FCC Test Report

Report No.:	RFBEMT-WTW-P20080442
FCC ID:	K7S-08277
Test Model:	E9450
Series Model:	E8250
Received Date:	Aug. 21, 2020
Test Date:	Sep. 01 to 14, 2020
Issued Date:	Oct. 20, 2020
Applicant:	Belkin International, Inc.
Address:	12045 East Waterfront Drive Playa Vista, CA. 90094, 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

Testing Laboratory
2022

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Release Control Record

Issue No.	Description	Date Issued
RFBEMT-WTW-P20080442	Original release.	Oct. 20, 2020

1 Certificate of Conformity

Product:	AX5400 DUAL-BAND GIGABIT WiFi 6 ROUTER
Brand:	Linksys
Test Model:	E9450
Series Model:	E8250
Sample Status:	ENGINEERING SAMPLE
Applicant:	Belkin International, Inc.
Test Date:	Sep. 01 to 14, 2020
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 : _____ , **Date:** Oct. 20, 2020

Joyce Kuo / Specialist

Approved by : _____ , **Date:** Oct. 20, 2020

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 -7.37dB at 0.40000MHz.
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	Antenna connector is i-pex(MHF) not a standard connector.

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	5.5 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	5.1 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	AX5400 DUAL-BAND GIGABIT WiFi 6 ROUTER
Brand	Linksys
Test Model	E9450
Series Model	E8250
Status of EUT	ENGINEERING SAMPLE
Driver version	5.02L.07p1
Power Supply Rating	12Vdc from power adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode and VHT (20/40) mode in 2.4GHz 1024QAM for OFDMA in 11ax HE mode
Modulation Technology	DSSS,OFDM, OFDMA
Transfer Rate	802.11b: up to 11 Mbps 802.11a/g: up to 54 Mbps 802.11n: up to 600 Mbps 802.11ac: up to 3466.7 Mbps 802.11ax: up to 4803.9 Mbps
Operating Frequency	**2.4GHz:** 2.412 ~ 2.462GHz **5GHz:** 5.18~5.32GHz, 5.50 ~ 5.58GHz & 5.66 ~ 5.72GHz, 5.745 ~ 5.825GHz
Number of Channel	**2.4GHz:** 802.11b, 802.11g, 802.11n (HT20), VHT20, 802.11ax (HE20): 11 802.11n (HT40), VHT40, 802.11ax (HE40): 7 **5GHz:** 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20): 22 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40): 10 802.11ac (VHT80), 802.11ax (HE80): 5 802.11ac (VHT160), 802.11ax (HE160): 1
Output Power	**CDD Mode:** **2.412 ~ 2.462 GHz:** 526.096 mW **5.18 ~ 5.25 GHz:** 827.684 mW **5.25 ~ 5.32GHz:** 204.544 mW **5.50 ~ 5.58GHz & 5.66GHz ~ 5.72GHz:** 198.692 mW **5.745 ~ 5.825 GHz:** 927.009 mW **Beamforming Mode:** **5.18 ~ 5.25 GHz:** 300.596 mW **5.25 ~ 5.32GHz:** 57.597 mW **5.50 ~ 5.58GHz & 5.66GHz ~ 5.72GHz:** 66.971 mW **5.745 ~ 5.825 GHz:** 278.769 mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x1
Data Cable Supplied	RJ45 Cable x1 (Unshielded, 1m)

Note:

1. The EUT has two model names, which are identical to each other in all aspects except for the following information:

Brand Name	Model Name	Difference
Linksys	E9450	For marketing
	E8250	

From the above models, model: E9450 was selected as representative model for the test and its data are recorded in this report.

2. The EUT has below radios as following table:

Radio 1	Radio 2
WLAN 2.4GHz	WLAN 5GHz

3. 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.		

4. The EUT must be supplied one power adapter and following different models could be chosen as following table:

No.	Brand	Model name	Spec	plug
1	APD	WB-24J12R	INPUT: 100-240Vac~50/60Hz 0.6A OUTPUT: 12Vdc 2.0A OUTPUT Cable: Unshielded, 1.5m	US/EU/UK (Detachable)
2	APD	WB-24J12FU	INPUT: 100-240Vac~50/60Hz 0.6A OUTPUT: 12Vdc 2.0A OUTPUT Cable: Unshielded, 1.5m	US
3	Ktec	KSA-24W-120200D5	INPUT: 100-240Vac~50/60Hz 0.6A OUTPUT: 12Vdc 2.0A OUTPUT Cable: Unshielded, 1.5m	US/EU/UK (Detachable)
4	Ktec	KSA-24W-120200HU	INPUT: 100-240Vac~50/60Hz 0.6A OUTPUT: 12Vdc 2.0A OUTPUT Cable: Unshielded, 1.5m	US
Note: 1. From the above models, the worst Radiated Emissions and Conducted Emissions test was found in Adapter 3. Therefore only the test data of the modes were recorded in this report.				

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
Ant 1_Dual Band	4.79	2.4-2.4835GHz	Dipole	i-pex(MHF)
	4.26	5.15-5.25GHz		
	4.79	5.25-5.35GHz		
	5.58	5.47-5.725GHz		
	5.58	5.725-5.85GHz		
Ant 2_Dual Band	5.15	2.4-2.4835GHz	Dipole	i-pex(MHF)
	5.74	5.15-5.25GHz		
	6.37	5.25-5.35GHz		
	6.87	5.47-5.725GHz		
	6.3	5.725-5.85GHz		
Ant 3_A Band	4.16	5.15-5.25GHz	Dipole	i-pex(MHF)
	4.44	5.25-5.35GHz		
	5.72	5.47-5.725GHz		
	5.82	5.725-5.85GHz		
Ant 3_A Band	4.28	5.15-5.25GHz	Dipole	i-pex(MHF)
	4.67	5.25-5.35GHz		
	4.43	5.47-5.725GHz		
	4.17	5.725-5.85GHz		

6. 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
802.11ax (HE20)	2TX	2RX
802.11ax (HE40)	2TX	2RX
5GHz Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11a	4TX	4RX
802.11n (HT20)	4TX	4RX
802.11n (HT40)	4TX	4RX
802.11ac (VHT20)	4TX	4RX
802.11ac (VHT40)	4TX	4RX
802.11ac (VHT80)	4TX	4RX
802.11ac (VHT160)	4TX	4RX
802.11ax (HE20)	4TX	4RX
802.11ax (HE40)	4TX	4RX
802.11ax (HE80)	4TX	4RX
802.11ax (HE160)	4TX	4RX

Note:

1. All of modulation mode support beamforming function except 2.4GHz Band and 802.11a modulation mode.
2. The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz), VHT mode for 20MHz (40MHz) and 802.11ax mode for 20MHz (40MHz), therefore the manufacturer will control the power for 802.11n/VH mode is the same as the 802.11ax mode or more lower than it and investigated worst case to representative mode in test report.

7. 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.
8. 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 and 802.11ax (HE20):

Channel	Frequency	Channel	Frequency
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

7 channels are provided for 802.11n (HT40), VHT40 and 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	Data Rate Parameter
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1Mb/s
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6Mb/s
802.11ax (HE20)	1 to 11	1, 6, 11	OFDMA	BPSK	MCS0
802.11ax (HE40)	3 to 9	3, 6, 9	OFDMA	BPSK	MCS0

Radiated Emission Test (Below 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	Data Rate Parameter
802.11ax (HE20)	1 to 11	6	OFDMA	BPSK	MCS0

Power Line Conducted Emission Test:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	Data Rate Parameter
802.11ax (HE20)	1 to 11	6	OFDMA	BPSK	MCS0

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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	Data Rate Parameter
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1Mb/s
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6Mb/s
VHT20 (Output power only)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
VHT40 (Output power only)	3 to 9	3, 6, 9	OFDM	BPSK	MCS0
802.11ax (HE20)	1 to 11	1, 6, 11	OFDMA	BPSK	MCS0
802.11ax (HE40)	3 to 9	3, 6, 9	OFDMA	BPSK	MCS0

Test Condition:

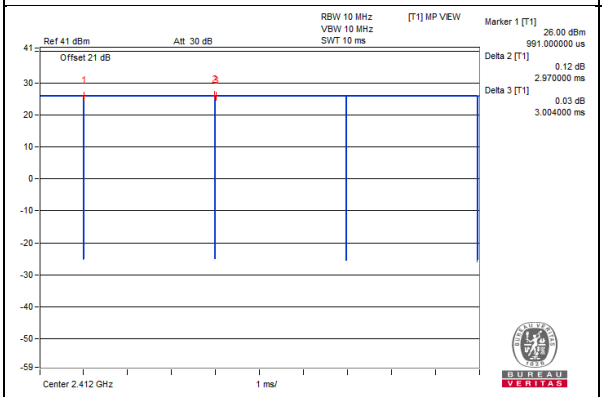
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Ryan Du
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Ryan Du
PLC	25deg. C, 75%RH	120Vac, 60Hz	Sampson Chen
APCM	25deg. C, 60%RH	120Vac, 60Hz	Jyunchun Lin

3.3 Duty Cycle of Test Signal

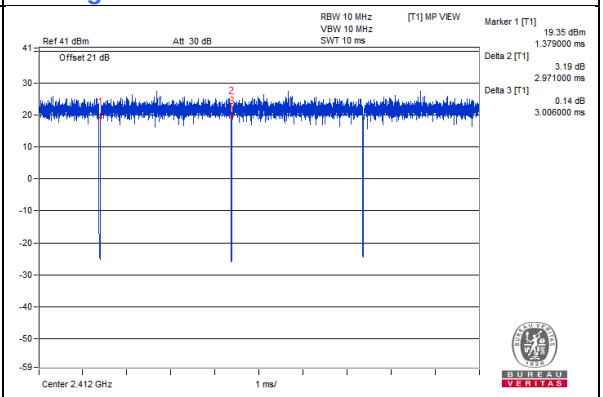
If duty cycle of test signal is ≥ 98 %, duty factor is not required.

802.11b: Duty cycle = 2.97 ms /3.004 ms=0.989
802.11g: Duty cycle = 2.971 ms /3.006 ms=0.988
802.11ax (HE20): Duty cycle = 2.272 ms /2.311 ms=0.983
802.11ax (HE40): Duty cycle = 2.359 ms /2.399 ms=0.983

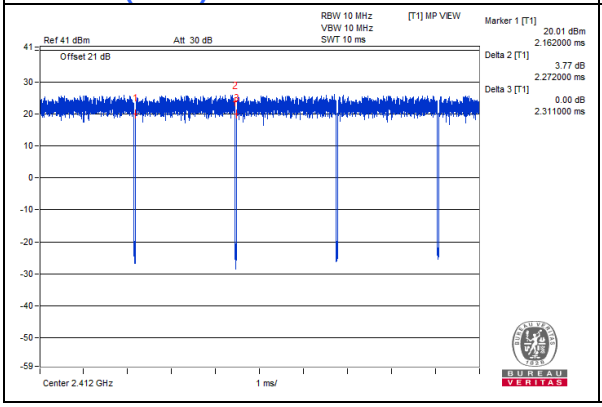
802.11b



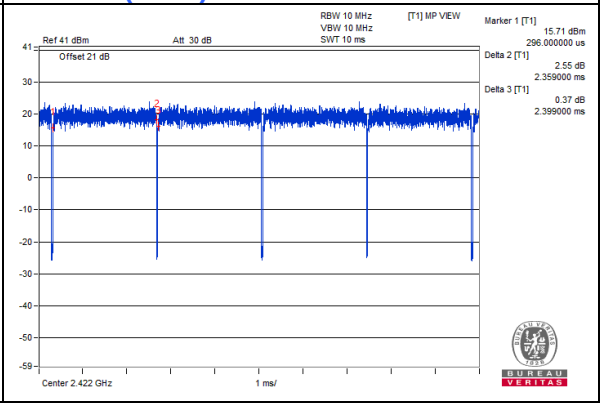
802.11g



802.11ax (HE20)



802.11ax (HE40)



3.4 Description of Support Units

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

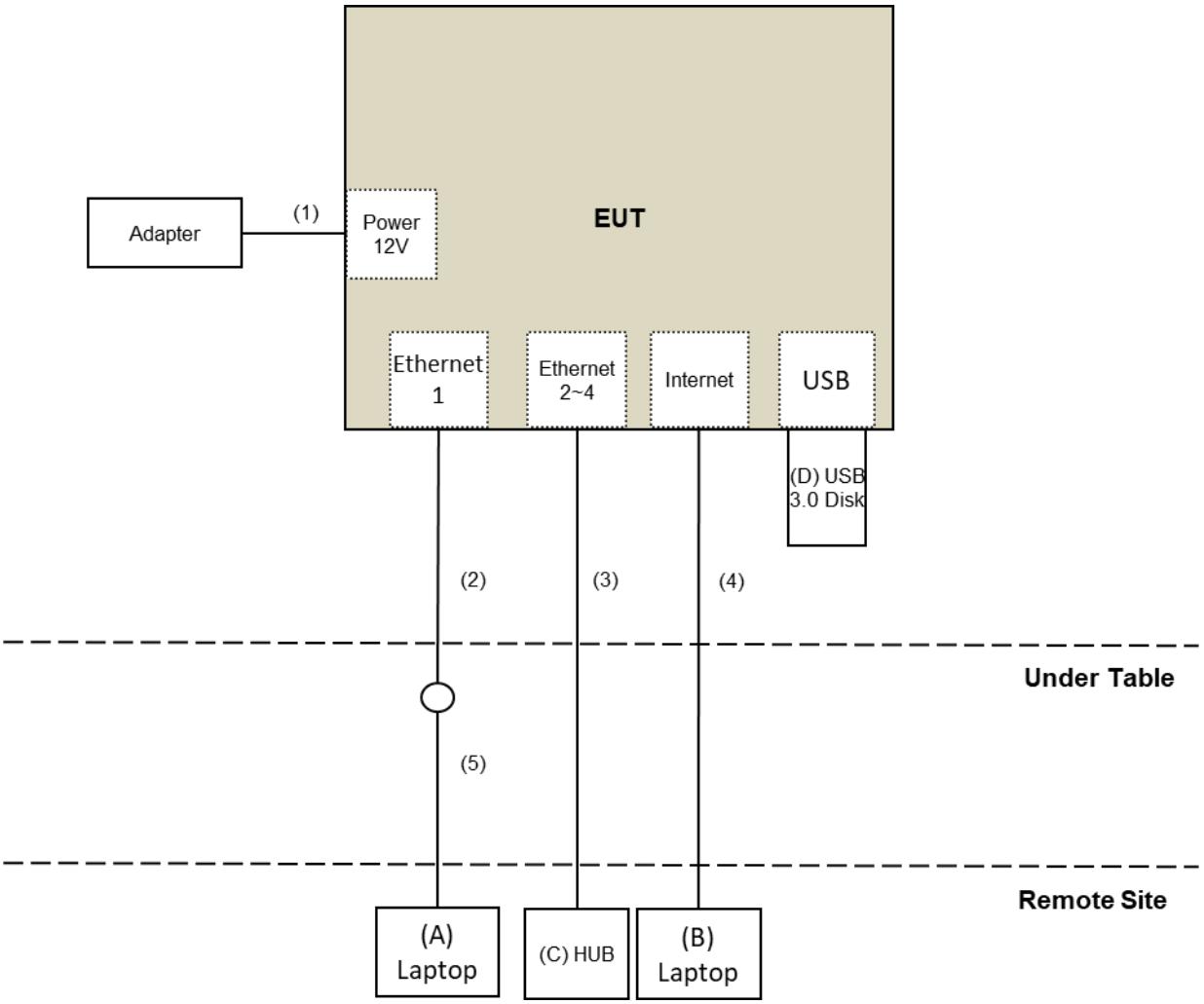
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	Lenovo	81A4	YD02YN76	NA	Provided by Lab
B.	HUB	ZyXEL	GS1100-16	S150H44000046	FCC DoC	Provided by Lab
C.	Laptop	DELL	E5430	HYV4VY1	FCC DoC	Provided by Lab
D.	UBS 3.0 Disk	SanDisk	Ultra Flalr USB 3.0	NA	NA	Provided by Lab

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.	DC Cable	1	1.5	No	0	Supplied by client
2.	RJ-45 Cable	1	1	No	0	Supplied by client
3.	RJ-45 Cable	3	10	No	0	Provided by Lab
4.	RJ-45 Cable	1	10	No	0	Provided by Lab
5.	RJ-45 Cable	1	10	No	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 Agilent	N9038A	MY51210202	Dec. 13, 2019	Dec. 12, 2020
Pre-Amplifier EMCI	EMC001340	980142	May 25, 2020	May 24, 2021
Loop Antenna Electro-Metrics	EM-6879	264	Feb. 18, 2020	Feb. 17, 2021
RF Cable	NA	LOOPCAB-001	Jan. 08, 2020	Jan. 07, 2021
RF Cable	NA	LOOPCAB-002	Jan. 08, 2020	Jan. 07, 2021
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-01	Oct. 23, 2019	Oct. 22, 2020
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Nov. 11, 2019	Nov. 10, 2020
RF Cable	8D	966-4-1	Mar. 18, 2020	Mar. 17, 2021
RF Cable	8D	966-4-2	Mar. 18, 2020	Mar. 17, 2021
RF Cable	8D	966-4-3	Mar. 18, 2020	Mar. 17, 2021
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-4-01	Sep. 26, 2019	Sep. 25, 2020
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Nov. 24, 2019	Nov. 23, 2020
Pre-Amplifier EMCI	EMC 12630 SE	980638	Apr. 08, 2020	Apr. 07, 2021
RF Cable	EMC104-SM-SM-1200	160923	Jan. 15, 2020	Jan. 14, 2021
RF Cable	EMC104-SM-SM-2000	180502	Apr. 29, 2020	Apr. 28, 2021
RF Cable	EMC104-SM-SM-6000	180418	Apr. 29, 2020	Apr. 28, 2021
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 15, 2020	Jan. 14, 2021
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 24, 2019	Nov. 23, 2020
RF Cable	EMC102-KM-KM-1200	160924	Jan. 15, 2020	Jan. 14, 2021
RF Cable	EMC-KM-KM-4000	200214	Mar. 11, 2020	Mar. 10, 2021
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	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. 4.
3. Tested Date: Sep. 01 to 10, 2020

For other test

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer R&S	FSV40	100964	May 29, 2020	May 28, 2021
Power meter Anritsu	ML2495A	1529002	July 22, 2020	July 21, 2021
Power sensor Anritsu	MA2411B	1339443	July 22, 2020	July 21, 2021
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 14, 2020	Apr. 13, 2021
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: Sep. 14, 2020

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:

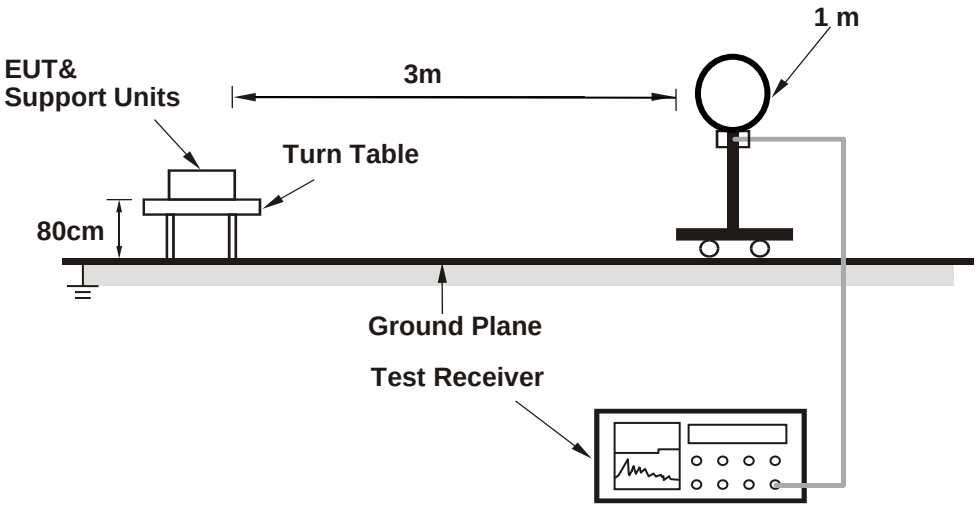
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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

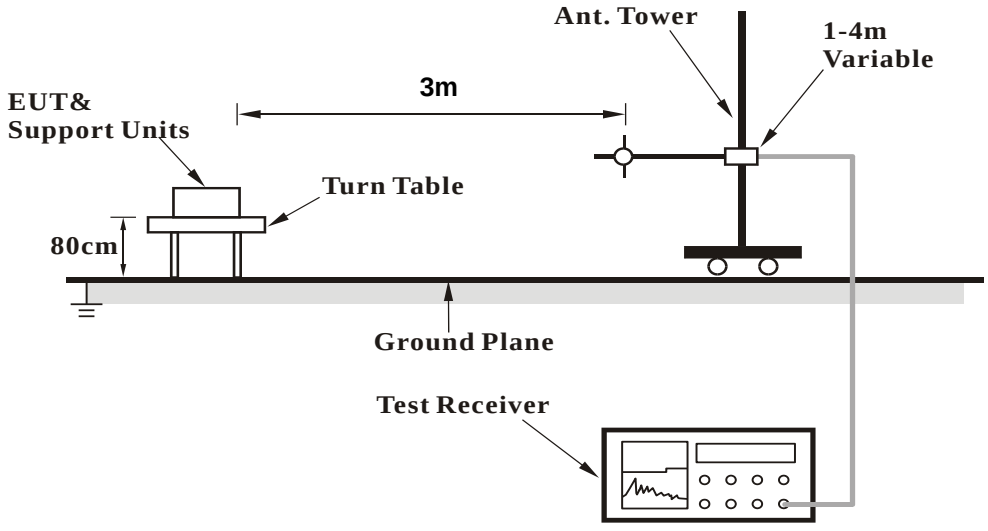
No deviation.

4.1.5 Test Setup

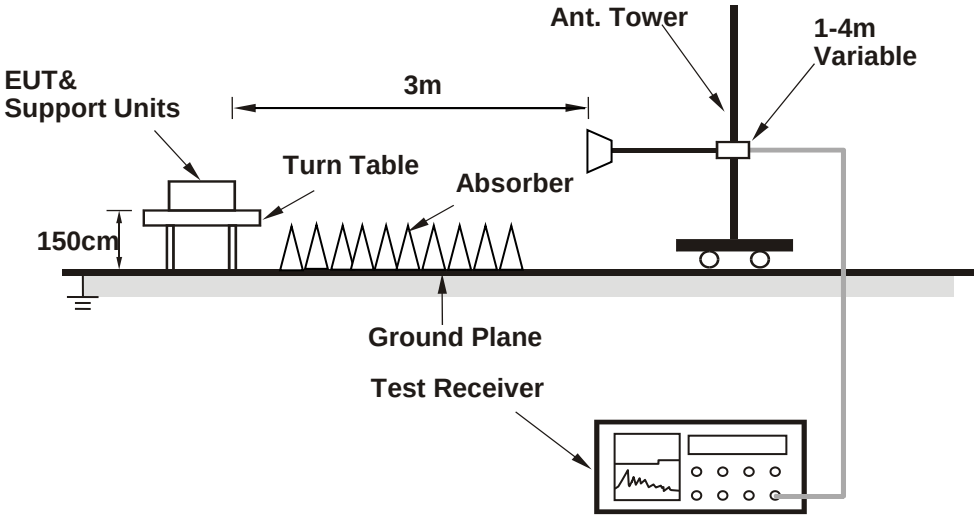
For Radiated emission below 30MHz



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 (accessMtool_3_1_0_3) has been activated to set the EUT under transmission condition continuously at specific channel frenquency.

4.1.7 Test Results

Above 1GHz Data：

802.11b

Channel	TX Channel 1	**Detector Function**	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 25GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	2390.00	57.9 PK	74.0	-16.1	1.76 H	227	62.0	-4.1
2	2390.00	45.1 AV	54.0	-8.9	1.76 H	227	49.2	-4.1
3	*2412.00	112.7 PK			1.76 H	227	116.8	-4.1
4	*2412.00	110.2 AV			1.76 H	227	114.3	-4.1
5	4824.00	48.6 PK	74.0	-25.4	1.64 H	198	48.5	0.1
6	4824.00	46.7 AV	54.0	-7.3	1.64 H	198	46.6	0.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	2390.00	64.2 PK	74.0	-9.8	2.06 V	352	68.3	-4.1
2	2390.00	51.2 AV	54.0	-2.8	2.06 V	352	55.3	-4.1
3	*2412.00	120.0 PK			2.06 V	352	124.1	-4.1
4	*2412.00	116.9 AV			2.06 V	352	121.0	-4.1
5	4824.00	52.1 PK	74.0	-21.9	2.15 V	128	52.0	0.1
6	4824.00	50.8 AV	54.0	-3.2	2.15 V	128	50.7	0.1

Remarks:

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

Channel	TX Channel 6	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 25GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	61.1 PK	74.0	-12.9	2.02 H	266	65.2	-4.1
2	2390.00	49.0 AV	54.0	-5.0	2.02 H	266	53.1	-4.1
3	*2437.00	117.3 PK			2.02 H	266	121.4	-4.1
4	*2437.00	114.2 AV			2.02 H	266	118.3	-4.1
5	2483.50	62.0 PK	74.0	-12.0	2.02 H	266	66.1	-4.1
6	2483.50	48.9 AV	54.0	-5.1	2.02 H	266	53.0	-4.1
7	3813.00	50.3 PK	74.0	-23.7	2.17 H	181	52.2	-1.9
8	3813.00	49.0 AV	54.0	-5.0	2.17 H	181	50.9	-1.9
9	4874.00	46.6 PK	74.0	-27.4	1.42 H	98	46.5	0.1
10	4874.00	43.3 AV	54.0	-10.7	1.42 H	98	43.2	0.1
11	7311.00	48.9 PK	74.0	-25.1	1.19 H	286	42.3	6.6
12	7311.00	39.3 AV	54.0	-14.7	1.19 H	286	32.7	6.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	62.1 PK	74.0	-11.9	2.15 V	328	66.2	-4.1
2	2390.00	49.7 AV	54.0	-4.3	2.15 V	328	53.8	-4.1
3	*2437.00	119.6 PK			2.15 V	328	123.7	-4.1
4	*2437.00	116.6 AV			2.15 V	328	120.7	-4.1
5	2483.50	61.5 PK	74.0	-12.5	2.15 V	328	65.6	-4.1
6	2483.50	49.5 AV	54.0	-4.5	2.15 V	328	53.6	-4.1
7	3813.00	46.8 PK	74.0	-27.2	1.68 V	244	48.7	-1.9
8	3813.00	44.7 AV	54.0	-9.3	1.68 V	244	46.6	-1.9
9	4874.00	45.2 PK	74.0	-28.8	1.55 V	358	45.1	0.1
10	4874.00	40.6 AV	54.0	-13.4	1.55 V	358	40.5	0.1
11	7311.00	47.9 PK	74.0	-26.1	1.28 V	257	41.3	6.6
12	7311.00	36.5 AV	54.0	-17.5	1.28 V	257	29.9	6.6

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.
5. " * ": Fundamental frequency.

Channel	TX Channel 11	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 25GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	111.4 PK			1.76 H	29	115.5	-4.1
2	*2462.00	108.9 AV			1.76 H	29	113.0	-4.1
3	2483.50	58.3 PK	74.0	-15.7	1.76 H	29	62.4	-4.1
4	2483.50	45.6 AV	54.0	-8.4	1.76 H	29	49.7	-4.1
5	4924.00	46.6 PK	74.0	-27.4	1.39 H	82	46.4	0.2
6	4924.00	43.3 AV	54.0	-10.7	1.39 H	82	43.1	0.2
7	7386.00	49.1 PK	74.0	-24.9	1.25 H	278	42.3	6.8
8	7386.00	39.5 AV	54.0	-14.5	1.25 H	278	32.7	6.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	120.4 PK			2.48 V	343	124.5	-4.1
2	*2462.00	117.2 AV			2.48 V	343	121.3	-4.1
3	2483.50	63.8 PK	74.0	-10.2	2.48 V	343	67.9	-4.1
4	2483.50	51.6 AV	54.0	-2.4	2.48 V	343	55.7	-4.1
5	4924.00	44.6 PK	74.0	-29.4	1.56 V	344	44.4	0.2
6	4924.00	40.3 AV	54.0	-13.7	1.56 V	344	40.1	0.2
7	7386.00	48.3 PK	74.0	-25.7	1.28 V	262	41.5	6.8
8	7386.00	36.7 AV	54.0	-17.3	1.28 V	262	29.9	6.8

Remarks:

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

802.11g

Channel	TX Channel 1	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 25GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	66.6 PK	74.0	-7.4	2.29 H	118	70.7	-4.1
2	2390.00	45.2 AV	54.0	-8.8	2.29 H	118	49.3	-4.1
3	*2412.00	110.7 PK			2.29 H	118	114.8	-4.1
4	*2412.00	100.6 AV			2.29 H	118	104.7	-4.1
5	4824.00	46.8 PK	74.0	-27.2	1.46 H	86	46.7	0.1
6	4824.00	43.6 AV	54.0	-10.4	1.46 H	86	43.5	0.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	**2390.00**	**73.9 PK**	**74.0**	**-0.1**	**2.07 V**	**347**	**78.0**	**-4.1**
2	2390.00	50.4 AV	54.0	-3.6	2.07 V	347	54.5	-4.1
3	*2412.00	116.9 PK			2.07 V	347	121.0	-4.1
4	*2412.00	107.5 AV			2.07 V	347	111.6	-4.1
5	4824.00	45.4 PK	74.0	-28.6	1.59 V	360	45.3	0.1
6	4824.00	40.9 AV	54.0	-13.1	1.59 V	360	40.8	0.1

Remarks:

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

Channel	TX Channel 6	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 25GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	65.2 PK	74.0	-8.8	2.39 H	167	69.3	-4.1
2	2390.00	46.6 AV	54.0	-7.4	2.39 H	167	50.7	-4.1
3	*2437.00	118.3 PK			2.39 H	167	122.4	-4.1
4	*2437.00	107.9 AV			2.39 H	167	112.0	-4.1
5	2483.50	68.5 PK	74.0	-5.5	2.39 H	167	72.6	-4.1
6	2483.50	48.9 AV	54.0	-5.1	2.39 H	167	53.0	-4.1
7	4874.00	46.5 PK	74.0	-27.5	1.48 H	104	46.4	0.1
8	4874.00	43.4 AV	54.0	-10.6	1.48 H	104	43.3	0.1
9	7311.00	48.5 PK	74.0	-25.5	1.21 H	289	41.9	6.6
10	7311.00	38.9 AV	54.0	-15.1	1.21 H	289	32.3	6.6
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	2.44 V	337	73.9	-4.1
2	2390.00	51.8 AV	54.0	-2.2	2.44 V	337	55.9	-4.1
3	*2437.00	121.0 PK			2.44 V	337	125.1	-4.1
4	*2437.00	111.8 AV			2.44 V	337	115.9	-4.1
5	2483.50	68.9 PK	74.0	-5.1	2.44 V	337	73.0	-4.1
6	2483.50	52.8 AV	54.0	-1.2	2.44 V	337	56.9	-4.1
7	4874.00	45.3 PK	74.0	-28.7	1.49 V	360	45.2	0.1
8	4874.00	40.7 AV	54.0	-13.3	1.49 V	360	40.6	0.1
9	7311.00	48.0 PK	74.0	-26.0	1.31 V	255	41.4	6.6
10	7311.00	36.9 AV	54.0	-17.1	1.31 V	255	30.3	6.6

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.
5. " * ": Fundamental frequency.

Channel	TX Channel 11	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 25GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	110.3 PK			2.26 H	234	114.4	-4.1
2	*2462.00	99.4 AV			2.26 H	234	103.5	-4.1
3	2483.50	64.3 PK	74.0	-9.7	2.26 H	234	68.4	-4.1
4	2483.50	45.4 AV	54.0	-8.6	2.26 H	234	49.5	-4.1
5	4924.00	46.5 PK	74.0	-27.5	1.39 H	95	46.3	0.2
6	4924.00	43.2 AV	54.0	-10.8	1.39 H	95	43.0	0.2
7	7386.00	49.4 PK	74.0	-24.6	1.21 H	274	42.6	6.8
8	7386.00	39.6 AV	54.0	-14.4	1.21 H	274	32.8	6.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	115.9 PK			2.42 V	349	120.0	-4.1
2	*2462.00	106.8 AV			2.42 V	349	110.9	-4.1
3	2483.50	73.2 PK	74.0	-0.8	2.42 V	349	77.3	-4.1
4	2483.50	50.5 AV	54.0	-3.5	2.42 V	349	54.6	-4.1
5	4924.00	45.6 PK	74.0	-28.4	1.59 V	342	45.4	0.2
6	4924.00	40.8 AV	54.0	-13.2	1.59 V	342	40.6	0.2
7	7386.00	48.2 PK	74.0	-25.8	1.29 V	248	41.4	6.8
8	7386.00	36.7 AV	54.0	-17.3	1.29 V	248	29.9	6.8

Remarks:

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

802.11ax (HE20)

Channel	TX Channel 1	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 25GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	73.1 PK	74.0	-0.9	2.33 H	118	77.2	-4.1
2	2390.00	49.6 AV	54.0	-4.4	2.33 H	118	53.7	-4.1
3	*2412.00	113.3 PK			2.33 H	118	117.4	-4.1
4	*2412.00	100.6 AV			2.33 H	118	104.7	-4.1
5	4824.00	46.5 PK	74.0	-27.5	1.40 H	110	46.4	0.1
6	4824.00	43.1 AV	54.0	-10.9	1.40 H	110	43.0	0.1
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	73.6 PK	74.0	-0.4	2.23 V	353	77.7	-4.1
2	2390.00	52.6 AV	54.0	-1.4	2.23 V	353	56.7	-4.1
3	*2412.00	117.9 PK			2.23 V	353	122.0	-4.1
4	*2412.00	106.5 AV			2.23 V	353	110.6	-4.1
5	4824.00	45.4 PK	74.0	-28.6	1.53 V	347	45.3	0.1
6	4824.00	40.8 AV	54.0	-13.2	1.53 V	347	40.7	0.1

Remarks:

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

Channel	TX Channel 6	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 25GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	66.5 PK	74.0	-7.5	2.26 H	160	70.6	-4.1
2	2390.00	48.1 AV	54.0	-5.9	2.26 H	160	52.2	-4.1
3	*2437.00	120.6 PK			2.26 H	160	124.7	-4.1
4	*2437.00	107.1 AV			2.26 H	160	111.2	-4.1
5	2483.50	68.3 PK	74.0	-5.7	2.26 H	160	72.4	-4.1
6	2483.50	50.3 AV	54.0	-3.7	2.26 H	160	54.4	-4.1
7	4874.00	46.8 PK	74.0	-27.2	1.42 H	91	46.7	0.1
8	4874.00	43.5 AV	54.0	-10.5	1.42 H	91	43.4	0.1
9	7311.00	49.0 PK	74.0	-25.0	1.25 H	282	42.4	6.6
10	7311.00	39.2 AV	54.0	-14.8	1.25 H	282	32.6	6.6
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	2.30 V	336	71.3	-4.1
2	2390.00	52.9 AV	54.0	-1.1	2.30 V	336	57.0	-4.1
3	*2437.00	122.2 PK			2.30 V	336	126.3	-4.1
4	*2437.00	110.8 AV			2.30 V	336	114.9	-4.1
5	2483.50	69.0 PK	74.0	-5.0	2.30 V	336	73.1	-4.1
6	2483.50	53.4 AV	54.0	-0.6	2.30 V	336	57.5	-4.1
7	4874.00	45.6 PK	74.0	-28.4	1.49 V	351	45.5	0.1
8	4874.00	40.8 AV	54.0	-13.2	1.49 V	351	40.7	0.1
9	7311.00	48.5 PK	74.0	-25.5	1.22 V	250	41.9	6.6
10	7311.00	37.0 AV	54.0	-17.0	1.22 V	250	30.4	6.6

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.
5. " * ": Fundamental frequency.

Channel	TX Channel 11	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 25GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	112.7 PK			2.30 H	222	116.8	-4.1
2	*2462.00	98.9 AV			2.30 H	222	103.0	-4.1
3	2483.50	67.6 PK	74.0	-6.4	2.30 H	222	71.7	-4.1
4	2483.50	45.8 AV	54.0	-8.2	2.30 H	222	49.9	-4.1
5	4924.00	46.3 PK	74.0	-27.7	1.40 H	83	46.1	0.2
6	4924.00	42.8 AV	54.0	-11.2	1.40 H	83	42.6	0.2
7	7386.00	49.2 PK	74.0	-24.8	1.19 H	280	42.4	6.8
8	7386.00	39.8 AV	54.0	-14.2	1.19 H	280	33.0	6.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	117.5 PK			2.45 V	341	121.6	-4.1
2	*2462.00	106.0 AV			2.45 V	341	110.1	-4.1
3	**2483.50**	**73.9 PK**	**74.0**	**-0.1**	**2.45 V**	**341**	**78.0**	**-4.1**
4	2483.50	53.3 AV	54.0	-0.7	2.45 V	341	57.4	-4.1
5	4924.00	45.7 PK	74.0	-28.3	1.52 V	360	45.5	0.2
6	4924.00	40.9 AV	54.0	-13.1	1.52 V	360	40.7	0.2
7	7386.00	48.1 PK	74.0	-25.9	1.25 V	242	41.3	6.8
8	7386.00	36.8 AV	54.0	-17.2	1.25 V	242	30.0	6.8

Remarks:

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

802.11ax (HE40)

Channel	TX Channel 3	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 25GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	67.2 PK	74.0	-6.8	3.52 H	240	71.3	-4.1
2	2390.00	47.9 AV	54.0	-6.1	3.52 H	240	52.0	-4.1
3	*2422.00	110.6 PK			3.52 H	240	114.7	-4.1
4	*2422.00	97.5 AV			3.52 H	240	101.6	-4.1
5	4844.00	46.5 PK	74.0	-27.5	1.47 H	108	46.4	0.1
6	4844.00	43.2 AV	54.0	-10.8	1.47 H	108	43.1	0.1
7	7266.00	48.9 PK	74.0	-25.1	1.18 H	293	42.4	6.5
8	7266.00	39.2 AV	54.0	-14.8	1.18 H	293	32.7	6.5
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	73.2 PK	74.0	-0.8	1.95 V	355	77.3	-4.1
2	2390.00	52.4 AV	54.0	-1.6	1.95 V	355	56.5	-4.1
3	*2422.00	114.6 PK			1.95 V	355	118.7	-4.1
4	*2422.00	103.4 AV			1.95 V	355	107.5	-4.1
5	4844.00	45.3 PK	74.0	-28.7	1.57 V	358	45.2	0.1
6	4844.00	40.8 AV	54.0	-13.2	1.57 V	358	40.7	0.1
7	7266.00	48.2 PK	74.0	-25.8	1.30 V	269	41.7	6.5
8	7266.00	36.7 AV	54.0	-17.3	1.30 V	269	30.2	6.5

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.

Channel	TX Channel 6	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 25GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	64.6 PK	74.0	-9.4	3.47 H	234	68.7	-4.1
2	2390.00	43.1 AV	54.0	-10.9	3.47 H	234	47.2	-4.1
3	*2437.00	111.4 PK			3.47 H	234	115.5	-4.1
4	*2437.00	94.6 AV			3.47 H	234	98.7	-4.1
5	2483.50	66.5 PK	74.0	-7.5	3.47 H	234	70.6	-4.1
6	2483.50	43.9 AV	54.0	-10.1	3.47 H	234	48.0	-4.1
7	4874.00	46.7 PK	74.0	-27.3	1.43 H	96	46.6	0.1
8	4874.00	43.6 AV	54.0	-10.4	1.43 H	96	43.5	0.1
9	7311.00	49.4 PK	74.0	-24.6	1.16 H	296	42.8	6.6
10	7311.00	39.8 AV	54.0	-14.2	1.16 H	296	33.2	6.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	70.7 PK	74.0	-3.3	2.40 V	338	74.8	-4.1
2	2390.00	52.1 AV	54.0	-1.9	2.40 V	338	56.2	-4.1
3	*2437.00	117.0 PK			2.40 V	338	121.1	-4.1
4	*2437.00	104.1 AV			2.40 V	338	108.2	-4.1
5	2483.50	72.4 PK	74.0	-1.6	2.40 V	338	76.5	-4.1
6	2483.50	53.7 AV	54.0	-0.3	2.40 V	338	57.8	-4.1
7	4874.00	45.4 PK	74.0	-28.6	1.55 V	360	45.3	0.1
8	4874.00	40.8 AV	54.0	-13.2	1.55 V	360	40.7	0.1
9	7311.00	48.0 PK	74.0	-26.0	1.31 V	269	41.4	6.6
10	7311.00	36.7 AV	54.0	-17.3	1.31 V	269	30.1	6.6

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.
5. " * ": Fundamental frequency.

Channel	TX Channel 9	Detector Function	Peak (PK) Average (AV)
Frequency Range	1GHz ~ 25GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	108.1 PK			3.40 H	228	112.2	-4.1
2	*2452.00	95.3 AV			3.40 H	228	99.4	-4.1
3	2483.50	64.5 PK	74.0	-9.5	3.40 H	228	68.6	-4.1
4	2483.50	44.8 AV	54.0	-9.2	3.40 H	228	48.9	-4.1
5	4904.00	46.7 PK	74.0	-27.3	1.43 H	89	46.6	0.1
6	4904.00	43.5 AV	54.0	-10.5	1.43 H	89	43.4	0.1
7	7356.00	48.6 PK	74.0	-25.4	1.21 H	292	41.9	6.7
8	7356.00	39.3 AV	54.0	-14.7	1.21 H	292	32.6	6.7
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	*2452.00	113.8 PK			2.41 V	346	117.9	-4.1
2	*2452.00	102.1 AV			2.41 V	346	106.2	-4.1
3	2483.50	72.3 PK	74.0	-1.7	2.41 V	346	76.4	-4.1
4	2483.50	53.3 AV	54.0	-0.7	2.41 V	346	57.4	-4.1
5	4904.00	45.5 PK	74.0	-28.5	1.61 V	354	45.4	0.1
6	4904.00	40.9 AV	54.0	-13.1	1.61 V	354	40.8	0.1
7	7356.00	47.8 PK	74.0	-26.2	1.30 V	263	41.1	6.7
8	7356.00	36.7 AV	54.0	-17.3	1.30 V	263	30.0	6.7

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.

Below 1GHz Data:

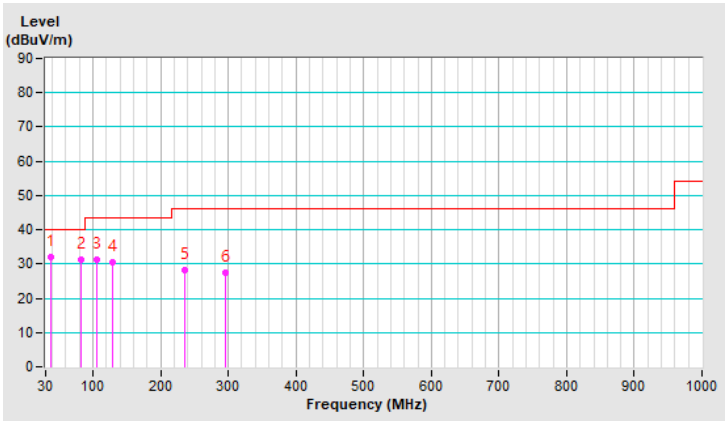
802.11ax (HE20)

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

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	37.54	32.1 QP	40.0	-7.9	1.00 H	227	40.6	-8.5
2	82.23	31.3 QP	40.0	-8.7	2.50 H	0	44.4	-13.1
3	104.79	31.3 QP	43.5	-12.2	1.50 H	138	42.5	-11.2
4	128.92	30.6 QP	43.5	-12.9	2.00 H	254	39.5	-8.9
5	235.66	28.2 QP	46.0	-17.8	1.50 H	73	37.3	-9.1
6	295.59	27.5 QP	46.0	-18.5	1.00 H	253	34.1	-6.6

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.

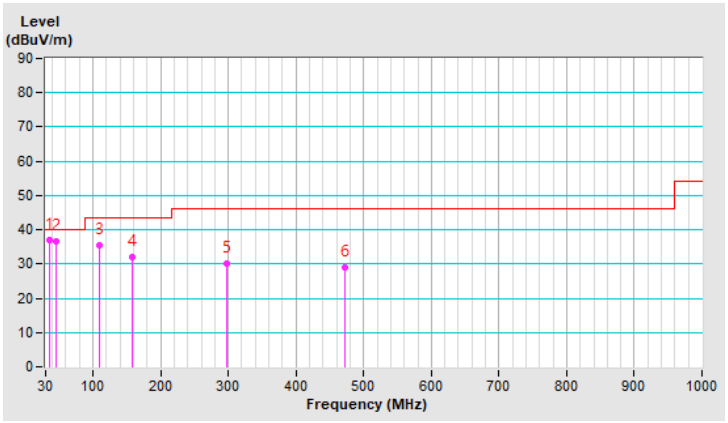


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	36.50	36.9 QP	40.0	-3.1	1.00 V	116	45.8	-8.9
2	44.91	36.7 QP	40.0	-3.3	1.00 V	237	44.5	-7.8
3	108.84	35.4 QP	43.5	-8.1	1.00 V	51	46.0	-10.6
4	157.53	31.9 QP	43.5	-11.6	2.00 V	360	39.2	-7.3
5	296.99	30.1 QP	46.0	-15.9	1.50 V	0	36.6	-6.5
6	472.54	29.1 QP	46.0	-16.9	1.00 V	29	30.8	-1.7

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.



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. 23, 2019	Oct. 22, 2020
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 23, 2019	Oct. 22, 2020
Line-Impedance Stabilization Network (for Peripheral) R&S	ESH3-Z5	835239/001	Mar. 19, 2020	Mar. 18, 2021
50 ohms Terminator	50	3	Oct. 23, 2019	Oct. 22, 2020
RF Cable	5D-FB	COCCAB-001	Sep. 27, 2019	Sep. 26, 2020
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: Sep. 07, 2020

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.

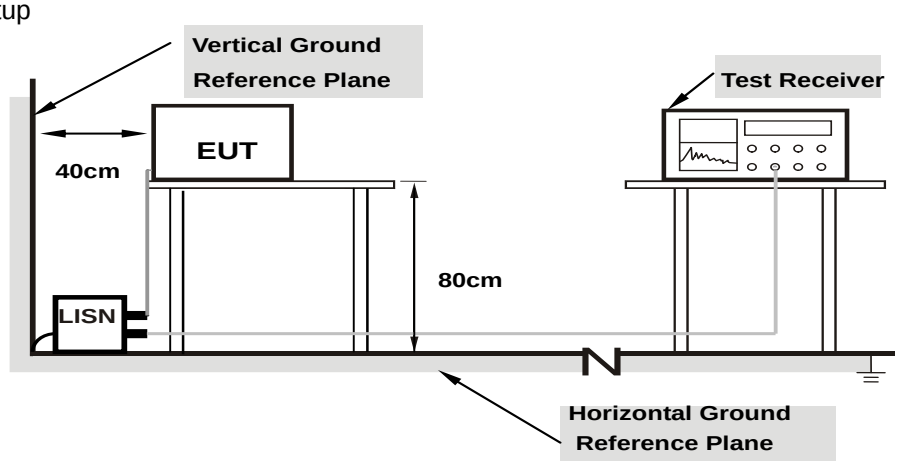
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

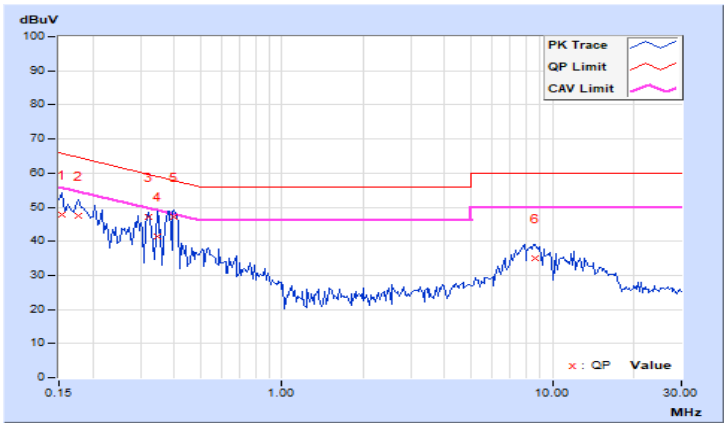
4.2.7 Test Results

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.92	37.77	27.93	47.69	37.85	65.79	55.79	-18.10	-17.94
2	0.17734	9.94	37.48	27.82	47.42	37.76	64.61	54.61	-17.19	-16.85
3	0.32188	9.97	37.11	29.49	47.08	39.46	59.66	49.66	-12.58	-10.20
4	0.34531	9.97	31.46	22.68	41.43	32.65	59.07	49.07	-17.64	-16.42
5	**0.40000**	**9.98**	**37.03**	**30.50**	**47.01**	**40.48**	**57.85**	**47.85**	**-10.84**	**-7.37**
6	8.64063	10.54	24.54	14.86	35.08	25.40	60.00	50.00	-24.92	-24.60

Remarks:

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

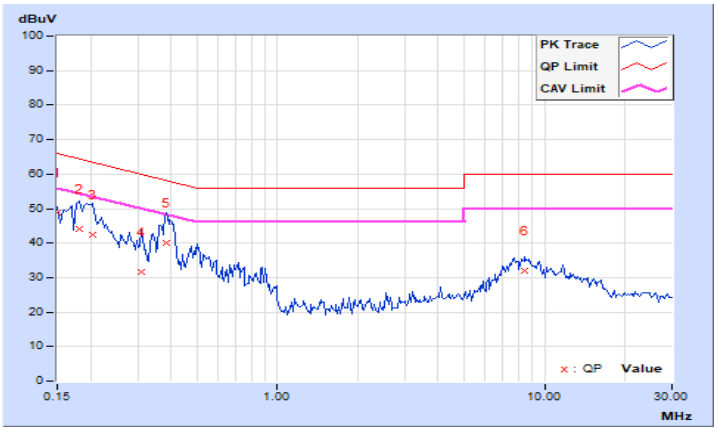


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.93	38.93	22.33	48.86	32.26	66.00	56.00	-17.14	-23.74
2	0.18125	9.95	34.13	19.60	44.08	29.55	64.43	54.43	-20.35	-24.88
3	0.20469	9.96	32.62	18.99	42.58	28.95	63.42	53.42	-20.84	-24.47
4	0.31016	9.98	21.83	11.50	31.81	21.48	59.97	49.97	-28.16	-28.49
5	0.38438	10.00	30.03	12.56	40.03	22.56	58.18	48.18	-18.15	-25.62
6	8.42969	10.47	21.46	12.05	31.93	22.52	60.00	50.00	-28.07	-27.48

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

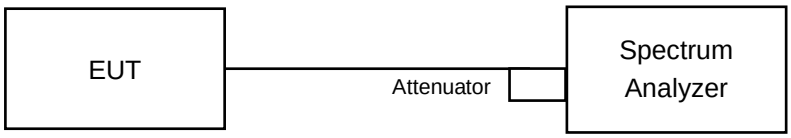


4.3 6dB Bandwidth Measurement

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

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	7.1	7.09	0.5	PASS
6	2437	7.1	7.1	0.5	PASS
11	2462	7.1	7.12	0.5	PASS

802.11g

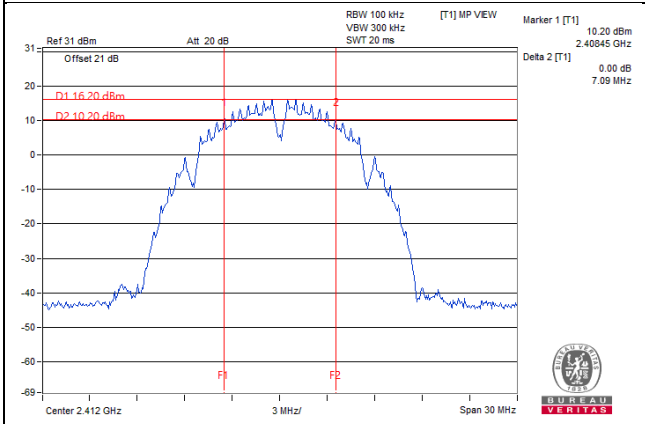
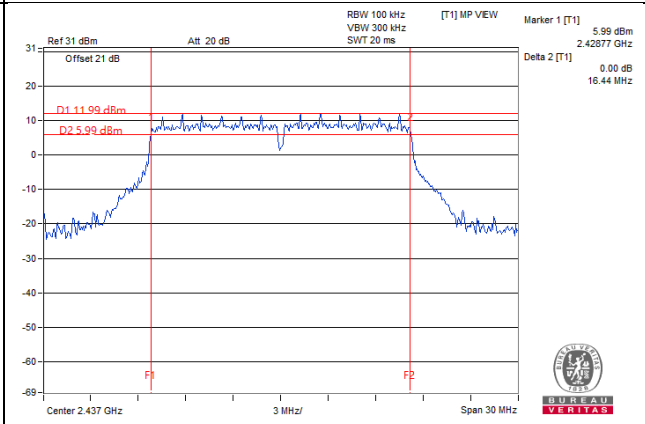
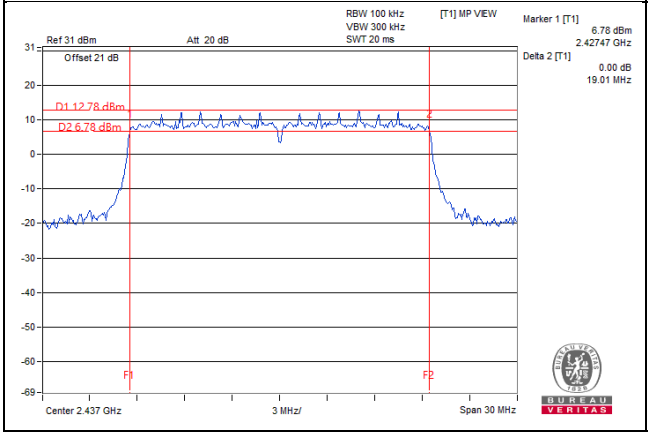
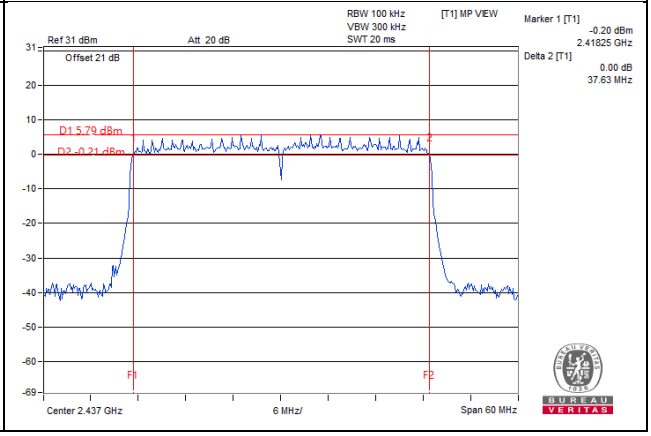
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.46	16.44	0.5	PASS
6	2437	16.44	16.44	0.5	PASS
11	2462	16.44	16.45	0.5	PASS

802.11ax (HE20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	19.1	19.04	0.5	PASS
6	2437	19.09	19.01	0.5	PASS
11	2462	19.08	19.04	0.5	PASS

802.11ax (HE40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	37.72	37.78	0.5	PASS
6	2437	37.88	37.63	0.5	PASS
9	2452	37.86	37.73	0.5	PASS

Spectrum Plot of Worst Value	
802.11b / Chain 1 : CH1	**802.11g / Chain 0 : CH6**
	
802.11ax (HE20) / Chain 1 : CH6	**802.11ax (HE40) / Chain 1 : CH6**
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

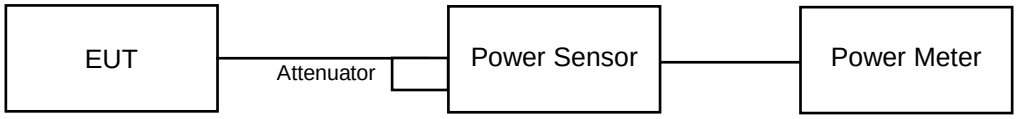
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

802.11b

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	22.82	24.07	446.696	26.50	30	Pass
6	2437	22.74	24.03	440.861	26.44	30	Pass
11	2462	22.79	24.03	443.038	26.46	30	Pass

802.11g

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	18.67	18.94	151.964	21.82	30	Pass
6	2437	23.58	24.18	489.853	26.90	30	Pass
11	2462	18.50	18.71	145.096	21.62	30	Pass

VHT20

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.58	19.76	185.406	22.68	30	Pass
6	2437	23.76	24.34	509.328	27.07	30	Pass
11	2462	18.71	18.99	153.552	21.86	30	Pass

VHT40

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	18.97	18.73	153.531	21.86	30	Pass
6	2437	19.94	20.03	199.321	23.00	30	Pass
9	2452	17.88	17.74	120.805	20.82	30	Pass

802.11ax (HE20)

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.73	19.91	191.921	22.83	30	Pass
6	2437	23.89	24.49	526.096	27.21	30	Pass
11	2462	18.85	19.10	158.019	21.99	30	Pass

802.11ax (HE40)

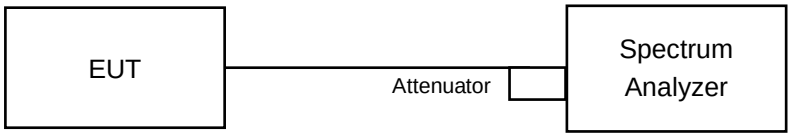
Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	19.05	18.87	157.443	21.97	30	Pass
6	2437	20.06	20.17	205.383	23.13	30	Pass
9	2452	18.02	17.85	124.341	20.95	30	Pass

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

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

802.11b

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (mW/3kHz)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Pass / Fail
		Chain 0	Chain 1				
1	2412	-9.05	-7.82	0.2896	-5.38	6.02	PASS
6	2437	-9.49	-5.63	0.386	-4.13	6.02	PASS
11	2462	-9.24	-7.76	0.2866	-5.43	6.02	PASS

Note: 1. Directional gain =10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 7.98dBi > 6dBi , so the power density limit shall be reduced to 8- (7.98-6) = 6.02 dBm.

802.11g

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (mW/3kHz)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Pass / Fail
		Chain 0	Chain 1				
1	2412	-14.54	-14.12	0.07388	-11.31	6.02	PASS
6	2437	-10.16	-8.55	0.23602	-6.27	6.02	PASS
11	2462	-14.83	-14.37	0.06944	-11.58	6.02	PASS

Note: 1. Directional gain =10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 7.98dBi > 6dBi , so the power density limit shall be reduced to 8- (7.98-6) = 6.02 dBm.

802.11ax (HE20)

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (mW/3kHz)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Pass / Fail
		Chain 0	Chain 1				
1	2412	-15.03	-14.66	0.0656	-11.83	6.02	PASS
6	2437	-10.78	-10.43	0.17413	-7.59	6.02	PASS
11	2462	-15.90	-15.05	0.05696	-12.44	6.02	PASS

Note: 1. Directional gain =10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 7.98dBi > 6dBi , so the power density limit shall be reduced to 8- (7.98-6) = 6.02 dBm.

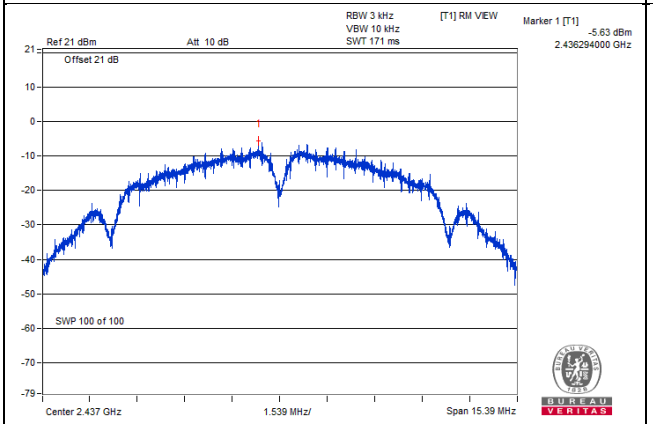
802.11ax (HE40)

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (mW/3kHz)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Pass / Fail
		Chain 0	Chain 1				
3	2422	-18.93	-19.04	0.02527	-15.97	6.02	PASS
6	2437	-18.05	-17.14	0.03499	-14.56	6.02	PASS
9	2452	-19.66	-19.96	0.02091	-16.80	6.02	PASS

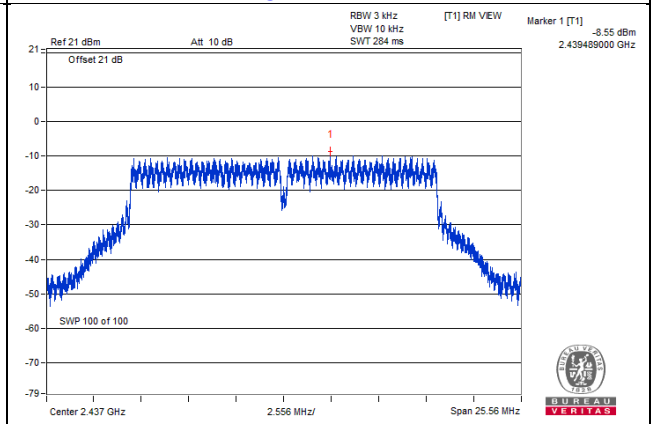
Note: 1. Directional gain =10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 7.98dBi > 6dBi, so the power density limit shall be reduced to 8- (7.98-6) = 6.02 dBm.

Spectrum Plot of Worst Value

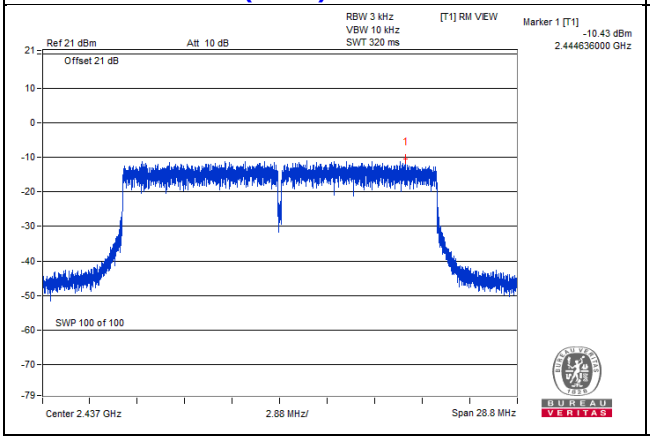
802.11b / Chain 1 : CH6



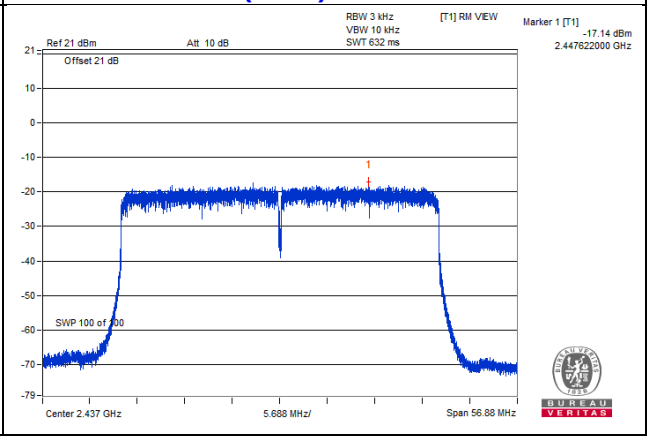
802.11g / Chain 1 : CH6



802.11ax (HE20) / Chain 1 : CH6



802.11ax (HE40) / Chain 1 : CH6

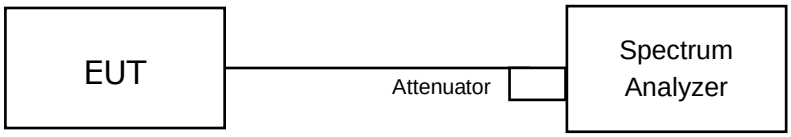


4.6 Conducted Out of Band Emission Measurement

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

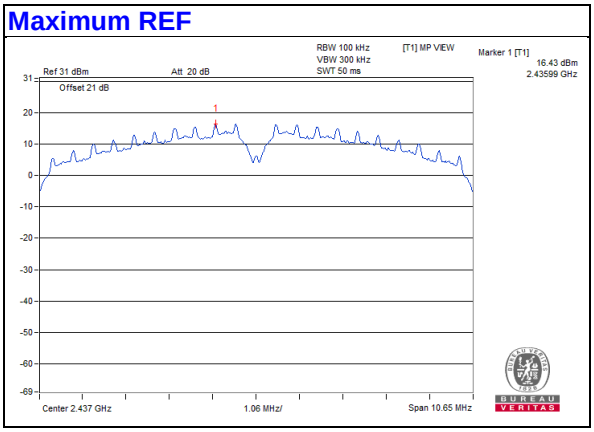
Same as Item 4.3.6

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.

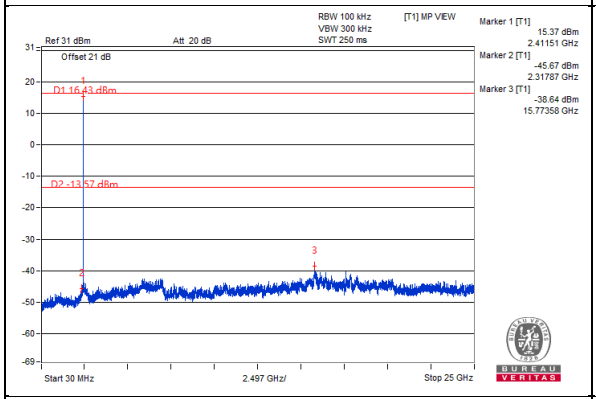
802.11b

Maximum REF

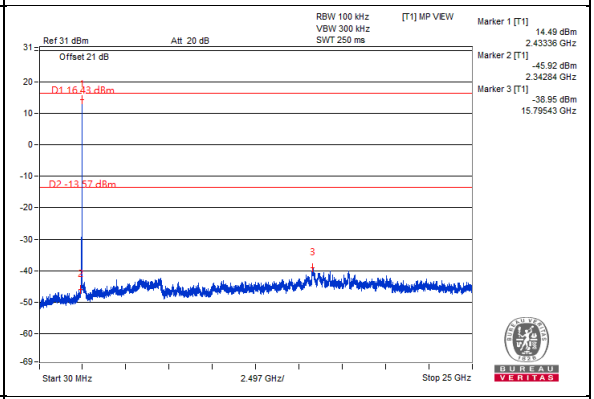


Chain 0

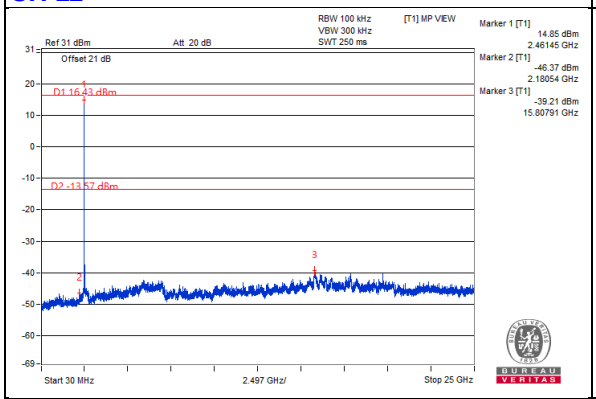
CH 1



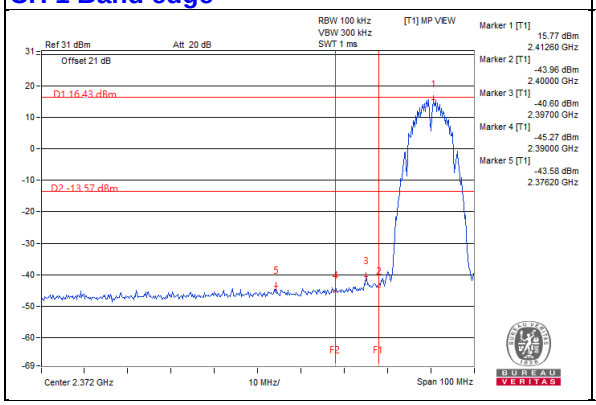
CH 6



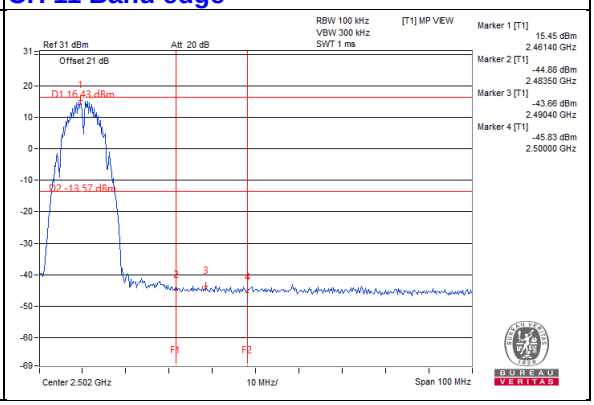
CH 11



CH 1 Band edge

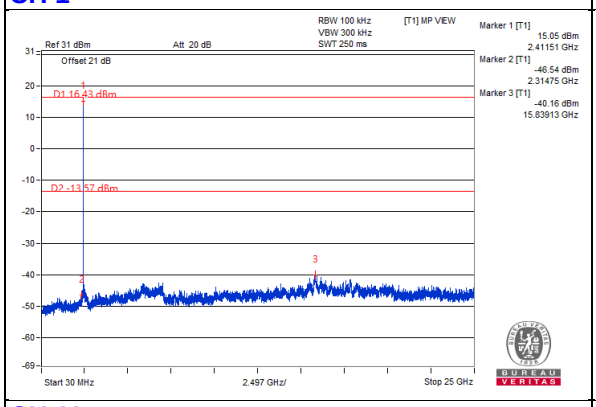


CH 11 Band edge

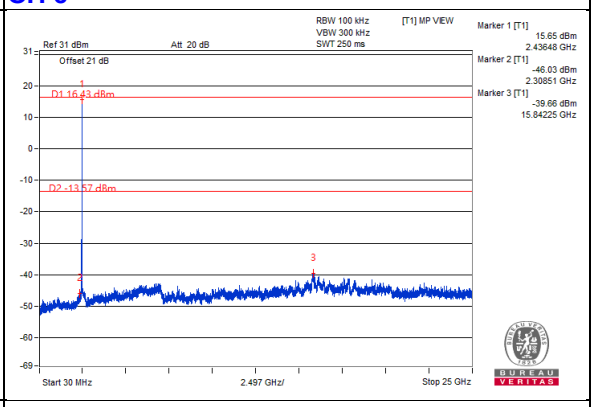


Chain 1

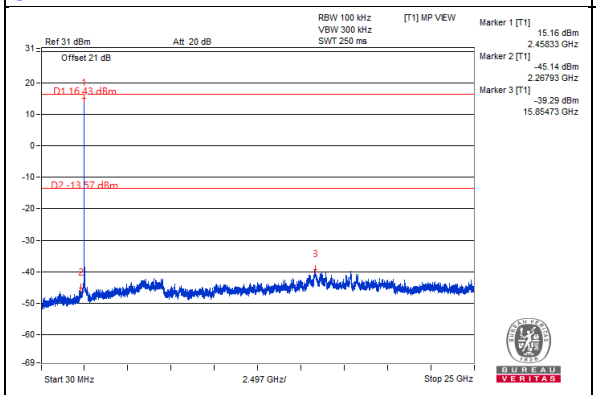
CH 1



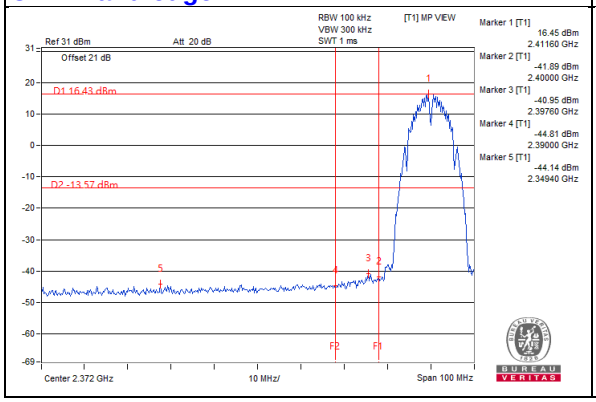
CH 6



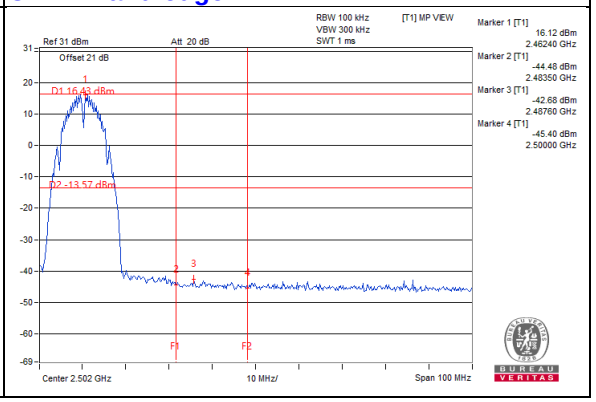
CH 11



CH 1 Band edge

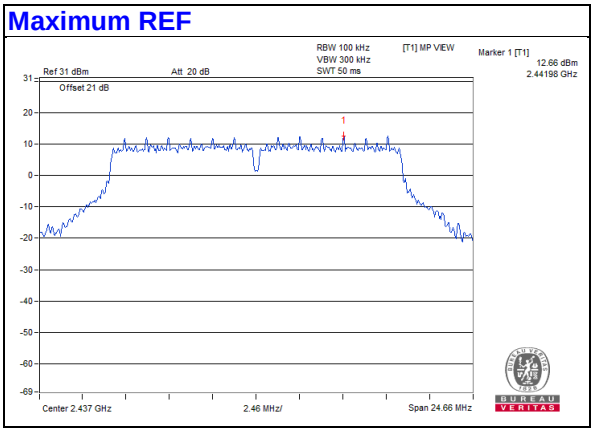


CH 11 Band edge



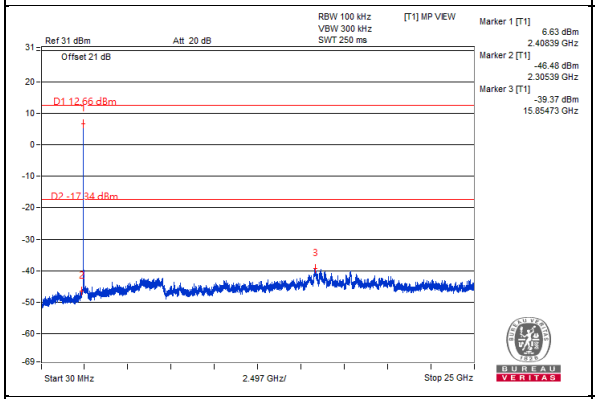
802.11g

Maximum REF

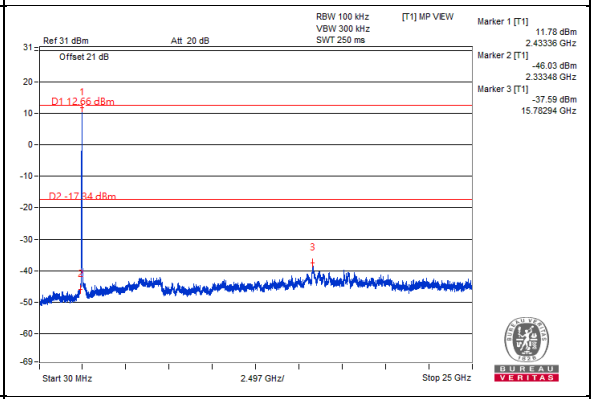


Chain 0

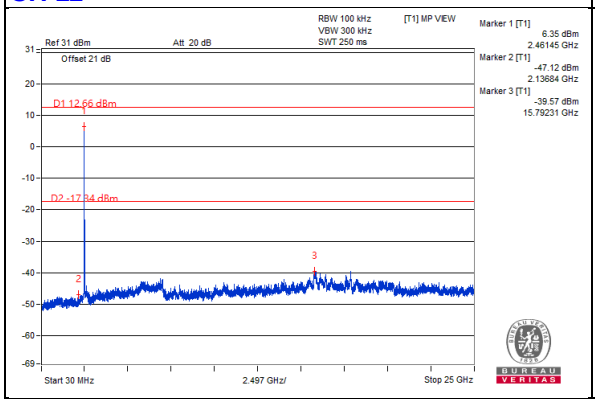
CH 1



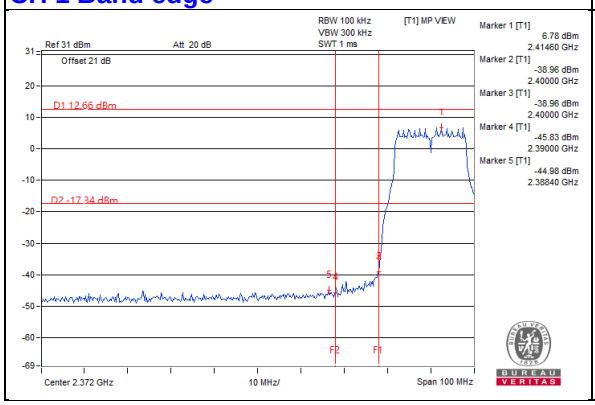
CH 6



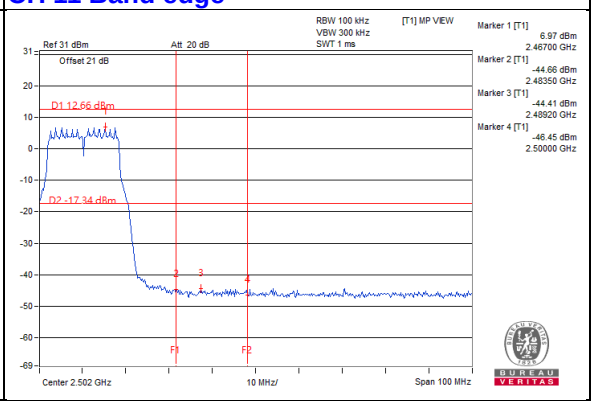
CH 11



CH 1 Band edge

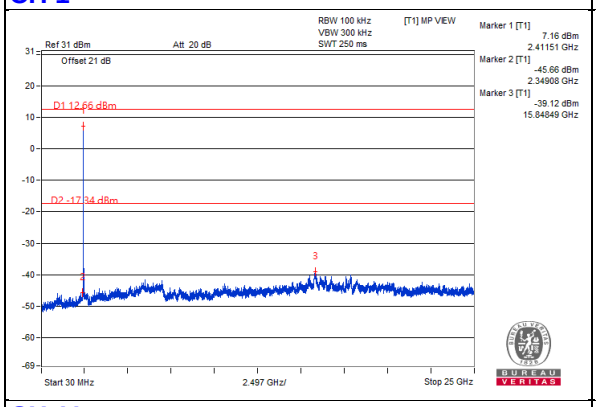


CH 11 Band edge

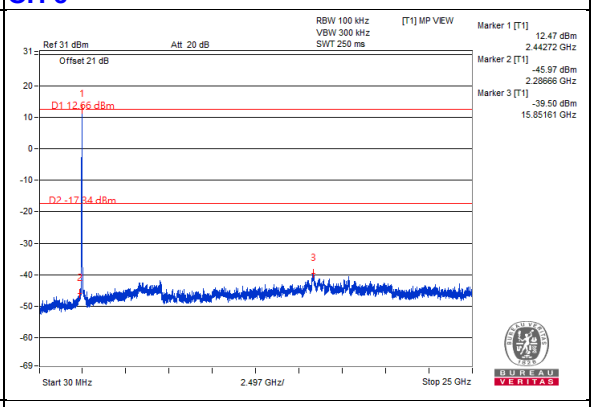


Chain 1

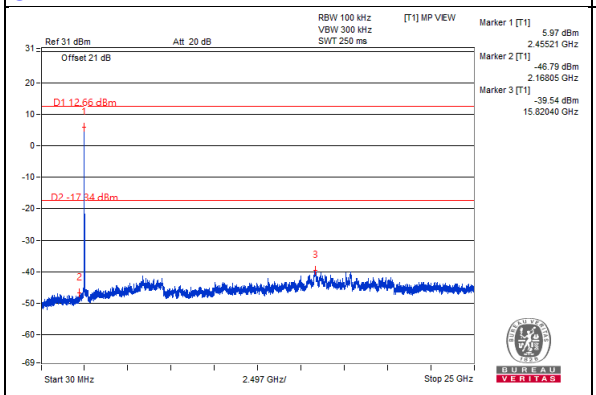
CH 1



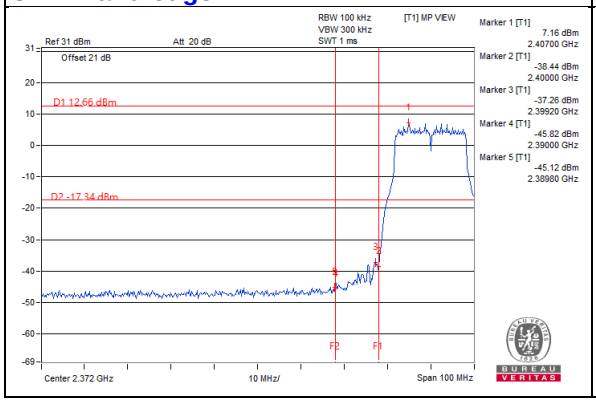
CH 6



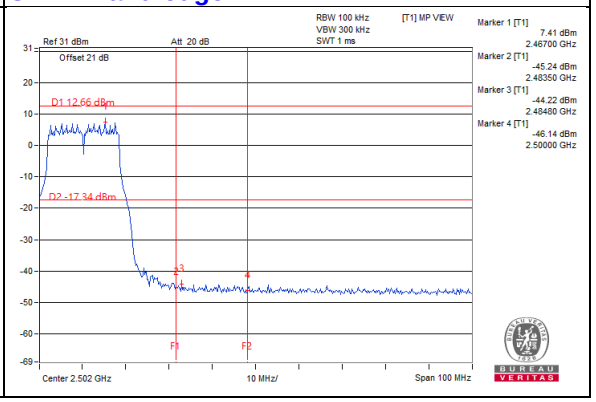
CH 11



CH 1 Band edge

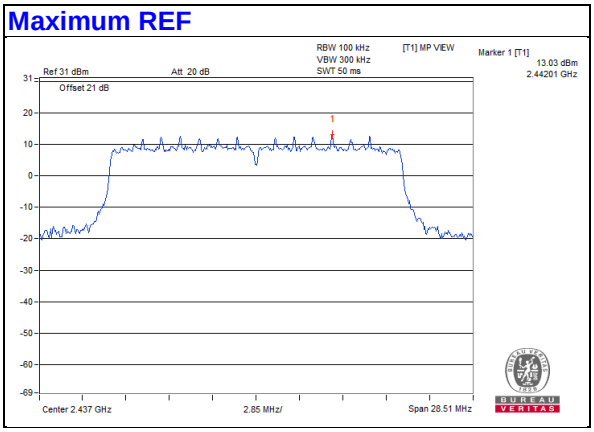


CH 11 Band edge



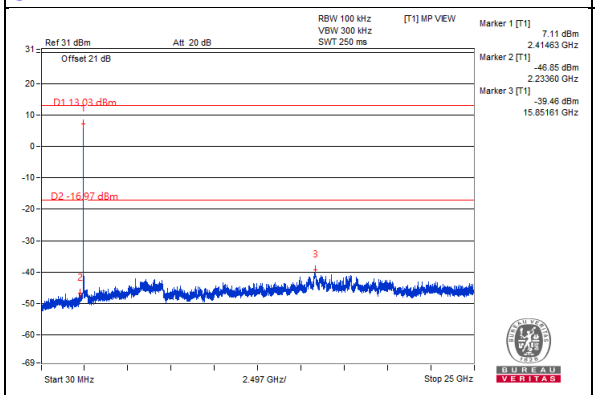
802.11ax (HE20)

Maximum REF

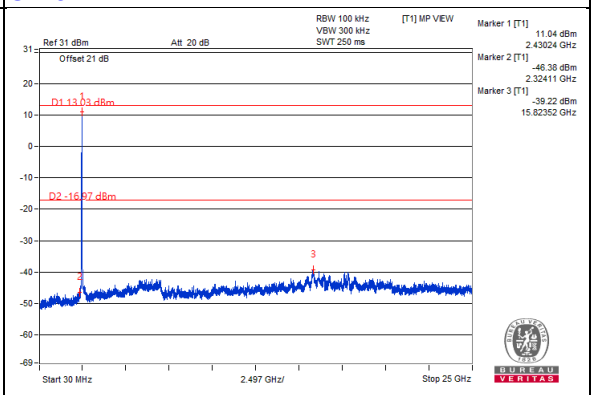


Chain 0

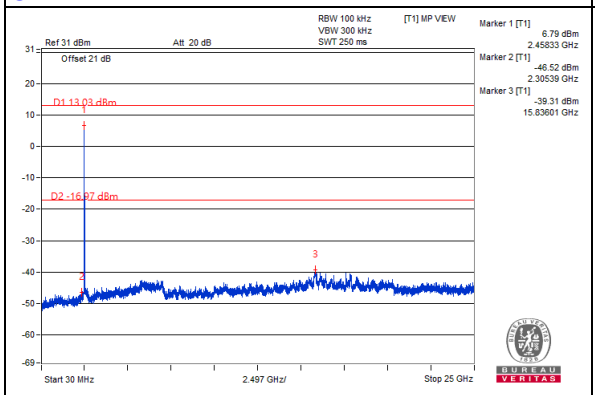
CH 1



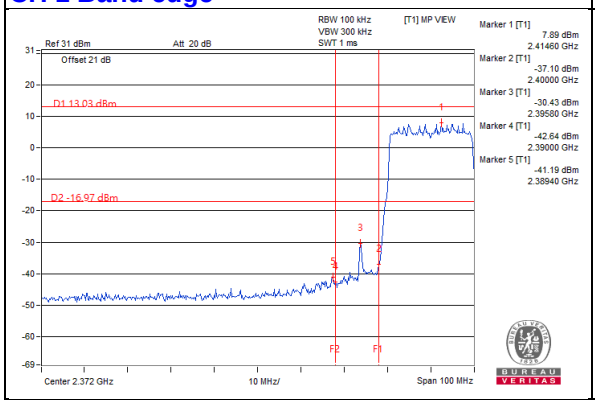
CH 6



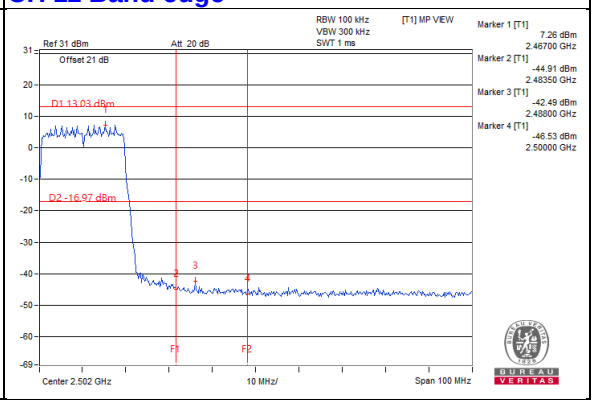
CH 11



CH 1 Band edge

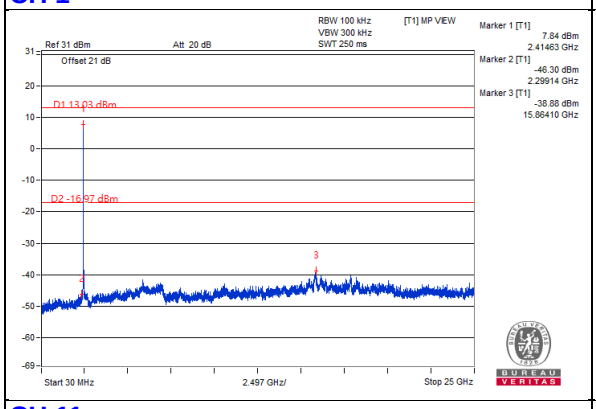


CH 11 Band edge

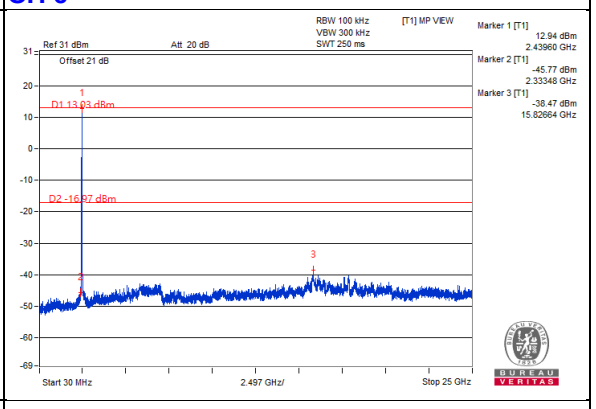


Chain 1

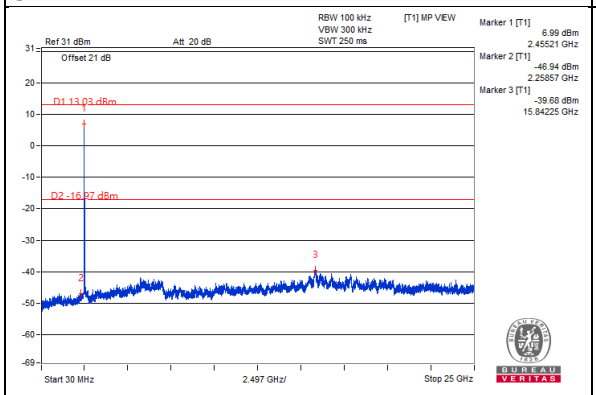
CH 1



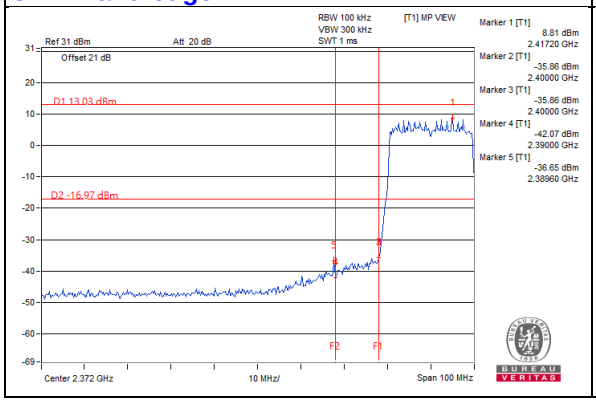
CH 6



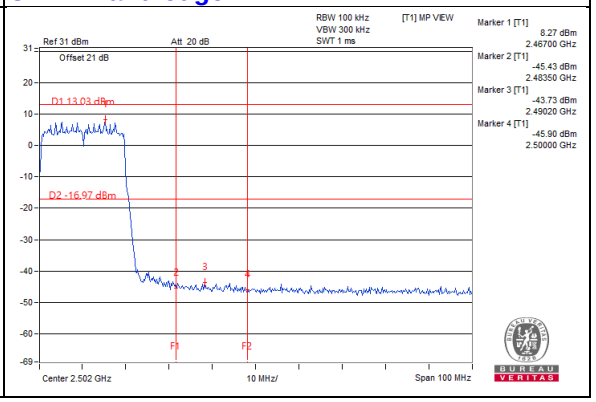
CH 11



CH 1 Band edge

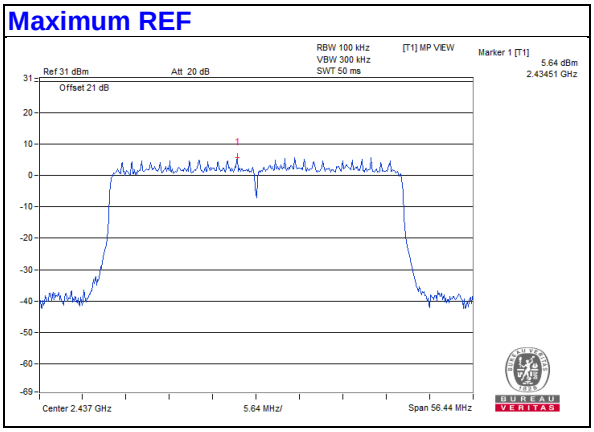


CH 11 Band edge



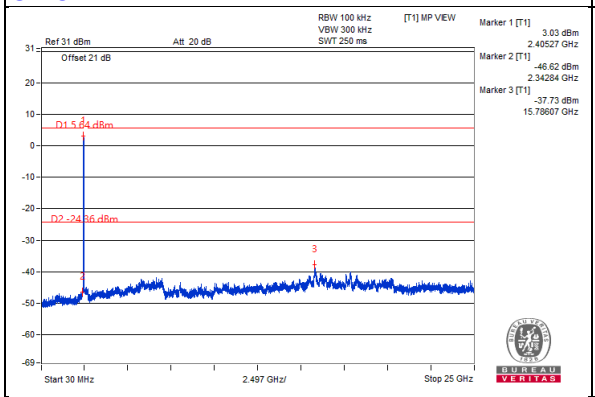
802.11ax (HE40)

Maximum REF

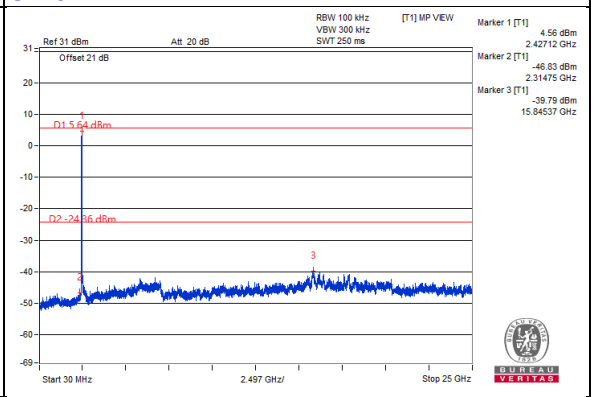


Chain 0

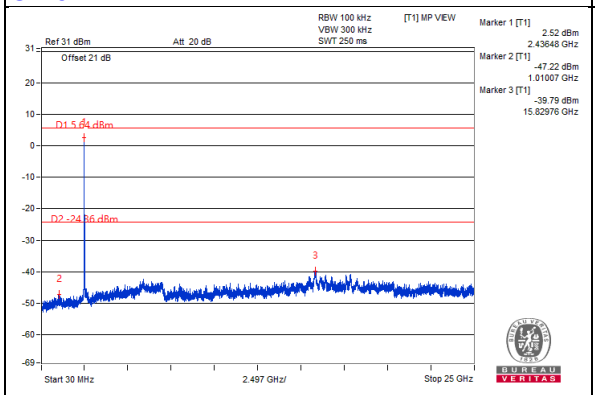
CH 3



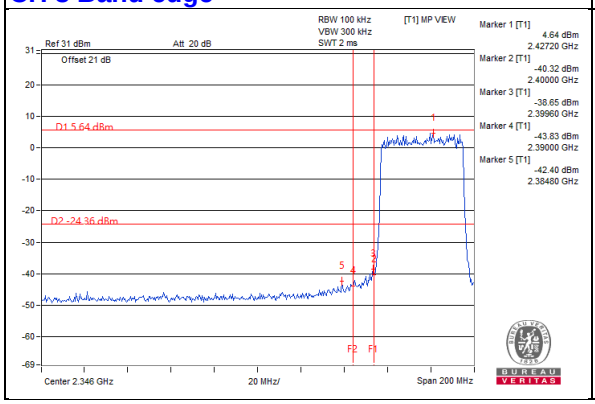
CH 6



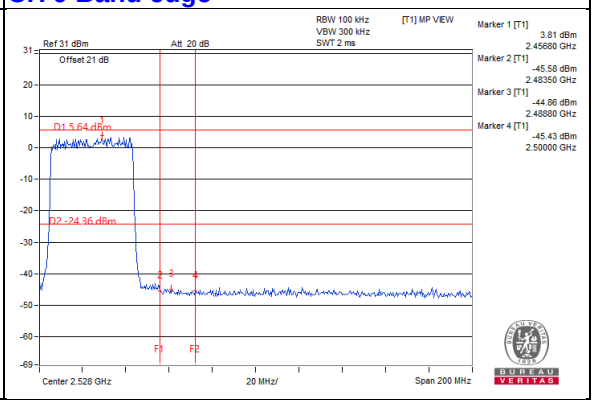
CH 9



CH 3 Band edge

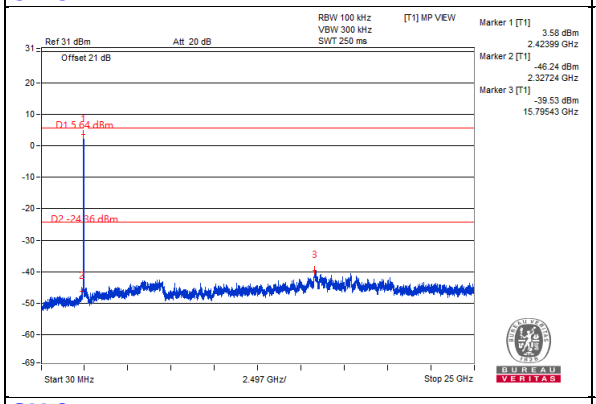


CH 9 Band edge

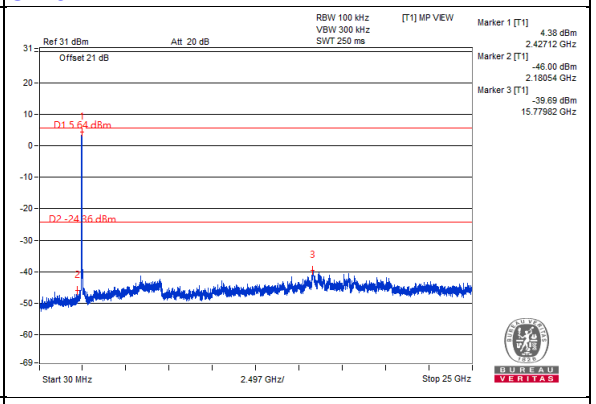


Chain 1

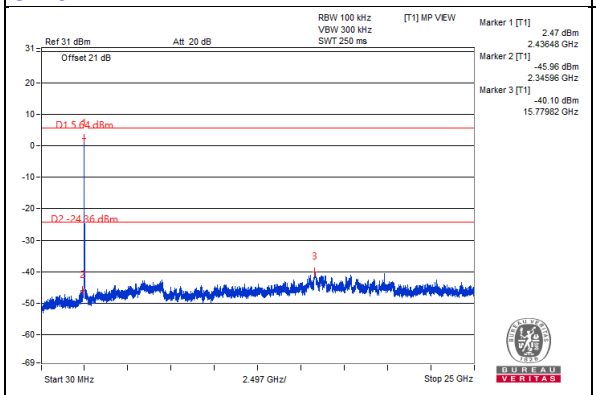
CH 3



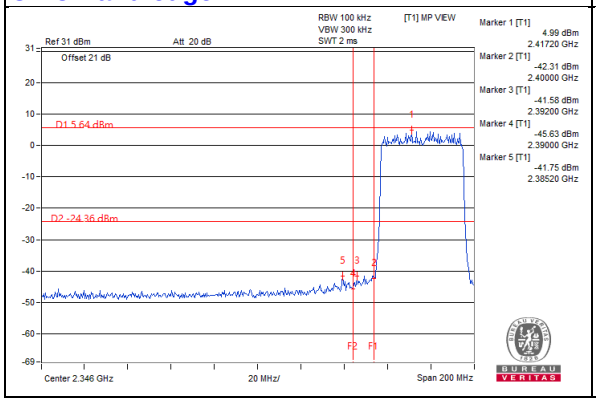
CH 6



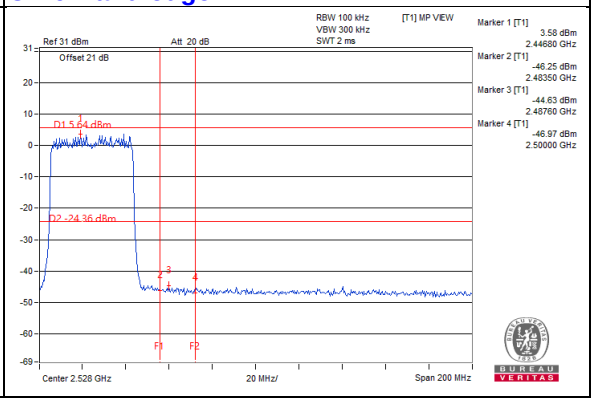
CH 9



CH 3 Band edge



CH 9 Band edge

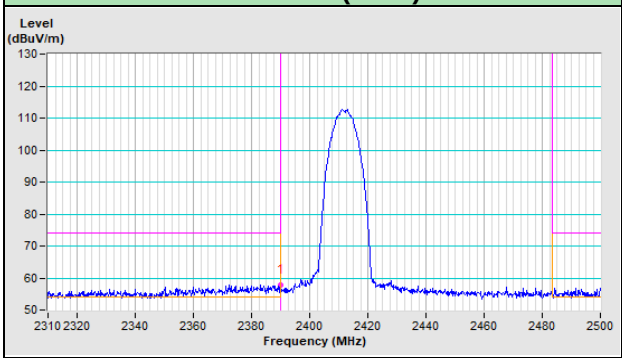
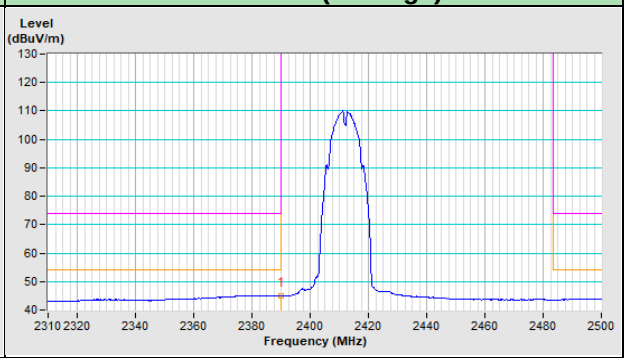
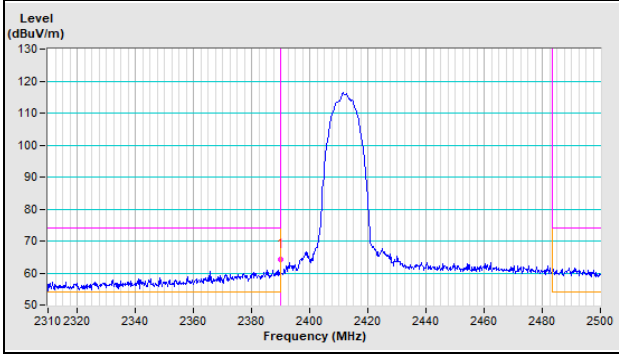
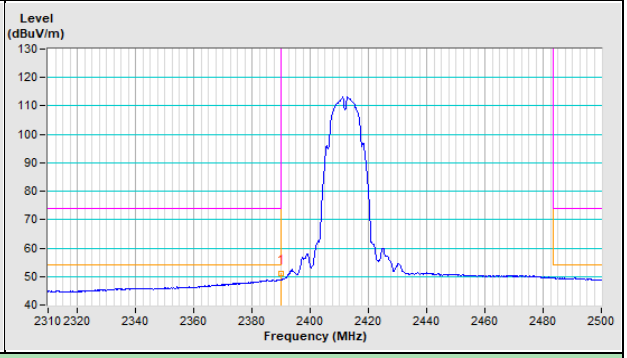
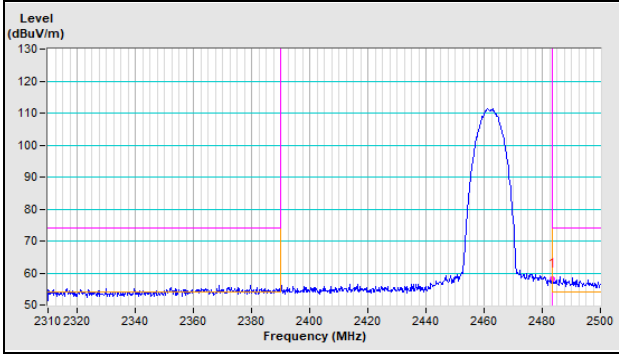
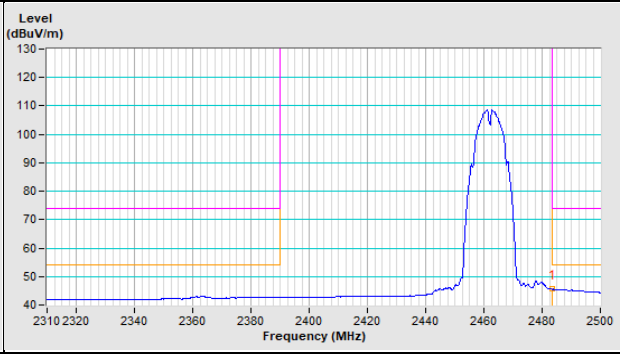
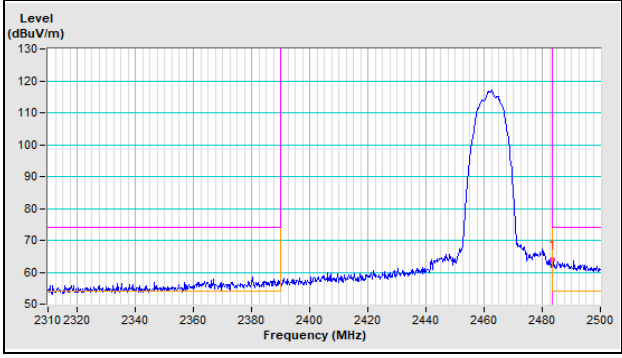
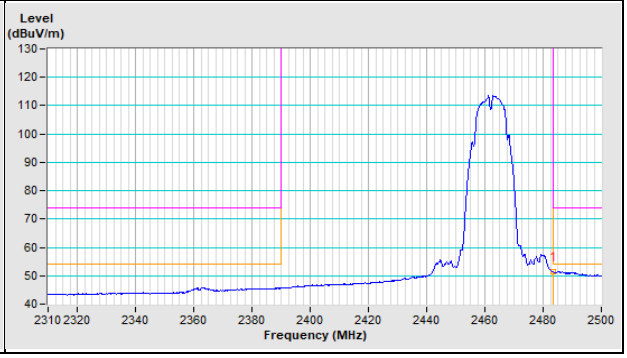


5 Pictures of Test Arrangements

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

Annex A - Band-Edge Measurement

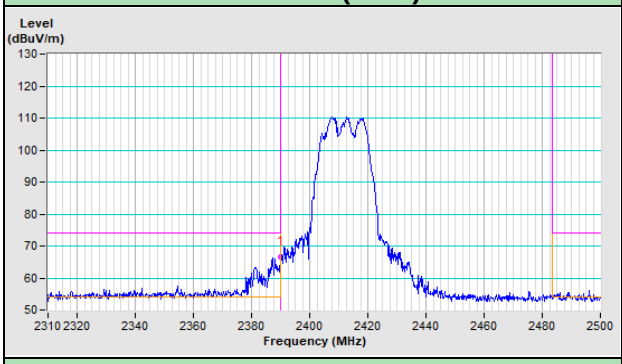
802.11b

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

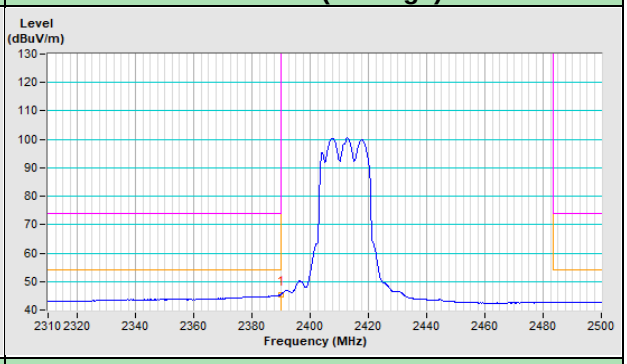
802.11g

Channel 1

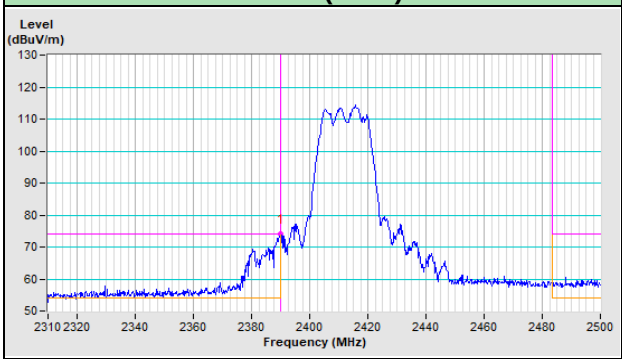
Horizontal (Peak)



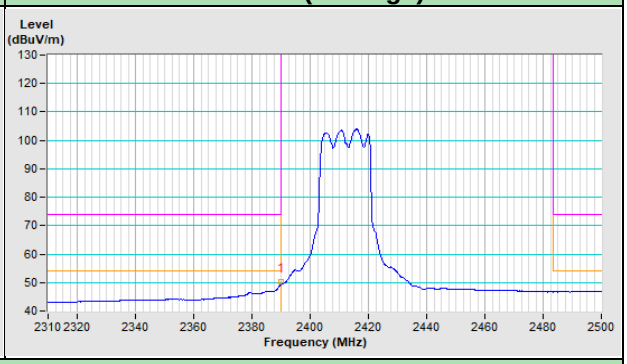
Horizontal (Average)



Vertical (Peak)

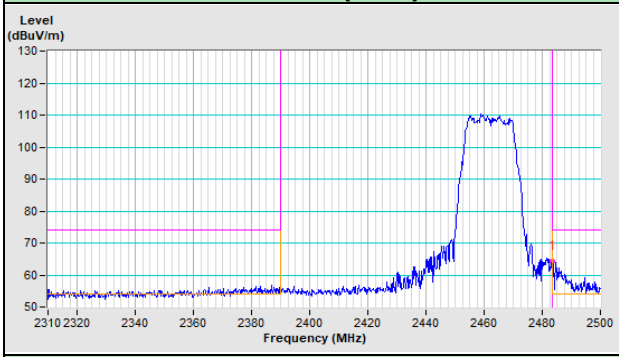


Vertical (Average)

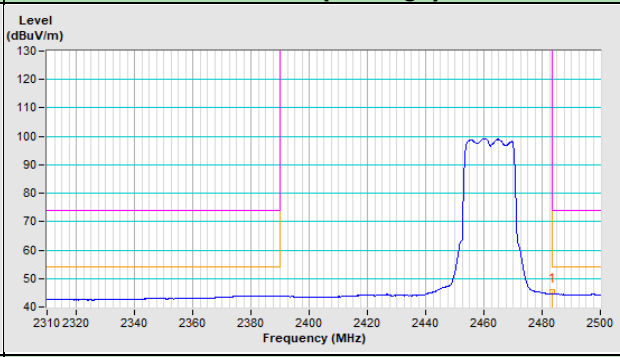


Channel 11

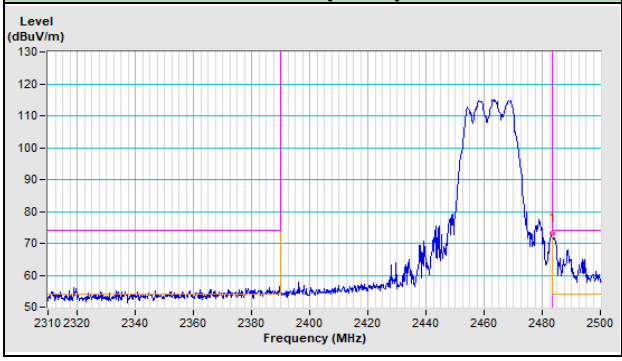
Horizontal (Peak)



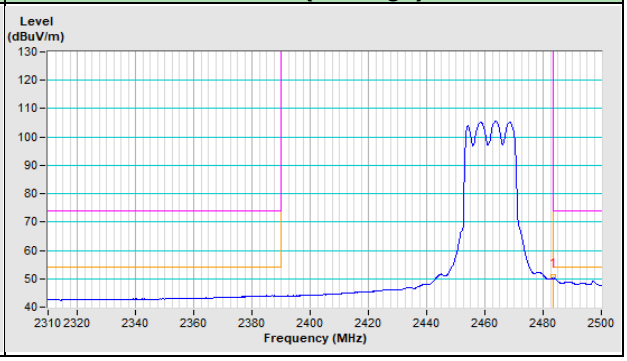
Horizontal (Average)



Vertical (Peak)



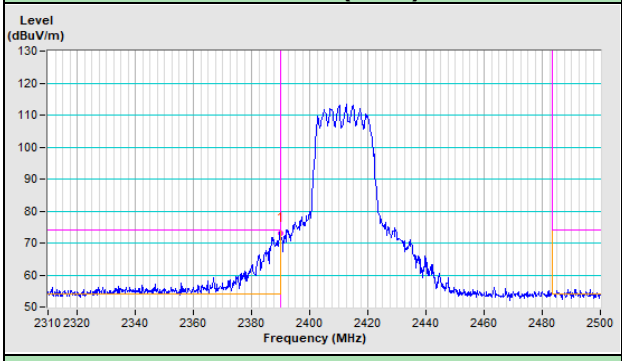
Vertical (Average)



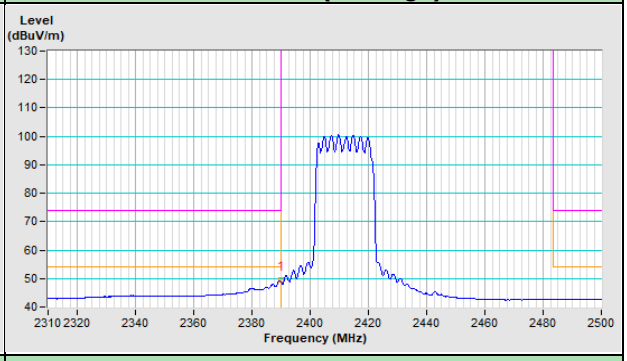
802.11ax (HE20)

Channel 1

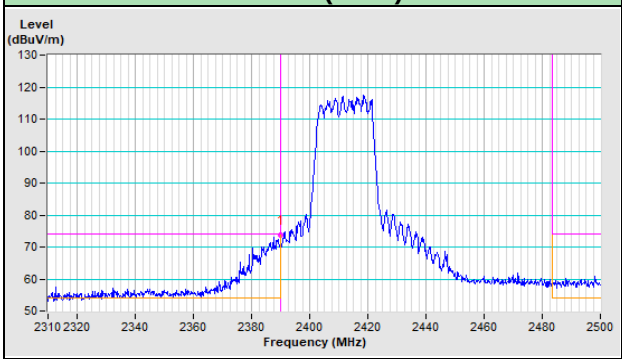
Horizontal (Peak)



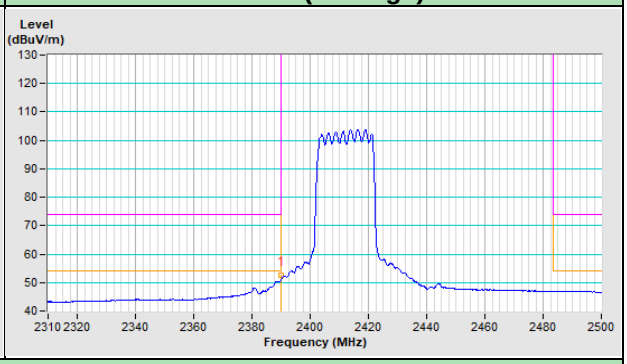
Horizontal (Average)



Vertical (Peak)

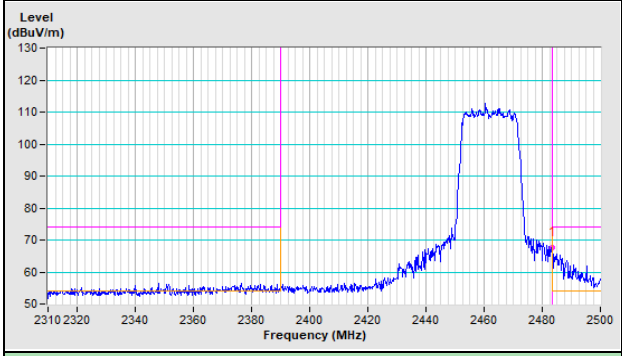


Vertical (Average)

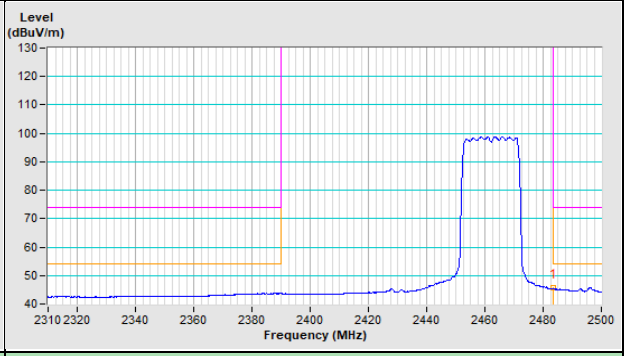


Channel 11

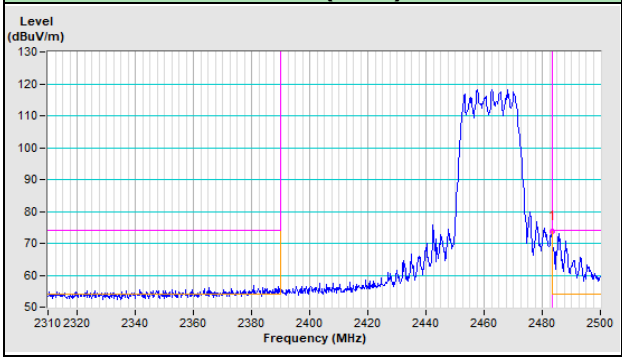
Horizontal (Peak)



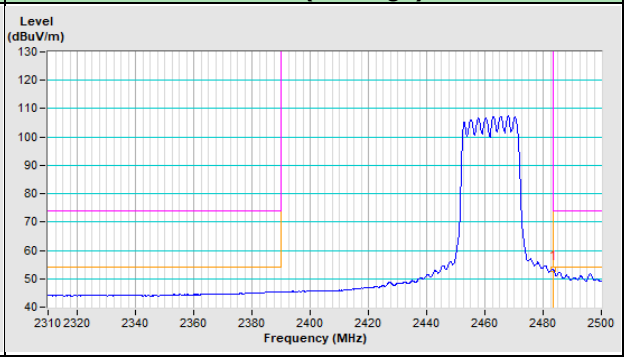
Horizontal (Average)



Vertical (Peak)



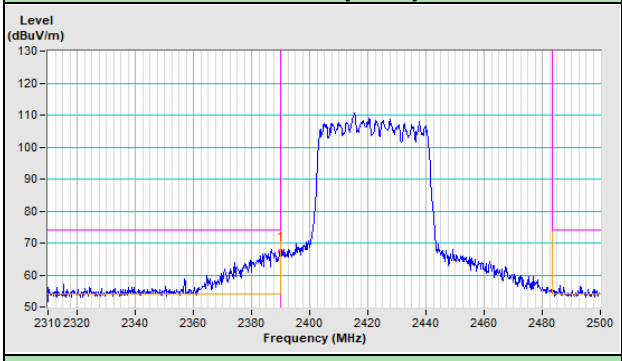
Vertical (Average)



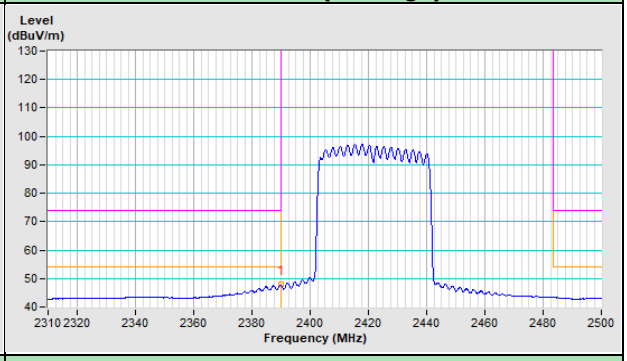
802.11ax (HE40)

Channel 3

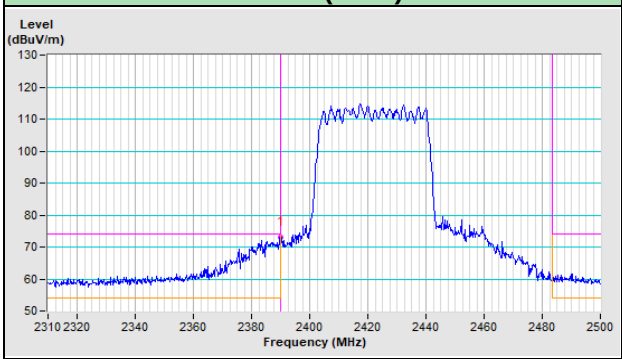
Horizontal (Peak)



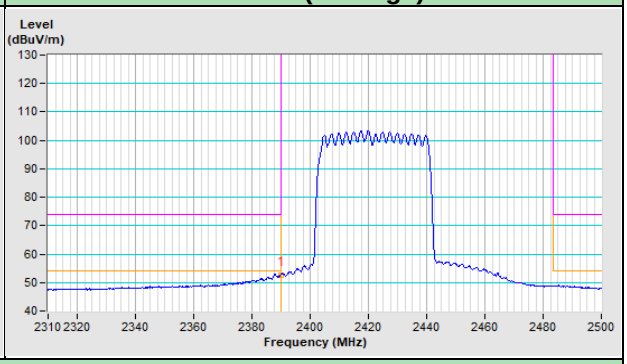
Horizontal (Average)



Vertical (Peak)

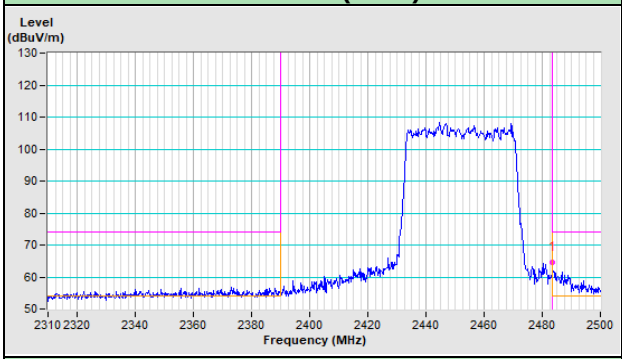


Vertical (Average)

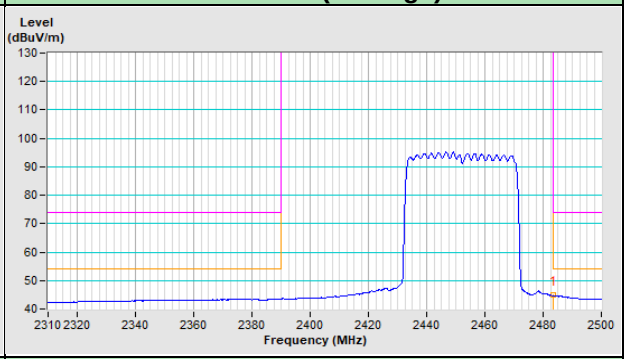


Channel 9

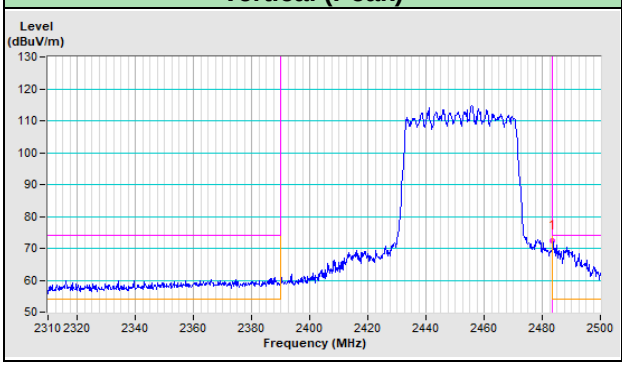
Horizontal (Peak)



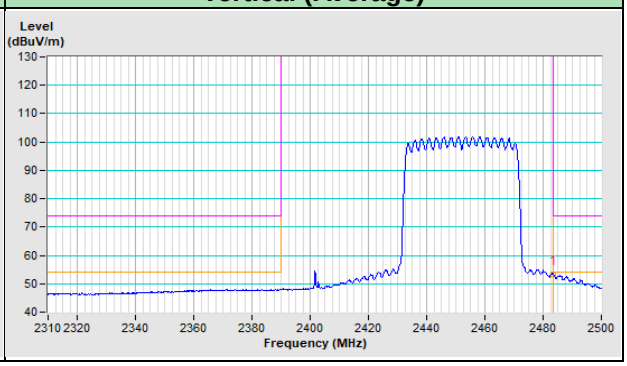
Horizontal (Average)



Vertical (Peak)



Vertical (Average)



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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Email: service.adt@tw.bureauveritas.com
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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