TEST REPORT

CERTIFICATE OF CONFORMITY

Standard:	**47 CFR FCC Part 15, Subpart C (Section 15.247)**
Report No.:	RFCGJR-WTW-P23010147
FCC ID:	G95EWM322T
Product:	Wireless Access Point
Brand:	technicolor
Test Model:	EWM322TTCH2
Variant Model:	EGM322TTCH2
Received Date:	2023/2/13
Test Date:	2023/2/13 ~ 2023/3/15
Issued Date:	2023/5/17
Applicant:	Vantiva USA LLC
Address:	4855 Peachtree Industrial Blvd. Suite 200 Norcross, Georgia 30092.
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kewi Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number:	788550 / TW0003

Approved by: Jeremy Lin , **Date:** 2023/5/17

Jeremy Lin / Project Engineer

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Prepared by : Vera Huang / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFCGJR-WTW-P23010147	Original Release	2023/5/17

1 Certificate

Product:	Wireless Access Point
Brand:	technicolor
Test Model:	EWM322TTCH2
Variant Model:	EGM322TTCH2
Sample Status:	Engineering Sample
Applicant:	Vantiva USA LLC
Test Date:	2023/2/13 ~ 2023/3/15
Standard:	47 CFR FCC Part 15, Subpart C (Section 15.247)
Measurement procedure:	ANSI C63.10-2013 KDB 558074 D01 15.247 Meas Guidance v05r02 KDB 662911 D01 Multiple Transmitter Output v02r01

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
Standard / Clause	Test Item	Result	Remark
15.247(b)	RF Output Power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.247(a)(2)	6 dB Bandwidth	Pass	Meet the requirement of limit.
15.247(d)	Conducted Out of Band Emissions	Pass	Meet the requirement of limit.
15.207	AC Power Conducted Emissions	Pass	Minimum passing margin is -16.70 dB at 24.57800 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -0.9 dB at 40.88 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.2 dB at 2485.00, 2486.40 MHz
15.203	Antenna Requirement	Pass	Antenna connector is ipex(MHF) not a standard connector.

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

2.1 Measurement Uncertainty

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

Measurement	Specification	Expanded Uncertainty (k=2) (±)
Conducted Out of Band Emissions	9 kHz ~ 40 GHz	2.79 dB
AC Power Conducted Emissions	9 kHz ~ 30 MHz	2.99 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.59 dB
	30 MHz ~ 1 GHz	3.6 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	2.29 dB
	18 GHz ~ 40 GHz	2.29 dB

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

2.2 Supplementary Information

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

3 General Information

3.1 General Description

Product	Wireless Access Point
Brand	technicolor
Test Model	EWM322TTCH2
Variant Model	EGM322TTCH2
Model Difference	for marketing purpose
Status of EUT	Engineering Sample
Power Supply Rating	Refer to Note
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in VHT mode 1024QAM for OFDMA in 11ax mode only
Modulation Technology	DSSS, OFDM, OFDMA
Transfer Rate	802.11b: 11.0 / 5.5 / 2.0 / 1.0 Mbps 802.11g: 54.0 / 48.0 / 36.0 / 24.0 / 18.0 / 12.0 / 9.0 / 6.0 Mbps 802.11n: up to 600 Mbps VHT: up to 800 Mbps 802.11ax: up to 1147.1 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	CDD mode: 898.867 mW (29.54 dBm) Beamforming mode: 878.296 mW (29.44 dBm)

Note:

1. The EUT uses following accessories.

AC Adapter 1			
Brand	Model	Part Number	Specification
Honor	ADS-42FI-12 12042EPCU-L	6322120A	AC Input : 100-120V, 50/60Hz DC Output : 12V, 3.5A DC Output Cable : 1.8m Plug : US

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

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna NO.	RF Chain NO.	Brand	Model	Antenna Net Gain(dBi)	Frequency range	Antenna Type	Connector Type
DB1	2.4G core3	Technicolor	EWM322T/EWA322T	3.92	2.4~2.4835GHz	Dipole	ipex(MHF)
DB2	2.4G core2	Technicolor	EWM322T/EWA322T	3.49	2.4~2.4835GHz	Dipole	ipex(MHF)
DB3	2.4G core1	Technicolor	EWM322T/EWA322T	4.18	2.4~2.4835GHz	Dipole	ipex(MHF)
DB4	2.4G core0	Technicolor	EWM322T/EWA322T	4.52	2.4~2.4835GHz	Dipole	ipex(MHF)

* 2.4G Directional Gain is 5.19 dBi, the detailed antenna information, please refer to the Test report-Antenna Spec.pdf.

2. The EUT incorporates a MIMO function:

2.4 GHz Band		
Modulation Mode	TX & RX Configuration	
802.11b	4TX	4TX
802.11g	4TX	4TX
802.11n (HT20)	4TX	4TX
802.11n (HT40)	4TX	4TX
VHT20	4TX	4TX
VHT40	4TX	4TX
802.11ax (HE20)	4TX	4TX
802.11ax (HE40)	4TX	4TX

Note:
1. All of modulation mode support beamforming function except 802.11b/g modulation mode.
2. The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.

3.3 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 Power Setting

Power Setting (CDD Mode)									
Channel	802.11b	802.11g	802.11n (HT20)	VHT20	802.11ax (HE20)	Channel	802.11n (HT40)	VHT40	802.11ax (HE40)
1	92	83	86	86	86	3	82	82	82
6	92	92	91	91	91	6	80	80	80
11	92	79	76	76	76	9	74	74	74

Power Setting (Beamforming Mode)							
Channel	802.11n (HT20)	VHT20	802.11ax (HE20)	Channel	802.11n (HT40)	VHT40	802.11ax (HE40)
1	86	86	86	3	82	82	82
6	91	91	91	6	80	80	80
11	76	76	76	9	74	74	74

3.5 Test Mode Applicability and Tested Channel Detail

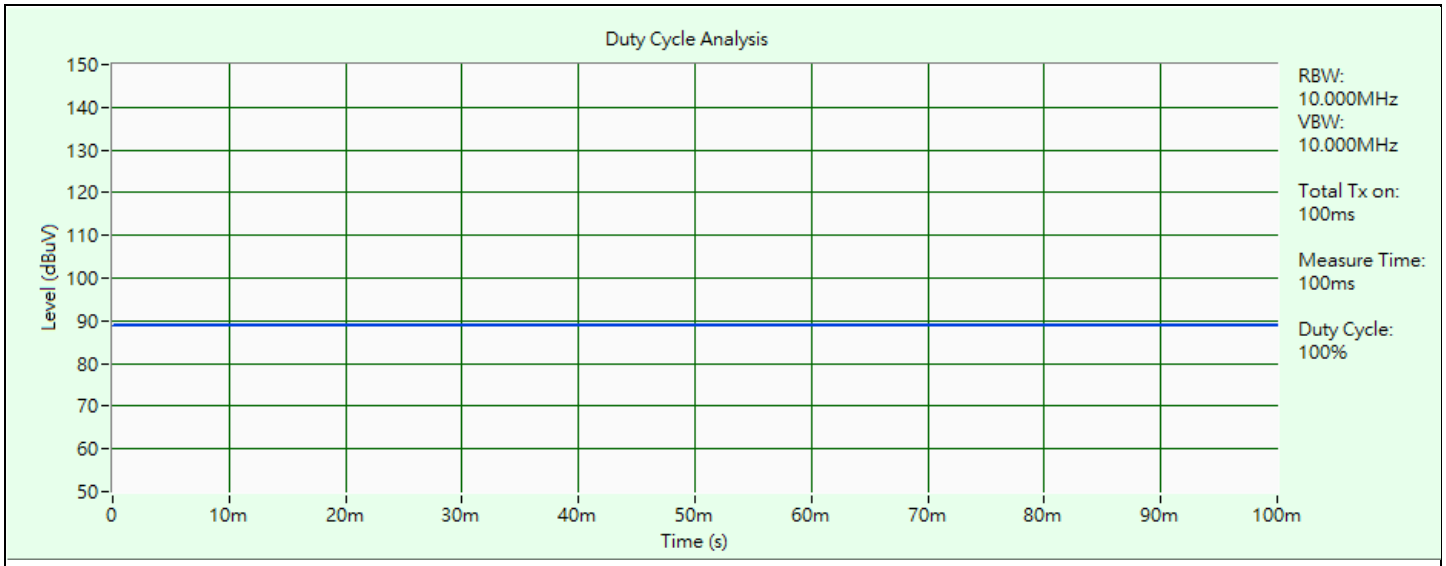
Pre-Scan:	The EUT is designed to be positioned on the X-plane only.

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

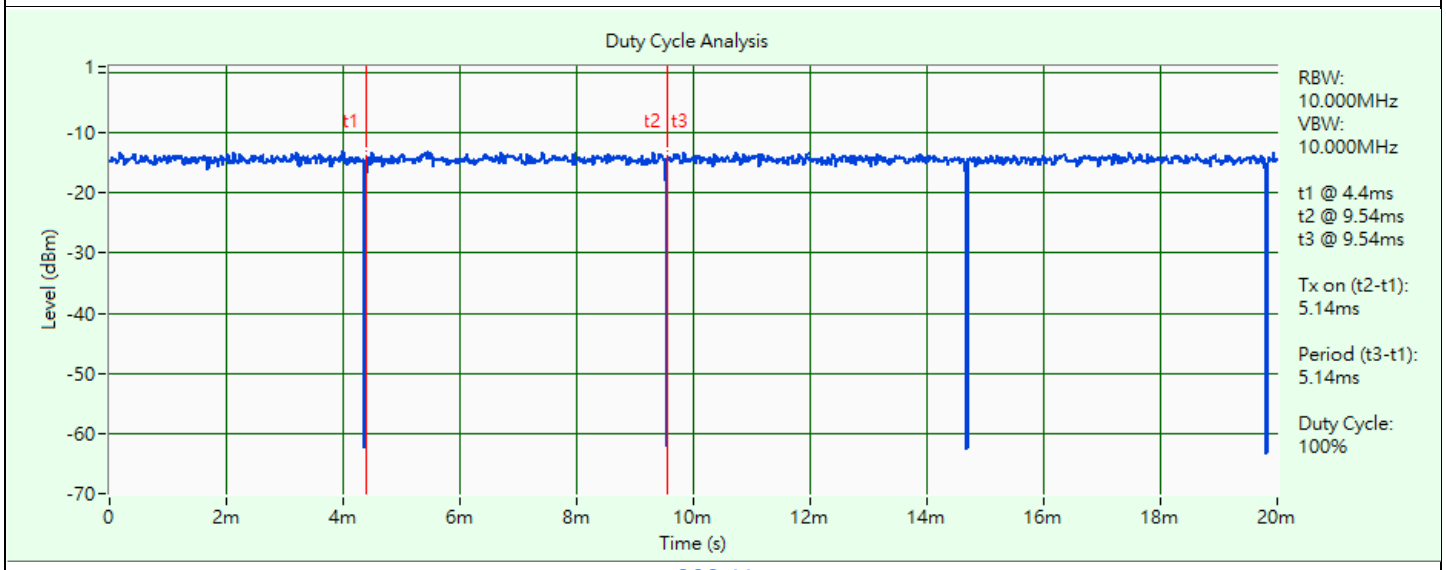
Test Item	Mode	Signal Mode	Tested Channel	Modulation	Data Rate Parameter
RF Output Power	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
	802.11g	CDD	1, 6, 11	BPSK	6Mb/s
	802.11n (HT20)	CDD /Beamforming	1, 6, 11	BPSK	MCS0
	802.11n (HT40)	CDD /Beamforming	3, 6, 9	BPSK	MCS0
	VHT20	CDD /Beamforming	1, 6, 11	BPSK	MCS0
	VHT40	CDD /Beamforming	3, 6, 9	BPSK	MCS0
	802.11ax (HE20)	CDD /Beamforming	1, 6, 11	BPSK	MCS0
	802.11ax (HE40)	CDD /Beamforming	3, 6, 9	BPSK	MCS0
Power Spectral Density / 6 dB Bandwidth / Conducted Out of Band Emissions	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
	802.11g	CDD	1, 6, 11	BPSK	6Mb/s
	802.11ax (HE20)	CDD	1, 6, 11	BPSK	MCS0
	802.11ax (HE40)	CDD	3, 6, 9	BPSK	MCS0
AC Power Conducted Emissions	802.11b	CDD	6	DBPSK	1Mb/s
Unwanted Emissions below 1 GHz	802.11b	CDD	6	DBPSK	1Mb/s
Unwanted Emissions above 1 GHz	802.11b	CDD	1, 6, 11	DBPSK	1Mb/s
	802.11g	CDD	1, 6, 11	BPSK	6Mb/s
	802.11ax (HE20)	CDD	1, 6, 11	BPSK	MCS0
	802.11ax (HE40)	CDD	3, 6, 9	BPSK	MCS0
Note: Not Support Tone RU.					

3.6 Duty Cycle of Test Signal

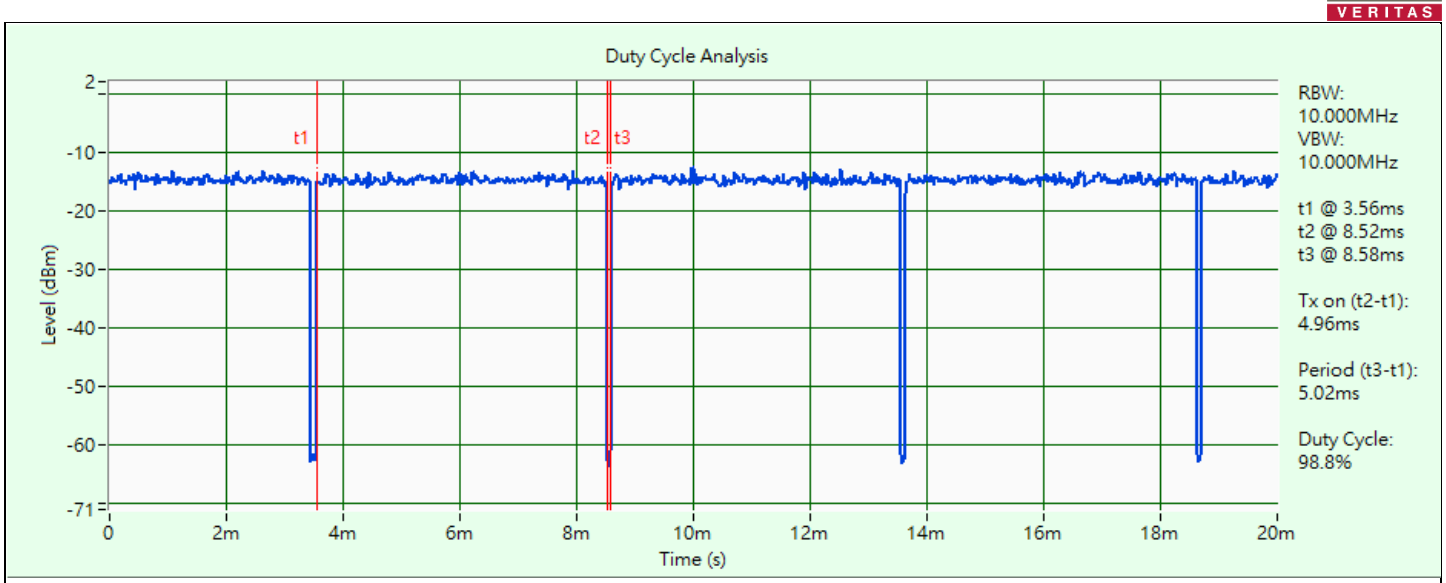
802.11b: Duty cycle = 100 ms / 100 ms x 100% = 100.0%
802.11g: Duty cycle = 5.14 ms / 5.14 ms x 100% = 100.0%
802.11ax (HE20): Duty cycle = 4.96 ms / 5.02 ms x 100% = 98.8%
802.11ax (HE40): Duty cycle = 3.33 ms / 3.33 ms x 100% = 100.0%



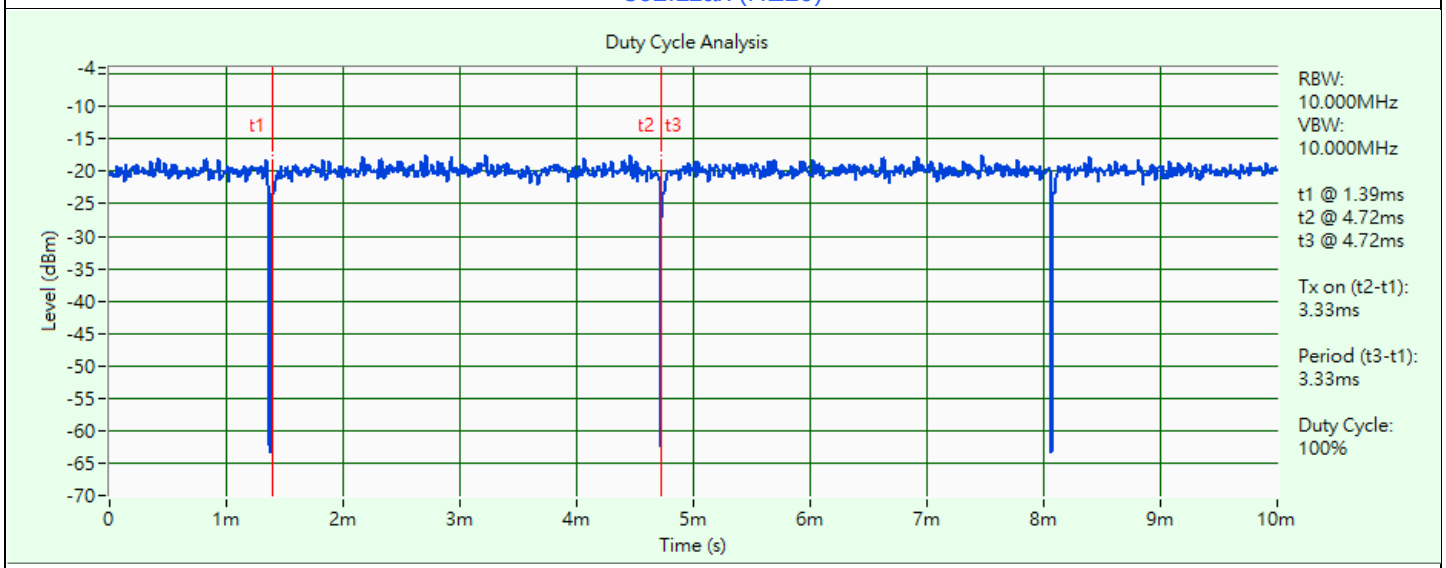
802.11b



802.11g



802.11ax (HE20)

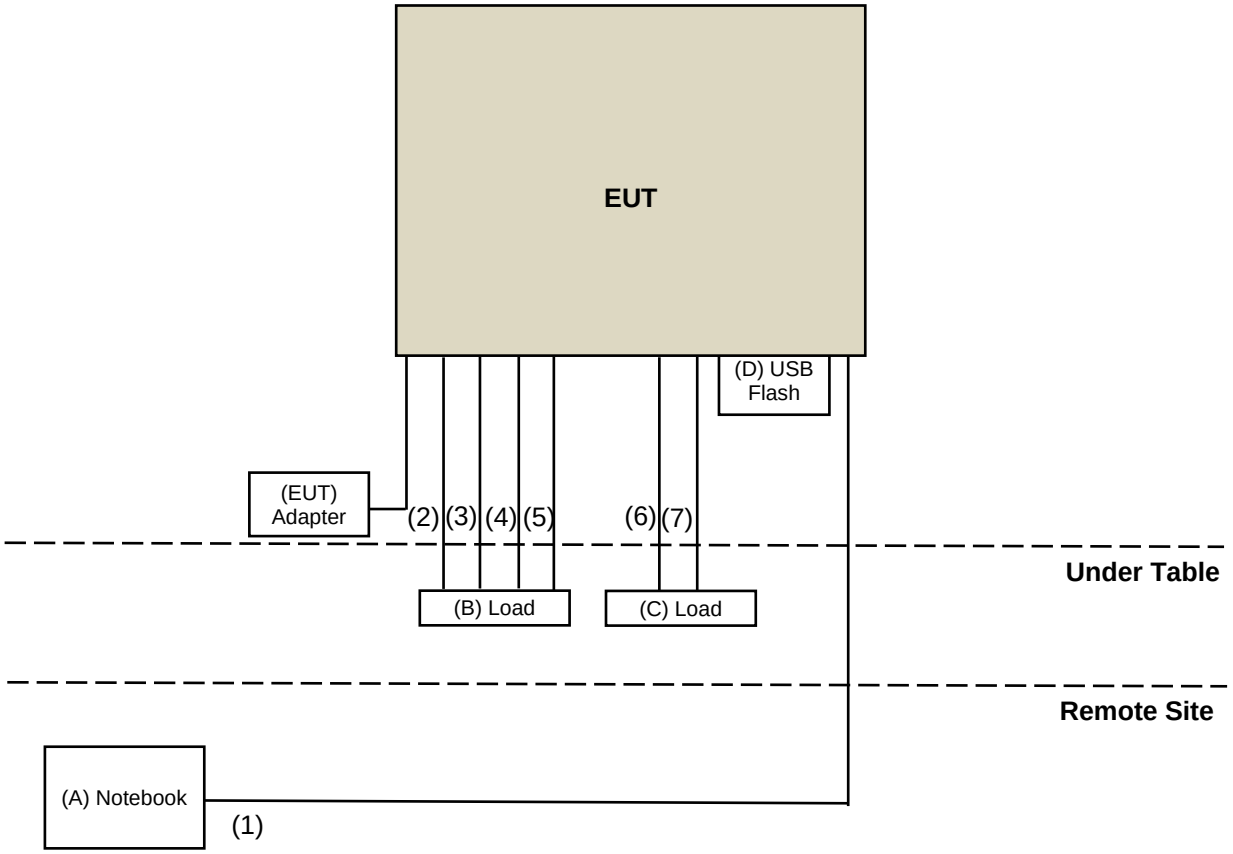


802.11ax (HE40)

3.7 Test Program Used and Operation Descriptions

Controlling software MTOOL_3.2.1.5 has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.8 Connection Diagram of EUT and Peripheral Devices



3.9 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Notebook	Lenovo	L470	PF0TALMG	N/A	Provided by Lab
B	Load	N/A	N/A	N/A	N/A	Provided by Lab
C	Load	N/A	N/A	N/A	N/A	Provided by Lab
D	FLASH	sandisk	SDDDC3-0320G	N/A	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	LAN Cable	1	6	N	N	Provided by Lab
2	LAN Cable	1	1.5	N	N	Provided by Lab
3	LAN Cable	1	1.5	N	N	Provided by Lab
4	LAN Cable	1	1.5	N	N	Provided by Lab
5	LAN Cable	1	1.5	N	N	Provided by Lab
6	Tel. Cable	1	1.5	N	N	Provided by Lab
7	Tel. Cable	1	1.5	N	N	Provided by Lab

4 Test Instruments

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

4.1 RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190004/MY55190007/MY55210005	2022/7/13	2023/7/12

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2023/3/3 ~ 2023/3/15

4.2 Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Spectrum Analyzer R&S	FSV40	100980	2022/4/20	2023/4/19

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2023/3/3 ~ 2023/3/15

4.3 6 dB Bandwidth

Refer to section 4.2 to get information of the instruments.

4.4 Conducted Out of Band Emissions

Refer to section 4.2 to get information of the instruments.

4.5 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
LISN R&S	ESH3-Z5	100311	2022/09/12	2023/09/11
LISN ROHDE & SCHWARZ	ENV216	101826	2022/03/14	2023/03/13
RF Coaxial Cable WOKEN	5D-FB	Cable-cond1-01	2023/01/07	2024/01/06
Software BVADT	BVADT_Cond_ V7.3.7.4	N/A	N/A	N/A
Test Receiver Rohde&Schwarz	ESCI	100613	2022/12/05	2023/12/04
V-LISN Schwarzbeck	NNBL 8226-2	8226-142	2022/08/31	2023/08/30

Notes:

1. The test was performed in HY - Conduction 1.
2. Tested Date: 2023/2/20

4.6 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower &Turn BV ADT	AT100	AT93021705	N/A	N/A
Bi_Log Antenna Schwarbeck	VULB9168	9168-160	2022/10/20	2023/10/19
Loop Antenna EMCI	EM-6879	269	2022/09/19	2023/09/18
Loop Antenna TESEQ	HLA 6121	45745	2022/07/27	2023/07/26
Pre-amplifier EMCI	EMC001340	980201	2022/09/23	2023/09/22
Preamplifier Agilent	8447D	2944A10638	2022/05/14	2023/05/13
RF Coaxial Cable EMCI	5D-NM-BM	140903+140902	2023/01/07	2024/01/06
RF Coaxial Cable WOKEN	8D-FB	Cable-CH9-01	2022/05/14	2023/05/13
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Spectrum Analyzer R&S	FSW43	101867	2022/12/30	2023/12/29
Test Receiver KEYSIGHT	N9038A	MY55420137	2022/04/27	2023/04/26
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: 2023/2/17

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	9120D	9120D-1169	2022/11/13	2023/11/12
	BBHA 9170	9170-480	2022/11/13	2023/11/12
		BBHA9170243	2022/11/13	2023/11/12
Pre-Ammlifier EMCI	EMC 184045	980116	2022/10/1	2023/9/30
Preamplifier Agilent	8449B	3008A02367	2022/2/16 2023/2/15	2023/2/15 2024/2/14
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	2022/7/9	2023/7/8
	EMC102-KM-KM-3000	150929	2022/7/9	2023/7/8
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	2023/1/7	2024/1/6
RF Coaxial Cable HUBER+SUHNER&EMCI	SUCOFLEX 104& EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	2023/1/7	2024/1/6
RF FLITER MICRO-TRONICS	BRM17690	004	2023/1/11	2024/1/10
	BRM50716	060	2023/1/11	2024/1/10
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Spectrum Analyzer R&S	FSW43	101867	2022/12/30	2023/12/29
Test Receiver KEYSIGHT	N9038A	MY55420137	2022/4/27	2023/4/26
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: 2023/2/13 ~ 2023/3/9

5 Limits of Test Items

5.1 RF Output Power

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

Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less, for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

5.2 Power Spectral Density

The Maximum of Power Spectral Density Measurement is 8 dBm in any 3 kHz.

5.3 6 dB Bandwidth

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

5.4 Conducted Out of Band Emissions

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

5.5 AC Power Conducted Emissions

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Notes:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

5.6 Unwanted Emissions below 1 GHz

Radiated emissions up to 1 GHz which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 30 dB below the highest level of the desired power:

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

Notes:

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

5.7 Unwanted Emissions above 1 GHz

Radiated emissions above 1 GHz which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 30 dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
Above 960	500	3

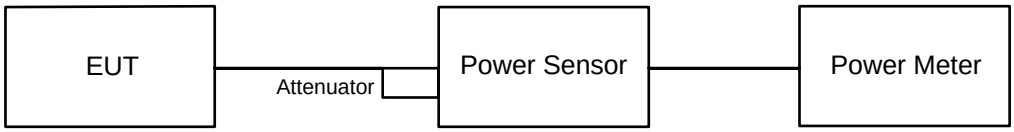
Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

6 Test Arrangements

6.1 RF Output Power

6.1.1 Test Setup

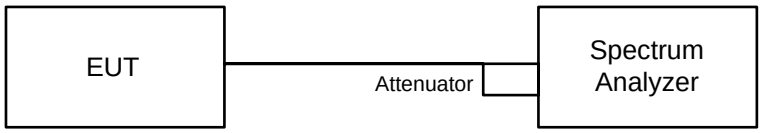


6.1.2 Test Procedure

Average Power:
Average power sensor was used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

6.2 Power Spectral Density

6.2.1 Test Setup

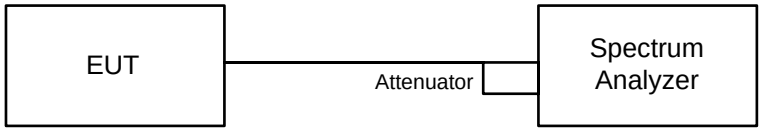


6.2.2 Test Procedure

a. Measure the duty cycle (x).
b. Set instrument center frequency to DTS channel center frequency.
c. Set span to at least 1.5 times the OBW.
d. Set RBW to: 3 kHz.
e. Set VBW ≥3 x RBW.
f. Detector = power averaging (RMS) or sample detector (when RMS not available).
g. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
h. Sweep time = auto couple.
i. Do not use sweep triggering. Allow sweep to “free run”.
j. Employ trace averaging (RMS) mode over a minimum of 100 traces.
k. Use the peak marker function to determine the maximum amplitude level.
l. Note: If Duty cycle < 98%, Add 10 log (1/x), where x is the duty cycle measured in step (a, to the measured PSD to compute the average PSD during the actual transmission time.

6.3 6 dB Bandwidth

6.3.1 Test Setup

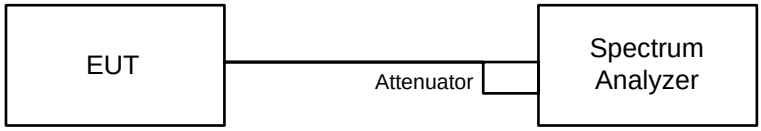


6.3.2 Test Procedure

a. Set resolution bandwidth (RBW) = 100 kHz.
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. 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

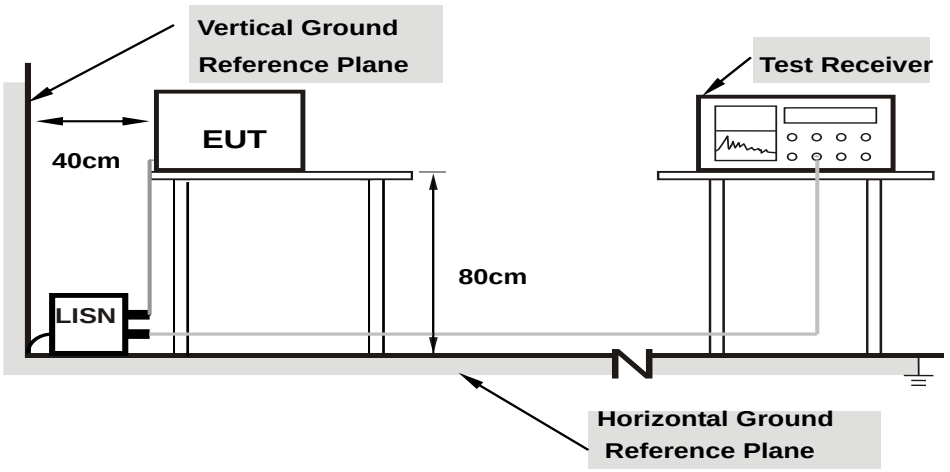
a. Set the RBW = 100 kHz.
b. Set the VBW ≥ 300 kHz.
c. Detector = peak.
d. Sweep time = auto couple.
e. Trace mode = max hold.
f. Allow trace to fully stabilize.
g. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

a. Set RBW = 100 kHz.
b. Set VBW ≥ 300 kHz.
c. Detector = peak.
d. Sweep = auto couple.
e. Trace Mode = max hold.
f. Allow trace to fully stabilize.
g. 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

a. 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.

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

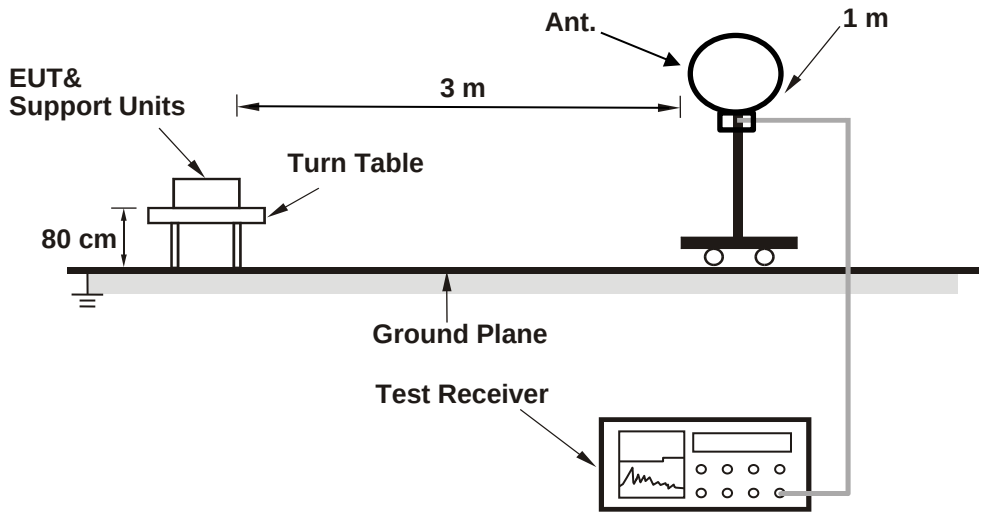
c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

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.

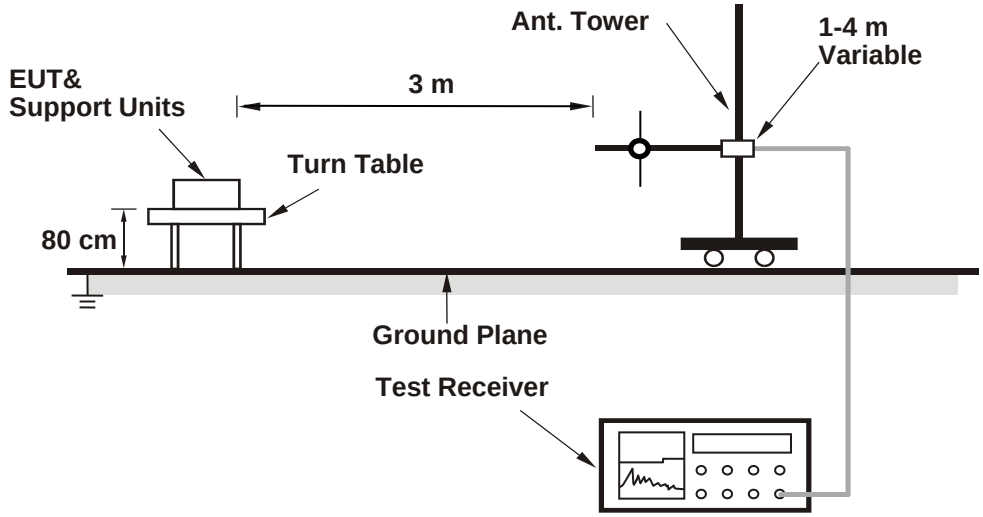
6.6 Unwanted Emissions below 1 GHz

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.

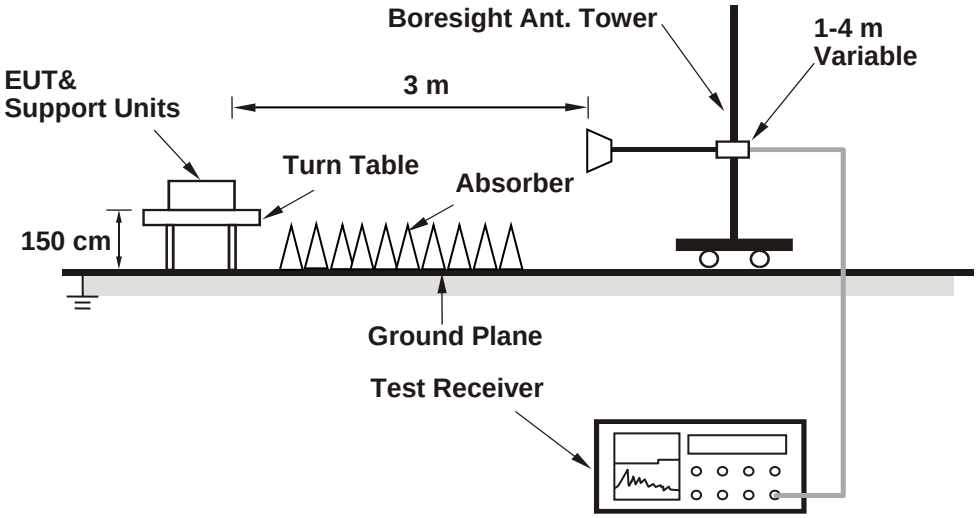
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

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

a. 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.

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 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:

1. 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.
2. For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10 Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1 GHz.
3. All modes of operation were investigated and the worst-case emissions are reported.

7 Test Results of Test Item

7.1 RF Output Power

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Matthew Yang / Alan Wu / Wayne Lin

802.11b CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	23.57	23.74	23.55	23.02	891.013	29.50	30	Pass
6	2437	23.58	23.81	23.59	23.05	898.867	29.54	30	Pass
11	2462	23.56	23.81	23.62	22.94	894.356	29.52	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.52 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11g CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	21.12	20.82	20.84	20.63	487.151	26.88	30	Pass
6	2437	23.71	23.39	23.37	23.15	877.044	29.43	30	Pass
11	2462	19.69	19.63	19.75	19.33	365.054	25.62	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.52 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT20) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	21.57	21.37	21.40	21.25	552.028	27.42	30	Pass
6	2437	23.66	23.18	23.29	23.01	853.534	29.31	30	Pass
11	2462	18.87	18.79	18.88	18.58	302.152	24.80	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.52 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT40) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	20.94	20.56	20.63	20.40	463.187	26.66	30	Pass
6	2437	20.85	20.78	20.74	20.67	476.55	26.78	30	Pass
9	2452	19.03	18.97	18.91	18.55	308.287	24.89	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.52 dBi < 6 dBi, so the output power limit shall not be reduced.

VHT20 CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	21.61	21.42	21.48	21.30	559.054	27.47	30	Pass
6	2437	23.71	23.22	23.35	23.07	863.897	29.36	30	Pass
11	2462	18.89	18.81	18.89	18.60	303.369	24.82	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.52 dBi < 6 dBi, so the output power limit shall not be reduced.

VHT40 CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	21.01	20.62	20.67	20.43	468.617	26.71	30	Pass
6	2437	20.90	20.83	20.81	20.72	482.622	26.84	30	Pass
9	2452	19.05	18.99	18.92	18.57	309.531	24.91	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.52 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE20) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	21.66	21.47	21.52	21.34	564.886	27.52	30	Pass
6	2437	23.77	23.28	23.41	23.18	878.296	29.44	30	Pass
11	2462	18.91	18.82	18.91	18.61	304.426	24.83	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.52 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE40) CDD

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	21.05	20.67	20.72	20.46	473.237	26.75	30	Pass
6	2437	20.93	20.89	20.85	20.75	487.092	26.88	30	Pass
9	2452	19.07	19.01	18.94	18.59	310.959	24.93	30	Pass

Notes:

1. Directional gain is the maximum gain of antennas.
2. The maximum gain is 4.52 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT20) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	21.57	21.37	21.40	21.25	552.028	27.42	30	Pass
6	2437	23.66	23.18	23.29	23.01	853.534	29.31	30	Pass
11	2462	18.87	18.79	18.88	18.58	302.152	24.80	30	Pass

Notes:

1. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
2. The directional gain is 5.19 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11n (HT40) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	20.94	20.56	20.63	20.40	463.187	26.66	30	Pass
6	2437	20.85	20.78	20.74	20.67	476.55	26.78	30	Pass
9	2452	19.03	18.97	18.91	18.55	308.287	24.89	30	Pass

Notes:

1. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
2. The directional gain is 5.19 dBi < 6 dBi, so the output power limit shall not be reduced.

VHT20 Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	21.61	21.42	21.48	21.30	559.054	27.47	30	Pass
6	2437	23.71	23.22	23.35	23.07	863.897	29.36	30	Pass
11	2462	18.89	18.81	18.89	18.60	303.369	24.82	30	Pass

Notes:

1. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
2. The directional gain is 5.19 dBi < 6 dBi, so the output power limit shall not be reduced.

VHT40 Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	21.01	20.62	20.67	20.43	468.617	26.71	30	Pass
6	2437	20.90	20.83	20.81	20.72	482.622	26.84	30	Pass
9	2452	19.05	18.99	18.92	18.57	309.531	24.91	30	Pass

Notes:

1. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
2. The directional gain is 5.19 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE20) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	21.66	21.47	21.52	21.34	564.886	27.52	30	Pass
6	2437	23.77	23.28	23.41	23.18	878.296	29.44	30	Pass
11	2462	18.91	18.82	18.91	18.61	304.426	24.83	30	Pass

Notes:

1. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
2. The directional gain is 5.19 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11ax (HE40) Beamforming

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	21.05	20.67	20.72	20.46	473.237	26.75	30	Pass
6	2437	20.93	20.89	20.85	20.75	487.092	26.88	30	Pass
9	2452	19.07	19.01	18.94	18.59	310.959	24.93	30	Pass

Notes:

1. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
2. The directional gain is 5.19 dBi < 6 dBi, so the output power limit shall not be reduced.

7.2 Power Spectral Density

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Matthew Yang / Alan Wu / Wayne Lin

802.11b

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)				Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3			
1	2412	-7.93	-7.25	-7.82	-7.74	-1.66	8	Pass
6	2437	-7.78	-7.37	-7.06	-7.27	-1.34	8	Pass
11	2462	-8.25	-7.42	-7.39	-7.50	-1.61	8	Pass

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
3. The directional gain is 5.19 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	Chain 2	Chain 3			
1	2412	-14.64	-14.32	-14.31	-14.13	-8.33	8	Pass
6	2437	-11.86	-11.47	-11.51	-11.52	-5.57	8	Pass
11	2462	-15.98	-15.42	-15.81	-15.41	-9.63	8	Pass

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
3. The directional gain is 5.19 dBi < 6 dBi, so the power density limit shall not be reduced.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)				Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3			
1	2412	-15.83	-16.26	-16.17	-16.03	-10.05	8	Pass
6	2437	-13.44	-12.86	-12.76	-12.71	-6.91	8	Pass
11	2462	-17.84	-17.83	-17.77	-17.78	-11.78	8	Pass

Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
3. The directional gain is 5.19 dBi < 6 dBi, so the power density limit shall not be reduced.

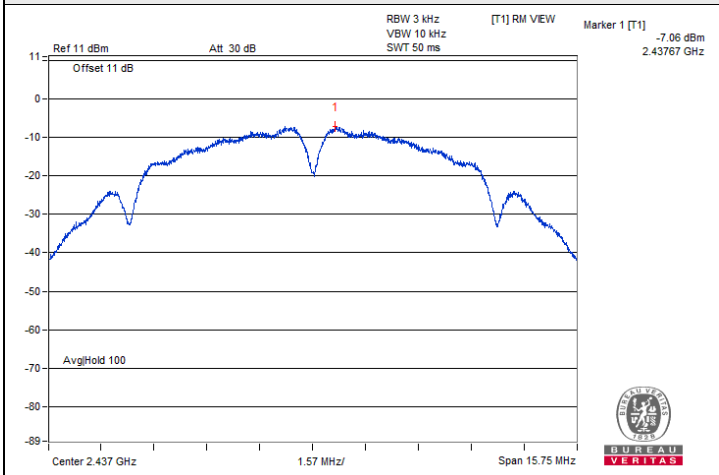
802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)				Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3			
3	2422	-18.38	-19.03	-18.72	-19.12	-12.78	8	Pass
6	2437	-18.88	-18.45	-18.58	-19.06	-12.72	8	Pass
9	2452	-20.55	-20.60	-20.73	-21.00	-14.70	8	Pass

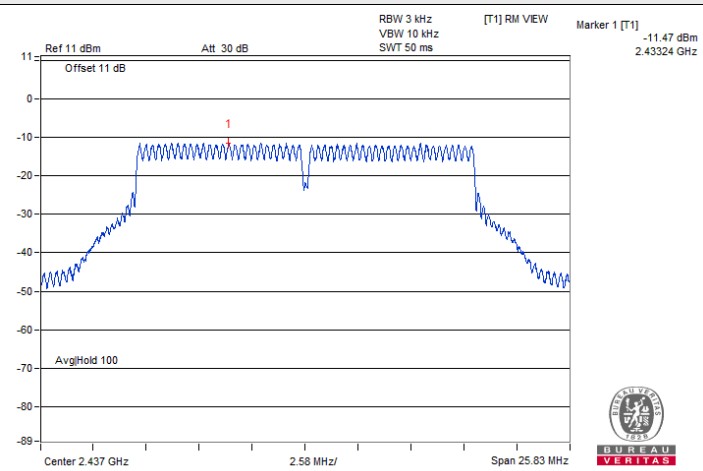
Notes:

1. Method E) 2) b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain is the measured value according to KDB 662911 D03 Method of MIMO Antenna Gain Measurement.
3. The directional gain is 5.19 dBi < 6 dBi, so the power density limit shall not be reduced.

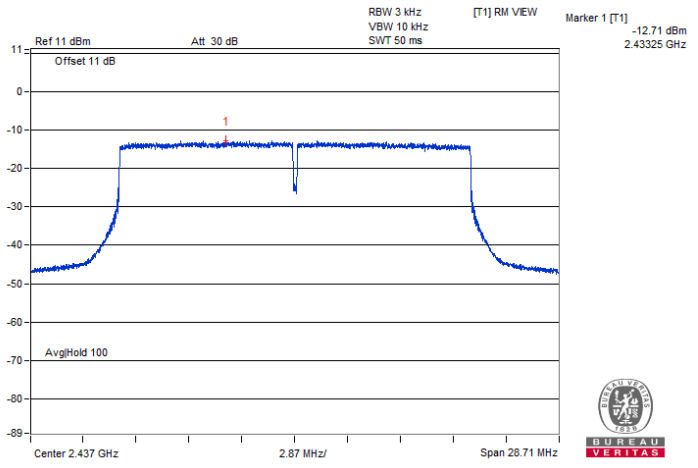
Spectrum Plot of Maximum Value



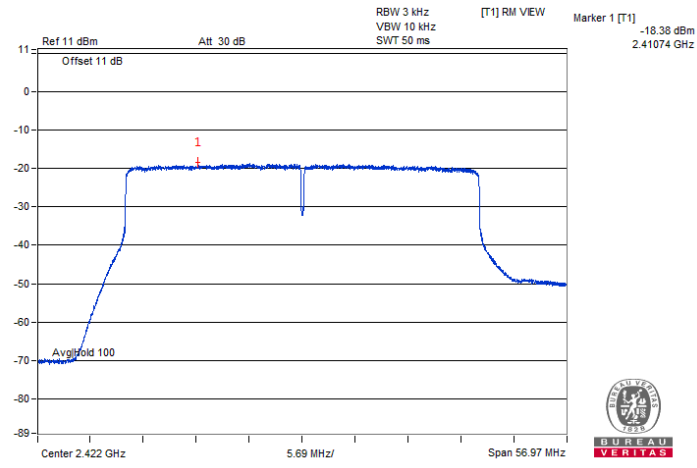
802.11b / Chain 2 : CH 6



802.11g / Chain 1 : CH 6



802.11ax (HE20) / Chain 3 : CH 6



802.11ax (HE40) / Chain 0 : CH 3

7.3 6 dB Bandwidth

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Matthew Yang / Alan Wu / Wayne Lin

802.11b

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)				Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	7.09	7.09	7.09	7.07	0.5	Pass
6	2437	7.10	7.09	7.10	7.09	0.5	Pass
11	2462	7.08	7.09	7.09	7.08	0.5	Pass

802.11g

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)				Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	16.36	16.39	16.37	16.37	0.5	Pass
6	2437	16.36	16.38	16.37	16.39	0.5	Pass
11	2462	16.38	16.35	16.38	16.38	0.5	Pass

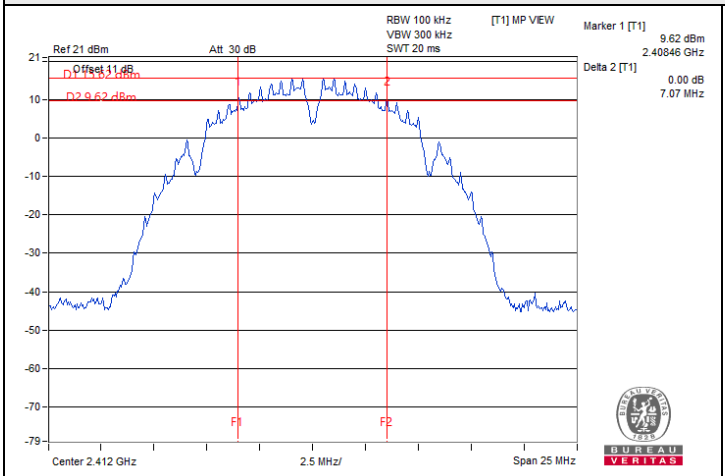
802.11ax (HE20)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)				Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	18.93	18.86	18.93	18.99	0.5	Pass
6	2437	19.01	18.97	18.98	19.00	0.5	Pass
11	2462	18.99	18.93	18.90	18.93	0.5	Pass

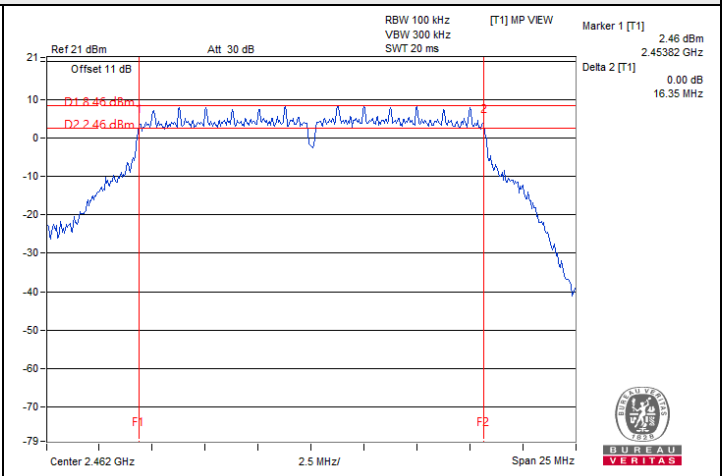
802.11ax (HE40)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)				Minimum Limit (MHz)	Test Result
		Chain 0	Chain 1	Chain 2	Chain 3		
3	2422	37.73	37.91	37.82	37.80	0.5	Pass
6	2437	38.08	37.92	37.87	37.92	0.5	Pass
9	2452	37.87	37.73	37.94	37.76	0.5	Pass

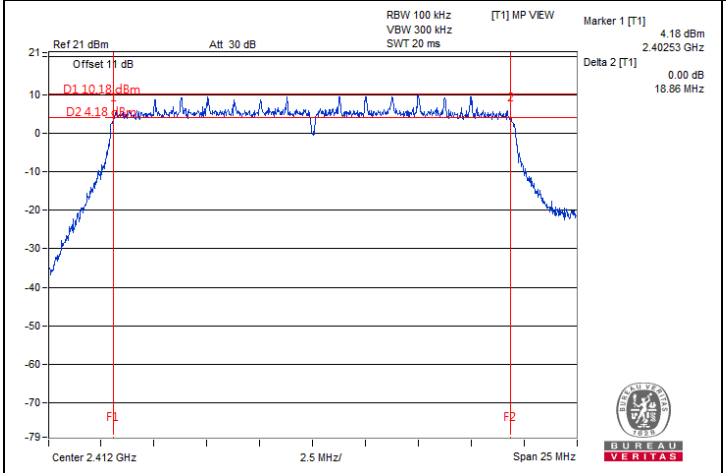
Spectrum Plot of Minimum Value



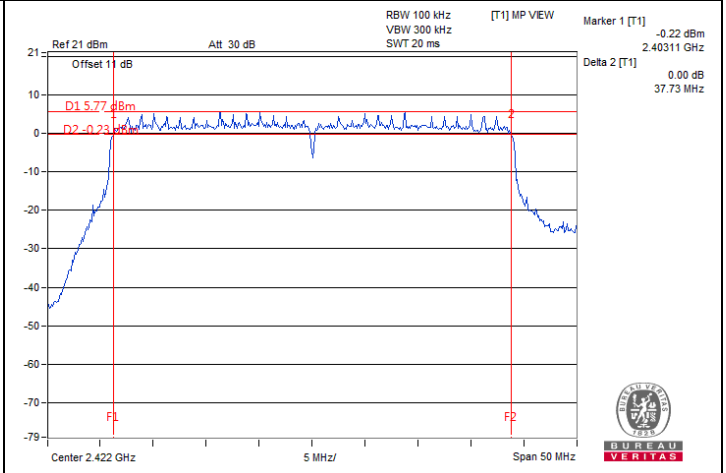
802.11b / Chain 3 : CH 1



802.11g / Chain 1 : CH 11



802.11ax (HE20) / Chain 1 : CH 1

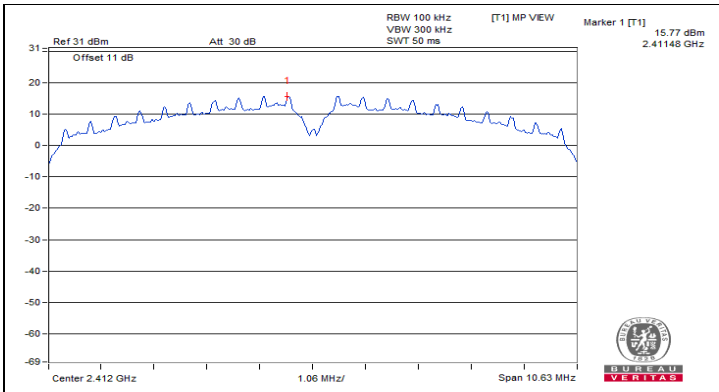


802.11ax (HE40) / Chain 0 : CH 3

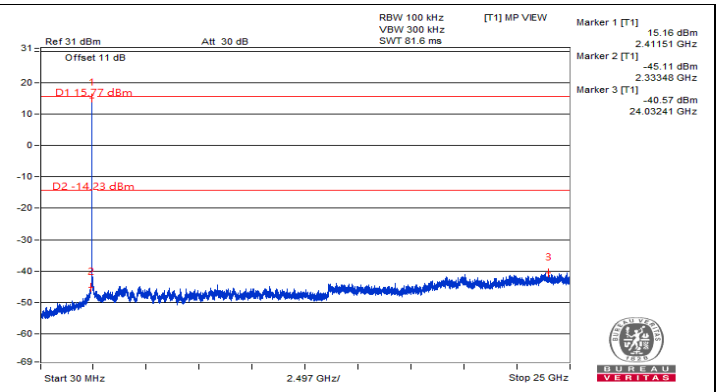
7.4 Conducted Out of Band Emissions

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	25°C, 60% RH	Tested By:	Matthew Yang / Alan Wu / Wayne Lin

802.11b



Chain 0 : CH 1



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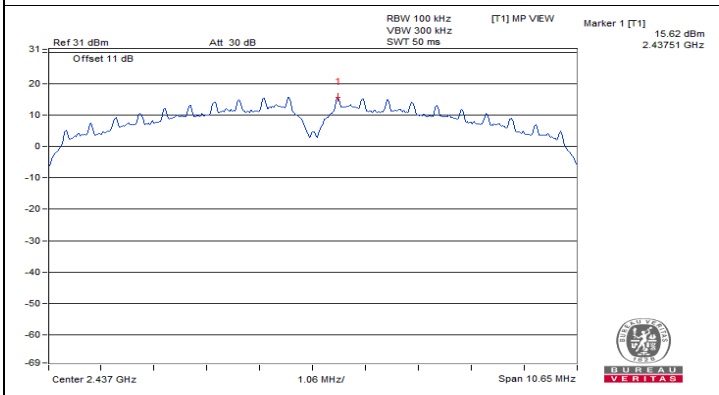
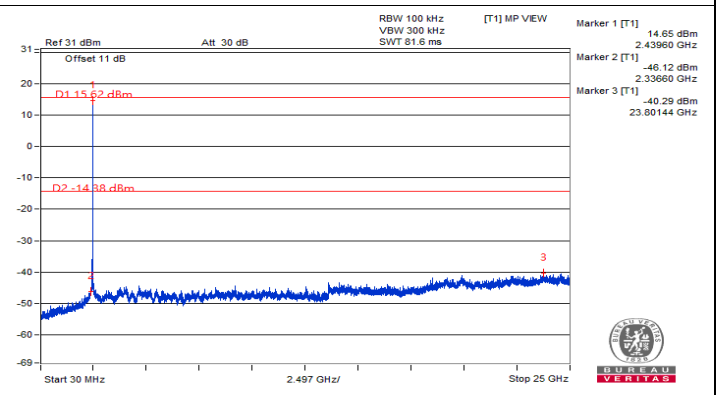


Chain 0 : CH 6



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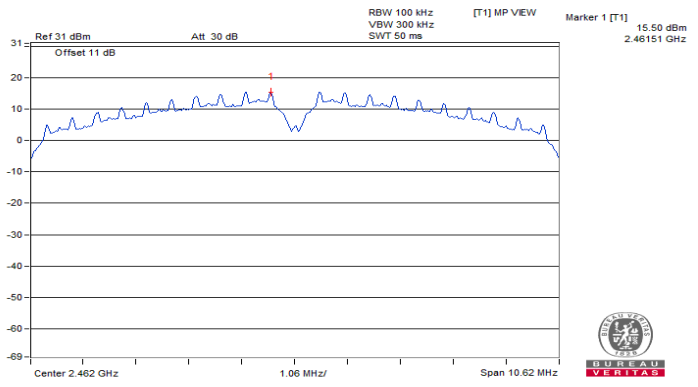

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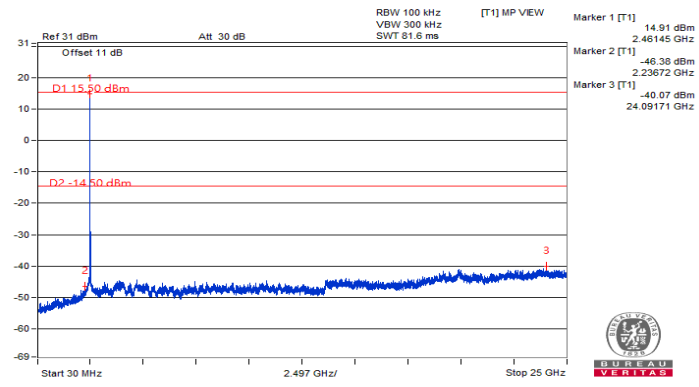

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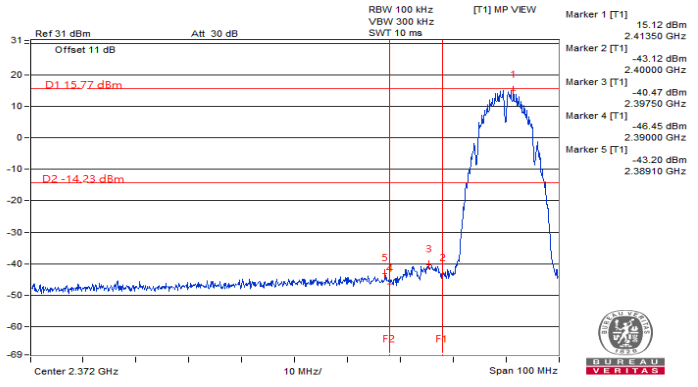
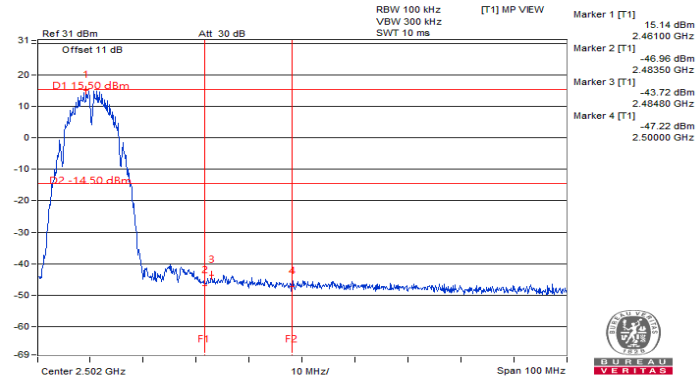
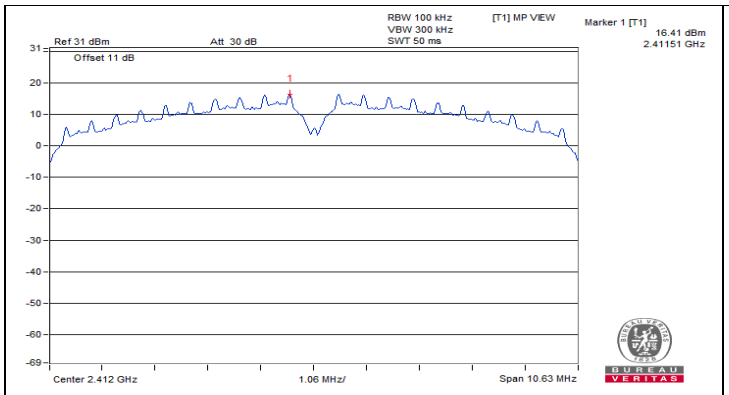


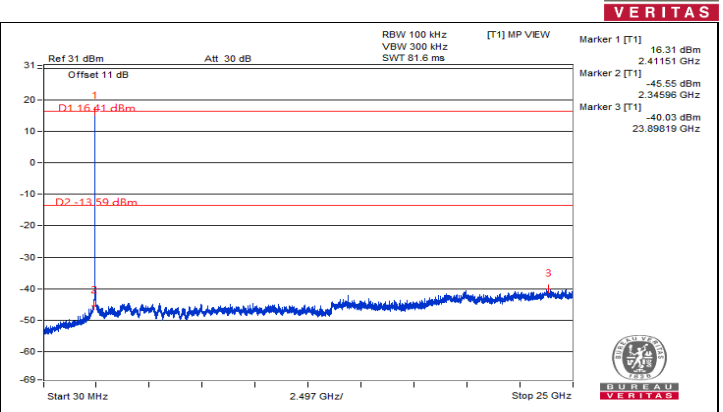
Chain 0 : CH 1 Band edge



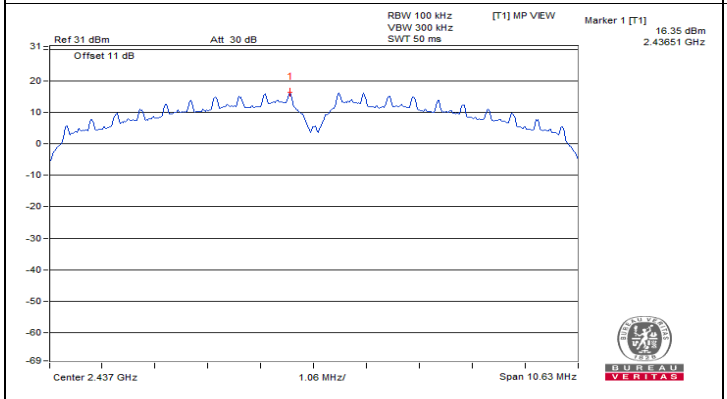
Chain 0 : CH 11 Band edge



Chain 1 : CH 1



Chain 1 : CH 1



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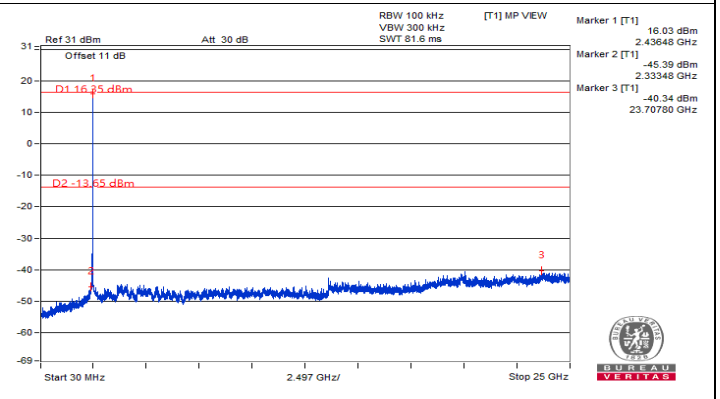

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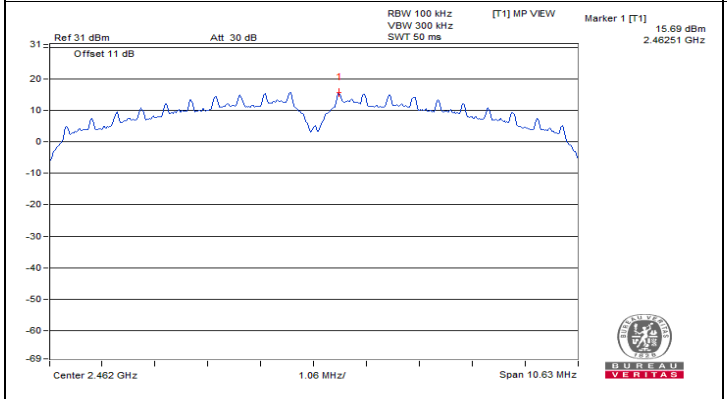
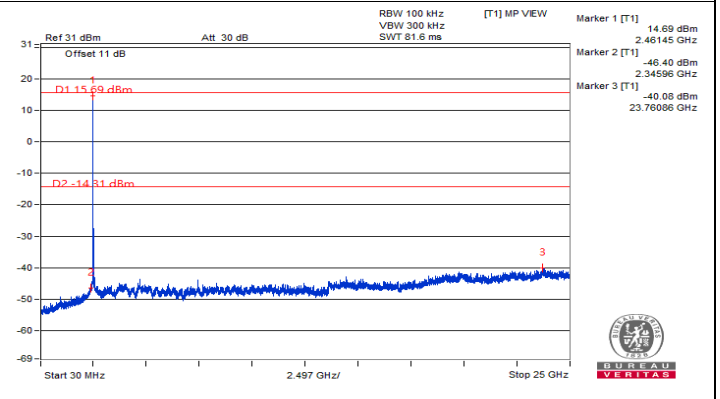
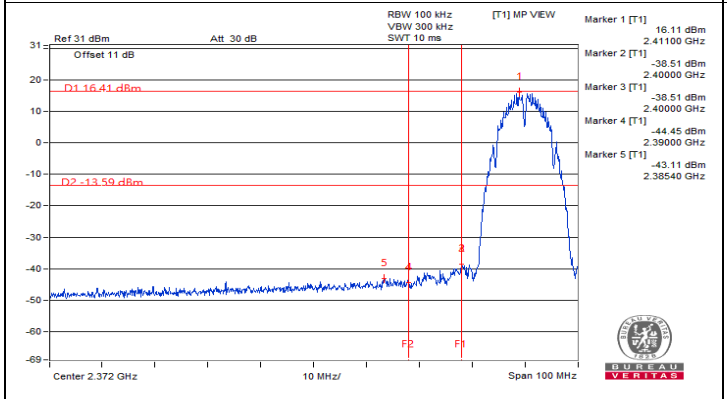


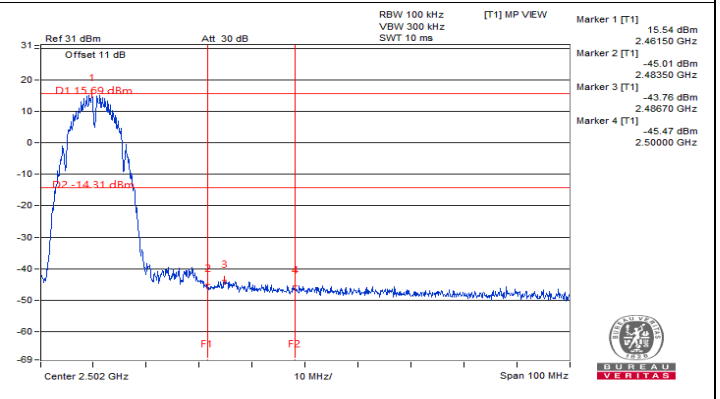
Chain 1 : CH 11



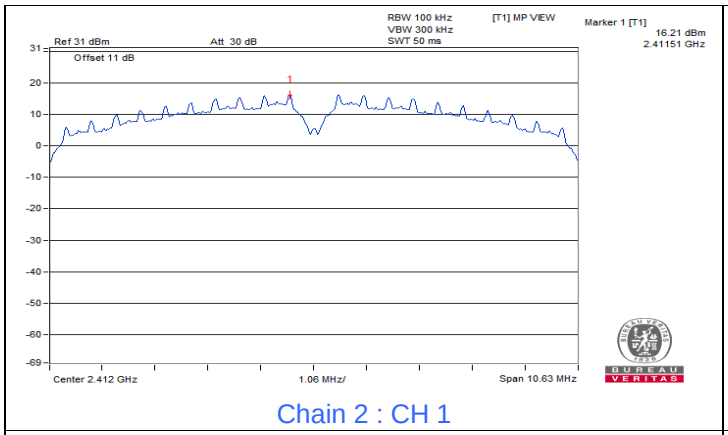
Chain 1 : CH 11



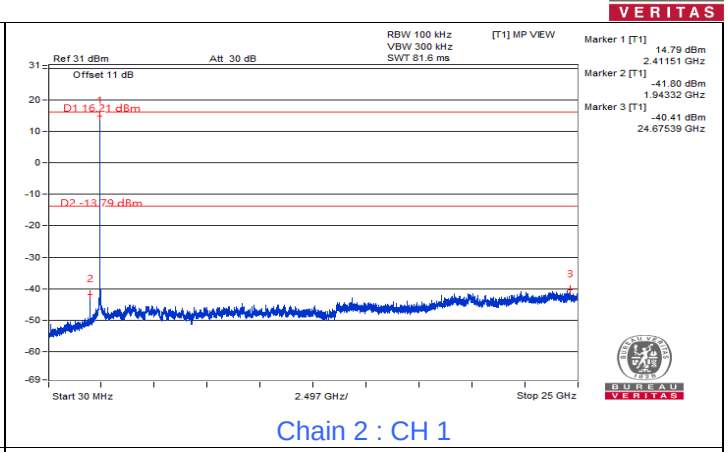
Chain 1 : CH 1 Band edge



Chain 1 : CH 11 Band edge



Chain 2 : CH 1



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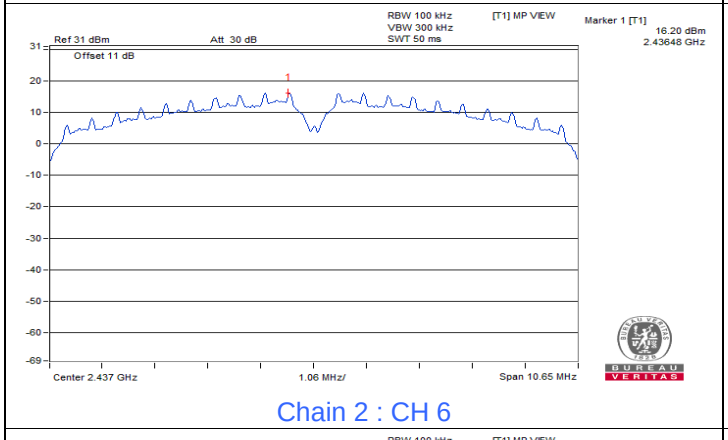

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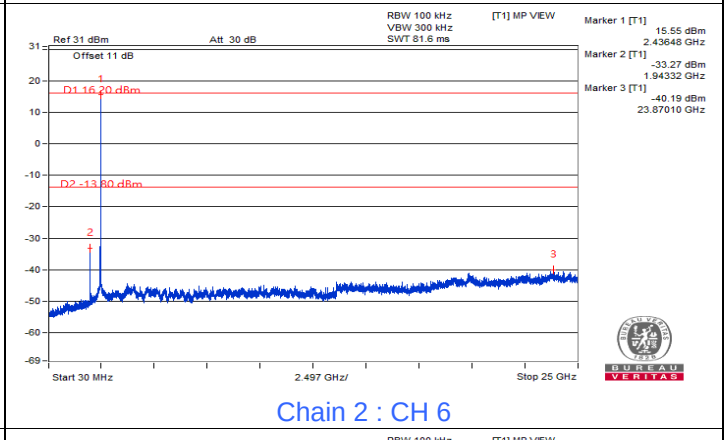
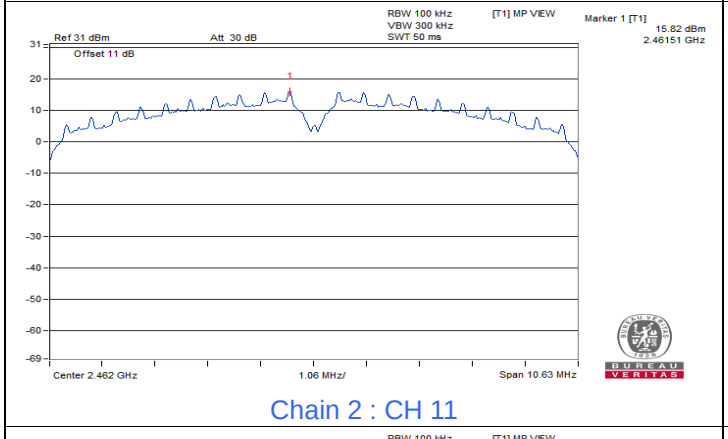
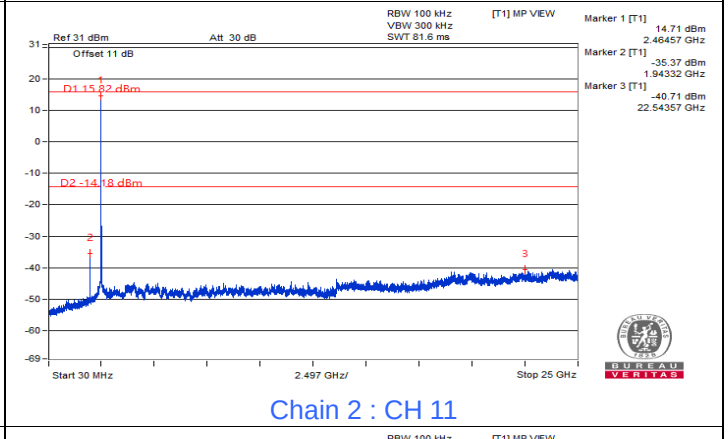


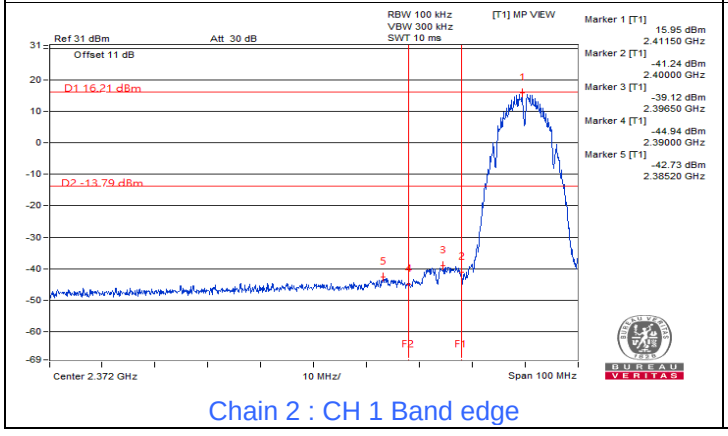
Chain 2 : CH 6



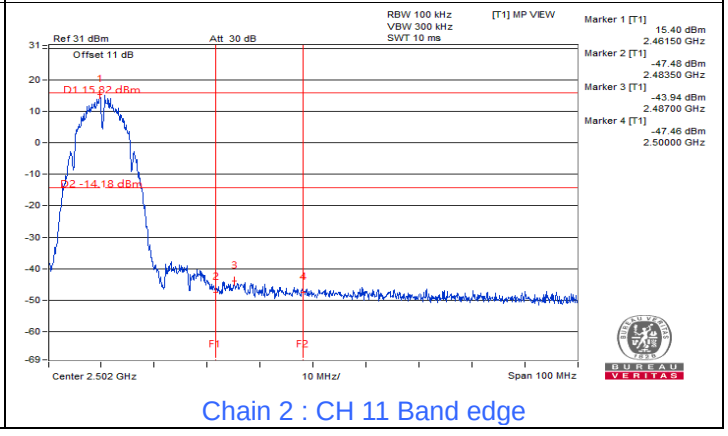
Chain 2 : CH 11



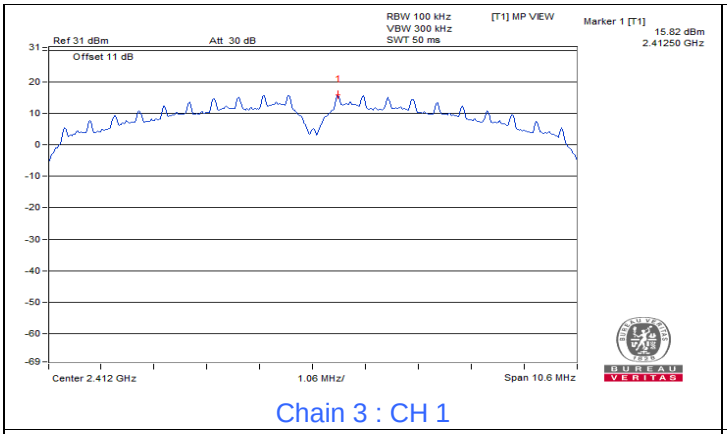
Chain 2 : CH 11



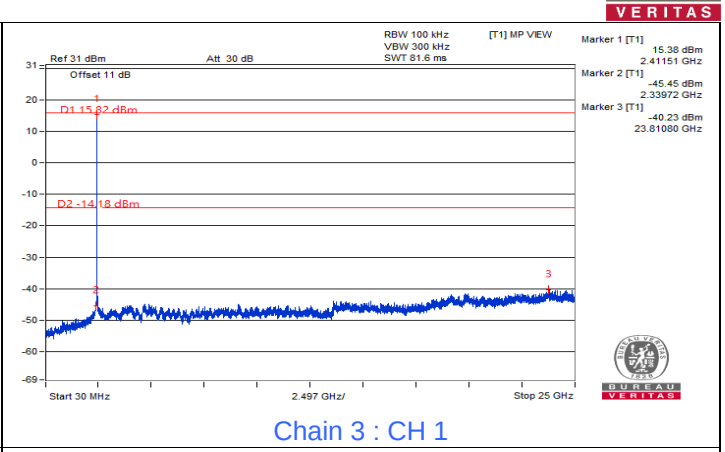
Chain 2 : CH 1 Band edge



Chain 2 : CH 11 Band edge



Chain 3 : CH 1



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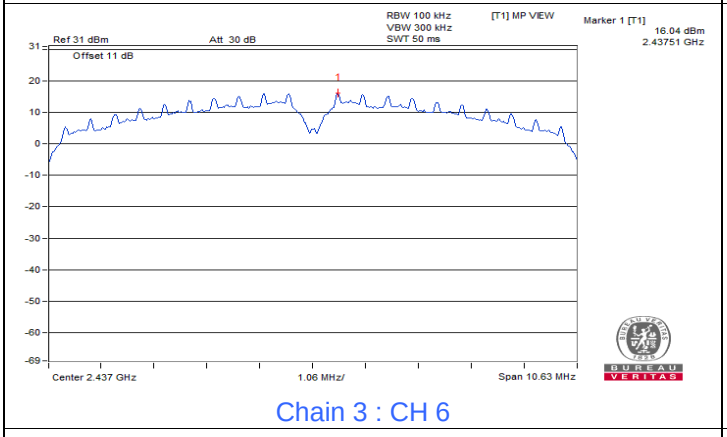

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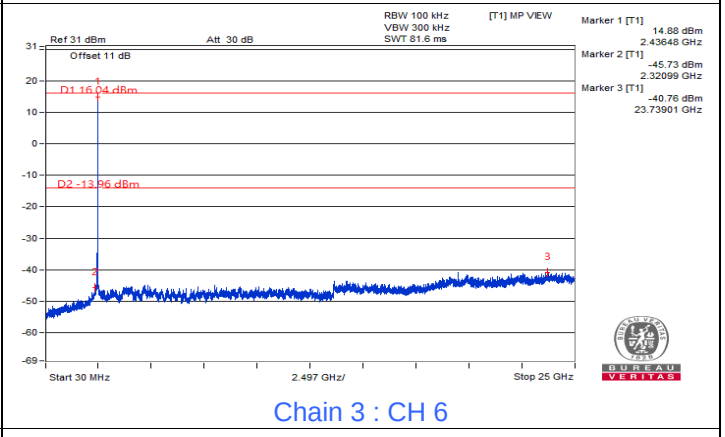

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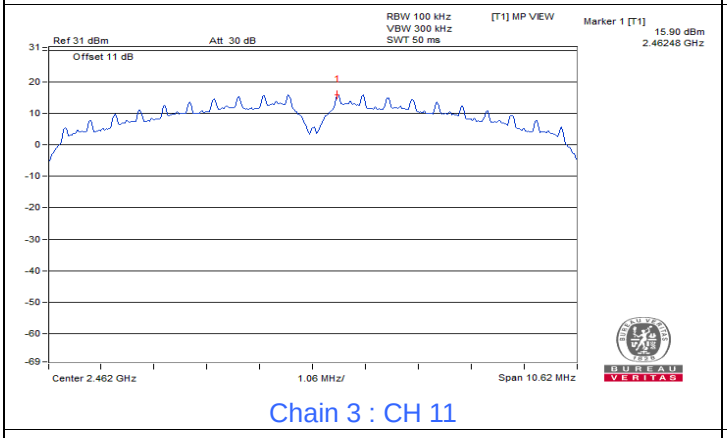
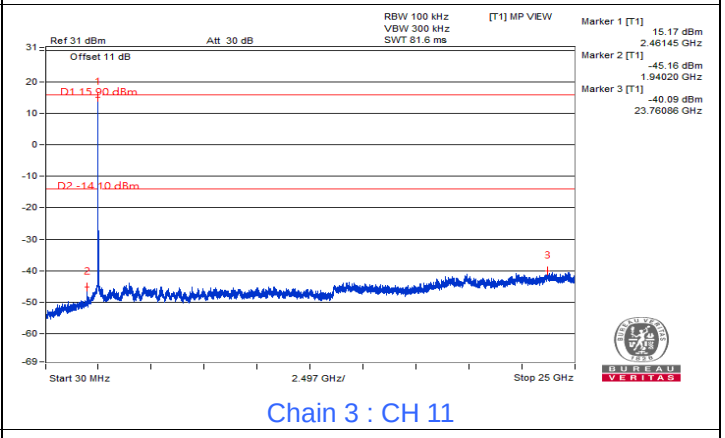
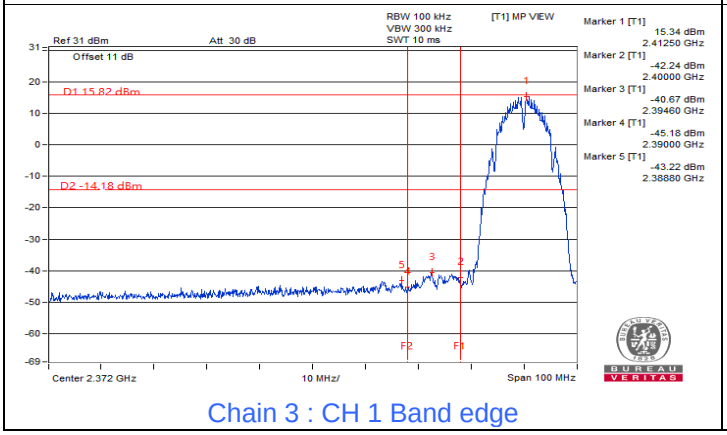


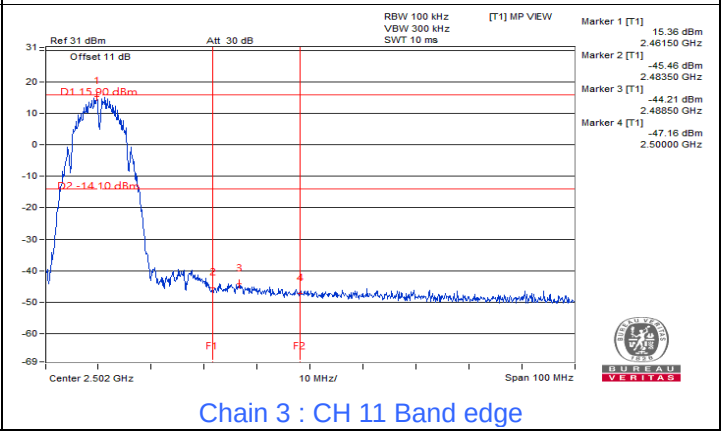
Chain 3 : CH 11



Chain 3 : CH 11

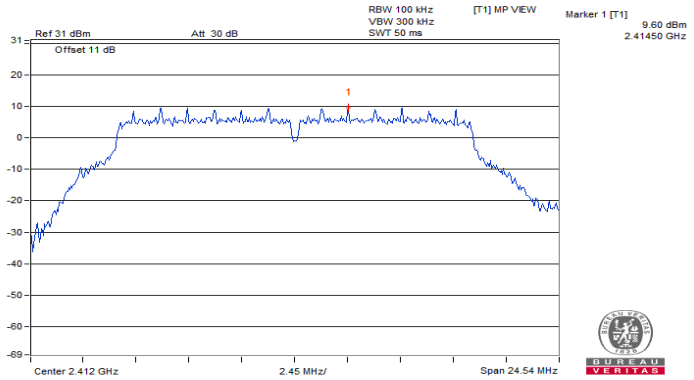


Chain 3 : CH 1 Band edge

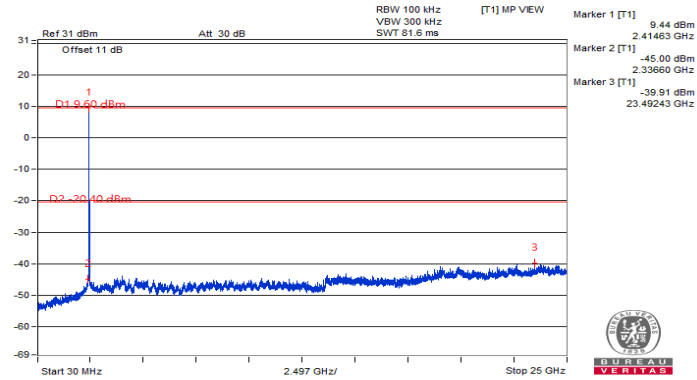


Chain 3 : CH 11 Band edge

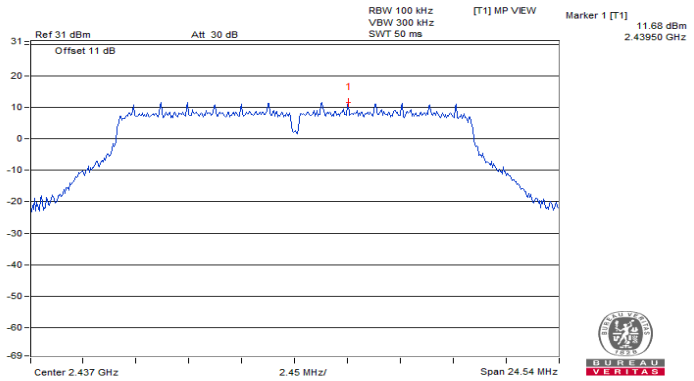
802.11g



Chain 0 : CH 1



Chain 0 : CH 1



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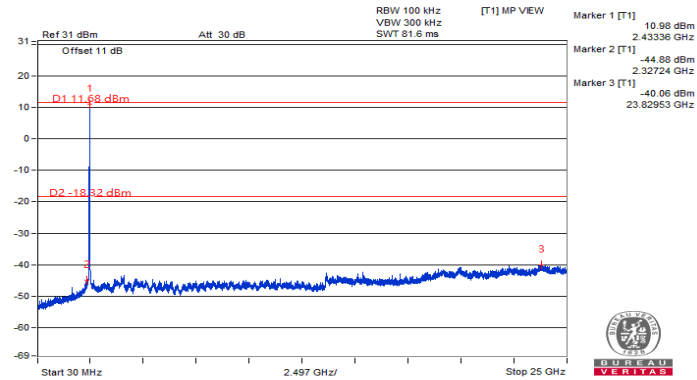
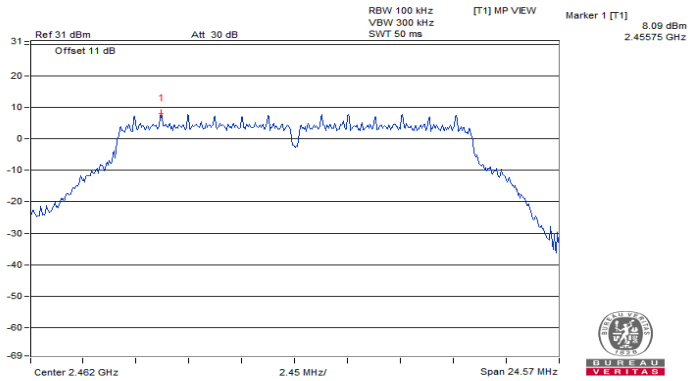


Chain 0 : CH 6



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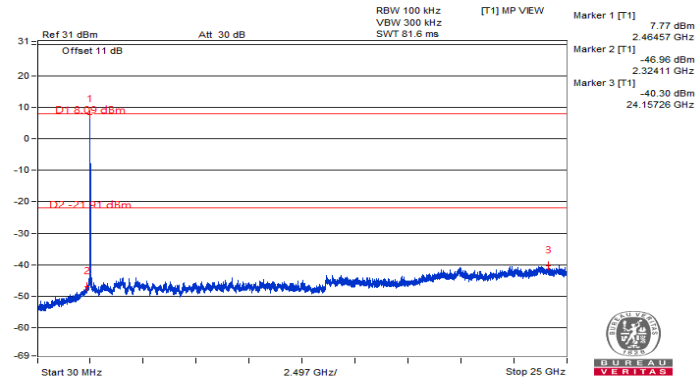

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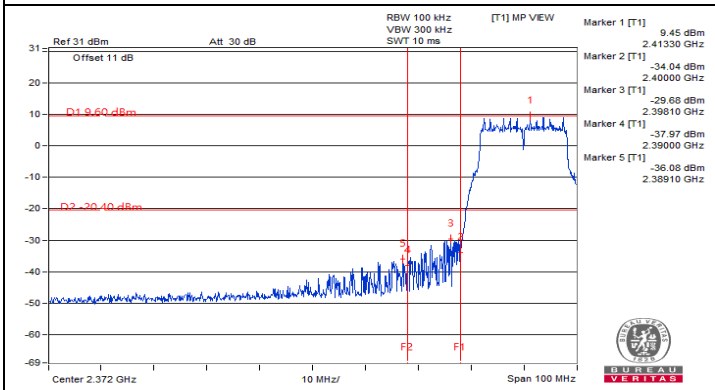
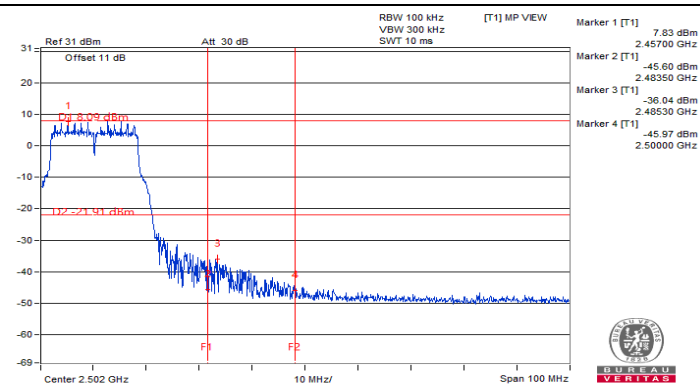
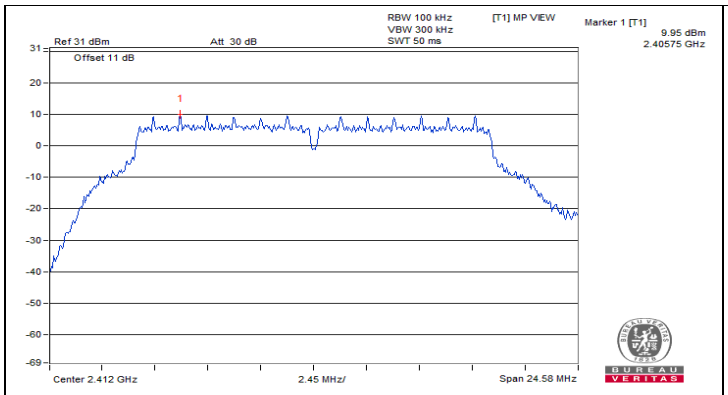


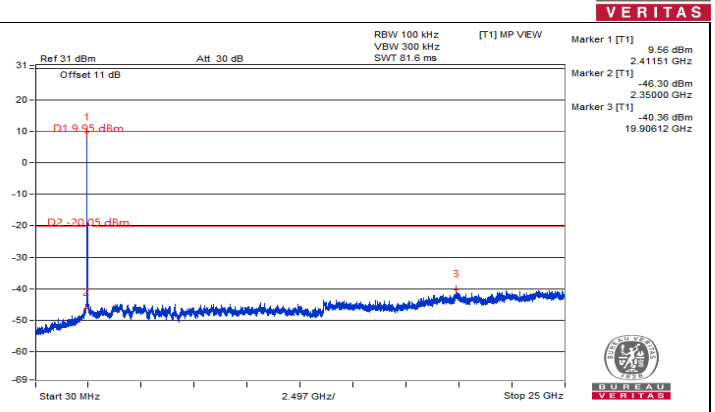
Chain 0 : CH 1 Band edge



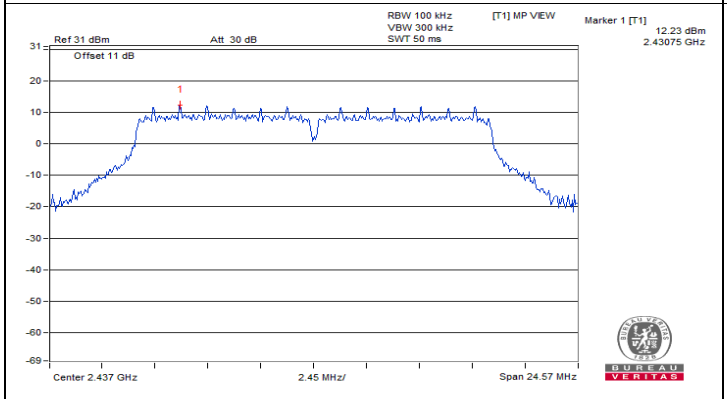
Chain 0 : CH 11 Band edge



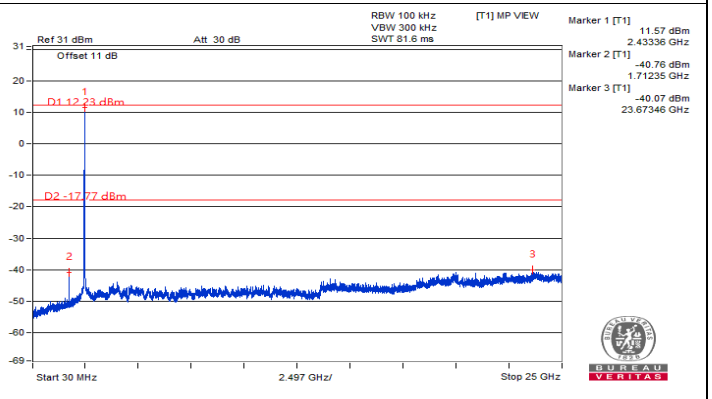
Chain 1 : CH 1



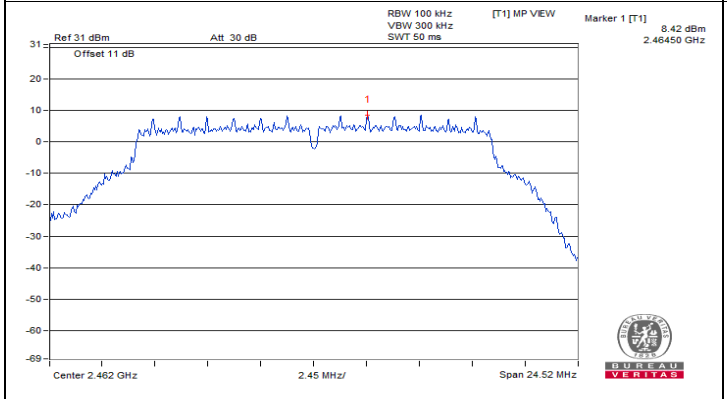
Chain 1 : CH 1



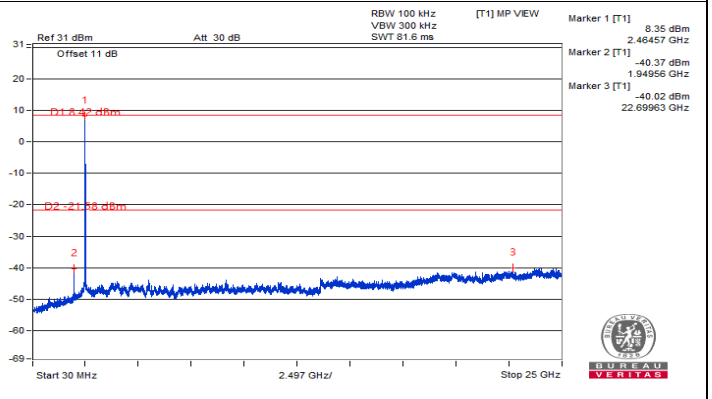
Chain 1 : CH 6



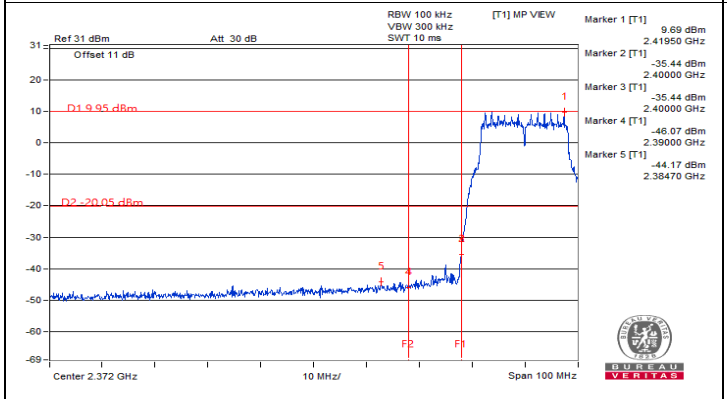
Chain 1 : CH 6



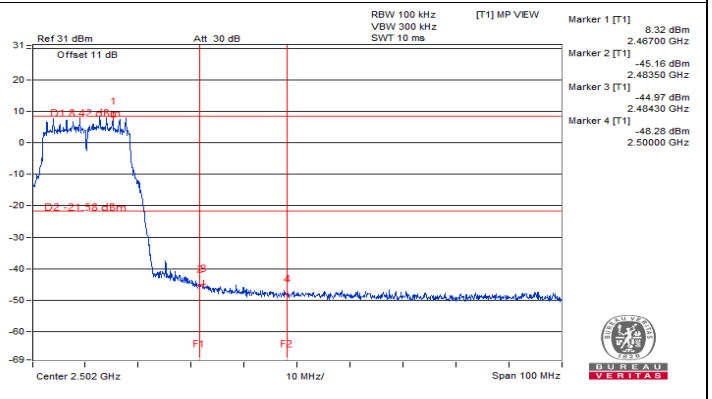
Chain 1 : CH 11



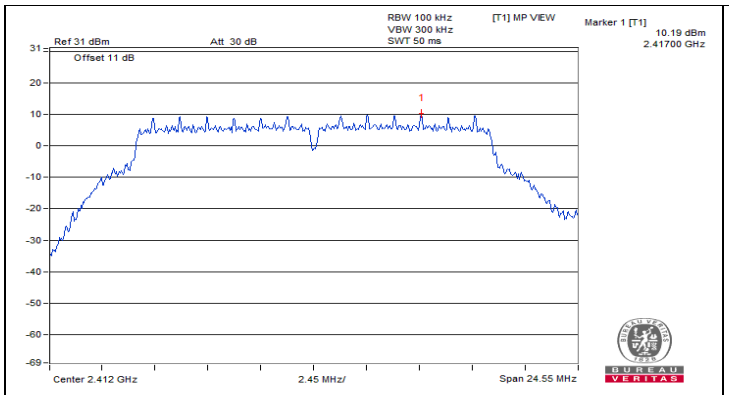
Chain 1 : CH 11



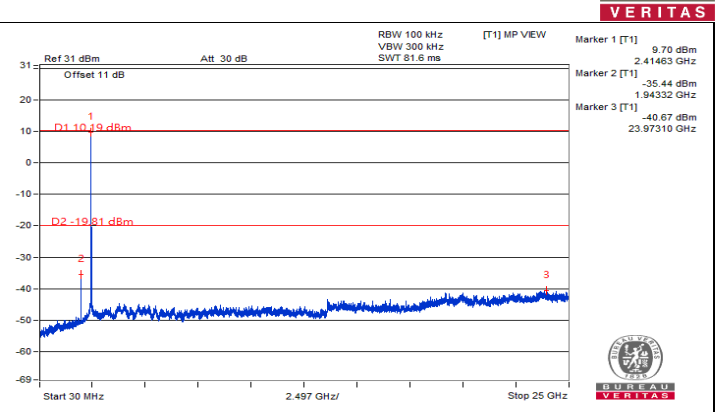
Chain 1 : CH 1 Band edge



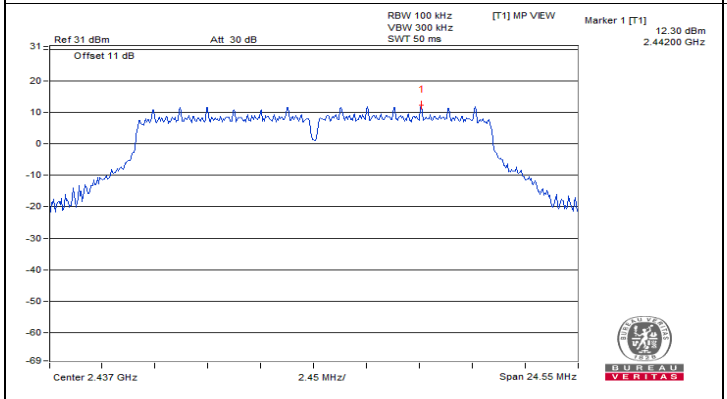
Chain 1 : CH 11 Band edge



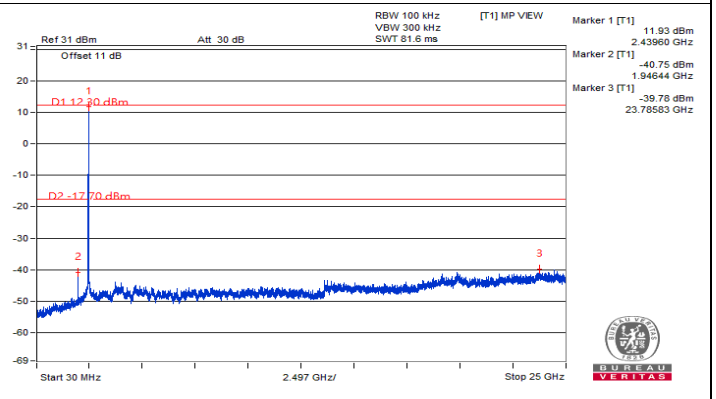
Chain 2 : CH 1



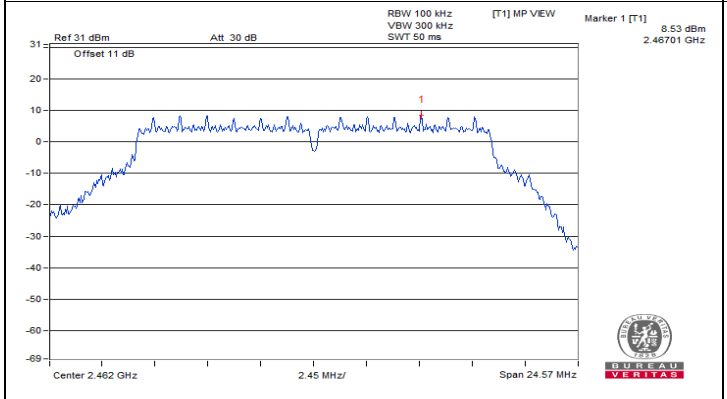
Chain 2 : CH 1



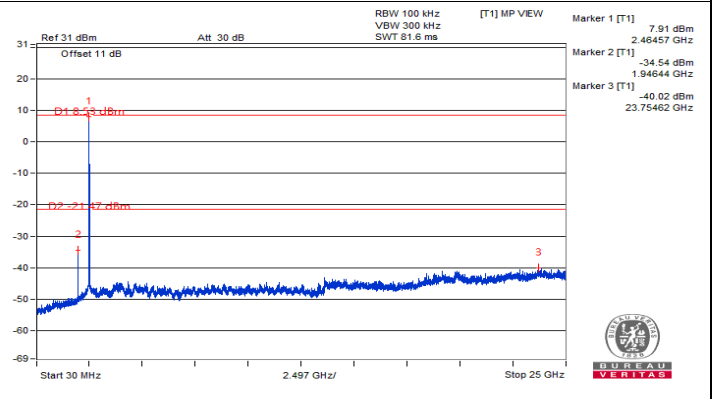
Chain 2 : CH 6



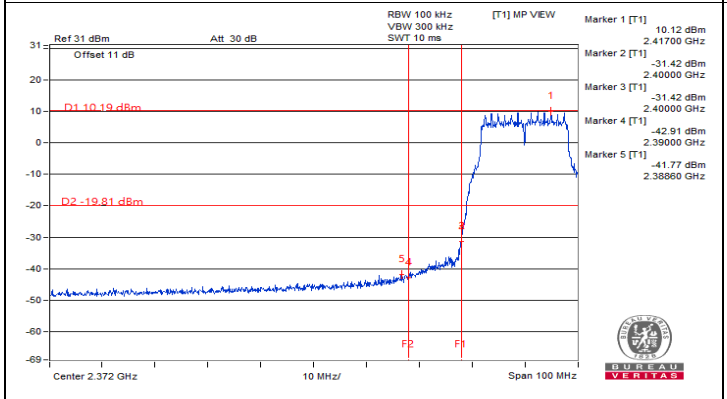
Chain 2 : CH 6



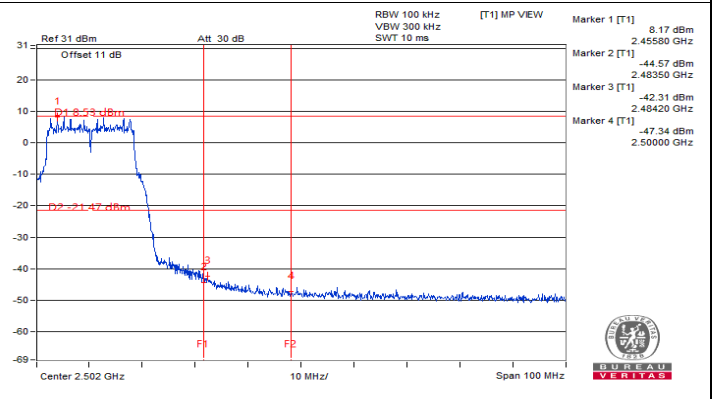
Chain 2 : CH 11



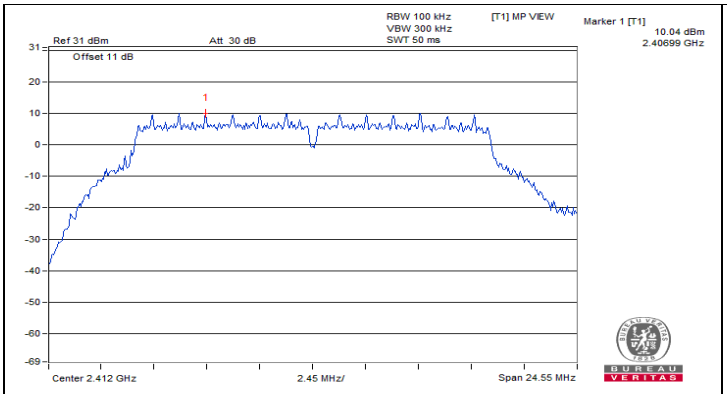
Chain 2 : CH 11



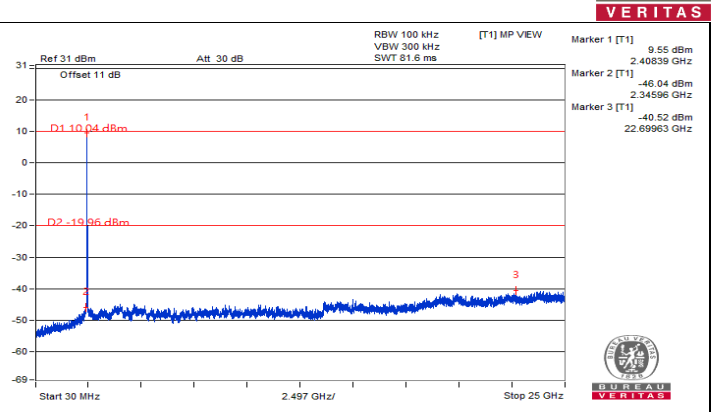
Chain 2 : CH 1 Band edge



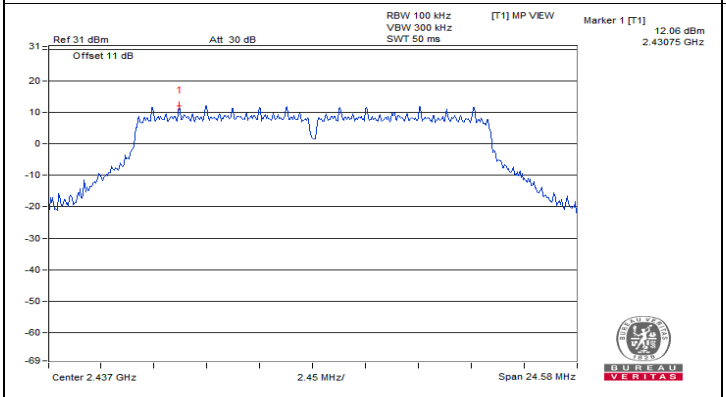
Chain 2 : CH 11 Band edge



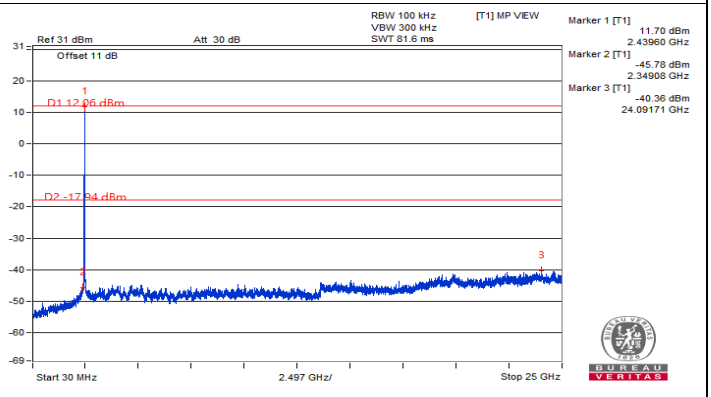
Chain 3 : CH 1



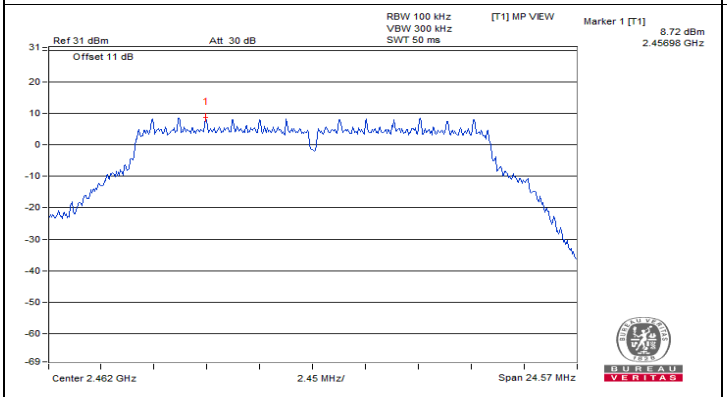
Chain 3 : CH 1



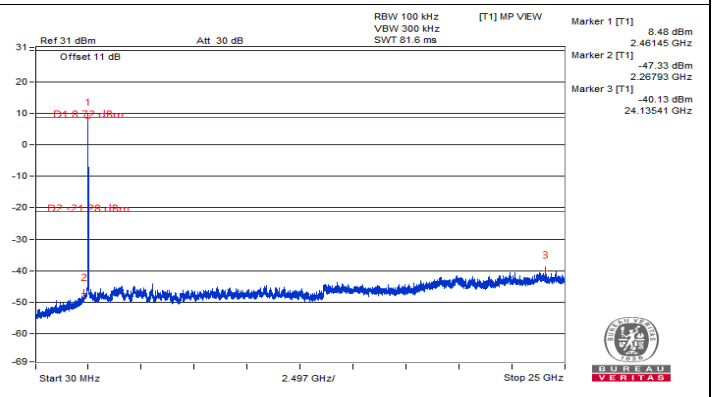
Chain 3 : CH 6



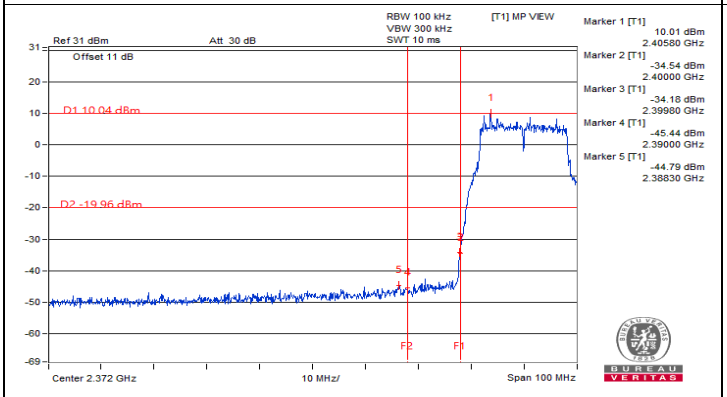
Chain 3 : CH 6



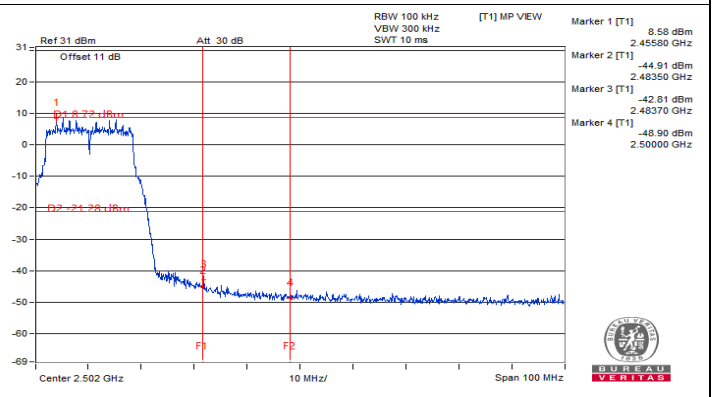
Chain 3 : CH 11



Chain 3 : CH 11

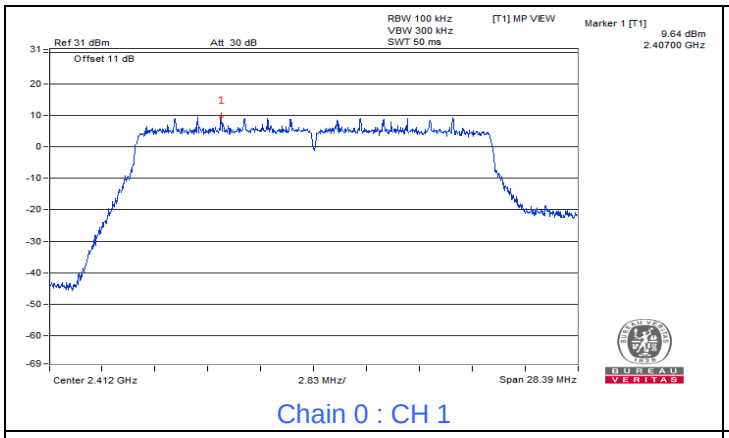


Chain 3 : CH 1 Band edge

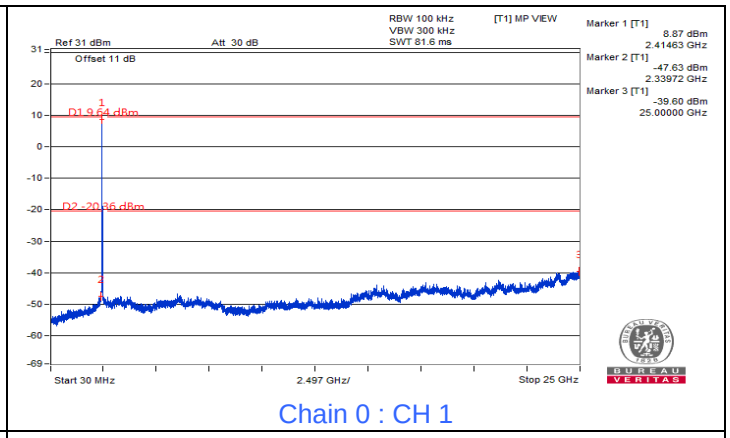


Chain 3 : CH 11 Band edge

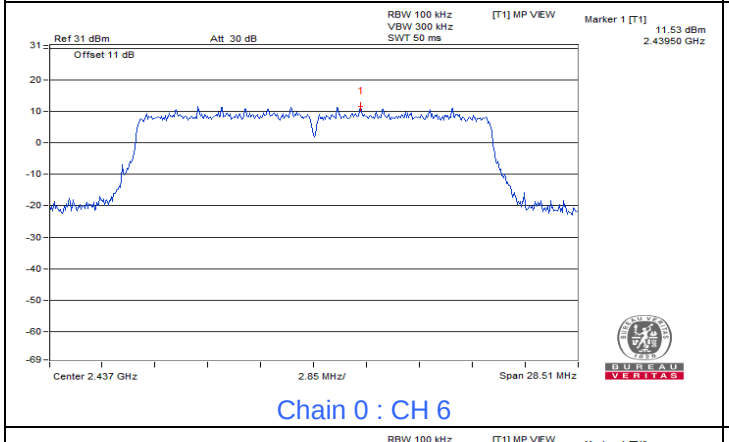
802.11ax (HE20)



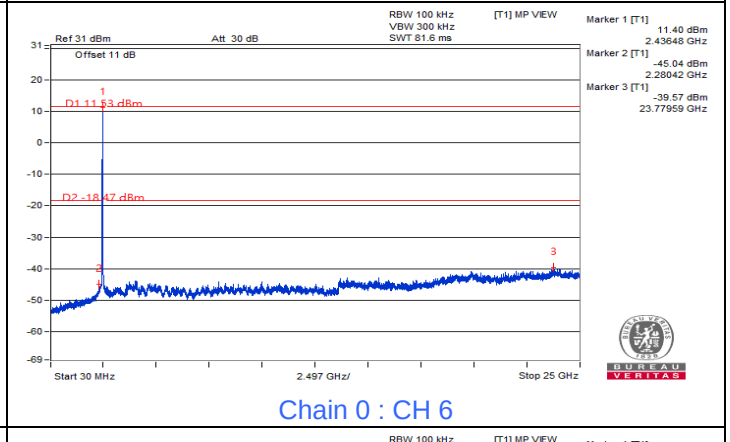
Chain 0 : CH 1



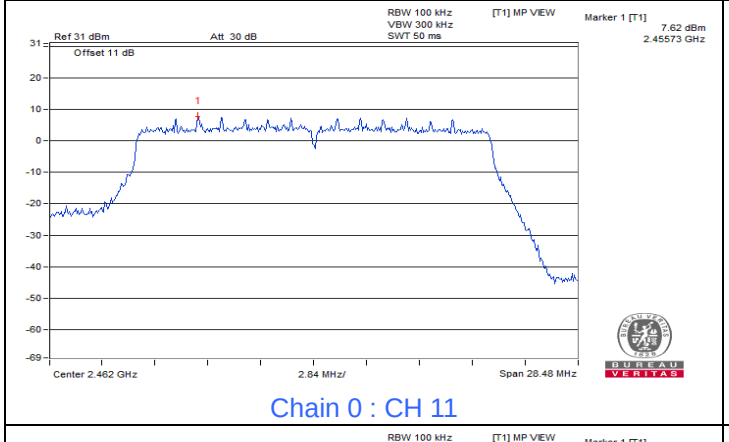
Chain 0 : CH 1



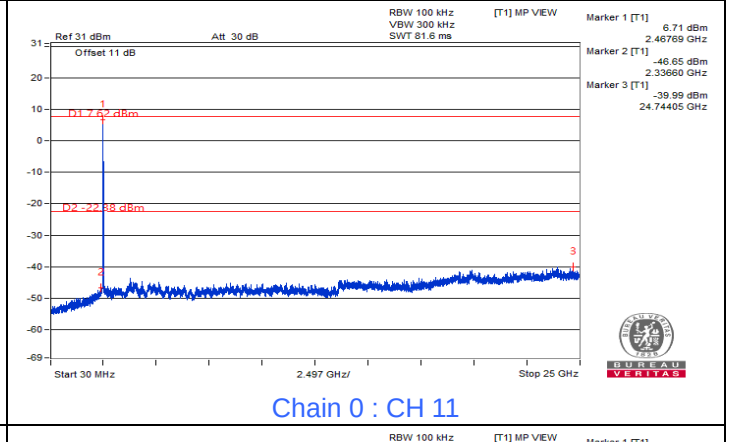
Chain 0 : CH 6



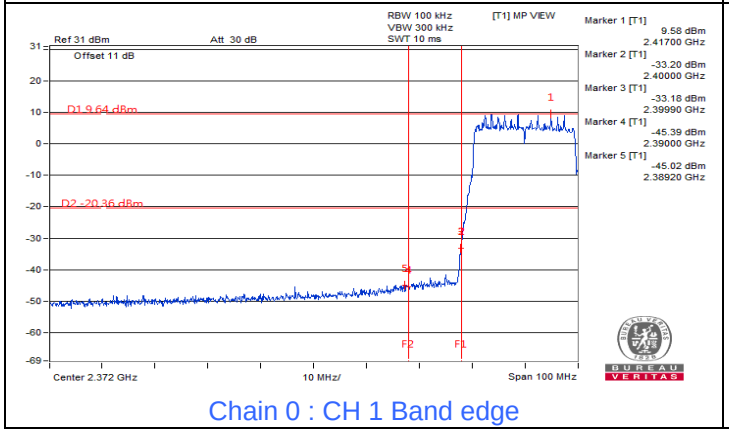
Chain 0 : CH 6



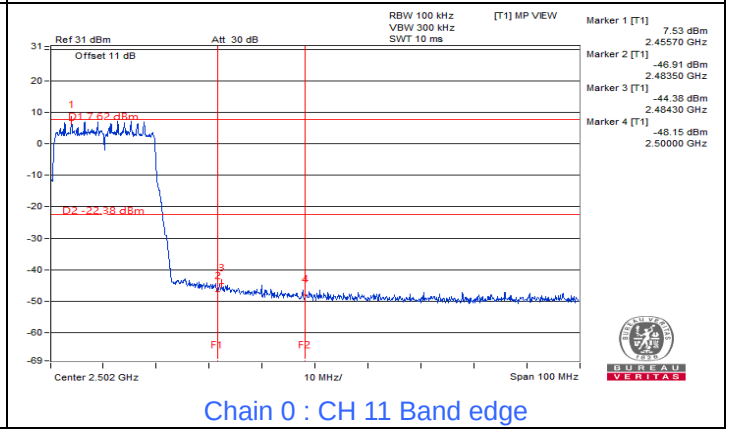
Chain 0 : CH 11



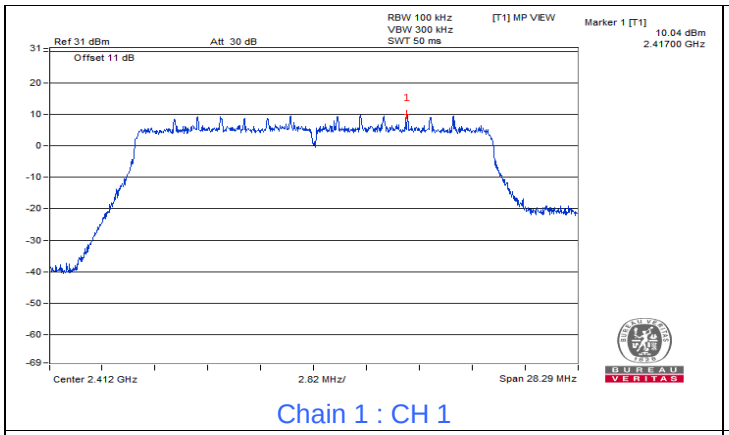
Chain 0 : CH 11



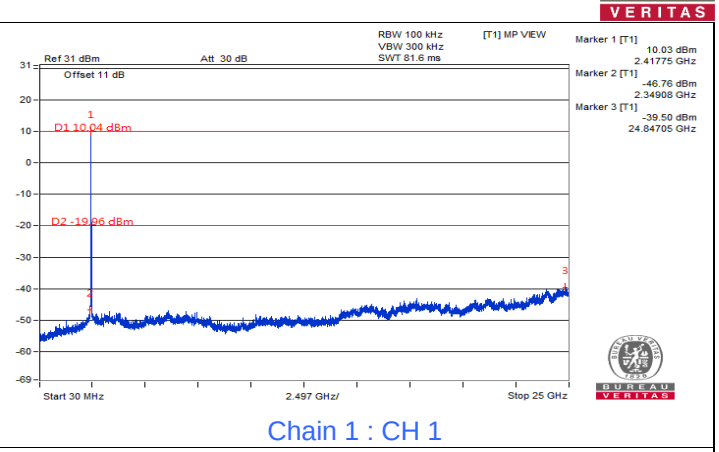
Chain 0 : CH 1 Band edge



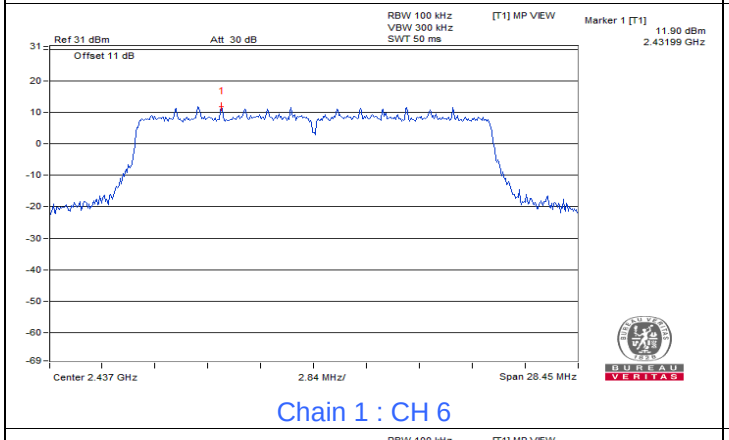
Chain 0 : CH 11 Band edge



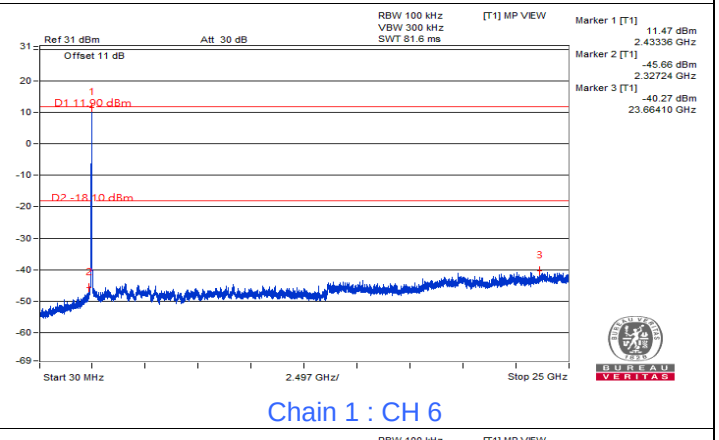
Chain 1 : CH 1



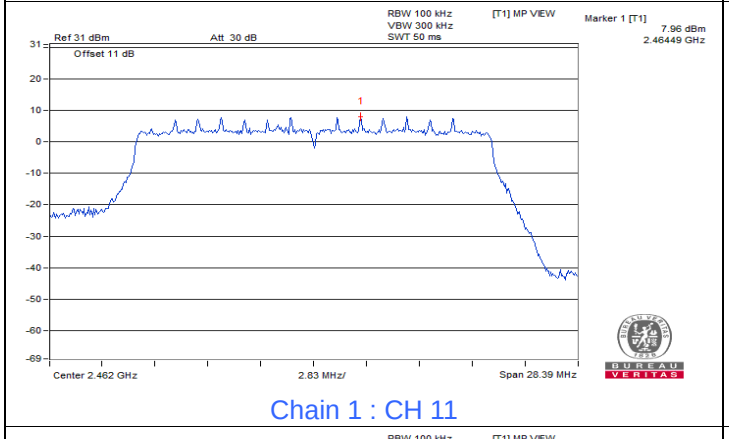
Chain 1 : CH 1



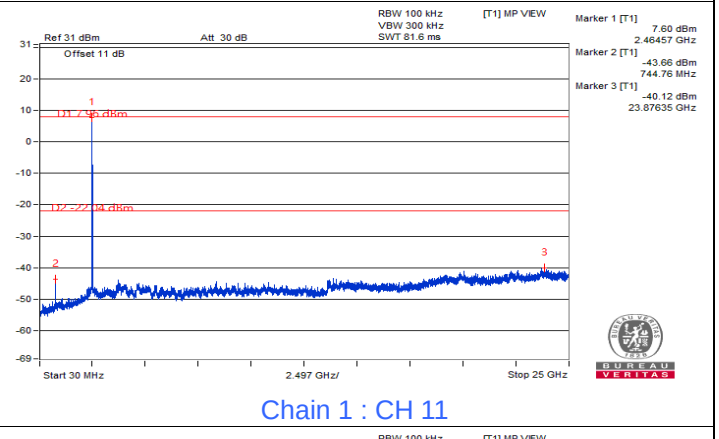
Chain 1 : CH 6



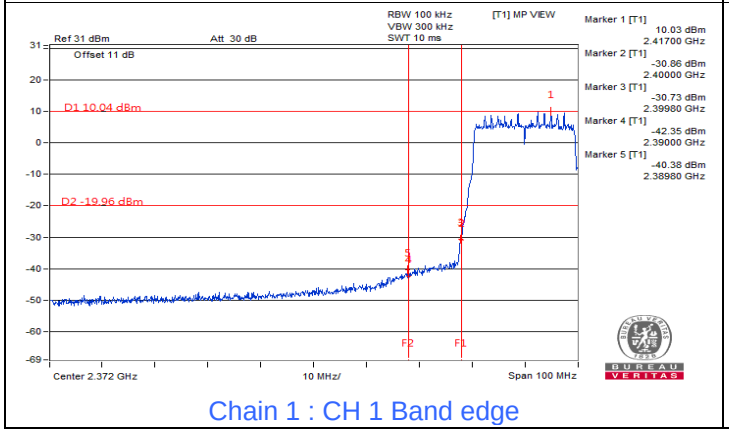
Chain 1 : CH 6



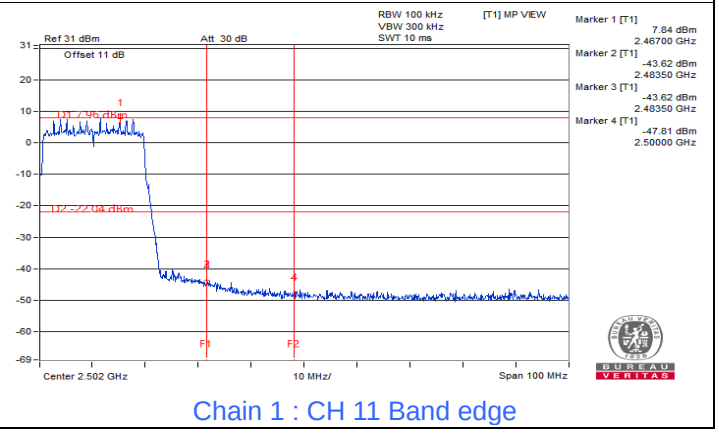
Chain 1 : CH 11



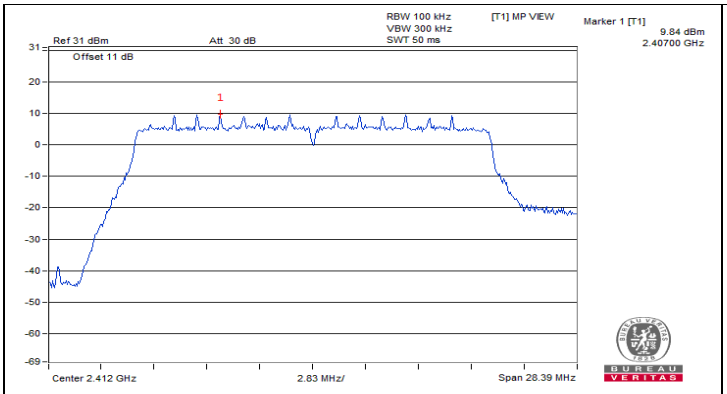
Chain 1 : CH 11



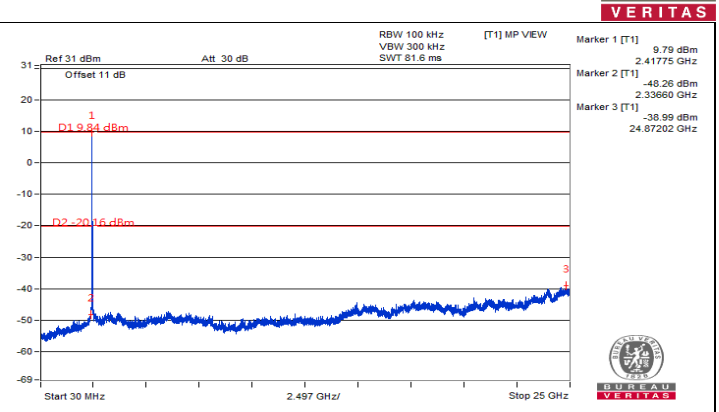
Chain 1 : CH 1 Band edge



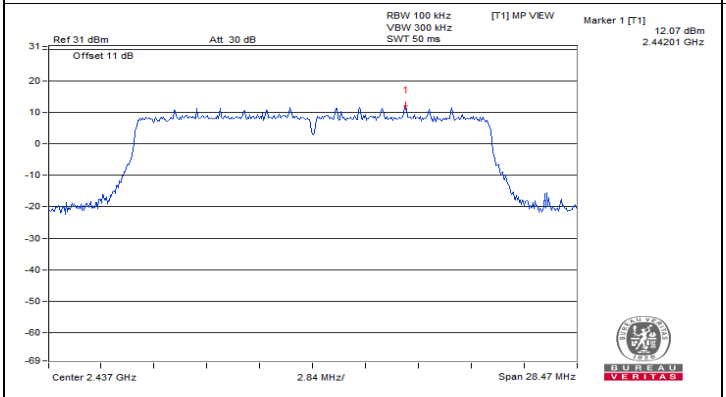
Chain 1 : CH 11 Band edge



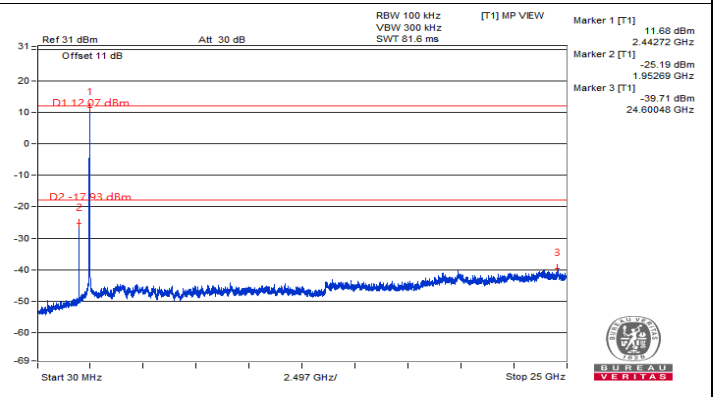
Chain 2 : CH 1



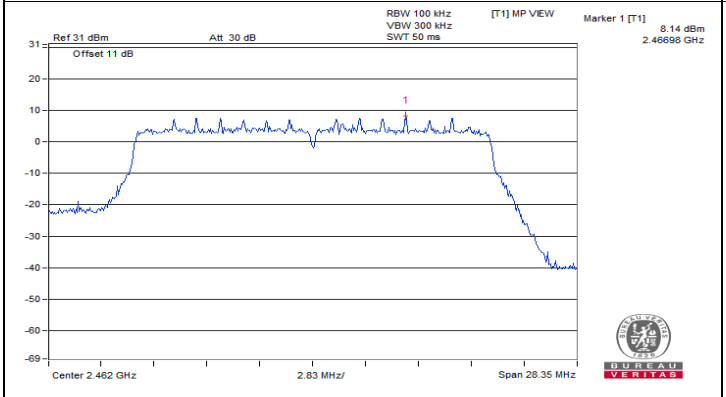
Chain 2 : CH 1



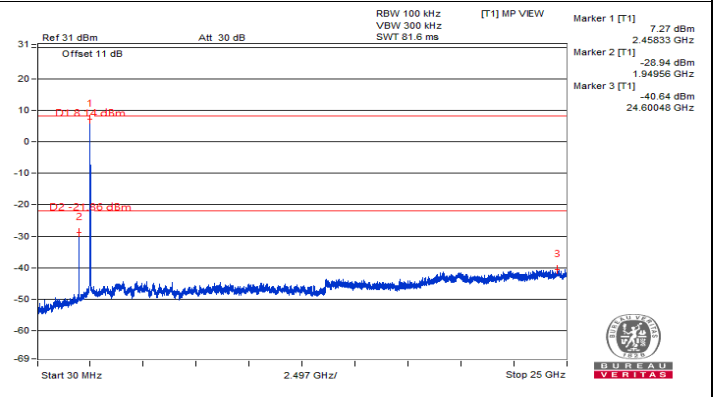
Chain 2 : CH 6



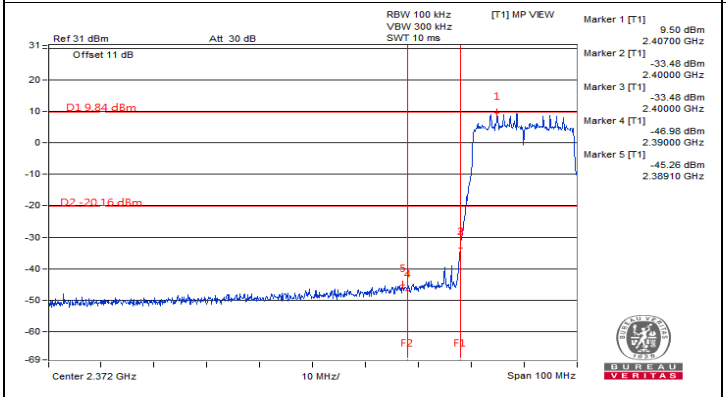
Chain 2 : CH 6



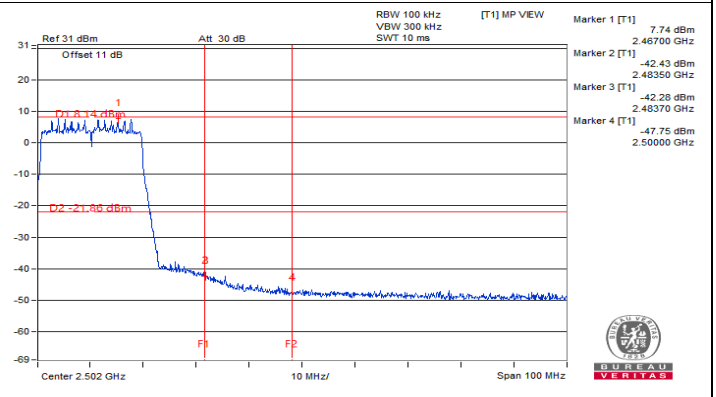
Chain 2 : CH 11



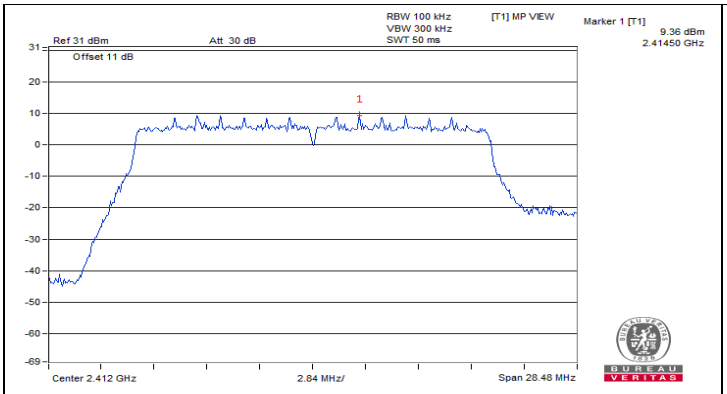
Chain 2 : CH 11



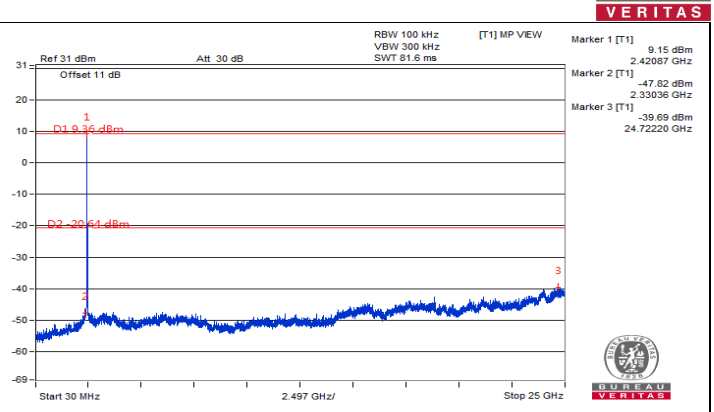
Chain 2 : CH 1 Band edge



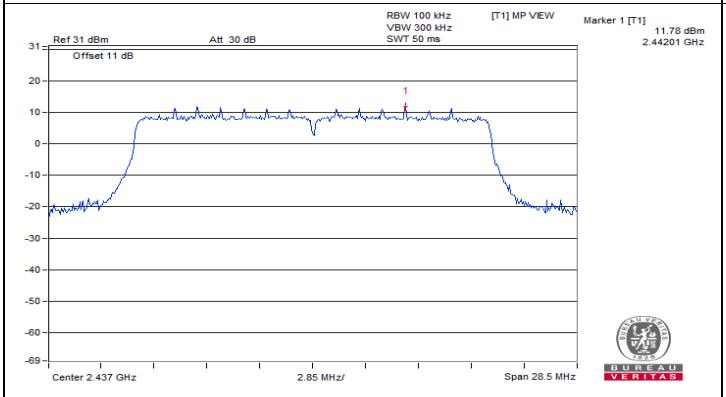
Chain 2 : CH 11 Band edge



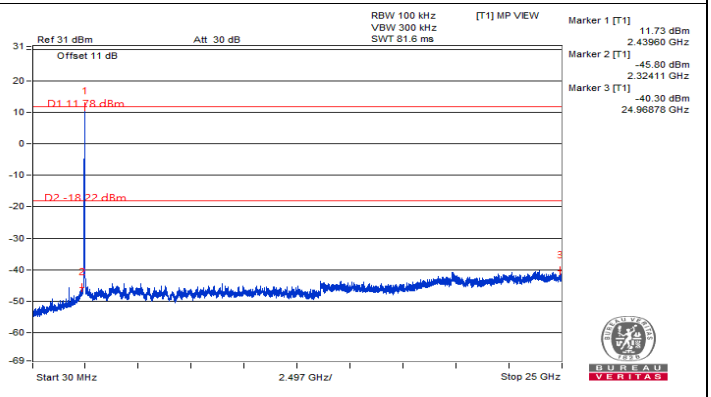
Chain 3 : CH 1



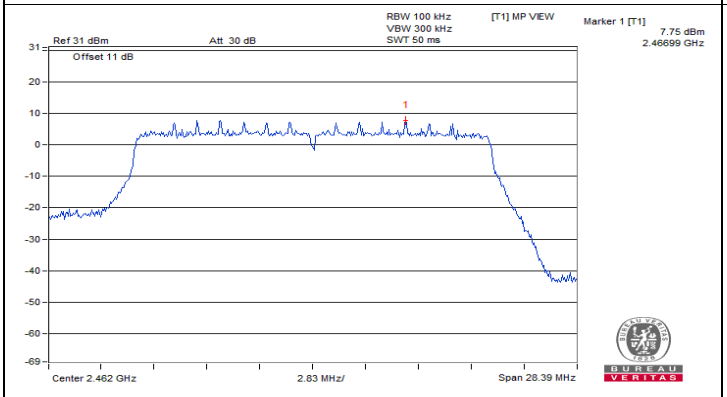
Chain 3 : CH 1



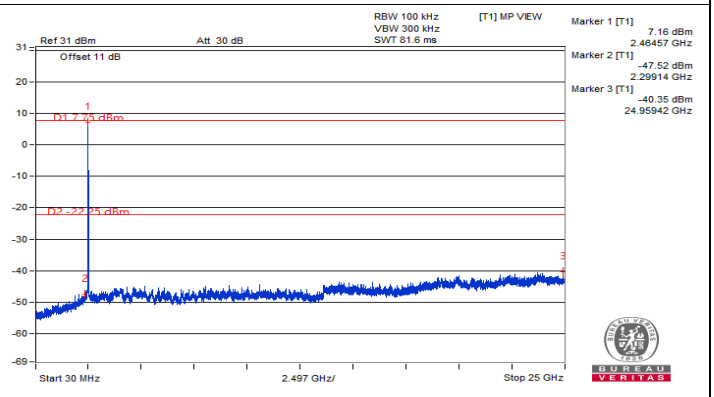
Chain 3 : CH 6



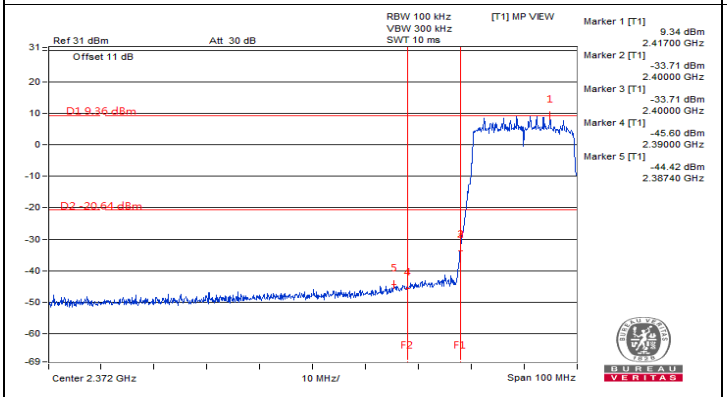
Chain 3 : CH 6



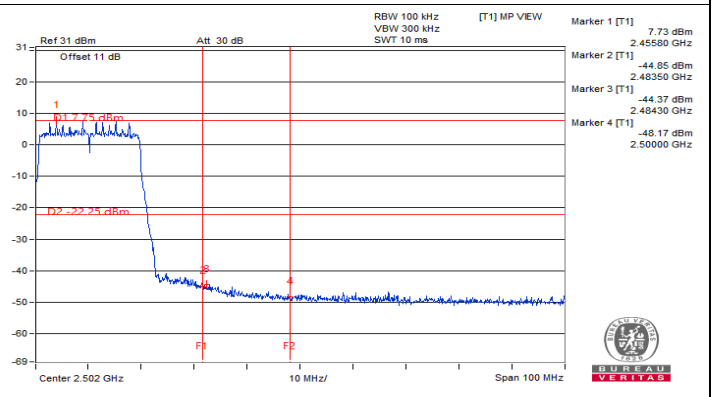
Chain 3 : CH 11



Chain 3 : CH 11

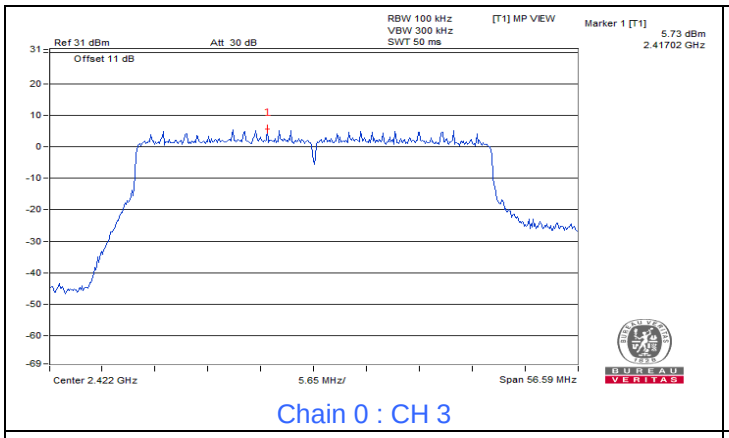


Chain 3 : CH 1 Band edge

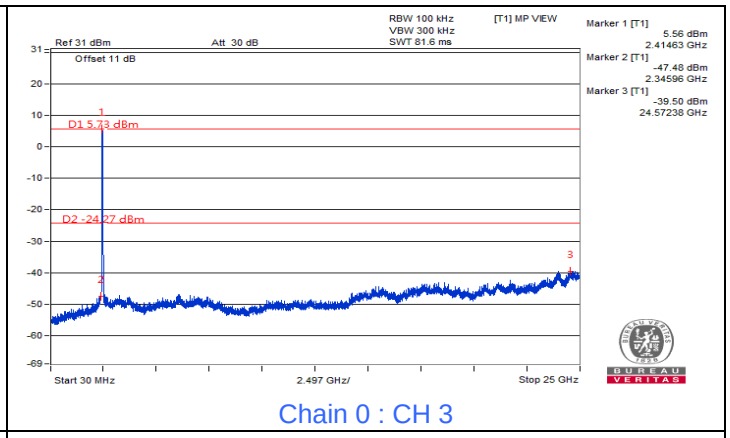


Chain 3 : CH 11 Band edge

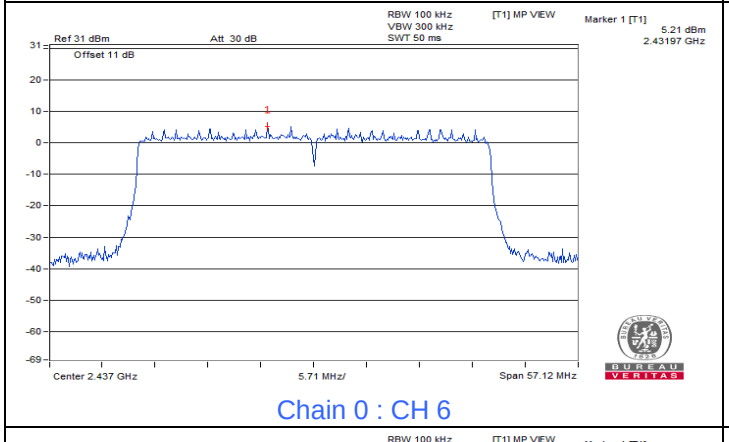
802.11ax (HE40)



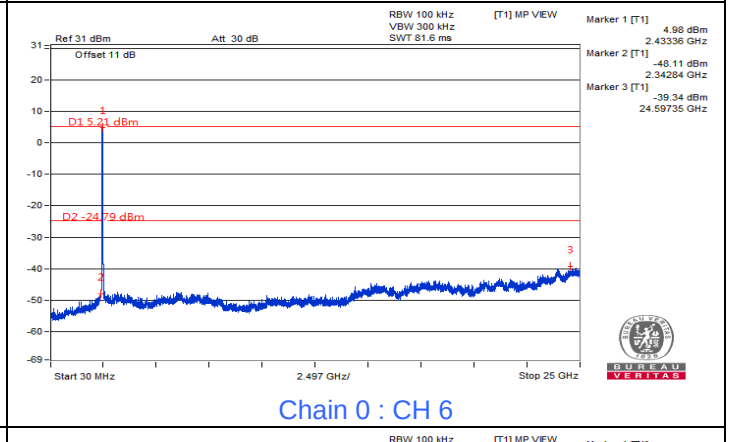
Chain 0 : CH 3



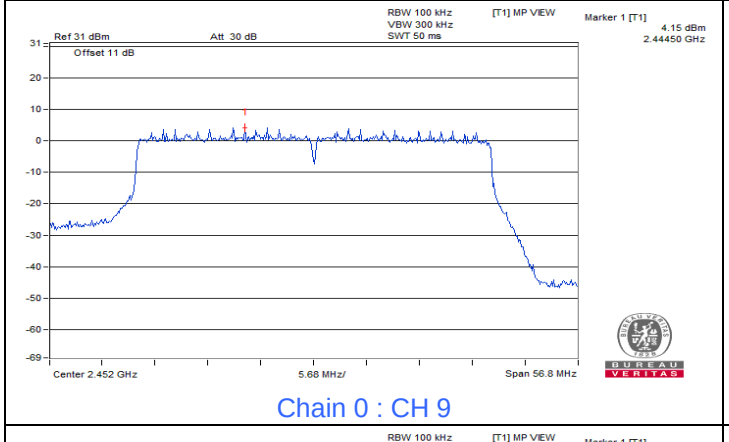
Chain 0 : CH 3



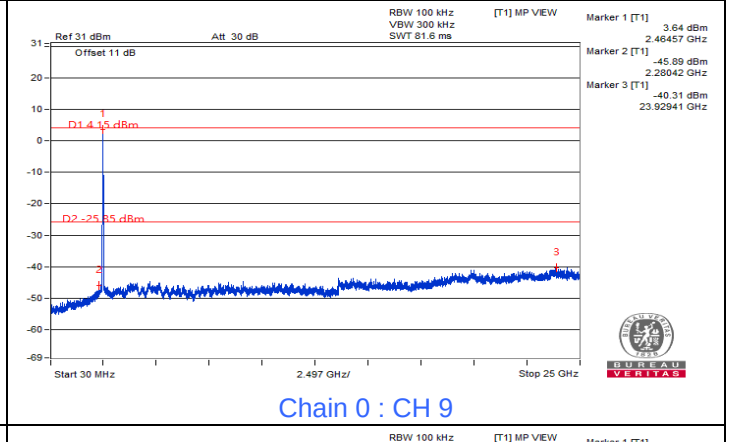
Chain 0 : CH 6



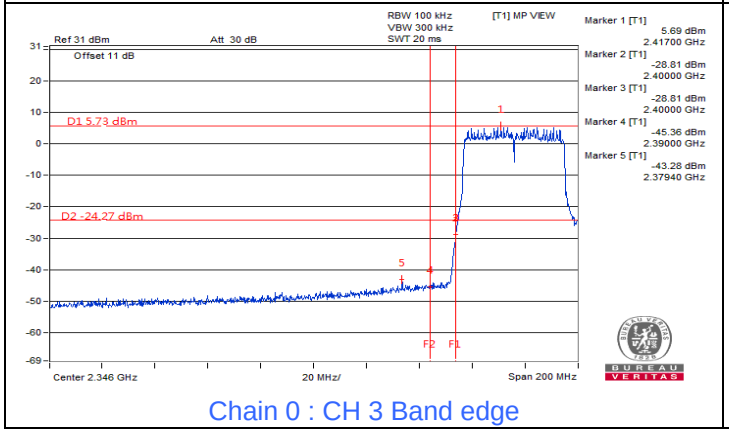
Chain 0 : CH 6



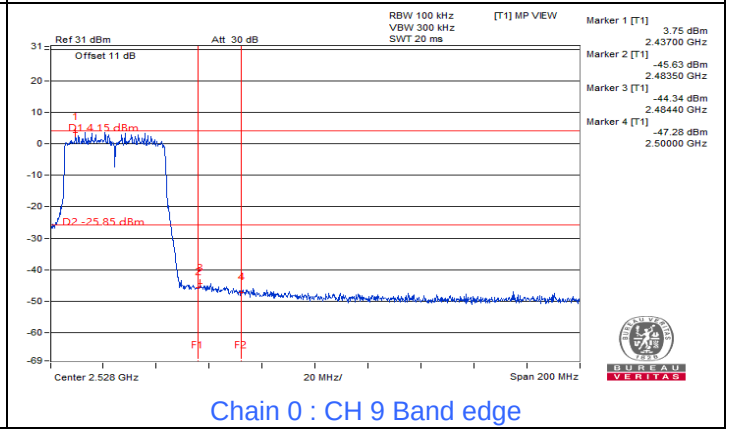
Chain 0 : CH 9



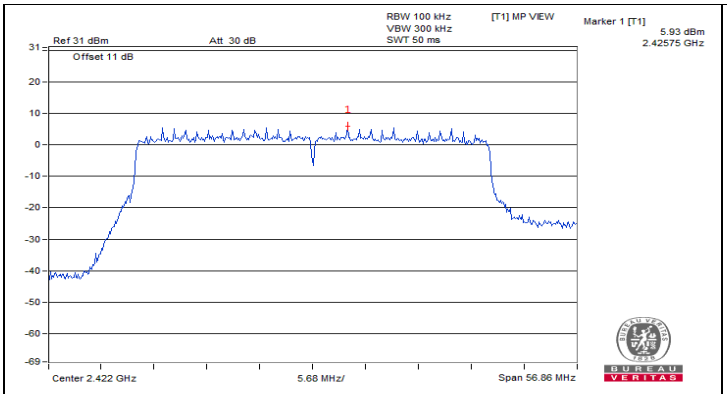
Chain 0 : CH 9



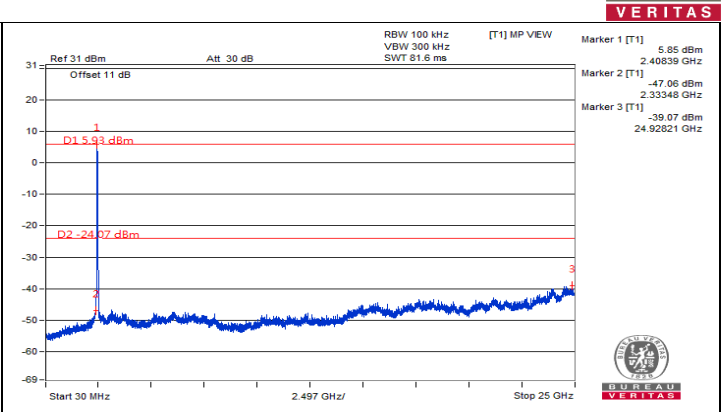
Chain 0 : CH 3 Band edge



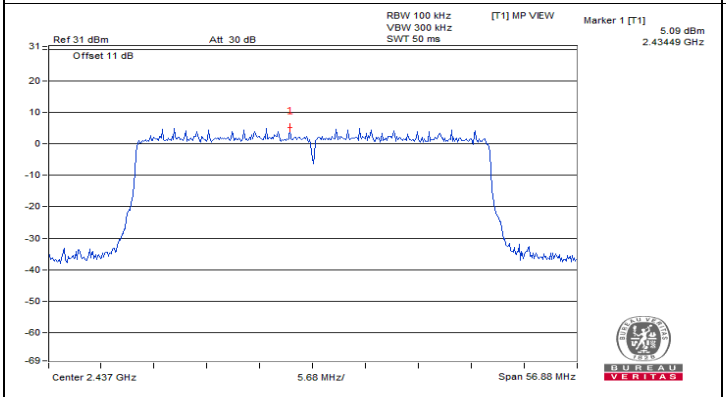
Chain 0 : CH 9 Band edge



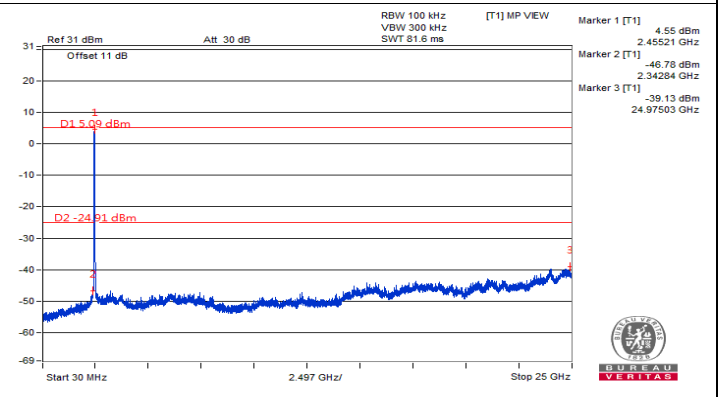
Chain 1 : CH 3



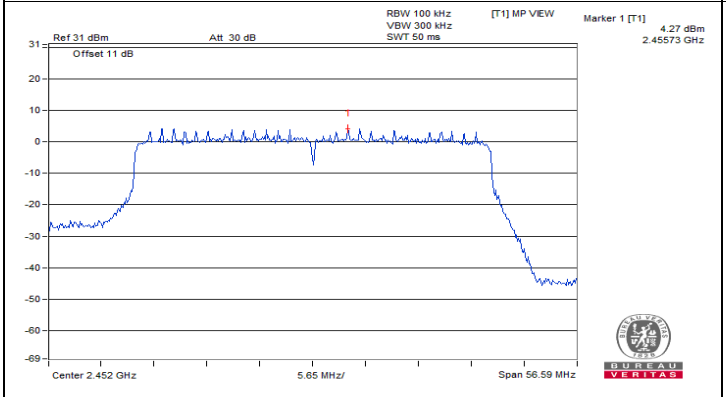
Chain 1 : CH 3



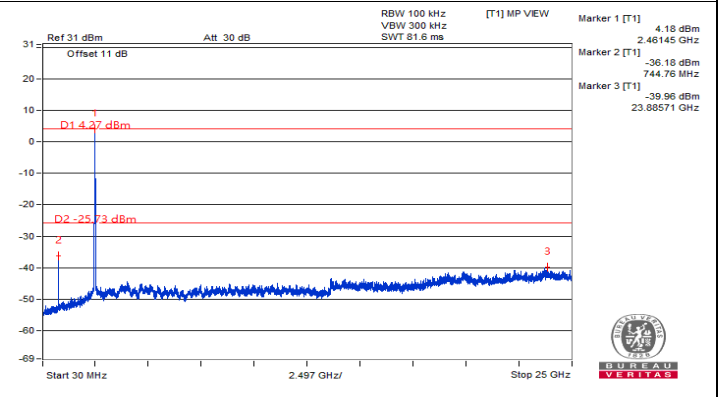
Chain 1 : CH 6



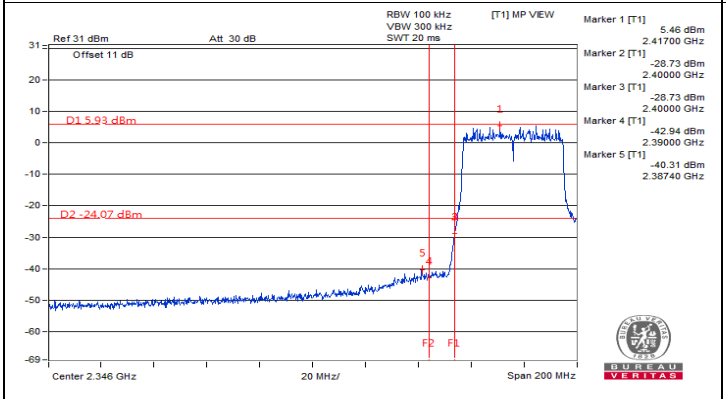
Chain 1 : CH 6



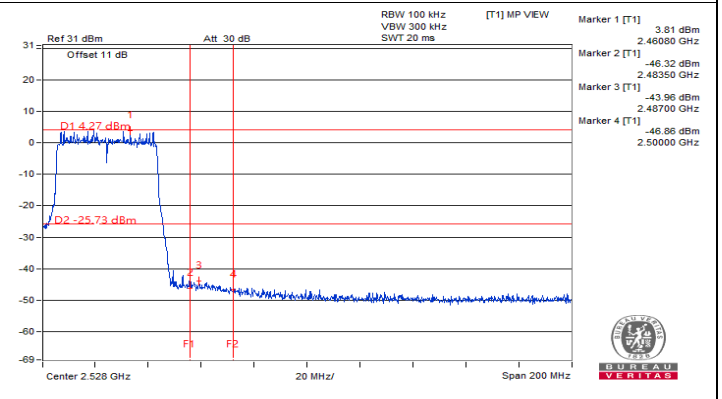
Chain 1 : CH 9



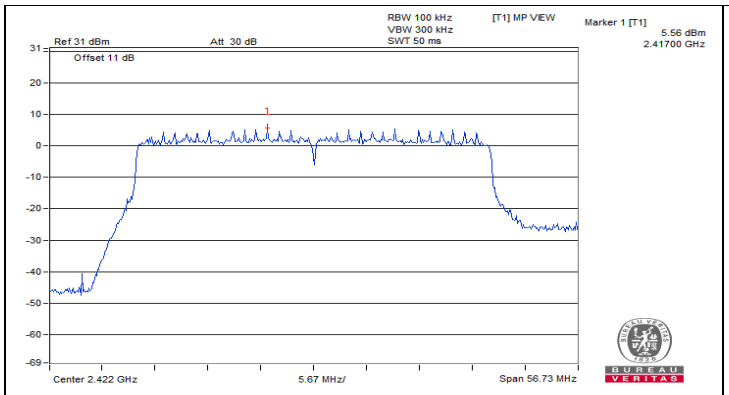
Chain 1 : CH 9



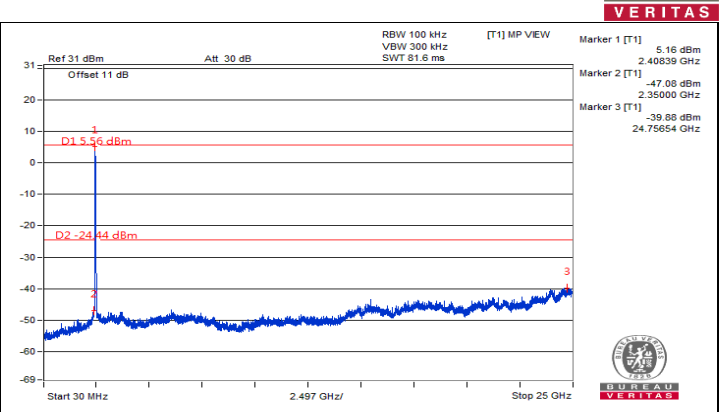
Chain 1 : CH 3 Band edge



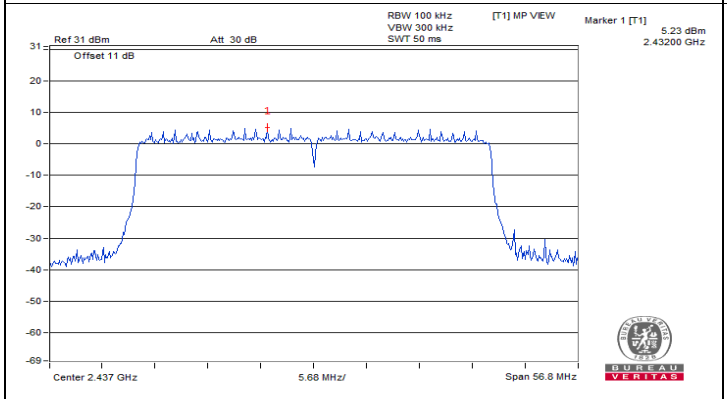
Chain 1 : CH 9 Band edge



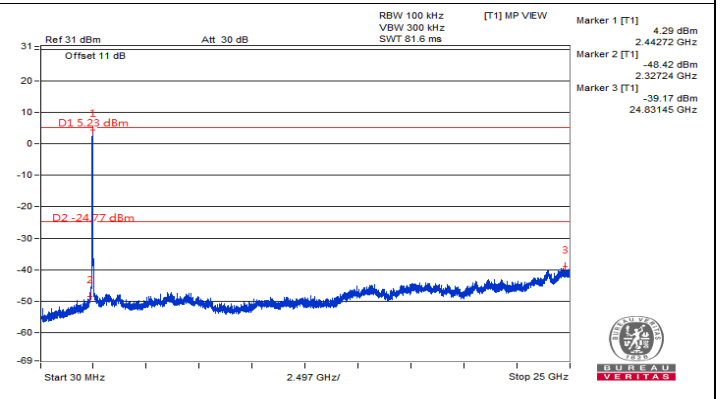
Chain 2 : CH 3



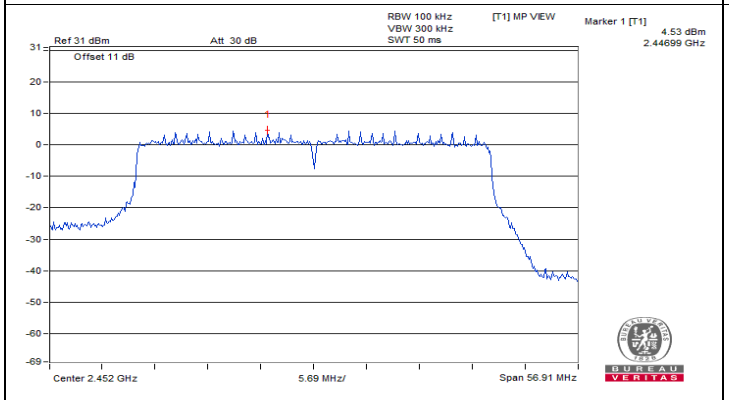
Chain 2 : CH 3



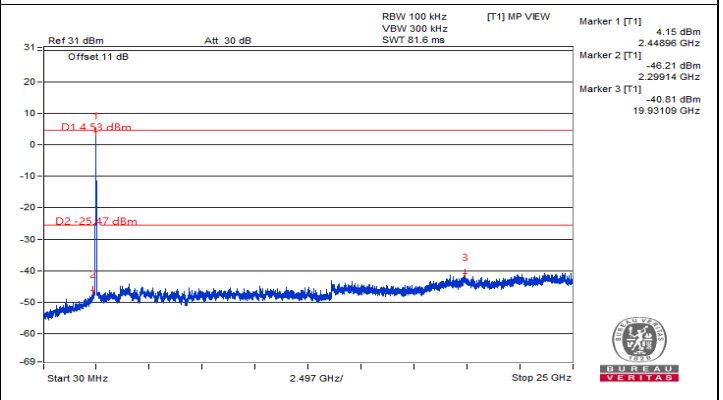
Chain 2 : CH 6



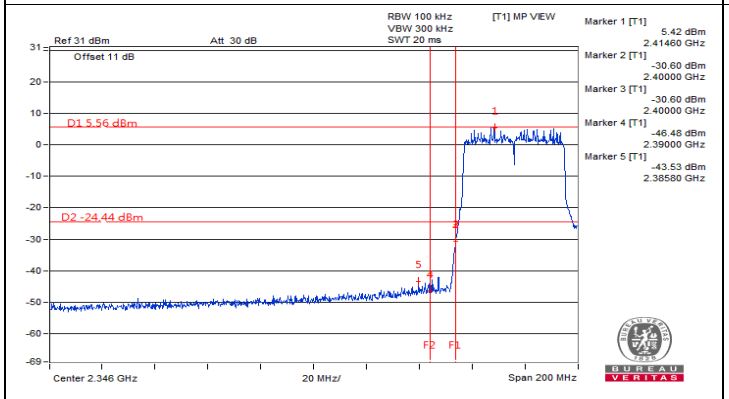
Chain 2 : CH 6



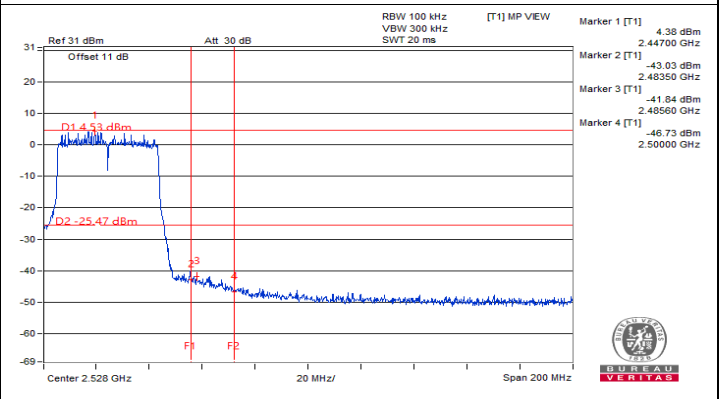
Chain 2 : CH 9



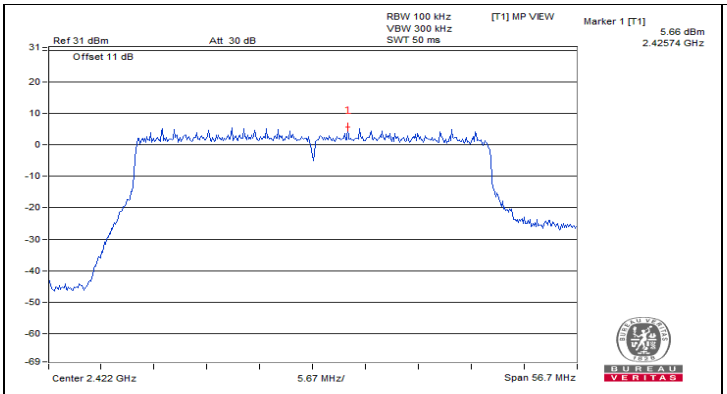
Chain 2 : CH 9



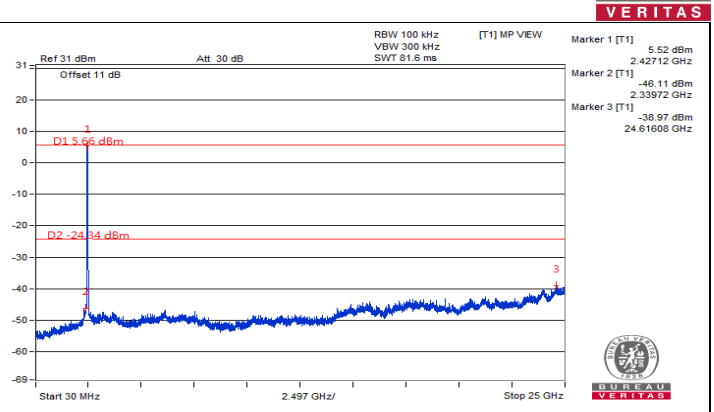
Chain 2 : CH 3 Band edge



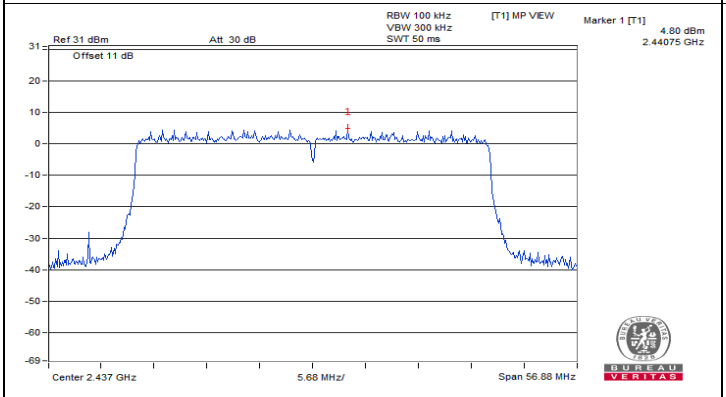
Chain 2 : CH 9 Band edge



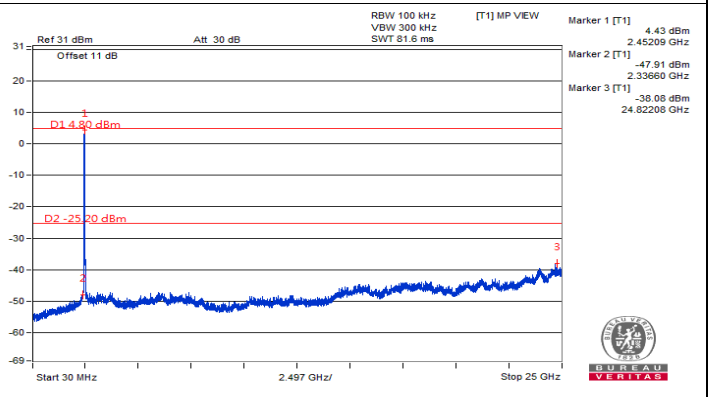
Chain 3 : CH 3



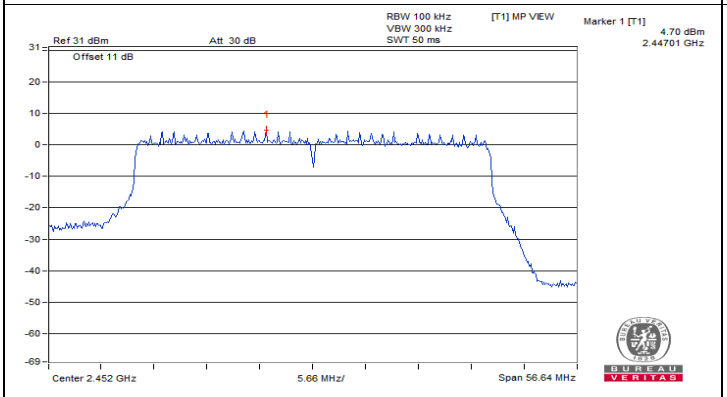
Chain 3 : CH 3



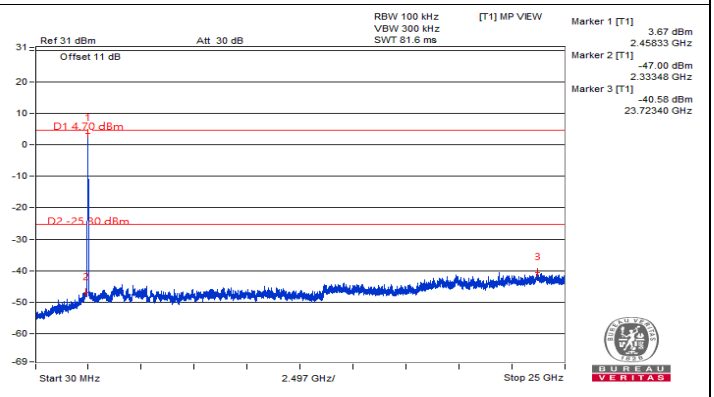
Chain 3 : CH 6



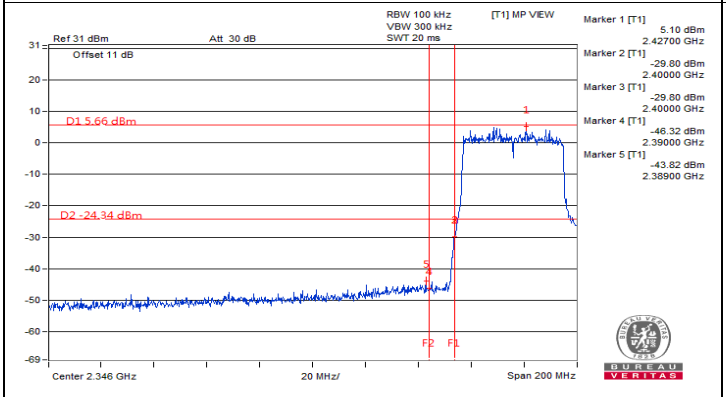
Chain 3 : CH 6



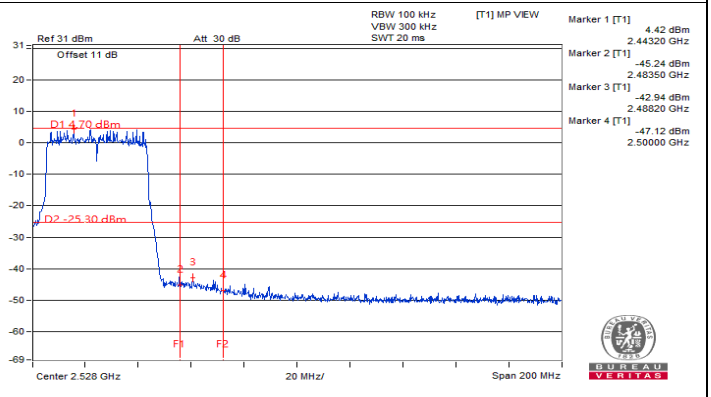
Chain 3 : CH 9



Chain 3 : CH 9



Chain 3 : CH 3 Band edge



Chain 3 : CH 9 Band edge

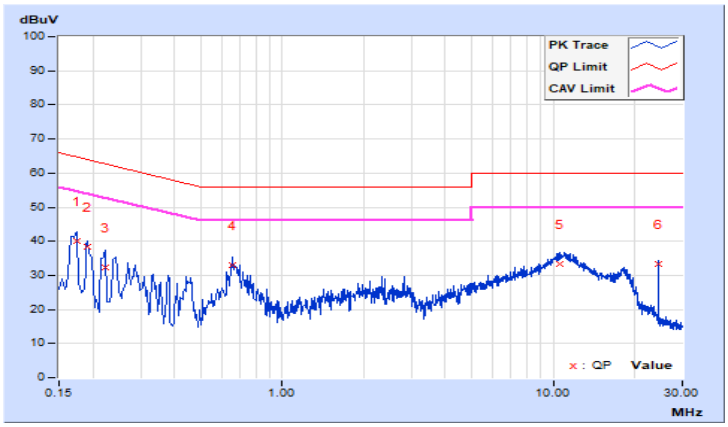
7.5 AC Power Conducted Emissions

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

Phase Of Power : Line (L)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.17384	9.70	30.46	17.06	40.16	26.76	64.77	54.77	-24.61	-28.01
2	0.19000	9.71	28.80	14.65	38.51	24.36	64.04	54.04	-25.53	-29.68
3	0.22200	9.73	22.64	10.10	32.37	19.83	62.74	52.74	-30.37	-32.91
4	0.65400	9.84	22.99	15.42	32.83	25.26	56.00	46.00	-23.17	-20.74
5	10.59000	10.05	23.17	16.25	33.22	26.30	60.00	50.00	-26.78	-23.70
6	**24.57800**	**10.23**	**23.17**	**23.07**	**33.40**	**33.30**	**60.00**	**50.00**	**-26.60**	**-16.70**

Remarks:

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

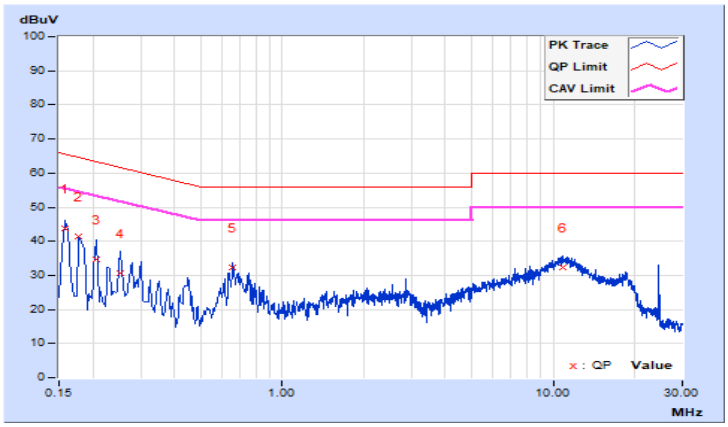


RF Mode	802.11b	**Channel**	CH 6：2437 MHz
Frequency Range	150kHz ~ 30MHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	23°C, 67% RH
Tested By	Adair Peng		

Phase Of Power : Neutral (N)										
No	**Frequency (MHz)**	**Correction Factor (dB)**	**Reading Value (dBuV)**		**Emission Level (dBuV)**		**Limit (dBuV)**		**Margin (dB)**	
			Q.P.	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**	**Q.P.**	**AV.**
1	0.15800	9.69	34.08	20.21	43.77	29.90	65.57	55.57	-21.80	-25.67
2	0.17800	9.70	31.71	17.57	41.41	27.27	64.58	54.58	-23.17	-27.31
3	0.20600	9.72	24.99	11.31	34.71	21.03	63.37	53.37	-28.66	-32.34
4	0.25400	9.74	20.76	11.03	30.50	20.77	61.63	51.63	-31.13	-30.86
5	0.65800	9.82	22.38	17.06	32.20	26.88	56.00	46.00	-23.80	-19.12
6	10.87400	10.09	22.35	15.96	32.44	26.05	60.00	50.00	-27.56	-23.95

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



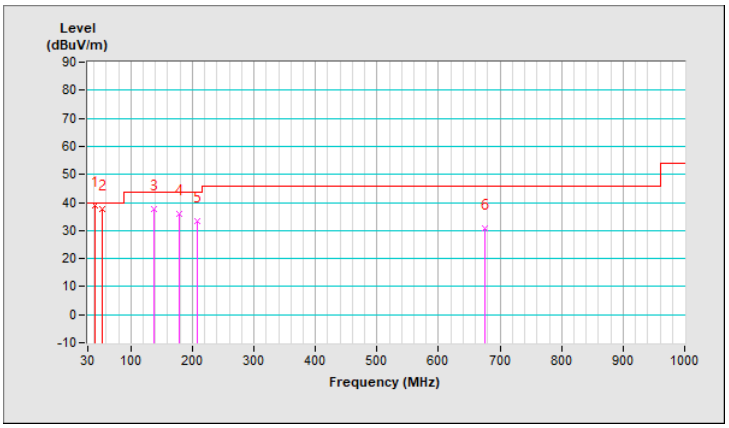
7.6 Unwanted Emissions below 1 GHz

RF Mode	802.11b	**Channel**	CH 6：2437 MHz
Frequency Range	9 kHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power	120Vac,60Hz	**Environmental Conditions**	23°C, 67% RH
Tested By	Adair Peng		

Antenna Polarity & Test Distance : Horizontal at								
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	**40.88**	**39.1 QP**	**40.0**	**-0.9**	**1.00 H**	**237**	**48.5**	**-9.4**
2	53.32	37.7 QP	40.0	-2.3	1.00 H	66	46.7	-9.0
3	137.67	37.5 QP	43.5	-6.0	1.00 H	48	46.8	-9.3
4	178.41	36.0 QP	43.5	-7.5	1.49 H	109	45.8	-9.8
5	207.51	33.4 QP	43.5	-10.1	1.49 H	113	44.8	-11.4
6	675.05	30.8 QP	46.0	-15.2	1.00 H	271	30.0	0.8

Remarks:

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

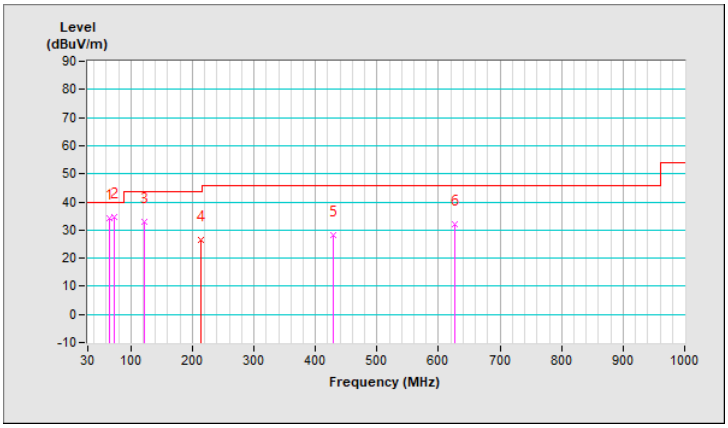


RF Mode	802.11b	**Channel**	CH 6：2437 MHz
Frequency Range	9 kHz ~ 1 GHz	**Detector Function & Bandwidth**	(QP) RB = 120kHz
Input Power	120Vac,60Hz	**Environmental Conditions**	23°C, 67% RH
Tested By	Adair Peng		

Antenna Polarity & Test Distance : Vertical at								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	65.89	34.1 QP	40.0	-5.9	1.49 V	260	44.5	-10.4
2	73.65	34.6 QP	40.0	-5.4	1.99 V	14	46.5	-11.9
3	122.15	33.0 QP	43.5	-10.5	1.00 V	14	43.9	-10.9
4	213.64	26.4 QP	43.5	-17.1	1.00 V	286	37.4	-11.0
5	429.64	28.2 QP	46.0	-17.8	1.99 V	131	31.9	-3.7
6	625.58	32.2 QP	46.0	-13.8	1.49 V	212	31.9	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 of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



7.7 Unwanted Emissions above 1 GHz

RF Mode	802.11b	**Channel**	CH 1：2412 MHz
Frequency Range	1 GHz ~ 25 GHz	**Detector Function & Bandwidth**	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	**Environmental Conditions**	20.9°C, 76.8% RH
Tested By	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	2385.20	63.1 PK	74.0	-10.9	1.88 H	322	29.4	33.7
2	2385.20	52.2 AV	54.0	-1.8	1.88 H	322	18.5	33.7
3	*2412.00	117.3 PK			1.88 H	322	83.6	33.7
4	*2412.00	115.1 AV			1.88 H	322	81.4	33.7
5	4824.00	51.5 PK	74.0	-22.5	1.93 H	200	41.2	10.3
6	4824.00	42.5 AV	54.0	-11.5	1.93 H	200	32.2	10.3
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	2385.20	64.2 PK	74.0	-9.8	1.55 V	43	30.5	33.7
2	2385.20	53.7 AV	54.0	-0.3	1.55 V	43	20.0	33.7
3	*2412.00	118.5 PK			1.55 V	43	84.8	33.7
4	*2412.00	116.1 AV			1.55 V	43	82.4	33.7
5	4824.00	52.0 PK	74.0	-22.0	2.64 V	268	41.7	10.3
6	4824.00	44.4 AV	54.0	-9.6	2.64 V	268	34.1	10.3

Remarks:

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

RF Mode	802.11b	Channel	CH 6：2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20.9°C, 76.8% RH
Tested By	Adair Peng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	119.1 PK			1.91 H	325	85.3	33.8
2	*2437.00	117.0 AV			1.91 H	325	83.2	33.8
3	2483.50	61.9 PK	74.0	-12.1	1.91 H	325	28.1	33.8
4	2483.50	50.1 AV	54.0	-3.9	1.91 H	325	16.3	33.8
5	4874.00	52.7 PK	74.0	-21.3	1.97 H	211	42.1	10.6
6	4874.00	43.0 AV	54.0	-11.0	1.97 H	211	32.4	10.6
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	*2437.00	120.4 PK			1.67 V	48	86.6	33.8
2	*2437.00	118.1 AV			1.67 V	48	84.3	33.8
3	2483.50	62.5 PK	74.0	-11.5	1.67 V	48	28.7	33.8
4	2483.50	51.1 AV	54.0	-2.9	1.67 V	48	17.3	33.8
5	4874.00	53.1 PK	74.0	-20.9	2.71 V	263	42.5	10.6
6	4874.00	44.9 AV	54.0	-9.1	2.71 V	263	34.3	10.6

Remarks:

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

RF Mode	802.11b	Channel	CH 11：2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20.9°C, 76.8% RH
Tested By	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	117.3 PK			1.86 H	319	83.4	33.9
2	*2462.00	114.9 AV			1.86 H	319	81.0	33.9
3	2488.10	62.7 PK	74.0	-11.3	1.86 H	319	28.9	33.8
4	2488.10	52.0 AV	54.0	-2.0	1.86 H	319	18.2	33.8
5	4924.00	52.5 PK	74.0	-21.5	2.07 H	220	42.0	10.5
6	4924.00	51.3 AV	54.0	-2.7	2.07 H	220	40.8	10.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	118.3 PK			1.79 V	70	84.4	33.9
2	*2462.00	115.9 AV			1.79 V	70	82.0	33.9
3	2488.10	64.4 PK	74.0	-9.6	1.79 V	70	30.6	33.8
4	2488.10	53.2 AV	54.0	-0.8	1.79 V	70	19.4	33.8
5	4924.00	53.1 PK	74.0	-20.9	2.26 V	264	42.6	10.5
6	4924.00	46.2 AV	54.0	-7.8	2.26 V	264	35.7	10.5

Remarks:

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

RF Mode	802.11g	Channel	CH 1：2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20.9°C, 76.8% RH
Tested By	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	65.0 PK	74.0	-9.0	2.58 H	211	31.3	33.7
2	2390.00	53.3 AV	54.0	-0.7	2.58 H	211	19.6	33.7
3	*2412.00	118.1 PK			2.58 H	211	84.4	33.7
4	*2412.00	108.4 AV			2.58 H	211	74.7	33.7
5	4824.00	49.9 PK	74.0	-24.1	2.10 H	229	39.6	10.3
6	4824.00	38.4 AV	54.0	-15.6	2.10 H	229	28.1	10.3
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	64.3 PK	74.0	-9.7	2.49 V	286	30.6	33.7
2	2390.00	51.6 AV	54.0	-2.4	2.49 V	286	17.9	33.7
3	*2412.00	119.8 PK			2.49 V	286	86.1	33.7
4	*2412.00	110.0 AV			2.49 V	286	76.3	33.7
5	4824.00	50.5 PK	74.0	-23.5	2.44 V	273	40.2	10.3
6	4824.00	39.0 AV	54.0	-15.0	2.44 V	273	28.7	10.3

Remarks:

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

RF Mode	802.11g	Channel	CH 6：2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20.9°C, 76.8% RH
Tested By	Adair Peng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	67.6 PK	74.0	-6.4	2.59 H	207	33.9	33.7
2	2390.00	53.1 AV	54.0	-0.9	2.59 H	207	19.4	33.7
3	*2437.00	122.8 PK			2.59 H	207	89.0	33.8
4	*2437.00	113.3 AV			2.59 H	207	79.5	33.8
5	2483.50	65.3 PK	74.0	-8.7	2.59 H	207	31.5	33.8
6	2483.50	51.5 AV	54.0	-2.5	2.59 H	207	17.7	33.8
7	4874.00	51.2 PK	74.0	-22.8	2.02 H	223	40.6	10.6
8	4874.00	39.2 AV	54.0	-14.8	2.02 H	223	28.6	10.6
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	65.7 PK	74.0	-8.3	2.72 V	297	32.0	33.7
2	2390.00	51.8 AV	54.0	-2.2	2.72 V	297	18.1	33.7
3	*2437.00	125.1 PK			2.72 V	297	91.3	33.8
4	*2437.00	115.1 AV			2.72 V	297	81.3	33.8
5	2483.50	66.0 PK	74.0	-8.0	2.72 V	297	32.2	33.8
6	2483.50	52.4 AV	54.0	-1.6	2.72 V	297	18.6	33.8
7	4874.00	51.9 PK	74.0	-22.1	2.49 V	271	41.0	10.9
8	4874.00	40.1 AV	54.0	-13.9	2.49 V	271	29.2	10.9

Remarks:

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

RF Mode	802.11g	Channel	CH 11：2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20.9°C, 76.8% RH
Tested By	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	117.3 PK			2.85 H	204	83.4	33.9
2	*2462.00	107.2 AV			2.85 H	204	73.3	33.9
3	2483.50	62.0 PK	74.0	-12.0	2.85 H	204	28.2	33.8
4	2483.50	50.3 AV	54.0	-3.7	2.85 H	204	16.5	33.8
5	4924.00	50.6 PK	74.0	-23.4	2.15 H	227	40.1	10.5
6	4924.00	38.7 AV	54.0	-15.3	2.15 H	227	28.2	10.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	118.7 PK			2.95 V	284	84.8	33.9
2	*2462.00	108.8 AV			2.95 V	284	74.9	33.9
3	2483.50	66.6 PK	74.0	-7.4	2.95 V	284	32.8	33.8
4	2483.50	53.5 AV	54.0	-0.5	2.95 V	284	19.7	33.8
5	4924.00	51.0 PK	74.0	-23.0	2.53 V	264	40.5	10.5
6	4924.00	39.0 AV	54.0	-15.0	2.53 V	264	28.5	10.5

Remarks:

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

RF Mode	802.11ax (HE20)	Channel	CH 1：2412 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20.9°C, 76.8% RH
Tested By	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	2388.00	63.8 PK	74.0	-10.2	2.52 H	229	30.1	33.7
2	2388.00	51.6 AV	54.0	-2.4	2.52 H	229	17.9	33.7
3	*2412.00	119.2 PK			2.52 H	229	85.5	33.7
4	*2412.00	106.9 AV			2.52 H	229	73.2	33.7
5	4824.00	51.1 PK	74.0	-22.9	2.19 H	235	40.8	10.3
6	4824.00	38.8 AV	54.0	-15.2	2.19 H	235	28.5	10.3
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2389.40	65.2 PK	74.0	-8.8	3.18 V	193	31.5	33.7
2	2389.40	53.4 AV	54.0	-0.6	3.18 V	193	19.7	33.7
3	*2412.00	122.7 PK			3.18 V	193	89.0	33.7
4	*2412.00	109.6 AV			3.18 V	193	75.9	33.7
5	4824.00	51.3 PK	74.0	-22.7	2.50 V	259	41.0	10.3
6	4824.00	39.0 AV	54.0	-15.0	2.50 V	259	28.7	10.3

Remarks:

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

RF Mode	802.11ax (HE20)	Channel	CH 6：2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20.9°C, 76.8% RH
Tested By	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	2388.20	68.1 PK	74.0	-5.9	3.22 H	212	34.4	33.7
2	2388.20	53.5 AV	54.0	-0.5	3.22 H	212	19.8	33.7
3	*2437.00	124.1 PK			3.22 H	212	90.3	33.8
4	*2437.00	112.5 AV			3.22 H	212	78.7	33.8
5	2486.40	67.7 PK	74.0	-6.3	3.22 H	212	33.9	33.8
6	2486.40	53.2 AV	54.0	-0.8	3.22 H	212	19.4	33.8
7	4874.00	50.7 PK	74.0	-23.3	1.96 H	219	40.1	10.6
8	4874.00	38.6 AV	54.0	-15.4	1.96 H	219	28.0	10.6
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	2388.20	67.6 PK	74.0	-6.4	3.62 V	277	33.9	33.7
2	2388.20	51.8 AV	54.0	-2.2	3.62 V	277	18.1	33.7
3	*2437.00	125.3 PK			3.62 V	277	91.5	33.8
4	*2437.00	113.3 AV			3.62 V	277	79.5	33.8
5	2486.40	69.2 PK	74.0	-4.8	3.62 V	277	35.4	33.8
6	**2486.40**	**53.8 AV**	**54.0**	**-0.2**	**3.62 V**	**277**	**20.0**	**33.8**
7	4874.00	51.0 PK	74.0	-23.0	2.56 V	263	40.4	10.6
8	4874.00	38.8 AV	54.0	-15.2	2.56 V	263	28.2	10.6

Remarks:

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

RF Mode	802.11ax (HE20)	Channel	CH 11：2462 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20.9°C, 76.8% RH
Tested By	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	117.2 PK			2.89 H	203	83.3	33.9
2	*2462.00	105.5 AV			2.89 H	203	71.6	33.9
3	2485.10	64.0 PK	74.0	-10.0	2.89 H	203	30.2	33.8
4	2485.10	52.4 AV	54.0	-1.6	2.89 H	203	18.6	33.8
5	4924.00	50.7 PK	74.0	-23.3	2.00 H	223	40.2	10.5
6	4924.00	38.7 AV	54.0	-15.3	2.00 H	223	28.2	10.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	118.3 PK			2.92 V	279	84.4	33.9
2	*2462.00	107.1 AV			2.92 V	279	73.2	33.9
3	2485.10	65.7 PK	74.0	-8.3	2.92 V	279	31.9	33.8
4	2485.10	53.6 AV	54.0	-0.4	2.92 V	279	19.8	33.8
5	4924.00	51.1 PK	74.0	-22.9	2.67 V	269	40.6	10.5
6	4924.00	39.0 AV	54.0	-15.0	2.67 V	269	28.5	10.5

Remarks:

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

RF Mode	802.11ax (HE40)	Channel	CH 3：2422 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20.9°C, 76.8% RH
Tested By	Adair Peng		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2386.60	62.3 PK	74.0	-11.7	2.51 H	213	28.6	33.7
2	2386.60	51.2 AV	54.0	-2.8	2.51 H	213	17.5	33.7
3	*2422.00	117.4 PK			2.51 H	213	83.7	33.7
4	*2422.00	103.8 AV			2.51 H	213	70.1	33.7
5	4844.00	51.1 PK	74.0	-22.9	2.17 H	232	40.7	10.4
6	4844.00	37.9 AV	54.0	-16.1	2.17 H	232	27.5	10.4
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2389.30	65.6 PK	74.0	-8.4	3.21 V	189	31.9	33.7
2	2389.30	53.4 AV	54.0	-0.6	3.21 V	189	19.7	33.7
3	*2422.00	119.1 PK			3.21 V	189	85.4	33.7
4	*2422.00	106.4 AV			3.21 V	189	72.7	33.7
5	4844.00	51.6 PK	74.0	-22.4	2.55 V	264	41.2	10.4
6	4844.00	38.2 AV	54.0	-15.8	2.55 V	264	27.8	10.4

Remarks:

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

RF Mode	802.11ax (HE40)	Channel	CH 6：2437 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20.9°C, 76.8% RH
Tested By	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	64.4 PK	74.0	-9.6	2.60 H	217	30.7	33.7
2	2390.00	50.2 AV	54.0	-3.8	2.60 H	217	16.5	33.7
3	*2437.00	116.7 PK			2.60 H	217	82.9	33.8
4	*2437.00	104.3 AV			2.60 H	217	70.5	33.8
5	2486.80	69.4 PK	74.0	-4.6	2.60 H	217	35.6	33.8
6	2486.80	53.3 AV	54.0	-0.7	2.60 H	217	19.5	33.8
7	4874.00	51.7 PK	74.0	-22.3	2.25 H	236	41.1	10.6
8	4874.00	38.6 AV	54.0	-15.4	2.25 H	236	28.0	10.6
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	2389.30	71.6 PK	74.0	-2.4	2.64 V	187	37.9	33.7
2	2389.30	52.8 AV	54.0	-1.2	2.64 V	187	19.1	33.7
3	*2437.00	119.4 PK			2.64 V	187	85.6	33.8
4	*2437.00	105.9 AV			2.64 V	187	72.1	33.8
5	2484.40	71.7 PK	74.0	-2.3	2.64 V	187	37.9	33.8
6	2484.40	53.6 AV	54.0	-0.4	2.64 V	187	19.8	33.8
7	4874.00	51.9 PK	74.0	-22.1	2.56 V	268	41.3	10.6
8	4874.00	38.9 AV	54.0	-15.1	2.56 V	268	28.3	10.6

Remarks:

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

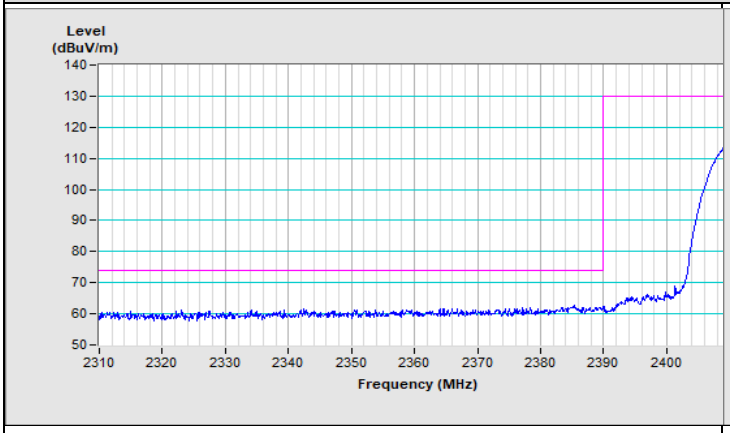
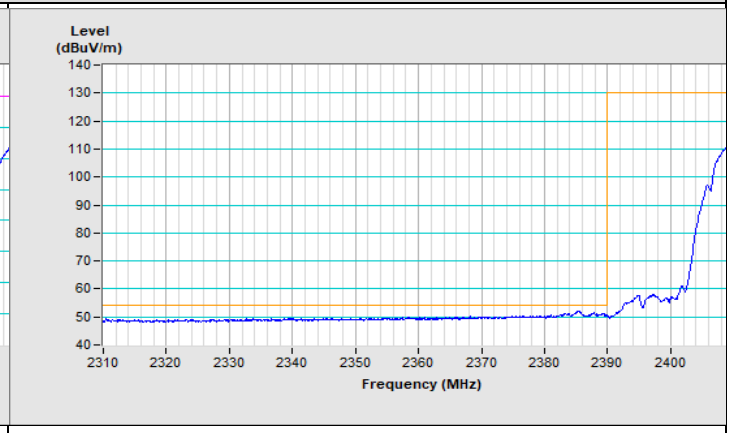
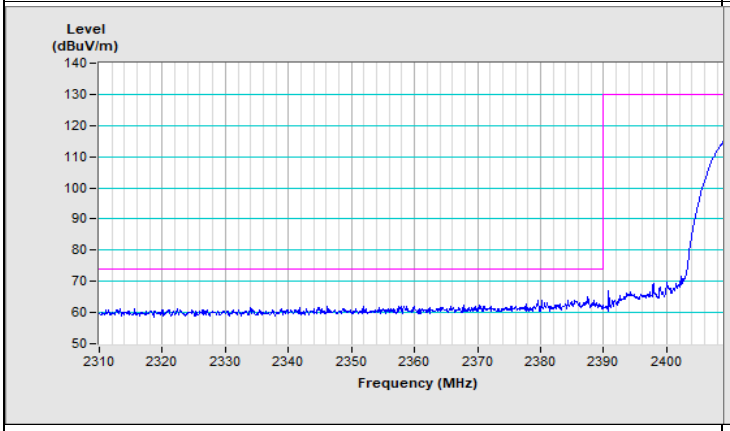
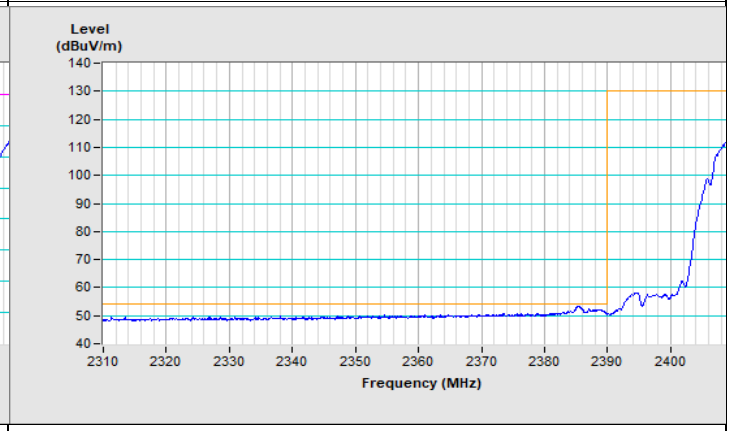
RF Mode	802.11ax (HE40)	Channel	CH 9：2452 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 10 Hz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20.9°C, 76.8% RH
Tested By	Adair Peng		

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	114.7 PK			2.93 H	219	80.9	33.8
2	*2452.00	102.8 AV			2.93 H	219	69.0	33.8
3	2486.20	65.2 PK	74.0	-8.8	2.93 H	219	31.4	33.8
4	2486.20	53.1 AV	54.0	-0.9	2.93 H	219	19.3	33.8
5	4904.00	51.5 PK	74.0	-22.5	2.14 H	238	41.0	10.5
6	4904.00	38.7 AV	54.0	-15.3	2.14 H	238	28.2	10.5
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	115.1 PK			2.49 V	279	81.3	33.8
2	*2452.00	103.1 AV			2.49 V	279	69.3	33.8
3	2485.00	65.4 PK	74.0	-8.6	2.49 V	279	31.6	33.8
4	**2485.00**	**53.8 AV**	**54.0**	**-0.2**	**2.49 V**	**279**	**20.0**	**33.8**
5	4904.00	51.7 PK	74.0	-22.3	2.48 V	259	41.2	10.5
6	4904.00	38.9 AV	54.0	-15.1	2.48 V	259	28.4	10.5

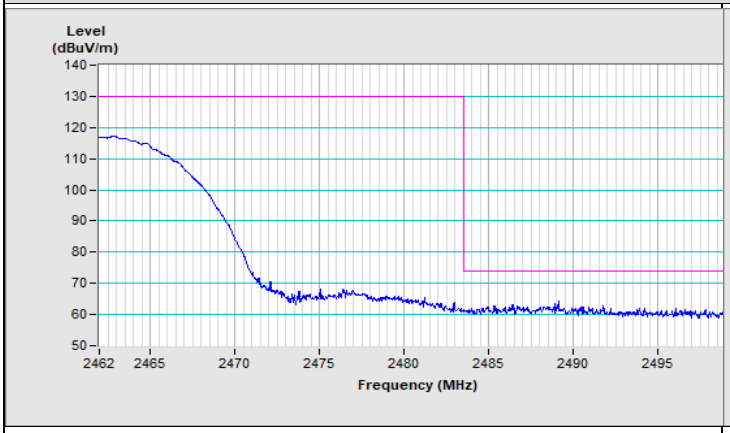
Remarks:

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

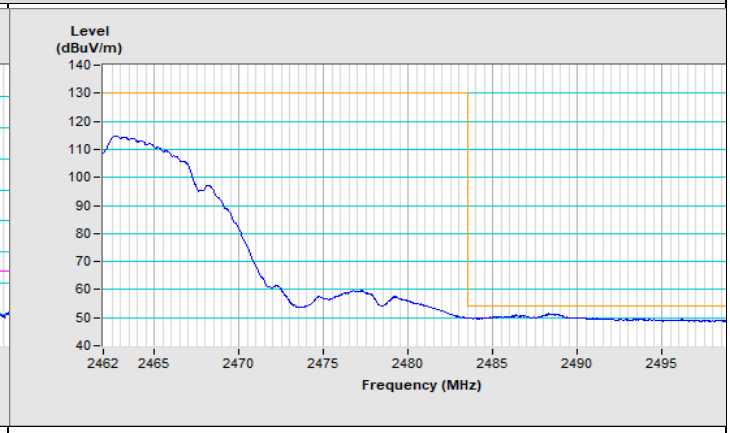
Plot of Band Edge

802.11b Channel 1	
	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)

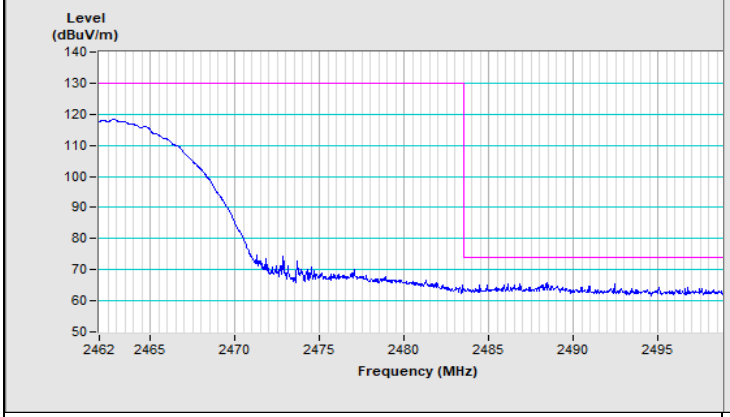
802.11b Channel 11



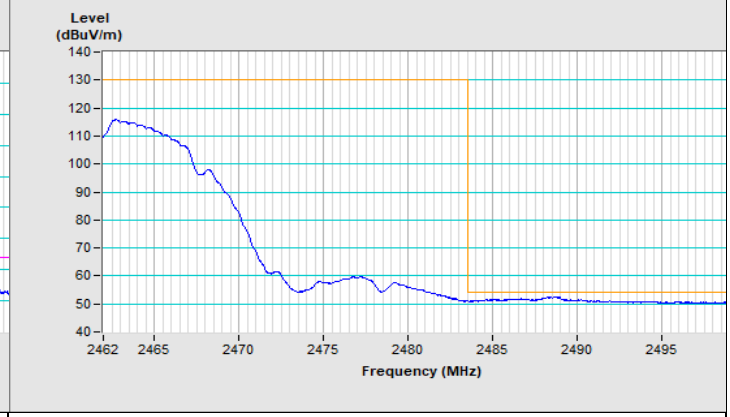
Horizontal (Peak)



Horizontal (Average)

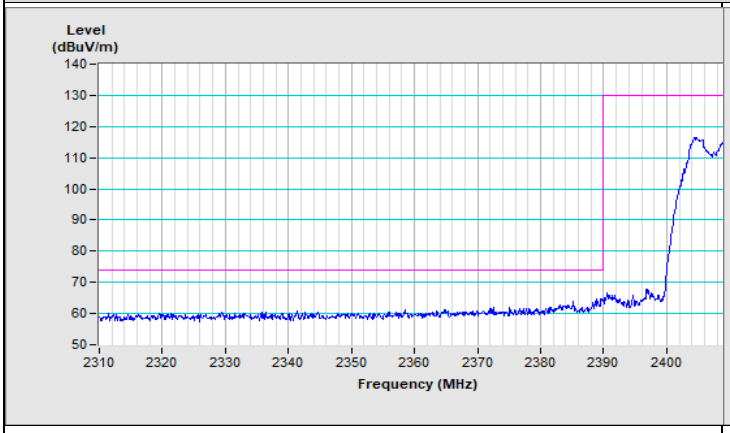


Vertical (Peak)

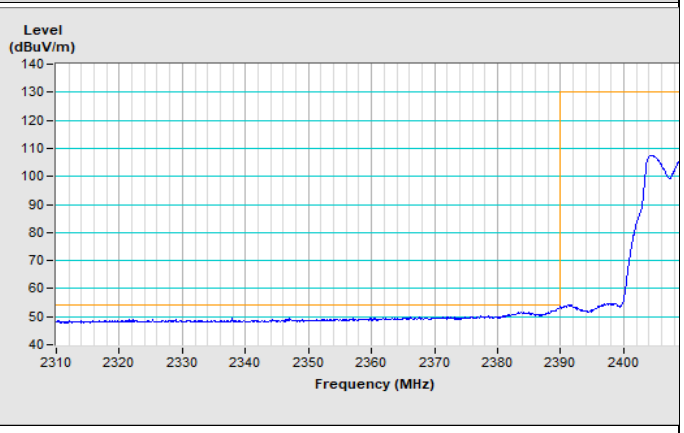


Vertical (Average)

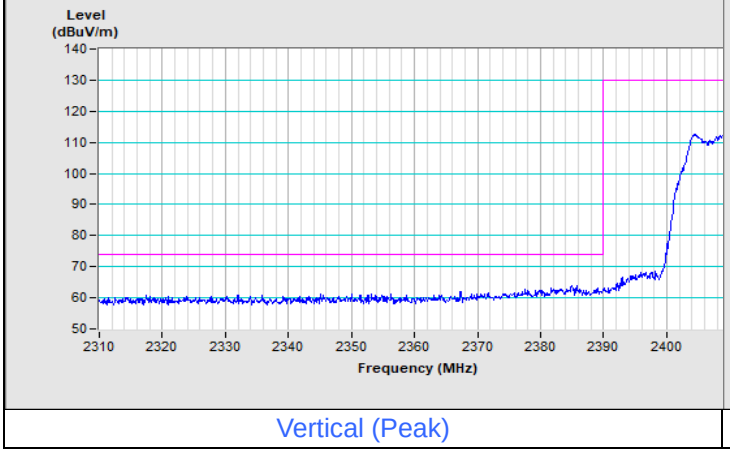
802.11g Channel 1



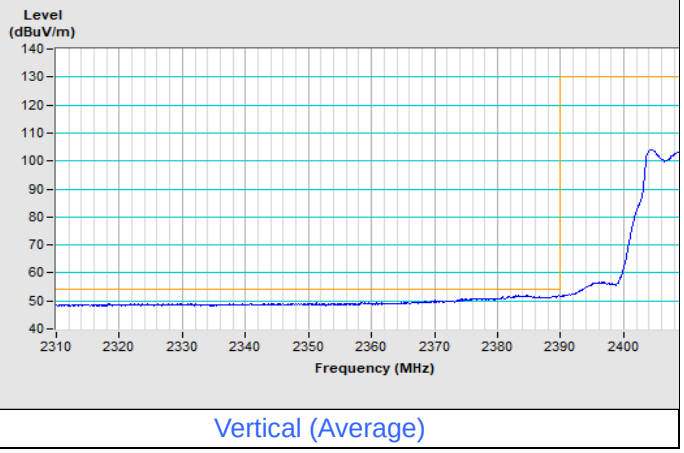
Horizontal (Peak)



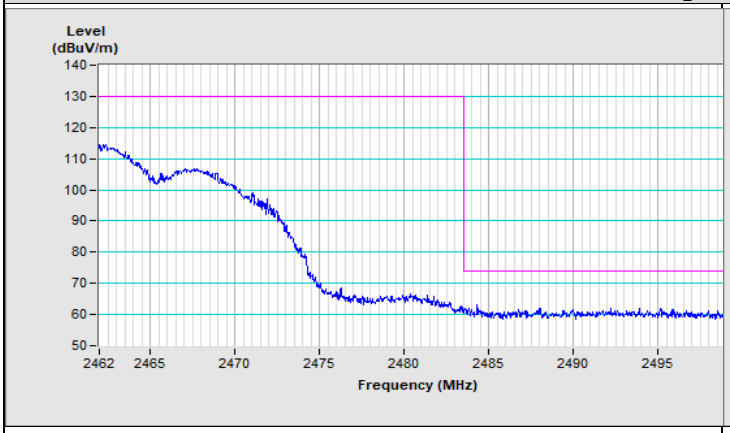
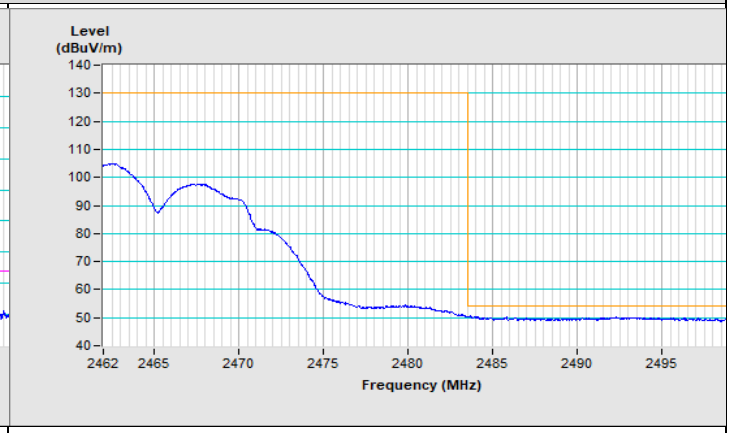
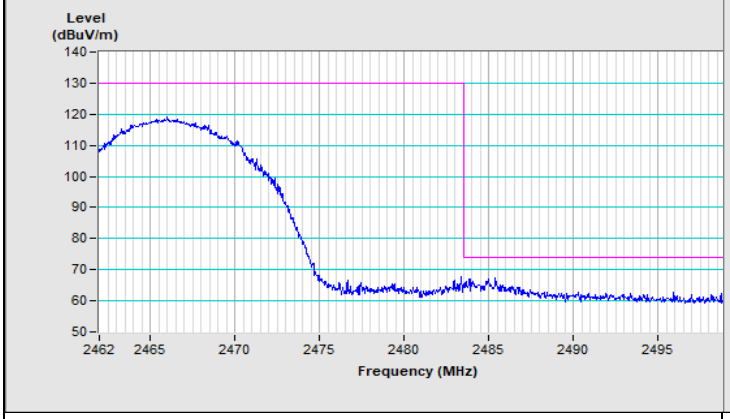
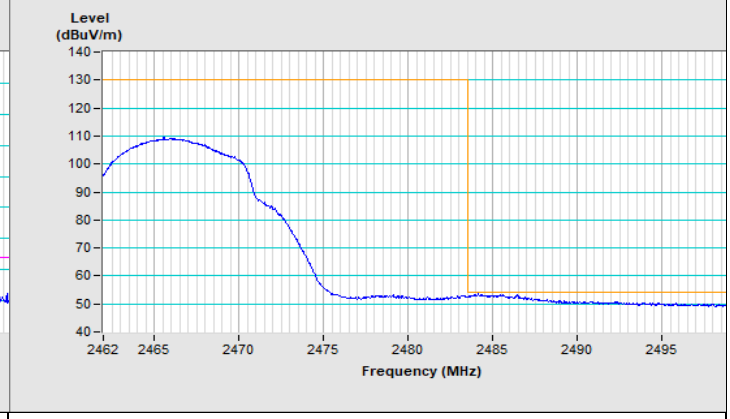
Horizontal (Average)



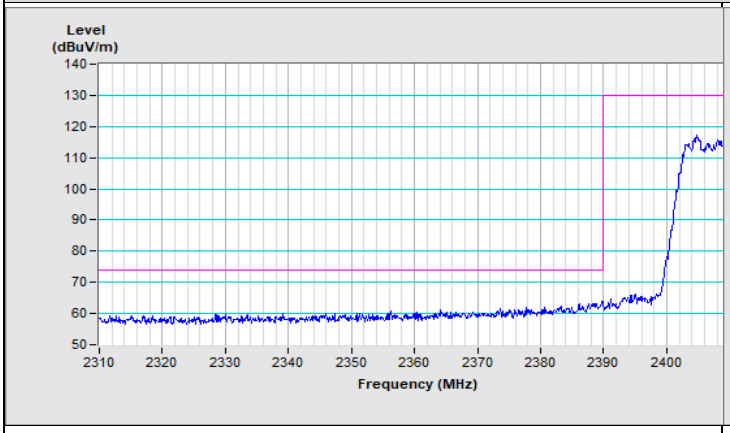
Vertical (Peak)



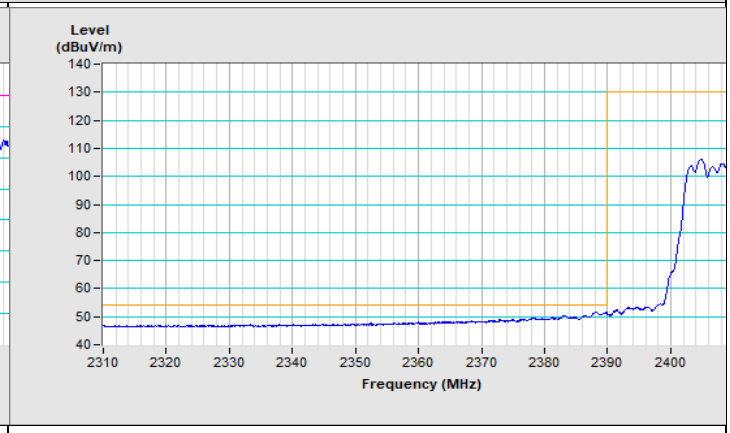
Vertical (Average)

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

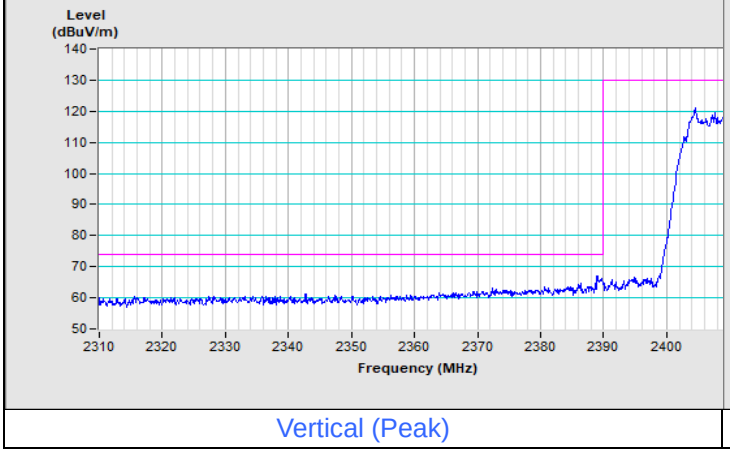
802.11ax (HE20) Channel 1



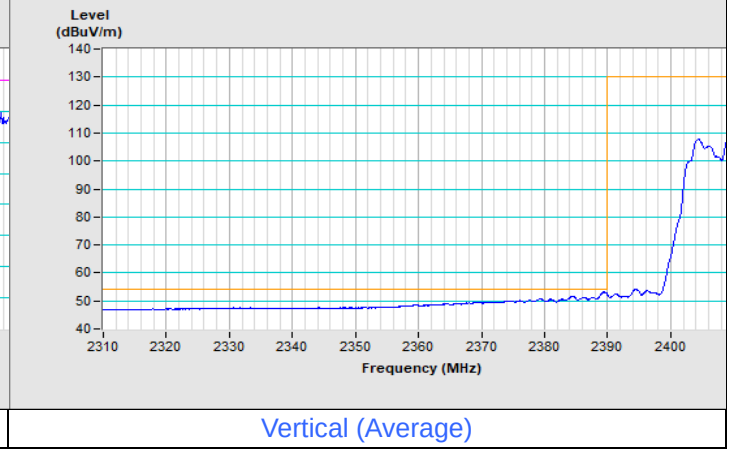
Horizontal (Peak)



Horizontal (Average)

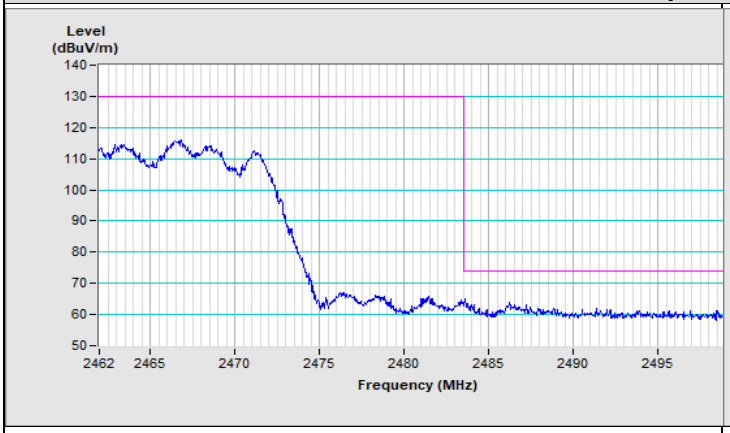


Vertical (Peak)

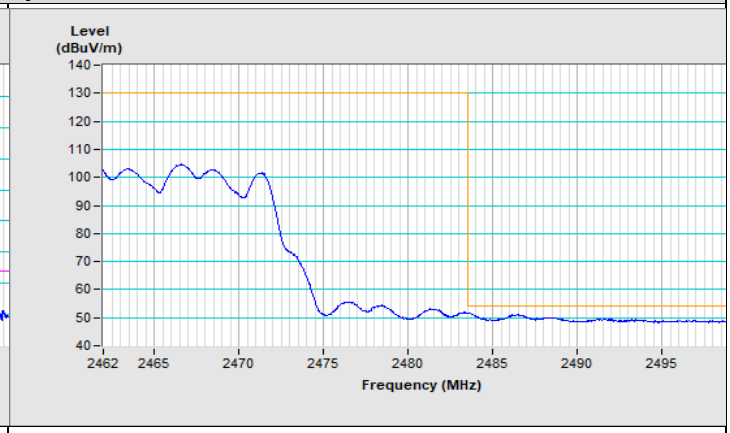


Vertical (Average)

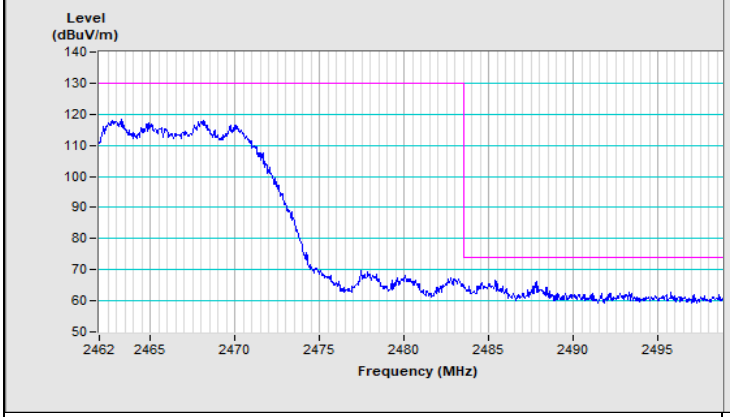
802.11ax (HE20) Channel 11



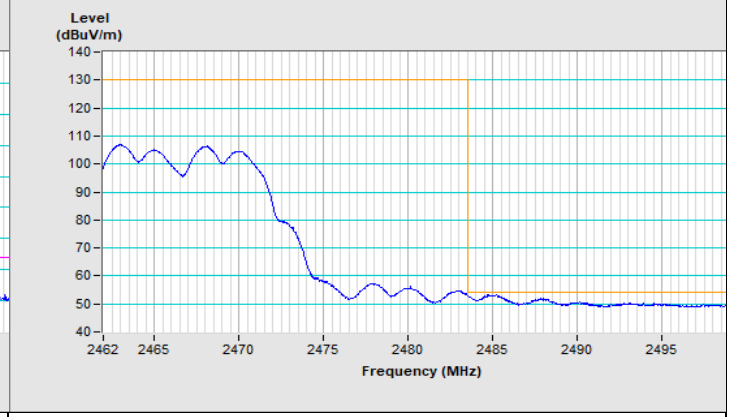
Horizontal (Peak)



Horizontal (Average)

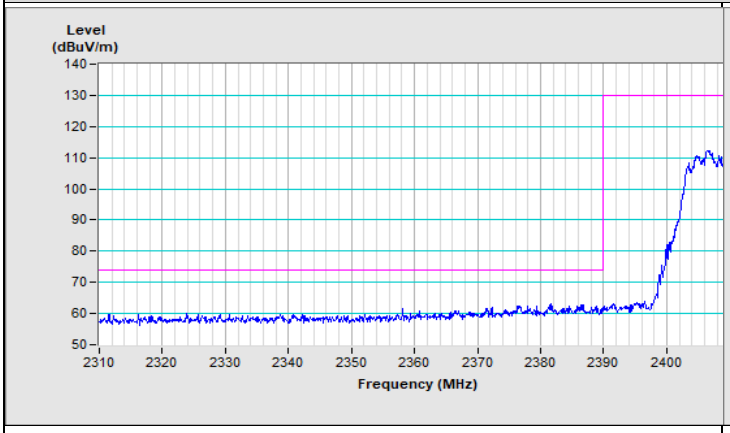


Vertical (Peak)

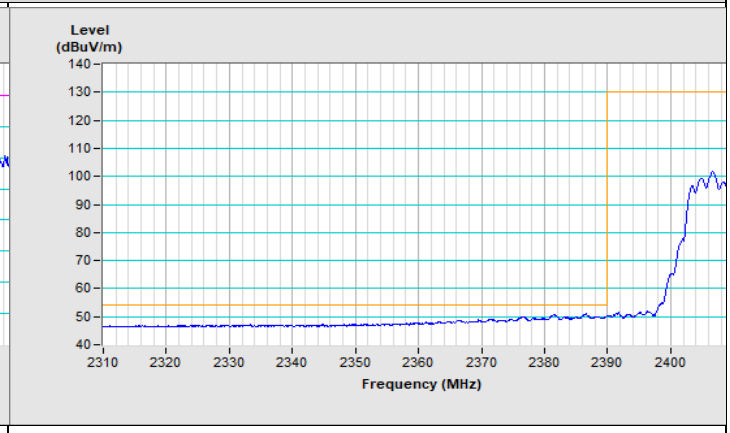


Vertical (Average)

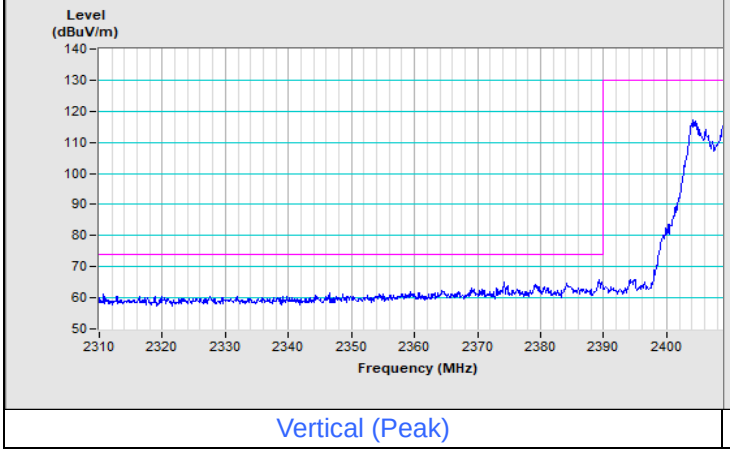
802.11ax (HE40) Channel 3



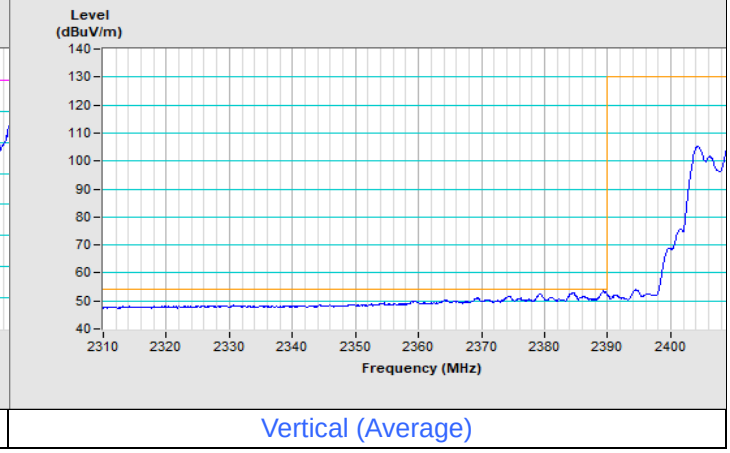
Horizontal (Peak)



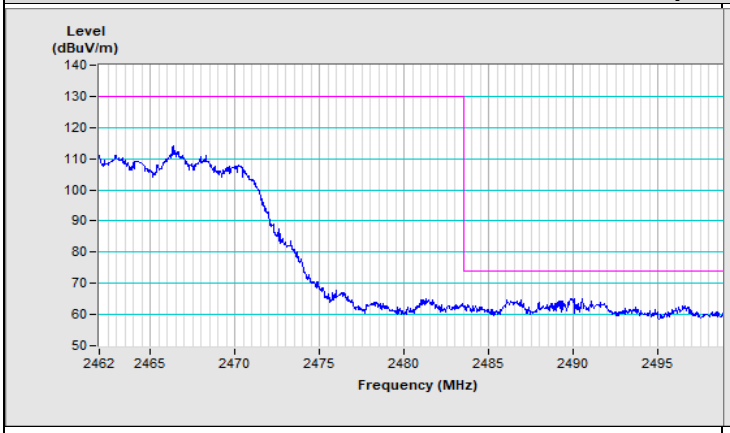
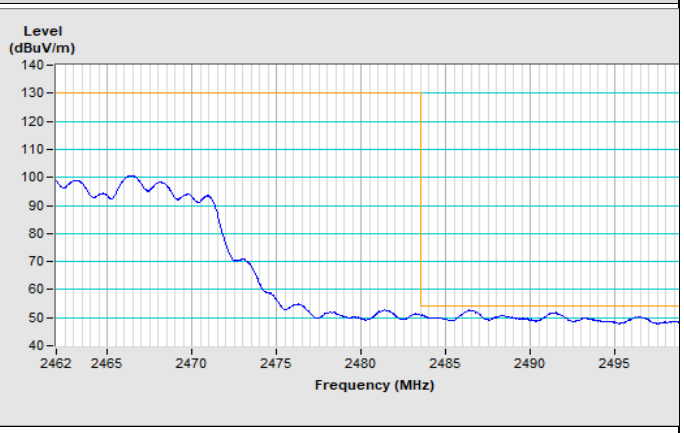
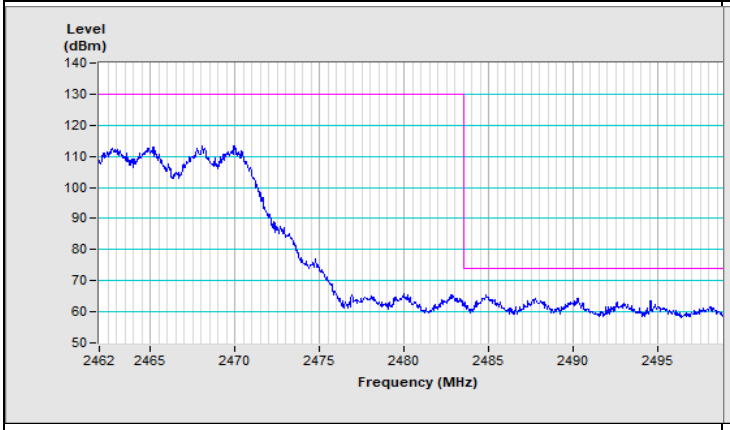
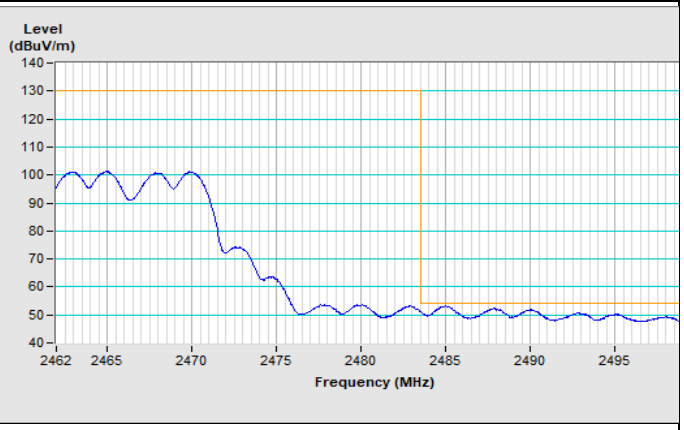
Horizontal (Average)



Vertical (Peak)



Vertical (Average)

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

8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

9 Information of the Testing Laboratories

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

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

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

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