FCC Test Report

Report No.:	RF191227E09
FCC ID:	2AF5PMH7021
Test Model:	MH7021
Series Model:	MH702XY (Where X can be 0, 1, 2, 3, or 4, and Y can be A, B, C, D or blank.)
Received Date:	Dec. 27, 2019
Test Date:	Feb. 11 to 12, 2020
Issued Date:	Mar. 11, 2020
Applicant:	MTRLC LLC
Address:	225 Franklin St. 26th Floor Boston, MA 02110
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
RF191227E09	Original release.	Mar. 11, 2020

1 Certificate of Conformity

Product:	AC2200 Tri-band Mesh WiFi
Brand:	Motorola
Test Model:	MH7021
Series Model:	MH702XY (Where X can be 0, 1, 2, 3, or 4, and Y can be A, B, C, D or blank.)
Sample Status:	ENGINEERING SAMPLE
Applicant:	MTRLC LLC
Test Date:	Feb. 11 to 12, 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 : Vivian Huang , **Date:** Mar. 11, 2020

Vivian Huang / Specialist

Approved by : , **Date:** Mar. 11, 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 -29.42dB at 0.37266MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.2dB at 2390.00MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is I-pex not a standard connector.

Note:

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	1.8 dB
Conducted Emissions	-	3.1 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.0 dB
	30MHz ~ 1GHz	5.1 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.1 dB
	6GHz ~ 18GHz	5.0 dB
	18GHz ~ 40GHz	5.2 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	AC2200 Tri-band Mesh WiFi
Brand	Motorola
Test Model	MH7021
Series Model	MH702XY (Where X can be 0, 1, 2, 3, or 4, and Y can be A, B, C, D or blank.)
Status of EUT	ENGINEERING SAMPLE
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 only and VHT20/40 in 2.4GHz
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 400Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	**2.4GHz:** 2.412 ~ 2.462 GHz **5GHz:** 5.18~ 5.24 GHz, 5.745 ~ 5.825 GHz
Number of Channel	**2.4GHz:** 802.11b, 802.11g, 802.11n (HT20), VHT20: 11 802.11n (HT40), VHT40: 7 **5GHz:** 802.11a, 802.11n (HT20), 802.11ac (VHT20): 9 802.11n (HT40), 802.11ac (VHT40): 4 802.11ac (VHT80): 2
Output Power	**CDD Mode:** **2.412 ~ 2.462GHz:** 897.105 mW **5.18 ~ 5.24GHz:** 526.285 mW **5.745 ~ 5.825GHz:** 855.18 mW **Beamforming Mode:** **2.412 ~ 2.462GHz:** 768.617 mW **5.18 ~ 5.24GHz:** 526.285 mW **5.745 ~ 5.825GHz:** 588.273 mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1

Note:

1. The EUT has below radios as following table:

Radio 1	Radio 2
WLAN (2.4GHz) +WLAN (5GHz LB)	WLAN (5GHz HB)

2. Simultaneously transmission condition.

Condition	Technology		
1	WLAN (2.4GHz)	WLAN (5GHz LB)	WLAN (5GHz HB)
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.			

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

Brand Name	Model Name	Difference
Motorola	MH7021	MH7021 x 1, black and white
	MH702XY (Where X can be 0, 1, 2, 3, or 4, and Y can be A, B, C, D or blank.)	For identical hardware for marketing purposes
From the above models, model: MH7021 was selected as representative model for the test and its data are recorded in this report.		

4. The EUT power needs to be supplied from a power adapters, the information is as below table:

No.	Brand	Model No.	Spec.
1	Shenzhen Gongjin Electronics Co., Ltd	S24B72-120A200-0K	Input: 100-240Vac, 0.8A, 50/60Hz Output: 12Vdc, 2A DC Output cable: Unshielded, 1.5m

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

Antenna No	Brand	Antenna Gain (dBi)	Frequency range (GHz)	Antenna Type	Connector Type	±Cable Length (mm)	Cable Loss (dB)
ANT 1 (2.4GHz/5GHz)	WALSIN TECHNOLOGY CORPORATION	2.88	2.4~2.5	PCB	I-pex	85±3	0.23
		4.31	5.15~5.85				0.36
ANT 2 (2.4GHz/5GHz)		3	2.4~2.5	PCB	I-pex	125±3	0.31
		5.27	5.15~5.85				0.5
ANT 3(5GHz)		5.19	5.15~5.85	METAL TUBE	I-pex	110±3	0.47
ANT 4(5GHz)		5.37	5.15~5.85	METAL TUBE	I-pex	110±3	0.47

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

Note:
1. All of modulation mode support beamforming function except 802.11a/b/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) and 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)

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.

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), 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	
-	√	√	√	√	-

RE≥1G: Radiated Emission above 1GHz & Bandedge Measurement

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

Radiated Emission Test (Above 1GHz):

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

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

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

Radiated Emission Test (Below 1GHz):

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

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

CDD Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	6	DSSS	DBPSK	1

Power Line Conducted Emission Test:

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

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

CDD Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	6	DSSS	DBPSK	1

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)					
VHT20	1 to 11	1, 6, 11	OFDM	BPSK	6.5
VHT40	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Test Condition:

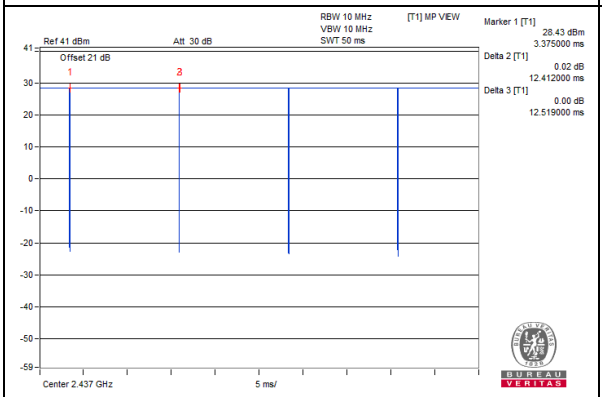
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 75%RH	120Vac, 60Hz	Nelson Teng
RE<1G	23deg. C, 67%RH	120Vac, 60Hz	Kevin Ko
PLC	25deg. C, 75%RH	120Vac, 60Hz	Kevin Ko
APCM	25deg. C, 60%RH	120Vac, 60Hz	Robert Cheng

3.3 Duty Cycle of Test Signal

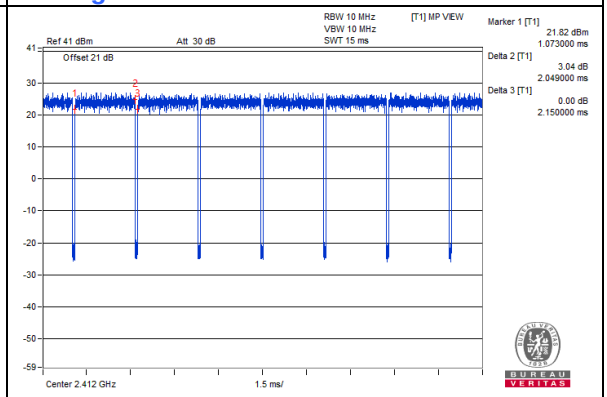
If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98 %, duty factor shall be considered.

802.11b: Duty cycle = 12.412 ms/12.519 ms= 0.991
802.11g: Duty cycle = 2.049 ms/2.15 ms= 0.953, Duty factor = 10 * log (1/Duty cycle) = 0.21
VHT20: Duty cycle = 4.997 ms 5.104 ms = 0.979, Duty factor = 10 * log (1/Duty cycle) = 0.09
VHT40: Duty cycle = 2.428 ms /2.526 ms = 0.98, Duty factor = 10 * log (1/Duty cycle) = 0.17

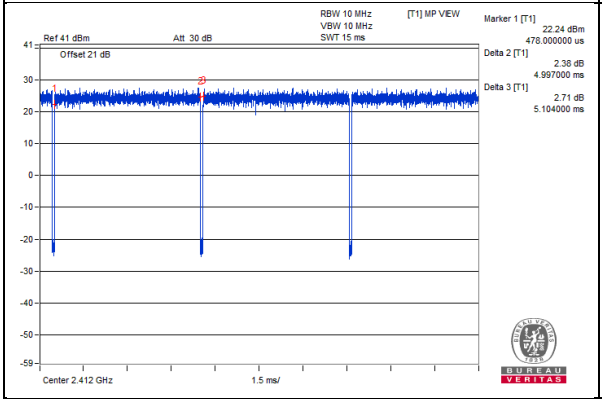
802.11b



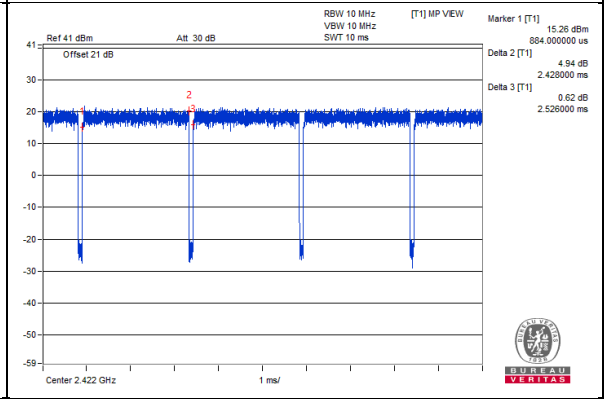
802.11g



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.

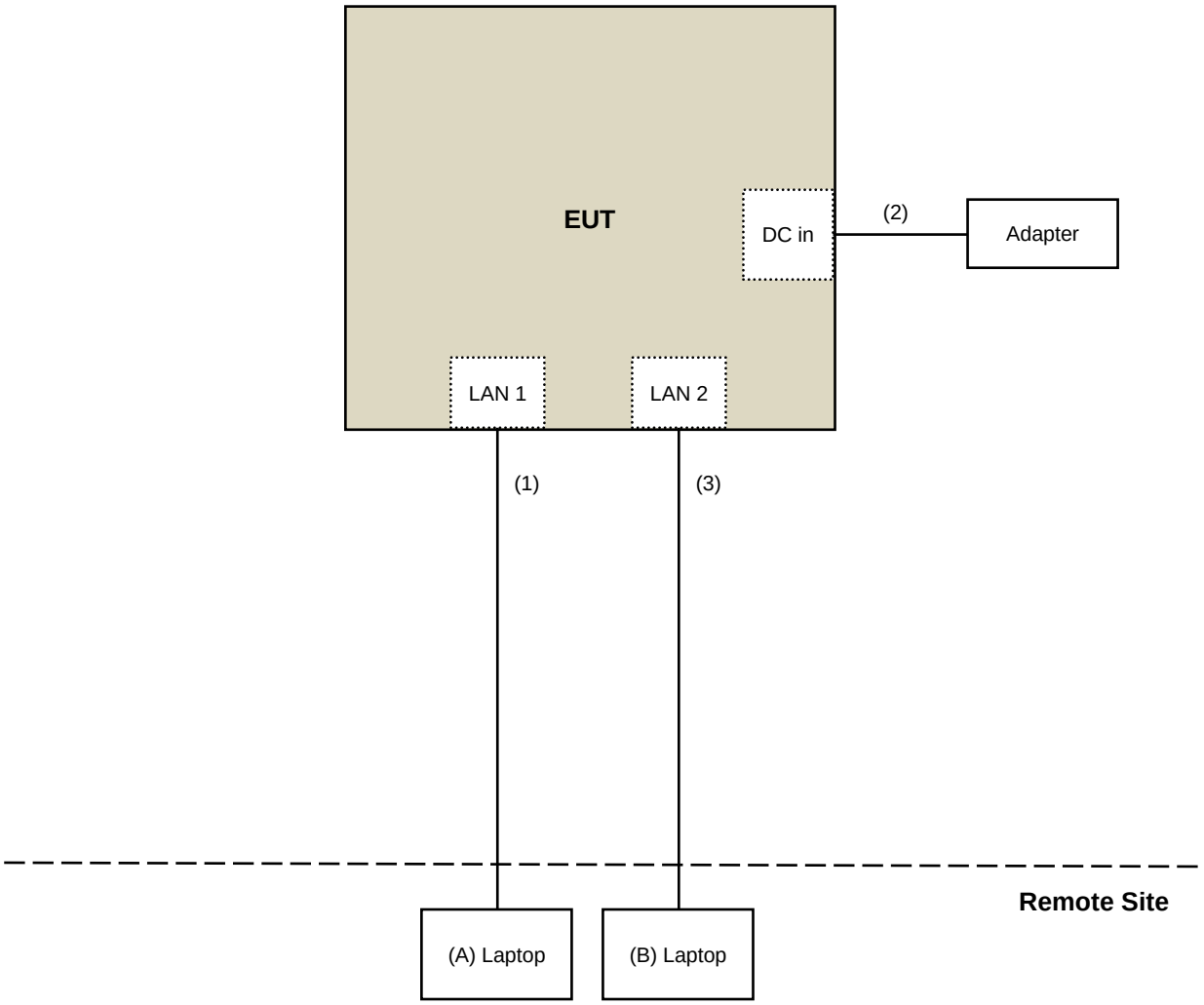
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	E5430	HYV4VY1	FCC DoC	Provided by Lab
B.	Laptop	DELL	E5430	4N1SKV1	FCC DoC	Provided by Lab

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ-45 Cable	1	10	No	0	Provided by Lab
2.	DC Cable	1	1.5	No	0	Supplied by client
3.	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 iteams have been perfoemed 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 and recorded as per the above KDB test guidance.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

NOTE:

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

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	July 17, 2019	July 16, 2020
Pre-Amplifier EMCI	EMC001340	980142	May 30, 2019	May 29, 2020
Pre-Amplifier EMCI	EMC001340	980142	May 30, 2019	May 29, 2020
Loop Antenna Electro-Metrics	EM-6879	269	Sep. 16, 2019	Sep. 15, 2020
RF Cable	NA	LOOPCAB-001	Jan. 08, 2020	Jan. 07, 2021
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-05	Apr. 30, 2019	Apr. 29, 2020
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Nov. 11, 2019	Nov. 10, 2020
RF Cable	8D	966-3-1	Mar. 18, 2019	Mar. 17, 2020
RF Cable	8D	966-3-2	Mar. 18, 2019	Mar. 17, 2020
RF Cable	8D	966-3-3	Mar. 18, 2019	Mar. 17, 2020
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Sep. 26, 2019	Sep. 25, 2020
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Nov. 24, 2019	Nov. 23, 2020
Pre-Amplifier EMCI	EMC12630SE	980384	Jan. 15, 2020	Jan. 14, 2021
RF Cable	EMC104-SM-SM-1200	160922	Jan. 15, 2020	Jan. 14, 2021
RF Cable	EMC104-SM-SM-2000	180601	June 10, 2019	June 09, 2020
RF Cable	EMC104-SM-SM-6000	180602	June 10, 2019	June 09, 2020
Spectrum Analyzer Keysight	N9030A	MY54490679	July 17, 2019	July 16, 2020
Pre-Amplifier EMCI	EMC12630SE	980384	Jan. 15, 2020	Jan. 14, 2021
RF Cable	EMC104-SM-SM-1200	160922	Jan. 15, 2020	Jan. 14, 2021
RF Cable	EMC104-SM-SM-2000	180601	June 10, 2019	June 09, 2020
RF Cable	EMC104-SM-SM-6000	180602	June 10, 2019	June 09, 2020
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Spectrum Analyzer R&S	FSV40	100964	June 04, 2019	June 03, 2020
Power meter Anritsu	ML2495A	1014008	May 13, 2019	May 12, 2020
Power sensor Anritsu	MA2411B	0917122	May 13, 2019	May 12, 2020
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 14, 2020

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. Loop antenna was used for all emissions below 30 MHz.
4. Tested Date: Feb. 12, 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:

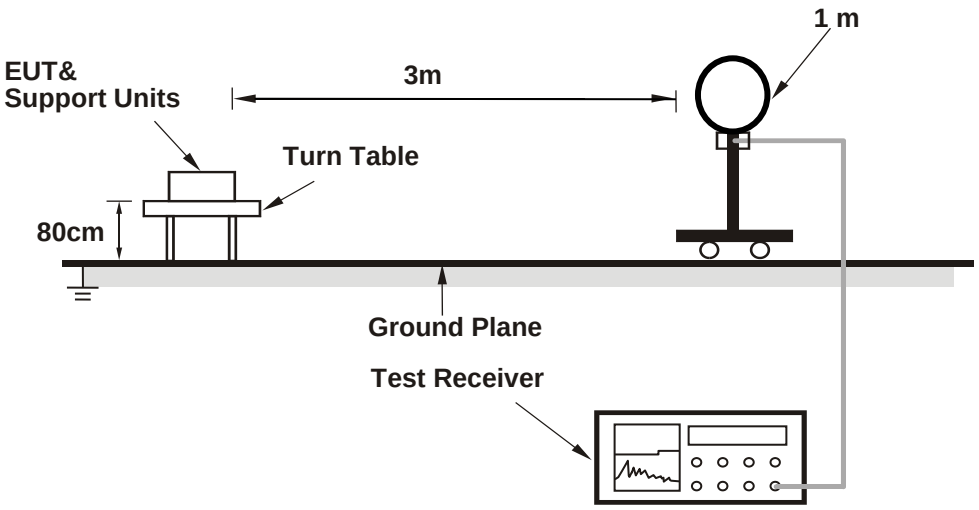
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

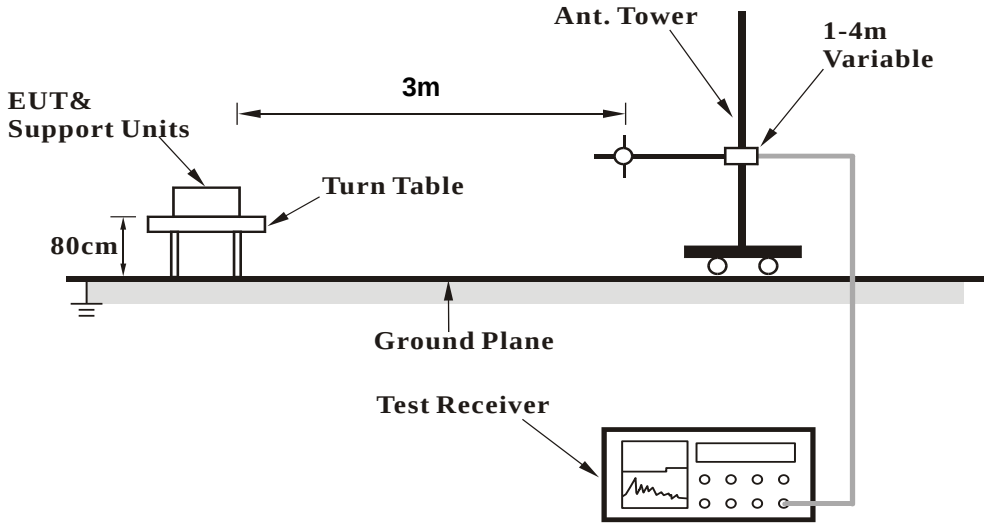
No deviation.

4.1.5 Test Setup

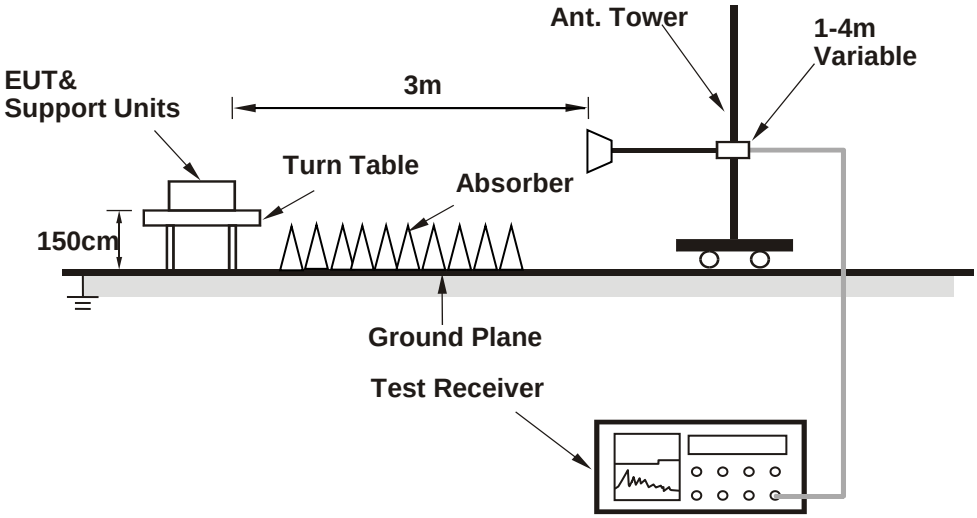
For Radiated emission below 30MHz



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 (QRCT_V 3.0-00264) 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.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2385.66	59.2 PK	74.0	-14.8	1.80 H	333	61.6	-2.4
2	2385.66	51.3 AV	54.0	-2.7	1.80 H	333	53.7	-2.4
3	*2412.00	111.8 PK			1.92 H	341	114.2	-2.4
4	*2412.00	109.3 AV			1.92 H	341	111.7	-2.4
5	4824.00	40.1 PK	74.0	-33.9	1.79 H	127	37.9	2.2
6	4824.00	33.3 AV	54.0	-20.7	1.79 H	127	31.1	2.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2385.66	60.6 PK	74.0	-13.4	1.01 V	318	63.0	-2.4
2	2385.66	52.9 AV	54.0	-1.1	1.01 V	318	55.3	-2.4
3	*2412.00	116.8 PK			1.50 V	53	119.2	-2.4
4	*2412.00	114.3 AV			1.50 V	53	116.7	-2.4
5	4824.00	42.6 PK	74.0	-31.4	1.04 V	179	40.4	2.2
6	4824.00	38.0 AV	54.0	-16.0	1.04 V	179	35.8	2.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.5 PK	74.0	-19.5	1.89 H	333	56.9	-2.4
2	2390.00	41.8 AV	54.0	-12.2	1.89 H	333	44.2	-2.4
3	*2437.00	112.1 PK			1.89 H	333	114.5	-2.4
4	*2437.00	109.8 AV			1.89 H	333	112.2	-2.4
5	2483.50	55.1 PK	74.0	-18.9	1.89 H	333	57.6	-2.5
6	2483.50	41.4 AV	54.0	-12.6	1.89 H	333	43.9	-2.5
7	4874.00	40.9 PK	74.0	-33.1	1.78 H	126	38.8	2.1
8	4874.00	34.2 AV	54.0	-19.8	1.78 H	126	32.1	2.1
9	7311.00	42.0 PK	74.0	-32.0	1.19 H	289	33.9	8.1
10	7311.00	31.2 AV	54.0	-22.8	1.19 H	289	23.1	8.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	55.8 PK	74.0	-18.2	2.76 V	73	58.2	-2.4
2	2390.00	42.9 AV	54.0	-11.1	2.76 V	73	45.3	-2.4
3	*2437.00	116.9 PK			2.76 V	73	119.3	-2.4
4	*2437.00	114.6 AV			2.76 V	73	117.0	-2.4
5	2483.50	56.5 PK	74.0	-17.5	2.76 V	73	59.0	-2.5
6	2483.50	42.5 AV	54.0	-11.5	2.76 V	73	45.0	-2.5
7	4874.00	42.1 PK	74.0	-31.9	1.04 V	194	40.0	2.1
8	4874.00	38.0 AV	54.0	-16.0	1.04 V	194	35.9	2.1
9	7311.00	42.2 PK	74.0	-31.8	1.02 V	150	34.1	8.1
10	7311.00	31.6 AV	54.0	-22.4	1.02 V	150	23.5	8.1

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 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.4 PK			1.86 H	333	112.9	-2.5
2	*2462.00	108.6 AV			1.86 H	333	111.1	-2.5
3	2483.50	62.1 PK	74.0	-11.9	1.86 H	333	64.6	-2.5
4	2483.50	48.3 AV	54.0	-5.7	1.86 H	333	50.8	-2.5
5	4924.00	40.7 PK	74.0	-33.3	1.78 H	141	38.6	2.1
6	4924.00	33.8 AV	54.0	-20.2	1.78 H	141	31.7	2.1
7	7386.00	42.0 PK	74.0	-32.0	1.22 H	303	33.7	8.3
8	7386.00	31.0 AV	54.0	-23.0	1.22 H	303	22.7	8.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	116.1 PK			1.51 V	55	118.6	-2.5
2	*2462.00	113.6 AV			1.51 V	55	116.1	-2.5
3	2483.50	63.7 PK	74.0	-10.3	1.51 V	55	66.2	-2.5
4	2483.50	49.4 AV	54.0	-4.6	1.51 V	55	51.9	-2.5
5	4924.00	42.8 PK	74.0	-31.2	1.02 V	190	40.7	2.1
6	4924.00	38.5 AV	54.0	-15.5	1.02 V	190	36.4	2.1
7	7386.00	42.6 PK	74.0	-31.4	1.01 V	154	34.3	8.3
8	7386.00	32.0 AV	54.0	-22.0	1.01 V	154	23.7	8.3

REMARKS:

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

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.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.3 PK	74.0	-7.7	1.85 H	332	68.7	-2.4
2	2390.00	52.4 AV	54.0	-1.6	1.85 H	332	54.8	-2.4
3	*2412.00	111.3 PK			1.85 H	332	113.7	-2.4
4	*2412.00	100.8 AV			1.85 H	332	103.2	-2.4
5	4824.00	40.2 PK	74.0	-33.8	1.75 H	137	38.0	2.2
6	4824.00	32.1 AV	54.0	-21.9	1.75 H	137	29.9	2.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.6 PK	74.0	-6.4	1.70 V	54	70.0	-2.4
2	**2390.00**	**53.8 AV**	**54.0**	**-0.2**	**1.70 V**	**54**	**56.2**	**-2.4**
3	*2412.00	116.7 PK			1.70 V	54	119.1	-2.4
4	*2412.00	105.8 AV			1.70 V	54	108.2	-2.4
5	4824.00	41.3 PK	74.0	-32.7	1.04 V	192	39.1	2.2
6	4824.00	36.4 AV	54.0	-17.6	1.04 V	192	34.2	2.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.4 PK	74.0	-6.6	1.81 H	339	69.8	-2.4
2	2390.00	48.3 AV	54.0	-5.7	1.81 H	339	50.7	-2.4
3	*2437.00	115.1 PK			1.81 H	339	117.5	-2.4
4	*2437.00	104.6 AV			1.81 H	339	107.0	-2.4
5	2483.50	66.3 PK	74.0	-7.7	1.81 H	339	68.8	-2.5
6	2483.50	47.5 AV	54.0	-6.5	1.81 H	339	50.0	-2.5
7	4874.00	40.1 PK	74.0	-33.9	1.76 H	136	38.0	2.1
8	4874.00	32.1 AV	54.0	-21.9	1.76 H	136	30.0	2.1
9	7311.00	42.2 PK	74.0	-31.8	1.20 H	293	34.1	8.1
10	7311.00	31.4 AV	54.0	-22.6	1.20 H	293	23.3	8.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.3 PK	74.0	-5.7	1.89 V	63	70.7	-2.4
2	2390.00	49.5 AV	54.0	-4.5	1.89 V	63	51.9	-2.4
3	*2437.00	119.5 PK			1.89 V	63	121.9	-2.4
4	*2437.00	109.2 AV			1.89 V	63	111.6	-2.4
5	2483.50	67.0 PK	74.0	-7.0	1.89 V	63	69.5	-2.5
6	2483.50	48.6 AV	54.0	-5.4	1.89 V	63	51.1	-2.5
7	4874.00	42.6 PK	74.0	-31.4	1.00 V	180	40.5	2.1
8	4874.00	37.2 AV	54.0	-16.8	1.00 V	180	35.1	2.1
9	7311.00	42.5 PK	74.0	-31.5	1.05 V	160	34.4	8.1
10	7311.00	31.9 AV	54.0	-22.1	1.05 V	160	23.8	8.1

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 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.0 PK			1.86 H	348	113.5	-2.5
2	*2462.00	100.3 AV			1.86 H	348	102.8	-2.5
3	2483.50	71.5 PK	74.0	-2.5	1.86 H	348	74.0	-2.5
4	2483.50	52.4 AV	54.0	-1.6	1.86 H	348	54.9	-2.5
5	4924.00	40.7 PK	74.0	-33.3	1.75 H	144	38.6	2.1
6	4924.00	32.4 AV	54.0	-21.6	1.75 H	144	30.3	2.1
7	7386.00	40.1 PK	74.0	-33.9	1.19 H	296	31.8	8.3
8	7386.00	30.2 AV	54.0	-23.8	1.19 H	296	21.9	8.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	115.8 PK			1.68 V	54	118.3	-2.5
2	*2462.00	104.6 AV			1.68 V	54	107.1	-2.5
3	2483.50	72.4 PK	74.0	-1.6	1.68 V	54	74.9	-2.5
4	2483.50	53.7 AV	54.0	-0.3	1.68 V	54	56.2	-2.5
5	4924.00	42.0 PK	74.0	-32.0	1.01 V	181	39.9	2.1
6	4924.00	36.9 AV	54.0	-17.1	1.01 V	181	34.8	2.1
7	7386.00	40.9 PK	74.0	-33.1	1.06 V	165	32.6	8.3
8	7386.00	31.0 AV	54.0	-23.0	1.06 V	165	22.7	8.3

REMARKS:

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

VHT20

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.0 PK	74.0	-7.0	1.81 H	345	69.4	-2.4
2	2390.00	52.9 AV	54.0	-1.1	1.81 H	345	55.3	-2.4
3	*2412.00	111.1 PK			1.81 H	345	113.5	-2.4
4	*2412.00	100.7 AV			1.81 H	345	103.1	-2.4
5	4824.00	40.0 PK	74.0	-34.0	1.79 H	133	37.8	2.2
6	4824.00	32.1 AV	54.0	-21.9	1.79 H	133	29.9	2.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.3 PK	74.0	-5.7	3.44 V	56	70.7	-2.4
2	2390.00	53.6 AV	54.0	-0.4	3.44 V	56	56.0	-2.4
3	*2412.00	116.4 PK			3.44 V	56	118.8	-2.4
4	*2412.00	103.8 AV			3.44 V	56	106.2	-2.4
5	4824.00	41.4 PK	74.0	-32.6	1.07 V	197	39.2	2.2
6	4824.00	36.6 AV	54.0	-17.4	1.07 V	197	34.4	2.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.0 PK	74.0	-7.0	1.75 H	332	69.4	-2.4
2	2390.00	47.8 AV	54.0	-6.2	1.75 H	332	50.2	-2.4
3	*2437.00	115.0 PK			1.75 H	332	117.4	-2.4
4	*2437.00	104.6 AV			1.75 H	332	107.0	-2.4
5	2483.50	66.2 PK	74.0	-7.8	1.75 H	332	68.7	-2.5
6	2483.50	47.3 AV	54.0	-6.7	1.75 H	332	49.8	-2.5
7	4874.00	39.4 PK	74.0	-34.6	1.71 H	126	37.3	2.1
8	4874.00	31.6 AV	54.0	-22.4	1.71 H	126	29.5	2.1
9	7311.00	41.7 PK	74.0	-32.3	1.25 H	306	33.6	8.1
10	7311.00	30.9 AV	54.0	-23.1	1.25 H	306	22.8	8.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.4 PK	74.0	-5.6	1.88 V	76	70.8	-2.4
2	2390.00	49.5 AV	54.0	-4.5	1.88 V	76	51.9	-2.4
3	*2437.00	119.6 PK			1.88 V	76	122.0	-2.4
4	*2437.00	108.9 AV			1.88 V	76	111.3	-2.4
5	2483.50	67.4 PK	74.0	-6.6	1.88 V	76	69.9	-2.5
6	2483.50	48.9 AV	54.0	-5.1	1.88 V	76	51.4	-2.5
7	4874.00	42.8 PK	74.0	-31.2	1.02 V	190	40.7	2.1
8	4874.00	37.4 AV	54.0	-16.6	1.02 V	190	35.3	2.1
9	7311.00	42.7 PK	74.0	-31.3	1.02 V	167	34.6	8.1
10	7311.00	32.1 AV	54.0	-21.9	1.02 V	167	24.0	8.1

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 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.9 PK			1.82 H	340	113.4	-2.5
2	*2462.00	100.0 AV			1.82 H	340	102.5	-2.5
3	2483.50	71.7 PK	74.0	-2.3	1.82 H	340	74.2	-2.5
4	2483.50	52.7 AV	54.0	-1.3	1.82 H	340	55.2	-2.5
5	4924.00	41.0 PK	74.0	-33.0	1.72 H	139	38.9	2.1
6	4924.00	32.8 AV	54.0	-21.2	1.72 H	139	30.7	2.1
7	7386.00	39.3 PK	74.0	-34.7	1.18 H	296	31.0	8.3
8	7386.00	29.7 AV	54.0	-24.3	1.18 H	296	21.4	8.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	114.6 PK			1.64 V	58	117.1	-2.5
2	*2462.00	103.2 AV			1.64 V	58	105.7	-2.5
3	2483.50	69.5 PK	74.0	-4.5	1.64 V	58	72.0	-2.5
4	2483.50	53.3 AV	54.0	-0.7	1.64 V	58	55.8	-2.5
5	4924.00	42.0 PK	74.0	-32.0	1.00 V	178	39.9	2.1
6	4924.00	36.9 AV	54.0	-17.1	1.00 V	178	34.8	2.1
7	7386.00	40.8 PK	74.0	-33.2	1.02 V	172	32.5	8.3
8	7386.00	30.8 AV	54.0	-23.2	1.02 V	172	22.5	8.3

REMARKS:

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

VHT40

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.3 PK	74.0	-8.7	1.80 H	330	67.7	-2.4
2	2390.00	52.1 AV	54.0	-1.9	1.80 H	330	54.5	-2.4
3	*2422.00	105.4 PK			1.80 H	330	107.8	-2.4
4	*2422.00	95.3 AV			1.80 H	330	97.7	-2.4
5	4844.00	39.3 PK	74.0	-34.7	1.72 H	149	37.1	2.2
6	4844.00	31.3 AV	54.0	-22.7	1.72 H	149	29.1	2.2
7	7266.00	39.0 PK	74.0	-35.0	1.13 H	300	31.0	8.0
8	7266.00	29.3 AV	54.0	-24.7	1.13 H	300	21.3	8.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.7 PK	74.0	-7.3	1.74 V	55	69.1	-2.4
2	2390.00	53.7 AV	54.0	-0.3	1.74 V	55	56.1	-2.4
3	*2422.00	109.9 PK			1.74 V	55	112.3	-2.4
4	*2422.00	99.6 AV			1.74 V	55	102.0	-2.4
5	4844.00	40.3 PK	74.0	-33.7	1.00 V	180	38.1	2.2
6	4844.00	35.2 AV	54.0	-18.8	1.00 V	180	33.0	2.2
7	7266.00	39.5 PK	74.0	-34.5	1.04 V	157	31.5	8.0
8	7266.00	29.9 AV	54.0	-24.1	1.04 V	157	21.9	8.0

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.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.3 PK	74.0	-12.7	1.02 H	19	63.7	-2.4
2	2390.00	48.2 AV	54.0	-5.8	1.02 H	19	50.6	-2.4
3	*2437.00	107.5 PK			1.02 H	19	109.9	-2.4
4	*2437.00	97.7 AV			1.02 H	19	100.1	-2.4
5	2483.50	57.2 PK	74.0	-16.8	1.02 H	19	59.7	-2.5
6	2483.50	43.3 AV	54.0	-10.7	1.02 H	19	45.8	-2.5
7	4874.00	40.1 PK	74.0	-33.9	1.75 H	148	38.0	2.1
8	4874.00	30.6 AV	54.0	-23.4	1.75 H	148	28.5	2.1
9	7311.00	39.4 PK	74.0	-34.6	1.15 H	288	31.3	8.1
10	7311.00	29.3 AV	54.0	-24.7	1.15 H	288	21.2	8.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.9 PK	74.0	-7.1	2.23 V	58	69.3	-2.4
2	2390.00	53.6 AV	54.0	-0.4	2.23 V	58	56.0	-2.4
3	*2437.00	111.4 PK			2.23 V	58	113.8	-2.4
4	*2437.00	101.4 AV			2.23 V	58	103.8	-2.4
5	2483.50	64.4 PK	74.0	-9.6	2.23 V	58	66.9	-2.5
6	2483.50	48.2 AV	54.0	-5.8	2.23 V	58	50.7	-2.5
7	4874.00	41.4 PK	74.0	-32.6	1.03 V	170	39.3	2.1
8	4874.00	35.6 AV	54.0	-18.4	1.03 V	170	33.5	2.1
9	7311.00	40.2 PK	74.0	-33.8	1.03 V	150	32.1	8.1
10	7311.00	30.3 AV	54.0	-23.7	1.03 V	150	22.2	8.1

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 9	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	105.0 PK			1.79 H	338	107.5	-2.5
2	*2452.00	95.0 AV			1.79 H	338	97.5	-2.5
3	2483.50	65.6 PK	74.0	-8.4	1.79 H	338	68.1	-2.5
4	2483.50	52.3 AV	54.0	-1.7	1.79 H	338	54.8	-2.5
5	4904.00	39.2 PK	74.0	-34.8	1.72 H	151	37.2	2.0
6	4904.00	31.1 AV	54.0	-22.9	1.72 H	151	29.1	2.0
7	7356.00	38.7 PK	74.0	-35.3	1.13 H	314	30.5	8.2
8	7356.00	29.2 AV	54.0	-24.8	1.13 H	314	21.0	8.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	109.5 PK			2.43 V	60	112.0	-2.5
2	*2452.00	99.2 AV			2.43 V	60	101.7	-2.5
3	2483.50	70.3 PK	74.0	-3.7	2.43 V	60	72.8	-2.5
4	2483.50	53.7 AV	54.0	-0.3	2.43 V	60	56.2	-2.5
5	4904.00	40.1 PK	74.0	-33.9	1.02 V	196	38.1	2.0
6	4904.00	34.8 AV	54.0	-19.2	1.02 V	196	32.8	2.0
7	7356.00	39.7 PK	74.0	-34.3	1.09 V	151	31.5	8.2
8	7356.00	30.0 AV	54.0	-24.0	1.09 V	151	21.8	8.2

REMARKS:

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

Below 1GHz Data:

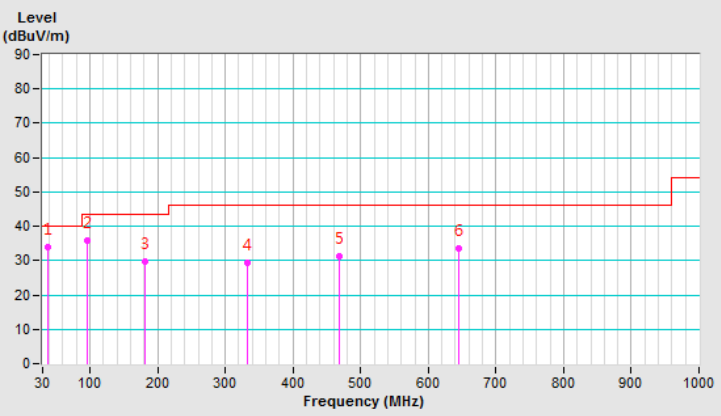
802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	38.39	33.9 QP	40.0	-6.1	1.00 H	78	42.2	-8.3
2	96.11	35.9 QP	43.5	-7.6	1.50 H	179	48.4	-12.5
3	180.37	29.6 QP	43.5	-13.9	1.00 H	12	38.3	-8.7
4	333.44	29.3 QP	46.0	-16.7	1.00 H	287	34.6	-5.3
5	468.78	31.4 QP	46.0	-14.6	1.00 H	148	33.5	-2.1
6	644.35	33.4 QP	46.0	-12.6	1.00 H	0	31.6	1.8

REMARKS:

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

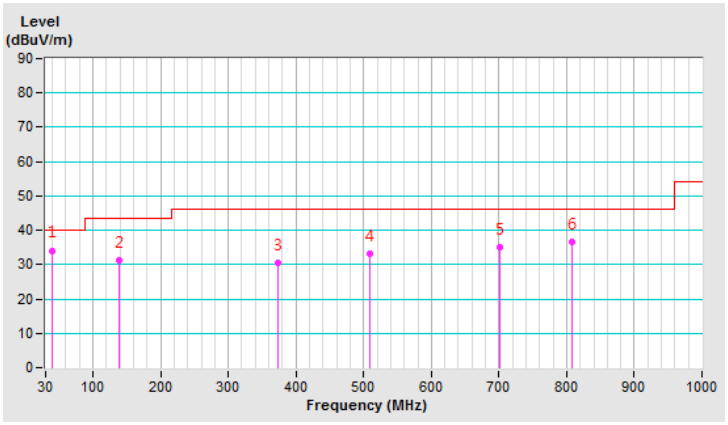


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	39.70	34.1 QP	40.0	-5.9	1.50 V	86	42.3	-8.2
2	139.12	31.2 QP	43.5	-12.3	1.00 V	360	38.7	-7.5
3	372.68	30.6 QP	46.0	-15.4	1.00 V	360	35.2	-4.6
4	509.25	33.3 QP	46.0	-12.7	1.50 V	253	34.5	-1.2
5	701.22	35.2 QP	46.0	-10.8	1.50 V	214	32.6	2.6
6	807.43	36.7 QP	46.0	-9.3	2.00 V	198	32.2	4.5

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 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. 17, 2019	Mar. 16, 2020
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	003	Mar. 14, 2019	Mar. 13, 2020
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: Feb. 11, 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.

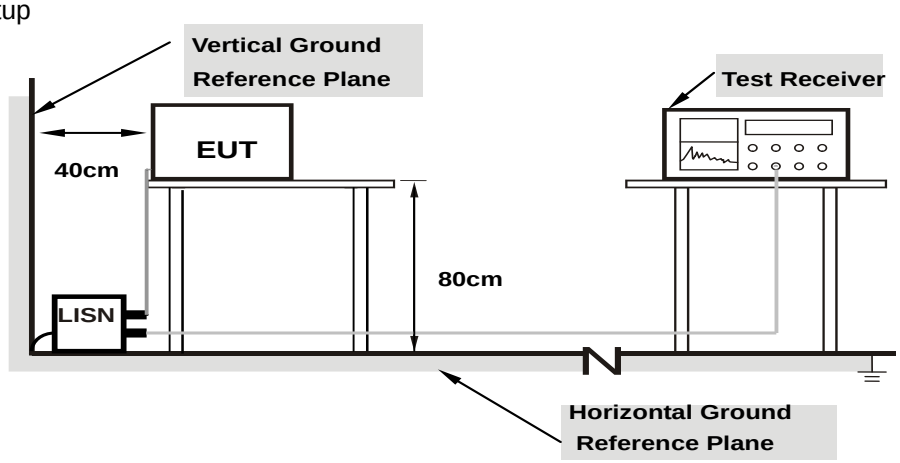
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

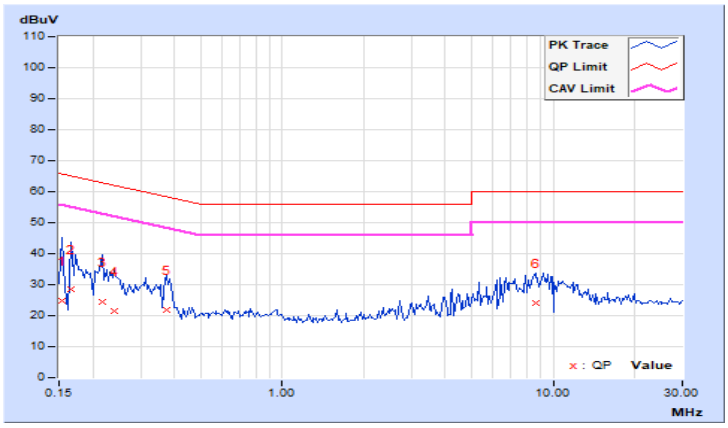
4.2.7 Test Results

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	9.99	14.87	-1.61	24.86	8.38	65.79	55.79	-40.93	-47.41
2	0.16562	9.99	18.40	-9.43	28.39	0.56	65.18	55.18	-36.79	-54.62
3	0.21641	9.99	14.36	-9.94	24.35	0.05	62.96	52.96	-38.61	-52.91
4	0.23984	9.99	11.59	-9.89	21.58	0.10	62.10	52.10	-40.52	-52.00
5	0.37656	10.00	12.01	-11.39	22.01	-1.39	58.35	48.35	-36.34	-49.74
6	8.62500	10.56	13.34	-9.97	23.90	0.59	60.00	50.00	-36.10	-49.41

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.

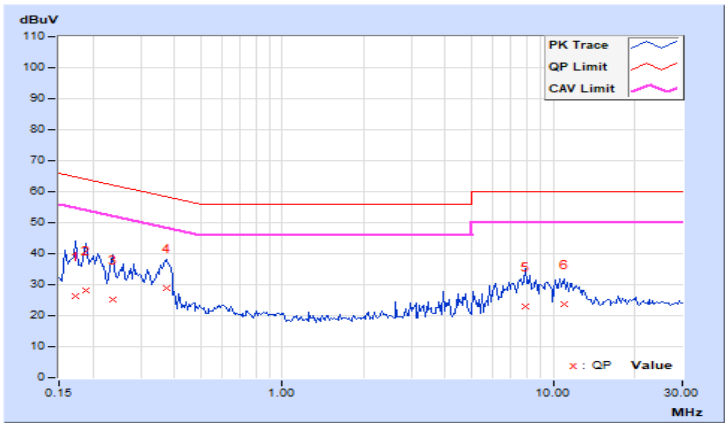


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	0.17344	9.99	16.43	-9.30	26.42	0.69	64.79	54.79	-38.37	-54.10
2	0.18906	9.99	17.98	-9.30	27.97	0.69	64.08	54.08	-36.11	-53.39
3	0.23594	9.99	15.10	-8.61	25.09	1.38	62.24	52.24	-37.15	-50.86
4	**0.37266**	**10.01**	**19.01**	**-8.05**	**29.02**	**1.96**	**58.44**	**48.44**	**-29.42**	**-46.48**
5	7.88672	10.45	12.35	-8.93	22.80	1.52	60.00	50.00	-37.20	-48.48
6	10.99609	10.63	13.04	-9.63	23.67	1.00	60.00	50.00	-36.33	-49.00

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.

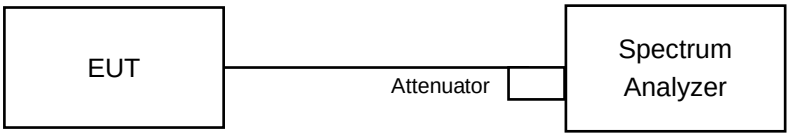


4.3 6dB Bandwidth Measurement

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 fromTest 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	7.65	8.12	0.5	PASS
6	2437	8.12	8.13	0.5	PASS
11	2462	8.13	8.13	0.5	PASS

802.11g

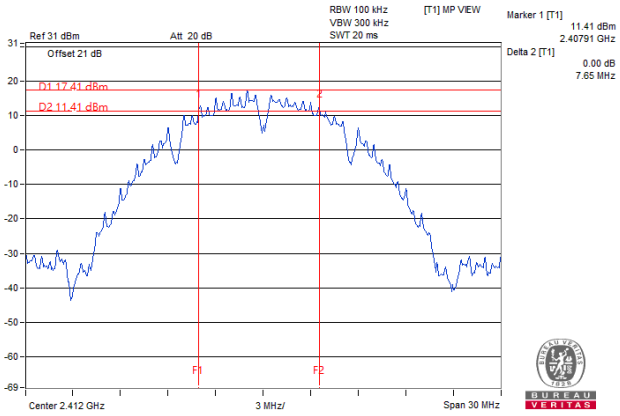
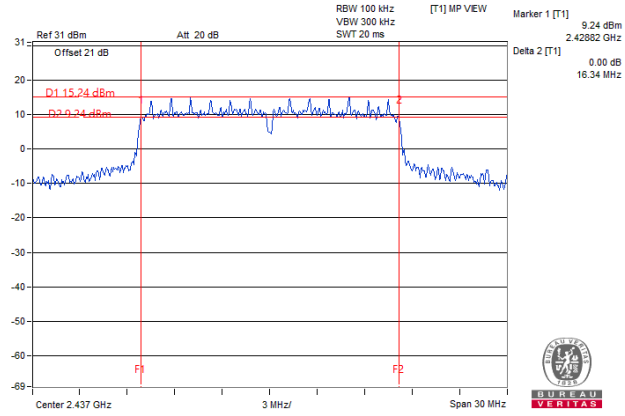
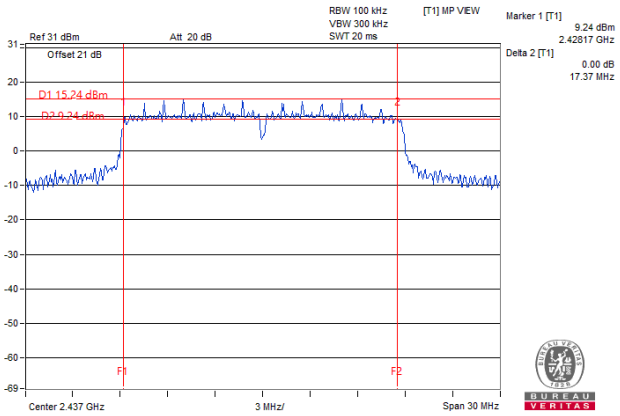
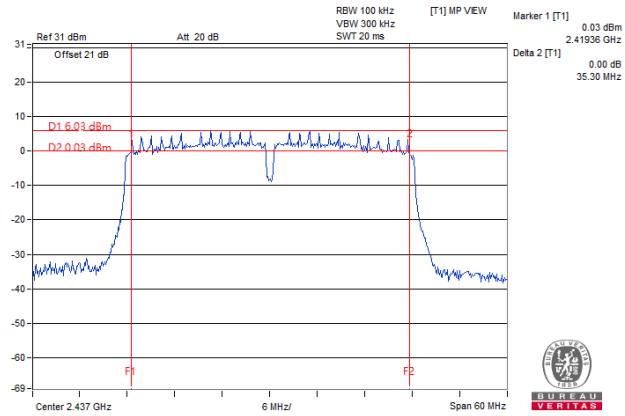
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.4	16.39	0.5	PASS
6	2437	16.34	16.34	0.5	PASS
11	2462	16.4	16.41	0.5	PASS

VHT20

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.62	17.6	0.5	Pass
6	2437	17.37	17.58	0.5	Pass
11	2462	17.63	17.6	0.5	Pass

VHT40

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.36	35.37	0.5	Pass
6	2437	35.3	35.4	0.5	Pass
9	2452	35.34	35.34	0.5	Pass

Spectrum Plot of Worst Value	
802.11b / Chain 0 : CH1	**802.11g / Chain 0 : CH6**
	
VHT20 / Chain 0 : CH6	**VHT40 / Chain 0 : CH6**
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

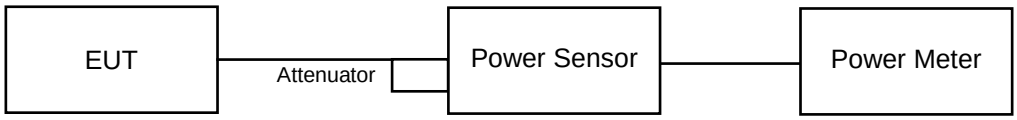
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

CDD Mode

802.11b

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	25.81	25.65	748.348	28.74	30.00	Pass
6	2437	26.68	26.35	897.105	29.53	30.00	Pass
11	2462	25.85	25.66	752.721	28.77	30.00	Pass

802.11g

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	21.22	21.13	262.152	24.19	30.00	Pass
6	2437	25.99	25.82	779.136	28.92	30.00	Pass
11	2462	21.85	21.74	302.388	24.81	30.00	Pass

VHT20

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	21.12	20.97	254.445	24.06	30.00	Pass
6	2437	25.97	25.72	768.617	28.86	30.00	Pass
11	2462	21.23	21.25	266.092	24.25	30.00	Pass

VHT40

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	18.25	18.13	131.847	21.20	30.00	Pass
6	2437	20.07	19.71	195.165	22.90	30.00	Pass
9	2452	18.62	18.57	144.723	21.61	30.00	Pass

Beamforming Mode

VHT20

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain0	Chain1				
1	2412	21.12	20.97	254.445	24.06	30.00	PASS
6	2437	25.97	25.72	768.617	28.86	30.00	PASS
11	2462	21.23	21.25	266.092	24.25	30.00	PASS

Note: 1. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 5.95dBi < 6dBi , so the power limit shall not be reduced.

VHT40

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain0	Chain1				
3	2422	18.25	18.13	131.847	21.20	30.00	PASS
6	2437	20.07	19.71	195.165	22.90	30.00	PASS
9	2452	18.62	18.57	144.723	21.61	30.00	PASS

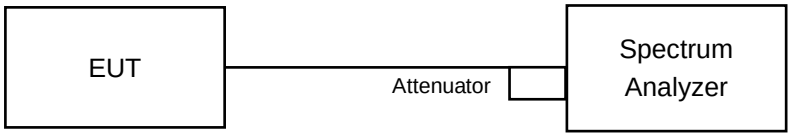
Note: 1. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 5.95dBi < 6dBi , so the power limit shall not be reduced.

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

For 802.11b:

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.

For 802.11g, VHT20, VHT40:

a) Measure the duty cycle (x).
b) Set instrument center frequency to DTS channel center frequency.
c) Set span to at least 1.5 times the OBW.
d) Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
e) Set VBW ≥3 x RBW.
f) Detector = power averaging (RMS) or sample detector (when RMS not available).
g) Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
h) Sweep time = auto couple.
i) Do not use sweep triggering. Allow sweep to “free run”.
j) Employ trace averaging (RMS) mode over a minimum of 100 traces.
k) Use the peak marker function to determine the maximum amplitude level.
l) Add 10 log (1/x), where x is the duty cycle measured in step (a, to the measured PSD to compute the average PSD during the actual transmission time.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6

4.5.7 Test Results

802.11b

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)		Total PSD (mW/3kHz)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Pass / Fail
		Chain0	Chain1				
1	2412	-3.26	-3.80	0.8889	-0.51	8.00	PASS
6	2437	-2.79	-2.54	1.0832	0.35	8.00	PASS
11	2462	-2.97	-3.14	0.9899	-0.04	8.00	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 = 10 log[(10$^{G0/20}$ + 10$^{G1/20}$)^2 / 2] = 5.95dBi < 6dBi , so the power density limit shall not be reduced.

802.11g

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)		Duty Factor (dB)	Total PSD (mW/3kHz)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Pass / Fail
		Chain0	Chain1					
1	2412	-12.72	-12.90	0.21	0.10991	-9.59	8.00	PASS
6	2437	-7.90	-8.35	0.21	0.3236	-4.90	8.00	PASS
11	2462	-12.07	-11.89	0.21	0.13305	-8.76	8.00	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 = 10 log[(10$^{G0/20}$ + 10$^{G1/20}$)^2 / 2] =5.95dBi < 6dBi , so the power density limit shall not be reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

VHT20

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)		Duty Factor (dB)	Total PSD (mW/3kHz)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Pass / Fail
		Chain0	Chain1					
1	2412	-12.42	-13.20	0.09	0.10739	-9.69	8.00	PASS
6	2437	-7.84	-8.67	0.09	0.3067	-5.13	8.00	PASS
11	2462	-12.31	-12.56	0.09	0.11666	-9.33	8.00	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 = 10 log[(10$^{G0/20}$ + 10$^{G1/20}$)^2 / 2] =5.95dBi < 6dBi , so the power density limit shall not be reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

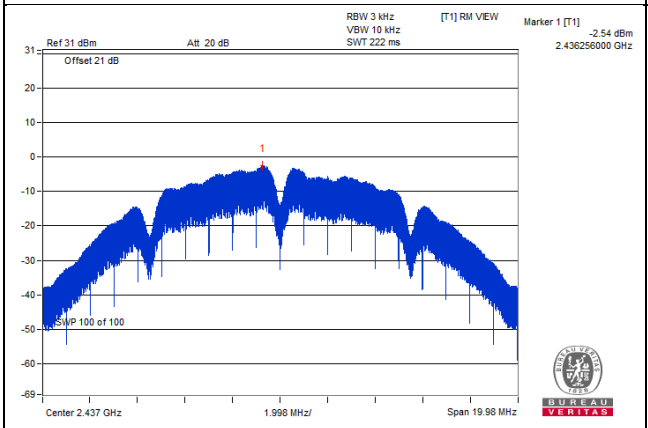
VHT40

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)		Duty Factor (dB)	Total PSD (mW/3kHz)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Pass / Fail
		Chain0	Chain1					
3	2422	-18.31	-17.90	0.17	0.03223	-14.92	8.00	PASS
6	2437	-16.97	-16.89	0.17	0.04219	-13.75	8.00	PASS
9	2452	-17.21	-18.13	0.17	0.03578	-14.46	8.00	PASS

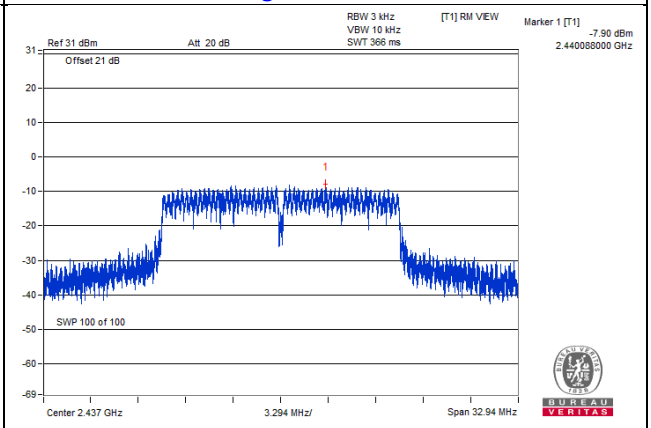
Note: 1. Method b) Measure and sum spectral maxima across the outputs of KDB 662911 is using for calculating total power density.
2. Directional gain = 10 log[(10$^{G0/20}$ + 10$^{G1/20}$)^2 / 2] =5.95dBi < 6dBi , so the power density limit shall not be reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

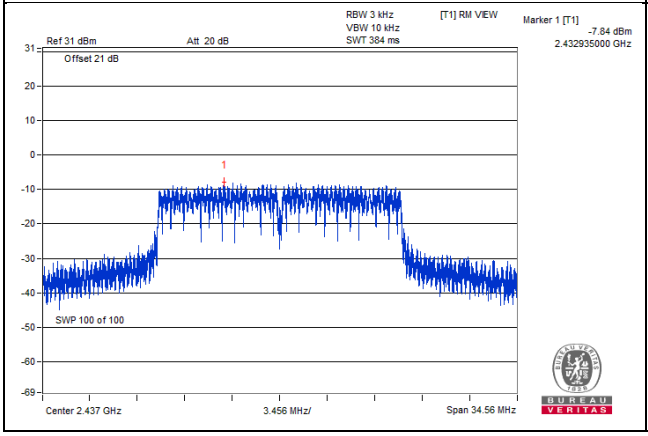
802.11b / Chain 1 : CH6



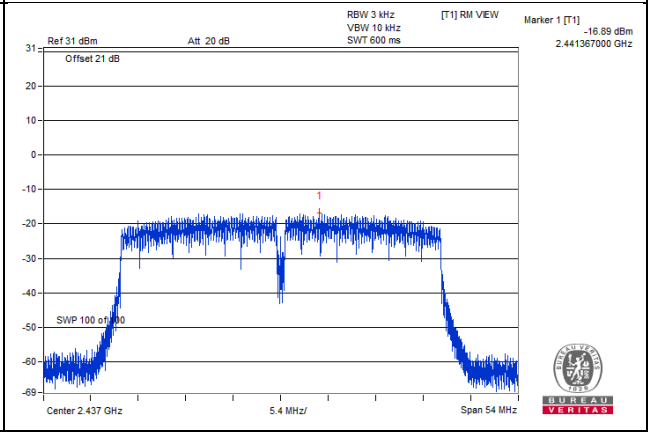
802.11g / Chain 0 : CH6



VHT20 / Chain 0 : CH6



VHT40 / Chain 1 : CH6

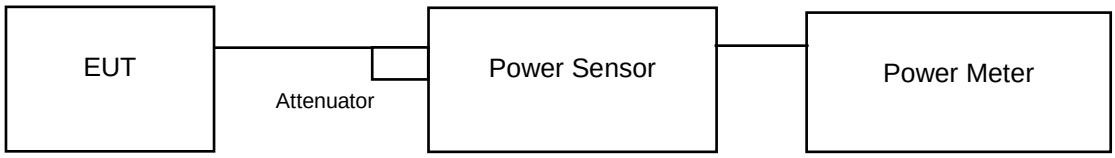


4.6 Conducted Out of Band Emission Measurement

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

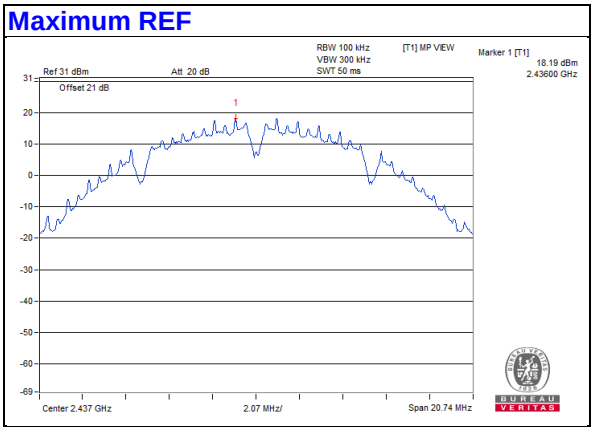
Same as Item 4.3.6

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.

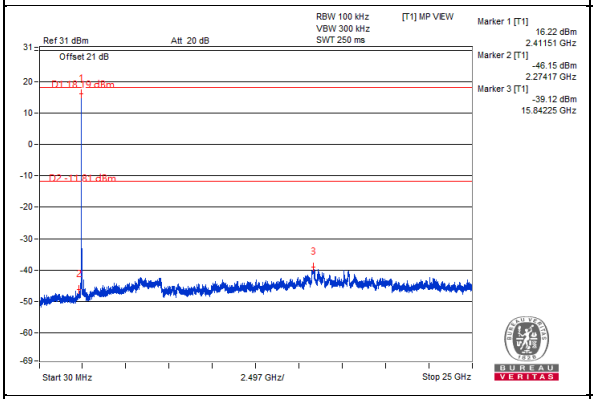
802.11b

Maximum REF

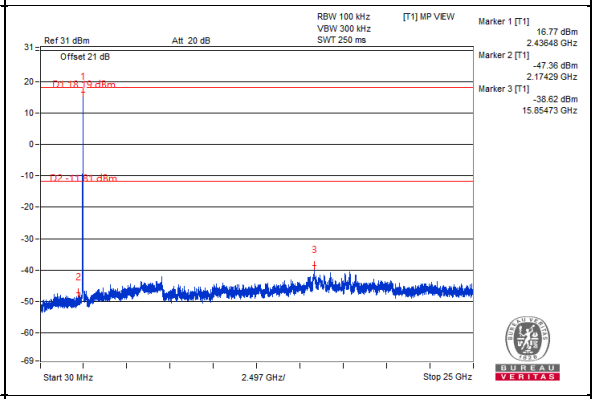


Chain 0

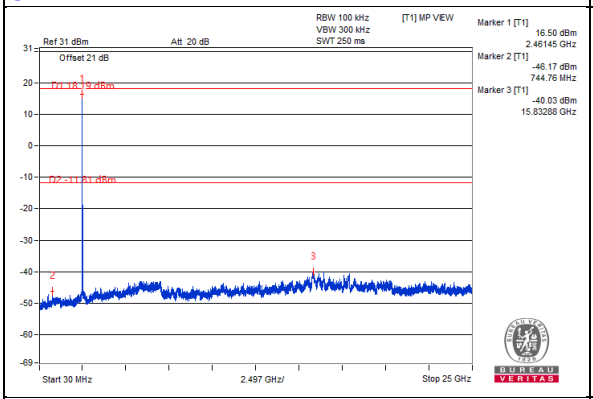
CH 1



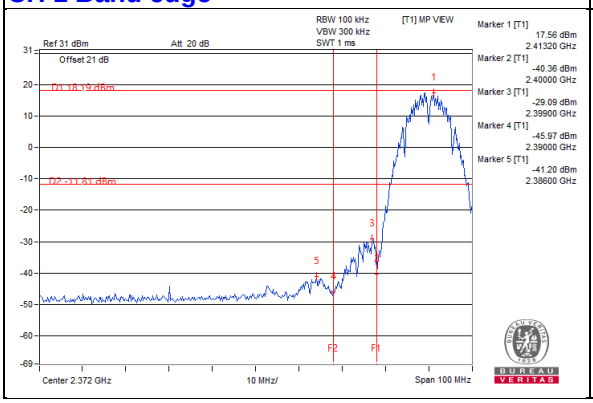
CH 6



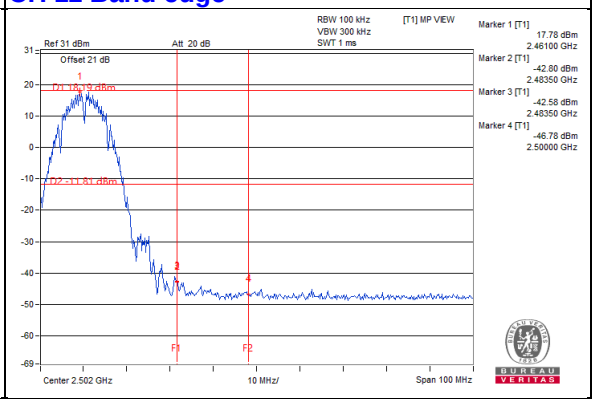
CH 11



CH 1 Band edge

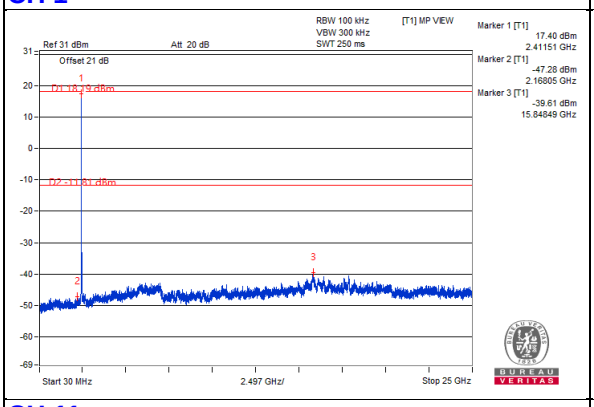


CH 11 Band edge

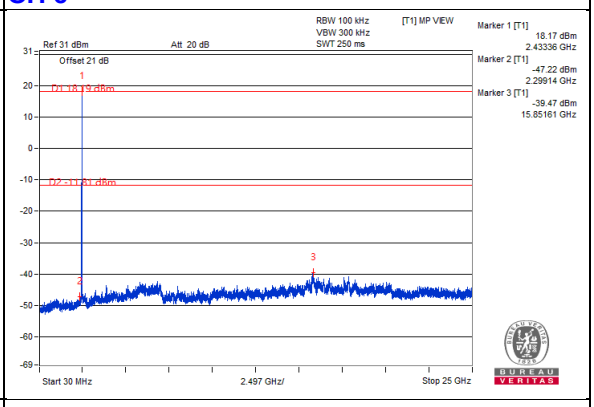


Chain 1

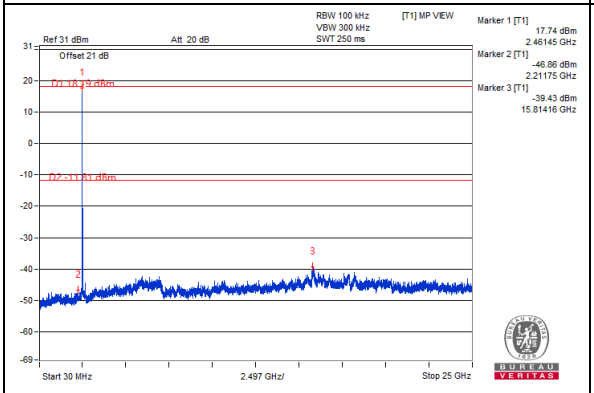
CH 1



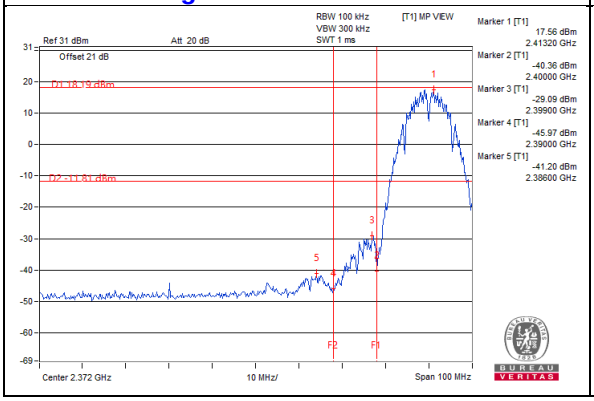
CH 6



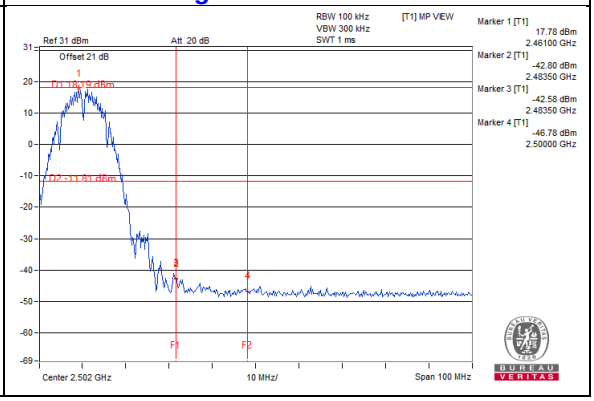
CH 11



CH 1 Band edge

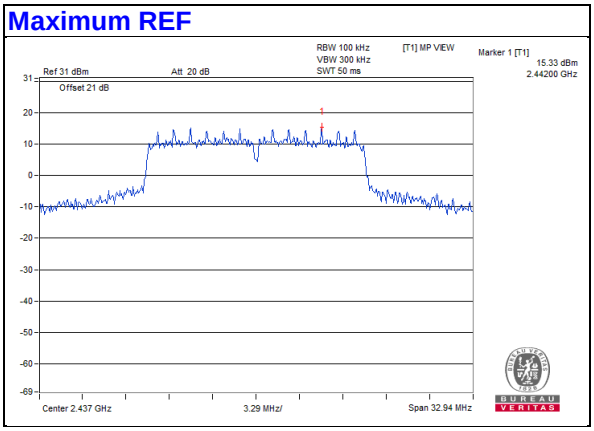


CH 11 Band edge



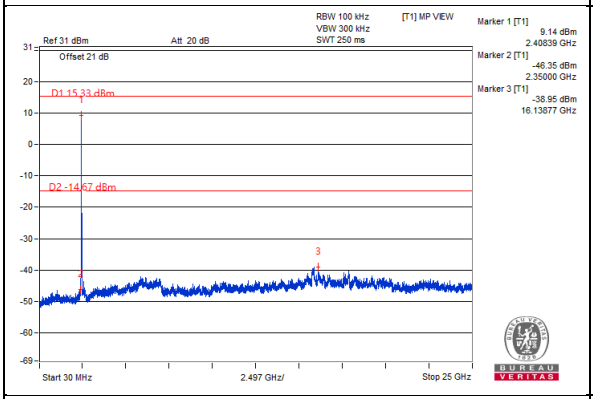
802.11g

Maximum REF

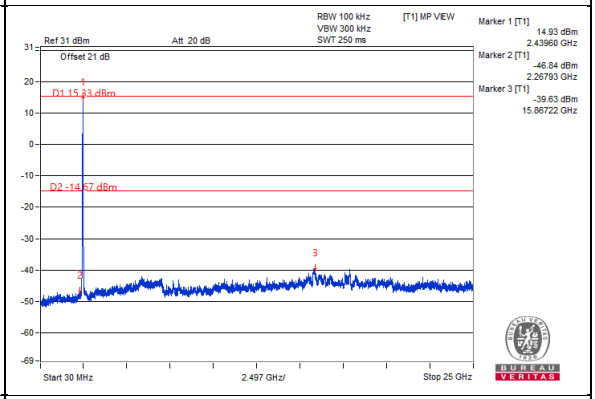


Chain 0

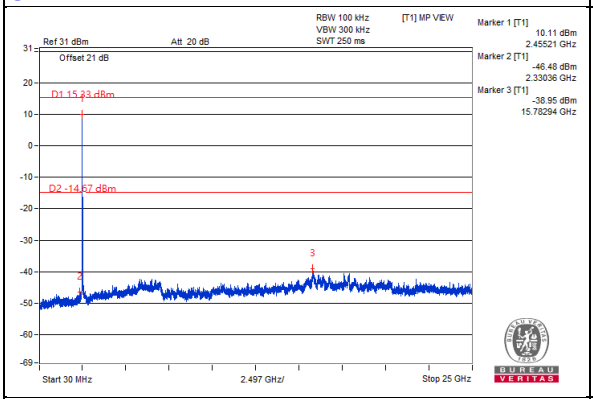
CH 1



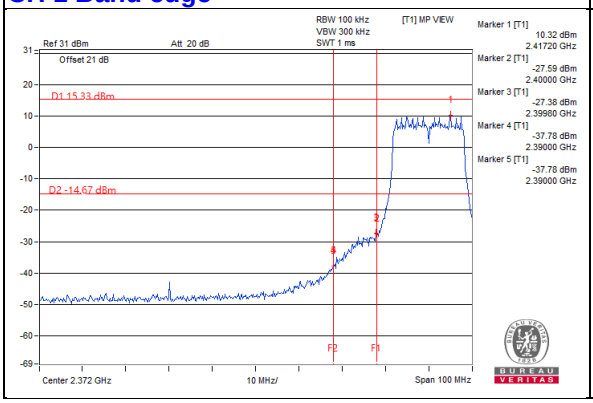
CH 6



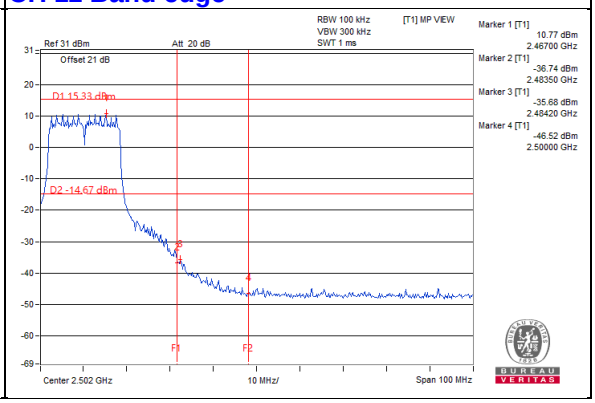
CH 11



CH 1 Band edge

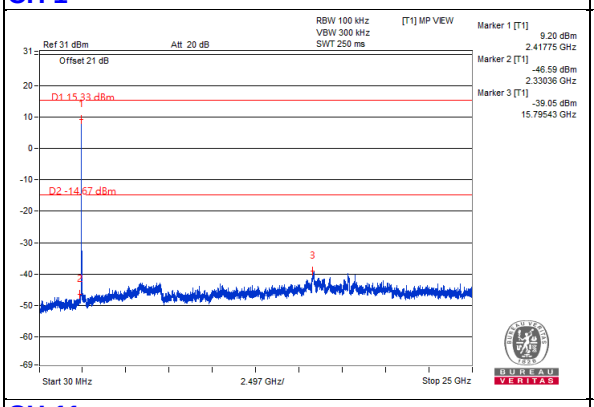


CH 11 Band edge

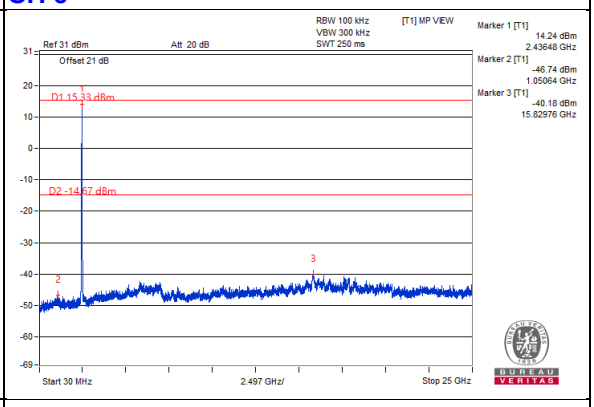


Chain 1

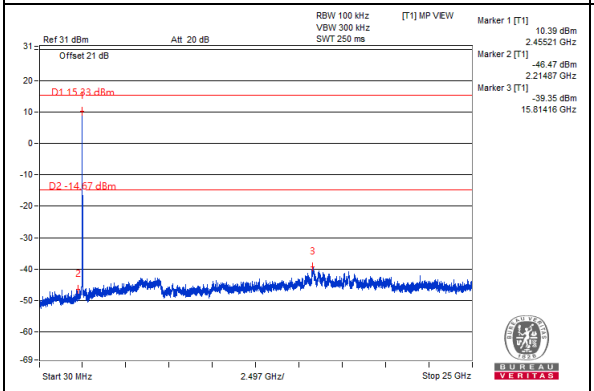
CH 1



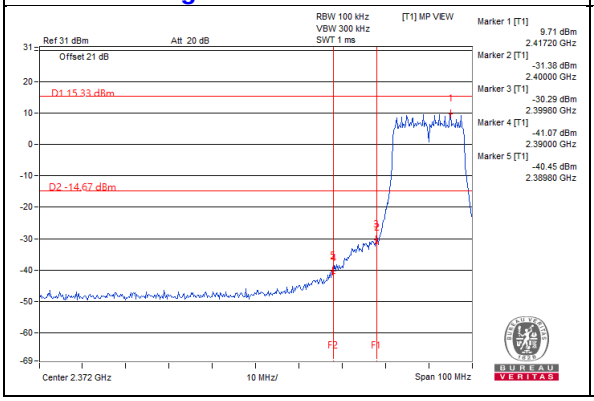
CH 6



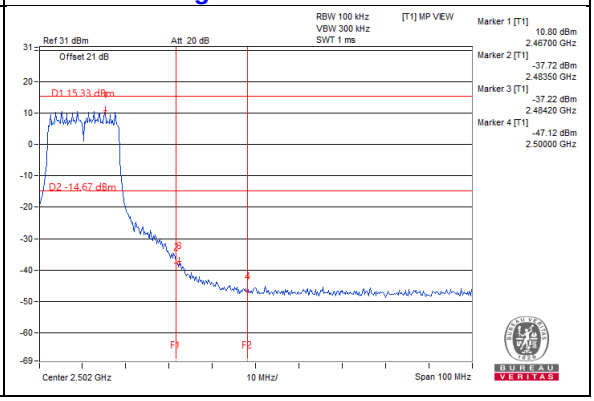
CH 11



CH 1 Band edge

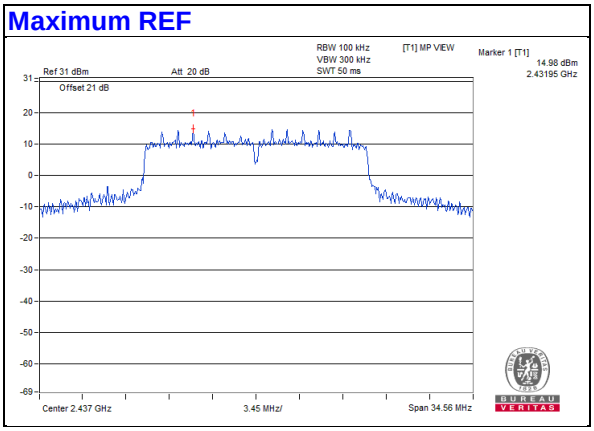


CH 11 Band edge



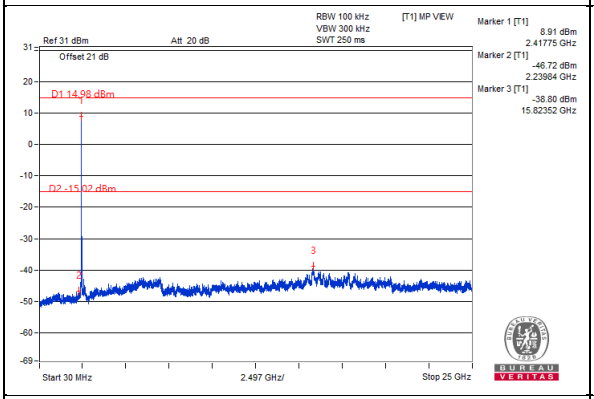
VHT20

Maximum REF

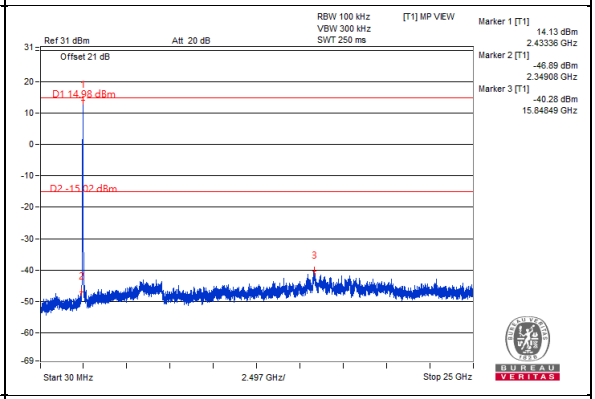


Chain 0

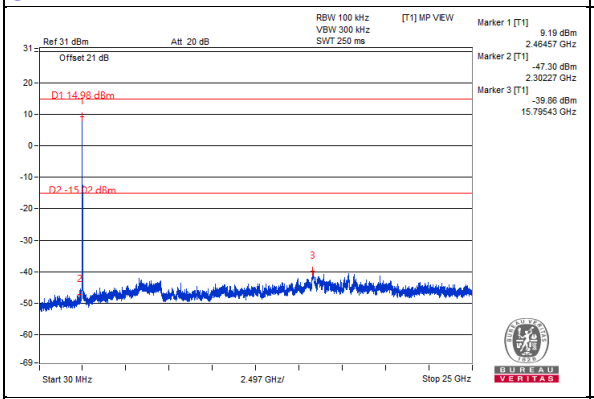
CH 1



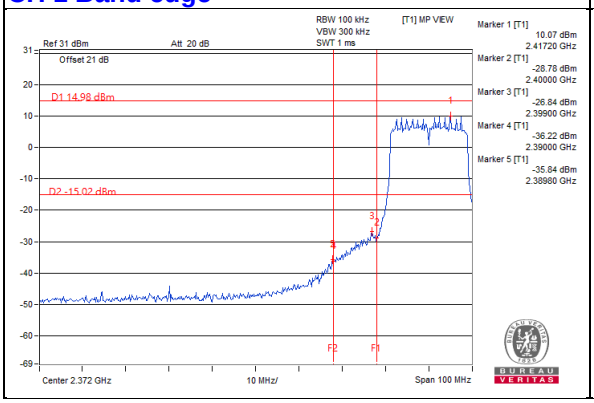
CH 6



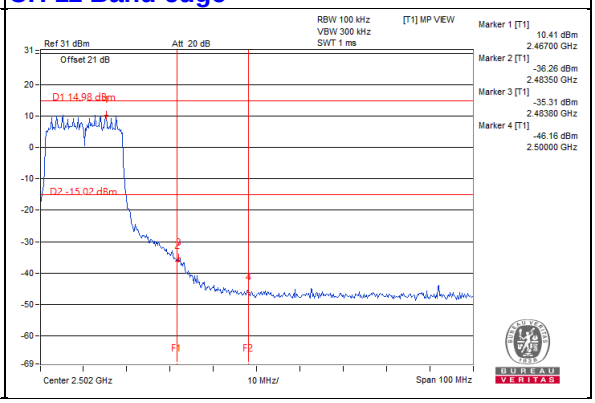
CH 11



CH 1 Band edge

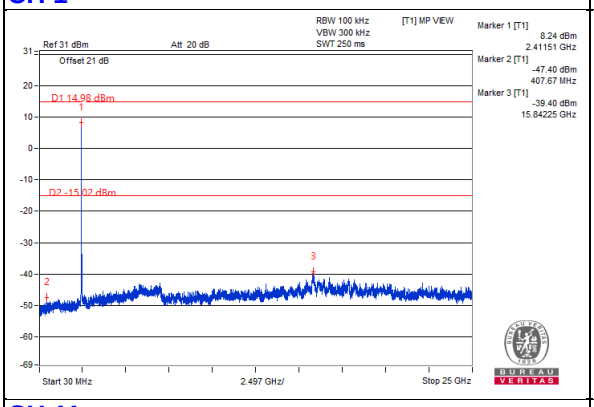


CH 11 Band edge

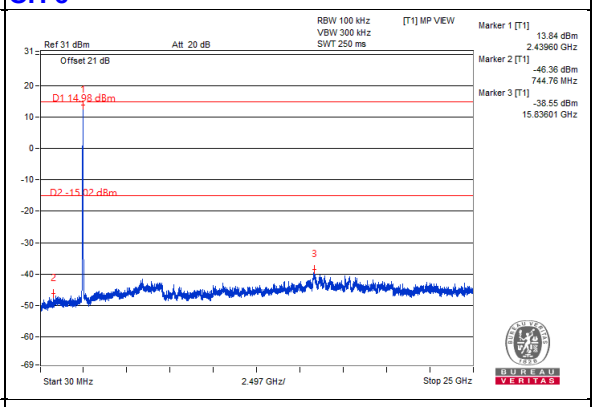


Chain 1

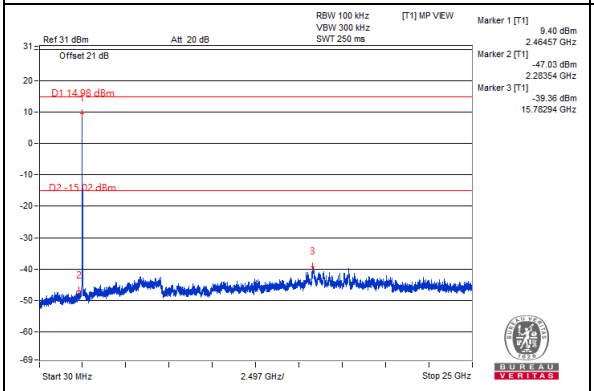
CH 1



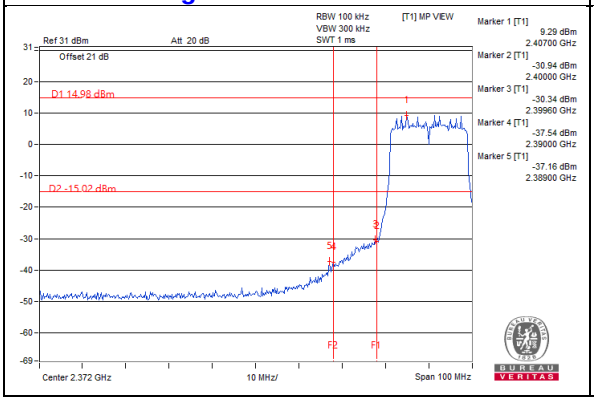
CH 6



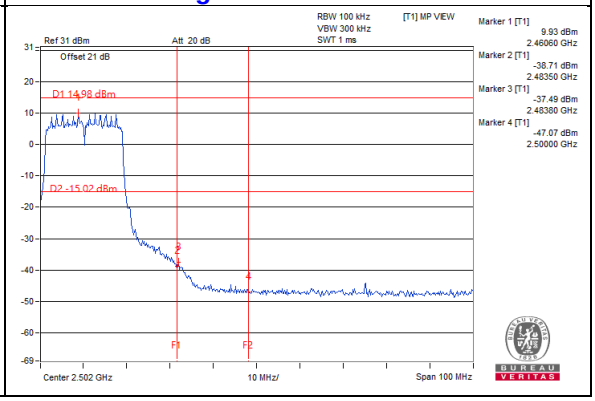
CH 11



CH 1 Band edge

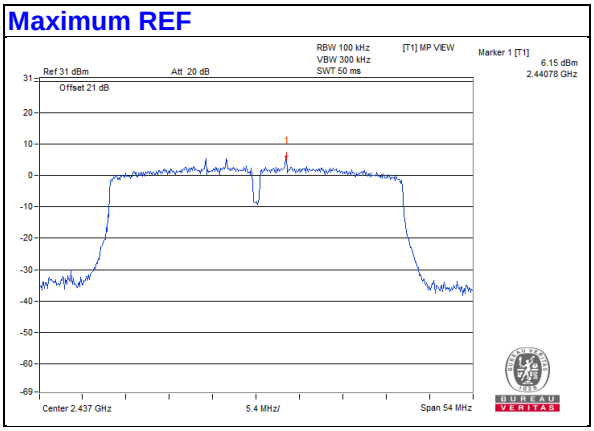


CH 11 Band edge



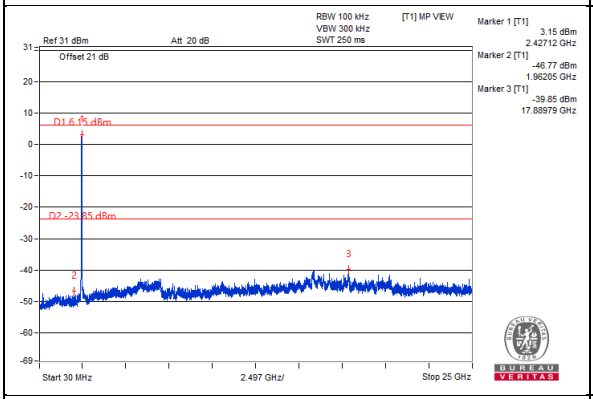
VHT40

Maximum REF

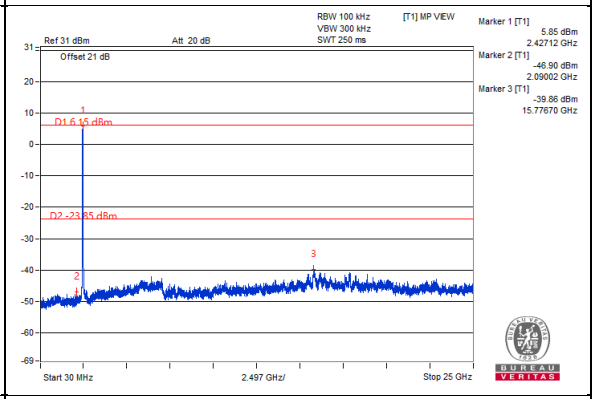


Chain 0

CH 3



CH 6



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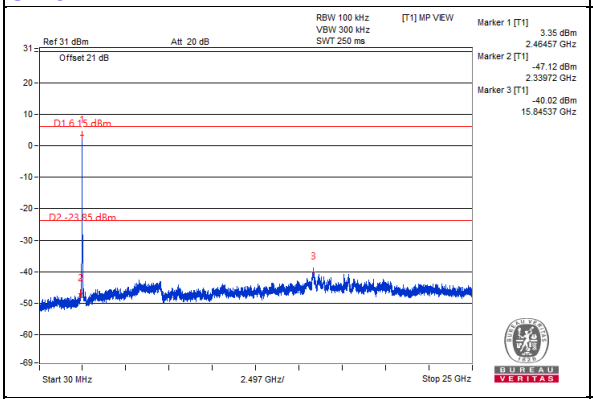
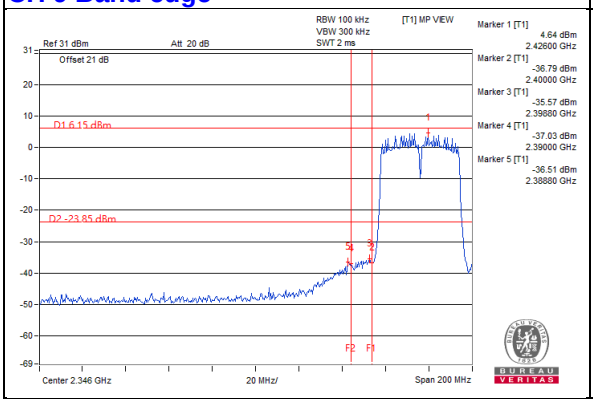
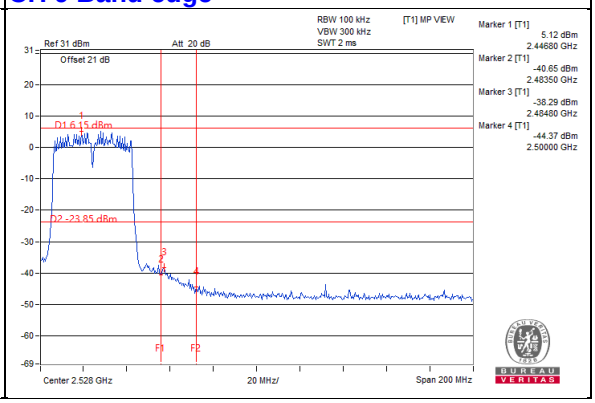


CH 9 Band edge

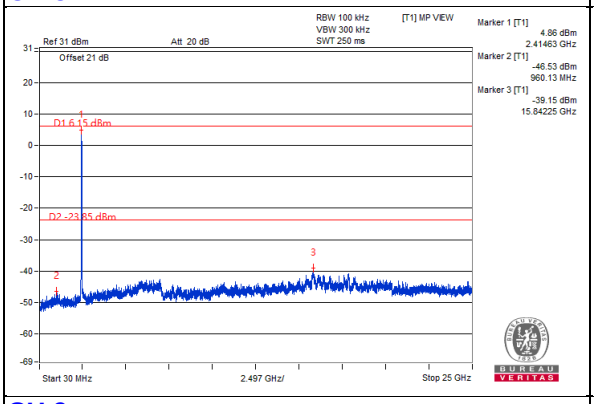


CH 9 Band edge



Chain 1

CH 3



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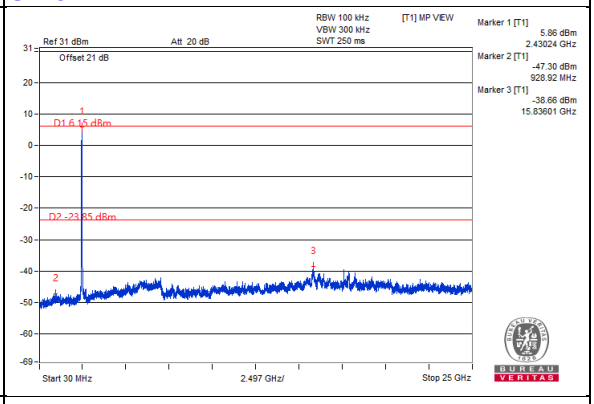
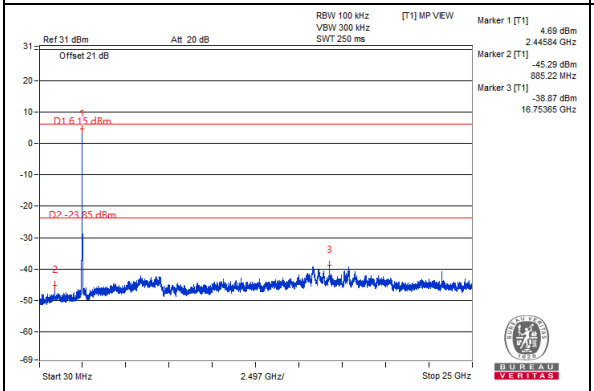
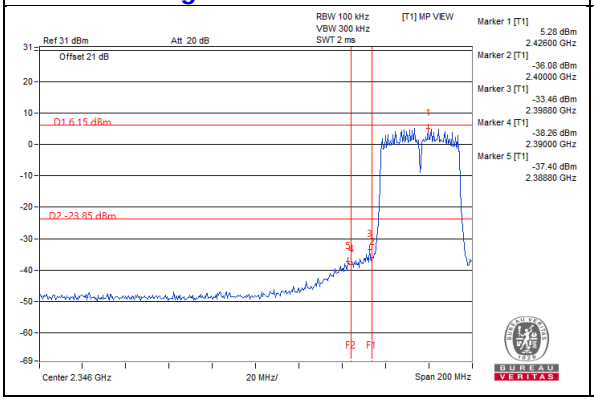


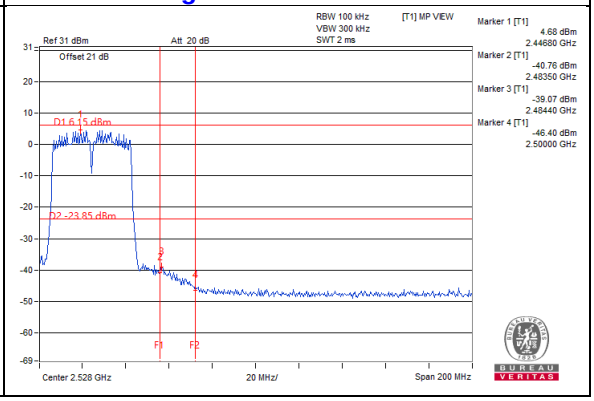
CH 9



CH 3 Band edge



CH 9 Band edge



5 Pictures of Test Arrangements

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

Appendix – Information of the Testing Laboratories

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

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

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