FCC Test Report

Report No.:	RFBCKS-WTW-P21070524
FCC ID:	2AWHPR211
Test Model:	UTR-211
Received Date:	2021/7/15
Test Date:	2021/7/25 ~ 2021/9/23
Issued Date:	2021/10/6
Applicant:	Space Exploration Technologies Corp. (SPACEX)
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

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Release Control Record

Issue No.	Description	Date Issued
RFBCKS-WTW-P21070524	Original release.	2021/10/6

1 Certificate of Conformity

Product: Starlink Router

Brand: SPACEX

Test Model: UTR-211

Sample Status: Engineering sample

Applicant: Space Exploration Technologies Corp. (SPACEX)

Test Date: 2021/7/25 ~ 2021/9/23

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:** 2021/10/6

Vivian Hunag / Specialist

Approved by : , **Date:** 2021/10/6

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 -8.48dB at 0.15391MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.1dB at 2390.00MHz and 2483.50MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

Note:
1. 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.
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	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-211
Status of EUT	Engineering sample
Power Supply Rating	100Vac ~240Vac
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in VHT (20/40) mode
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11 Mbps 802.11g: up to 54 Mbps 802.11n: up to 450 Mbps 802.11ac: up to 600 Mbps
Operating Frequency	2.412 ~ 2.462 GHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20), VHT20: 11 802.11n (HT40), VHT40: 7
Output Power	**CDD Mode:** **2.412 ~ 2.462 GHz:** 848.182 mW **Beamforming Mode:** **2.412 ~ 2.462 GHz:** 662.076 mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Cable Supplied	NA

Note:

1. The EUT has below radios as following table:

Radio 1	Radio 2
WLAN 2.4GHz	WLAN 5GHz

2. 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.		

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

Antenna No.	RF Chain No.	Antenna Net Gain (dBi)	Frequency Range	Antenna Type	Connector Type
1	0	4.2	2.4~2.4835 GHz	PCB	none (like solder)
		7.8	5.15~5.85 GHz		
2	1	3.4	2.4~2.4835 GHz	PCB	none (like solder)
		7.3	5.15~5.85 GHz		
3	2	3.9	2.4~2.4835 GHz	PCB	none (like solder)
		8.4	5.15~5.85 GHz		
Note: Max. gain was selected for the final test.					

4. The directional antenna gain, please refer to the following table:

Frequency Range (GHz)	Directional Antenna Gain (dBi)
2.4~2.4835	7.53
5.15~5.25	9.27
5.725~5.85	9.06

5. The EUT incorporates a MIMO function.

2.4GHz Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11b	3TX	3RX
802.11g	3TX	3RX
802.11n (HT20)	3TX	3RX
802.11n (HT40)	3TX	3RX
VHT20	3TX	3RX
VHT40	3TX	3RX

Note:
1. All of modulation mode support beamforming function except 802.11b/g modulation mode.
2. 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.
3. The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz), VHT mode for 20MHz (40MHz), therefore the manufacturer will control the power for 802.11n mode is the same as the VHT or more lower than it and investigated worst case to representative mode in test report. (Final test mode refer to section 3.2.1)

6. 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.

3.2 Description of Test Modes

11 channels are provided for 802.11b, 802.11g, 802.11n (HT20) and 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) and 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)
VHT20	1 to 11	6	OFDM	BPSK	6.5

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)
VHT20	1 to 11	6	OFDM	BPSK	6.5

Antenna Port Conducted Measurement:

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

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
Beamforming Mode (output power only)					
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:

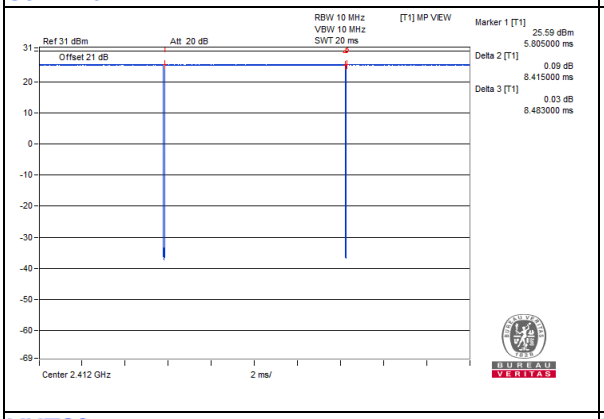
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 66%RH	120Vac, 60Hz	Tom Yang
RE<1G	25deg. C, 66%RH	120Vac, 60Hz	Tom Yang
PLC	25deg. C, 66%RH	120Vac, 60Hz	Tom Yang
APCM	25deg. C, 66%RH	120Vac, 60Hz	Leon Dai

3.3 Duty Cycle of Test Signal

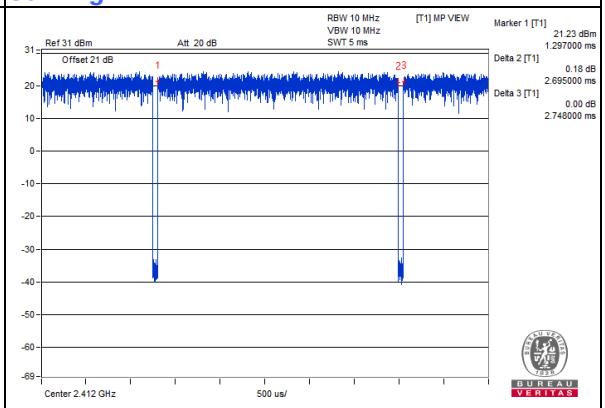
Duty cycle of test signal is ≥ 98 %, duty factor is not required.

802.11b: Duty cycle = 8.415 ms /8.483 ms=0.992
802.11g: Duty cycle = 2.695 ms /2.748 ms=0.981
VHT20: Duty cycle = 2.515 ms /2.567 ms=0.98
VHT40: Duty cycle = 2.418 ms /2.459 ms=0.983

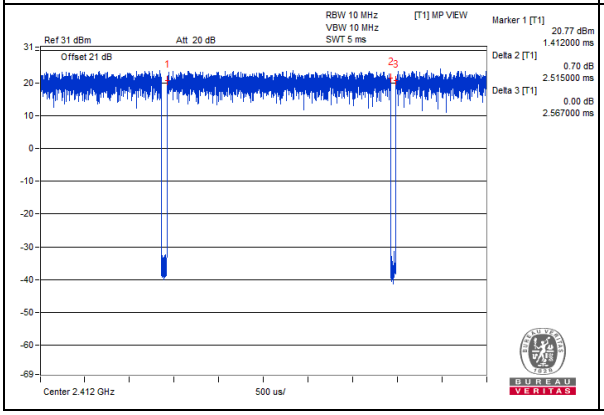
802.11b



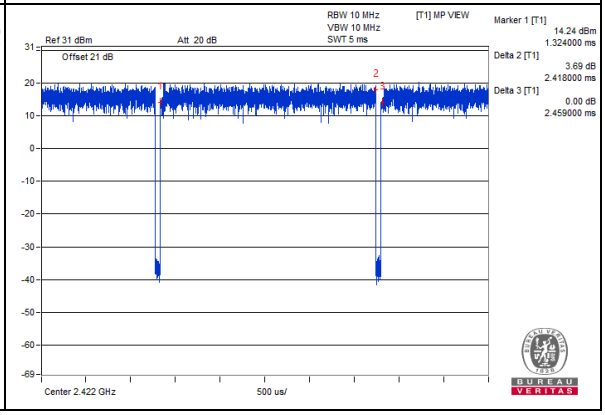
802.11g



VHT20



VHT40



3.4 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No	FCC ID	Remarks
A.	Laptop	DELL	E5430	HYV4VY1	NA	Provided by Lab
B.	Test Tool	Starlink	NA	NA	NA	Supplied by client
C.	PoE Load	Starlink	NA	NA	NA	Supplied by client
D.	Laptop	DELL	E5430	4YV4VY1	NA	Provided by Lab

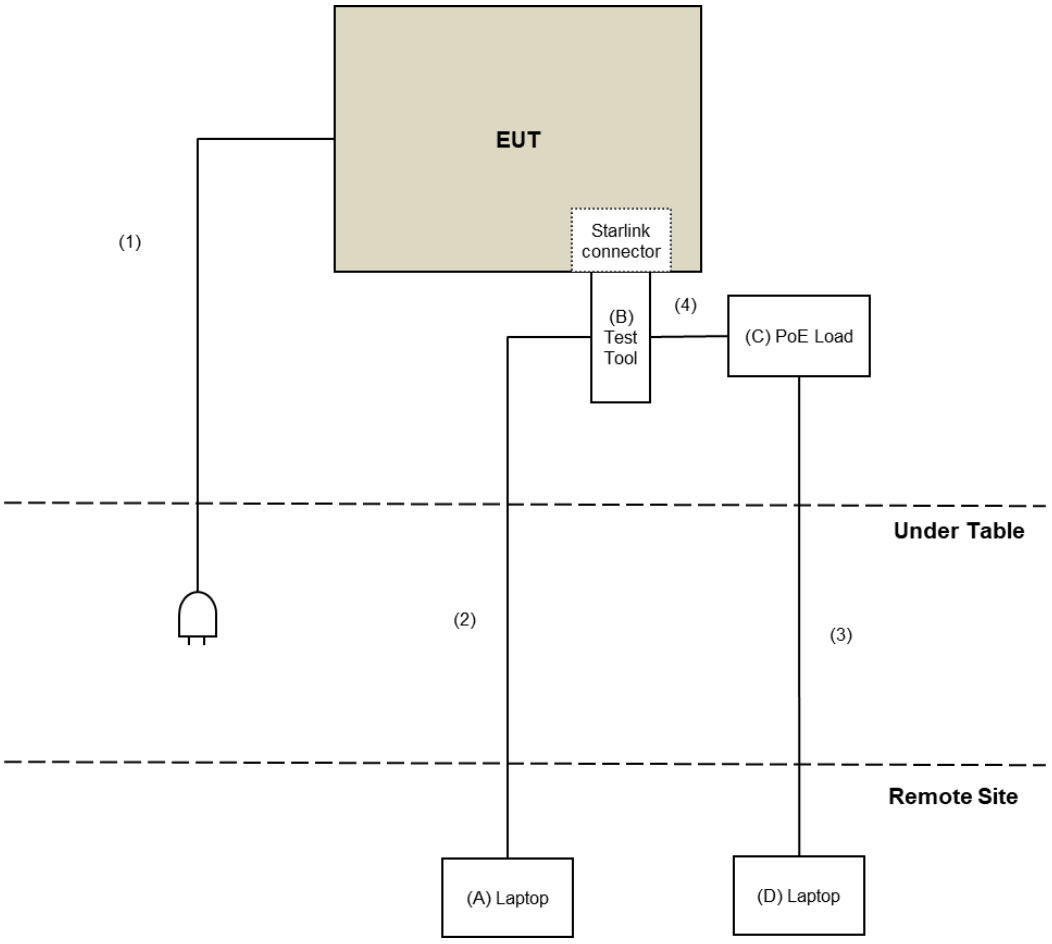
Note:

1. All power cords of the above support units are non-shielded (1.5m).

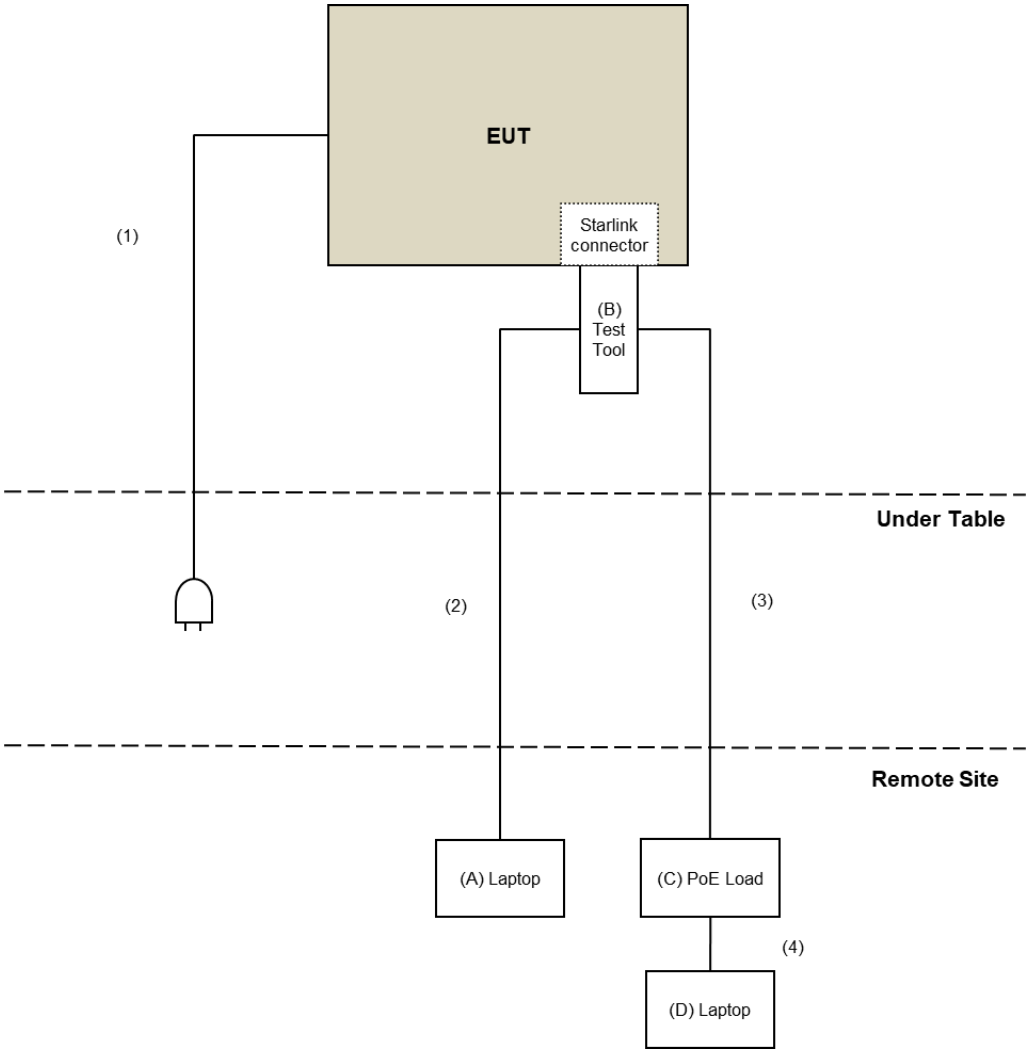
ID	Descriptions (Cables)	Qty	Length (m)	Shielding (Yes/No)	Cores (Number)	Remarks
1	AC Cable	1	2	No	0	Supplied by client
2	RJ-45 Cable	1	10	No	0	Provided by Lab
3	RJ-45 Cable	1	10	No	0	Provided by Lab
4	RJ-45 Cable	1	3	No	0	Provided by Lab

3.4.1 Configuration of System under Test

For AC Power Conducted Emissions test:



For Radiated Emission 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 Agilent	N9038A	MY50010156	2021/7/22	2022/7/21
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Pre_Amplifier EMCI	EMC001340	980142	2021/5/24	2022/5/23
LOOP ANTENNA Electro-Metrics	EM-6879	264	2021/3/5	2022/3/4
RF Coaxial Cable JYEBO	5D-FB	LOOPCAB-001	2021/1/7	2022/1/6
RF Coaxial Cable JYEBO	5D-FB	LOOPCAB-002	2021/1/7	2022/1/6
Pre_Amplifier Mini-Circuits	ZFL-1000VH2	QA0838008	2020/10/20	2021/10/19
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	2020/11/5	2021/11/4
RF Coaxial Cable COMMATE/PEWC	8D	966-3-1	2021/3/16	2022/3/15
RF Coaxial Cable COMMATE/PEWC	8D	966-3-2	2021/3/16	2022/3/15
RF Coaxial Cable COMMATE/PEWC	8D	966-3-3	2021/3/16	2022/3/15
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	2020/9/24	2021/9/23
Horn Antenna Schwarzbeck	BBHA9120-D	9120D-406	2020/11/22	2021/11/21
Pre_Amplifier EMCI	EMC12630SE	980384	2021/1/11	2022/1/10
RF Coaxial Cable EMCI	EMC104-SM-SM-1500	180504	2021/4/26	2022/4/25
RF Coaxial Cable EMCI	EMC104-SM-SM-2000	180601	2021/6/8	2022/6/7
RF Coaxial Cable EMCI	EMC104-SM-SM-6000	210201	2021/5/13	2022/5/12
Fix tool for Boresight antenna tower LIOW GUU	FBA-01	FBA_SIP01	NA	NA
Spectrum Analyzer Keysight	N9030A	MY54490679	2021/7/9	2022/7/8
Pre_Amplifier EMCI	EMC184045SE	980387	2021/1/11	2022/1/10
Horn Antenna Schwarzbeck	BBHA 9170	BBHA9170519	2020/11/22	2021/11/21
RF Cable-Frequency range: 1-40GHz EMCI	EMC102-KM-KM-1200	160924	2021/1/11	2022/1/10
RF cable (40GHz) EMCI	EMC-KM-KM-4000	200214	2021/3/10	2022/3/9

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: 2021/7/25 ~ 2021/8/27

For other test:

Description & Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Spectrum Analyzer R&S	FSV40	101516	2021/3/8	2022/3/7
Power Meter Anritsu	ML2495A	1529002	2021/6/21	2022/6/20
Pulse Power Sensor Anritsu	MA2411B	1339443	2021/5/31	2022/5/30
Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	2021/4/13	2022/4/12
Software	ADT_RF Test Software V6.6.5.4	NA	NA	NA
Spectrum Analyzer Keysight	N9030A	MY54490679	2021/7/9	2022/7/8
MSP4TA-18+ MECH SWITCH ABSORPTIVE / SMA Mini-Circuits	MSP4TA-18+	0140	2021/2/5	2022/2/4
FXD ATTEN/SMA/3dB 2W Mini-Circuits	BW-S3W2+	MN71981	2021/2/5	2022/2/4

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: 2021/9/23

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:

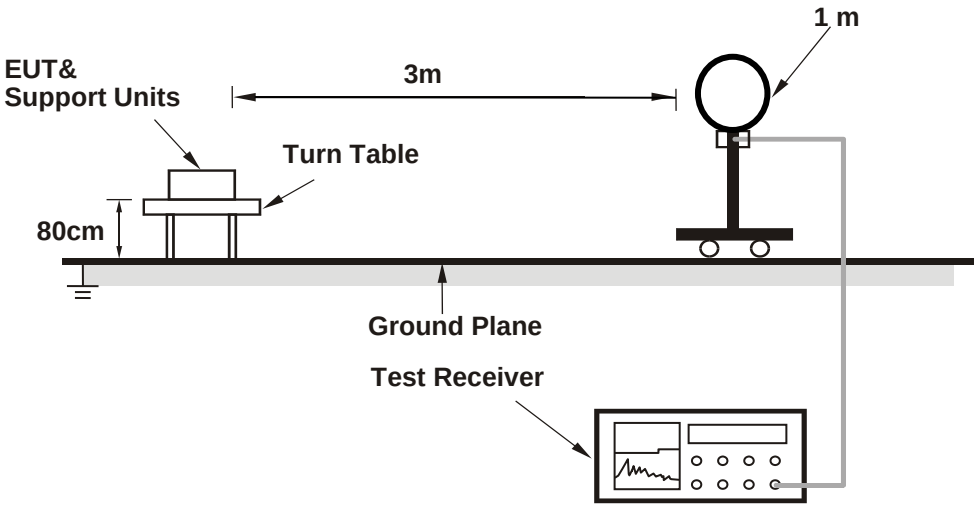
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 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

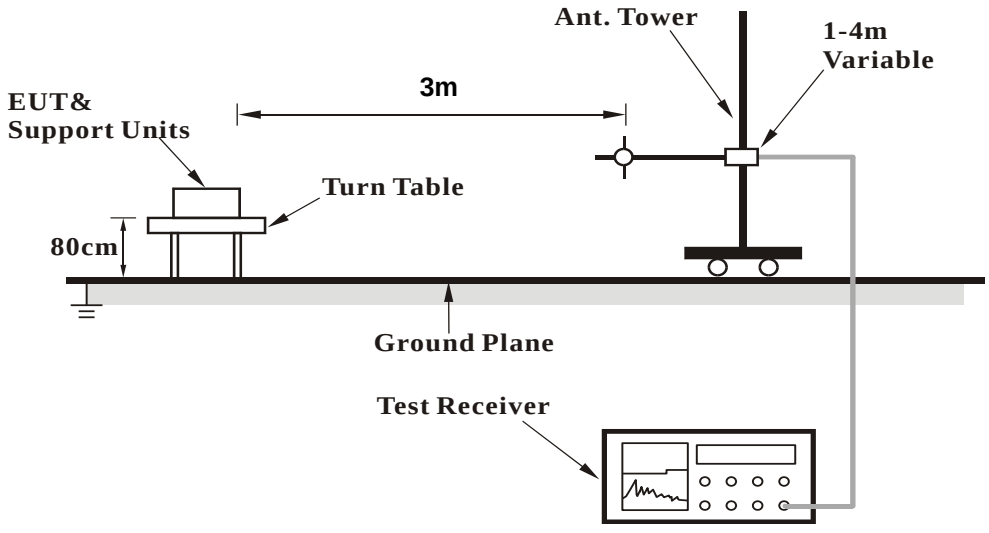
No deviation.

4.1.5 Test Setup

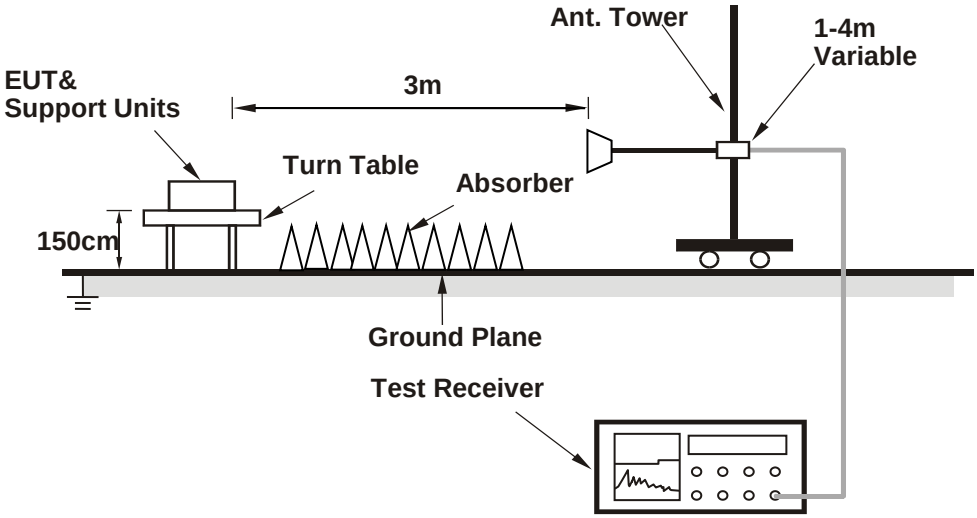
For Radiated emission below 30MHz



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 (MT7629 QA 0.0.2.5) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz Data：

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2383.50	59.1 PK	74.0	-14.9	3.49 H	13	60.3	-1.2
2	2383.50	52.3 AV	54.0	-1.7	3.49 H	13	53.5	-1.2
3	*2412.00	117.1 PK			3.49 H	13	118.3	-1.2
4	*2412.00	114.7 AV			3.49 H	13	115.9	-1.2
5	4824.00	43.4 PK	74.0	-30.6	2.35 H	61	39.7	3.7
6	4824.00	41.3 AV	54.0	-12.7	2.35 H	61	37.6	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	2386.60	60.1 PK	74.0	-13.9	2.89 V	351	61.3	-1.2
2	2386.60	53.5 AV	54.0	-0.5	2.89 V	351	54.7	-1.2
3	*2412.00	112.4 PK			2.89 V	351	113.6	-1.2
4	*2412.00	110.0 AV			2.89 V	351	111.2	-1.2
5	4824.00	45.8 PK	74.0	-28.2	3.68 V	17	42.1	3.7
6	4824.00	43.4 AV	54.0	-10.6	3.68 V	17	39.7	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.

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	2390.00	56.4 PK	74.0	-17.6	3.44 H	21	57.6	-1.2
2	2390.00	44.0 AV	54.0	-10.0	3.44 H	21	45.2	-1.2
3	*2437.00	116.7 PK			3.44 H	21	117.9	-1.2
4	*2437.00	114.3 AV			3.44 H	21	115.5	-1.2
5	2483.50	55.0 PK	74.0	-19.0	3.44 H	21	56.2	-1.2
6	2483.50	42.9 AV	54.0	-11.1	3.44 H	21	44.1	-1.2
7	4874.00	44.6 PK	74.0	-29.4	2.43 H	81	40.8	3.8
8	4874.00	42.1 AV	54.0	-11.9	2.43 H	81	38.3	3.8
9	7311.00	43.3 PK	74.0	-30.7	1.69 H	143	33.6	9.7
10	7311.00	37.5 AV	54.0	-16.5	1.69 H	143	27.8	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	56.1 PK	74.0	-17.9	2.86 V	358	57.3	-1.2
2	2390.00	44.6 AV	54.0	-9.4	2.86 V	358	45.8	-1.2
3	*2437.00	112.7 PK			2.86 V	358	113.9	-1.2
4	*2437.00	110.2 AV			2.86 V	358	111.4	-1.2
5	2483.50	54.9 PK	74.0	-19.1	2.86 V	358	56.1	-1.2
6	2483.50	43.1 AV	54.0	-10.9	2.86 V	358	44.3	-1.2
7	4874.00	45.7 PK	74.0	-28.3	3.71 V	15	41.9	3.8
8	4874.00	44.0 AV	54.0	-10.0	3.71 V	15	40.2	3.8
9	7311.00	45.1 PK	74.0	-28.9	1.54 V	193	35.4	9.7
10	7311.00	39.1 AV	54.0	-14.9	1.54 V	193	29.4	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.

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	115.4 PK			3.83 H	353	116.6	-1.2
2	*2462.00	112.1 AV			3.83 H	353	113.3	-1.2
3	2488.15	57.4 PK	74.0	-16.6	3.83 H	353	58.6	-1.2
4	2488.15	50.6 AV	54.0	-3.4	3.83 H	353	51.8	-1.2
5	4924.00	44.1 PK	74.0	-29.9	2.39 H	73	40.2	3.9
6	4924.00	41.8 AV	54.0	-12.2	2.39 H	73	37.9	3.9
7	7386.00	42.9 PK	74.0	-31.1	1.72 H	152	33.2	9.7
8	7386.00	37.3 AV	54.0	-16.7	1.72 H	152	27.6	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	111.9 PK			1.83 V	351	113.1	-1.2
2	*2462.00	109.3 AV			1.83 V	351	110.5	-1.2
3	2485.90	60.1 PK	74.0	-13.9	1.83 V	351	61.3	-1.2
4	2485.90	53.8 AV	54.0	-0.2	1.83 V	351	55.0	-1.2
5	4924.00	46.3 PK	74.0	-27.7	3.64 V	19	42.4	3.9
6	4924.00	43.7 AV	54.0	-10.3	3.64 V	19	39.8	3.9
7	7386.00	45.1 PK	74.0	-28.9	1.49 V	195	35.4	9.7
8	7386.00	38.9 AV	54.0	-15.1	1.49 V	195	29.2	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.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	67.6 PK	74.0	-6.4	3.31 H	347	68.8	-1.2
2	2390.00	53.4 AV	54.0	-0.6	3.31 H	347	54.6	-1.2
3	*2412.00	113.7 PK			3.31 H	347	114.9	-1.2
4	*2412.00	105.1 AV			3.31 H	347	106.3	-1.2
5	4824.00	41.6 PK	74.0	-32.4	2.32 H	83	37.9	3.7
6	4824.00	31.3 AV	54.0	-22.7	2.32 H	83	27.6	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	2390.00	71.4 PK	74.0	-2.6	1.92 V	358	72.6	-1.2
2	2390.00	53.7 AV	54.0	-0.3	1.92 V	358	54.9	-1.2
3	*2412.00	114.1 PK			1.92 V	358	115.3	-1.2
4	*2412.00	102.3 AV			1.92 V	358	103.5	-1.2
5	4824.00	44.8 PK	74.0	-29.2	2.97 V	52	41.1	3.7
6	4824.00	34.4 AV	54.0	-19.6	2.97 V	52	30.7	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.

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

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	70.5 PK	74.0	-3.5	3.37 H	360	71.7	-1.2
2	2390.00	53.3 AV	54.0	-0.7	3.37 H	360	54.5	-1.2
3	*2437.00	115.7 PK			3.37 H	360	116.9	-1.2
4	*2437.00	106.6 AV			3.37 H	360	107.8	-1.2
5	2483.50	67.1 PK	74.0	-6.9	3.37 H	360	68.3	-1.2
6	2483.50	52.4 AV	54.0	-1.6	3.37 H	360	53.6	-1.2
7	4874.00	41.3 PK	74.0	-32.7	2.35 H	75	37.5	3.8
8	4874.00	30.7 AV	54.0	-23.3	2.35 H	75	26.9	3.8
9	7311.00	45.8 PK	74.0	-28.2	1.72 H	161	36.1	9.7
10	7311.00	34.3 AV	54.0	-19.7	1.72 H	161	24.6	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	69.8 PK	74.0	-4.2	1.92 V	348	71.0	-1.2
2	**2390.00**	**53.9 AV**	**54.0**	**-0.1**	**1.92 V**	**348**	**55.1**	**-1.2**
3	*2437.00	116.1 PK			1.92 V	348	117.3	-1.2
4	*2437.00	105.1 AV			1.92 V	348	106.3	-1.2
5	2483.50	66.7 PK	74.0	-7.3	1.92 V	348	67.9	-1.2
6	2483.50	51.7 AV	54.0	-2.3	1.92 V	348	52.9	-1.2
7	4874.00	44.1 PK	74.0	-29.9	2.99 V	47	40.3	3.8
8	4874.00	33.9 AV	54.0	-20.1	2.99 V	47	30.1	3.8
9	7311.00	45.3 PK	74.0	-28.7	1.55 V	180	35.6	9.7
10	7311.00	34.1 AV	54.0	-19.9	1.55 V	180	24.4	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.

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	110.9 PK			3.37 H	345	112.1	-1.2
2	*2462.00	102.5 AV			3.37 H	345	103.7	-1.2
3	2483.50	66.9 PK	74.0	-7.1	3.37 H	345	68.1	-1.2
4	2483.50	50.9 AV	54.0	-3.1	3.37 H	345	52.1	-1.2
5	4924.00	41.3 PK	74.0	-32.7	2.37 H	73	37.4	3.9
6	4924.00	30.9 AV	54.0	-23.1	2.37 H	73	27.0	3.9
7	7386.00	45.3 PK	74.0	-28.7	1.74 H	158	35.6	9.7
8	7386.00	34.0 AV	54.0	-20.0	1.74 H	158	24.3	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	112.7 PK			1.81 V	351	113.9	-1.2
2	*2462.00	101.2 AV			1.81 V	351	102.4	-1.2
3	2483.55	68.1 PK	74.0	-5.9	1.81 V	351	69.3	-1.2
4	2483.55	53.7 AV	54.0	-0.3	1.81 V	351	54.9	-1.2
5	4924.00	43.3 PK	74.0	-30.7	2.96 V	32	39.4	3.9
6	4924.00	33.4 AV	54.0	-20.6	2.96 V	32	29.5	3.9
7	7386.00	45.1 PK	74.0	-28.9	1.55 V	190	35.4	9.7
8	7386.00	34.0 AV	54.0	-20.0	1.55 V	190	24.3	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.

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	71.1 PK	74.0	-2.9	3.79 H	2	72.3	-1.2
2	2390.00	52.3 AV	54.0	-1.7	3.79 H	2	53.5	-1.2
3	*2412.00	109.8 PK			3.79 H	2	111.0	-1.2
4	*2412.00	101.6 AV			3.79 H	2	102.8	-1.2
5	4824.00	40.7 PK	74.0	-33.3	2.45 H	63	37.0	3.7
6	4824.00	30.5 AV	54.0	-23.5	2.45 H	63	26.8	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	68.2 PK	74.0	-5.8	1.81 V	353	69.4	-1.2
2	2390.00	53.6 AV	54.0	-0.4	1.81 V	353	54.8	-1.2
3	*2412.00	111.4 PK			1.81 V	353	112.6	-1.2
4	*2412.00	101.4 AV			1.81 V	353	102.6	-1.2
5	4824.00	43.8 PK	74.0	-30.2	3.05 V	38	40.1	3.7
6	4824.00	33.7 AV	54.0	-20.3	3.05 V	38	30.0	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.

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	68.1 PK	74.0	-5.9	3.74 H	13	69.3	-1.2
2	2390.00	52.7 AV	54.0	-1.3	3.74 H	13	53.9	-1.2
3	*2437.00	116.2 PK			3.74 H	13	117.4	-1.2
4	*2437.00	106.9 AV			3.74 H	13	108.1	-1.2
5	2483.50	68.6 PK	74.0	-5.4	3.74 H	13	69.8	-1.2
6	2483.50	53.0 AV	54.0	-1.0	3.74 H	13	54.2	-1.2
7	4874.00	41.4 PK	74.0	-32.6	2.34 H	83	37.6	3.8
8	4874.00	31.2 AV	54.0	-22.8	2.34 H	83	27.4	3.8
9	7311.00	45.7 PK	74.0	-28.3	1.76 H	162	36.0	9.7
10	7311.00	34.3 AV	54.0	-19.7	1.76 H	162	24.6	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	67.8 PK	74.0	-6.2	1.50 V	26	69.0	-1.2
2	2390.00	53.0 AV	54.0	-1.0	1.50 V	26	54.2	-1.2
3	*2437.00	114.8 PK			1.50 V	26	116.0	-1.2
4	*2437.00	106.3 AV			1.50 V	26	107.5	-1.2
5	2483.50	69.9 PK	74.0	-4.1	1.50 V	26	71.1	-1.2
6	2483.50	53.5 AV	54.0	-0.5	1.50 V	26	54.7	-1.2
7	4874.00	43.7 PK	74.0	-30.3	2.98 V	40	39.9	3.8
8	4874.00	33.5 AV	54.0	-20.5	2.98 V	40	29.7	3.8
9	7311.00	46.0 PK	74.0	-28.0	1.61 V	194	36.3	9.7
10	7311.00	34.5 AV	54.0	-19.5	1.61 V	194	24.8	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.

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	111.5 PK			3.70 H	13	112.7	-1.2
2	*2462.00	102.6 AV			3.70 H	13	103.8	-1.2
3	2483.50	70.6 PK	74.0	-3.4	3.70 H	13	71.8	-1.2
4	2483.50	53.1 AV	54.0	-0.9	3.70 H	13	54.3	-1.2
5	4924.00	40.8 PK	74.0	-33.2	2.40 H	79	36.9	3.9
6	4924.00	30.5 AV	54.0	-23.5	2.40 H	79	26.6	3.9
7	7386.00	45.9 PK	74.0	-28.1	1.74 H	150	36.2	9.7
8	7386.00	34.5 AV	54.0	-19.5	1.74 H	150	24.8	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	*2462.00	109.7 PK			1.68 V	16	110.9	-1.2
2	*2462.00	100.8 AV			1.68 V	16	102.0	-1.2
3	2485.80	70.8 PK	74.0	-3.2	1.68 V	16	72.0	-1.2
4	2485.80	53.8 AV	54.0	-0.2	1.68 V	16	55.0	-1.2
5	4924.00	44.4 PK	74.0	-29.6	3.02 V	46	40.5	3.9
6	4924.00	34.1 AV	54.0	-19.9	3.02 V	46	30.2	3.9
7	7386.00	44.8 PK	74.0	-29.2	1.58 V	181	35.1	9.7
8	7386.00	33.8 AV	54.0	-20.2	1.58 V	181	24.1	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.

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	68.4 PK	74.0	-5.6	3.56 H	346	69.6	-1.2
2	2390.00	53.5 AV	54.0	-0.5	3.56 H	346	54.7	-1.2
3	*2422.00	106.6 PK			3.56 H	346	107.8	-1.2
4	*2422.00	97.8 AV			3.56 H	346	99.0	-1.2
5	4844.00	40.5 PK	74.0	-33.5	2.41 H	87	36.7	3.8
6	4844.00	30.4 AV	54.0	-23.6	2.41 H	87	26.6	3.8
7	7266.00	46.3 PK	74.0	-27.7	1.75 H	147	36.8	9.5
8	7266.00	34.9 AV	54.0	-19.1	1.75 H	147	25.4	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	2390.00	67.2 PK	74.0	-6.8	1.96 V	355	68.4	-1.2
2	2390.00	53.7 AV	54.0	-0.3	1.96 V	355	54.9	-1.2
3	*2422.00	107.1 PK			1.96 V	355	108.3	-1.2
4	*2422.00	96.6 AV			1.96 V	355	97.8	-1.2
5	4844.00	43.3 PK	74.0	-30.7	3.01 V	56	39.5	3.8
6	4844.00	33.3 AV	54.0	-20.7	3.01 V	56	29.5	3.8
7	7266.00	44.4 PK	74.0	-29.6	1.62 V	205	34.9	9.5
8	7266.00	33.7 AV	54.0	-20.3	1.62 V	205	24.2	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.

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	65.7 PK	74.0	-8.3	3.53 H	335	66.9	-1.2
2	2390.00	50.7 AV	54.0	-3.3	3.53 H	335	51.9	-1.2
3	*2437.00	110.4 PK			3.53 H	335	111.6	-1.2
4	*2437.00	101.8 AV			3.53 H	335	103.0	-1.2
5	2483.50	66.7 PK	74.0	-7.3	3.53 H	335	67.9	-1.2
6	2483.50	53.5 AV	54.0	-0.5	3.53 H	335	54.7	-1.2
7	4874.00	41.2 PK	74.0	-32.8	2.34 H	76	37.4	3.8
8	4874.00	30.5 AV	54.0	-23.5	2.34 H	76	26.7	3.8
9	7311.00	45.1 PK	74.0	-28.9	1.79 H	157	35.4	9.7
10	7311.00	33.6 AV	54.0	-20.4	1.79 H	157	23.9	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	64.5 PK	74.0	-9.5	1.93 V	356	65.7	-1.2
2	2390.00	51.4 AV	54.0	-2.6	1.93 V	356	52.6	-1.2
3	*2437.00	109.6 PK			1.93 V	356	110.8	-1.2
4	*2437.00	100.1 AV			1.93 V	356	101.3	-1.2
5	2483.50	67.1 PK	74.0	-6.9	1.93 V	356	68.3	-1.2
6	**2483.50**	**53.9 AV**	**54.0**	**-0.1**	**1.93 V**	**356**	**55.1**	**-1.2**
7	4874.00	43.4 PK	74.0	-30.6	3.00 V	55	39.6	3.8
8	4874.00	33.3 AV	54.0	-20.7	3.00 V	55	29.5	3.8
9	7311.00	44.4 PK	74.0	-29.6	1.56 V	192	34.7	9.7
10	7311.00	33.6 AV	54.0	-20.4	1.56 V	192	23.9	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.

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	105.3 PK			3.72 H	11	106.5	-1.2
2	*2452.00	95.4 AV			3.72 H	11	96.6	-1.2
3	2484.00	67.3 PK	74.0	-6.7	3.72 H	11	68.5	-1.2
4	2484.00	53.1 AV	54.0	-0.9	3.72 H	11	54.3	-1.2
5	4904.00	41.2 PK	74.0	-32.8	2.36 H	81	37.3	3.9
6	4904.00	31.2 AV	54.0	-22.8	2.36 H	81	27.3	3.9
7	7356.00	45.5 PK	74.0	-28.5	1.75 H	153	35.6	9.9
8	7356.00	34.1 AV	54.0	-19.9	1.75 H	153	24.2	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	106.8 PK			1.77 V	9	108.0	-1.2
2	*2452.00	95.7 AV			1.77 V	9	96.9	-1.2
3	2484.20	66.4 PK	74.0	-7.6	1.77 V	9	67.6	-1.2
4	2484.20	53.7 AV	54.0	-0.3	1.77 V	9	54.9	-1.2
5	2485.10	67.7 PK	74.0	-6.3	1.77 V	9	68.9	-1.2
6	2485.10	52.6 AV	54.0	-1.4	1.77 V	9	53.8	-1.2
7	4904.00	43.0 PK	74.0	-31.0	3.00 V	57	39.1	3.9
8	4904.00	33.0 AV	54.0	-21.0	3.00 V	57	29.1	3.9
9	7356.00	44.2 PK	74.0	-29.8	1.52 V	191	34.3	9.9
10	7356.00	33.3 AV	54.0	-20.7	1.52 V	191	23.4	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.

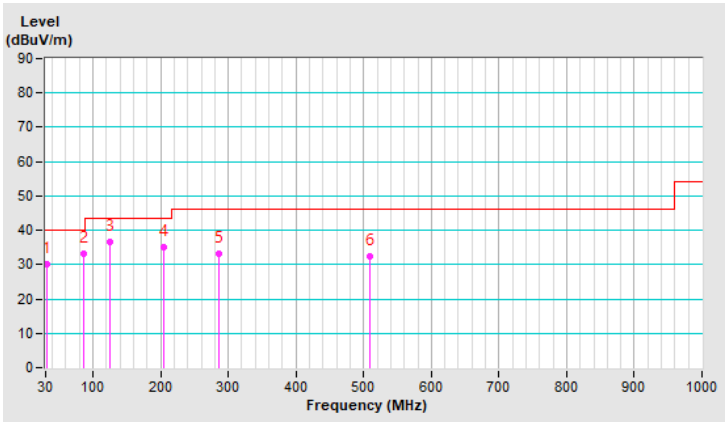
Below 1GHz Data:

RF Mode	TX VHT20	Channel	CH 6：2437 MHz
Frequency Range	9kHz ~ 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	31.19	30.2 QP	40.0	-9.8	1.00 H	300	39.7	-9.5
2	86.14	33.2 QP	40.0	-6.8	3.00 H	234	47.1	-13.9
3	125.01	36.7 QP	43.5	-6.8	3.00 H	102	46.0	-9.3
4	204.67	34.9 QP	43.5	-8.6	2.00 H	237	45.6	-10.7
5	285.79	33.3 QP	46.0	-12.7	1.00 H	127	40.4	-7.1
6	510.05	32.5 QP	46.0	-13.5	1.50 H	206	33.2	-0.7

Remarks:

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

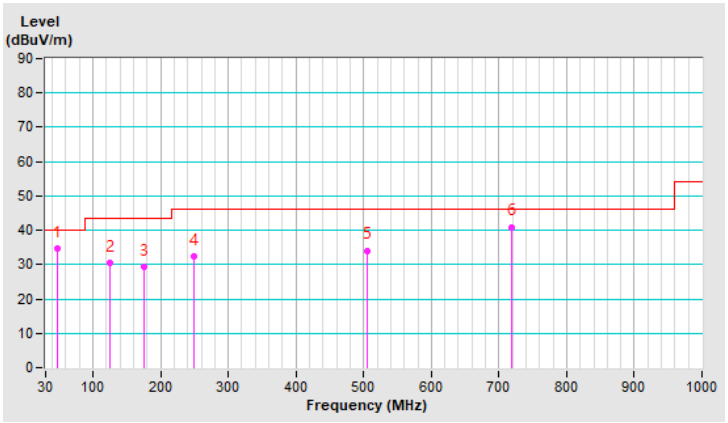


RF Mode	TX VHT20	Channel	CH 6：2437 MHz
Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

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	48.36	34.5 QP	40.0	-5.5	2.00 V	272	42.6	-8.1
2	125.01	30.3 QP	43.5	-13.2	1.00 V	180	39.6	-9.3
3	175.35	29.3 QP	43.5	-14.2	1.00 V	360	38.0	-8.7
4	250.00	32.5 QP	46.0	-13.5	2.00 V	4	41.1	-8.6
5	505.01	34.1 QP	46.0	-11.9	1.00 V	116	35.0	-0.9
6	718.31	41.0 QP	46.0	-5.0	1.00 V	59	37.7	3.3

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit 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	2020/10/20	2021/10/19
LISN R&S	ESH3-Z5	848773/004	2020/10/27	2021/10/26
LISN R & S	ESH3-Z5	835239/001	2021/3/26	2022/3/25
50 ohms Terminator	50	3	2020/10/26	2021/10/25
RF Coaxial Cable JYEBO	5D-FB	COCCAB-001	2020/9/26	2021/9/25
Fixed attenuator STI	STI02-2200-10	005	2021/8/27	2022/8/26
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: 2021/8/27

4.2.3 Test Procedures

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

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

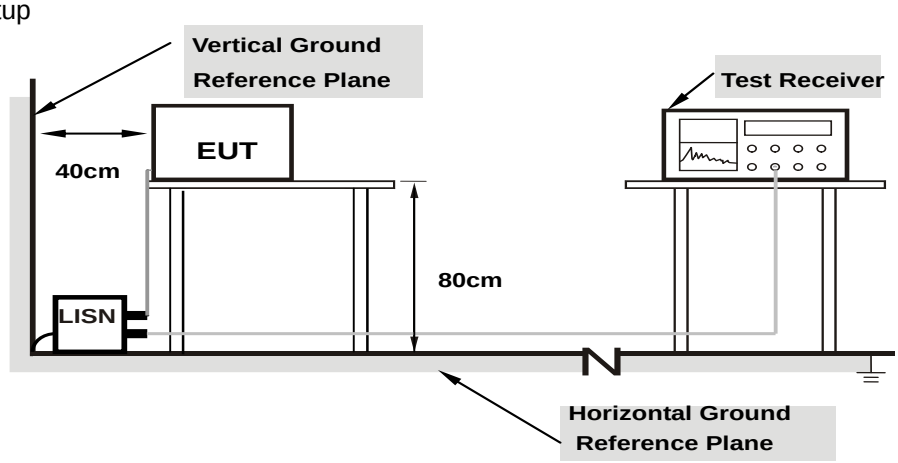
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

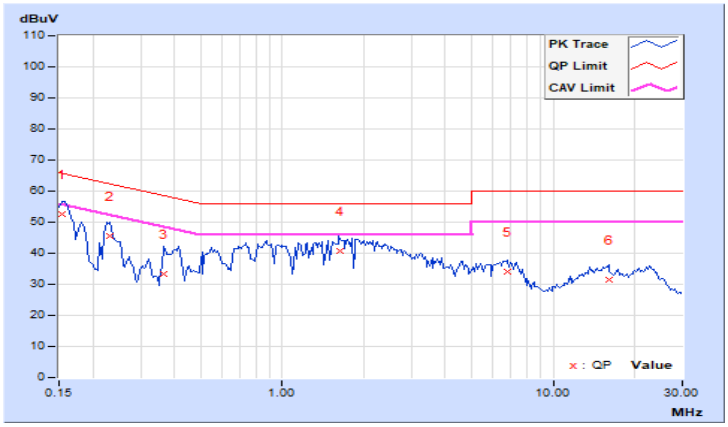
4.2.7 Test Results

RF Mode	TX VHT20	Channel	CH 6：2437 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	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	**0.15391**	**9.95**	**42.74**	**37.36**	**52.69**	**47.31**	**65.79**	**55.79**	**-13.10**	**-8.48**
2	0.23203	9.97	35.54	28.30	45.51	38.27	62.38	52.38	-16.87	-14.11
3	0.36484	9.99	23.45	13.64	33.44	23.63	58.62	48.62	-25.18	-24.99
4	1.63281	10.06	30.68	19.57	40.74	29.63	56.00	46.00	-15.26	-16.37
5	6.76563	10.34	23.64	16.20	33.98	26.54	60.00	50.00	-26.02	-23.46
6	16.06250	10.89	20.49	14.55	31.38	25.44	60.00	50.00	-28.62	-24.56

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

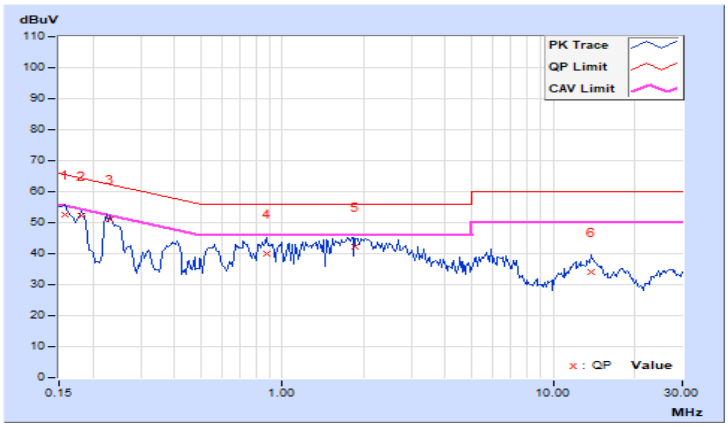


RF Mode	TX VHT20	Channel	CH 6：2437 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz

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	0.15781	9.92	42.76	35.81	52.68	45.73	65.58	55.58	-12.90	-9.85
2	0.18125	9.94	42.18	34.61	52.12	44.55	64.43	54.43	-12.31	-9.88
3	0.23203	9.95	41.32	33.40	51.27	43.35	62.38	52.38	-11.11	-9.03
4	0.87266	9.99	30.07	19.47	40.06	29.46	56.00	46.00	-15.94	-16.54
5	1.86719	10.03	32.25	20.39	42.28	30.42	56.00	46.00	-13.72	-15.58
6	13.87500	10.58	23.36	17.39	33.94	27.97	60.00	50.00	-26.06	-22.03

Remarks:

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

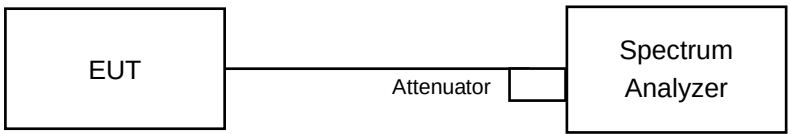


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

a. Set resolution bandwidth (RBW) = 100kHz
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 Test Result

CDD Mode

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	10.1	9.59	9.15	0.5	PASS
6	2437	9.58	9.18	9.59	0.5	PASS
11	2462	9.64	9.15	9.16	0.5	PASS

802.11g

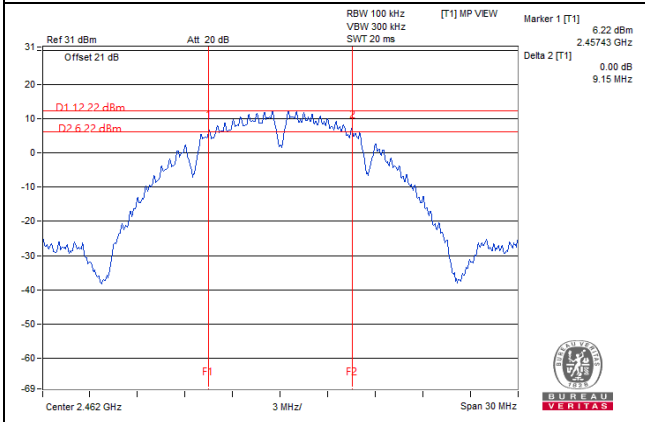
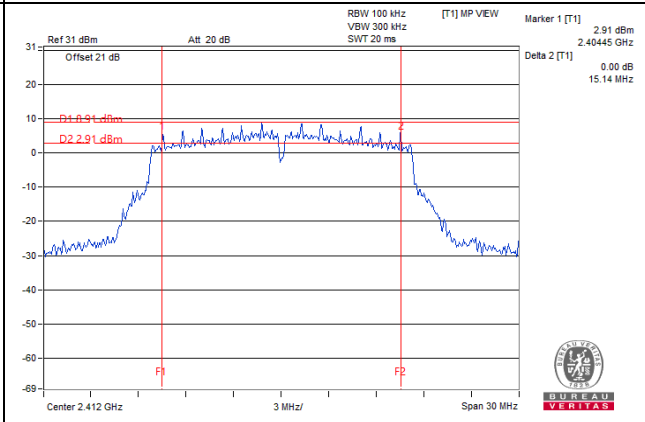
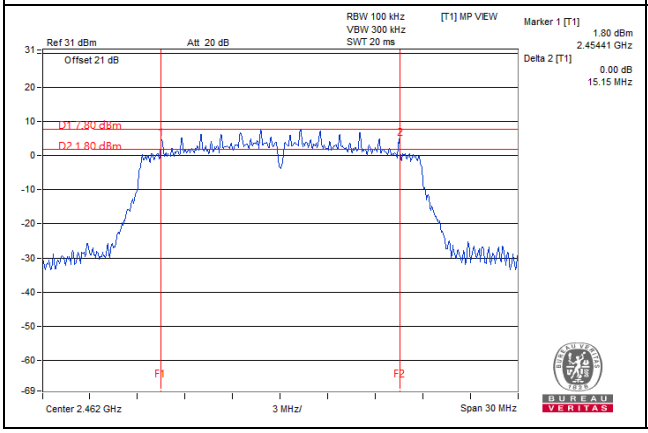
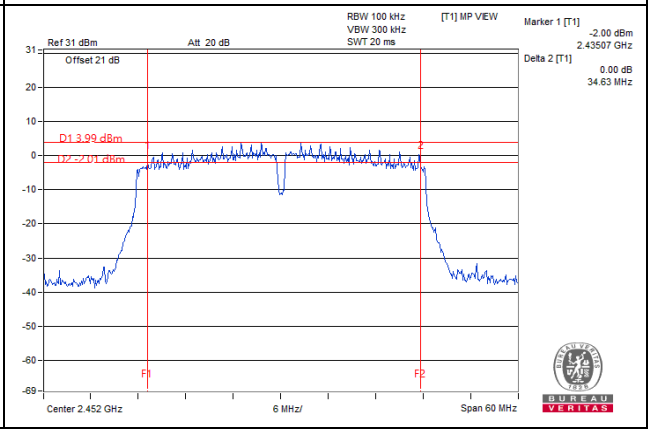
Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	15.14	15.17	15.18	0.5	PASS
6	2437	16.01	15.77	16.35	0.5	PASS
11	2462	15.17	15.19	15.16	0.5	PASS

VHT20

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	15.17	15.77	15.19	0.5	PASS
6	2437	15.19	15.78	15.18	0.5	PASS
11	2462	15.15	15.73	15.18	0.5	PASS

VHT40

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
3	2422	35.25	35.18	35.27	0.5	PASS
6	2437	35.22	35.24	35.22	0.5	PASS
9	2452	35.19	34.63	35.18	0.5	PASS

Spectrum Plot of Worst Value	
802.11b / Chain 1 : CH11	**802.11g / Chain 0 : CH1**
	
VHT20 / Chain 0 : CH11	**VHT40 / Chain 1 : CH9**
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

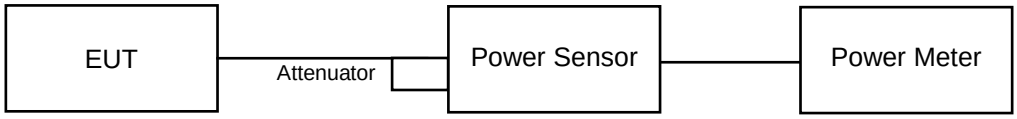
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results

CDD Mode

802.11b

Chan.	Frequency (MHz)	Avg. Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	23.13	23.21	23.25	626.349	27.97	30	Pass
6	2437	23.22	23.13	23.32	630.266	28.00	30	Pass
11	2462	22.12	22.55	22.89	537.353	27.30	30	Pass

802.11g

Chan.	Frequency (MHz)	Avg. Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	18.96	19.57	19.53	259.021	24.13	30	Pass
6	2437	24.26	23.99	24.34	788.941	28.97	30	Pass
11	2462	18.73	19.18	19.13	239.286	23.79	30	Pass

VHT20

Chan.	Frequency (MHz)	Avg. Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	18.90	19.16	19.14	242.074	23.84	30	Pass
6	2437	24.17	24.59	24.76	848.182	29.28	30	Pass
11	2462	18.42	19.78	18.77	239.898	23.80	30	Pass

VHT40

Chan.	Frequency (MHz)	Avg. Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
3	2422	17.54	17.80	17.68	175.624	22.45	30	Pass
6	2437	19.39	19.62	19.65	270.775	24.33	30	Pass
9	2452	17.10	17.25	17.17	156.494	21.94	30	Pass

Beamforming Mode

VHT20

Chan.	Frequency (MHz)	Avg. Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	18.90	19.16	19.14	242.074	23.84	28.47	Pass
6	2437	23.07	23.53	23.69	662.076	28.21	28.47	Pass
11	2462	18.42	19.78	18.77	239.898	23.80	28.47	Pass

Note: 1. Directional gain = 7.53dBi > 6dBi , so the power density limit shall be reduced to 30-(7.53-6) = 28.47dBm.

VHT40

Chan.	Frequency (MHz)	Avg. Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
3	2422	17.54	17.80	17.68	175.624	22.45	28.47	Pass
6	2437	19.39	19.62	19.65	270.775	24.33	28.47	Pass
9	2452	17.10	17.25	17.17	156.494	21.94	28.47	Pass

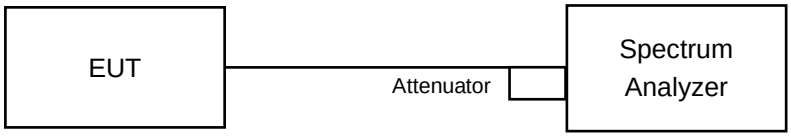
Note: 1. Directional gain = 7.53dBi > 6dBi , so the power density limit shall be reduced to 30-(7.53-6) = 28.47dBm.

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

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

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

CDD Mode

802.11b

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)			Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2			
1	2412	-8.87	-7.84	-7.79	-3.37	6.47	PASS
6	2437	-9.24	-8.64	-7.96	-3.81	6.47	PASS
11	2462	-9.28	-9.51	-8.98	-4.48	6.47	PASS

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = 7.53dBi > 6dBi , so the power density limit shall be reduced to 8-(7.53-6) = 6.47dBm.

802.11g

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)			Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2			
1	2412	-11.85	-11.91	-13.08	-7.47	6.47	PASS
6	2437	-7.25	-7.75	-7.44	-2.70	6.47	PASS
11	2462	-11.89	-12.42	-13.30	-7.73	6.47	PASS

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = 7.53dBi > 6dBi , so the power density limit shall be reduced to 8-(7.53-6) = 6.47dBm.

VHT20

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)			Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2			
1	2412	-13.83	-12.47	-13.46	-8.44	6.47	PASS
6	2437	-7.83	-8.04	-7.79	-3.11	6.47	PASS
11	2462	-13.58	-12.03	-13.40	-8.18	6.47	PASS

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = 7.53dBi > 6dBi , so the power density limit shall be reduced to 8-(7.53-6) = 6.47dBm.

VHT40

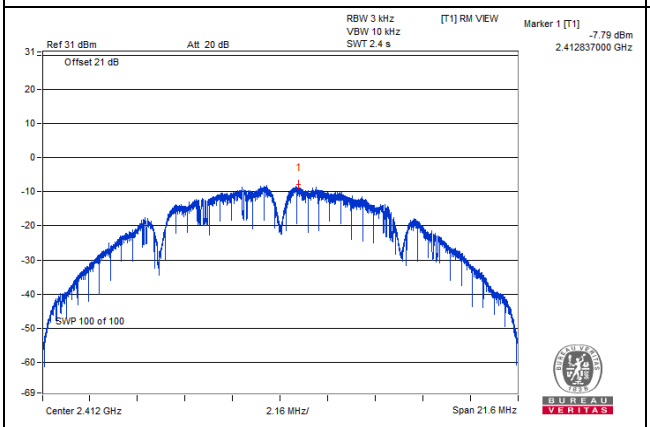
Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)			Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2			
3	2422	-17.34	-17.90	-17.50	-12.80	6.47	PASS
6	2437	-15.01	-15.85	-16.65	-11.01	6.47	PASS
9	2452	-17.64	-18.41	-18.37	-13.35	6.47	PASS

Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.

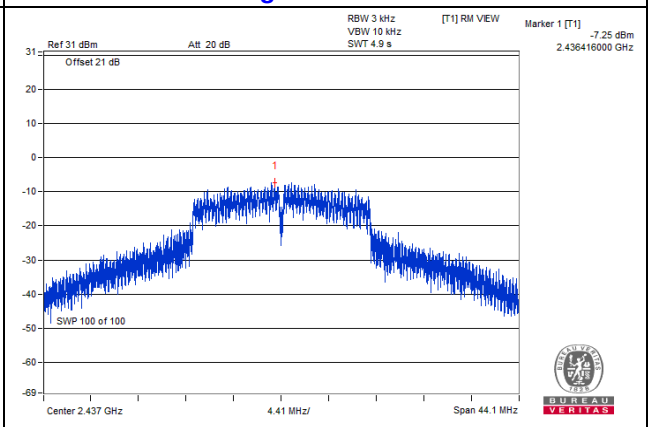
2. Directional gain = 7.53dBi > 6dBi , so the power density limit shall be reduced to 8-(7.53-6) = 6.47dBm.

Spectrum Plot of Worst Value

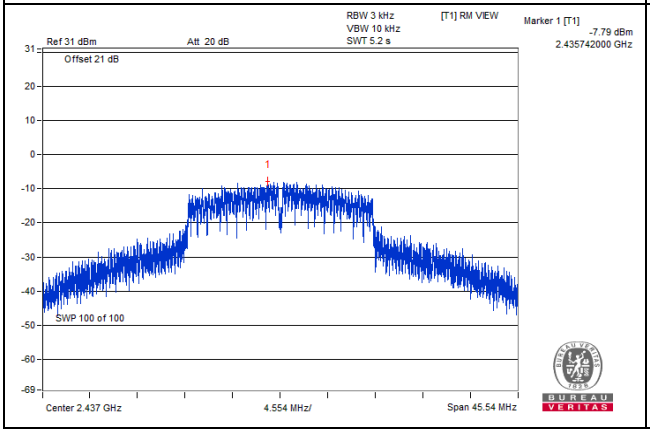
802.11b / Chain 2 : CH1



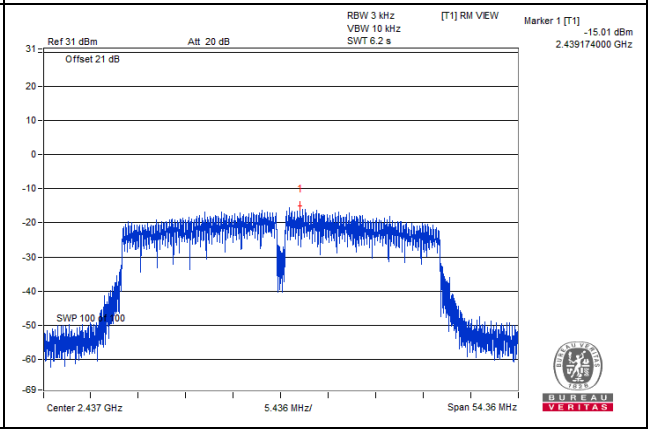
802.11g / Chain 0 : CH6



VHT20 / Chain 2 : CH6



VHT40 / Chain 0 : CH6

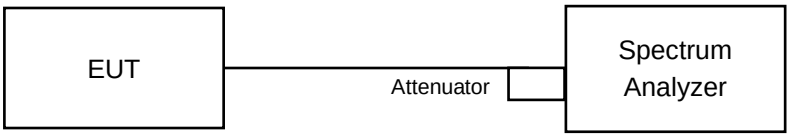


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

Below 30dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

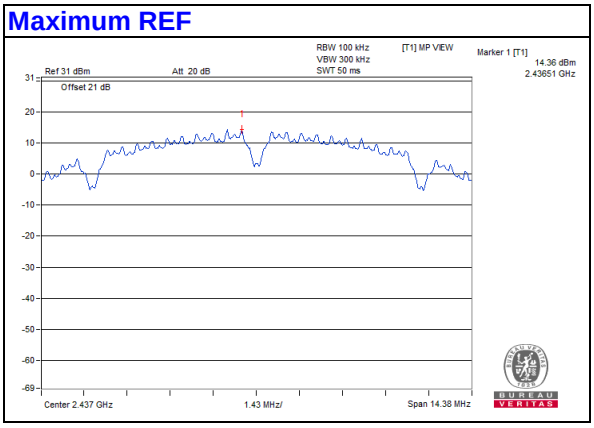
Same as Item 4.3.6

4.6.7 Test Results

The 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.

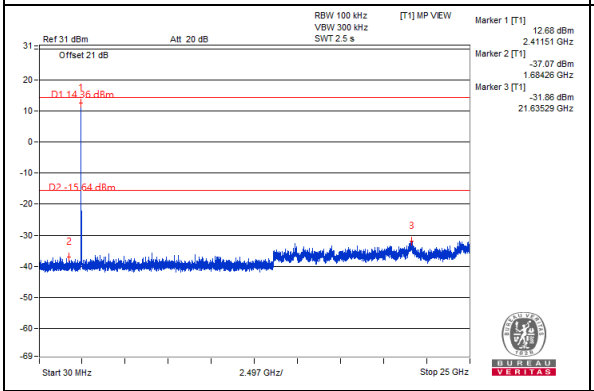
802.11b

Maximum REF

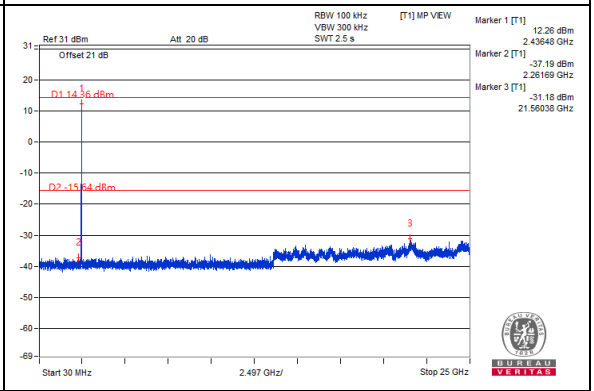


Chain 0

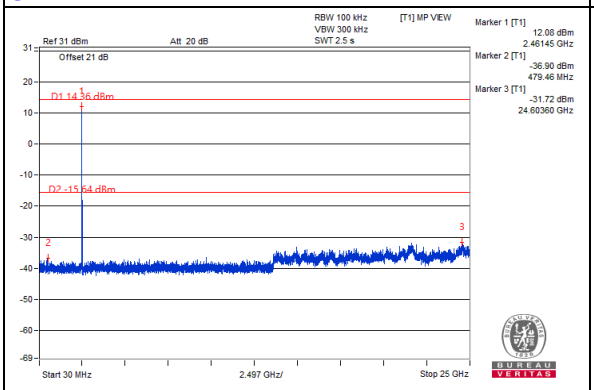
CH 1



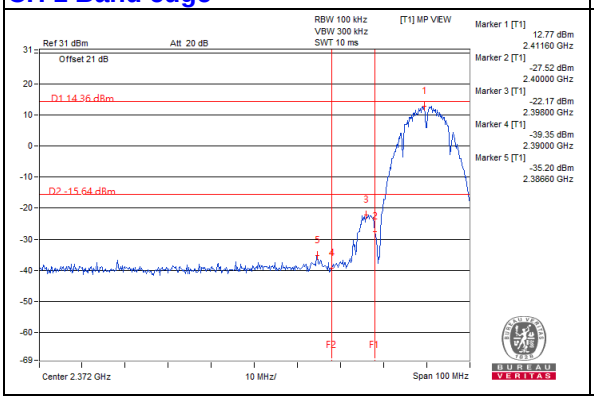
CH 6



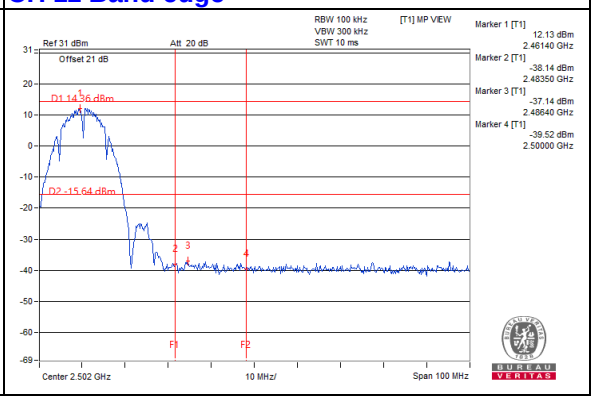
CH 11



CH 1 Band edge

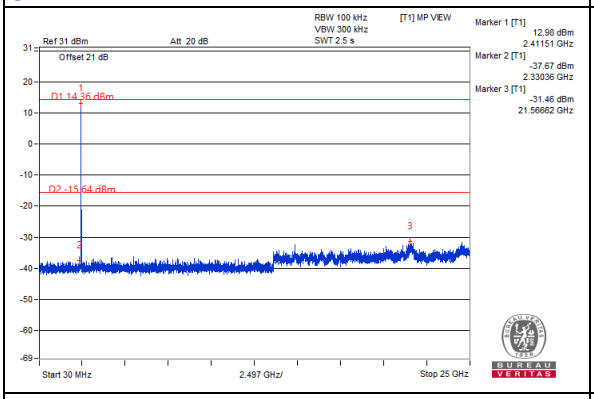


CH 11 Band edge

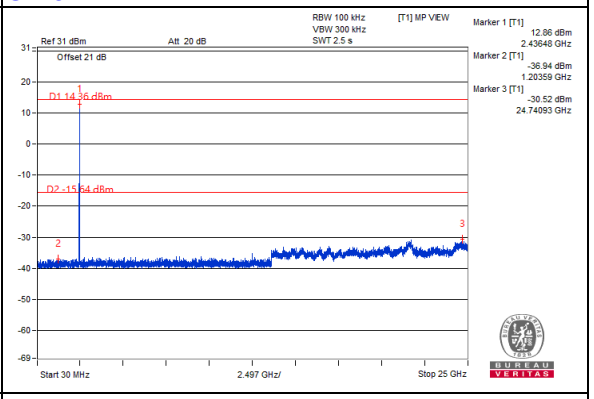


Chain 1

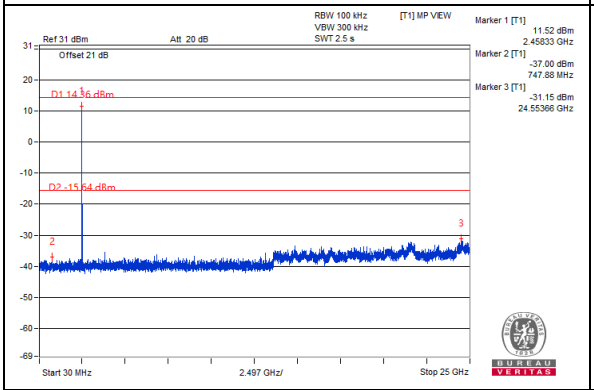
CH 1



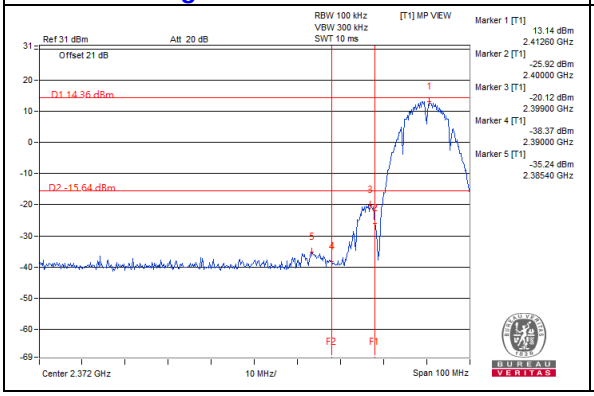
CH 6



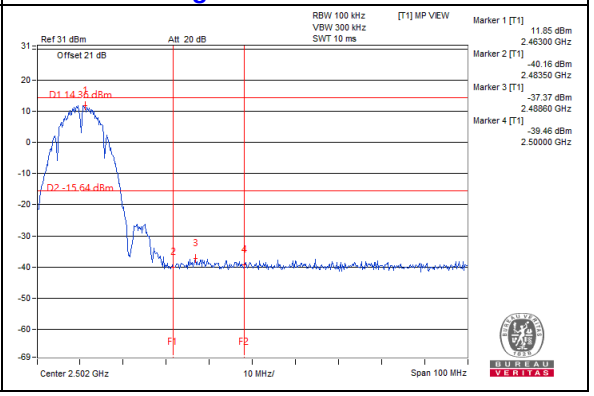
CH 11



CH 1 Band edge

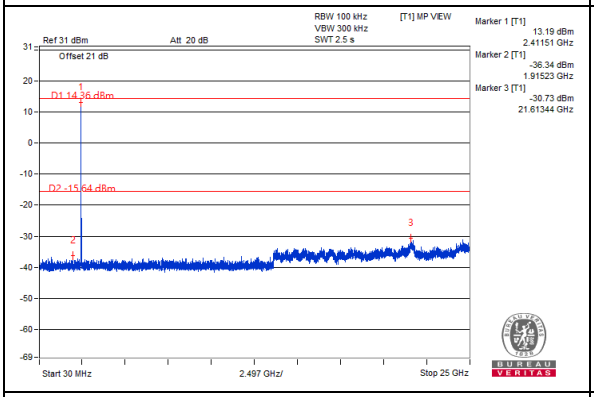


CH 11 Band edge

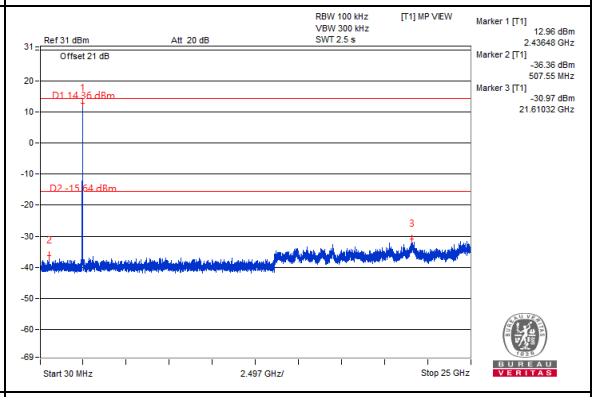


Chain 2

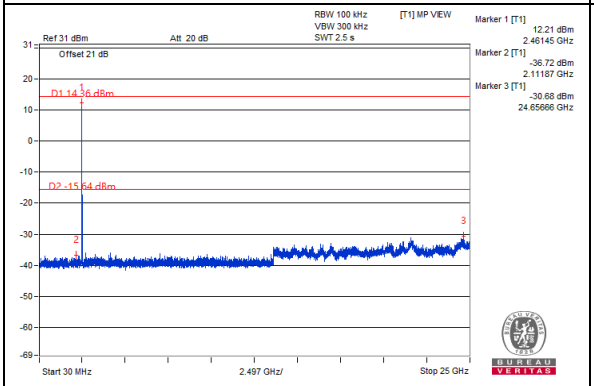
CH 1



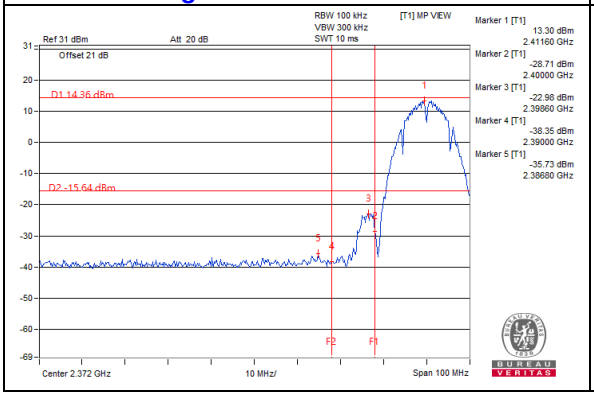
CH 6



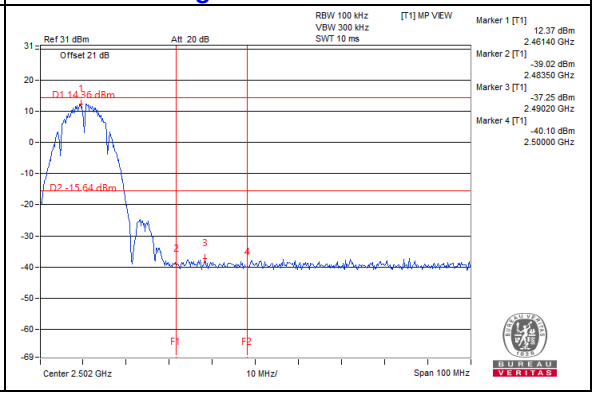
CH 11



CH 1 Band edge

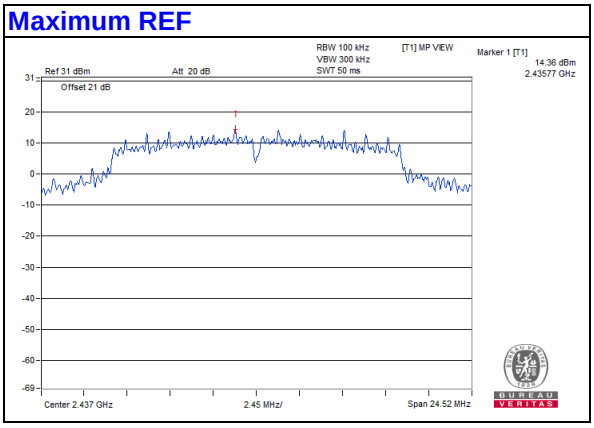


CH 11 Band edge



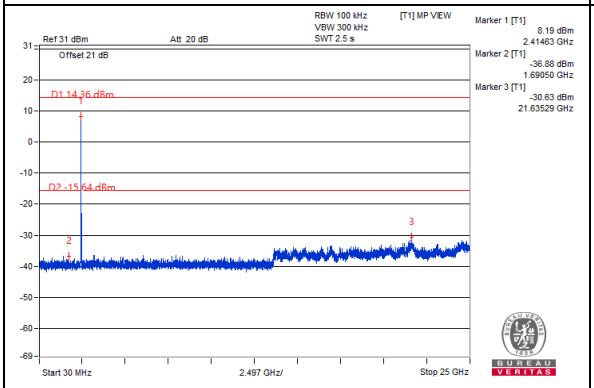
802.11g

Maximum REF

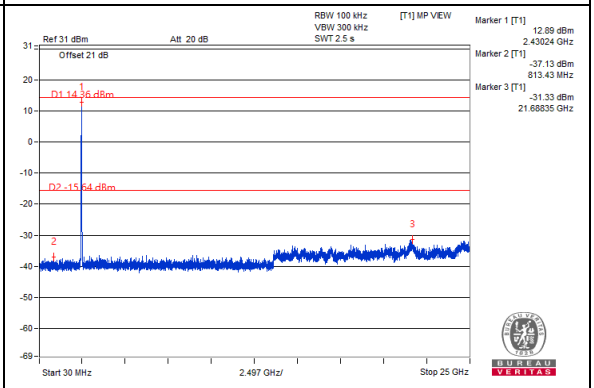


Chain 0

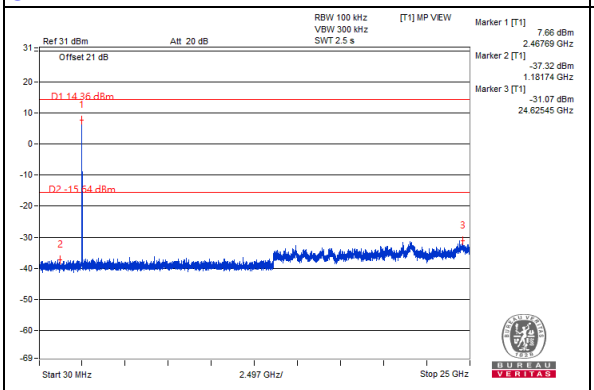
CH 1



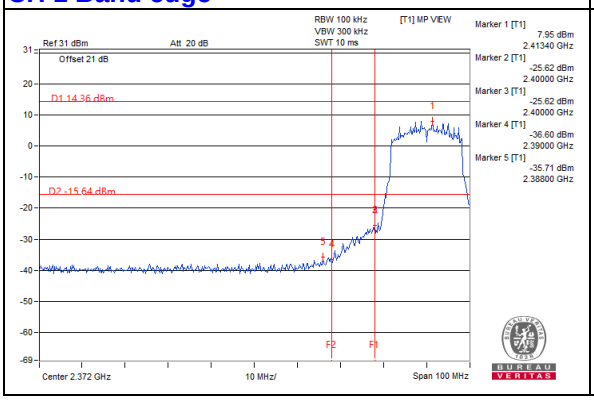
CH 6



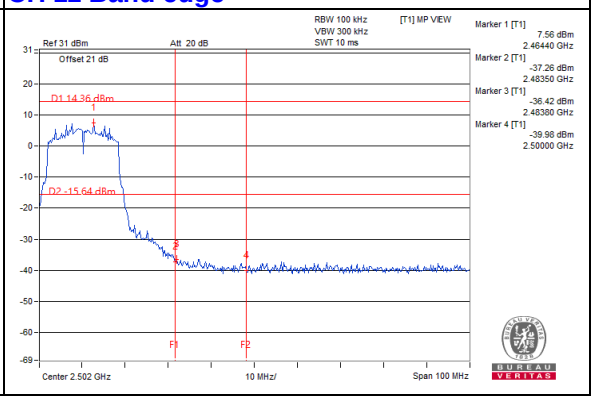
CH 11



CH 1 Band edge

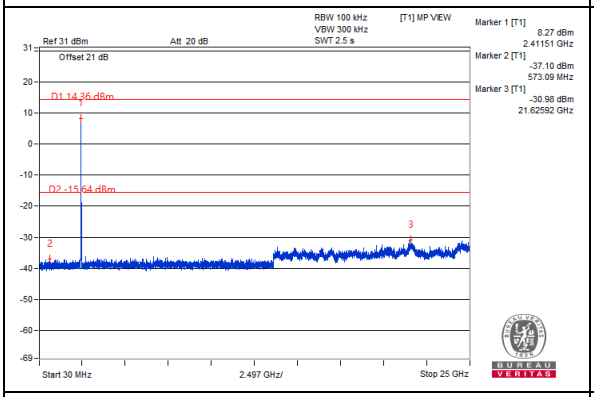


CH 11 Band edge

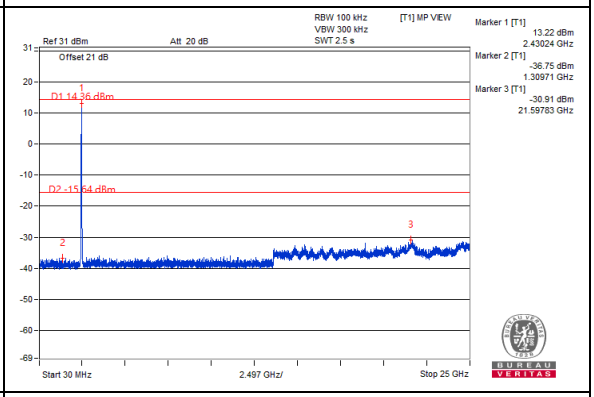


Chain 1

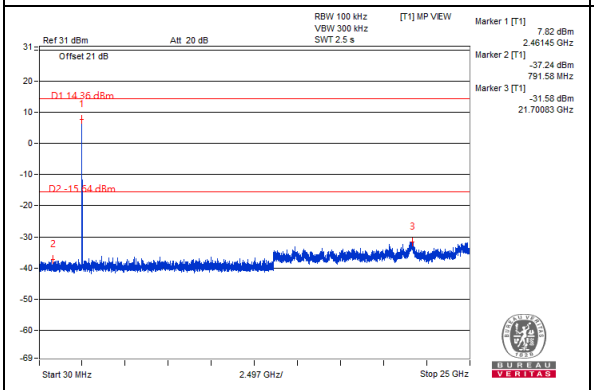
CH 1



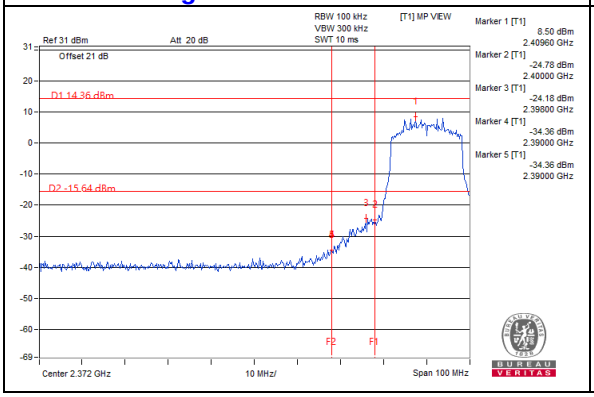
CH 6



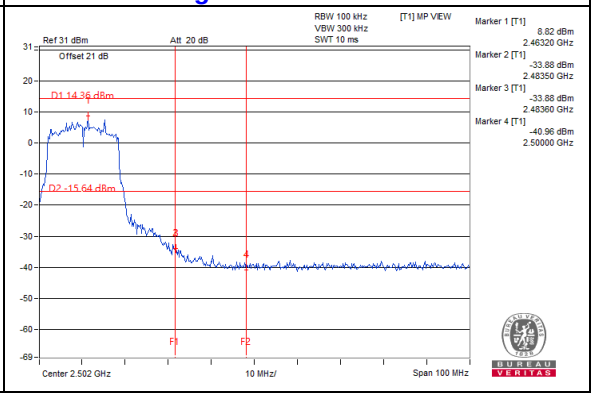
CH 11



CH 1 Band edge

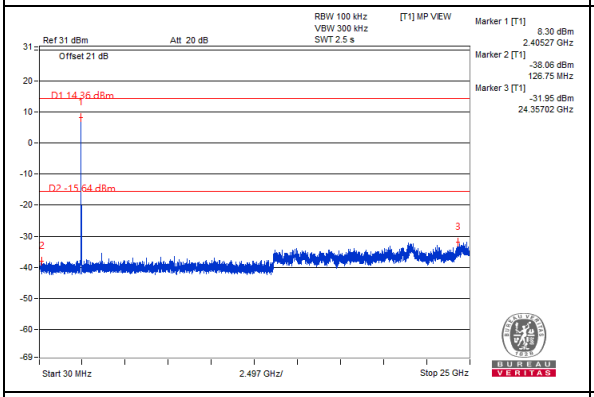


CH 11 Band edge

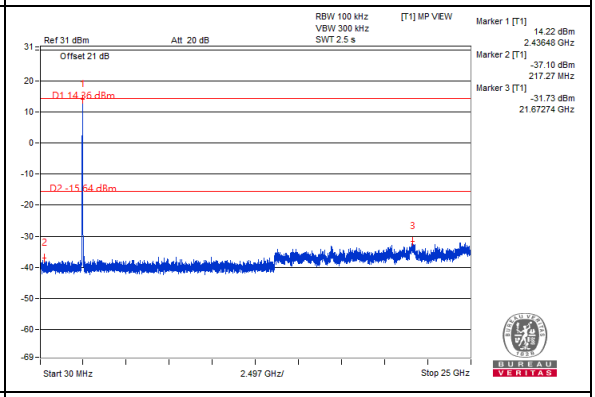


Chain 2

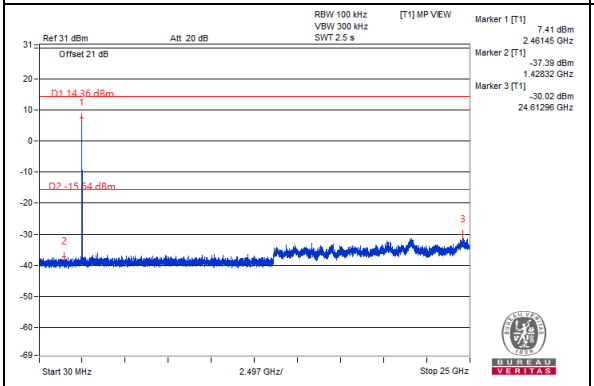
CH 1



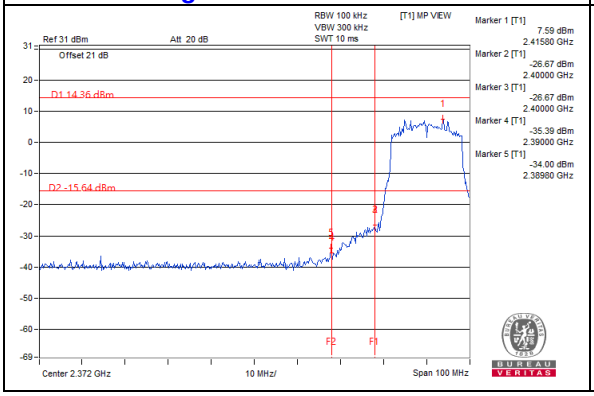
CH 6



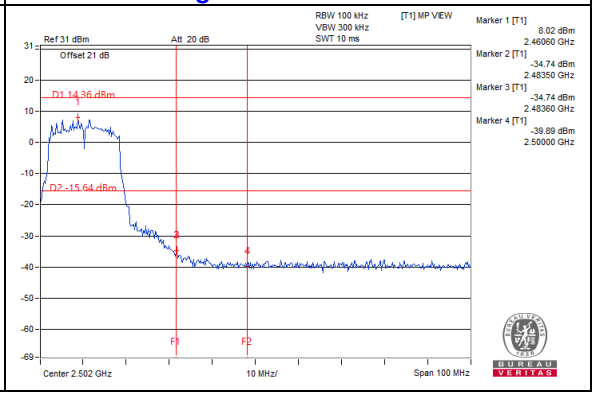
CH 11



CH 1 Band edge

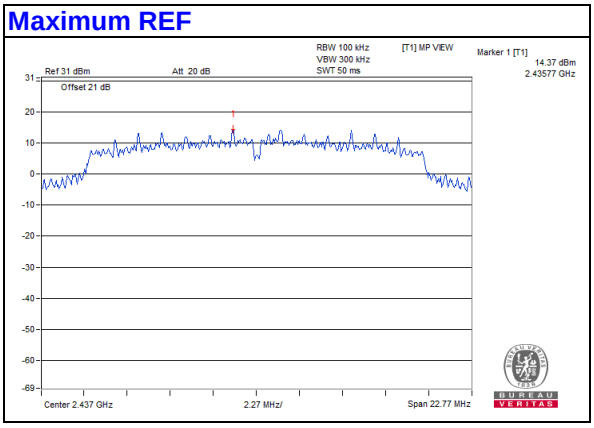


CH 11 Band edge



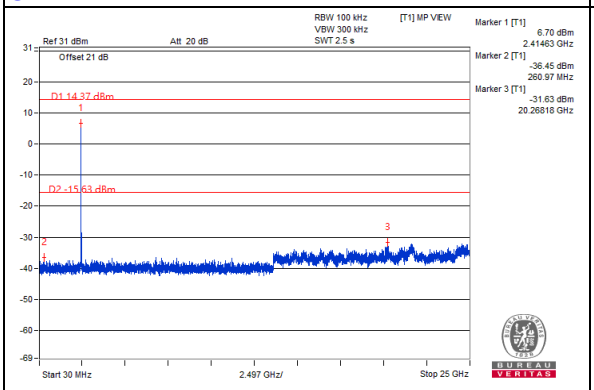
VHT20

Maximum REF

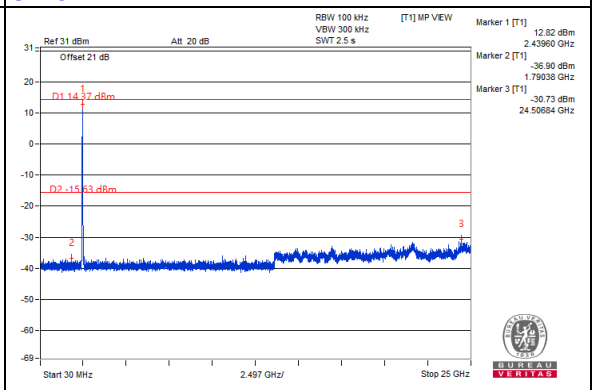


Chain 0

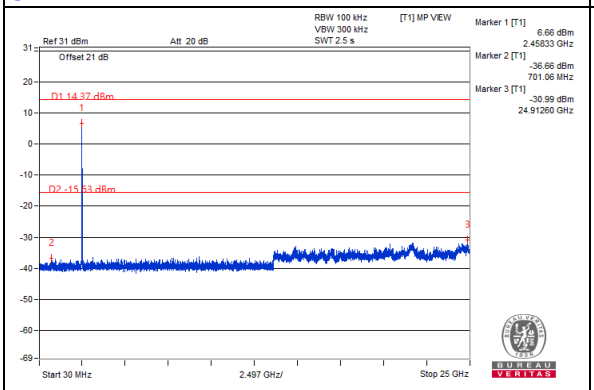
CH 1



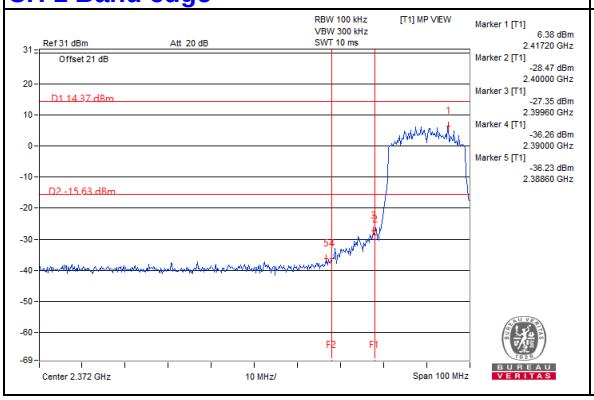
CH 6



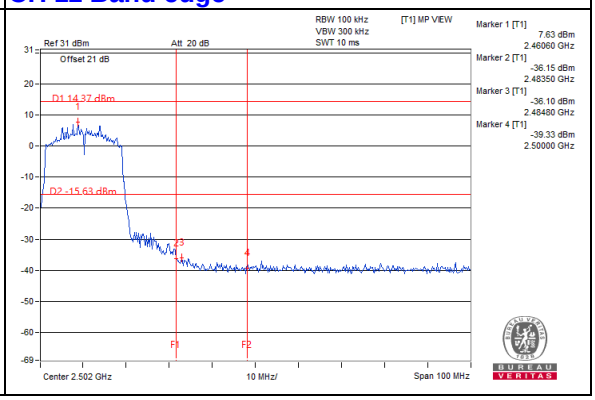
CH 11



CH 1 Band edge

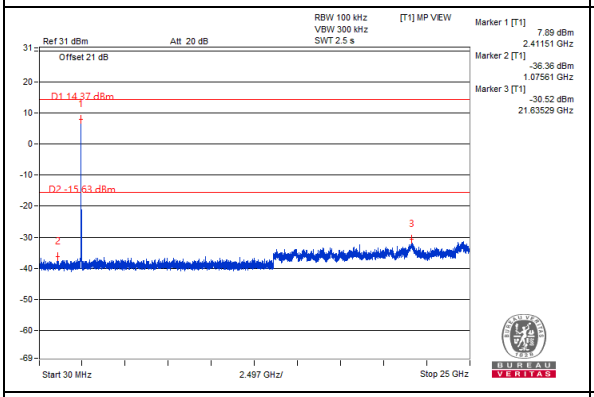


CH 11 Band edge

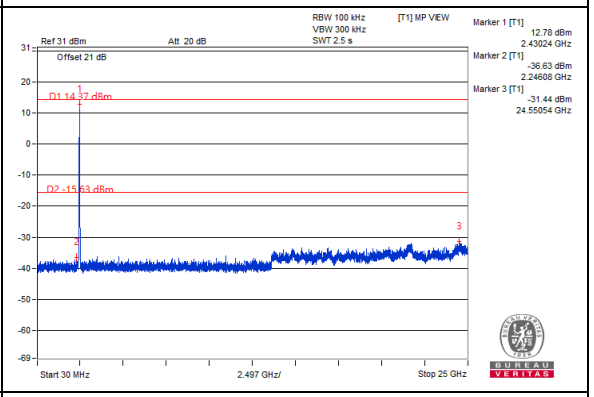


Chain 1

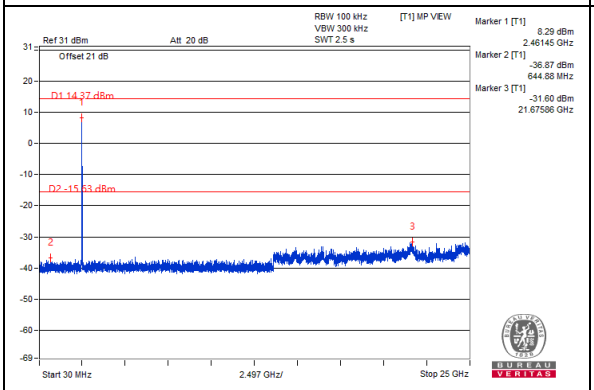
CH 1



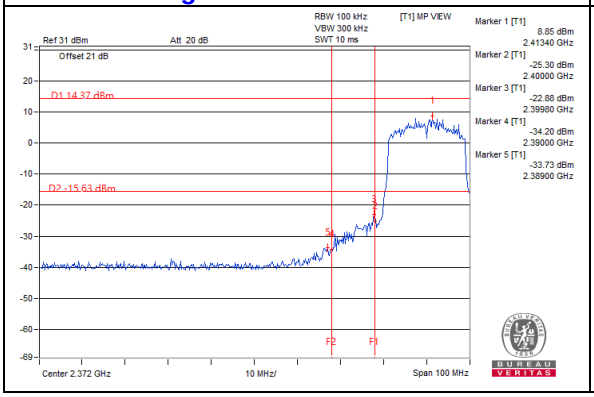
CH 6



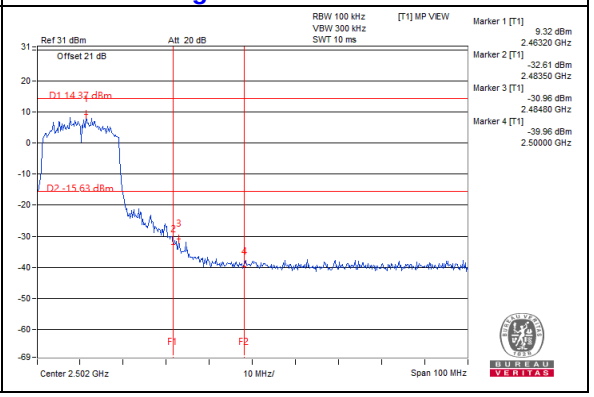
CH 11



CH 1 Band edge

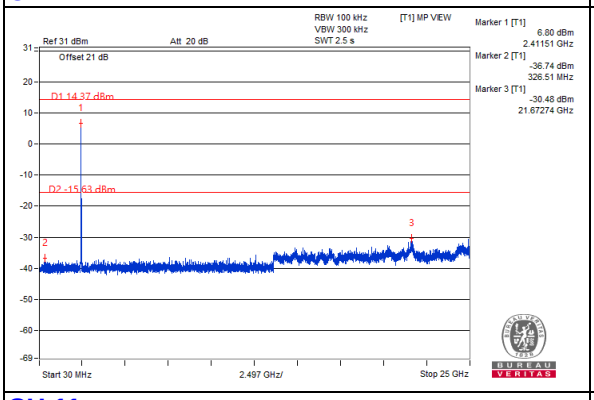


CH 11 Band edge

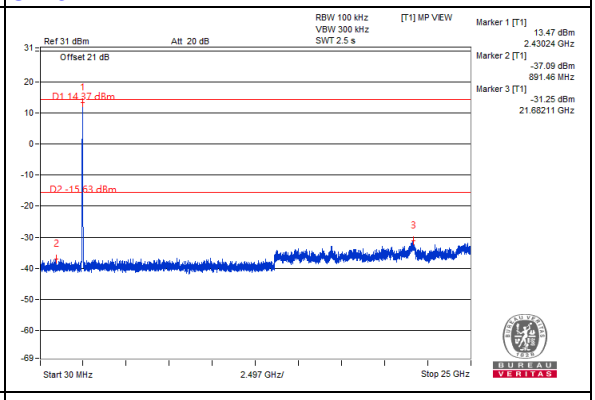


Chain 2

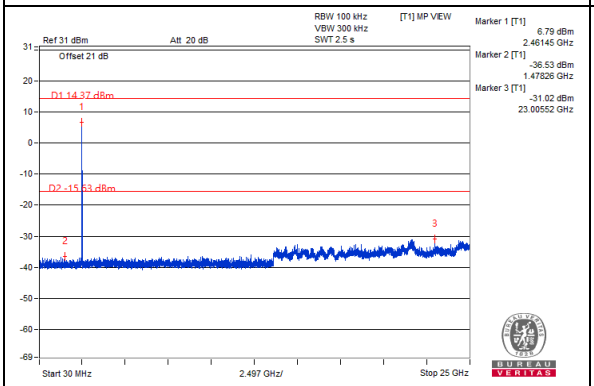
CH 1



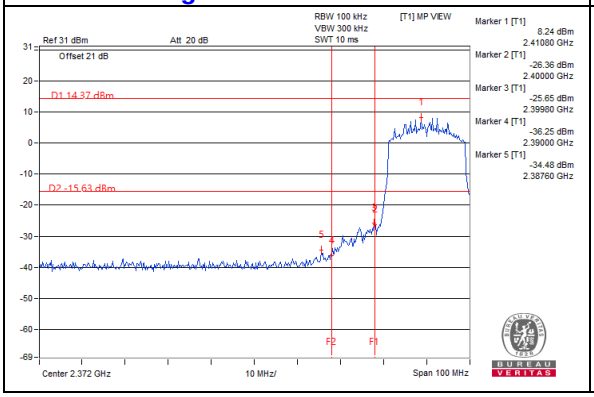
CH 6



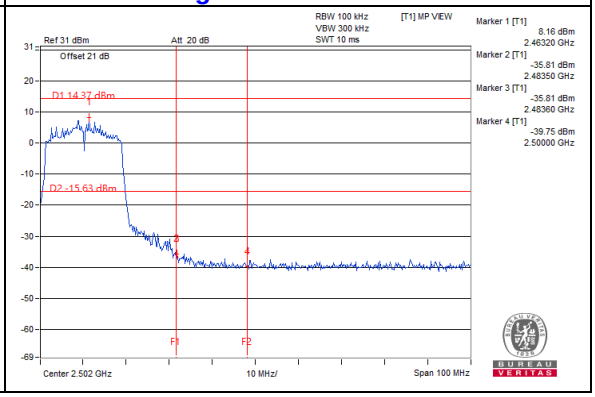
CH 11



CH 1 Band edge

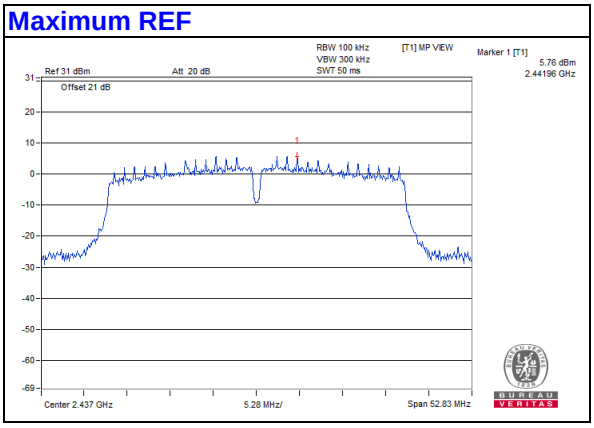


CH 11 Band edge



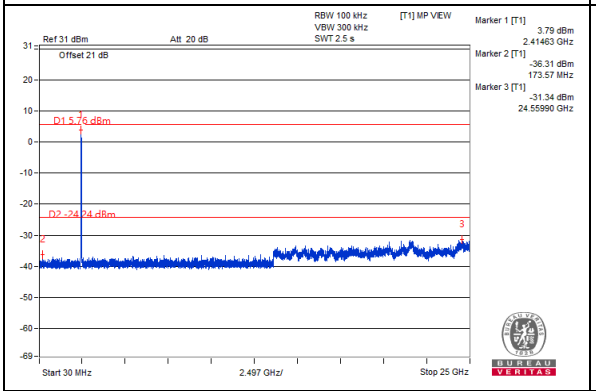
VHT40

Maximum REF

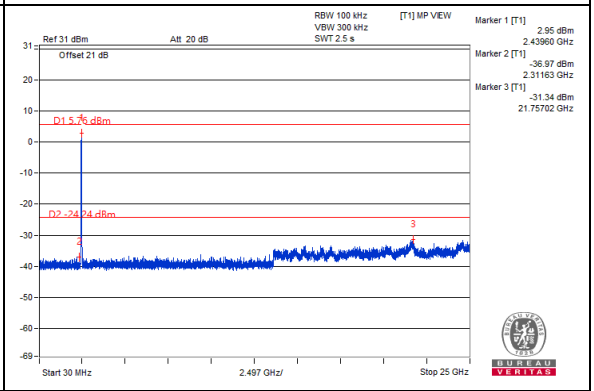


Chain 0

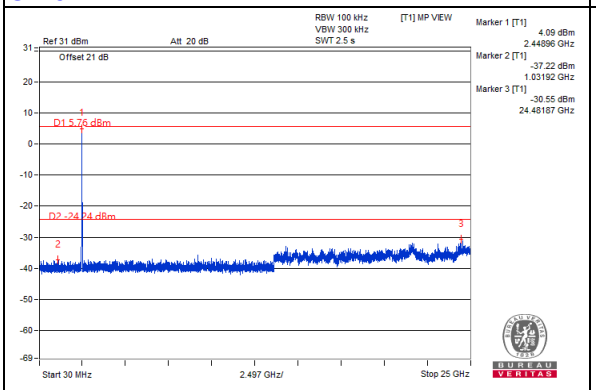
CH 3



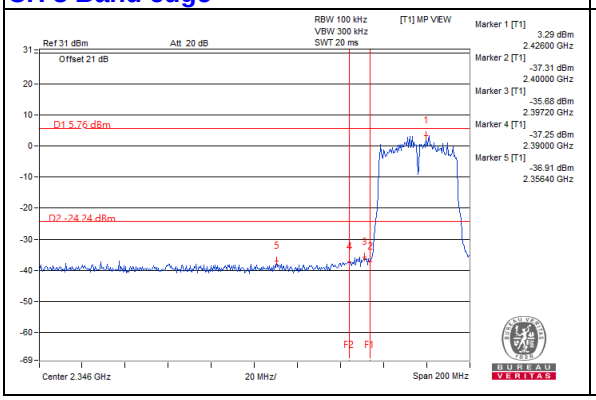
CH 6



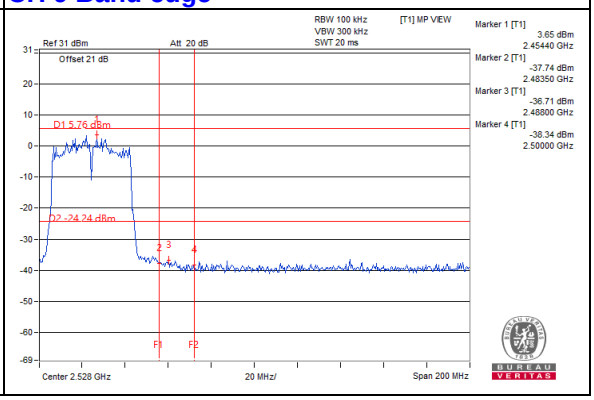
CH 9



CH 3 Band edge

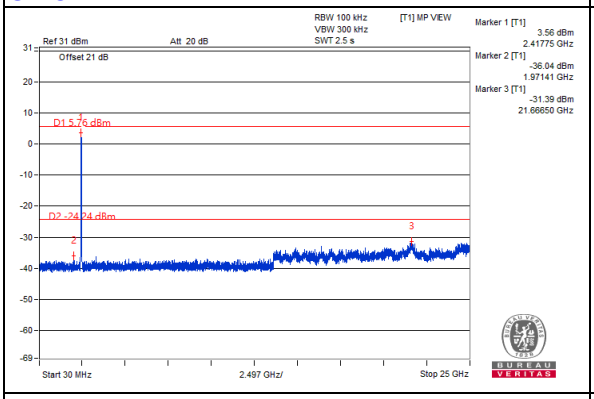


CH 9 Band edge

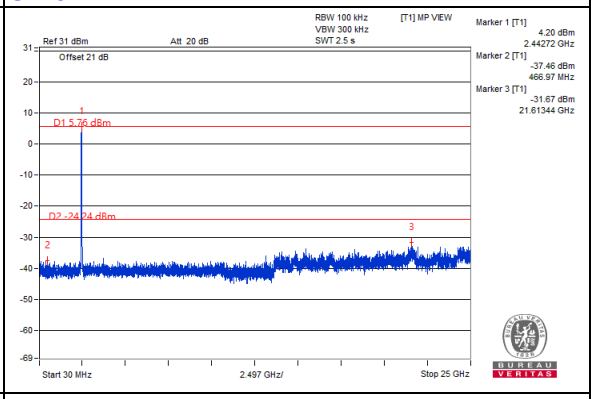


Chain 1

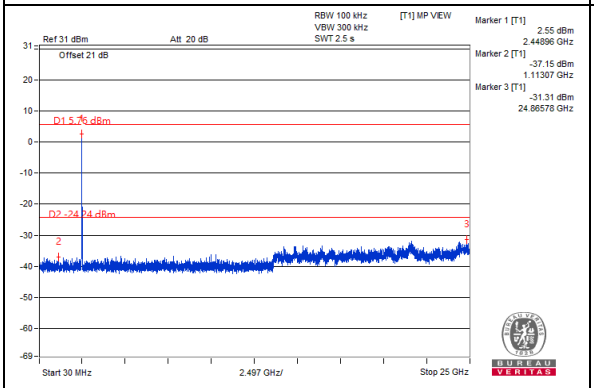
CH 3



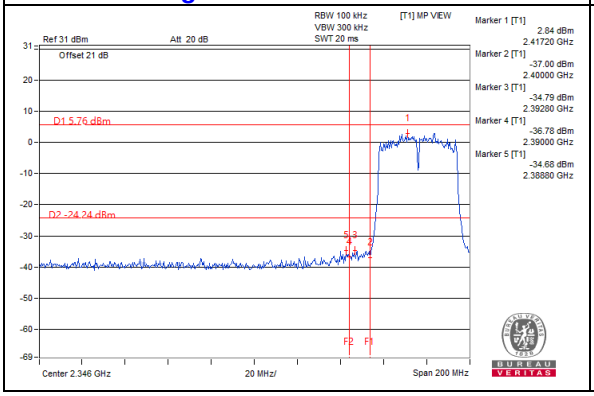
CH 6



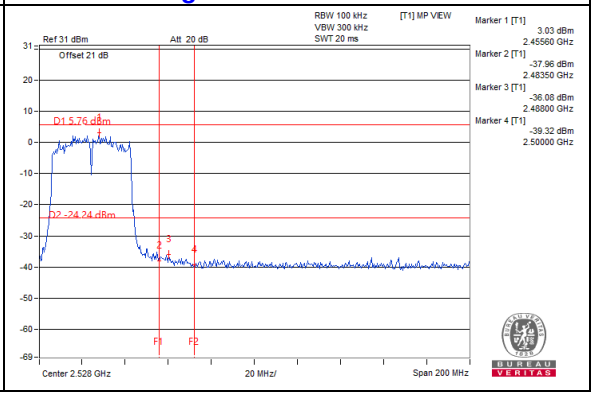
CH 9



CH 3 Band edge

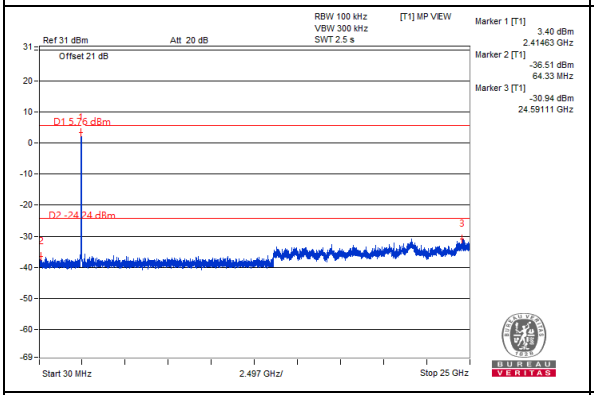


CH 9 Band edge

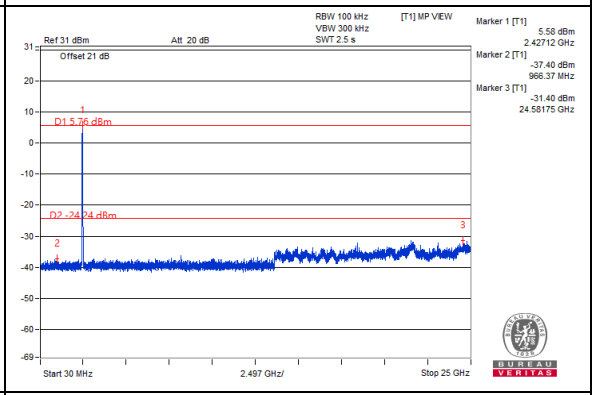


Chain 2

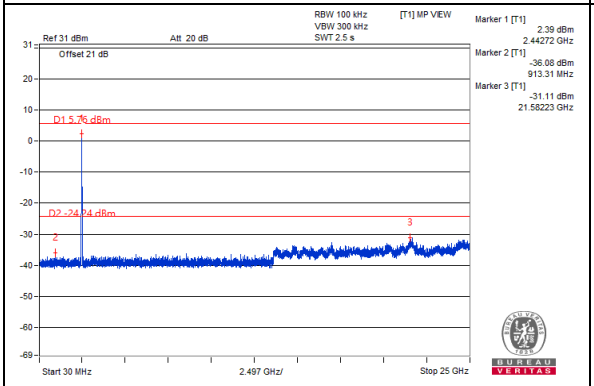
CH 3



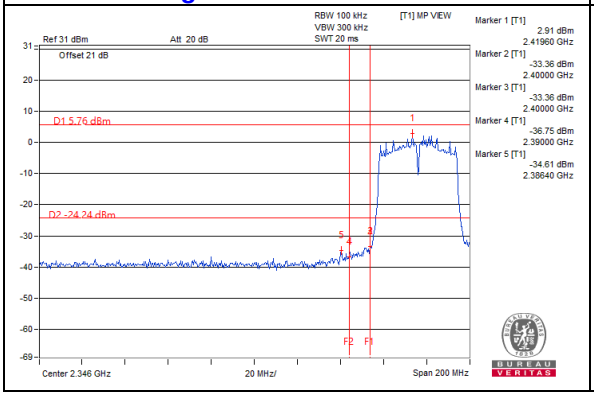
CH 6



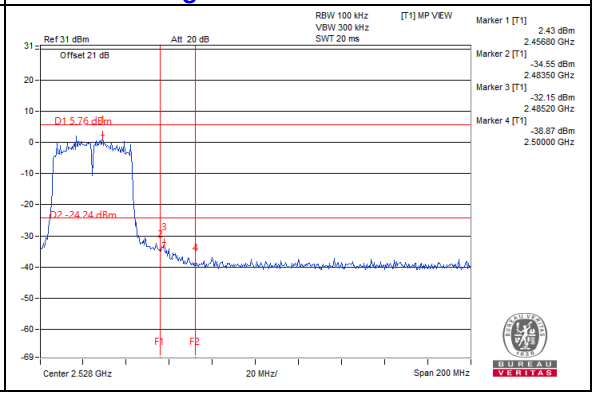
CH 9



CH 3 Band edge



CH 9 Band edge



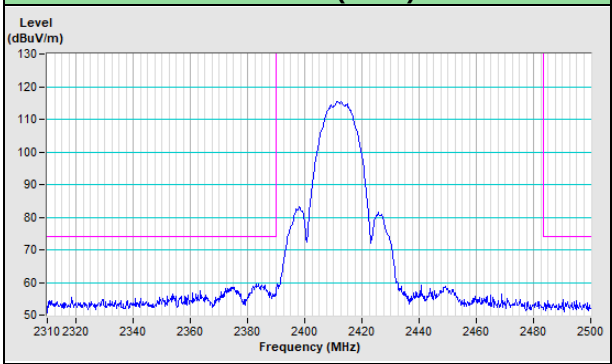
5 Pictures of Test Arrangements

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

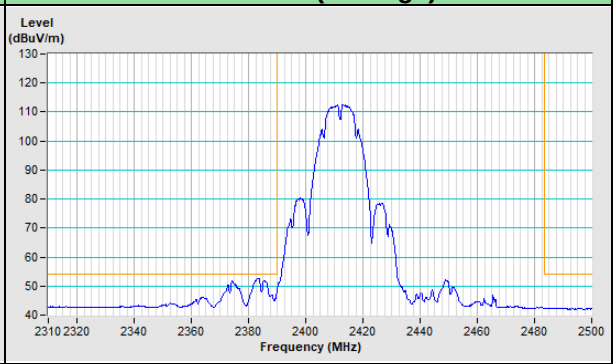
Annex A - Band-Edge Measurement

802.11b Channel 1

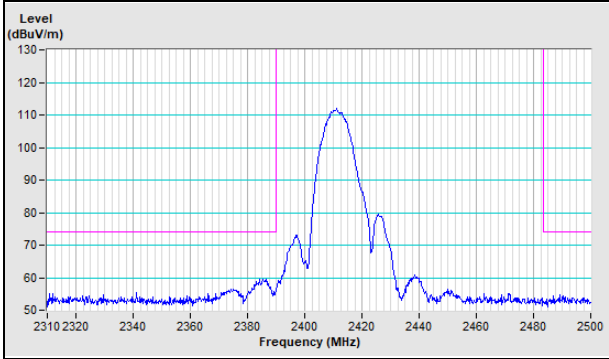
Horizontal (Peak)



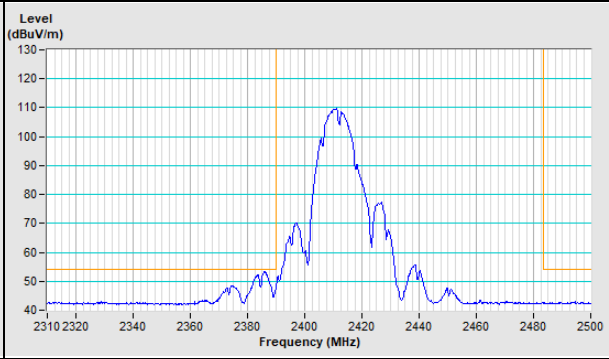
Horizontal (Average)



Vertical (Peak)

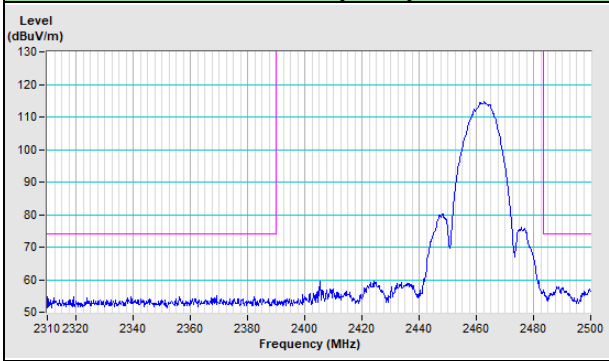


Vertical (Average)

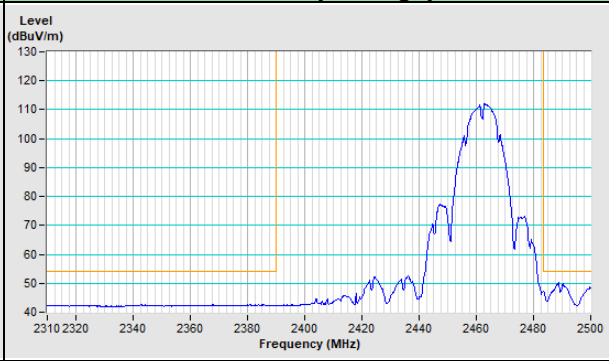


802.11b Channel 11

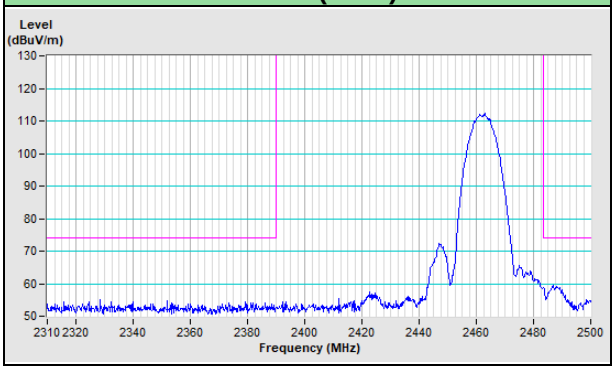
Horizontal (Peak)



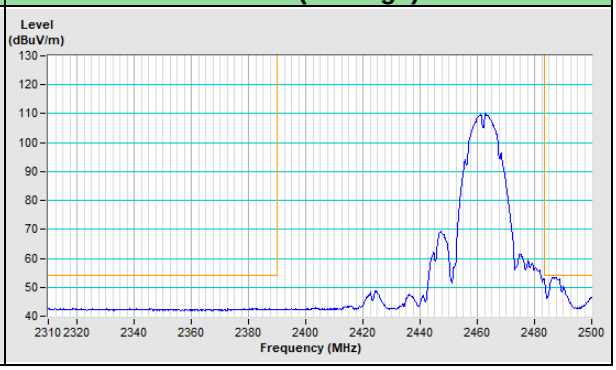
Horizontal (Average)



Vertical (Peak)

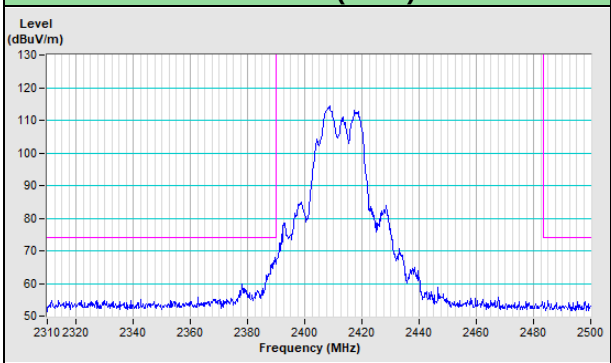


Vertical (Average)

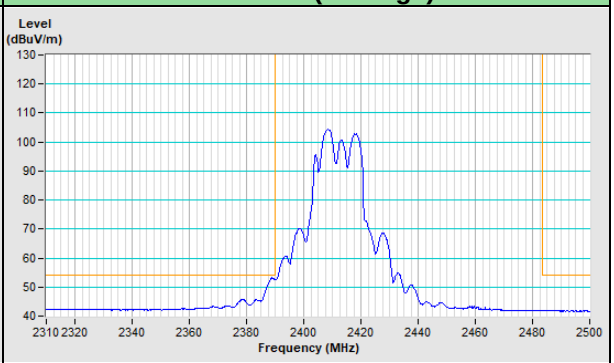


802.11g Channel 1

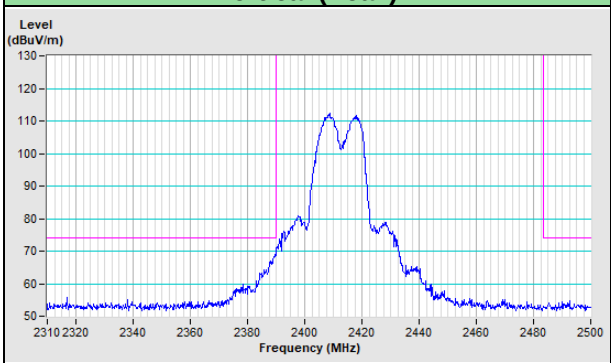
Horizontal (Peak)



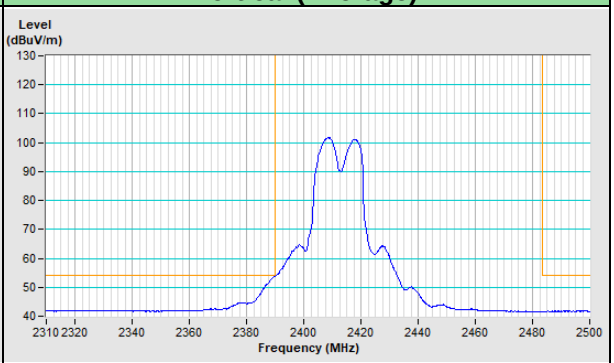
Horizontal (Average)



Vertical (Peak)

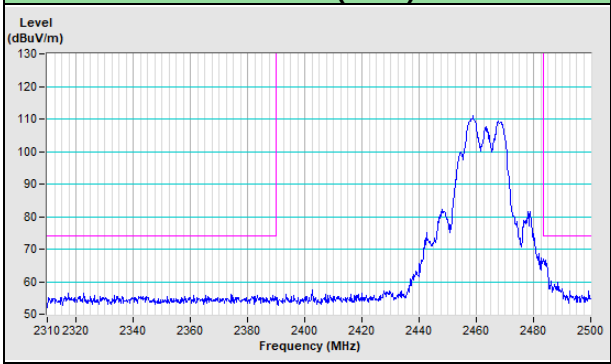


Vertical (Average)

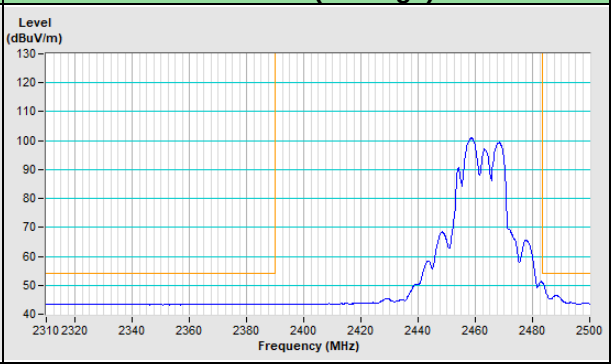


802.11g Channel 11

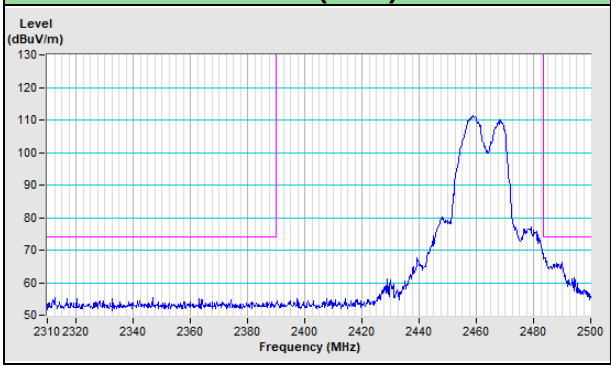
Horizontal (Peak)



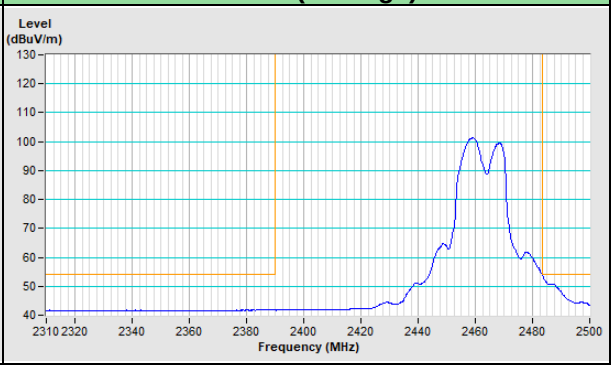
Horizontal (Average)



Vertical (Peak)

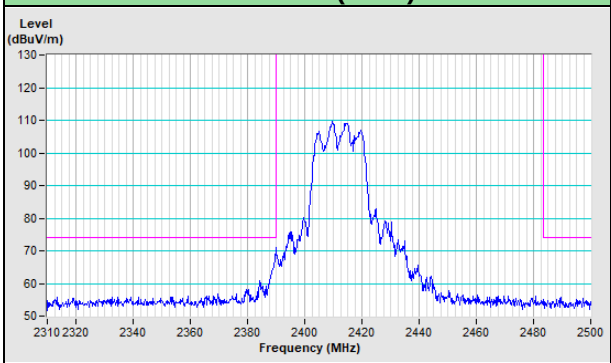


Vertical (Average)

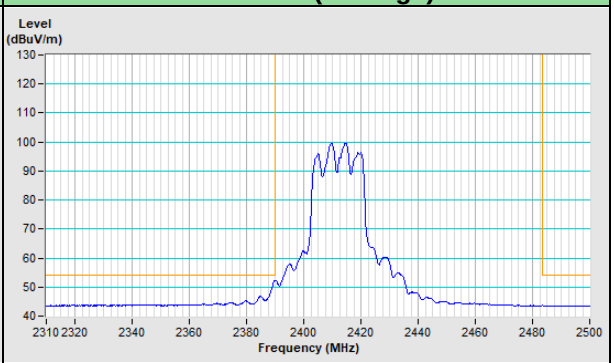


VHT20 Channel 1

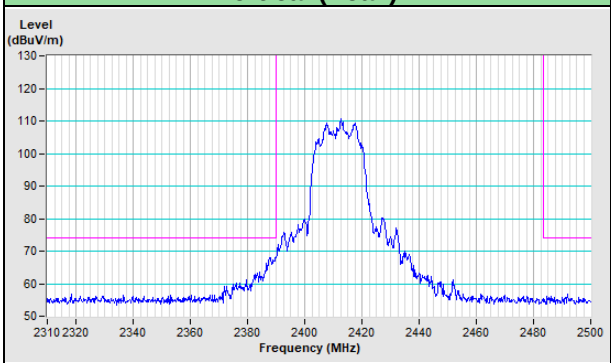
Horizontal (Peak)



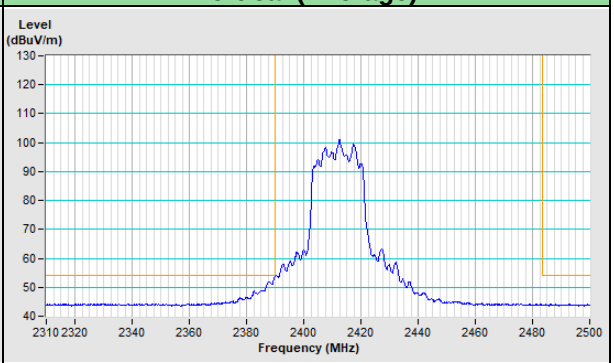
Horizontal (Average)



Vertical (Peak)

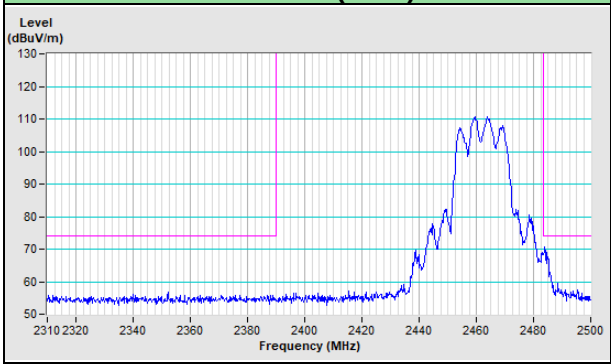


Vertical (Average)

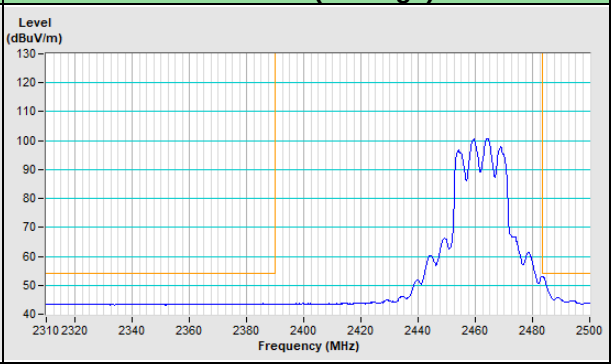


VHT20 Channel 11

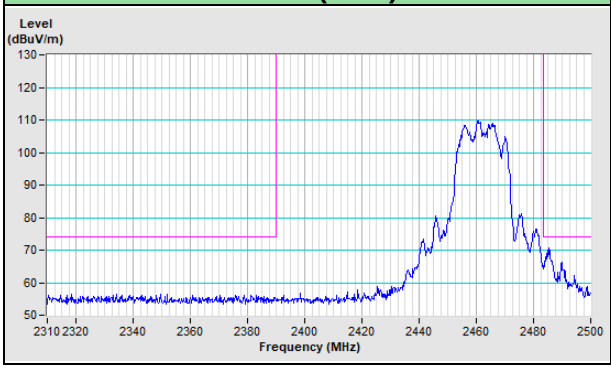
Horizontal (Peak)



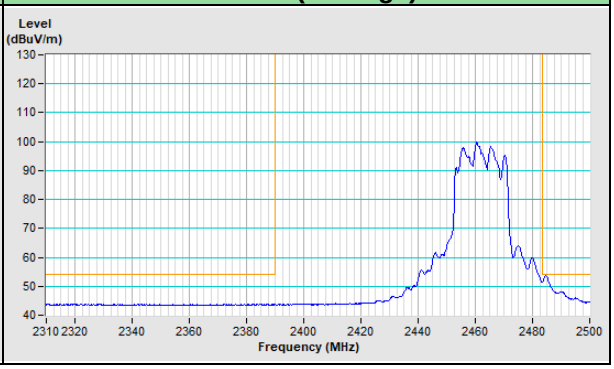
Horizontal (Average)



Vertical (Peak)

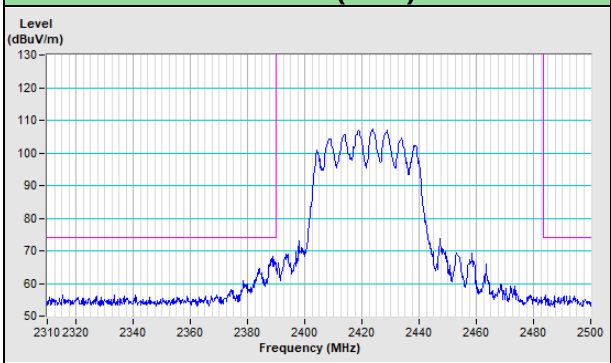


Vertical (Average)

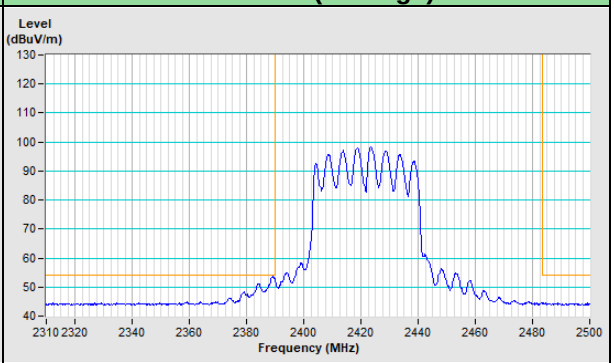


VHT40 Channel 3

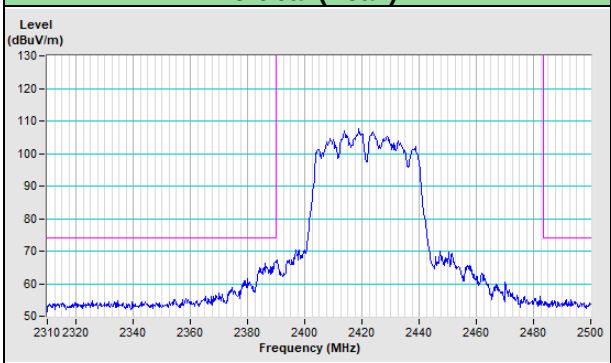
Horizontal (Peak)



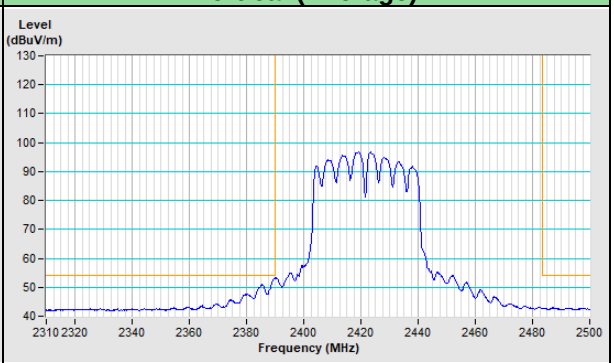
Horizontal (Average)



Vertical (Peak)

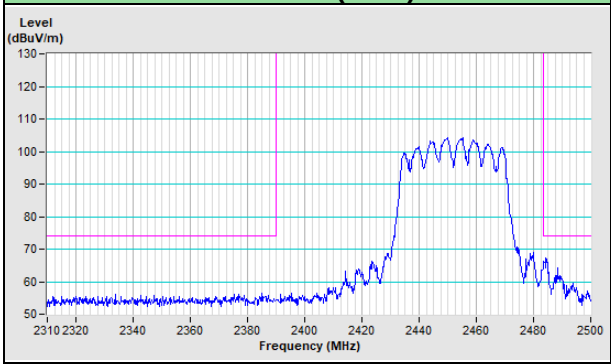


Vertical (Average)

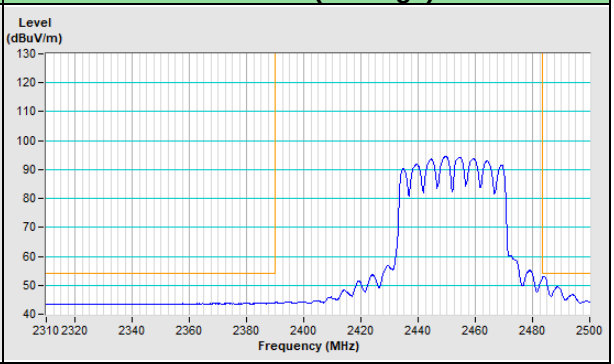


VHT40 Channel 9

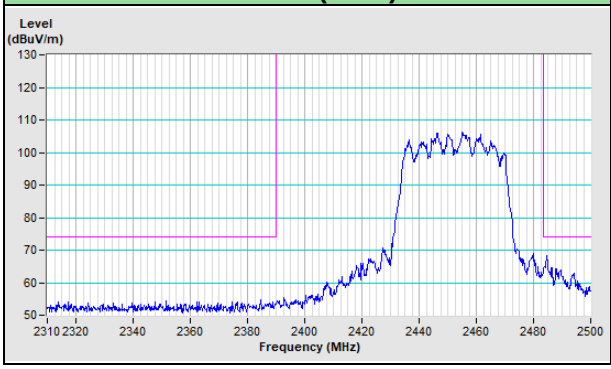
Horizontal (Peak)



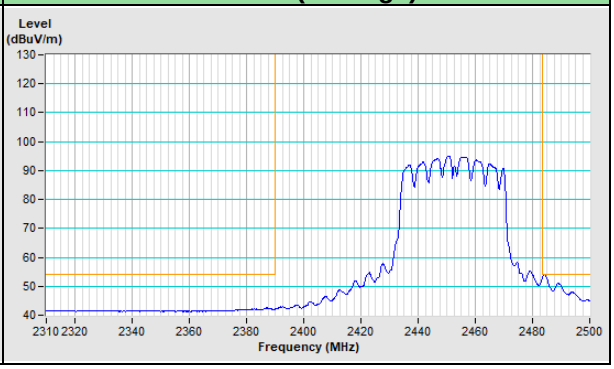
Horizontal (Average)



Vertical (Peak)



Vertical (Average)



Appendix – Information of the Testing Laboratories

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

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

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Web Site: www.bureauveritas-adt.com

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

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