

## FCC Test Report

**Report No.:** RFBCKS-WTW-P21061072

**FCC ID:** 2AWHPR201

**Test Model:** UTR-201

**Received Date:** June 29, 2021

**Test Date:** July 16 to 30, 2021

**Issued Date:** Aug. 20, 2021

**Applicant:** Space Exploration Technologies Corp.

**Address:** 1 Rocket Rd., Hawthorne, CA 90250 USA

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Hsin Chu Laboratory

**Lab Address:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
Taiwan

**Test Location :** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,  
Taiwan

**FCC Registration /  
Designation Number:** 723255 / TW2022



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification.

## Table of Contents

<b>Release Control Record</b> .....	<b>3</b>
<b>1 Certificate of Conformity</b> .....	<b>4</b>
<b>2 Summary of Test Results</b> .....	<b>5</b>
2.1 Measurement Uncertainty.....	5
2.2 Modification Record.....	5
<b>3 General Information</b> .....	<b>6</b>
3.1 General Description of EUT.....	6
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.....	14
3.5 General Description of Applied Standards and references.....	15
<b>4 Test Types and Results</b> .....	<b>16</b>
4.1 Radiated Emission and Bandedge Measurement.....	16
4.1.1 Limits of Radiated Emission and Bandedge Measurement.....	16
4.1.2 Test Instruments.....	17
4.1.3 Test Procedures.....	19
4.1.4 Deviation from Test Standard.....	20
4.1.5 Test Setup.....	20
4.1.6 EUT Operating Conditions.....	21
4.1.7 Test Results.....	22
4.2 Conducted Emission Measurement.....	36
4.2.1 Limits of Conducted Emission Measurement.....	36
4.2.2 Test Instruments.....	36
4.2.3 Test Procedures.....	37
4.2.4 Deviation from Test Standard.....	37
4.2.5 Test Setup.....	37
4.2.6 EUT Operating Conditions.....	37
4.2.7 Test Results.....	38
4.3 Conducted Output Power Measurement.....	40
4.3.1 Limits of Conducted Output Power Measurement.....	40
4.3.2 Test Setup.....	40
4.3.3 Test Instruments.....	40
4.3.4 Test Procedures.....	40
4.3.5 Deviation from Test Standard.....	40
4.3.6 EUT Operating Conditions.....	40
4.3.7 Test Results.....	41
<b>5 Pictures of Test Arrangements</b> .....	<b>43</b>
<b>Annex A - Band-Edge Measurement</b> .....	<b>44</b>
<b>Appendix – Information of the Testing Laboratories</b> .....	<b>48</b>

### Release Control Record

Issue No.	Description	Date Issued
RFBCKS-WTW-P21061072	Original release.	Aug. 20, 2021

## 1 Certificate of Conformity

**Product:** Starlink Router

**Brand:** SPACEX,



**Test Model:** UTR-201

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** Space Exploration Technologies Corp.

**Test Date:** July 16 to 30, 2021

**Standards:** 47 CFR FCC Part 15, Subpart C (Section 15.247)  
ANSI C63.10: 2013

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

**Prepared by :** Vivian Huang , **Date:** Aug. 20, 2021  
Vivian Huang / Specialist

**Approved by :** Clark Lin , **Date:** Aug. 20, 2021  
Clark Lin / Technical Manager

## 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 -10.13 dB at 0.15391 MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.1 dB at 4874.00MHz
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	NA	Refer to Note 1 below
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	NA	Refer to Note 1 below
15.203	Antenna Requirement	PASS	No antenna connector is used.

### Note:

1. AC Power Conducted Emission & Radiated Emissions Measurement & Conducted power were performed for this addendum. The others testing data refer to original test report.
2. For 2.4GHz 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.
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) ( $\pm$ )
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.9 dB
Conducted Emissions	-	2.5 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.1 dB
	30MHz ~ 1GHz	5.4 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.0 dB
	18GHz ~ 40GHz	5.3 dB

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

Product	Starlink Router
Brand	SPACEX, 
Test Model	UTR-201
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	56Vdc from PoE adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode and VHT20/40 in 2.4GHz
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11 Mbps 802.11a/g: up to 54 Mbps 802.11n: up to 300 Mbps 802.11ac: up to 866.7 Mbps
Operating Frequency	<b>2.4GHz:</b> 2.412GHz ~ 2.462GHz <b>5GHz:</b> 5.18 ~ 5.24GHz, 5.26 ~ 5.32 GHz, 5.50~5.72GHz, 5.745 ~ 5.825GHz
Number of Channel	<b>2.4GHz:</b> 802.11b, 802.11g, 802.11n (HT20), VHT20: 11 802.11n (HT40), VHT40: 7 <b>5GHz:</b> 802.11a, 802.11n (HT20), 802.11ac (VHT20): 25 802.11n (HT40), 802.11ac (VHT40): 12 802.11ac (VHT80): 6
Output Power	<b>CDD Mode:</b> <b>2.412 ~ 2.462 GHz:</b> 882.202 mW <b>5.18 ~ 5.24 GHz:</b> 744.049 mW <b>5.26 ~ 5.32GHz:</b> 233.326 mW <b>5.5 ~ 5.72GHz:</b> 238.065 mW <b>5.745 ~ 5.825 GHz:</b> 726.102 mW <b>Beamforming Mode:</b> <b>2.412 ~ 2.462 GHz:</b> 677.871 mW <b>5.18 ~ 5.24 GHz:</b> 744.049 mW <b>5.26 ~ 5.32GHz:</b> 232.062 mW <b>5.5 ~ 5.72GHz:</b> 238.065 mW <b>5.745 ~ 5.825 GHz:</b> 726.102mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	PoE adapter x 1
Data Cable Supplied	RJ45 cable x1 (shielded, 210cm)

Note:

1. This report is prepared for FCC Class II permissive change. The difference compared with the Report No.: RF200522E11 design is as the following information:

- ◆ Added two new sources for both Main Board / Crystal (only difference is manufactory), below the following:

	Brand	Model
PCB 1	COMPEQ	48SAQ460.0GBKOM
PCB 2	CPC	48SAQ460.0GBCPC
Crystal 1	Kyocera	CX2016DB48000E0DLFA1
Crystal 2	TXC	8Y48090008

- ◆ Added 2<sup>nd</sup> PoE, below the following:

**Original**

No.	Brand	Model No.	Spec.
1	Acbel	UTP-201A	AC Input: 100-240Vac, 2.5A, 50-60Hz DC Output: 56V, 0.3A

**Newly**

No.	Brand	Model No.	Spec.
2	Sysgration	UTP-201S	AC Input: 100-240Vac, 2.5A, 50-60Hz DC Output: 56V, 0.3A

2. According to the above conditions, only conducted power & conducted emission & radiated emissions and band edge test items need to be performed. And all data was verified to meet the requirements.

3. The EUT has two radios as following table:

Radio 1	Radio 2
WLAN 2.4GHz	WLAN 5GHz

4. Simultaneously transmission condition.

Condition	Technology
1	WLAN (2.4GHz)      WLAN (5GHz)

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

5. The antennas provided to the EUT, please refer to the following table:

Antenna NO.	Antenna Net Gain(dBi)	Frequency range	Antenna Type	Connector Type	Cable Length (mm)
1	1.4	2.4~2.4835GHz	PCB	None	NA
	2.3	5.15~5.85GHz			
2	2.3	2.4~2.4835GHz	PCB	None	NA
	3.6	5.15~5.85GHz			

6. The EUT was pre-tested for conducted emissions & radiated emissions test under following test modes:

Pre-test Mode	Description
Sample 1	CPC PCB+ 2nd crystal (TXC) ; PoE Adapter : UTP-201S
<b>Sample 2</b>	<b>Compaq PCB + 2nd crystal (TXC) ; PoE Adapter : UTP-201S</b>
Sample 3	CPC PCB + 1st crystal (Kyocera) ; PoE Adapter : UTP-201S

The worst conducted emissions & radiated emissions were found in **Sample 2**. Therefore only the test data of the mode was recorded in this report.

7. The EUT incorporates a MIMO function:

2.4GHz Band		
MODULATION MODE	TX & RX CONFIGURATION	
802.11b	2TX	2RX
802.11g	2TX	2RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
VHT20	2TX	2RX
VHT40	2TX	2RX
5GHz Band		
MODULATION MODE	TX & RX CONFIGURATION	
802.11a	2TX	2RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
802.11ac (VHT20)	2TX	2RX
802.11ac (VHT40)	2TX	2RX
802.11ac (VHT80)	2TX	2RX

Note:

- All of modulation mode support beamforming function except 802.11a/b/g modulation mode.
  - The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report.
  - The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and VHT mode for 20MHz (40MHz), therefore the manufacturer will control the 802.11n mode power as same as VHT and investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)
8. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.
9. 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.



### 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

#### **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.

CDD Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
VHT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
VHT40	3 to 9	3, 6, 9	OFDM	BPSK	13.5

#### **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.

CDD Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1	DSSS	DBPSK	1

#### **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.

CDD Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1	DSSS	DBPSK	1

**Antenna Port Conducted Measurement:**

- 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.

<b>CDD Mode</b>					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
VHT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
VHT40	3 to 9	3, 6, 9	OFDM	BPSK	13.5
<b>Beamforming Mode (output power only)</b>					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
VHT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
VHT40	3 to 9	3, 6, 9	OFDM	BPSK	13.5

**Test Condition:**

Applicable To	Environmental Conditions	Input Power	Tested By
RE $\geq$ 1G	25deg. C, 66%RH	120Vac, 60Hz	Tom Yang
RE $<$ 1G	25deg. C, 66%RH	120Vac, 60Hz	Tom Yang
PLC	25deg. C, 66%RH	120Vac, 60Hz	Tom Yang
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen

### 3.3 Duty Cycle of Test Signal

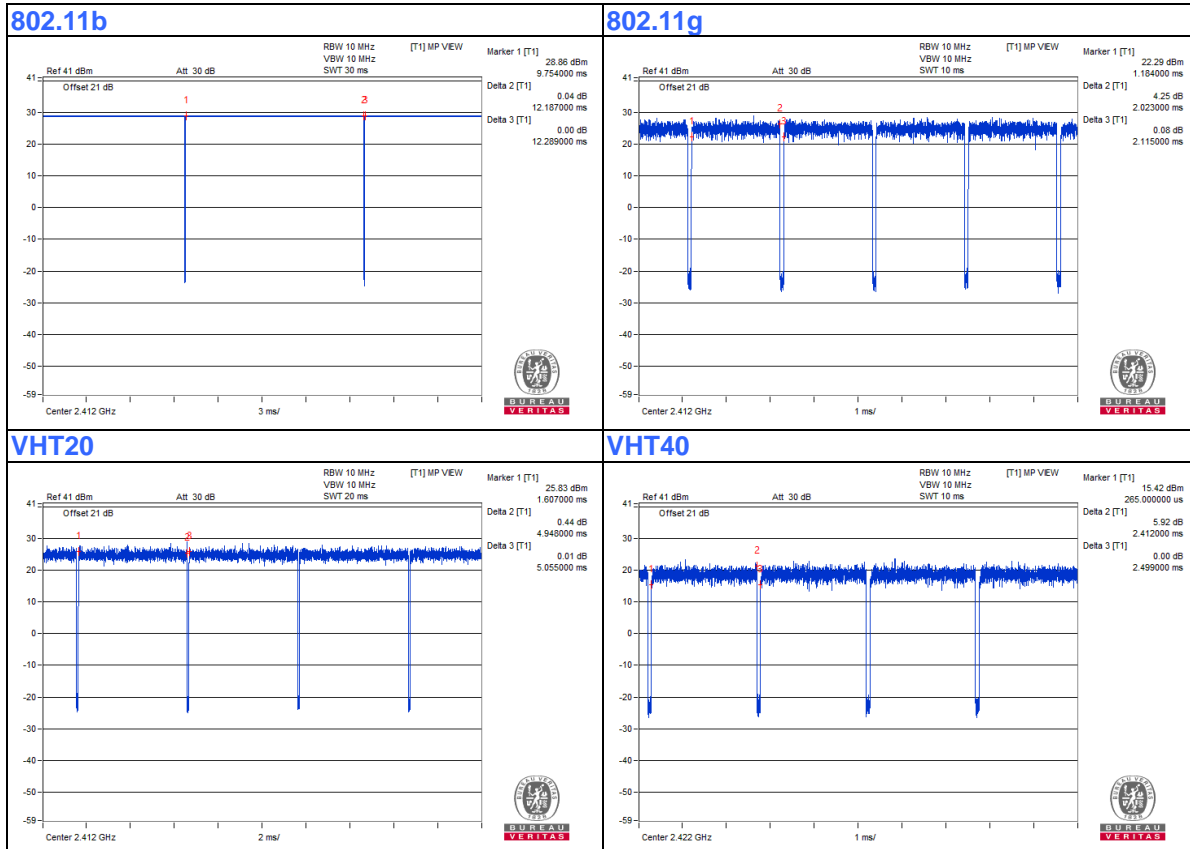
If duty cycle of test signal is  $\geq 98\%$ , duty factor is not required.  
 If duty cycle of test signal is  $< 98\%$ , duty factor shall be considered.

**802.11b:** Duty cycle =  $12.187/12.289 = 0.992$

**802.11g:** Duty cycle =  $2.023/2.115 = 0.957$ , Duty factor =  $10 * \log(1/\text{Duty cycle}) = 0.19 \text{ dB}$

**VHT20:** Duty cycle =  $4.948/5.055 = 0.979$ , Duty factor =  $10 * \log(1/\text{Duty cycle}) = 0.09 \text{ dB}$

**VHT40:** Duty cycle =  $2.412/2.499 = 0.965$ , Duty factor =  $10 * \log(1/\text{Duty cycle}) = 0.15 \text{ dB}$



### 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.

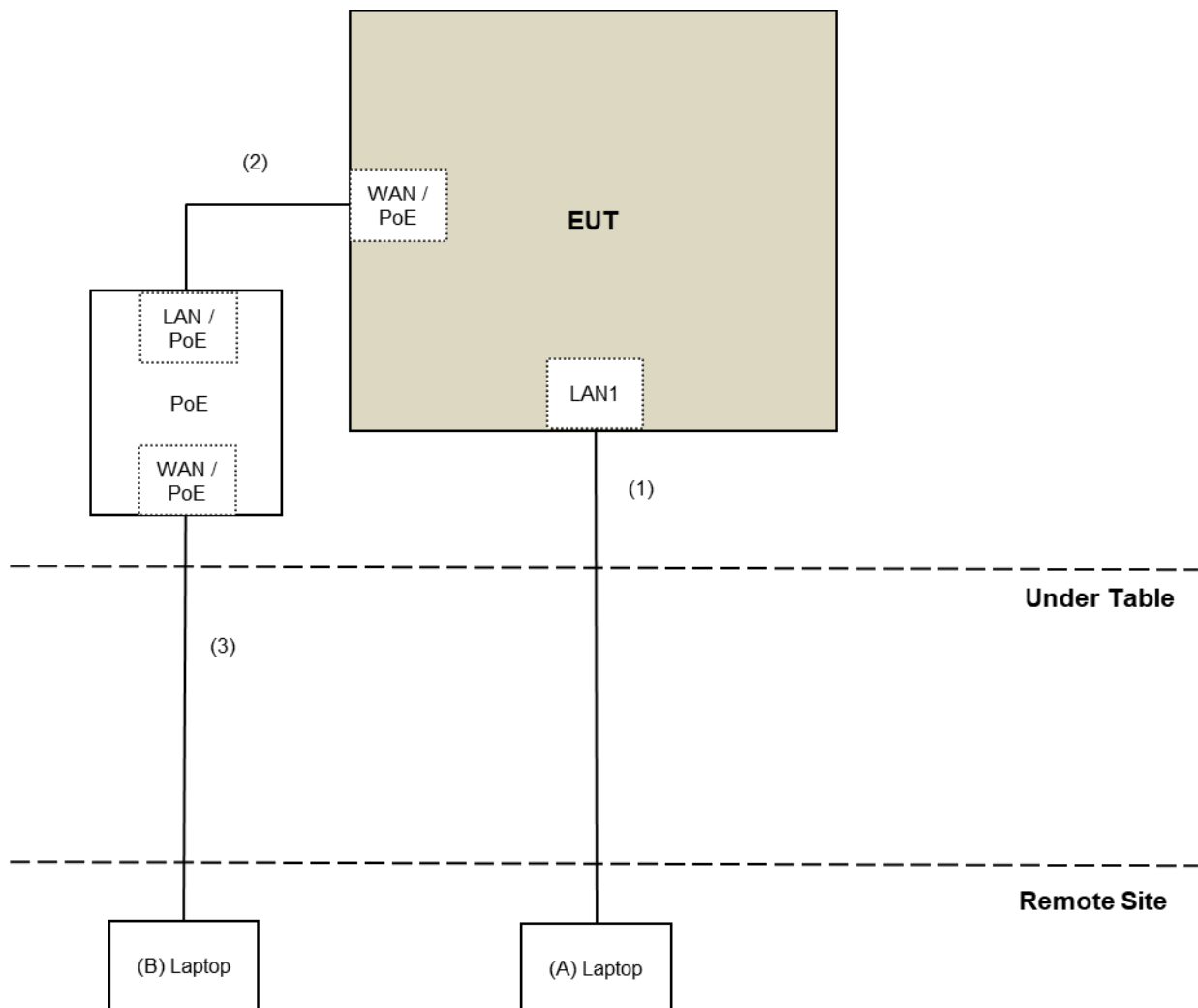
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	E5430	4YV4VY1	FCC DoC	Provided by Lab
B.	Laptop	DELL	E5430	HYV4VY1	FCC DoC	Provided by Lab

Note:

1. 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.	RJ-45 Cable	1	10	Yes	0	Provided by Lab
2.	RJ-45 Cable	1	2.1	Yes	0	Supplied by client
3.	RJ-45 Cable	1	10	Yes	0	Provided by Lab

### 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

**For Radiated Emission & Bandedge test:**

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 06, 2021	July 05, 2022
Pre-Amplifier EMCI	EMC001340	980142	May 24, 2021	May 23, 2022
Loop Antenna Electro-Metrics	EM-6879	264	Mar. 05, 2021	Mar. 04, 2022
RF Cable	5D-FB	LOOPCAB-001	Jan. 07, 2021	Jan. 06, 2022
RF Cable	5D-FB	LOOPCAB-002	Jan. 07, 2021	Jan. 06, 2022
Pre-Amplifier Mini-Circuits	ZFL-1000VH2	QA0838008	Oct. 20, 2020	Oct. 19, 2021
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Nov. 05, 2020	Nov. 04, 2021
RF Cable	8D	966-3-1	Mar. 16, 2021	Mar. 15, 2022
RF Cable	8D	966-3-2	Mar. 16, 2021	Mar. 15, 2022
RF Cable	8D	966-3-3	Mar. 16, 2021	Mar. 15, 2022
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Sep. 24, 2020	Sep. 23, 2021
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Nov. 22, 2020	Nov. 21, 2021
Pre-Amplifier EMCI	EMC12630SE	980384	Jan. 11, 2021	Jan. 10, 2022
RF Cable	EMC104-SM-SM-1500	180504	Apr. 26, 2021	Apr. 25, 2022
RF Cable	EMC104-SM-SM-2000	180601	June 08, 2021	June 07, 2022
RF Cable	EMC104-SM-SM-6000	210201	May 13, 2021	May 12, 2022
Spectrum Analyzer Keysight	N9030A	MY54490679	July 09, 2021	July 08, 2022
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 11, 2021	Jan. 10, 2022
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 22, 2020	Nov. 21, 2021
RF Cable	EMC102-KM-KM-1200	160924	Jan. 11, 2021	Jan. 10, 2022
RF Cable	EMC-KM-KM-4000	200214	Mar. 10, 2021	Mar. 09, 2022
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	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 966 Chamber No. 3.
3. Tested Date: July 16 to 21, 2021

**For other test:**

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSV40	100964	Mar. 08, 2021	Mar. 07, 2022
Power meter Anritsu	ML2495A	1529002	June 21, 2021	June 20, 2022
Power sensor Anritsu	MA2411B	1339443	May 31, 2021	May 30, 2022
10dB Attenuator Woken	MDCS18N-10	MDCS18N-10-01	Apr. 13, 2021	Apr. 12, 2022
Software	ADT_RF Test Software V6.6.5.4	NA	NA	NA

- NOTE:**
1. The test was performed in Oven room 2.
  2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
  3. Tested Date: July 30, 2021

#### 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 detects 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:**

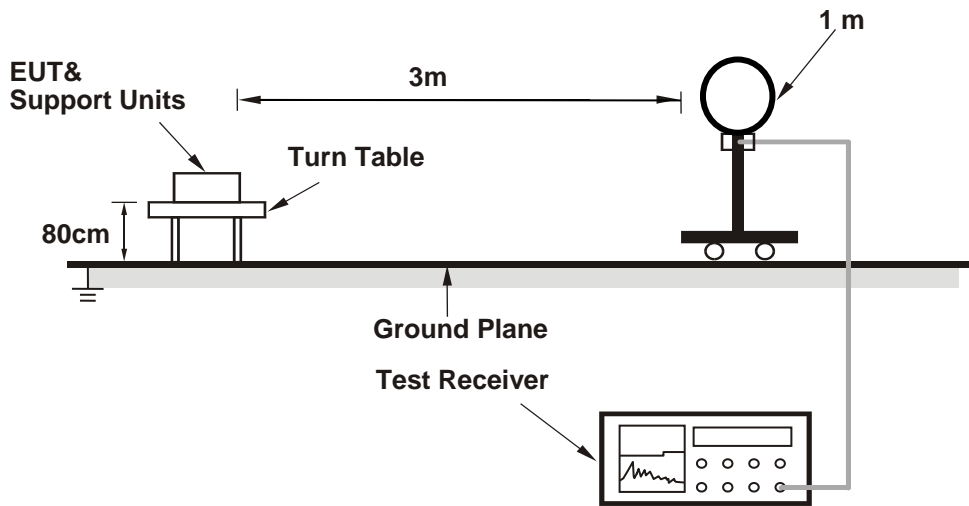
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

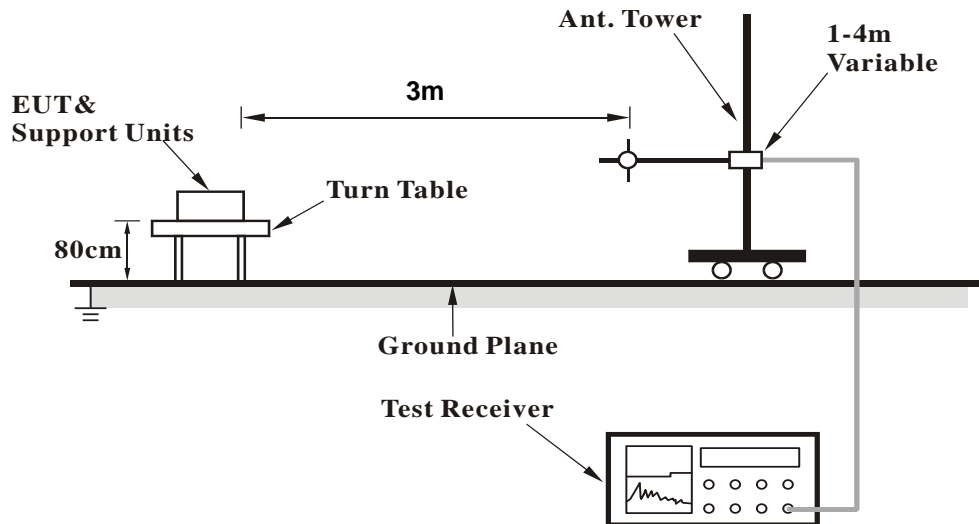
No deviation.

4.1.5 Test Setup

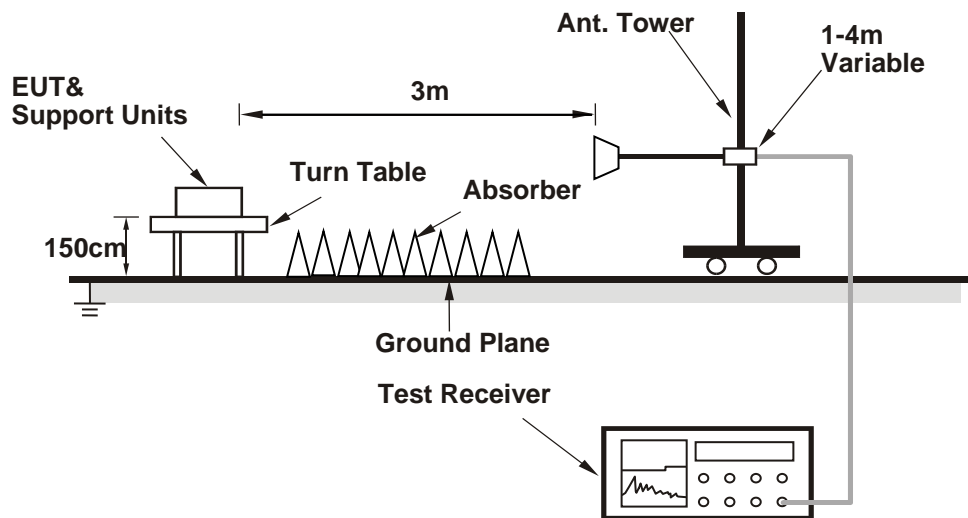
**For Radiated emission below 30MHz**



**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. Connected the EUT with the Laptop which is placed on remote site.
- b. Controlling software (QDART\_Installer\_00037.1) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz Data :

<b>RF Mode</b>	TX 802.11b	<b>Channel</b>	CH 1 : 2412 MHz
<b>Frequency Range</b>	1GHz ~ 25GHz	<b>Detector Function</b>	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	2374.80	56.2 PK	74.0	-17.8	2.19 H	83	57.4	-1.2
2	2374.80	44.1 AV	54.0	-9.9	2.19 H	83	45.3	-1.2
3	*2412.00	115.8 PK			2.19 H	83	117.0	-1.2
4	*2412.00	113.5 AV			2.19 H	83	114.7	-1.2
5	4824.00	52.6 PK	74.0	-21.4	2.20 H	257	48.9	3.7
6	4824.00	51.3 AV	54.0	-2.7	2.20 H	257	47.6	3.7

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	2334.30	56.6 PK	74.0	-17.4	1.11 V	141	57.7	-1.1
2	2334.30	43.7 AV	54.0	-10.3	1.11 V	141	44.8	-1.1
3	*2412.00	110.8 PK			1.11 V	141	112.0	-1.2
4	*2412.00	108.3 AV			1.11 V	141	109.5	-1.2
5	4824.00	54.9 PK	74.0	-19.1	1.88 V	268	51.2	3.7
6	4824.00	53.7 AV	54.0	-0.3	1.88 V	268	50.0	3.7

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.

<b>RF Mode</b>	TX 802.11b	<b>Channel</b>	CH 6 : 2437 MHz
<b>Frequency Range</b>	1GHz ~ 25GHz	<b>Detector Function</b>	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	52.4 PK	74.0	-21.6	2.19 H	98	53.6	-1.2
2	2390.00	40.9 AV	54.0	-13.1	2.19 H	98	42.1	-1.2
3	*2437.00	113.0 PK			2.19 H	98	114.2	-1.2
4	*2437.00	110.5 AV			2.19 H	98	111.7	-1.2
5	2483.50	52.5 PK	74.0	-21.5	2.19 H	98	53.7	-1.2
6	2483.50	41.2 AV	54.0	-12.8	2.19 H	98	42.4	-1.2
7	4874.00	55.9 PK	74.0	-18.1	2.18 H	260	52.1	3.8
<b>8</b>	<b>4874.00</b>	<b>53.9 AV</b>	<b>54.0</b>	<b>-0.1</b>	<b>2.18 H</b>	<b>260</b>	<b>50.1</b>	<b>3.8</b>
9	7311.00	44.0 PK	74.0	-30.0	1.99 H	121	34.3	9.7
10	7311.00	31.9 AV	54.0	-22.1	1.99 H	121	22.2	9.7

**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	50.6 PK	74.0	-23.4	1.03 V	146	51.8	-1.2
2	2390.00	39.8 AV	54.0	-14.2	1.03 V	146	41.0	-1.2
3	*2437.00	111.3 PK			1.03 V	146	112.5	-1.2
4	*2437.00	108.6 AV			1.03 V	146	109.8	-1.2
5	2483.50	53.1 PK	74.0	-20.9	1.03 V	146	54.3	-1.2
6	2483.50	40.7 AV	54.0	-13.3	1.03 V	146	41.9	-1.2
7	4874.00	54.9 PK	74.0	-19.1	1.71 V	269	51.1	3.8
8	4874.00	53.4 AV	54.0	-0.6	1.71 V	269	49.6	3.8
9	7311.00	44.5 PK	74.0	-29.5	1.65 V	66	34.8	9.7
10	7311.00	31.9 AV	54.0	-22.1	1.65 V	66	22.2	9.7

**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.

<b>RF Mode</b>	TX 802.11b	<b>Channel</b>	CH 11 : 2462 MHz
<b>Frequency Range</b>	1GHz ~ 25GHz	<b>Detector Function</b>	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	112.4 PK			2.14 H	108	113.6	-1.2
2	*2462.00	110.1 AV			2.14 H	108	111.3	-1.2
3	2485.70	56.2 PK	74.0	-17.8	2.14 H	108	57.4	-1.2
4	2485.70	44.8 AV	54.0	-9.2	2.14 H	108	46.0	-1.2
5	4924.00	54.4 PK	74.0	-19.6	2.13 H	260	50.5	3.9
6	4924.00	52.6 AV	54.0	-1.4	2.13 H	260	48.7	3.9
7	7386.00	44.3 PK	74.0	-29.7	2.00 H	134	34.6	9.7
8	7386.00	32.0 AV	54.0	-22.0	2.00 H	134	22.3	9.7

**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	*2462.00	110.6 PK			1.02 V	144	111.8	-1.2
2	*2462.00	108.1 AV			1.02 V	144	109.3	-1.2
3	2486.30	55.9 PK	74.0	-18.1	1.02 V	144	57.1	-1.2
4	2486.30	44.0 AV	54.0	-10.0	1.02 V	144	45.2	-1.2
5	4924.00	55.4 PK	74.0	-18.6	1.82 V	265	51.5	3.9
6	4924.00	53.5 AV	54.0	-0.5	1.82 V	265	49.6	3.9
7	7386.00	44.5 PK	74.0	-29.5	1.62 V	55	34.8	9.7
8	7386.00	31.8 AV	54.0	-22.2	1.62 V	55	22.1	9.7

**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.



<b>RF Mode</b>	TX 802.11g	<b>Channel</b>	CH 1 : 2412 MHz
<b>Frequency Range</b>	1GHz ~ 25GHz	<b>Detector Function</b>	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	60.6 PK	74.0	-13.4	2.06 H	98	61.8	-1.2
2	2390.00	47.7 AV	54.0	-6.3	2.06 H	98	48.9	-1.2
3	*2412.00	112.9 PK			2.06 H	98	114.1	-1.2
4	*2412.00	102.3 AV			2.06 H	98	103.5	-1.2
5	4824.00	48.7 PK	74.0	-25.3	2.16 H	266	45.0	3.7
6	4824.00	37.9 AV	54.0	-16.1	2.16 H	266	34.2	3.7

**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	61.0 PK	74.0	-13.0	1.12 V	144	62.2	-1.2
2	2390.00	46.7 AV	54.0	-7.3	1.12 V	144	47.9	-1.2
3	*2412.00	111.2 PK			1.12 V	144	112.4	-1.2
4	*2412.00	101.0 AV			1.12 V	144	102.2	-1.2
5	4824.00	50.2 PK	74.0	-23.8	1.76 V	264	46.5	3.7
6	4824.00	38.7 AV	54.0	-15.3	1.76 V	264	35.0	3.7

**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.

<b>RF Mode</b>	TX 802.11g	<b>Channel</b>	CH 6 : 2437 MHz
<b>Frequency Range</b>	1GHz ~ 25GHz	<b>Detector Function</b>	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	55.2 PK	74.0	-18.8	2.06 H	89	56.4	-1.2
2	2390.00	43.7 AV	54.0	-10.3	2.06 H	89	44.9	-1.2
3	*2437.00	114.4 PK			2.06 H	89	115.6	-1.2
4	*2437.00	104.5 AV			2.06 H	89	105.7	-1.2
5	2483.50	56.1 PK	74.0	-17.9	2.06 H	89	57.3	-1.2
6	2483.50	42.9 AV	54.0	-11.1	2.06 H	89	44.1	-1.2
7	4874.00	52.9 PK	74.0	-21.1	2.12 H	253	49.1	3.8
8	4874.00	41.7 AV	54.0	-12.3	2.12 H	253	37.9	3.8
9	7311.00	45.4 PK	74.0	-28.6	1.94 H	133	35.7	9.7
10	7311.00	32.5 AV	54.0	-21.5	1.94 H	133	22.8	9.7

**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	55.3 PK	74.0	-18.7	1.04 V	133	56.5	-1.2
2	2390.00	45.0 AV	54.0	-9.0	1.04 V	133	46.2	-1.2
3	*2437.00	114.6 PK			1.04 V	133	115.8	-1.2
4	*2437.00	102.4 AV			1.04 V	133	103.6	-1.2
5	2483.50	56.5 PK	74.0	-17.5	1.04 V	133	57.7	-1.2
6	2483.50	46.4 AV	54.0	-7.6	1.04 V	133	47.6	-1.2
7	4874.00	54.5 PK	74.0	-19.5	1.72 V	270	50.7	3.8
8	4874.00	42.7 AV	54.0	-11.3	1.72 V	270	38.9	3.8
9	7311.00	45.0 PK	74.0	-29.0	1.64 V	53	35.3	9.7
10	7311.00	32.1 AV	54.0	-21.9	1.64 V	53	22.4	9.7

**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.

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

**Antenna Polarity & Test Distance : Horizontal at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	110.7 PK			2.17 H	100	111.9	-1.2
2	*2462.00	100.2 AV			2.17 H	100	101.4	-1.2
3	2485.70	59.2 PK	74.0	-14.8	2.17 H	100	60.4	-1.2
4	2485.70	45.8 AV	54.0	-8.2	2.17 H	100	47.0	-1.2
5	4924.00	48.6 PK	74.0	-25.4	2.22 H	254	44.7	3.9
6	4924.00	37.5 AV	54.0	-16.5	2.22 H	254	33.6	3.9
7	7386.00	45.6 PK	74.0	-28.4	1.89 H	137	35.9	9.7
8	7386.00	32.8 AV	54.0	-21.2	1.89 H	137	23.1	9.7

**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	*2462.00	110.1 PK			1.08 V	143	111.3	-1.2
2	*2462.00	100.0 AV			1.08 V	143	101.2	-1.2
3	2483.50	59.8 PK	74.0	-14.2	1.08 V	143	61.0	-1.2
4	2483.50	47.0 AV	54.0	-7.0	1.08 V	143	48.2	-1.2
5	4924.00	50.8 PK	74.0	-23.2	1.76 V	275	46.9	3.9
6	4924.00	39.2 AV	54.0	-14.8	1.76 V	275	35.3	3.9
7	7386.00	45.1 PK	74.0	-28.9	1.62 V	64	35.4	9.7
8	7386.00	32.2 AV	54.0	-21.8	1.62 V	64	22.5	9.7

**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.

<b>RF Mode</b>	TX VHT20	<b>Channel</b>	CH 1 : 2412 MHz
<b>Frequency Range</b>	1GHz ~ 25GHz	<b>Detector Function</b>	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	59.1 PK	74.0	-14.9	2.21 H	101	60.3	-1.2
2	2390.00	48.2 AV	54.0	-5.8	2.21 H	101	49.4	-1.2
3	*2412.00	112.9 PK			2.21 H	101	114.1	-1.2
4	*2412.00	100.0 AV			2.21 H	101	101.2	-1.2
5	4824.00	49.0 PK	74.0	-25.0	2.28 H	244	45.3	3.7
6	4824.00	37.8 AV	54.0	-16.2	2.28 H	244	34.1	3.7

**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	1.09 V	144	60.7	-1.2
2	2390.00	46.0 AV	54.0	-8.0	1.09 V	144	47.2	-1.2
3	*2412.00	109.7 PK			1.09 V	144	110.9	-1.2
4	*2412.00	97.6 AV			1.09 V	144	98.8	-1.2
5	4824.00	51.2 PK	74.0	-22.8	1.72 V	261	47.5	3.7
6	4824.00	39.4 AV	54.0	-14.6	1.72 V	261	35.7	3.7

**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.

<b>RF Mode</b>	TX VHT20	<b>Channel</b>	CH 6 : 2437 MHz
<b>Frequency Range</b>	1GHz ~ 25GHz	<b>Detector Function</b>	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	55.3 PK	74.0	-18.7	2.15 H	102	56.5	-1.2
2	2390.00	43.5 AV	54.0	-10.5	2.15 H	102	44.7	-1.2
3	*2437.00	115.2 PK			2.15 H	102	116.4	-1.2
4	*2437.00	103.7 AV			2.15 H	102	104.9	-1.2
5	2483.50	56.7 PK	74.0	-17.3	2.15 H	102	57.9	-1.2
6	2483.50	43.4 AV	54.0	-10.6	2.15 H	102	44.6	-1.2
7	4874.00	52.9 PK	74.0	-21.1	2.10 H	253	49.1	3.8
8	4874.00	41.7 AV	54.0	-12.3	2.10 H	253	37.9	3.8
9	7311.00	45.2 PK	74.0	-28.8	1.89 H	124	35.5	9.7
10	7311.00	32.1 AV	54.0	-21.9	1.89 H	124	22.4	9.7

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	54.3 PK	74.0	-19.7	1.13 V	141	55.5	-1.2
2	2390.00	42.7 AV	54.0	-11.3	1.13 V	141	43.9	-1.2
3	*2437.00	112.7 PK			1.13 V	141	113.9	-1.2
4	*2437.00	101.1 AV			1.13 V	141	102.3	-1.2
5	2483.50	56.9 PK	74.0	-17.1	1.13 V	141	58.1	-1.2
6	2483.50	44.3 AV	54.0	-9.7	1.13 V	141	45.5	-1.2
7	4874.00	54.8 PK	74.0	-19.2	1.75 V	260	51.0	3.8
8	4874.00	42.8 AV	54.0	-11.2	1.75 V	260	39.0	3.8
9	7311.00	45.1 PK	74.0	-28.9	1.68 V	51	35.4	9.7
10	7311.00	32.0 AV	54.0	-22.0	1.68 V	51	22.3	9.7

**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.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	110.6 PK			2.00 H	97	111.8	-1.2
2	*2462.00	99.8 AV			2.00 H	97	101.0	-1.2
3	2483.50	58.2 PK	74.0	-15.8	2.00 H	97	59.4	-1.2
4	2483.50	47.0 AV	54.0	-7.0	2.00 H	97	48.2	-1.2
5	4924.00	48.6 PK	74.0	-25.4	2.23 H	256	44.7	3.9
6	4924.00	37.3 AV	54.0	-16.7	2.23 H	256	33.4	3.9
7	7386.00	46.0 PK	74.0	-28.0	1.90 H	138	36.3	9.7
8	7386.00	33.1 AV	54.0	-20.9	1.90 H	138	23.4	9.7

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	*2462.00	109.9 PK			1.12 V	143	111.1	-1.2
2	*2462.00	98.3 AV			1.12 V	143	99.5	-1.2
3	2483.50	60.2 PK	74.0	-13.8	1.12 V	143	61.4	-1.2
4	2483.50	47.1 AV	54.0	-6.9	1.12 V	143	48.3	-1.2
5	4924.00	50.2 PK	74.0	-23.8	1.80 V	289	46.3	3.9
6	4924.00	38.7 AV	54.0	-15.3	1.80 V	289	34.8	3.9
7	7386.00	44.5 PK	74.0	-29.5	1.61 V	51	34.8	9.7
8	7386.00	31.9 AV	54.0	-22.1	1.61 V	51	22.2	9.7

**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.

<b>RF Mode</b>	TX VHT40	<b>Channel</b>	CH 3 : 2422 MHz
<b>Frequency Range</b>	1GHz ~ 25GHz	<b>Detector Function</b>	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	58.8 PK	74.0	-15.2	2.16 H	97	60.0	-1.2
2	2390.00	46.3 AV	54.0	-7.7	2.16 H	97	47.5	-1.2
3	*2422.00	104.3 PK			2.16 H	97	105.5	-1.2
4	*2422.00	94.1 AV			2.16 H	97	95.3	-1.2
5	4844.00	45.7 PK	74.0	-28.3	2.20 H	254	41.9	3.8
6	4844.00	34.1 AV	54.0	-19.9	2.20 H	254	30.3	3.8
7	7266.00	46.3 PK	74.0	-27.7	1.95 H	146	36.8	9.5
8	7266.00	33.3 AV	54.0	-20.7	1.95 H	146	23.8	9.5

**Antenna Polarity & Test Distance : Vertical at 3 m**

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2387.50	57.2 PK	74.0	-16.8	1.12 V	143	58.4	-1.2
2	2387.50	44.8 AV	54.0	-9.2	1.12 V	143	46.0	-1.2
3	*2422.00	104.4 PK			1.12 V	143	105.6	-1.2
4	*2422.00	93.7 AV			1.12 V	143	94.9	-1.2
5	4844.00	47.5 PK	74.0	-26.5	1.77 V	278	43.7	3.8
6	4844.00	35.6 AV	54.0	-18.4	1.77 V	278	31.8	3.8
7	7266.00	44.6 PK	74.0	-29.4	1.60 V	63	35.1	9.5
8	7266.00	31.8 AV	54.0	-22.2	1.60 V	63	22.3	9.5

**Remarks:**

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

<b>RF Mode</b>	TX VHT40	<b>Channel</b>	CH 6 : 2437 MHz
<b>Frequency Range</b>	1GHz ~ 25GHz	<b>Detector Function</b>	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	56.9 PK	74.0	-17.1	2.12 H	99	58.1	-1.2
2	2390.00	46.3 AV	54.0	-7.7	2.12 H	99	47.5	-1.2
3	*2437.00	108.4 PK			2.12 H	99	109.6	-1.2
4	*2437.00	99.6 AV			2.12 H	99	100.8	-1.2
5	2483.50	56.2 PK	74.0	-17.8	2.12 H	99	57.4	-1.2
6	2483.50	45.7 AV	54.0	-8.3	2.12 H	99	46.9	-1.2
7	4874.00	48.1 PK	74.0	-25.9	2.18 H	243	44.3	3.8
8	4874.00	36.9 AV	54.0	-17.1	2.18 H	243	33.1	3.8
9	7311.00	46.2 PK	74.0	-27.8	1.86 H	147	36.5	9.7
10	7311.00	33.2 AV	54.0	-20.8	1.86 H	147	23.5	9.7

**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	55.7 PK	74.0	-18.3	1.12 V	155	56.9	-1.2
2	2390.00	45.1 AV	54.0	-8.9	1.12 V	155	46.3	-1.2
3	*2437.00	108.4 PK			1.12 V	155	109.6	-1.2
4	*2437.00	99.5 AV			1.12 V	155	100.7	-1.2
5	2483.50	56.2 PK	74.0	-17.8	1.12 V	155	57.4	-1.2
6	2483.50	46.2 AV	54.0	-7.8	1.12 V	155	47.4	-1.2
7	4874.00	50.3 PK	74.0	-23.7	1.75 V	302	46.5	3.8
8	4874.00	38.9 AV	54.0	-15.1	1.75 V	302	35.1	3.8
9	7311.00	44.1 PK	74.0	-29.9	1.59 V	42	34.4	9.7
10	7311.00	31.7 AV	54.0	-22.3	1.59 V	42	22.0	9.7

**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.



<b>RF Mode</b>	TX VHT40	<b>Channel</b>	CH 9 : 2452 MHz
<b>Frequency Range</b>	1GHz ~ 25GHz	<b>Detector Function</b>	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	104.5 PK			2.09 H	98	105.7	-1.2
2	*2452.00	94.4 AV			2.09 H	98	95.6	-1.2
3	2488.10	55.8 PK	74.0	-18.2	2.09 H	98	57.0	-1.2
4	2488.10	45.8 AV	54.0	-8.2	2.09 H	98	47.0	-1.2
5	2489.20	57.5 PK	74.0	-16.5	2.09 H	98	58.7	-1.2
6	2489.20	45.2 AV	54.0	-8.8	2.09 H	98	46.4	-1.2
7	4904.00	45.7 PK	74.0	-28.3	2.17 H	246	41.8	3.9
8	4904.00	33.8 AV	54.0	-20.2	2.17 H	246	29.9	3.9
9	7356.00	45.9 PK	74.0	-28.1	1.98 H	134	36.0	9.9
10	7356.00	32.9 AV	54.0	-21.1	1.98 H	134	23.0	9.9

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	104.9 PK			1.11 V	143	106.1	-1.2
2	*2452.00	94.3 AV			1.11 V	143	95.5	-1.2
3	2483.50	58.9 PK	74.0	-15.1	1.11 V	143	60.1	-1.2
4	2483.50	47.1 AV	54.0	-6.9	1.11 V	143	48.3	-1.2
5	4904.00	47.1 PK	74.0	-26.9	1.79 V	273	43.2	3.9
6	4904.00	35.2 AV	54.0	-18.8	1.79 V	273	31.3	3.9
7	7356.00	44.2 PK	74.0	-29.8	1.58 V	53	34.3	9.9
8	7356.00	31.4 AV	54.0	-22.6	1.58 V	53	21.5	9.9

**Remarks:**

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

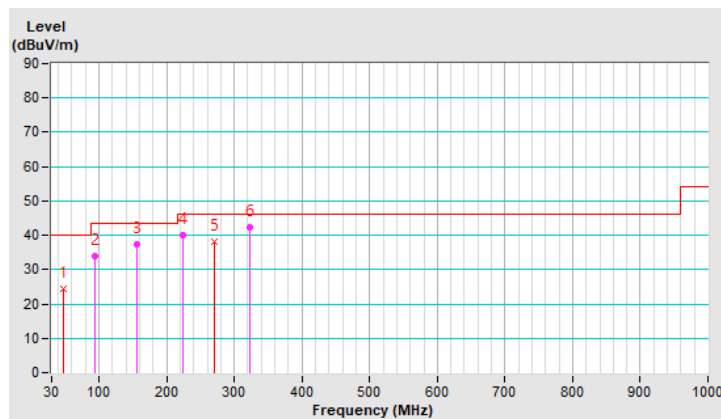
### Below 1GHz Data:

<b>RF Mode</b>	TX 802.11b	<b>Channel</b>	CH 1 : 2412 MHz
<b>Frequency Range</b>	9kHz ~ 1GHz	<b>Detector Function</b>	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	47.46	24.4 QP	40.0	-15.6	3.00 H	360	32.6	-8.2
2	94.48	33.8 QP	43.5	-9.7	2.00 H	270	47.0	-13.2
3	155.69	37.4 QP	43.5	-6.1	2.00 H	60	45.1	-7.7
4	223.08	39.9 QP	46.0	-6.1	1.50 H	282	50.4	-10.5
5	270.85	38.0 QP	46.0	-8.0	1.50 H	316	45.7	-7.7
6	323.33	42.3 QP	46.0	-3.7	1.00 H	63	47.9	-5.6

### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
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.



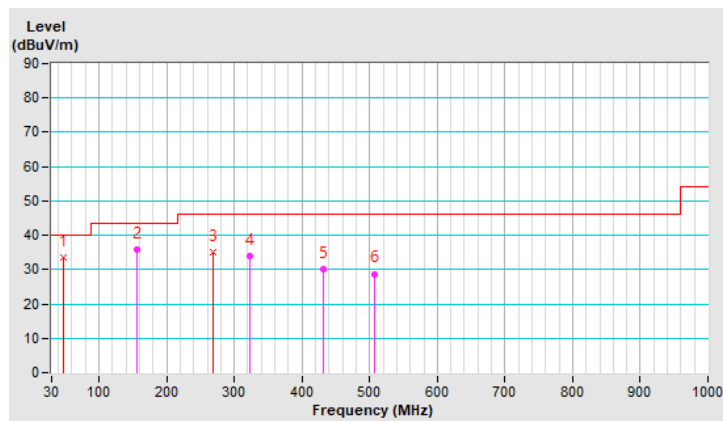
<b>RF Mode</b>	TX 802.11b	<b>Channel</b>	CH 1 : 2412 MHz
<b>Frequency Range</b>	9kHz ~ 1GHz	<b>Detector Function</b>	Quasi-Peak (QP)

**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	47.46	33.7 QP	40.0	-6.3	2.00 V	360	41.9	-8.2
2	155.45	35.7 QP	43.5	-7.8	1.00 V	360	43.4	-7.7
3	269.57	35.0 QP	46.0	-11.0	1.50 V	158	42.8	-7.8
4	322.48	34.0 QP	46.0	-12.0	1.50 V	250	39.6	-5.6
5	431.22	30.2 QP	46.0	-15.8	1.00 V	171	32.8	-2.6
6	506.68	28.8 QP	46.0	-17.2	1.00 V	306	29.6	-0.8

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
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.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Oct. 20, 2020	Oct. 19, 2021
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 27, 2020	Oct. 26, 2021
Line-Impedance Stabilization Network (for Peripheral) R&S	ESH3-Z5	835239/001	Mar. 26, 2021	Mar. 25, 2022
50 ohms Terminator	50	3	Oct. 26, 2020	Oct. 25, 2021
RF Cable	5D-FB	COCCAB-001	Sep. 26, 2020	Sep. 25, 2021
Fixed attenuator EMCI	STI02-2200-10	005	Aug. 29, 2020	Aug. 28, 2021
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

**Note:**

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Conduction 1.
- 3 Tested Date: July 30, 2021

#### 4.2.3 Test Procedures

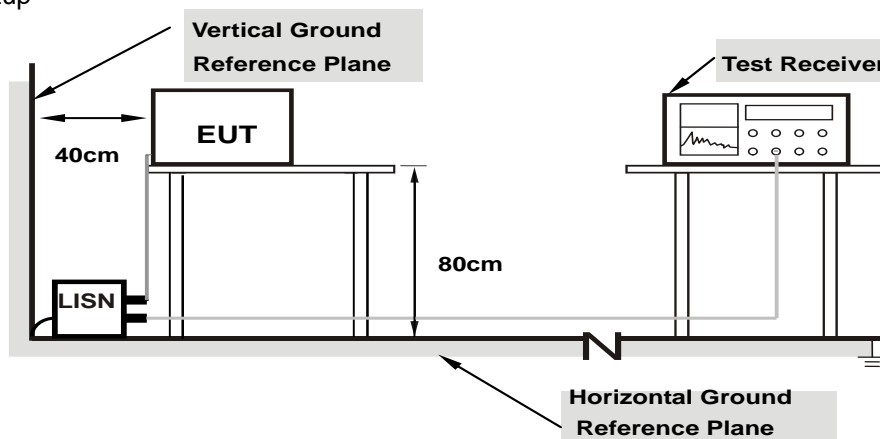
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

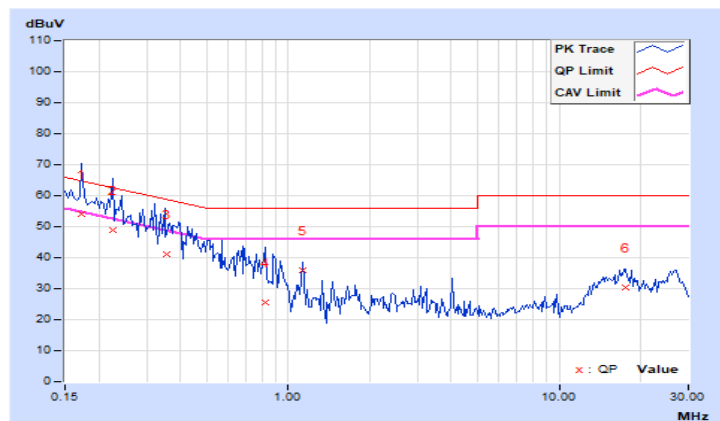
## 4.2.7 Test Results

<b>RF Mode</b>	TX 802.11b	<b>Channel</b>	CH 1 : 2412 MHz
<b>Frequency Range</b>	150kHz ~ 30MHz	<b>Detector Function &amp; Resolution Bandwidth</b>	Quasi-Peak (QP) / Average (AV), 9kHz

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17344	9.96	44.10	18.85	54.06	28.81	64.79	54.79	-10.73	-25.98
2	0.22422	9.97	38.78	14.94	48.75	24.91	62.66	52.66	-13.91	-27.75
3	0.35703	9.99	31.04	9.09	41.03	19.08	58.80	48.80	-17.77	-29.72
4	0.82578	10.02	15.66	1.30	25.68	11.32	56.00	46.00	-30.32	-34.68
5	1.13672	10.04	25.72	11.63	35.76	21.67	56.00	46.00	-20.24	-24.33
6	17.50391	10.98	19.25	7.49	30.23	18.47	60.00	50.00	-29.77	-31.53

## 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

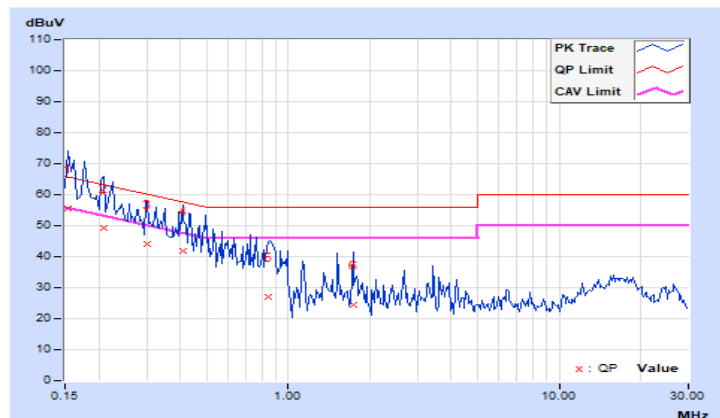


<b>RF Mode</b>	TX 802.11b	<b>Channel</b>	CH 1 : 2412 MHz
<b>Frequency Range</b>	150kHz ~ 30MHz	<b>Detector Function &amp; Resolution Bandwidth</b>	Quasi-Peak (QP) / Average (AV), 9kHz

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.92	45.74	23.14	55.66	33.06	65.79	55.79	-10.13	-22.73
2	0.20859	9.95	39.39	14.66	49.34	24.61	63.26	53.26	-13.92	-28.65
3	0.30234	9.96	33.94	13.18	43.90	23.14	60.18	50.18	-16.28	-27.04
4	0.40781	9.96	31.81	12.05	41.77	22.01	57.69	47.69	-15.92	-25.68
5	0.84531	9.99	17.00	0.60	26.99	10.59	56.00	46.00	-29.01	-35.41
6	1.73438	10.03	14.46	0.10	24.49	10.13	56.00	46.00	-31.51	-35.87

**Remarks:**

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



### 4.3 Conducted Output Power Measurement

#### 4.3.1 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,

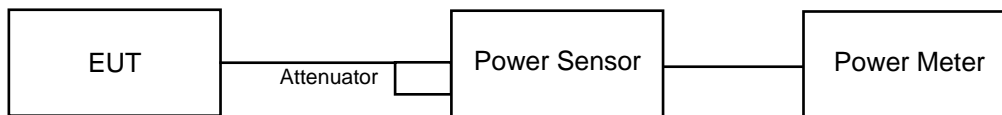
Array Gain = 0 dB (i.e., no array gain) for  $N_{ANT} \leq 4$ ;

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.

#### 4.3.2 Test Setup



#### 4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

#### 4.3.4 Test 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.

#### 4.3.5 Deviation from Test Standard

No deviation.

#### 4.3.6 EUT Operating Conditions

Same as Item 4.1.6.



#### 4.3.7 Test Results

##### CDD Mode

##### 802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	25.95	26.89	882.202	29.46	30.00	Pass
6	2437	23.59	24.47	508.458	27.06	30.00	Pass
11	2462	22.75	24.09	444.813	26.48	30.00	Pass

##### 802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	20.79	21.75	269.573	24.31	30.00	Pass
6	2437	24.77	25.97	695.283	28.42	30.00	Pass
11	2462	20.05	21.37	238.246	23.77	30.00	Pass

##### VHT20

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	20.24	21.05	233.032	23.67	30.00	Pass
6	2437	24.91	25.66	677.871	28.31	30.00	Pass
11	2462	20.09	21.10	230.919	23.63	30.00	Pass

##### VHT40

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	17.25	18.19	119.006	20.76	30.00	Pass
6	2437	21.35	22.17	301.275	24.79	30.00	Pass
9	2452	17.40	18.43	124.617	20.96	30.00	Pass

## Beamforming Mode

### VHT20

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	20.24	21.05	233.032	23.67	30.00	Pass
6	2437	24.91	25.66	677.871	28.31	30.00	Pass
11	2462	20.09	21.10	230.919	23.63	30.00	Pass

**Note:** Directional gain =  $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 4.87\text{dBi} < 6\text{dBi}$  , so the power limit shall not be reduced.

### VHT40

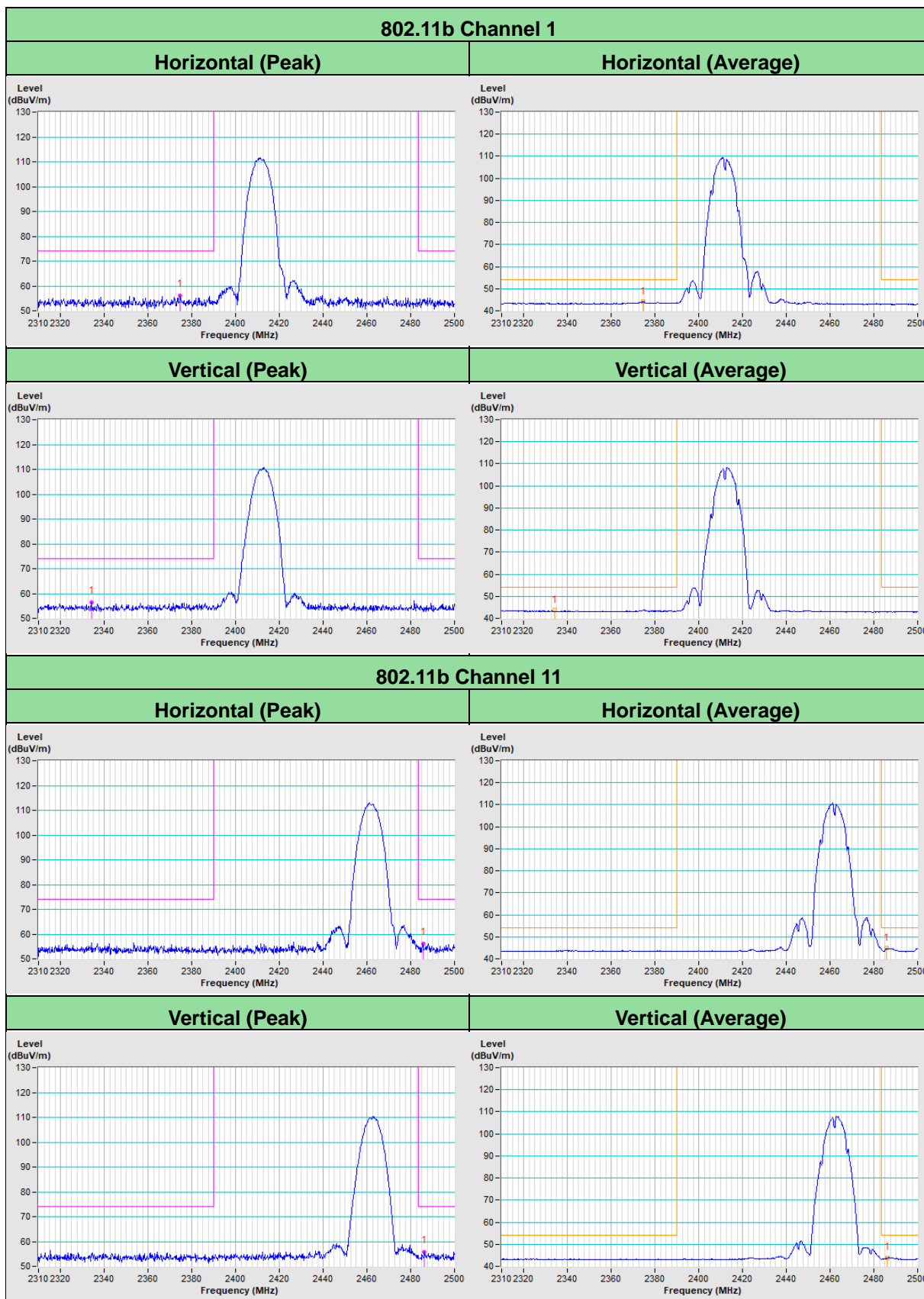
Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	17.25	18.19	119.006	20.76	30.00	Pass
6	2437	21.35	22.17	301.275	24.79	30.00	Pass
9	2452	17.40	18.43	124.617	20.96	30.00	Pass

**Note:** Directional gain =  $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 4.87\text{dBi} < 6\text{dBi}$  , so the power limit shall not be reduced.

## 5 Pictures of Test Arrangements

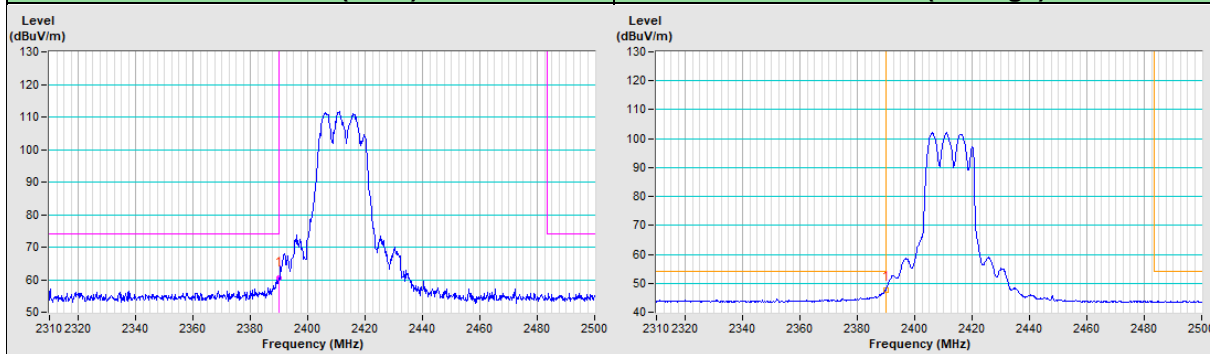
Please refer to the attached file (Test Setup Photo).

### Annex A - Band-Edge Measurement

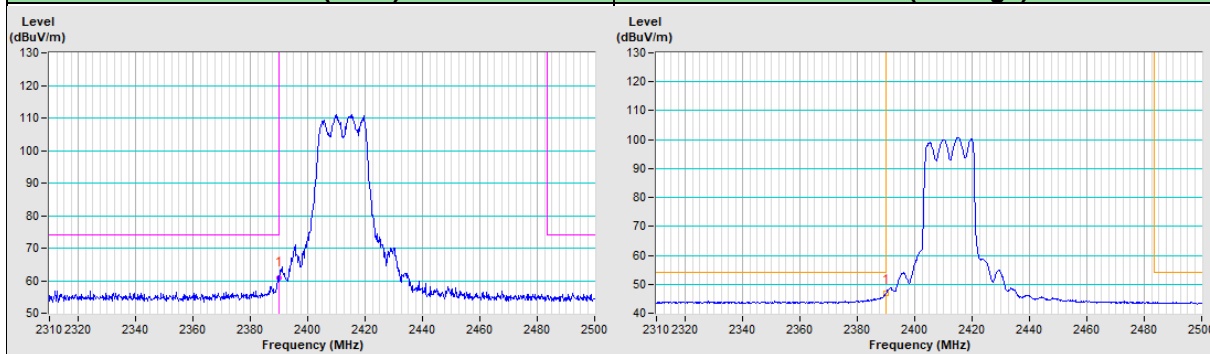


### 802.11g Channel 1

Horizontal (Peak)	Horizontal (Average)
-------------------	----------------------

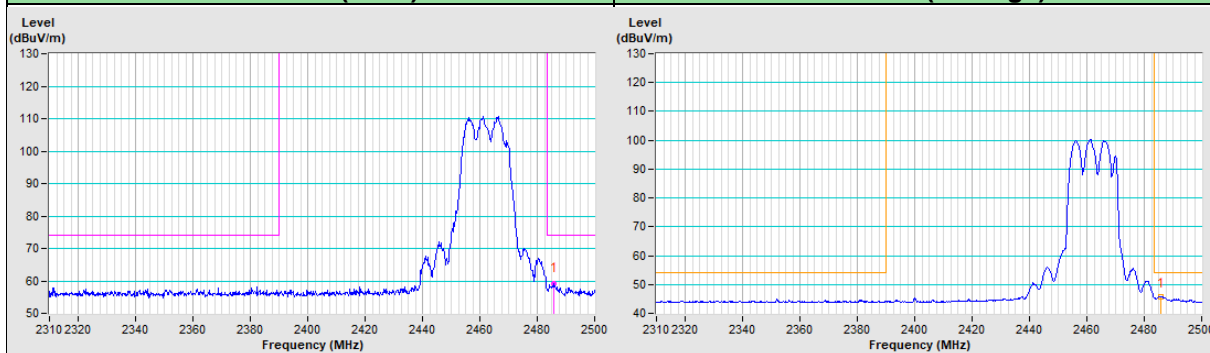


Vertical (Peak)	Vertical (Average)
-----------------	--------------------

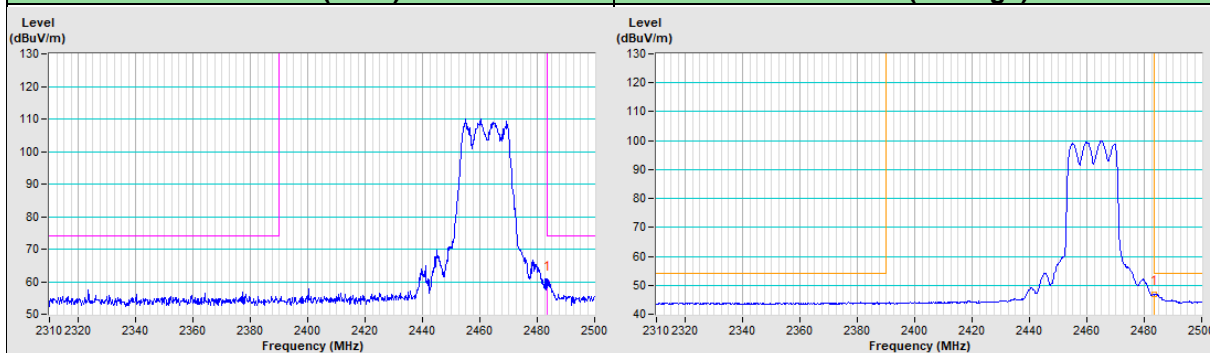


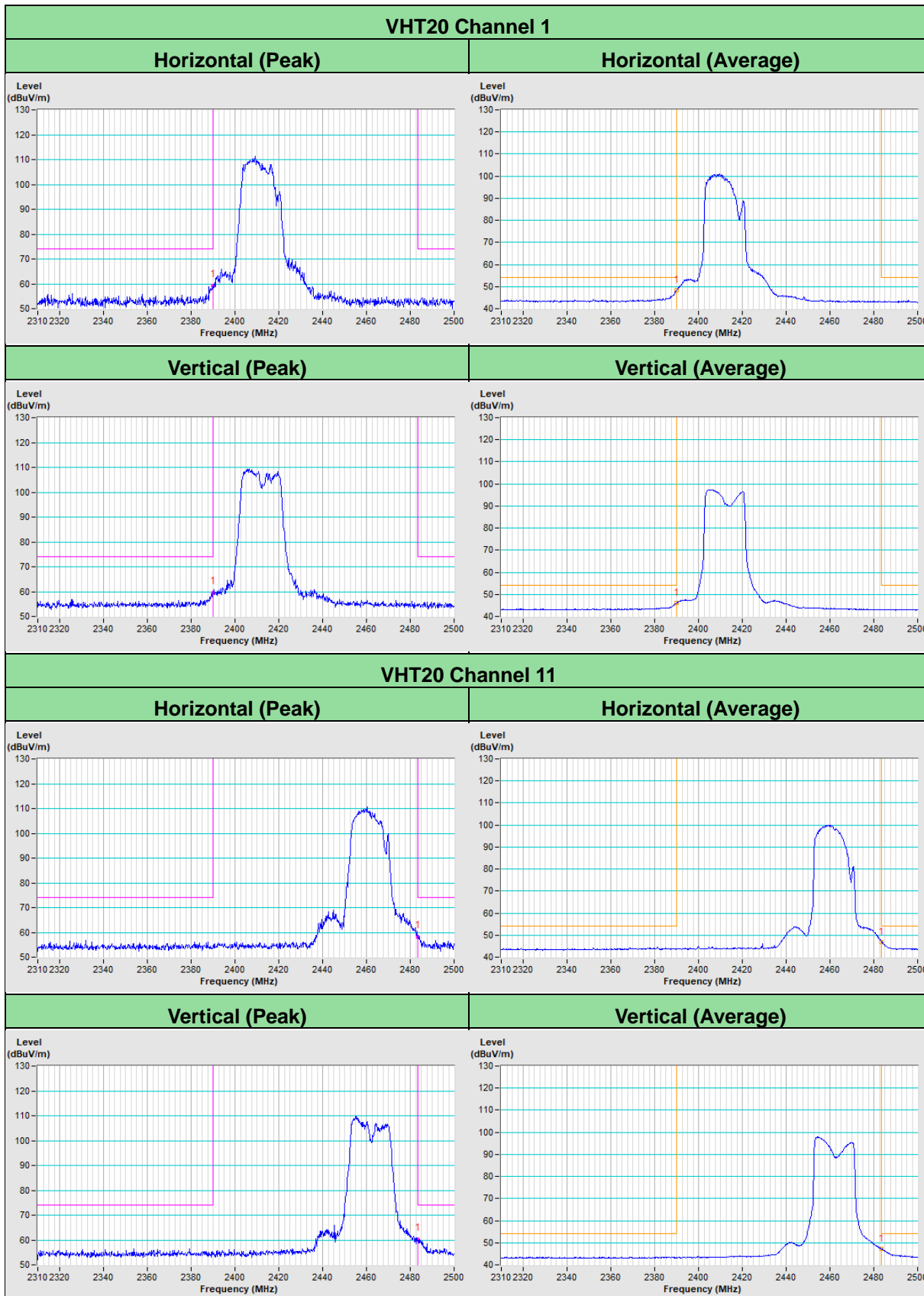
### 802.11g Channel 11

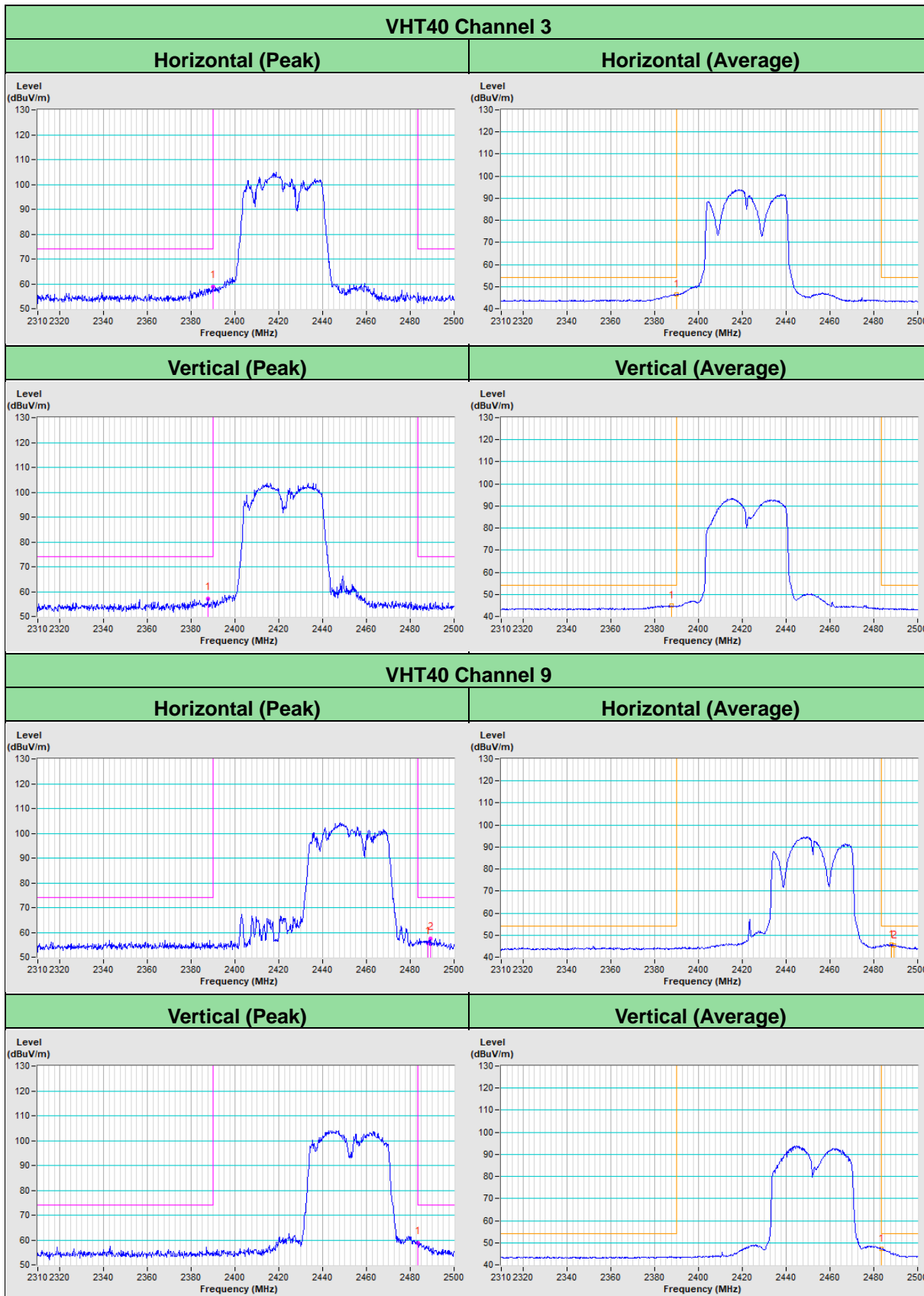
Horizontal (Peak)	Horizontal (Average)
-------------------	----------------------



Vertical (Peak)	Vertical (Average)
-----------------	--------------------







## 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 according to ISO/IEC 17025.

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

**Lin Kou EMC/RF Lab**

Tel: 886-2-26052180

Fax: 886-2-26051924

**Hsin Chu EMC/RF/Telecom Lab**

Tel: 886-3-6668565

Fax: 886-3-6668323

**Hwa Ya EMC/RF/Safety Lab**

Tel: 886-3-3183232

Fax: 886-3-3270892

**Email:** [service.adt@tw.bureauveritas.com](mailto:service.adt@tw.bureauveritas.com)

**Web Site:** [www.bureauveritas-adt.com](http://www.bureauveritas-adt.com)

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

--- END ---