FCC Test Report

Report No.:	RFBDYS-WTW-P20100843
FCC ID:	Q6G-AP330
Test Model:	AP330
Received Date:	Nov. 01, 2020
Test Date:	Nov. 26 ~ Dec. 29, 2020
Issued Date:	Jan. 13, 2021
Applicant:	WatchGuard Technologies, Inc.
Address:	505 Fifth Avenue South, Suite 500 Seattle WA United States 98104
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RFBDYS-WTW-P20100843	Original release.	Jan. 13, 2021

1 Certificate of Conformity

Product:	Wireless Access Point
Brand:	WatchGuard
Test Model:	AP330
Sample Status:	Engineering sample
Applicant:	WatchGuard Technologies, Inc.
Test Date:	Nov. 26 ~ Dec. 29, 2020
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 : Polly Chien , **Date:** Jan. 13, 2021

Polly Chien / Specialist

Approved by : Bruce Chen , **Date:** Jan. 13, 2021

Bruce Chen / Senior 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 -14.57dB at 0.51742MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.0dB at 2390.00MHz & 2483.50MHz.
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 are IPEX not a standard connector.

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	2.79 dB
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	30MHz ~ 200MHz	3.86 dB
	200MHz ~1000MHz	3.87 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Wireless Access Point
Brand	WatchGuard
Test Model	AP330
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 802.11ax: 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): up to 300Mbps 802.11ac (VHT20/40): up to 400Mbps 802.11ax: up to 573.5Mbps
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), 802.11ac (VHT20): 11 802.11n (HT40), 802.11ac (VHT40): 7
Output Power	CDD Mode: 2G traffic radio: 287.931mW Scanning radio: 245.832mW Beamforming Mode: 2G traffic radio: 133.830mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	NA
Cable Supplied	NA

Note:

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

POE (support unit only)	
Brand	EnGenius
Model	EPA5006GAT
Input Power	100-240Vac, 50-60Hz, 0.8A
Output Power	54Vdc, 0.6A

Adapter (support unit only)	
Brand	APD
Model	WA-30J12R
Input Power	100-240Vac, 50-60Hz, 0.9A
Output Power	12.0Vdc, 2.5A, 30.0W
Power Cord	1.45m power cable w/o core

2. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

Modulation Mode	CDD Mode	Beamforming Mode	TX Function	Radio
802.11b	Support	Not Support	2TX	2G traffic radio (Radio 1)
802.11g	Support	Not Support	2TX	
802.11n (HT20)	Support	Not Support	2TX	
802.11n (HT40)	Support	Not Support	2TX	
802.11ac (VHT20)	Support	Support	2TX	
802.11ac (VHT40)	Support	Support	2TX	
802.11ax (HE20)	Support	Support	2TX	
802.11ax (HE40)	Support	Support	2TX	
802.11b	Support	Not Support	2TX	Scanning radio (Radio 3)
802.11g	Support	Not Support	2TX	
802.11n (HT20)	Support	Not Support	2TX	
802.11n (HT40)	Support	Not Support	2TX	
802.11ac (VHT20)	Support	Not Support	2TX	
802.11ac (VHT40)	Support	Not Support	2TX	

* 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 802.11ax, 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.

3. The following antennas were provided to the EUT.

Antenna Type	PIFA					
Antenna Connector	IPEX					
Antenna No.	Gain (dBi)					
	2400MHz	2450MHz	2500MHz	5150MHz	5500MHz	5850MHz
2G1	2.82	2.12	2.02	-	-	-
2G2	3.31	3.67	2.68	-	-	-
5G1	-	-	-	4.41	4.21	4.96
5G2	-	-	-	4.93	4.19	3.35
Scan1	4.54	3.95	4.48	5.67	5.61	6.15
Scan2	4.34	4.25	4.83	4.78	4.26	4.40
BLE/Zigbee	2.41	2.21	2.01	-	-	-

*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

4. 2G traffic radio, 5G traffic radio, Scanning radio (5G) and BT LE technologies can transmit at same time.

*2G traffic radio, 5G traffic radio, Scanning radio (5G) and Zigbee technologies can transmit at same time.

*5GHz traffic radio and Scanning radio (5G) cannot transmit in the same band at same time.

* BT LE and Zigbee cannot transmit in the same band at same time.

5. Spurious emission of the simultaneous operation (WLAN, BLE and Zigbee) has been evaluated and no non-compliance was found.

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	
A	√	√	√	√	Power from adapter
B	-	√	√	-	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 EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Y-plane (For 2G traffic radio), Z-plane (For Scanning radio)**.
2. "-"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)	Remark
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	2G traffic radio
	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	
	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	Scanning radio
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	
	802.11ac (VHT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	
	802.11ac (VHT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0	

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)	Remark
A, B	802.11ax (HE20)	1 to 11	6	OFDMA	BPSK	MCS0	2G traffic radio
A, B	802.11g	1 to 11	6	OFDM	BPSK	6.0	Scanning radio

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)	Remark
A, B	802.11ax (HE20)	1 to 11	6	OFDMA	BPSK	MCS0	2G traffic radio
A, B	802.11g	1 to 11	6	OFDM	BPSK	6.0	Scanning radio

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)	Remark
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	2G traffic radio
	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	
	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	Scanning radio
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	
	802.11ac (VHT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	
	802.11ac (VHT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0	

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	23 deg. C, 66% RH 23 deg. C, 68% RH	120Vac, 60Hz	Titan Hsu, Adair Peng
RE<1G	22 deg. C, 68% RH	120Vac, 60Hz 54Vdc	Edison Lee
PLC	23 deg. C, 66% RH	120Vac, 60Hz 54Vdc	Greg Lin
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Alan Wu, Ted Chang

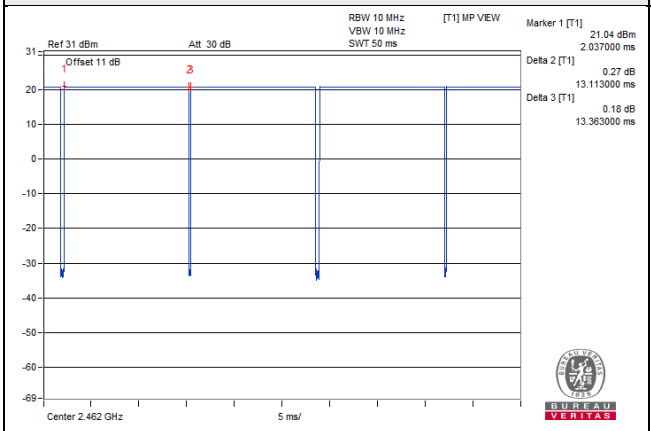
3.3 Duty Cycle of Test Signal

Duty cycle of test signal is ≥ 98%, duty factor is not required.
Duty cycle of test signal is < 98%, duty factor is required.

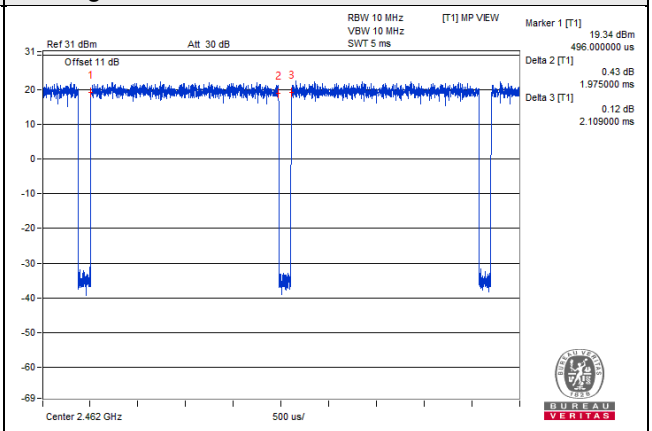
2G traffic radio:

802.11b: Duty cycle = 13.113/13.363 = 0.981
802.11g: Duty cycle = 1.975/2.109 = 0.936, Duty factor = 10 * log(1/0.936) = 0.29
802.11ax (HE20): Duty cycle = 5.440/5.850 = 0.930, Duty factor = 10 * log(1/0.930) = 0.32
802.11ax (HE40): Duty cycle = 5.440/5.825 = 0.934, Duty factor = 10 * log(1/0.934) = 0.30

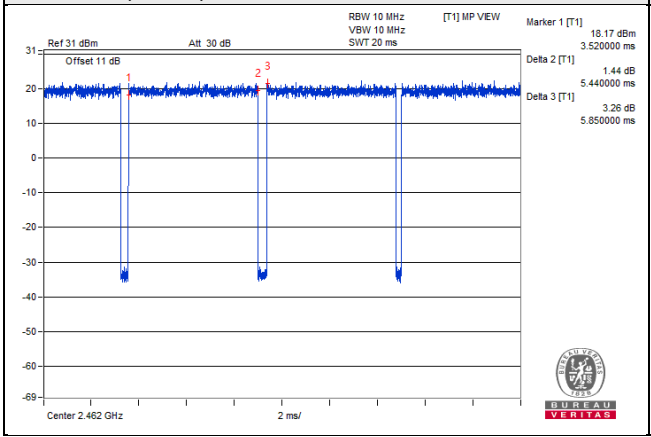
802.11b



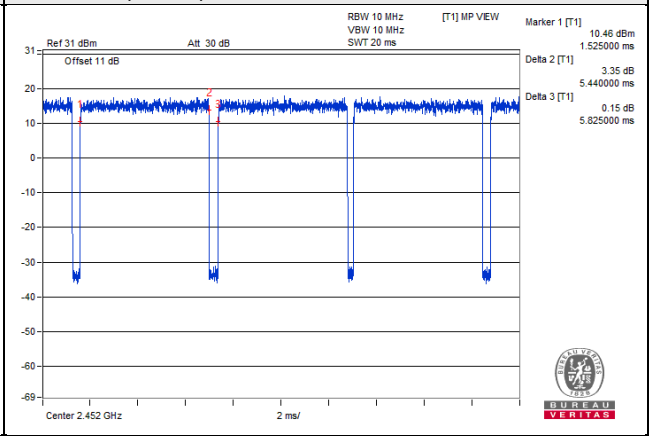
802.11g



802.11ax (HE20)



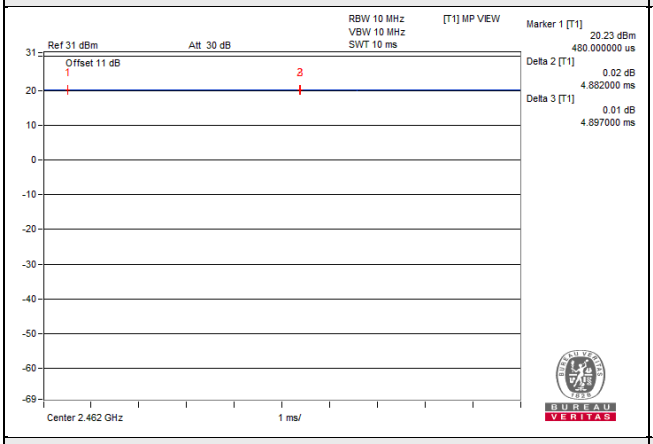
802.11ax (HE40)



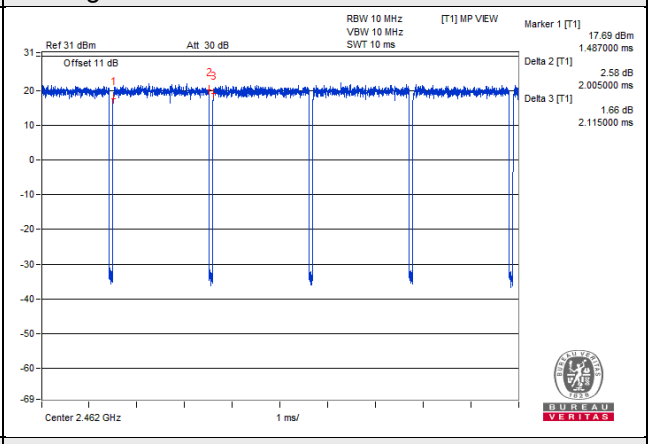
Scanning radio:

802.11b: Duty cycle of test signal is 100 %, duty factor is not required.
802.11g: Duty cycle = 2.005/2.115 = 0.948, Duty factor = 10 * log(1/0.948) = 0.23
802.11ac (VHT20): Duty cycle = 1.880/1.970 = 0.954, Duty factor = 10 * log(1/0.954) = 0.20
802.11ac (VHT40): Duty cycle = 0.922/1.009 = 0.914, Duty factor = 10 * log(1/0.914) = 0.39

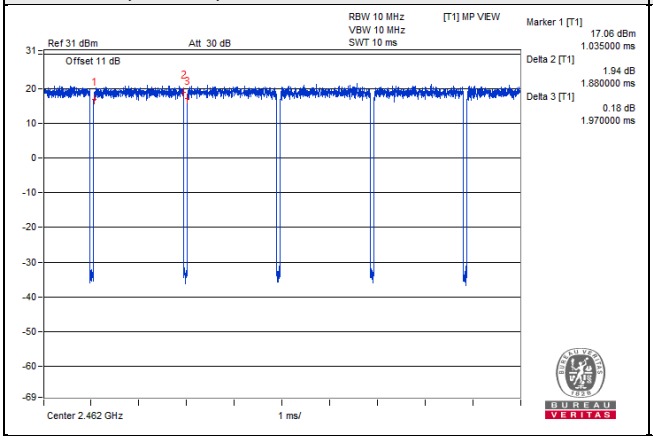
802.11b



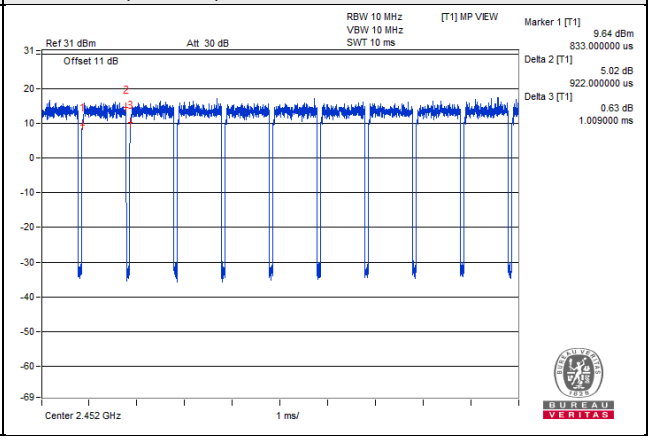
802.11g



802.11ac (VHT20)



802.11ac (VHT40)



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	DELL	E5410	1HC2XM1	FCC DoC Approved	-
B.	Adapter	APD	WA-30J12R	NA	NA	Provided by client
C.	USB Flash	Sandisk	SDDDC-032G	NA	NA	-
D.	POE	EnGenius	EPA5006GAT	NA	NA	Provided by client

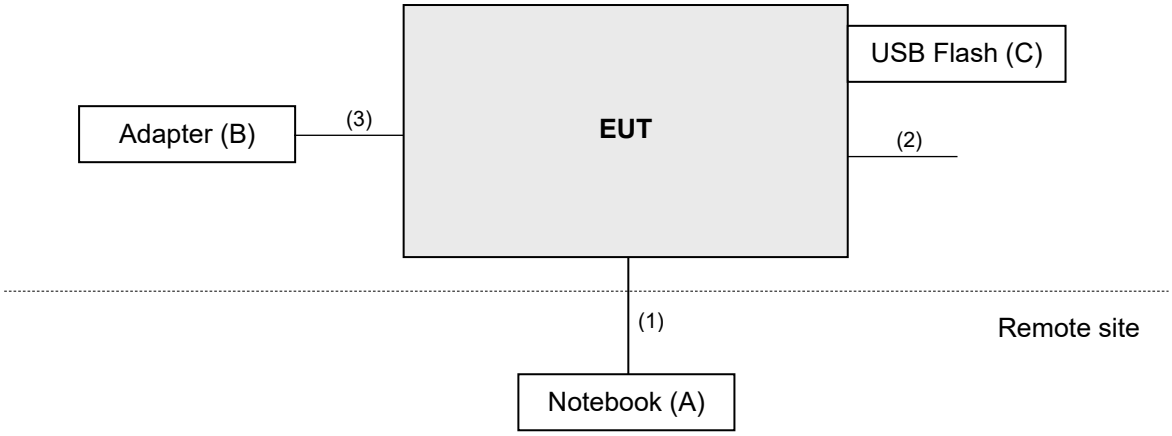
Note:

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

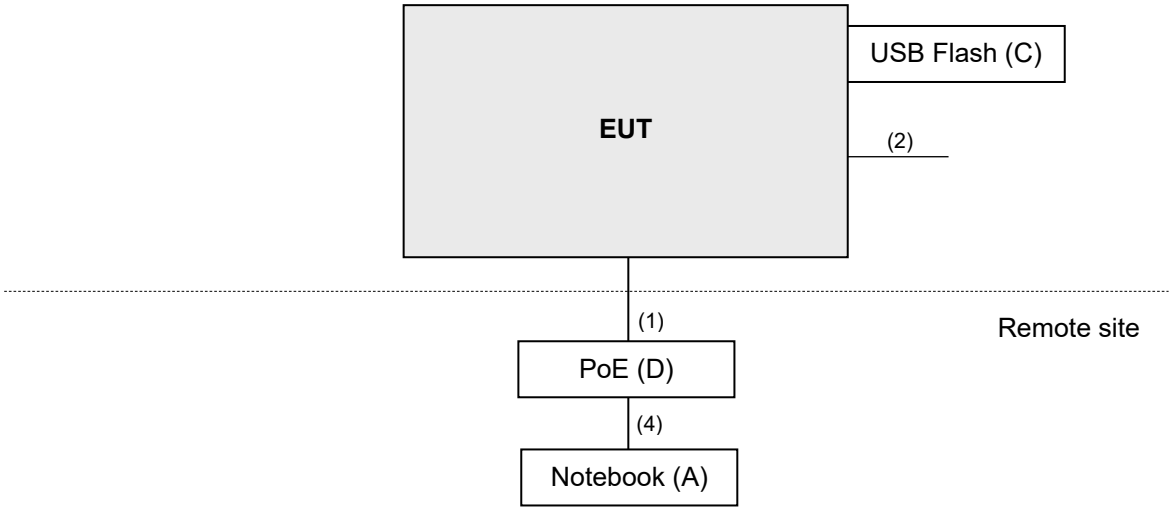
ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	LAN	1	7.0	N	0	RJ45, Cat5e
2.	Console cable	1	1.45	N	0	Provided by client
3.	Power cable	1	1.8	-	0	Provided by client
4.	LAN	1	1.5	N	0	RJ45, Cat5e

3.4.1 Configuration of System under Test

Mode A



Mode B



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	ESR3	102579	Jul. 07, 2020	Jul. 06, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jun. 09, 2020	Jun. 08, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Nov. 04, 2020	Nov. 03, 2021
HORN Antenna SCHWARZBECK	9120D	209	Nov. 24, 2019	Nov. 23, 2020
			Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 24, 2019	Nov. 23, 2020
			Nov. 22, 2020	Nov. 21, 2021
Loop Antenna TESEQ	HLA 6121	45745	Jul. 06, 2020	Jul. 05, 2021
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 16, 2020	Aug. 15, 2021
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Mar. 23, 2020	Mar. 22, 2021
RF Coaxial Cable WOKEN With 5dB PAD	8D-FB	Cable-CH3-01	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM-S M-8000	Cable-CH3-03 (309224+170907)	Aug. 16, 2020	Aug. 15, 2021
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY5519 0004/MY55190007/MY 55210005	Jul. 13, 2020	Jul. 12, 2021

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 Chamber 3.

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.

   (2G traffic radio: 802.11b: RBW = 1MHz, VBW = 10Hz; 802.11g: RBW = 1MHz, VBW = 1kHz; 802.11ax (HE20): RBW = 1MHz, VBW = 1kHz; 802.11ax (HE40): RBW = 1MHz, VBW = 1kHz; Scanning radio: 802.11b: RBW = 1MHz, VBW = 10Hz; 802.11g: RBW = 1MHz, VBW = 1kHz; 802.11ac (VHT20): RBW = 1MHz, VBW = 1kHz; 802.11ac (VHT40): RBW = 1MHz, VBW = 3kHz)

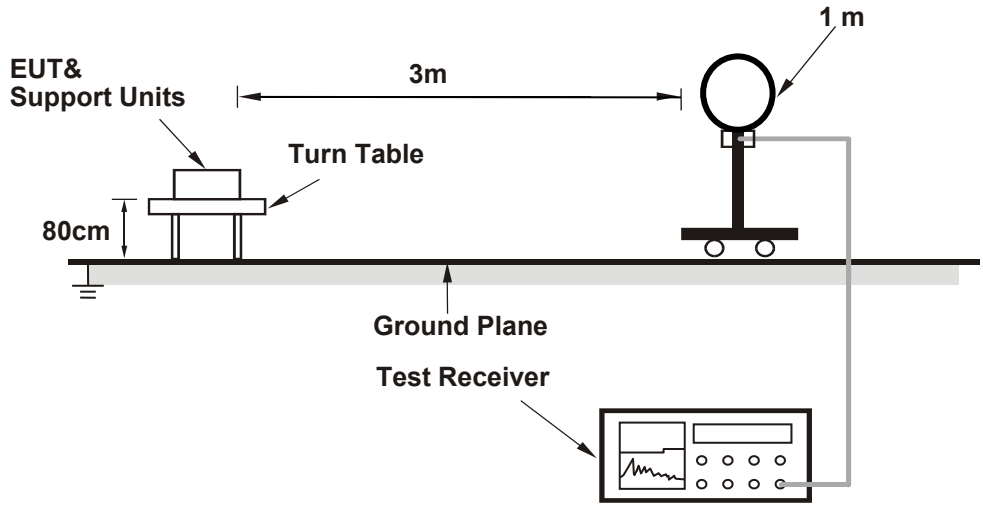
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

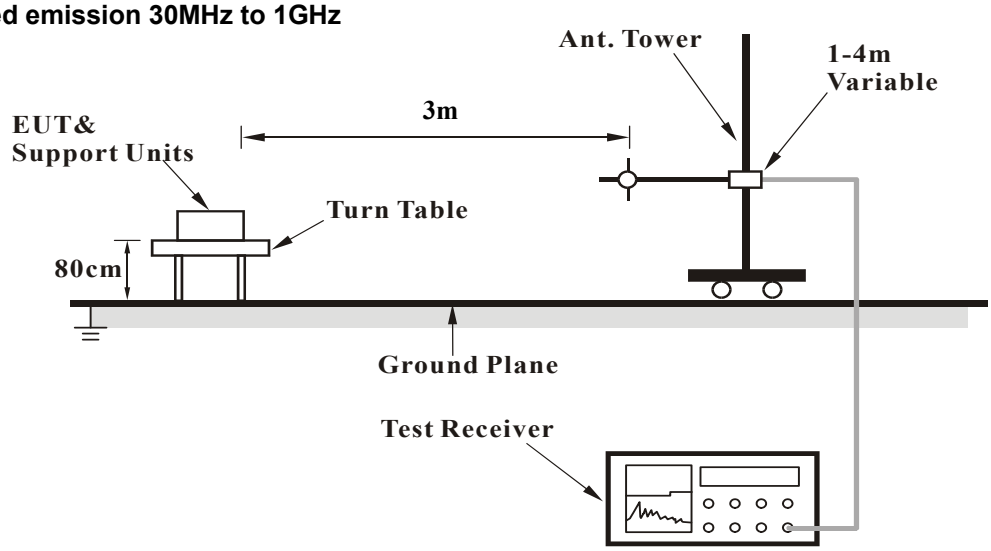
No deviation.

4.1.5 Test Setup

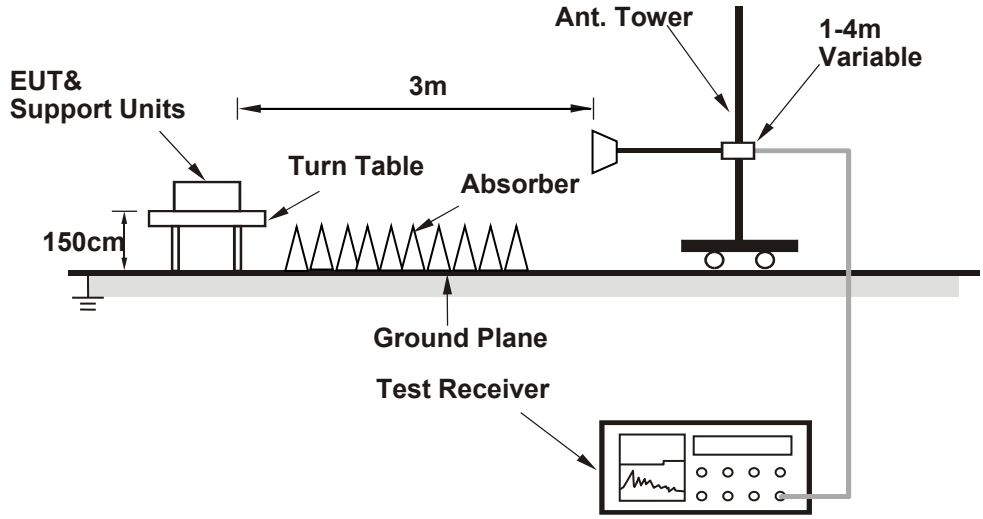
For Radiated emission below 30MHz



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:

2G traffic radio:

RF Mode	TX 802.11b	Channel	CH 1：2412 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.7 PK	74.0	-13.3	1.55 H	15	26.3	34.4
2	2390.00	50.2 AV	54.0	-3.8	1.55 H	15	15.8	34.4
3	*2412.00	106.0 PK			1.50 H	10	71.7	34.3
4	*2412.00	102.3 AV			1.50 H	10	68.0	34.3
5	4824.00	52.8 PK	74.0	-21.2	1.18 H	64	46.6	6.2
6	4824.00	47.8 AV	54.0	-6.2	1.18 H	64	41.6	6.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	62.6 PK	74.0	-11.4	1.90 V	332	28.2	34.4
2	**2390.00**	**53.0 AV**	**54.0**	**-1.0**	**1.90 V**	**332**	**18.6**	**34.4**
3	*2412.00	113.9 PK			1.84 V	332	79.6	34.3
4	*2412.00	110.2 AV			1.84 V	332	75.9	34.3
5	4824.00	52.9 PK	74.0	-21.1	1.46 V	314	46.7	6.2
6	4824.00	48.5 AV	54.0	-5.5	1.46 V	314	42.3	6.2

Remarks:

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

RF Mode	TX 802.11b	Channel	CH 6：2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	108.3 PK			1.57 H	318	74.0	34.3
2	*2437.00	104.6 AV			1.57 H	318	70.3	34.3
3	4874.00	51.7 PK	74.0	-22.3	1.11 H	57	45.6	6.1
4	4874.00	46.4 AV	54.0	-7.6	1.11 H	57	40.3	6.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	115.6 PK			1.52 V	350	81.3	34.3
2	*2437.00	111.9 AV			1.52 V	350	77.6	34.3
3	4874.00	54.8 PK	74.0	-19.2	1.33 V	303	48.7	6.1
4	4874.00	50.9 AV	54.0	-3.1	1.33 V	303	44.8	6.1

Remarks:

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

RF Mode	TX 802.11b	Channel	CH 11：2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	109.9 PK			1.62 H	318	75.5	34.4
2	*2462.00	106.3 AV			1.62 H	318	71.9	34.4
3	2483.50	61.6 PK	74.0	-12.4	1.66 H	322	27.2	34.4
4	2483.50	50.5 AV	54.0	-3.5	1.66 H	322	16.1	34.4
5	4924.00	51.3 PK	74.0	-22.7	1.22 H	61	45.2	6.1
6	4924.00	45.7 AV	54.0	-8.3	1.22 H	61	39.6	6.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	115.2 PK			1.49 V	354	80.8	34.4
2	*2462.00	111.4 AV			1.49 V	354	77.0	34.4
3	2483.50	62.2 PK	74.0	-11.8	1.68 V	356	27.8	34.4
4	**2483.50**	**53.0 AV**	**54.0**	**-1.0**	**1.68 V**	**356**	**18.6**	**34.4**
5	4924.00	51.7 PK	74.0	-22.3	1.78 V	341	45.6	6.1
6	4924.00	44.2 AV	54.0	-9.8	1.78 V	341	38.1	6.1

Remarks:

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

RF Mode	TX 802.11g	Channel	CH 1：2412 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	62.0 PK	74.0	-12.0	1.51 H	206	27.6	34.4
2	2390.00	50.6 AV	54.0	-3.4	1.51 H	206	16.2	34.4
3	*2412.00	107.3 PK			1.47 H	203	73.0	34.3
4	*2412.00	97.8 AV			1.47 H	203	63.5	34.3
5	4824.00	48.4 PK	74.0	-25.6	1.12 H	26	42.2	6.2
6	4824.00	35.7 AV	54.0	-18.3	1.12 H	26	29.5	6.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	65.6 PK	74.0	-8.4	1.56 V	352	31.2	34.4
2	2390.00	52.8 AV	54.0	-1.2	1.56 V	352	18.4	34.4
3	*2412.00	114.0 PK			1.50 V	341	79.7	34.3
4	*2412.00	103.9 AV			1.50 V	341	69.6	34.3
5	4824.00	50.0 PK	74.0	-24.0	1.39 V	310	43.8	6.2
6	4824.00	36.7 AV	54.0	-17.3	1.39 V	310	30.5	6.2

Remarks:

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

RF Mode	TX 802.11g	Channel	CH 6：2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	111.5 PK			1.44 H	201	77.2	34.3
2	*2437.00	100.6 AV			1.44 H	201	66.3	34.3
3	4874.00	48.4 PK	74.0	-25.6	1.15 H	31	42.3	6.1
4	4874.00	35.7 AV	54.0	-18.3	1.15 H	31	29.6	6.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	115.9 PK			1.76 V	351	81.6	34.3
2	*2437.00	105.8 AV			1.76 V	351	71.5	34.3
3	4874.00	52.2 PK	74.0	-21.8	1.31 V	309	46.1	6.1
4	4874.00	39.4 AV	54.0	-14.6	1.31 V	309	33.3	6.1

Remarks:

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

RF Mode	TX 802.11g	Channel	CH 11：2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	108.2 PK			1.42 H	200	73.8	34.4
2	*2462.00	98.2 AV			1.42 H	200	63.8	34.4
3	2483.50	61.4 PK	74.0	-12.6	1.46 H	203	27.0	34.4
4	2483.50	50.1 AV	54.0	-3.9	1.46 H	203	15.7	34.4
5	4924.00	48.6 PK	74.0	-25.4	1.16 H	33	42.5	6.1
6	4924.00	35.7 AV	54.0	-18.3	1.16 H	33	29.6	6.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	114.1 PK			1.47 V	341	79.7	34.4
2	*2462.00	104.2 AV			1.47 V	341	69.8	34.4
3	2483.50	65.7 PK	74.0	-8.3	1.48 V	4	31.3	34.4
4	2483.50	52.8 AV	54.0	-1.2	1.48 V	4	18.4	34.4
5	4924.00	50.1 PK	74.0	-23.9	1.81 V	345	44.0	6.1
6	4924.00	37.3 AV	54.0	-16.7	1.81 V	345	31.2	6.1

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 1：2412 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	62.0 PK	74.0	-12.0	1.47 H	206	27.6	34.4
2	2390.00	49.3 AV	54.0	-4.7	1.47 H	206	14.9	34.4
3	*2412.00	110.4 PK			1.45 H	200	76.1	34.3
4	*2412.00	96.9 AV			1.45 H	200	62.6	34.3
5	4824.00	48.7 PK	74.0	-25.3	1.16 H	33	42.5	6.2
6	4824.00	35.9 AV	54.0	-18.1	1.16 H	33	29.7	6.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	65.8 PK	74.0	-8.2	1.57 V	346	31.4	34.4
2	2390.00	52.6 AV	54.0	-1.4	1.57 V	346	18.2	34.4
3	*2412.00	115.4 PK			1.52 V	356	81.1	34.3
4	*2412.00	102.2 AV			1.52 V	356	67.9	34.3
5	4824.00	49.0 PK	74.0	-25.0	1.36 V	316	42.8	6.2
6	4824.00	36.4 AV	54.0	-17.6	1.36 V	316	30.2	6.2

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 6：2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	112.0 PK			1.43 H	201	77.7	34.3
2	*2437.00	99.8 AV			1.43 H	201	65.5	34.3
3	4874.00	48.3 PK	74.0	-25.7	1.18 H	31	42.2	6.1
4	4874.00	35.6 AV	54.0	-18.4	1.18 H	31	29.5	6.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	118.8 PK			1.54 V	349	84.5	34.3
2	*2437.00	105.3 AV			1.54 V	349	71.0	34.3
3	4874.00	51.4 PK	74.0	-22.6	1.63 V	339	45.3	6.1
4	4874.00	38.0 AV	54.0	-16.0	1.63 V	339	31.9	6.1

Remarks:

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

RF Mode	TX 802.11ax (HE20)	Channel	CH 11：2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	110.6 PK			1.68 H	310	76.2	34.4
2	*2462.00	97.3 AV			1.68 H	310	62.9	34.4
3	2483.50	62.3 PK	74.0	-11.7	1.72 H	319	27.9	34.4
4	2483.50	49.9 AV	54.0	-4.1	1.72 H	319	15.5	34.4
5	4924.00	48.6 PK	74.0	-25.4	1.36 H	39	42.5	6.1
6	4924.00	35.7 AV	54.0	-18.3	1.36 H	39	29.6	6.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	115.6 PK			1.45 V	347	81.2	34.4
2	*2462.00	102.2 AV			1.45 V	347	67.8	34.4
3	2483.50	64.2 PK	74.0	-9.8	1.52 V	9	29.8	34.4
4	2483.50	52.6 AV	54.0	-1.4	1.52 V	9	18.2	34.4
5	4924.00	49.0 PK	74.0	-25.0	1.82 V	346	42.9	6.1
6	4924.00	36.2 AV	54.0	-17.8	1.82 V	346	30.1	6.1

Remarks:

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

RF Mode	TX 802.11ax (HE40)	Channel	CH 3：2422 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	63.6 PK	74.0	-10.4	1.70 H	10	29.2	34.4
2	2390.00	51.0 AV	54.0	-3.0	1.70 H	10	16.6	34.4
3	*2422.00	106.3 PK			1.68 H	6	72.0	34.3
4	*2422.00	93.6 AV			1.68 H	6	59.3	34.3
5	4844.00	48.3 PK	74.0	-25.7	1.42 H	38	42.2	6.1
6	4844.00	35.4 AV	54.0	-18.6	1.42 H	38	29.3	6.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	67.7 PK	74.0	-6.3	1.55 V	345	33.3	34.4
2	**2390.00**	**53.0 AV**	**54.0**	**-1.0**	**1.55 V**	**345**	**18.6**	**34.4**
3	*2422.00	113.3 PK			1.74 V	352	79.0	34.3
4	*2422.00	100.3 AV			1.74 V	352	66.0	34.3
5	4844.00	48.3 PK	74.0	-25.7	1.42 V	315	42.2	6.1
6	4844.00	35.4 AV	54.0	-18.6	1.42 V	315	29.3	6.1

Remarks:

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

RF Mode	TX 802.11ax (HE40)	Channel	CH 6：2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	105.6 PK			1.39 H	311	71.3	34.3
2	*2437.00	93.8 AV			1.39 H	311	59.5	34.3
3	2483.50	62.5 PK	74.0	-11.5	1.42 H	316	28.1	34.4
4	2483.50	50.9 AV	54.0	-3.1	1.42 H	316	16.5	34.4
5	4874.00	48.4 PK	74.0	-25.6	1.41 H	41	42.3	6.1
6	4874.00	35.4 AV	54.0	-18.6	1.41 H	41	29.3	6.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	112.3 PK			1.68 V	348	78.0	34.3
2	*2437.00	99.9 AV			1.68 V	348	65.6	34.3
3	2483.50	65.4 PK	74.0	-8.6	1.65 V	326	31.0	34.4
4	2483.50	52.6 AV	54.0	-1.4	1.65 V	326	18.2	34.4
5	4874.00	48.6 PK	74.0	-25.4	1.35 V	319	42.5	6.1
6	4874.00	35.5 AV	54.0	-18.5	1.35 V	319	29.4	6.1

Remarks:

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

RF Mode	TX 802.11ax (HE40)	Channel	CH 9：2452 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	105.9 PK			1.45 H	308	71.6	34.3
2	*2452.00	92.8 AV			1.45 H	308	58.5	34.3
3	2483.50	62.4 PK	74.0	-11.6	1.47 H	311	28.0	34.4
4	2483.50	50.6 AV	54.0	-3.4	1.47 H	311	16.2	34.4
5	4904.00	48.4 PK	74.0	-25.6	1.44 H	38	42.3	6.1
6	4904.00	35.4 AV	54.0	-18.6	1.44 H	38	29.3	6.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	110.0 PK			1.69 V	344	75.7	34.3
2	*2452.00	97.3 AV			1.69 V	344	63.0	34.3
3	2483.50	65.8 PK	74.0	-8.2	1.68 V	344	31.4	34.4
4	2483.50	52.6 AV	54.0	-1.4	1.68 V	344	18.2	34.4
5	4904.00	48.4 PK	74.0	-25.6	1.89 V	349	42.3	6.1
6	4904.00	35.4 AV	54.0	-18.6	1.89 V	349	29.3	6.1

Remarks:

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

Scanning radio:

RF Mode	TX 802.11b	Channel	CH 1：2412 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2387.00	60.9 PK	74.0	-13.1	1.71 H	352	26.5	34.4
2	2387.00	50.1 AV	54.0	-3.9	1.71 H	352	15.7	34.4
3	*2412.00	109.8 PK			1.39 H	352	75.5	34.3
4	*2412.00	106.1 AV			1.39 H	352	71.8	34.3
5	4824.00	56.3 PK	74.0	-17.7	1.75 H	298	50.1	6.2
6	4824.00	52.5 AV	54.0	-1.5	1.75 H	298	46.3	6.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2387.00	62.7 PK	74.0	-11.3	1.29 V	16	28.3	34.4
2	2387.00	52.5 AV	54.0	-1.5	1.29 V	16	18.1	34.4
3	*2412.00	112.8 PK			1.64 V	8	78.5	34.3
4	*2412.00	109.5 AV			1.64 V	8	75.2	34.3
5	4824.00	56.7 PK	74.0	-17.3	1.64 V	22	50.5	6.2
6	4824.00	52.7 AV	54.0	-1.3	1.64 V	22	46.5	6.2

Remarks:

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

RF Mode	TX 802.11b	Channel	CH 6：2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	109.7 PK			1.40 H	355	75.4	34.3
2	*2437.00	105.5 AV			1.40 H	355	71.2	34.3
3	4874.00	55.8 PK	74.0	-18.2	1.88 H	300	49.7	6.1
4	4874.00	52.3 AV	54.0	-1.7	1.88 H	300	46.2	6.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	112.7 PK			1.82 V	8	78.4	34.3
2	*2437.00	108.9 AV			1.82 V	8	74.6	34.3
3	4874.00	56.3 PK	74.0	-17.7	1.36 V	20	50.2	6.1
4	4874.00	52.6 AV	54.0	-1.4	1.36 V	20	46.5	6.1

Remarks:

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

RF Mode	TX 802.11b	Channel	CH 11：2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	109.1 PK			1.44 H	350	74.7	34.4
2	*2462.00	105.5 AV			1.44 H	350	71.1	34.4
3	2483.50	60.6 PK	74.0	-13.4	1.55 H	359	26.2	34.4
4	2483.50	49.5 AV	54.0	-4.5	1.55 H	359	15.1	34.4
5	4924.00	55.6 PK	74.0	-18.4	1.77 H	297	49.5	6.1
6	4924.00	52.1 AV	54.0	-1.9	1.77 H	297	46.0	6.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	112.3 PK			1.68 V	7	77.9	34.4
2	*2462.00	108.8 AV			1.68 V	7	74.4	34.4
3	2483.50	60.8 PK	74.0	-13.2	1.34 V	19	26.4	34.4
4	2483.50	49.7 AV	54.0	-4.3	1.34 V	19	15.3	34.4
5	4924.00	56.1 PK	74.0	-17.9	1.69 V	24	50.0	6.1
6	4924.00	52.4 AV	54.0	-1.6	1.69 V	24	46.3	6.1

Remarks:

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

RF Mode	TX 802.11g	Channel	CH 1：2412 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	67.1 PK	74.0	-6.9	1.30 H	347	32.7	34.4
2	2390.00	50.5 AV	54.0	-3.5	1.30 H	347	16.1	34.4
3	*2412.00	108.8 PK			1.40 H	355	74.5	34.3
4	*2412.00	98.3 AV			1.40 H	355	64.0	34.3
5	4824.00	49.6 PK	74.0	-24.4	1.88 H	307	43.4	6.2
6	4824.00	36.9 AV	54.0	-17.1	1.88 H	307	30.7	6.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	69.2 PK	74.0	-4.8	1.71 V	14	34.8	34.4
2	**2390.00**	**53.0 AV**	**54.0**	**-1.0**	**1.71 V**	**14**	**18.6**	**34.4**
3	*2412.00	111.9 PK			1.60 V	12	77.6	34.3
4	*2412.00	101.5 AV			1.60 V	12	67.2	34.3
5	4824.00	50.0 PK	74.0	-24.0	1.67 V	19	43.8	6.2
6	4824.00	37.2 AV	54.0	-16.8	1.67 V	19	31.0	6.2

Remarks:

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

RF Mode	TX 802.11g	Channel	CH 6：2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	66.4 PK	74.0	-7.6	1.47 H	359	32.0	34.4
2	2390.00	49.9 AV	54.0	-4.1	1.47 H	359	15.5	34.4
3	*2437.00	113.7 PK			1.33 H	347	79.4	34.3
4	*2437.00	103.5 AV			1.33 H	347	69.2	34.3
5	4874.00	57.4 PK	74.0	-16.6	1.85 H	295	51.3	6.1
6	4874.00	44.2 AV	54.0	-9.8	1.85 H	295	38.1	6.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	68.7 PK	74.0	-5.3	1.74 V	20	34.3	34.4
2	2390.00	52.2 AV	54.0	-1.8	1.74 V	20	17.8	34.4
3	*2437.00	116.8 PK			1.51 V	13	82.5	34.3
4	*2437.00	106.7 AV			1.51 V	13	72.4	34.3
5	4874.00	58.0 PK	74.0	-16.0	1.38 V	17	51.9	6.1
6	4874.00	44.6 AV	54.0	-9.4	1.38 V	17	38.5	6.1

Remarks:

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

RF Mode	TX 802.11g	Channel	CH 11：2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	109.9 PK			1.45 H	350	75.5	34.4
2	*2462.00	99.5 AV			1.45 H	350	65.1	34.4
3	2483.50	64.4 PK	74.0	-9.6	1.51 H	344	30.0	34.4
4	2483.50	50.1 AV	54.0	-3.9	1.51 H	344	15.7	34.4
5	4924.00	51.8 PK	74.0	-22.2	1.69 H	307	45.7	6.1
6	4924.00	38.1 AV	54.0	-15.9	1.69 H	307	32.0	6.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	113.0 PK			1.34 V	5	78.6	34.4
2	*2462.00	102.8 AV			1.34 V	5	68.4	34.4
3	2483.50	66.4 PK	74.0	-7.6	1.29 V	351	32.0	34.4
4	2483.50	52.6 AV	54.0	-1.4	1.29 V	351	18.2	34.4
5	4924.00	52.4 PK	74.0	-21.6	1.62 V	18	46.3	6.1
6	4924.00	38.7 AV	54.0	-15.3	1.62 V	18	32.6	6.1

Remarks:

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

RF Mode	TX 802.11ac (VHT20)	Channel	CH 1：2412 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	65.7 PK	74.0	-8.3	1.37 H	357	31.3	34.4
2	2390.00	50.1 AV	54.0	-3.9	1.37 H	357	15.7	34.4
3	*2412.00	106.3 PK			1.53 H	343	72.0	34.3
4	*2412.00	96.5 AV			1.53 H	343	62.2	34.3
5	4824.00	48.2 PK	74.0	-25.8	1.80 H	307	42.0	6.2
6	4824.00	35.7 AV	54.0	-18.3	1.80 H	307	29.5	6.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	67.4 PK	74.0	-6.6	2.21 V	340	33.0	34.4
2	2390.00	52.4 AV	54.0	-1.6	2.21 V	340	18.0	34.4
3	*2412.00	109.6 PK			1.95 V	9	75.3	34.3
4	*2412.00	99.9 AV			1.95 V	9	65.6	34.3
5	4824.00	48.7 PK	74.0	-25.3	1.33 V	2	42.5	6.2
6	4824.00	35.9 AV	54.0	-18.1	1.33 V	2	29.7	6.2

Remarks:

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

RF Mode	TX 802.11ac (VHT20)	Channel	CH 6：2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	67.7 PK	74.0	-6.3	1.37 H	350	33.3	34.4
2	2390.00	50.1 AV	54.0	-3.9	1.37 H	350	15.7	34.4
3	*2437.00	112.7 PK			1.53 H	337	78.4	34.3
4	*2437.00	102.5 AV			1.53 H	337	68.2	34.3
5	4874.00	56.0 PK	74.0	-18.0	1.74 H	298	49.9	6.1
6	4874.00	42.7 AV	54.0	-11.3	1.74 H	298	36.6	6.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	69.9 PK	74.0	-4.1	1.43 V	20	35.5	34.4
2	2390.00	52.6 AV	54.0	-1.4	1.43 V	20	18.2	34.4
3	*2437.00	116.1 PK			1.44 V	11	81.8	34.3
4	*2437.00	105.9 AV			1.44 V	11	71.6	34.3
5	4874.00	56.6 PK	74.0	-17.4	1.41 V	18	50.5	6.1
6	4874.00	43.1 AV	54.0	-10.9	1.41 V	18	37.0	6.1

Remarks:

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

RF Mode	TX 802.11ac (VHT20)	Channel	CH 11：2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	109.4 PK			1.35 H	350	75.0	34.4
2	*2462.00	99.4 AV			1.35 H	350	65.0	34.4
3	2483.50	64.1 PK	74.0	-9.9	1.47 H	339	29.7	34.4
4	2483.50	49.9 AV	54.0	-4.1	1.47 H	339	15.5	34.4
5	4924.00	52.1 PK	74.0	-21.9	1.77 H	308	46.0	6.1
6	4924.00	38.6 AV	54.0	-15.4	1.77 H	308	32.5	6.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	112.8 PK			1.34 V	315	78.4	34.4
2	*2462.00	102.6 AV			1.34 V	315	68.2	34.4
3	2483.50	65.9 PK	74.0	-8.1	1.48 V	334	31.5	34.4
4	2483.50	52.3 AV	54.0	-1.7	1.48 V	334	17.9	34.4
5	4924.00	52.5 PK	74.0	-21.5	1.35 V	18	46.4	6.1
6	4924.00	39.0 AV	54.0	-15.0	1.35 V	18	32.9	6.1

Remarks:

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

RF Mode	TX 802.11ac (VHT40)	Channel	CH 3：2422 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	64.5 PK	74.0	-9.5	1.47 H	347	30.1	34.4
2	2390.00	50.1 AV	54.0	-3.9	1.47 H	347	15.7	34.4
3	*2422.00	100.5 PK			1.53 H	355	66.2	34.3
4	*2422.00	90.3 AV			1.53 H	355	56.0	34.3
5	4844.00	48.3 PK	74.0	-25.7	1.63 H	287	42.2	6.1
6	4844.00	35.2 AV	54.0	-18.8	1.63 H	287	29.1	6.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	66.4 PK	74.0	-7.6	1.71 V	11	32.0	34.4
2	2390.00	52.4 AV	54.0	-1.6	1.71 V	11	18.0	34.4
3	*2422.00	103.7 PK			1.51 V	12	69.4	34.3
4	*2422.00	93.5 AV			1.51 V	12	59.2	34.3
5	4844.00	48.9 PK	74.0	-25.1	1.57 V	24	42.8	6.1
6	4844.00	35.7 AV	54.0	-18.3	1.57 V	24	29.6	6.1

Remarks:

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

RF Mode	TX 802.11ac (VHT40)	Channel	CH 6：2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	67.4 PK	74.0	-6.6	1.47 H	345	33.0	34.4
2	2390.00	50.5 AV	54.0	-3.5	1.47 H	345	16.1	34.4
3	*2437.00	104.5 PK			1.33 H	334	70.2	34.3
4	*2437.00	95.2 AV			1.33 H	334	60.9	34.3
5	4874.00	49.2 PK	74.0	-24.8	1.65 H	312	43.1	6.1
6	4874.00	36.1 AV	54.0	-17.9	1.65 H	312	30.0	6.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	69.4 PK	74.0	-4.6	1.78 V	3	35.0	34.4
2	2390.00	52.9 AV	54.0	-1.1	1.78 V	3	18.5	34.4
3	*2437.00	108.0 PK			1.72 V	5	73.7	34.3
4	*2437.00	98.3 AV			1.72 V	5	64.0	34.3
5	4874.00	49.7 PK	74.0	-24.3	1.39 V	24	43.6	6.1
6	4874.00	36.5 AV	54.0	-17.5	1.39 V	24	30.4	6.1

Remarks:

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

RF Mode	TX 802.11ac (VHT40)	Channel	CH 9：2452 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	103.3 PK			1.37 H	355	69.0	34.3
2	*2452.00	93.1 AV			1.37 H	355	58.8	34.3
3	2483.50	64.1 PK	74.0	-9.9	1.49 H	341	29.7	34.4
4	2483.50	50.4 AV	54.0	-3.6	1.49 H	341	16.0	34.4
5	4904.00	48.6 PK	74.0	-25.4	1.77 H	298	42.5	6.1
6	4904.00	35.2 AV	54.0	-18.8	1.77 H	298	29.1	6.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	106.5 PK			1.76 V	8	72.2	34.3
2	*2452.00	96.3 AV			1.76 V	8	62.0	34.3
3	2483.50	66.0 PK	74.0	-8.0	1.29 V	333	31.6	34.4
4	2483.50	52.7 AV	54.0	-1.3	1.29 V	333	18.3	34.4
5	4904.00	49.1 PK	74.0	-24.9	1.53 V	20	43.0	6.1
6	4904.00	35.7 AV	54.0	-18.3	1.53 V	20	29.6	6.1

Remarks:

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

Below 1GHz worst-case data:

2G traffic radio

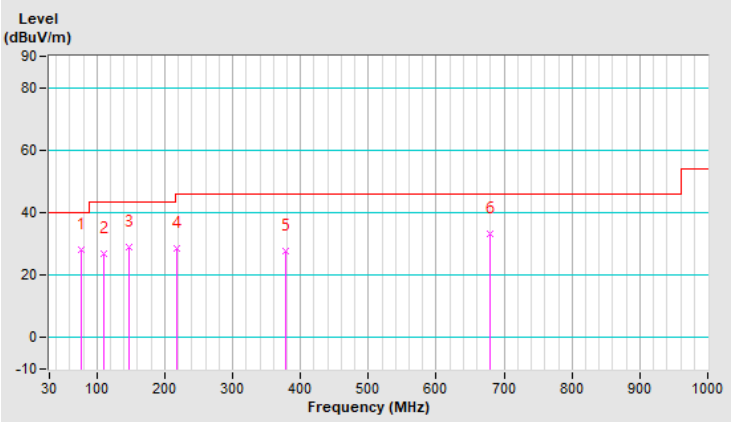
802.11ax (HE20)

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

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	77.80	28.2 QP	40.0	-11.8	1.50 H	291	41.0	-12.8
2	110.13	26.9 QP	43.5	-16.6	1.00 H	103	38.9	-12.0
3	146.68	29.0 QP	43.5	-14.5	2.00 H	251	37.6	-8.6
4	216.97	28.4 QP	46.0	-17.6	1.00 H	89	39.0	-10.6
5	378.64	27.7 QP	46.0	-18.3	1.00 H	137	32.7	-5.0
6	679.48	33.4 QP	46.0	-12.6	1.50 H	339	31.6	1.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. 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 20 dB below the permissible value to be report.

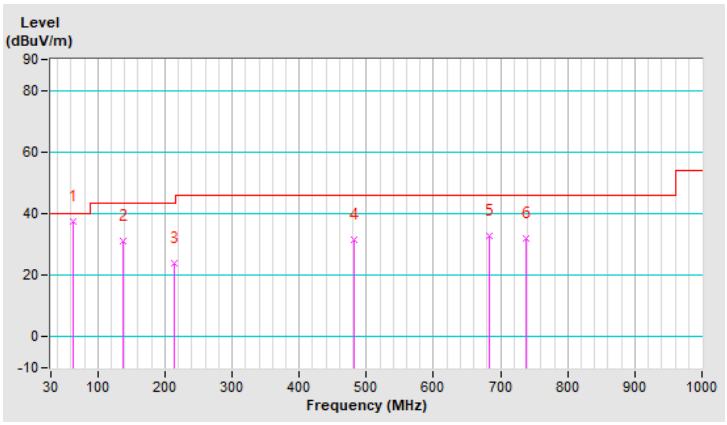


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	A

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	62.33	37.3 QP	40.0	-2.7	1.00 V	13	47.0	-9.7
2	138.25	30.9 QP	43.5	-12.6	1.50 V	59	40.0	-9.1
3	214.16	23.8 QP	43.5	-19.7	1.00 V	39	34.6	-10.8
4	482.67	31.6 QP	46.0	-14.4	2.00 V	171	34.2	-2.6
5	682.29	32.9 QP	46.0	-13.1	1.00 V	159	31.0	1.9
6	737.12	32.1 QP	46.0	-13.9	1.00 V	290	29.1	3.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. 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 20 dB below the permissible value to be report.

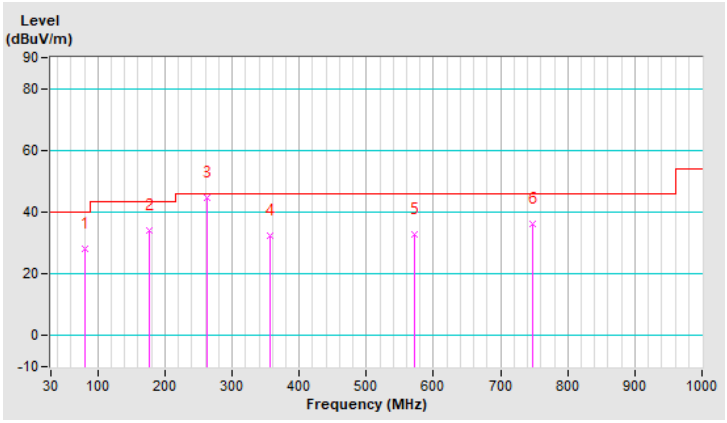


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B

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	80.61	28.2 QP	40.0	-11.8	2.00 H	101	41.7	-13.5
2	176.20	34.1 QP	43.5	-9.4	1.00 H	277	43.4	-9.3
3	261.96	44.8 QP	46.0	-1.2	1.50 H	133	52.8	-8.0
4	357.55	32.3 QP	46.0	-13.7	1.50 H	123	37.7	-5.4
5	572.64	32.9 QP	46.0	-13.1	1.00 H	12	33.6	-0.7
6	746.96	36.2 QP	46.0	-9.8	1.00 H	144	33.0	3.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. 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 20 dB below the permissible value to be report.

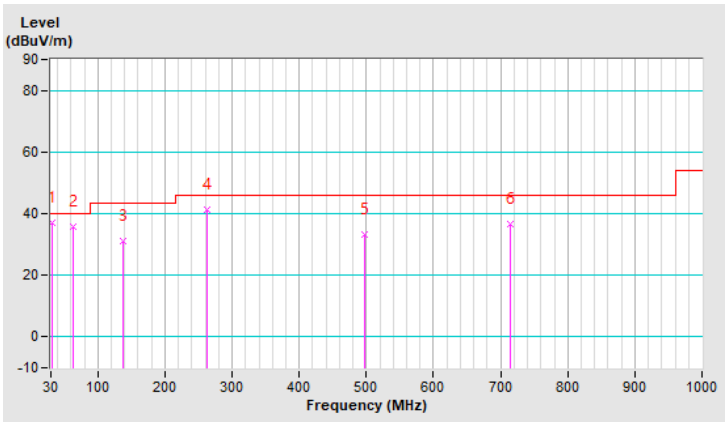


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B

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	32.81	37.2 QP	40.0	-2.8	1.50 V	146	48.1	-10.9
2	63.74	35.8 QP	40.0	-4.2	1.00 V	15	45.6	-9.8
3	138.25	30.9 QP	43.5	-12.6	1.00 V	15	40.0	-9.1
4	261.96	41.4 QP	46.0	-4.6	1.50 V	185	49.4	-8.0
5	496.72	33.4 QP	46.0	-12.6	1.00 V	168	35.7	-2.3
6	714.62	36.5 QP	46.0	-9.5	1.00 V	15	34.4	2.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. 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 20 dB below the permissible value to be report.



Scanning radio

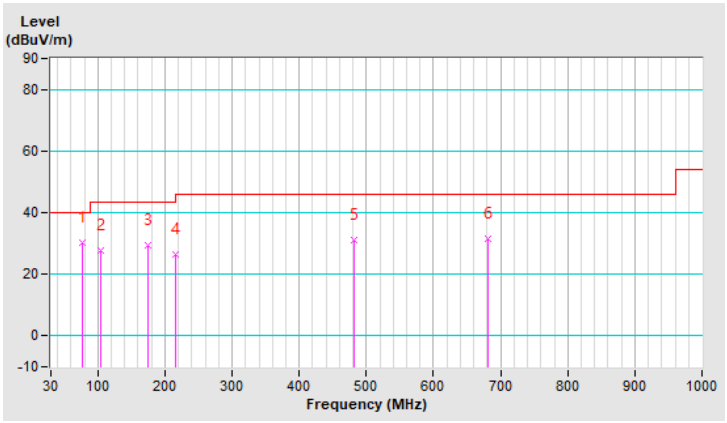
802.11g

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

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	76.39	30.3 QP	40.0	-9.7	1.00 H	137	42.8	-12.5
2	104.51	27.9 QP	43.5	-15.6	2.00 H	273	40.4	-12.5
3	174.80	29.6 QP	43.5	-13.9	1.50 H	113	38.8	-9.2
4	215.57	26.6 QP	43.5	-16.9	1.00 H	108	37.3	-10.7
5	482.67	31.1 QP	46.0	-14.9	1.00 H	233	33.7	-2.6
6	680.88	31.4 QP	46.0	-14.6	1.50 H	46	29.5	1.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. 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 20 dB below the permissible value to be report.

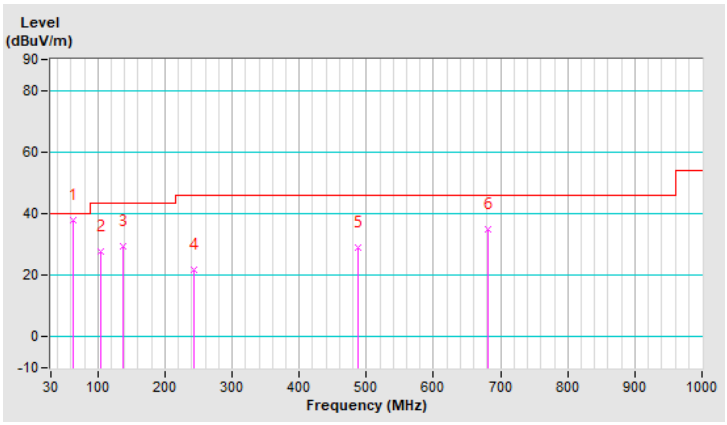


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	A

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	62.33	37.8 QP	40.0	-2.2	1.50 V	21	47.5	-9.7
2	104.51	27.6 QP	43.5	-15.9	1.00 V	153	40.1	-12.5
3	138.25	29.4 QP	43.5	-14.1	1.50 V	57	38.5	-9.1
4	242.28	21.8 QP	46.0	-24.2	1.00 V	348	30.8	-9.0
5	488.29	29.1 QP	46.0	-16.9	1.50 V	114	31.6	-2.5
6	680.88	34.8 QP	46.0	-11.2	2.00 V	160	32.9	1.9

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. 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 20 dB below the permissible value to be report.

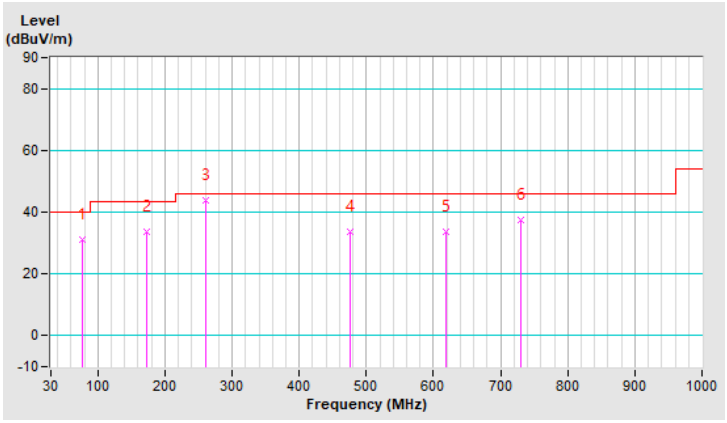


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B

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	77.80	30.9 QP	40.0	-9.1	1.00 H	253	43.7	-12.8
2	173.39	33.8 QP	43.5	-9.7	2.00 H	244	42.9	-9.1
3	260.55	44.0 QP	46.0	-2.0	1.50 H	196	52.0	-8.0
4	475.64	33.5 QP	46.0	-12.5	1.50 H	105	36.2	-2.7
5	619.03	33.5 QP	46.0	-12.5	1.50 H	307	32.8	0.7
6	730.09	37.4 QP	46.0	-8.6	1.00 H	47	34.8	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 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 20 dB below the permissible value to be report.

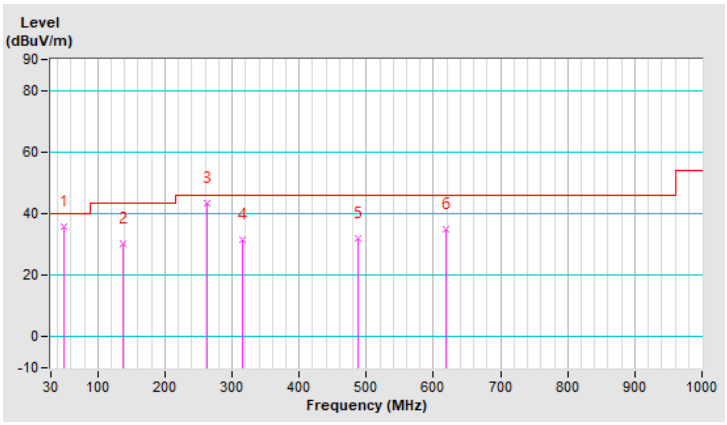


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B

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	49.68	35.8 QP	40.0	-4.2	1.00 V	258	44.9	-9.1
2	138.25	30.4 QP	43.5	-13.1	1.00 V	314	39.5	-9.1
3	261.96	43.4 QP	46.0	-2.6	1.50 V	157	51.4	-8.0
4	315.38	31.5 QP	46.0	-14.5	2.00 V	196	37.7	-6.2
5	488.29	31.9 QP	46.0	-14.1	1.50 V	161	34.4	-2.5
6	619.03	34.8 QP	46.0	-11.2	1.50 V	150	34.1	0.7

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m).
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB).
3. 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 20 dB 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

Tested date: Dec. 16, 2020

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESR3	102412	Feb. 17, 2020	Feb. 16, 2021
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Sep. 04, 2020	Sep. 03, 2021
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Jan. 20, 2020	Jan. 19, 2021
V-LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Aug. 18, 2020	Aug. 17, 2021
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 (Conduction 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.

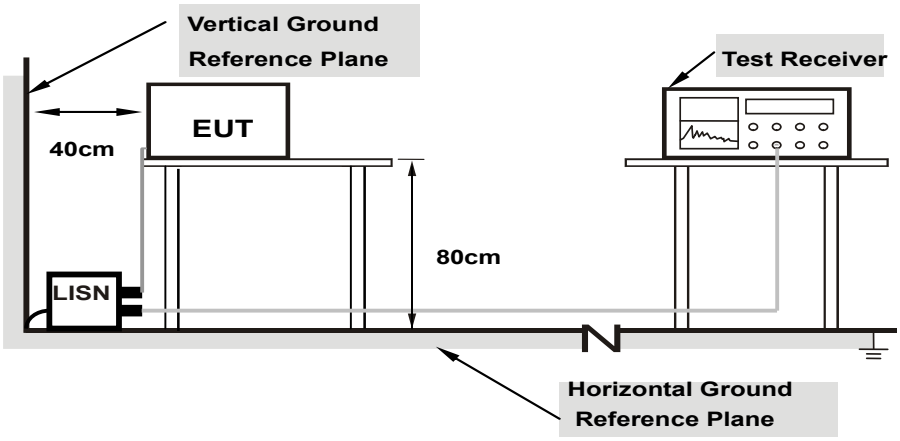
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

2G traffic radio:

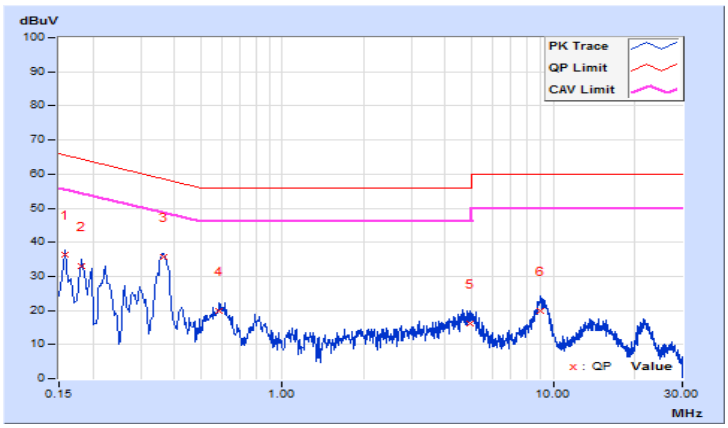
Worst-case data: 802.11ax (HE20)

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

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	0.15800	0.13	36.23	25.04	36.36	25.17	65.57	55.57	-29.21	-30.40
2	0.18200	0.14	32.96	22.33	33.10	22.47	64.39	54.39	-31.29	-31.92
3	0.36352	0.15	35.45	28.57	35.60	28.72	58.65	48.65	-23.05	-19.93
4	0.58600	0.16	19.68	13.92	19.84	14.08	56.00	46.00	-36.16	-31.92
5	4.91400	0.29	15.85	7.64	16.14	7.93	56.00	46.00	-39.86	-38.07
6	9.01400	0.33	19.37	13.81	19.70	14.14	60.00	50.00	-40.30	-35.86

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.

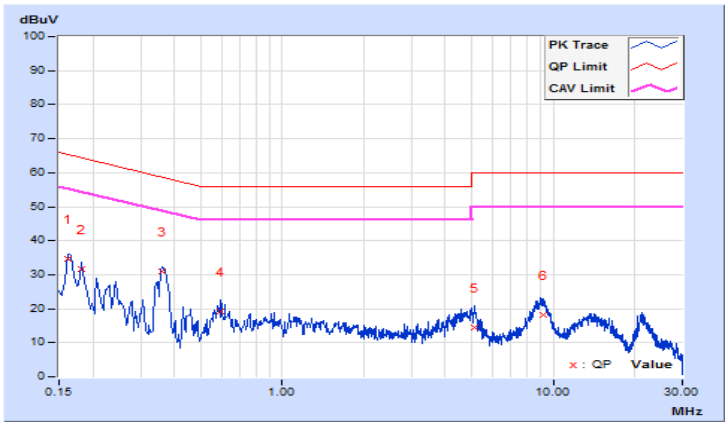


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

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	0.16190	0.10	34.52	24.09	34.62	24.19	65.37	55.37	-30.75	-31.18
2	0.18200	0.11	31.52	21.25	31.63	21.36	64.39	54.39	-32.76	-33.03
3	0.36161	0.13	31.00	23.57	31.13	23.70	58.69	48.69	-27.56	-24.99
4	0.59400	0.14	18.93	13.13	19.07	13.27	56.00	46.00	-36.93	-32.73
5	5.11800	0.31	14.02	6.24	14.33	6.55	60.00	50.00	-45.67	-43.45
6	9.17800	0.41	17.63	12.72	18.04	13.13	60.00	50.00	-41.96	-36.87

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.

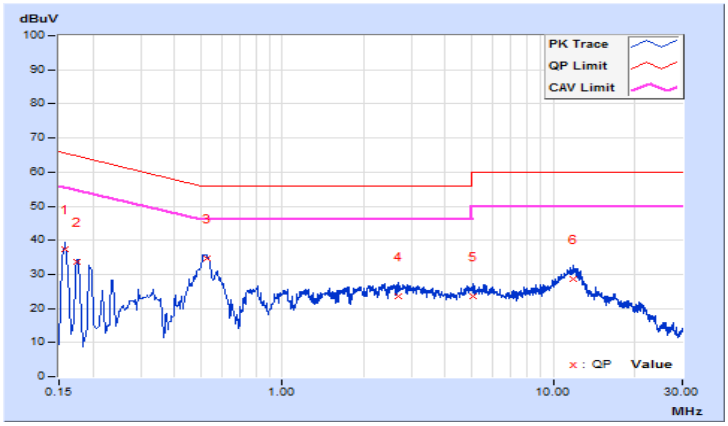


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

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	0.15800	0.08	37.38	22.42	37.46	22.50	65.57	55.57	-28.11	-33.07
2	0.17400	0.09	33.42	18.72	33.51	18.81	64.77	54.77	-31.26	-35.96
3	0.52600	0.13	34.70	28.97	34.83	29.10	56.00	46.00	-21.17	-16.90
4	2.67800	0.21	23.50	18.04	23.71	18.25	56.00	46.00	-32.29	-27.75
5	5.07800	0.26	23.22	17.91	23.48	18.17	60.00	50.00	-36.52	-31.83
6	11.83800	0.35	28.43	23.23	28.78	23.58	60.00	50.00	-31.22	-26.42

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.

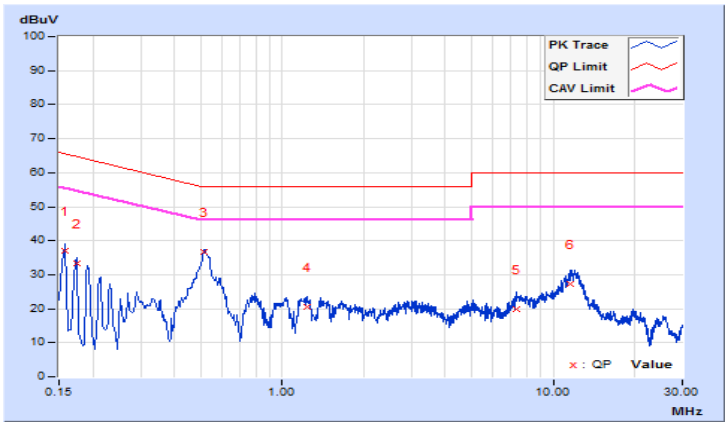


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

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	0.15800	0.07	37.12	21.80	37.19	21.87	65.57	55.57	-28.38	-33.70
2	0.17400	0.07	33.17	18.01	33.24	18.08	64.77	54.77	-31.53	-36.69
3	**0.51742**	**0.11**	**36.49**	**31.32**	**36.60**	**31.43**	**56.00**	**46.00**	**-19.40**	**-14.57**
4	1.23000	0.15	20.24	16.18	20.39	16.33	56.00	46.00	-35.61	-29.67
5	7.34600	0.32	19.41	13.82	19.73	14.14	60.00	50.00	-40.27	-35.86
6	11.58600	0.41	26.71	21.33	27.12	21.74	60.00	50.00	-32.88	-28.26

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.



Scanning radio:

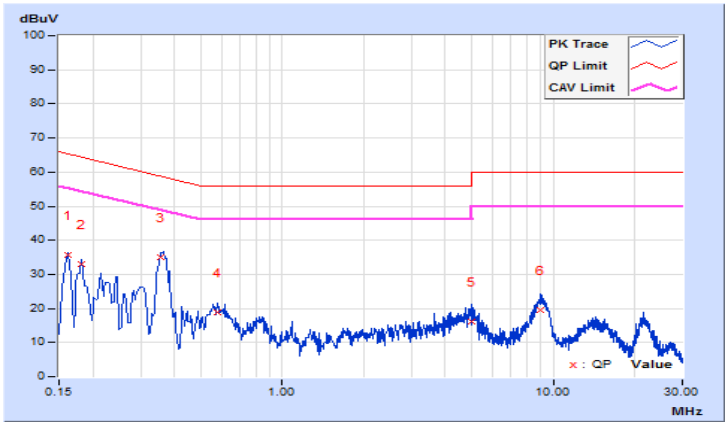
Worst-case data: 802.11g

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

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	0.16190	0.13	35.45	24.51	35.58	24.64	65.37	55.37	-29.79	-30.73
2	0.18180	0.14	32.75	22.06	32.89	22.20	64.40	54.40	-31.51	-32.20
3	0.35782	0.15	34.94	27.08	35.09	27.23	58.78	48.78	-23.69	-21.55
4	0.57400	0.16	18.63	13.03	18.79	13.19	56.00	46.00	-37.21	-32.81
5	4.97000	0.29	15.88	7.63	16.17	7.92	56.00	46.00	-39.83	-38.08
6	8.97000	0.33	19.24	13.60	19.57	13.93	60.00	50.00	-40.43	-36.07

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.

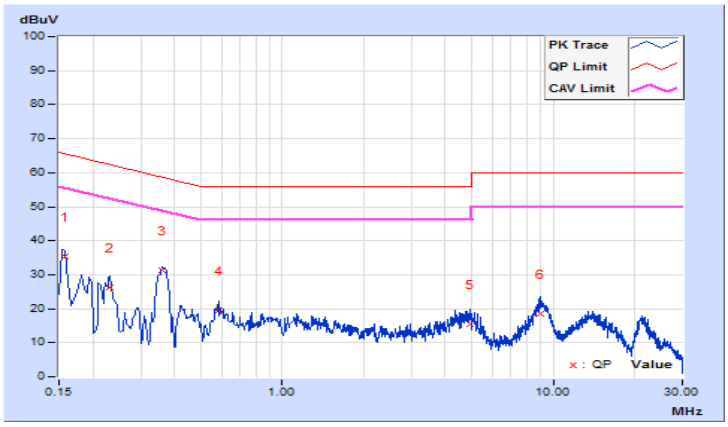


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

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	0.15800	0.10	35.11	24.53	35.21	24.63	65.57	55.57	-30.36	-30.94
2	0.22985	0.11	26.01	15.62	26.12	15.73	62.46	52.46	-36.34	-36.73
3	0.36066	0.13	31.03	23.40	31.16	23.53	58.71	48.71	-27.55	-25.18
4	0.58600	0.14	19.45	13.78	19.59	13.92	56.00	46.00	-36.41	-32.08
5	4.96200	0.30	15.28	7.30	15.58	7.60	56.00	46.00	-40.42	-38.40
6	8.98200	0.40	18.26	12.39	18.66	12.79	60.00	50.00	-41.34	-37.21

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.

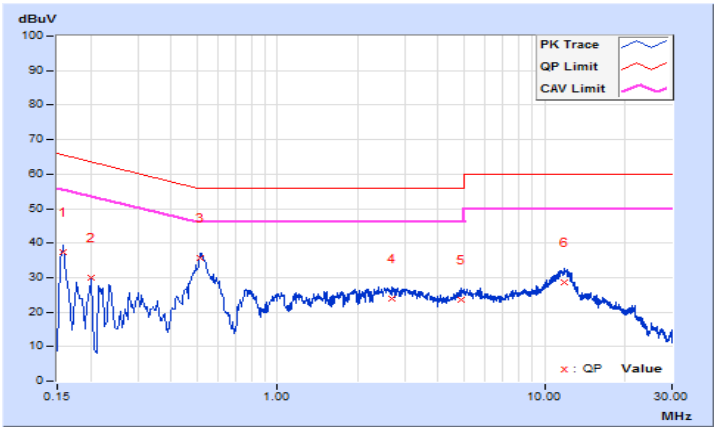


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

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	0.15800	0.08	37.37	22.41	37.45	22.49	65.57	55.57	-28.12	-33.08
2	0.20200	0.10	29.71	15.05	29.81	15.15	63.53	53.53	-33.72	-38.38
3	0.51470	0.13	35.42	30.52	35.55	30.65	56.00	46.00	-20.45	-15.35
4	2.68200	0.21	23.83	18.79	24.04	19.00	56.00	46.00	-31.96	-27.00
5	4.88200	0.25	23.17	17.86	23.42	18.11	56.00	46.00	-32.58	-27.89
6	11.87400	0.35	28.38	23.20	28.73	23.55	60.00	50.00	-31.27	-26.45

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.

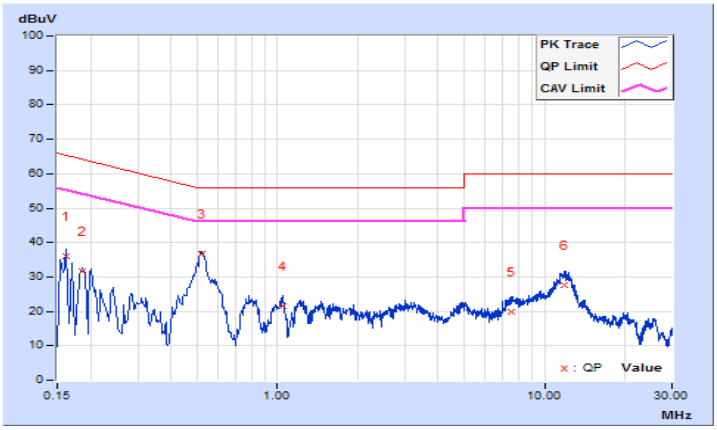


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

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	0.16200	0.07	35.93	20.32	36.00	20.39	65.36	55.36	-29.36	-34.97
2	0.18568	0.08	31.58	16.34	31.66	16.42	64.23	54.23	-32.57	-37.81
3	0.51800	0.11	36.53	31.31	36.64	31.42	56.00	46.00	-19.36	-14.58
4	1.04200	0.14	21.50	17.20	21.64	17.34	56.00	46.00	-34.36	-28.66
5	7.49000	0.32	19.59	14.08	19.91	14.40	60.00	50.00	-40.09	-35.60
6	11.86200	0.42	27.04	21.69	27.46	22.11	60.00	50.00	-32.54	-27.89

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.

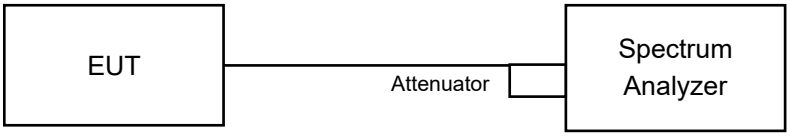


4.3 6dB Bandwidth Measurement

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 from Test 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

2G traffic radio:

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	8.12	8.08	0.5	Pass
6	2437	8.13	7.63	0.5	Pass
11	2462	8.12	8.59	0.5	Pass

802.11g

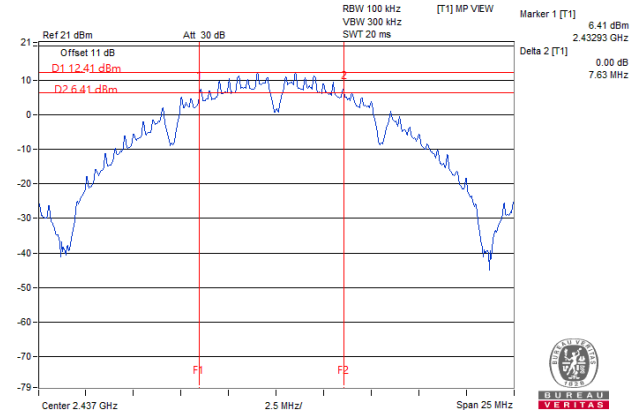
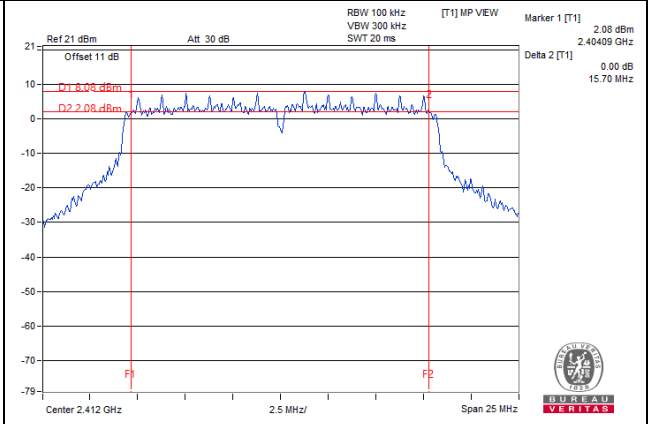
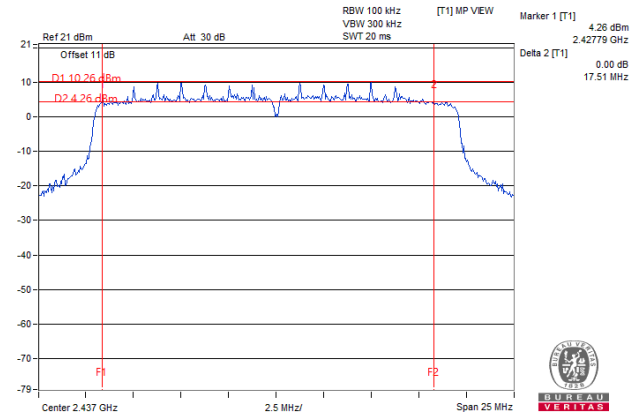
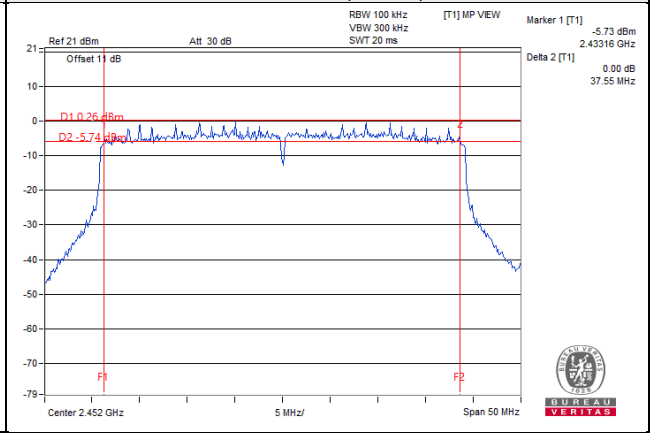
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.70	16.33	0.5	Pass
6	2437	15.86	16.32	0.5	Pass
11	2462	15.70	16.06	0.5	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	18.57	17.72	0.5	Pass
6	2437	17.79	17.51	0.5	Pass
11	2462	18.13	18.42	0.5	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	37.69	37.56	0.5	Pass
6	2437	37.72	37.81	0.5	Pass
9	2452	37.63	37.55	0.5	Pass

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

Scanning radio:

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	10.13	10.12	0.5	Pass
6	2437	10.12	10.13	0.5	Pass
11	2462	10.12	10.12	0.5	Pass

802.11g

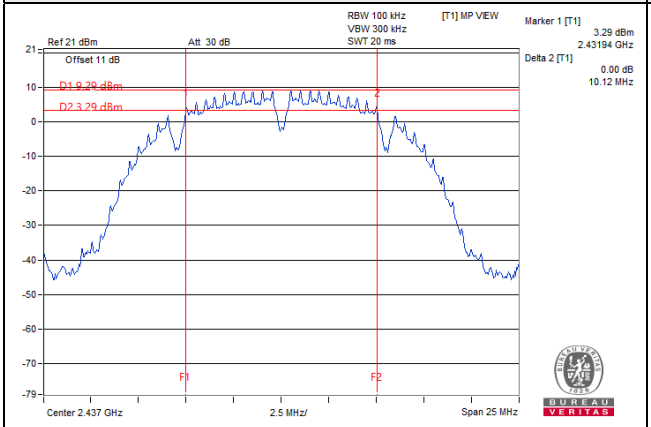
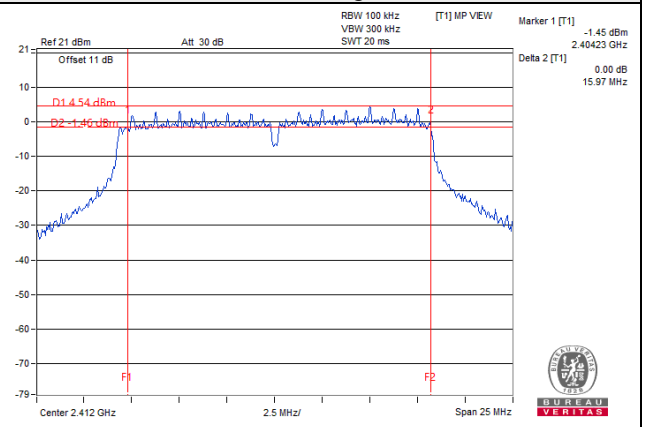
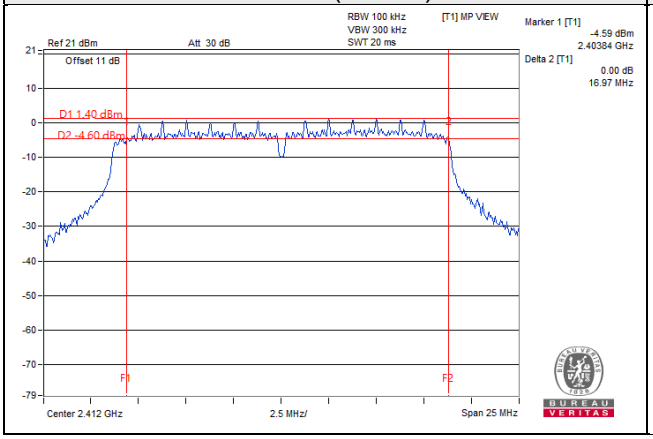
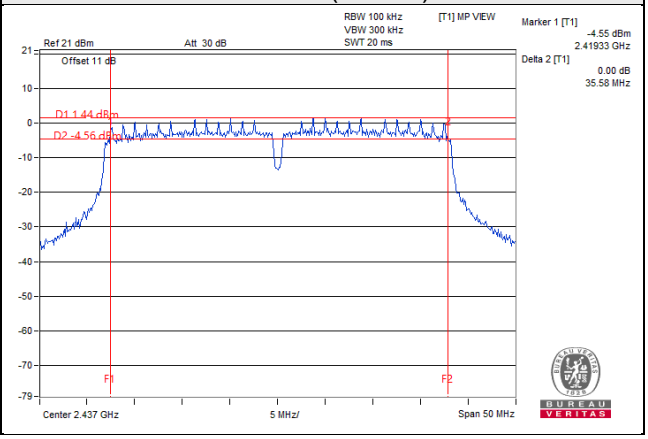
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.37	15.97	0.5	Pass
6	2437	16.39	16.35	0.5	Pass
11	2462	16.39	16.43	0.5	Pass

802.11ac (VHT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.97	16.97	0.5	Pass
6	2437	17.35	17.27	0.5	Pass
11	2462	17.58	17.38	0.5	Pass

802.11ac (VHT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.86	35.83	0.5	Pass
6	2437	35.58	35.83	0.5	Pass
9	2452	35.84	35.82	0.5	Pass

Spectrum Plot of Worst Value	
802.11b	802.11g
	
802.11ac (VHT20)	802.11ac (VHT40)
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

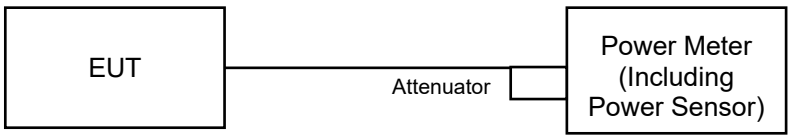
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

2G traffic radio:

CDD Mode

802.11b

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	18.82	18.81	152.241	21.83	30	Pass
6	2437	21.73	21.43	**287.931**	24.59	30	Pass
11	2462	19.32	19.12	167.165	22.23	30	Pass

802.11g

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.14	18.94	160.378	22.05	30	Pass
6	2437	21.63	21.36	282.319	24.51	30	Pass
11	2462	18.27	18.21	133.365	21.25	30	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	17.94	17.71	121.250	20.84	30	Pass
6	2437	21.31	21.22	267.641	24.28	30	Pass
11	2462	16.74	16.47	91.567	19.62	30	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	17.36	17.26	107.661	20.32	30	Pass
6	2437	17.59	17.29	110.991	20.45	30	Pass
9	2452	14.55	14.32	55.550	17.45	30	Pass

Beamforming Mode

802.11ax (HE20)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	14.93	14.70	60.629	17.83	29.32	Pass
6	2437	18.30	18.21	**133.830**	21.27	29.32	Pass
11	2462	13.73	13.46	45.787	16.61	29.32	Pass

Note: Beamforming Directional gain = 3.67dBi + 10log(2) = 6.68dBi > 6dBi, so the limit shall be reduced to 30-(6.68-6) = 29.32dBm.

802.11ax (HE40)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	14.35	14.25	53.834	17.31	29.32	Pass
6	2437	14.58	14.28	55.499	17.44	29.32	Pass
9	2452	11.54	11.31	27.777	14.44	29.32	Pass

Note: Beamforming Directional gain = 3.67dBi + 10log(2) = 6.68dBi > 6dBi, so the limit shall be reduced to 30-(6.68-6) = 29.32dBm.

Scanning radio:

802.11b

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	18.11	18.09	129.131	21.11	30	Pass
6	2437	18.81	18.79	151.716	21.81	30	Pass
11	2462	19.01	18.70	153.747	21.87	30	Pass

802.11g

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	14.83	14.56	58.985	17.71	30	Pass
6	2437	21.12	20.66	**245.832**	23.91	30	Pass
11	2462	16.97	16.95	99.319	19.97	30	Pass

802.11ac (VHT20)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	12.18	11.95	32.187	15.08	30	Pass
6	2437	20.45	20.18	215.149	23.33	30	Pass
11	2462	16.48	16.38	87.914	19.44	30	Pass

802.11ac (VHT40)

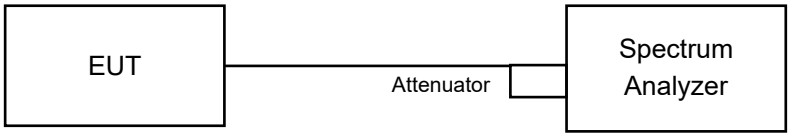
Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	10.30	10.22	21.235	13.27	30	Pass
6	2437	15.67	15.59	73.122	18.64	30	Pass
9	2452	13.49	13.28	43.617	16.40	30	Pass

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm in any 3 kHz band during any time interval of continuous transmission.

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

2G traffic radio:

802.11b

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-15.65	3.01	-12.64	7.32	Pass
	6	2437	-12.48	3.01	-9.47	7.32	Pass
	11	2462	-14.50	3.01	-11.49	7.32	Pass
1	1	2412	-14.50	3.01	-11.49	7.32	Pass
	6	2437	-12.41	3.01	-9.40	7.32	Pass
	11	2462	-14.74	3.01	-11.73	7.32	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional Gain = 3.67dBi + 10log(2) = 6.68dBi > 6dBi, so the limit shall be reduced to 8-(6.68-6) = 7.32dBm.

802.11g

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/3kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-18.41	3.01	0.29	-15.11	7.32	Pass
	6	2437	-16.28	3.01	0.29	-12.98	7.32	Pass
	11	2462	-19.70	3.01	0.29	-16.40	7.32	Pass
1	1	2412	-18.97	3.01	0.29	-15.67	7.32	Pass
	6	2437	-16.52	3.01	0.29	-13.22	7.32	Pass
	11	2462	-19.47	3.01	0.29	-16.17	7.32	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional Gain = 3.67dBi + 10log(2) = 6.68dBi > 6dBi, so the limit shall be reduced to 8-(6.68-6) = 7.32dBm.
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=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-21.97	3.01	0.32	-18.64	7.32	Pass
	6	2437	-18.09	3.01	0.32	-14.76	7.32	Pass
	11	2462	-22.71	3.01	0.32	-19.38	7.32	Pass
1	1	2412	-22.04	3.01	0.32	-18.71	7.32	Pass
	6	2437	-18.84	3.01	0.32	-15.51	7.32	Pass
	11	2462	-23.11	3.01	0.32	-19.78	7.32	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional Gain = 3.67dBi + 10log(2) = 6.68dBi > 6dBi, so the limit shall be reduced to 8-(6.68-6) = 7.32dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

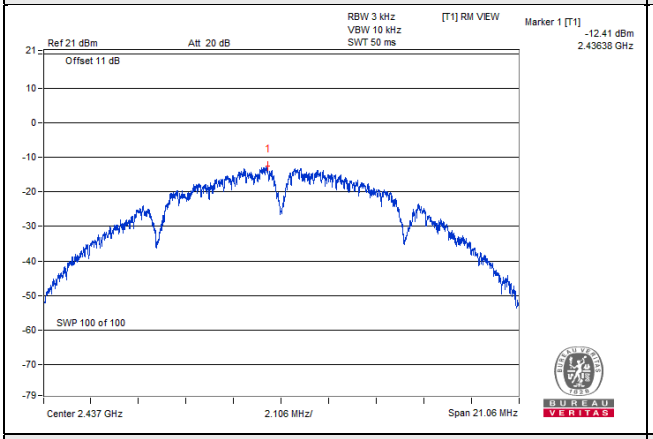
802.11ax (HE40)

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/3kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-24.62	3.01	0.30	-21.31	7.32	Pass
	6	2437	-24.82	3.01	0.30	-21.51	7.32	Pass
	9	2452	-28.13	3.01	0.30	-24.82	7.32	Pass
1	3	2422	-25.31	3.01	0.30	-22.00	7.32	Pass
	6	2437	-25.17	3.01	0.30	-21.86	7.32	Pass
	9	2452	-28.20	3.01	0.30	-24.89	7.32	Pass

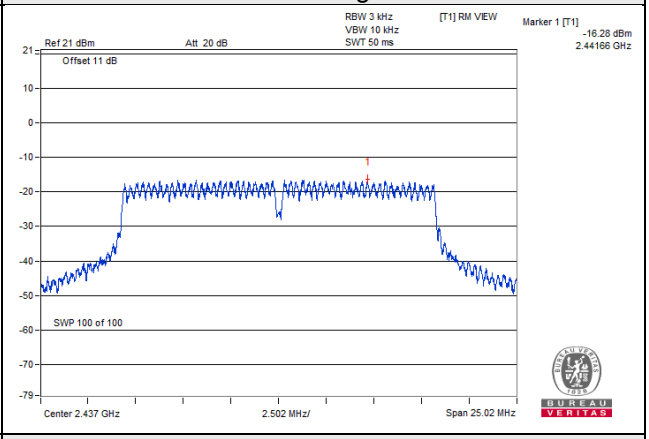
Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional Gain = 3.67dBi + 10log(2) = 6.68dBi > 6dBi, so the limit shall be reduced to 8-(6.68-6) = 7.32dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

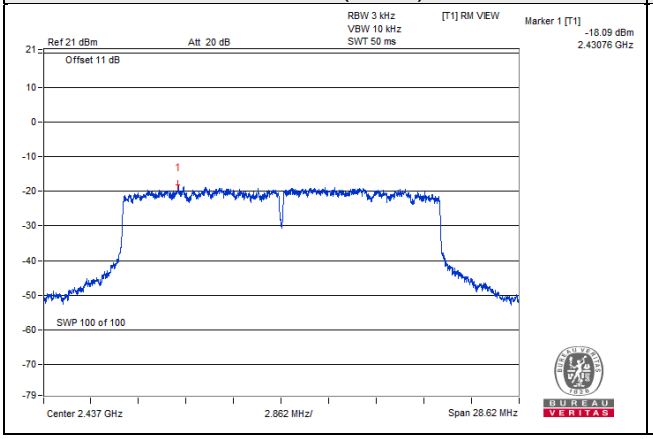
802.11b



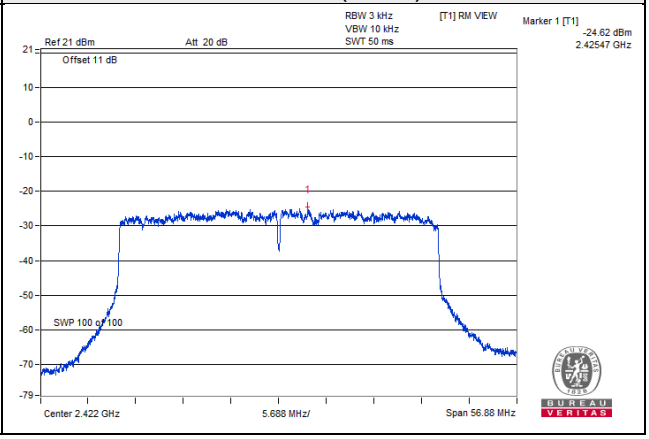
802.11g



802.11ax (HE20)



802.11ax (HE40)



Scanning radio:

802.11b

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-16.21	3.01	-13.20	6.16	Pass
	6	2437	-15.61	3.01	-12.60	6.16	Pass
	11	2462	-15.92	3.01	-12.91	6.16	Pass
1	1	2412	-15.87	3.01	-12.86	6.16	Pass
	6	2437	-15.24	3.01	-12.23	6.16	Pass
	11	2462	-15.47	3.01	-12.46	6.16	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional Gain = 4.83dBi + 10log(2) = 7.84dBi > 6dBi, so the limit shall be reduced to 8-(7.84-6) = 6.16dBm.

802.11g

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/3kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-21.82	3.01	0.23	-18.58	6.16	Pass
	6	2437	-16.11	3.01	0.23	-12.87	6.16	Pass
	11	2462	-20.01	3.01	0.23	-16.77	6.16	Pass
1	1	2412	-21.27	3.01	0.23	-18.03	6.16	Pass
	6	2437	-15.05	3.01	0.23	-11.81	6.16	Pass
	11	2462	-19.66	3.01	0.23	-16.42	6.16	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional Gain = 4.83dBi + 10log(2) = 7.84dBi > 6dBi, so the limit shall be reduced to 8-(7.84-6) = 6.16dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/3kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-24.09	3.01	0.20	-20.88	6.16	Pass
	6	2437	-16.83	3.01	0.20	-13.62	6.16	Pass
	11	2462	-21.18	3.01	0.20	-17.97	6.16	Pass
1	1	2412	-24.24	3.01	0.20	-21.03	6.16	Pass
	6	2437	-16.45	3.01	0.20	-13.24	6.16	Pass
	11	2462	-20.39	3.01	0.20	-17.18	6.16	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional Gain = 4.83dBi + 10log(2) = 7.84dBi > 6dBi, so the limit shall be reduced to 8-(7.84-6) = 6.16dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

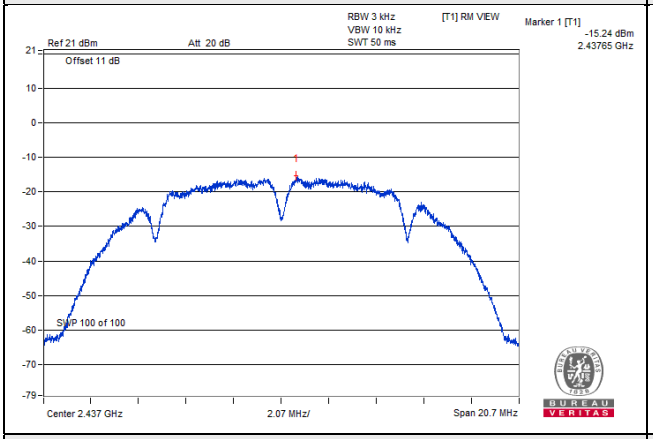
802.11ac (VHT40)

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/3kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-29.50	3.01	0.39	-26.1	6.16	Pass
	6	2437	-24.97	3.01	0.39	-21.57	6.16	Pass
	9	2452	-26.76	3.01	0.39	-23.36	6.16	Pass
1	3	2422	-29.12	3.01	0.39	-25.72	6.16	Pass
	6	2437	-23.81	3.01	0.39	-20.41	6.16	Pass
	9	2452	-26.37	3.01	0.39	-22.97	6.16	Pass

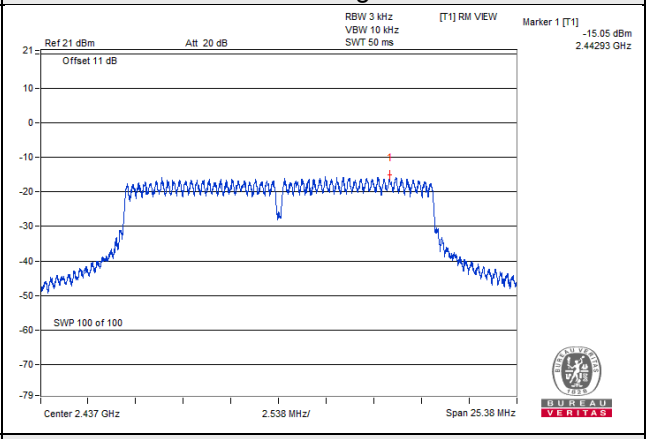
Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional Gain = 4.83dBi + 10log(2) = 7.84dBi > 6dBi, so the limit shall be reduced to 8-(7.84-6) = 6.16dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

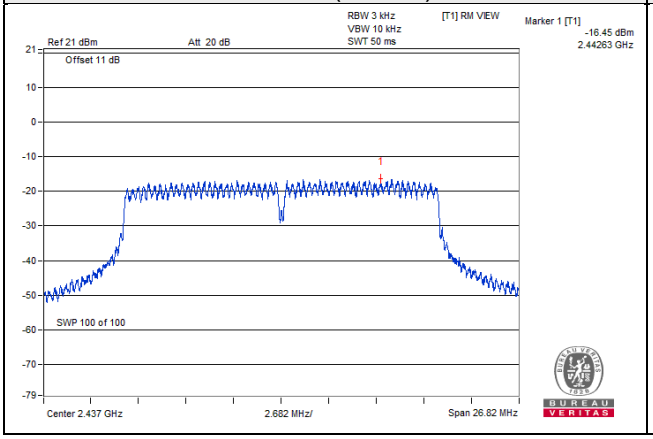
802.11b



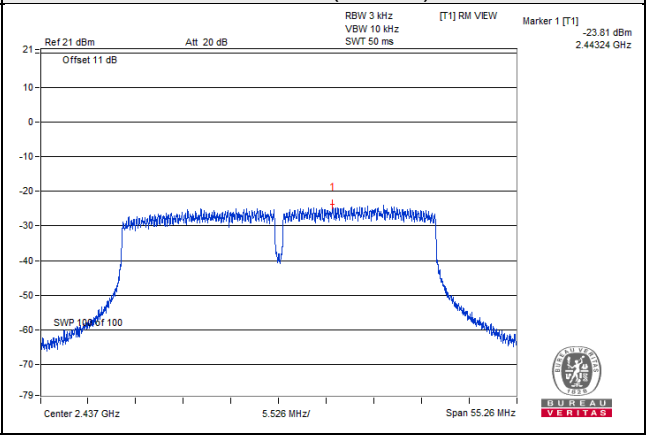
802.11g



802.11ac (VHT20)



802.11ac (VHT40)

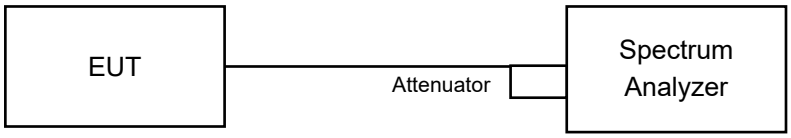


4.6 Conducted Out of Band Emission Measurement

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.

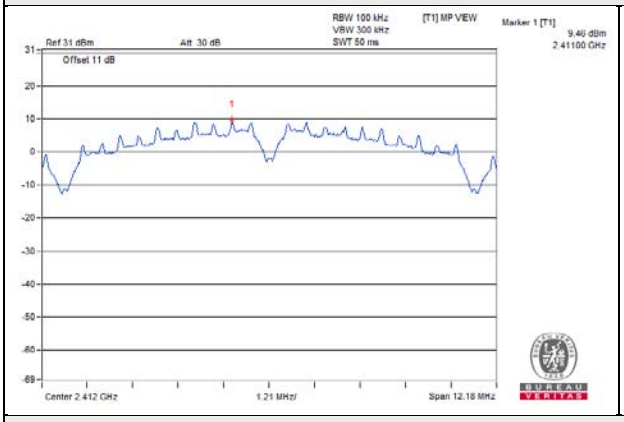
4.6.7 Test Results

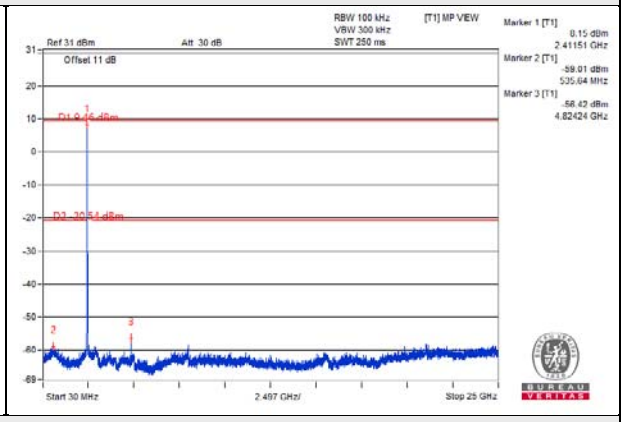
The conducted emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit.
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows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

2G traffic radio:

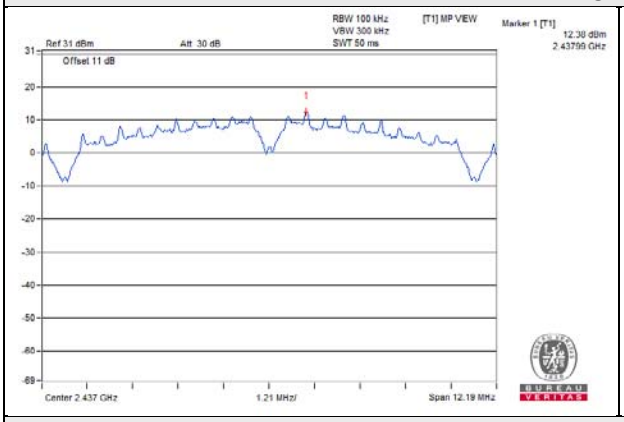
802.11b_Chain 0

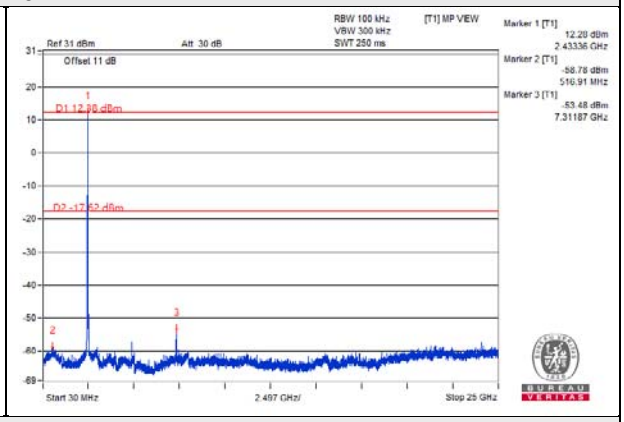
CH 1



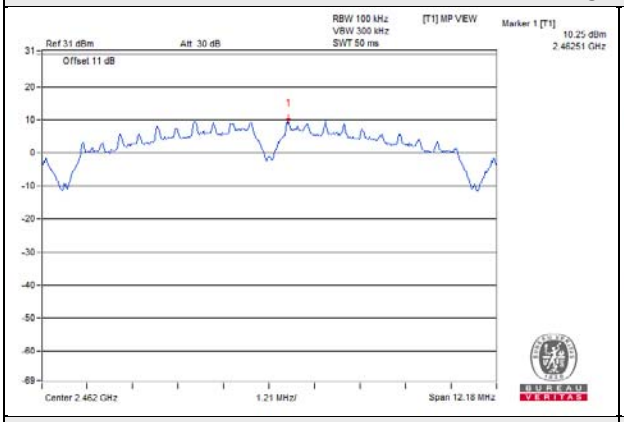


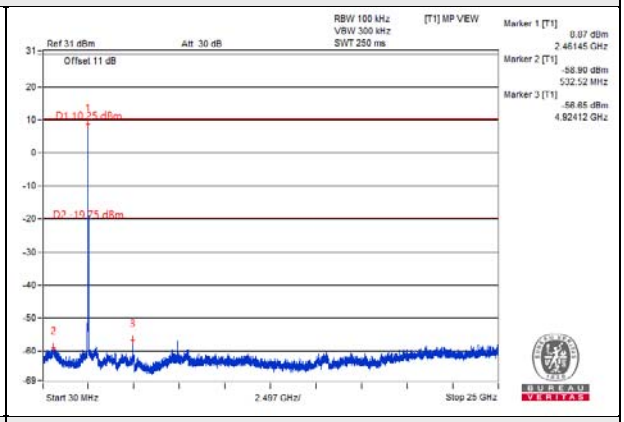
CH 6



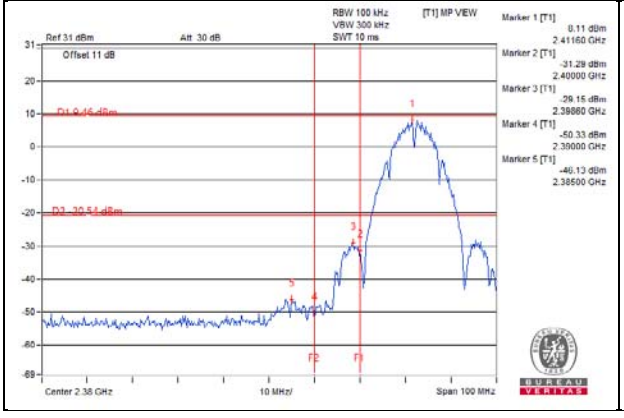


CH 11

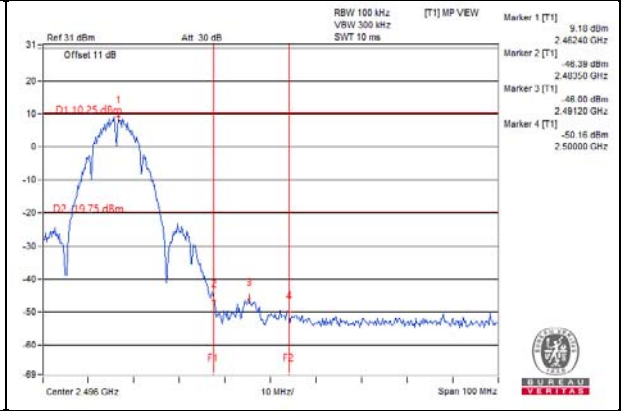




CH 1 Band edge

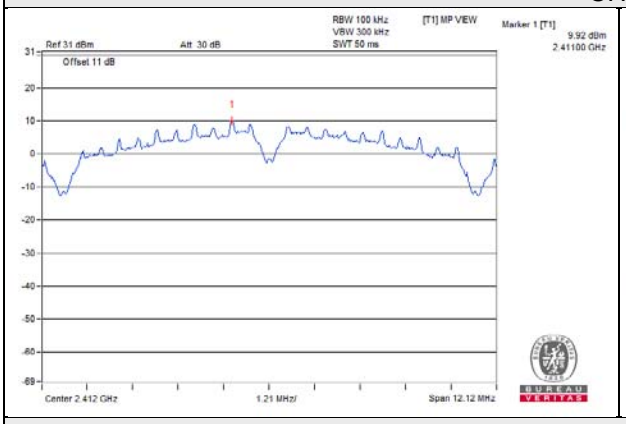


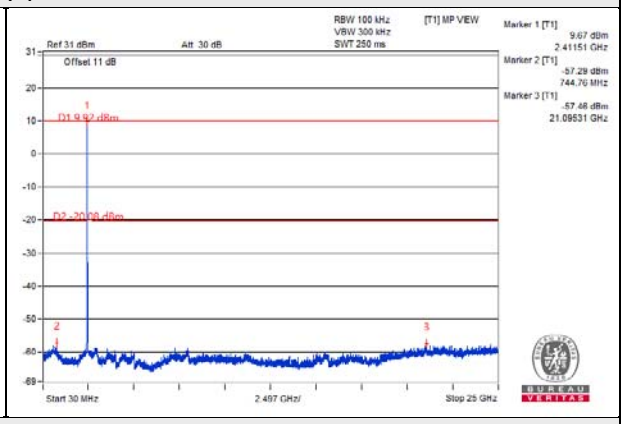
CH 11 Band edge



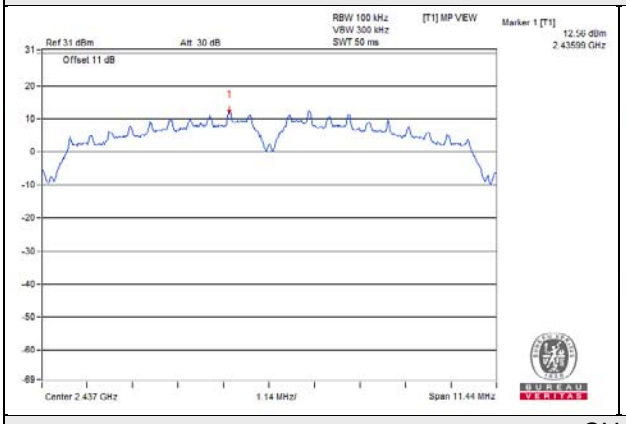
802.11b_Chain 1

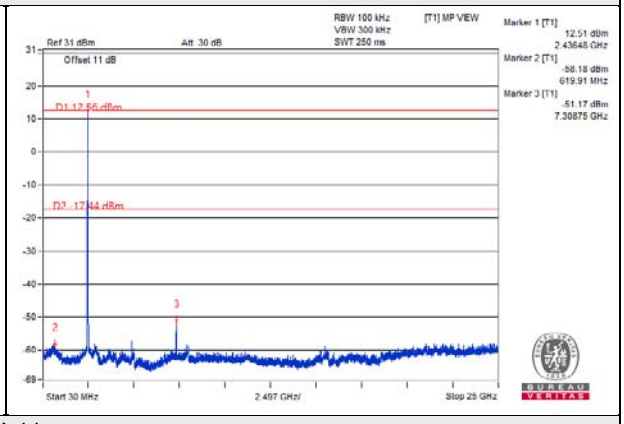
CH 1



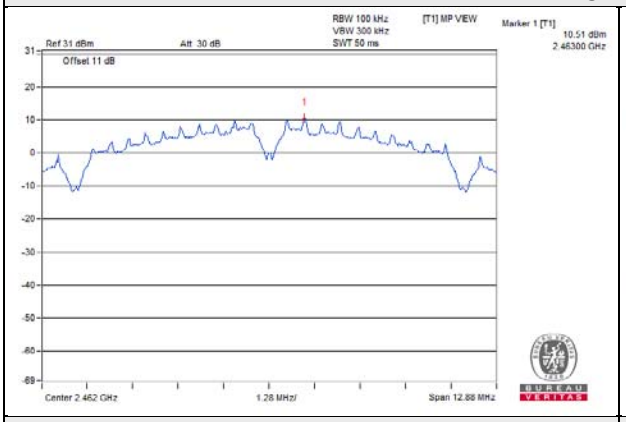


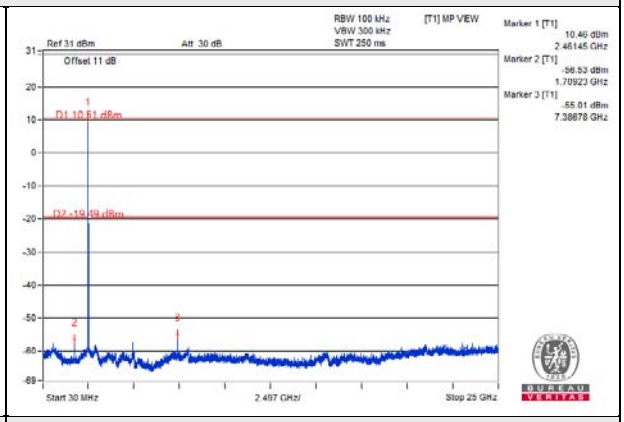
CH 6



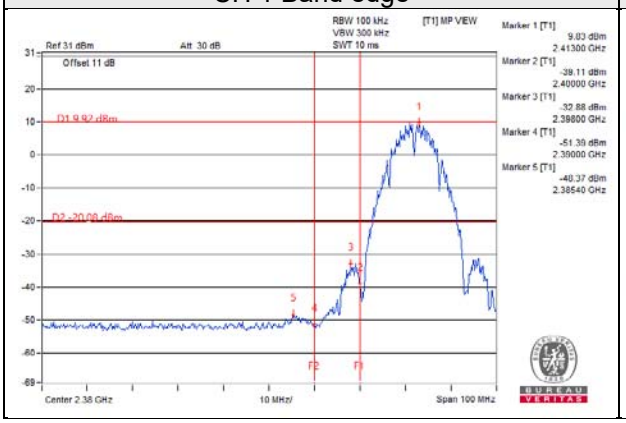


CH 11

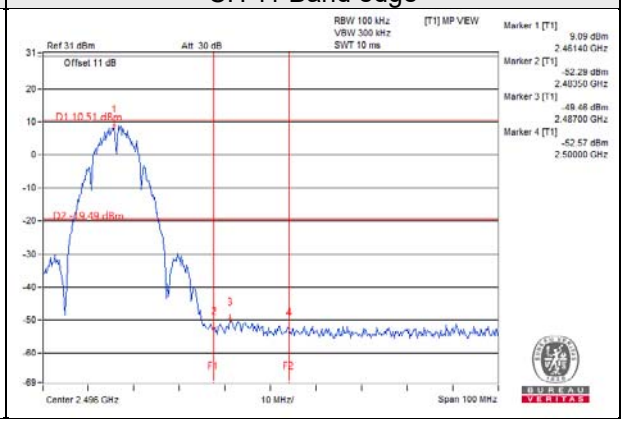




CH 1 Band edge

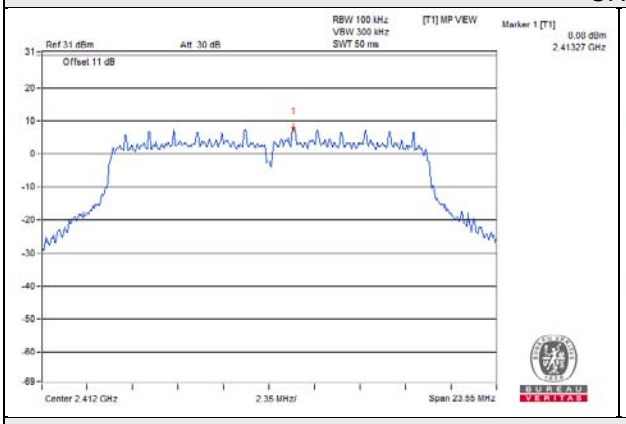


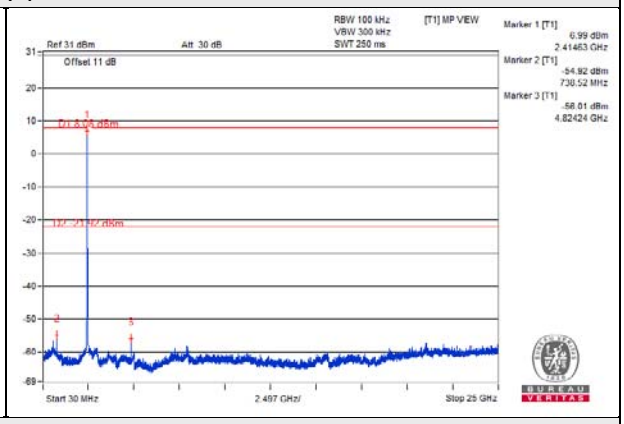
CH 11 Band edge



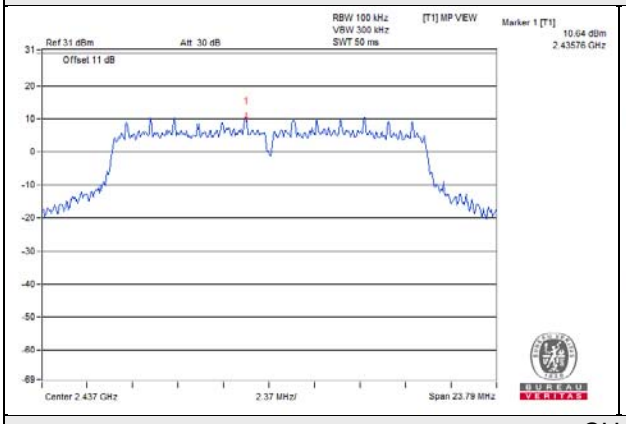
802.11g_Chain 0

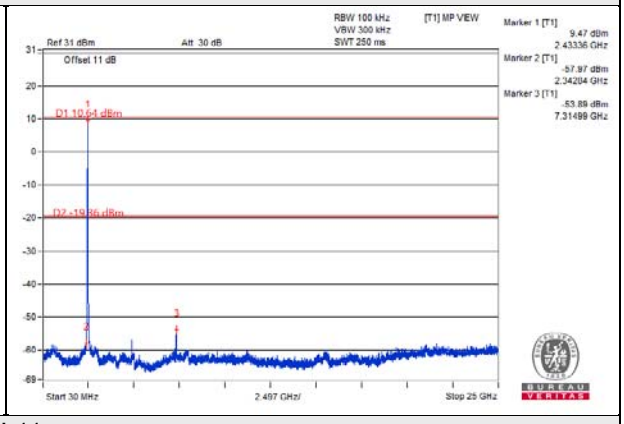
CH 1



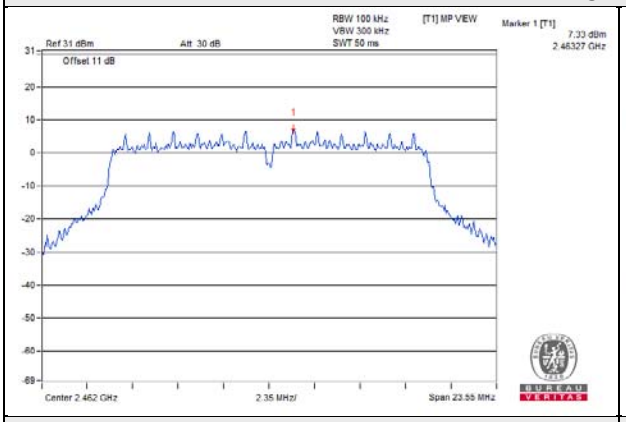


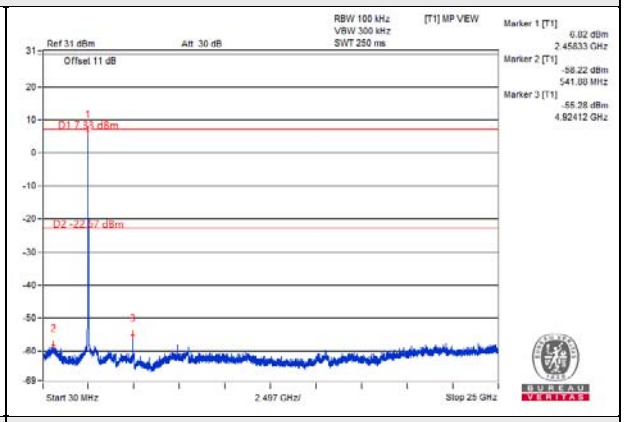
CH 6



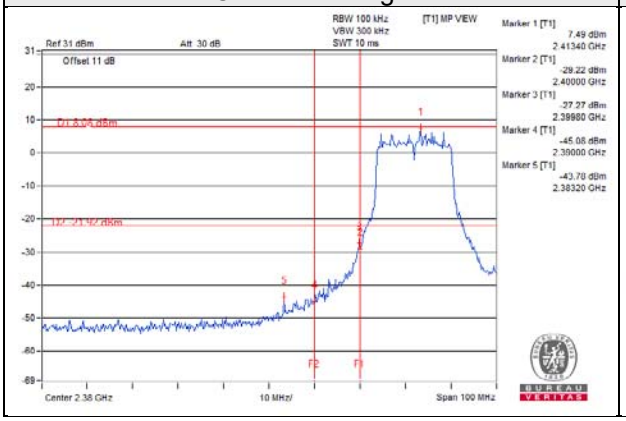


CH 11

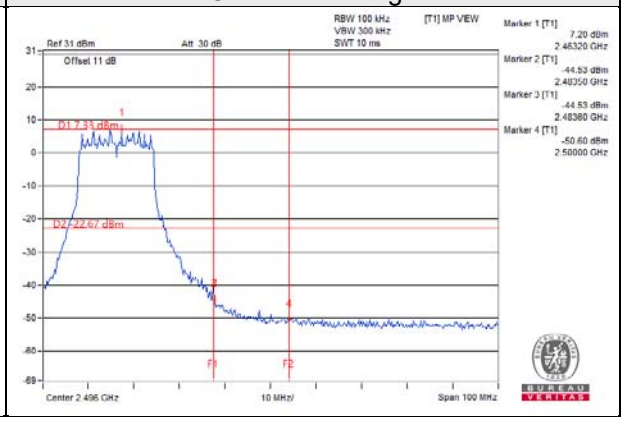




CH 1 Band edge

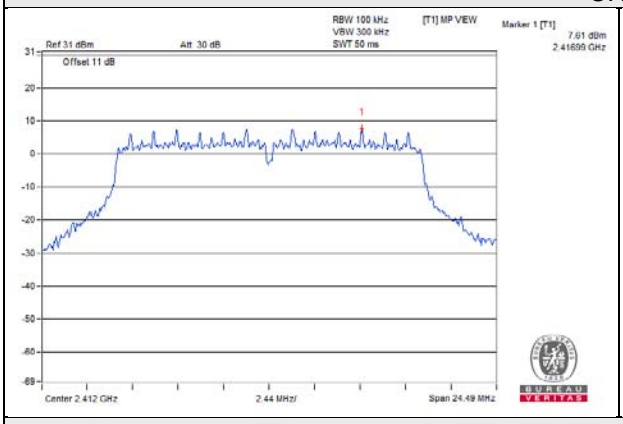


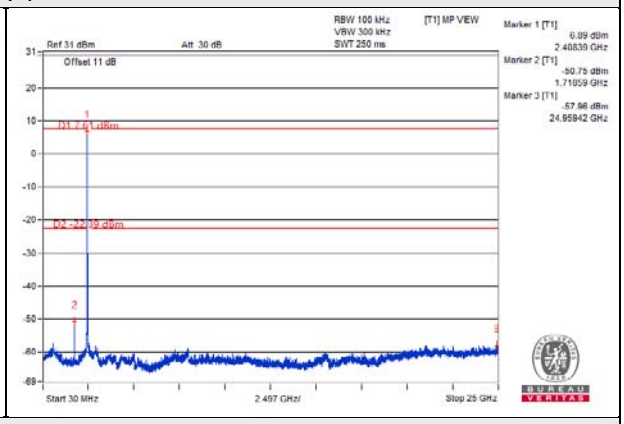
CH 11 Band edge



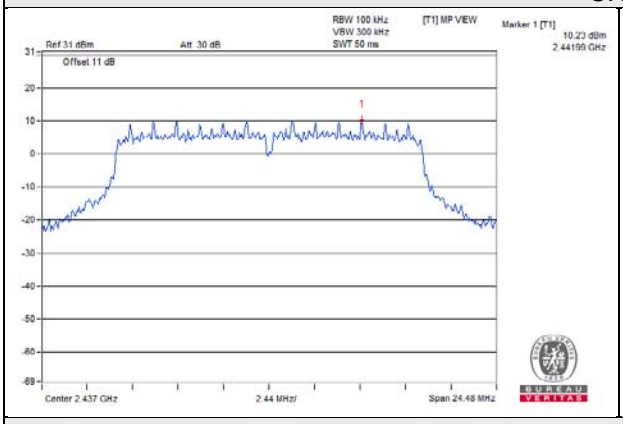
802.11g_Chain 1

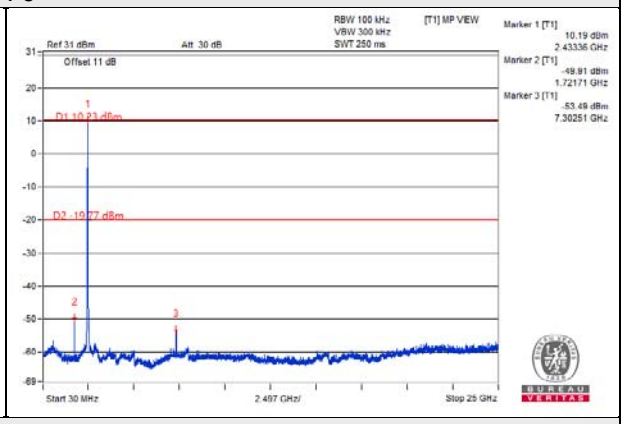
CH 1



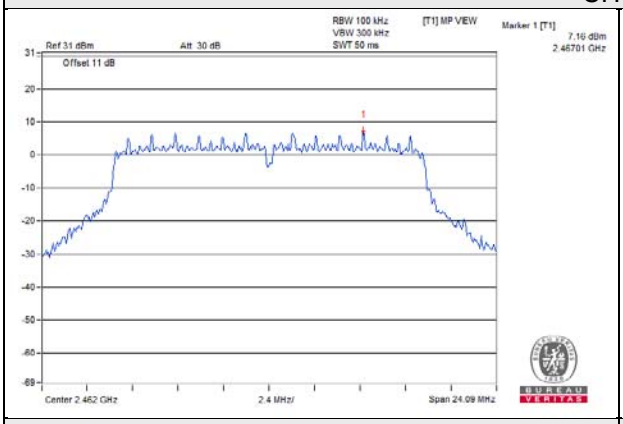


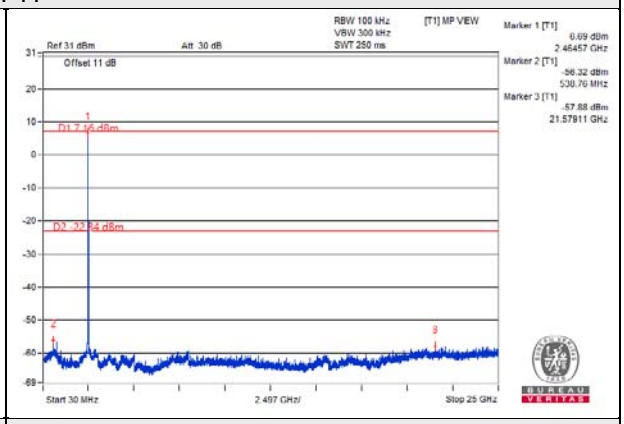
CH 6



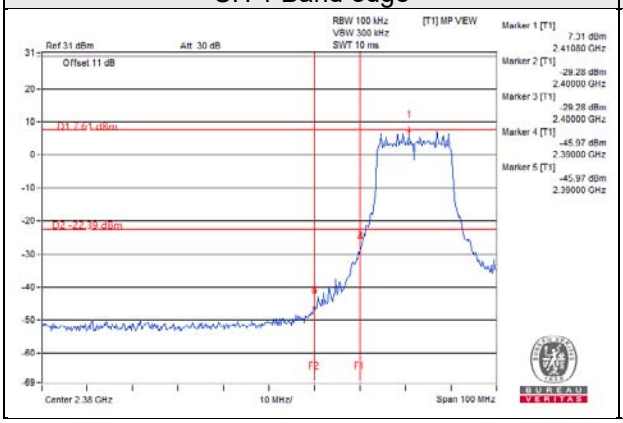


CH 11

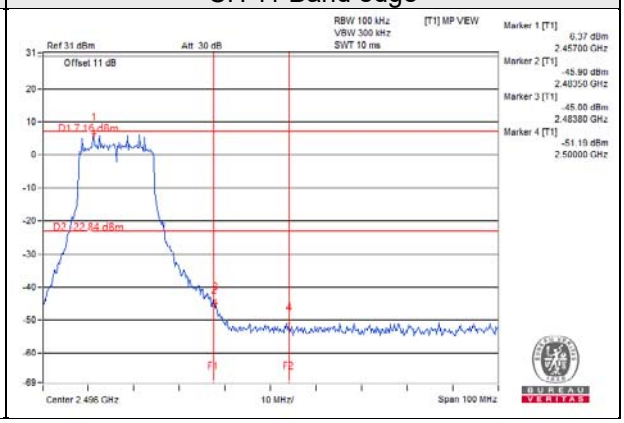




CH 1 Band edge

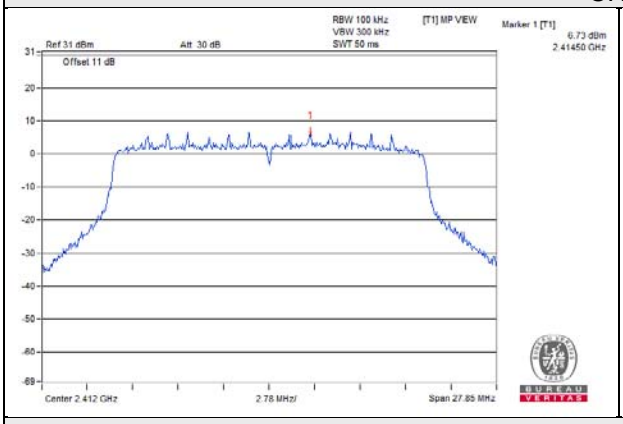


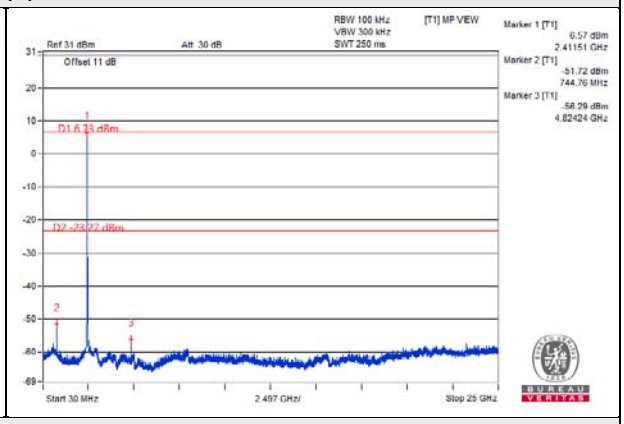
CH 11 Band edge



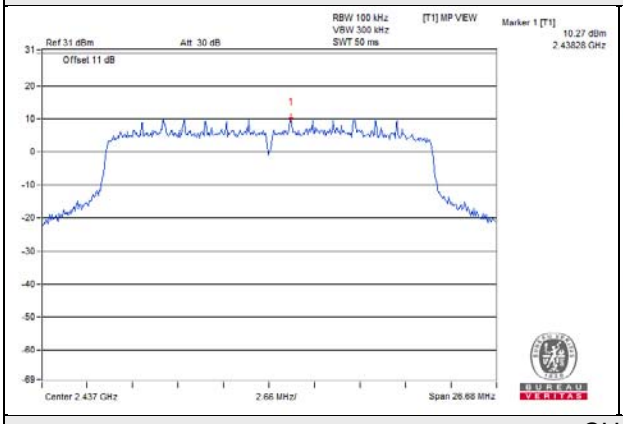
802.11ax (HE20)_Chain 0

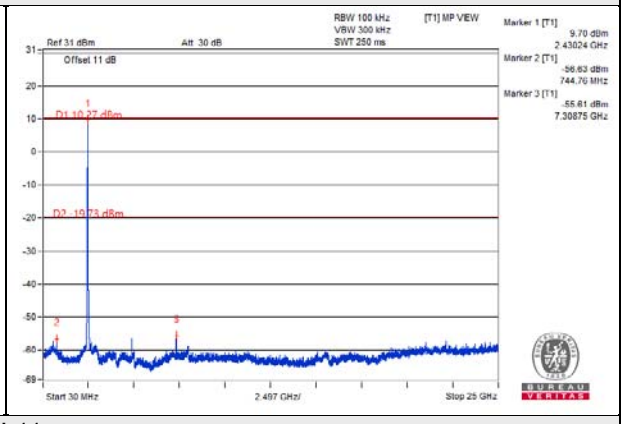
CH 1



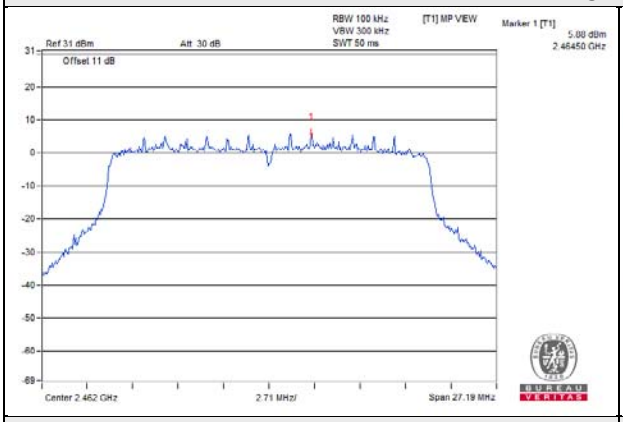


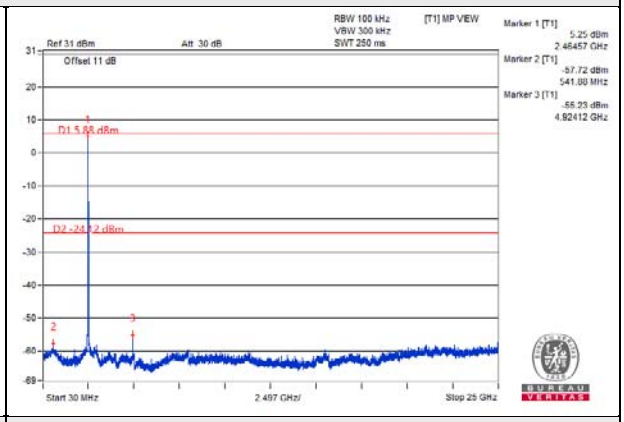
CH 6



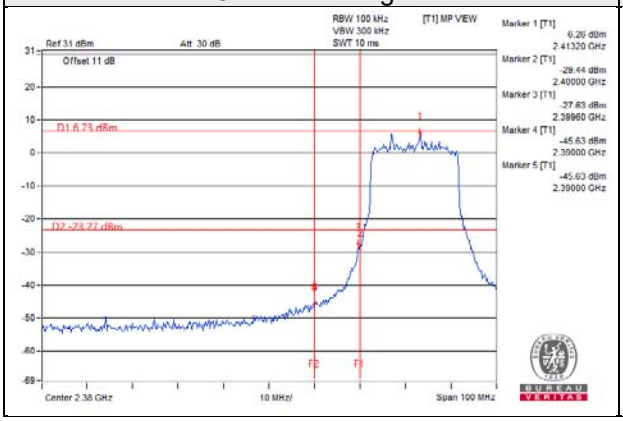


CH 11

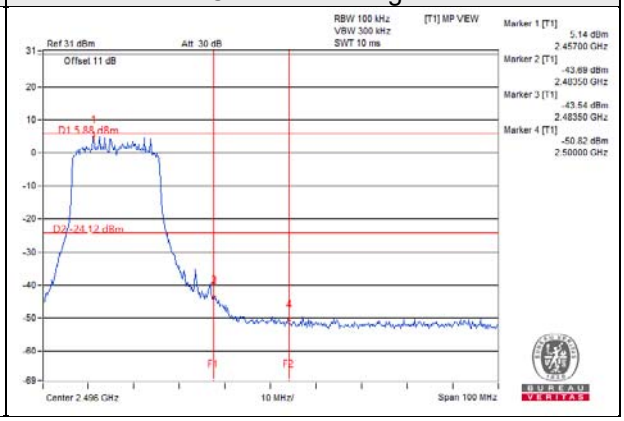




CH 1 Band edge

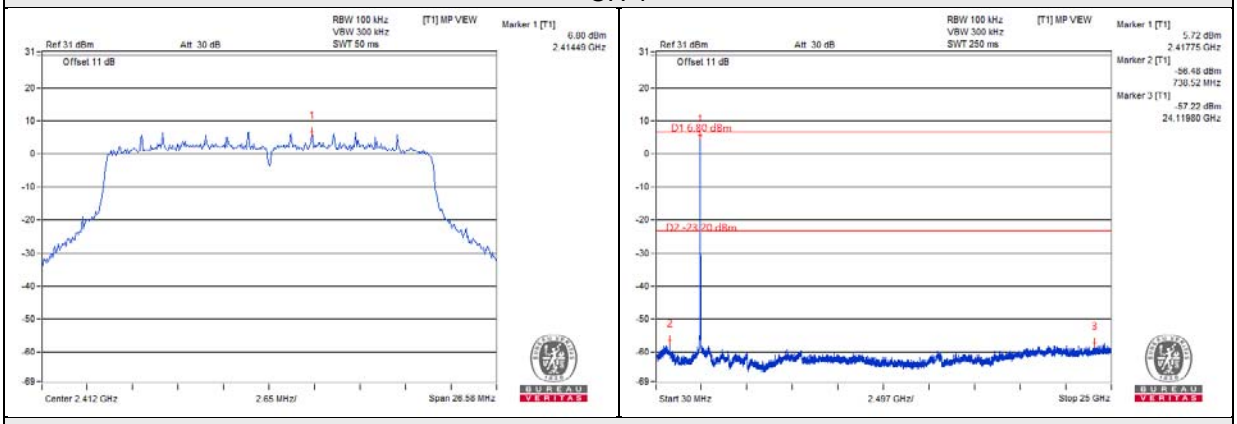


CH 11 Band edge

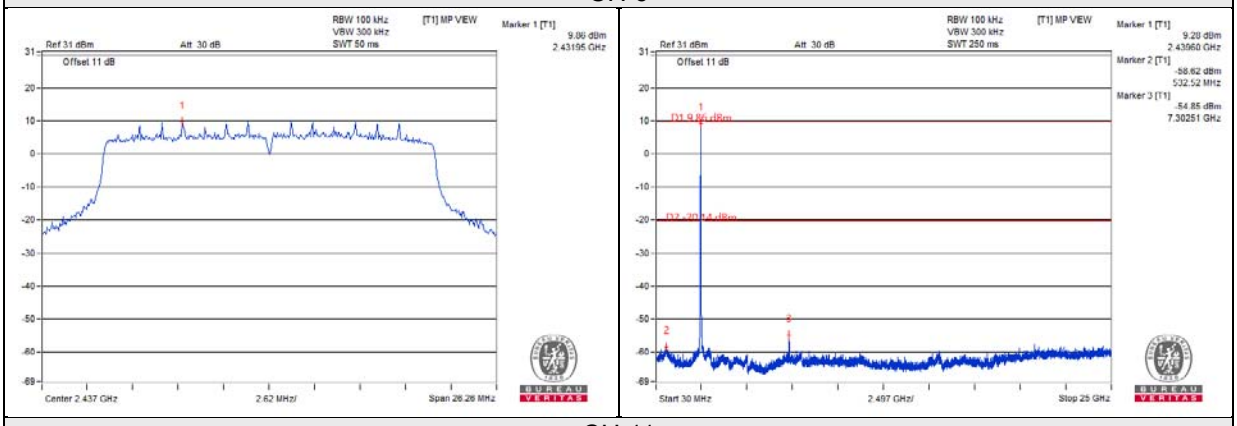


802.11ax (HE20)_Chain 1

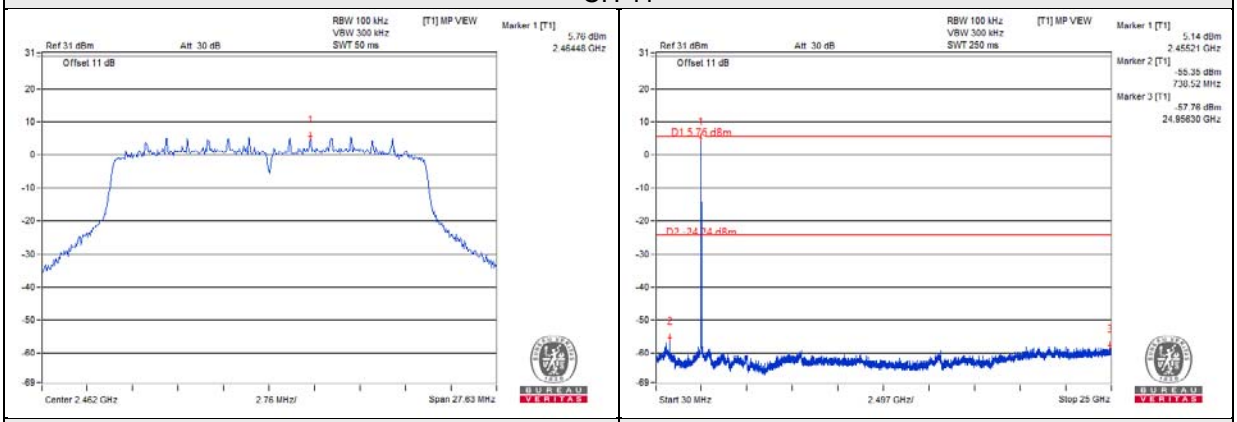
CH 1



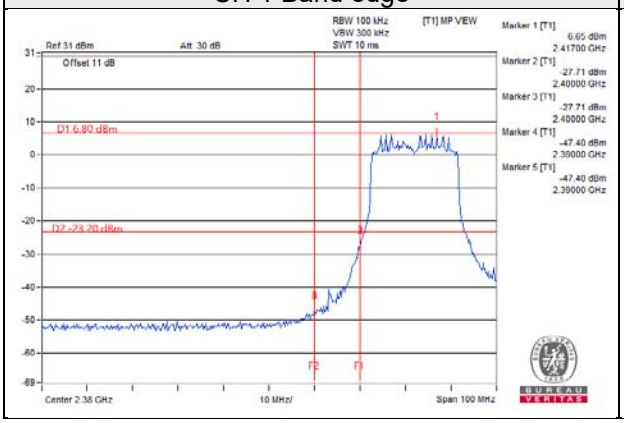
CH 6



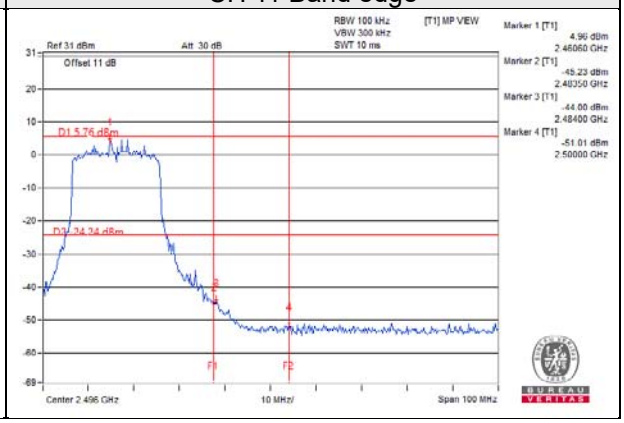
CH 11



CH 1 Band edge

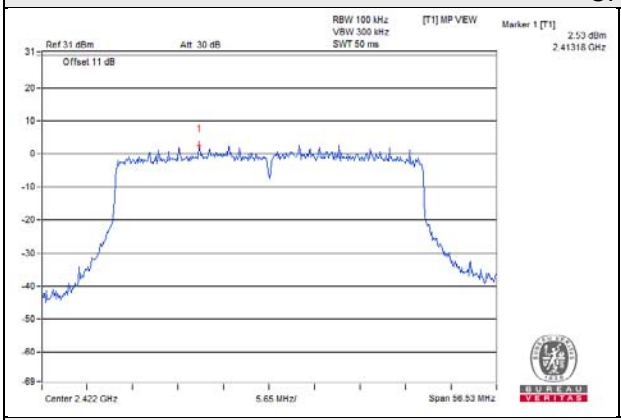


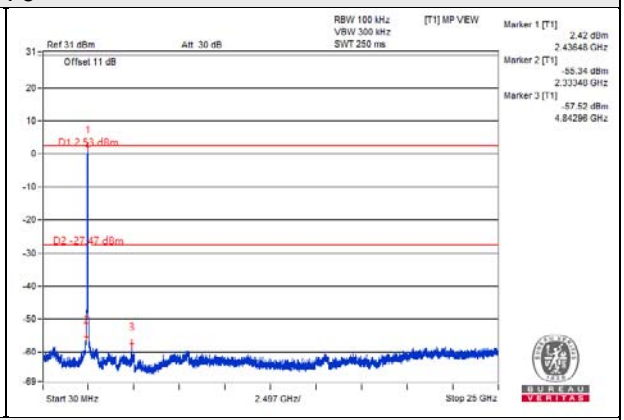
CH 11 Band edge



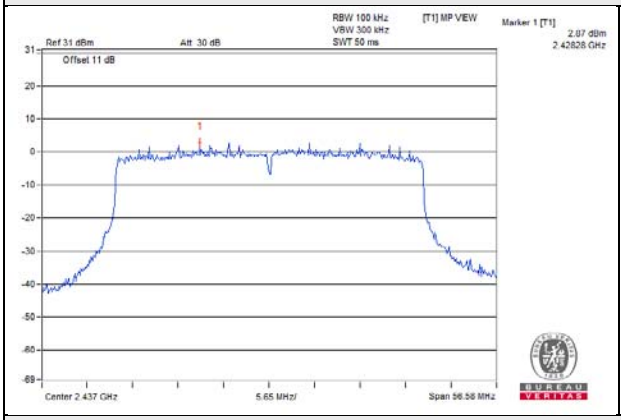
802.11ax (HE40)_Chain 0

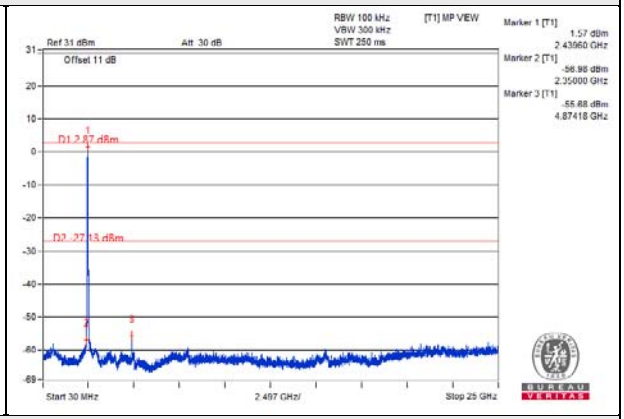
CH 3



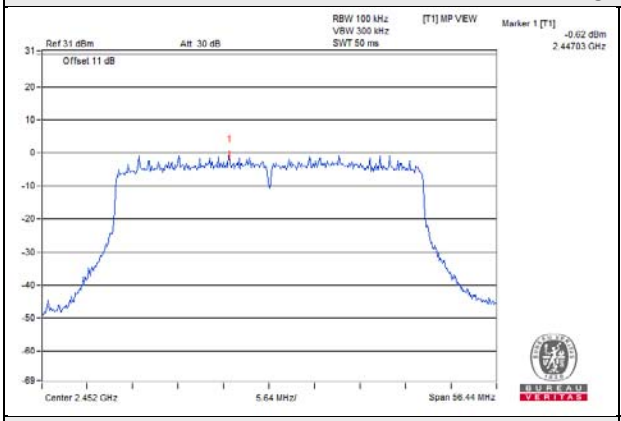


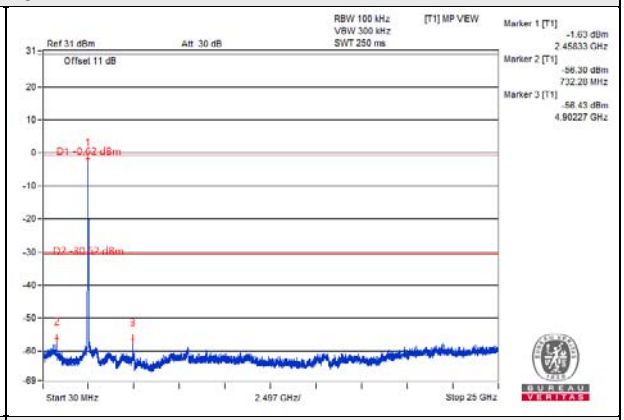
CH 6



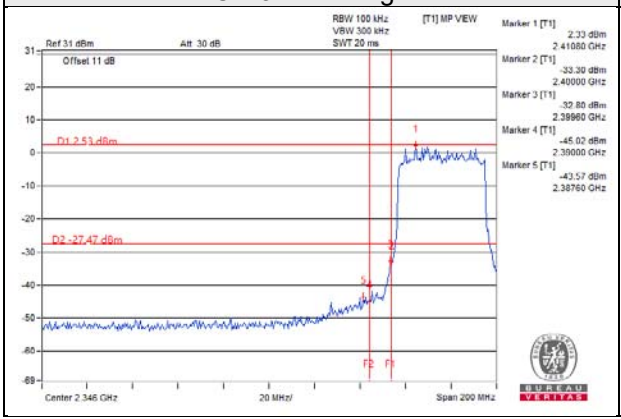


CH 9

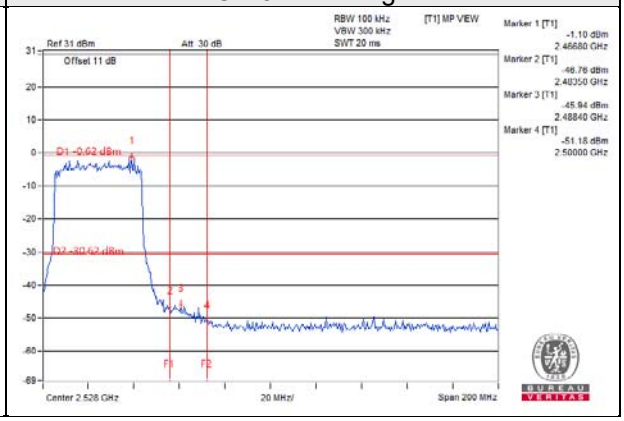




CH 3 Band edge

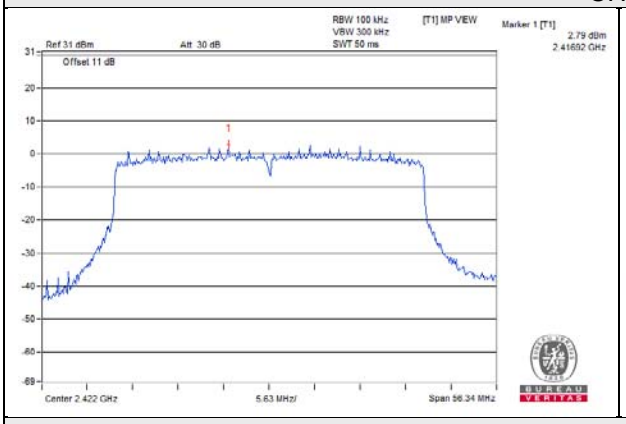


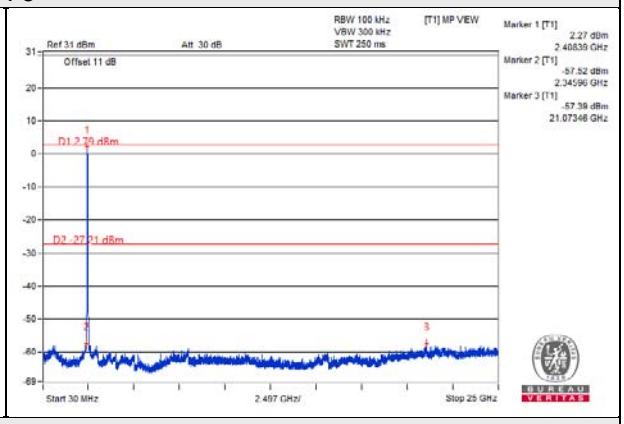
CH 9 Band edge



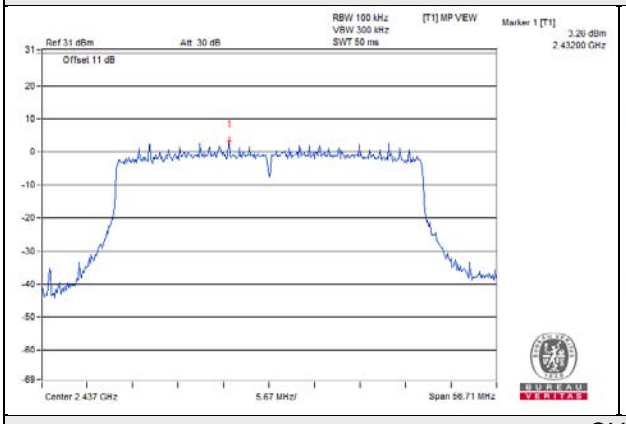
802.11ax (HE40)_Chain 1

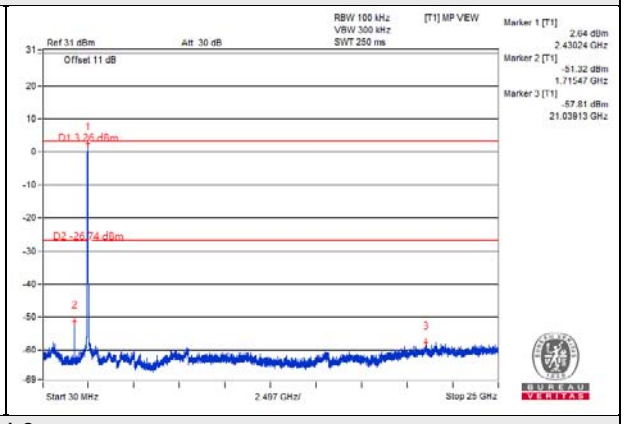
CH 3



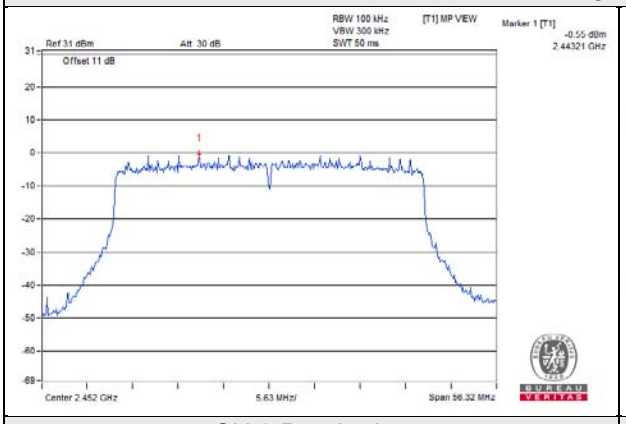


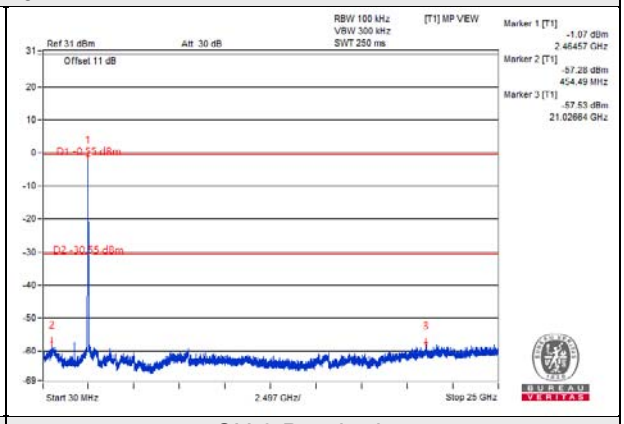
CH 6



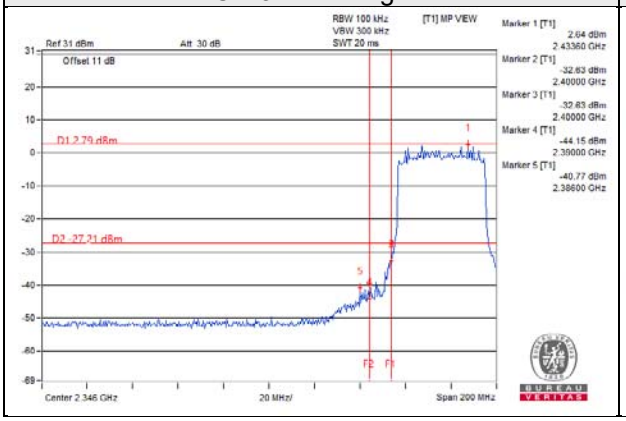


CH 9

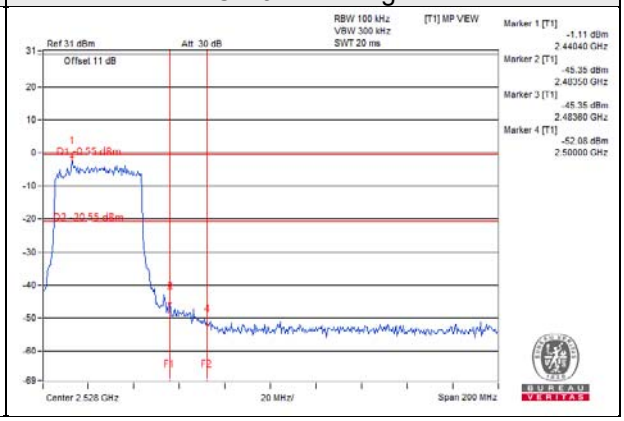




CH 3 Band edge



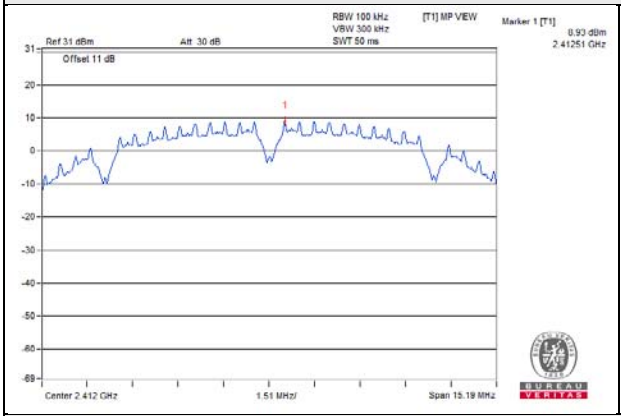
CH 9 Band edge

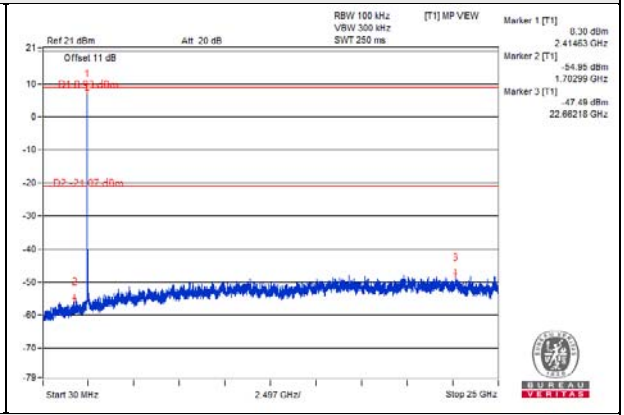


Scanning radio:

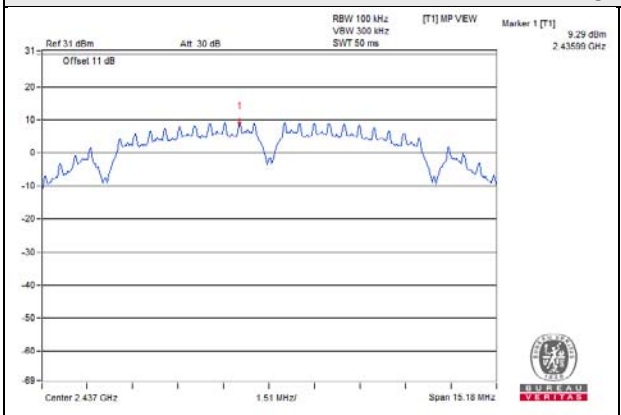
802.11b_Chain 0

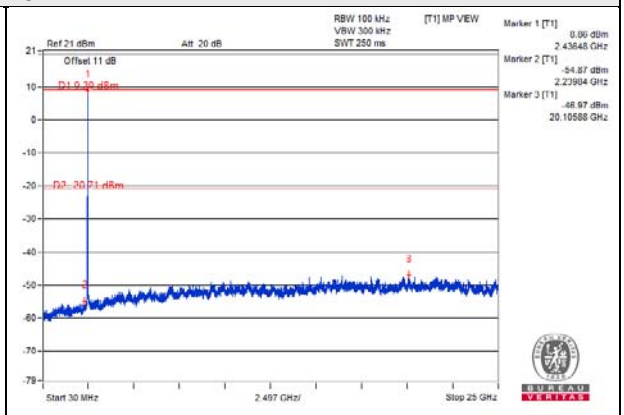
CH 1



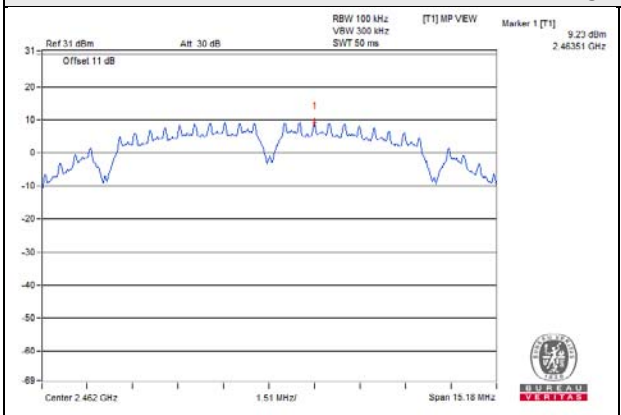


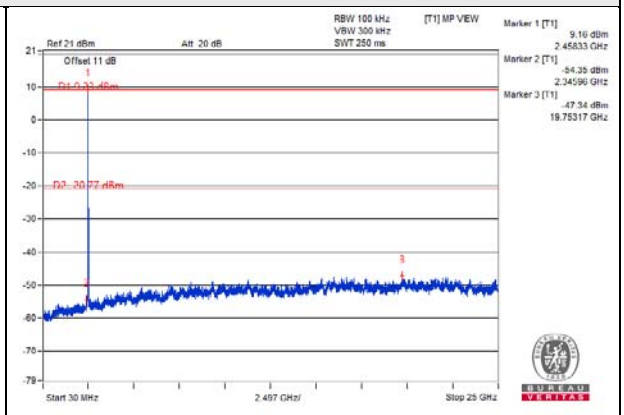
CH 6



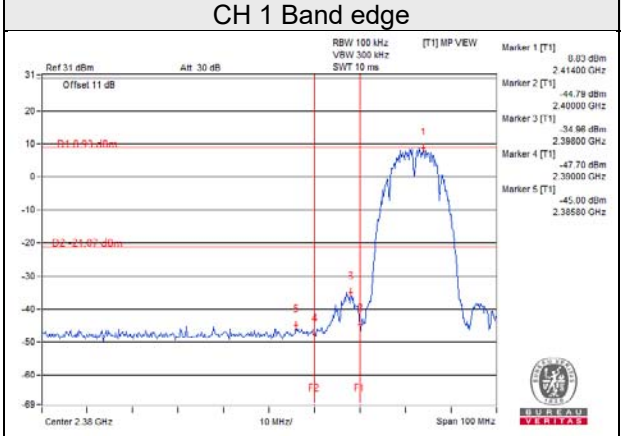


CH 11

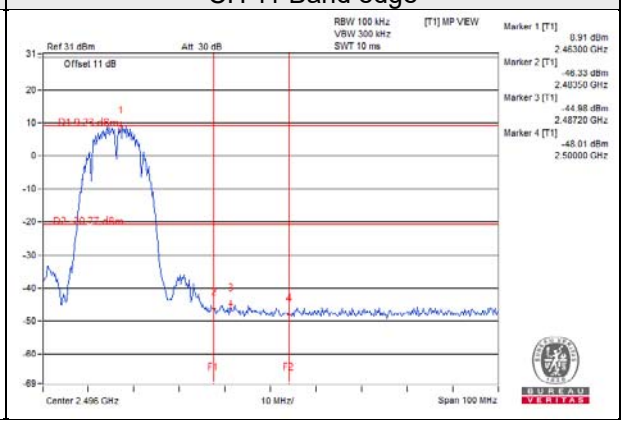




CH 1 Band edge

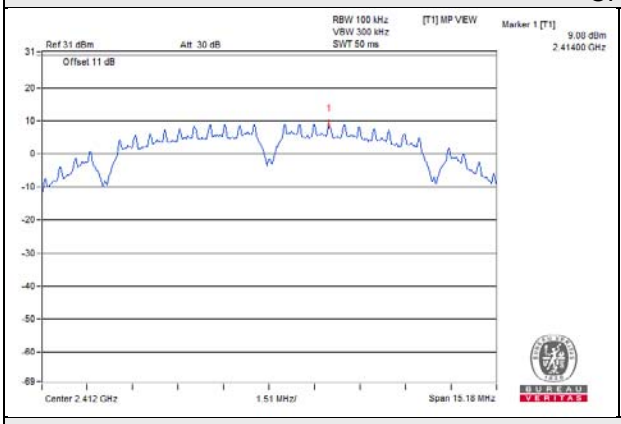


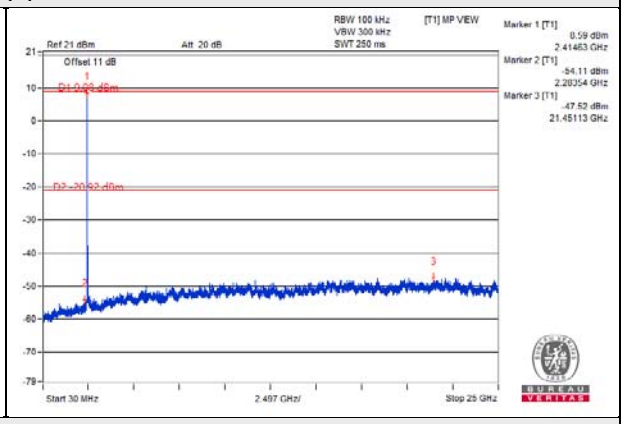
CH 11 Band edge



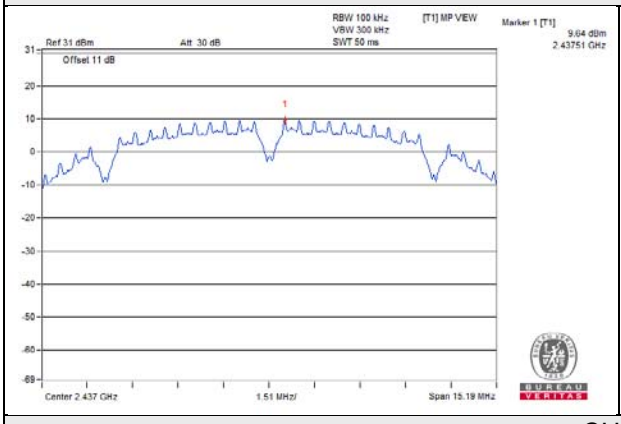
802.11b_Chain 1

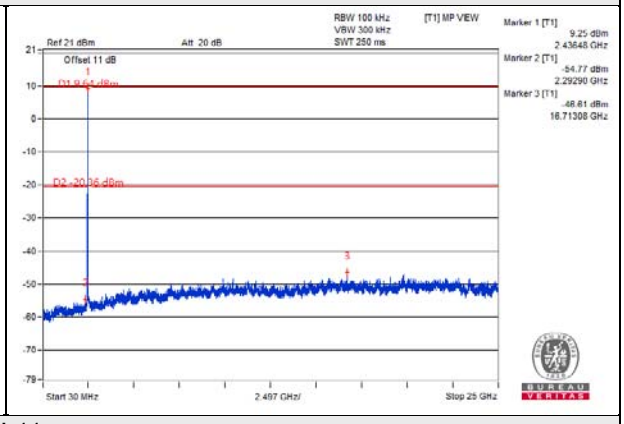
CH 1



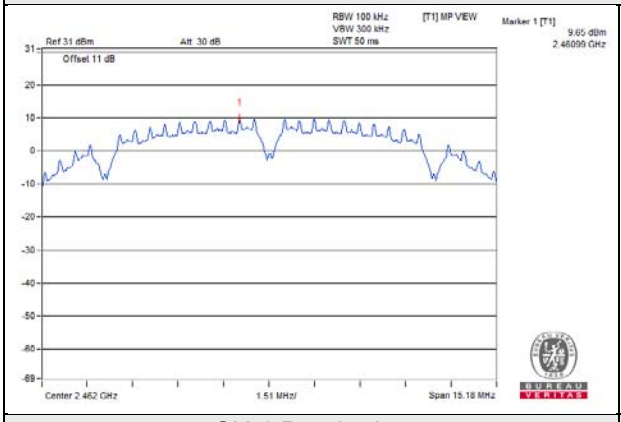


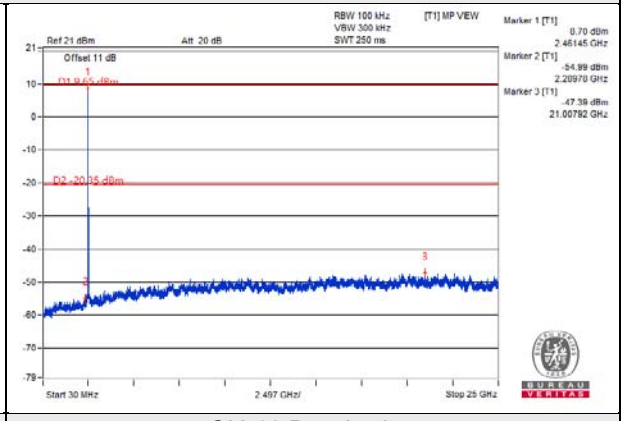
CH 6



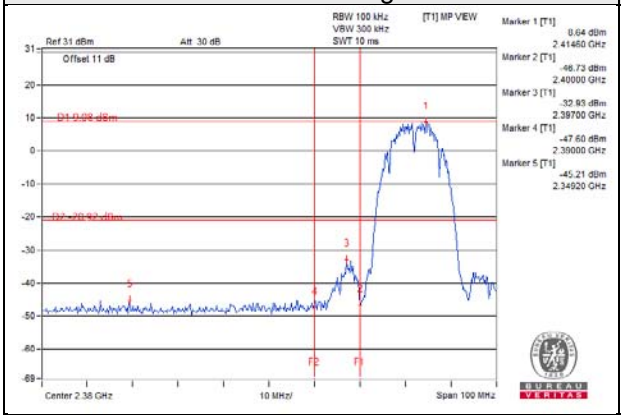


CH 11

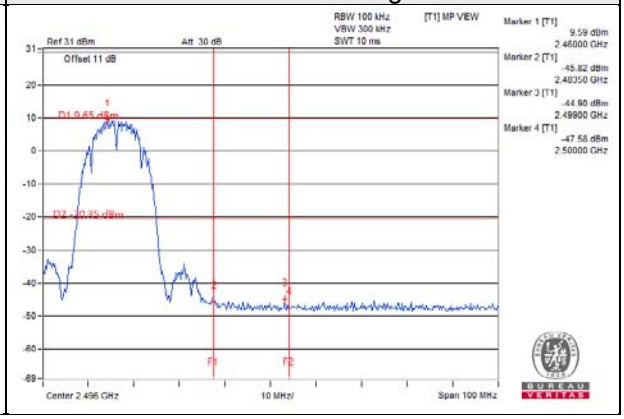




CH 1 Band edge

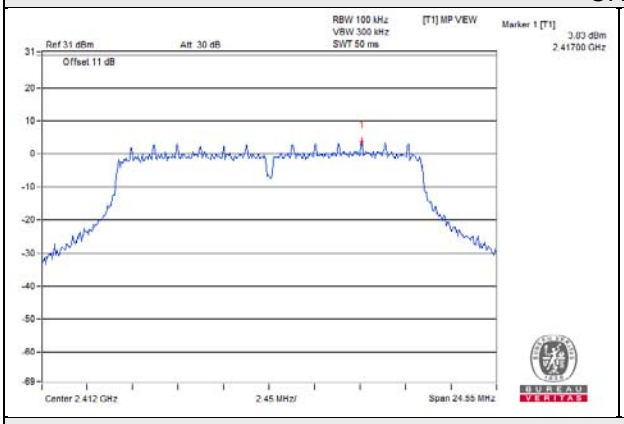


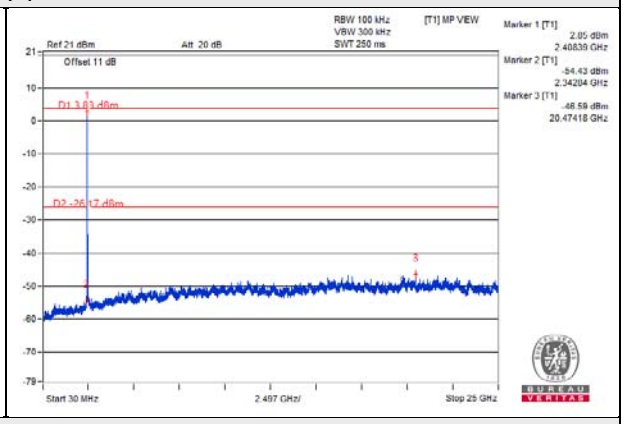
CH 11 Band edge



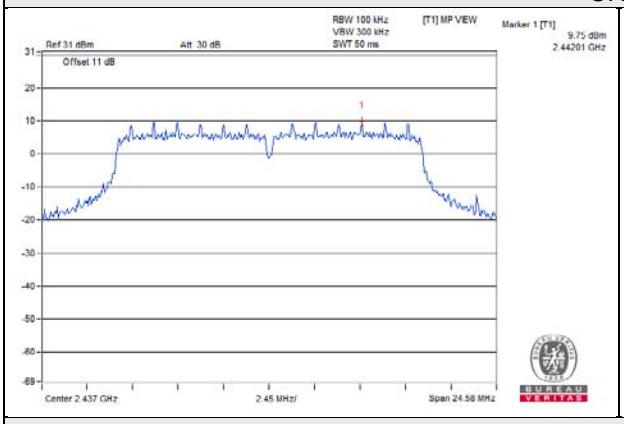
802.11g_Chain 0

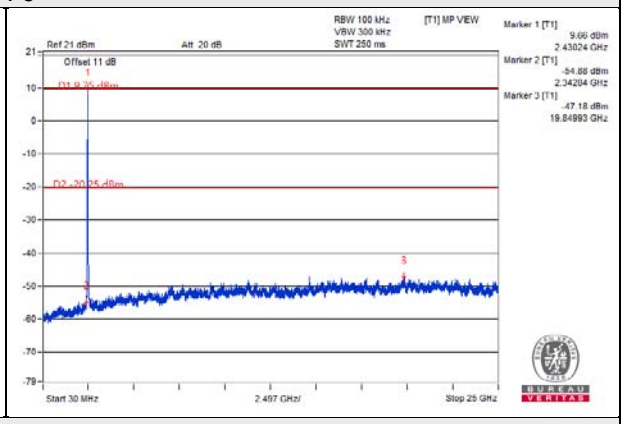
CH 1



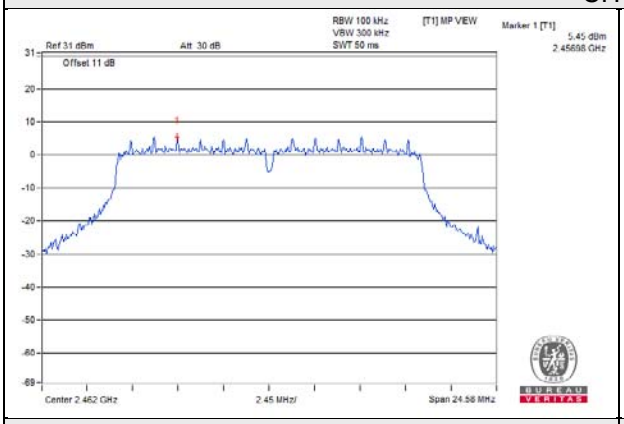


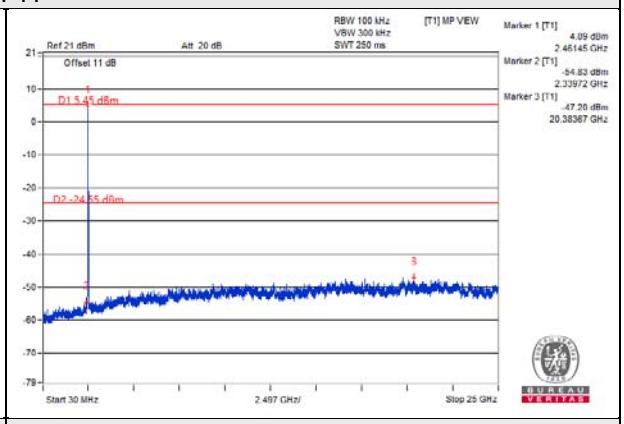
CH 6



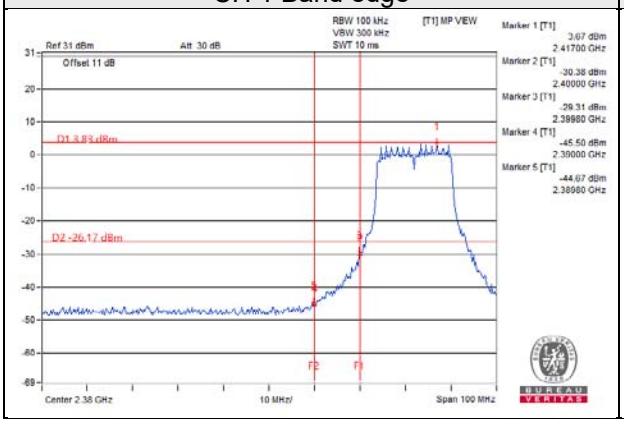


CH 11

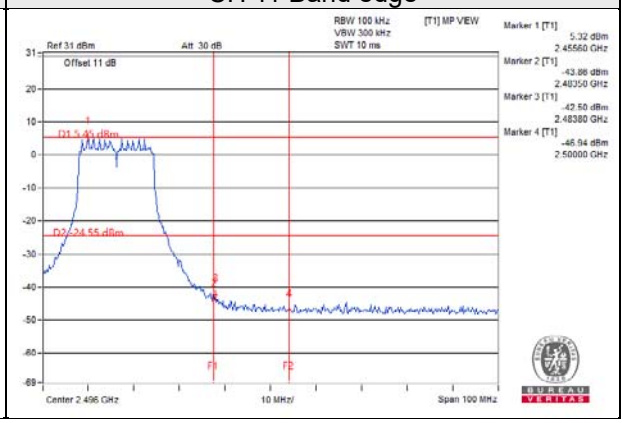




CH 1 Band edge

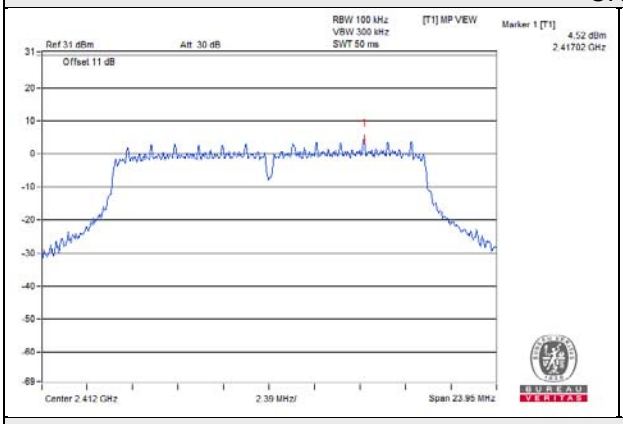


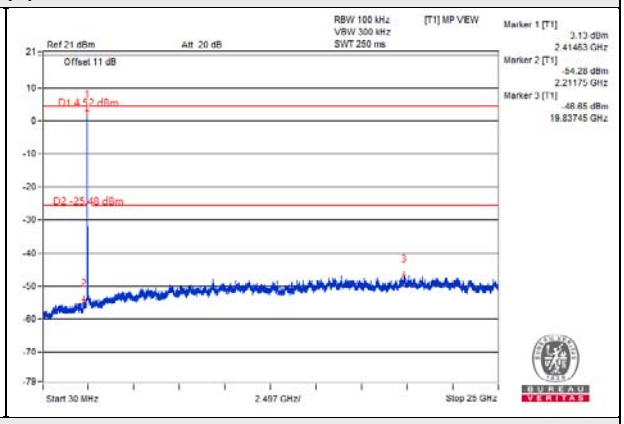
CH 11 Band edge



802.11g_Chain 1

CH 1





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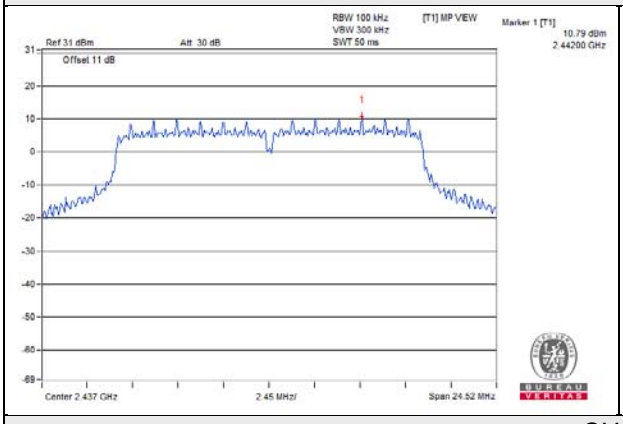
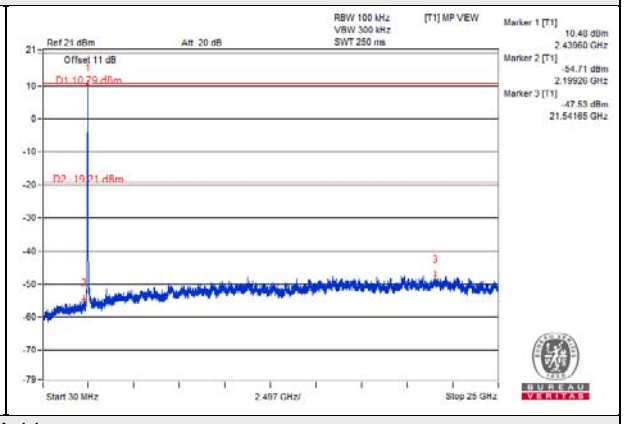
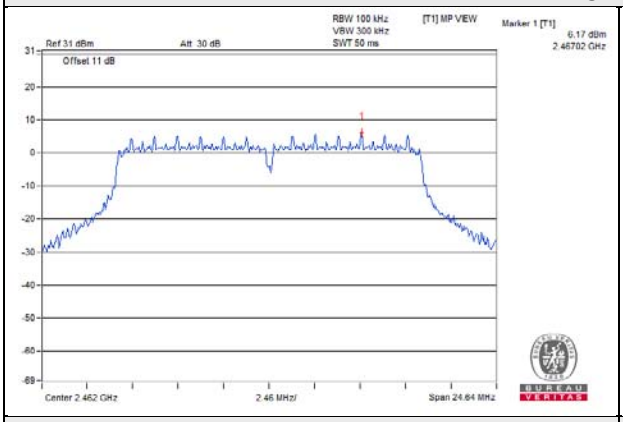
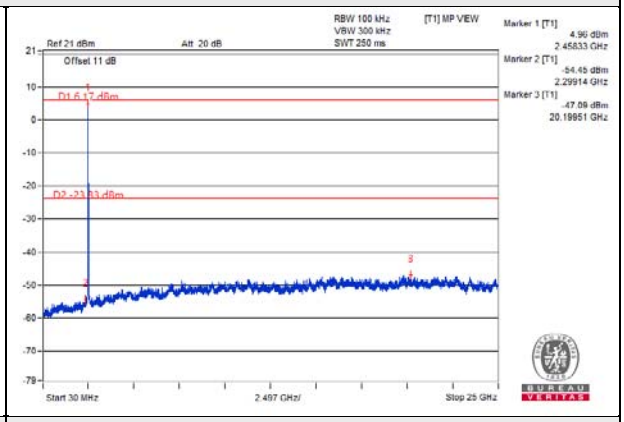


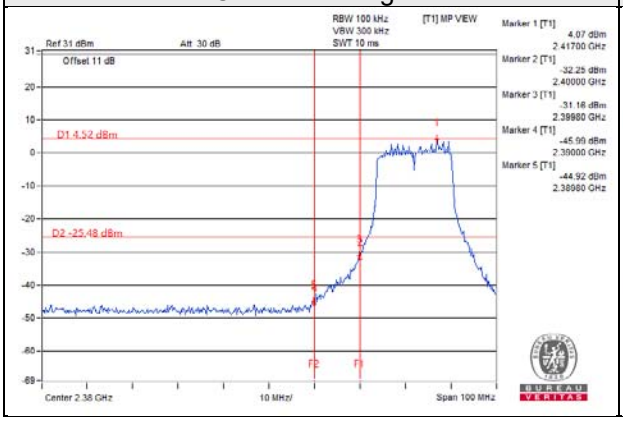


CH 11

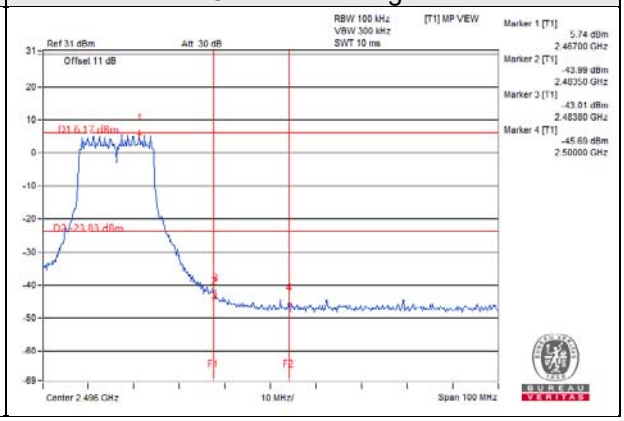




CH 1 Band edge

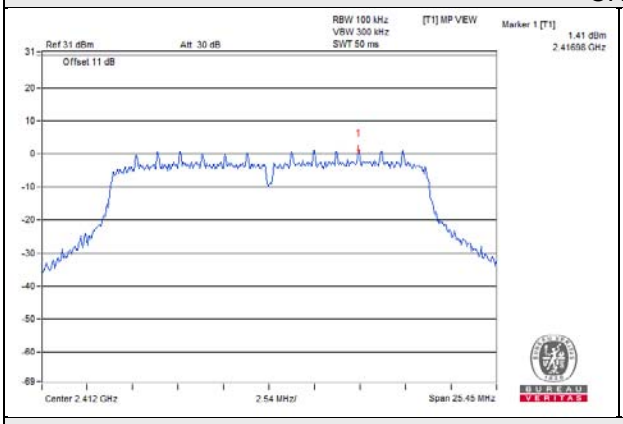


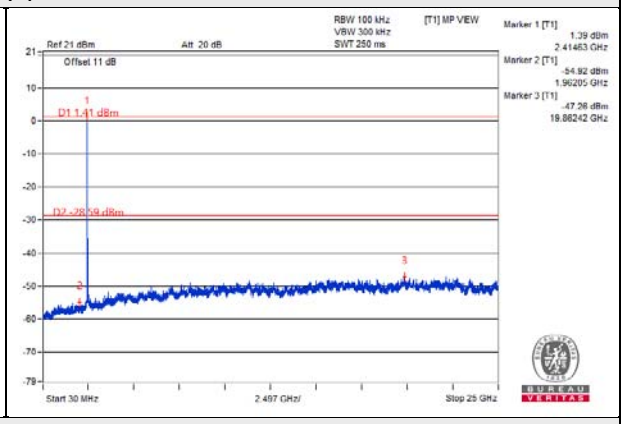
CH 11 Band edge



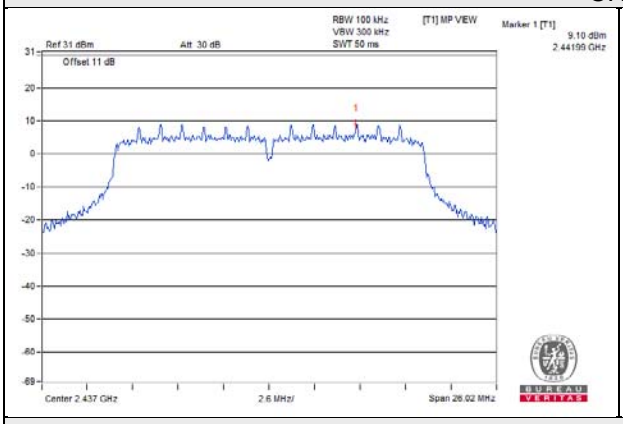
802.11ac (VHT20)_Chain 0

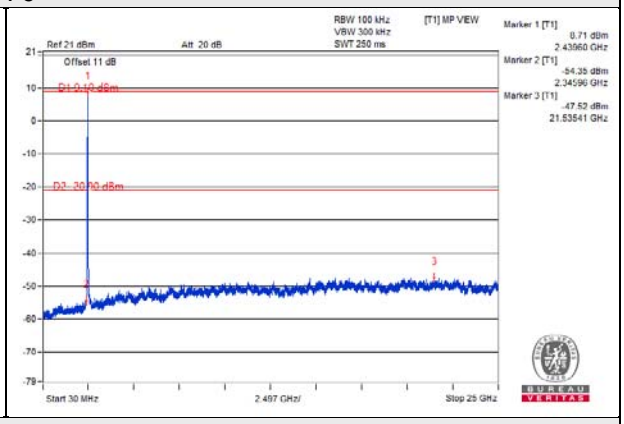
CH 1



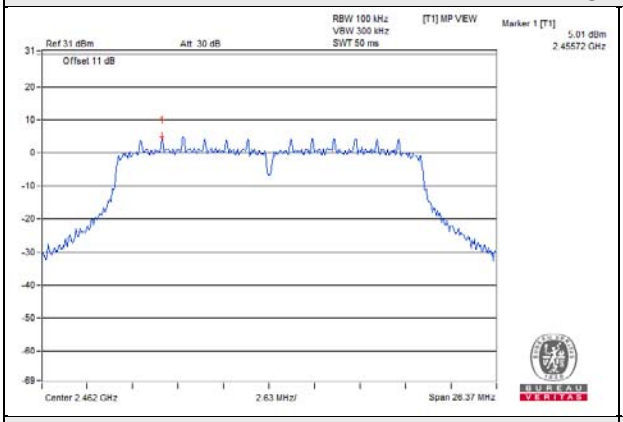


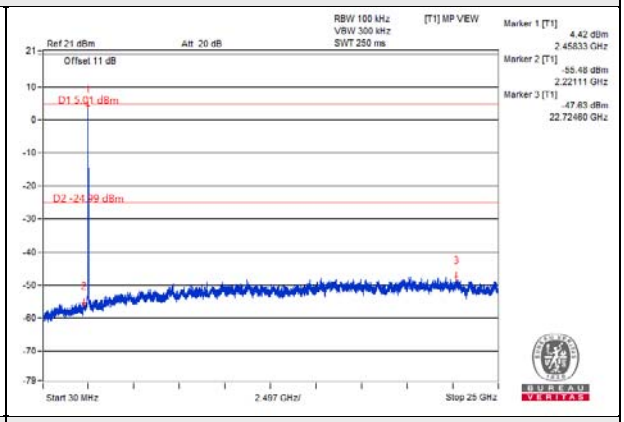
CH 6



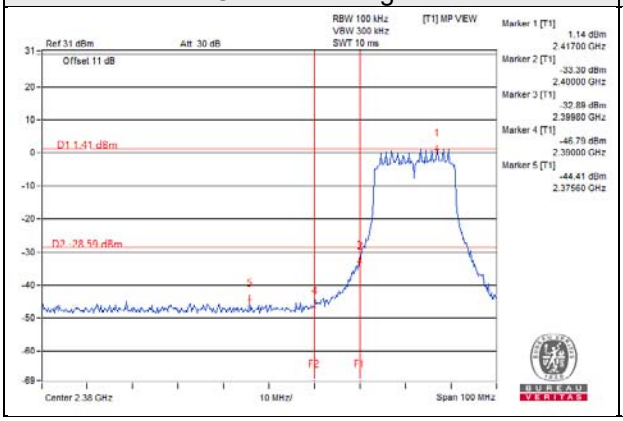


CH 11

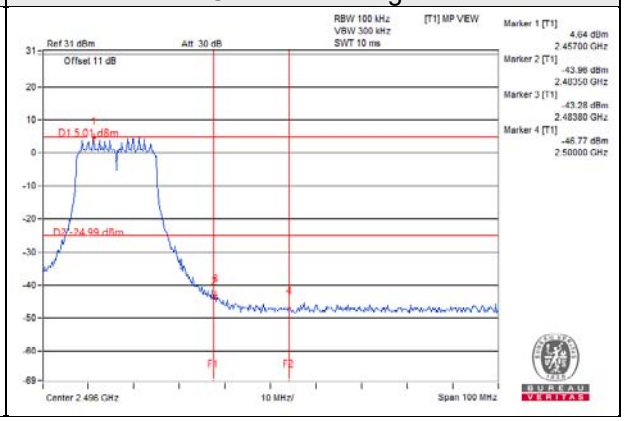




CH 1 Band edge

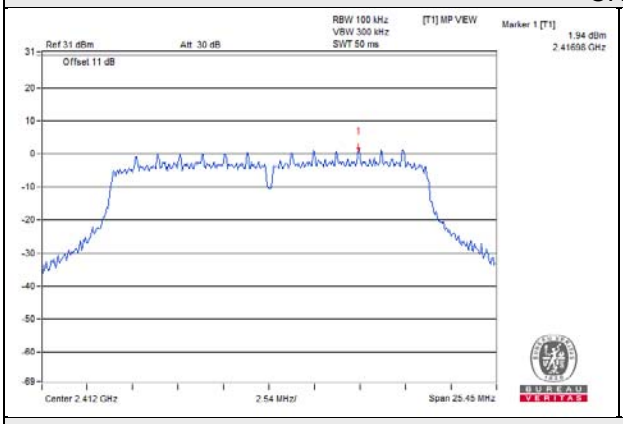


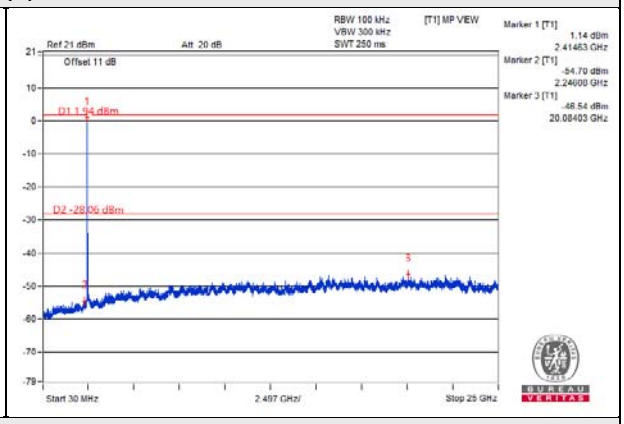
CH 11 Band edge



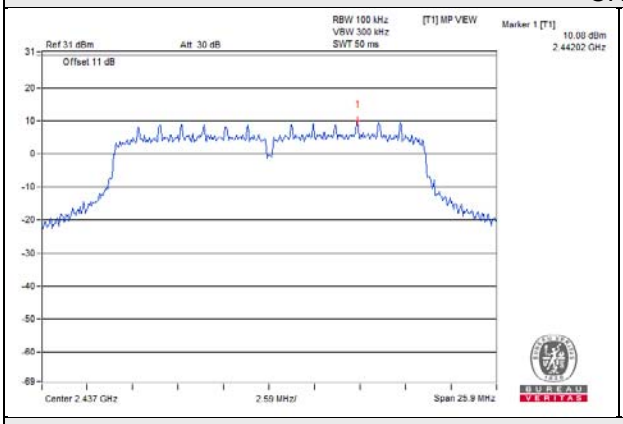
802.11ac (VHT20)_Chain 1

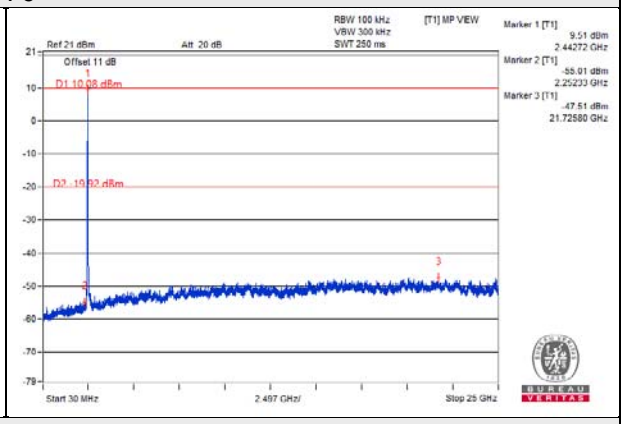
CH 1



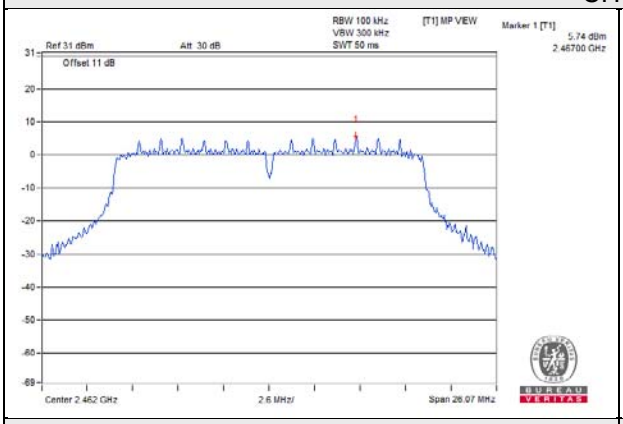


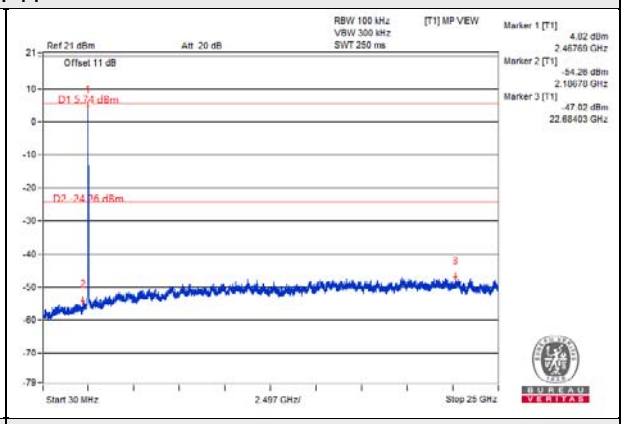
CH 6



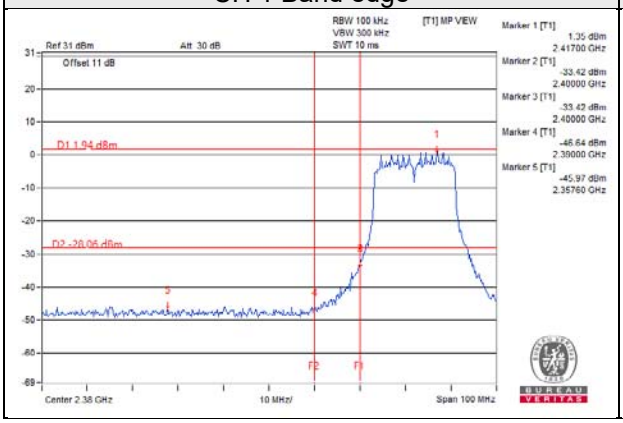


CH 11

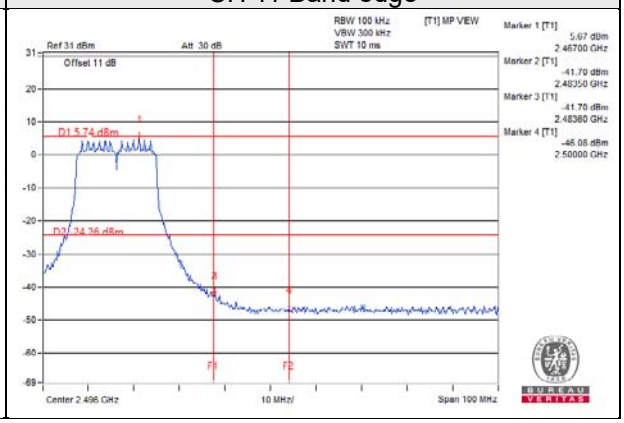




CH 1 Band edge

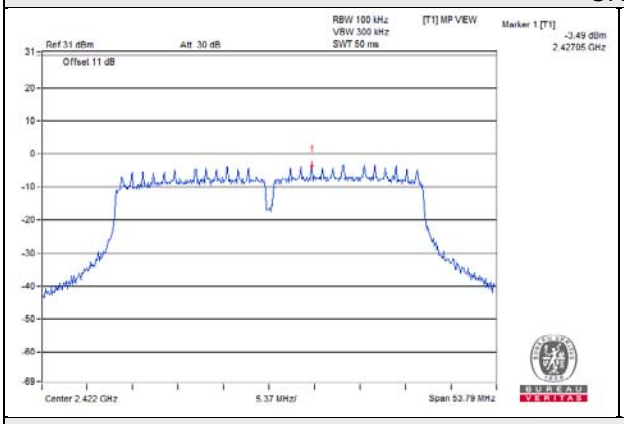


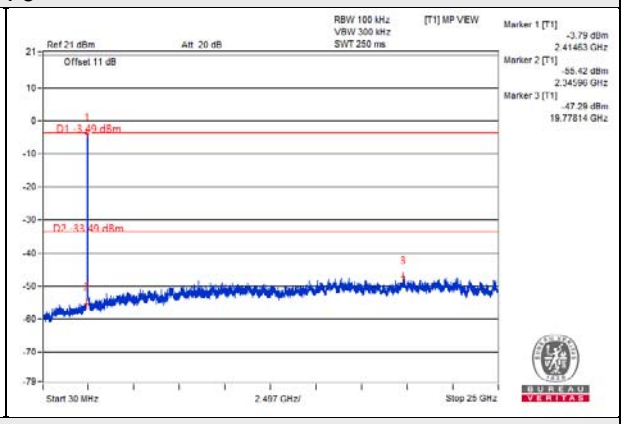
CH 11 Band edge



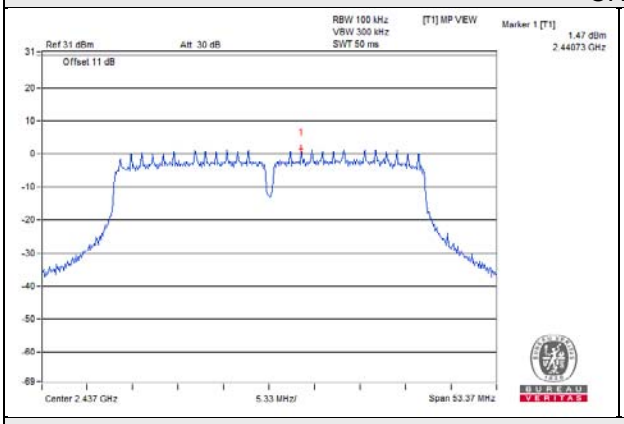
802.11ac (VHT40)_Chain 0

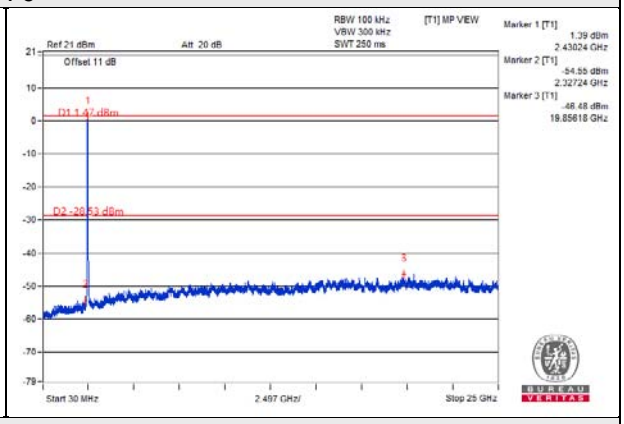
CH 3



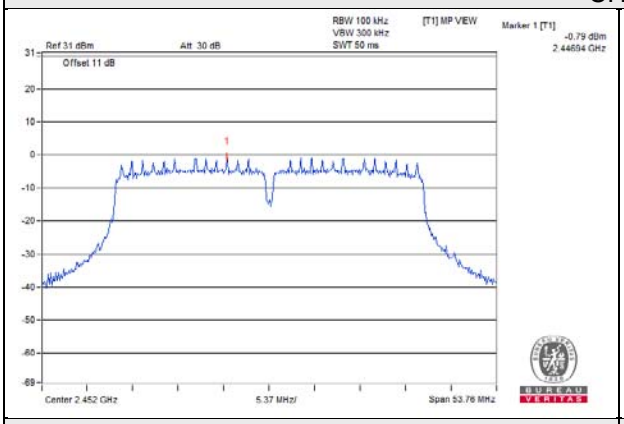


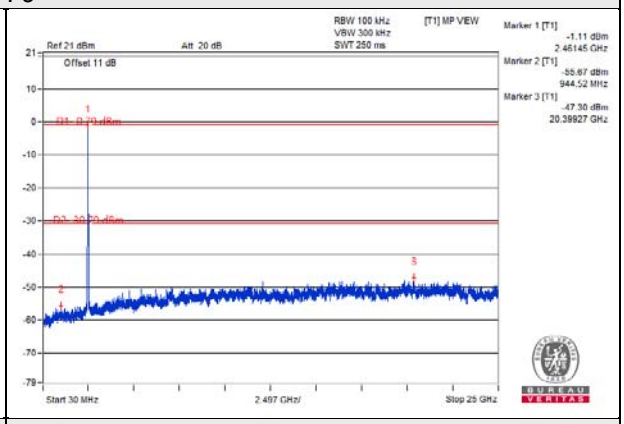
CH 6



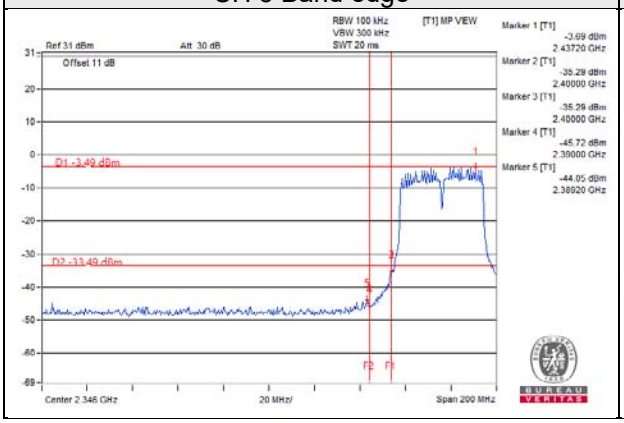


CH 9

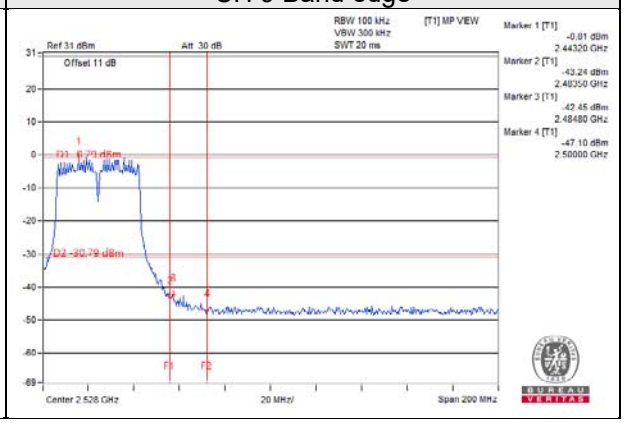




CH 3 Band edge

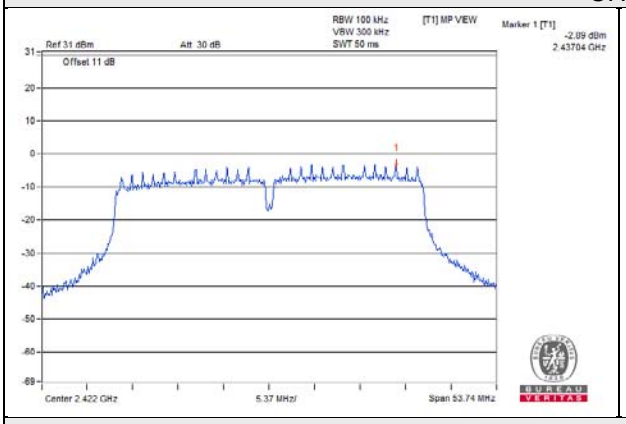


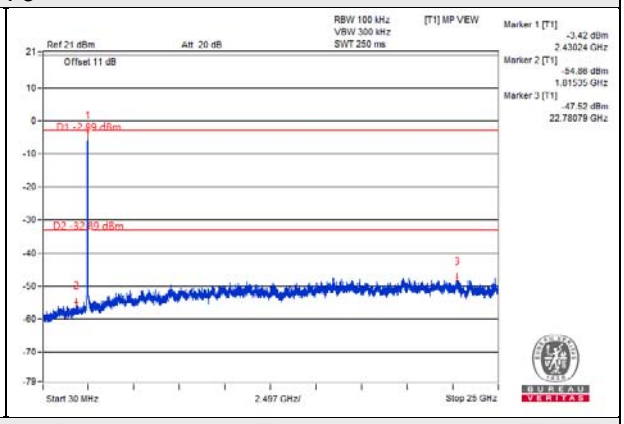
CH 9 Band edge



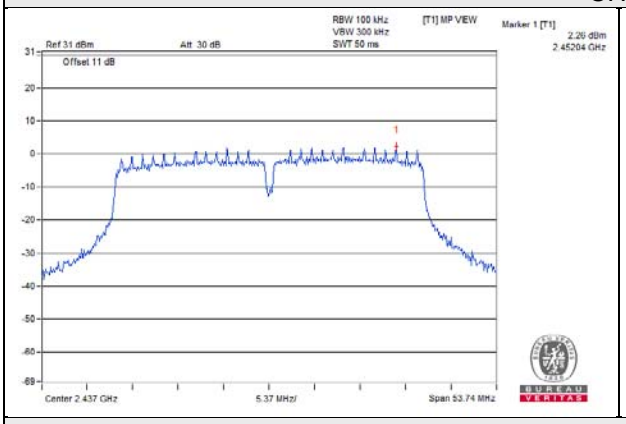
802.11ac (VHT40)_Chain 1

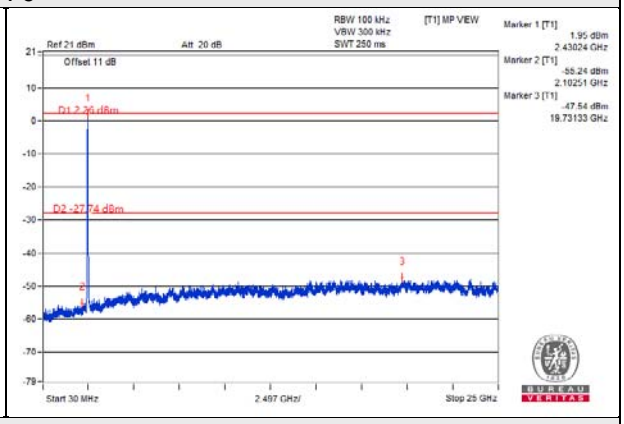
CH 3



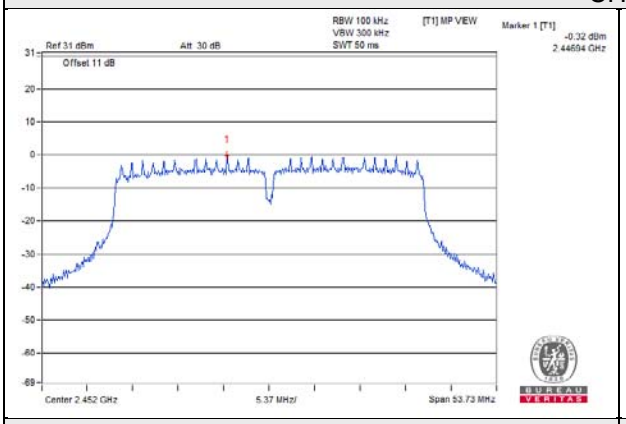


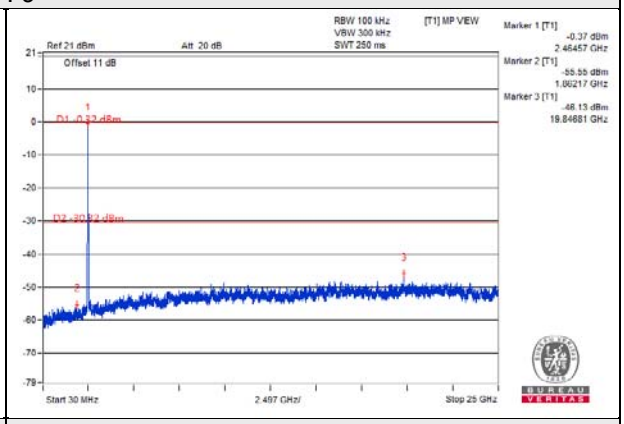
CH 6



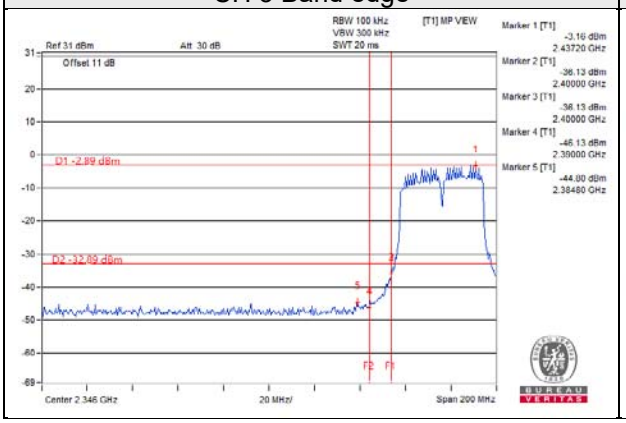


CH 9

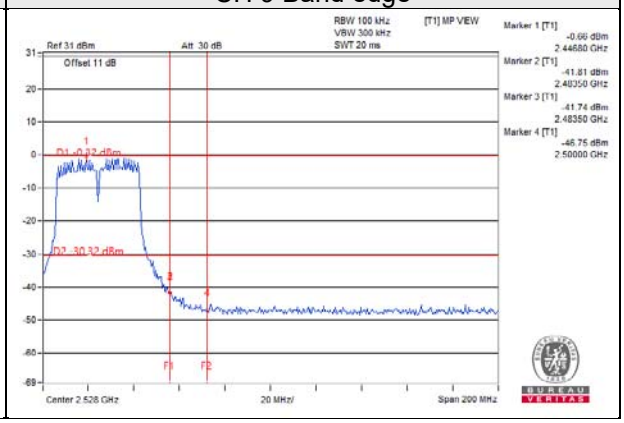




CH 3 Band edge



CH 9 Band edge



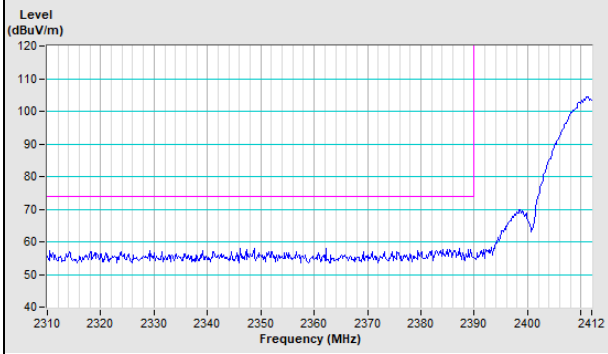
Annex A- Band Edge Measurement

2G traffic radio:

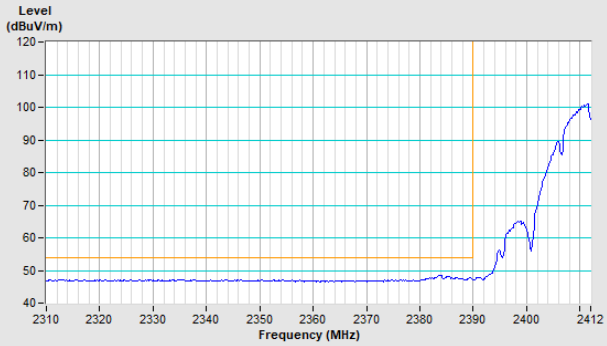
802.11b

Channel 1

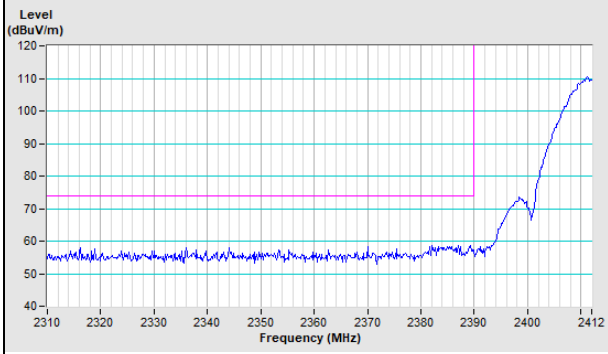
Horizontal (Peak)



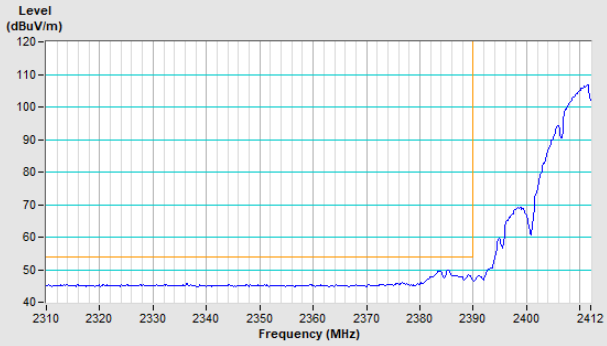
Horizontal (Average)



Vertical (Peak)

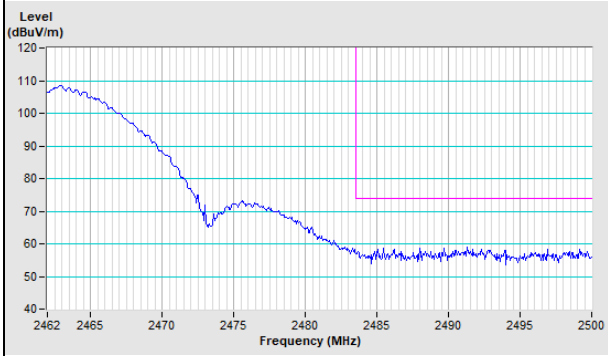


Vertical (Average)

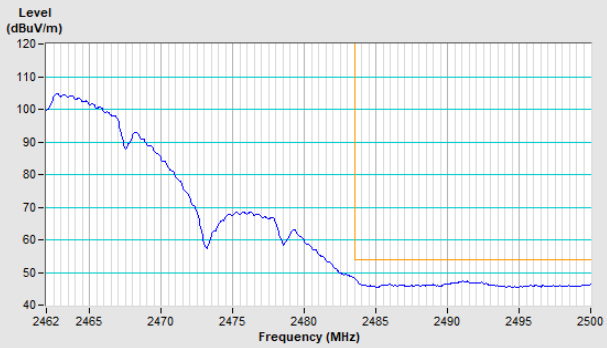


Channel 11

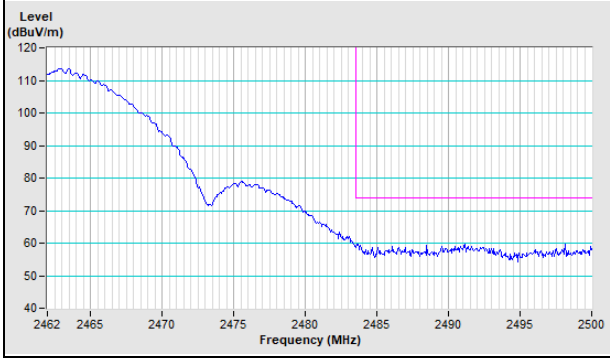
Horizontal (Peak)



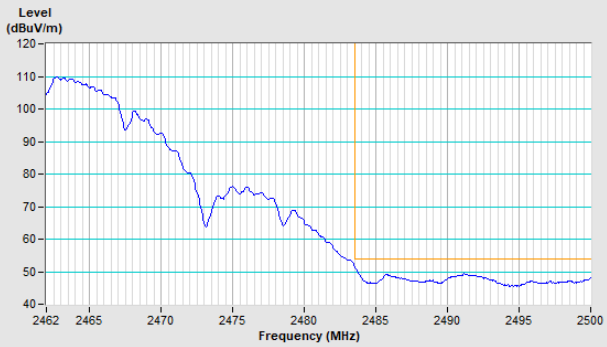
Horizontal (Average)



Vertical (Peak)



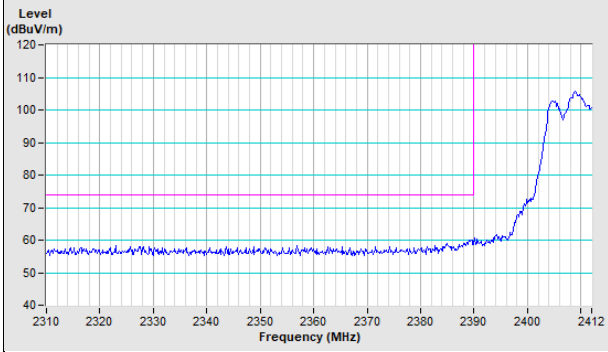
Vertical (Average)



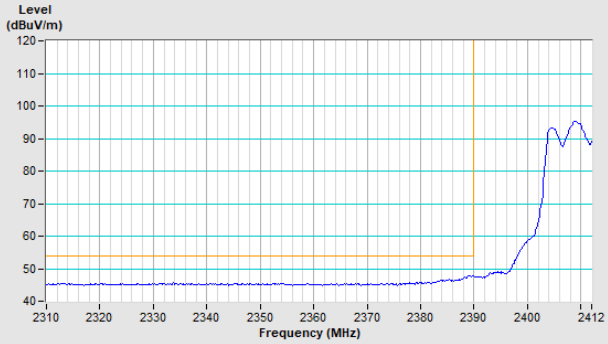
802.11g

Channel 1

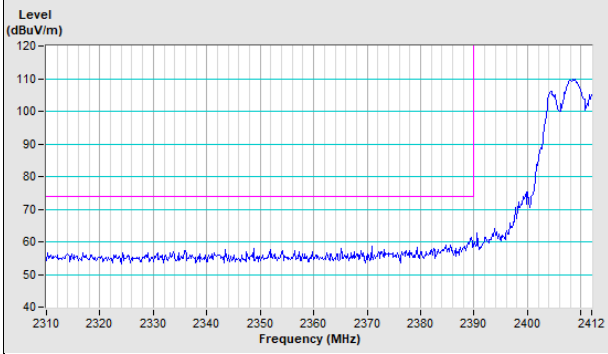
Horizontal (Peak)



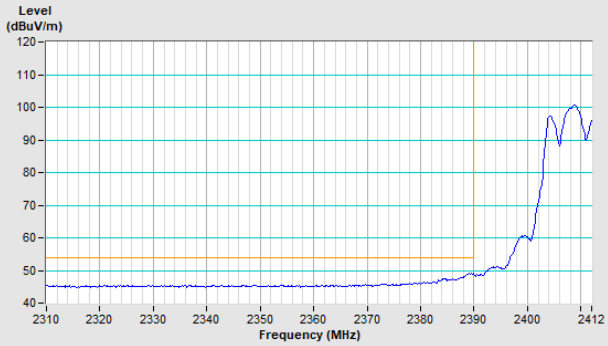
Horizontal (Average)



Vertical (Peak)

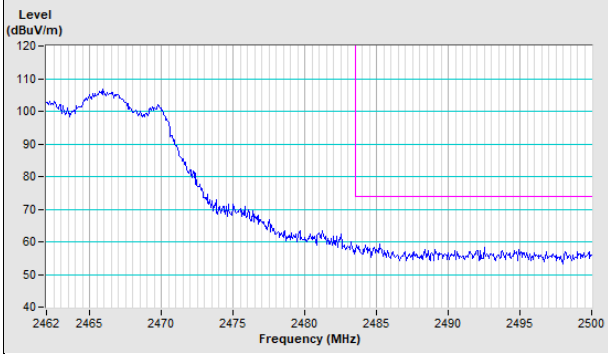


Vertical (Average)

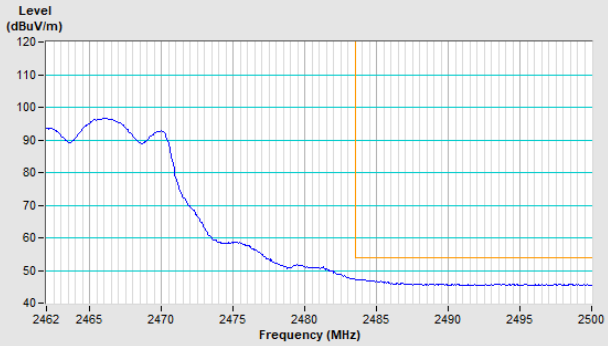


Channel 11

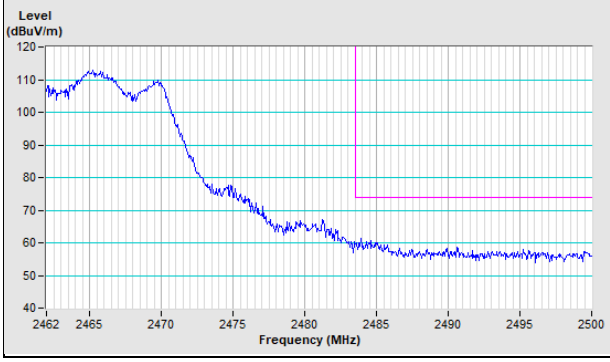
Horizontal (Peak)



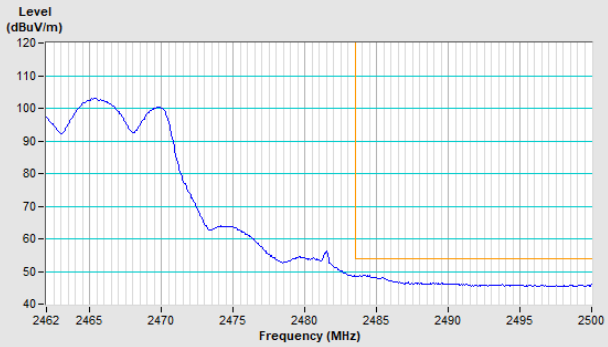
Horizontal (Average)



Vertical (Peak)



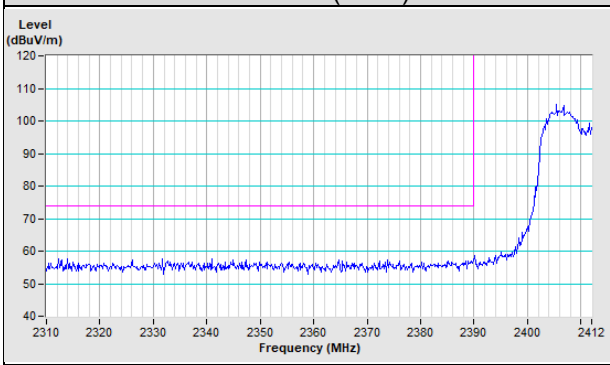
Vertical (Average)



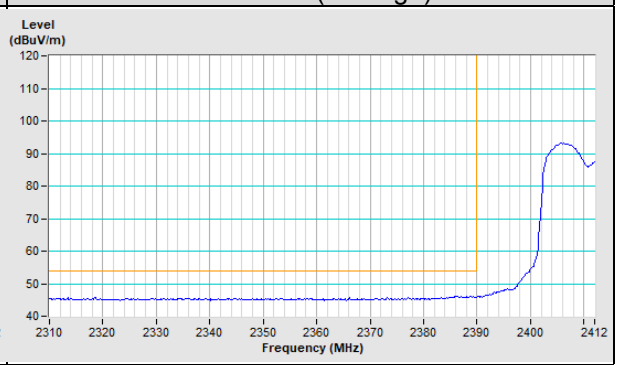
802.11ax (HE20)

Channel 1

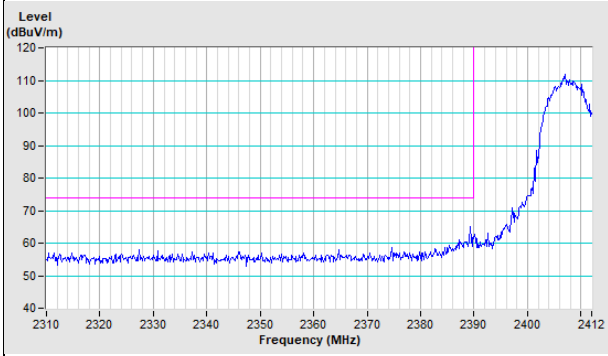
Horizontal (Peak)



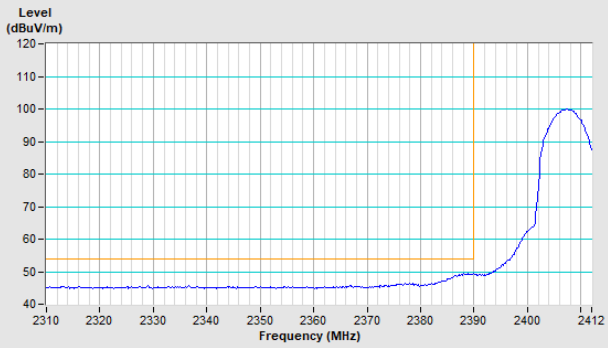
Horizontal (Average)



Vertical (Peak)

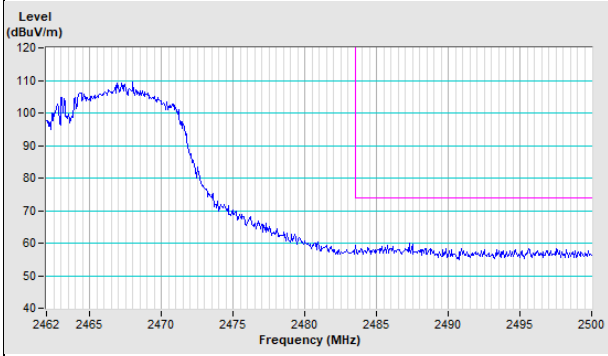


Vertical (Average)

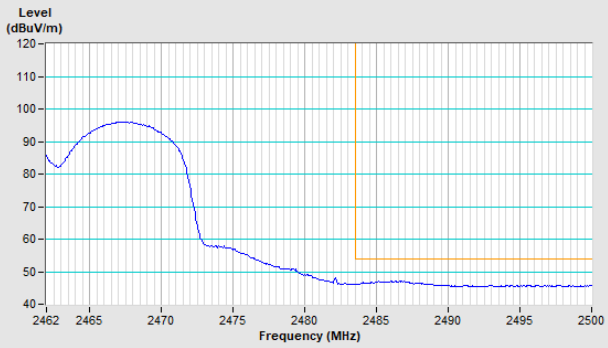


Channel 11

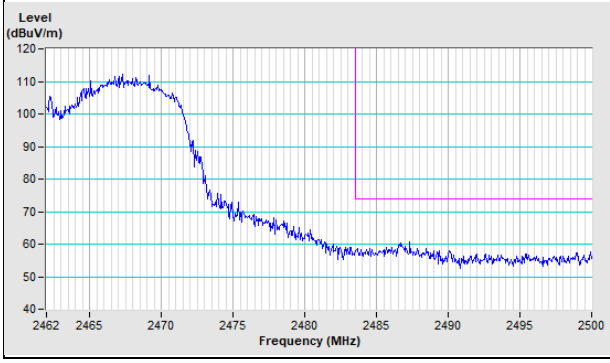
Horizontal (Peak)



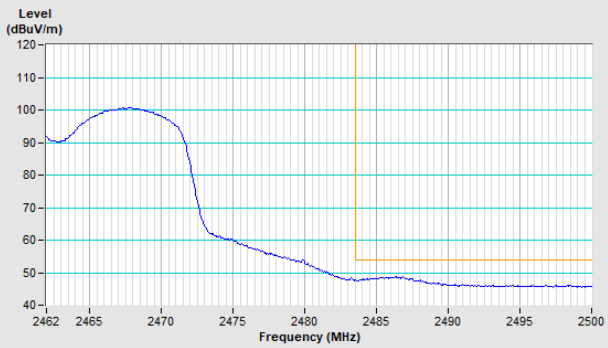
Horizontal (Average)



Vertical (Peak)



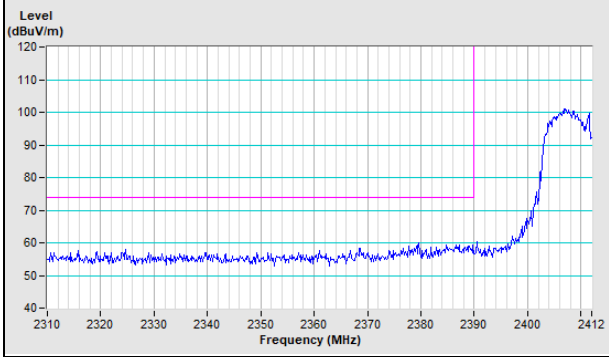
Vertical (Average)



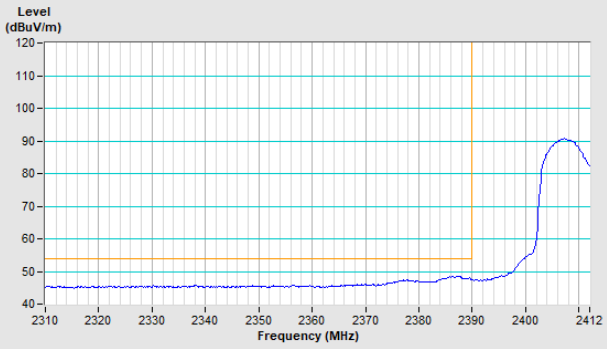
802.11ax (HE40)

Channel 3

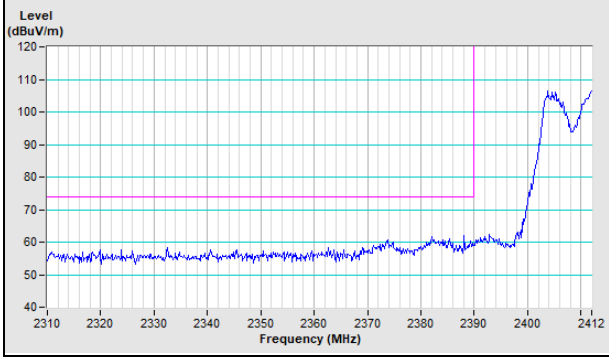
Horizontal (Peak)



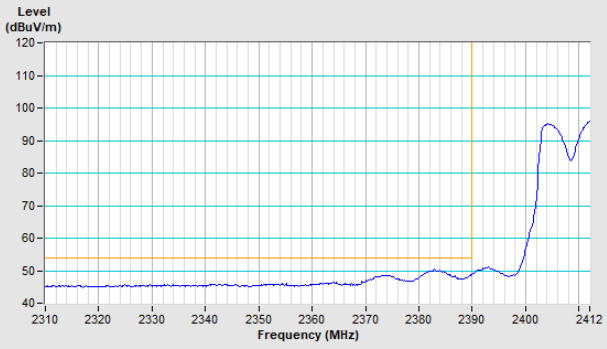
Horizontal (Average)



Vertical (Peak)

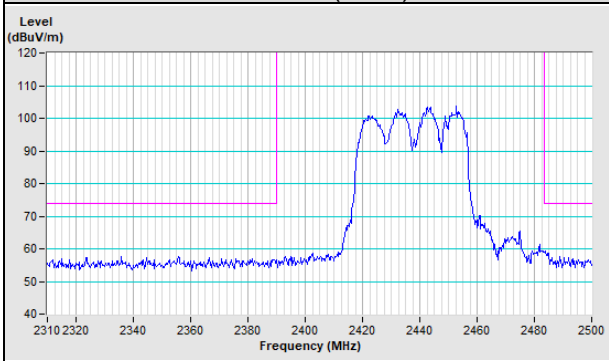


Vertical (Average)

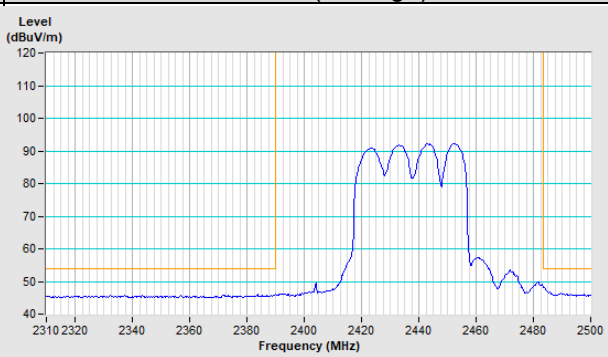


Channel 6

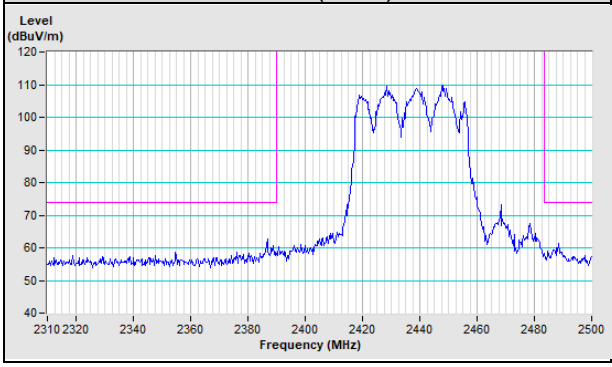
Horizontal (Peak)



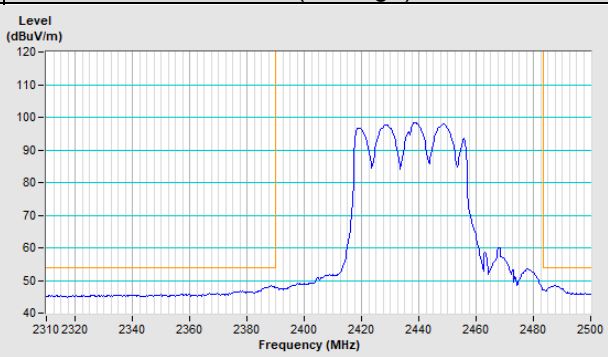
Horizontal (Average)

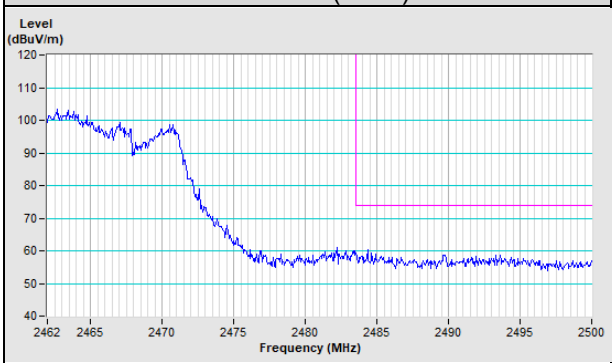
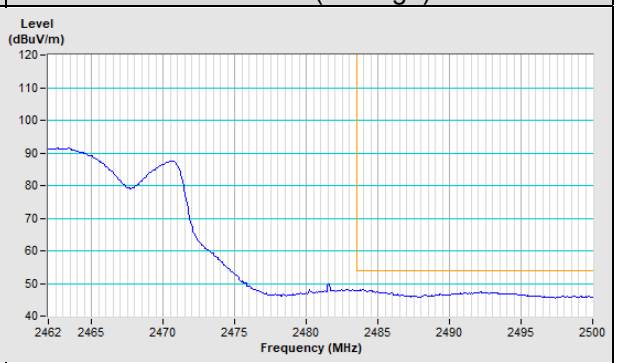
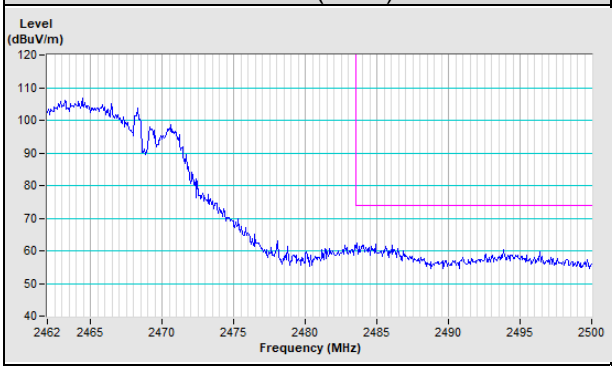
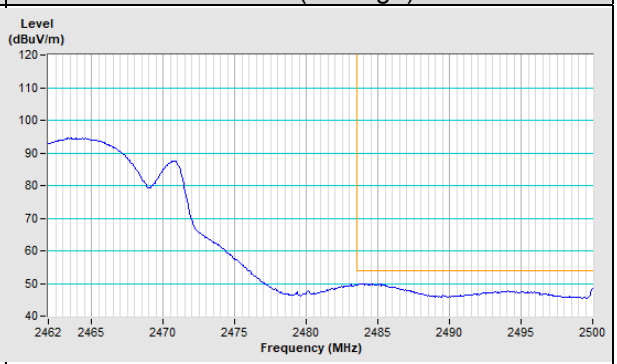


Vertical (Peak)



Vertical (Average)



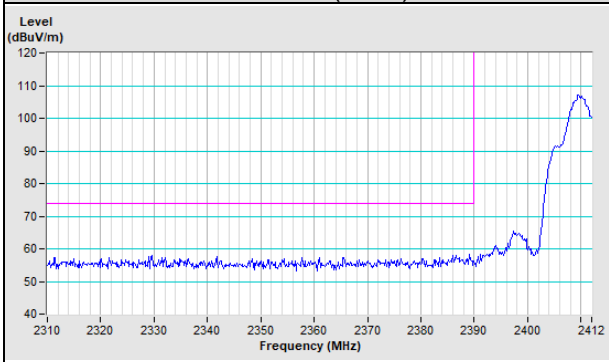
Channel 9	
Horizontal (Peak)	Horizontal (Average)
	
Vertical (Peak)	Vertical (Average)
	

Scanning radio:

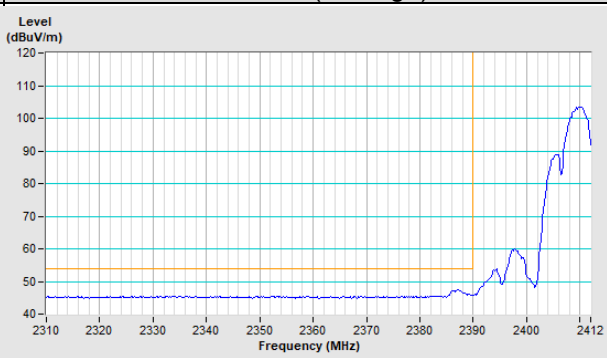
802.11b

Channel 1

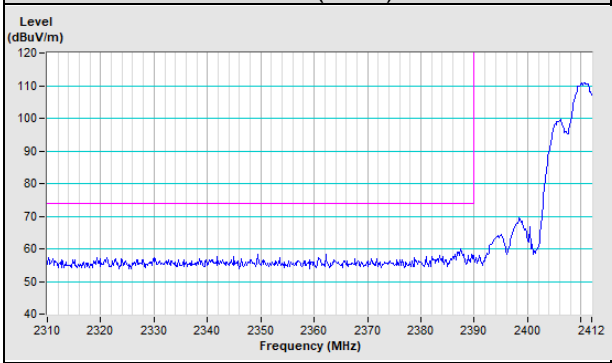
Horizontal (Peak)



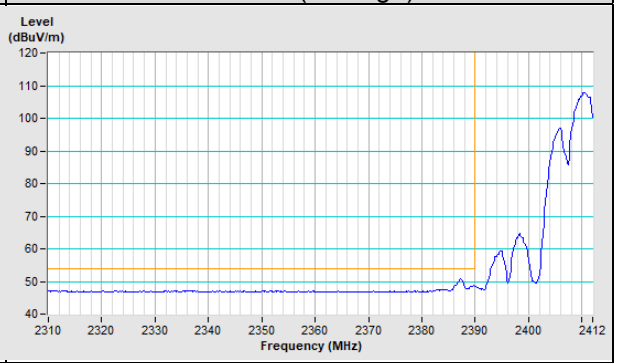
Horizontal (Average)



Vertical (Peak)

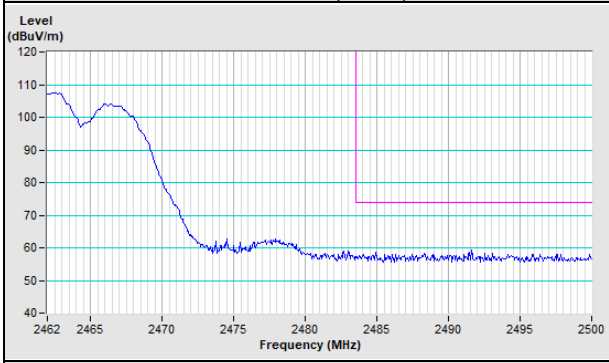


Vertical (Average)

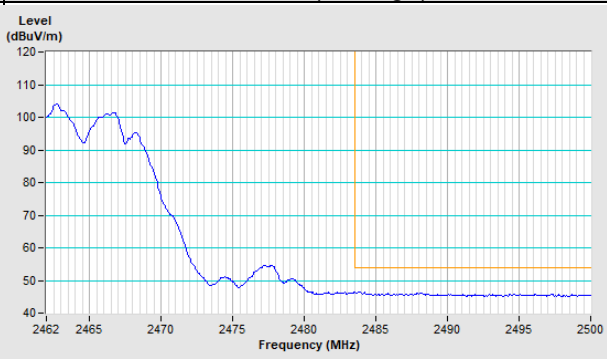


Channel 11

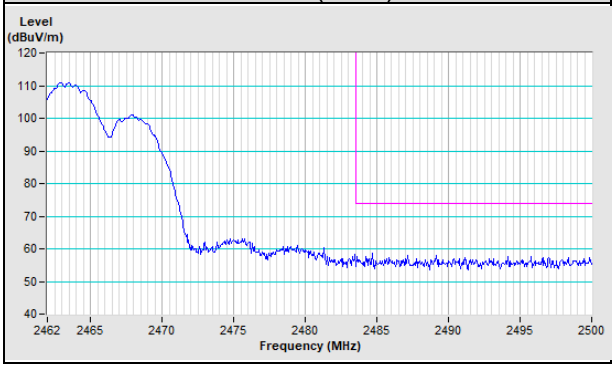
Horizontal (Peak)



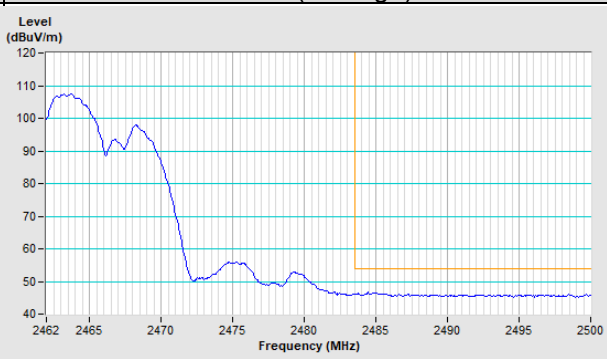
Horizontal (Average)



Vertical (Peak)



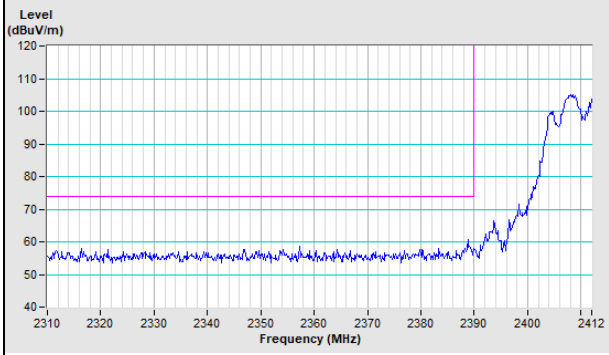
Vertical (Average)



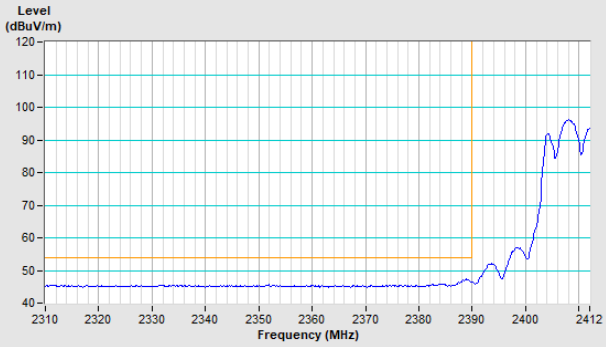
802.11g

Channel 1

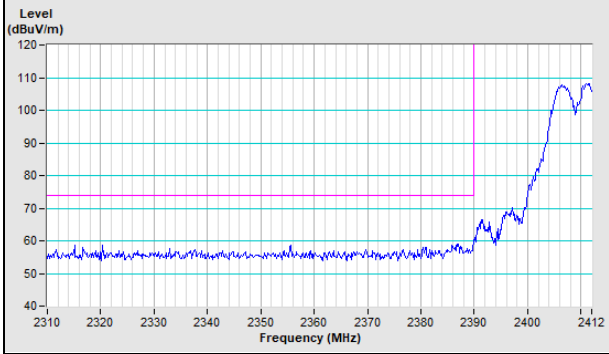
Horizontal (Peak)



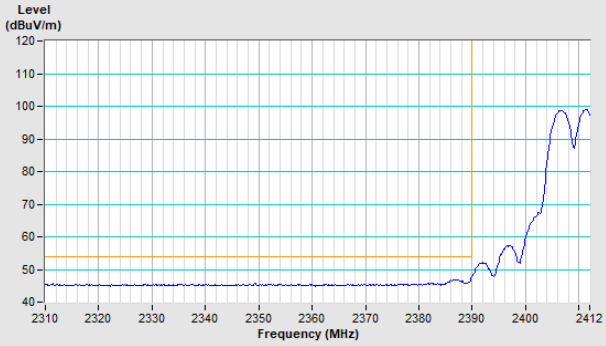
Horizontal (Average)



Vertical (Peak)

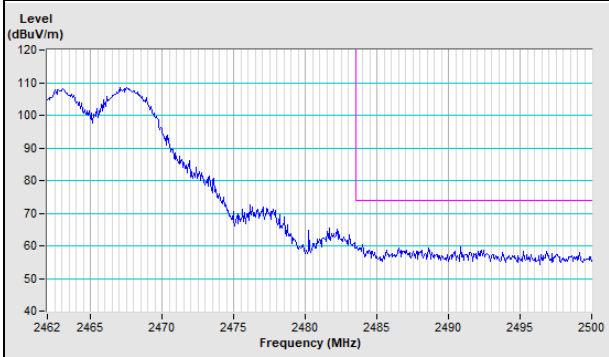


Vertical (Average)

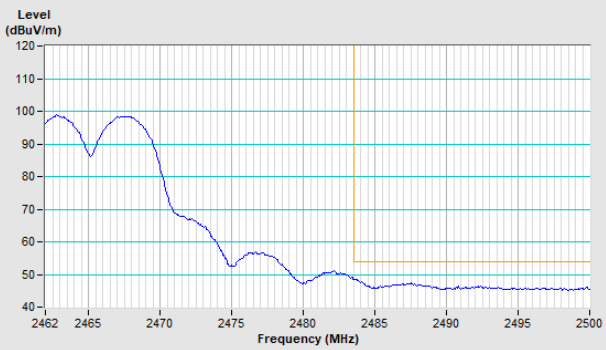


Channel 11

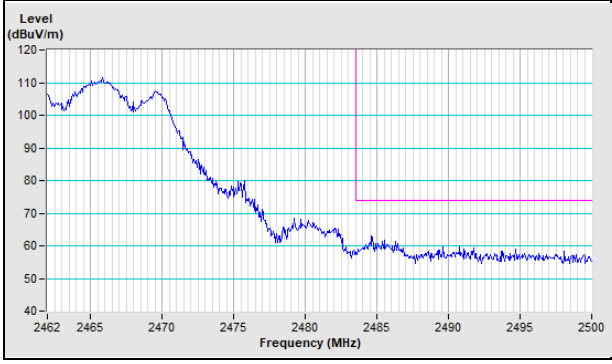
Horizontal (Peak)



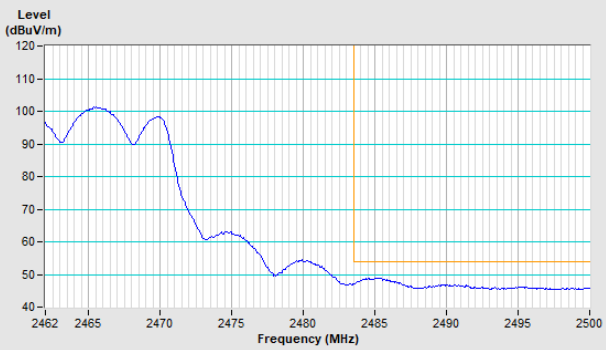
Horizontal (Average)



Vertical (Peak)



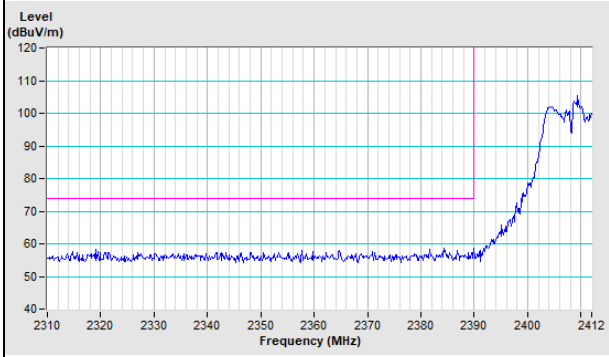
Vertical (Average)



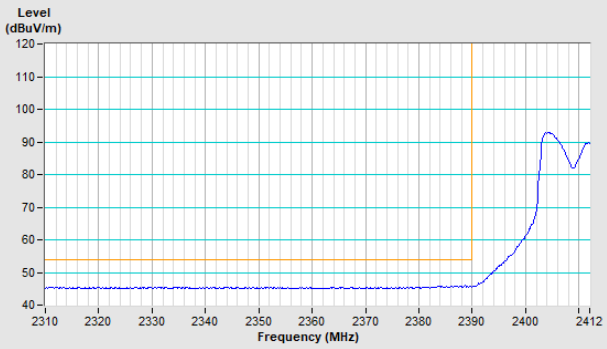
802.11ac (VHT20)

Channel 1

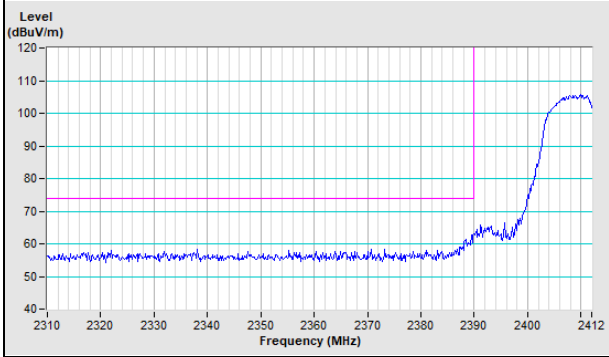
Horizontal (Peak)



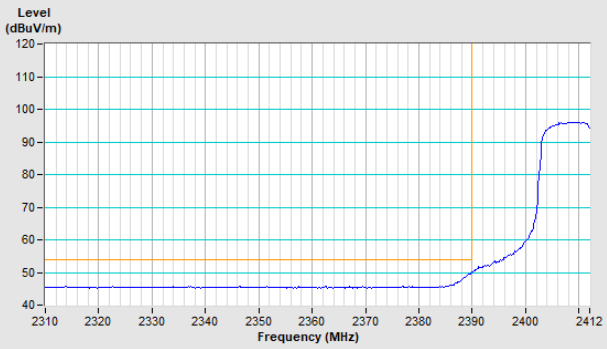
Horizontal (Average)



Vertical (Peak)

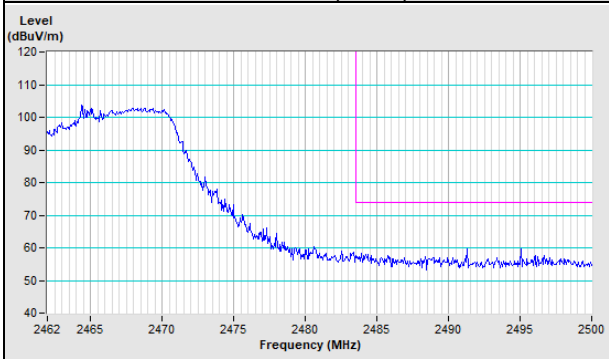


Vertical (Average)

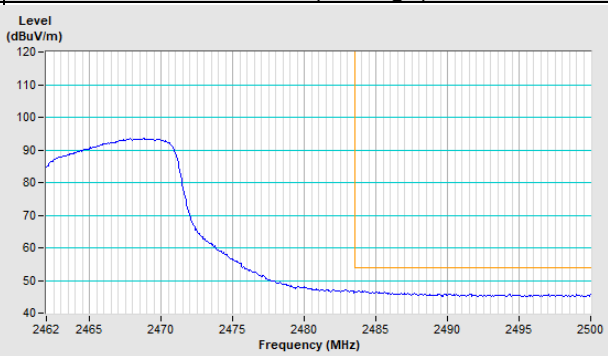


Channel 11

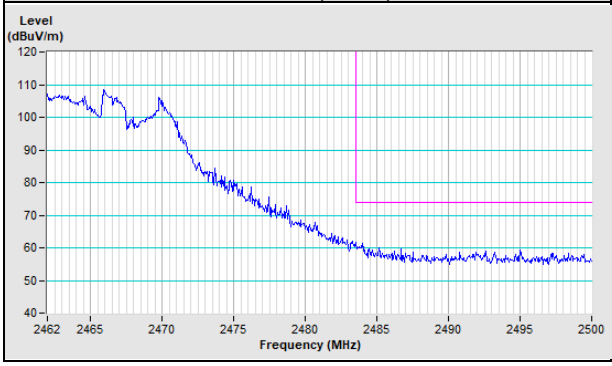
Horizontal (Peak)



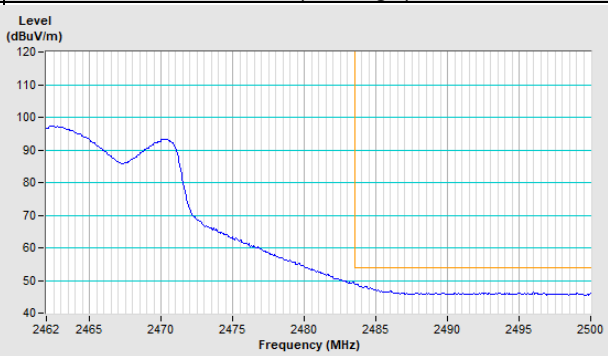
Horizontal (Average)



Vertical (Peak)



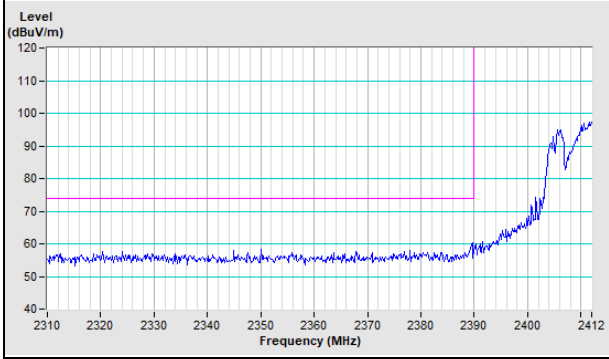
Vertical (Average)



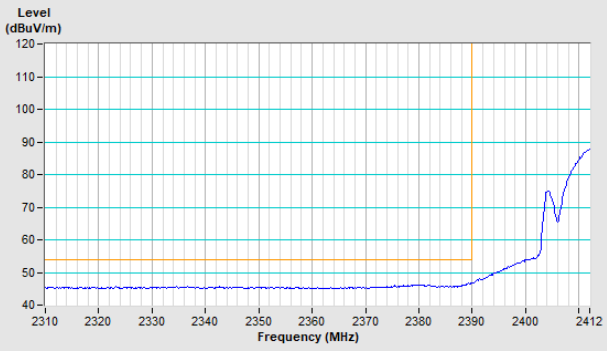
802.11ac (VHT40)

Channel 3

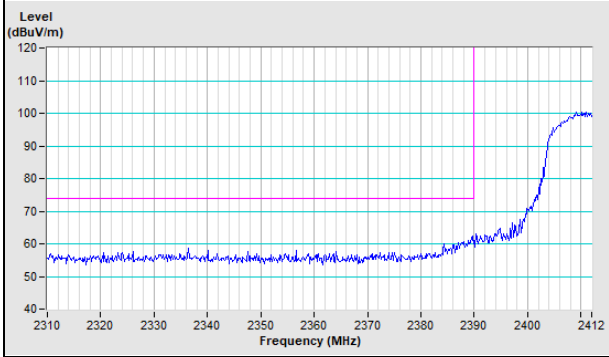
Horizontal (Peak)



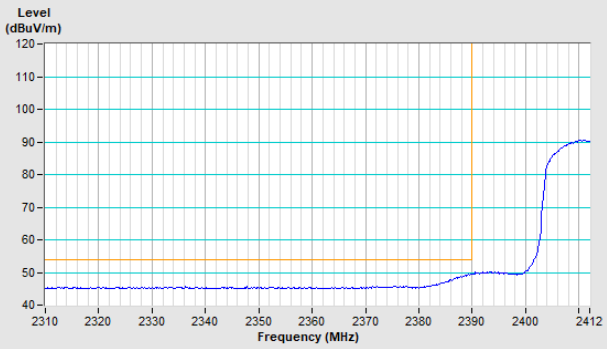
Horizontal (Average)



Vertical (Peak)

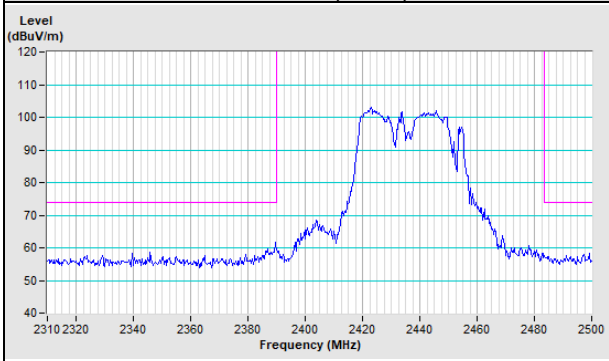


Vertical (Average)



Channel 6

Horizontal (Peak)



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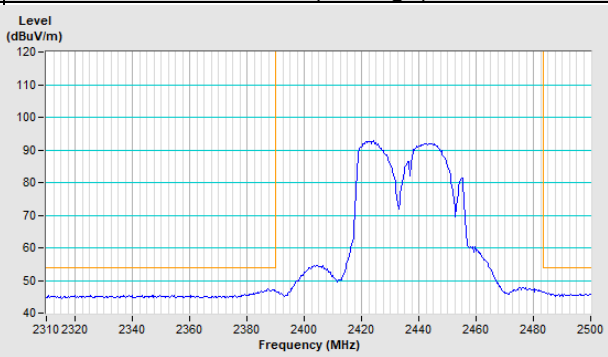
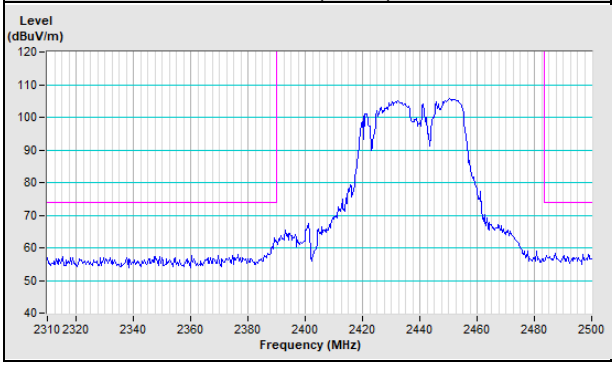
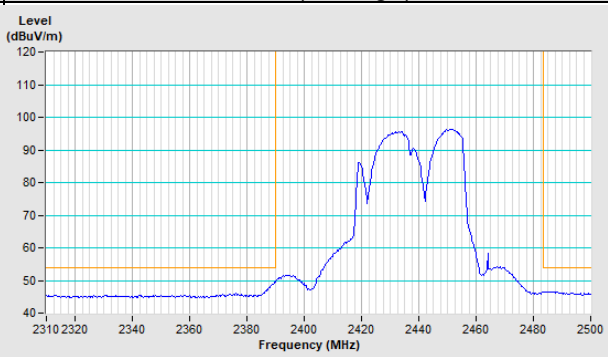
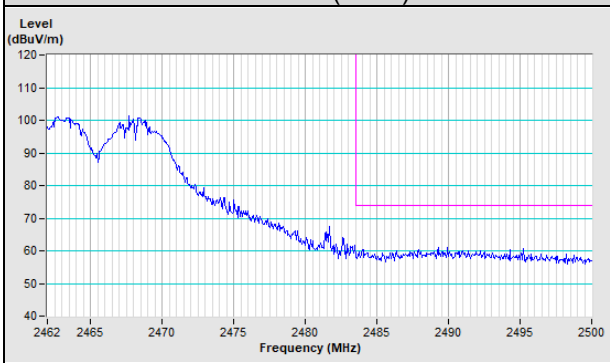
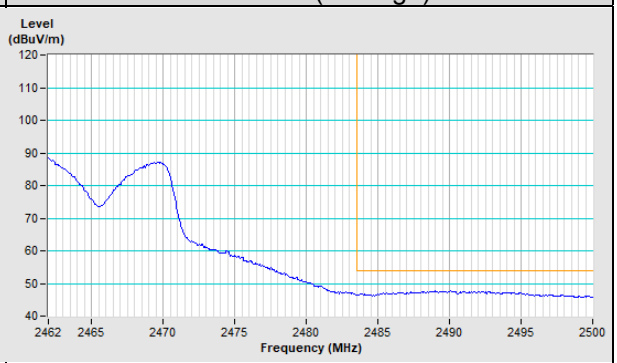
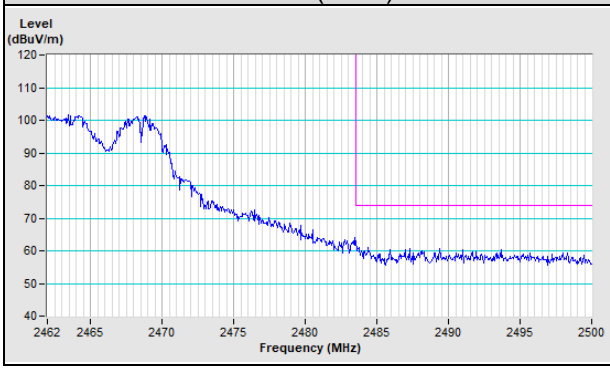
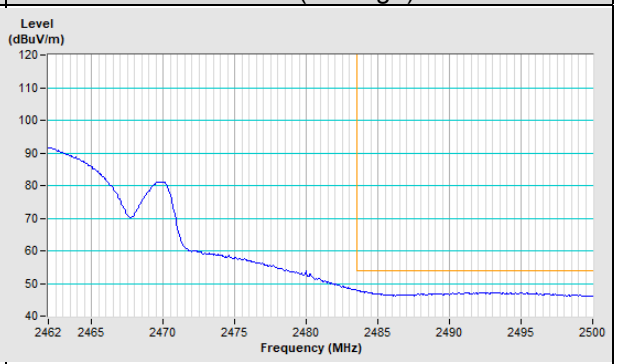


Vertical (Peak)



Vertical (Average)



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

5 Pictures of Test Arrangements

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

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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Web Site: www.bureauveritas-adt.com

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

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