FCC Test Report

Report No.:	RFBDYS-WTW-P21091059
FCC ID:	TVE-4617T06785
Test Model:	FAP-433F (refer to item 3.1 for more details)
Series Model:	FortiAP 433Fxxxxxx, FAP-433Fxxxxxx, FORTIAP-433Fxxxxxx (where “x” can be used as “A-Z”, or “0-9”, or “-”, or blank for software changes or marketing purposes only) (refer to item 3.1 for more details)
Received Date:	Dec. 16, 2021
Test Date:	Dec. 16, 2021 ~ Jul. 04, 2022
Issued Date:	Sep. 13, 2022
Applicant:	Fortinet Inc.
Address:	899 Kifer Road Sunnyvale, CA 94086 USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location (1):	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number(1):	788550 / TW0003
Test Location (2):	No. 70, Wenming Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
FCC Registration / Designation Number(2):	281270 / TW0032

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Release Control Record

Issue No.	Description	Date Issued
RFBDYS-WTW-P21091059	Original release	Sep. 13, 2022

1 Certificate of Conformity

Product:	Secured Wireless Access Point
Brand:	Fortinet
Test Model:	FAP-433F (refer to item 3.1 for more details)
Series Model:	FortiAP 433Fxxxxxx, FAP-433Fxxxxxx, FORTIAP-433Fxxxxxx (where “x” can be used as “A-Z”, or “0-9”, or “-”, or blank for software changes or marketing purposes only) (refer to item 3.1 for more details)
Sample Status:	Engineering sample
Applicant:	Fortinet Inc.
Test Date:	Dec. 16, 2021 ~ Jul. 04, 2022
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) ANSI C63.10:2013

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.

Prepared by : Pettie Chen , **Date:** Sep. 13, 2022

Pettie Chen / Senior Specialist

Approved by : Jeremy Lin , **Date:** Sep. 13, 2022

Jeremy Lin / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -7.95dB at 0.53800MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.9dB at 2390.00MHz.
15.247(d)	Antenna Port Emission	Pass	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	Pass	Meet the requirement of limit.
15.247(b)	Conducted power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is RPSMA. (The device is professionally installed)

Note:

1. For 2.4G band compliance with rule 15.247(d) of the band-edge items, the test plots were recorded in Annex A. Test Procedures refer to report 4.1.3.
2. 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	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.00 dB
	30MHz ~ 200MHz	2.91 dB
	200MHz ~1000MHz	2.92 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	1.76 dB
	18GHz ~ 40GHz	1.77 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Secured Wireless Access Point
Brand	Fortinet
Test Model	FAP-433F
Series Model	FortiAP 433Fxxxxxx, FAP-433Fxxxxxx, FORTIAP-433Fxxxxxx (where “x” can be used as “A-Z”, or “0-9”, or “-”, or blank for software changes or marketing purposes only)
Model Difference	Refer to note
Sample Status	Engineering sample
Power Supply Rating	12Vdc from Adapter 54Vdc from PoE
Modulation Type	802.11b: BPSK, QPSK, CCK 802.11g/n: BPSK, QPSK, 16QAM, 64QAM 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM 802.11ax: BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM
Modulation Technology	DSSS, OFDM, OFDMA
Transfer Rate	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11n (HT20/40): 6.5 to 600Mbps (MCS0 to MCS31) 802.11ac (VHT20/40): 6.5 to 1733Mbps (MCS0 to MCS9, NSS=1 to 4) 802.11ax: 9 to 1148Mbps (MCS0 to MCS11, NSS=1 to 4)
Operating Frequency	2412~2462MHz
Number of Channel	2GHz traffic radio: 802.11b, 802.11g, 802.11n (HT20), 802.11ac (VHT20) , 802.11ax (HE20): 11 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 7 Scanning radio: 802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7
Output Power	Ant. Model: FANT-04ABGN-0606-O-R CDD Mode: 800.776mW Beamforming Mode: 238.207mW Ant. Model: FANT-04ABGN-0606-P-R CDD Mode: 767.742mW Beamforming Mode: 245.592mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Cable Supplied	NA

Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report of BV CPS report no.: RF191111C01. Differences compared with the original report are removing model: FAP-431F series and adding two antennas. Therefore, the EUT with new antennas were tested and presented in the test report.
2. The following models are provided to this EUT. The model FAP-433F was chosen for final test.

Brand	Test Model	Series Model	Difference
Fortinet	FAP-433F	FortiAP 433Fxxxxxx, FAP-433Fxxxxxx, FORTIAP-433Fxxxxxx (where “x” can be used as “A-Z”, or “0-9”, or “-”, or blank for software changes or marketing purposes only)	external antenna

3. The EUT incorporates a MIMO function. Physically, the 2G traffic radio of EUT provides 4 completed transmitters and 4 receivers. The Scanning radio of EUT provides 1 completed transmitter and 1 receiver.

Modulation Mode	CDD Mode	Beamforming Mode	TX Function	Radio
802.11b	Support	Not Support	4TX	2G traffic radio
802.11g	Support	Not Support	4TX	
802.11n (HT20)	Support	Not Support	4TX	
802.11n (HT40)	Support	Not Support	4TX	
VHT20	Support	Support	4TX	
VHT40	Support	Support	4TX	
802.11ax (HE20)	Support	Support	4TX	
802.11ax (HE40)	Support	Support	4TX	
802.11b	Support	Not Support	1TX	Scanning radio
802.11g	Support	Not Support	1TX	
802.11n (HT20)	Support	Not Support	1TX	
802.11n (HT40)	Support	Not Support	1TX	

* The bandwidth and modulation are similar for HT20/HT40 on 802.11n mode and VHT20/VHT40 on 802.11ac mode and HE20/HE40 on 802.11ax mode. Therefore the investigated worst case is the representative mode in test report. (Final test mode refer section 3.2.1)

* For 802.11n/ax, CDD mode and Beamforming mode are presented in power output test item. For other test items, CDD mode is the worst case for final tests after pretesting.

* The EUT supports Full RU only.

4. The EUT consumes power from the following adapter and POE.

Adapter (support units only)	
Brand	Asian Power Devices Inc.
Model	WA-30J12R
Input Power	100-240Vac, 50-60Hz, 0.9A MAX
Output Power	12Vdc, 2.5A
Power Line	1.5m cable without core attached on adapter

POE (support units only)	
Brand	EnGenius
Model	EPA5006GAT
Input Power	100-240Vac, 50-60Hz, 0.8A
Output Power	54Vdc, 0.6A PIN 4,5:54Vdc PIN 7,8:RETURN

5. The following antennas were provided to the EUT.

Antenna Type	PIFA					
Antenna Connector	IPEX					
Antenna No.	Gain (dBi)					
	2400MHz	2450MHz	2500MHz	5150MHz	5500MHz	5850MHz
BT	4.23	4.66	4.71	-	-	-

For External Antenna (Original)

Antenna Type	Dipole					
Antenna Connector	SMA					
Gain (dBi)	Frequency					
	2400MHz	2450MHz	2500MHz	5150MHz	5500MHz	5850MHz
Ext. Ant.	3.88	3.33	4	6.01	6.18	6.2

Optional Antennas (New): New antennas are for connection to WLAN A1/A2/A3/A4

Ant. Type	Connector Type	Gain (dBi)	Frequency				
			2.4G	5G B1	5G B2	5G B3	5G B4
Omni	4 RPSMA	FANT-04ABGN-0606-O-R	6	6	6	6	6
Patch	4 RPSMA	FANT-04ABGN-0606-P-R	6	6	6	6	6

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

6. 2G traffic radio, 5GHz traffic radio and Scanning radio (5G) technologies can transmit at same time. But 5GHz traffic radio and Scanning radio (5G) cannot transmit in the same band at same time.
   2G traffic radio and Scanning radio (2.4G) cannot transmit at same time.

3.2 Description of Test Modes

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

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

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

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description	
	RE≥1G	RE<1G	PLC	APCM	Antenna Model	Power
A	√	√	√	√	FANT-04ABGN-0606-O-R	Power from adapter
B	-	√	√	-		Power from PoE
C	√	√	√	√	FANT-04ABGN-0606-P-R	Power from adapter
D	-	√	√	-		Power from PoE

Where RE≥1G: Radiated Emission above 1GHz & Bandedge Measurement RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission APCM: Antenna Port Conducted Measurement

Note:
1. The antenna of EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.
2. Radiated emission test (below 1GHz) and power line conducted emission test items chosen the worst maximum power.
3. "-": Means no effect.

Radiated Emission Test (Above 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
CDD Mode						
A, C	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
	802.11ax (HE20)	1 to 11	1, 6, 11	OFDMA	BPSK	MCS0
	802.11ax (HE40)	3 to 9	3, 6, 9	OFDMA	BPSK	MCS0

Radiated Emission Test (Below 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
CDD Mode						
A, B	802.11b	1 to 11	6	DSSS	DBPSK	1.0
C, D	802.11ax (HE20)	1 to 11	6	OFDMA	BPSK	MCS0

Power Line Conducted Emission Test:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
CDD Mode						
A, B	802.11b	1 to 11	6	DSSS	DBPSK	1.0
C, D	802.11ax (HE20)	1 to 11	6	OFDMA	BPSK	MCS0

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
CDD Mode						
A, C	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
	802.11ac (VHT20)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
	802.11ac (VHT40)	3 to 9	3, 6, 9	OFDM	BPSK	MCS0
	802.11ax (HE20)	1 to 11	1, 6, 11	OFDMA	BPSK	MCS0
	802.11ax (HE40)	3 to 9	3, 6, 9	OFDMA	BPSK	MCS0
Beamforming Mode						
A, C	802.11ac (VHT20)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
	802.11ac (VHT40)	3 to 9	3, 6, 9	OFDM	BPSK	MCS0
	802.11ax (HE20)	1 to 11	1, 6, 11	OFDMA	BPSK	MCS0
	802.11ax (HE40)	3 to 9	3, 6, 9	OFDMA	BPSK	MCS0

*802.11ac (VHT20), 802.11ac (VHT40) are for Conducted Power Measurement only.

Test Condition:

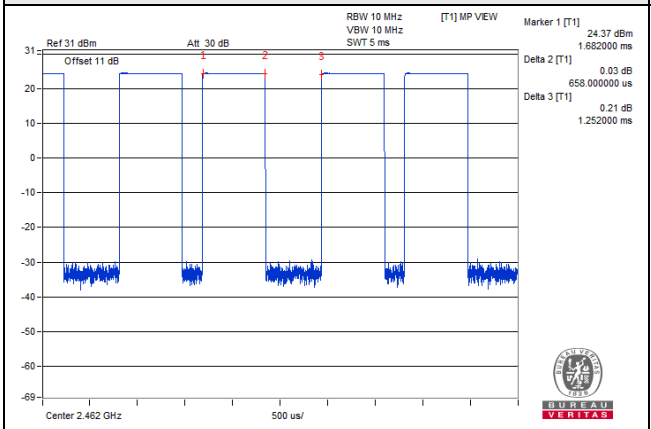
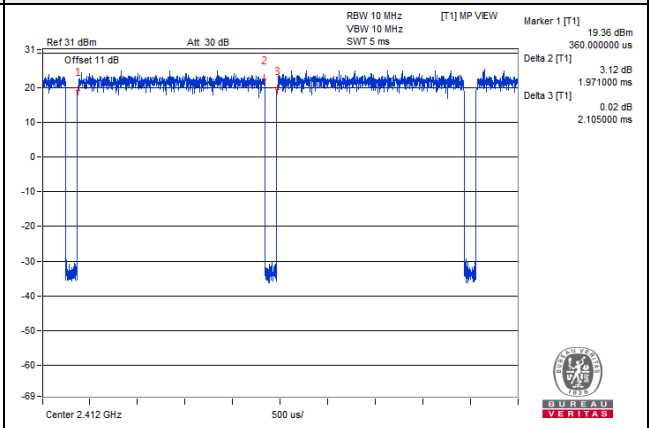
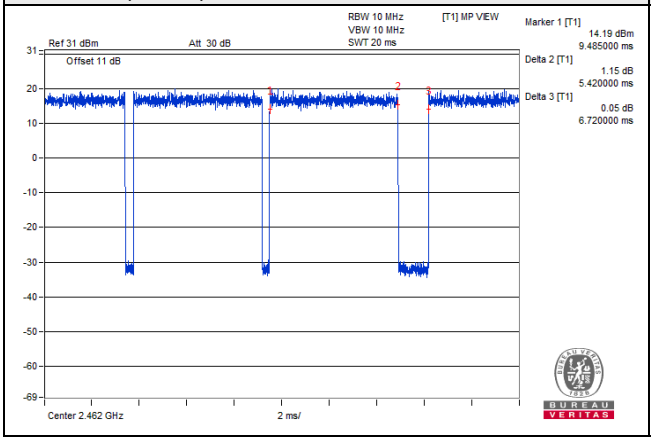
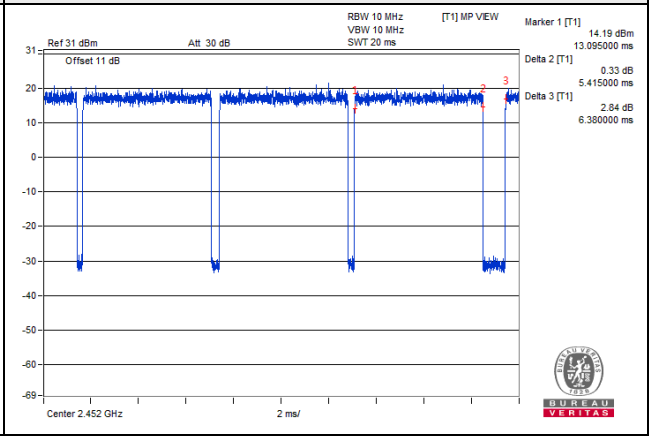
Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	21 deg. C, 68% RH	120Vac, 60Hz	Edison Lee
RE<1G	23 deg. C, 68% RH	120Vac, 60Hz	Adair Peng
PLC	25 deg. C, 75% RH	120Vac, 60Hz	Edison Lee
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Vincent Huang

3.3 Duty Cycle of Test Signal

Duty cycle of test signal is < 98%, duty factor is required.

Test Mode A

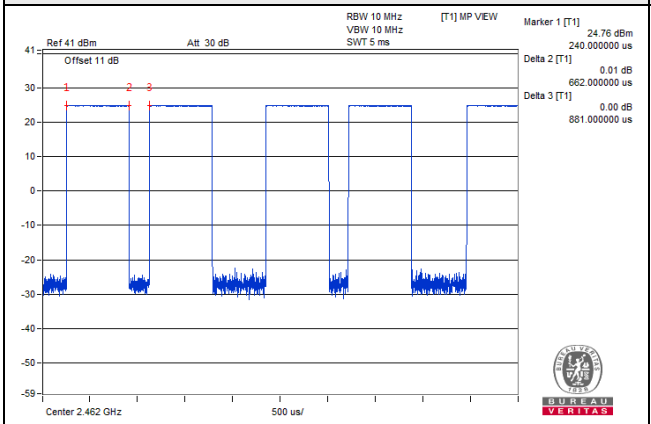
802.11b: Duty cycle = 0.658/1.252 = 0.526, Duty factor = 10 * log(1/0.526) = 2.79
802.11g: Duty cycle = 1.971/2.105 = 0.936, Duty factor = 10 * log(1/0.936) = 0.29
802.11ax (HE20): Duty cycle = 5.42/6.72 = 0.807, Duty factor = 10 * log(1/0.807) = 0.93
802.11ax (HE40): Duty cycle = 5.415/6.38 = 0.849, Duty factor = 10 * log(1/0.849) = 0.71

802.11b	802.11g
	
802.11ax (HE20)	802.11ax (HE40)
	

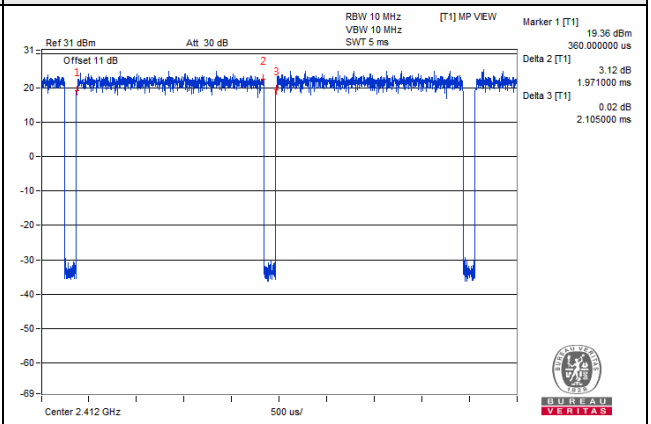
Test Mode C

802.11b: Duty cycle = 0.662/0.881 = 0.751, Duty factor = 10 * log(1/0.751) = 1.24
802.11g: Duty cycle = 1.971/2.105 = 0.936, Duty factor = 10 * log(1/0.936) = 0.29
802.11ax (HE20): Duty cycle = 5.415/6.455 = 0.839, Duty factor = 10 * log(1/0.839) = 0.76
802.11ax (HE40): Duty cycle = 5.42/6.465 = 0.838, Duty factor = 10 * log(1/0.838) = 0.77

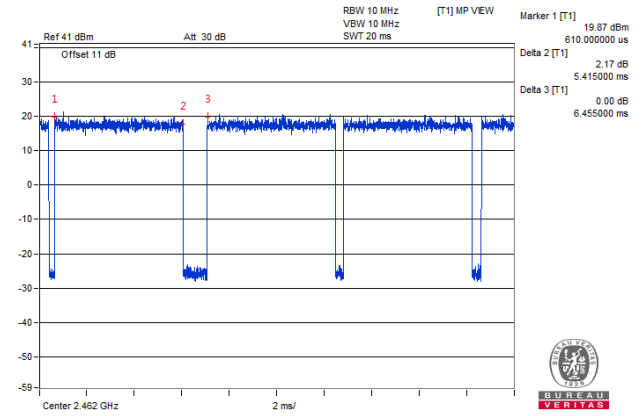
802.11b



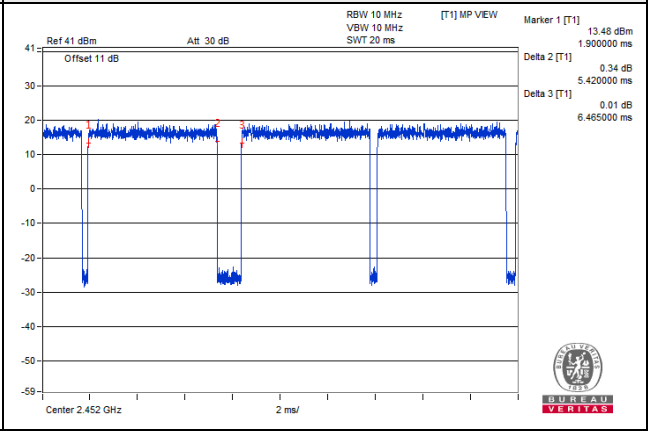
802.11g



802.11ax (HE20)



802.11ax (HE40)



3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	Lenovo	20J4 MD A003TW	PF-11H9AK	FCC DoC Approved	-
B.	Load	NA	NA	NA	NA	-
C.	Adapter	Asian Power Devices Inc.	WA-30J12R	NA	NA	Provided by client
D.	USB Flash	HP	v250W	10	NA	-
E.	POE	EnGenius	EPA5006GAT	NA	NA	Provided by client

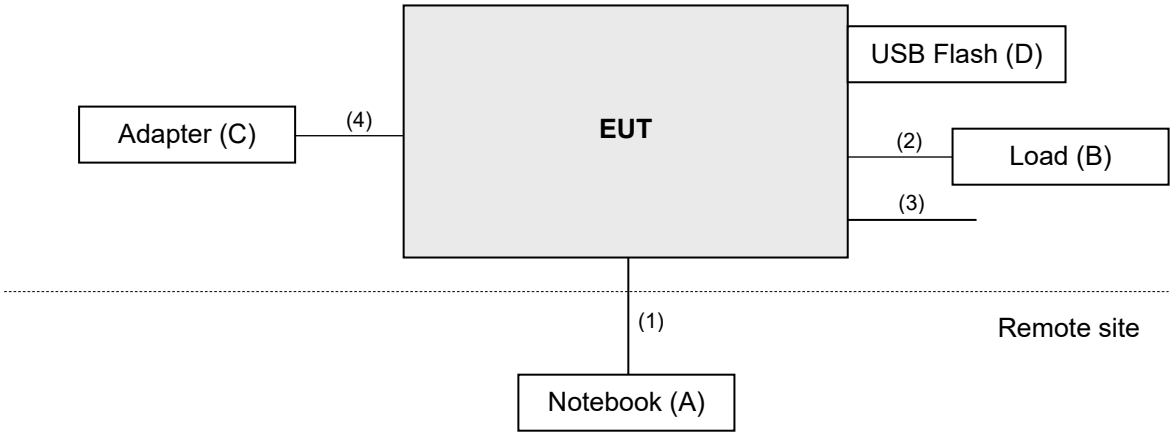
Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A, E acted as communication partners to transfer data.

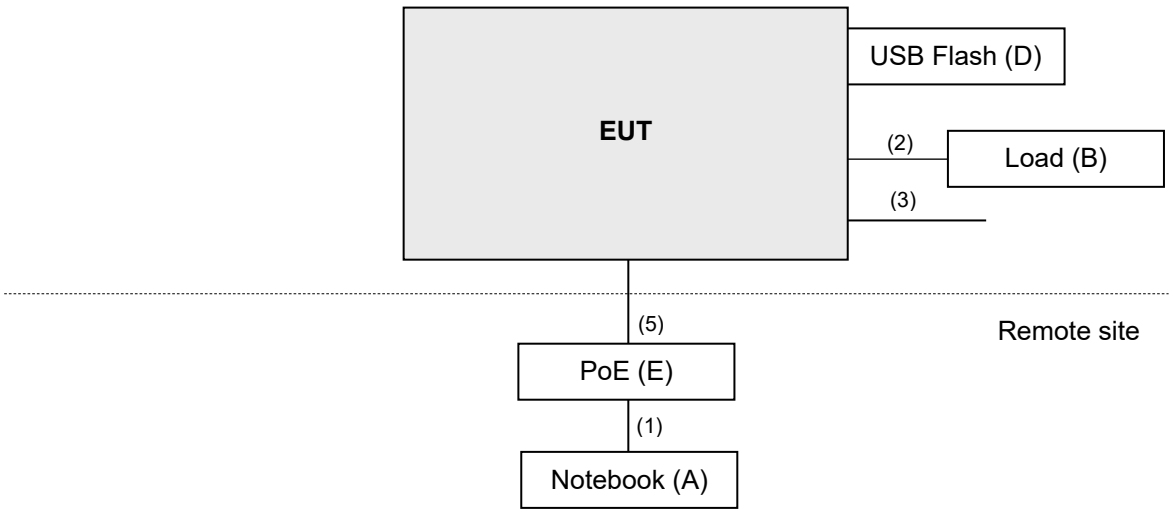
ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	LAN	1	6.0	N	0	RJ45, Cat5e
2.	LAN	1	1.5	N	0	RJ45, Cat5e
3.	Console	1	1.5	Y	1	-
4.	Power cable	1	1.5	-	0	Provided by client
5.	LAN	1	1.5	N	0	RJ45, Cat5e

3.4.1 Configuration of System under Test

Mode A, C



Mode B, D



3.5 General Description of Applied Standards and References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and References:

Test standard:

FCC Part 15, Subpart C (15.247)
ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

References Test Guidance:

KDB 558074 D01 15.247 Meas Guidance v05r02
KDB 662911 D01 Multiple Transmitter Output v02r01

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 30dB 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

Note:

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 1000MHz, 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 20dB under any condition of modulation.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver Rohde & Schwarz	N9038A	MY50010158	Nov. 10, 2020	Nov. 09, 2021
			Oct. 26, 2021	Oct. 25, 2022
Spectrum Analyzer KEYSIGHT	N9020B	MY60110440	Dec. 09, 2021	Dec. 08, 2022
BILOG Antenna SCHWARZBECK	VULB9168	9168-1213	Oct. 27, 2021	Oct. 26, 2022
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Nov. 14, 2021	Nov. 13, 2022
HORN Antenna SCHWARZBECK	BBHA 9170	9170-995	Nov. 14, 2021	Nov. 13, 2022
Loop Antenna EMCI	EM-6879	269	Sep. 16, 2021	Sep. 15, 2022
Loop Antenna TESEQ	HLA 6121	45745	Jul. 21, 2021	Jul. 20, 2022
Preamplifier EMCI	EMC330N	980782	Jan. 19, 2021	Jan. 18, 2022
			Jan. 17, 2022	Jan. 16, 2023
Preamplifier EMCI	EMC118A45SE	980808	Dec. 30, 2021	Dec. 29, 2022
Preamplifier EMCI	EMC184045SE	980788	Jan. 18, 2021	Jan. 17, 2022
			Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMC104-SM-SM-(9000+2000+1000)	201243+ 201231+ 210102	Jan. 18, 2021	Jan. 17, 2022
			Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMCCFD400-NM-NM-(9000+300+500)	201236+ 201235+ 201233	Jan. 18, 2021	Jan. 17, 2022
			Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMC101G-KM-KM-(5000+3000+2000)	201260+201257+201254	Jan. 18, 2021	Jan. 17, 2022
			Jan. 17, 2022	Jan. 16, 2023
Software BV ADT	ADT_Radiated_V7.6.15.9.5	NA	NA	NA
Antenna Tower Max-Full	MFT-151SS-0.5T	NA	NA	NA
Turn Table Max-Full	MF-7802BS	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208674	NA	NA
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190004/MY55190007/MY55210005	Jul. 12, 2021	Jul. 11, 2022

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in WM Chamber 8.

4.1.3 Test Procedures

For Radiated emission below 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. 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.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) 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.

f. The test-receiver system was set to peak and average detect 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.

Note:

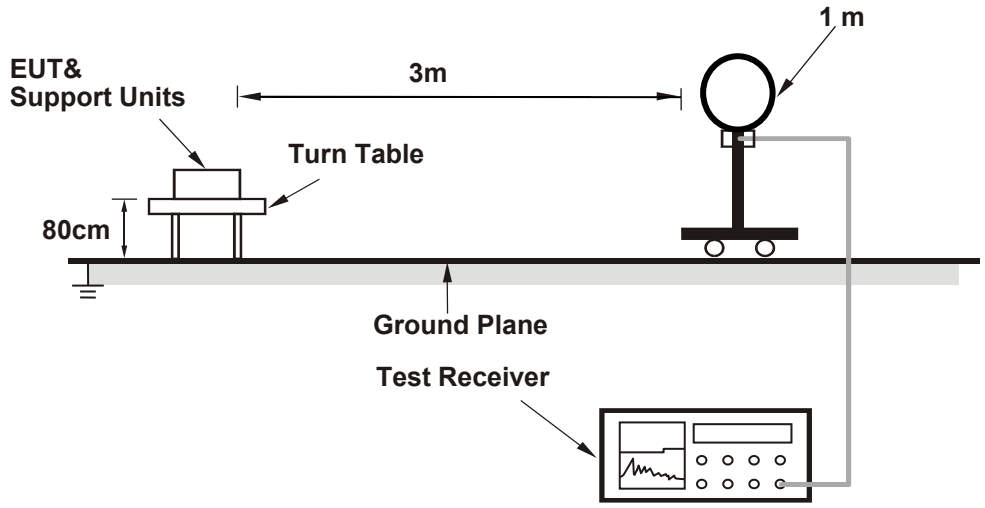
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz. (802.11b: RBW = 1MHz, VBW = 3kHz; 802.11g: RBW = 1MHz, VBW = 1kHz; 802.11ax (HE20): RBW = 1MHz, VBW = 1kHz; 802.11ax (HE40): RBW = 1MHz, VBW = 1kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

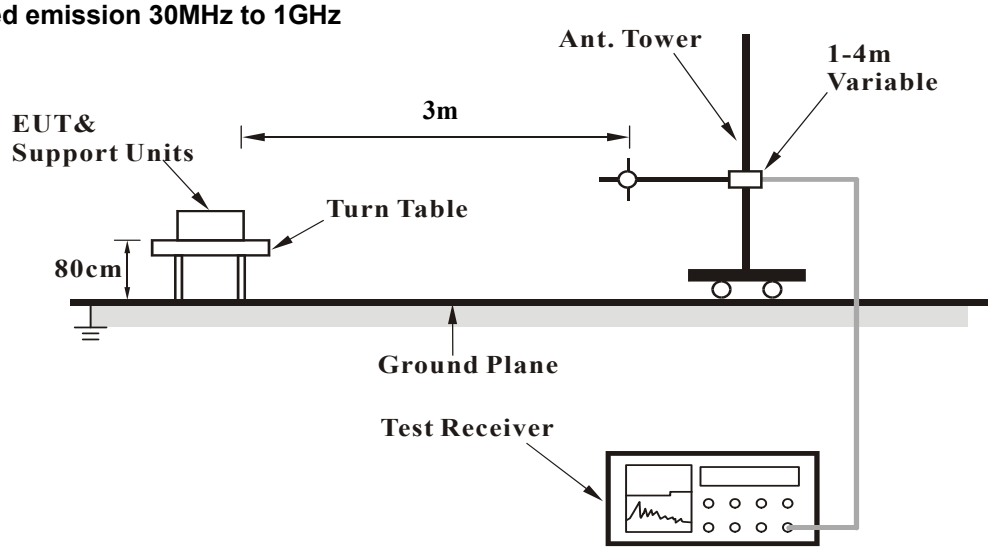
No deviation.

4.1.5 Test Setup

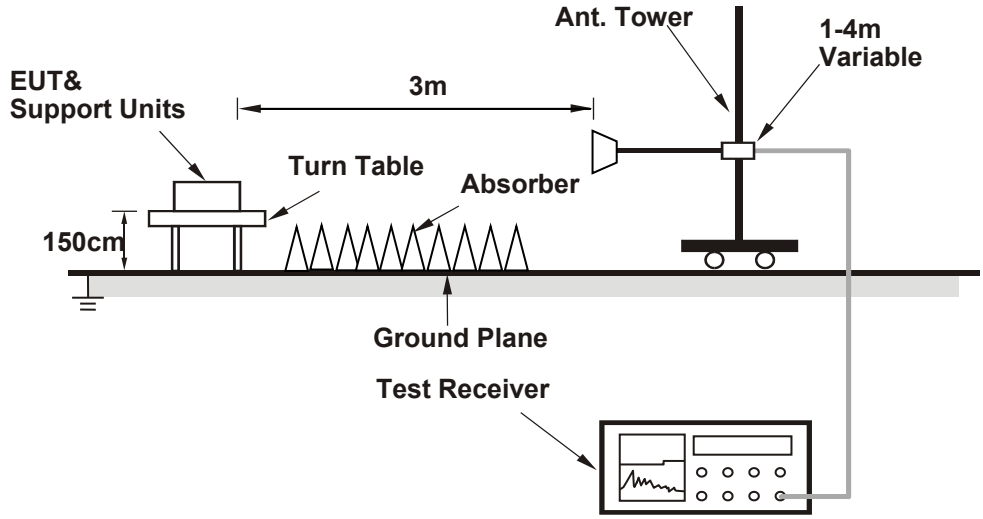
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

a. Placed the EUT on the testing table.
b. Prepared a notebook to act as a communication partner and placed it outside of testing area.
c. The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
d. The communication partner sent data to EUT by command "PING".

4.1.7 Test Results

Above 1GHz worst-Case data:

Test Mode A

802.11b

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	55.7 PK	74.0	-18.3	1.44 H	317	23.9	31.8
2	2390.00	44.1 AV	54.0	-9.9	1.44 H	317	12.3	31.8
3	*2412.00	113.0 PK			1.42 H	310	81.2	31.8
4	*2412.00	111.9 AV			1.42 H	310	80.1	31.8
5	4824.00	49.2 PK	74.0	-24.8	1.59 H	249	46.8	2.4
6	4824.00	39.2 AV	54.0	-14.8	1.59 H	249	36.8	2.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.0 PK	74.0	-15.0	2.05 V	61	27.2	31.8
2	2390.00	48.8 AV	54.0	-5.2	2.05 V	61	17.0	31.8
3	*2412.00	123.6 PK			2.02 V	80	91.8	31.8
4	*2412.00	122.5 AV			2.02 V	80	90.7	31.8
5	4824.00	50.8 PK	74.0	-23.2	1.68 V	178	48.4	2.4
6	4824.00	46.2 AV	54.0	-7.8	1.68 V	178	43.8	2.4

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	113.1 PK			1.48 H	316	81.4	31.7
2	*2437.00	112.0 AV			1.48 H	316	80.3	31.7
3	4874.00	49.7 PK	74.0	-24.3	1.61 H	243	47.2	2.5
4	4874.00	39.6 AV	54.0	-14.4	1.61 H	243	37.1	2.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	123.4 PK			1.82 V	66	91.7	31.7
2	*2437.00	122.1 AV			1.82 V	66	90.4	31.7
3	4874.00	51.6 PK	74.0	-22.4	1.66 V	180	49.1	2.5
4	4874.00	46.7 AV	54.0	-7.3	1.66 V	180	44.2	2.5

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.9 PK			1.50 H	342	78.2	31.7
2	*2462.00	108.4 AV			1.50 H	342	76.7	31.7
3	2483.50	56.1 PK	74.0	-17.9	1.59 H	339	24.4	31.7
4	2483.50	45.0 AV	54.0	-9.0	1.59 H	339	13.3	31.7
5	4924.00	48.9 PK	74.0	-25.1	1.55 H	247	46.3	2.6
6	4924.00	38.8 AV	54.0	-15.2	1.55 H	247	36.2	2.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	122.7 PK			2.06 V	75	91.0	31.7
2	*2462.00	120.2 AV			2.06 V	75	88.5	31.7
3	2483.50	60.7 PK	74.0	-13.3	2.19 V	75	29.0	31.7
4	2483.50	52.9 AV	54.0	-1.1	2.19 V	75	21.2	31.7
5	4924.00	52.1 PK	74.0	-21.9	1.71 V	176	49.5	2.6
6	4924.00	46.9 AV	54.0	-7.1	1.71 V	176	44.3	2.6

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11g

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.3 PK	74.0	-15.7	1.44 H	284	26.5	31.8
2	2390.00	45.5 AV	54.0	-8.5	1.44 H	284	13.7	31.8
3	*2412.00	109.3 PK			1.48 H	309	77.5	31.8
4	*2412.00	99.8 AV			1.48 H	309	68.0	31.8
5	4824.00	45.9 PK	74.0	-28.1	1.51 H	260	43.5	2.4
6	4824.00	34.5 AV	54.0	-19.5	1.51 H	260	32.1	2.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	65.1 PK	74.0	-8.9	1.81 V	97	33.3	31.8
2	2390.00	52.1 AV	54.0	-1.9	1.81 V	97	20.3	31.8
3	*2412.00	121.0 PK			1.71 V	65	89.2	31.8
4	*2412.00	111.8 AV			1.71 V	65	80.0	31.8
5	4824.00	47.7 PK	74.0	-26.3	1.78 V	183	45.3	2.4
6	4824.00	34.8 AV	54.0	-19.2	1.78 V	183	32.4	2.4

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	111.8 PK			1.48 H	312	80.1	31.7
2	*2437.00	102.1 AV			1.48 H	312	70.4	31.7
3	4874.00	48.2 PK	74.0	-25.8	1.51 H	253	45.7	2.5
4	4874.00	36.6 AV	54.0	-17.4	1.51 H	253	34.1	2.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	124.9 PK			2.09 V	53	93.2	31.7
2	*2437.00	115.3 AV			2.09 V	53	83.6	31.7
3	4874.00	47.9 PK	74.0	-26.1	1.70 V	178	45.4	2.5
4	4874.00	34.8 AV	54.0	-19.2	1.70 V	178	32.3	2.5

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.8 PK			1.50 H	342	74.1	31.7
2	*2462.00	96.7 AV			1.50 H	342	65.0	31.7
3	2483.50	55.8 PK	74.0	-18.2	1.53 H	290	24.1	31.7
4	2483.50	45.0 AV	54.0	-9.0	1.53 H	290	13.3	31.7
5	4924.00	46.1 PK	74.0	-27.9	1.49 H	243	43.5	2.6
6	4924.00	35.8 AV	54.0	-18.2	1.49 H	243	33.2	2.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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			1.90 V	73	85.6	31.7
2	*2462.00	108.2 AV			1.90 V	73	76.5	31.7
3	2483.50	66.8 PK	74.0	-7.2	1.57 V	161	35.1	31.7
4	2483.50	52.9 AV	54.0	-1.1	1.57 V	161	21.2	31.7
5	4924.00	48.7 PK	74.0	-25.3	1.75 V	179	46.1	2.6
6	4924.00	35.2 AV	54.0	-18.8	1.75 V	179	32.6	2.6

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11ax (HE20)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	56.4 PK	74.0	-17.6	1.39 H	306	24.6	31.8
2	2390.00	45.2 AV	54.0	-8.8	1.39 H	306	13.4	31.8
3	*2412.00	110.4 PK			1.46 H	309	78.6	31.8
4	*2412.00	98.7 AV			1.46 H	309	66.9	31.8
5	4824.00	46.0 PK	74.0	-28.0	1.44 H	251	43.6	2.4
6	4824.00	35.7 AV	54.0	-18.3	1.44 H	251	33.3	2.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.5 PK	74.0	-8.5	2.05 V	198	33.7	31.8
2	2390.00	52.8 AV	54.0	-1.2	2.05 V	198	21.0	31.8
3	*2412.00	122.0 PK			1.79 V	62	90.2	31.8
4	*2412.00	109.3 AV			1.79 V	62	77.5	31.8
5	4824.00	47.8 PK	74.0	-26.2	1.71 V	178	45.4	2.4
6	4824.00	35.0 AV	54.0	-19.0	1.71 V	178	32.6	2.4

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	113.3 PK			1.39 H	310	81.6	31.7
2	*2437.00	101.4 AV			1.39 H	310	69.7	31.7
3	2483.50	55.4 PK	74.0	-18.6	1.50 H	257	23.7	31.7
4	2483.50	45.4 AV	54.0	-8.6	1.50 H	257	13.7	31.7
5	4874.00	47.4 PK	74.0	-26.6	1.63 H	252	44.9	2.5
6	4874.00	34.8 AV	54.0	-19.2	1.63 H	252	32.3	2.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	126.2 PK			1.95 V	65	94.5	31.7
2	*2437.00	113.4 AV			1.95 V	65	81.7	31.7
3	2483.50	65.6 PK	74.0	-8.4	1.85 V	135	33.9	31.7
4	2483.50	52.8 AV	54.0	-1.2	1.85 V	135	21.1	31.7
5	4874.00	48.8 PK	74.0	-25.2	1.72 V	180	46.3	2.5
6	4874.00	35.5 AV	54.0	-18.5	1.72 V	180	33.0	2.5

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.8 PK			1.47 H	341	74.1	31.7
2	*2462.00	93.0 AV			1.47 H	341	61.3	31.7
3	2483.50	57.6 PK	74.0	-16.4	1.48 H	265	25.9	31.7
4	2483.50	45.8 AV	54.0	-8.2	1.48 H	265	14.1	31.7
5	4924.00	46.6 PK	74.0	-27.4	1.51 H	247	44.0	2.6
6	4924.00	34.1 AV	54.0	-19.9	1.51 H	247	31.5	2.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	117.6 PK			1.69 V	23	85.9	31.7
2	*2462.00	104.6 AV			1.69 V	23	72.9	31.7
3	2483.50	66.9 PK	74.0	-7.1	1.94 V	165	35.2	31.7
4	2483.50	53.0 AV	54.0	-1.0	1.94 V	165	21.3	31.7
5	4924.00	47.8 PK	74.0	-26.2	1.69 V	178	45.2	2.6
6	4924.00	34.9 AV	54.0	-19.1	1.69 V	178	32.3	2.6

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11ax (HE40)

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	56.3 PK	74.0	-17.7	1.49 H	307	24.5	31.8
2	2390.00	45.0 AV	54.0	-9.0	1.49 H	307	13.2	31.8
3	*2422.00	104.8 PK			1.37 H	310	73.1	31.7
4	*2422.00	92.8 AV			1.37 H	310	61.1	31.7
5	4844.00	46.2 PK	74.0	-27.8	1.59 H	244	43.7	2.5
6	4844.00	33.6 AV	54.0	-20.4	1.59 H	244	31.1	2.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	65.9 PK	74.0	-8.1	2.05 V	211	34.1	31.8
2	2390.00	52.7 AV	54.0	-1.3	2.05 V	211	20.9	31.8
3	*2422.00	114.6 PK			1.95 V	60	82.9	31.7
4	*2422.00	103.6 AV			1.95 V	60	71.9	31.7
5	4844.00	47.6 PK	74.0	-26.4	1.67 V	177	45.1	2.5
6	4844.00	34.8 AV	54.0	-19.2	1.67 V	177	32.3	2.5

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	56.1 PK	74.0	-17.9	1.58 H	270	24.3	31.8
2	2390.00	44.5 AV	54.0	-9.5	1.58 H	270	12.7	31.8
3	*2437.00	107.4 PK			1.56 H	327	75.7	31.7
4	*2437.00	94.7 AV			1.56 H	327	63.0	31.7
5	4874.00	46.6 PK	74.0	-27.4	1.60 H	245	44.1	2.5
6	4874.00	34.0 AV	54.0	-20.0	1.60 H	245	31.5	2.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	67.0 PK	74.0	-7.0	1.99 V	118	35.2	31.8
2	2390.00	52.8 AV	54.0	-1.2	1.99 V	118	21.0	31.8
3	*2437.00	120.6 PK			1.83 V	66	88.9	31.7
4	*2437.00	107.5 AV			1.83 V	66	75.8	31.7
5	4874.00	47.9 PK	74.0	-26.1	1.77 V	187	45.4	2.5
6	4874.00	35.1 AV	54.0	-18.9	1.77 V	187	32.6	2.5

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	106.4 PK			1.58 H	229	74.7	31.7
2	*2452.00	93.6 AV			1.58 H	229	61.9	31.7
3	2483.50	56.7 PK	74.0	-17.3	1.60 H	218	25.0	31.7
4	2483.50	45.9 AV	54.0	-8.1	1.60 H	218	14.2	31.7
5	4904.00	46.2 PK	74.0	-27.8	1.55 H	236	43.6	2.6
6	4904.00	33.6 AV	54.0	-20.4	1.55 H	236	31.0	2.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	118.5 PK			1.88 V	66	86.8	31.7
2	*2452.00	105.4 AV			1.88 V	66	73.7	31.7
3	2483.50	65.1 PK	74.0	-8.9	2.01 V	128	33.4	31.7
4	2483.50	52.6 AV	54.0	-1.4	2.01 V	128	20.9	31.7
5	4904.00	47.8 PK	74.0	-26.2	1.62 V	176	45.2	2.6
6	4904.00	34.7 AV	54.0	-19.3	1.62 V	176	32.1	2.6

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

Test Mode C

802.11b

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2387.00	61.1 PK	74.0	-12.9	2.02 H	5	29.3	31.8
2	2387.00	52.7 AV	54.0	-1.3	2.02 H	5	20.9	31.8
3	*2412.00	127.4 PK			1.73 H	1	95.6	31.8
4	*2412.00	124.6 AV			1.73 H	1	92.8	31.8
5	4824.00	49.2 PK	74.0	-24.8	1.46 H	7	46.7	2.5
6	4824.00	42.3 AV	54.0	-11.7	1.46 H	7	39.8	2.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2387.00	57.1 PK	74.0	-16.9	2.81 V	15	25.3	31.8
2	2387.00	45.7 AV	54.0	-8.3	2.81 V	15	13.9	31.8
3	*2412.00	119.3 PK			2.61 V	3	87.5	31.8
4	*2412.00	115.8 AV			2.61 V	3	84.0	31.8
5	4824.00	49.1 PK	74.0	-24.9	2.42 V	292	46.6	2.5
6	4824.00	43.1 AV	54.0	-10.9	2.42 V	292	40.6	2.5

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	127.8 PK			1.75 H	9	96.1	31.7
2	*2437.00	125.1 AV			1.75 H	9	93.4	31.7
3	4874.00	51.1 PK	74.0	-22.9	1.15 H	4	48.6	2.5
4	4874.00	46.0 AV	54.0	-8.0	1.15 H	4	43.5	2.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	121.8 PK			2.66 V	7	90.1	31.7
2	*2437.00	119.6 AV			2.66 V	7	87.9	31.7
3	4874.00	51.3 PK	74.0	-22.7	2.47 V	301	48.8	2.5
4	4874.00	46.1 AV	54.0	-7.9	2.47 V	301	43.6	2.5

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	124.2 PK			1.78 H	15	92.5	31.7
2	*2462.00	122.1 AV			1.78 H	15	90.4	31.7
3	2483.50	60.6 PK	74.0	-13.4	2.14 H	0	28.9	31.7
4	2483.50	52.9 AV	54.0	-1.1	2.14 H	0	21.2	31.7
5	4924.00	50.8 PK	74.0	-23.2	1.26 H	10	48.2	2.6
6	4924.00	44.7 AV	54.0	-9.3	1.26 H	10	42.1	2.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	119.1 PK			2.76 V	10	87.4	31.7
2	*2462.00	116.7 AV			2.76 V	10	85.0	31.7
3	2483.50	58.8 PK	74.0	-15.2	2.83 V	9	27.1	31.7
4	2483.50	51.4 AV	54.0	-2.6	2.83 V	9	19.7	31.7
5	4924.00	51.0 PK	74.0	-23.0	2.38 V	282	48.4	2.6
6	4924.00	45.0 AV	54.0	-9.0	2.38 V	282	42.4	2.6

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11g

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	1.95 H	347	33.2	31.8
2	2390.00	52.6 AV	54.0	-1.4	1.95 H	347	20.8	31.8
3	*2412.00	123.2 PK			1.80 H	3	91.4	31.8
4	*2412.00	114.1 AV			1.80 H	3	82.3	31.8
5	4824.00	47.3 PK	74.0	-26.7	1.38 H	9	44.9	2.4
6	4824.00	35.1 AV	54.0	-18.9	1.38 H	9	32.7	2.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	57.7 PK	74.0	-16.3	2.96 V	21	25.9	31.8
2	2390.00	46.3 AV	54.0	-7.7	2.96 V	21	14.5	31.8
3	*2412.00	116.0 PK			2.67 V	5	84.2	31.8
4	*2412.00	107.1 AV			2.67 V	5	75.3	31.8
5	4824.00	46.5 PK	74.0	-27.5	2.33 V	294	44.1	2.4
6	4824.00	34.6 AV	54.0	-19.4	2.33 V	294	32.2	2.4

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	128.1 PK			1.86 H	5	96.4	31.7
2	*2437.00	119.0 AV			1.86 H	5	87.3	31.7
3	4874.00	47.8 PK	74.0	-26.2	1.46 H	8	45.3	2.5
4	4874.00	35.7 AV	54.0	-18.3	1.46 H	8	33.2	2.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	121.3 PK			2.78 V	8	89.6	31.7
2	*2437.00	112.7 AV			2.78 V	8	81.0	31.7
3	4874.00	46.7 PK	74.0	-27.3	2.40 V	286	44.2	2.5
4	4874.00	35.4 AV	54.0	-18.6	2.40 V	286	32.9	2.5

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	123.2 PK			1.75 H	346	91.5	31.7
2	*2462.00	113.6 AV			1.75 H	346	81.9	31.7
3	2483.50	64.4 PK	74.0	-9.6	1.61 H	19	32.7	31.7
4	2483.50	52.6 AV	54.0	-1.4	1.61 H	19	20.9	31.7
5	4924.00	47.4 PK	74.0	-26.6	1.39 H	5	44.8	2.6
6	4924.00	35.2 AV	54.0	-18.8	1.39 H	5	32.6	2.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	116.4 PK			2.91 V	15	84.7	31.7
2	*2462.00	107.9 AV			2.91 V	15	76.2	31.7
3	2483.50	63.6 PK	74.0	-10.4	2.94 V	3	31.9	31.7
4	2483.50	52.2 AV	54.0	-1.8	2.94 V	3	20.5	31.7
5	4924.00	46.8 PK	74.0	-27.2	2.40 V	291	44.2	2.6
6	4924.00	34.9 AV	54.0	-19.1	2.40 V	291	32.3	2.6

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11ax (HE20)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	64.7 PK	74.0	-9.3	1.79 H	354	32.9	31.8
2	2390.00	52.8 AV	54.0	-1.2	1.79 H	354	21.0	31.8
3	*2412.00	122.2 PK			1.76 H	1	90.4	31.8
4	*2412.00	112.6 AV			1.76 H	1	80.8	31.8
5	4824.00	47.1 PK	74.0	-26.9	1.41 H	12	44.7	2.4
6	4824.00	35.2 AV	54.0	-18.8	1.41 H	12	32.8	2.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.2 PK	74.0	-14.8	2.80 V	41	27.4	31.8
2	2390.00	46.5 AV	54.0	-7.5	2.80 V	41	14.7	31.8
3	*2412.00	118.2 PK			2.70 V	12	86.4	31.8
4	*2412.00	105.3 AV			2.70 V	12	73.5	31.8
5	4824.00	46.8 PK	74.0	-27.2	2.36 V	290	44.4	2.4
6	4824.00	34.6 AV	54.0	-19.4	2.36 V	290	32.2	2.4

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	131.1 PK			1.87 H	3	99.4	31.7
2	*2437.00	118.2 AV			1.87 H	3	86.5	31.7
3	2483.50	67.5 PK	74.0	-6.5	1.16 H	338	35.8	31.7
4	2483.50	53.0 AV	54.0	-1.0	1.16 H	338	21.3	31.7
5	4874.00	47.7 PK	74.0	-26.3	1.29 H	8	45.2	2.5
6	4874.00	35.6 AV	54.0	-18.4	1.29 H	8	33.1	2.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	123.4 PK			2.65 V	15	91.7	31.7
2	*2437.00	111.4 AV			2.65 V	15	79.7	31.7
3	2483.50	60.1 PK	74.0	-13.9	2.77 V	11	28.4	31.7
4	2483.50	47.9 AV	54.0	-6.1	2.77 V	11	16.2	31.7
5	4874.00	47.2 PK	74.0	-26.8	2.33 V	281	44.7	2.5
6	4874.00	35.5 AV	54.0	-18.5	2.33 V	281	33.0	2.5

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	123.1 PK			1.57 H	346	91.4	31.7
2	*2462.00	110.0 AV			1.57 H	346	78.3	31.7
3	2483.50	65.9 PK	74.0	-8.1	2.18 H	347	34.2	31.7
4	2483.50	52.7 AV	54.0	-1.3	2.18 H	347	21.0	31.7
5	4924.00	47.5 PK	74.0	-26.5	1.50 H	1	44.9	2.6
6	4924.00	35.3 AV	54.0	-18.7	1.50 H	1	32.7	2.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	114.8 PK			2.61 V	15	83.1	31.7
2	*2462.00	101.7 AV			2.61 V	15	70.0	31.7
3	2483.50	62.1 PK	74.0	-11.9	2.81 V	13	30.4	31.7
4	2483.50	50.2 AV	54.0	-3.8	2.81 V	13	18.5	31.7
5	4924.00	47.1 PK	74.0	-26.9	2.41 V	290	44.5	2.6
6	4924.00	35.3 AV	54.0	-18.7	2.41 V	290	32.7	2.6

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11ax (HE40)

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2384.30	66.3 PK	74.0	-7.7	2.20 H	355	34.4	31.9
2	**2384.30**	**53.1 AV**	**54.0**	**-0.9**	**2.20 H**	**355**	**21.2**	**31.9**
3	*2422.00	119.1 PK			1.80 H	12	87.4	31.7
4	*2422.00	107.4 AV			1.80 H	12	75.7	31.7
5	4844.00	47.2 PK	74.0	-26.8	1.46 H	5	44.7	2.5
6	4844.00	35.1 AV	54.0	-18.9	1.46 H	5	32.6	2.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2384.30	60.4 PK	74.0	-13.6	2.87 V	23	28.5	31.9
2	2384.30	48.3 AV	54.0	-5.7	2.87 V	23	16.4	31.9
3	*2422.00	112.3 PK			2.72 V	6	80.6	31.7
4	*2422.00	100.0 AV			2.72 V	6	68.3	31.7
5	4844.00	46.8 PK	74.0	-27.2	2.35 V	291	44.3	2.5
6	4844.00	35.1 AV	54.0	-18.9	2.35 V	291	32.6	2.5

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	64.7 PK	74.0	-9.3	1.08 H	347	32.9	31.8
2	2390.00	53.0 AV	54.0	-1.0	1.08 H	347	21.2	31.8
3	*2437.00	122.2 PK			1.63 H	9	90.5	31.7
4	*2437.00	109.4 AV			1.63 H	9	77.7	31.7
5	4874.00	47.1 PK	74.0	-26.9	1.36 H	11	44.6	2.5
6	4874.00	35.5 AV	54.0	-18.5	1.36 H	11	33.0	2.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (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	57.8 PK	74.0	-16.2	2.79 V	18	26.0	31.8
2	2390.00	44.8 AV	54.0	-9.2	2.79 V	18	13.0	31.8
3	*2437.00	115.1 PK			2.73 V	3	83.4	31.7
4	*2437.00	103.0 AV			2.73 V	3	71.3	31.7
5	4874.00	46.6 PK	74.0	-27.4	2.30 V	289	44.1	2.5
6	4874.00	34.8 AV	54.0	-19.2	2.30 V	289	32.3	2.5

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (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	118.8 PK			1.89 H	13	87.1	31.7
2	*2452.00	107.1 AV			1.89 H	13	75.4	31.7
3	2485.50	65.1 PK	74.0	-8.9	2.15 H	337	33.3	31.8
4	2485.50	52.7 AV	54.0	-1.3	2.15 H	337	20.9	31.8
5	4904.00	47.2 PK	74.0	-26.8	1.49 H	9	44.6	2.6
6	4904.00	35.2 AV	54.0	-18.8	1.49 H	9	32.6	2.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	113.6 PK			2.66 V	10	81.9	31.7
2	*2452.00	100.9 AV			2.66 V	10	69.2	31.7
3	2485.50	62.3 PK	74.0	-11.7	2.78 V	23	30.5	31.8
4	2485.50	50.1 AV	54.0	-3.9	2.78 V	23	18.3	31.8
5	4904.00	46.9 PK	74.0	-27.1	2.44 V	299	44.3	2.6
6	4904.00	35.1 AV	54.0	-18.9	2.44 V	299	32.5	2.6

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

Below 1GHz worst-case data:

Test Mode A

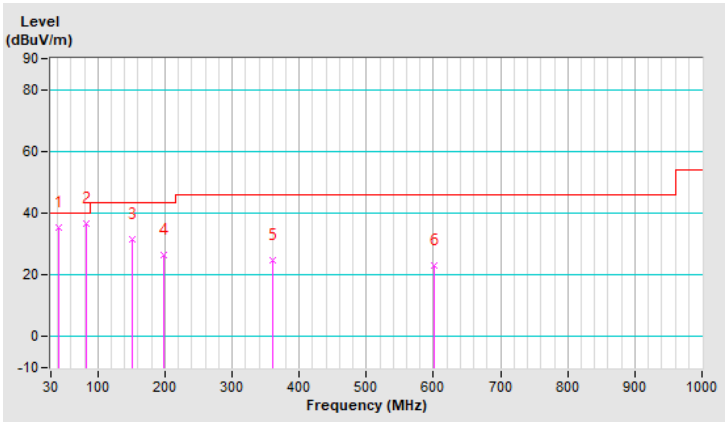
802.11b

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	42.65	35.44 QP	40.00	-4.56	1.99 H	276	53.76	-18.32
2	82.01	36.41 QP	40.00	-3.59	1.99 H	124	59.92	-23.51
3	150.90	31.70 QP	43.50	-11.80	1.99 H	352	49.76	-18.06
4	197.29	26.57 QP	43.50	-16.93	1.49 H	160	48.16	-21.59
5	360.36	24.83 QP	46.00	-21.17	1.00 H	108	41.13	-16.30
6	600.75	22.94 QP	46.00	-23.06	1.49 H	149	33.20	-10.26

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. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

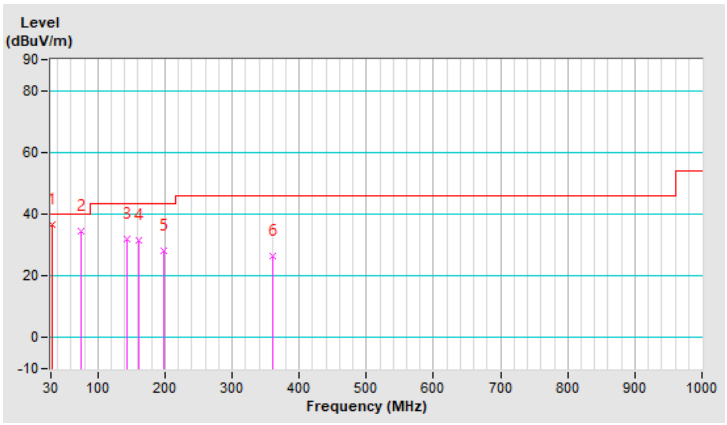


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	32.51	36.69 QP	40.00	-3.31	1.00 V	158	56.14	-19.45
2	74.99	34.30 QP	40.00	-5.70	1.99 V	358	56.03	-21.73
3	142.46	32.16 QP	43.50	-11.34	1.00 V	227	50.55	-18.39
4	160.74	31.38 QP	43.50	-12.12	1.00 V	309	49.46	-18.08
5	198.70	28.30 QP	43.50	-15.20	1.49 V	312	49.98	-21.68
6	360.36	26.33 QP	46.00	-19.67	1.49 V	21	42.63	-16.30

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. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.



Test Mode B

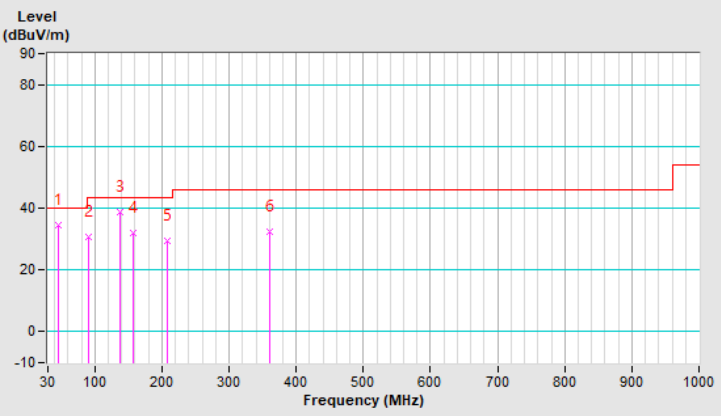
802.11b

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	45.46	34.45 QP	40.00	-5.55	1.99 H	261	52.56	-18.11
2	90.45	30.73 QP	43.50	-12.77	1.99 H	131	54.73	-24.00
3	138.25	38.79 QP	43.50	-4.71	1.99 H	277	57.51	-18.72
4	157.93	32.07 QP	43.50	-11.43	1.00 H	182	50.03	-17.96
5	208.54	29.52 QP	43.50	-13.98	1.99 H	18	51.29	-21.77
6	360.36	32.37 QP	46.00	-13.63	1.99 H	178	48.67	-16.30

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. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

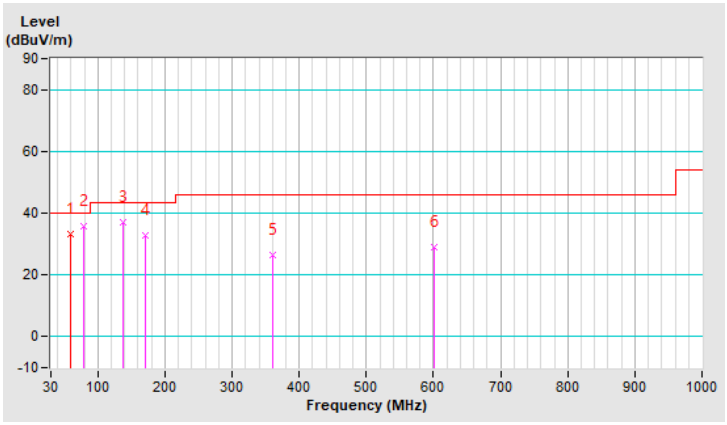


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	58.81	33.26 QP	40.00	-6.74	1.00 V	278	51.82	-18.56
2	79.20	35.69 QP	40.00	-4.31	1.00 V	252	58.60	-22.91
3	138.25	37.22 QP	43.50	-6.28	1.00 V	204	55.94	-18.72
4	170.58	32.93 QP	43.50	-10.57	1.00 V	4	51.46	-18.53
5	360.36	26.38 QP	46.00	-19.62	1.49 V	18	42.68	-16.30
6	600.75	29.16 QP	46.00	-16.84	1.00 V	332	39.42	-10.26

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. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.



Test Mode C

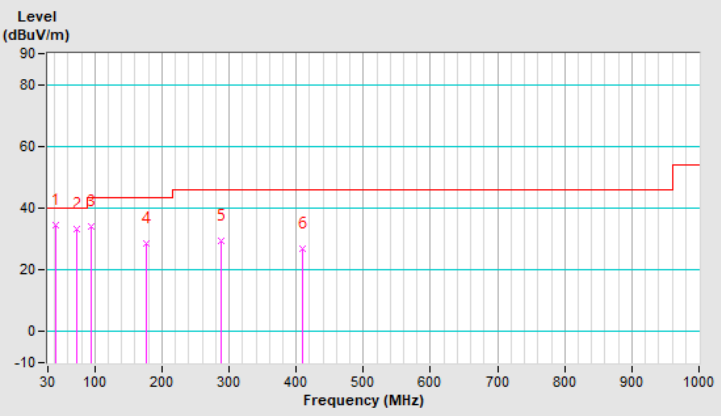
802.11ax (HE20)

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	42.65	34.39 QP	40.00	-5.61	1.99 H	119	52.71	-18.32
2	72.17	33.30 QP	40.00	-6.70	1.99 H	265	54.38	-21.08
3	94.67	34.02 QP	43.50	-9.48	1.99 H	149	57.55	-23.53
4	176.20	28.65 QP	43.50	-14.85	1.51 H	131	47.74	-19.09
5	287.26	29.59 QP	46.00	-16.41	1.01 H	179	47.46	-17.87
6	409.57	26.92 QP	46.00	-19.08	1.01 H	185	41.89	-14.97

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. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

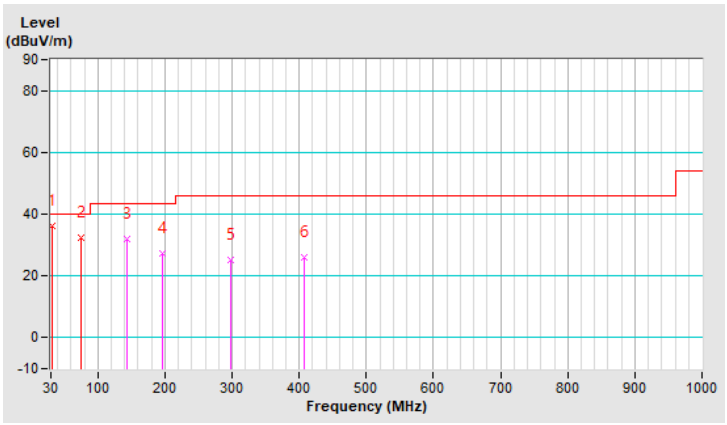


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	32.31	36.03 QP	40.00	-3.97	1.00 V	350	55.39	-19.36
2	74.74	32.22 QP	40.00	-7.78	1.99 V	234	53.89	-21.67
3	143.87	31.74 QP	43.50	-11.76	1.00 V	224	49.98	-18.24
4	195.88	27.18 QP	43.50	-16.32	1.00 V	140	48.73	-21.55
5	297.10	25.07 QP	46.00	-20.93	1.00 V	90	42.75	-17.68
6	408.16	25.90 QP	46.00	-20.10	1.49 V	196	40.88	-14.98

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. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.



Test Mode D

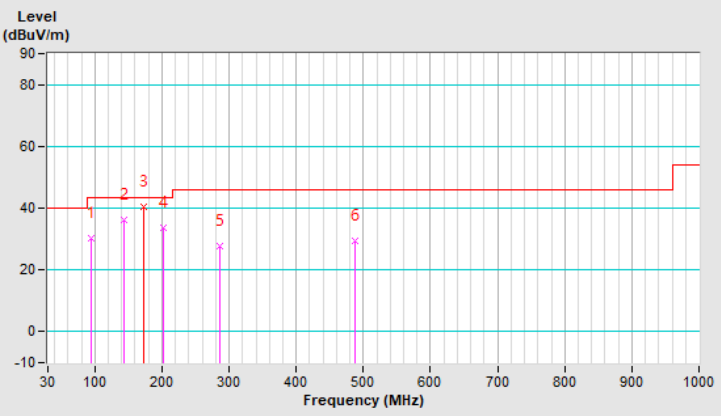
802.11ax (HE20)

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	94.67	30.20 QP	43.50	-13.30	1.99 H	302	53.72	-23.52
2	143.87	36.10 QP	43.50	-7.40	1.99 H	155	54.37	-18.27
3	172.46	40.36 QP	43.50	-3.14	1.49 H	262	59.11	-18.75
4	201.51	33.59 QP	43.50	-9.91	1.00 H	140	55.30	-21.71
5	285.86	27.62 QP	46.00	-18.38	1.00 H	204	45.51	-17.89
6	486.88	29.20 QP	46.00	-16.80	1.99 H	199	42.30	-13.10

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. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

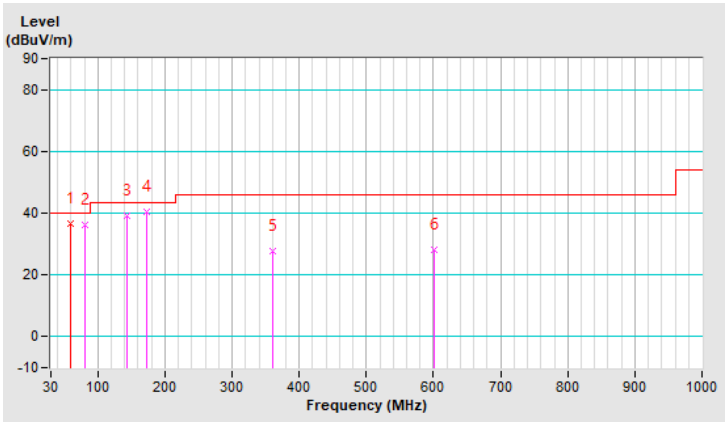


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	58.77	36.65 QP	40.00	-3.35	1.00 V	258	55.22	-18.57
2	80.61	36.06 QP	40.00	-3.94	1.00 V	211	59.35	-23.29
3	142.46	39.24 QP	43.50	-4.26	1.00 V	132	57.63	-18.39
4	173.39	40.29 QP	43.50	-3.21	1.00 V	1	59.12	-18.83
5	360.36	27.71 QP	46.00	-18.29	1.00 V	116	44.01	-16.30
6	600.75	28.02 QP	46.00	-17.98	1.00 V	134	38.28	-10.26

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. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

Note: 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 0.50MHz.

4.2.2 Test Instruments

Test Date: Mar. 21 ~ Mar. 22, 2022

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESR3	102412	Jan. 22, 2022	Jan. 21, 2023
RF signal cable Woken	5D-FB	Cable-cond2-01	Sep. 04, 2021	Sep. 03, 2022
LISN ROHDE & SCHWARZ (EUT)	ENV216	101196	Apr. 26, 2021	Apr. 25, 2022
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Sep. 17, 2021	Sep. 16, 2022
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 2.
3. The VCCI Site Registration No. is C-12047.

4.2.3 Test Procedures

a. The EUT was 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/ 50uH of coupling impedance for the measuring instrument.

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

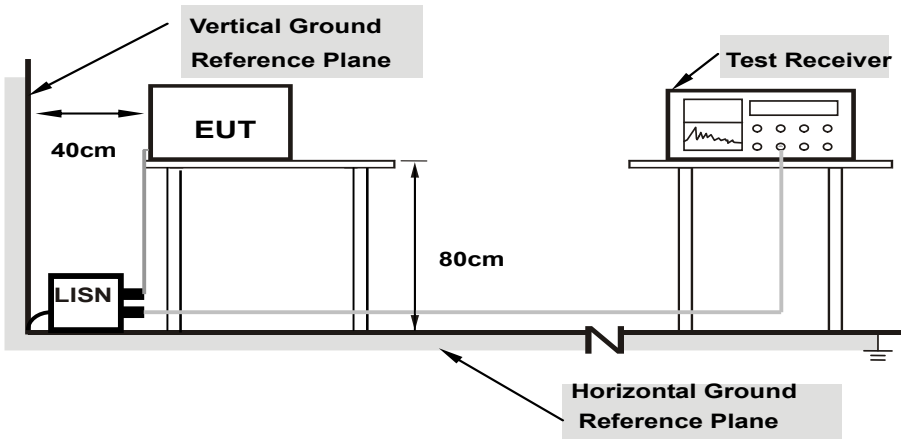
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 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).

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

Worst-case data:

Test Mode A

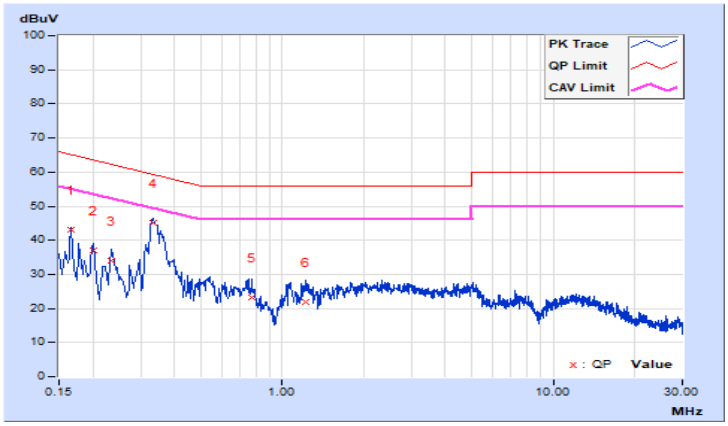
802.11b

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16600	10.14	32.89	17.95	43.03	28.09	65.16	55.16	-22.13	-27.07
2	0.19989	10.16	26.91	11.72	37.07	21.88	63.62	53.62	-26.55	-31.74
3	0.23400	10.17	23.83	12.26	34.00	22.43	62.31	52.31	-28.31	-29.88
4	0.33325	10.21	34.80	27.73	45.01	37.94	59.37	49.37	-14.36	-11.43
5	0.77000	10.28	12.82	5.76	23.10	16.04	56.00	46.00	-32.90	-29.96
6	1.22460	10.32	11.73	6.28	22.05	16.60	56.00	46.00	-33.95	-29.40

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.

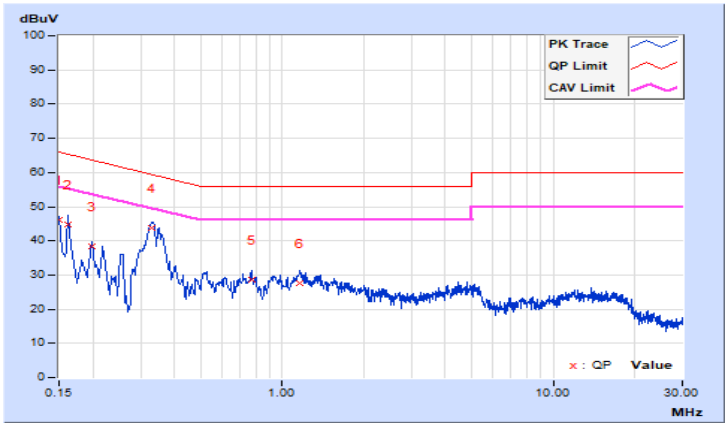


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.14	36.07	20.03	46.21	30.17	66.00	56.00	-19.79	-25.83
2	0.16200	10.15	34.51	17.25	44.66	27.40	65.36	55.36	-20.70	-27.96
3	0.19800	10.19	28.30	15.19	38.49	25.38	63.69	53.69	-25.20	-28.31
4	0.32889	10.24	33.53	26.01	43.77	36.25	59.48	49.48	-15.71	-13.23
5	0.77000	10.29	18.35	12.27	28.64	22.56	56.00	46.00	-27.36	-23.44
6	1.15800	10.32	17.15	12.13	27.47	22.45	56.00	46.00	-28.53	-23.55

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.



Test Mode B

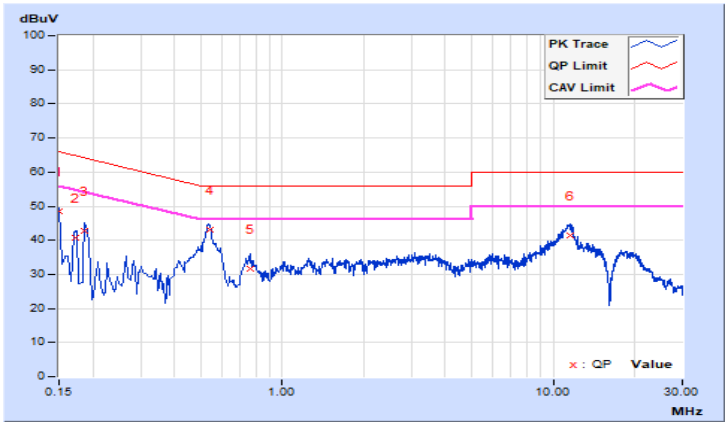
802.11b

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.13	38.52	21.18	48.65	31.31	66.00	56.00	-17.35	-24.69
2	0.17338	10.14	30.53	17.01	40.67	27.15	64.80	54.80	-24.13	-27.65
3	0.18600	10.15	32.63	15.05	42.78	25.20	64.21	54.21	-21.43	-29.01
4	0.53800	10.25	33.01	27.78	43.26	38.03	56.00	46.00	-12.74	-7.97
5	0.75800	10.28	21.26	16.95	31.54	27.23	56.00	46.00	-24.46	-18.77
6	11.52200	10.48	30.93	25.58	41.41	36.06	60.00	50.00	-18.59	-13.94

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.

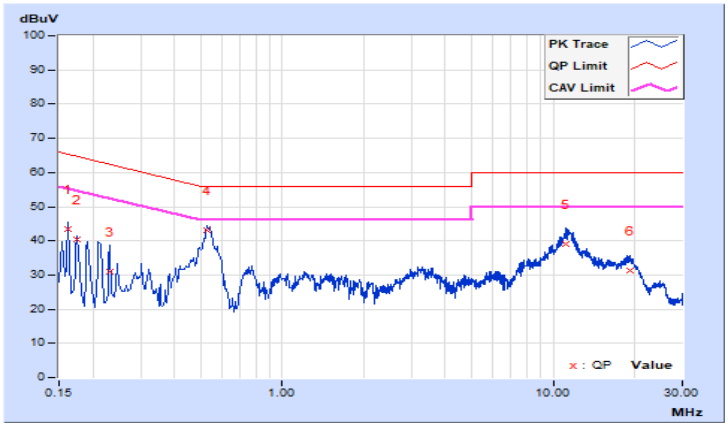


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16200	10.15	33.14	17.63	43.29	27.78	65.36	55.36	-22.07	-27.58
2	0.17400	10.16	30.40	16.40	40.56	26.56	64.77	54.77	-24.21	-28.21
3	0.23000	10.20	20.89	11.41	31.09	21.61	62.45	52.45	-31.36	-30.84
4	0.52984	10.27	32.83	27.56	43.10	37.83	56.00	46.00	-12.90	-8.17
5	11.13800	10.53	28.43	22.66	38.96	33.19	60.00	50.00	-21.04	-16.81
6	19.24600	10.73	20.75	15.37	31.48	26.10	60.00	50.00	-28.52	-23.90

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.



Test Mode C

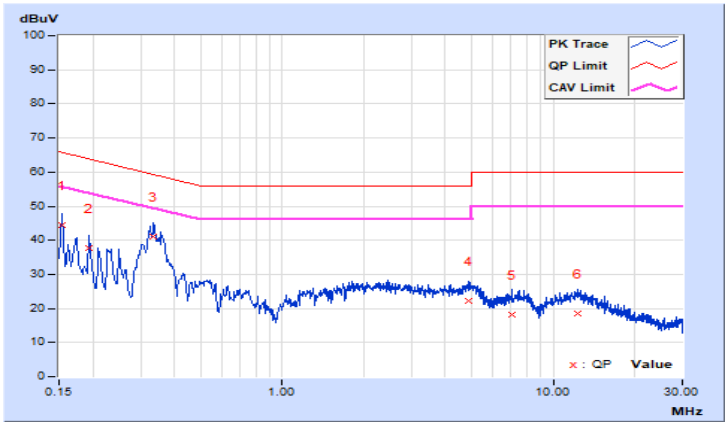
802.11ax (HE20)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	10.13	34.48	18.48	44.61	28.61	65.78	55.78	-21.17	-27.17
2	0.19400	10.16	27.56	13.51	37.72	23.67	63.86	53.86	-26.14	-30.19
3	0.33400	10.21	30.75	27.79	40.96	38.00	59.35	49.35	-18.39	-11.35
4	4.87800	10.41	11.86	4.42	22.27	14.83	56.00	46.00	-33.73	-31.17
5	7.02600	10.43	7.62	1.25	18.05	11.68	60.00	50.00	-41.95	-38.32
6	12.28200	10.49	7.99	2.33	18.48	12.82	60.00	50.00	-41.52	-37.18

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.

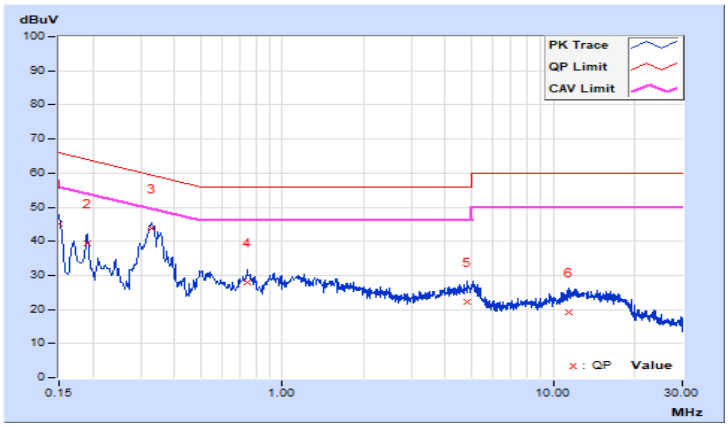


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.14	35.08	18.85	45.22	28.99	66.00	56.00	-20.78	-27.01
2	0.19000	10.18	29.10	16.27	39.28	26.45	64.04	54.04	-24.76	-27.59
3	0.32975	10.24	33.67	26.58	43.91	36.82	59.46	49.46	-15.55	-12.64
4	0.74200	10.29	17.60	12.26	27.89	22.55	56.00	46.00	-28.11	-23.45
5	4.83400	10.42	11.92	4.62	22.34	15.04	56.00	46.00	-33.66	-30.96
6	11.45800	10.54	8.79	3.12	19.33	13.66	60.00	50.00	-40.67	-36.34

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.



Test Mode D

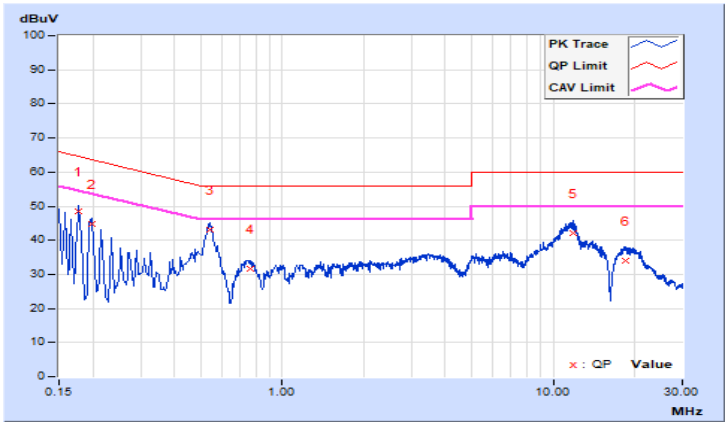
802.11ax (HE20)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17800	10.15	38.24	19.49	48.39	29.64	64.58	54.58	-16.19	-24.94
2	0.19780	10.16	34.56	16.15	44.72	26.31	63.70	53.70	-18.98	-27.39
3	**0.53800**	**10.25**	**33.01**	**27.80**	**43.26**	**38.05**	**56.00**	**46.00**	**-12.74**	**-7.95**
4	0.75800	10.28	21.23	16.70	31.51	26.98	56.00	46.00	-24.49	-19.02
5	11.85800	10.48	31.51	26.28	41.99	36.76	60.00	50.00	-18.01	-13.24
6	18.62600	10.59	23.58	18.11	34.17	28.70	60.00	50.00	-25.83	-21.30

Remarks:

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

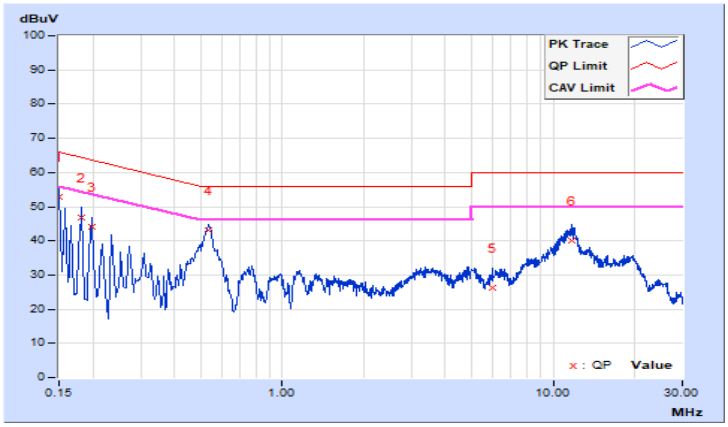


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.14	42.58	24.17	52.72	34.31	66.00	56.00	-13.28	-21.69
2	0.18200	10.17	36.76	17.80	46.93	27.97	64.39	54.39	-17.46	-26.42
3	0.19800	10.19	33.90	15.18	44.09	25.37	63.69	53.69	-19.60	-28.32
4	0.53400	10.27	32.88	27.51	43.15	37.78	56.00	46.00	-12.85	-8.22
5	5.98600	10.44	15.86	8.73	26.30	19.17	60.00	50.00	-33.70	-30.83
6	11.66600	10.54	29.51	23.90	40.05	34.44	60.00	50.00	-19.95	-15.56

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.

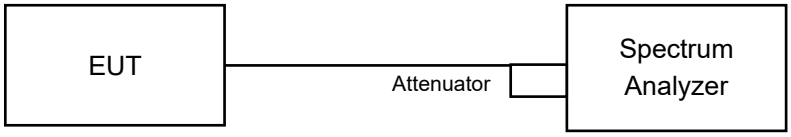


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

a. Set resolution bandwidth (RBW) = 100kHz.
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.

4.3.5 Deviation fromTest Standard

No deviation.

4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 Test Result

Test Mode A

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	8.08	7.60	8.07	7.64	0.5	Pass
6	2437	8.08	7.11	7.62	8.08	0.5	Pass
11	2462	8.08	7.58	7.60	8.09	0.5	Pass

802.11g

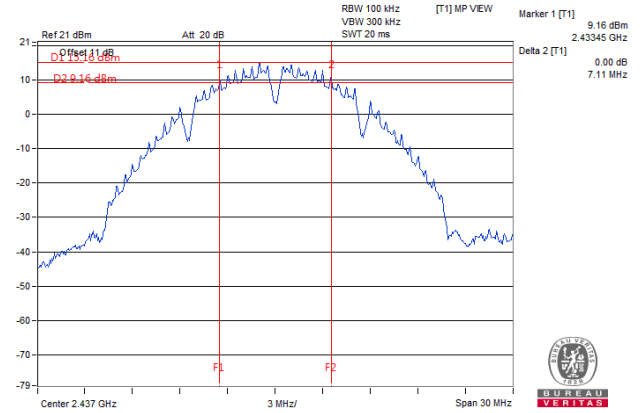
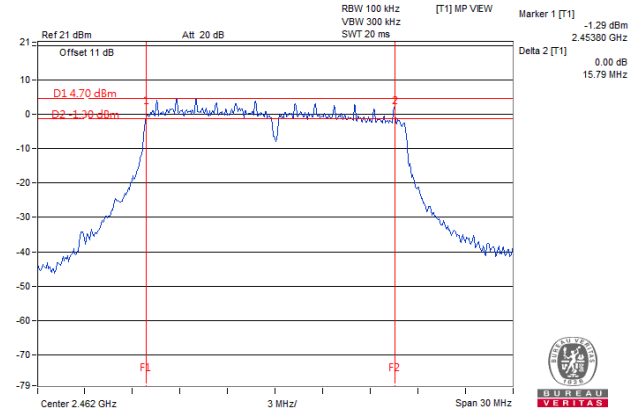
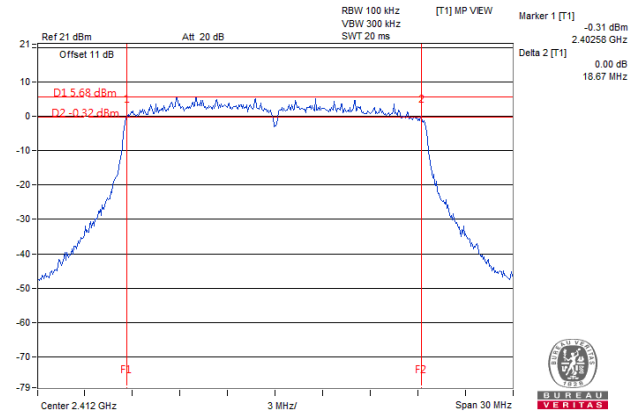
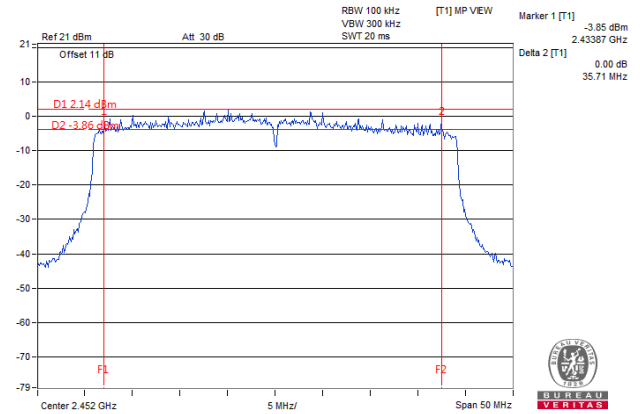
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	16.39	16.00	16.09	16.39	0.5	Pass
6	2437	16.11	16.36	16.01	15.99	0.5	Pass
11	2462	16.13	15.79	16.11	16.40	0.5	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	18.67	18.99	18.74	18.84	0.5	Pass
6	2437	18.77	18.71	18.79	18.87	0.5	Pass
11	2462	18.72	19.08	18.81	19.00	0.5	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
3	2422	38.08	37.95	38.11	38.23	0.5	Pass
6	2437	37.25	37.91	37.91	37.39	0.5	Pass
9	2452	35.71	37.10	36.64	36.49	0.5	Pass

Spectrum Plot of Worst Value	
802.11b	802.11g
	
802.11ax (HE20)	802.11ax (HE40)
	

Test Mode C

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	7.10	8.08	8.07	7.57	0.5	Pass
6	2437	7.13	7.10	7.62	8.07	0.5	Pass
11	2462	7.60	8.07	7.60	7.59	0.5	Pass

802.11g

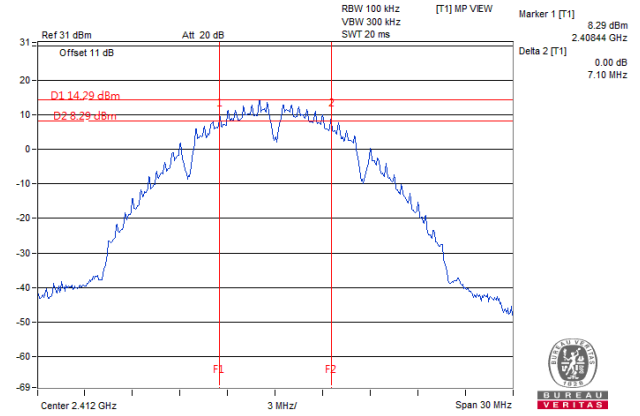
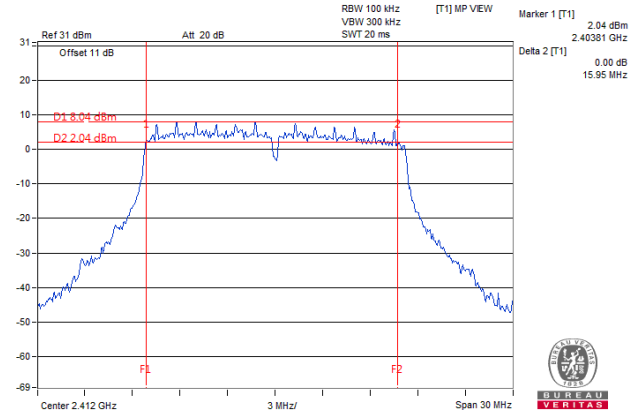
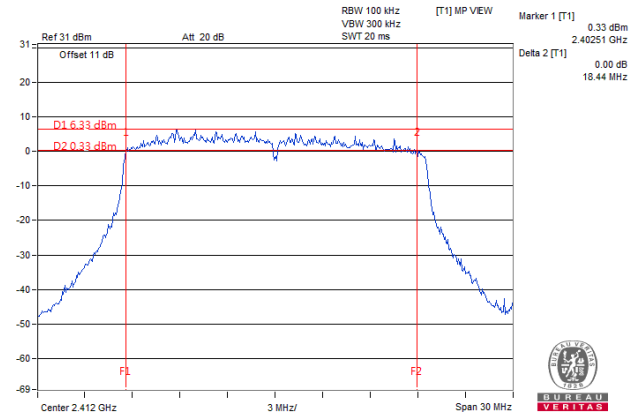
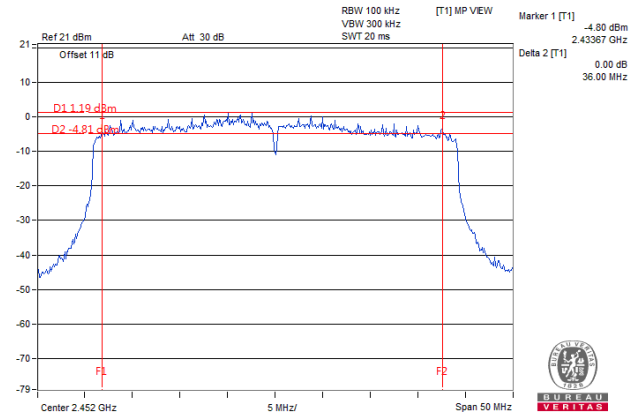
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	16.06	15.95	16.09	16.08	0.5	Pass
6	2437	16.12	16.34	16.01	15.98	0.5	Pass
11	2462	16.38	16.11	16.11	16.37	0.5	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	18.44	18.76	18.74	18.59	0.5	Pass
6	2437	18.88	18.97	18.79	18.75	0.5	Pass
11	2462	18.84	18.98	18.81	19.00	0.5	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
3	2422	38.24	38.12	38.11	38.21	0.5	Pass
6	2437	37.84	38.09	37.91	37.77	0.5	Pass
9	2452	36.00	37.47	36.64	36.66	0.5	Pass

Spectrum Plot of Worst Value	
802.11b	802.11g
	
802.11ax (HE20)	802.11ax (HE40)
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

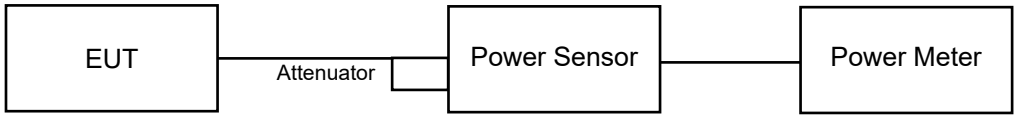
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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.

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

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.

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as item 4.3.6.

4.4.7 Test Results

Test Mode A

CDD Mode

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	22.81	23.11	22.66	22.80	770.677	28.87	30	Pass
6	2437	23.11	23.49	22.89	22.51	**800.776**	29.04	30	Pass
11	2462	21.69	22.23	21.42	21.94	609.670	27.85	30	Pass

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	18.91	19.22	18.61	18.55	305.589	24.85	30	Pass
6	2437	23.03	23.22	22.66	22.85	788.057	28.97	30	Pass
11	2462	16.02	16.71	15.28	16.17	162.005	22.10	30	Pass

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	17.88	18.08	17.28	17.18	231.341	23.64	30	Pass
6	2437	21.43	22.09	21.01	22.11	589.541	27.71	30	Pass
11	2462	13.06	13.65	12.45	13.05	81.167	19.09	30	Pass

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	14.86	15.17	14.49	14.08	117.210	20.69	30	Pass
6	2437	15.95	16.37	15.47	16.39	161.494	22.08	30	Pass
9	2452	15.75	16.46	15.38	16.14	157.472	21.97	30	Pass

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	17.99	18.21	17.42	17.31	238.207	23.77	30	Pass
6	2437	21.57	22.23	21.15	22.18	606.171	27.83	30	Pass
11	2462	13.12	13.71	12.54	13.19	82.800	19.18	30	Pass

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	14.91	15.25	14.61	14.19	119.620	20.78	30	Pass
6	2437	16.07	16.44	15.57	16.54	165.653	22.19	30	Pass
9	2452	16.12	16.54	15.47	16.23	163.221	22.13	30	Pass

Test Mode A

Beamforming Mode

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	17.88	18.08	17.28	17.18	231.341	23.64	23.98	Pass
6	2437	17.69	18.10	17.21	17.22	228.639	23.59	23.98	Pass
11	2462	13.06	13.65	12.45	13.05	81.167	19.09	23.98	Pass

*Directional gain = 6dBi + 10log (4) = 12.02dBi > 6dBi, so the power limit shall be reduced to 30-(12.02-6) = 23.98dBm

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	14.86	15.17	14.49	14.08	117.210	20.69	23.98	Pass
6	2437	15.95	16.37	15.47	16.39	161.494	22.08	23.98	Pass
9	2452	15.75	16.46	15.38	16.14	157.472	21.97	23.98	Pass

*Directional gain = 6dBi + 10log (4) = 12.02dBi > 6dBi, so the power limit shall be reduced to 30-(12.02-6) = 23.98dBm

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	17.99	18.21	17.42	17.31	**238.207**	23.77	23.98	Pass
6	2437	17.82	18.22	17.31	17.25	233.824	23.69	23.98	Pass
11	2462	13.12	13.71	12.54	13.19	82.800	19.18	23.98	Pass

*Directional gain = 6dBi + 10log (4) = 12.02dBi > 6dBi, so the power limit shall be reduced to 30-(12.02-6) = 23.98dBm

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	14.91	15.25	14.61	14.19	119.620	20.78	23.98	Pass
6	2437	16.07	16.44	15.57	16.54	165.653	22.19	23.98	Pass
9	2452	16.12	16.54	15.47	16.23	163.221	22.13	23.98	Pass

*Directional gain = 6dBi + 10log (4) = 12.02dBi > 6dBi, so the power limit shall be reduced to 30-(12.02-6) = 23.98dBm

Test Mode C

CDD Mode

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	22.41	23.13	22.19	22.71	731.985	28.65	30	Pass
6	2437	23.21	23.24	22.41	22.31	764.671	28.83	30	Pass
11	2462	21.95	23.01	22.02	22.57	696.600	28.43	30	Pass

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	18.23	18.81	18.22	18.71	283.236	24.52	30	Pass
6	2437	22.82	23.15	22.52	22.78	766.283	28.84	30	Pass
11	2462	17.82	18.63	17.39	18.27	255.450	24.07	30	Pass

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	16.75	17.52	16.44	17.41	202.945	23.07	30	Pass
6	2437	22.70	23.14	22.50	22.60	752.070	28.76	30	Pass
11	2462	13.06	13.63	12.49	13.21	81.981	19.14	30	Pass

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	14.74	15.38	14.44	15.22	125.363	20.98	30	Pass
6	2437	17.05	17.35	16.48	17.51	205.851	23.14	30	Pass
9	2452	13.86	14.45	13.57	14.12	100.757	20.03	30	Pass

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	16.89	17.58	16.57	17.52	208.033	23.18	30	Pass
6	2437	22.82	23.21	22.59	22.68	**767.742**	28.85	30	Pass
11	2462	13.17	13.72	12.64	13.28	83.946	19.24	30	Pass

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	14.82	15.52	14.53	15.27	128.014	21.07	30	Pass
6	2437	17.13	17.49	16.58	17.61	210.922	23.24	30	Pass
9	2452	13.96	14.57	13.64	14.18	102.833	20.12	30	Pass

Test Mode C

Beamforming Mode

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	16.75	17.52	16.44	17.41	202.945	23.07	23.98	Pass
6	2437	17.75	18.19	17.55	17.65	240.579	23.81	23.98	Pass
11	2462	13.06	13.63	12.49	13.21	81.981	19.14	23.98	Pass

*Directional gain = 6dBi + 10log (4) = 12.02dBi > 6dBi, so the power limit shall be reduced to 30-(12.02-6) = 23.98dBm

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	14.74	15.38	14.44	15.22	125.363	20.98	23.98	Pass
6	2437	17.05	17.35	16.48	17.51	205.851	23.14	23.98	Pass
9	2452	13.86	14.45	13.57	14.12	100.757	20.03	23.98	Pass

*Directional gain = 6dBi + 10log (4) = 12.02dBi > 6dBi, so the power limit shall be reduced to 30-(12.02-6) = 23.98dBm

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	16.89	17.58	16.57	17.52	208.033	23.18	23.98	Pass
6	2437	17.87	18.26	17.64	17.73	**245.592**	23.90	23.98	Pass
11	2462	13.17	13.72	12.64	13.28	83.946	19.24	23.98	Pass

*Directional gain = 6dBi + 10log (4) = 12.02dBi > 6dBi, so the power limit shall be reduced to 30-(12.02-6) = 23.98dBm

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	14.82	15.52	14.53	15.27	128.014	21.07	23.98	Pass
6	2437	17.13	17.49	16.58	17.61	210.922	23.24	23.98	Pass
9	2452	13.96	14.57	13.64	14.18	102.833	20.12	23.98	Pass

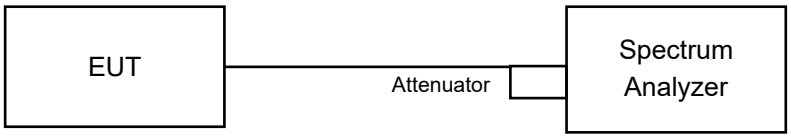
*Directional gain = 6dBi + 10log (4) = 12.02dBi > 6dBi, so the power limit shall be reduced to 30-(12.02-6) = 23.98dBm

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

For Average Power (Duty cycle ≥ 98%)
a) Set instrument center frequency to DTS channel center frequency.
b) Set span to at least 1.5 times the OBW.
c) Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d) Set VBW ≥3 x RBW.
e) Detector = power averaging (RMS) or sample detector (when RMS not available).
f) Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
g) Sweep time = auto couple.
h) Employ trace averaging (RMS) mode over a minimum of 100 traces.
i) Use the peak marker function to determine the maximum amplitude level.

For Average Power (Duty cycle < 98%)
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 ≤ RBW ≤ 100 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) 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.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as item 4.3.6.

4.5.7 Test Results

Test Mode A

802.11b

TX chain	Channel	Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)	10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-14.08	6.02	2.79	-5.27	1.98	Pass
	6	2437	-13.38	6.02	2.79	-4.57	1.98	Pass
	11	2462	-15.44	6.02	2.79	-6.63	1.98	Pass
1	1	2412	-13.96	6.02	2.79	-5.15	1.98	Pass
	6	2437	-13.63	6.02	2.79	-4.82	1.98	Pass
	11	2462	-14.68	6.02	2.79	-5.87	1.98	Pass
2	1	2412	-13.98	6.02	2.79	-5.17	1.98	Pass
	6	2437	-14.22	6.02	2.79	-5.41	1.98	Pass
	11	2462	-15.13	6.02	2.79	-6.32	1.98	Pass
3	1	2412	-14.12	6.02	2.79	-5.31	1.98	Pass
	6	2437	-13.38	6.02	2.79	-4.57	1.98	Pass
	11	2462	-15.44	6.02	2.79	-6.63	1.98	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = 6dBi + 10log (4) = 12.02dBi > 6dBi, so the power density limit shall be reduced to 8-(12.02-6) = 1.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11g

TX chain	Channel	Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)	10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-14.92	6.02	0.29	-8.61	1.98	Pass
	6	2437	-11.13	6.02	0.29	-4.82	1.98	Pass
	11	2462	-18.21	6.02	0.29	-11.90	1.98	Pass
1	1	2412	-14.39	6.02	0.29	-8.08	1.98	Pass
	6	2437	-10.42	6.02	0.29	-4.11	1.98	Pass
	11	2462	-17.76	6.02	0.29	-11.45	1.98	Pass
2	1	2412	-15.01	6.02	0.29	-8.70	1.98	Pass
	6	2437	-11.22	6.02	0.29	-4.91	1.98	Pass
	11	2462	-18.33	6.02	0.29	-12.02	1.98	Pass
3	1	2412	-15.13	6.02	0.29	-8.82	1.98	Pass
	6	2437	-11.13	6.02	0.29	-4.82	1.98	Pass
	11	2462	-18.21	6.02	0.29	-11.90	1.98	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = 6dBi + 10log (4) = 12.02dBi > 6dBi, so the power density limit shall be reduced to 8-(12.02-6) = 1.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE20)

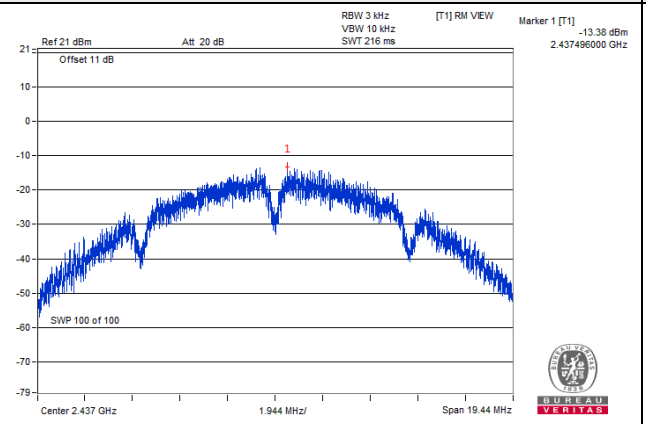
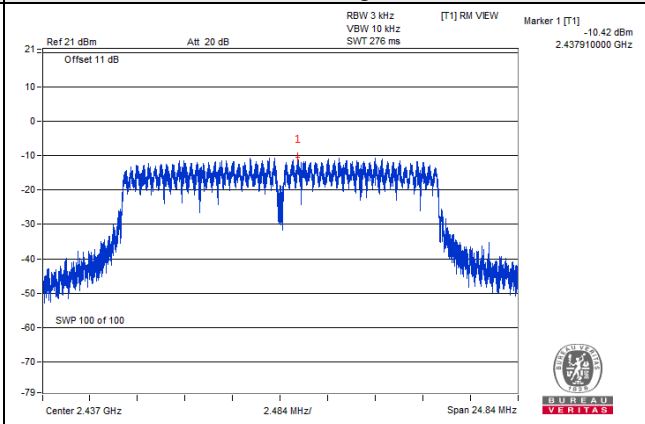
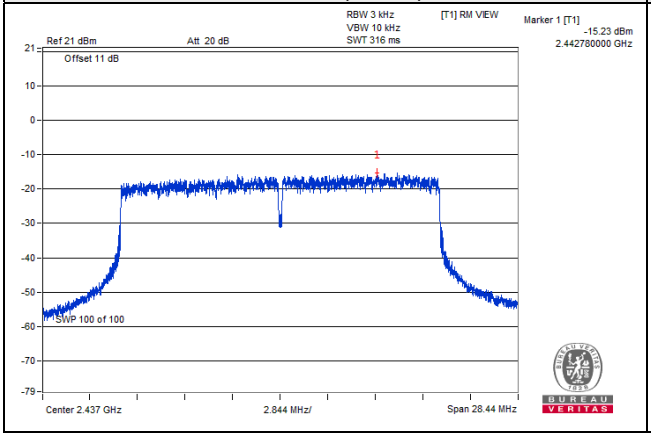
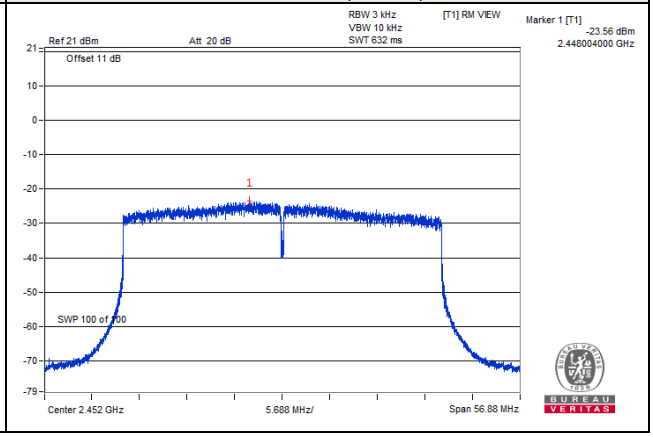
TX chain	Channel	Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)	10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-19.72	6.02	0.93	-12.77	1.98	Pass
	6	2437	-15.91	6.02	0.93	-8.96	1.98	Pass
	11	2462	-24.24	6.02	0.93	-17.29	1.98	Pass
1	1	2412	-19.53	6.02	0.93	-12.58	1.98	Pass
	6	2437	-15.23	6.02	0.93	-8.28	1.98	Pass
	11	2462	-23.99	6.02	0.93	-17.04	1.98	Pass
2	1	2412	-19.94	6.02	0.93	-12.99	1.98	Pass
	6	2437	-16.32	6.02	0.93	-9.37	1.98	Pass
	11	2462	-24.56	6.02	0.93	-17.61	1.98	Pass
3	1	2412	-19.73	6.02	0.93	-12.78	1.98	Pass
	6	2437	-15.91	6.02	0.93	-8.96	1.98	Pass
	11	2462	-24.24	6.02	0.93	-17.29	1.98	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = 6dBi + 10log (4) = 12.02dBi > 6dBi, so the power density limit shall be reduced to 8-(12.02-6) = 1.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

TX chain	Channel	Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)	10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	3	2422	-25.17	6.02	0.71	-18.44	1.98	Pass
	6	2437	-23.81	6.02	0.71	-17.08	1.98	Pass
	9	2452	-23.56	6.02	0.71	-16.83	1.98	Pass
1	3	2422	-25.01	6.02	0.71	-18.28	1.98	Pass
	6	2437	-23.85	6.02	0.71	-17.12	1.98	Pass
	9	2452	-23.56	6.02	0.71	-16.83	1.98	Pass
2	3	2422	-25.43	6.02	0.71	-18.7	1.98	Pass
	6	2437	-23.98	6.02	0.71	-17.25	1.98	Pass
	9	2452	-23.92	6.02	0.71	-17.19	1.98	Pass
3	3	2422	-25.12	6.02	0.71	-18.39	1.98	Pass
	6	2437	-23.81	6.02	0.71	-17.08	1.98	Pass
	9	2452	-23.56	6.02	0.71	-16.83	1.98	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = 6dBi + 10log (4) = 12.02dBi > 6dBi, so the power density limit shall be reduced to 8-(12.02-6) = 1.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11b	802.11g
	
802.11ax (HE20)	802.11ax (HE40)
	

Test Mode C

802.11b

TX chain	Channel	Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)	10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-13.47	6.02	1.24	-6.21	1.98	Pass
	6	2437	-12.86	6.02	1.24	-5.60	1.98	Pass
	11	2462	-14.27	6.02	1.24	-7.01	1.98	Pass
1	1	2412	-12.94	6.02	1.24	-5.68	1.98	Pass
	6	2437	-13.35	6.02	1.24	-6.09	1.98	Pass
	11	2462	-14.08	6.02	1.24	-6.82	1.98	Pass
2	1	2412	-13.98	6.02	1.24	-6.72	1.98	Pass
	6	2437	-14.22	6.02	1.24	-6.96	1.98	Pass
	11	2462	-13.67	6.02	1.24	-6.41	1.98	Pass
3	1	2412	-14.21	6.02	1.24	-6.95	1.98	Pass
	6	2437	-12.86	6.02	1.24	-5.60	1.98	Pass
	11	2462	-14.27	6.02	1.24	-7.01	1.98	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = 6dBi + 10log (4) = 12.02dBi > 6dBi, so the power density limit shall be reduced to 8-(12.02-6) = 1.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11g

TX chain	Channel	Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)	10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-15.14	6.02	0.29	-8.83	1.98	Pass
	6	2437	-10.58	6.02	0.29	-4.27	1.98	Pass
	11	2462	-15.40	6.02	0.29	-9.09	1.98	Pass
1	1	2412	-14.57	6.02	0.29	-8.26	1.98	Pass
	6	2437	-10.28	6.02	0.29	-3.97	1.98	Pass
	11	2462	-15.33	6.02	0.29	-9.02	1.98	Pass
2	1	2412	-15.01	6.02	0.29	-8.70	1.98	Pass
	6	2437	-11.22	6.02	0.29	-4.91	1.98	Pass
	11	2462	-18.33	6.02	0.29	-12.02	1.98	Pass
3	1	2412	-14.93	6.02	0.29	-8.62	1.98	Pass
	6	2437	-10.58	6.02	0.29	-4.27	1.98	Pass
	11	2462	-15.40	6.02	0.29	-9.09	1.98	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = 6dBi + 10log (4) = 12.02dBi > 6dBi, so the power density limit shall be reduced to 8-(12.02-6) = 1.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE20)

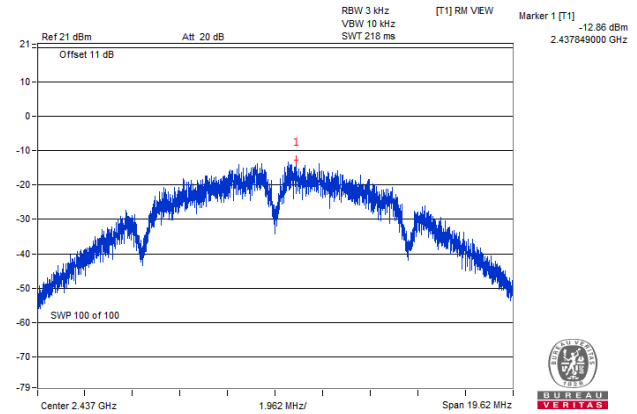
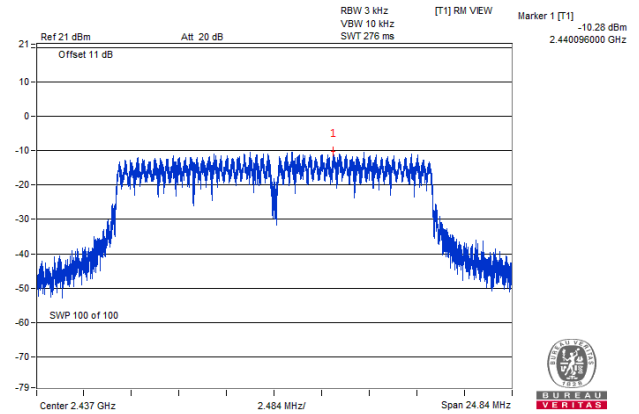
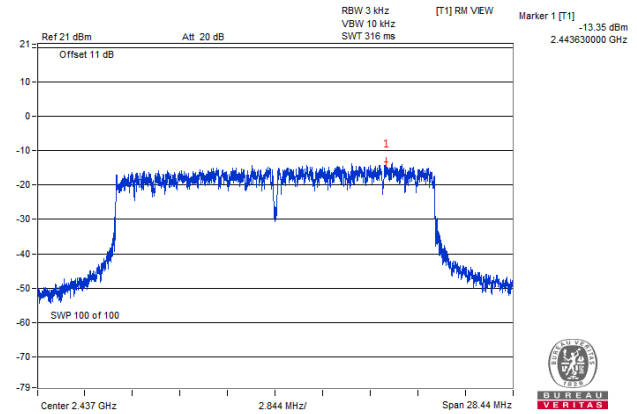
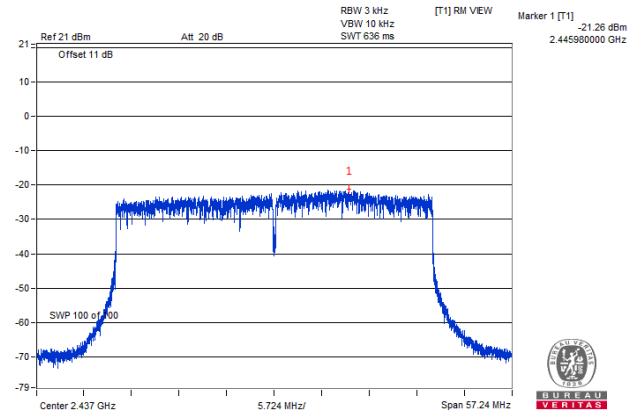
TX chain	Channel	Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)	10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-19.26	6.02	0.76	-12.48	1.98	Pass
	6	2437	-14.58	6.02	0.76	-7.80	1.98	Pass
	11	2462	-23.61	6.02	0.76	-16.83	1.98	Pass
1	1	2412	-19.30	6.02	0.76	-12.52	1.98	Pass
	6	2437	-13.35	6.02	0.76	-6.57	1.98	Pass
	11	2462	-22.93	6.02	0.76	-16.15	1.98	Pass
2	1	2412	-19.94	6.02	0.76	-13.16	1.98	Pass
	6	2437	-16.32	6.02	0.76	-9.54	1.98	Pass
	11	2462	-24.56	6.02	0.76	-17.78	1.98	Pass
3	1	2412	-19.91	6.02	0.76	-13.13	1.98	Pass
	6	2437	-14.58	6.02	0.76	-7.80	1.98	Pass
	11	2462	-23.61	6.02	0.76	-16.83	1.98	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = 6dBi + 10log (4) = 12.02dBi > 6dBi, so the power density limit shall be reduced to 8-(12.02-6) = 1.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

TX chain	Channel	Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)	10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	3	2422	-24.13	6.02	0.77	-17.34	1.98	Pass
	6	2437	-21.31	6.02	0.77	-14.52	1.98	Pass
	9	2452	-23.68	6.02	0.77	-16.89	1.98	Pass
1	3	2422	-23.26	6.02	0.77	-16.47	1.98	Pass
	6	2437	-21.26	6.02	0.77	-14.47	1.98	Pass
	9	2452	-24.07	6.02	0.77	-17.28	1.98	Pass
2	3	2422	-25.43	6.02	0.77	-18.64	1.98	Pass
	6	2437	-23.98	6.02	0.77	-17.19	1.98	Pass
	9	2452	-23.92	6.02	0.77	-17.13	1.98	Pass
3	3	2422	-23.95	6.02	0.77	-17.16	1.98	Pass
	6	2437	-21.31	6.02	0.77	-14.52	1.98	Pass
	9	2452	-23.68	6.02	0.77	-16.89	1.98	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional gain = 6dBi + 10log (4) = 12.02dBi > 6dBi, so the power density limit shall be reduced to 8-(12.02-6) = 1.98dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

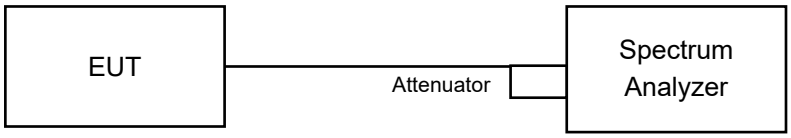
Spectrum Plot of Worst Value	
802.11b	802.11g
	
802.11ax (HE20)	802.11ax (HE40)
	

4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOBE

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

Same as item 4.3.6.

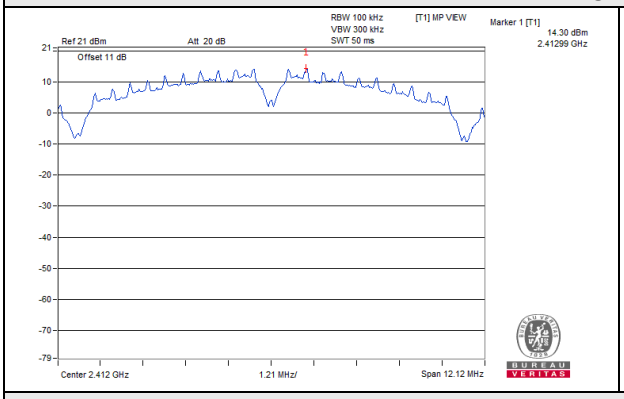
4.6.7 Test Results

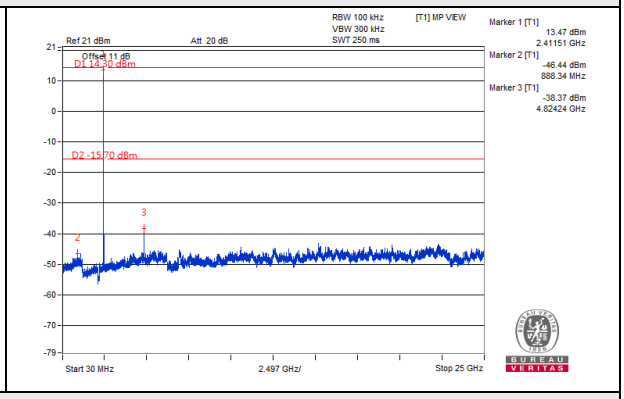
The conducted emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit.
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.

Test Mode A

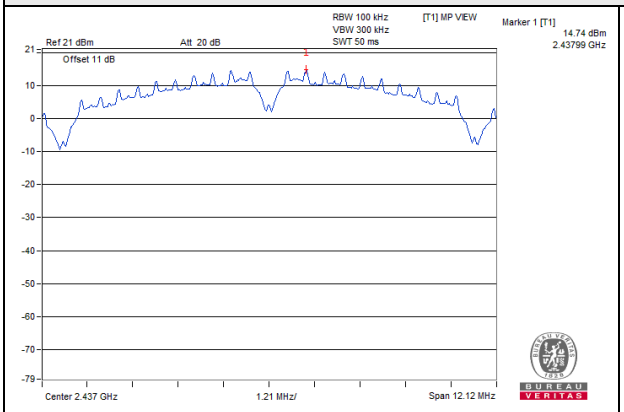
802.11b_Chain 0

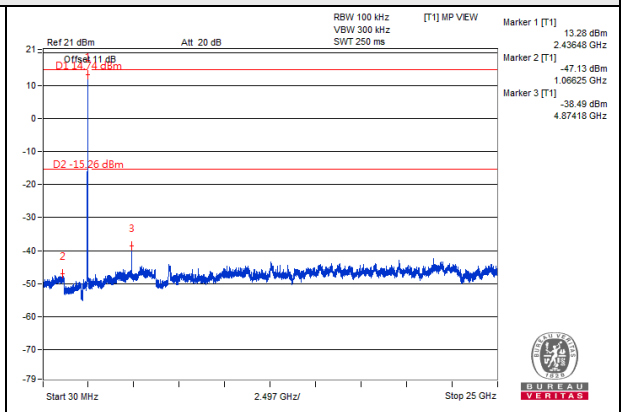
CH 1



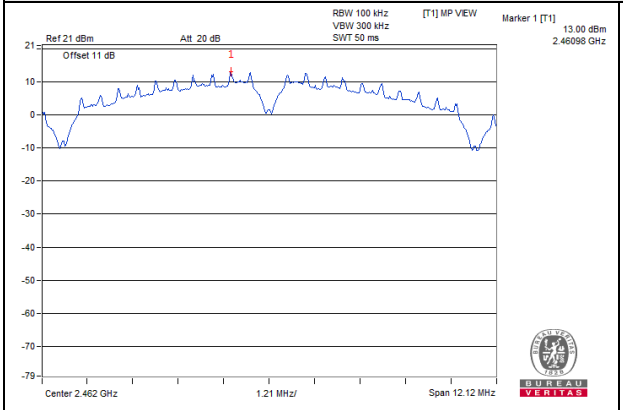


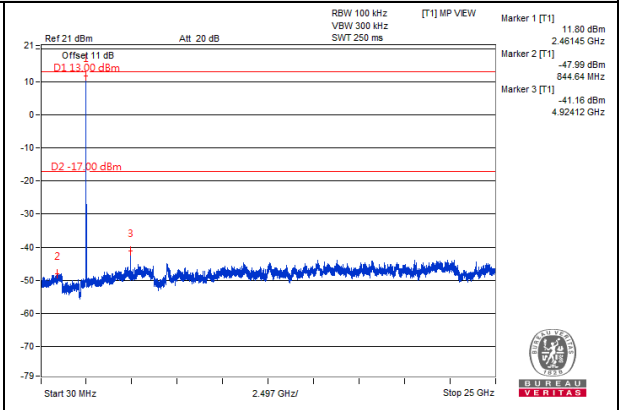
CH 6



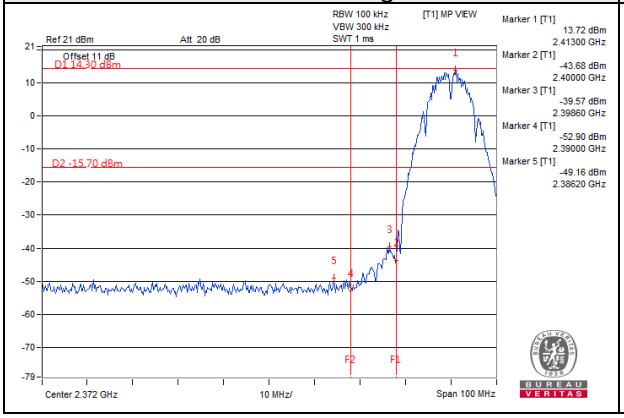


CH 11

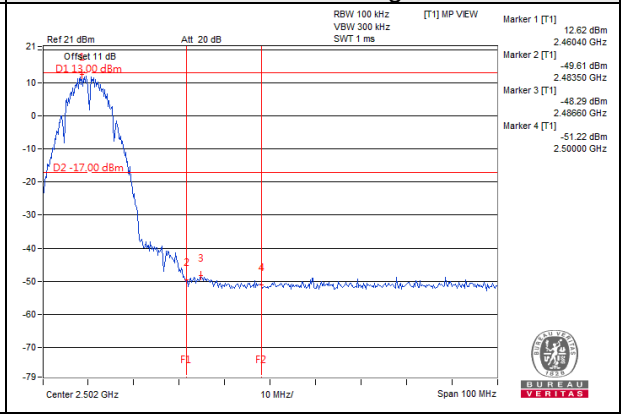




CH 1 Band edge

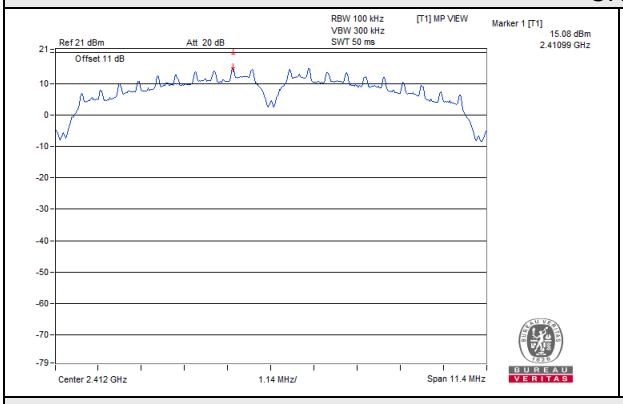


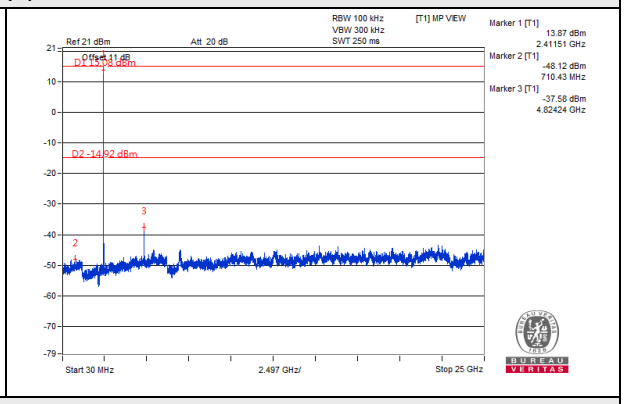
CH 11 Band edge



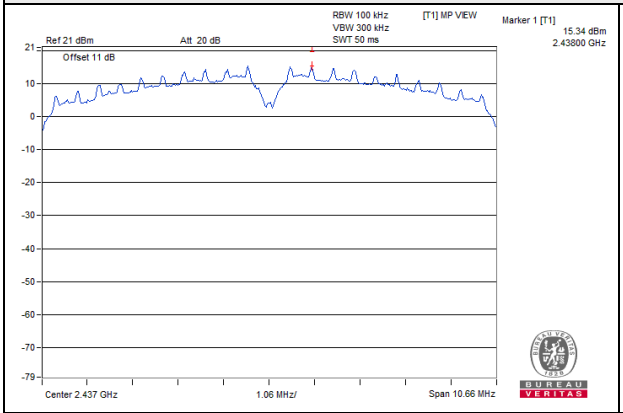
802.11b_Chain 1

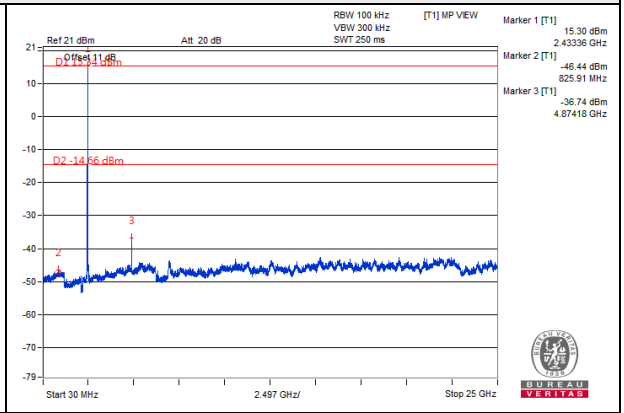
CH 1



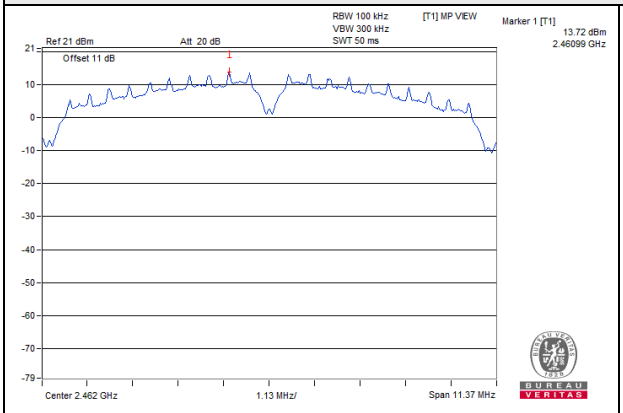


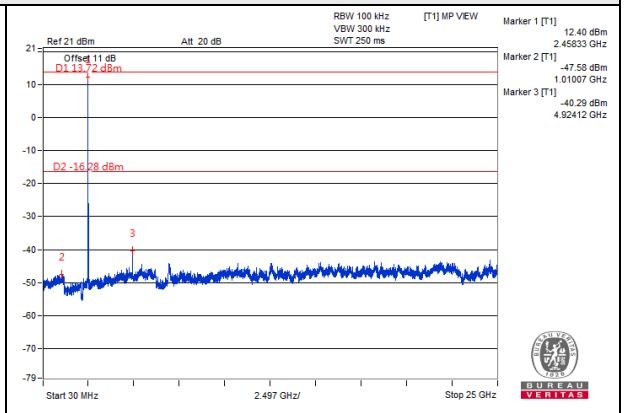
CH 6



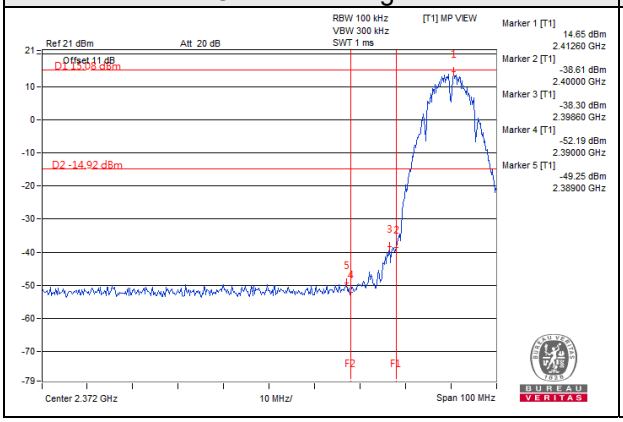


CH 11

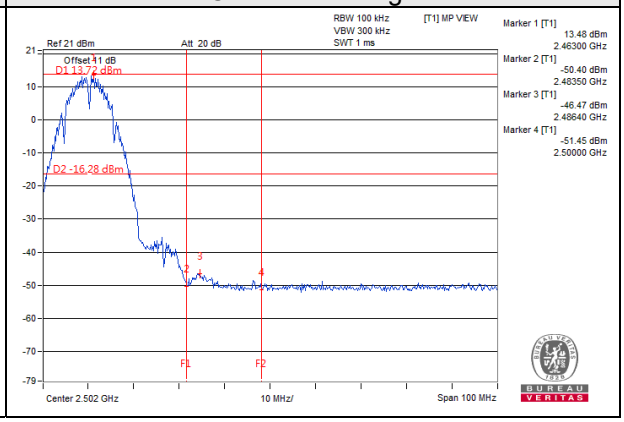




CH 1 Band edge

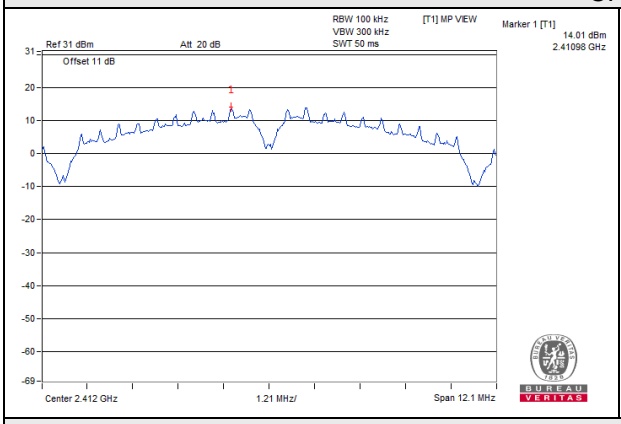


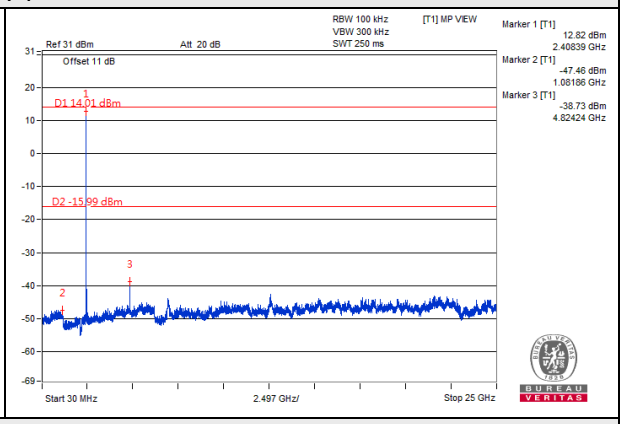
CH 11 Band edge



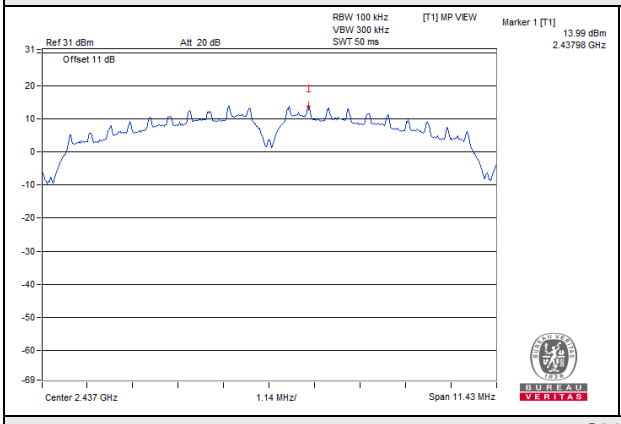
802.11b_Chain 2

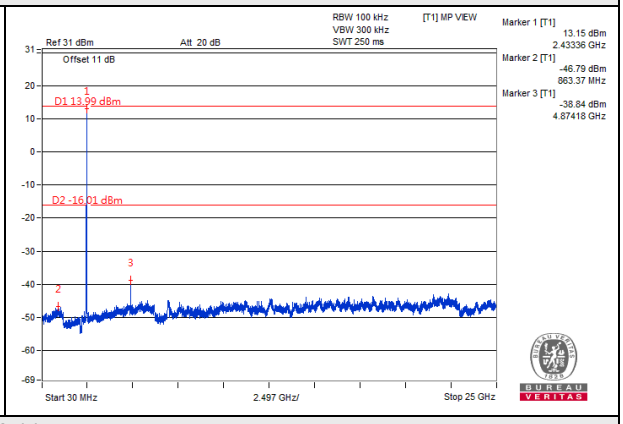
CH 1



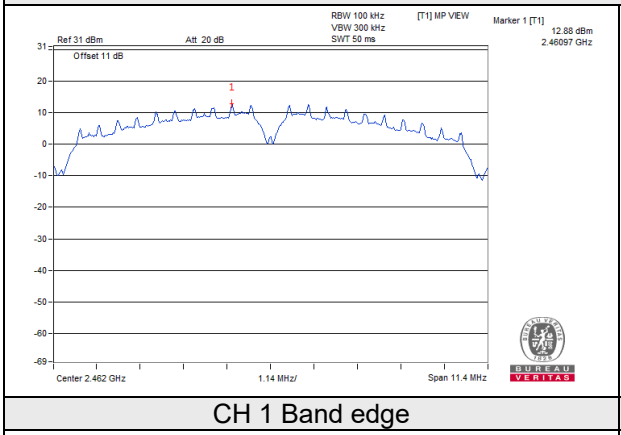


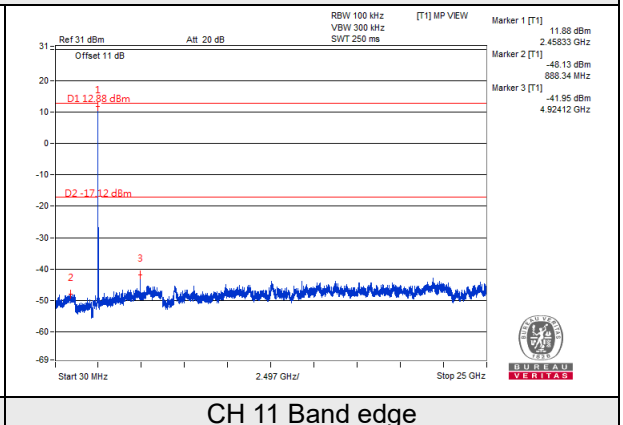
CH 6



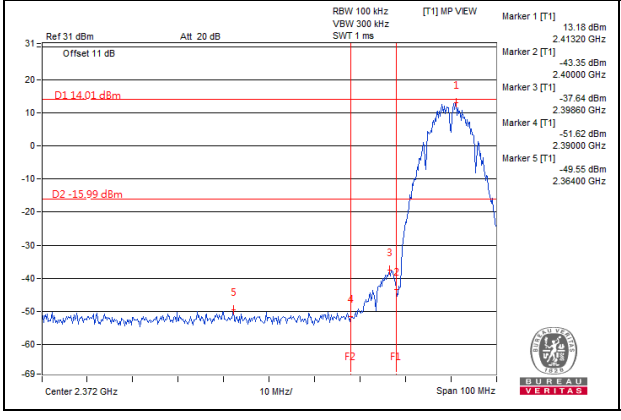


CH 11

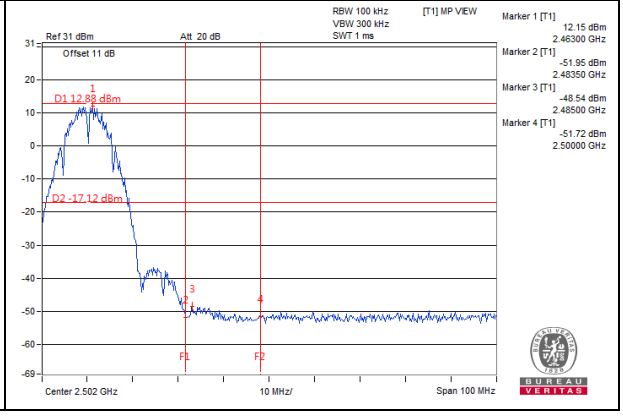




CH 1 Band edge

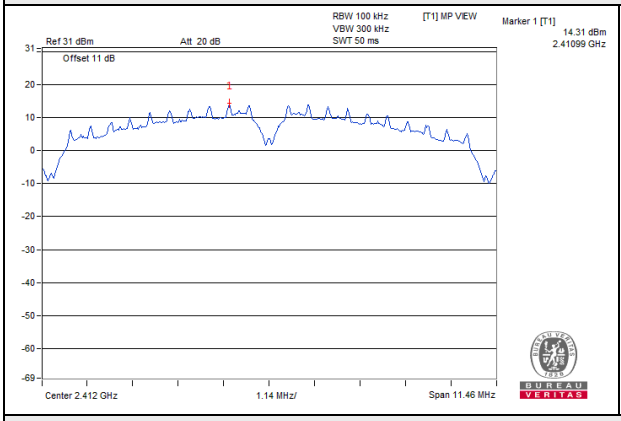


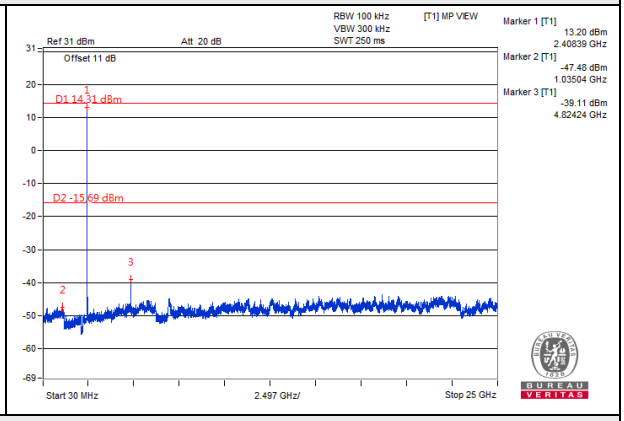
CH 11 Band edge



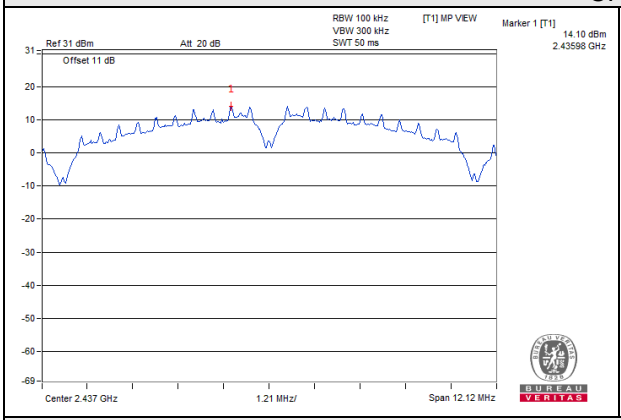
802.11b_Chain 3

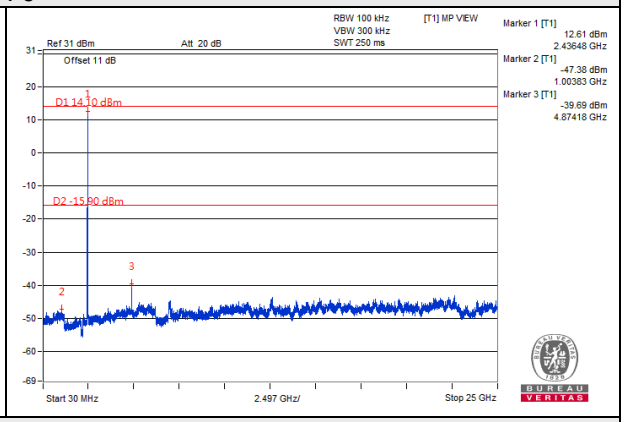
CH 1



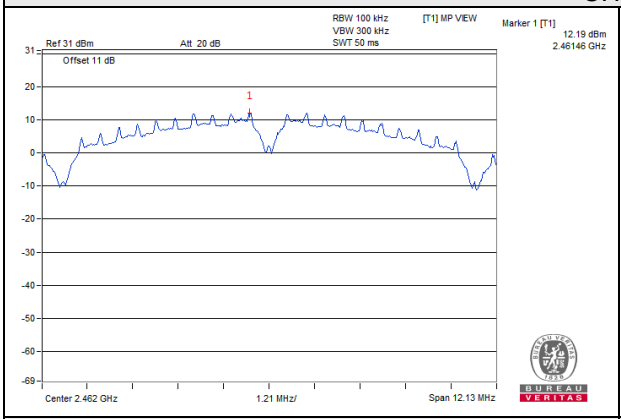


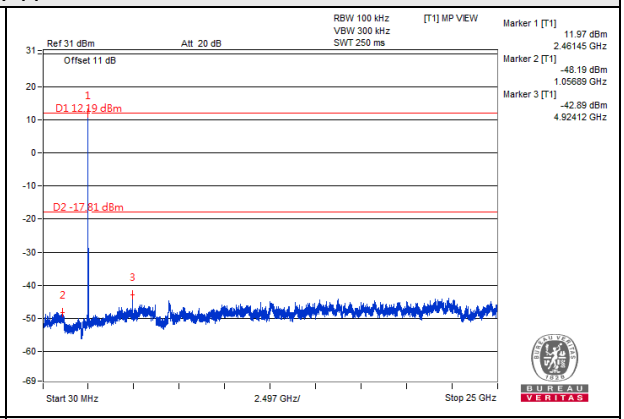
CH 6



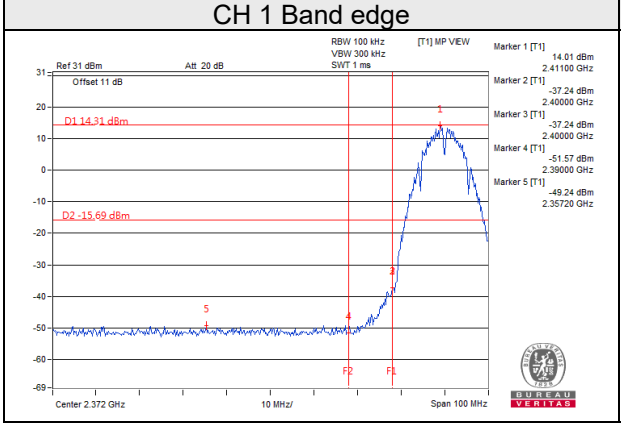


CH 11

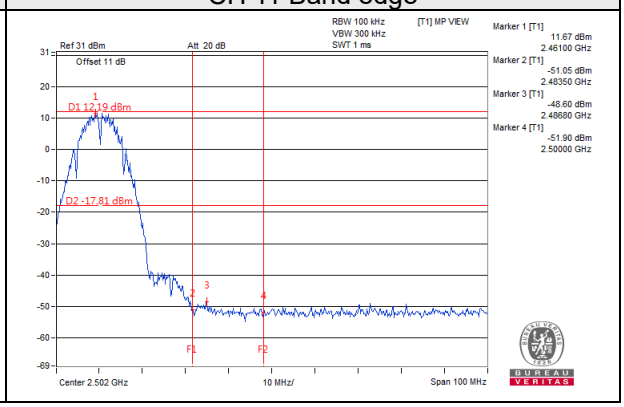




CH 1 Band edge

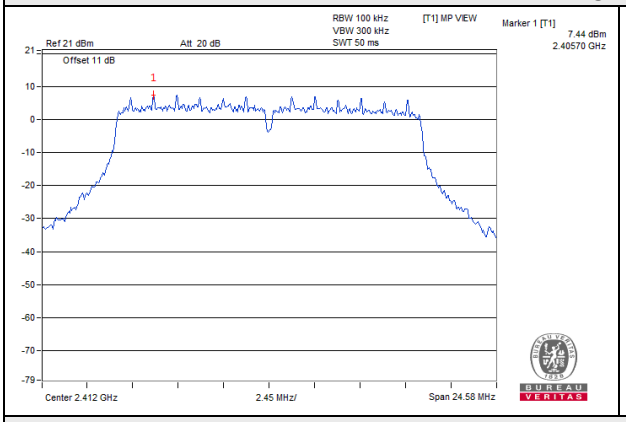


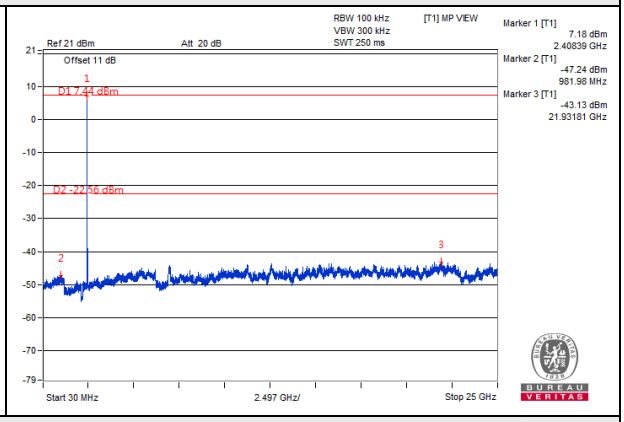
CH 11 Band edge



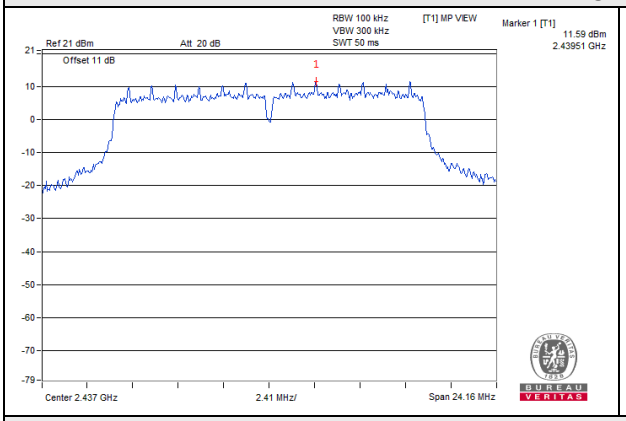
802.11g_Chain 0

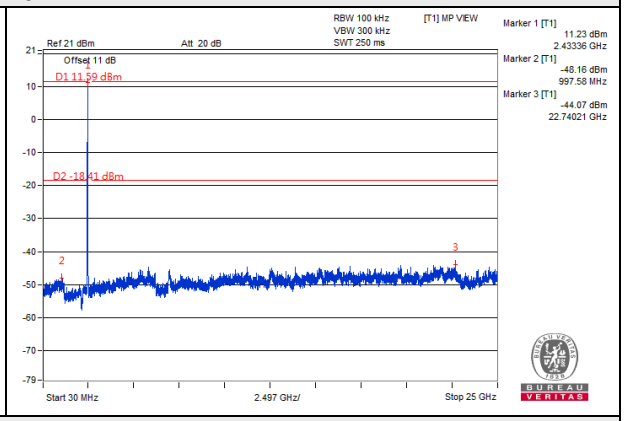
CH 1



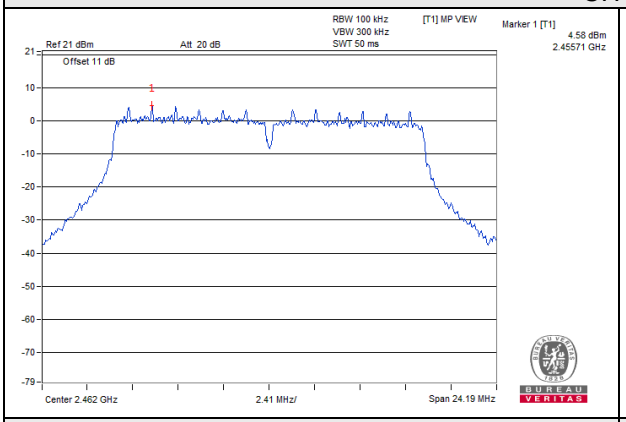


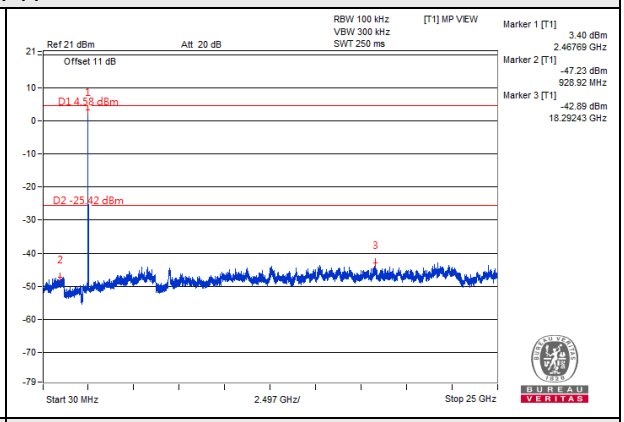
CH 6



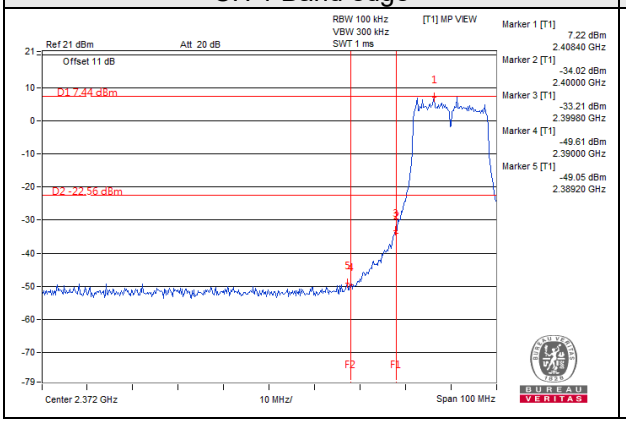


CH 11

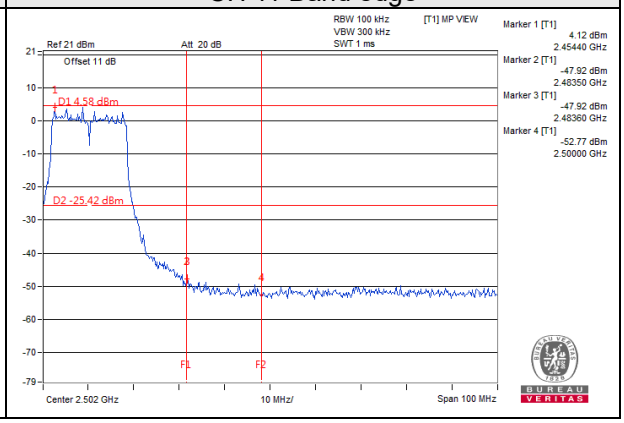




CH 1 Band edge

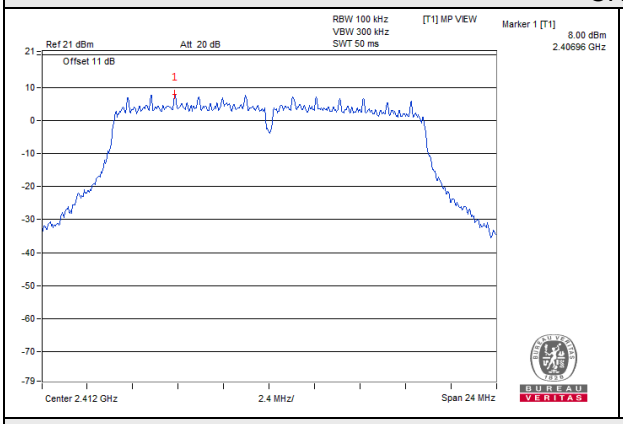


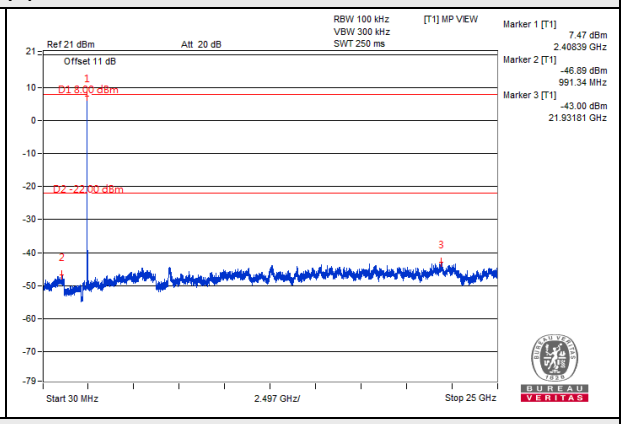
CH 11 Band edge



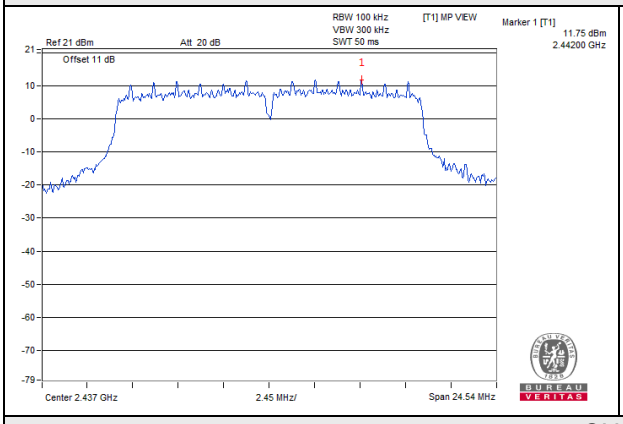
802.11g_Chain 1

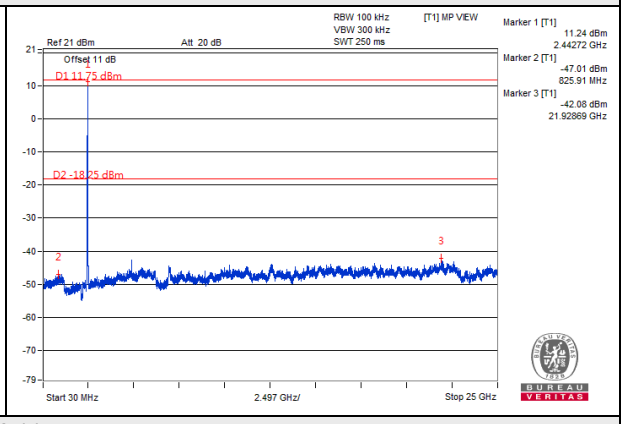
CH 1



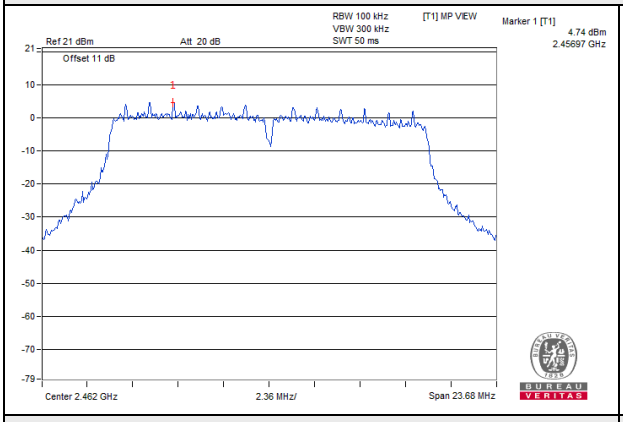


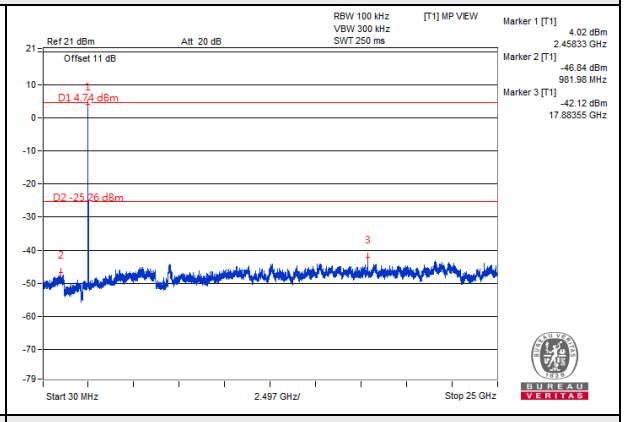
CH 6



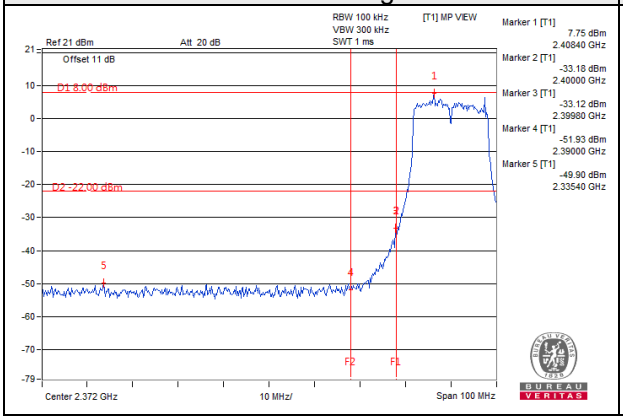


CH 11

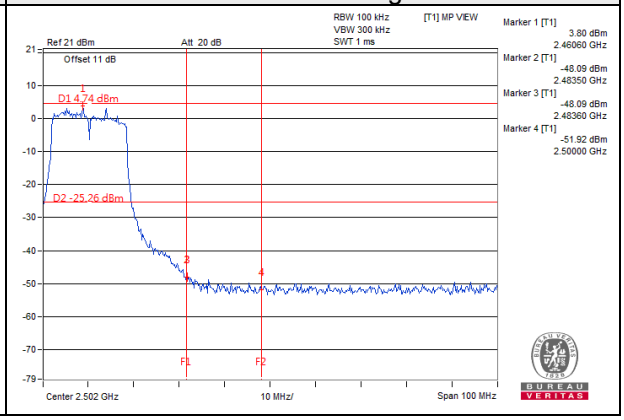




CH 1 Band edge

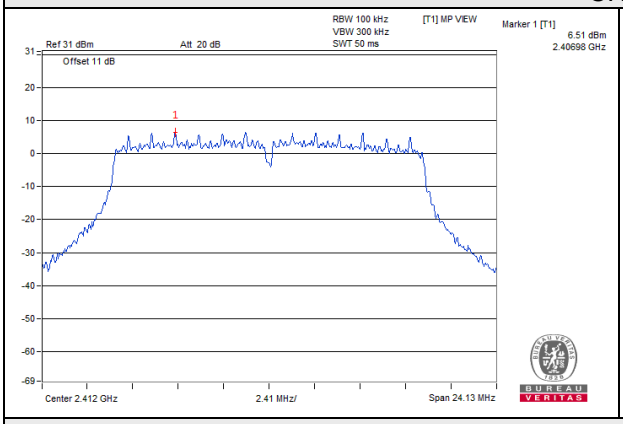


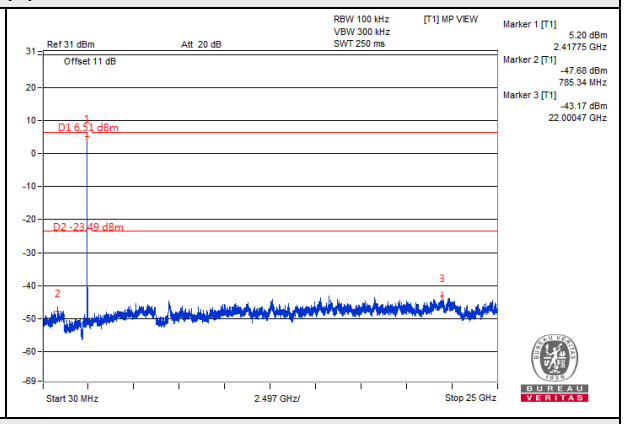
CH 11 Band edge



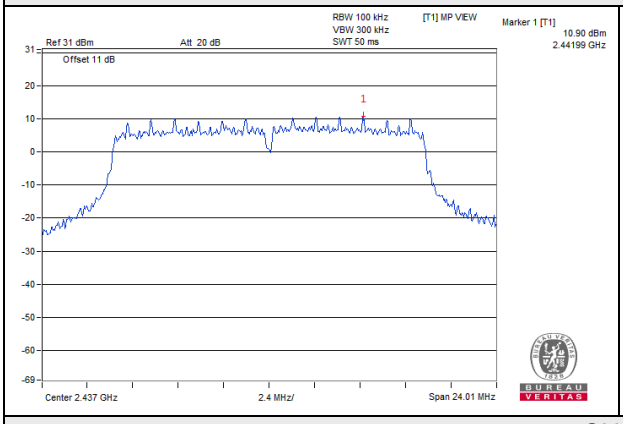
802.11g_Chain 2

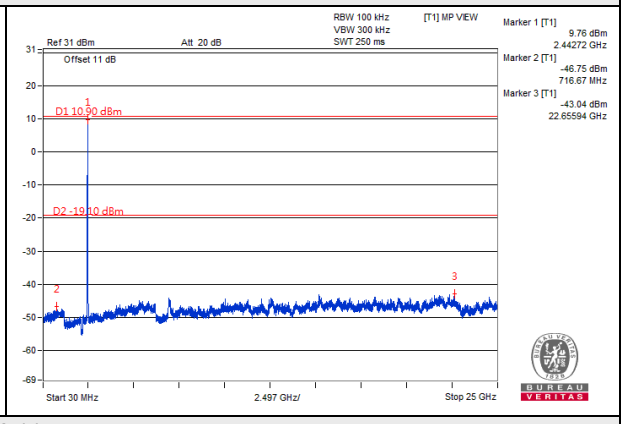
CH 1



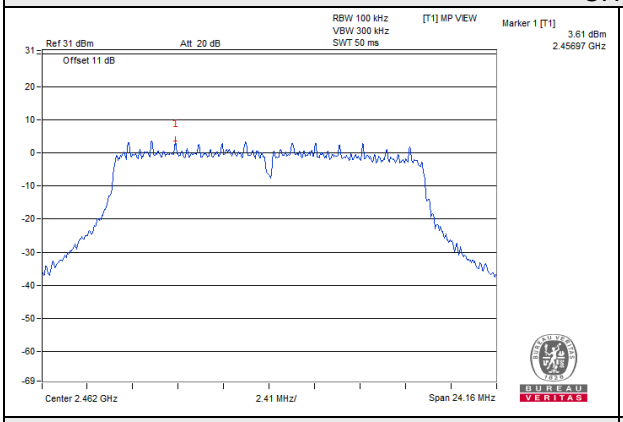


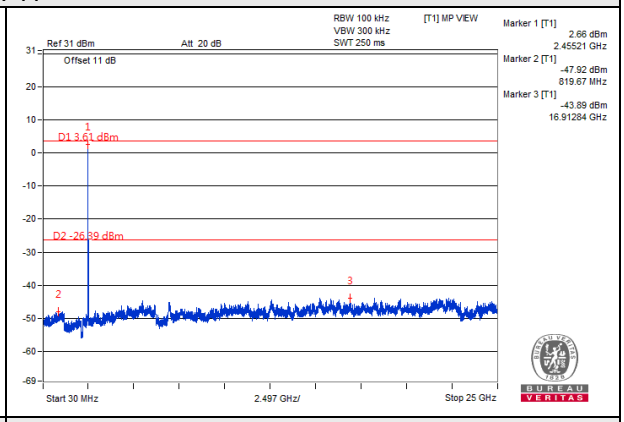
CH 6



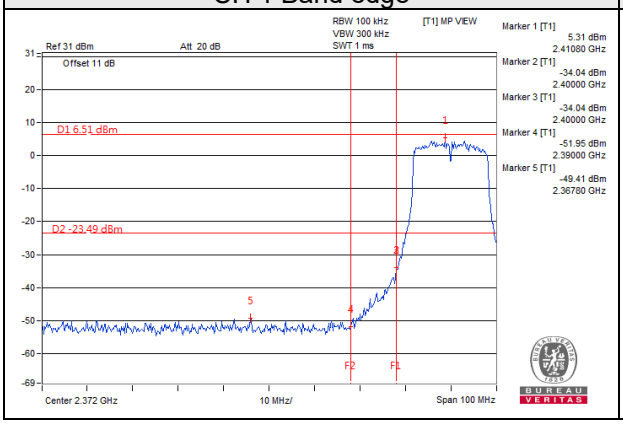


CH 11

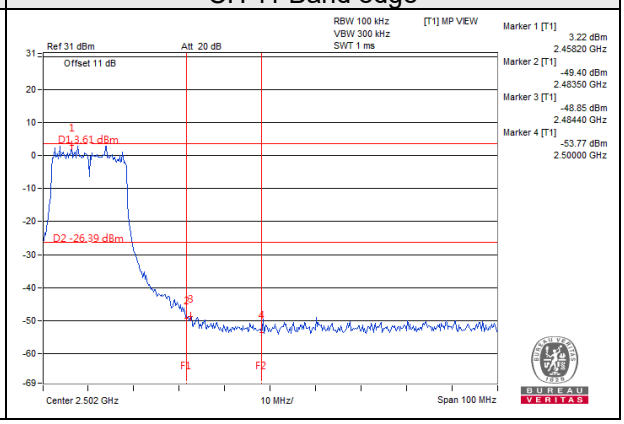




CH 1 Band edge

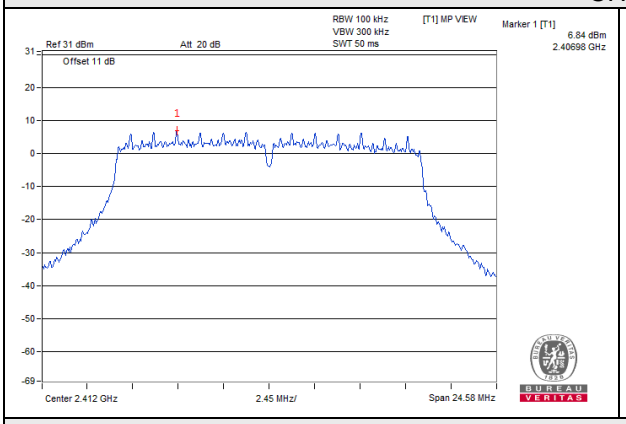


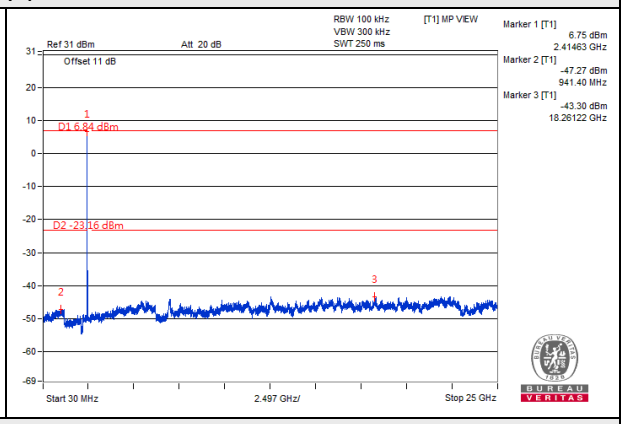
CH 11 Band edge



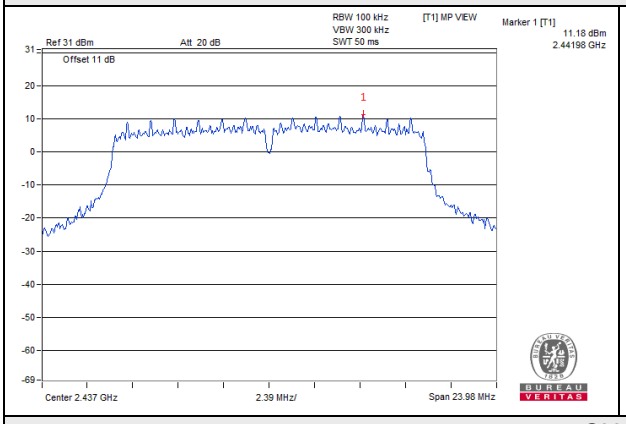
802.11g_Chain 3

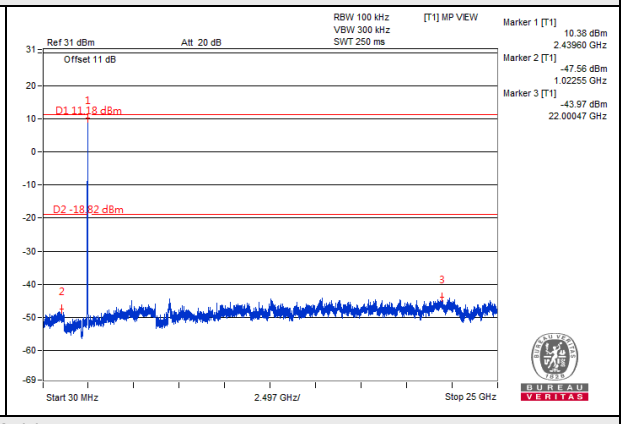
CH 1



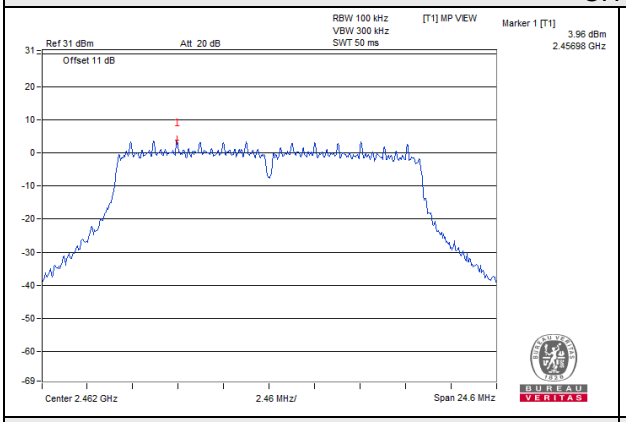


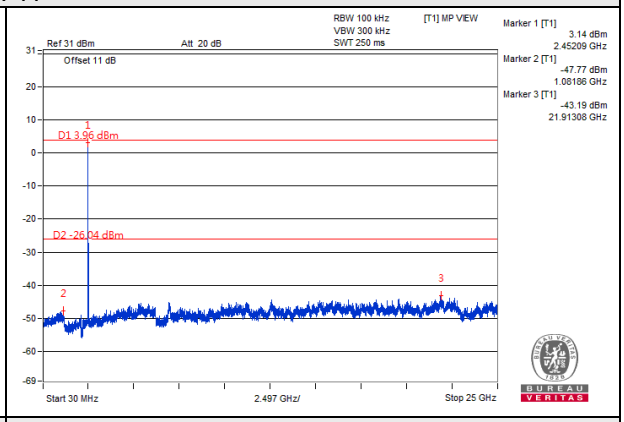
CH 6



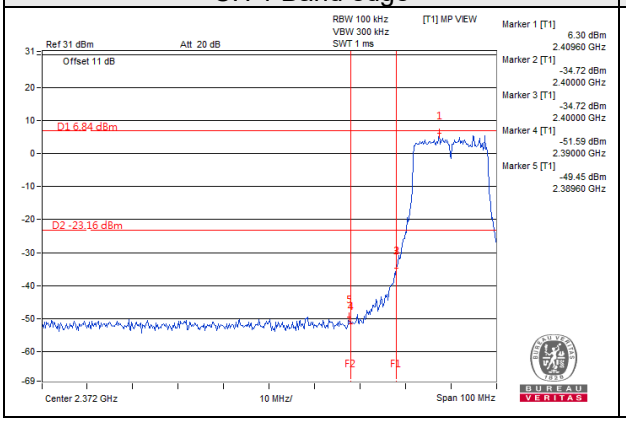


CH 11

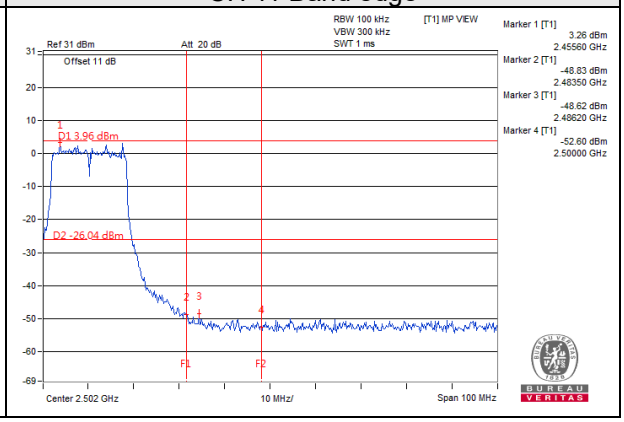




CH 1 Band edge

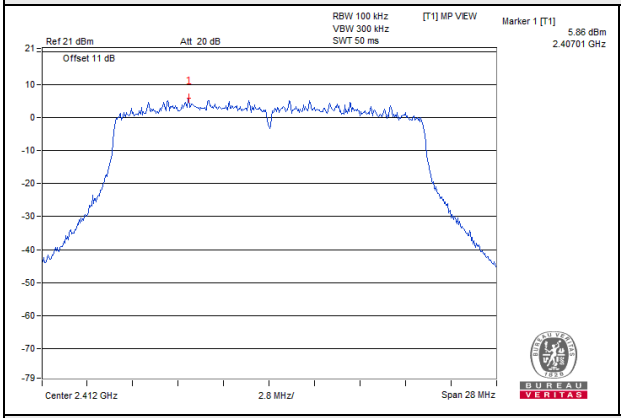


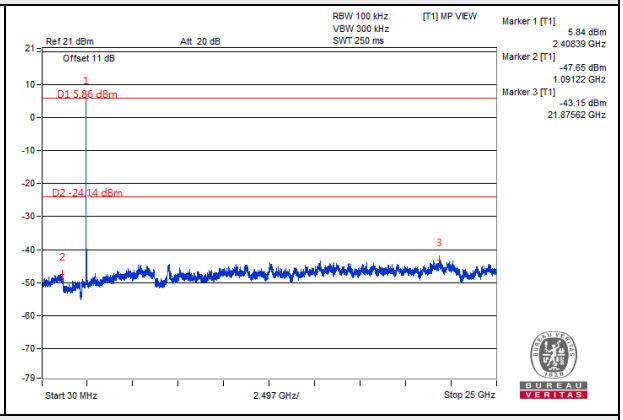
CH 11 Band edge



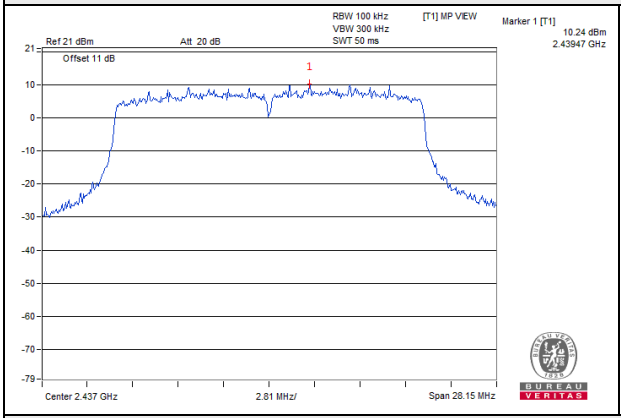
802.11ax (HE20)_Chain 0

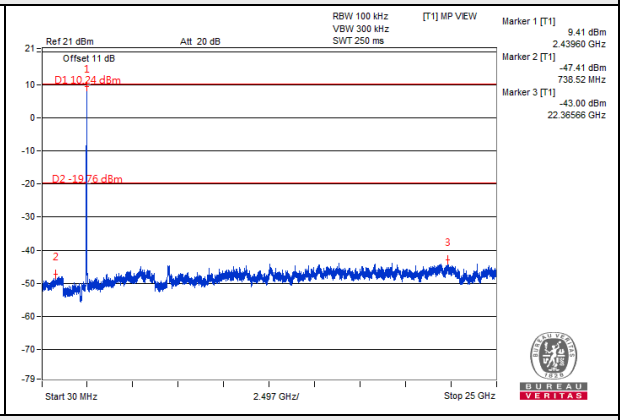
CH 1



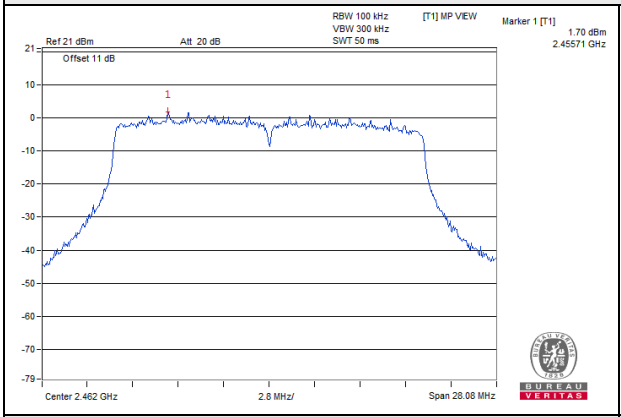


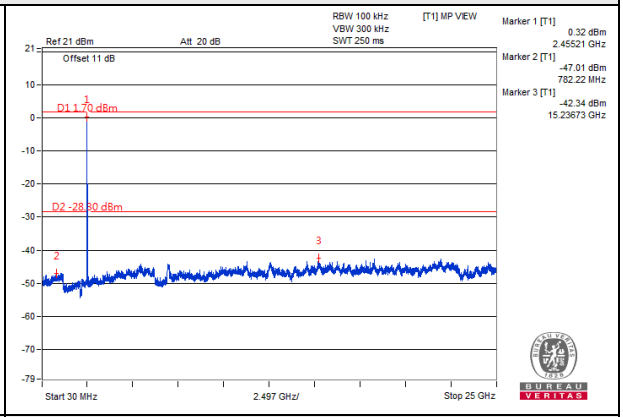
CH 6



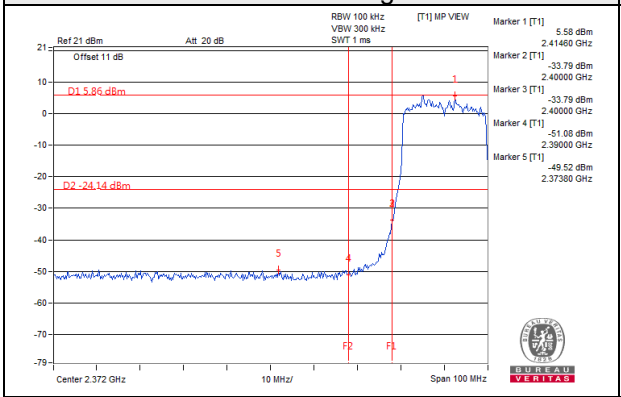


CH 11

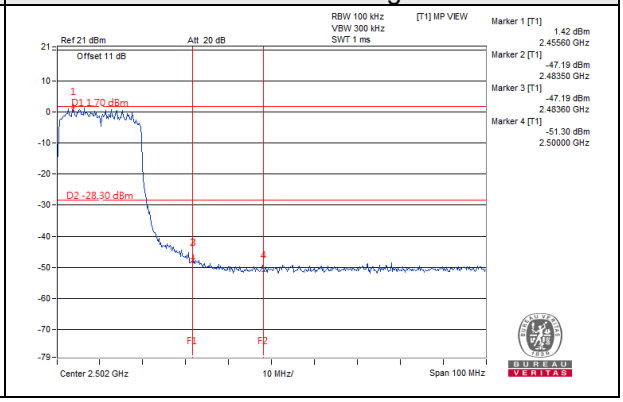




CH 1 Band edge

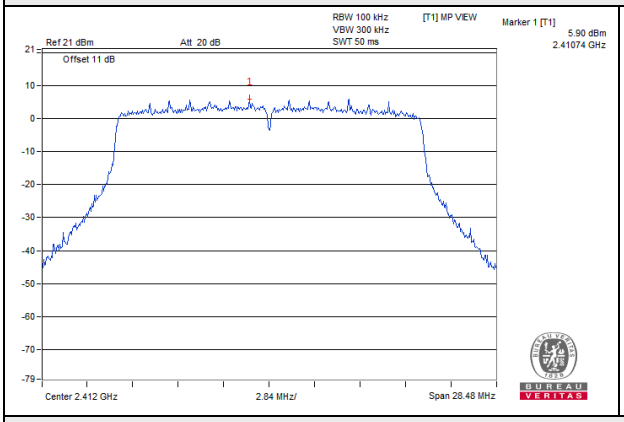


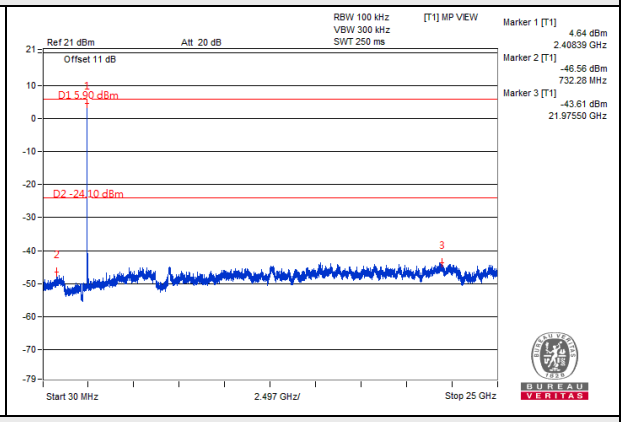
CH 11 Band edge



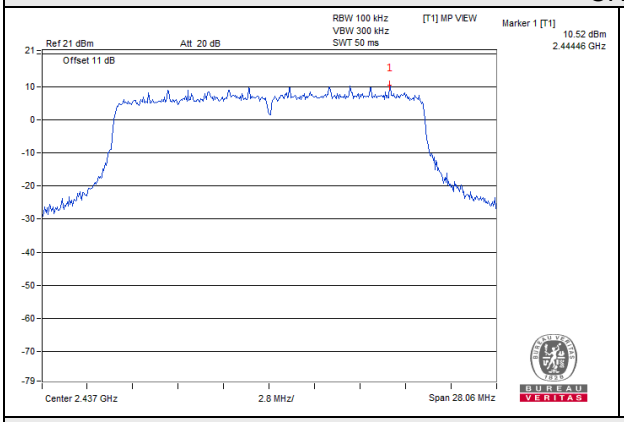
802.11ax (HE20)_Chain 1

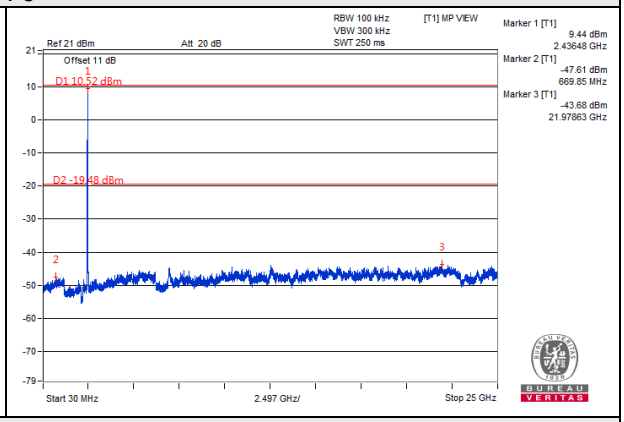
CH 1



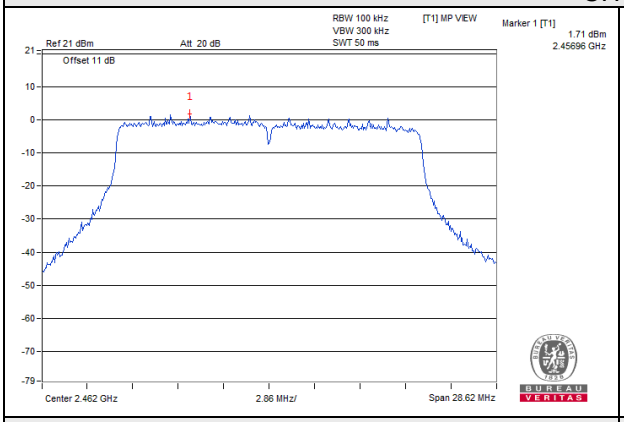


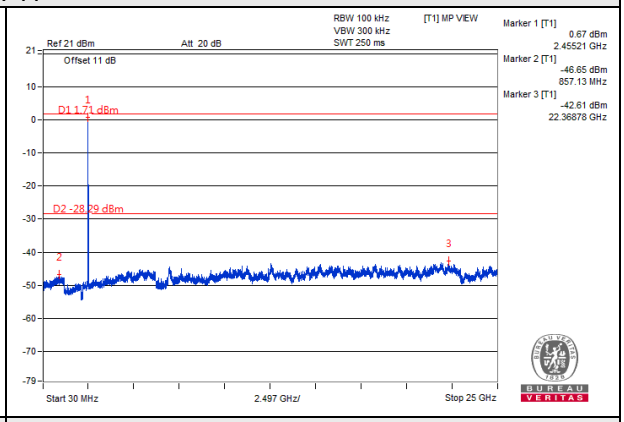
CH 6



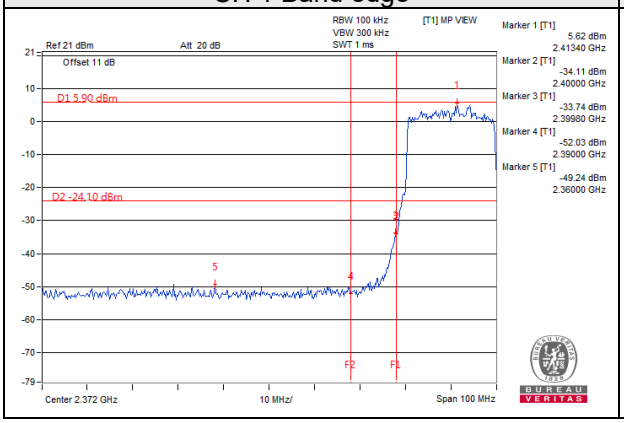


CH 11

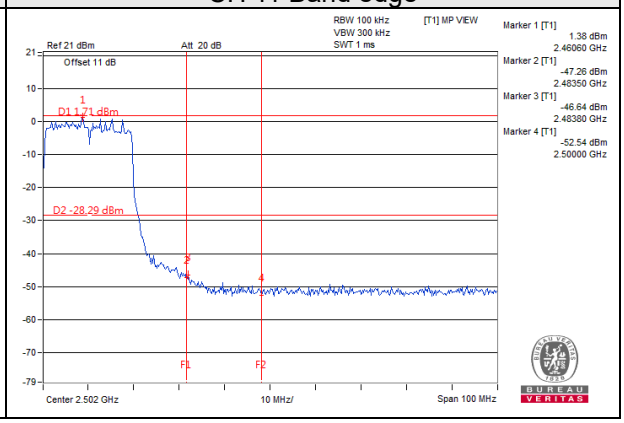




CH 1 Band edge

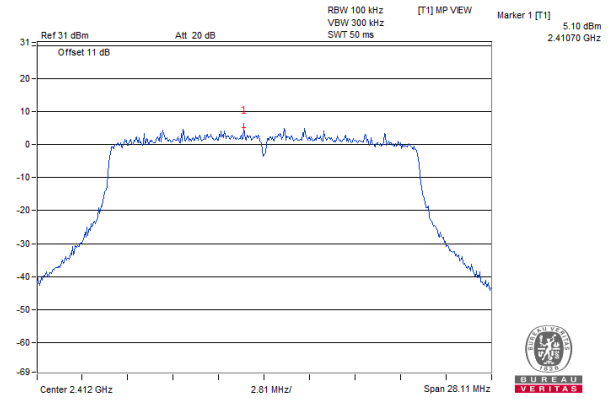


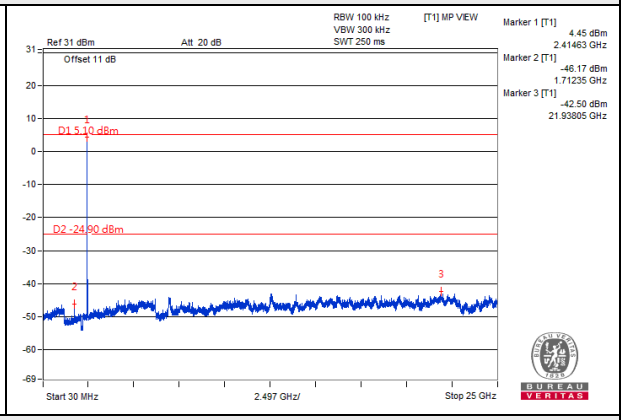
CH 11 Band edge



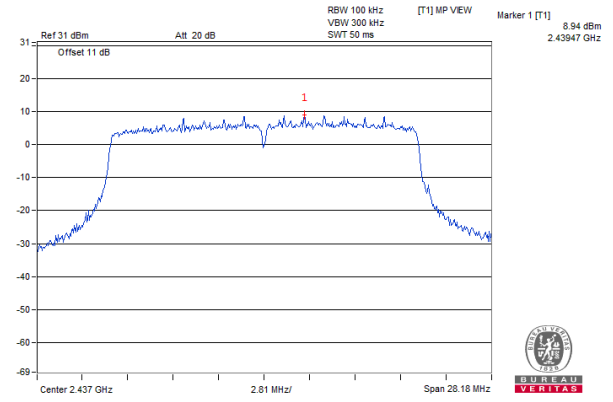
802.11ax (HE20)_Chain 2

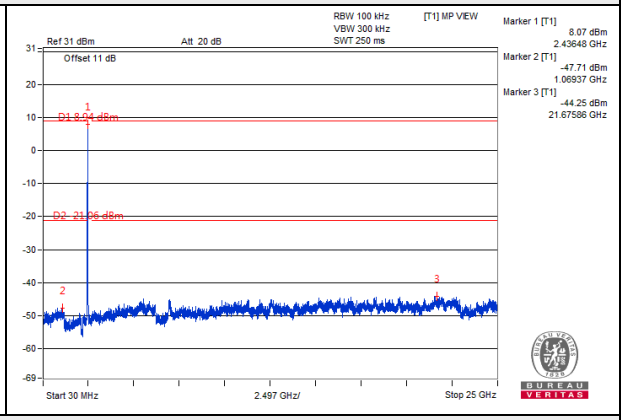
CH 1



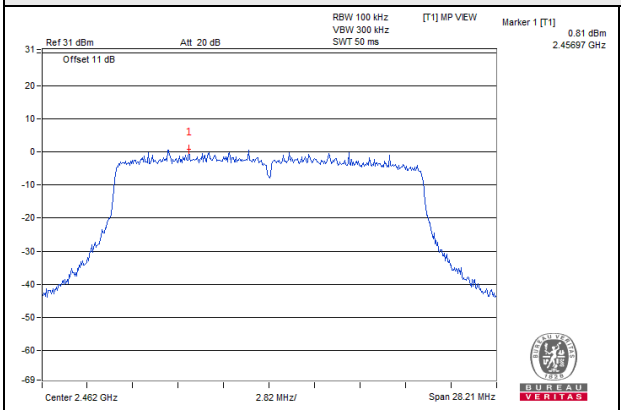


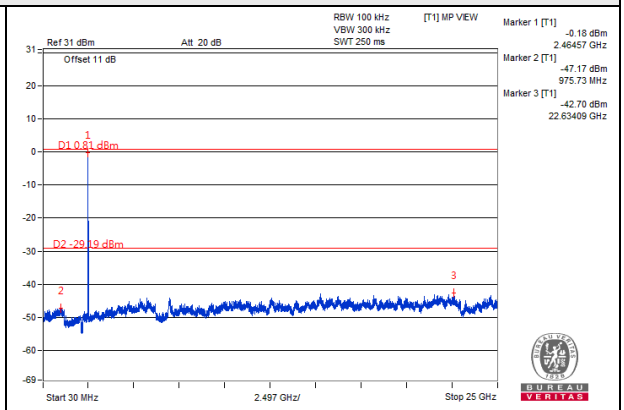
CH 6



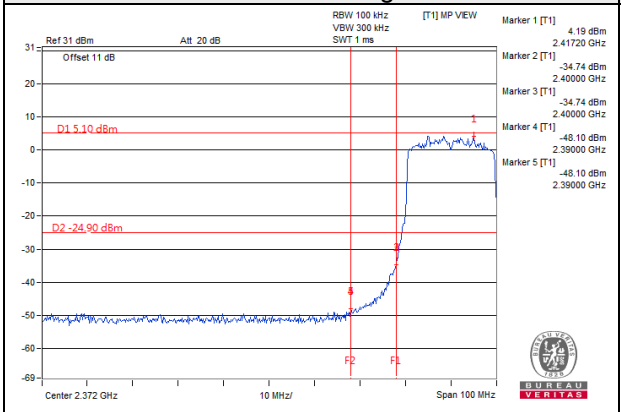


CH 11

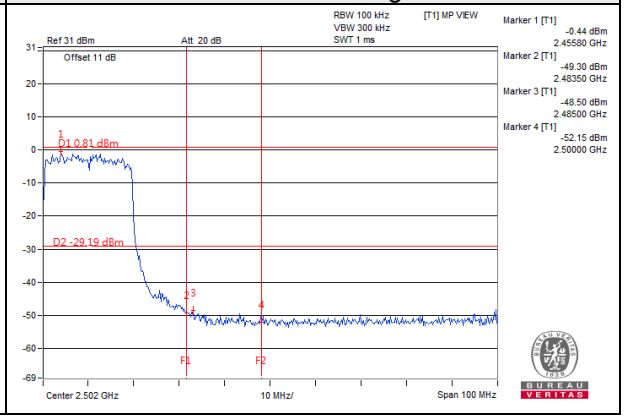




CH 1 Band edge

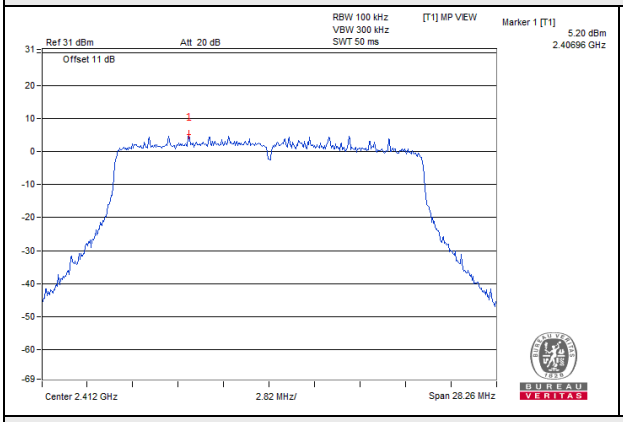


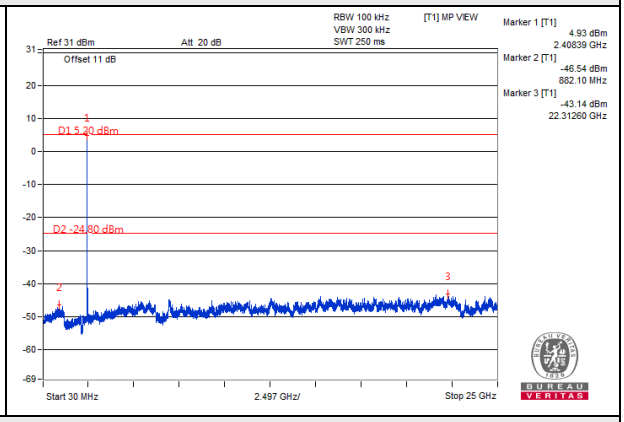
CH 11 Band edge



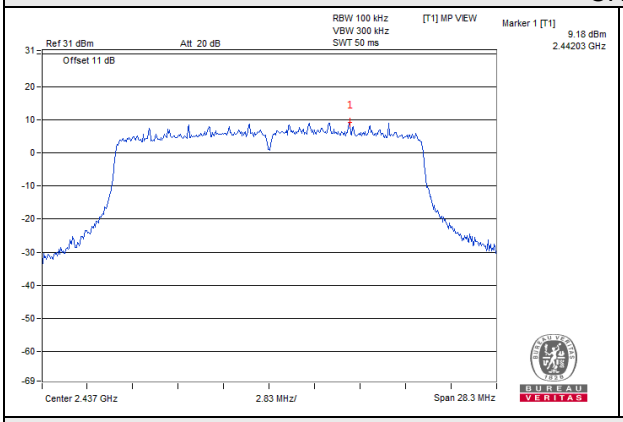
802.11ax (HE20)_Chain 3

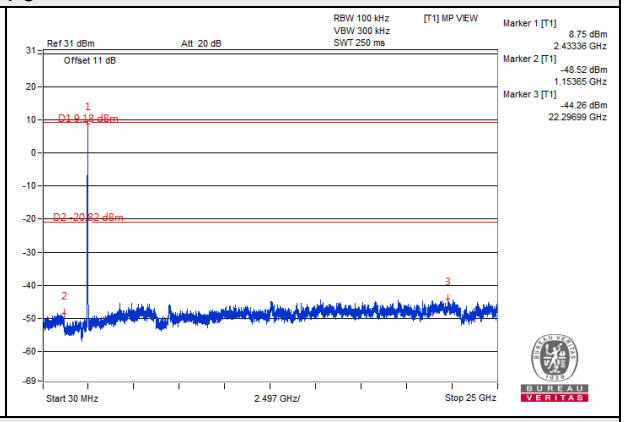
CH 1



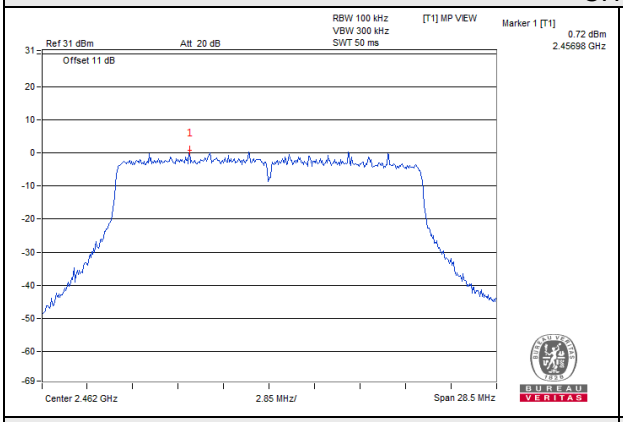


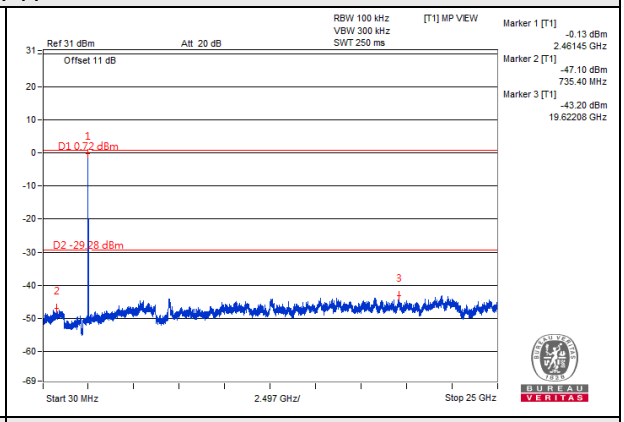
CH 6



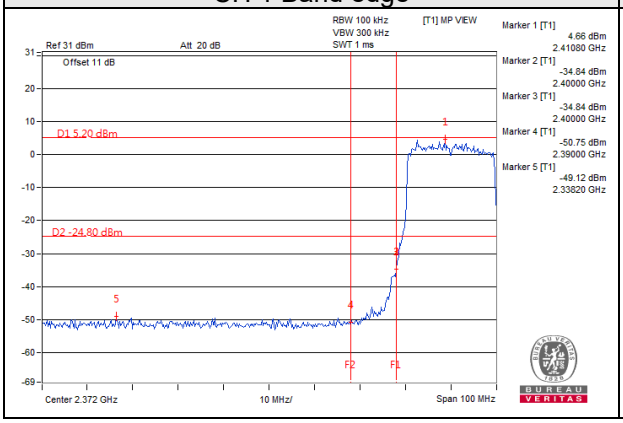


CH 11

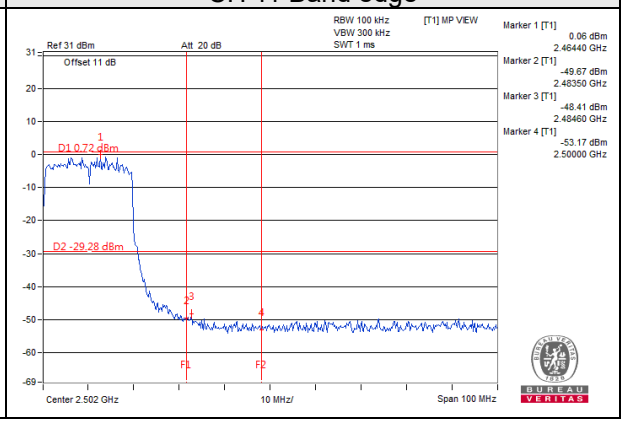




CH 1 Band edge

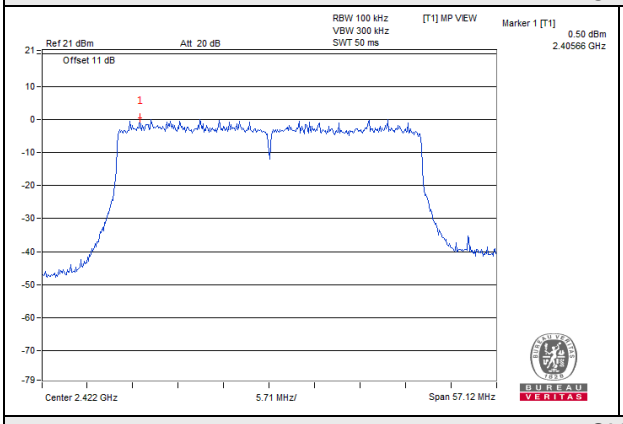


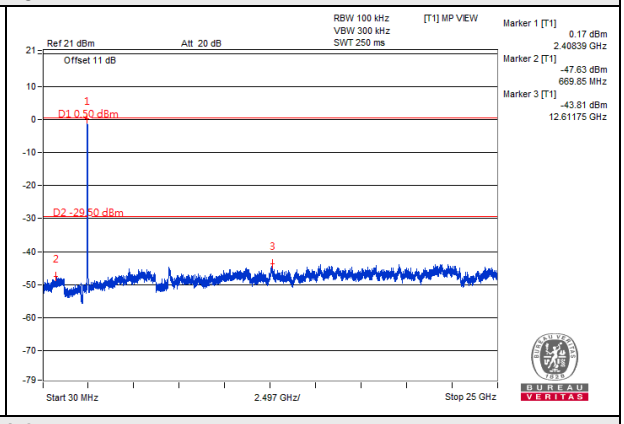
CH 11 Band edge



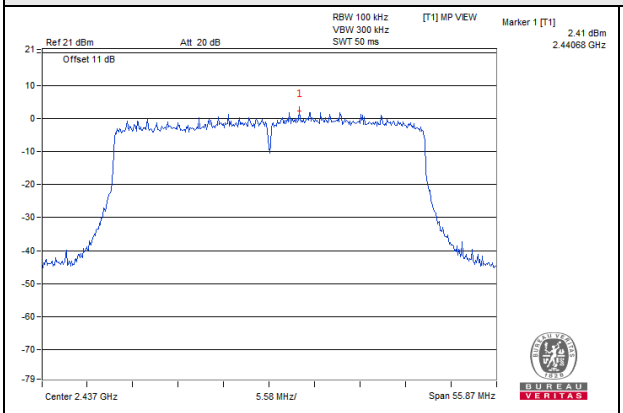
802.11ax (HE40)_Chain 0

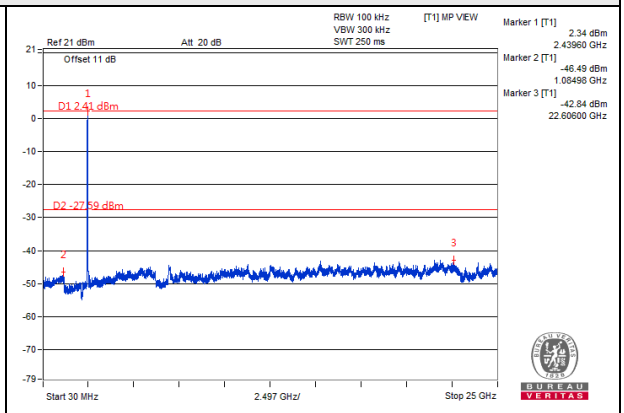
CH 3



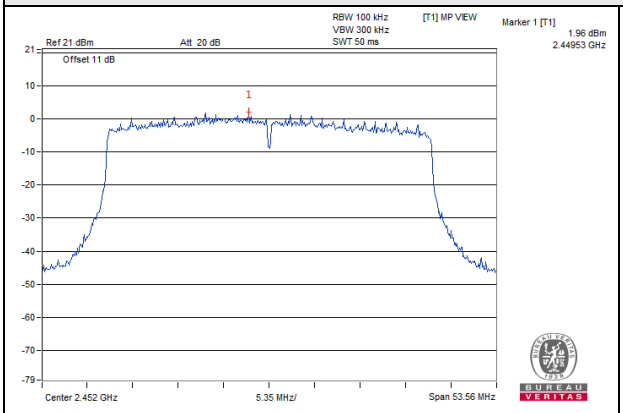


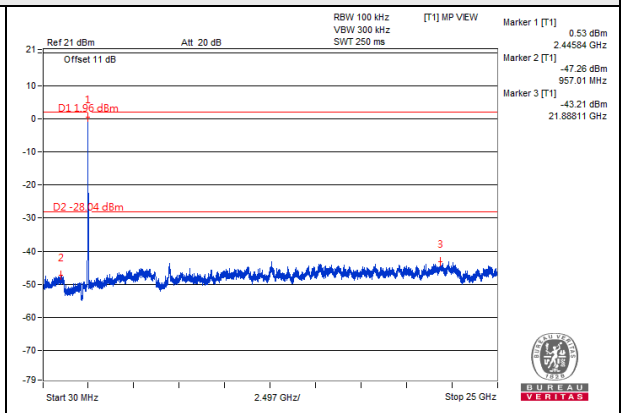
CH 6



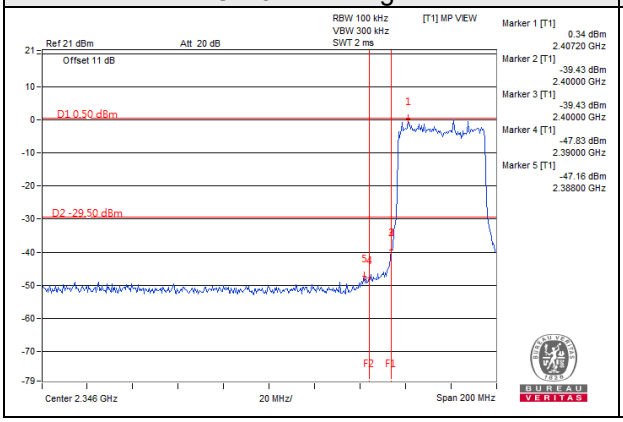


CH 9

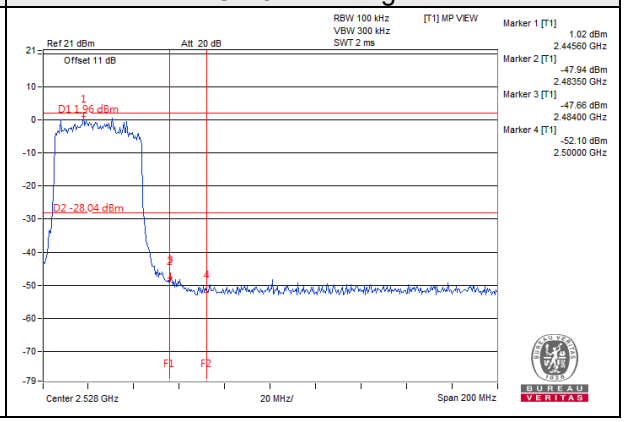




CH 3 Band edge

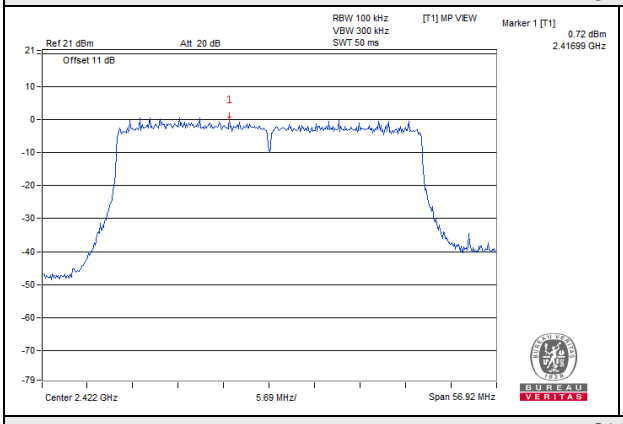


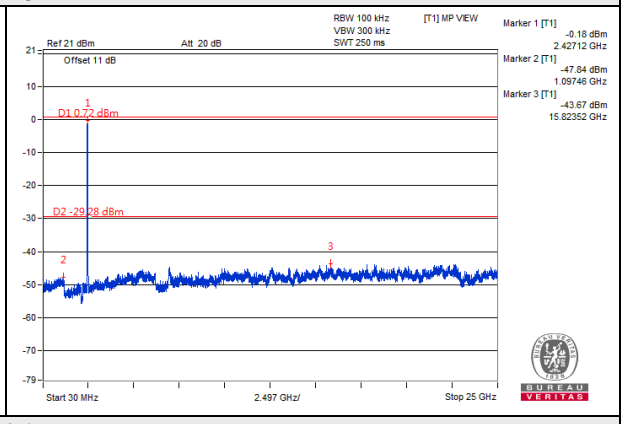
CH 9 Band edge



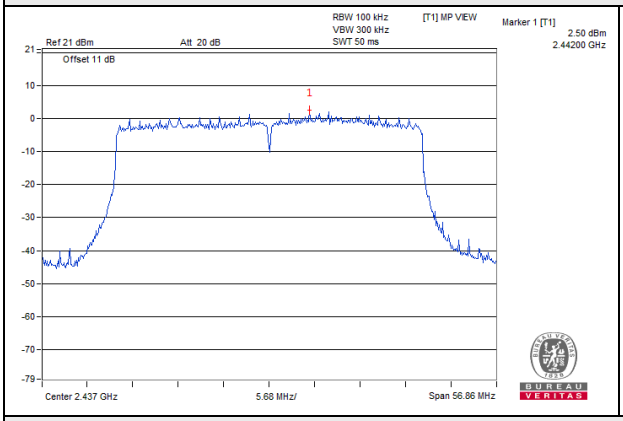
802.11ax (HE40)_Chain 1

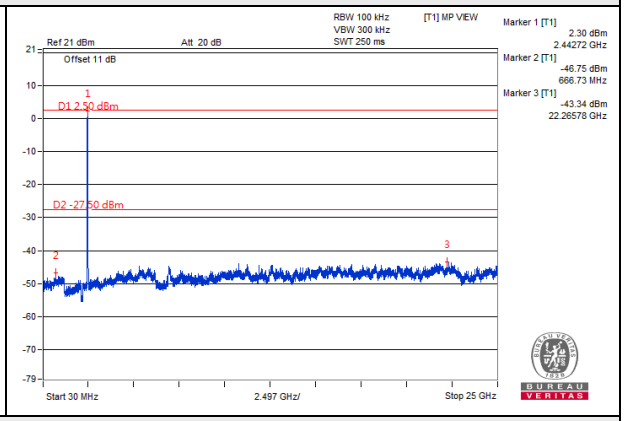
CH 3



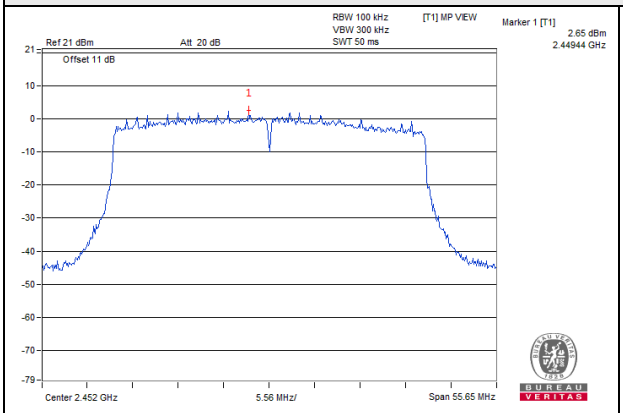


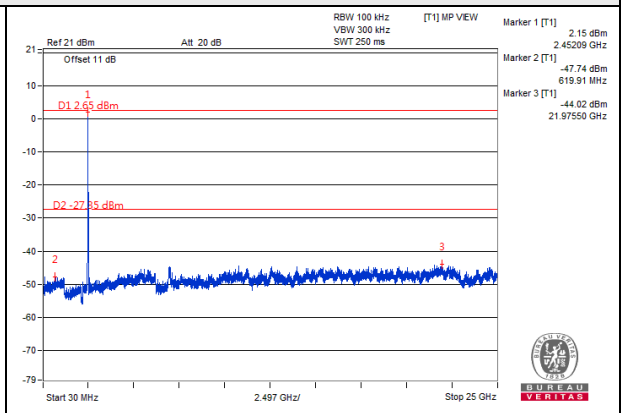
CH 6



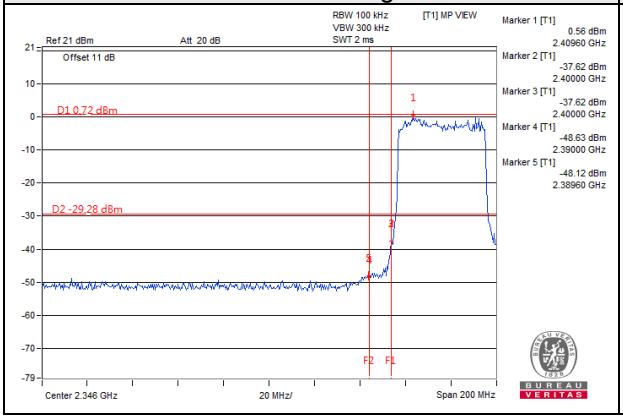


CH 9

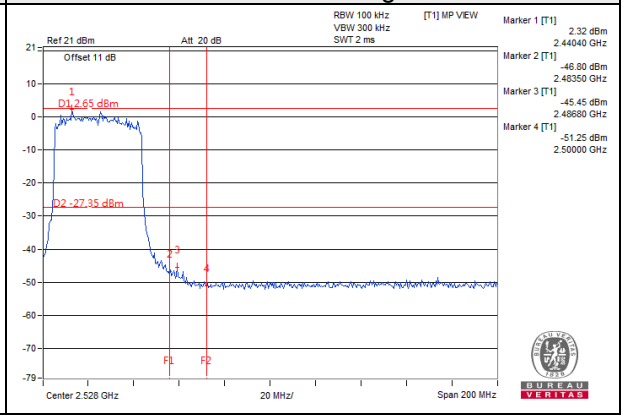




CH 3 Band edge

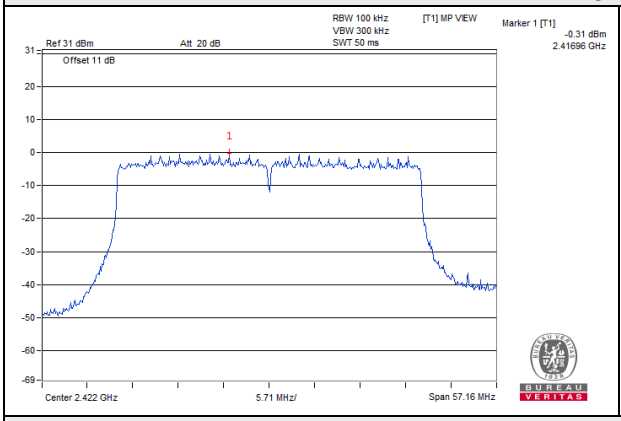


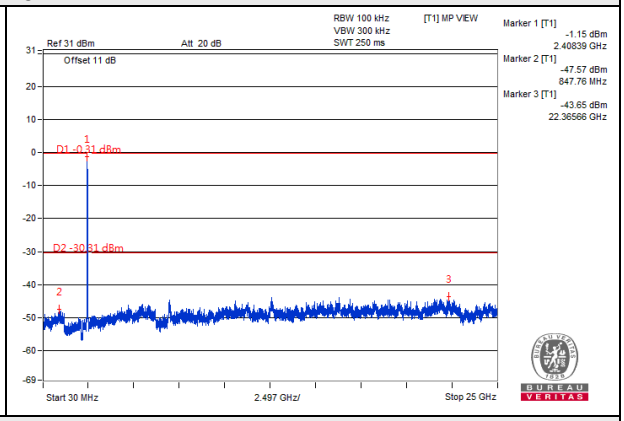
CH 9 Band edge



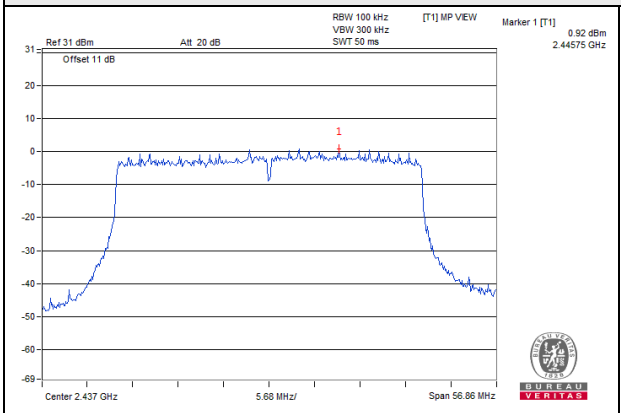
802.11ax (HE40)_Chain 2

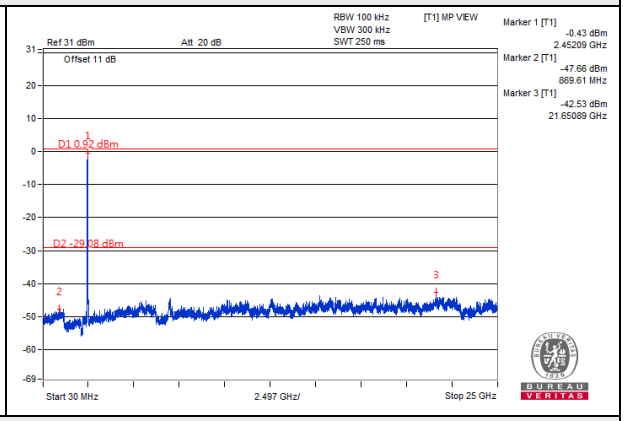
CH 3



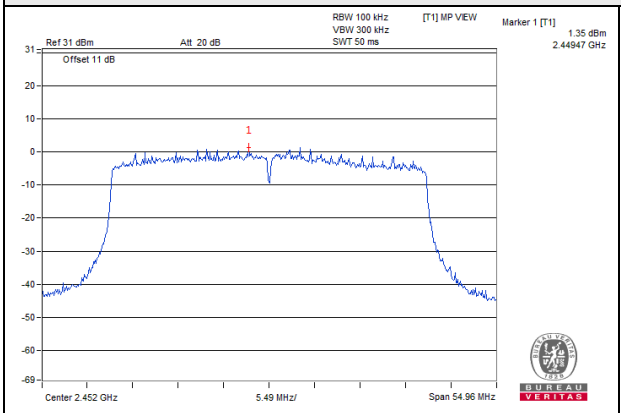


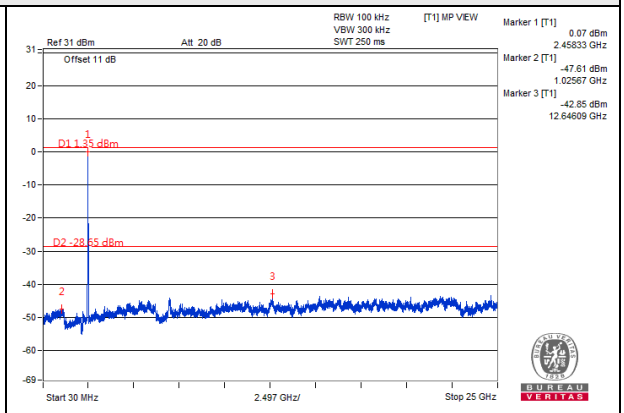
CH 6



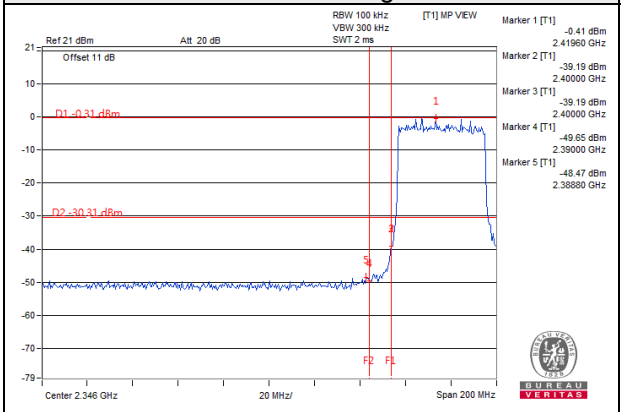


CH 9

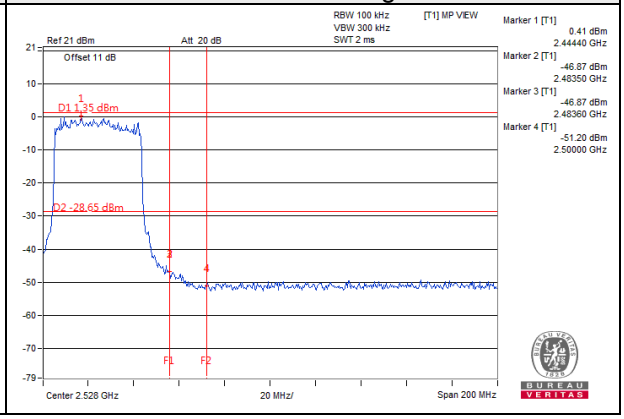




CH 3 Band edge

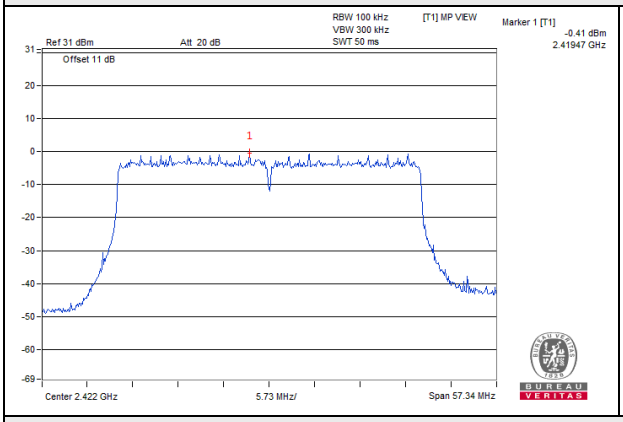


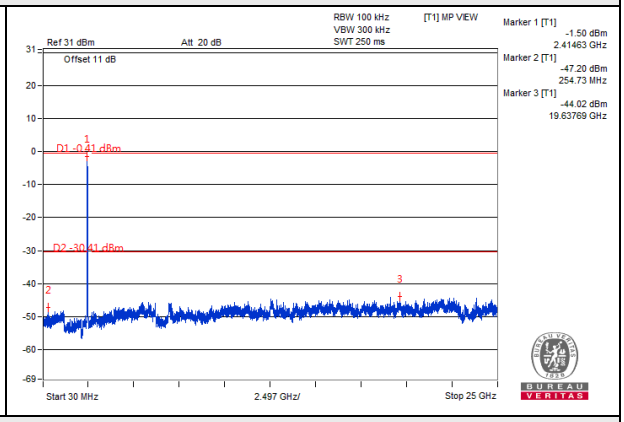
CH 9 Band edge



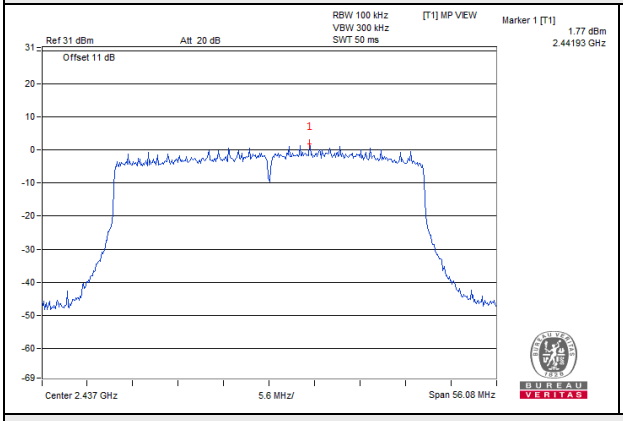
802.11ax (HE40)_Chain 3

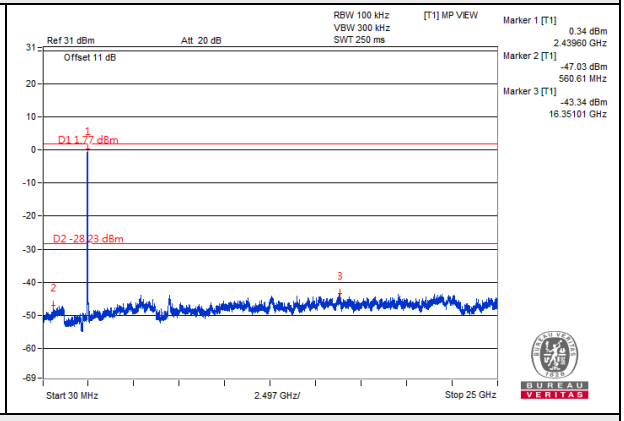
CH 3



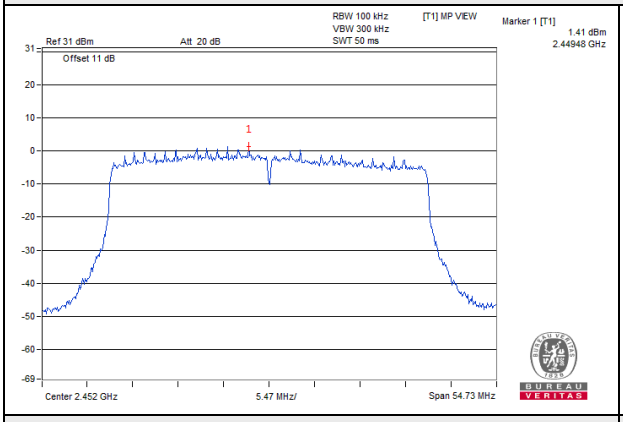


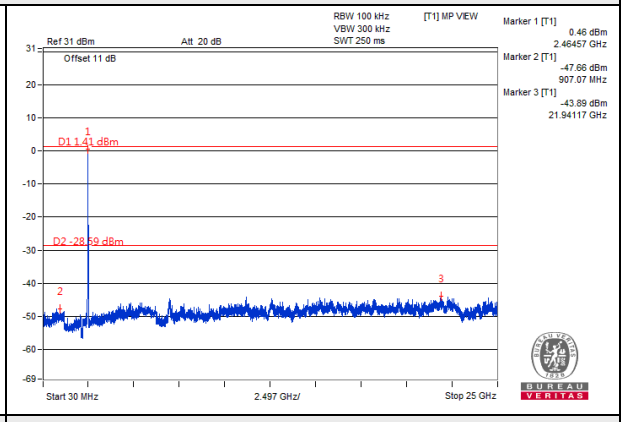
CH 6



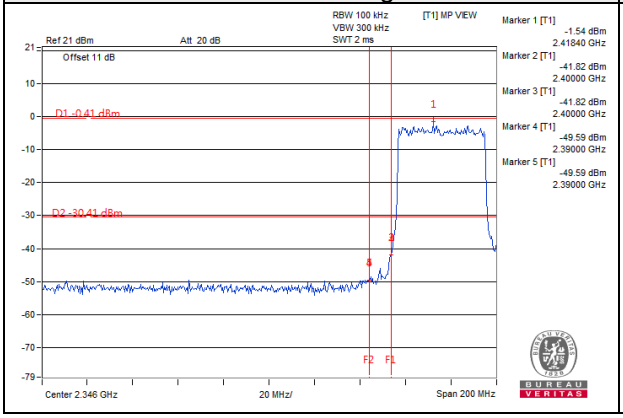


CH 9

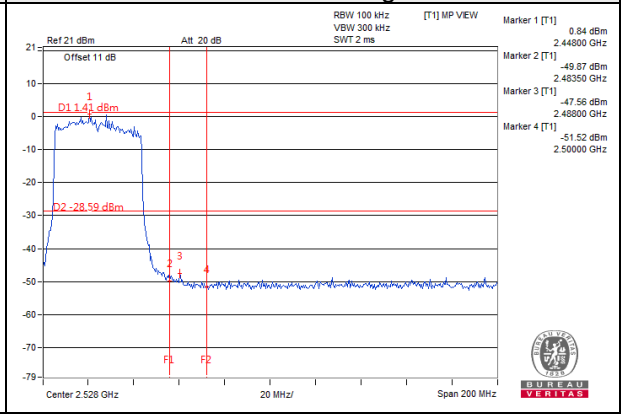




CH 3 Band edge



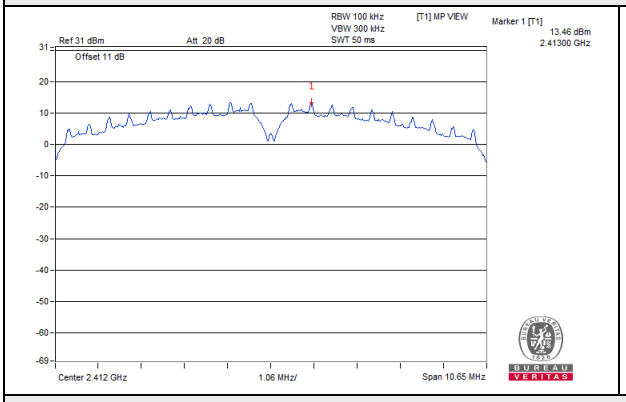
CH 9 Band edge

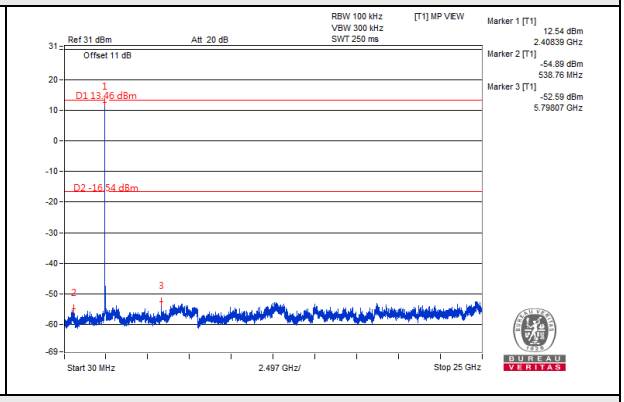


Test Mode C

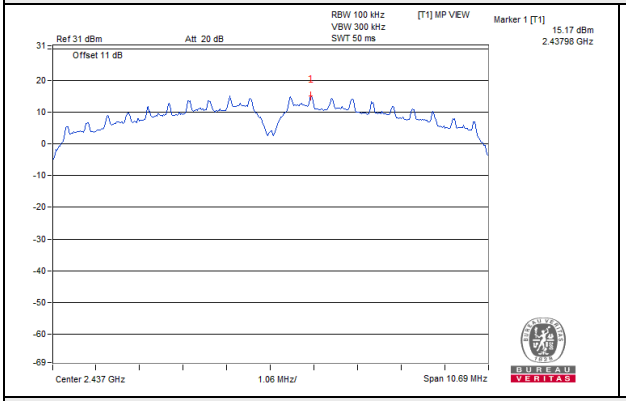
802.11b_Chain 0

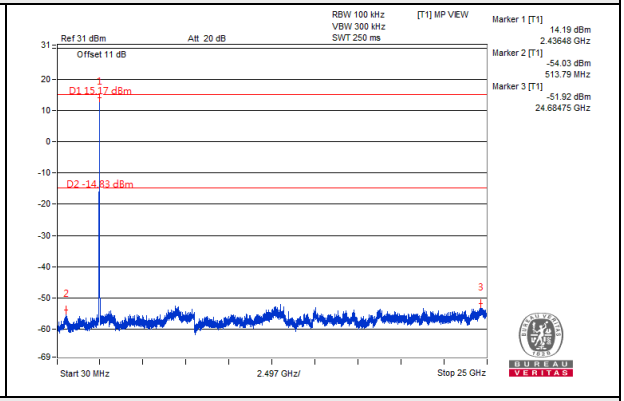
CH 1



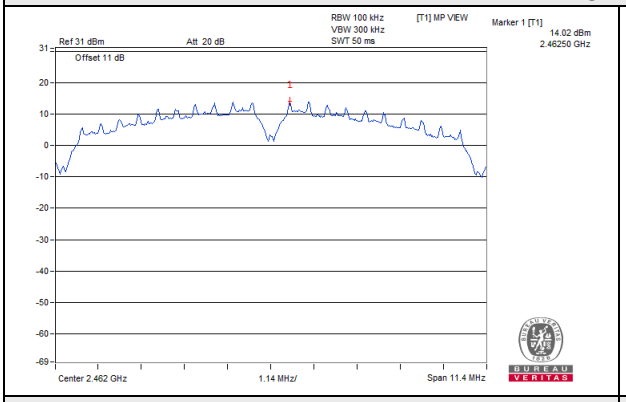


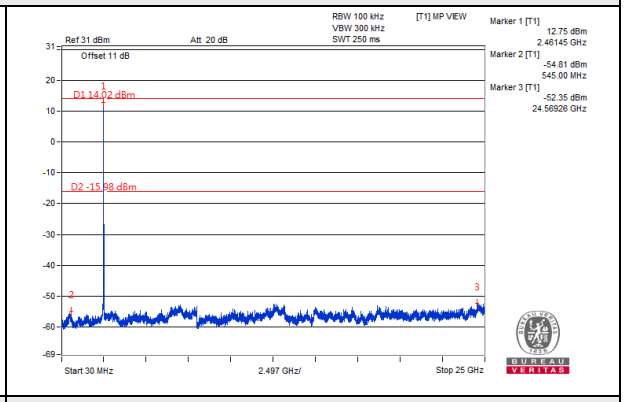
CH 6



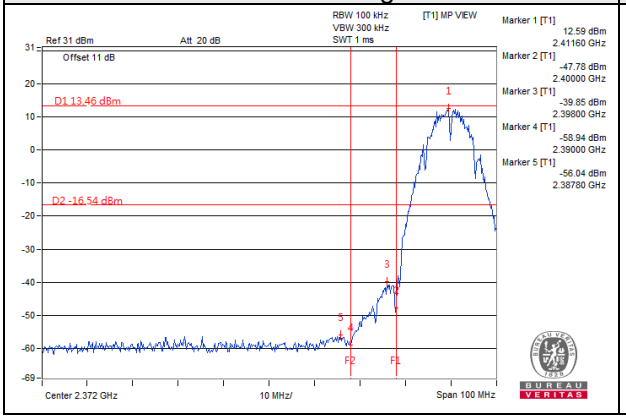


CH 11

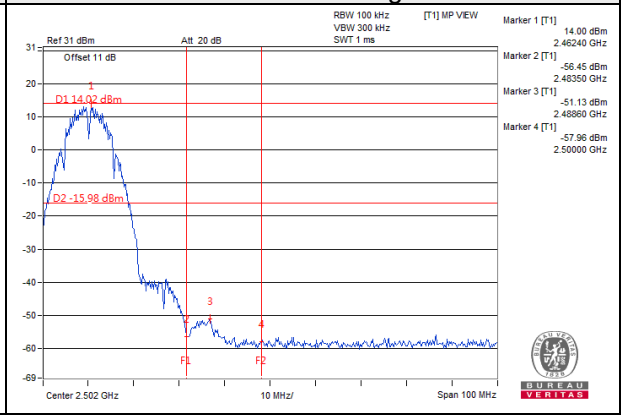




CH 1 Band edge

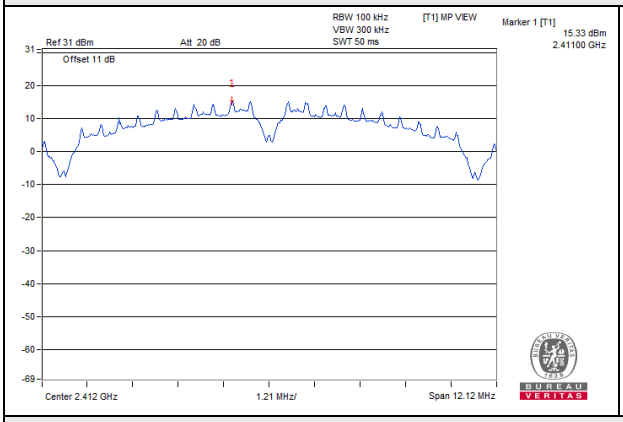


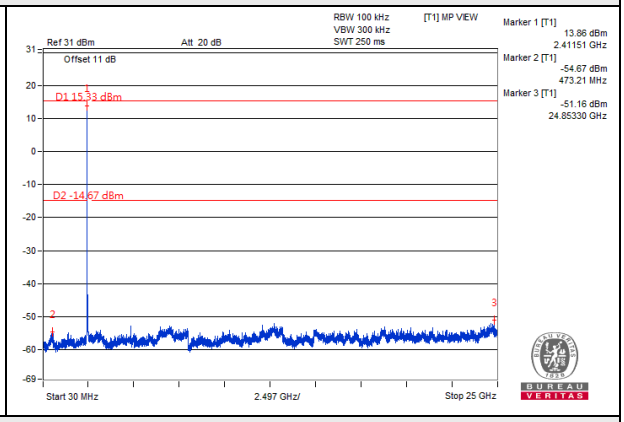
CH 11 Band edge



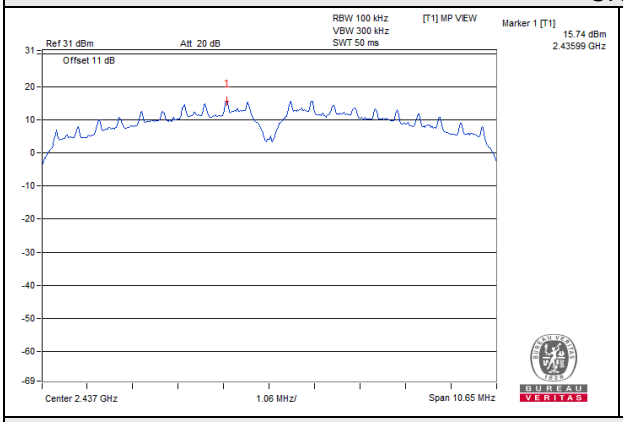
802.11b_Chain 1

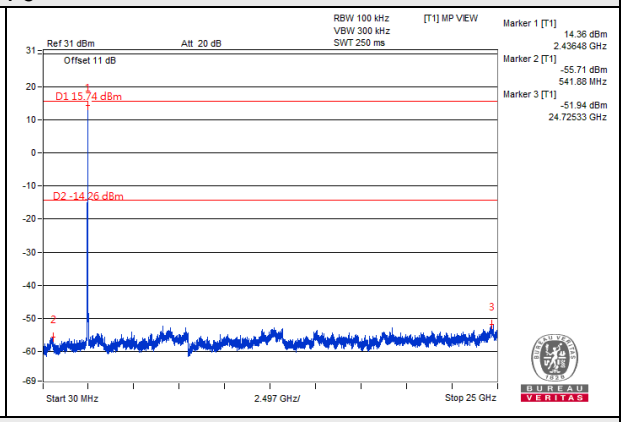
CH 1



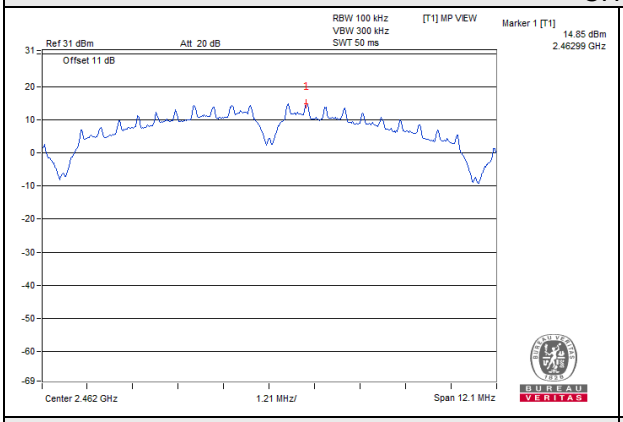


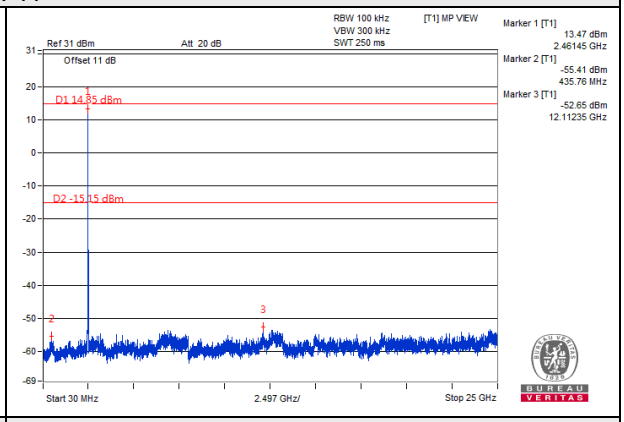
CH 6



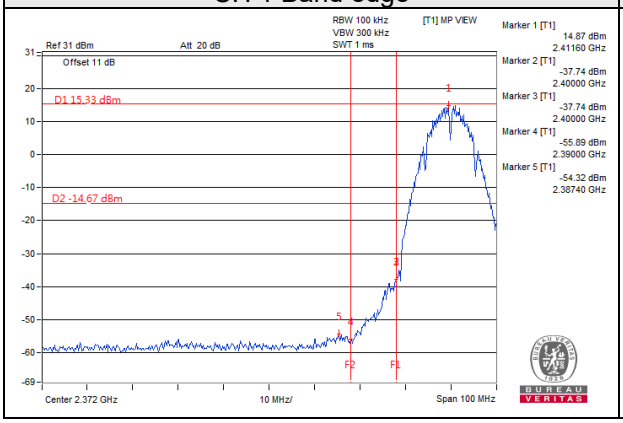


CH 11

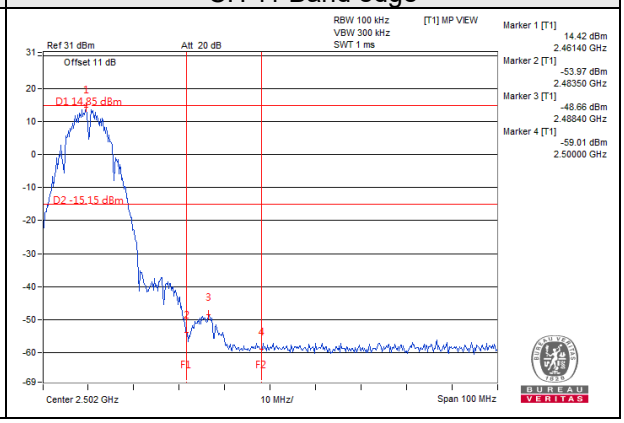




CH 1 Band edge

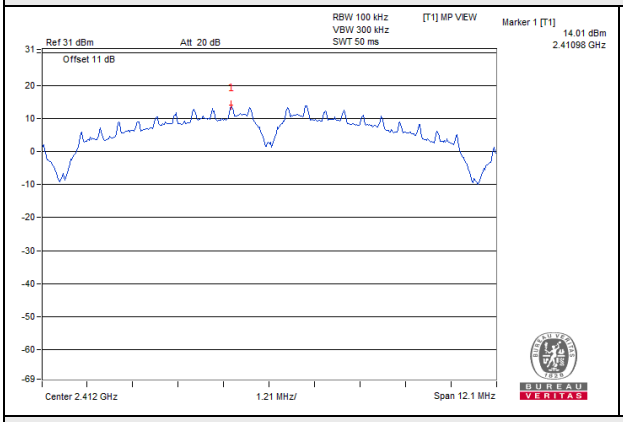


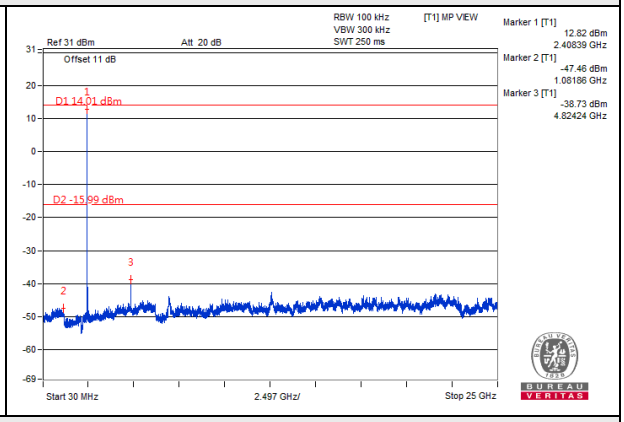
CH 11 Band edge



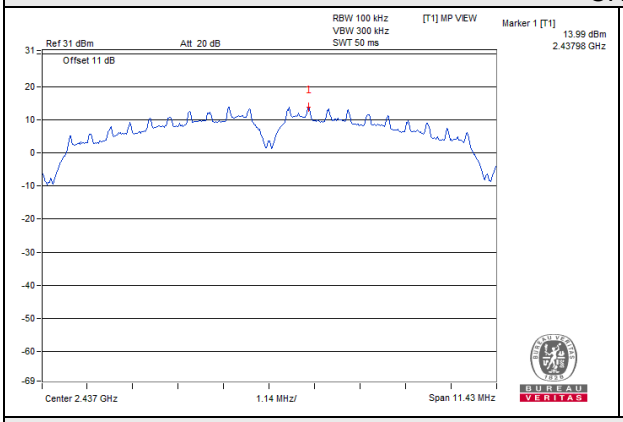
802.11b_Chain 2

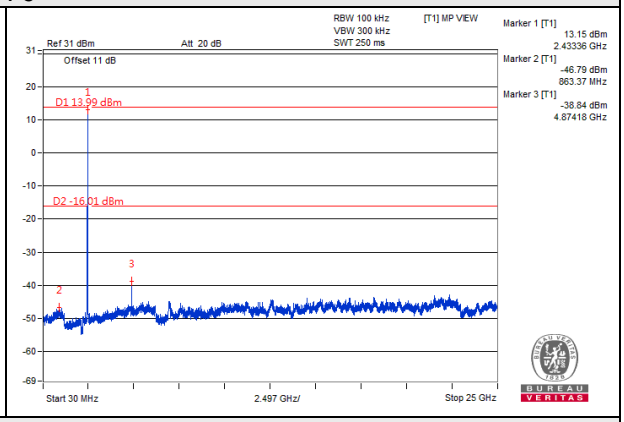
CH 1



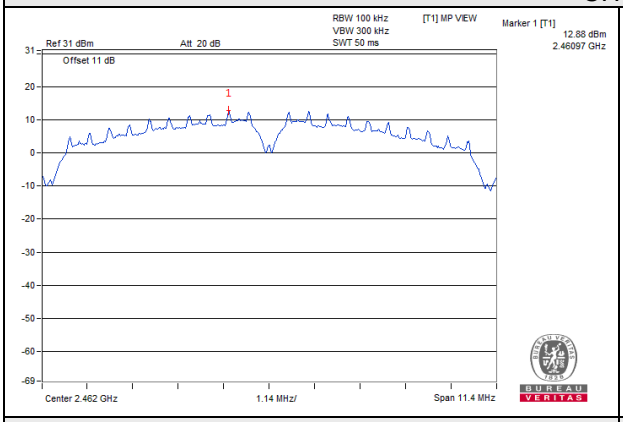


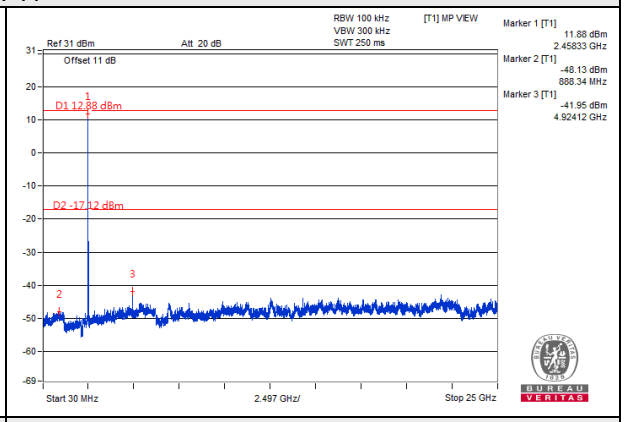
CH 6



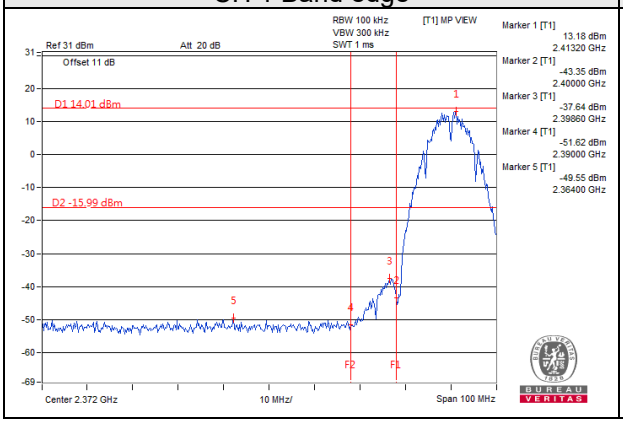


CH 11

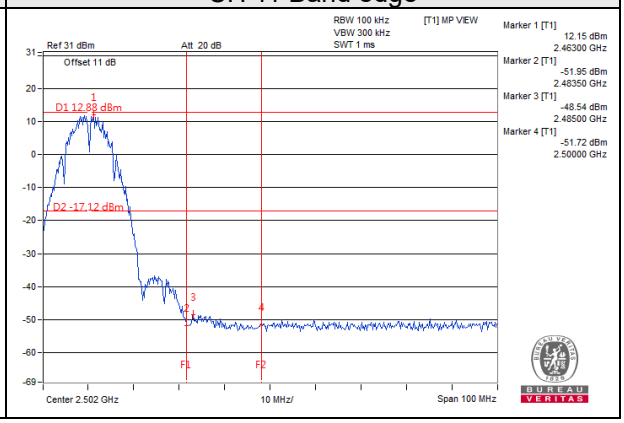




CH 1 Band edge

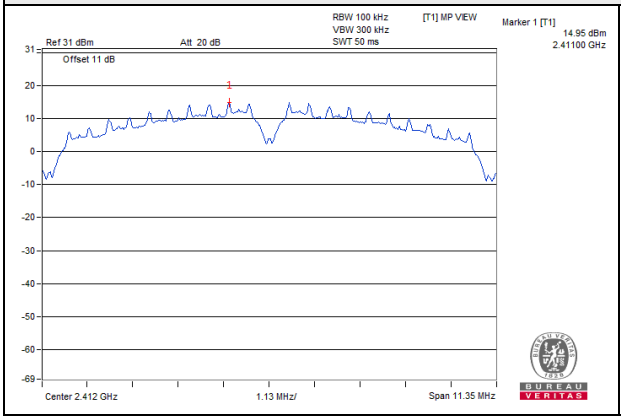


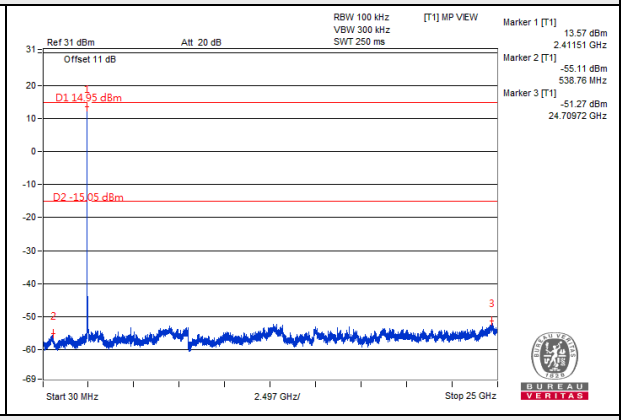
CH 11 Band edge



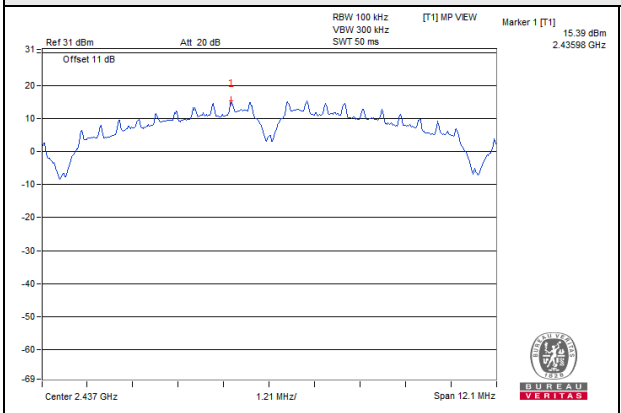
802.11b_Chain 3

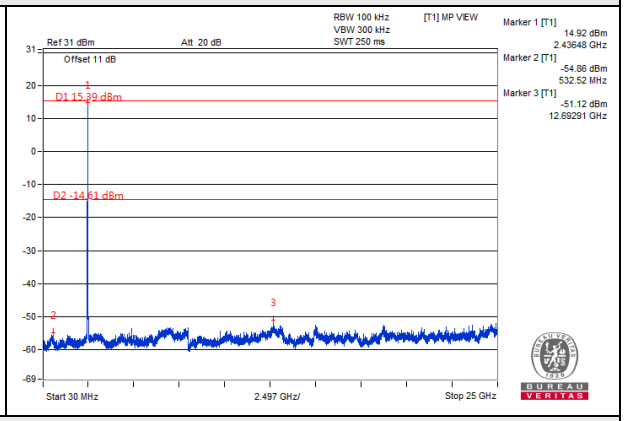
CH 1



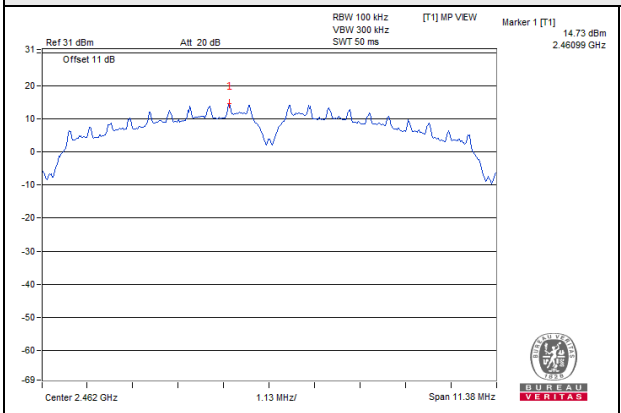


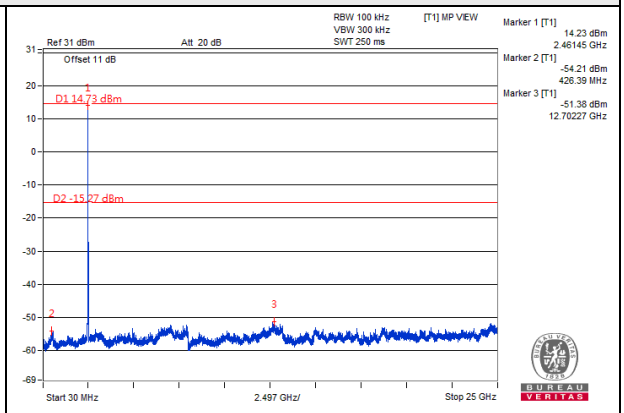
CH 6



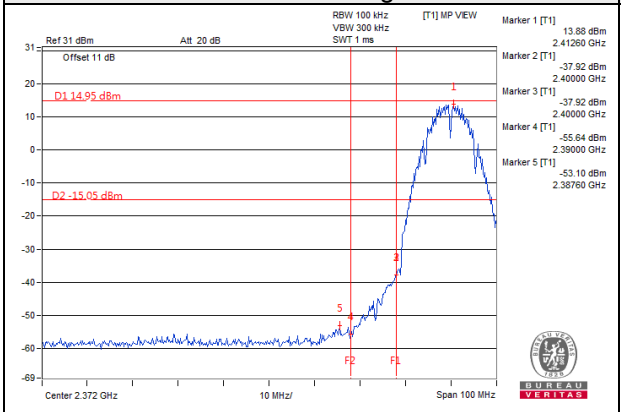


CH 11

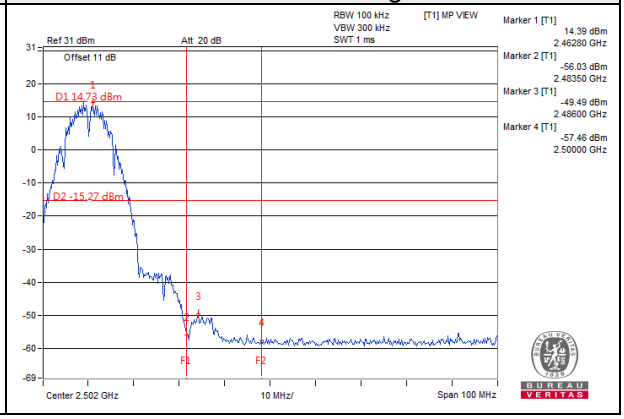




CH 1 Band edge

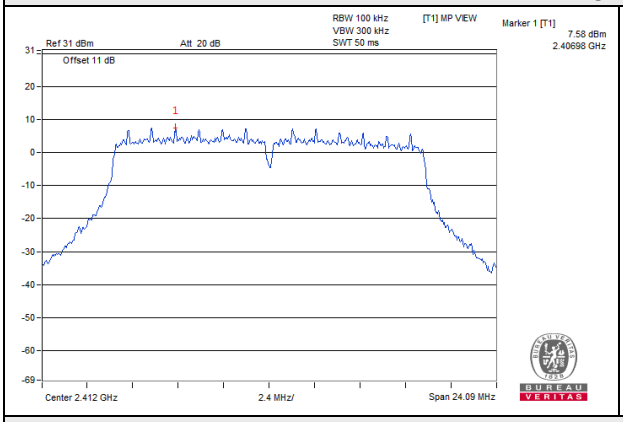


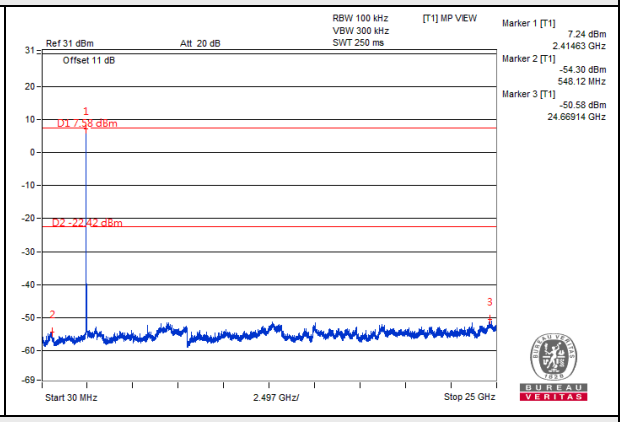
CH 11 Band edge



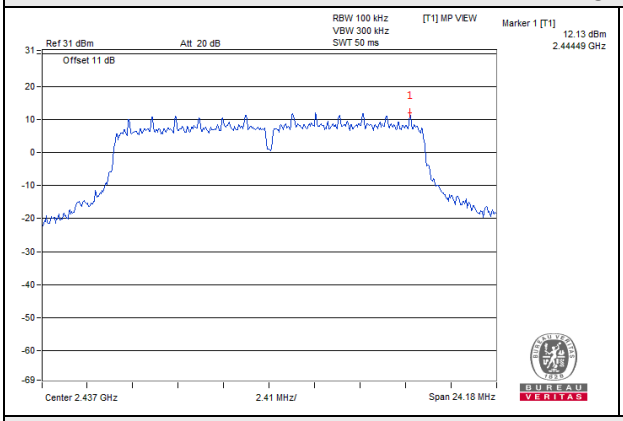
802.11g_Chain 0

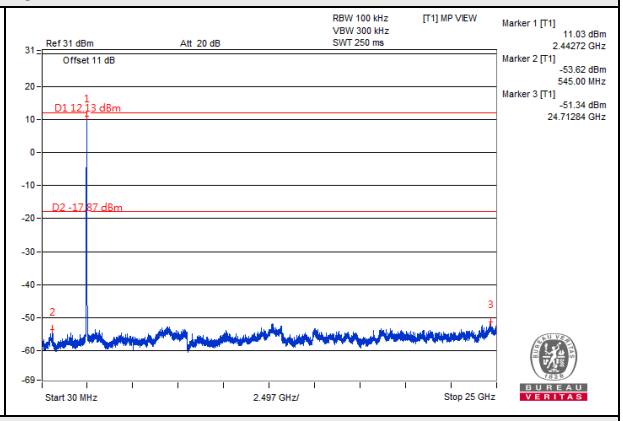
CH 1



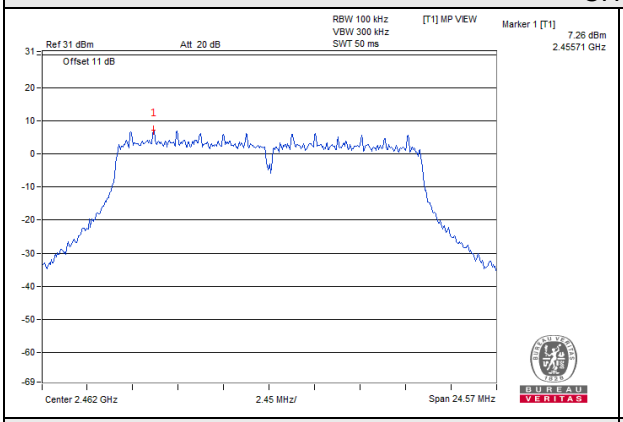


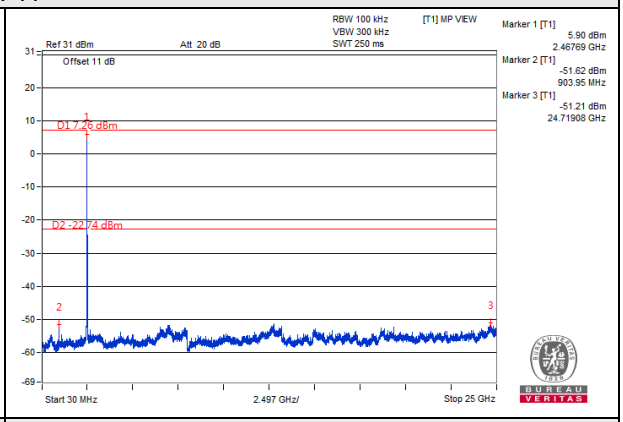
CH 6



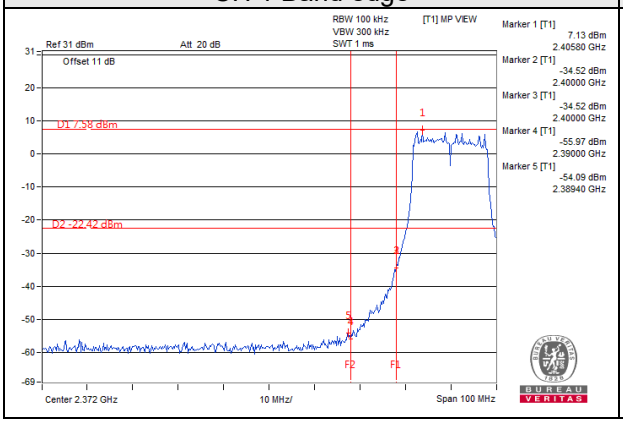


CH 11

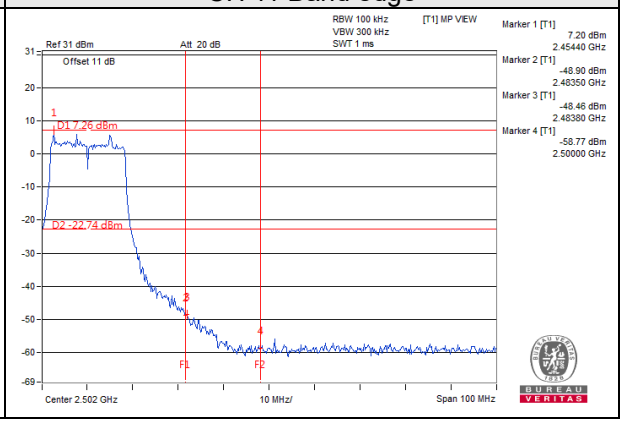




CH 1 Band edge

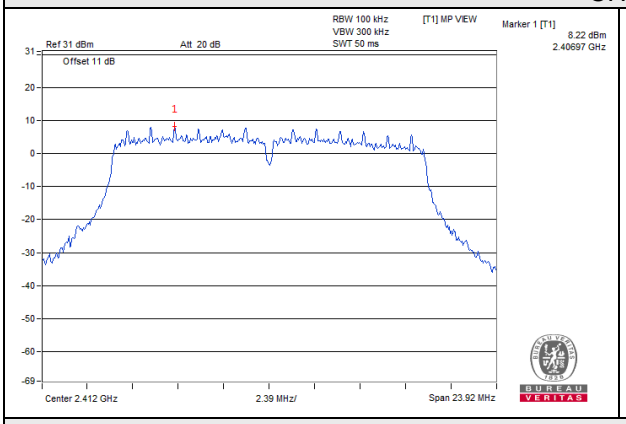


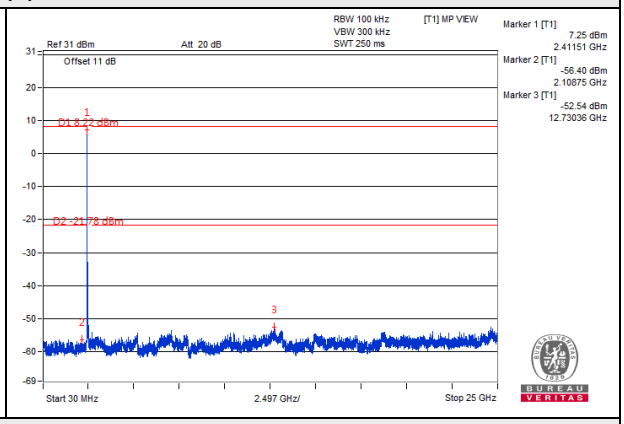
CH 11 Band edge



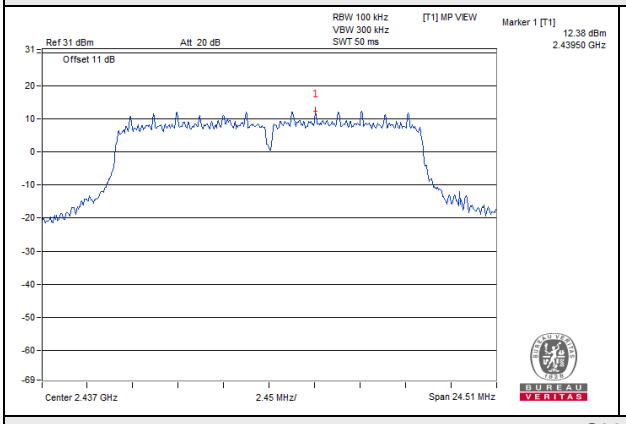
802.11g_Chain 1

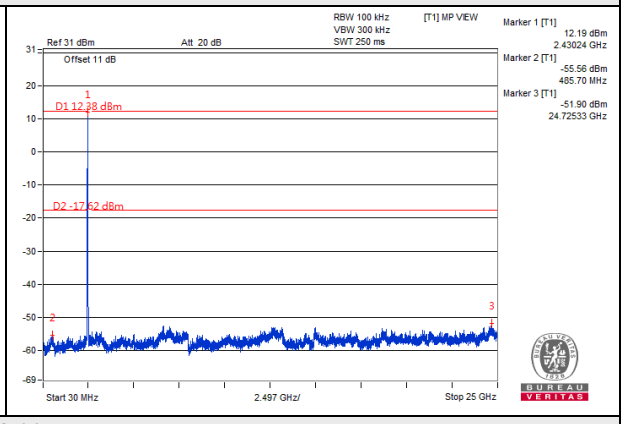
CH 1



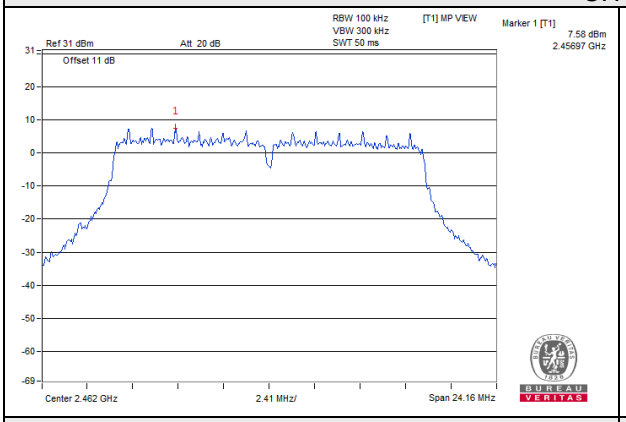


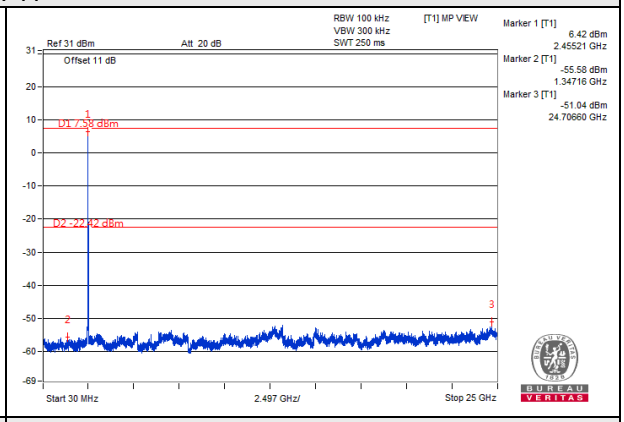
CH 6



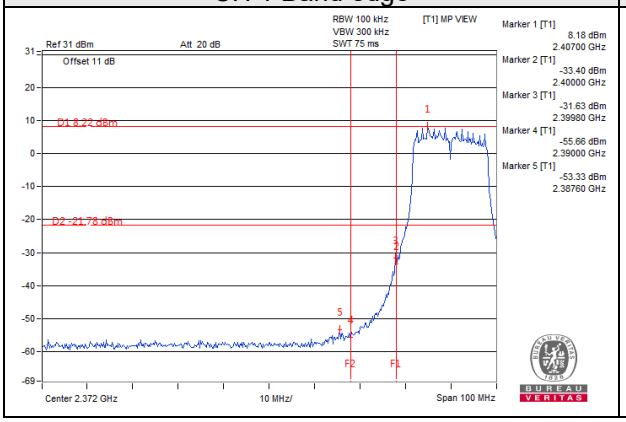


CH 11

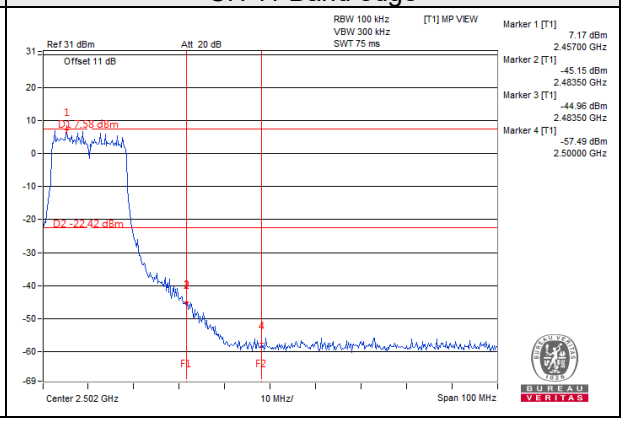




CH 1 Band edge

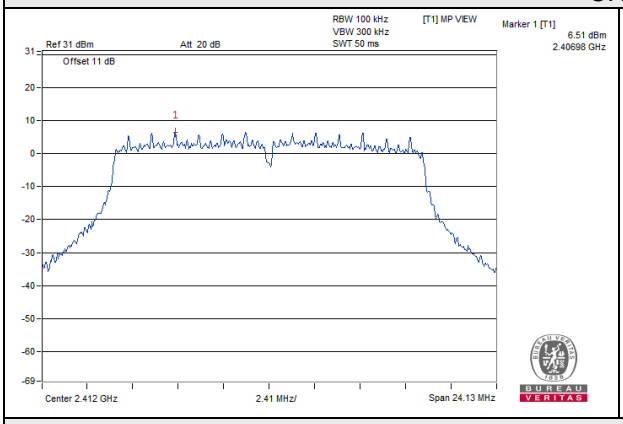


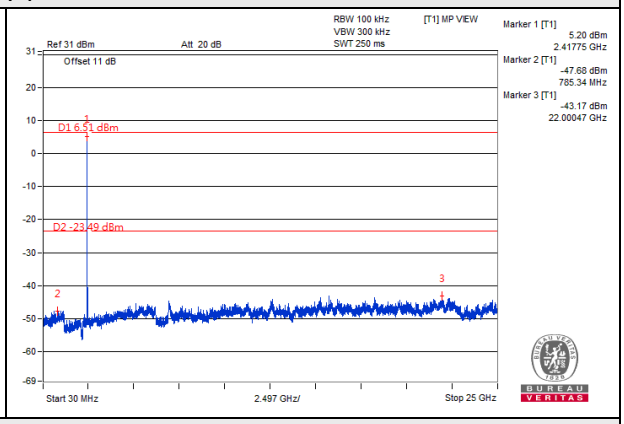
CH 11 Band edge



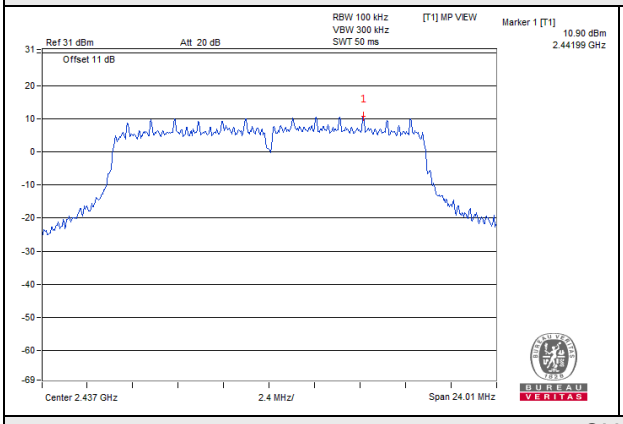
802.11g_Chain 2

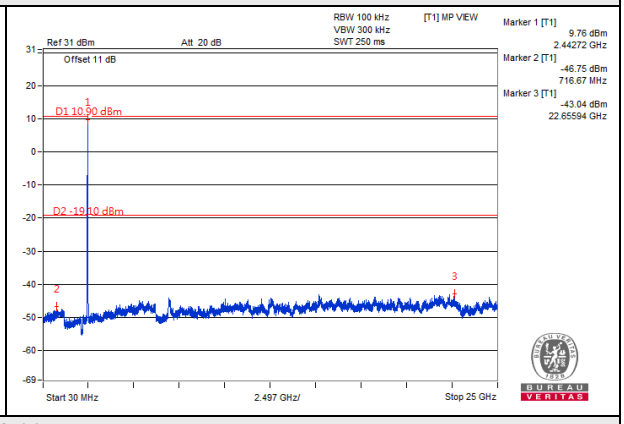
CH 1



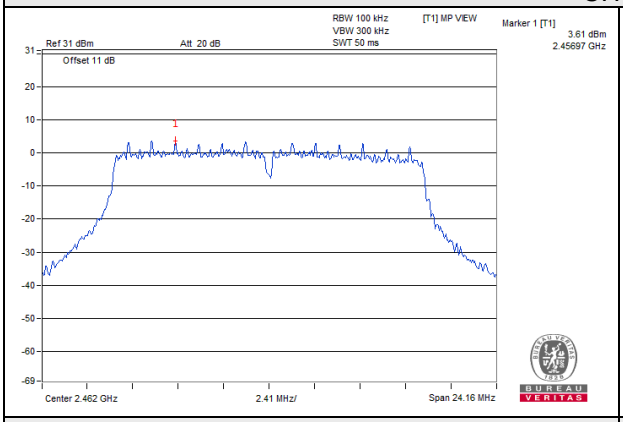


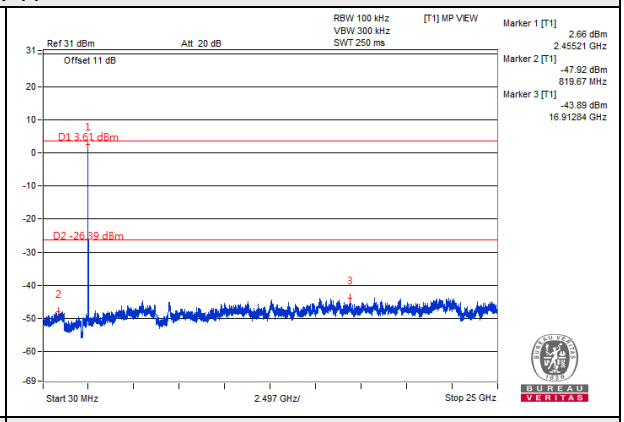
CH 6



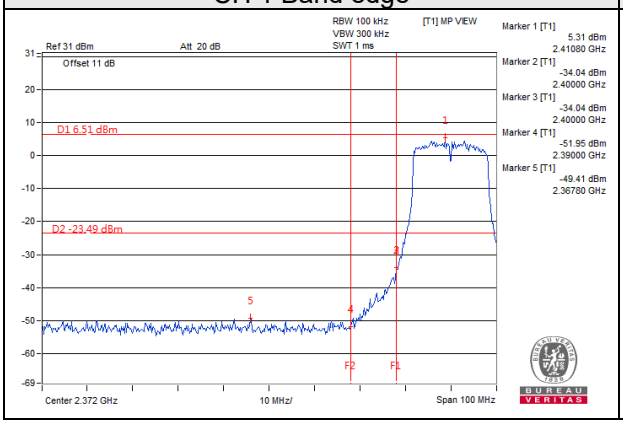


CH 11

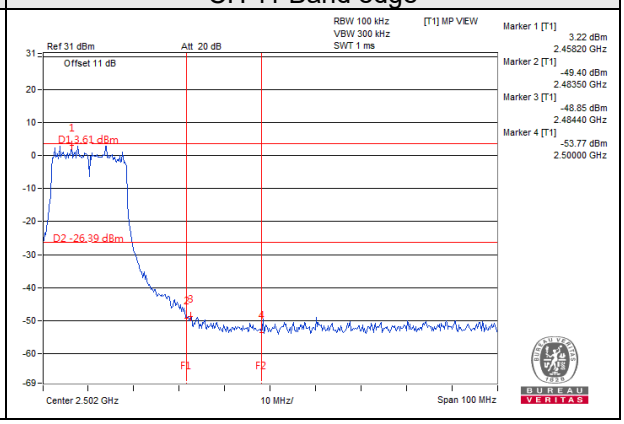




CH 1 Band edge

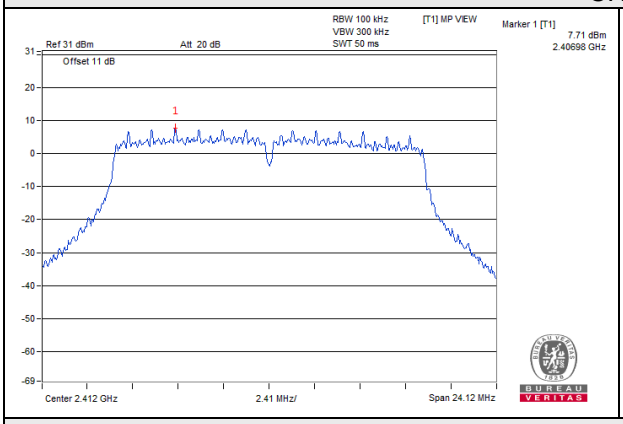


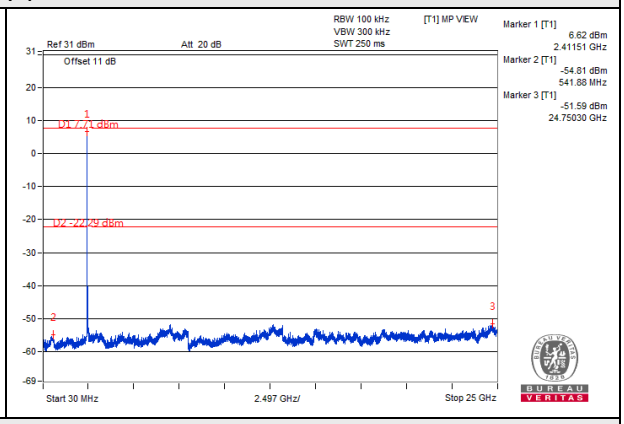
CH 11 Band edge



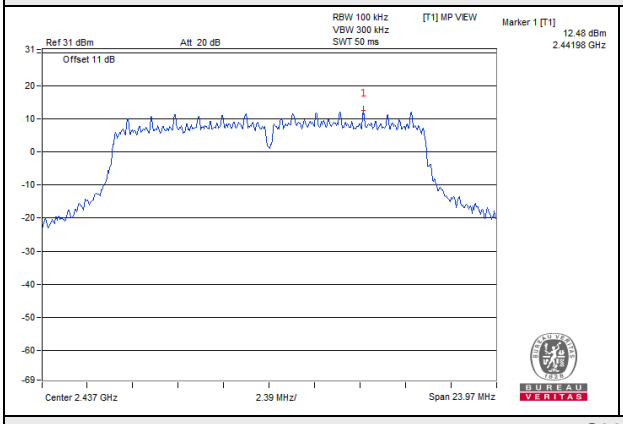
802.11g_Chain 3

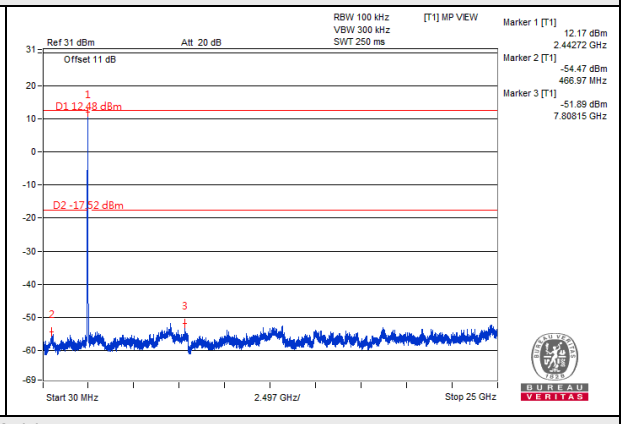
CH 1



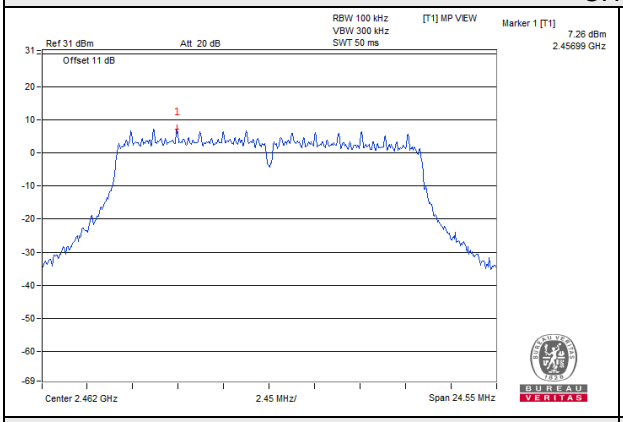


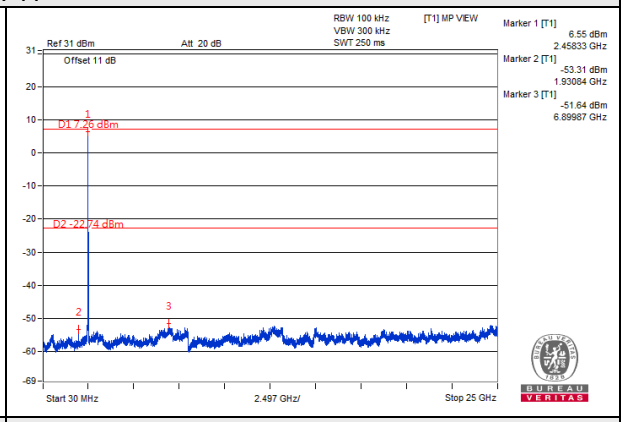
CH 6



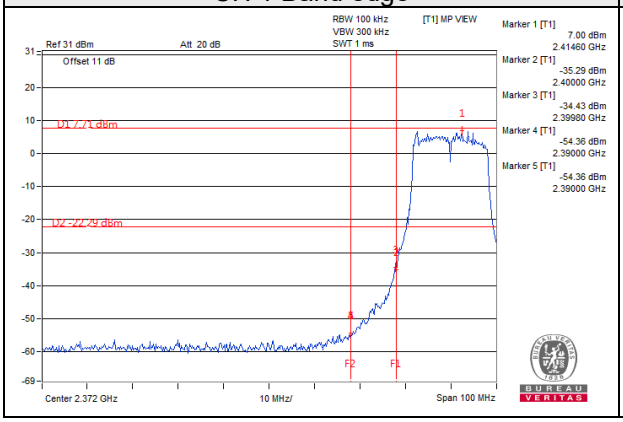


CH 11

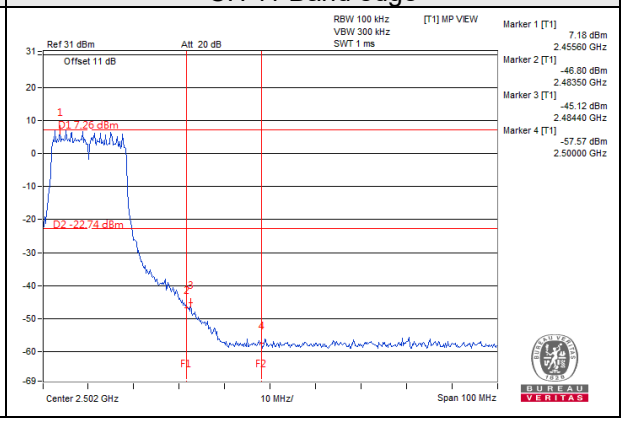




CH 1 Band edge

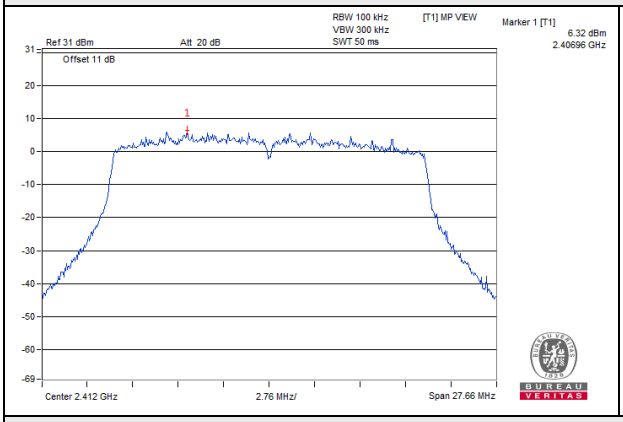


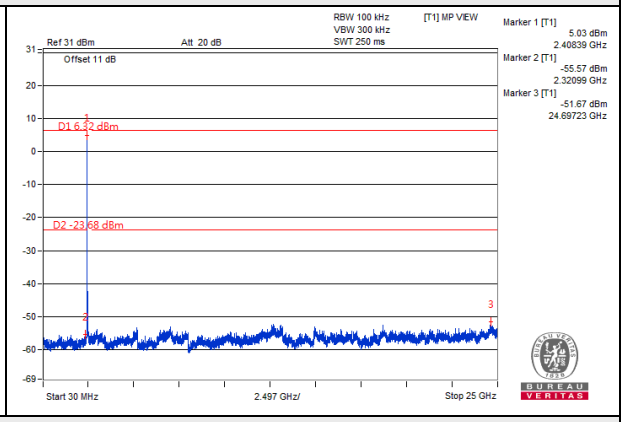
CH 11 Band edge



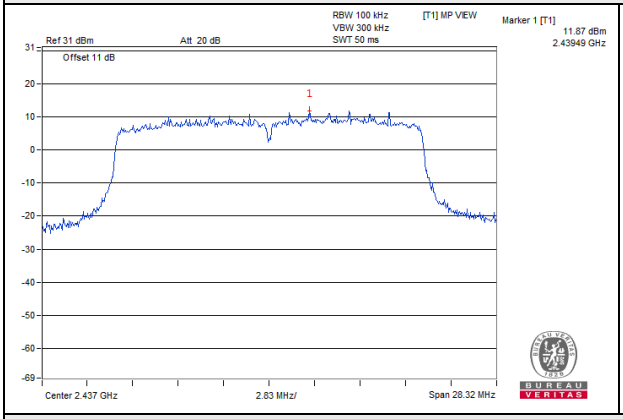
802.11ax (HE20)_Chain 0

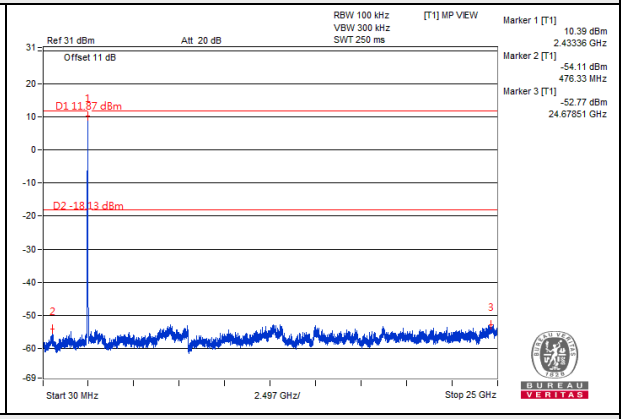
CH 1



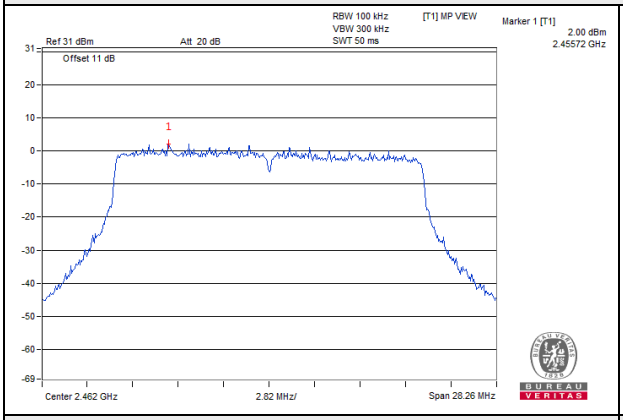


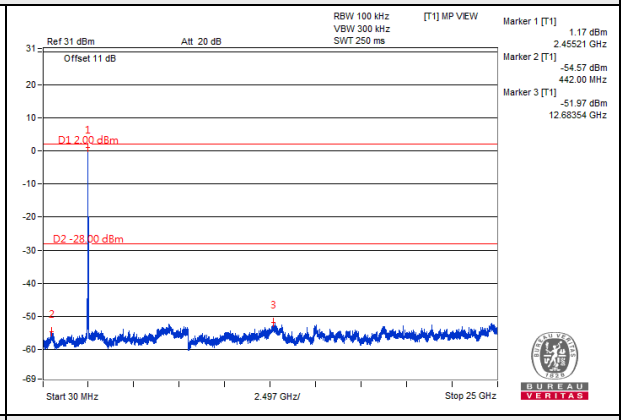
CH 6



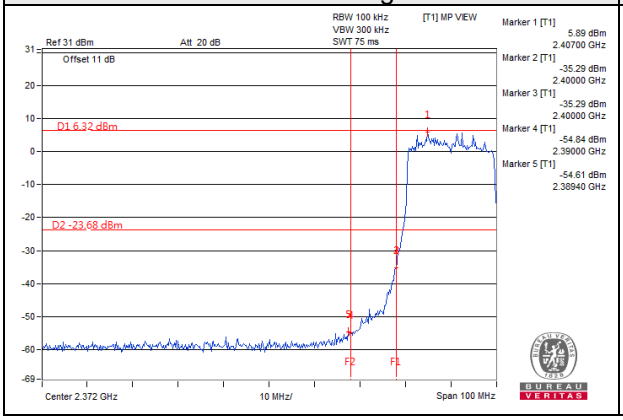


CH 11

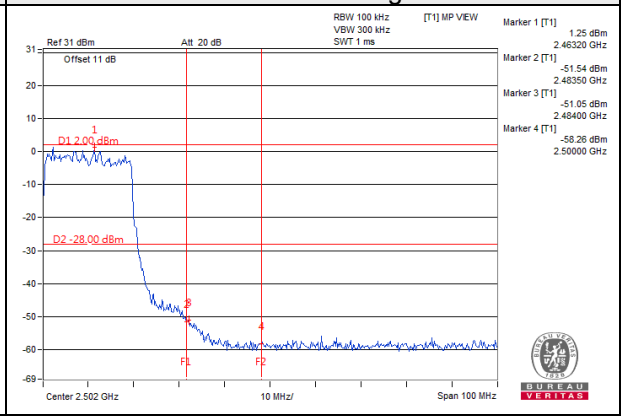




CH 1 Band edge

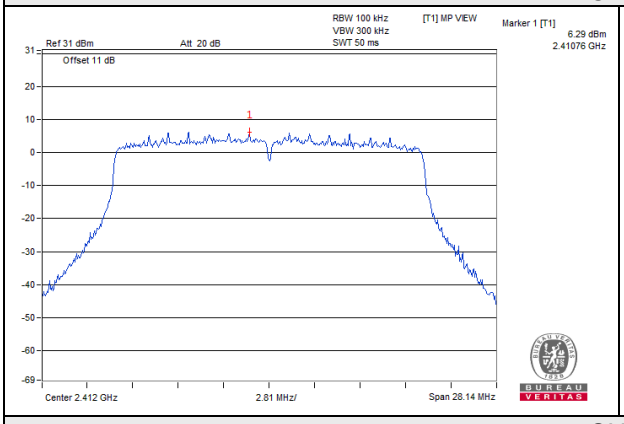


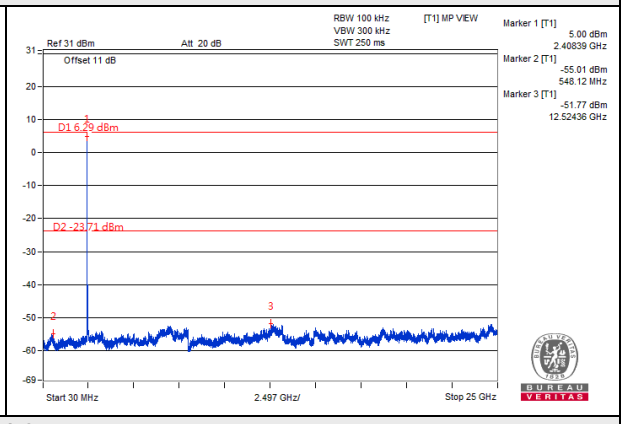
CH 11 Band edge



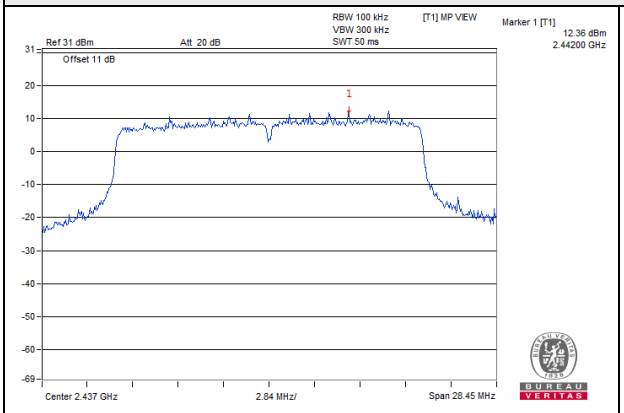
802.11ax (HE20)_Chain 1

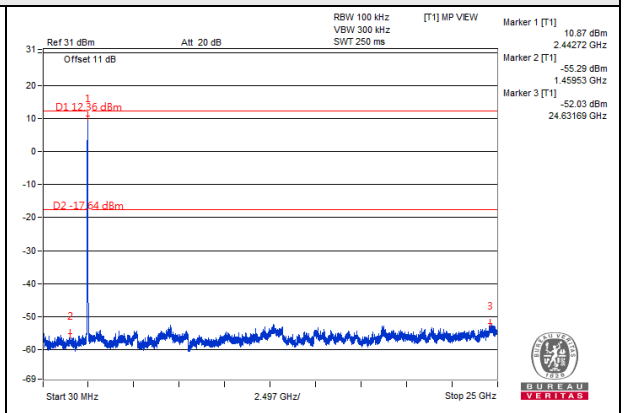
CH 1



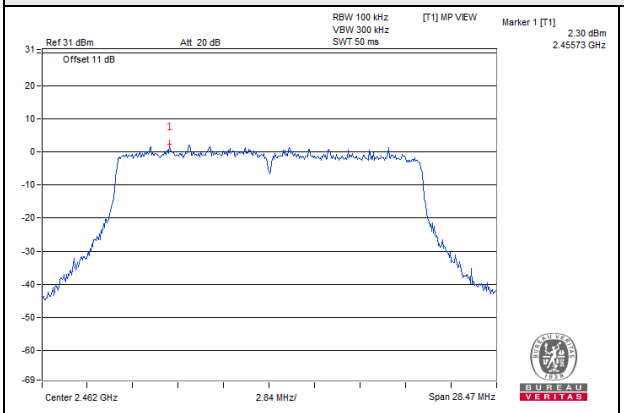


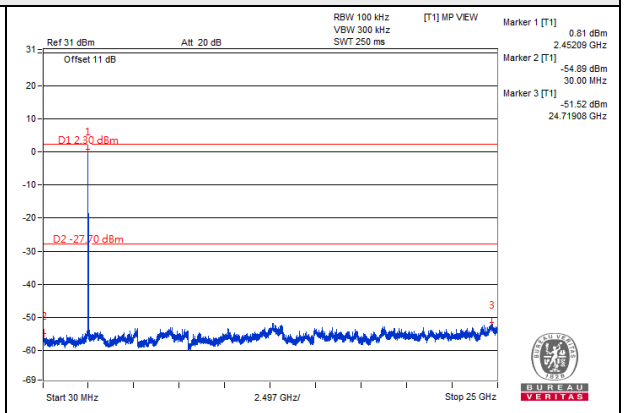
CH 6



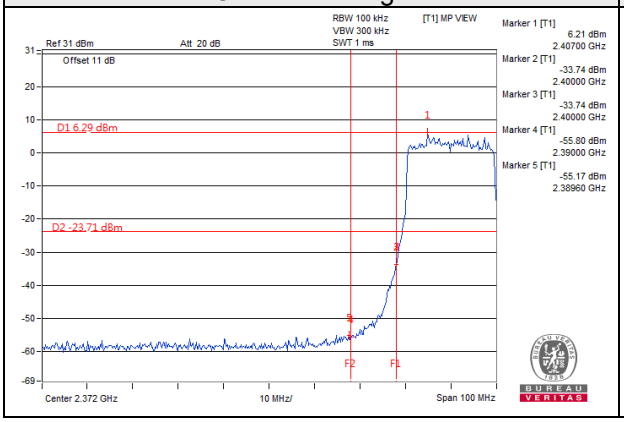


CH 11

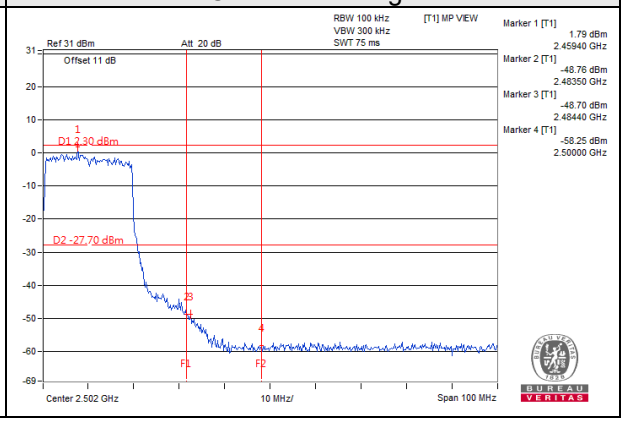




CH 1 Band edge

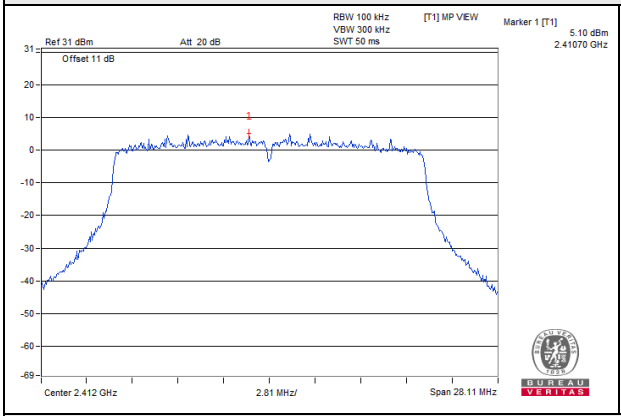


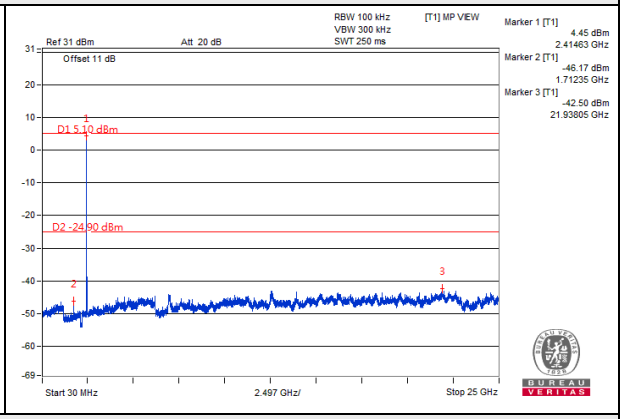
CH 11 Band edge



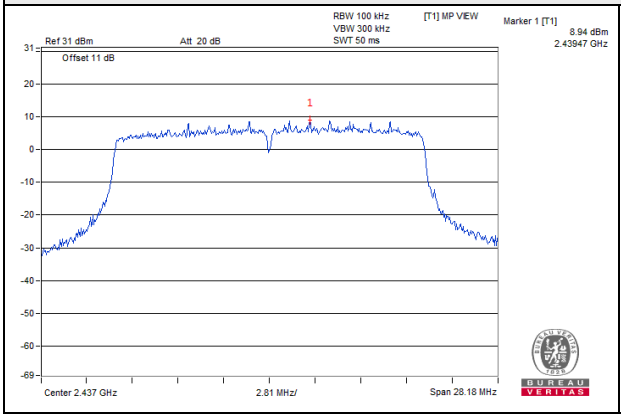
802.11ax (HE20)_Chain 2

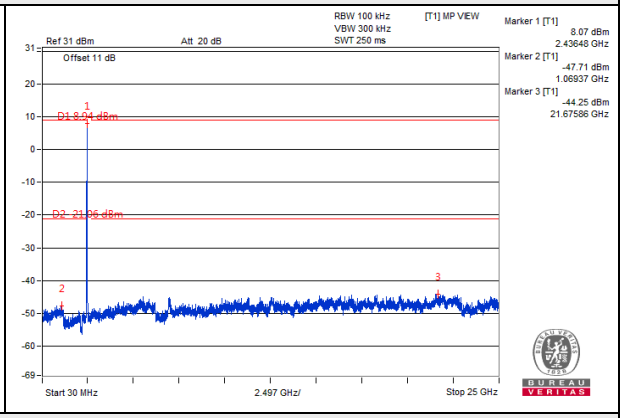
CH 1



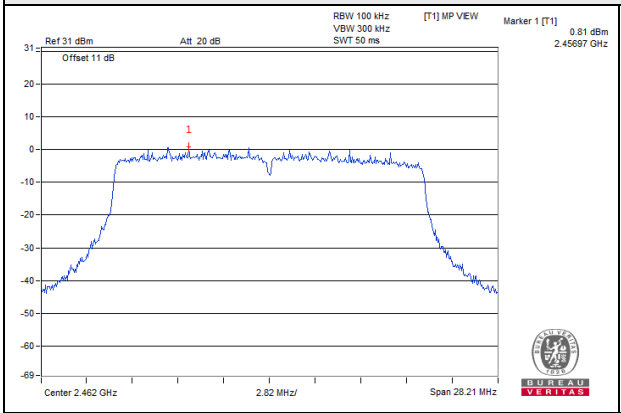


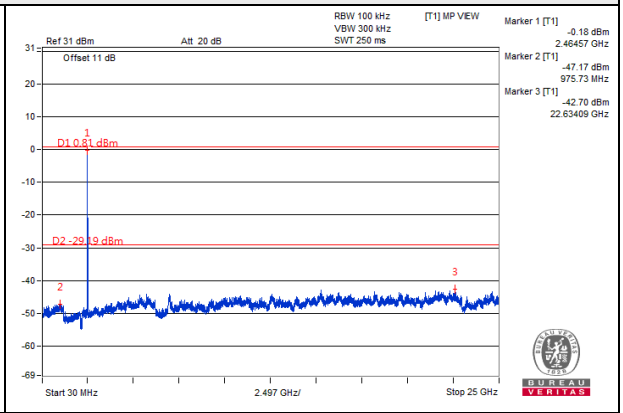
CH 6



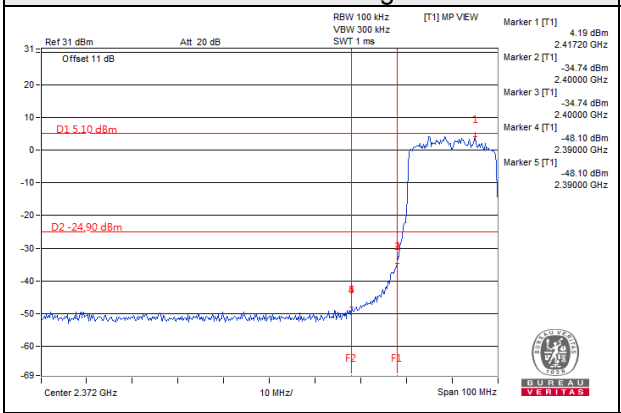


CH 11

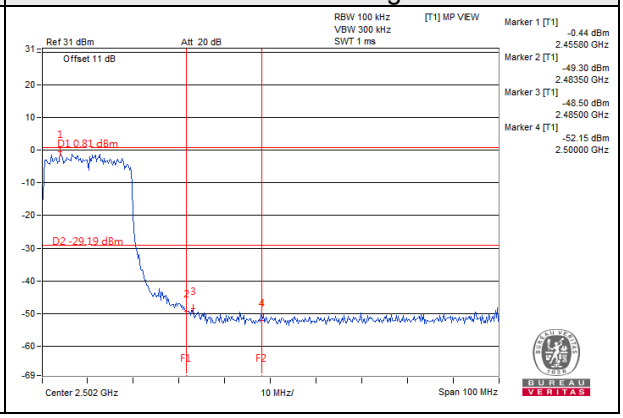




CH 1 Band edge

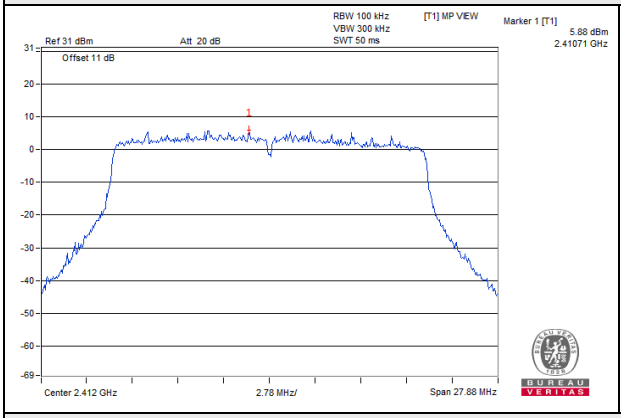


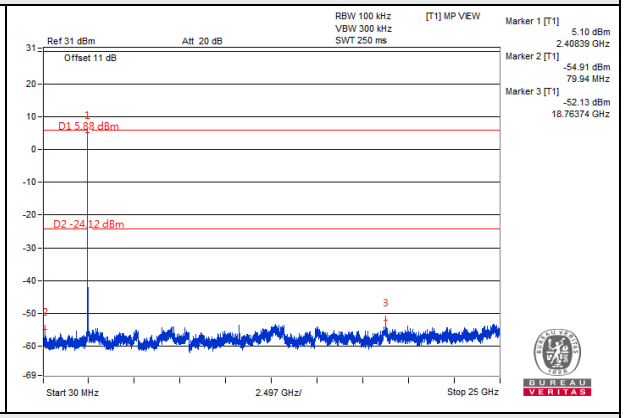
CH 11 Band edge



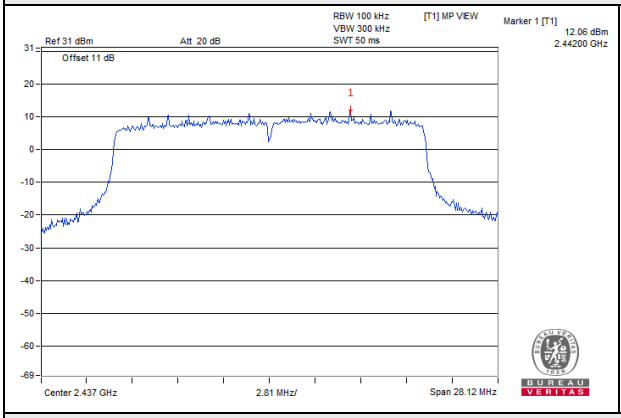
802.11ax (HE20)_Chain 3

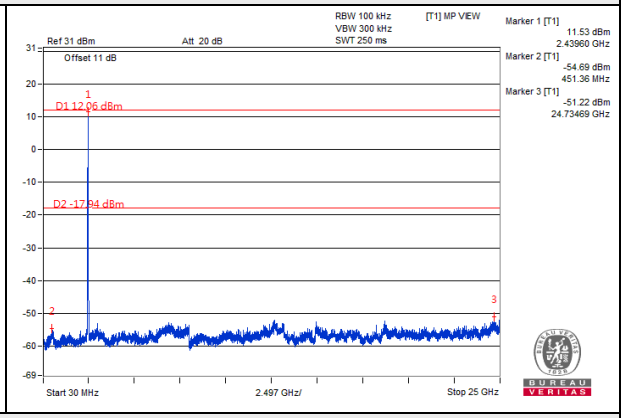
CH 1



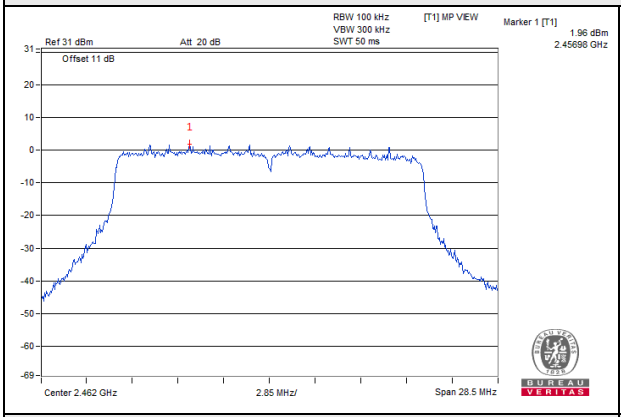


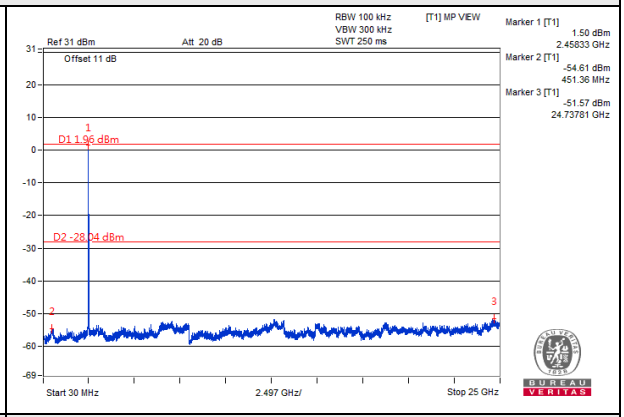
CH 6



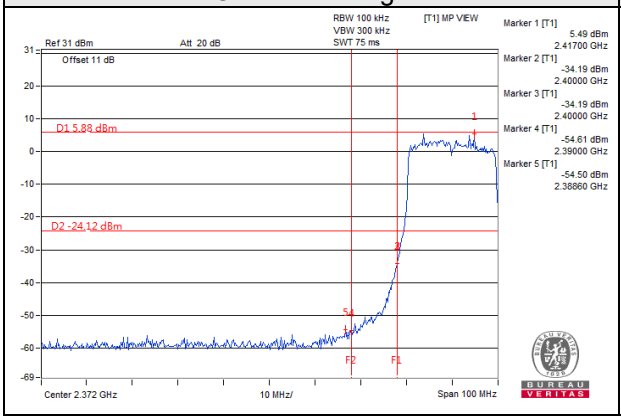


CH 11

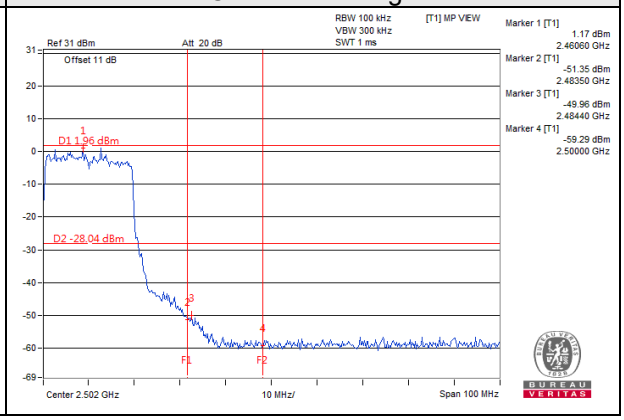




CH 1 Band edge

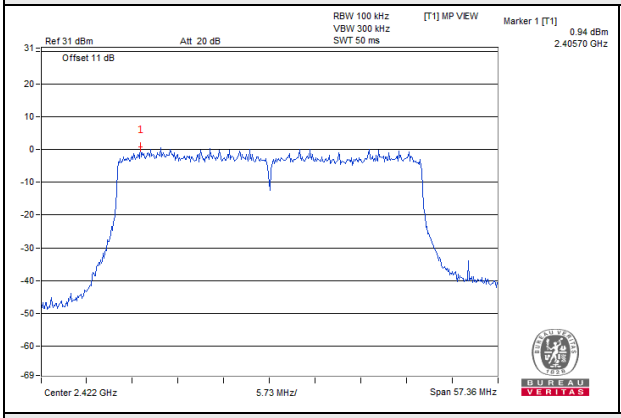


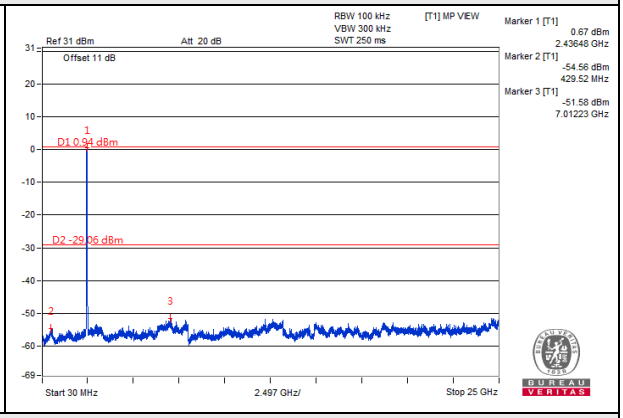
CH 11 Band edge



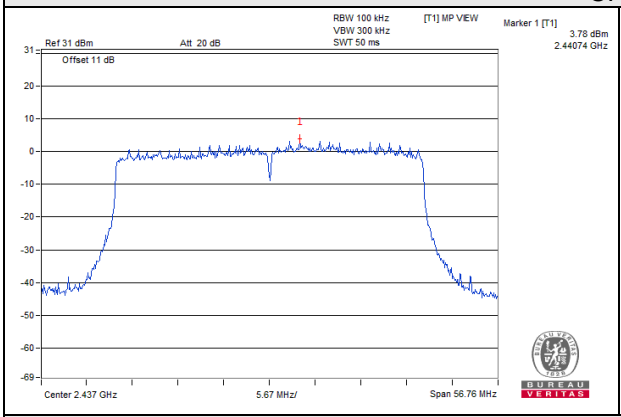
802.11ax (HE40)_Chain 0

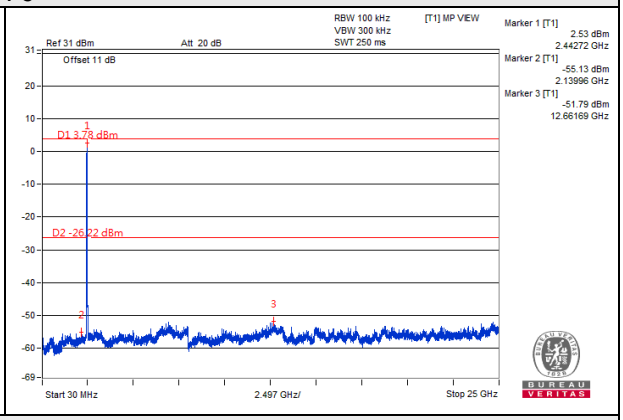
CH 3



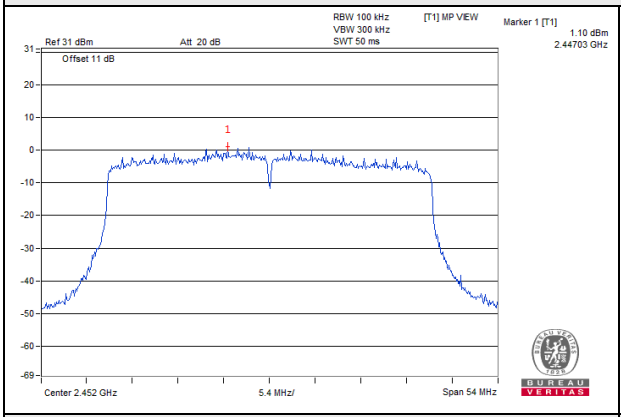


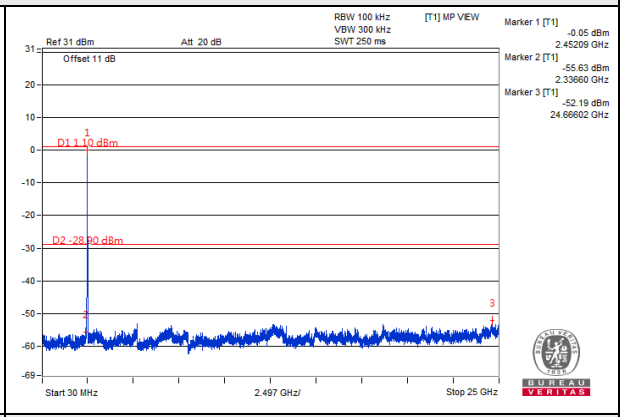
CH 6



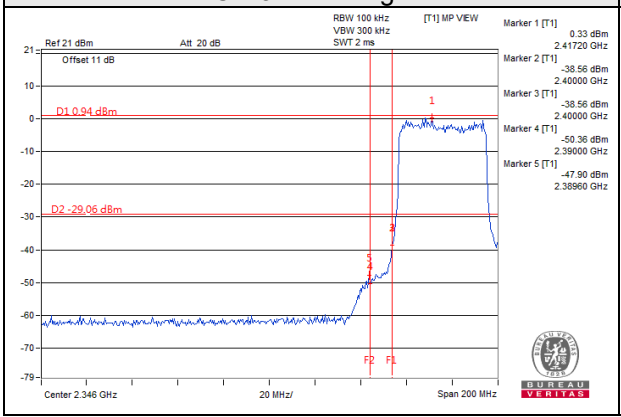


CH 9

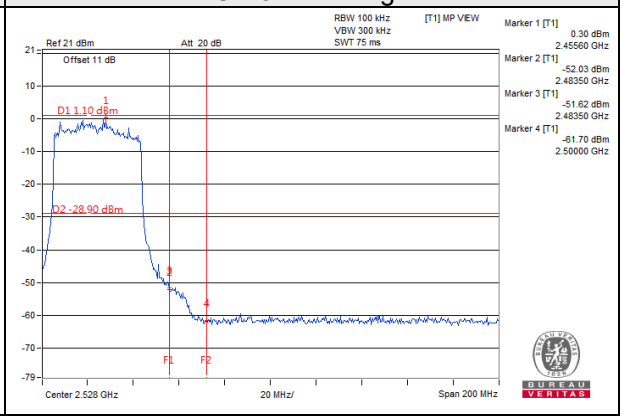




CH 3 Band edge

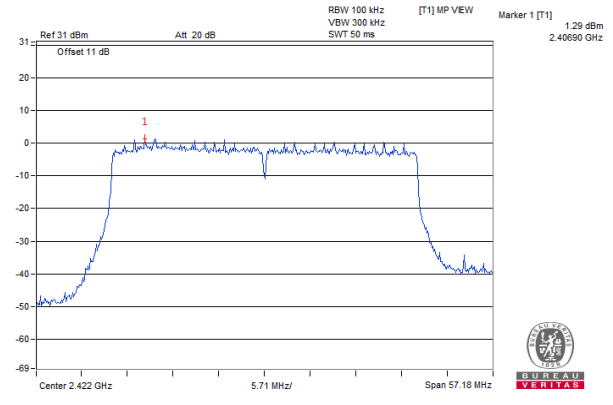


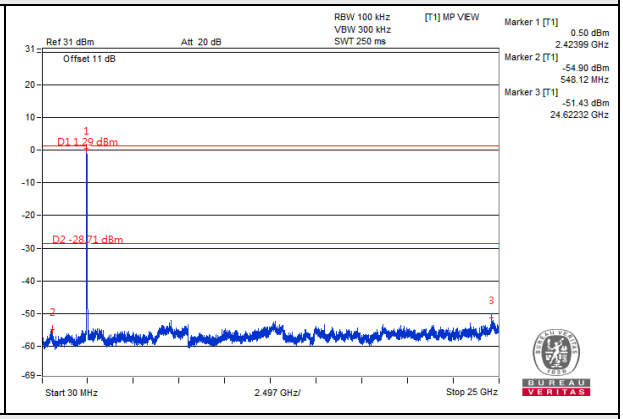
CH 9 Band edge



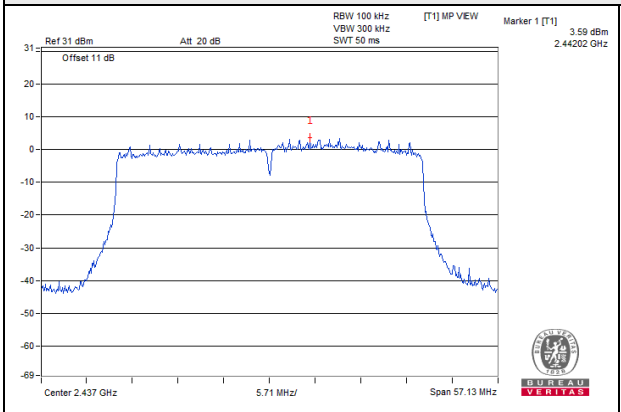
802.11ax (HE40)_Chain 1

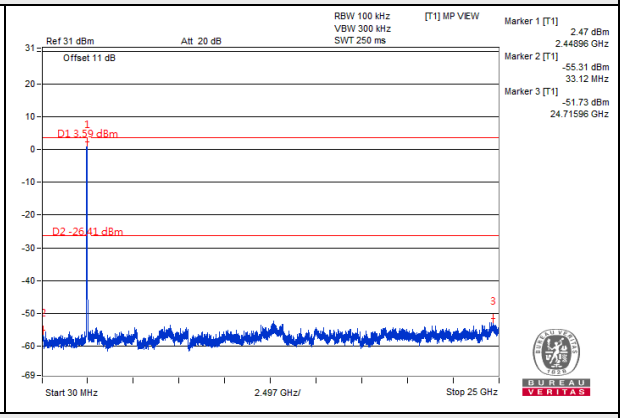
CH 3



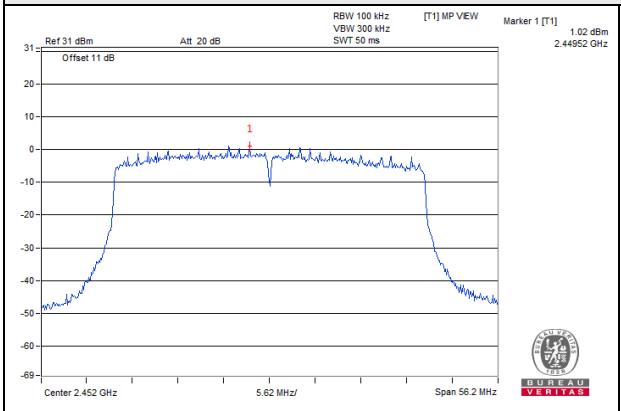


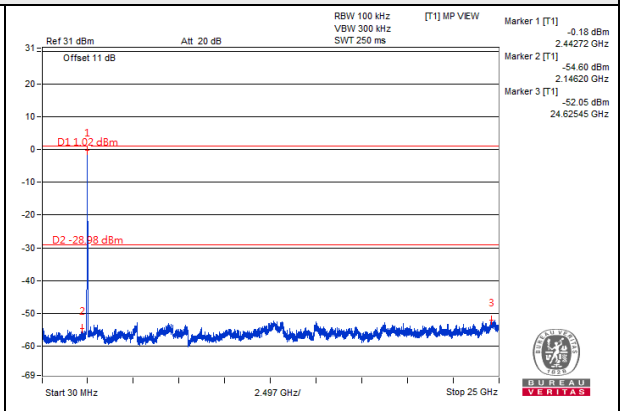
CH 6



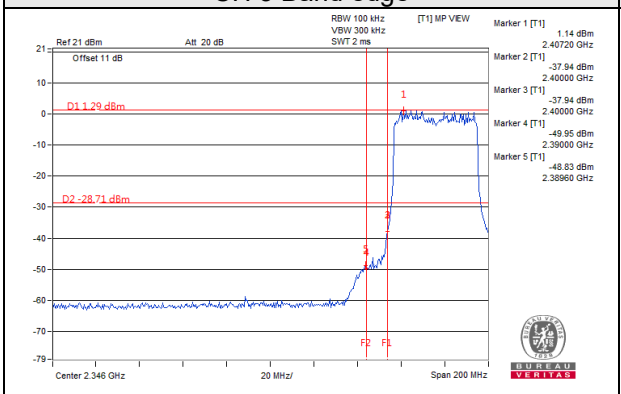


CH 9

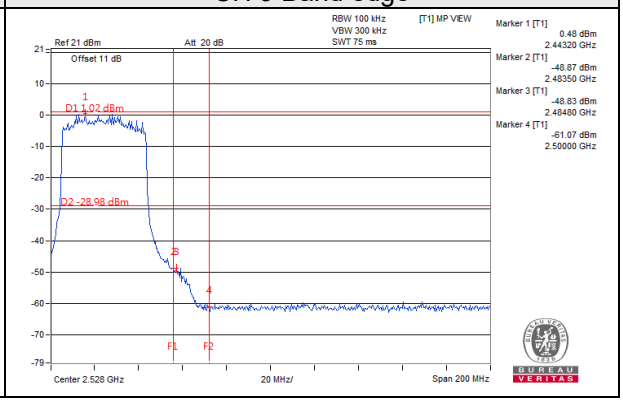




CH 3 Band edge

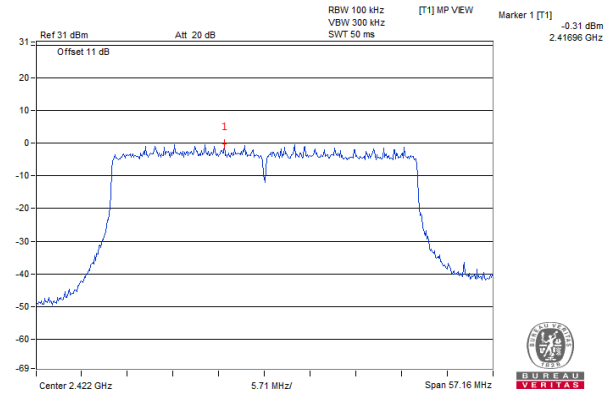


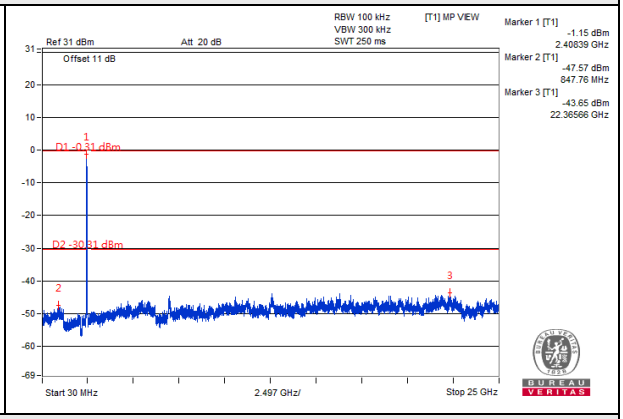
CH 9 Band edge



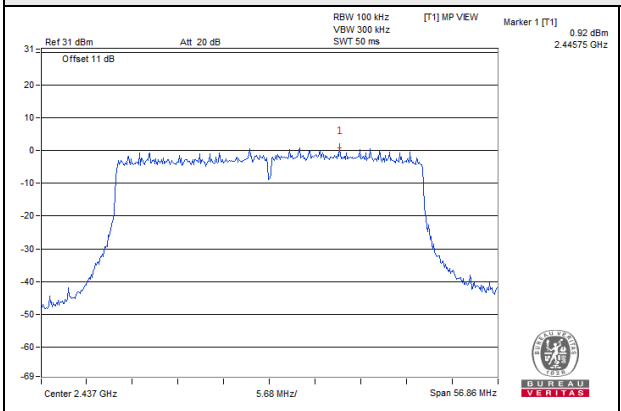
802.11ax (HE40)_Chain 2

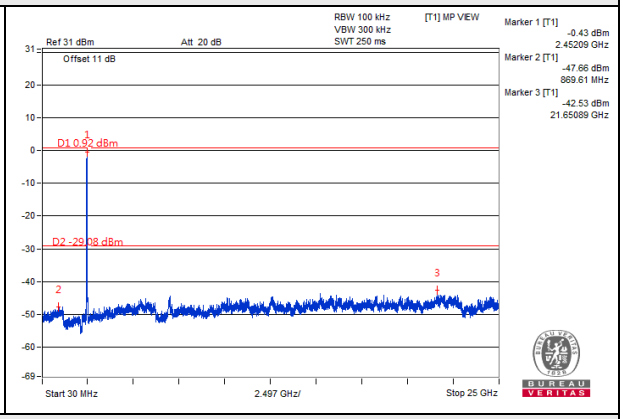
CH 3



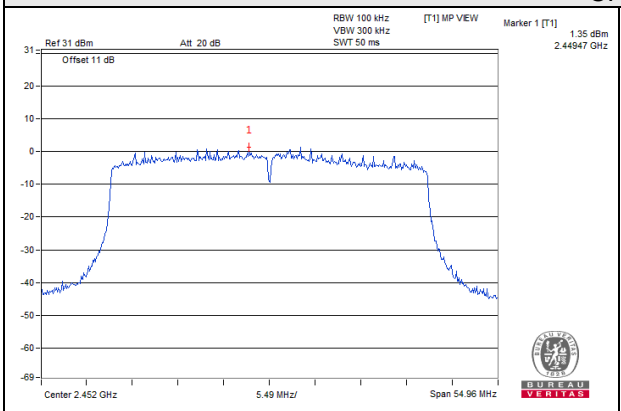


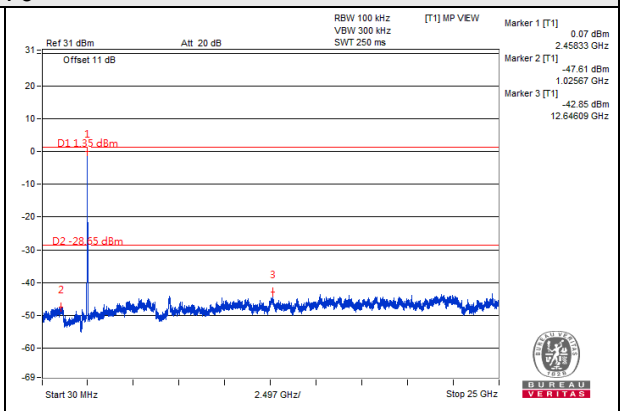
CH 6



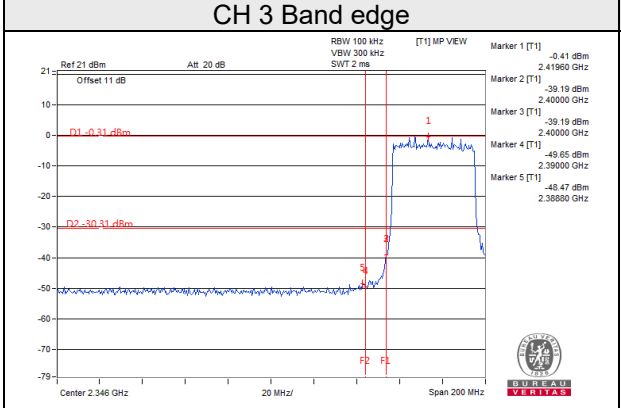


CH 9

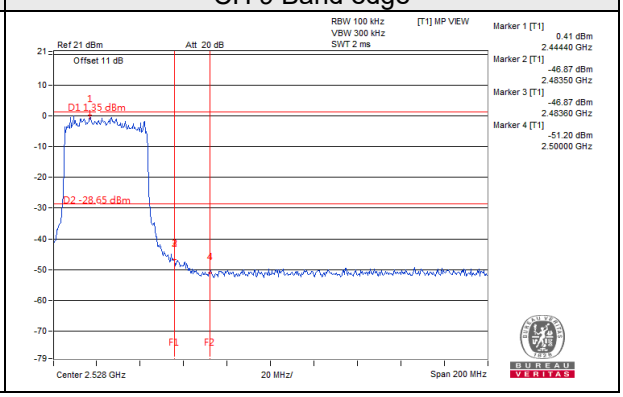




CH 3 Band edge

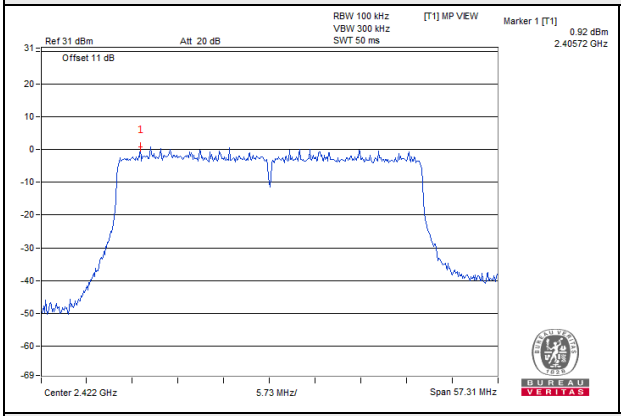


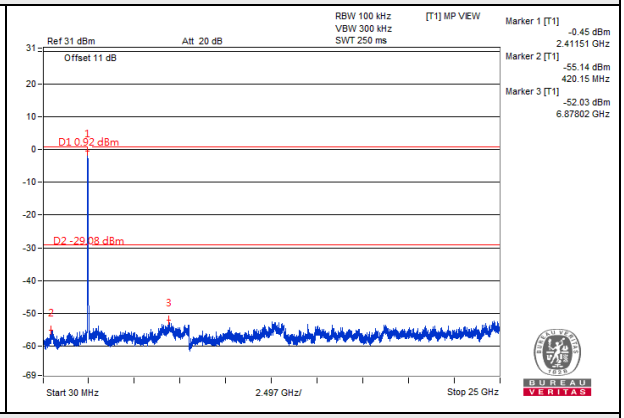
CH 9 Band edge



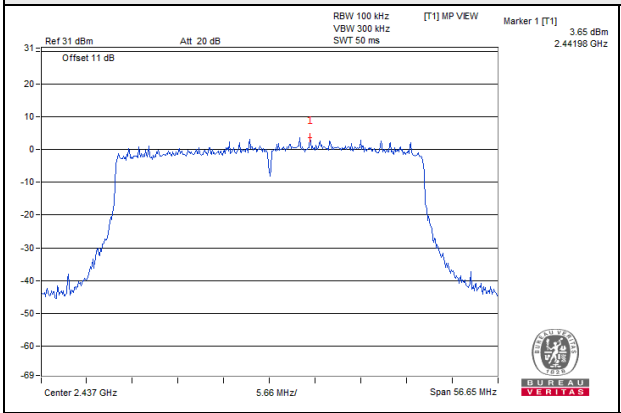
802.11ax (HE40)_Chain 3

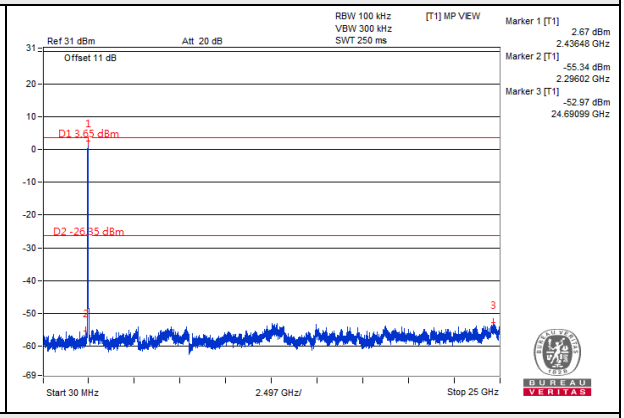
CH 3



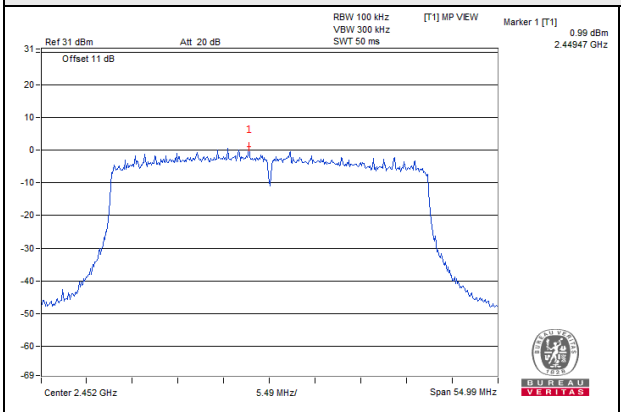


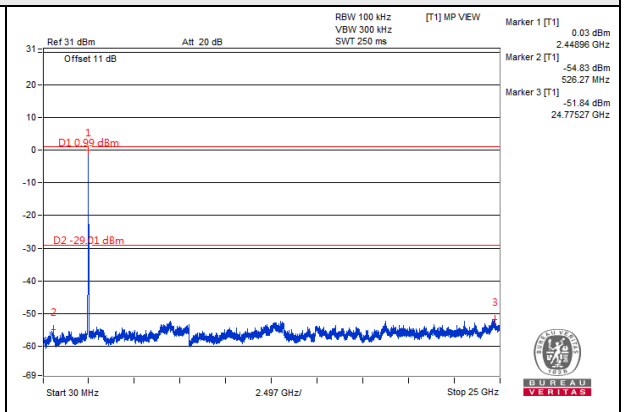
CH 6



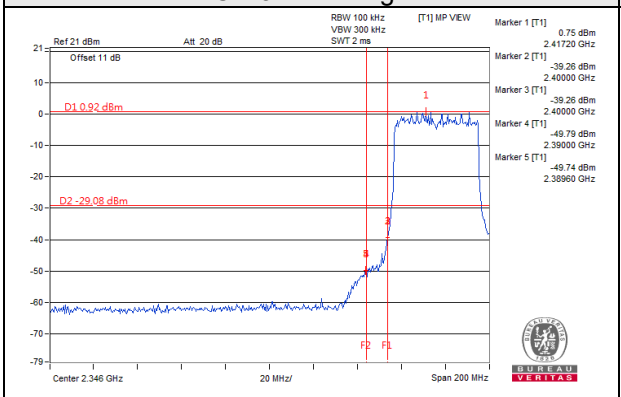


CH 9

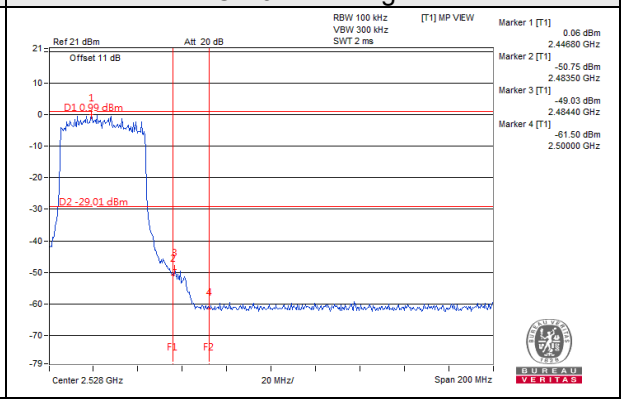




CH 3 Band edge



CH 9 Band edge



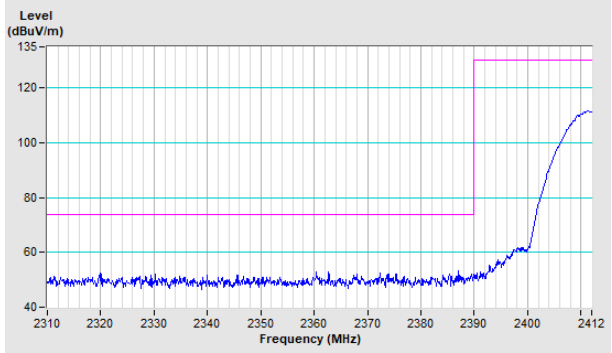
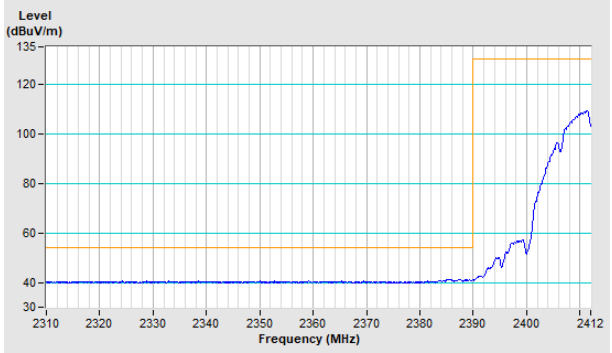
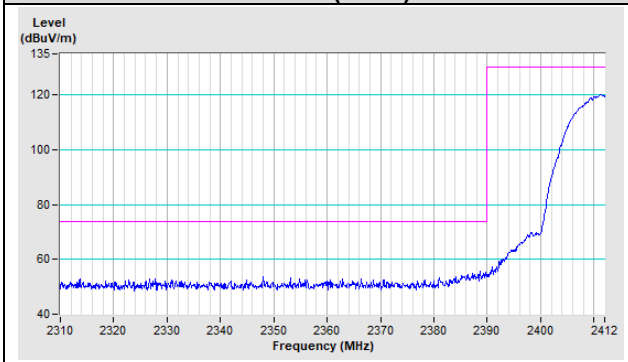
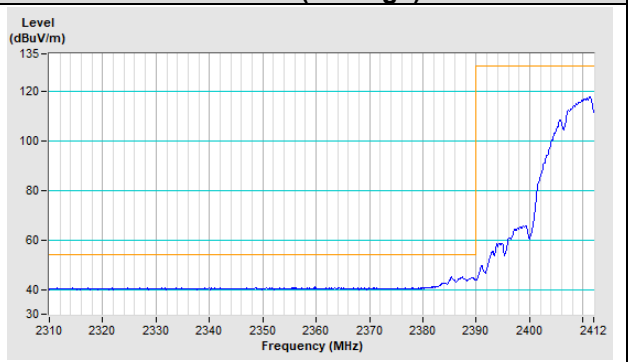
5 Pictures of Test Arrangements

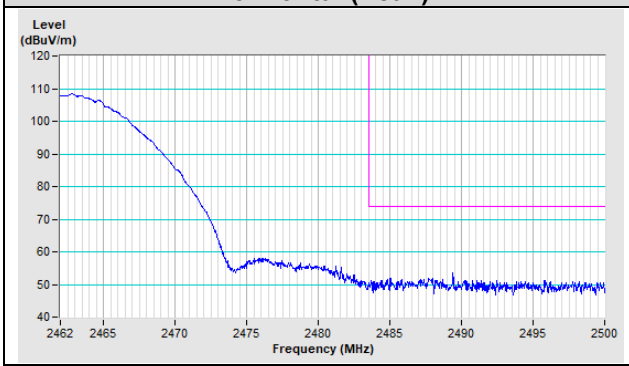
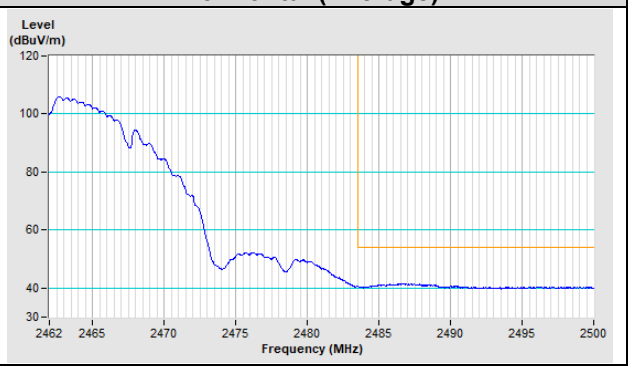
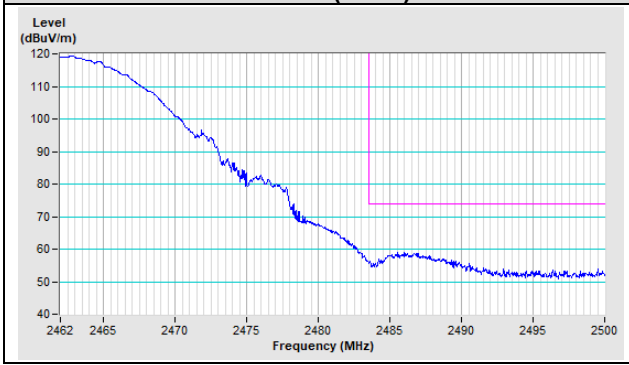
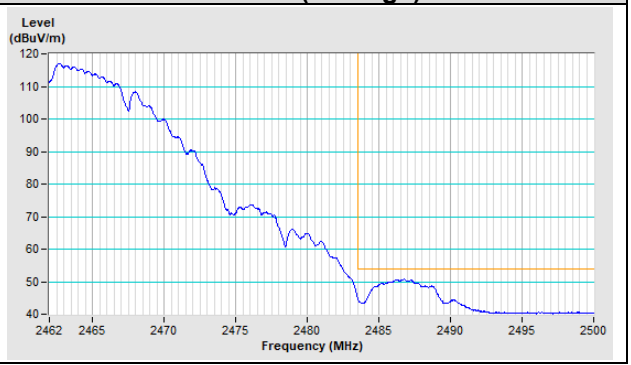
Please refer to the attached file (Test Setup Photo).

Annex A- Band Edge Measurement

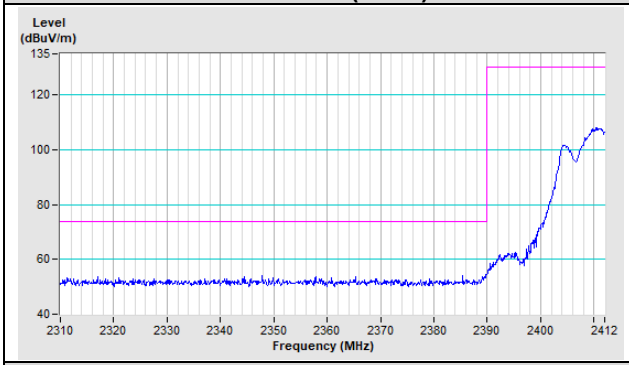
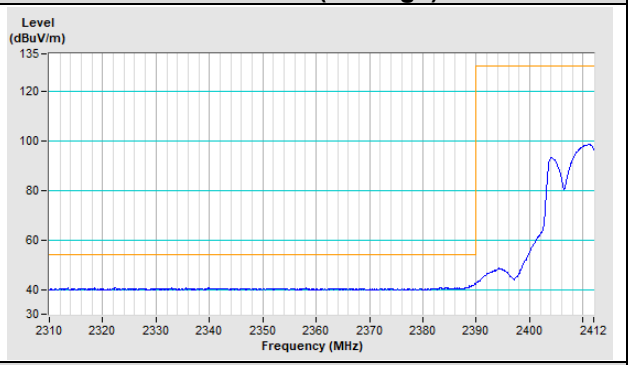
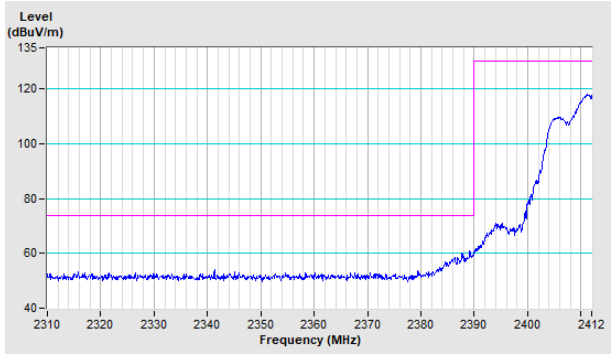
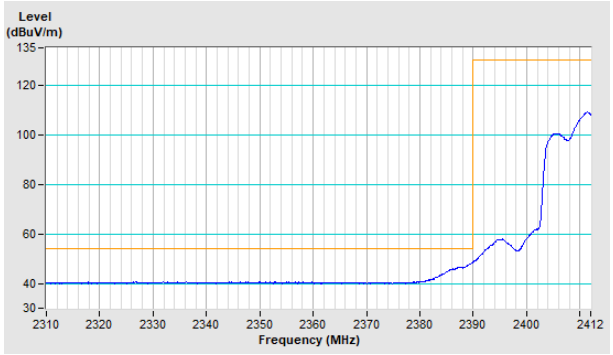
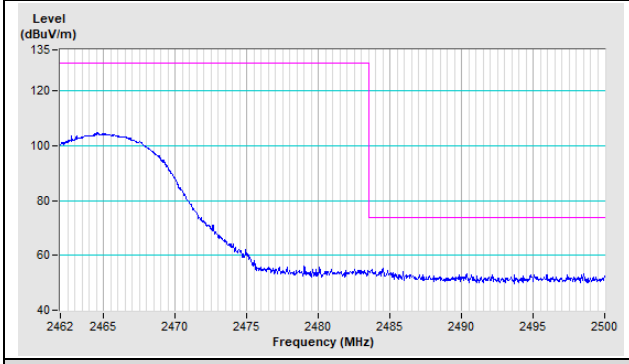
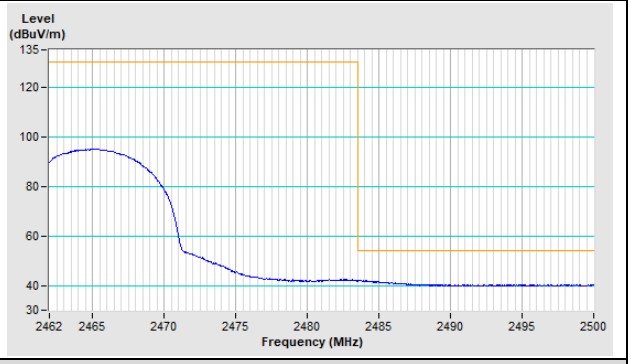
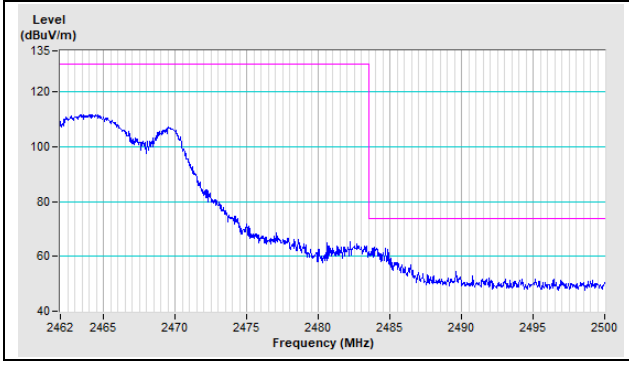
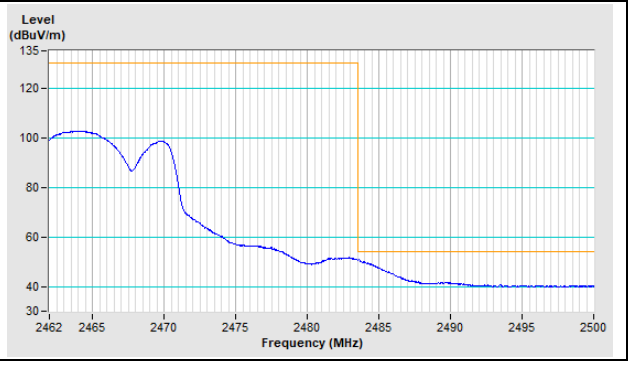
Test Mode A

802.11b

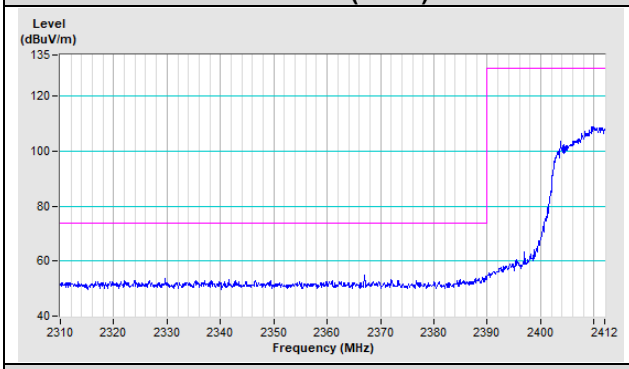
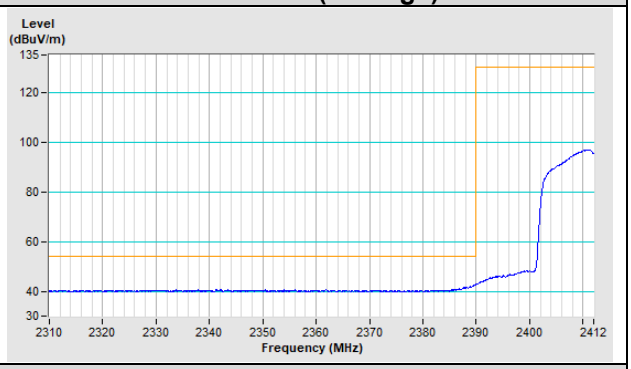
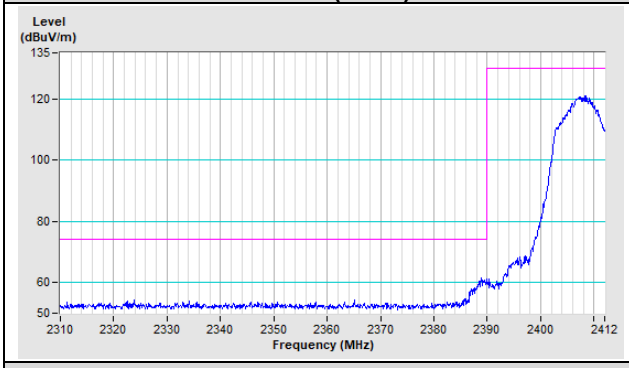
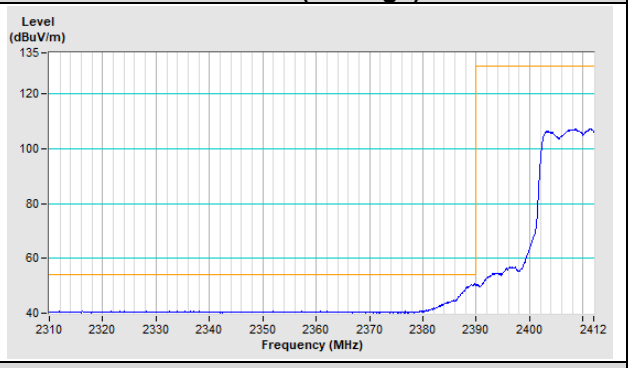
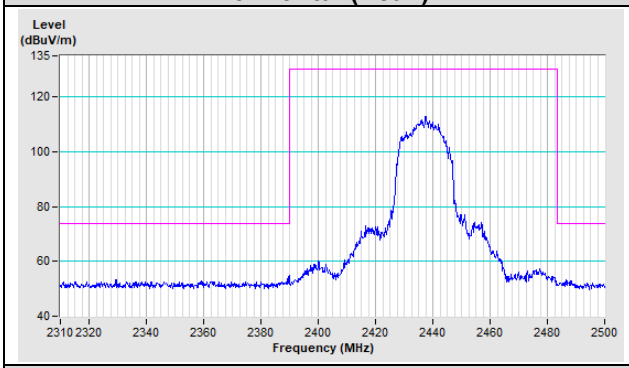
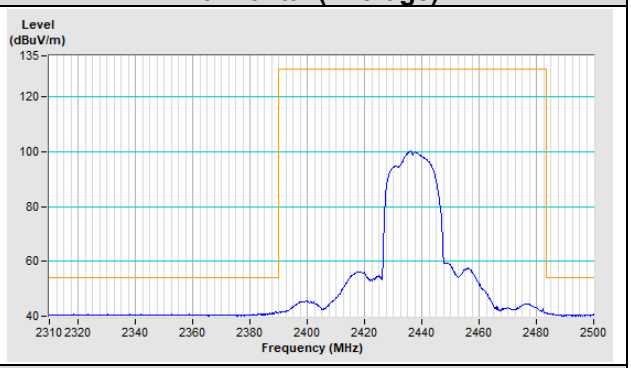
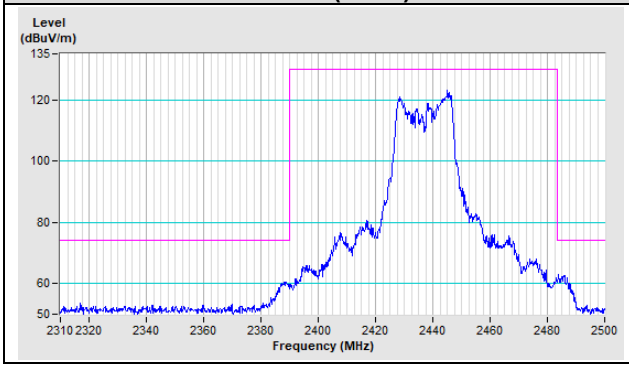
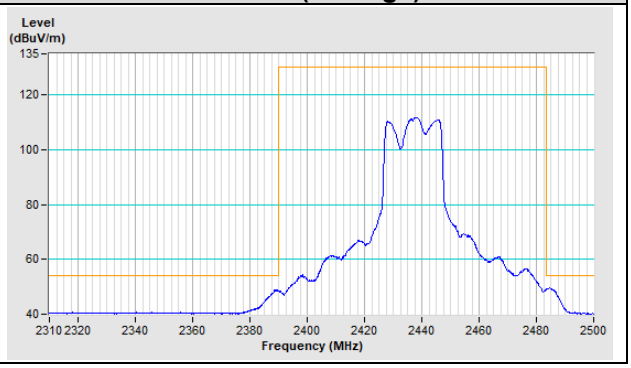
Channel 1	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

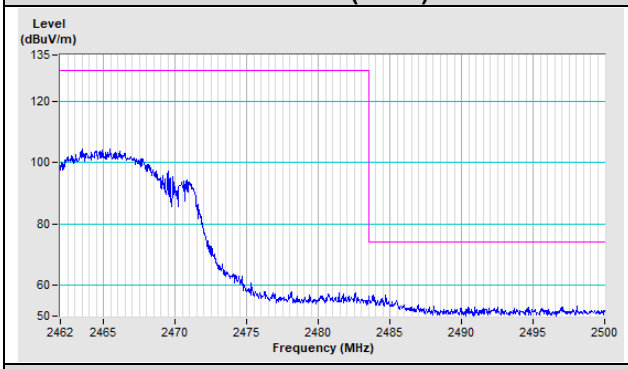
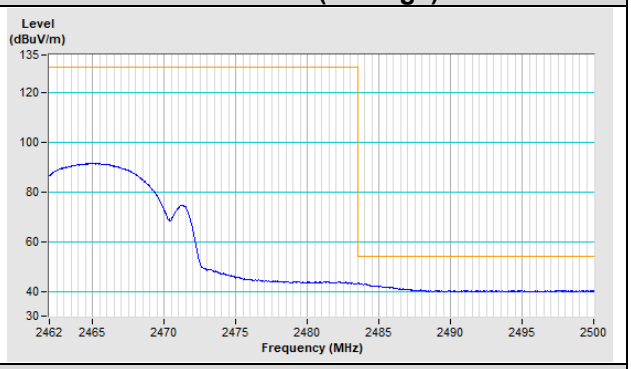
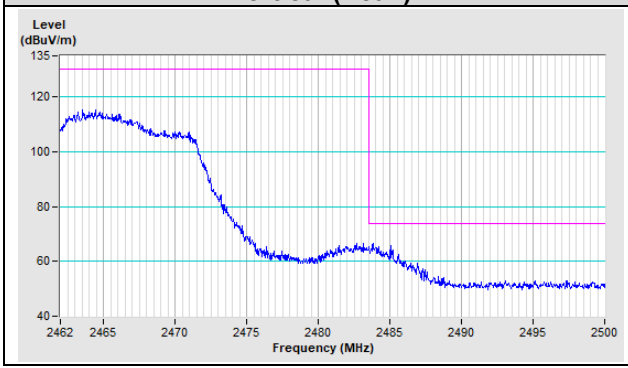
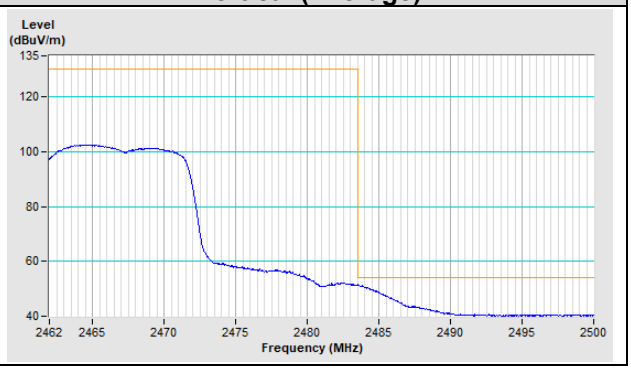
Channel 11	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

802.11g

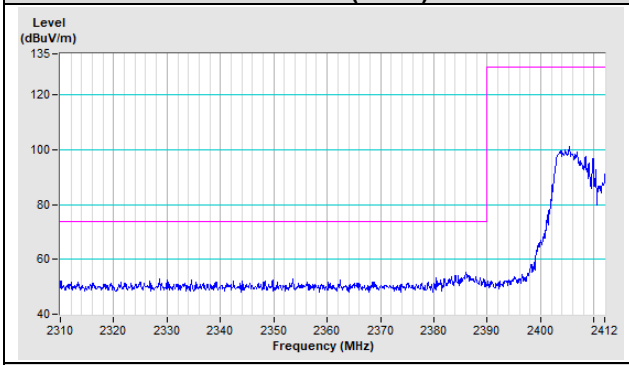
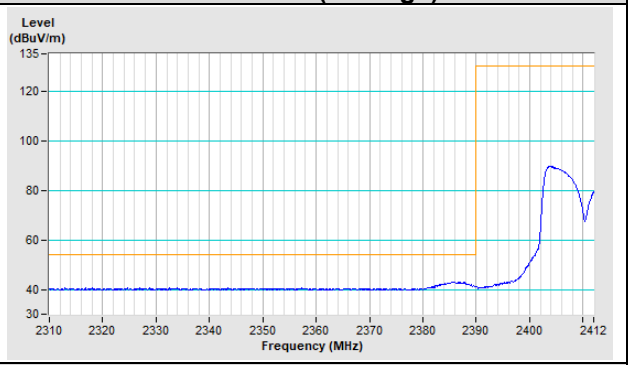
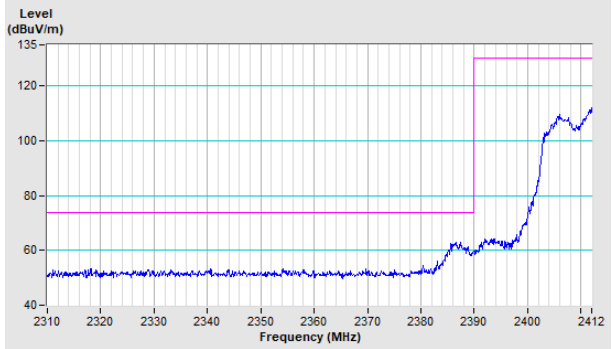
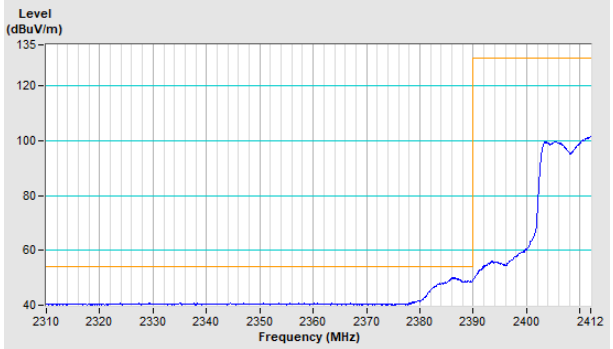
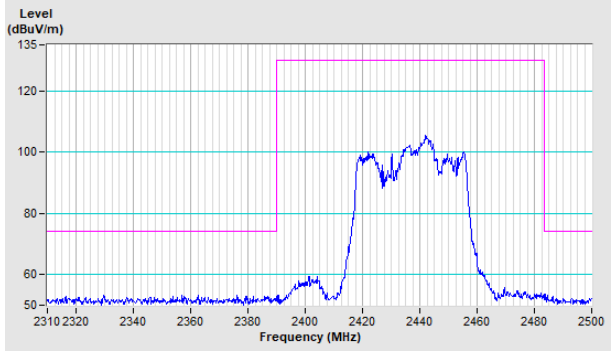
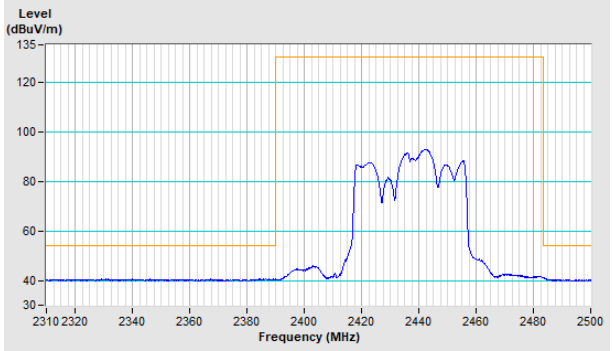
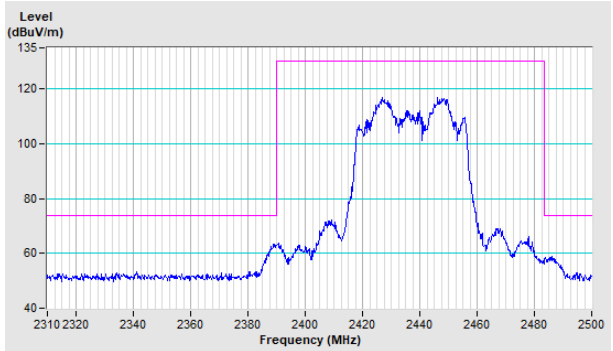
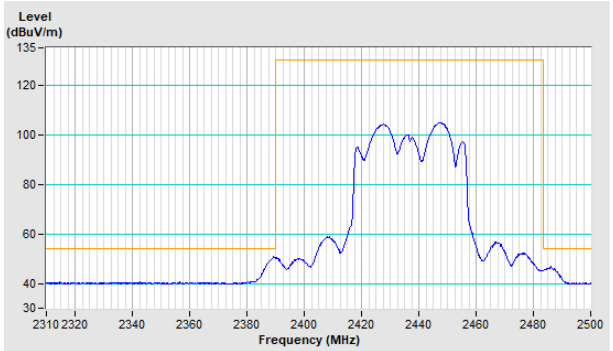
Channel 1	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
Channel 11	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

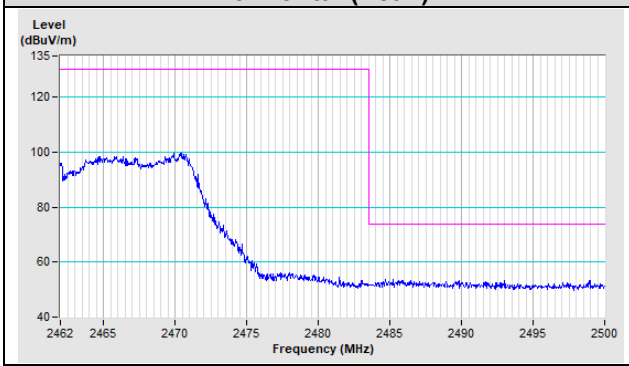
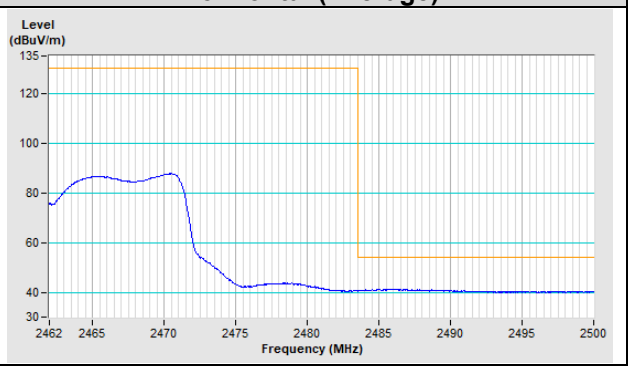
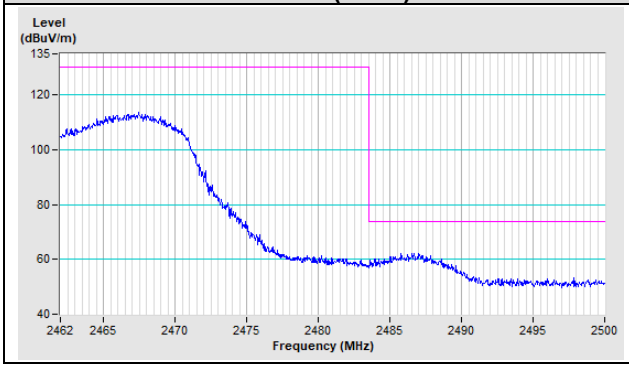
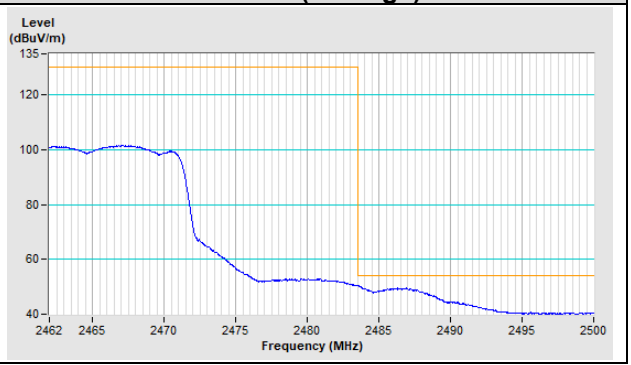
802.11ax (HE20)

Channel 1	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
Channel 6	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

Channel 11	
Horizontal (Peak)	**Horizontal (Average)**
	
Vertical (Peak)	**Vertical (Average)**
	

802.11ax (HE40)

Channel 3	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
Channel 6	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

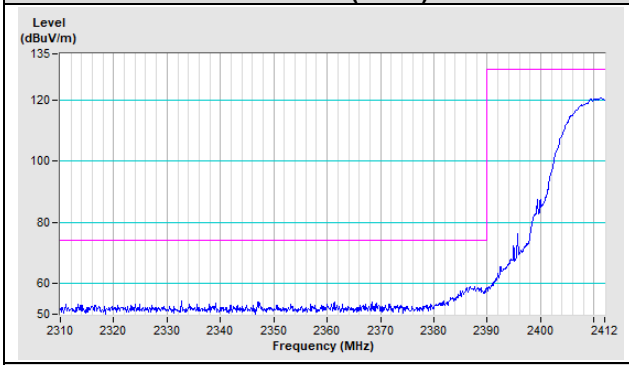
Channel 9	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

Test Mode C

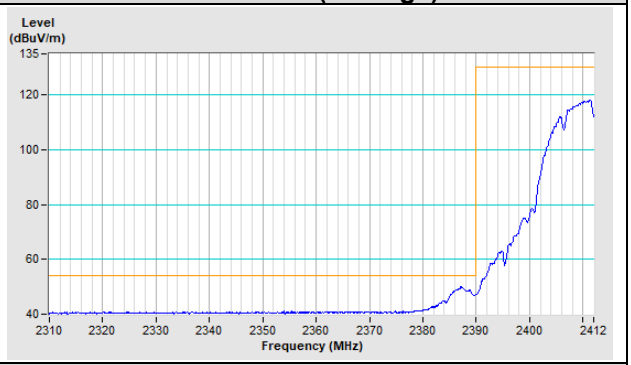
802.11b

Channel 1

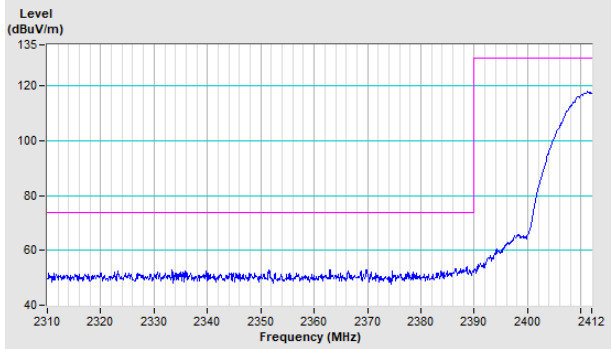
Horizontal (Peak)



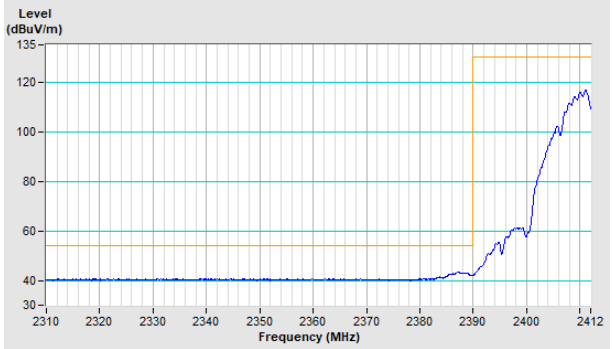
Horizontal (Average)



Vertical (Peak)

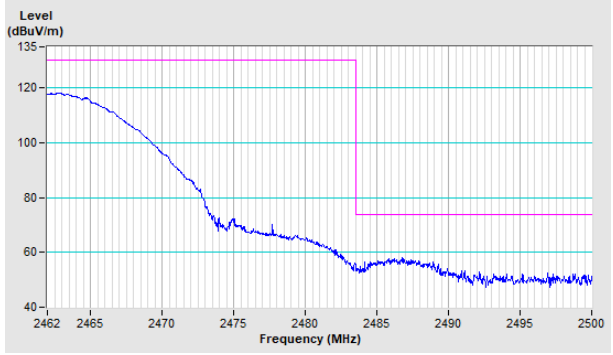


Vertical (Average)

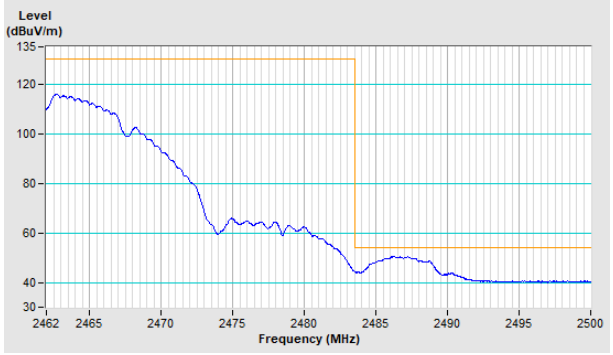


Channel 11

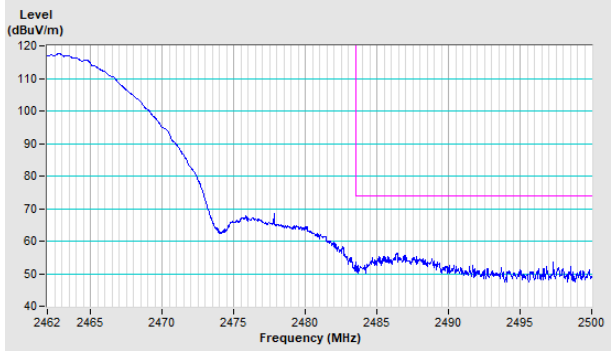
Horizontal (Peak)



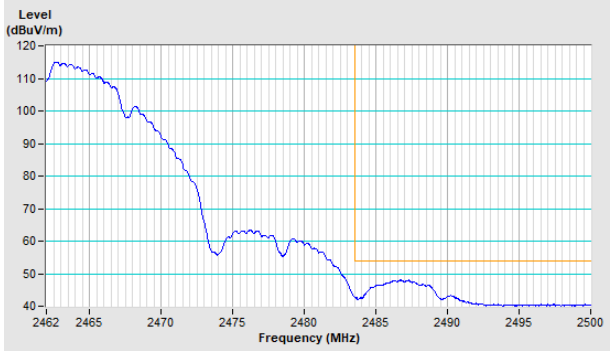
Horizontal (Average)



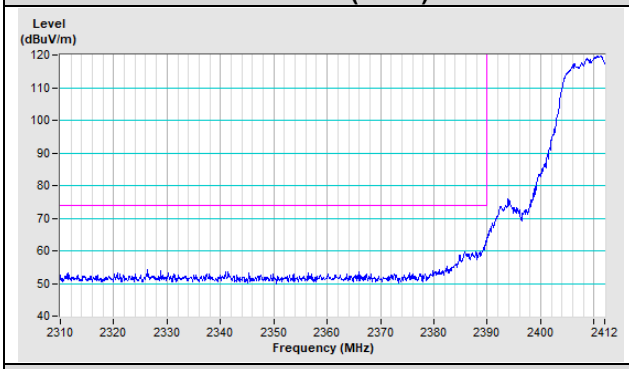
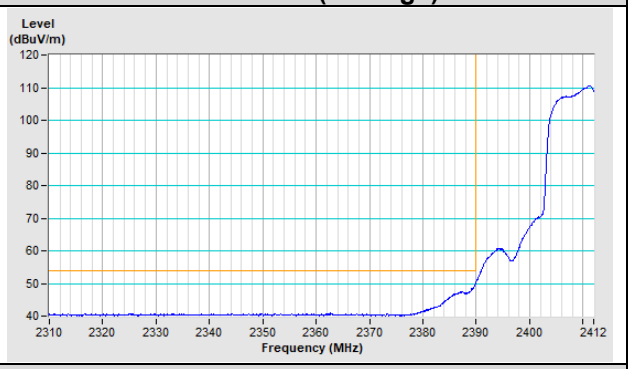
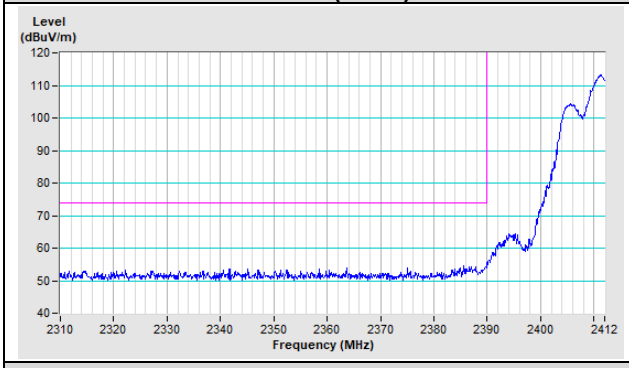
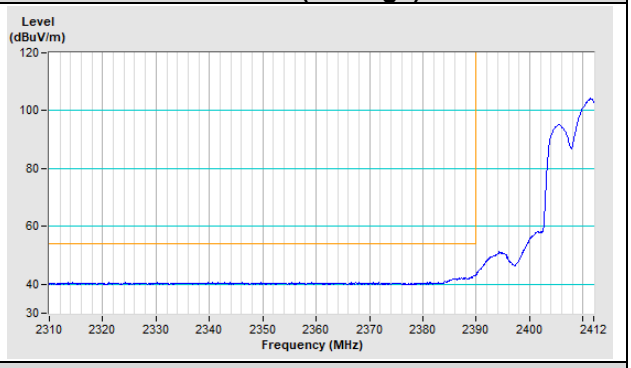
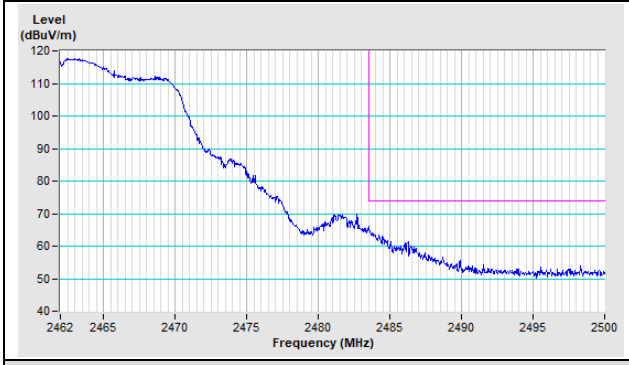
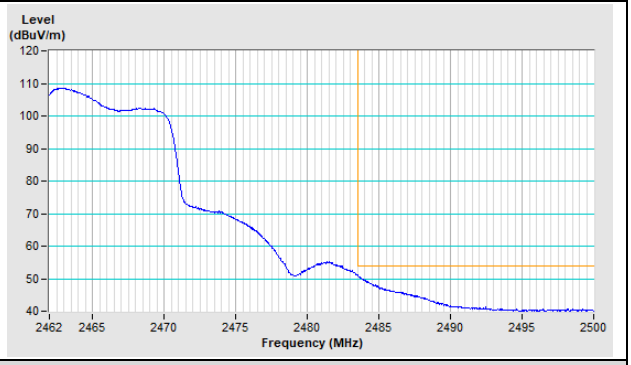
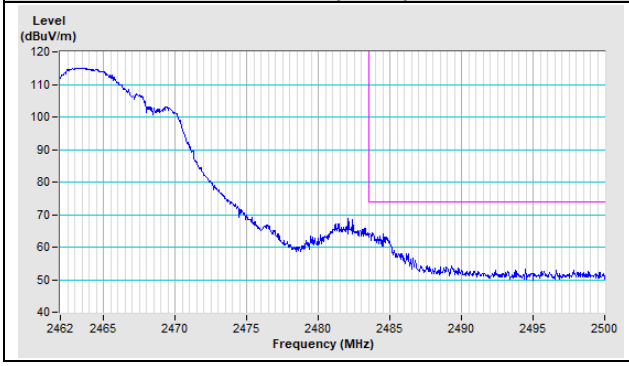
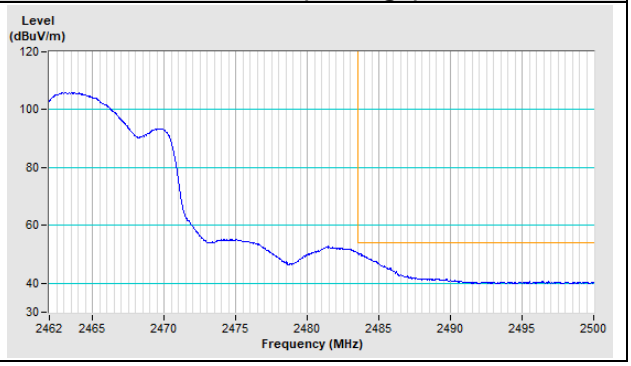
Vertical (Peak)



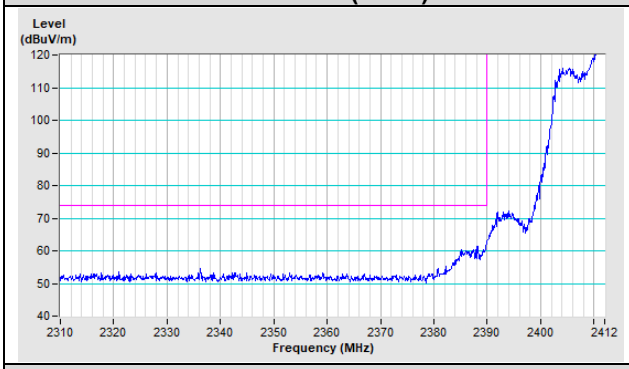
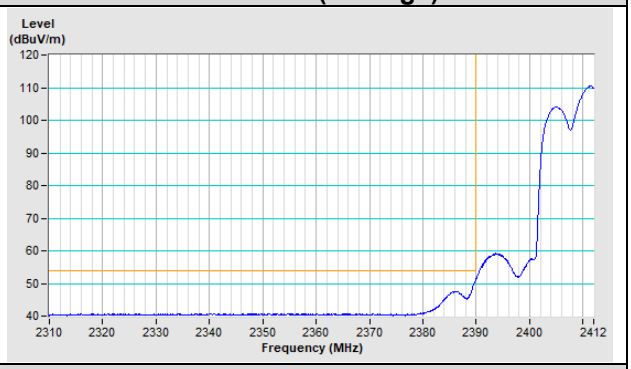
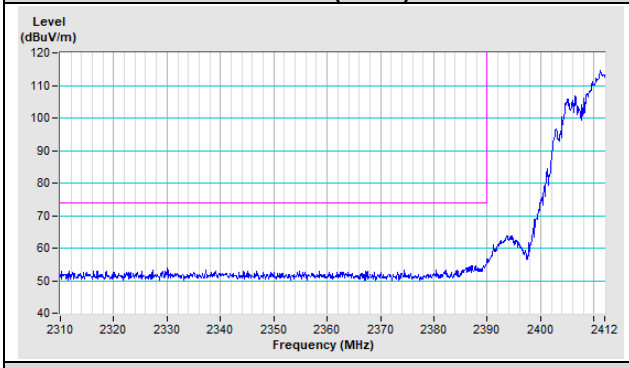
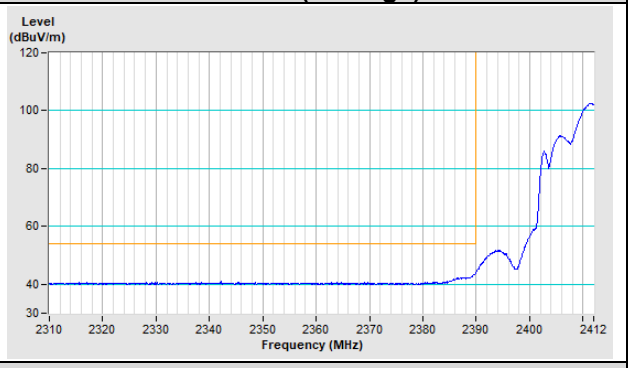
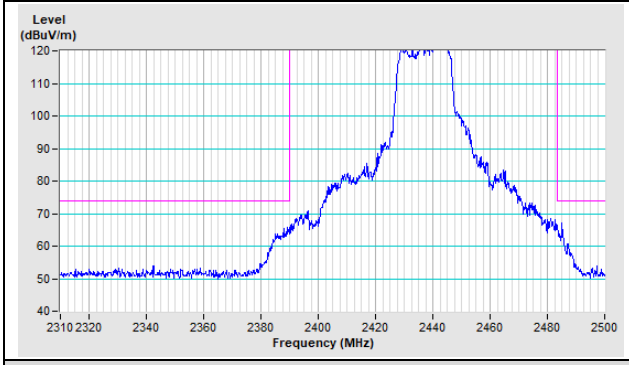
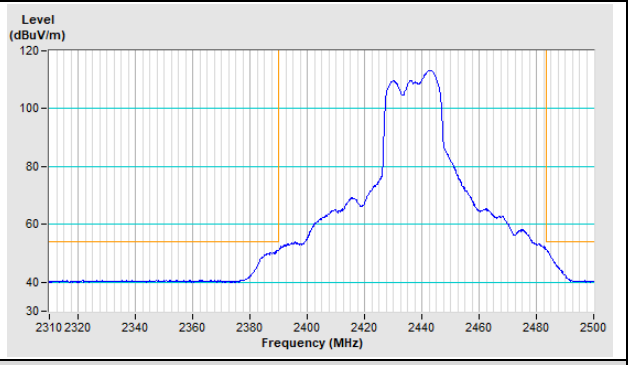
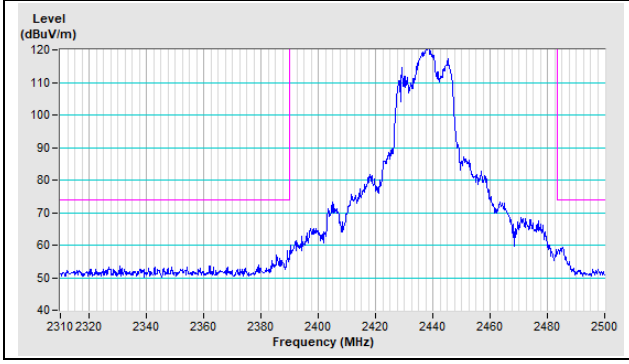
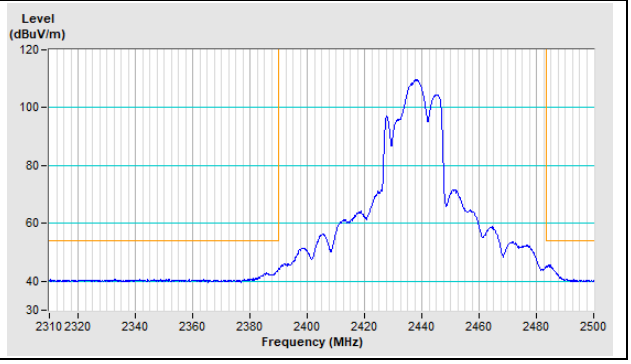
Vertical (Average)

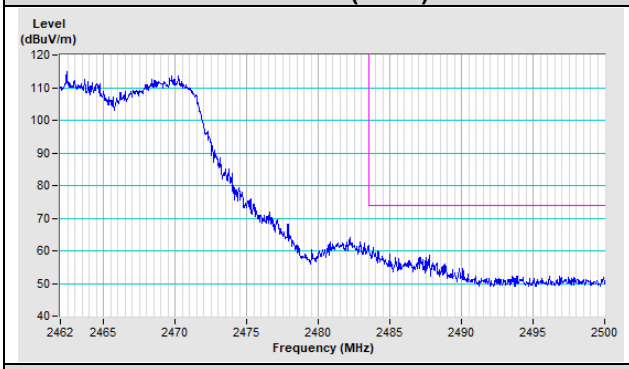
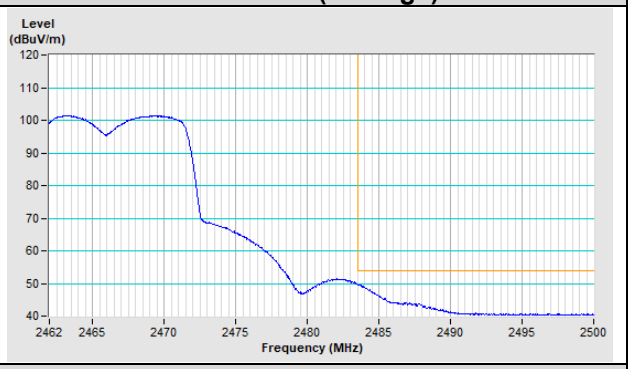
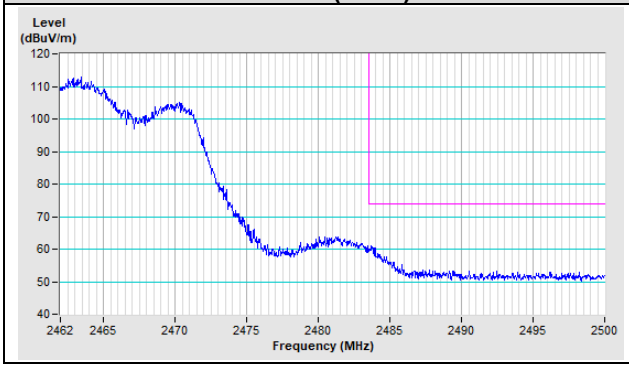
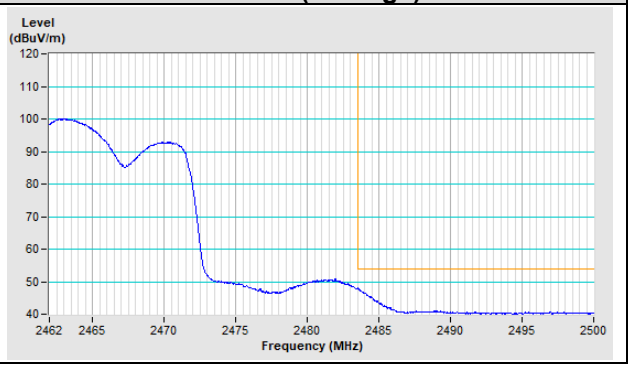


802.11g

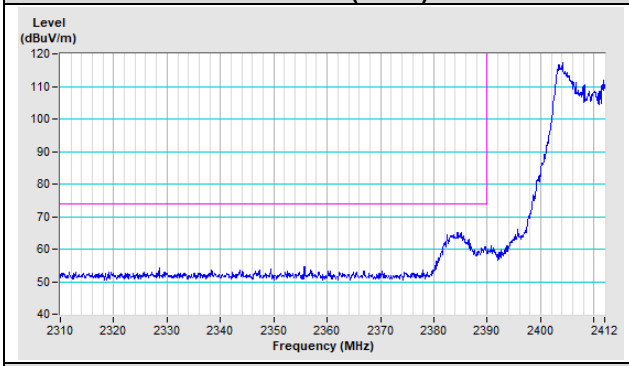
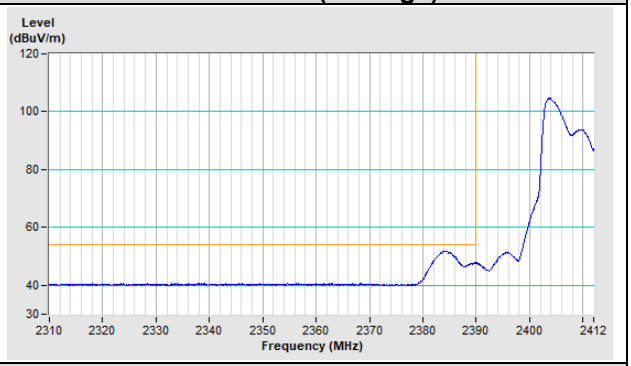
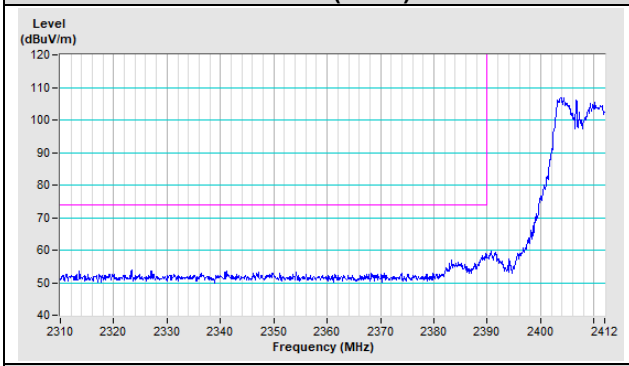
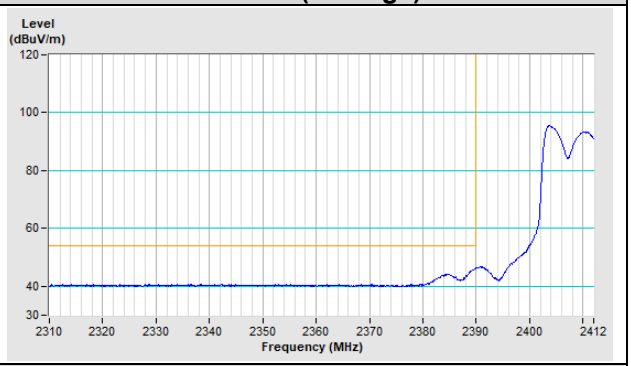
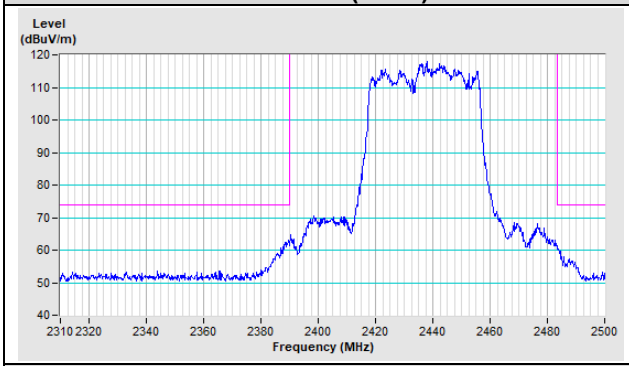
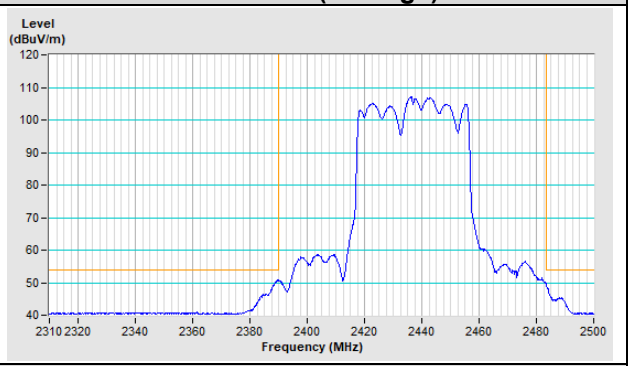
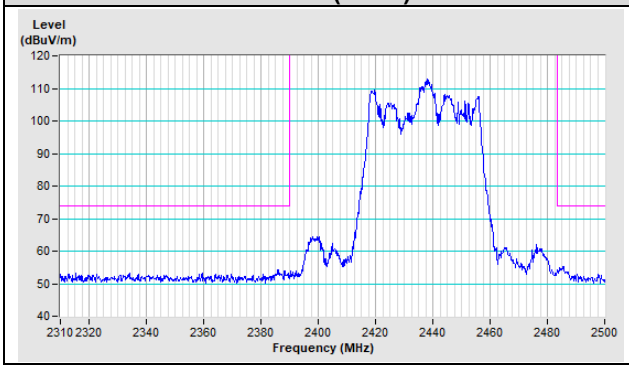
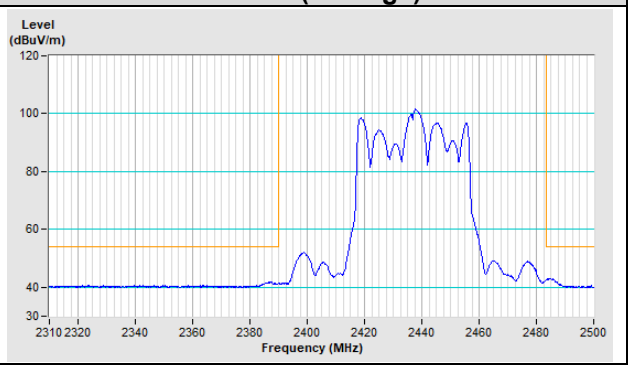
Channel 1	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
Channel 11	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

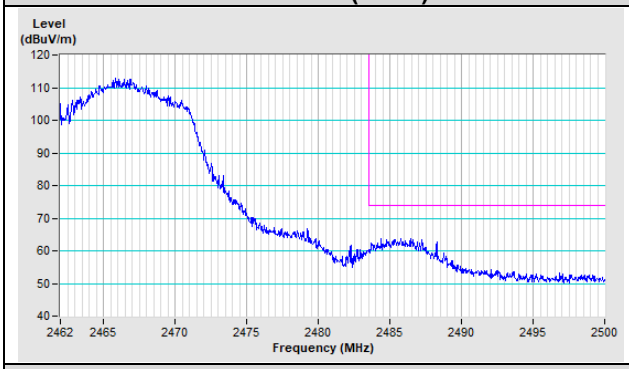
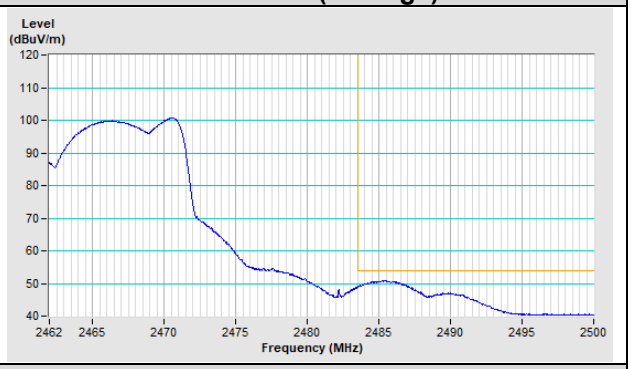
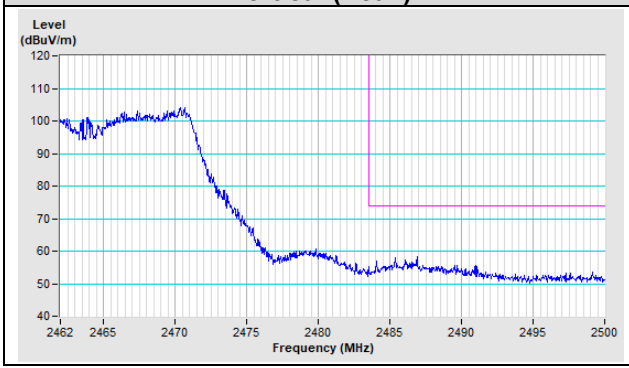
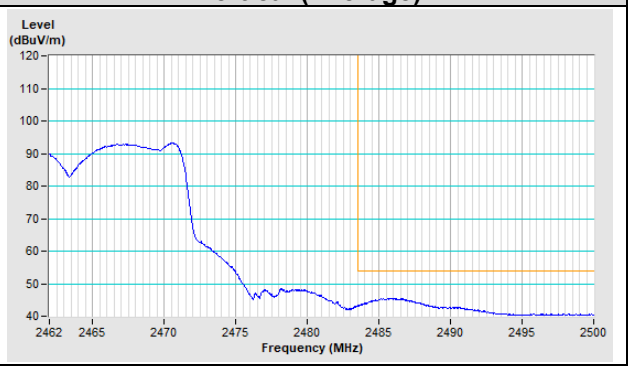
802.11ax (HE20)

Channel 1	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
Channel 6	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

Channel 11	
Horizontal (Peak)	**Horizontal (Average)**
	
Vertical (Peak)	**Vertical (Average)**
	

802.11ax (HE40)

Channel 3	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	
Channel 6	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

Channel 9	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

Appendix – 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 and approved according to ISO/IEC 17025.

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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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