

# TEST REPORT

## CERTIFICATE OF CONFORMITY

**Standard:** 47 CFR FCC Part 15, Subpart C (Section 15.247)  
**Report No.:** RFBERD-WTW-P24010469-4  
**FCC ID:** U4G-SGVWF  
**Product:** Mobile Computer/Barcode reader  
**Brand:** Datalogic  
**Model No.:** SGVWF  
**Received Date:** 2023/12/25  
**Test Date:** 2023/12/25 ~ 2024/2/24  
**Issued Date:** 2024/3/13

**Applicant:** Datalogic S.r.l.  
**Address:** Via San Vitalino 13, 40012 Lippo di Calderara di Reno (BO) – Italy  
**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*

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

2024/3/13

Jeremy Lin / Project Engineer

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Prepared by : Polly Chien / Specialist

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## Release Control Record

Issue No.	Description	Date Issued
RFBERD-WTW-P24010469-4	Original release.	2024/3/13

## 1 Certificate

**Product:** Mobile Computer/Barcode reader

**Brand:** Datalogic

**Test Model:** SGVWF

**Sample Status:** Engineering sample

**Applicant:** Datalogic S.r.l.

**Test Date:** 2023/12/25 ~ 2024/2/24

**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 -33.29 dB at 1.42600 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -4.5 dB at 51.34 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -2.0 dB at 2483.50 MHz
15.203	Antenna Requirement	Pass	No antenna connector is used.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

### 2.1 Measurement Uncertainty

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

Measurement	Specification	Expanded Uncertainty (k=2) (±)
RF Output Power	-	1.371 dB
Power Spectral Density	-	1.017 dB
6 dB Bandwidth	-	206.5 Hz
Conducted Out of Band Emissions	9 kHz ~ 40 GHz	2.79 dB
AC Power Conducted Emissions	9 kHz ~ 30 MHz	2.88 dB
Unwanted Emissions below 1 GHz	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	Mobile Computer/Barcode reader
Brand	Datalogic
Test Model	SGVWF
Host Marketing Name (HMN)	MEMOR 30/MEMOR 30X
Status of EUT	Engineering sample
Power Supply Rating	Refer to Note as below
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
Modulation Technology	DSSS, OFDM, OFDMA
Transfer Rate	Up to 573.5 Mbps
Operating Frequency	2.412 GHz ~ 2.462 GHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20), VHT20, 802.11ax (HE20):11 802.11n (HT40), VHT40, 802.11ax (HE40):7
Output Power	143.463 mW (21.57 dBm)
HW Version	DVT1
SW Version	0.11.000.20240131
P/N	Refer to Note as below
S/N	Refer to Note as below

Note:

1. The EUT uses following accessories.

Scanner 1		
Brand	Model	
Datalogic	Argon	
Scanner 2		
Brand	Model	
Datalogic	Xenon	
BT/WLAN Module		
Brand	Model	
Qualcomm	WCN6856	
NFC chipset		
Brand	Model	
NXP	PN7161	
Battery		
Brand	Model	Specification
Datalogic	SGV-BY-140	Power Rating : 3.86V, 4565mAh, 17.6Wh
USB Cable		
Brand	Model	Specification
Datalogic	A9816360	Signal Line : USB3.0 Type A to Type C, 1.5M

2. Sample's information is listed as below.

Sample	Scanner	S/N	P/N	BV Login No.
A	Argon	V24A00605	944850001	WTW240207/006Q22N03
B	Xenon	V24A00440	944850004	WTW240207/006Q22N15
C	Xenon	V24A00476	944850004	WTW240207/006Q22N01

3. The EUT support OFDMA and Partial RU mode, therefore partial RU combination were investigated and the worst case scenario was identified.

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.

Ant. No.	Antenna Net Gain (dBi)	Frequency	Antenna Type	Connector Type
8	-1.1	2.4~2.4835GHz	Coupling monopole	N/A
9	0.3	2.4~2.4835GHz	Loop	IPEX

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

2. The EUT incorporates a MIMO function:

2.4 GHz Band		
Modulation Mode	TX & RX Configuration	
802.11b	2TX	2RX
802.11g	2TX	2RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
VHT20	2TX	2RX
VHT40	2TX	2RX
802.11ax (HE20)	2TX	2RX
802.11ax (HE40)	2TX	2RX
802.11ax (RU26/52/106/242/484)	2TX	2RX

Note: The modulation and bandwidth are similar for 802.11n mode for 20 MHz (40 MHz), VHT mode for 20 MHz (40 MHz) and 802.11ax mode for 20 MHz (40 MHz), therefore the manufacturer will control the power for 802.11n/VHT mode is same as the 802.11ax mode 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:	<ol style="list-style-type: none"> <li>EUT can be used in the following ways: X-axis/ Y-axis/ Z-axis. Pre-scan these ways and find the worst case as a representative test condition.</li> <li>Pre-scan ac adapter and Notebook mode</li> </ol>
Worst Case:	<ol style="list-style-type: none"> <li>X-axis/ Y-axis/ Z-axis Worst Condition: Z-axis</li> <li>Worst Condition: adapter mode</li> </ol>

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

Test Item	EUT Configure Mode	Mode	Tested Channel	Modulation	Data Rate Parameter
RF Output Power	C	802.11b	1, 6, 11	DBPSK	1Mb/s
		802.11g	1, 6, 11	BPSK	6Mb/s
		802.11n (HT20)	1, 6, 11	BPSK	MCS0
		802.11n (HT40)	3, 6, 9	BPSK	MCS0
		VHT20	1, 6, 11	BPSK	MCS0
		VHT40	3, 6, 9	BPSK	MCS0
		802.11ax (HE20) 26-tone RU	1, 6, 11	BPSK	MCS0
		802.11ax (HE20) 52-tone RU	1, 6, 11	BPSK	MCS0
		802.11ax (HE20) 106-tone RU	1, 6, 11	BPSK	MCS0
		802.11ax (HE20) 242-tone RU	1, 6, 11	BPSK	MCS0
		802.11ax (HE20) Full RU	1, 6, 11	BPSK	MCS0
		802.11ax (HE40) 26-tone RU	3, 6, 9	BPSK	MCS0
		802.11ax (HE40) 52-tone RU	3, 6, 9	BPSK	MCS0
		802.11ax (HE40) 106-tone RU	3, 6, 9	BPSK	MCS0
		802.11ax (HE40) 242-tone RU	3, 6, 9	BPSK	MCS0
		802.11ax (HE40) 484-tone RU	3, 6, 9	BPSK	MCS0
802.11ax (HE40) Full RU	3, 6, 9	BPSK	MCS0		
Power Spectral Density	C	802.11b	1, 6, 11	DBPSK	1Mb/s
		802.11g	1, 6, 11	BPSK	6Mb/s
		802.11ax (HE20) 26-tone RU	1, 6, 11	BPSK	MCS0
		802.11ax (HE20) 52-tone RU	1, 6, 11	BPSK	MCS0
		802.11ax (HE20) 106-tone RU	1, 6, 11	BPSK	MCS0
		802.11ax (HE20) Full RU	1, 6, 11	BPSK	MCS0
		802.11ax (HE40) Full RU	3, 6, 9	BPSK	MCS0
6 dB Bandwidth	C	802.11b	1, 6, 11	DBPSK	1Mb/s
		802.11g	1, 6, 11	BPSK	6Mb/s
		802.11ax (HE20) 26-tone RU	1, 6, 11	BPSK	MCS0
		802.11ax (HE20) 52-tone RU	1, 6, 11	BPSK	MCS0
		802.11ax (HE20) 106-tone RU	1, 6, 11	BPSK	MCS0
		802.11ax (HE20) Full RU	1, 6, 11	BPSK	MCS0
		802.11ax (HE40) Full RU	3, 6, 9	BPSK	MCS0



Test Item	EUT Configure Mode	Mode	Tested Channel	Modulation	Data Rate Parameter
Conducted Out of Band Emissions	C	802.11b	1, 6, 11	DBPSK	1Mb/s
		802.11g	1, 6, 11	BPSK	6Mb/s
		802.11ax (HE20) Full RU	1, 6, 11	BPSK	MCS0
		802.11ax (HE40) Full RU	3, 6, 9	BPSK	MCS0
AC Power Conducted Emissions	A	802.11b	11	BPSK	6Mb/s
Unwanted Emissions below 1 GHz	A	802.11b	11	BPSK	6Mb/s
	B	802.11ax (HE40) Full RU	9	BPSK	MCS0
Unwanted Emissions above 1 GHz	A	802.11b	1, 6, 11	DBPSK	1Mb/s
		802.11g	1, 6, 11	BPSK	6Mb/s
		802.11ax (HE20) Full RU	1, 6, 11	BPSK	MCS0
		802.11ax (HE40) Full RU	3, 6, 9	BPSK	MCS0
	B	802.11ax (HE40) Full RU	9	BPSK	MCS0
	A	802.11ax (HE20) 26-tone RU	1, 11	BPSK	MCS0
		802.11ax (HE20) 52-tone RU	1, 11	BPSK	MCS0
802.11ax (HE20) 106-tone RU		1, 11	BPSK	MCS0	
EUT Configure Mode:	A	Sample A			
	B	Sample B			
	C	Sample C			

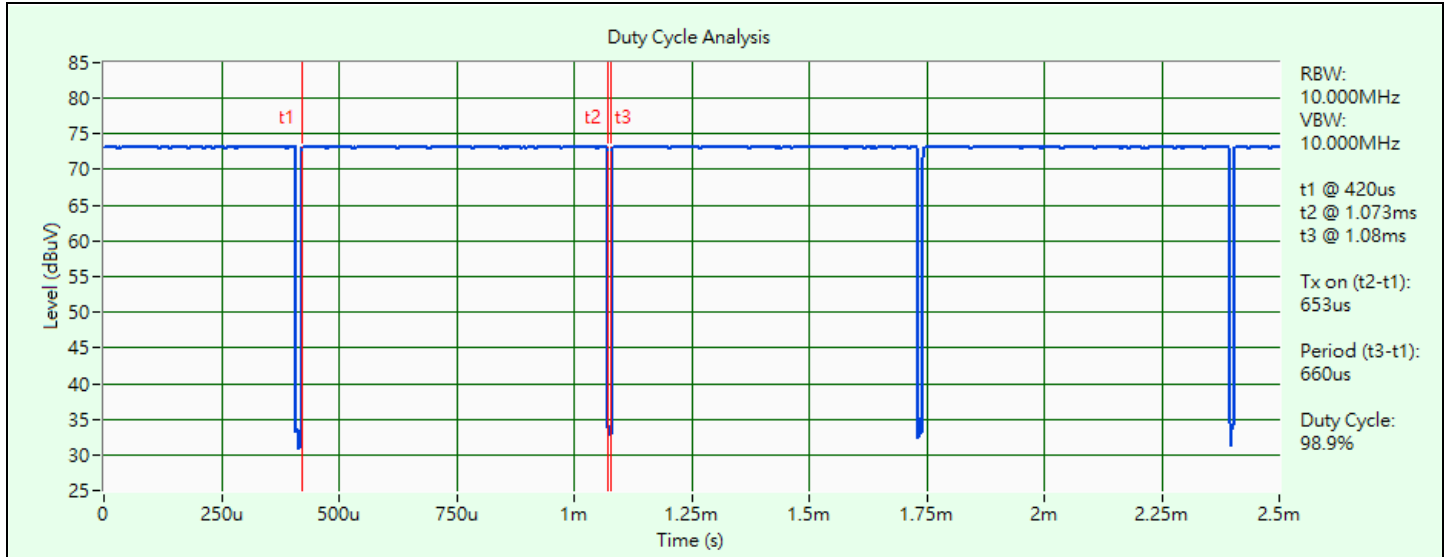
### 3.5 Duty Cycle of Test Signal

**802.11b:** Duty cycle = 0.653 ms / 0.66 ms x 100% = 98.9%

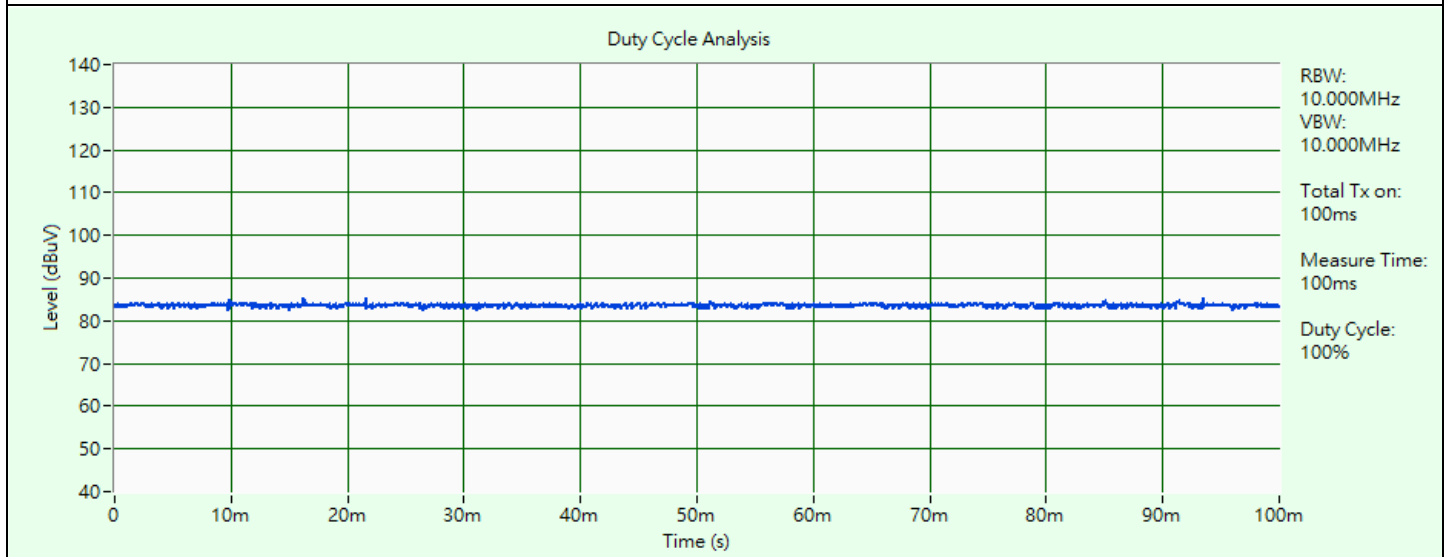
**802.11g:** Duty cycle = 100 ms / 100 ms x 100% = 100.0%

**802.11ax (HE20) Full RU:** Duty cycle = 100 ms / 100 ms x 100% = 100.0%

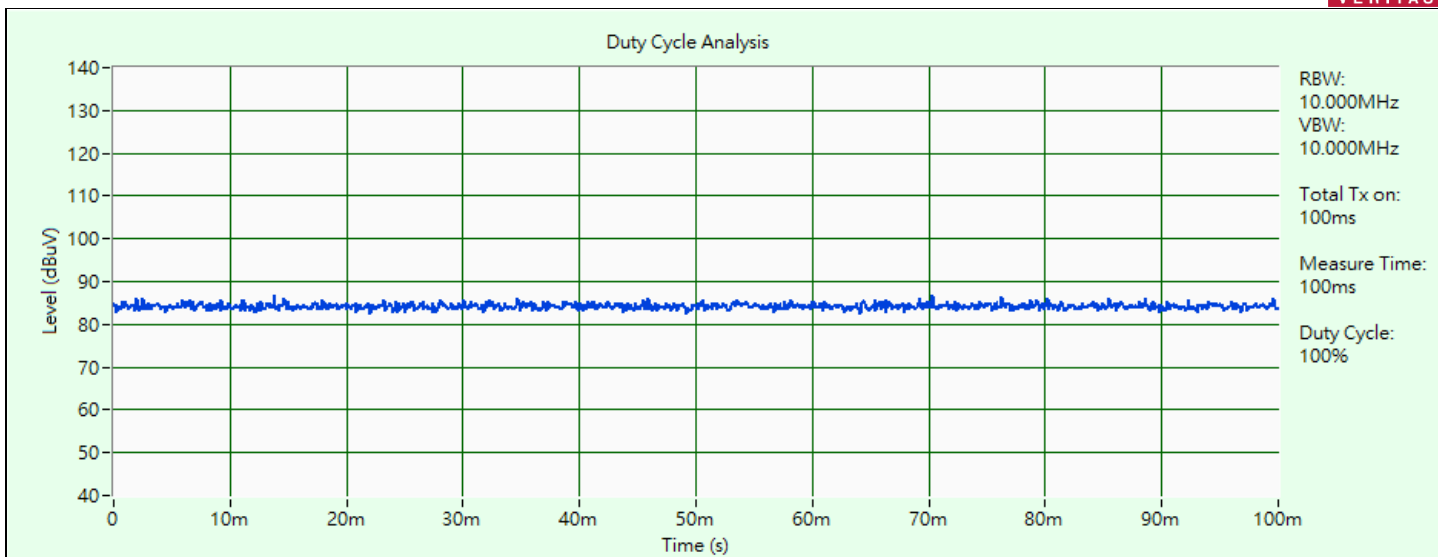
**802.11ax (HE40) Full RU:** Duty cycle = 100 ms / 100 ms x 100% = 100.0%



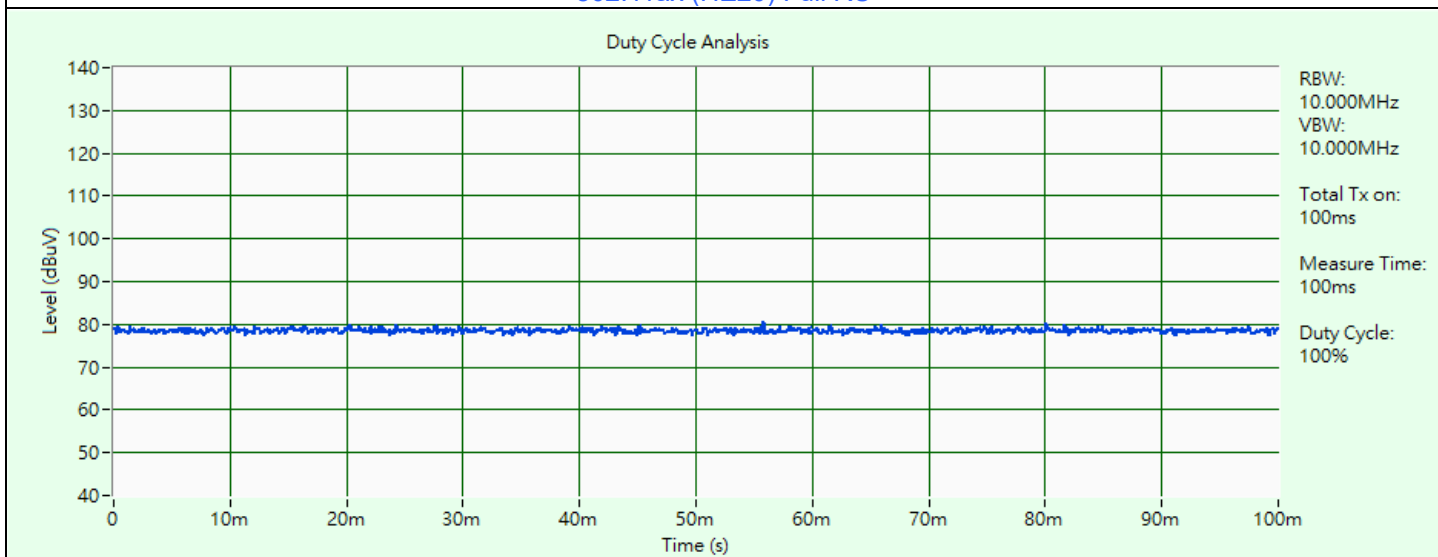
802.11b



802.11g



802.11ax (HE20) Full RU

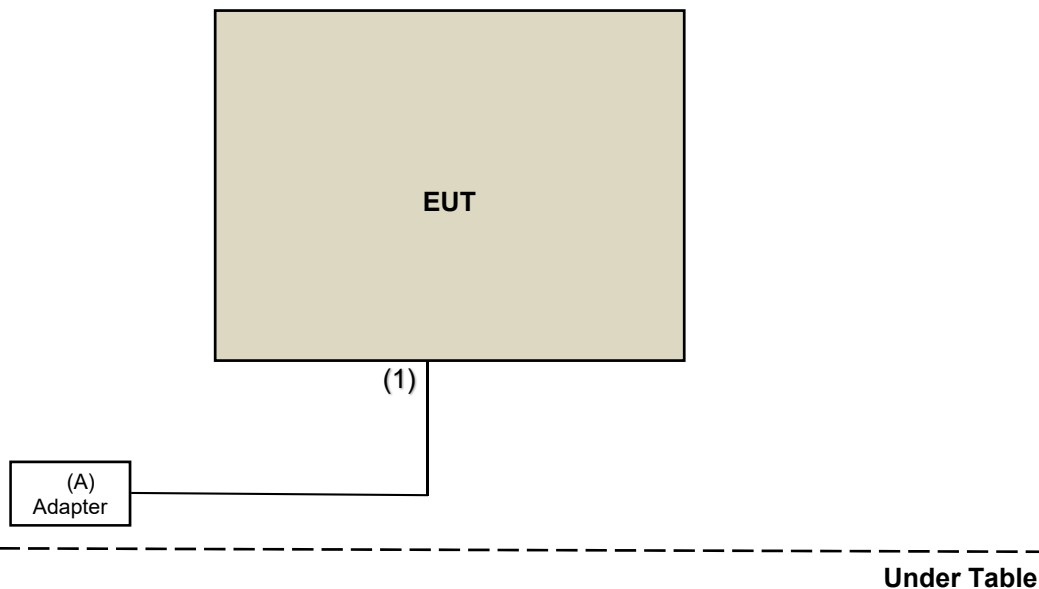


802.11ax (HE40) Full RU

### 3.6 Test Program Used and Operation Descriptions

Controlling software QRCT4 Version 4.0.211.0 has been activated to set the EUT under transmission condition continuously at specific channel frequency.

### 3.7 Connection Diagram of EUT and Peripheral Devices



### 3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Adapter	CWT	2ACP0183C	N/A	N/A	Supplied by applicant

No.	Cable Descriptions	Qty.	Length (m)	Shielded (Yes/ No)	Cores (Qty.)	Remark
1.	USB Cable	1	1.5	Yes	0	Supplied by applicant

## 4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

### 4.1 RF Output Power

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

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2024/2/6 ~ 2024/2/21

### 4.2 Power Spectral Density

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

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2024/2/6 ~ 2024/2/21

### 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
50 ohm terminal resistance HUBER+SUHNER	E1-011276	01	2023/2/1	2024/1/31
	E1-011312	10	2023/1/30	2024/1/29
	E1-011591	17	2023/2/1	2024/1/31
DC-LISN Schwarzbeck	NNBM 8126G	8126G-069	2023/11/7	2024/11/6
EMI Test Receiver R&S	ESR3	102783	2023/12/13	2024/12/12
Fixed Attenuator SGH	BNC10W10dB	PAD-COND2-01	2023/9/2	2024/9/1
LISN R&S	ESH2-Z5	100100	2023/3/7	2024/3/6
	ESH3-Z5	100312	2023/9/12	2024/9/11
RF Coaxial Cable Woken	5D-FB	Cable-cond2-01	2023/9/2	2024/9/1
Software BVADT	BVADT_Cond_ V7.3.7.4	N/A	N/A	N/A
V-LISN Schwarzbeck	NNBL 8226-2	8226-142	2023/8/31	2024/8/30

Notes:

1. The test was performed in HY - Conduction 2.
2. Tested Date: 2024/1/18 ~ 2024/1/19



#### 4.6 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn BV ADT	AT100	AT93021705	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-160	2023/10/17	2024/10/16
Loop Antenna Electro-Metrics	EM-6879	269	2023/9/23	2024/9/22
Loop Antenna TESEQ	HLA 6121	45745	2023/8/8	2024/8/7
MXE EMI Receiver Keysight	N9038A	MY55420137	2023/5/3	2024/5/2
Preamplifier Agilent	8447D	2944A10638	2023/5/7	2024/5/6
RF Coaxial Cable Woken	8D-FB	Cable-CH9-01	2023/5/7	2024/5/6
Signal & Spectrum Analyzer R&S	FSW43	101867	2023/12/29	2024/12/28
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

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

#### 4.7 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn BV ADT	AT100	AT93021705	N/A	N/A
Boresight antenna tower fixture BV	BAF-02	5	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-1169	2023/11/12	2024/11/11
	BBHA 9170	9170-480	2023/11/12	2024/11/11
		BBHA9170243	2023/11/12	2024/11/11
MXE EMI Receiver Keysight	N9038A	MY55420137	2023/5/3	2024/5/2
Notch Filter Micro-Tronics	BRM17690	004	2023/1/11 2024/1/23	2024/1/10 2025/1/22
	BRM50716	060	2023/12/25	2024/12/24
Preamplifier Agilent	8449B	3008A02367	2023/2/15 2024/1/6	2024/2/14 2025/1/5
Preamplifier EMCI	EMC 184045	980116	2023/9/27	2024/9/26
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	2023/7/8	2024/7/7
	EMC102-KM-KM-3000	150929	2023/7/8	2024/7/7
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	2023/1/7 2024/1/6	2024/1/6 2025/1/5
RF Coaxial Cable HUBER+SUHNER&EMCI	SUCOFLEX 104& EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	2023/1/7 2024/1/6	2024/1/6 2025/1/5
Signal & Spectrum Analyzer R&S	FSW43	101867	2022/12/30 2023/12/29	2023/12/29 2024/12/28
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 4.
2. Tested Date: 2023/12/25 ~ 2024/2/24

## 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

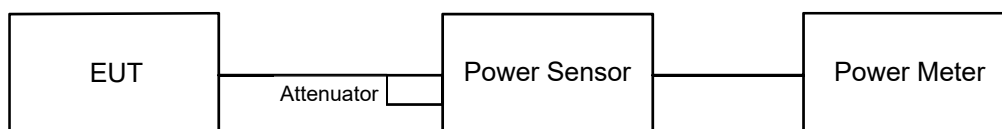
### Notes:

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



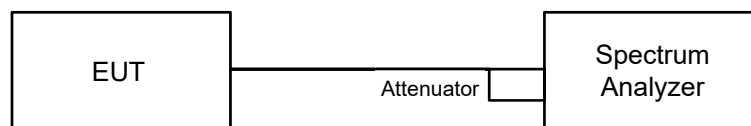
#### 6.1.2 Test Procedure

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



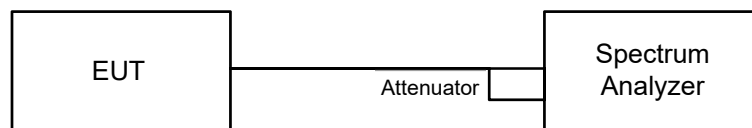
#### 6.2.2 Test Procedure

- 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.

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

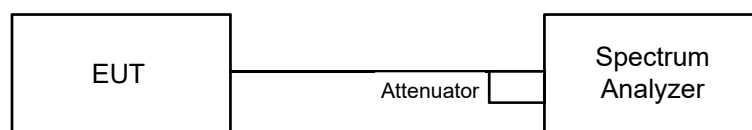


#### 6.3.2 Test Procedure

- 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

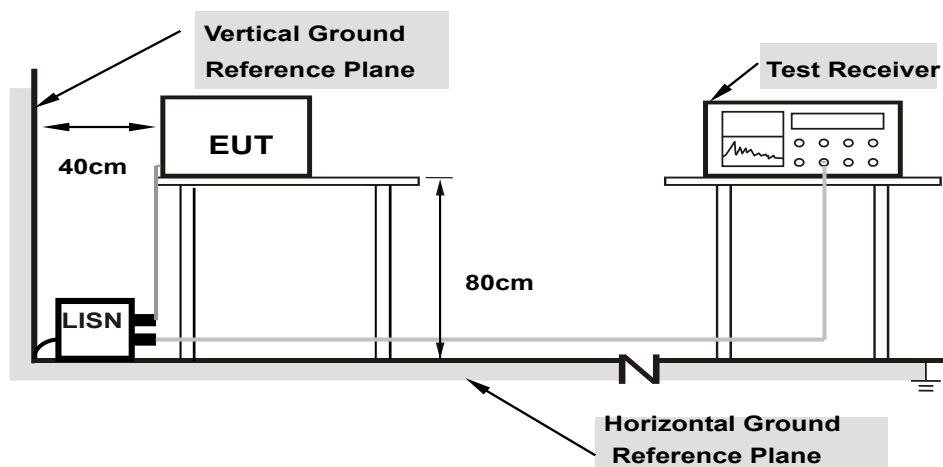
- Set the RBW = 100 kHz.
- Set the VBW  $\geq 300$  kHz.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

##### 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

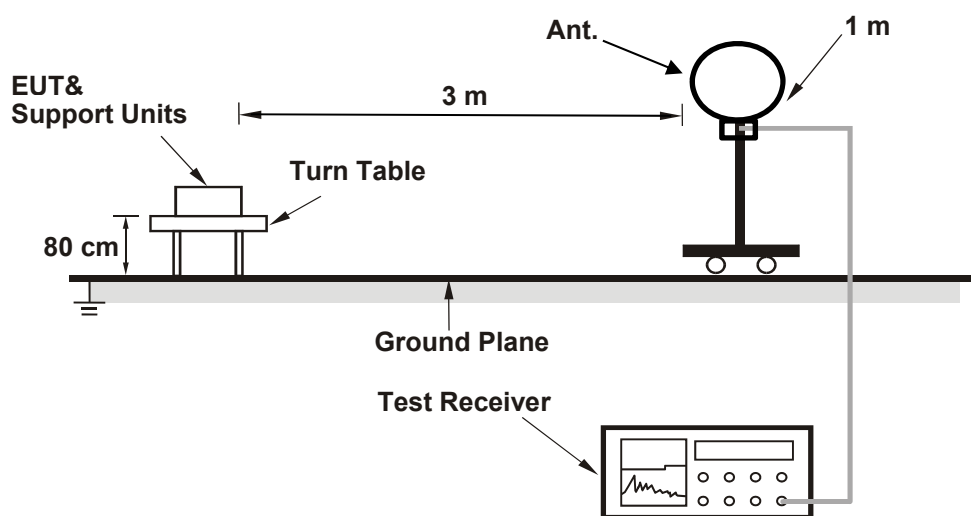
- The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The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

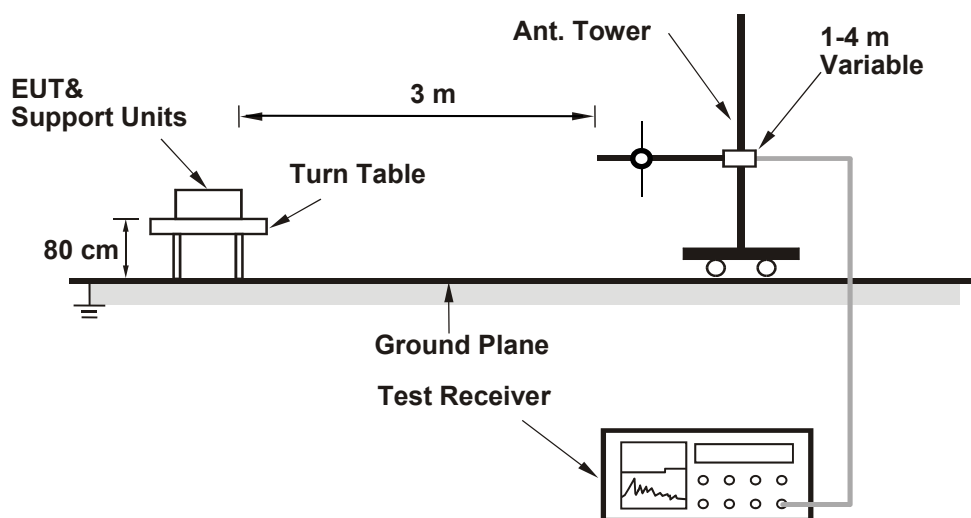
## 6.6 Unwanted Emissions below 1 GHz

### 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

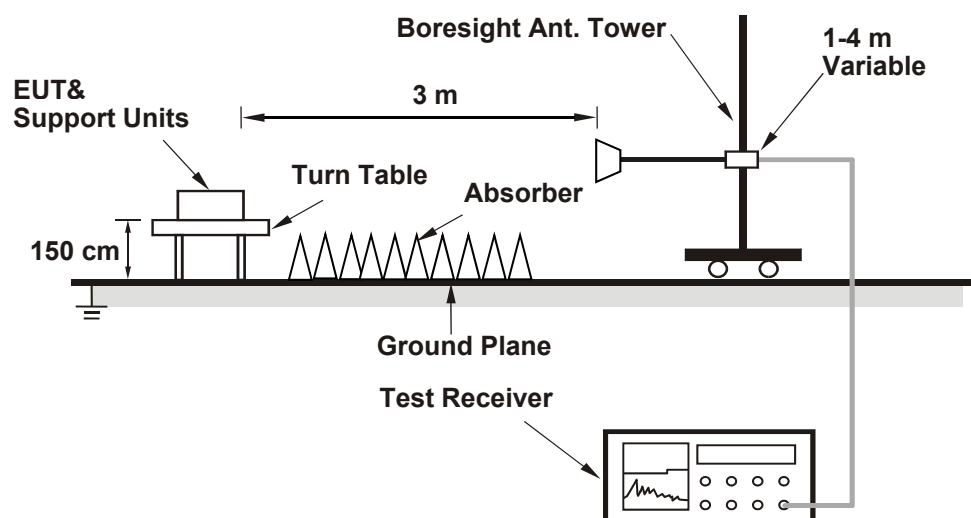
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the 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:	3.86 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Matthew Yang
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#### 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	18.42	18.28	136.8	21.36	30	Pass
6	2437	18.68	18.38	142.656	21.54	30	Pass
11	2462	18.69	18.42	143.463	21.57	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 0.3 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	17.66	17.80	118.6	20.74	30	Pass
6	2437	18.02	18.15	128.7	21.10	30	Pass
11	2462	15.49	15.52	71.045	18.52	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 0.3 dBi < 6 dBi, so the output power limit shall not be reduced.

#### 802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	17.11	17.12	102.843	20.12	30	Pass
6	2437	17.05	17.49	106.755	20.28	30	Pass
11	2462	15.05	14.89	62.855	17.98	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 0.3 dBi < 6 dBi, so the output power limit shall not be reduced.

### 802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
3	2422	13.07	12.71	38.941	15.90	30	Pass
6	2437	16.29	16.47	86.921	19.39	30	Pass
9	2452	10.01	9.75	19.464	12.89	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 0.3 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	17.13	17.12	103.226	20.14	30	Pass
6	2437	17.12	17.51	107.924	20.33	30	Pass
11	2462	15.05	14.98	63.501	18.03	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 0.3 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	13.09	12.73	39.12	15.92	30	Pass
6	2437	16.31	16.49	87.322	19.41	30	Pass
9	2452	10.02	9.81	19.618	12.93	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 0.3 dBi < 6 dBi, so the output power limit shall not be reduced.

### 802.11ax (HE20) 26-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	16.97	16.85	98.085	19.92	30	Pass
6	2437	16.99	17.30	103.653	20.16	30	Pass
11	2462	14.95	14.85	61.852	17.91	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 0.3 dBi < 6 dBi, so the output power limit shall not be reduced.

### 802.11ax (HE20) 52-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	17.02	16.94	99.788	19.99	30	Pass
6	2437	17.04	17.38	105.301	20.22	30	Pass
11	2462	14.97	14.92	62.434	17.95	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 0.3 dBi < 6 dBi, so the output power limit shall not be reduced.

### 802.11ax (HE20) 106-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	17.07	16.95	100.506	20.02	30	Pass
6	2437	17.09	17.45	106.753	20.28	30	Pass
11	2462	14.99	14.96	62.865	17.98	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 0.3 dBi < 6 dBi, so the output power limit shall not be reduced.

### 802.11ax (HE20) 242-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	17.14	17.04	102.33	20.10	30	Pass
6	2437	17.17	17.51	108.524	20.36	30	Pass
11	2462	15.08	15.00	63.835	18.05	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 0.3 dBi < 6 dBi, so the output power limit shall not be reduced.

### 802.11ax (HE20) Full RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
1	2412	17.20	17.14	104.241	20.18	30	Pass
6	2437	17.21	17.56	109.618	20.40	30	Pass
11	2462	15.11	15.08	64.645	18.11	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 0.3 dBi < 6 dBi, so the output power limit shall not be reduced.

### 802.11ax (HE40) 26-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
3	2422	16.93	16.75	96.699	19.85	30	Pass
6	2437	16.95	17.20	102.088	20.09	30	Pass
9	2452	14.92	14.81	61.268	17.87	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 0.3 dBi < 6 dBi, so the output power limit shall not be reduced.

### 802.11ax (HE40) 52-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
3	2422	16.98	16.91	99.04	19.96	30	Pass
6	2437	17.02	17.29	103.843	20.16	30	Pass
9	2452	14.89	14.91	61.816	17.91	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 0.3 dBi < 6 dBi, so the output power limit shall not be reduced.

### 802.11ax (HE40) 106-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
3	2422	17.06	16.88	99.564	19.98	30	Pass
6	2437	17.08	17.41	106.093	20.26	30	Pass
9	2452	14.91	14.94	62.176	17.94	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 0.3 dBi < 6 dBi, so the output power limit shall not be reduced.

### 802.11ax (HE40) 242-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
3	2422	17.10	16.98	101.126	20.05	30	Pass
6	2437	17.13	17.46	107.343	20.31	30	Pass
9	2452	15.00	14.98	63.136	18.00	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 0.3 dBi < 6 dBi, so the output power limit shall not be reduced.

### 802.11ax (HE40) 484-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
3	2422	13.02	12.75	38.876	15.90	30	Pass
6	2437	16.32	16.42	86.64	19.38	30	Pass
9	2452	10.13	9.79	19.839	12.98	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 0.3 dBi < 6 dBi, so the output power limit shall not be reduced.

### 802.11ax (HE40) Full RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
3	2422	13.11	12.75	39.301	15.94	30	Pass
6	2437	16.33	16.51	87.725	19.43	30	Pass
9	2452	10.22	9.88	20.247	13.06	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 0.3 dBi < 6 dBi, so the output power limit shall not be reduced.

## 7.2 Power Spectral Density

Input Power:	3.86 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Matthew Yang
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### 802.11b

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1			
1	2412	-9.25	-9.68	-6.45	8	Pass
6	2437	-8.74	-9.08	-5.90	8	Pass
11	2462	-8.68	-8.95	-5.80	8	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 2.64 dBi < 6 dBi, so the power density limit shall not be reduced.

### 802.11g

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1			
1	2412	-14.58	-14.43	-11.49	8	Pass
6	2437	-14.26	-14.17	-11.20	8	Pass
11	2462	-16.35	-16.40	-13.36	8	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 2.64 dBi < 6 dBi, so the power density limit shall not be reduced.

### 802.11ax (HE20) 26-tone RU

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1			
1	2412	-9.89	-9.36	-6.61	8	Pass
6	2437	-10.00	-9.50	-6.73	8	Pass
11	2462	-10.56	-11.04	-7.78	8	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 2.64 dBi < 6 dBi, so the power density limit shall not be reduced.



### 802.11ax (HE20) 52-tone RU

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1			
1	2412	-12.08	-11.95	-9.00	8	Pass
6	2437	-12.21	-11.99	-9.09	8	Pass
11	2462	-12.86	-13.41	-10.12	8	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 2.64 dBi < 6 dBi, so the power density limit shall not be reduced.

### 802.11ax (HE20) 106-tone RU

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1			
1	2412	-15.24	-15.00	-12.11	8	Pass
6	2437	-15.30	-15.03	-12.15	8	Pass
11	2462	-15.93	-19.39	-14.31	8	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 2.64 dBi < 6 dBi, so the power density limit shall not be reduced.

### 802.11ax (HE20) Full RU

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1			
1	2412	-18.43	-18.26	-15.33	8	Pass
6	2437	-18.60	-18.40	-15.49	8	Pass
11	2462	-19.66	-19.95	-16.79	8	Pass

Notes:

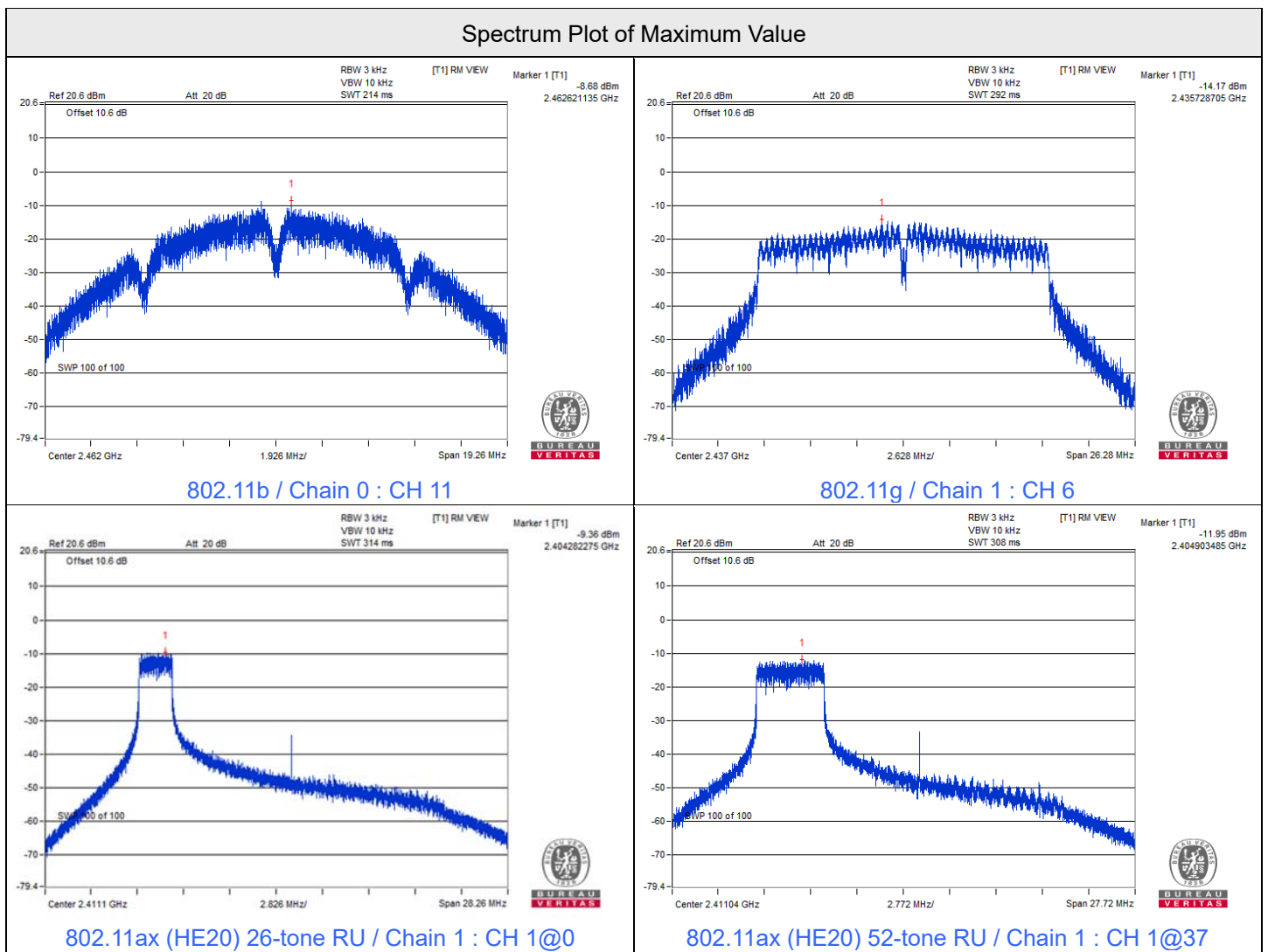
- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain =  $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
- The directional gain is 2.64 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11ax (HE40) Full RU

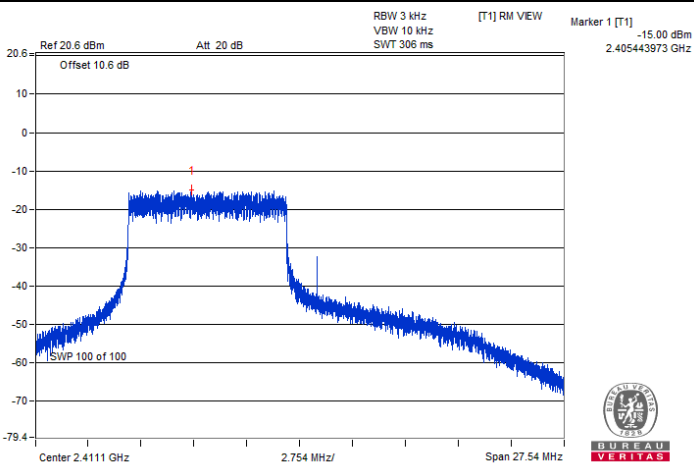
Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1			
3	2422	-23.10	-24.09	-20.56	8	Pass
6	2437	-23.10	-22.06	-19.54	8	Pass
9	2452	-26.83	-27.09	-23.95	8	Pass

Notes:

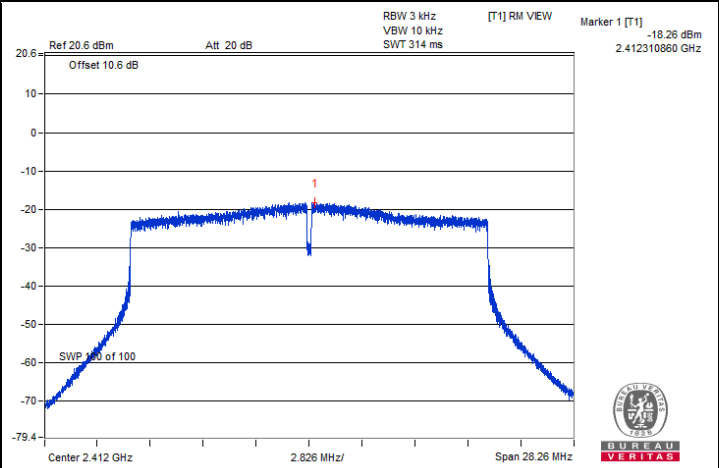
- Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
- Directional gain =  $10 \log[(10^{\text{Chain0}/20} + 10^{\text{Chain1}/20})^2 / 2]$
- The directional gain is 2.64 dBi < 6 dBi, so the power density limit shall not be reduced.



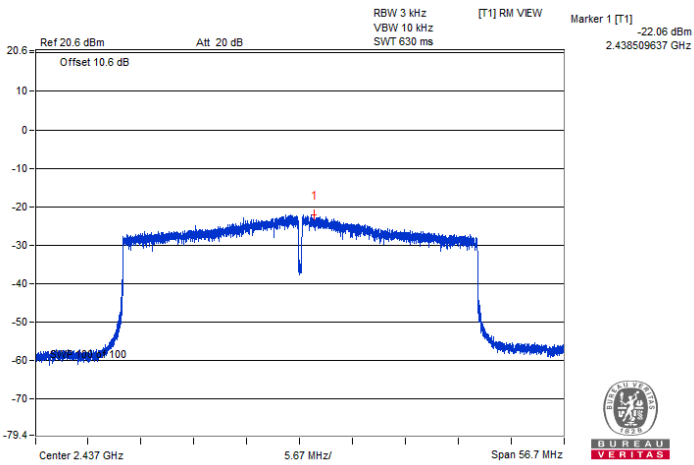
### Spectrum Plot of Maximum Value



802.11ax (HE20) 106-tone RU / Chain 1 : CH 1@53



802.11ax (HE20) Full RU / Chain 1 : CH 1



802.11ax (HE40) Full RU / Chain 1 : CH 6

### 7.3 6 dB Bandwidth

Input Power:	3.86 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Matthew Yang
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#### 802.11b

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	8.57	8.08	0.5	Pass
6	2437	8.10	8.10	0.5	Pass
11	2462	8.09	8.11	0.5	Pass

#### 802.11g

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	15.37	15.19	0.5	Pass
6	2437	15.18	15.18	0.5	Pass
11	2462	15.17	15.22	0.5	Pass

#### 802.11ax (HE20) 26-tone RU

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	2.21	2.18	0.5	Pass
6	2437	2.21	2.20	0.5	Pass
11	2462	2.12	2.09	0.5	Pass

#### 802.11ax (HE20) 52-tone RU

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	17.14	17.13	0.5	Pass
6	2437	17.12	17.11	0.5	Pass
11	2462	17.12	17.12	0.5	Pass

#### 802.11ax (HE20) 106-tone RU

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	18.22	17.80	0.5	Pass
6	2437	17.20	17.78	0.5	Pass
11	2462	17.21	17.17	0.5	Pass



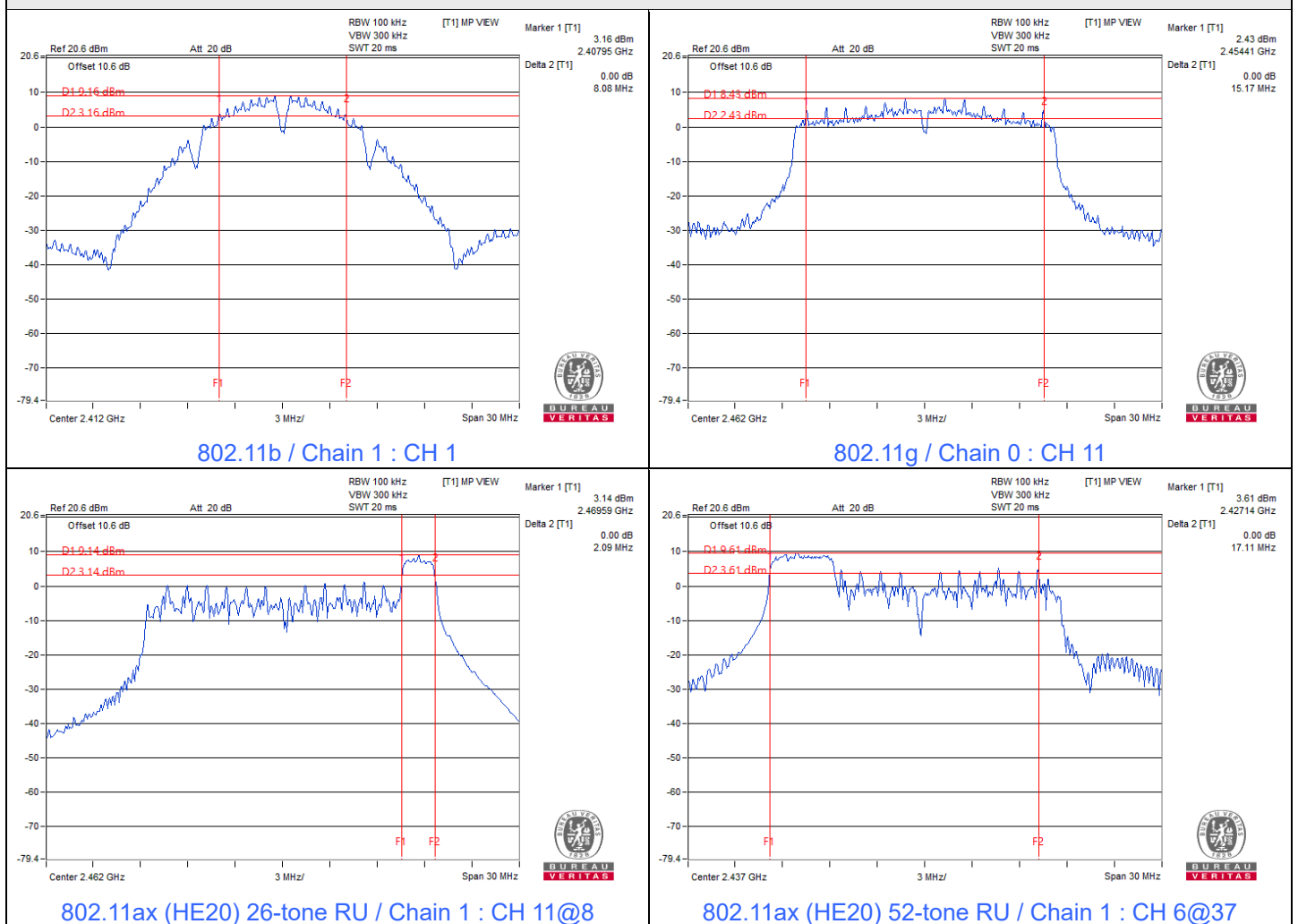
802.11ax (HE20) Full RU

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
1	2412	17.41	17.94	0.5	Pass
6	2437	16.70	16.11	0.5	Pass
11	2462	15.54	15.48	0.5	Pass

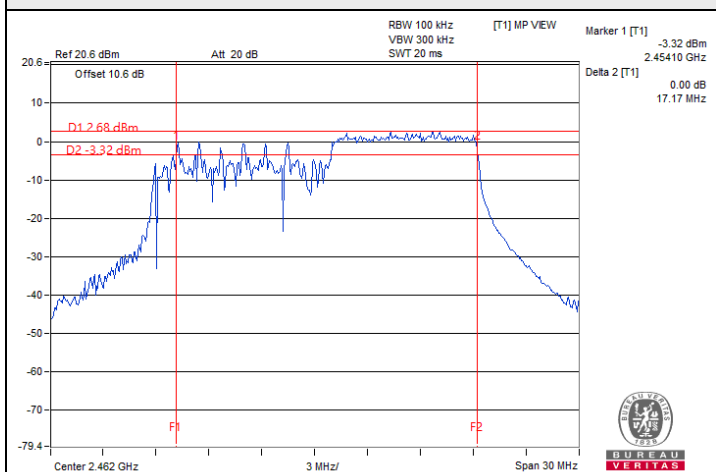
802.11ax (HE40) Full RU

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1		
3	2422	36.17	36.27	0.5	Pass
6	2437	36.15	35.18	0.5	Pass
9	2452	36.03	37.29	0.5	Pass

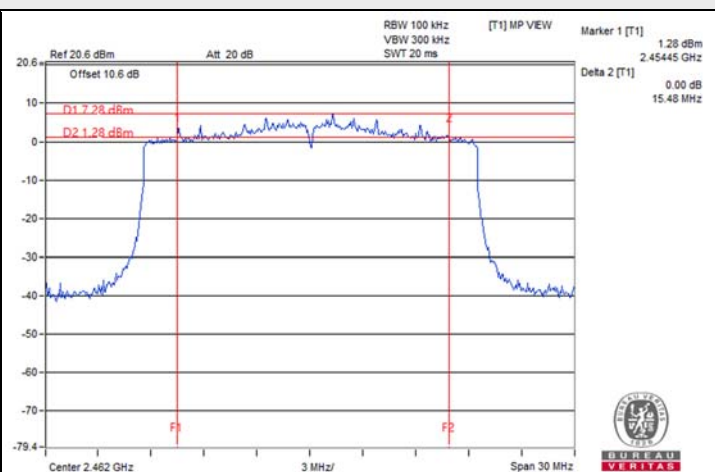
Spectrum Plot of Minimum Value



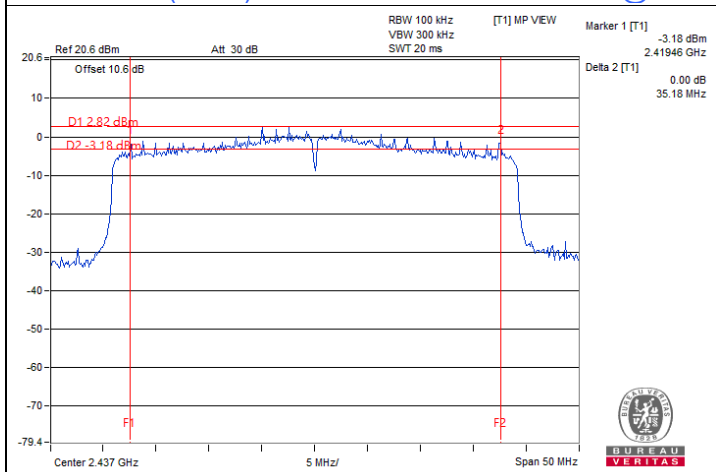
### Spectrum Plot of Minimum Value



802.11ax (HE20) 106-tone RU / Chain 1 : CH 11@54



802.11ax (HE20) Full RU / Chain 1 : CH 11

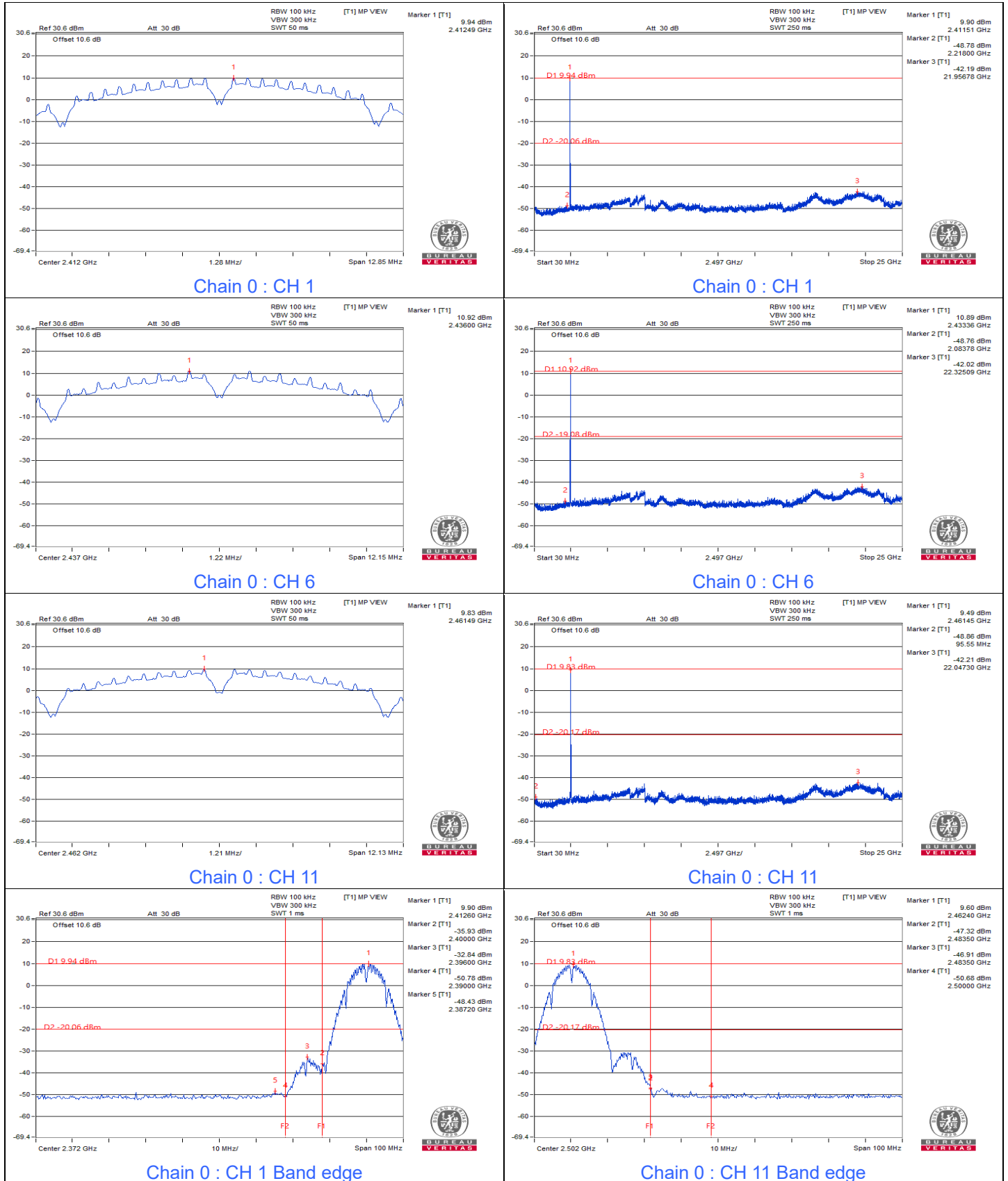


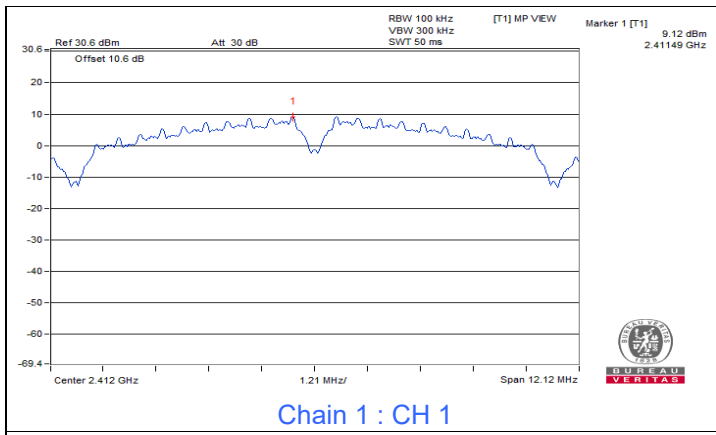
802.11ax (HE40) Full RU / Chain 1 : CH 6

### 7.4 Conducted Out of Band Emissions

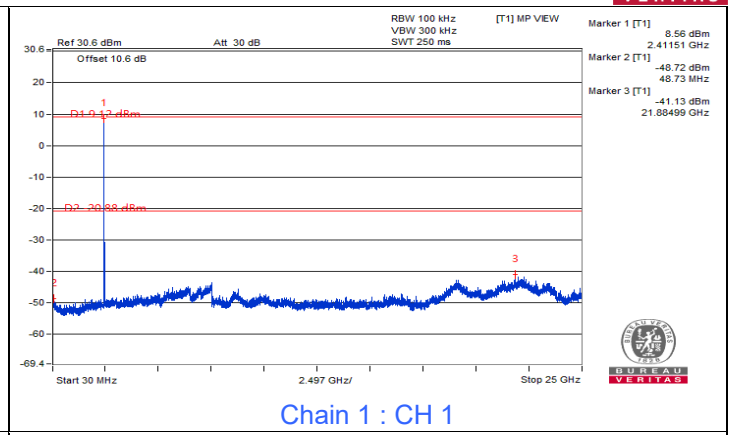
Input Power:	3.86 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Matthew Yang
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#### 802.11b

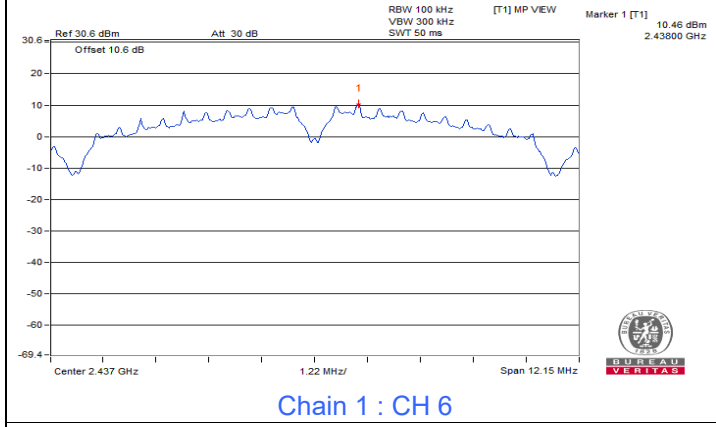




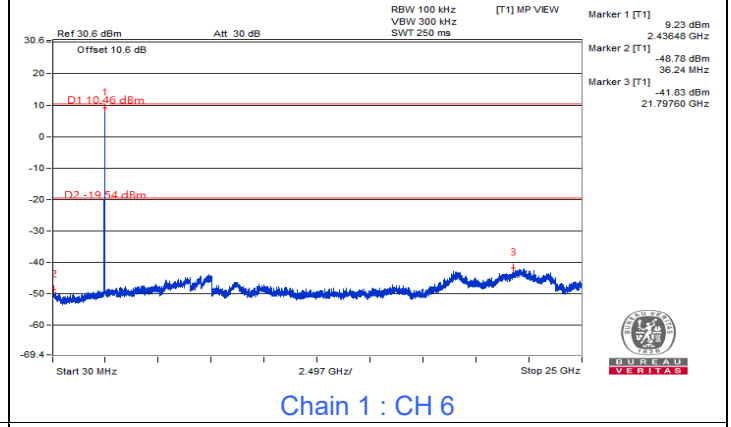
Chain 1 : CH 1



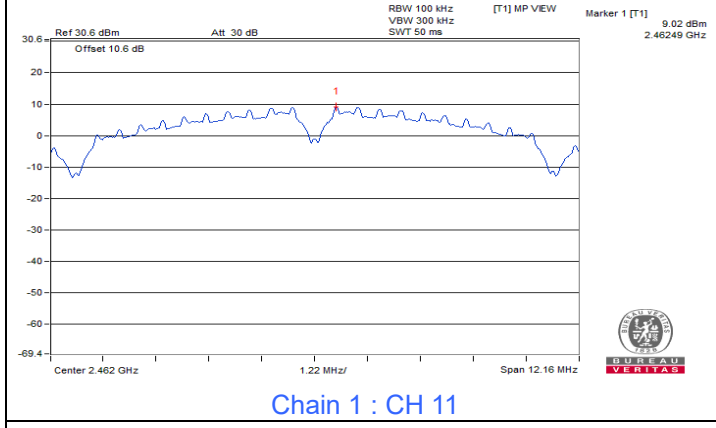
Chain 1 : CH 1



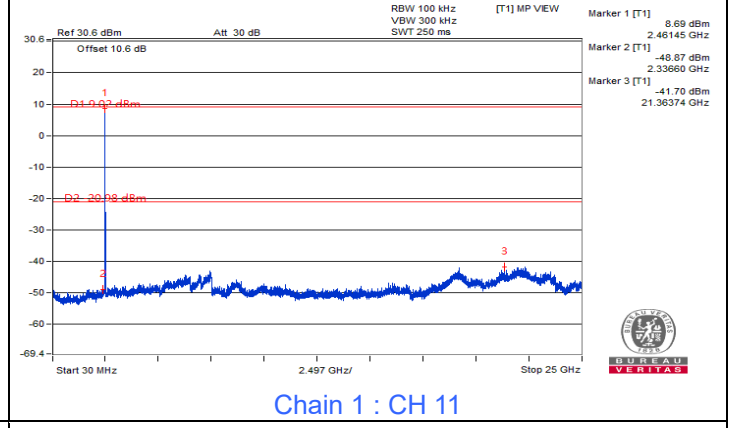
Chain 1 : CH 6



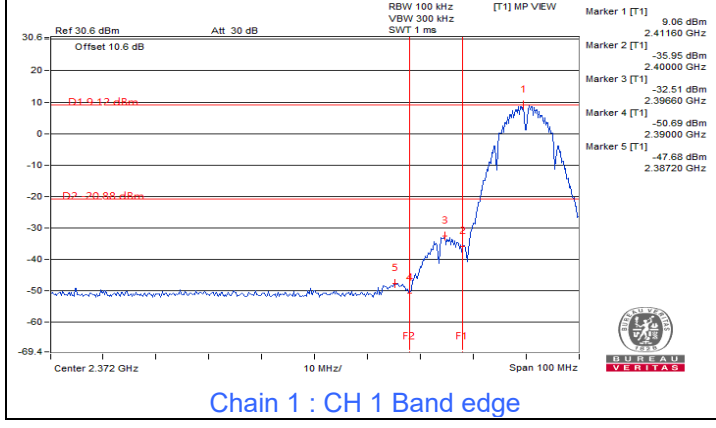
Chain 1 : CH 6



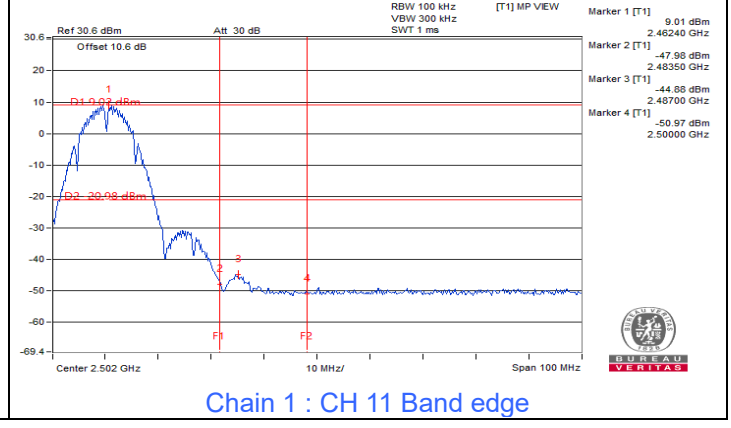
Chain 1 : CH 11



Chain 1 : CH 11



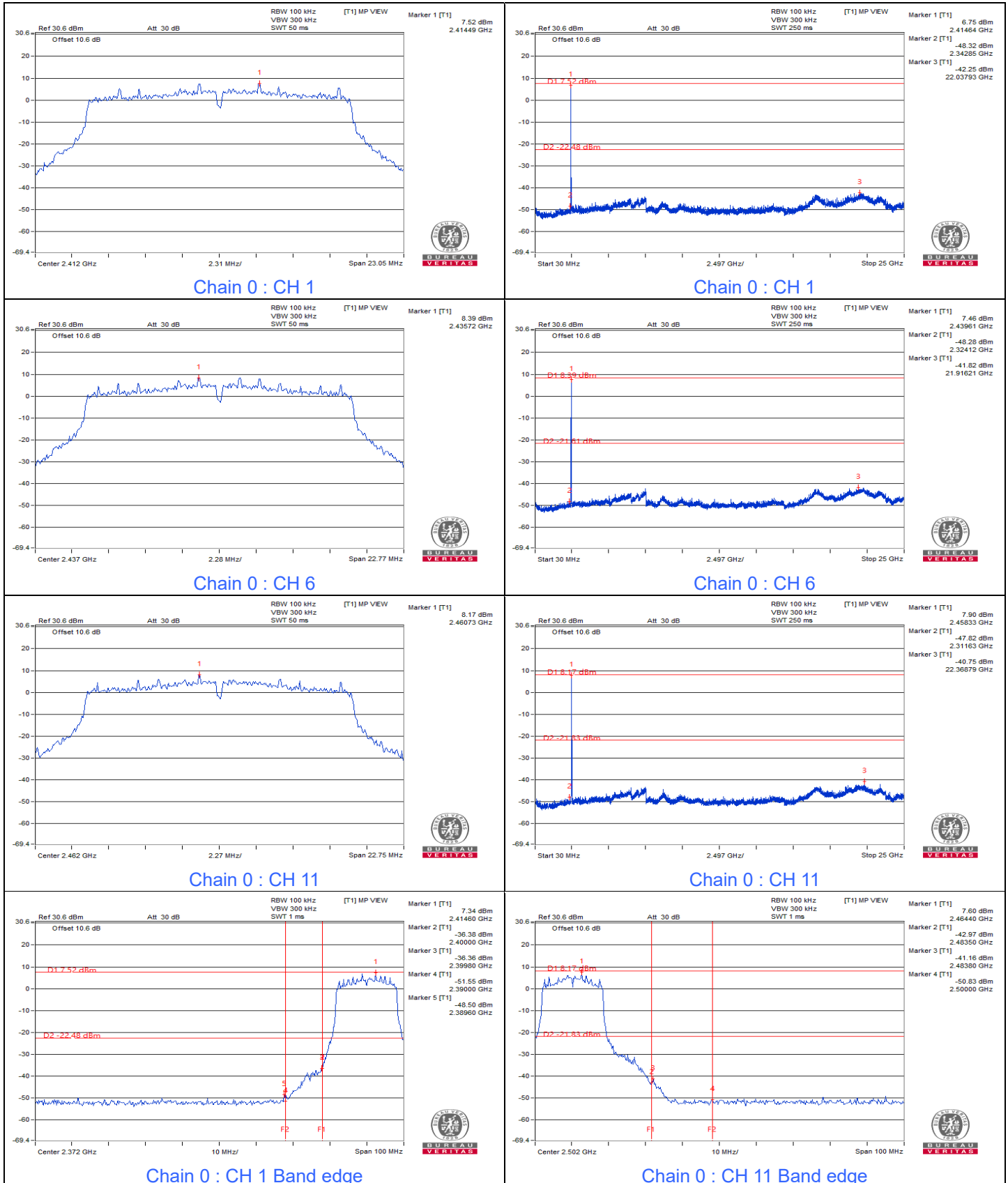
Chain 1 : CH 1 Band edge

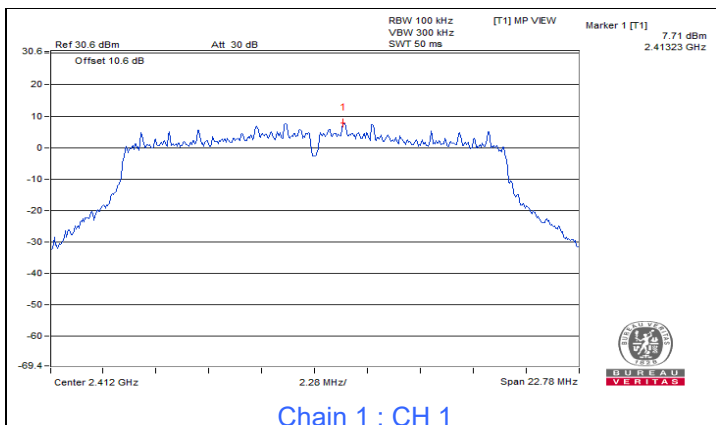


Chain 1 : CH 11 Band edge

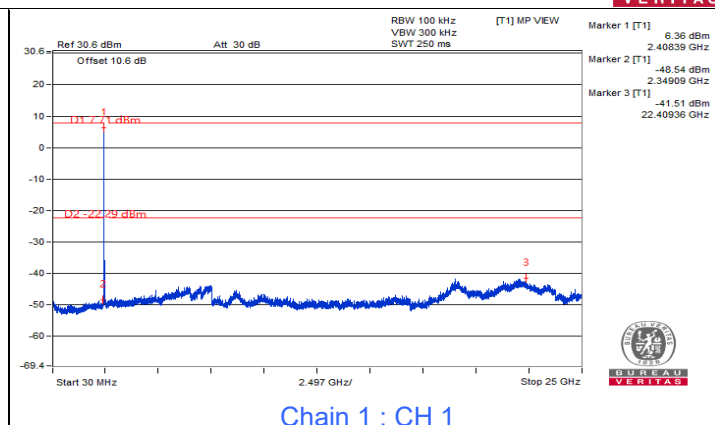


802.11g

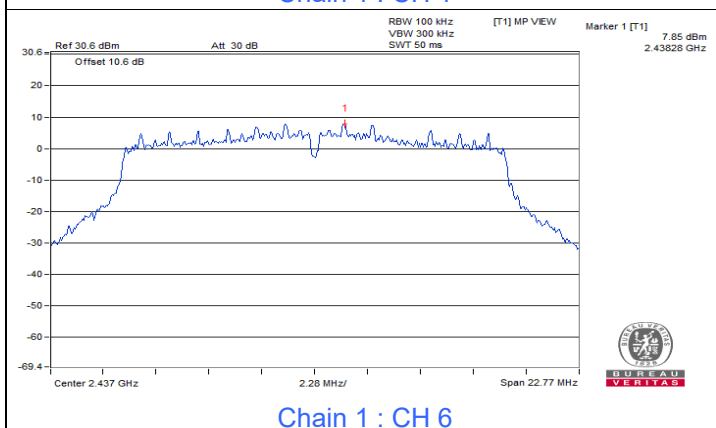




Chain 1 : CH 1



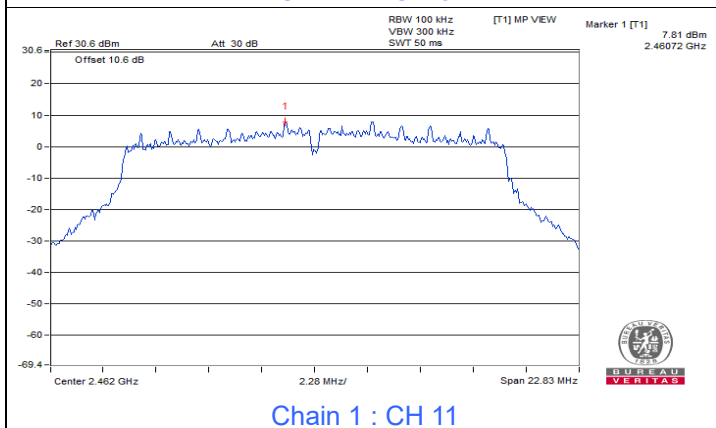
Chain 1 : CH 1



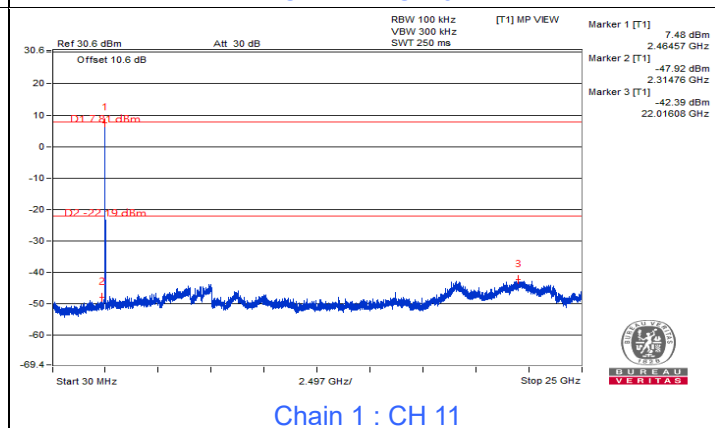
Chain 1 : CH 6



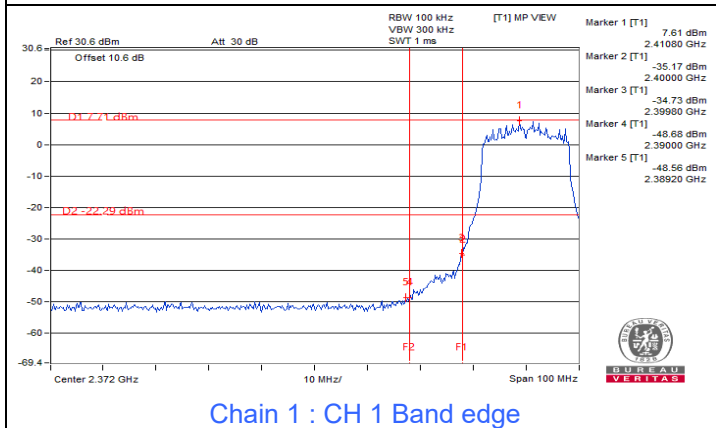
Chain 1 : CH 6



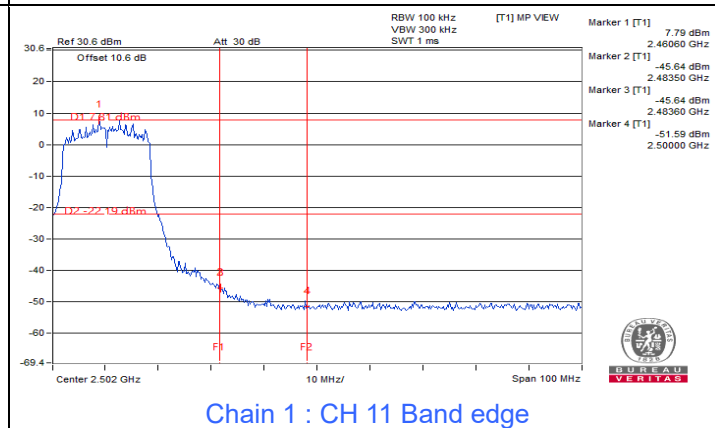
Chain 1 : CH 11



Chain 1 : CH 11



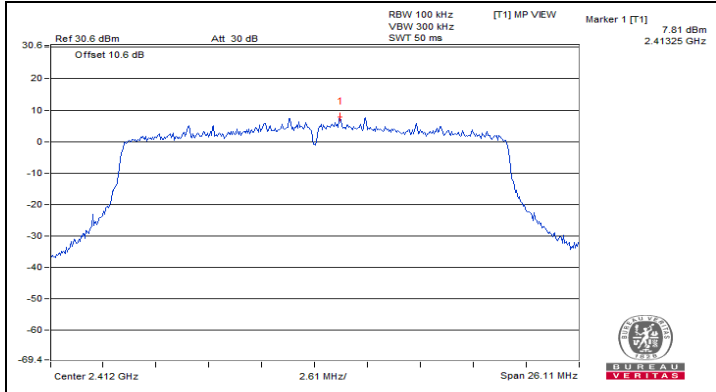
Chain 1 : CH 1 Band edge



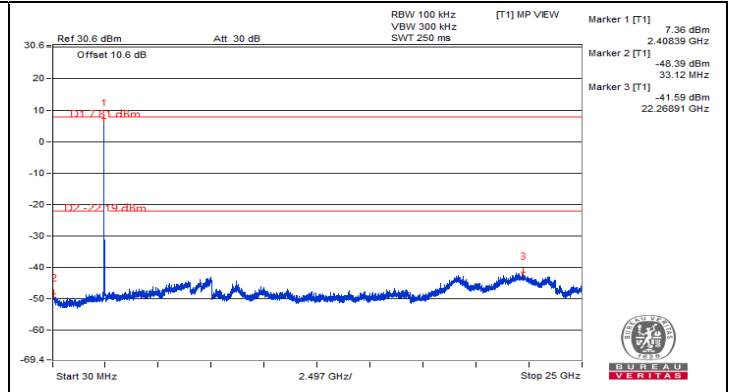
Chain 1 : CH 11 Band edge



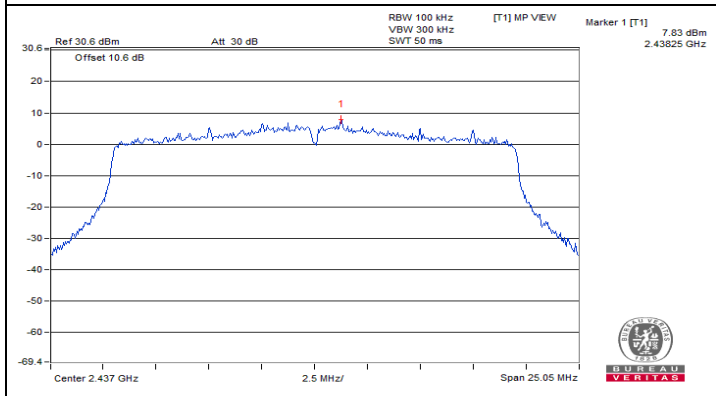
### 802.11ax (HE20) Full RU



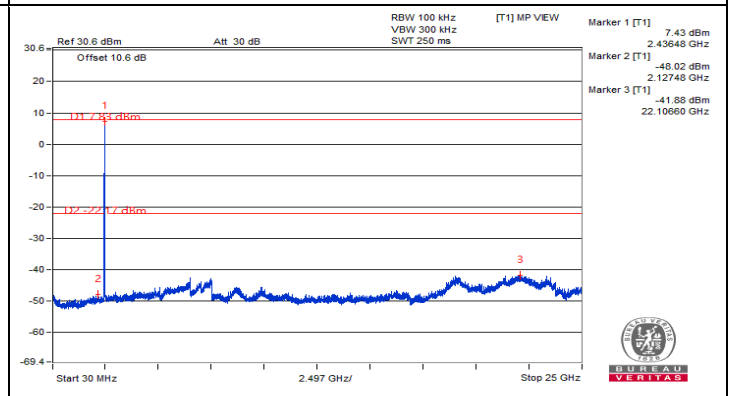
Chain 0 : CH 1



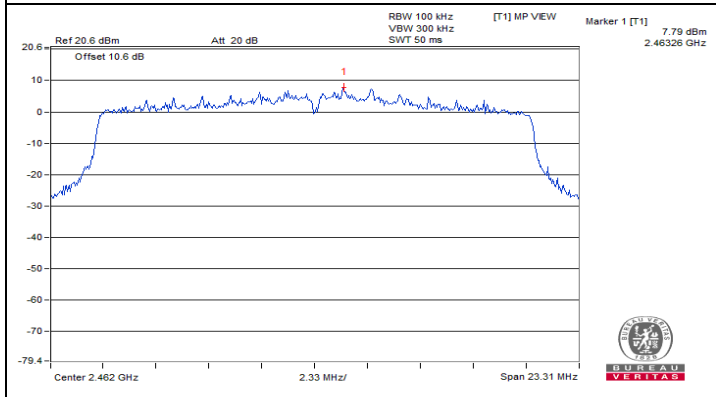
Chain 0 : CH 1



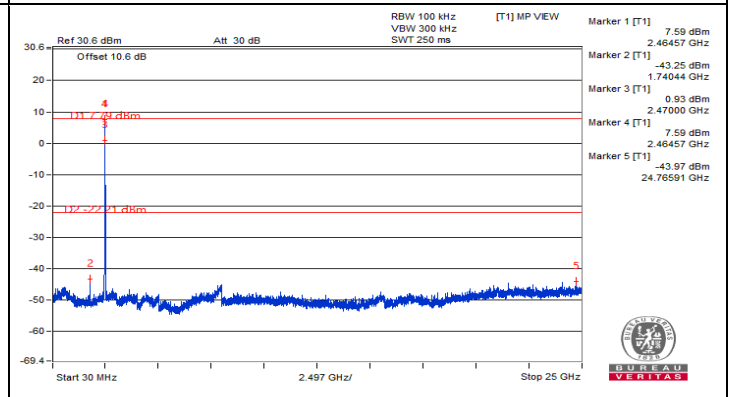
Chain 0 : CH 6



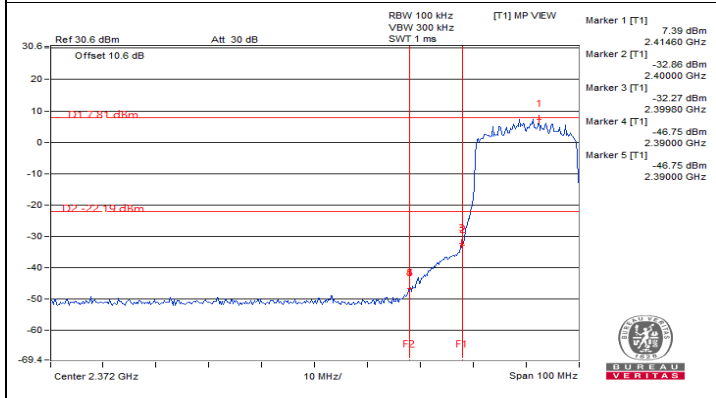
Chain 0 : CH 6



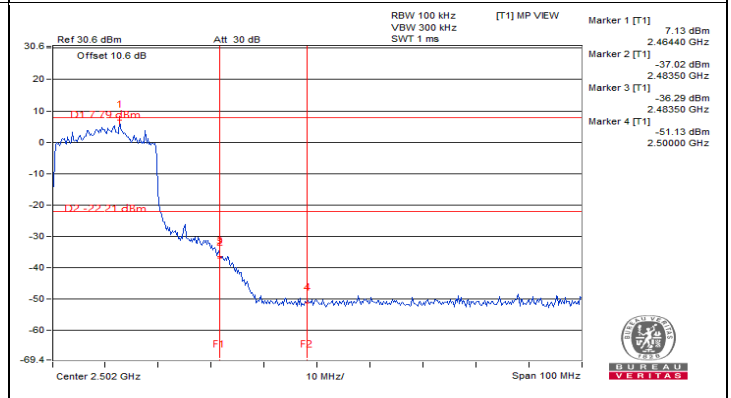
Chain 0 : CH 11



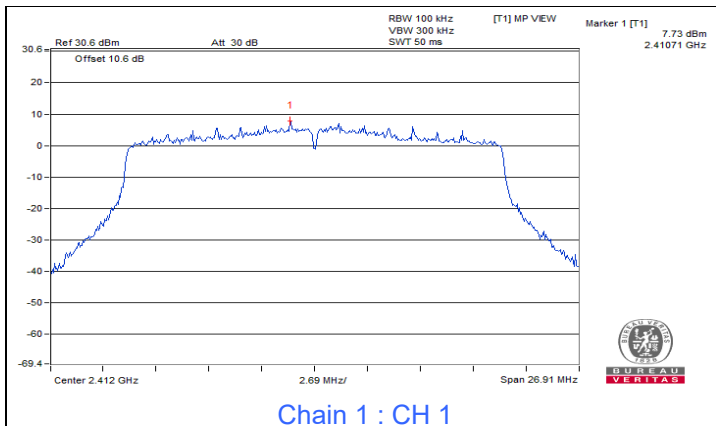
Chain 0 : CH 11



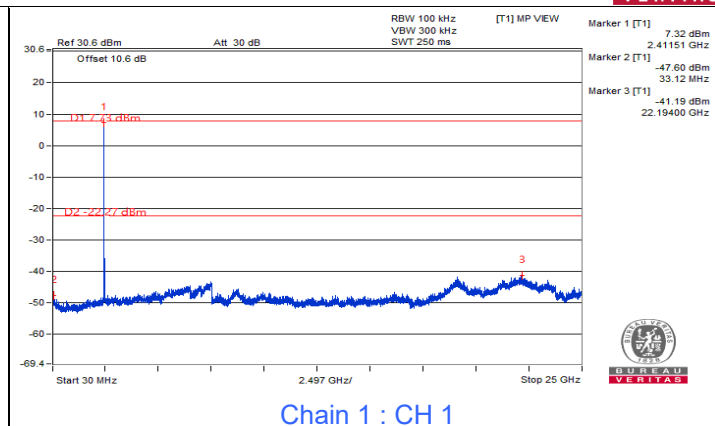
Chain 0 : CH 1 Band edge



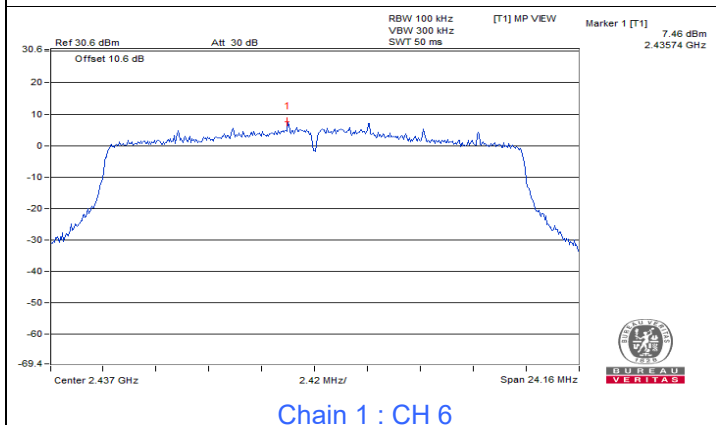
Chain 0 : CH 11 Band edge



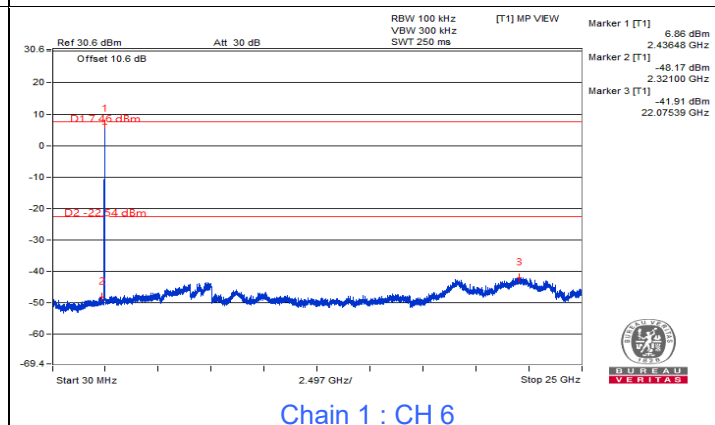
Chain 1 : CH 1



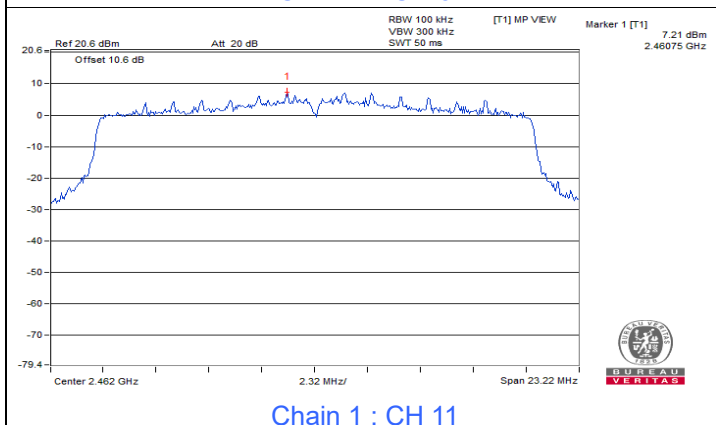
Chain 1 : CH 1



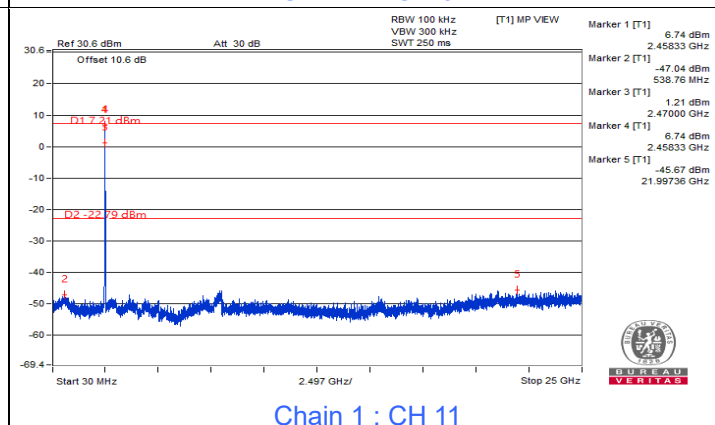
Chain 1 : CH 6



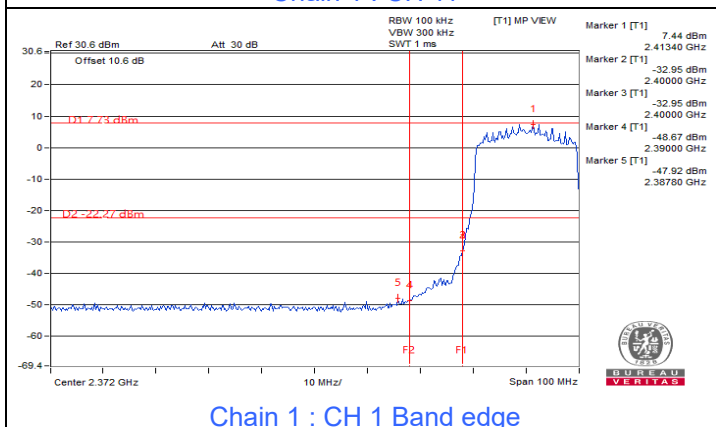
Chain 1 : CH 6



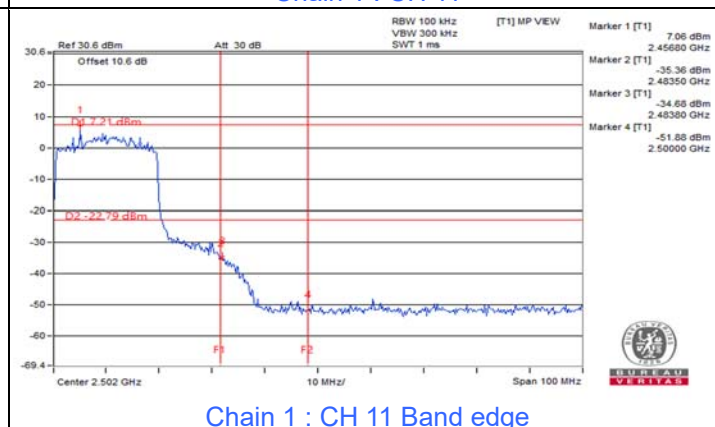
Chain 1 : CH 11



Chain 1 : CH 11



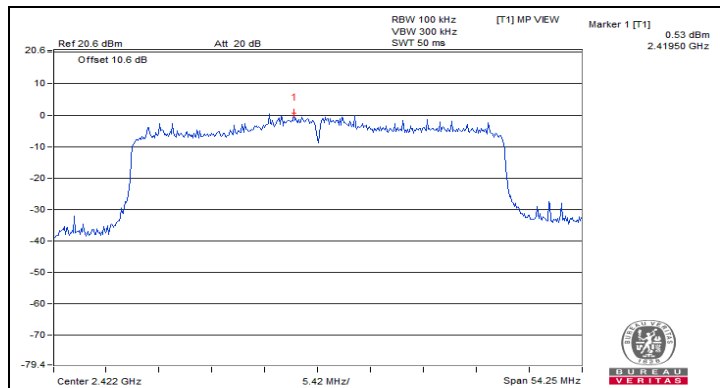
Chain 1 : CH 1 Band edge



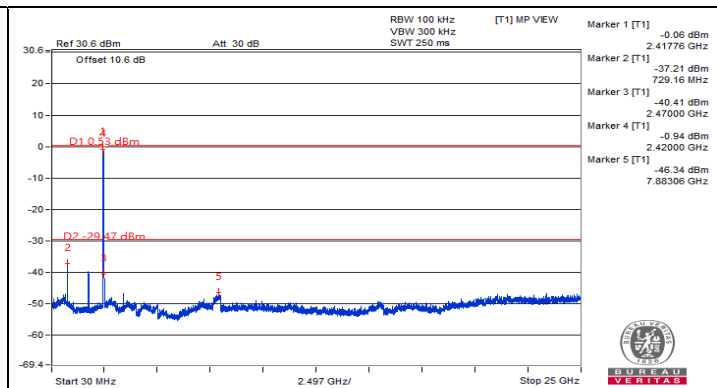
Chain 1 : CH 11 Band edge



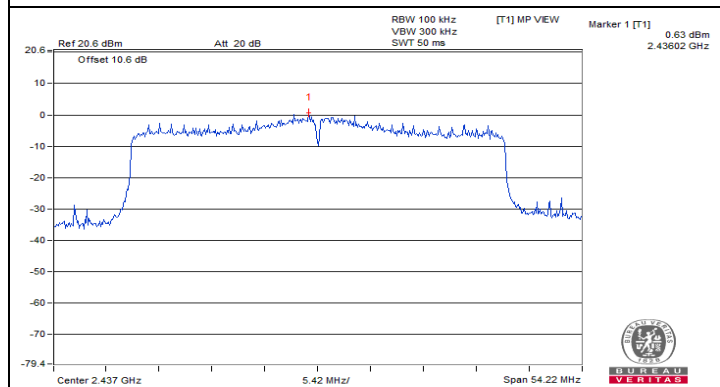
### 802.11ax (HE40) Full RU



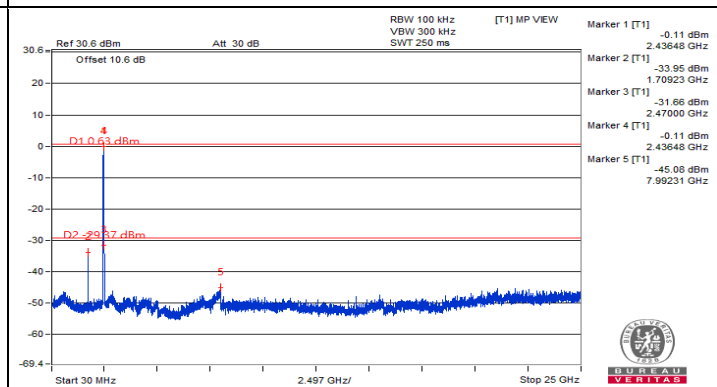
Chain 0 : CH 3



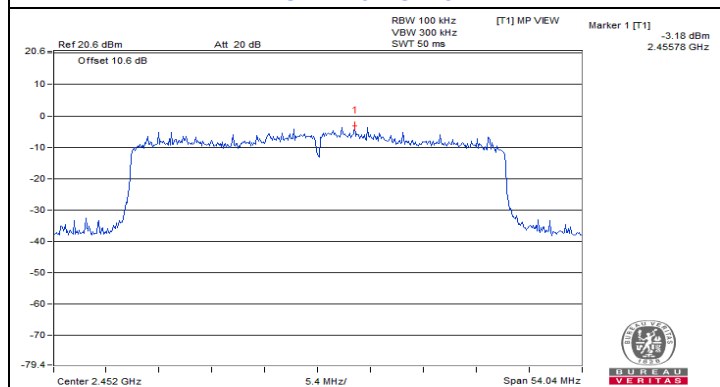
Chain 0 : CH 3



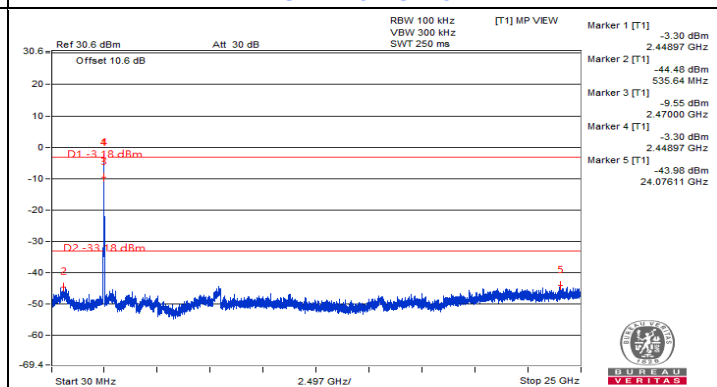
Chain 0 : CH 6



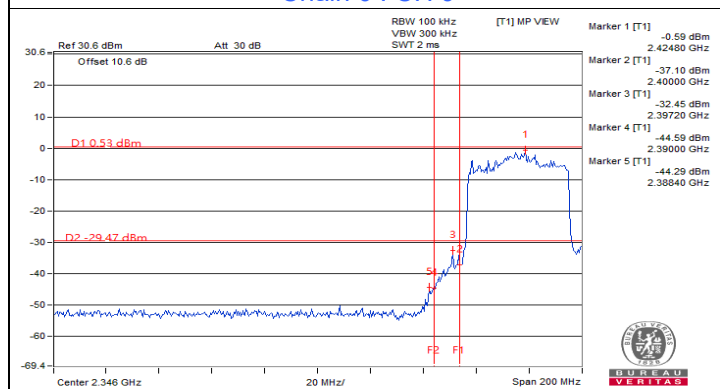
Chain 0 : CH 6



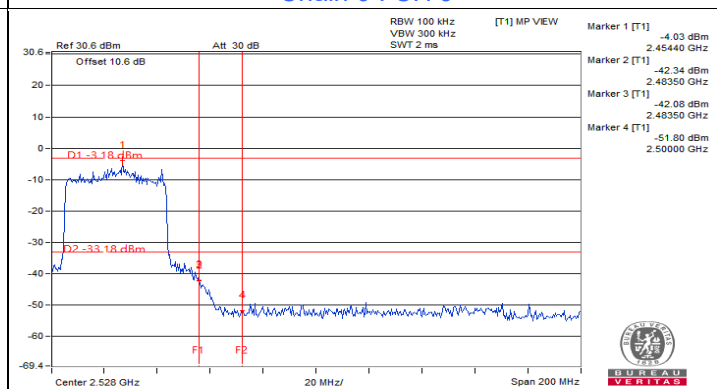
Chain 0 : CH 9



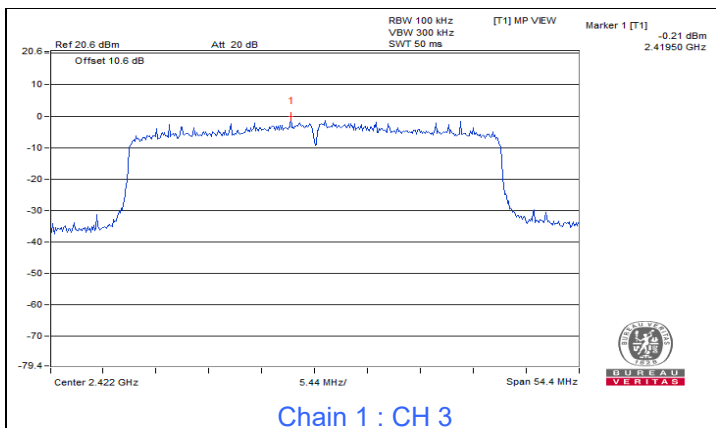
Chain 0 : CH 9



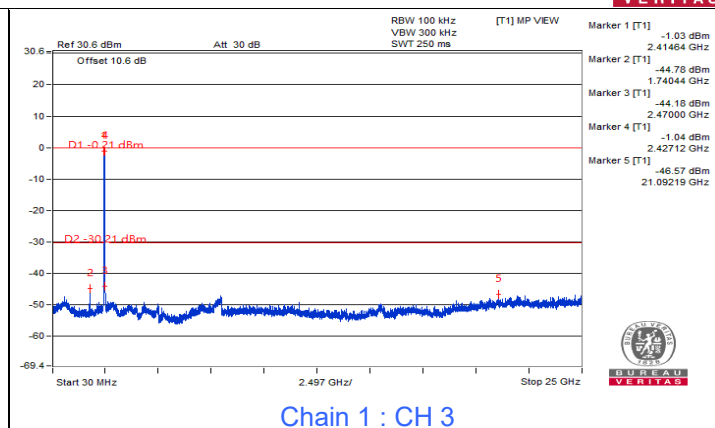
Chain 0 : CH 3 Band edge



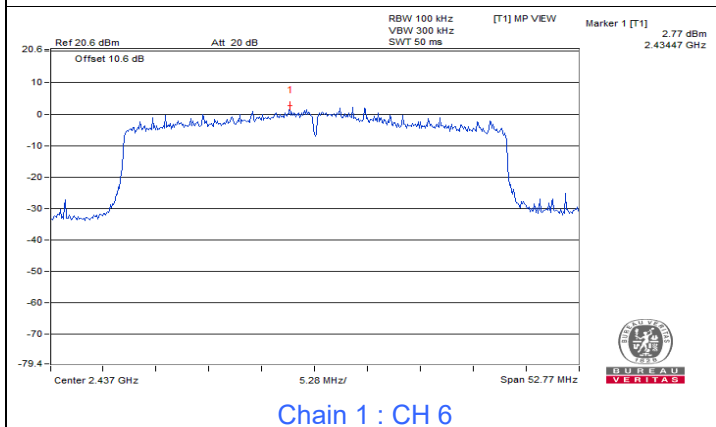
Chain 0 : CH 9 Band edge



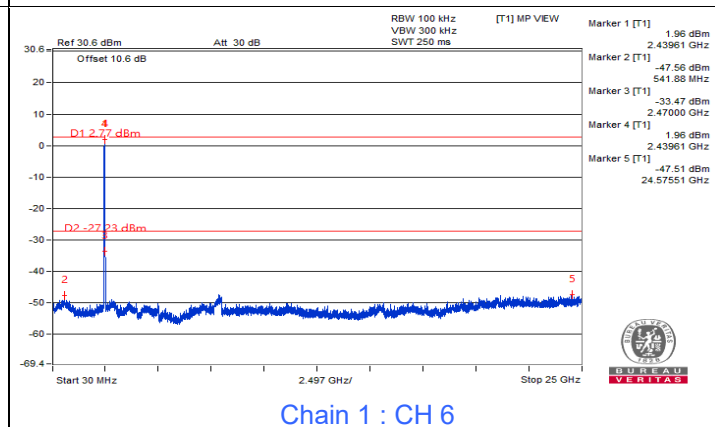
Chain 1 : CH 3



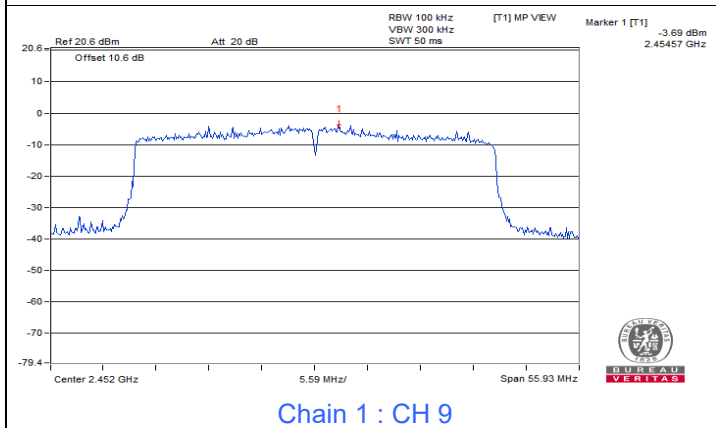
Chain 1 : CH 3



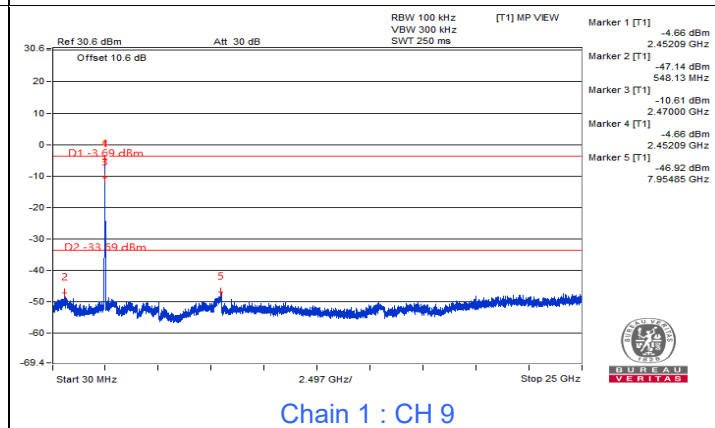
Chain 1 : CH 6



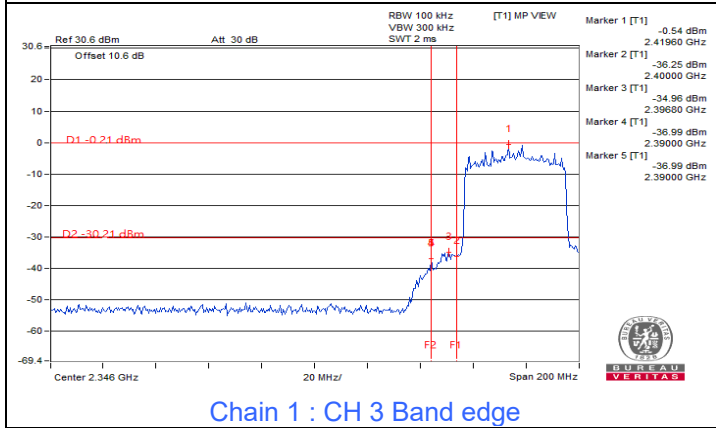
Chain 1 : CH 6



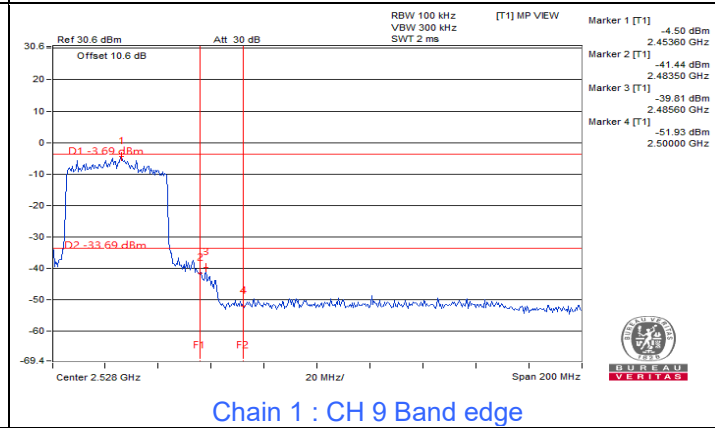
Chain 1 : CH 9



Chain 1 : CH 9



Chain 1 : CH 3 Band edge



Chain 1 : CH 9 Band edge

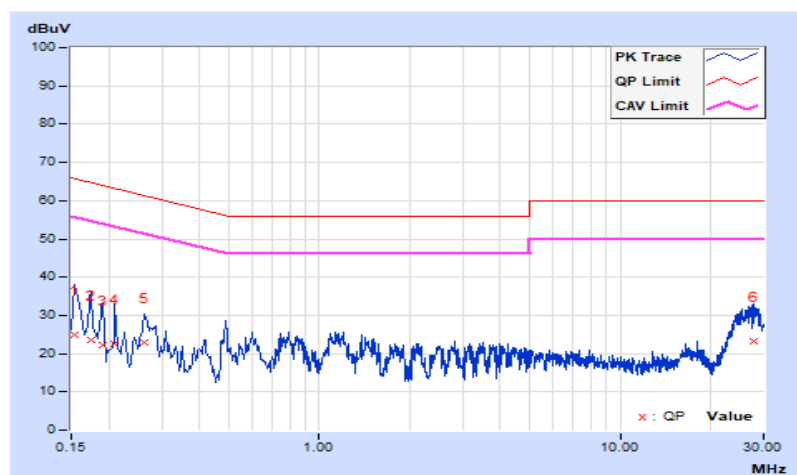
## 7.5 AC Power Conducted Emissions

RF Mode	802.11b	Channel	CH 11 : 2462 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 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	0.15400	10.37	14.71	7.93	25.08	18.30	65.78	55.78	-40.70	-37.48
2	0.17400	10.38	13.33	6.56	23.71	16.94	64.77	54.77	-41.06	-37.83
3	0.19000	10.39	11.97	2.33	22.36	12.72	64.04	54.04	-41.68	-41.32
4	0.21000	10.40	12.22	3.12	22.62	13.52	63.21	53.21	-40.59	-39.69
5	0.26200	10.43	12.58	2.97	23.01	13.40	61.37	51.37	-38.36	-37.97
6	27.75800	10.75	12.54	2.11	23.29	12.86	60.00	50.00	-36.71	-37.14

### 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

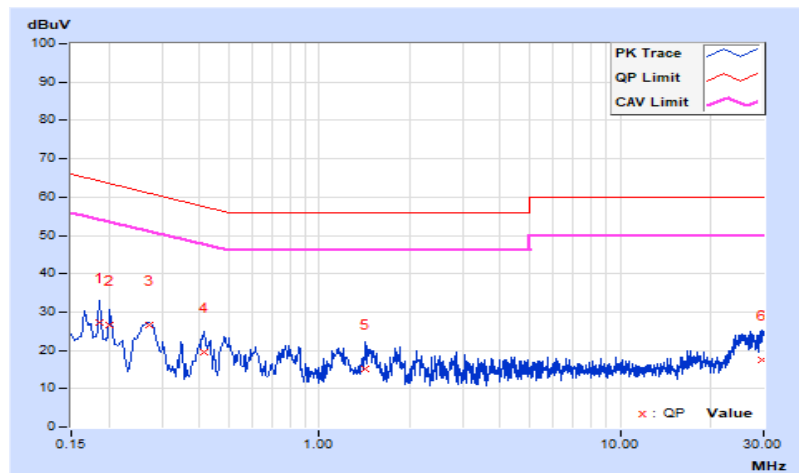


<b>RF Mode</b>	802.11b	<b>Channel</b>	CH 11 : 2462 MHz
<b>Frequency Range</b>	150 kHz ~ 30 MHz	<b>Detector Function &amp; Resolution Bandwidth</b>	Quasi-Peak (QP) / Average (AV), 9 kHz
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 67% RH
<b>Tested By</b>	Adair Peng		

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	0.18600	10.43	16.94	4.86	27.37	15.29	64.21	54.21	-36.84	-38.92
2	0.20200	10.44	16.17	5.54	26.61	15.98	63.53	53.53	-36.92	-37.55
3	0.27400	10.47	16.26	1.63	26.73	12.10	61.00	51.00	-34.27	-38.90
4	0.41400	10.53	8.87	3.64	19.40	14.17	57.57	47.57	-38.17	-33.40
<b>5</b>	<b>1.42600</b>	<b>10.57</b>	<b>4.62</b>	<b>2.14</b>	<b>15.19</b>	<b>12.71</b>	<b>56.00</b>	<b>46.00</b>	<b>-40.81</b>	<b>-33.29</b>
6	29.47400	10.89	6.62	1.97	17.51	12.86	60.00	50.00	-42.49	-37.14

**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

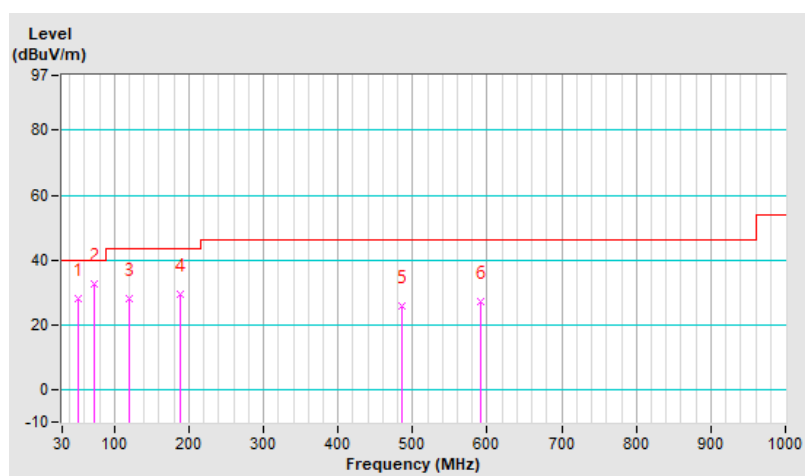
<b>RF Mode</b>	802.11b	<b>Channel</b>	CH 11 : 2462 MHz
<b>Frequency Range</b>	30 MHz ~ 1 GHz	<b>Detector Function &amp; Bandwidth</b>	QP: RB=120kHz, DET=Quasi-Peak
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 67% RH
<b>Tested By</b>	Adair Peng		

#### 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	51.34	28.3 QP	40.0	-11.7	1.00 H	64	37.7	-9.4
2	73.65	32.7 QP	40.0	-7.3	1.50 H	93	45.0	-12.3
3	120.21	28.1 QP	43.5	-15.4	1.00 H	251	39.6	-11.5
4	188.11	29.6 QP	43.5	-13.9	1.00 H	93	41.0	-11.4
5	485.90	25.9 QP	46.0	-20.1	1.50 H	280	30.2	-4.3
6	590.66	27.1 QP	46.0	-18.9	1.00 H	127	29.2	-2.1

#### 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.

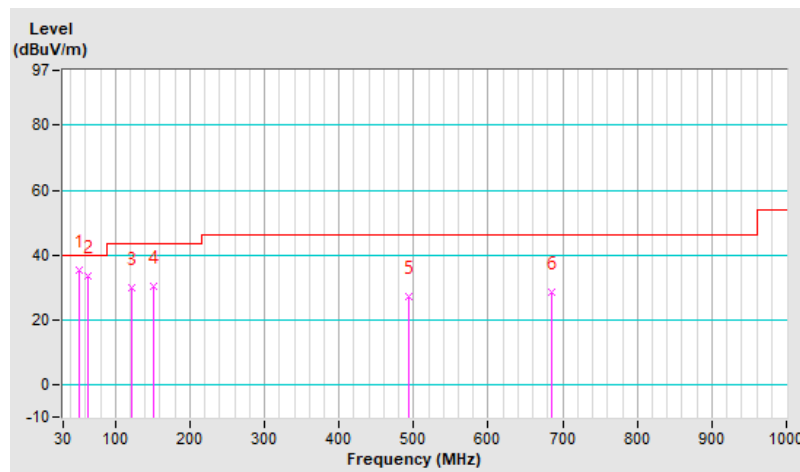


<b>RF Mode</b>	802.11b	<b>Channel</b>	CH 11 : 2462 MHz
<b>Frequency Range</b>	30 MHz ~ 1 GHz	<b>Detector Function &amp; Bandwidth</b>	QP: RB=120kHz, DET=Quasi-Peak
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 67% RH
<b>Tested By</b>	Adair Peng		

Antenna Polarity & Test Distance : 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	51.34	35.5 QP	40.0	-4.5	1.00 V	318	44.9	-9.4
2	62.98	33.7 QP	40.0	-6.3	1.00 V	147	43.9	-10.2
3	121.18	29.8 QP	43.5	-13.7	1.00 V	272	41.2	-11.4
4	151.25	30.4 QP	43.5	-13.1	1.00 V	160	39.4	-9.0
5	493.66	27.2 QP	46.0	-18.8	1.99 V	159	31.4	-4.2
6	684.75	28.6 QP	46.0	-17.4	1.00 V	131	28.9	-0.3

**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.



### Mode B

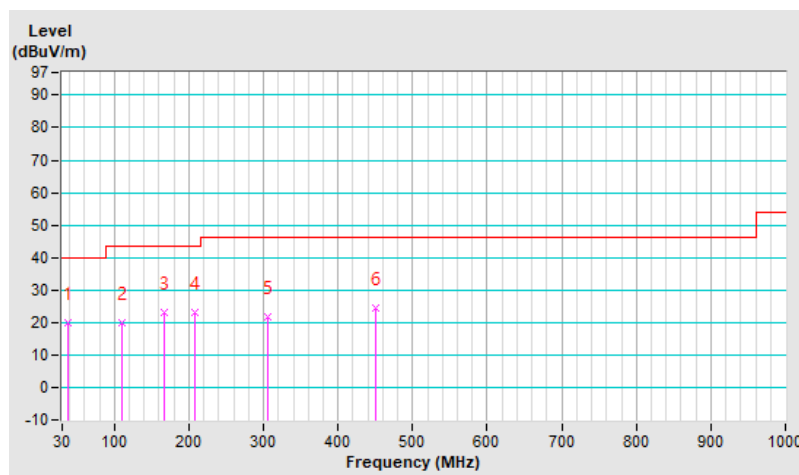
<b>RF Mode</b>	802.11ax (HE40) Full RU	<b>Channel</b>	CH 9 : 2452 MHz
<b>Frequency Range</b>	30 MHz ~ 1 GHz	<b>Detector Function &amp; Bandwidth</b>	QP: RB=120kHz, DET=Quasi-Peak
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 67% RH
<b>Tested By</b>	Rex Wang		

#### 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	38.73	20.0 QP	40.0	-20.0	1.50 H	64	30.1	-10.1
2	110.51	19.7 QP	43.5	-23.8	1.00 H	243	32.1	-12.4
3	167.74	22.9 QP	43.5	-20.6	1.50 H	133	32.1	-9.2
4	208.48	23.3 QP	43.5	-20.2	1.50 H	293	35.2	-11.9
5	305.48	21.9 QP	46.0	-24.1	1.00 H	102	29.6	-7.7
6	450.01	24.6 QP	46.0	-21.4	1.00 H	251	29.5	-4.9

#### Remarks:

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

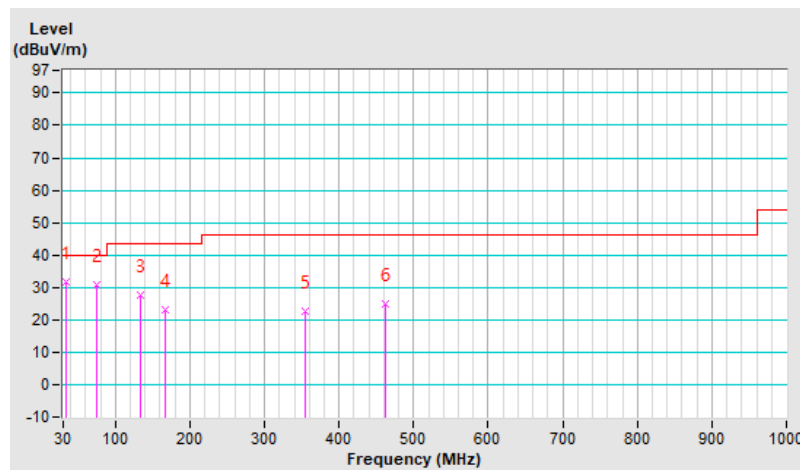


<b>RF Mode</b>	802.11ax (HE40) Full RU	<b>Channel</b>	CH 9 : 2452 MHz
<b>Frequency Range</b>	30 MHz ~ 1 GHz	<b>Detector Function &amp; Bandwidth</b>	QP: RB=120kHz, DET=Quasi-Peak
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 67% RH
<b>Tested By</b>	Rex Wang		

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	33.88	31.8 QP	40.0	-8.2	1.00 V	48	42.5	-10.7
2	74.62	30.9 QP	40.0	-9.1	1.00 V	194	43.3	-12.4
3	132.82	27.6 QP	43.5	-15.9	1.49 V	313	37.8	-10.2
4	167.74	23.0 QP	43.5	-20.5	1.00 V	6	32.2	-9.2
5	354.95	22.5 QP	46.0	-23.5	1.99 V	143	29.5	-7.0
6	461.65	24.8 QP	46.0	-21.2	1.49 V	6	29.3	-4.5

**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.



## 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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	22°C, 66% 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	2387.80	58.7 PK	74.0	-15.3	1.91 H	102	26.2	32.5
2	2387.80	48.8 AV	54.0	-5.2	1.91 H	102	16.3	32.5
3	*2412.00	107.9 PK			1.88 H	111	75.4	32.5
4	*2412.00	105.4 AV			1.88 H	111	72.9	32.5
5	4824.00	40.5 PK	74.0	-33.5	2.22 H	110	36.0	4.5
6	4824.00	26.7 AV	54.0	-27.3	2.22 H	110	22.2	4.5

#### 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	2387.80	59.1 PK	74.0	-14.9	2.28 V	155	26.6	32.5
2	2387.80	49.0 AV	54.0	-5.0	2.28 V	155	16.5	32.5
3	*2412.00	109.3 PK			3.03 V	212	76.8	32.5
4	*2412.00	106.8 AV			3.03 V	212	74.3	32.5
5	4824.00	41.7 PK	74.0	-32.3	2.41 V	200	37.2	4.5
6	4824.00	27.9 AV	54.0	-26.1	2.41 V	200	23.4	4.5

#### 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 6 : 2437 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	22°C, 66% 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	108.4 PK			1.95 H	106	75.8	32.6
2	*2437.00	105.9 AV			1.95 H	106	73.3	32.6
3	4874.00	38.8 PK	74.0	-35.2	1.92 H	122	34.3	4.5
4	4874.00	26.4 AV	54.0	-27.6	1.92 H	122	21.9	4.5

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	109.5 PK			2.00 V	258	76.9	32.6
2	*2437.00	107.1 AV			2.00 V	258	74.5	32.6
3	4874.00	39.9 PK	74.0	-34.1	1.67 V	161	35.4	4.5
4	4874.00	27.6 AV	54.0	-26.4	1.67 V	161	23.1	4.5

**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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	22°C, 66% 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	110.0 PK			1.87 H	120	77.2	32.8
2	*2462.00	107.4 AV			1.87 H	120	74.6	32.8
3	2483.50	58.7 PK	74.0	-15.3	1.90 H	112	26.0	32.7
4	2483.50	47.2 AV	54.0	-6.8	1.90 H	112	14.5	32.7
5	4924.00	38.8 PK	74.0	-35.2	2.15 H	119	34.2	4.6
6	4924.00	26.2 AV	54.0	-27.8	2.15 H	119	21.6	4.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	111.6 PK			2.89 V	221	78.8	32.8
2	*2462.00	108.9 AV			2.89 V	221	76.1	32.8
3	2483.50	59.0 PK	74.0	-15.0	2.27 V	147	26.3	32.7
4	2483.50	49.5 AV	54.0	-4.5	2.27 V	147	16.8	32.7
5	4924.00	40.1 PK	74.0	-33.9	1.69 V	164	35.5	4.6
6	4924.00	27.9 AV	54.0	-26.1	1.69 V	164	23.3	4.6

**Remarks:**

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

<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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	22°C, 66% 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	62.1 PK	74.0	-11.9	1.70 H	121	29.6	32.5
2	2390.00	48.4 AV	54.0	-5.6	1.70 H	121	15.9	32.5
3	*2412.00	114.1 PK			1.65 H	122	81.6	32.5
4	*2412.00	103.5 AV			1.65 H	122	71.0	32.5
5	4824.00	51.3 PK	74.0	-22.7	2.10 H	118	46.8	4.5
6	4824.00	36.4 AV	54.0	-17.6	2.10 H	118	31.9	4.5
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	63.1 PK	74.0	-10.9	2.10 V	135	30.6	32.5
2	2390.00	49.0 AV	54.0	-5.0	2.10 V	135	16.5	32.5
3	*2412.00	114.3 PK			2.18 V	226	81.8	32.5
4	*2412.00	103.7 AV			2.18 V	226	71.2	32.5
5	4824.00	52.9 PK	74.0	-21.1	1.87 V	165	48.4	4.5
6	4824.00	38.0 AV	54.0	-16.0	1.87 V	165	33.5	4.5

**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 6 : 2437 MHz
<b>Frequency Range</b>	1 GHz ~ 25 GHz	<b>Detector Function &amp; Bandwidth</b>	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	22°C, 66% 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	114.5 PK			1.66 H	121	81.9	32.6
2	*2437.00	104.6 AV			1.66 H	121	72.0	32.6
3	4874.00	51.3 PK	74.0	-22.7	2.11 H	124	46.8	4.5
4	4874.00	37.1 AV	54.0	-16.9	2.11 H	124	32.6	4.5
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	114.9 PK			2.18 V	225	82.3	32.6
2	*2437.00	105.0 AV			2.18 V	225	72.4	32.6
3	4874.00	53.3 PK	74.0	-20.7	1.71 V	168	48.8	4.5
4	4874.00	39.0 AV	54.0	-15.0	1.71 V	168	34.5	4.5

**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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	22°C, 66% 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	109.5 PK			1.85 H	140	76.7	32.8
2	*2462.00	100.1 AV			1.85 H	140	67.3	32.8
3	2483.50	63.3 PK	74.0	-10.7	1.74 H	131	30.6	32.7
4	2483.50	50.4 AV	54.0	-3.6	1.74 H	131	17.7	32.7
5	4924.00	46.7 PK	74.0	-27.3	2.25 H	123	42.1	4.6
6	4924.00	33.7 AV	54.0	-20.3	2.25 H	123	29.1	4.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	111.6 PK			2.70 V	256	78.8	32.8
2	*2462.00	101.8 AV			2.70 V	256	69.0	32.8
3	2483.50	66.5 PK	74.0	-7.5	2.65 V	247	33.8	32.7
4	2483.50	51.7 AV	54.0	-2.3	2.65 V	247	19.0	32.7
5	4924.00	48.6 PK	74.0	-25.4	2.15 V	182	44.0	4.6
6	4924.00	35.8 AV	54.0	-18.2	2.15 V	182	31.2	4.6

**Remarks:**

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



<b>RF Mode</b>	802.11ax (HE20) Full RU	<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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	22°C, 66% 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	1.78 H	124	26.7	32.5
2	2390.00	47.9 AV	54.0	-6.1	1.78 H	124	15.4	32.5
3	*2412.00	114.4 PK			1.75 H	122	81.9	32.5
4	*2412.00	102.6 AV			1.75 H	122	70.1	32.5
5	4824.00	49.5 PK	74.0	-24.5	2.10 H	118	45.0	4.5
6	4824.00	35.1 AV	54.0	-18.9	2.10 H	118	30.6	4.5

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

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	64.3 PK	74.0	-9.7	2.04 V	133	31.8	32.5
2	2390.00	51.1 AV	54.0	-2.9	2.04 V	133	18.6	32.5
3	*2412.00	116.2 PK			2.16 V	223	83.7	32.5
4	*2412.00	102.8 AV			2.16 V	223	70.3	32.5
5	4824.00	52.7 PK	74.0	-21.3	1.66 V	163	48.2	4.5
6	4824.00	37.2 AV	54.0	-16.8	1.66 V	163	32.7	4.5

**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) Full RU	<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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	22°C, 66% 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	114.9 PK			1.65 H	124	82.3	32.6
2	*2437.00	104.2 AV			1.65 H	124	71.6	32.6
3	4874.00	48.7 PK	74.0	-25.3	2.12 H	119	44.2	4.5
4	4874.00	34.5 AV	54.0	-19.5	2.12 H	119	30.0	4.5

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	116.7 PK			2.10 V	141	84.1	32.6
2	*2437.00	104.5 AV			2.10 V	141	71.9	32.6
3	4874.00	52.2 PK	74.0	-21.8	1.70 V	164	47.7	4.5
4	4874.00	36.7 AV	54.0	-17.3	1.70 V	164	32.2	4.5

**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) Full RU	<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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	22°C, 66% 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	112.3 PK			1.82 H	141	79.5	32.8
2	*2462.00	99.9 AV			1.82 H	141	67.1	32.8
3	2483.50	64.1 PK	74.0	-9.9	1.72 H	125	31.4	32.7
4	2483.50	51.4 AV	54.0	-2.6	1.72 H	125	18.7	32.7
5	4924.00	47.9 PK	74.0	-26.1	2.15 H	110	43.3	4.6
6	4924.00	35.2 AV	54.0	-18.8	2.15 H	110	30.6	4.6

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

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	114.2 PK			2.53 V	183	81.4	32.8
2	*2462.00	101.9 AV			2.53 V	183	69.1	32.8
3	2483.50	65.5 PK	74.0	-8.5	2.42 V	190	32.8	32.7
<b>4</b>	<b>2483.50</b>	<b>52.0 AV</b>	<b>54.0</b>	<b>-2.0</b>	<b>2.42 V</b>	<b>190</b>	<b>19.3</b>	<b>32.7</b>
5	4924.00	50.1 PK	74.0	-23.9	1.98 V	174	45.5	4.6
6	4924.00	37.1 AV	54.0	-16.9	1.98 V	174	32.5	4.6

**Remarks:**

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



<b>RF Mode</b>	802.11ax (HE40) Full RU	<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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	22°C, 66% 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	59.7 PK	74.0	-14.3	1.65 H	123	27.2	32.5
2	2390.00	48.3 AV	54.0	-5.7	1.65 H	123	15.8	32.5
3	*2422.00	106.9 PK			1.79 H	130	74.3	32.6
4	*2422.00	94.4 AV			1.79 H	130	61.8	32.6
5	4844.00	45.6 PK	74.0	-28.4	2.09 H	124	41.0	4.6
6	4844.00	32.0 AV	54.0	-22.0	2.09 H	124	27.4	4.6

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

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	64.2 PK	74.0	-9.8	2.61 V	255	31.7	32.5
2	2390.00	51.3 AV	54.0	-2.7	2.61 V	255	18.8	32.5
3	*2422.00	108.2 PK			2.58 V	234	75.6	32.6
4	*2422.00	95.8 AV			2.58 V	234	63.2	32.6
5	4844.00	46.7 PK	74.0	-27.3	1.81 V	178	42.1	4.6
6	4844.00	33.0 AV	54.0	-21.0	1.81 V	178	28.4	4.6

**Remarks:**

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



<b>RF Mode</b>	802.11ax (HE40) Full RU	<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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	22°C, 66% 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	61.1 PK	74.0	-12.9	1.69 H	142	28.6	32.5
2	2390.00	48.7 AV	54.0	-5.3	1.69 H	142	16.2	32.5
3	*2437.00	110.2 PK			1.52 H	130	77.6	32.6
4	*2437.00	97.5 AV			1.52 H	130	64.9	32.6
5	4874.00	46.4 PK	74.0	-27.6	1.97 H	125	41.9	4.5
6	4874.00	32.5 AV	54.0	-21.5	1.97 H	125	28.0	4.5

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

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	64.2 PK	74.0	-9.8	2.53 V	236	31.7	32.5
2	2390.00	51.3 AV	54.0	-2.7	2.53 V	236	18.8	32.5
3	*2437.00	111.8 PK			2.41 V	255	79.2	32.6
4	*2437.00	99.3 AV			2.41 V	255	66.7	32.6
5	4874.00	47.6 PK	74.0	-26.4	1.85 V	160	43.1	4.5
6	4874.00	33.5 AV	54.0	-20.5	1.85 V	160	29.0	4.5

**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) Full RU	<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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	22°C, 66% 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	104.5 PK			1.70 H	126	71.8	32.7
2	*2452.00	91.9 AV			1.70 H	126	59.2	32.7
3	2483.50	60.9 PK	74.0	-13.1	1.61 H	119	28.2	32.7
4	2483.50	49.3 AV	54.0	-4.7	1.61 H	119	16.6	32.7
5	4904.00	45.4 PK	74.0	-28.6	2.11 H	130	41.0	4.4
6	4904.00	31.7 AV	54.0	-22.3	2.11 H	130	27.3	4.4

**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	106.3 PK			2.66 V	231	73.6	32.7
2	*2452.00	93.3 AV			2.66 V	231	60.6	32.7
3	2483.50	63.7 PK	74.0	-10.3	2.59 V	238	31.0	32.7
4	2483.50	51.7 AV	54.0	-2.3	2.59 V	238	19.0	32.7
5	4904.00	46.0 PK	74.0	-28.0	1.91 V	152	41.6	4.4
6	4904.00	32.0 AV	54.0	-22.0	1.91 V	152	27.6	4.4

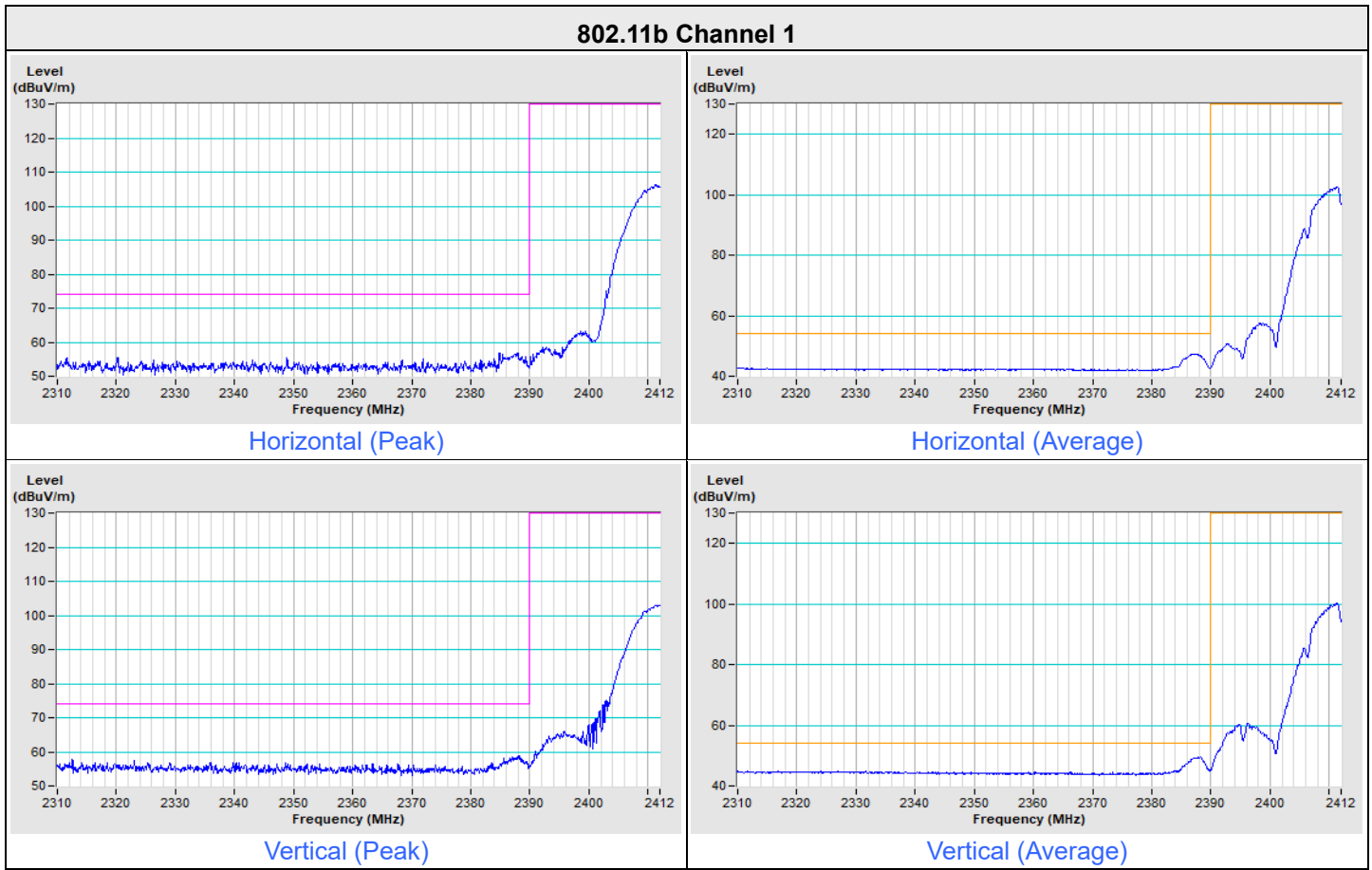
**Remarks:**

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.



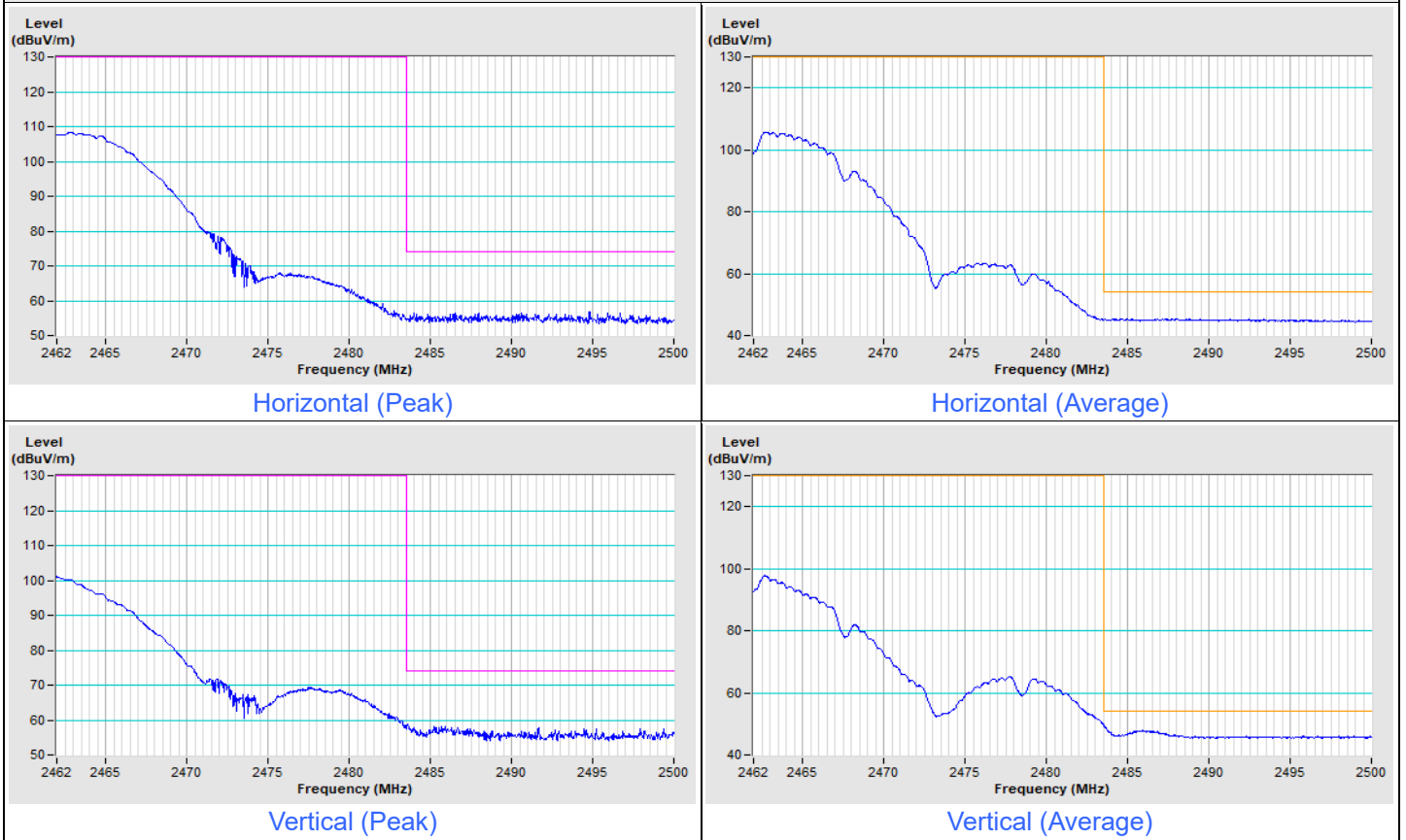
**Plot of Band Edge**

Frequency Range	2.31 GHz ~ 2.412 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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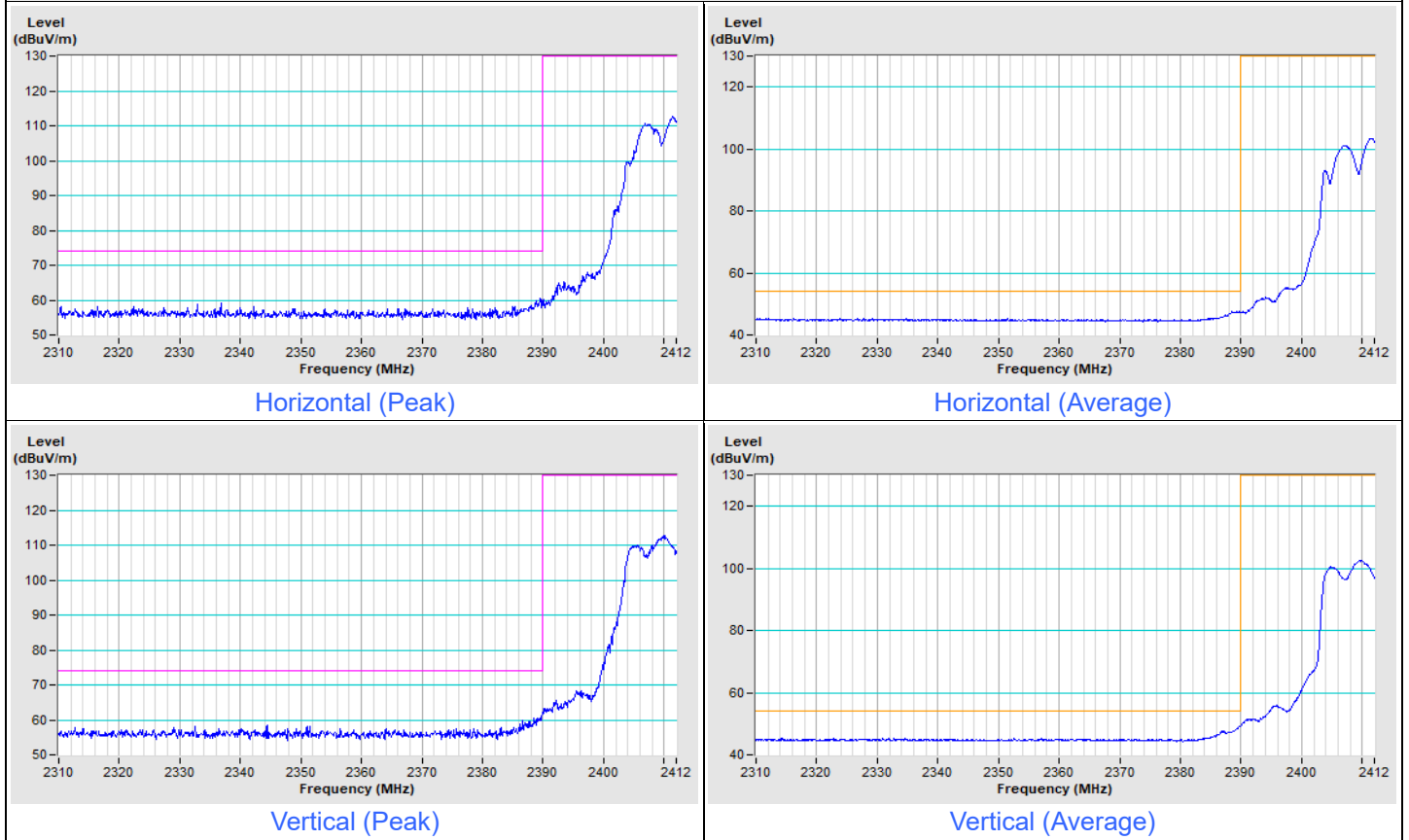
Frequency Range	2.462 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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**802.11b Channel 11**



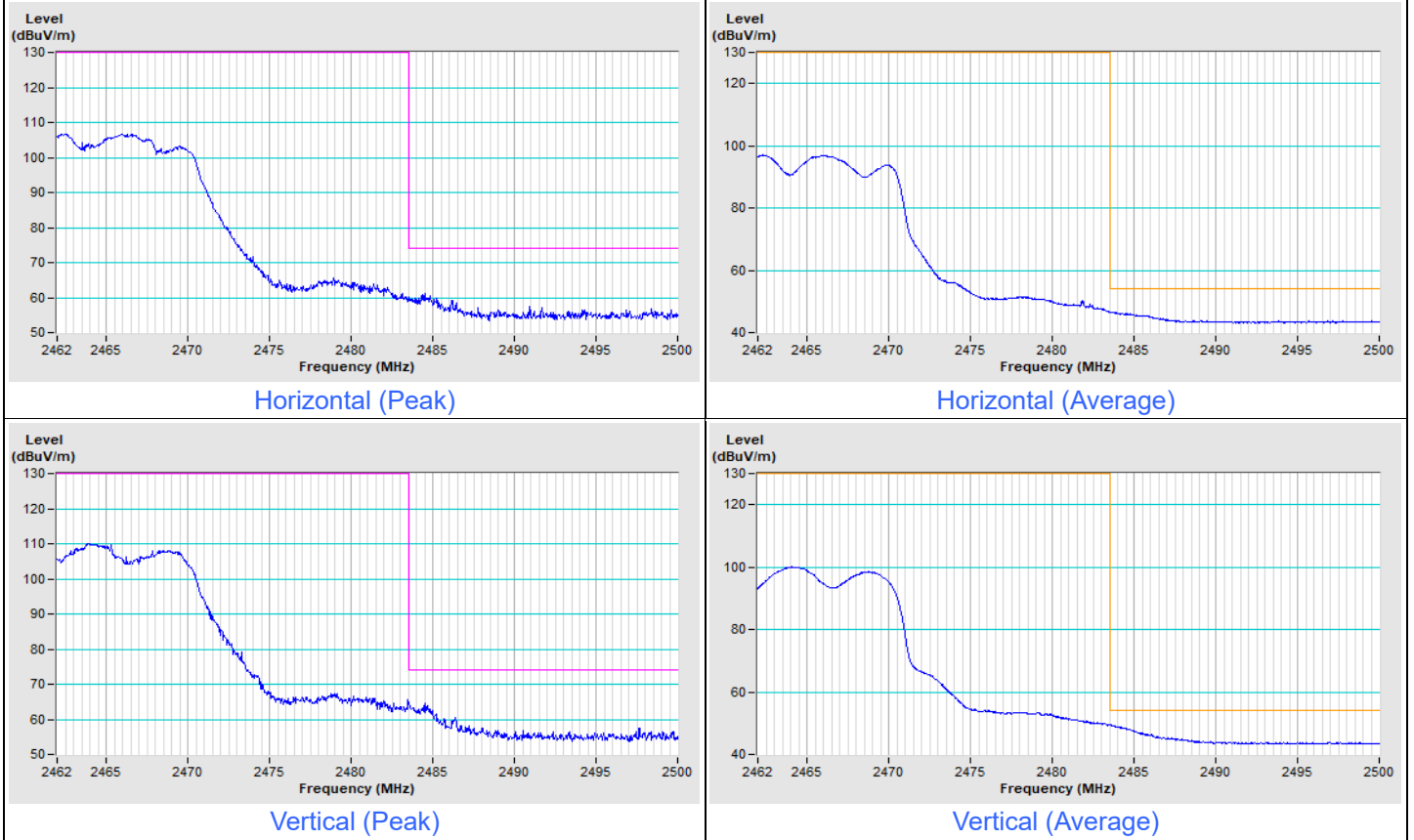
Frequency Range	2.31 GHz ~ 2.412 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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### 802.11g Channel 1



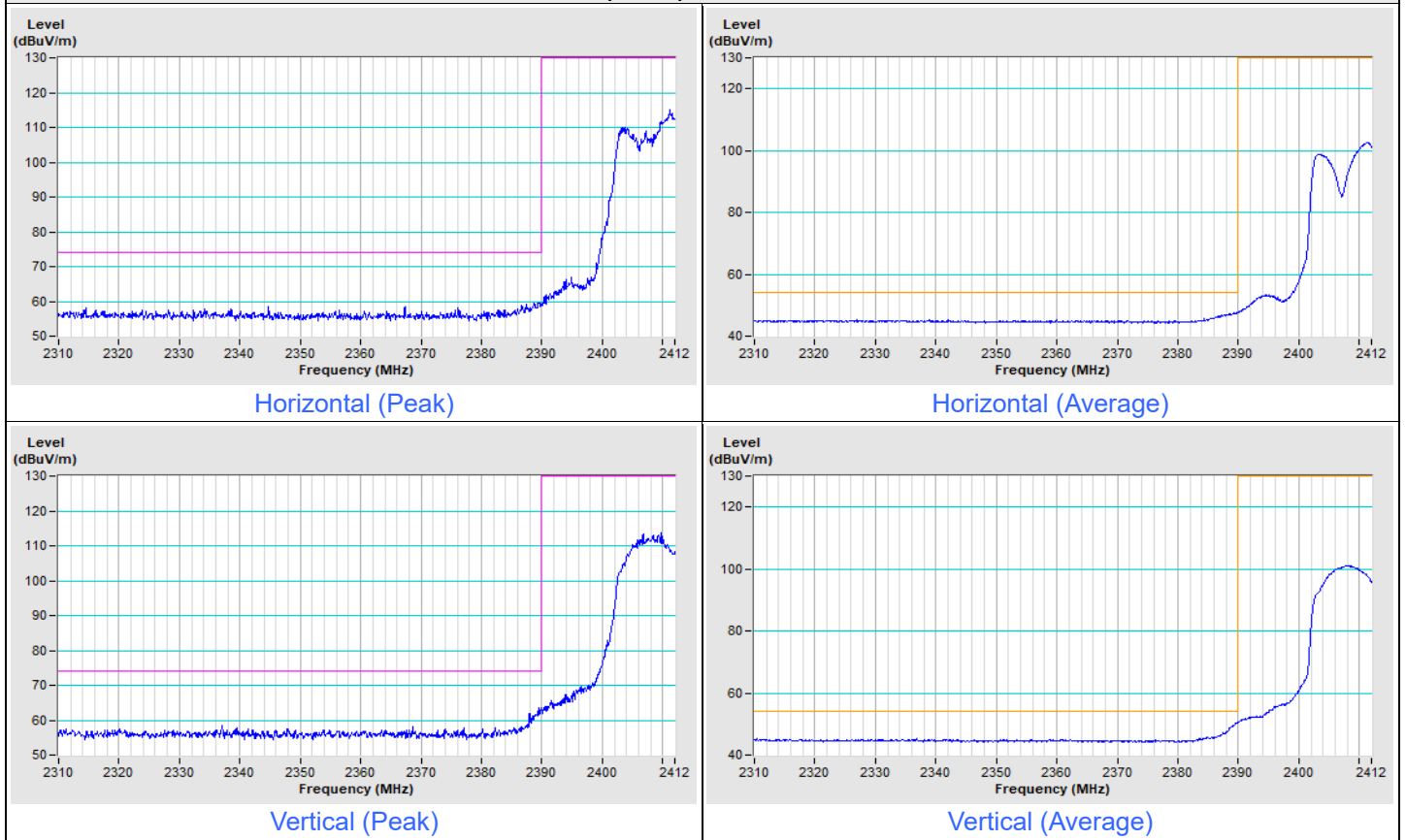
Frequency Range	2.462 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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### 802.11g Channel 11



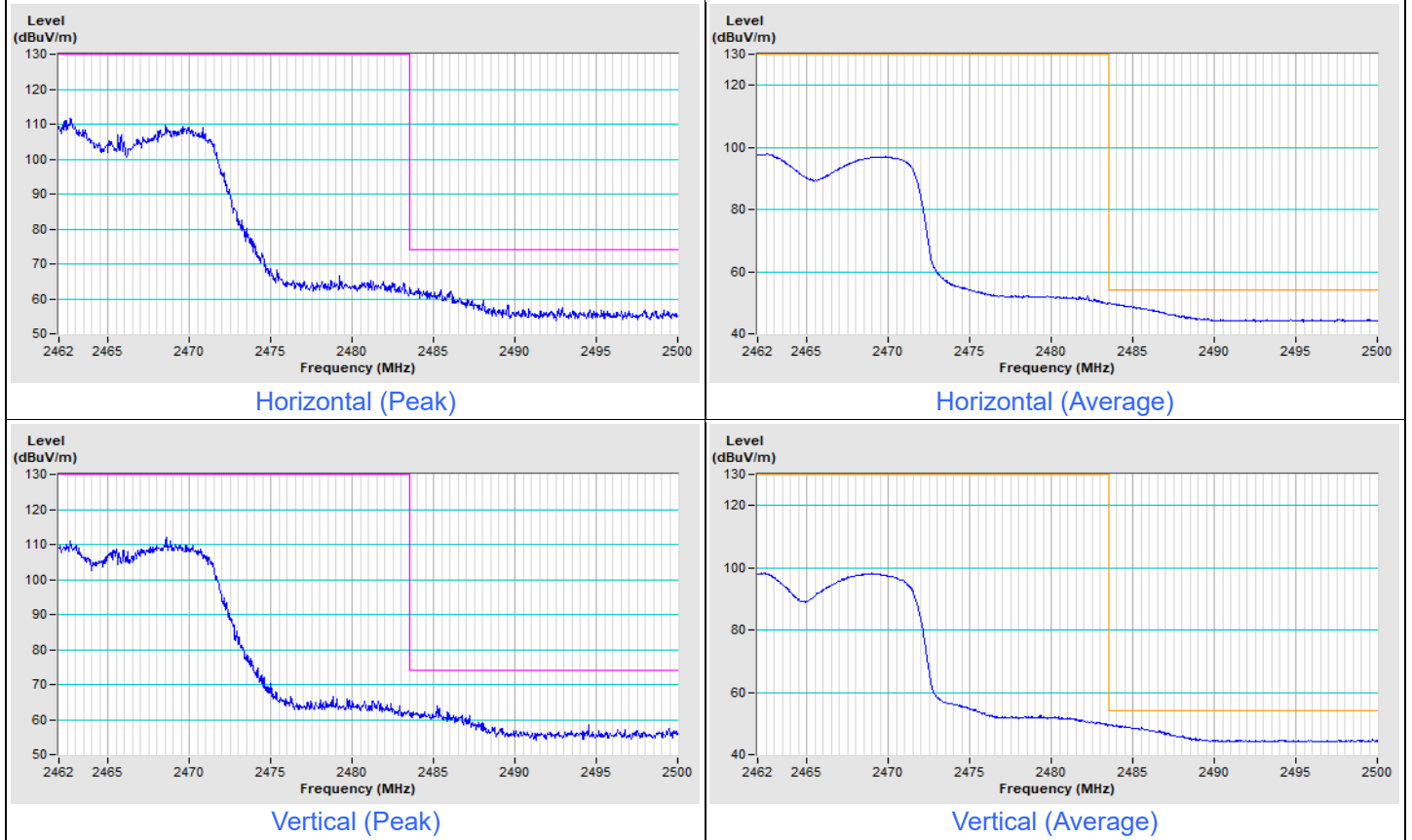
Frequency Range	2.31 GHz ~ 2.412 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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### 802.11ax (HE20) Full RU Channel 1



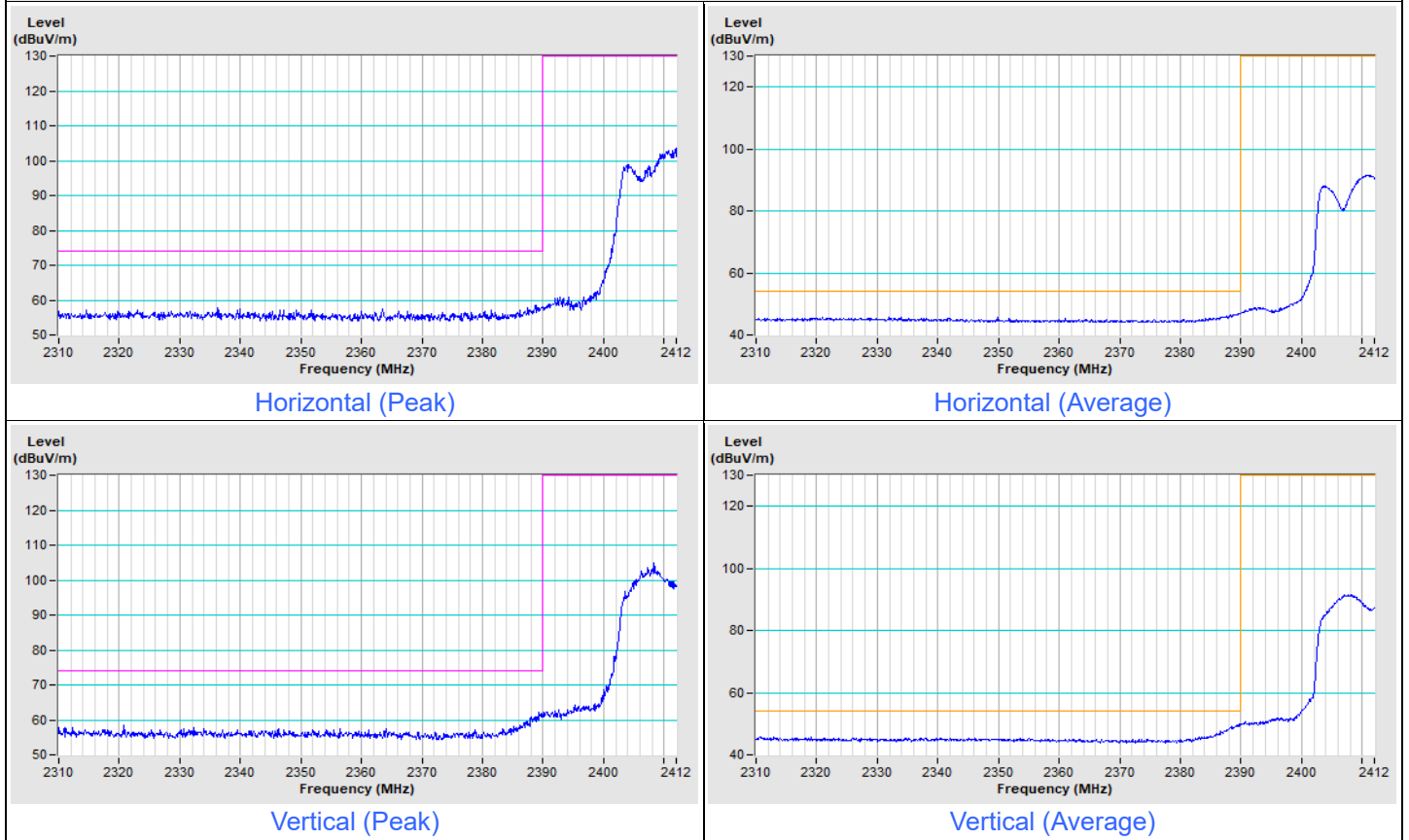
Frequency Range	2.462 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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**802.11ax (HE20) Full RU Channel 11**



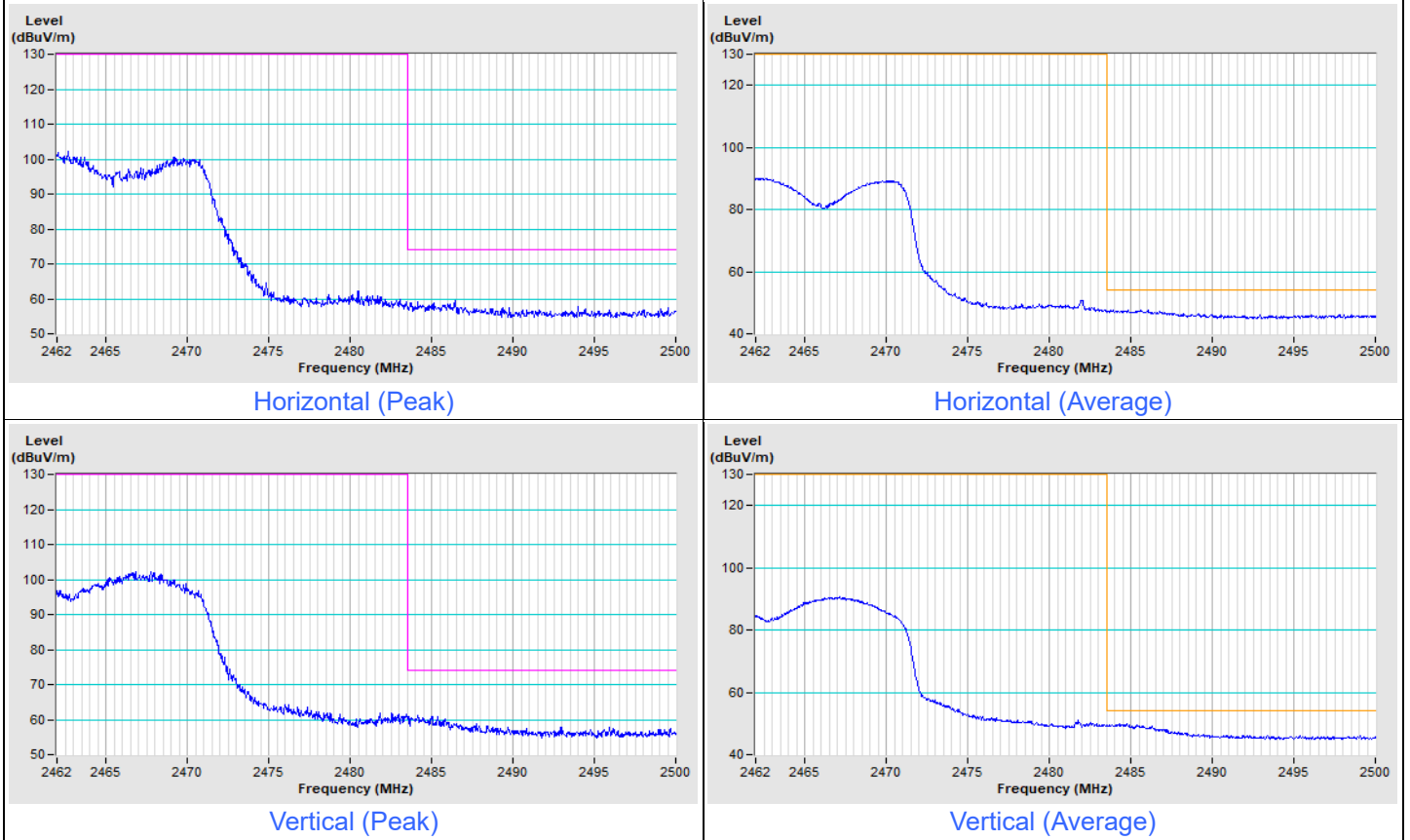
Frequency Range	2.31 GHz ~ 2.412 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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### 802.11ax (HE40) Full RU Channel 3



Frequency Range	2.462 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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### 802.11ax (HE40) Full RU Channel 9





**Mode B**

<b>RF Mode</b>	802.11ax (HE40) Full RU	<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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<b>Input Power</b>	120 Vac, 60 Hz	<b>Environmental Conditions</b>	23°C, 67% RH
<b>Tested By</b>	Rex Wang		

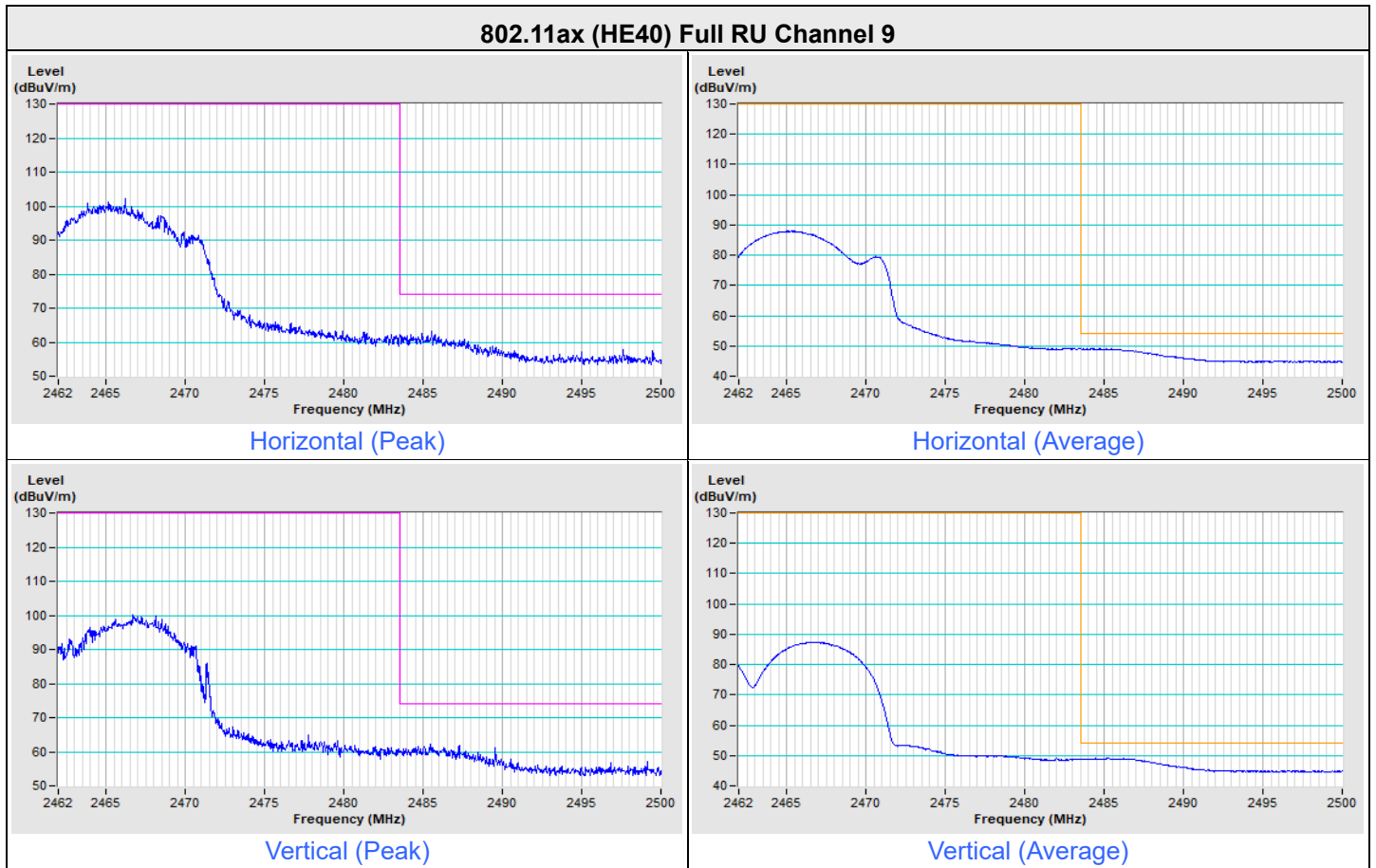
Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	104.4 PK			2.05 H	144	71.7	32.7
2	*2452.00	92.3 AV			2.05 H	144	59.6	32.7
3	2483.50	61.5 PK	74.0	-12.5	1.89 H	122	28.8	32.7
4	2483.50	49.2 AV	54.0	-4.8	1.89 H	122	16.5	32.7
5	4904.00	45.2 PK	74.0	-28.8	2.11 H	116	40.8	4.4
6	4904.00	31.8 AV	54.0	-22.2	2.11 H	116	27.4	4.4
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	107.2 PK			2.83 V	247	74.5	32.7
2	*2452.00	94.2 AV			2.83 V	247	61.5	32.7
3	2483.50	63.5 PK	74.0	-10.5	2.83 V	139	30.8	32.7
4	<b>2483.50</b>	<b>50.3 AV</b>	<b>54.0</b>	<b>-3.7</b>	<b>2.83 V</b>	<b>139</b>	<b>17.6</b>	<b>32.7</b>
5	4904.00	46.0 PK	74.0	-28.0	1.77 V	162	41.6	4.4
6	4904.00	31.9 AV	54.0	-22.1	1.77 V	162	27.5	4.4

**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

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

<b>RF Mode</b>	20 MHz Preamble 802.11ax (RU26)	<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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<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	68.9 PK	74.0	-5.1	2.09 H	148	36.4	32.5
2	2390.00	47.7 AV	54.0	-6.3	2.09 H	148	15.2	32.5
3	*2412.00	119.0 PK			2.53 H	190	86.5	32.5
4	*2412.00	106.8 AV			2.53 H	190	74.3	32.5
5	4824.00	58.7 PK	74.0	-15.3	1.77 H	158	54.2	4.5
6	4824.00	41.6 AV	54.0	-12.4	1.77 H	158	37.1	4.5

**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	68.9 PK	74.0	-5.1	1.05 V	110	36.4	32.5
2	2390.00	45.5 AV	54.0	-8.5	1.05 V	110	13.0	32.5
3	*2412.00	120.1 PK			1.00 V	108	87.6	32.5
4	*2412.00	107.9 AV			1.00 V	108	75.4	32.5
5	4824.00	59.0 PK	74.0	-15.0	2.14 V	135	54.5	4.5
6	4824.00	41.9 AV	54.0	-12.1	2.14 V	135	37.4	4.5

**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>	20 MHz Preamble 802.11ax (RU26)	<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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<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	116.8 PK			1.19 H	107	84.0	32.8
2	*2462.00	105.1 AV			1.19 H	107	72.3	32.8
3	2483.50	68.9 PK	74.0	-5.1	1.09 H	111	36.2	32.7
4	2483.50	46.8 AV	54.0	-7.2	1.09 H	111	14.1	32.7
5	4924.00	51.2 PK	74.0	-22.8	2.13 H	150	46.6	4.6
6	4924.00	38.3 AV	54.0	-15.7	2.13 H	150	33.7	4.6

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

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	118.5 PK			1.62 V	143	85.7	32.8
2	*2462.00	106.2 AV			1.62 V	143	73.4	32.8
3	2483.50	71.2 PK	74.0	-2.8	1.69 V	145	38.5	32.7
4	2483.50	47.0 AV	54.0	-7.0	1.69 V	145	14.3	32.7
5	4924.00	51.6 PK	74.0	-22.4	1.87 V	161	47.0	4.6
6	4924.00	38.7 AV	54.0	-15.3	1.87 V	161	34.1	4.6

**Remarks:**

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

<b>RF Mode</b>	20 MHz Preamble 802.11ax (RU52)	<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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<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	61.3 PK	74.0	-12.7	1.46 H	197	28.8	32.5
2	2390.00	45.0 AV	54.0	-9.0	1.46 H	197	12.5	32.5
3	*2412.00	115.6 PK			1.39 H	208	83.1	32.5
4	*2412.00	103.5 AV			1.39 H	208	71.0	32.5
5	4824.00	54.5 PK	74.0	-19.5	2.31 H	129	50.0	4.5
6	4824.00	39.2 AV	54.0	-14.8	2.31 H	129	34.7	4.5

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	69.7 PK	74.0	-4.3	2.12 V	142	37.2	32.5
2	2390.00	45.6 AV	54.0	-8.4	2.12 V	142	13.1	32.5
3	*2412.00	117.2 PK			2.25 V	150	84.7	32.5
4	*2412.00	105.2 AV			2.25 V	150	72.7	32.5
5	4824.00	56.1 PK	74.0	-17.9	1.90 V	172	51.6	4.5
6	4824.00	40.6 AV	54.0	-13.4	1.90 V	172	36.1	4.5

**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>	20 MHz Preamble 802.11ax (RU52)	<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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<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	116.0 PK			1.58 H	199	83.2	32.8
2	*2462.00	104.5 AV			1.58 H	199	71.7	32.8
3	2483.50	71.0 PK	74.0	-3.0	1.50 H	212	38.3	32.7
4	2483.50	47.4 AV	54.0	-6.6	1.50 H	212	14.7	32.7
5	4924.00	51.2 PK	74.0	-22.8	2.08 H	131	46.6	4.6
6	4924.00	38.2 AV	54.0	-15.8	2.08 H	131	33.6	4.6

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

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	118.1 PK			1.63 V	135	85.3	32.8
2	*2462.00	105.7 AV			1.63 V	135	72.9	32.8
3	2483.50	71.5 PK	74.0	-2.5	1.71 V	140	38.8	32.7
4	2483.50	47.7 AV	54.0	-6.3	1.71 V	140	15.0	32.7
5	4924.00	51.5 PK	74.0	-22.5	1.93 V	169	46.9	4.6
6	4924.00	38.5 AV	54.0	-15.5	1.93 V	169	33.9	4.6

**Remarks:**

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



<b>RF Mode</b>	20 MHz Preamble 802.11ax (RU106)	<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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<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	70.5 PK	74.0	-3.5	1.49 H	198	38.0	32.5
2	2390.00	45.5 AV	54.0	-8.5	1.49 H	198	13.0	32.5
3	*2412.00	112.3 PK			1.41 H	209	79.8	32.5
4	*2412.00	100.0 AV			1.41 H	209	67.5	32.5
5	4824.00	48.6 PK	74.0	-25.4	2.19 H	123	44.1	4.5
6	4824.00	34.3 AV	54.0	-19.7	2.19 H	123	29.8	4.5
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	70.8 PK	74.0	-3.2	2.17 V	116	38.3	32.5
2	2390.00	45.6 AV	54.0	-8.4	2.17 V	116	13.1	32.5
3	*2412.00	113.7 PK			2.63 V	132	81.2	32.5
4	*2412.00	101.6 AV			2.63 V	132	69.1	32.5
5	4824.00	50.2 PK	74.0	-23.8	1.92 V	172	45.7	4.5
6	4824.00	35.8 AV	54.0	-18.2	1.92 V	172	31.3	4.5

**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>	20 MHz Preamble 802.11ax (RU106)	<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, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
<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	112.9 PK			1.37 H	190	80.1	32.8
2	*2462.00	100.5 AV			1.37 H	190	67.7	32.8
3	2483.50	68.9 PK	74.0	-5.1	1.51 H	205	36.2	32.7
4	2483.50	46.9 AV	54.0	-7.1	1.51 H	205	14.2	32.7
5	4924.00	49.9 PK	74.0	-24.1	2.05 H	133	45.3	4.6
6	4924.00	37.9 AV	54.0	-16.1	2.05 H	133	33.3	4.6

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

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	113.1 PK			1.64 V	150	80.3	32.8
2	*2462.00	101.7 AV			1.64 V	150	68.9	32.8
3	2483.50	71.1 PK	74.0	-2.9	1.70 V	145	38.4	32.7
4	2483.50	47.0 AV	54.0	-7.0	1.70 V	145	14.3	32.7
5	4924.00	50.4 PK	74.0	-23.6	2.23 V	190	45.8	4.6
6	4924.00	38.3 AV	54.0	-15.7	2.23 V	190	33.7	4.6

**Remarks:**

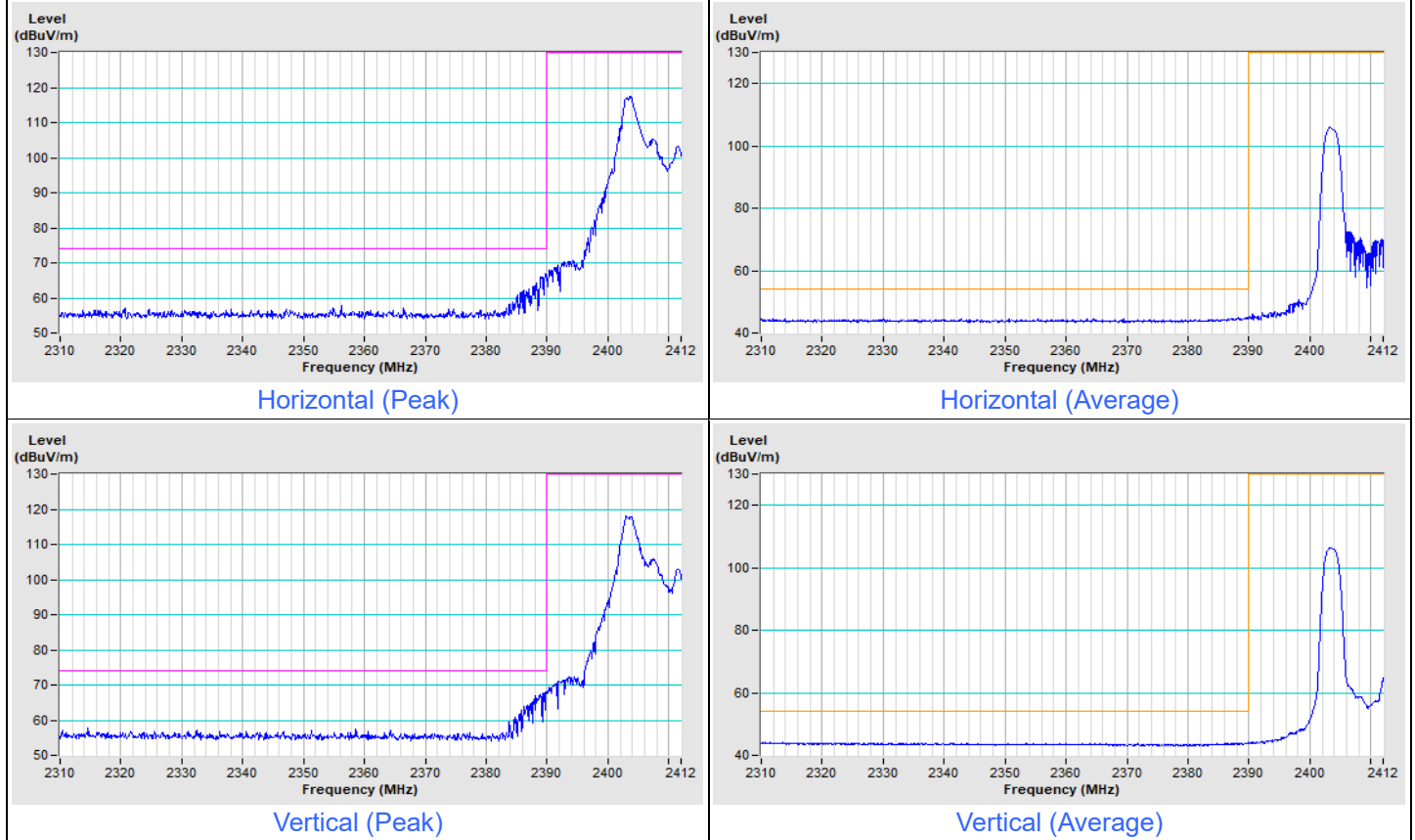
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* " : Fundamental frequency,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



### Plot of Band Edge

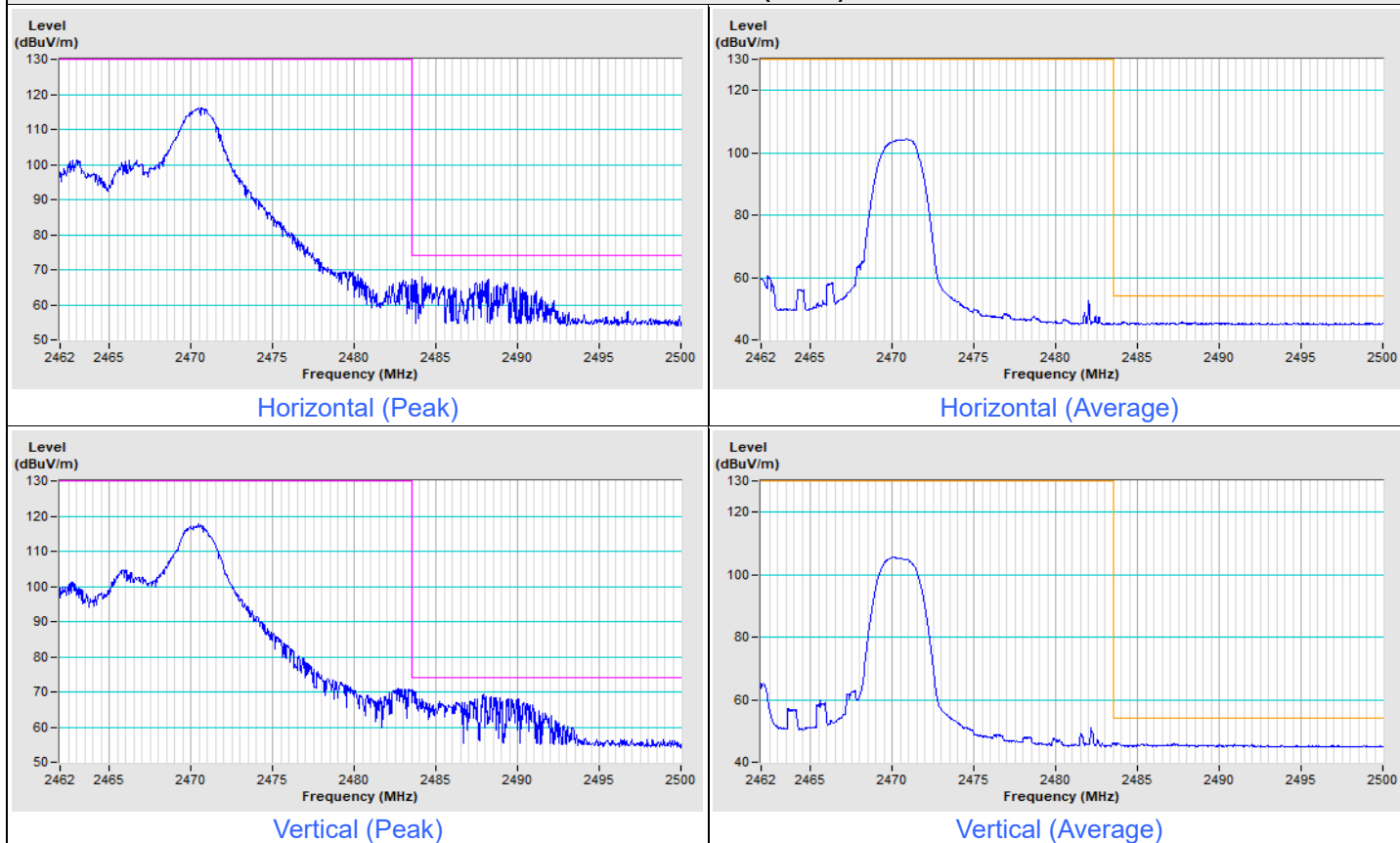
Frequency Range	2.31 GHz ~ 2.412 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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#### 20 MHz Preamble 802.11ax (RU26) Channel 1



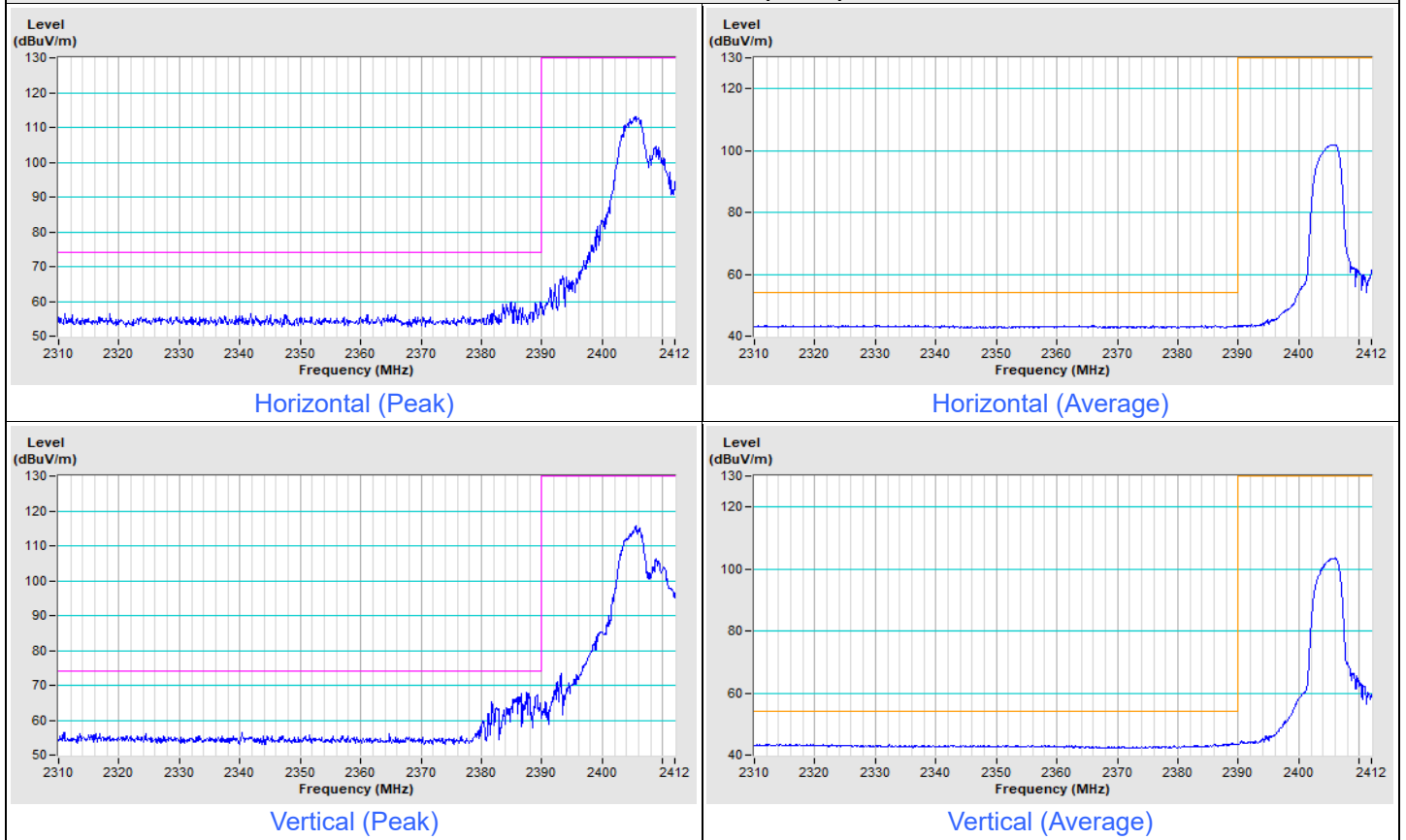
Frequency Range	2.462 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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**20 MHz Preamble 802.11ax (RU26) Channel 11**



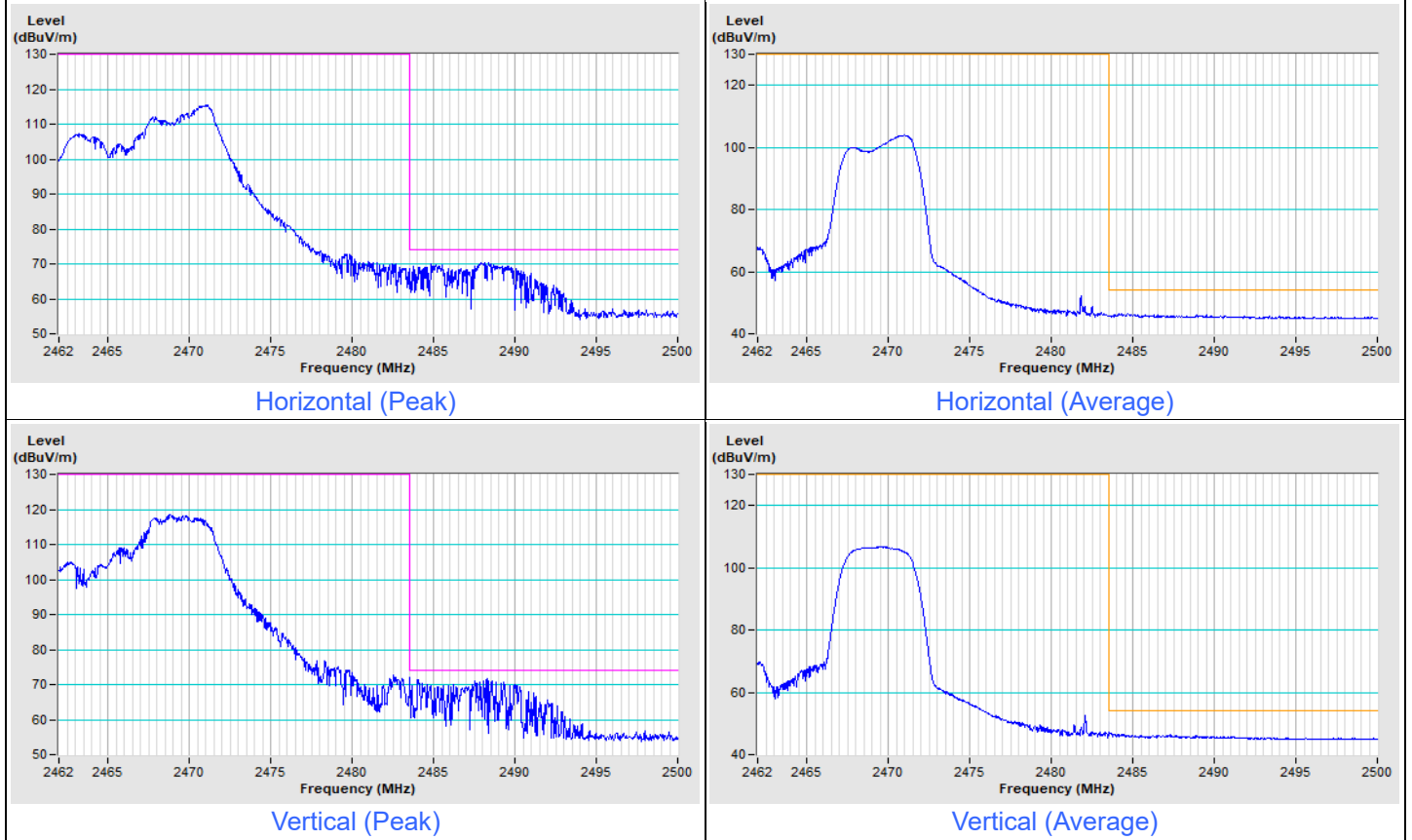
Frequency Range	2.31 GHz ~ 2.412 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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**20 MHz Preamble 802.11ax (RU52) Channel 1**



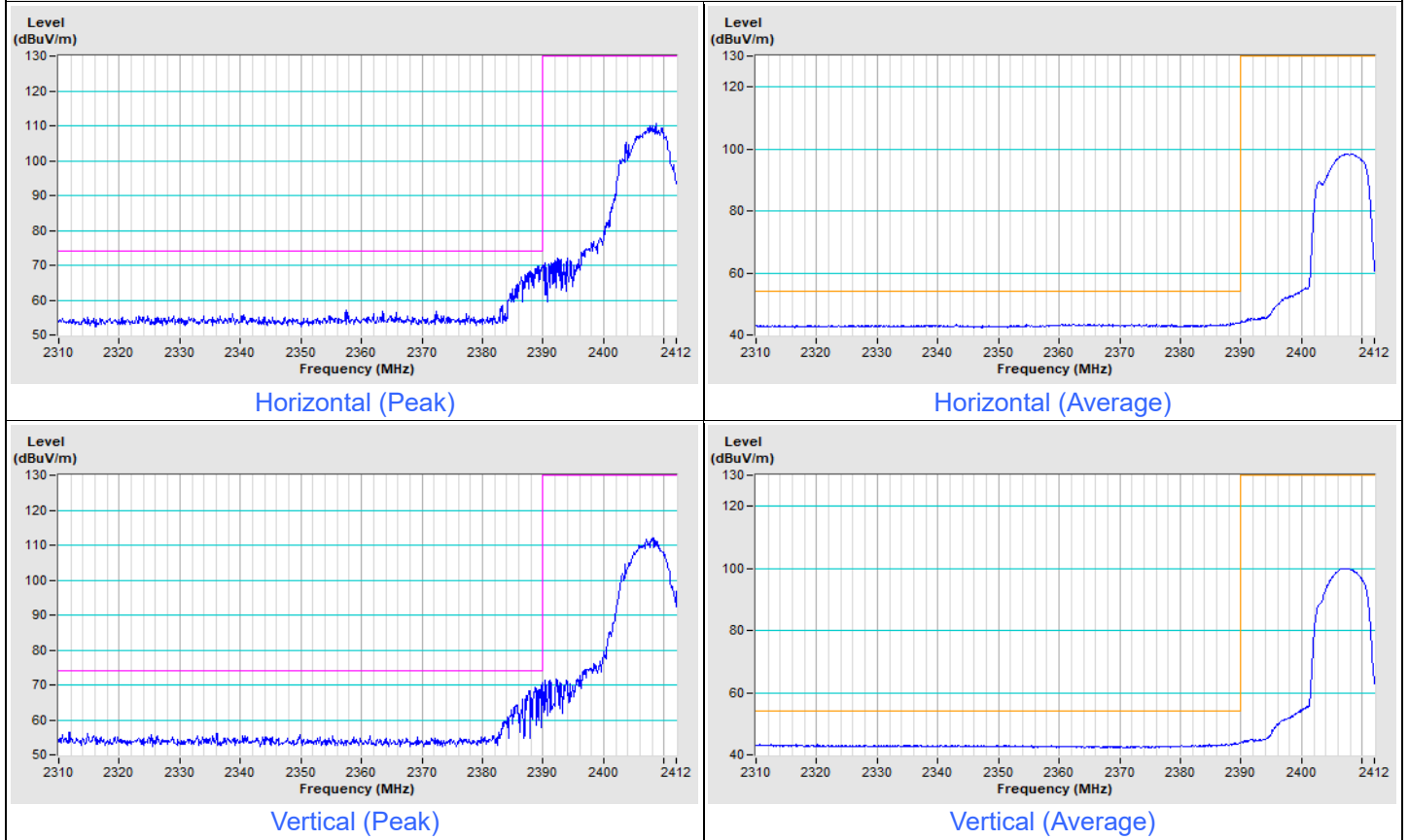
Frequency Range	2.462 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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**20 MHz Preamble 802.11ax (RU52) Channel 11**



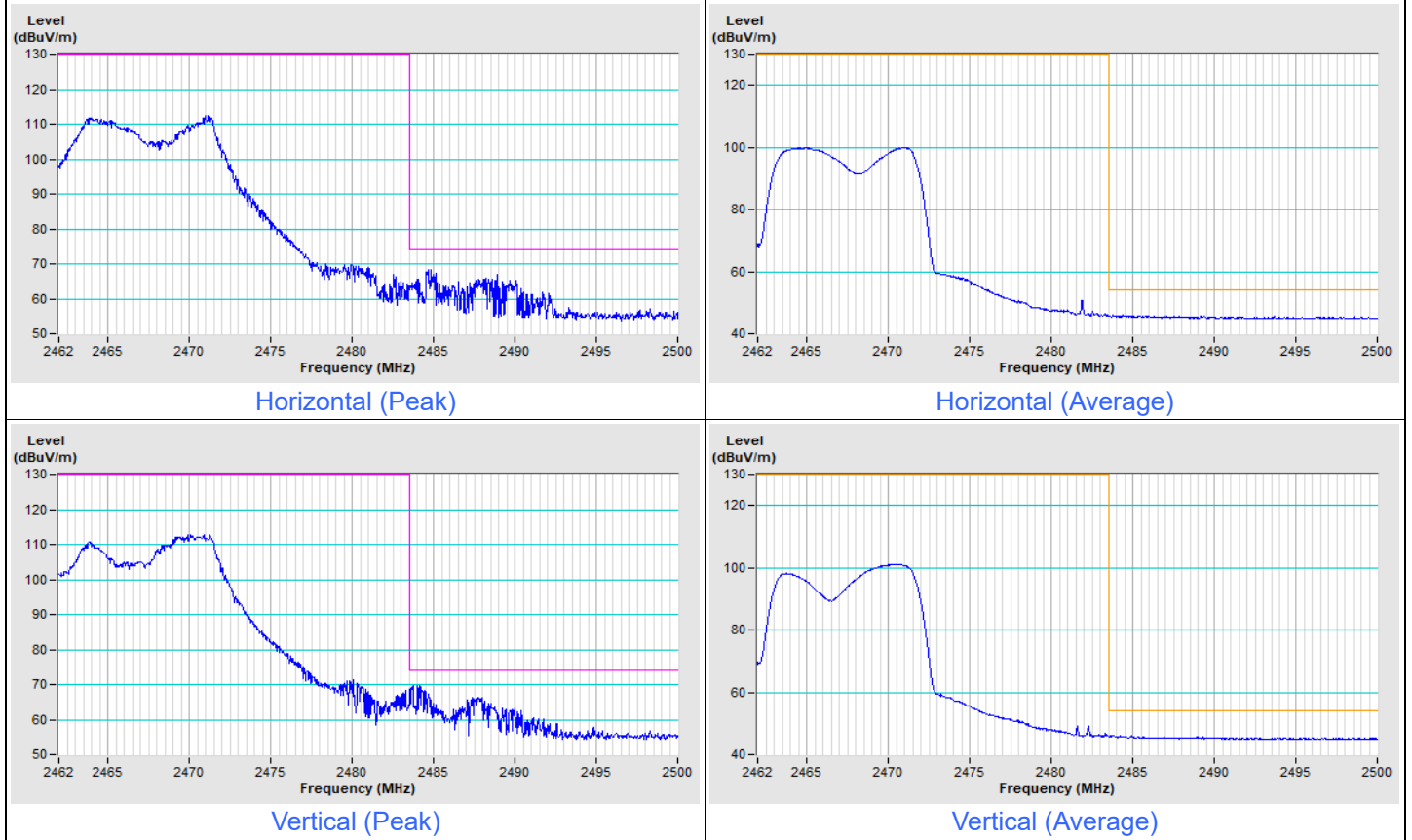
Frequency Range	2.31 GHz ~ 2.412 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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**20 MHz Preamble 802.11ax (RU106) Channel 1**



Frequency Range	2.462 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=10 Hz, DET=Peak
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**20 MHz Preamble 802.11ax (RU106) Channel 11**



## 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.

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

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

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