

FCC Test Report

Report No.: RF171227C14

FCC ID: A8J-ENS202EXTV2

Test Model: ENS202EXTv2, ENS202v2 (refer to item 3.1 for more details)

Received Date: Dec. 27, 2017

Test Date: Jan. 15 ~ Jan. 24, 2018

Issued Date: Jan. 31, 2018

Applicant: EnGenius Technologies

Address: 1580 Scenic Avenue, Costa Mesa, CA92626

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)

Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)

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



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification. This report should not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

Table of Contents

Release Control Record	4
1 Certificate of Conformity	5
2 Summary of Test Results	6
2.1 Measurement Uncertainty	6
2.2 Modification Record	6
3 General Information	7
3.1 General Description of EUT	7
3.2 Description of Test Modes	9
3.2.1 Test Mode Applicability and Tested Channel Detail	10
3.3 Duty Cycle of Test Signal	12
3.4 Description of Support Units	13
3.4.1 Configuration of System under Test	13
3.5 General Description of Applied Standards	13
4 Test Types and Results	14
4.1 Radiated Emission and Bandedge Measurement	14
4.1.1 Limits of Radiated Emission and Bandedge Measurement	14
4.1.2 Test Instruments	15
4.1.3 Test Procedures	16
4.1.4 Deviation from Test Standard	16
4.1.5 Test Setup	17
4.1.6 EUT Operating Conditions	18
4.1.7 Test Results	19
4.2 Conducted Emission Measurement	45
4.2.1 Limits of Conducted Emission Measurement	45
4.2.2 Test Instruments	45
4.2.3 Test Procedures	46
4.2.4 Deviation from Test Standard	46
4.2.5 Test Setup	46
4.2.6 EUT Operating Conditions	46
4.2.7 Test Results	47
4.3 6dB Bandwidth Measurement	51
4.3.1 Limits of 6dB Bandwidth Measurement	51
4.3.2 Test Setup	51
4.3.3 Test Instruments	51
4.3.4 Test Procedure	51
4.3.5 Deviation from Test Standard	51
4.3.6 EUT Operating Conditions	51
4.3.7 Test Result	52
4.4 Conducted Output Power Measurement	54
4.4.1 Limits of Conducted Output Power Measurement	54
4.4.2 Test Setup	54
4.4.3 Test Instruments	54
4.4.4 Test Procedures	54
4.4.5 Deviation from Test Standard	54
4.4.6 EUT Operating Conditions	54
4.4.7 Test Results	55
4.5 Power Spectral Density Measurement	56
4.5.1 Limits of Power Spectral Density Measurement	56
4.5.2 Test Setup	56
4.5.3 Test Instruments	56
4.5.4 Test Procedure	56
4.5.5 Deviation from Test Standard	57
4.5.6 EUT Operating Condition	57

4.5.7 Test Results	58
4.6 Conducted Out of Band Emission Measurement	61
4.6.1 Limits of Conducted Out of Band Emission Measurement.....	61
4.6.2 Test Setup.....	61
4.6.3 Test Instruments	61
4.6.4 Test Procedure	61
4.6.5 Deviation from Test Standard	61
4.6.6 EUT Operating Condition	61
4.6.7 Test Results	61
5 Pictures of Test Arrangements.....	70
Appendix – Information on the Testing Laboratories	71

Release Control Record

Issue No.	Description	Date Issued
RF171227C14	Original release.	Jan. 31, 2018

1 Certificate of Conformity

Product: N300 2.4GHz Outdoor AP

Brand: **EnGenius**[®]

Test Model: ENS202EXTv2, ENS202v2 (refer to item 3.1 for more details)

Sample Status: Engineering sample

Applicant: EnGenius Technologies

Test Date: Jan. 15 ~ Jan. 24, 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 : Alice Ho , **Date:** Jan. 31, 2018
Alice Ho / Specialist

Approved by : Bruce Chen , **Date:** Jan. 31, 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 -14.51dB at 0.15000MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.9dB at 30.00MHz.
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 for ENS202EXTv2 is Brass. Antenna connector for ENS202v2 is I-PEX.

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	N300 2.4GHz Outdoor AP
Brand	
Test Model	ENS202EXTv2, ENS202v2
Model Difference	Refer to Note
Sample Status	Engineering sample
Power Supply Rating	24Vdc (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	158.528mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	PoE
Cable Supplied	N/A

Note:

- All models are listed as below.

Brand	Model	Description
	ENS202EXTv2	External antenna
	ENS202v2	Internal antenna

- The EUT consumes power from the following PoE.

Brand	EnGenius
Model	EPA2406FP
Input Power	100-240Vac, 0.4A, 50/60Hz
Output Power	24Vdc, 0.6A PIN 4,5: 24V PIN 7,8: Return
Power Line	0.5m non-shielded AC power cable without core

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

Modulation Mode	TX Function
802.11b	2TX
802.11g	2TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX

4. The following antennas were provided to the EUT.

Model	ENS202EXTv2			ENS202v2	
Ant. Type	Dipole			Patch Array	
Connector	Brass			I-PEX	
Frequency (MHz)	2400	2450	2500	2400-2500	
Peak Gain (dBi)	5.08	5.13	5.17	Ant. 1	Ant. 2
				7.21	7.36

*The highest antenna gain was chosen for final test.

5. The above EUT information is declared by the 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	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 \geq 1G	RE $<$ 1G	PLC	APCM	
A	√	√	√	√	Model: ENS202v2
B	√	√	√	-	Model: ENS202EXTv2

Where RE \geq 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 antenna had been pre-tested on the positioned of each 3 axis. The worst cases were found when positioned on Z-plane.
- "-" means no effect.

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)	Remark
A, B	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	-
A, B	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	-
A, B	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	-
A, B	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)	Remark
A, B	802.11b	1 to 11	11	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)	Remark
A, B	802.11b	1 to 11	11	DSSS	DBPSK	1.0	-

Antenna Port Conducted Measurement:

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)	Remark
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	-
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	-
A	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	-
A	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5	-

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE \geq 1G	21 deg. C, 66% RH	120Vac, 60Hz	Willy Cheng
RE $<$ 1G	25 deg. C, 65% RH	120Vac, 60Hz	Greg Lin
PLC	25 deg. C, 75% RH	120Vac, 60Hz	Greg Lin
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Alan Wu

3.3 Duty Cycle of Test Signal

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

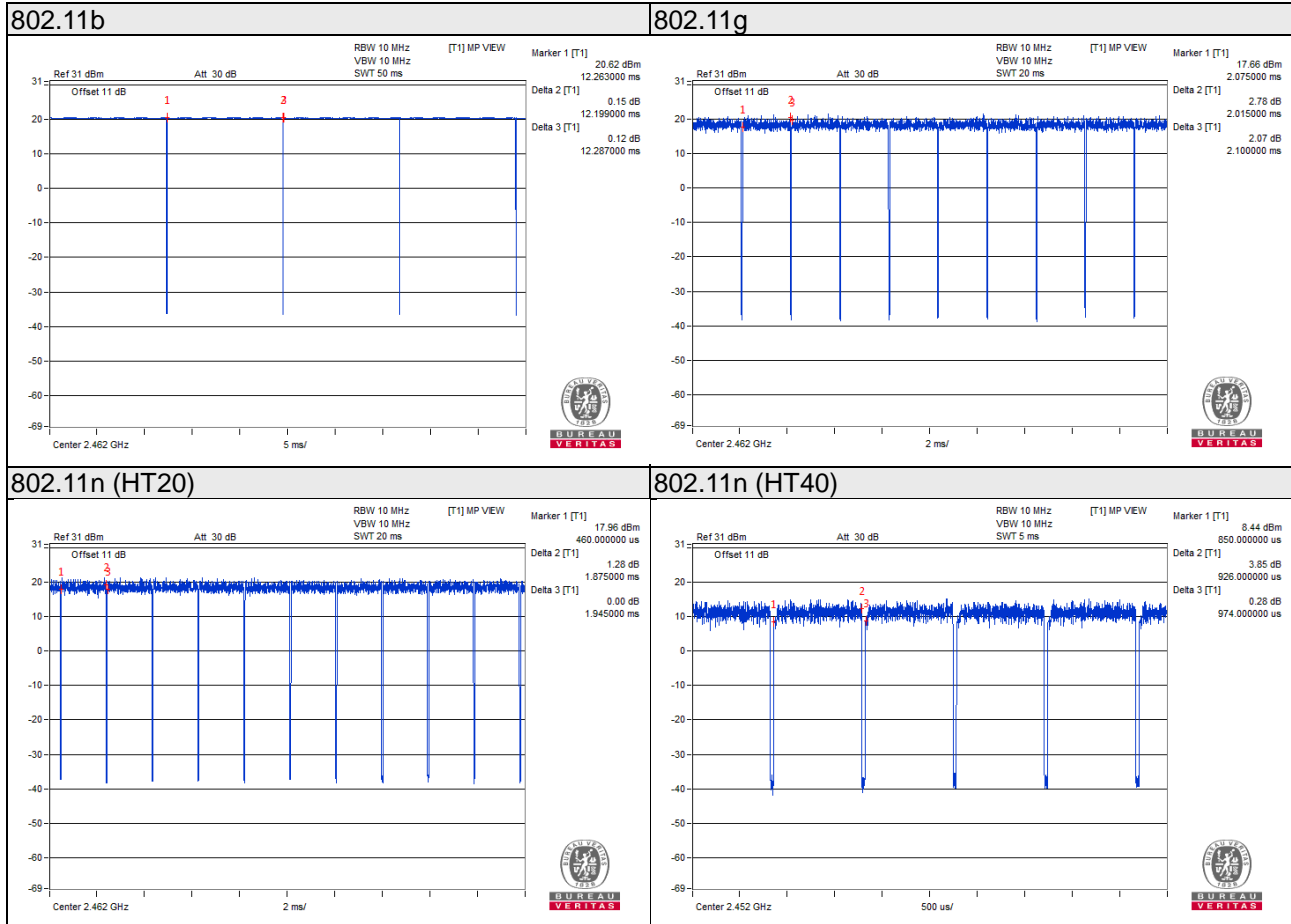
Duty cycle of test signal is < 98%, duty factor is required.

802.11b: Duty cycle = $12.199/12.287 = 0.993$

802.11g: Duty cycle = $2.015/2.100 = 0.960$, Duty factor = $10 * \log(1/0.960) = 0.18$

802.11n (HT20): Duty cycle = $1.875/1.945 = 0.964$, Duty factor = $10 * \log(1/0.964) = 0.16$

802.11n (HT40): Duty cycle = $0.926/0.974 = 0.951$, Duty factor = $10 * \log(1/0.951) = 0.22$



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.

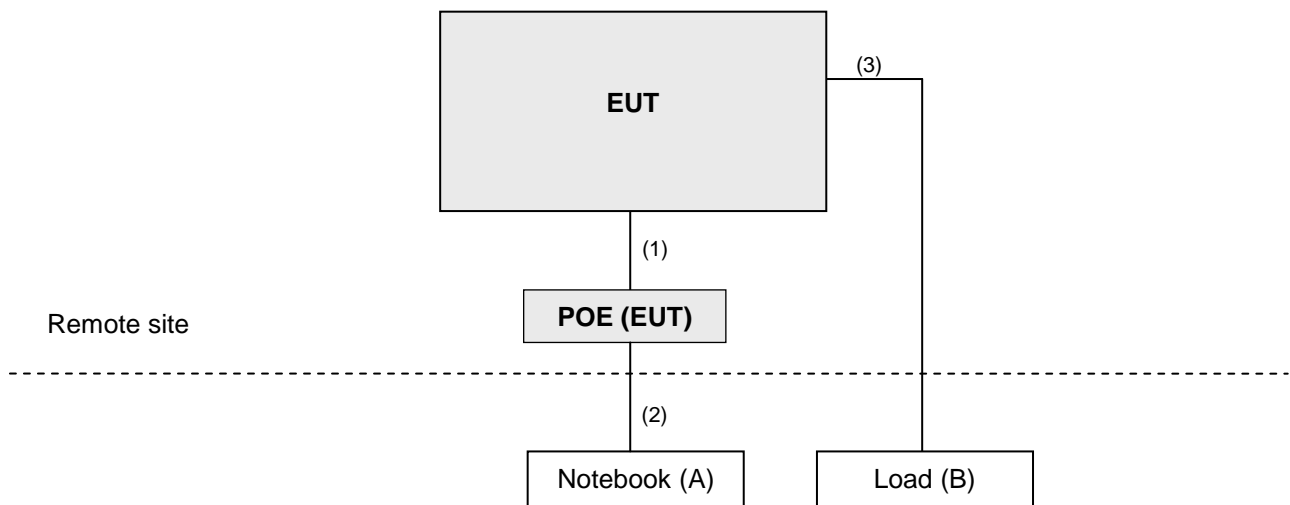
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-
B.	Load	NA	NA	NA	NA	-

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	3	N	0	-
2.	RJ45, Cat5e	1	3	N	0	-
3.	RJ45, Cat5e	1	3	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.

Note: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

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 30dB under any condition of modulation.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	May 02, 2017	May 01, 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. 05, 2017	Apr. 04, 2018
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-S M-8000	Cable-CH3-03 (309224+170907)	Sep.11, 2017	Sep. 10, 2018
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	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
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. Both X and Y axes 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:

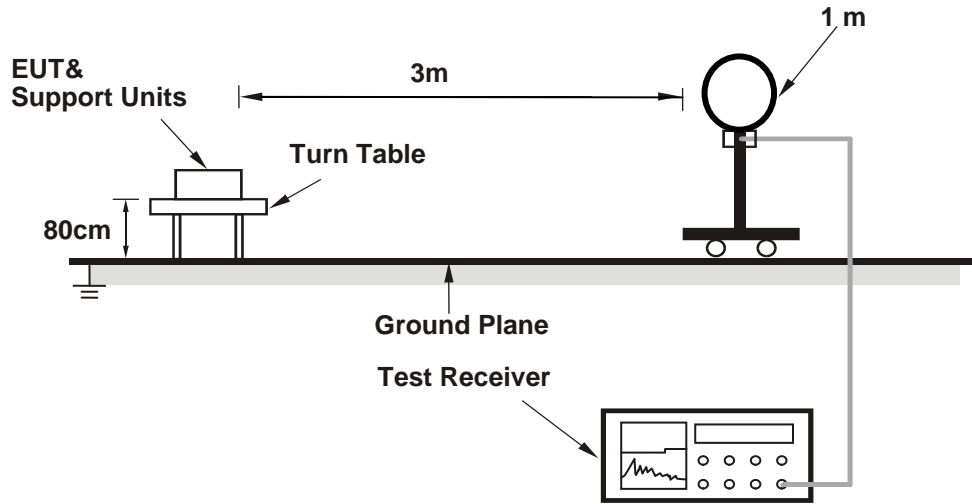
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

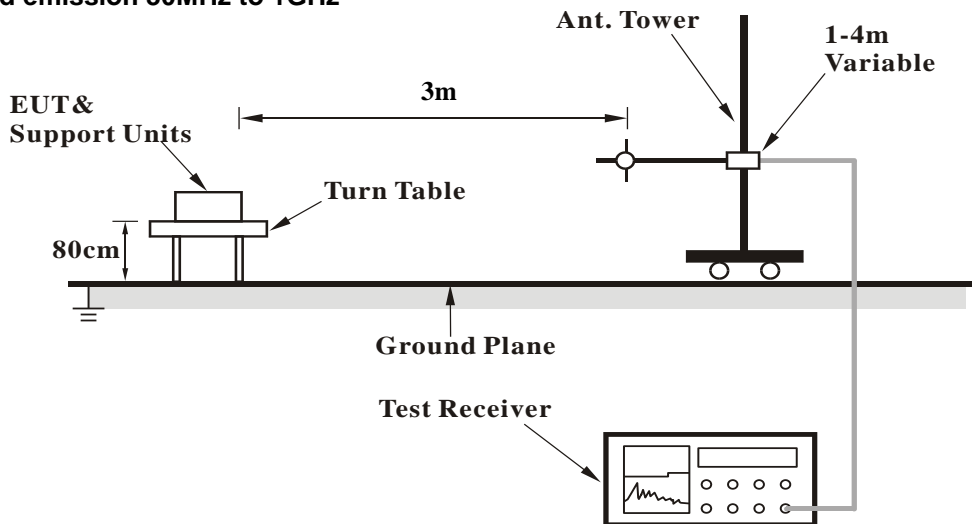
No deviation.

4.1.5 Test Setup

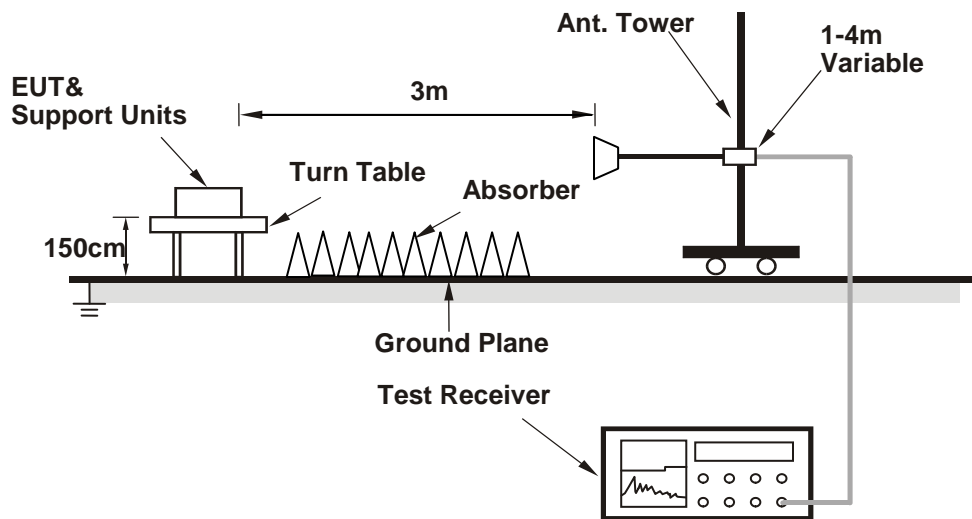
For Radiated emission below 30MHz



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

- 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".
- The necessary accessories enable the system in full functions.

4.1.7 Test Results

Above 1GHz worst-Case data:

802.11b

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

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	63.1 PK	74.0	-10.9	1.73 H	349	29.6	33.5
2	2390.00	50.6 AV	54.0	-3.4	1.73 H	349	17.1	33.5
3	*2412.00	113.0 PK			1.56 H	345	79.6	33.4
4	*2412.00	109.6 AV			1.56 H	345	76.2	33.4
5	4824.00	49.4 PK	74.0	-24.6	1.74 H	115	45.7	3.7
6	4824.00	42.2 AV	54.0	-11.8	1.74 H	115	38.5	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	61.7 PK	74.0	-12.3	2.00 V	1	28.2	33.5
2	2390.00	52.5 AV	54.0	-1.5	2.00 V	1	19.0	33.5
3	*2412.00	112.8 PK			1.88 V	0	79.4	33.4
4	*2412.00	109.3 AV			1.88 V	0	75.9	33.4
5	4824.00	52.3 PK	74.0	-21.7	2.06 V	152	48.6	3.7
6	4824.00	49.5 AV	54.0	-4.5	2.06 V	152	45.8	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 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)
TEST MODE	A		

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	113.1 PK			1.84 H	345	79.7	33.4
2	*2437.00	109.7 AV			1.84 H	345	76.3	33.4
3	2483.50	62.3 PK	74.0	-11.7	1.79 H	352	29.1	33.2
4	2483.50	50.4 AV	54.0	-3.6	1.79 H	352	17.2	33.2
5	4874.00	48.7 PK	74.0	-25.3	1.84 H	152	45.2	3.5
6	4874.00	42.9 AV	54.0	-11.1	1.84 H	152	39.4	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	*2437.00	114.5 PK			1.71 V	352	81.1	33.4
2	*2437.00	110.8 AV			1.71 V	352	77.4	33.4
3	2483.50	66.2 PK	74.0	-7.8	1.77 V	351	33.0	33.2
4	2483.50	52.7 AV	54.0	-1.3	1.77 V	351	19.5	33.2
5	4874.00	49.6 PK	74.0	-24.4	1.51 V	155	46.1	3.5
6	4874.00	44.9 AV	54.0	-9.1	1.51 V	155	41.4	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.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)
TEST MODE	A		

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	112.8 PK			1.65 H	345	79.5	33.3
2	*2462.00	109.2 AV			1.65 H	345	75.9	33.3
3	2483.50	60.0 PK	74.0	-14.0	1.66 H	343	26.8	33.2
4	2483.50	50.0 AV	54.0	-4.0	1.66 H	343	16.8	33.2
5	4924.00	47.6 PK	74.0	-26.4	1.49 H	113	44.3	3.3
6	4924.00	37.9 AV	54.0	-16.1	1.49 H	113	34.6	3.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	114.0 PK			1.67 V	348	80.7	33.3
2	*2462.00	110.0 AV			1.67 V	348	76.7	33.3
3	2483.50	62.2 PK	74.0	-11.8	1.80 V	346	29.0	33.2
4	2483.50	52.7 AV	54.0	-1.3	1.80 V	346	19.5	33.2
5	4924.00	49.1 PK	74.0	-24.9	1.46 V	157	45.8	3.3
6	4924.00	43.4 AV	54.0	-10.6	1.46 V	157	40.1	3.3

Remarks:

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

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.1 PK	74.0	-8.9	1.74 H	350	31.6	33.5
2	2390.00	52.7 AV	54.0	-1.3	1.74 H	350	19.2	33.5
3	*2412.00	114.7 PK			1.64 H	346	81.3	33.4
4	*2412.00	103.9 AV			1.64 H	346	70.5	33.4
5	4824.00	50.7 PK	74.0	-23.3	1.66 H	146	47.0	3.7
6	4824.00	37.1 AV	54.0	-16.9	1.66 H	146	33.4	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	66.3 PK	74.0	-7.7	2.23 V	356	32.8	33.5
2	2390.00	52.8 AV	54.0	-1.2	2.23 V	356	19.3	33.5
3	*2412.00	113.7 PK			1.56 V	353	80.3	33.4
4	*2412.00	104.2 AV			1.56 V	353	70.8	33.4
5	4824.00	48.4 PK	74.0	-25.6	1.98 V	173	44.7	3.7
6	4824.00	34.8 AV	54.0	-19.2	1.98 V	173	31.1	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 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)
TEST MODE	A		

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	111.6 PK			1.76 H	345	78.2	33.4
2	*2437.00	100.6 AV			1.76 H	345	67.2	33.4
3	2483.50	61.1 PK	74.0	-12.9	1.58 H	339	27.9	33.2
4	2483.50	49.0 AV	54.0	-5.0	1.58 H	339	15.8	33.2
5	4874.00	46.5 PK	74.0	-27.5	1.84 H	150	43.0	3.5
6	4874.00	32.7 AV	54.0	-21.3	1.84 H	150	29.2	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	*2437.00	111.2 PK			1.75 V	344	77.8	33.4
2	*2437.00	101.1 AV			1.75 V	344	67.7	33.4
3	2483.50	64.6 PK	74.0	-9.4	1.77 V	346	31.4	33.2
4	2483.50	52.7 AV	54.0	-1.3	1.77 V	346	19.5	33.2
5	4874.00	44.9 PK	74.0	-29.1	1.30 V	143	41.4	3.5
6	4874.00	32.2 AV	54.0	-21.8	1.30 V	143	28.7	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.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)
TEST MODE	A		

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	116.5 PK			1.65 H	345	83.2	33.3
2	*2462.00	104.9 AV			1.65 H	345	71.6	33.3
3	2483.50	65.5 PK	74.0	-8.5	1.57 H	336	32.3	33.2
4	2483.50	51.2 AV	54.0	-2.8	1.57 H	336	18.0	33.2
5	4924.00	47.0 PK	74.0	-27.0	1.78 H	143	43.7	3.3
6	4924.00	33.5 AV	54.0	-20.5	1.78 H	143	30.2	3.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	115.2 PK			1.67 V	353	81.9	33.3
2	*2462.00	105.4 AV			1.67 V	353	72.1	33.3
3	2483.50	67.6 PK	74.0	-6.4	1.78 V	347	34.4	33.2
4	2483.50	52.6 AV	54.0	-1.4	1.78 V	347	19.4	33.2
5	4924.00	45.6 PK	74.0	-28.4	1.99 V	140	42.3	3.3
6	4924.00	32.7 AV	54.0	-21.3	1.99 V	140	29.4	3.3

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		
TEST MODE	A		

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	64.7 PK	74.0	-9.3	1.64 H	346	31.2	33.5
2	2390.00	51.8 AV	54.0	-2.2	1.64 H	346	18.3	33.5
3	*2412.00	112.1 PK			1.87 H	345	78.7	33.4
4	*2412.00	102.1 AV			1.87 H	345	68.7	33.4
5	4824.00	48.3 PK	74.0	-25.7	1.62 H	148	44.6	3.7
6	4824.00	34.5 AV	54.0	-19.5	1.62 H	148	30.8	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	2390.00	66.3 PK	74.0	-7.7	1.79 V	352	32.8	33.5
2	2390.00	52.8 AV	54.0	-1.2	1.79 V	352	19.3	33.5
3	*2412.00	114.0 PK			1.89 V	351	80.6	33.4
4	*2412.00	103.8 AV			1.89 V	351	70.4	33.4
5	4824.00	47.8 PK	74.0	-26.2	1.53 V	161	44.1	3.7
6	4824.00	33.4 AV	54.0	-20.6	1.53 V	161	29.7	3.7

Remarks:

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

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	113.4 PK			1.69 H	344	80.0	33.4
2	*2437.00	102.6 AV			1.69 H	344	69.2	33.4
3	2483.50	61.4 PK	74.0	-12.6	1.60 H	341	28.2	33.2
4	2483.50	49.4 AV	54.0	-4.6	1.60 H	341	16.2	33.2
5	4874.00	45.8 PK	74.0	-28.2	1.94 H	137	42.3	3.5
6	4874.00	32.9 AV	54.0	-21.1	1.94 H	137	29.4	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	*2437.00	114.1 PK			1.70 V	353	80.7	33.4
2	*2437.00	103.3 AV			1.70 V	353	69.9	33.4
3	2483.50	65.2 PK	74.0	-8.8	1.74 V	344	32.0	33.2
4	2483.50	52.8 AV	54.0	-1.2	1.74 V	344	19.6	33.2
5	4874.00	45.8 PK	74.0	-28.2	2.37 V	166	42.3	3.5
6	4874.00	31.5 AV	54.0	-22.5	2.37 V	166	28.0	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.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)
TEST MODE	A		

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	114.9 PK			1.65 H	344	81.6	33.3
2	*2462.00	104.4 AV			1.65 H	344	71.1	33.3
3	2483.50	64.0 PK	74.0	-10.0	1.36 H	340	30.8	33.2
4	2483.50	50.9 AV	54.0	-3.1	1.36 H	340	17.7	33.2
5	4924.00	45.7 PK	74.0	-28.3	1.88 H	144	42.4	3.3
6	4924.00	32.6 AV	54.0	-21.4	1.88 H	144	29.3	3.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	114.4 PK			1.66 V	351	81.1	33.3
2	*2462.00	104.6 AV			1.66 V	351	71.3	33.3
3	2483.50	67.3 PK	74.0	-6.7	1.78 V	351	34.1	33.2
4	2483.50	52.6 AV	54.0	-1.4	1.78 V	351	19.4	33.2
5	4924.00	45.6 PK	74.0	-28.4	2.18 V	167	42.3	3.3
6	4924.00	31.8 AV	54.0	-22.2	2.18 V	167	28.5	3.3

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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 FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)
TEST MODE	A		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.2 PK	74.0	-8.8	1.44 H	341	31.7	33.5
2	2390.00	52.7 AV	54.0	-1.3	1.44 H	341	19.2	33.5
3	*2422.00	106.7 PK			1.82 H	348	73.3	33.4
4	*2422.00	96.5 AV			1.82 H	348	63.1	33.4
5	4844.00	45.3 PK	74.0	-28.7	1.48 H	167	41.7	3.6
6	4844.00	32.3 AV	54.0	-21.7	1.48 H	167	28.7	3.6

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	65.5 PK	74.0	-8.5	1.94 V	358	32.0	33.5
2	2390.00	52.4 AV	54.0	-1.6	1.94 V	358	18.9	33.5
3	*2422.00	108.0 PK			1.93 V	347	74.6	33.4
4	*2422.00	97.3 AV			1.93 V	347	63.9	33.4
5	4844.00	44.6 PK	74.0	-29.4	1.69 V	155	41.0	3.6
6	4844.00	31.8 AV	54.0	-22.2	1.69 V	155	28.2	3.6

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. 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)
TEST MODE	A		

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	62.2 PK	74.0	-11.8	1.49 H	345	28.7	33.5
2	2390.00	50.6 AV	54.0	-3.4	1.49 H	345	17.1	33.5
3	*2437.00	111.5 PK			1.81 H	342	78.1	33.4
4	*2437.00	101.3 AV			1.81 H	342	67.9	33.4
5	4874.00	45.8 PK	74.0	-28.2	1.78 H	169	42.3	3.5
6	4874.00	33.1 AV	54.0	-20.9	1.78 H	169	29.6	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	2390.00	64.4 PK	74.0	-9.6	1.86 V	346	30.9	33.5
2	2390.00	52.8 AV	54.0	-1.2	1.86 V	346	19.3	33.5
3	*2437.00	112.4 PK			2.20 V	348	79.0	33.4
4	*2437.00	101.9 AV			2.20 V	348	68.5	33.4
5	4874.00	45.2 PK	74.0	-28.8	1.82 V	199	41.7	3.5
6	4874.00	31.6 AV	54.0	-22.4	1.82 V	199	28.1	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.

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)
TEST MODE	A		

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	106.8 PK			1.75 H	347	73.4	33.4
2	*2452.00	96.4 AV			1.75 H	347	63.0	33.4
3	2483.50	61.7 PK	74.0	-12.3	1.11 H	340	28.5	33.2
4	2483.50	48.9 AV	54.0	-5.1	1.11 H	340	15.7	33.2
5	4904.00	45.2 PK	74.0	-28.8	1.88 H	138	41.8	3.4
6	4904.00	31.9 AV	54.0	-22.1	1.88 H	138	28.5	3.4

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	*2452.00	108.9 PK			1.73 V	345	75.5	33.4
2	*2452.00	98.1 AV			1.73 V	345	64.7	33.4
3	2483.50	66.1 PK	74.0	-7.9	1.81 V	346	32.9	33.2
4	2483.50	52.6 AV	54.0	-1.4	1.81 V	346	19.4	33.2
5	4904.00	44.7 PK	74.0	-29.3	1.79 V	187	41.3	3.4
6	4904.00	31.5 AV	54.0	-22.5	1.79 V	187	28.1	3.4

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

802.11b

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

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	57.2 PK	74.0	-16.8	1.14 H	238	23.7	33.5
2	2390.00	45.5 AV	54.0	-8.5	1.14 H	238	12.0	33.5
3	*2412.00	97.0 PK			1.27 H	328	63.6	33.4
4	*2412.00	93.4 AV			1.27 H	328	60.0	33.4
5	4824.00	48.0 PK	74.0	-26.0	1.00 H	10	44.3	3.7
6	4824.00	40.5 AV	54.0	-13.5	1.00 H	10	36.8	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	2390.00	65.0 PK	74.0	-9.0	1.53 V	266	31.5	33.5
2	2390.00	52.6 AV	54.0	-1.4	1.53 V	266	19.1	33.5
3	*2412.00	115.4 PK			1.46 V	21	82.0	33.4
4	*2412.00	111.7 AV			1.46 V	21	78.3	33.4
5	4824.00	48.3 PK	74.0	-25.7	1.94 V	170	44.6	3.7
6	4824.00	42.9 AV	54.0	-11.1	1.94 V	170	39.2	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 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)
TEST MODE	B		

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	1.33 H	355	23.6	33.5
2	2390.00	45.6 AV	54.0	-8.4	1.33 H	355	12.1	33.5
3	*2437.00	101.0 PK			1.00 H	331	67.6	33.4
4	*2437.00	97.4 AV			1.00 H	331	64.0	33.4
5	4874.00	47.4 PK	74.0	-26.6	1.13 H	5	43.9	3.5
6	4874.00	38.9 AV	54.0	-15.1	1.13 H	5	35.4	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	2390.00	64.6 PK	74.0	-9.4	1.32 V	13	31.1	33.5
2	2390.00	52.8 AV	54.0	-1.2	1.32 V	13	19.3	33.5
3	*2437.00	115.1 PK			1.76 V	156	81.7	33.4
4	*2437.00	111.6 AV			1.76 V	156	78.2	33.4
5	4874.00	47.4 PK	74.0	-26.6	1.57 V	172	43.9	3.5
6	4874.00	40.6 AV	54.0	-13.4	1.57 V	172	37.1	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.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)
TEST MODE	B		

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	97.3 PK			1.17 H	312	64.0	33.3
2	*2462.00	93.9 AV			1.17 H	312	60.6	33.3
3	2483.50	57.1 PK	74.0	-16.9	3.34 H	178	23.9	33.2
4	2483.50	45.4 AV	54.0	-8.6	3.34 H	178	12.2	33.2
5	4924.00	47.0 PK	74.0	-27.0	1.32 H	359	43.7	3.3
6	4924.00	38.8 AV	54.0	-15.2	1.32 H	359	35.5	3.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	116.8 PK			1.54 V	333	83.5	33.3
2	*2462.00	113.0 AV			1.54 V	333	79.7	33.3
3	2483.50	61.2 PK	74.0	-12.8	1.51 V	11	28.0	33.2
4	2483.50	52.7 AV	54.0	-1.3	1.51 V	11	19.5	33.2
5	4924.00	47.8 PK	74.0	-26.2	1.27 V	153	44.5	3.3
6	4924.00	40.1 AV	54.0	-13.9	1.27 V	153	36.8	3.3

Remarks:

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

802.11g

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

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	57.5 PK	74.0	-16.5	1.28 H	346	24.0	33.5
2	2390.00	45.6 AV	54.0	-8.4	1.28 H	346	12.1	33.5
3	*2412.00	97.3 PK			1.13 H	334	63.9	33.4
4	*2412.00	87.1 AV			1.13 H	334	53.7	33.4
5	4824.00	45.3 PK	74.0	-28.7	1.68 H	18	41.6	3.7
6	4824.00	31.8 AV	54.0	-22.2	1.68 H	18	28.1	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	64.5 PK	74.0	-9.5	1.53 V	333	31.0	33.5
2	2390.00	52.4 AV	54.0	-1.6	1.53 V	333	18.9	33.5
3	*2412.00	113.2 PK			1.60 V	172	79.8	33.4
4	*2412.00	104.0 AV			1.60 V	172	70.6	33.4
5	4824.00	45.4 PK	74.0	-28.6	1.71 V	183	41.7	3.7
6	4824.00	32.8 AV	54.0	-21.2	1.71 V	183	29.1	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 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)
TEST MODE	B		

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	57.2 PK	74.0	-16.8	1.38 H	313	23.7	33.5
2	2390.00	45.7 AV	54.0	-8.3	1.38 H	313	12.2	33.5
3	*2437.00	97.3 PK			1.17 H	330	63.9	33.4
4	*2437.00	87.4 AV			1.17 H	330	54.0	33.4
5	4874.00	44.9 PK	74.0	-29.1	1.05 H	11	41.4	3.5
6	4874.00	31.9 AV	54.0	-22.1	1.05 H	11	28.4	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	2390.00	64.4 PK	74.0	-9.6	1.41 V	155	30.9	33.5
2	2390.00	52.7 AV	54.0	-1.3	1.41 V	155	19.2	33.5
3	*2437.00	113.0 PK			1.40 V	333	79.6	33.4
4	*2437.00	103.3 AV			1.40 V	333	69.9	33.4
5	4874.00	44.4 PK	74.0	-29.6	1.66 V	191	40.9	3.5
6	4874.00	31.2 AV	54.0	-22.8	1.66 V	191	27.7	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.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)
TEST MODE	B		

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	101.2 PK			1.16 H	328	67.9	33.3
2	*2462.00	91.0 AV			1.16 H	328	57.7	33.3
3	2483.50	57.1 PK	74.0	-16.9	1.33 H	331	23.9	33.2
4	2483.50	45.2 AV	54.0	-8.8	1.33 H	331	12.0	33.2
5	4924.00	45.0 PK	74.0	-29.0	1.87 H	11	41.7	3.3
6	4924.00	31.7 AV	54.0	-22.3	1.87 H	11	28.4	3.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	117.1 PK			1.52 V	330	83.8	33.3
2	*2462.00	107.2 AV			1.52 V	330	73.9	33.3
3	2483.50	66.2 PK	74.0	-7.8	1.48 V	179	33.0	33.2
4	2483.50	52.3 AV	54.0	-1.7	1.48 V	179	19.1	33.2
5	4924.00	45.3 PK	74.0	-28.7	1.69 V	183	42.0	3.3
6	4924.00	31.5 AV	54.0	-22.5	1.69 V	183	28.2	3.3

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		
TEST MODE	B		

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	57.7 PK	74.0	-16.3	3.02 H	199	24.2	33.5
2	2390.00	45.4 AV	54.0	-8.6	3.02 H	199	11.9	33.5
3	*2412.00	96.1 PK			2.30 H	335	62.7	33.4
4	*2412.00	85.7 AV			2.30 H	335	52.3	33.4
5	4824.00	44.8 PK	74.0	-29.2	1.88 H	130	41.1	3.7
6	4824.00	32.1 AV	54.0	-21.9	1.88 H	130	28.4	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	65.0 PK	74.0	-9.0	1.46 V	197	31.5	33.5
2	2390.00	52.7 AV	54.0	-1.3	1.46 V	197	19.2	33.5
3	*2412.00	113.9 PK			1.52 V	180	80.5	33.4
4	*2412.00	103.5 AV			1.52 V	180	70.1	33.4
5	4824.00	45.0 PK	74.0	-29.0	1.73 V	160	41.3	3.7
6	4824.00	31.8 AV	54.0	-22.2	1.73 V	160	28.1	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 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)
TEST MODE	B		

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	95.8 PK			2.52 H	352	62.4	33.4
2	*2437.00	85.3 AV			2.52 H	352	51.9	33.4
3	2483.50	56.9 PK	74.0	-17.1	1.70 H	297	23.7	33.2
4	2483.50	44.7 AV	54.0	-9.3	1.70 H	297	11.5	33.2
5	4874.00	45.5 PK	74.0	-28.5	1.68 H	212	42.0	3.5
6	4874.00	31.7 AV	54.0	-22.3	1.68 H	212	28.2	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	*2437.00	113.3 PK			1.42 V	150	79.9	33.4
2	*2437.00	103.4 AV			1.42 V	150	70.0	33.4
3	2483.50	65.6 PK	74.0	-8.4	1.52 V	354	32.4	33.2
4	2483.50	52.6 AV	54.0	-1.4	1.52 V	354	19.4	33.2
5	4874.00	44.3 PK	74.0	-29.7	1.54 V	188	40.8	3.5
6	4874.00	31.2 AV	54.0	-22.8	1.54 V	188	27.7	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.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)
TEST MODE	B		

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	97.8 PK			2.20 H	357	64.5	33.3
2	*2462.00	87.4 AV			2.20 H	357	54.1	33.3
3	2483.50	57.7 PK	74.0	-16.3	1.87 H	324	24.5	33.2
4	2483.50	44.9 AV	54.0	-9.1	1.87 H	324	11.7	33.2
5	4924.00	44.6 PK	74.0	-29.4	1.73 H	241	41.3	3.3
6	4924.00	31.6 AV	54.0	-22.4	1.73 H	241	28.3	3.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	116.5 PK			1.38 V	161	83.2	33.3
2	*2462.00	106.1 AV			1.38 V	161	72.8	33.3
3	2483.50	64.0 PK	74.0	-10.0	1.52 V	9	30.8	33.2
4	2483.50	52.4 AV	54.0	-1.6	1.52 V	9	19.2	33.2
5	4924.00	44.7 PK	74.0	-29.3	1.64 V	193	41.4	3.3
6	4924.00	31.9 AV	54.0	-22.1	1.64 V	193	28.6	3.3

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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 FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)
TEST MODE	B		

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	57.2 PK	74.0	-16.8	1.89 H	293	23.7	33.5
2	2390.00	45.4 AV	54.0	-8.6	1.89 H	293	11.9	33.5
3	*2422.00	89.9 PK			2.50 H	352	56.5	33.4
4	*2422.00	79.6 AV			2.50 H	352	46.2	33.4
5	4844.00	44.6 PK	74.0	-29.4	1.83 H	212	41.0	3.6
6	4844.00	31.1 AV	54.0	-22.9	1.83 H	212	27.5	3.6

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	64.0 PK	74.0	-10.0	1.43 V	161	30.5	33.5
2	2390.00	52.9 AV	54.0	-1.1	1.43 V	161	19.4	33.5
3	*2422.00	109.0 PK			1.45 V	341	75.6	33.4
4	*2422.00	98.9 AV			1.45 V	341	65.5	33.4
5	4844.00	44.4 PK	74.0	-29.6	1.61 V	193	40.8	3.6
6	4844.00	30.8 AV	54.0	-23.2	1.61 V	193	27.2	3.6

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. 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)
TEST MODE	B		

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	56.9 PK	74.0	-17.1	1.92 H	278	23.4	33.5
2	2390.00	45.2 AV	54.0	-8.8	1.92 H	278	11.7	33.5
3	*2437.00	94.2 PK			2.50 H	350	60.8	33.4
4	*2437.00	84.0 AV			2.50 H	350	50.6	33.4
5	4874.00	44.4 PK	74.0	-29.6	1.87 H	193	40.9	3.5
6	4874.00	31.2 AV	54.0	-22.8	1.87 H	193	27.7	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	2390.00	64.7 PK	74.0	-9.3	1.76 V	76	31.2	33.5
2	2390.00	52.6 AV	54.0	-1.4	1.76 V	76	19.1	33.5
3	*2437.00	113.2 PK			1.39 V	345	79.8	33.4
4	*2437.00	103.3 AV			1.39 V	345	69.9	33.4
5	4874.00	44.6 PK	74.0	-29.4	1.57 V	188	41.1	3.5
6	4874.00	31.3 AV	54.0	-22.7	1.57 V	188	27.8	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.

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)
TEST MODE	B		

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	91.1 PK			2.42 H	341	57.7	33.4
2	*2452.00	81.4 AV			2.42 H	341	48.0	33.4
3	2483.50	57.1 PK	74.0	-16.9	2.01 H	317	23.9	33.2
4	2483.50	45.0 AV	54.0	-9.0	2.01 H	317	11.8	33.2
5	4904.00	44.0 PK	74.0	-30.0	1.89 H	199	40.6	3.4
6	4904.00	31.3 AV	54.0	-22.7	1.89 H	199	27.9	3.4

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	*2452.00	109.6 PK			1.54 V	168	76.2	33.4
2	*2452.00	99.9 AV			1.54 V	168	66.5	33.4
3	2483.50	66.8 PK	74.0	-7.2	1.46 V	188	33.6	33.2
4	2483.50	52.6 AV	54.0	-1.4	1.46 V	188	19.4	33.2
5	4904.00	45.2 PK	74.0	-28.8	1.68 V	177	41.8	3.4
6	4904.00	31.1 AV	54.0	-22.9	1.68 V	177	27.7	3.4

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. 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 11	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	A		

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	31.94	31.2 QP	40.0	-8.8	1.50 H	83	46.1	-14.9
2	57.16	33.6 QP	40.0	-6.4	1.00 H	235	47.2	-13.6
3	268.62	29.9 QP	46.0	-16.1	1.00 H	235	43.2	-13.3
4	597.45	27.3 QP	46.0	-18.7	1.50 H	223	34.7	-7.4
5	649.83	28.3 QP	46.0	-17.7	1.50 H	216	34.9	-6.6
6	916.58	28.0 QP	46.0	-18.0	1.25 H	16	30.0	-2.0

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	72.68	33.6 QP	40.0	-6.4	2.00 V	276	49.2	-15.6
2	109.54	24.6 QP	43.5	-18.9	1.50 V	228	41.2	-16.6
3	262.80	26.3 QP	46.0	-19.7	1.00 V	174	39.9	-13.6
4	619.76	22.9 QP	46.0	-23.1	1.00 V	152	29.8	-6.9
5	746.83	25.9 QP	46.0	-20.1	1.50 V	312	30.6	-4.7
6	959.26	28.5 QP	46.0	-17.5	1.25 V	273	29.7	-1.2

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

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	B		

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	30.00	39.1 QP	40.0	-0.9	1.00 H	53	54.2	-15.1
2	63.95	32.8 QP	40.0	-7.2	1.50 H	359	47.0	-14.2
3	266.68	26.1 QP	46.0	-19.9	1.50 H	93	39.5	-13.4
4	597.45	25.7 QP	46.0	-20.3	1.25 H	303	33.1	-7.4
5	649.83	29.3 QP	46.0	-16.7	1.50 H	209	35.9	-6.6
6	1000.00	31.0 QP	54.0	-23.0	2.00 H	340	32.0	-1.0

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	30.97	36.8 QP	40.0	-3.2	1.50 V	75	51.8	-15.0
2	66.86	34.6 QP	40.0	-5.4	1.50 V	122	49.0	-14.4
3	392.78	19.4 QP	46.0	-26.6	1.00 V	156	30.3	-10.9
4	598.42	23.2 QP	46.0	-22.8	1.25 V	174	30.5	-7.3
5	713.85	28.7 QP	46.0	-17.3	1.00 V	327	34.3	-5.6
6	979.63	28.1 QP	54.0	-25.9	1.50 V	158	29.3	-1.2

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

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 Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	835239/001	Mar. 10, 2017	Mar. 09, 2018
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
Software ADT	BV ADT_Cond_ 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

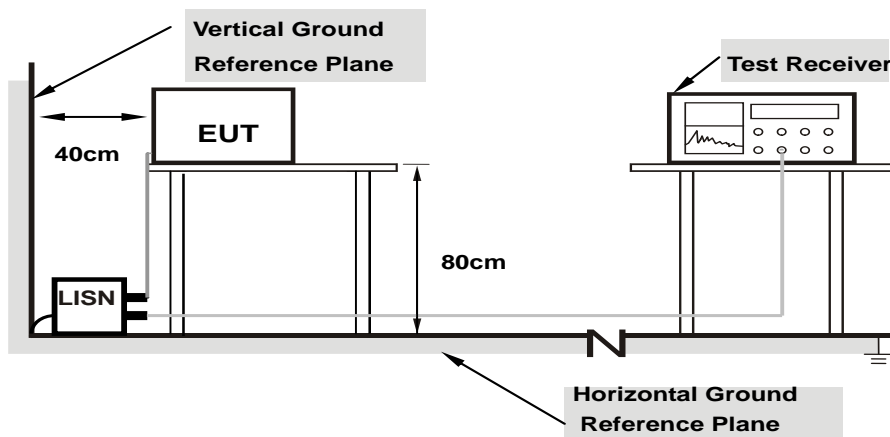
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

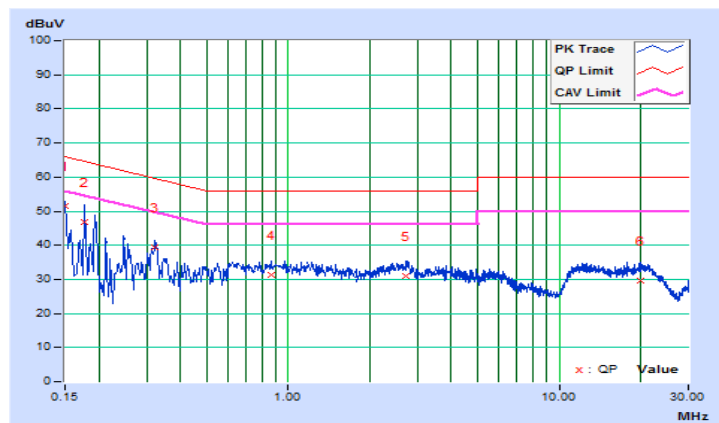
Worst-case data: 802.11b

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

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	0.15000	10.45	41.04	17.25	51.49	27.70	66.00	56.00	-14.51	-28.30
2	0.17737	10.45	36.38	15.17	46.83	25.62	64.61	54.61	-17.78	-28.99
3	0.32272	10.48	29.01	18.63	39.49	29.11	59.64	49.64	-20.15	-20.53
4	0.86162	10.46	20.81	11.88	31.27	22.34	56.00	46.00	-24.73	-23.66
5	2.70714	10.56	20.40	11.51	30.96	22.07	56.00	46.00	-25.04	-23.93
6	19.92287	11.39	18.09	9.93	29.48	21.32	60.00	50.00	-30.52	-28.68

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.

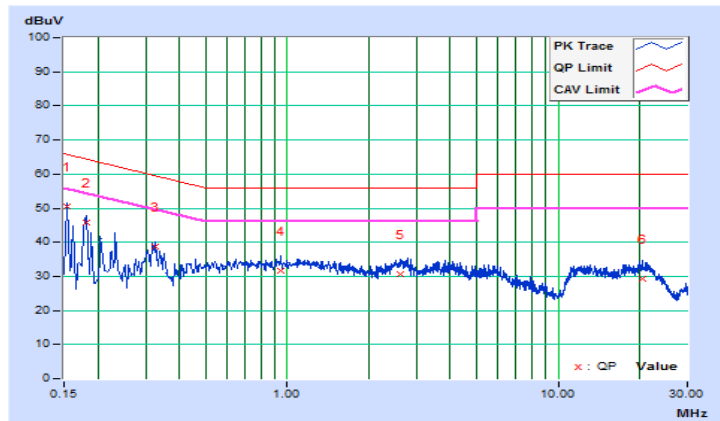


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

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	0.15391	10.20	40.32	17.59	50.52	27.79	65.79
2	0.18122	10.21	35.67	14.13	45.88	24.34	64.43	54.43	-18.55	-30.09
3	0.32595	10.24	28.52	18.55	38.76	28.79	59.55	49.55	-20.79	-20.76
4	0.94764	10.26	21.48	12.20	31.74	22.46	56.00	46.00	-24.26	-23.54
5	2.62503	10.32	20.44	11.67	30.76	21.99	56.00	46.00	-25.24	-24.01
6	20.39598	11.05	18.18	9.91	29.23	20.96	60.00	50.00	-30.77	-29.04

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.

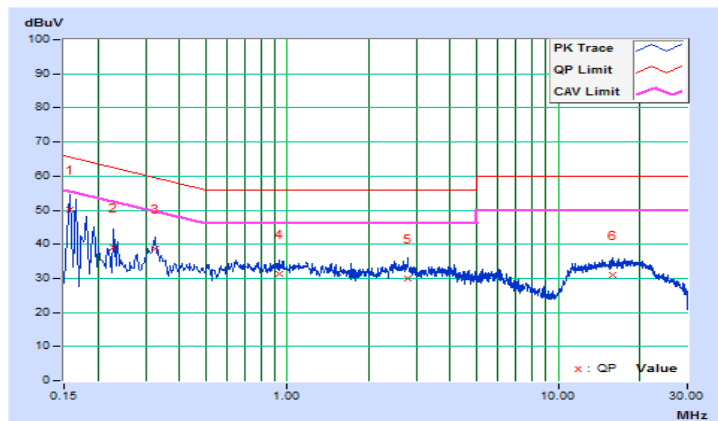


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

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	0.15760	10.45	39.65	17.35	50.10	27.80	65.59
2	0.22820	10.45	28.66	11.18	39.11	21.63	62.51	52.51	-23.40	-30.88
3	0.32595	10.48	28.09	17.79	38.57	28.27	59.55	49.55	-20.98	-21.28
4	0.93982	10.46	20.75	11.22	31.21	21.68	56.00	46.00	-24.79	-24.32
5	2.78925	10.56	19.56	10.67	30.12	21.23	56.00	46.00	-25.88	-24.77
6	15.86820	11.19	19.62	10.88	30.81	22.07	60.00	50.00	-29.19	-27.93

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.

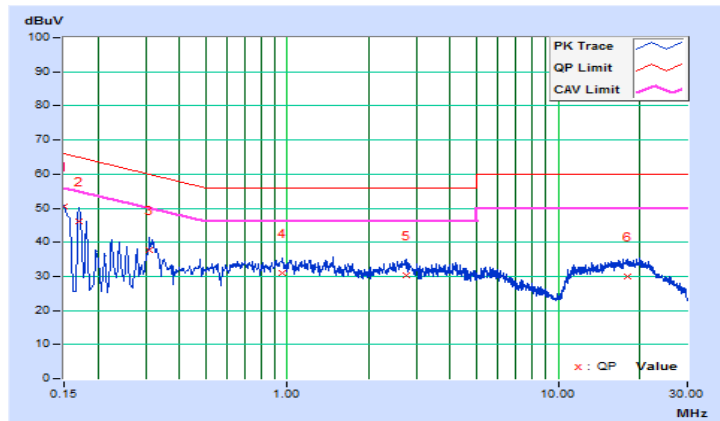


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

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	0.15000	10.19	40.39	16.37	50.58	26.56	66.00
2	0.16967	10.21	36.03	13.93	46.24	24.14	64.98	54.98	-18.74	-30.84
3	0.31021	10.24	27.44	16.70	37.68	26.94	59.96	49.96	-22.28	-23.02
4	0.95546	10.26	20.58	11.04	30.84	21.30	56.00	46.00	-25.16	-24.70
5	2.73842	10.33	20.14	11.24	30.47	21.57	56.00	46.00	-25.53	-24.43
6	18.01479	10.96	19.03	10.37	29.99	21.33	60.00	50.00	-30.01	-28.67

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.

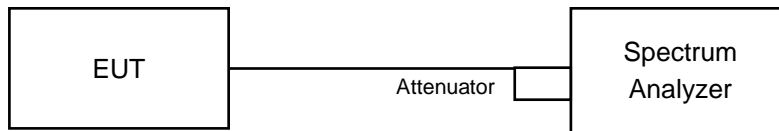


4.3 6dB Bandwidth Measurement

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 = average.
- 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	9.62	10.08	0.5	Pass
6	2437	10.05	10.04	0.5	Pass
11	2462	10.06	9.58	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.16	15.16	0.5	Pass
6	2437	15.14	15.14	0.5	Pass
11	2462	15.11	15.15	0.5	Pass

802.11n (HT20)

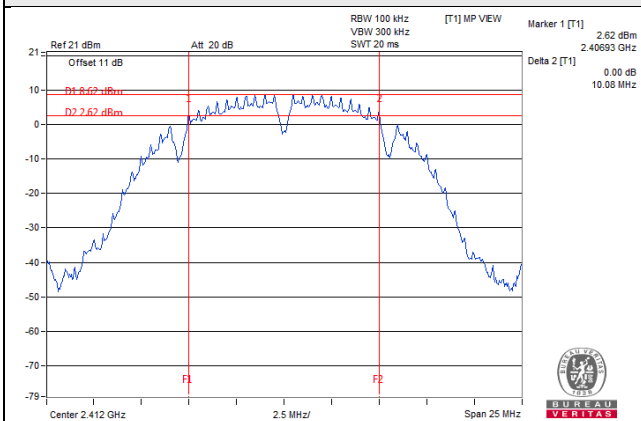
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.17	15.13	0.5	Pass
6	2437	15.11	15.14	0.5	Pass
11	2462	15.09	15.14	0.5	Pass

802.11n (HT40)

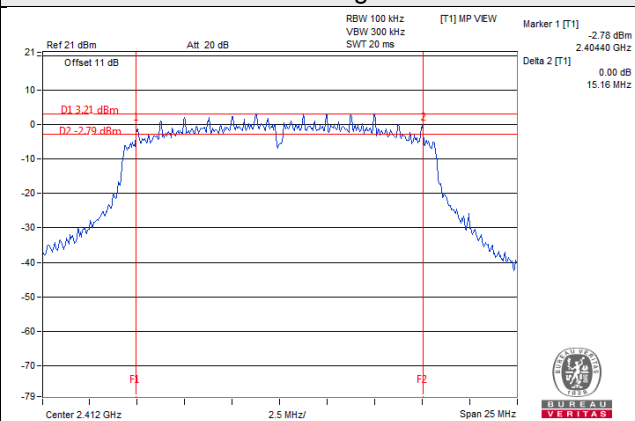
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	33.93	33.90	0.5	Pass
6	2437	33.87	32.63	0.5	Pass
9	2452	33.89	32.64	0.5	Pass

Spectrum Plot of Worst Value

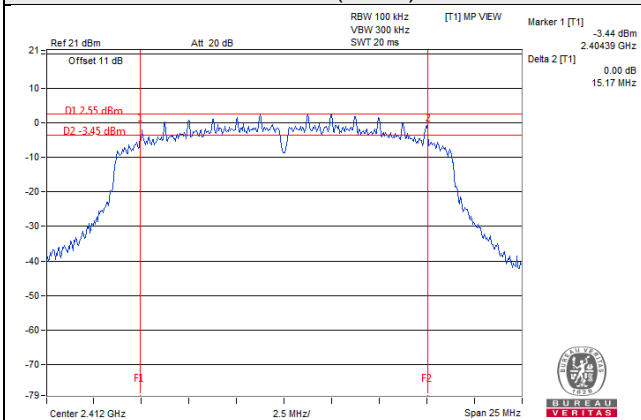
802.11b



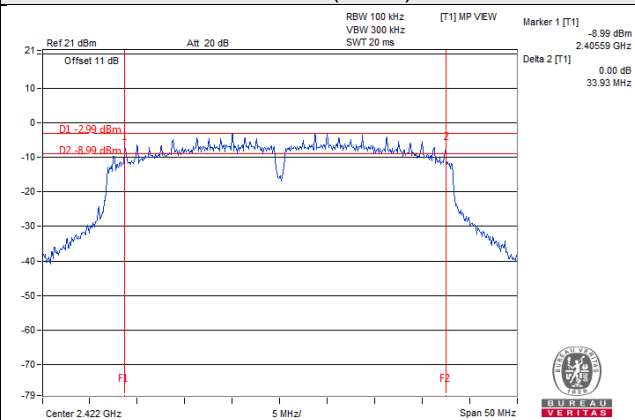
802.11g



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,

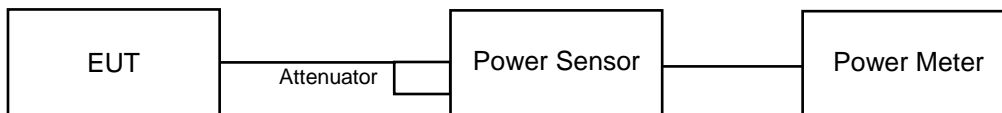
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

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

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as item 4.3.6.

4.4.7 Test Results

802.11b

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	18.36	17.88	129.925	21.14	30.00	Pass
6	2437	19.03	18.88	157.251	21.97	30.00	Pass
11	2462	19.07	18.91	158.528	22.00	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	14.03	13.97	50.239	17.01	30.00	Pass
6	2437	13.24	12.82	40.229	16.05	30.00	Pass
11	2462	17.01	16.36	93.485	19.71	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	13.53	13.16	43.243	16.36	30.00	Pass
6	2437	14.35	13.50	49.614	16.96	30.00	Pass
11	2462	16.99	16.55	95.189	19.79	30.00	Pass

802.11n (HT40)

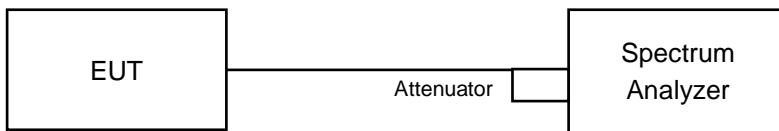
Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	11.23	10.72	25.077	13.99	30.00	Pass
6	2437	15.89	15.26	72.389	18.60	30.00	Pass
9	2452	13.03	12.33	37.191	15.70	30.00	Pass

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

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

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.

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	-11.13	3.01	-8.12	3.63	Pass
	6	2437	-10.54	3.01	-7.53	3.63	Pass
	11	2462	-11.01	3.01	-8.00	3.63	Pass
1	1	2412	-10.30	3.01	-7.29	3.63	Pass
	6	2437	-10.89	3.01	-7.88	3.63	Pass
	11	2462	-11.10	3.01	-8.09	3.63	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 = $7.36\text{dBi} + 10\log(2) = 10.37\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8 - (10.37 - 6) = 3.63\text{dBm}$.

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	-17.34	3.01	0.18	-14.15	3.63	Pass
	6	2437	-17.82	3.01	0.18	-14.63	3.63	Pass
	11	2462	-14.85	3.01	0.18	-11.66	3.63	Pass
1	1	2412	-16.90	3.01	0.18	-13.71	3.63	Pass
	6	2437	-18.02	3.01	0.18	-14.83	3.63	Pass
	11	2462	-14.87	3.01	0.18	-11.68	3.63	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 = $7.36\text{dBi} + 10\log(2) = 10.37\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8 - (10.37 - 6) = 3.63\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

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	-18.47	3.01	0.16	-15.30	3.63	Pass
	6	2437	-17.14	3.01	0.16	-13.97	3.63	Pass
	11	2462	-14.58	3.01	0.16	-11.41	3.63	Pass
1	1	2412	-18.00	3.01	0.16	-14.83	3.63	Pass
	6	2437	-17.35	3.01	0.16	-14.18	3.63	Pass
	11	2462	-13.97	3.01	0.16	-10.80	3.63	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 = 7.36dBi + 10log(2) = 10.37dBi > 6dBi, so the power density limit shall be reduced to 8-(10.37-6) = 3.63dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

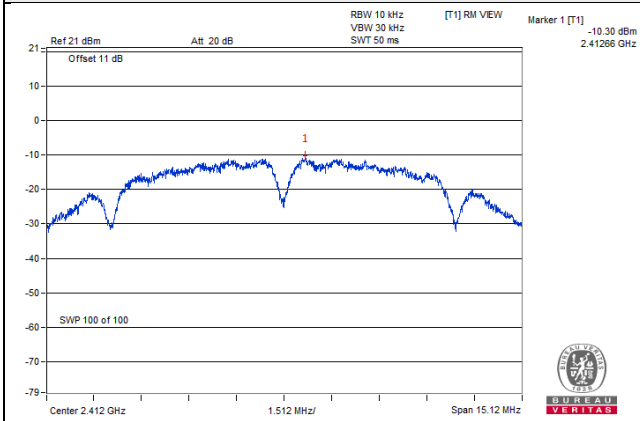
TX chain	Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-23.29	3.01	0.22	-20.06	3.63	Pass
	6	2437	-19.19	3.01	0.22	-15.96	3.63	Pass
	11	2462	-21.69	3.01	0.22	-18.46	3.63	Pass
1	1	2412	-23.98	3.01	0.22	-20.75	3.63	Pass
	6	2437	-18.40	3.01	0.22	-15.17	3.63	Pass
	11	2462	-21.96	3.01	0.22	-18.73	3.63	Pass

Note:

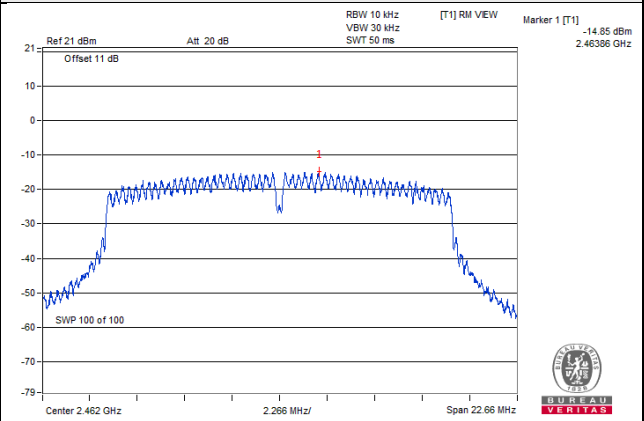
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 7.36dBi + 10log(2) = 10.37dBi > 6dBi, so the power density limit shall be reduced to 8-(10.37-6) = 3.63dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

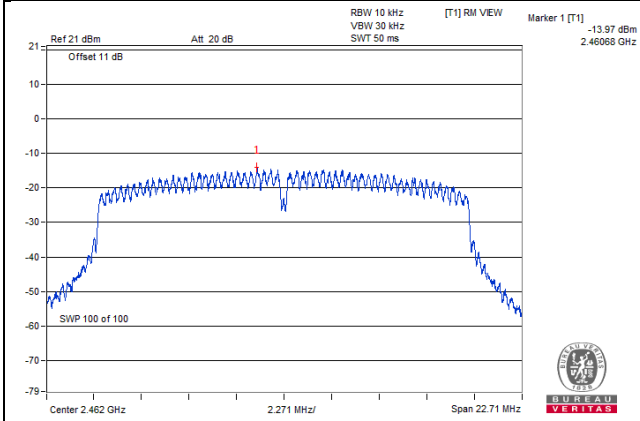
802.11b



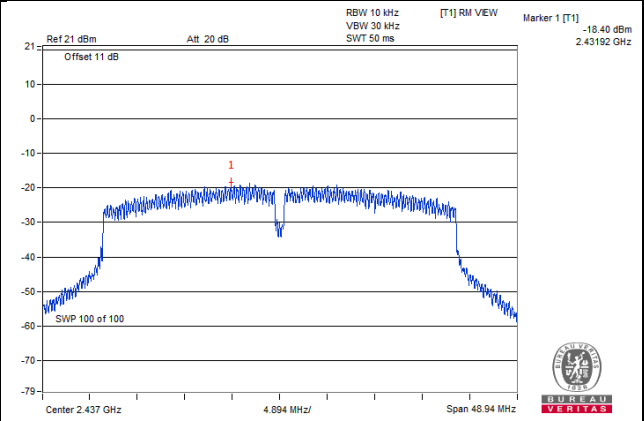
802.11g



802.11n (HT20)



802.11n (HT40)

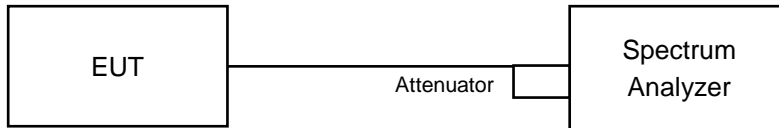


4.6 Conducted Out of Band Emission Measurement

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 = average.
- 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 = average.
- 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

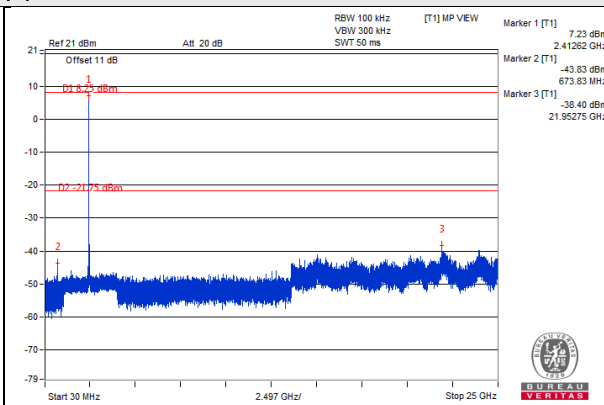
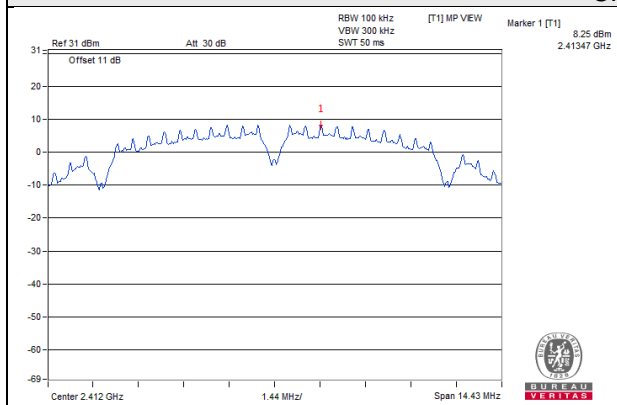
4.6.7 Test Results

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.

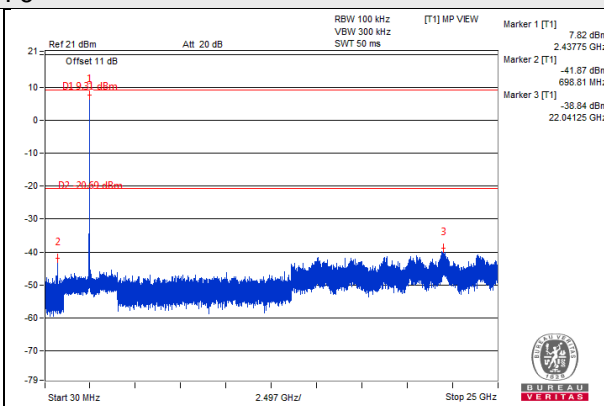
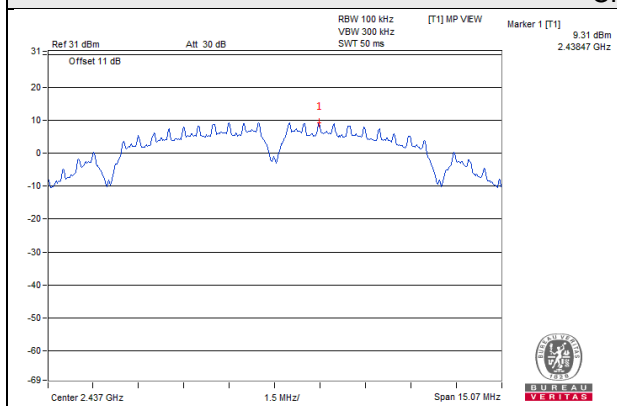
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.

802.11b_Chain 0

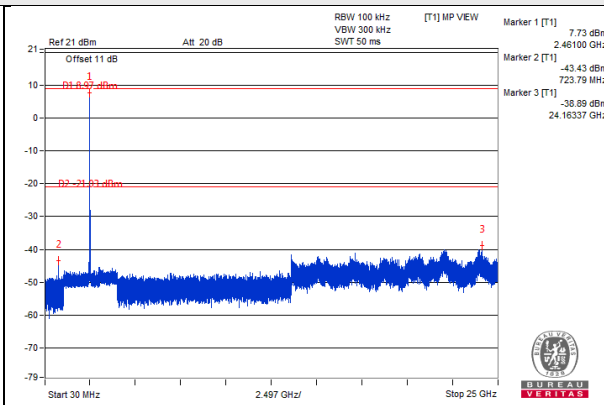
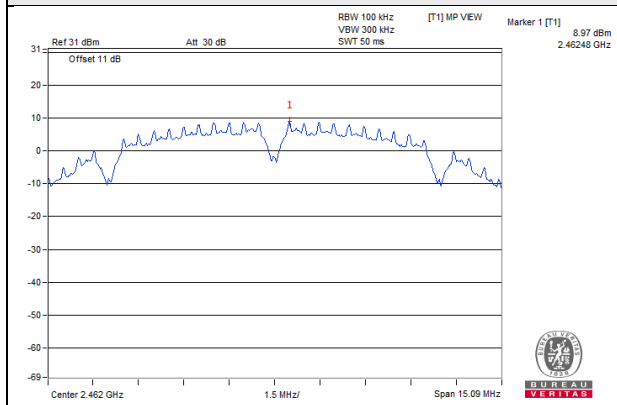
CH 1



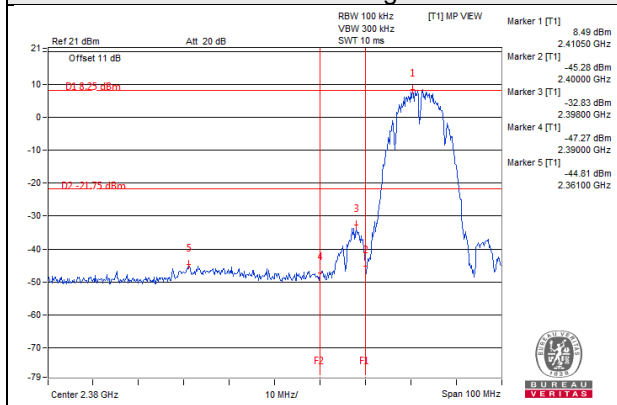
CH 6



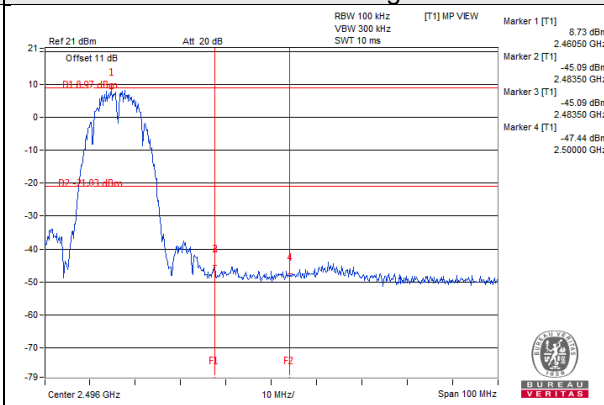
CH 11



CH 1 Band edge

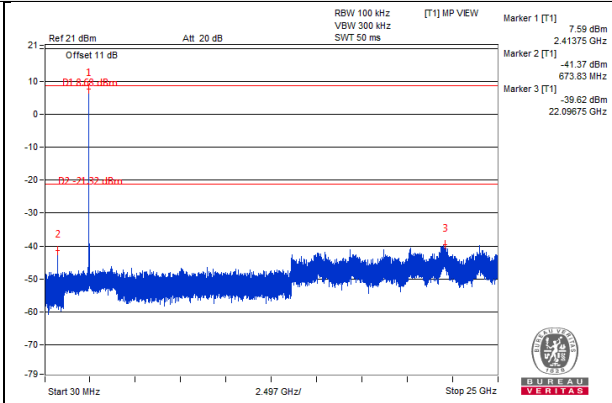
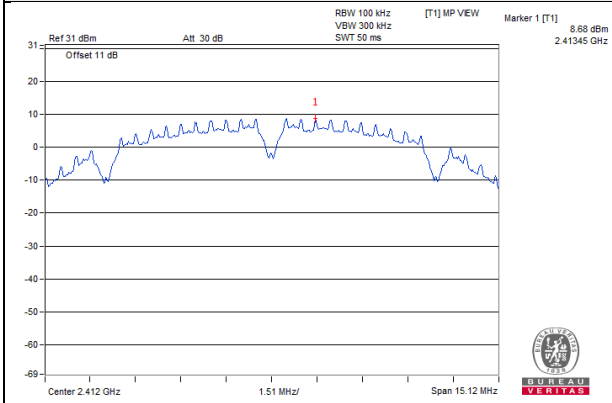


CH 11 Band edge

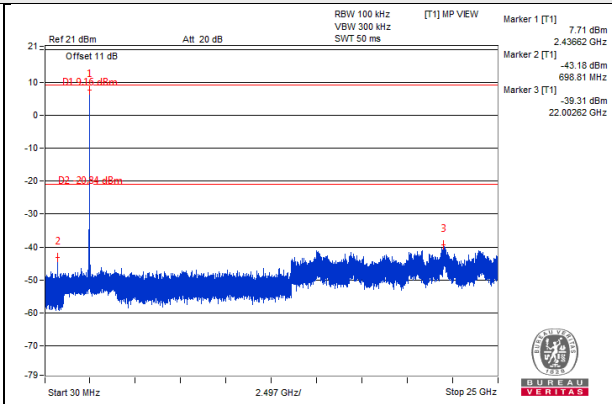
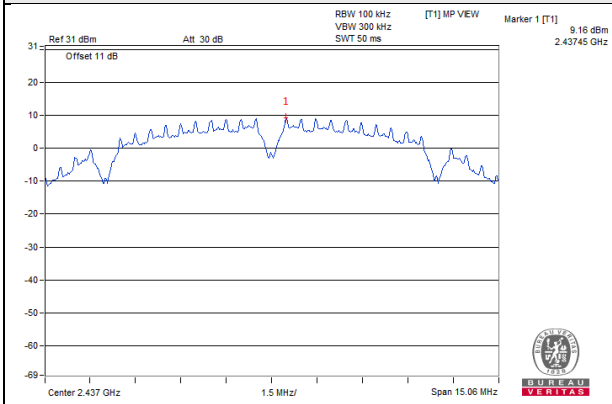


802.11b_Chain 1

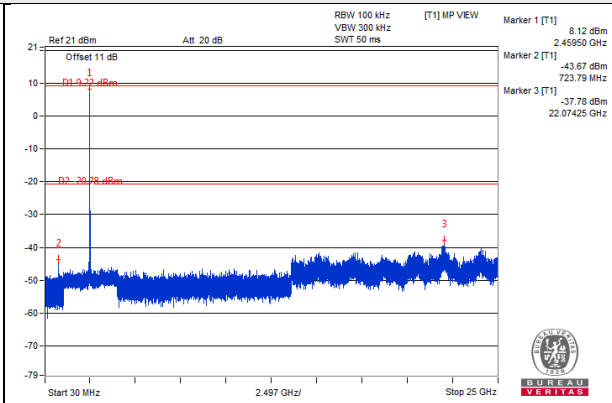
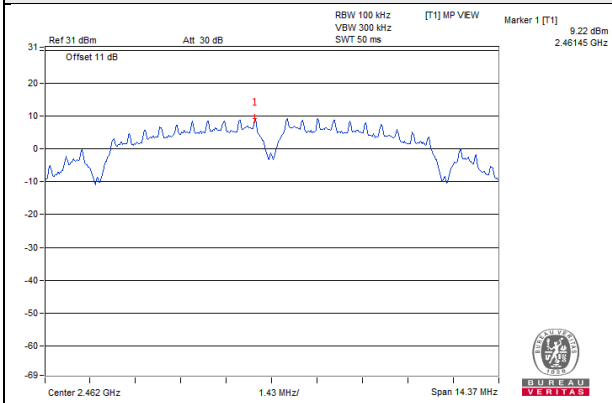
CH 1



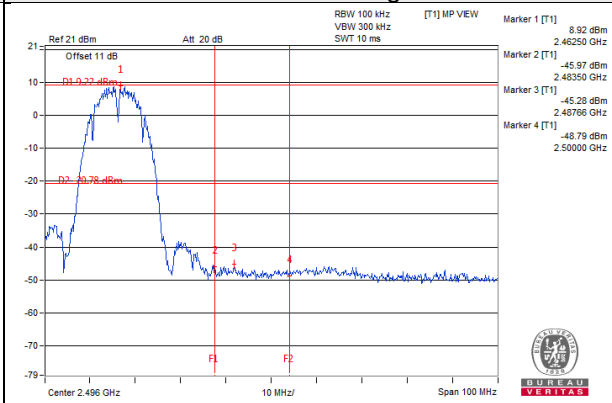
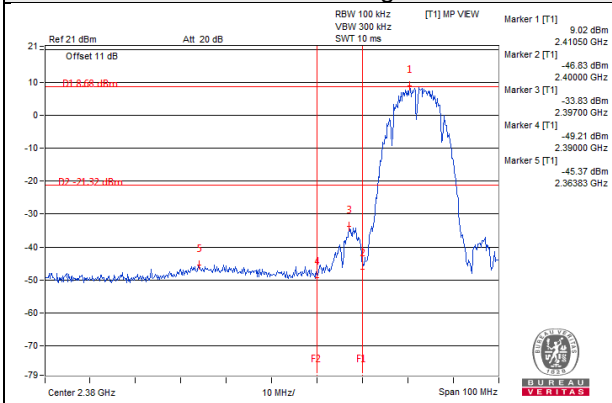
CH 6



CH 11

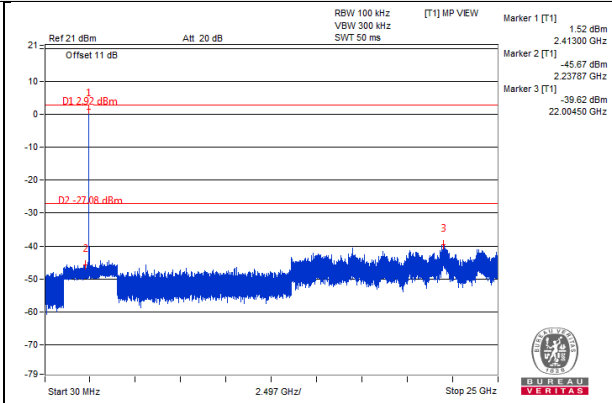
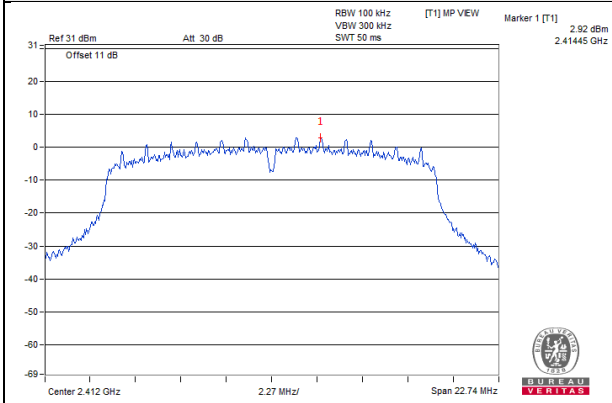


CH 1 Band edge

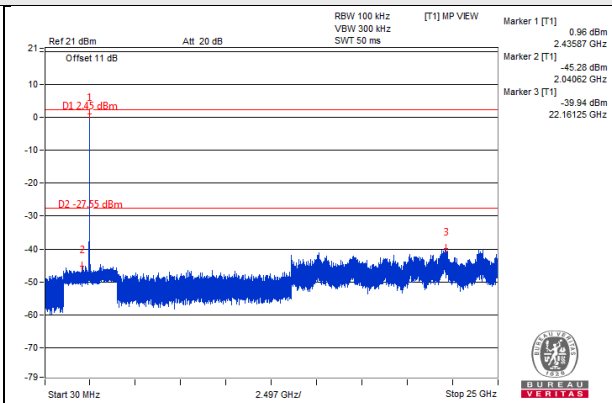
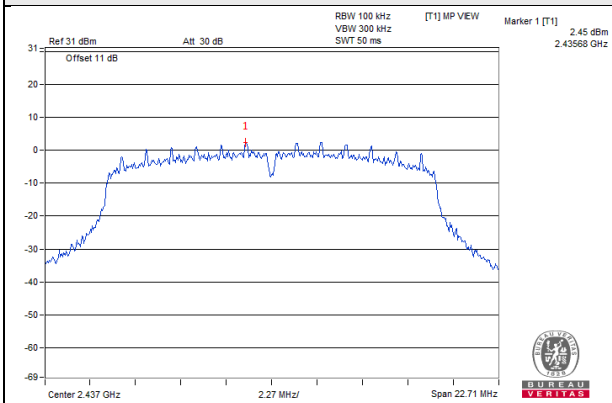


802.11g_Chain 0

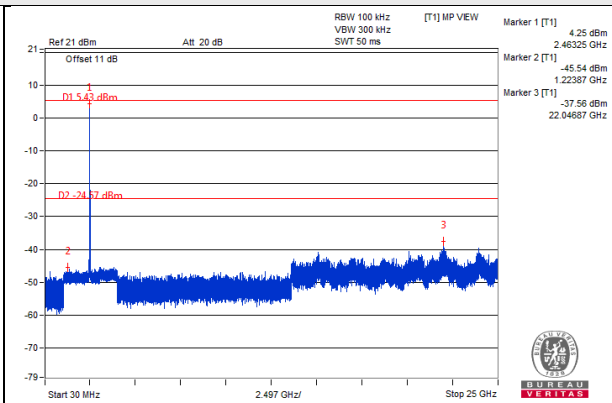
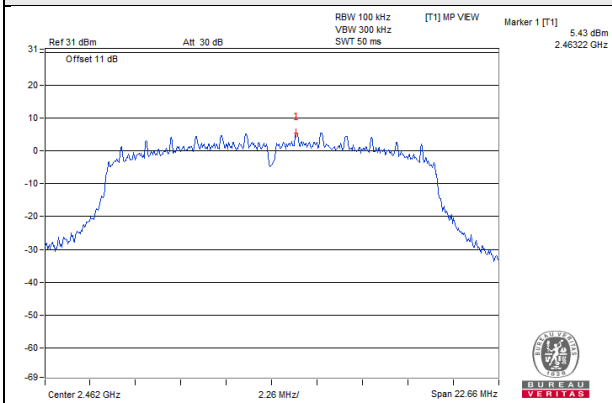
CH 1



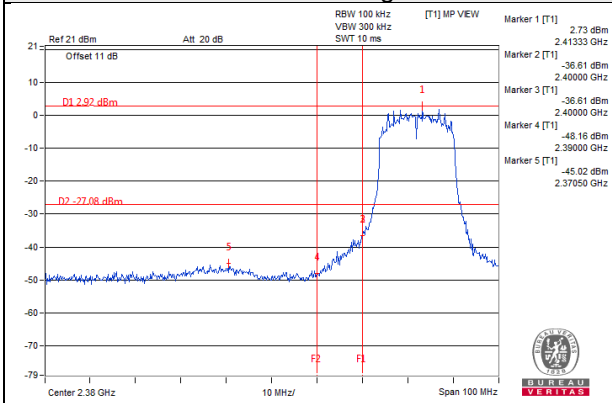
CH 6



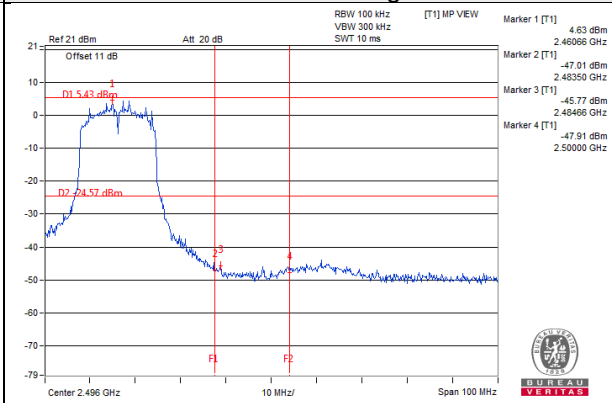
CH 11



CH 1 Band edge

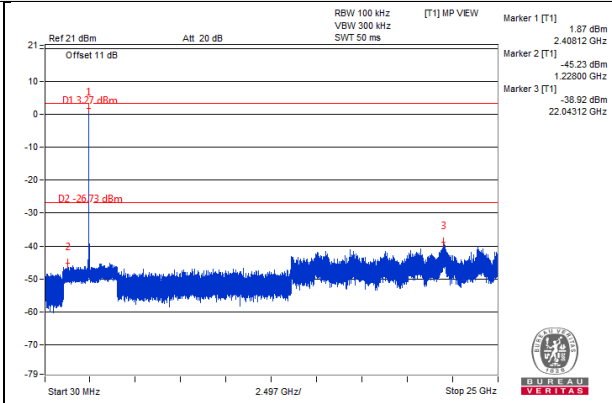
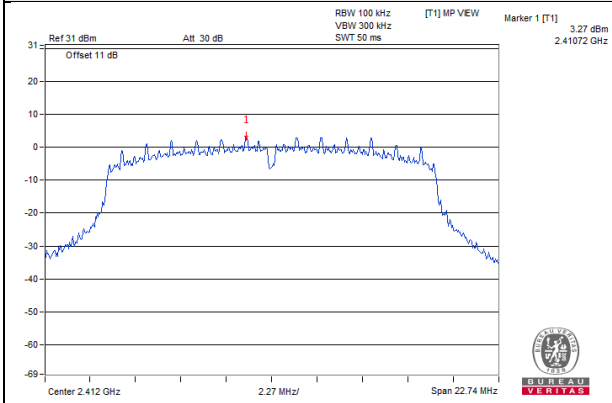


CH 11 Band edge

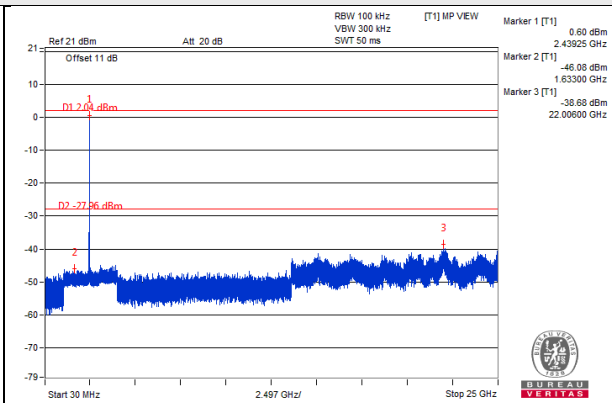
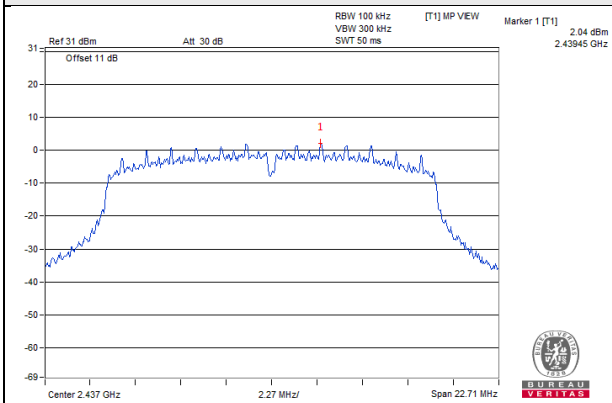


802.11g_Chain 1

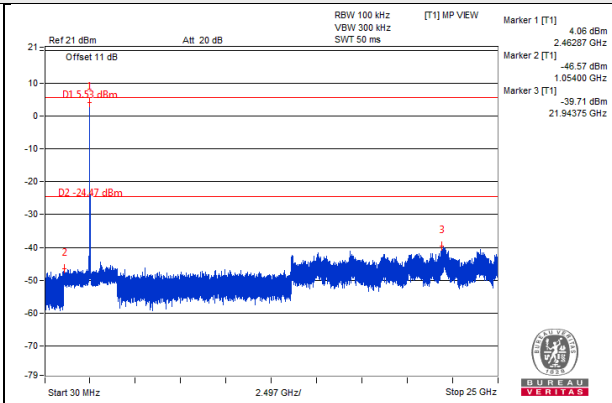
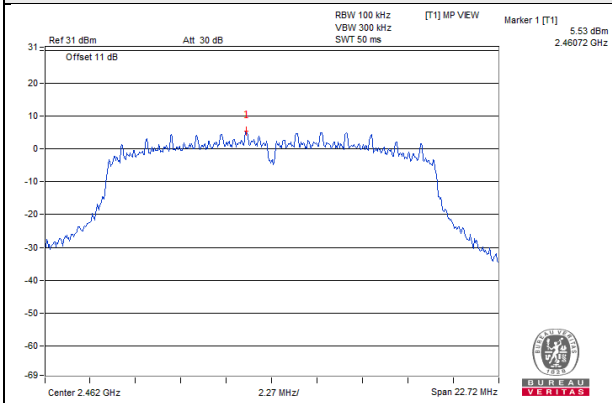
CH 1



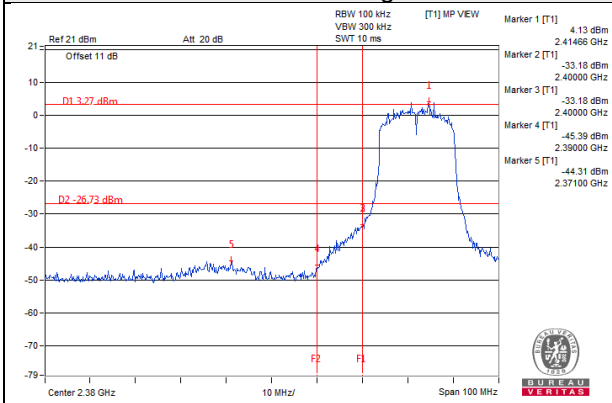
CH 6



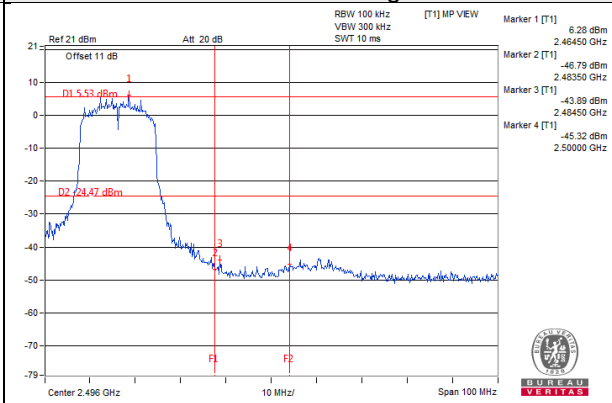
CH 11



CH 1 Band edge

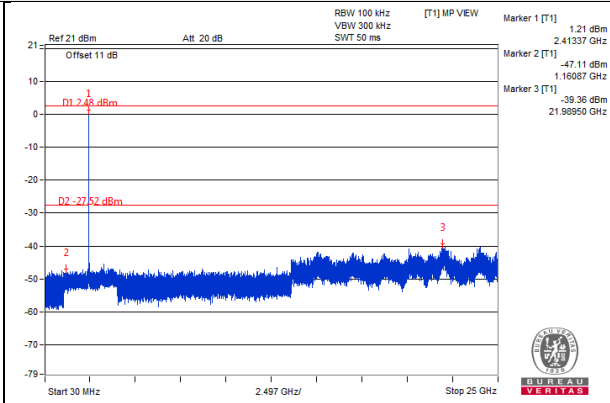
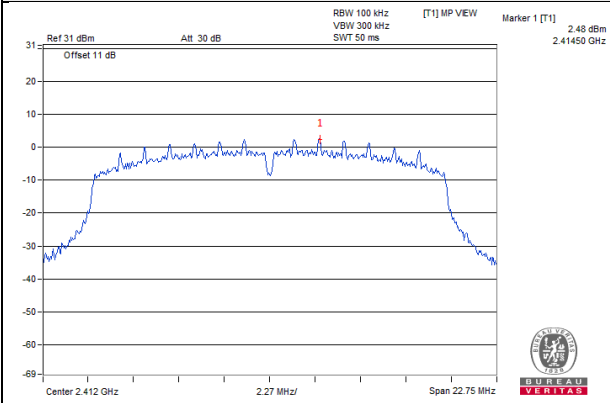


CH 11 Band edge

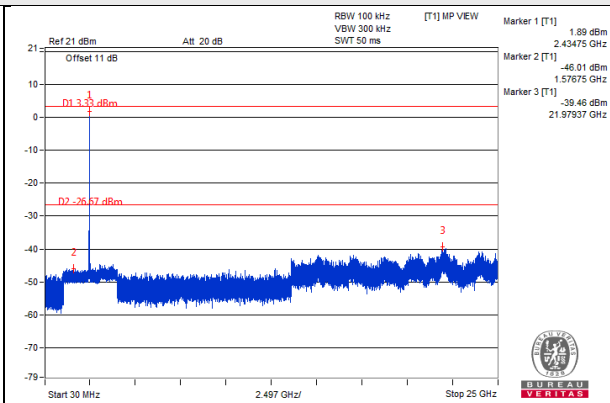
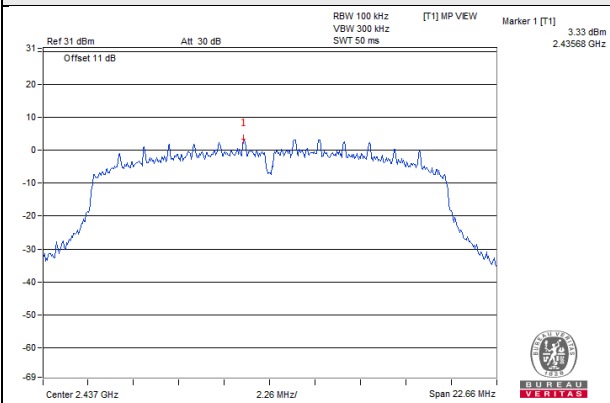


802.11n (HT20)_Chain 0

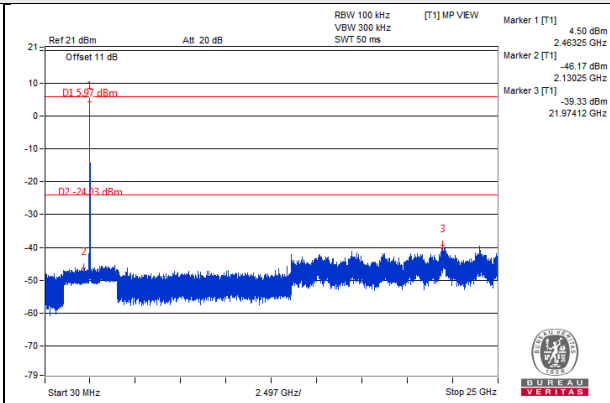
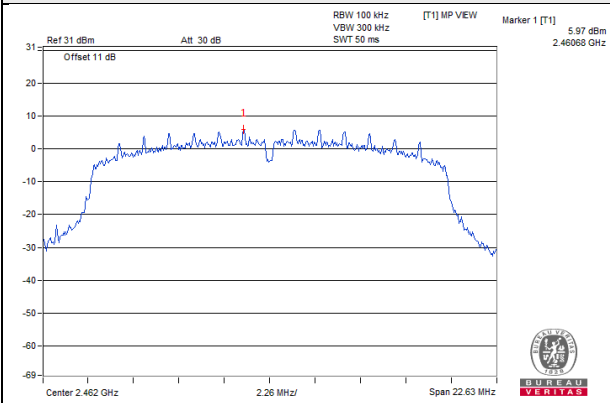
CH 1



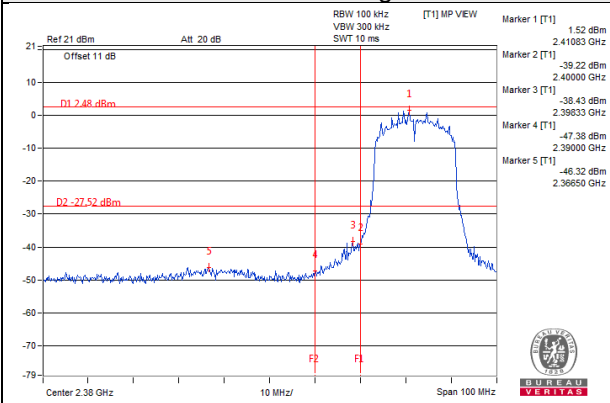
CH 6



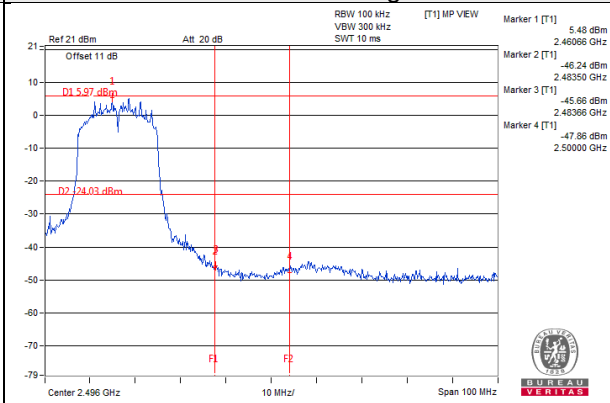
CH 11



CH 1 Band edge

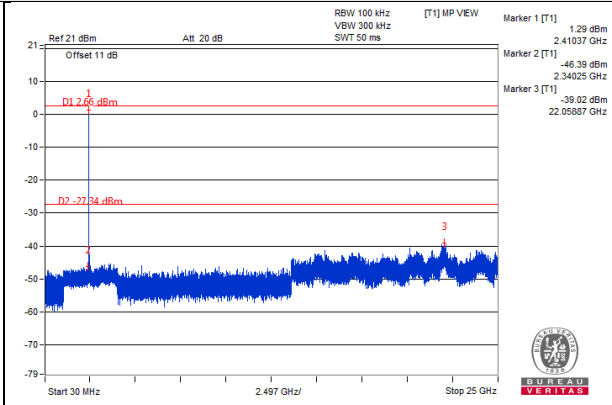
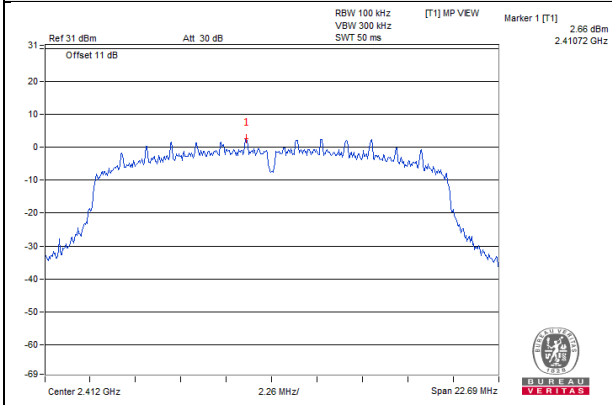


CH 11 Band edge

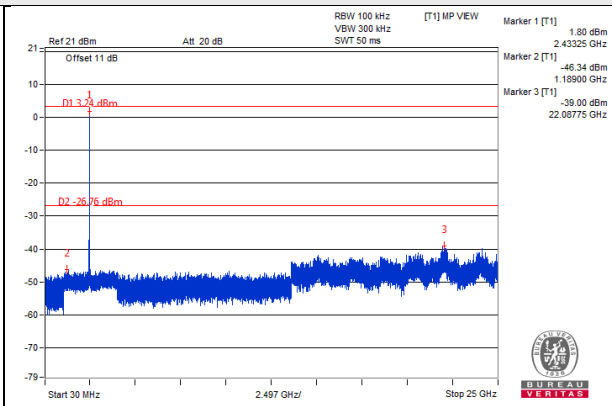
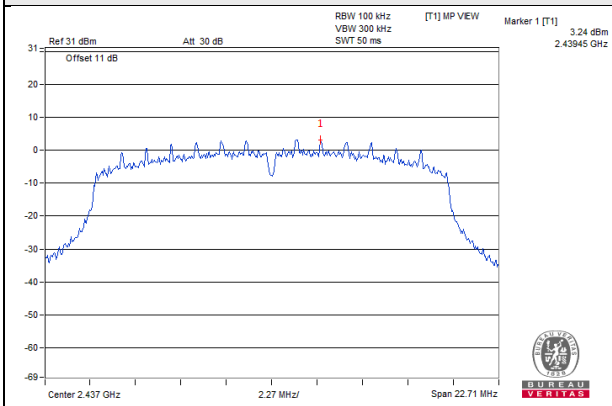


802.11n (HT20)_Chain 1

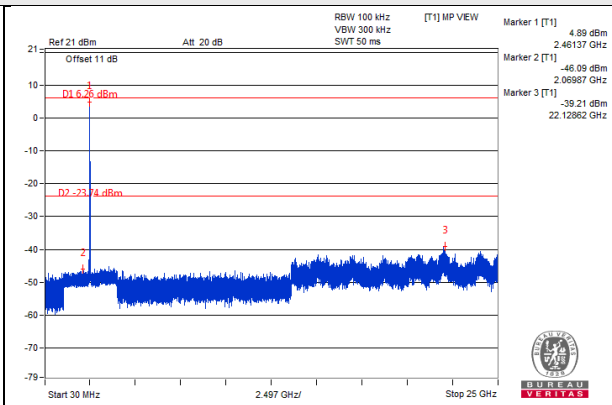
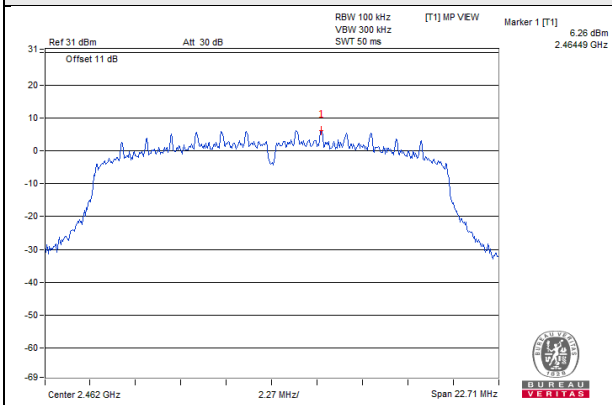
CH 1



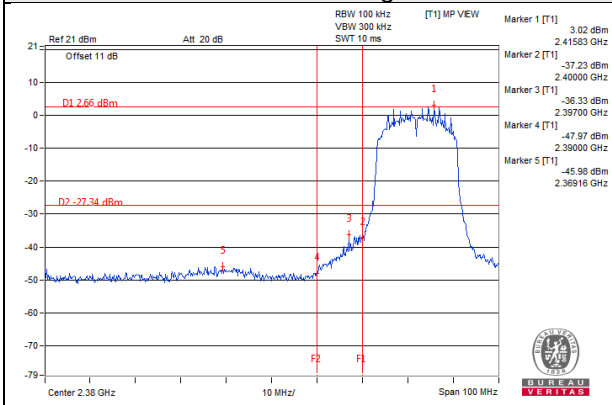
CH 6



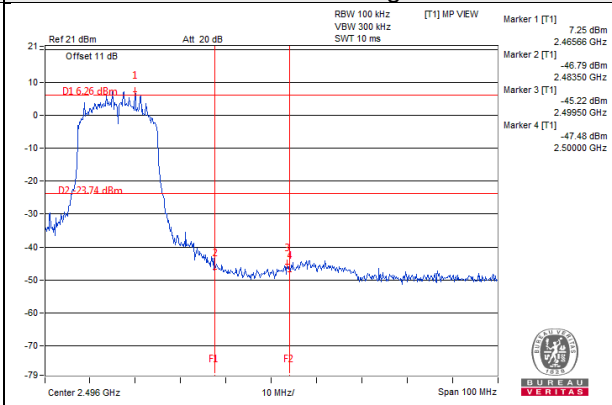
CH 11



CH 1 Band edge

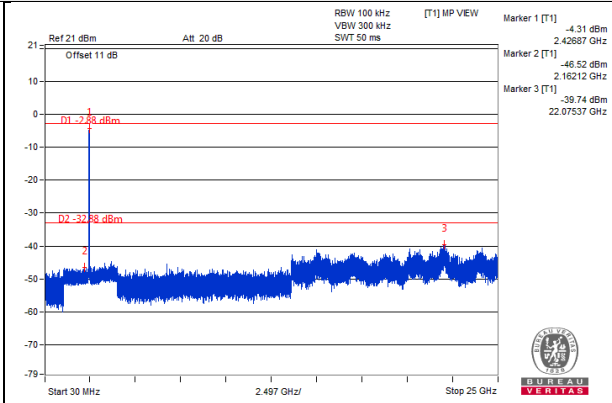
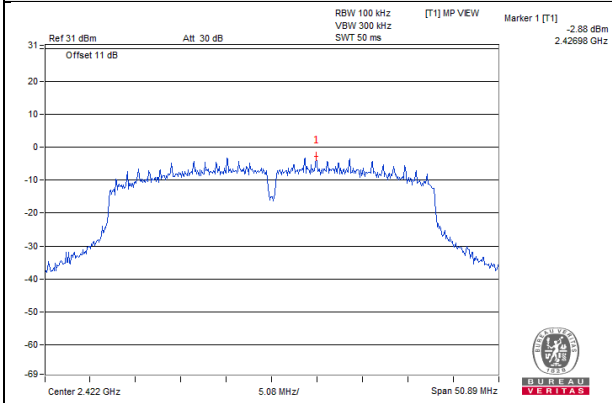


CH 11 Band edge

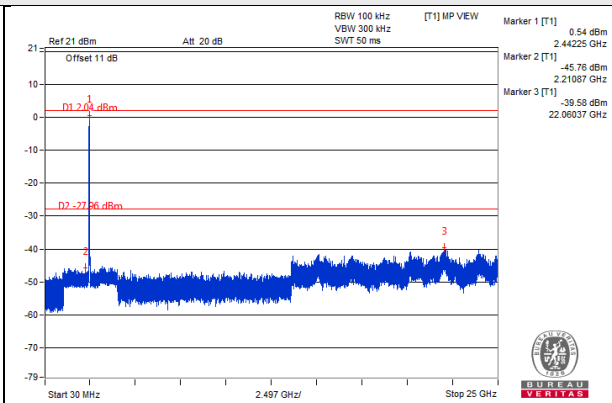
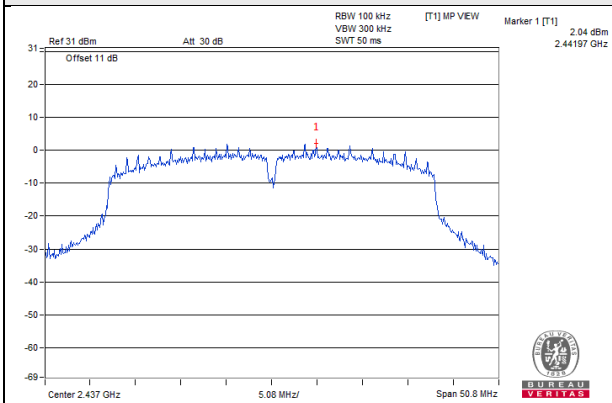


802.11n (HT40)_Chain 0

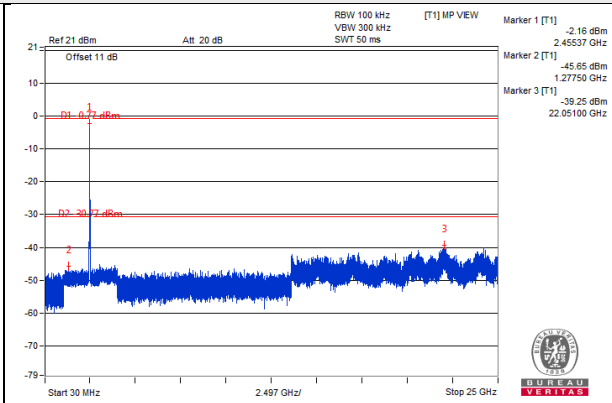
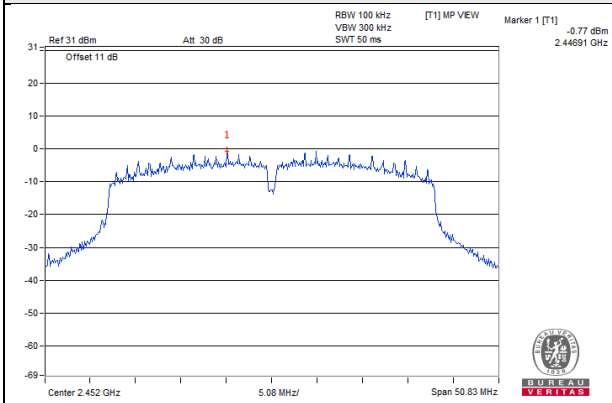
CH 3



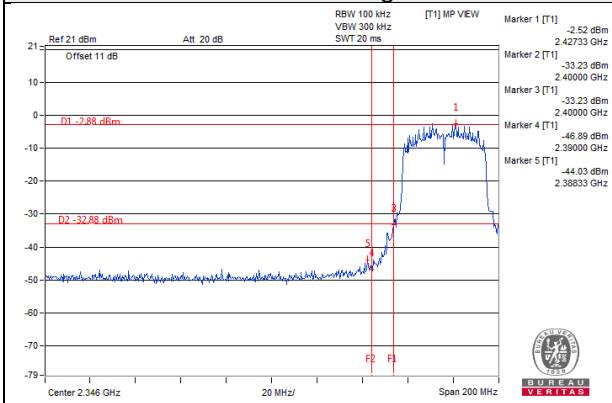
CH 6



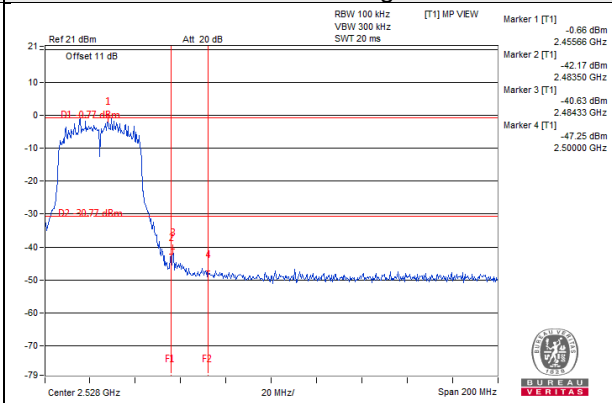
CH 9



CH 3 Band edge

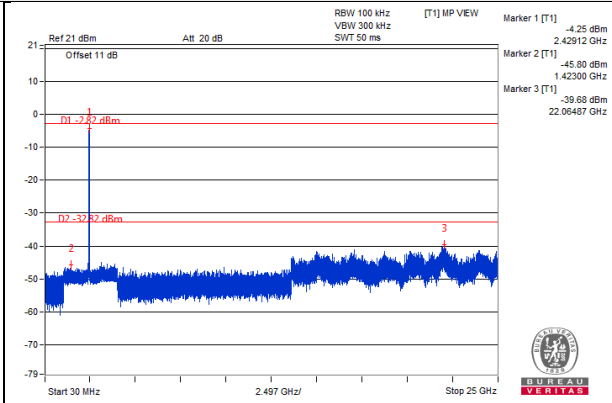
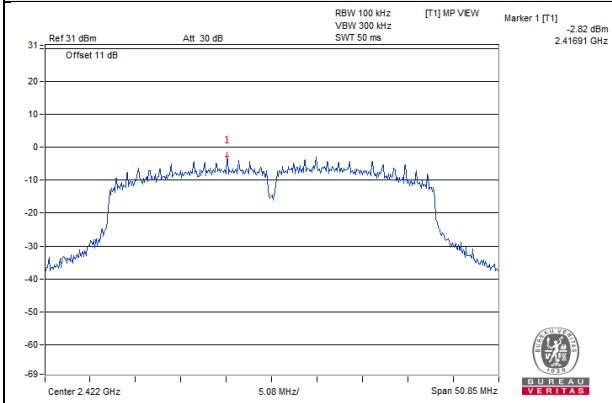


CH 9 Band edge

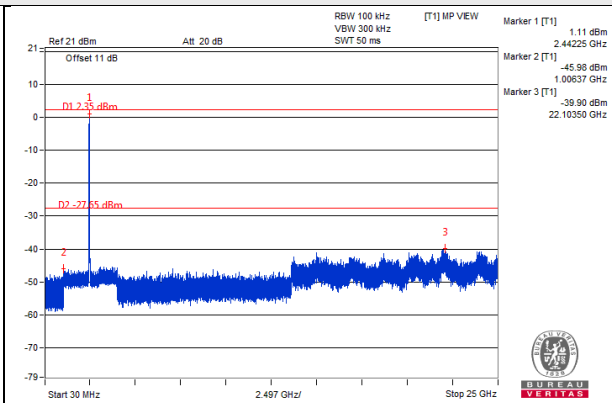
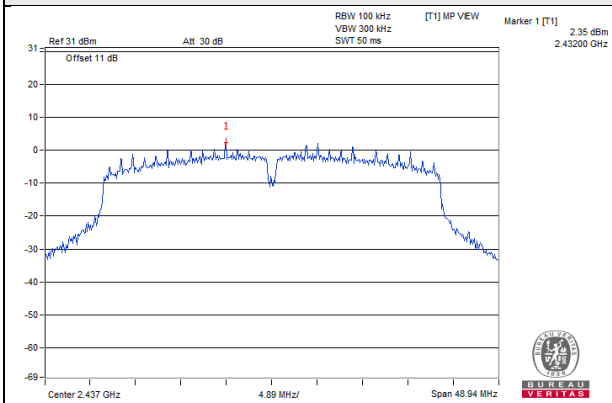


802.11n (HT40)_Chain 1

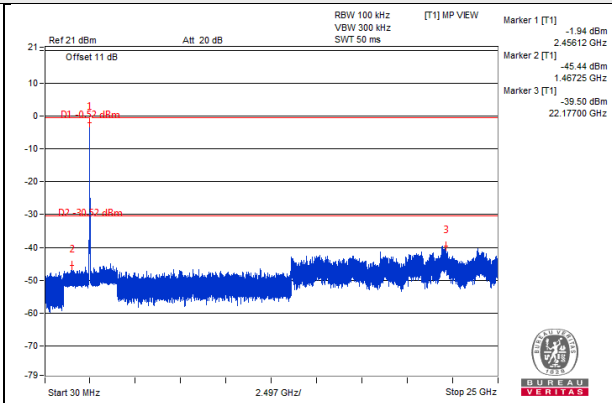
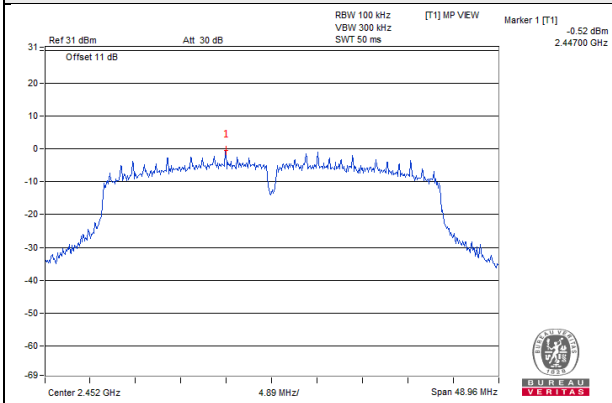
CH 3



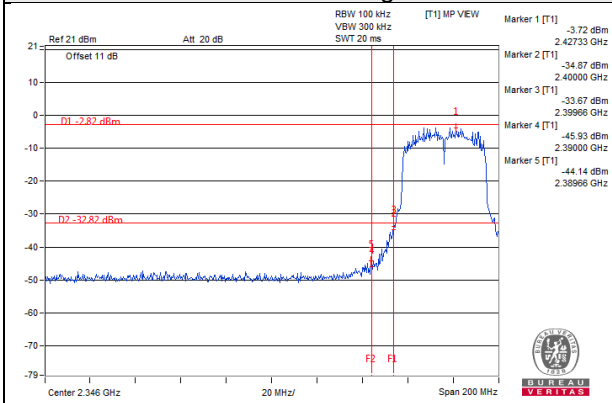
CH 6



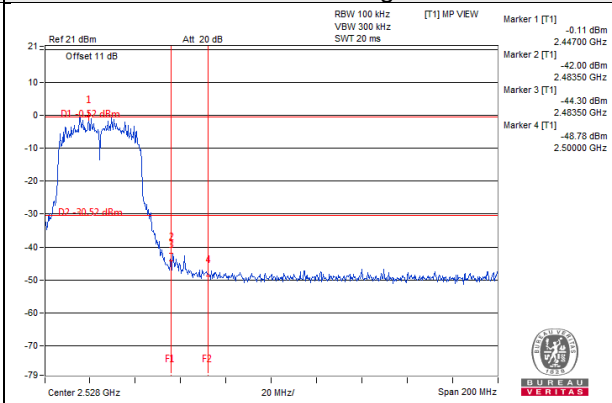
CH 9



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:

Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

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.

--- END ---