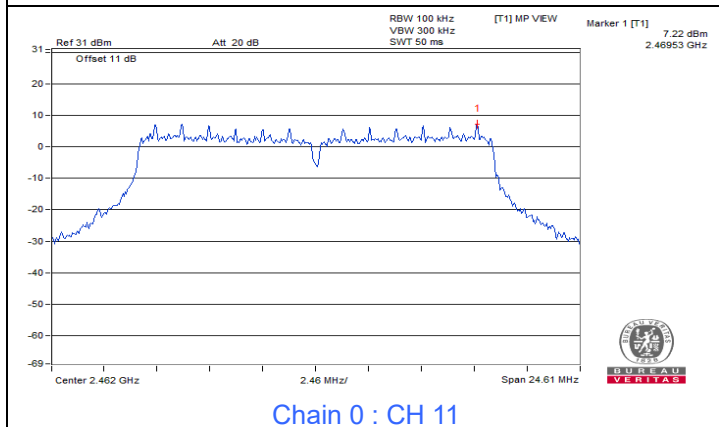
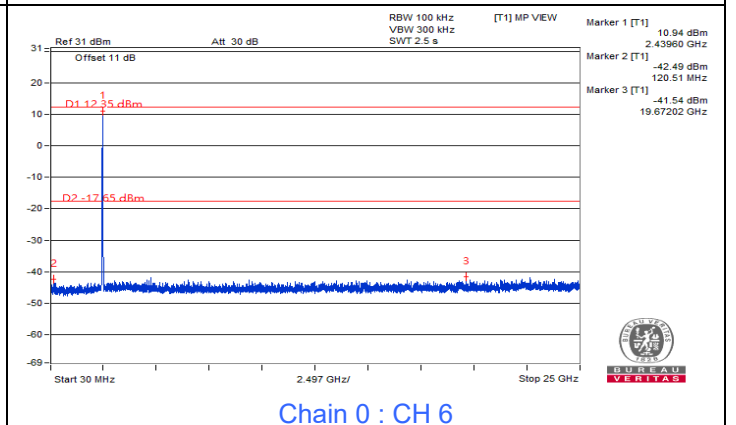
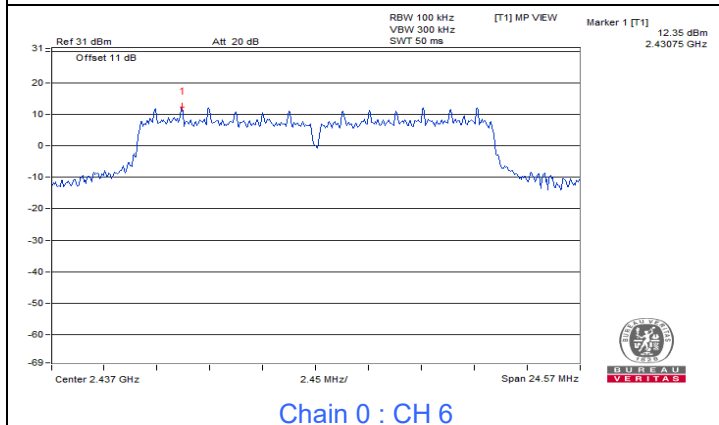
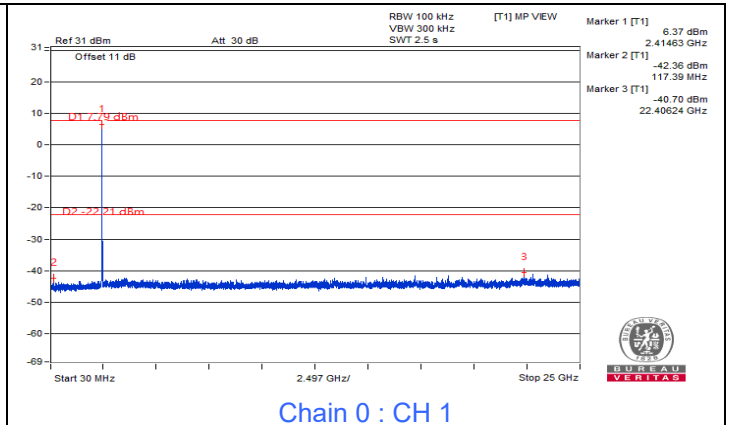
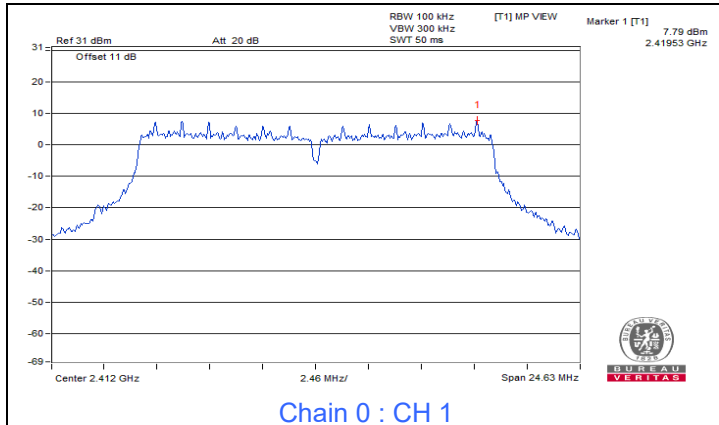
Chain 1 : CH 1 Band edge

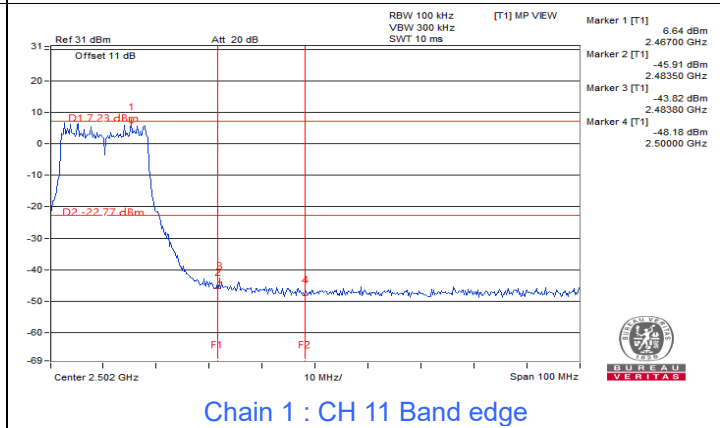
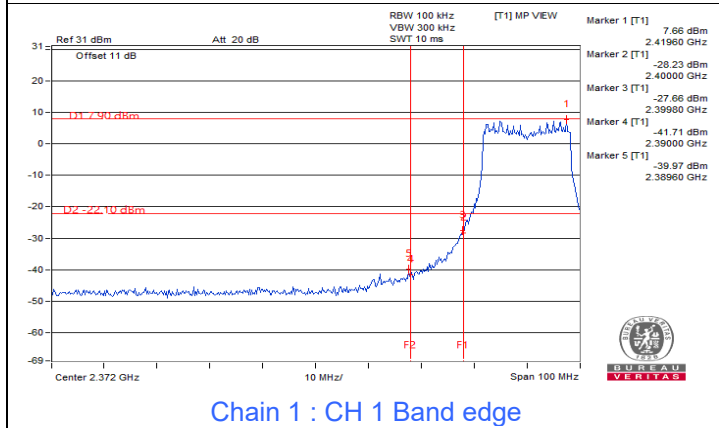
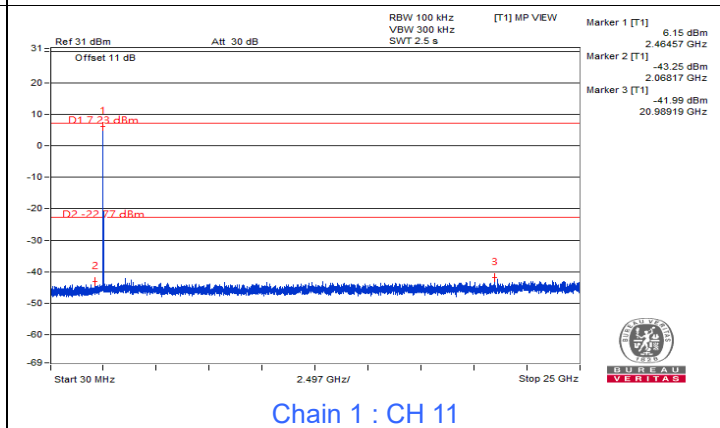
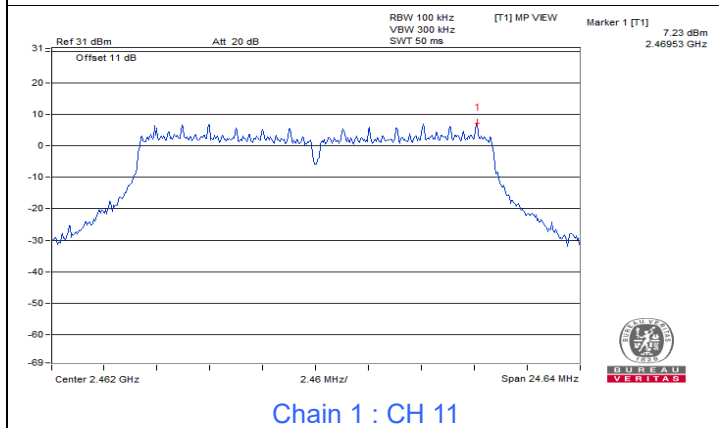
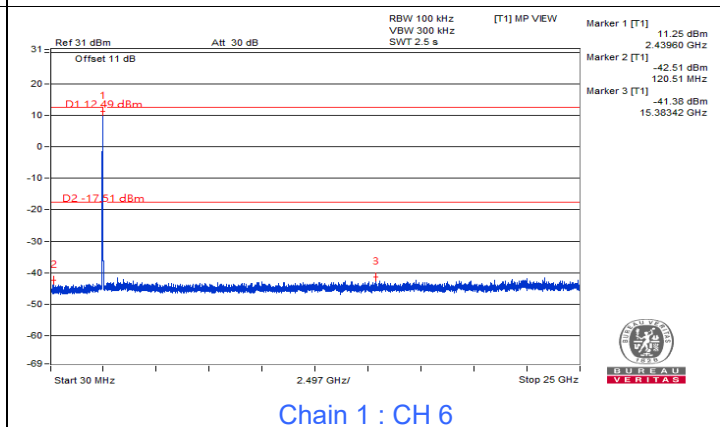
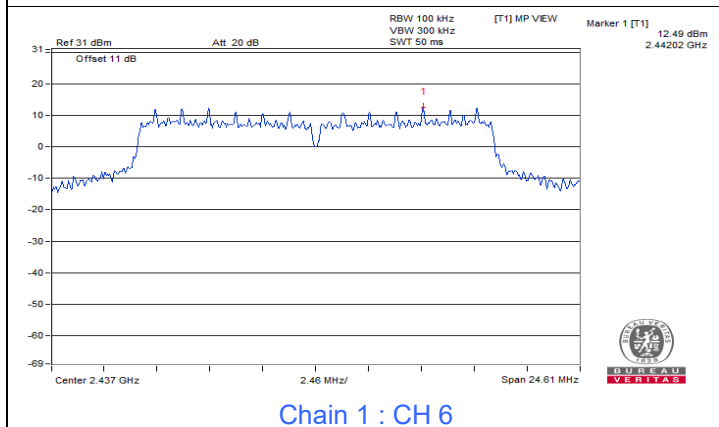
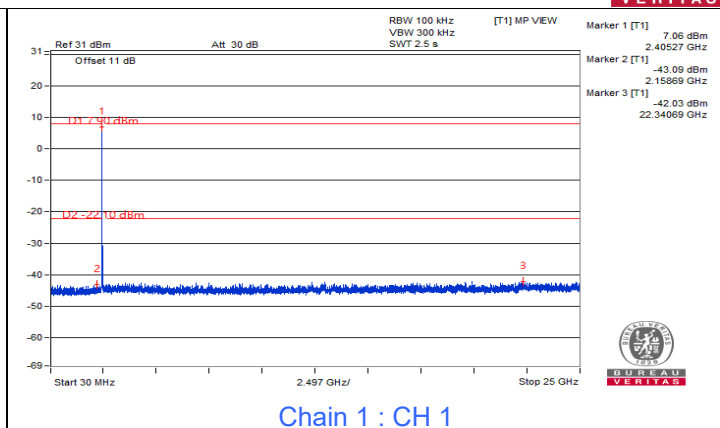
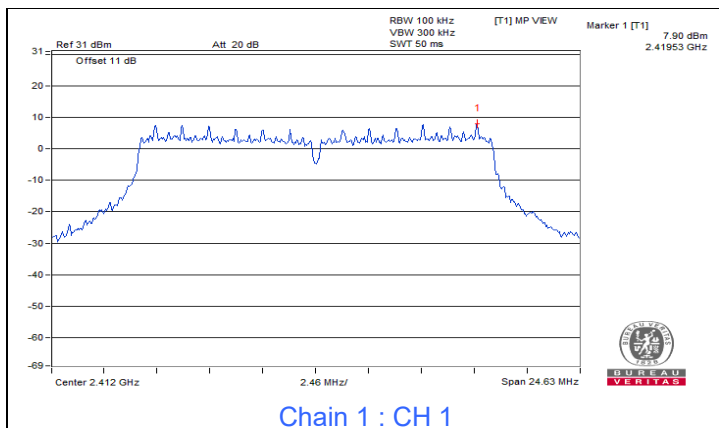


Chain 1 : CH 11 Band edge



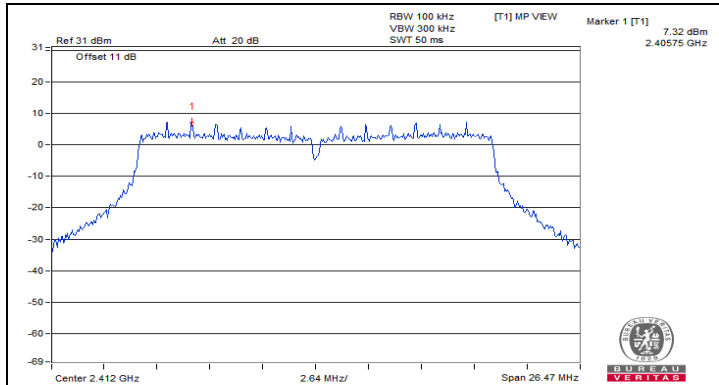
802.11g



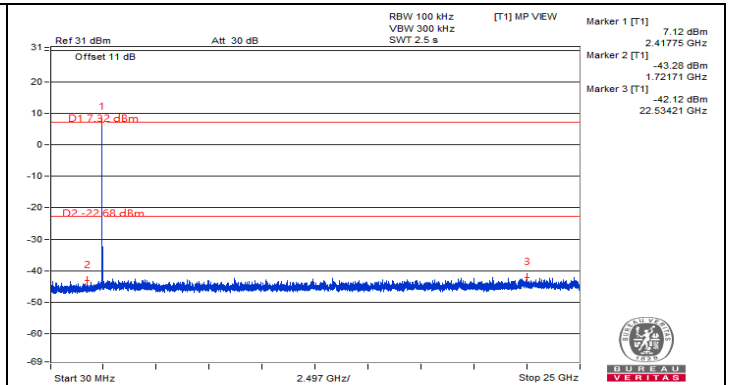




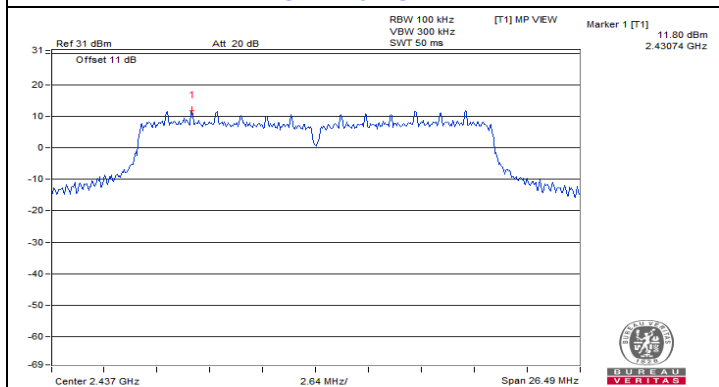
VHT20



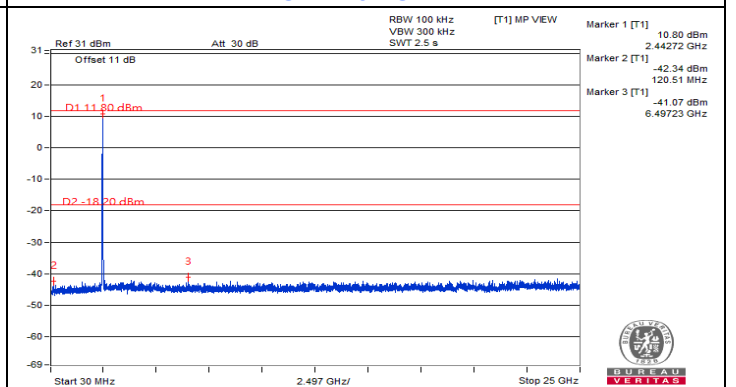
Chain 0 : CH 1



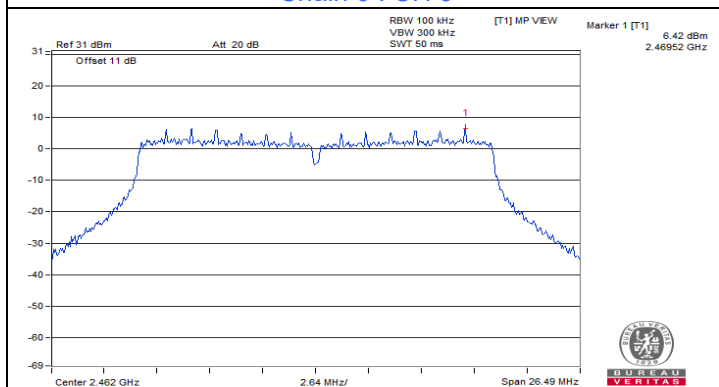
Chain 0 : CH 1



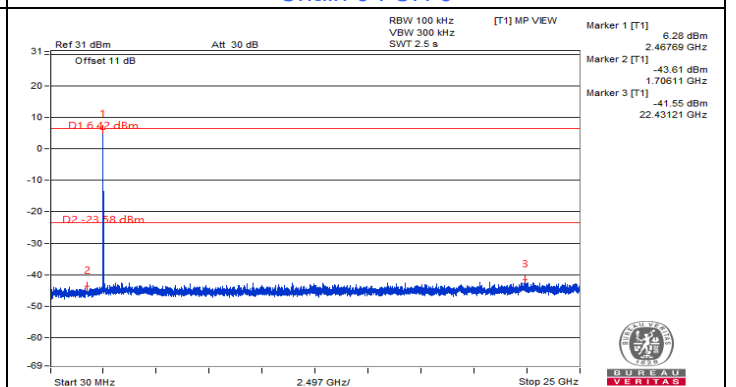
Chain 0 : CH 6



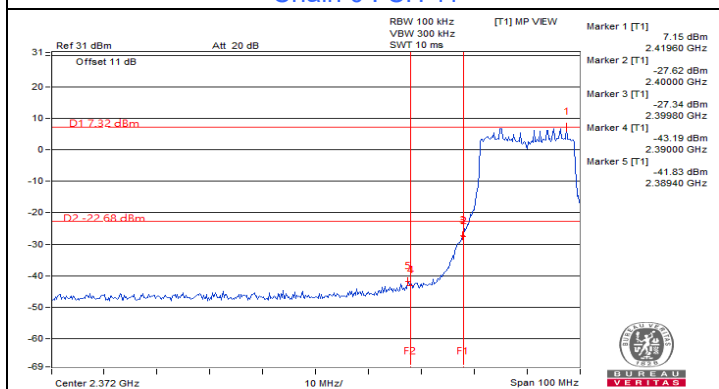
Chain 0 : CH 6



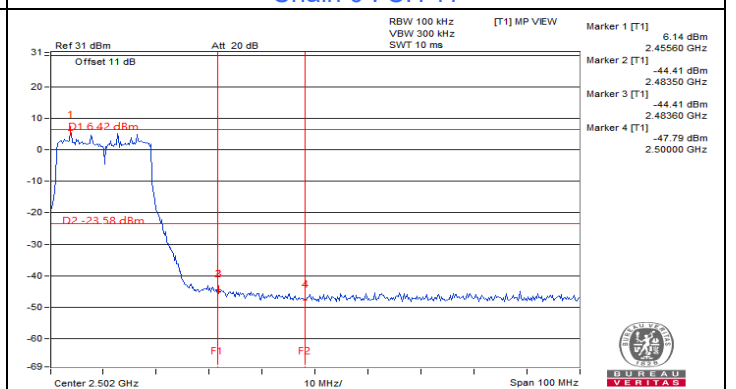
Chain 0 : CH 11



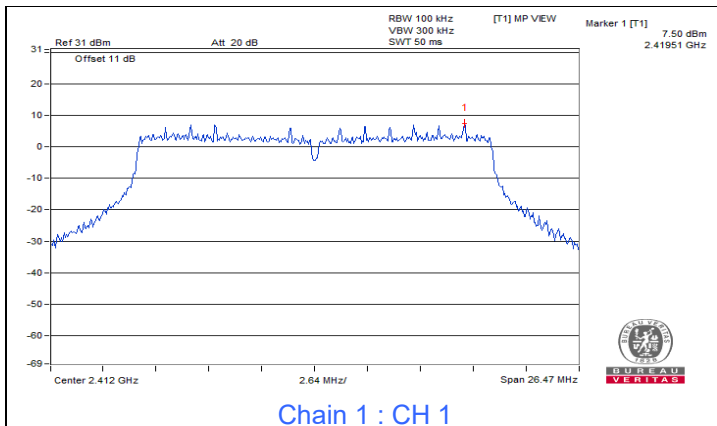
Chain 0 : CH 11



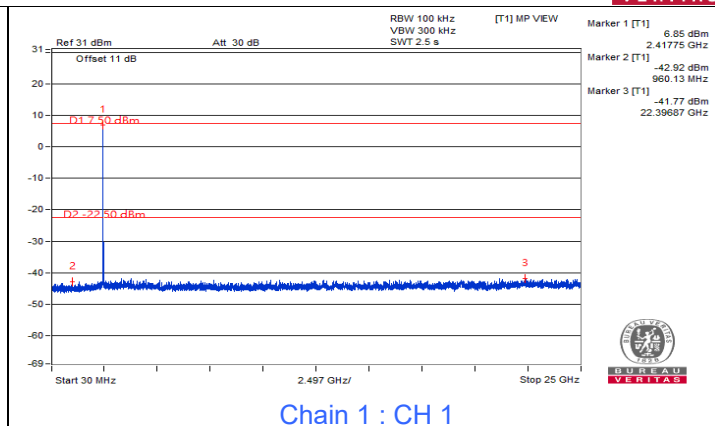
Chain 0 : CH 1 Band edge



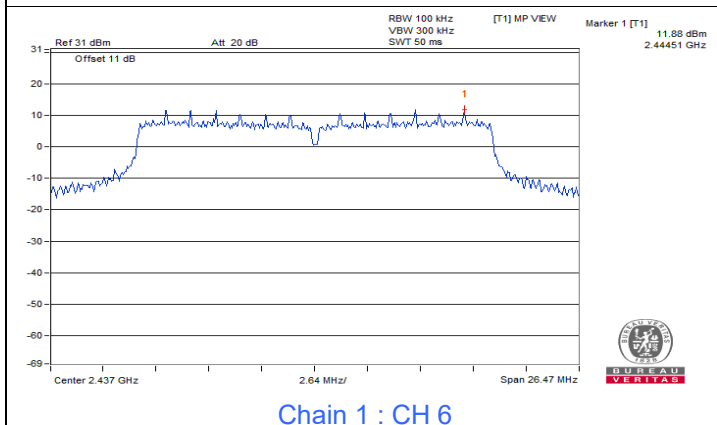
Chain 0 : CH 11 Band edge



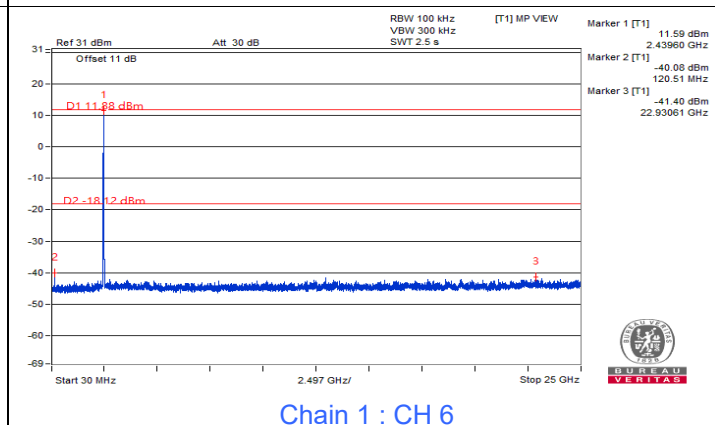
Chain 1 : CH 1



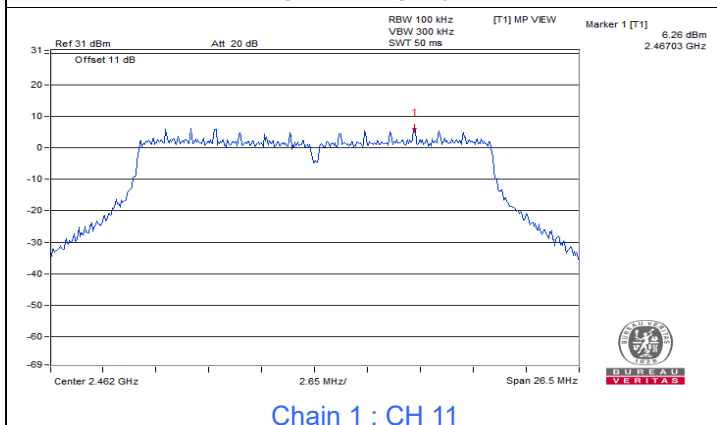
Chain 1 : CH 1



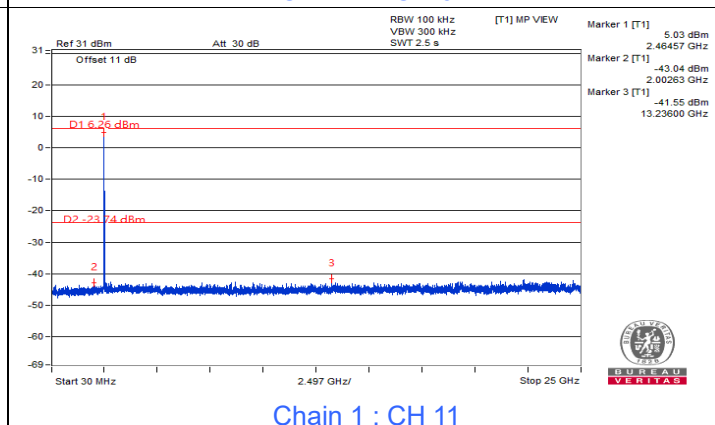
Chain 1 : CH 6



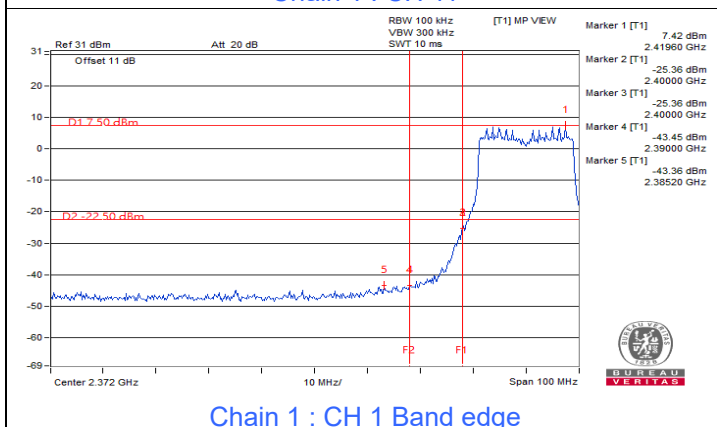
Chain 1 : CH 6



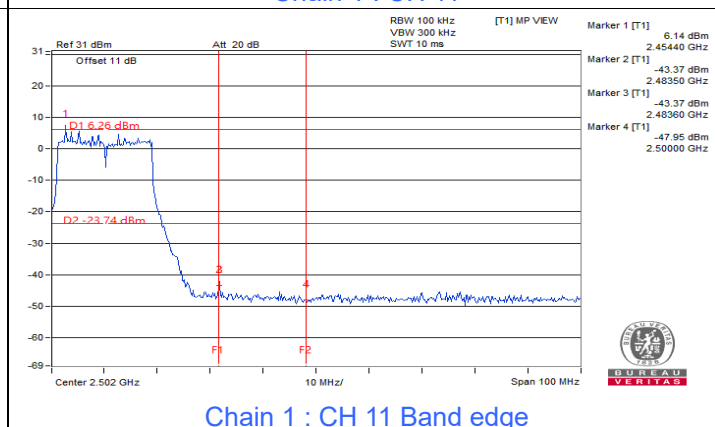
Chain 1 : CH 11



Chain 1 : CH 11



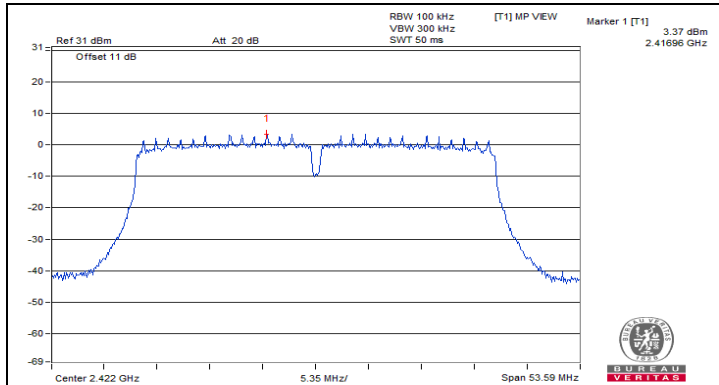
Chain 1 : CH 1 Band edge



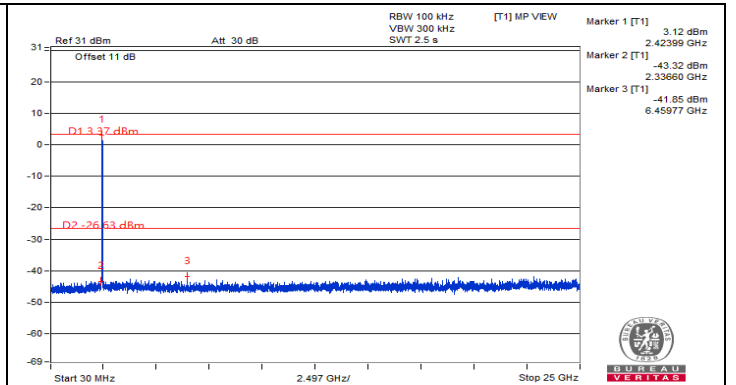
Chain 1 : CH 11 Band edge



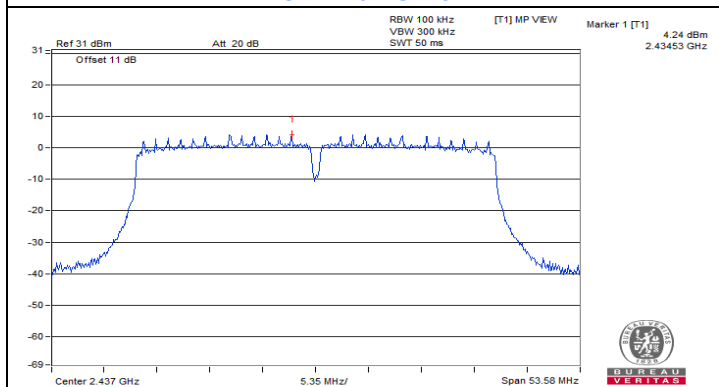
VHT40



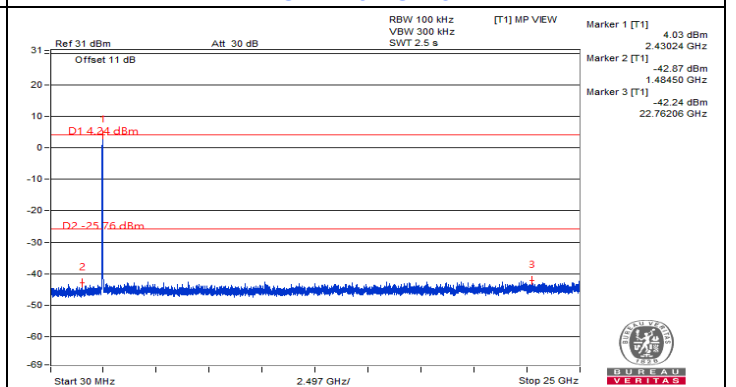
Chain 0 : CH 3



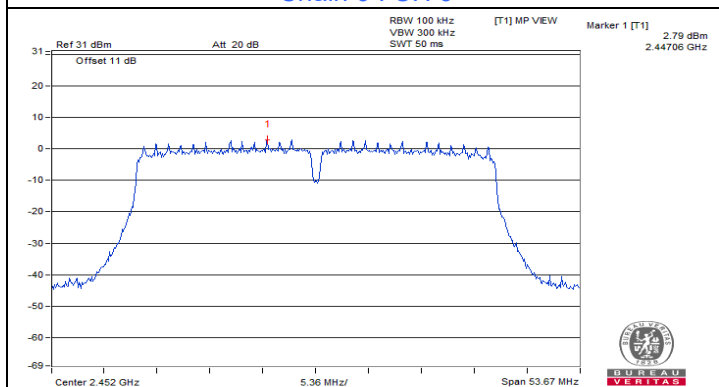
Chain 0 : CH 3



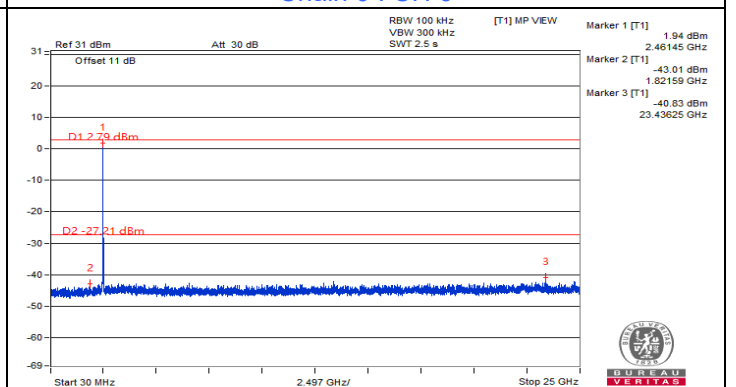
Chain 0 : CH 6



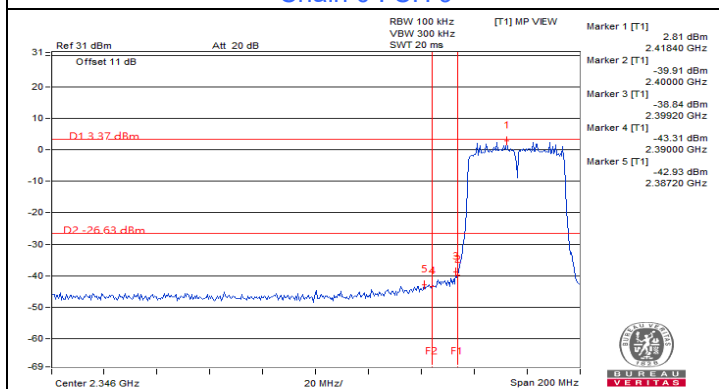
Chain 0 : CH 6



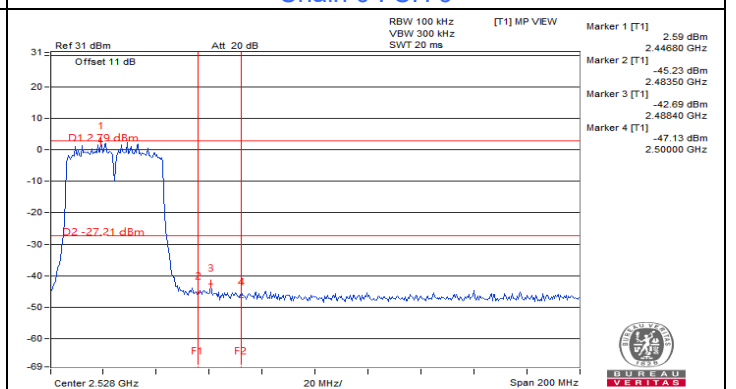
Chain 0 : CH 9



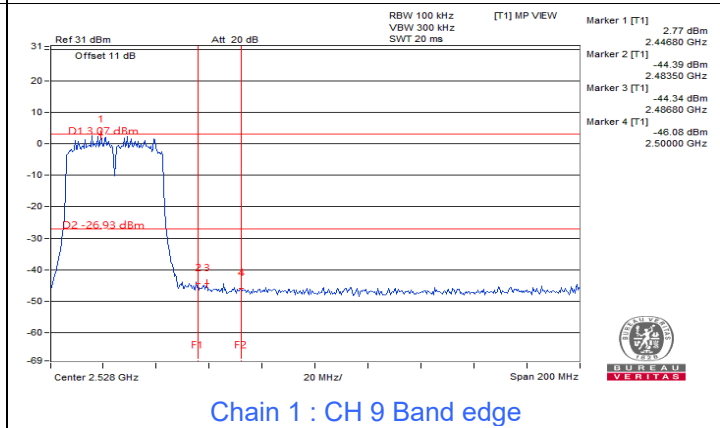
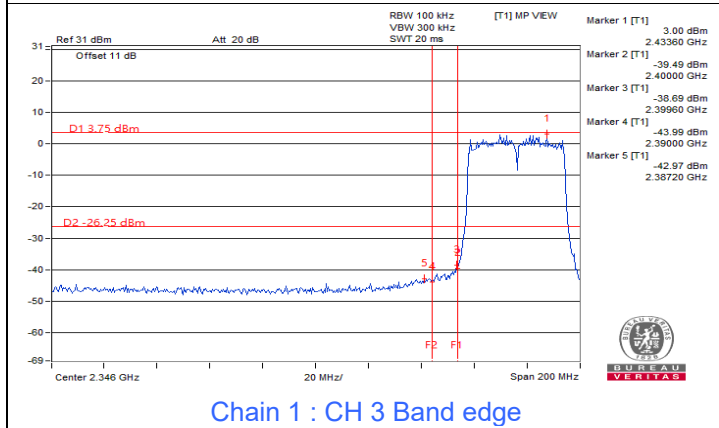
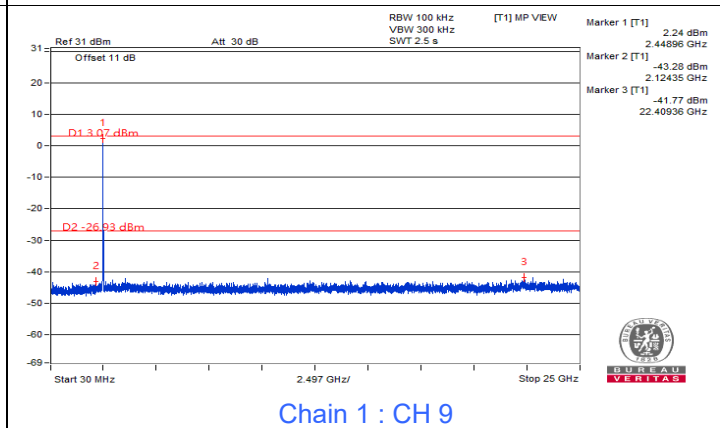
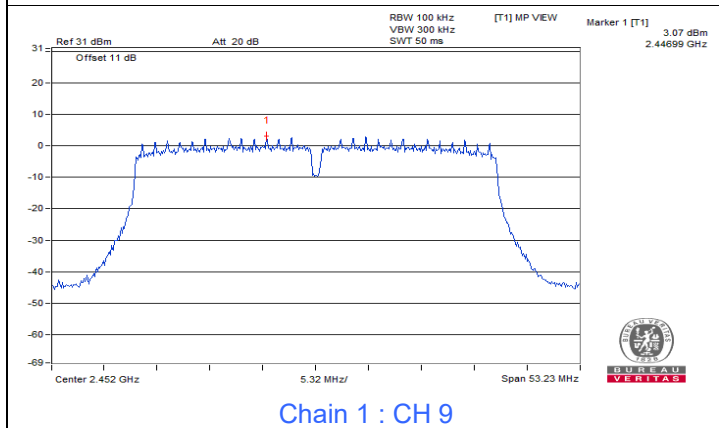
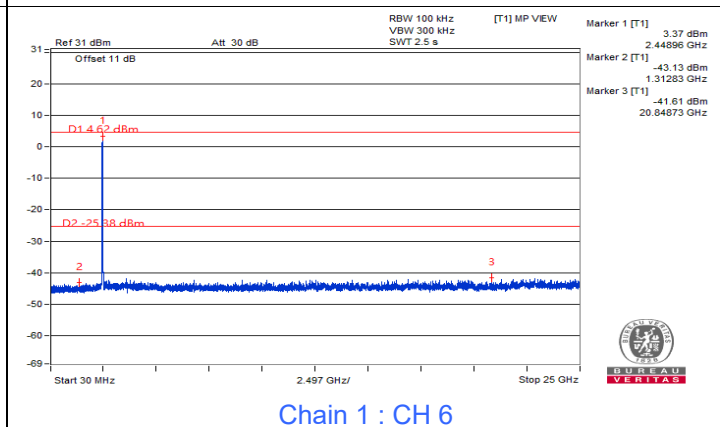
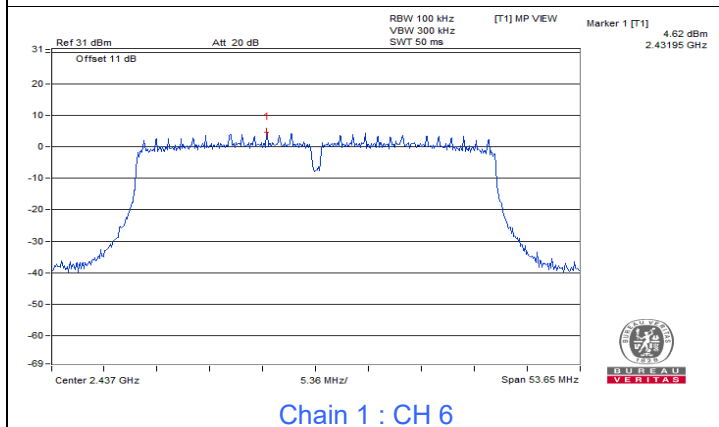
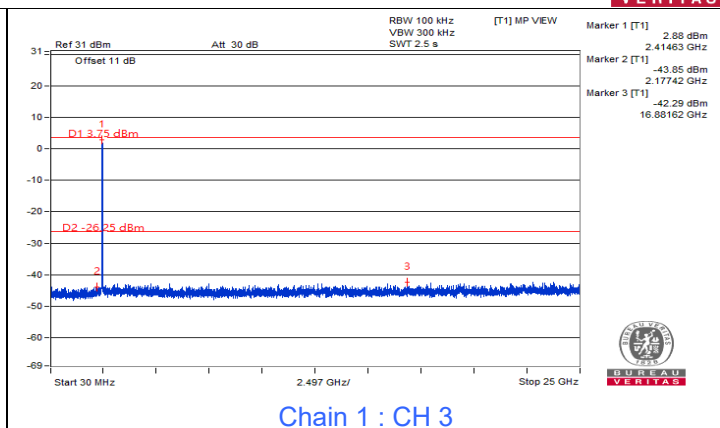
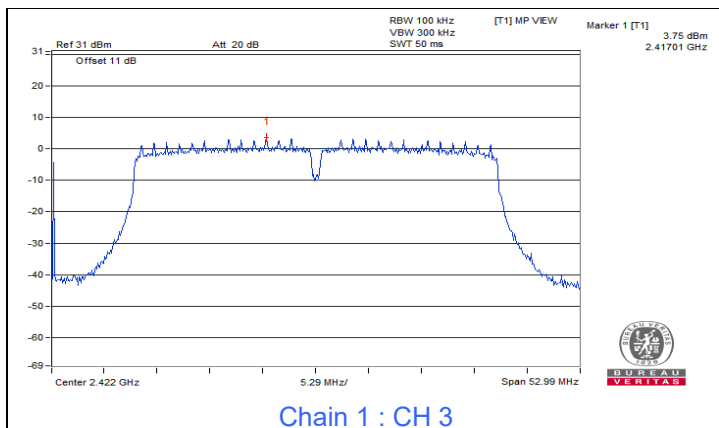
Chain 0 : CH 9



Chain 0 : CH 3 Band edge



Chain 0 : CH 9 Band edge



## 7.5 AC Power Conducted Emissions

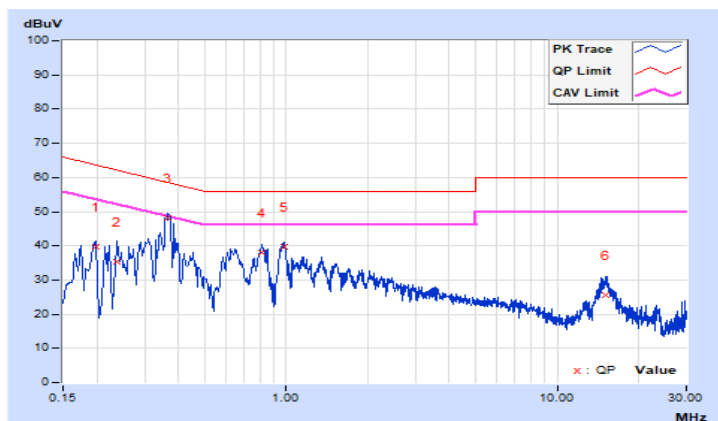
### Mode A

RF Mode	802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Adair Peng		

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	0.19780	9.64	29.96	17.85	39.60	27.49	63.70	53.70	-24.10	-26.21
2	0.23786	9.65	25.60	13.66	35.25	23.31	62.17	52.17	-26.92	-28.86
3	0.36600	9.66	38.60	33.09	48.26	42.75	58.59	48.59	-10.33	-5.84
4	0.81400	9.68	28.51	22.40	38.19	32.08	56.00	46.00	-17.81	-13.92
5	0.97800	9.69	30.08	23.77	39.77	33.46	56.00	46.00	-16.23	-12.54
6	15.11400	9.79	15.77	9.84	25.56	19.63	60.00	50.00	-34.44	-30.37

#### Remarks:

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



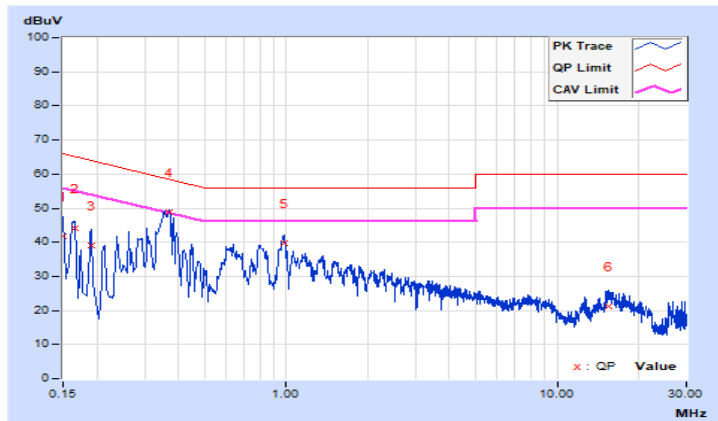


RF Mode	802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Adair Peng		

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	0.15000	9.62	32.21	12.08	41.83	21.70	66.00	56.00	-24.17	-34.30
2	0.16535	9.63	34.38	19.01	44.01	28.64	65.19	55.19	-21.18	-26.55
3	0.19000	9.64	29.36	15.43	39.00	25.07	64.04	54.04	-25.04	-28.97
<b>4</b>	<b>0.37000</b>	<b>9.67</b>	<b>38.99</b>	<b>35.39</b>	<b>48.66</b>	<b>45.06</b>	<b>58.50</b>	<b>48.50</b>	<b>-9.84</b>	<b>-3.44</b>
5	0.97800	9.70	30.09	24.25	39.79	33.95	56.00	46.00	-16.21	-12.05
6	15.55000	9.86	11.36	3.83	21.22	13.69	60.00	50.00	-38.78	-36.31

**Remarks:**

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



## Mode B

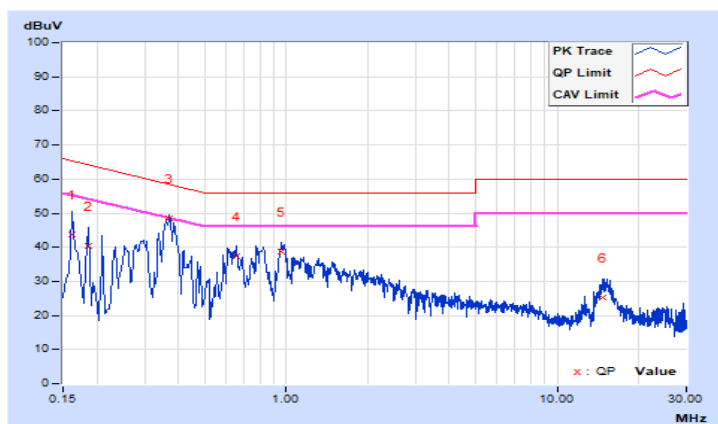
RF Mode	802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Adair Peng		

### 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	9.62	34.31	21.16	43.93	30.78	65.36	55.36	-21.43	-24.58
2	0.18600	9.63	30.71	16.05	40.34	25.68	64.21	54.21	-23.87	-28.53
3	0.37000	9.67	38.65	31.22	48.32	40.89	58.50	48.50	-10.18	-7.61
4	0.65400	9.68	27.65	20.80	37.33	30.48	56.00	46.00	-18.67	-15.52
5	0.95400	9.69	29.18	21.29	38.87	30.98	56.00	46.00	-17.13	-15.02
6	14.81400	9.79	15.63	9.60	25.42	19.39	60.00	50.00	-34.58	-30.61

### 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

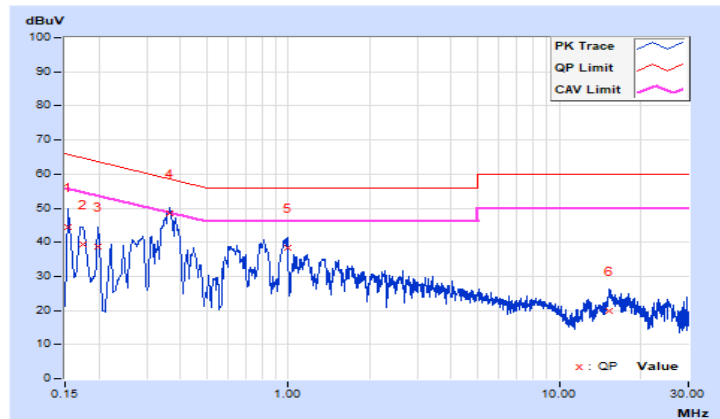


RF Mode	802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Adair Peng		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	9.62	34.67	19.09	44.29	28.71	65.78	55.78	-21.49	-27.07
2	0.17400	9.63	29.85	11.97	39.48	21.60	64.77	54.77	-25.29	-33.17
3	0.19800	9.64	29.01	13.22	38.65	22.86	63.69	53.69	-25.04	-30.83
<b>4</b>	<b>0.36600</b>	<b>9.66</b>	<b>38.98</b>	<b>35.58</b>	<b>48.64</b>	<b>45.24</b>	<b>58.59</b>	<b>48.59</b>	<b>-9.95</b>	<b>-3.35</b>
5	0.99400	9.70	28.69	20.49	38.39	30.19	56.00	46.00	-17.61	-15.81
6	15.35000	9.86	10.16	3.17	20.02	13.03	60.00	50.00	-39.98	-36.97

**Remarks:**

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



## 7.6 Unwanted Emissions below 1 GHz

### Mode A

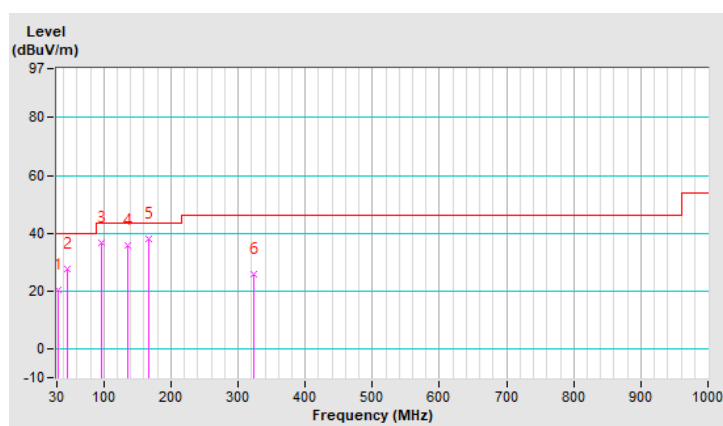
RF Mode	802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 77% RH
Tested By	Rex Wang		

#### Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	31.94	20.6 QP	40.0	-19.4	1.00 H	99	31.1	-10.5
2	45.52	27.7 QP	40.0	-12.3	1.49 H	11	36.9	-9.2
3	95.96	36.8 QP	43.5	-6.7	1.99 H	30	51.2	-14.4
4	135.73	35.6 QP	43.5	-7.9	1.99 H	6	45.4	-9.8
<b>5</b>	<b>167.74</b>	<b>37.9 QP</b>	<b>43.5</b>	<b>-5.6</b>	<b>1.00 H</b>	<b>84</b>	<b>46.9</b>	<b>-9.0</b>
6	323.91	25.8 QP	46.0	-20.2	1.49 H	66	32.1	-6.3

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The 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.

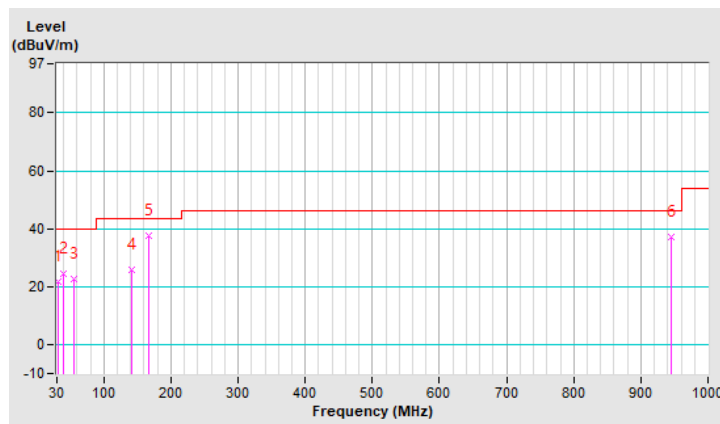


<b>RF Mode</b>	802.11b	<b>Channel</b>	CH 1 : 2412 MHz
<b>Frequency Range</b>	30 MHz ~ 1 GHz	<b>Detector Function &amp; Bandwidth</b>	(QP) RB = 120kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	21°C, 77% RH
<b>Tested By</b>	Rex Wang		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBUV)	Correction Factor (dB/m)
1	32.91	21.6 QP	40.0	-18.4	1.00 V	258	32.2	-10.6
2	40.67	24.5 QP	40.0	-15.5	1.00 V	1	34.2	-9.7
3	55.22	22.8 QP	40.0	-17.2	1.00 V	10	32.0	-9.2
4	141.55	25.7 QP	43.5	-17.8	1.00 V	329	34.9	-9.2
5	167.74	37.8 QP	43.5	-5.7	1.50 V	280	46.8	-9.0
6	944.71	37.1 QP	46.0	-8.9	1.50 V	167	31.0	6.1

**Remarks:**

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



## Mode B

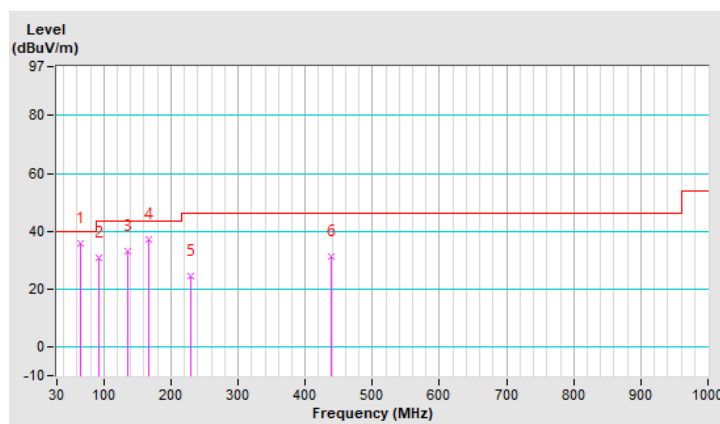
<b>RF Mode</b>	802.11g	<b>Channel</b>	CH 6 : 2437 MHz
<b>Frequency Range</b>	30 MHz ~ 1 GHz	<b>Detector Function &amp; Bandwidth</b>	(QP) RB = 120kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	21°C, 77% RH
<b>Tested By</b>	Rex Wang		

### Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	65.89	35.6 QP	40.0	-4.4	1.00 H	339	46.0	-10.4
2	93.05	30.8 QP	43.5	-12.7	1.50 H	46	45.4	-14.6
3	135.73	33.1 QP	43.5	-10.4	1.50 H	23	42.9	-9.8
4	167.74	37.3 QP	43.5	-6.2	1.00 H	151	46.3	-9.0
5	228.85	24.5 QP	46.0	-21.5	1.00 H	91	35.5	-11.0
6	439.34	31.4 QP	46.0	-14.6	2.00 H	8	35.1	-3.7

### 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 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.

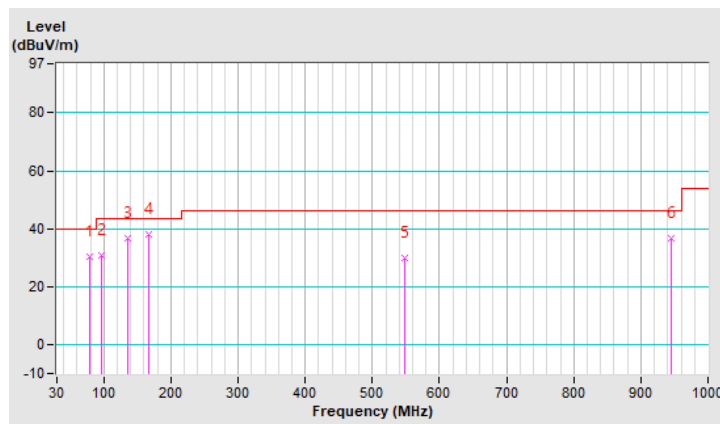


<b>RF Mode</b>	802.11g	<b>Channel</b>	CH 6 : 2437 MHz
<b>Frequency Range</b>	30 MHz ~ 1 GHz	<b>Detector Function &amp; Bandwidth</b>	(QP) RB = 120kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	21°C, 77% RH
<b>Tested By</b>	Rex Wang		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	79.47	30.3 QP	40.0	-9.7	1.00 V	62	43.7	-13.4
2	95.96	30.8 QP	43.5	-12.7	1.50 V	354	45.2	-14.4
3	135.73	36.8 QP	43.5	-6.7	1.50 V	6	46.6	-9.8
4	167.74	37.9 QP	43.5	-5.6	1.00 V	325	46.9	-9.0
5	547.98	30.1 QP	46.0	-15.9	1.00 V	270	31.9	-1.8
6	944.71	36.5 QP	46.0	-9.5	1.50 V	319	30.4	6.1

**Remarks:**

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

### Mode A

<b>RF Mode</b>	802.11b	<b>Channel</b>	CH 1 : 2412 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	20.2°C, 76.8% RH
<b>Tested By</b>	Rex Wang		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	59.2 PK	74.0	-14.8	2.23 H	21	25.5	33.7
2	2390.00	46.6 AV	54.0	-7.4	2.23 H	21	12.9	33.7
3	*2412.00	125.4 PK			2.23 H	21	91.7	33.7
4	*2412.00	124.2 AV			2.23 H	21	90.5	33.7
5	4824.00	51.0 PK	74.0	-23.0	1.96 H	10	40.7	10.3
6	4824.00	37.6 AV	54.0	-16.4	1.96 H	10	27.3	10.3
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	58.9 PK	74.0	-15.1	1.31 V	41	25.2	33.7
2	2390.00	45.8 AV	54.0	-8.2	1.31 V	41	12.1	33.7
3	*2412.00	117.0 PK			1.31 V	41	83.3	33.7
4	*2412.00	115.7 AV			1.31 V	41	82.0	33.7
5	4824.00	50.8 PK	74.0	-23.2	1.55 V	68	40.5	10.3
6	4824.00	37.3 AV	54.0	-16.7	1.55 V	68	27.0	10.3

#### Remarks:

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





<b>RF Mode</b>	802.11b	<b>Channel</b>	CH 6 : 2437 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	20.2°C, 76.8% RH
<b>Tested By</b>	Rex Wang		

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	125.0 PK			2.22 H	20	91.2	33.8
2	*2437.00	123.7 AV			2.22 H	20	89.9	33.8
3	4874.00	51.1 PK	74.0	-22.9	1.98 H	13	40.6	10.5
4	4874.00	37.8 AV	54.0	-16.2	1.98 H	13	27.3	10.5

**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	*2437.00	117.5 PK			1.25 V	42	83.7	33.8
2	*2437.00	116.3 AV			1.25 V	42	82.5	33.8
3	4874.00	50.8 PK	74.0	-23.2	1.58 V	62	40.3	10.5
4	4874.00	37.5 AV	54.0	-16.5	1.58 V	62	27.0	10.5

**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.

<b>RF Mode</b>	802.11b	<b>Channel</b>	CH 11 : 2462 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	20.2°C, 76.8% RH
<b>Tested By</b>	Rex Wang		

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	124.9 PK			2.17 H	24	91.0	33.9
2	*2462.00	123.7 AV			2.17 H	24	89.8	33.9
3	2483.50	60.3 PK	74.0	-13.7	2.17 H	24	26.5	33.8
4	2483.50	49.5 AV	54.0	-4.5	2.17 H	24	15.7	33.8
5	4924.00	51.4 PK	74.0	-22.6	1.94 H	10	41.0	10.4
6	4924.00	37.6 AV	54.0	-16.4	1.94 H	10	27.2	10.4

**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	117.7 PK			1.42 V	42	83.8	33.9
2	*2462.00	116.5 AV			1.42 V	42	82.6	33.9
3	2483.50	59.3 PK	74.0	-14.7	1.42 V	42	25.5	33.8
4	2483.50	48.1 AV	54.0	-5.9	1.42 V	42	14.3	33.8
5	4924.00	51.0 PK	74.0	-23.0	1.58 V	67	40.6	10.4
6	4924.00	37.3 AV	54.0	-16.7	1.58 V	67	26.9	10.4

**Remarks:**

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



<b>RF Mode</b>	802.11g	<b>Channel</b>	CH 1 : 2412 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	20.2°C, 76.8% RH
<b>Tested By</b>	Rex Wang		

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	69.4 PK	74.0	-4.6	1.85 H	8	35.7	33.7
2	2390.00	53.4 AV	54.0	-0.6	1.85 H	8	19.7	33.7
3	*2412.00	126.7 PK			1.85 H	8	93.0	33.7
4	*2412.00	117.4 AV			1.85 H	8	83.7	33.7
5	4824.00	50.8 PK	74.0	-23.2	1.98 H	14	40.5	10.3
6	4824.00	37.7 AV	54.0	-16.3	1.98 H	14	27.4	10.3

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.2 PK	74.0	-13.8	1.63 V	37	26.5	33.7
2	2390.00	48.2 AV	54.0	-5.8	1.63 V	37	14.5	33.7
3	*2412.00	120.2 PK			1.63 V	37	86.5	33.7
4	*2412.00	110.9 AV			1.63 V	37	77.2	33.7
5	4824.00	50.4 PK	74.0	-23.6	1.55 V	67	40.1	10.3
6	4824.00	37.2 AV	54.0	-16.8	1.55 V	67	26.9	10.3

**Remarks:**

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



<b>RF Mode</b>	802.11g	<b>Channel</b>	CH 6 : 2437 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	20.2°C, 76.8% RH
<b>Tested By</b>	Rex Wang		

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	126.9 PK			1.92 H	9	93.1	33.8
2	*2437.00	117.4 AV			1.92 H	9	83.6	33.8
3	4874.00	51.2 PK	74.0	-22.8	1.96 H	11	40.7	10.5
4	4874.00	37.8 AV	54.0	-16.2	1.96 H	11	27.3	10.5

**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	*2437.00	120.7 PK			1.70 V	9	86.9	33.8
2	*2437.00	111.1 AV			1.70 V	9	77.3	33.8
3	4874.00	50.9 PK	74.0	-23.1	1.66 V	62	40.4	10.5
4	4874.00	37.5 AV	54.0	-16.5	1.66 V	62	27.0	10.5

**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.

<b>RF Mode</b>	802.11g	<b>Channel</b>	CH 11 : 2462 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	20.2°C, 76.8% RH
<b>Tested By</b>	Rex Wang		

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	124.9 PK			1.84 H	12	91.0	33.9
2	*2462.00	115.4 AV			1.84 H	12	81.5	33.9
3	2484.20	67.5 PK	74.0	-6.5	1.84 H	12	33.7	33.8
<b>4</b>	<b>2484.20</b>	<b>53.9 AV</b>	<b>54.0</b>	<b>-0.1</b>	<b>1.84 H</b>	<b>12</b>	<b>20.1</b>	<b>33.8</b>
5	4924.00	51.0 PK	74.0	-23.0	1.92 H	10	40.6	10.4
6	4924.00	37.4 AV	54.0	-16.6	1.92 H	10	27.0	10.4

**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	119.0 PK			1.88 V	9	85.1	33.9
2	*2462.00	109.8 AV			1.88 V	9	75.9	33.9
3	2483.50	65.3 PK	74.0	-8.7	1.88 V	9	31.5	33.8
4	2483.50	51.6 AV	54.0	-2.4	1.88 V	9	17.8	33.8
5	4924.00	50.7 PK	74.0	-23.3	1.54 V	62	40.3	10.4
6	4924.00	37.0 AV	54.0	-17.0	1.54 V	62	26.6	10.4

**Remarks:**

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



<b>RF Mode</b>	802.11ax (HE20)	<b>Channel</b>	CH 1 : 2412 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	20.2°C, 76.8% RH
<b>Tested By</b>	Rex Wang		

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	68.9 PK	74.0	-5.1	2.22 H	20	35.2	33.7
2	2390.00	53.0 AV	54.0	-1.0	2.22 H	20	19.3	33.7
3	*2412.00	127.9 PK			2.22 H	20	94.2	33.7
4	*2412.00	114.2 AV			2.22 H	20	80.5	33.7
5	4824.00	50.9 PK	74.0	-23.1	1.99 H	12	40.6	10.3
6	4824.00	37.3 AV	54.0	-16.7	1.99 H	12	27.0	10.3

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2389.30	68.5 PK	74.0	-5.5	1.56 V	21	34.8	33.7
2	2389.30	52.4 AV	54.0	-1.6	1.56 V	21	18.7	33.7
3	*2412.00	120.2 PK			1.56 V	21	86.5	33.7
4	*2412.00	107.5 AV			1.56 V	21	73.8	33.7
5	4824.00	50.7 PK	74.0	-23.3	1.62 V	69	40.4	10.3
6	4824.00	37.2 AV	54.0	-16.8	1.62 V	69	26.9	10.3

**Remarks:**

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



<b>RF Mode</b>	802.11ax (HE20)	<b>Channel</b>	CH 6 : 2437 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	20.2°C, 76.8% RH
<b>Tested By</b>	Rex Wang		

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	129.7 PK			2.40 H	8	95.9	33.8
2	*2437.00	117.7 AV			2.40 H	8	83.9	33.8
3	4874.00	51.0 PK	74.0	-23.0	1.95 H	11	40.5	10.5
4	4874.00	37.6 AV	54.0	-16.4	1.95 H	11	27.1	10.5

**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	*2437.00	124.3 PK			2.11 V	8	90.5	33.8
2	*2437.00	111.3 AV			2.11 V	8	77.5	33.8
3	4874.00	50.7 PK	74.0	-23.3	1.64 V	65	40.2	10.5
4	4874.00	37.2 AV	54.0	-16.8	1.64 V	65	26.7	10.5

**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.



<b>RF Mode</b>	802.11ax (HE20)	<b>Channel</b>	CH 11 : 2462 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	20.2°C, 76.8% RH
<b>Tested By</b>	Rex Wang		

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	126.1 PK			2.37 H	14	92.2	33.9
2	*2462.00	112.6 AV			2.37 H	14	78.7	33.9
3	2484.40	68.3 PK	74.0	-5.7	2.37 H	14	34.5	33.8
4	2484.40	53.5 AV	54.0	-0.5	2.37 H	14	19.7	33.8
5	4924.00	51.0 PK	74.0	-23.0	1.94 H	8	40.6	10.4
6	4924.00	37.4 AV	54.0	-16.6	1.94 H	8	27.0	10.4

**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	120.7 PK			1.86 V	15	86.8	33.9
2	*2462.00	107.8 AV			1.86 V	15	73.9	33.9
3	2483.50	62.4 PK	74.0	-11.6	1.86 V	15	28.6	33.8
4	2483.50	51.3 AV	54.0	-2.7	1.86 V	15	17.5	33.8
5	4924.00	50.7 PK	74.0	-23.3	1.52 V	65	40.3	10.4
6	4924.00	37.1 AV	54.0	-16.9	1.52 V	65	26.7	10.4

**Remarks:**

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





<b>RF Mode</b>	802.11ax (HE40)	<b>Channel</b>	CH 3 : 2422 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	20.2°C, 76.8% RH
<b>Tested By</b>	Rex Wang		

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2387.50	66.9 PK	74.0	-7.1	2.43 H	7	33.2	33.7
2	2387.50	53.1 AV	54.0	-0.9	2.43 H	7	19.4	33.7
3	*2422.00	123.5 PK			2.43 H	7	89.8	33.7
4	*2422.00	110.6 AV			2.43 H	7	76.9	33.7
5	4844.00	51.1 PK	74.0	-22.9	1.95 H	13	40.7	10.4
6	4844.00	37.8 AV	54.0	-16.2	1.95 H	13	27.4	10.4

**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	2389.20	61.2 PK	74.0	-12.8	1.50 V	42	27.5	33.7
2	2389.20	49.3 AV	54.0	-4.7	1.50 V	42	15.6	33.7
3	*2422.00	117.0 PK			1.50 V	42	83.3	33.7
4	*2422.00	104.3 AV			1.50 V	42	70.6	33.7
5	4844.00	50.9 PK	74.0	-23.1	1.59 V	72	40.5	10.4
6	4844.00	37.5 AV	54.0	-16.5	1.59 V	72	27.1	10.4

**Remarks:**

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



<b>RF Mode</b>	802.11ax (HE40)	<b>Channel</b>	CH 6 : 2437 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	20.2°C, 76.8% RH
<b>Tested By</b>	Rex Wang		

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	122.8 PK			2.36 H	7	89.0	33.8
2	*2437.00	110.9 AV			2.36 H	7	77.1	33.8
3	2483.50	66.1 PK	74.0	-7.9	2.36 H	7	32.3	33.8
4	2483.50	53.2 AV	54.0	-0.8	2.36 H	7	19.4	33.8
5	4874.00	51.1 PK	74.0	-22.9	1.93 H	15	40.6	10.5
6	4874.00	37.7 AV	54.0	-16.3	1.93 H	15	27.2	10.5

**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	*2437.00	117.4 PK			1.89 V	15	83.6	33.8
2	*2437.00	104.6 AV			1.89 V	15	70.8	33.8
3	2483.50	60.2 PK	74.0	-13.8	1.89 V	15	26.4	33.8
4	2483.50	49.1 AV	54.0	-4.9	1.89 V	15	15.3	33.8
5	4874.00	50.9 PK	74.0	-23.1	1.58 V	66	40.4	10.5
6	4874.00	37.4 AV	54.0	-16.6	1.58 V	66	26.9	10.5

**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.



<b>RF Mode</b>	802.11ax (HE40)	<b>Channel</b>	CH 9 : 2452 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	20.2°C, 76.8% RH
<b>Tested By</b>	Rex Wang		

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	121.3 PK			2.43 H	7	87.5	33.8
2	*2452.00	109.3 AV			2.43 H	7	75.5	33.8
3	2483.50	67.0 PK	74.0	-7.0	2.43 H	7	33.2	33.8
4	2483.50	53.8 AV	54.0	-0.2	2.43 H	7	20.0	33.8
5	4904.00	51.0 PK	74.0	-23.0	2.01 H	11	40.6	10.4
6	4904.00	37.7 AV	54.0	-16.3	2.01 H	11	27.3	10.4

**Antenna Polarity & Test Distance : Vertical at 3 m**

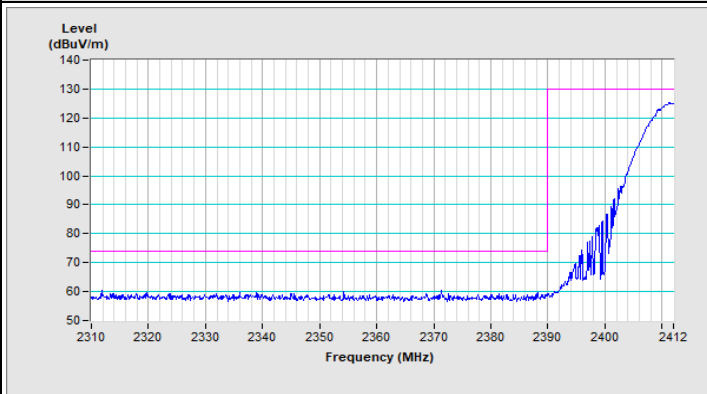
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	116.4 PK			1.75 V	16	82.6	33.8
2	*2452.00	103.2 AV			1.75 V	16	69.4	33.8
3	2488.10	63.7 PK	74.0	-10.3	1.75 V	16	29.9	33.8
4	2488.10	51.7 AV	54.0	-2.3	1.75 V	16	17.9	33.8
5	4904.00	50.8 PK	74.0	-23.2	1.56 V	64	40.4	10.4
6	4904.00	37.4 AV	54.0	-16.6	1.56 V	64	27.0	10.4

**Remarks:**

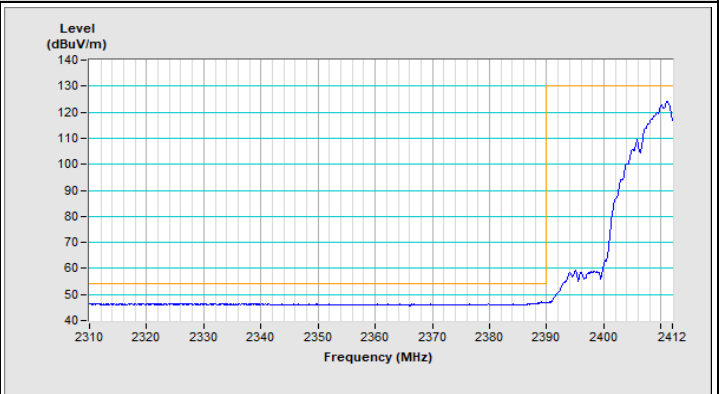
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency,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

### Plot of Band Edge

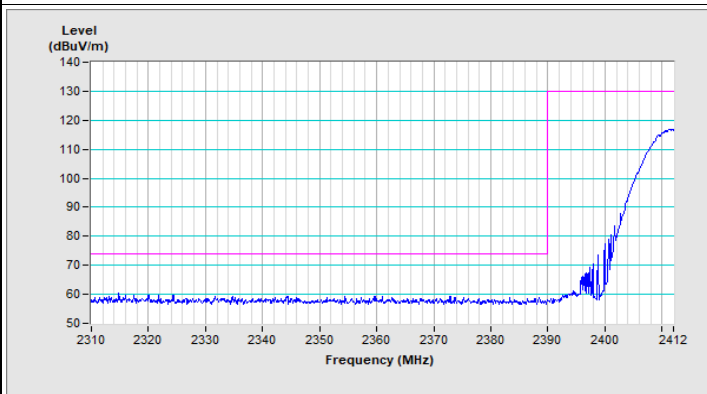
#### 802.11b Channel 1



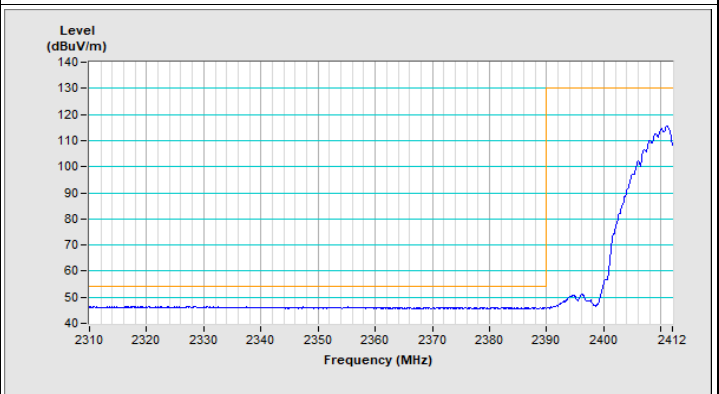
Horizontal (Peak)



Horizontal (Average)

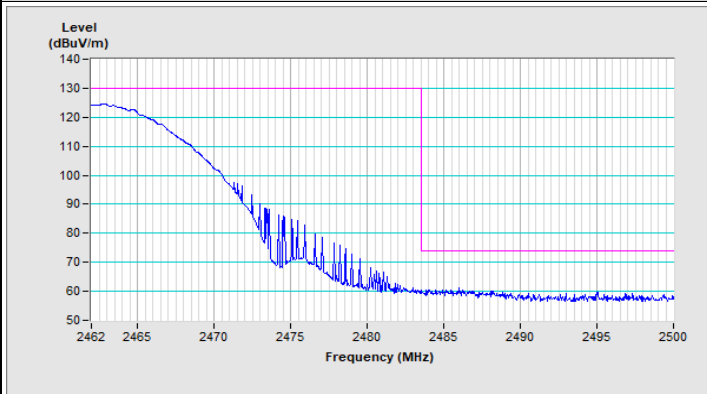


Vertical (Peak)

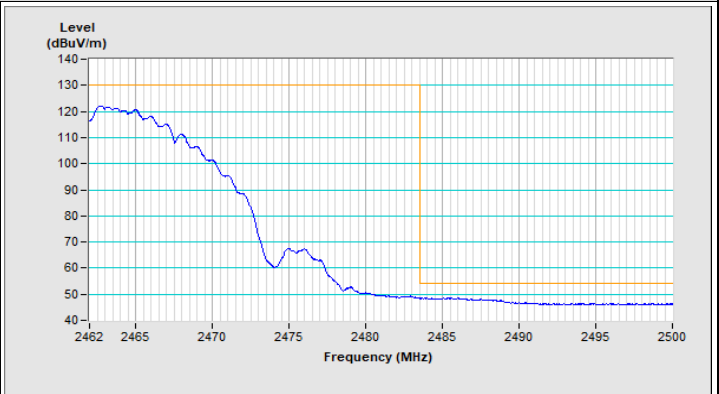


Vertical (Average)

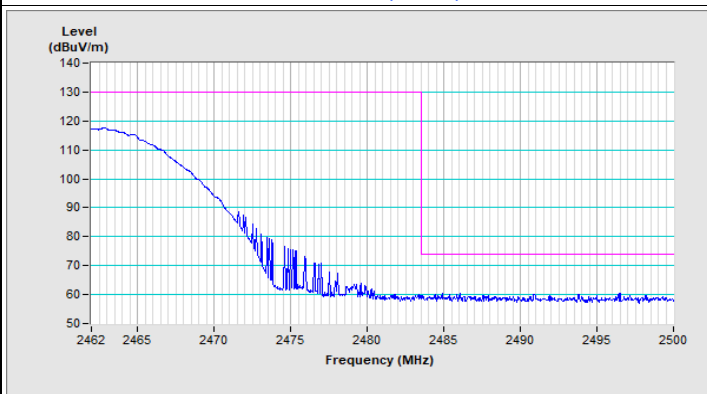
#### 802.11b Channel 11



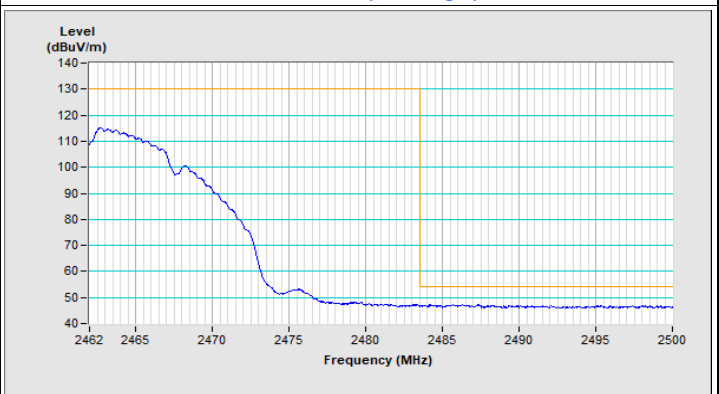
Horizontal (Peak)



Horizontal (Average)

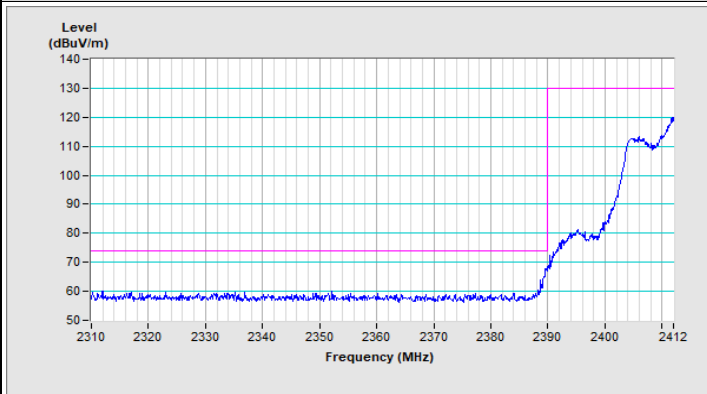


Vertical (Peak)

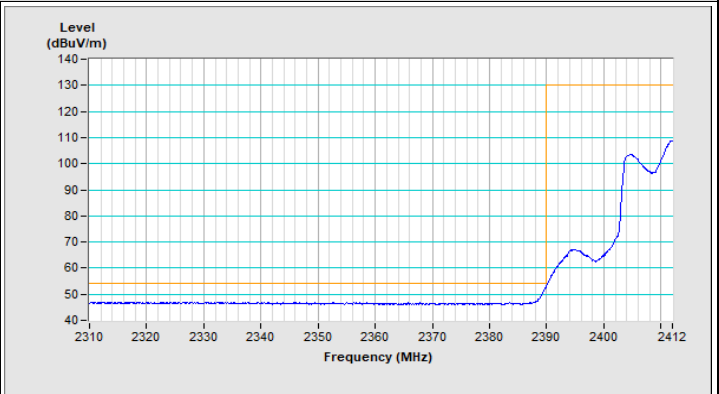


Vertical (Average)

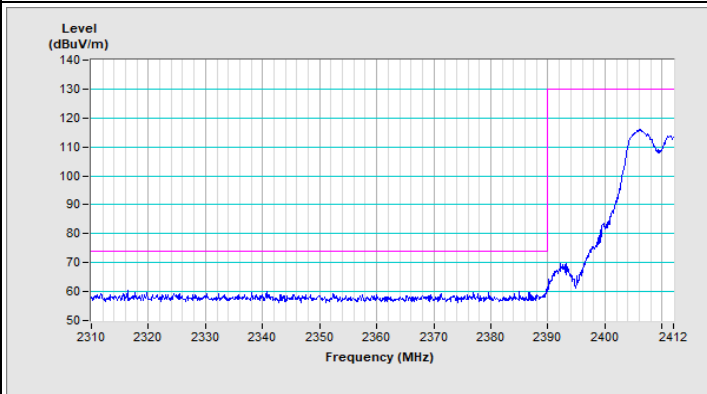
### 802.11g Channel 1



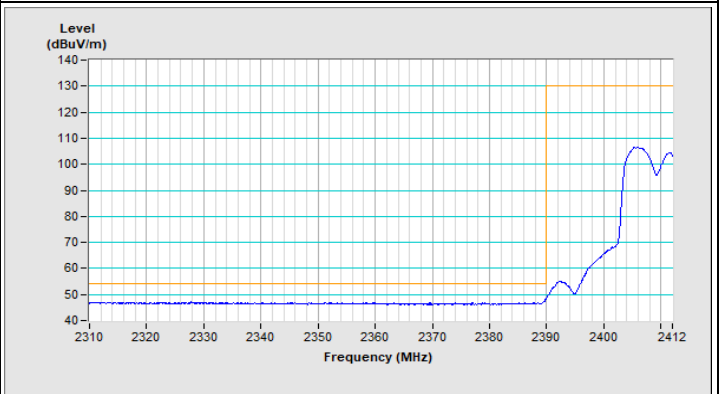
Horizontal (Peak)



Horizontal (Average)

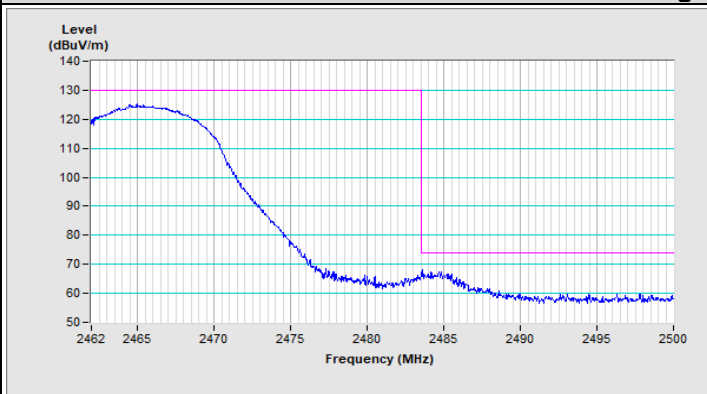


Vertical (Peak)

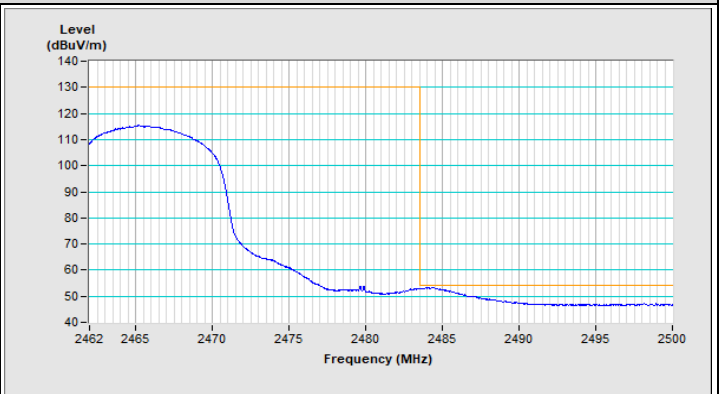


Vertical (Average)

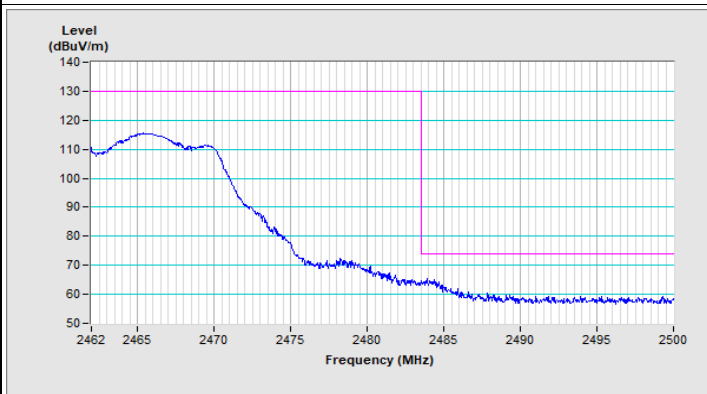
### 802.11g Channel 11



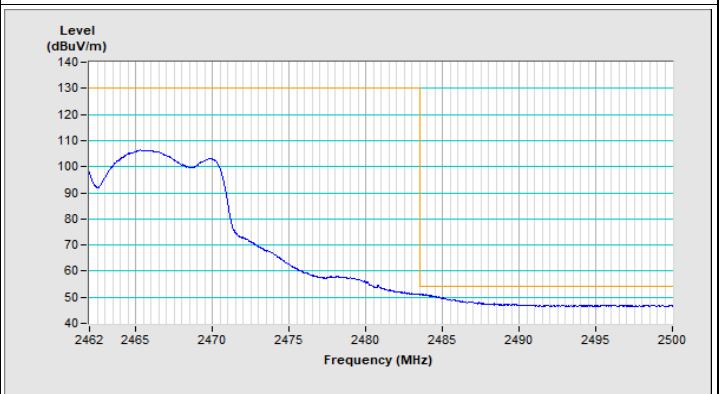
Horizontal (Peak)



Horizontal (Average)

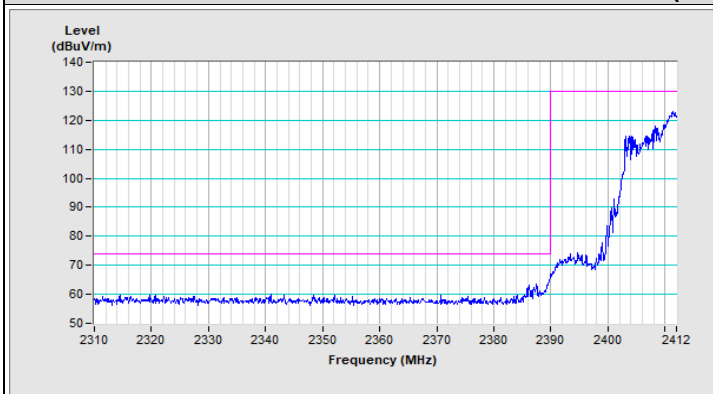


Vertical (Peak)

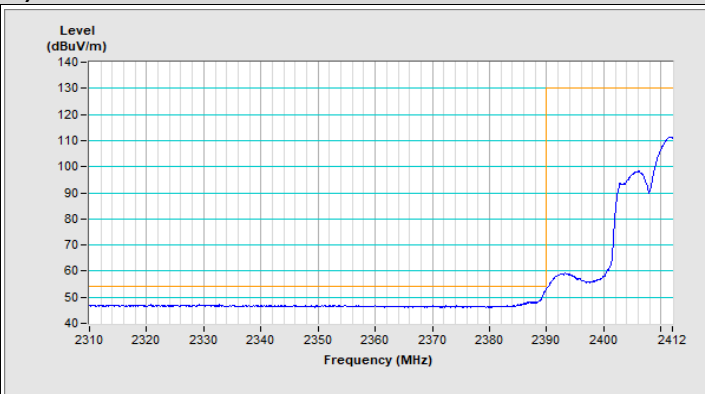


Vertical (Average)

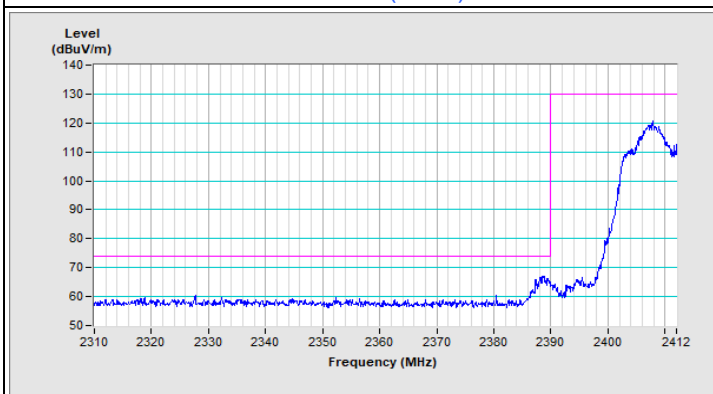
### 802.11ax (HE20) Channel 1



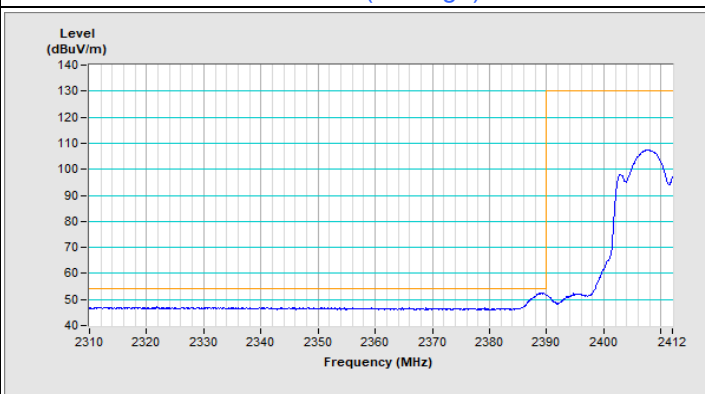
Horizontal (Peak)



Horizontal (Average)

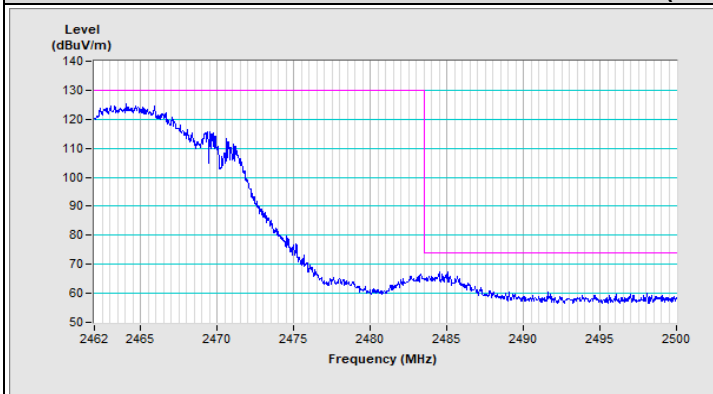


Vertical (Peak)

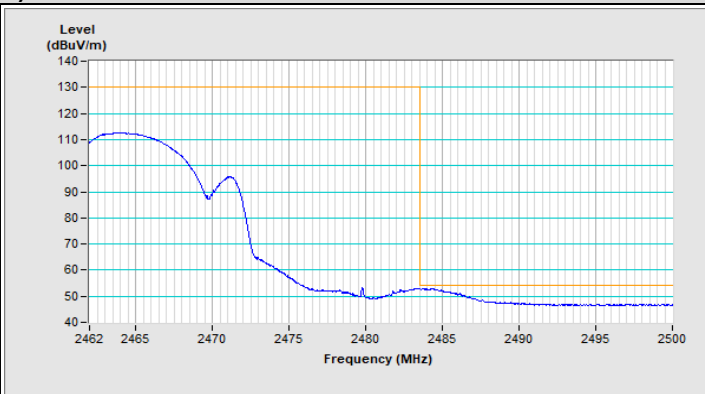


Vertical (Average)

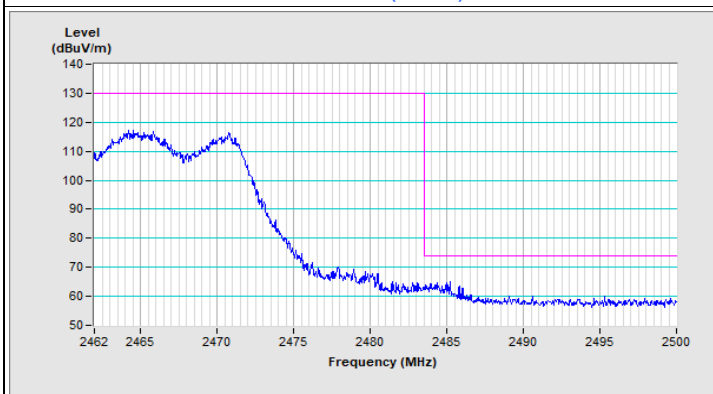
### 802.11ax (HE20) Channel 11



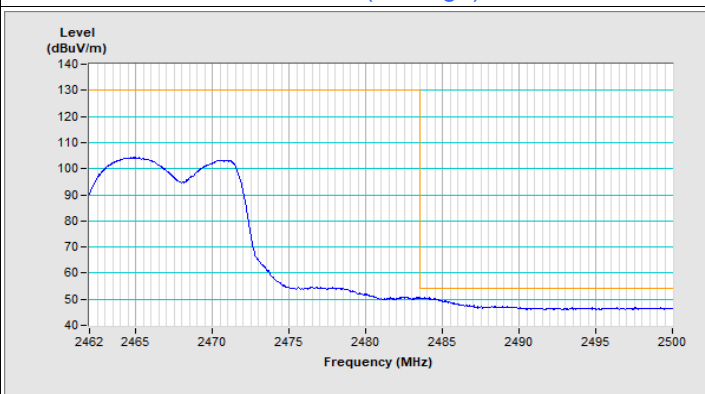
Horizontal (Peak)



Horizontal (Average)

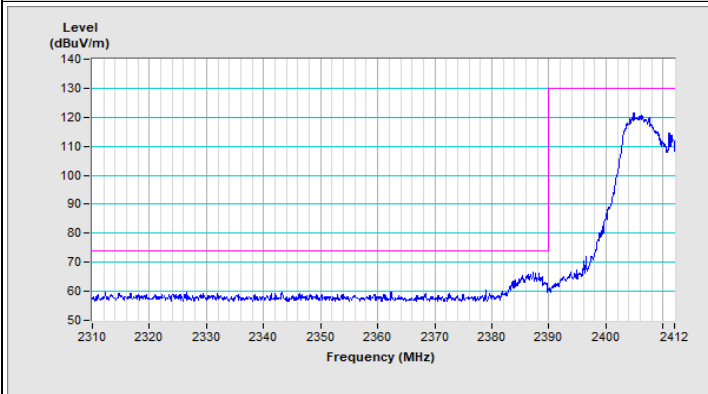


Vertical (Peak)

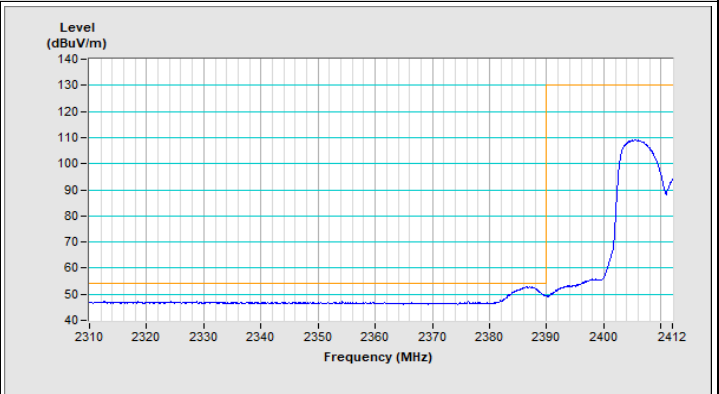


Vertical (Average)

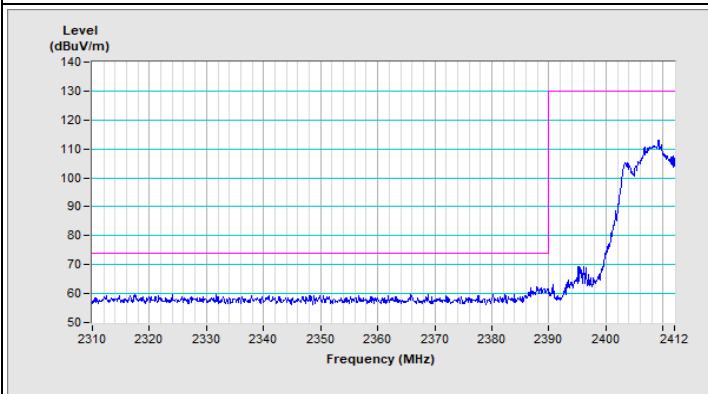
### 802.11ax (HE40) Channel 3



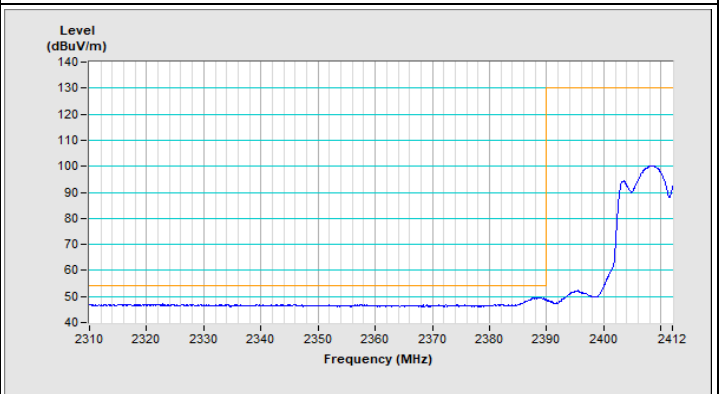
Horizontal (Peak)



Horizontal (Average)

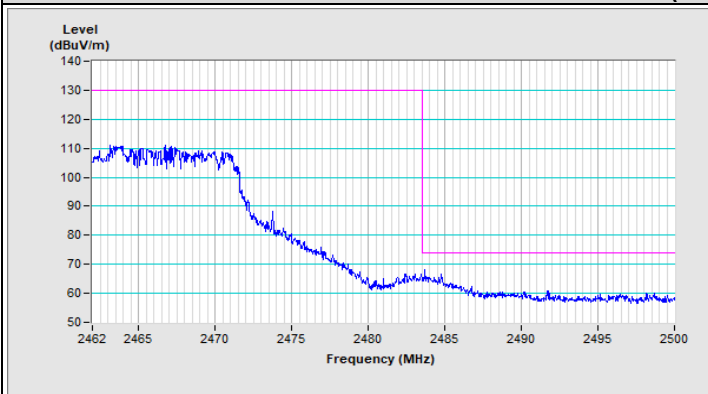


Vertical (Peak)

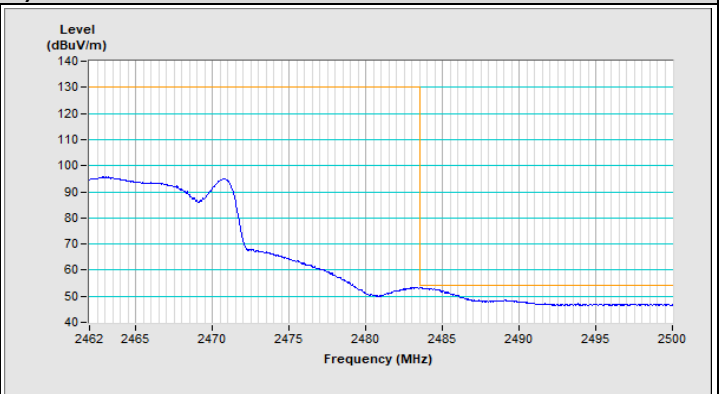


Vertical (Average)

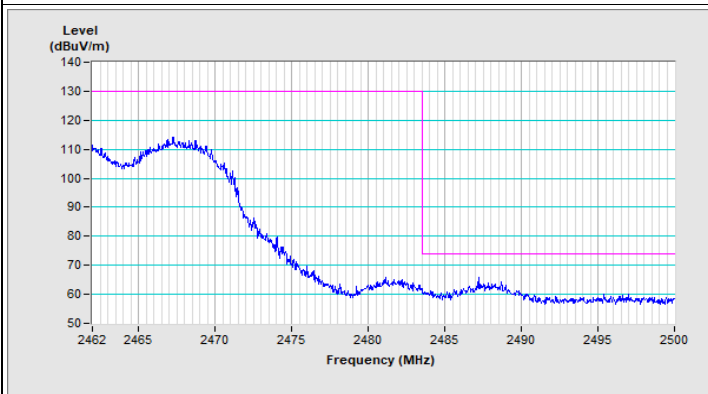
### 802.11ax (HE40) Channel 9



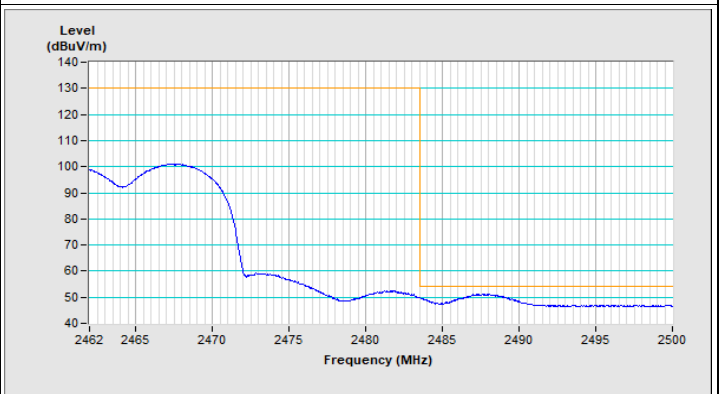
Horizontal (Peak)



Horizontal (Average)



Vertical (Peak)



Vertical (Average)

**Mode B**

<b>RF Mode</b>	802.11b	<b>Channel</b>	CH 1 : 2412 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 67% RH
<b>Tested By</b>	Adair Peng		

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	59.6 PK	74.0	-14.4	3.81 H	65	25.9	33.7
2	2390.00	46.3 AV	54.0	-7.7	3.81 H	65	12.6	33.7
3	*2412.00	106.2 PK			3.81 H	65	72.5	33.7
4	*2412.00	103.7 AV			3.81 H	65	70.0	33.7
5	4824.00	52.6 PK	74.0	-21.4	2.27 H	121	42.3	10.3
6	4824.00	45.2 AV	54.0	-8.8	2.27 H	121	34.9	10.3
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	59.7 PK	74.0	-14.3	2.70 V	46	26.0	33.7
2	2390.00	46.6 AV	54.0	-7.4	2.70 V	46	12.9	33.7
3	*2412.00	110.3 PK			2.70 V	46	76.6	33.7
4	*2412.00	107.8 AV			2.70 V	46	74.1	33.7
5	4824.00	57.5 PK	74.0	-16.5	2.49 V	337	47.2	10.3
<b>6</b>	<b>4824.00</b>	<b>53.8 AV</b>	<b>54.0</b>	<b>-0.2</b>	<b>2.49 V</b>	<b>337</b>	<b>43.5</b>	<b>10.3</b>

**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.





<b>RF Mode</b>	802.11b	<b>Channel</b>	CH 6 : 2437 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 67% RH
<b>Tested By</b>	Adair Peng		

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	105.0 PK			3.83 H	62	71.2	33.8
2	*2437.00	102.5 AV			3.83 H	62	68.7	33.8
3	4874.00	52.6 PK	74.0	-21.4	2.30 H	126	42.1	10.5
4	4874.00	45.2 AV	54.0	-8.8	2.30 H	126	34.7	10.5

**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	*2437.00	109.0 PK			2.85 V	44	75.2	33.8
2	*2437.00	106.5 AV			2.85 V	44	72.7	33.8
3	4874.00	57.4 PK	74.0	-16.6	2.62 V	335	46.9	10.5
4	4874.00	53.6 AV	54.0	-0.4	2.62 V	335	43.1	10.5

**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.

<b>RF Mode</b>	802.11b	<b>Channel</b>	CH 11 : 2462 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 67% RH
<b>Tested By</b>	Adair Peng		

**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	105.1 PK			3.77 H	66	71.2	33.9
2	*2462.00	102.5 AV			3.77 H	66	68.6	33.9
3	2483.50	59.4 PK	74.0	-14.6	3.77 H	66	25.6	33.8
4	2483.50	48.2 AV	54.0	-5.8	3.77 H	66	14.4	33.8
5	4924.00	52.8 PK	74.0	-21.2	2.29 H	123	42.4	10.4
6	4924.00	44.8 AV	54.0	-9.2	2.29 H	123	34.4	10.4

**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	109.3 PK			2.86 V	43	75.4	33.9
2	*2462.00	106.6 AV			2.86 V	43	72.7	33.9
3	2483.50	59.5 PK	74.0	-14.5	2.83 V	43	25.7	33.8
4	2483.50	48.4 AV	54.0	-5.6	2.83 V	43	14.6	33.8
5	4924.00	57.6 PK	74.0	-16.4	2.58 V	333	47.2	10.4
6	4924.00	53.5 AV	54.0	-0.5	2.58 V	333	43.1	10.4

**Remarks:**

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



<b>RF Mode</b>	802.11g	<b>Channel</b>	CH 1 : 2412 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 67% RH
<b>Tested By</b>	Adair Peng		

**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	2387.60	62.9 PK	74.0	-11.1	3.82 H	64	29.2	33.7
2	2387.60	49.6 AV	54.0	-4.4	3.82 H	64	15.9	33.7
3	*2412.00	112.3 PK			3.82 H	64	78.6	33.7
4	*2412.00	102.9 AV			3.82 H	64	69.2	33.7
5	4824.00	53.3 PK	74.0	-20.7	2.61 H	120	43.0	10.3
6	4824.00	39.5 AV	54.0	-14.5	2.61 H	120	29.2	10.3

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2387.60	67.3 PK	74.0	-6.7	2.68 V	50	33.6	33.7
2	2387.60	53.1 AV	54.0	-0.9	2.68 V	50	19.4	33.7
3	*2412.00	117.0 PK			2.68 V	50	83.3	33.7
4	*2412.00	107.4 AV			2.68 V	50	73.7	33.7
5	4824.00	59.3 PK	74.0	-14.7	2.51 V	335	49.0	10.3
6	4824.00	46.7 AV	54.0	-7.3	2.51 V	335	36.4	10.3

**Remarks:**

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



<b>RF Mode</b>	802.11g	<b>Channel</b>	CH 6 : 2437 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 67% RH
<b>Tested By</b>	Adair Peng		

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	2386.60	64.1 PK	74.0	-9.9	3.75 H	62	30.4	33.7
2	2386.60	48.8 AV	54.0	-5.2	3.75 H	62	15.1	33.7
3	*2437.00	116.3 PK			3.75 H	62	82.5	33.8
4	*2437.00	106.9 AV			3.75 H	62	73.1	33.8
5	2486.80	61.7 PK	74.0	-12.3	3.75 H	62	27.9	33.8
6	2486.80	49.2 AV	54.0	-4.8	3.75 H	62	15.4	33.8
7	4874.00	54.3 PK	74.0	-19.7	2.64 H	119	43.8	10.5
8	4874.00	41.4 AV	54.0	-12.6	2.64 H	119	30.9	10.5
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	2386.60	68.2 PK	74.0	-5.8	2.48 V	41	34.5	33.7
2	2386.60	51.6 AV	54.0	-2.4	2.48 V	41	17.9	33.7
3	*2437.00	121.3 PK			2.48 V	41	87.5	33.8
4	*2437.00	111.7 AV			2.48 V	41	77.9	33.8
5	2486.80	67.3 PK	74.0	-6.7	2.48 V	41	33.5	33.8
6	2486.80	53.2 AV	54.0	-0.8	2.48 V	41	19.4	33.8
7	4874.00	60.4 PK	74.0	-13.6	2.56 V	335	49.9	10.5
8	4874.00	48.8 AV	54.0	-5.2	2.56 V	335	38.3	10.5

**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.

<b>RF Mode</b>	802.11g	<b>Channel</b>	CH 11 : 2462 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 67% RH
<b>Tested By</b>	Adair Peng		

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	112.1 PK			3.77 H	63	78.2	33.9
2	*2462.00	102.5 AV			3.77 H	63	68.6	33.9
3	2485.20	66.2 PK	74.0	-7.8	3.77 H	63	32.4	33.8
4	2485.20	51.9 AV	54.0	-2.1	3.77 H	63	18.1	33.8
5	4924.00	53.9 PK	74.0	-20.1	2.70 H	123	43.5	10.4
6	4924.00	40.4 AV	54.0	-13.6	2.70 H	123	30.0	10.4

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	116.9 PK			2.70 V	33	83.0	33.9
2	*2462.00	107.2 AV			2.70 V	33	73.3	33.9
3	2485.20	68.3 PK	74.0	-5.7	2.70 V	33	34.5	33.8
4	2485.20	53.5 AV	54.0	-0.5	2.70 V	33	19.7	33.8
5	4924.00	59.9 PK	74.0	-14.1	2.56 V	334	49.5	10.4
6	4924.00	47.6 AV	54.0	-6.4	2.56 V	334	37.2	10.4

**Remarks:**

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

<b>RF Mode</b>	VHT20	<b>Channel</b>	CH 1 : 2412 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 67% RH
<b>Tested By</b>	Adair Peng		

**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	66.2 PK	74.0	-7.8	3.81 H	63	32.5	33.7
2	2390.00	51.9 AV	54.0	-2.1	3.81 H	63	18.2	33.7
3	*2412.00	113.1 PK			3.81 H	63	79.4	33.7
4	*2412.00	103.0 AV			3.81 H	63	69.3	33.7
5	4824.00	52.3 PK	74.0	-21.7	2.66 H	118	42.0	10.3
6	4824.00	39.3 AV	54.0	-14.7	2.66 H	118	29.0	10.3

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	68.1 PK	74.0	-5.9	2.78 V	38	34.4	33.7
2	2390.00	53.7 AV	54.0	-0.3	2.78 V	38	20.0	33.7
3	*2412.00	117.0 PK			2.78 V	38	83.3	33.7
4	*2412.00	107.8 AV			2.78 V	38	74.1	33.7
5	4824.00	58.4 PK	74.0	-15.6	2.58 V	331	48.1	10.3
6	4824.00	46.5 AV	54.0	-7.5	2.58 V	331	36.2	10.3

**Remarks:**

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

<b>RF Mode</b>	VHT20	<b>Channel</b>	CH 6 : 2437 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 67% RH
<b>Tested By</b>	Adair Peng		

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	61.7 PK	74.0	-12.3	3.68 H	64	28.0	33.7
2	2390.00	48.5 AV	54.0	-5.5	3.68 H	64	14.8	33.7
3	*2437.00	116.6 PK			3.68 H	64	82.8	33.8
4	*2437.00	106.9 AV			3.68 H	64	73.1	33.8
5	2483.50	65.3 PK	74.0	-8.7	3.68 H	64	31.5	33.8
6	2483.50	50.8 AV	54.0	-3.2	3.68 H	64	17.0	33.8
7	4874.00	53.2 PK	74.0	-20.8	2.69 H	124	42.7	10.5
8	4874.00	40.7 AV	54.0	-13.3	2.69 H	124	30.2	10.5
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	65.0 PK	74.0	-9.0	2.67 V	37	31.3	33.7
2	2390.00	49.8 AV	54.0	-4.2	2.67 V	37	16.1	33.7
3	*2437.00	121.0 PK			2.67 V	37	87.2	33.8
4	*2437.00	111.6 AV			2.67 V	37	77.8	33.8
5	2483.50	68.4 PK	74.0	-5.6	2.67 V	37	34.6	33.8
6	2483.50	53.3 AV	54.0	-0.7	2.67 V	37	19.5	33.8
7	4874.00	59.4 PK	74.0	-14.6	2.48 V	336	48.9	10.5
8	4874.00	48.2 AV	54.0	-5.8	2.48 V	336	37.7	10.5

**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.

<b>RF Mode</b>	VHT20	<b>Channel</b>	CH 11 : 2462 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 67% RH
<b>Tested By</b>	Adair Peng		

**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	111.3 PK			3.71 H	63	77.4	33.9
2	*2462.00	101.9 AV			3.71 H	63	68.0	33.9
3	2483.50	63.8 PK	74.0	-10.2	3.71 H	63	30.0	33.8
4	2483.50	51.1 AV	54.0	-2.9	3.71 H	63	17.3	33.8
5	4924.00	52.4 PK	74.0	-21.6	2.72 H	124	42.0	10.4
6	4924.00	38.9 AV	54.0	-15.1	2.72 H	124	28.5	10.4

**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	115.7 PK			2.57 V	47	81.8	33.9
2	*2462.00	106.8 AV			2.57 V	47	72.9	33.9
3	2483.50	65.2 PK	74.0	-8.8	2.57 V	47	31.4	33.8
4	2483.50	53.1 AV	54.0	-0.9	2.57 V	47	19.3	33.8
5	4924.00	58.3 PK	74.0	-15.7	2.59 V	333	47.9	10.4
6	4924.00	46.3 AV	54.0	-7.7	2.59 V	333	35.9	10.4

**Remarks:**

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



<b>RF Mode</b>	VHT40	<b>Channel</b>	CH 3 : 2422 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 67% RH
<b>Tested By</b>	Adair Peng		

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	67.2 PK	74.0	-6.8	3.64 H	65	33.5	33.7
2	2390.00	50.0 AV	54.0	-4.0	3.64 H	65	16.3	33.7
3	*2422.00	109.0 PK			3.64 H	65	75.3	33.7
4	*2422.00	98.7 AV			3.64 H	65	65.0	33.7
5	4844.00	50.5 PK	74.0	-23.5	2.72 H	118	40.1	10.4
6	4844.00	37.6 AV	54.0	-16.4	2.72 H	118	27.2	10.4

**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	72.7 PK	74.0	-1.3	2.72 V	37	39.0	33.7
2	2390.00	53.7 AV	54.0	-0.3	2.72 V	37	20.0	33.7
3	*2422.00	112.9 PK			2.72 V	37	79.2	33.7
4	*2422.00	103.3 AV			2.72 V	37	69.6	33.7
5	4844.00	56.0 PK	74.0	-18.0	2.64 V	334	45.6	10.4
6	4844.00	44.9 AV	54.0	-9.1	2.64 V	334	34.5	10.4

**Remarks:**

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

<b>RF Mode</b>	VHT40	<b>Channel</b>	CH 6 : 2437 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 67% RH
<b>Tested By</b>	Adair Peng		

**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	66.4 PK	74.0	-7.6	3.64 H	66	32.7	33.7
2	2390.00	51.5 AV	54.0	-2.5	3.64 H	66	17.8	33.7
3	*2437.00	109.9 PK			3.64 H	66	76.1	33.8
4	*2437.00	99.5 AV			3.64 H	66	65.7	33.8
5	2483.50	63.8 PK	74.0	-10.2	3.64 H	66	30.0	33.8
6	2483.50	50.1 AV	54.0	-3.9	3.64 H	66	16.3	33.8
7	4874.00	52.5 PK	74.0	-21.5	2.71 H	126	42.0	10.5
8	4874.00	38.0 AV	54.0	-16.0	2.71 H	126	27.5	10.5

**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	68.2 PK	74.0	-5.8	2.78 V	54	34.5	33.7
2	2390.00	53.6 AV	54.0	-0.4	2.78 V	54	19.9	33.7
3	*2437.00	113.9 PK			2.78 V	54	80.1	33.8
4	*2437.00	104.3 AV			2.78 V	54	70.5	33.8
5	2483.50	66.6 PK	74.0	-7.4	2.78 V	54	32.8	33.8
6	2483.50	52.1 AV	54.0	-1.9	2.78 V	54	18.3	33.8
7	4874.00	58.3 PK	74.0	-15.7	2.52 V	336	47.8	10.5
8	4874.00	45.3 AV	54.0	-8.7	2.52 V	336	34.8	10.5

**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.

<b>RF Mode</b>	VHT40	<b>Channel</b>	CH 9 : 2452 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 1 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 67% RH
<b>Tested By</b>	Adair Peng		

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	108.8 PK			3.82 H	63	75.0	33.8
2	*2452.00	98.5 AV			3.82 H	63	64.7	33.8
3	2483.50	63.6 PK	74.0	-10.4	3.82 H	63	29.8	33.8
4	2483.50	50.4 AV	54.0	-3.6	3.82 H	63	16.6	33.8
5	4904.00	46.5 PK	74.0	-27.5	2.61 H	120	40.7	5.8
6	4904.00	32.7 AV	54.0	-21.3	2.61 H	120	26.9	5.8

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	113.2 PK			2.57 V	49	79.4	33.8
2	*2452.00	103.3 AV			2.57 V	49	69.5	33.8
3	2483.50	67.2 PK	74.0	-6.8	2.57 V	49	33.4	33.8
4	2483.50	53.2 AV	54.0	-0.8	2.57 V	49	19.4	33.8
5	4904.00	56.6 PK	74.0	-17.4	2.73 V	336	46.2	10.4
6	4904.00	44.1 AV	54.0	-9.9	2.73 V	336	33.7	10.4

**Remarks:**

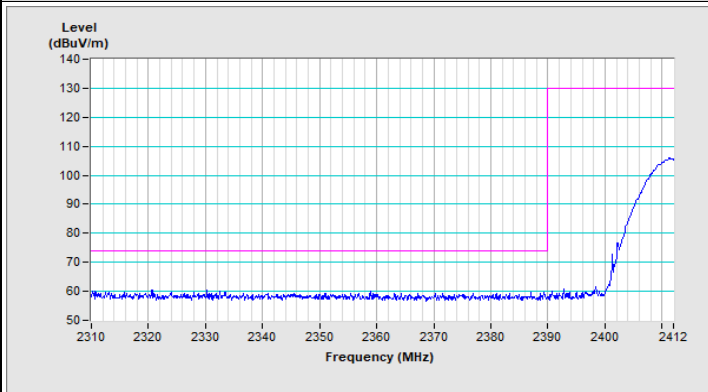
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency,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



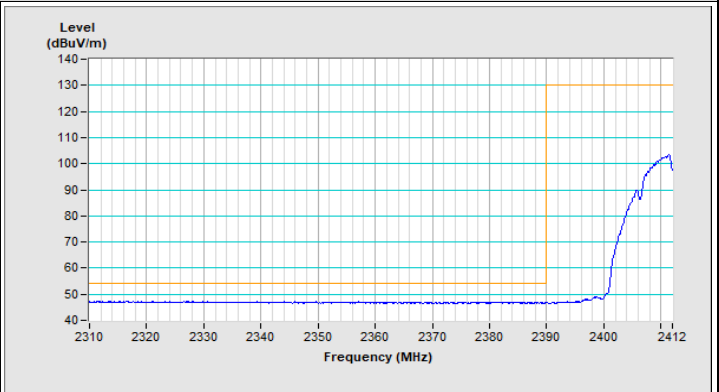
# Plot of Band Edge

## Scan Radio

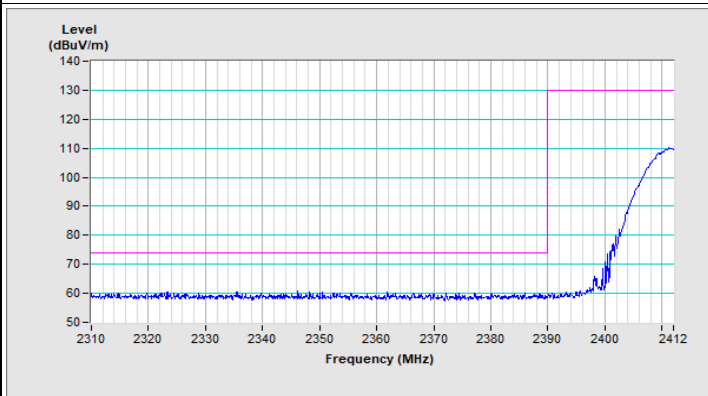
### 802.11b Channel 1



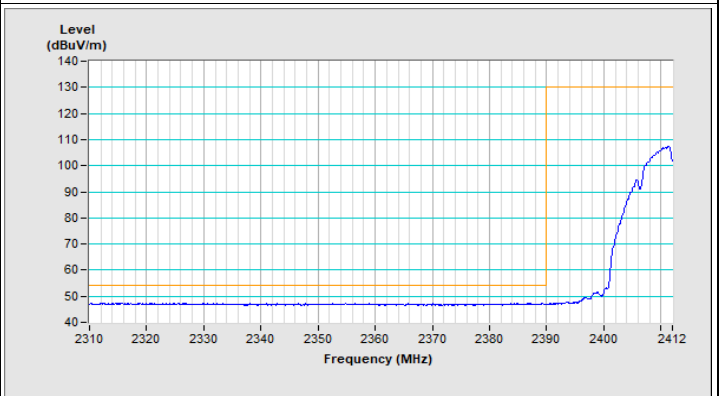
Horizontal (Peak)



Horizontal (Average)

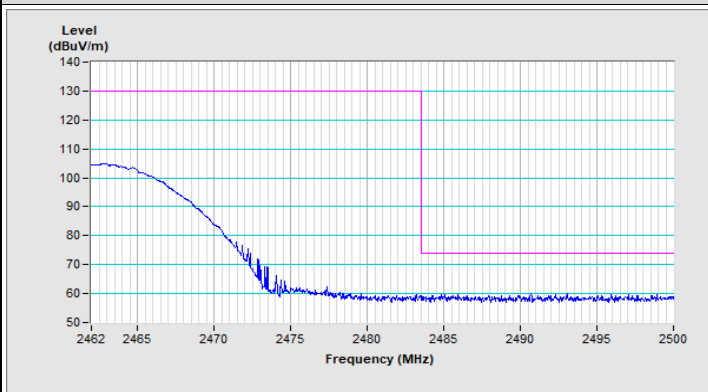


Vertical (Peak)

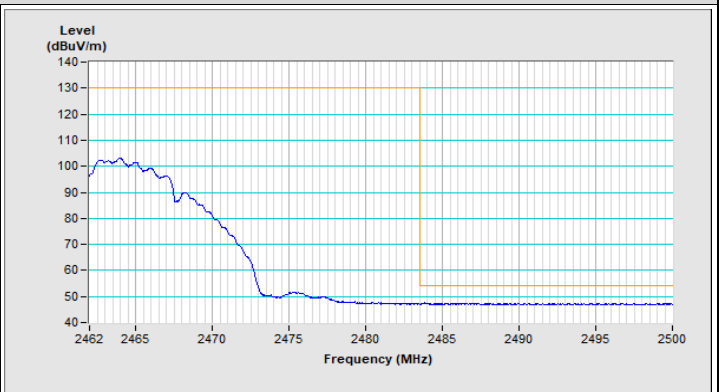


Vertical (Average)

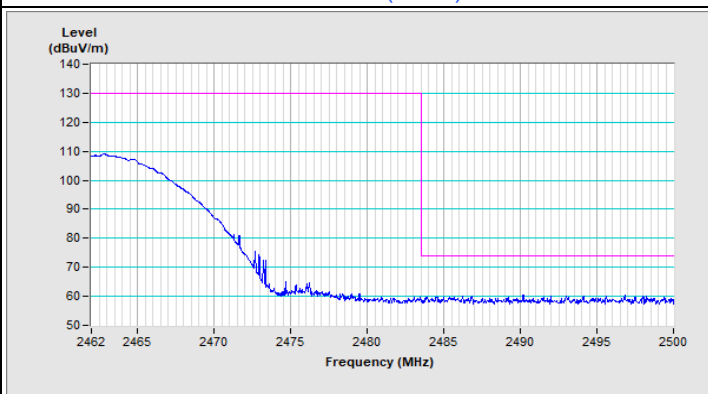
### 802.11b Channel 11



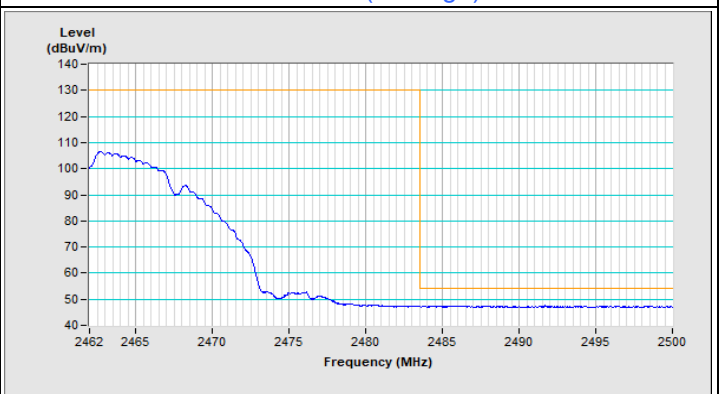
Horizontal (Peak)



Horizontal (Average)

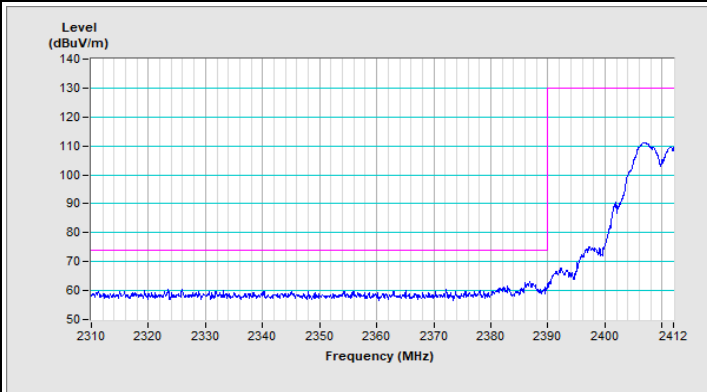


Vertical (Peak)

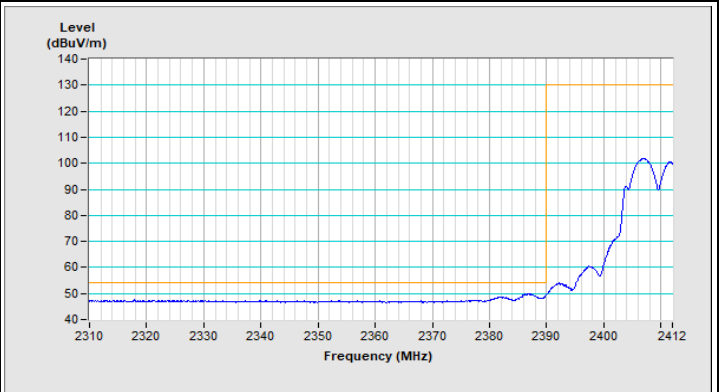


Vertical (Average)

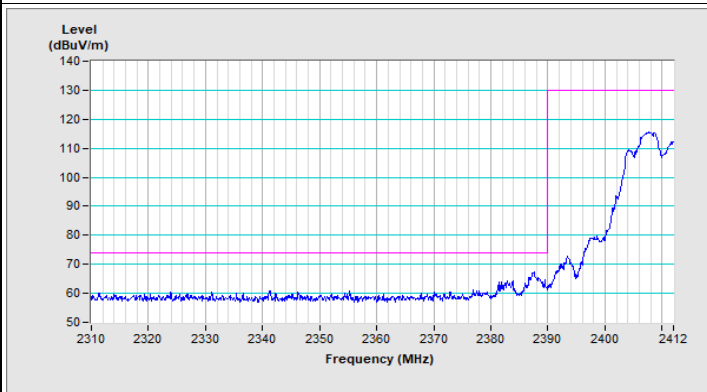
### 802.11g Channel 1



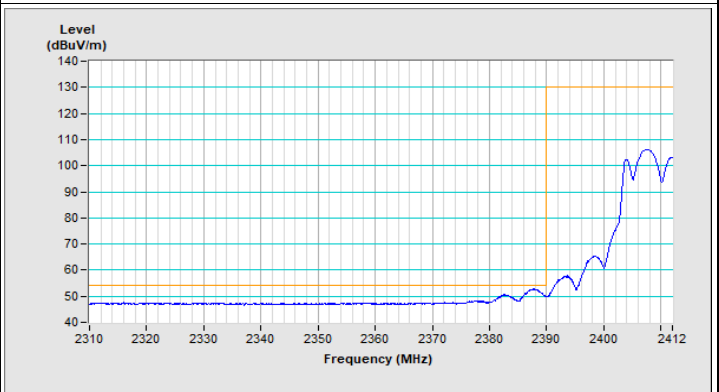
Horizontal (Peak)



Horizontal (Average)

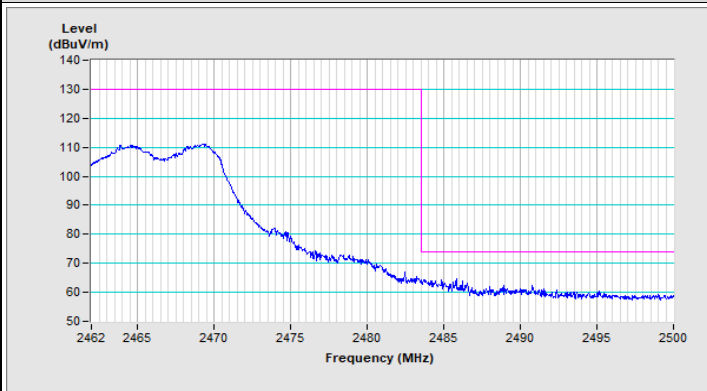


Vertical (Peak)

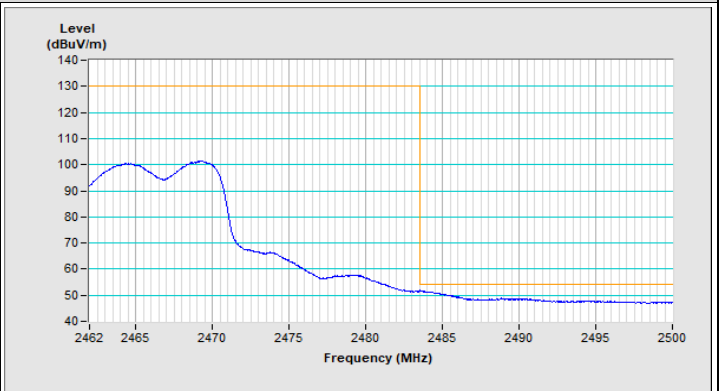


Vertical (Average)

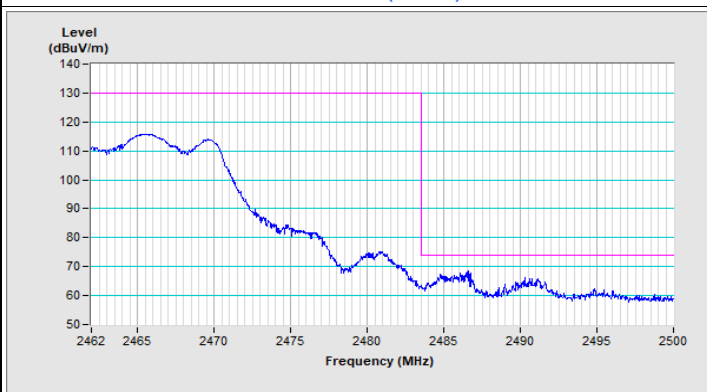
### 802.11g Channel 11



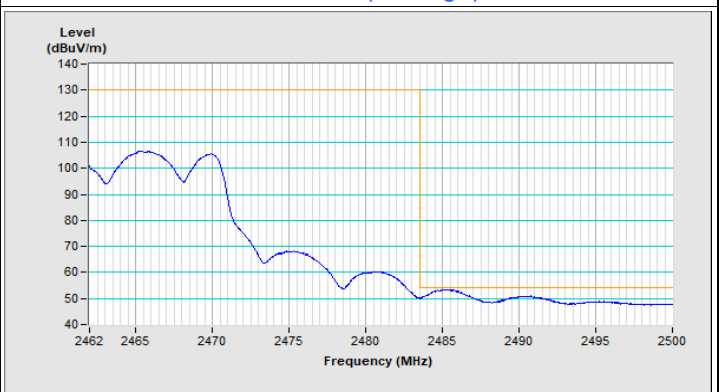
Horizontal (Peak)



Horizontal (Average)

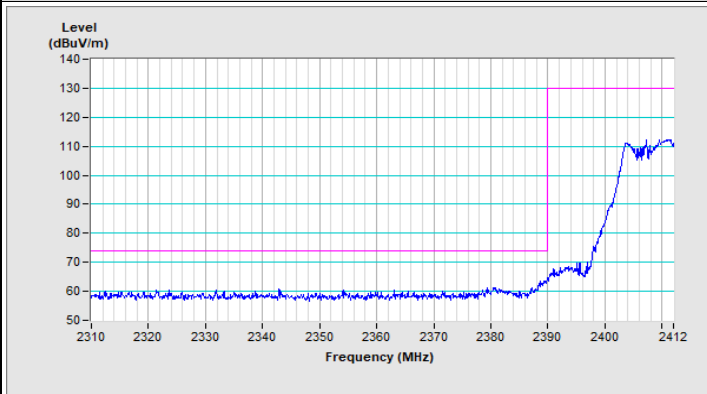


Vertical (Peak)

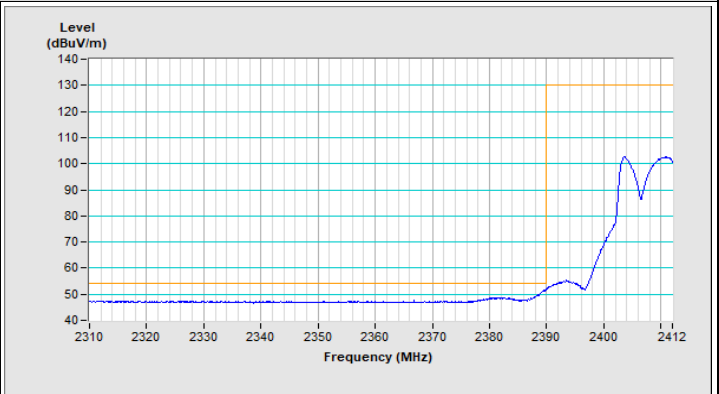


Vertical (Average)

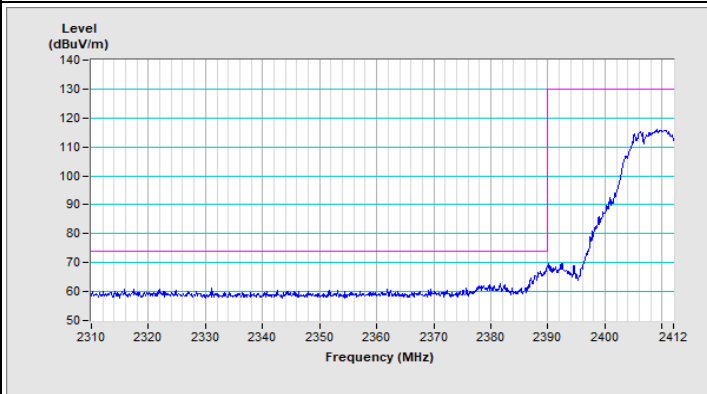
### VHT20 Channel 1



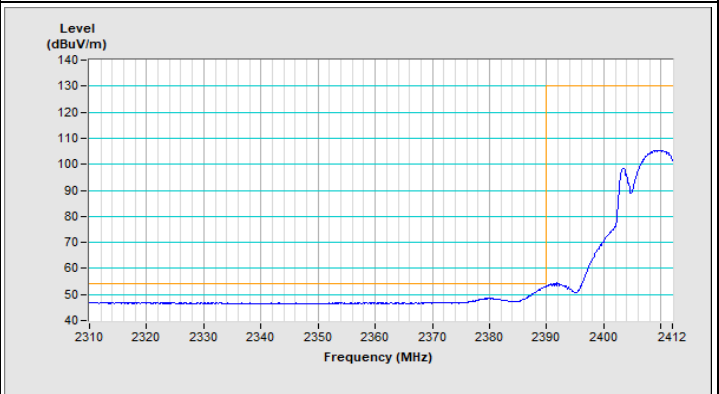
Horizontal (Peak)



Horizontal (Average)

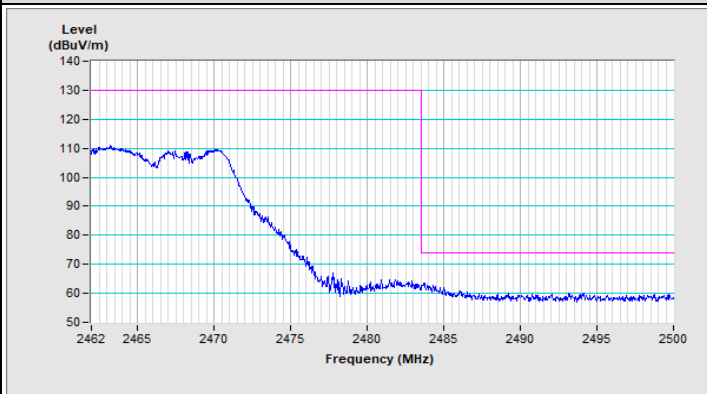


Vertical (Peak)

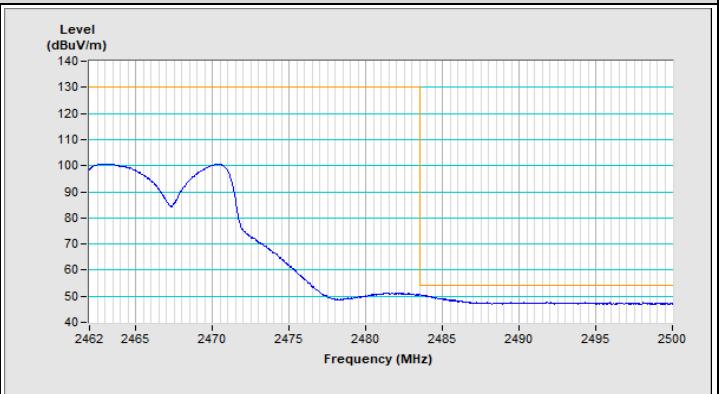


Vertical (Average)

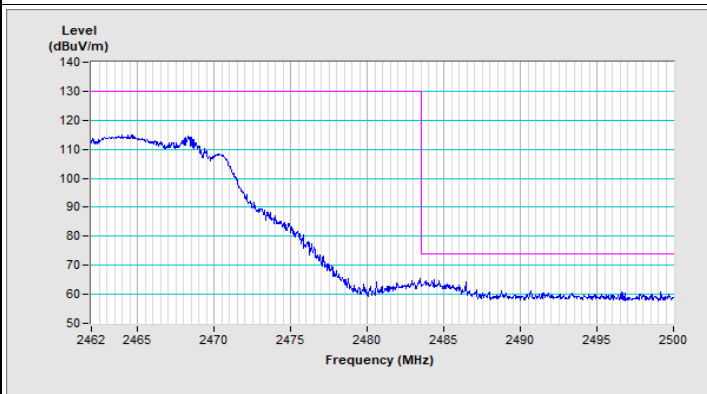
### VHT20 Channel 11



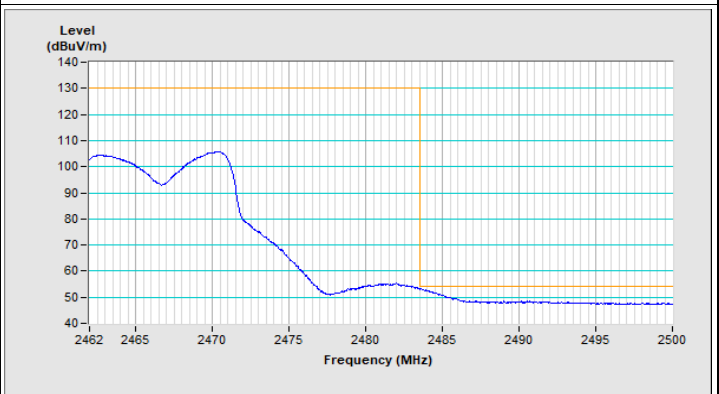
Horizontal (Peak)



Horizontal (Average)

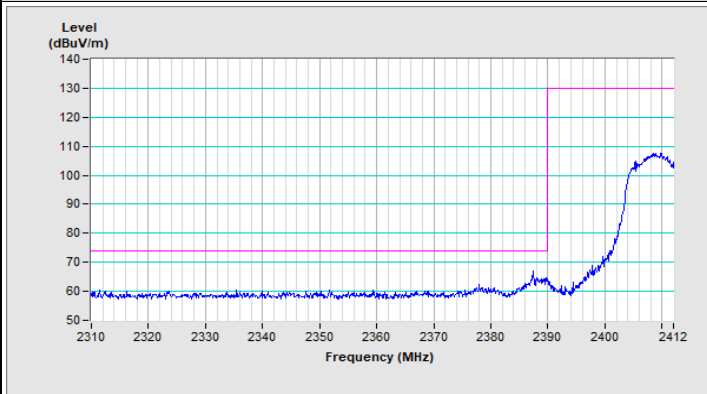


Vertical (Peak)

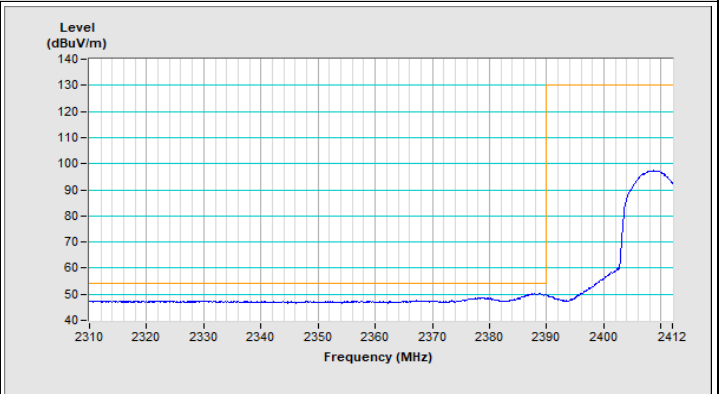


Vertical (Average)

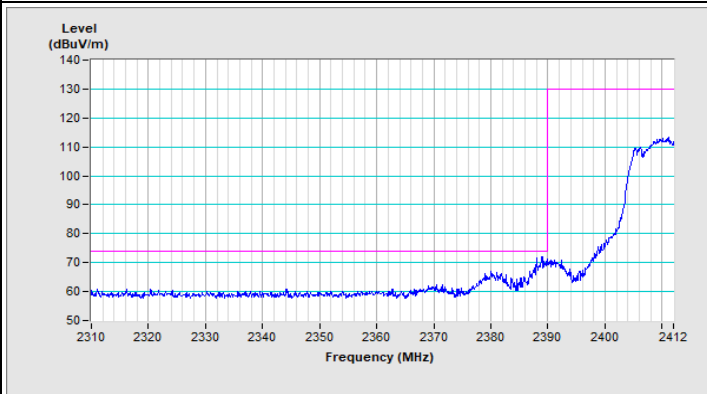
### VHT40 Channel 3



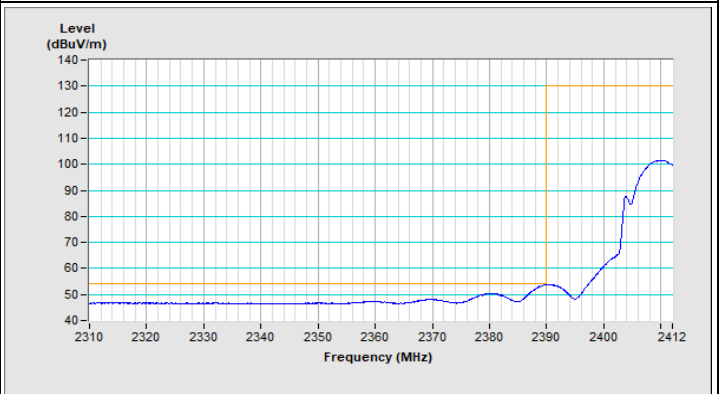
Horizontal (Peak)



Horizontal (Average)

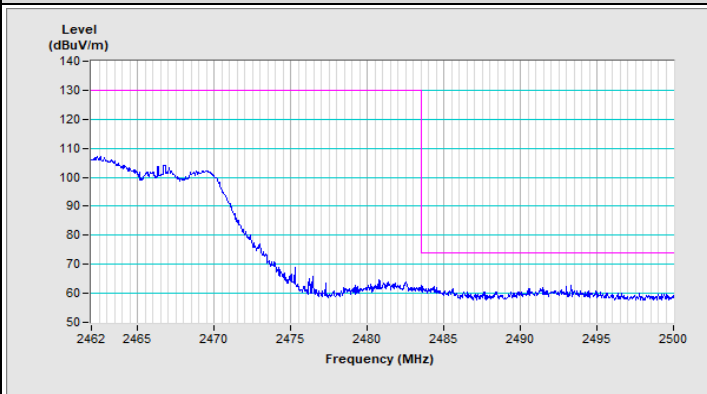


Vertical (Peak)

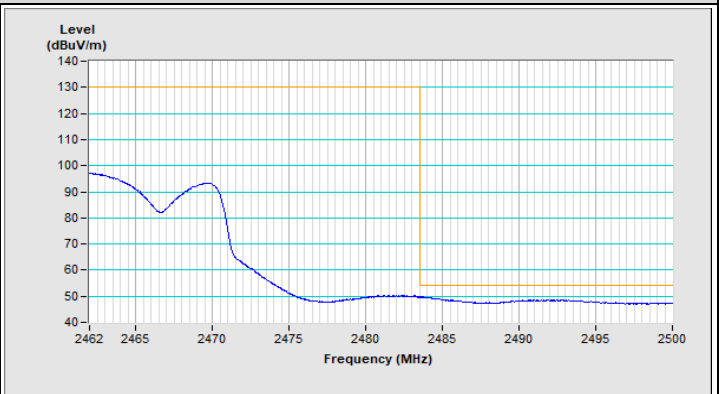


Vertical (Average)

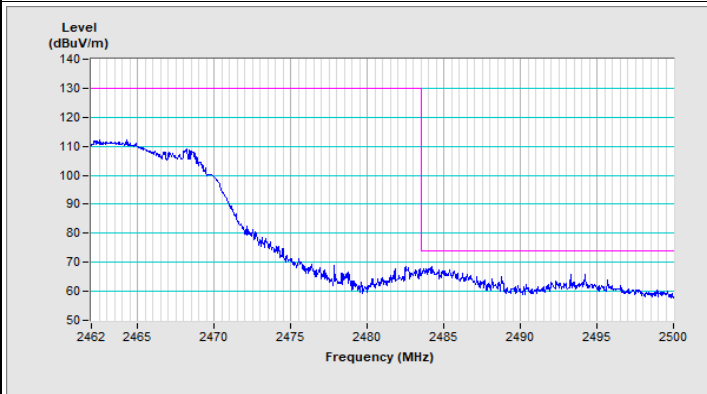
### VHT40 Channel 9



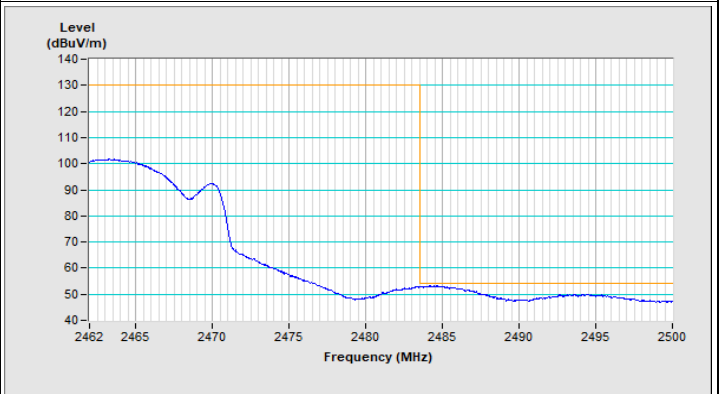
Horizontal (Peak)



Horizontal (Average)



Vertical (Peak)



Vertical (Average)

## 8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)



## 9 Information of the Testing Laboratories

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

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

**Lin Kou EMC/RF Lab**

Tel: 886-2-26052180

Fax: 886-2-26051924

**Hsin Chu EMC/RF/Telecom Lab**

Tel: 886-3-6668565

Fax: 886-3-6668323

**Hwa Ya EMC/RF/Safety Lab**

Tel: 886-3-3183232

Fax: 886-3-3270892

**Email:** [service.adt@bureauveritas.com](mailto:service.adt@bureauveritas.com)

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

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

--- END ---