FCC Test Report (WLAN)

Report No.:	RF161216E08
FCC ID:	UAY-W8997-M1216
Test Model:	W8997-M1216
Received Date:	Dec. 16, 2016
Test Date:	Dec. 19 to 22, 2016
Issued Date:	Jan. 18, 2017
Applicant:	Marvell Semiconductor
Address:	5488 Marvell Lane, Santa Clara CA95054 USA
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 (1):	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location (2):	No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.

Testing Laboratory
2022

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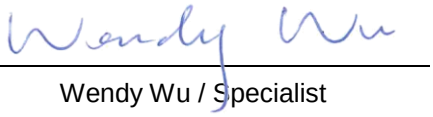
Release Control Record

Issue No.	Description	Date Issued
RF161216E08	Original release.	Jan. 18, 2017

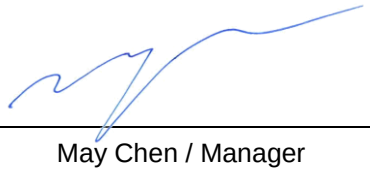
1 Certificate of Conformity

Product:	IEEE 802.11 2X2 MU-MIMO ac/a/b/g/n Wireless LAN + Bluetooth NGFF Module
Brand:	Marvell
Test Model:	W8997-M1216
Sample Status:	ENGINEERING SAMPLE
Applicant:	Marvell Semiconductor
Test Date:	Dec. 19 to 22, 2016
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) ANSI C63.10: 2013

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

Prepared by :  , **Date:** Jan. 18, 2017

Wendy Wu / Specialist

Approved by :  , **Date:** Jan. 18, 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 -16.38dB at 24.00391MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.1dB at 2390.00MHz, 2483.50MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is 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	1.83 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.36 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.47 dB
	6GHz ~ 18GHz	3.75 dB
	18GHz ~ 40GHz	3.30 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	IEEE 802.11 2X2 MU-MIMO ac/a/b/g/n Wireless LAN + Bluetooth NGFF Module
Brand	Marvell
Test Model	W8997-M1216
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	DC 3.3V from host equipment
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode
Modulation Technology	DSSS,OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: 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, 5.26~5.32GHz, 5.50~5.70GHz, 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): 24 802.11n (HT40), 802.11ac (VHT40): 11 802.11ac (VHT80): 5
Output Power	**2.4GHz:** 931.528mW **5.18GHz ~ 5.24GHz:** 151.716mW **5.26~5.32GHz** 148.092mW **5.50~5.70GHz** 136.98mW **5.745GHz ~ 5.825GHz:** 194.363mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. There are WLAN, BT 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 antennas provided to the EUT, please refer to the following table:

Antenna Set.	Brand	Model	Chain No.	Antenna Net. Gain(dBi)	Frequency range (MHz)	Antenna Type	Connecter Type
1	MAG.LAYERS	MSA-4008-25GC1-A1	Chain 0(Aux)	2.98	2400~2500	PIFA	i-pex(MHF)
				5.16	4900~5900		
			Chain 1(Main)	2.98	2400~2500		
				5.16	4900~5900		

4. 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)	MCS0~8 Nss=1	2TX	2RX
	MCS0~8 Nss=2	2TX	2RX
802.11ac (VHT40)	MCS0~9 Nss=1	2TX	2RX
	MCS0~9 Nss=2	2TX	2RX
802.11ac (VHT80)	MCS0~9 Nss=1	2TX	2RX
	MCS0~9 Nss=2	2TX	2RX

5. 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	
-	√	√	√	√	-

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

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

NOTE: The EUT's antenna had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.

Radiated Emission Test (Above 1GHz):

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

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

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)
802.11g	1 to 11	6	OFDM	BPSK	6

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)
802.11g	1 to 11	6	OFDM	BPSK	6

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.

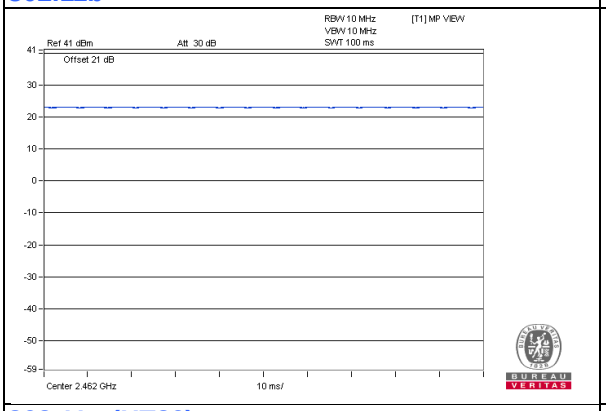
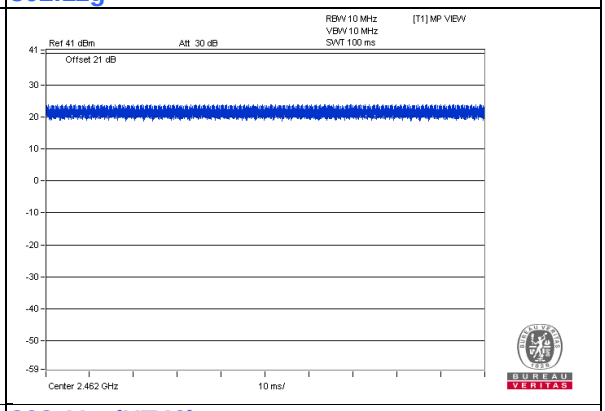
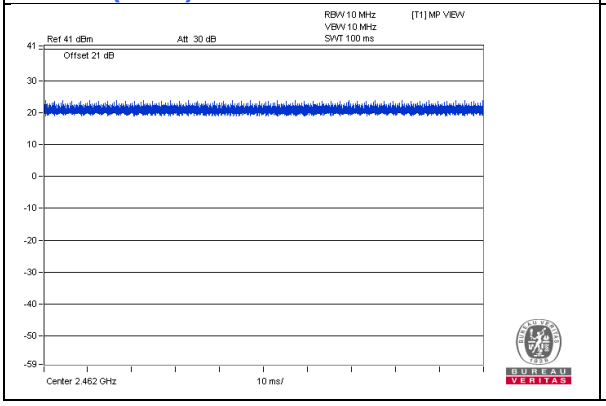
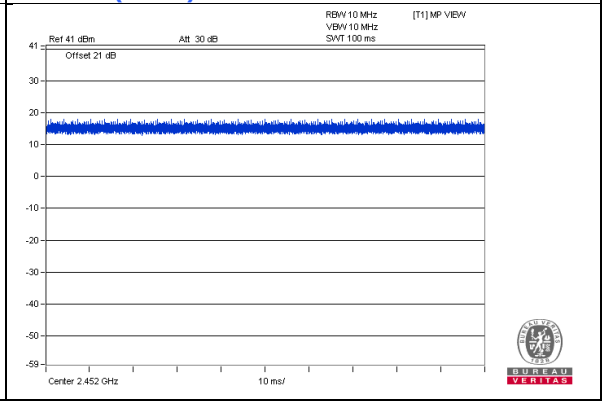
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (System)	TESTED BY
RE≥1G	23deg. C, 63%RH	120Vac, 60Hz	Terry Huang
RE<1G	24deg. C, 65%RH	120Vac, 60Hz	Terry Huang
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

Duty cycle of test signal is 100 %, duty factor is not required.

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.

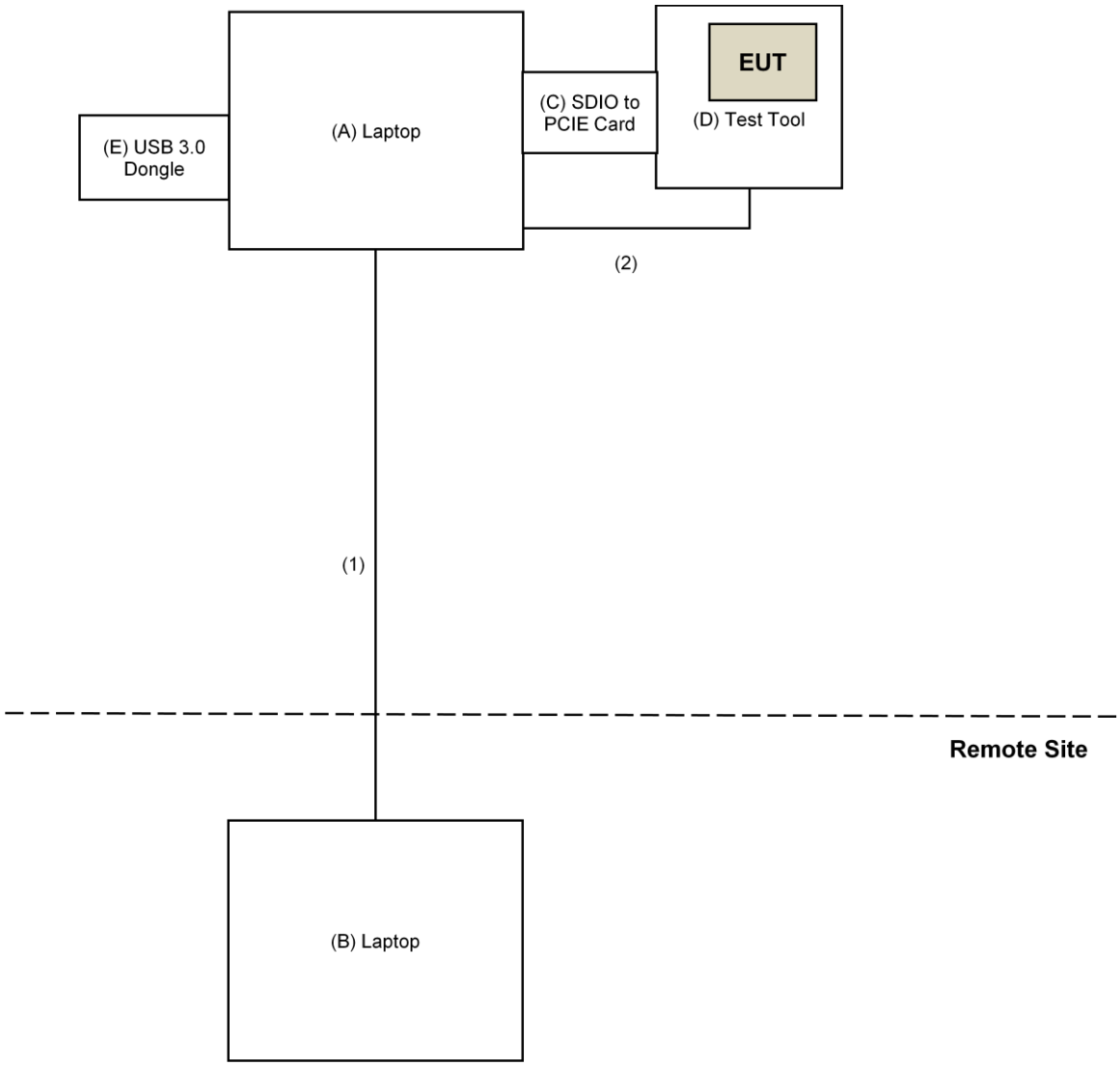
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	E6420	B92T3R1	FCC DoC	Provided by Lab
B.	Laptop	DELL	E6440	F9LYQ32	FCC DoC	Provided by Lab
C.	SDIO to PCIE Card	AzureWave	NA	NA	NA	Supplied by client
D.	Test Tool	AzureWave	NA	NA	NA	Supplied by client
E.	USB 3.0 Dongle	Transcend	JF790	NA	NA	Supplied by client

Note:

1. 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.	RJ-45 Cable	1	10	No	0	Provided by Lab
2.	USB Cable	1	1.4	Yes	0	Provided by Lab

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

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

FCC Part 15, Subpart C (15.247)
KDB 558074 D01 DTS Meas Guidance v03r05
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 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 Agilent	N9038A	MY50010156	Aug. 18, 2016	Aug. 17, 2017
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. 18, 2016	Jan. 17, 2017
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-05	May 07, 2016	May 06, 2017
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-156	Jan. 04, 2016	Jan. 03, 2017
RF Cable	8D	966-3-1 966-3-2 966-3-3	Apr. 02, 2016	Apr. 01, 2017
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Oct. 05, 2016	Oct. 04, 2017
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Jan. 20, 2016	Jan. 19, 2017
Pre-Amplifier Agilent	8449B	3008A02465	Apr. 05, 2016	Apr. 04, 2017
RF Cable	EMC104-SM-SM-2000 EMC104-SM-SM-5000 EMC104-SM-SM-5000	150317 150321 150322	Mar. 30, 2016	Mar. 29, 2017
Spectrum Analyzer Keysight	N9030A	MY54490520	July 29, 2016	July 28, 2017
Pre-Amplifier EMCI	EMC184045	980143	Jan. 15, 2016	Jan. 14, 2017
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Jan. 08, 2016	Jan. 07, 2017
RF Cable	SUCOFLEX 102	36432/2 36441/2	Jan. 16, 2016	Jan. 15, 2017
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Spectrum Analyzer R&S	FSv40	100964	June 28, 2016	June 27, 2017
Power meter Anritsu	ML2495A	1014008	May 5, 2016	May 4, 2017
Power sensor Anritsu	MA2411B	0917122	May 5, 2016	May 4, 2017

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. *The 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. 3.
4. The FCC Site Registration No. is 147459
6. The CANADA Site Registration No. is 20331-1
7 Loop antenna was used for all emissions below 30 MHz.
8. Tested Date: Dec. 19 to 22, 2016

4.1.3 Test Procedures

For Radiated emission below 30MHz

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

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

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

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

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

NOTE:

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

For Radiated emission above 30MHz

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

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

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

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

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

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

Note:

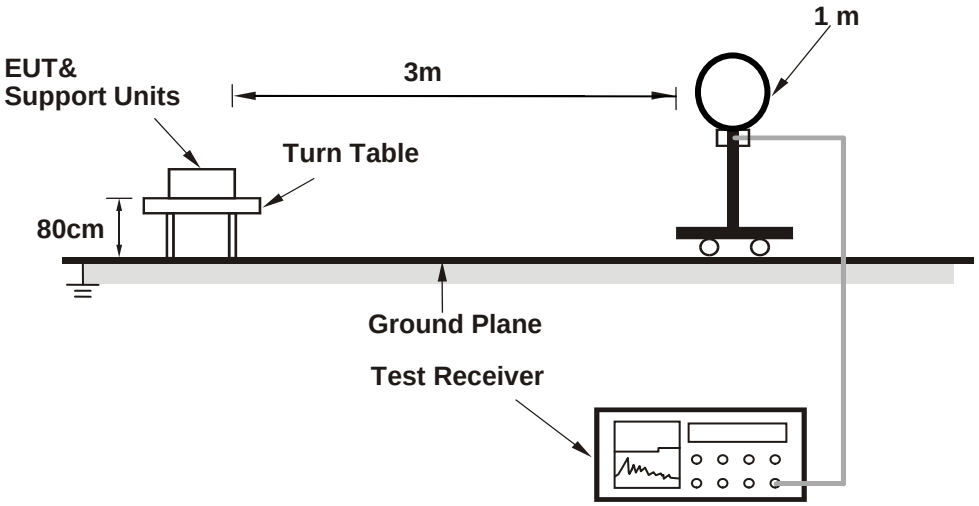
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

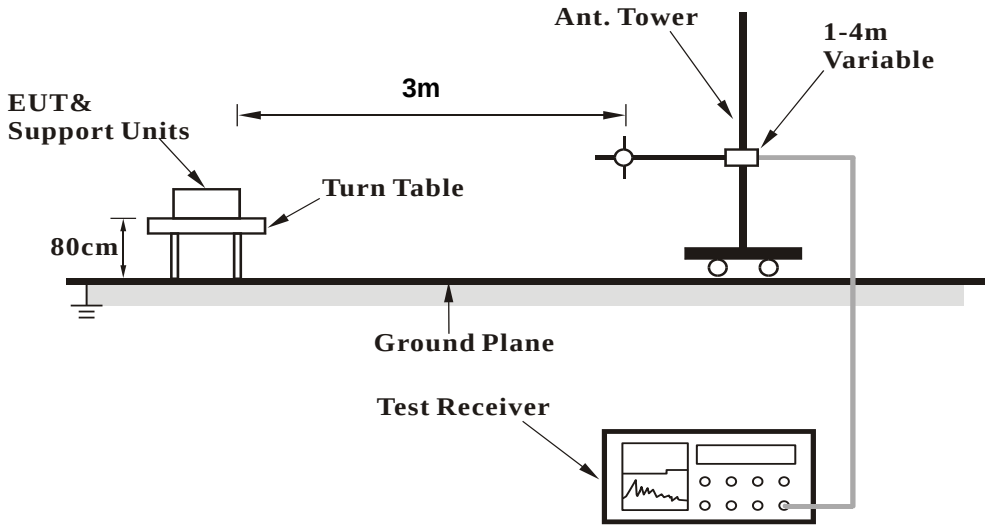
No deviation.

4.1.5 Test Setup

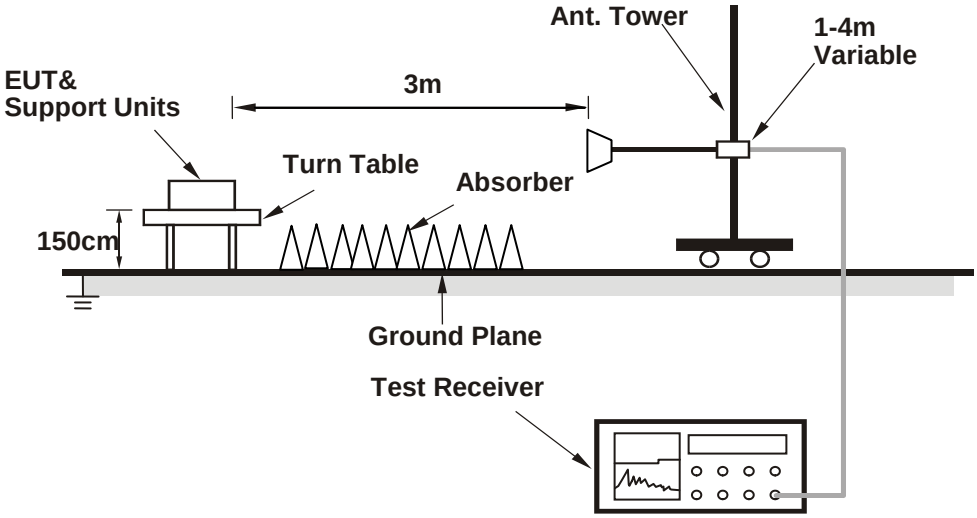
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

a. Connected the EUT with the Laptop which is placed on table.
b. Contorlling software (DutApiMimoBt.exe[Ver1.0.0.109]) 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	42.8 PK	74.0	-31.2	1.04 H	47	47.0	-4.2
2	2390.00	36.3 AV	54.0	-17.7	1.04 H	47	40.5	-4.2
3	*2412.00	106.7 PK			1.04 H	47	110.8	-4.1
4	*2412.00	105.0 AV			1.04 H	47	109.1	-4.1
5	4824.00	51.9 PK	74.0	-22.1	1.01 H	7	49.6	2.3
6	4824.00	50.2 AV	54.0	-3.8	1.01 H	7	47.9	2.3
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	2390.00	46.8 PK	74.0	-27.2	1.36 V	41	51.0	-4.2
2	2390.00	38.2 AV	54.0	-15.8	1.36 V	41	42.4	-4.2
3	*2412.00	110.9 PK			1.36 V	41	115.0	-4.1
4	*2412.00	109.3 AV			1.36 V	41	113.4	-4.1
5	4824.00	46.5 PK	74.0	-27.5	1.42 V	9	44.2	2.3
6	4824.00	43.2 AV	54.0	-10.8	1.42 V	9	40.9	2.3

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.

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	42.2 PK	74.0	-31.8	1.00 H	49	46.4	-4.2
2	2390.00	35.8 AV	54.0	-18.2	1.00 H	49	40.0	-4.2
3	*2437.00	106.6 PK			1.00 H	49	110.6	-4.0
4	*2437.00	104.5 AV			1.00 H	49	108.5	-4.0
5	2483.50	50.6 PK	74.0	-23.4	1.00 H	49	54.6	-4.0
6	2483.50	42.9 AV	54.0	-11.1	1.00 H	49	46.9	-4.0
7	4874.00	50.5 PK	74.0	-23.5	1.17 H	47	48.0	2.5
8	4874.00	48.4 AV	54.0	-5.6	1.17 H	47	45.9	2.5
9	7311.00	51.2 PK	74.0	-22.8	3.06 H	215	42.3	8.9
10	7311.00	44.7 AV	54.0	-9.3	3.06 H	215	35.8	8.9
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	2390.00	46.4 PK	74.0	-27.6	1.55 V	62	50.6	-4.2
2	2390.00	37.8 AV	54.0	-16.2	1.55 V	62	42.0	-4.2
3	*2437.00	110.8 PK			1.55 V	62	114.8	-4.0
4	*2437.00	108.9 AV			1.55 V	62	112.9	-4.0
5	2483.50	54.6 PK	74.0	-19.4	1.55 V	62	58.6	-4.0
6	2483.50	44.7 AV	54.0	-9.3	1.55 V	62	48.7	-4.0
7	4874.00	46.3 PK	74.0	-27.7	1.45 V	8	43.8	2.5
8	4874.00	42.7 AV	54.0	-11.3	1.45 V	8	40.2	2.5
9	7311.00	49.8 PK	74.0	-24.2	1.70 V	360	40.9	8.9
10	7311.00	38.2 AV	54.0	-15.8	1.70 V	360	29.3	8.9

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.

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	106.8 PK			1.09 H	63	110.9	-4.1
2	*2462.00	104.4 AV			1.09 H	63	108.5	-4.1
3	2483.50	54.7 PK	74.0	-19.3	1.09 H	63	58.7	-4.0
4	2483.50	50.0 AV	54.0	-4.0	1.09 H	63	54.0	-4.0
5	4924.00	49.2 PK	74.0	-24.8	1.06 H	34	46.7	2.5
6	4924.00	46.7 AV	54.0	-7.3	1.06 H	34	44.2	2.5
7	7386.00	50.7 PK	74.0	-23.3	1.82 H	184	41.4	9.3
8	7386.00	43.7 AV	54.0	-10.3	1.82 H	184	34.4	9.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.1 PK			1.03 V	56	115.2	-4.1
2	*2462.00	109.0 AV			1.03 V	56	113.1	-4.1
3	2483.50	58.4 PK	74.0	-15.6	1.03 V	56	62.4	-4.0
4	2483.50	51.7 AV	54.0	-2.3	1.03 V	56	55.7	-4.0
5	4924.00	46.9 PK	74.0	-27.1	1.38 V	20	44.4	2.5
6	4924.00	43.5 AV	54.0	-10.5	1.38 V	20	41.0	2.5
7	7386.00	49.6 PK	74.0	-24.4	1.68 V	360	40.3	9.3
8	7386.00	38.1 AV	54.0	-15.9	1.68 V	360	28.8	9.3

REMARKS:

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

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.7 PK	74.0	-5.3	2.23 H	358	72.9	-4.2
2	2390.00	42.1 AV	54.0	-11.9	2.23 H	358	46.3	-4.2
3	*2412.00	107.8 PK			2.23 H	358	111.9	-4.1
4	*2412.00	95.9 AV			2.23 H	358	100.0	-4.1
5	4824.00	51.8 PK	74.0	-22.2	2.20 H	149	49.5	2.3
6	4824.00	38.8 AV	54.0	-15.2	2.20 H	149	36.5	2.3
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	**2390.00**	**73.9 PK**	**74.0**	**-0.1**	**2.08 V**	**184**	**78.1**	**-4.2**
2	2390.00	47.0 AV	54.0	-7.0	2.08 V	184	51.2	-4.2
3	*2412.00	108.7 PK			2.08 V	184	112.8	-4.1
4	*2412.00	100.3 AV			2.08 V	184	104.4	-4.1
5	4824.00	43.9 PK	74.0	-30.1	2.88 V	205	41.6	2.3
6	4824.00	32.2 AV	54.0	-21.8	2.88 V	205	29.9	2.3

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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.7 PK	74.0	-12.3	2.17 H	351	65.9	-4.2
2	2390.00	43.0 AV	54.0	-11.0	2.17 H	351	47.2	-4.2
3	*2437.00	111.1 PK			2.17 H	351	115.1	-4.0
4	*2437.00	103.5 AV			2.17 H	351	107.5	-4.0
5	2483.50	66.6 PK	74.0	-7.4	2.17 H	351	70.6	-4.0
6	2483.50	47.7 AV	54.0	-6.3	2.17 H	351	51.7	-4.0
7	4874.00	51.3 PK	74.0	-22.7	2.14 H	154	48.8	2.5
8	4874.00	38.3 AV	54.0	-15.7	2.14 H	154	35.8	2.5
9	7311.00	50.7 PK	74.0	-23.3	1.96 H	210	41.8	8.9
10	7311.00	37.7 AV	54.0	-16.3	1.96 H	210	28.8	8.9
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	2390.00	66.7 PK	74.0	-7.3	2.68 V	237	70.9	-4.2
2	2390.00	46.8 AV	54.0	-7.2	2.68 V	237	51.0	-4.2
3	*2437.00	112.2 PK			2.68 V	237	116.2	-4.0
4	*2437.00	104.7 AV			2.68 V	237	108.7	-4.0
5	2483.50	72.1 PK	74.0	-1.9	2.68 V	237	76.1	-4.0
6	2483.50	52.7 AV	54.0	-1.3	2.68 V	237	56.7	-4.0
7	4874.00	44.0 PK	74.0	-30.0	2.90 V	191	41.5	2.5
8	4874.00	32.1 AV	54.0	-21.9	2.90 V	191	29.6	2.5
9	7311.00	50.2 PK	74.0	-23.8	1.74 V	360	41.3	8.9
10	7311.00	37.0 AV	54.0	-17.0	1.74 V	360	28.1	8.9

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.

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	108.4 PK			2.14 H	337	112.5	-4.1
2	*2462.00	99.8 AV			2.14 H	337	103.9	-4.1
3	2483.50	68.0 PK	74.0	-6.0	2.14 H	337	72.0	-4.0
4	2483.50	47.3 AV	54.0	-6.7	2.14 H	337	51.3	-4.0
5	4924.00	51.7 PK	74.0	-22.3	2.13 H	144	49.2	2.5
6	4924.00	38.7 AV	54.0	-15.3	2.13 H	144	36.2	2.5
7	7386.00	49.9 PK	74.0	-24.1	1.97 H	220	40.6	9.3
8	7386.00	37.2 AV	54.0	-16.8	1.97 H	220	27.9	9.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.6 PK			2.46 V	18	113.7	-4.1
2	*2462.00	101.4 AV			2.46 V	18	105.5	-4.1
3	2483.50	73.8 PK	74.0	-0.2	2.46 V	18	77.8	-4.0
4	2483.50	52.6 AV	54.0	-1.4	2.46 V	18	56.6	-4.0
5	4924.00	44.6 PK	74.0	-29.4	2.88 V	193	42.1	2.5
6	4924.00	32.6 AV	54.0	-21.4	2.88 V	193	30.1	2.5
7	7386.00	50.9 PK	74.0	-23.1	1.79 V	360	41.6	9.3
8	7386.00	37.5 AV	54.0	-16.5	1.79 V	360	28.2	9.3

REMARKS:

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

802.11n (HT20)

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

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	73.8 PK	74.0	-0.2	3.03 H	171	78.0	-4.2
2	2390.00	49.2 AV	54.0	-4.8	3.03 H	171	53.4	-4.2
3	*2412.00	111.3 PK			3.03 H	171	115.4	-4.1
4	*2412.00	101.7 AV			3.03 H	171	105.8	-4.1
5	4824.00	51.9 PK	74.0	-22.1	2.19 H	151	49.6	2.3
6	4824.00	38.8 AV	54.0	-15.2	2.19 H	151	36.5	2.3
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	2390.00	73.2 PK	74.0	-0.8	1.00 V	33	77.4	-4.2
2	2390.00	50.2 AV	54.0	-3.8	1.00 V	33	54.4	-4.2
3	*2412.00	111.6 PK			1.00 V	33	115.7	-4.1
4	*2412.00	102.5 AV			1.00 V	33	106.6	-4.1
5	4824.00	43.6 PK	74.0	-30.4	2.83 V	189	41.3	2.3
6	4824.00	31.9 AV	54.0	-22.1	2.83 V	189	29.6	2.3

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.

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	68.5 PK	74.0	-5.5	2.98 H	167	72.7	-4.2
2	2390.00	46.2 AV	54.0	-7.8	2.98 H	167	50.4	-4.2
3	*2437.00	112.6 PK			2.98 H	167	116.6	-4.0
4	*2437.00	102.2 AV			2.98 H	167	106.2	-4.0
5	2483.50	73.3 PK	74.0	-0.7	2.98 H	167	77.3	-4.0
6	2483.50	52.4 AV	54.0	-1.6	2.98 H	167	56.4	-4.0
7	4874.00	51.4 PK	74.0	-22.6	2.10 H	154	48.9	2.5
8	4874.00	38.6 AV	54.0	-15.4	2.10 H	154	36.1	2.5
9	7311.00	50.5 PK	74.0	-23.5	1.94 H	217	41.6	8.9
10	7311.00	37.5 AV	54.0	-16.5	1.94 H	217	28.6	8.9
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	2390.00	69.4 PK	74.0	-4.6	1.03 V	32	73.6	-4.2
2	2390.00	47.2 AV	54.0	-6.8	1.03 V	32	51.4	-4.2
3	*2437.00	112.9 PK			1.03 V	32	116.9	-4.0
4	*2437.00	103.0 AV			1.03 V	32	107.0	-4.0
5	2483.50	73.5 PK	74.0	-0.5	1.03 V	32	77.5	-4.0
6	2483.50	53.2 AV	54.0	-0.8	1.03 V	32	57.2	-4.0
7	4874.00	43.9 PK	74.0	-30.1	2.87 V	185	41.4	2.5
8	4874.00	32.0 AV	54.0	-22.0	2.87 V	185	29.5	2.5
9	7311.00	50.6 PK	74.0	-23.4	1.78 V	360	41.7	8.9
10	7311.00	37.4 AV	54.0	-16.6	1.78 V	360	28.5	8.9

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.

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	109.3 PK			3.02 H	173	113.4	-4.1
2	*2462.00	99.3 AV			3.02 H	173	103.4	-4.1
3	2483.50	68.7 PK	74.0	-5.3	3.02 H	173	72.7	-4.0
4	2483.50	53.1 AV	54.0	-0.9	3.02 H	173	57.1	-4.0
5	4924.00	51.3 PK	74.0	-22.7	2.19 H	163	48.8	2.5
6	4924.00	38.2 AV	54.0	-15.8	2.19 H	163	35.7	2.5
7	7386.00	50.3 PK	74.0	-23.7	1.92 H	197	41.0	9.3
8	7386.00	37.5 AV	54.0	-16.5	1.92 H	197	28.2	9.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.6 PK			1.00 V	34	113.7	-4.1
2	*2462.00	100.1 AV			1.00 V	34	104.2	-4.1
3	2483.50	70.6 PK	74.0	-3.4	1.00 V	34	74.6	-4.0
4	2483.50	53.6 AV	54.0	-0.4	1.00 V	34	57.6	-4.0
5	4924.00	43.9 PK	74.0	-30.1	2.83 V	195	41.4	2.5
6	4924.00	32.2 AV	54.0	-21.8	2.83 V	195	29.7	2.5
7	7386.00	51.0 PK	74.0	-23.0	1.74 V	360	41.7	9.3
8	7386.00	37.5 AV	54.0	-16.5	1.74 V	360	28.2	9.3

REMARKS:

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

802.11n (HT40)

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK) 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	73.8 PK	74.0	-0.2	3.07 H	190	78.0	-4.2
2	2390.00	53.8 AV	54.0	-0.2	3.07 H	190	58.0	-4.2
3	*2422.00	109.8 PK			3.07 H	190	113.9	-4.1
4	*2422.00	99.8 AV			3.07 H	190	103.9	-4.1
5	4844.00	50.7 PK	74.0	-23.3	2.17 H	148	48.4	2.3
6	4844.00	38.0 AV	54.0	-16.0	2.17 H	148	35.7	2.3
7	7266.00	50.4 PK	74.0	-23.6	1.94 H	225	41.6	8.8
8	7266.00	37.7 AV	54.0	-16.3	1.94 H	225	28.9	8.8
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	71.0 PK	74.0	-3.0	1.00 V	32	75.2	-4.2
2	2390.00	53.1 AV	54.0	-0.9	1.00 V	32	57.3	-4.2
3	*2422.00	107.5 PK			1.00 V	32	111.6	-4.1
4	*2422.00	98.3 AV			1.00 V	32	102.4	-4.1
5	4844.00	44.5 PK	74.0	-29.5	2.92 V	176	42.2	2.3
6	4844.00	32.3 AV	54.0	-21.7	2.92 V	176	30.0	2.3
7	7266.00	51.0 PK	74.0	-23.0	1.77 V	360	42.2	8.8
8	7266.00	37.6 AV	54.0	-16.4	1.77 V	360	28.8	8.8

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	67.8 PK	74.0	-6.2	3.01 H	192	72.0	-4.2
2	2390.00	49.3 AV	54.0	-4.7	3.01 H	192	53.5	-4.2
3	*2437.00	110.3 PK			3.01 H	192	114.3	-4.0
4	*2437.00	100.7 AV			3.01 H	192	104.7	-4.0
5	**2483.50**	**73.9 PK**	**74.0**	**-0.1**	**3.01 H**	**192**	**77.9**	**-4.0**
6	2483.50	52.2 AV	54.0	-1.8	3.01 H	192	56.2	-4.0
7	4874.00	51.4 PK	74.0	-22.6	2.17 H	139	48.9	2.5
8	4874.00	38.3 AV	54.0	-15.7	2.17 H	139	35.8	2.5
9	7311.00	50.8 PK	74.0	-23.2	2.01 H	215	41.9	8.9
10	7311.00	37.7 AV	54.0	-16.3	2.01 H	215	28.8	8.9
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	2390.00	68.2 PK	74.0	-5.8	1.00 V	56	72.4	-4.2
2	2390.00	48.1 AV	54.0	-5.9	1.00 V	56	52.3	-4.2
3	*2437.00	106.8 PK			1.00 V	56	110.8	-4.0
4	*2437.00	97.3 AV			1.00 V	56	101.3	-4.0
5	2483.50	72.8 PK	74.0	-1.2	1.00 V	56	76.8	-4.0
6	**2483.50**	**53.9 AV**	**54.0**	**-0.1**	**1.00 V**	**56**	**57.9**	**-4.0**
7	4874.00	43.8 PK	74.0	-30.2	2.86 V	187	41.3	2.5
8	4874.00	32.0 AV	54.0	-22.0	2.86 V	187	29.5	2.5
9	7311.00	50.8 PK	74.0	-23.2	1.79 V	360	41.9	8.9
10	7311.00	37.4 AV	54.0	-16.6	1.79 V	360	28.5	8.9

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.

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	107.8 PK			3.00 H	190	111.9	-4.1
2	*2452.00	98.1 AV			3.00 H	190	102.2	-4.1
3	2483.50	68.2 PK	74.0	-5.8	3.00 H	190	72.2	-4.0
4	2483.50	52.8 AV	54.0	-1.2	3.00 H	190	56.8	-4.0
5	4904.00	51.3 PK	74.0	-22.7	2.15 H	139	48.8	2.5
6	4904.00	38.3 AV	54.0	-15.7	2.15 H	139	35.8	2.5
7	7356.00	49.9 PK	74.0	-24.1	1.99 H	203	40.7	9.2
8	7356.00	37.2 AV	54.0	-16.8	1.99 H	203	28.0	9.2
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	*2452.00	105.0 PK			1.00 V	57	109.1	-4.1
2	*2452.00	95.7 AV			1.00 V	57	99.8	-4.1
3	2483.50	68.2 PK	74.0	-5.8	1.00 V	57	72.2	-4.0
4	2483.50	53.0 AV	54.0	-1.0	1.00 V	57	57.0	-4.0
5	4904.00	43.6 PK	74.0	-30.4	2.87 V	193	41.1	2.5
6	4904.00	31.8 AV	54.0	-22.2	2.87 V	193	29.3	2.5
7	7356.00	50.1 PK	74.0	-23.9	1.80 V	360	40.9	9.2
8	7356.00	37.0 AV	54.0	-17.0	1.80 V	360	27.8	9.2

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.

Below 1GHz Data:

802.11g

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	99.94	35.6 QP	43.5	-7.9	1.55 H	276	48.4	-12.8
2	166.02	40.1 QP	43.5	-3.4	1.93 H	269	48.9	-8.8
3	312.05	32.3 QP	46.0	-13.7	2.10 H	280	39.1	-6.8
4	497.95	40.3 QP	46.0	-5.7	1.09 H	92	42.9	-2.6
5	697.07	33.9 QP	46.0	-12.1	3.13 H	329	33.0	0.9
6	960.01	39.2 QP	54.0	-14.8	1.35 H	264	34.2	5.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.94	36.2 QP	40.0	-3.8	1.43 V	5	45.8	-9.6
2	82.55	35.5 QP	40.0	-4.5	2.08 V	12	49.1	-13.6
3	166.60	32.2 QP	43.5	-11.3	1.18 V	360	41.0	-8.8
4	298.84	41.5 QP	46.0	-4.5	2.39 V	21	48.8	-7.3
5	499.84	41.4 QP	46.0	-4.6	3.75 V	360	43.9	-2.5
6	926.79	35.7 QP	46.0	-10.3	1.35 V	272	30.9	4.8

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

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	Oct. 24, 2016	Oct. 23, 2017
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 26, 2016	Oct. 25, 2017
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 13, 2016	June 12, 2017
RF Cable	5D-FB	COCCAB-001	Sep. 30, 2016	Sep. 29, 2017
10 dB PAD Mini-Circuits	HAT-10+	CONATT-004	June 20, 2016	June 19, 2017
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. 19, 2016

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.

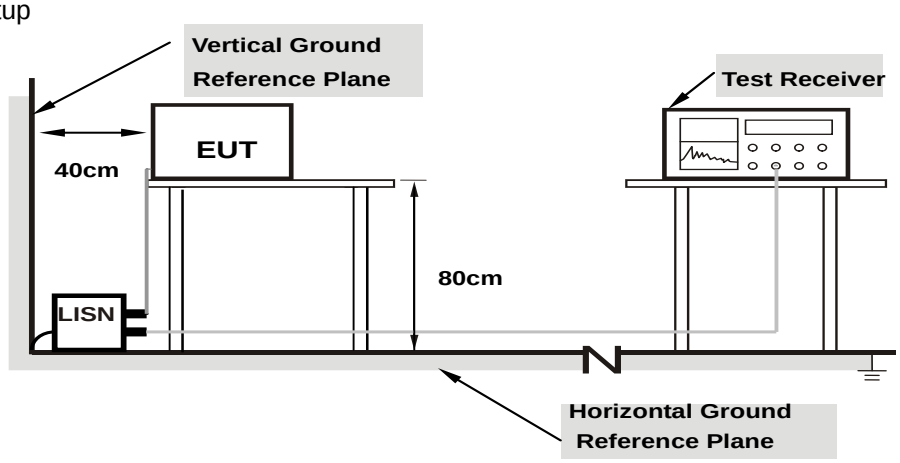
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

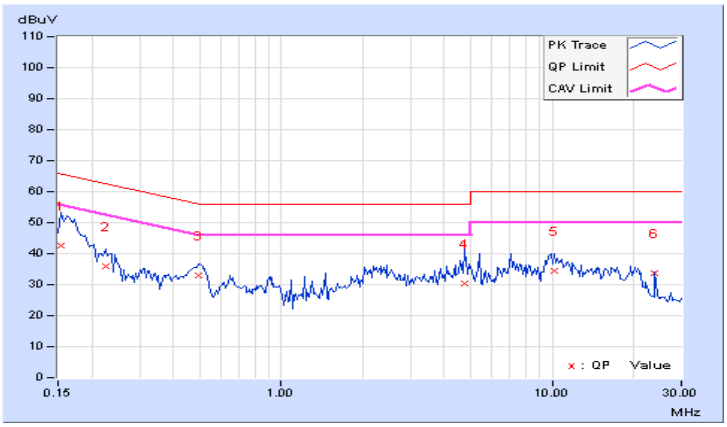
4.2.7 Test Results

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	0.15391	10.19	32.37	19.22	42.56	29.41	65.79	55.79	-23.23	-26.38
2	0.22422	10.19	25.89	12.78	36.08	22.97	62.66	52.66	-26.58	-29.69
3	0.49375	10.23	22.68	14.48	32.91	24.71	56.10	46.10	-23.19	-21.39
4	4.74609	10.28	20.11	13.09	30.39	23.37	56.00	46.00	-25.61	-22.63
5	10.17188	10.57	23.70	18.13	34.27	28.70	60.00	50.00	-25.73	-21.30
6	**24.00391**	**11.42**	**22.28**	**22.20**	**33.70**	**33.62**	**60.00**	**50.00**	**-26.30**	**-16.38**

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.

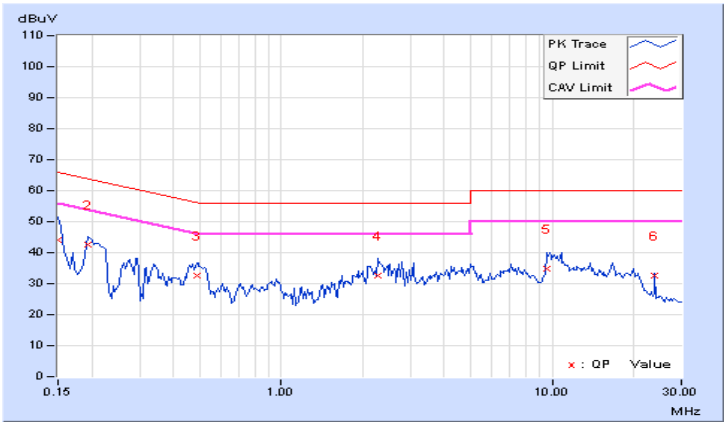


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	10.18	33.84	6.41	44.02	16.59	66.00	56.00	-21.98	-39.41
2	0.19297	10.16	32.58	18.41	42.74	28.57	63.91	53.91	-21.17	-25.34
3	0.48594	10.21	22.21	9.18	32.42	19.39	56.24	46.24	-23.82	-26.85
4	2.27344	10.26	22.43	14.49	32.69	24.75	56.00	46.00	-23.31	-21.25
5	9.60156	10.47	24.21	17.83	34.68	28.30	60.00	50.00	-25.32	-21.70
6	24.00000	11.08	21.44	21.15	32.52	32.23	60.00	50.00	-27.48	-17.77

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.

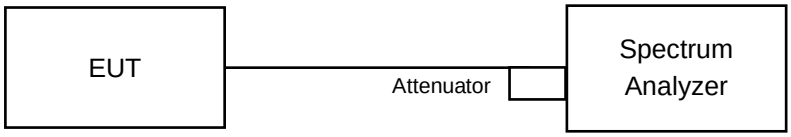


4.3 6dB Bandwidth Measurement

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 fromTest Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	9.67	10.13	0.5	PASS
6	2437	10.12	10.13	0.5	PASS
11	2462	10.11	10.11	0.5	PASS

802.11g

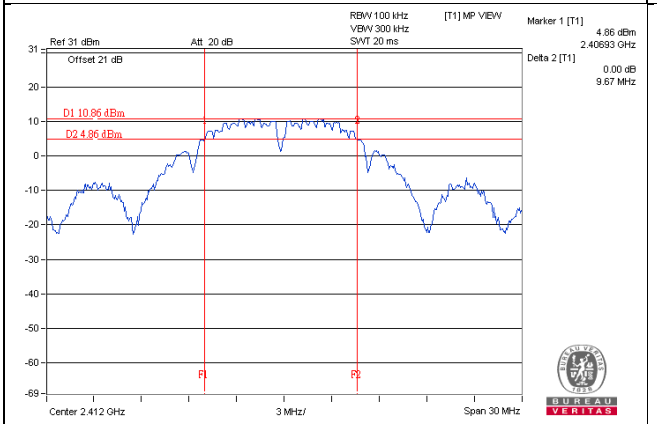
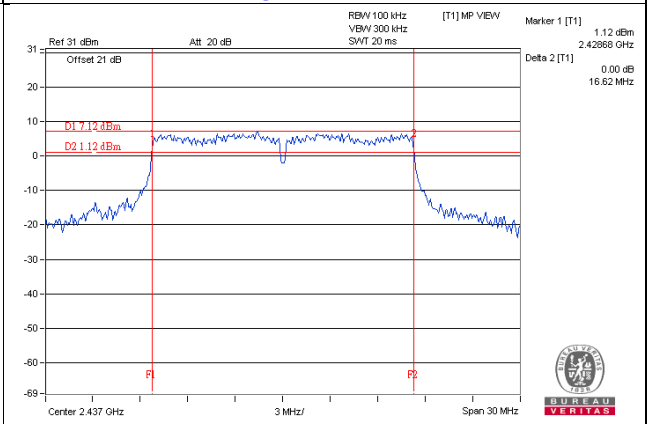
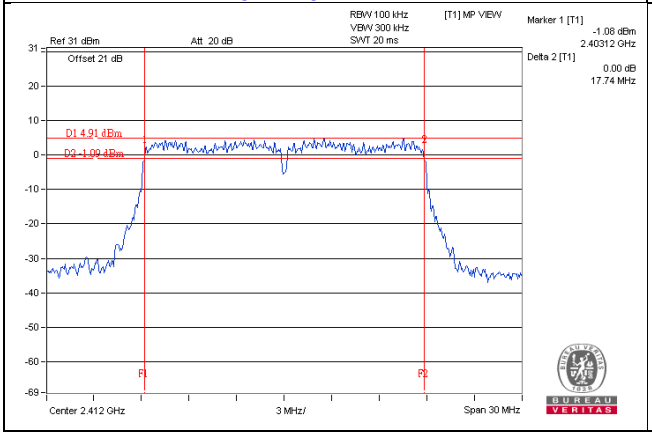
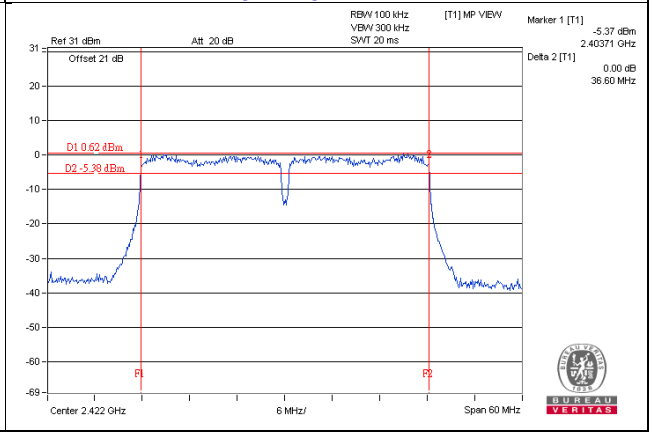
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.65	16.64	0.5	PASS
6	2437	16.63	16.62	0.5	PASS
11	2462	16.66	16.65	0.5	PASS

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.74	17.79	0.5	Pass
6	2437	17.74	17.75	0.5	Pass
11	2462	17.74	17.76	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	36.60	36.64	0.5	Pass
6	2437	36.61	36.63	0.5	Pass
9	2452	36.62	36.63	0.5	Pass

Spectrum Plot of Worst Value	
802.11b / Chain 0 : CH1	**802.11g / Chain 1 : CH6**
	
802.11n (HT20) / Chain 0 : CH1	**802.11n (HT40) / Chain 0 : CH3**
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

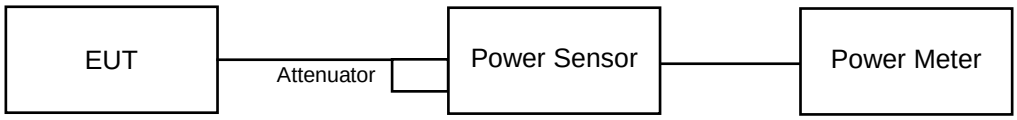
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

802.11b

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	22.84	23.42	412.095	26.15	30	Pass
6	2437	22.78	23.37	406.941	26.10	30	Pass
11	2462	22.73	23.34	403.273	26.06	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	26.64	26.37	894.829	29.52	30	Pass
6	2437	26.80	26.56	931.528	29.69	30	Pass
11	2462	26.24	26.44	861.282	29.35	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	26.71	24.45	747.425	28.74	30	Pass
6	2437	26.67	26.37	898.026	29.53	30	Pass
11	2462	26.24	26.44	861.282	29.35	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	26.22	26.25	840.491	29.25	30	Pass
6	2437	26.59	26.33	885.573	29.47	30	Pass
9	2452	23.33	24.34	486.922	26.87	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	20.09	20.77	221.493	23.45
6	2437	20.02	20.72	218.494	23.39
11	2462	19.96	20.68	216.033	23.35

802.11g

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	16.33	16.95	92.499	19.66
6	2437	20.28	20.60	221.475	23.45
11	2462	16.44	17.06	94.871	19.77

802.11n (HT20)

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	17.51	18.08	120.633	20.81
6	2437	20.54	20.85	234.859	23.71
11	2462	16.44	17.06	94.871	19.77

802.11n (HT40)

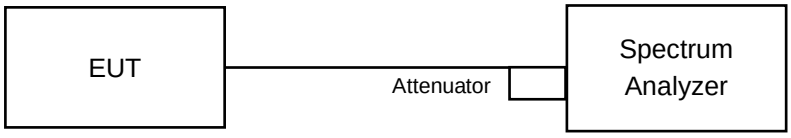
Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	16.29	17.06	93.376	19.70
6	2437	17.26	18.01	116.452	20.66
9	2452	14.41	15.22	60.872	17.84

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

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	-7.53	3.01	-4.52	8.00	Pass
	6	2437	-8.29	3.01	-5.28	8.00	Pass
	11	2462	-8.30	3.01	-5.29	8.00	Pass
1	1	2412	-8.17	3.01	-5.16	8.00	Pass
	6	2437	-8.21	3.01	-5.20	8.00	Pass
	11	2462	-8.21	3.01	-5.20	8.00	Pass

NOTE: Directional gain = 2.98dBi + 10log(2) = 5.99dBi < 6dBi , so the power density limit shall not to be reduced.

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	-10.04	3.01	-7.03	8.00	Pass
	6	2437	-6.62	3.01	-3.61	8.00	Pass
	11	2462	-10.11	3.01	-7.10	8.00	Pass
1	1	2412	-10.43	3.01	-7.42	8.00	Pass
	6	2437	-7.31	3.01	-4.30	8.00	Pass
	11	2462	-10.45	3.01	-7.44	8.00	Pass

NOTE: Directional gain = 2.98dBi + 10log(2) = 5.99dBi < 6dBi , so the power density limit shall not to be reduced.

802.11n (HT20)

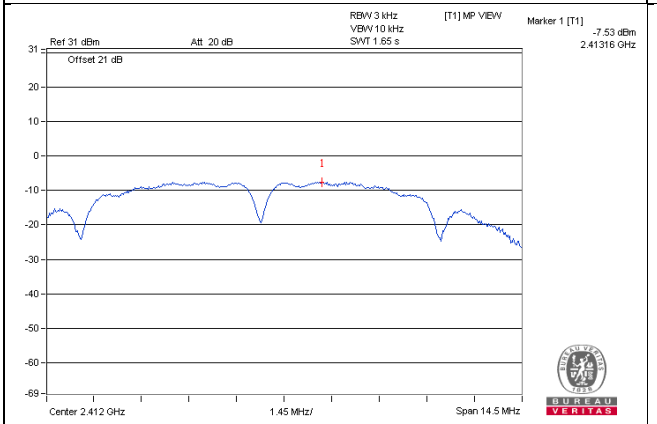
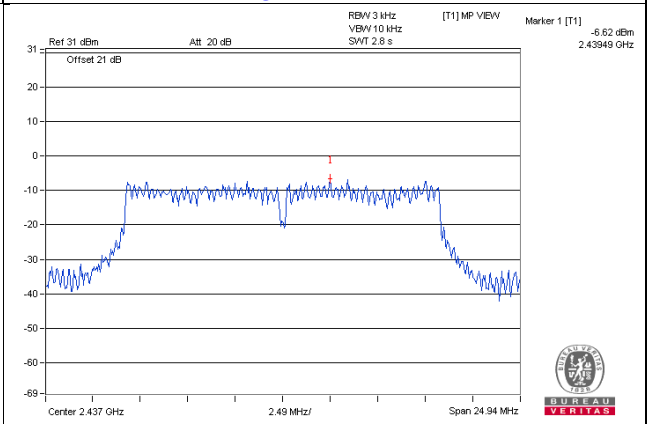
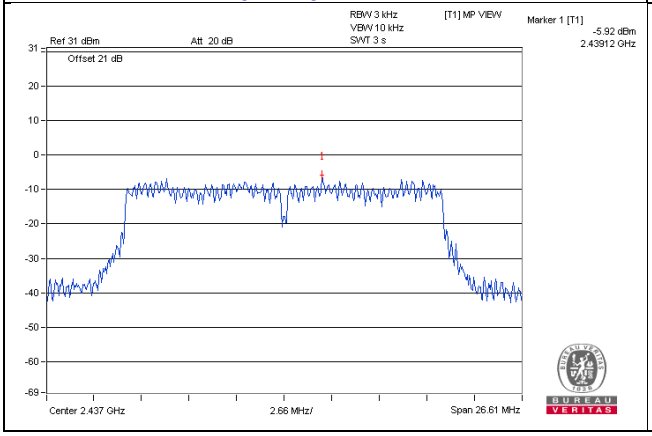
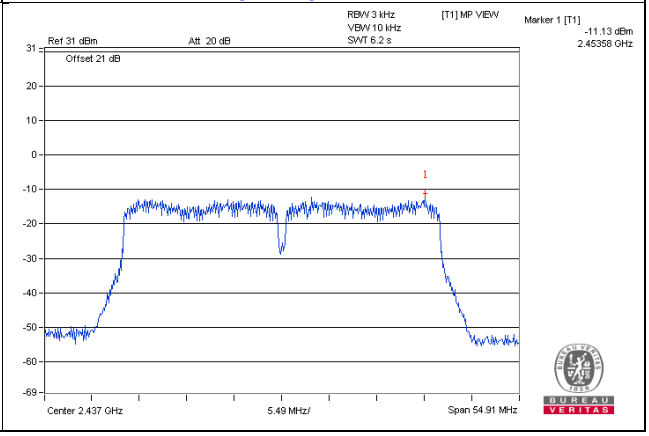
TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-8.55	3.01	-5.54	8.00	Pass
	6	2437	-5.92	3.01	-2.91	8.00	Pass
	11	2462	-9.63	3.01	-6.62	8.00	Pass
1	1	2412	-8.48	3.01	-5.47	8.00	Pass
	6	2437	-6.88	3.01	-3.87	8.00	Pass
	11	2462	-10.47	3.01	-7.46	8.00	Pass

NOTE: Directional gain = 2.98dBi + 10log(2) = 5.99dBi < 6dBi , so the power density limit shall not to be reduced.

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	-11.86	3.01	-8.85	8.00	Pass
	6	2437	-11.13	3.01	-8.12	8.00	Pass
	9	2452	-15.19	3.01	-12.18	8.00	Pass
1	3	2422	-11.63	3.01	-8.62	8.00	Pass
	6	2437	-12.46	3.01	-9.45	8.00	Pass
	9	2452	-14.53	3.01	-11.52	8.00	Pass

NOTE: Directional gain = 2.98dBi + 10log(2) = 5.99dBi < 6dBi , so the power density limit shall not to be reduced.

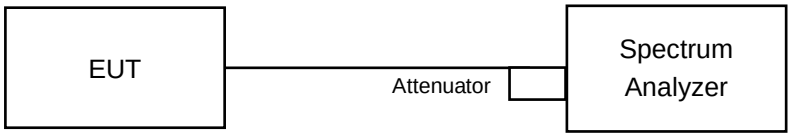
Spectrum Plot of Worst Value	
802.11b / Chain 0 : CH1	**802.11g / Chain 0 : CH6**
	
802.11n (HT20) / Chain 0 : CH6	**802.11n (HT40) / Chain 0 : CH6**
	

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

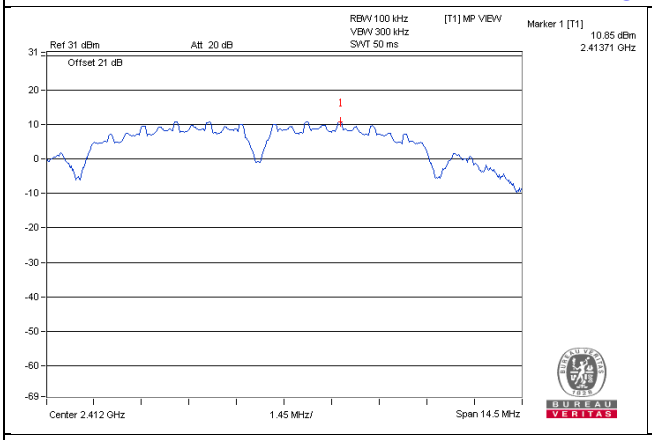
Same as Item 4.3.6

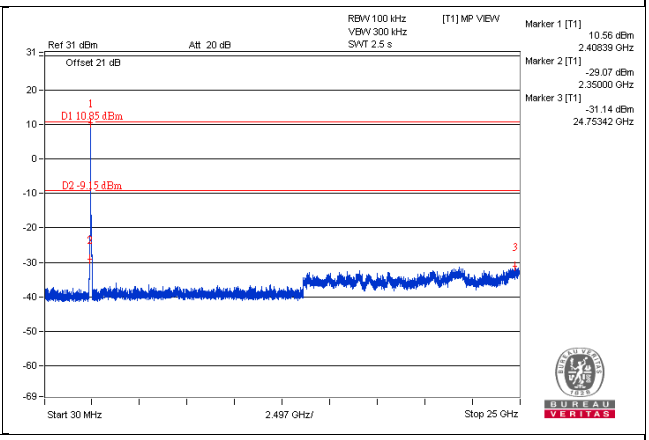
4.6.7 Test Results

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.

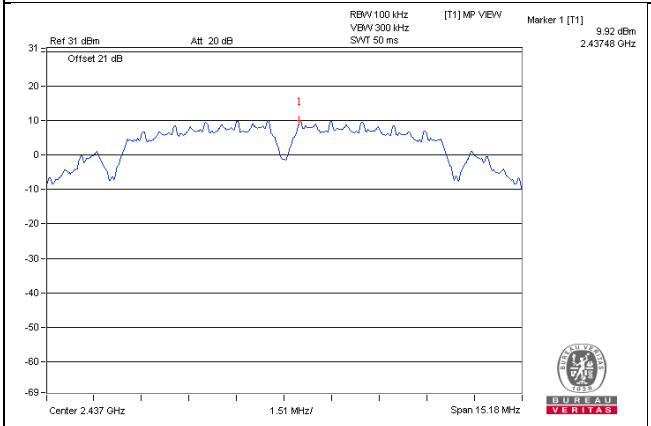
802.11b - CHAIN 0

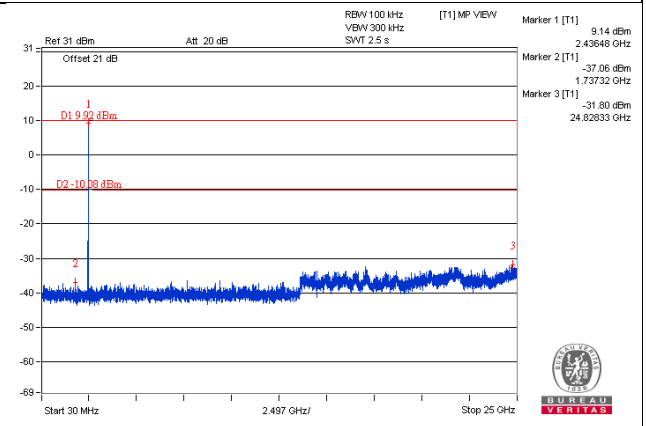
CH 1



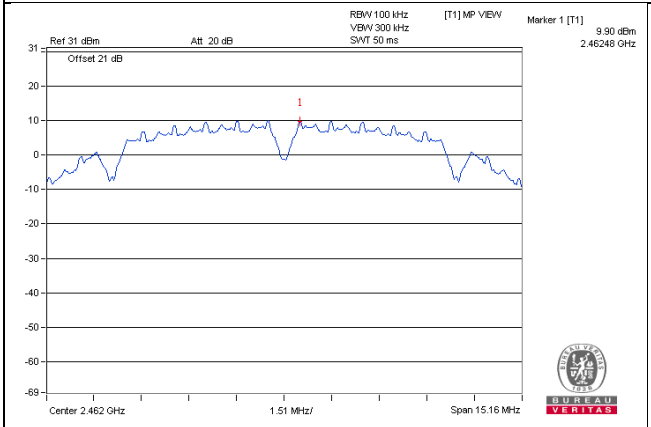


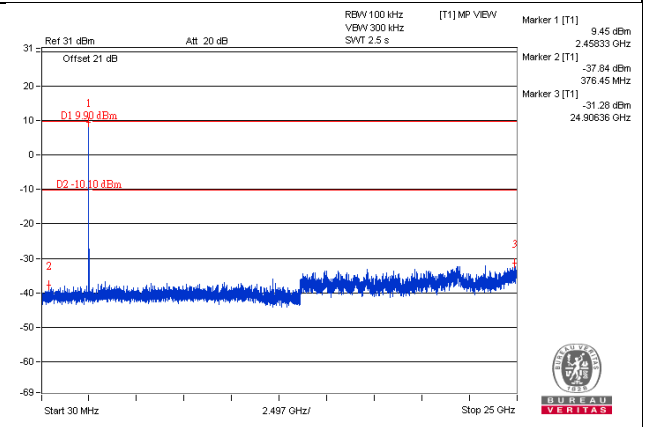
CH 6



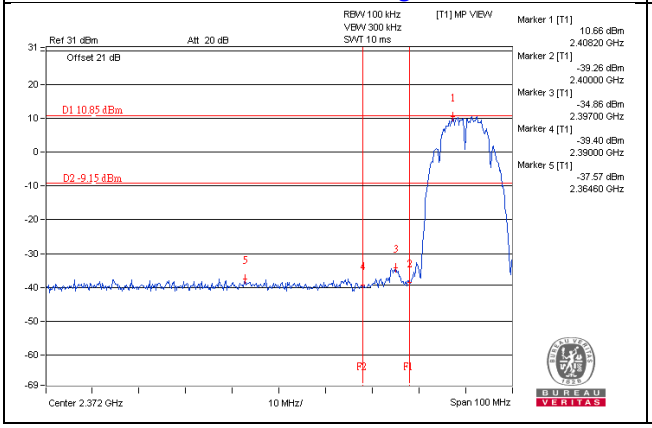


CH 11

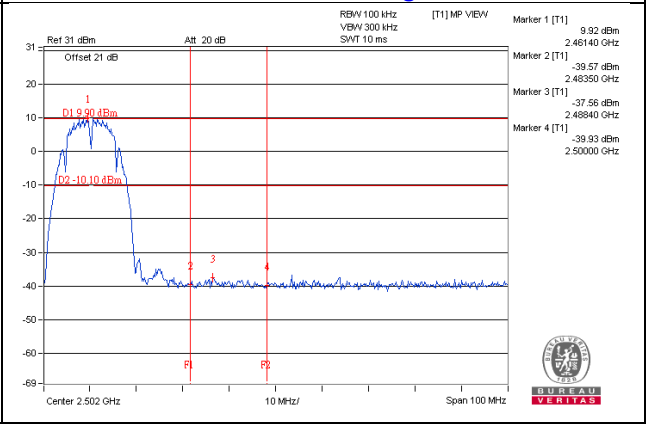




CH 1 Band edge

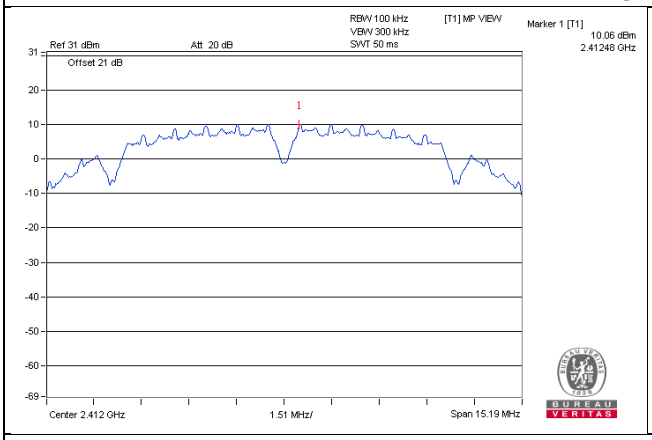


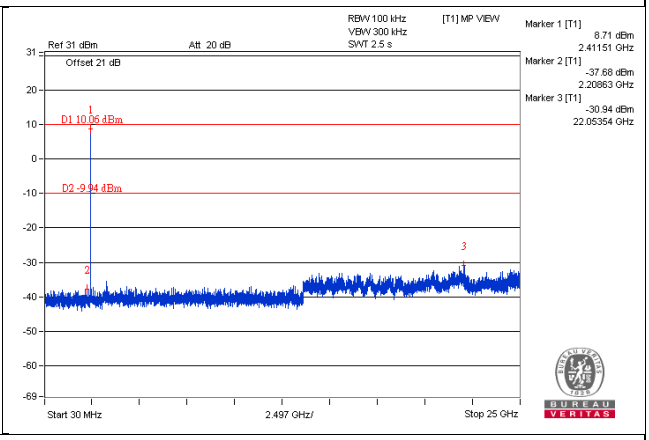
CH 11 Band edge



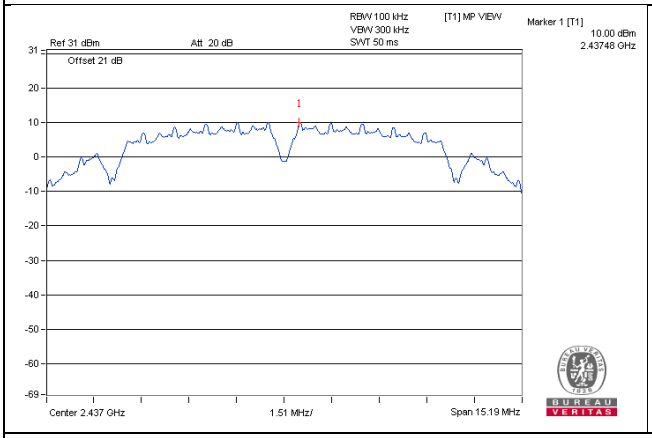
CHAIN 1

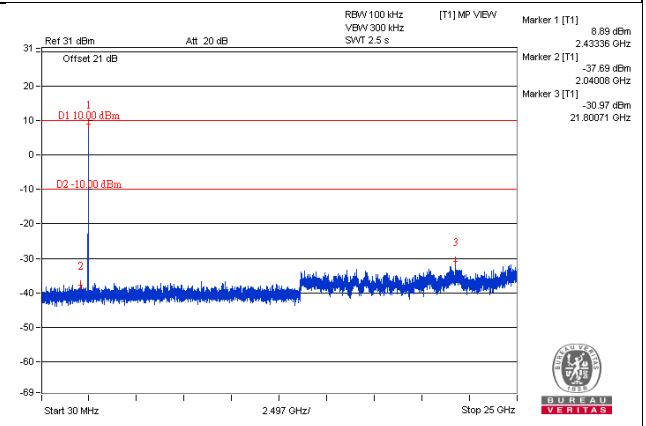
CH 1



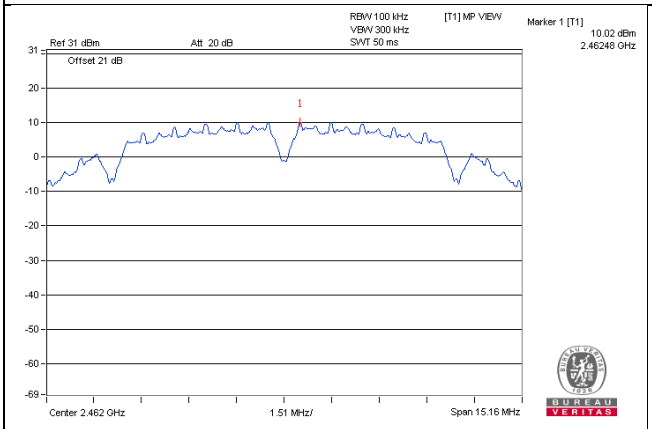


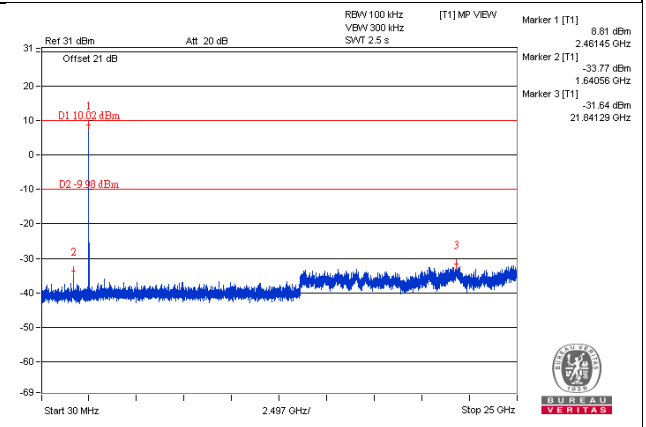
CH 6



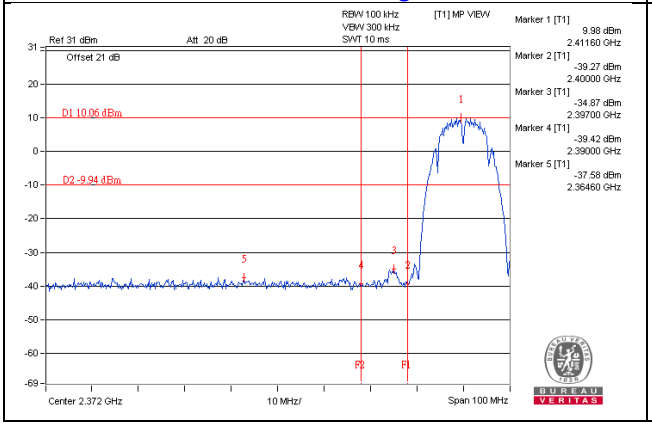


CH 11

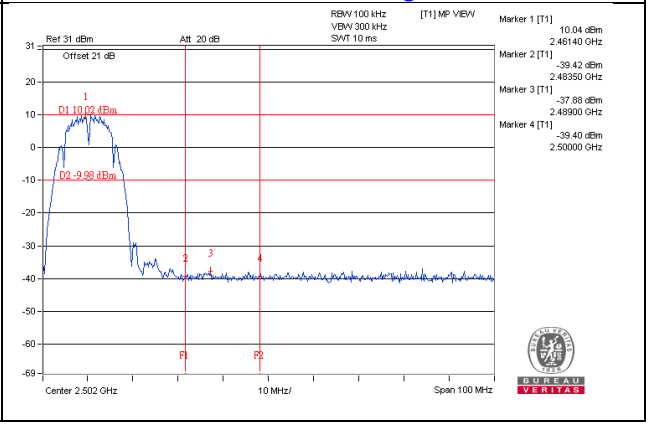




CH 1 Band edge

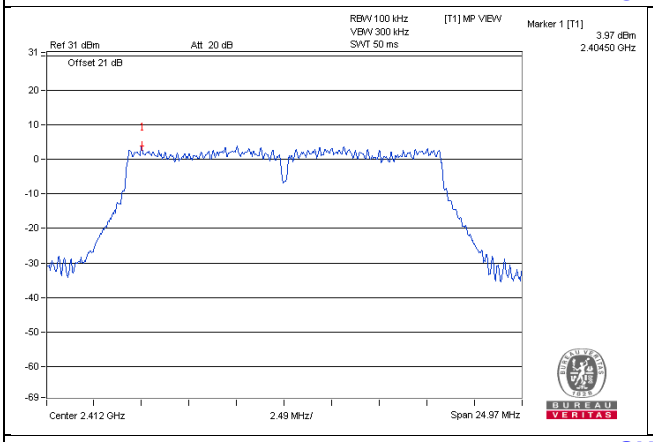


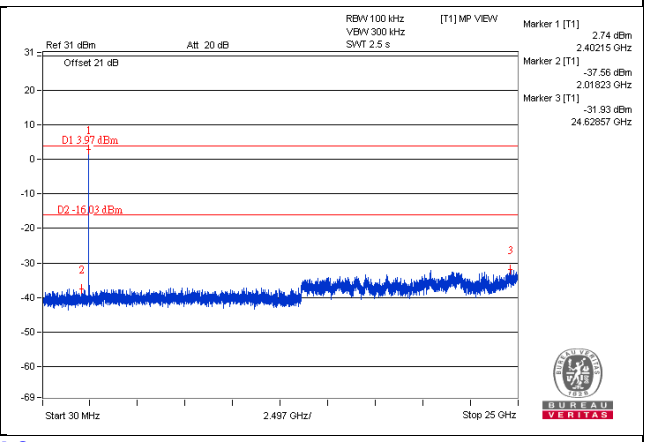
CH 11 Band edge



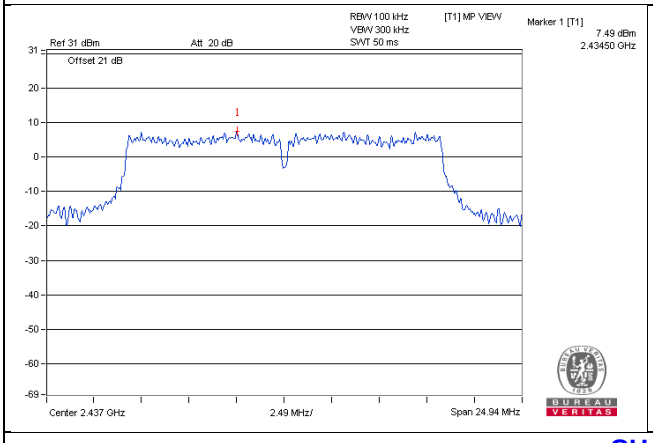
802.11g - CHAIN 0

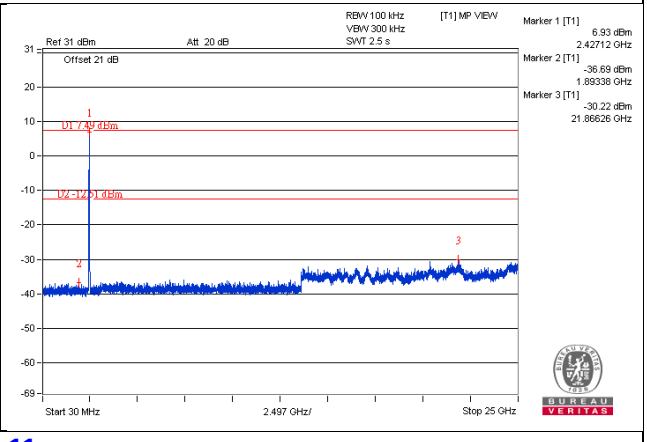
CH 1



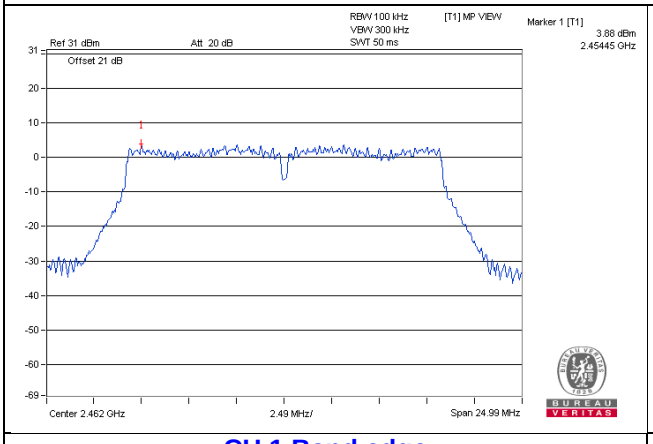


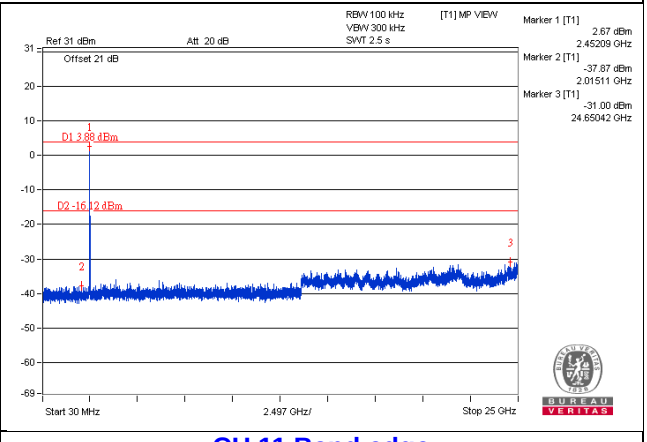
CH 6



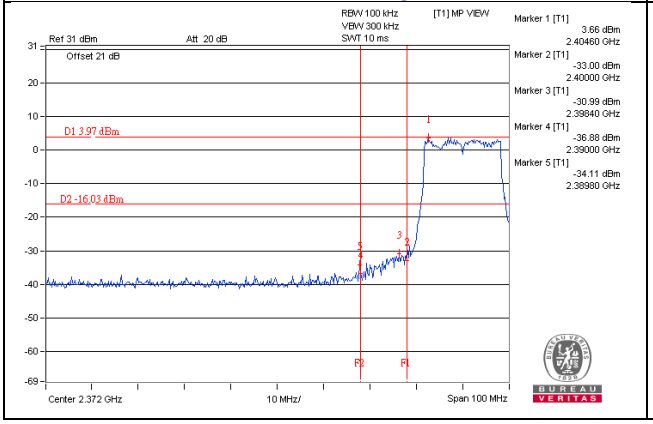


CH 11

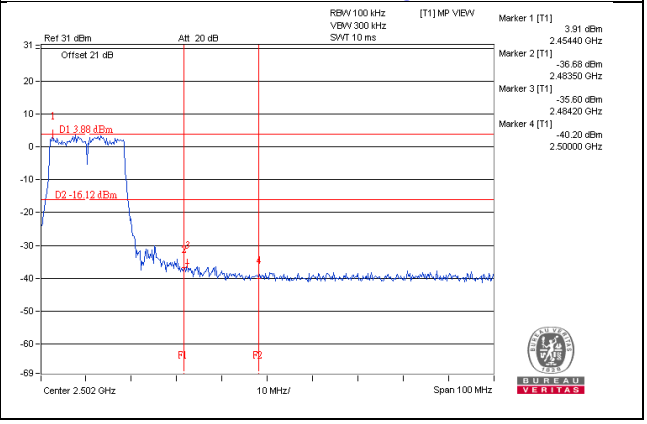




CH 1 Band edge

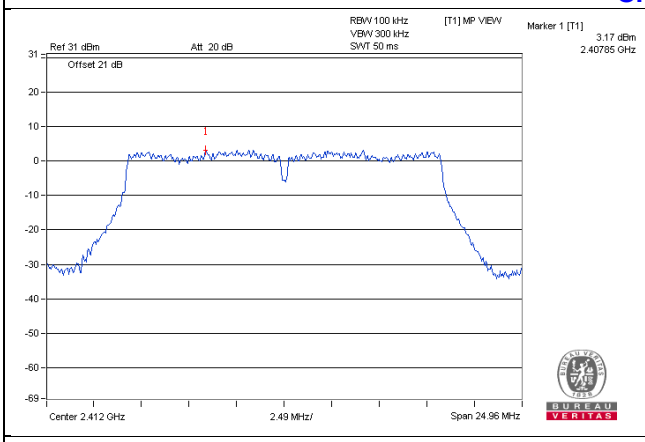


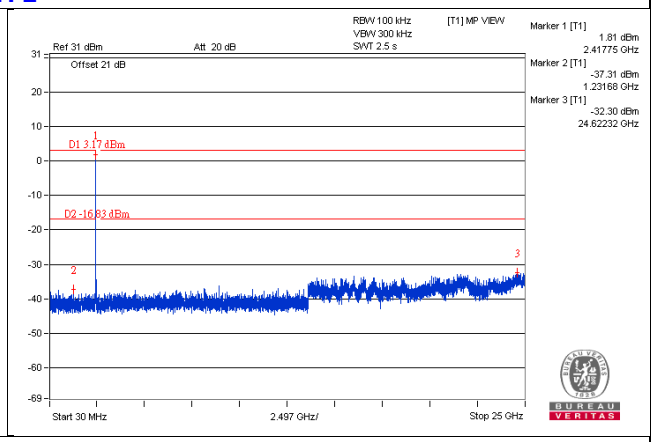
CH 11 Band edge



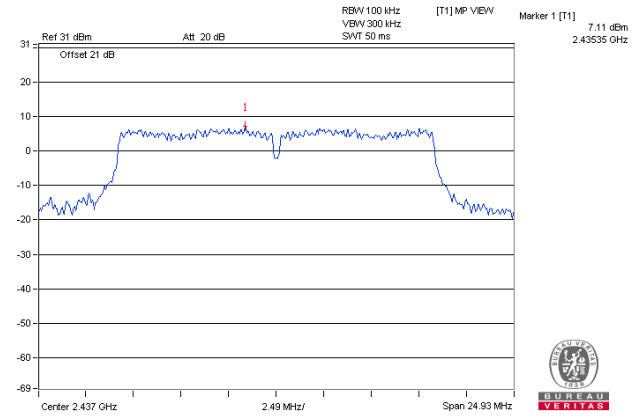
CHAIN 1

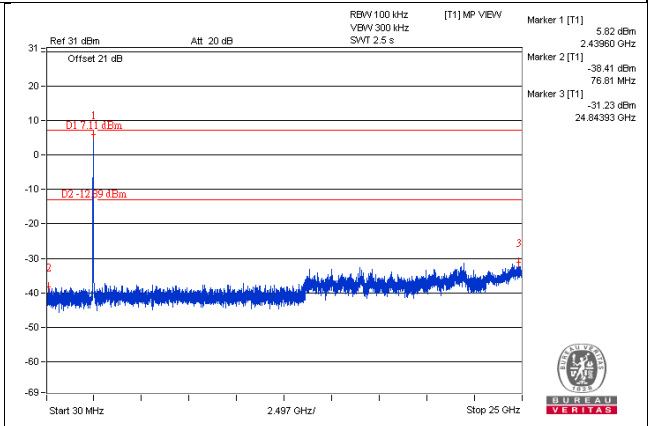
CH 1



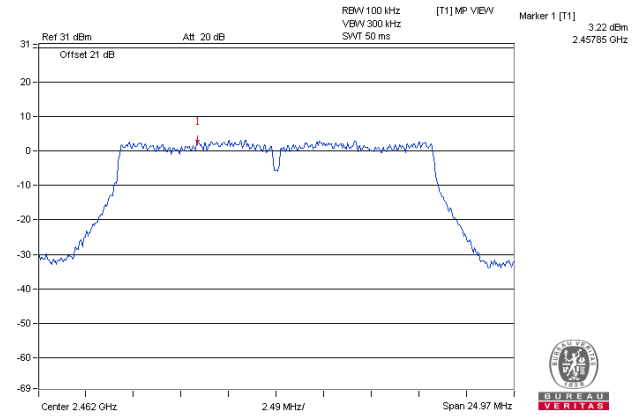


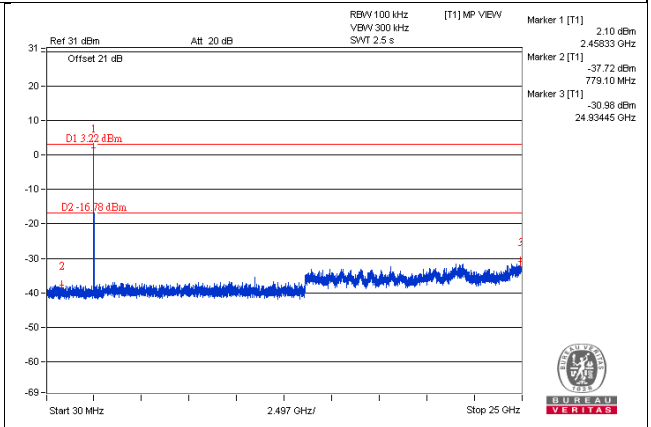
CH 6



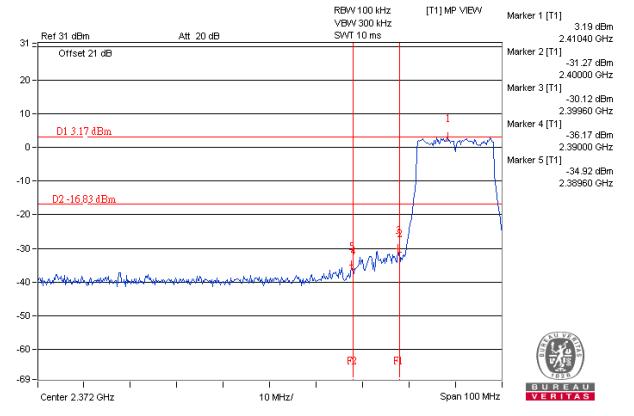


CH 11

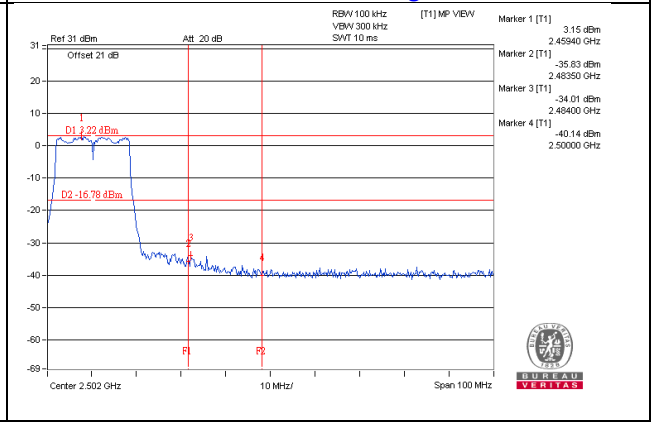




CH 1 Band edge

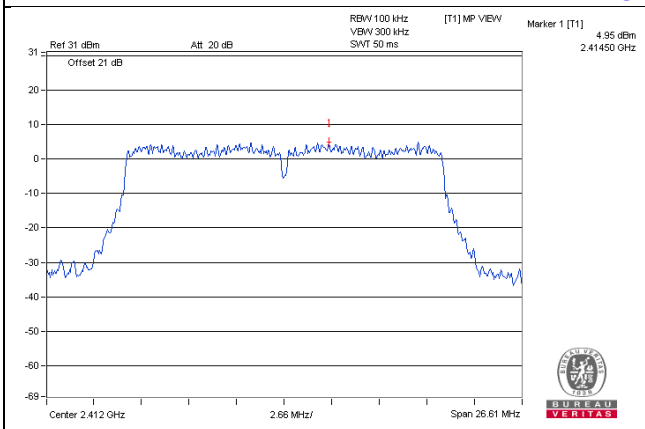


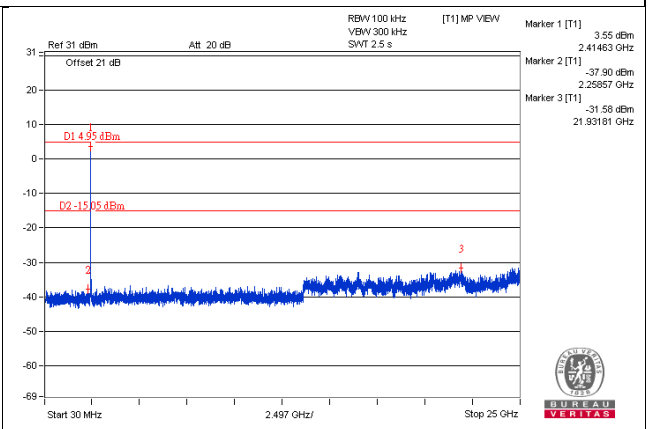
CH 11 Band edge



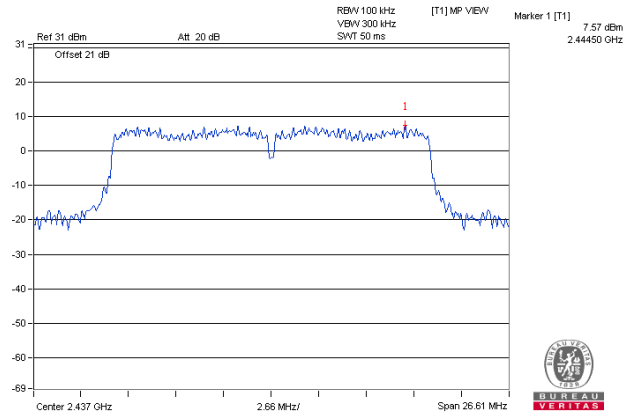
802.11n (HT20) - CHAIN 0

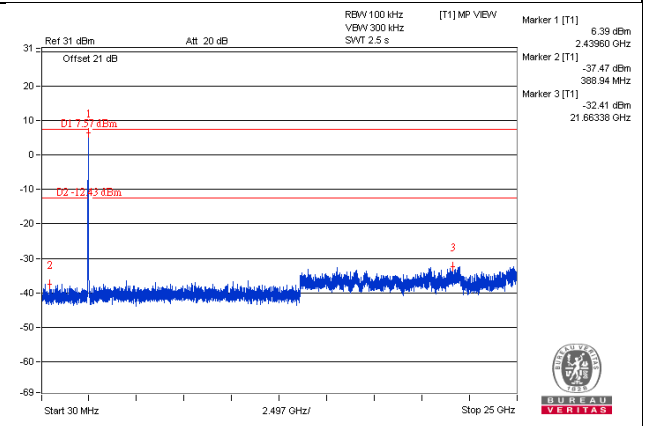
CH 1



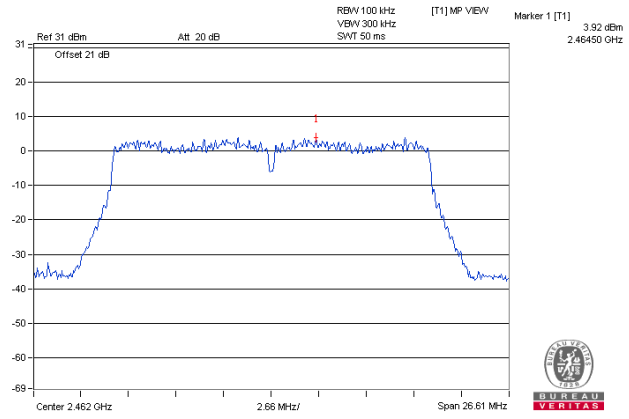


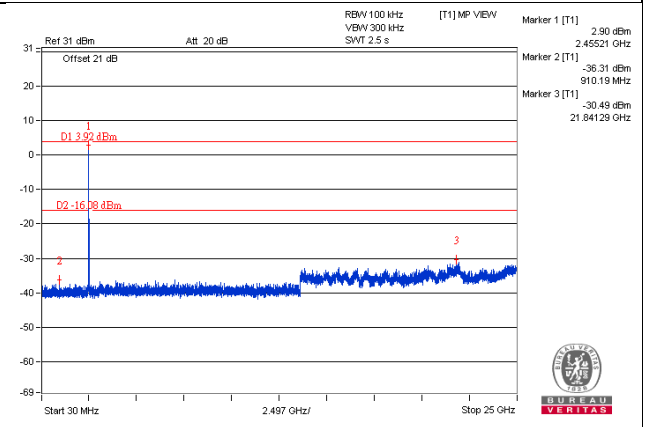
CH 6



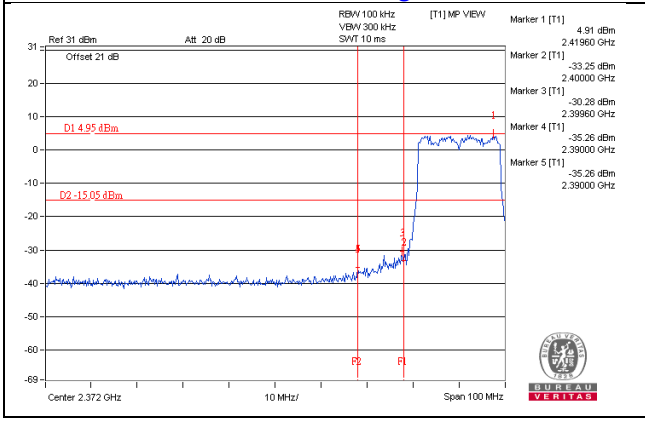


CH 11

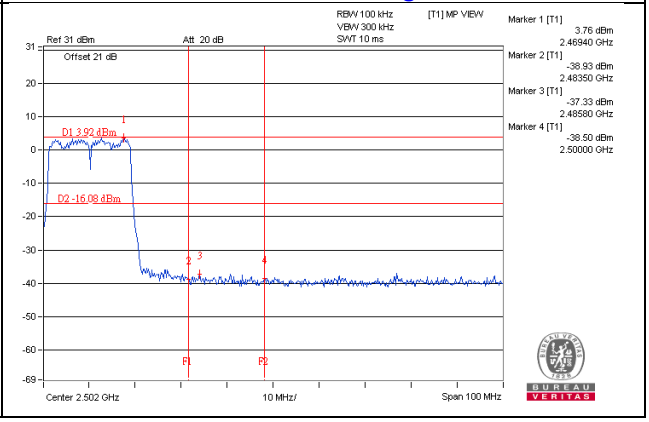




CH 1 Band edge

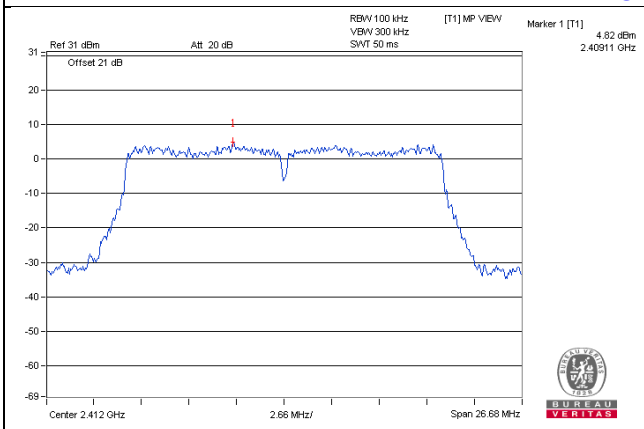


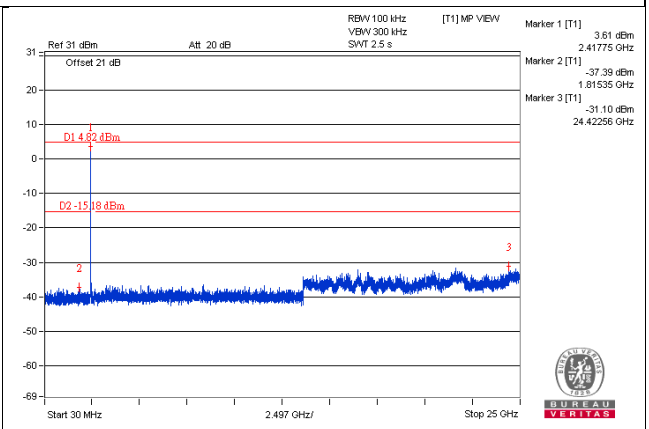
CH 11 Band edge



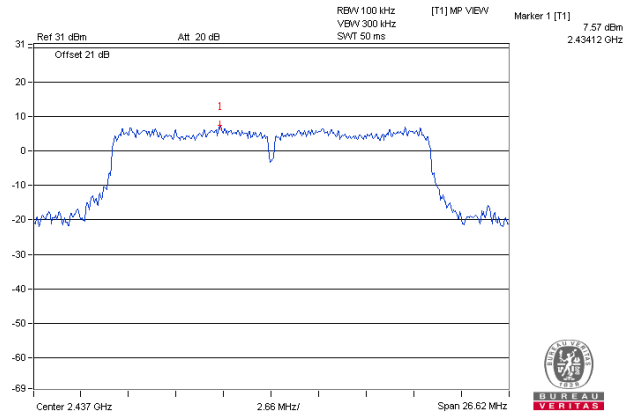
CHAIN 1

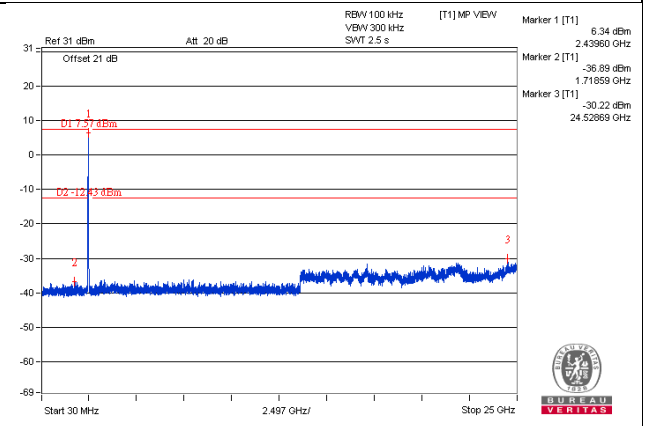
CH 1



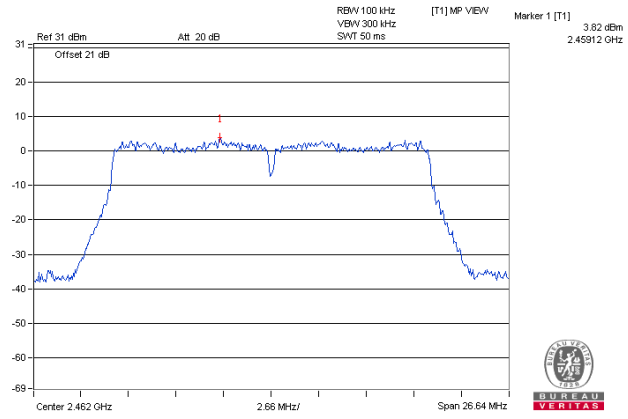


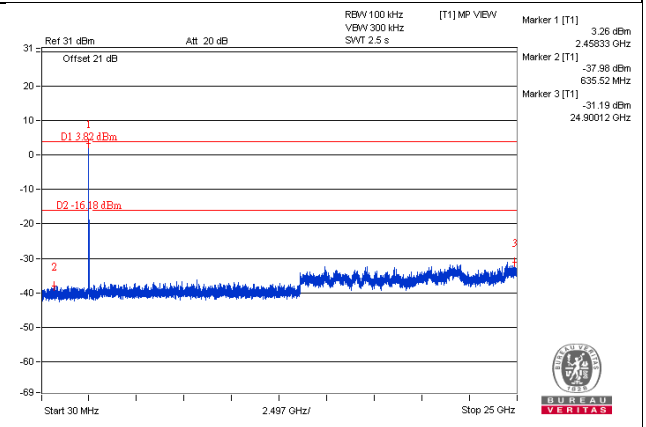
CH 6



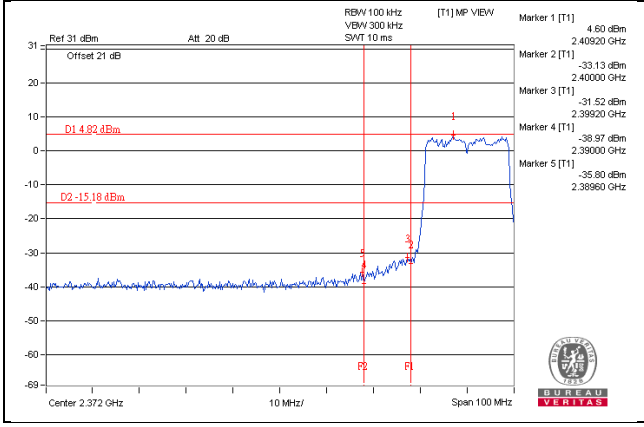


CH 11

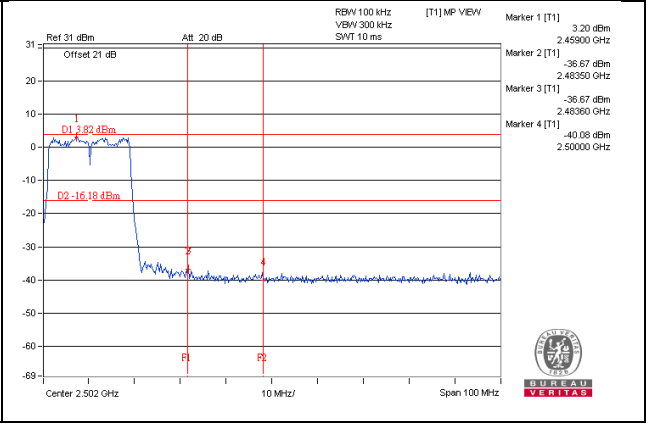




CH 1 Band edge

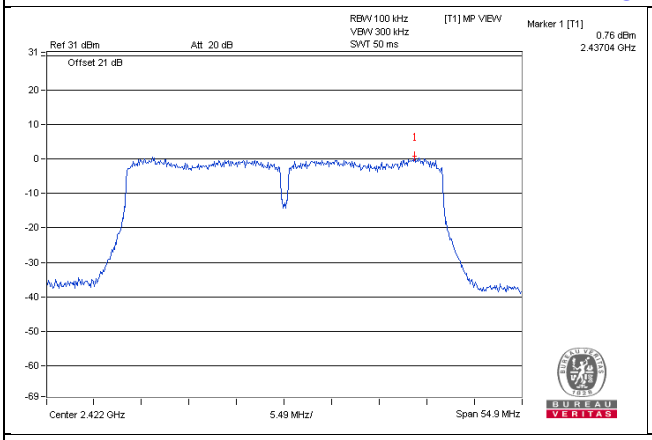


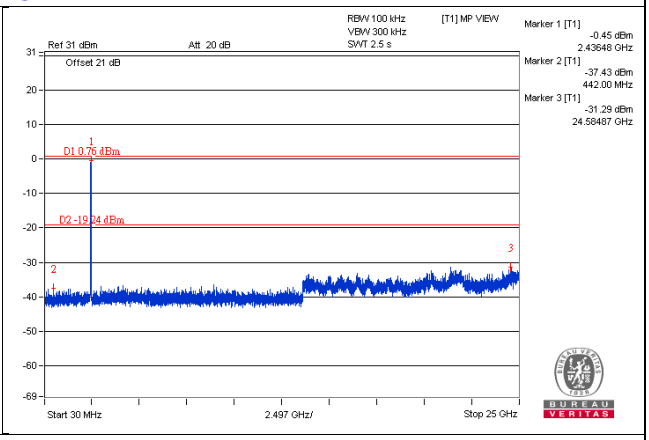
CH 11 Band edge



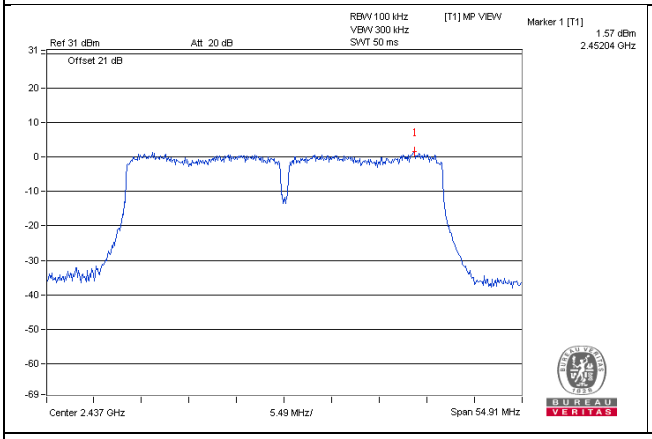
802.11n (HT40) - Chain 0

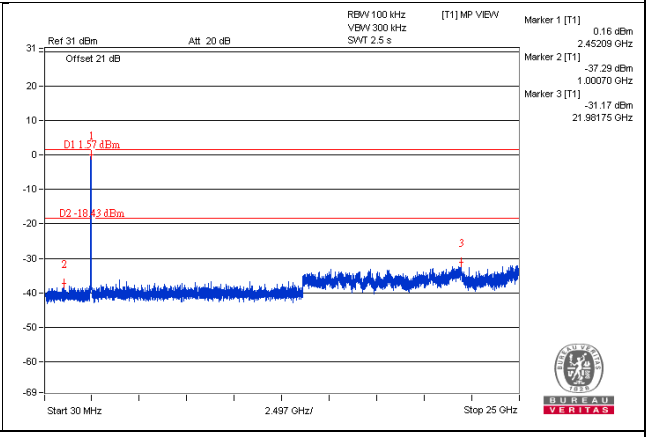
CH 3



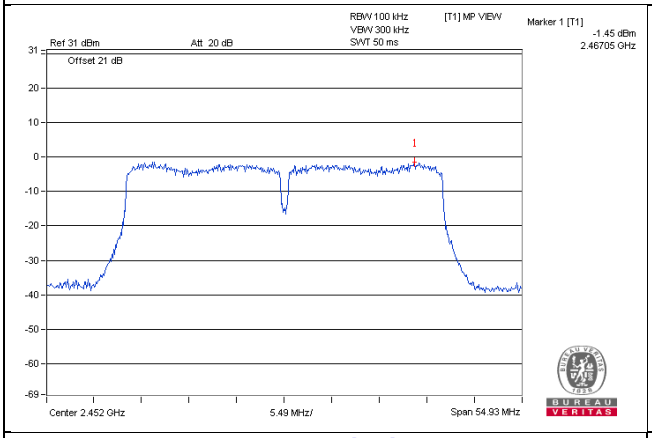


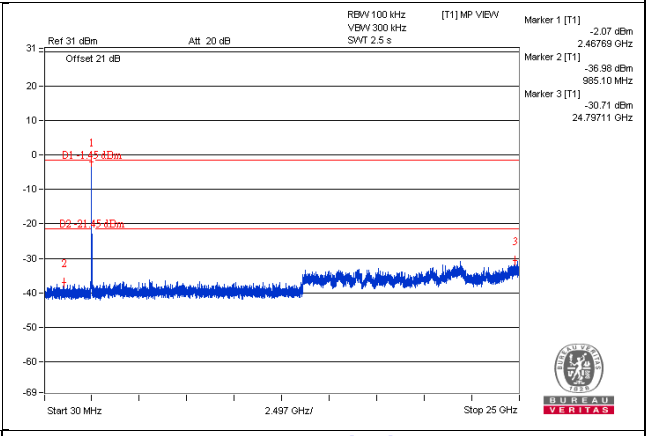
CH 6



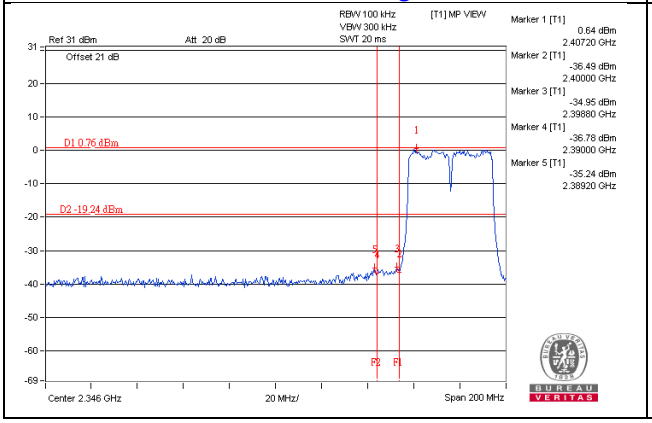


CH 9

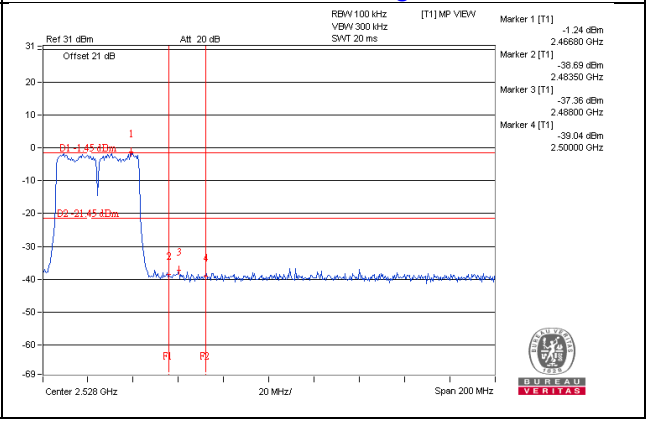




CH 3 Band edge

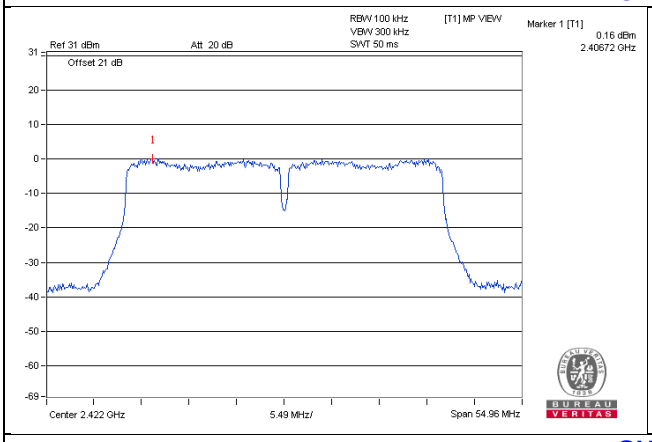


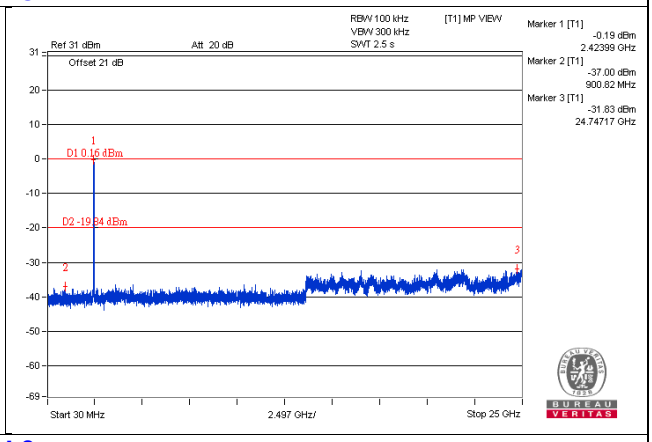
CH 9 Band edge



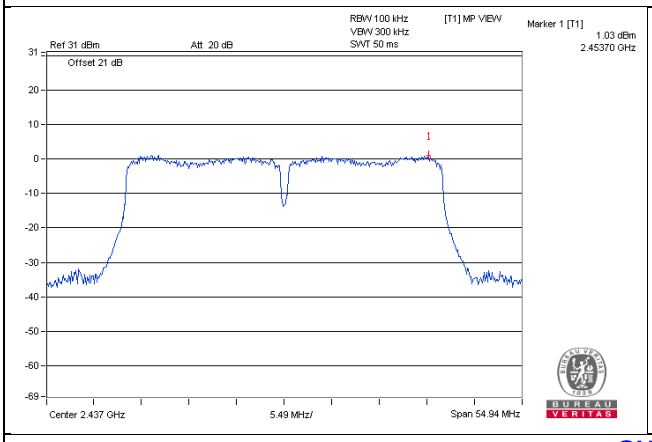
Chain 1

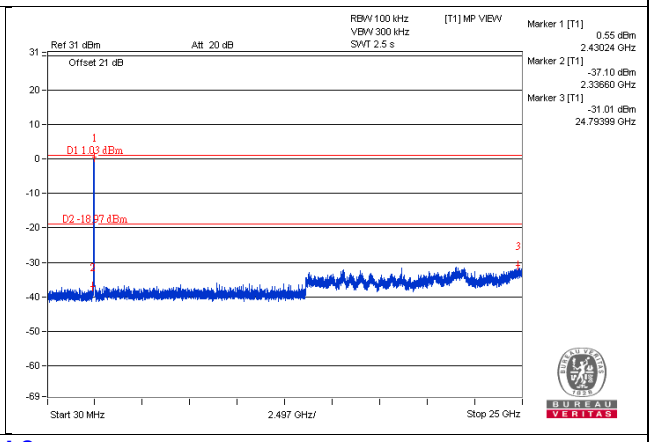
CH 3



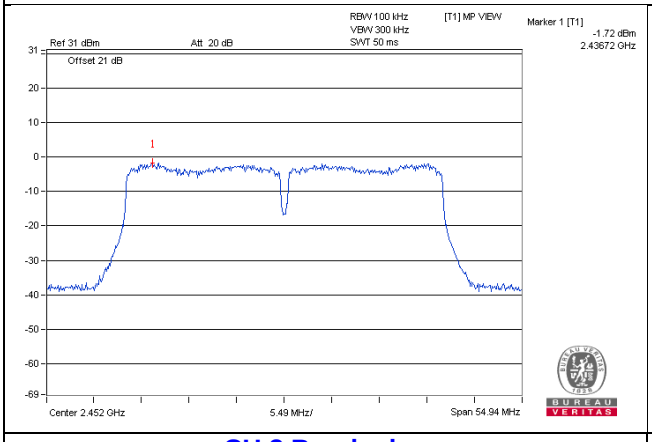


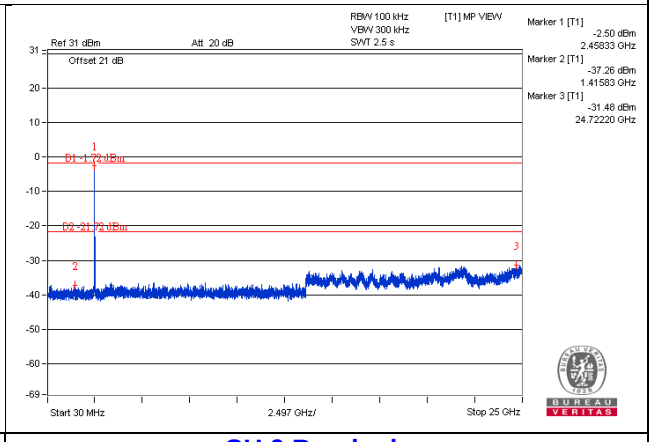
CH 6



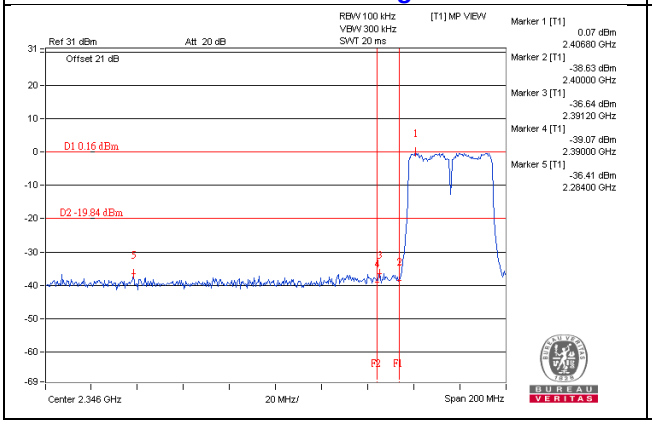


CH 9

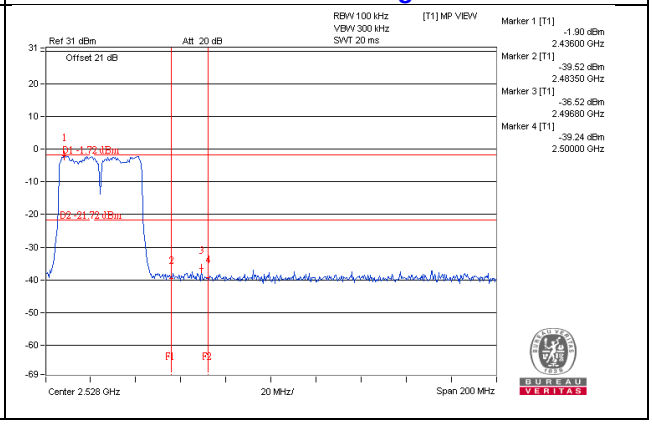




CH 3 Band edge



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 accredited and approved according to ISO/IEC 17025.

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

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

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

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