FCC Test Report

Report No.: RF170222C39

FCC ID: ACQ-DSR830

Test Model: DSR830

Received Date: Feb. 22, 2017

Test Date: Mar. 13 ~ Apr. 29, 2017

Issued Date: May 11, 2017

Applicant: ARRIS Group, Inc.

Address: 101 Tournament Drive, Horsham, Pennsylvania, United States, 19044

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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This report should not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

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Release Control Record

Issue No.	Description	Date Issued
RF170222C39	Original release.	May 11, 2017

1 Certificate of Conformity

Product: Satellite Set-Top Box

Brand: ARRIS Group, Inc.

Test Model: DSR830

Sample Status: Engineering sample

Applicant: ARRIS Group, Inc.

Test Date: Mar. 13 ~ Apr. 29, 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 : Celine Chou , **Date:** May 11, 2017
Celine Chou / Specialist

Approved by : Ken Liu , **Date:** May 11, 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 -12.32dB at 0.49064MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.5dB at 2390.00MHz.
15.247(d)	Antenna Port Emission	Pass	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	Pass	Meet the requirement of limit.
15.247(b)	Conducted power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is UFL 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	Satellite Set-Top Box
Brand	ARRIS Group, Inc.
Test Model	DSR830
Sample Status	Engineering sample
Power Supply Rating	12Vdc from adapter
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, 1TX: 120.226mW CDD Mode, 2TX: 176.628mW Beamforming Mode, 2TX: 144.480mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter, Remote Controller
Cable Supplied	2.0m shielded HDMI cable without core

Note:

1. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers. The EUT supports diversity parameter. Antenna 1 is the 2.4GHz max. gain for final test.

Modulation Mode	TX Function	Beamforming
802.11b	1TX, 2TX	Not Support
802.11g	1TX, 2TX	Not Support
802.11n (HT20)	1TX, 2TX	Support
802.11n (HT40)	1TX, 2TX	Support

* 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. The EUT uses following antennas.

Ant. Type	Stamped Metal				
Connecter Type	UFL				
Single Antenna Gain (dBi)					
Item	2.4G	5G Band 1	5G Band 2	5G Band 3	5G Band 4
Ant. 0	2.76	3.53	3.53	3.11	3.11
Ant. 1	2.97	4.79	5.08	4.79	4.79

* For 1 TX: The 2.4GHz max. gain (antenna 1) is chosen for final tests since it has the maximum gain among all antennas.

3. The EUT uses following adapter.

Brand	LITEON
Model	PB-1300-3AR3
Input Power	100-120Vac, 60Hz, 1A
Output Power	12Vdc, 2.5A
Power Line	1.8m cable without core attached on adapter

4. 2.4GHz and 5GHz technologies can not transmit at same time.

3.2 Description of Test Modes

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

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

7 channels are provided for 802.11n (HT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

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

Where RE≥1G: Radiated Emission above 1GHz & Bandedge Measurement RE<1G: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission APCM: Antenna Port Conducted Measurement

Note: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane.**

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)	TX Function
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	1TX / 2TX
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	1TX / 2TX
-	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5 / 7.2	1TX / 2TX
-	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5 / 15.0	1TX / 2TX

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)	TX Function
-	802.11b	1 to 11	6	DSSS	DBPSK	1.0	2TX

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)	TX Function
-	802.11b	1 to 11	6	DSSS	DBPSK	1.0	2TX

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)	TX Function
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	1TX / 2TX
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	1TX / 2TX
-	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5 / 7.2	1TX / 2TX
-	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5 / 15.0	1TX / 2TX

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	20 deg. C, 66% RH	120Vac, 60Hz	James Yang
RE<1G	20 deg. C, 66% RH	120Vac, 60Hz	James Yang
PLC	20 deg. C, 69% RH	120Vac, 60Hz	Bayu Chen
APCM	25 deg. C, 66% RH	120Vac, 60Hz	Jones Chang Ted Chang Frank Liu

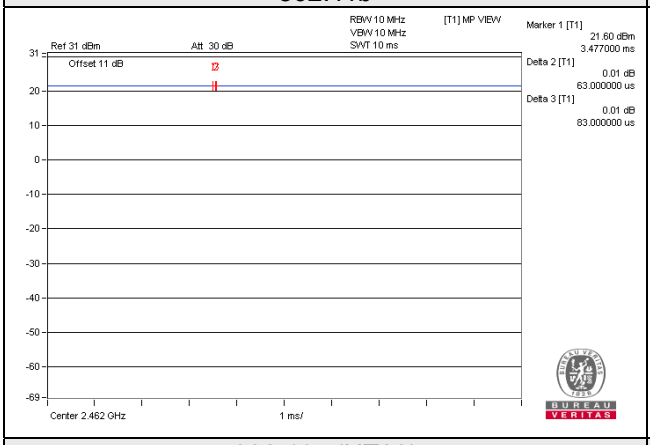
3.3 Duty Cycle of Test Signal

1TX

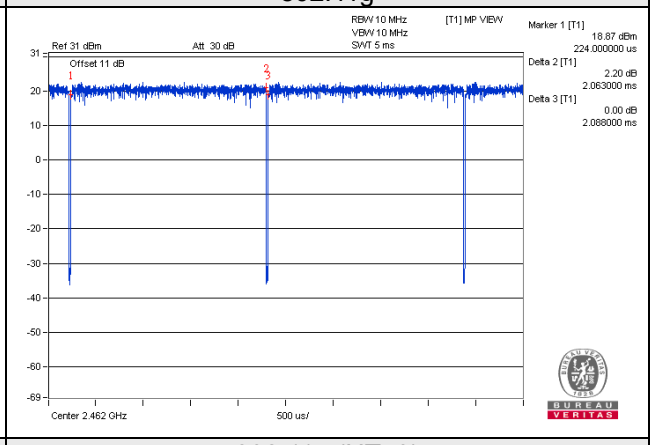
802.11b: Duty cycle of test signal is 100%, duty factor is not required.
802.11g, 802.11n (HT20): Duty cycle of test signal is ≥ 98%, duty factor is not required.
802.11n (HT40): Duty cycle of test signal is < 98%, duty factor is required.

802.11g: Duty cycle = 2.063/2.088 = 0.988
802.11n (HT20): Duty cycle = 1.917/1.940 = 0.988
802.11n (HT40): Duty cycle = 0.941/0.967 = 0.973, Duty factor = 10 * log(1/0.973) = 0.12

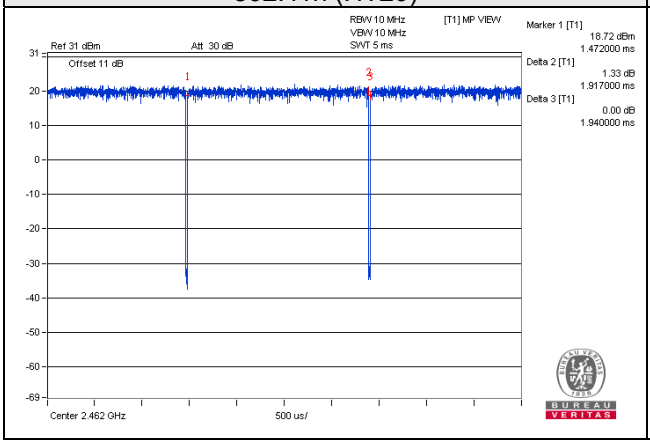
802.11b



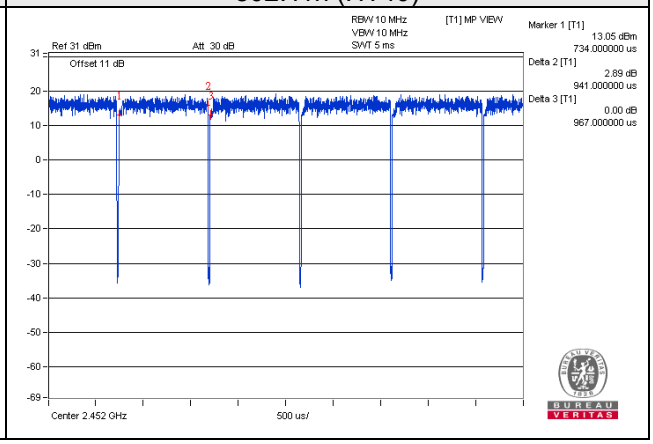
802.11g



802.11n (HT20)



802.11n (HT40)

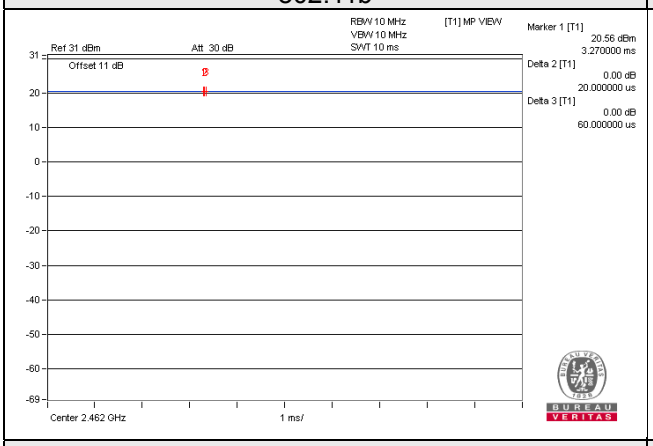


2TX

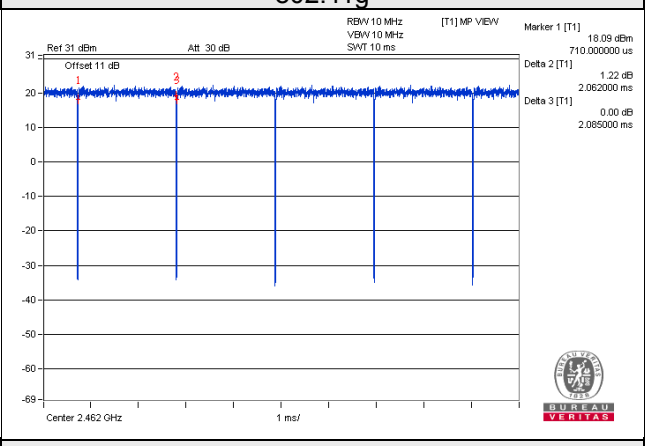
802.11b: Duty cycle of test signal is 100%, duty factor is not required.
802.11g, 802.11n (HT20): Duty cycle of test signal is ≥ 98%, duty factor is not required.
802.11n (HT40): Duty cycle of test signal is < 98%, duty factor is required.

802.11g: Duty cycle = 2.062/2.085 = 0.989
802.11n (HT20): Duty cycle = 1.917/1.939 = 0.989
802.11n (HT40): Duty cycle = 0.937/0.967 = 0.969, Duty factor = 10 * log(1/0.969) = 0.14

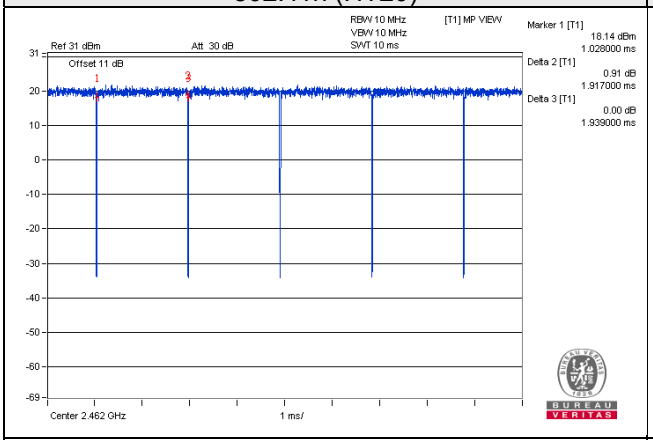
802.11b



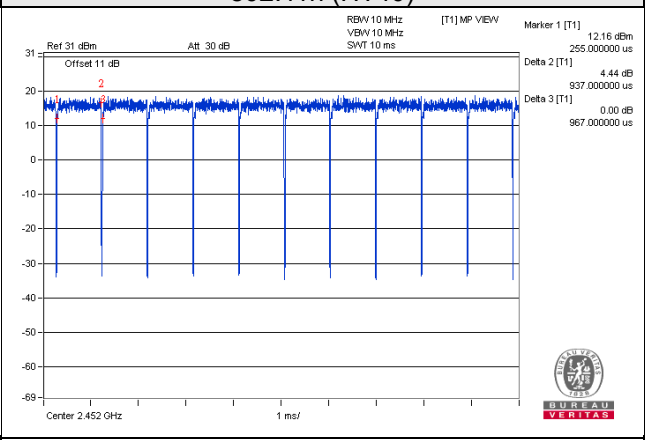
802.11g



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.

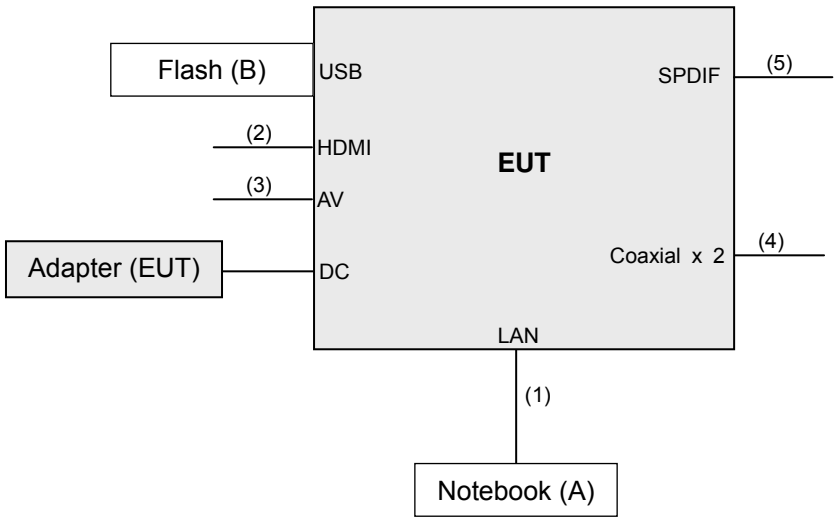
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-
B.	USB Flash	HP	v250W	01	NA	-

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.	HDMI	1	2	Y	0	Accessory of EUT
3.	AV	1	1.8	Y	0	-
4.	Coaxial	2	3	Y	0	-
5.	SPDIF	1	1	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	ESCI	100424	Oct. 24, 2016	Oct. 23, 2017
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Aug. 16, 2016	Aug. 15, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Dec. 28, 2016	Dec. 27, 2017
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Dec. 15, 2016	Dec. 14, 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	8449B	3008A01960	Aug. 09, 2016	Aug. 08, 2017
Preamplifier Agilent	8447D	2944A10631	Aug. 09, 2016	Aug. 08, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Aug. 09, 2016	Aug. 08, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Aug. 09, 2016	Aug. 08, 2017
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
High Speed Peak Power Meter	ML2495A	0824012	Aug. 11, 2016	Aug. 10, 2017
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 4.
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 460141.
5. The IC Site Registration No. is IC7450F-4.

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:

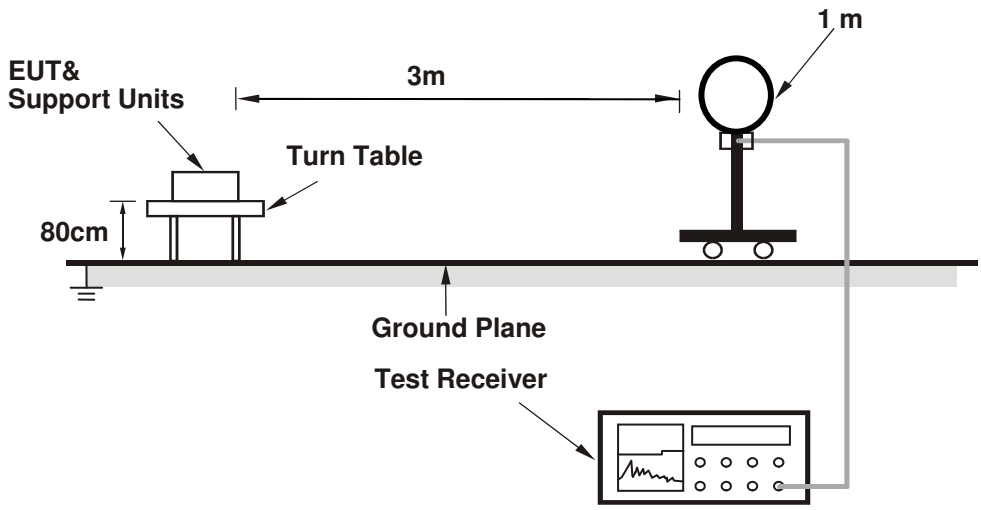
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

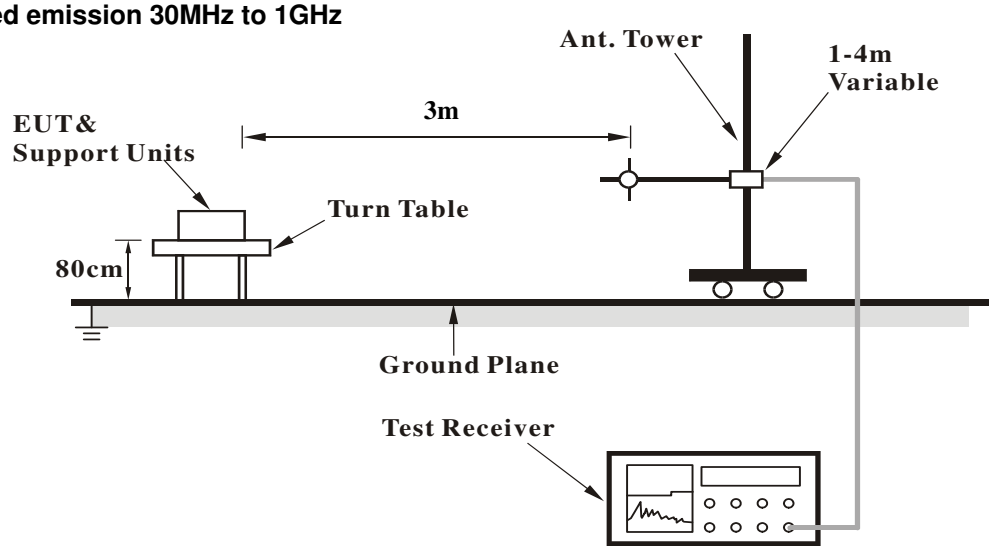
No deviation.

4.1.5 Test Setup

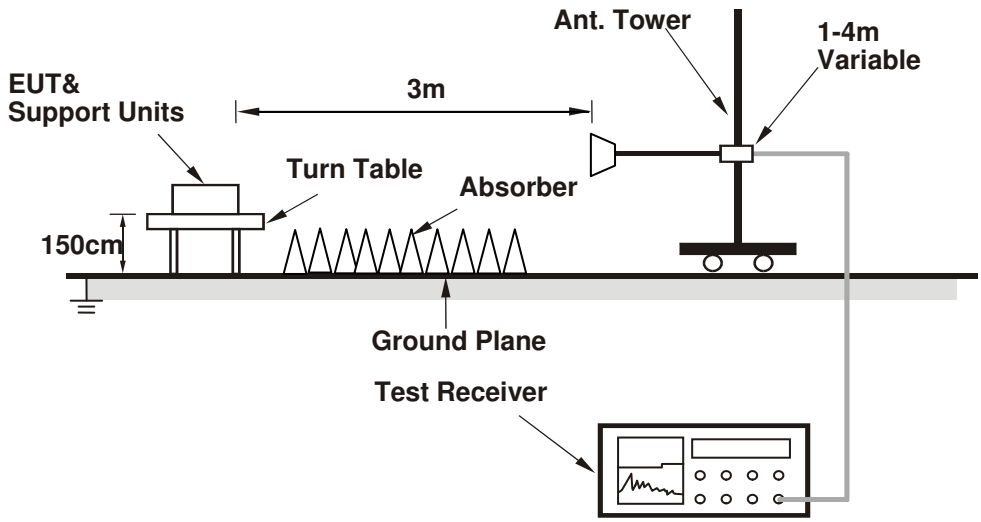
For Radiated emission below 30MHz



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 Data:

1TX

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	59.4 PK	74.0	-14.6	1.46 H	53	28.4	31.0
2	2390.00	53.2 AV	54.0	-0.8	1.46 H	53	22.2	31.0
3	*2412.00	106.7 PK			1.40 H	53	75.5	31.2
4	*2412.00	102.8 AV			1.40 H	53	71.6	31.2
5	4824.00	48.7 PK	74.0	-25.3	1.12 H	325	48.2	0.5
6	4824.00	42.8 AV	54.0	-11.2	1.12 H	325	42.3	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	54.5 PK	74.0	-19.5	1.41 V	298	23.5	31.0
2	2390.00	42.5 AV	54.0	-11.5	1.41 V	298	11.5	31.0
3	*2412.00	96.1 PK			1.46 V	291	64.9	31.2
4	*2412.00	92.0 AV			1.46 V	291	60.8	31.2
5	4824.00	46.3 PK	74.0	-27.7	1.44 V	3	45.8	0.5
6	4824.00	36.8 AV	54.0	-17.2	1.44 V	3	36.3	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	108.4 PK			1.23 H	51	77.1	31.3
2	*2437.00	104.5 AV			1.23 H	51	73.2	31.3
3	4874.00	49.9 PK	74.0	-24.1	1.07 H	325	49.3	0.6
4	4874.00	44.6 AV	54.0	-9.4	1.07 H	325	44.0	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	97.3 PK			1.52 V	307	66.0	31.3
2	*2437.00	93.2 AV			1.52 V	307	61.9	31.3
3	4874.00	47.3 PK	74.0	-26.7	1.55 V	9	46.7	0.6
4	4874.00	38.2 AV	54.0	-15.8	1.55 V	9	37.6	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	106.4 PK			1.16 H	51	75.0	31.4
2	*2462.00	102.6 AV			1.16 H	51	71.2	31.4
3	2483.50	60.0 PK	74.0	-14.0	1.18 H	53	28.5	31.5
4	2483.50	53.2 AV	54.0	-0.8	1.18 H	53	21.7	31.5
5	4924.00	50.6 PK	74.0	-23.4	1.24 H	325	50.0	0.6
6	4924.00	45.0 AV	54.0	-9.0	1.24 H	325	44.4	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	*2462.00	97.6 PK			1.56 V	289	66.2	31.4
2	*2462.00	93.8 AV			1.56 V	289	62.4	31.4
3	2483.50	54.7 PK	74.0	-19.3	1.55 V	284	23.2	31.5
4	2483.50	43.2 AV	54.0	-10.8	1.55 V	284	11.7	31.5
5	4924.00	47.4 PK	74.0	-26.6	1.51 V	9	46.8	0.6
6	4924.00	39.0 AV	54.0	-15.0	1.51 V	9	38.4	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	67.9 PK	74.0	-6.1	1.48 H	49	36.9	31.0
2	2390.00	53.2 AV	54.0	-0.8	1.48 H	49	22.2	31.0
3	*2412.00	106.5 PK			1.20 H	46	75.3	31.2
4	*2412.00	96.4 AV			1.20 H	46	65.2	31.2
5	4824.00	46.3 PK	74.0	-27.7	1.86 H	267	45.8	0.5
6	4824.00	33.4 AV	54.0	-20.6	1.86 H	267	32.9	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	59.2 PK	74.0	-14.8	3.25 V	128	28.2	31.0
2	2390.00	46.2 AV	54.0	-7.8	3.25 V	128	15.2	31.0
3	*2412.00	102.4 PK			3.24 V	126	71.2	31.2
4	*2412.00	92.8 AV			3.24 V	126	61.6	31.2
5	4824.00	45.9 PK	74.0	-28.1	1.86 V	243	45.4	0.5
6	4824.00	32.5 AV	54.0	-21.5	1.86 V	243	32.0	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	109.5 PK			1.20 H	49	78.2	31.3
2	*2437.00	99.5 AV			1.20 H	49	68.2	31.3
3	4874.00	46.5 PK	74.0	-27.5	1.62 H	194	45.9	0.6
4	4874.00	33.8 AV	54.0	-20.2	1.62 H	194	33.2	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	*2437.00	107.6 PK			2.99 V	103	76.3	31.3
2	*2437.00	97.2 AV			2.99 V	103	65.9	31.3
3	4874.00	46.0 PK	74.0	-28.0	2.73 V	257	45.4	0.6
4	4874.00	33.3 AV	54.0	-20.7	2.73 V	257	32.7	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	107.7 PK			1.18 H	49	76.3	31.4
2	*2462.00	97.2 AV			1.18 H	49	65.8	31.4
3	2483.50	66.7 PK	74.0	-7.3	1.20 H	51	35.2	31.5
4	2483.50	53.2 AV	54.0	-0.8	1.20 H	51	21.7	31.5
5	4924.00	46.3 PK	74.0	-27.7	1.69 H	327	45.7	0.6
6	4924.00	33.1 AV	54.0	-20.9	1.69 H	327	32.5	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	*2462.00	106.2 PK			3.35 V	97	74.8	31.4
2	*2462.00	96.1 AV			3.35 V	97	64.7	31.4
3	2483.50	65.0 PK	74.0	-9.0	3.37 V	112	33.5	31.5
4	2483.50	49.8 AV	54.0	-4.2	3.37 V	112	18.3	31.5
5	4924.00	46.6 PK	74.0	-27.4	2.08 V	201	46.0	0.6
6	4924.00	32.9 AV	54.0	-21.1	2.08 V	201	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 (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	67.9 PK	74.0	-6.1	1.44 H	50	36.9	31.0
2	2390.00	53.1 AV	54.0	-0.9	1.44 H	50	22.1	31.0
3	*2412.00	103.4 PK			1.24 H	50	72.2	31.2
4	*2412.00	93.0 AV			1.24 H	50	61.8	31.2
5	4824.00	44.7 PK	74.0	-29.3	1.92 H	205	44.2	0.5
6	4824.00	31.5 AV	54.0	-22.5	1.92 H	205	31.0	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	55.4 PK	74.0	-18.6	1.54 V	301	24.4	31.0
2	2390.00	43.4 AV	54.0	-10.6	1.54 V	301	12.4	31.0
3	*2412.00	93.8 PK			1.49 V	293	62.6	31.2
4	*2412.00	83.6 AV			1.49 V	293	52.4	31.2
5	4824.00	46.3 PK	74.0	-27.7	2.65 V	14	45.8	0.5
6	4824.00	32.6 AV	54.0	-21.4	2.65 V	14	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	107.4 PK			1.49 H	50	76.1	31.3
2	*2437.00	97.1 AV			1.49 H	50	65.8	31.3
3	4874.00	45.3 PK	74.0	-28.7	1.86 H	325	44.7	0.6
4	4874.00	33.4 AV	54.0	-20.6	1.86 H	325	32.8	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	99.2 PK			1.50 V	310	67.9	31.3
2	*2437.00	88.5 AV			1.50 V	310	57.2	31.3
3	4874.00	46.4 PK	74.0	-27.6	2.44 V	321	45.8	0.6
4	4874.00	33.2 AV	54.0	-20.8	2.44 V	321	32.6	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	105.8 PK			1.47 H	48	74.4	31.4
2	*2462.00	95.6 AV			1.47 H	48	64.2	31.4
3	2483.50	63.0 PK	74.0	-11.0	1.52 H	44	31.5	31.5
4	2483.50	53.4 AV	54.0	-0.6	1.52 H	44	21.9	31.5
5	4924.00	44.9 PK	74.0	-29.1	2.53 H	274	44.3	0.6
6	4924.00	32.0 AV	54.0	-22.0	2.53 H	274	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	*2462.00	99.7 PK			1.52 V	287	68.3	31.4
2	*2462.00	89.0 AV			1.52 V	287	57.6	31.4
3	2483.50	57.8 PK	74.0	-16.2	1.50 V	289	26.3	31.5
4	2483.50	44.6 AV	54.0	-9.4	1.50 V	289	13.1	31.5
5	4924.00	47.1 PK	74.0	-26.9	1.76 V	158	46.5	0.6
6	4924.00	33.4 AV	54.0	-20.6	1.76 V	158	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.

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	66.0 PK	74.0	-8.0	1.45 H	53	35.0	31.0
2	2390.00	53.3 AV	54.0	-0.7	1.45 H	53	22.3	31.0
3	*2422.00	99.8 PK			1.53 H	51	68.6	31.2
4	*2422.00	89.7 AV			1.53 H	51	58.5	31.2
5	4844.00	46.2 PK	74.0	-27.8	2.54 H	268	45.8	0.4
6	4844.00	33.2 AV	54.0	-20.8	2.54 H	268	32.8	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	55.2 PK	74.0	-18.8	1.51 V	308	24.2	31.0
2	2390.00	44.0 AV	54.0	-10.0	1.51 V	308	13.0	31.0
3	*2422.00	89.4 PK			1.50 V	311	58.2	31.2
4	*2422.00	79.1 AV			1.50 V	311	47.9	31.2
5	4844.00	46.7 PK	74.0	-27.3	1.89 V	293	46.3	0.4
6	4844.00	33.6 AV	54.0	-20.4	1.89 V	293	33.2	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	68.9 PK	74.0	-5.1	1.47 H	55	37.9	31.0
2	2390.00	53.1 AV	54.0	-0.9	1.47 H	55	22.1	31.0
3	*2437.00	102.8 PK			1.23 H	51	71.5	31.3
4	*2437.00	92.6 AV			1.23 H	51	61.3	31.3
5	4874.00	45.4 PK	74.0	-28.6	1.77 H	327	44.8	0.6
6	4874.00	33.5 AV	54.0	-20.5	1.77 H	327	32.9	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	55.8 PK	74.0	-18.2	1.47 V	305	24.8	31.0
2	2390.00	44.0 AV	54.0	-10.0	1.47 V	305	13.0	31.0
3	*2437.00	92.9 PK			1.52 V	300	61.6	31.3
4	*2437.00	83.1 AV			1.52 V	300	51.8	31.3
5	4874.00	47.1 PK	74.0	-26.9	2.08 V	222	46.5	0.6
6	4874.00	33.9 AV	54.0	-20.1	2.08 V	222	33.3	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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	104.0 PK			1.57 H	53	72.6	31.4
2	*2452.00	93.5 AV			1.57 H	53	62.1	31.4
3	2483.50	65.9 PK	74.0	-8.1	1.55 H	52	34.4	31.5
4	2483.50	53.2 AV	54.0	-0.8	1.55 H	52	21.7	31.5
5	4904.00	46.8 PK	74.0	-27.2	1.85 H	173	46.3	0.5
6	4904.00	33.9 AV	54.0	-20.1	1.85 H	173	33.4	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	95.6 PK			1.50 V	298	64.2	31.4
2	*2452.00	84.6 AV			1.50 V	298	53.2	31.4
3	2483.50	56.2 PK	74.0	-17.8	1.52 V	303	24.7	31.5
4	2483.50	44.7 AV	54.0	-9.3	1.52 V	303	13.2	31.5
5	4904.00	46.8 PK	74.0	-27.2	1.76 V	89	46.3	0.5
6	4904.00	34.3 AV	54.0	-19.7	1.76 V	89	33.8	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.

2TX

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	60.3 PK	74.0	-13.7	1.49 H	60	29.3	31.0
2	2390.00	51.4 AV	54.0	-2.6	1.49 H	60	20.4	31.0
3	*2412.00	107.8 PK			1.75 H	55	76.6	31.2
4	*2412.00	104.1 AV			1.75 H	55	72.9	31.2
5	4824.00	51.1 PK	74.0	-22.9	1.76 H	348	50.6	0.5
6	4824.00	45.5 AV	54.0	-8.5	1.76 H	348	45.0	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	60.3 PK	74.0	-13.7	2.90 V	125	29.3	31.0
2	2390.00	53.3 AV	54.0	-0.7	2.90 V	125	22.3	31.0
3	*2412.00	108.3 PK			2.95 V	262	77.1	31.2
4	*2412.00	104.6 AV			2.95 V	262	73.4	31.2
5	4824.00	50.9 PK	74.0	-23.1	3.01 V	359	50.4	0.5
6	4824.00	45.1 AV	54.0	-8.9	3.01 V	359	44.6	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	109.4 PK			1.52 H	52	78.1	31.3
2	*2437.00	105.6 AV			1.52 H	52	74.3	31.3
3	4874.00	58.0 PK	74.0	-16.0	1.42 H	350	57.4	0.6
4	4874.00	53.2 AV	54.0	-0.8	1.42 H	350	52.6	0.6
5	7311.00	52.9 PK	74.0	-21.1	1.00 H	283	45.8	7.1
6	7311.00	41.1 AV	54.0	-12.9	1.00 H	283	34.0	7.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	111.8 PK			2.82 V	239	80.5	31.3
2	*2437.00	108.0 AV			2.82 V	239	76.7	31.3
3	4874.00	51.6 PK	74.0	-22.4	2.84 V	350	51.0	0.6
4	4874.00	46.3 AV	54.0	-7.7	2.84 V	350	45.7	0.6
5	7311.00	54.9 PK	74.0	-19.1	2.87 V	181	47.8	7.1
6	7311.00	45.6 AV	54.0	-8.4	2.87 V	181	38.5	7.1

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	107.2 PK			1.28 H	322	75.8	31.4
2	*2462.00	103.4 AV			1.28 H	322	72.0	31.4
3	2483.50	58.8 PK	74.0	-15.2	1.66 H	348	27.3	31.5
4	2483.50	51.2 AV	54.0	-2.8	1.66 H	348	19.7	31.5
5	4924.00	53.4 PK	74.0	-20.6	3.12 H	326	52.8	0.6
6	4924.00	48.2 AV	54.0	-5.8	3.12 H	326	47.6	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	*2462.00	110.7 PK			2.74 V	258	79.3	31.4
2	*2462.00	106.9 AV			2.74 V	258	75.5	31.4
3	2483.50	60.8 PK	74.0	-13.2	2.70 V	256	29.3	31.5
4	2483.50	53.3 AV	54.0	-0.7	2.70 V	256	21.8	31.5
5	4924.00	51.7 PK	74.0	-22.3	2.89 V	352	51.1	0.6
6	4924.00	46.6 AV	54.0	-7.4	2.89 V	352	46.0	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	69.8 PK	74.0	-4.2	2.09 H	49	38.8	31.0
2	2390.00	52.8 AV	54.0	-1.2	2.09 H	49	21.8	31.0
3	*2412.00	107.3 PK			1.57 H	345	76.1	31.2
4	*2412.00	97.0 AV			1.57 H	345	65.8	31.2
5	4824.00	47.2 PK	74.0	-26.8	1.72 H	347	46.7	0.5
6	4824.00	34.0 AV	54.0	-20.0	1.72 H	347	33.5	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	66.4 PK	74.0	-7.6	1.46 V	247	35.4	31.0
2	2390.00	53.4 AV	54.0	-0.6	1.46 V	247	22.4	31.0
3	*2412.00	107.8 PK			2.89 V	261	76.6	31.2
4	*2412.00	98.3 AV			2.89 V	261	67.1	31.2
5	4824.00	47.0 PK	74.0	-27.0	2.71 V	222	46.5	0.5
6	4824.00	33.4 AV	54.0	-20.6	2.71 V	222	32.9	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	2390.00	64.3 PK	74.0	-9.7	2.11 H	55	33.3	31.0
2	2390.00	50.5 AV	54.0	-3.5	2.11 H	55	19.5	31.0
3	*2437.00	111.9 PK			1.54 H	346	80.6	31.3
4	*2437.00	101.7 AV			1.54 H	346	70.4	31.3
5	2483.50	62.0 PK	74.0	-12.0	1.11 H	349	30.5	31.5
6	2483.50	49.6 AV	54.0	-4.4	1.11 H	349	18.1	31.5
7	4874.00	50.2 PK	74.0	-23.8	3.52 H	327	49.6	0.6
8	4874.00	37.5 AV	54.0	-16.5	3.52 H	327	36.9	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	67.6 PK	74.0	-6.4	1.69 V	267	36.6	31.0
2	2390.00	53.3 AV	54.0	-0.7	1.69 V	267	22.3	31.0
3	*2437.00	111.9 PK			1.59 V	259	80.6	31.3
4	*2437.00	101.6 AV			1.59 V	259	70.3	31.3
5	2483.50	64.5 PK	74.0	-9.5	1.62 V	27	33.0	31.5
6	2483.50	51.0 AV	54.0	-3.0	1.62 V	27	19.5	31.5
7	4874.00	51.6 PK	74.0	-22.4	3.19 V	8	51.0	0.6
8	4874.00	38.6 AV	54.0	-15.4	3.19 V	8	38.0	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	108.1 PK			1.92 H	321	76.7	31.4
2	*2462.00	98.0 AV			1.92 H	321	66.6	31.4
3	2483.50	66.3 PK	74.0	-7.7	1.93 H	349	34.8	31.5
4	2483.50	51.9 AV	54.0	-2.1	1.93 H	349	20.4	31.5
5	4924.00	47.9 PK	74.0	-26.1	1.90 H	327	47.3	0.6
6	4924.00	35.7 AV	54.0	-18.3	1.90 H	327	35.1	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	108.5 PK			2.21 V	254	77.1	31.4
2	*2462.00	98.7 AV			2.21 V	254	67.3	31.4
3	2483.50	68.6 PK	74.0	-5.4	1.94 V	258	37.1	31.5
4	2483.50	53.2 AV	54.0	-0.8	1.94 V	258	21.7	31.5
5	4924.00	48.5 PK	74.0	-25.5	2.36 V	2	47.9	0.6
6	4924.00	35.6 AV	54.0	-18.4	2.36 V	2	35.0	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	68.8 PK	74.0	-5.2	1.76 H	53	37.8	31.0
2	2390.00	53.3 AV	54.0	-0.7	1.76 H	53	22.3	31.0
3	*2412.00	106.6 PK			1.56 H	346	75.4	31.2
4	*2412.00	95.8 AV			1.56 H	346	64.6	31.2
5	4824.00	46.5 PK	74.0	-27.5	1.87 H	224	46.0	0.5
6	4824.00	33.6 AV	54.0	-20.4	1.87 H	224	33.1	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	68.6 PK	74.0	-5.4	2.78 V	245	37.6	31.0
2	2390.00	53.0 AV	54.0	-1.0	2.78 V	245	22.0	31.0
3	*2412.00	105.7 PK			2.86 V	263	74.5	31.2
4	*2412.00	96.0 AV			2.86 V	263	64.8	31.2
5	4824.00	46.8 PK	74.0	-27.2	1.73 V	331	46.3	0.5
6	4824.00	33.0 AV	54.0	-21.0	1.73 V	331	32.5	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	2390.00	64.7 PK	74.0	-9.3	2.14 H	51	33.7	31.0
2	2390.00	51.7 AV	54.0	-2.3	2.14 H	51	20.7	31.0
3	*2437.00	112.0 PK			2.25 H	46	80.7	31.3
4	*2437.00	100.1 AV			2.25 H	46	68.8	31.3
5	2483.50	64.9 PK	74.0	-9.1	1.49 H	346	33.4	31.5
6	2483.50	50.4 AV	54.0	-3.6	1.49 H	346	18.9	31.5
7	4874.00	49.4 PK	74.0	-24.6	2.26 H	107	48.8	0.6
8	4874.00	36.8 AV	54.0	-17.2	2.26 H	107	36.2	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	2390.00	65.9 PK	74.0	-8.1	2.82 V	245	34.9	31.0
2	2390.00	52.4 AV	54.0	-1.6	2.82 V	245	21.4	31.0
3	*2437.00	111.5 PK			2.75 V	242	80.2	31.3
4	*2437.00	101.9 AV			2.75 V	242	70.6	31.3
5	2483.50	64.5 PK	74.0	-9.5	2.76 V	238	33.0	31.5
6	2483.50	51.6 AV	54.0	-2.4	2.76 V	238	20.1	31.5
7	4874.00	52.7 PK	74.0	-21.3	2.81 V	6	52.1	0.6
8	4874.00	38.6 AV	54.0	-15.4	2.81 V	6	38.0	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	107.9 PK			1.53 H	349	76.5	31.4
2	*2462.00	96.9 AV			1.53 H	349	65.5	31.4
3	2483.50	65.1 PK	74.0	-8.9	1.68 H	344	33.6	31.5
4	2483.50	53.4 AV	54.0	-0.6	1.68 H	344	21.9	31.5
5	4924.00	48.2 PK	74.0	-25.8	2.28 H	327	47.6	0.6
6	4924.00	35.0 AV	54.0	-19.0	2.28 H	327	34.4	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	*2462.00	109.8 PK			2.74 V	258	78.4	31.4
2	*2462.00	100.0 AV			2.74 V	258	68.6	31.4
3	2483.50	68.5 PK	74.0	-5.5	2.74 V	240	37.0	31.5
4	2483.50	52.9 AV	54.0	-1.1	2.74 V	240	21.4	31.5
5	4924.00	47.7 PK	74.0	-26.3	2.65 V	347	47.1	0.6
6	4924.00	34.6 AV	54.0	-19.4	2.65 V	347	34.0	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	64.4 PK	74.0	-9.6	1.41 H	7	33.4	31.0
2	2390.00	52.5 AV	54.0	-1.5	1.41 H	7	21.5	31.0
3	*2422.00	100.0 PK			1.46 H	48	68.8	31.2
4	*2422.00	88.3 AV			1.46 H	48	57.1	31.2
5	4844.00	47.6 PK	74.0	-26.4	1.93 H	239	47.2	0.4
6	4844.00	33.8 AV	54.0	-20.2	1.93 H	239	33.4	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	65.5 PK	74.0	-8.5	2.36 V	258	34.5	31.0
2	**2390.00**	**53.5 AV**	**54.0**	**-0.5**	**2.36 V**	**258**	**22.5**	**31.0**
3	*2422.00	99.0 PK			2.77 V	250	67.8	31.2
4	*2422.00	89.6 AV			2.77 V	250	58.4	31.2
5	4844.00	46.8 PK	74.0	-27.2	2.61 V	336	46.4	0.4
6	4844.00	33.6 AV	54.0	-20.4	2.61 V	336	33.2	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	66.3 PK	74.0	-7.7	1.87 H	343	35.3	31.0
2	2390.00	51.7 AV	54.0	-2.3	1.87 H	343	20.7	31.0
3	*2437.00	102.9 PK			1.99 H	354	71.6	31.3
4	*2437.00	91.8 AV			1.99 H	354	60.5	31.3
5	4874.00	46.9 PK	74.0	-27.1	1.75 H	221	46.3	0.6
6	4874.00	34.5 AV	54.0	-19.5	1.75 H	221	33.9	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	67.7 PK	74.0	-6.3	2.78 V	224	36.7	31.0
2	**2390.00**	**53.5 AV**	**54.0**	**-0.5**	**2.78 V**	**224**	**22.5**	**31.0**
3	*2437.00	102.7 PK			2.79 V	251	71.4	31.3
4	*2437.00	92.9 AV			2.79 V	251	61.6	31.3
5	4874.00	46.5 PK	74.0	-27.5	2.83 V	236	45.9	0.6
6	4874.00	34.2 AV	54.0	-19.8	2.83 V	236	33.6	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	103.5 PK			2.11 H	51	72.1	31.4
2	*2452.00	93.4 AV			2.11 H	51	62.0	31.4
3	2483.50	64.3 PK	74.0	-9.7	1.73 H	348	32.8	31.5
4	2483.50	52.4 AV	54.0	-1.6	1.73 H	348	20.9	31.5
5	4904.00	47.0 PK	74.0	-27.0	2.06 H	328	46.5	0.5
6	4904.00	34.6 AV	54.0	-19.4	2.06 H	328	34.1	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	105.0 PK			2.78 V	256	73.6	31.4
2	*2452.00	95.5 AV			2.78 V	256	64.1	31.4
3	2483.50	65.2 PK	74.0	-8.8	2.76 V	238	33.7	31.5
4	2483.50	53.2 AV	54.0	-0.8	2.76 V	238	21.7	31.5
5	4904.00	46.8 PK	74.0	-27.2	2.17 V	117	46.3	0.5
6	4904.00	34.3 AV	54.0	-19.7	2.17 V	117	33.8	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 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	57.12	25.8 QP	40.0	-14.2	2.00 H	106	40.4	-14.6
2	146.56	30.6 QP	43.5	-12.9	2.00 H	80	44.6	-14.0
3	241.83	29.9 QP	46.0	-16.1	1.00 H	247	44.3	-14.4
4	486.81	37.5 QP	46.0	-8.5	2.00 H	186	45.7	-8.2
5	729.84	37.3 QP	46.0	-8.7	1.00 H	112	40.1	-2.8
6	897.05	38.7 QP	46.0	-7.3	1.49 H	178	38.6	0.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	55.18	33.8 QP	40.0	-6.2	1.01 V	10	48.3	-14.5
2	146.56	29.9 QP	43.5	-13.6	1.01 V	260	43.9	-14.0
3	405.15	29.6 QP	46.0	-16.4	1.01 V	203	39.7	-10.1
4	566.52	37.3 QP	46.0	-8.7	1.01 V	17	43.9	-6.6
5	729.84	39.6 QP	46.0	-6.4	1.51 V	224	42.4	-2.8
6	891.22	35.8 QP	46.0	-10.2	1.01 V	49	35.9	-0.1

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.

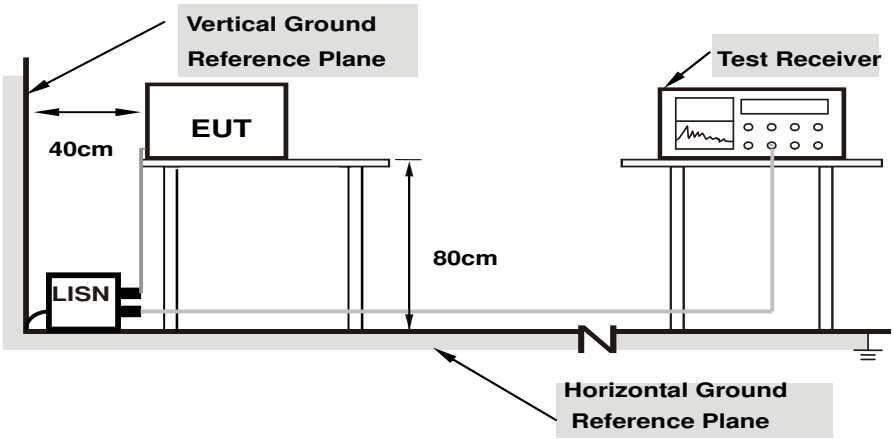
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

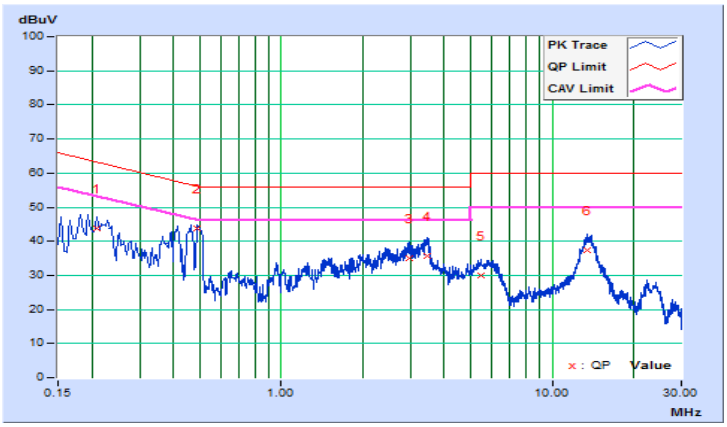
Worst-case data: 802.11b

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

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	0.20865	10.43	33.36	26.74	43.79	37.17	63.26	53.26	-19.47	-16.09
2	**0.49064**	**10.50**	**33.34**	**21.32**	**43.84**	**31.82**	**56.16**	**46.16**	**-12.32**	**-14.34**
3	2.98866	10.59	24.59	16.66	35.18	27.25	56.00	46.00	-20.82	-18.75
4	3.47350	10.62	25.08	15.39	35.70	26.01	56.00	46.00	-20.30	-19.99
5	5.47933	10.72	19.33	13.98	30.05	24.70	60.00	50.00	-29.95	-25.30
6	13.55739	11.08	26.38	20.88	37.46	31.96	60.00	50.00	-22.54	-18.04

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.

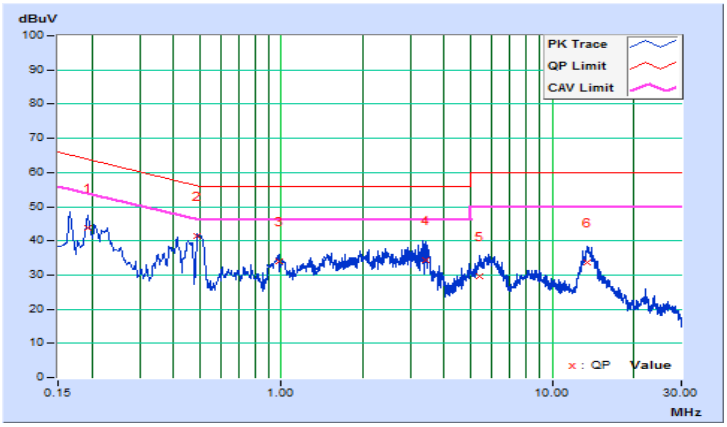


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	0.19305	10.19	33.53	25.57	43.72	35.76	63.90	53.90	-20.18	-18.14
2	0.49064	10.23	31.15	19.54	41.38	29.77	56.16	46.16	-14.78	-16.39
3	0.97854	10.24	23.81	13.21	34.05	23.45	56.00	46.00	-21.95	-22.55
4	3.39530	10.39	23.84	14.22	34.23	24.61	56.00	46.00	-21.77	-21.39
5	5.38940	10.47	19.14	13.25	29.61	23.72	60.00	50.00	-30.39	-26.28
6	13.42864	10.78	23.05	17.64	33.83	28.42	60.00	50.00	-26.17	-21.58

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.

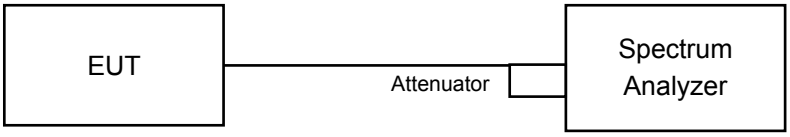


4.3 6dB Bandwidth Measurement

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

1TX

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	8.11	0.5	Pass
6	2437	8.11	0.5	Pass
11	2462	8.59	0.5	Pass

802.11g

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

802.11n (HT20)

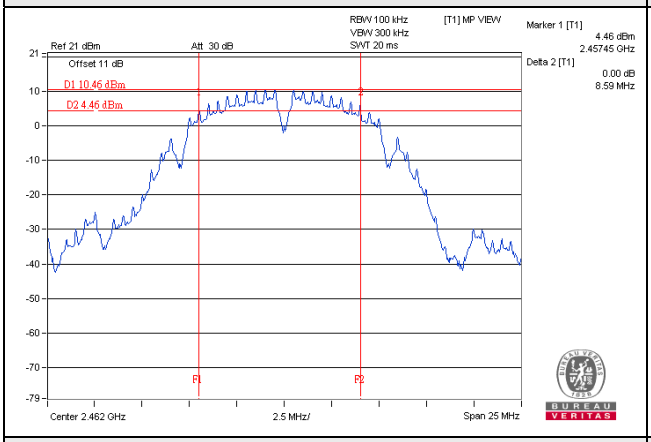
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	17.64	0.5	Pass
6	2437	17.64	0.5	Pass
11	2462	17.64	0.5	Pass

802.11n (HT40)

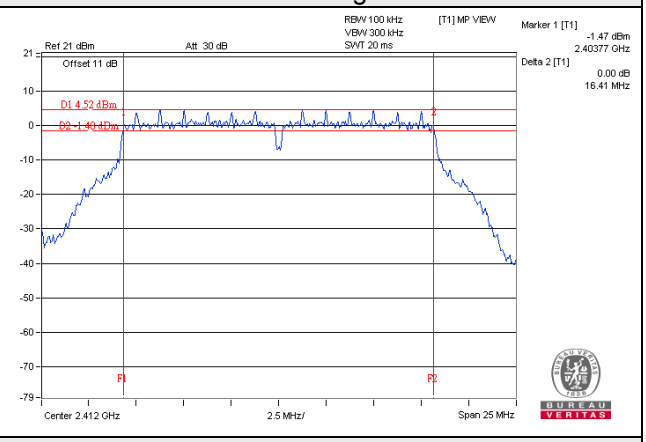
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
3	2422	36.44	0.5	Pass
6	2437	36.39	0.5	Pass
9	2452	36.39	0.5	Pass

Spectrum Plot of Worst Value

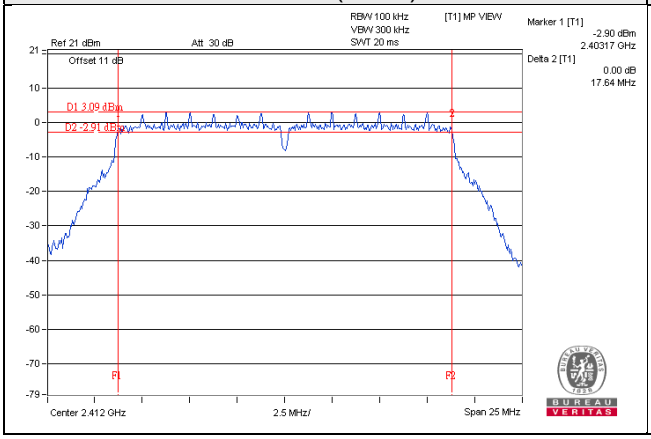
802.11b



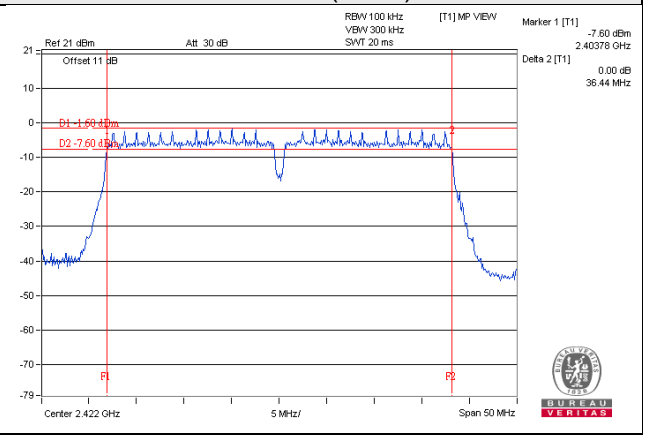
802.11g



802.11n (HT20)



802.11n (HT40)



2TX

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	8.10	8.09	0.5	Pass
6	2437	8.07	8.58	0.5	Pass
11	2462	8.09	8.10	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.41	16.43	0.5	Pass
6	2437	16.42	16.41	0.5	Pass
11	2462	16.41	16.42	0.5	Pass

802.11n (HT20)

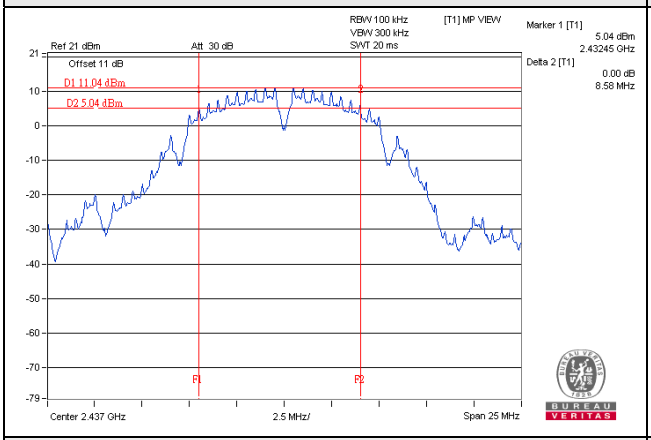
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.65	17.66	0.5	Pass
6	2437	17.64	17.66	0.5	Pass
11	2462	17.64	17.66	0.5	Pass

802.11n (HT40)

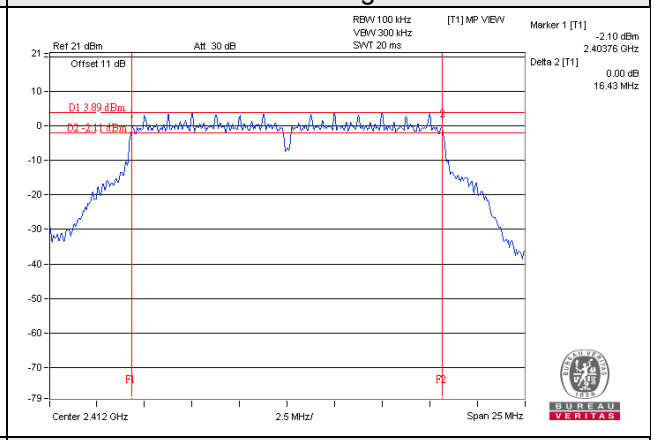
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	36.44	36.47	0.5	Pass
6	2437	36.41	36.44	0.5	Pass
9	2452	36.39	36.42	0.5	Pass

Spectrum Plot of Worst Value

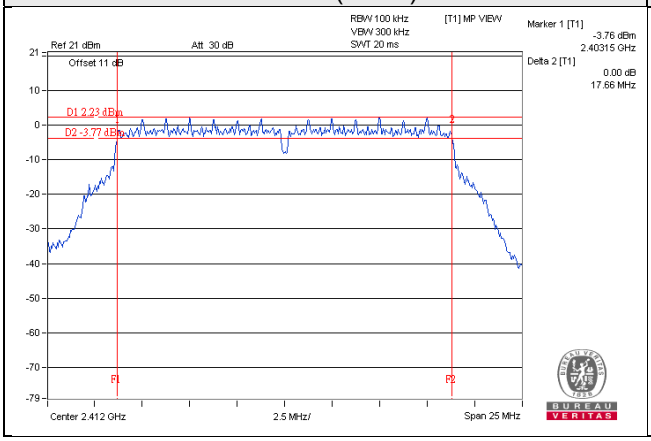
802.11b



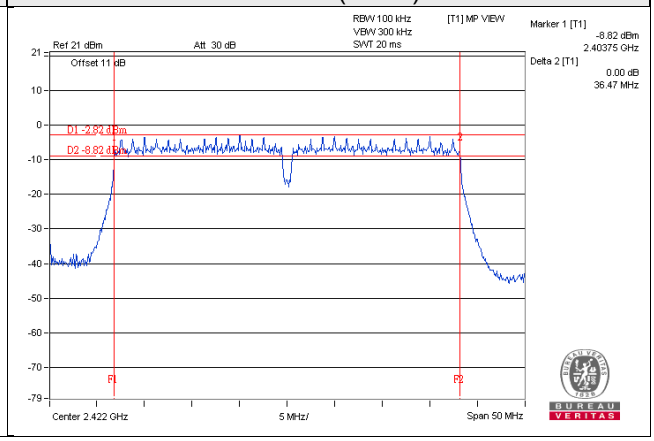
802.11g



802.11n (HT20)



802.11n (HT40)



4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

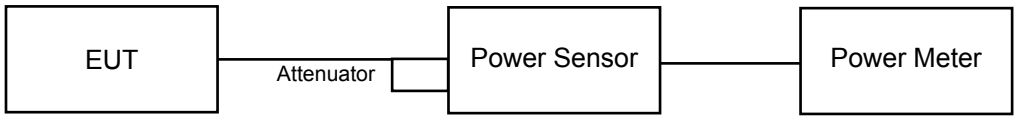
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

CDD Mode, 1TX

802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	75.336	18.77	30.00	Pass
6	2437	**120.226**	20.80	30.00	Pass
11	2462	85.901	19.34	30.00	Pass

802.11g

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	43.351	16.37	30.00	Pass
6	2437	97.275	19.88	30.00	Pass
11	2462	62.087	17.93	30.00	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	30.832	14.89	30.00	Pass
6	2437	95.060	19.78	30.00	Pass
11	2462	60.395	17.81	30.00	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
3	2422	18.239	12.61	30.00	Pass
6	2437	38.371	15.84	30.00	Pass
9	2452	48.865	16.89	30.00	Pass

CDD Mode, 2TX

802.11b

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	18.32	18.33	135.997	21.34	30.00	Pass
6	2437	19.38	19.52	176.232	22.46	30.00	Pass
11	2462	17.52	17.75	116.060	20.65	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	15.63	15.28	70.288	18.47	30.00	Pass
6	2437	19.41	19.51	**176.628**	22.47	30.00	Pass
11	2462	16.84	16.79	96.059	19.83	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	13.86	13.61	47.283	16.75	30.00	Pass
6	2437	19.57	19.32	176.080	22.46	30.00	Pass
11	2462	16.24	16.22	83.952	19.24	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	11.14	11.10	25.884	14.13	30.00	Pass
6	2437	14.05	14.19	51.652	17.13	30.00	Pass
9	2452	15.52	15.35	69.922	18.45	30.00	Pass

Beamforming Mode, 2TX

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	12.13	12.32	33.392	15.24	30.00	Pass
6	2437	18.74	18.43	**144.480**	21.60	30.00	Pass
11	2462	14.93	14.88	61.878	17.92	30.00	Pass

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/N$] = 5.88dBi < 6dBi, so the limit no need to be reduced.

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	11.37	11.53	27.932	14.46	30.00	Pass
6	2437	12.89	12.67	37.947	15.79	30.00	Pass
9	2452	15.52	15.35	69.922	18.45	30.00	Pass

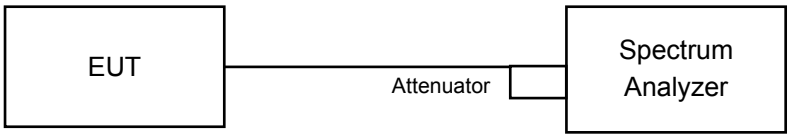
Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/N$] = 5.88dBi < 6dBi, so the limit no need to be reduced.

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

For Average Power (Duty cycle ≥ 98%)

a. Set instrument center frequency to DTS channel center frequency.

b. Set span to at least 1.5 times the OBW.

c. Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz.

d. Set VBW ≥3 x RBW.

e. Detector = power averaging (RMS) or sample detector (when RMS not available).

f. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.

g. Sweep time = auto couple.

h. Employ trace averaging (RMS) mode over a minimum of 100 traces.

i. Use the peak marker function to determine the maximum amplitude level.

For Average Power (Duty cycle < 98%)

a. Measure the duty cycle (x).

b. Set instrument center frequency to DTS channel center frequency.

c. Set span to at least 1.5 times the OBW.

d. Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz.

e. Set VBW ≥3 x RBW.

f. Detector = power averaging (RMS) or sample detector (when RMS not available).

g. Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.

h. Sweep time = auto couple.

i. Do not use sweep triggering. Allow sweep to “free run”.

j. Employ trace averaging (RMS) mode over a minimum of 100 traces.

k. Use the peak marker function to determine the maximum amplitude level.

l. Add 10 log (1/x), where x is the duty cycle measured in step (a, to the measured PSD to compute the average PSD during the actual transmission time.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as item 4.3.6

4.5.7 Test Results

1TX

802.11b

Channel	Frequency (MHz)	PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
1	2412	-9.64	8.00	Pass
6	2437	-7.39	8.00	Pass
11	2462	-8.85	8.00	Pass

802.11g

Channel	Frequency (MHz)	PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
1	2412	-13.85	8.00	Pass
6	2437	-10.60	8.00	Pass
11	2462	-12.04	8.00	Pass

802.11n (HT20)

Channel	Frequency (MHz)	PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
1	2412	-17.08	8.00	Pass
6	2437	-11.63	8.00	Pass
11	2462	-13.68	8.00	Pass

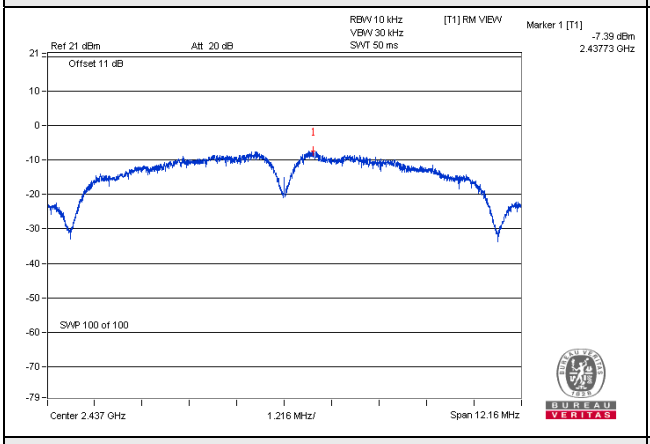
802.11n (HT40)

Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/10kHz)	Duty Factor (dB)	Total PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
3	2422	-21.18	0.12	-21.06	8.00	Pass
6	2437	-18.19	0.12	-18.07	8.00	Pass
9	2452	-17.13	0.12	-17.01	8.00	Pass

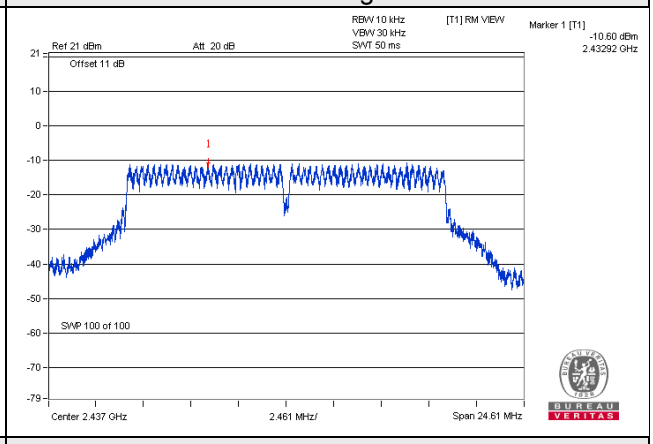
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

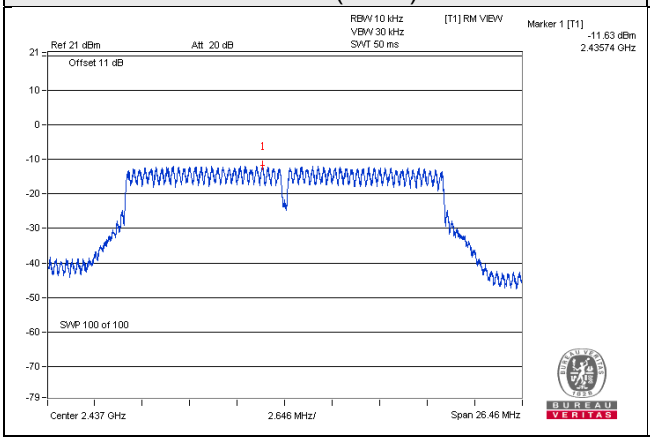
802.11b



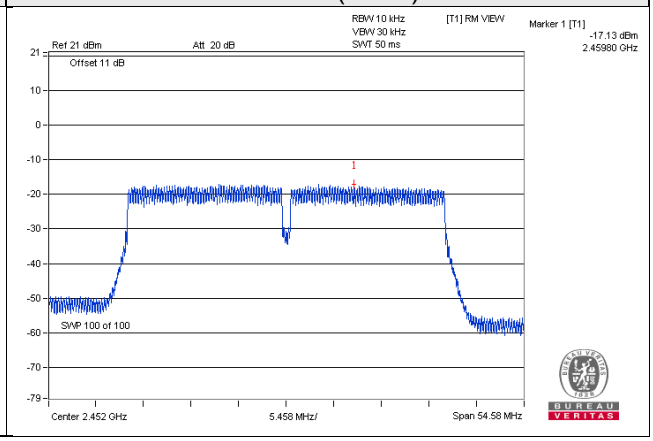
802.11g



802.11n (HT20)



802.11n (HT40)



2TX

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	-9.69	3.01	-6.68	8.00	Pass
	6	2437	-8.45	3.01	-5.44	8.00	Pass
	11	2462	-9.94	3.01	-6.93	8.00	Pass
1	1	2412	-9.69	3.01	-6.68	8.00	Pass
	6	2437	-8.84	3.01	-5.83	8.00	Pass
	11	2462	-12.70	3.01	-9.69	8.00	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 = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/N$] = 5.88dBi < 6dBi, so the limit no need to be reduced.

802.11g

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	-14.03	3.01	-11.02	8.00	Pass
	6	2437	-10.66	3.01	-7.65	8.00	Pass
	11	2462	-12.88	3.01	-9.87	8.00	Pass
1	1	2412	-14.71	3.01	-11.70	8.00	Pass
	6	2437	-10.79	3.01	-7.78	8.00	Pass
	11	2462	-13.61	3.01	-10.60	8.00	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 = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/N$] = 5.88dBi < 6dBi, so the limit no need to be reduced.

802.11n (HT20)

TX chain	Channel	Frequency (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-17.60	3.01	-14.59	8.00	Pass
	6	2437	-11.74	3.01	-8.73	8.00	Pass
	11	2462	-14.05	3.01	-11.04	8.00	Pass
1	1	2412	-17.71	3.01	-14.70	8.00	Pass
	6	2437	-11.70	3.01	-8.69	8.00	Pass
	11	2462	-15.37	3.01	-12.36	8.00	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 = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2$/N] = 5.88dBi < 6dBi, so the limit no need to be reduced.

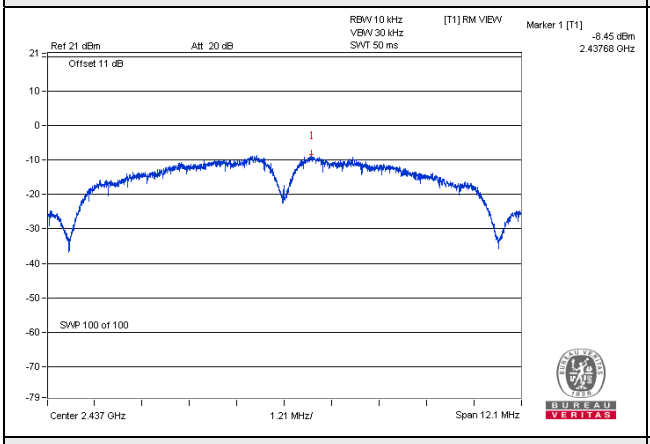
802.11n (HT40)

TX chain	Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/10kHz)	10 log (N=3) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	3	2422	-22.56	3.01	0.14	-19.41	8.00	Pass
	6	2437	-18.81	3.01	0.14	-15.66	8.00	Pass
	9	2452	-17.29	3.01	0.14	-14.14	8.00	Pass
1	3	2422	-22.80	3.01	0.14	-19.65	8.00	Pass
	6	2437	-19.10	3.01	0.14	-15.95	8.00	Pass
	9	2452	-18.19	3.01	0.14	-15.04	8.00	Pass

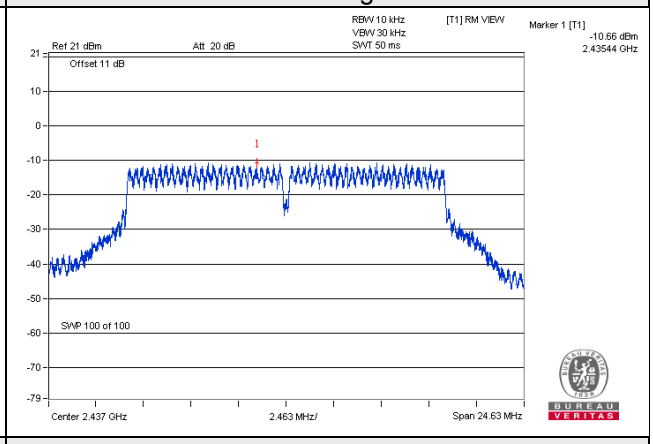
Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2$/N] = 5.88dBi < 6dBi, so the limit no need to be reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

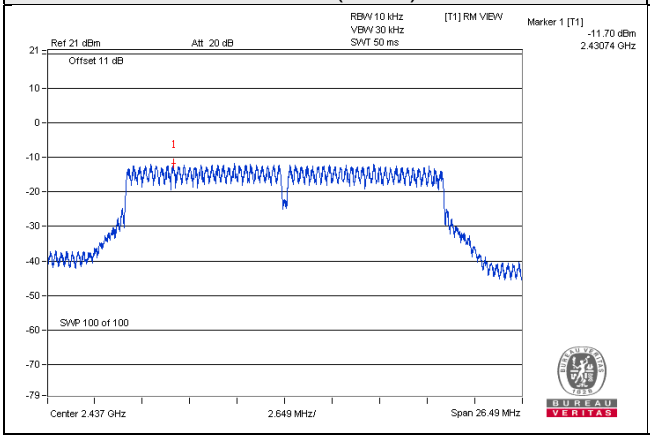
802.11b



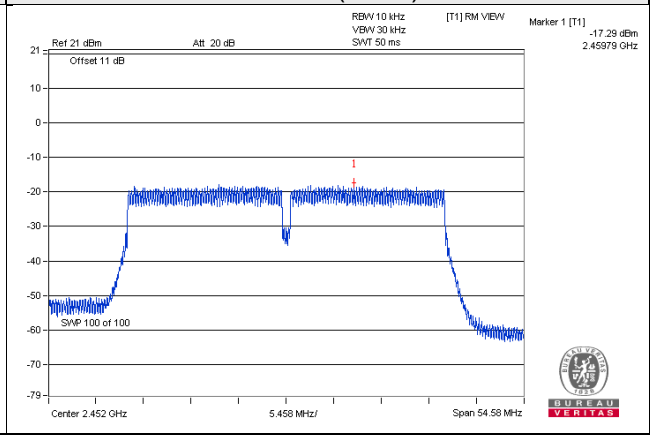
802.11g



802.11n (HT20)



802.11n (HT40)

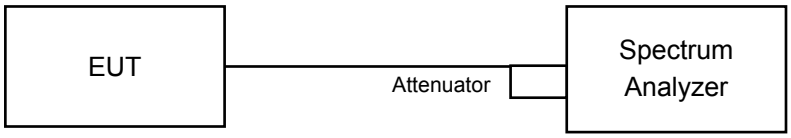


4.6 Conducted Out of Band Emission Measurement

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

a. Set the RBW = 100 kHz.

b. Set the VBW ≥ 300 kHz.

c. Detector = average.

d. Sweep time = auto couple.

e. Trace mode = max hold.

f. Allow trace to fully stabilize.

g. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

a. Set RBW = 100 kHz.

b. Set VBW ≥ 300 kHz.

c. Detector = average.

d. Sweep = auto couple.

e. Trace Mode = max hold.

f. Allow trace to fully stabilize.

g. 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

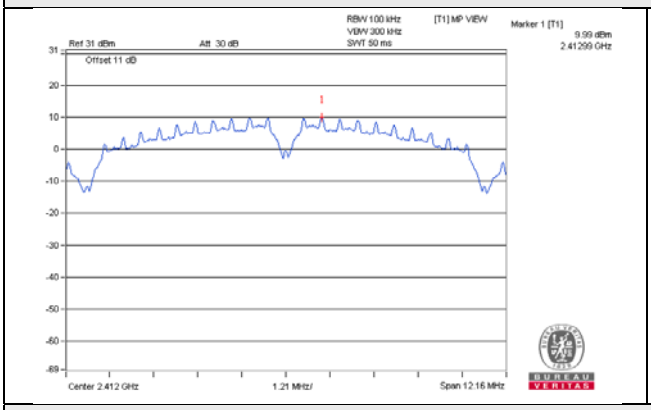
4.6.7 Test Results

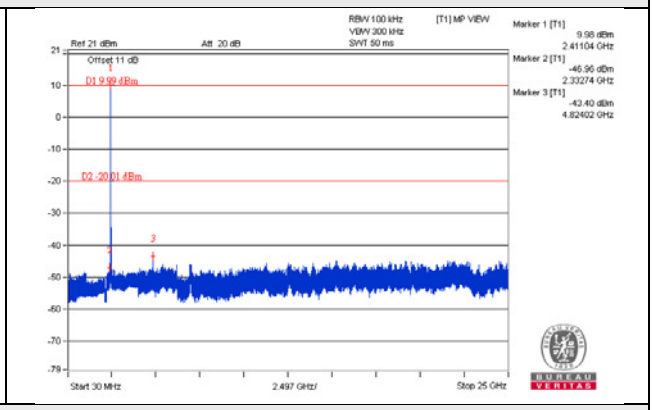
The conducted emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit.
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.

1TX

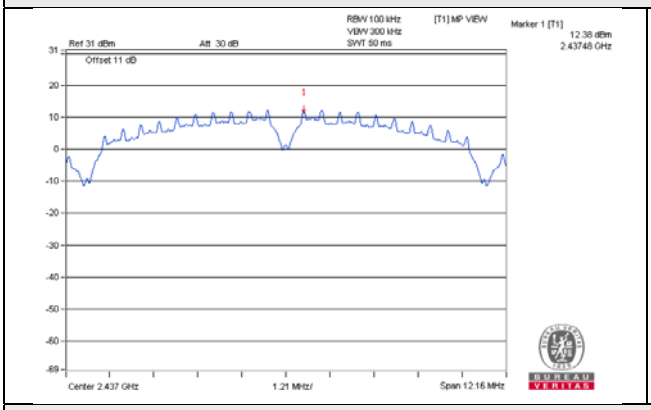
802.11b

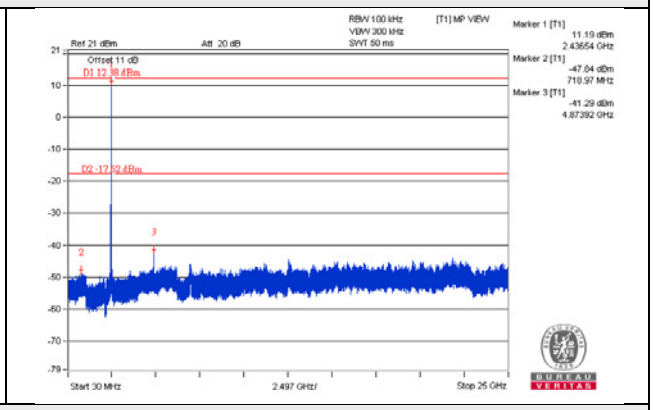
CH 1



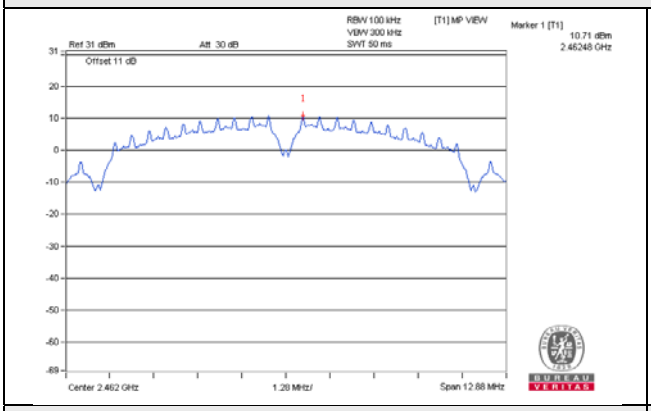


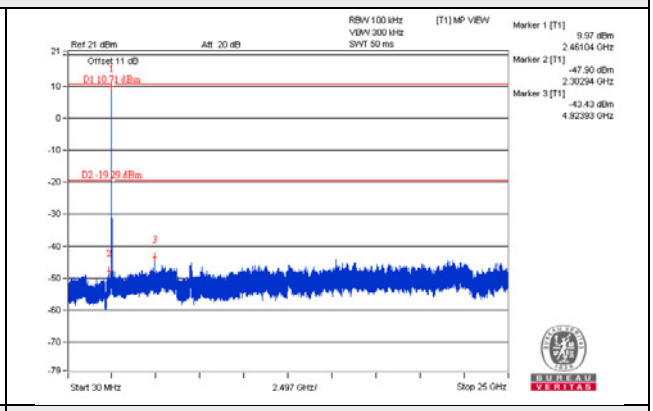
CH 6



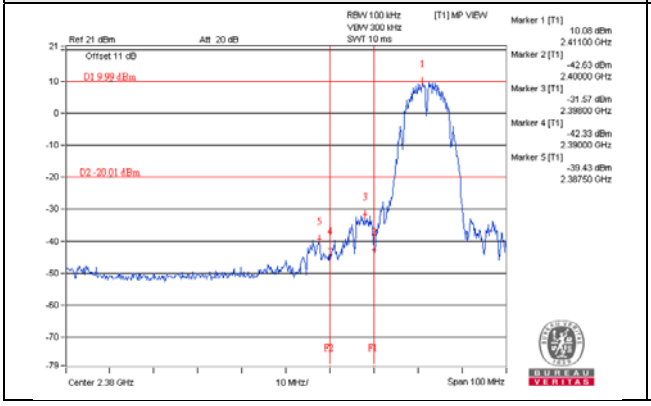


CH 11

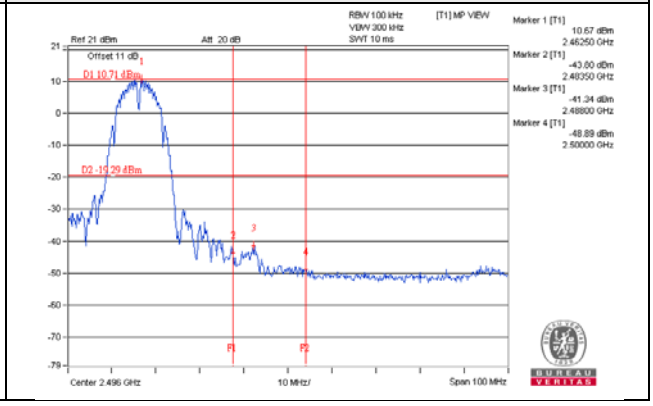




CH 1 Band edge

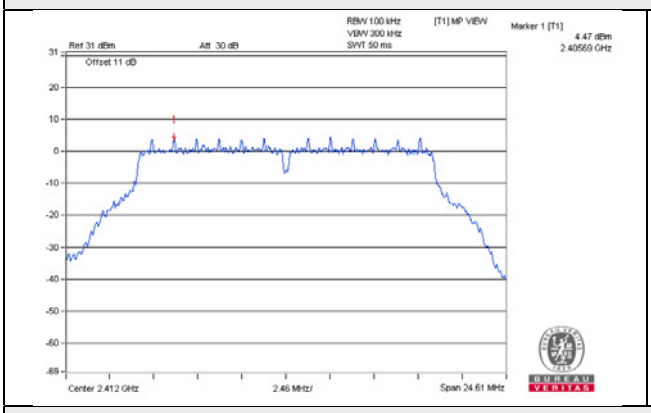


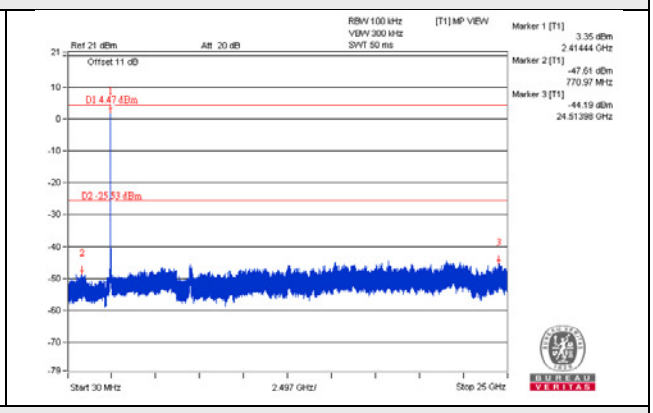
CH 11 Band edge



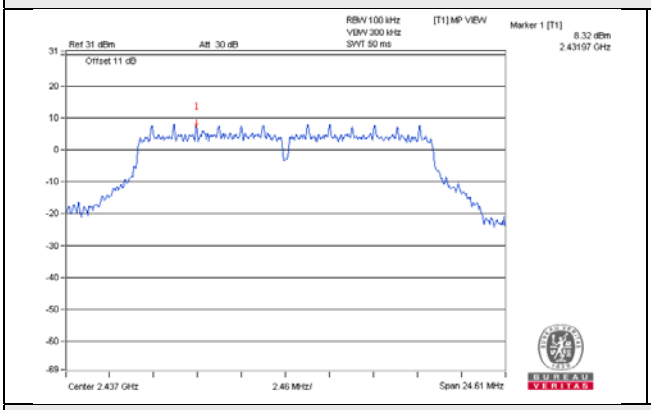
802.11g

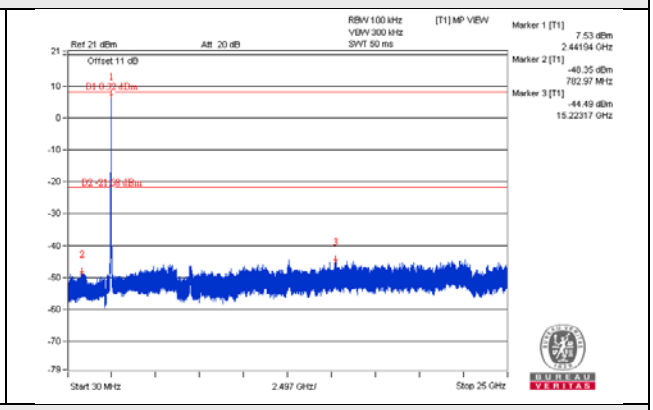
CH 1



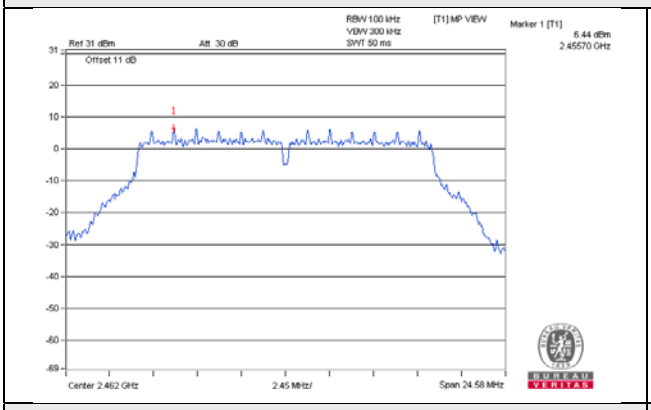


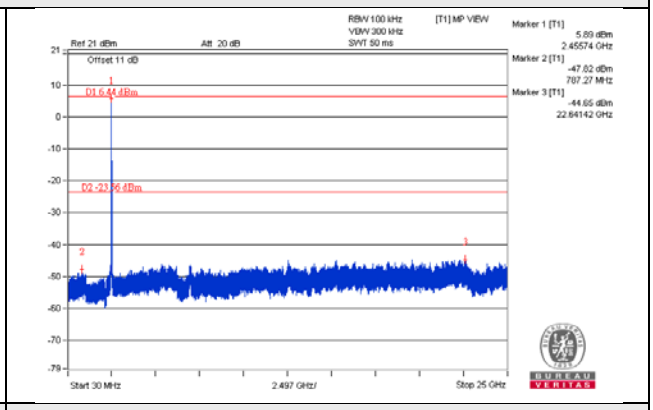
CH 6



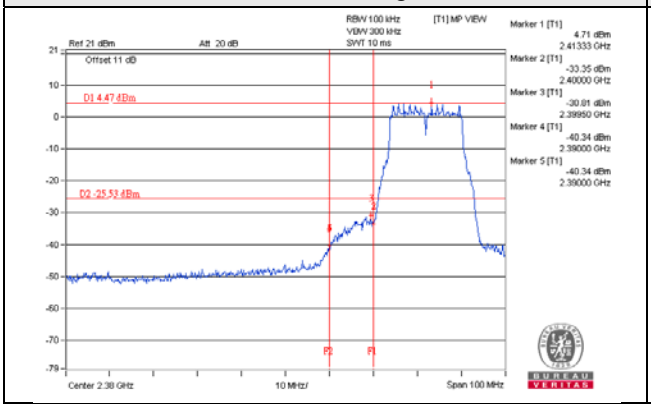


CH 11

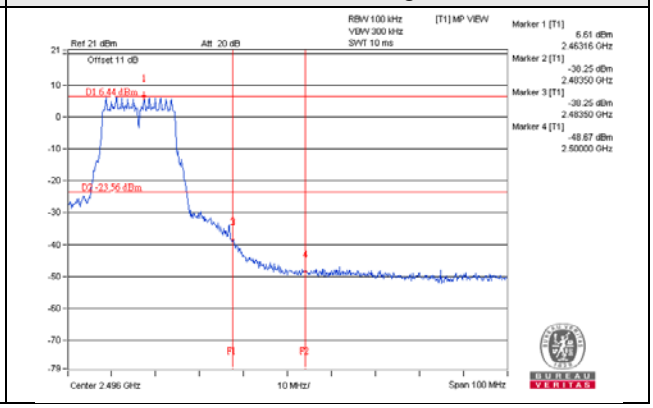




CH 1 Band edge

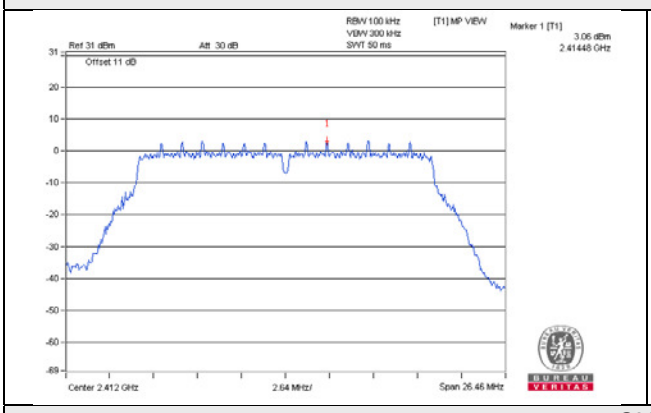


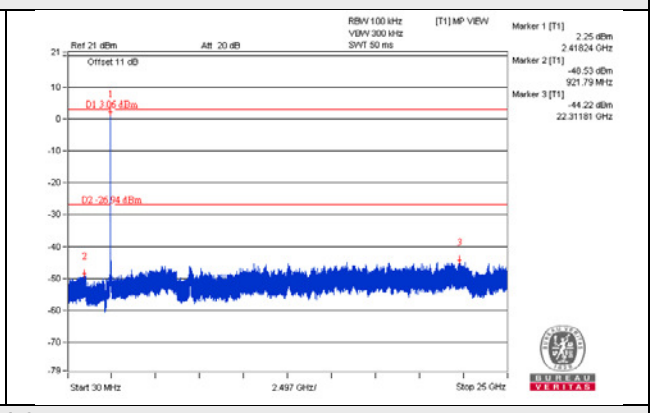
CH 11 Band edge



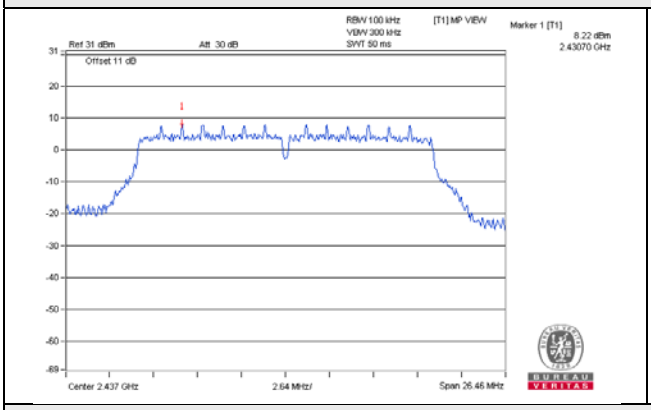
802.11n (HT20)

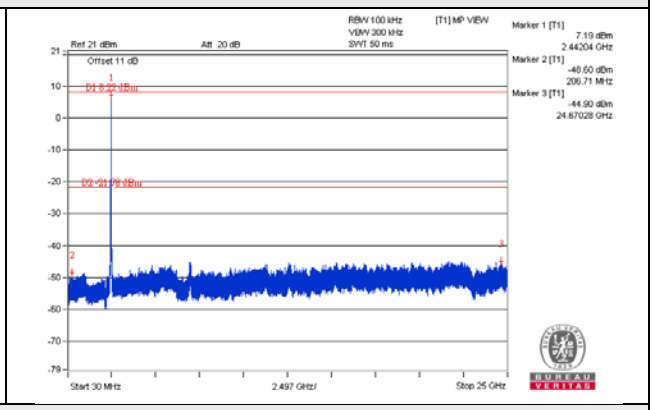
CH 1



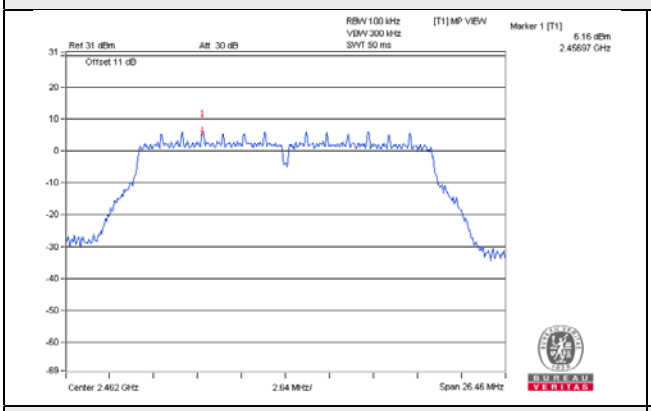


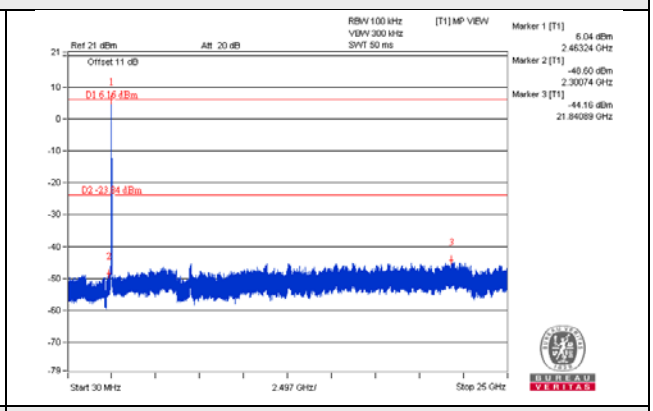
CH 6



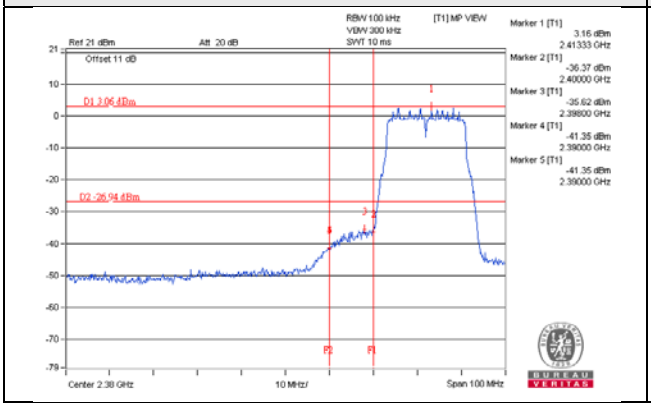


CH 11

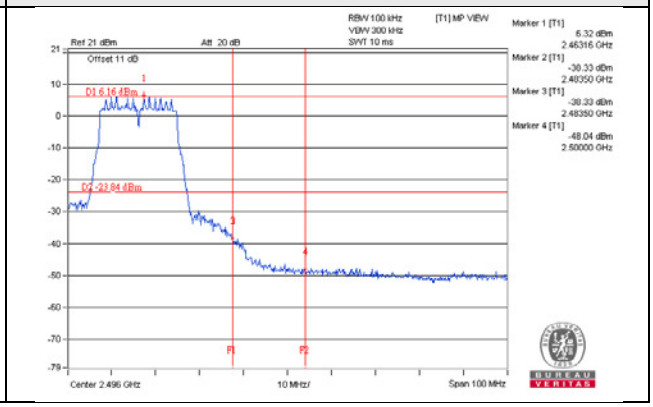




CH 1 Band edge

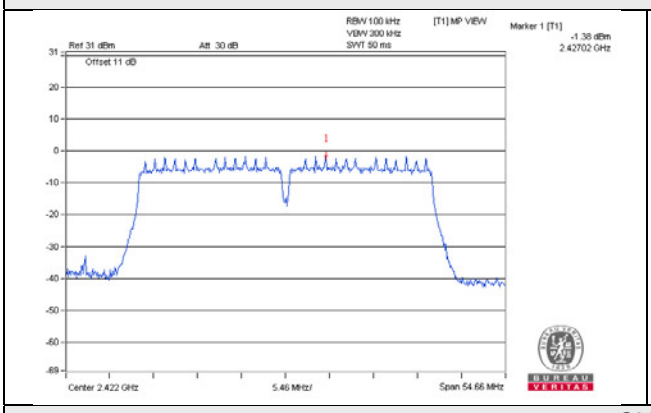


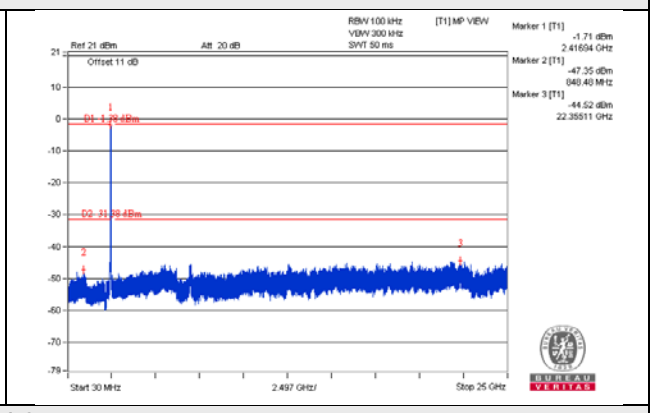
CH 11 Band edge



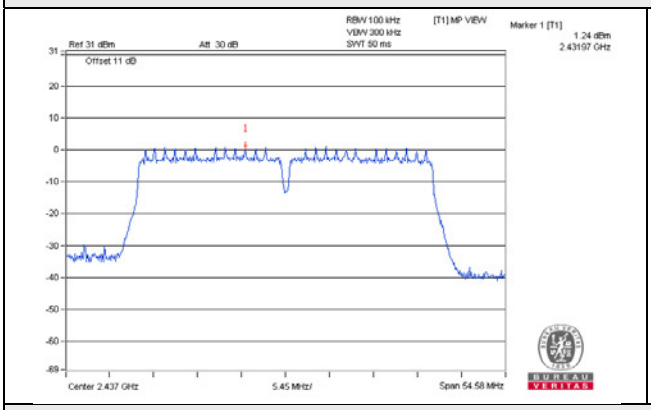
802.11n (HT40)

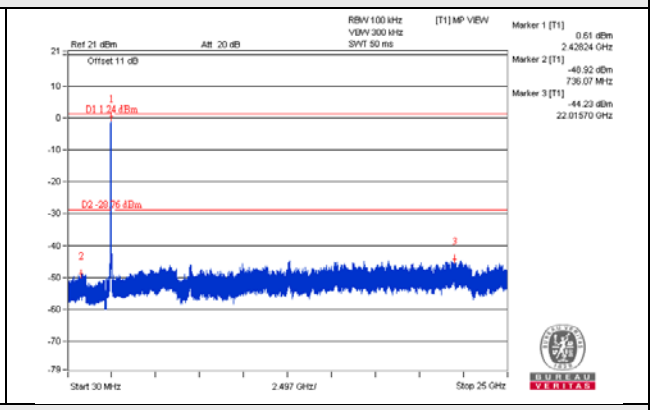
CH 3



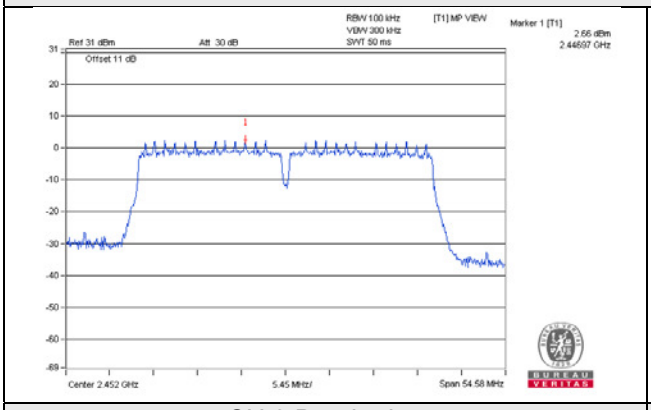


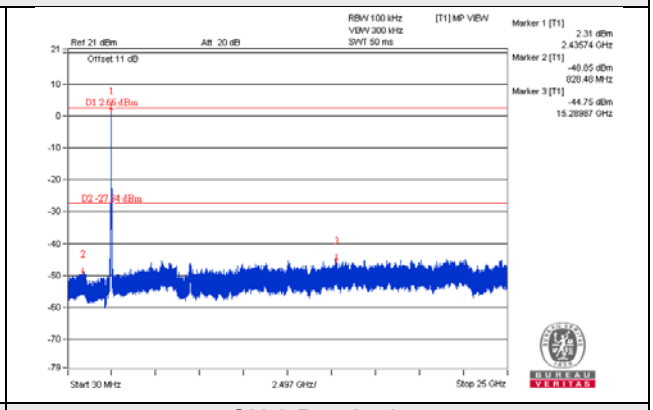
CH 6



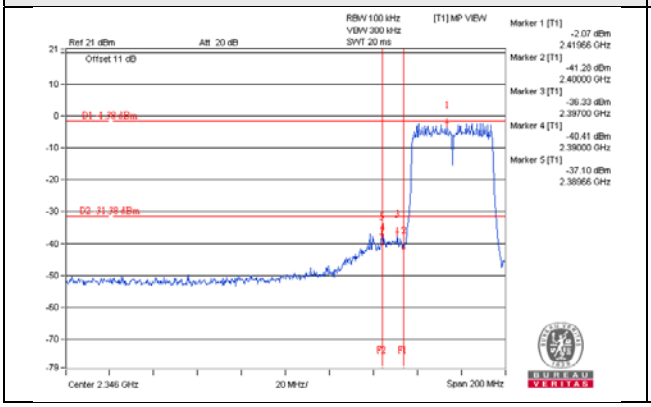


CH 9

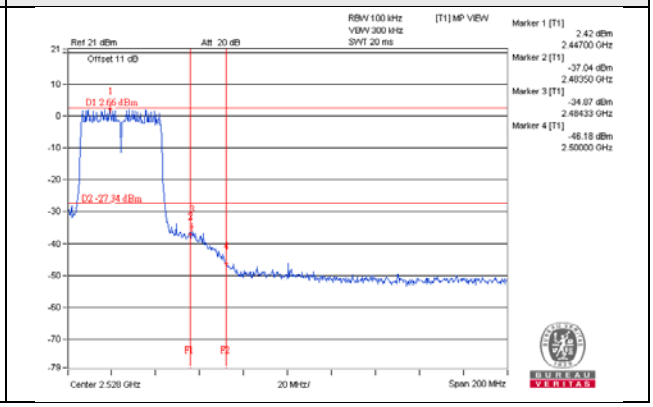




CH 3 Band edge



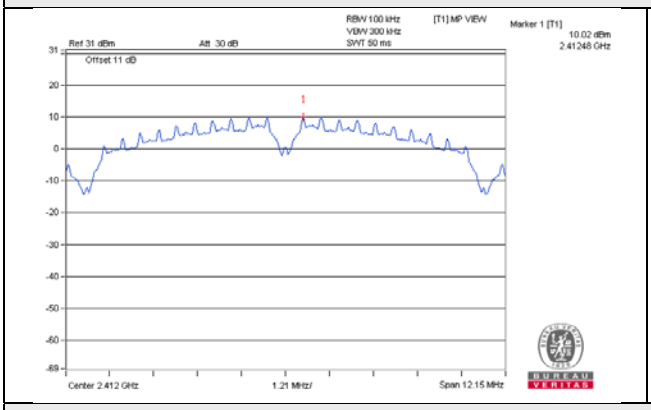
CH 9 Band edge

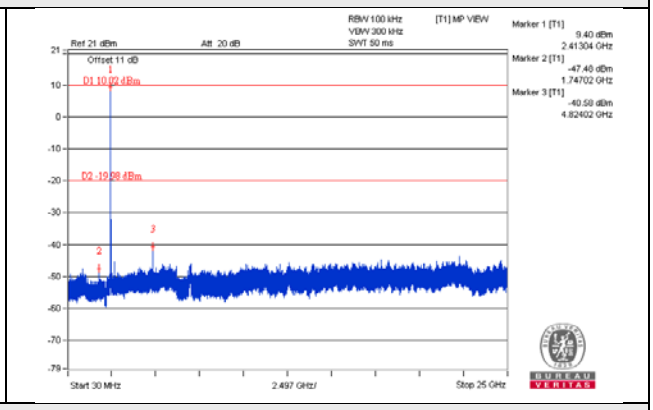


2TX

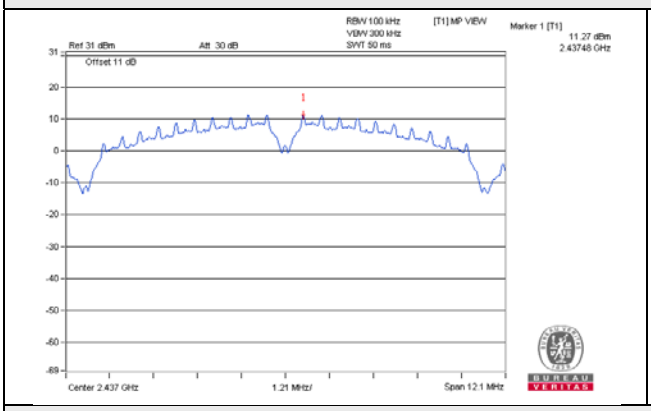
802.11b_Chain 0

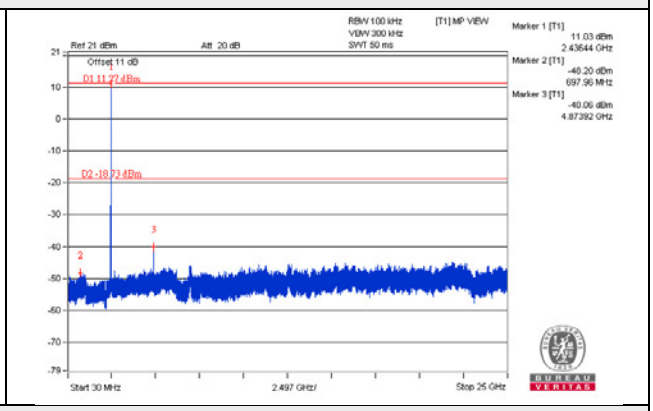
CH 1



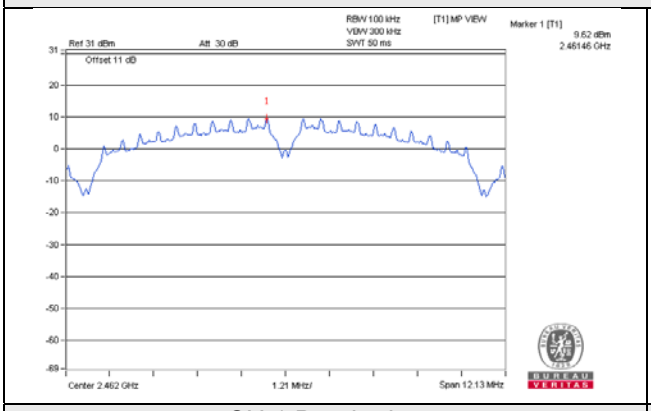


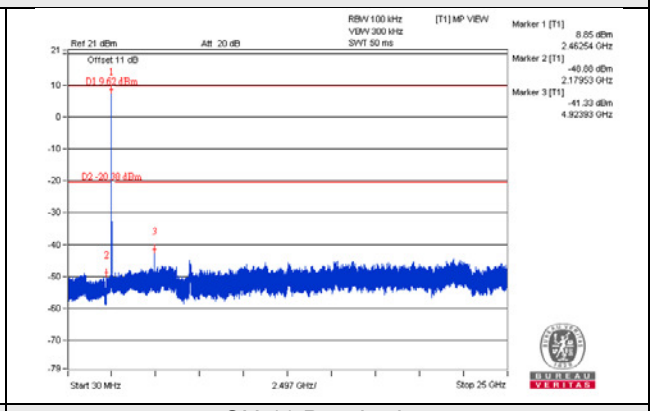
CH 6



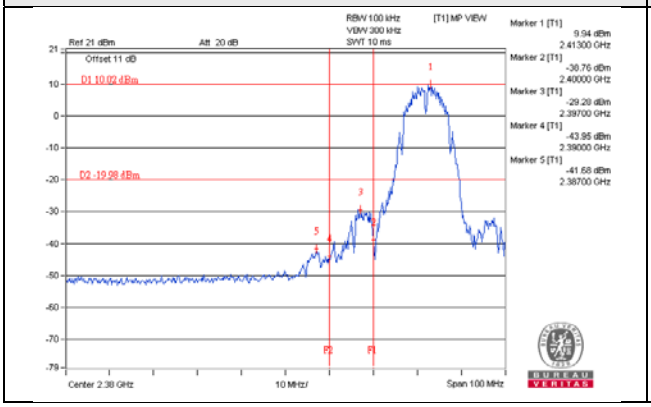


CH 11

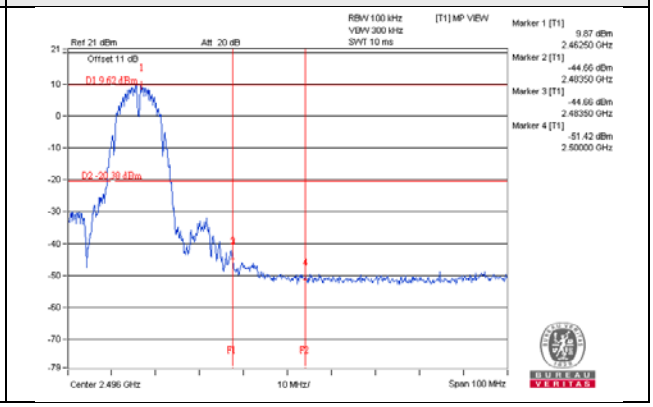




CH 1 Band edge

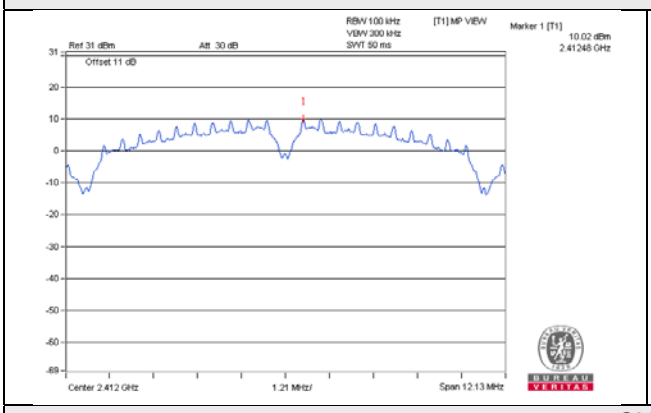


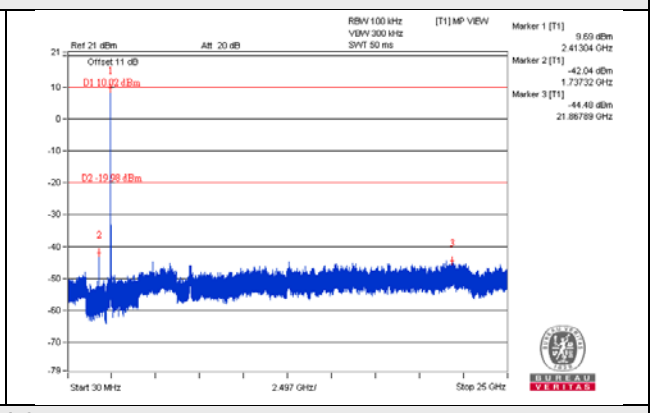
CH 11 Band edge



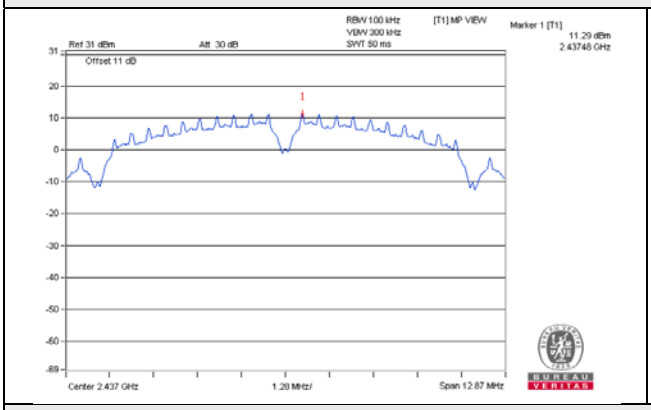
802.11b_Chain 1

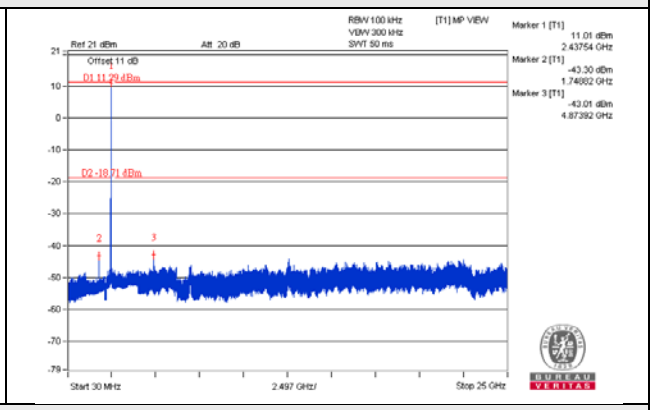
CH 1



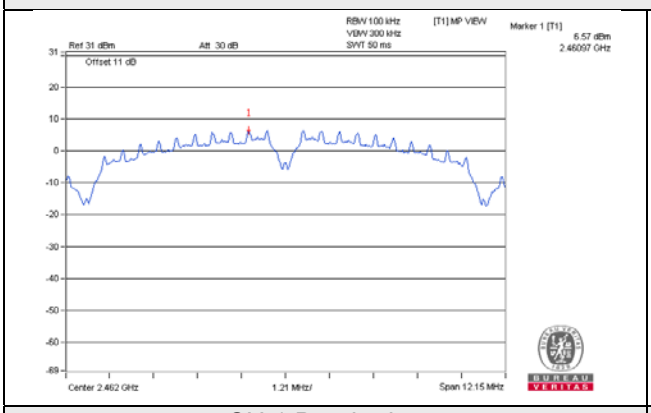


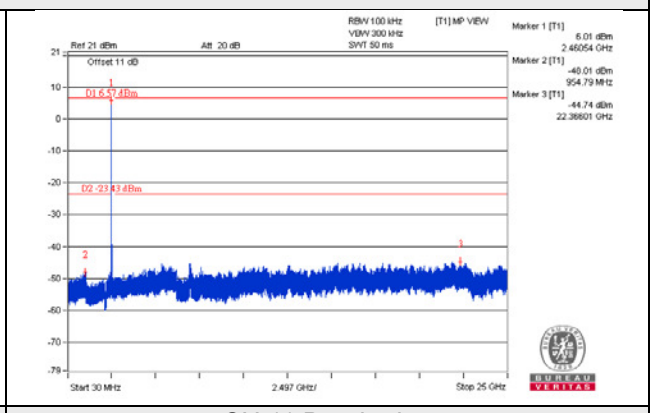
CH 6



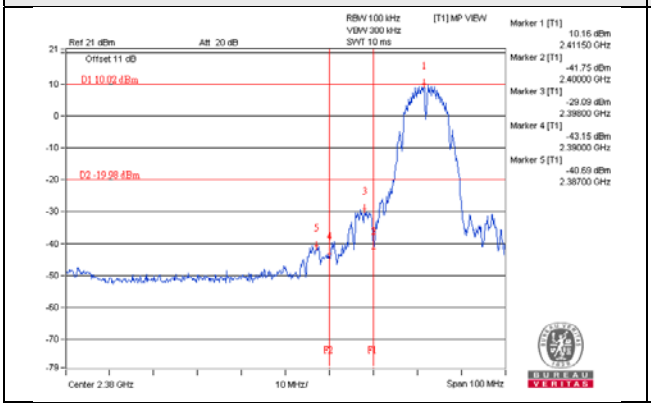


CH 11

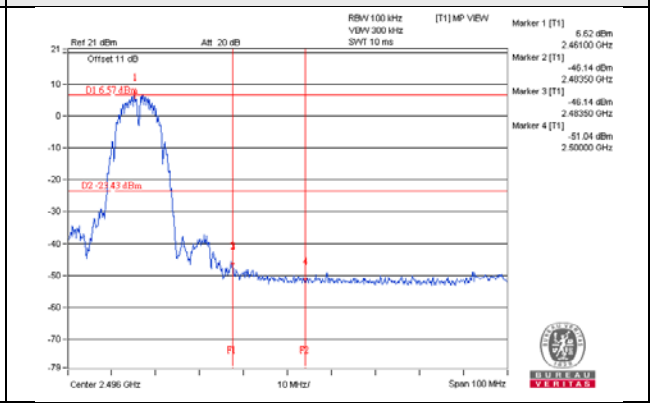




CH 1 Band edge

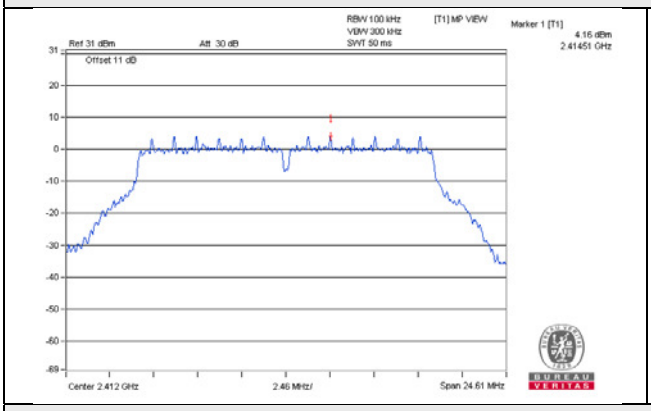


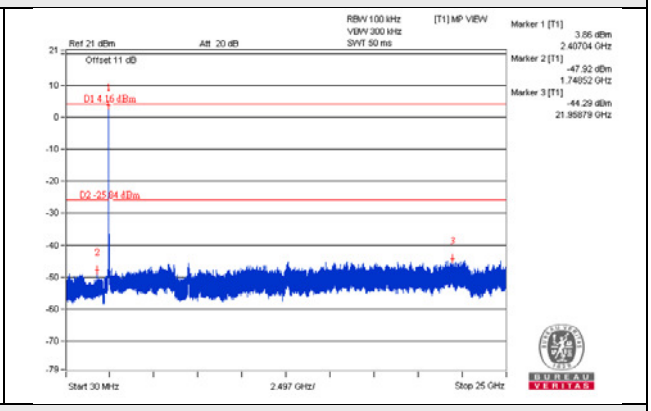
CH 11 Band edge



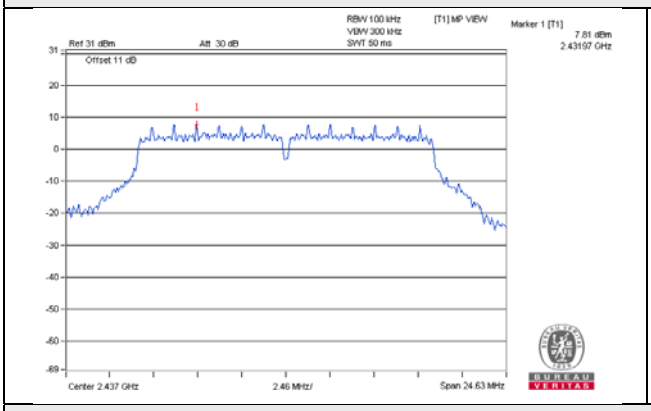
802.11g_Chain 0

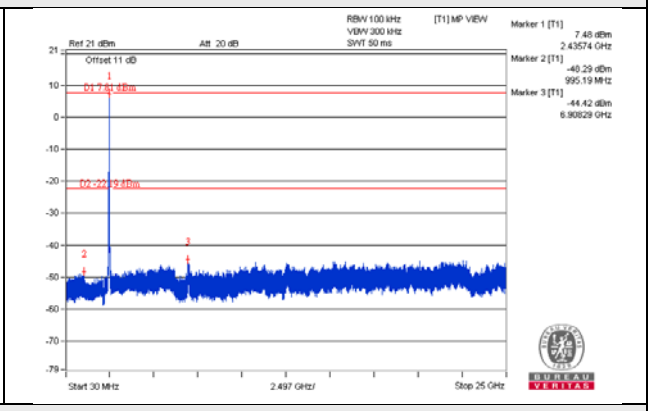
CH 1



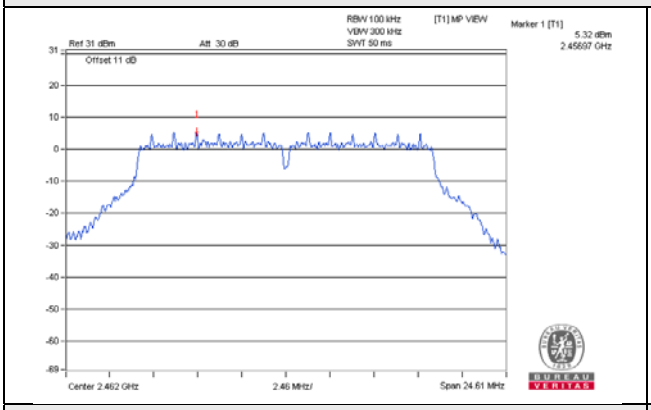


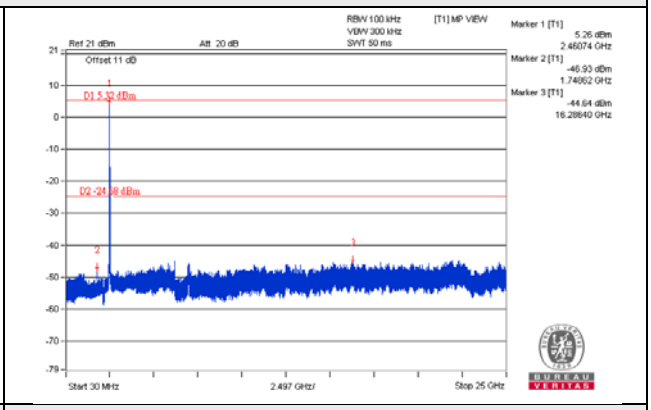
CH 6



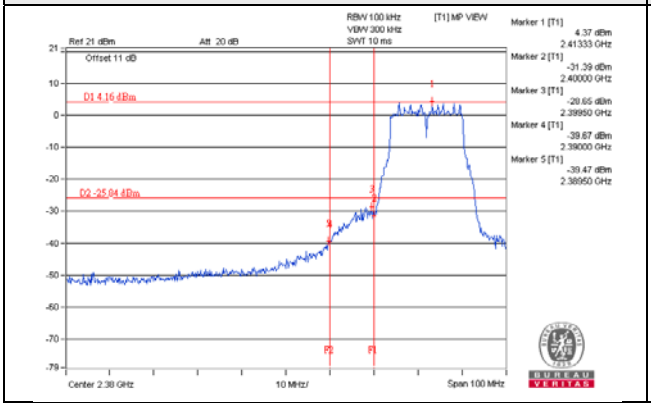


CH 11

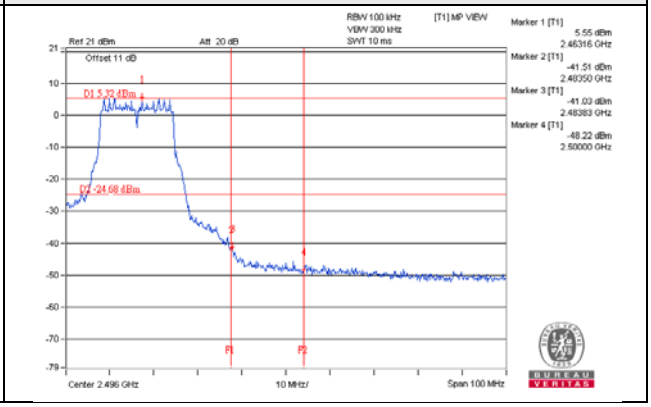




CH 1 Band edge

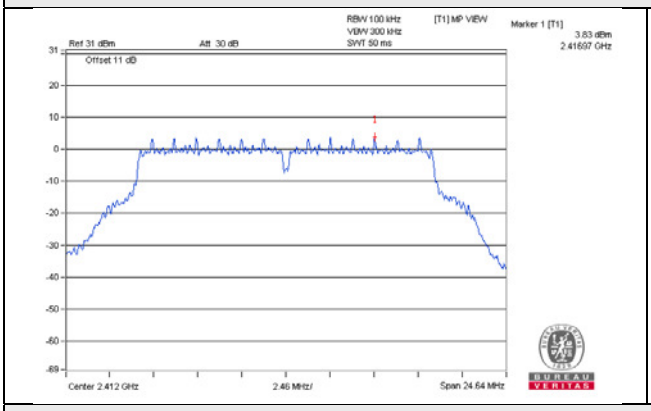


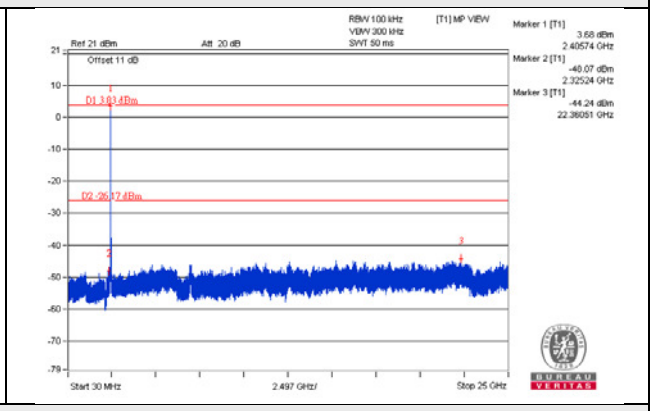
CH 11 Band edge



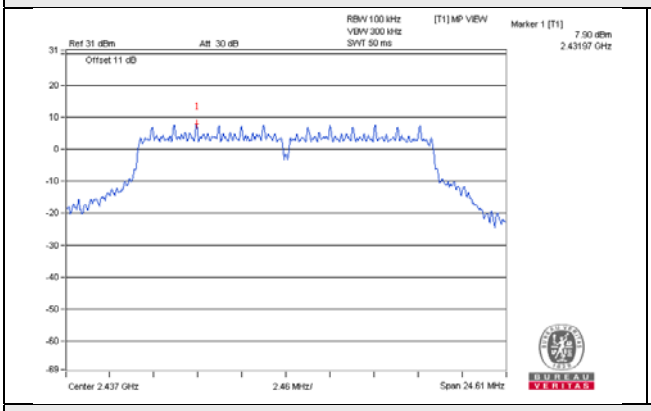
802.11g_Chain 1

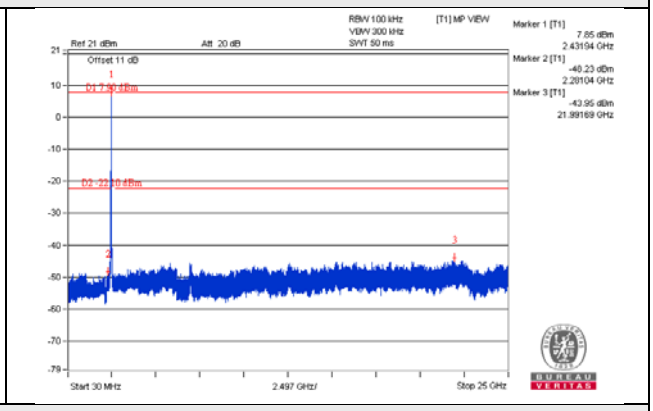
CH 1



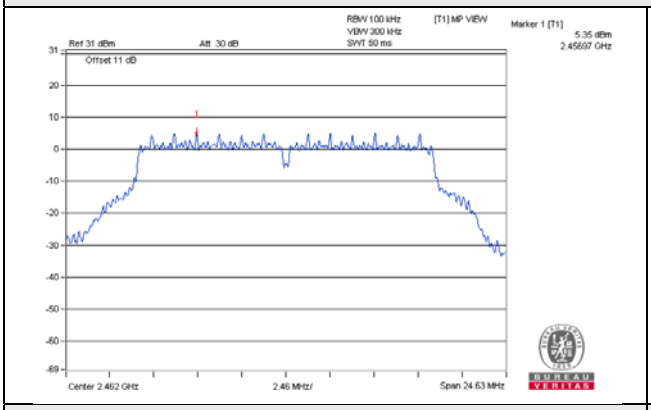


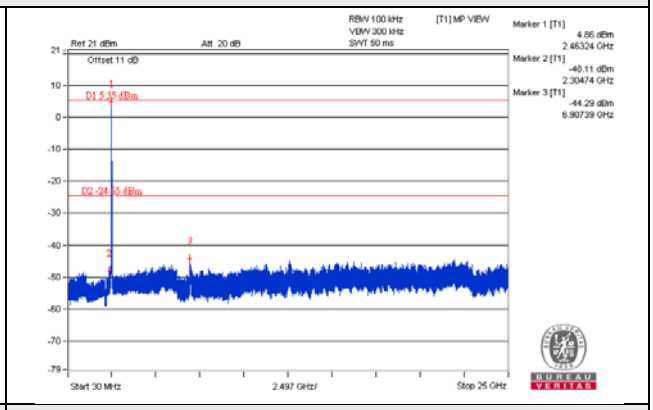
CH 6



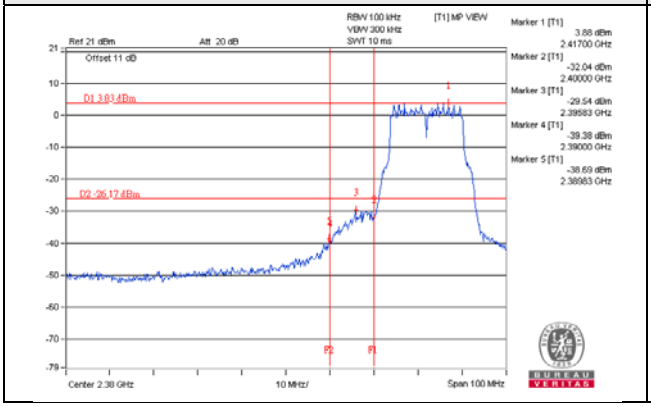


CH 11

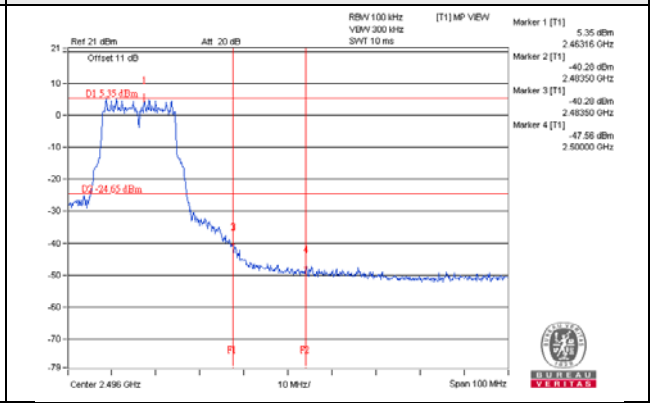




CH 1 Band edge

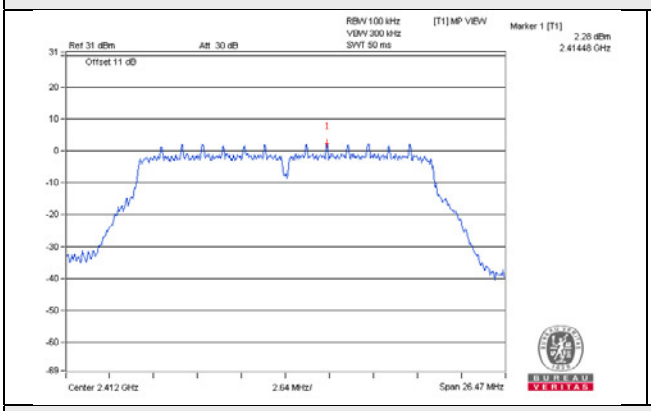


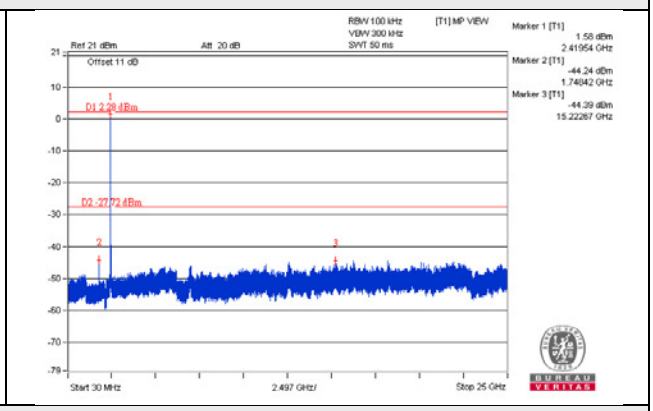
CH 11 Band edge



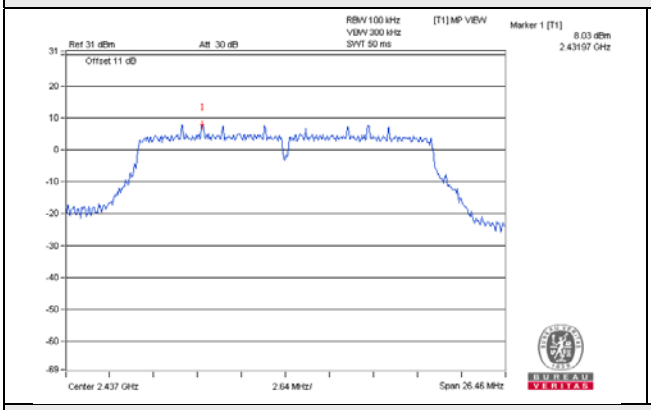
802.11n (HT20)_Chain 0

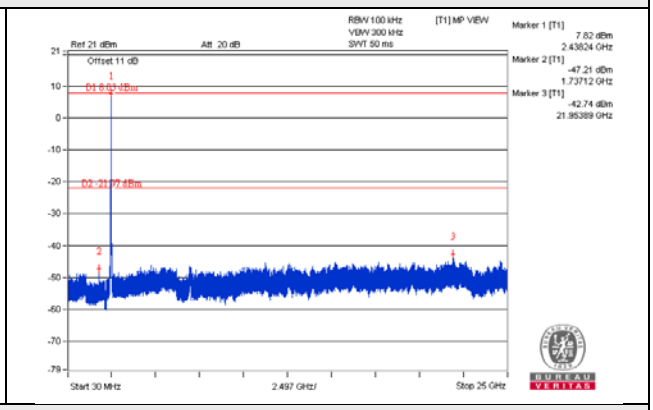
CH 1



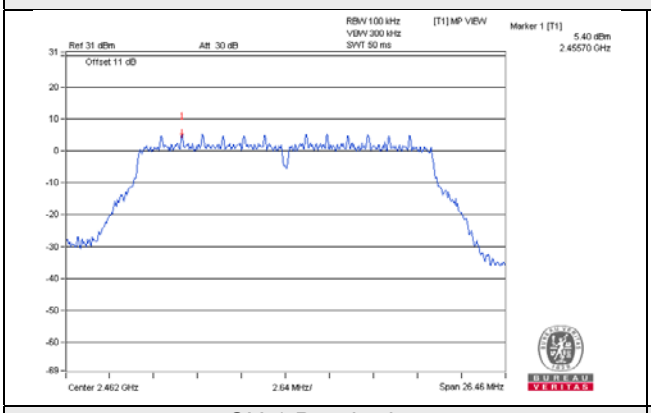


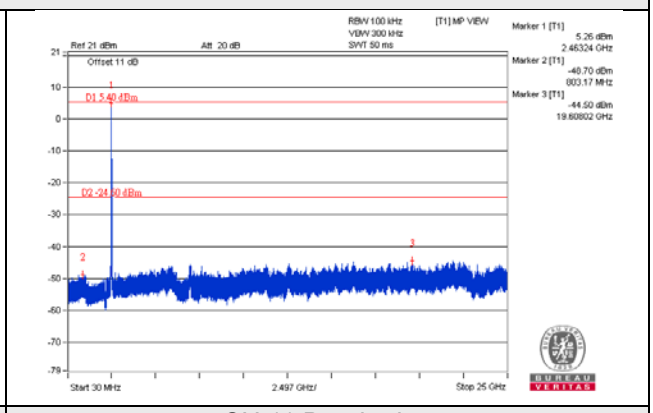
CH 6



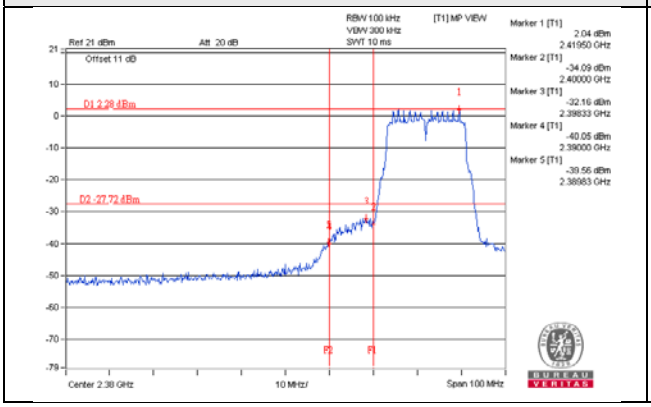


CH 11

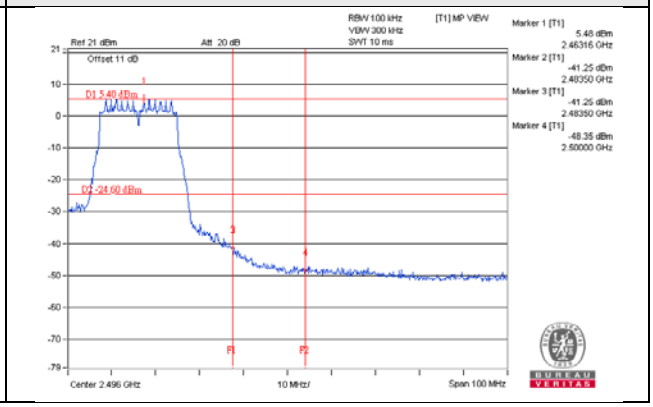




CH 1 Band edge

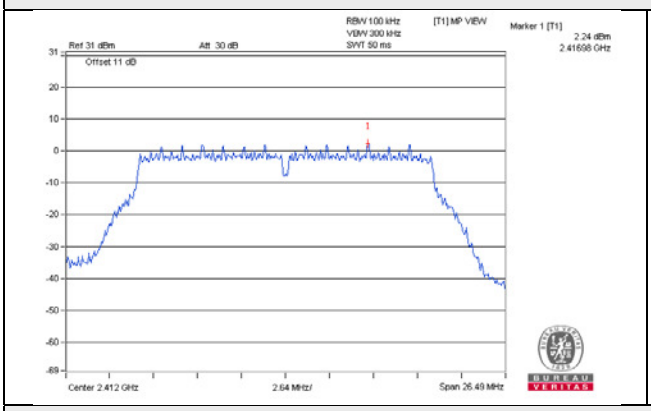


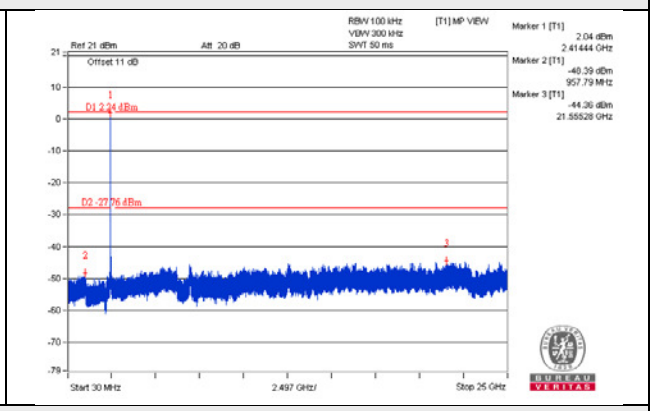
CH 11 Band edge



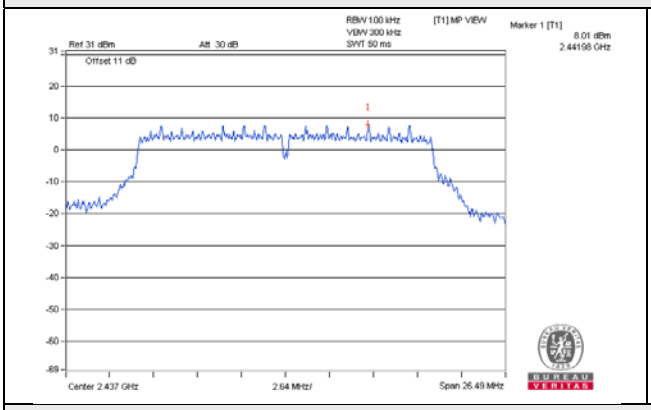
802.11n (HT20)_Chain 1

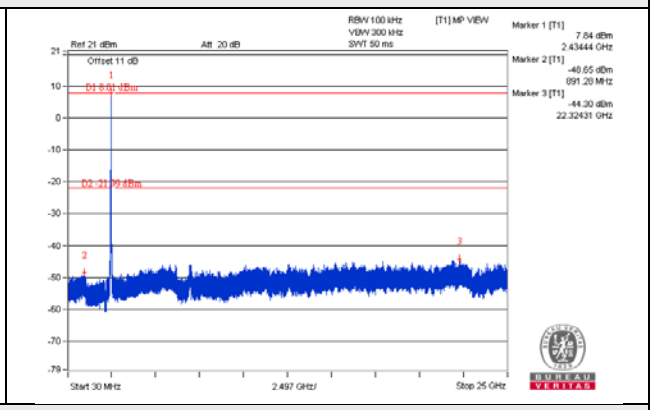
CH 1



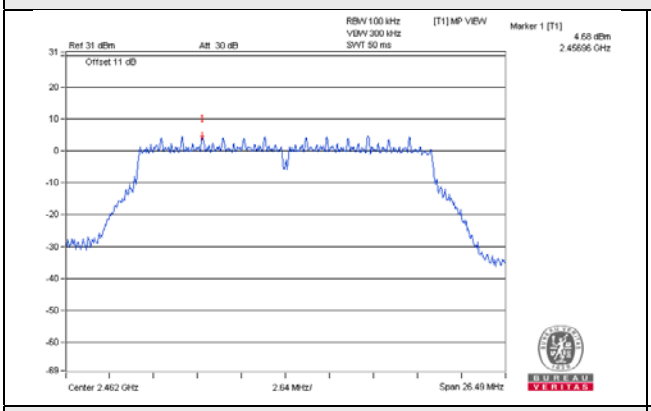


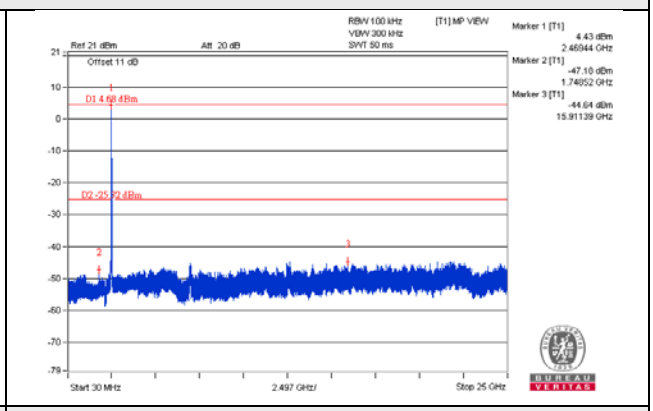
CH 6



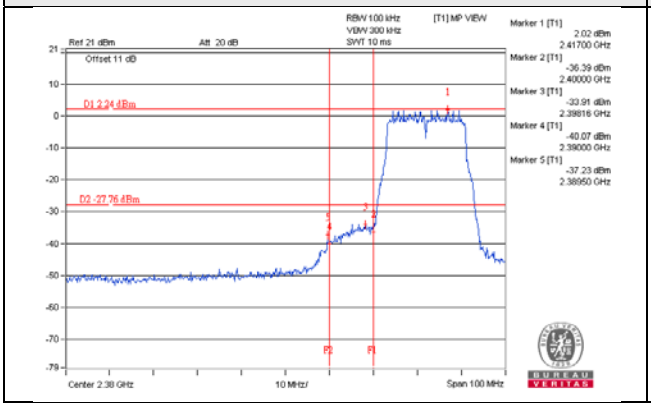


CH 11

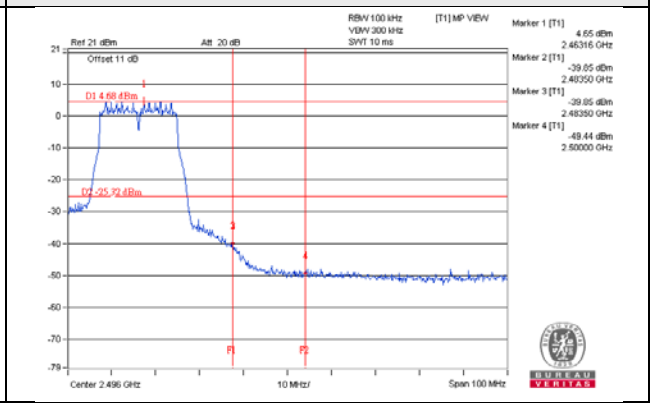




CH 1 Band edge

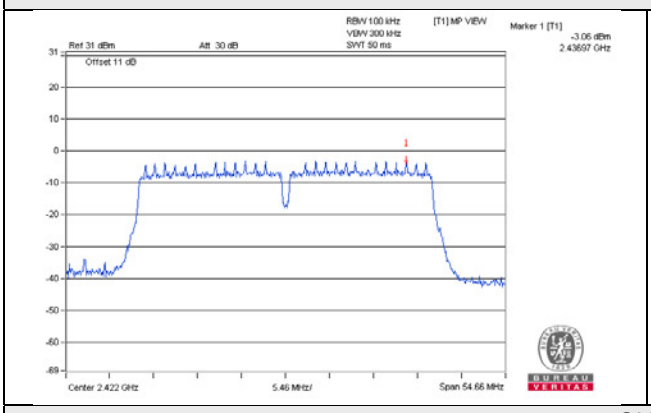


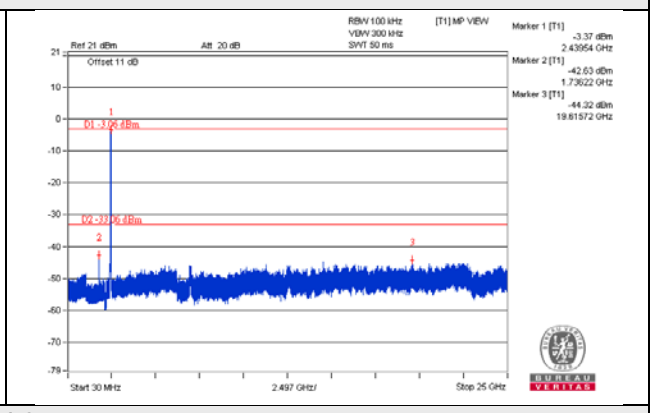
CH 11 Band edge



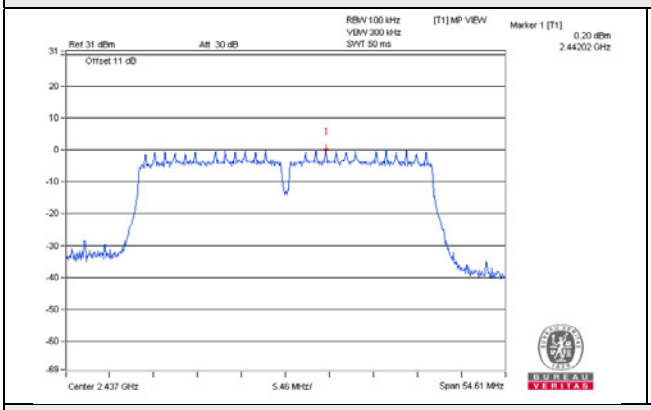
802.11n (HT40)_Chain 0

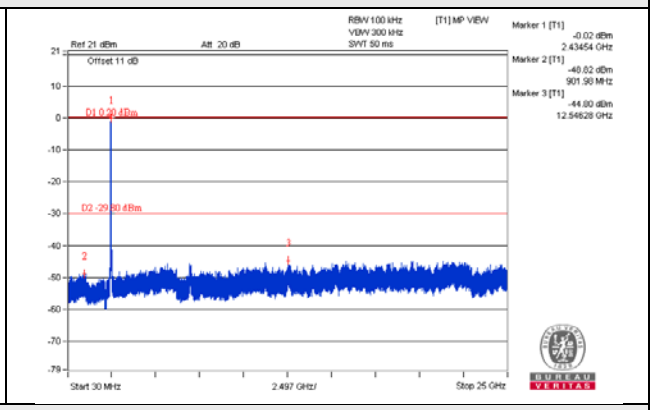
CH 3



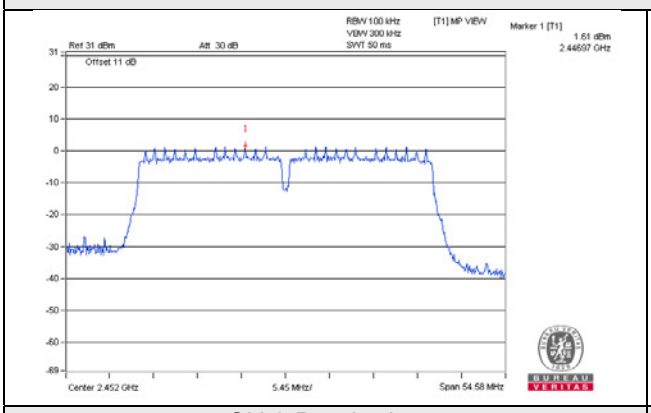


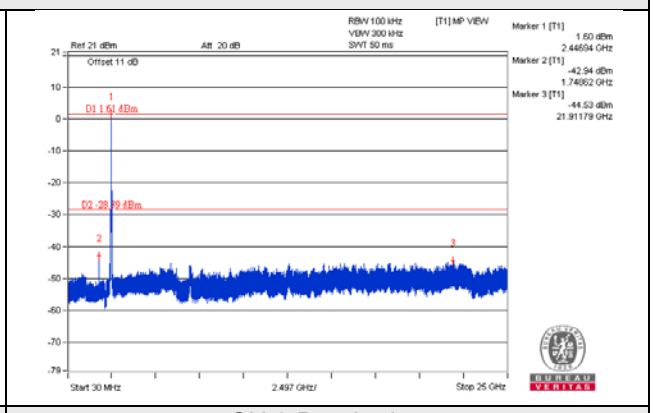
CH 6



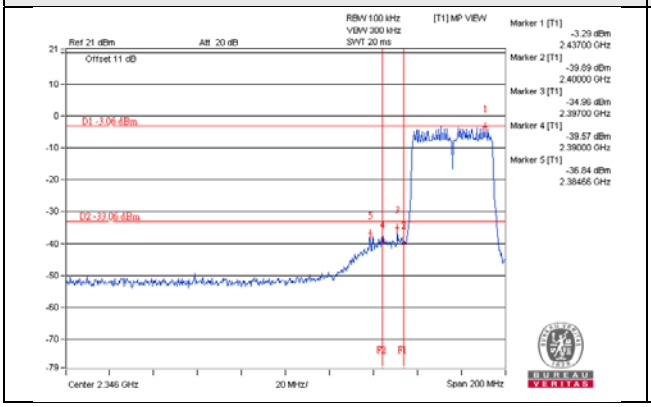


CH 9

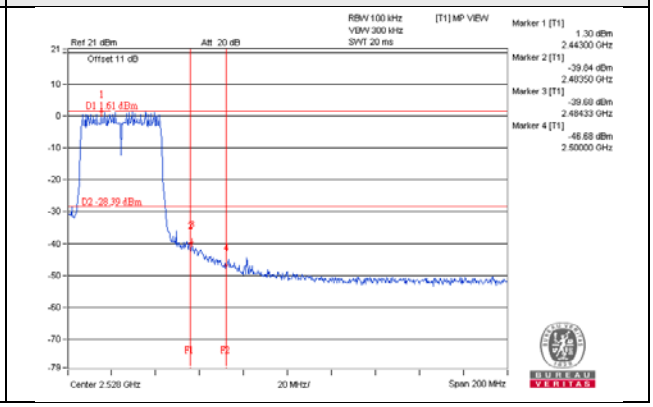




CH 3 Band edge

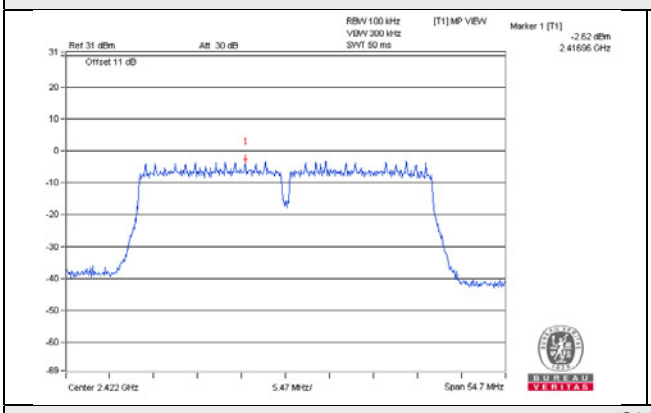


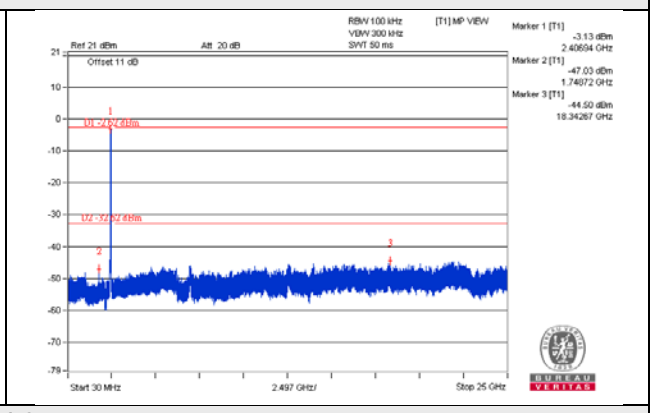
CH 9 Band edge



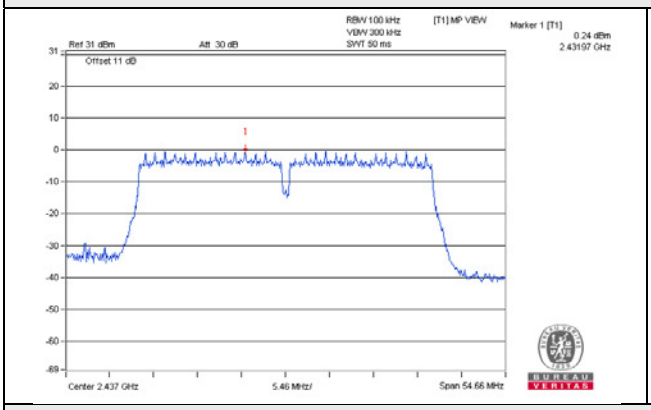
802.11n (HT40)_Chain 1

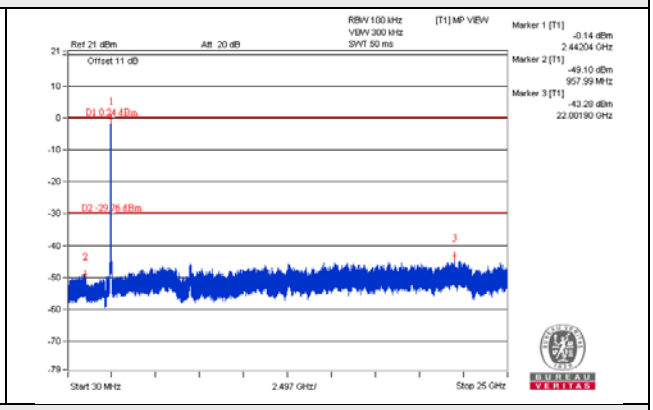
CH 3



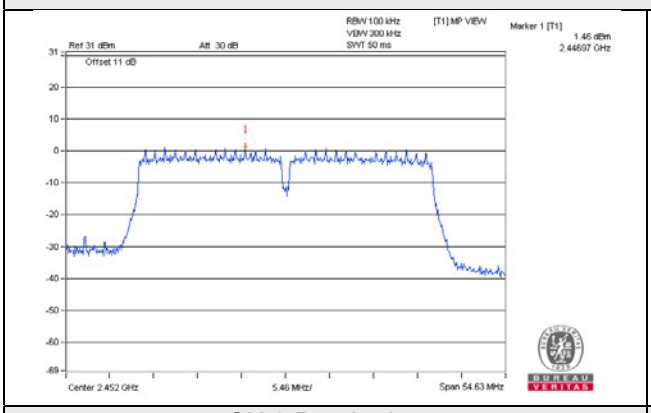


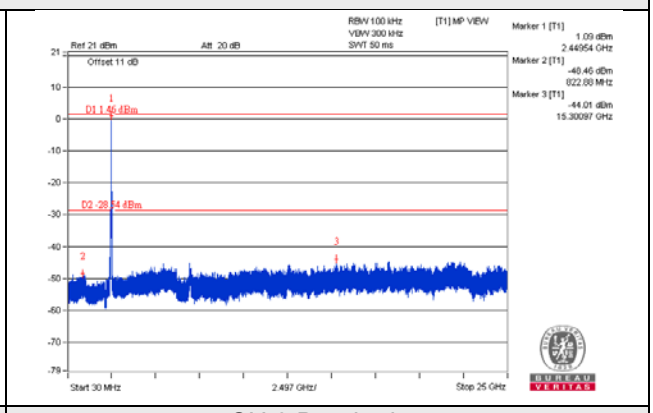
CH 6



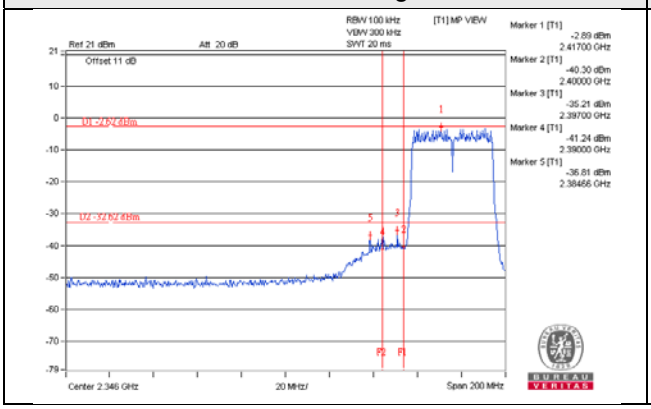


CH 9

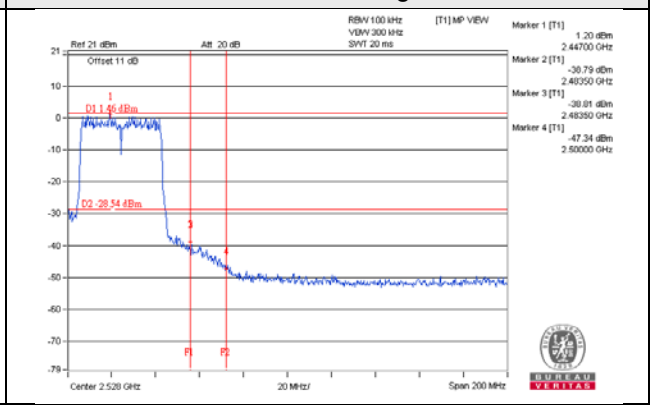




CH 3 Band edge



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:

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.

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