

## FCC Test Report

**Report No.:** RFBCKS-WTW-P21123558-3

**FCC ID:** 2AAAS-CP06

**Test Model:** CP06

**Received Date:** Dec. 28, 2021

**Test Date:** Jan. 11 ~ Jan. 19, 2022

**Issued Date:** Feb. 14, 2022

**Applicant:** Vivint. Inc.

**Address:** 4931 N. 300 W. Provo, UT 84604 USA

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Lin Kou Laboratories

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

**Test Location (1):** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City  
33383, TAIWAN

**FCC Registration /  
Designation Number:** 788550 / TW0003

**Test Location (2):** No. 70, Wenming Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

**FCC Registration /  
Designation Number:** 281270 / TW0032



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## Table of Contents

<b>Release Control Record</b> .....	<b>4</b>
<b>1 Certificate of Conformity</b> .....	<b>5</b>
<b>2 Summary of Test Results</b> .....	<b>6</b>
2.1 Measurement Uncertainty.....	6
2.2 Modification Record.....	6
<b>3 General Information</b> .....	<b>7</b>
3.1 General Description of EUT.....	7
3.2 Description of Test Modes.....	9
3.2.1 Test Mode Applicability and Tested Channel Detail.....	10
3.3 Duty Cycle of Test Signal.....	12
3.4 Description of Support Units.....	13
3.4.1 Configuration of System under Test.....	13
3.5 General Description of Applied Standards and References.....	13
<b>4 Test Types and Results</b> .....	<b>14</b>
4.1 Radiated Emission and Bandedge Measurement.....	14
4.1.1 Limits of Radiated Emission and Bandedge Measurement.....	14
4.1.2 Test Instruments.....	15
4.1.3 Test Procedures.....	16
4.1.4 Deviation from Test Standard.....	16
4.1.5 Test Setup.....	17
4.1.6 EUT Operating Conditions.....	18
4.1.7 Test Results.....	19
4.2 Conducted Emission Measurement.....	33
4.2.1 Limits of Conducted Emission Measurement.....	33
4.2.2 Test Instruments.....	33
4.2.3 Test Procedures.....	34
4.2.4 Deviation from Test Standard.....	34
4.2.5 Test Setup.....	34
4.2.6 EUT Operating Conditions.....	34
4.2.7 Test Results.....	35
4.3 6dB Bandwidth Measurement.....	37
4.3.1 Limits of 6dB Bandwidth Measurement.....	37
4.3.2 Test Setup.....	37
4.3.3 Test Instruments.....	37
4.3.4 Test Procedure.....	37
4.3.5 Deviation from Test Standard.....	37
4.3.6 EUT Operating Conditions.....	37
4.3.7 Test Result.....	38
4.4 Conducted Output Power Measurement.....	40
4.4.1 Limits of Conducted Output Power Measurement.....	40
4.4.2 Test Setup.....	40
4.4.3 Test Instruments.....	40
4.4.4 Test Procedures.....	40
4.4.5 Deviation from Test Standard.....	40
4.4.6 EUT Operating Conditions.....	40
4.4.7 Test Results.....	41
4.5 Power Spectral Density Measurement.....	43
4.5.1 Limits of Power Spectral Density Measurement.....	43
4.5.2 Test Setup.....	43
4.5.3 Test Instruments.....	43
4.5.4 Test Procedure.....	43
4.5.5 Deviation from Test Standard.....	44
4.5.6 EUT Operating Condition.....	44

4.5.7 Test Results .....	45
4.6 Conducted Out of Band Emission Measurement.....	48
4.6.1 Limits of Conducted Out of Band Emission Measurement .....	48
4.6.2 Test Setup.....	48
4.6.3 Test Instruments .....	48
4.6.4 Test Procedure .....	48
4.6.5 Deviation from Test Standard .....	48
4.6.6 EUT Operating Condition .....	48
4.6.7 Test Results .....	48
<b>Annex A - Band Edge Measurement.....</b>	<b>57</b>
<b>5 Pictures of Test Arrangements.....</b>	<b>63</b>
<b>Appendix – Information of the Testing Laboratories .....</b>	<b>64</b>



### Release Control Record

Issue No.	Description	Date Issued
RFBCKS-WTW-P21123558-3	Original release	Feb. 14, 2022

## 1 Certificate of Conformity

**Product:** Vivint Smart Hub Lite

**Brand:** Vivint, Inc.

**Test Model:** CP06

**Sample Status:** Engineering sample

**Applicant:** Vivint, Inc.

**Test Date:** Jan. 11 ~ Jan. 19, 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 :** Celine Chou , **Date:** Feb. 14, 2022  
Celine Chou / Senior Specialist

**Approved by :** Jeremy Lin , **Date:** Feb. 14, 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 -15.69dB at 0.42915MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.50dB 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(MHF) 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	3.00 dB
	30MHz ~ 200MHz	2.91 dB
	200MHz ~ 1000MHz	2.92 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	1.76 dB
	18GHz ~ 40GHz	1.77 dB

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

Product	Vivint Smart Hub Lite
Brand	Vivint, Inc.
Test Model	CP06
Sample Status	Engineering sample
Power Supply Rating	12Vdc from adapter 4.2Vdc from battery
Modulation Type	CCK, DQPSK, DBPSK for DSSS 256QAM, 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 400Mbps
Operating Frequency	2412 ~ 2462MHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20), VHT20: 11 802.11n (HT40), VHT40: 7
Output Power	937.826mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	Adapter, Battery
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
VHT20	2TX
VHT40	2TX

\* The bandwidth and modulation are similar for HT20/HT40 on 802.11n mode and VHT20/VHT40 on 256QAM mode. Therefore the investigated worst case is the representative mode in test report. (Final test mode refer section 3.2.1)

2. The EUT consumes power from the following Adapter & Battery.

Adapter 1	
Brand	ZB-Power
Model	ZB-H120020A-88
Input Power	100-240Vac, 50/60Hz, 0.6A
Output Power	12Vdc, 2.0A
Power Line	1.5m power cable without core attached on adapter

Adapter 2	
Brand	Honor
Model	ADS-24FUD-12 12024EPCU
Input Power	100-240Vac, 50/60Hz, 0.6A
Output Power	12Vdc, 2.0A
Power Line	1.51m power cable without core attached on adapter

\* After pre-tested, adapter 1 was chosen for final test and presented in the test report.

Battery	
Brand	EVE
Model	HB1021
Rating	4.2Vdc, 22.32Wh

3. The antenna information is listed as below.

No.	Type	Connector	Gain (dBi)	
			2.4G	5G
1	Dipole	ipex(MHF)	2.50	3.84
2	Dipole	ipex(MHF)	2.19	3.67

\* 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. The EUT contains certified WWAN module which FCC ID: 2AAAS-CC06.

5. WLAN 2.4GHz & 5GHz technology cannot transmit at same time.

6. Simultaneously transmission condition.

Condition	Technology
1	BLE + WWAN + Z-wave + DECT
2	WLAN 2.4G + BLE + Z-wave + DECT
3	WLAN 5G + BLE + Z-wave + DECT

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.



### 3.2 Description of Test Modes

11 channels are provided for 802.11b, 802.11g, 802.11n (HT20), 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), 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≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

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 **X-plane**.
2. Radiated emission test (below 1GHz) and power line conducted emission test items chosen the worst maximum power.

#### **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)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	VHT20	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
-	VHT40	3 to 9	3, 6, 9	OFDM	BPSK	MCS0

#### **Radiated Emission Test (Below 1GHz):**

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	VHT20	1 to 11	6	OFDM	BPSK	MCS0

#### **Power Line Conducted Emission Test:**

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	VHT20	1 to 11	6	OFDM	BPSK	MCS0

**Bandwidth, Power Spectral Density and Conducted Out of Band Emission 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)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	VHT20	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
-	VHT40	3 to 9	3, 6, 9	OFDM	BPSK	MCS0

**Conducted Output Power 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)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
-	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5
-	VHT20	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
-	VHT40	3 to 9	3, 6, 9	OFDM	BPSK	MCS0

**Test Condition:**

Applicable to	Environmental Conditions	Input Power	Tested by
RE $\geq$ 1G	23 deg. C, 66% RH	120Vac, 60Hz	Randy Wu
RE<1G	22 deg. C, 65% RH	120Vac, 60Hz	Wade Huang
PLC	25 deg. C, 75% RH	120Vac, 60Hz	Randy Wu
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Ivan Tseng

### 3.3 Duty Cycle of Test Signal

802.11b: Duty cycle of test signal  $\geq 98\%$ , duty factor is not required.

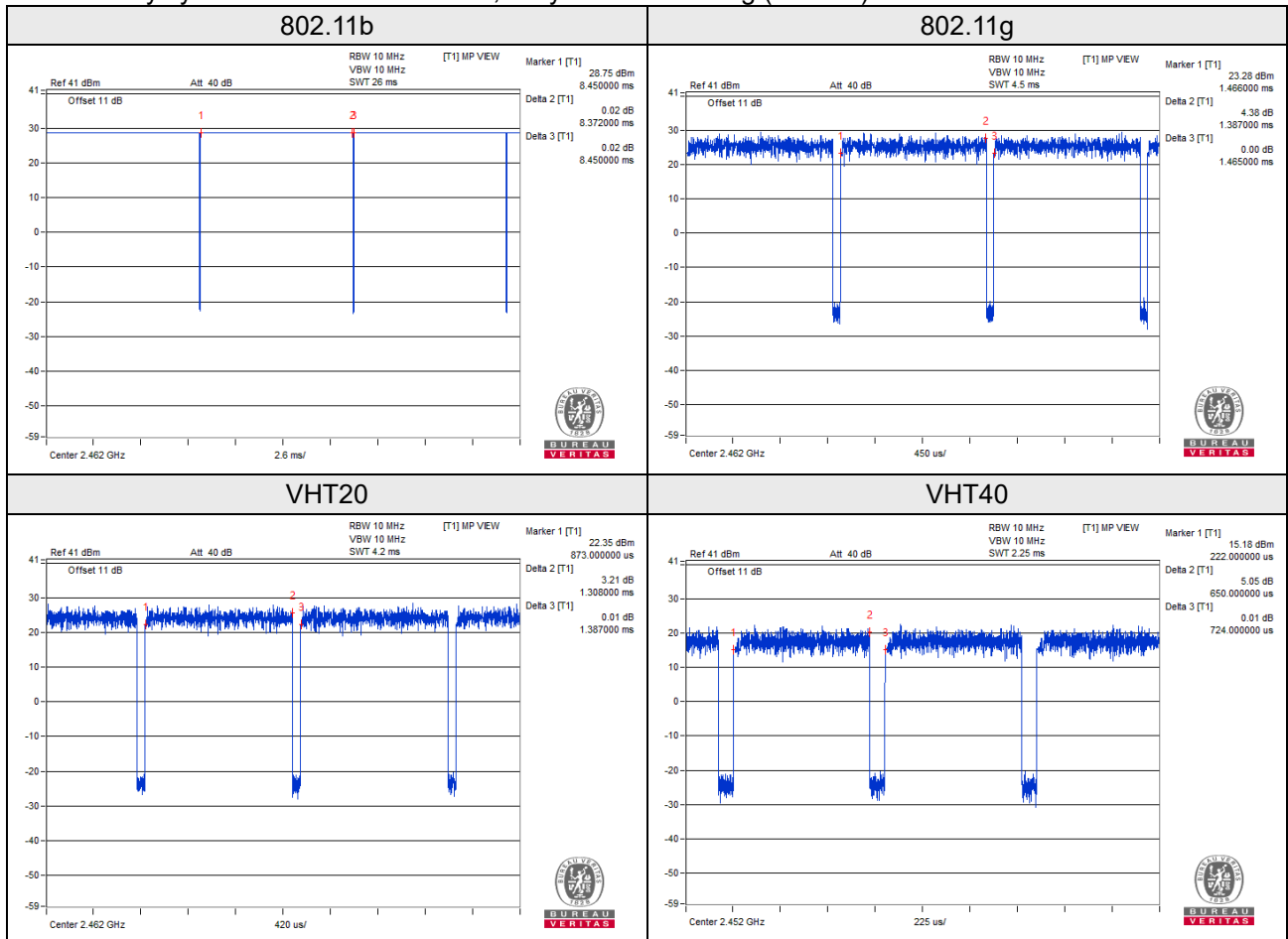
802.11g, VHT20, VHT40: Duty cycle of test signal is  $< 98\%$ , duty factor is required.

802.11b: Duty cycle =  $8.372/8.450 = 0.991$

802.11g: Duty cycle =  $1.387/1.465 = 0.947$ , Duty factor =  $10 * \log(1/0.947) = 0.24$

VHT20: Duty cycle =  $1.308/1.387 = 0.943$ , Duty factor =  $10 * \log(1/0.943) = 0.25$

VHT40: Duty cycle =  $0.650/0.724 = 0.898$ , Duty factor =  $10 * \log(1/0.898) = 0.47$



### 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.

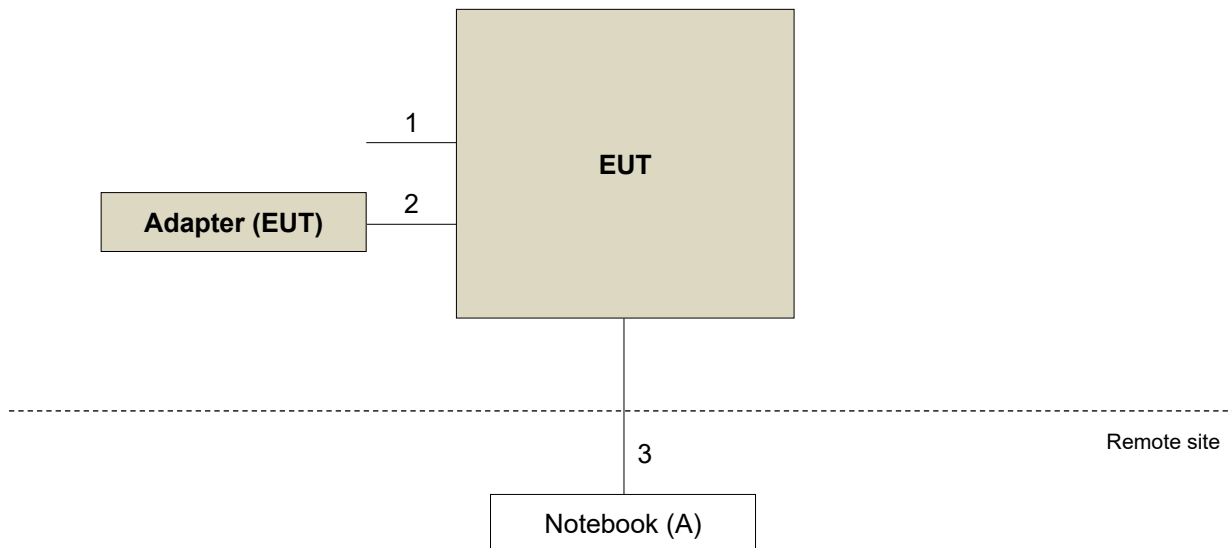
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5420	76WNBT1	FCC DoC Approved	-

Note:

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

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	Micro USB Cable	1	1.0	Y	0	-
2.	Power Cable	1	1.5	N	0	Attached on adapter
3.	LAN Cable	1	10	N	0	RJ45, Cat5e

#### 3.4.1 Configuration of System under Test



### 3.5 General Description of Applied Standards and References

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

**Test standard:**

**FCC Part 15, Subpart C (15.247)**

ANSI C63.10:2013

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

**References Test Guidance:**

**KDB 558074 D01 15.247 Meas Guidance v05r02**

**KDB 662911 D01 Multiple Transmitter Output v02r01**

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

## 4 Test Types and Results

### 4.1 Radiated Emission and Bandedge Measurement

#### 4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

**Note:**

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

#### 4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038B	MY60180018	Feb. 01, 2021	Jan. 31, 2022
Spectrum Analyzer KEYSIGHT	N9020B	MY60110462	Dec. 21, 2021	Dec. 20, 2022
BILOG Antenna SCHWARZBECK	VULB9168	9168-995	Oct. 28, 2021	Oct. 27, 2022
HORN Antenna RF SPIN	DRH18-E	210104A18E	Nov. 14, 2021	Nov. 13, 2022
HORN Antenna SCHWARZBECK	BBHA 9170	9170-995	Nov. 14, 2021	Nov. 13, 2022
Loop Antenna TESEQ	HLA 6121	45745	Jul. 21, 2021	Jul. 20, 2022
Preamplifier EMCI	EMC330N	980783	Jan. 19, 2021	Jan. 18, 2022
			Jan. 17, 2022	Jan. 16, 2023
Preamplifier EMCI	EMC118A45SE	980810	Dec. 30, 2021	Dec. 29, 2022
Preamplifier EMCI	EMC184045SE	980787	Jan. 18, 2021	Jan. 17, 2022
			Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMC104-SM-SM-(900 0+3000+2000+1000) EMCCFD400-NM-NM- (9000+3000+500+500)	201230+ 201242+201238+ 210101 201252+ 201250+201247+ 201245	Jan. 18, 2021	Jan. 17, 2022
			Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMC104-SM-SM-(900 0+3000+2000+1000)	201230+ 201242+201238+ 210101	Jan. 18, 2021	Jan. 17, 2022
			Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMC101G-KM-KM-(50 00+3000+2000)	201259+201256+2012 53	Jan. 18, 2021	Jan. 17, 2022
			Jan. 17, 2022	Jan. 16, 2023
Software BV CPS	ADT_Radiated_V7.6.1 5.9.5	NA	NA	NA
Turn Table Max-Full	MFT-151SS-0.5T	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208675	NA	NA
Antenna Tower KaiTuo	NA	NA	NA	NA
Antenna Tower Controller KaiTuo	KT-2000	NA	NA	NA
Peak Power Analyzer KEYSIGHT	8990B	MY51000538	May 12, 2021	May 11, 2022
Wideband Power Sensor KEYSIGHT	N1923A	MY58190002	May 05, 2021	May 04, 2022

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
2. The test was performed in WM Chamber 7.

### 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 = 1kHz; VHT20: RBW = 1MHz, VBW = 1kHz; VHT40: RBW = 1MHz, VBW = 3kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

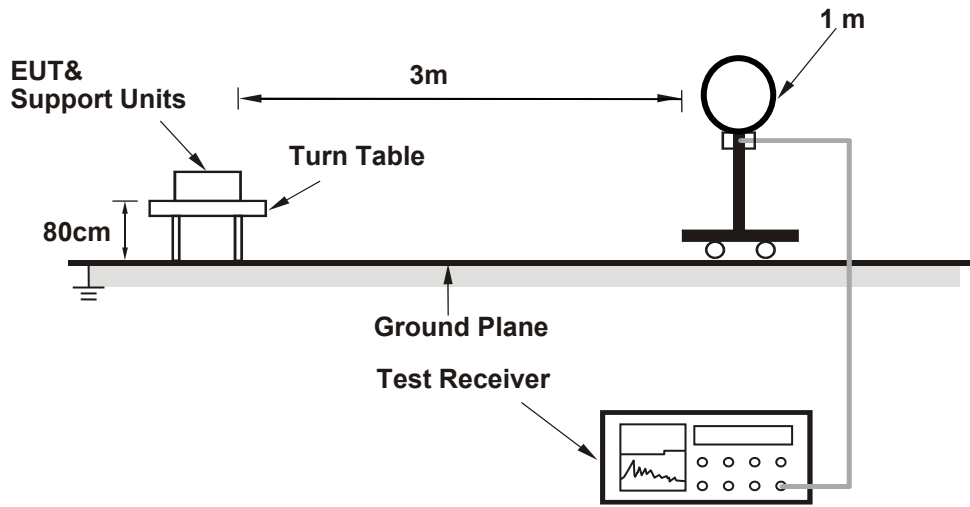
### 4.1.4 Deviation from Test Standard

No deviation.

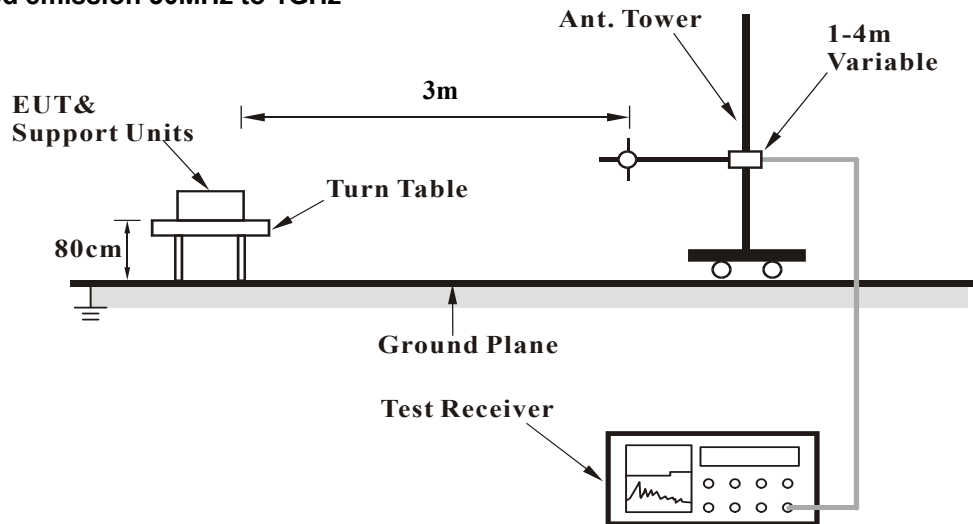


#### 4.1.5 Test Setup

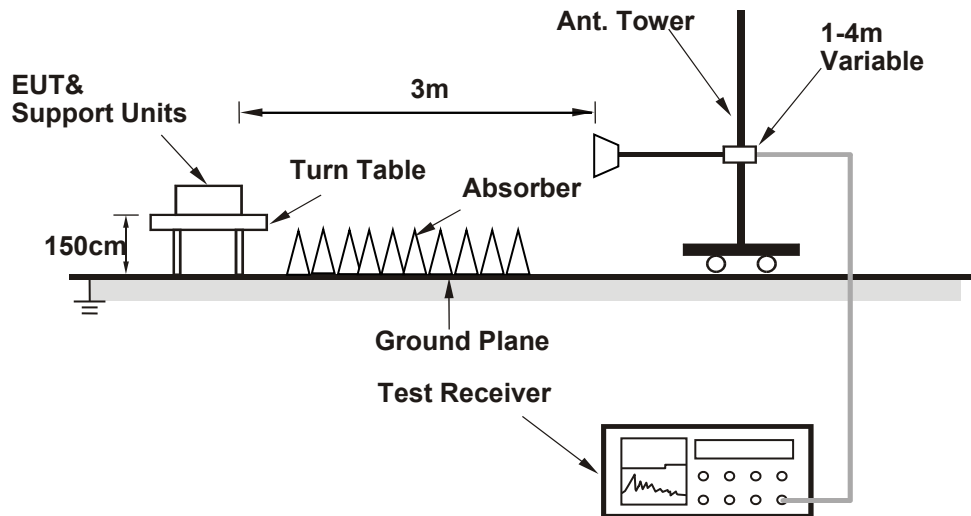
##### For Radiated emission below 30MHz



##### 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.

#### 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	2385.00	62.88 PK	74.00	-11.12	1.63 H	146	30.92	31.96
2	2385.00	53.19 AV	54.00	-0.81	1.63 H	146	21.23	31.96
3	*2412.00	115.96 PK			1.63 H	146	84.04	31.92
4	*2412.00	113.13 AV			1.63 H	146	81.21	31.92
5	4824.00	48.11 PK	74.00	-25.89	2.83 H	144	44.98	3.13
6	4824.00	38.52 AV	54.00	-15.48	2.83 H	144	35.39	3.13
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2385.00	63.39 PK	74.00	-10.61	1.51 V	153	31.43	31.96
2	2385.00	53.26 AV	54.00	-0.74	1.51 V	153	21.30	31.96
3	*2412.00	117.78 PK			1.51 V	153	85.86	31.92
4	*2412.00	112.84 AV			1.51 V	153	80.92	31.92
5	4824.00	49.73 PK	74.00	-24.27	1.80 V	169	46.60	3.13
6	4824.00	41.53 AV	54.00	-12.47	1.80 V	169	38.40	3.13

##### 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	117.15 PK			1.40 H	137	85.29	31.86
2	*2437.00	113.61 AV			1.40 H	137	81.75	31.86
3	4874.00	47.99 PK	74.00	-26.01	2.34 H	252	44.79	3.20
4	4874.00	38.45 AV	54.00	-15.55	2.34 H	252	35.25	3.20
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	117.77 PK			1.41 V	151	85.91	31.86
2	*2437.00	113.32 AV			1.41 V	151	81.46	31.86
3	4874.00	47.81 PK	74.00	-26.19	1.37 V	207	44.61	3.20
4	4874.00	38.75 AV	54.00	-15.25	1.37 V	207	35.55	3.20

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	117.54 PK			1.40 H	137	85.68	31.86
2	*2462.00	113.25 AV			1.40 H	137	81.39	31.86
3	2490.00	61.86 PK	74.00	-12.14	1.40 H	137	29.96	31.90
4	2490.00	51.13 AV	54.00	-2.87	1.40 H	137	19.23	31.90
5	4924.00	47.56 PK	74.00	-26.44	1.89 H	256	44.41	3.15
6	4924.00	38.03 AV	54.00	-15.97	1.89 H	256	34.88	3.15

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	117.59 PK			1.42 V	149	85.73	31.86
2	*2462.00	113.33 AV			1.42 V	149	81.47	31.86
3	2490.50	63.45 PK	74.00	-10.55	1.42 V	149	31.55	31.90
4	2490.50	53.44 AV	54.00	-0.56	1.42 V	149	21.54	31.90
5	4924.00	48.10 PK	74.00	-25.90	2.03 V	207	44.95	3.15
6	4924.00	38.49 AV	54.00	-15.51	2.03 V	207	35.34	3.15

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	69.85 PK	74.00	-4.15	1.45 H	137	37.89	31.96
2	<b>2390.00</b>	<b>53.50 AV</b>	<b>54.00</b>	<b>-0.50</b>	<b>1.45 H</b>	<b>137</b>	<b>21.54</b>	<b>31.96</b>
3	*2412.00	116.83 PK			1.45 H	137	84.91	31.92
4	*2412.00	107.36 AV			1.45 H	137	75.44	31.92
5	4824.00	47.74 PK	74.00	-26.26	1.66 H	284	44.61	3.13
6	4824.00	35.38 AV	54.00	-18.62	1.66 H	284	32.25	3.13

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	68.48 PK	74.00	-5.52	1.26 V	150	36.52	31.96
2	2390.00	52.34 AV	54.00	-1.66	1.26 V	150	20.38	31.96
3	*2412.00	116.94 PK			1.26 V	150	85.02	31.92
4	*2412.00	106.83 AV			1.26 V	150	74.91	31.92
5	4824.00	48.99 PK	74.00	-25.01	1.36 V	233	45.86	3.13
6	4824.00	35.47 AV	54.00	-18.53	1.36 V	233	32.34	3.13

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	119.10 PK			1.38 H	139	87.24	31.86
2	*2437.00	110.82 AV			1.38 H	139	78.96	31.86
3	4874.00	47.55 PK	74.00	-26.45	1.64 H	342	44.35	3.20
4	4874.00	35.07 AV	54.00	-18.93	1.64 H	342	31.87	3.20
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	120.02 PK			1.60 V	160	88.16	31.86
2	*2437.00	110.53 AV			1.60 V	160	78.67	31.86
3	4874.00	45.79 PK	74.00	-28.21	1.66 V	258	42.59	3.20
4	4874.00	35.08 AV	54.00	-18.92	1.66 V	258	31.88	3.20

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	115.78 PK			1.66 H	138	83.92	31.86
2	*2462.00	106.97 AV			1.66 H	138	75.11	31.86
3	2485.00	70.30 PK	74.00	-3.70	1.66 H	138	38.41	31.89
4	2485.00	52.35 AV	54.00	-1.65	1.66 H	138	20.46	31.89
5	4924.00	46.43 PK	74.00	-27.57	1.66 H	258	43.28	3.15
6	4924.00	34.13 AV	54.00	-19.87	1.66 H	258	30.98	3.15

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	117.87 PK			1.07 V	143	86.01	31.86
2	*2462.00	109.28 AV			1.07 V	143	77.42	31.86
3	2483.50	72.46 PK	74.00	-1.54	1.07 V	143	40.57	31.89
4	2483.50	53.36 AV	54.00	-0.64	1.07 V	143	21.47	31.89
5	4924.00	46.81 PK	74.00	-27.19	1.79 V	166	43.66	3.15
6	4924.00	34.20 AV	54.00	-19.80	1.79 V	166	31.05	3.15

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 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	71.42 PK	74.00	-2.58	1.48 H	137	39.46	31.96
2	2390.00	53.38 AV	54.00	-0.62	1.48 H	137	21.42	31.96
3	*2412.00	114.94 PK			1.48 H	137	83.02	31.92
4	*2412.00	105.92 AV			1.48 H	137	74.00	31.92
5	4824.00	48.34 PK	74.00	-25.66	1.66 H	241	45.21	3.13
6	4824.00	34.41 AV	54.00	-19.59	1.66 H	241	31.28	3.13

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	70.97 PK	74.00	-3.03	2.00 V	159	39.01	31.96
2	2390.00	52.95 AV	54.00	-1.05	2.00 V	159	20.99	31.96
3	*2412.00	115.91 PK			2.00 V	159	83.99	31.92
4	*2412.00	105.82 AV			2.00 V	159	73.90	31.92
5	4824.00	47.38 PK	74.00	-26.62	1.66 V	264	44.25	3.13
6	4824.00	34.38 AV	54.00	-19.62	1.66 V	264	31.25	3.13

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	67.52 PK	74.00	-6.48	1.45 H	134	35.56	31.96
2	2390.00	53.27 AV	54.00	-0.73	1.45 H	134	21.31	31.96
3	*2437.00	120.01 PK			1.45 H	134	88.15	31.86
4	*2437.00	110.61 AV			1.45 H	134	78.75	31.86
5	4874.00	49.45 PK	74.00	-24.55	1.66 H	251	46.25	3.20
6	4874.00	35.07 AV	54.00	-18.93	1.66 H	251	31.87	3.20

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	67.21 PK	74.00	-6.79	1.45 V	134	35.25	31.96
2	2390.00	53.32 AV	54.00	-0.68	1.45 V	134	21.36	31.96
3	*2437.00	120.11 PK			1.45 V	134	88.25	31.86
4	*2437.00	110.50 AV			1.45 V	134	78.64	31.86
5	4874.00	49.53 PK	74.00	-24.47	1.66 V	251	46.33	3.20
6	4874.00	34.40 AV	54.00	-19.60	1.66 V	251	31.20	3.20

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 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	116.39 PK			1.40 H	136	84.53	31.86
2	*2462.00	106.35 AV			1.40 H	136	74.49	31.86
3	2483.50	71.71 PK	74.00	-2.29	1.40 H	136	39.82	31.89
4	2483.50	53.25 AV	54.00	-0.75	1.40 H	136	21.36	31.89
5	4924.00	47.79 PK	74.00	-26.21	1.79 H	142	44.64	3.15
6	4924.00	34.67 AV	54.00	-19.33	1.79 H	142	31.52	3.15

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	117.58 PK			1.80 V	160	85.72	31.86
2	*2462.00	105.87 AV			1.80 V	160	74.01	31.86
3	2483.50	71.18 PK	74.00	-2.82	1.80 V	160	39.29	31.89
4	2483.50	53.30 AV	54.00	-0.70	1.80 V	160	21.41	31.89
5	4924.00	47.67 PK	74.00	-26.33	1.66 V	241	44.52	3.15
6	4924.00	34.39 AV	54.00	-19.61	1.66 V	241	31.24	3.15

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 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	65.99 PK	74.00	-8.01	1.52 H	142	34.03	31.96
2	2390.00	53.44 AV	54.00	-0.56	1.52 H	142	21.48	31.96
3	*2422.00	108.89 PK			1.52 H	142	76.99	31.90
4	*2422.00	99.45 AV			1.52 H	142	67.55	31.90
5	4844.00	48.67 PK	74.00	-25.33	1.66 H	175	45.52	3.15
6	4844.00	35.31 AV	54.00	-18.69	1.66 H	175	32.16	3.15

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	64.23 PK	74.00	-9.77	1.81 V	159	32.27	31.96
2	2390.00	53.24 AV	54.00	-0.76	1.81 V	159	21.28	31.96
3	*2422.00	109.61 PK			1.81 V	159	77.71	31.90
4	*2422.00	98.57 AV			1.81 V	159	66.67	31.90
5	4844.00	48.67 PK	74.00	-25.33	1.66 V	178	45.52	3.15
6	4844.00	35.56 AV	54.00	-18.44	1.66 V	178	32.41	3.15

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	67.16 PK	74.00	-6.84	1.43 H	140	35.20	31.96
2	2390.00	53.16 AV	54.00	-0.84	1.43 H	140	21.20	31.96
3	*2437.00	113.45 PK			1.43 H	140	81.59	31.86
4	*2437.00	103.72 AV			1.43 H	140	71.86	31.86
5	4874.00	48.86 PK	74.00	-25.14	1.66 H	185	45.66	3.20
6	4874.00	35.45 AV	54.00	-18.55	1.66 H	185	32.25	3.20

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	67.33 PK	74.00	-6.67	1.72 V	155	35.37	31.96
2	2390.00	53.41 AV	54.00	-0.59	1.72 V	155	21.45	31.96
3	*2437.00	115.24 PK			1.72 V	155	83.38	31.86
4	*2437.00	103.65 AV			1.72 V	155	71.79	31.86
5	4874.00	48.65 PK	74.00	-25.35	1.58 V	166	45.45	3.20
6	4874.00	34.45 AV	54.00	-19.55	1.58 V	166	31.25	3.20

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 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	109.49 PK			1.68 H	144	77.65	31.84
2	*2452.00	99.43 AV			1.68 H	144	67.59	31.84
3	2483.50	68.39 PK	74.00	-5.61	1.68 H	144	36.50	31.89
4	2483.50	52.53 AV	54.00	-1.47	1.68 H	144	20.64	31.89
5	4904.00	48.73 PK	74.00	-25.27	1.68 H	144	45.52	3.21
6	4904.00	35.46 AV	54.00	-18.54	1.68 H	144	32.25	3.21

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	111.19 PK			1.70 V	160	79.35	31.84
2	*2452.00	100.09 AV			1.70 V	160	68.25	31.84
3	2483.50	65.24 PK	74.00	-8.76	1.70 V	160	33.35	31.89
4	2483.50	53.32 AV	54.00	-0.68	1.70 V	160	21.43	31.89
5	4904.00	49.76 PK	74.00	-24.24	1.88 V	172	46.55	3.21
6	4904.00	35.46 AV	54.00	-18.54	1.88 V	172	32.25	3.21

Remarks:

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

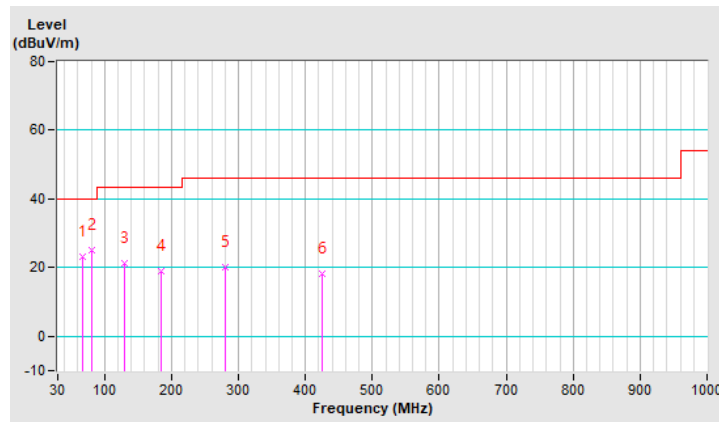
Below 1GHz worst-case data:

RF Mode	TX VHT20	Channel	CH 6 : 2437 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	66.86	23.34 QP	40.00	-16.66	1.99 H	278	43.19	-19.85
2	80.44	24.91 QP	40.00	-15.09	1.51 H	281	48.31	-23.40
3	129.91	21.12 QP	43.50	-22.38	1.99 H	255	40.68	-19.56
4	185.20	19.14 QP	43.50	-24.36	1.99 H	269	39.59	-20.45
5	280.26	20.04 QP	46.00	-25.96	1.01 H	79	38.53	-18.49
6	424.79	18.09 QP	46.00	-27.91	1.01 H	120	32.94	-14.85

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.

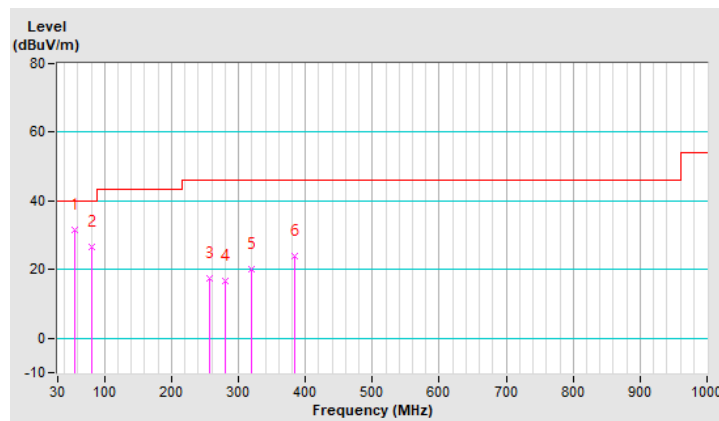


RF Mode	TX VHT20	Channel	CH 6 : 2437 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	56.19	31.52 QP	40.00	-8.48	1.49 V	14	49.95	-18.43
2	80.44	26.69 QP	40.00	-13.31	1.00 V	172	50.09	-23.40
3	256.01	17.37 QP	46.00	-28.63	1.49 V	18	36.96	-19.59
4	280.26	16.55 QP	46.00	-29.45	1.99 V	36	35.04	-18.49
5	320.03	20.23 QP	46.00	-25.77	1.99 V	2	37.66	-17.43
6	384.05	23.98 QP	46.00	-22.02	1.99 V	106	39.84	-15.86

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	102783	Dec. 20, 2021	Dec. 19, 2022
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Sep. 04, 2021	Sep. 03, 2022
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Jan. 28, 2021	Jan. 27, 2022
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Sep. 17, 2021	Sep. 16, 2022
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

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

#### 4.2.3 Test Procedures

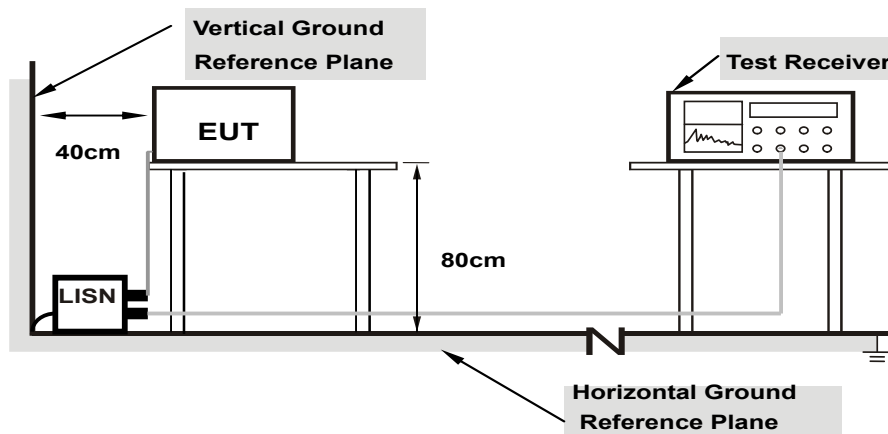
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

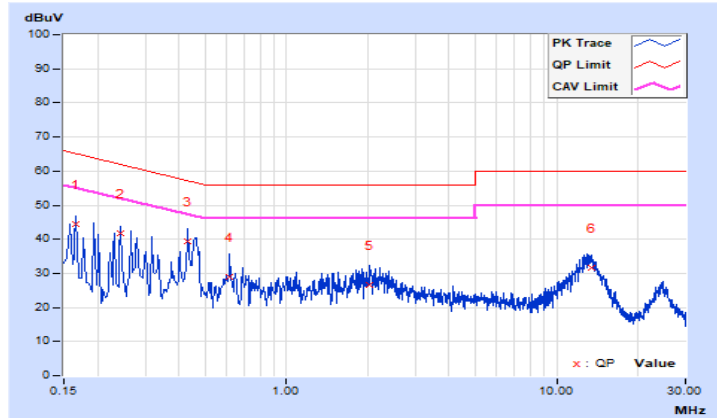
VHT20

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16600	10.13	34.17	16.88	44.30	27.01	65.16	55.16	-20.86	-28.15
2	0.24200	10.16	31.52	12.72	41.68	22.88	62.03	52.03	-20.35	-29.15
3	0.43000	10.22	29.02	20.37	39.24	30.59	57.25	47.25	-18.01	-16.66
4	0.61400	10.24	18.84	11.40	29.08	21.64	56.00	46.00	-26.92	-24.36
5	2.03400	10.36	16.12	8.00	26.48	18.36	56.00	46.00	-29.52	-27.64
6	13.43000	10.55	21.18	13.46	31.73	24.01	60.00	50.00	-28.27	-25.99

Remarks:

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

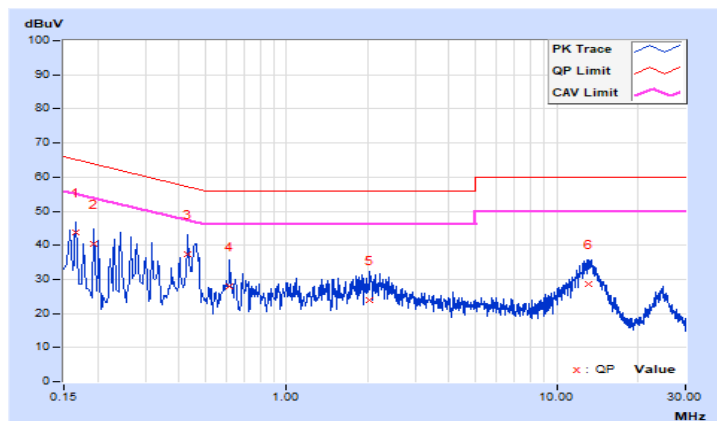


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	--------------------------------

No	Freq. [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	0.16535	10.15	33.68	19.68	43.83	29.83	65.19
2	0.19367	10.17	30.19	16.68	40.36	26.85	63.88	53.88	-23.52	-27.03
<b>3</b>	<b>0.42915</b>	<b>10.24</b>	<b>27.19</b>	<b>21.34</b>	<b>37.43</b>	<b>31.58</b>	<b>57.27</b>	<b>47.27</b>	<b>-19.84</b>	<b>-15.69</b>
4	0.61245	10.26	17.64	11.74	27.90	22.00	56.00	46.00	-28.10	-24.00
5	2.03400	10.35	13.65	8.46	24.00	18.81	56.00	46.00	-32.00	-27.19
6	13.13000	10.66	17.80	11.48	28.46	22.14	60.00	50.00	-31.54	-27.86

Remarks:

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

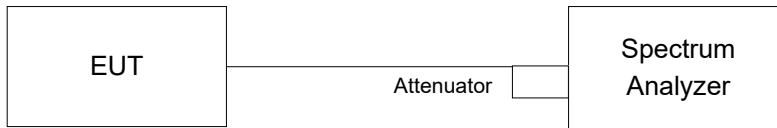


### 4.3 6dB Bandwidth Measurement

#### 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	9.08	9.06	0.50	Pass
6	2437	9.09	9.10	0.50	Pass
11	2462	9.09	9.10	0.50	Pass

##### 802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.19	15.19	0.50	Pass
6	2437	15.19	15.19	0.50	Pass
11	2462	15.20	15.19	0.50	Pass

##### VHT20

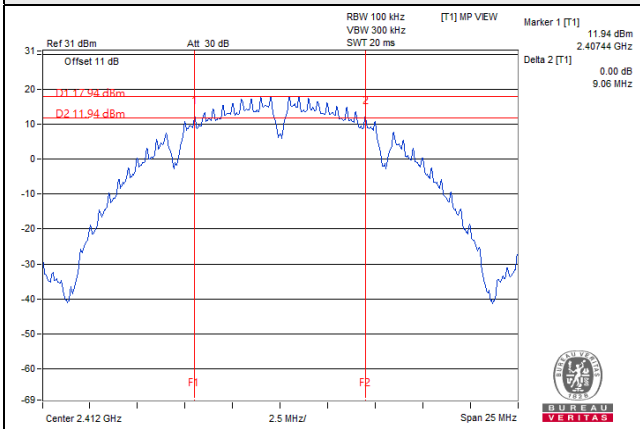
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.19	15.17	0.50	Pass
6	2437	15.19	16.12	0.50	Pass
11	2462	15.19	15.19	0.50	Pass

##### VHT40

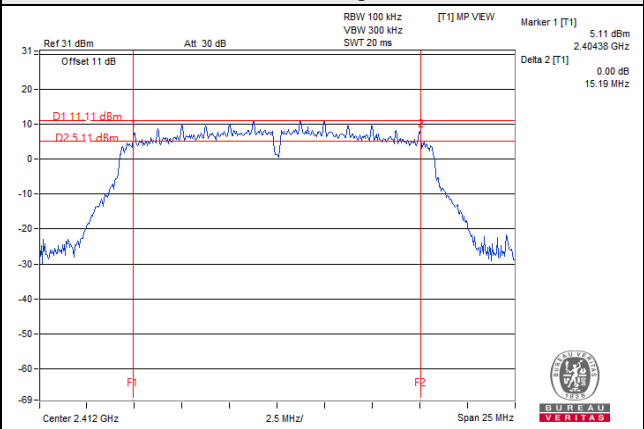
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.24	35.26	0.50	Pass
6	2437	35.24	35.24	0.50	Pass
9	2452	35.19	35.24	0.50	Pass

### Spectrum Plot of Worst Value

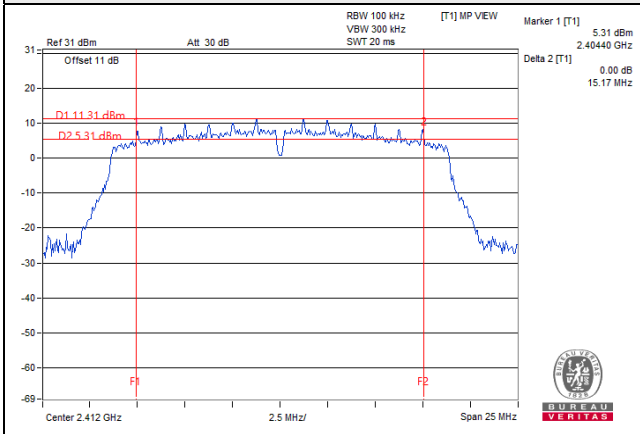
#### 802.11b



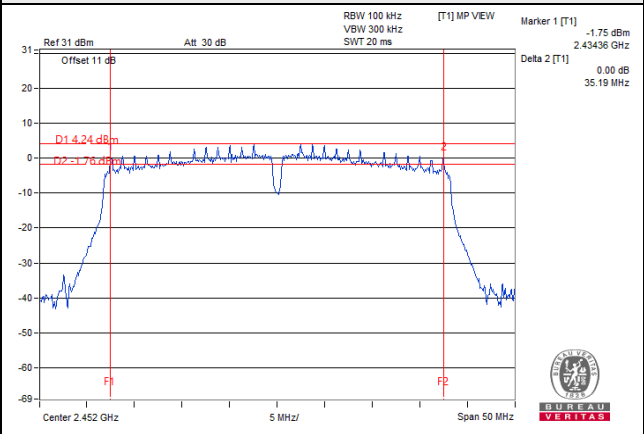
#### 802.11g



#### VHT20



#### 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,

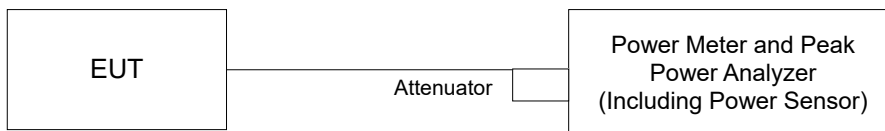
Array Gain = 0 dB (i.e., no array gain) for  $N_{ANT} \leq 4$ ;

Array Gain = 0 dB (i.e., no array gain) for channel widths  $\geq 40$  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

##### 802.11b

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	25.41	25.58	708.946	28.51	30.00	Pass
6	2437	26.31	26.83	909.511	29.59	30.00	Pass
11	2462	26.30	26.52	875.325	29.42	30.00	Pass

##### 802.11g

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	20.52	20.63	228.331	23.59	30.00	Pass
6	2437	26.23	27.07	929.090	29.68	30.00	Pass
11	2462	20.21	20.33	212.849	23.28	30.00	Pass

##### 802.11n (HT20)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	20.15	20.42	213.668	23.30	30.00	Pass
6	2437	26.18	26.91	905.862	29.57	30.00	Pass
11	2462	19.89	20.21	202.453	23.06	30.00	Pass

##### 802.11n (HT40)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	16.18	16.28	83.957	19.24	30.00	Pass
6	2437	20.15	20.80	223.741	23.50	30.00	Pass
9	2452	17.41	17.21	107.682	20.32	30.00	Pass

#### VHT20

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	20.36	20.52	221.362	23.45	30.00	Pass
6	2437	26.21	27.16	<b>937.826</b>	29.72	30.00	Pass
11	2462	20.14	20.28	209.936	23.22	30.00	Pass

#### VHT40

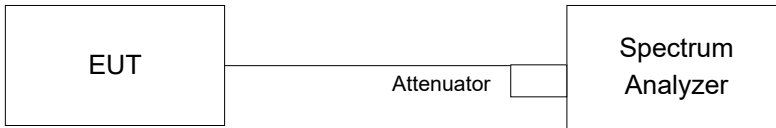
Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	16.25	16.33	85.123	19.30	30.00	Pass
6	2437	20.25	21.01	232.108	23.66	30.00	Pass
9	2452	17.52	17.52	112.987	20.53	30.00	Pass

## 4.5 Power Spectral Density Measurement

### 4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm 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

For Average Power (Duty cycle  $\geq 98\%$ )

- Set instrument center frequency to DTS channel center frequency.
- Set span to at least 1.5 times the OBW.
- Set RBW to:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
- Set VBW  $\geq 3 \times \text{RBW}$ .
- Detector = power averaging (RMS) or sample detector (when RMS not available).
- Ensure that the number of measurement points in the sweep  $\geq 2 \times \text{span}/\text{RBW}$ .
- Sweep time = auto couple.
- Employ trace averaging (RMS) mode over a minimum of 100 traces.
- Use the peak marker function to determine the maximum amplitude level.

For Average Power (Duty cycle  $< 98\%$ )

- Measure the duty cycle (x).
- Set instrument center frequency to DTS channel center frequency.
- Set span to at least 1.5 times the OBW.
- Set RBW to:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
- Set VBW  $\geq 3 \times \text{RBW}$ .
- Detector = power averaging (RMS) or sample detector (when RMS not available).
- Ensure that the number of measurement points in the sweep  $\geq 2 \times \text{span}/\text{RBW}$ .
- Sweep time = auto couple.
- Do not use sweep triggering. Allow sweep to "free run".
- Employ trace averaging (RMS) mode over a minimum of 100 traces.
- Use the peak marker function to determine the maximum amplitude level.
- 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

##### 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	-6.74	3.01	-3.73	8.00	Pass
	6	2437	-6.28	3.01	-3.27	8.00	Pass
	11	2462	-6.40	3.01	-3.39	8.00	Pass
1	1	2412	-7.34	3.01	-4.33	8.00	Pass
	6	2437	-6.15	3.01	-3.14	8.00	Pass
	11	2462	-6.33	3.01	-3.32	8.00	Pass

Note:

- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure value and add  $10 \log (N_{ANT})$  dB.
- Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 5.36\text{dBi} < 6\text{dBi}$ , so the power density limit shall not be reduced.

##### 802.11g

TX chain	Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/3kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-13.82	3.01	0.24	-10.57	8.00	Pass
	6	2437	-9.42	3.01	0.24	-6.17	8.00	Pass
	11	2462	-14.33	3.01	0.24	-11.08	8.00	Pass
1	1	2412	-13.35	3.01	0.24	-10.10	8.00	Pass
	6	2437	-8.79	3.01	0.24	-5.54	8.00	Pass
	11	2462	-13.27	3.01	0.24	-10.02	8.00	Pass

Note:

- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure value and add  $10 \log (N_{ANT})$  dB.
- Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 5.36\text{dBi} < 6\text{dBi}$ , so the power density limit shall not be reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

### VHT20

TX chain	Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/3kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-14.42	3.01	0.25	-11.16	8.00	Pass
	6	2437	-8.91	3.01	0.25	-5.65	8.00	Pass
	11	2462	-14.44	3.01	0.25	-11.18	8.00	Pass
1	1	2412	-14.32	3.01	0.25	-11.06	8.00	Pass
	6	2437	-8.89	3.01	0.25	-5.63	8.00	Pass
	11	2462	-14.95	3.01	0.25	-11.69	8.00	Pass

Note:

- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure value and add  $10 \log (N_{ANT})$  dB.
- Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 5.36\text{dBi} < 6\text{dBi}$ , so the power density limit shall not be reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

### VHT40

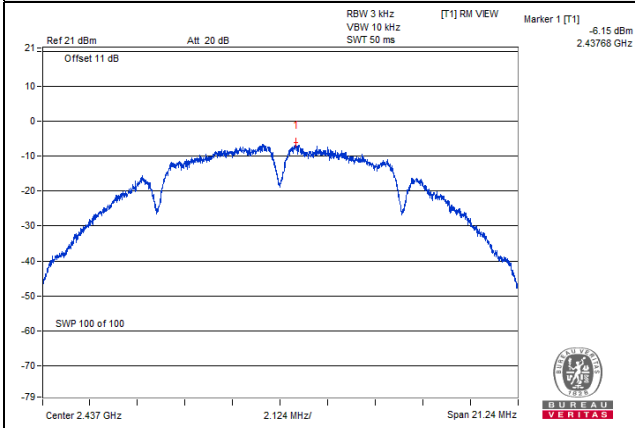
TX chain	Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/3kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	3	2422	-23.32	3.01	0.47	-19.84	8.00	Pass
	6	2437	-16.97	3.01	0.47	-13.49	8.00	Pass
	9	2452	-22.18	3.01	0.47	-18.70	8.00	Pass
1	3	2422	-22.48	3.01	0.47	-19.00	8.00	Pass
	6	2437	-16.76	3.01	0.47	-13.28	8.00	Pass
	9	2452	-21.89	3.01	0.47	-18.41	8.00	Pass

Note:

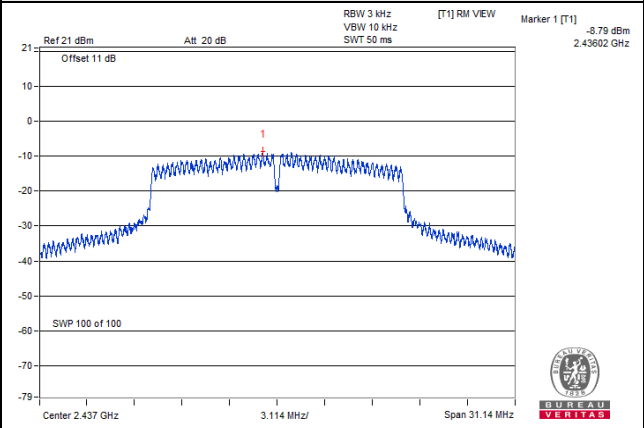
- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure value and add  $10 \log (N_{ANT})$  dB.
- Directional gain =  $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/2] = 5.36\text{dBi} < 6\text{dBi}$ , so the power density limit shall not be reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

### Spectrum Plot of Worst Value

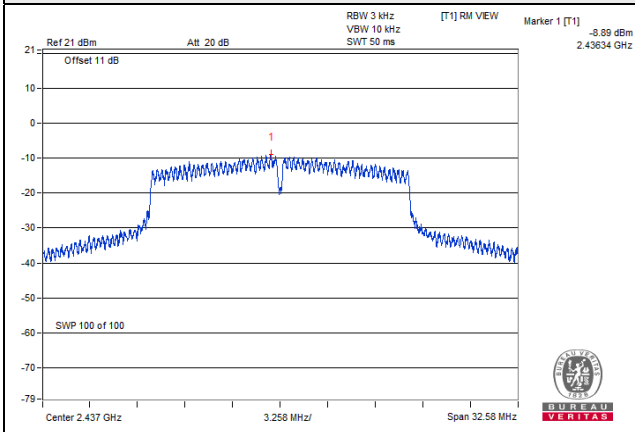
#### 802.11b



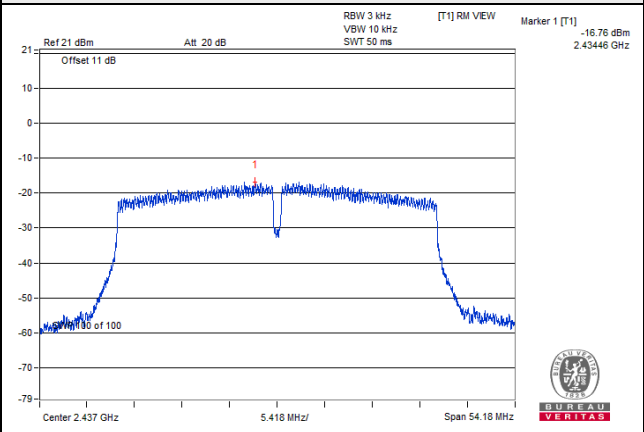
#### 802.11g



#### VHT20



#### VHT40

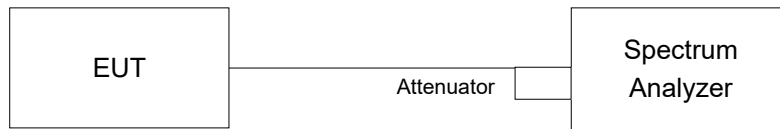


## 4.6 Conducted Out of Band Emission Measurement

### 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

- 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

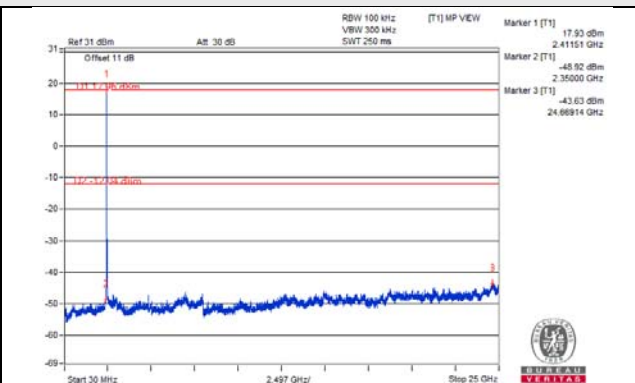
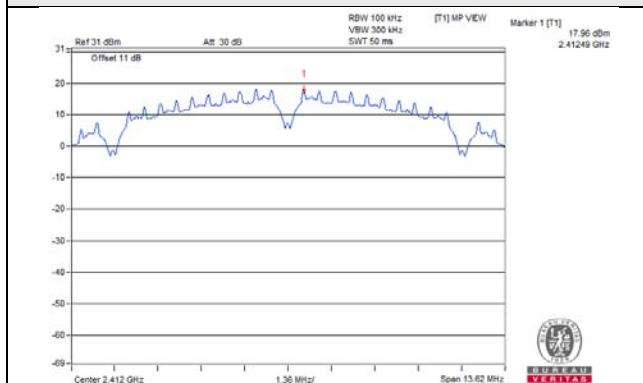
The conducted emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit.

The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.

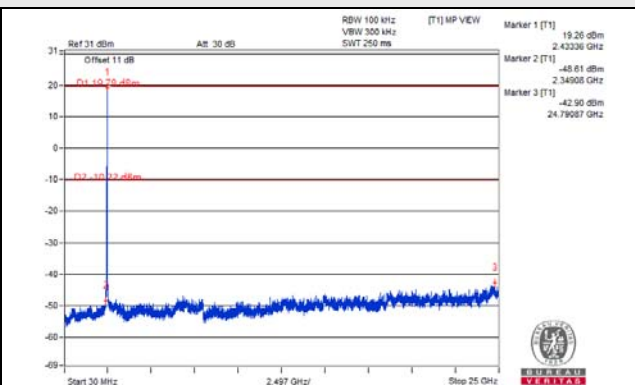
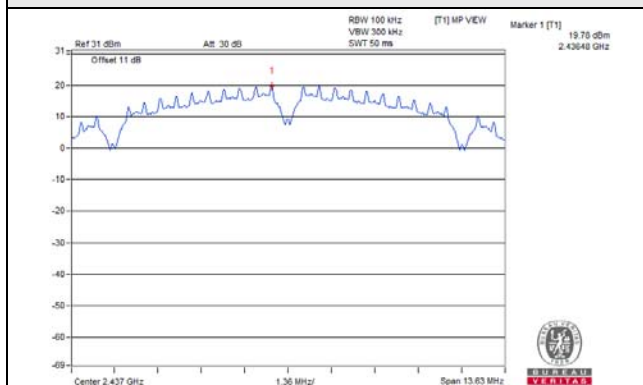


802.11b\_Chain 0

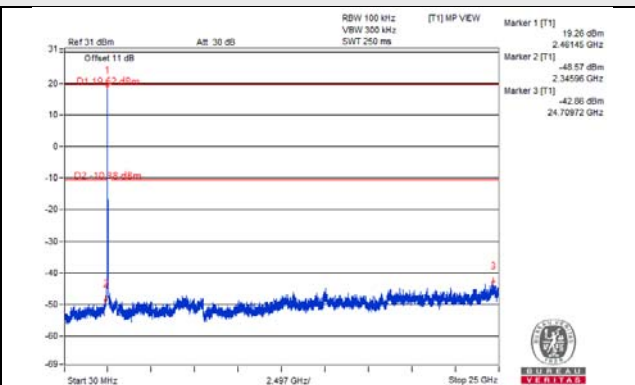
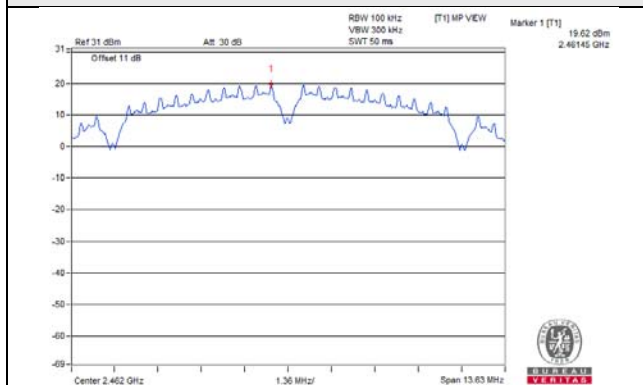
CH 1



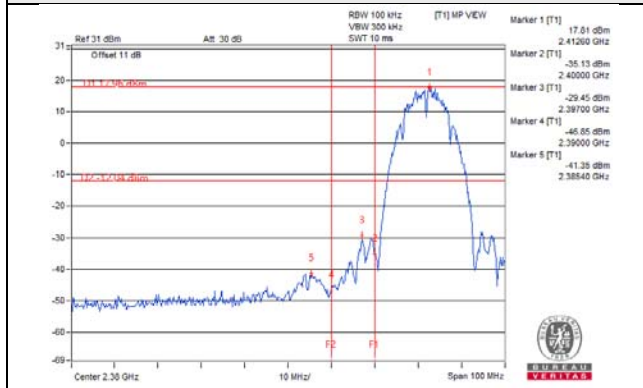
CH 6



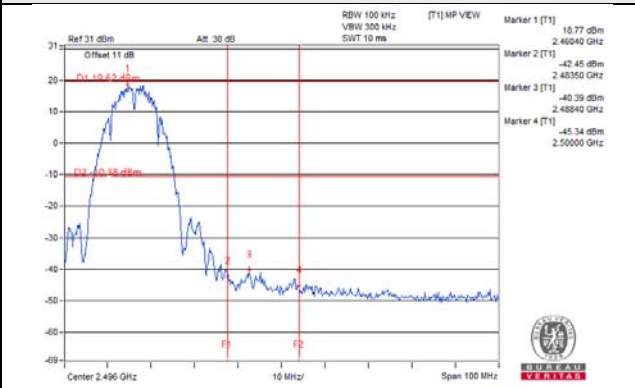
CH 11



CH 1 Band edge

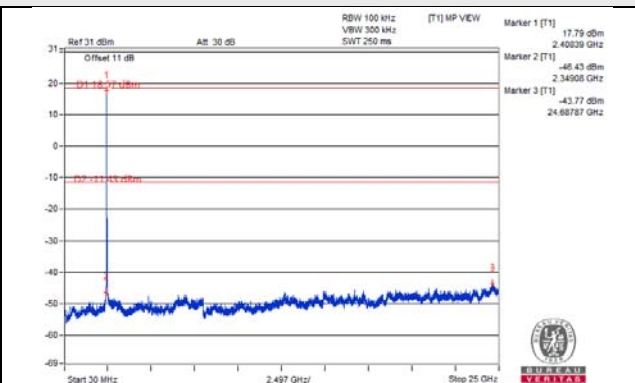
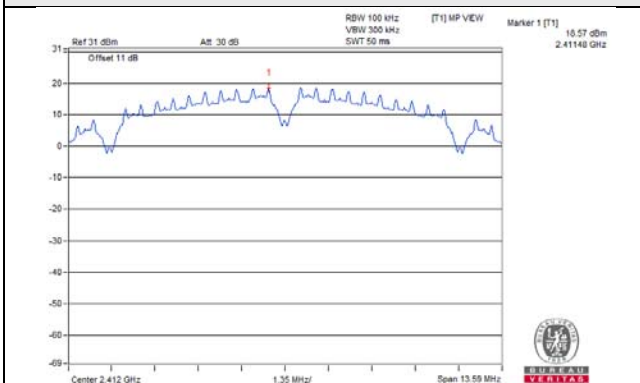


CH 11 Band edge

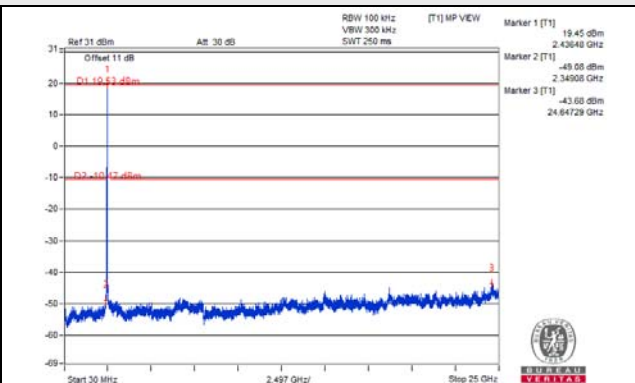
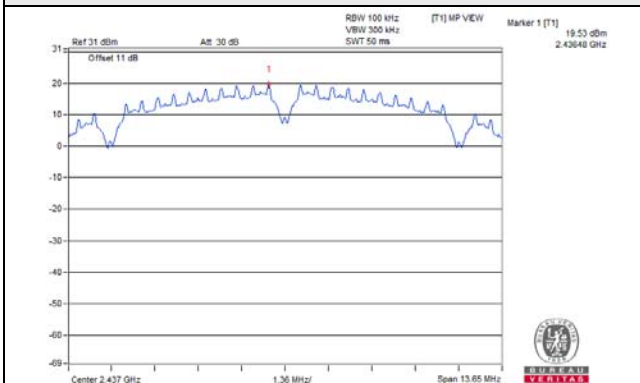


802.11b\_Chain 1

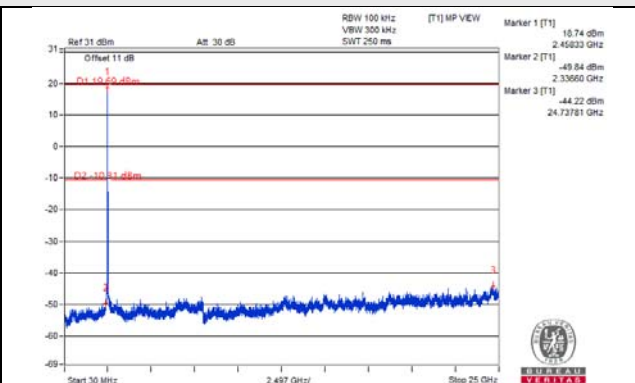
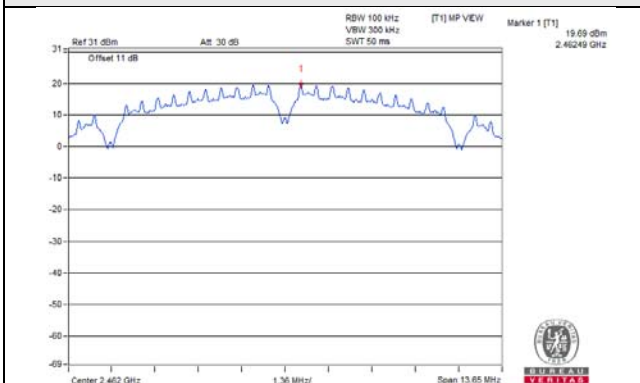
CH 1



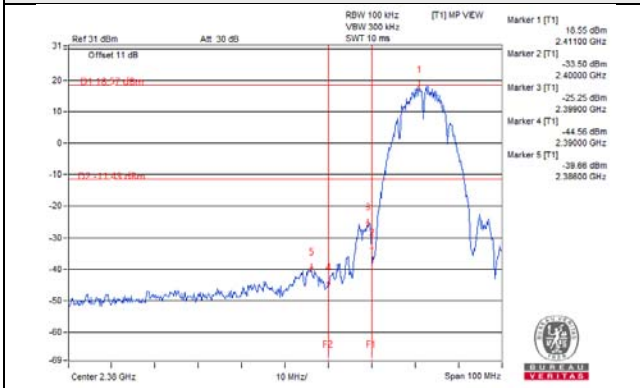
CH 6



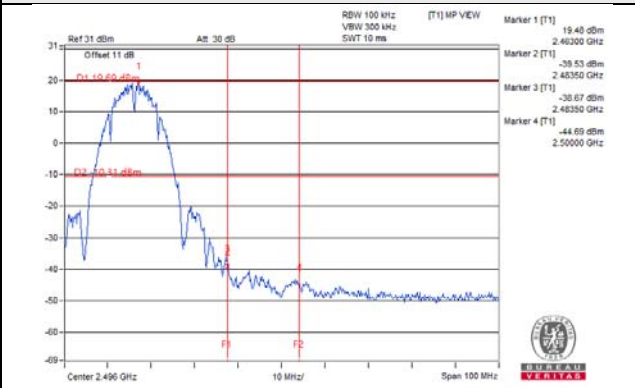
CH 11



CH 1 Band edge

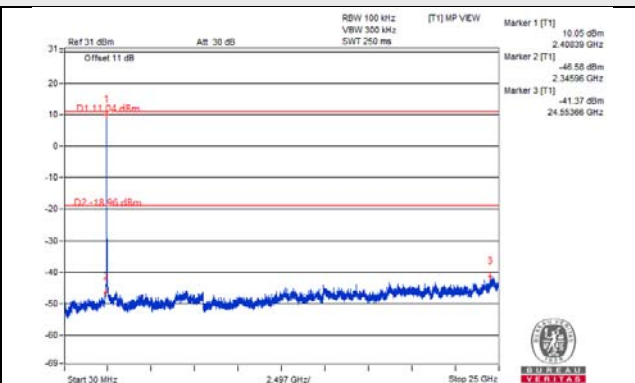
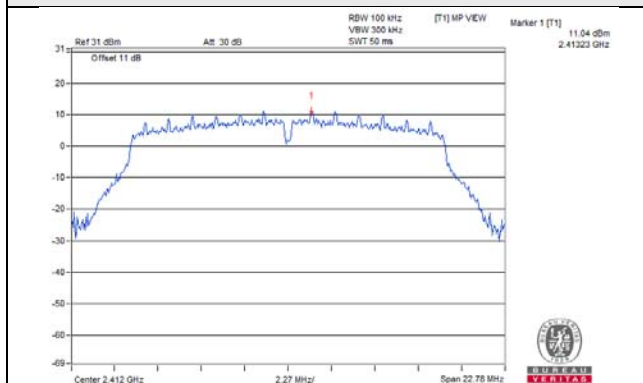


CH 11 Band edge

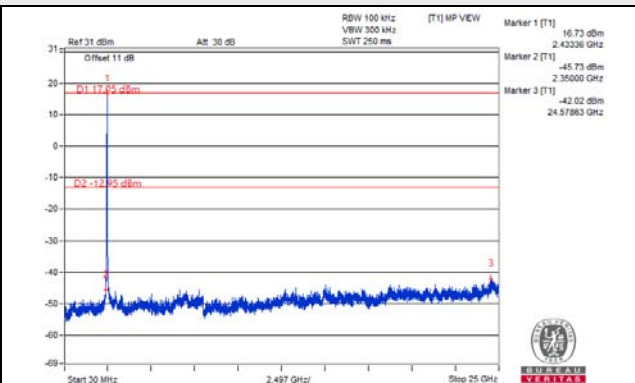
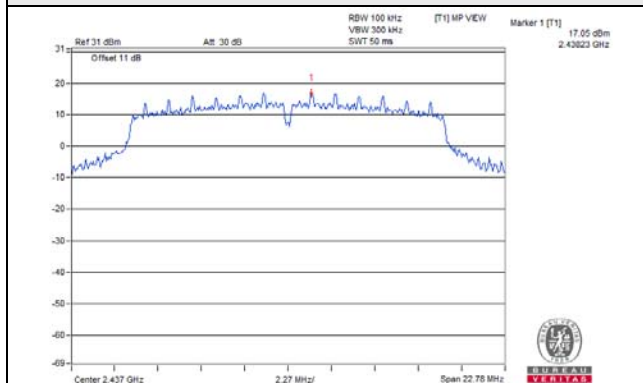


802.11g\_Chain 0

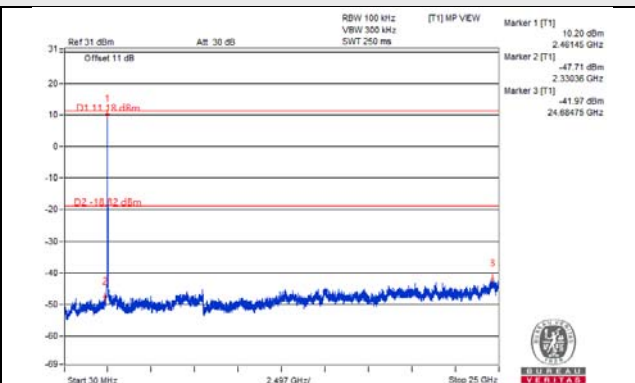
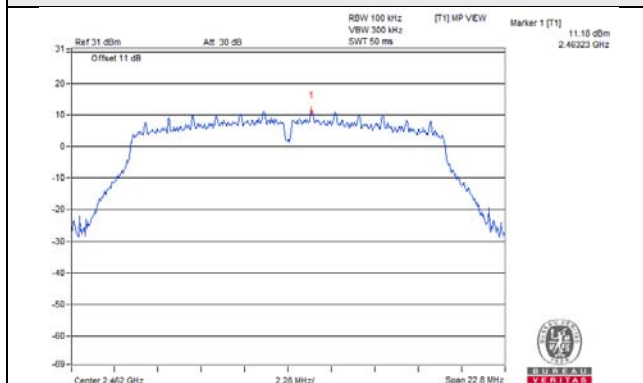
CH 1



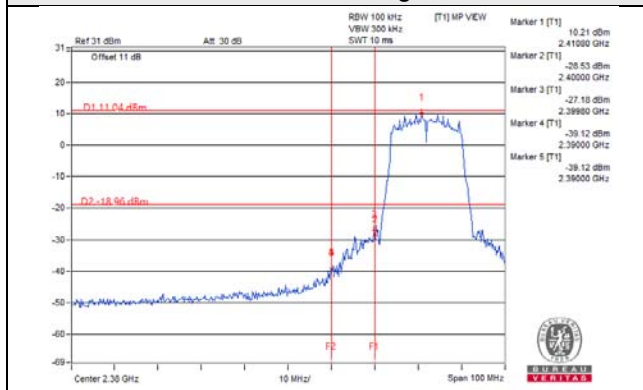
CH 6



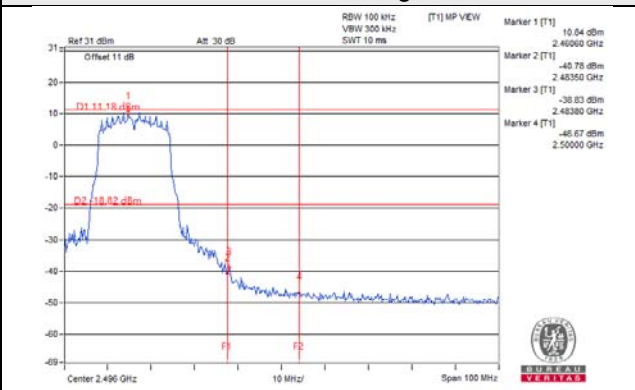
CH 11



CH 1 Band edge

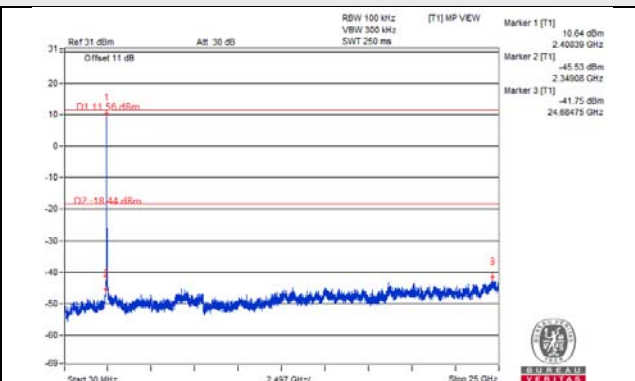
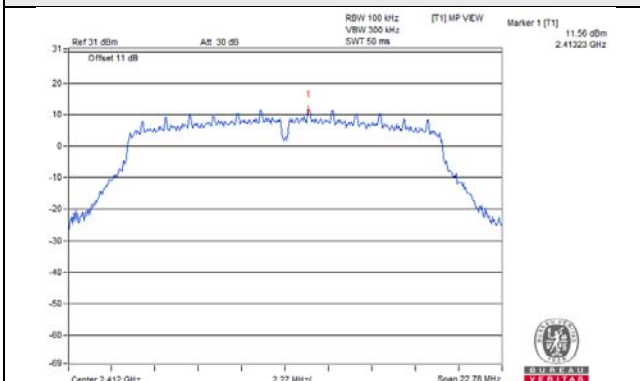


CH 11 Band edge

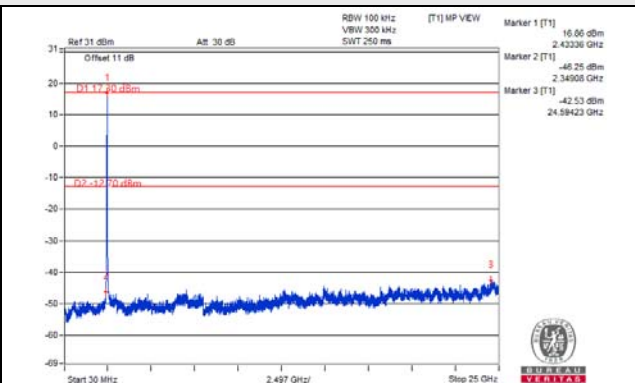
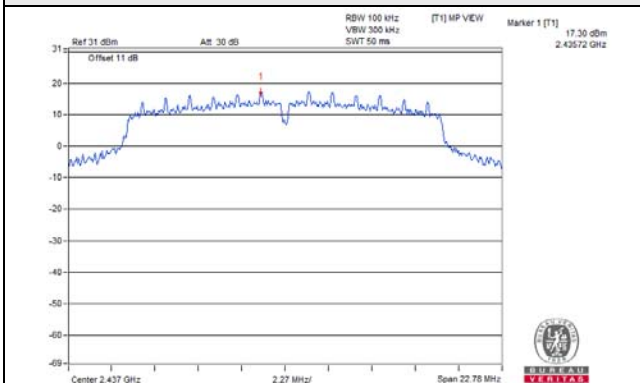


### 802.11g\_Chain 1

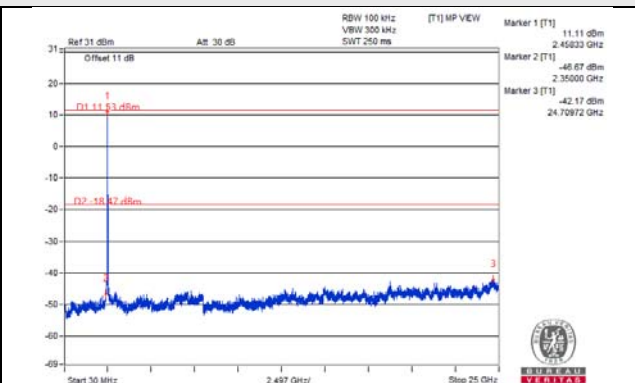
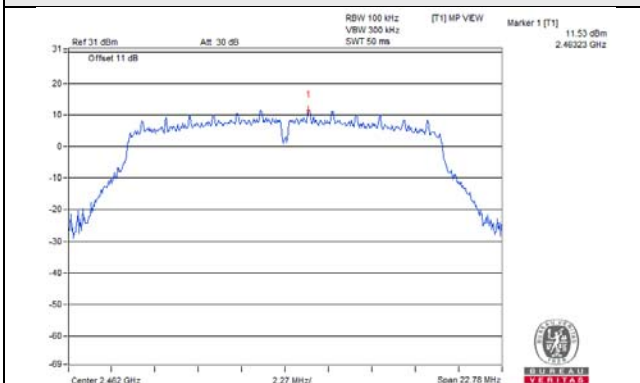
#### CH 1



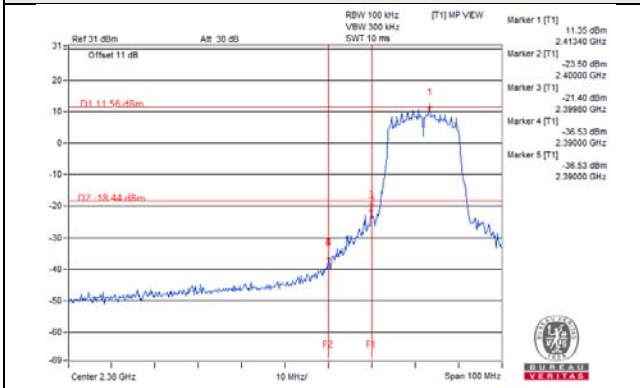
#### CH 6



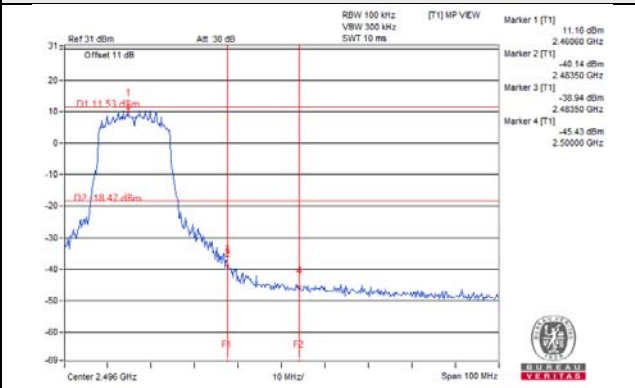
#### CH 11



#### CH 1 Band edge

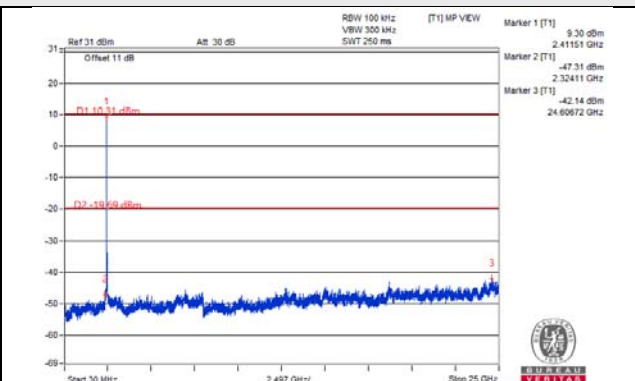
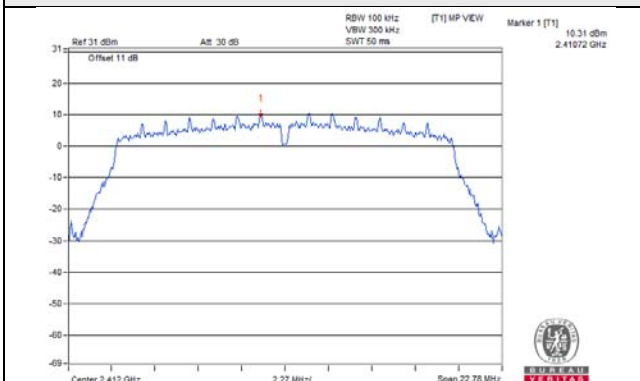


#### CH 11 Band edge

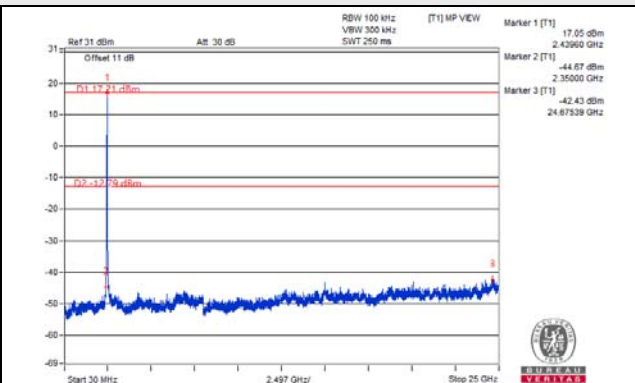
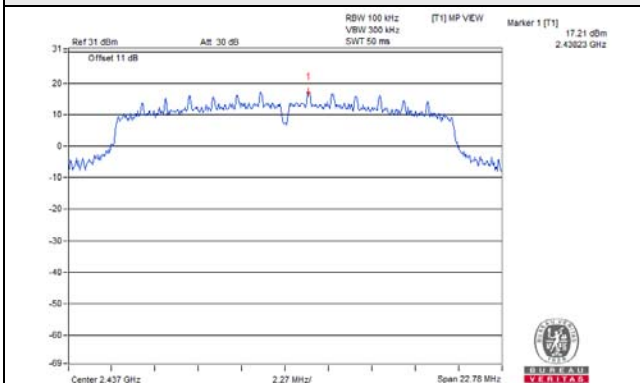


VHT20\_Chain 0

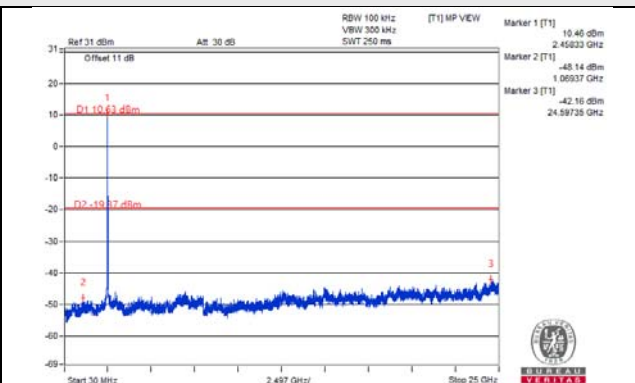
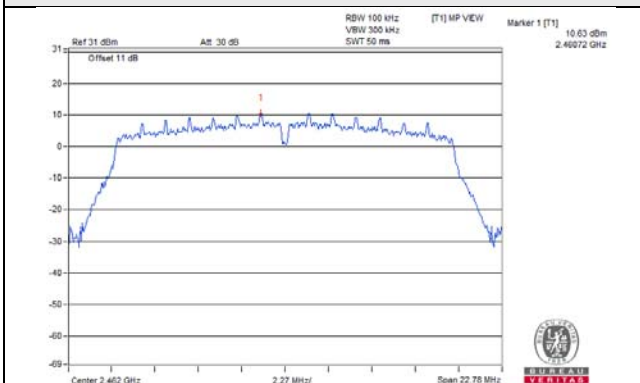
CH 1



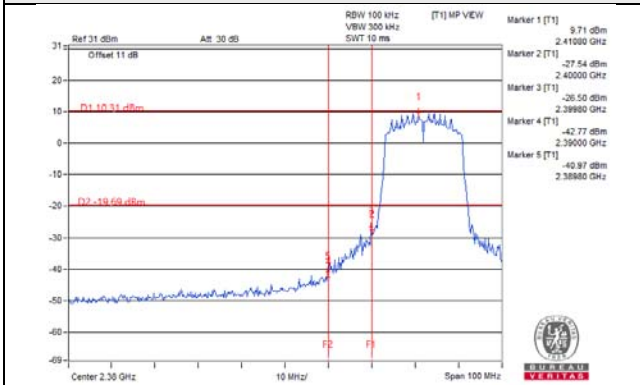
CH 6



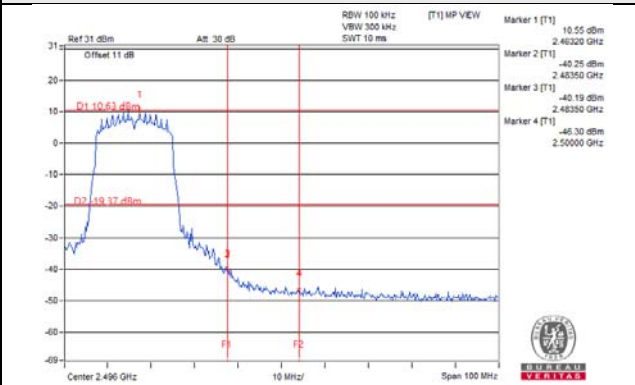
CH 11



CH 1 Band edge



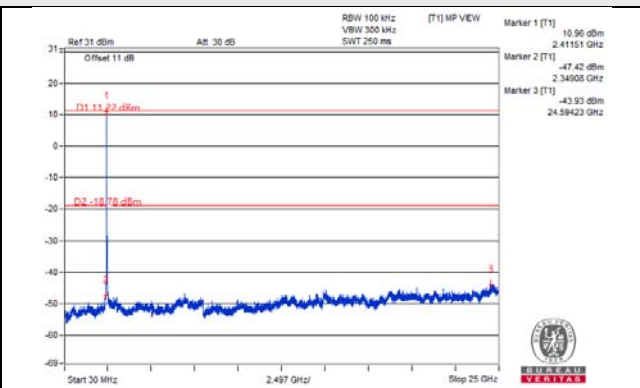
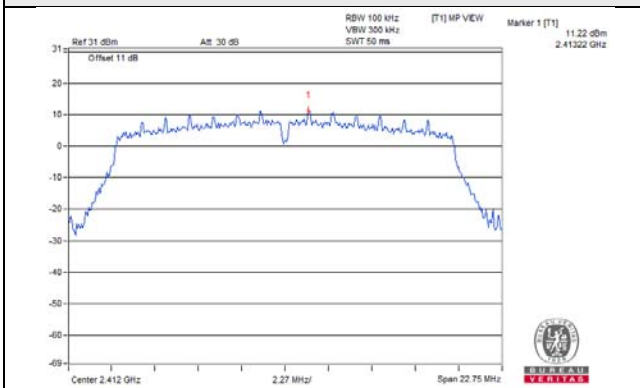
CH 11 Band edge



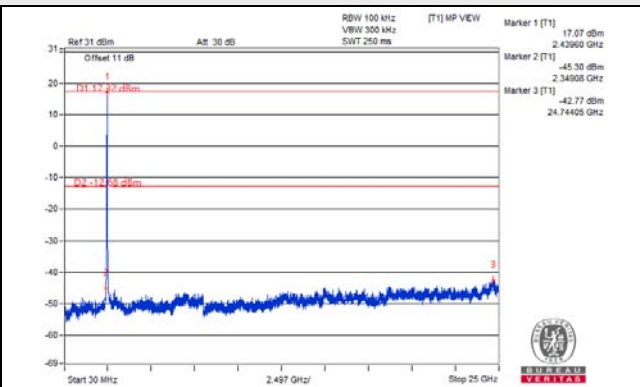
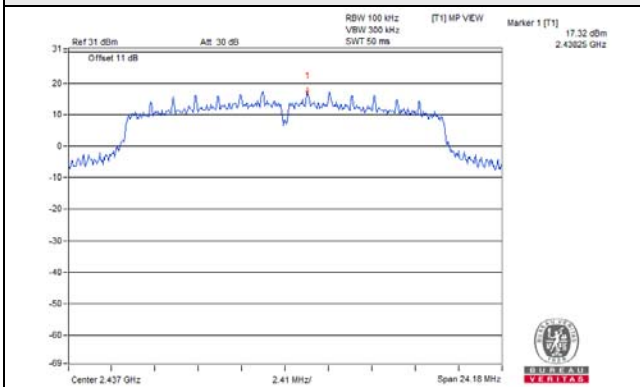


VHT20\_Chain 1

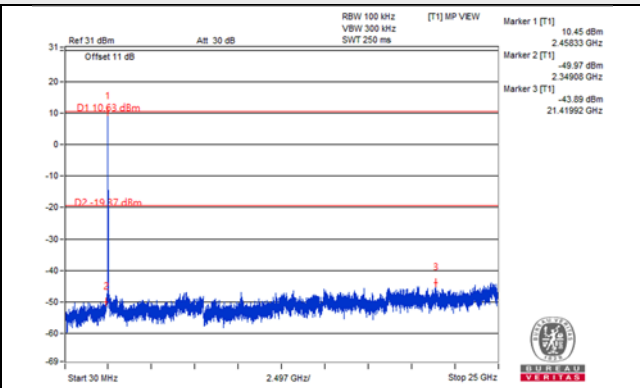
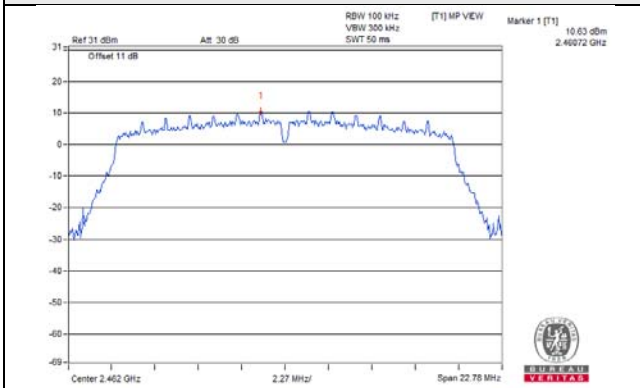
CH 1



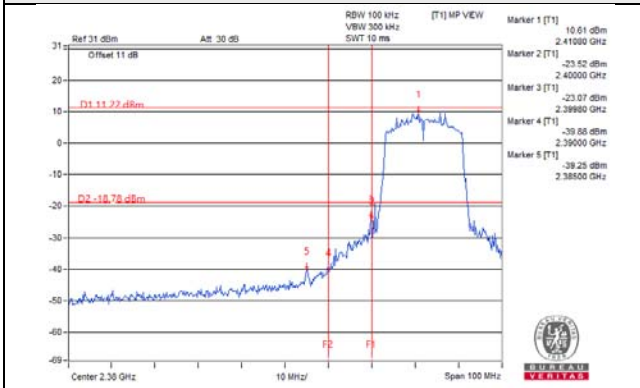
CH 6



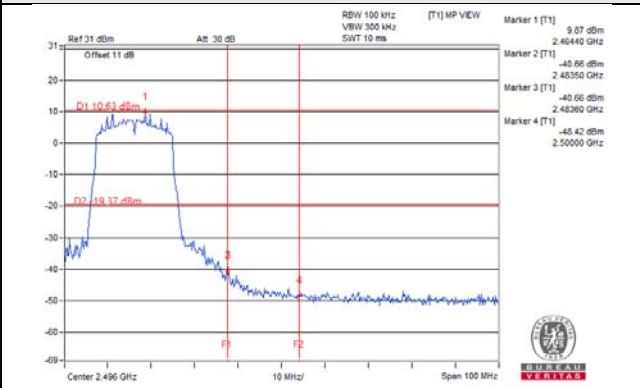
CH 11



CH 1 Band edge

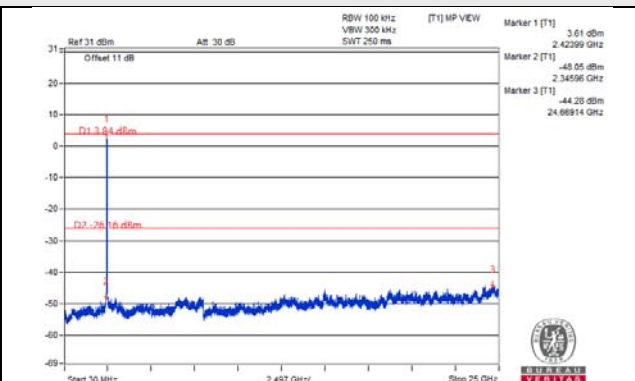
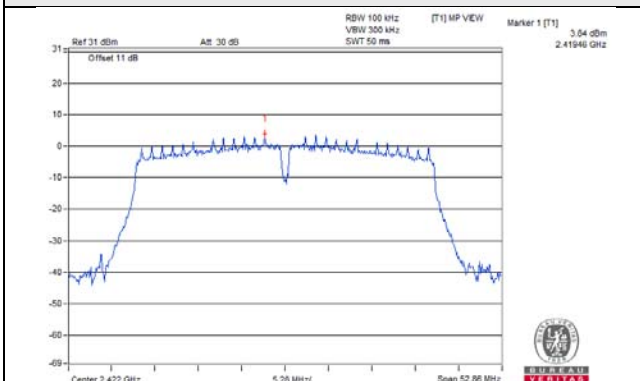


CH 11 Band edge

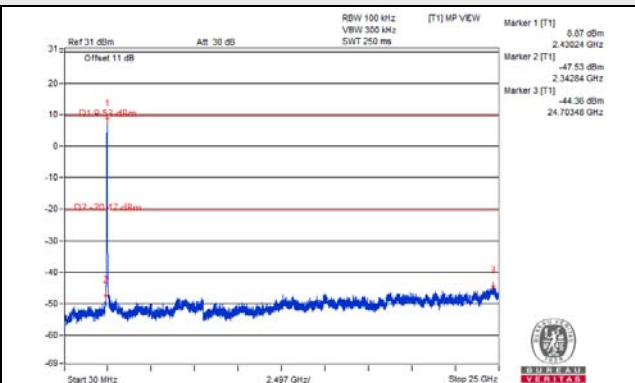
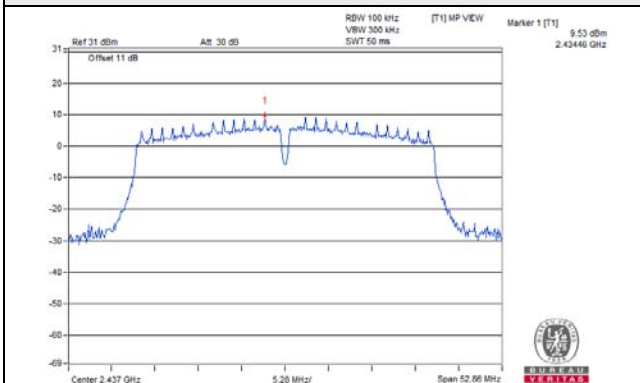


VHT40\_Chain 0

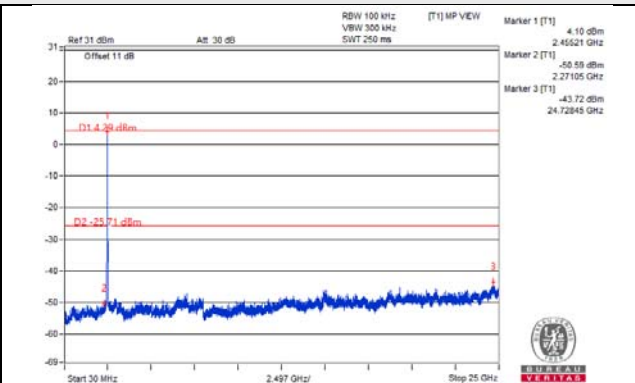
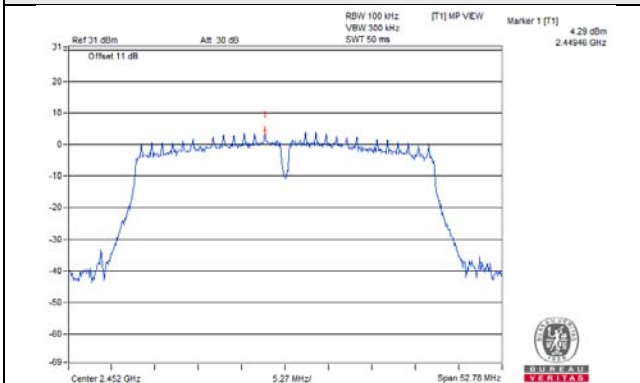
CH 3



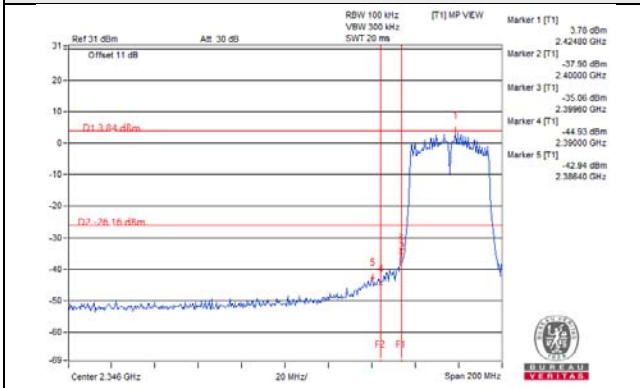
CH 6



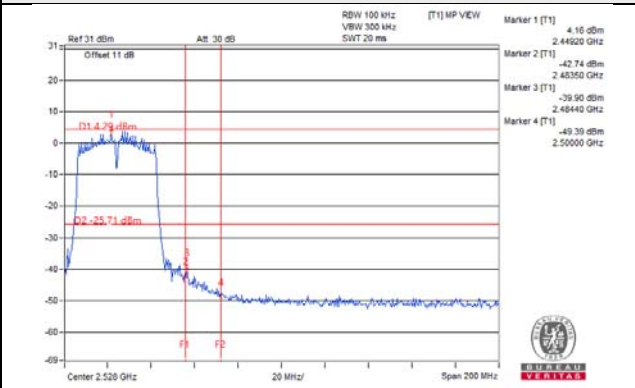
CH 9



CH 3 Band edge

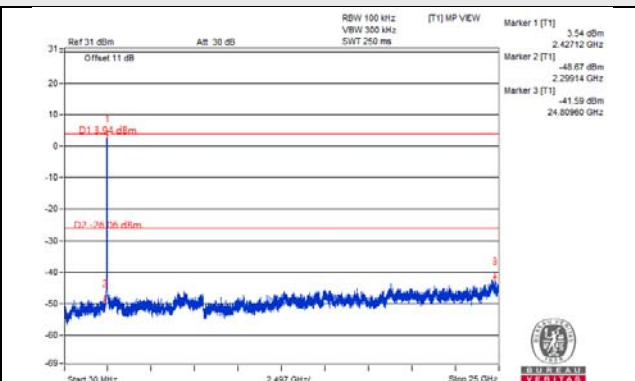
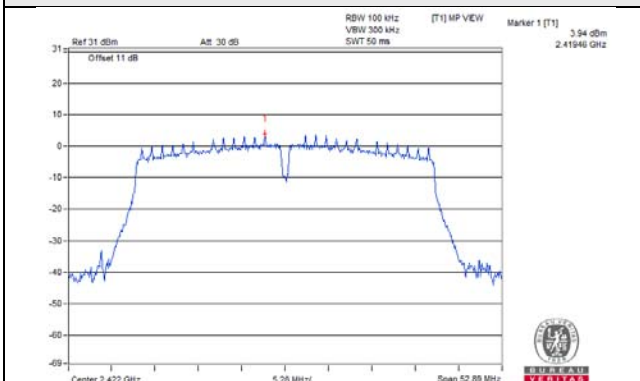


CH 9 Band edge

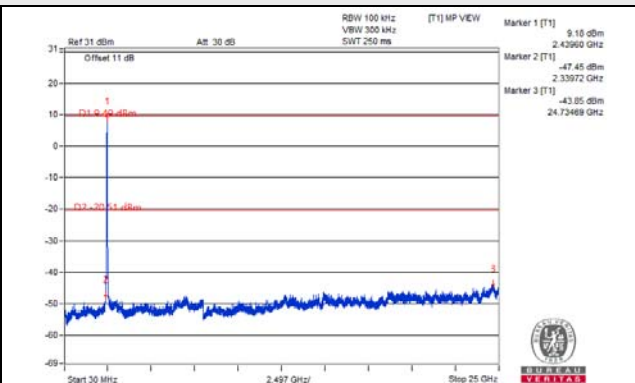
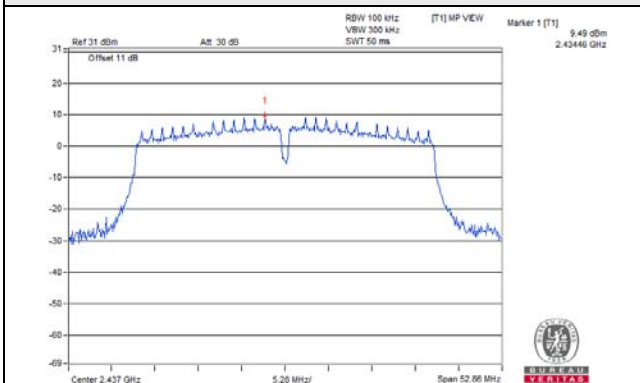


VHT40\_Chain 1

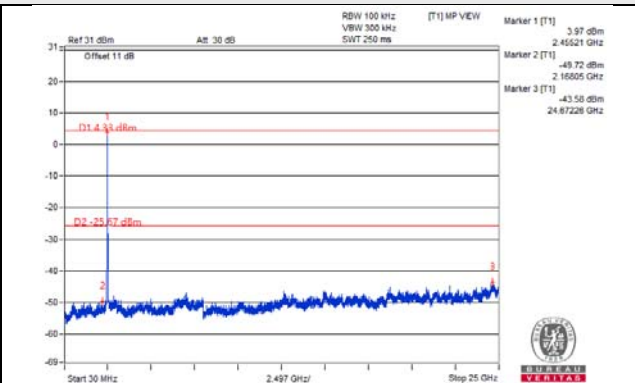
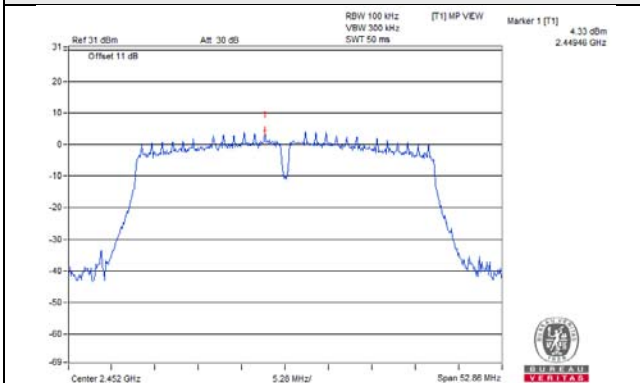
CH 3



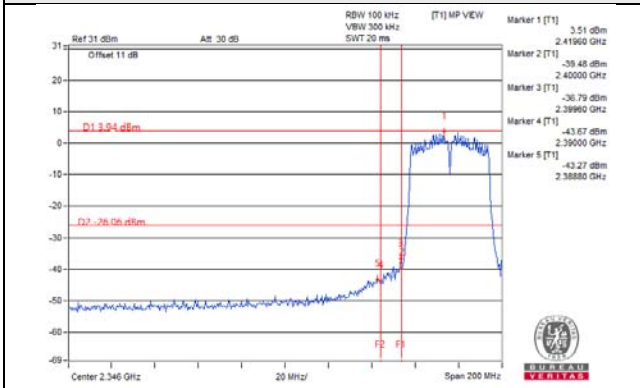
CH 6



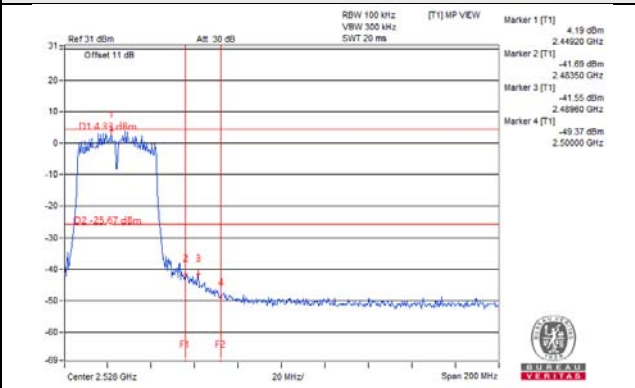
CH 9



CH 3 Band edge

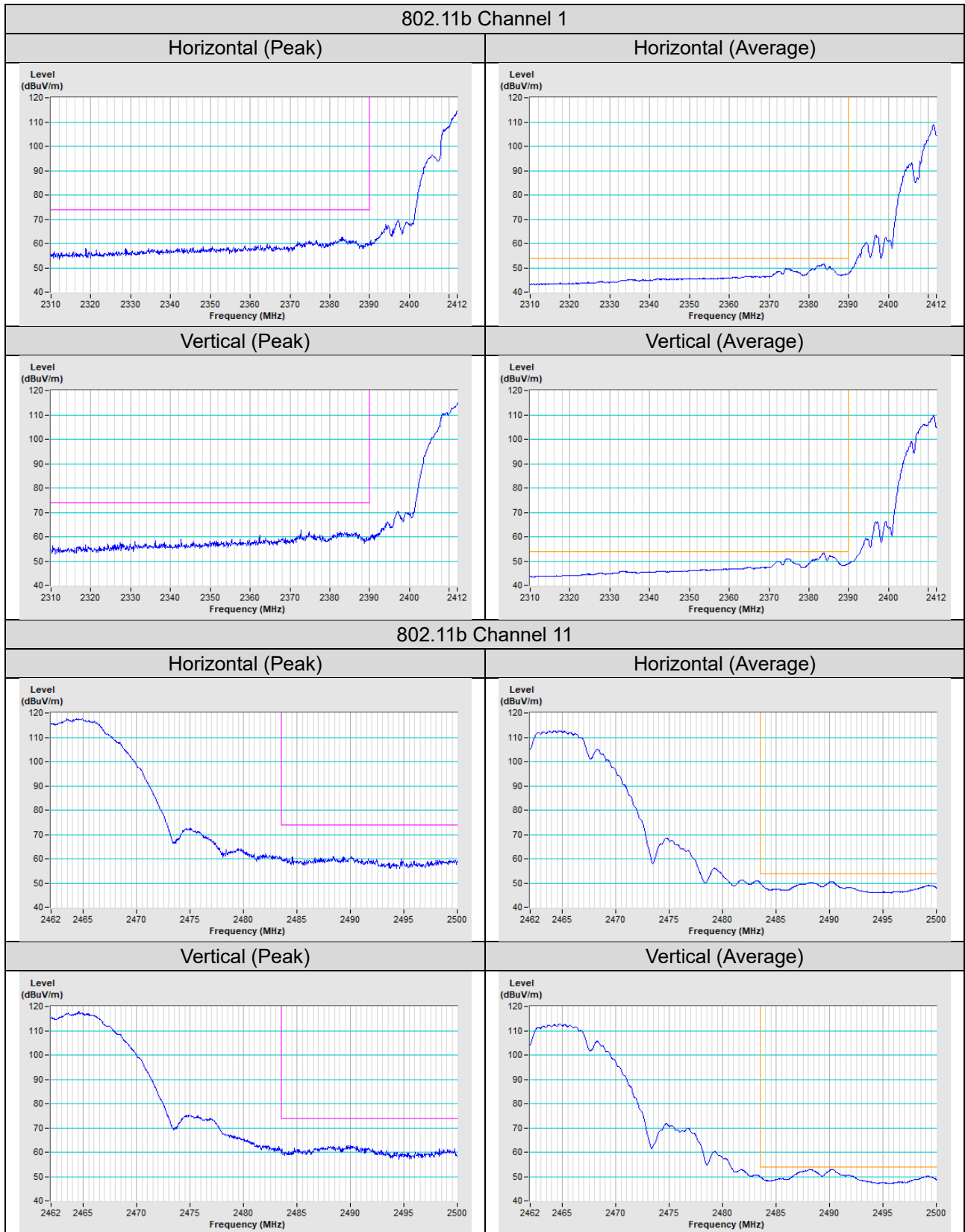


CH 9 Band edge



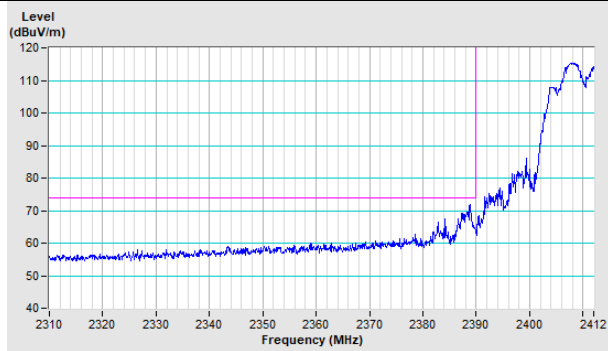


### Annex A - Band Edge Measurement

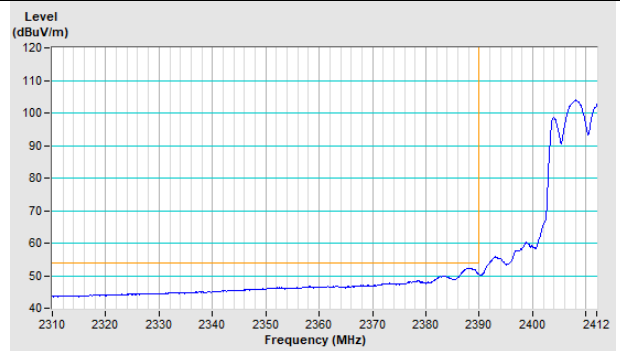


### 802.11g Channel 1

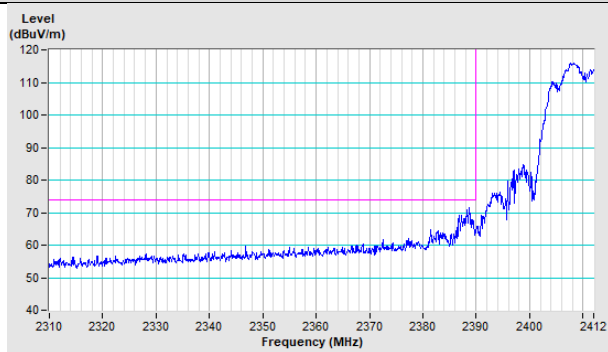
Horizontal (Peak)



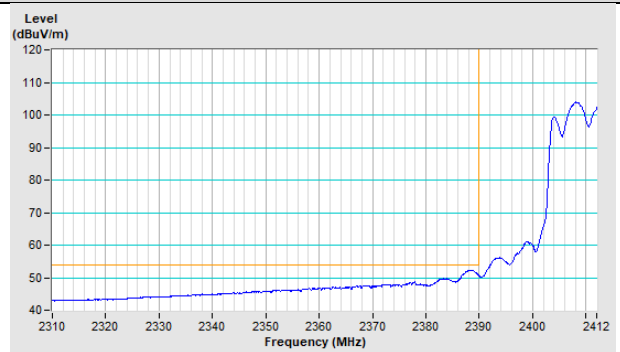
Horizontal (Average)



Vertical (Peak)

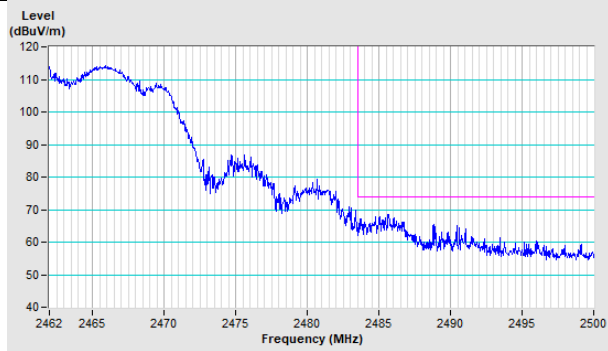


Vertical (Average)

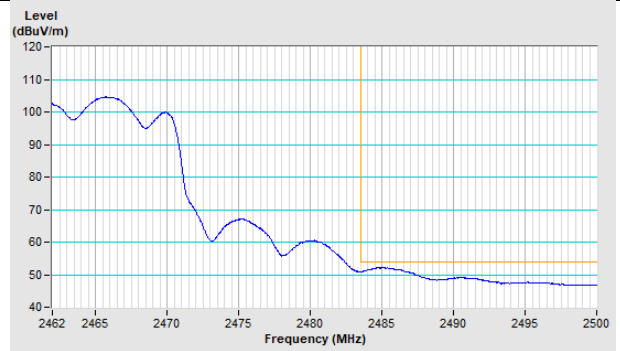


### 802.11g Channel 11

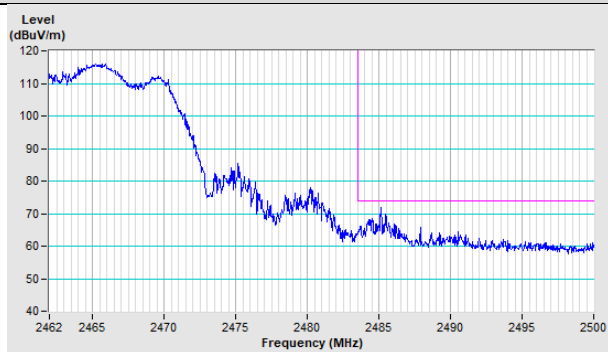
Horizontal (Peak)



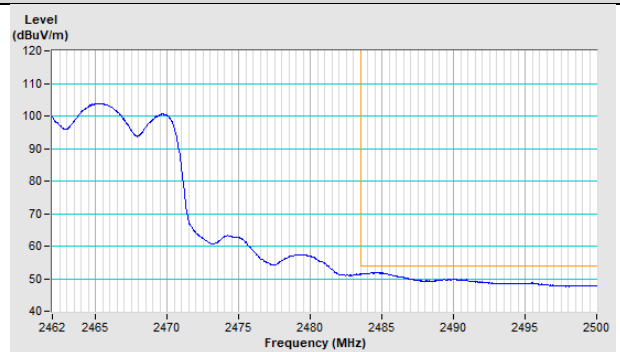
Horizontal (Average)



Vertical (Peak)

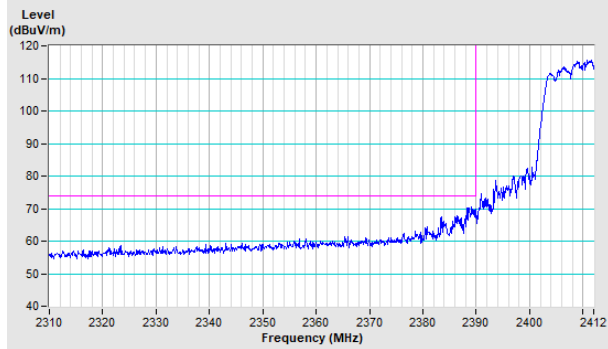


Vertical (Average)

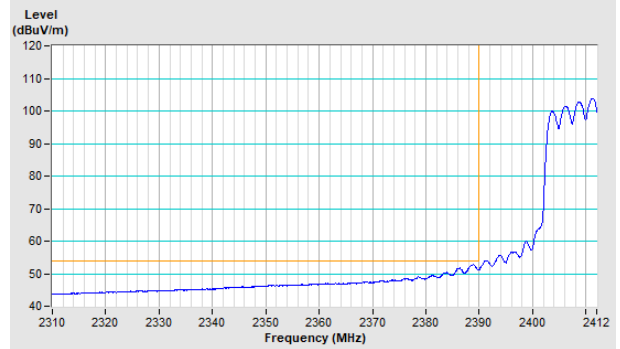


### VHT20 Channel 1

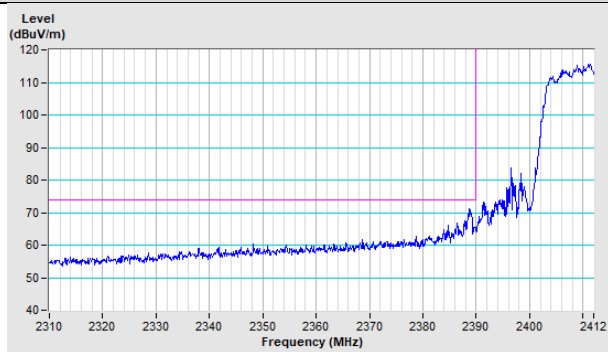
Horizontal (Peak)



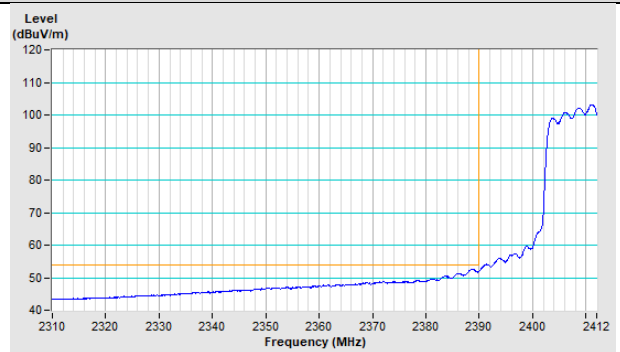
Horizontal (Average)



Vertical (Peak)

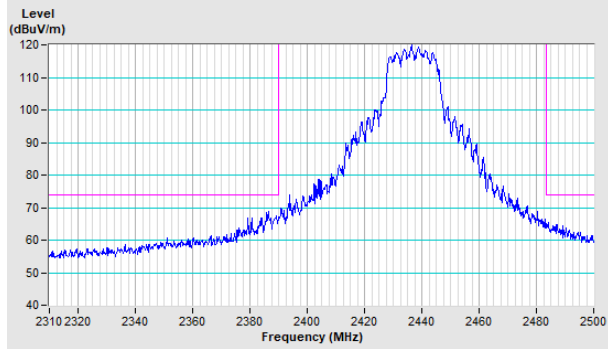


Vertical (Average)

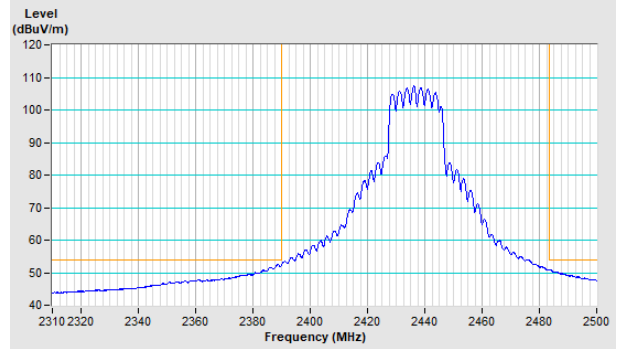


### VHT20 Channel 6

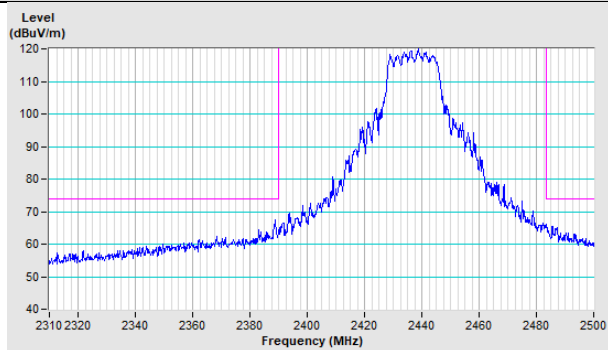
Horizontal (Peak)



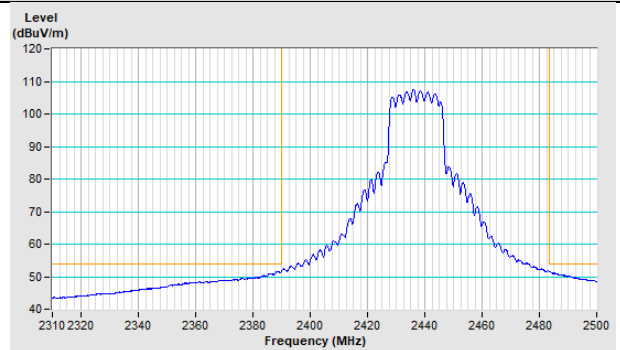
Horizontal (Average)



Vertical (Peak)

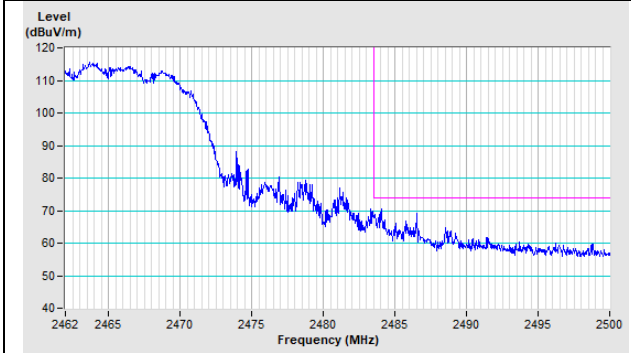


Vertical (Average)

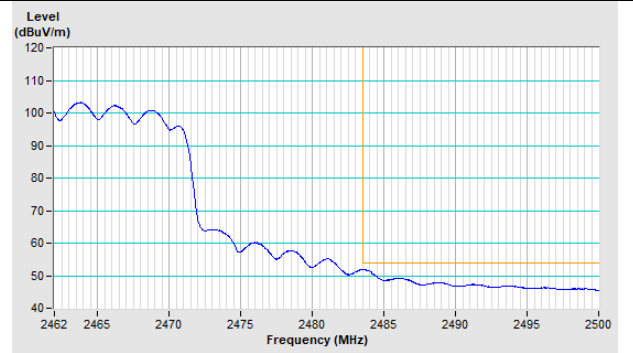


### VHT20 Channel 11

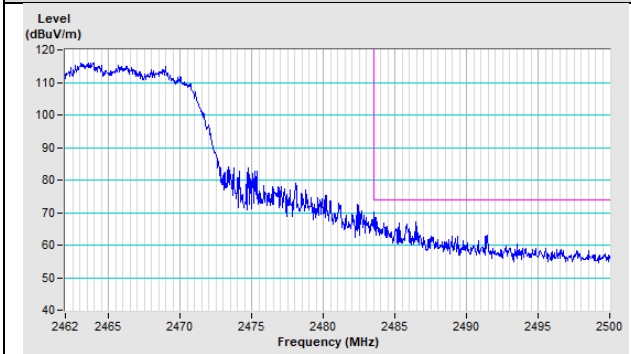
Horizontal (Peak)



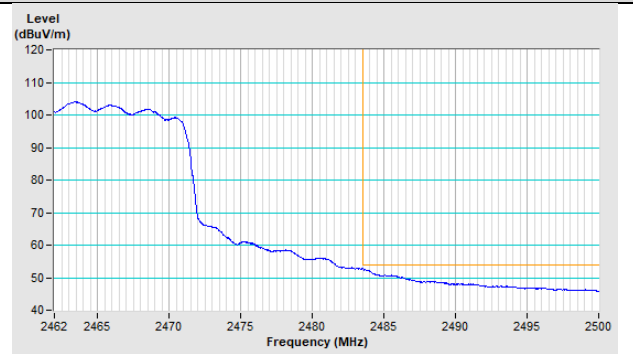
Horizontal (Average)



Vertical (Peak)

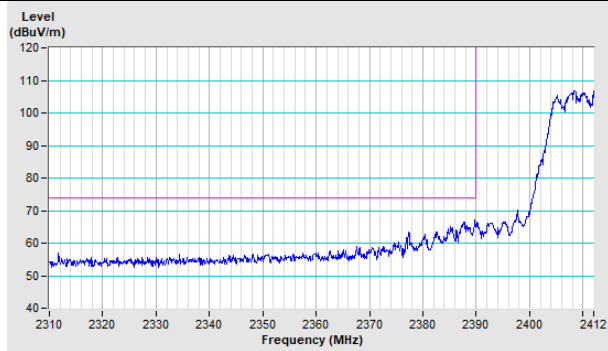


Vertical (Average)

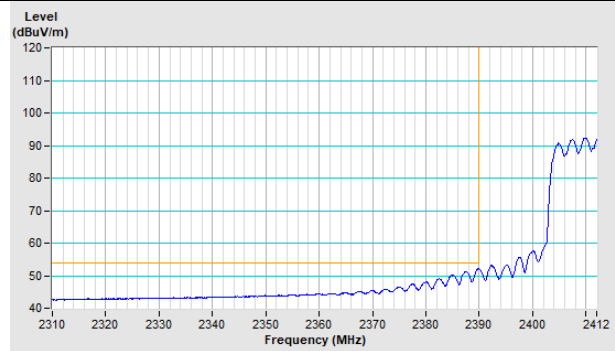


### VHT40 Channel 3

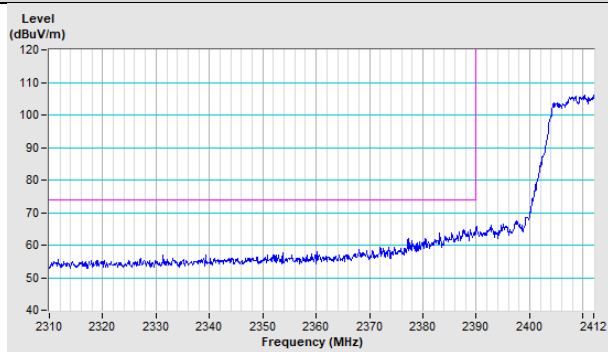
Horizontal (Peak)



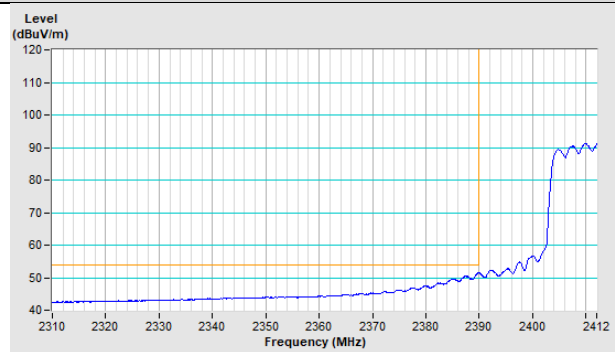
Horizontal (Average)



Vertical (Peak)

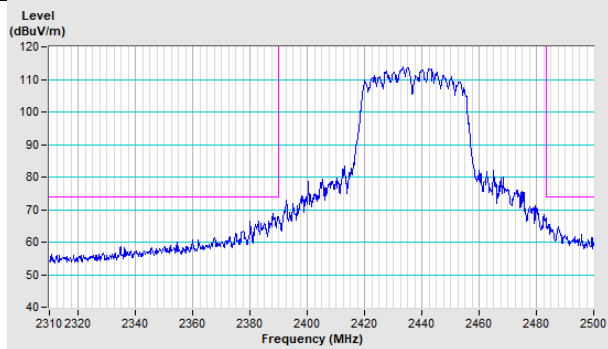


Vertical (Average)

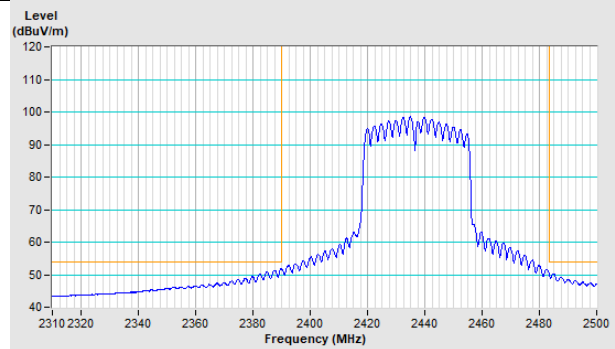


### VHT40 Channel 6

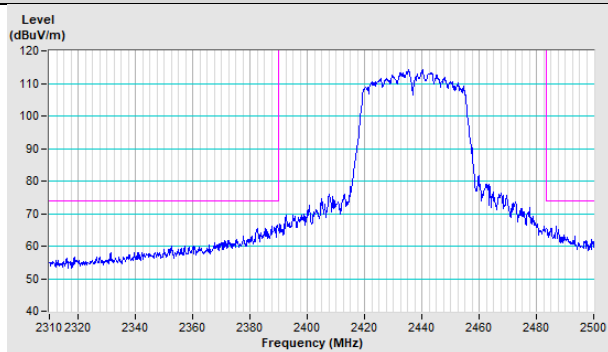
Horizontal (Peak)



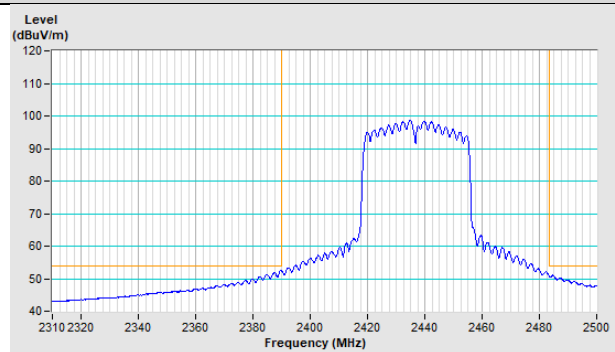
Horizontal (Average)



Vertical (Peak)

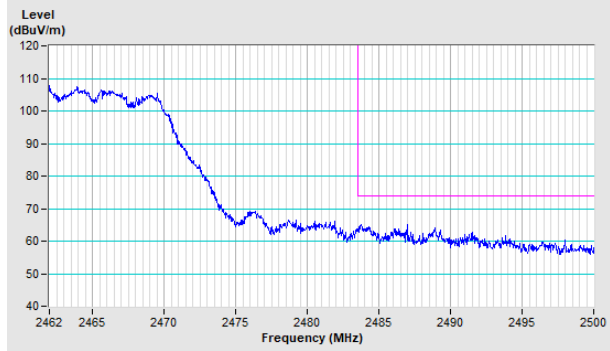


Vertical (Average)

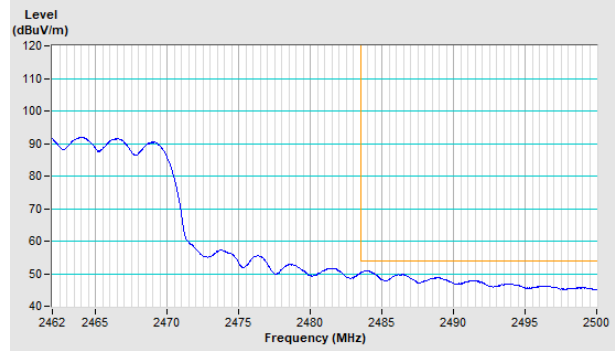


### VHT40 Channel 9

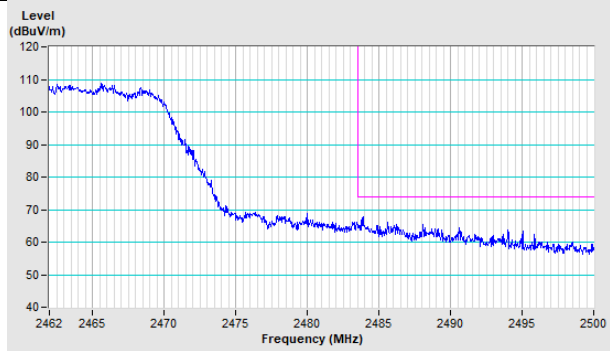
Horizontal (Peak)



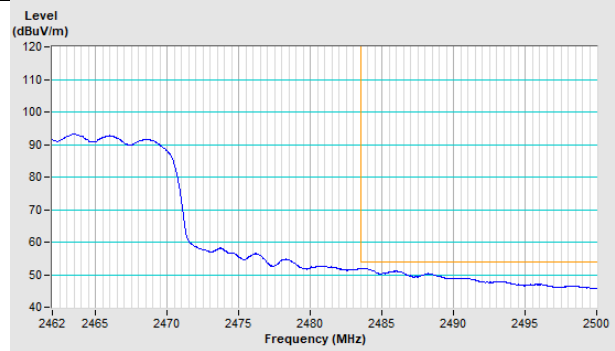
Horizontal (Average)



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

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