FCC Test Report

Report No.:	RF161109C19
FCC ID:	A8J-EWS380AP
Test Model:	EWS380AP
Series Model:	EAP2200 (refer to item 3.1 for more details)
Received Date:	Nov. 09, 2016
Test Date:	May 18 ~ Jun. 20, 2017
Issued Date:	Jul. 10, 2017
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.)

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Release Control Record

Issue No.	Description	Date Issued
RF161109C19	Original release.	Jul. 10, 2017

1 Certificate of Conformity

Product:	Wireless device
Brand:	EnGenius
Test Model:	EWS380AP
Series Model:	EAP2200 (refer to item 3.1 for more details)
Sample Status:	Engineering sample
Applicant:	EnGenius Technologies
Test Date:	May 18 ~ Jun. 20, 2017
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** Jul. 10, 2017

Suntee Liu / Specialist

Approved by : _____ , **Date:** Jul. 10, 2017

Ken Liu / Senior Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -6.61dB at 0.47400MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.2dB at 2483.50MHz.
15.247(d)	Antenna Port Emission	Pass	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	Pass	Meet the requirement of limit.
15.247(b)	Conducted power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is IPEX not a standard connector.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
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	Wireless device
Brand	EnGenius
Test Model	EWS380AP
Series Model	EAP2200
Model Difference	Refer to Note
Sample Status	Engineering sample
Power Supply Rating	12Vdc (adapter) 54Vdc (POE)
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b:11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps
Operating Frequency	2412 ~ 2462MHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7
Output Power	CDD Mode: 354.436mW Beamforming Mode: 96.155mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter
Cable Supplied	NA

Note:

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

Modulation Mode	TX Function	Beamforming
802.11b	2TX	Not Support
802.11g	2TX	Not Support
802.11a	2TX	Not Support
802.11n (HT20)	2TX	Support
802.11n (HT40)	2TX	Support
802.11ac (VHT20)	2TX	Support
802.11ac (VHT40)	2TX	Support
802.11ac (VHT80)	2TX	Support

* The modulation and bandwidth are similar for 802.11n mode for 20MHz/40MHz and 802.11ac mode for 20MHz/40MHz, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

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

2. All models are listed as below. Model EWS380AP is the representative for final test.

Brand	Model	Difference
EnGenius	EWS380AP	Marketing requirement
	EAP2200	

3. The EUT uses following antennas.

Antenna Type	PIFA		Antenna Connector		IPEX	
Frequency	2.4GHz		5GHz Band 1, 2		5GHz Band 3, 4	
Radio	1		3		2	
Antenna	1	2	3	4	5	6
Gain (dBi)	4.62	4.44	5.88	5.94	5.97	5.99

4. The EUT uses following adapter.

Brand	DVE
Model	DSA-12PFT-12 FUS 120100
Input Power	100-240Vac, 50/60Hz, 0.5A
Output Power	+12Vdc, 1A
Power Line	1.45m DC cable without core attached on adapter

5. Radio 1 and Radio 2 / Radio 1 and Radio 3 / Radio 2 and Radio 3 can transmit at same time.

6. Spurious emission of the simultaneous operation (Radio 1 and Radio 2 / Radio 1 and Radio 3 / Radio 2 and Radio 3) has been evaluated and no non-compliance was found.

3.2 Description of Test Modes

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

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

7 channels are provided for 802.11n (HT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE≥1G	RE<1G	PLC	APCM	
A	-	√	√	-	Power from adapter
B	√	√	√	√	Power from POE

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

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

Note:

1. The antenna had been pre-tested on the positioned of each 3 axis. The worst cases were found when positioned on Z-plane.
2. "-" 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
B	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	Radio 1
B	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	Radio 1
B	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	Radio 1
B	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0	Radio 1

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	1	DSSS	DBPSK	1.0	Radio 1

Power Line Conducted Emission Test:

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

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)	Remark
A, B	802.11b	1 to 11	1	DSSS	DBPSK	1.0	Radio 1

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

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

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)	Remark
B	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	Radio 1
B	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	Radio 1
B	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	Radio 1
B	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0	Radio 1

Test Condition:

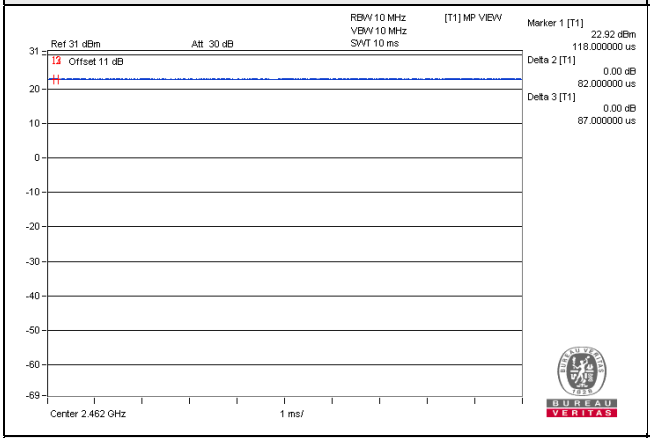
Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	27 deg. C, 69% RH	120Vac, 60Hz	James Yang
RE<1G	20 deg. C, 63% RH	120Vac, 60Hz	Jones Chang
PLC	25 deg. C, 67% RH	120Vac, 60Hz	Jones Chang
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Cedric Wu

3.3 Duty Cycle of Test Signal

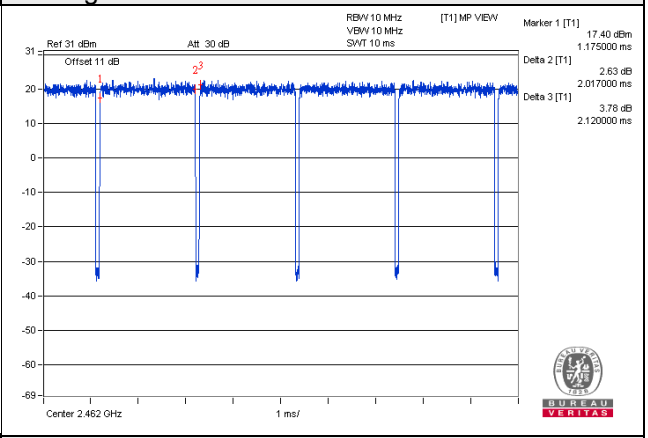
Duty cycle of test signal is ≥ 98%, duty factor is not required.
Duty cycle of test signal is < 98%, duty factor is required.

802.11b: Duty cycle > 98%
802.11g: Duty cycle = 2.017/2.120 = 0.951, Duty factor = 10 * log(1/0.951) = 0.22
802.11n (HT20): Duty cycle = 4.953/5.048 = 0.981
802.11n (HT40): Duty cycle = 2.402/2.484 = 0.967, Duty factor = 10 * log(1/0.967) = 0.15

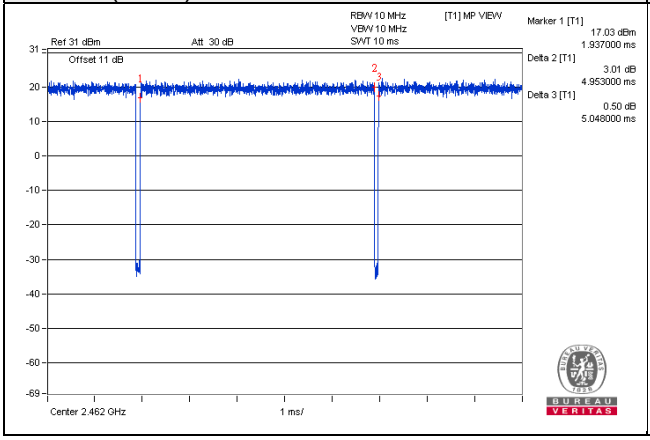
802.11b



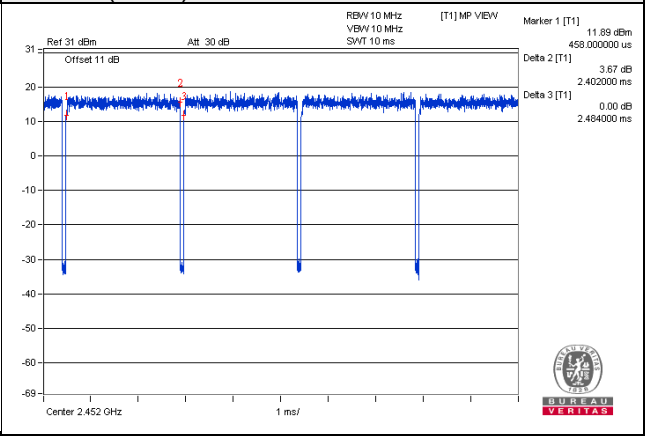
802.11g



802.11n (HT20)



802.11n (HT40)



3.4 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-
B.	Load	NA	NA	NA	NA	-
C.	POE	EnGenius	EPA5006GP	NA	NA	Provided by manufacturer I/P: 100-240Vac, 0.8A, 50-60Hz O/P: 54Vdc, 0.6A

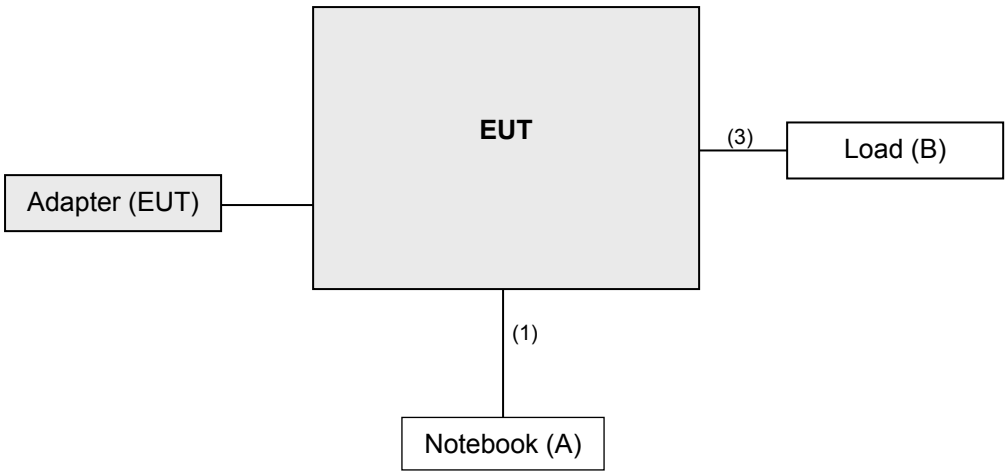
Note:

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.

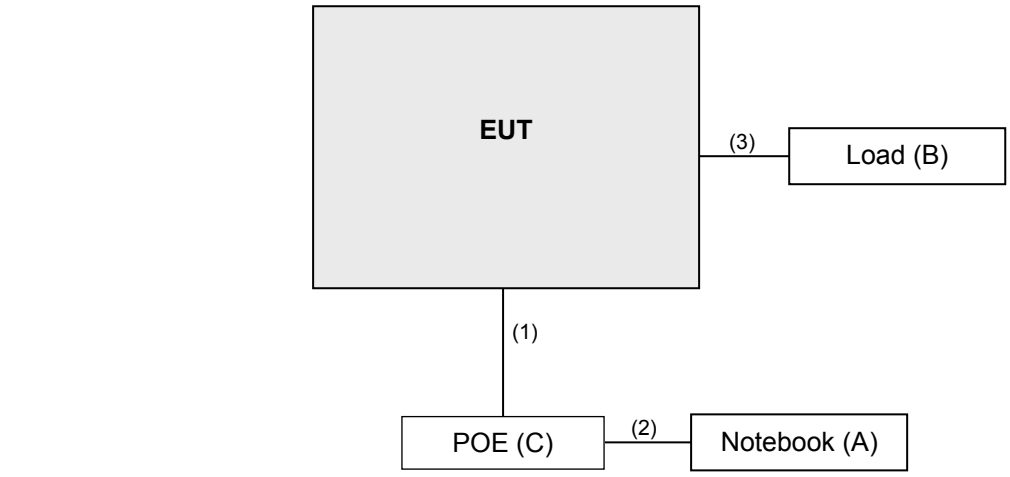
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45, Cat5e	1	3	N	0	-
2.	RJ45, Cat5e	1	3	N	0	-
3.	RJ45, Cat5e	1	3	N	0	-

3.4.1 Configuration of System under Test

Mode A



Mode B



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 20dB below the highest level of the desired power:

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

Note:

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	May 02, 2017	May 01, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Nov. 16, 2016	Nov. 15, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Dec. 28, 2016	Dec. 27, 2017
HORN Antenna SCHWARZBECK	9120D	209	Dec. 27, 2016	Dec. 26, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 14, 2016	Dec. 13, 2017
Loop Antenna	EM-6879	269	Aug. 11, 2016	Aug. 10, 2017
Preamplifier Agilent	8447D	2944A10738	Aug. 22, 2016	Aug. 21, 2017
Preamplifier Agilent	8449B	3008A01922	Sep. 18, 2016	Sep. 17, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (214378)	Aug. 22, 2016	Aug. 21, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 106	Cable-CH3-03 (309224+12738)	Aug. 22, 2016	Aug. 21, 2017
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
Power Sensor	MA2411B	0738171	Aug. 11, 2016	Aug. 10, 2017

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 Site Registration No. is 988962.
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:

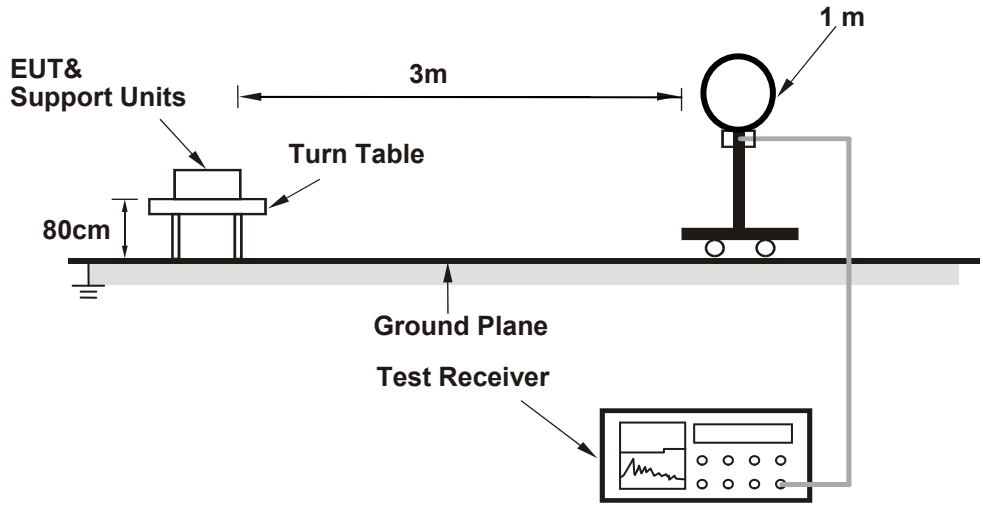
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

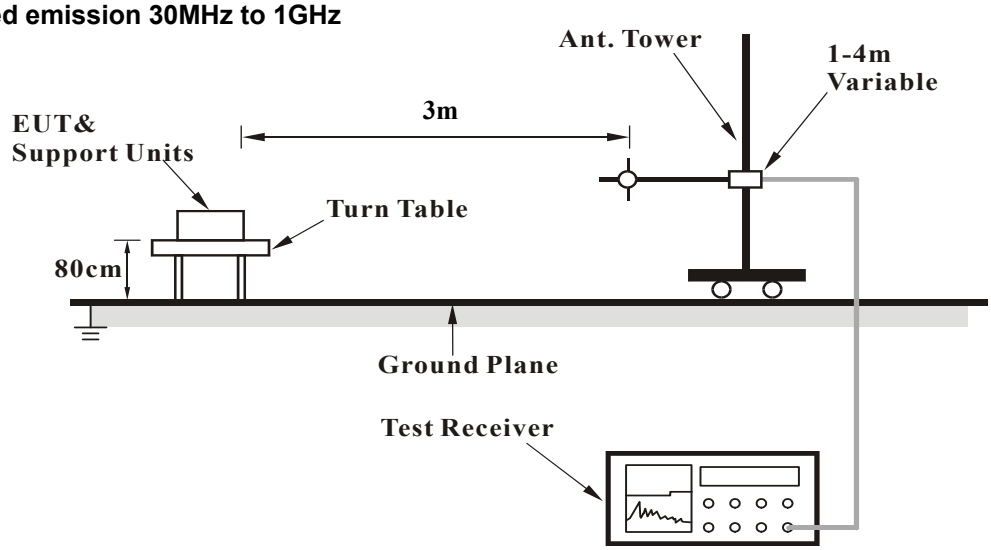
No deviation.

4.1.5 Test Setup

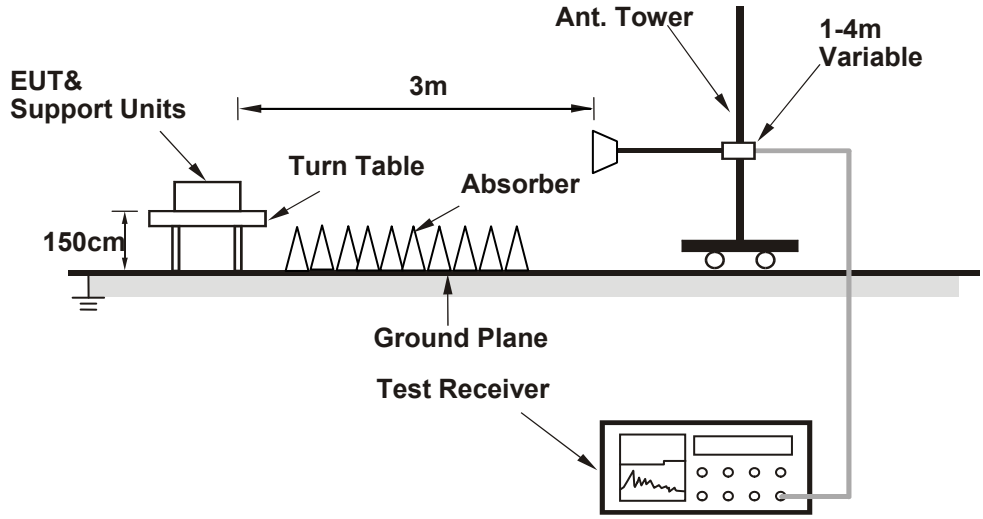
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

a. Placed the EUT on the testing table.
b. Prepared a notebook to act as a communication partner and placed it outside of testing area.
c. 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.
d. The communication partner sent data to EUT by command "PING".
e. 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) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.9 PK	74.0	-17.1	1.68 H	186	25.9	31.0
2	2390.00	44.2 AV	54.0	-9.8	1.68 H	186	13.2	31.0
3	*2412.00	112.3 PK			2.22 H	298	81.1	31.2
4	*2412.00	108.5 AV			2.22 H	298	77.3	31.2
5	4824.00	46.4 PK	74.0	-27.6	2.63 H	346	45.9	0.5
6	4824.00	37.2 AV	54.0	-16.8	2.63 H	346	36.7	0.5
7	14472.00	65.9 PK	74.0	-8.1	1.46 H	32	45.5	20.4
8	14472.00	52.6 AV	54.0	-1.4	1.46 H	32	32.2	20.4
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	2390.00	55.5 PK	74.0	-18.5	1.50 V	162	24.5	31.0
2	2390.00	43.3 AV	54.0	-10.7	1.50 V	162	12.3	31.0
3	*2412.00	106.9 PK			1.24 V	14	75.7	31.2
4	*2412.00	102.8 AV			1.24 V	14	71.6	31.2
5	4824.00	45.9 PK	74.0	-28.1	3.11 V	317	45.4	0.5
6	4824.00	34.3 AV	54.0	-19.7	3.11 V	317	33.8	0.5
7	14472.00	66.0 PK	74.0	-8.0	3.44 V	304	45.6	20.4
8	14472.00	52.7 AV	54.0	-1.3	3.44 V	304	32.3	20.4

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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	114.6 PK			3.08 H	346	83.3	31.3
2	*2437.00	112.4 AV			3.08 H	346	81.1	31.3
3	4874.00	52.0 PK	74.0	-22.0	1.05 H	358	51.4	0.6
4	4874.00	48.1 AV	54.0	-5.9	1.05 H	358	47.5	0.6
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	*2437.00	112.1 PK			1.15 V	15	80.8	31.3
2	*2437.00	109.5 AV			1.15 V	15	78.2	31.3
3	4874.00	51.2 PK	74.0	-22.8	2.69 V	161	50.6	0.6
4	4874.00	46.3 AV	54.0	-7.7	2.69 V	161	45.7	0.6

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	115.9 PK			1.04 H	347	84.5	31.4
2	*2462.00	113.8 AV			1.04 H	347	82.4	31.4
3	2483.50	60.4 PK	74.0	-13.6	2.63 H	267	28.9	31.5
4	**2483.50**	**52.8 AV**	**54.0**	**-1.2**	**2.63 H**	**297**	**21.3**	**31.5**
5	4924.00	50.4 PK	74.0	-23.6	2.15 H	348	49.8	0.6
6	4924.00	45.9 AV	54.0	-8.1	2.15 H	348	45.3	0.6
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	*2462.00	110.1 PK			1.03 V	8	78.7	31.4
2	*2462.00	108.0 AV			1.03 V	8	76.6	31.4
3	2483.50	58.0 PK	74.0	-16.0	1.00 V	9	26.5	31.5
4	2483.50	48.4 AV	54.0	-5.6	1.00 V	9	16.9	31.5
5	4924.00	50.2 PK	74.0	-23.8	2.28 V	184	49.6	0.6
6	4924.00	45.0 AV	54.0	-9.0	2.28 V	184	44.4	0.6

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.

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.1 PK	74.0	-6.9	3.14 H	347	36.1	31.0
2	2390.00	52.3 AV	54.0	-1.7	3.14 H	347	21.3	31.0
3	*2412.00	111.6 PK			1.83 H	306	80.4	31.2
4	*2412.00	101.7 AV			1.83 H	306	70.5	31.2
5	4824.00	44.3 PK	74.0	-29.7	1.65 H	264	43.8	0.5
6	4824.00	31.0 AV	54.0	-23.0	1.65 H	264	30.5	0.5
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	65.8 PK	74.0	-8.2	3.61 V	346	34.8	31.0
2	2390.00	50.5 AV	54.0	-3.5	3.61 V	346	19.5	31.0
3	*2412.00	109.1 PK			3.59 V	346	77.9	31.2
4	*2412.00	98.7 AV			3.59 V	346	67.5	31.2
5	4824.00	45.1 PK	74.0	-28.9	2.11 V	198	44.6	0.5
6	4824.00	32.6 AV	54.0	-21.4	2.11 V	198	32.1	0.5

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	115.7 PK			1.52 H	309	84.4	31.3
2	*2437.00	104.9 AV			1.52 H	309	73.6	31.3
3	4874.00	44.7 PK	74.0	-29.3	1.37 H	312	44.1	0.6
4	4874.00	32.0 AV	54.0	-22.0	1.37 H	312	31.4	0.6
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	*2437.00	113.1 PK			3.77 V	28	81.8	31.3
2	*2437.00	102.3 AV			3.77 V	28	71.0	31.3
3	4874.00	45.7 PK	74.0	-28.3	1.48 V	177	45.1	0.6
4	4874.00	33.4 AV	54.0	-20.6	1.48 V	177	32.8	0.6

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.9 PK			1.00 H	309	80.5	31.4
2	*2462.00	101.4 AV			1.00 H	309	70.0	31.4
3	2483.50	67.5 PK	74.0	-6.5	1.00 H	320	36.0	31.5
4	2483.50	52.4 AV	54.0	-1.6	1.00 H	320	20.9	31.5
5	4924.00	44.4 PK	74.0	-29.6	1.12 H	341	43.8	0.6
6	4924.00	31.8 AV	54.0	-22.2	1.12 H	341	31.2	0.6
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	*2462.00	107.5 PK			1.31 V	6	76.1	31.4
2	*2462.00	97.3 AV			1.31 V	6	65.9	31.4
3	2483.50	67.4 PK	74.0	-6.6	4.00 V	22	35.9	31.5
4	2483.50	52.1 AV	54.0	-1.9	4.00 V	22	20.6	31.5
5	4924.00	45.0 PK	74.0	-29.0	1.30 V	180	44.4	0.6
6	4924.00	32.5 AV	54.0	-21.5	1.30 V	180	31.9	0.6

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.

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.5 PK	74.0	-8.5	2.26 H	299	34.5	31.0
2	2390.00	52.4 AV	54.0	-1.6	2.26 H	299	21.4	31.0
3	*2412.00	110.7 PK			2.03 H	305	79.5	31.2
4	*2412.00	100.1 AV			2.03 H	305	68.9	31.2
5	4824.00	44.6 PK	74.0	-29.4	2.22 H	321	44.1	0.5
6	4824.00	31.1 AV	54.0	-22.9	2.22 H	321	30.6	0.5
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	61.5 PK	74.0	-12.5	3.87 V	324	30.5	31.0
2	2390.00	47.9 AV	54.0	-6.1	3.87 V	324	16.9	31.0
3	*2412.00	108.4 PK			3.86 V	26	77.2	31.2
4	*2412.00	97.8 AV			3.86 V	26	66.6	31.2
5	4824.00	44.4 PK	74.0	-29.6	2.35 V	191	43.9	0.5
6	4824.00	32.0 AV	54.0	-22.0	2.35 V	191	31.5	0.5

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	116.4 PK			2.01 H	304	85.1	31.3
2	*2437.00	106.2 AV			2.01 H	304	74.9	31.3
3	4874.00	46.7 PK	74.0	-27.3	2.02 H	343	46.1	0.6
4	4874.00	33.0 AV	54.0	-21.0	2.02 H	343	32.4	0.6
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	*2437.00	112.8 PK			3.49 V	347	81.5	31.3
2	*2437.00	102.1 AV			3.49 V	347	70.8	31.3
3	4874.00	45.3 PK	74.0	-28.7	2.10 V	193	44.7	0.6
4	4874.00	33.7 AV	54.0	-20.3	2.10 V	193	33.1	0.6

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	112.2 PK			2.18 H	306	80.8	31.4
2	*2462.00	101.7 AV			2.18 H	306	70.3	31.4
3	2483.50	68.1 PK	74.0	-5.9	1.16 H	343	36.6	31.5
4	2483.50	52.5 AV	54.0	-1.5	1.16 H	343	21.0	31.5
5	4924.00	44.5 PK	74.0	-29.5	2.02 H	314	43.9	0.6
6	4924.00	31.8 AV	54.0	-22.2	2.02 H	314	31.2	0.6
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	*2462.00	109.4 PK			3.70 V	30	78.0	31.4
2	*2462.00	98.7 AV			3.70 V	30	67.3	31.4
3	2483.50	67.5 PK	74.0	-6.5	4.00 V	318	36.0	31.5
4	2483.50	51.3 AV	54.0	-2.7	4.00 V	318	19.8	31.5
5	4924.00	46.2 PK	74.0	-27.8	2.21 V	184	45.6	0.6
6	4924.00	32.9 AV	54.0	-21.1	2.21 V	184	32.3	0.6

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.

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.9 PK	74.0	-8.1	1.00 H	310	34.9	31.0
2	2390.00	52.2 AV	54.0	-1.8	1.00 H	310	21.2	31.0
3	*2422.00	107.6 PK			1.00 H	308	76.4	31.2
4	*2422.00	98.2 AV			1.00 H	308	67.0	31.2
5	4844.00	44.4 PK	74.0	-29.6	1.68 H	224	44.0	0.4
6	4844.00	32.1 AV	54.0	-21.9	1.68 H	224	31.7	0.4
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	2390.00	63.7 PK	74.0	-10.3	4.00 V	9	32.7	31.0
2	2390.00	49.0 AV	54.0	-5.0	4.00 V	9	18.0	31.0
3	*2422.00	103.0 PK			4.00 V	353	71.8	31.2
4	*2422.00	93.6 AV			4.00 V	353	62.4	31.2
5	4844.00	44.9 PK	74.0	-29.1	1.78 V	207	44.5	0.4
6	4844.00	31.9 AV	54.0	-22.1	1.78 V	207	31.5	0.4

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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.1 PK	74.0	-8.9	1.40 H	310	34.1	31.0
2	2390.00	52.4 AV	54.0	-1.6	1.40 H	310	21.4	31.0
3	*2437.00	109.8 PK			2.22 H	303	78.5	31.3
4	*2437.00	99.7 AV			2.22 H	303	68.4	31.3
5	4874.00	44.5 PK	74.0	-29.5	1.90 H	225	43.9	0.6
6	4874.00	32.2 AV	54.0	-21.8	1.90 H	225	31.6	0.6
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	61.5 PK	74.0	-12.5	4.00 V	353	30.5	31.0
2	2390.00	48.3 AV	54.0	-5.7	4.00 V	353	17.3	31.0
3	*2437.00	105.1 PK			3.49 V	347	73.8	31.3
4	*2437.00	95.6 AV			3.49 V	347	64.3	31.3
5	4874.00	45.5 PK	74.0	-28.5	1.75 V	219	44.9	0.6
6	4874.00	32.1 AV	54.0	-21.9	1.75 V	219	31.5	0.6

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	108.3 PK			1.98 H	303	76.9	31.4
2	*2452.00	98.8 AV			1.98 H	303	67.4	31.4
3	2483.50	66.6 PK	74.0	-7.4	2.44 H	342	35.1	31.5
4	2483.50	52.3 AV	54.0	-1.7	2.44 H	342	20.8	31.5
5	4904.00	45.7 PK	74.0	-28.3	1.79 H	238	45.2	0.5
6	4904.00	31.7 AV	54.0	-22.3	1.79 H	238	31.2	0.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	101.9 PK			1.27 V	7	70.5	31.4
2	*2452.00	92.8 AV			1.27 V	7	61.4	31.4
3	2483.50	62.3 PK	74.0	-11.7	4.00 V	360	30.8	31.5
4	2483.50	48.0 AV	54.0	-6.0	4.00 V	360	16.5	31.5
5	4904.00	46.0 PK	74.0	-28.0	1.69 V	210	45.5	0.5
6	4904.00	31.9 AV	54.0	-22.1	1.69 V	210	31.4	0.5

Remarks:

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

Below 1GHz worst-case data: 802.11b

CHANNEL	TX Channel 1	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	57.12	26.9 QP	40.0	-13.1	2.00 H	208	41.5	-14.6
2	391.54	32.9 QP	46.0	-13.1	1.00 H	181	43.1	-10.2
3	671.52	35.3 QP	46.0	-10.7	1.00 H	136	39.4	-4.1
4	889.28	36.3 QP	46.0	-9.7	1.00 H	201	36.4	-0.1
5	924.27	34.2 QP	46.0	-11.8	1.50 H	190	33.4	0.8
6	992.32	36.3 QP	54.0	-17.7	2.00 H	213	34.4	1.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	35.73	30.0 QP	40.0	-10.0	1.49 V	16	45.9	-15.9
2	131.00	21.8 QP	43.5	-21.7	1.49 V	103	37.2	-15.4
3	391.54	32.0 QP	46.0	-14.0	1.00 V	169	42.2	-10.2
4	671.52	31.1 QP	46.0	-14.9	1.00 V	216	35.2	-4.1
5	745.40	31.1 QP	46.0	-14.9	2.00 V	163	33.4	-2.3
6	945.66	33.2 QP	46.0	-12.8	2.00 V	163	32.1	1.1

Remarks:

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

CHANNEL	TX Channel 1	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	57.12	26.5 QP	40.0	-13.5	2.00 H	275	41.1	-14.6
2	140.72	23.0 QP	43.5	-20.5	2.00 H	255	37.3	-14.3
3	389.59	36.2 QP	46.0	-9.8	2.00 H	303	46.4	-10.2
4	671.52	37.6 QP	46.0	-8.4	1.01 H	210	41.7	-4.1
5	747.34	41.6 QP	46.0	-4.4	1.01 H	199	43.9	-2.3
6	998.16	34.4 QP	54.0	-19.6	2.00 H	182	32.7	1.7
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	35.73	32.5 QP	40.0	-7.5	1.01 V	349	48.4	-15.9
2	57.12	24.0 QP	40.0	-16.0	1.01 V	321	38.6	-14.6
3	109.62	20.2 QP	43.5	-23.3	1.01 V	3	37.5	-17.3
4	389.59	33.7 QP	46.0	-12.3	1.01 V	140	43.9	-10.2
5	504.31	25.8 QP	46.0	-20.2	1.51 V	340	33.5	-7.7
6	671.52	30.9 QP	46.0	-15.1	1.01 V	264	35.0	-4.1

Remarks:

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

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. 21, 2016	Nov. 20, 2017
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Dec. 22, 2016	Dec. 21, 2017
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 10, 2017	Mar. 09, 2018
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 28, 2016	Jul. 27, 2017
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

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

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

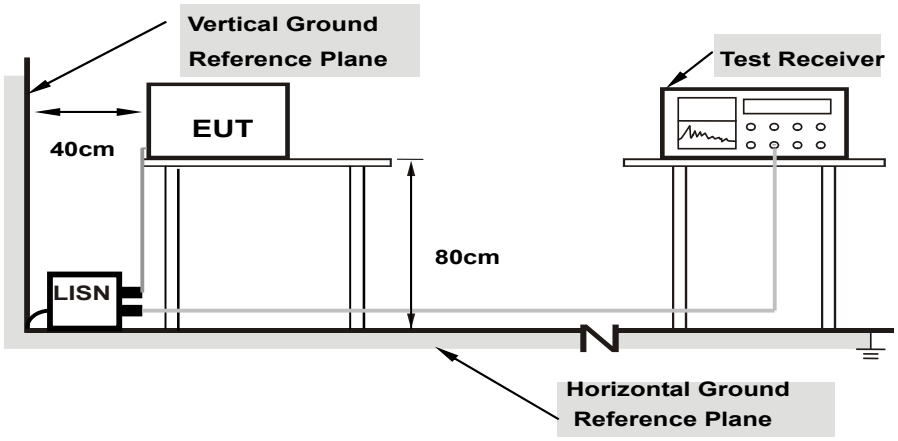
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

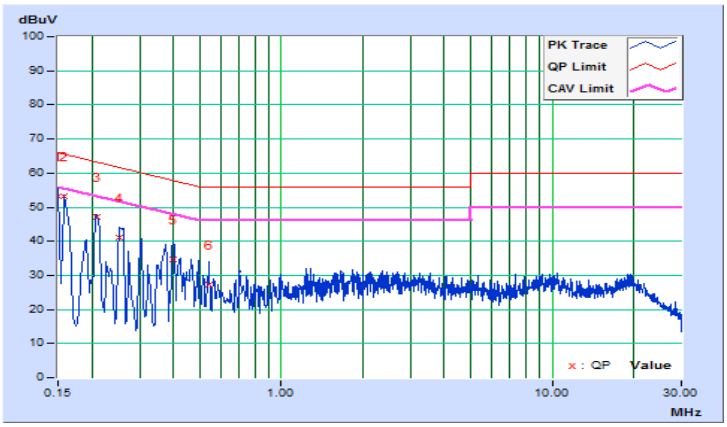
Worst-case data: 802.11b

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

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.40	42.94	28.25	53.34	38.65	66.00	56.00	-12.66	-17.35
2	0.15811	10.41	42.65	28.83	53.06	39.24	65.56	55.56	-12.50	-16.32
3	0.21000	10.43	36.69	23.11	47.12	33.54	63.21	53.21	-16.09	-19.67
4	0.25405	10.45	30.67	16.68	41.12	27.13	61.62	51.62	-20.50	-24.49
5	0.39758	10.51	24.05	7.23	34.56	17.74	57.90	47.90	-23.34	-30.16
6	0.54200	10.50	16.62	2.79	27.12	13.29	56.00	46.00	-28.88	-32.71

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.

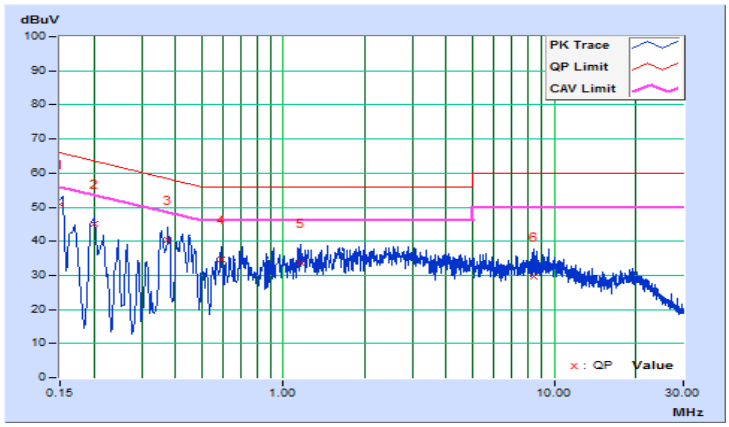


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.15	40.79	27.96	50.94	38.11	66.00	56.00	-15.06	-17.89
2	0.20201	10.20	34.93	23.11	45.13	33.31	63.53	53.53	-18.40	-20.22
3	0.37421	10.23	30.27	18.37	40.50	28.60	58.41	48.41	-17.91	-19.81
4	0.59028	10.23	24.56	12.11	34.79	22.34	56.00	46.00	-21.21	-23.66
5	1.15800	10.25	23.57	14.09	33.82	24.34	56.00	46.00	-22.18	-21.66
6	8.43400	10.58	19.11	10.86	29.69	21.44	60.00	50.00	-30.31	-28.56

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.

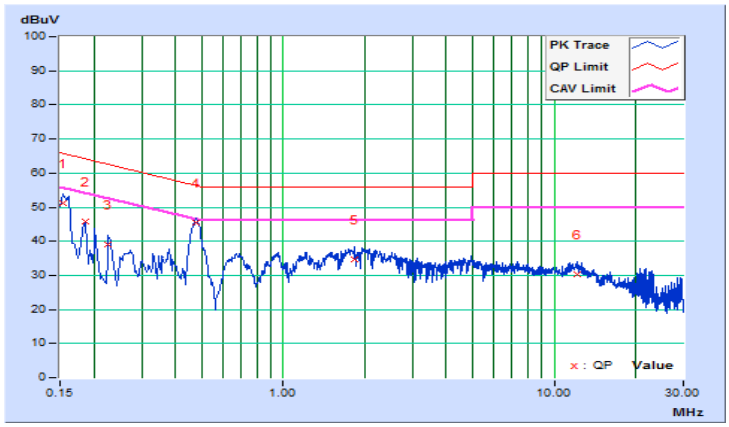


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	10.41	40.75	27.24	51.16	37.65	65.78	55.78	-14.62	-18.13
2	0.18568	10.42	35.36	22.88	45.78	33.30	64.23	54.23	-18.45	-20.93
3	0.22624	10.44	28.70	16.70	39.14	27.14	62.59	52.59	-23.45	-25.45
4	**0.47400**	**10.50**	**34.80**	**29.33**	**45.30**	**39.83**	**56.44**	**46.44**	**-11.14**	**-6.61**
5	1.82600	10.51	24.21	19.21	34.72	29.72	56.00	46.00	-21.28	-16.28
6	12.23400	11.01	19.14	13.83	30.15	24.84	60.00	50.00	-29.85	-25.16

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.

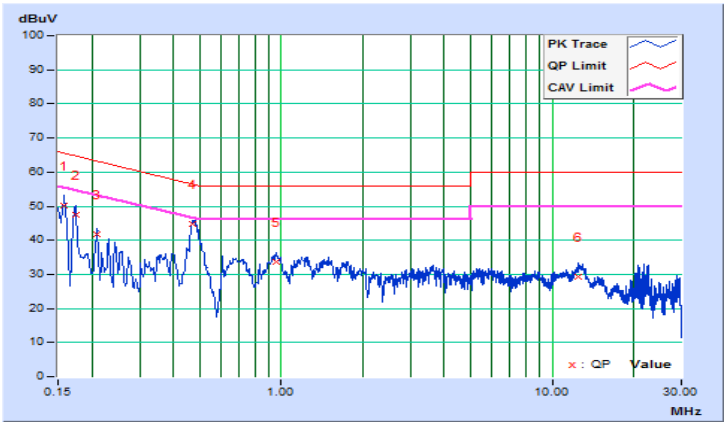


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15800	10.16	40.16	26.30	50.32	36.46	65.57	55.57	-15.25	-19.11
2	0.17384	10.18	37.27	24.23	47.45	34.41	64.77	54.77	-17.32	-20.36
3	0.21000	10.20	31.54	18.42	41.74	28.62	63.21	53.21	-21.47	-24.59
4	0.47309	10.23	34.60	29.21	44.83	39.44	56.46	46.46	-11.63	-7.02
5	0.96200	10.24	23.36	20.07	33.60	30.31	56.00	46.00	-22.40	-15.69
6	12.43400	10.74	18.47	13.16	29.21	23.90	60.00	50.00	-30.79	-26.10

Remarks:

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

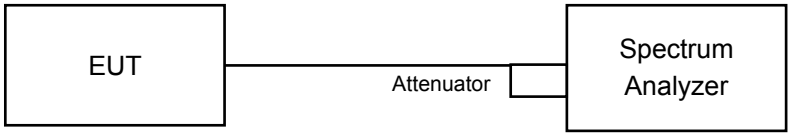


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

a. Set resolution bandwidth (RBW) = 100kHz.
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = average.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

4.3.5 Deviation fromTest Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	8.09	8.09	0.5	Pass
6	2437	9.10	9.11	0.5	Pass
11	2462	9.05	8.08	0.5	Pass

802.11g

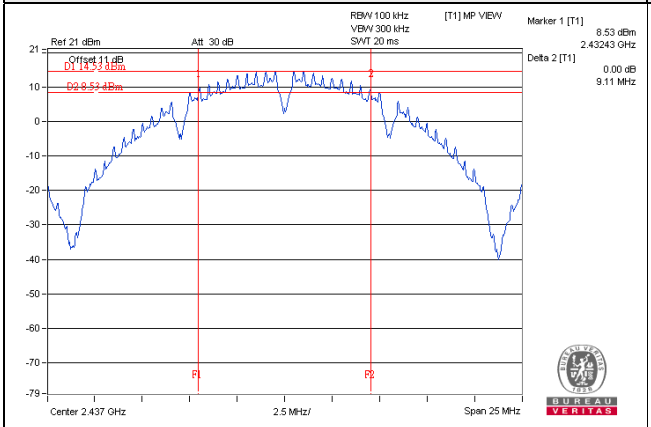
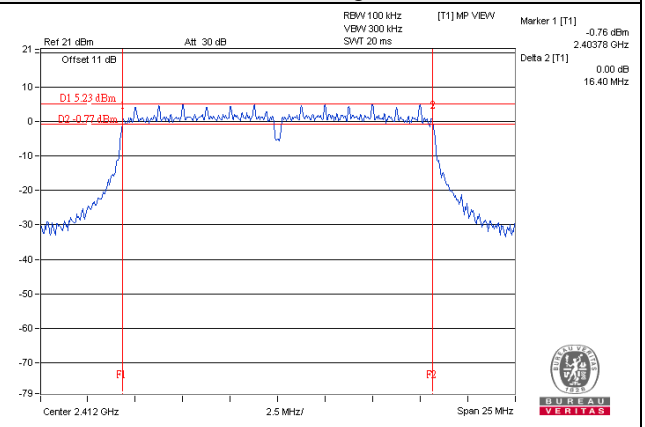
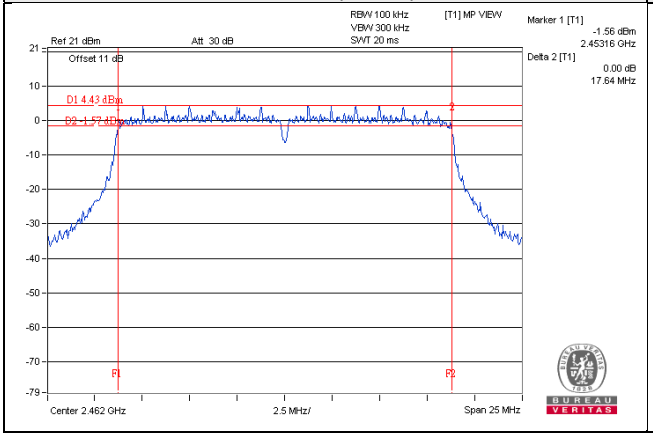
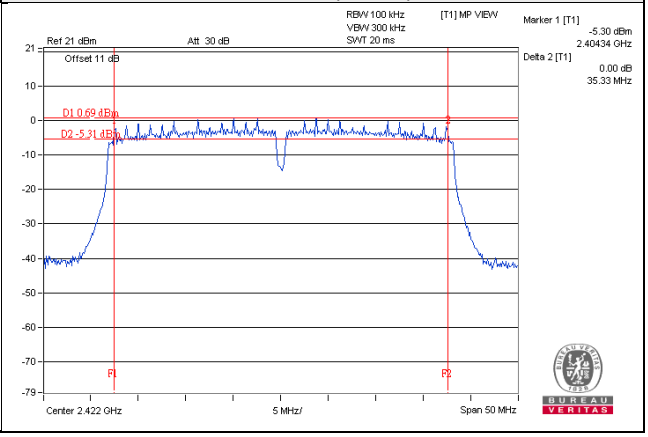
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.40	16.39	0.5	Pass
6	2437	16.37	16.38	0.5	Pass
11	2462	16.38	16.40	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.63	17.62	0.5	Pass
6	2437	17.61	17.62	0.5	Pass
11	2462	17.61	17.64	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.33	35.33	0.5	Pass
6	2437	35.19	35.23	0.5	Pass
9	2452	35.19	35.26	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

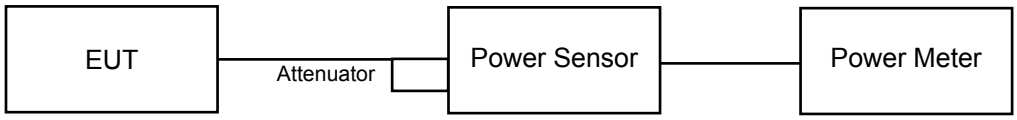
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as item 4.3.6.

4.4.7 Test Results

CDD Mode

802.11b

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	17.71	17.35	113.345	20.54	30	Pass
6	2437	22.46	22.51	**354.436**	25.50	30	Pass
11	2462	21.02	20.98	251.788	24.01	30	Pass

802.11g

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	16.64	16.45	90.289	19.56	30	Pass
6	2437	19.93	19.73	192.373	22.84	30	Pass
11	2462	16.70	16.59	92.378	19.66	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	15.60	15.41	71.062	18.52	30	Pass
6	2437	19.94	19.72	192.384	22.84	30	Pass
11	2462	16.67	16.74	93.658	19.72	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	14.90	14.65	60.077	17.79	30	Pass
6	2437	16.79	16.58	93.252	19.70	30	Pass
9	2452	14.99	14.89	62.382	17.95	30	Pass

Beamforming Mode

802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	12.59	12.40	35.561	15.51	28.37	Pass
6	2437	16.93	16.71	**96.155**	19.83	28.37	Pass
11	2462	13.66	13.73	46.878	16.71	28.37	Pass

Note: Max. directional gain = 4.62dBi + 10log(2) = 7.63dBi > 6dBi, so the limit shall be reduced to 30-(7.63-6) = 28.37dBm.

802.11n (HT40)

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	11.89	11.64	30.059	14.78	28.37	Pass
6	2437	13.78	13.57	46.663	16.69	28.37	Pass
9	2452	11.98	11.88	31.187	14.94	28.37	Pass

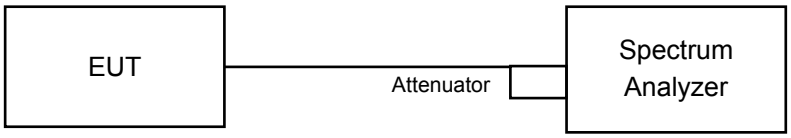
Note: Max. directional gain = 4.62dBi + 10log(2) = 7.63dBi > 6dBi, so the limit shall be reduced to 30-(7.63-6) = 28.37dBm.

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as item 4.3.6

4.5.7 Test Results

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-5.04	3.01	-2.03	6.37	Pass
	6	2437	1.10	3.01	4.11	6.37	Pass
	11	2462	-1.57	3.01	1.44	6.37	Pass
1	1	2412	-5.62	3.01	-2.61	6.37	Pass
	6	2437	0.62	3.01	3.63	6.37	Pass
	11	2462	-1.81	3.01	1.20	6.37	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. Max. directional gain = 4.62dBi + 10log(2) = 7.63dBi > 6dBi, so the limit shall be reduced to 8-(7.63-6) = 6.37dBm.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-9.44	3.01	-6.43	6.37	Pass
	6	2437	-4.67	3.01	-1.66	6.37	Pass
	11	2462	-9.32	3.01	-6.31	6.37	Pass
1	1	2412	-8.52	3.01	-5.51	6.37	Pass
	6	2437	-5.12	3.01	-2.11	6.37	Pass
	11	2462	-9.41	3.01	-6.40	6.37	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. Max. directional gain = 4.62dBi + 10log(2) = 7.63dBi > 6dBi, so the limit shall be reduced to 8-(7.63-6) = 6.37dBm.

802.11n (HT20)

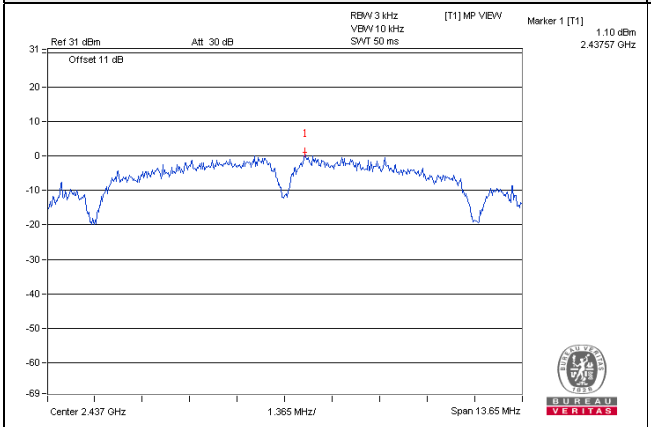
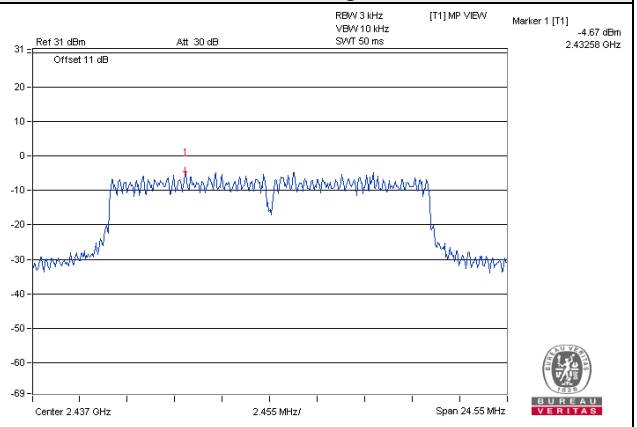
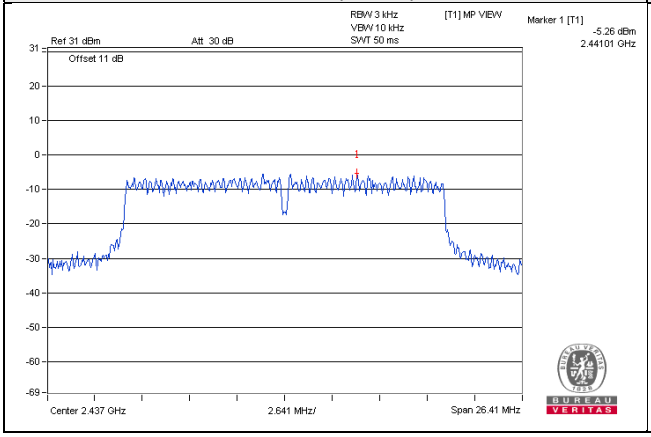
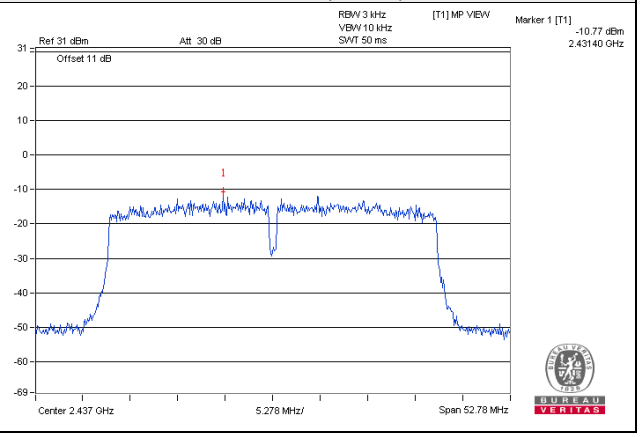
TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-10.74	3.01	-7.73	6.37	Pass
	6	2437	-5.26	3.01	-2.25	6.37	Pass
	11	2462	-8.01	3.01	-5.00	6.37	Pass
1	1	2412	-10.18	3.01	-7.17	6.37	Pass
	6	2437	-5.42	3.01	-2.41	6.37	Pass
	11	2462	-10.53	3.01	-7.52	6.37	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. Max. directional gain = 4.62dBi + 10log(2) = 7.63dBi > 6dBi, so the limit shall be reduced to 8-(7.63-6) = 6.37dBm.

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-14.60	3.01	-11.59	6.37	Pass
	6	2437	-10.77	3.01	-7.76	6.37	Pass
	9	2452	-14.30	3.01	-11.29	6.37	Pass
1	3	2422	-14.73	3.01	-11.72	6.37	Pass
	6	2437	-13.33	3.01	-10.32	6.37	Pass
	9	2452	-13.54	3.01	-10.53	6.37	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. Max. directional gain = 4.62dBi + 10log(2) = 7.63dBi > 6dBi, so the limit shall be reduced to 8-(7.63-6) = 6.37dBm.

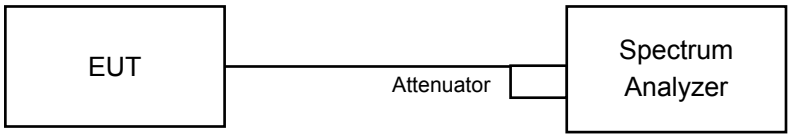
Spectrum Plot of Worst Value	
802.11b	802.11g
	
802.11n (HT20)	802.11n (HT40)
	

4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

Below 20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

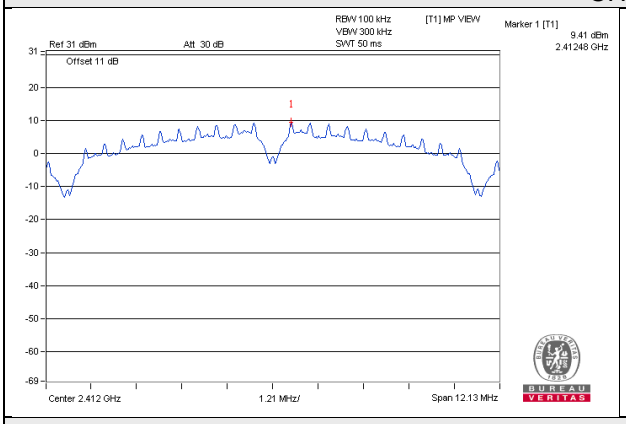
Same as item 4.3.6

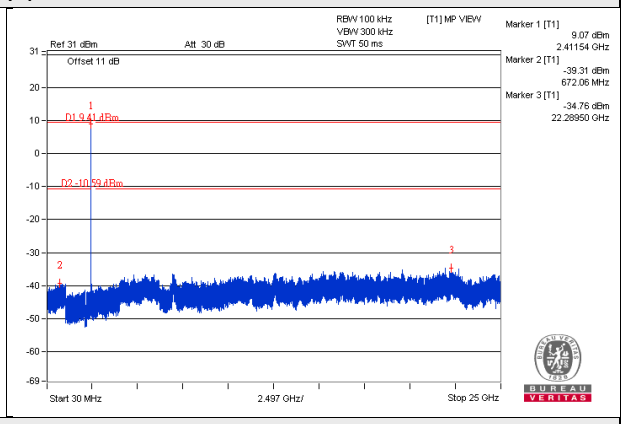
4.6.7 Test Results

The 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 20dB offset below D1. It shows compliance with the requirement.

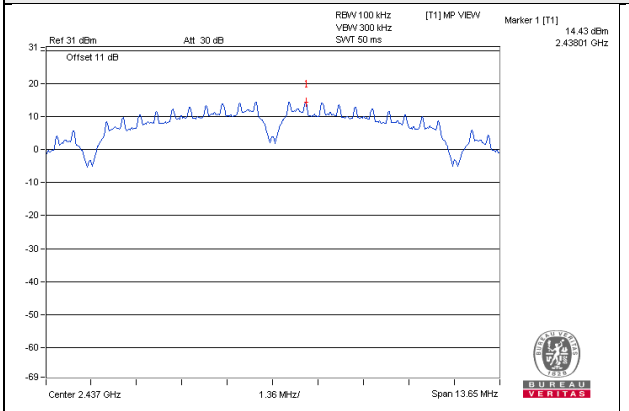
802.11b_Chain 0

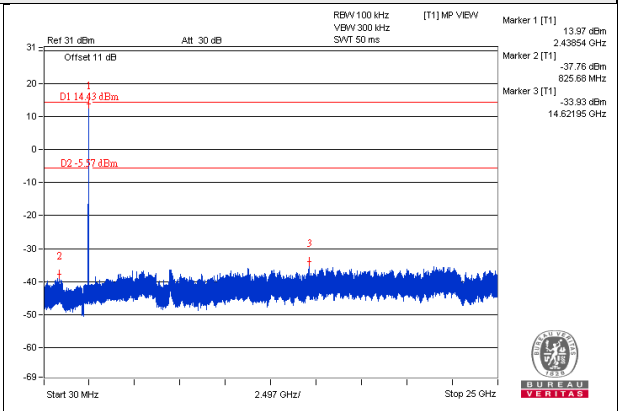
CH 1



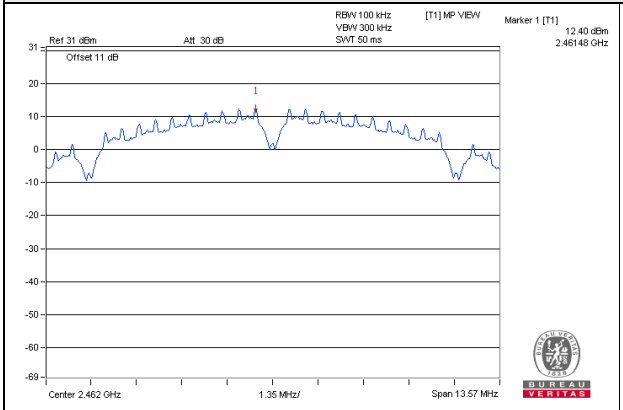


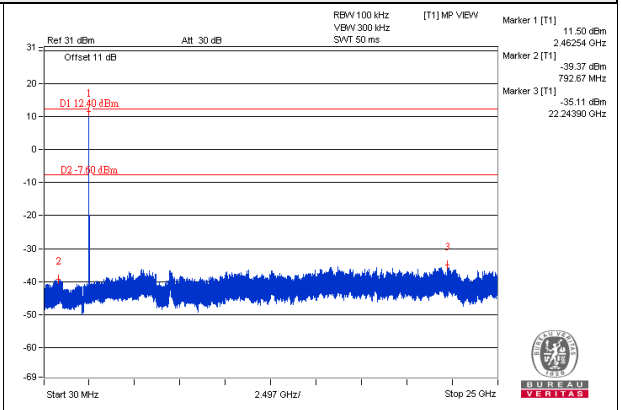
CH 6



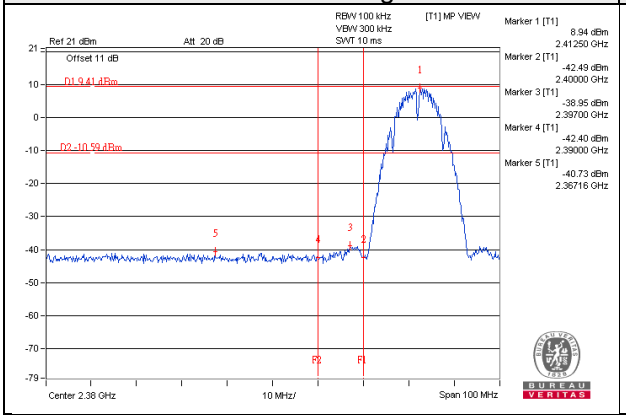


CH 11

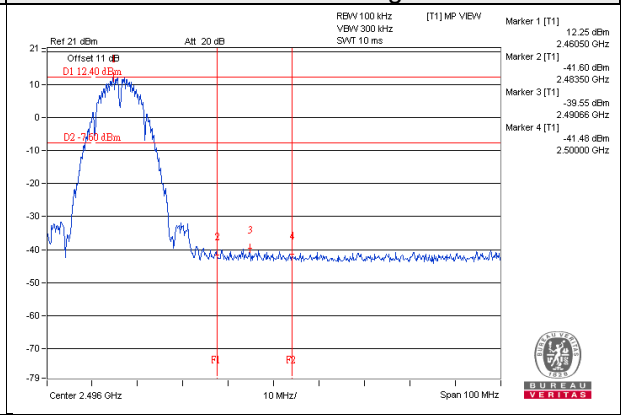




CH 1 Band edge

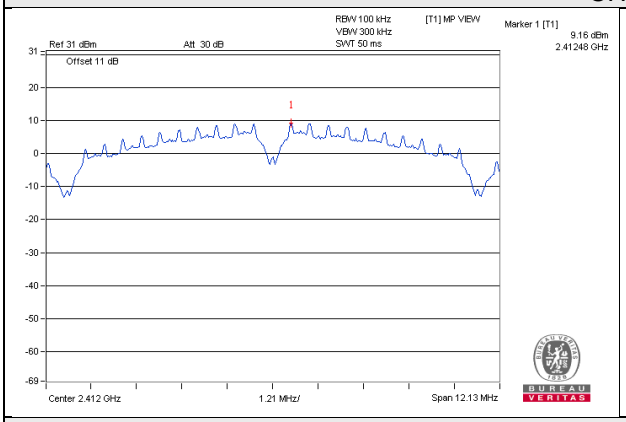


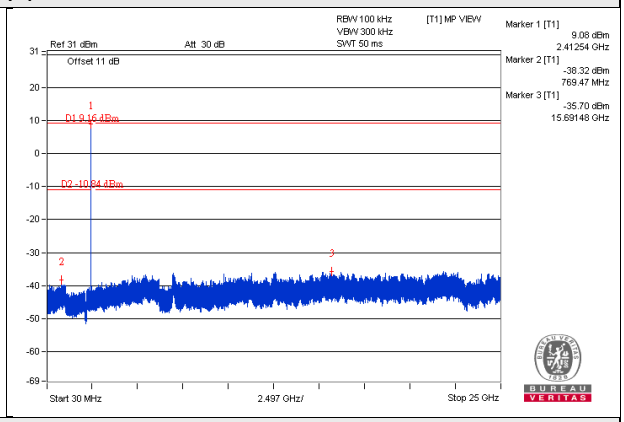
CH 11 Band edge



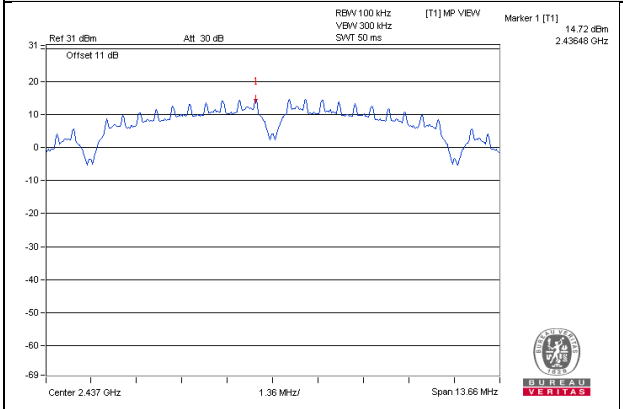
802.11b_Chain 1

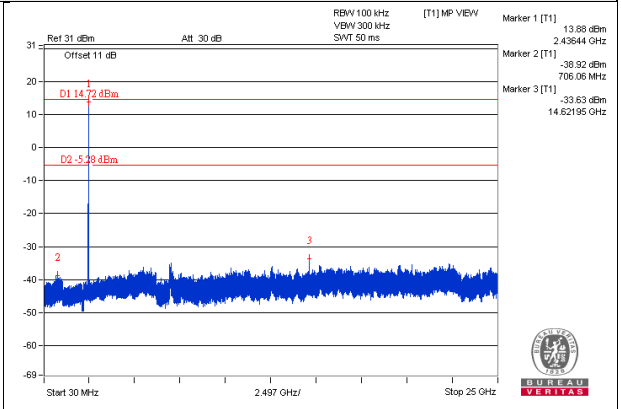
CH 1



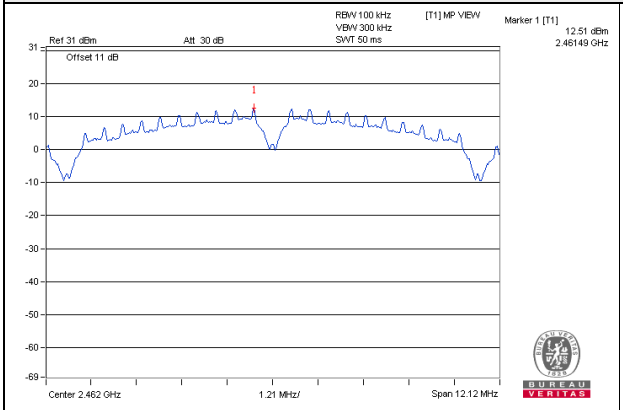


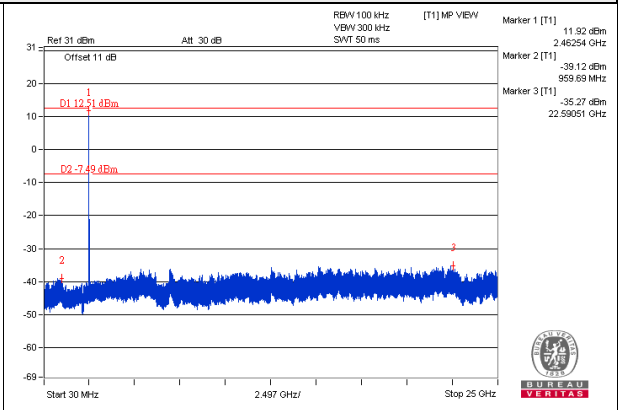
CH 6



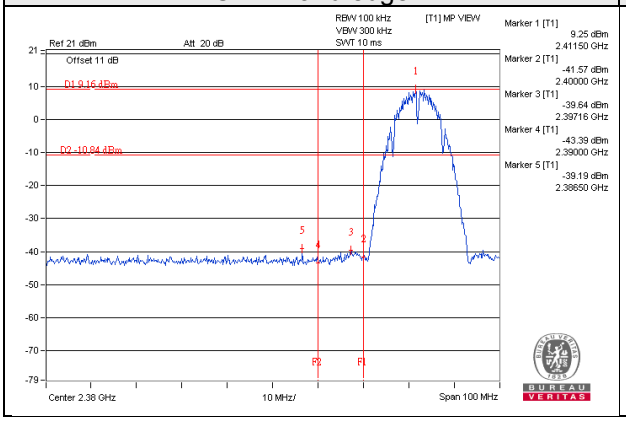


CH 11

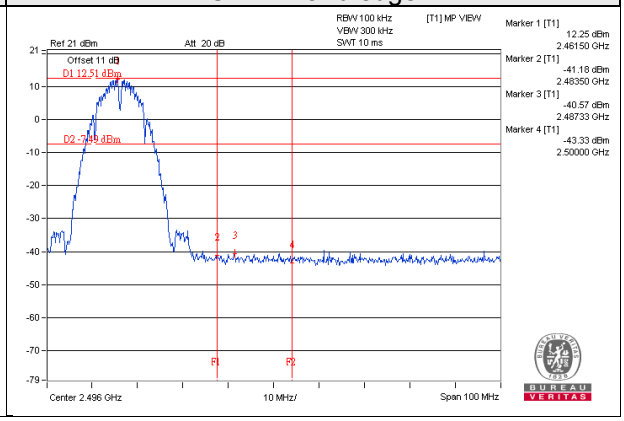




CH 1 Band edge

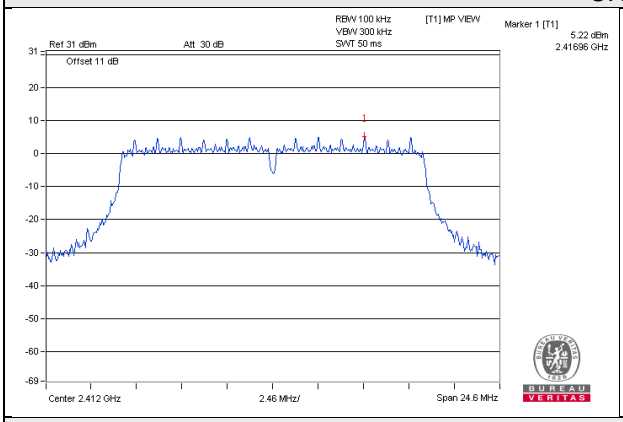


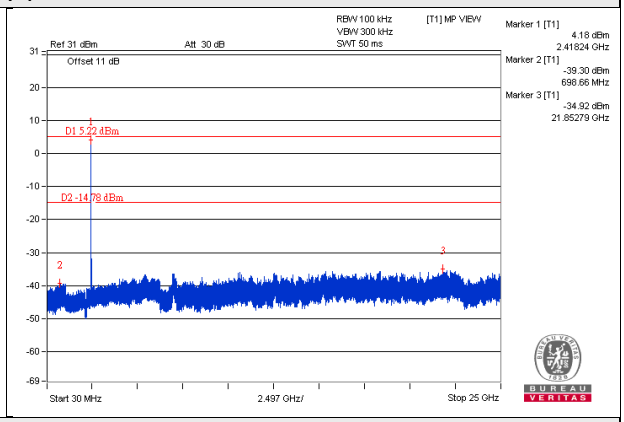
CH 11 Band edge



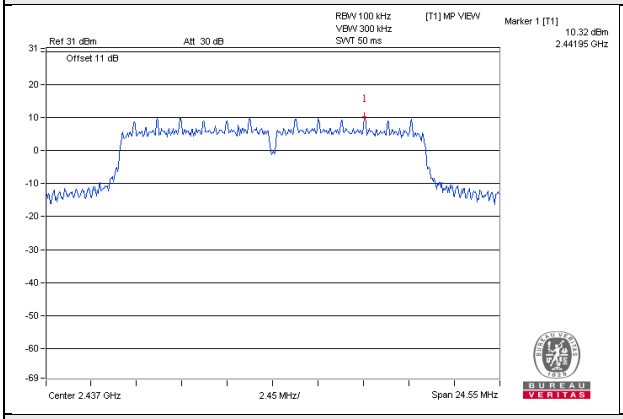
802.11g_Chain 0

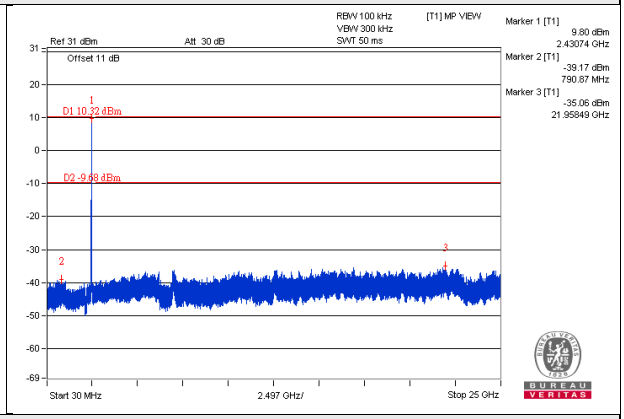
CH 1



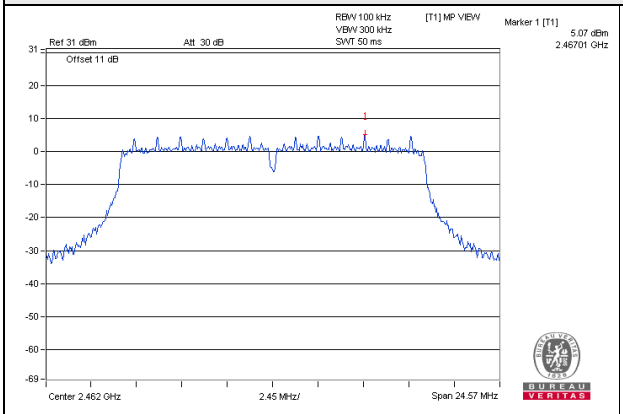


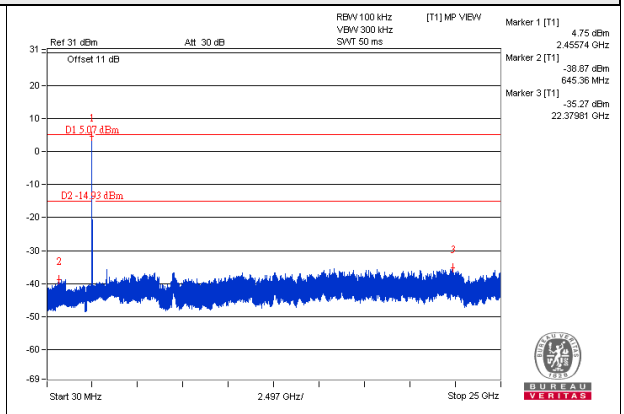
CH 6



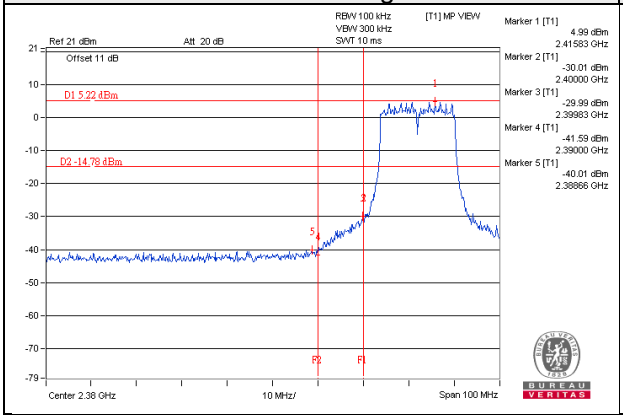


CH 11

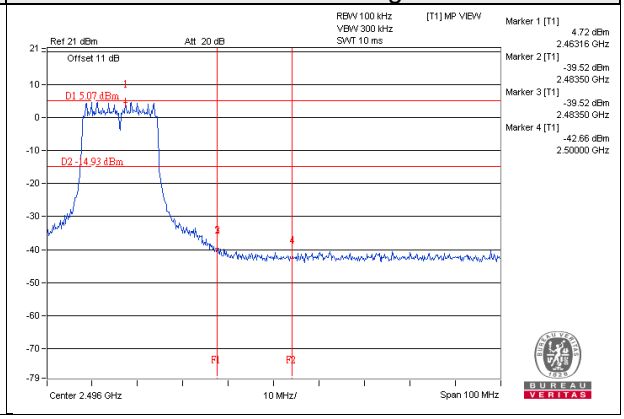




CH 1 Band edge

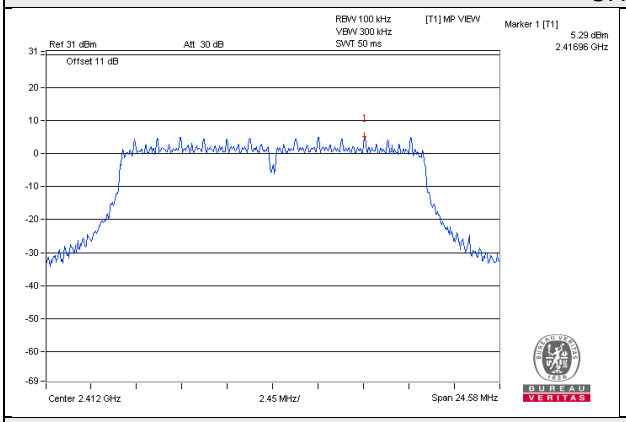


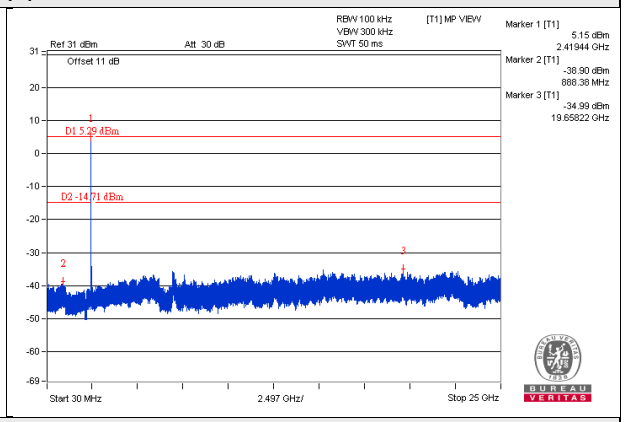
CH 11 Band edge



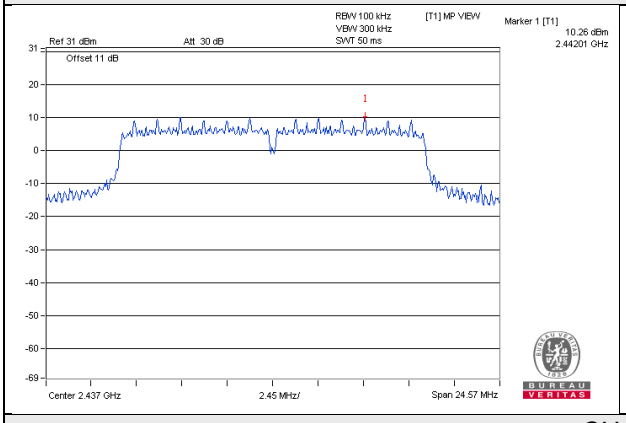
802.11g_Chain 1

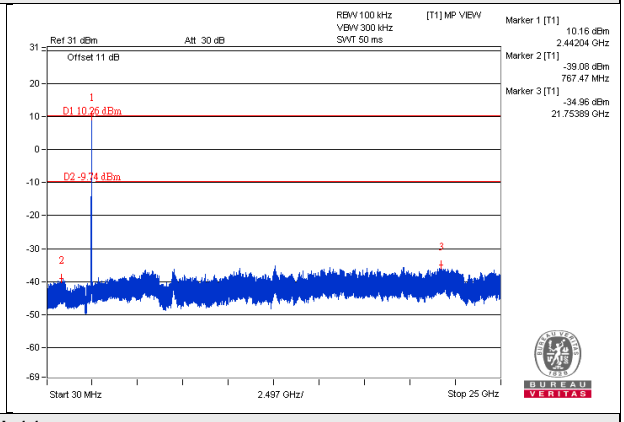
CH 1



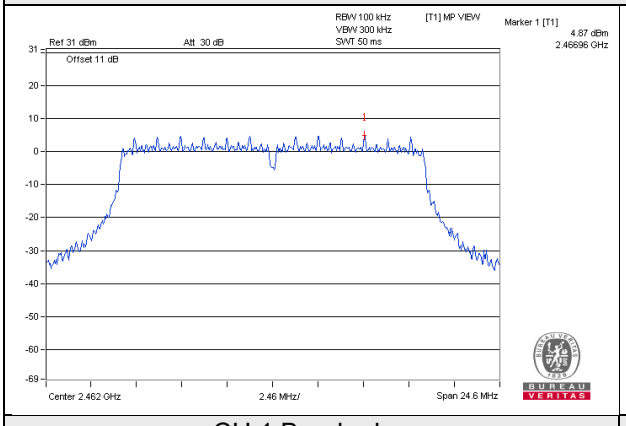


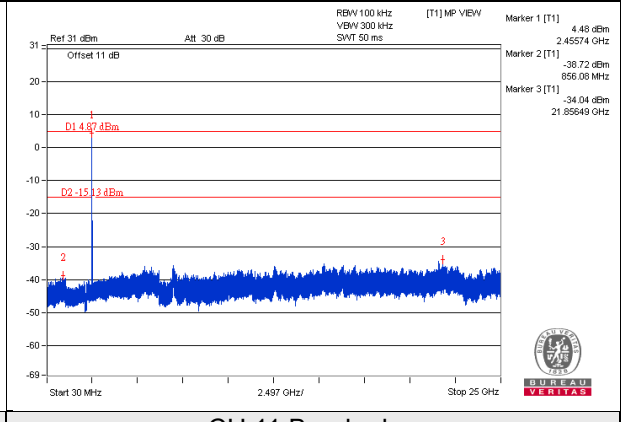
CH 6



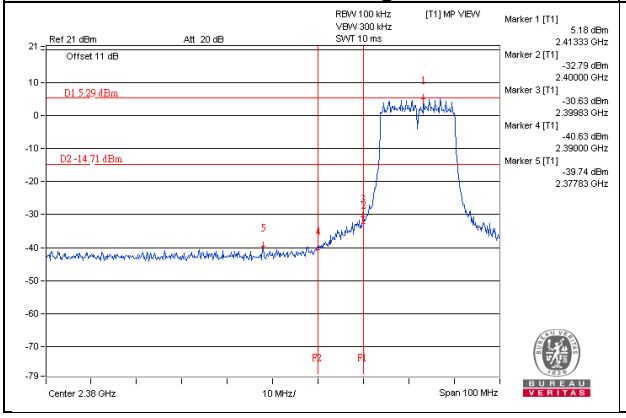


CH 11

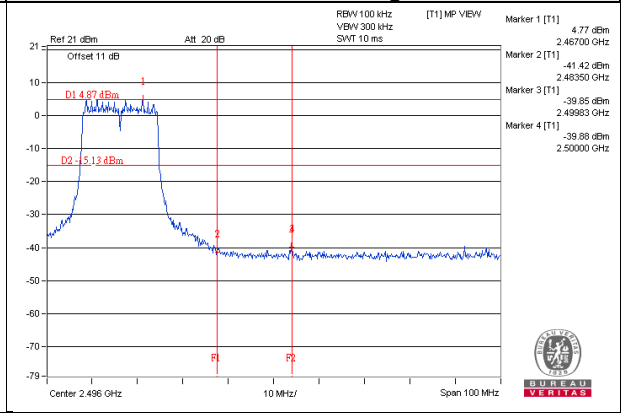




CH 1 Band edge

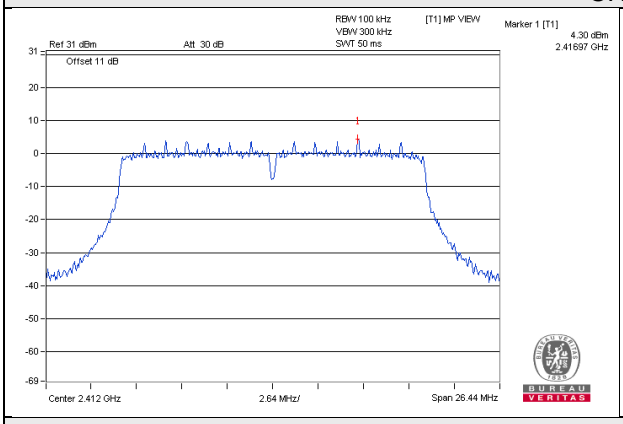


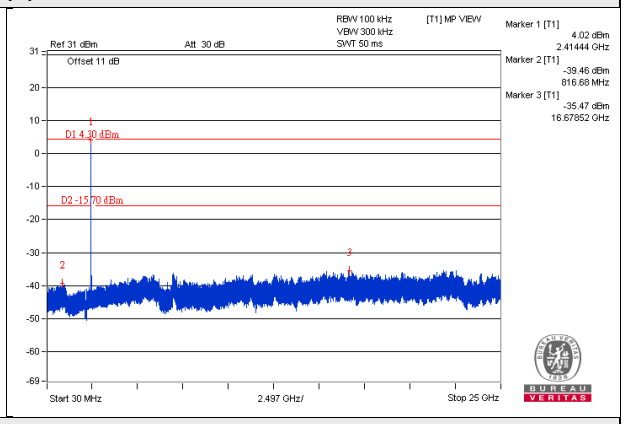
CH 11 Band edge



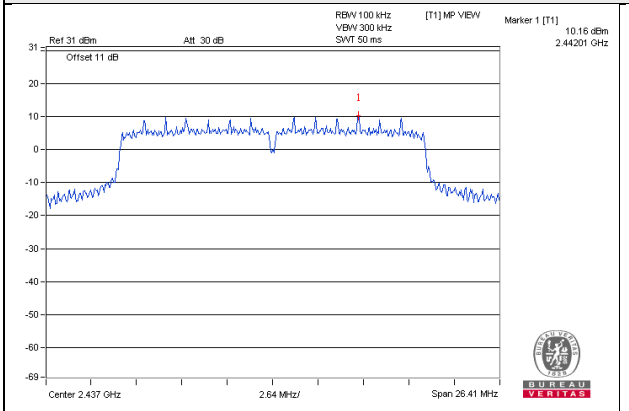
802.11n (HT20)_Chain 0

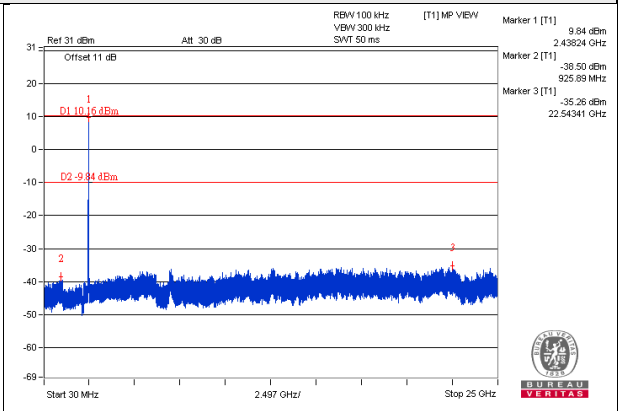
CH 1



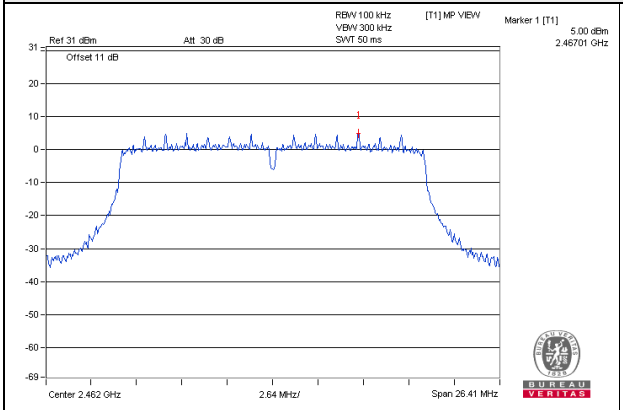


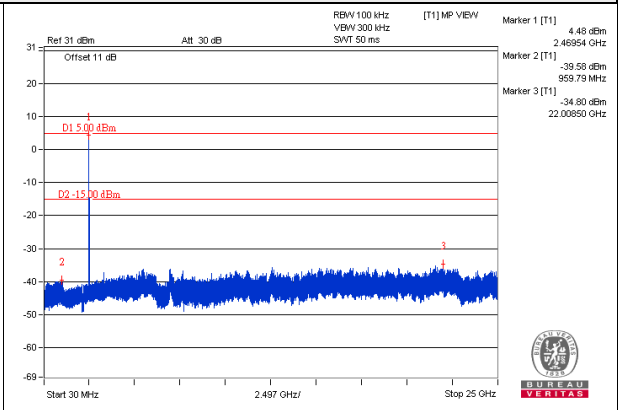
CH 6



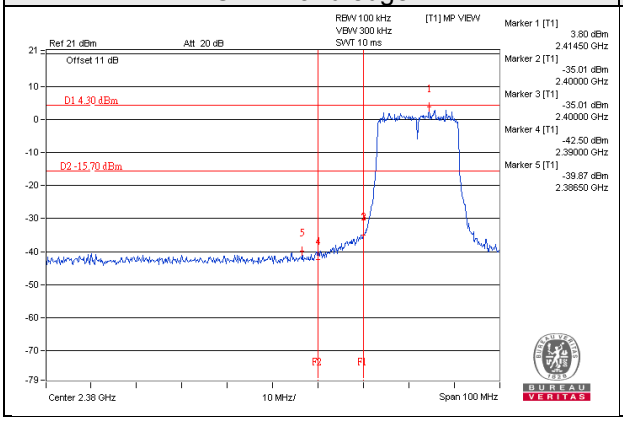


CH 11

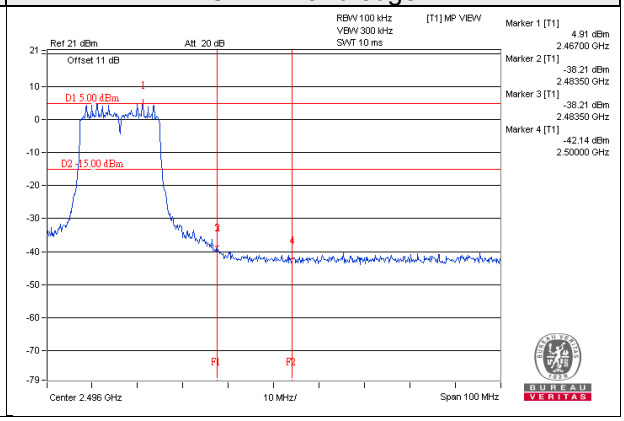




CH 1 Band edge

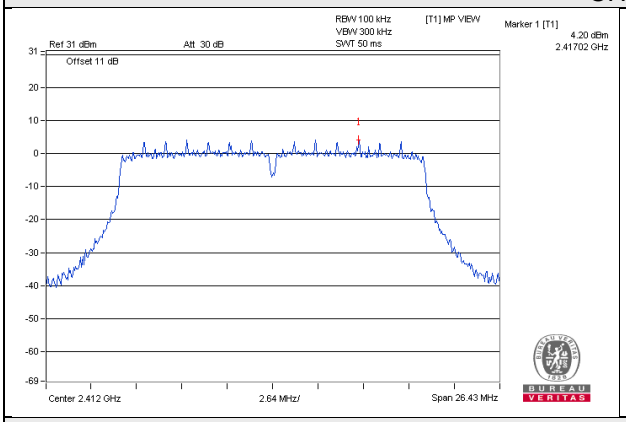


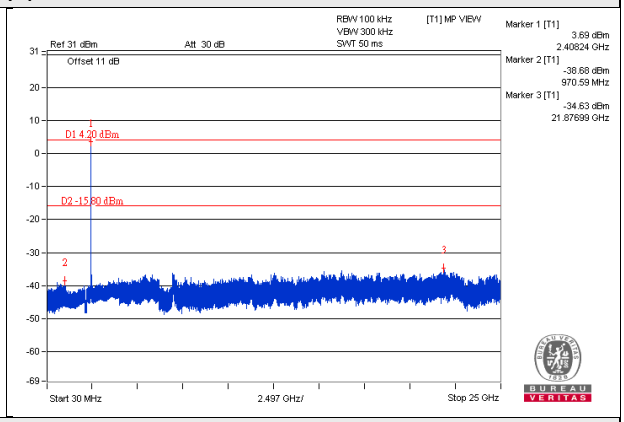
CH 11 Band edge



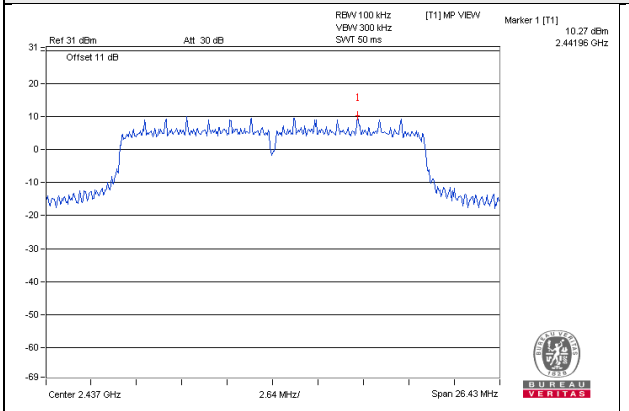
802.11n (HT20)_Chain 1

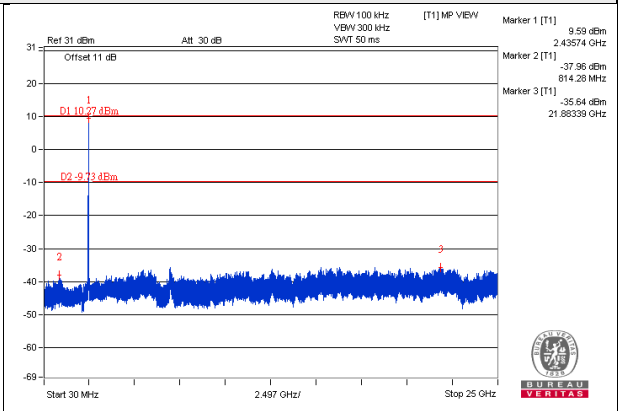
CH 1



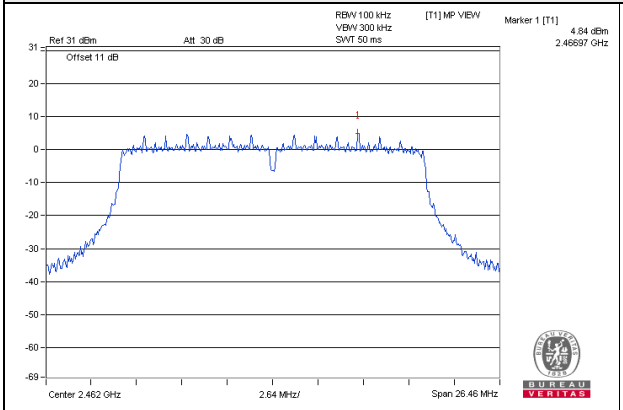


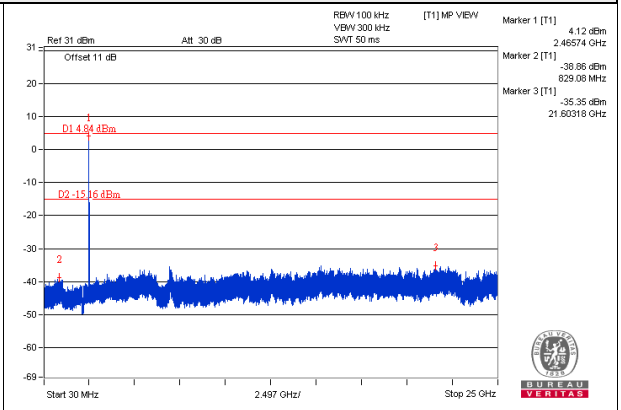
CH 6



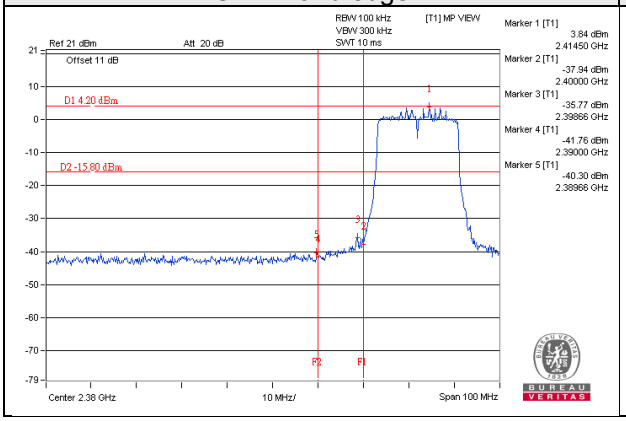


CH 11

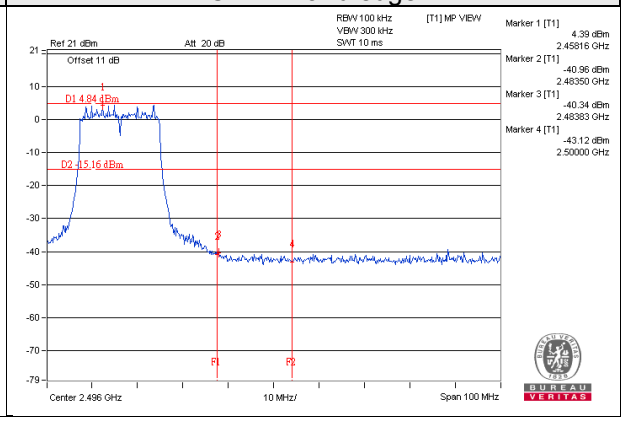




CH 1 Band edge

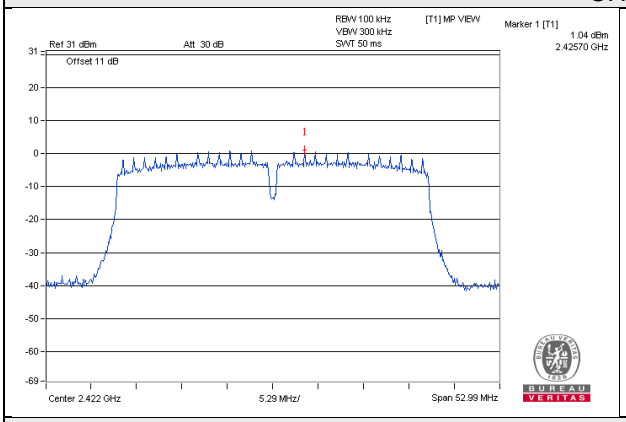


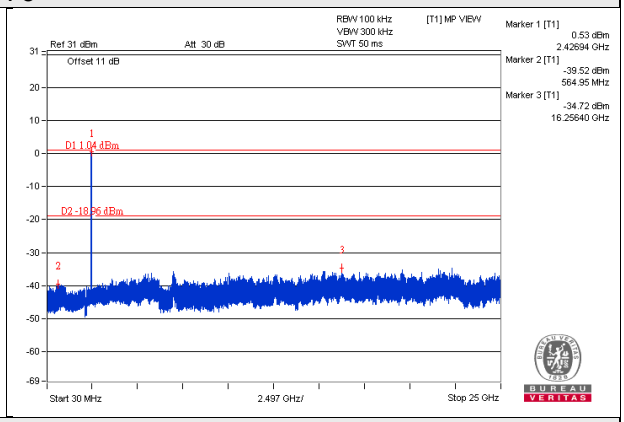
CH 11 Band edge



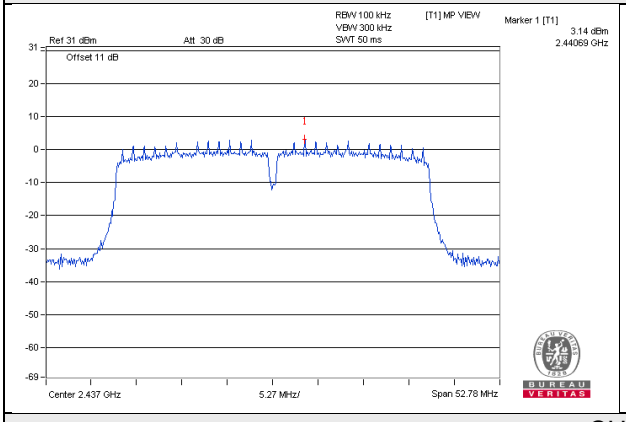
802.11n (HT40)_Chain 0

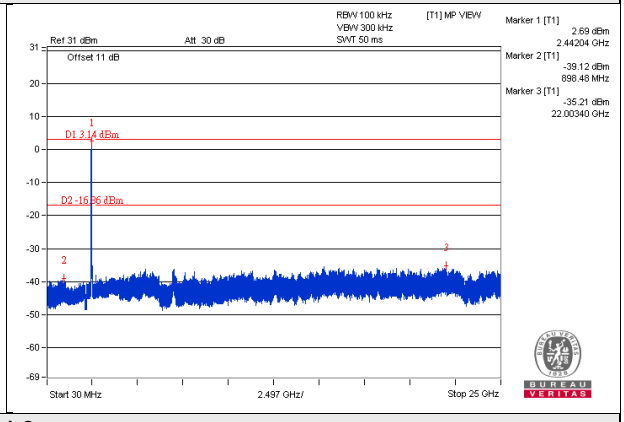
CH 3



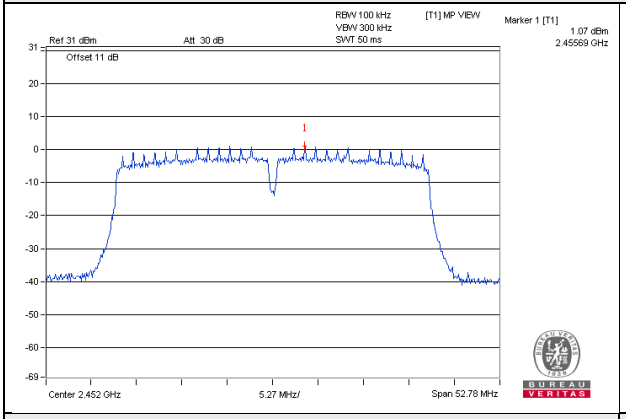


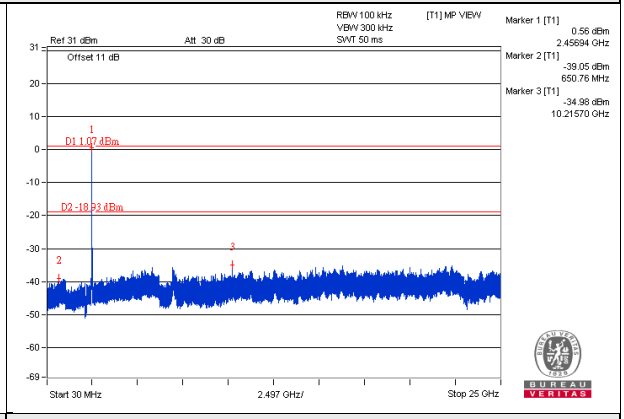
CH 6



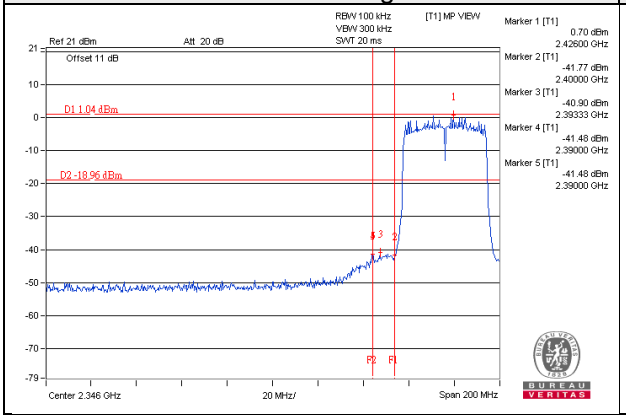


CH 9

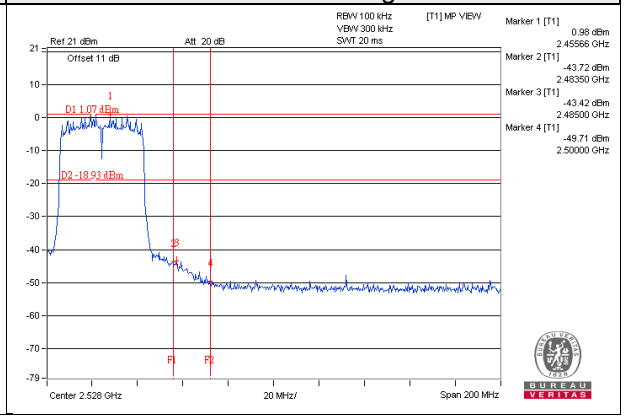




CH 3 Band edge

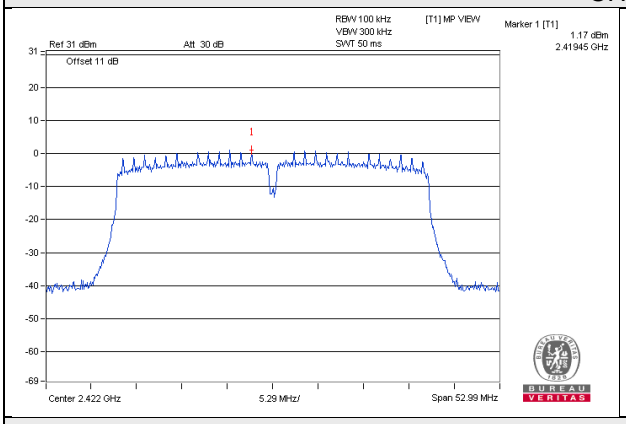


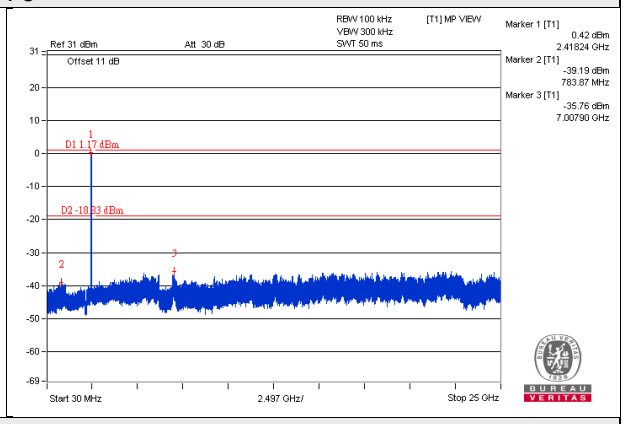
CH 9 Band edge



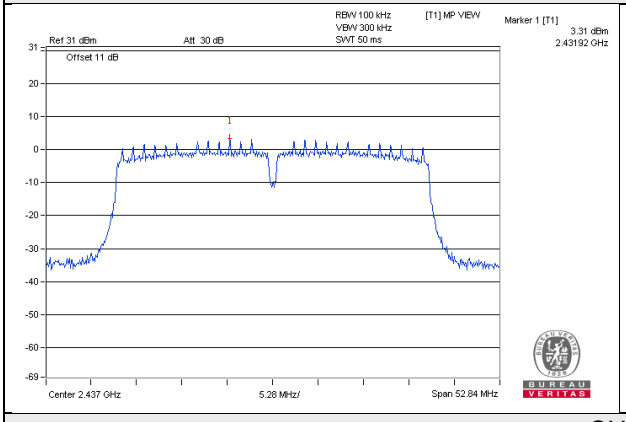
802.11n (HT40)_Chain 1

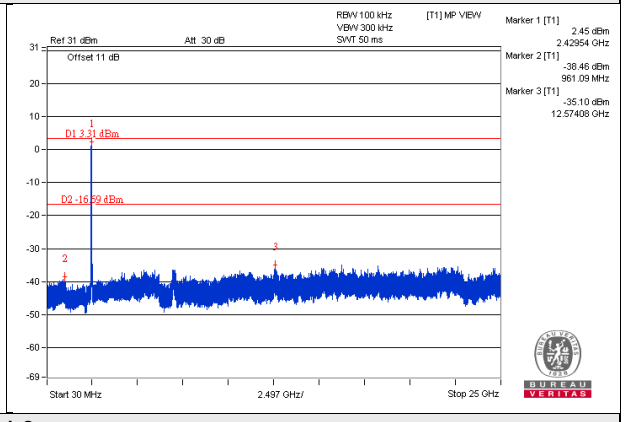
CH 3



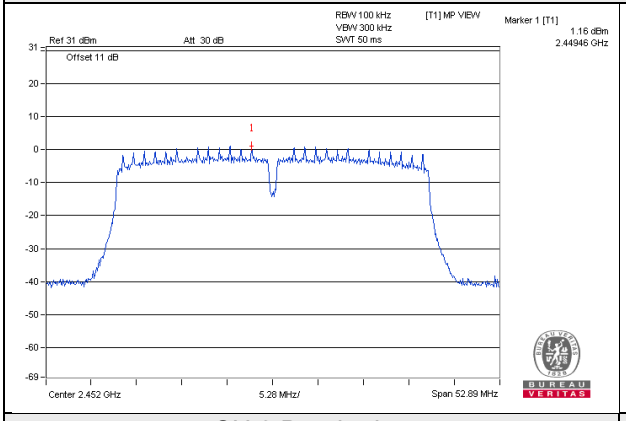


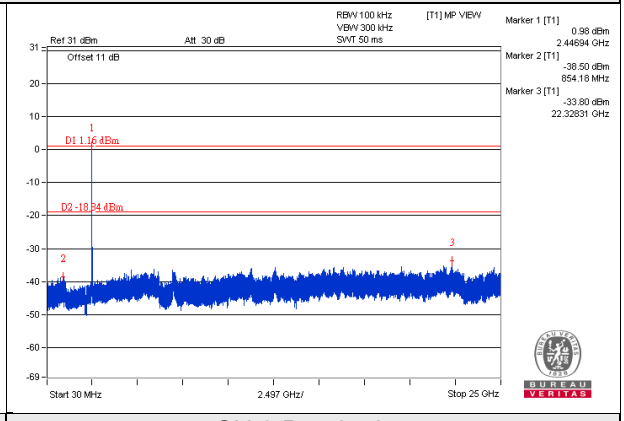
CH 6



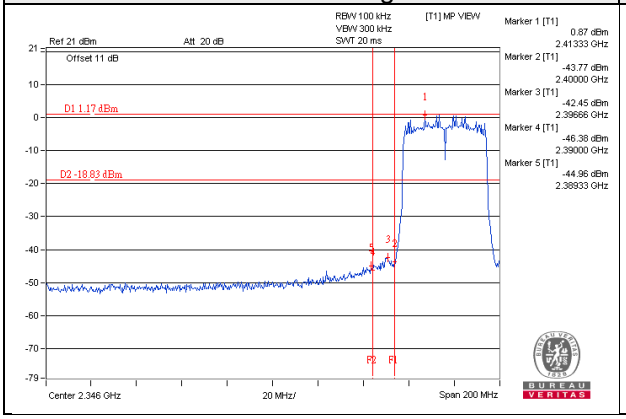


CH 9

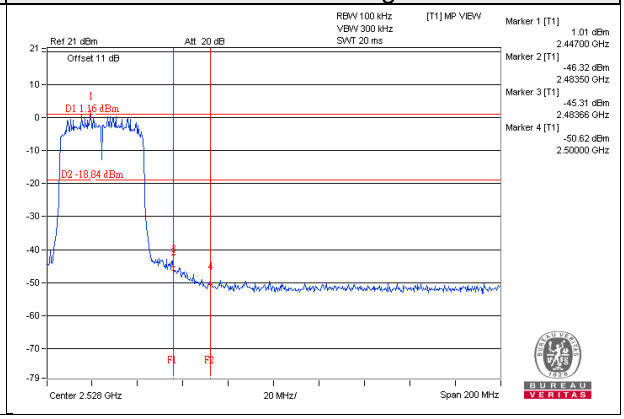




CH 3 Band edge



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 accredited and approved according to ISO/IEC 17025.

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

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Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

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