FCC Test Report

Report No.:	RFBHJS-WTW-P20080536
FCC ID:	PD5-NWA1000
Test Model:	NWA1000
Received Date:	Aug. 27, 2020
Test Date:	Sep. 04, 2020 ~ Jun. 10, 2021
Issued Date:	Jun. 18, 2021
Applicant:	Delta Electronics, Inc.
Address:	No.252, Shang Ying Rd., Kuei San District, Taoyuan City 33341, Taiwan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., 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
RFBHJS-WTW-P20080536	Original release	Jun. 18, 2021

1 Certificate of Conformity

Product:	Wireless Access Point
Brand:	Nile Global
Test Model:	NWA1000
Sample Status:	Engineering sample
Applicant:	Delta Electronics, Inc.
Test Date:	Sep. 04, 2020 ~ Jun. 10, 2021
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 : _____ , **Date:** Jun. 18, 2021

Polly Chien / Specialist

Approved by : _____ , **Date:** Jun. 18, 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 -5.66dB at 2.81400MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.1dB at 2390.00MHz.
15.247(d)	Antenna Port Emission	Pass	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	Pass	Meet the requirement of limit.
15.247(b)	Conducted power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is 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	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.86 dB
Radiated Emissions above 1 GHz	200MHz ~1000MHz	3.87 dB
	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	Nile Global
Test Model	NWA1000
Sample Status	Engineering sample
Power Supply Rating	12Vdc from Adapter 55Vdc from PoE
Modulation Type	CCK, DQPSK, DBPSK for DSSS 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDMA
Modulation Technology	DSSS, OFDM, OFDMA
Transfer Rate	802.11b:11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11n (HT20/40): up to 600Mbps 802.11ac (VHT20/40): up to 800Mbps 802.11ax: up to 1181.8Mbps
Operating Frequency	2412~2462MHz
Number of Channel	For QCN-5124 Module: 802.11b, 802.11g, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 11 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 7 For QCA-9889 Module: 802.11b, 802.11g, 802.11n (HT20), 802.11ac (VHT20): 11 802.11n (HT40), 802.11ac (VHT40): 7
Output Power	For QCN-5124 Module: CDD Mode: 627.338mW Beamforming Mode: 378.540mW For QCA-9889 Module: CDD Mode: 72.946mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Refer to Note
Cable Supplied	NA

Note:

1. There are four modules for the EUT.

Module	Function
QCN-5124	WLAN 2.4G (TX/RX)
QCN-5154	WLAN 5G (TX/RX)
QCA-9889	WLAN 2.4G & 5G (TX/RX)
CSR8811	BT LE

2. The EUT uses following adapter & PoE Injector.

Adapter	
Brand	I.T.E
Model	MU42B1120350-A1
Input Power	100-240Vac~50/60Hz 1.5A
Output Power	12Vdc, 3.5A
Power Cable	1.5m non-shielded power cable without core

PoE Injector (Support unit)	
Brand	YAMAHA
Model	YPS-PoE-AT
Input Power	100-240Vac
Output Power	55Vdc

3. The EUT incorporates a MIMO function. Physically, the EUT provides 4 completed transmitters and 4 receivers.

Radio	Modulation Mode	Beamforming Mode	TX Function
QCN-5124 Module	802.11b	Not Support	4TX
	802.11g	Not Support	4TX
	802.11n (HT20)	Not Support	4TX
	802.11n (HT40)	Not Support	4TX
	802.11ac (VHT20)	Support	4TX
	802.11ac (VHT40)	Support	4TX
	802.11ax (HE20)	Support	4TX
	802.11ax (HE40)	Support	4TX
QCA-9889 Module	802.11b	Not Support	1TX
	802.11g	Not Support	1TX
	802.11n (HT20)	Not Support	1TX
	802.11n (HT40)	Not Support	1TX
	802.11ac (VHT20)	Not Support	1TX
	802.11ac (VHT40)	Not Support	1TX

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

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

4. The EUT uses following antennas.

Ant. No.	1	2	3	4	5	6	7	8	9	10 (BLE)
Ant. Type	PIFA		PCB		PIFA		PCB		PIFA	PIFA
Frequency (MHz)	2412-2484				5150-5825				2400-2500/ 5150-5825	2400-2500
Gain (dBi)	4.6	4.2	3.4	3.7	5	5	3	2.3	4.6/5	4.4
Connector	IPEX								IPEX	IPEX

*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.

5. WLAN 2.4GHz and WLAN 5GHz technologies can transmit simultaneously except BT.

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	Module	
A	√	√	√	√	QCN-5124	Power from adapter
B	-	√	√	-		Power from PoE
C	√	√	√	√	QCA-9889	Power from adapter
D	-	√	√	-		Power from PoE

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

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

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

Radiated Emission Test (Above 1GHz):

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)	Remark
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	QCN-5124
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	
A	802.11ax (HE20)	1 to 11	1, 6, 11	OFDMA	BPSK	MCS0	
A	802.11ax (HE40)	3 to 9	3, 6, 9	OFDMA	BPSK	MCS0	
C	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	QCA-9889
C	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	
C	802.11ac (VHT20)	1 to 11	1, 6, 11	OFDM	BPSK	13.5	
C	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	1	OFDMA	BPSK	MCS0	QCN-5124
C, D	802.11b	1 to 11	1	DSSS	DBPSK	1.0	QCA-9889

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	1	OFDMA	BPSK	MCS0	QCN-5124
C, D	802.11b	1 to 11	1	DSSS	DBPSK	1.0	QCA-9889

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	QCN-5124
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	
A	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	
A	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	7.2	
A	802.11ac (VHT20)	1 to 11	1, 6, 11	OFDM	BPSK	13.5	
A	802.11ac (VHT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0	
A	802.11ax (HE20)	1 to 11	1, 6, 11	OFDMA	BPSK	MCS0	
A	802.11ax (HE40)	3 to 9	3, 6, 9	OFDMA	BPSK	MCS0	

*802.11n (HT20)/802.11ac (VHT20), 802.11n (HT40)/802.11ac (VHT40) are for Conducted Output Power Measurement only.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)	Remark
C	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	QCA-9889
C	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	
C	802.11ac (VHT20)	1 to 11	1, 6, 11	OFDM	BPSK	13.5	
C	802.11ac (VHT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0	

Test Condition:

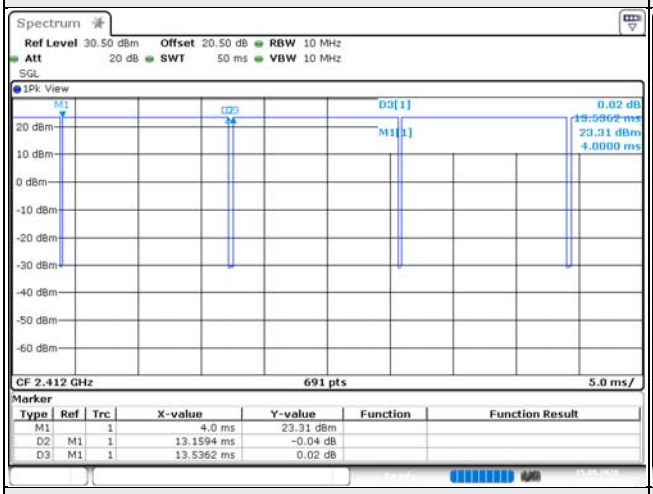
Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	23 deg. C, 67% RH 25 deg. C, 70% RH	120Vac, 60Hz	Adair Peng, Rex Wang
RE<1G	25 deg. C, 70% RH 23 deg. C, 66% RH	120Vac, 60Hz	Adair Peng, Titan Hsu, Hans Wu
PLC	23 deg. C, 66% RH 24 deg. C, 66% RH 25 deg. C, 75% RH	120Vac, 60Hz	Titan Hsu, Edison Lee, Hans Wu
APCM	25 deg. C, 76% RH 25 deg. C, 60% RH	120Vac, 60Hz	Jisyong Wang, Ivan Tseng

3.3 Duty Cycle of Test Signal

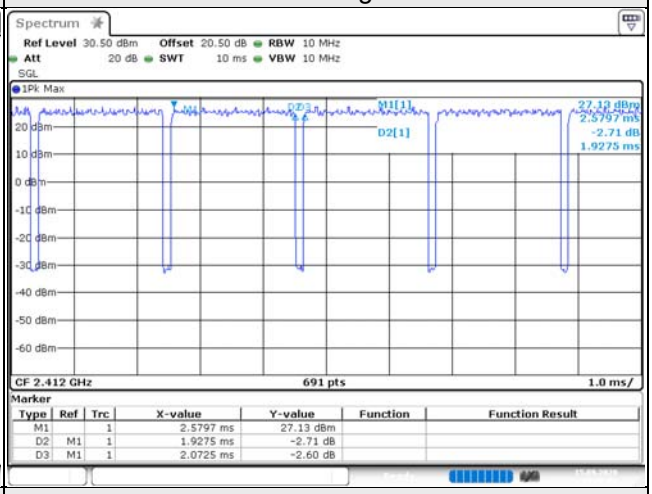
Duty cycle of test signal is > 98%, duty factor is not required.
Duty cycle of test signal is < 98%, duty factor is required.

Mode A
802.11b: Duty cycle = 13.159/13.536 = 0.972, Duty factor = 10 * log (1/0.972) = 0.12
802.11g: Duty cycle = 1.927/2.072 = 0.930, Duty factor = 10 * log (1/0.930) = 0.32
802.11ax (HE20): Duty cycle = 5.42/5.652 = 0.959, Duty factor = 10 * log (1/0.959) = 0.18
802.11ax (HE40): Duty cycle = 5.434/5.753 = 0.945, Duty factor = 10 * log (1/0.945) = 0.25

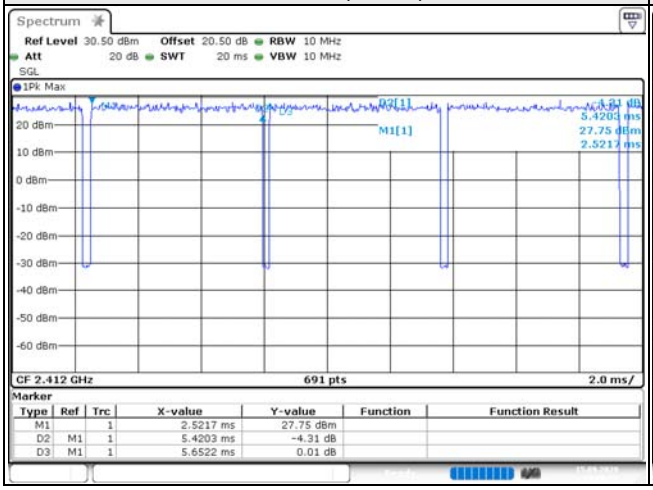
802.11b



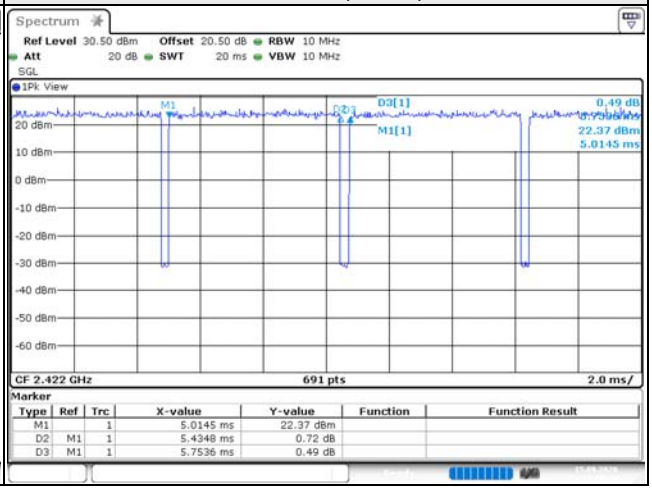
802.11g



802.11ax (HE20)



802.11ax (HE40)



Mode C

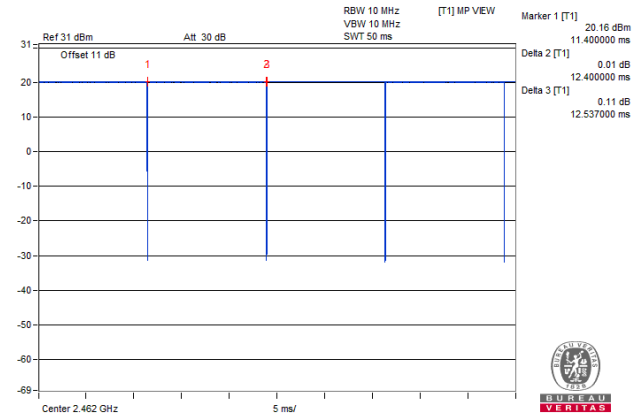
802.11b: Duty cycle = 12.400/12.537 = 0.989

802.11g: Duty cycle = 2.052/2.170 = 0.946, Duty factor = 10 * log (1/0.946) = 0.24

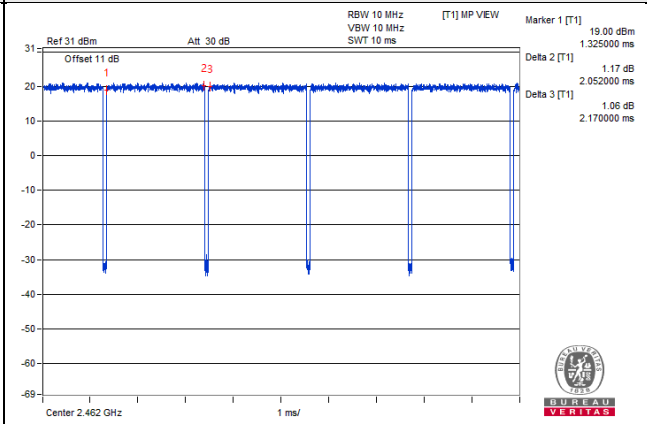
802.11ax (HE20): Duty cycle = 1.923/2.025 = 0.950, Duty factor = 10 * log (1/0.950) = 0.22

802.11ax (HE40): Duty cycle = 0.944/1.040 = 0.908, Duty factor = 10 * log (1/0.908) = 0.42

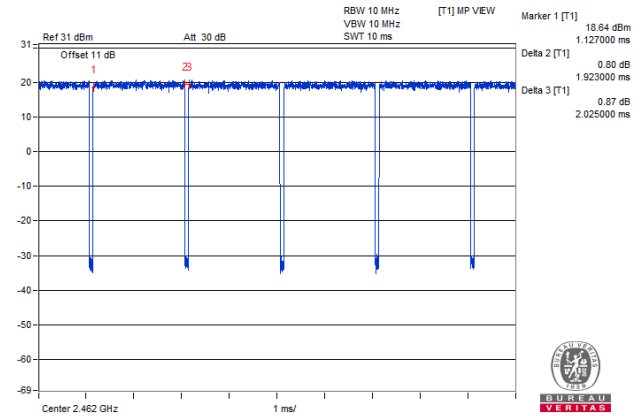
802.11b



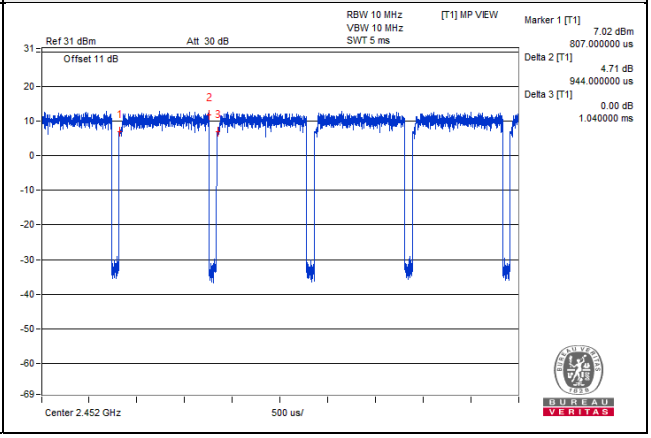
802.11g



802.11ax (HE20)



802.11ax (HE40)



3.4 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-
B.	PoE Injector	YAMAHA	YPS-PoE-AT	NA	NA	Provided by client

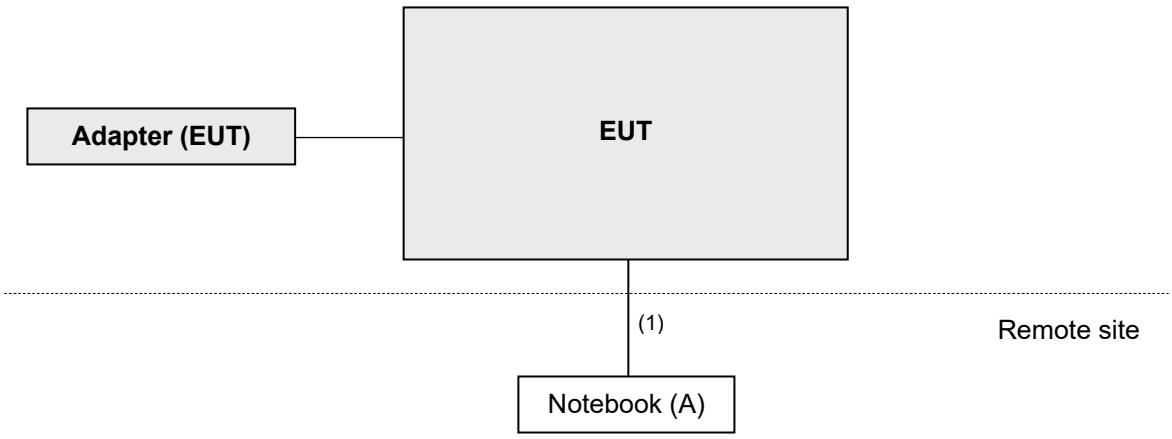
Note:

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

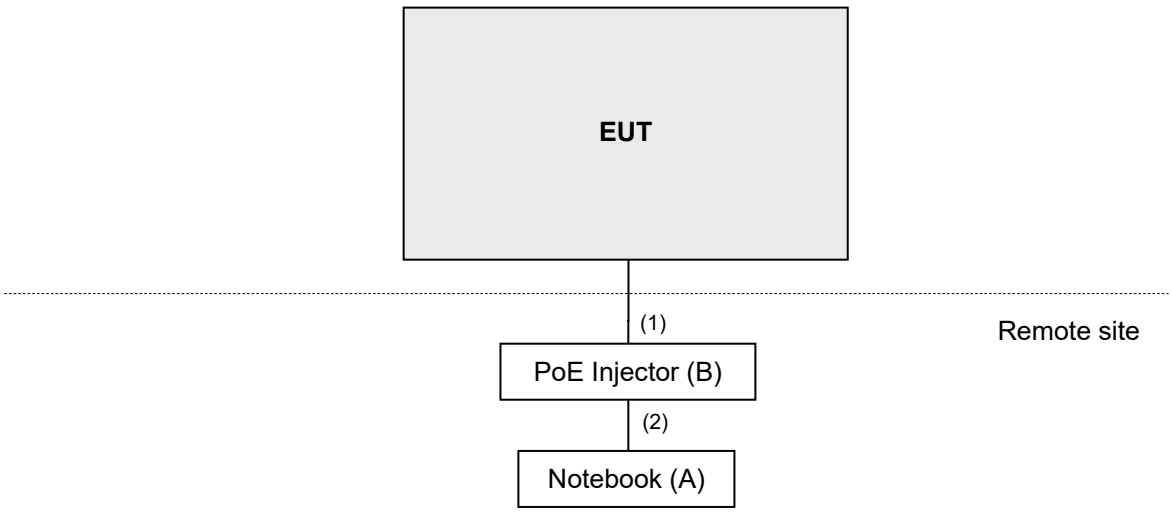
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	LAN	1	7	N	0	RJ45, Cat5e
2.	LAN	1	1.5	N	0	RJ45, Cat5e

3.4.1 Configuration of System under Test

Mode A, C



Mode B, D



3.5 General Description of Applied Standards and References

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

Test standard:

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

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

References Test Guidance:

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

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

Note:

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

4.1.2 Test Instruments

Tested date: Sep. 04, 2020 ~ Jun. 02, 2021

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
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. 11, 2019	Nov. 10, 2020
			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
			Mar. 22, 2021	Mar. 21, 2022
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- SM-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/MY5 5190004/MY55190 007/MY55210005	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.

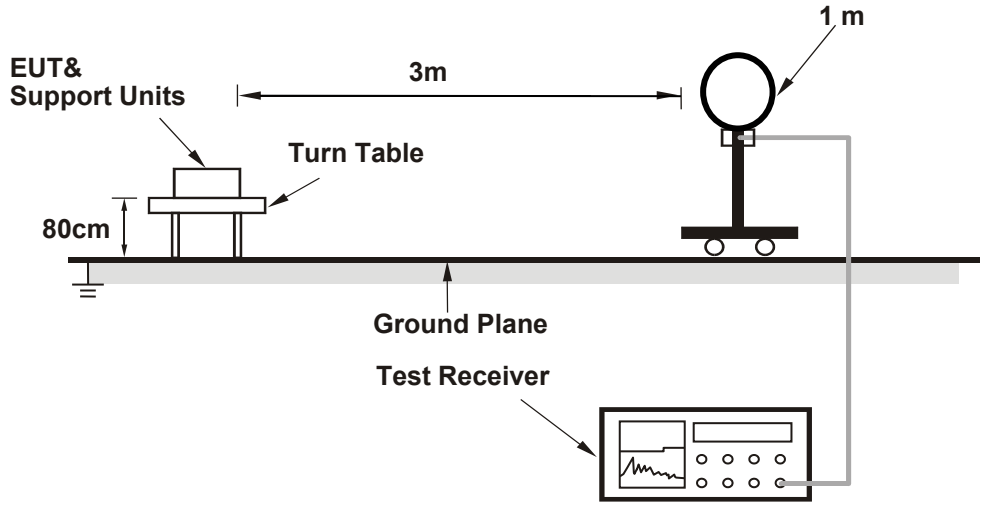
Note:
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 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.
   Mode A:
   (802.11b: RBW = 1MHz, VBW = 1kHz; 802.11g: RBW = 1MHz, VBW = 1kHz ; 802.11ax (HE20): RBW = 1MHz, VBW = 1kHz; 802.11ax (HE40): RBW = 1MHz, VBW = 1kHz)
   Mode C:
   (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

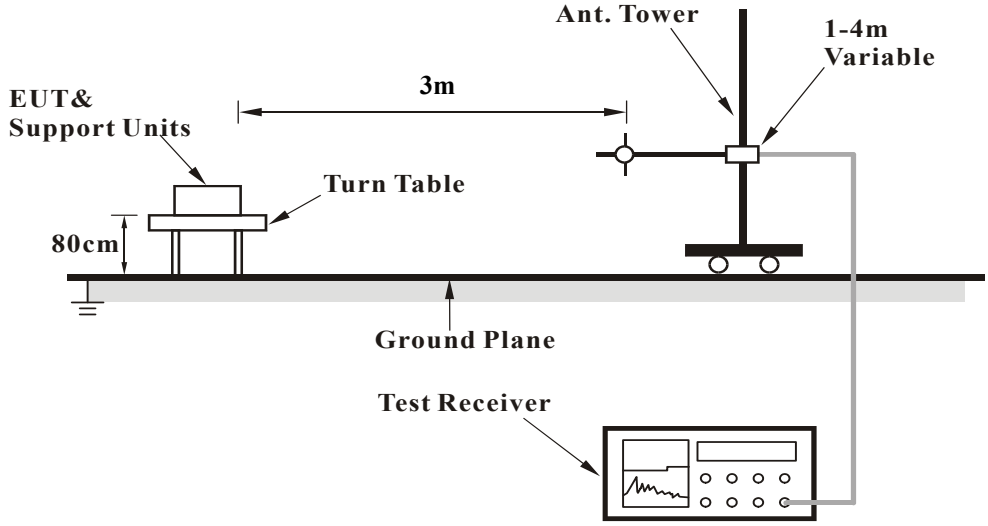
No deviation.

4.1.5 Test Setup

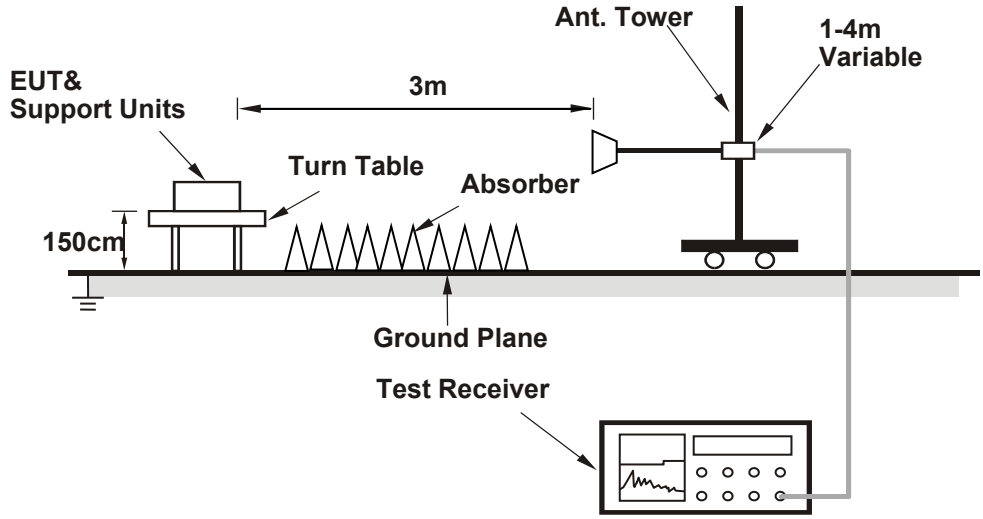
For Radiated emission below 30MHz



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:

Mode A

802.11b

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	61.0 PK	74.0	-13.0	3.53 H	308	26.7	34.3
2	2390.00	48.8 AV	54.0	-5.2	3.53 H	308	14.5	34.3
3	*2412.00	119.0 PK			3.53 H	308	84.7	34.3
4	*2412.00	115.0 AV			3.53 H	308	80.7	34.3
5	4824.00	48.8 PK	74.0	-25.2	2.64 H	17	42.6	6.2
6	4824.00	40.1 AV	54.0	-13.9	2.64 H	17	33.9	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	60.6 PK	74.0	-13.4	2.12 V	291	26.3	34.3
2	2390.00	48.6 AV	54.0	-5.4	2.12 V	291	14.3	34.3
3	*2412.00	118.5 PK			2.12 V	291	84.2	34.3
4	*2412.00	114.5 AV			2.12 V	291	80.2	34.3
5	4824.00	48.4 PK	74.0	-25.6	1.29 V	41	42.2	6.2
6	4824.00	37.3 AV	54.0	-16.7	1.29 V	41	31.1	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	119.0 PK			3.46 H	309	84.7	34.3
2	*2437.00	115.0 AV			3.46 H	309	80.7	34.3
3	4874.00	51.3 PK	74.0	-22.7	1.83 H	279	45.2	6.1
4	4874.00	45.5 AV	54.0	-8.5	1.83 H	279	39.4	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	118.4 PK			2.79 V	302	84.1	34.3
2	*2437.00	114.6 AV			2.79 V	302	80.3	34.3
3	4874.00	50.3 PK	74.0	-23.7	2.73 V	41	44.2	6.1
4	4874.00	39.4 AV	54.0	-14.6	2.73 V	41	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	119.2 PK			3.29 H	305	84.8	34.4
2	*2462.00	115.5 AV			3.29 H	305	81.1	34.4
3	2483.50	62.0 PK	74.0	-12.0	3.29 H	305	27.6	34.4
4	2483.50	49.4 AV	54.0	-4.6	3.29 H	305	15.0	34.4
5	4824.00	47.7 PK	74.0	-26.3	2.55 H	20	41.5	6.2
6	4824.00	34.7 AV	54.0	-19.3	2.55 H	20	28.5	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	*2462.00	118.8 PK			2.74 V	289	84.4	34.4
2	*2462.00	115.1 AV			2.74 V	289	80.7	34.4
3	2483.50	61.0 PK	74.0	-13.0	2.74 V	289	26.6	34.4
4	2483.50	49.0 AV	54.0	-5.0	2.74 V	289	14.6	34.4
5	4824.00	47.4 PK	74.0	-26.6	1.65 V	45	41.2	6.2
6	4824.00	34.3 AV	54.0	-19.7	1.65 V	45	28.1	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11g

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	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	63.2 PK	74.0	-10.8	2.81 H	302	28.9	34.3
2	2390.00	50.5 AV	54.0	-3.5	2.81 H	302	16.2	34.3
3	*2412.00	122.0 PK			2.81 H	305	87.7	34.3
4	*2412.00	111.9 AV			2.81 H	305	77.6	34.3
5	4824.00	47.7 PK	74.0	-26.3	2.55 H	20	41.5	6.2
6	4824.00	34.4 AV	54.0	-19.6	2.55 H	20	28.2	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	63.3 PK	74.0	-10.7	2.05 V	293	29.0	34.3
2	2390.00	51.4 AV	54.0	-2.6	2.05 V	293	17.1	34.3
3	*2412.00	121.5 PK			2.05 V	293	87.2	34.3
4	*2412.00	111.4 AV			2.05 V	293	77.1	34.3
5	4824.00	47.3 PK	74.0	-26.7	1.57 V	41	41.1	6.2
6	4824.00	34.0 AV	54.0	-20.0	1.57 V	41	27.8	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	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	121.0 PK			2.72 H	301	86.7	34.3
2	*2437.00	111.0 AV			2.72 H	301	76.7	34.3
3	4874.00	48.0 PK	74.0	-26.0	1.80 H	277	41.9	6.1
4	4874.00	35.2 AV	54.0	-18.8	1.80 H	277	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	*2437.00	120.7 PK			2.31 V	297	86.4	34.3
2	*2437.00	110.6 AV			2.31 V	297	76.3	34.3
3	4874.00	47.5 PK	74.0	-26.5	1.43 V	44	41.4	6.1
4	4874.00	34.6 AV	54.0	-19.4	1.43 V	44	28.5	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	120.4 PK			2.46 H	304	86.0	34.4
2	*2462.00	110.4 AV			2.46 H	304	76.0	34.4
3	2483.50	63.9 PK	74.0	-10.1	2.46 H	304	29.5	34.4
4	2483.50	51.3 AV	54.0	-2.7	2.46 H	304	16.9	34.4
5	4924.00	47.1 PK	74.0	-26.9	2.70 H	19	41.0	6.1
6	4924.00	33.4 AV	54.0	-20.6	2.70 H	19	27.3	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	*2462.00	119.8 PK			2.55 V	293	85.4	34.4
2	*2462.00	109.7 AV			2.55 V	293	75.3	34.4
3	2483.50	63.6 PK	74.0	-10.4	2.55 V	293	29.2	34.4
4	2483.50	51.0 AV	54.0	-3.0	2.55 V	293	16.6	34.4
5	4924.00	47.3 PK	74.0	-26.7	1.50 V	45	41.2	6.1
6	4924.00	33.4 AV	54.0	-20.6	1.50 V	45	27.3	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11ax (HE20)

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	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	63.8 PK	74.0	-10.2	3.13 H	303	29.5	34.3
2	2390.00	50.4 AV	54.0	-3.6	3.13 H	303	16.1	34.3
3	*2412.00	123.5 PK			3.13 H	303	89.2	34.3
4	*2412.00	109.5 AV			3.13 H	303	75.2	34.3
5	4824.00	47.5 PK	74.0	-26.5	2.74 H	19	41.3	6.2
6	4824.00	33.6 AV	54.0	-20.4	2.74 H	19	27.4	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	63.6 PK	74.0	-10.4	2.52 V	288	29.3	34.3
2	2390.00	50.2 AV	54.0	-3.8	2.52 V	288	15.9	34.3
3	*2412.00	122.5 PK			2.52 V	288	88.2	34.3
4	*2412.00	109.1 AV			2.52 V	288	74.8	34.3
5	4824.00	47.7 PK	74.0	-26.3	1.43 V	45	41.5	6.2
6	4824.00	34.2 AV	54.0	-19.8	1.43 V	45	28.0	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	122.7 PK			3.08 H	302	88.4	34.3
2	*2437.00	109.5 AV			3.08 H	302	75.2	34.3
3	4874.00	52.6 PK	74.0	-21.4	1.93 H	279	46.5	6.1
4	4874.00	34.8 AV	54.0	-19.2	1.93 H	279	28.7	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	122.3 PK			2.63 V	290	88.0	34.3
2	*2437.00	108.9 AV			2.63 V	290	74.6	34.3
3	4874.00	51.9 PK	74.0	-22.1	1.68 V	50	45.8	6.1
4	4874.00	34.6 AV	54.0	-19.4	1.68 V	50	28.5	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	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	123.0 PK			2.15 H	298	88.6	34.4
2	*2462.00	109.8 AV			2.15 H	298	75.4	34.4
3	2483.50	69.2 PK	74.0	-4.8	2.15 H	298	34.8	34.4
4	2483.50	52.8 AV	54.0	-1.2	2.15 H	298	18.4	34.4
5	4924.00	47.1 PK	74.0	-26.9	2.59 H	21	41.0	6.1
6	4924.00	33.7 AV	54.0	-20.3	2.59 H	21	27.6	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	122.5 PK			2.67 V	287	88.1	34.4
2	*2462.00	109.4 AV			2.67 V	287	75.0	34.4
3	2483.50	68.9 PK	74.0	-5.1	2.67 V	287	34.5	34.4
4	2483.50	52.5 AV	54.0	-1.5	2.67 V	287	18.1	34.4
5	4924.00	48.2 PK	74.0	-25.8	1.45 V	46	42.1	6.1
6	4924.00	34.1 AV	54.0	-19.9	1.45 V	46	28.0	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11ax (HE40)

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	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	68.4 PK	74.0	-5.6	3.13 H	300	34.1	34.3
2	2390.00	53.2 AV	54.0	-0.8	3.13 H	300	18.9	34.3
3	*2422.00	119.7 PK			3.13 H	300	85.4	34.3
4	*2422.00	107.0 AV			3.13 H	300	72.7	34.3
5	4844.00	47.6 PK	74.0	-26.4	2.82 H	15	41.5	6.1
6	4844.00	34.6 AV	54.0	-19.4	2.82 H	15	28.5	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	2390.00	68.2 PK	74.0	-5.8	2.58 V	290	33.9	34.3
2	2390.00	53.0 AV	54.0	-1.0	2.58 V	290	18.7	34.3
3	*2422.00	119.3 PK			2.58 V	290	85.0	34.3
4	*2422.00	106.5 AV			2.58 V	290	72.2	34.3
5	4844.00	47.4 PK	74.0	-26.6	1.43 V	45	41.3	6.1
6	4844.00	34.3 AV	54.0	-19.7	1.43 V	45	28.2	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	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	1.94 H	303	31.4	34.3
2	2390.00	52.7 AV	54.0	-1.3	1.94 H	303	18.4	34.3
3	*2437.00	119.3 PK			1.94 H	303	85.0	34.3
4	*2437.00	106.9 AV			1.94 H	303	72.6	34.3
5	2483.50	67.2 PK	74.0	-6.8	1.94 H	303	32.8	34.4
6	2483.50	53.1 AV	54.0	-0.9	1.94 H	303	18.7	34.4
7	4874.00	47.3 PK	74.0	-26.7	1.87 H	282	41.2	6.1
8	4874.00	34.4 AV	54.0	-19.6	1.87 H	282	28.3	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	60.8 PK	74.0	-13.2	2.48 V	289	26.5	34.3
2	2390.00	49.8 AV	54.0	-4.2	2.48 V	289	15.5	34.3
3	*2437.00	118.5 PK			2.48 V	289	84.2	34.3
4	*2437.00	106.2 AV			2.48 V	289	71.9	34.3
5	2483.50	61.4 PK	74.0	-12.6	2.48 V	289	27.0	34.4
6	2483.50	49.0 AV	54.0	-5.0	2.48 V	289	14.6	34.4
7	4874.00	47.0 PK	74.0	-27.0	1.50 V	45	40.9	6.1
8	4874.00	34.1 AV	54.0	-19.9	1.50 V	45	28.0	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	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	118.9 PK			2.76 H	300	84.6	34.3
2	*2452.00	106.4 AV			2.76 H	300	72.1	34.3
3	2483.50	67.7 PK	74.0	-6.3	2.76 H	300	33.3	34.4
4	2483.50	53.5 AV	54.0	-0.5	2.76 H	300	19.1	34.4
5	4804.00	47.6 PK	74.0	-26.4	2.63 H	11	41.5	6.1
6	4804.00	34.6 AV	54.0	-19.4	2.63 H	11	28.5	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	*2452.00	118.4 PK			2.63 V	288	84.1	34.3
2	*2452.00	106.0 AV			2.63 V	288	71.7	34.3
3	2483.50	64.4 PK	74.0	-9.6	2.63 V	288	30.0	34.4
4	2483.50	50.8 AV	54.0	-3.2	2.63 V	288	16.4	34.4
5	4804.00	47.3 PK	74.0	-26.7	1.43 V	50	41.2	6.1
6	4804.00	34.3 AV	54.0	-19.7	1.43 V	50	28.2	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

Mode C

802.11b

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	61.3 PK	74.0	-12.7	3.02 H	303	27.2	34.1
2	2390.00	48.0 AV	54.0	-6.0	3.02 H	303	13.9	34.1
3	*2412.00	109.9 PK			3.02 H	303	75.8	34.1
4	*2412.00	108.6 AV			3.02 H	303	74.5	34.1
5	4824.00	52.7 PK	74.0	-21.3	1.58 H	277	38.6	14.1
6	4824.00	46.5 AV	54.0	-7.5	1.58 H	277	32.4	14.1
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	60.4 PK	74.0	-13.6	2.33 V	313	26.3	34.1
2	2390.00	47.8 AV	54.0	-6.2	2.33 V	313	13.7	34.1
3	*2412.00	102.6 PK			2.33 V	313	68.5	34.1
4	*2412.00	101.3 AV			2.33 V	313	67.2	34.1
5	4824.00	51.5 PK	74.0	-22.5	1.42 V	289	37.4	14.1
6	4824.00	43.4 AV	54.0	-10.6	1.42 V	289	29.3	14.1

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.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	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	108.1 PK			3.04 H	311	74.0	34.1
2	*2437.00	107.0 AV			3.04 H	311	72.9	34.1
3	4874.00	53.3 PK	74.0	-20.7	1.46 H	280	39.3	14.0
4	4874.00	46.8 AV	54.0	-7.2	1.46 H	280	32.8	14.0
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	102.1 PK			2.31 V	329	68.0	34.1
2	*2437.00	100.8 AV			2.31 V	329	66.7	34.1
3	4874.00	51.3 PK	74.0	-22.7	1.43 V	294	37.3	14.0
4	4874.00	43.2 AV	54.0	-10.8	1.43 V	294	29.2	14.0

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.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	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	108.1 PK			2.93 H	342	74.0	34.1
2	*2462.00	106.5 AV			2.93 H	342	72.4	34.1
3	2483.50	61.1 PK	74.0	-12.9	2.93 H	342	27.0	34.1
4	2483.50	48.1 AV	54.0	-5.9	2.93 H	342	14.0	34.1
5	4924.00	52.3 PK	74.0	-21.7	1.55 H	269	38.4	13.9
6	4924.00	44.5 AV	54.0	-9.5	1.55 H	269	30.6	13.9
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	106.1 PK			3.50 V	6	72.0	34.1
2	*2462.00	104.7 AV			3.50 V	6	70.6	34.1
3	2483.50	61.1 PK	74.0	-12.9	3.50 V	6	27.0	34.1
4	2483.50	48.1 AV	54.0	-5.9	3.50 V	6	14.0	34.1
5	4924.00	52.1 PK	74.0	-21.9	1.50 V	313	38.2	13.9
6	4924.00	44.0 AV	54.0	-10.0	1.50 V	313	30.1	13.9

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.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11g

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	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	67.5 PK	74.0	-6.5	2.66 H	310	33.4	34.1
2	**2390.00**	**53.9 AV**	**54.0**	**-0.1**	**2.66 H**	**310**	**19.8**	**34.1**
3	*2412.00	110.3 PK			2.66 H	310	76.2	34.1
4	*2412.00	101.0 AV			2.66 H	310	66.9	34.1
5	4824.00	50.9 PK	74.0	-23.1	1.63 H	4	36.8	14.1
6	4824.00	40.6 AV	54.0	-13.4	1.63 H	4	26.5	14.1
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	59.6 PK	74.0	-14.4	2.34 V	318	25.5	34.1
2	2390.00	49.2 AV	54.0	-4.8	2.34 V	318	15.1	34.1
3	*2412.00	102.1 PK			2.34 V	318	68.0	34.1
4	*2412.00	92.8 AV			2.34 V	318	58.7	34.1
5	4824.00	51.4 PK	74.0	-22.6	1.62 V	8	37.3	14.1
6	4824.00	39.9 AV	54.0	-14.1	1.62 V	8	25.8	14.1

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.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	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	110.5 PK			2.68 H	315	76.4	34.1
2	*2437.00	101.1 AV			2.68 H	315	67.0	34.1
3	4874.00	51.3 PK	74.0	-22.7	1.58 H	353	37.3	14.0
4	4874.00	41.2 AV	54.0	-12.8	1.58 H	353	27.2	14.0
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	104.5 PK			3.42 V	12	70.4	34.1
2	*2437.00	96.0 AV			3.42 V	12	61.9	34.1
3	4874.00	51.6 PK	74.0	-22.4	1.76 V	20	37.6	14.0
4	4874.00	41.3 AV	54.0	-12.7	1.76 V	20	27.3	14.0

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.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	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	108.3 PK			3.11 H	344	74.2	34.1
2	*2462.00	98.7 AV			3.11 H	344	64.6	34.1
3	2483.50	66.4 PK	74.0	-7.6	3.11 H	344	32.3	34.1
4	2483.50	53.6 AV	54.0	-0.4	3.11 H	344	19.5	34.1
5	4924.00	50.2 PK	74.0	-23.8	1.50 H	13	36.3	13.9
6	4924.00	40.0 AV	54.0	-14.0	1.50 H	13	26.1	13.9
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	106.1 PK			3.39 V	6	72.0	34.1
2	*2462.00	96.5 AV			3.39 V	6	62.4	34.1
3	2483.50	65.6 PK	74.0	-8.4	3.39 V	6	31.5	34.1
4	2483.50	52.6 AV	54.0	-1.4	3.39 V	6	18.5	34.1
5	4824.00	51.1 PK	74.0	-22.9	1.75 V	2	37.0	14.1
6	4824.00	40.5 AV	54.0	-13.5	1.75 V	2	26.4	14.1

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.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11ac (VHT20)

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

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	65.9 PK	74.0	-8.1	2.74 H	315	31.8	34.1
2	2390.00	53.6 AV	54.0	-0.4	2.74 H	315	19.5	34.1
3	*2412.00	109.1 PK			2.74 H	315	75.0	34.1
4	*2412.00	99.5 AV			2.74 H	315	65.4	34.1
5	4824.00	50.7 PK	74.0	-23.3	1.69 H	12	36.6	14.1
6	4824.00	39.6 AV	54.0	-14.4	1.69 H	12	25.5	14.1
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	61.1 PK	74.0	-12.9	2.35 V	315	27.0	34.1
2	2390.00	48.5 AV	54.0	-5.5	2.35 V	315	14.4	34.1
3	*2412.00	101.1 PK			2.35 V	315	67.0	34.1
4	*2412.00	91.6 AV			2.35 V	315	57.5	34.1
5	4824.00	49.9 PK	74.0	-24.1	1.43 V	346	35.8	14.1
6	4824.00	39.4 AV	54.0	-14.6	1.43 V	346	25.3	14.1

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.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	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	109.2 PK			2.63 H	315	75.1	34.1
2	*2437.00	100.2 AV			2.63 H	315	66.1	34.1
3	4874.00	50.5 PK	74.0	-23.5	1.50 H	348	36.5	14.0
4	4874.00	39.7 AV	54.0	-14.3	1.50 H	348	25.7	14.0
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	105.1 PK			2.75 V	28	71.0	34.1
2	*2437.00	96.3 AV			2.75 V	28	62.2	34.1
3	4874.00	50.3 PK	74.0	-23.7	1.47 V	10	36.3	14.0
4	4874.00	40.0 AV	54.0	-14.0	1.47 V	10	26.0	14.0

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.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	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	107.2 PK			3.14 H	342	73.1	34.1
2	*2462.00	97.9 AV			3.14 H	342	63.8	34.1
3	2483.50	67.2 PK	74.0	-6.8	3.14 H	342	33.1	34.1
4	2483.50	53.8 AV	54.0	-0.2	3.14 H	342	19.7	34.1
5	4924.00	49.5 PK	74.0	-24.5	1.59 H	22	35.6	13.9
6	4924.00	39.3 AV	54.0	-14.7	1.59 H	22	25.4	13.9
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	104.6 PK			3.69 V	3	70.5	34.1
2	*2462.00	95.7 AV			3.69 V	3	61.6	34.1
3	2483.50	67.6 PK	74.0	-6.4	3.69 V	3	33.5	34.1
4	2483.50	53.5 AV	54.0	-0.5	3.69 V	3	19.4	34.1
5	4924.00	49.8 PK	74.0	-24.2	1.63 V	347	35.9	13.9
6	4924.00	39.0 AV	54.0	-15.0	1.63 V	347	25.1	13.9

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.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11ac (VHT40)

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

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	1.00 H	52	29.5	34.1
2	2390.00	53.6 AV	54.0	-0.4	1.00 H	52	19.5	34.1
3	*2422.00	101.9 PK			1.00 H	52	67.9	34.0
4	*2422.00	93.1 AV			1.00 H	52	59.1	34.0
5	4844.00	49.6 PK	74.0	-24.4	1.55 H	24	35.6	14.0
6	4844.00	39.5 AV	54.0	-14.5	1.55 H	24	25.5	14.0
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	62.7 PK	74.0	-11.3	3.83 V	336	28.6	34.1
2	2390.00	51.1 AV	54.0	-2.9	3.83 V	336	17.0	34.1
3	*2422.00	98.9 PK			3.83 V	336	64.9	34.0
4	*2422.00	90.0 AV			3.83 V	336	56.0	34.0
5	4844.00	50.1 PK	74.0	-23.9	1.66 V	345	36.1	14.0
6	4844.00	39.4 AV	54.0	-14.6	1.66 V	345	25.4	14.0

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.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	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	105.7 PK			1.12 H	53	71.6	34.1
2	*2437.00	96.5 AV			1.12 H	53	62.4	34.1
3	2483.50	67.1 PK	74.0	-6.9	1.12 H	53	33.0	34.1
4	2483.50	53.6 AV	54.0	-0.4	1.12 H	53	19.5	34.1
5	4874.00	49.8 PK	74.0	-24.2	1.54 H	29	35.8	14.0
6	4874.00	39.3 AV	54.0	-14.7	1.54 H	29	25.3	14.0
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	102.6 PK			3.81 V	334	68.5	34.1
2	*2437.00	93.5 AV			3.81 V	334	59.4	34.1
3	2483.50	64.1 PK	74.0	-9.9	3.81 V	334	30.0	34.1
4	2483.50	50.6 AV	54.0	-3.4	3.81 V	334	16.5	34.1
5	4874.00	49.7 PK	74.0	-24.3	1.68 V	347	35.7	14.0
6	4874.00	39.5 AV	54.0	-14.5	1.68 V	347	25.5	14.0

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.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	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	100.2 PK			1.03 H	59	66.1	34.1
2	*2452.00	91.0 AV			1.03 H	59	56.9	34.1
3	2483.50	65.4 PK	74.0	-8.6	1.03 H	59	31.3	34.1
4	2483.50	53.5 AV	54.0	-0.5	1.03 H	59	19.4	34.1
5	4904.00	49.5 PK	74.0	-24.5	1.52 H	26	35.5	14.0
6	4904.00	39.1 AV	54.0	-14.9	1.52 H	26	25.1	14.0
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	97.4 PK			3.76 V	335	63.3	34.1
2	*2452.00	88.3 AV			3.76 V	335	54.2	34.1
3	2483.50	62.0 PK	74.0	-12.0	3.76 V	335	27.9	34.1
4	2483.50	49.9 AV	54.0	-4.1	3.76 V	335	15.8	34.1
5	4904.00	49.3 PK	74.0	-24.7	1.63 V	341	35.3	14.0
6	4904.00	39.0 AV	54.0	-15.0	1.63 V	341	25.0	14.0

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.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

Below 1GHz worst-case data:

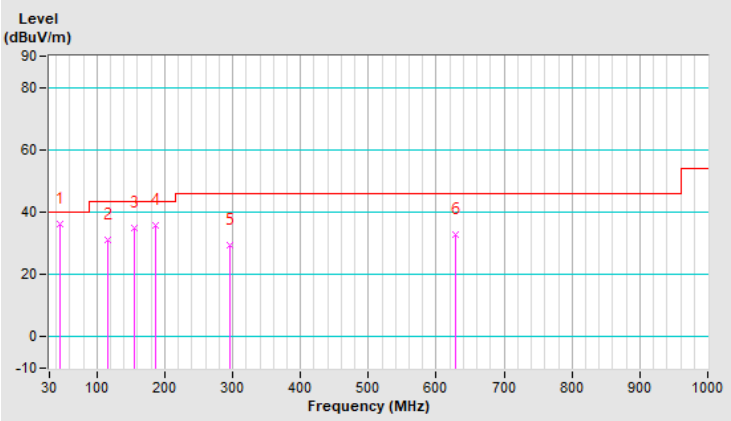
802.11ax (HE20)

CHANNEL	TX Channel 1	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	45.46	36.0 QP	40.0	-4.0	1.00 H	216	45.1	-9.1
2	115.75	31.3 QP	43.5	-12.2	1.49 H	91	42.7	-11.4
3	155.12	34.8 QP	43.5	-8.7	2.00 H	261	43.2	-8.4
4	186.04	35.6 QP	43.5	-7.9	1.49 H	232	46.0	-10.4
5	295.70	29.5 QP	46.0	-16.5	1.00 H	136	36.3	-6.8
6	627.46	32.7 QP	46.0	-13.3	1.49 H	1	31.9	0.8

Remarks:

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

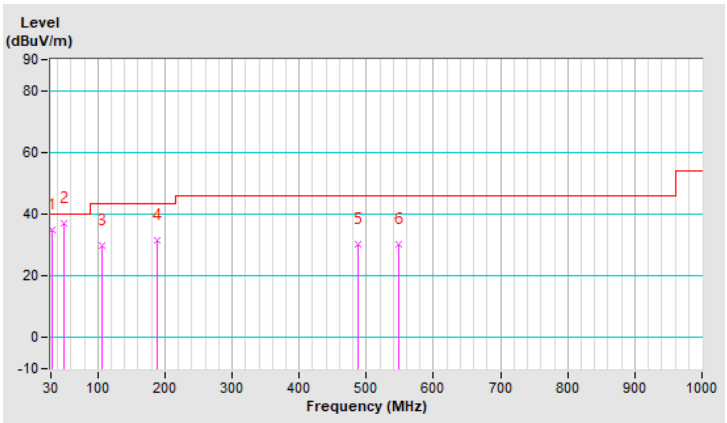


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	A

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	32.81	34.8 QP	40.0	-5.2	1.49 V	214	45.6	-10.8
2	49.68	37.1 QP	40.0	-2.9	1.49 V	3	46.2	-9.1
3	105.91	30.0 QP	43.5	-13.5	1.00 V	82	42.3	-12.3
4	187.45	31.6 QP	43.5	-11.9	1.00 V	196	42.2	-10.6
5	488.29	30.4 QP	46.0	-15.6	1.00 V	6	32.9	-2.5
6	548.74	30.4 QP	46.0	-15.6	1.00 V	329	31.7	-1.3

Remarks:

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

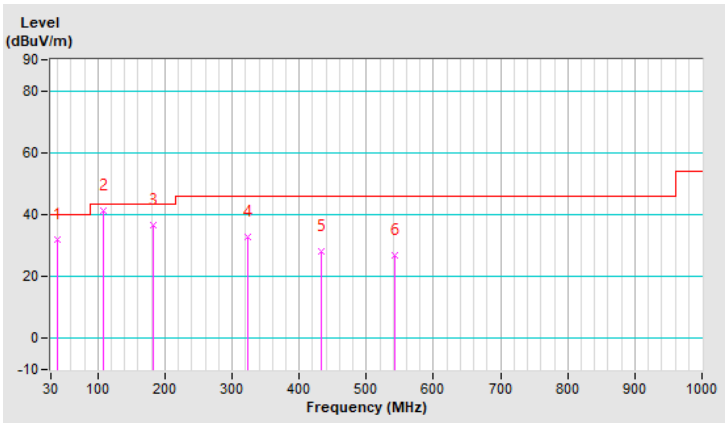


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B

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	39.84	32.0 QP	40.0	-8.0	1.00 H	187	41.7	-9.7
2	108.72	41.1 QP	43.5	-2.4	1.50 H	290	53.1	-12.0
3	181.83	36.7 QP	43.5	-6.8	1.00 H	329	46.8	-10.1
4	322.41	33.0 QP	46.0	-13.0	2.00 H	157	39.0	-6.0
5	433.46	28.2 QP	46.0	-17.8	2.00 H	18	31.7	-3.5
6	541.71	27.0 QP	46.0	-19.0	1.00 H	257	28.4	-1.4

Remarks:

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

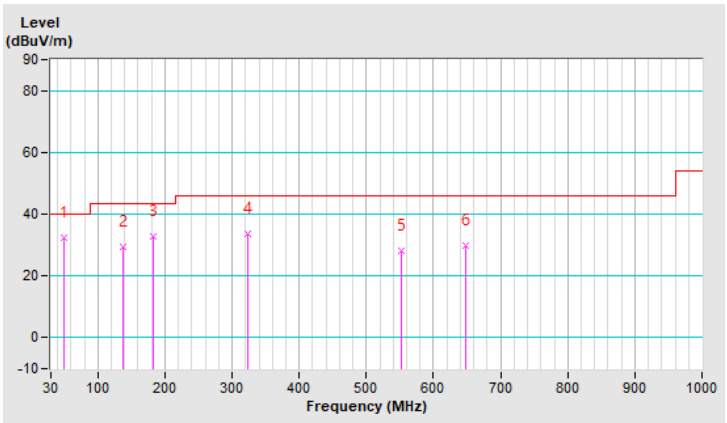


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B

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	32.5 QP	40.0	-7.5	1.00 V	96	41.6	-9.1
2	138.25	29.3 QP	43.5	-14.2	1.50 V	304	38.4	-9.1
3	183.23	32.9 QP	43.5	-10.6	1.00 V	4	43.1	-10.2
4	322.41	33.6 QP	46.0	-12.4	2.00 V	4	39.6	-6.0
5	551.55	28.2 QP	46.0	-17.8	1.00 V	98	29.4	-1.2
6	647.14	29.9 QP	46.0	-16.1	1.50 V	12	28.8	1.1

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 emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.



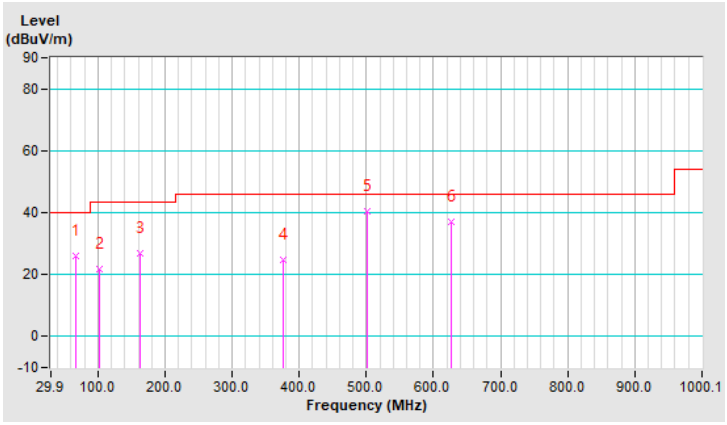
802.11b

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

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	67.74	25.9 QP	40.0	-14.1	2.00 H	329	36.4	-10.5
2	101.69	21.6 QP	43.5	-21.9	2.00 H	0	34.7	-13.1
3	162.82	27.0 QP	43.5	-16.5	1.26 H	273	35.9	-8.9
4	375.29	24.7 QP	46.0	-21.3	1.01 H	154	31.0	-6.3
5	500.45	40.4 QP	46.0	-5.6	2.00 H	5	44.3	-3.9
6	625.60	37.1 QP	46.0	-8.9	2.00 H	5	37.6	-0.5

Remarks:

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

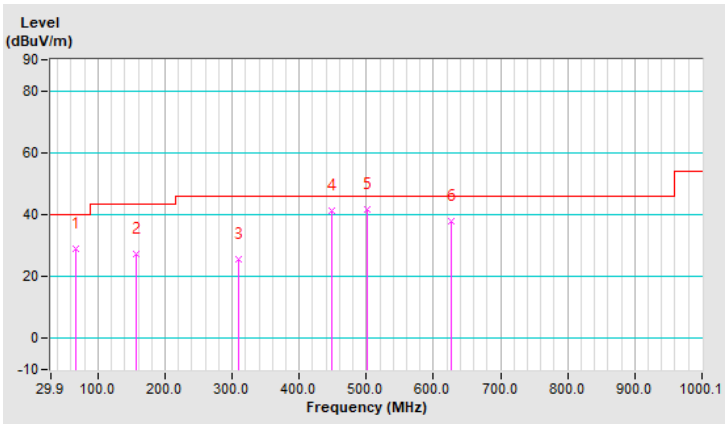


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	C

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	67.74	29.1 QP	40.0	-10.9	1.49 V	334	39.6	-10.5
2	157.97	27.3 QP	43.5	-16.2	1.24 V	212	36.0	-8.7
3	310.29	25.6 QP	46.0	-20.4	1.00 V	217	33.0	-7.4
4	448.06	41.2 QP	46.0	-4.8	1.99 V	22	45.9	-4.7
5	500.45	41.6 QP	46.0	-4.4	1.99 V	305	45.5	-3.9
6	625.60	37.9 QP	46.0	-8.1	1.00 V	228	38.4	-0.5

Remarks:

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

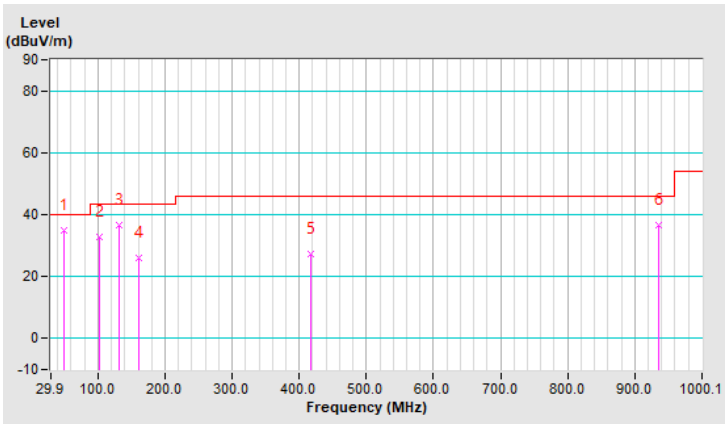


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	D

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	50.27	34.9 QP	40.0	-5.1	1.50 H	268	43.8	-8.9
2	101.69	32.6 QP	43.5	-10.9	1.00 H	206	45.7	-13.1
3	131.77	36.6 QP	43.5	-6.9	1.50 H	162	46.7	-10.1
4	161.85	25.9 QP	43.5	-17.6	2.00 H	222	34.7	-8.8
5	417.98	27.3 QP	46.0	-18.7	1.00 H	162	32.8	-5.5
6	935.10	36.8 QP	46.0	-9.2	1.00 H	4	29.9	6.9

Remarks:

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

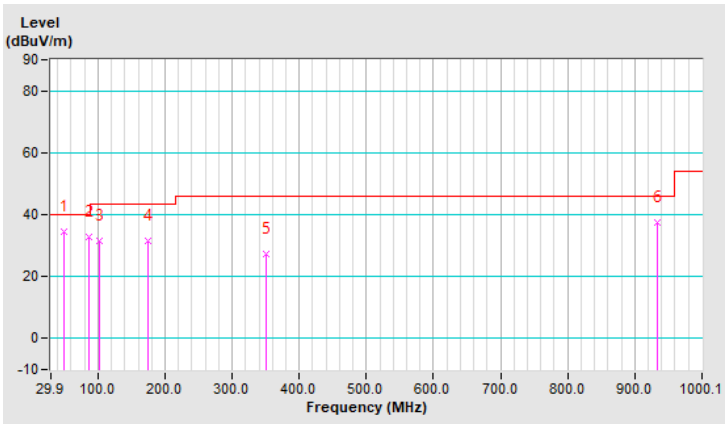


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	D

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	50.27	34.6 QP	40.0	-5.4	1.00 V	137	43.5	-8.9
2	86.17	32.9 QP	40.0	-7.1	2.00 V	115	47.3	-14.4
3	101.69	31.4 QP	43.5	-12.1	1.50 V	187	44.5	-13.1
4	174.46	31.7 QP	43.5	-11.8	1.50 V	130	41.3	-9.6
5	350.07	27.4 QP	46.0	-18.6	2.00 V	323	34.1	-6.7
6	933.16	37.4 QP	46.0	-8.6	2.00 V	111	30.5	6.9

Remarks:

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



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

4.2.2 Test Instruments

Tested date: Aug. 31, 2020~ Jun. 06, 2021

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Dec. 31, 2019	Dec. 30, 2020
		100613	Dec. 04, 2020	Dec. 03, 2021
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 04, 2020	Sep. 03, 2021
LISN/AMN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 20, 2020	Feb. 19, 2021
			Feb. 25, 2021	Feb. 24, 2022
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 28, 2020	Aug. 27, 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 1 (Conduction 1).
3. The VCCI Site Registration No. is C-12040.

4.2.3 Test Procedures

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

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

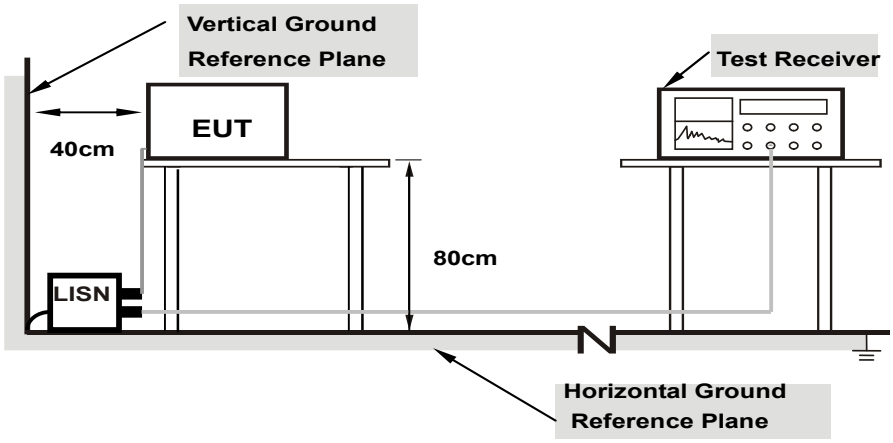
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

Worst-case data:

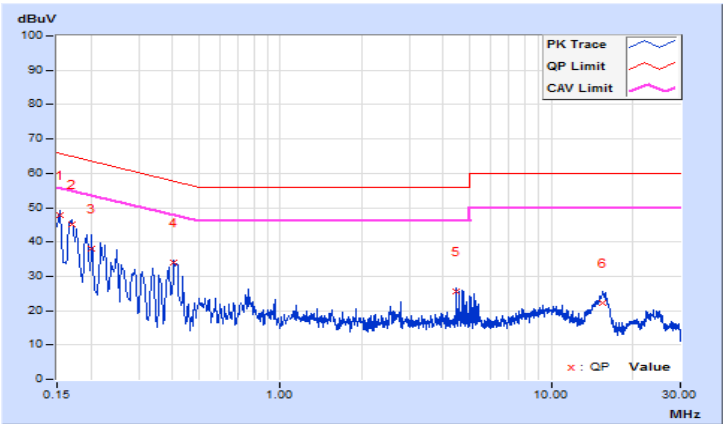
802.11ax (HE20)

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	0.15400	9.82	37.86	24.78	47.68	34.60	65.78	55.78	-18.10	-21.18
2	0.16932	9.83	35.21	21.41	45.04	31.24	64.99	54.99	-19.95	-23.75
3	0.20200	9.85	28.05	13.69	37.90	23.54	63.53	53.53	-25.63	-29.99
4	0.40600	9.87	23.99	19.37	33.86	29.24	57.73	47.73	-23.87	-18.49
5	4.47400	10.00	15.49	1.70	25.49	11.70	56.00	46.00	-30.51	-34.30
6	15.49800	10.15	12.24	7.90	22.39	18.05	60.00	50.00	-37.61	-31.95

Remarks:

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

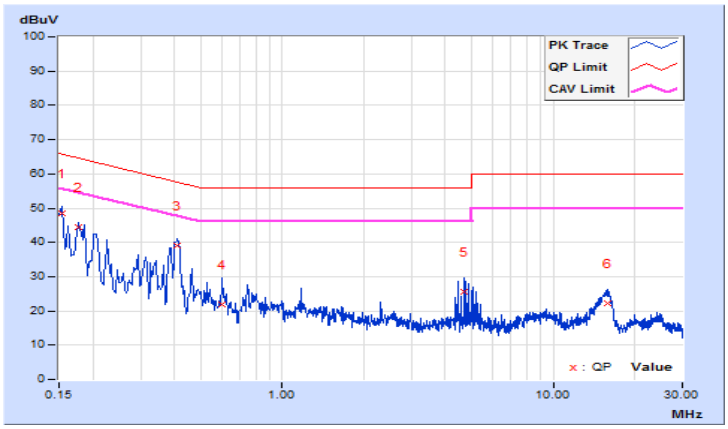


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

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	0.15400	9.84	38.66	26.18	48.50	36.02	65.78	55.78	-17.28	-19.76
2	0.17800	9.85	34.56	21.57	44.41	31.42	64.58	54.58	-20.17	-23.16
3	0.41000	9.90	29.04	22.94	38.94	32.84	57.65	47.65	-18.71	-14.81
4	0.60200	9.91	11.97	7.09	21.88	17.00	56.00	46.00	-34.12	-29.00
5	4.67800	10.05	15.43	2.63	25.48	12.68	56.00	46.00	-30.52	-33.32
6	15.89400	10.26	12.06	7.50	22.32	17.76	60.00	50.00	-37.68	-32.24

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.

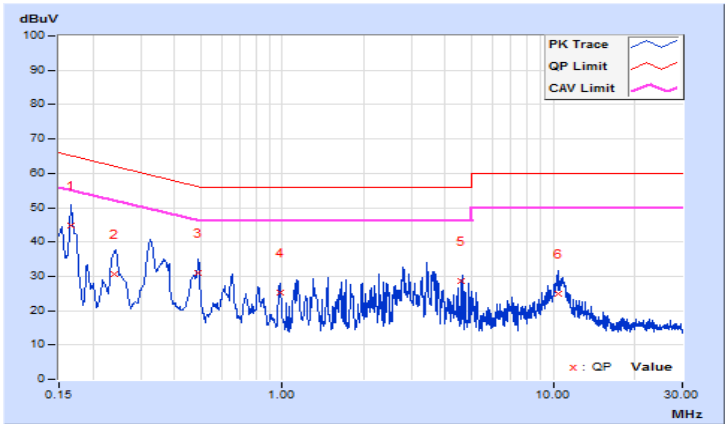


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

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	0.16535	9.65	35.28	14.14	44.93	23.79	65.19	55.19	-20.26	-31.40
2	0.23911	9.66	20.86	7.33	30.52	16.99	62.13	52.13	-31.61	-35.14
3	0.48700	9.66	21.25	9.69	30.91	19.35	56.22	46.22	-25.31	-26.87
4	0.97800	9.67	15.52	5.15	25.19	14.82	56.00	46.00	-30.81	-31.18
5	4.55976	9.74	18.87	3.16	28.61	12.90	56.00	46.00	-27.39	-33.10
6	10.39000	9.79	15.05	3.77	24.84	13.56	60.00	50.00	-35.16	-36.44

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.

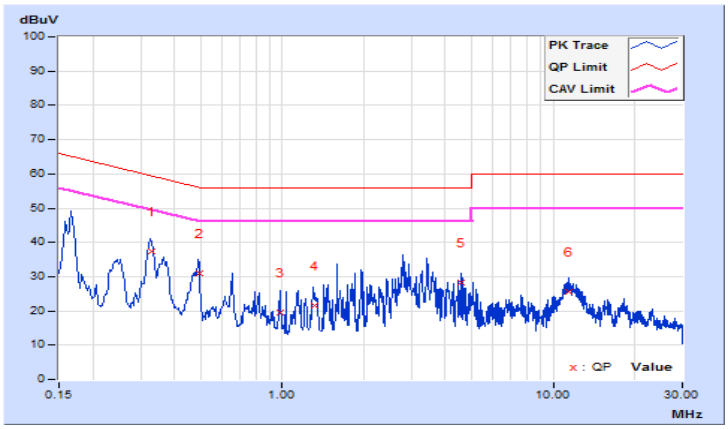


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

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	0.33000	9.68	27.57	13.78	37.25	23.46	59.45	49.45	-22.20	-25.99
2	0.49400	9.68	21.21	9.48	30.89	19.16	56.10	46.10	-25.21	-26.94
3	0.97890	9.69	9.93	1.00	19.62	10.69	56.00	46.00	-36.38	-35.31
4	1.31000	9.70	12.01	1.86	21.71	11.56	56.00	46.00	-34.29	-34.44
5	4.55800	9.78	18.51	2.92	28.29	12.70	56.00	46.00	-27.71	-33.30
6	11.36200	9.86	15.85	3.75	25.71	13.61	60.00	50.00	-34.29	-36.39

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.



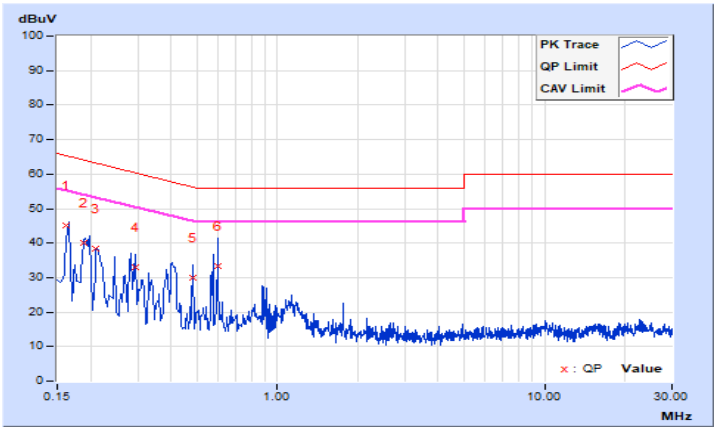
802.11b

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

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	0.16105	9.76	35.52	18.56	45.28	28.32	65.41	55.41	-20.13	-27.09
2	0.18814	9.77	30.37	15.18	40.14	24.95	64.12	54.12	-23.98	-29.17
3	0.21000	9.77	28.76	13.25	38.53	23.02	63.21	53.21	-24.68	-30.19
4	0.29366	9.80	23.10	7.68	32.90	17.48	60.42	50.42	-27.52	-32.94
5	0.48063	9.84	20.28	4.43	30.12	14.27	56.33	46.33	-26.21	-32.06
6	0.59653	9.86	23.56	5.41	33.42	15.27	56.00	46.00	-22.58	-30.73

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.

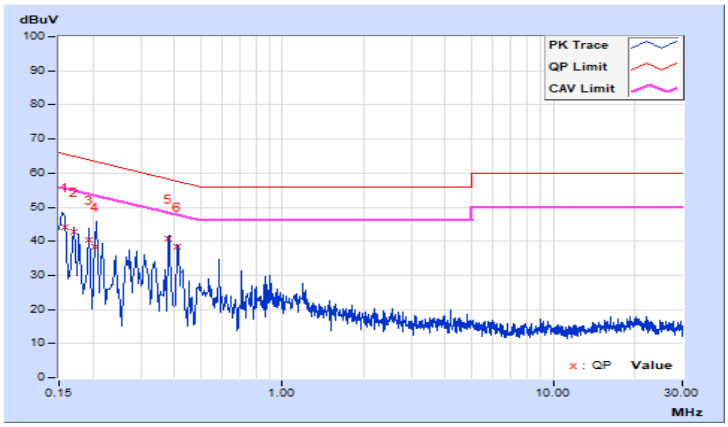


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

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	9.81	34.31	18.24	44.12	28.05	65.57	55.57	-21.45	-27.52
2	0.16932	9.81	32.98	19.63	42.79	29.44	64.99	54.99	-22.20	-25.55
3	0.19265	9.83	30.45	16.36	40.28	26.19	63.92	53.92	-23.64	-27.73
4	0.20415	9.83	28.43	14.87	38.26	24.70	63.44	53.44	-25.18	-28.74
5	0.37817	9.89	30.89	18.16	40.78	28.05	58.32	48.32	-17.54	-20.27
6	0.40927	9.90	28.36	25.41	38.26	35.31	57.66	47.66	-19.40	-12.35

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.

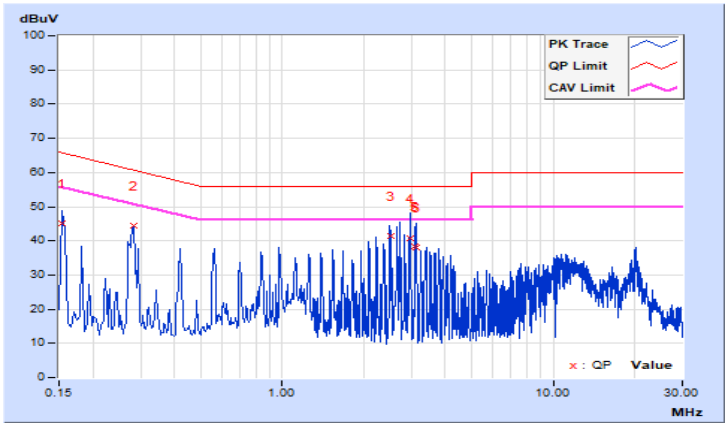


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	D		

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	0.15400	9.67	35.53	5.35	45.20	15.02	65.78	55.78	-20.58	-40.76
2	0.28154	9.68	34.71	33.24	44.39	42.92	60.77	50.77	-16.38	-7.85
3	2.51395	9.74	31.57	22.52	41.31	32.26	56.00	46.00	-14.69	-13.74
4	2.95800	9.74	31.00	3.66	40.74	13.40	56.00	46.00	-15.26	-32.60
5	3.09400	9.74	28.60	16.24	38.34	25.98	56.00	46.00	-17.66	-20.02
6	3.11000	9.74	28.19	13.43	37.93	23.17	56.00	46.00	-18.07	-22.83

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.

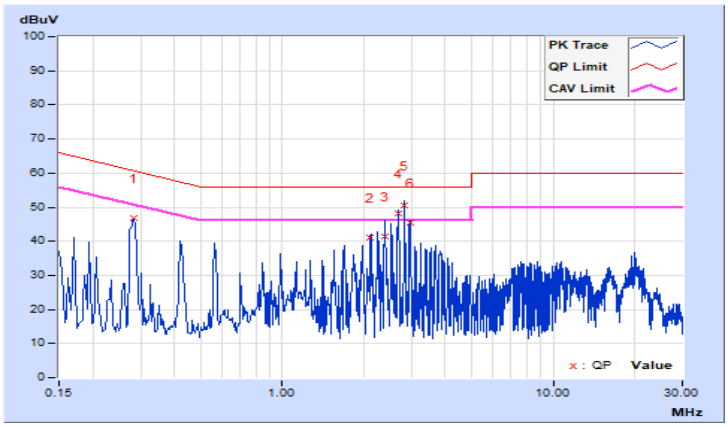


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	D		

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	0.28200	9.75	37.17	35.01	46.92	44.76	60.76	50.76	-13.84	-6.00
2	2.11000	9.80	31.22	18.59	41.02	28.39	56.00	46.00	-14.98	-17.61
3	2.39000	9.80	31.50	17.61	41.30	27.41	56.00	46.00	-14.70	-18.59
4	2.67800	9.81	38.20	26.01	48.01	35.82	56.00	46.00	-7.99	-10.18
5	**2.81400**	**9.81**	**40.53**	**28.20**	**50.34**	**38.01**	**56.00**	**46.00**	**-5.66**	**-7.99**
6	2.96600	9.81	35.62	23.67	45.43	33.48	56.00	46.00	-10.57	-12.52

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.

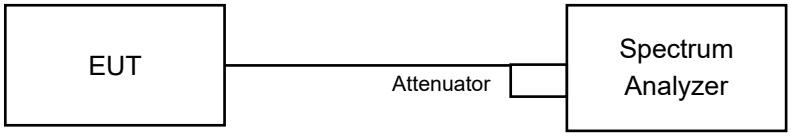


4.3 6dB Bandwidth Measurement

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

Mode A

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	8.07	8.07	8.08	8.08	0.5	Pass
6	2437	8.10	8.10	8.10	7.63	0.5	Pass
11	2462	7.12	7.12	7.12	7.60	0.5	Pass

802.11g

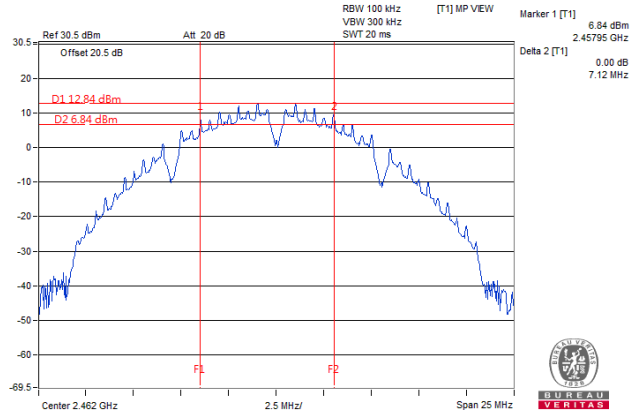
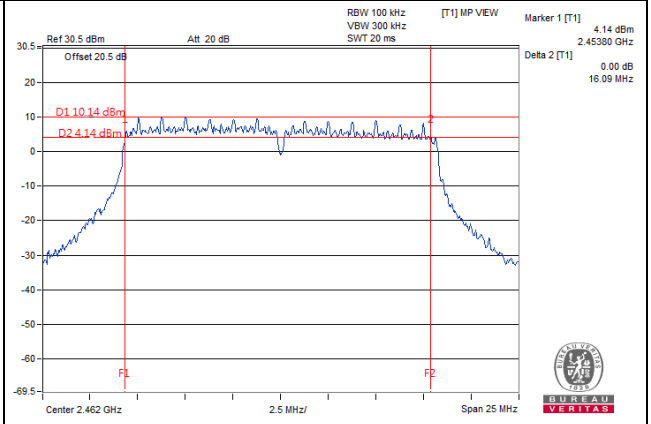
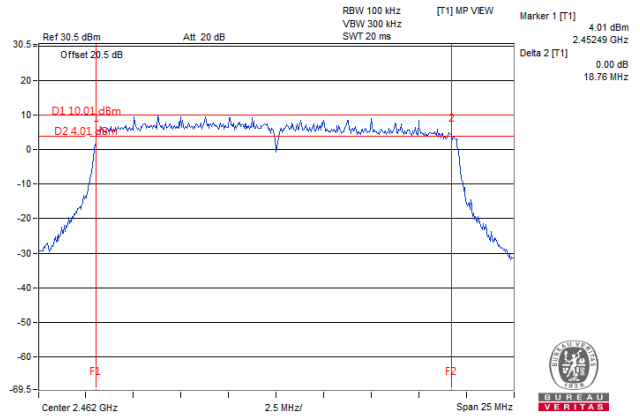
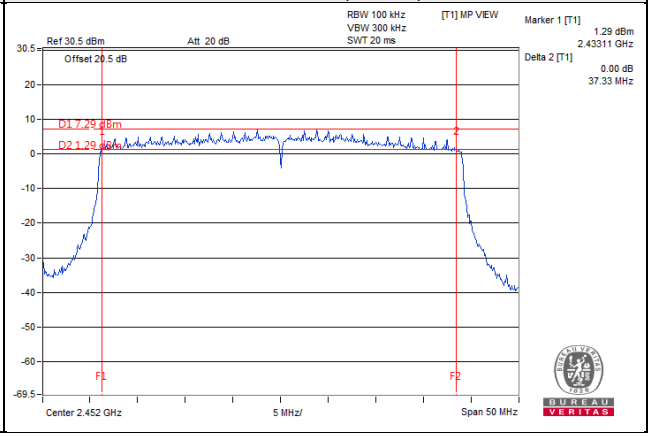
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	16.35	16.36	16.36	16.36	0.5	Pass
6	2437	16.39	16.39	16.39	16.38	0.5	Pass
11	2462	16.33	16.31	16.09	16.10	0.5	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	18.80	18.81	18.80	18.84	0.5	Pass
6	2437	18.97	19.01	18.98	18.98	0.5	Pass
11	2462	18.76	18.80	18.80	18.85	0.5	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
3	2422	37.65	37.51	37.49	37.39	0.5	Pass
6	2437	38.28	38.04	38.21	38.20	0.5	Pass
9	2452	37.60	37.62	37.61	37.33	0.5	Pass

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

Mode C

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	6.57	0.50	Pass
6	2437	6.60	0.50	Pass
11	2462	6.17	0.50	Pass

802.11g

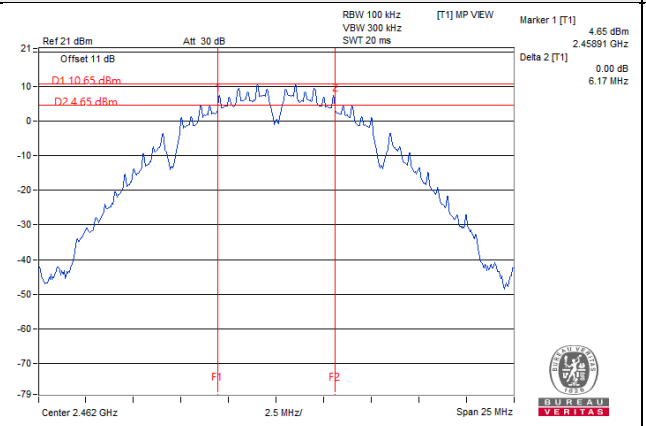
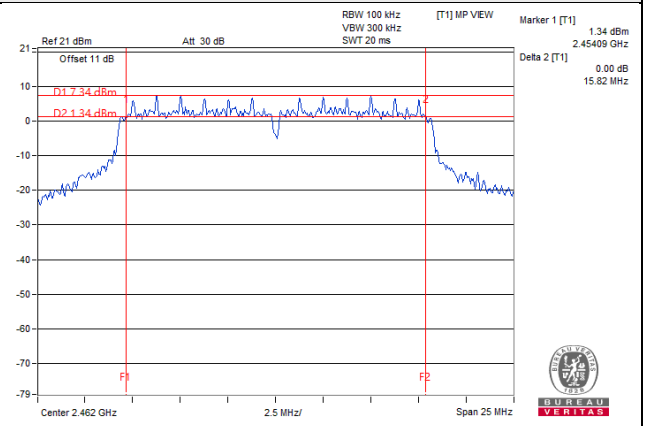
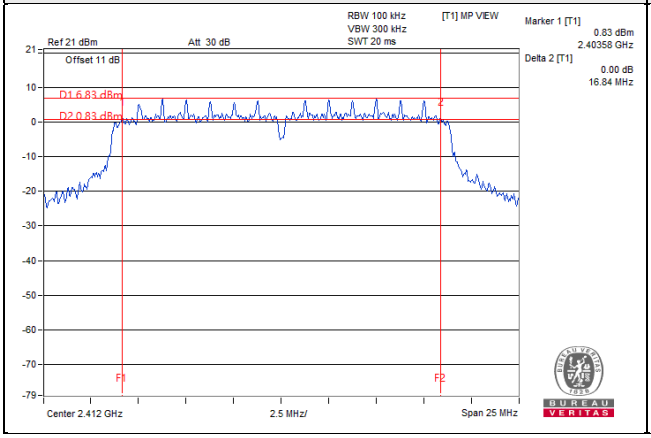
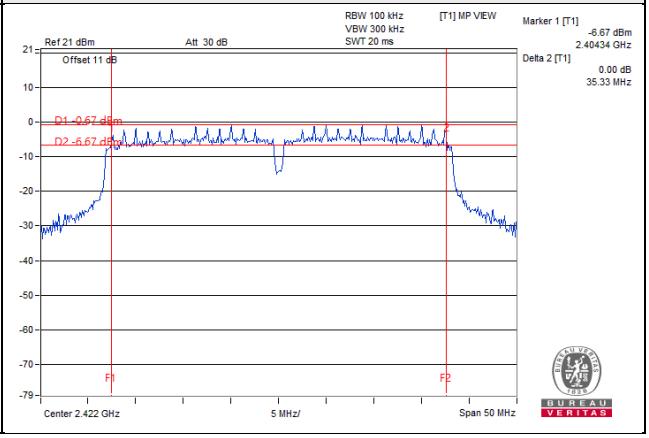
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	16.07	0.50	Pass
6	2437	16.08	0.50	Pass
11	2462	15.82	0.50	Pass

802.11ac (VHT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	16.84	0.50	Pass
6	2437	16.87	0.50	Pass
11	2462	16.85	0.50	Pass

802.11ac (VHT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
3	2422	35.33	0.50	Pass
6	2437	35.50	0.50	Pass
9	2452	35.50	0.50	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

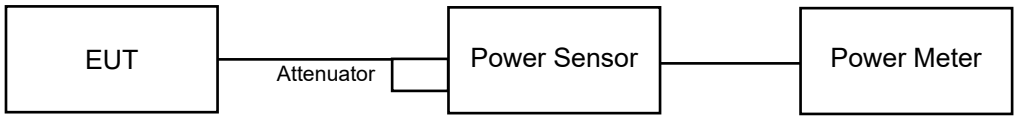
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

Mode A

CDD Mode

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	21.52	21.66	21.35	21.14	554.936	27.44	30	Pass
6	2437	21.93	21.83	22.56	21.42	**627.338**	27.98	30	Pass
11	2462	21.63	22.57	21.31	21.12	590.890	27.72	30	Pass

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	21.33	21.43	21.17	21.30	540.641	27.33	30	Pass
6	2437	21.71	21.88	21.55	21.65	591.529	27.72	30	Pass
11	2462	21.61	21.55	21.47	21.53	570.281	27.56	30	Pass

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	21.32	21.16	21.02	21.06	520.254	27.16	30	Pass
6	2437	21.82	21.63	21.49	21.51	580.109	27.64	30	Pass
11	2462	21.69	21.38	21.21	21.41	555.461	27.45	30	Pass

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	21.32	21.23	21.19	21.31	534.988	27.28	30	Pass
6	2437	21.72	21.63	21.69	21.65	587.928	27.69	30	Pass
9	2452	21.08	21.16	21.06	21.02	512.968	27.10	30	Pass

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	21.38	21.21	21.09	21.13	527.780	27.22	30	Pass
6	2437	21.86	21.69	21.55	21.59	588.133	27.69	30	Pass
11	2462	21.75	21.45	21.27	21.48	563.833	27.51	30	Pass

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	21.38	21.29	21.26	21.38	543.054	27.35	30	Pass
6	2437	21.78	21.69	21.75	21.73	596.791	27.76	30	Pass
9	2452	21.16	21.23	21.15	21.12	523.093	27.19	30	Pass

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	21.52	21.33	21.18	21.22	541.391	27.34	30	Pass
6	2437	22.01	21.85	21.72	21.73	609.493	27.85	30	Pass
11	2462	21.83	21.56	21.45	21.63	580.807	27.64	30	Pass

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	21.58	21.45	21.41	21.54	564.500	27.52	30	Pass
6	2437	21.95	21.86	21.91	21.83	617.781	27.91	30	Pass
9	2452	21.29	21.44	21.28	21.21	540.308	27.33	30	Pass

Beamforming Mode

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	19.68	19.62	19.35	19.49	359.538	25.56	25.99	Pass
6	2437	19.71	19.45	19.50	19.49	359.691	25.56	25.99	Pass
11	2462	19.69	19.54	19.23	19.41	354.111	25.49	25.99	Pass

* Directional Gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/4$]= 10.01dBi > 6dBi , so the power limit shall be reduced to 30-(10.01-6) =25.99dBm.

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	19.32	19.23	19.11	19.38	337.426	25.28	25.99	Pass
6	2437	19.26	19.41	19.34	19.23	341.285	25.33	25.99	Pass
9	2452	19.24	19.22	19.39	19.41	341.699	25.34	25.99	Pass

* Directional Gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/4$]= 10.01dBi > 6dBi , so the power limit shall be reduced to 30-(10.01-6) =25.99dBm.

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	19.42	19.35	19.49	19.28	347.241	25.41	25.99	Pass
6	2437	19.32	19.56	19.45	19.34	349.878	25.44	25.99	Pass
11	2462	19.32	19.56	19.48	19.34	350.489	25.45	25.99	Pass

* Directional Gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/4$]= 10.01dBi > 6dBi , so the power limit shall be reduced to 30-(10.01-6) =25.99dBm.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	19.35	19.33	19.25	19.40	343.039	25.35	25.99	Pass
6	2437	19.27	19.21	19.34	19.29	338.715	25.30	25.99	Pass
9	2452	19.24	19.33	19.51	19.26	343.314	25.36	25.99	Pass

* Directional Gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/4$]= 10.01dBi > 6dBi , so the power limit shall be reduced to 30-(10.01-6) =25.99dBm.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	19.86	19.78	19.69	19.71	**378.540**	25.78	25.99	Pass
6	2437	19.76	19.69	19.65	19.63	371.825	25.70	25.99	Pass
11	2462	19.84	19.57	19.61	19.68	371.264	25.70	25.99	Pass

* Directional Gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/4$]= 10.01dBi > 6dBi , so the power limit shall be reduced to 30-(10.01-6) =25.99dBm.

802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	19.63	19.58	19.36	19.59	359.904	25.56	25.99	Pass
6	2437	19.54	19.49	19.32	19.23	348.129	25.42	25.99	Pass
9	2452	19.66	19.74	19.75	19.66	373.535	25.72	25.99	Pass

* Directional Gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/4$]= 10.01dBi > 6dBi , so the power limit shall be reduced to 30-(10.01-6) =25.99dBm.

Mode C

802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	**72.946**	18.63	30.00	Pass
6	2437	66.988	18.26	30.00	Pass
11	2462	65.013	18.13	30.00	Pass

802.11g

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	54.450	17.36	30.00	Pass
6	2437	63.680	18.04	30.00	Pass
11	2462	49.774	16.97	30.00	Pass

802.11ac (VHT20)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	44.259	16.46	30.00	Pass
6	2437	65.013	18.13	30.00	Pass
11	2462	46.452	16.67	30.00	Pass

802.11ac (VHT40)

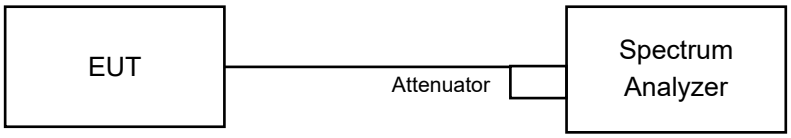
Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
3	2422	19.099	12.81	30.00	Pass
6	2437	50.234	17.01	30.00	Pass
9	2452	10.093	10.04	30.00	Pass

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

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

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as item 4.3.6.

4.5.7 Test Results

Mode A

802.11b

TX chain	Channel	Freq. (MHz)	PSD w/o Duty Factor (dBm/ 10kHz)	PSD w/o Duty Factor (dBm/ 3kHz)	10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Pass / Fail
0	1	2412	-7.24	-12.47	6.02	0.12	-6.33	3.99	Pass
	6	2437	-6.09	-11.32	6.02	0.12	-5.18	3.99	Pass
	11	2462	-6.26	-11.49	6.02	0.12	-5.35	3.99	Pass
1	1	2412	-6.81	-12.04	6.02	0.12	-5.90	3.99	Pass
	6	2437	-6.39	-11.62	6.02	0.12	-5.48	3.99	Pass
	11	2462	-6.60	-11.83	6.02	0.12	-5.69	3.99	Pass
2	1	2412	-6.15	-11.38	6.02	0.12	-5.24	3.99	Pass
	6	2437	-6.77	-12.00	6.02	0.12	-5.86	3.99	Pass
	11	2462	-6.24	-11.47	6.02	0.12	-5.33	3.99	Pass
3	1	2412	-6.08	-11.31	6.02	0.12	-5.17	3.99	Pass
	6	2437	-6.09	-11.81	6.02	0.12	-5.67	3.99	Pass
	11	2462	-6.26	-11.36	6.02	0.12	-5.22	3.99	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional Gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/4$]= 10.01dBi > 6dBi , so the conducted power limit shall be reduced to 8-(10.01-6)=3.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11g

TX chain	Channel	Freq. (MHz)	PSD w/o Duty Factor (dBm/ 10kHz)	PSD w/o Duty Factor (dBm/ 3kHz)	10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Pass / Fail
0	1	2412	-9.86	-15.09	6.02	0.32	-8.75	3.99	Pass
	6	2437	-9.89	-15.12	6.02	0.32	-8.78	3.99	Pass
	11	2462	-9.18	-14.41	6.02	0.32	-8.07	3.99	Pass
1	1	2412	-9.73	-14.96	6.02	0.32	-8.62	3.99	Pass
	6	2437	-9.66	-14.89	6.02	0.32	-8.55	3.99	Pass
	11	2462	-9.00	-14.23	6.02	0.32	-7.89	3.99	Pass
2	1	2412	-9.73	-14.96	6.02	0.32	-8.62	3.99	Pass
	6	2437	-9.75	-14.98	6.02	0.32	-8.64	3.99	Pass
	11	2462	-9.47	-14.70	6.02	0.32	-8.36	3.99	Pass
3	1	2412	-9.85	-15.08	6.02	0.32	-8.74	3.99	Pass
	6	2437	-9.89	-15.07	6.02	0.32	-8.73	3.99	Pass
	11	2462	-9.18	-14.57	6.02	0.32	-8.23	3.99	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional Gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/4$]= 10.01dBi > 6dBi , so the conducted power limit shall be reduced to 8-(10.01-6)=3.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE20)

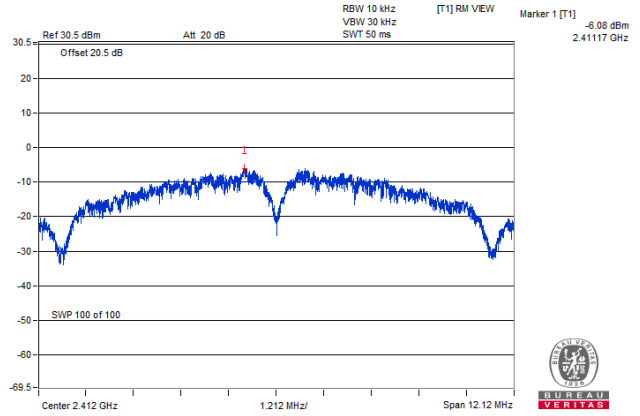
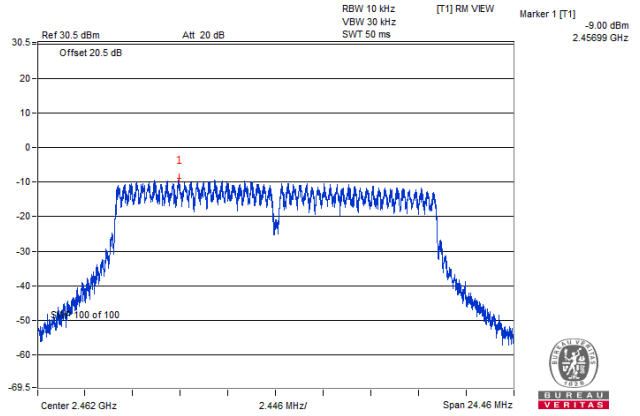
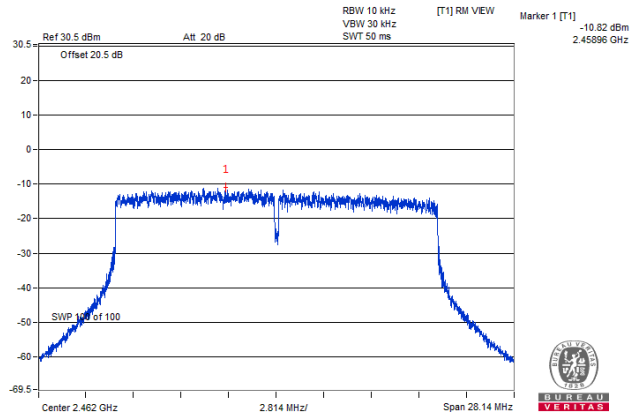
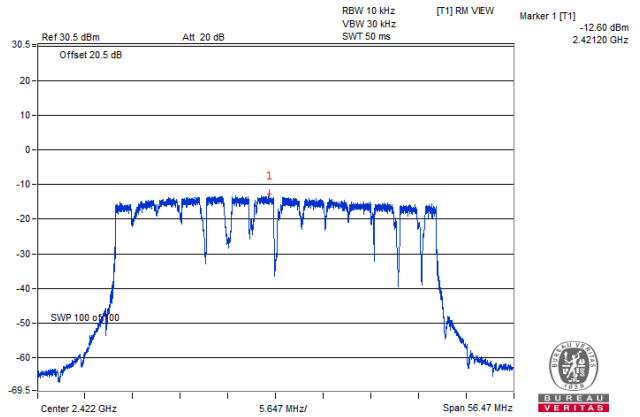
TX chain	Channel	Freq. (MHz)	PSD w/o Duty Factor (dBm/ 10kHz)	PSD w/o Duty Factor (dBm/ 3kHz)	10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Pass / Fail
0	1	2412	-11.46	-16.69	6.02	0.18	-10.49	3.99	Pass
	6	2437	-11.26	-16.49	6.02	0.18	-10.29	3.99	Pass
	11	2462	-10.82	-16.05	6.02	0.18	-9.85	3.99	Pass
1	1	2412	-11.67	-16.90	6.02	0.18	-10.70	3.99	Pass
	6	2437	-10.93	-16.16	6.02	0.18	-9.96	3.99	Pass
	11	2462	-10.86	-16.09	6.02	0.18	-9.89	3.99	Pass
2	1	2412	-11.58	-16.81	6.02	0.18	-10.61	3.99	Pass
	6	2437	-11.30	-16.53	6.02	0.18	-10.33	3.99	Pass
	11	2462	-11.16	-16.39	6.02	0.18	-10.19	3.99	Pass
3	1	2412	-10.99	-16.22	6.02	0.18	-10.02	3.99	Pass
	6	2437	-11.26	-16.55	6.02	0.18	-10.35	3.99	Pass
	11	2462	-10.82	-16.05	6.02	0.18	-9.85	3.99	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional Gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/4$]= 10.01dBi > 6dBi , so the conducted power limit shall be reduced to 8-(10.01-6)=3.99dBm.
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/ 10kHz)	PSD w/o Duty Factor (dBm/ 3kHz)	10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Pass / Fail
0	3	2422	-12.60	-17.83	6.02	0.25	-11.56	3.99	Pass
	6	2437	-13.83	-19.06	6.02	0.25	-12.79	3.99	Pass
	9	2452	-12.96	-18.19	6.02	0.25	-11.92	3.99	Pass
1	3	2422	-13.15	-18.38	6.02	0.25	-12.11	3.99	Pass
	6	2437	-14.05	-19.28	6.02	0.25	-13.01	3.99	Pass
	9	2452	-13.59	-18.82	6.02	0.25	-12.55	3.99	Pass
2	3	2422	-12.84	-18.07	6.02	0.25	-11.80	3.99	Pass
	6	2437	-13.10	-18.33	6.02	0.25	-12.06	3.99	Pass
	9	2452	-13.26	-18.49	6.02	0.25	-12.22	3.99	Pass
3	3	2422	-12.95	-18.18	6.02	0.25	-11.91	3.99	Pass
	6	2437	-13.83	-18.95	6.02	0.25	-12.68	3.99	Pass
	9	2452	-12.96	-18.96	6.02	0.25	-12.69	3.99	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional Gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/4$]= 10.01dBi > 6dBi , so the conducted power limit shall be reduced to 8-(10.01-6)=3.99dBm.
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)
	

Mode C

802.11b

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
1	2412	-13.34	8.00	Pass
6	2437	-13.61	8.00	Pass
11	2462	-13.70	8.00	Pass

802.11g

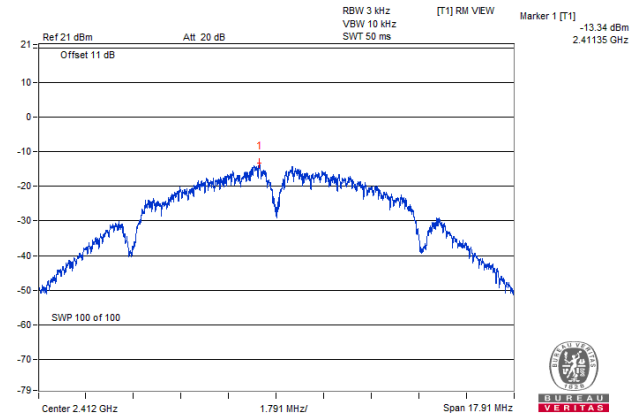
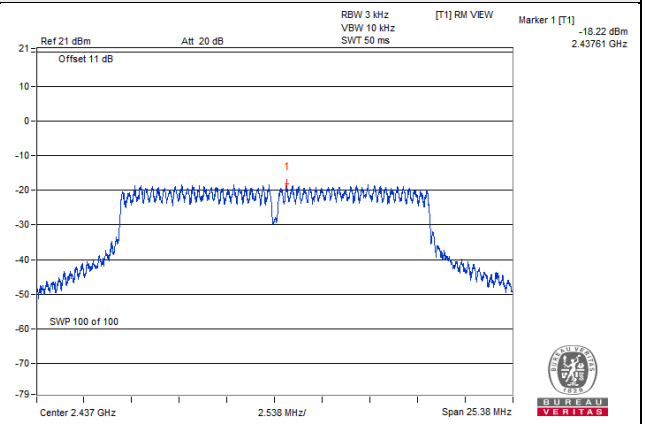
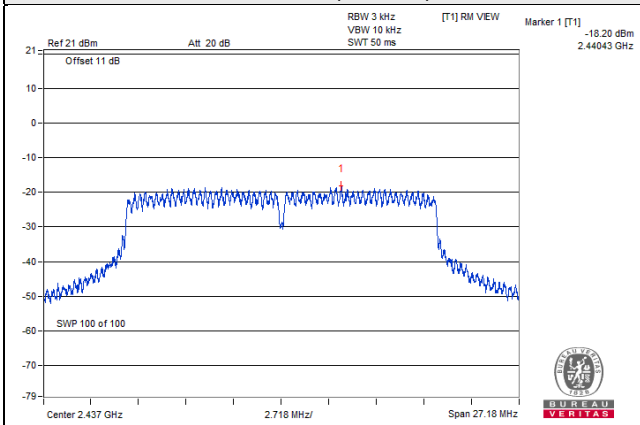
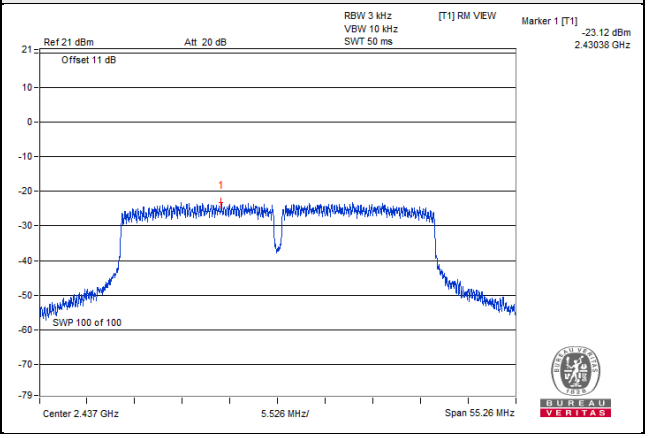
Channel	Frequency (MHz)	PSD W/O Duty Factor (dBm/3kHz)	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
1	2412	-18.86	0.24	-18.62	8.00	Pass
6	2437	-18.22	0.24	-17.98	8.00	Pass
11	2462	-19.82	0.24	-19.58	8.00	Pass

802.11ac (VHT20)

Channel	Frequency (MHz)	PSD W/O Duty Factor (dBm/3kHz)	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
1	2412	-19.88	0.22	-19.65	8.00	Pass
6	2437	-18.20	0.22	-17.98	8.00	Pass
11	2462	-19.76	0.22	-19.54	8.00	Pass

802.11ac (VHT40)

Channel	Frequency (MHz)	PSD W/O Duty Factor (dBm/3kHz)	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
3	2422	-26.98	0.42	-26.56	8.00	Pass
6	2437	-23.12	0.42	-22.70	8.00	Pass
9	2452	-29.65	0.42	-29.23	8.00	Pass

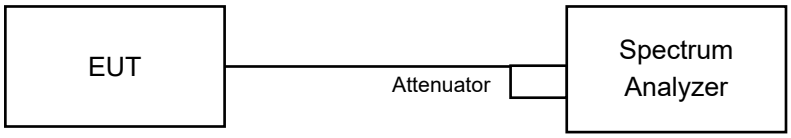
Spectrum Plot of Worst Value	
802.11b	802.11g
	
802.11ac (VHT20)	802.11ac (VHT40)
	

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.

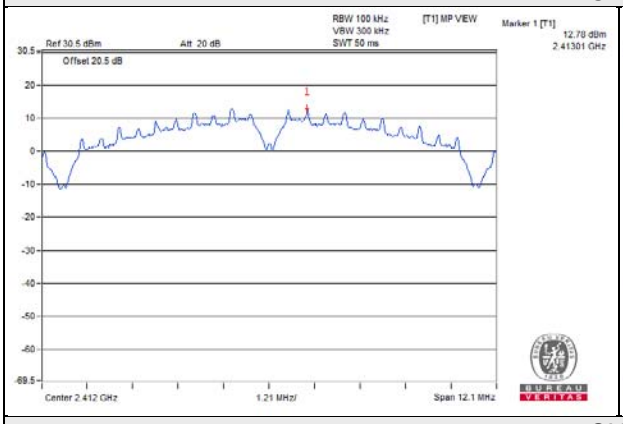
4.6.7 Test Results

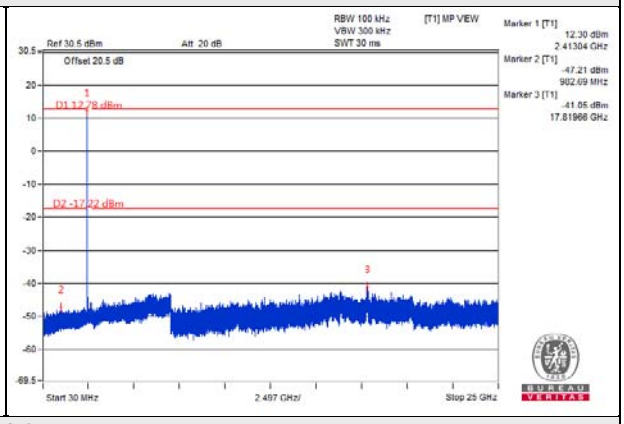
The conducted emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit.
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows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

Mode A

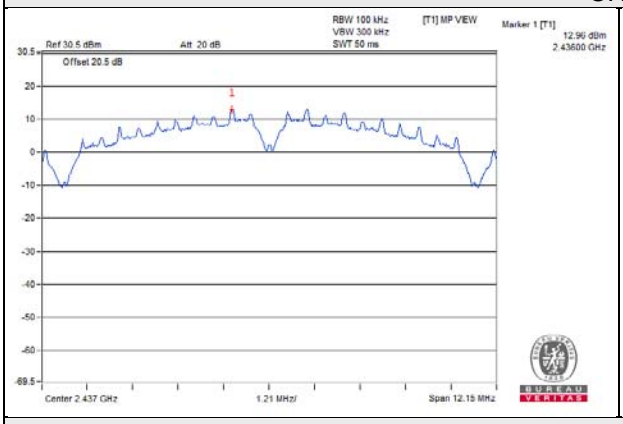
802.11b_Chain 0

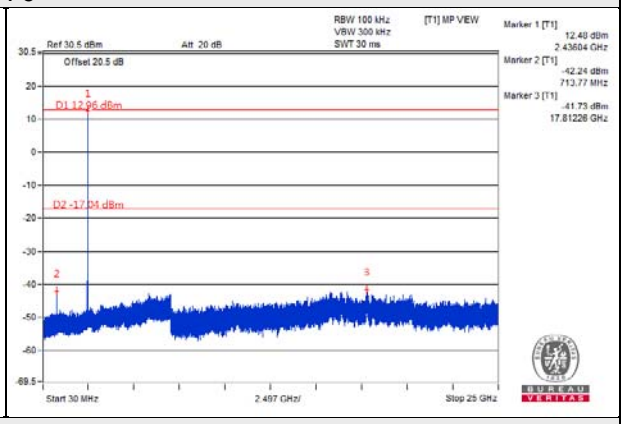
CH 1



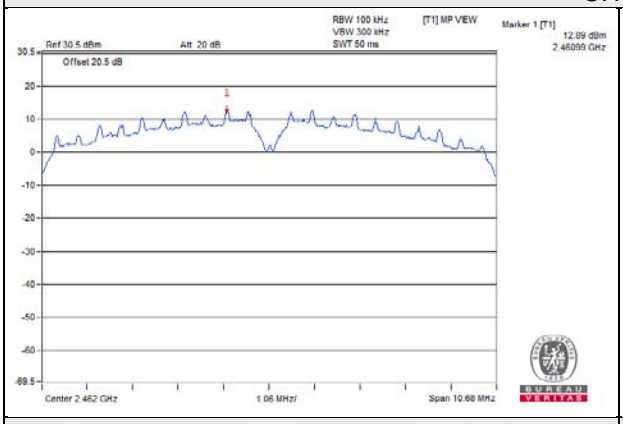


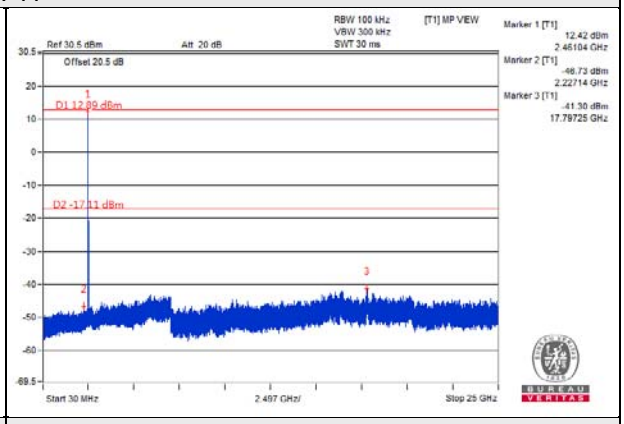
CH 6



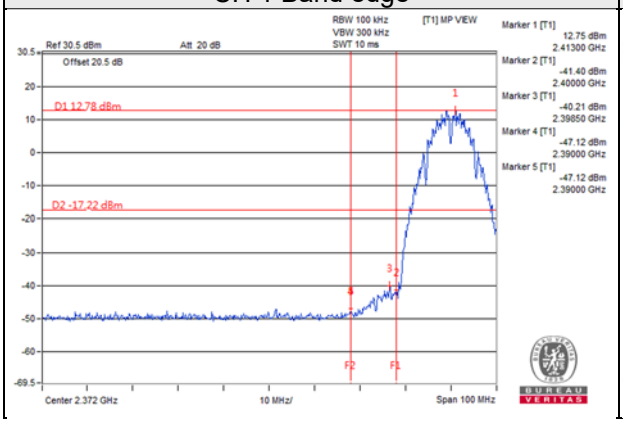


CH 11

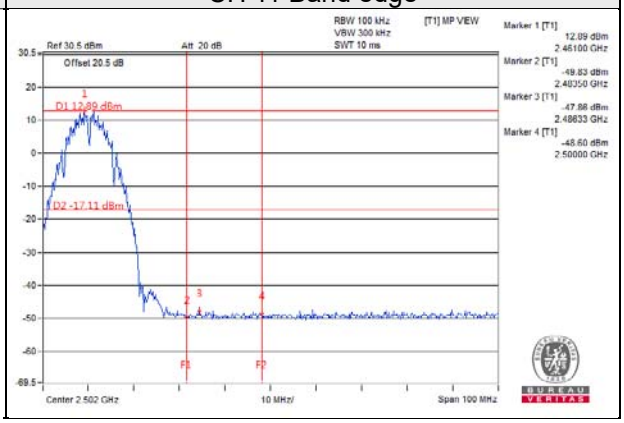




CH 1 Band edge

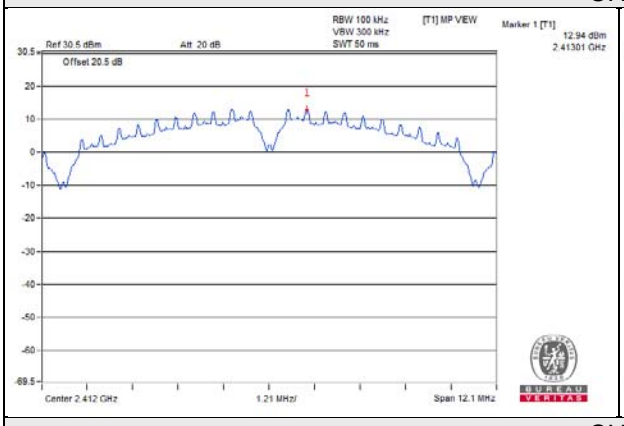


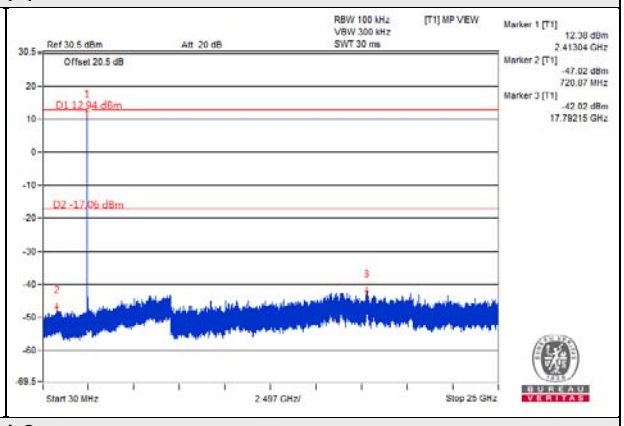
CH 11 Band edge



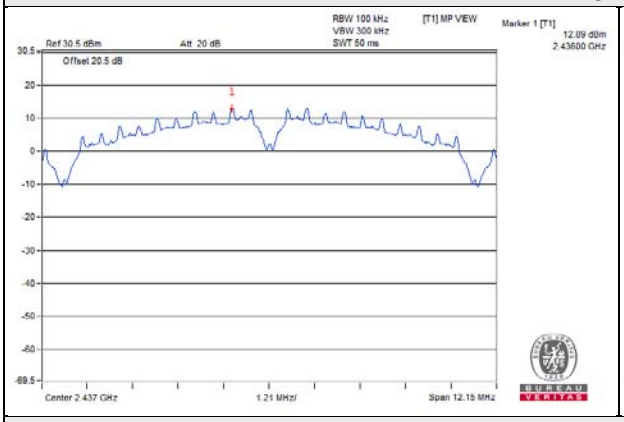
802.11b_Chain 1

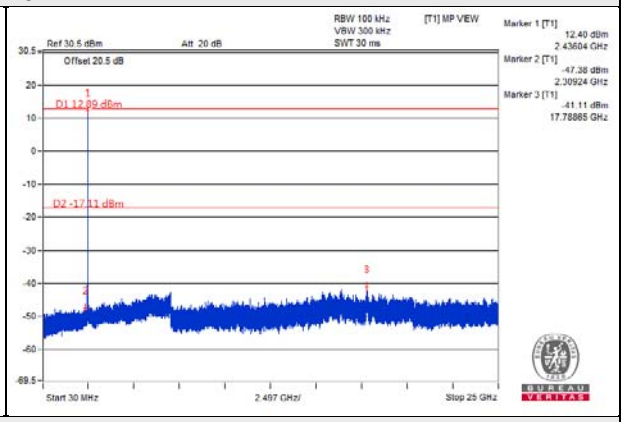
CH 1



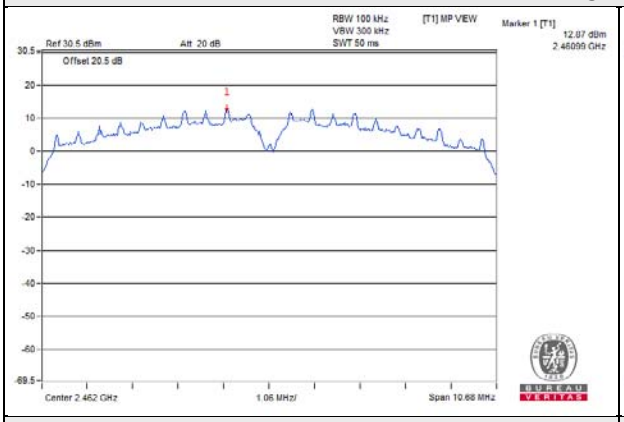


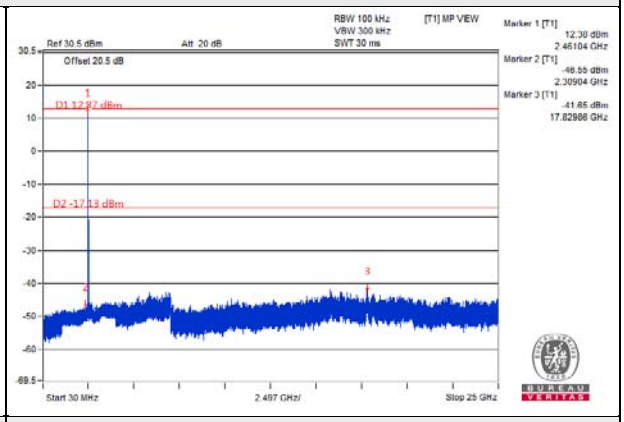
CH 6



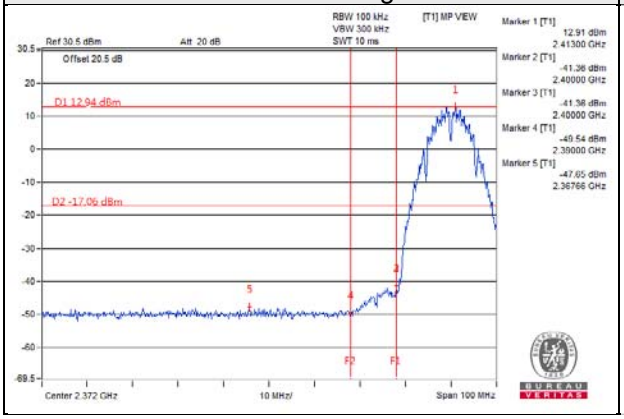


CH 11

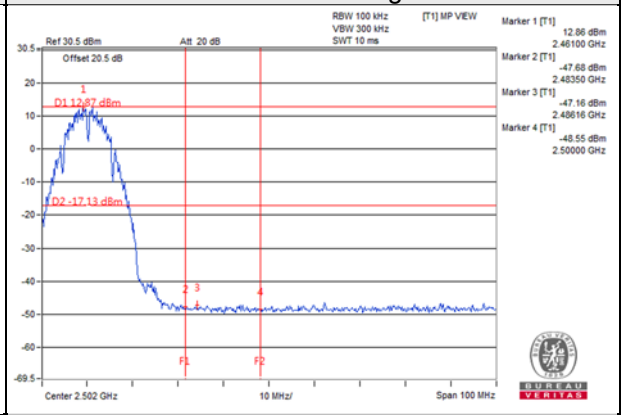




CH 1 Band edge

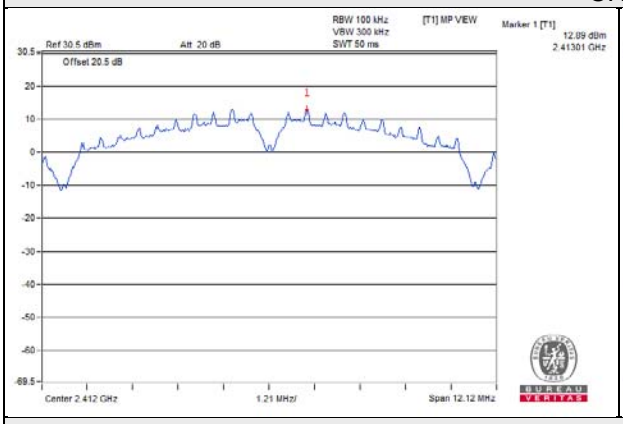


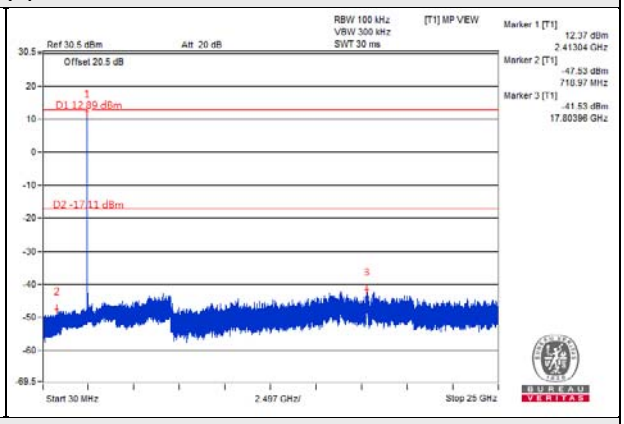
CH 11 Band edge



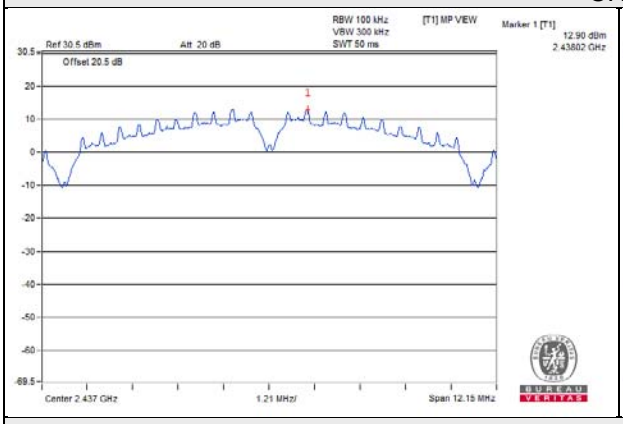
802.11b_Chain 2

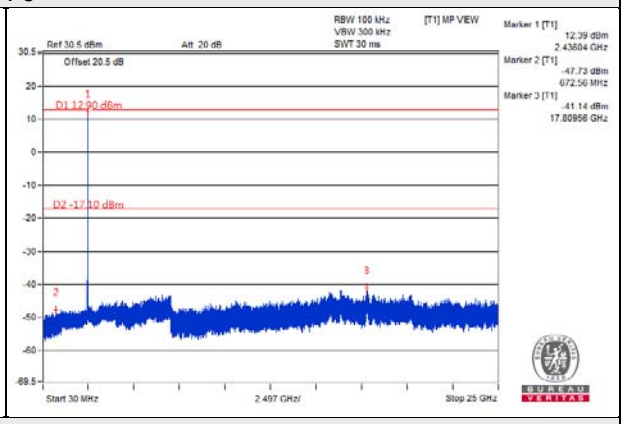
CH 1



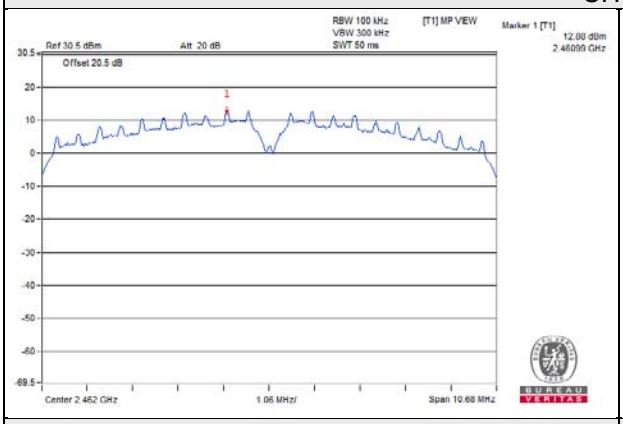


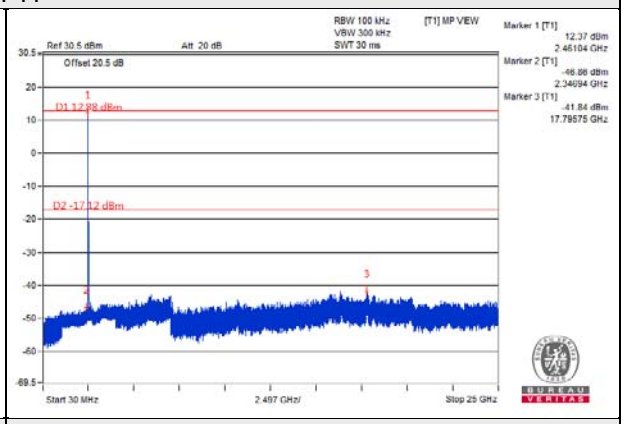
CH 6



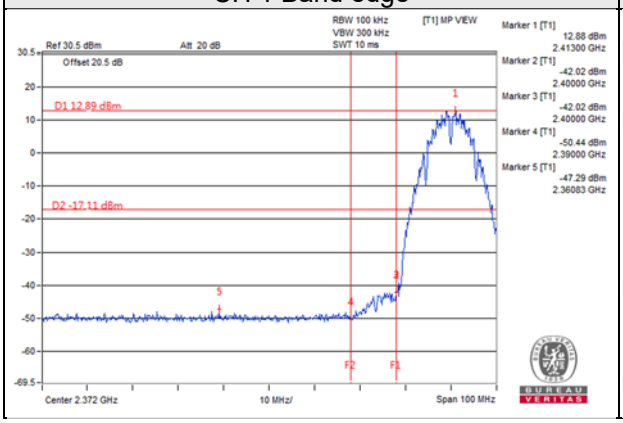


CH 11

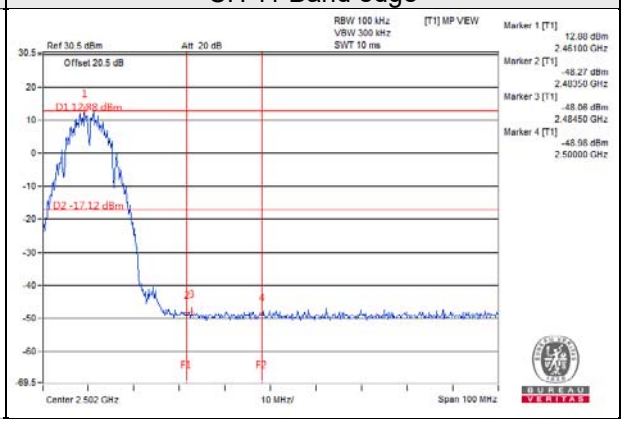




CH 1 Band edge

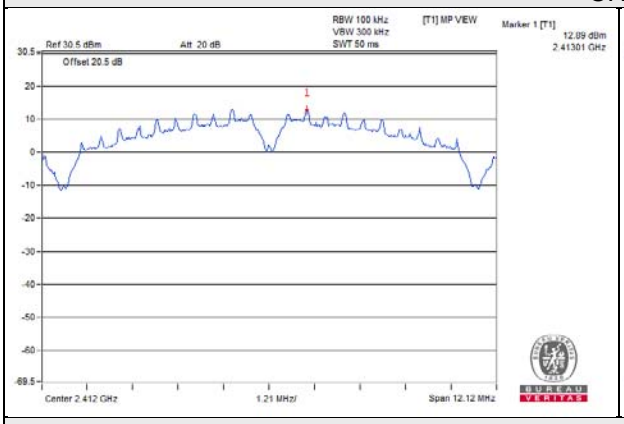


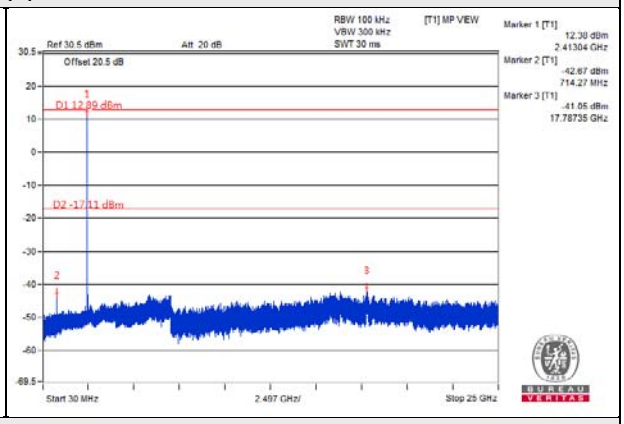
CH 11 Band edge



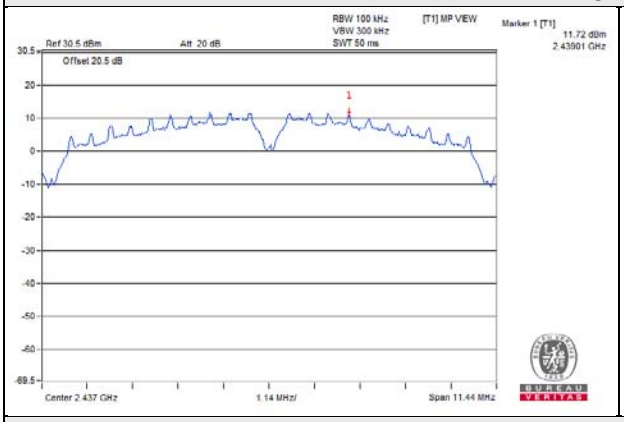
802.11b_Chain 3

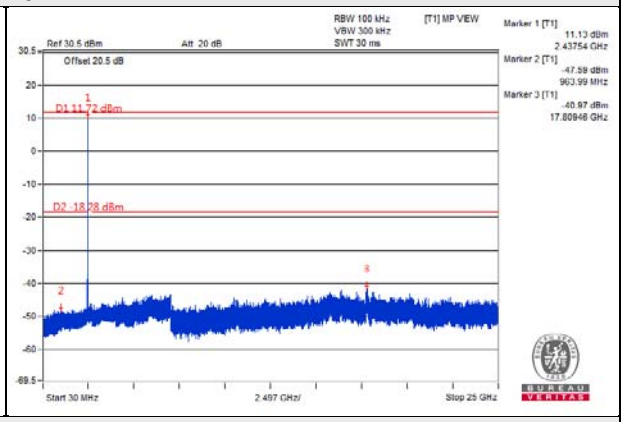
CH 1



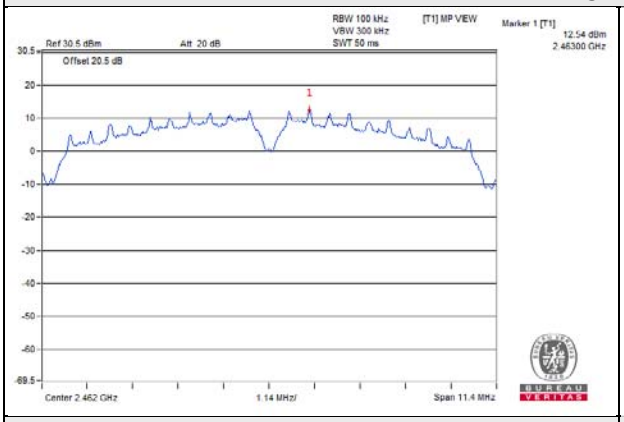


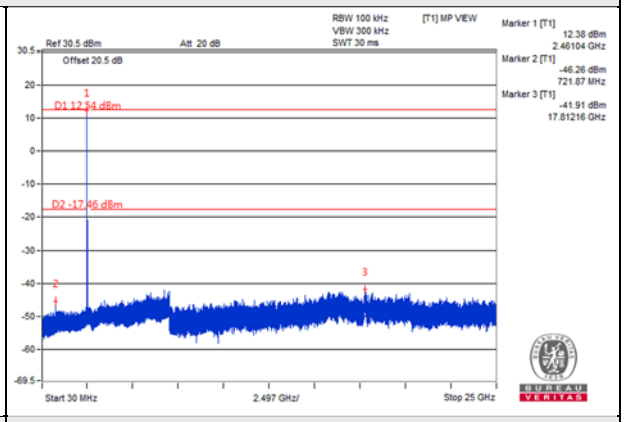
CH 6



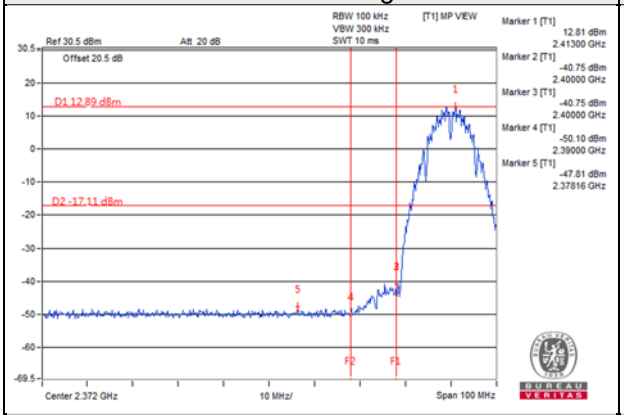


CH 11

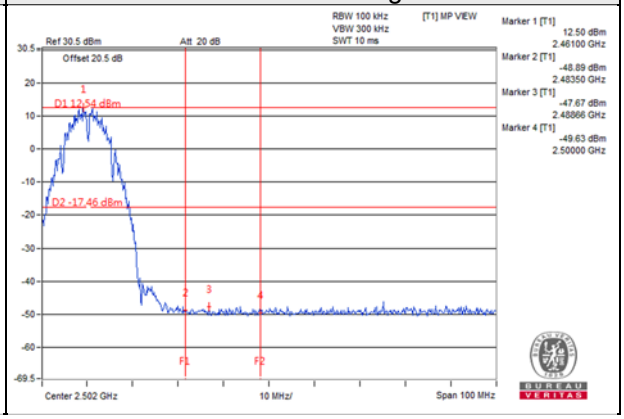




CH 1 Band edge

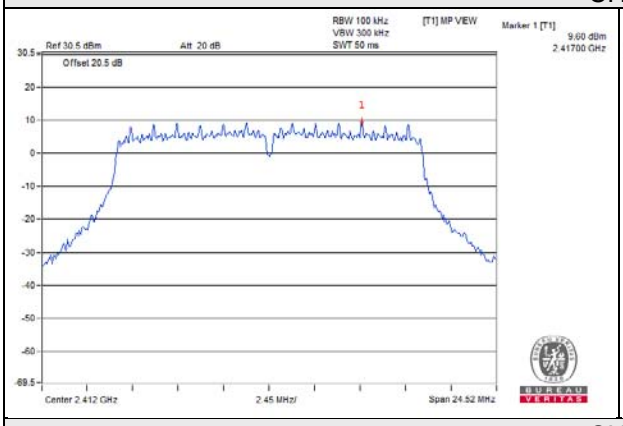


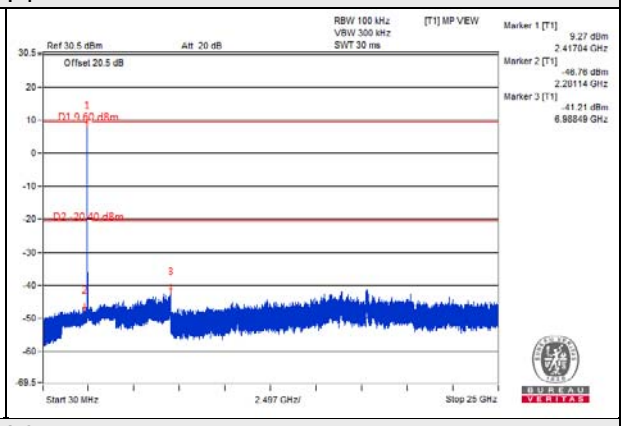
CH 11 Band edge



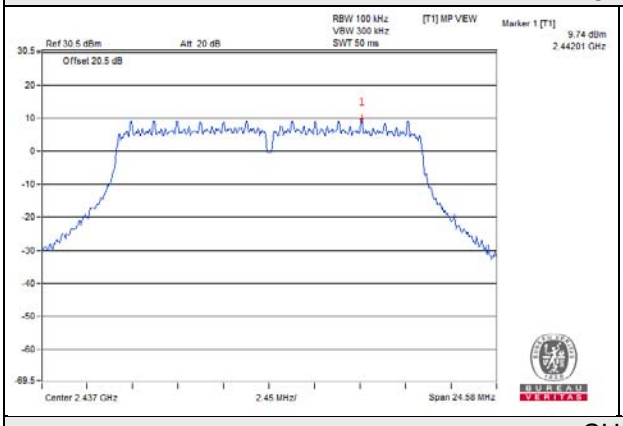
802.11g_Chain 0

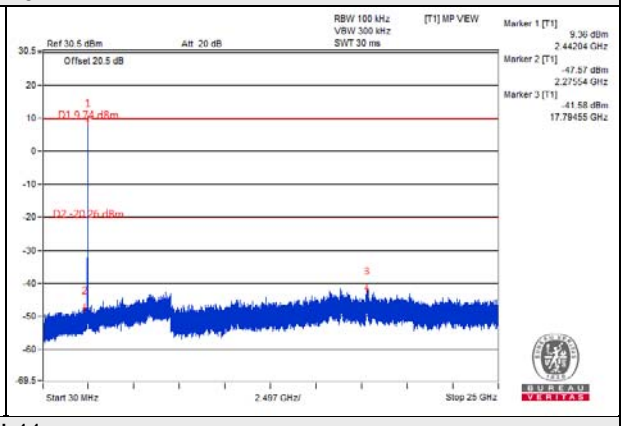
CH 1



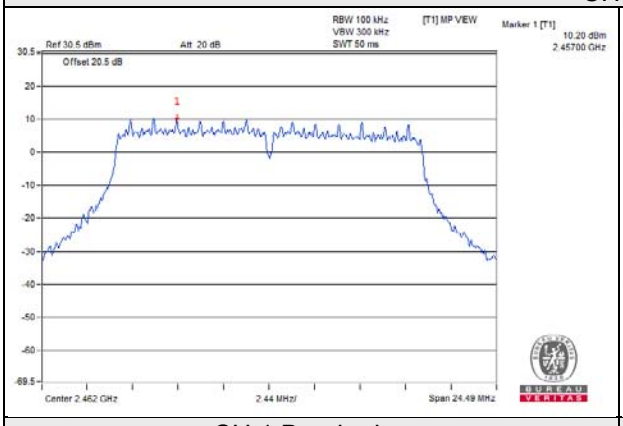


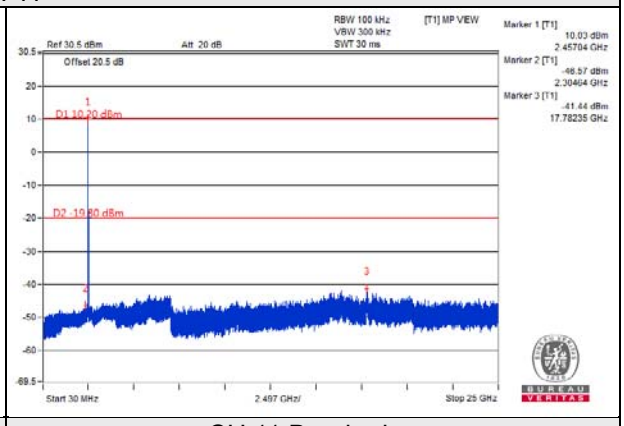
CH 6



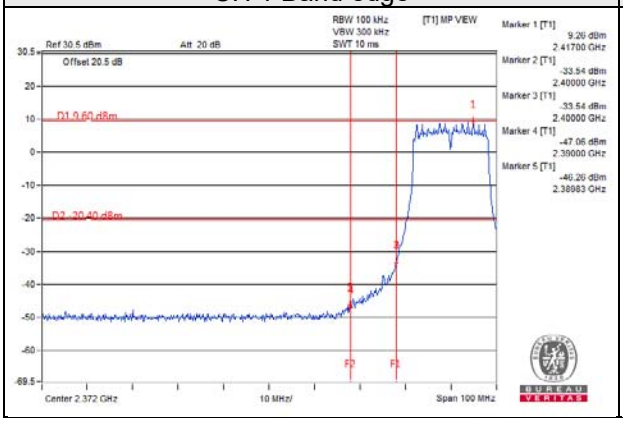


CH 11

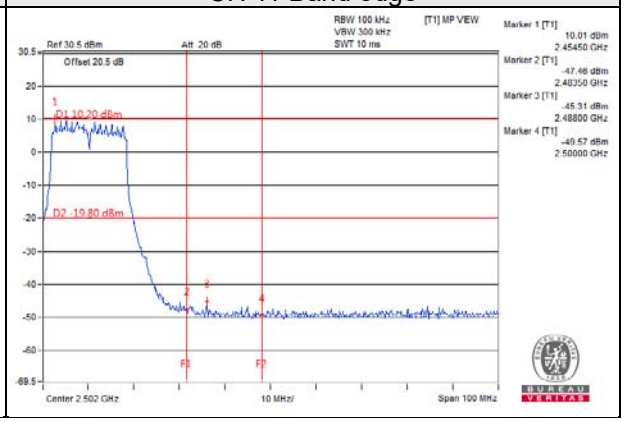




CH 1 Band edge

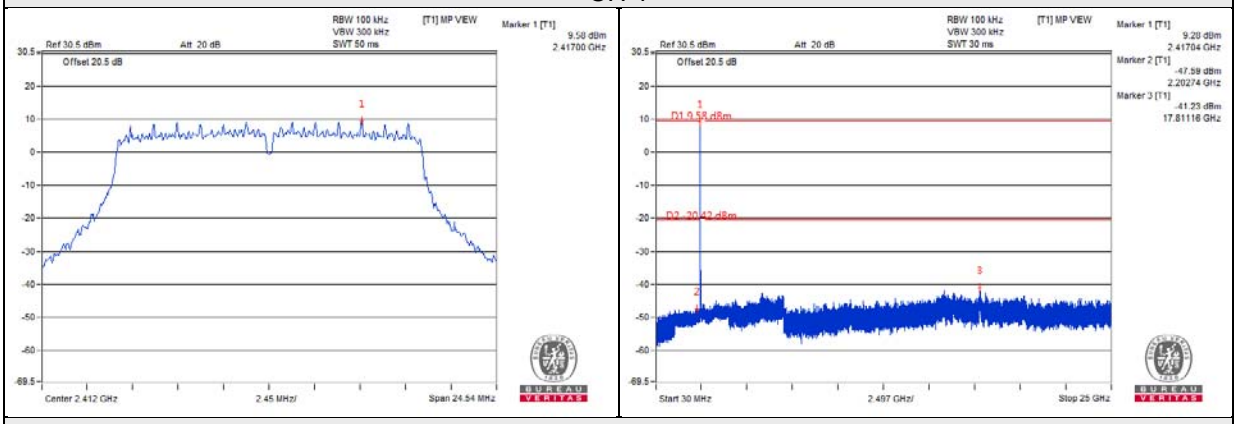


CH 11 Band edge

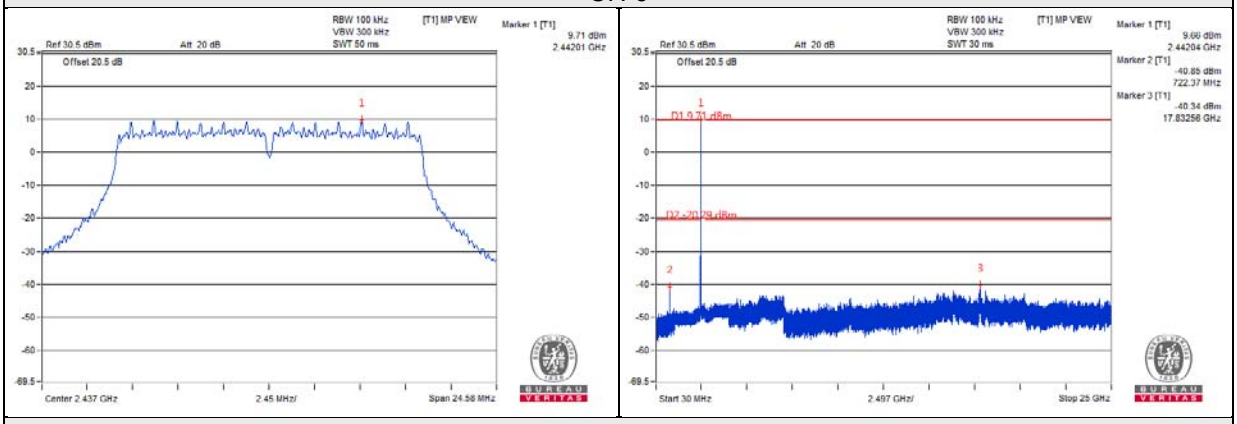


802.11g_Chain 1

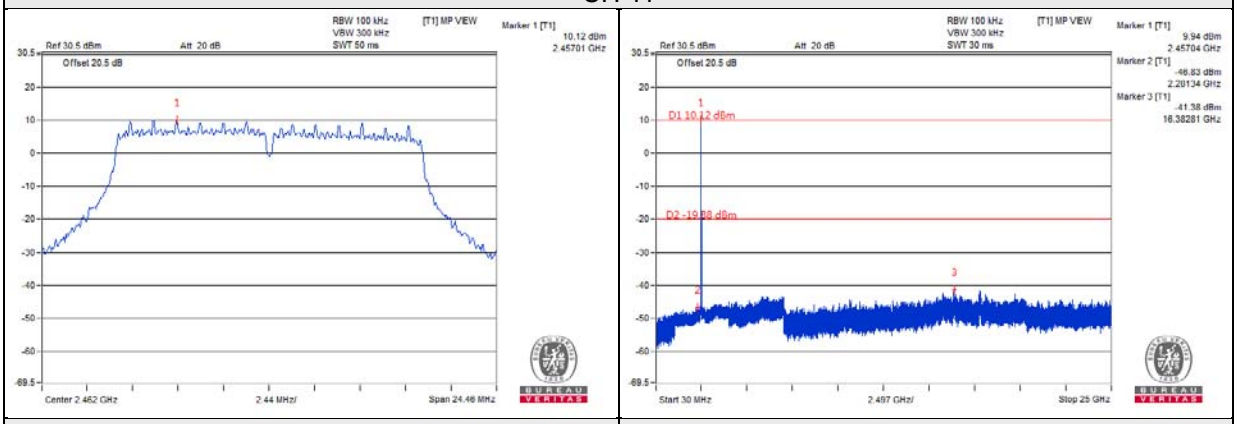
CH 1



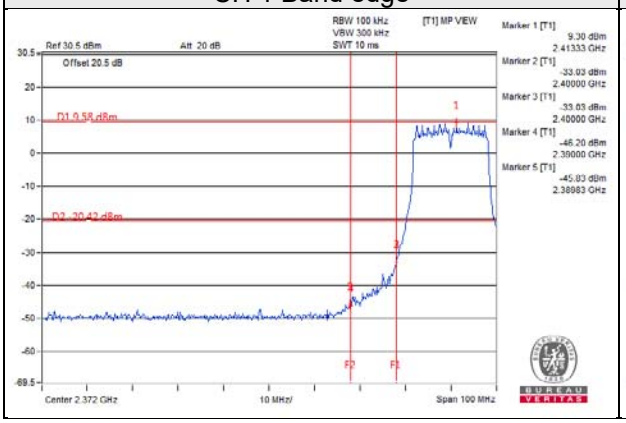
CH 6



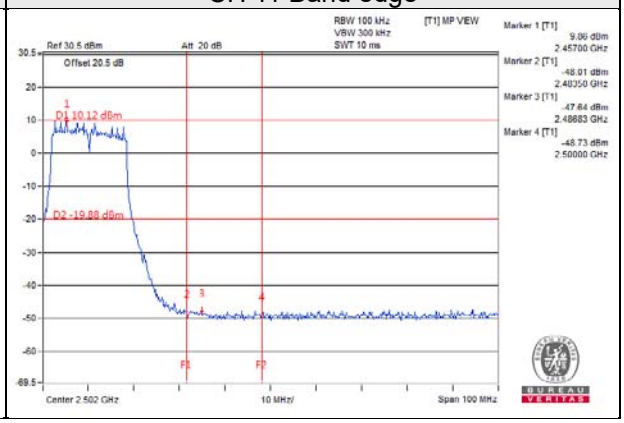
CH 11



CH 1 Band edge

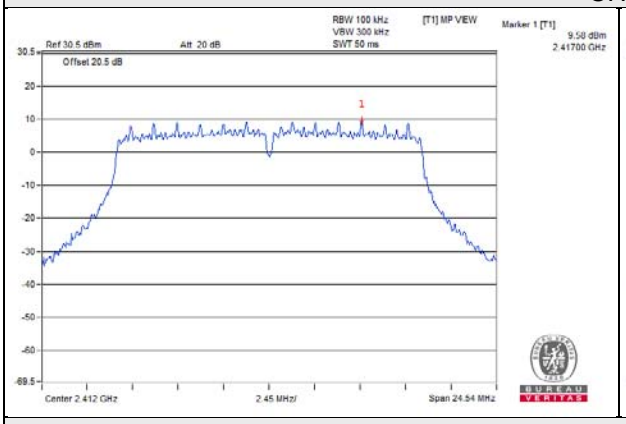


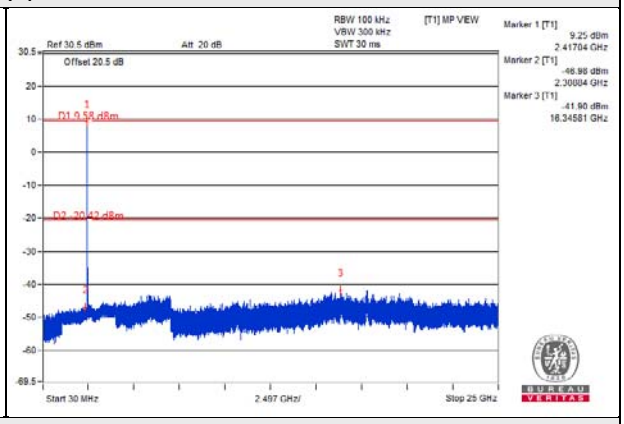
CH 11 Band edge



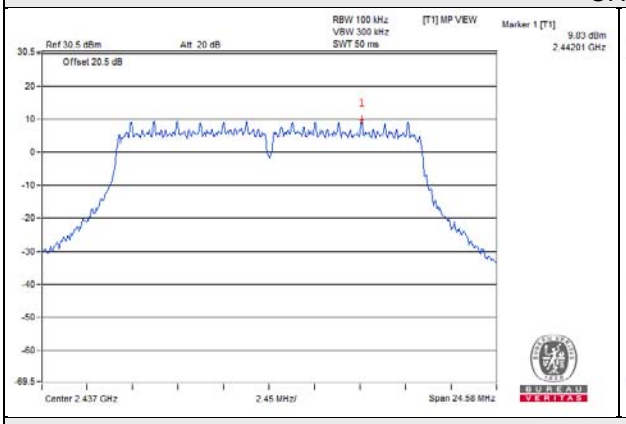
802.11g_Chain 2

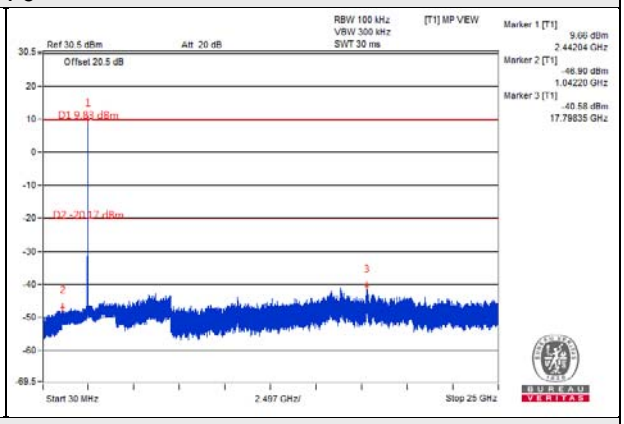
CH 1



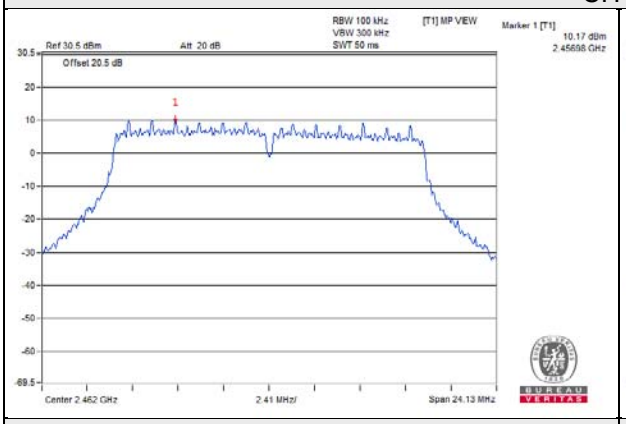


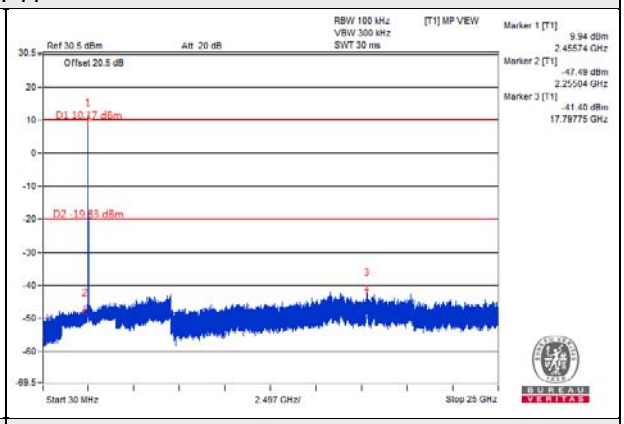
CH 6



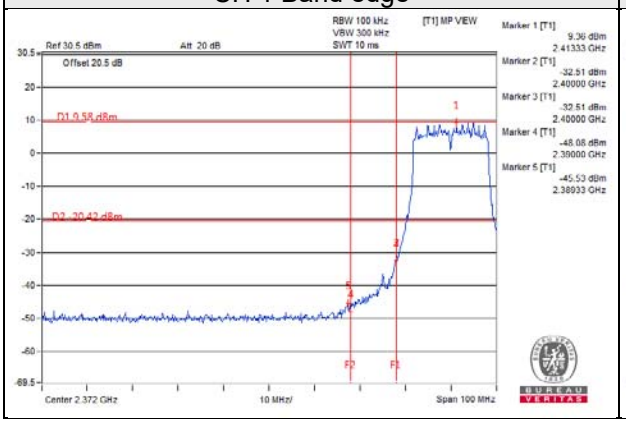


CH 11

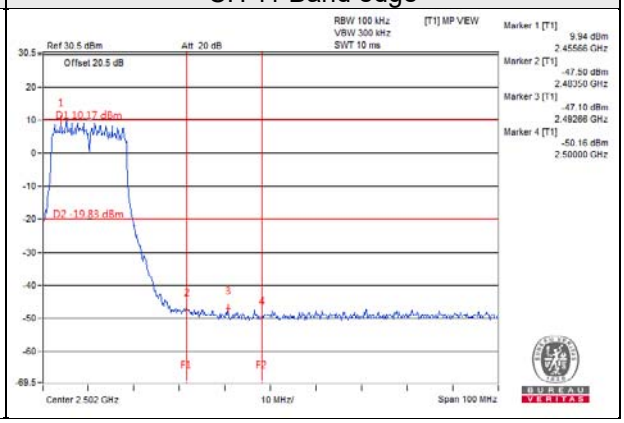




CH 1 Band edge

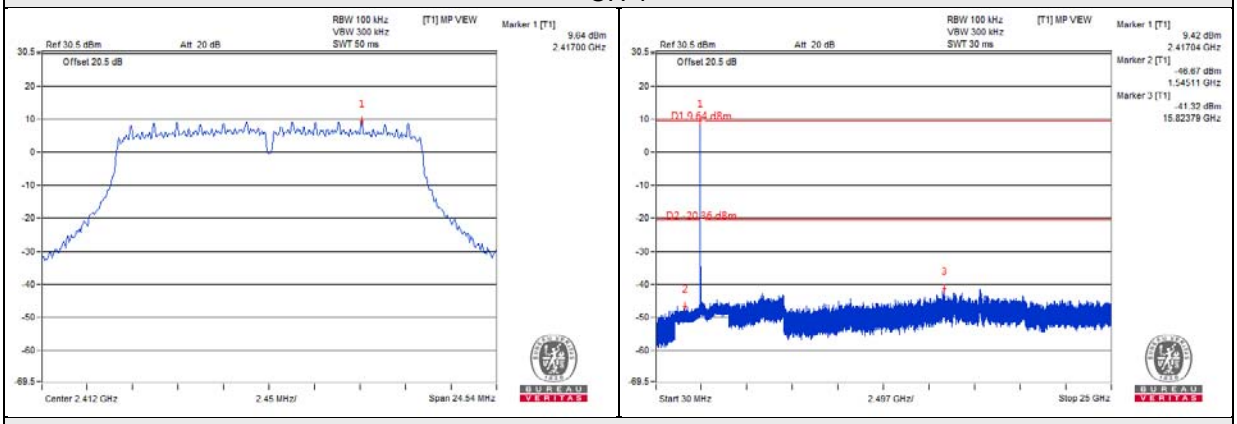


CH 11 Band edge

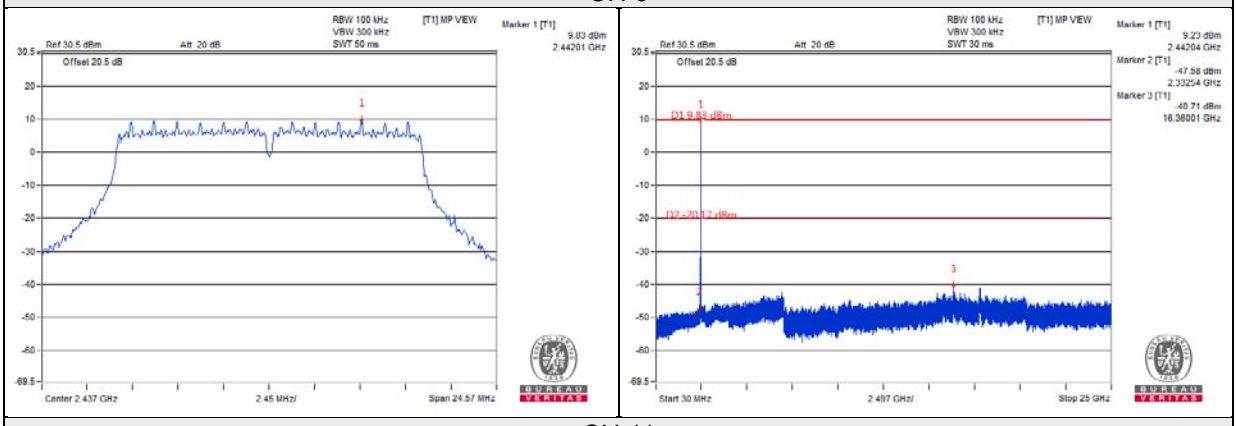


802.11g_Chain 3

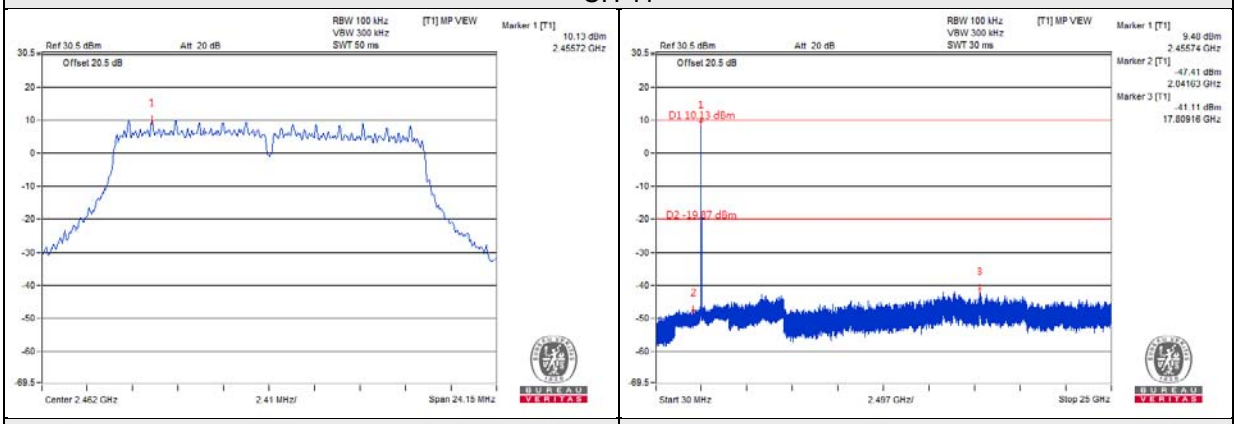
CH 1



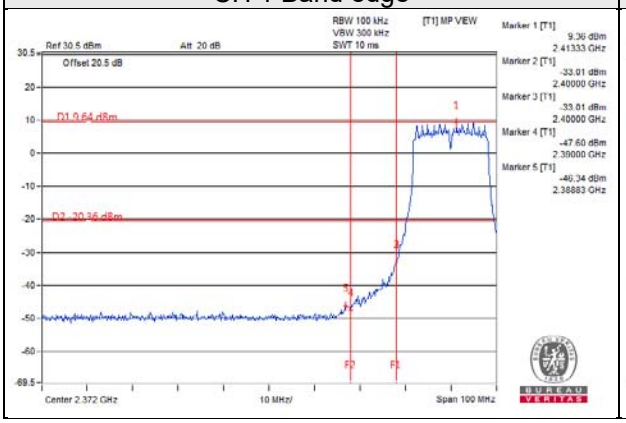
CH 6



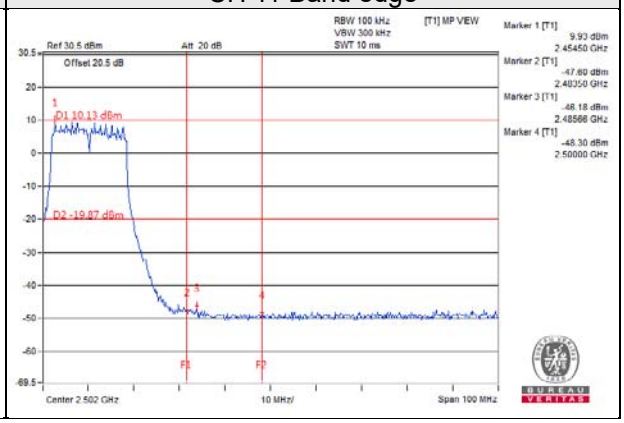
CH 11



CH 1 Band edge

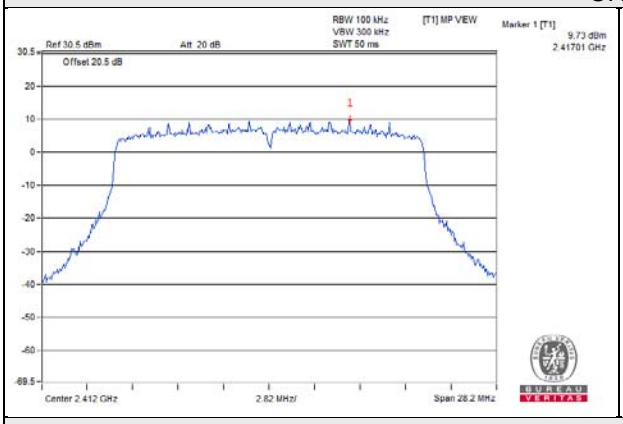


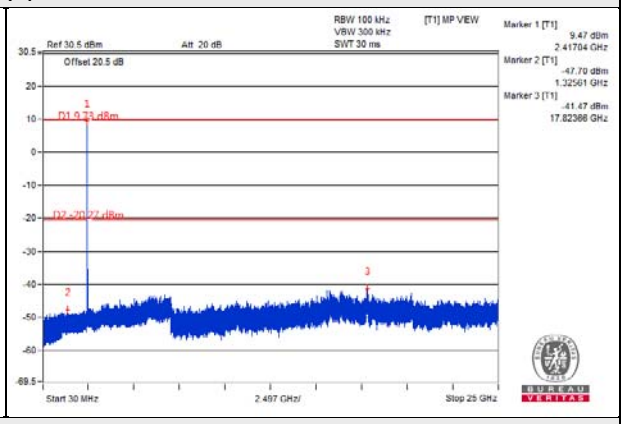
CH 11 Band edge



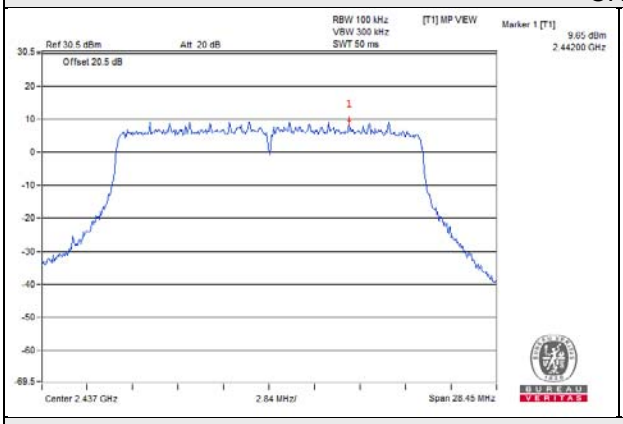
802.11ax (HE20)_Chain 0

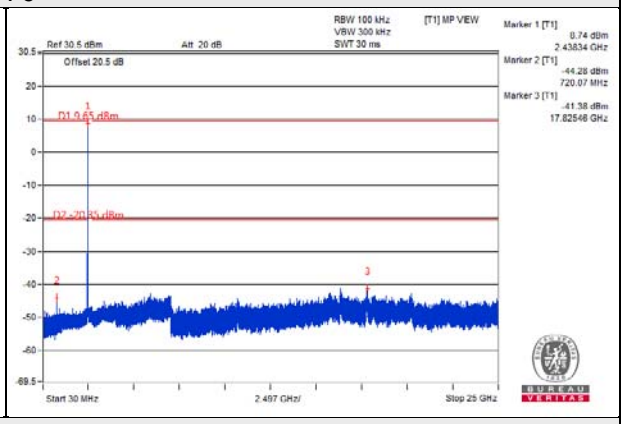
CH 1



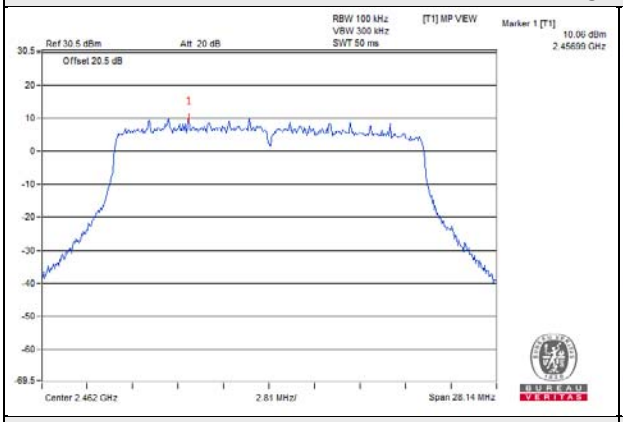


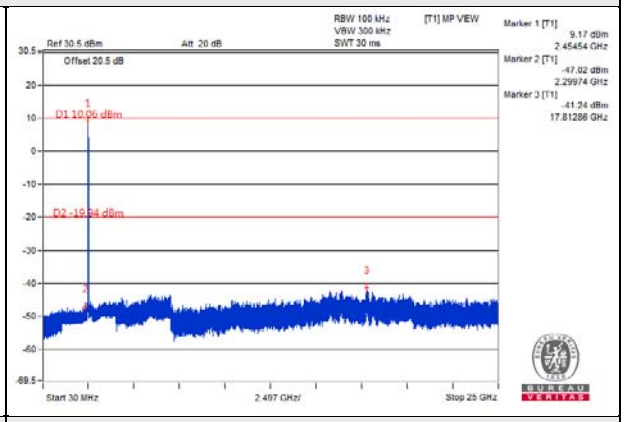
CH 6



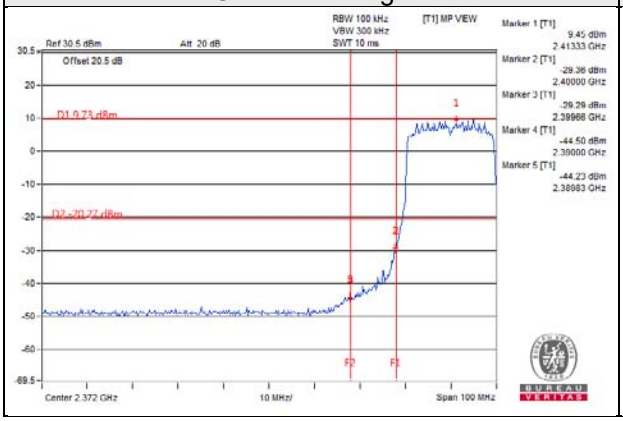


CH 11

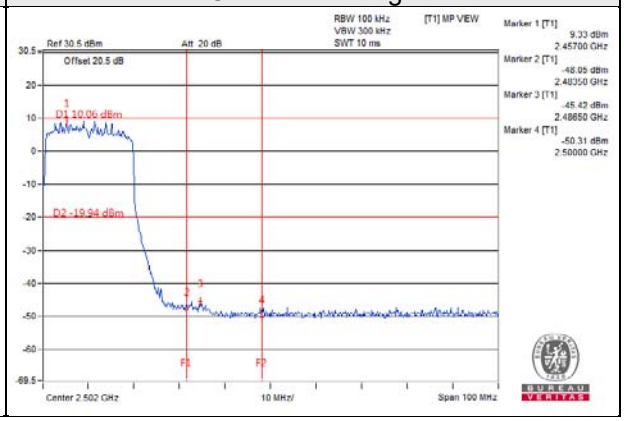




CH 1 Band edge

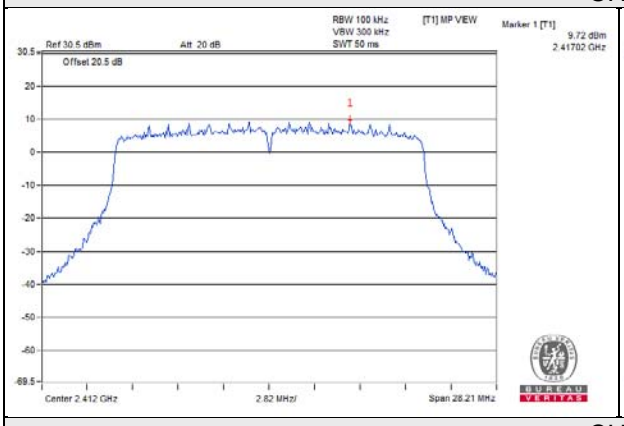


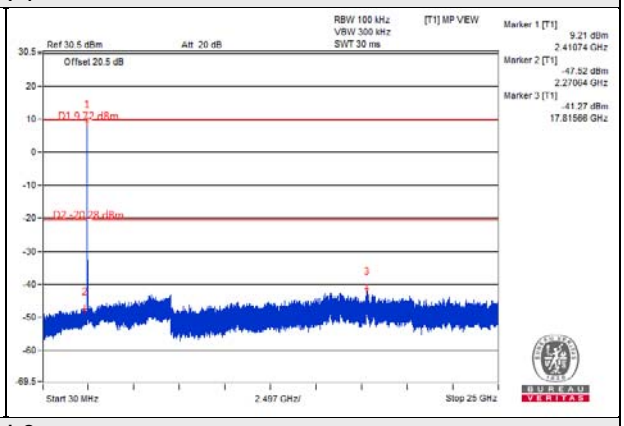
CH 11 Band edge



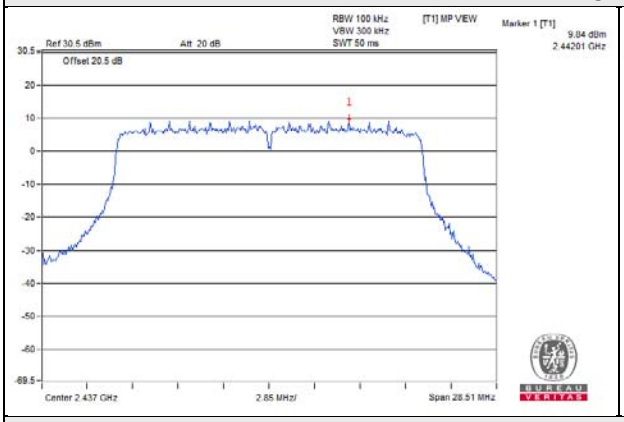
802.11ax (HE20)_Chain 1

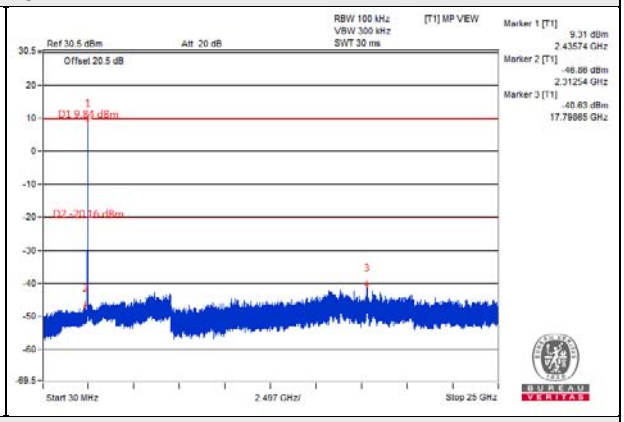
CH 1



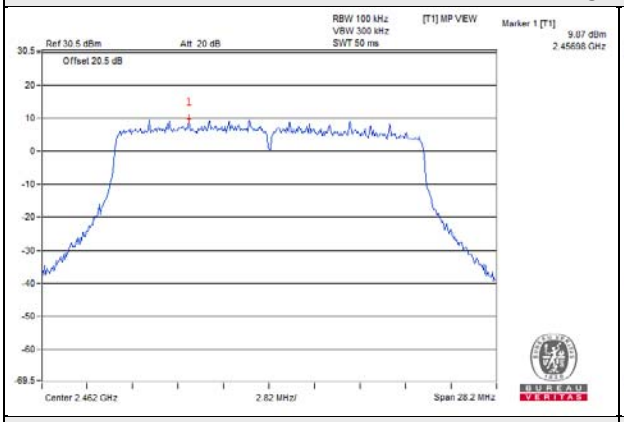


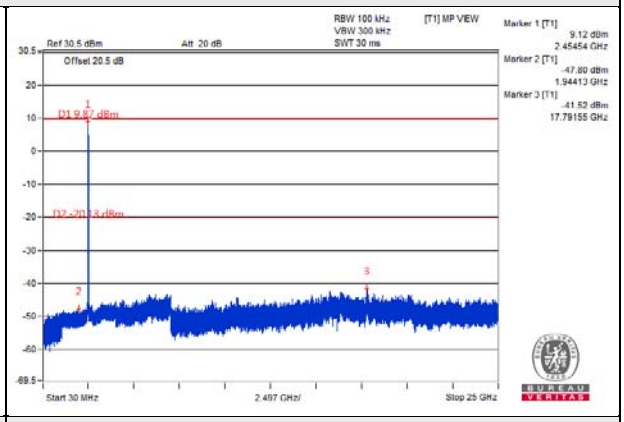
CH 6



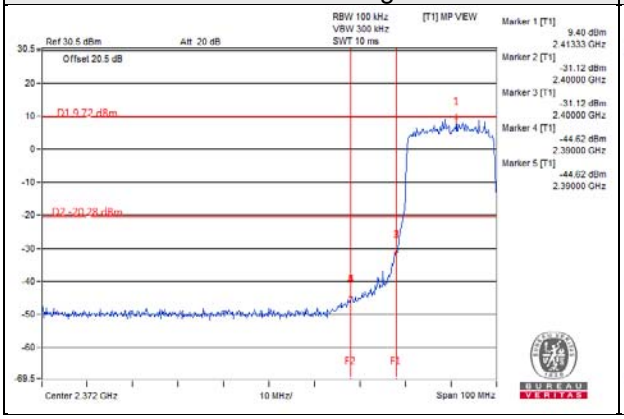


CH 11

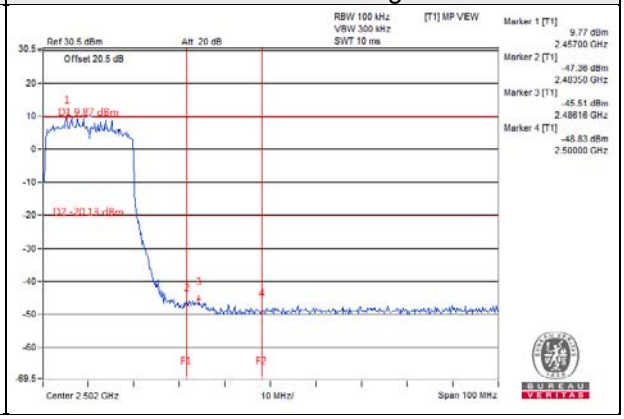




CH 1 Band edge

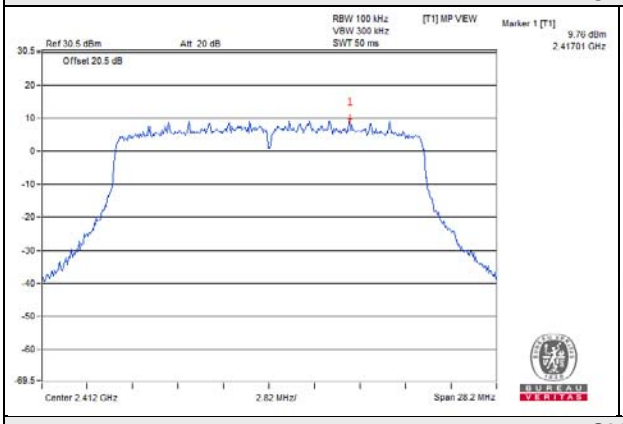


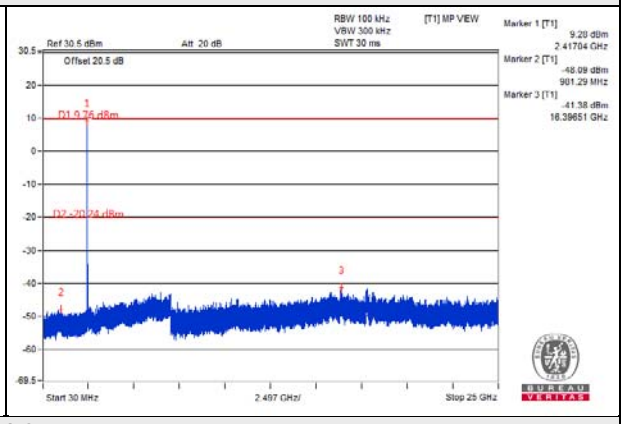
CH 11 Band edge



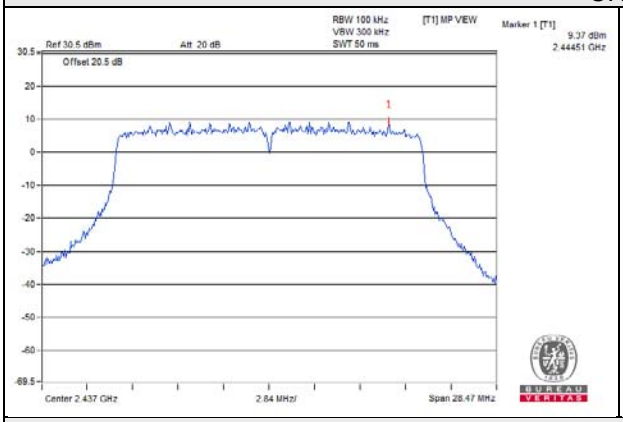
802.11ax (HE20)_Chain 2

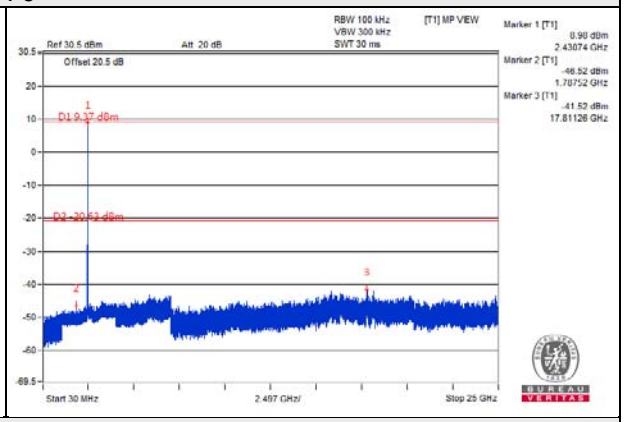
CH 1



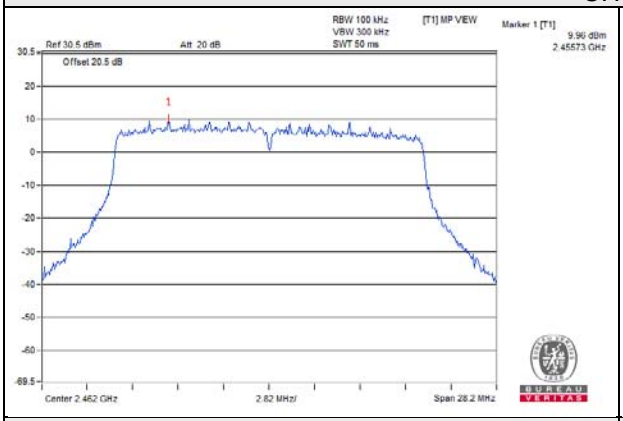


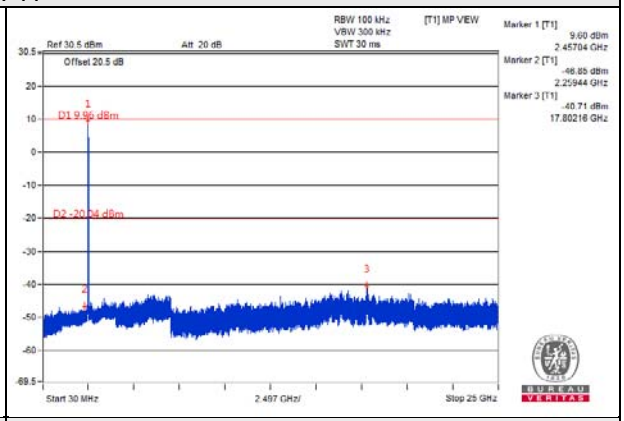
CH 6



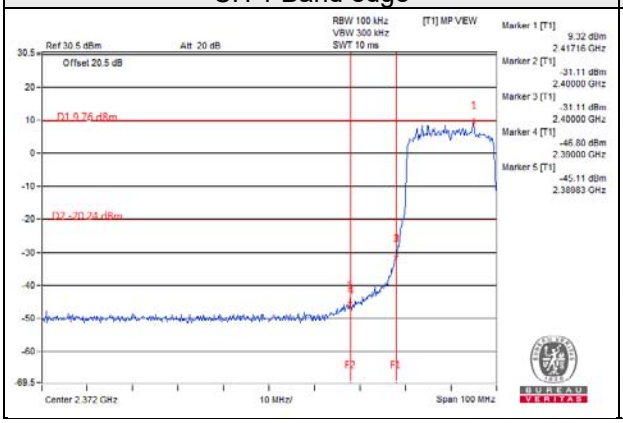


CH 11

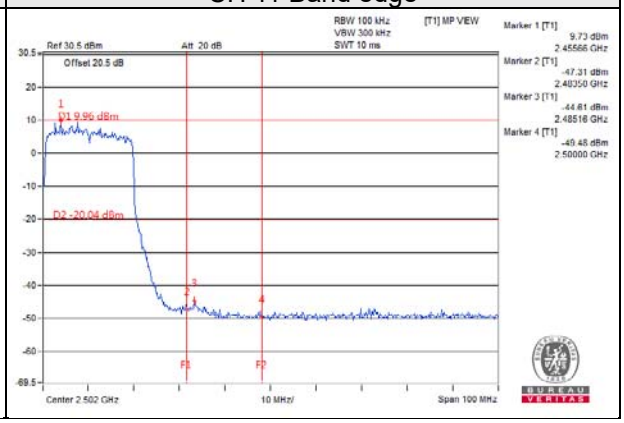




CH 1 Band edge

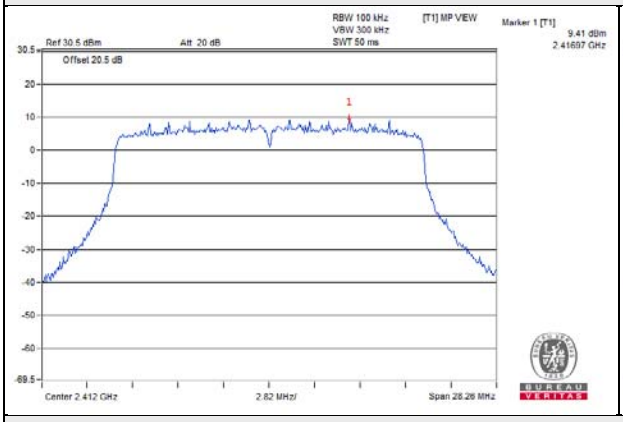


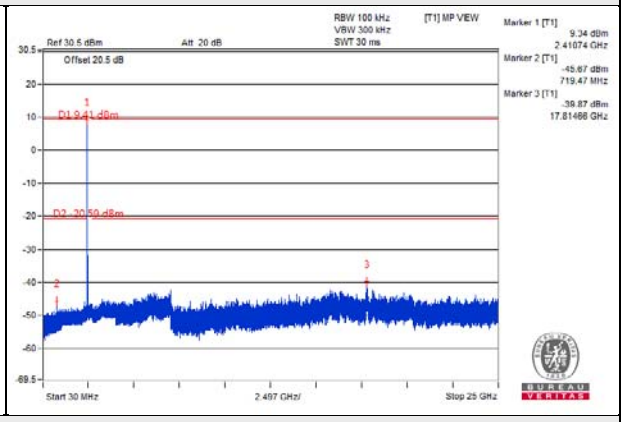
CH 11 Band edge



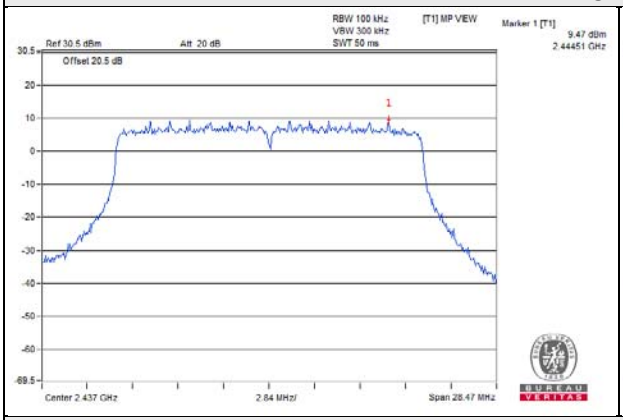
802.11ax (HE20)_Chain 3

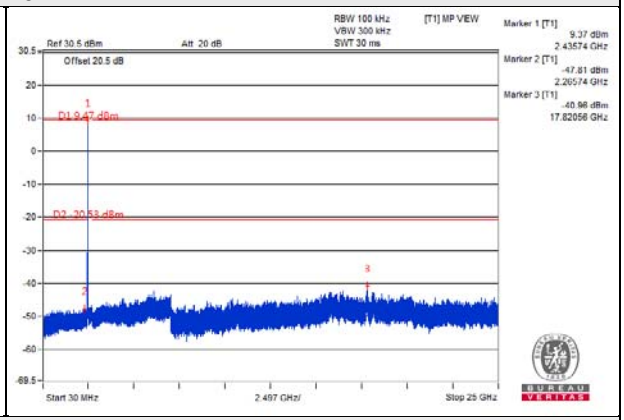
CH 1



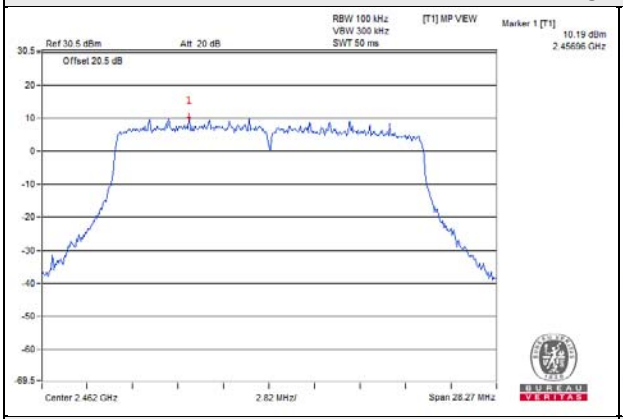


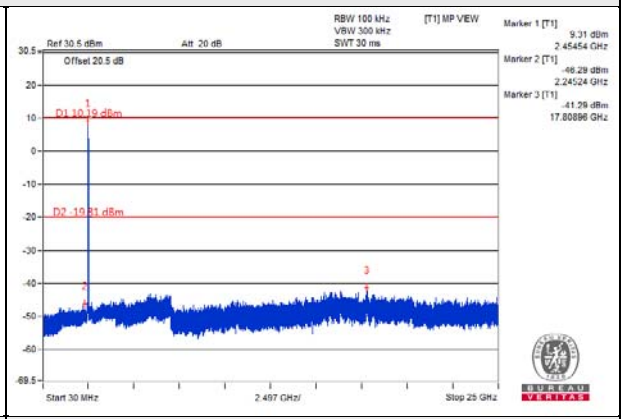
CH 6



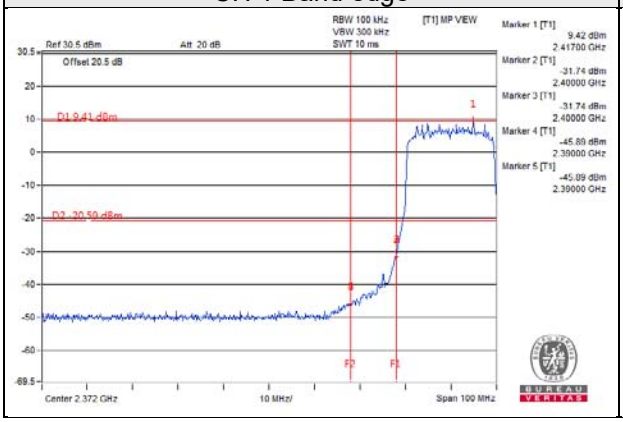


CH 11

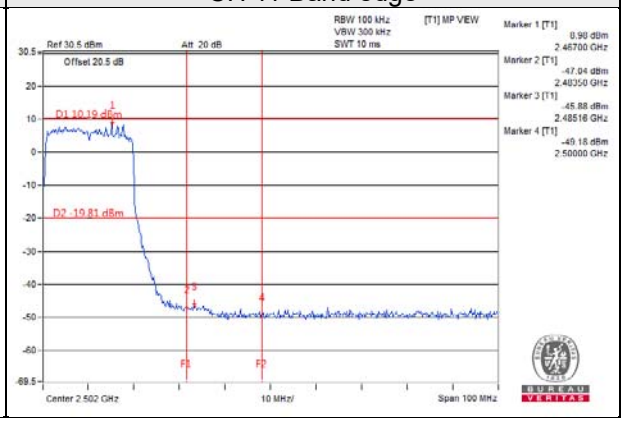




CH 1 Band edge

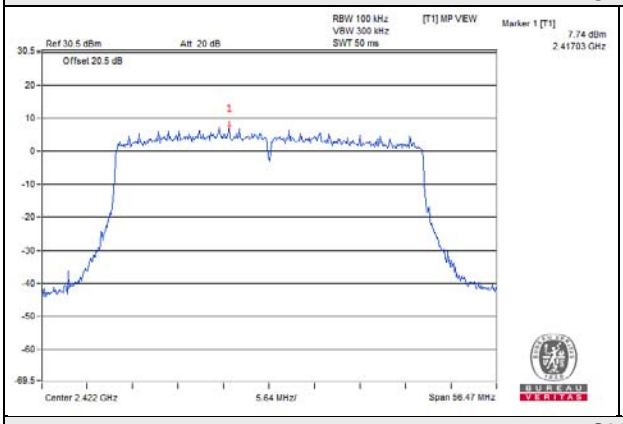


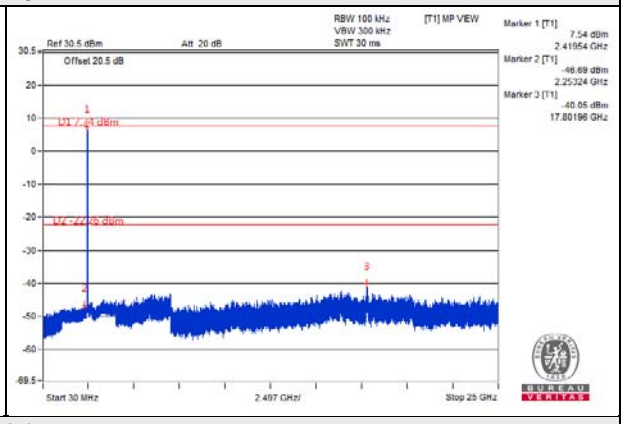
CH 11 Band edge



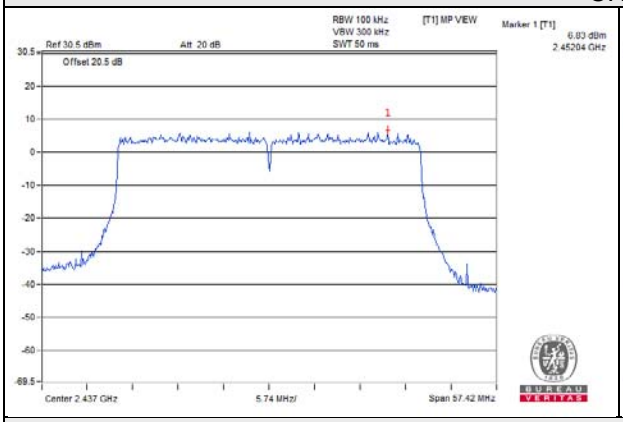
802.11ax (HE40)_Chain 0

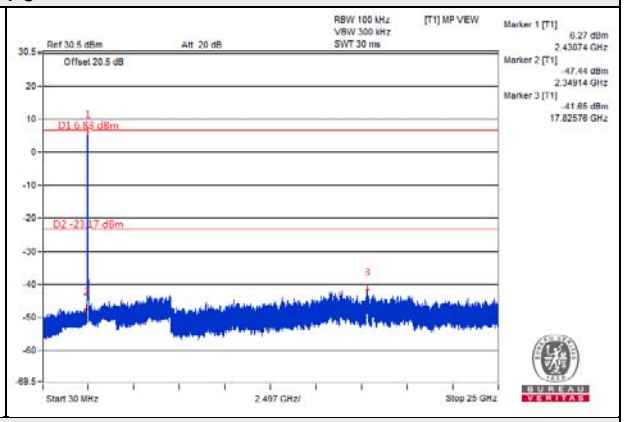
CH 3



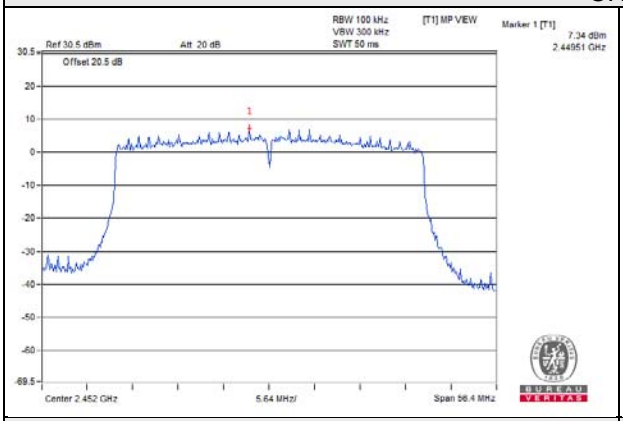


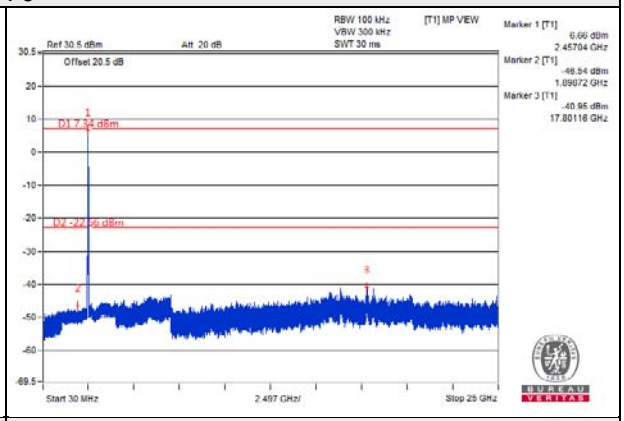
CH 6



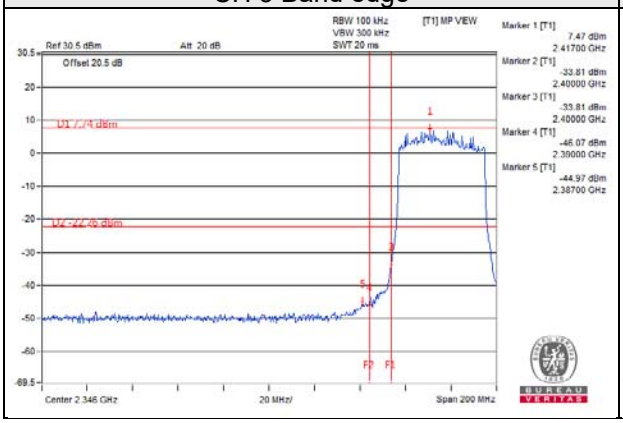


CH 9

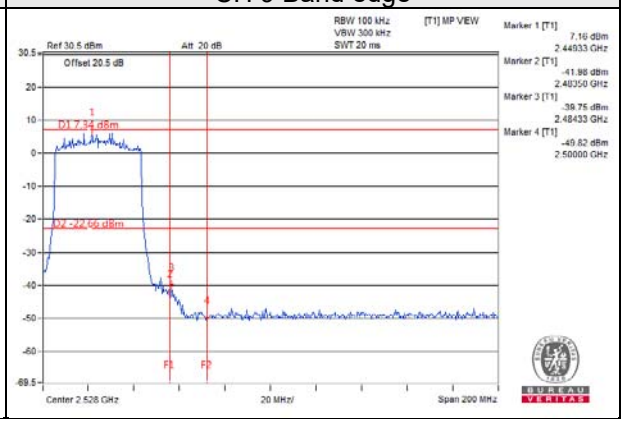




CH 3 Band edge

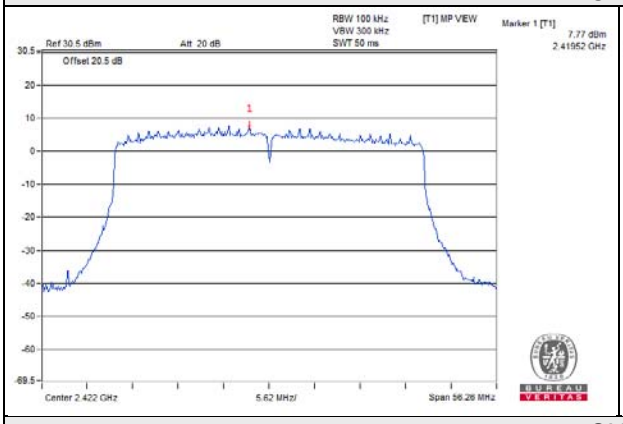


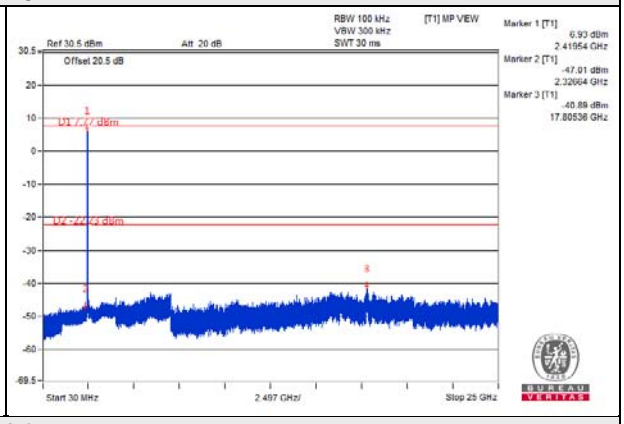
CH 9 Band edge



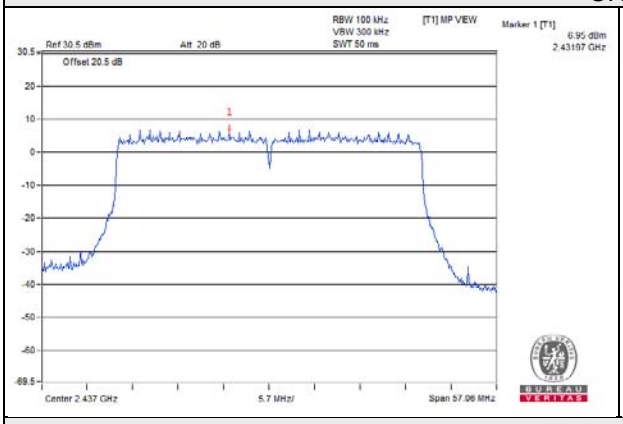
802.11ax (HE40)_Chain 1

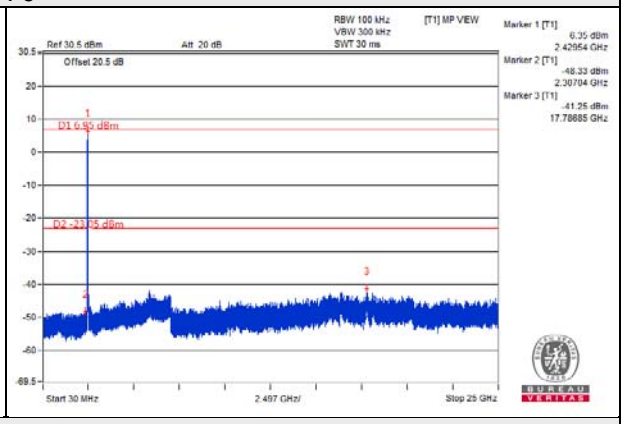
CH 3



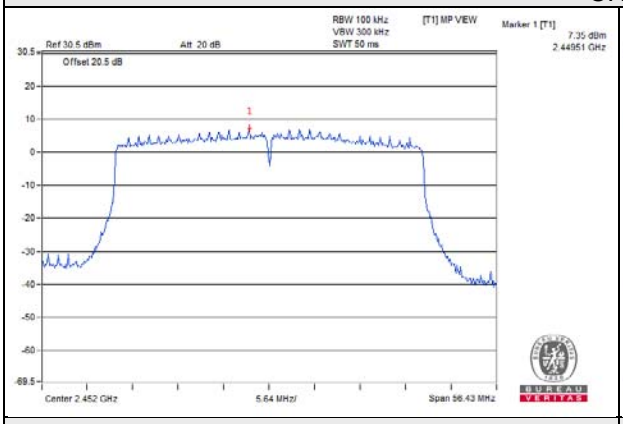


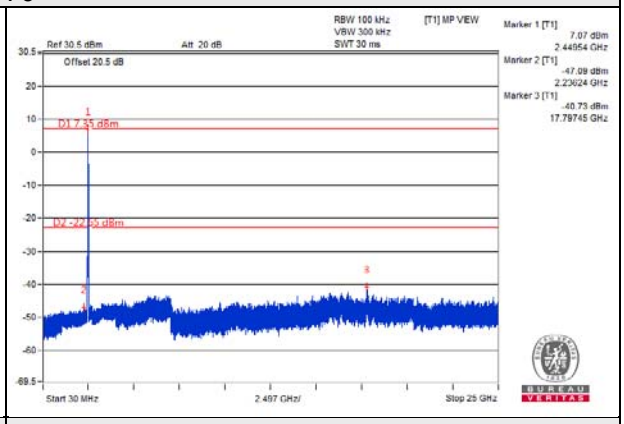
CH 6



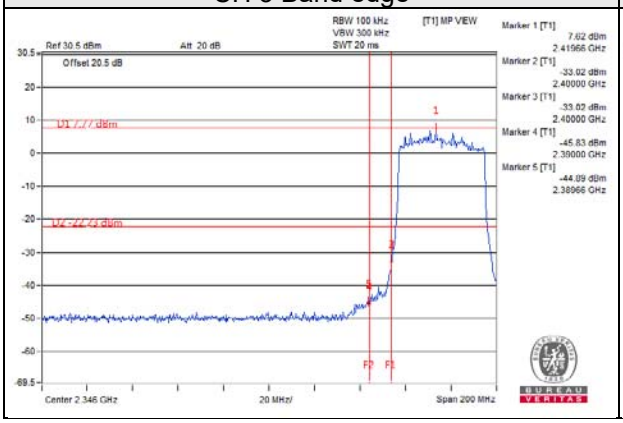


CH 9

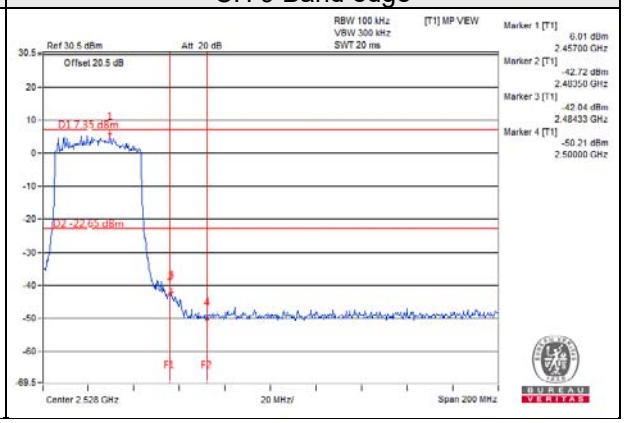




CH 3 Band edge

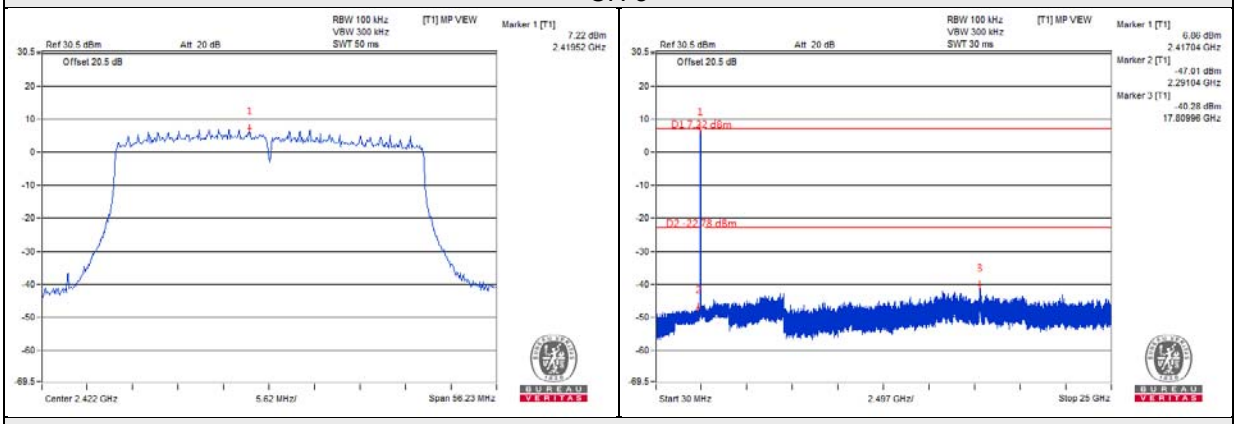


CH 9 Band edge

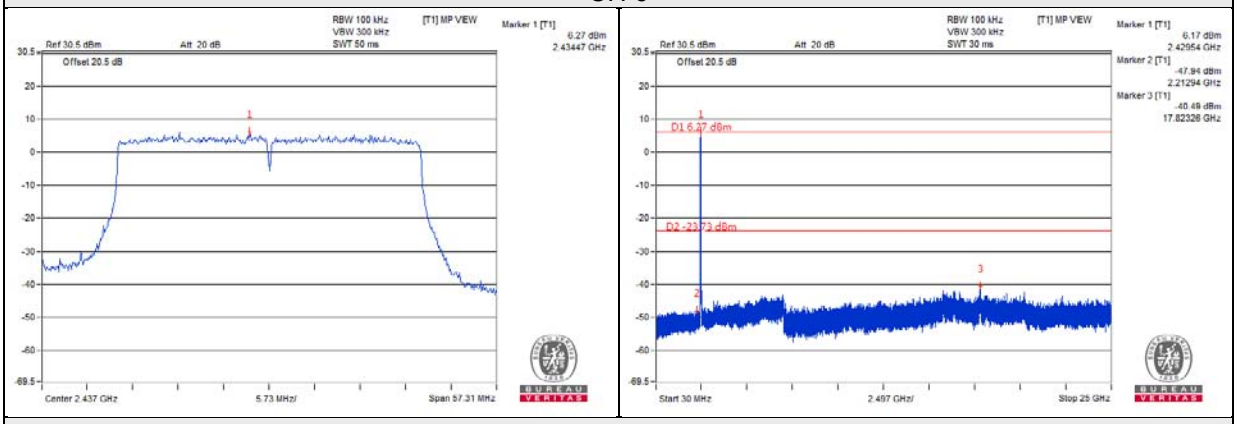


802.11ax (HE40)_Chain 2

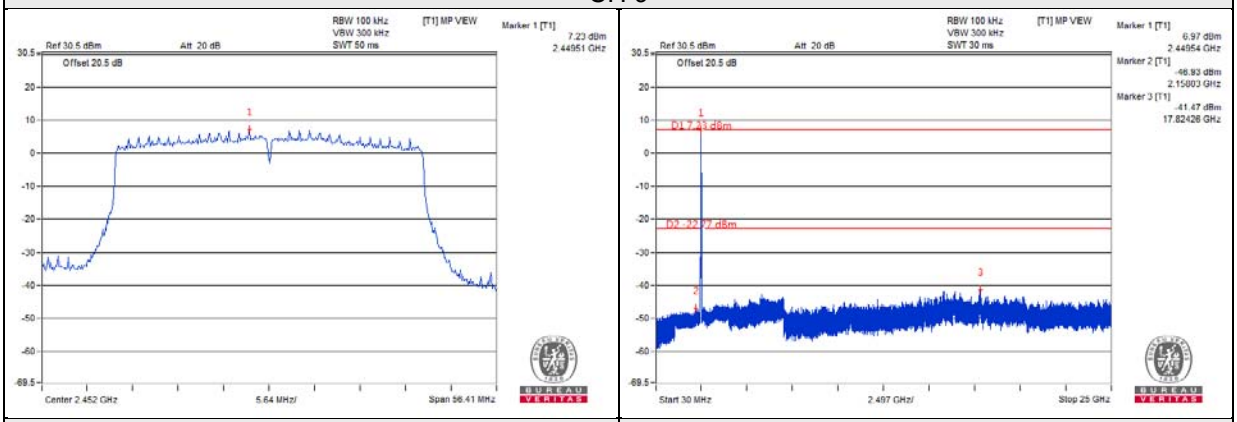
CH 3



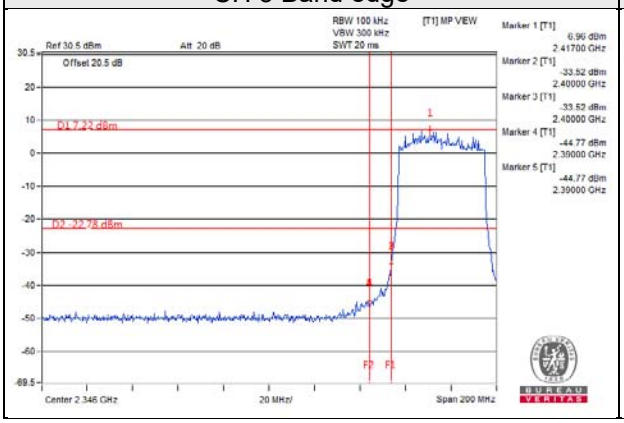
CH 6



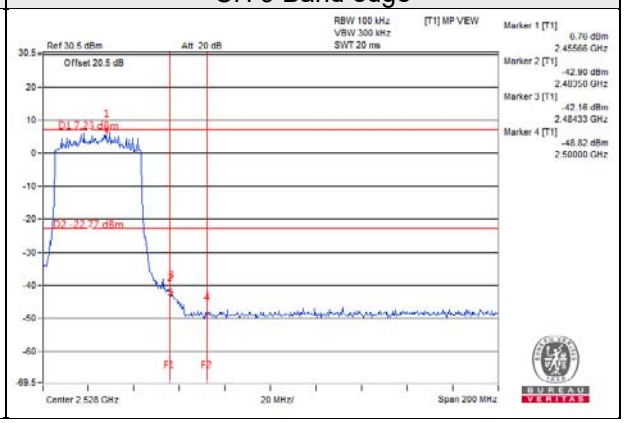
CH 9



CH 3 Band edge

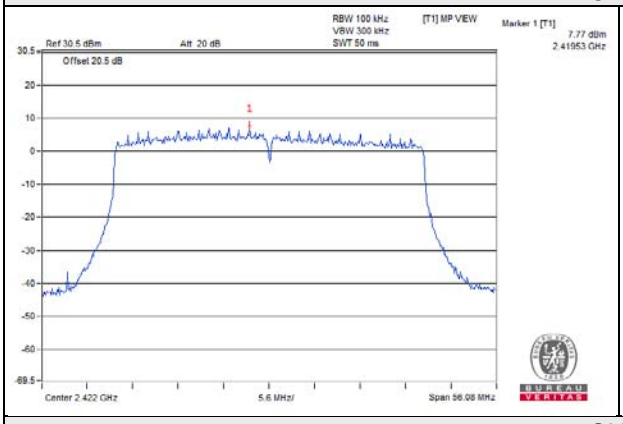


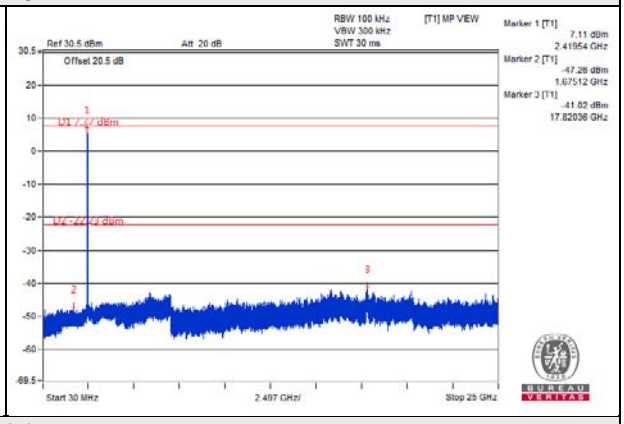
CH 9 Band edge



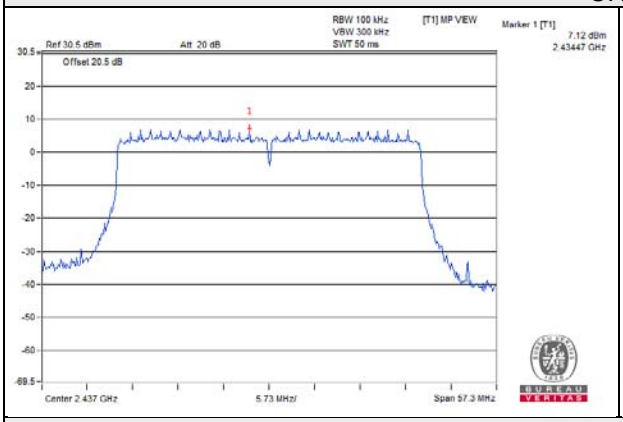
802.11ax (HE40)_Chain 3

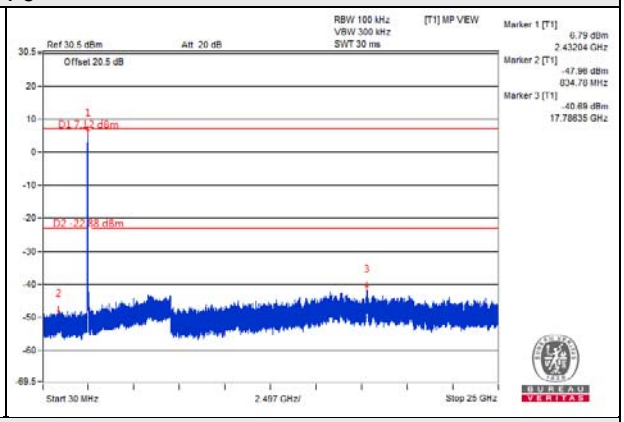
CH 3



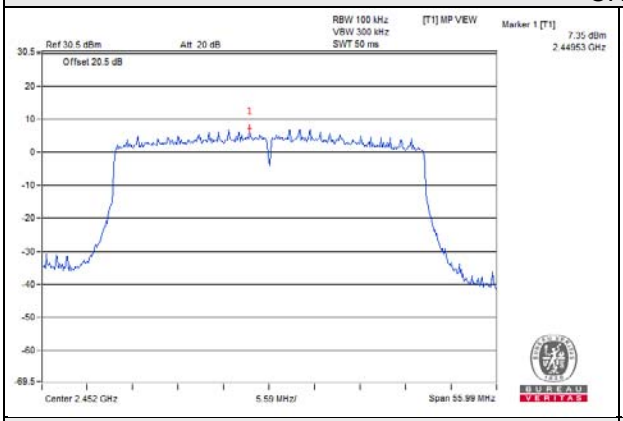


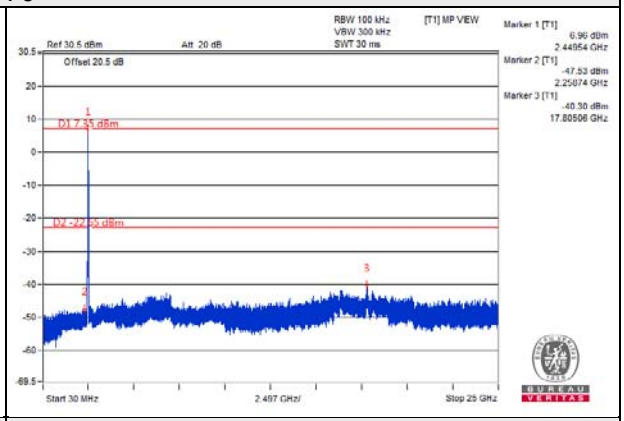
CH 6



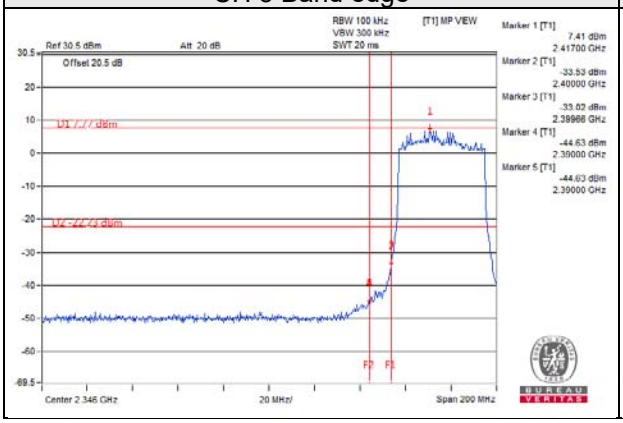


CH 9

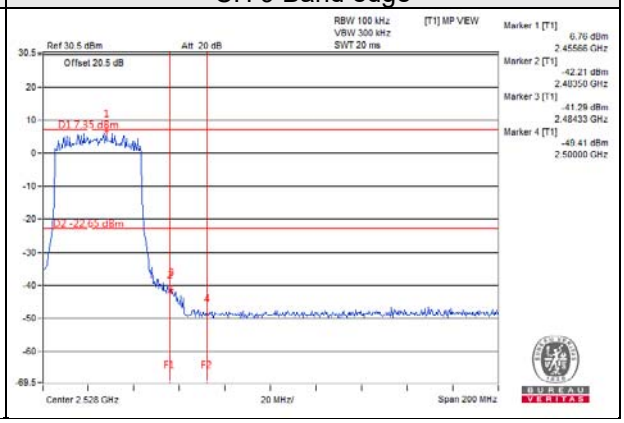




CH 3 Band edge



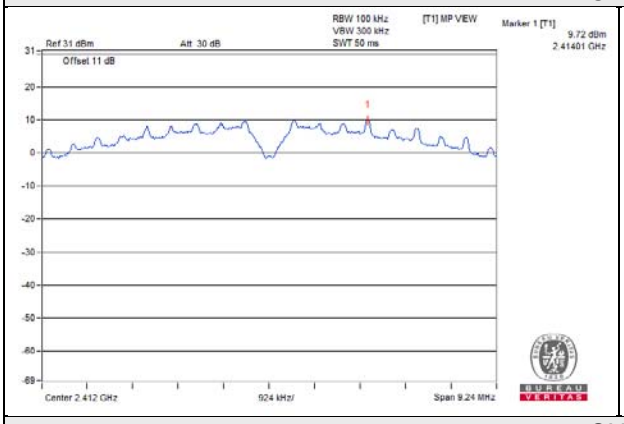
CH 9 Band edge

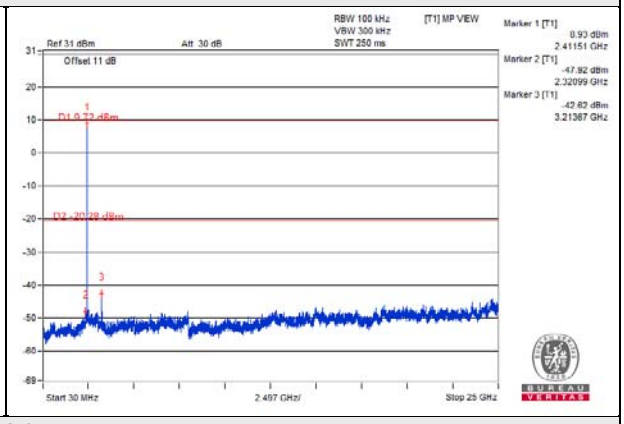


Mode C

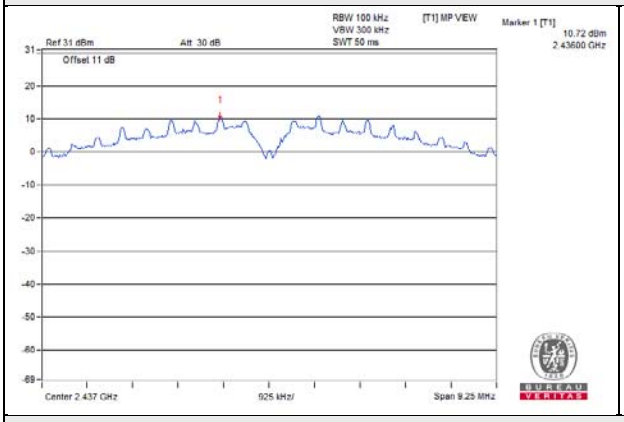
802.11b

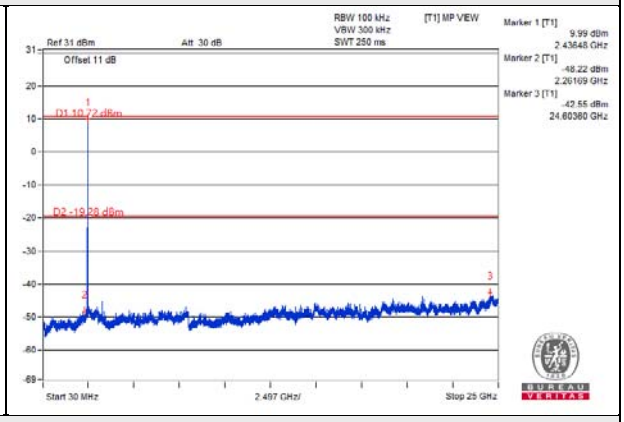
CH 1



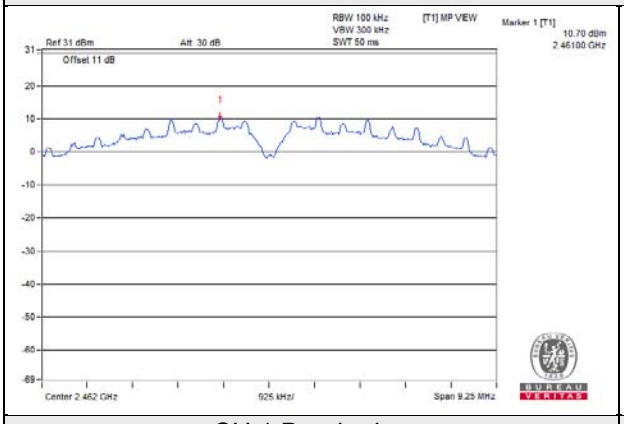


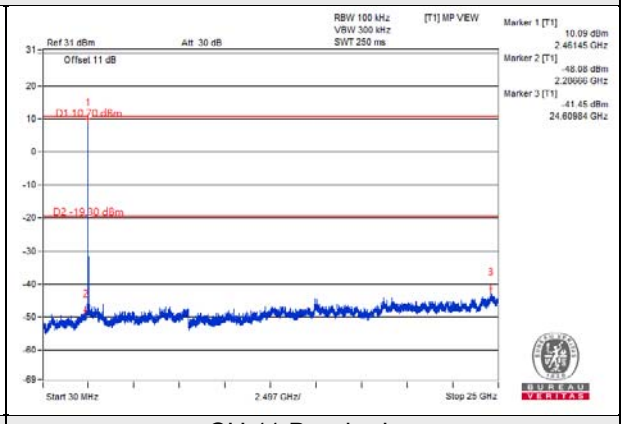
CH 6



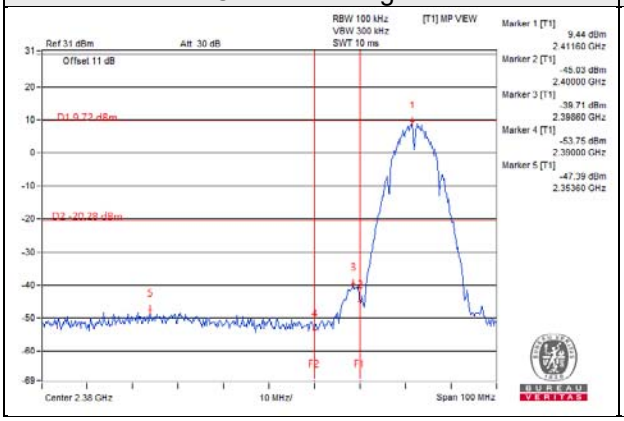


CH 11

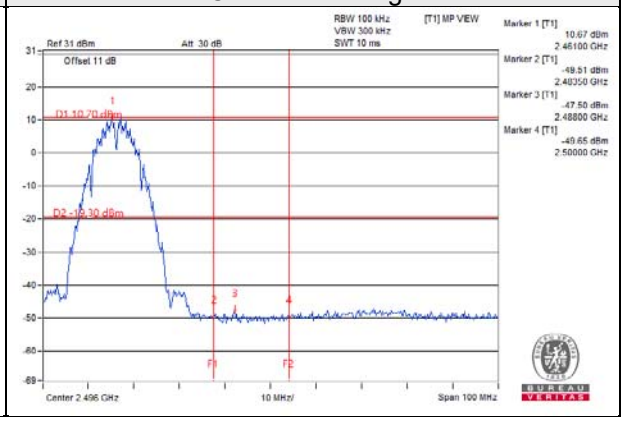




CH 1 Band edge

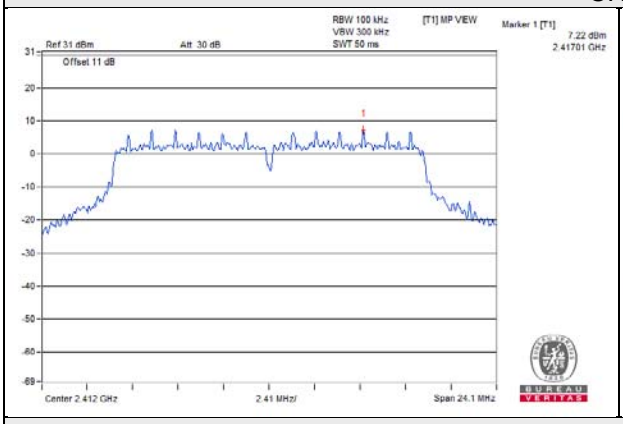


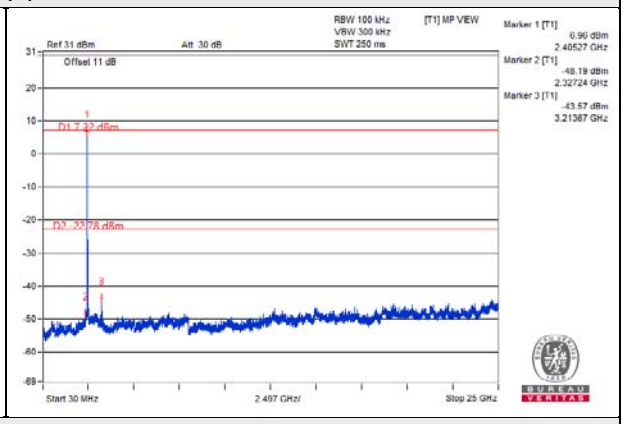
CH 11 Band edge



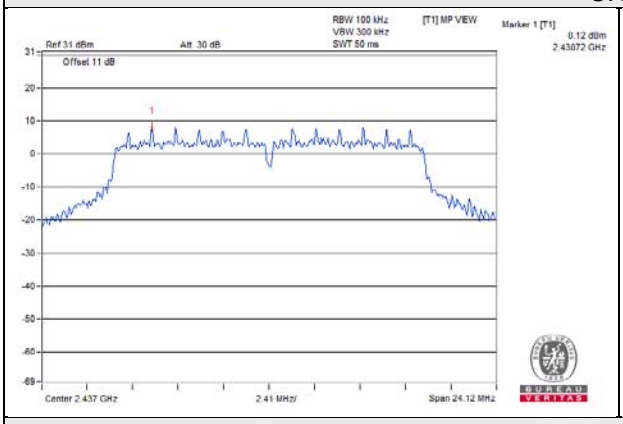
802.11g

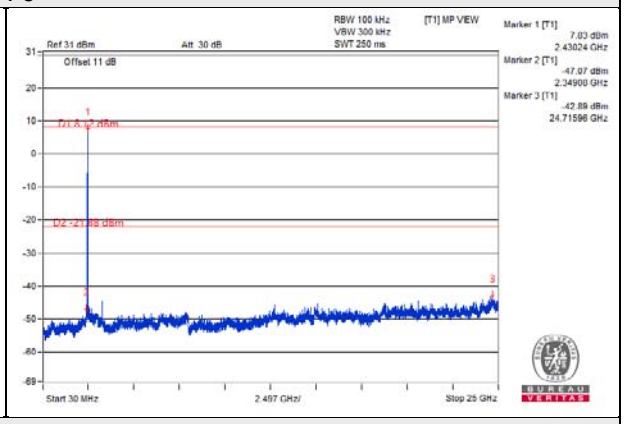
CH 1



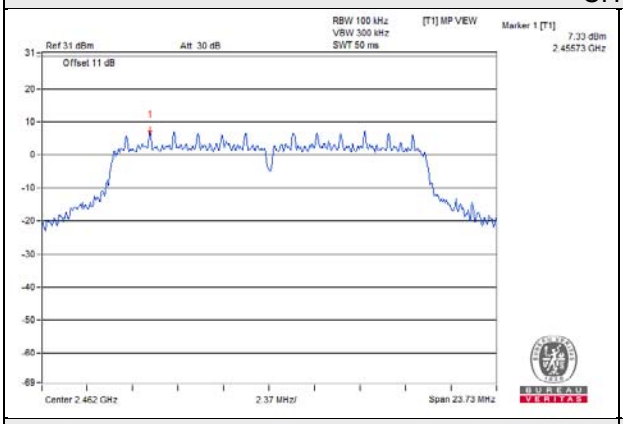


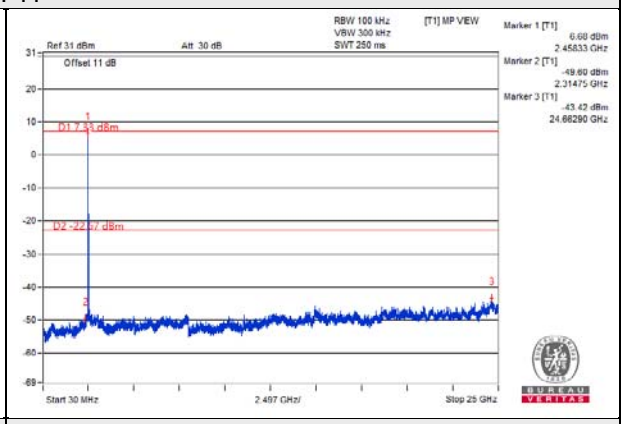
CH 6



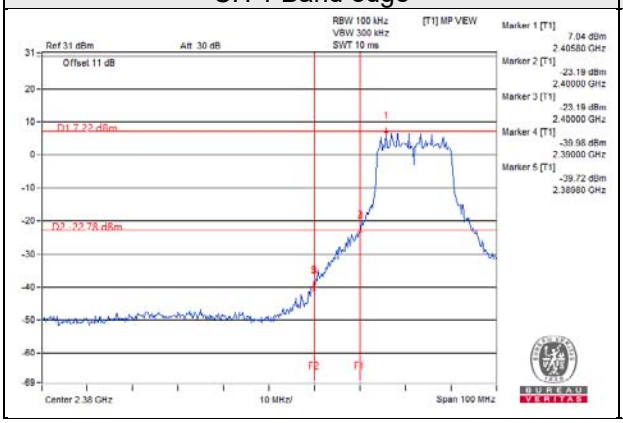


CH 11

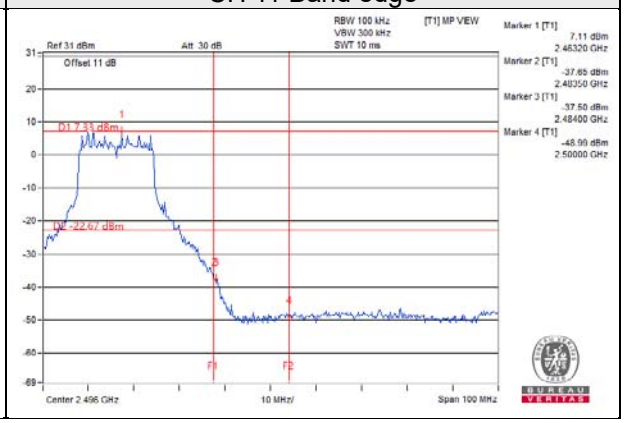




CH 1 Band edge

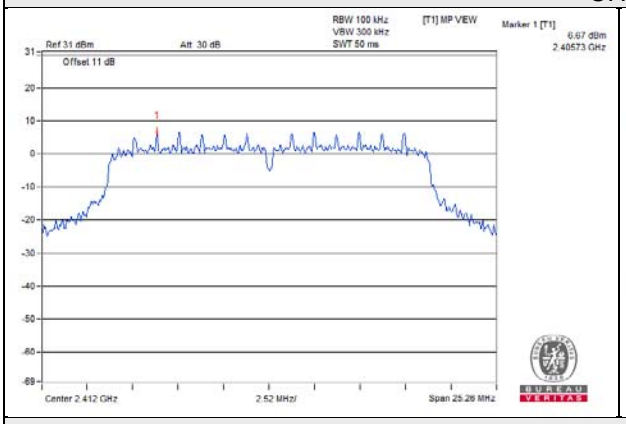


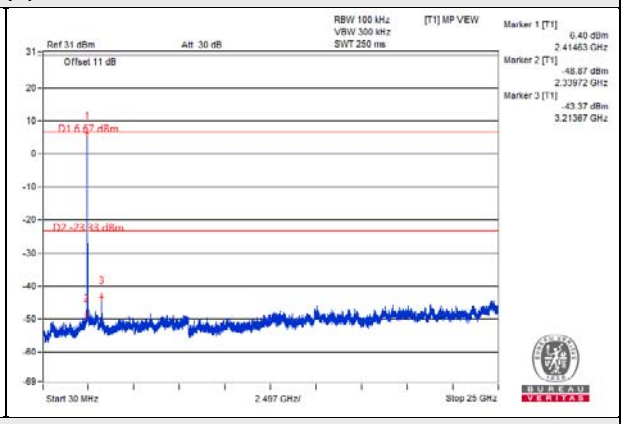
CH 11 Band edge



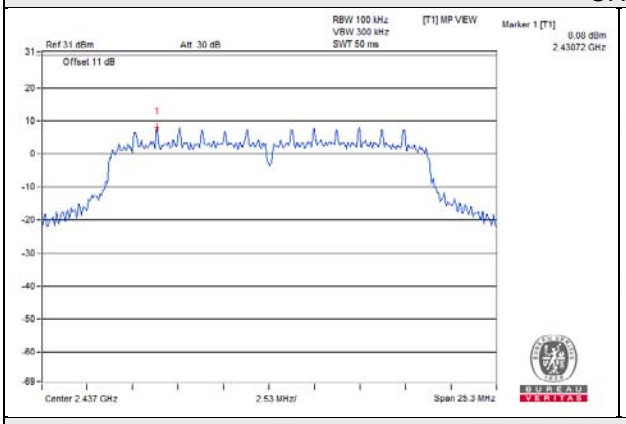
802.11ac (VHT20)

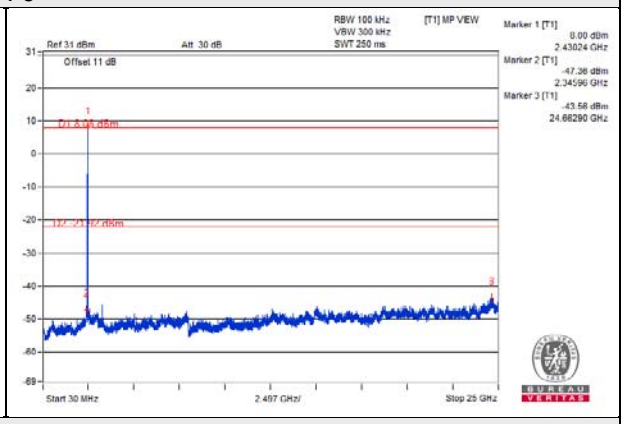
CH 1



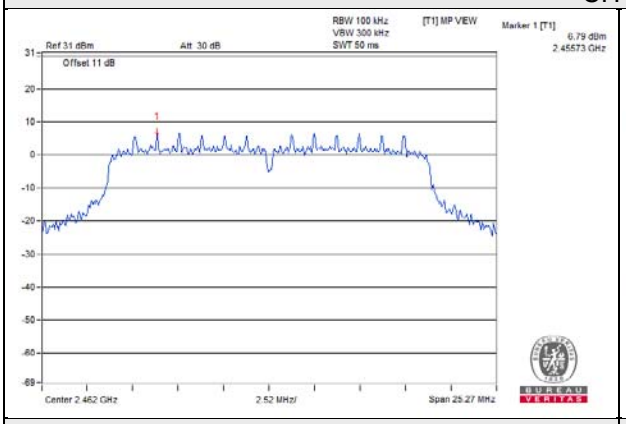


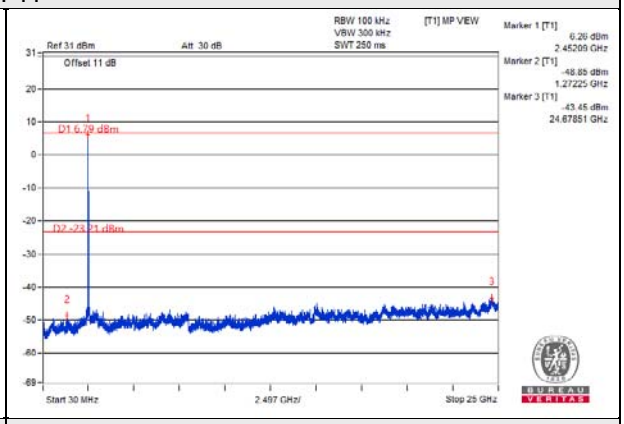
CH 6



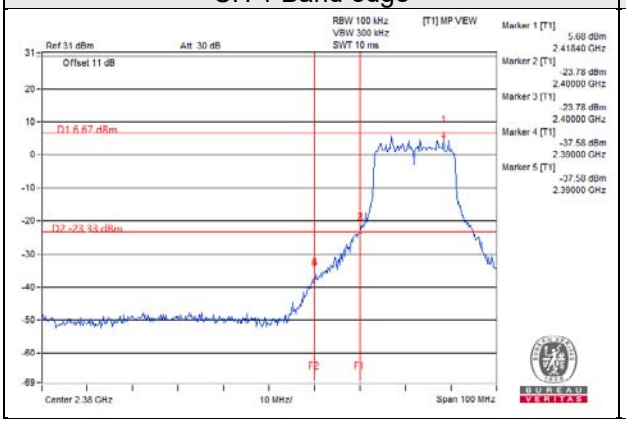


CH 11

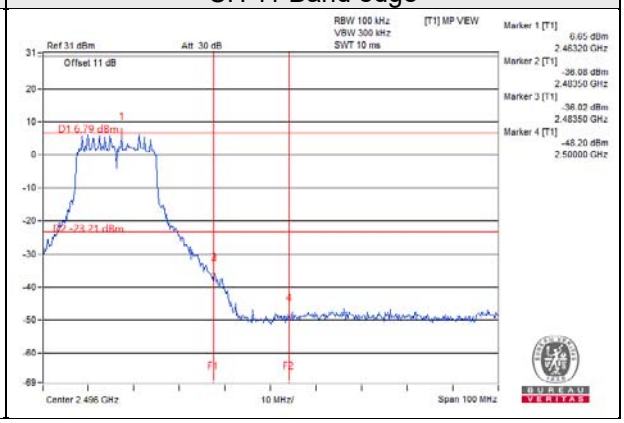




CH 1 Band edge

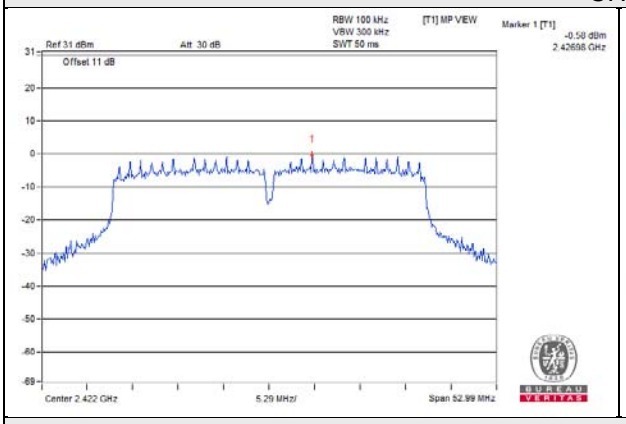


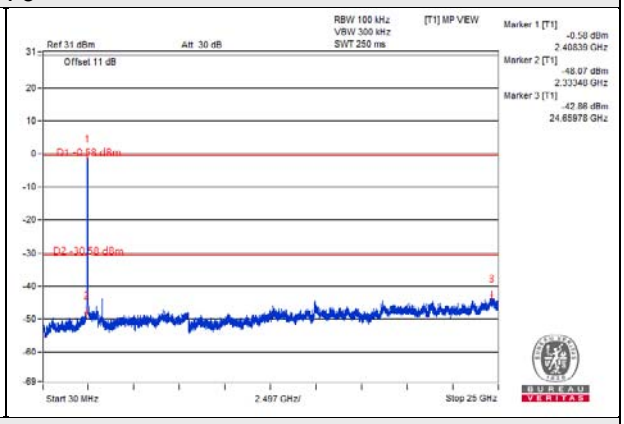
CH 11 Band edge



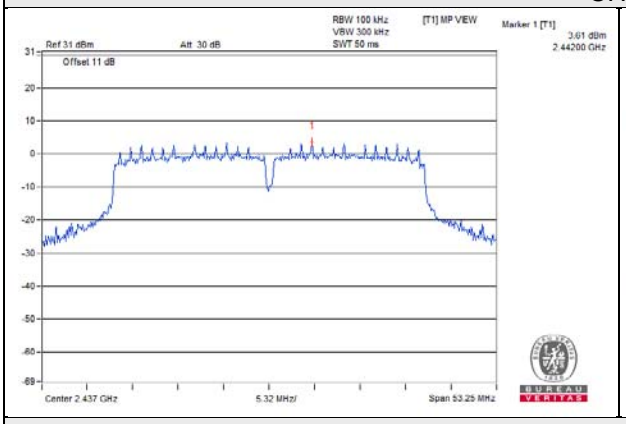
802.11ac (VHT40)

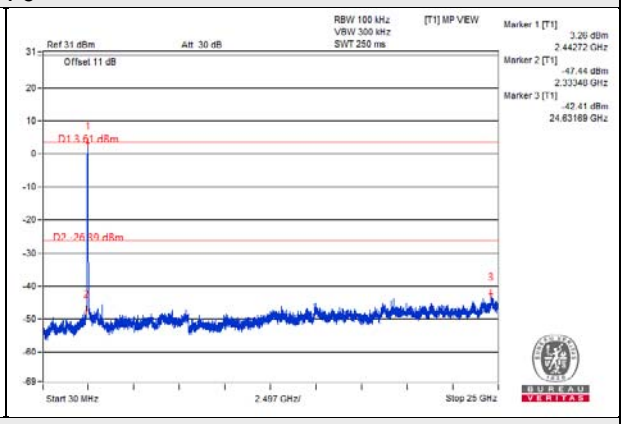
CH 3



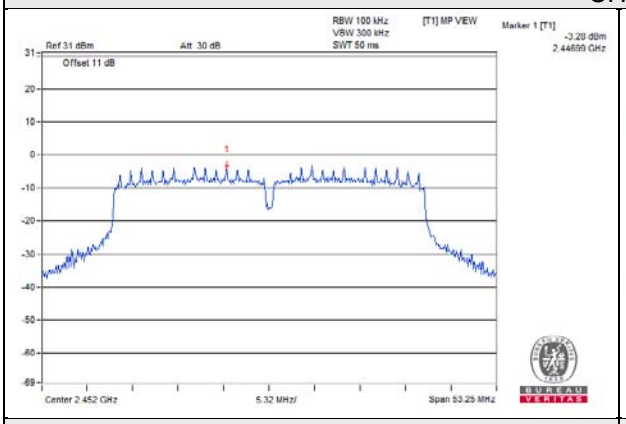


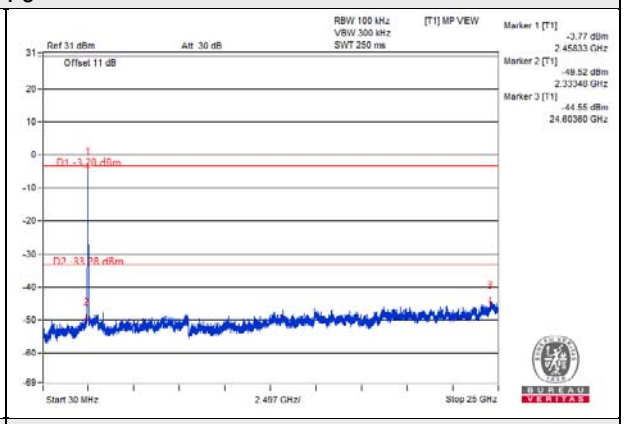
CH 6



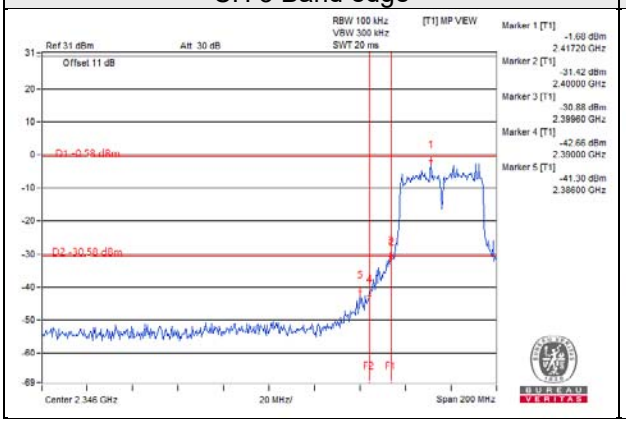


CH 9

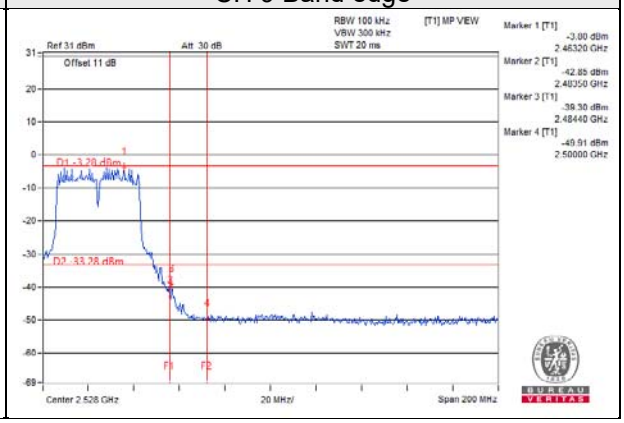




CH 3 Band edge



CH 9 Band edge



5 Pictures of Test Arrangements

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

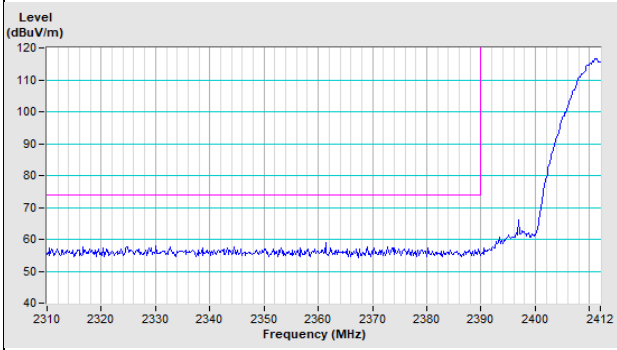
Annex A- Band Edge Measurement

Mode A

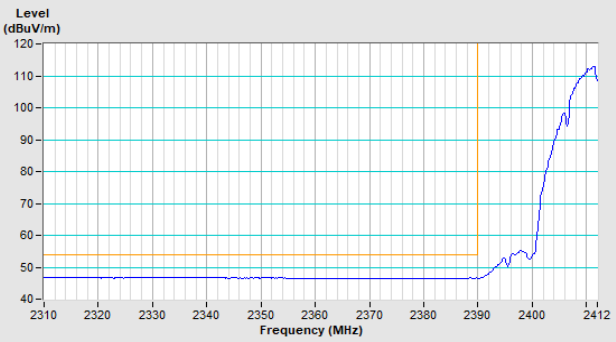
802.11b

Channel 1

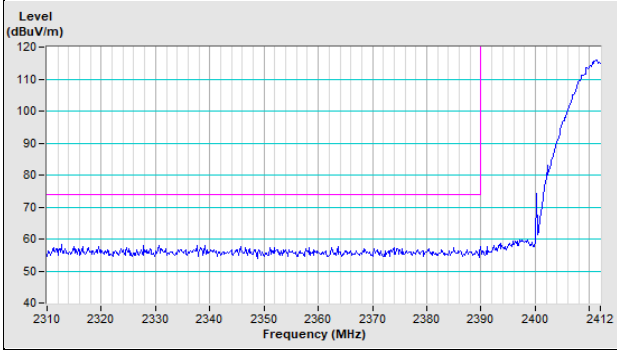
Horizontal (Peak)



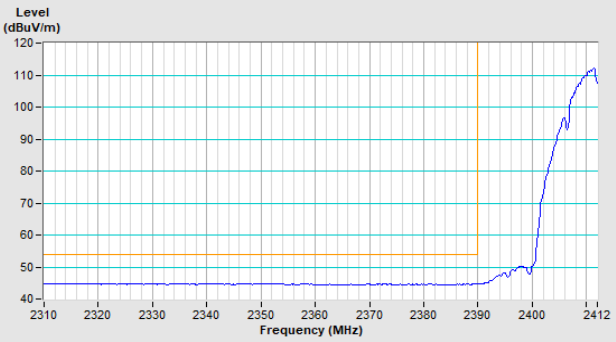
Horizontal (Average)



Vertical (Peak)

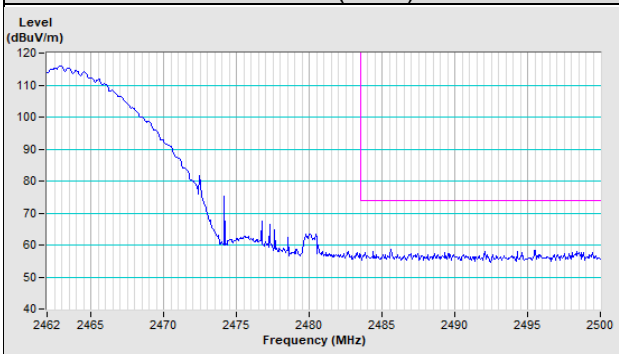


Vertical (Average)

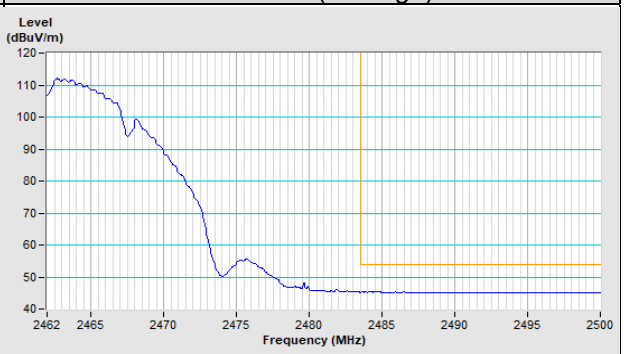


Channel 11

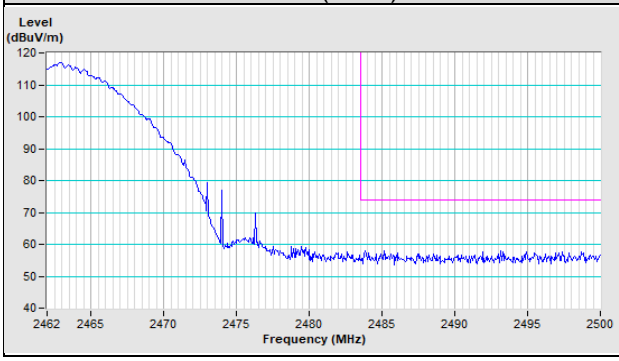
Horizontal (Peak)



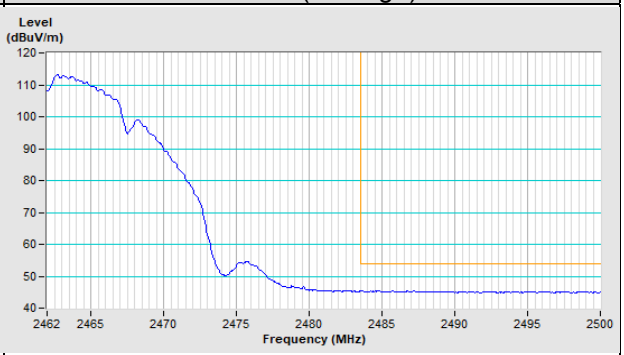
Horizontal (Average)



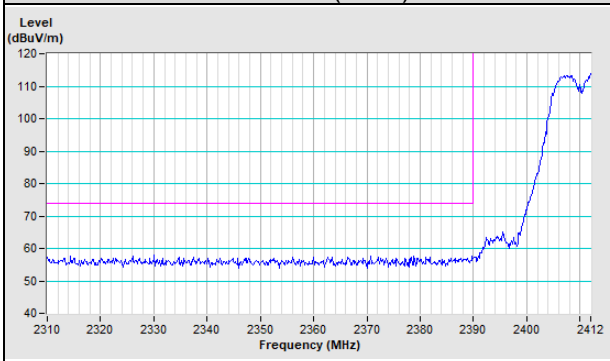
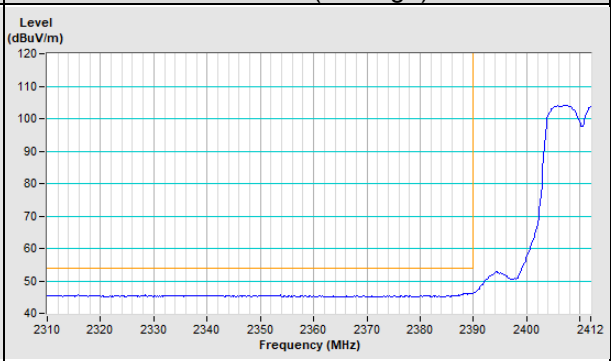
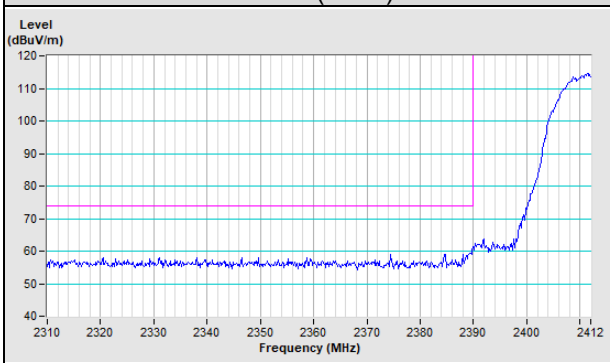
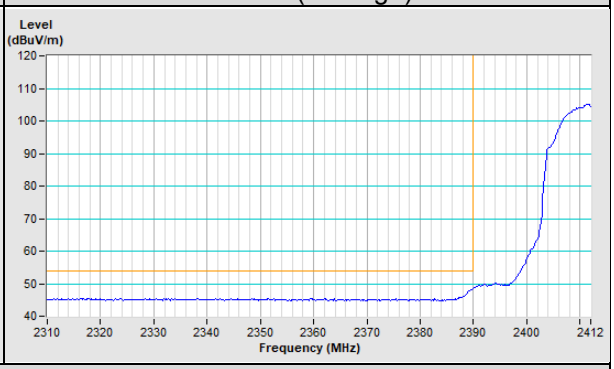
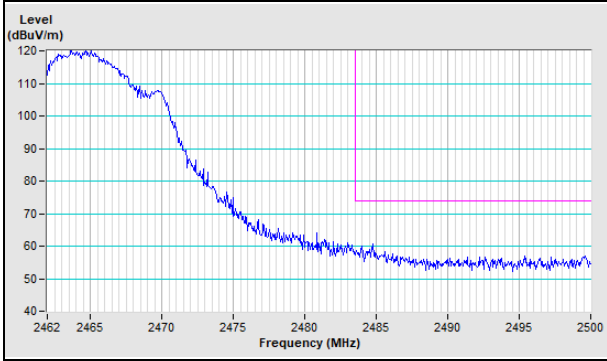
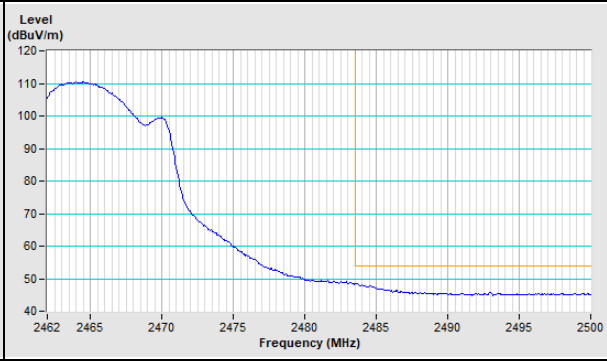
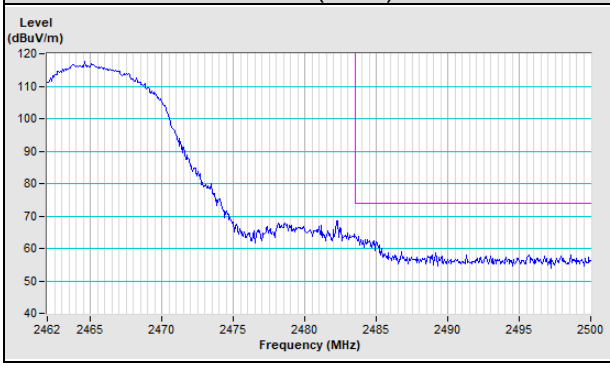
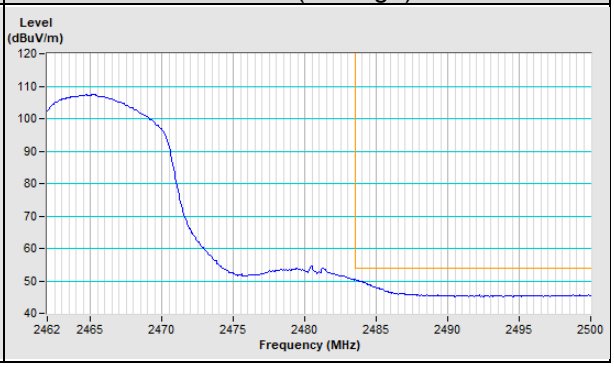
Vertical (Peak)



Vertical (Average)



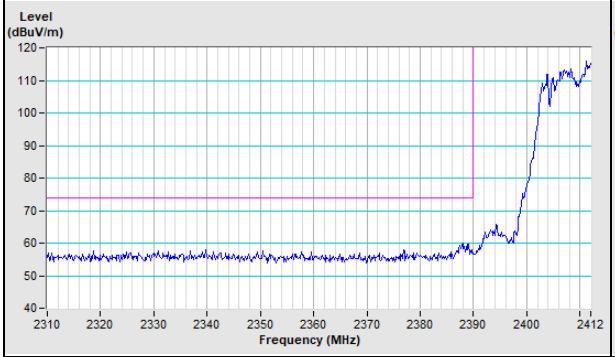
802.11g

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

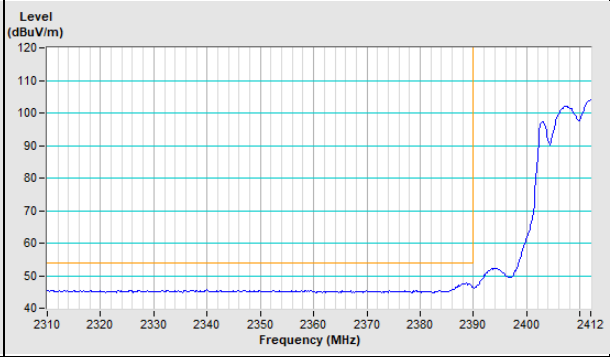
802.11ax (HE20)

Channel 1

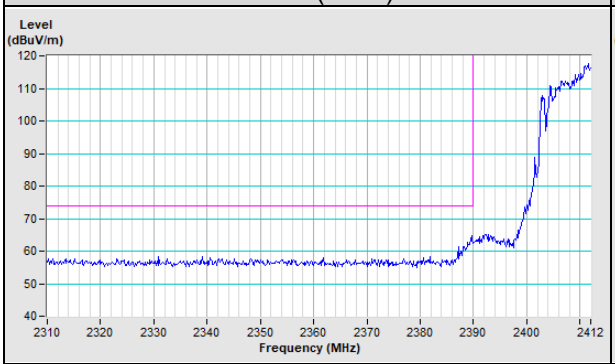
Horizontal (Peak)



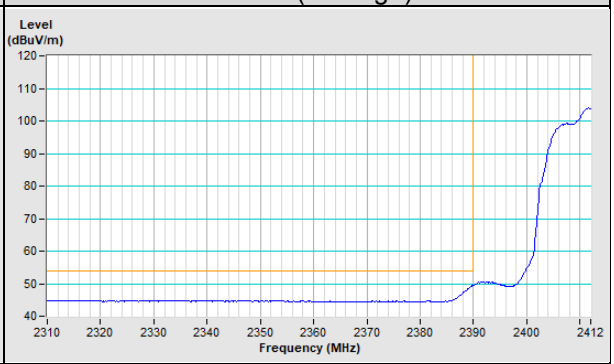
Horizontal (Average)



Vertical (Peak)

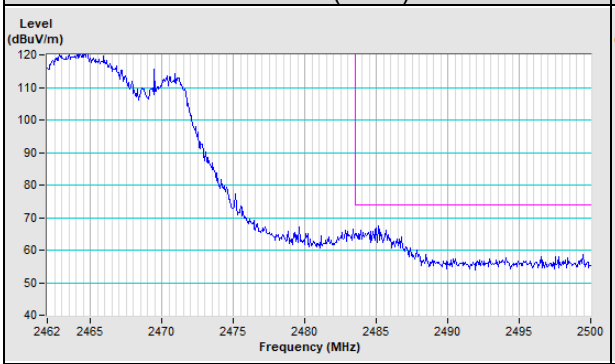


Vertical (Average)

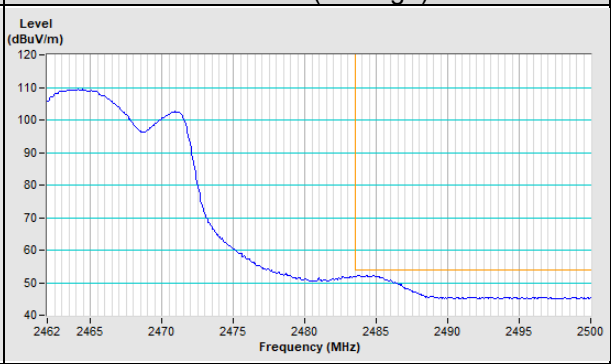


Channel 11

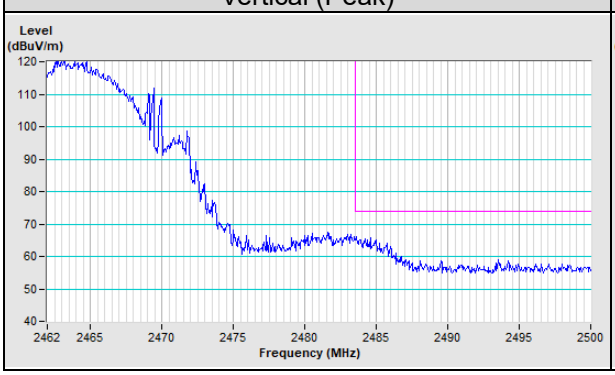
Horizontal (Peak)



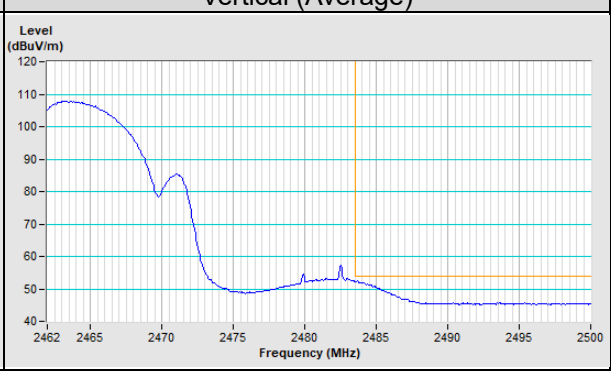
Horizontal (Average)



Vertical (Peak)



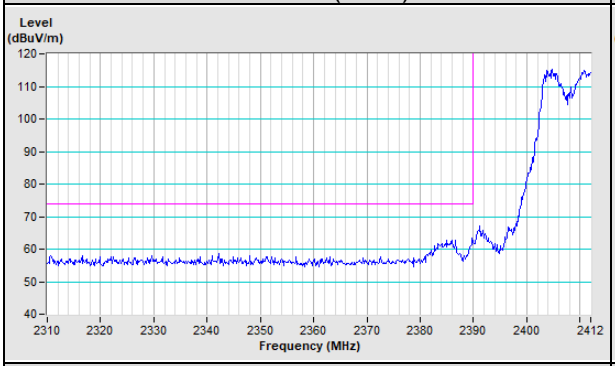
Vertical (Average)



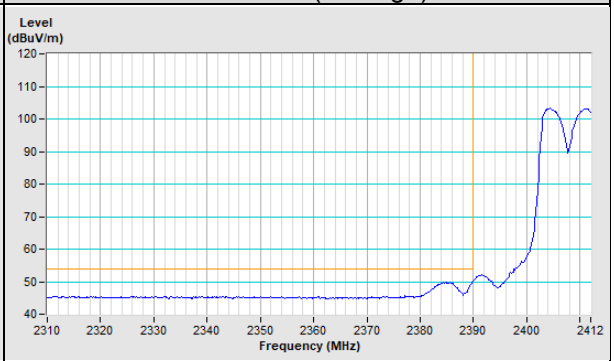
802.11ax (HE40)

Channel 3

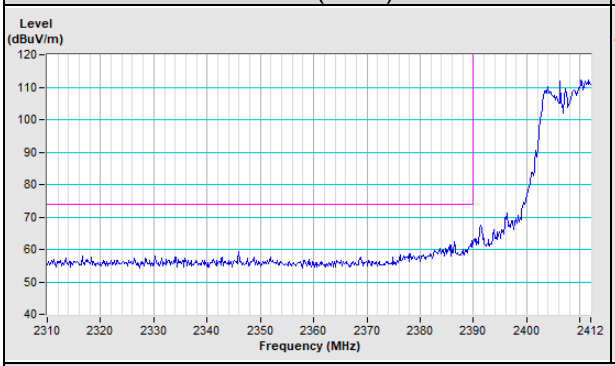
Horizontal (Peak)



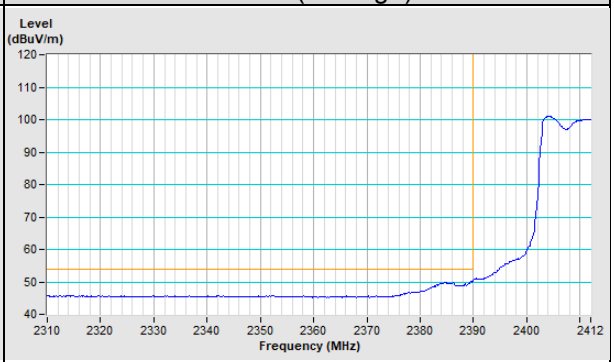
Horizontal (Average)



Vertical (Peak)

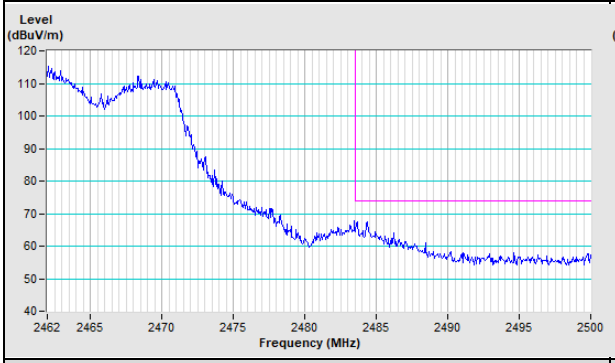


Vertical (Average)

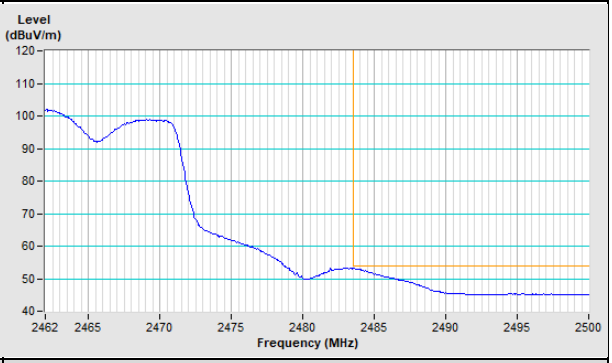


Channel 9

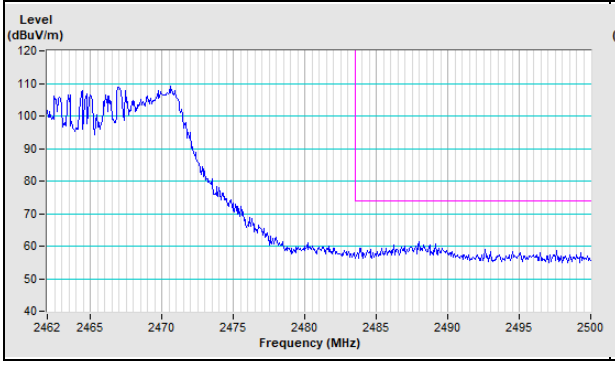
Horizontal (Peak)



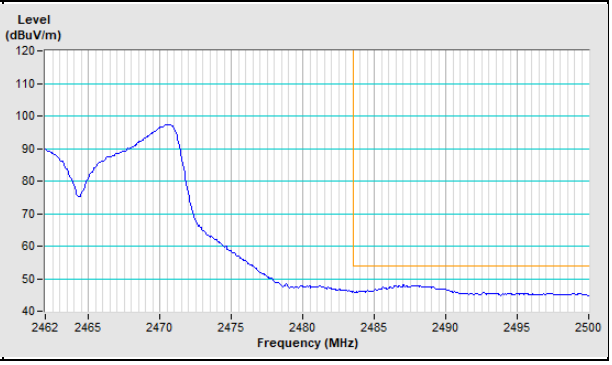
Horizontal (Average)



Vertical (Peak)

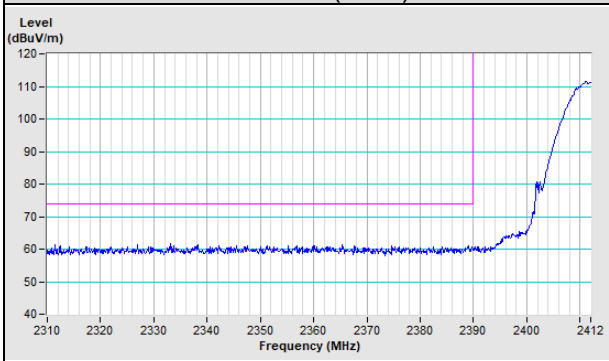
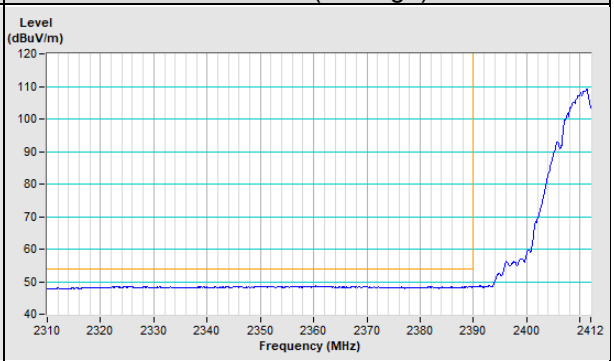
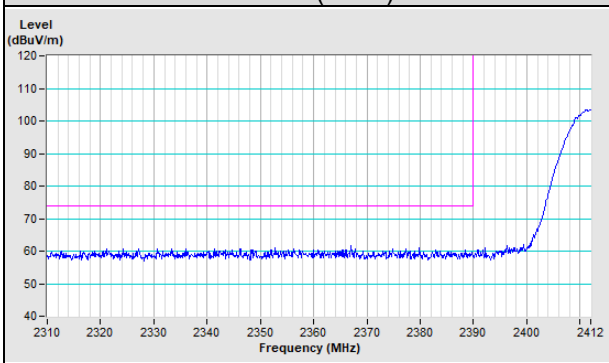
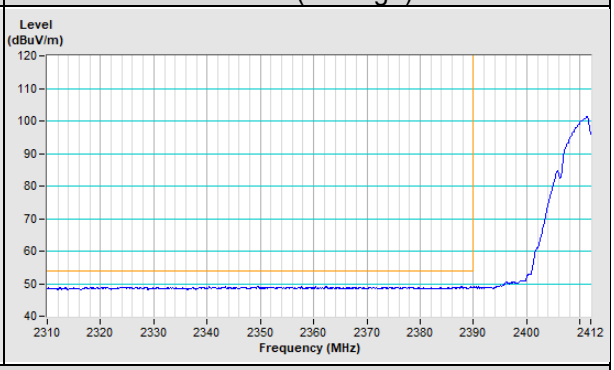
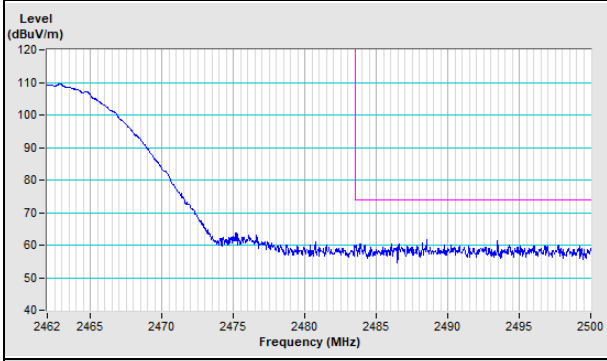
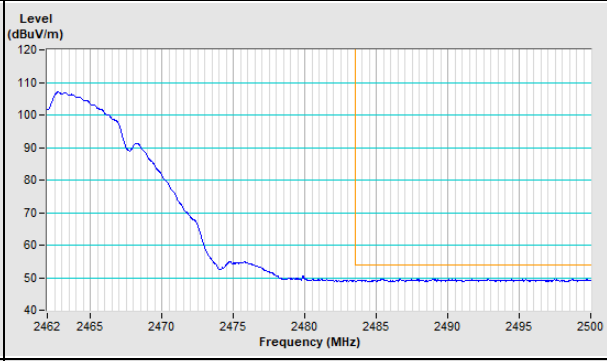
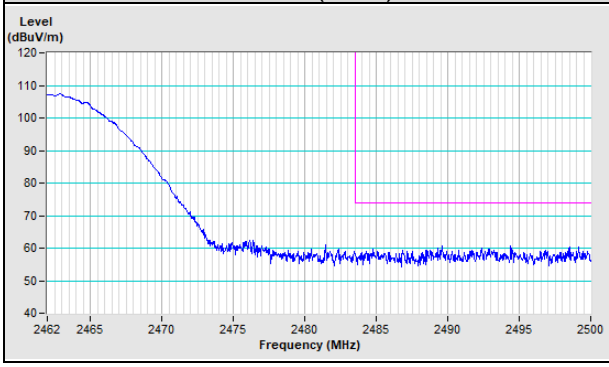
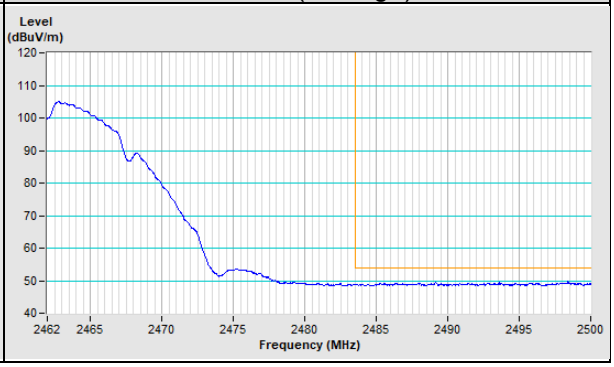


Vertical (Average)



Mode C

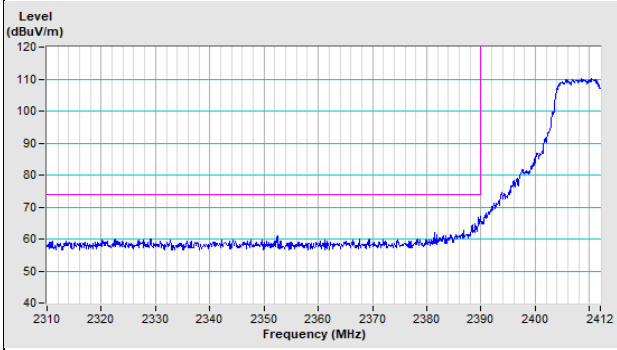
802.11b

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

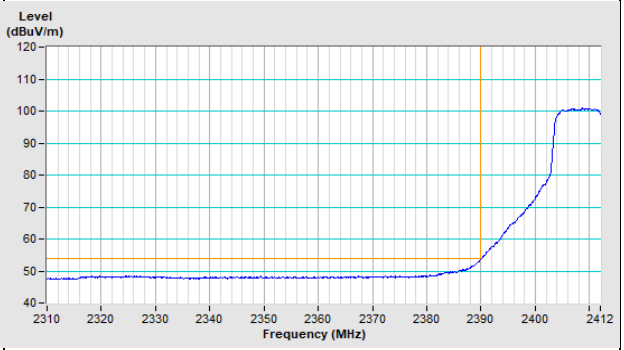
802.11g

Channel 1

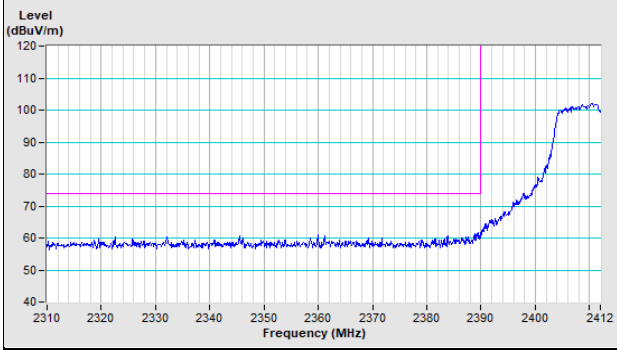
Horizontal (Peak)



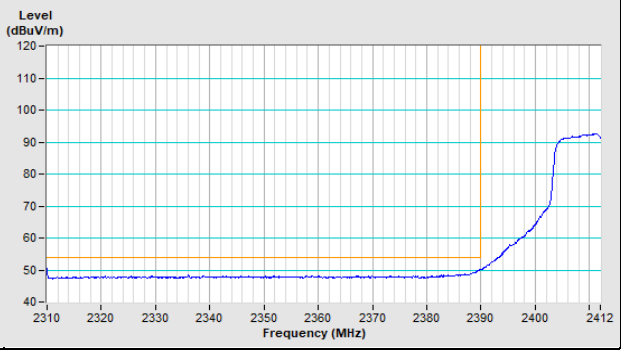
Horizontal (Average)



Vertical (Peak)

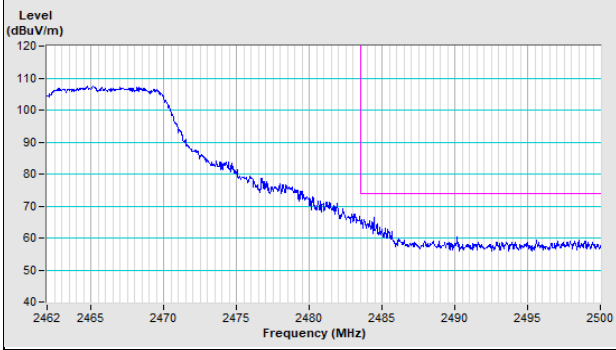


Vertical (Average)

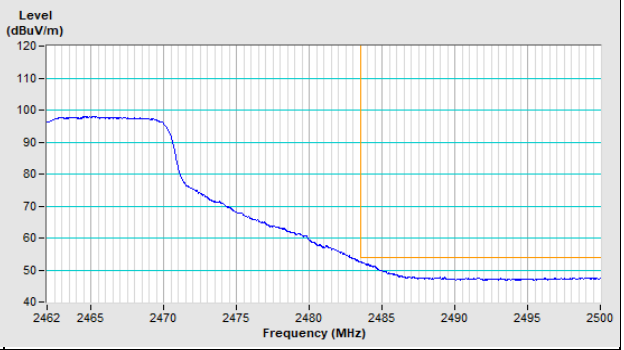


Channel 11

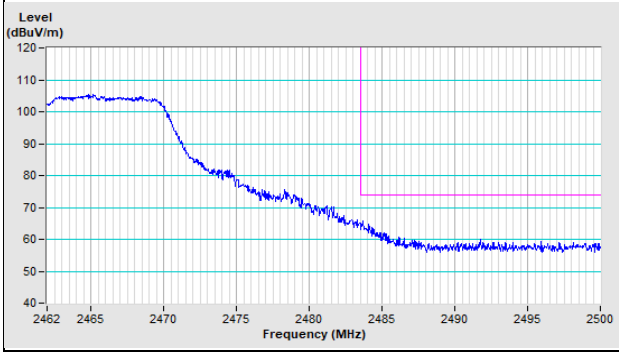
Horizontal (Peak)



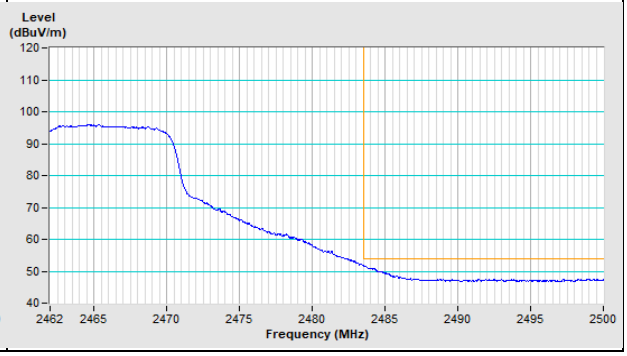
Horizontal (Average)



Vertical (Peak)



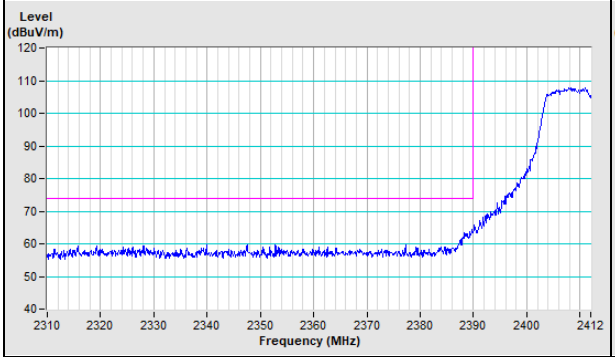
Vertical (Average)



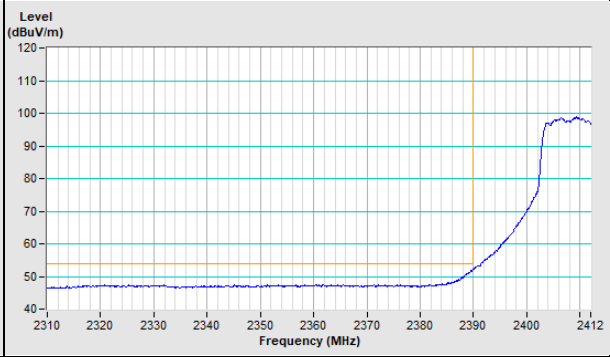
802.11ac (VHT20)

Channel 1

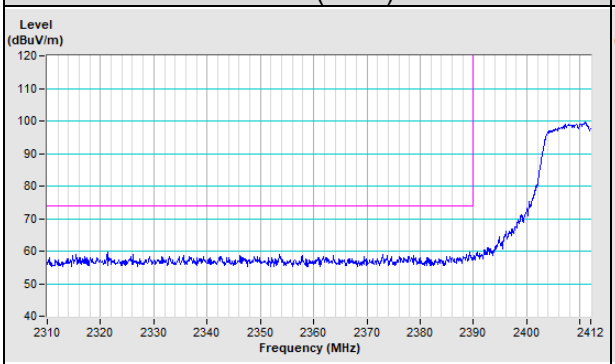
Horizontal (Peak)



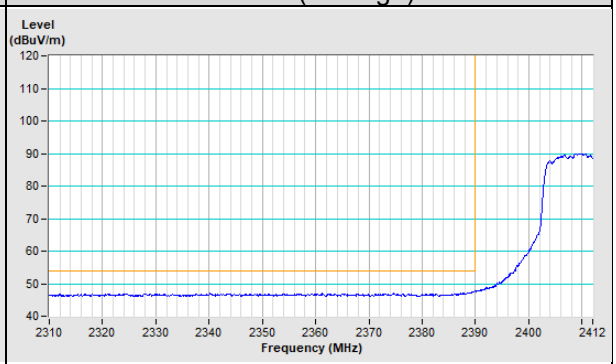
Horizontal (Average)



Vertical (Peak)

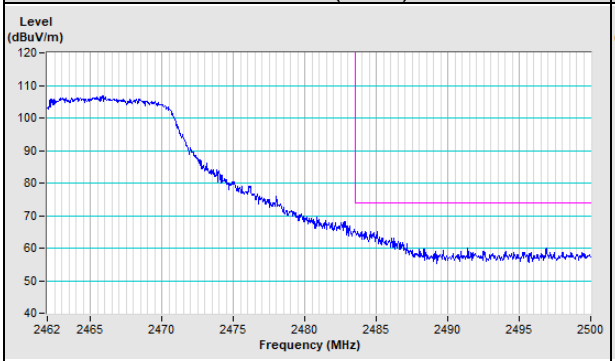


Vertical (Average)

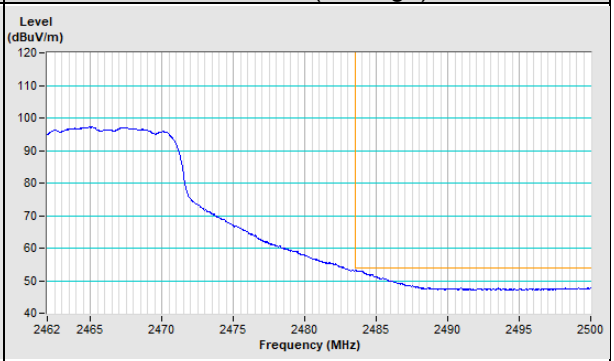


Channel 11

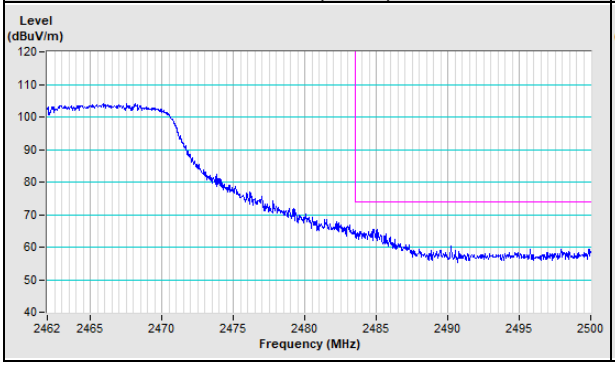
Horizontal (Peak)



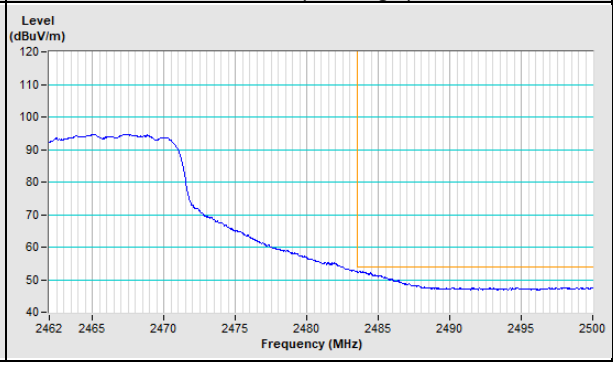
Horizontal (Average)



Vertical (Peak)



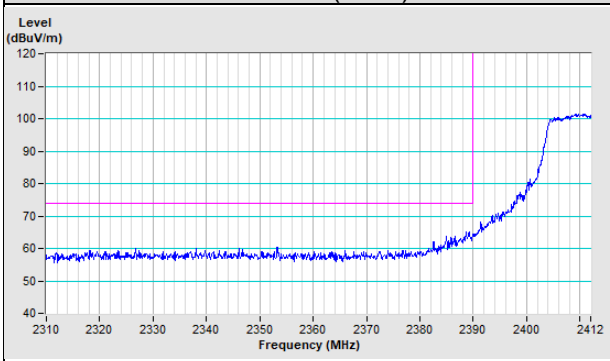
Vertical (Average)



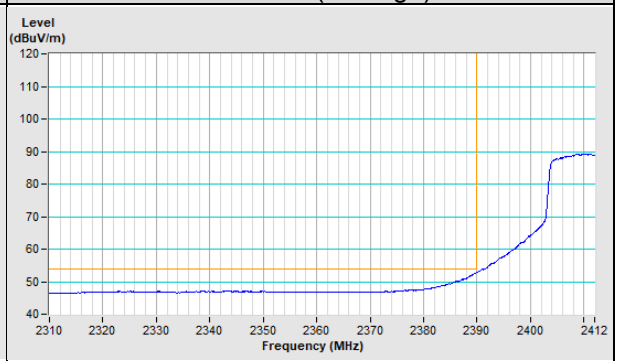
802.11ac (VHT40)

802.11n (HT40) Channel 3

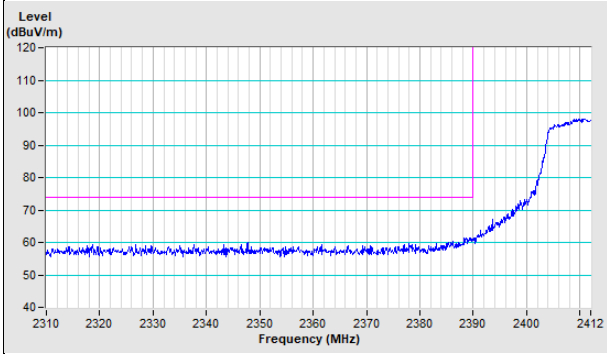
Horizontal (Peak)



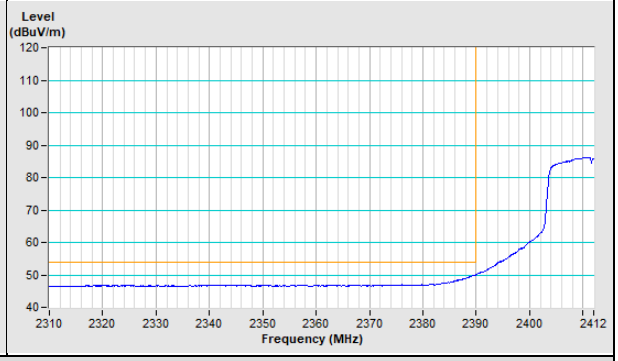
Horizontal (Average)



Vertical (Peak)

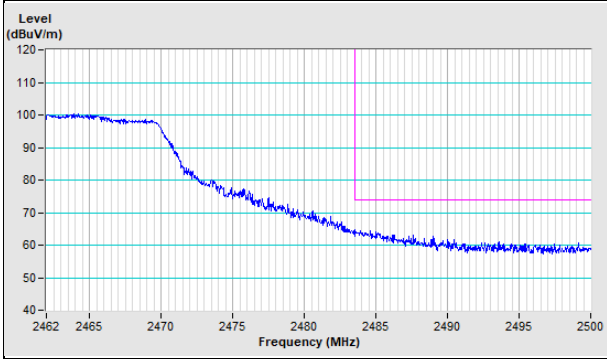


Vertical (Average)

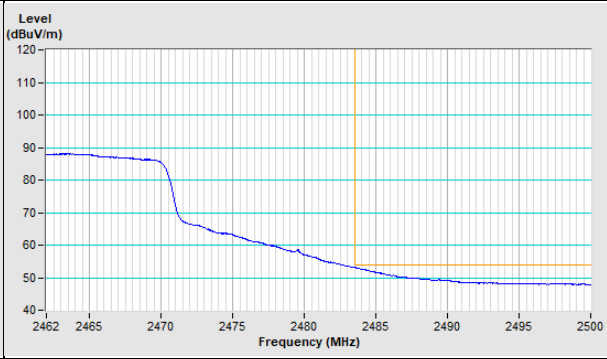


802.11n (HT40) Channel 9

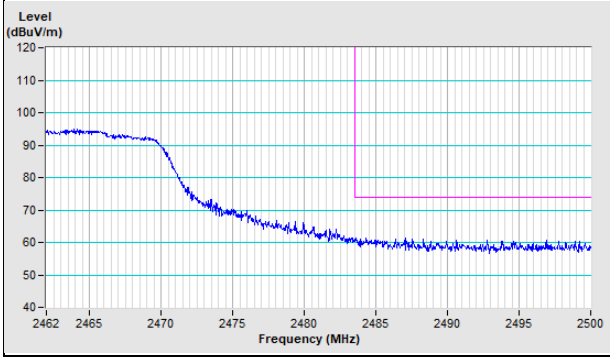
Horizontal (Peak)



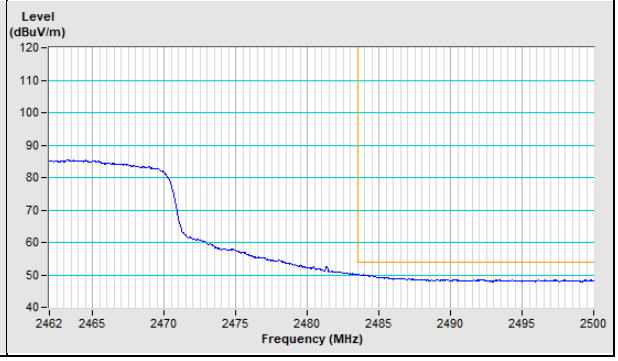
Horizontal (Average)



Vertical (Peak)



Vertical (Average)



Appendix – Information of the Testing Laboratories

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

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

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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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