FCC Test Report (WLAN)

Report No.:	RF190902E13
FCC ID:	TLZ-CM358SM
Test Model:	AW-CM358SM
Received Date:	Sep. 02, 2019
Test Date:	Sep. 19 to Oct. 07, 2019
Issued Date:	Jan. 13, 2020
Applicant:	AzureWave Technologies, Inc.
Address:	8F., No.94, Baozhong Rd. , Xindian Dist., New Taipei City , Taiwan 231
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / Designation Number:	723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
RF190902E13	Original release.	Jan. 13, 2020

1 Certificate of Conformity

Product:	IEEE 802.11a/b/g/n/ac WLAN with Bluetooth 5 Combo Stamp Module
Brand:	AzureWave
Test Model:	AW-CM358SM
Sample Status:	ENGINEERING SAMPLE
Applicant:	AzureWave Technologies, Inc.
Test Date:	Sep. 19 to Oct. 07, 2019
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:** Jan. 13, 2020

Joyce Kuo / Specialist

Approved by : _____ , **Date:** Jan. 13, 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 -12.36dB at 0.15781MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.5dB at 4874.00MHz.
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(MHF) 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	-	3.1 dB
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.8 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.0 dB
	30MHz ~ 1GHz	4.9 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.1 dB
	6GHz ~ 18GHz	4.9 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 (WLAN)

Product	IEEE 802.11a/b/g/n/ac WLAN with Bluetooth 5 Combo Stamp Module
Brand	AzureWave
Test Model	AW-CM358SM
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	DC 3.3V from host equipment
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode only
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 150Mbps 802.11ac: up to 433.3Mbps
Operating Frequency Band	**2.4GHz:** 2.4 ~ 2.4835 GHz **5GHz:** 5.18~ 5.24GHz, 5.26GHz ~ 5.32GHz, 5.50GHz ~ 5.72GHz, 5.745 ~ 5.825GHz
Number of Channel	**2.4GHz:** 802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7 **5GHz:** 802.11a, 802.11n (HT20), 802.11ac (VHT20): 25 802.11n (HT40), 802.11ac (VHT40): 12 802.11ac (VHT80): 6
Output Power	**2.412 ~ 2.462GHz:** 553.35 mW **5.18 ~ 5.24GHz:** 135.519 mW **5.26 ~ 5.32GHz:** 122.744 mW **5.5 ~ 5.72GHz:** 100.313 mW **5.745 ~ 5.825GHz:** 136.458 mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. WLAN & Bluetooth technology can't transmit at same time.
2. The antenna provided to the EUT, please refer to the following table:

Antenna No.	Brand	Model	Ant. Net Gain (dBi)	Frequency range (GHz)	Antenna Type	Connector Type
1	NA	NA	2.98	2.4~2.4835	PIFA	i-pex(MHF)
			5.16	5.15~5.85		

3. The EUT incorporates a SISO function.

2.4GHz Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11b	1TX	1RX
802.11g	1TX	1RX
802.11n (HT20)	1TX	1RX
802.11n (HT40)	1TX	1RX
5GHz Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11a	1TX	1RX
802.11n (HT20)	1TX	1RX
802.11n (HT40)	1TX	1RX
802.11ac (VHT20)	1TX	1RX
802.11ac (VHT40)	1TX	1RX
802.11ac (VHT80)	1TX	1RX

4. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20):

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

7 channels are provided for 802.11n (HT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

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

Where **RE≥1G:** Radiated Emission above 1GHz & Bandedge Measurement **RE<1G:** Radiated Emission below 1GHz

PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

Note: The EUT's antenna had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane (Below 1GHz) & Y-plane (Above 1GHz).**

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, configurations (Header pin and FFC), antenna types (integrated and external antennas of different vendor and different length), 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 (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

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, configurations (Header pin and FFC), antenna types (integrated and external antennas of different vendor and different length), 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 (Mbps)
802.11g	1 to 11	6	OFDM	BPSK	6

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, configurations (Header pin and FFC), antenna types (integrated and external antennas of different vendor and different length), 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 (Mbps)
802.11g	1 to 11	6	OFDM	BPSK	6

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, configurations (Header pin and FFC), antenna types (integrated and external antennas of different vendor and different length), 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 (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Test Condition:

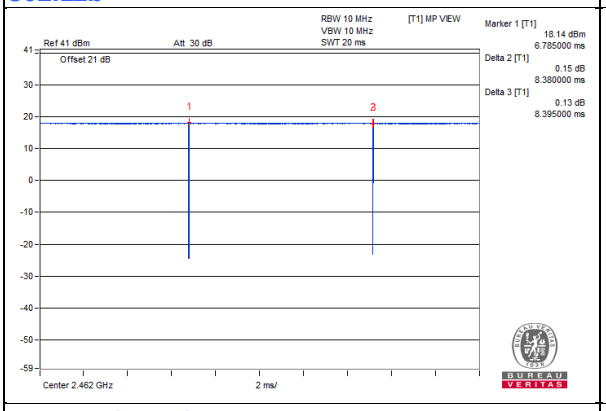
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (System)	TESTED BY
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Nelson Teng
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Nelson Teng
PLC	25deg. C, 75%RH	120Vac, 60Hz	Kevin Ko
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen

3.3 Duty Cycle of Test Signal

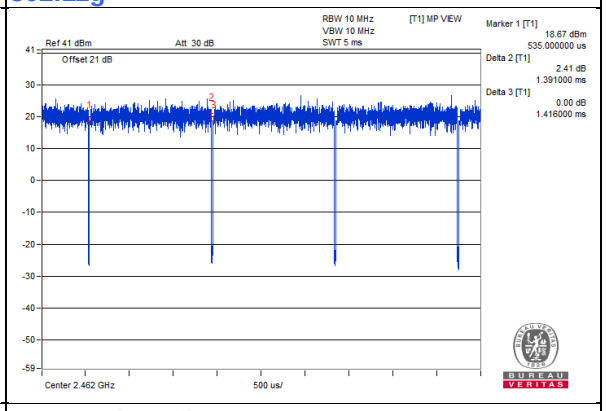
If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11b: Duty cycle = 8.38 ms/8.395 ms = 0.998
802.11g: Duty cycle = 1.391 ms/1.416 ms = 0.982
802.11n (HT20): Duty cycle = 1.3 ms/1.317 ms = 0.987
802.11n (HT40): Duty cycle = 0.647 ms/0.672 ms = 0.963, Duty factor = 10 * log (1/Duty cycle) = 0.16

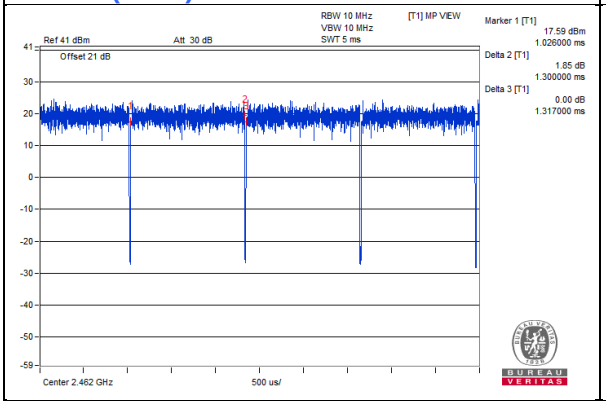
802.11b



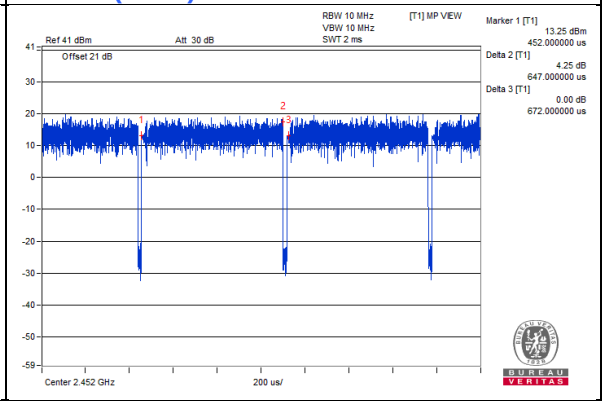
802.11g



802.11n (HT20)



802.11n (HT40)



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	E6420	482T3R1	FCC DoC	Provided by Lab
B.	Laptop	Lenovo	81A4	YD02YN9H	PD93165NGU	Provided by Lab
C.	Test Tool	Azure Wave	NA	NA	NA	Supplied by client
D.	USB Disk	Transcend	NA	NA	NA	Supplied by client
E.	Test Tool	Azure Wave	NA	NA	NA	Supplied by client
F.	Adapter	Dell	LA65N52-01	NA	NA	Provided by Lab

Note:

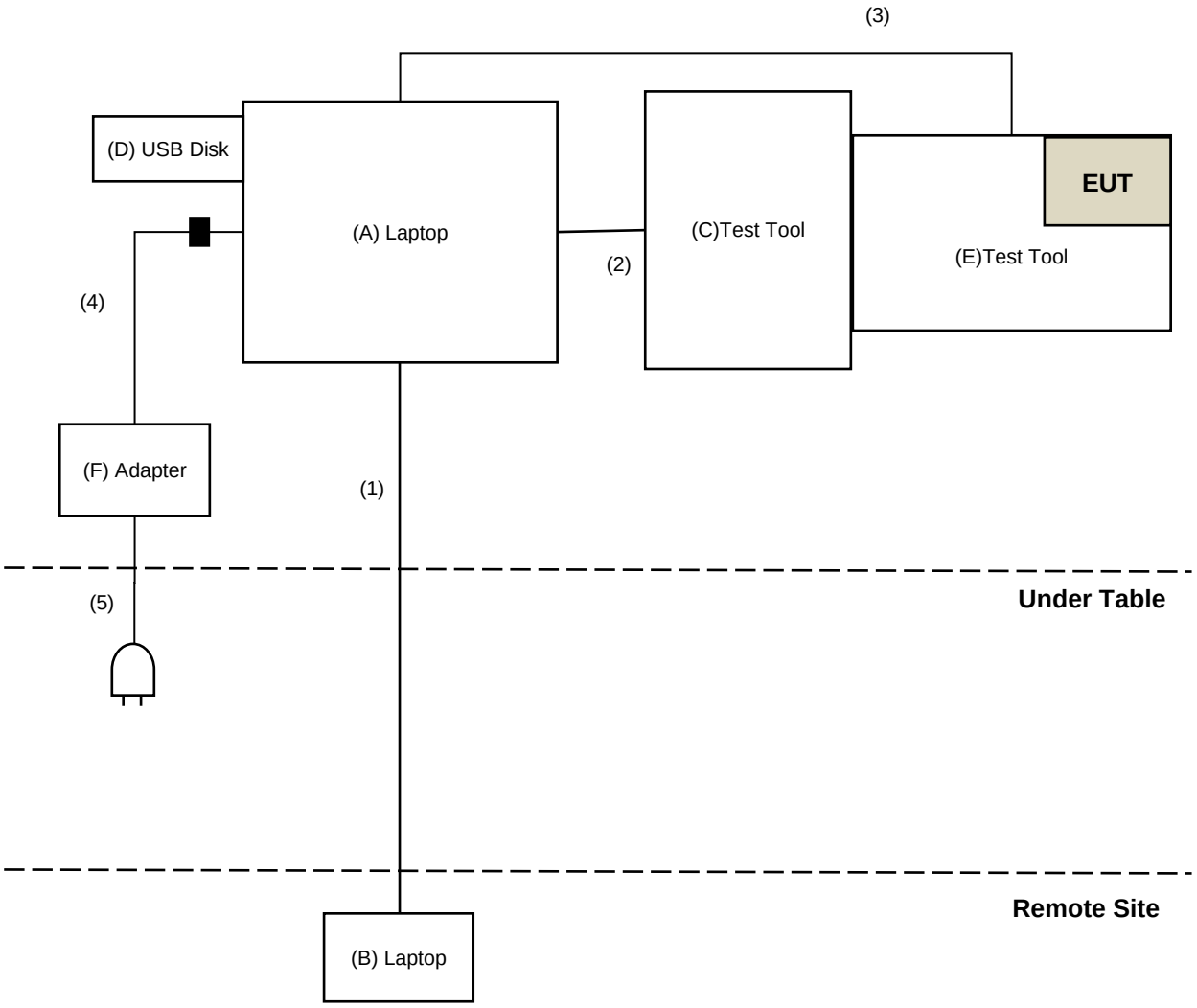
1. All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ-45 Cable	1	10	No	0	Provided by Lab
2.	USB Cable	1	1.5	Yes	0	Provided by Lab
3.	USB Cable	1	1	Yes	0	Supplied by client
4.	DC Cable	1	1.8	No	1	Provided by Lab
5.	AC Cable	1	0.8	No	0	Provided by Lab

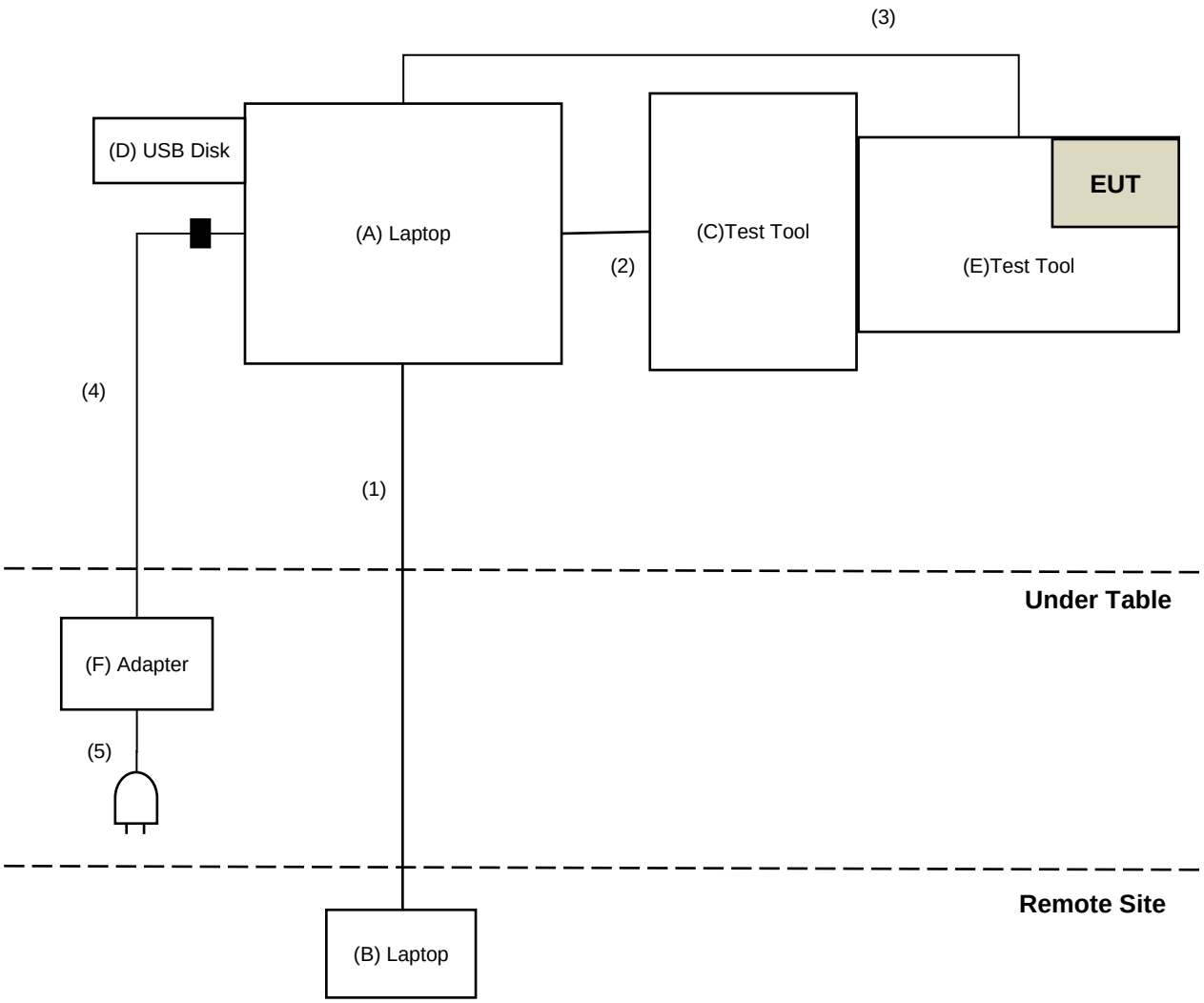
Note: The core(s) is(are) originally attached to the cable(s).

3.4.1 Configuration of System under Test

For conducted test:



For other test items:



3.5 General Description of Applied Standards

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

FCC Part 15, Subpart C (15.247)
KDB 558074 D01 15.247 Meas Guidance v05r02
ANSI C63.10-2013

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

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 20dB 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 Keysight	N9038A	MY54450088	July 03, 2019	July 02, 2020
Pre-Amplifier EMCI	EMC001340	980142	May 30, 2019	May 29, 2020
Loop Antenna Electro-Metrics	EM-6879	264	Jan. 22, 2019	Jan. 21, 2020
RF Cable	NA	LOOPCAB-001	Jan. 14, 2019	Jan. 13, 2020
RF Cable	NA	LOOPCAB-002	Jan. 14, 2019	Jan. 13, 2020
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-01	Oct. 30, 2018	Oct. 29, 2019
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Nov. 22, 2018	Nov. 21, 2019
RF Cable	8D	966-4-1	Mar. 19, 2019	Mar. 18, 2020
RF Cable	8D	966-4-2	Mar. 19, 2019	Mar. 18, 2020
RF Cable	8D	966-4-3	Mar. 19, 2019	Mar. 18, 2020
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-4-01	Sep. 26, 2019	Sep. 25, 2020
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Nov. 25, 2018	Nov. 24, 2019
Pre-Amplifier EMCI	EMC12630SE	980385	Aug. 15, 2019	Aug. 14, 2020
RF Cable	EMC104-SM-SM-1200	160923	Jan. 28, 2019	Jan. 27, 2020
RF Cable	104 RF cable	131215	Jan. 10, 2019	Jan. 09, 2020
RF Cable	EMC104-SM-SM-6000	180418	May 03, 2019	May 02, 2020
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 28, 2019	Jan. 27, 2020
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 25, 2018	Nov. 24, 2019
RF Cable	EMC102-KM-KM-1200	160924	Jan. 28, 2019	Jan. 27, 2020
RF Cable	EMC102-KM-KM-1200	160925	Jan. 28, 2019	Jan. 27, 2020
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	NA	NA
Spectrum Analyzer R&S	FSV40	100964	June 04, 2019	June 03, 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. 4.
3. Loop antenna was used for all emissions below 30 MHz.
4. Tested Date: Sep. 28 to Oct. 07, 2019

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:

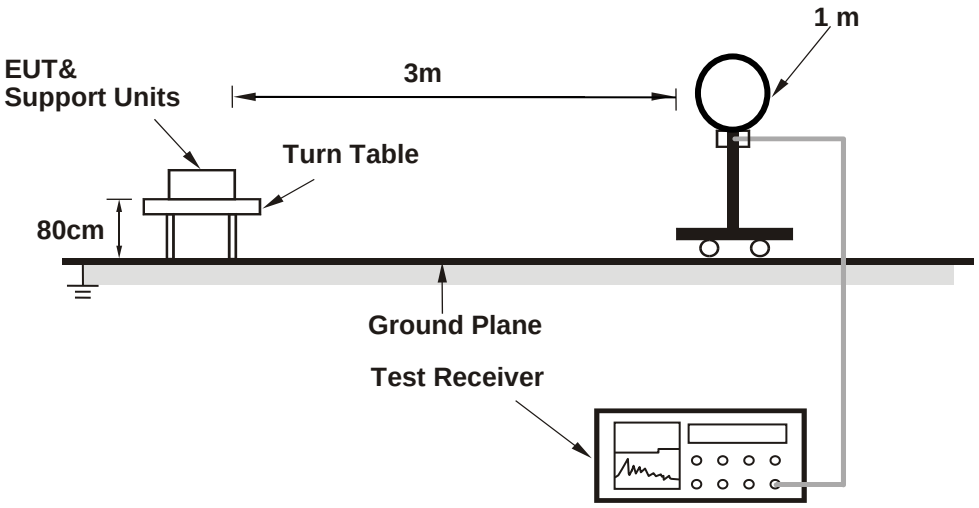
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

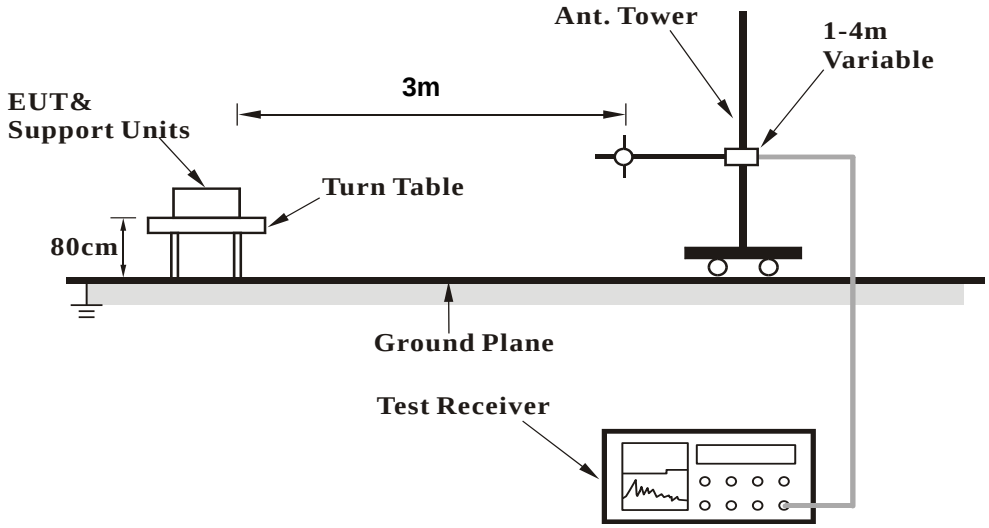
No deviation.

4.1.5 Test Setup

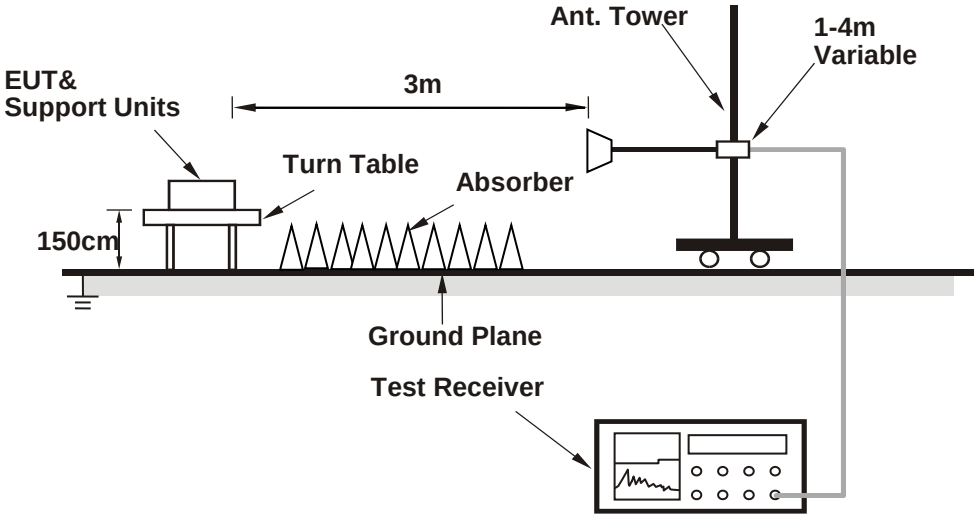
For Radiated emission below 30MHz



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 testing table.
b. Controlling software (DutApiSisoACDuallf.exe [v1.0.0.164]) has been activated to set the EUT under transmission condition continuously.

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	2390.00	56.5 PK	74.0	-17.5	1.15 H	176	58.1	-1.6
2	2390.00	45.1 AV	54.0	-8.9	1.15 H	176	46.7	-1.6
3	*2412.00	104.6 PK			1.15 H	176	106.3	-1.7
4	*2412.00	102.3 AV			1.15 H	176	104.0	-1.7
5	4824.00	50.2 PK	74.0	-23.8	3.85 H	99	47.9	2.3
6	4824.00	48.0 AV	54.0	-6.0	3.85 H	99	45.7	2.3
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	2390.00	54.7 PK	74.0	-19.3	1.07 V	185	56.3	-1.6
2	2390.00	43.3 AV	54.0	-10.7	1.07 V	185	44.9	-1.6
3	*2412.00	101.1 PK			1.07 V	185	102.8	-1.7
4	*2412.00	98.8 AV			1.07 V	185	100.5	-1.7
5	4824.00	54.2 PK	74.0	-19.8	1.09 V	281	51.9	2.3
6	4824.00	52.6 AV	54.0	-1.4	1.09 V	281	50.3	2.3

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.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	53.3 PK	74.0	-20.7	1.11 H	173	54.9	-1.6
2	2390.00	39.7 AV	54.0	-14.3	1.11 H	173	41.3	-1.6
3	*2437.00	103.1 PK			1.11 H	173	104.9	-1.8
4	*2437.00	100.7 AV			1.11 H	173	102.5	-1.8
5	2483.50	52.8 PK	74.0	-21.2	1.11 H	173	54.5	-1.7
6	2483.50	39.4 AV	54.0	-14.6	1.11 H	173	41.1	-1.7
7	4874.00	50.0 PK	74.0	-24.0	3.80 H	93	47.6	2.4
8	4874.00	47.9 AV	54.0	-6.1	3.80 H	93	45.5	2.4
9	7311.00	46.8 PK	74.0	-27.2	3.76 H	56	37.6	9.2
10	7311.00	39.7 AV	54.0	-14.3	3.76 H	56	30.5	9.2
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	52.5 PK	74.0	-21.5	1.06 V	177	54.1	-1.6
2	2390.00	39.2 AV	54.0	-14.8	1.06 V	177	40.8	-1.6
3	*2437.00	100.8 PK			1.06 V	177	102.6	-1.8
4	*2437.00	98.8 AV			1.06 V	177	100.6	-1.8
5	2483.50	53.2 PK	74.0	-20.8	1.06 V	177	54.9	-1.7
6	2483.50	39.8 AV	54.0	-14.2	1.06 V	177	41.5	-1.7
7	4874.00	56.6 PK	74.0	-17.4	1.07 V	268	54.2	2.4
8	**4874.00**	**53.5 AV**	**54.0**	**-0.5**	**1.07 V**	**268**	**51.1**	**2.4**
9	7311.00	48.5 PK	74.0	-25.5	1.04 V	254	39.3	9.2
10	7311.00	42.2 AV	54.0	-11.8	1.04 V	254	33.0	9.2

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 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	103.3 PK			1.34 H	178	105.1	-1.8
2	*2462.00	100.8 AV			1.34 H	178	102.6	-1.8
3	2483.50	56.6 PK	74.0	-17.4	1.34 H	178	58.3	-1.7
4	2483.50	43.1 AV	54.0	-10.9	1.34 H	178	44.8	-1.7
5	4924.00	50.2 PK	74.0	-23.8	3.80 H	87	47.7	2.5
6	4924.00	48.2 AV	54.0	-5.8	3.80 H	87	45.7	2.5
7	7386.00	47.2 PK	74.0	-26.8	3.79 H	43	37.8	9.4
8	7386.00	40.2 AV	54.0	-13.8	3.79 H	43	30.8	9.4
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	100.5 PK			1.02 V	171	102.3	-1.8
2	*2462.00	98.4 AV			1.02 V	171	100.2	-1.8
3	2483.50	55.3 PK	74.0	-18.7	1.02 V	171	57.0	-1.7
4	2483.50	41.6 AV	54.0	-12.4	1.02 V	171	43.3	-1.7
5	4924.00	54.1 PK	74.0	-19.9	1.06 V	268	51.6	2.5
6	4924.00	52.4 AV	54.0	-1.6	1.06 V	268	49.9	2.5
7	7386.00	48.8 PK	74.0	-25.2	1.04 V	243	39.4	9.4
8	7386.00	42.6 AV	54.0	-11.4	1.04 V	243	33.2	9.4

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	72.4 PK	74.0	-1.6	1.17 H	188	74.0	-1.6
2	2390.00	51.6 AV	54.0	-2.4	1.17 H	188	53.2	-1.6
3	*2412.00	109.3 PK			1.17 H	188	111.0	-1.7
4	*2412.00	98.3 AV			1.17 H	188	100.0	-1.7
5	4824.00	56.2 PK	74.0	-17.8	3.72 H	87	53.9	2.3
6	4824.00	41.8 AV	54.0	-12.2	3.72 H	87	39.5	2.3
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	2390.00	70.1 PK	74.0	-3.9	1.49 V	267	71.7	-1.6
2	2390.00	49.4 AV	54.0	-4.6	1.49 V	267	51.0	-1.6
3	*2412.00	107.2 PK			1.49 V	267	108.9	-1.7
4	*2412.00	96.1 AV			1.49 V	267	97.8	-1.7
5	4824.00	59.6 PK	74.0	-14.4	1.08 V	271	57.3	2.3
6	4824.00	45.6 AV	54.0	-8.4	1.08 V	271	43.3	2.3

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.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	66.9 PK	74.0	-7.1	1.42 H	175	68.5	-1.6
2	2390.00	48.8 AV	54.0	-5.2	1.42 H	175	50.4	-1.6
3	*2437.00	111.2 PK			1.42 H	175	113.0	-1.8
4	*2437.00	100.5 AV			1.42 H	175	102.3	-1.8
5	2483.50	72.0 PK	74.0	-2.0	1.42 H	175	73.7	-1.7
6	2483.50	50.3 AV	54.0	-3.7	1.42 H	175	52.0	-1.7
7	4874.00	56.1 PK	74.0	-17.9	3.72 H	88	53.7	2.4
8	4874.00	41.4 AV	54.0	-12.6	3.72 H	88	39.0	2.4
9	7311.00	51.5 PK	74.0	-22.5	3.69 H	22	42.3	9.2
10	7311.00	38.3 AV	54.0	-15.7	3.69 H	22	29.1	9.2
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	65.2 PK	74.0	-8.8	1.52 V	280	66.8	-1.6
2	2390.00	45.9 AV	54.0	-8.1	1.52 V	280	47.5	-1.6
3	*2437.00	109.9 PK			1.52 V	280	111.7	-1.8
4	*2437.00	98.7 AV			1.52 V	280	100.5	-1.8
5	2483.50	70.3 PK	74.0	-3.7	1.52 V	280	72.0	-1.7
6	2483.50	48.6 AV	54.0	-5.4	1.52 V	280	50.3	-1.7
7	4874.00	60.1 PK	74.0	-13.9	1.09 V	275	57.7	2.4
8	4874.00	46.3 AV	54.0	-7.7	1.09 V	275	43.9	2.4
9	7311.00	53.1 PK	74.0	-20.9	1.15 V	264	43.9	9.2
10	7311.00	40.0 AV	54.0	-14.0	1.15 V	264	30.8	9.2

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 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	109.2 PK			1.05 H	176	111.0	-1.8
2	*2462.00	99.1 AV			1.05 H	176	100.9	-1.8
3	2483.50	73.3 PK	74.0	-0.7	1.05 H	176	75.0	-1.7
4	2483.50	49.8 AV	54.0	-4.2	1.05 H	176	51.5	-1.7
5	4924.00	56.4 PK	74.0	-17.6	3.71 H	87	53.9	2.5
6	4924.00	41.4 AV	54.0	-12.6	3.71 H	87	38.9	2.5
7	7386.00	51.6 PK	74.0	-22.4	3.65 H	36	42.2	9.4
8	7386.00	38.4 AV	54.0	-15.6	3.65 H	36	29.0	9.4
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	106.7 PK			1.50 V	281	108.5	-1.8
2	*2462.00	95.8 AV			1.50 V	281	97.6	-1.8
3	2483.50	71.5 PK	74.0	-2.5	1.50 V	281	73.2	-1.7
4	2483.50	48.0 AV	54.0	-6.0	1.50 V	281	49.7	-1.7
5	4924.00	59.0 PK	74.0	-15.0	1.10 V	276	56.5	2.5
6	4924.00	44.9 AV	54.0	-9.1	1.10 V	276	42.4	2.5
7	7386.00	53.4 PK	74.0	-20.6	1.08 V	260	44.0	9.4
8	7386.00	40.2 AV	54.0	-13.8	1.08 V	260	30.8	9.4

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.

802.11n (HT20)

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	70.5 PK	74.0	-3.5	1.19 H	187	72.1	-1.6
2	2390.00	52.8 AV	54.0	-1.2	1.19 H	187	54.4	-1.6
3	*2412.00	109.0 PK			1.19 H	187	110.7	-1.7
4	*2412.00	97.8 AV			1.19 H	187	99.5	-1.7
5	4824.00	52.5 PK	74.0	-21.5	3.74 H	100	50.2	2.3
6	4824.00	38.2 AV	54.0	-15.8	3.74 H	100	35.9	2.3
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	2390.00	69.7 PK	74.0	-4.3	1.46 V	279	71.3	-1.6
2	2390.00	50.1 AV	54.0	-3.9	1.46 V	279	51.7	-1.6
3	*2412.00	105.9 PK			1.46 V	279	107.6	-1.7
4	*2412.00	95.3 AV			1.46 V	279	97.0	-1.7
5	4824.00	60.1 PK	74.0	-13.9	1.13 V	276	57.8	2.3
6	4824.00	44.2 AV	54.0	-9.8	1.13 V	276	41.9	2.3

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.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	66.9 PK	74.0	-7.1	1.41 H	187	68.5	-1.6
2	2390.00	48.8 AV	54.0	-5.2	1.41 H	187	50.4	-1.6
3	*2437.00	110.8 PK			1.41 H	187	112.6	-1.8
4	*2437.00	100.3 AV			1.41 H	187	102.1	-1.8
5	2483.50	72.2 PK	74.0	-1.8	1.41 H	187	73.9	-1.7
6	2483.50	50.3 AV	54.0	-3.7	1.41 H	187	52.0	-1.7
7	4874.00	56.5 PK	74.0	-17.5	3.78 H	99	54.1	2.4
8	4874.00	41.9 AV	54.0	-12.1	3.78 H	99	39.5	2.4
9	7311.00	50.9 PK	74.0	-23.1	3.73 H	37	41.7	9.2
10	7311.00	37.9 AV	54.0	-16.1	3.73 H	37	28.7	9.2
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	64.8 PK	74.0	-9.2	1.51 V	264	66.4	-1.6
2	2390.00	46.5 AV	54.0	-7.5	1.51 V	264	48.1	-1.6
3	*2437.00	108.9 PK			1.51 V	264	110.7	-1.8
4	*2437.00	98.2 AV			1.51 V	264	100.0	-1.8
5	2483.50	70.1 PK	74.0	-3.9	1.51 V	264	71.8	-1.7
6	2483.50	48.1 AV	54.0	-5.9	1.51 V	264	49.8	-1.7
7	4874.00	65.2 PK	74.0	-8.8	1.12 V	282	62.8	2.4
8	4874.00	50.9 AV	54.0	-3.1	1.12 V	282	48.5	2.4
9	7311.00	52.8 PK	74.0	-21.2	1.02 V	242	43.6	9.2
10	7311.00	40.3 AV	54.0	-13.7	1.02 V	242	31.1	9.2

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 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	107.0 PK			1.21 H	180	108.8	-1.8
2	*2462.00	96.7 AV			1.21 H	180	98.5	-1.8
3	2483.50	70.5 PK	74.0	-3.5	1.21 H	180	72.2	-1.7
4	2483.50	49.2 AV	54.0	-4.8	1.21 H	180	50.9	-1.7
5	4924.00	53.1 PK	74.0	-20.9	3.77 H	102	50.6	2.5
6	4924.00	38.5 AV	54.0	-15.5	3.77 H	102	36.0	2.5
7	7386.00	47.7 PK	74.0	-26.3	3.74 H	42	38.3	9.4
8	7386.00	35.7 AV	54.0	-18.3	3.74 H	42	26.3	9.4
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	104.3 PK			1.49 V	275	106.1	-1.8
2	*2462.00	93.8 AV			1.49 V	275	95.6	-1.8
3	2483.50	66.5 PK	74.0	-7.5	1.49 V	275	68.2	-1.7
4	2483.50	46.6 AV	54.0	-7.4	1.49 V	275	48.3	-1.7
5	4924.00	60.0 PK	74.0	-14.0	1.04 V	256	57.5	2.5
6	4924.00	43.9 AV	54.0	-10.1	1.04 V	256	41.4	2.5
7	7386.00	50.5 PK	74.0	-23.5	1.07 V	249	41.1	9.4
8	7386.00	37.6 AV	54.0	-16.4	1.07 V	249	28.2	9.4

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.

802.11n (HT40)

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	69.6 PK	74.0	-4.4	1.11 H	187	71.2	-1.6
2	2390.00	52.3 AV	54.0	-1.7	1.11 H	187	53.9	-1.6
3	*2422.00	102.7 PK			1.11 H	187	104.4	-1.7
4	*2422.00	93.6 AV			1.11 H	187	95.3	-1.7
5	4844.00	46.6 PK	74.0	-27.4	3.84 H	80	44.4	2.2
6	4844.00	32.3 AV	54.0	-21.7	3.84 H	80	30.1	2.2
7	7266.00	46.1 PK	74.0	-27.9	3.81 H	46	37.1	9.0
8	7266.00	33.8 AV	54.0	-20.2	3.81 H	46	24.8	9.0
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	67.4 PK	74.0	-6.6	1.36 V	236	69.0	-1.6
2	2390.00	51.0 AV	54.0	-3.0	1.36 V	236	52.6	-1.6
3	*2422.00	100.7 PK			1.36 V	236	102.4	-1.7
4	*2422.00	91.4 AV			1.36 V	236	93.1	-1.7
5	4844.00	52.7 PK	74.0	-21.3	1.02 V	254	50.5	2.2
6	4844.00	36.5 AV	54.0	-17.5	1.02 V	254	34.3	2.2
7	7266.00	49.1 PK	74.0	-24.9	1.01 V	237	40.1	9.0
8	7266.00	35.2 AV	54.0	-18.8	1.01 V	237	26.2	9.0

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	70.1 PK	74.0	-3.9	1.21 H	188	71.7	-1.6
2	2390.00	52.1 AV	54.0	-1.9	1.21 H	188	53.7	-1.6
3	*2437.00	106.5 PK			1.21 H	188	108.3	-1.8
4	*2437.00	97.6 AV			1.21 H	188	99.4	-1.8
5	2483.50	69.2 PK	74.0	-4.8	1.21 H	188	70.9	-1.7
6	2483.50	50.3 AV	54.0	-3.7	1.21 H	188	52.0	-1.7
7	4874.00	57.1 PK	74.0	-16.9	3.77 H	103	54.7	2.4
8	4874.00	42.3 AV	54.0	-11.7	3.77 H	103	39.9	2.4
9	7311.00	51.7 PK	74.0	-22.3	3.71 H	43	42.5	9.2
10	7311.00	38.4 AV	54.0	-15.6	3.71 H	43	29.2	9.2
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	68.4 PK	74.0	-5.6	1.39 V	242	70.0	-1.6
2	2390.00	50.4 AV	54.0	-3.6	1.39 V	242	52.0	-1.6
3	*2437.00	104.6 PK			1.39 V	242	106.4	-1.8
4	*2437.00	95.6 AV			1.39 V	242	97.4	-1.8
5	2483.50	67.6 PK	74.0	-6.4	1.39 V	242	69.3	-1.7
6	2483.50	48.5 AV	54.0	-5.5	1.39 V	242	50.2	-1.7
7	4874.00	53.3 PK	74.0	-20.7	1.02 V	257	50.9	2.4
8	4874.00	38.8 AV	54.0	-15.2	1.02 V	257	36.4	2.4
9	7311.00	48.0 PK	74.0	-26.0	1.03 V	247	38.8	9.2
10	7311.00	35.8 AV	54.0	-18.2	1.03 V	247	26.6	9.2

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 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	104.5 PK			1.15 H	188	106.3	-1.8
2	*2452.00	95.4 AV			1.15 H	188	97.2	-1.8
3	2483.50	71.5 PK	74.0	-2.5	1.15 H	188	73.2	-1.7
4	2483.50	52.5 AV	54.0	-1.5	1.15 H	188	54.2	-1.7
5	4904.00	53.0 PK	74.0	-21.0	3.78 H	102	50.5	2.5
6	4904.00	38.7 AV	54.0	-15.3	3.78 H	102	36.2	2.5
7	7356.00	47.5 PK	74.0	-26.5	3.75 H	33	38.3	9.2
8	7356.00	35.5 AV	54.0	-18.5	3.75 H	33	26.3	9.2
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	101.2 PK			1.35 V	235	103.0	-1.8
2	*2452.00	92.4 AV			1.35 V	235	94.2	-1.8
3	2483.50	65.5 PK	74.0	-8.5	1.35 V	235	67.2	-1.7
4	2483.50	48.9 AV	54.0	-5.1	1.35 V	235	50.6	-1.7
5	4904.00	57.0 PK	74.0	-17.0	1.00 V	254	54.5	2.5
6	4904.00	42.1 AV	54.0	-11.9	1.00 V	254	39.6	2.5
7	7356.00	51.3 PK	74.0	-22.7	1.03 V	239	42.1	9.2
8	7356.00	38.1 AV	54.0	-15.9	1.03 V	239	28.9	9.2

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:

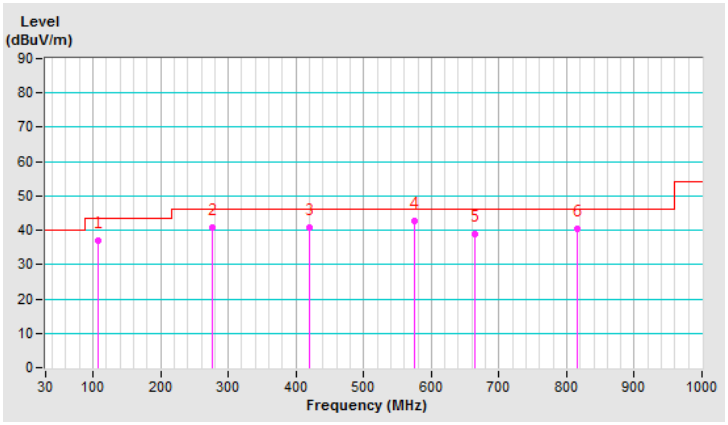
802.11g

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	107.99	37.1 QP	43.5	-6.4	3.00 H	110	47.9	-10.8
2	275.99	40.9 QP	46.0	-5.1	1.00 H	212	48.6	-7.7
3	419.92	40.9 QP	46.0	-5.1	1.00 H	205	44.4	-3.5
4	576.01	42.5 QP	46.0	-3.5	3.00 H	343	42.6	-0.1
5	663.82	38.7 QP	46.0	-7.3	1.00 H	254	37.1	1.6
6	816.02	40.5 QP	46.0	-5.5	1.00 H	319	35.8	4.7

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.

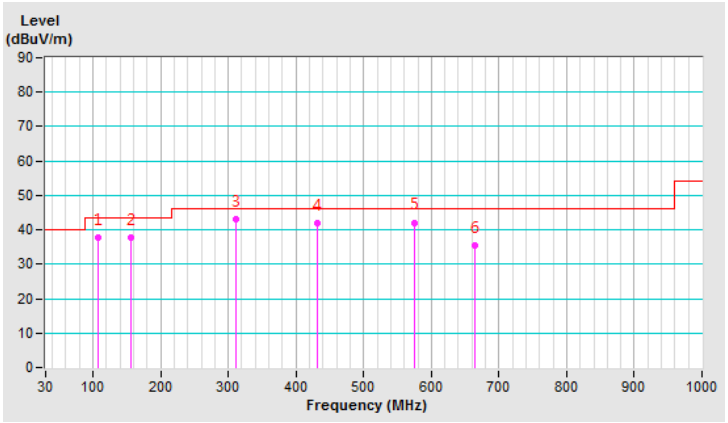


CHANNEL	TX Channel 6	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	107.99	37.6 QP	43.5	-5.9	2.00 V	0	48.4	-10.8
2	156.00	37.8 QP	43.5	-5.7	2.00 V	156	45.7	-7.9
3	312.00	43.0 QP	46.0	-3.0	2.00 V	0	49.6	-6.6
4	431.99	41.9 QP	46.0	-4.1	1.00 V	360	45.0	-3.1
5	576.01	42.1 QP	46.0	-3.9	1.00 V	313	42.2	-0.1
6	663.82	35.3 QP	46.0	-10.7	1.00 V	257	33.7	1.6

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.



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. 24, 2018	Oct. 23, 2019
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 22, 2018	Oct. 21, 2019
Line-Impedance Stabilization Network (for Peripheral) R&S	ESH3-Z5	835239/001	Mar. 17, 2019	Mar. 16, 2020
50 ohms Terminator	N/A	3	Oct. 22, 2018	Oct. 21, 2019
RF Cable	5D-FB	COCCAB-001	Sep. 28, 2018	Sep. 27, 2019
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: Sep. 19, 2019

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.

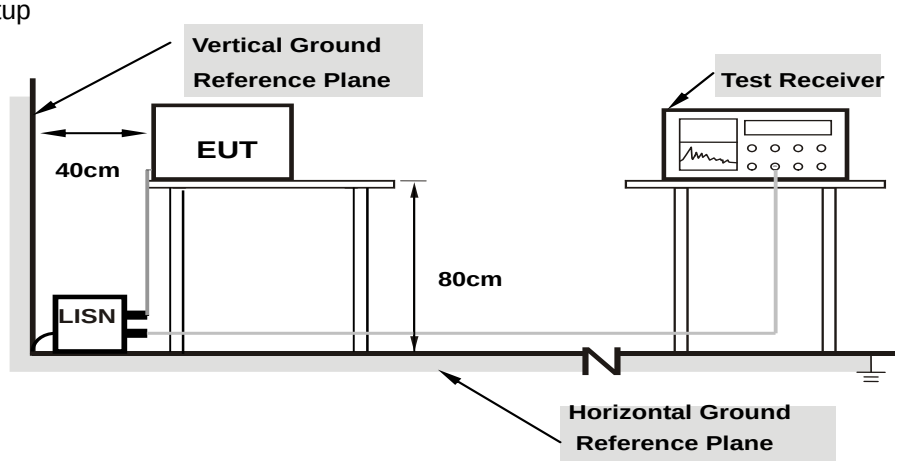
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

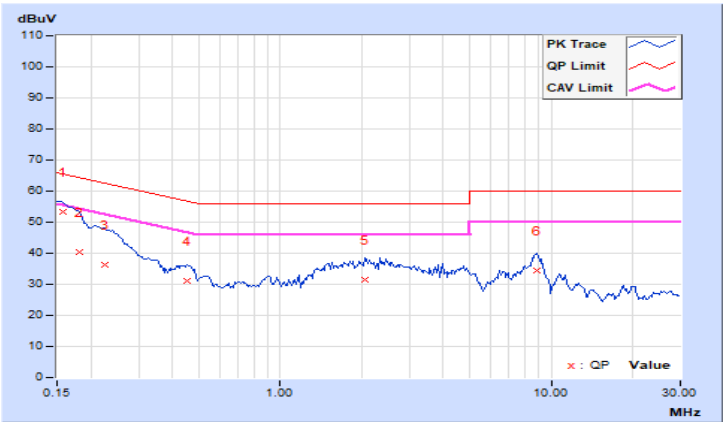
4.2.7 Test Results

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

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.15781**	**9.95**	**43.27**	**30.05**	**53.22**	**40.00**	**65.58**	**55.58**	**-12.36**	**-15.58**
2	0.18125	9.96	30.41	24.12	40.37	34.08	64.43	54.43	-24.06	-20.35
3	0.22422	9.96	26.21	7.24	36.17	17.20	62.66	52.66	-26.49	-35.46
4	0.45078	9.97	21.14	9.99	31.11	19.96	56.86	46.86	-25.75	-26.90
5	2.05469	10.07	21.53	15.94	31.60	26.01	56.00	46.00	-24.40	-19.99
6	8.84375	10.42	23.86	16.91	34.28	27.33	60.00	50.00	-25.72	-22.67

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

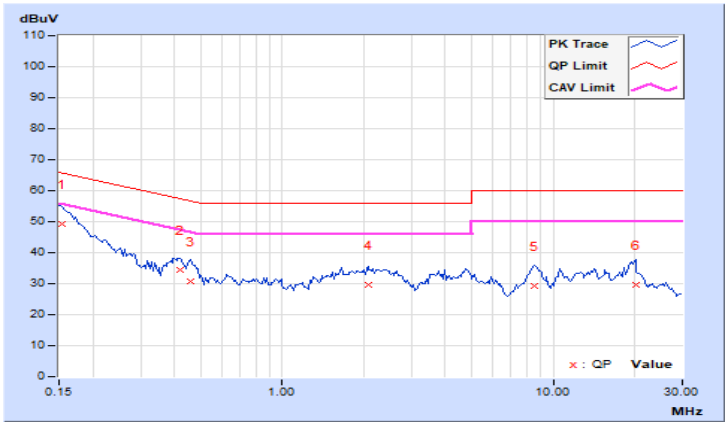


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.93	39.51	23.85	49.44	33.78	65.79	55.79	-16.35	-22.01
2	0.41953	9.95	24.66	18.85	34.61	28.80	57.46	47.46	-22.85	-18.66
3	0.45859	9.95	20.72	13.63	30.67	23.58	56.72	46.72	-26.05	-23.14
4	2.07422	10.04	19.67	14.67	29.71	24.71	56.00	46.00	-26.29	-21.29
5	8.53516	10.31	19.06	10.10	29.37	20.41	60.00	50.00	-30.63	-29.59
6	20.10938	10.79	19.01	14.09	29.80	24.88	60.00	50.00	-30.20	-25.12

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

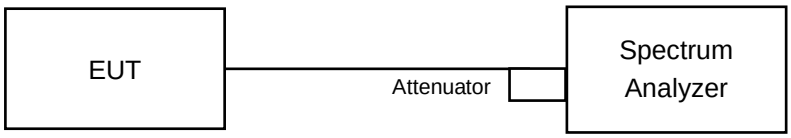


4.3 6dB Bandwidth Measurement

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
1	2412	10.12	0.5	Pass
6	2437	10.12	0.5	Pass
11	2462	10.12	0.5	Pass

802.11g

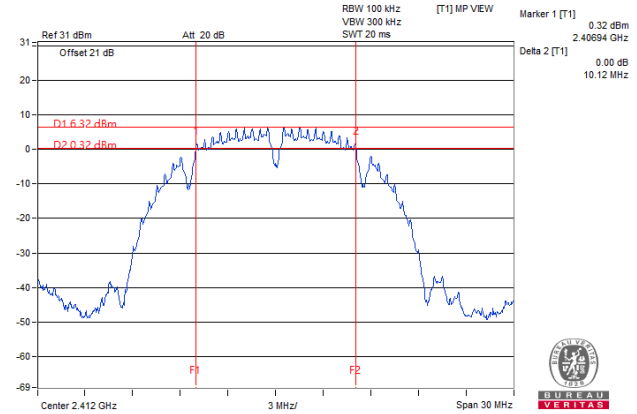
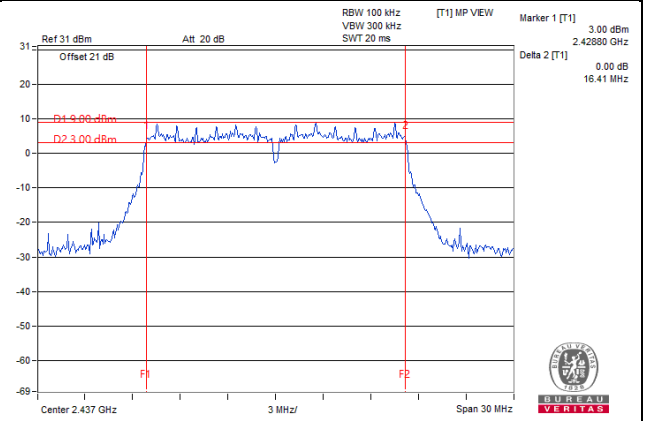
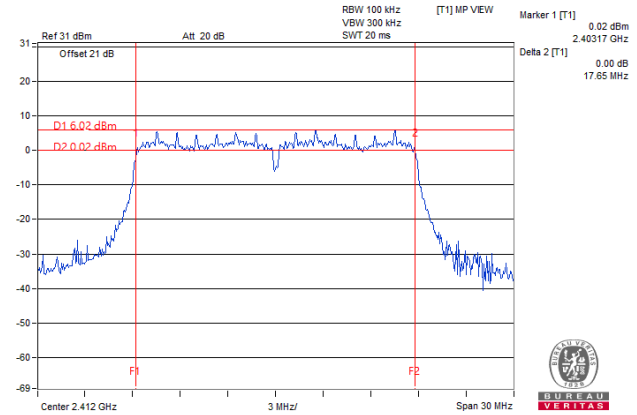
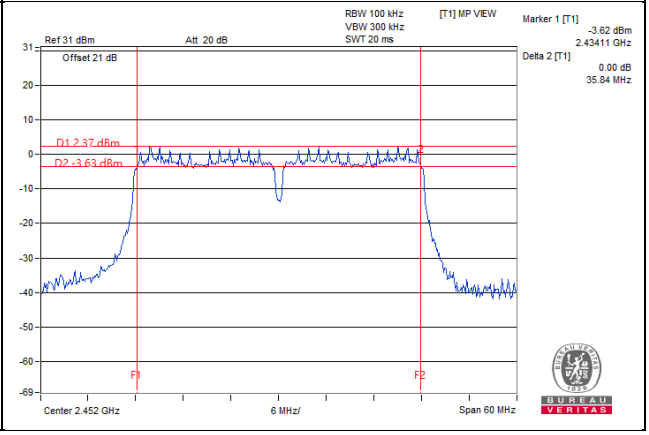
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	16.44	0.5	Pass
6	2437	16.41	0.5	Pass
11	2462	16.43	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	17.65	0.5	Pass
6	2437	17.65	0.5	Pass
11	2462	17.65	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
3	2422	35.91	0.5	Pass
6	2437	35.93	0.5	Pass
9	2452	35.84	0.5	Pass

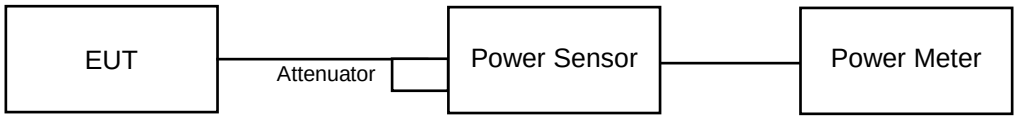
Spectrum Plot of Worst Value	
802.11b / CH1	**802.11g / CH6**
	
802.11n (HT20) / CH1	**802.11n (HT40) / CH9**
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

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

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

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

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

FOR PEAK POWER

802.11b

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	76.208	18.82	30	Pass
6	2437	76.033	18.81	30	Pass
11	2462	76.736	18.85	30	Pass

802.11g

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	539.511	27.32	30	Pass
6	2437	553.35	27.43	30	Pass
11	2462	535.797	27.29	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	486.407	26.87	30	Pass
6	2437	549.541	27.40	30	Pass
11	2462	493.174	26.93	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
3	2422	193.197	22.86	30	Pass
6	2437	472.063	26.74	30	Pass
9	2452	302.691	24.81	30	Pass

FOR AVERAGE POWER

802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	41.879	16.22
6	2437	42.073	16.24
11	2462	42.267	16.26

802.11g

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	64.417	18.09
6	2437	103.514	20.15
11	2462	65.313	18.15

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	53.333	17.27
6	2437	107.647	20.32
11	2462	54.325	17.35

802.11n (HT40)

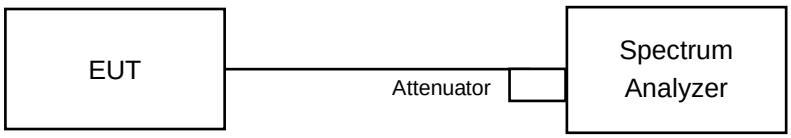
Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
3	2422	16.827	12.26
6	2437	83.368	19.21
9	2452	42.267	16.26

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 analyzer center frequency to DTS channel center frequency.
b. Set the span to 1.5 times the DTS bandwidth.
c. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d. Set the VBW ≥ 3 × RBW.
e. Detector = peak.
f. Sweep time = auto couple.
g. Trace mode = max hold.
h. Allow trace to fully stabilize.
i. Use the peak marker function to determine the maximum amplitude level within the RBW.

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

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-2.59	8	Pass
6	2437	-2.62	8	Pass
11	2462	-2.61	8	Pass

802.11g

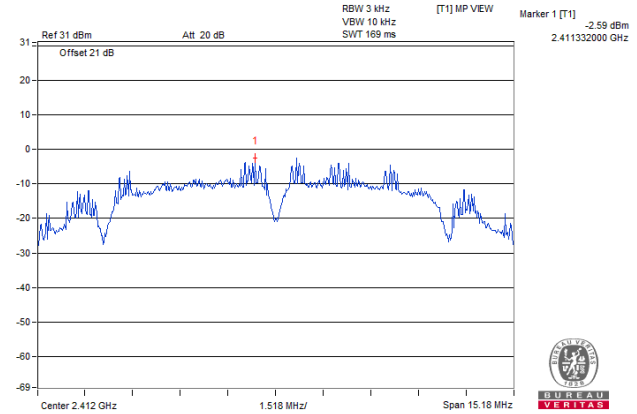
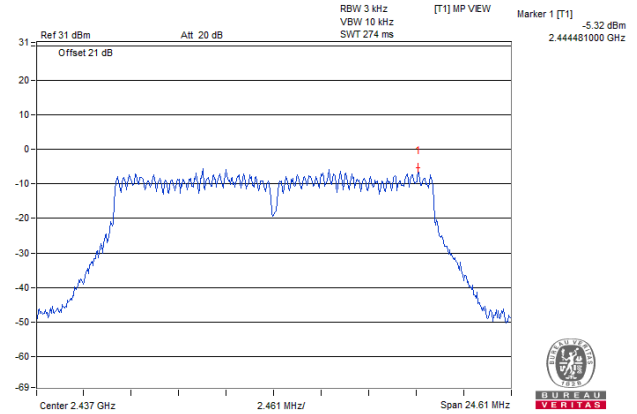
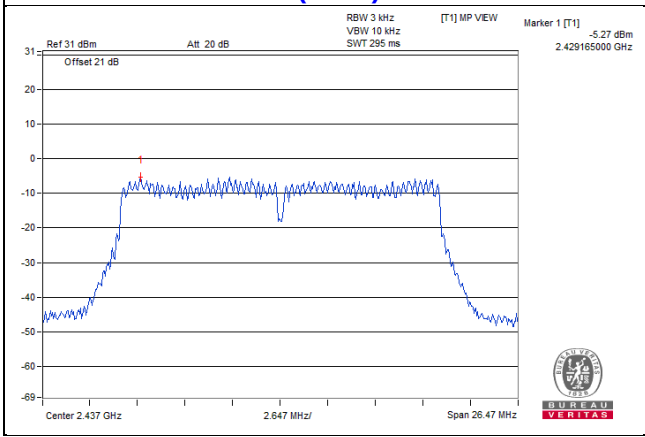
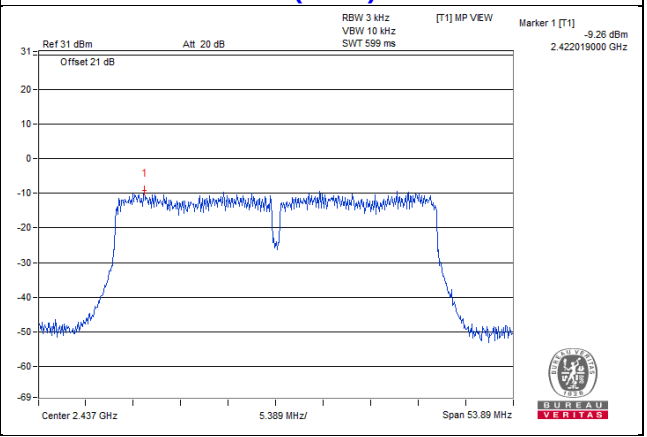
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-6.78	8	Pass
6	2437	-5.32	8	Pass
11	2462	-7.55	8	Pass

802.11n (HT20)

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
1	2412	-8.60	8	Pass
6	2437	-5.27	8	Pass
11	2462	-8.42	8	Pass

802.11n (HT40)

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
3	2422	-14.92	8	Pass
6	2437	-9.26	8	Pass
9	2452	-11.83	8	Pass

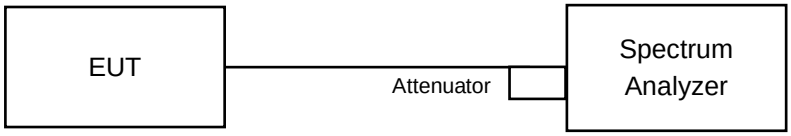
Spectrum Plot of Worst Value	
802.11b / CH1	**802.11g / CH6**
	
802.11n (HT20) / CH6	**802.11n (HT40) / CH6**
	

4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

Below 20dB 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

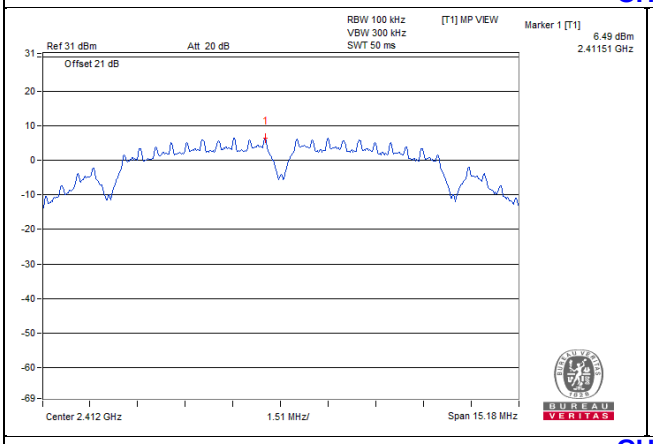
Same as Item 4.3.6

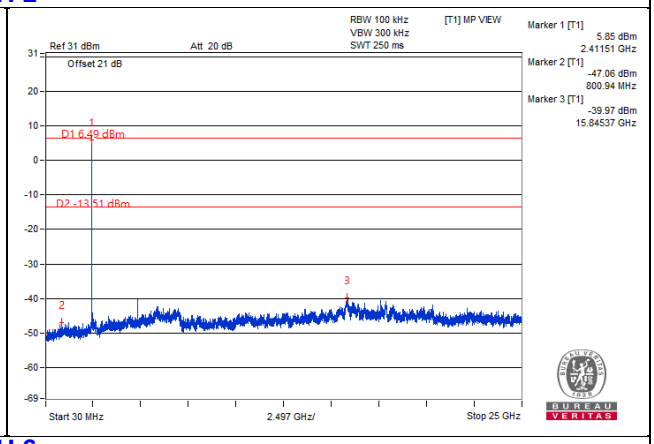
4.6.7 Test Results

The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

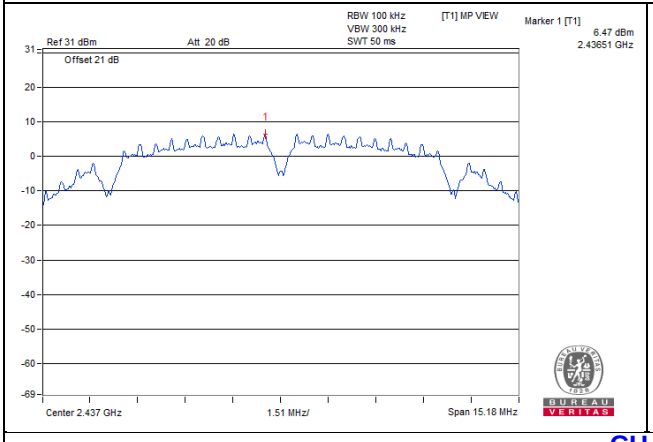
802.11b

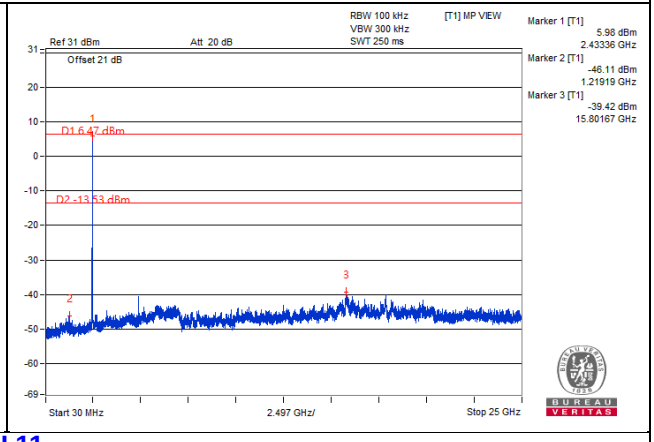
CH 1



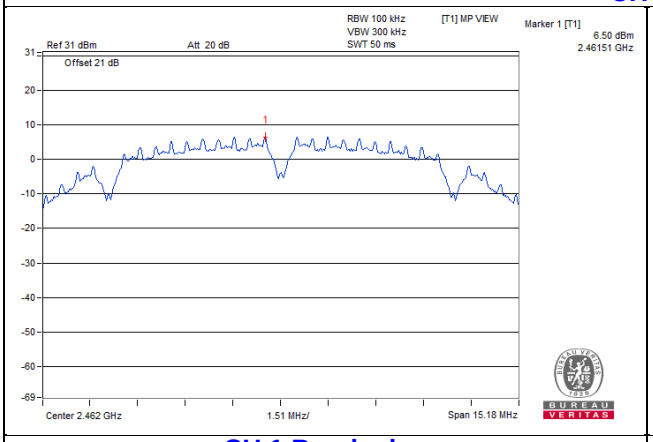


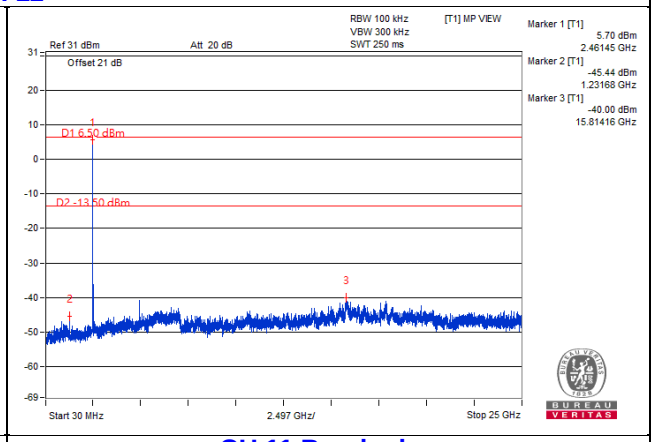
CH 6



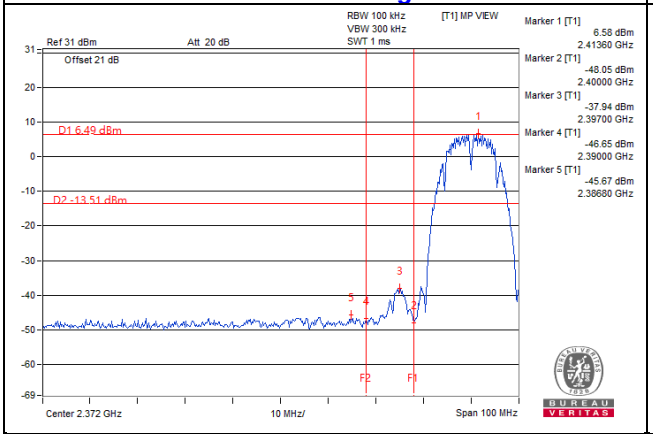


CH 11

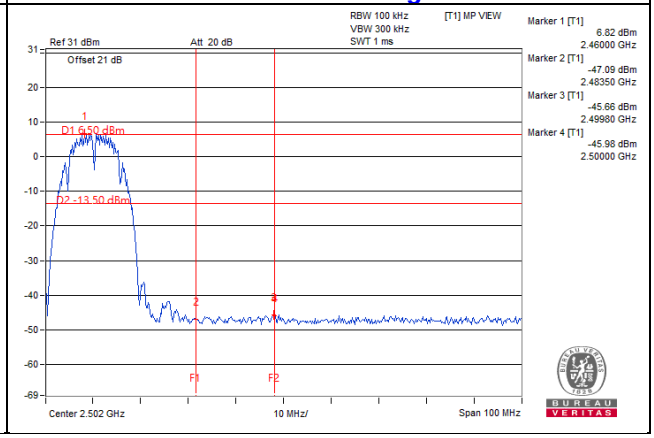




CH 1 Band edge

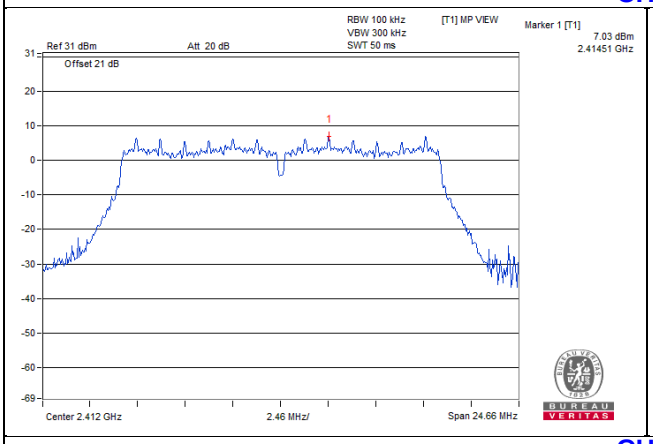


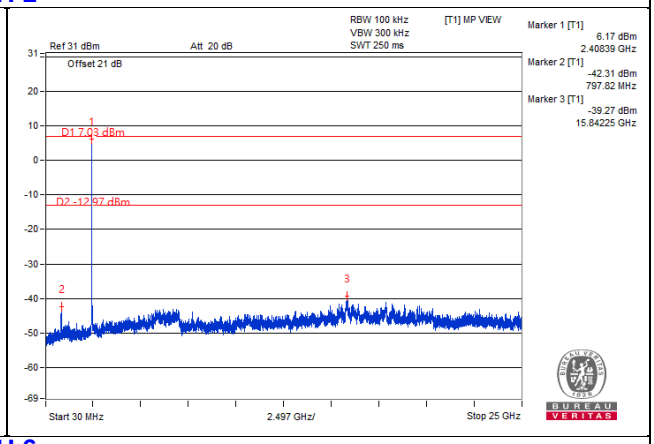
CH 11 Band edge



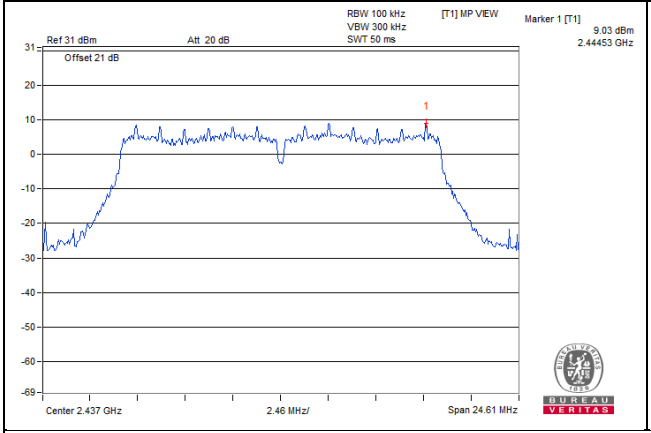
802.11g

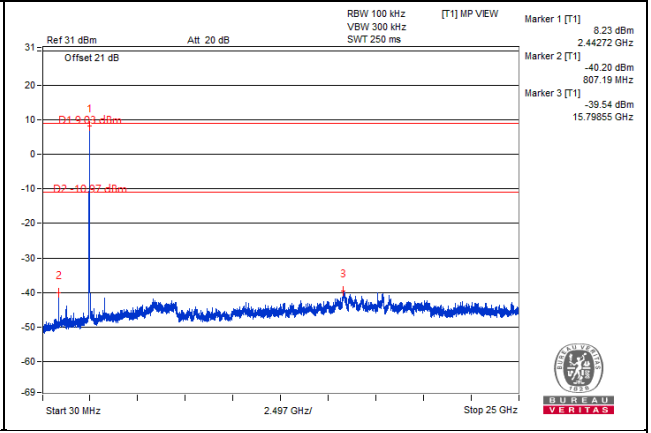
CH 1



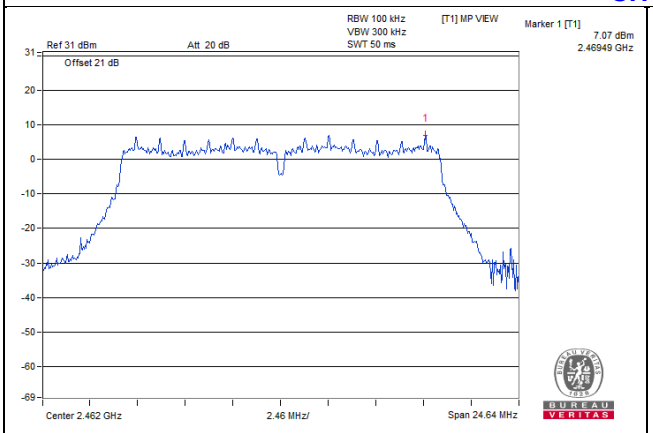


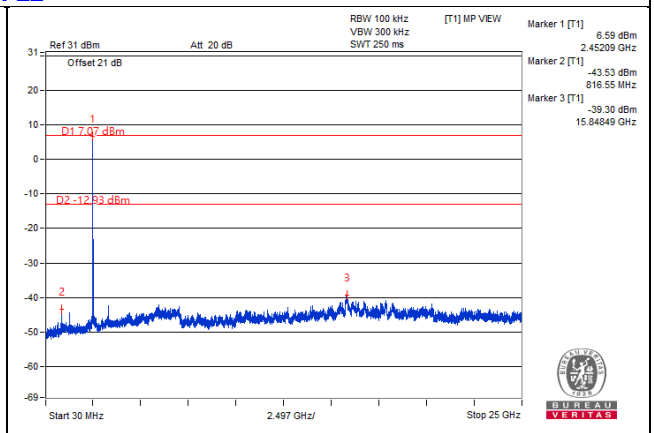
CH 6



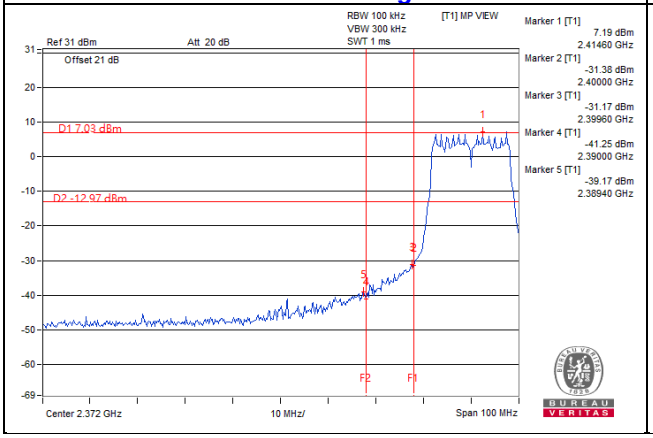


CH 11

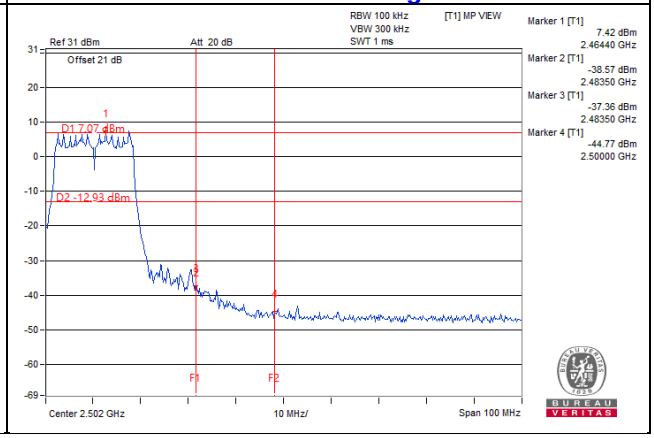




CH 1 Band edge

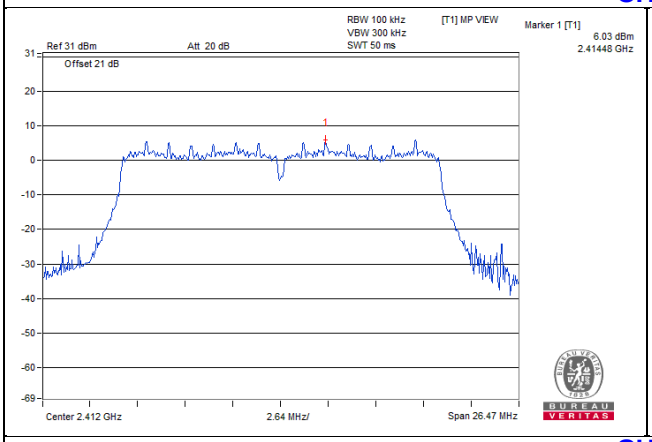


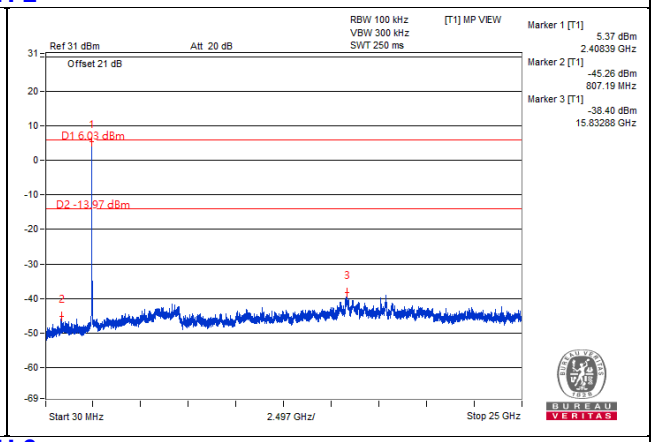
CH 11 Band edge



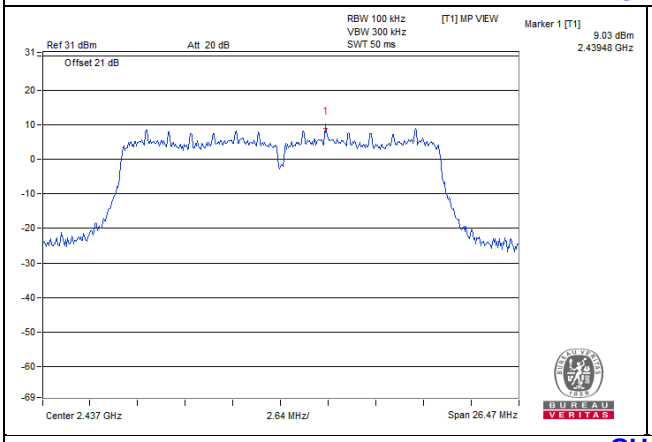
802.11n (HT20)

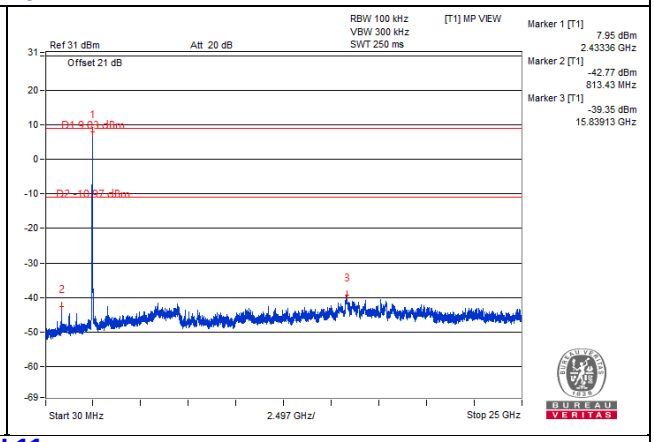
CH 1



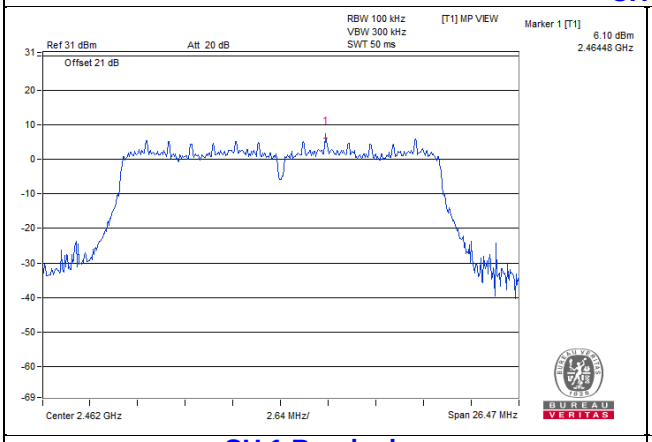


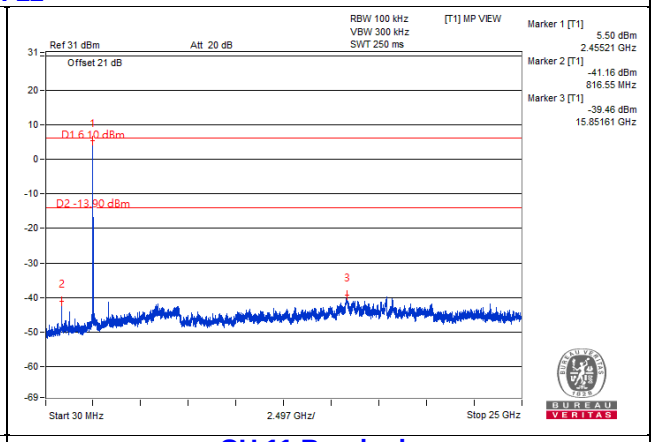
CH 6



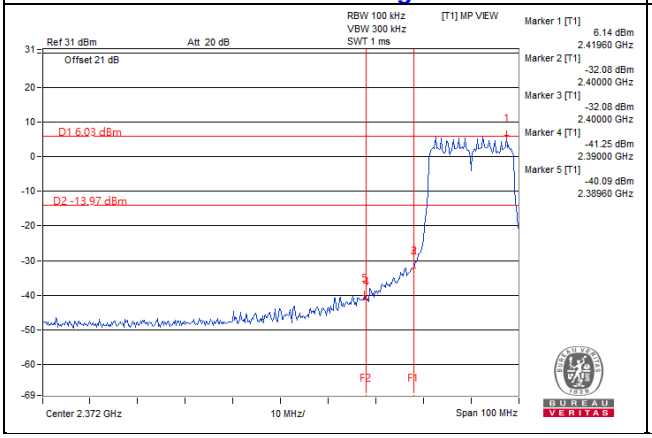


CH 11

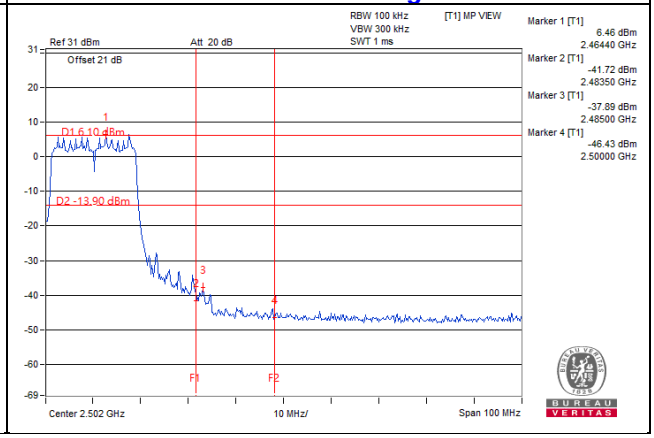




CH 1 Band edge

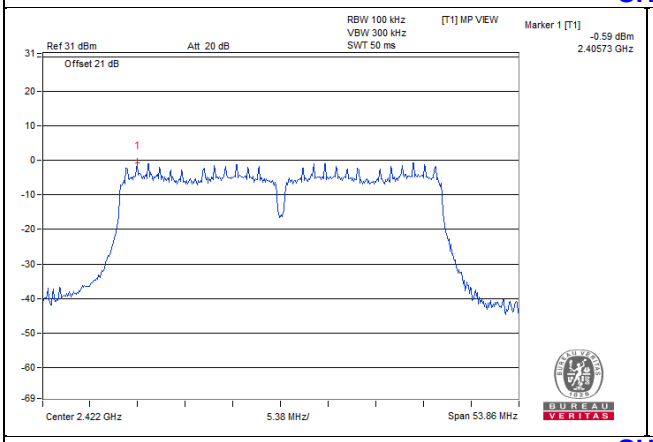


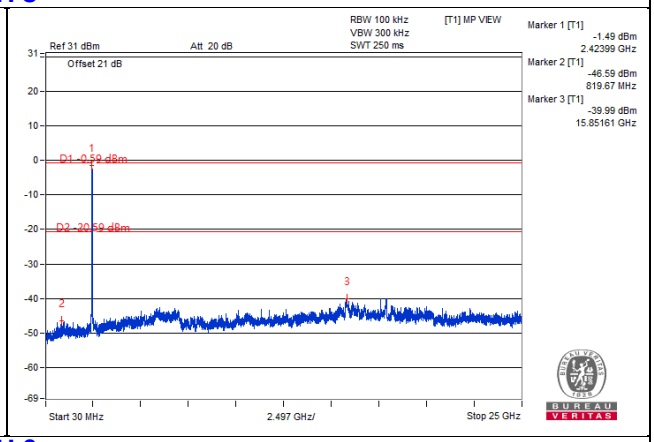
CH 11 Band edge



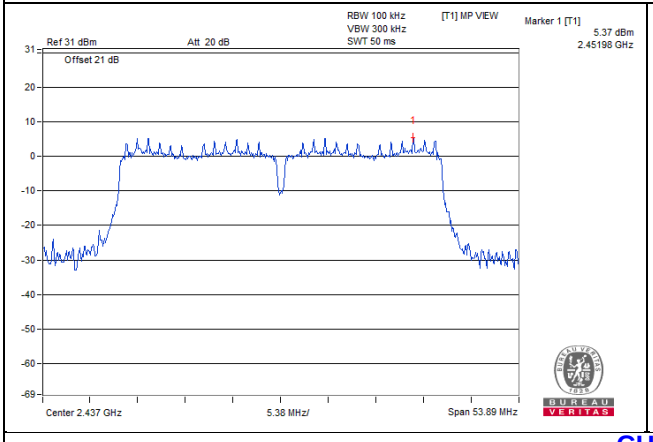
802.11n (HT40)

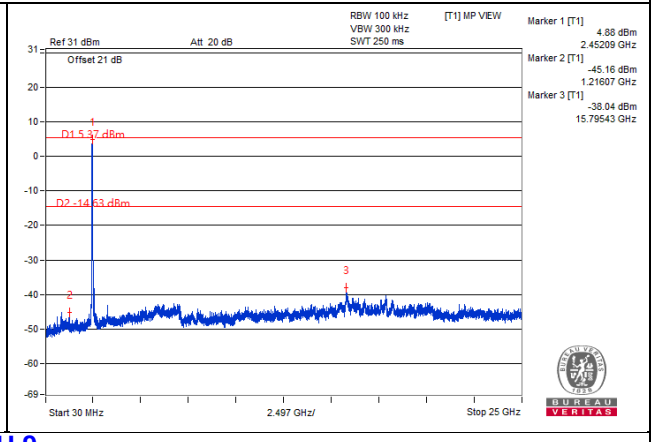
CH 3



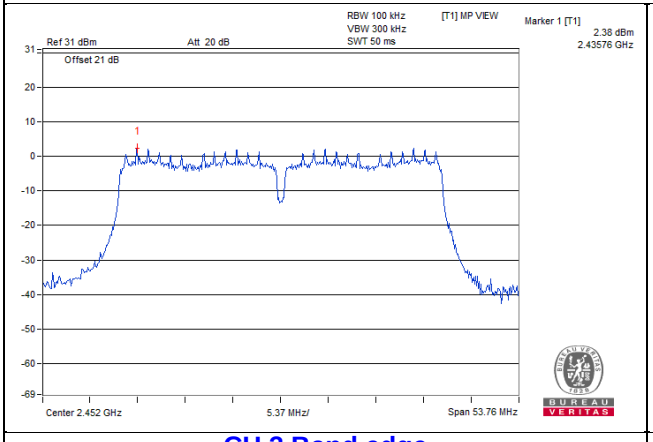


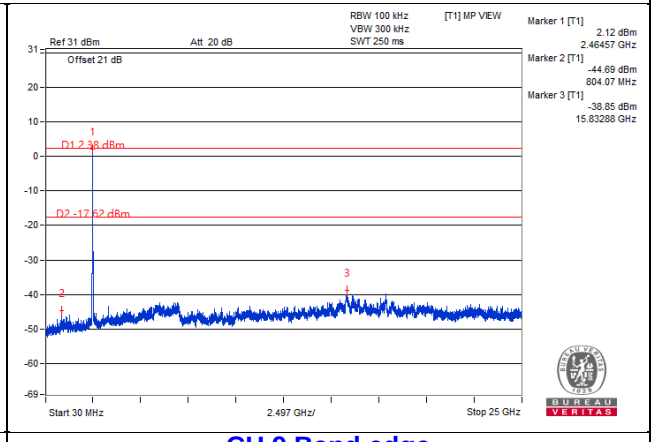
CH 6



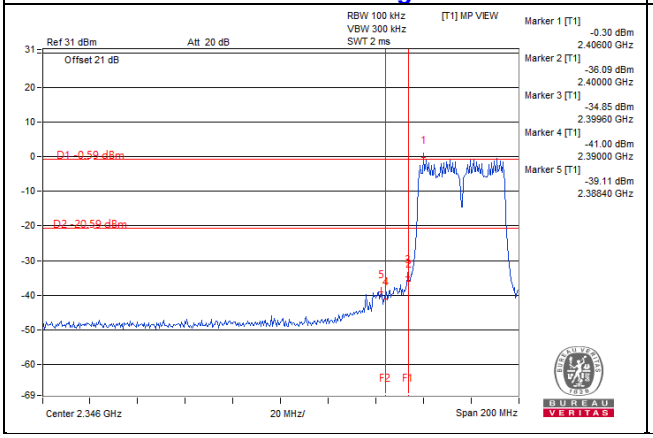


CH 9

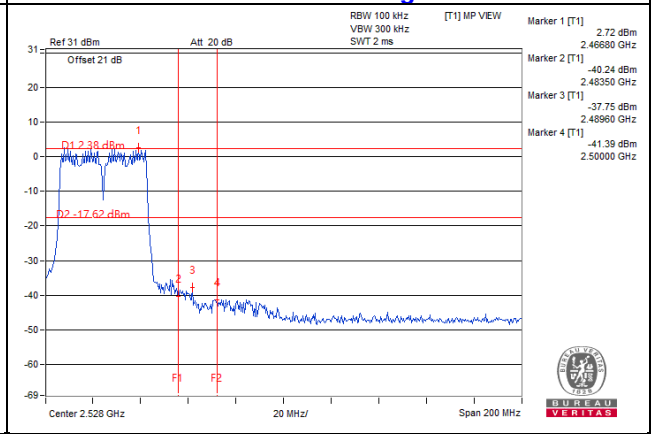




CH 3 Band edge



CH 9 Band edge



5 Pictures of Test Arrangements

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

Appendix – Information of the Testing Laboratories

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

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

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Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

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Tel: 886-3-3183232
Fax: 886-3-3270892

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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