

FCC Test Report

Report No.: RF180503C11

FCC ID: A8J-ENH1350EXT

Test Model: ENH1350EXT

Received Date: May 03, 2018

Test Date: May 25 ~ Jun. 06, 2018

Issued Date: Jun. 08, 2018

Applicant: EnGenius Technologies

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**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
RF180503C11	Original release	Jun. 08, 2018

1 Certificate of Conformity

Product: Outdoor Long Range Wireless Access Point

Brand: EnGenius

Test Model: ENH1350EXT

Sample Status: Engineering sample

Applicant: EnGenius Technologies

Test Date: May 25 ~ Jun. 06, 2018

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 RF characteristics under the conditions specified in this report.

Prepared by : Celine Chou , **Date:** Jun. 08, 2018
Celine Chou / Specialist

Approved by : Bruce Chen , **Date:** Jun. 08, 2018
Bruce Chen / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -7.74dB at 0.48063MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.0dB at 14472.00MHz, 2390.00MHz and 2483.50MHz.
15.247(d)	Antenna Port Emission	Pass	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	Pass	Meet the requirement of limit.
15.247(b)	Conducted power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is brass not a standard connector.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) ($\pm$)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.86 dB
	200MHz ~ 1000MHz	3.87 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Outdoor Long Range Wireless Access Point
Brand	EnGenius
Test Model	ENH1350EXT
Sample Status	Engineering sample
Power Supply Rating	54Vdc from PoE
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps
Operating Frequency	2412 ~ 2462MHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7
Output Power	CDD Mode: 243.964mW Beamforming Mode: 104.472mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	PoE, Antenna x4
Cable Supplied	0.55m non-shielded AC power cable without core

Note:

1. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

Modulation Mode	Beamforming Mode	TX Function
802.11b	Not Support	2TX
802.11g	Not Support	2TX
802.11n (HT20)	Support	2TX
802.11n (HT40)	Support	2TX

* For 802.11n, CDD mode and Beamforming mode are presented in power output test item. For other test items, CDD mode is the worst case for final tests after pretesting.

2. The EUT consumes power from the following PoE.

PoE	
Brand	EnGenius
Model	EPA5006GPR
Input Power	100-240Vac, 50-60Hz, 0.8A
Output Power	54Vdc, 0.6A

3. The EUT with follow antennas gain is listed as table below.

Ant. Type	Dipole					
Connector	brass					
Frequency (MHz)	2400MHz	2450MHz	2500MHz	5150MHz	5550MHz	5850MHz
Gain (dBi)	5.08	5.13	5.17	5.12	5.09	5.17

4. 2.4GHz & 5GHz technology can transmit at same time.
5. Spurious emission of the simultaneous operation (2.4GHz, 5GHz) has been evaluated and no non-compliance was found.

3.2 Description of Test Modes

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

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):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

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

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

Radiated Emission Test (Above 1GHz):

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	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 and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11b	1 to 11	6	DSSS	DBPSK	1.0

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.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11b	1 to 11	6	DSSS	DBPSK	1.0

6dB Bandwidth, Power Spectral Density and Conducted Out of Band Emission 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.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	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

Conducted Output Power 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.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
CDD Mode						
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	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
Beamforming Mode						
-	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	Tested by
RE_≥1G	23 deg. C, 68% RH	120Vac, 60Hz	Jones Chang
RE_{<}1G	23 deg. C, 68% RH	120Vac, 60Hz	Adair Peng
PLC	25 deg. C, 70% RH	120Vac, 60Hz	Will Cheng
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Alan Wu

3.3 Duty Cycle of Test Signal

802.11b, 802.11n (HT20): Duty cycle of test signal > 98%, duty factor is not required.

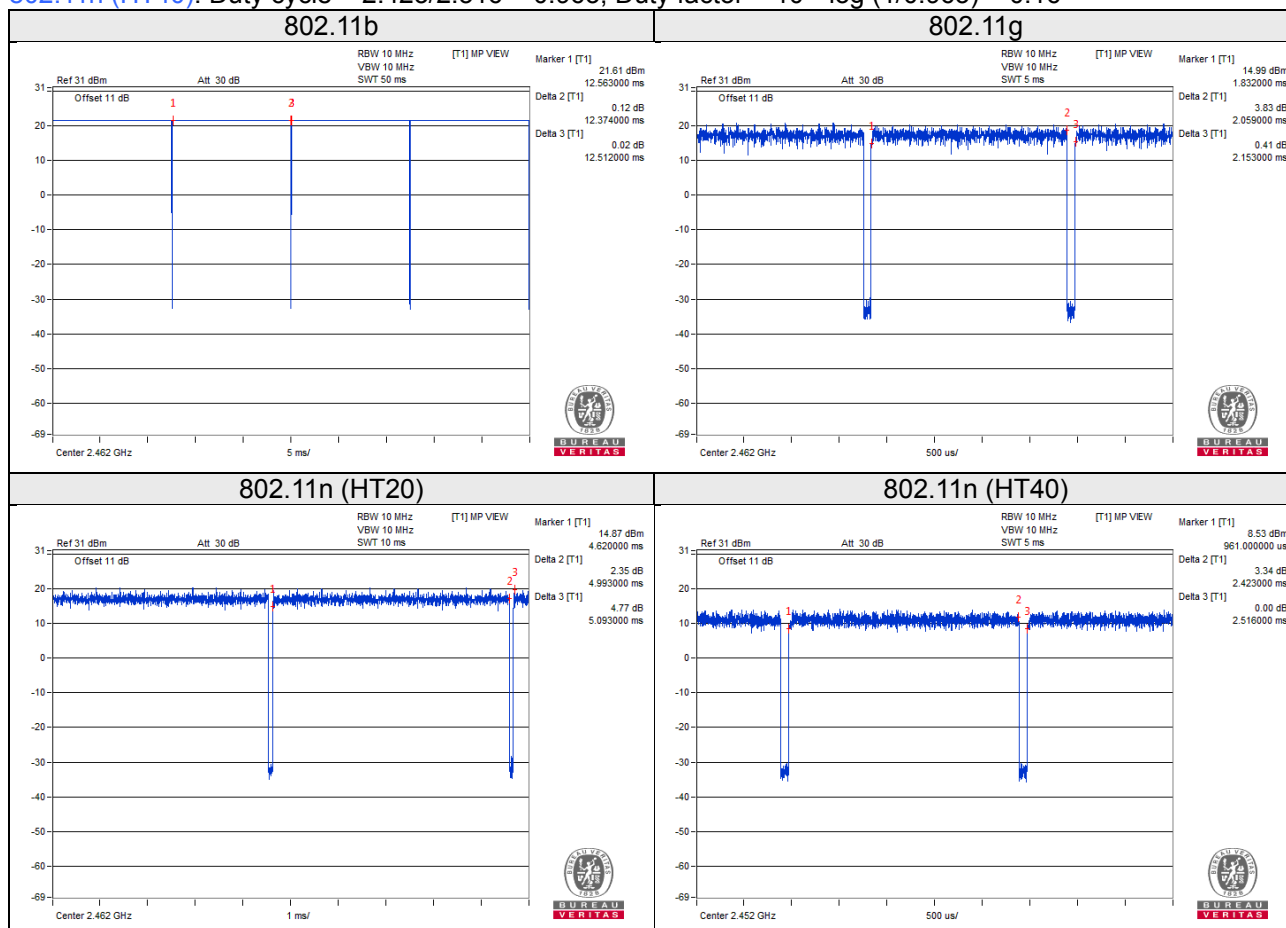
802.11g, 802.11n (HT40): Duty cycle of test signal is < 98%, duty factor is required.

802.11b: Duty cycle = $12.374 / 12.512 = 0.989$

802.11g: Duty cycle = $2.059 / 2.153 = 0.956$, Duty factor = $10 * \log (1/0.956) = 0.19$

802.11n (HT20): Duty cycle = $4.993 / 5.093 = 0.980$

802.11n (HT40): Duty cycle = $2.423 / 2.516 = 0.963$, Duty factor = $10 * \log (1/0.963) = 0.16$



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.

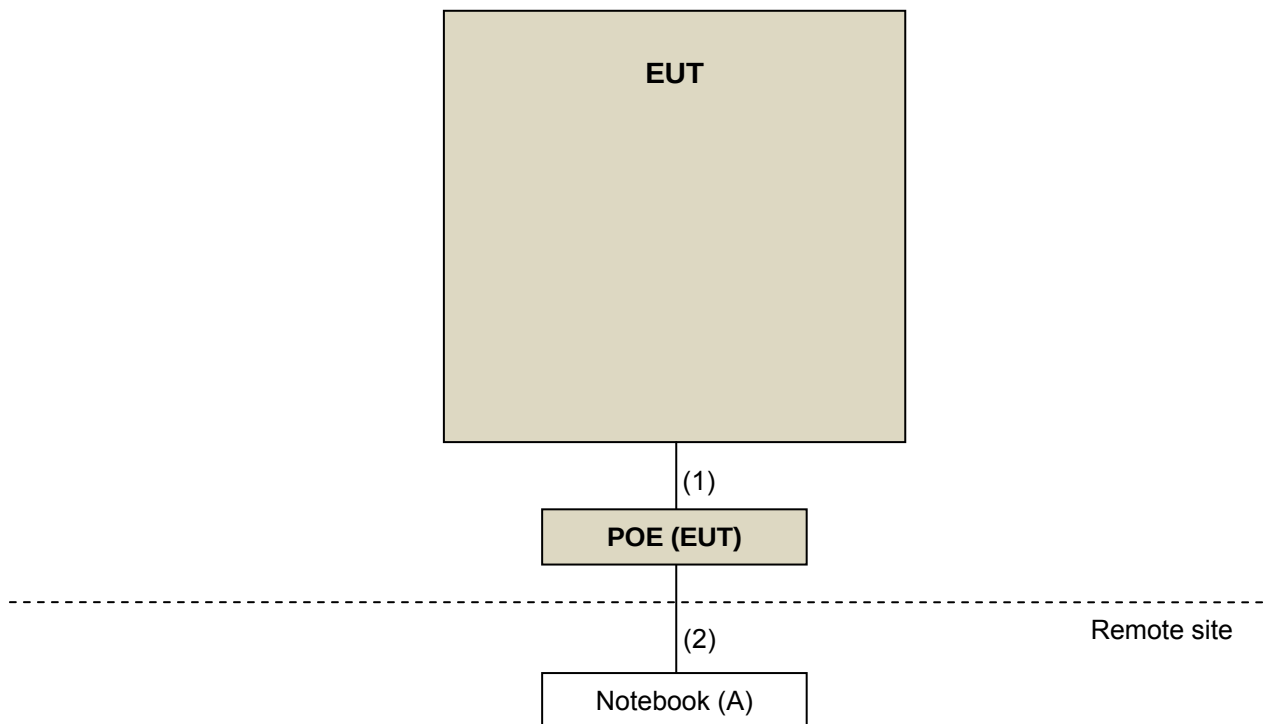
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as a communication partner to transfer data.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45, Cat5e	1	1	N	0	-
2.	RJ45, Cat5e	1	6	N	0	-

3.4.1 Configuration of System under Test



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 DTS Meas Guidance v04

KDB 662911 D01 Multiple Transmitter Output v02r01

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 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.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Oct. 17, 2017	Oct. 16, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Dec. 12, 2017	Dec. 11, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Dec. 11, 2017	Dec. 10, 2018
HORN Antenna SCHWARZBECK	9120D	209	Dec. 13, 2017	Dec. 12, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
Loop Antenna EMCI	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 21, 2017	Aug. 20, 2018
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Apr. 03, 2018	Apr. 02, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 21, 2017	Aug. 20, 2018
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM-SM-8 000	Cable-CH3-03 (309224+170907)	Sep.11, 2017	Sep. 10, 2018
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
High Speed Peak Power Meter	ML2495A	0824012	Aug. 18, 2017	Aug. 17, 2018
Power Sensor	MA2411B	0738171	Aug. 18, 2017	Aug. 17, 2018

- 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 HwaYa Chamber 3.
 3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
 5. The IC Site Registration No. is IC 7450F-3.

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 detect 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:

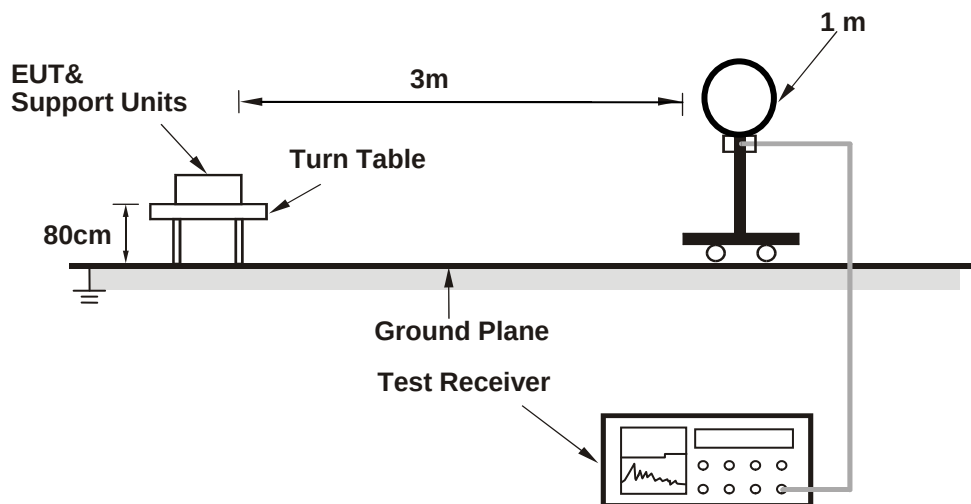
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

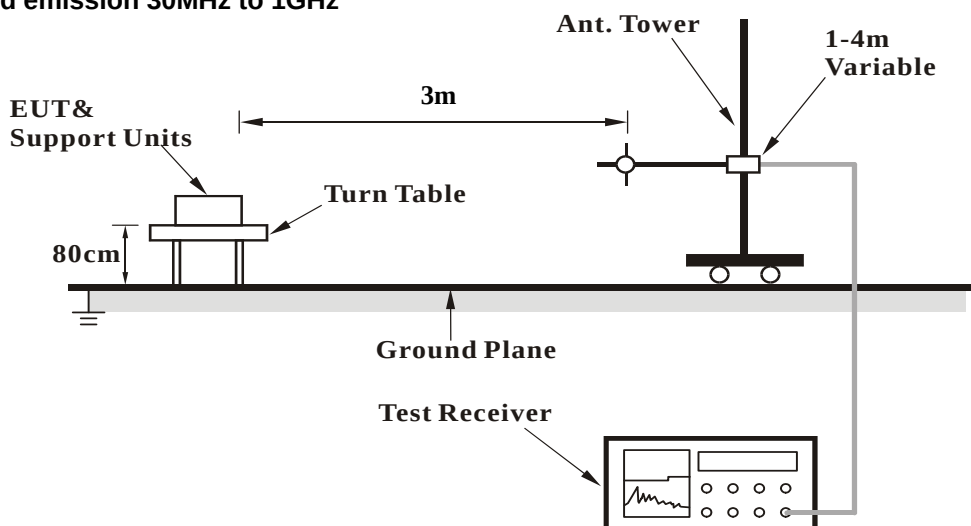
No deviation.

4.1.5 Test Setup

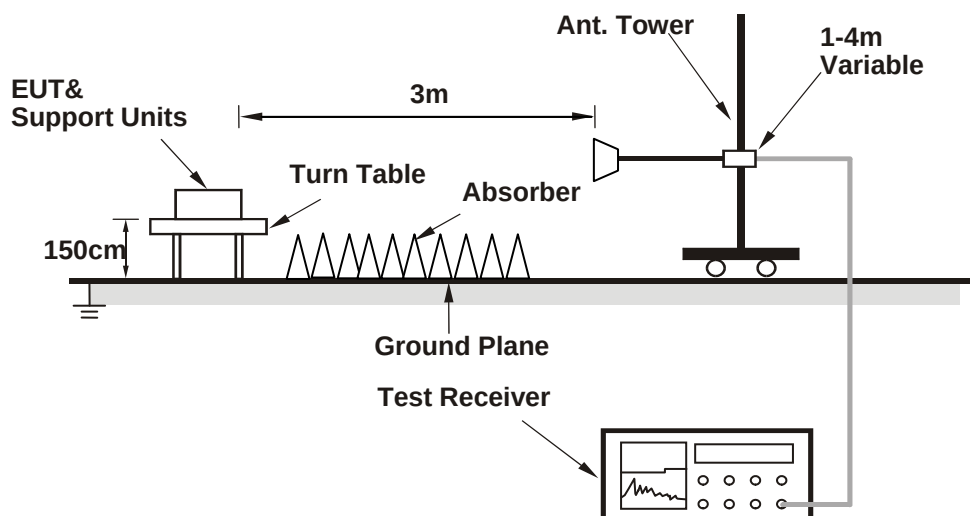
For Radiated emission below 30MHz



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

- Placed the EUT on the testing table.
- Prepared a notebook to act as a communication partner and placed it outside of testing area.
- The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The communication partner sent data to EUT by command "PING".

4.1.7 Test Results

Above 1GHz Data:

802.11b

CHANNEL	TX Channel 1	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	56.7 PK	74.0	-17.3	1.40 H	150	23.2	33.5
2	2390.00	45.8 AV	54.0	-8.2	1.40 H	150	12.3	33.5
3	*2412.00	102.5 PK			1.38 H	150	69.1	33.4
4	*2412.00	98.5 AV			1.38 H	150	65.1	33.4
5	4824.00	51.1 PK	74.0	-22.9	2.49 H	123	47.1	4.0
6	4824.00	45.5 AV	54.0	-8.5	2.49 H	123	41.5	4.0
7	14472.00	68.3 PK	74.0	-5.7	3.09 H	113	45.1	23.2
8	14472.00	53.0 AV	54.0	-1.0	3.09 H	113	29.8	23.2
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	56.8 PK	74.0	-17.2	1.38 V	167	23.3	33.5
2	2390.00	46.4 AV	54.0	-7.6	1.38 V	167	12.9	33.5
3	*2412.00	110.2 PK			1.38 V	167	76.8	33.4
4	*2412.00	106.6 AV			1.38 V	167	73.2	33.4
5	4824.00	51.1 PK	74.0	-22.9	2.33 V	334	47.1	4.0
6	4824.00	46.0 AV	54.0	-8.0	2.33 V	334	42.0	4.0
7	14472.00	66.8 PK	74.0	-7.2	3.38 V	142	43.6	23.2
8	14472.00	52.7 AV	54.0	-1.3	3.38 V	142	29.5	23.2

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
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	*2437.00	106.1 PK			1.19 H	136	72.7	33.4
2	*2437.00	102.1 AV			1.19 H	136	68.7	33.4
3	4874.00	47.8 PK	74.0	-26.2	1.51 H	314	44.1	3.7
4	4874.00	36.5 AV	54.0	-17.5	1.51 H	314	32.8	3.7
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	*2437.00	118.9 PK			1.55 V	351	85.5	33.4
2	*2437.00	115.0 AV			1.55 V	351	81.6	33.4
3	4874.00	47.5 PK	74.0	-26.5	1.46 V	132	43.8	3.7
4	4874.00	36.8 AV	54.0	-17.2	1.46 V	132	33.1	3.7

Remarks:

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

CHANNEL	TX Channel 11	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	*2462.00	105.1 PK			1.15 H	135	71.8	33.3
2	*2462.00	101.4 AV			1.15 H	135	68.1	33.3
3	2483.50	57.9 PK	74.0	-16.1	1.23 H	158	24.7	33.2
4	2483.50	45.7 AV	54.0	-8.3	1.23 H	158	12.5	33.2
5	4924.00	48.4 PK	74.0	-25.6	1.50 H	315	44.9	3.5
6	4924.00	36.3 AV	54.0	-17.7	1.50 H	315	32.8	3.5
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			1.93 V	38	82.8	33.3
2	*2462.00	112.4 AV			1.93 V	38	79.1	33.3
3	2483.50	61.6 PK	74.0	-12.4	1.50 V	359	28.4	33.2
4	2483.50	52.8 AV	54.0	-1.2	1.50 V	359	19.6	33.2
5	4924.00	47.7 PK	74.0	-26.3	2.10 V	287	44.2	3.5
6	4924.00	35.6 AV	54.0	-18.4	2.10 V	287	32.1	3.5

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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CHANNEL	TX Channel 1	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	#2150.00	46.7 PK	74.0	-27.3	1.38 H	127	48.5	-1.8
2	#2150.00	43.2 AV	54.0	-10.8	1.38 H	127	45.0	-1.8
3	2390.00	59.0 PK	74.0	-15.0	1.61 H	136	25.5	33.5
4	2390.00	48.0 AV	54.0	-6.0	1.61 H	136	14.5	33.5
5	*2412.00	103.3 PK			1.61 H	136	69.9	33.4
6	*2412.00	93.2 AV			1.61 H	136	59.8	33.4
7	4824.00	50.6 PK	74.0	-23.4	1.50 H	322	46.6	4.0
8	4824.00	44.6 AV	54.0	-9.4	1.50 H	322	40.6	4.0
9	#7236.00	51.3 PK	74.0	-22.7	2.08 H	344	41.3	10.0
10	#7236.00	43.5 AV	54.0	-10.5	2.08 H	344	33.5	10.0
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	#2150.00	52.3 PK	74.0	-21.7	1.99 V	328	54.1	-1.8
2	#2150.00	50.3 AV	54.0	-3.7	1.99 V	328	52.1	-1.8
3	2390.00	69.1 PK	74.0	-4.9	1.34 V	172	35.6	33.5
4	2390.00	53.0 AV	54.0	-1.0	1.34 V	172	19.5	33.5
5	*2412.00	114.0 PK			1.39 V	197	80.6	33.4
6	*2412.00	103.9 AV			1.39 V	197	70.5	33.4
7	4824.00	52.1 PK	74.0	-21.9	2.53 V	336	48.1	4.0
8	4824.00	46.7 AV	54.0	-7.3	2.53 V	336	42.7	4.0
9	#7236.00	54.6 PK	74.0	-19.4	2.01 V	333	44.6	10.0
10	#7236.00	46.9 AV	54.0	-7.1	2.01 V	333	36.9	10.0

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
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	#2150.00	44.9 PK	74.0	-29.1	1.30 H	138	46.7	-1.8
2	#2150.00	39.7 AV	54.0	-14.3	1.30 H	138	41.5	-1.8
3	2390.00	58.1 PK	74.0	-15.9	1.56 H	130	24.6	33.5
4	2390.00	47.0 AV	54.0	-7.0	1.56 H	130	13.5	33.5
5	*2437.00	107.5 PK			1.56 H	130	74.1	33.4
6	*2437.00	97.9 AV			1.56 H	130	64.5	33.4
7	2483.50	57.1 PK	74.0	-16.9	1.60 H	131	23.9	33.2
8	2483.50	46.4 AV	54.0	-7.6	1.60 H	131	13.2	33.2
9	4874.00	49.8 PK	74.0	-24.2	1.86 H	340	46.1	3.7
10	4874.00	45.3 AV	54.0	-8.7	1.86 H	340	41.6	3.7
11	7311.00	52.9 PK	74.0	-21.1	2.11 H	341	43.0	9.9
12	7311.00	45.2 AV	54.0	-8.8	2.11 H	341	35.3	9.9

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	#2150.00	51.5 PK	74.0	-22.5	1.99 V	326	53.3	-1.8
2	#2150.00	48.2 AV	54.0	-5.8	1.99 V	326	50.0	-1.8
3	2390.00	67.6 PK	74.0	-6.4	1.36 V	168	34.1	33.5
4	2390.00	52.5 AV	54.0	-1.5	1.36 V	168	19.0	33.5
5	*2437.00	120.4 PK			1.33 V	163	87.0	33.4
6	*2437.00	110.2 AV			1.33 V	163	76.8	33.4
7	2483.50	62.0 PK	74.0	-12.0	1.67 V	195	28.8	33.2
8	2483.50	49.8 AV	54.0	-4.2	1.67 V	195	16.6	33.2
9	4874.00	52.2 PK	74.0	-21.8	2.92 V	336	48.5	3.7
10	4874.00	47.4 AV	54.0	-6.6	2.92 V	336	43.7	3.7
11	7311.00	55.4 PK	74.0	-18.6	1.99 V	325	45.5	9.9
12	7311.00	47.3 AV	54.0	-6.7	1.99 V	325	37.4	9.9

Remarks:

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

CHANNEL	TX Channel 11	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz	FUNCTION	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	#2150.00	45.8 PK	74.0	-28.2	1.39 H	130	47.6	-1.8
2	#2150.00	42.8 AV	54.0	-11.2	1.39 H	130	44.6	-1.8
3	*2462.00	101.7 PK			1.48 H	125	68.4	33.3
4	*2462.00	91.7 AV			1.48 H	125	58.4	33.3
5	2483.50	57.1 PK	74.0	-16.9	1.48 H	125	23.9	33.2
6	2483.50	45.8 AV	54.0	-8.2	1.48 H	125	12.6	33.2
7	4924.00	49.4 PK	74.0	-24.6	1.60 H	312	45.9	3.5
8	4924.00	43.4 AV	54.0	-10.6	1.60 H	312	39.9	3.5
9	7386.00	51.1 PK	74.0	-22.9	2.01 H	356	41.0	10.1
10	7386.00	43.4 AV	54.0	-10.6	2.01 H	356	33.3	10.1
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	#2150.00	60.6 PK	74.0	-13.4	1.97 V	329	62.4	-1.8
2	#2150.00	48.2 AV	54.0	-5.8	1.97 V	329	50.0	-1.8
3	*2462.00	113.7 PK			1.38 V	175	80.4	33.3
4	*2462.00	103.6 AV			1.38 V	175	70.3	33.3
5	2483.50	65.7 PK	74.0	-8.3	1.58 V	19	32.5	33.2
6	2483.50	53.0 AV	54.0	-1.0	1.58 V	19	19.8	33.2
7	4924.00	50.9 PK	74.0	-23.1	2.54 V	325	47.4	3.5
8	4924.00	46.3 AV	54.0	-7.7	2.54 V	325	42.8	3.5
9	7386.00	54.5 PK	74.0	-19.5	1.91 V	333	44.4	10.1
10	7386.00	46.3 AV	54.0	-7.7	1.91 V	333	36.2	10.1

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

802.11n (HT20)

CHANNEL	TX Channel 1	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	58.1 PK	74.0	-15.9	1.58 H	136	24.6	33.5
2	2390.00	47.5 AV	54.0	-6.5	1.58 H	136	14.0	33.5
3	*2412.00	99.9 PK			1.58 H	136	66.5	33.4
4	*2412.00	89.9 AV			1.58 H	136	56.5	33.4
5	4824.00	49.3 PK	74.0	-24.7	2.56 H	354	45.3	4.0
6	4824.00	44.0 AV	54.0	-10.0	2.56 H	354	40.0	4.0
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	67.6 PK	74.0	-6.4	2.11 V	163	34.1	33.5
2	2390.00	53.0 AV	54.0	-1.0	2.11 V	163	19.5	33.5
3	*2412.00	112.3 PK			2.33 V	156	78.9	33.4
4	*2412.00	102.7 AV			2.33 V	156	69.3	33.4
5	4824.00	51.7 PK	74.0	-22.3	2.82 V	337	47.7	4.0
6	4824.00	47.1 AV	54.0	-6.9	2.82 V	337	43.1	4.0

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
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	57.1 PK	74.0	-16.9	2.10 H	333	23.6	33.5
2	2390.00	45.9 AV	54.0	-8.1	2.10 H	333	12.4	33.5
3	*2437.00	105.2 PK			2.10 H	334	71.8	33.4
4	*2437.00	95.8 AV			2.10 H	334	62.4	33.4
5	2483.50	57.5 PK	74.0	-16.5	2.11 H	333	24.3	33.2
6	2483.50	46.3 AV	54.0	-7.7	2.11 H	333	13.1	33.2
7	4874.00	50.6 PK	74.0	-23.4	2.40 H	330	46.9	3.7
8	4874.00	45.3 AV	54.0	-8.7	2.40 H	330	41.6	3.7
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	69.9 PK	74.0	-4.1	1.38 V	161	36.4	33.5
2	2390.00	52.5 AV	54.0	-1.5	1.38 V	161	19.0	33.5
3	*2437.00	120.0 PK			1.36 V	169	86.6	33.4
4	*2437.00	109.7 AV			1.36 V	169	76.3	33.4
5	2483.50	66.5 PK	74.0	-7.5	1.71 V	179	33.3	33.2
6	2483.50	50.1 AV	54.0	-3.9	1.71 V	179	16.9	33.2
7	4874.00	51.5 PK	74.0	-22.5	2.81 V	336	47.8	3.7
8	4874.00	47.1 AV	54.0	-6.9	2.81 V	336	43.4	3.7

Remarks:

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

CHANNEL	TX Channel 11	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz	FUNCTION	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	*2462.00	98.1 PK			1.97 H	21	64.8	33.3
2	*2462.00	88.5 AV			1.97 H	21	55.2	33.3
3	2483.50	57.5 PK	74.0	-16.5	1.99 H	19	24.3	33.2
4	2483.50	46.8 AV	54.0	-7.2	1.99 H	19	13.6	33.2
5	4924.00	49.4 PK	74.0	-24.6	2.50 H	323	45.9	3.5
6	4924.00	44.1 AV	54.0	-9.9	2.50 H	323	40.6	3.5
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	113.0 PK			1.89 V	163	79.7	33.3
2	*2462.00	102.3 AV			1.89 V	163	69.0	33.3
3	2483.50	67.9 PK	74.0	-6.1	1.81 V	358	34.7	33.2
4	2483.50	52.7 AV	54.0	-1.3	1.81 V	358	19.5	33.2
5	4924.00	50.5 PK	74.0	-23.5	2.80 V	342	47.0	3.5
6	4924.00	46.0 AV	54.0	-8.0	2.80 V	342	42.5	3.5

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * " : Fundamental frequency.

802.11n (HT40)

CHANNEL	TX Channel 3	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz	FUNCTION	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	58.2 PK	74.0	-15.8	2.11 H	9	24.7	33.5
2	2390.00	47.6 AV	54.0	-6.4	2.11 H	9	14.1	33.5
3	*2422.00	93.3 PK			2.11 H	9	59.9	33.4
4	*2422.00	84.1 AV			2.11 H	9	50.7	33.4
5	4844.00	49.0 PK	74.0	-25.0	1.96 H	358	45.2	3.8
6	4844.00	43.6 AV	54.0	-10.4	1.96 H	358	39.8	3.8
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	65.1 PK	74.0	-8.9	1.60 V	160	31.6	33.5
2	2390.00	52.8 AV	54.0	-1.2	1.60 V	160	19.3	33.5
3	*2422.00	107.1 PK			1.93 V	170	73.7	33.4
4	*2422.00	98.0 AV			1.93 V	170	64.6	33.4
5	4844.00	51.6 PK	74.0	-22.4	2.92 V	336	47.8	3.8
6	4844.00	46.9 AV	54.0	-7.1	2.92 V	336	43.1	3.8

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * " : Fundamental frequency.

CHANNEL	TX Channel 6	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz	FUNCTION	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	57.4 PK	74.0	-16.6	2.30 H	6	23.9	33.5
2	2390.00	46.5 AV	54.0	-7.5	2.30 H	6	13.0	33.5
3	*2437.00	96.8 PK			2.32 H	0	63.4	33.4
4	*2437.00	87.7 AV			2.32 H	0	54.3	33.4
5	2483.50	56.5 PK	74.0	-17.5	2.11 H	1	23.3	33.2
6	2483.50	45.6 AV	54.0	-8.4	2.11 H	1	12.4	33.2
7	4874.00	50.7 PK	74.0	-23.3	1.97 H	20	47.0	3.7
8	4874.00	45.3 AV	54.0	-8.7	1.97 H	20	41.6	3.7
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	65.3 PK	74.0	-8.7	1.37 V	167	31.8	33.5
2	2390.00	52.9 AV	54.0	-1.1	1.37 V	167	19.4	33.5
3	*2437.00	111.6 PK			1.38 V	165	78.2	33.4
4	*2437.00	102.2 AV			1.38 V	165	68.8	33.4
5	2483.50	60.0 PK	74.0	-14.0	1.70 V	192	26.8	33.2
6	2483.50	49.5 AV	54.0	-4.5	1.70 V	192	16.3	33.2
7	4874.00	49.5 PK	74.0	-24.5	2.11 V	345	45.8	3.7
8	4874.00	45.2 AV	54.0	-8.8	2.11 V	345	41.5	3.7

Remarks:

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

CHANNEL	TX Channel 9	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz	FUNCTION	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	*2452.00	93.2 PK			2.08 H	1	59.8	33.4
2	*2452.00	84.4 AV			2.08 H	1	51.0	33.4
3	2483.50	57.4 PK	74.0	-16.6	2.08 H	0	24.2	33.2
4	2483.50	46.5 AV	54.0	-7.5	2.08 H	0	13.3	33.2
5	4904.00	50.0 PK	74.0	-24.0	2.03 H	321	46.5	3.5
6	4904.00	43.7 AV	54.0	-10.3	2.03 H	321	40.2	3.5
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	107.1 PK			1.32 V	163	73.7	33.4
2	*2452.00	98.1 AV			1.32 V	163	64.7	33.4
3	2483.50	64.5 PK	74.0	-9.5	1.30 V	0	31.3	33.2
4	2483.50	52.5 AV	54.0	-1.5	1.30 V	0	19.3	33.2
5	4904.00	49.2 PK	74.0	-24.8	2.65 V	330	45.7	3.5
6	4904.00	44.8 AV	54.0	-9.2	2.65 V	330	41.3	3.5

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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

Below 1GHz worst-case 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	57.12	27.7 QP	40.0	-12.3	2.00 H	256	37.2	-9.5
2	125.17	28.8 QP	43.5	-14.7	1.50 H	265	39.7	-10.9
3	265.16	31.1 QP	46.0	-14.9	1.01 H	101	39.5	-8.4
4	358.48	29.8 QP	46.0	-16.2	1.01 H	220	35.9	-6.1
5	519.86	32.7 QP	46.0	-13.3	1.50 H	16	35.2	-2.5
6	757.06	32.8 QP	46.0	-13.2	2.00 H	346	30.0	2.8
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	68.79	31.6 QP	40.0	-8.4	1.00 V	341	42.4	-10.8
2	125.17	27.5 QP	43.5	-16.0	1.00 V	190	38.4	-10.9
3	251.55	33.9 QP	46.0	-12.1	1.99 V	16	42.9	-9.0
4	389.59	32.5 QP	46.0	-13.5	1.00 V	91	37.9	-5.4
5	521.81	37.6 QP	46.0	-8.4	1.00 V	271	40.1	-2.5
6	817.34	34.1 QP	46.0	-11.9	1.99 V	44	30.2	3.9

Remarks:

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

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.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 06, 2018	Mar. 05, 2019
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
Software ADT	BV ADT_Conc_ V7.3.7.3	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 1.

3. The VCCI Site Registration No. is C-2040.

4.2.3 Test Procedures

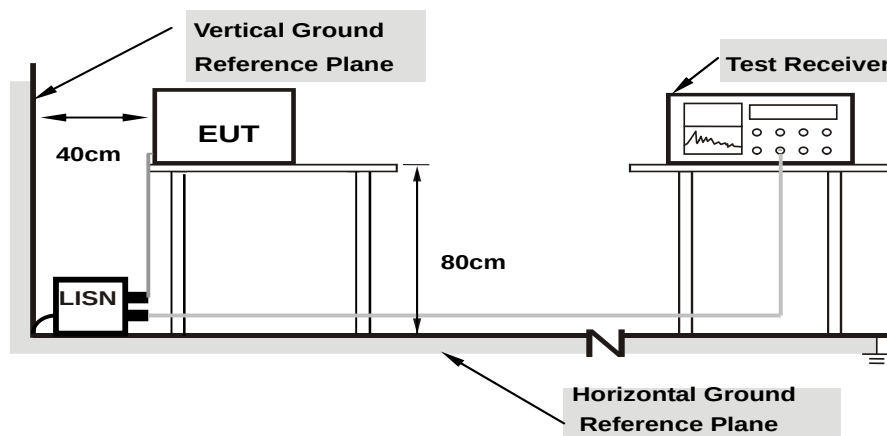
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

Worst-case data:

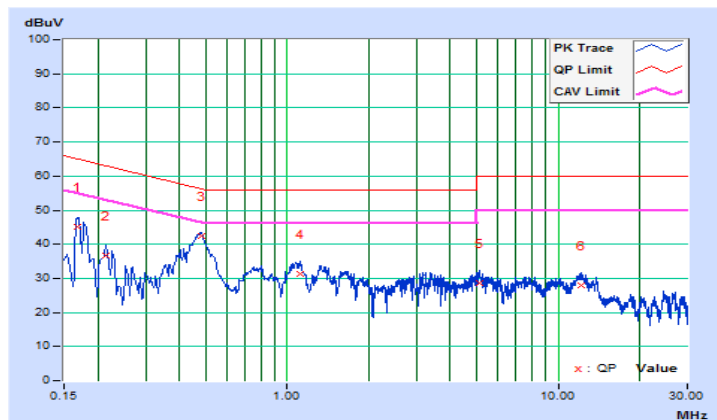
802.11b

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16888	10.10	34.96	22.23	45.06	32.33	65.02	55.02	-19.96	-22.69
2	0.21406	10.10	26.58	15.40	36.68	25.50	63.05	53.05	-26.37	-27.55
3	0.48063	10.12	32.24	27.64	42.36	37.76	56.33	46.33	-13.97	-8.57
4	1.12200	10.15	21.11	17.17	31.26	27.32	56.00	46.00	-24.74	-18.68
5	5.10600	10.35	18.32	12.23	28.67	22.58	60.00	50.00	-31.33	-27.42
6	12.11811	10.75	17.21	12.01	27.96	22.76	60.00	50.00	-32.04	-27.24

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.

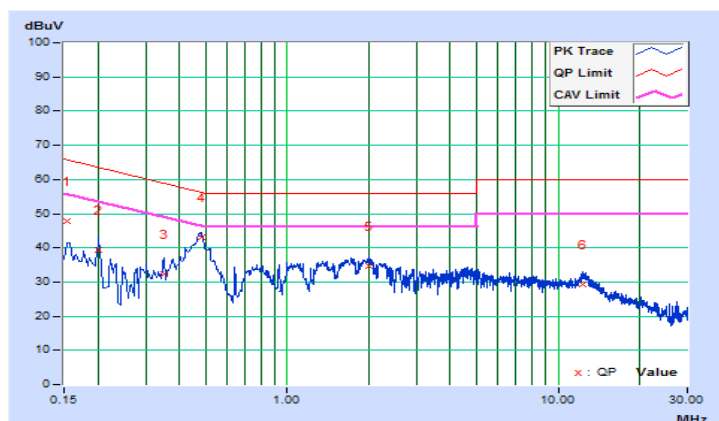


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	10.10	37.58	25.29	47.68	35.39	65.78	55.78	-18.10	-20.39
2	0.20042	10.10	29.23	18.48	39.33	28.58	63.59	53.59	-24.26	-25.01
3	0.35000	10.11	22.26	16.12	32.37	26.23	58.96	48.96	-26.59	-22.73
4	0.48063	10.12	33.05	28.47	43.17	38.59	56.33	46.33	-13.16	-7.74
5	1.99374	10.17	24.52	19.93	34.69	30.10	56.00	46.00	-21.31	-15.90
6	12.36600	10.62	18.68	13.42	29.30	24.04	60.00	50.00	-30.70	-25.96

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.

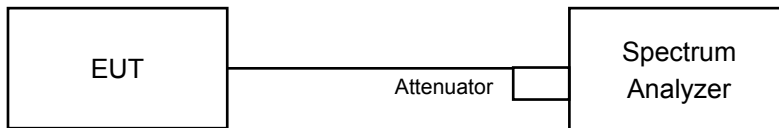


4.3 6dB Bandwidth Measurement

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

- Set resolution bandwidth (RBW) = 100kHz.
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	8.11	7.12	0.5	Pass
6	2437	8.14	8.11	0.5	Pass
11	2462	8.13	7.07	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.39	15.99	0.5	Pass
6	2437	16.38	16.36	0.5	Pass
11	2462	16.39	16.37	0.5	Pass

802.11n (HT20)

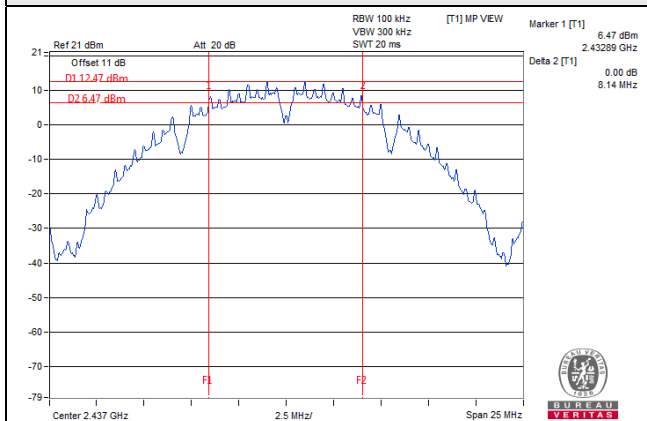
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.63	16.35	0.5	Pass
6	2437	17.62	16.95	0.5	Pass
11	2462	17.63	16.40	0.5	Pass

802.11n (HT40)

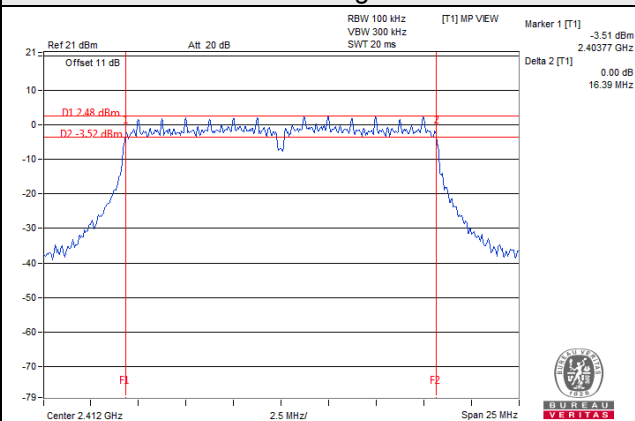
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.18	35.20	0.5	Pass
6	2437	35.33	35.18	0.5	Pass
9	2452	35.15	35.18	0.5	Pass

Spectrum Plot of Worst Value

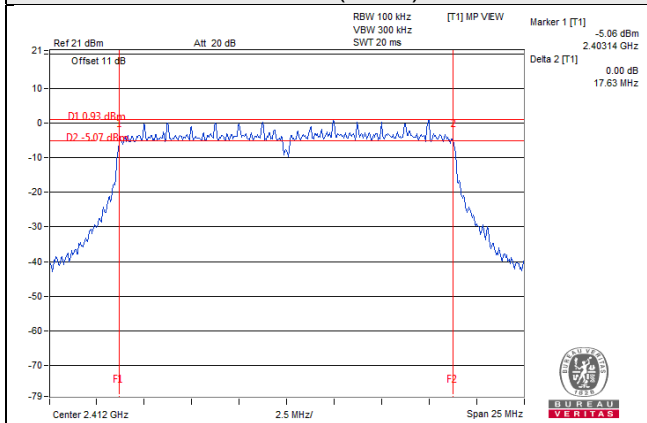
802.11b



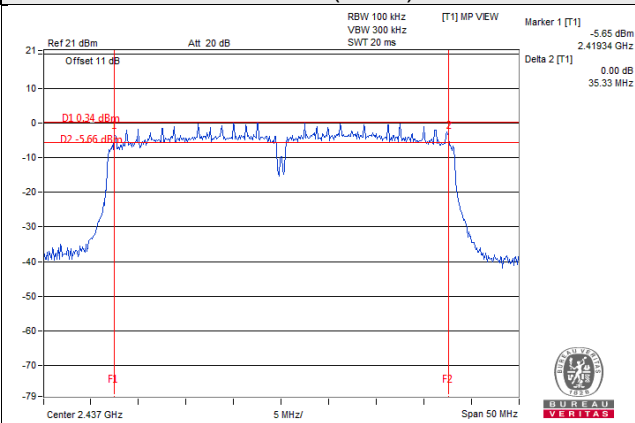
802.11g



802.11n (HT20)



802.11n (HT40)



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,

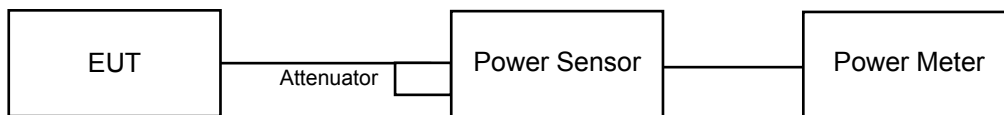
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

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

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	16.73	16.21	88.881	19.49	30.00	Pass
6	2437	20.70	21.02	243.964	23.87	30.00	Pass
11	2462	19.33	19.51	175.035	22.43	30.00	Pass

802.11g

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	13.91	14.09	50.249	17.01	30.00	Pass
6	2437	20.04	20.61	216.005	23.34	30.00	Pass
11	2462	13.91	14.37	51.957	17.16	30.00	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	12.21	12.65	35.042	15.45	30.00	Pass
6	2437	19.72	20.61	208.836	23.20	30.00	Pass
11	2462	13.13	13.94	45.333	16.56	30.00	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	10.27	10.81	22.691	13.56	30.00	Pass
6	2437	14.33	14.58	55.810	17.47	30.00	Pass
9	2452	11.26	11.25	26.701	14.27	30.00	Pass

Beamforming Mode

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	9.20	9.64	17.539	12.44	27.82	Pass
6	2437	16.71	17.60	104.472	20.19	27.82	Pass
11	2462	10.12	10.93	22.646	13.55	27.82	Pass

Note: Directional gain = $5.17\text{dBi} + 10\log(2) = 8.18\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (8.18 - 6) = 27.82\text{dBm}$.

802.11n (HT40)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	7.26	7.80	11.350	10.55	27.82	Pass
6	2437	11.32	11.57	27.925	14.46	27.82	Pass
9	2452	8.25	8.24	13.366	11.26	27.82	Pass

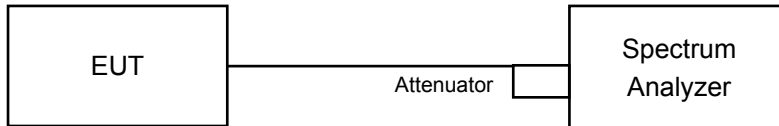
Note: Directional gain = $5.17\text{dBi} + 10\log(2) = 8.18\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (8.18 - 6) = 27.82\text{dBm}$.

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

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 Average Power (Duty cycle $\geq 98\%$)

- Set instrument center frequency to DTS channel center frequency.
- Set span to at least 1.5 times the OBW.
- Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set VBW $\geq 3 \times \text{RBW}$.
- Detector = power averaging (RMS) or sample detector (when RMS not available).
- Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span}/\text{RBW}$.
- Sweep time = auto couple.
- Employ trace averaging (RMS) mode over a minimum of 100 traces.
- Use the peak marker function to determine the maximum amplitude level.

For Average Power (Duty cycle $< 98\%$)

- Measure the duty cycle (x).
- Set instrument center frequency to DTS channel center frequency.
- Set span to at least 1.5 times the OBW.
- Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set VBW $\geq 3 \times \text{RBW}$.
- Detector = power averaging (RMS) or sample detector (when RMS not available).
- Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span}/\text{RBW}$.
- Sweep time = auto couple.
- Do not use sweep triggering. Allow sweep to "free run".
- Employ trace averaging (RMS) mode over a minimum of 100 traces.
- Use the peak marker function to determine the maximum amplitude level.
- 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

TX chain	Channel	Frequency (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-10.85	3.01	-7.84	5.82	Pass
	6	2437	-6.34	3.01	-3.33	5.82	Pass
	11	2462	-7.65	3.01	-4.64	5.82	Pass
1	1	2412	-10.47	3.01	-7.46	5.82	Pass
	6	2437	-5.40	3.01	-2.39	5.82	Pass
	11	2462	-6.37	3.01	-3.36	5.82	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $5.17\text{dBi} + 10\log(2) = 8.18\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(8.18-6) = 5.82\text{dBm}$.

802.11g

TX chain	Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-16.38	3.01	0.19	-13.18	5.82	Pass
	6	2437	-10.27	3.01	0.19	-7.07	5.82	Pass
	11	2462	-16.62	3.01	0.19	-13.42	5.82	Pass
1	1	2412	-15.90	3.01	0.19	-12.70	5.82	Pass
	6	2437	-8.85	3.01	0.19	-5.65	5.82	Pass
	11	2462	-15.08	3.01	0.19	-11.88	5.82	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional gain = $5.17\text{dBi} + 10\log(2) = 8.18\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(8.18-6) = 5.82\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Channel	Frequency (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-17.89	3.01	-14.88	5.82	Pass
	6	2437	-9.95	3.01	-6.94	5.82	Pass
	11	2462	-16.46	3.01	-13.45	5.82	Pass
1	1	2412	-16.36	3.01	-13.35	5.82	Pass
	6	2437	-8.20	3.01	-5.19	5.82	Pass
	11	2462	-15.28	3.01	-12.27	5.82	Pass

Note:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $5.17\text{dBi} + 10\log(2) = 8.18\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(8.18-6) = 5.82\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

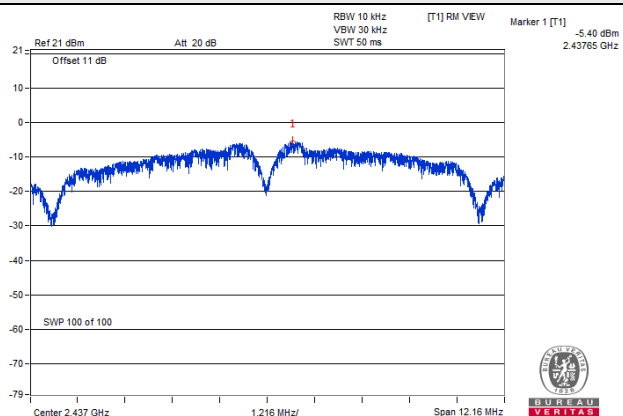
TX chain	Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	3	2422	-19.99	3.01	0.16	-16.82	5.82	Pass
	6	2437	-16.28	3.01	0.16	-13.11	5.82	Pass
	9	2452	-17.10	3.01	0.16	-13.93	5.82	Pass
1	3	2422	-20.78	3.01	0.16	-17.61	5.82	Pass
	6	2437	-17.46	3.01	0.16	-14.29	5.82	Pass
	9	2452	-18.35	3.01	0.16	-15.18	5.82	Pass

Note:

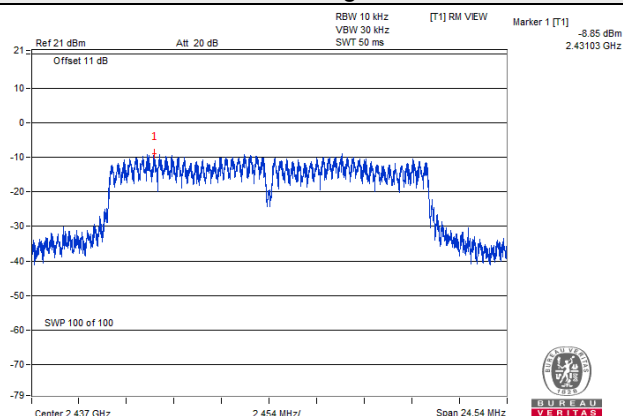
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $5.17\text{dBi} + 10\log(2) = 8.18\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8-(8.18-6) = 5.82\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

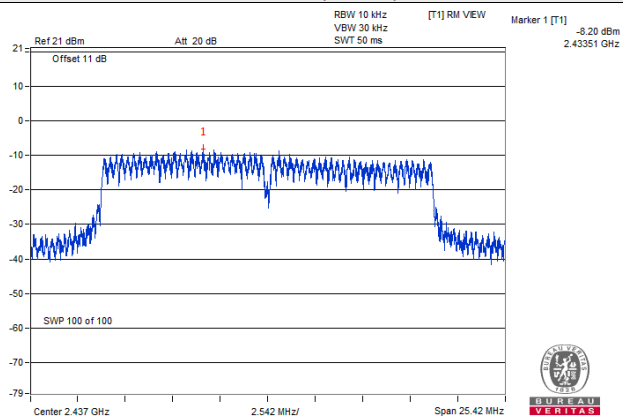
802.11b



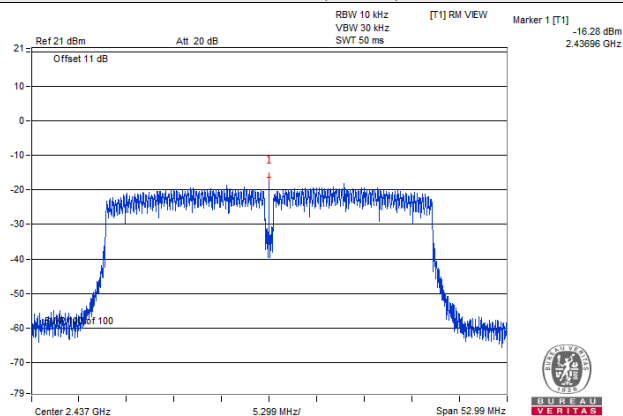
802.11g



802.11n (HT20)



802.11n (HT40)

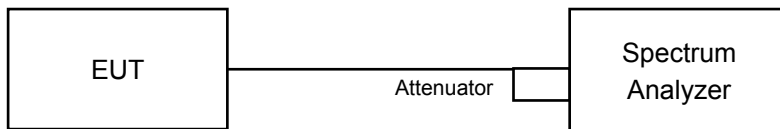


4.6 Conducted Out of Band Emission Measurement

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

- Set the RBW = 100 kHz.
- Set the VBW $\geq$ 300 kHz.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOB

- Set RBW = 100 kHz.
- Set VBW $\geq$ 300 kHz.
- Detector = peak.
- Sweep = auto couple.
- Trace Mode = max hold.
- Allow trace to fully stabilize.
- 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

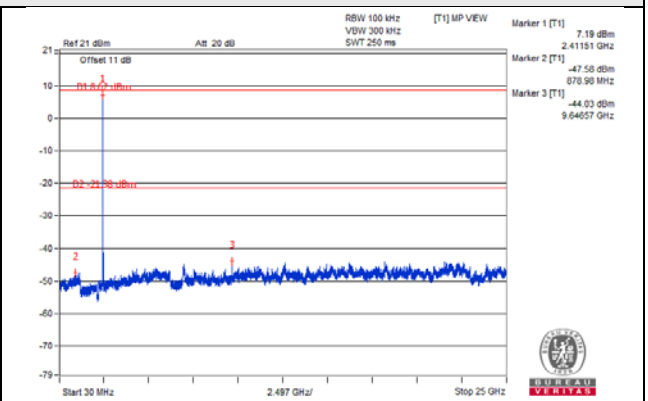
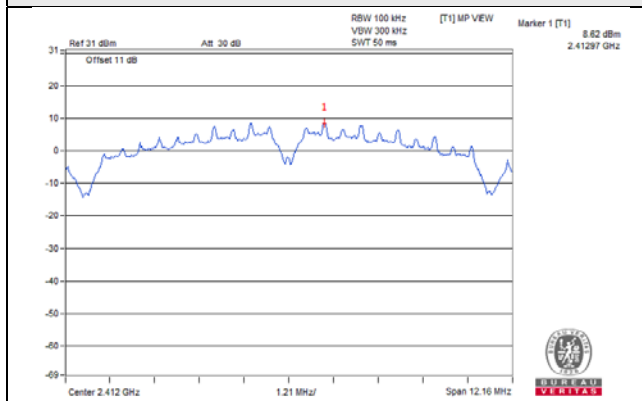
4.6.7 Test Results

The conducted emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit.

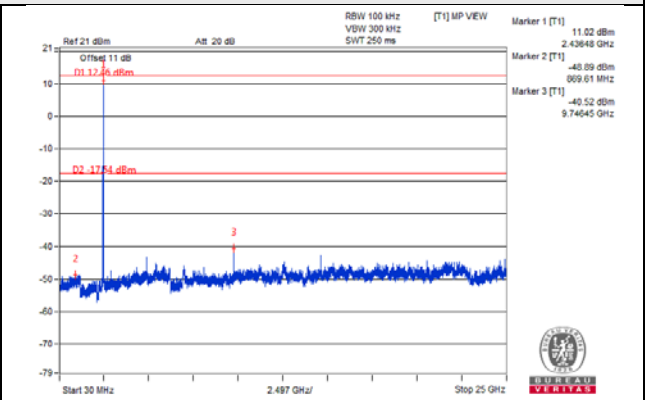
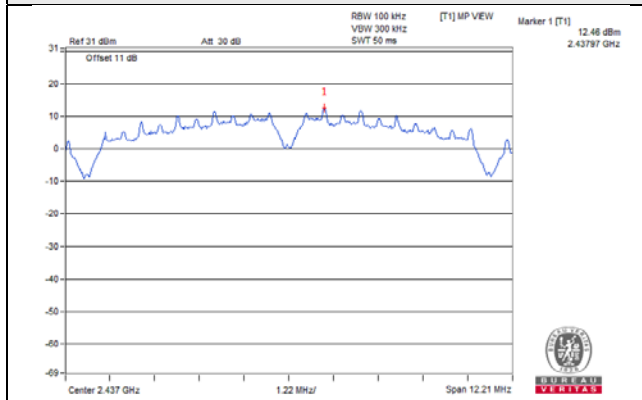
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.

802.11b_Chain 0

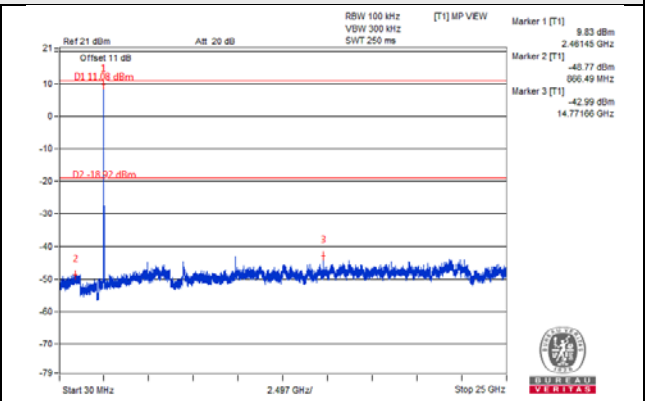
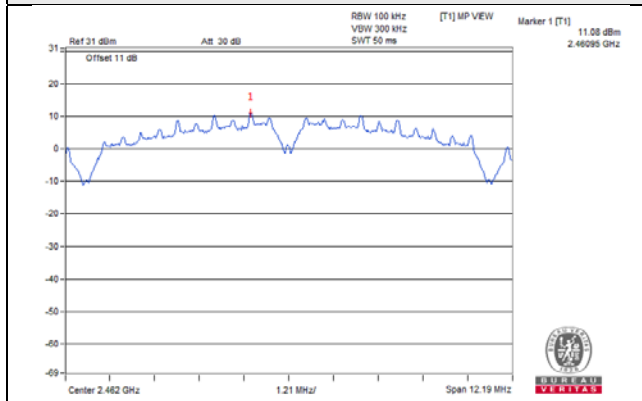
CH 1



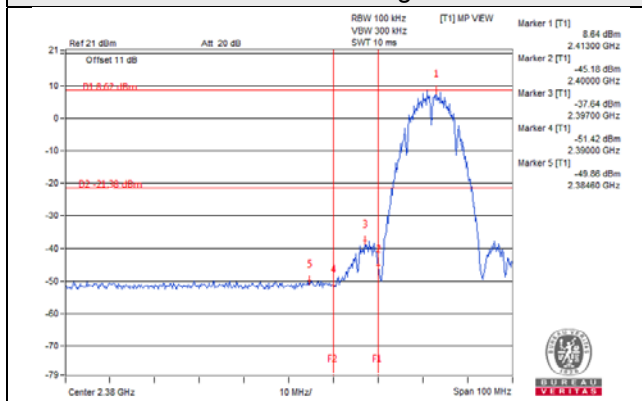
CH 6



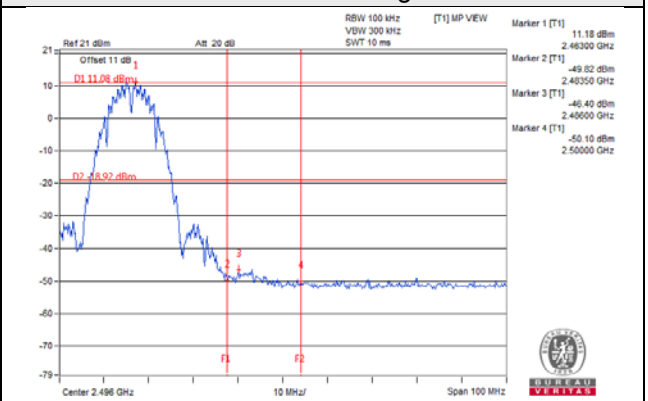
CH 11



CH 1 Band edge

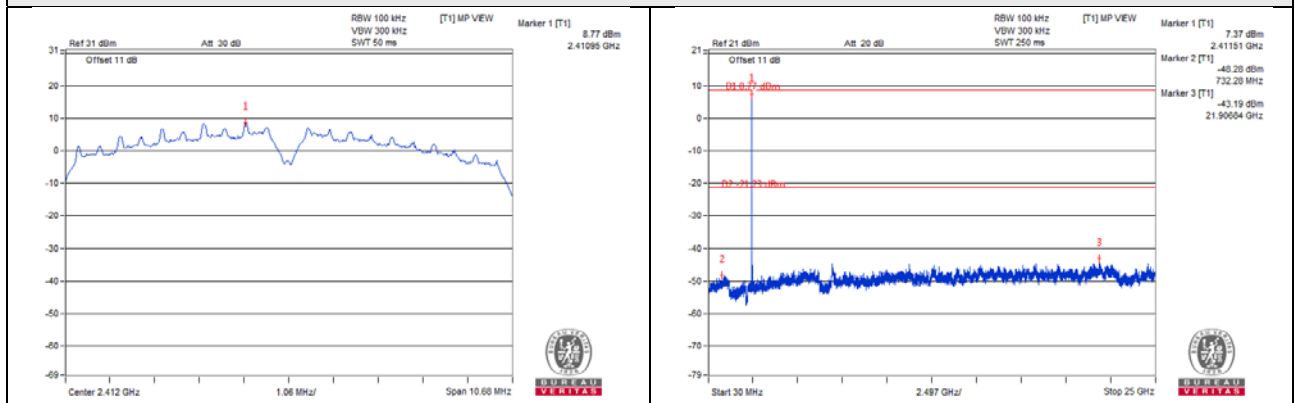


CH 11 Band edge

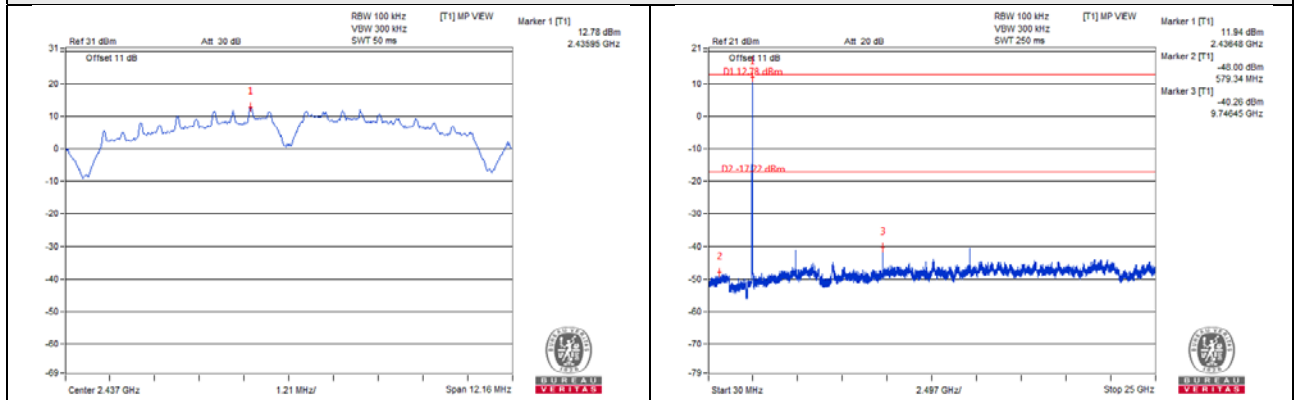


802.11b_Chain 1

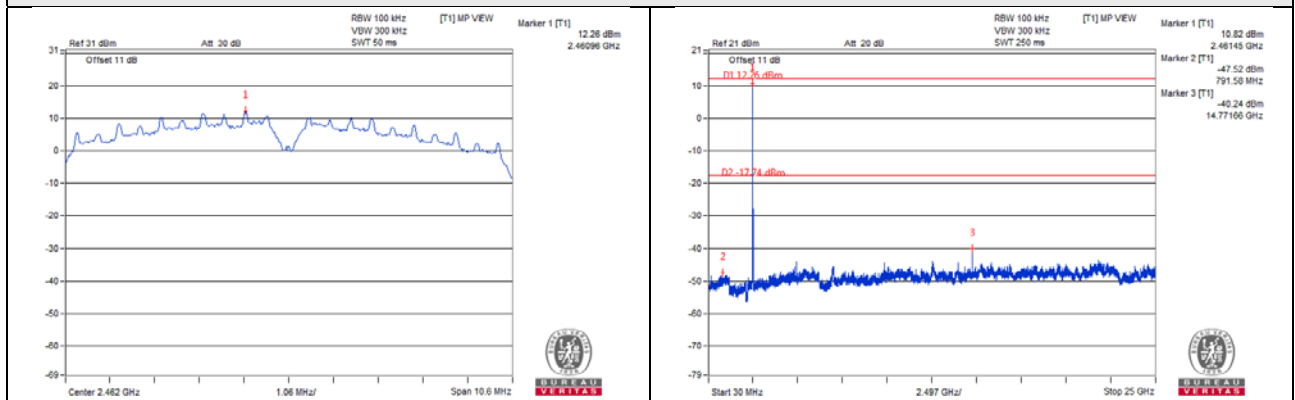
CH 1



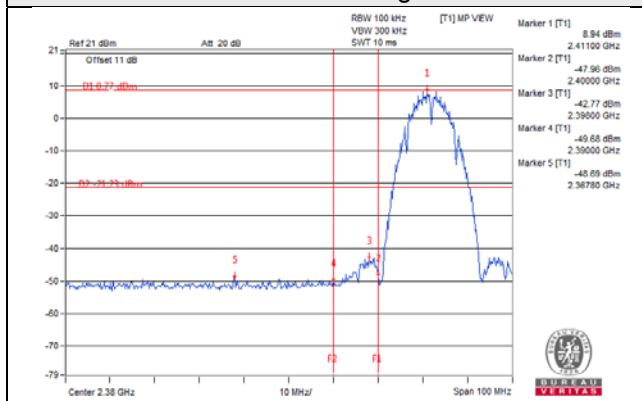
CH 6



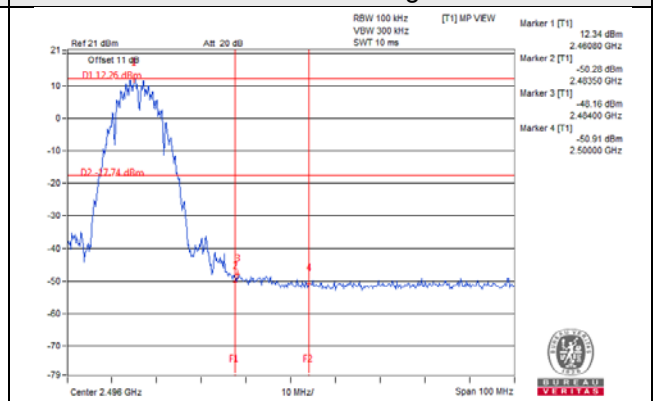
CH 11



CH 1 Band edge

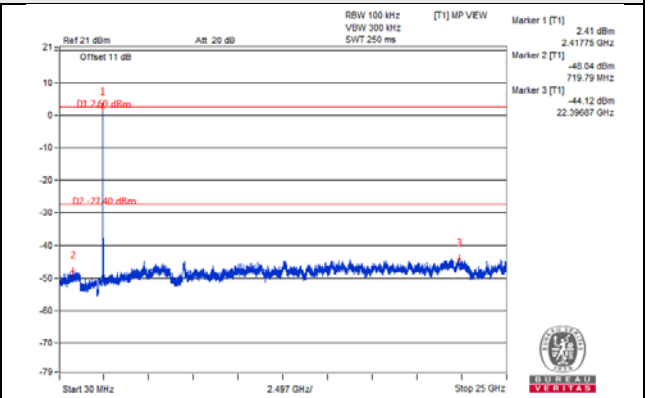
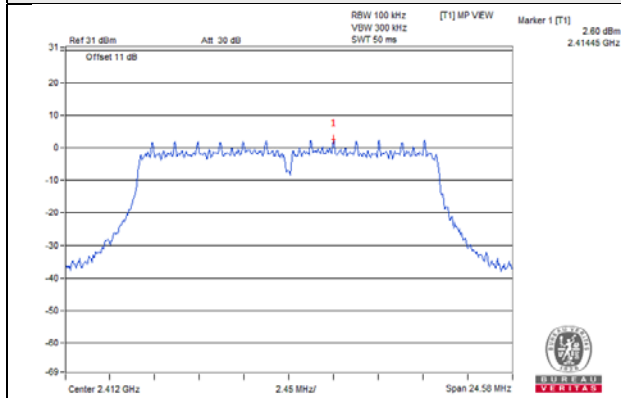


CH 11 Band edge

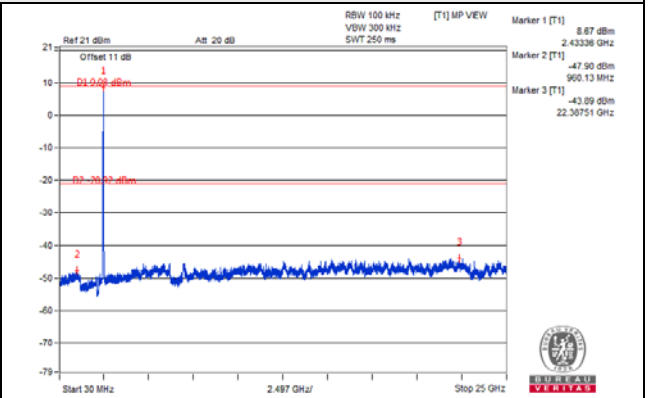
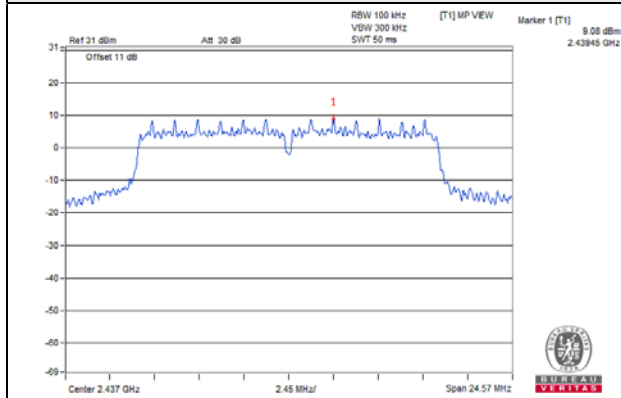


802.11g_Chain 0

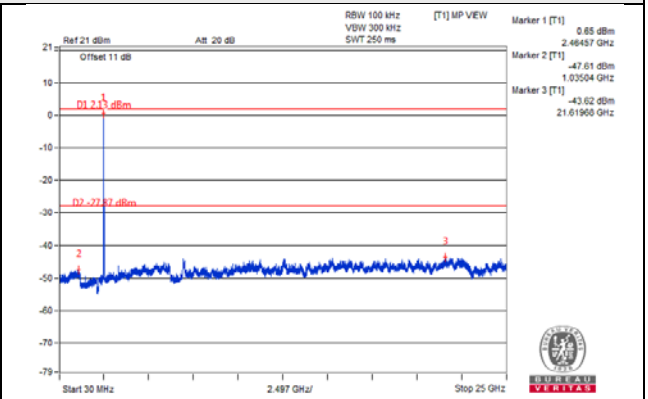
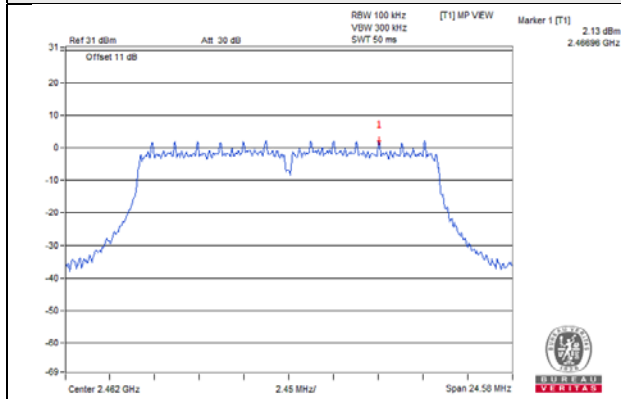
CH 1



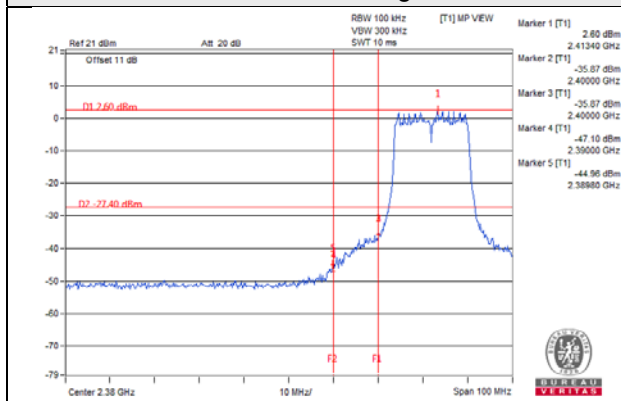
CH 6



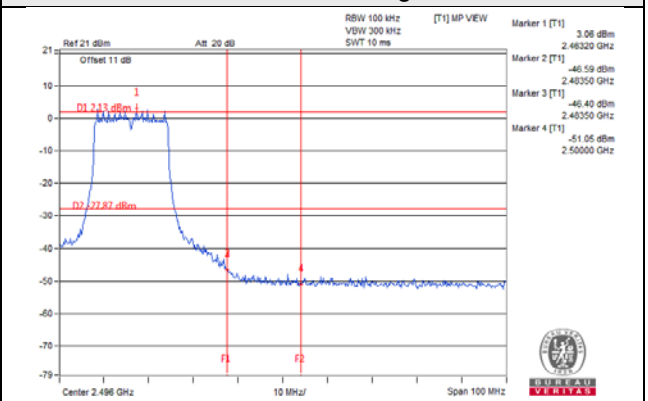
CH 11



CH 1 Band edge

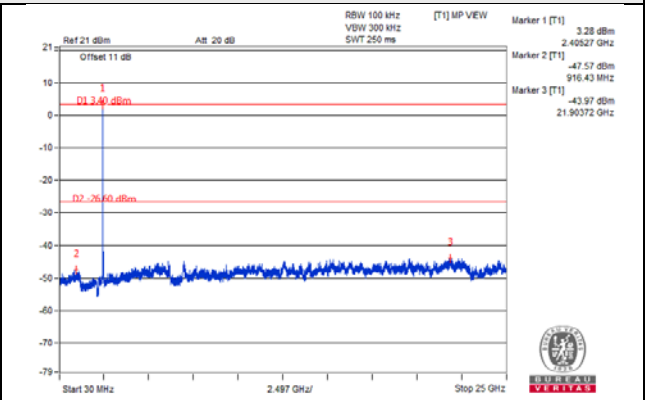
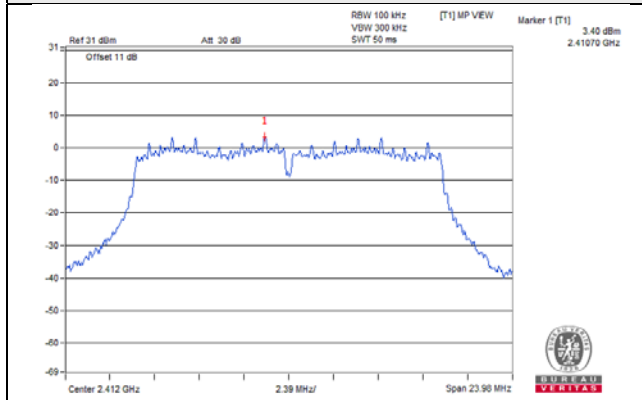


CH 11 Band edge

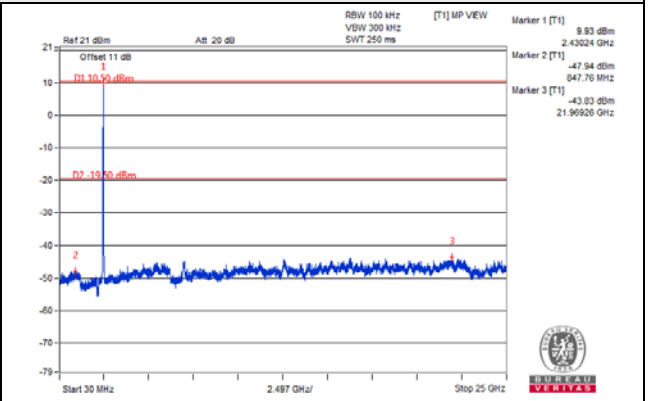
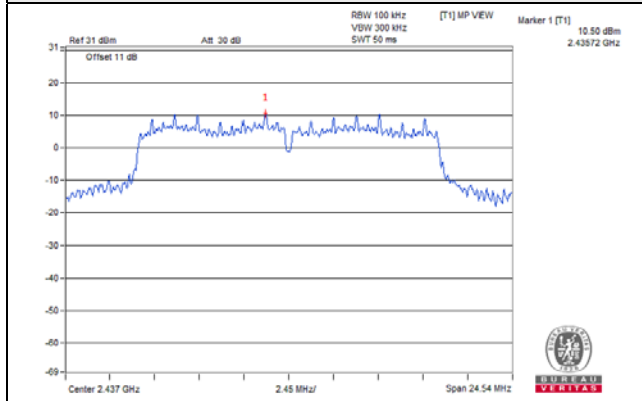


802.11g_Chain 1

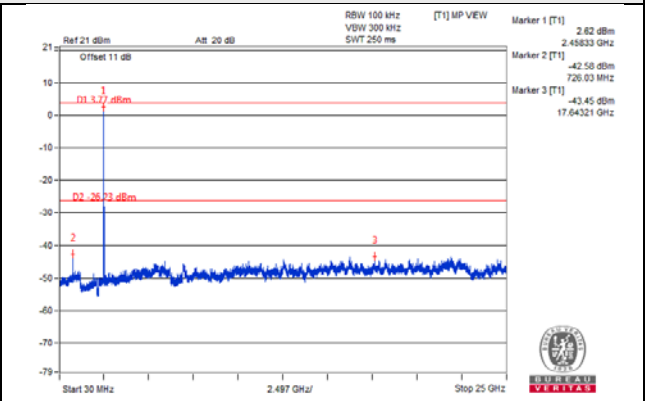
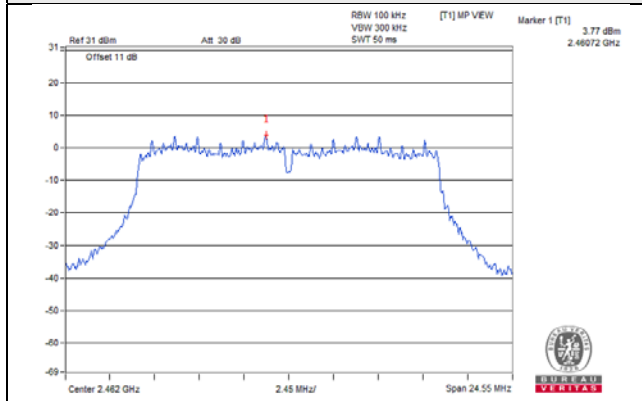
CH 1



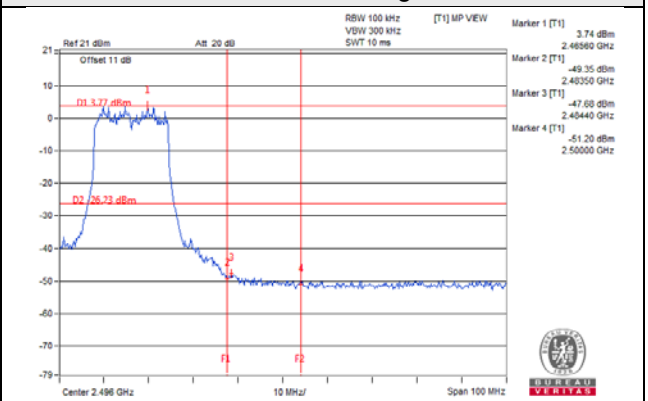
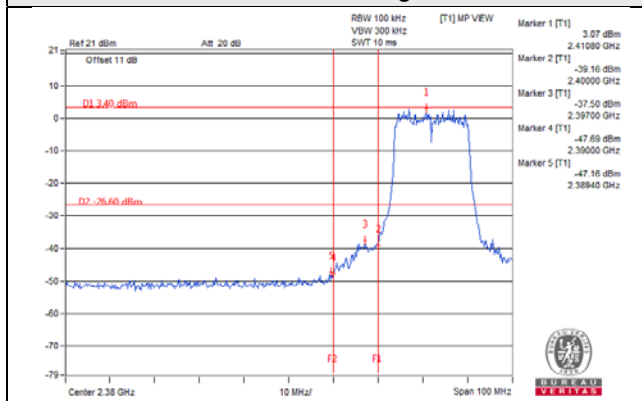
CH 6



CH 11

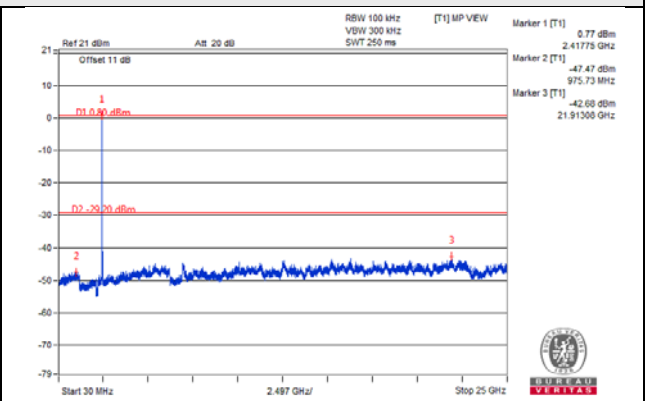
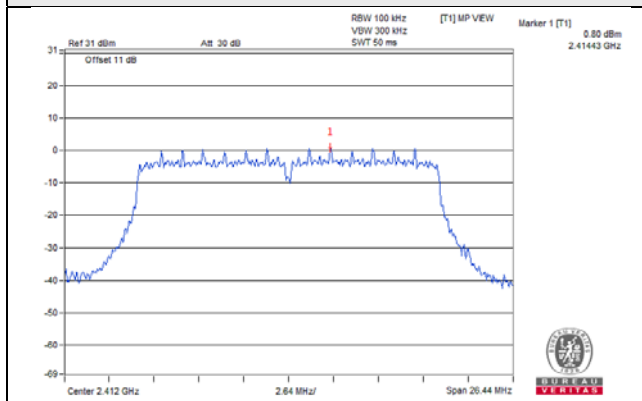


CH 1 Band edge

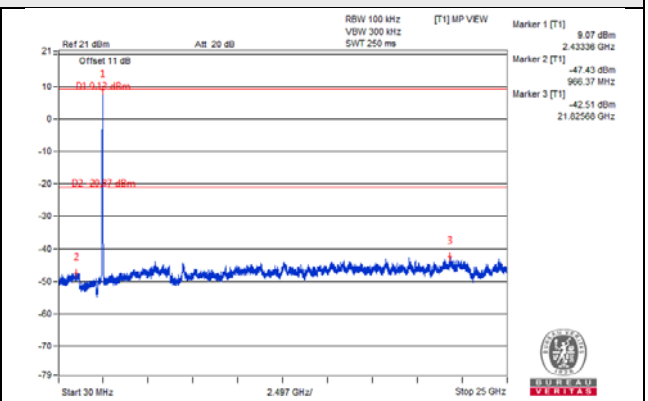
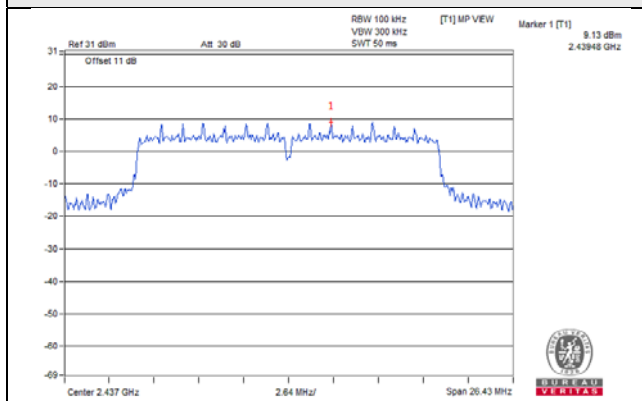


802.11n (HT20)_Chain 0

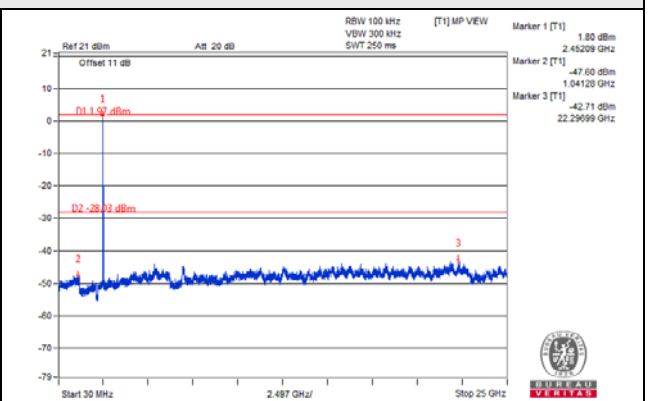
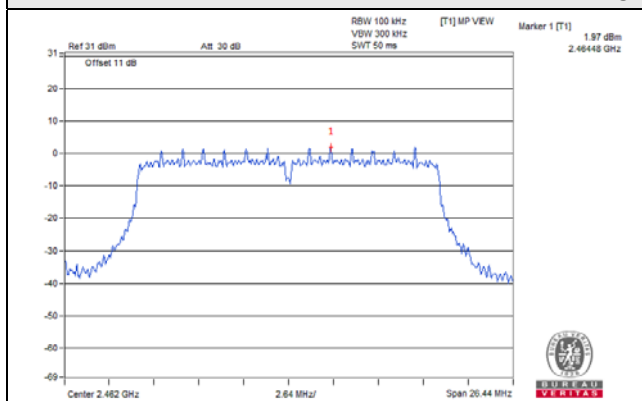
CH 1



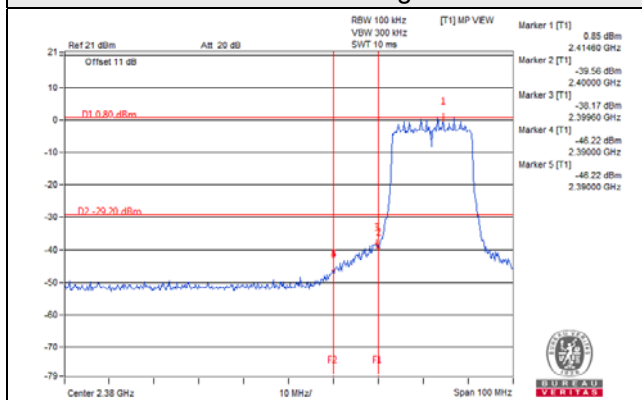
CH 6



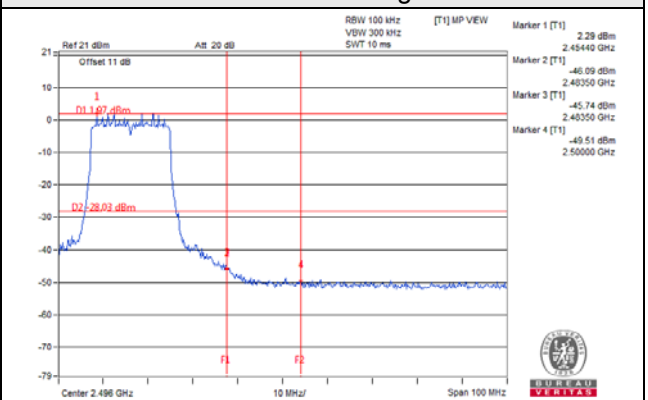
CH 11



CH 1 Band edge

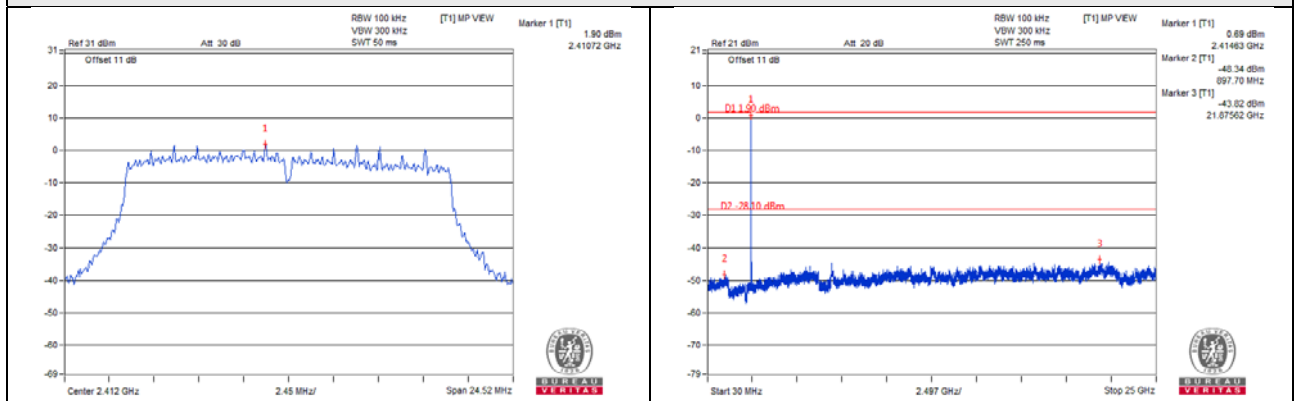


CH 11 Band edge

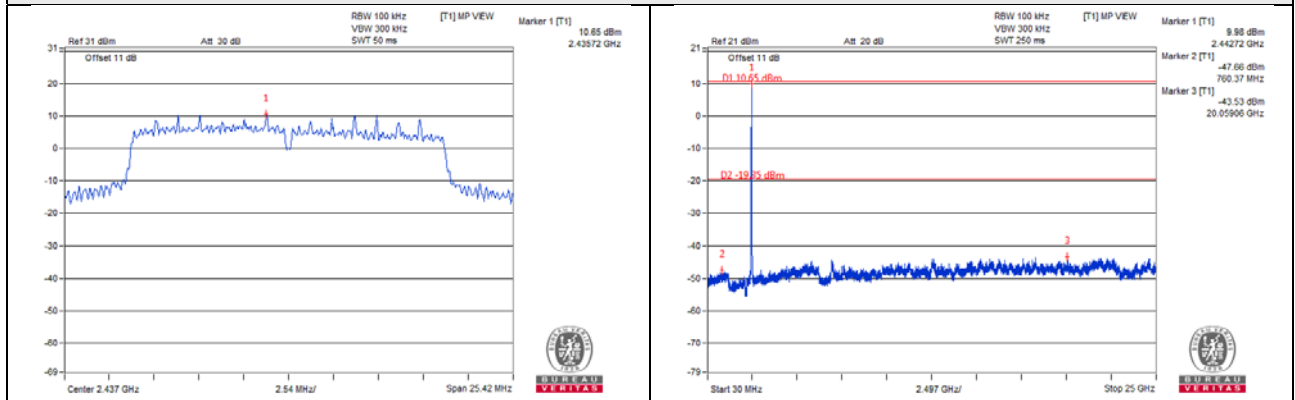


802.11n (HT20)_Chain 1

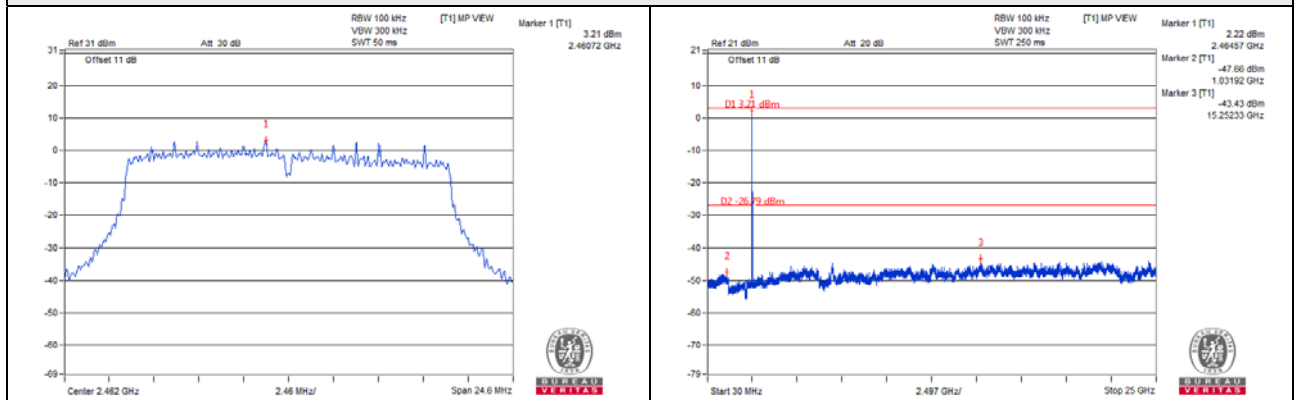
CH 1



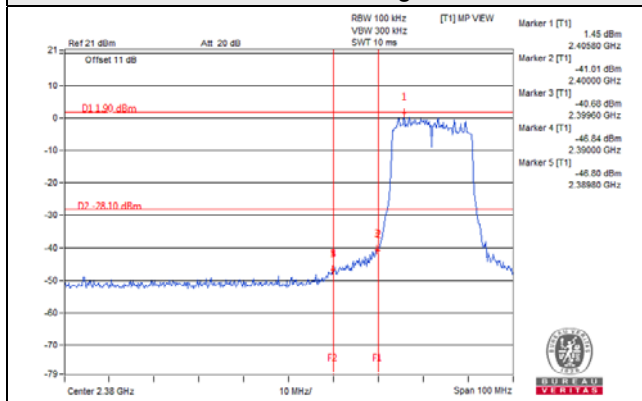
CH 6



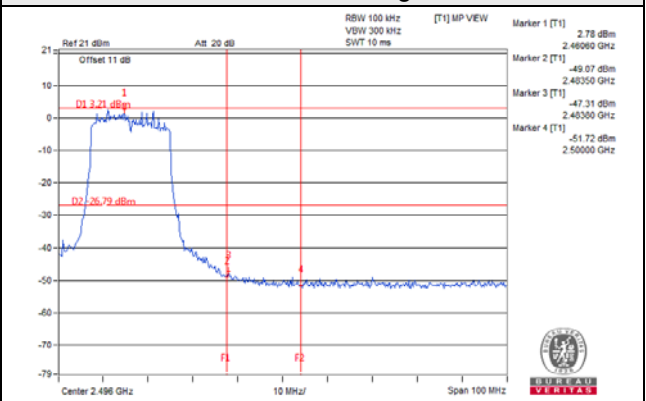
CH 11



CH 1 Band edge

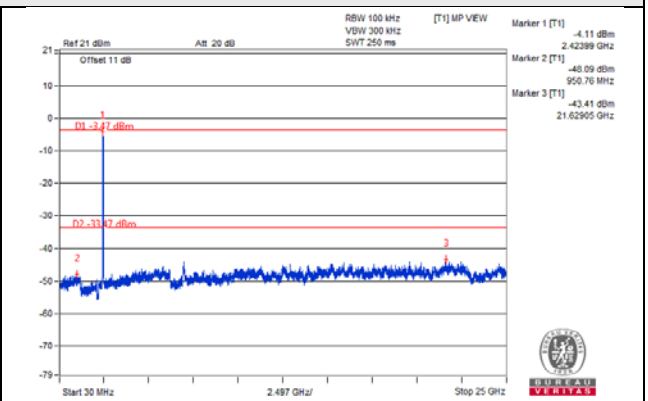
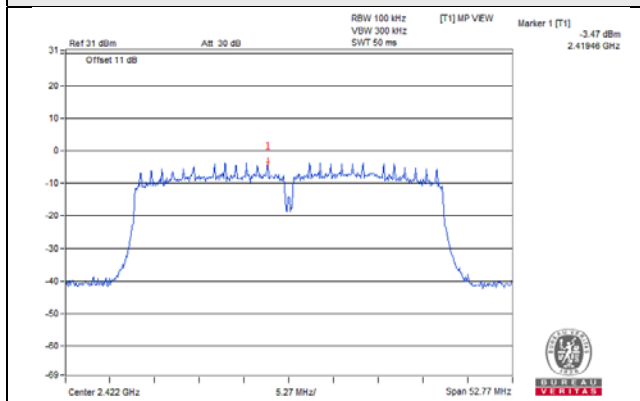


CH 11 Band edge

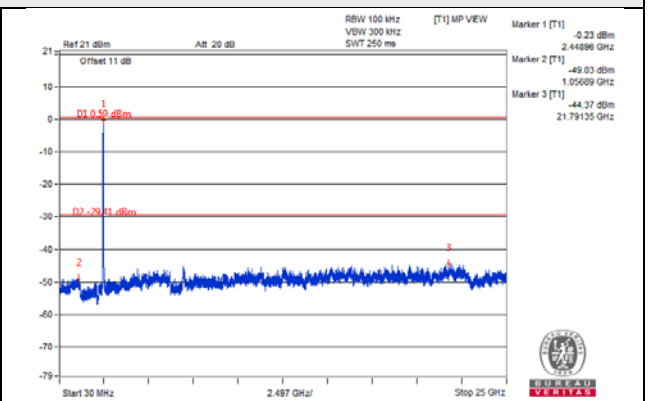
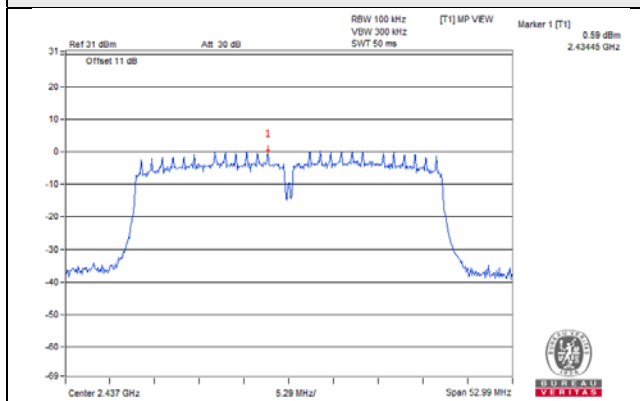


802.11n (HT40)_Chain 0

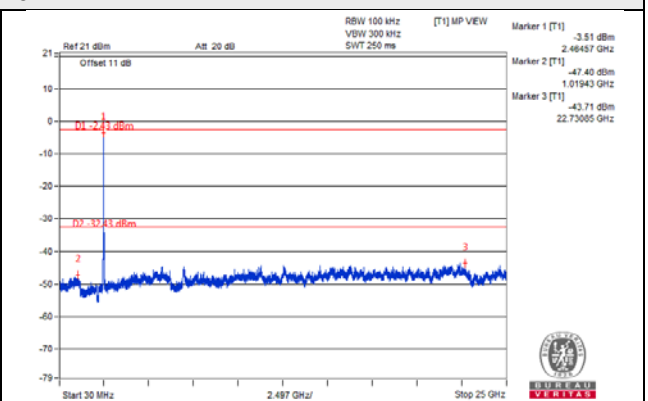
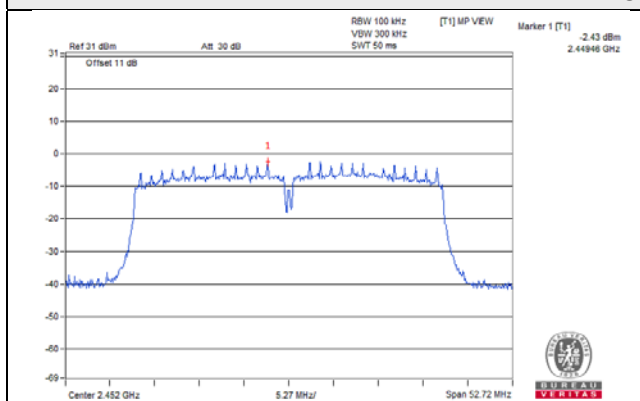
CH 3



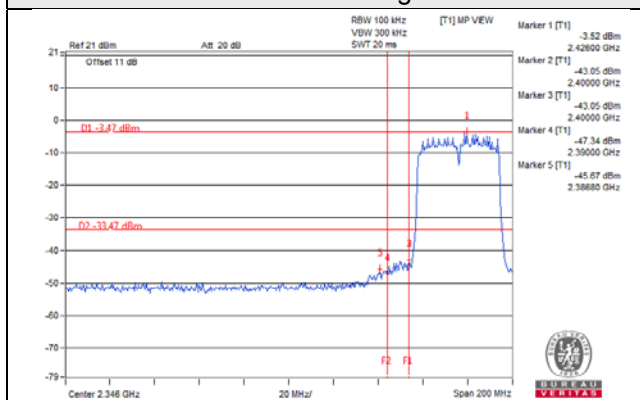
CH 6



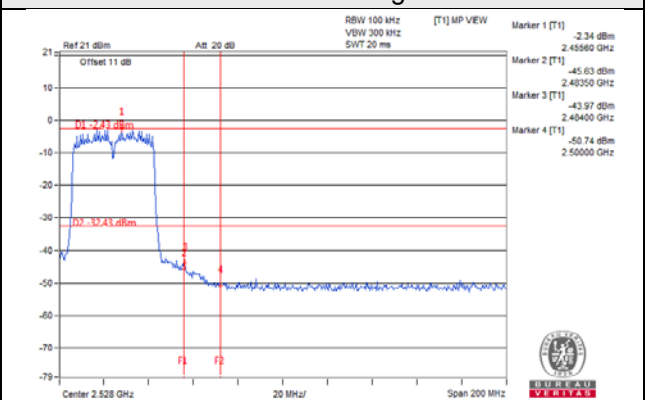
CH 9



CH 3 Band edge

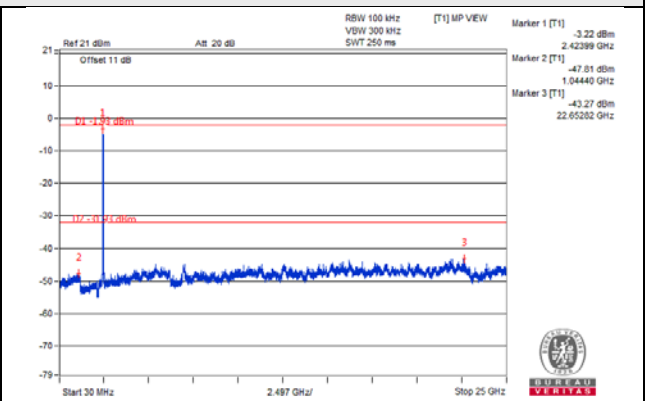
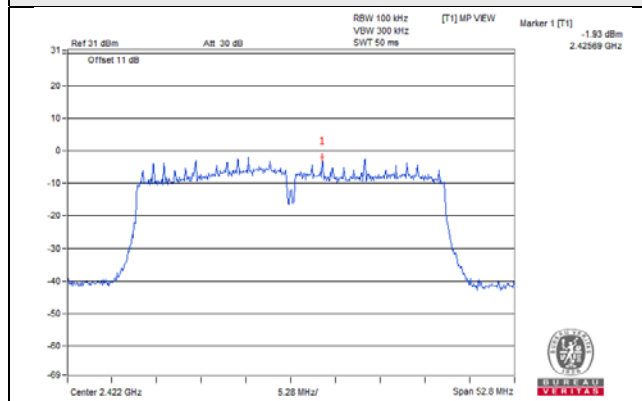


CH 9 Band edge

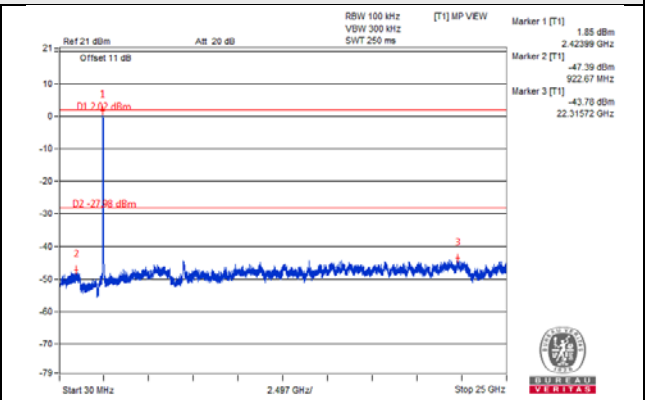
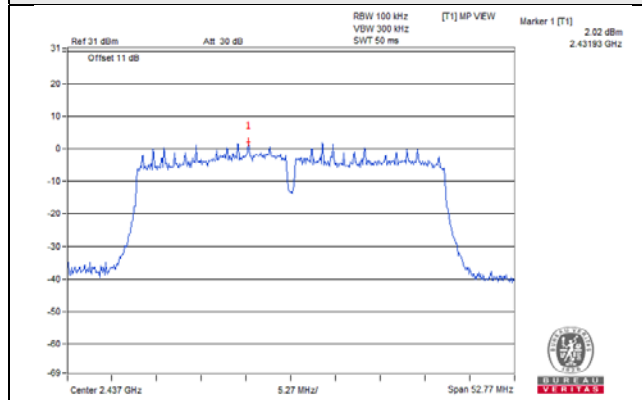


802.11n (HT40)_Chain 1

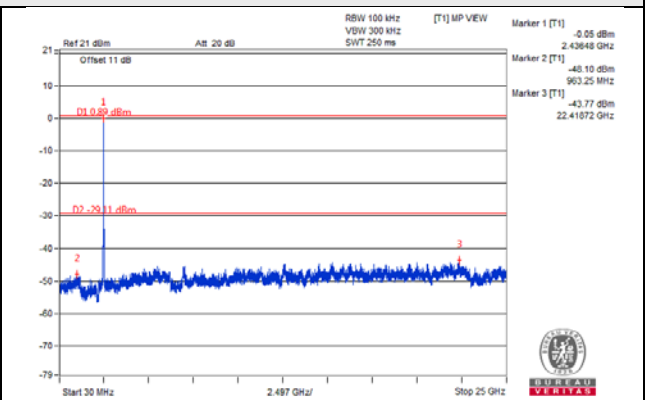
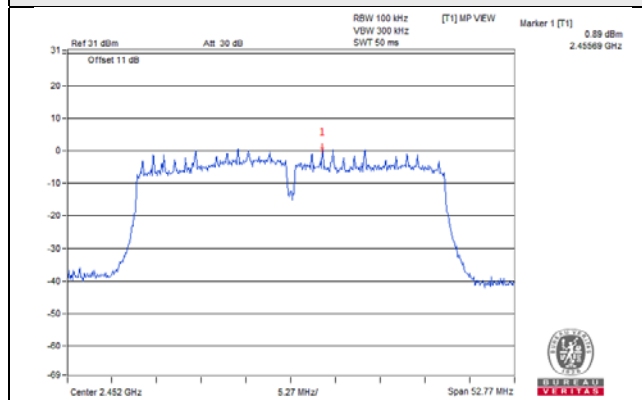
CH 3



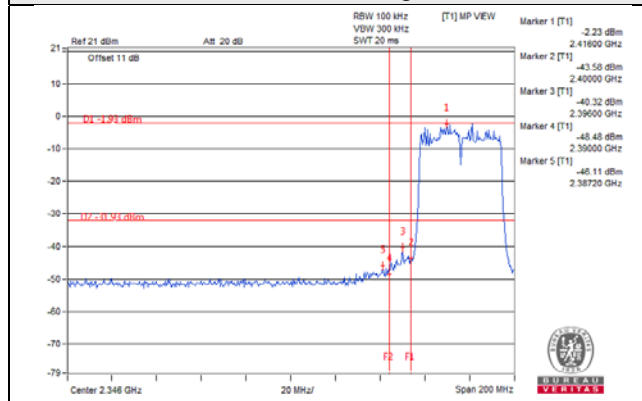
CH 6



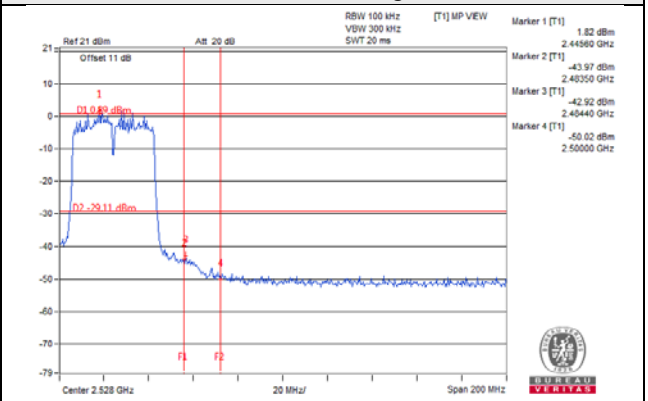
CH 9



CH 3 Band edge



CH 9 Band edge



5 Pictures of Test Arrangements

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

Appendix – Information on 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 and approved according to ISO/IEC 17025.

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

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Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

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Hwa Ya EMC/RF/Safety Lab

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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