FCC Test Report (WLAN)

Report No.:	RF171201E01
FCC ID:	HED-SPW2MAC1200
Test Model:	SP-W2M-AC1200
Received Date:	Dec. 01, 2017
Test Date:	Dec. 01 to 05, 2017
Issued Date:	Dec. 08, 2017
Applicant:	Accton Technology Corporation
Address:	No.1, Creation Rd. III, Science-based Industrial Park, Hsinchu, Taiwan, R.O.C.
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
FCC Registration / Designation Number:	723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
RF171201E01	Original release.	Dec. 08, 2017

1 Certificate of Conformity

Product:	Spark™ AC Wave2 Mini
Brand:	IgniteNet
Test Model:	SP-W2M-AC1200
Sample Status:	ENGINEERING SAMPLE
Applicant:	Accton Technology Corporation
Test Date:	Dec. 01 to 05, 2017
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) ANSI C63.10: 2013

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

Prepared by : Mary Ko , **Date:** Dec. 08, 2017

Mary Ko / Specialist

Approved by : , **Date:** Dec. 08, 2017

May Chen / Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -4.05dB at 0.65781MHz.
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 4924.00MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is i-pex(MHF) not a standard connector.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.84 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.30 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.16 dB
	6GHz ~ 18GHz	4.91 dB
	18GHz ~ 40GHz	5.30 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT (WLAN)

Product	Spark™ AC Wave2 Mini
Brand	IgniteNet
Test Model	SP-W2M-AC1200
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	5Vdc from USB interface
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode only
Modulation Technology	DSSS,OFDM
Transfer Rate	802.11a/b: up to 11Mbps 802.11g: up to 54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	**2.4GHz:** 2.412 ~ 2.462GHz **5GHz:** 5.18 ~ 5.24GHz, 5.745 ~5.825GHz
Number of Channel	**2.4GHz:** 802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7 **5GHz:** 802.11a, 802.11n (HT20), 802.11ac (VHT20): 9 802.11n (HT40), 802.11ac (VHT40): 4 802.11ac (VHT80): 2
Output Power	**2.4GHz:** 966.427mW **5.18 ~ 5.24GHz:** 157.782mW **5.745 ~ 5.825GHz:** 111.126mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	USB cable x 1 (1m, Shielded)

Note:

1. There are WLAN and Bluetooth technology used for the EUT.
2. Simultaneously transmission condition.

Condition	Technology	
1	WLAN 2.4GHz	Bluetooth
2	WLAN 5GHz	Bluetooth
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.		

3. The EUT must be supplied with a power adapter as following table:

No.	Brand	Model No.	Spec.
1	MASS POWER	NBS10B050200VUU	AC Input: 100-240Vac, 0.3A, 50/60Hz DC Output: 5.0V, 2.0A

4. For radiated emissions, the EUT was pre-tested under the following modes:

Test Mode	Description
Mode A	**Power from adapter**
Mode B	Power from laptop

From the above modes, the worst case was found in **Mode A**. Therefore only the test data of the mode was recorded in this report.

5. The antennas provided to the EUT, please refer to the following table:

Antenna No.	Antenna Net Gain (dBi)	Frequency range (GHz)	Antenna Type	Connector Type
WiFi Ant 1	3.9	2.4-2.4835	PCB	i-pex(MHF)
	3.9	5.15-5.85		
WiFi Ant 2	4.1	2.4-2.4835	PCB	i-pex(MHF)
	3.8	5.15-5.85		
BT	2.4	2.4-2.4835	PCB	i-pex(MHF)

6. The EUT incorporates a MIMO function:

2.4GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11b	1 ~ 11Mbps	2TX	2RX
802.11g	6 ~ 54Mbps	2TX	2RX
802.11n (HT20)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
5GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11a	6 ~ 54Mbps	2TX	2RX
802.11n (HT20)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11ac (VHT20)	MCS 0~8, Nss=1	2TX	2RX
	MCS 0~8, Nss=2	2TX	2RX
802.11ac (VHT40)	MCS 0~9, Nss=1	2TX	2RX
	MCS 0~9, Nss=2	2TX	2RX
802.11ac (VHT80)	MCS 0~9, Nss=1	2TX	2RX
	MCS 0~9, Nss=2	2TX	2RX

7. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

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

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

7 channels are provided for 802.11n (HT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
1	√	√	√	√	Powered from adapter
2	-	-	√	-	Powered from laptop

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

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

NOTE: 1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.
2. -"means no effect.

Radiated Emission Test (Above 1GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Radiated Emission Test (Below 1GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (HT20)	1 to 11	6	OFDM	BPSK	6.5

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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (HT20)	1 to 11	6	OFDM	BPSK	6.5

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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Test Condition:

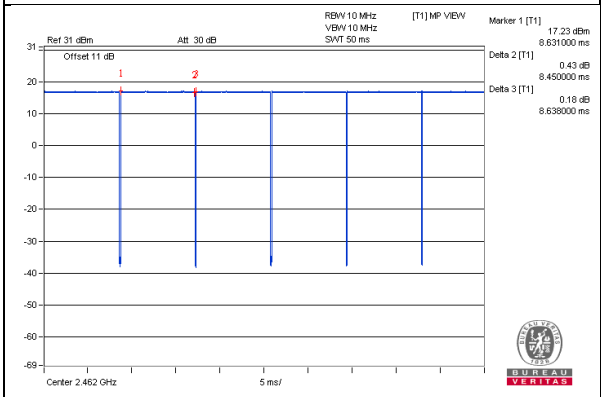
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	24deg. C, 61%RH	120Vac, 60Hz	Jyunchun Lin
RE<1G	22deg. C, 68%RH	120Vac, 60Hz	Andy Ho
PLC	25deg. C, 75%RH	120Vac, 60Hz	Andy Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Jyunchun Lin

3.3 Duty Cycle of Test Signal

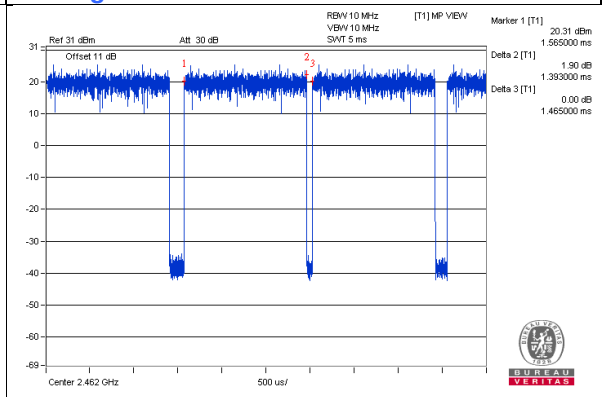
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11b: Duty cycle = 8.45/8.638 = 0.978, Duty factor = 10 * log(1/0.978) = 0.1
802.11g: Duty cycle = 1.393/1.465 = 0.951, Duty factor = 10 * log(1/0.951) = 0.22
802.11n (HT20): Duty cycle = 1.307/1.421 = 0.92, Duty factor = 10 * log(1/0.92) = 0.36
802.11n (HT40): Duty cycle = 0.646/0.753 = 0.858, Duty factor = 10 * log(1/0.858) = 0.67

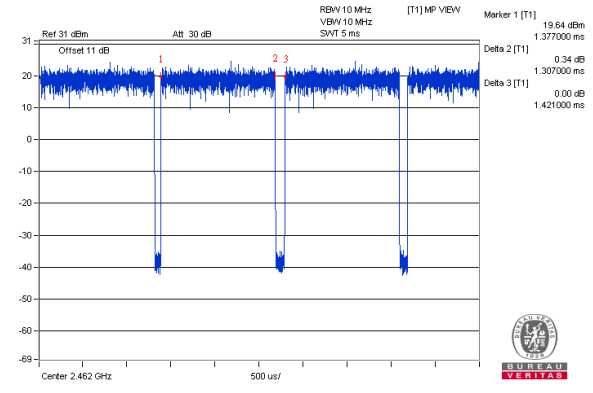
802.11b



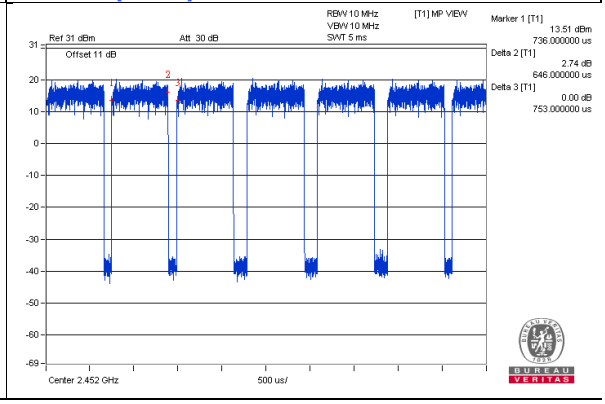
802.11g



802.11n (HT20)



802.11n (HT40)



3.4 Description of Support Units

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

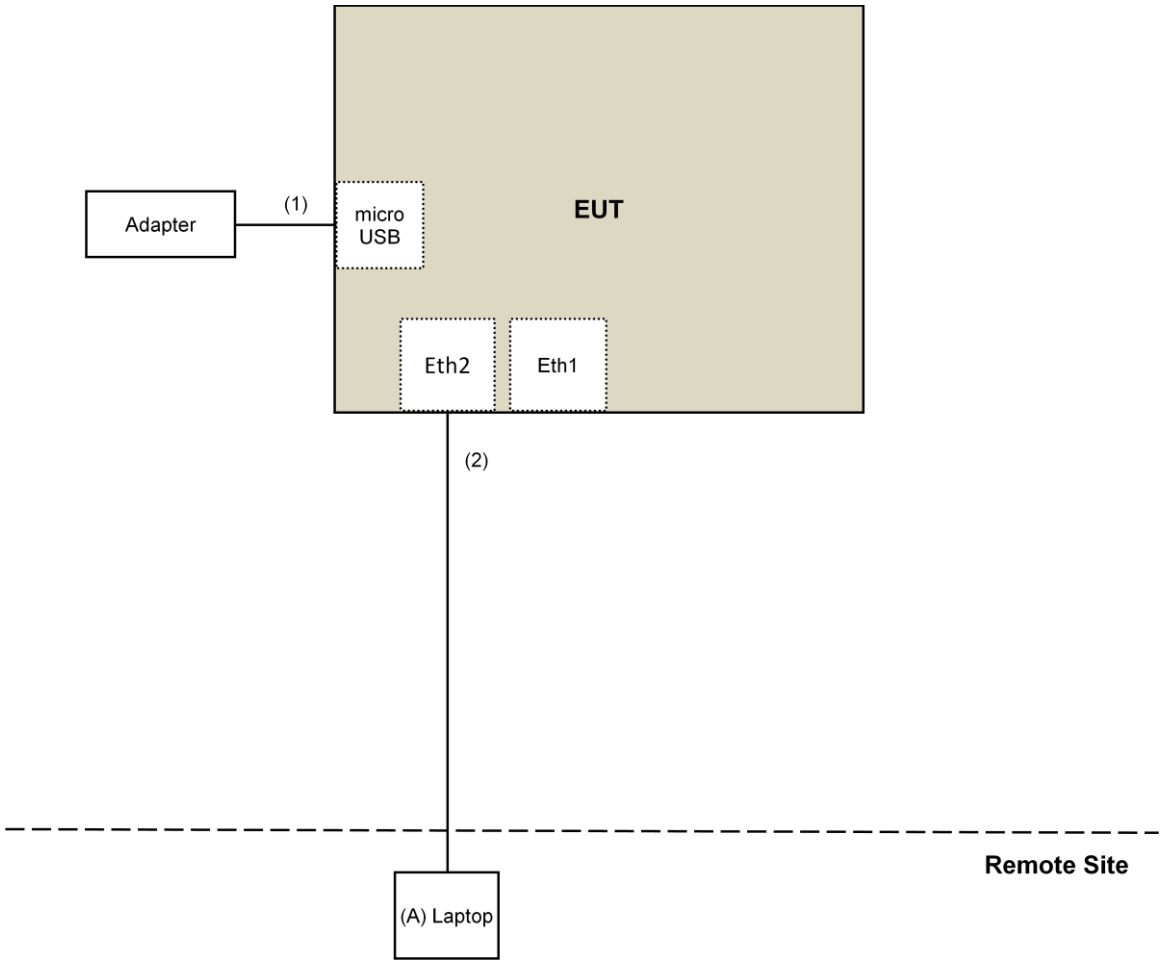
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	E6420	B92T3R1	FCC DoC	Provided by Lab
B.	Laptop	DELL	E6420	482T3R1	FCC DoC	Provided by Lab

Note: All power cords of the above support units are non-shielded (1.8m).

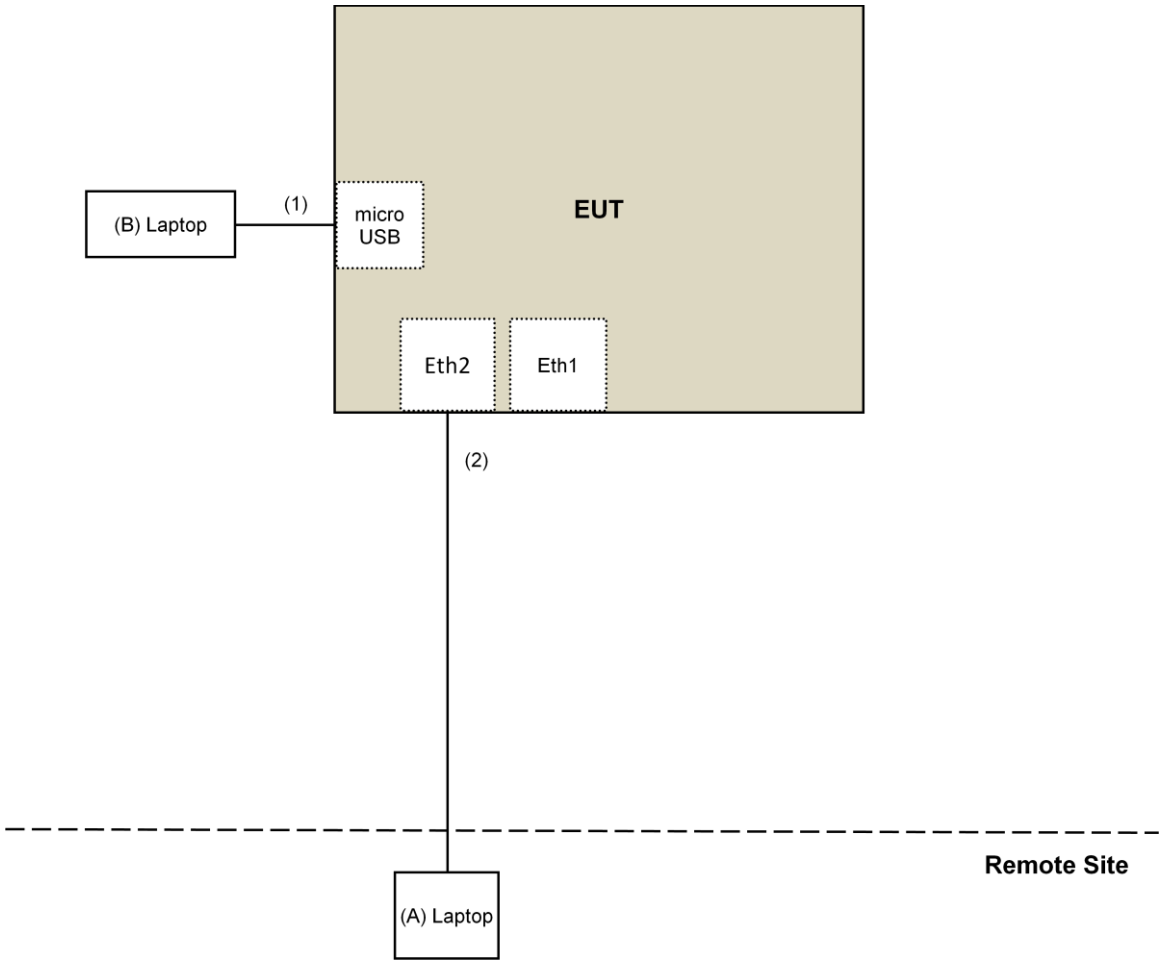
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB Cable	1	1	Yes	0	Supplied by client
2.	RJ-45 Cable	1	10	No	0	Provided by Lab

3.4.1 Configuration of System under Test

Adapter Mode:



Laptop Mode:



3.5 General Description of Applied Standards

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

FCC Part 15, Subpart C (15.247)
KDB 558074 D01 DTS Meas Guidance v04
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

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

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

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

NOTE:

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

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 08, 2017	July 07, 2018
Pre-Amplifier(*) EMCI	EMC001340	980142	Jan. 20, 2016	Jan. 19, 2018
Loop Antenna(*) Electro-Metrics	EM-6879	264	Dec. 16, 2016	Dec. 15, 2018
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 17, 2017	Jan. 16, 2018
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-01	Nov. 09, 2017	Nov. 08, 2018
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Dec. 13, 2016	Dec. 12, 2017
RF Cable	8D	966-4-1 966-4-2 966-4-3	Apr. 01, 2017	Mar. 31, 2018
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-4-01	Oct. 03, 2017	Oct. 02, 2018
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Dec. 27, 2016	Dec. 26, 2017
Pre-Amplifier EMCI	EMC12630SE	980385	Feb. 02, 2017	Feb. 01, 2018
RF Cable	EMC104-SM-SM-1200 EMC104-SM-SM-2000 EMC104-SM-SM-5000	160923 150318 150321	Feb. 02, 2017 Mar. 29, 2017 Mar. 29, 2017	Feb. 01, 2018 Mar. 28, 2018 Mar. 28, 2018
Pre-Amplifier EMCI	EMC184045SE	980387	Feb. 02, 2017	Feb. 01, 2018
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Dec. 15, 2016	Dec. 14, 2017
RF Cable	SUCOFLEX 102	36432/2 36433/2	Jan. 15, 2017	Jan. 14, 2018
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208410	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP02	NA	NA
Spectrum Analyzer R&S	FSV40	100964	July 1, 2017	June 30, 2018
Power meter Anritsu	ML2495A	1014008	May 11, 2017	May 10, 2018
Power sensor Anritsu	MA2411B	0917122	May 11, 2017	May 10, 2018

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. *The calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in 966 Chamber No. 4.
4. Loop antenna was used for all emissions below 30 MHz.
5. The CANADA Site Registration No. is 20331-2
6. Tested Date: Dec. 01 to 04, 2017

4.1.3 Test Procedures

For Radiated emission below 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. Both X and Y axes of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

NOTE:

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

For Radiated emission above 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

f. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

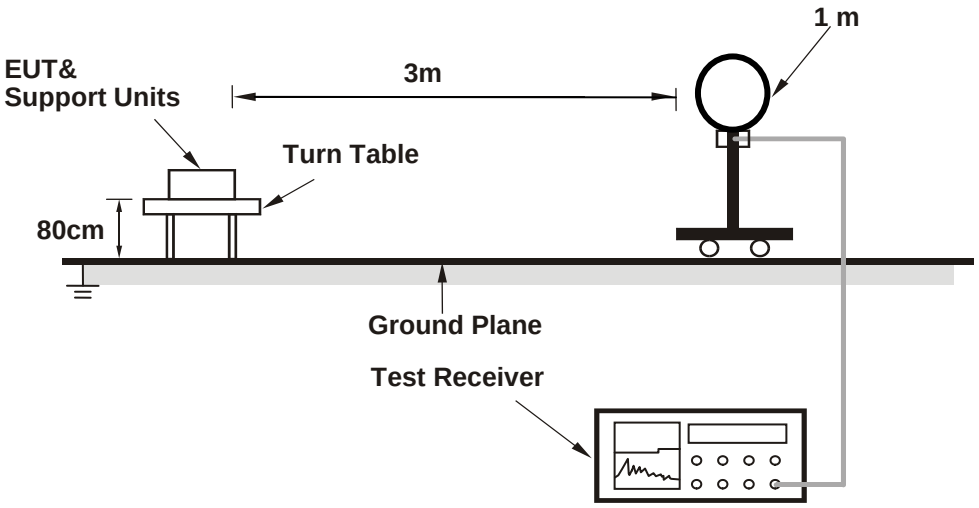
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

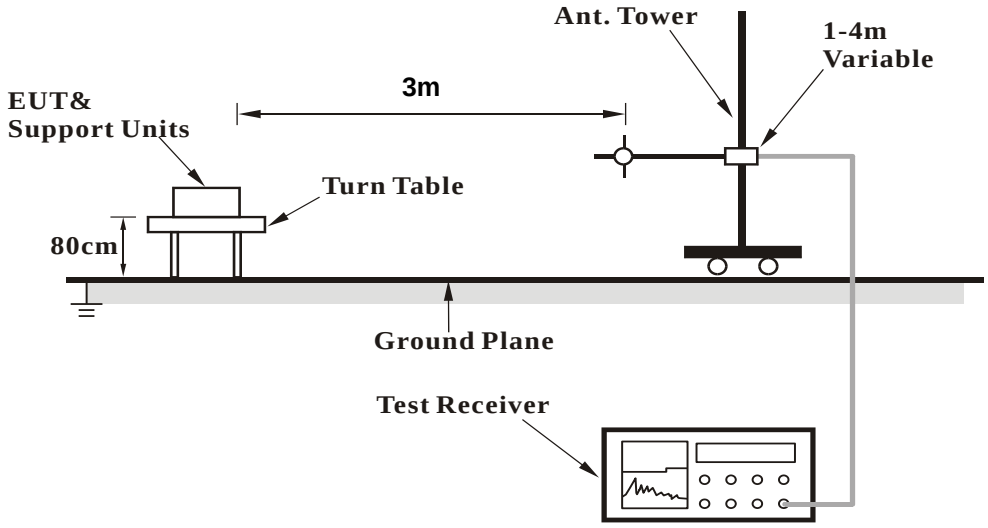
No deviation.

4.1.5 Test Setup

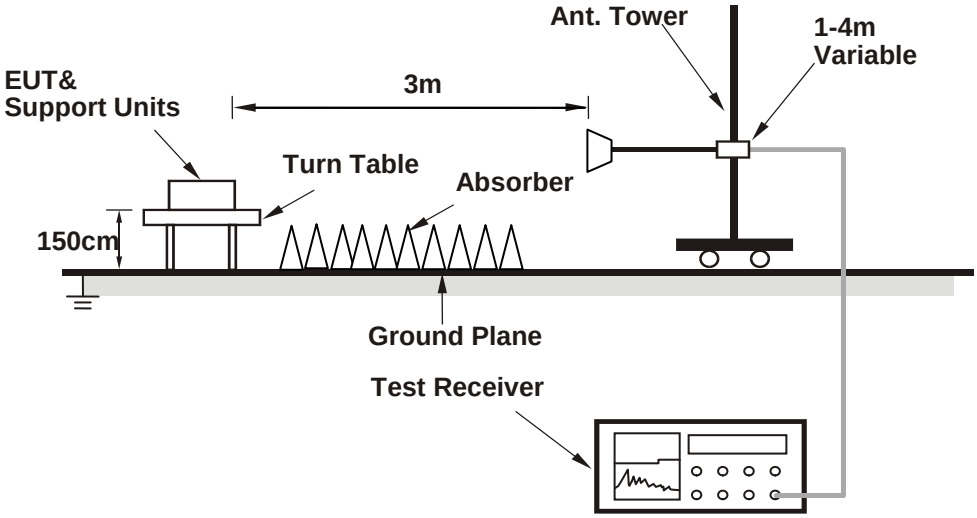
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

a. Connected the EUT with the Laptop which is placed on remote site.
b. Controlling software (RTL819x 3.4 -2016) has been activated to set the EUT on specific status.

4.1.7 Test Results

Above 1GHz Data：

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	56.1 PK	74.0	-17.9	1.47 H	292	57.4	-1.3
2	2390.00	42.5 AV	54.0	-11.5	1.47 H	292	43.8	-1.3
3	*2412.00	99.1 PK			1.47 H	292	100.2	-1.1
4	*2412.00	96.3 AV			1.47 H	292	97.4	-1.1
5	4824.00	51.5 PK	74.0	-22.5	2.78 H	157	48.3	3.2
6	4824.00	50.8 AV	54.0	-3.2	2.78 H	157	47.6	3.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	56.3 PK	74.0	-17.7	1.00 V	296	57.6	-1.3
2	2390.00	42.6 AV	54.0	-11.4	1.00 V	296	43.9	-1.3
3	*2412.00	104.6 PK			1.00 V	296	105.7	-1.1
4	*2412.00	102.0 AV			1.00 V	296	103.1	-1.1
5	4824.00	54.7 PK	74.0	-19.3	1.34 V	294	51.5	3.2
6	4824.00	53.7 AV	54.0	-0.3	1.34 V	294	50.5	3.2

REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) 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	96.5 PK			1.48 H	286	97.7	-1.2
2	*2437.00	93.9 AV			1.48 H	286	95.1	-1.2
3	4874.00	51.2 PK	74.0	-22.8	2.84 H	156	47.9	3.3
4	4874.00	50.5 AV	54.0	-3.5	2.84 H	156	47.2	3.3
5	7311.00	41.3 PK	74.0	-32.7	1.74 H	213	31.5	9.8
6	7311.00	30.5 AV	54.0	-23.5	1.74 H	213	20.7	9.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	101.9 PK			1.48 V	99	103.1	-1.2
2	*2437.00	99.7 AV			1.48 V	99	100.9	-1.2
3	4874.00	53.8 PK	74.0	-20.2	1.00 V	314	50.5	3.3
4	4874.00	53.2 AV	54.0	-0.8	1.00 V	314	49.9	3.3
5	7311.00	42.7 PK	74.0	-31.3	1.60 V	302	32.9	9.8
6	7311.00	30.3 AV	54.0	-23.7	1.60 V	302	20.5	9.8

REMARKS:

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

CHANNEL	TX Channel 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	98.6 PK			1.41 H	292	99.7	-1.1
2	*2462.00	95.9 AV			1.41 H	292	97.0	-1.1
3	2500.00	56.7 PK	74.0	-17.3	1.41 H	292	57.6	-0.9
4	2500.00	43.5 AV	54.0	-10.5	1.41 H	292	44.4	-0.9
5	4924.00	51.6 PK	74.0	-22.4	2.80 H	170	48.1	3.5
6	4924.00	50.9 AV	54.0	-3.1	2.80 H	170	47.4	3.5
7	7386.00	41.7 PK	74.0	-32.3	1.72 H	226	31.8	9.9
8	7386.00	30.7 AV	54.0	-23.3	1.72 H	226	20.8	9.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.1 PK			1.06 V	296	105.2	-1.1
2	*2462.00	101.6 AV			1.06 V	296	102.7	-1.1
3	2500.00	56.9 PK	74.0	-17.1	1.06 V	296	57.8	-0.9
4	2500.00	43.6 AV	54.0	-10.4	1.06 V	296	44.5	-0.9
5	4924.00	54.8 PK	74.0	-19.2	1.14 V	292	51.3	3.5
6	**4924.00**	**53.8 AV**	**54.0**	**-0.2**	**1.14 V**	**292**	**50.3**	**3.5**
7	7386.00	42.9 PK	74.0	-31.1	1.66 V	304	33.0	9.9
8	7386.00	30.6 AV	54.0	-23.4	1.66 V	304	20.7	9.9

REMARKS:

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

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	65.1 PK	74.0	-8.9	1.36 H	280	66.4	-1.3
2	2390.00	50.1 AV	54.0	-3.9	1.36 H	280	51.4	-1.3
3	*2412.00	106.6 PK			1.36 H	280	107.7	-1.1
4	*2412.00	97.0 AV			1.36 H	280	98.1	-1.1
5	4824.00	60.1 PK	74.0	-13.9	2.87 H	144	56.9	3.2
6	4824.00	47.1 AV	54.0	-6.9	2.87 H	144	43.9	3.2
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	68.3 PK	74.0	-5.7	1.00 V	297	69.6	-1.3
2	2390.00	53.6 AV	54.0	-0.4	1.00 V	297	54.9	-1.3
3	*2412.00	110.2 PK			1.00 V	297	111.3	-1.1
4	*2412.00	102.6 AV			1.00 V	297	103.7	-1.1
5	4824.00	63.7 PK	74.0	-10.3	1.23 V	283	60.5	3.2
6	4824.00	50.1 AV	54.0	-3.9	1.23 V	283	46.9	3.2

REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) 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	110.1 PK			1.34 H	295	111.3	-1.2
2	*2437.00	100.5 AV			1.34 H	295	101.7	-1.2
3	4874.00	64.3 PK	74.0	-9.7	2.87 H	155	61.0	3.3
4	4874.00	50.5 AV	54.0	-3.5	2.87 H	155	47.2	3.3
5	7311.00	44.7 PK	74.0	-29.3	1.71 H	236	34.9	9.8
6	7311.00	36.1 AV	54.0	-17.9	1.71 H	236	26.3	9.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	116.2 PK			1.06 V	296	117.4	-1.2
2	*2437.00	106.1 AV			1.06 V	296	107.3	-1.2
3	4874.00	67.5 PK	74.0	-6.5	1.18 V	294	64.2	3.3
4	4874.00	53.7 AV	54.0	-0.3	1.18 V	294	50.4	3.3
5	7311.00	47.6 PK	74.0	-26.4	1.03 V	126	37.8	9.8
6	7311.00	38.4 AV	54.0	-15.6	1.03 V	126	28.6	9.8

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.1 PK			1.38 H	294	109.2	-1.1
2	*2462.00	98.6 AV			1.38 H	294	99.7	-1.1
3	2483.50	66.5 PK	74.0	-7.5	1.38 H	294	67.5	-1.0
4	2483.50	50.3 AV	54.0	-3.7	1.38 H	294	51.3	-1.0
5	4924.00	61.1 PK	74.0	-12.9	2.88 H	139	57.6	3.5
6	4924.00	47.3 AV	54.0	-6.7	2.88 H	139	43.8	3.5
7	7386.00	43.1 PK	74.0	-30.9	1.71 H	238	33.2	9.9
8	7386.00	34.4 AV	54.0	-19.6	1.71 H	238	24.5	9.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.6 PK			1.00 V	294	112.7	-1.1
2	*2462.00	104.2 AV			1.00 V	294	105.3	-1.1
3	2483.50	69.7 PK	74.0	-4.3	1.00 V	294	70.7	-1.0
4	2483.50	53.7 AV	54.0	-0.3	1.00 V	294	54.7	-1.0
5	4924.00	64.0 PK	74.0	-10.0	1.23 V	274	60.5	3.5
6	4924.00	50.5 AV	54.0	-3.5	1.23 V	274	47.0	3.5
7	7386.00	45.2 PK	74.0	-28.8	1.53 V	101	35.3	9.9
8	7386.00	36.6 AV	54.0	-17.4	1.53 V	101	26.7	9.9

REMARKS:

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

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	1.37 H	287	67.2	-1.3
2	2390.00	50.3 AV	54.0	-3.7	1.37 H	287	51.6	-1.3
3	*2412.00	107.1 PK			1.37 H	287	108.2	-1.1
4	*2412.00	97.4 AV			1.37 H	287	98.5	-1.1
5	4824.00	60.7 PK	74.0	-13.3	2.87 H	158	57.5	3.2
6	4824.00	47.6 AV	54.0	-6.4	2.87 H	158	44.4	3.2
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	69.2 PK	74.0	-4.8	1.00 V	296	70.5	-1.3
2	2390.00	53.6 AV	54.0	-0.4	1.00 V	296	54.9	-1.3
3	*2412.00	111.8 PK			1.00 V	296	112.9	-1.1
4	*2412.00	102.9 AV			1.00 V	296	104.0	-1.1
5	4824.00	63.4 PK	74.0	-10.6	1.18 V	275	60.2	3.2
6	4824.00	49.9 AV	54.0	-4.1	1.18 V	275	46.7	3.2

REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) 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	109.9 PK			1.38 H	289	111.1	-1.2
2	*2437.00	100.5 AV			1.38 H	289	101.7	-1.2
3	4874.00	63.9 PK	74.0	-10.1	2.90 H	156	60.6	3.3
4	4874.00	50.1 AV	54.0	-3.9	2.90 H	156	46.8	3.3
5	7311.00	44.9 PK	74.0	-29.1	1.68 H	250	35.1	9.8
6	7311.00	36.3 AV	54.0	-17.7	1.68 H	250	26.5	9.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	116.0 PK			1.00 V	294	117.2	-1.2
2	*2437.00	105.6 AV			1.00 V	294	106.8	-1.2
3	4874.00	65.9 PK	74.0	-8.1	1.00 V	294	62.6	3.3
4	4874.00	53.5 AV	54.0	-0.5	1.00 V	294	50.2	3.3
5	7311.00	47.4 PK	74.0	-26.6	1.07 V	139	37.6	9.8
6	7311.00	38.0 AV	54.0	-16.0	1.07 V	139	28.2	9.8

REMARKS:

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

CHANNEL	TX Channel 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	107.0 PK			1.37 H	297	108.1	-1.1
2	*2462.00	97.2 AV			1.37 H	297	98.3	-1.1
3	2483.50	70.1 PK	74.0	-3.9	1.37 H	297	71.1	-1.0
4	2483.50	50.5 AV	54.0	-3.5	1.37 H	297	51.5	-1.0
5	4924.00	57.4 PK	74.0	-16.6	2.93 H	142	53.9	3.5
6	4924.00	45.4 AV	54.0	-8.6	2.93 H	142	41.9	3.5
7	7386.00	42.6 PK	74.0	-31.4	1.73 H	231	32.7	9.9
8	7386.00	34.0 AV	54.0	-20.0	1.73 H	231	24.1	9.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.6 PK			1.08 V	295	112.7	-1.1
2	*2462.00	102.6 AV			1.08 V	295	103.7	-1.1
3	2483.50	73.5 PK	74.0	-0.5	1.08 V	295	74.5	-1.0
4	2483.50	53.5 AV	54.0	-0.5	1.08 V	295	54.5	-1.0
5	4924.00	59.6 PK	74.0	-14.4	1.00 V	294	56.1	3.5
6	4924.00	47.4 AV	54.0	-6.6	1.00 V	294	43.9	3.5
7	7386.00	45.8 PK	74.0	-28.2	1.56 V	95	35.9	9.9
8	7386.00	36.9 AV	54.0	-17.1	1.56 V	95	27.0	9.9

REMARKS:

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

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	62.9 PK	74.0	-11.1	1.28 H	286	64.2	-1.3
2	2390.00	48.1 AV	54.0	-5.9	1.28 H	286	49.4	-1.3
3	*2422.00	100.7 PK			1.28 H	286	102.0	-1.3
4	*2422.00	91.7 AV			1.28 H	286	93.0	-1.3
5	4844.00	53.2 PK	74.0	-20.8	1.00 H	150	49.9	3.3
6	4844.00	41.1 AV	54.0	-12.9	1.00 H	150	37.8	3.3
7	7266.00	42.5 PK	74.0	-31.5	1.42 H	12	32.7	9.8
8	7266.00	32.3 AV	54.0	-21.7	1.42 H	12	22.5	9.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.2 PK	74.0	-6.8	1.28 V	86	68.5	-1.3
2	2390.00	53.0 AV	54.0	-1.0	1.28 V	86	54.3	-1.3
3	*2422.00	106.3 PK			1.28 V	86	107.6	-1.3
4	*2422.00	96.9 AV			1.28 V	86	98.2	-1.3
5	4844.00	56.4 PK	74.0	-17.6	1.47 V	290	53.1	3.3
6	4844.00	43.9 AV	54.0	-10.1	1.47 V	290	40.6	3.3
7	7266.00	43.2 PK	74.0	-30.8	1.56 V	150	33.4	9.8
8	7266.00	33.9 AV	54.0	-20.1	1.56 V	150	24.1	9.8

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.8 PK	74.0	-9.2	1.30 H	290	66.1	-1.3
2	2390.00	48.8 AV	54.0	-5.2	1.30 H	290	50.1	-1.3
3	*2437.00	104.2 PK			1.30 H	290	105.4	-1.2
4	*2437.00	94.5 AV			1.30 H	290	95.7	-1.2
5	2483.50	63.6 PK	74.0	-10.4	1.30 H	290	64.6	-1.0
6	2483.50	47.2 AV	54.0	-6.8	1.30 H	290	48.2	-1.0
7	4874.00	57.2 PK	74.0	-16.8	1.11 H	164	53.9	3.3
8	4874.00	44.1 AV	54.0	-9.9	1.11 H	164	40.8	3.3
9	7311.00	44.2 PK	74.0	-29.8	1.44 H	7	34.4	9.8
10	7311.00	34.0 AV	54.0	-20.0	1.44 H	7	24.2	9.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.8 PK	74.0	-5.2	1.03 V	294	70.1	-1.3
2	2390.00	53.6 AV	54.0	-0.4	1.03 V	294	54.9	-1.3
3	*2437.00	109.8 PK			1.03 V	294	111.0	-1.2
4	*2437.00	99.7 AV			1.03 V	294	100.9	-1.2
5	2483.50	67.9 PK	74.0	-6.1	1.03 V	294	68.9	-1.0
6	2483.50	52.1 AV	54.0	-1.9	1.03 V	294	53.1	-1.0
7	4874.00	59.7 PK	74.0	-14.3	2.40 V	125	56.4	3.3
8	4874.00	46.6 AV	54.0	-7.4	2.40 V	125	43.3	3.3
9	7311.00	45.6 PK	74.0	-28.4	2.12 V	188	35.8	9.8
10	7311.00	35.5 AV	54.0	-18.5	2.12 V	188	25.7	9.8

REMARKS:

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

CHANNEL	TX Channel 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	100.1 PK			1.22 H	297	101.2	-1.1
2	*2452.00	91.4 AV			1.22 H	297	92.5	-1.1
3	2483.50	65.4 PK	74.0	-8.6	1.22 H	297	66.4	-1.0
4	2483.50	48.6 AV	54.0	-5.4	1.22 H	297	49.6	-1.0
5	4904.00	45.0 PK	74.0	-29.0	1.08 H	152	41.5	3.5
6	4904.00	34.8 AV	54.0	-19.2	1.08 H	152	31.3	3.5
7	7356.00	42.2 PK	74.0	-31.8	1.38 H	13	32.3	9.9
8	7356.00	31.8 AV	54.0	-22.2	1.38 H	13	21.9	9.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	105.2 PK			1.00 V	52	106.3	-1.1
2	*2452.00	96.9 AV			1.00 V	52	98.0	-1.1
3	2483.50	69.6 PK	74.0	-4.4	1.00 V	52	70.6	-1.0
4	2483.50	53.5 AV	54.0	-0.5	1.00 V	52	54.5	-1.0
5	4904.00	56.1 PK	74.0	-17.9	1.37 V	291	52.6	3.5
6	4904.00	43.4 AV	54.0	-10.6	1.37 V	291	39.9	3.5
7	7356.00	43.4 PK	74.0	-30.6	1.47 V	205	33.5	9.9
8	7356.00	33.1 AV	54.0	-20.9	1.47 V	205	23.2	9.9

REMARKS:

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

Below 1GHz Data:

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	168.69	34.3 QP	43.5	-9.2	2.50 H	261	42.4	-8.1
2	250.00	35.9 QP	46.0	-10.1	1.50 H	80	45.1	-9.2
3	374.98	37.3 QP	46.0	-8.7	3.00 H	34	42.8	-5.5
4	437.59	41.6 QP	46.0	-4.4	1.00 H	360	45.2	-3.6
5	624.97	42.1 QP	46.0	-3.9	1.50 H	90	41.9	0.2
6	799.54	40.2 QP	46.0	-5.8	1.00 H	4	37.6	2.6
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	36.14	32.0 QP	40.0	-8.0	2.00 V	219	41.1	-9.1
2	168.39	35.1 QP	43.5	-8.4	2.00 V	154	43.2	-8.1
3	374.98	30.8 QP	46.0	-15.2	3.00 V	348	36.3	-5.5
4	432.12	41.2 QP	46.0	-4.8	1.00 V	332	45.0	-3.8
5	624.97	42.9 QP	46.0	-3.1	1.50 V	181	42.7	0.2
6	833.12	32.2 QP	46.0	-13.8	2.50 V	188	29.1	3.1

REMARKS:

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

Note: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Nov. 01, 2017	Oct. 31, 2018
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Nov. 15, 20167	Nov. 14, 2018
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 03, 2017	June 02, 2018
50 ohms Terminator	N/A	EMC-02	Sep. 22, 2017	Sep. 21, 2018
RF Cable	5D-FB	COCCAB-001	Sep. 29, 2017	Sep. 28, 2018
10 dB PAD Mini-Circuits	HAT-10+	CONATT-004	June 18, 2017	June 17, 2018
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:
1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. 1.
3 Tested Date: Dec. 05, 2017

4.2.3 Test Procedures

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

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

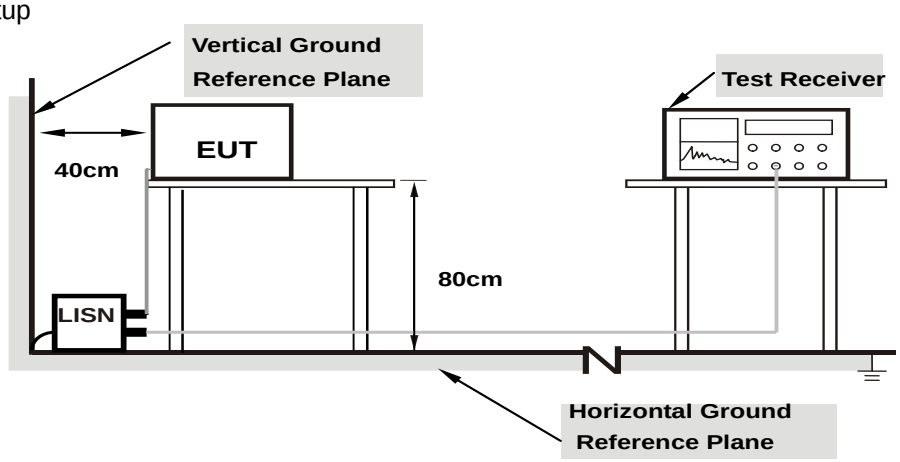
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

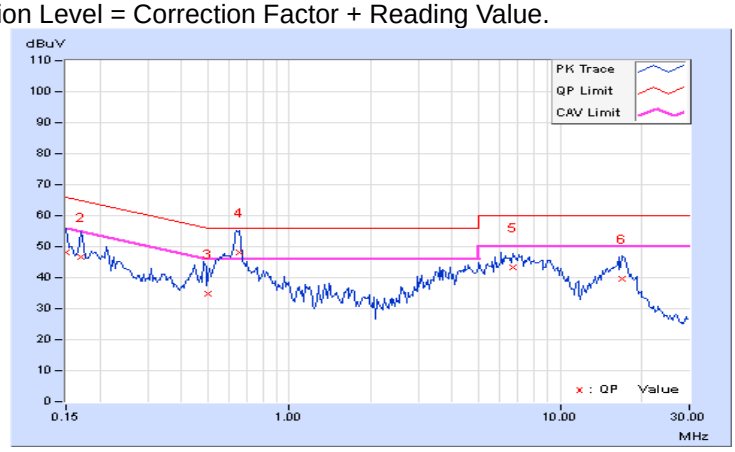
4.2.7 Test Results (Mode 1)

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.09	38.24	27.86	48.33	37.95	66.00	56.00	-17.67	-18.05
2	0.16953	10.08	36.54	26.41	46.62	36.49	64.98	54.98	-18.36	-18.49
3	0.50000	10.13	24.50	14.63	34.63	24.76	56.00	46.00	-21.37	-21.24
4	**0.65781**	**10.14**	**37.93**	**31.81**	**48.07**	**41.95**	**56.00**	**46.00**	**-7.93**	**-4.05**
5	6.66016	10.55	32.68	24.22	43.23	34.77	60.00	50.00	-16.77	-15.23
6	17.02344	11.36	28.32	21.07	39.68	32.43	60.00	50.00	-20.32	-17.57

REMARKS:

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

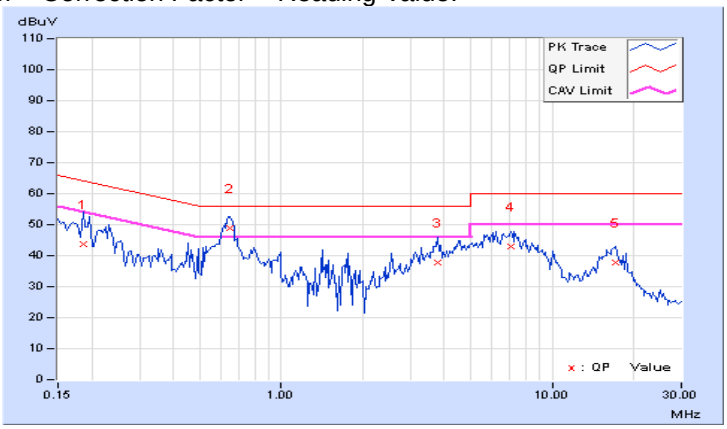


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18516	10.05	33.74	17.81	43.79	27.86	64.25	54.25	-20.46	-26.39
2	0.64609	10.12	38.92	29.25	49.04	39.37	56.00	46.00	-6.96	-6.63
3	3.77734	10.25	27.71	16.97	37.96	27.22	56.00	46.00	-18.04	-18.78
4	7.05469	10.49	32.41	22.11	42.90	32.60	60.00	50.00	-17.10	-17.40
5	17.05078	11.12	26.76	17.91	37.88	29.03	60.00	50.00	-22.12	-20.97

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.



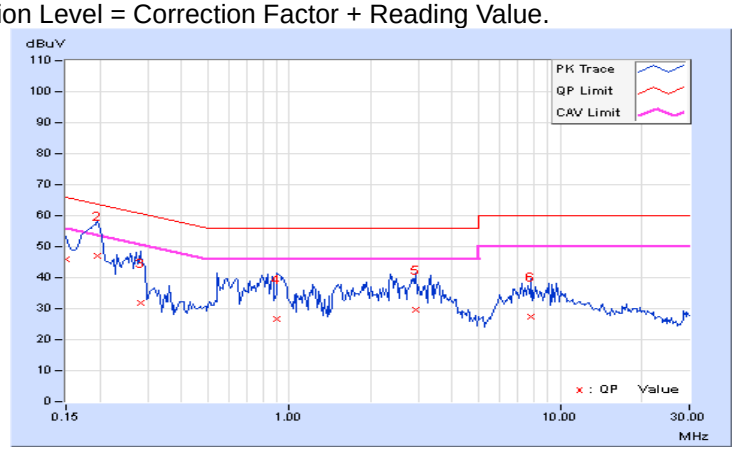
4.2.8 Test Results (Mode 2)

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.08	35.83	15.38	45.91	25.46	66.00	56.00	-20.09	-30.54
2	0.19687	10.06	37.00	19.35	47.06	29.41	63.74	53.74	-16.68	-24.33
3	0.28281	10.08	21.91	8.38	31.99	18.46	60.73	50.73	-28.74	-32.27
4	0.90391	10.14	16.38	11.32	26.52	21.46	56.00	46.00	-29.48	-24.54
5	2.94922	10.21	19.60	14.12	29.81	24.33	56.00	46.00	-26.19	-21.67
6	7.78125	10.50	16.83	12.64	27.33	23.14	60.00	50.00	-32.67	-26.86

REMARKS:

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

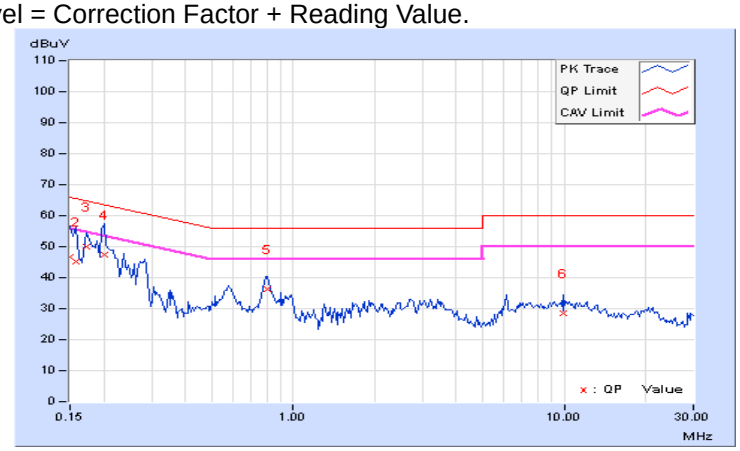


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.07	36.43	25.62	46.50	35.69	66.00	56.00	-19.50	-20.31
2	0.15781	10.06	35.00	20.23	45.06	30.29	65.58	55.58	-20.52	-25.29
3	0.17344	10.05	40.12	25.97	50.17	36.02	64.79	54.79	-14.62	-18.77
4	0.20078	10.03	37.46	19.09	47.49	29.12	63.58	53.58	-16.09	-24.46
5	0.79844	10.11	26.11	14.27	36.22	24.38	56.00	46.00	-19.78	-21.62
6	9.92188	10.56	18.08	13.35	28.64	23.91	60.00	50.00	-31.36	-26.09

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.

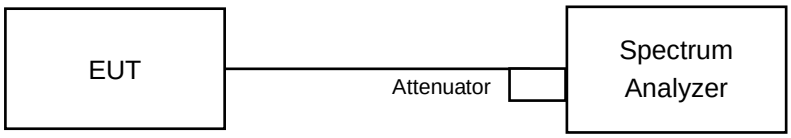


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	9.17	9.17	0.5	PASS
6	2437	9.16	9.16	0.5	PASS
11	2462	9.18	9.16	0.5	PASS

802.11g

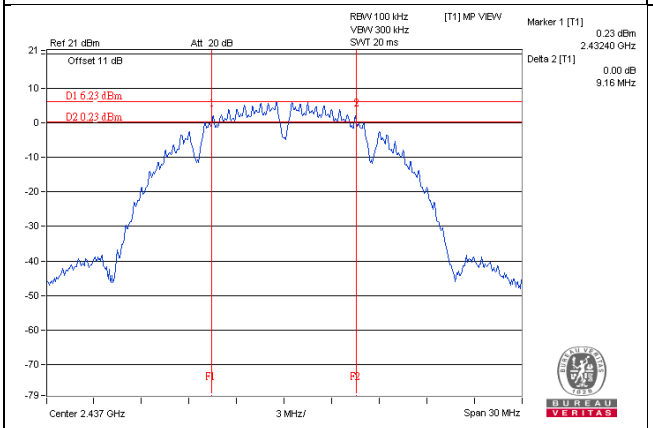
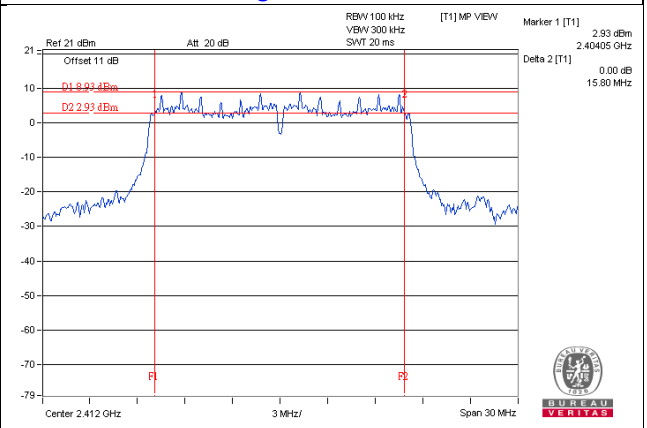
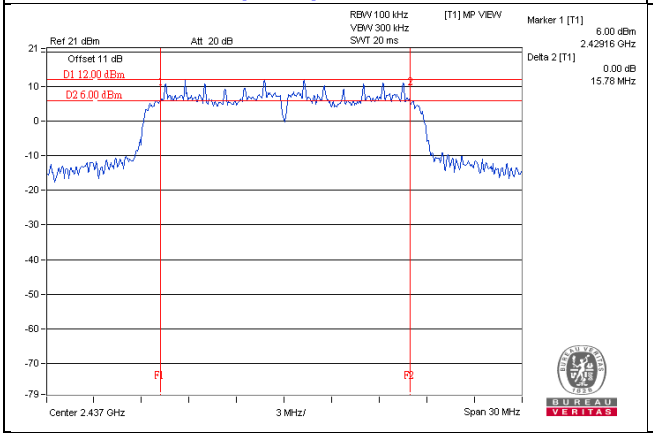
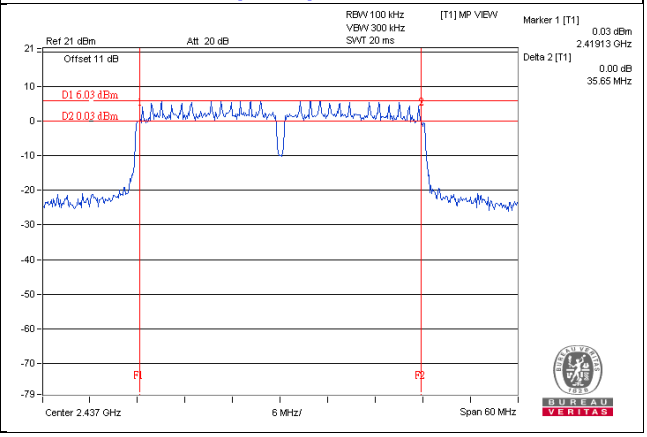
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.83	15.80	0.5	PASS
6	2437	16.11	16.09	0.5	PASS
11	2462	15.89	15.84	0.5	PASS

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.35	16.12	0.5	Pass
6	2437	15.78	16.12	0.5	Pass
11	2462	16.12	16.10	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.70	35.70	0.5	Pass
6	2437	35.65	35.65	0.5	Pass
9	2452	35.68	35.70	0.5	Pass

Spectrum Plot of Worst Value	
802.11b / Chain 0 : CH6	**802.11g / Chain 1 : CH1**
	
802.11n (HT20) / Chain 0 : CH6	**802.11n (HT40) / Chain 0 : CH6**
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

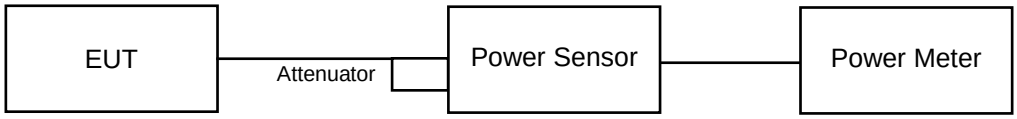
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results

FOR PEAK POWER

802.11b

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	17.03	16.84	98.772	19.95	30	Pass
6	2437	17.32	17.48	109.927	20.41	30	Pass
11	2462	16.25	16.04	82.349	19.16	30	Pass

802.11g

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	25.51	25.62	720.385	28.58	30	Pass
6	2437	26.60	26.87	943.495	29.75	30	Pass
11	2462	25.18	25.27	666.122	28.24	30	Pass

802.11n (HT20)

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	25.53	25.90	746.318	28.73	30	Pass
6	2437	26.73	26.95	966.427	29.85	30	Pass
11	2462	24.59	25.46	639.3	28.06	30	Pass

802.11n (HT40)

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	25.16	25.17	656.947	28.18	30	Pass
6	2437	26.02	26.11	808.264	29.08	30	Pass
9	2452	24.40	24.50	557.261	27.46	30	Pass

FOR AVERAGE POWER

802.11b

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	14.69	14.33	56.546	17.52
6	2437	15.01	15.00	63.319	18.02
11	2462	13.77	13.52	46.314	16.66

802.11g

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	18.25	18.47	137.141	21.37
6	2437	21.04	21.24	260.102	24.15
11	2462	18.03	18.16	128.997	21.11

802.11n (HT20)

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	18.09	18.26	131.405	21.19
6	2437	21.32	21.48	276.124	24.41
11	2462	17.46	17.62	113.529	20.55

802.11n (HT40)

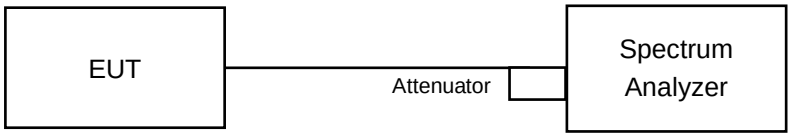
Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	18.11	18.07	128.835	21.10
6	2437	19.33	19.46	174.012	22.41
9	2452	16.85	16.75	95.732	19.81

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

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6

4.5.7 Test Results

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-5.12	3.01	-2.11	6.99	Pass
	6	2437	-2.43	3.01	0.58	6.99	Pass
	11	2462	-2.79	3.01	0.22	6.99	Pass
1	1	2412	-9.92	3.01	-6.91	6.99	Pass
	6	2437	-5.49	3.01	-2.48	6.99	Pass
	11	2462	-3.83	3.01	-0.82	6.99	Pass

Note: 1. Directional gain =10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 7.01dBi > 6dBi , so the power limit shall be reduced to 8-(7.01-6) = 6.99dBm

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-8.63	3.01	-5.62	6.99	Pass
	6	2437	-5.73	3.01	-2.72	6.99	Pass
	11	2462	-7.11	3.01	-4.10	6.99	Pass
1	1	2412	-8.26	3.01	-5.25	6.99	Pass
	6	2437	-5.52	3.01	-2.51	6.99	Pass
	11	2462	-6.39	3.01	-3.38	6.99	Pass

Note: 1. Directional gain =10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 7.01dBi > 6dBi , so the power limit shall be reduced to 8-(7.01-6) = 6.99dBm

802.11n (HT20)

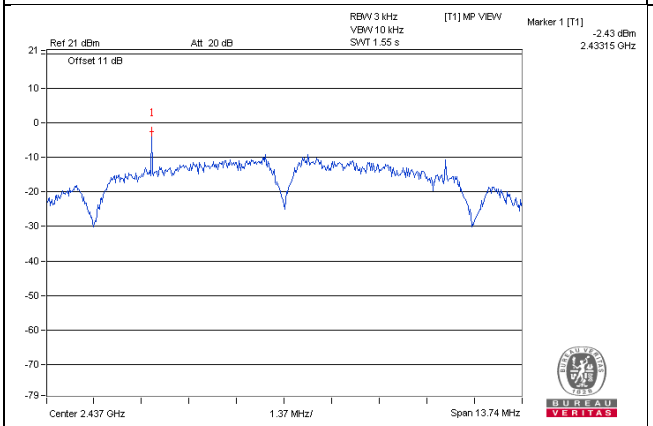
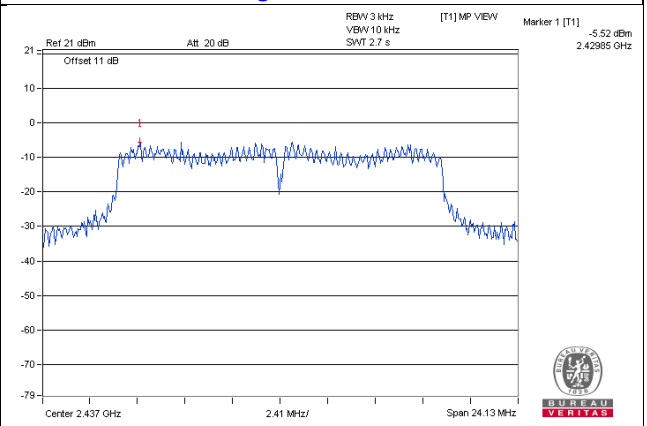
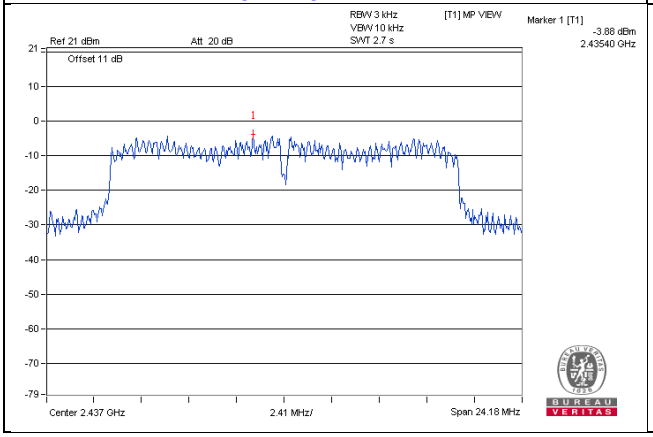
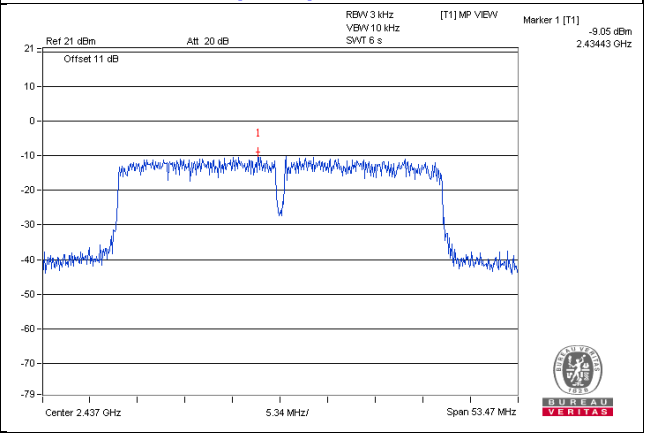
TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-8.12	3.01	-5.11	6.99	Pass
	6	2437	-4.96	3.01	-1.95	6.99	Pass
	11	2462	-8.24	3.01	-5.23	6.99	Pass
1	1	2412	-7.12	3.01	-4.11	6.99	Pass
	6	2437	-3.88	3.01	-0.87	6.99	Pass
	11	2462	-7.87	3.01	-4.86	6.99	Pass

Note: 1. Directional gain =10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 7.01dBi > 6dBi , so the power limit shall be reduced to 8-(7.01-6) = 6.99dBm

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-11.18	3.01	-8.17	6.99	Pass
	6	2437	-9.58	3.01	-6.57	6.99	Pass
	9	2452	-12.29	3.01	-9.28	6.99	Pass
1	3	2422	-10.10	3.01	-7.09	6.99	Pass
	6	2437	-9.05	3.01	-6.04	6.99	Pass
	9	2452	-10.81	3.01	-7.80	6.99	Pass

Note: 1. Directional gain =10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 7.01dBi > 6dBi , so the power limit shall be reduced to 8-(7.01-6) = 6.99dBm

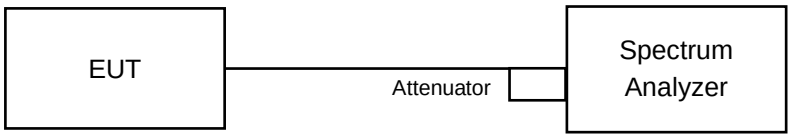
Spectrum Plot of Worst Value	
802.11b / Chain 0 : CH6	**802.11g / Chain 1 : CH6**
	
802.11n (HT20) / Chain 1 : CH6	**802.11n (HT40) / Chain 1 : CH6**
	

4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOBE

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

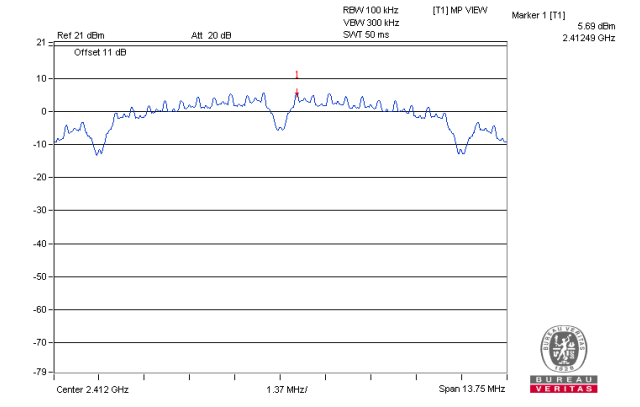
Same as Item 4.3.6

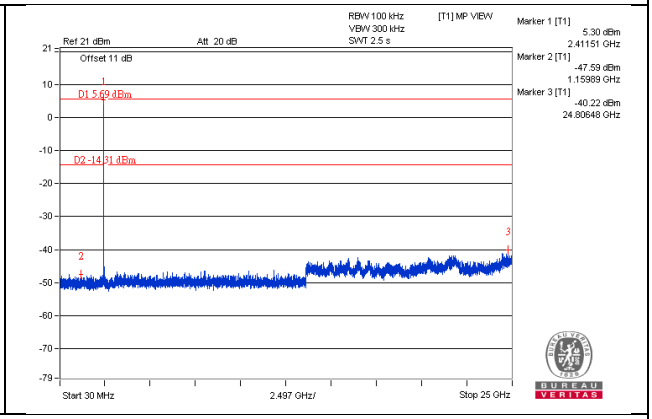
4.6.7 Test Results

The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

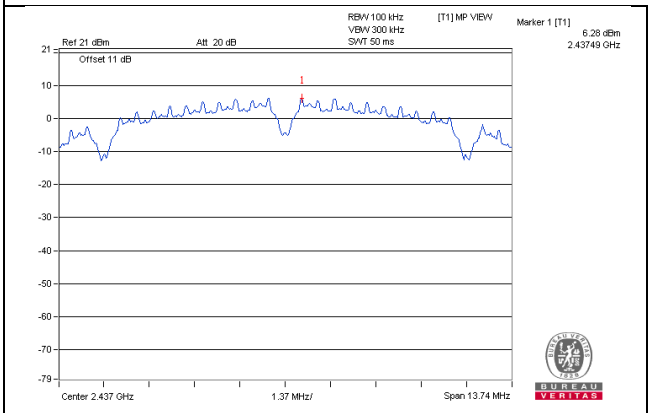
802.11b
Chain 0

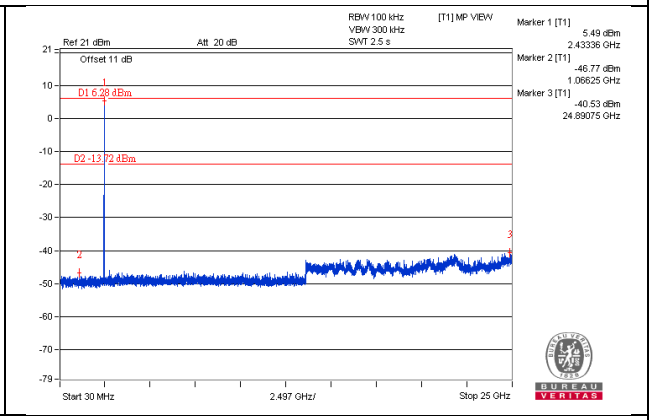
CH 1



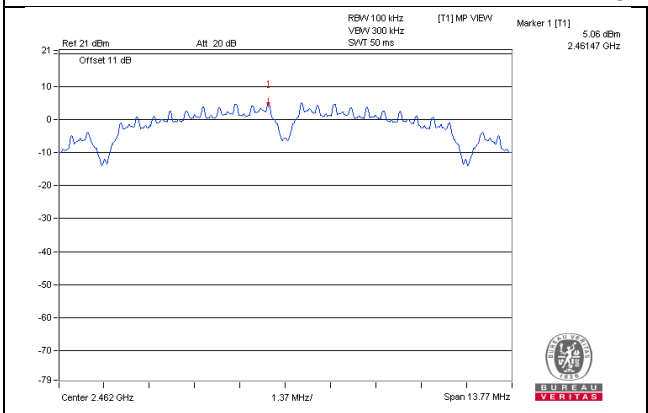


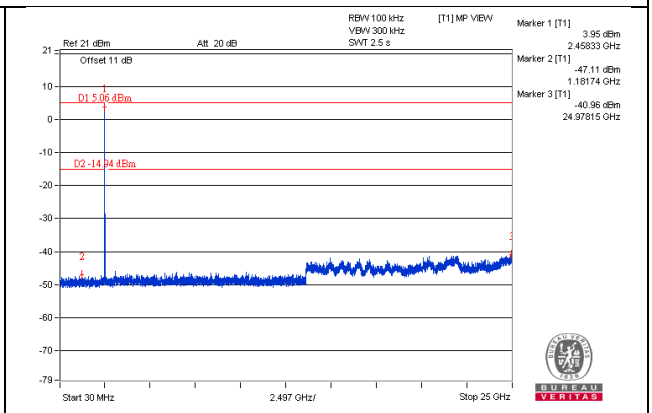
CH 6



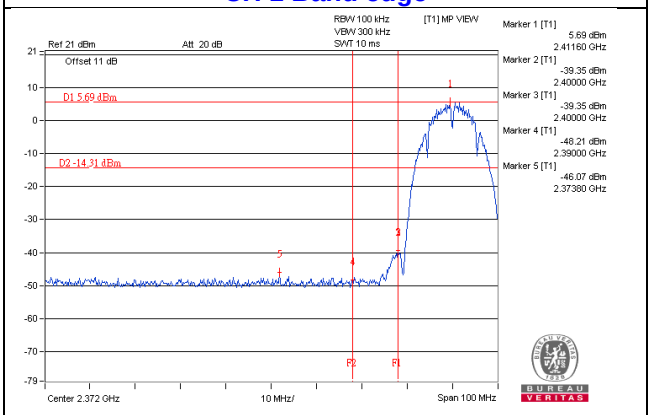


CH 11

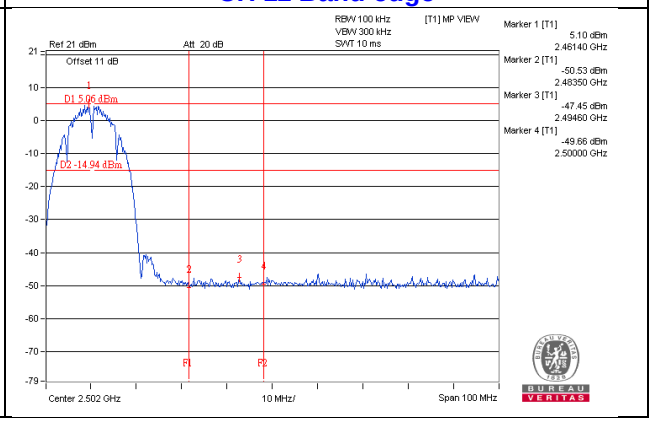




CH 1 Band edge

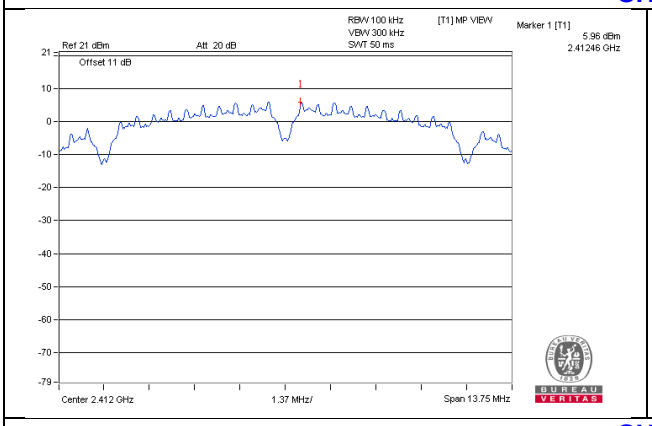


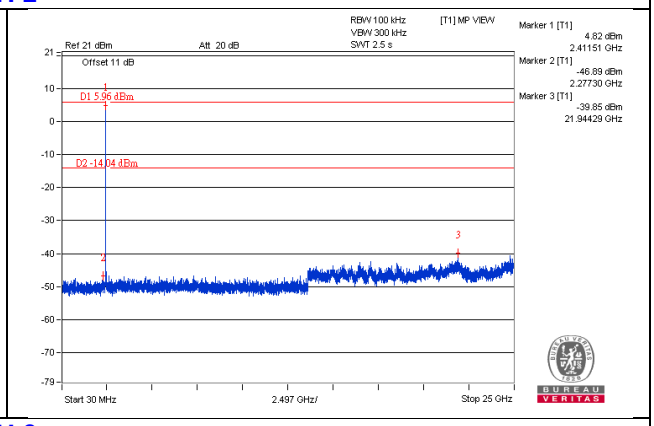
CH 11 Band edge



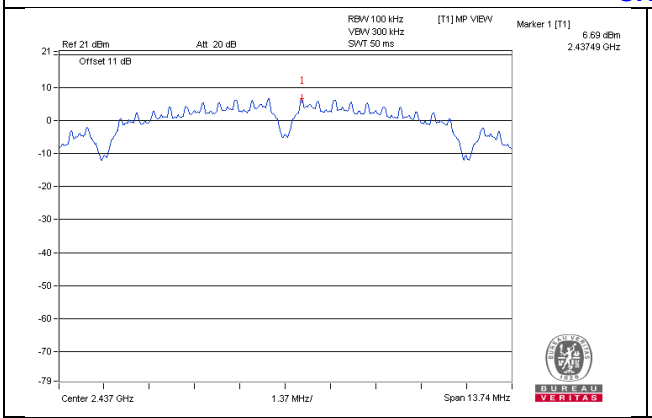
Chain 1

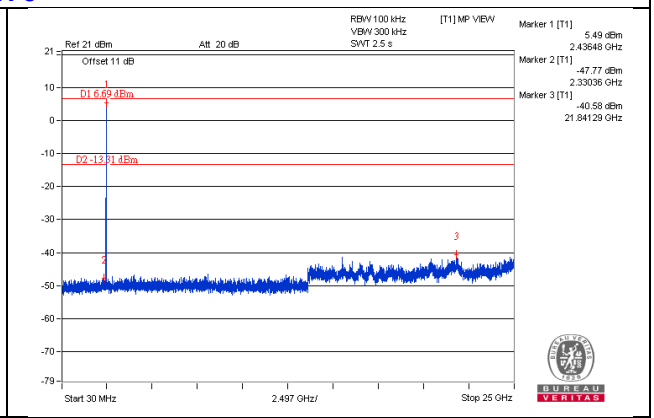
CH 1



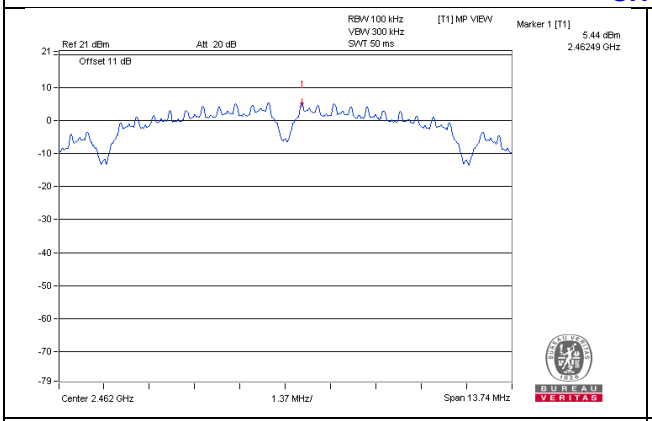


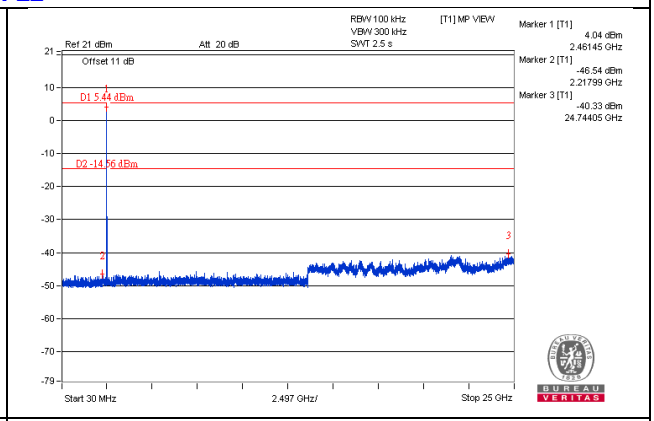
CH 6



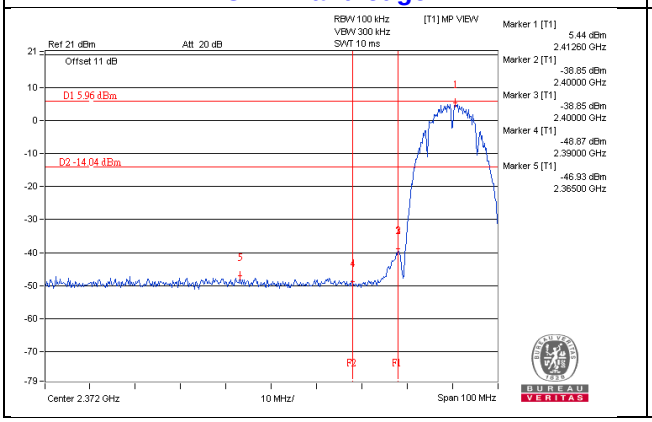


CH 11

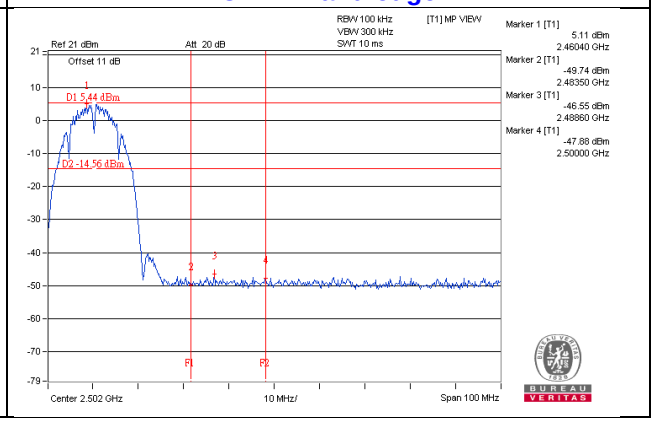




CH 1 Band edge

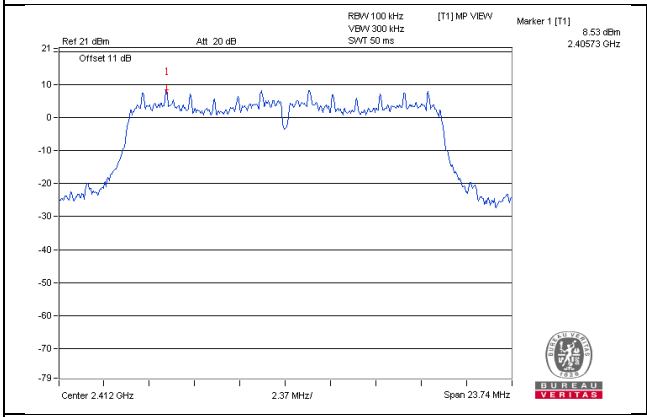


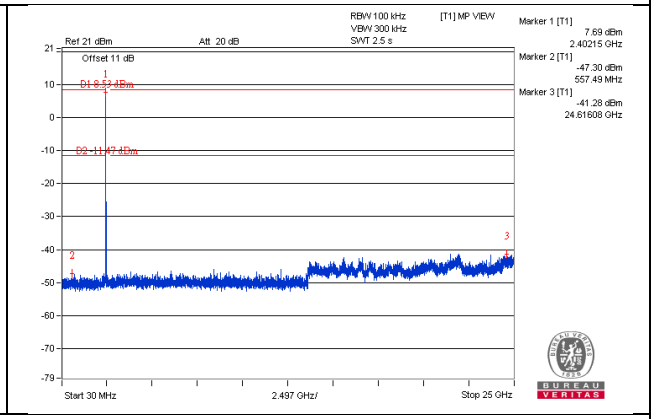
CH 11 Band edge



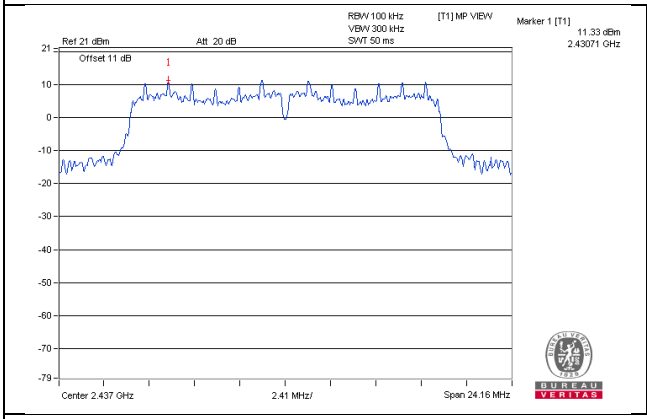
802.11g
Chain 0

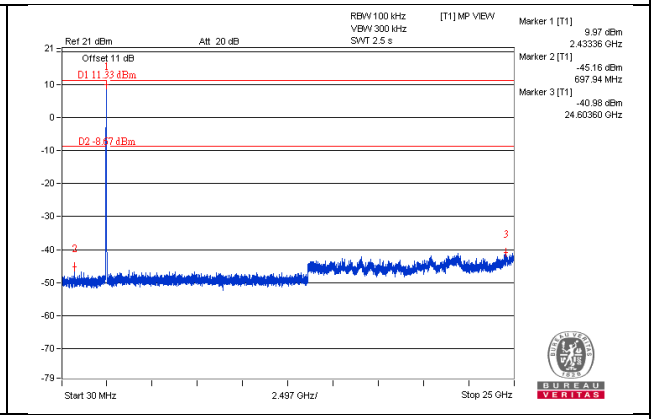
CH 1



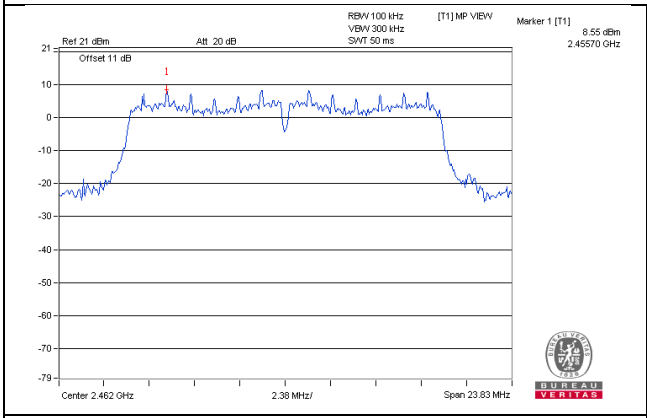


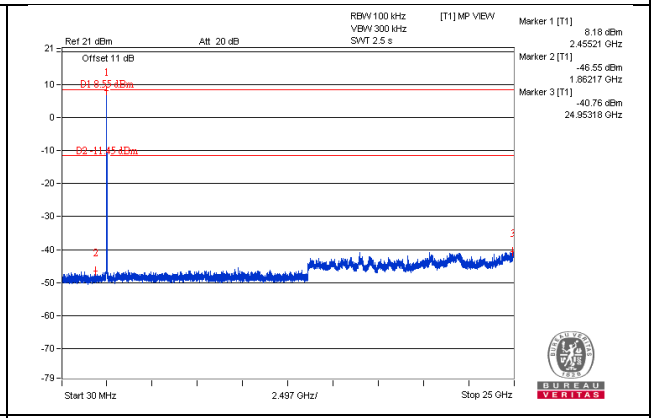
CH 6



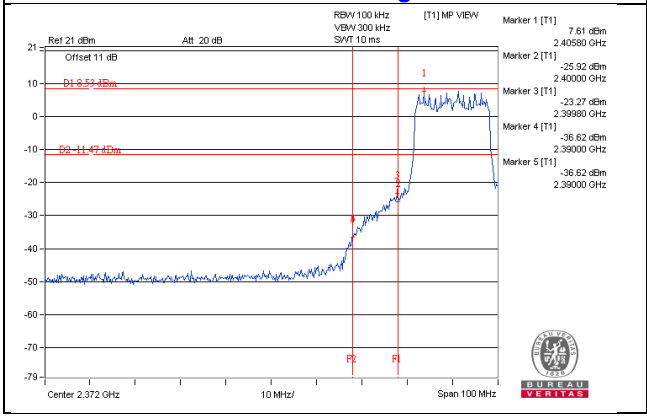


CH 11

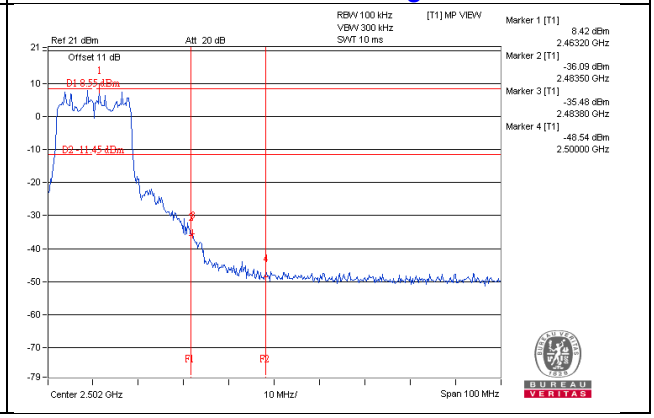




CH 1 Band edge

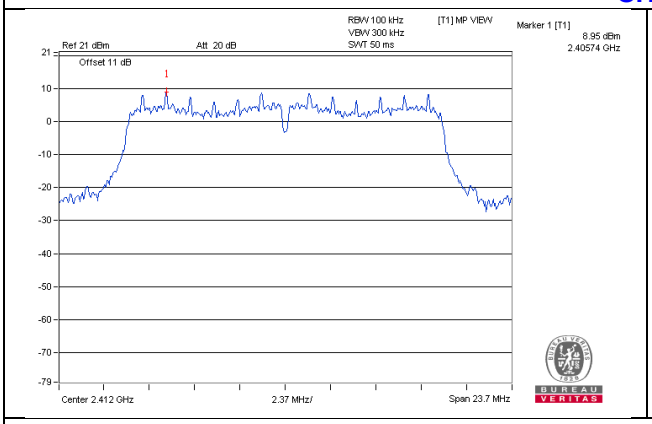


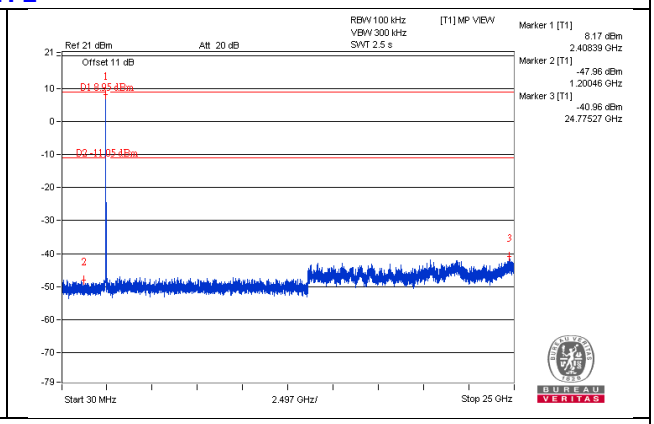
CH 11 Band edge



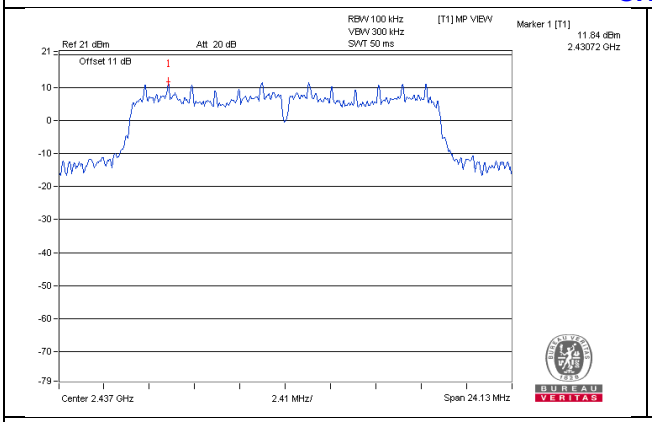
Chain 1

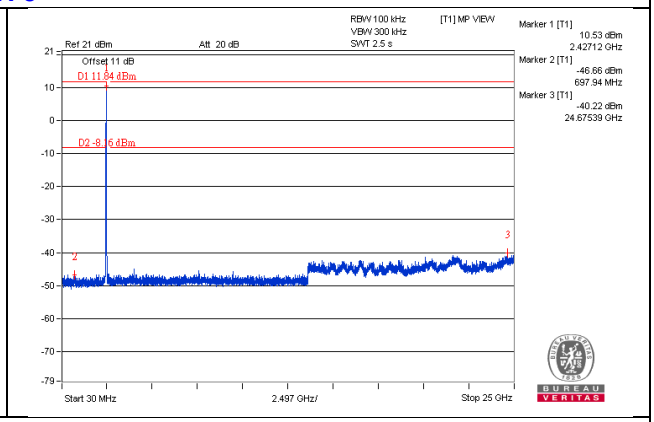
CH 1



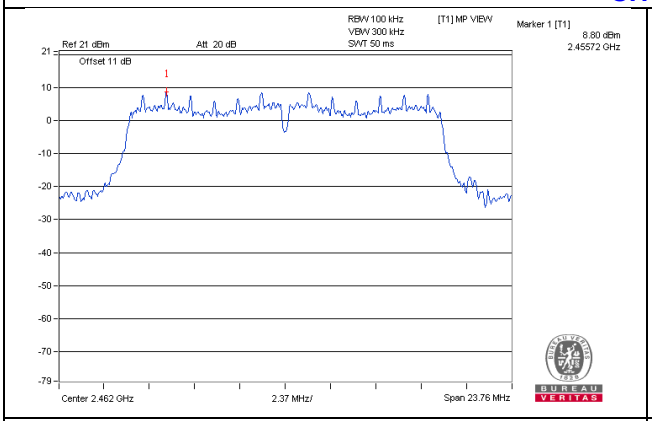


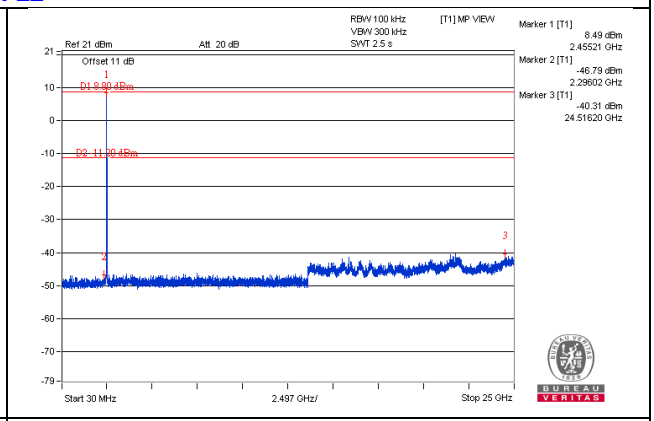
CH 6



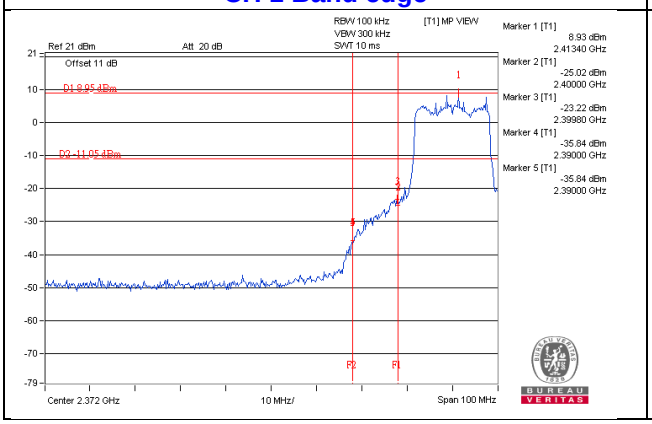


CH 11

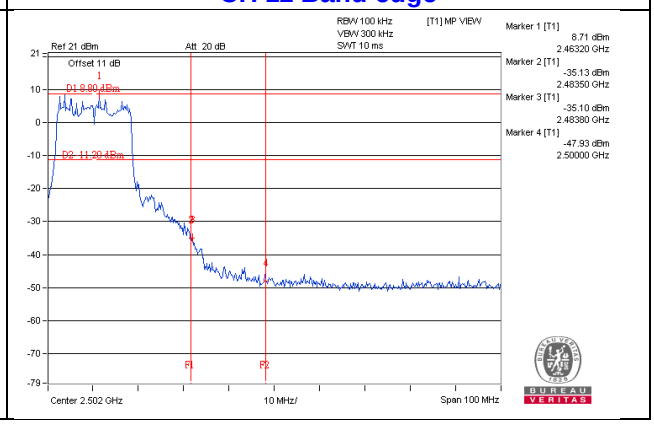




CH 1 Band edge

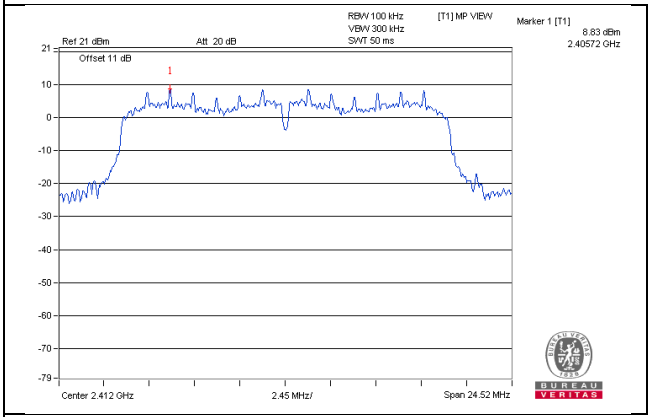


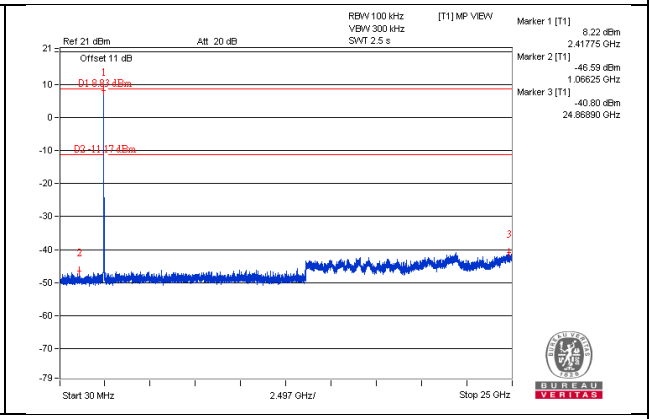
CH 11 Band edge



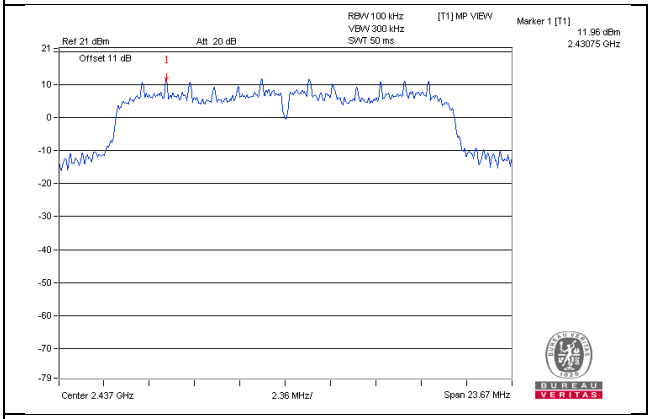
802.11n (HT20)
Chain 0

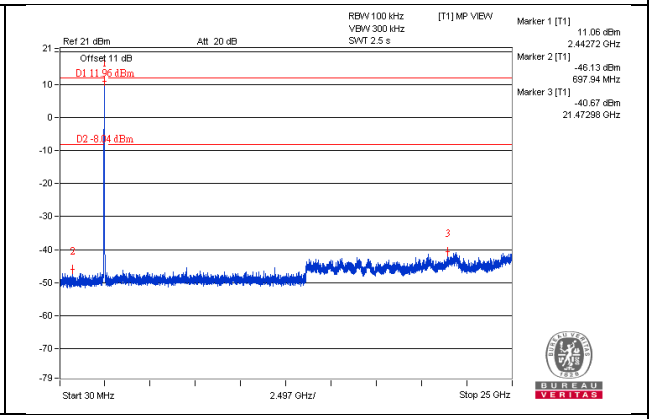
CH 1



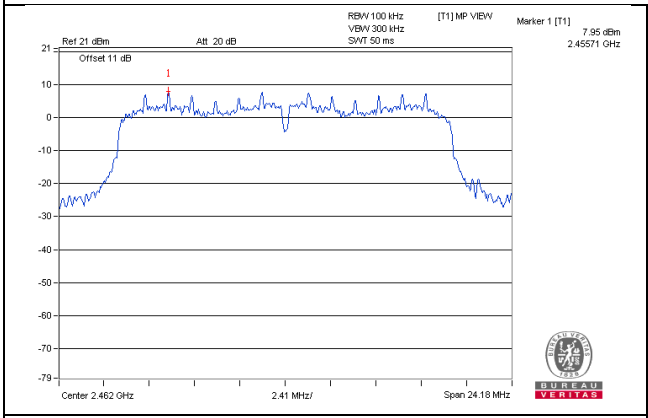


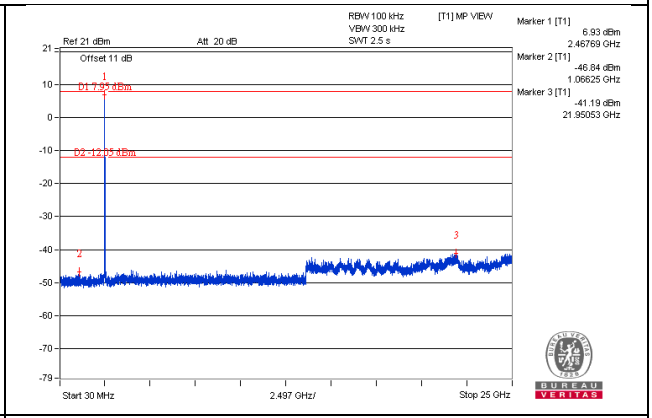
CH 6



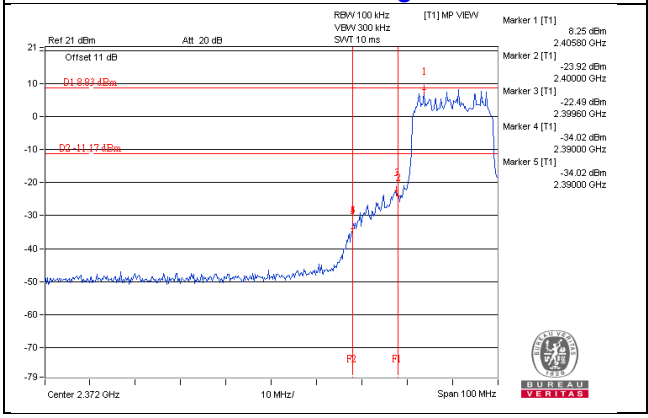


CH 11

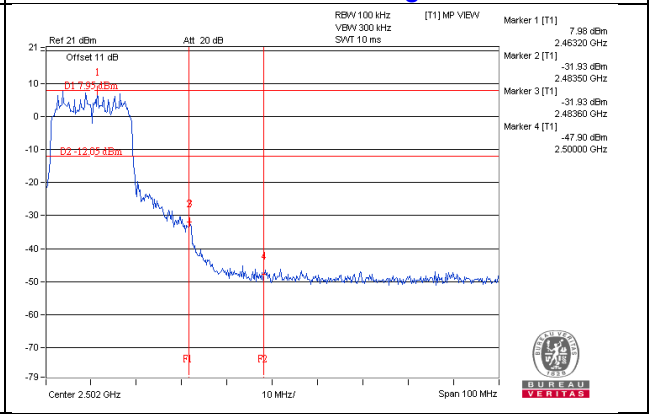




CH 1 Band edge

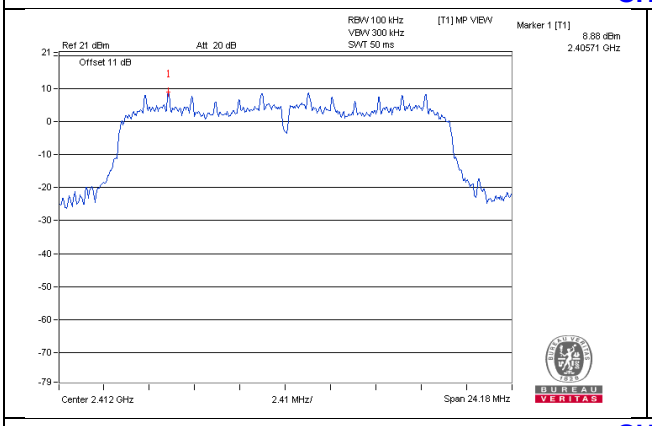


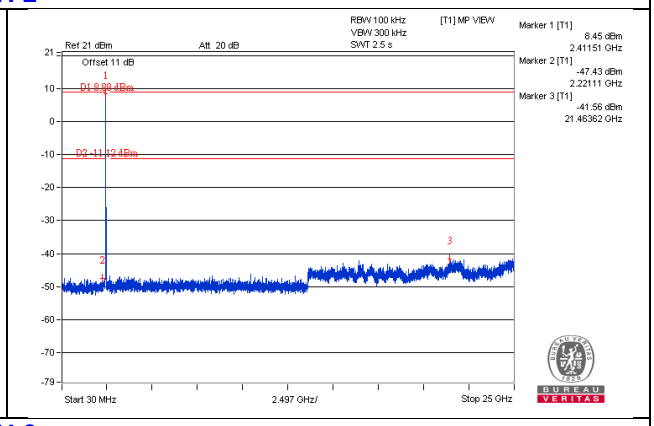
CH 11 Band edge



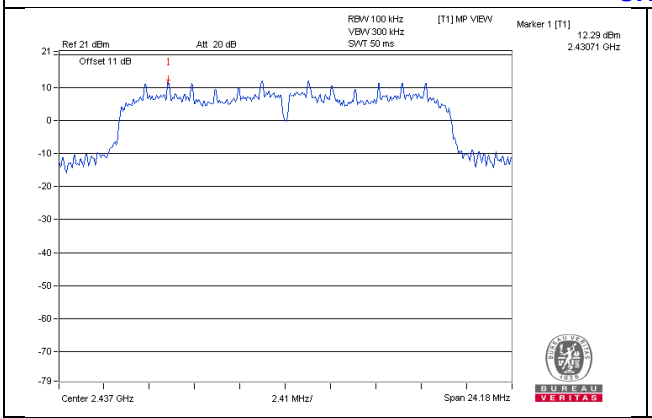
Chain 1

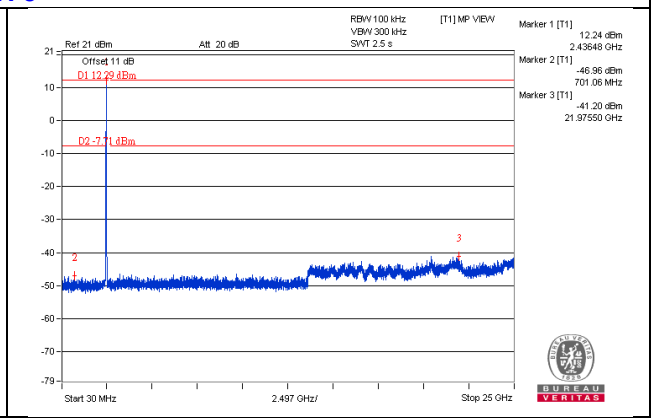
CH 1



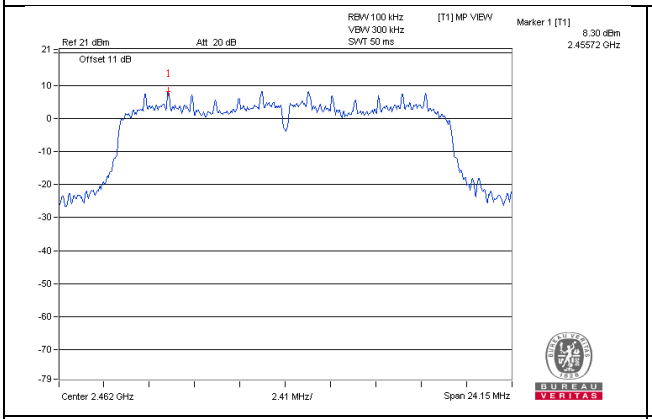


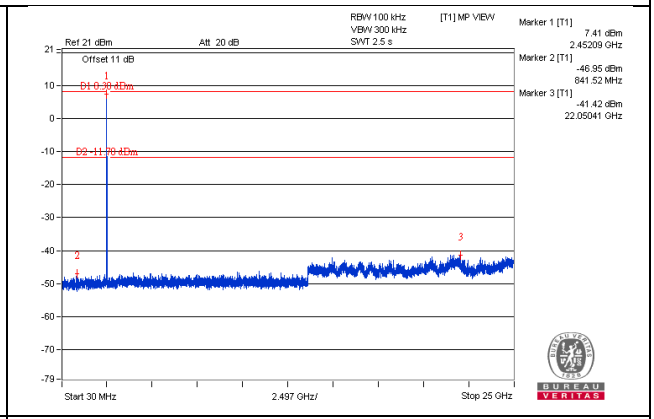
CH 6



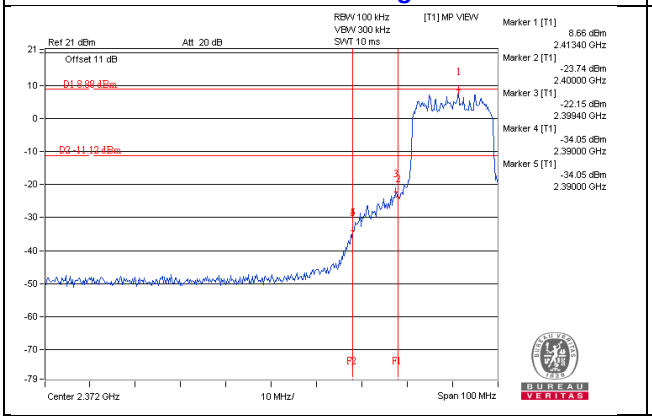


CH 11

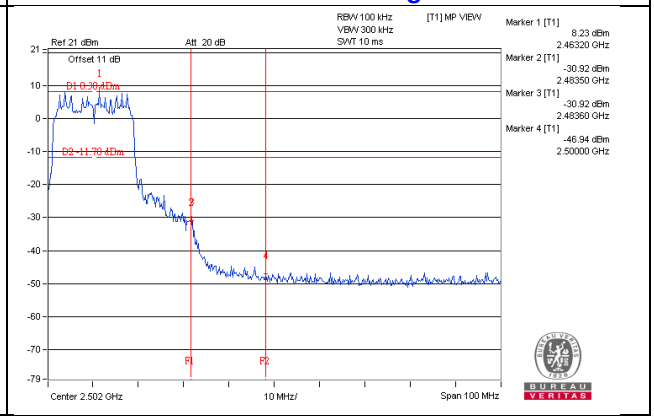




CH 1 Band edge

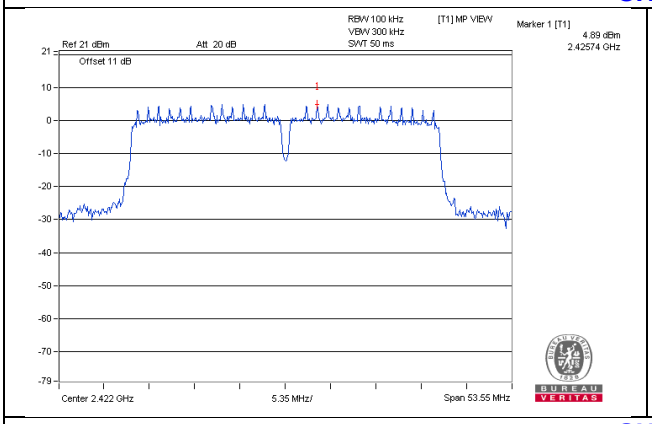


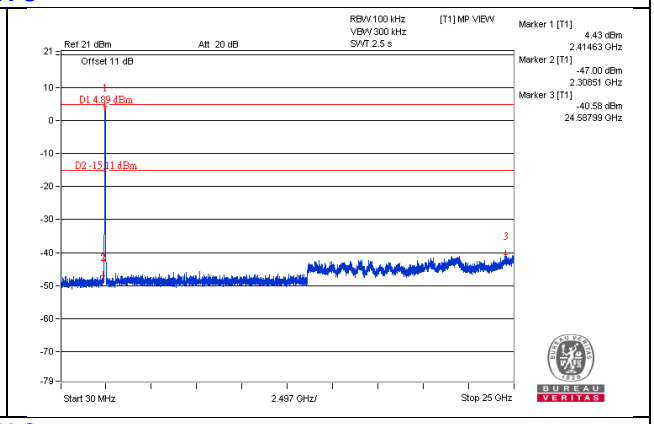
CH 11 Band edge



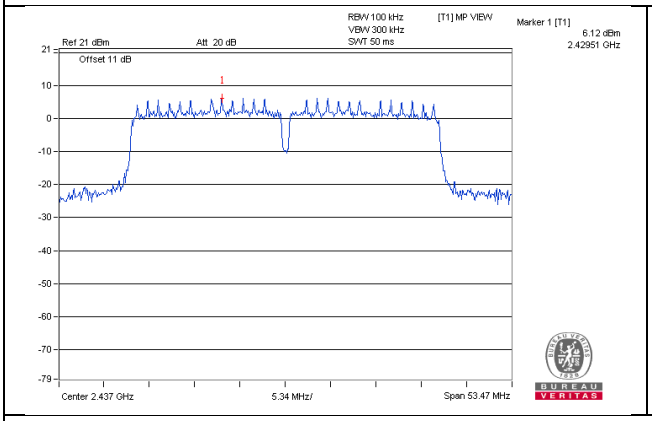
802.11n (HT40)
Chain 0

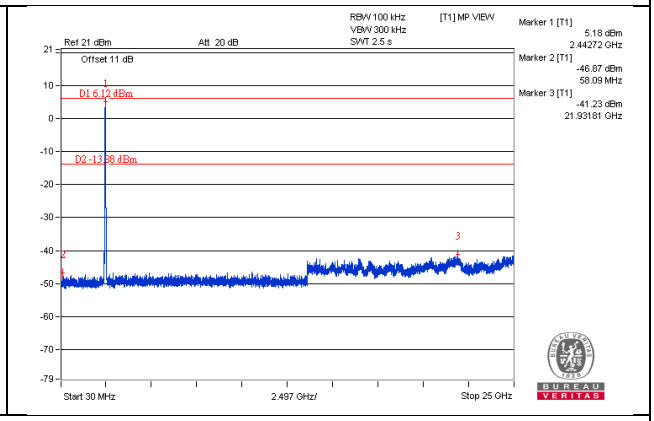
CH 3



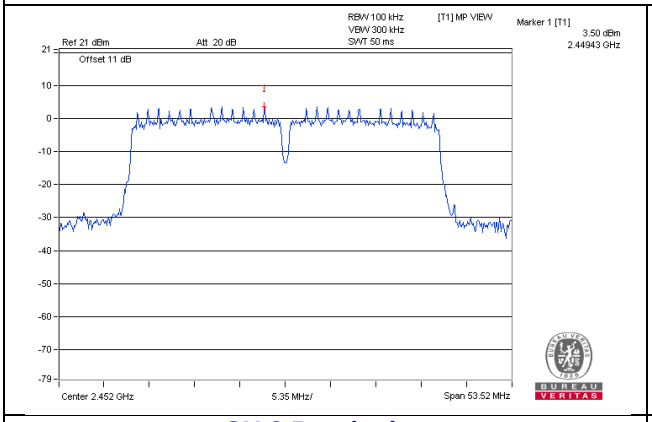


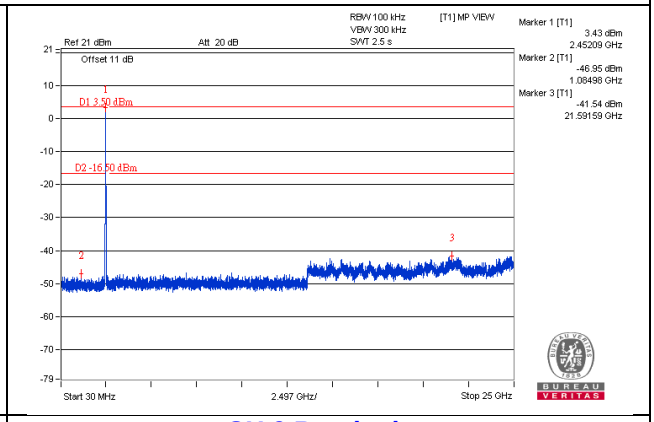
CH 6



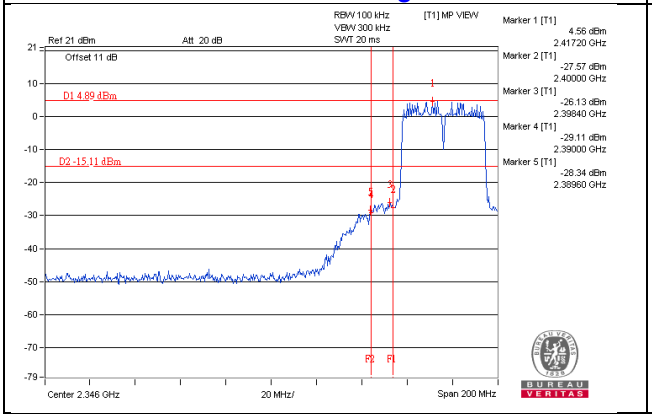


CH 9

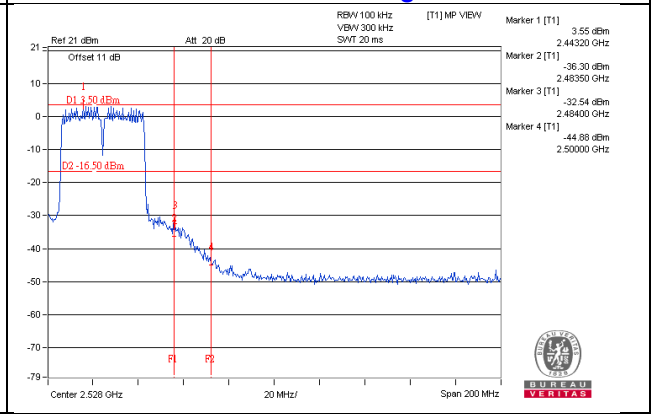




CH 3 Band edge

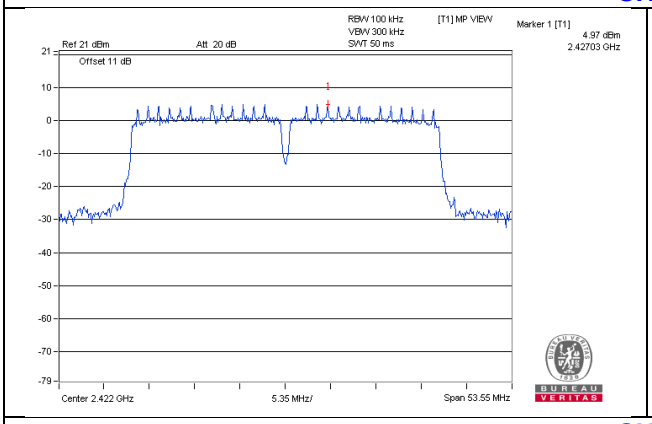


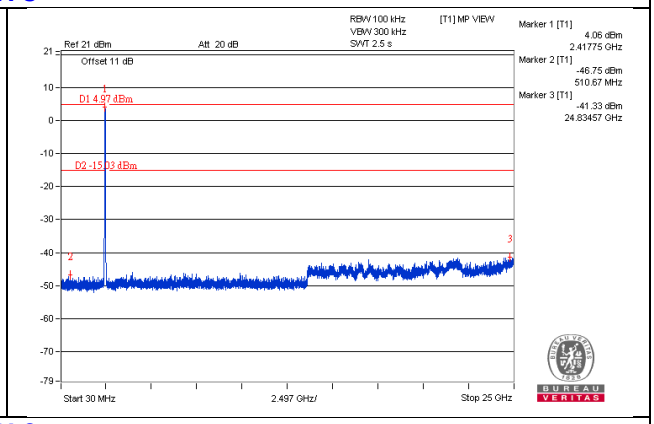
CH 9 Band edge



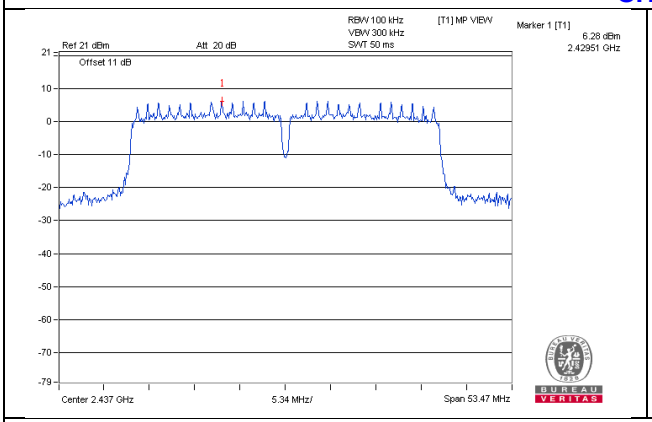
Chain 1

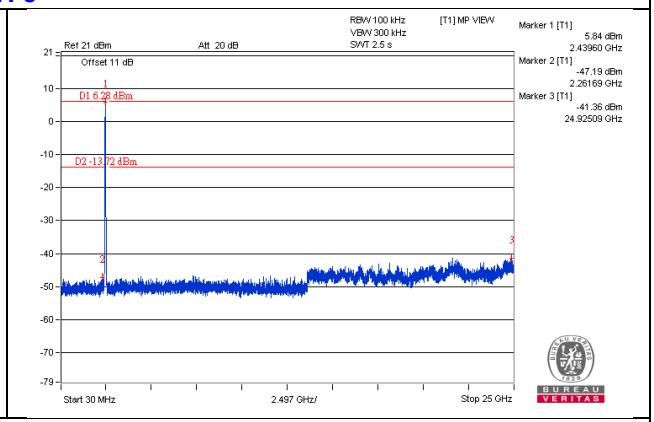
CH 3



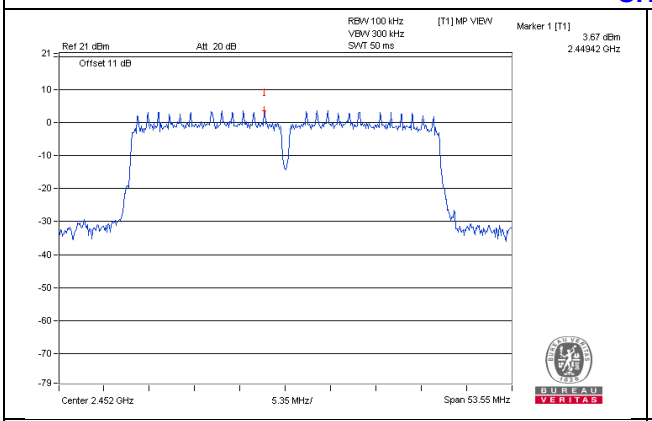


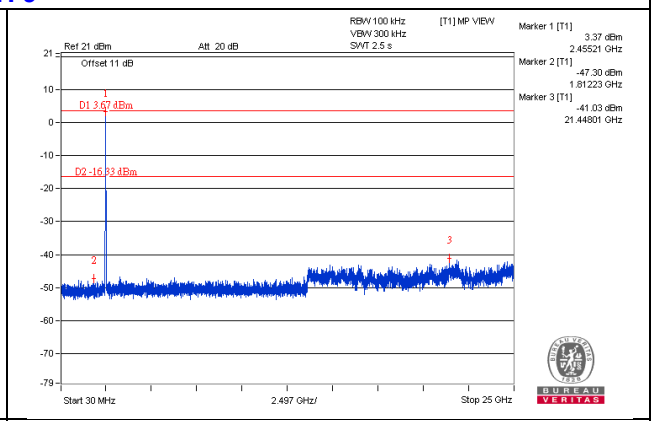
CH 6



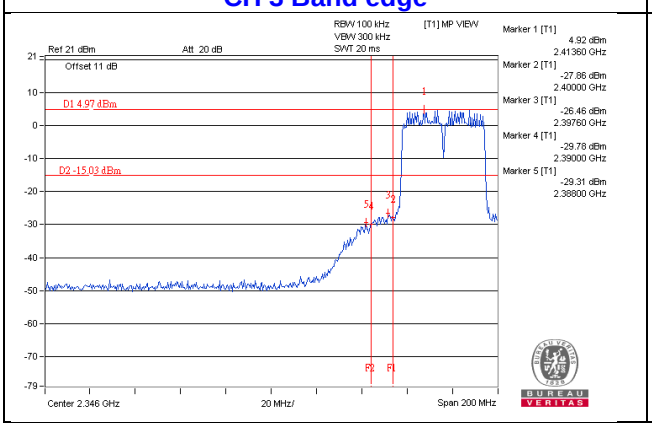


CH 9

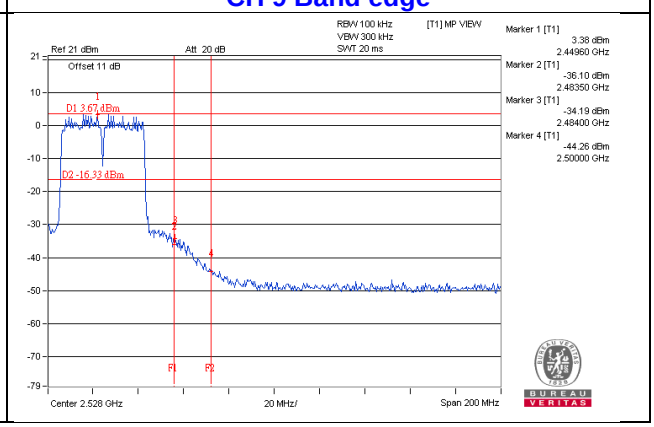




CH 3 Band edge



CH 9 Band edge



5 Pictures of Test Arrangements

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

Appendix – Information on the Testing Laboratories

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

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

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

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

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