

FCC Test Report

Report No.: RFBCIB-WTW-P22010514

FCC ID: 2AA3N-TTR03

Test Model: PLTN-TTR01-3

Received Date: Jan. 14, 2022

Test Date: Jan. 31 ~ Apr. 28, 2022

Issued Date: May 19, 2022

Applicant: Peloton Interactive Inc.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
RFBCIB-WTW-P22010514	Original release	May 19, 2022

1 Certificate of Conformity

Product: Peloton Tablet
Brand: PELOTON
Test Model: PLTN-TTR01-3
Sample Status: Engineering sample
Applicant: Peloton Interactive Inc.
Test Date: Jan. 31 ~ Apr. 28, 2022
Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10:2013

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

Prepared by : *Polly Chien* , **Date:** May 19, 2022
Polly Chien / Specialist

Approved by : *Jeremy Lin* , **Date:** May 19, 2022
Jeremy Lin / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -12.91dB at 1.33082MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.5dB at 2390.00MHz & 7311.00MHz.
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 i-pex(MHF) not a standard connector.

Note:

- 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.
- 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	3.59 dB
	200MHz ~ 1000MHz	3.60 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Peloton Tablet
Brand	PELTON
Test Model	PLTN-TTR01-3
Sample Status	Engineering sample
Power Supply Rating	20Vdc from adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps 802.11n (VHT20/40): up to 400Mbps
Operating Frequency	2412 ~ 2462MHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20), 802.11n (VHT20): 11 802.11n (HT40), 802.11n (VHT40): 7
Output Power	605.427mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	NA
Cable Supplied	NA

Note:

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

Modulation Mode	TX Function
802.11b	2TX
802.11g	2TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX
802.11n (VHT20)	2TX
802.11n (VHT40)	2TX

- The EUT consumes power from the following adapters (Support units).

Adapter 1	
Brand	PELTON
Model	FSP065-APDC8R01
Input Power	100-240Vac, 50-60Hz, 1.7A
Output Power	5Vdc, 3A or 9Vdc, 3A or 20Vdc, 3.25A, 65W Max.
Power Line	AC: 1.7m non-shielded power cable without core DC: 1.5m non-shielded power cable without core attached on adapter

Adapter 2	
Brand	PELTON
Model	A20-065N5A
Input Power	100-240Vac, 50-60Hz, 1.7A
Output Power	5Vdc, 3A or 9Vdc, 3A or 20Vdc, 3.25A, 65W Max.
Power Line	AC: 1.7m non-shielded power cable without core DC: 1.5m non-shielded power cable without core attached on adapter

* After the pretesting, the adapter 1 is found to be the worst case test mode and chosen for final test.

3. The following antennas were provided to the EUT.

Ant. No.	Brand	Model	Type	Connector	Gain (dBi)	
					2.4G	5G
Main	Peloton	UI8(Topaz)	PIFA	i-pex(MHF)	-0.19	0.58
AUX	Peloton	UI8(Topaz)	PIFA	i-pex(MHF)	0.28	2.34

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

4. Spurious emission of the simultaneous operation mode as below and the test data please refer to report no.: RFBCIB-WTW-P22010514 -6.

No	Mode
1	WLAN 2.4GHz + WLAN 5GHz
2	BT + WLAN 5GHz
3	ANT+ + WLAN 5GHz

3.2 Description of Test Modes

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20), 802.11n (VHT20):

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), 802.11n (VHT40):

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 \geq 1G	RE<1G	PLC	APCM	
A	√	√	√	√	EUT + Adapter
B	-	√	√	-	EUT + Exercise Bike + Adapter

Where RE \geq 1G: Radiated Emission above 1GHz & Bandedge Measurement
 RE<1G: Radiated Emission below 1GHz
 PLC: Power Line Conducted Emission
 APCM: Antenna Port Conducted Measurement

Note:

- For radiated emission (below 1GHz) and power line conducted emission test items chosen the worst maximum fundamental emission level channel.
- "-" 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)	TX Function
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	2TX
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	2TX
A	802.11n (VHT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	2TX
A	802.11n (VHT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0	2TX

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)	TX Function
A, B	802.11g	1 to 11	6	OFDM	BPSK	6.0	2TX

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)	TX Function
A, B	802.11g	1 to 11	6	OFDM	BPSK	6.0	2TX

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)	TX Function
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	2TX
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	2TX
A	802.11n (VHT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	2TX
A	802.11n (VHT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0	2TX

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE \geq 1G	21 deg. C, 67% RH	120Vac, 60Hz	Rex Wang
RE<1G	21 deg. C, 67% RH	120Vac, 60Hz	Jones Chang, Rex Wang
PLC	22 deg. C, 65% RH, 25 deg. C, 75% RH	120Vac, 60Hz	Jones Chang, Rex Wang
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Ivan Tseng

3.3 Duty Cycle of Test Signal

Duty cycle of test signal is $\geq 98\%$, duty factor is not required.

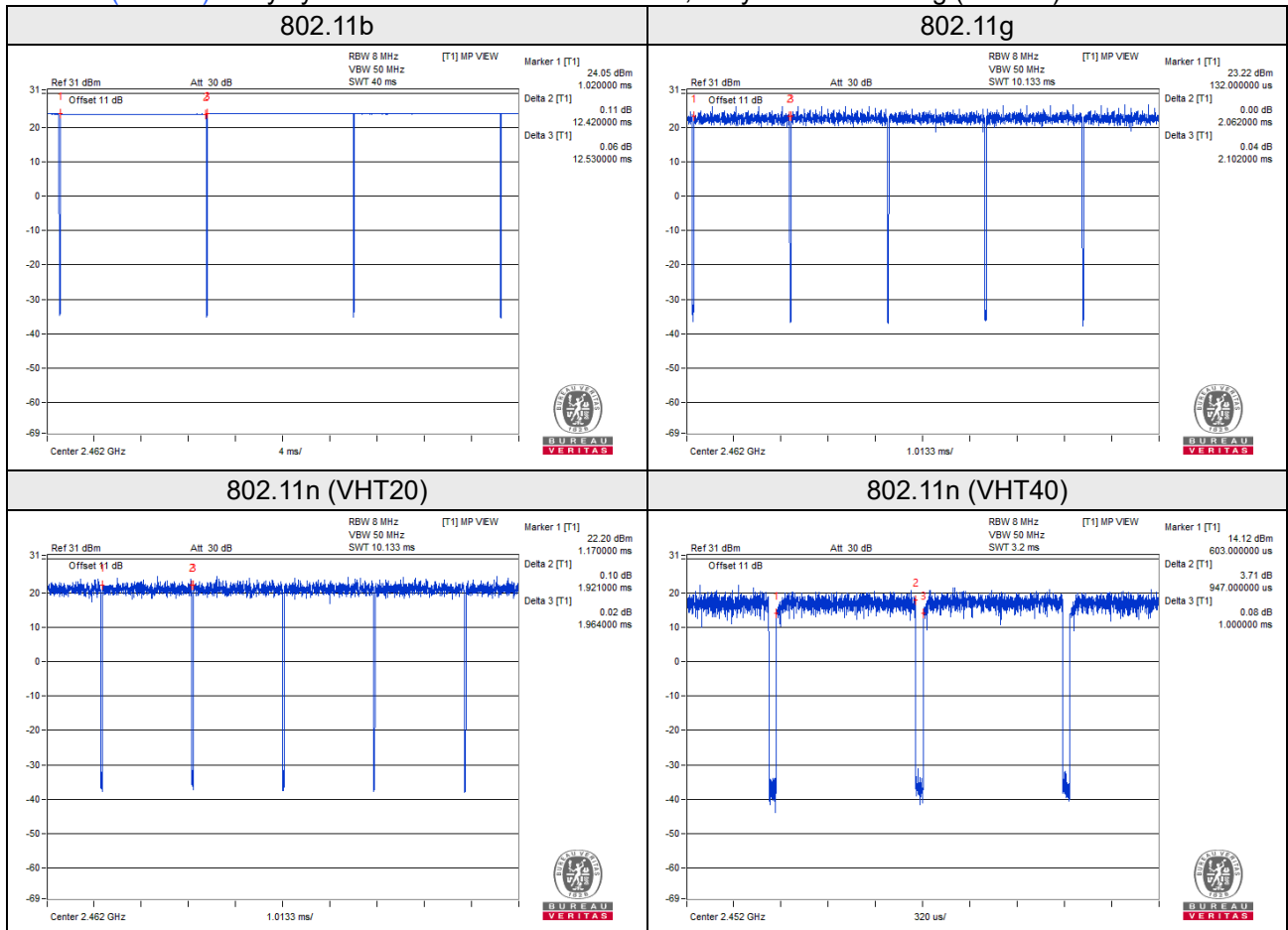
Duty cycle of test signal is $< 98\%$, duty factor is required.

802.11b: Duty cycle = $12.42\text{ms}/12.53\text{ms} = 0.991$

802.11g: Duty cycle = $2.062\text{ms}/2.102\text{ms} = 0.981$

802.11n (VHT20): Duty cycle = $1.921\text{ms}/1.964\text{ms} = 0.978$, Duty factor = $10 * \log(1/0.978) = 0.10$

802.11n (VHT40): Duty cycle = $0.947\text{ms}/1.000\text{ms} = 0.947$, Duty factor = $10 * \log(1/0.947) = 0.24$



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.

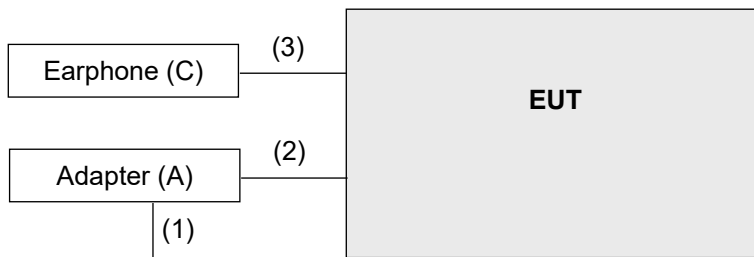
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Adapter	PELTON	FSP065-APDC8R01	NA	NA	Provided by manufacturer
B.	Peloton Bike	PELTON	PL-02	NA	NA	Provided by manufacturer
C.	Earphone	APPLE	MB770FEB	NA	NA	-

Note: All power cords of the above support units are non-shielded (1.8m).

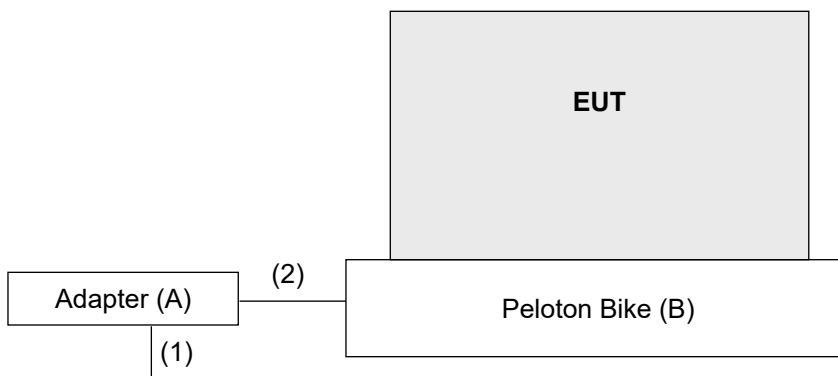
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	AC Power cable	1	1.7	N	0	Provided by manufacturer
2.	DC Power cable	1	1.5	N	0	Provided by manufacturer
3.	Earphone cable	1	1.2	Y	0	-

3.4.1 Configuration of System under Test

Test Mode A



Test Mode B



3.5 General Description of Applied Standards and References

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

Test standard:

FCC Part 15, Subpart C (15.247)

ANSI C63.10-2013

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

References Test Guidance:

KDB 558074 D01 15.247 Meas Guidance v05r02

KDB 662911 D01 Multiple Transmitter Output v02r01

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

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

Note:

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 09, 2021	Apr. 08, 2022
			Apr. 27, 2022	Apr. 26, 2023
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jun. 10, 2021	Jun. 09, 2022
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Oct. 28, 2021	Oct. 27, 2022
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 14, 2021	Nov. 13, 2022
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Oct. 26, 2021	Oct. 25, 2022
Loop Antenna TESEQ	HLA 6121	45745	Jul. 21, 2021	Jul. 20, 2022
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Jun. 05, 2021	Jun. 04, 2022
Preamplifier Agilent (Above 1GHz)	8449B	3008A01962	Oct. 05, 2021	Oct. 04, 2022
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	Jan. 15, 2022	Jan. 14, 2023
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795 /4)	Jan. 15, 2022	Jan. 14, 2023
RF signal cable Woken	8D-FB	Cable-CH9-01	Jun. 05, 2021	Jun. 04, 2022
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower & Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Peak Power Analyzer KEYSIGHT	8990B	MY51000485	Jan. 18, 2022	Jan. 17, 2023
Wideband Power Sensor KEYSIGHT	N1923A	MY58020002	Jan. 17, 2022	Jan. 16, 2023

- 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 9.

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:

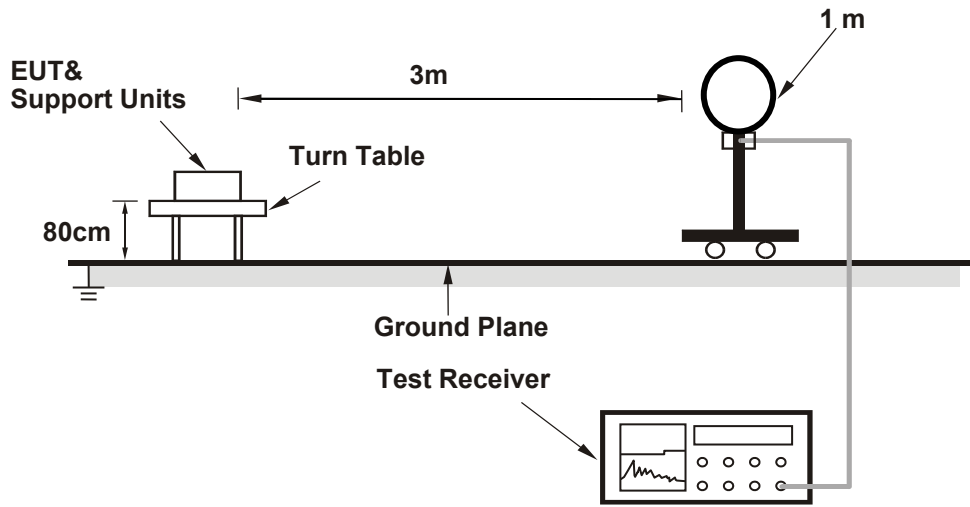
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
(802.11b: RBW = 1MHz, VBW = 10Hz; 802.11g: RBW = 1MHz, VBW = 10Hz;
802.11n (VHT20): RBW = 1MHz, VBW = 1kHz; 802.11n (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

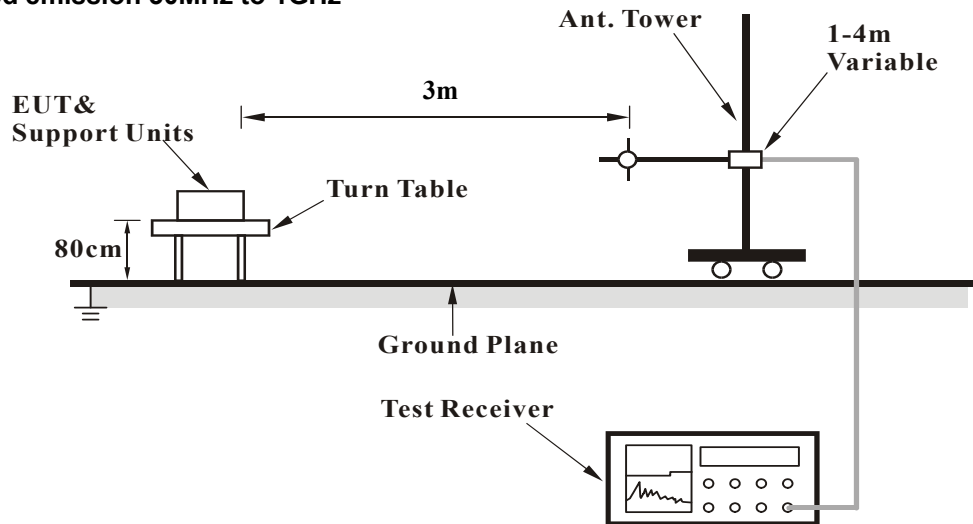
No deviation.

4.1.5 Test Setup

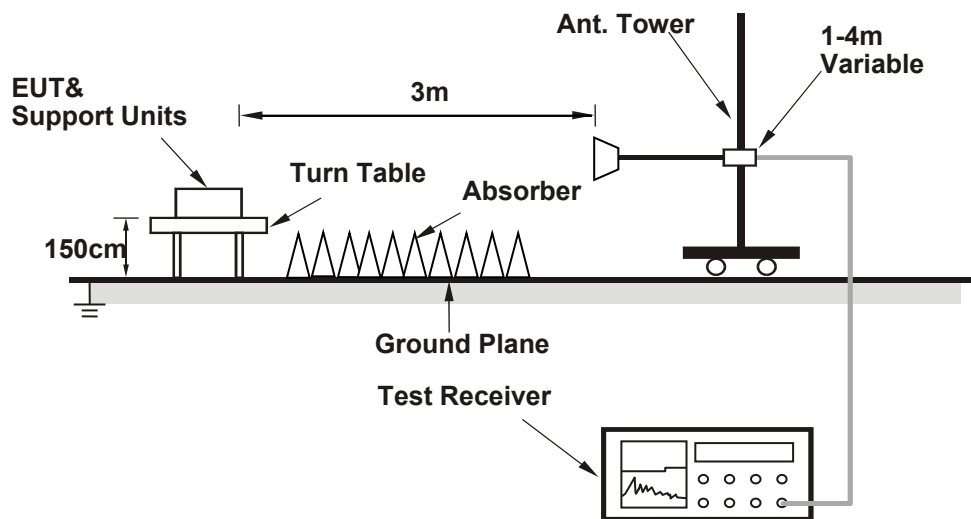
For Radiated emission below 30MHz



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. Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz Data:

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.0 PK	74.0	-14.0	1.43 H	67	27.2	32.8
2	2390.00	50.5 AV	54.0	-3.5	1.43 H	67	17.7	32.8
3	*2412.00	115.6 PK			1.43 H	67	82.7	32.9
4	*2412.00	112.7 AV			1.43 H	67	79.8	32.9
5	4824.00	55.4 PK	74.0	-18.6	1.86 H	262	49.7	5.7
6	4824.00	53.0 AV	54.0	-1.0	1.86 H	262	47.3	5.7

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	59.5 PK	74.0	-14.5	1.27 V	339	26.7	32.8
2	2390.00	50.0 AV	54.0	-4.0	1.27 V	339	17.2	32.8
3	*2412.00	114.7 PK			1.27 V	339	81.8	32.9
4	*2412.00	110.7 AV			1.27 V	339	77.8	32.9
5	4824.00	53.4 PK	74.0	-20.6	3.12 V	167	47.7	5.7
6	4824.00	49.6 AV	54.0	-4.4	3.12 V	167	43.9	5.7

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	110.9 PK			1.41 H	301	78.1	32.8
2	*2437.00	108.1 AV			1.41 H	301	75.3	32.8
3	4874.00	50.5 PK	74.0	-23.5	2.28 H	271	44.9	5.6
4	4874.00	44.1 AV	54.0	-9.9	2.28 H	271	38.5	5.6
5	7311.00	59.2 PK	74.0	-14.8	1.50 H	48	46.9	12.3
6	7311.00	53.0 AV	54.0	-1.0	1.50 H	48	40.7	12.3

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	109.0 PK			1.39 V	321	76.2	32.8
2	*2437.00	106.5 AV			1.39 V	321	73.7	32.8
3	4874.00	49.4 PK	74.0	-24.6	2.15 V	344	43.8	5.6
4	4874.00	41.8 AV	54.0	-12.2	2.15 V	344	36.2	5.6
5	7311.00	59.9 PK	74.0	-14.1	1.58 V	222	47.6	12.3
6	7311.00	53.5 AV	54.0	-0.5	1.58 V	222	41.2	12.3

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	108.7 PK			1.52 H	71	75.9	32.8
2	*2462.00	105.4 AV			1.52 H	71	72.6	32.8
3	2483.50	58.5 PK	74.0	-15.5	1.52 H	71	25.6	32.9
4	2483.50	46.6 AV	54.0	-7.4	1.52 H	71	13.7	32.9
5	4924.00	50.3 PK	74.0	-23.7	2.02 H	268	44.9	5.4
6	4924.00	44.7 AV	54.0	-9.3	2.02 H	268	39.3	5.4
7	7386.00	56.7 PK	74.0	-17.3	1.86 H	46	44.9	11.8
8	7386.00	49.8 AV	54.0	-4.2	1.86 H	46	38.0	11.8

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	106.3 PK			2.38 V	195	73.5	32.8
2	*2462.00	103.8 AV			2.38 V	195	71.0	32.8
3	2483.50	57.7 PK	74.0	-16.3	2.38 V	195	24.8	32.9
4	2483.50	46.3 AV	54.0	-7.7	2.38 V	195	13.4	32.9
5	4924.00	50.5 PK	74.0	-23.5	2.76 V	161	45.1	5.4
6	4924.00	44.5 AV	54.0	-9.5	2.76 V	161	39.1	5.4
7	7386.00	58.2 PK	74.0	-15.8	2.88 V	161	46.4	11.8
8	7386.00	52.8 AV	54.0	-1.2	2.88 V	161	41.0	11.8

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	66.3 PK	74.0	-7.7	1.54 H	300	33.5	32.8
2	2390.00	53.5 AV	54.0	-0.5	1.54 H	300	20.7	32.8
3	*2412.00	114.6 PK			1.54 H	300	81.7	32.9
4	*2412.00	104.0 AV			1.54 H	300	71.1	32.9
5	4824.00	50.2 PK	74.0	-23.8	2.17 H	267	44.5	5.7
6	4824.00	35.9 AV	54.0	-18.1	2.17 H	267	30.2	5.7

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	66.2 PK	74.0	-7.8	1.78 V	327	33.4	32.8
2	2390.00	53.4 AV	54.0	-0.6	1.78 V	327	20.6	32.8
3	*2412.00	114.1 PK			1.78 V	327	81.2	32.9
4	*2412.00	103.0 AV			1.78 V	327	70.1	32.9
5	4824.00	47.7 PK	74.0	-26.3	2.28 V	349	42.0	5.7
6	4824.00	34.3 AV	54.0	-19.7	2.28 V	349	28.6	5.7

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	117.0 PK			1.54 H	72	84.2	32.8
2	*2437.00	105.4 AV			1.54 H	72	72.6	32.8
3	4874.00	49.2 PK	74.0	-24.8	2.00 H	280	43.6	5.6
4	4874.00	35.6 AV	54.0	-18.4	2.00 H	280	30.0	5.6
5	7311.00	65.8 PK	74.0	-8.2	1.17 H	48	53.5	12.3
6	7311.00	48.3 AV	54.0	-5.7	1.17 H	48	36.0	12.3

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	113.9 PK			2.91 V	133	81.1	32.8
2	*2437.00	103.6 AV			2.91 V	133	70.8	32.8
3	4874.00	48.2 PK	74.0	-25.8	2.81 V	160	42.6	5.6
4	4874.00	35.5 AV	54.0	-18.5	2.81 V	160	29.9	5.6
5	7311.00	68.3 PK	74.0	-5.7	2.88 V	161	56.0	12.3
6	7311.00	52.9 AV	54.0	-1.1	2.88 V	161	40.6	12.3

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	114.2 PK			1.36 H	300	81.4	32.8
2	*2462.00	104.2 AV			1.36 H	300	71.4	32.8
3	2483.50	66.4 PK	74.0	-7.6	1.36 H	300	33.5	32.9
4	2483.50	53.1 AV	54.0	-0.9	1.36 H	300	20.2	32.9
5	4924.00	50.3 PK	74.0	-23.7	3.03 H	231	44.9	5.4
6	4924.00	37.2 AV	54.0	-16.8	3.03 H	231	31.8	5.4
7	7386.00	64.5 PK	74.0	-9.5	1.52 H	51	52.7	11.8
8	7386.00	48.6 AV	54.0	-5.4	1.52 H	51	36.8	11.8

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	113.1 PK			2.29 V	342	80.3	32.8
2	*2462.00	103.1 AV			2.29 V	342	70.3	32.8
3	2483.50	64.5 PK	74.0	-9.5	2.29 V	342	31.6	32.9
4	2483.50	51.2 AV	54.0	-2.8	2.29 V	342	18.3	32.9
5	4924.00	47.8 PK	74.0	-26.2	2.37 V	256	42.4	5.4
6	4924.00	34.9 AV	54.0	-19.1	2.37 V	256	29.5	5.4
7	7386.00	65.7 PK	74.0	-8.3	1.53 V	234	53.9	11.8
8	7386.00	49.7 AV	54.0	-4.3	1.53 V	234	37.9	11.8

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	65.1 PK	74.0	-8.9	1.52 H	301	32.3	32.8
2	2390.00	53.1 AV	54.0	-0.9	1.52 H	301	20.3	32.8
3	*2412.00	113.8 PK			1.52 H	301	80.9	32.9
4	*2412.00	103.7 AV			1.52 H	301	70.8	32.9
5	4824.00	50.2 PK	74.0	-23.8	2.97 H	226	44.5	5.7
6	4824.00	35.8 AV	54.0	-18.2	2.97 H	226	30.1	5.7

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	63.9 PK	74.0	-10.1	2.32 V	337	31.1	32.8
2	2390.00	51.7 AV	54.0	-2.3	2.32 V	337	18.9	32.8
3	*2412.00	112.9 PK			2.32 V	337	80.0	32.9
4	*2412.00	102.8 AV			2.32 V	337	69.9	32.9
5	4824.00	48.0 PK	74.0	-26.0	2.39 V	252	42.3	5.7
6	4824.00	35.3 AV	54.0	-18.7	2.39 V	252	29.6	5.7

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	118.1 PK			1.36 H	69	85.3	32.8
2	*2437.00	106.0 AV			1.36 H	69	73.2	32.8
3	4874.00	50.1 PK	74.0	-23.9	1.45 H	237	44.5	5.6
4	4874.00	35.2 AV	54.0	-18.8	1.45 H	237	29.6	5.6
5	7311.00	69.4 PK	74.0	-4.6	1.52 H	48	57.1	12.3
6	7311.00	50.0 AV	54.0	-4.0	1.52 H	48	37.7	12.3

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	115.7 PK			2.73 V	110	82.9	32.8
2	*2437.00	103.5 AV			2.73 V	110	70.7	32.8
3	4874.00	54.2 PK	74.0	-19.8	2.82 V	189	48.6	5.6
4	4874.00	37.6 AV	54.0	-16.4	2.82 V	189	32.0	5.6
5	7311.00	69.8 PK	74.0	-4.2	2.74 V	137	57.5	12.3
6	7311.00	52.9 AV	54.0	-1.1	2.74 V	137	40.6	12.3

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	113.2 PK			1.56 H	75	80.4	32.8
2	*2462.00	101.2 AV			1.56 H	75	68.4	32.8
3	2483.50	66.4 PK	74.0	-7.6	1.56 H	75	33.5	32.9
4	2483.50	52.7 AV	54.0	-1.3	1.56 H	75	19.8	32.9
5	4924.00	46.7 PK	74.0	-27.3	2.22 H	238	41.3	5.4
6	4924.00	33.8 AV	54.0	-20.2	2.22 H	238	28.4	5.4
7	7386.00	57.7 PK	74.0	-16.3	1.62 H	47	45.9	11.8
8	7386.00	42.7 AV	54.0	-11.3	1.62 H	47	30.9	11.8

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	111.1 PK			2.80 V	117	78.3	32.8
2	*2462.00	99.8 AV			2.80 V	117	67.0	32.8
3	2483.50	64.5 PK	74.0	-9.5	2.80 V	117	31.6	32.9
4	2483.50	51.4 AV	54.0	-2.6	2.80 V	117	18.5	32.9
5	4924.00	46.2 PK	74.0	-27.8	2.83 V	162	40.8	5.4
6	4924.00	33.0 AV	54.0	-21.0	2.83 V	162	27.6	5.4
7	7386.00	58.1 PK	74.0	-15.9	2.87 V	161	46.3	11.8
8	7386.00	43.8 AV	54.0	-10.2	2.87 V	161	32.0	11.8

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	65.0 PK	74.0	-9.0	1.39 H	275	32.2	32.8
2	2390.00	53.1 AV	54.0	-0.9	1.39 H	275	20.3	32.8
3	*2422.00	108.3 PK			1.39 H	275	75.4	32.9
4	*2422.00	98.3 AV			1.39 H	275	65.4	32.9
5	4844.00	49.3 PK	74.0	-24.7	3.08 H	234	43.6	5.7
6	4844.00	36.0 AV	54.0	-18.0	3.08 H	234	30.3	5.7
7	7266.00	58.1 PK	74.0	-15.9	1.53 H	54	46.4	11.7
8	7266.00	42.3 AV	54.0	-11.7	1.53 H	54	30.6	11.7

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	63.9 PK	74.0	-10.1	2.37 V	331	31.1	32.8
2	2390.00	52.0 AV	54.0	-2.0	2.37 V	331	19.2	32.8
3	*2422.00	107.3 PK			2.37 V	331	74.4	32.9
4	*2422.00	97.3 AV			2.37 V	331	64.4	32.9
5	4844.00	47.6 PK	74.0	-26.4	2.34 V	256	41.9	5.7
6	4844.00	34.1 AV	54.0	-19.9	2.34 V	256	28.4	5.7
7	7266.00	59.3 PK	74.0	-14.7	1.57 V	234	47.6	11.7
8	7266.00	43.5 AV	54.0	-10.5	1.57 V	234	31.8	11.7

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	110.4 PK			1.40 H	303	77.6	32.8
2	*2437.00	100.4 AV			1.40 H	303	67.6	32.8
3	2483.50	66.0 PK	74.0	-8.0	1.40 H	303	33.1	32.9
4	2483.50	53.1 AV	54.0	-0.9	1.40 H	303	20.2	32.9
5	4874.00	50.2 PK	74.0	-23.8	3.03 H	242	44.6	5.6
6	4874.00	37.0 AV	54.0	-17.0	3.03 H	242	31.4	5.6
7	7311.00	61.6 PK	74.0	-12.4	1.58 H	52	49.3	12.3
8	7311.00	45.5 AV	54.0	-8.5	1.58 H	52	33.2	12.3

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	109.4 PK			2.36 V	339	76.6	32.8
2	*2437.00	99.3 AV			2.36 V	339	66.5	32.8
3	2483.50	64.8 PK	74.0	-9.2	2.36 V	339	31.9	32.9
4	2483.50	52.1 AV	54.0	-1.9	2.36 V	339	19.2	32.9
5	4874.00	47.9 PK	74.0	-26.1	2.53 V	264	42.3	5.6
6	4874.00	34.8 AV	54.0	-19.2	2.53 V	264	29.2	5.6
7	7311.00	62.7 PK	74.0	-11.3	1.57 V	233	50.4	12.3
8	7311.00	46.6 AV	54.0	-7.4	1.57 V	233	34.3	12.3

Remarks:

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

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

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	111.3 PK			1.54 H	71	78.5	32.8
2	*2452.00	101.2 AV			1.54 H	71	68.4	32.8
3	2483.50	67.9 PK	74.0	-6.1	1.54 H	71	35.0	32.9
4	2483.50	53.0 AV	54.0	-1.0	1.54 H	71	20.1	32.9
5	4904.00	46.2 PK	74.0	-27.8	2.02 H	281	40.8	5.4
6	4904.00	33.7 AV	54.0	-20.3	2.02 H	281	28.3	5.4

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	109.8 PK			2.96 V	108	77.0	32.8
2	*2452.00	99.8 AV			2.96 V	108	67.0	32.8
3	2483.50	65.8 PK	74.0	-8.2	2.96 V	108	32.9	32.9
4	2483.50	52.0 AV	54.0	-2.0	2.96 V	108	19.1	32.9
5	4904.00	45.8 PK	74.0	-28.2	2.86 V	162	40.4	5.4
6	4904.00	33.3 AV	54.0	-20.7	2.86 V	162	27.9	5.4

Remarks:

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

Below 1GHz worst-case data:

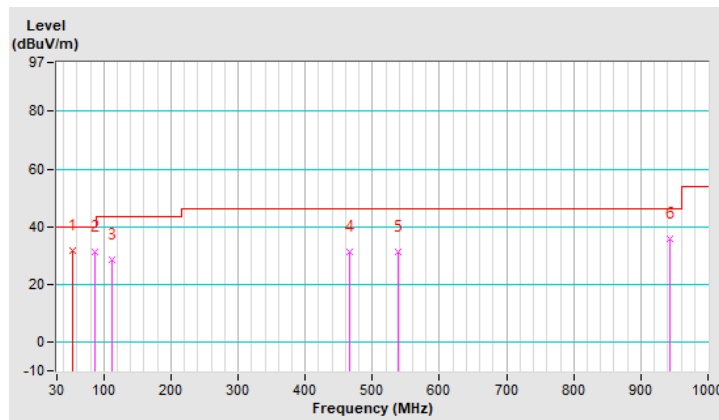
802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	53.53	31.5 QP	40.0	-8.5	1.00 H	99	40.7	-9.2
2	86.26	31.2 QP	40.0	-8.8	1.50 H	96	45.8	-14.6
3	112.45	28.8 QP	43.5	-14.7	1.50 H	241	40.7	-11.9
4	466.50	31.2 QP	46.0	-14.8	1.50 H	357	34.4	-3.2
5	538.28	31.4 QP	46.0	-14.6	1.50 H	26	33.2	-1.8
6	943.74	35.9 QP	46.0	-10.1	2.00 H	80	29.8	6.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

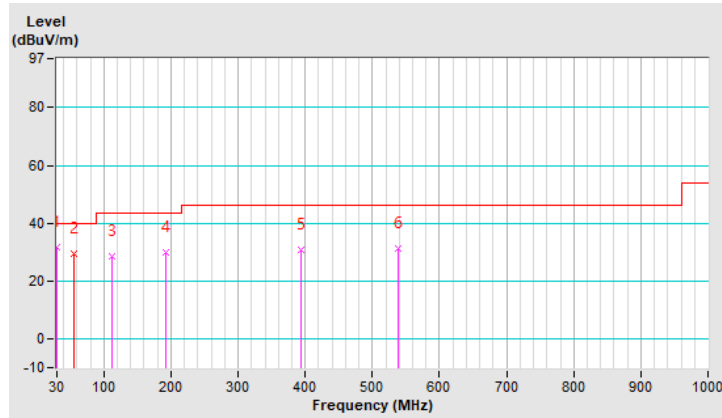


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	A

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.97	31.7 QP	40.0	-8.3	1.00 V	193	42.3	-10.6
2	55.56	29.2 QP	40.0	-10.8	1.00 V	0	38.4	-9.2
3	111.48	28.7 QP	43.5	-14.8	1.50 V	356	40.7	-12.1
4	191.99	30.1 QP	43.5	-13.4	1.50 V	8	41.5	-11.4
5	394.72	31.0 QP	46.0	-15.0	1.50 V	320	36.0	-5.0
6	538.28	31.2 QP	46.0	-14.8	2.00 V	299	33.1	-1.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

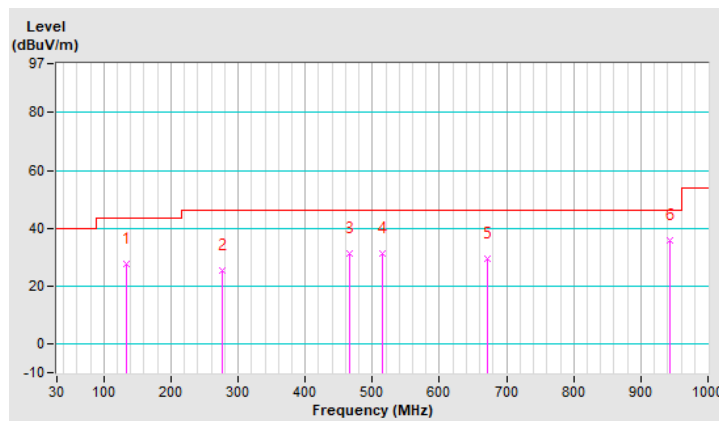


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B

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	133.79	27.7 QP	43.5	-15.8	1.00 H	299	37.5	-9.8
2	276.38	25.2 QP	46.0	-20.8	1.50 H	196	32.8	-7.6
3	466.50	31.2 QP	46.0	-14.8	2.00 H	357	34.4	-3.2
4	514.03	31.4 QP	46.0	-14.6	1.50 H	334	33.6	-2.2
5	671.17	29.5 QP	46.0	-16.5	2.00 H	326	29.0	0.5
6	943.74	35.9 QP	46.0	-10.1	1.50 H	80	29.7	6.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

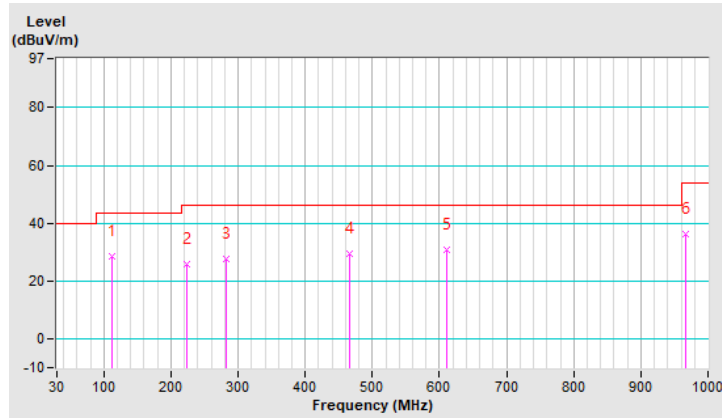


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	111.48	28.6 QP	43.5	-14.9	1.00 V	356	40.7	-12.1
2	223.03	25.7 QP	46.0	-20.3	2.00 V	80	36.9	-11.2
3	282.20	27.7 QP	46.0	-18.3	1.50 V	339	35.1	-7.4
4	466.50	29.6 QP	46.0	-16.4	1.00 V	6	32.8	-3.2
5	610.06	30.7 QP	46.0	-15.3	1.50 V	6	30.9	-0.2
6	966.05	36.3 QP	54.0	-17.7	1.50 V	134	29.9	6.4

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESR3	102412	Jan. 22, 2022	Jan. 21, 2023
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Sep. 04, 2021	Sep. 03, 2022
LISN/AMN ROHDE & SCHWARZ (EUT)	ESH3-Z5	100312	Sep. 17, 2021	Sep. 16, 2022
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ENV216	101196	Apr. 26, 2021	Apr. 25, 2022
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Shielded Room 2 (Conduction 2).
 3. The VCCI Site Registration No. is C-12047.
 4. Teste date: Jan. 31 ~ Feb. 28, 2022

4.2.3 Test Procedures

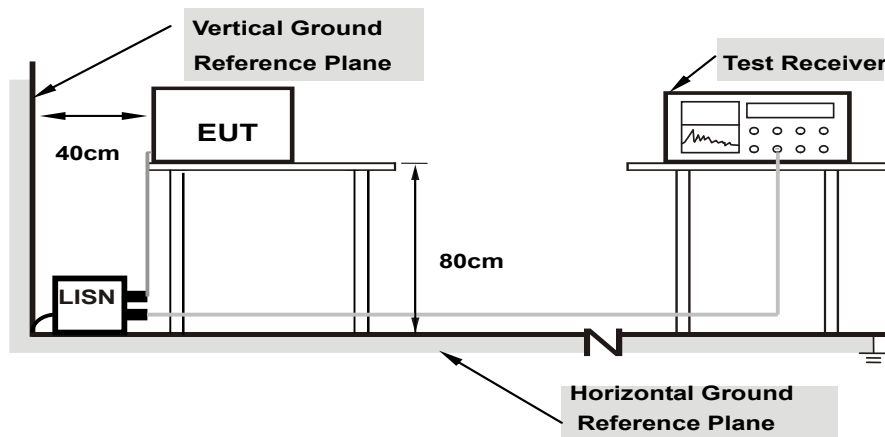
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

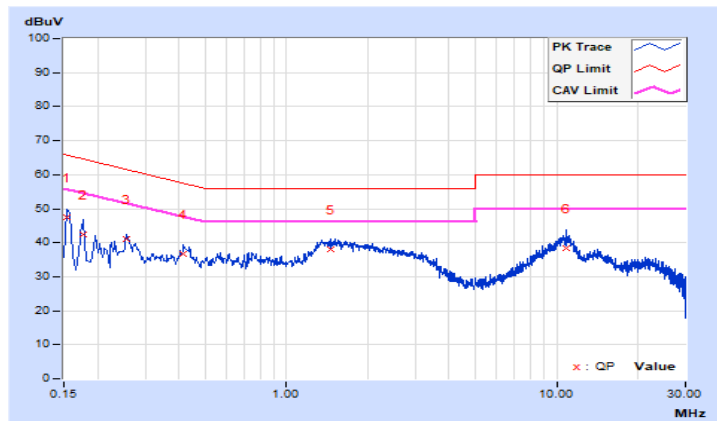
802.11g

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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15391	9.69	37.68	25.26	47.37	34.95	65.79
2	0.17737	9.69	32.61	21.43	42.30	31.12	64.61	54.61	-22.31	-23.49
3	0.25557	9.69	31.36	22.75	41.05	32.44	61.57	51.57	-20.52	-19.13
4	0.41560	9.68	27.01	20.76	36.69	30.44	57.54	47.54	-20.85	-17.10
5	1.46376	9.70	28.39	22.65	38.09	32.35	56.00	46.00	-17.91	-13.65
6	10.79693	9.79	28.61	22.98	38.40	32.77	60.00	50.00	-21.60	-17.23

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.

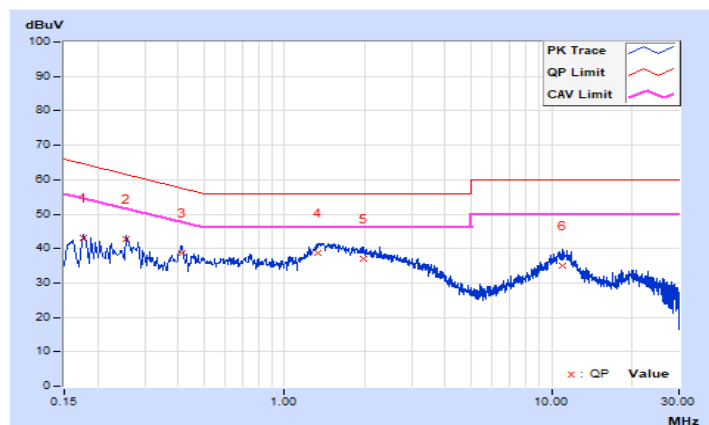


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.17737	9.69	33.47	22.79	43.16	32.48	64.61
2	0.25557	9.69	33.01	24.64	42.70	34.33	61.57	51.57	-18.87	-17.24
3	0.41197	9.68	28.88	22.55	38.56	32.23	57.61	47.61	-19.05	-15.38
4	1.33082	9.71	29.13	23.38	38.84	33.09	56.00	46.00	-17.16	-12.91
5	1.97206	9.72	27.44	21.69	37.16	31.41	56.00	46.00	-18.84	-14.59
6	11.00416	9.81	25.33	19.39	35.14	29.20	60.00	50.00	-24.86	-20.80

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.

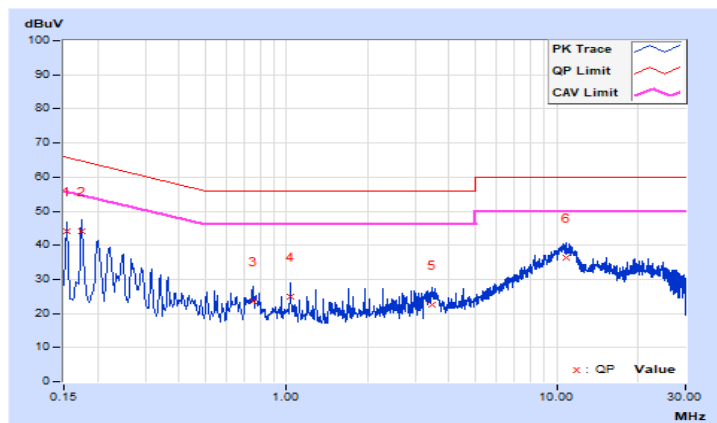


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15400	9.71	34.32	22.97	44.03	32.68	65.78
2	0.17400	9.71	34.55	18.86	44.26	28.57	64.77	54.77	-20.51	-26.20
3	0.75000	9.77	13.80	7.88	23.57	17.65	56.00	46.00	-32.43	-28.35
4	1.03400	9.77	15.14	5.31	24.91	15.08	56.00	46.00	-31.09	-30.92
5	3.46200	9.80	12.67	5.75	22.47	15.55	56.00	46.00	-33.53	-30.45
6	10.83400	9.87	26.63	21.52	36.50	31.39	60.00	50.00	-23.50	-18.61

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.

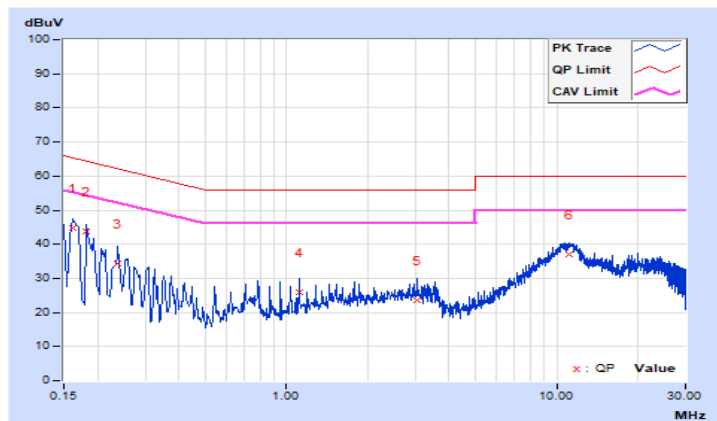


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.16190	9.76	35.07	17.80	44.83	27.56	65.37
2	0.18200	9.77	34.11	18.76	43.88	28.53	64.39	54.39	-20.51	-25.86
3	0.23785	9.79	24.45	15.45	34.24	25.24	62.17	52.17	-27.93	-26.93
4	1.11400	9.83	16.26	5.47	26.09	15.30	56.00	46.00	-29.91	-30.70
5	3.04200	9.86	13.58	8.02	23.44	17.88	56.00	46.00	-32.56	-28.12
6	11.07800	9.95	27.17	22.10	37.12	32.05	60.00	50.00	-22.88	-17.95

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.

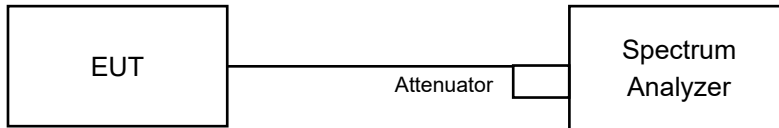


4.3 6dB Bandwidth Measurement

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

- Set resolution bandwidth (RBW) = 100kHz.
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

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

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	9.11	9.04	0.5	Pass
6	2437	8.14	8.13	0.5	Pass
11	2462	8.12	9.10	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.14	15.15	0.5	Pass
6	2437	16.31	15.94	0.5	Pass
11	2462	15.74	15.75	0.5	Pass

802.11n (VHT20)

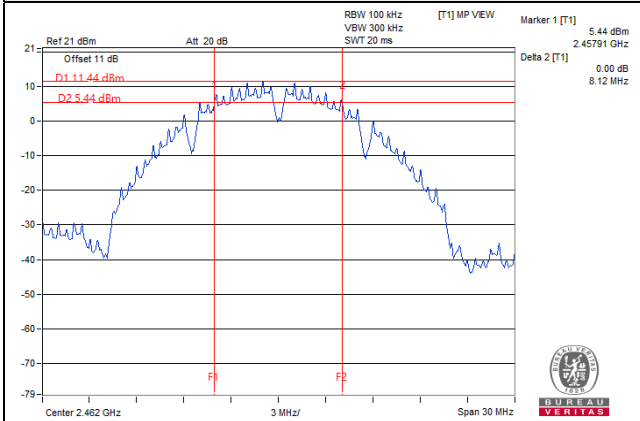
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.35	15.71	0.5	Pass
6	2437	17.58	16.57	0.5	Pass
11	2462	16.33	16.33	0.5	Pass

802.11n (VHT40)

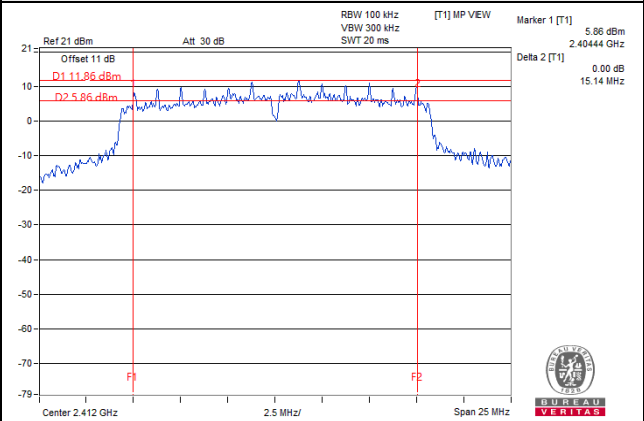
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.16	35.12	0.5	Pass
6	2437	36.32	36.01	0.5	Pass
9	2452	35.25	35.17	0.5	Pass

Spectrum Plot of Worst Value

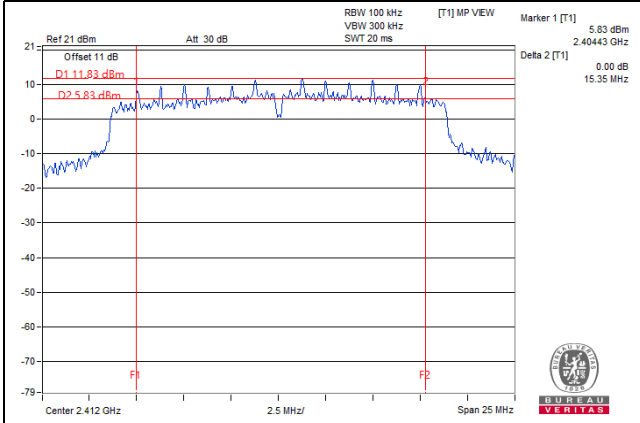
802.11b



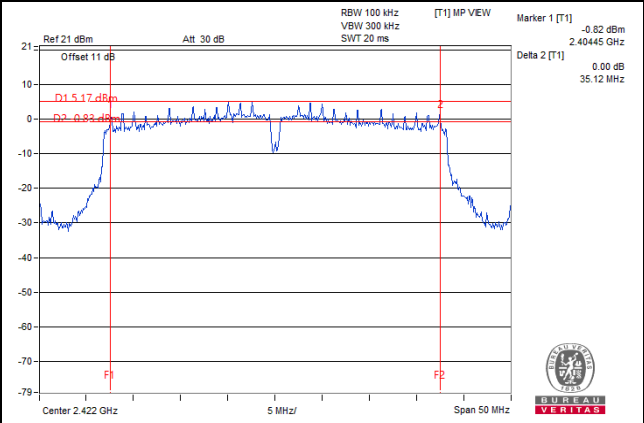
802.11g



802.11n (VHT20)



802.11n (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,

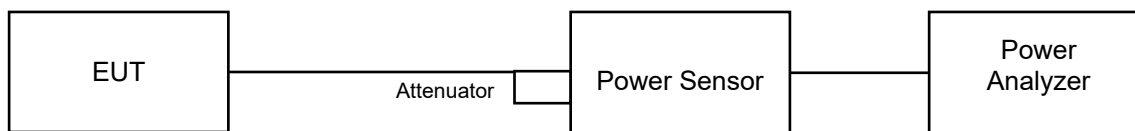
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

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

For Peak Power

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

For Average Power

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

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

For Peak Power

802.11b

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	23.47	23.81	462.767	26.65	30.00	Pass
6	2437	19.95	19.98	198.396	22.98	30.00	Pass
11	2462	18.43	18.63	142.608	21.54	30.00	Pass

802.11g

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	22.68	22.82	376.779	25.76	30.00	Pass
6	2437	23.52	24.57	511.323	27.09	30.00	Pass
11	2462	22.36	22.61	354.576	25.50	30.00	Pass

802.11n (VHT20)

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	22.31	23.40	388.992	25.90	30.00	Pass
6	2437	24.59	25.02	605.427	27.82	30.00	Pass
11	2462	21.71	22.03	307.840	24.88	30.00	Pass

802.11n (VHT40)

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	19.78	20.13	198.099	22.97	30.00	Pass
6	2437	22.61	23.41	401.670	26.04	30.00	Pass
9	2452	21.16	21.68	277.848	24.44	30.00	Pass

For Average Power

802.11b

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	21.17	21.42	269.594	24.31
6	2437	17.95	17.98	125.179	20.98
11	2462	16.48	16.57	89.857	19.54

802.11g

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	18.17	18.71	139.916	21.46
6	2437	19.41	19.80	182.796	22.62
11	2462	17.90	18.05	125.486	20.99

802.11n (VHT20)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	18.03	18.50	134.328	21.28
6	2437	20.35	20.81	228.896	23.60
11	2462	16.73	16.98	96.986	19.87

802.11n (VHT40)

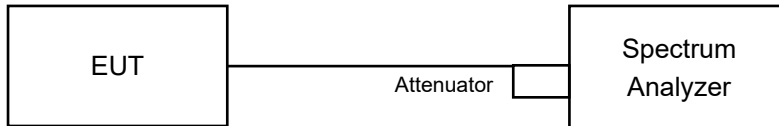
Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	14.21	14.72	56.012	17.48
6	2437	17.01	17.20	102.715	20.12
9	2452	15.59	15.97	75.761	18.79

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

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

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

- Set analyzer center frequency to DTS channel center frequency.
- Set the span to 1.5 times the DTS bandwidth.
- Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set the VBW $\geq 3 \times \text{RBW}$.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level within the RBW.

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

802.11b

TX chain	Channel	Frequency (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	4.61	3.01	7.62	8.00	Pass
	6	2437	1.53	3.01	4.54	8.00	Pass
	11	2462	0.00	3.01	3.01	8.00	Pass
1	1	2412	4.82	3.01	7.83	8.00	Pass
	6	2437	1.69	3.01	4.70	8.00	Pass
	11	2462	0.21	3.01	3.22	8.00	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional Gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 3.06\text{dBi} < 6\text{dBi}$, so the power density limit not need to reduce.

802.11g

TX chain	Channel	Frequency (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-2.07	3.01	0.94	8.00	Pass
	6	2437	-0.59	3.01	2.42	8.00	Pass
	11	2462	-3.22	3.01	-0.21	8.00	Pass
1	1	2412	-1.64	3.01	1.37	8.00	Pass
	6	2437	-0.13	3.01	2.88	8.00	Pass
	11	2462	-3.12	3.01	-0.11	8.00	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional Gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 3.06\text{dBi} < 6\text{dBi}$, so the power density limit not need to reduce.

802.11n (VHT20)

TX chain	Channel	Frequency (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-2.74	3.01	0.27	8.00	Pass
	6	2437	-0.60	3.01	2.41	8.00	Pass
	11	2462	-4.02	3.01	-1.01	8.00	Pass
1	1	2412	-2.32	3.01	0.69	8.00	Pass
	6	2437	-0.26	3.01	2.75	8.00	Pass
	11	2462	-3.81	3.01	-0.80	8.00	Pass

Note:

1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional Gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 3.06\text{dBi} < 6\text{dBi}$, so the power density limit not need to reduce.

802.11n (VHT40)

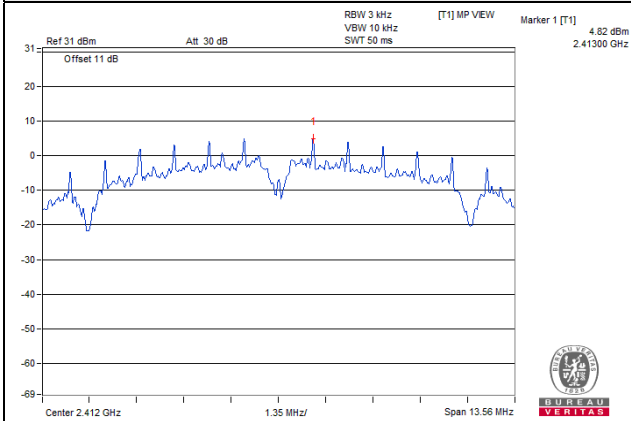
TX chain	Channel	Frequency (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	3	2422	-8.77	3.01	-5.76	8.00	Pass
	6	2437	-6.05	3.01	-3.04	8.00	Pass
	9	2452	-7.84	3.01	-4.83	8.00	Pass
1	3	2422	-8.29	3.01	-5.28	8.00	Pass
	6	2437	-5.86	3.01	-2.85	8.00	Pass
	9	2452	-7.48	3.01	-4.47	8.00	Pass

Note:

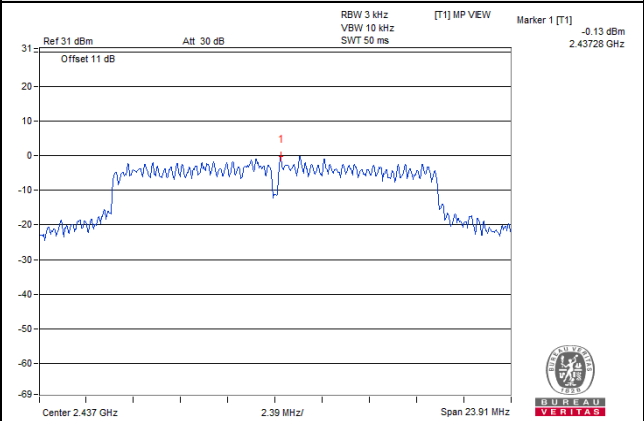
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Directional Gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 3.06\text{dBi} < 6\text{dBi}$, so the power density limit not need to reduce.

Spectrum Plot of Worst Value

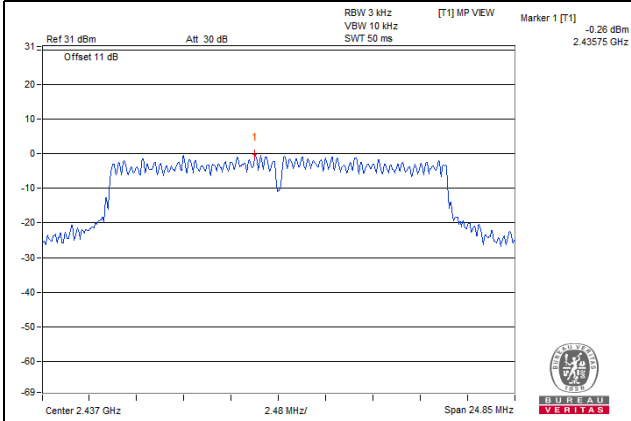
802.11b



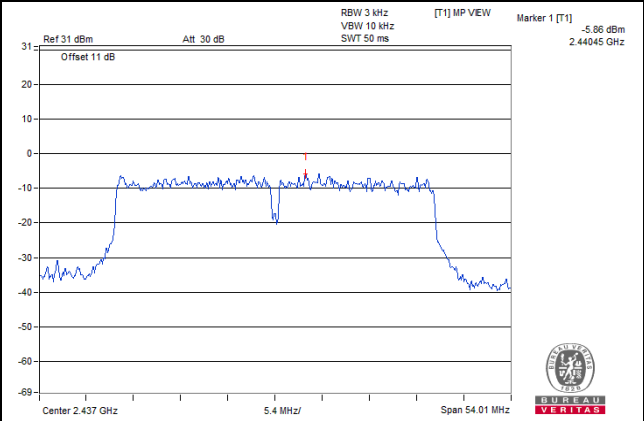
802.11g



802.11n (VHT20)



802.11n (VHT40)

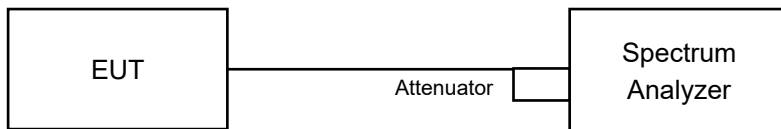


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

Below 20dB 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

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

MEASUREMENT PROCEDURE OOB

- Set RBW = 100 kHz.
- Set VBW \geq 300 kHz.
- Detector = peak.
- Sweep = auto couple.
- Trace Mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

Same as item 4.3.6

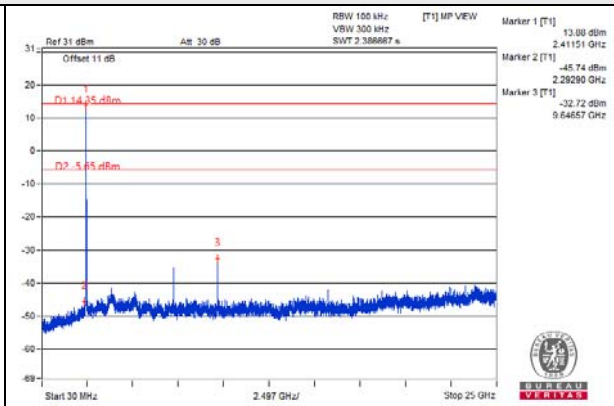
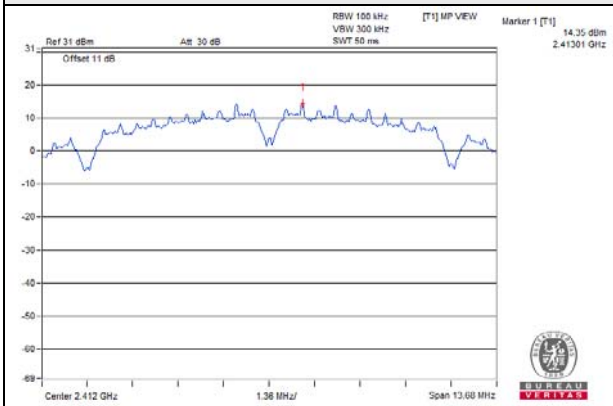
4.6.7 Test Results

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.

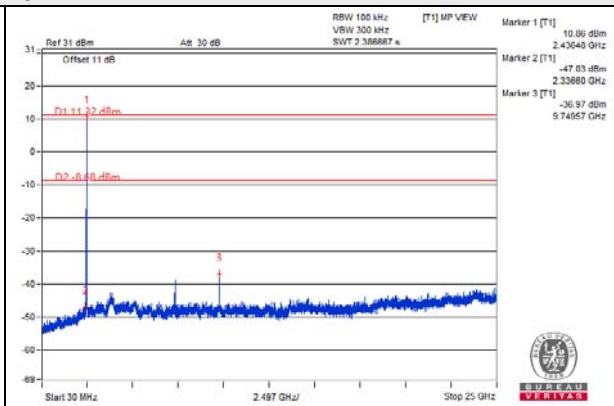
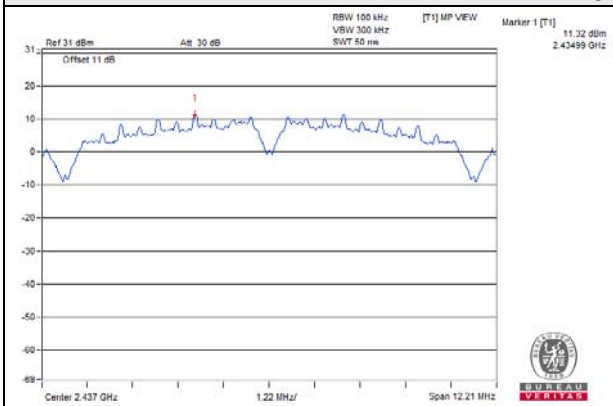
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

802.11b_Chain 0

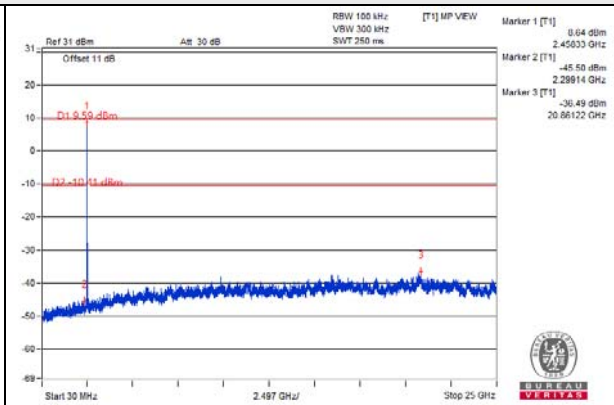
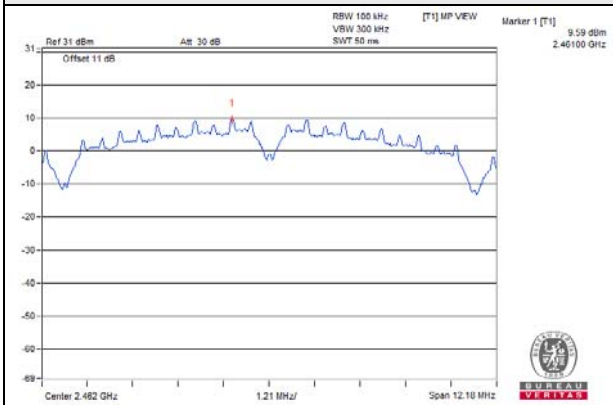
CH 1



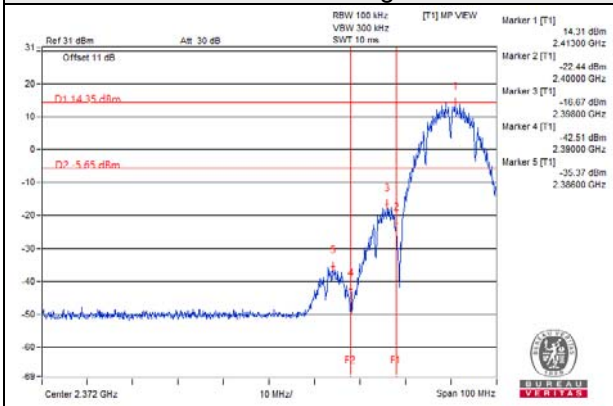
CH 6



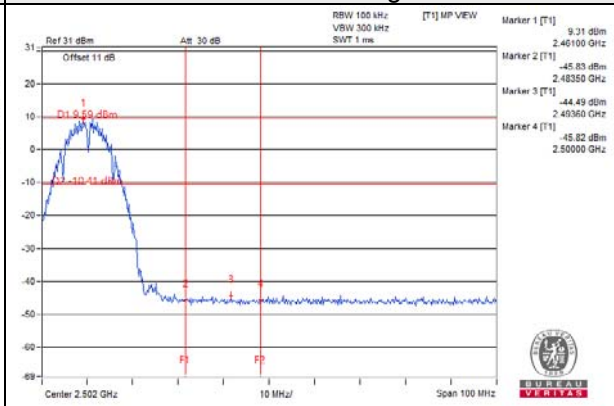
CH 11



CH 11 Band edge

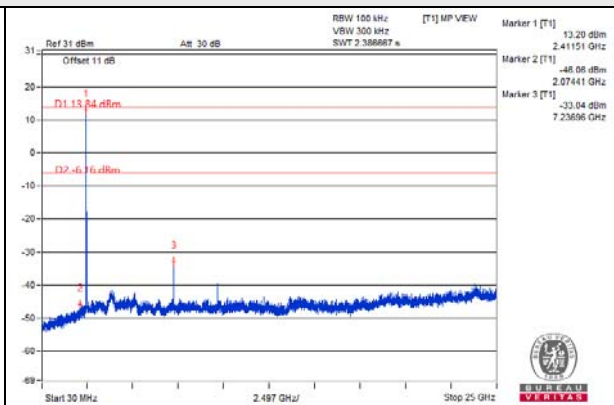
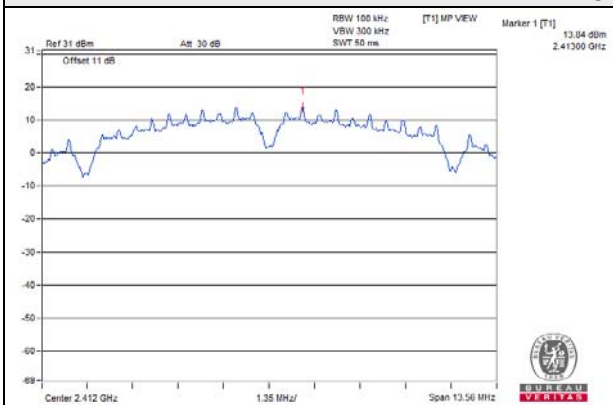


CH 11 Band edge

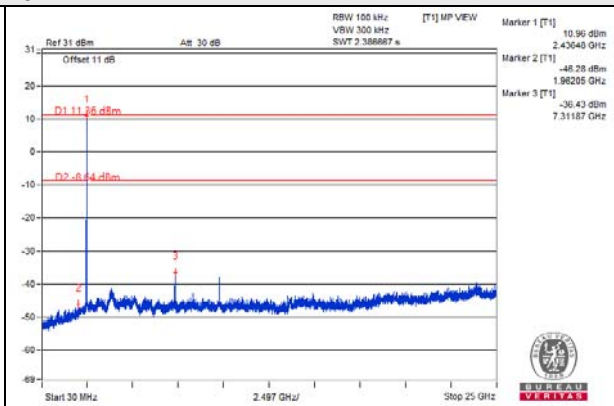
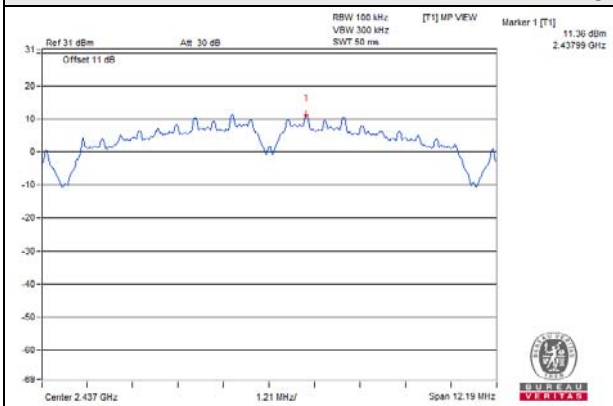


802.11b_Chain 1

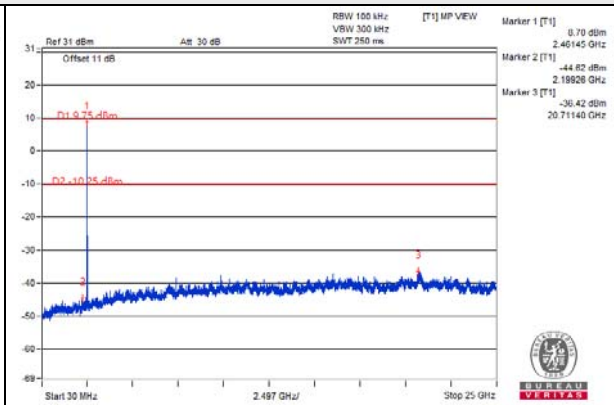
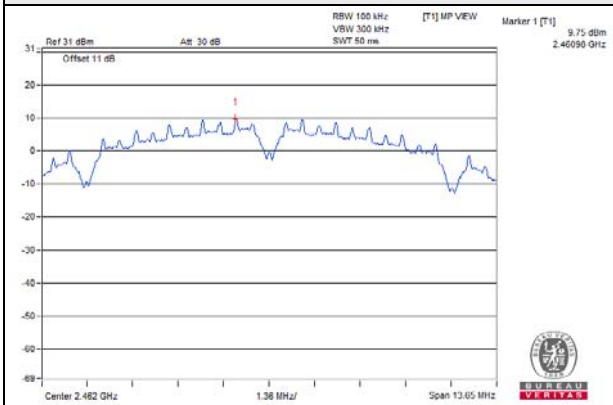
CH 1



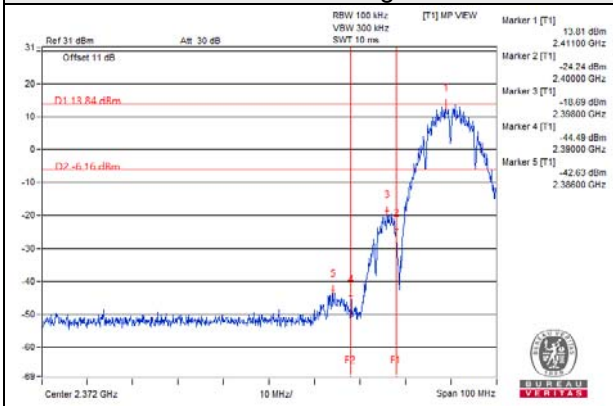
CH 6



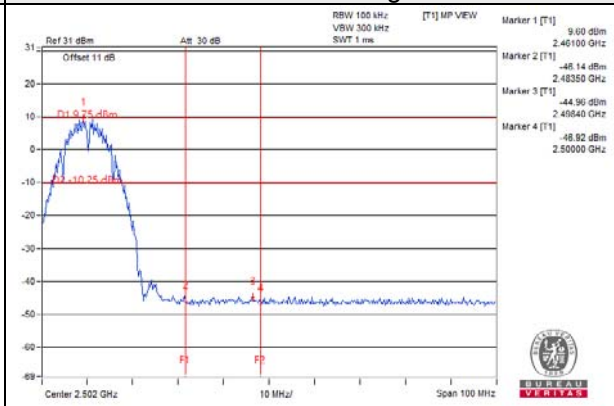
CH 11



CH 11 Band edge

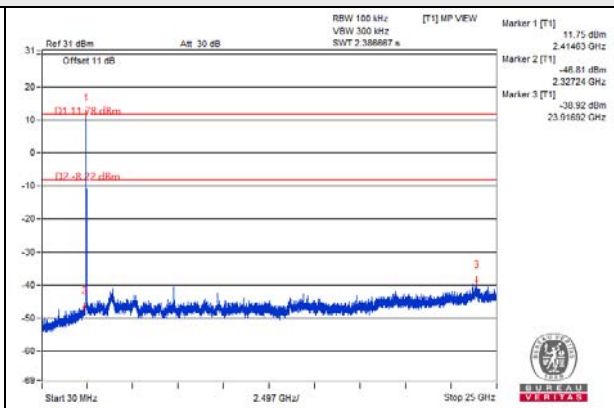
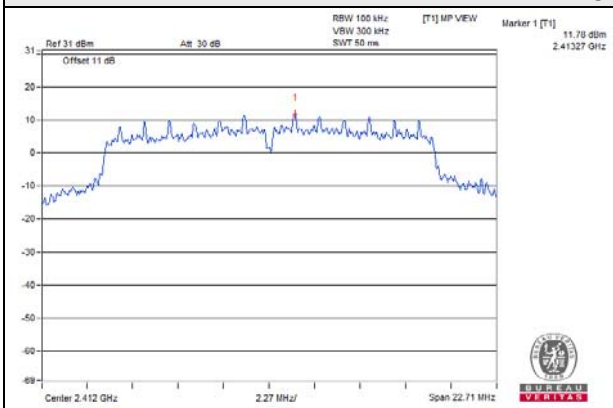


CH 11 Band edge

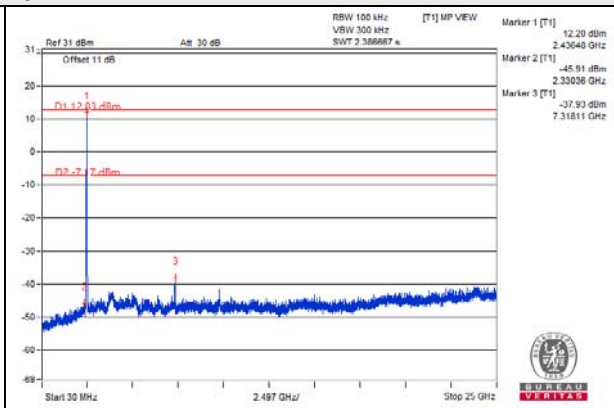
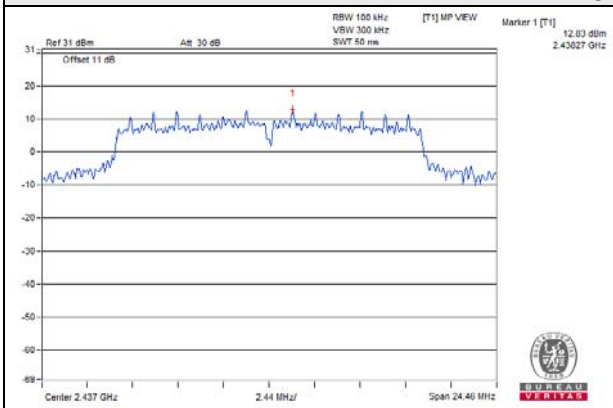


802.11g_Chain 0

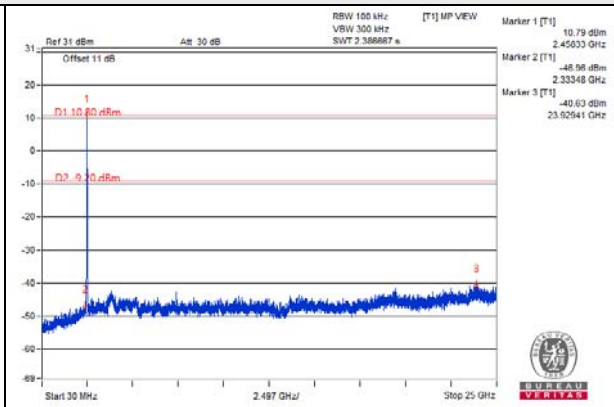
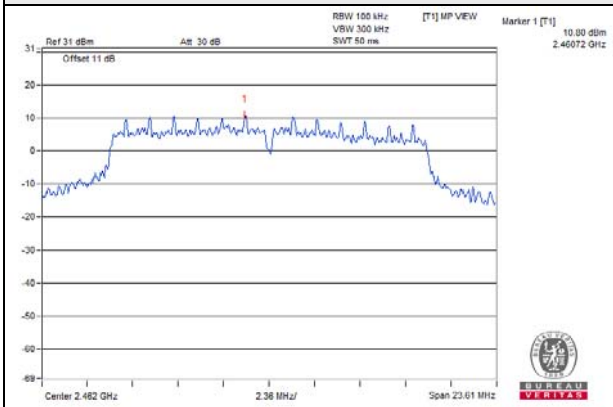
CH 1



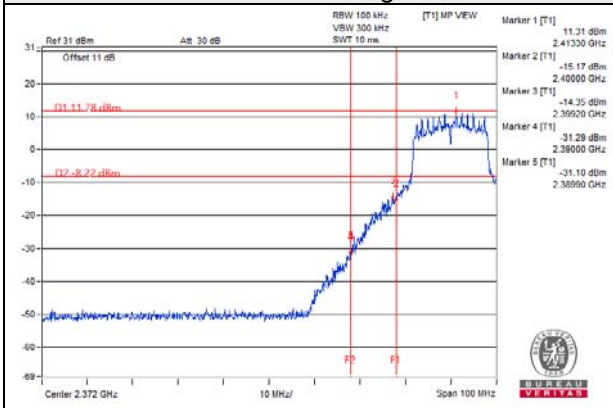
CH 6



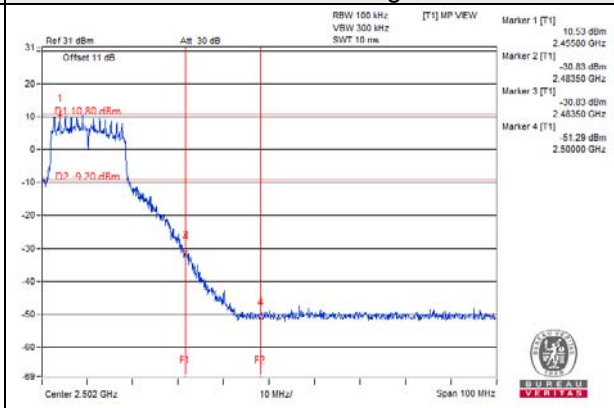
CH 11



CH 11 Band edge

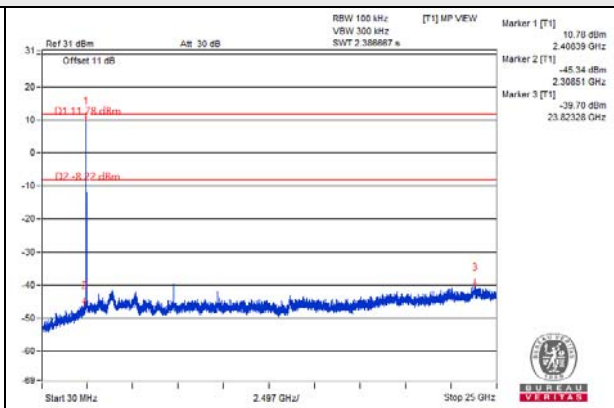
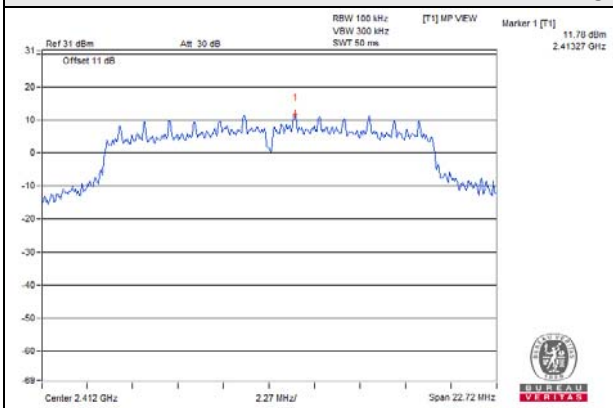


CH 11 Band edge

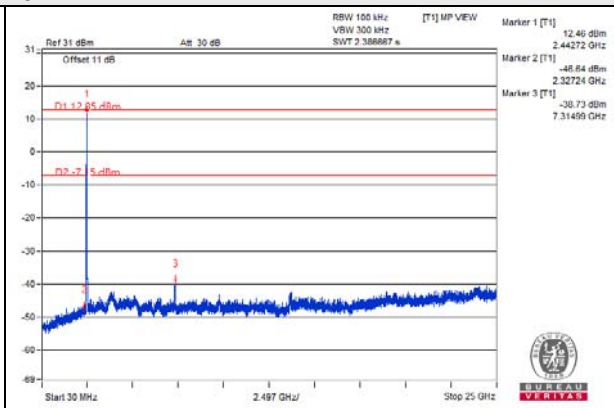
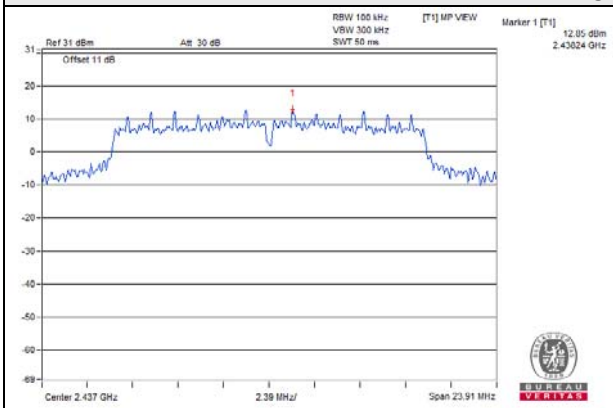


802.11g_Chain 1

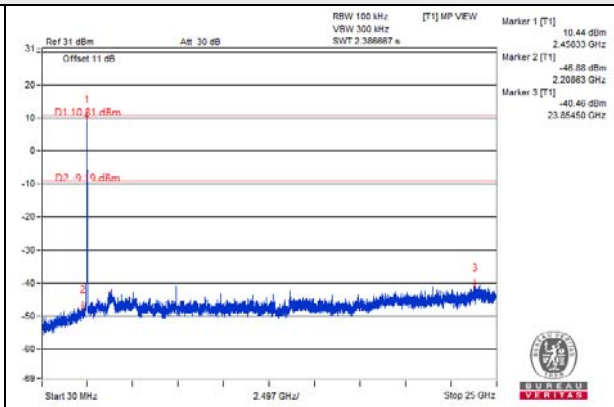
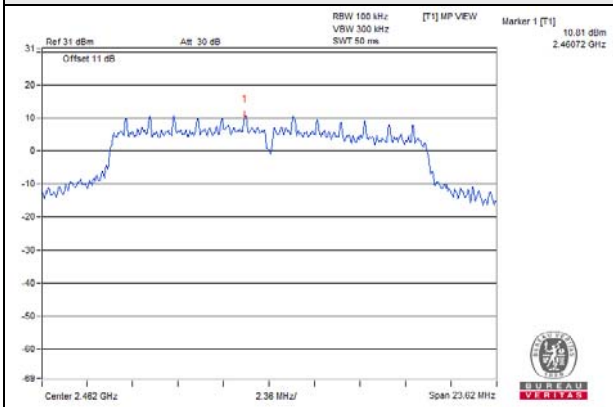
CH 1



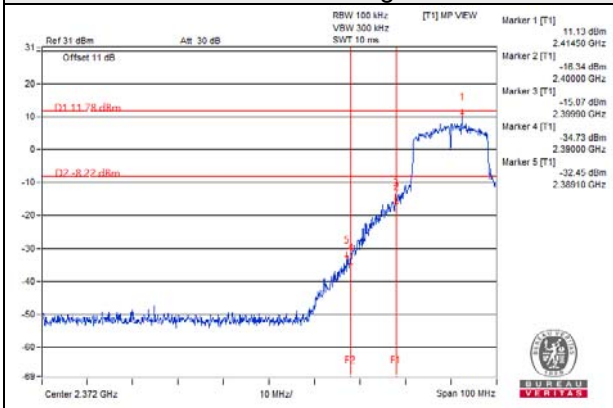
CH 6



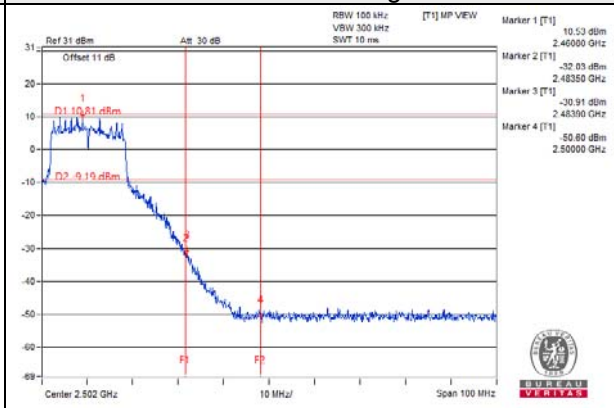
CH 11



CH 11 Band edge

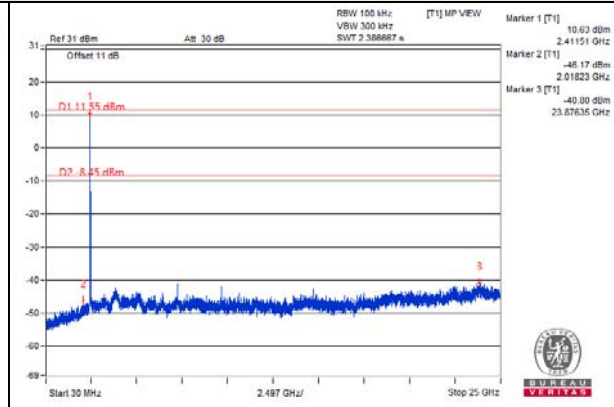
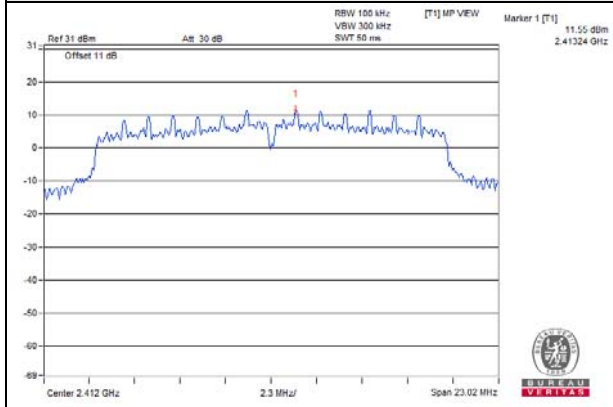


CH 11 Band edge

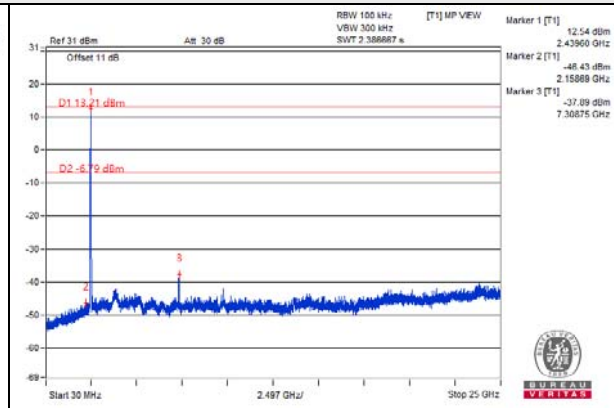
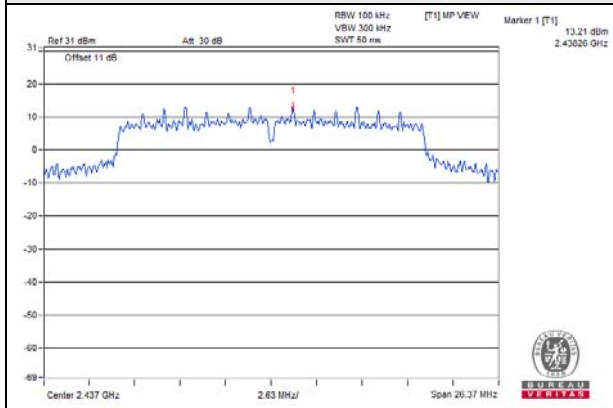


802.11n (VHT20)_Chain 0

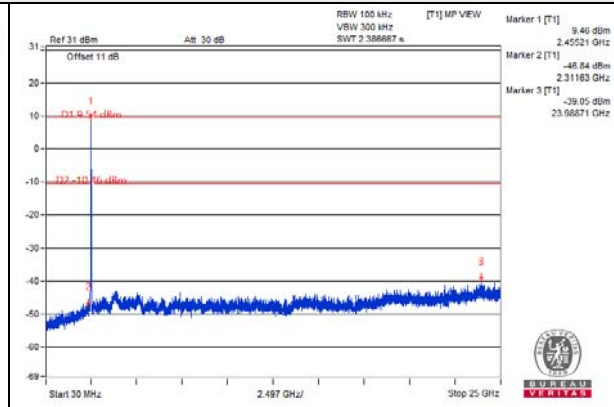
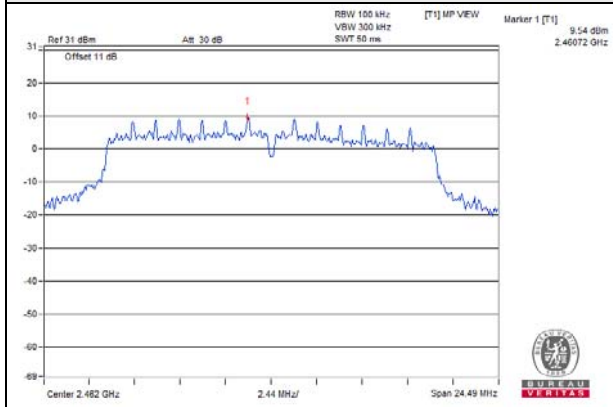
CH 1



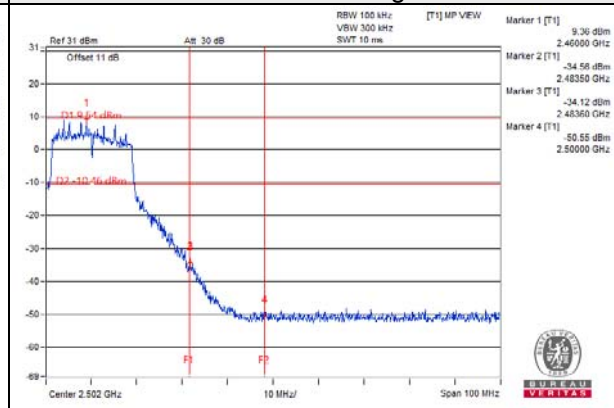
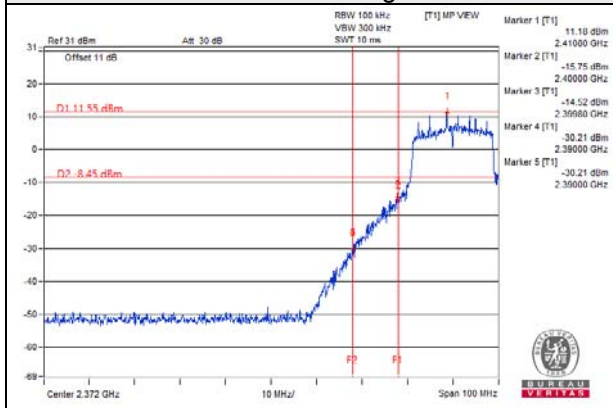
CH 6



CH 11

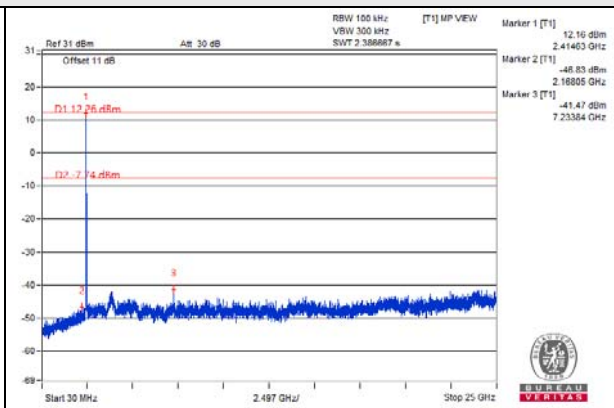
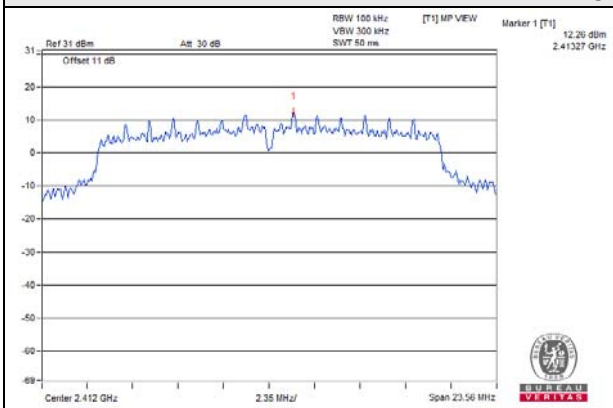


CH 11 Band edge

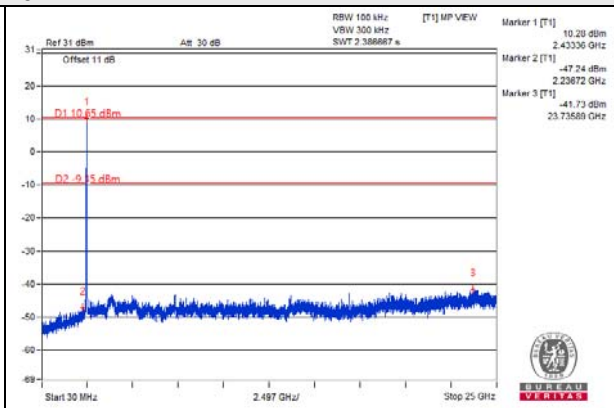
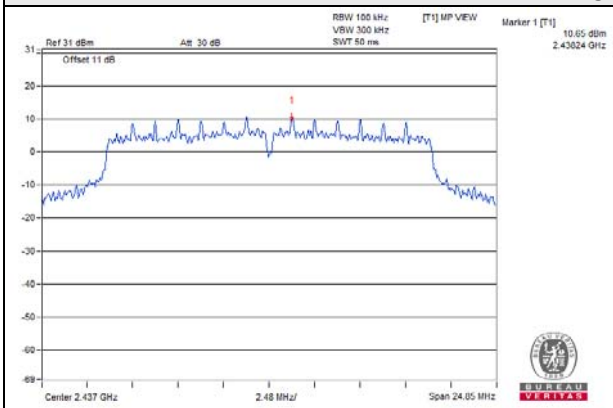


802.11n (VHT20)_Chain 1

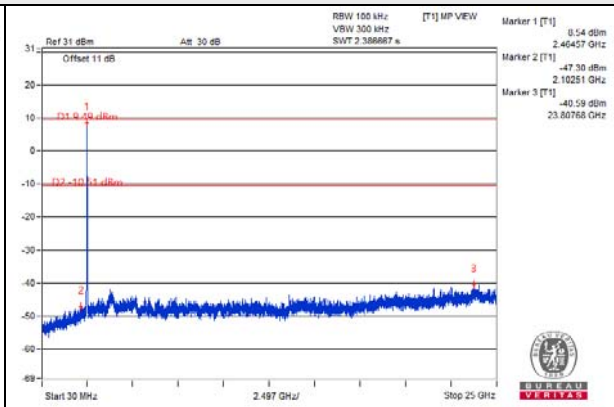
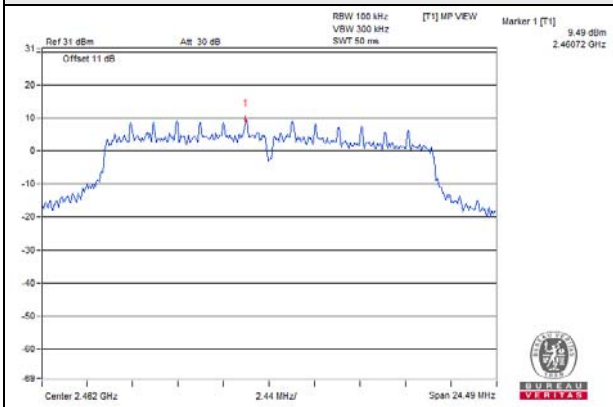
CH 1



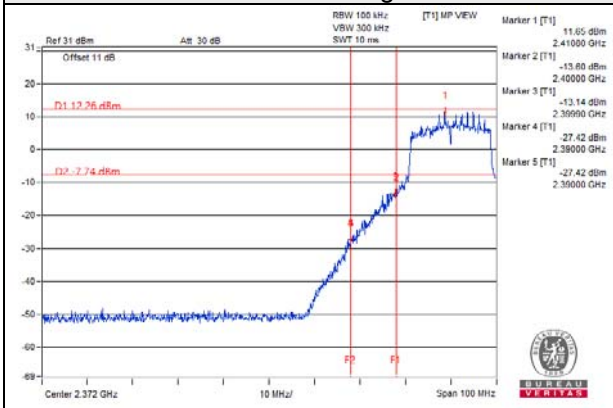
CH 6



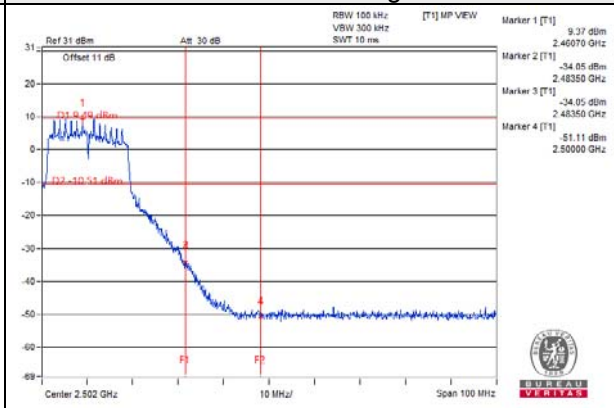
CH 11



CH 11 Band edge

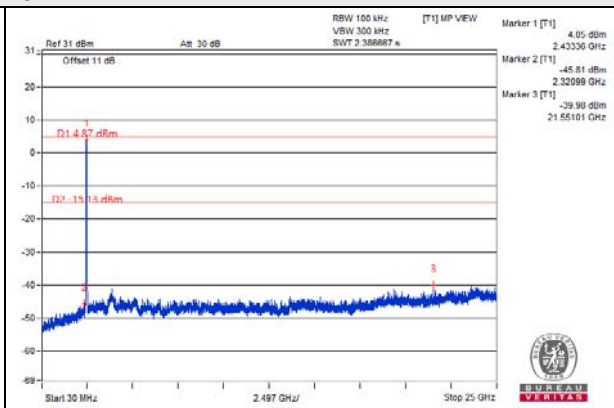
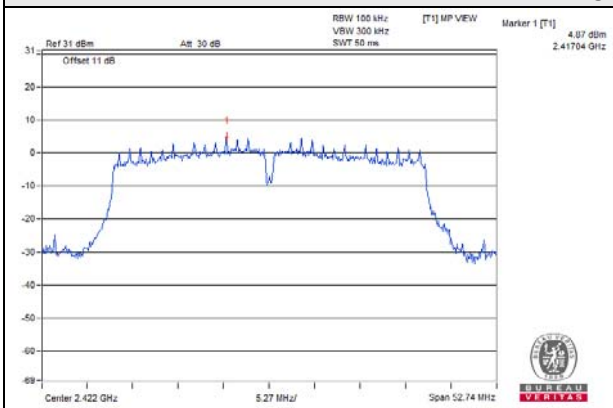


CH 11 Band edge

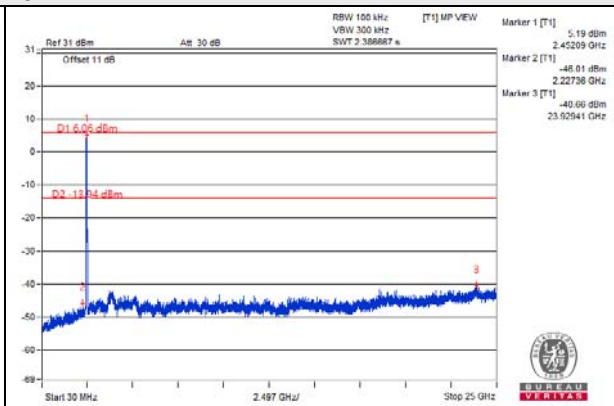
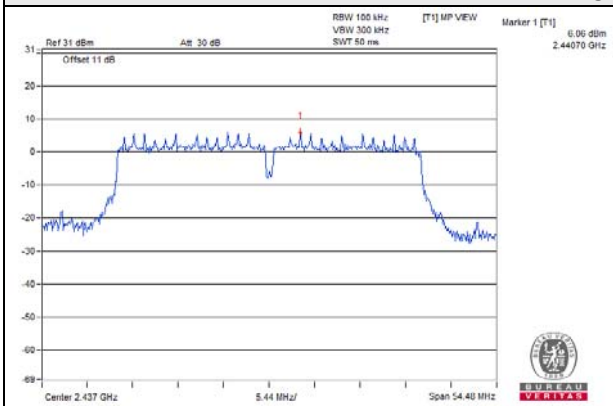


802.11n (VHT40)_Chain 0

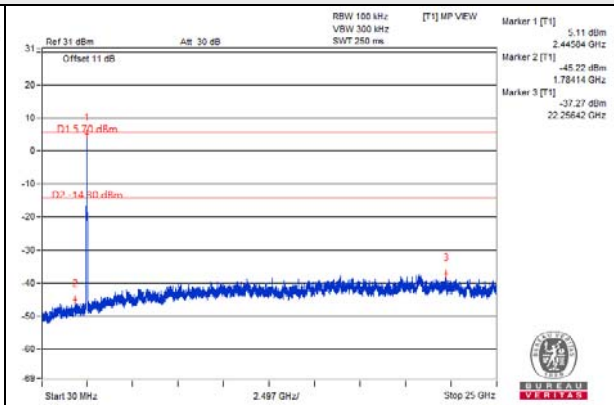
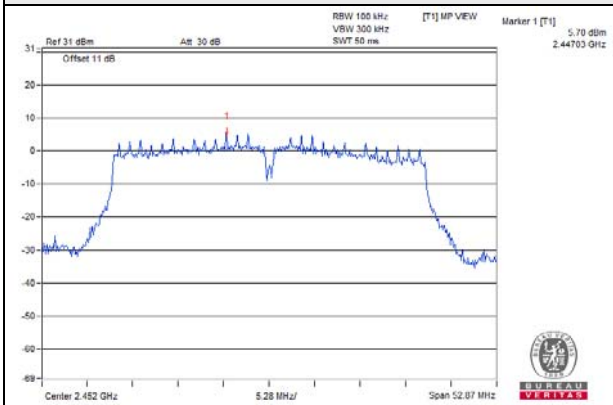
CH 3



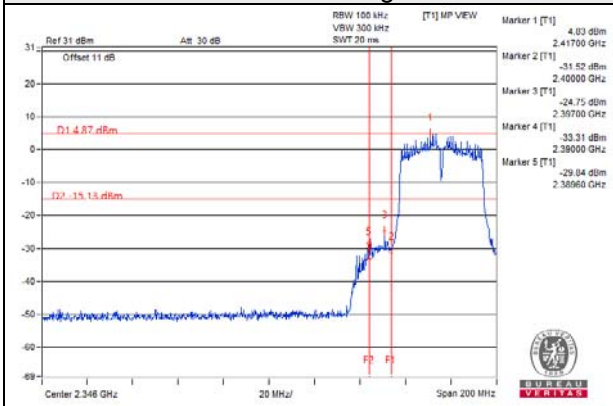
CH 6



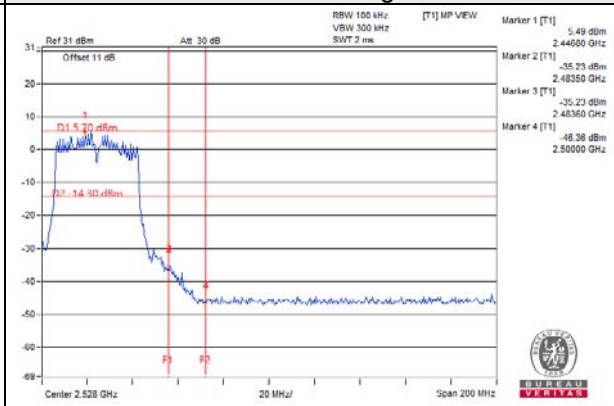
CH 9



CH 3 Band edge

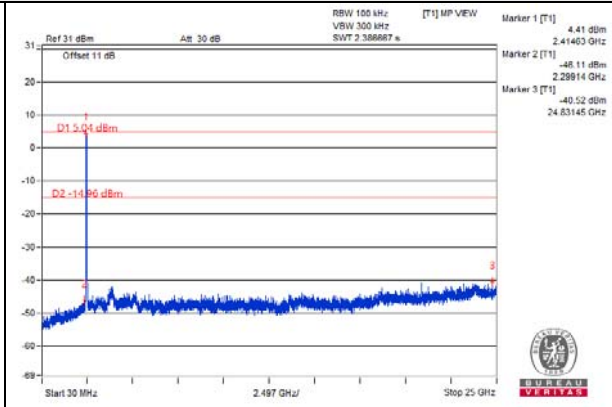
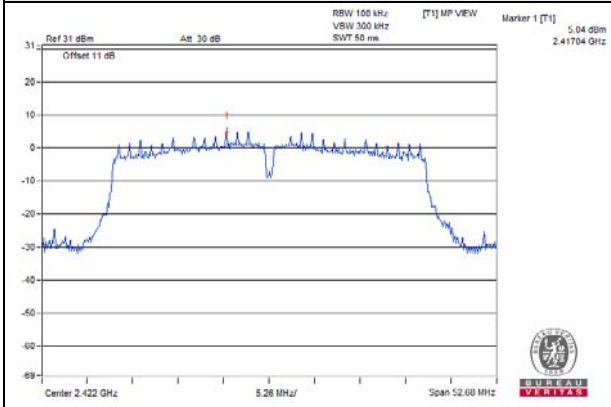


CH 9 Band edge

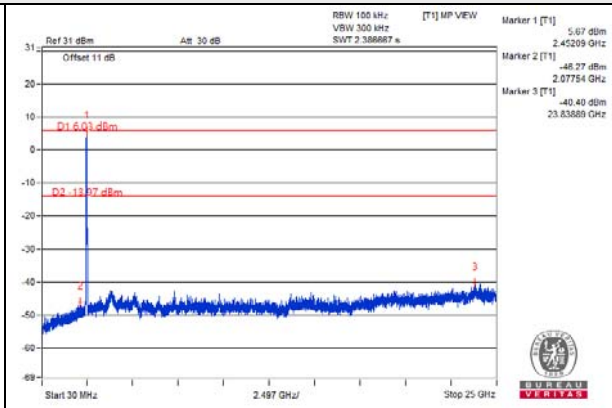
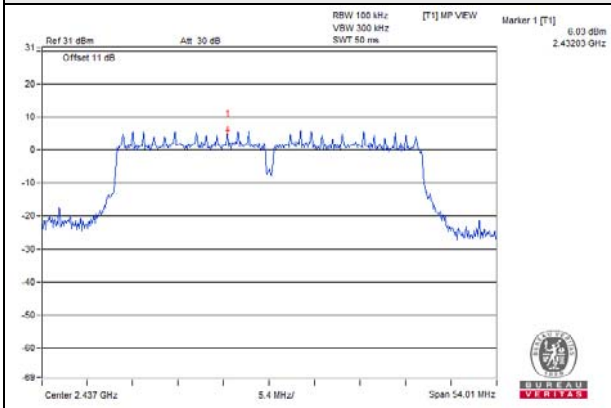


802.11n (VHT40)_Chain 1

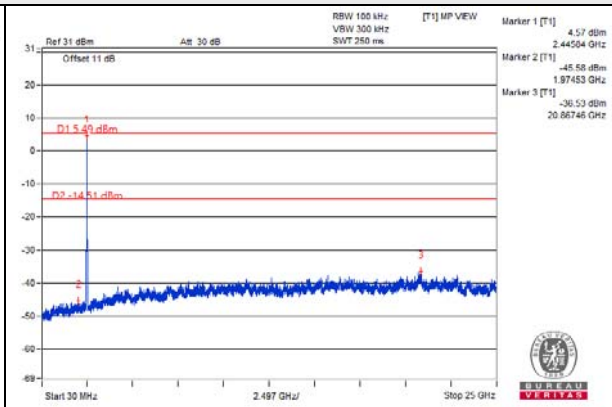
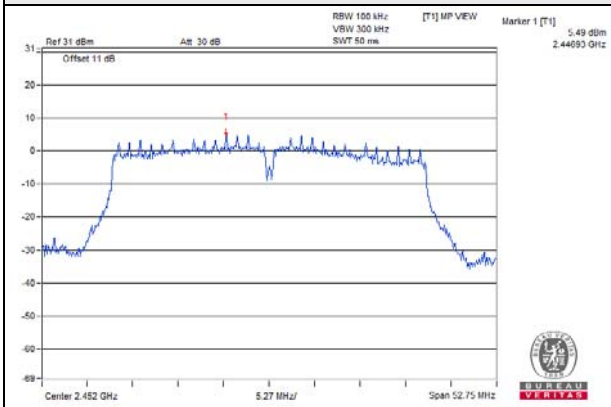
CH 3



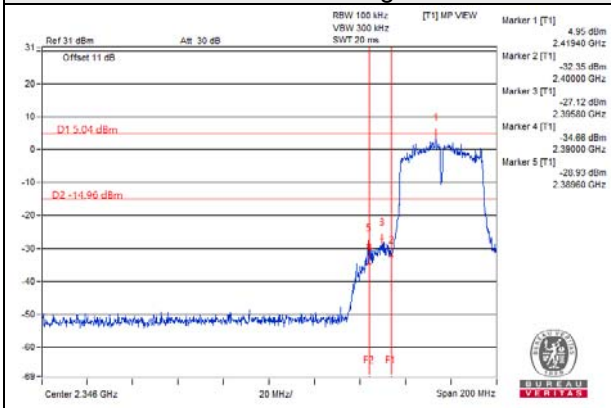
CH 6



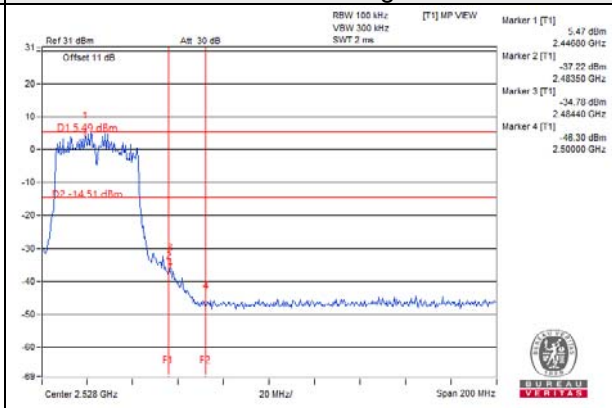
CH 9



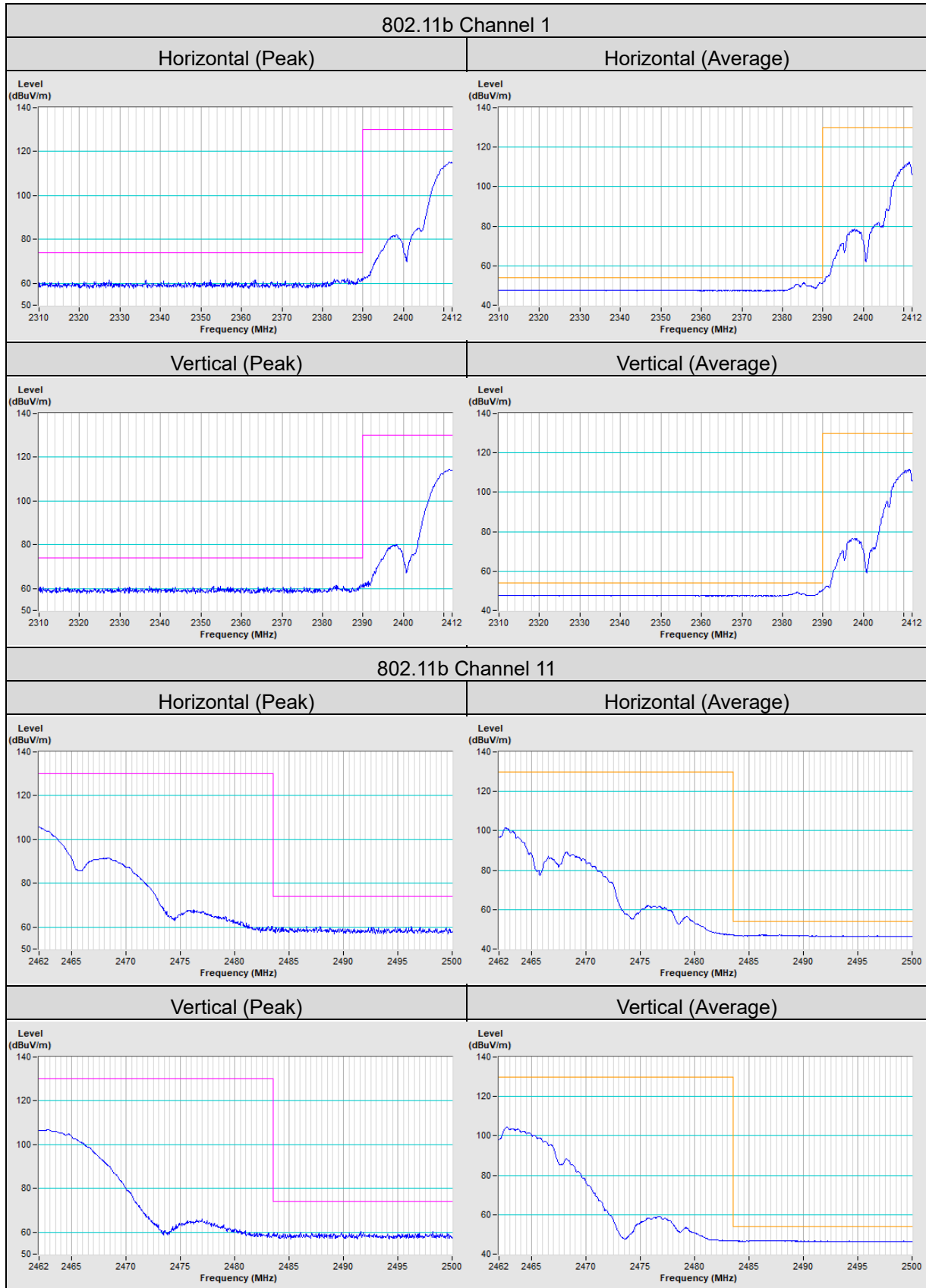
CH 3 Band edge

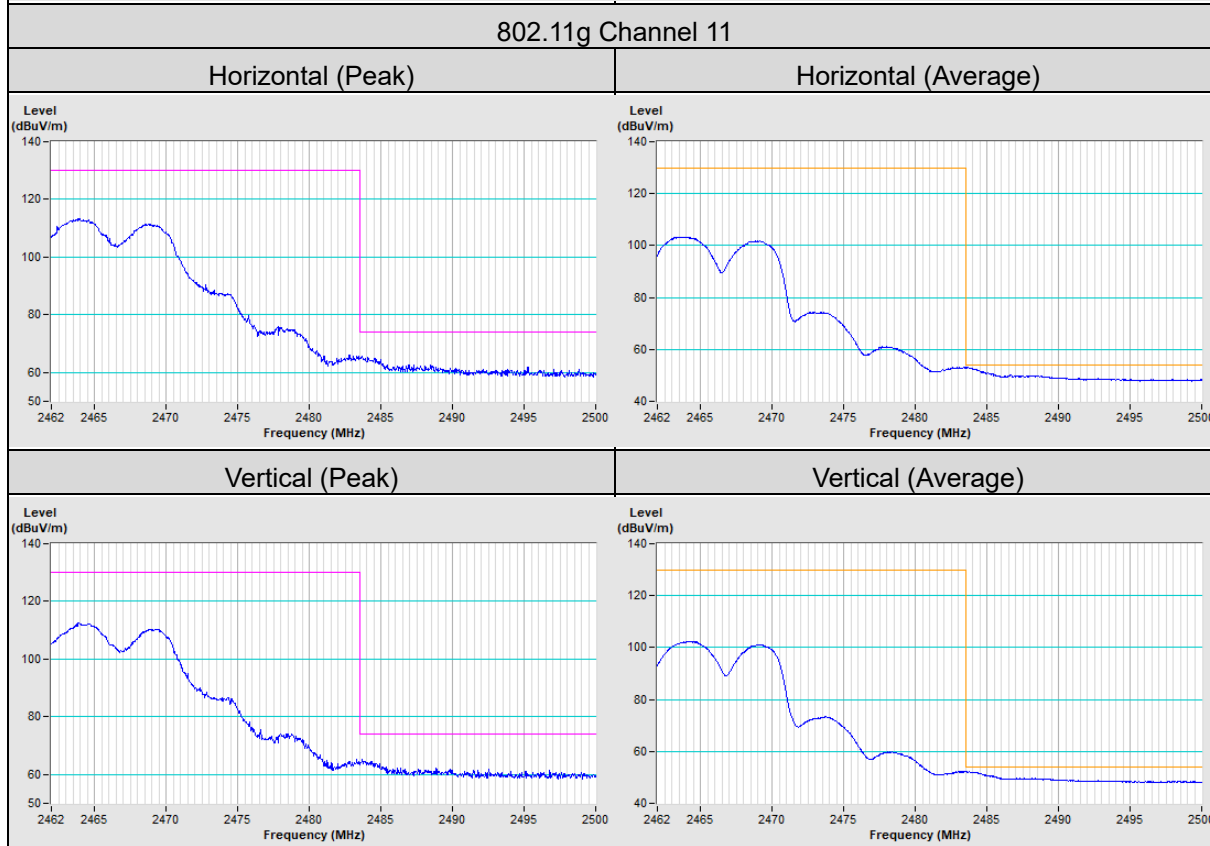
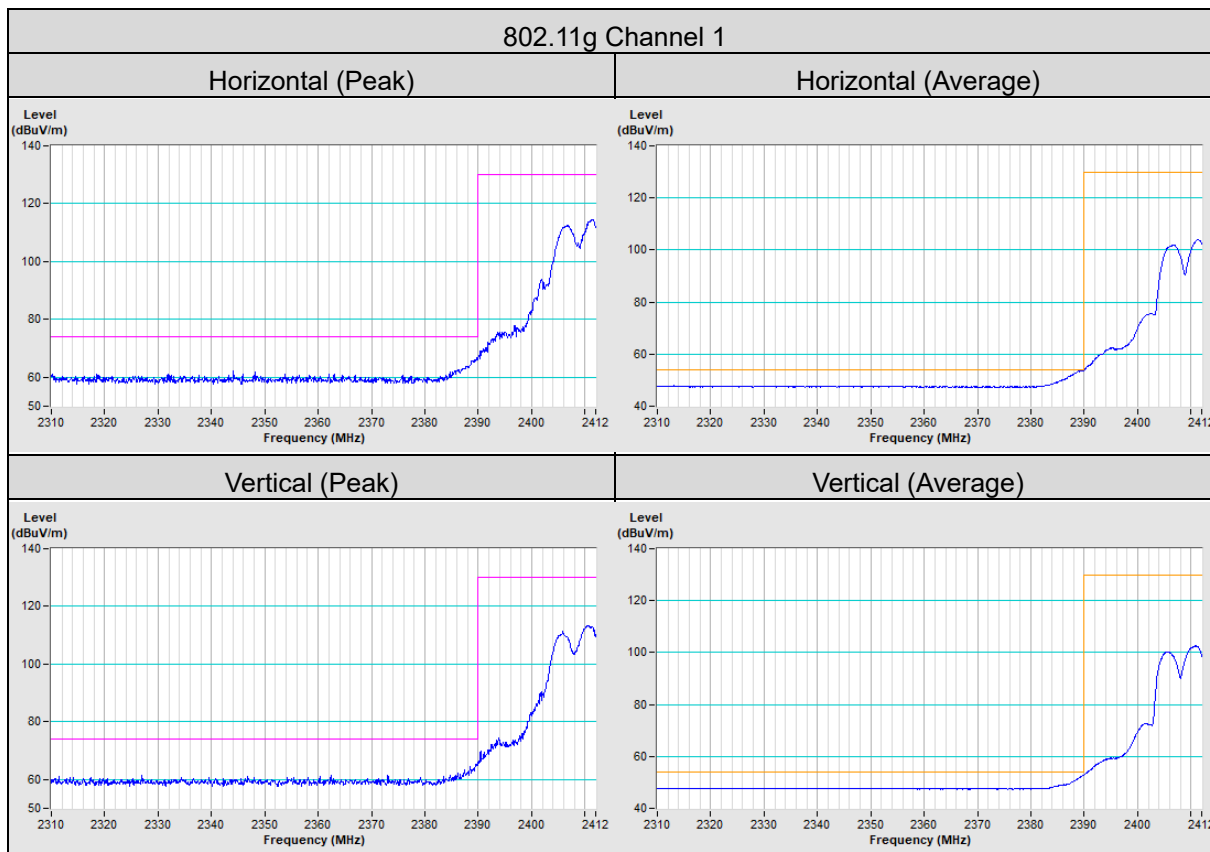


CH 9 Band edge

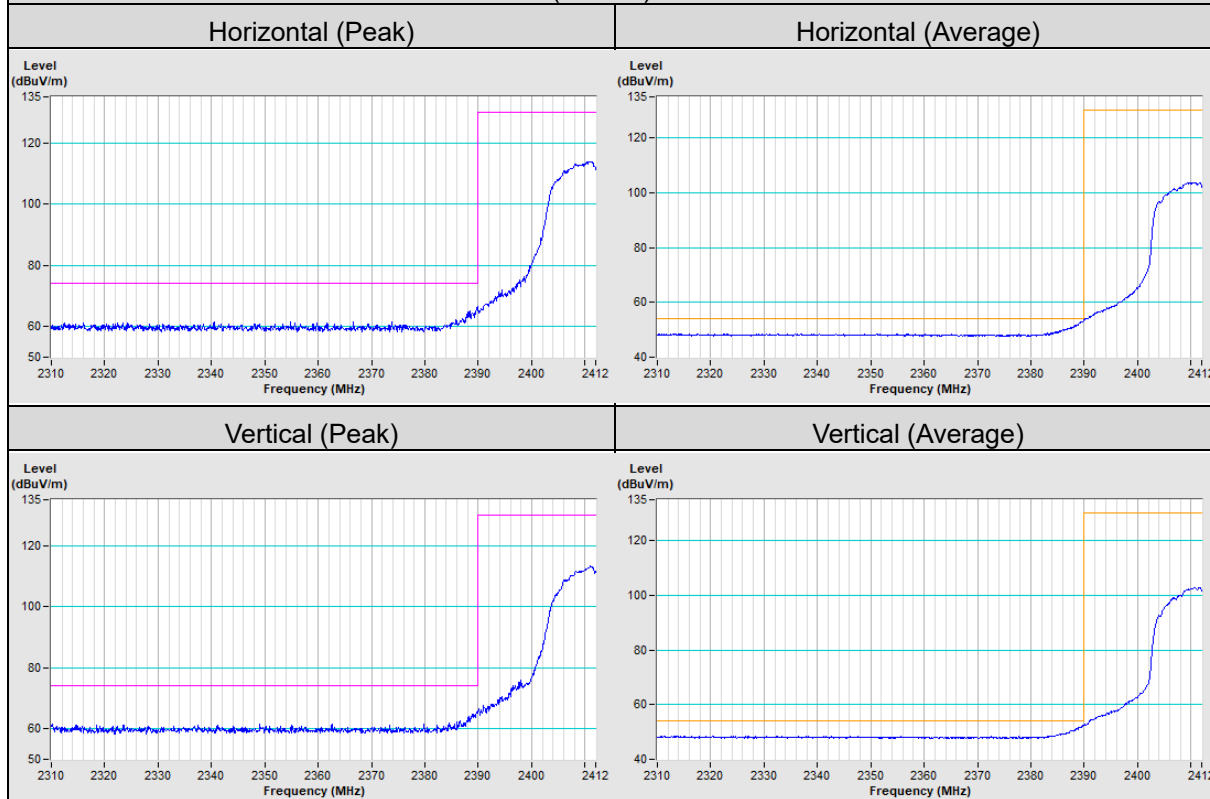


Annex A- Band Edge Measurement

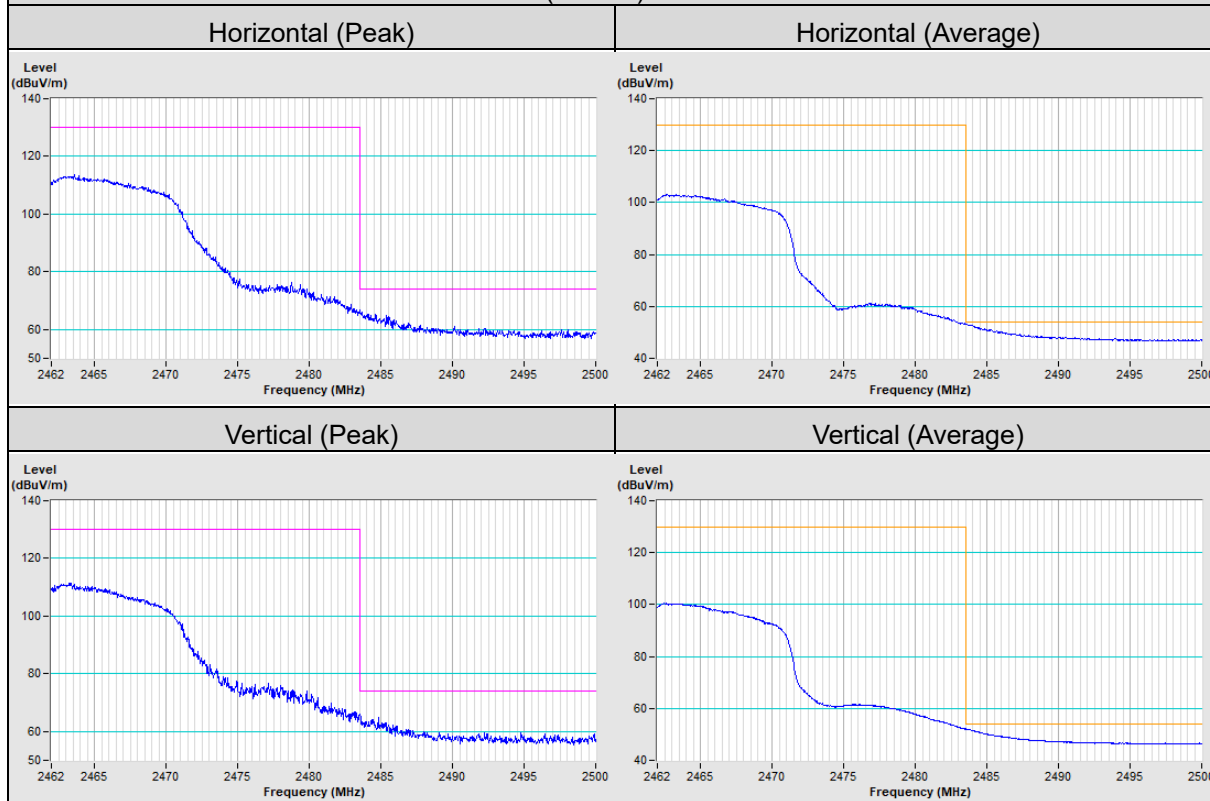




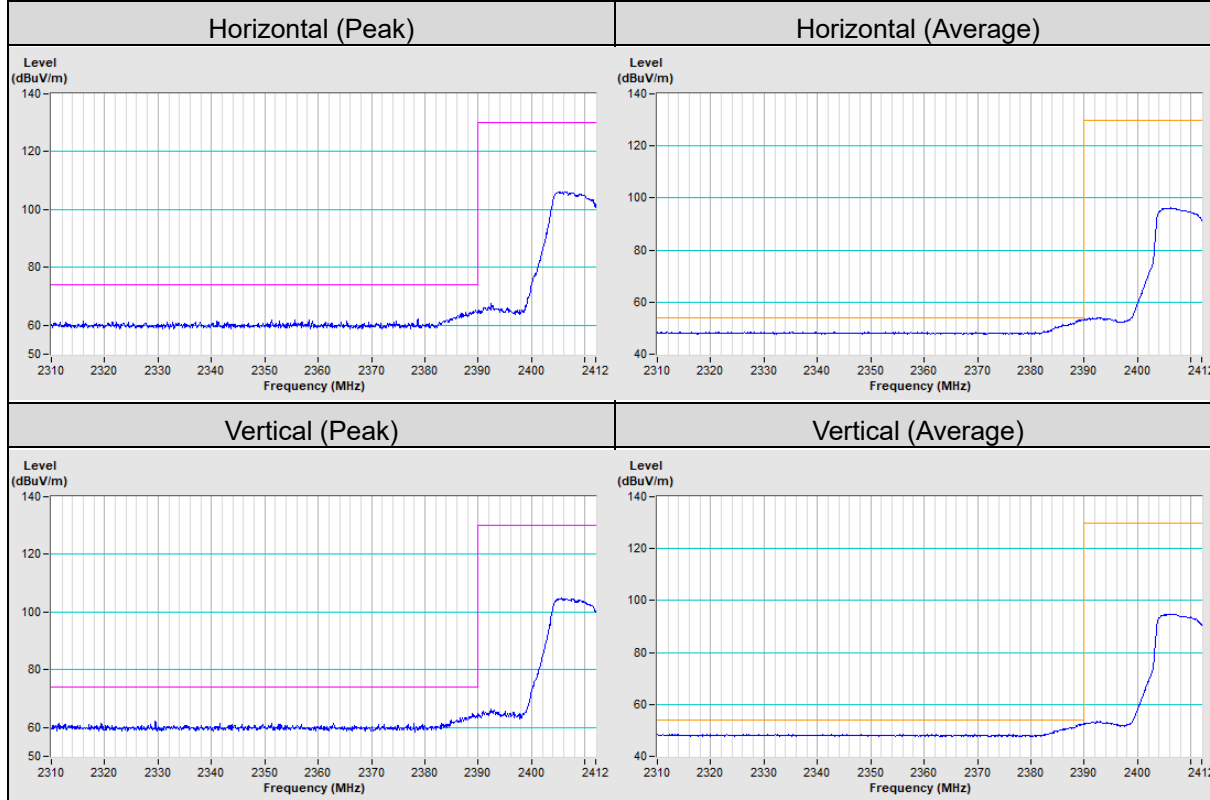
802.11n (VHT20) Channel 1



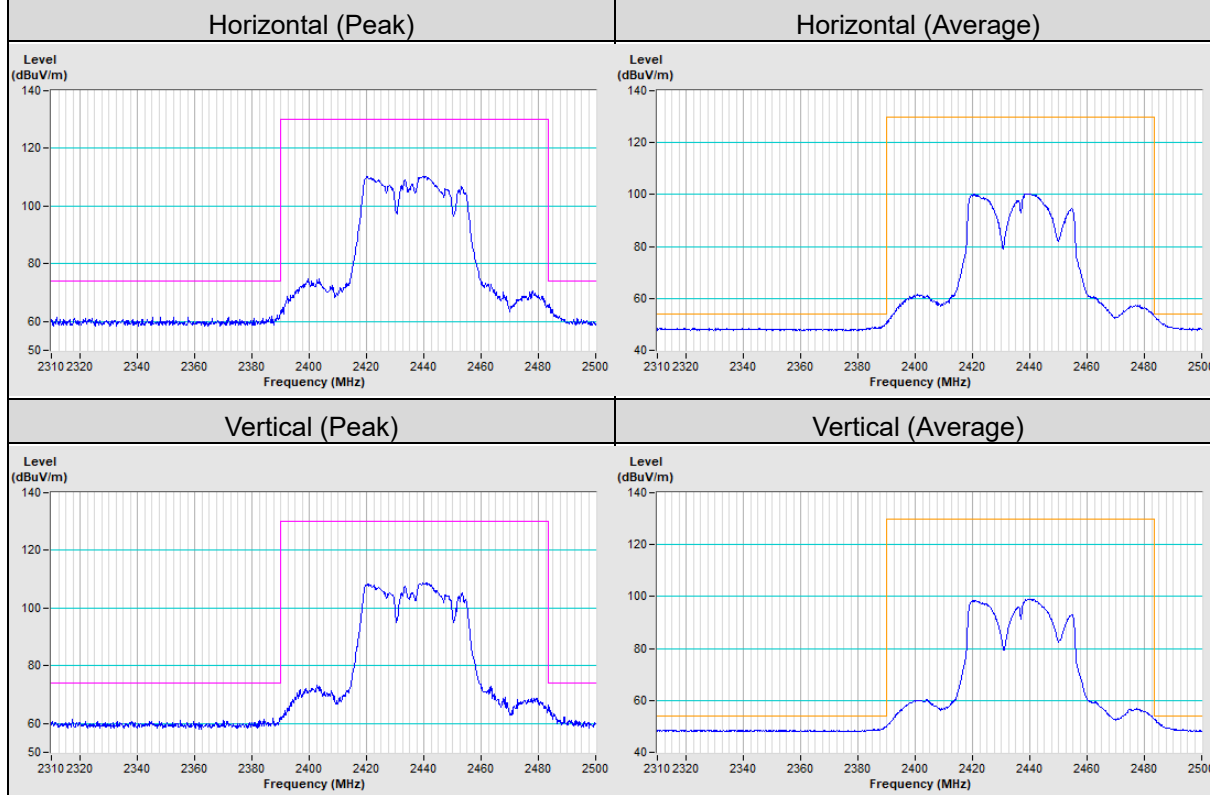
802.11n (VHT20) Channel 11



802.11n (VHT40) Channel 3

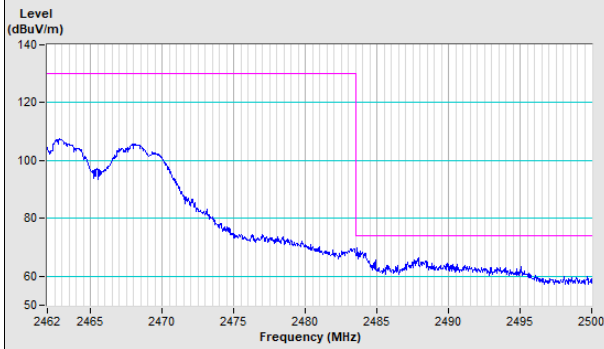


802.11n (VHT40) Channel 6

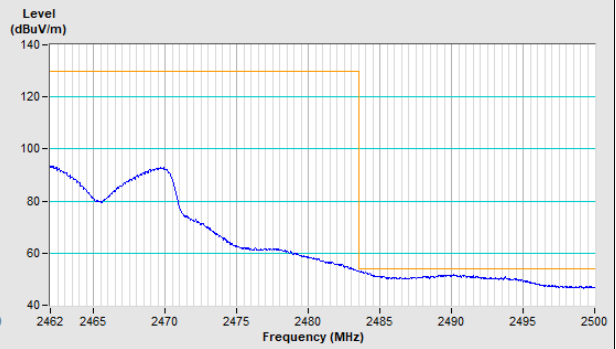


802.11n (VHT40) Channel 9

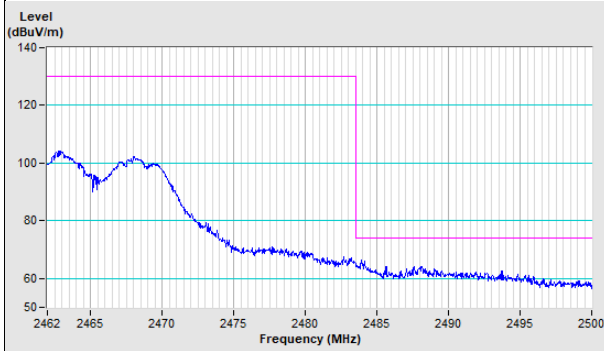
Horizontal (Peak)



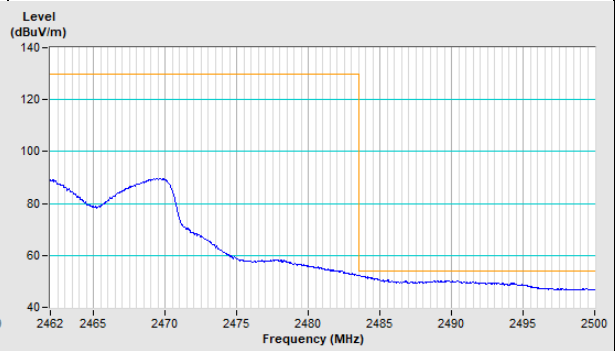
Horizontal (Average)



Vertical (Peak)



Vertical (Average)



5 Pictures of Test Arrangements

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

Appendix – Information of the Testing Laboratories

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

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Web Site: www.bureauveritas-adt.com

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

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