

FCC Test Report

Report No.: RF190119C10 R1

FCC ID: 2AA3N-TTR01

Test Model: PLTN-TTR01

Received Date: Jan. 19, 2019

Test Date: Jan. 31 ~ Mar. 15, 2019

Issued Date: Jun. 09, 2020

Applicant: Peloton Interactive Inc.

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

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



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Release Control Record

Issue No.	Description	Date Issued
RF190119C10	Original release	Mar. 18, 2019
RF190119C10 R1	Revised item 3.4 description of Support Units	Jun. 09, 2020

1 Certificate of Conformity

Product: Peloton Console
Brand: PELOTON
Test Model: PLTN-TTR01
Sample Status: Engineering sample
Applicant: Peloton Interactive Inc.
Test Date: Jan. 31 ~ Mar. 15, 2019
Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10:2013

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

Prepared by : Celine Chou , **Date:** Jun. 09, 2020
Celine Chou / Senior Specialist

Approved by : Bruce Chen , **Date:** Jun. 09, 2020
Bruce Chen / Senior Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -8.84dB at 2.92650MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.2dB at 2390.00MHz and 717.73MHz.
15.247(d)	Antenna Port Emission	Pass	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	Pass	Meet the requirement of limit.
15.247(b)	Conducted power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is i-pex(MHF) not a standard connector.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (\pm)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.59 dB
	200MHz ~ 1000MHz	3.60 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	Peloton Console
Brand	PELTON
Test Model	PLTN-TTR01
Sample Status	Engineering sample
Power Supply Rating	20Vdc 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	1TX: 339.625mW 2TX: 426.181mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	Adapter, Exercise Bike
Cable Supplied	NA

Note:

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

Modulation Mode	TX Function
802.11b	1TX/2TX
802.11g	1TX/2TX
802.11n (HT20)	1TX/2TX
802.11n (HT40)	1TX/2TX

- The EUT consumes power from the following Adapter.

Adapter	
Brand	PELTON
Model	FSP065-APDC8R01
Input Power	100-240Vac, 50-60Hz, 1.7A
Output Power	5Vdc, 3A or 9Vdc, 3A or 20Vdc, 3.25A, 65W Max.
Power Line	AC: 1.7m non-shielded power cable without core DC: 1.5m non-shielded power cable without core attached on adapter

3. The following antennas were provided to the EUT.

Ant. No.	Brand	Model	Type	Connector	Gain (dBi)	
					2.4G	5G
Main	Peloton	UI8(Topaz)	PIFA	i-pex(MHF)	-0.19	0.58
AUX	Peloton	UI8(Topaz)	PIFA	i-pex(MHF)	0.28	2.34

* For 1TX, AUX ant. was the max. gain and chosen for final test

4. Spurious emission of the simultaneous operation mode as below and the test data please refer to report no.: RF190119C10 R1-7.

No	Mode
1	WLAN 2.4GHz + WLAN 5GHz
2	BT + WLAN 5GHz
3	ANT+ + WLAN 5GHz

3.2 Description of Test Modes

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

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

7 channels are provided for 802.11n (HT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE \geq 1G	RE<1G	PLC	APCM	
A	√	√	√	√	EUT + Adapter
B	-	√	√	-	EUT + Exercise Bike + Adapter

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

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
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	1TX, 2TX
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	1TX, 2TX
A	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	1TX, 2TX
A	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5	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
A, B	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
A, B	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
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	1TX, 2TX
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	1TX, 2TX
A	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	1TX, 2TX
A	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5	1TX, 2TX

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	22 deg. C, 66% RH	120Vac, 60Hz	Han Wu Tim Chen
RE<1G	21 deg. C, 68% RH 22 deg. C, 66% RH	120Vac, 60Hz	Willy Cheng Greg Lin
PLC	25 deg. C, 75% RH	120Vac, 60Hz	Willy Cheng Jones Chang
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Allen Wu

3.3 Duty Cycle of Test Signal

1TX

802.11b: Duty cycle of test signal is ≥ 98%, duty factor is not required.

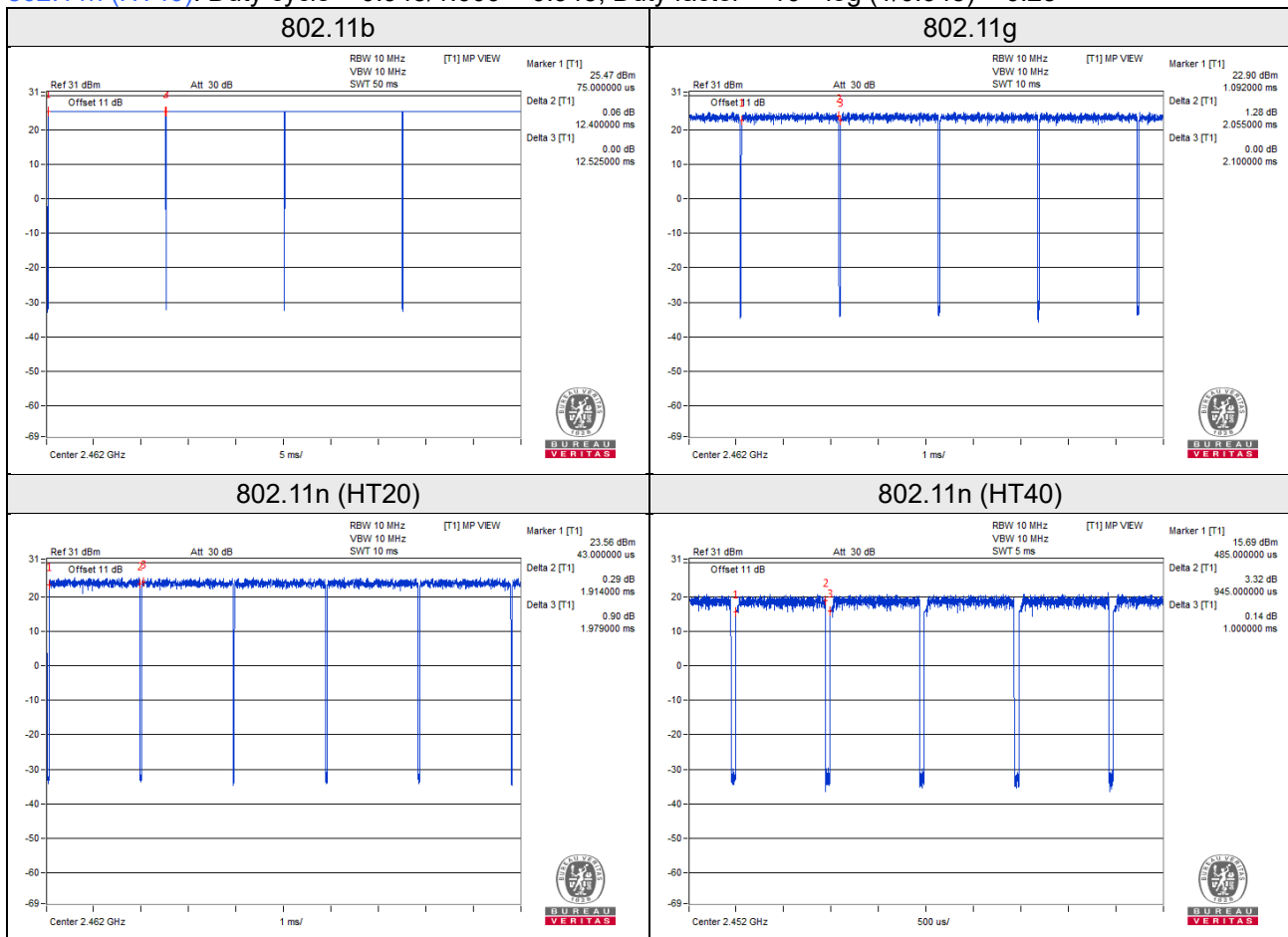
802.11g, 802.11n (HT20), 802.11n (HT40): Duty cycle of test signal is < 98%, duty factor is required.

802.11b: Duty cycle = 12.400/12.525 = 0.990

802.11g: Duty cycle = 2.055/2.100 = 0.979, Duty factor = 10 * log (1/0.979) = 0.09

802.11n (HT20): Duty cycle = 1.914/1.979 = 0.967, Duty factor = 10 * log (1/0.967) = 0.15

802.11n (HT40): Duty cycle = 0.945/1.000 = 0.945, Duty factor = 10 * log (1/0.945) = 0.25



2TX

802.11b, 802.11g: Duty cycle of test signal is $\geq 98\%$, duty factor is not required.

802.11n (HT20), 802.11n (HT40): Duty cycle of test signal is $< 98\%$, duty factor is required.

802.11b: Duty cycle = $12.375/12.525 = 0.988$

802.11g: Duty cycle = $2.060/2.100 = 0.981$

802.11n (HT20): Duty cycle = $1.912/1.962 = 0.975$, Duty factor = $10 * \log(1/0.975) = 0.11$

802.11n (HT40): Duty cycle = $0.946/1.000 = 0.946$, Duty factor = $10 * \log(1/0.946) = 0.24$

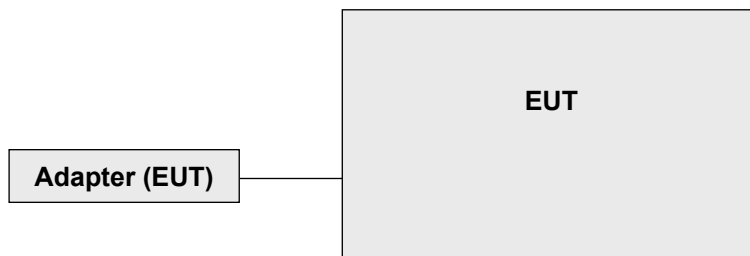


3.4 Description of Support Units

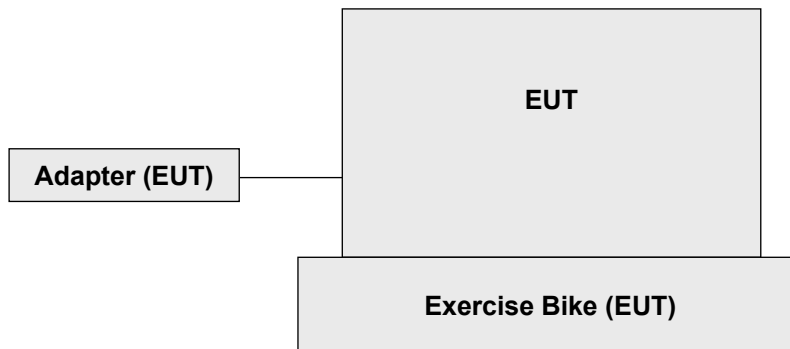
The EUT has been tested as an independent unit.
Exercise Bike and adapter included as representative accessories.

3.4.1 Configuration of System under Test

Test Mode A



Test Mode B



3.5 General Description of Applied Standards

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

FCC Part 15, Subpart C (15.247)

KDB 558074 D01 15.247 Meas Guidance v05r01

KDB 662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 30dB below the highest level of the desired power:

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

Note:

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 11, 2018	Apr. 10, 2019
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	May 29, 2018	May 28, 2019
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Nov. 21, 2018	Nov. 20, 2019
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 25, 2018	Nov. 24, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 25, 2018	Nov. 24, 2019
Loop Antenna TESEQ	HLA 6121	45745	Jun. 14, 2018	Jun. 13, 2019
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Aug. 08, 2018	Aug. 07, 2019
Preamplifier Agilent (Above 1GHz)	8449B	3008A02367	Mar. 16, 2018	Mar. 15, 2019
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM80 00	CABLE-CH9-02 (248780+171006)	Jan. 19, 2019	Jan. 18, 2020
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	Aug. 08, 2018	Aug. 07, 2019
RF signal cable Woken	8D-FB	Cable-CH9-01	Jul. 31, 2018	Jul. 30, 2019
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower & Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Nov. 14, 2018	Nov. 13, 2019
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190 004/MY55190007/MY55 210005	Jul. 17, 2018	Jul. 16, 2019

- 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 9.
3. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
4. The IC Site Registration No. is 7450F-9.

4.1.3 Test Procedures

For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

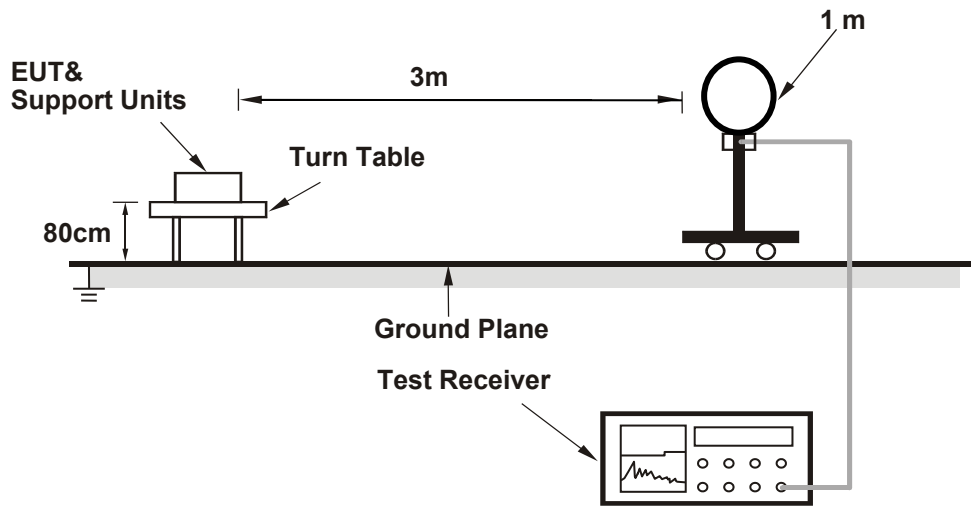
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

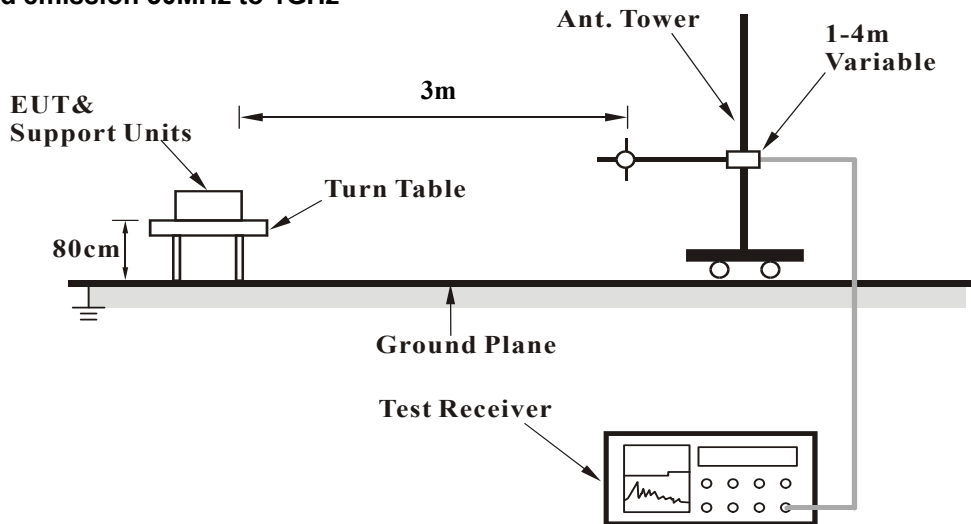
No deviation.

4.1.5 Test Setup

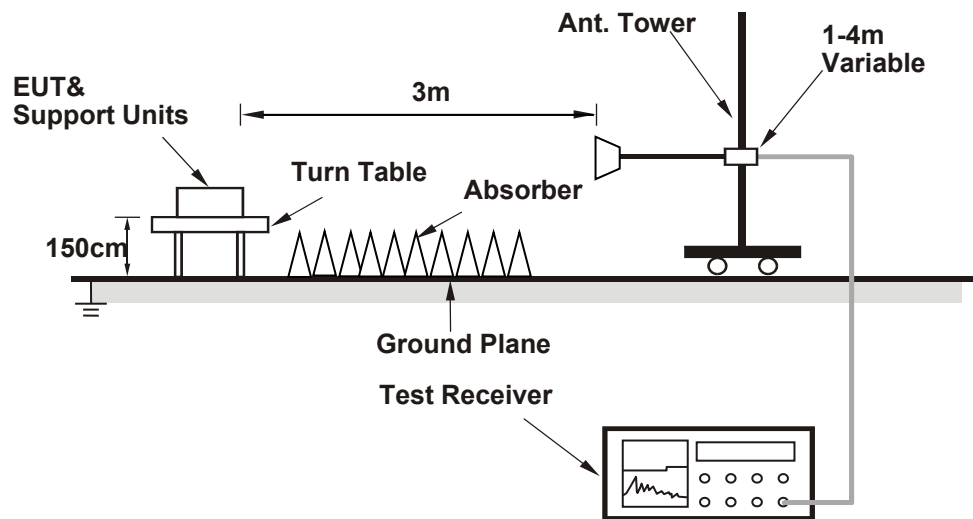
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

- a. Set the EUT under transmission condition continuously at specific channel frequency.

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	59.5 PK	74.0	-14.5	1.11 H	250	27.7	31.8
2	2390.00	52.1 AV	54.0	-1.9	1.11 H	250	20.3	31.8
3	*2412.00	110.2 PK			1.08 H	245	78.3	31.9
4	*2412.00	106.4 AV			1.08 H	245	74.5	31.9
5	4824.00	48.9 PK	74.0	-25.1	2.51 H	216	48.5	0.4
6	4824.00	46.1 AV	54.0	-7.9	2.51 H	216	45.7	0.4

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.6 PK	74.0	-17.4	2.58 V	27	24.8	31.8
2	2390.00	47.6 AV	54.0	-6.4	2.58 V	27	15.8	31.8
3	*2412.00	110.7 PK			2.67 V	11	78.8	31.9
4	*2412.00	106.7 AV			2.67 V	11	74.8	31.9
5	4824.00	47.5 PK	74.0	-26.5	2.19 V	246	47.1	0.4
6	4824.00	43.8 AV	54.0	-10.2	2.19 V	246	43.4	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	*2437.00	108.8 PK			1.11 H	245	77.0	31.8
2	*2437.00	105.1 AV			1.11 H	245	73.3	31.8
3	4874.00	48.8 PK	74.0	-25.2	2.55 H	213	48.2	0.6
4	4874.00	45.7 AV	54.0	-8.3	2.55 H	213	45.1	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	*2437.00	108.6 PK			2.69 V	13	76.8	31.8
2	*2437.00	104.9 AV			2.69 V	13	73.1	31.8
3	4874.00	47.4 PK	74.0	-26.6	2.22 V	253	46.8	0.6
4	4874.00	43.6 AV	54.0	-10.4	2.22 V	253	43.0	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			1.08 H	243	76.1	31.8
2	*2462.00	104.0 AV			1.08 H	243	72.2	31.8
3	2483.50	58.9 PK	74.0	-15.1	1.02 H	246	27.1	31.8
4	2483.50	51.6 AV	54.0	-2.4	1.02 H	246	19.8	31.8
5	4924.00	47.1 PK	74.0	-26.9	2.58 H	217	46.4	0.7
6	4924.00	44.2 AV	54.0	-9.8	2.58 H	217	43.5	0.7

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.0 PK			2.38 V	23	78.2	31.8
2	*2462.00	106.2 AV			2.38 V	23	74.4	31.8
3	2483.50	60.4 PK	74.0	-13.6	2.16 V	27	28.6	31.8
4	2483.50	53.5 AV	54.0	-0.5	2.16 V	27	21.7	31.8
5	4924.00	47.4 PK	74.0	-26.6	2.21 V	247	46.7	0.7
6	4924.00	43.8 AV	54.0	-10.2	2.21 V	247	43.1	0.7

Remarks:

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

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	66.7 PK	74.0	-7.3	1.11 H	248	34.9	31.8
2	2390.00	52.8 AV	54.0	-1.2	1.11 H	248	21.0	31.8
3	*2412.00	108.2 PK			1.10 H	246	76.3	31.9
4	*2412.00	98.9 AV			1.10 H	246	67.0	31.9
5	4824.00	38.6 PK	74.0	-35.4	2.58 H	213	38.2	0.4
6	4824.00	28.1 AV	54.0	-25.9	2.58 H	213	27.7	0.4

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.8 PK	74.0	-9.2	1.15 V	26	33.0	31.8
2	2390.00	52.9 AV	54.0	-1.1	1.15 V	26	21.1	31.8
3	*2412.00	109.5 PK			1.15 V	26	77.6	31.9
4	*2412.00	99.6 AV			1.15 V	26	67.7	31.9
5	4824.00	38.8 PK	74.0	-35.2	2.11 V	245	38.4	0.4
6	4824.00	28.0 AV	54.0	-26.0	2.11 V	245	27.6	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	*2437.00	109.2 PK			1.00 H	245	77.4	31.8
2	*2437.00	99.5 AV			1.00 H	245	67.7	31.8
3	4874.00	39.7 PK	74.0	-34.3	2.53 H	220	39.1	0.6
4	4874.00	27.8 AV	54.0	-26.2	2.53 H	220	27.2	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	110.2 PK			1.03 V	174	78.4	31.8
2	*2437.00	101.0 AV			1.03 V	174	69.2	31.8
3	4874.00	40.2 PK	74.0	-33.8	2.55 V	222	39.6	0.6
4	4874.00	27.9 AV	54.0	-26.1	2.55 V	222	27.3	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 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			1.10 H	246	74.6	31.8
2	*2462.00	96.5 AV			1.10 H	246	64.7	31.8
3	2483.50	63.4 PK	74.0	-10.6	1.10 H	244	31.6	31.8
4	2483.50	50.9 AV	54.0	-3.1	1.10 H	244	19.1	31.8
5	4924.00	39.5 PK	74.0	-34.5	2.62 H	215	38.8	0.7
6	4924.00	28.1 AV	54.0	-25.9	2.62 H	215	27.4	0.7

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	107.2 PK			1.09 V	167	75.4	31.8
2	*2462.00	97.5 AV			1.09 V	167	65.7	31.8
3	2483.50	64.8 PK	74.0	-9.2	1.11 V	166	33.0	31.8
4	2483.50	52.6 AV	54.0	-1.4	1.11 V	166	20.8	31.8
5	4924.00	40.3 PK	74.0	-33.7	2.21 V	241	39.6	0.7
6	4924.00	28.2 AV	54.0	-25.8	2.21 V	241	27.5	0.7

Remarks:

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

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	61.5 PK	74.0	-12.5	1.10 H	244	29.7	31.8
2	2390.00	49.5 AV	54.0	-4.5	1.10 H	244	17.7	31.8
3	*2412.00	107.9 PK			1.08 H	239	76.0	31.9
4	*2412.00	97.9 AV			1.08 H	239	66.0	31.9
5	4824.00	39.0 PK	74.0	-35.0	2.51 H	211	38.6	0.4
6	4824.00	27.5 AV	54.0	-26.5	2.51 H	211	27.1	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	64.2 PK	74.0	-9.8	1.05 V	170	32.4	31.8
2	2390.00	52.7 AV	54.0	-1.3	1.05 V	170	20.9	31.8
3	*2412.00	109.9 PK			1.04 V	174	78.0	31.9
4	*2412.00	99.6 AV			1.04 V	174	67.7	31.9
5	4824.00	39.0 PK	74.0	-35.0	2.15 V	244	38.6	0.4
6	4824.00	28.2 AV	54.0	-25.8	2.15 V	244	27.8	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	*2437.00	108.6 PK			1.06 H	234	76.8	31.8
2	*2437.00	98.5 AV			1.06 H	234	66.7	31.8
3	4874.00	39.3 PK	74.0	-34.7	2.54 H	216	38.7	0.6
4	4874.00	27.1 AV	54.0	-26.9	2.54 H	216	26.5	0.6

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	110.2 PK			1.05 V	173	78.4	31.8
2	*2437.00	100.1 AV			1.05 V	173	68.3	31.8
3	4874.00	39.7 PK	74.0	-34.3	2.22 V	246	39.1	0.6
4	4874.00	28.2 AV	54.0	-25.8	2.22 V	246	27.6	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	105.0 PK			1.11 H	238	73.2	31.8
2	*2462.00	95.3 AV			1.11 H	238	63.5	31.8
3	2483.50	64.5 PK	74.0	-9.5	1.11 H	240	32.7	31.8
4	2483.50	51.4 AV	54.0	-2.6	1.11 H	240	19.6	31.8
5	4924.00	39.8 PK	74.0	-34.2	2.54 H	216	39.1	0.7
6	4924.00	28.0 AV	54.0	-26.0	2.54 H	216	27.3	0.7

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	107.2 PK			1.01 V	167	75.4	31.8
2	*2462.00	97.4 AV			1.01 V	167	65.6	31.8
3	2483.50	65.4 PK	74.0	-8.6	1.17 V	168	33.6	31.8
4	2483.50	53.0 AV	54.0	-1.0	1.17 V	168	21.2	31.8
5	4924.00	39.4 PK	74.0	-34.6	2.22 V	245	38.7	0.7
6	4924.00	28.3 AV	54.0	-25.7	2.22 V	245	27.6	0.7

Remarks:

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

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.5 PK	74.0	-8.5	1.34 H	130	33.7	31.8
2	2390.00	53.5 AV	54.0	-0.5	1.34 H	130	21.7	31.8
3	*2422.00	104.3 PK			1.31 H	131	72.5	31.8
4	*2422.00	91.8 AV			1.31 H	131	60.0	31.8
5	4844.00	39.6 PK	74.0	-34.4	1.34 H	242	39.1	0.5
6	4844.00	27.6 AV	54.0	-26.4	1.34 H	242	27.1	0.5
7	7266.00	45.4 PK	74.0	-28.6	1.33 H	240	37.8	7.6
8	7266.00	35.1 AV	54.0	-18.9	1.33 H	240	27.5	7.6
9	#9688.00	55.2 PK	74.0	-18.8	1.37 H	243	44.0	11.2
10	#9688.00	46.0 AV	54.0	-8.0	1.37 H	243	34.8	11.2

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.4 PK	74.0	-11.6	1.33 V	178	30.6	31.8
2	2390.00	53.3 AV	54.0	-0.7	1.33 V	178	21.5	31.8
3	*2422.00	104.4 PK			1.29 V	207	72.6	31.8
4	*2422.00	93.3 AV			1.29 V	207	61.5	31.8
5	4844.00	39.1 PK	74.0	-34.9	1.56 V	199	38.6	0.5
6	4844.00	29.4 AV	54.0	-24.6	1.56 V	199	28.9	0.5
7	7266.00	45.5 PK	74.0	-28.5	1.63 V	182	37.9	7.6
8	7266.00	35.1 AV	54.0	-18.9	1.63 V	182	27.5	7.6
9	#9688.00	52.7 PK	74.0	-21.3	1.54 V	111	41.5	11.2
10	#9688.00	44.3 AV	54.0	-9.7	1.54 V	111	33.1	11.2

Remarks:

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

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	105.9 PK			1.29 H	133	74.1	31.8
2	*2437.00	93.4 AV			1.29 H	133	61.6	31.8
3	2483.50	67.7 PK	74.0	-6.3	1.26 H	132	35.9	31.8
4	2483.50	52.9 AV	54.0	-1.1	1.26 H	132	21.1	31.8
5	4874.00	40.0 PK	74.0	-34.0	1.25 H	239	39.4	0.6
6	4874.00	27.3 AV	54.0	-26.7	1.25 H	239	26.7	0.6
7	7311.00	46.1 PK	74.0	-27.9	1.35 H	245	38.5	7.6
8	7311.00	33.9 AV	54.0	-20.1	1.35 H	245	26.3	7.6
9	#9748.00	53.5 PK	74.0	-20.5	1.76 H	238	42.3	11.2
10	#9748.00	44.4 AV	54.0	-9.6	1.76 H	238	33.2	11.2

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	105.7 PK			1.26 V	195	73.9	31.8
2	*2437.00	92.8 AV			1.26 V	195	61.0	31.8
3	2483.50	65.3 PK	74.0	-8.7	1.29 V	202	33.5	31.8
4	2483.50	53.2 AV	54.0	-0.8	1.29 V	202	21.4	31.8
5	4874.00	38.7 PK	74.0	-35.3	1.33 V	192	38.1	0.6
6	4874.00	25.8 AV	54.0	-28.2	1.33 V	192	25.2	0.6
7	7311.00	45.1 PK	74.0	-28.9	2.55 V	199	37.5	7.6
8	7311.00	33.7 AV	54.0	-20.3	2.55 V	199	26.1	7.6
9	#9748.00	53.8 PK	74.0	-20.2	1.31 V	44	42.6	11.2
10	#9748.00	43.1 AV	54.0	-10.9	1.31 V	44	31.9	11.2

Remarks:

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

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			1.94 H	184	72.2	31.8
2	*2452.00	91.2 AV			1.94 H	184	59.4	31.8
3	2483.50	65.8 PK	74.0	-8.2	1.98 H	185	34.0	31.8
4	2483.50	52.3 AV	54.0	-1.7	1.98 H	185	20.5	31.8
5	4904.00	39.2 PK	74.0	-34.8	2.00 H	189	38.6	0.6
6	4904.00	28.0 AV	54.0	-26.0	2.00 H	189	27.4	0.6
7	7356.00	46.1 PK	74.0	-27.9	1.93 H	181	38.7	7.4
8	7356.00	34.8 AV	54.0	-19.2	1.93 H	181	27.4	7.4
9	#9808.00	54.4 PK	74.0	-19.6	1.66 H	143	43.1	11.3
10	#9808.00	45.2 AV	54.0	-8.8	1.66 H	143	33.9	11.3

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	106.1 PK			1.26 V	203	74.3	31.8
2	*2452.00	93.2 AV			1.26 V	203	61.4	31.8
3	2483.50	68.0 PK	74.0	-6.0	1.28 V	205	36.2	31.8
4	2483.50	53.4 AV	54.0	-0.6	1.28 V	205	21.6	31.8
5	4904.00	39.0 PK	74.0	-35.0	1.33 V	147	38.4	0.6
6	4904.00	27.5 AV	54.0	-26.5	1.33 V	147	26.9	0.6
7	7356.00	45.8 PK	74.0	-28.2	1.31 V	152	38.4	7.4
8	7356.00	34.3 AV	54.0	-19.7	1.31 V	152	26.9	7.4
9	#9808.00	54.2 PK	74.0	-19.8	1.27 V	36	42.9	11.3
10	#9808.00	44.2 AV	54.0	-9.8	1.27 V	36	32.9	11.3

Remarks:

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

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	59.5 PK	74.0	-14.5	1.05 H	251	27.7	31.8
2	2390.00	53.4 AV	54.0	-0.6	1.05 H	251	21.6	31.8
3	*2412.00	110.7 PK			1.00 H	254	78.8	31.9
4	*2412.00	107.2 AV			1.00 H	254	75.3	31.9
5	4824.00	48.8 PK	74.0	-25.2	2.58 H	221	48.4	0.4
6	4824.00	45.5 AV	54.0	-8.5	2.58 H	221	45.1	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	57.3 PK	74.0	-16.7	2.60 V	163	25.5	31.8
2	2390.00	48.0 AV	54.0	-6.0	2.60 V	163	16.2	31.8
3	*2412.00	112.7 PK			2.64 V	161	80.8	31.9
4	*2412.00	110.6 AV			2.64 V	161	78.7	31.9
5	4824.00	49.1 PK	74.0	-24.9	1.96 V	247	48.7	0.4
6	4824.00	45.5 AV	54.0	-8.5	1.96 V	247	45.1	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	*2437.00	112.7 PK			1.15 H	249	80.9	31.8
2	*2437.00	108.8 AV			1.15 H	249	77.0	31.8
3	4874.00	51.6 PK	74.0	-22.4	2.73 H	255	51.0	0.6
4	4874.00	49.0 AV	54.0	-5.0	2.73 H	255	48.4	0.6

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	115.3 PK			2.38 V	162	83.5	31.8
2	*2437.00	113.3 AV			2.38 V	162	81.5	31.8
3	4874.00	49.0 PK	74.0	-25.0	2.04 V	244	48.4	0.6
4	4874.00	45.6 AV	54.0	-8.4	2.04 V	244	45.0	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	114.3 PK			1.00 H	254	82.5	31.8
2	*2462.00	112.2 AV			1.00 H	254	80.4	31.8
3	2483.50	59.4 PK	74.0	-14.6	1.00 H	252	27.6	31.8
4	2483.50	52.5 AV	54.0	-1.5	1.00 H	252	20.7	31.8
5	4924.00	49.7 PK	74.0	-24.3	2.66 H	256	49.0	0.7
6	4924.00	46.3 AV	54.0	-7.7	2.66 H	256	45.6	0.7

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	115.2 PK			2.48 V	210	83.4	31.8
2	*2462.00	113.1 AV			2.48 V	210	81.3	31.8
3	2483.50	61.2 PK	74.0	-12.8	2.50 V	203	29.4	31.8
4	2483.50	53.3 AV	54.0	-0.7	2.50 V	203	21.5	31.8
5	4924.00	49.4 PK	74.0	-24.6	2.72 V	207	48.7	0.7
6	4924.00	45.9 AV	54.0	-8.1	2.72 V	207	45.2	0.7

Remarks:

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

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	64.9 PK	74.0	-9.1	1.18 H	249	33.1	31.8
2	2390.00	53.7 AV	54.0	-0.3	1.18 H	249	21.9	31.8
3	*2412.00	113.5 PK			1.10 H	248	81.6	31.9
4	*2412.00	104.3 AV			1.10 H	248	72.4	31.9
5	4824.00	43.4 PK	74.0	-30.6	1.04 H	220	43.0	0.4
6	4824.00	30.1 AV	54.0	-23.9	1.04 H	220	29.7	0.4

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.9 PK	74.0	-10.1	2.29 V	169	32.1	31.8
2	2390.00	52.6 AV	54.0	-1.4	2.29 V	169	20.8	31.8
3	*2412.00	112.4 PK			2.20 V	160	80.5	31.9
4	*2412.00	103.3 AV			2.20 V	160	71.4	31.9
5	4824.00	40.5 PK	74.0	-33.5	2.53 V	193	40.1	0.4
6	4824.00	27.1 AV	54.0	-26.9	2.53 V	193	26.7	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	*2437.00	115.9 PK			1.34 H	249	84.1	31.8
2	*2437.00	106.1 AV			1.34 H	249	74.3	31.8
3	4874.00	43.4 PK	74.0	-30.6	1.01 H	214	42.8	0.6
4	4874.00	30.7 AV	54.0	-23.3	1.01 H	214	30.1	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	*2437.00	115.2 PK			2.12 V	155	83.4	31.8
2	*2437.00	105.3 AV			2.12 V	155	73.5	31.8
3	4874.00	41.7 PK	74.0	-32.3	2.52 V	194	41.1	0.6
4	4874.00	28.6 AV	54.0	-25.4	2.52 V	194	28.0	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	112.7 PK			1.23 H	248	80.9	31.8
2	*2462.00	103.5 AV			1.23 H	248	71.7	31.8
3	2483.50	66.0 PK	74.0	-8.0	1.29 H	246	34.2	31.8
4	2483.50	53.0 AV	54.0	-1.0	1.29 H	246	21.2	31.8
5	4924.00	42.1 PK	74.0	-31.9	1.08 H	223	41.4	0.7
6	4924.00	29.3 AV	54.0	-24.7	1.08 H	223	28.6	0.7

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.4 PK			2.14 V	163	79.6	31.8
2	*2462.00	102.1 AV			2.14 V	163	70.3	31.8
3	2483.50	65.0 PK	74.0	-9.0	2.07 V	170	33.2	31.8
4	2483.50	51.6 AV	54.0	-2.4	2.07 V	170	19.8	31.8
5	4924.00	40.3 PK	74.0	-33.7	2.39 V	190	39.6	0.7
6	4924.00	28.3 AV	54.0	-25.7	2.39 V	190	27.6	0.7

Remarks:

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

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.9 PK	74.0	-8.1	1.10 H	295	34.1	31.8
2	2390.00	53.8 AV	54.0	-0.2	1.10 H	295	22.0	31.8
3	*2412.00	113.7 PK			1.08 H	296	81.8	31.9
4	*2412.00	103.8 AV			1.08 H	296	71.9	31.9
5	4824.00	41.9 PK	74.0	-32.1	1.03 H	227	41.5	0.4
6	4824.00	28.5 AV	54.0	-25.5	1.03 H	227	28.1	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	65.0 PK	74.0	-9.0	2.26 V	153	33.2	31.8
2	2390.00	52.9 AV	54.0	-1.1	2.26 V	153	21.1	31.8
3	*2412.00	112.8 PK			2.16 V	155	80.9	31.9
4	*2412.00	102.8 AV			2.16 V	155	70.9	31.9
5	4824.00	40.9 PK	74.0	-33.1	2.47 V	194	40.5	0.4
6	4824.00	28.5 AV	54.0	-25.5	2.47 V	194	28.1	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	*2437.00	115.5 PK			1.15 H	296	83.7	31.8
2	*2437.00	105.5 AV			1.15 H	296	73.7	31.8
3	2483.50	67.2 PK	74.0	-6.8	1.00 H	297	35.4	31.8
4	2483.50	53.5 AV	54.0	-0.5	1.00 H	297	21.7	31.8
5	4874.00	44.2 PK	74.0	-29.8	1.00 H	220	43.6	0.6
6	4874.00	33.1 AV	54.0	-20.9	1.00 H	220	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	*2437.00	114.7 PK			2.20 V	157	82.9	31.8
2	*2437.00	104.7 AV			2.20 V	157	72.9	31.8
3	4874.00	41.2 PK	74.0	-32.8	2.40 V	195	40.6	0.6
4	4874.00	27.8 AV	54.0	-26.2	2.40 V	195	27.2	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	113.8 PK			1.03 H	299	82.0	31.8
2	*2462.00	103.8 AV			1.03 H	299	72.0	31.8
3	2483.50	66.6 PK	74.0	-7.4	1.00 H	302	34.8	31.8
4	2483.50	53.0 AV	54.0	-1.0	1.00 H	302	21.2	31.8
5	4924.00	42.3 PK	74.0	-31.7	1.00 H	222	41.6	0.7
6	4924.00	28.8 AV	54.0	-25.2	1.00 H	222	28.1	0.7

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	112.9 PK			2.13 V	161	81.1	31.8
2	*2462.00	103.0 AV			2.13 V	161	71.2	31.8
3	2483.50	65.4 PK	74.0	-8.6	2.19 V	160	33.6	31.8
4	2483.50	51.8 AV	54.0	-2.2	2.19 V	160	20.0	31.8
5	4924.00	40.8 PK	74.0	-33.2	2.49 V	193	40.1	0.7
6	4924.00	28.3 AV	54.0	-25.7	2.49 V	193	27.6	0.7

Remarks:

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

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.1 PK	74.0	-8.9	1.08 H	297	33.3	31.8
2	2390.00	53.4 AV	54.0	-0.6	1.08 H	297	21.6	31.8
3	*2422.00	106.6 PK			1.08 H	297	74.8	31.8
4	*2422.00	97.3 AV			1.08 H	297	65.5	31.8
5	4844.00	39.6 PK	74.0	-34.4	1.06 H	225	39.1	0.5
6	4844.00	28.0 AV	54.0	-26.0	1.06 H	225	27.5	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	63.9 PK	74.0	-10.1	2.16 V	163	32.1	31.8
2	2390.00	52.3 AV	54.0	-1.7	2.16 V	163	20.5	31.8
3	*2422.00	105.7 PK			2.13 V	161	73.9	31.8
4	*2422.00	96.2 AV			2.13 V	161	64.4	31.8
5	4844.00	39.8 PK	74.0	-34.2	2.52 V	187	39.3	0.5
6	4844.00	27.8 AV	54.0	-26.2	2.52 V	187	27.3	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	109.6 PK			1.05 H	249	77.8	31.8
2	*2437.00	100.0 AV			1.05 H	249	68.2	31.8
3	2483.50	64.5 PK	74.0	-9.5	1.06 H	246	32.7	31.8
4	2483.50	53.2 AV	54.0	-0.8	1.06 H	246	21.4	31.8
5	4874.00	40.2 PK	74.0	-33.8	1.03 H	224	39.6	0.6
6	4874.00	28.2 AV	54.0	-25.8	1.03 H	224	27.6	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	*2437.00	108.8 PK			2.19 V	163	77.0	31.8
2	*2437.00	99.3 AV			2.19 V	163	67.5	31.8
3	4874.00	40.6 PK	74.0	-33.4	2.53 V	187	40.0	0.6
4	4874.00	27.2 AV	54.0	-26.8	2.53 V	187	26.6	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	106.7 PK			1.03 H	300	74.9	31.8
2	*2452.00	97.1 AV			1.03 H	300	65.3	31.8
3	2483.50	65.2 PK	74.0	-8.8	1.00 H	218	33.4	31.8
4	2483.50	53.5 AV	54.0	-0.5	1.00 H	218	21.7	31.8
5	4904.00	40.7 PK	74.0	-33.3	1.06 H	215	40.1	0.6
6	4904.00	26.9 AV	54.0	-27.1	1.06 H	215	26.3	0.6

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	107.8 PK			2.15 V	162	76.0	31.8
2	*2452.00	98.1 AV			2.15 V	162	66.3	31.8
3	2483.50	65.0 PK	74.0	-9.0	1.96 V	159	33.2	31.8
4	2483.50	52.5 AV	54.0	-1.5	1.96 V	159	20.7	31.8
5	4904.00	40.9 PK	74.0	-33.1	1.08 V	223	40.3	0.6
6	4904.00	28.2 AV	54.0	-25.8	1.08 V	223	27.6	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

Below 1GHz worst-case data:

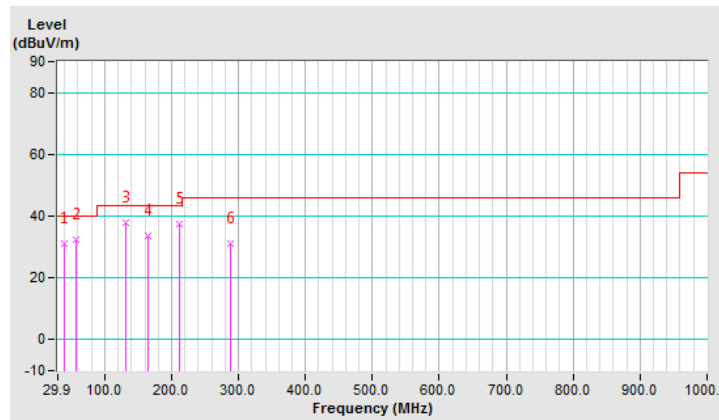
802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	39.62	31.0 QP	40.0	-9.0	1.99 H	326	41.4	-10.4
2	57.12	32.2 QP	40.0	-7.8	1.99 H	112	42.3	-10.1
3	131.00	37.9 QP	43.5	-5.6	1.99 H	267	48.4	-10.5
4	164.06	33.5 QP	43.5	-10.0	1.00 H	312	42.5	-9.0
5	212.66	37.6 QP	43.5	-5.9	1.50 H	1	48.5	-10.9
6	288.49	31.3 QP	46.0	-14.7	1.00 H	216	38.9	-7.6

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 of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

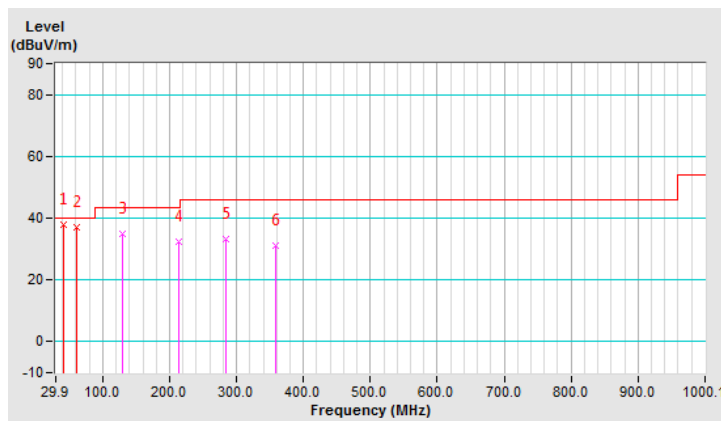


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	A		

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	40.69	38.0 QP	40.0	-2.0	1.00 V	89	48.2	-10.2
2	61.10	37.0 QP	40.0	-3.0	1.00 V	35	47.5	-10.5
3	129.06	35.1 QP	43.5	-8.4	1.01 V	44	45.8	-10.7
4	214.61	32.3 QP	43.5	-11.2	1.01 V	332	43.2	-10.9
5	284.60	33.1 QP	46.0	-12.9	1.51 V	343	40.8	-7.7
6	358.48	31.1 QP	46.0	-14.9	1.01 V	288	37.5	-6.4

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 of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

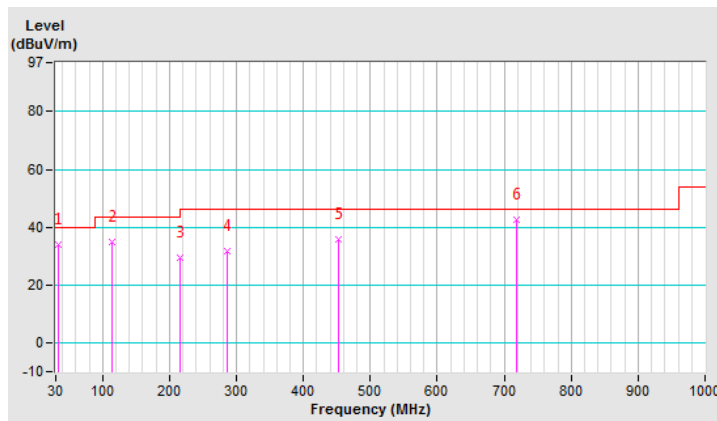


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	B		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	33.88	33.8 QP	40.0	-6.2	1.25 H	15	44.5	-10.7
2	114.39	34.7 QP	43.5	-8.8	1.50 H	300	46.8	-12.1
3	215.27	29.6 QP	43.5	-13.9	1.50 H	153	40.9	-11.3
4	287.05	31.7 QP	46.0	-14.3	1.00 H	346	39.9	-8.2
5	451.95	35.7 QP	46.0	-10.3	1.25 H	322	40.8	-5.1
6	717.73	42.5 QP	46.0	-3.5	1.25 H	80	42.7	-0.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report

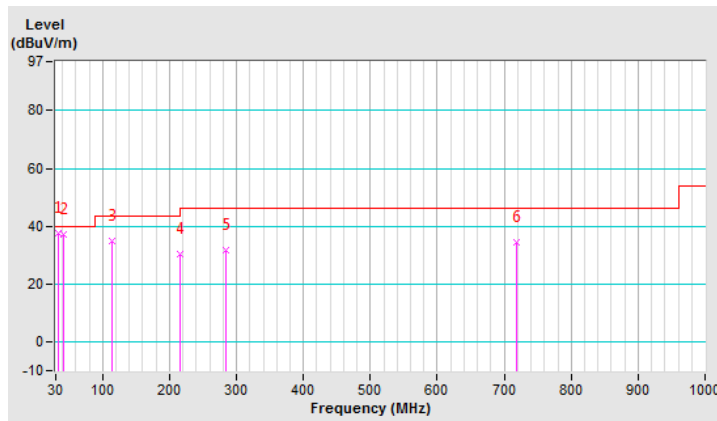


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		
TEST MODE	B		

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	33.88	37.8 QP	40.0	-2.2	1.50 V	13	48.5	-10.7
2	41.64	37.2 QP	40.0	-2.8	1.25 V	11	47.3	-10.1
3	114.39	34.7 QP	43.5	-8.8	1.25 V	284	46.8	-12.1
4	215.27	30.3 QP	43.5	-13.2	1.00 V	185	41.6	-11.3
5	285.11	31.8 QP	46.0	-14.2	1.25 V	152	40.0	-8.2
6	717.73	34.6 QP	46.0	-11.4	1.00 V	13	34.8	-0.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Dec. 10, 2018	Dec. 09, 2019
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2018	Sep. 04, 2019
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 26, 2018	Feb. 25, 2019
			Feb. 21, 2019	Feb. 20, 2020
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 19, 2018	Aug. 18, 2019
Software ADT	BV ADT_Cond_ V7.3.7.4	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-12040.

4.2.3 Test Procedures

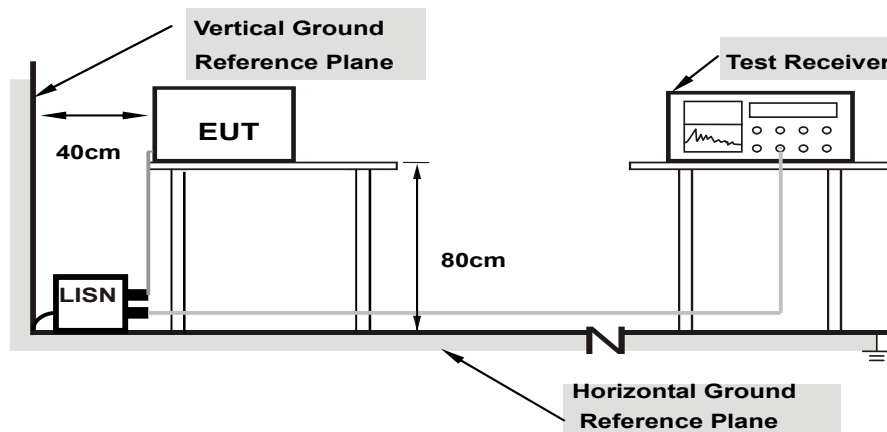
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

Worst-case data:

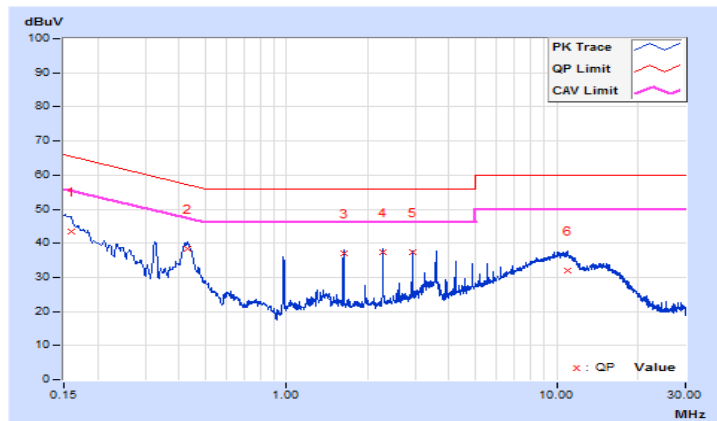
802.11b

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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15900	10.07	33.53	15.08	43.60	25.15	65.52	55.52	-21.92	-30.37
2	0.42860	10.07	28.18	20.28	38.25	30.35	57.28	47.28	-19.03	-16.93
3	1.62604	10.09	26.80	26.67	36.89	36.76	56.00	46.00	-19.11	-9.24
4	2.27625	10.10	27.16	27.00	37.26	37.10	56.00	46.00	-18.74	-8.90
5	2.92650	10.12	27.22	27.04	37.34	37.16	56.00	46.00	-18.66	-8.84
6	10.93200	10.30	21.78	15.22	32.08	25.52	60.00	50.00	-27.92	-24.48

Remarks:

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

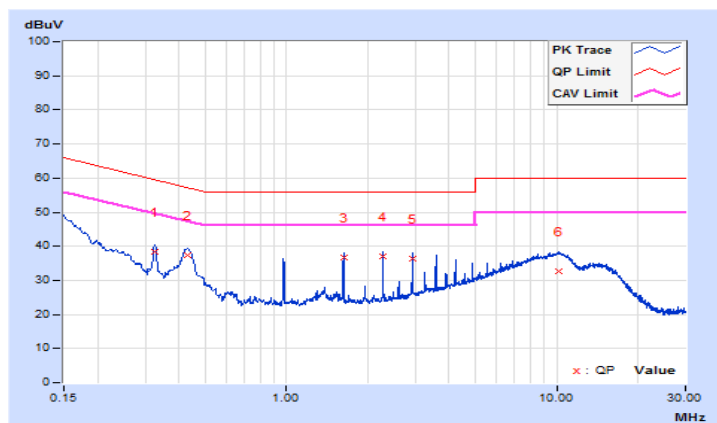


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.32483	10.13	28.30	27.29	38.43	37.42	59.58
2	0.42860	10.13	27.13	19.50	37.26	29.63	57.28	47.28	-20.02	-17.65
3	1.62604	10.15	26.52	26.26	36.67	36.41	56.00	46.00	-19.33	-9.59
4	2.27625	10.16	26.94	26.67	37.10	36.83	56.00	46.00	-18.90	-9.17
5	2.92650	10.18	26.05	25.45	36.23	35.63	56.00	46.00	-19.77	-10.37
6	10.18275	10.40	22.34	15.86	32.74	26.26	60.00	50.00	-27.26	-23.74

Remarks:

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

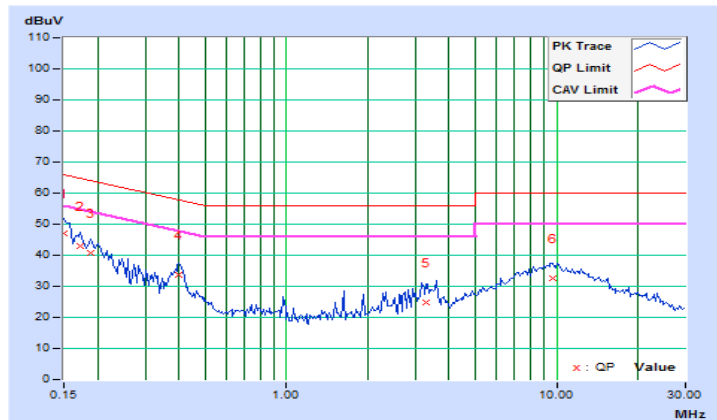


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15000	9.69	37.51	22.26	47.20	31.95	66.00
2	0.17344	9.69	33.27	18.17	42.96	27.86	64.79	54.79	-21.83	-26.93
3	0.18906	9.68	31.03	15.85	40.71	25.53	64.08	54.08	-23.37	-28.55
4	0.40000	9.68	23.89	16.55	33.57	26.23	57.85	47.85	-24.28	-21.62
5	3.30469	9.73	15.04	5.87	24.77	15.60	56.00	46.00	-31.23	-30.40
6	9.67969	9.86	22.58	17.05	32.44	26.91	60.00	50.00	-27.56	-23.09

Remarks:

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

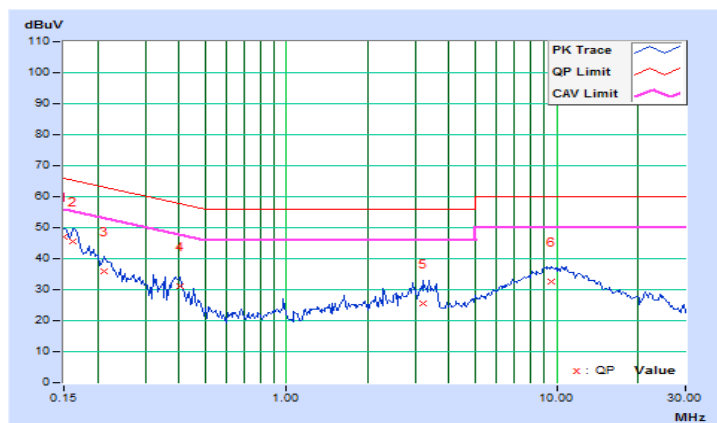


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15000	9.66	37.51	21.93	47.17	31.59	66.00
2	0.16172	9.66	36.03	19.61	45.69	29.27	65.38	55.38	-19.69	-26.11
3	0.21250	9.66	26.31	12.05	35.97	21.71	63.11	53.11	-27.14	-31.40
4	0.40391	9.65	21.37	13.88	31.02	23.53	57.77	47.77	-26.75	-24.24
5	3.20703	9.70	15.81	6.44	25.51	16.14	56.00	46.00	-30.49	-29.86
6	9.60156	9.84	22.59	16.84	32.43	26.68	60.00	50.00	-27.57	-23.32

Remarks:

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

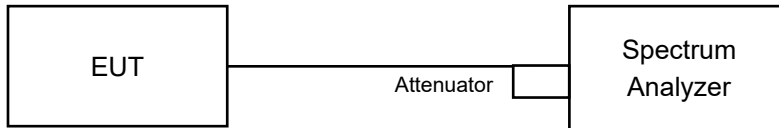


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

1TX

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	10.12	0.5	Pass
6	2437	10.10	0.5	Pass
11	2462	9.13	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	15.60	0.5	Pass
6	2437	15.25	0.5	Pass
11	2462	15.51	0.5	Pass

802.11n (HT20)

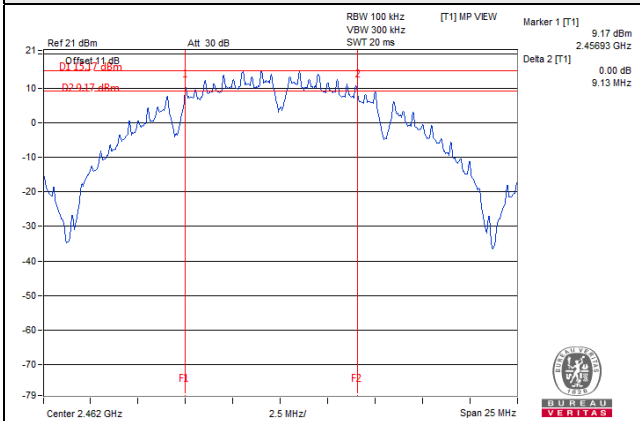
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	16.81	0.5	Pass
6	2437	16.23	0.5	Pass
11	2462	16.03	0.5	Pass

802.11n (HT40)

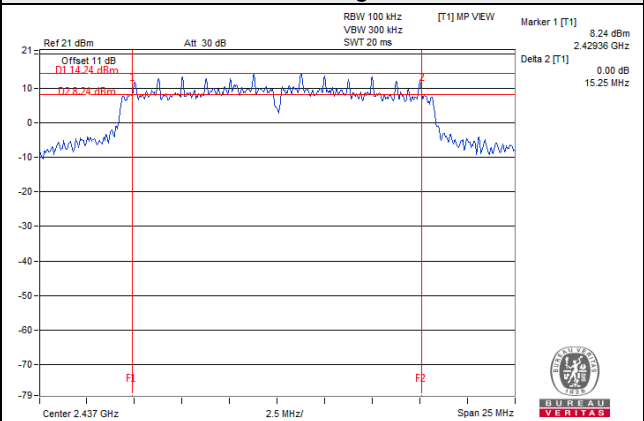
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
3	2422	35.32	0.5	Pass
6	2437	35.47	0.5	Pass
9	2452	35.47	0.5	Pass

Spectrum Plot of Worst Value

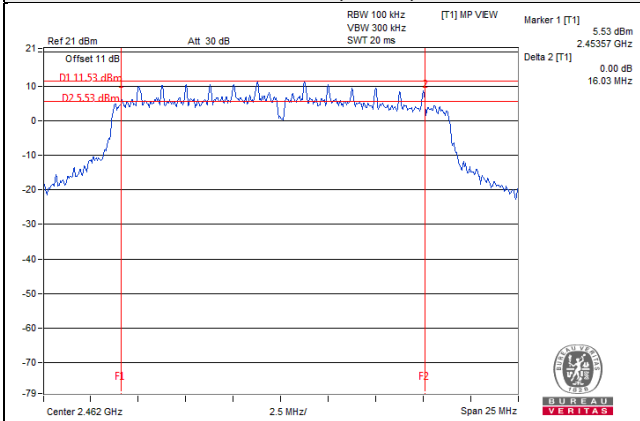
802.11b



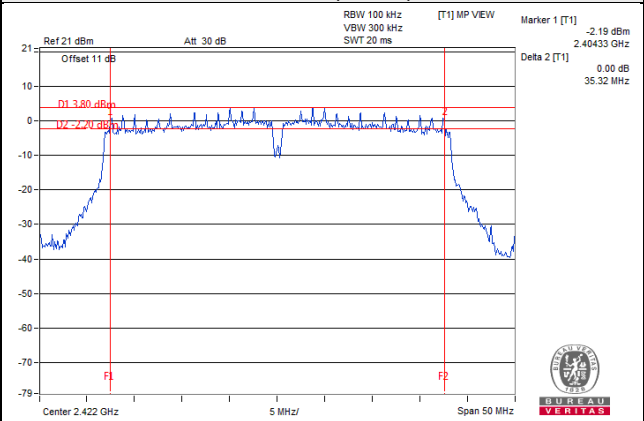
802.11g



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	9.10	9.55	0.5	Pass
6	2437	10.09	10.07	0.5	Pass
11	2462	9.13	9.12	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.48	15.52	0.5	Pass
6	2437	15.22	16.34	0.5	Pass
11	2462	15.77	15.78	0.5	Pass

802.11n (HT20)

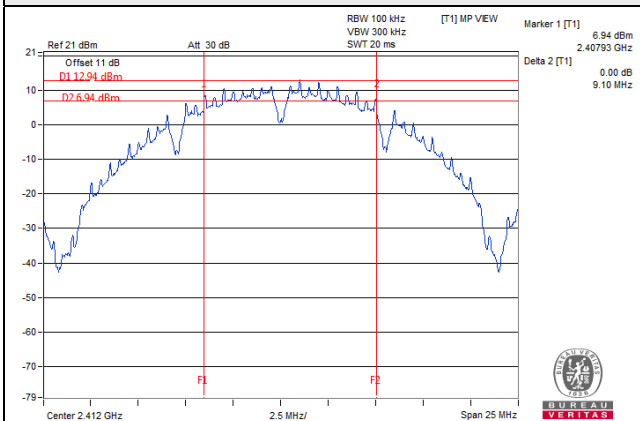
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.74	15.76	0.5	Pass
6	2437	16.71	17.63	0.5	Pass
11	2462	16.06	16.01	0.5	Pass

802.11n (HT40)

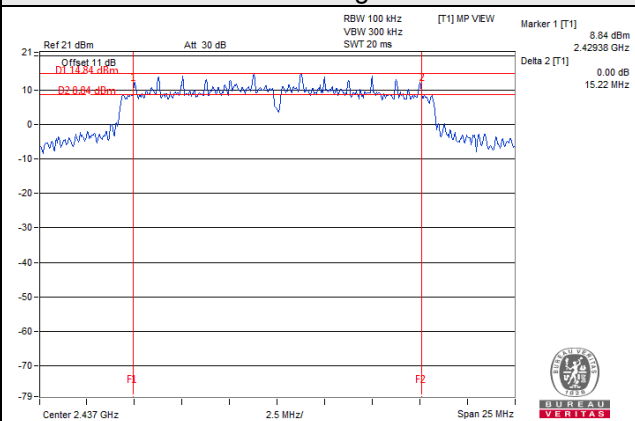
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.27	35.29	0.5	Pass
6	2437	35.87	35.56	0.5	Pass
9	2452	35.29	35.29	0.5	Pass

Spectrum Plot of Worst Value

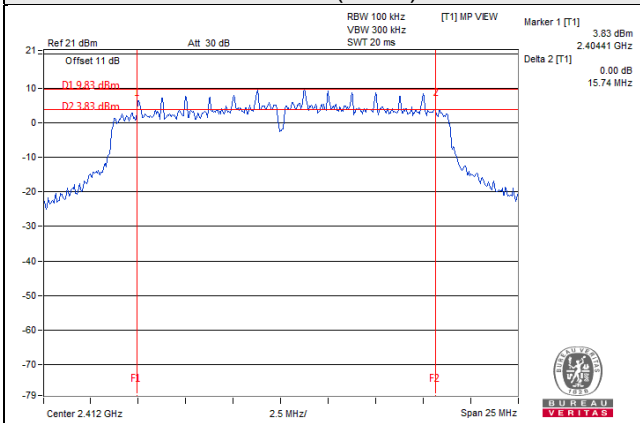
802.11b



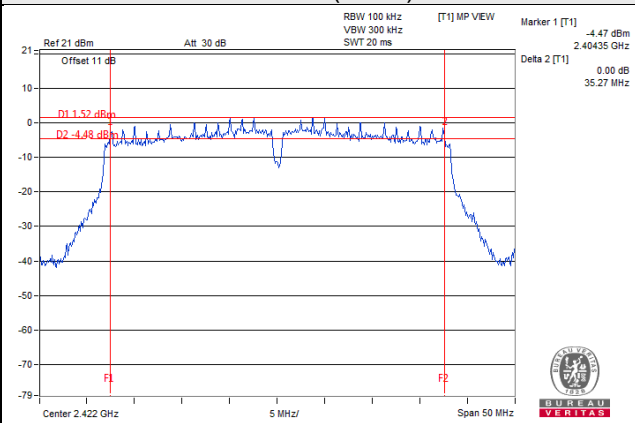
802.11g



802.11n (HT20)



802.11n (HT40)



4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

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

Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,

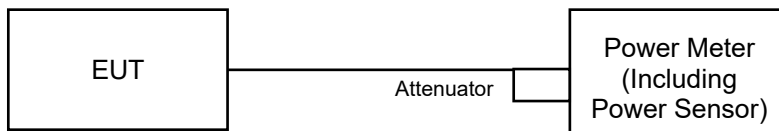
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

Average power sensor was used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as item 4.3.6.

4.4.7 Test Results

1TX

802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	156.315	21.94	30.00	Pass
6	2437	295.801	24.71	30.00	Pass
11	2462	286.418	24.57	30.00	Pass

802.11g

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	91.622	19.62	30.00	Pass
6	2437	339.625	25.31	30.00	Pass
11	2462	112.460	20.51	30.00	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	81.846	19.13	30.00	Pass
6	2437	339.625	25.31	30.00	Pass
11	2462	132.739	21.23	30.00	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
3	2422	48.753	16.88	30.00	Pass
6	2437	98.175	19.92	30.00	Pass
9	2452	75.336	18.77	30.00	Pass

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	21.22	21.53	274.667	24.39	30.00	Pass
6	2437	23.36	23.21	426.181	26.30	30.00	Pass
11	2462	22.95	22.60	379.212	25.79	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	19.39	19.37	173.393	22.39	30.00	Pass
6	2437	23.60	22.09	390.895	25.92	30.00	Pass
11	2462	19.17	19.04	162.772	22.12	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	19.01	19.23	163.369	22.13	30.00	Pass
6	2437	23.42	22.11	382.341	25.82	30.00	Pass
11	2462	19.13	18.97	160.732	22.06	30.00	Pass

802.11n (HT40)

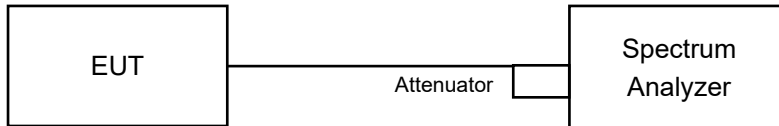
Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	14.76	14.66	59.165	17.72	30.00	Pass
6	2437	19.47	19.13	170.358	22.31	30.00	Pass
9	2452	15.98	16.11	80.460	19.06	30.00	Pass

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm in any 3 kHz.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

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

- 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: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- d. Set VBW $\geq 3 \times \text{RBW}$.
- e. Detector = power averaging (RMS) or sample detector (when RMS not available).
- f. Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span}/\text{RBW}$.
- 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: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- e. Set VBW $\geq 3 \times \text{RBW}$.
- f. Detector = power averaging (RMS) or sample detector (when RMS not available).
- g. Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span}/\text{RBW}$.
- 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	-5.24	8.00	Pass
6	2437	-3.80	8.00	Pass
11	2462	-3.72	8.00	Pass

802.11g

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
1	2412	-9.31	0.09	-9.22	8.00	Pass
6	2437	-5.49	0.09	-5.40	8.00	Pass
11	2462	-8.66	0.09	-8.57	8.00	Pass

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

802.11n (HT20)

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
1	2412	-9.95	0.15	-9.80	8.00	Pass
6	2437	-5.27	0.15	-5.12	8.00	Pass
11	2462	-8.49	0.15	-8.34	8.00	Pass

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

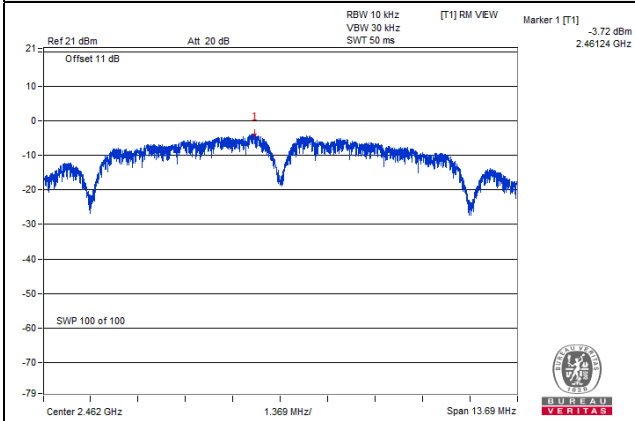
802.11n (HT40)

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	-15.38	0.25	-15.13	8.00	Pass
6	2437	-12.73	0.25	-12.48	8.00	Pass
9	2452	-13.74	0.25	-13.49	8.00	Pass

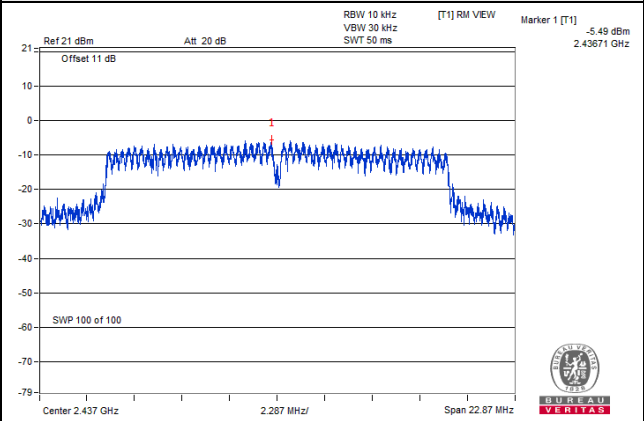
Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

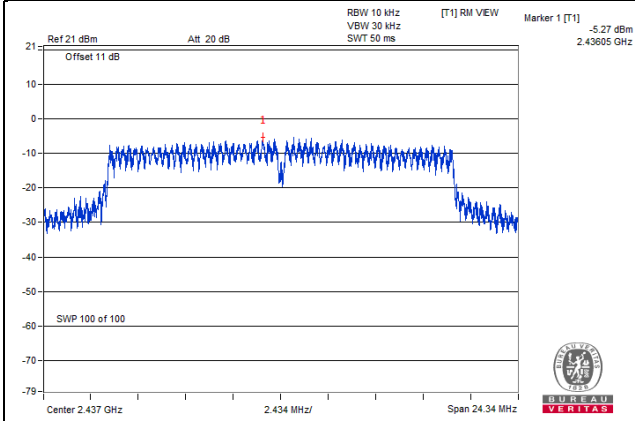
802.11b



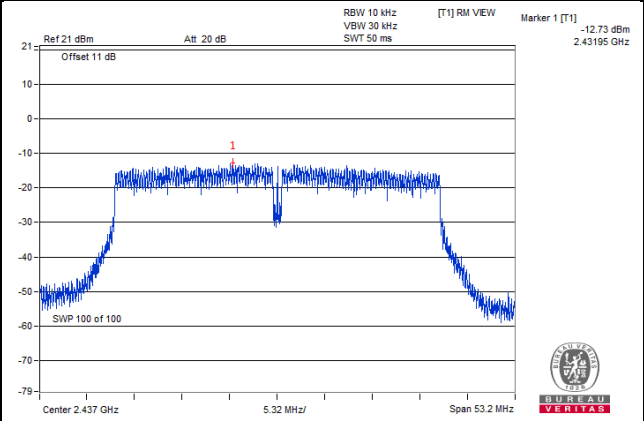
802.11g



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	-5.88	3.01	-2.87	8.00	Pass
	6	2437	-4.94	3.01	-1.93	8.00	Pass
	11	2462	-4.91	3.01	-1.90	8.00	Pass
1	1	2412	-6.36	3.01	-3.35	8.00	Pass
	6	2437	-4.23	3.01	-1.22	8.00	Pass
	11	2462	-4.76	3.01	-1.75	8.00	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional Gain = $0.28\text{dBi} + 10\log(2) = 3.29\text{dBi} < 6\text{dBi}$, so the power density limit not need to reduce.

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	-9.70	3.01	-6.69	8.00	Pass
	6	2437	-4.51	3.01	-1.50	8.00	Pass
	11	2462	-9.81	3.01	-6.80	8.00	Pass
1	1	2412	-10.40	3.01	-7.39	8.00	Pass
	6	2437	-5.21	3.01	-2.20	8.00	Pass
	11	2462	-10.76	3.01	-7.75	8.00	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional Gain = $0.28\text{dBi} + 10\log(2) = 3.29\text{dBi} < 6\text{dBi}$, so the power density limit not need to reduce.

802.11n (HT20)

TX chain	Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-10.44	3.01	0.11	-7.32	8.00	Pass
	6	2437	-4.86	3.01	0.11	-1.74	8.00	Pass
	11	2462	-10.47	3.01	0.11	-7.35	8.00	Pass
1	1	2412	-10.33	3.01	0.11	-7.21	8.00	Pass
	6	2437	-5.61	3.01	0.11	-2.49	8.00	Pass
	11	2462	-10.39	3.01	0.11	-7.27	8.00	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional Gain = $0.28\text{dBi} + 10\log(2) = 3.29\text{dBi} < 6\text{dBi}$, so the power density limit not need to reduce.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

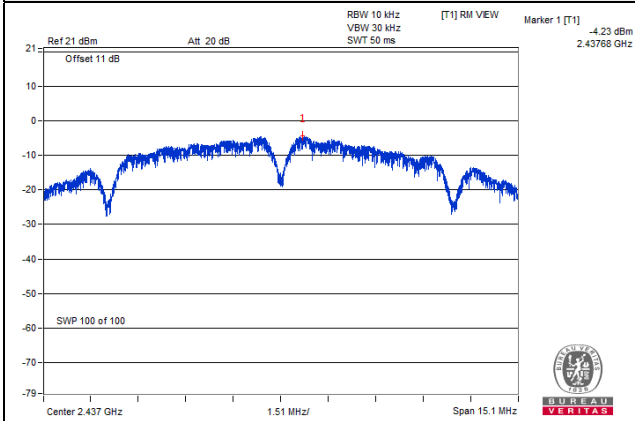
TX chain	Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	3	2422	-17.69	3.01	0.24	-14.44	8.00	Pass
	6	2437	-13.26	3.01	0.24	-10.01	8.00	Pass
	9	2452	-16.32	3.01	0.24	-13.07	8.00	Pass
1	3	2422	-18.16	3.01	0.24	-14.91	8.00	Pass
	6	2437	-13.33	3.01	0.24	-10.08	8.00	Pass
	9	2452	-16.45	3.01	0.24	-13.20	8.00	Pass

Note:

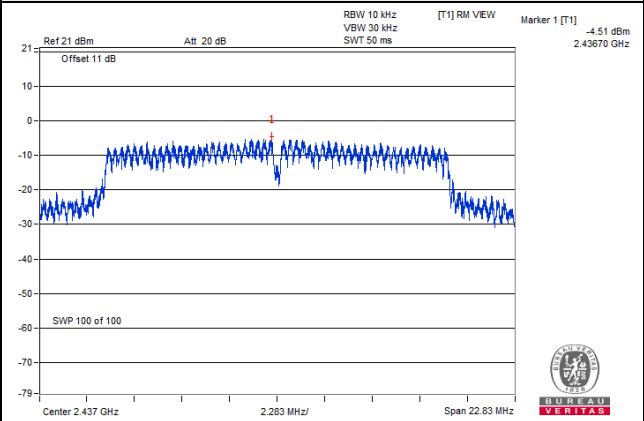
- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Directional Gain = $0.28\text{dBi} + 10\log(2) = 3.29\text{dBi} < 6\text{dBi}$, so the power density limit not need to reduce.
- Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

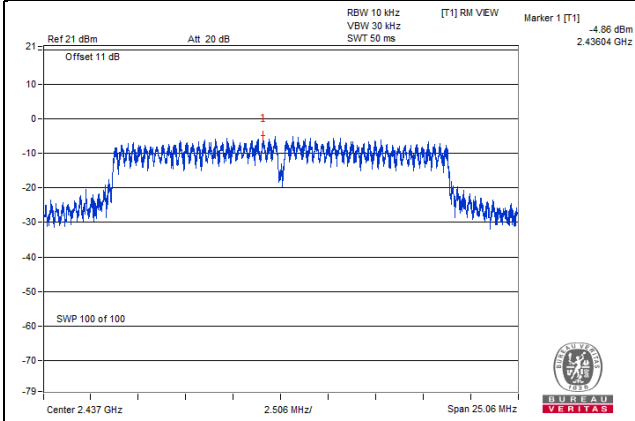
802.11b



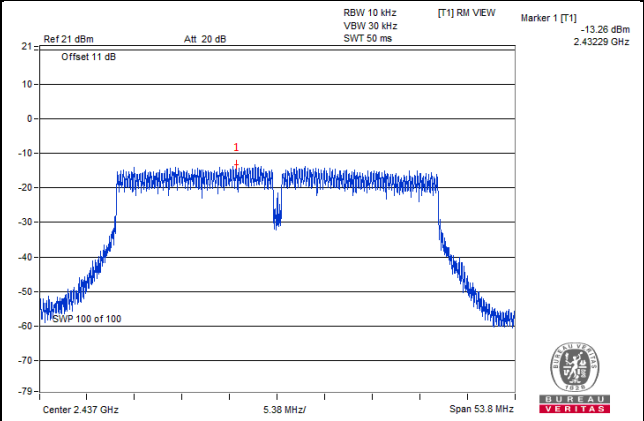
802.11g



802.11n (HT20)



802.11n (HT40)

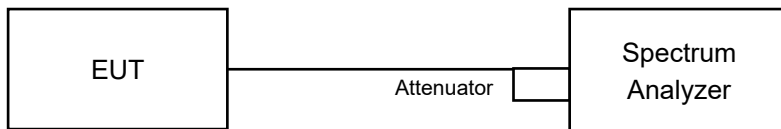


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

Below -30dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOB

- Set RBW = 100 kHz.
- Set VBW \geq 300 kHz.
- Detector = peak.
- Sweep = auto couple.
- Trace Mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

Same as item 4.3.6

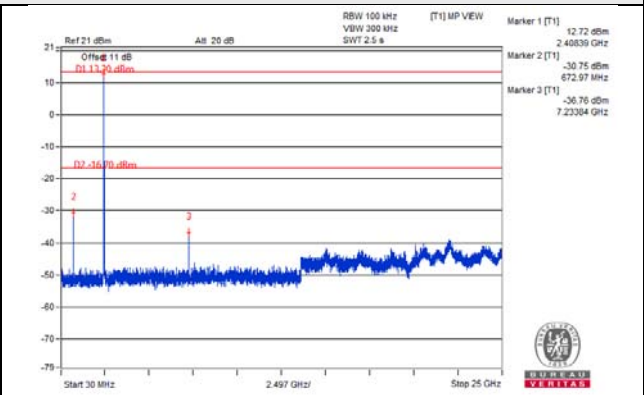
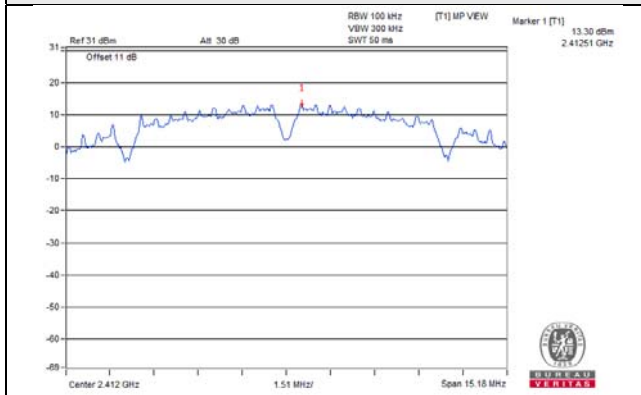
4.6.7 Test Results

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

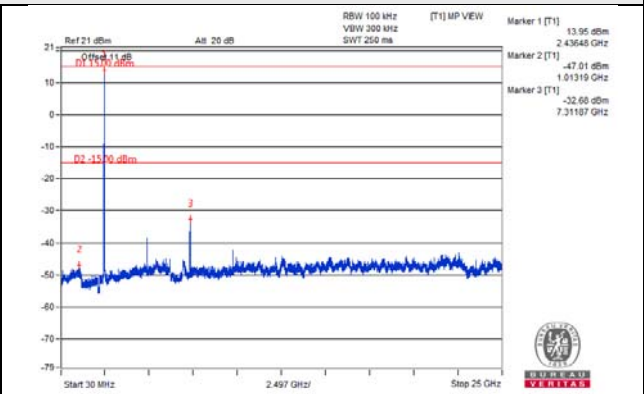
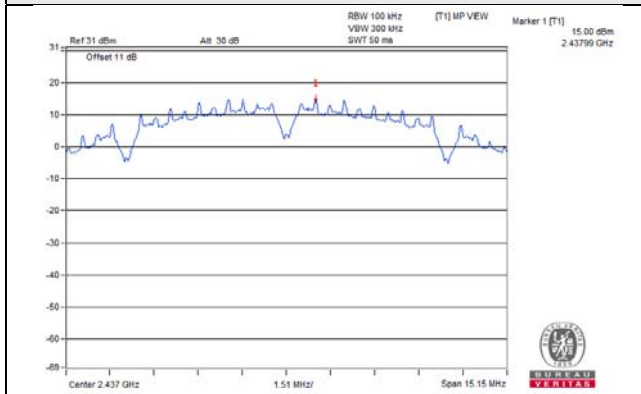
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.

1TX
802.11b

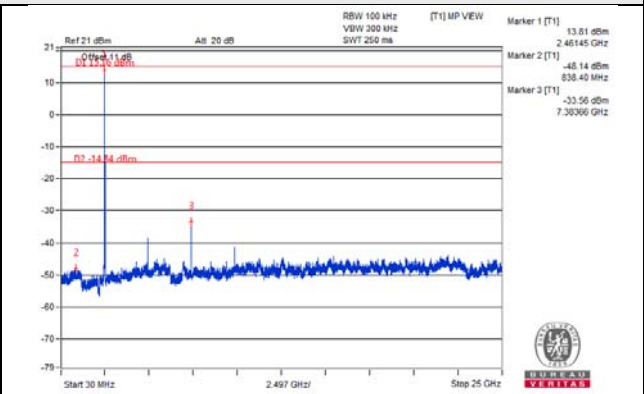
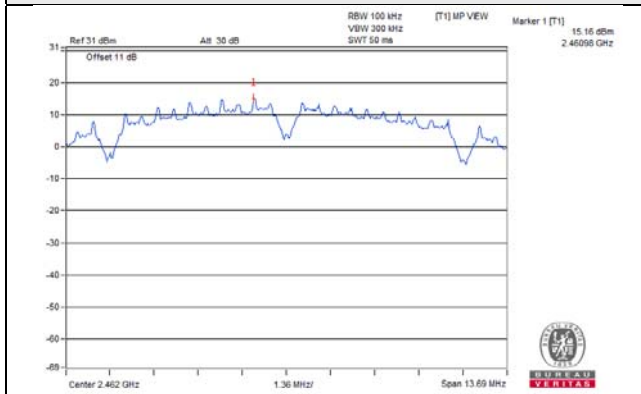
CH 1



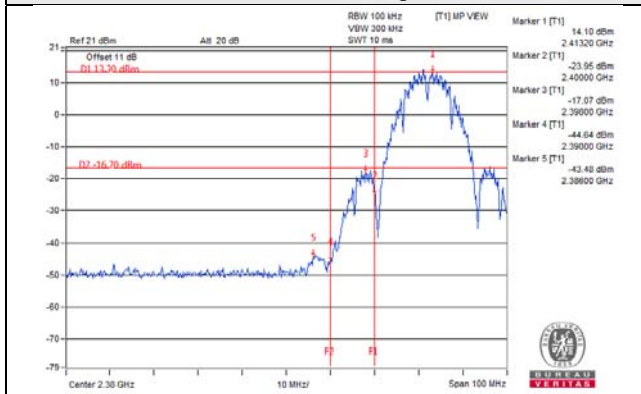
CH 6



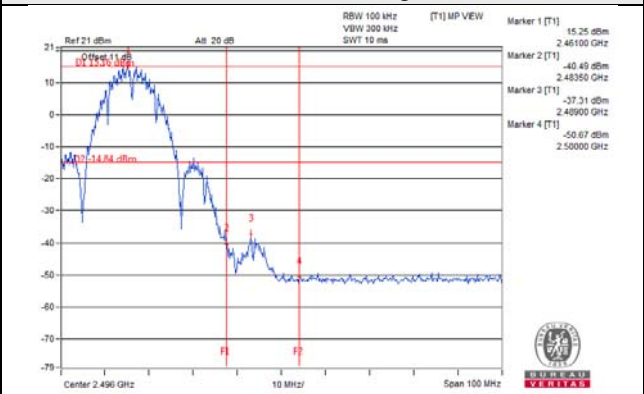
CH 11



CH 1 Band edge

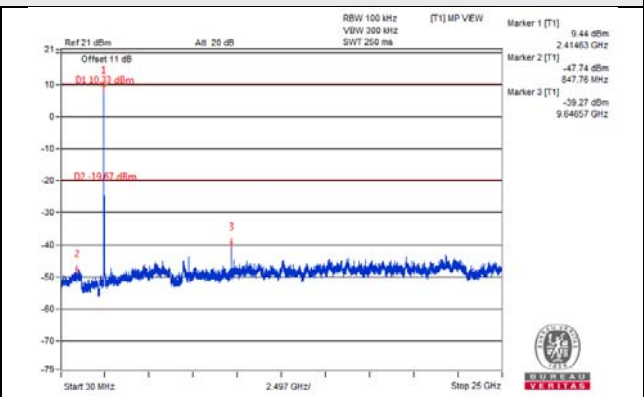
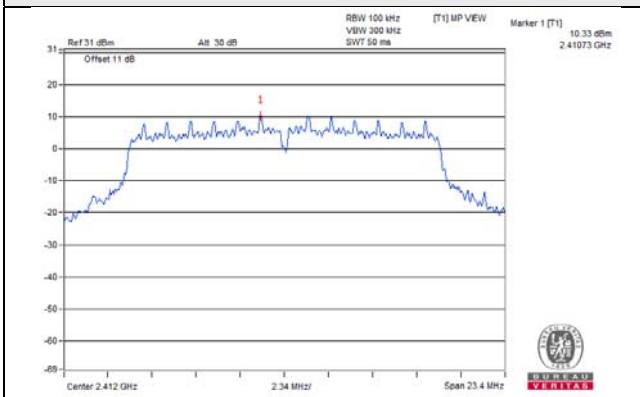


CH 11 Band edge

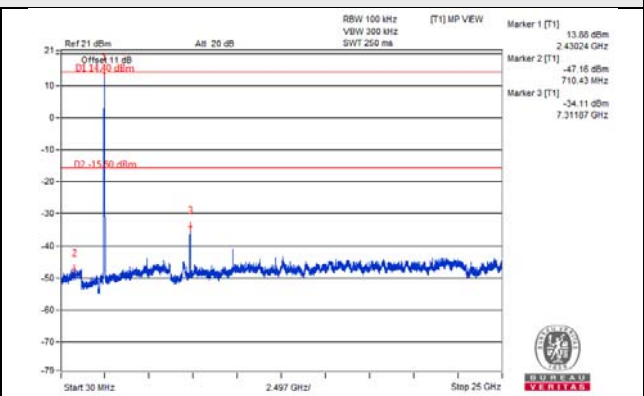
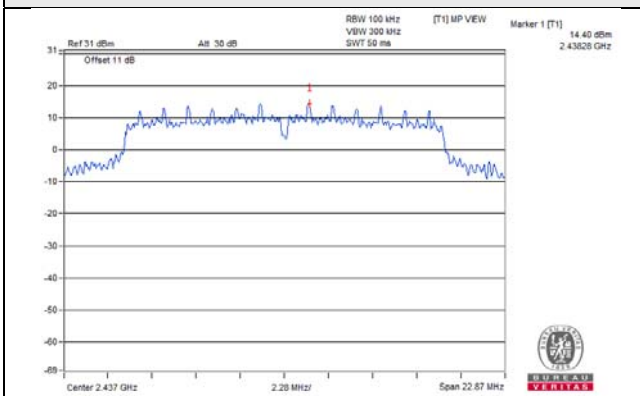


802.11g

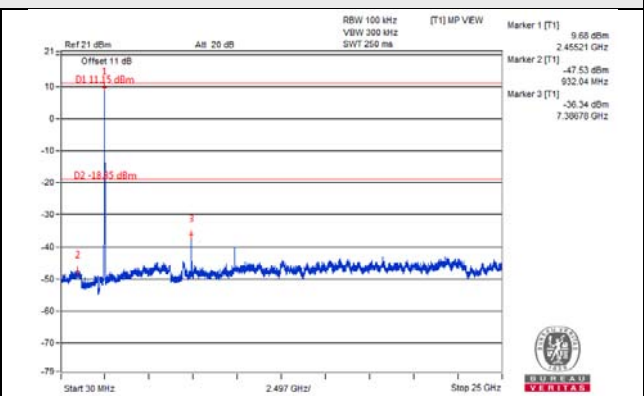
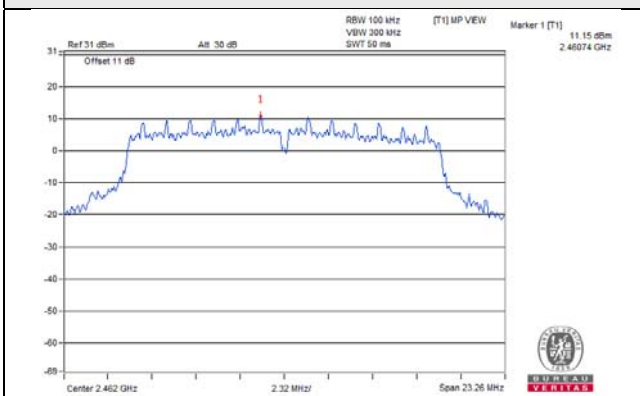
CH 1



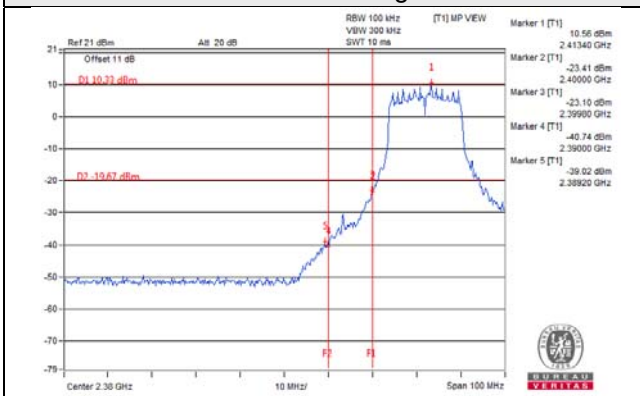
CH 6



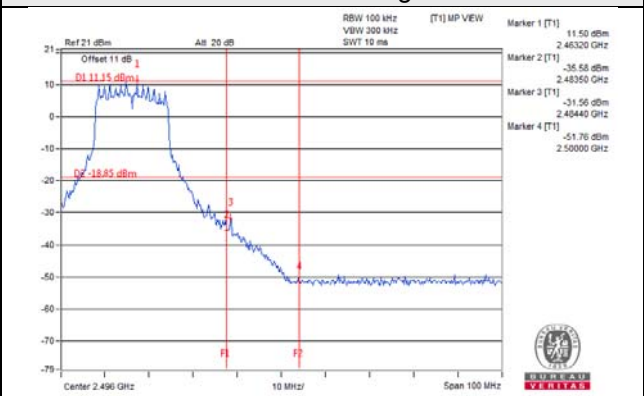
CH 11



CH 1 Band edge

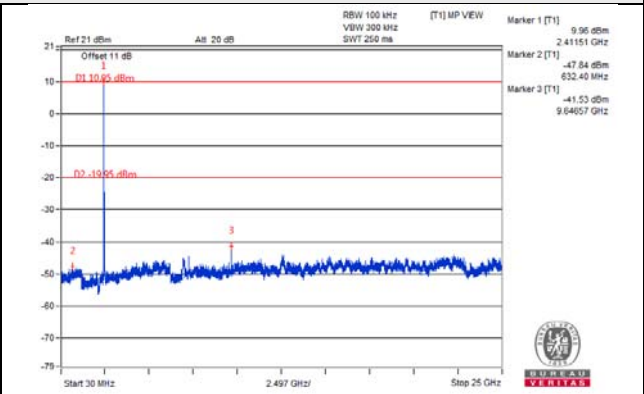
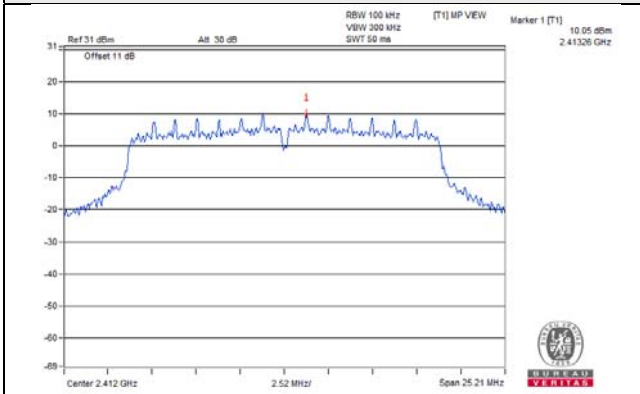


CH 11 Band edge

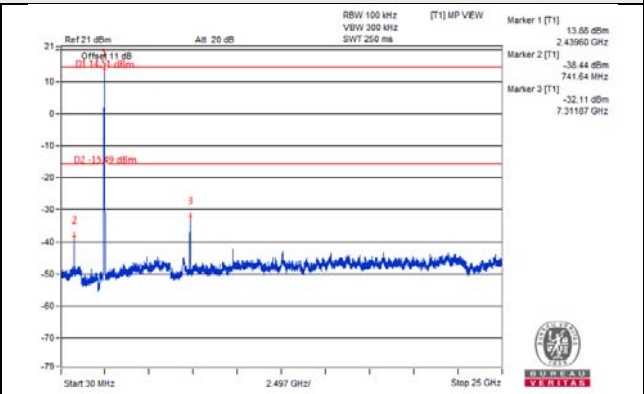
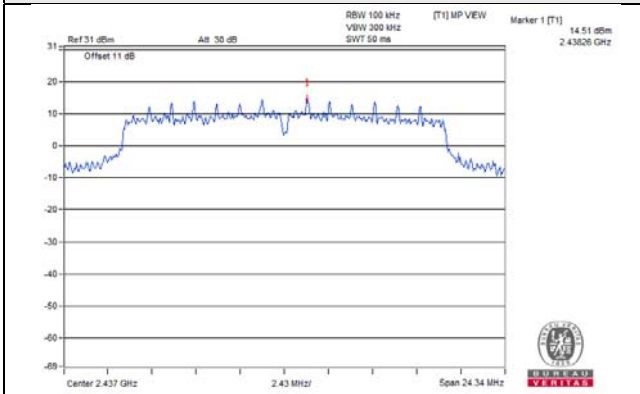


802.11n (HT20)

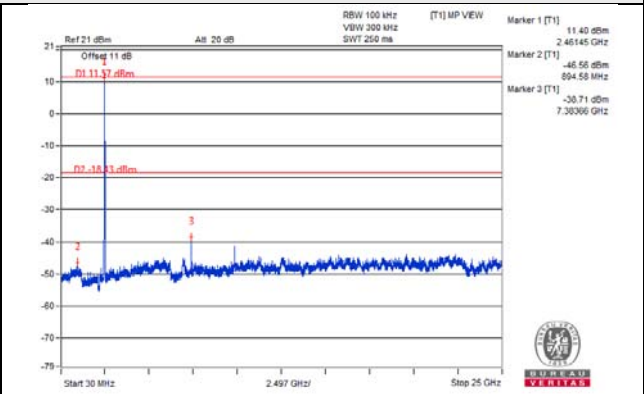
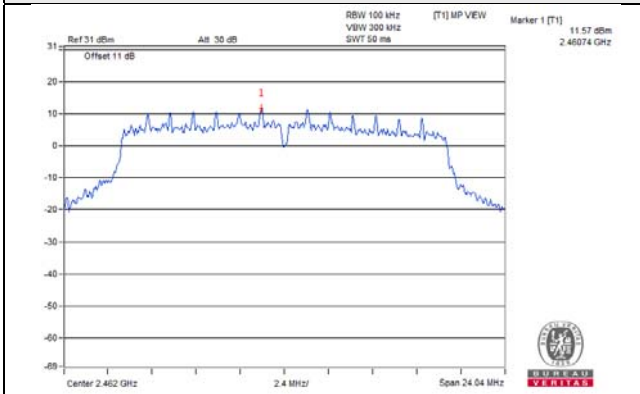
CH 1



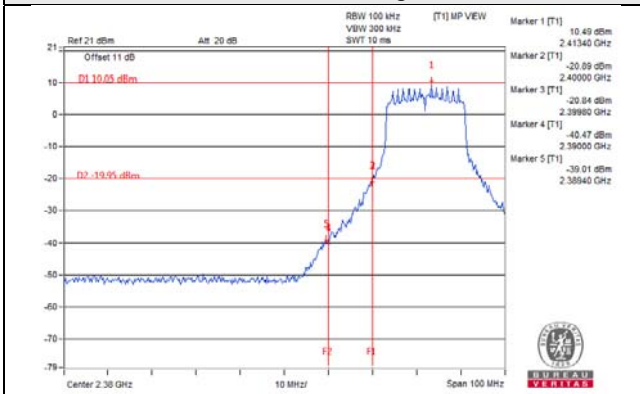
CH 6



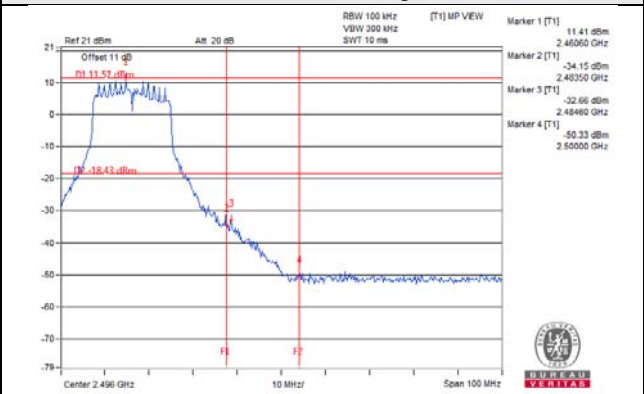
CH 11



CH 1 Band edge

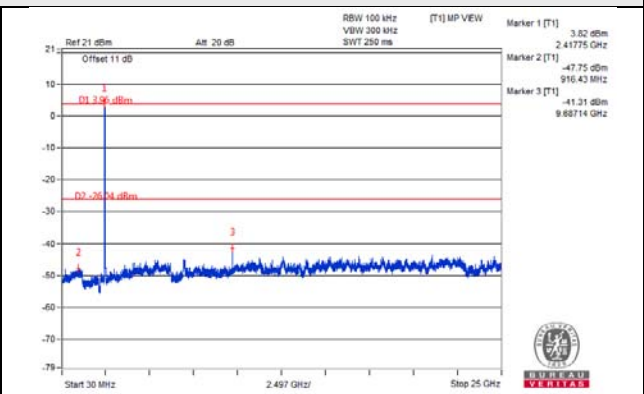
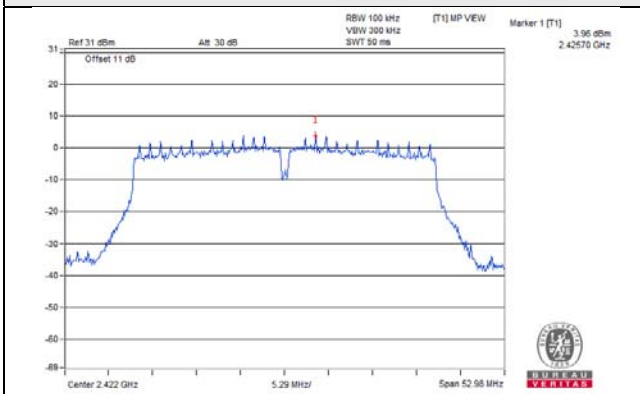


CH 11 Band edge

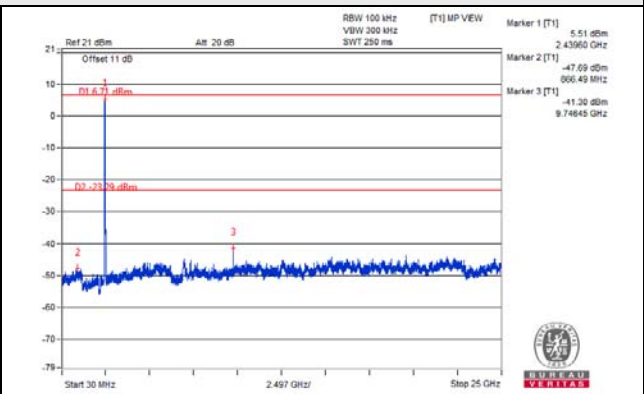
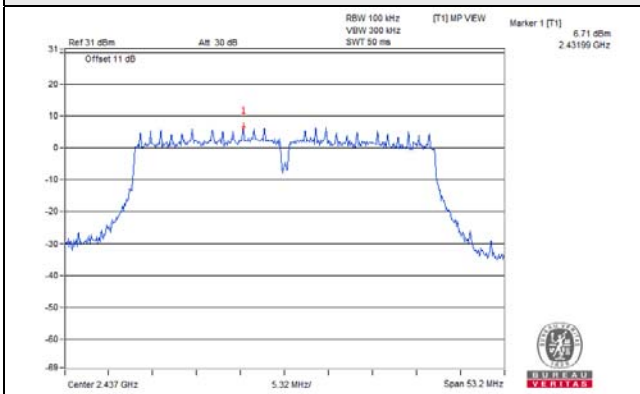


802.11n (HT40)

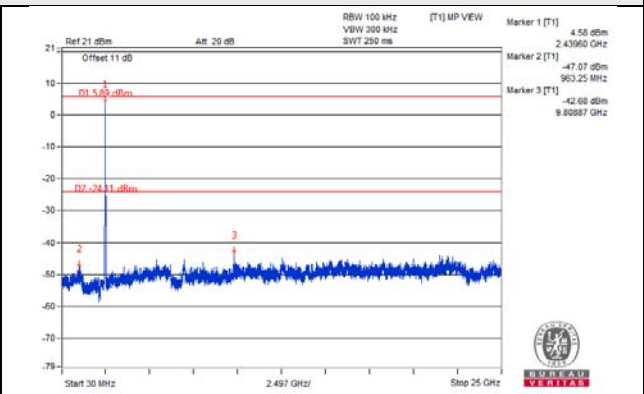
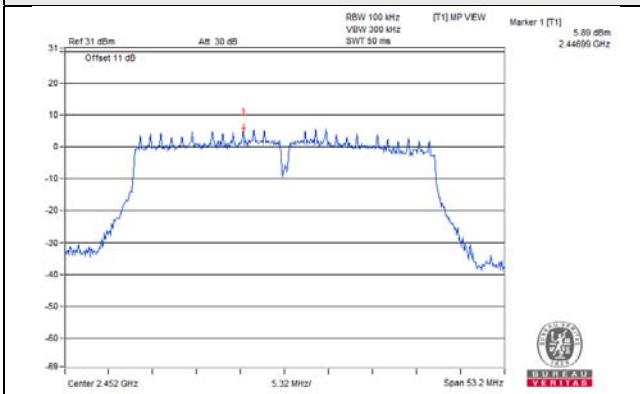
CH 3



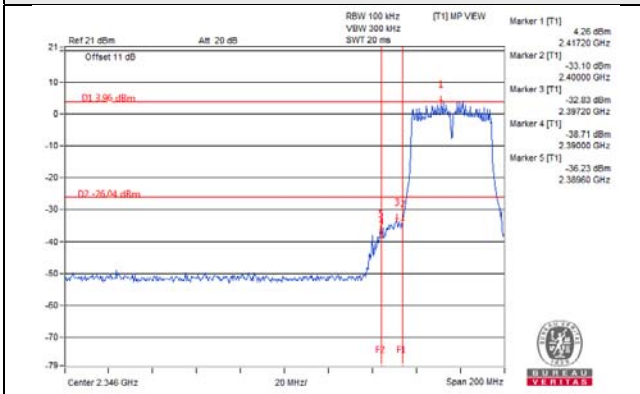
CH 6



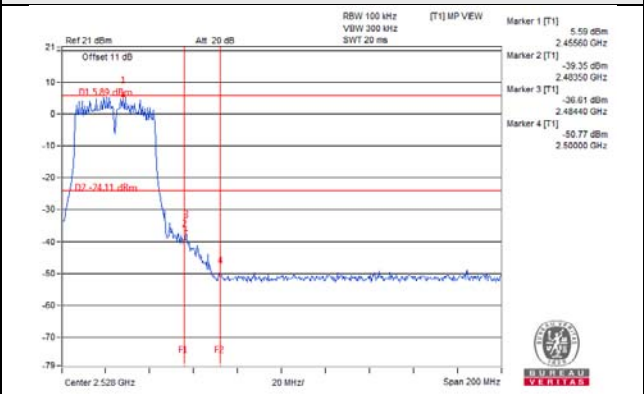
CH 9



CH 3 Band edge

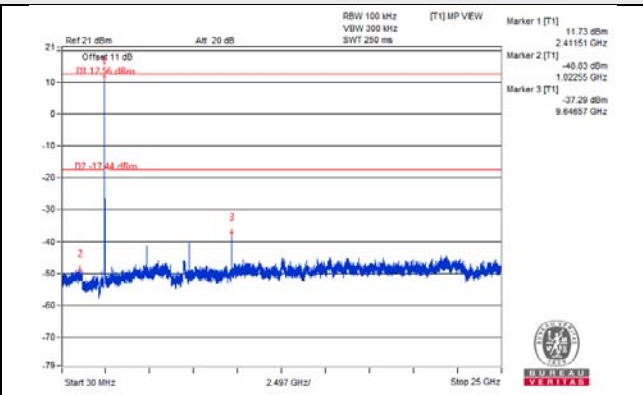
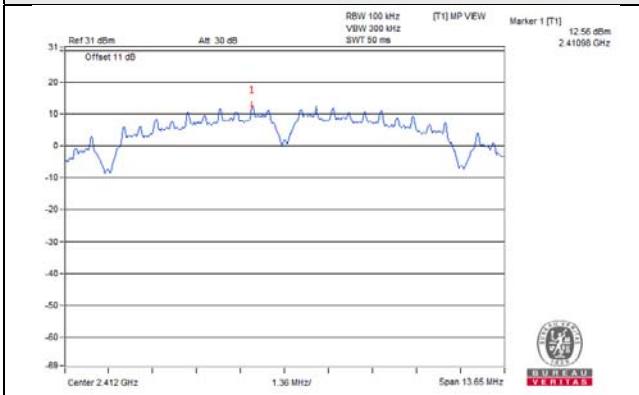


CH 9 Band edge

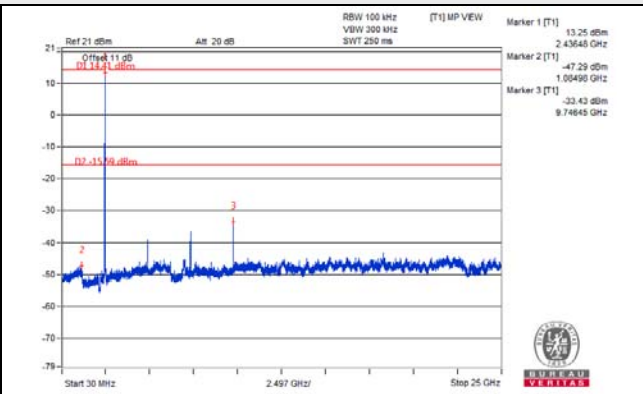
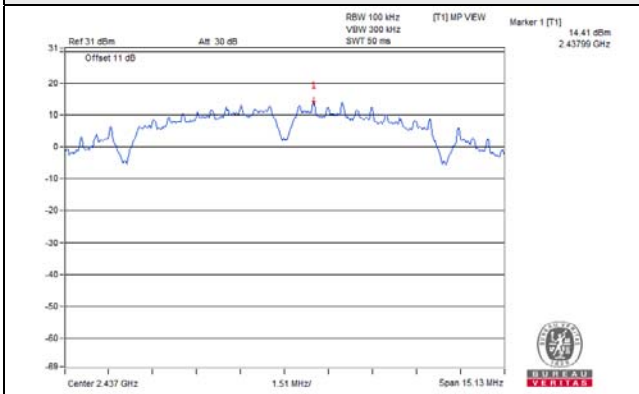


2TX
802.11b_Chain 0

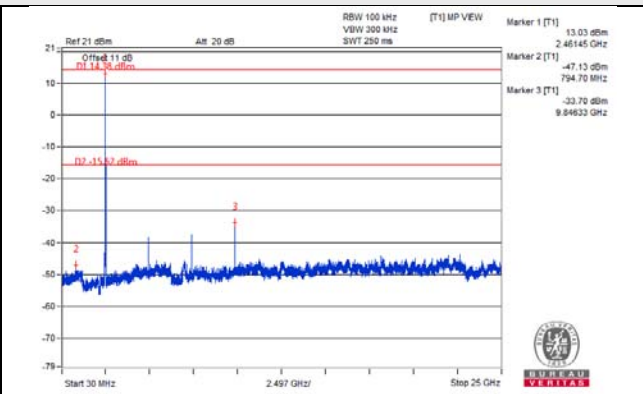
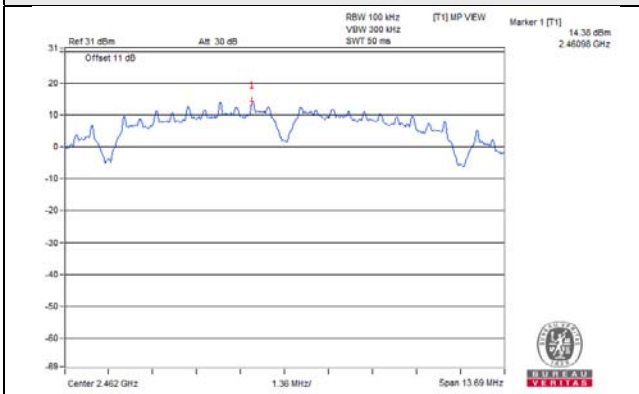
CH 1



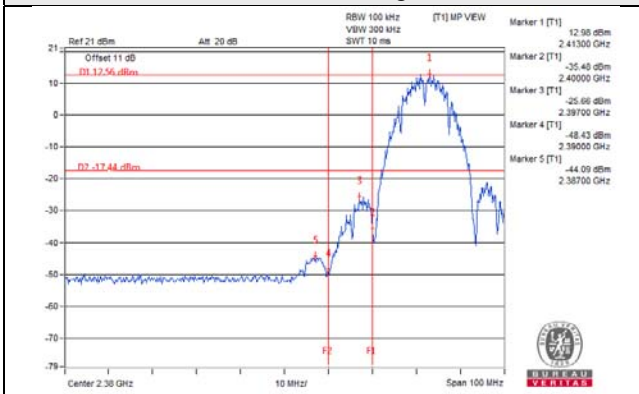
CH 6



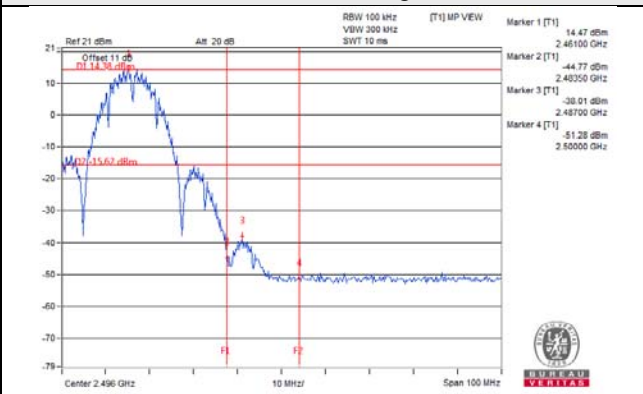
CH 11



CH 1 Band edge

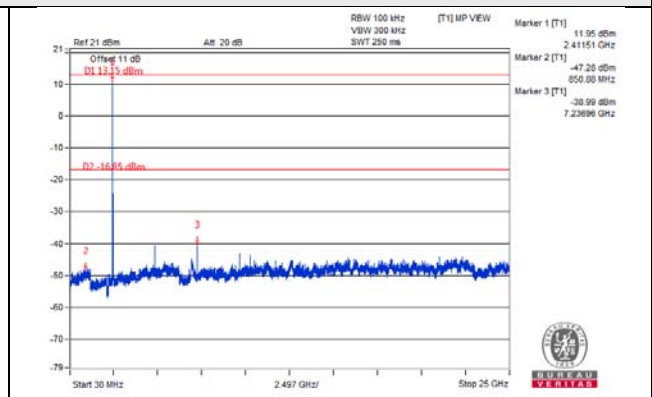
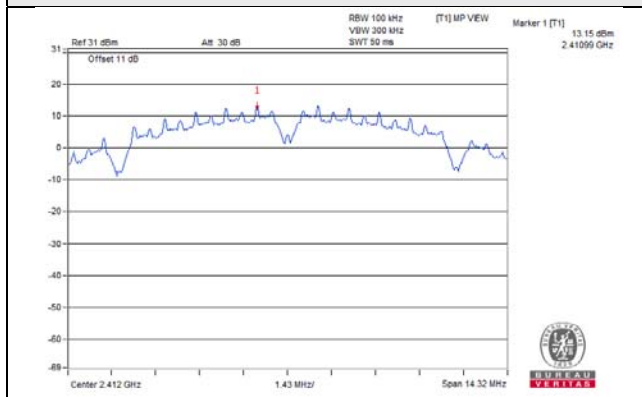


CH 11 Band edge

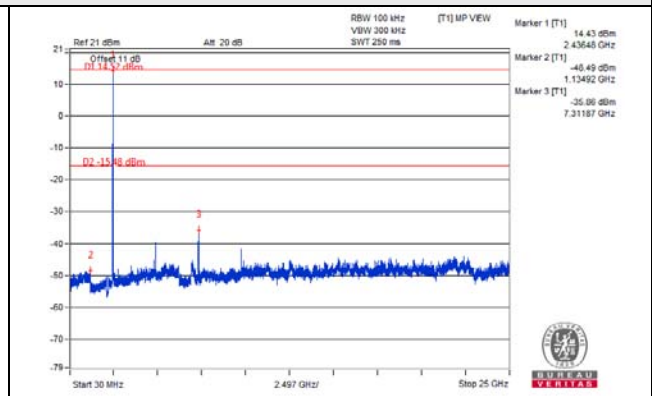
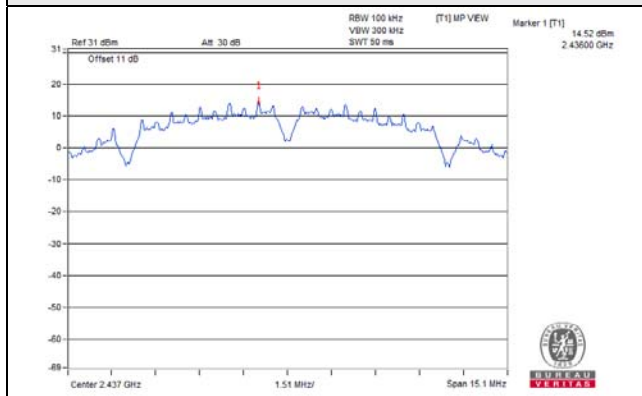


802.11b_Chain 1

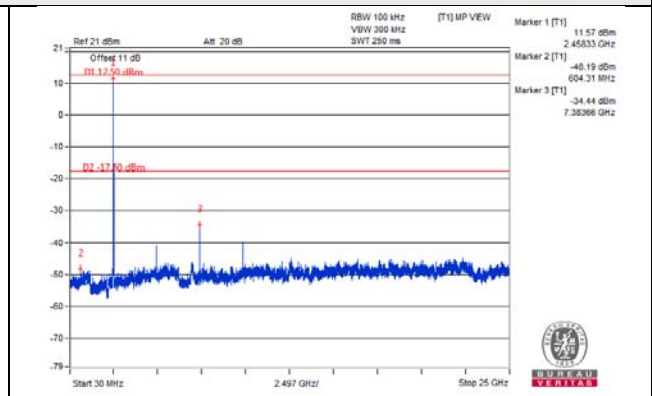
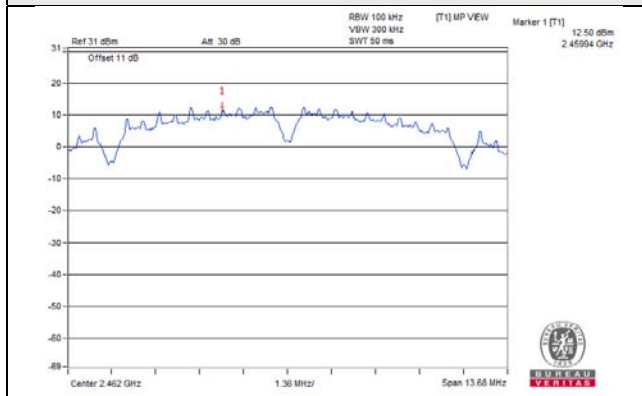
CH 1



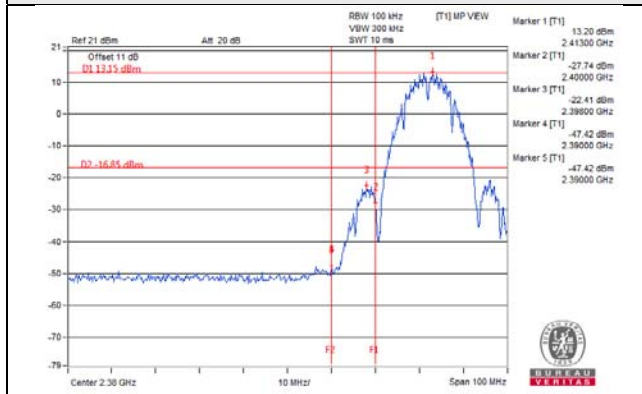
CH 6



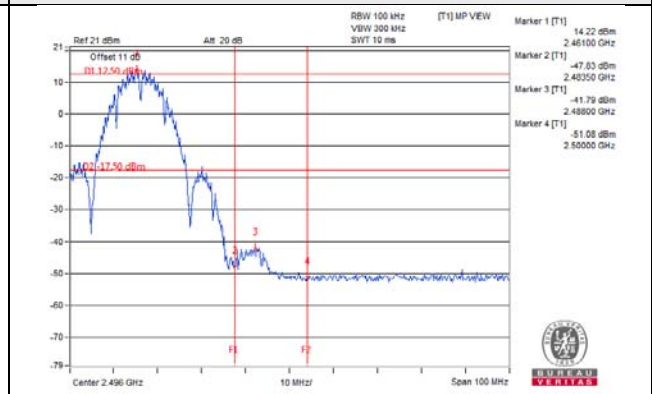
CH 11



CH 1 Band edge

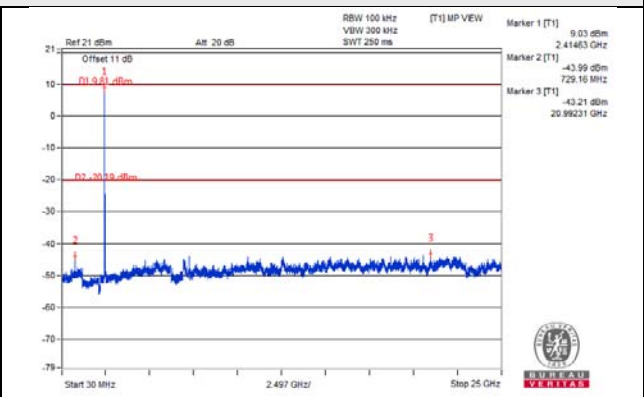
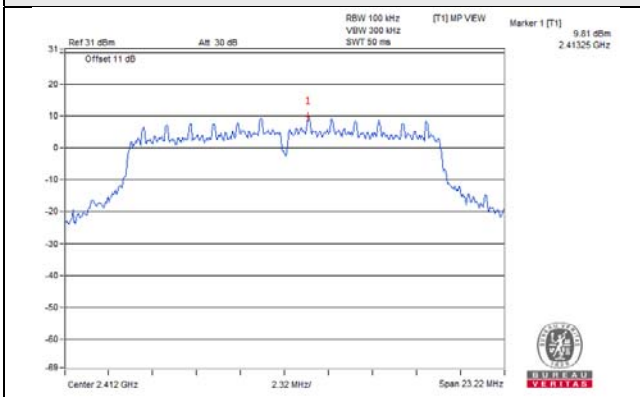


CH 11 Band edge

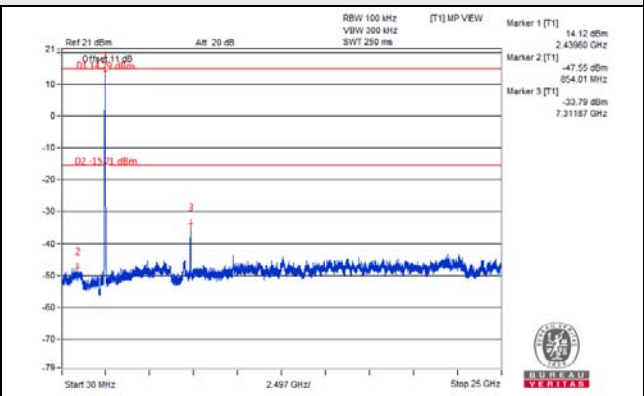
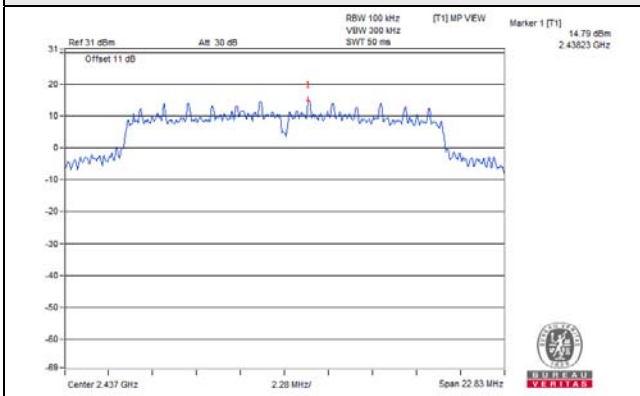


802.11g_Chain 0

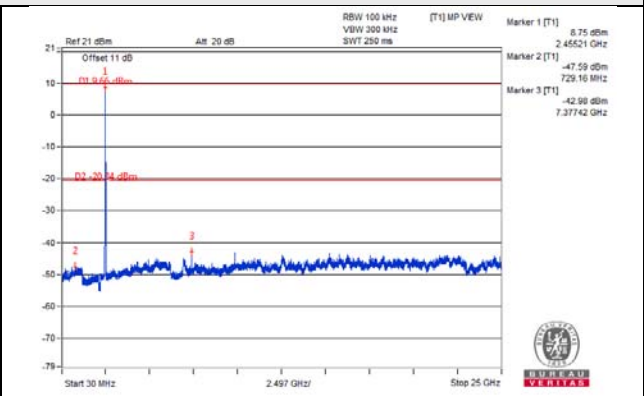
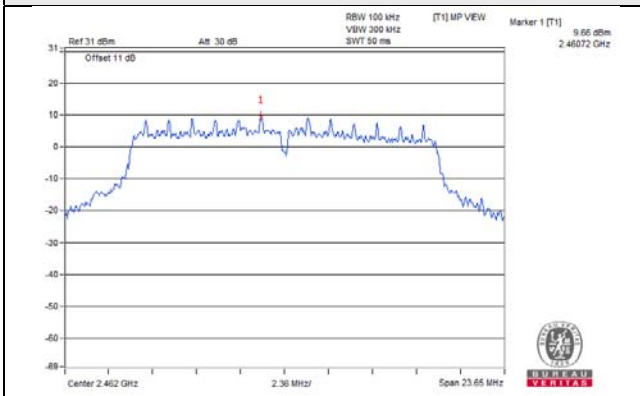
CH 1



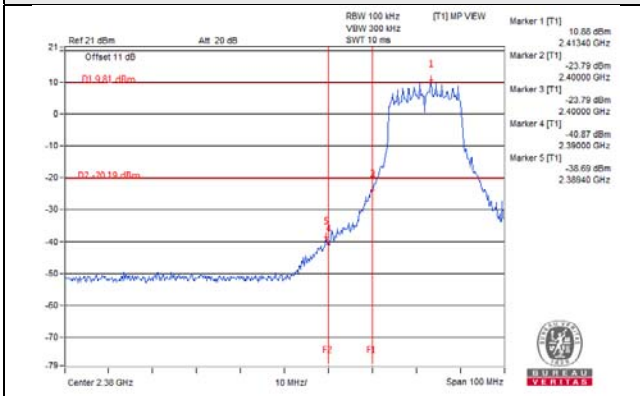
CH 6



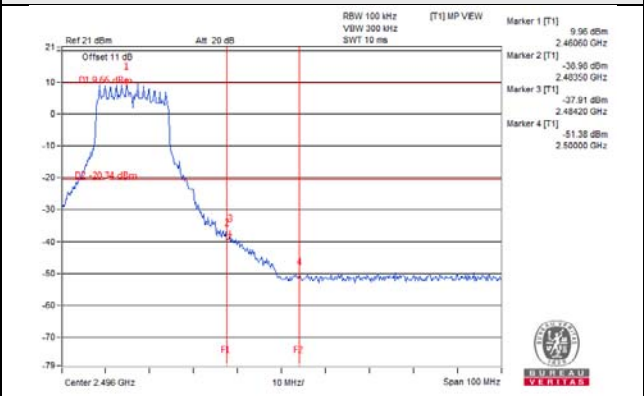
CH 11



CH 1 Band edge

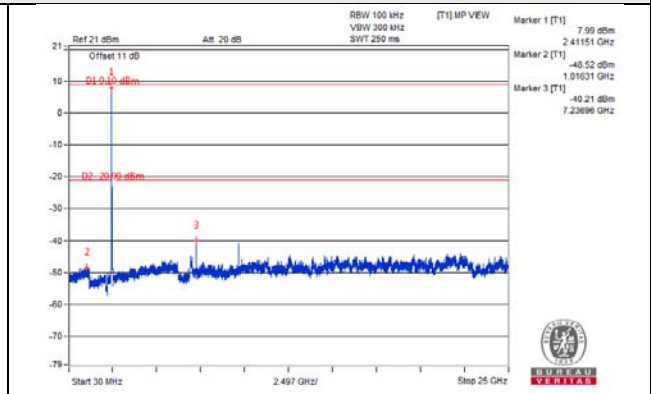
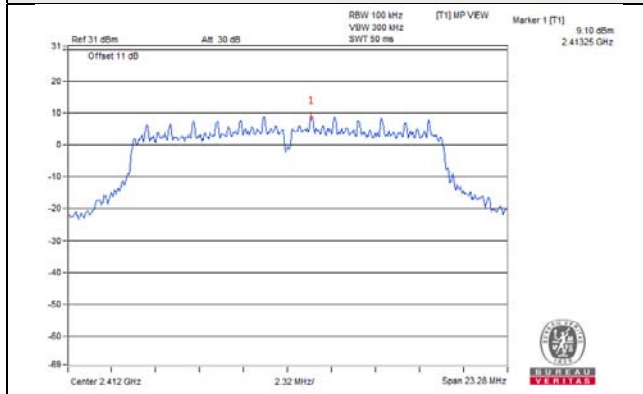


CH 11 Band edge

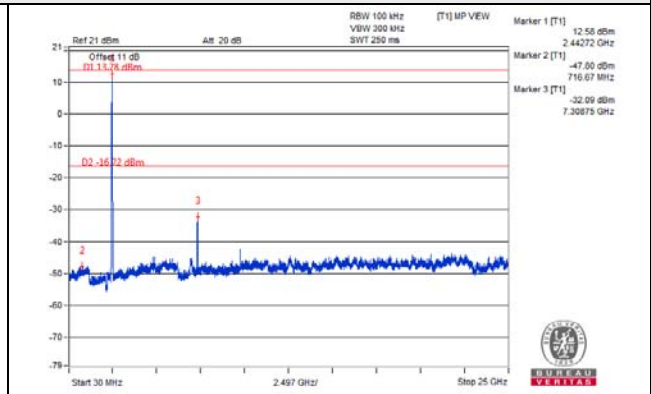
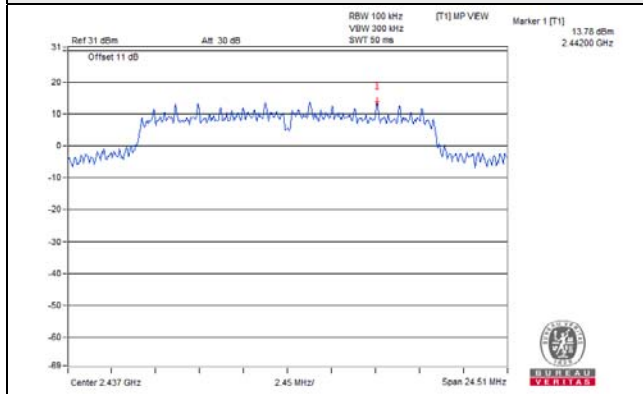


802.11g_Chain 1

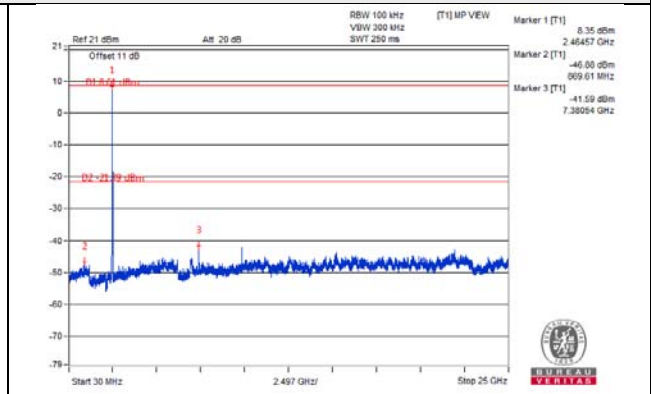
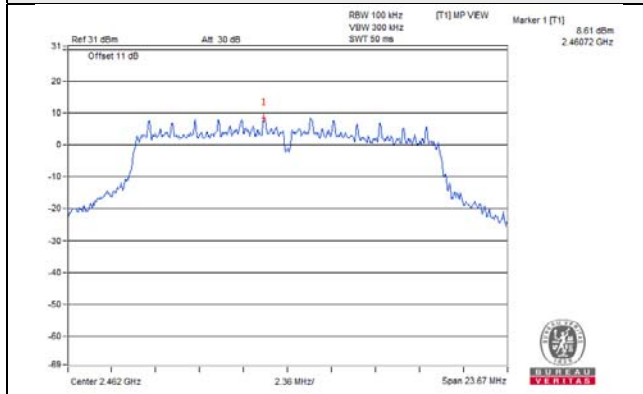
CH 1



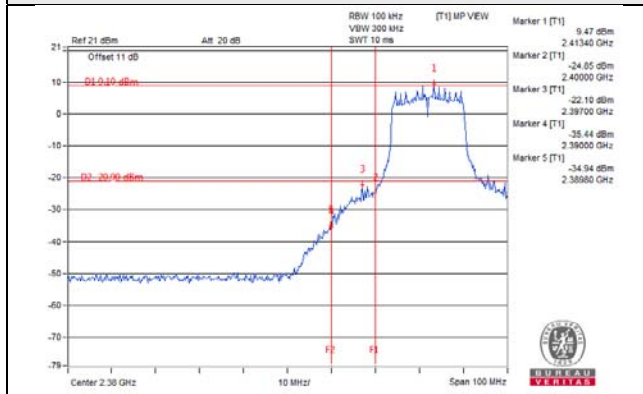
CH 6



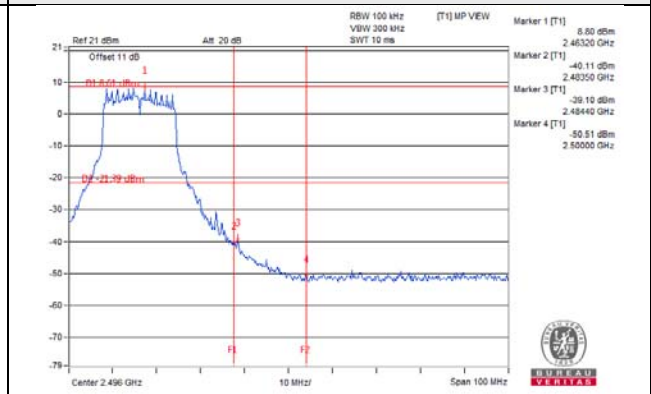
CH 11



CH 1 Band edge

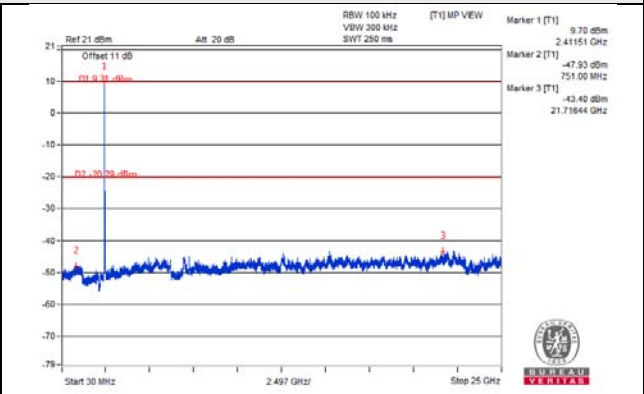
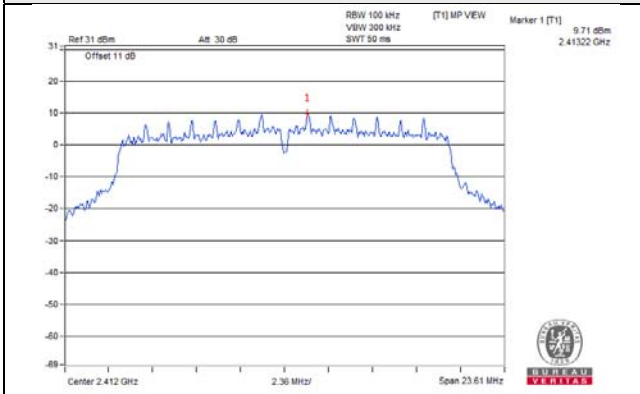


CH 11 Band edge

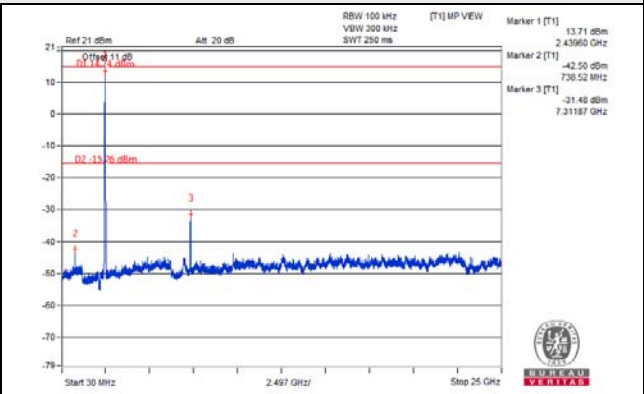
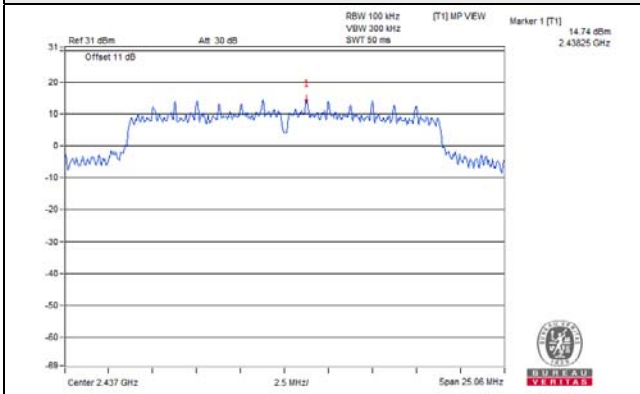


802.11n (HT20)_Chain 0

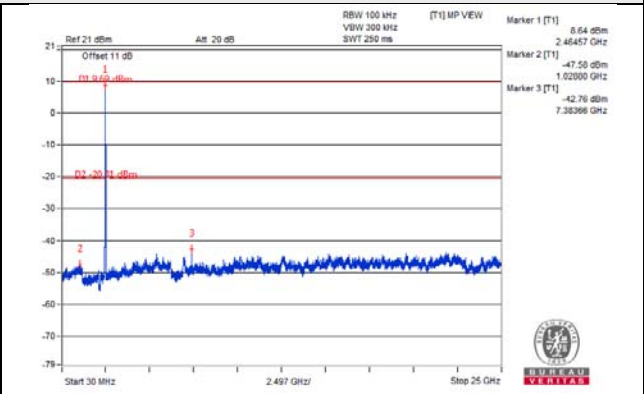
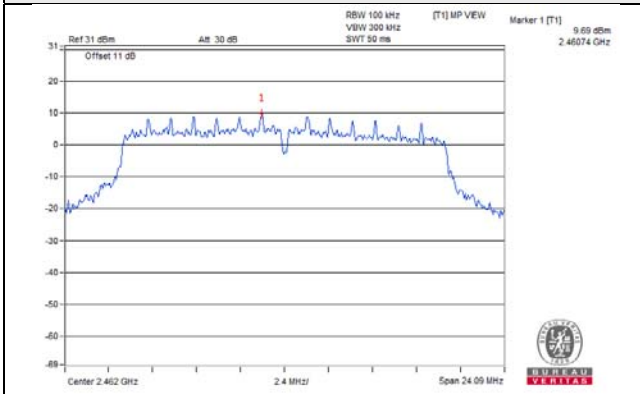
CH 1



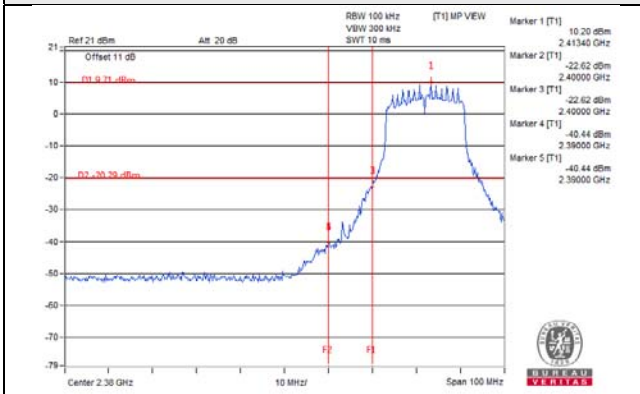
CH 6



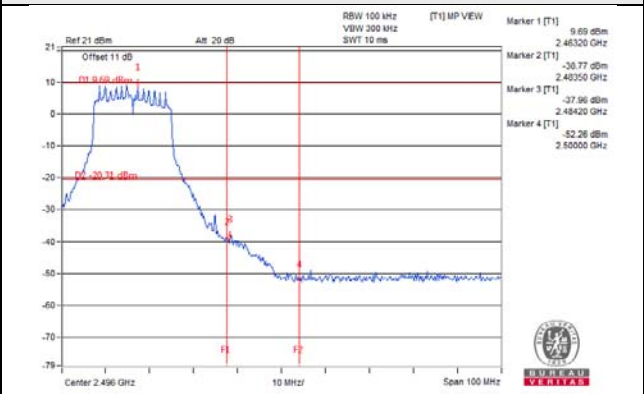
CH 11



CH 1 Band edge

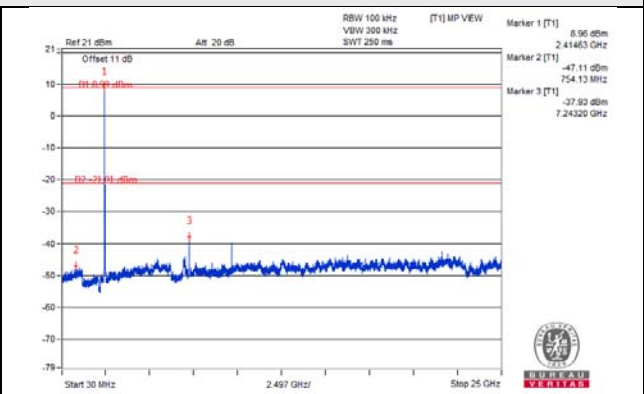
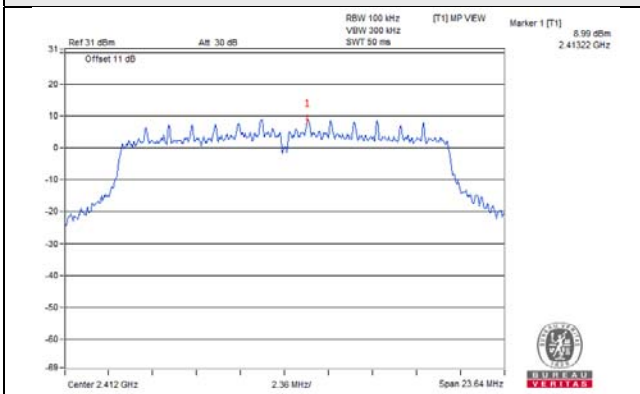


CH 11 Band edge

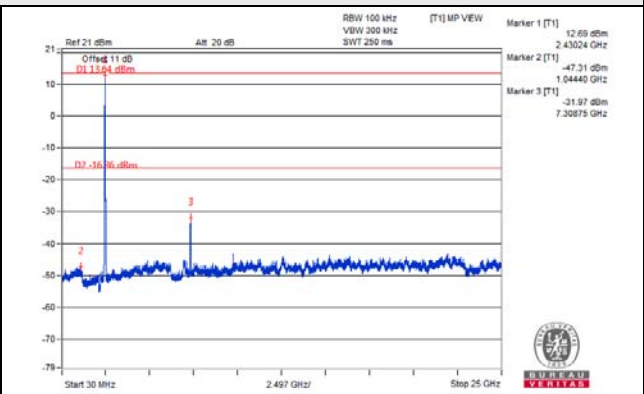
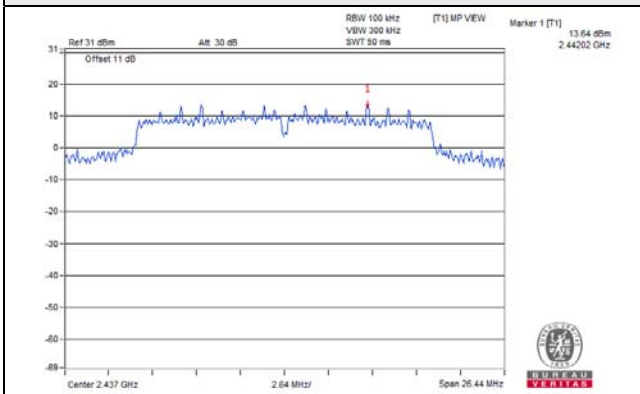


802.11n (HT20)_Chain 1

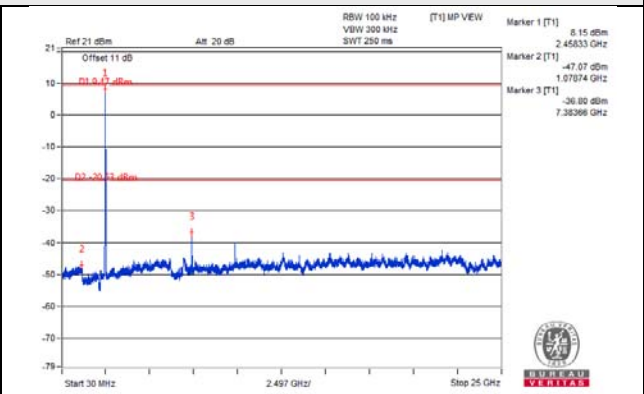
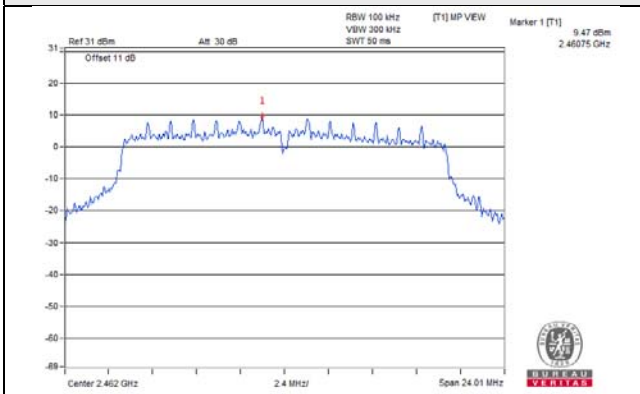
CH 1



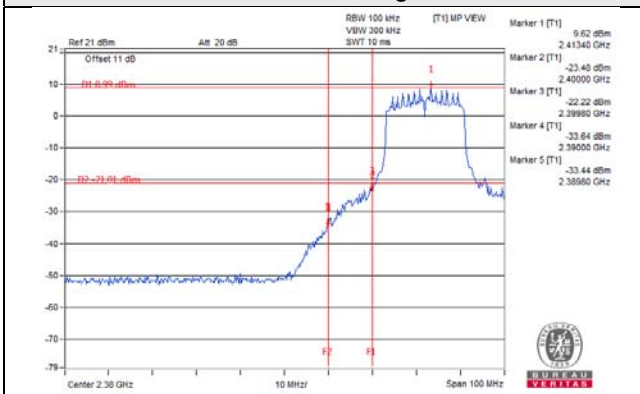
CH 6



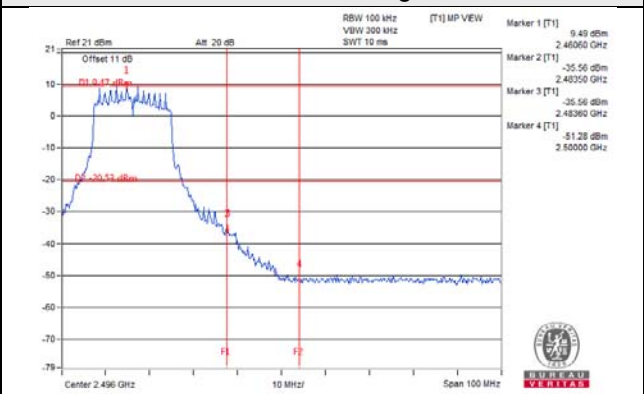
CH 11



CH 1 Band edge

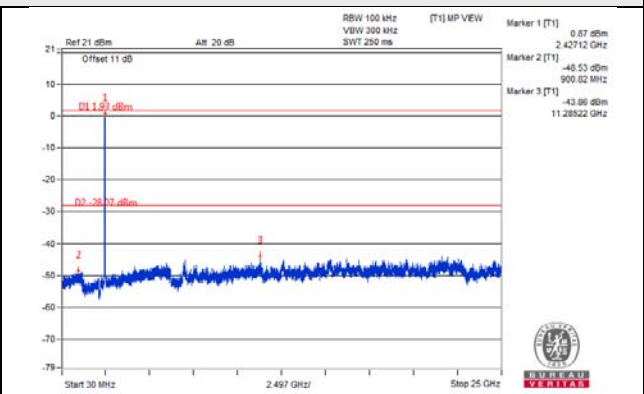
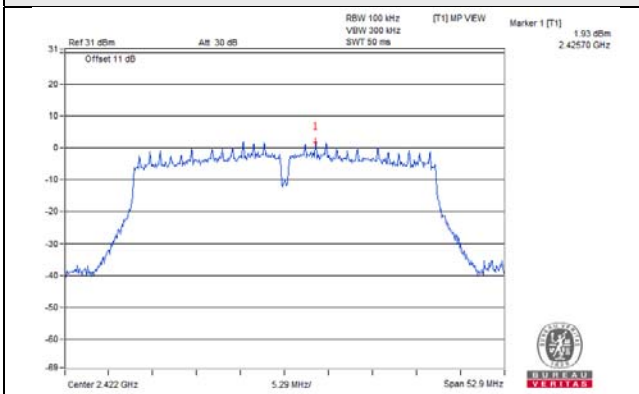


CH 11 Band edge

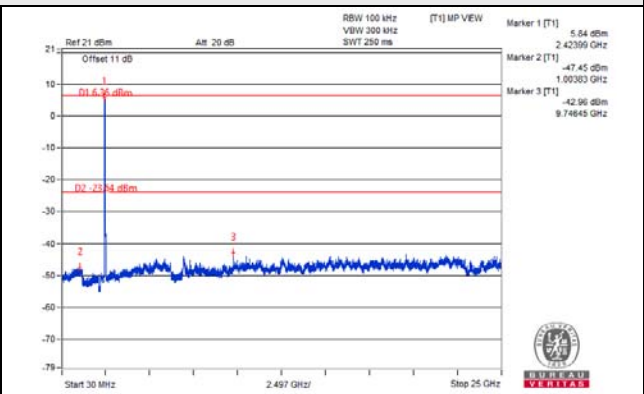
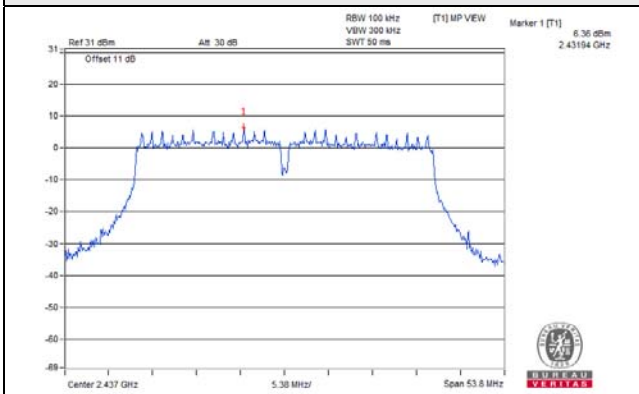


802.11n (HT40)_Chain 0

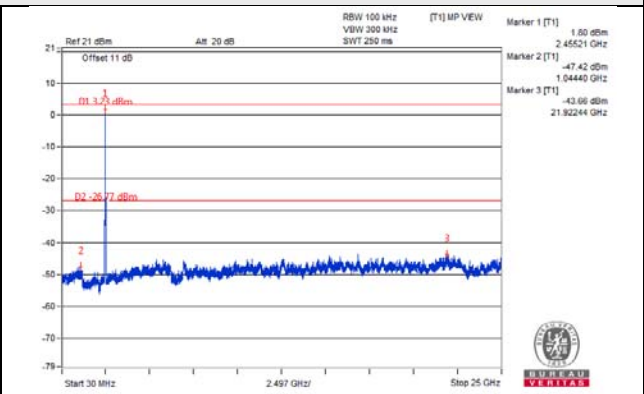
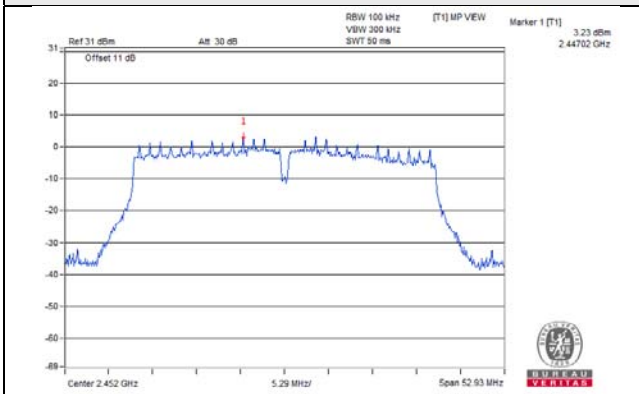
CH 3



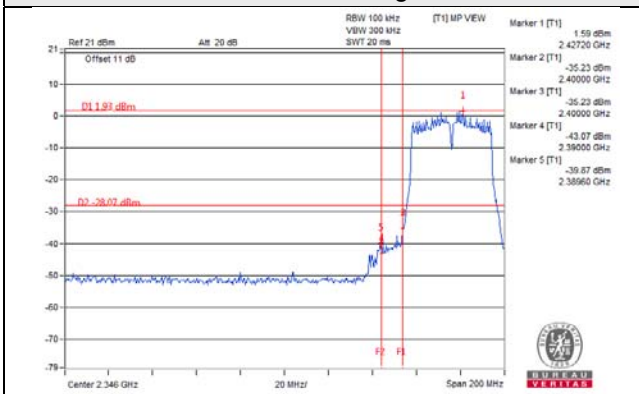
CH 6



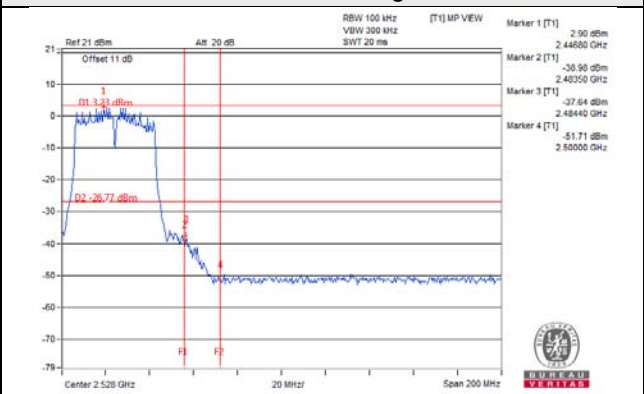
CH 9



CH 3 Band edge

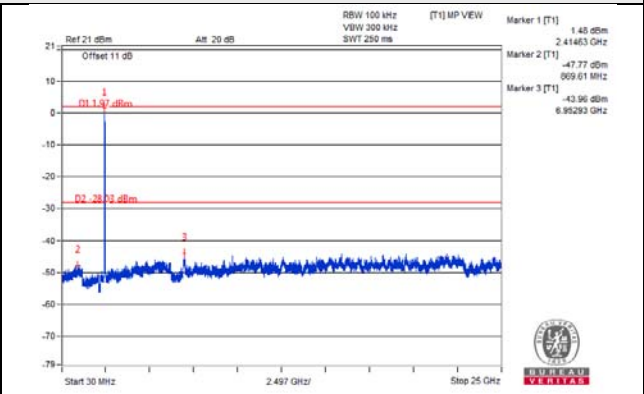
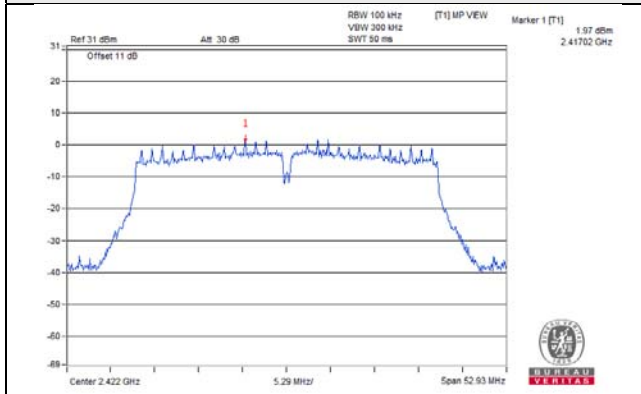


CH 9 Band edge

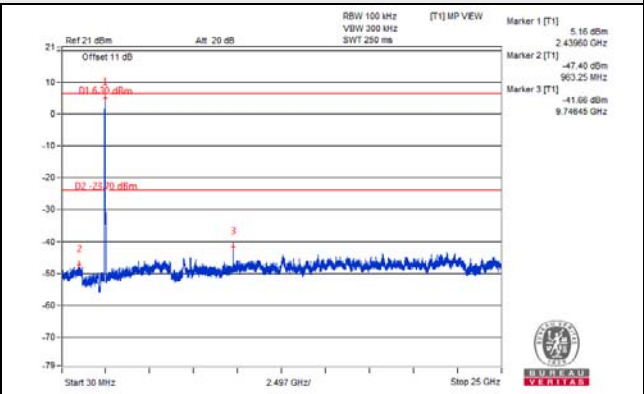
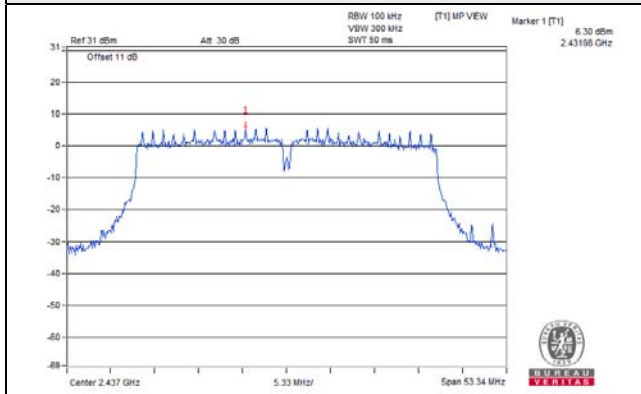


802.11n (HT40)_Chain 1

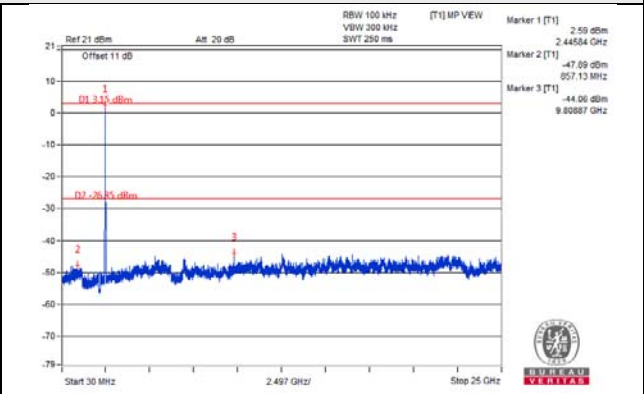
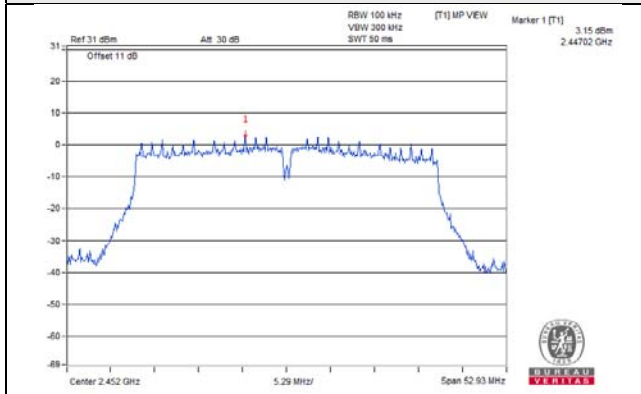
CH 3



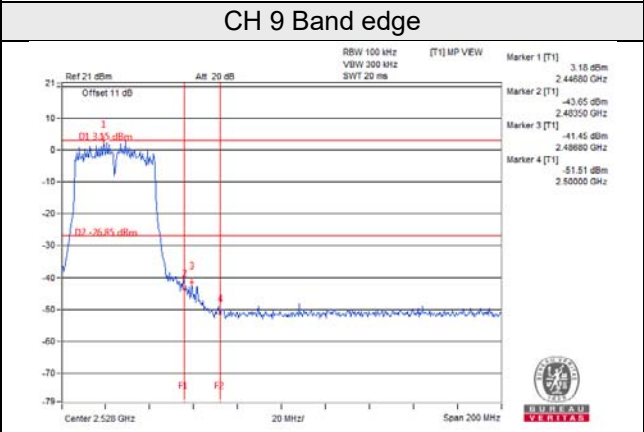
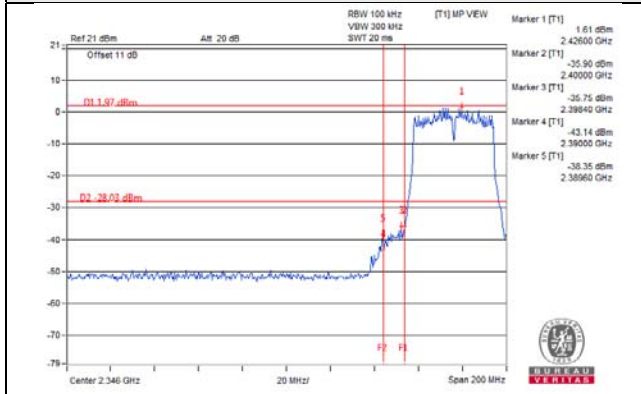
CH 6



CH 9



CH 3 Band edge



5 Pictures of Test Arrangements

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

Appendix – Information of the Testing Laboratories

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

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

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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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