FCC Test Report

Report No.:	RF150703E06
FCC ID:	U8G-P1AC1
Test Model:	AP One Enterprise
Series Model:	Pismo AC1
Received Date:	July 03, 2015
Test Date:	Aug. 13 to 17, 2015
Issued Date:	Aug. 24, 2015
Applicant:	Pismo Labs Technology Limited
Address:	FLAT/RM A5, 5/F, HK SPINNERS IND BLDG PHASE 6, 481 CASTLE PEAK ROAD, CHEUNG SHA WAN, HONG KONG.
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.
Test Location (1):	No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, 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.
Test Location (3):	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.

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Release Control Record

Issue No.	Description	Date Issued
RF150703E06	Original release.	Aug. 24, 2015

1 Certificate of Conformity

Product:	Pepwave / Peplink / Pismo Wireless Product
Brand:	Pepwave / Peplink / Pismo
Test Model:	AP One Enterprise
Series Model:	Pismo AC1
Sample Status:	MASS-PRODUCTION
Applicant:	Pismo Labs Technology Limited
Test Date:	Aug. 13 to 17, 2015
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 : Phoenix Huang , **Date:** Aug. 24, 2015

Phoenix Huang / Specialist

Approved by : , **Date:** Aug. 24, 2015

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 -6.31dB at 0.70859MHz.
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 4824.00MHz & 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.

NOTE: 1. The EUT was operating in 2.4 ~ 2.4835GHz, 5.15~5.25GHz and 5.725~5.85GHz frequencies band. This report was recorded the RF parameters including 2.4 ~ 2.4835GHz. For the 5.15~5.25GHz and 5.725~5.85GHz RF parameters was recorded in another test report.

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	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.86 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.37 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.72 dB
	6GHz ~ 18GHz	4.00 dB
	18GHz ~ 40GHz	4.11 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Pepwave / Peplink / Pismo Wireless Product
Brand	Pepwave / Peplink / Pismo
Test Model	AP One Enterprise
Series Model	Pismo AC1
Status of EUT	MASS-PRODUCTION
Power Supply Rating	DC 56V from POE
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	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 450Mbps 802.11ac: up to 1300Mbps
Operating Frequency	**2.4GHz:** 2.412GHz ~ 2.462GHz **5GHz:** 5.18GHz ~ 5.24GHz, 5.745GHz ~ 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:** 802.11b: 16.35mW 802.11g: 243.811mW 802.11n (HT20): 270.521mW 802.11n (HT40): 149.958mW **5GHz:** 802.11a: 49.682mW 802.11ac (VHT20): 92.581mW 802.11ac (VHT40): 121.128mW 802.11ac (VHT80): 35.532mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. 2.4GHz and 5GHz technology can transmit at same time.
2. The EUT has below model names, which are identical to each other in all aspects except for the following table:

Product Name	Brand Name	Model No.	Description
Pepwave / Peplink / Pismo Wireless Product	Pepwave / Peplink / Pismo	AP One Enterprise	for marketing requirement
		Pismo AC1	
From the above models, model: **AP One Enterprise** was selected as representative model for the test and its data was recorded in this report.			

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

Antenna No.	Brand	Model	Ant. Gain (dBi) <Include cable loss>	Frequency range (GHz to GHz)	Antenna Type	Connecter Type	Cable Length (cm)
1	Walsin	RFPCA351710IMAB301	4.1	2.4~2.4835	PCB	i-pex(MHF)	10
2	Walsin	RFPCA351710IMAB301	3.9	2.4~2.4835	PCB	i-pex(MHF)	17
3	Walsin	RFPCA351710IMAB301	3.9	2.4~2.4835	PCB	i-pex(MHF)	18
4	Walsin	RFPCA240617IM5B301	5.7	5.15~5.85	PCB	i-pex(MHF)	17.5
5	Walsin	RFPCA240617IM5B301	5.7	5.15~5.85	PCB	i-pex(MHF)	17.5
6	Walsin	RFPCA240610IM5B301	6.0	5.15~5.85	PCB	i-pex(MHF)	10.5

4. The EUT must be supplied with a POE (only for test not for sale) as following table:

Brand Name	Model No.	Spec.
PHIHONG	POE31U-1AT	Input: 100-240V, 0.8A, 50-60Hz Output: 56V, 0.536A

5. The EUT incorporates a MIMO function.

For 2.4GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11b	1 ~ 11Mbps	3TX	3RX
802.11g	1 ~ 11Mbps	3TX	3RX
802.11n (HT20)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
802.11n (HT40)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
For 5GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11a	6 ~ 54Mbps	3TX	3RX
802.11n (HT20)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
802.11n (HT40)	MCS 0~7	3TX	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
802.11ac (VHT20)	MCS 0~8, Nss=1	3TX	3RX
	MCS 0~8, Nss=2	3TX	3RX
	MCS 0~9, Nss=3	3TX	3RX
802.11ac (VHT40)	MCS 0~9, Nss=1	3TX	3RX
	MCS 0~9, Nss=2	3TX	3RX
	MCS 0~9, Nss=3	3TX	3RX
802.11ac (VHT80)	MCS 0~9, Nss=1	3TX	3RX
	MCS 0~9, Nss=2	3TX	3RX
	MCS 0~9, Nss=3	3TX	3RX
Note: 1. The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and 802.11ac mode for 20MHz (40MHz), therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)			

6. The emission of the simultaneous operation (2.4GHz & 5GHz) has been evaluated and no non-compliance was found.
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	
-	√	√	√	√	-

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 2 axis. The worst case was found when positioned on **X-plane** (below 1GHz) and **Y-plane** (above 1GHz).

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	1	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	1	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:

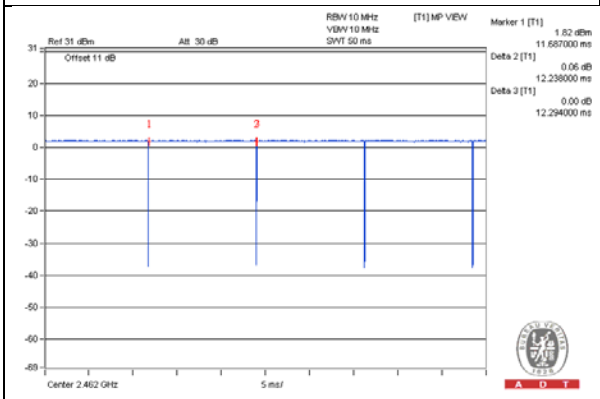
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (System)	TESTED BY
RE≥1G	23deg. C, 68%RH	120Vac, 60Hz	Tim Ho
RE<1G	22deg. C, 67%RH	120Vac, 60Hz	Weiwei Lo
PLC	25deg. C, 58%RH	120Vac, 60Hz	Mike Hsie
APCM	25deg. C, 60%RH	120Vac, 60Hz	Gary Cheng

3.3 Duty Cycle of Test Signal

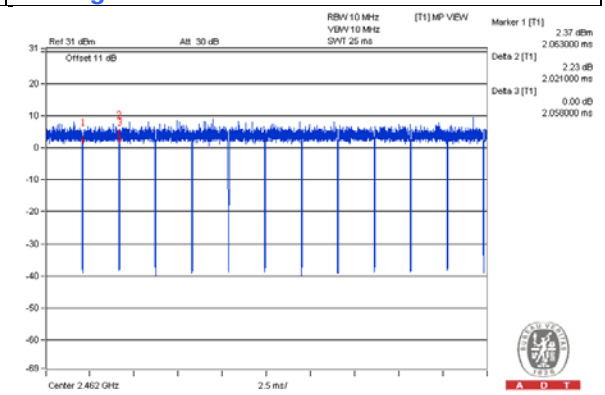
If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11b: Duty cycle = 12.238/12.294 = 0.995
802.11g: Duty cycle = 2.021/2.058 = 0.982
802.11n (HT20): Duty cycle = 1.885/1.921 = 0.981
802.11n (HT40): Duty cycle = 0.918/0.965 = 0.951, Duty factor = 10 * log(1/0.951) = 0.2

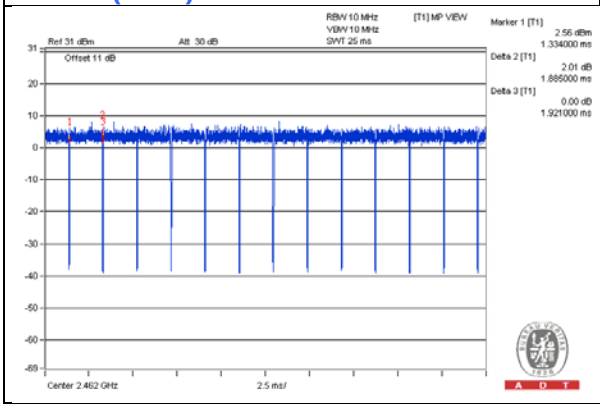
802.11b



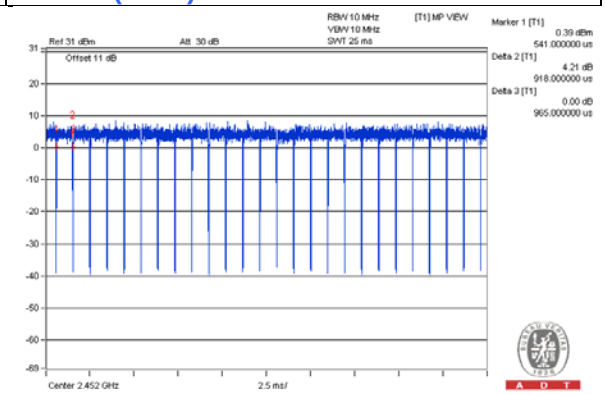
802.11g



802.11n (HT20)



802.11n (HT40)



3.4 Description of Support Units

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

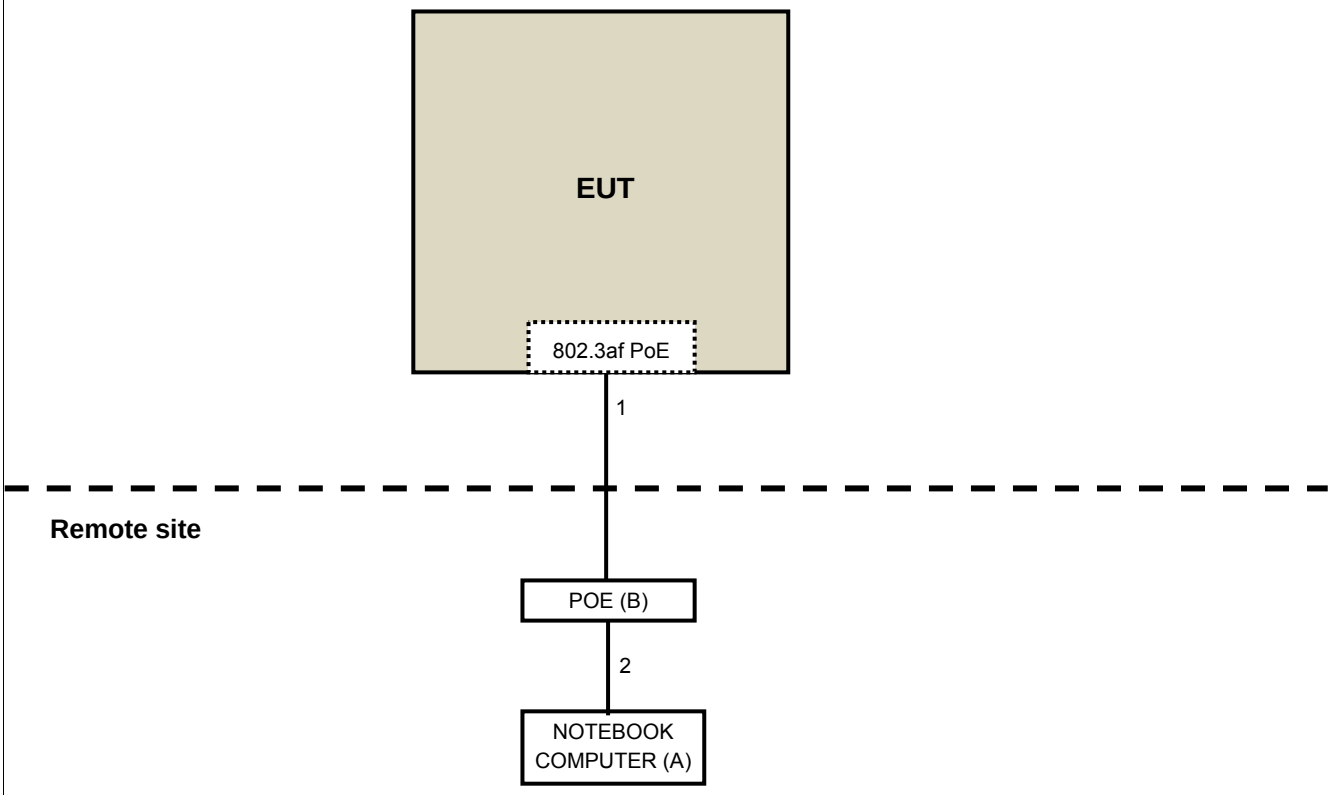
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	NOTEBOOK COMPUTER	DELL	E5430	HYV4VY1	FCC DoC	Provided by Lab
B.	POE	PHIHONG	POE31U-1AT	NA	NA	Supplied by Client

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	1	10	No	0	Provided by Lab
2.	RJ-45	1	3	No	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)
558074 D01 DTS Meas Guidance v03r03
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

For Above 1GHz:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY51210202	Dec. 12, 2014	Dec. 11, 2015
Horn_Antenna AISI	AIH.8018	0000220091110	Feb. 06, 2015	Feb. 05, 2016
Pre-Amplifier Agilent	8449B	3008A01923	Oct. 28, 2014	Oct. 27, 2015
RF Cable	NA	131206 131213 131215 SNMY23685/4	Jan. 16, 2015	Jan. 15, 2016
Spectrum Analyzer R&S	FSV40	100964	Jun. 26, 2015	Jun 25, 2016
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Dec. 12, 2014	Dec. 11, 2015
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Feb. 05, 2015	Feb. 04, 2016
RF Cable	NA	329751/4 RF104-204	Dec. 11, 2014	Dec. 10, 2015
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA
SPECTRUM ANALYZER R&S	FSP 40	100060	May 08, 2015	May 07, 2016
Power meter Anritsu	ML2495A	1014008	Apr. 28, 2015	Apr. 27, 2016
Power sensor Anritsu	MA2411B	0917122	Apr. 28, 2015	Apr. 27, 2016

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. H.
3. The FCC Site Registration No. is 797305.
4. The CANADA Site Registration No. is IC 7450H-3.
5. Tested Date: Aug. 13 to 14, 2015

For Below 1GHz:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY51210105	July 24, 2015	July 23, 2016
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-03	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Feb. 06, 2015	Feb. 05, 2016
RF Cable	8D-FB	CHGCAB-001-1 CHGCAB-001-2	Oct. 04, 2014	Oct. 03, 2015
	RF-141	CHGCAB-004	Oct. 04, 2014	Oct. 03, 2015
Software	ADT_Radiated_V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in 966 Chamber No. G.
3. The FCC Site Registration No. is 966073.
4. The CANADA Site Registration No. is IC 7450H-2.
5. Tested Date: Aug. 14, 2015

4.1.3 Test Procedures

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 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:

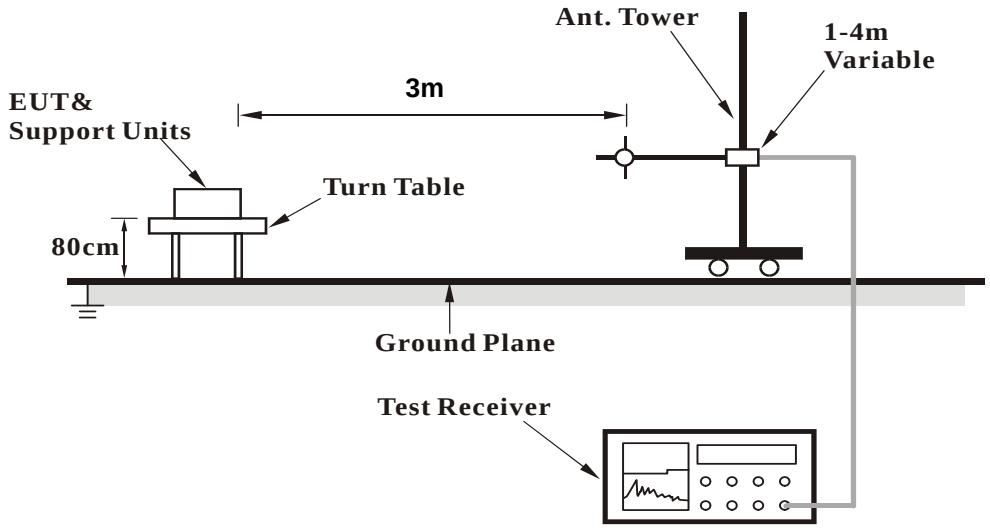
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

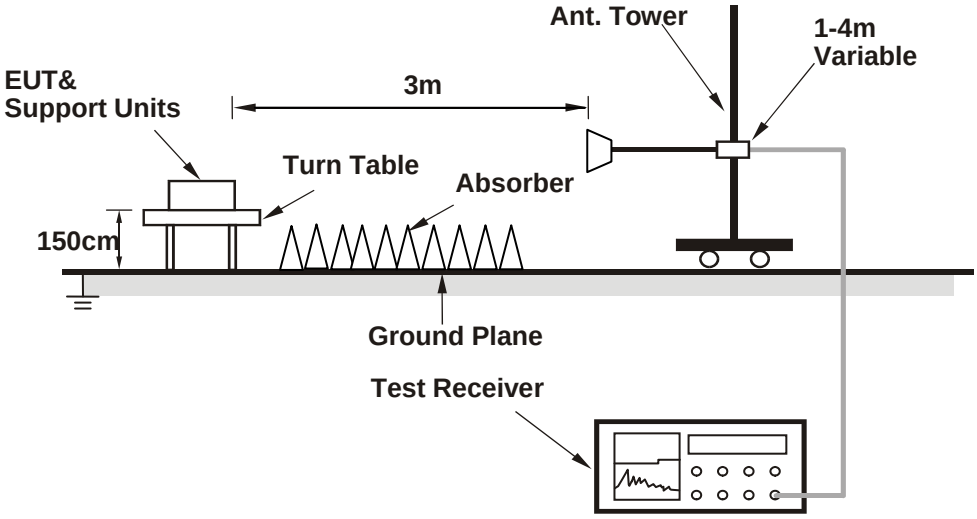
No deviation.

4.1.5 Test Setup

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.1.6 EUT Operating Conditions

1. Placed the EUT on the testing table.
2. Connect the EUT with the support unit A (Notebook Computer) which is placed in remote site.
3. The communication partner runs test program “artgui.exe” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

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	2372.00	48.2 PK	74.0	-25.8	2.26 H	261	52.48	-4.28
2	2372.00	38.1 AV	54.0	-15.9	2.26 H	261	42.38	-4.28
3	*2412.00	99.2 PK			2.26 H	261	103.37	-4.17
4	*2412.00	96.7 AV			2.26 H	261	100.87	-4.17
5	4824.00	46.6 PK	74.0	-27.4	1.71 H	334	41.99	4.61
6	4824.00	42.8 AV	54.0	-11.2	1.71 H	334	38.19	4.61
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	2372.00	52.6 PK	74.0	-21.4	1.04 V	16	56.88	-4.28
2	2372.00	42.6 AV	54.0	-11.4	1.04 V	16	46.88	-4.28
3	*2412.00	103.5 PK			1.08 V	19	107.67	-4.17
4	*2412.00	101.0 AV			1.08 V	19	105.17	-4.17
5	4824.00	56.4 PK	74.0	-17.6	1.60 V	318	51.79	4.61
6	**4824.00**	**53.9 AV**	**54.0**	**-0.1**	**1.60 V**	**318**	**49.29**	**4.61**

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	48.0 PK	74.0	-26.0	2.25 H	276	52.23	-4.23
2	2390.00	35.3 AV	54.0	-18.7	2.25 H	276	39.53	-4.23
3	*2437.00	93.0 PK			2.25 H	276	97.09	-4.09
4	*2437.00	90.2 AV			2.25 H	276	94.29	-4.09
5	2483.50	48.1 PK	74.0	-25.9	2.25 H	276	52.03	-3.93
6	2483.50	36.2 AV	54.0	-17.8	2.25 H	276	40.13	-3.93
7	4874.00	47.1 PK	74.0	-26.9	1.67 H	352	42.37	4.73
8	4874.00	43.2 AV	54.0	-10.8	1.67 H	352	38.47	4.73
9	7311.00	45.0 PK	74.0	-29.0	1.76 H	360	35.66	9.34
10	7311.00	31.4 AV	54.0	-22.6	1.76 H	360	22.06	9.34
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	48.6 PK	74.0	-25.4	1.10 V	360	52.83	-4.23
2	2390.00	35.8 AV	54.0	-18.2	1.10 V	360	40.03	-4.23
3	*2437.00	97.0 PK			1.10 V	360	101.09	-4.09
4	*2437.00	94.1 AV			1.10 V	360	98.19	-4.09
5	2483.50	48.3 PK	74.0	-25.7	1.10 V	360	52.23	-3.93
6	2483.50	36.5 AV	54.0	-17.5	1.10 V	360	40.43	-3.93
7	4874.00	52.9 PK	74.0	-21.1	1.59 V	360	48.17	4.73
8	4874.00	50.5 AV	54.0	-3.5	1.59 V	360	45.77	4.73
9	7311.00	44.8 PK	74.0	-29.2	1.67 V	16	35.46	9.34
10	7311.00	34.7 AV	54.0	-19.3	1.67 V	16	25.36	9.34

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	89.8 PK			2.31 H	265	93.79	-3.99
2	*2462.00	87.1 AV			2.31 H	265	91.09	-3.99
3	2483.50	48.7 PK	74.0	-25.3	2.31 H	265	52.63	-3.93
4	2483.50	37.1 AV	54.0	-16.9	2.31 H	265	41.03	-3.93
5	4924.00	49.1 PK	74.0	-24.9	1.85 H	357	44.34	4.76
6	4924.00	45.6 AV	54.0	-8.4	1.85 H	357	40.84	4.76
7	7386.00	45.1 PK	74.0	-28.9	1.79 H	360	35.38	9.72
8	7386.00	31.7 AV	54.0	-22.3	1.79 H	360	21.98	9.72
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	93.7 PK			1.06 V	17	97.69	-3.99
2	*2462.00	90.8 AV			1.06 V	17	94.79	-3.99
3	2483.50	48.4 PK	74.0	-25.6	1.06 V	17	52.33	-3.93
4	2483.50	36.9 AV	54.0	-17.1	1.06 V	17	40.83	-3.93
5	4924.00	56.1 PK	74.0	-17.9	1.74 V	17	51.34	4.76
6	**4924.00**	**53.9 AV**	**54.0**	**-0.1**	**1.74 V**	**17**	**49.14**	**4.76**
7	7386.00	44.9 PK	74.0	-29.1	1.69 V	32	35.18	9.72
8	7386.00	34.7 AV	54.0	-19.3	1.69 V	32	24.98	9.72

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	58.5 PK	74.0	-15.5	2.32 H	259	62.73	-4.23
2	2390.00	42.7 AV	54.0	-11.3	2.32 H	259	46.93	-4.23
3	*2412.00	109.1 PK			2.32 H	259	113.27	-4.17
4	*2412.00	100.3 AV			2.32 H	259	104.47	-4.17
5	4824.00	47.2 PK	74.0	-26.8	1.70 H	360	42.59	4.61
6	4824.00	43.7 AV	54.0	-10.3	1.70 H	360	39.09	4.61
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.9 PK	74.0	-11.1	1.24 V	18	67.13	-4.23
2	2390.00	47.1 AV	54.0	-6.9	1.24 V	18	51.33	-4.23
3	*2412.00	113.0 PK			1.01 V	15	117.17	-4.17
4	*2412.00	104.3 AV			1.01 V	15	108.47	-4.17
5	4824.00	65.8 PK	74.0	-8.2	1.63 V	319	61.19	4.61
6	4824.00	52.8 AV	54.0	-1.2	1.63 V	319	48.19	4.61

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	50.8 PK	74.0	-23.2	2.20 H	249	55.03	-4.23
2	2390.00	41.2 AV	54.0	-12.8	2.20 H	249	45.43	-4.23
3	*2437.00	104.1 PK			2.20 H	249	108.19	-4.09
4	*2437.00	95.3 AV			2.20 H	249	99.39	-4.09
5	2483.50	52.8 PK	74.0	-21.2	2.20 H	249	56.73	-3.93
6	2483.50	40.0 AV	54.0	-14.0	2.20 H	249	43.93	-3.93
7	4874.00	47.2 PK	74.0	-26.8	1.64 H	344	42.47	4.73
8	4874.00	43.5 AV	54.0	-10.5	1.64 H	344	38.77	4.73
9	7311.00	45.3 PK	74.0	-28.7	1.74 H	360	35.96	9.34
10	7311.00	31.6 AV	54.0	-22.4	1.74 H	360	22.26	9.34
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.7 PK	74.0	-19.3	1.21 V	16	58.93	-4.23
2	2390.00	45.1 AV	54.0	-8.9	1.21 V	16	49.33	-4.23
3	*2437.00	107.9 PK			1.21 V	16	111.99	-4.09
4	*2437.00	99.3 AV			1.21 V	16	103.39	-4.09
5	2483.50	56.6 PK	74.0	-17.4	1.21 V	16	60.53	-3.93
6	2483.50	43.8 AV	54.0	-10.2	1.21 V	16	47.73	-3.93
7	4874.00	66.2 PK	74.0	-7.8	1.41 V	340	61.47	4.73
8	4874.00	53.5 AV	54.0	-0.5	1.41 V	340	48.77	4.73
9	7311.00	45.4 PK	74.0	-28.6	1.66 V	24	36.06	9.34
10	7311.00	35.1 AV	54.0	-18.9	1.66 V	24	25.76	9.34

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	94.6 PK			2.30 H	276	98.59	-3.99
2	*2462.00	86.0 AV			2.30 H	276	89.99	-3.99
3	2483.50	50.7 PK	74.0	-23.3	2.30 H	276	54.63	-3.93
4	2483.50	37.6 AV	54.0	-16.4	2.30 H	276	41.53	-3.93
5	4924.00	47.7 PK	74.0	-26.3	1.64 H	345	42.94	4.76
6	4924.00	43.7 AV	54.0	-10.3	1.64 H	345	38.94	4.76
7	7386.00	44.8 PK	74.0	-29.2	1.73 H	360	35.08	9.72
8	7386.00	31.0 AV	54.0	-23.0	1.73 H	360	21.28	9.72
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	98.4 PK			1.21 V	9	102.39	-3.99
2	*2462.00	89.6 AV			1.21 V	9	93.59	-3.99
3	2483.50	50.5 PK	74.0	-23.5	1.21 V	9	54.43	-3.93
4	2483.50	37.6 AV	54.0	-16.4	1.21 V	9	41.53	-3.93
5	4924.00	59.6 PK	74.0	-14.4	1.41 V	360	54.84	4.76
6	4924.00	45.6 AV	54.0	-8.4	1.41 V	360	40.84	4.76
7	7386.00	44.7 PK	74.0	-29.3	1.70 V	24	34.98	9.72
8	7386.00	34.8 AV	54.0	-19.2	1.70 V	24	25.08	9.72

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	60.5 PK	74.0	-13.5	2.29 H	251	64.73	-4.23
2	2390.00	44.3 AV	54.0	-9.7	2.29 H	251	48.53	-4.23
3	*2412.00	110.1 PK			2.29 H	251	114.27	-4.17
4	*2412.00	100.7 AV			2.29 H	251	104.87	-4.17
5	4824.00	46.9 PK	74.0	-27.1	1.75 H	345	42.29	4.61
6	4824.00	43.0 AV	54.0	-11.0	1.75 H	345	38.39	4.61
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.9 PK	74.0	-9.1	1.00 V	18	69.13	-4.23
2	2390.00	48.5 AV	54.0	-5.5	1.00 V	18	52.73	-4.23
3	*2412.00	114.1 PK			1.09 V	15	118.27	-4.17
4	*2412.00	105.0 AV			1.09 V	15	109.17	-4.17
5	4824.00	66.0 PK	74.0	-8.0	1.53 V	360	61.39	4.61
6	4824.00	53.8 AV	54.0	-0.2	1.53 V	360	49.19	4.61

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	49.9 PK	74.0	-24.1	2.30 H	250	54.13	-4.23
2	2390.00	38.4 AV	54.0	-15.6	2.30 H	250	42.63	-4.23
3	*2437.00	104.4 PK			2.30 H	250	108.49	-4.09
4	*2437.00	95.4 AV			2.30 H	250	99.49	-4.09
5	2483.50	48.8 PK	74.0	-25.2	2.30 H	250	52.73	-3.93
6	2483.50	38.2 AV	54.0	-15.8	2.30 H	250	42.13	-3.93
7	4874.00	46.9 PK	74.0	-27.1	1.71 H	350	42.17	4.73
8	4874.00	43.3 AV	54.0	-10.7	1.71 H	350	38.57	4.73
9	7311.00	45.1 PK	74.0	-28.9	1.74 H	360	35.76	9.34
10	7311.00	31.7 AV	54.0	-22.3	1.74 H	360	22.36	9.34
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.3 PK	74.0	-19.7	1.34 V	14	58.53	-4.23
2	2390.00	42.7 AV	54.0	-11.3	1.34 V	14	46.93	-4.23
3	*2437.00	108.1 PK			1.34 V	14	112.19	-4.09
4	*2437.00	99.1 AV			1.34 V	14	103.19	-4.09
5	2483.50	53.2 PK	74.0	-20.8	1.34 V	14	57.13	-3.93
6	2483.50	42.3 AV	54.0	-11.7	1.34 V	14	46.23	-3.93
7	4874.00	66.8 PK	74.0	-7.2	1.53 V	360	62.07	4.73
8	4874.00	53.2 AV	54.0	-0.8	1.53 V	360	48.47	4.73
9	7311.00	45.1 PK	74.0	-28.9	1.63 V	29	35.76	9.34
10	7311.00	35.2 AV	54.0	-18.8	1.63 V	29	25.86	9.34

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	94.5 PK			2.21 H	246	98.49	-3.99
2	*2462.00	85.3 AV			2.21 H	246	89.29	-3.99
3	2483.50	48.7 PK	74.0	-25.3	2.21 H	246	52.63	-3.93
4	2483.50	37.0 AV	54.0	-17.0	2.21 H	246	40.93	-3.93
5	4924.00	46.7 PK	74.0	-27.3	1.63 H	350	41.94	4.76
6	4924.00	42.8 AV	54.0	-11.2	1.63 H	350	38.04	4.76
7	7386.00	44.7 PK	74.0	-29.3	1.74 H	360	34.98	9.72
8	7386.00	31.1 AV	54.0	-22.9	1.74 H	360	21.38	9.72
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	98.1 PK			1.53 V	10	102.09	-3.99
2	*2462.00	88.9 AV			1.53 V	10	92.89	-3.99
3	2483.50	49.0 PK	74.0	-25.0	1.53 V	10	52.93	-3.93
4	2483.50	37.5 AV	54.0	-16.5	1.53 V	10	41.43	-3.93
5	4924.00	59.8 PK	74.0	-14.2	1.37 V	360	55.04	4.76
6	4924.00	45.6 AV	54.0	-8.4	1.37 V	360	40.84	4.76
7	7386.00	45.5 PK	74.0	-28.5	1.66 V	17	35.78	9.72
8	7386.00	35.2 AV	54.0	-18.8	1.66 V	17	25.48	9.72

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	58.9 PK	74.0	-15.1	1.18 H	9	63.13	-4.23
2	2390.00	44.5 AV	54.0	-9.5	1.18 H	9	48.73	-4.23
3	*2422.00	99.6 PK			1.18 H	60	103.73	-4.13
4	*2422.00	90.5 AV			1.18 H	60	94.63	-4.13
5	4844.00	47.1 PK	74.0	-26.9	1.63 H	355	42.45	4.65
6	4844.00	43.3 AV	54.0	-10.7	1.63 H	355	38.65	4.65
7	7266.00	44.5 PK	74.0	-29.5	1.72 H	360	35.26	9.24
8	7266.00	31.0 AV	54.0	-23.0	1.72 H	360	21.76	9.24
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	66.3 PK	74.0	-7.7	1.14 V	360	70.53	-4.23
2	2390.00	53.7 AV	54.0	-0.3	1.14 V	360	57.93	-4.23
3	*2422.00	105.6 PK			1.14 V	360	109.73	-4.13
4	*2422.00	96.3 AV			1.14 V	360	100.43	-4.13
5	4844.00	62.7 PK	74.0	-11.3	1.43 V	360	58.05	4.65
6	4844.00	48.4 AV	54.0	-5.6	1.43 V	360	43.75	4.65
7	7266.00	44.9 PK	74.0	-29.1	1.64 V	30	35.66	9.24
8	7266.00	34.9 AV	54.0	-19.1	1.64 V	30	25.66	9.24

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	52.5 PK	74.0	-21.5	2.19 H	247	56.73	-4.23
2	2390.00	41.0 AV	54.0	-13.0	2.19 H	247	45.23	-4.23
3	*2437.00	101.0 PK			2.19 H	247	105.09	-4.09
4	*2437.00	91.8 AV			2.19 H	247	95.89	-4.09
5	2483.50	53.5 PK	74.0	-20.5	2.19 H	247	57.43	-3.93
6	2483.50	41.2 AV	54.0	-12.8	2.19 H	247	45.13	-3.93
7	4874.00	47.4 PK	74.0	-26.6	1.70 H	347	42.67	4.73
8	4874.00	43.4 AV	54.0	-10.6	1.70 H	347	38.67	4.73
9	7311.00	45.3 PK	74.0	-28.7	1.73 H	360	35.96	9.34
10	7311.00	31.6 AV	54.0	-22.4	1.73 H	360	22.26	9.34
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	56.1 PK	74.0	-17.9	1.55 V	359	60.33	-4.23
2	2390.00	44.9 AV	54.0	-9.1	1.55 V	359	49.13	-4.23
3	*2437.00	104.7 PK			1.55 V	359	108.79	-4.09
4	*2437.00	95.3 AV			1.55 V	359	99.39	-4.09
5	2483.50	57.8 PK	74.0	-16.2	1.55 V	359	61.73	-3.93
6	2483.50	45.5 AV	54.0	-8.5	1.55 V	359	49.43	-3.93
7	4874.00	67.7 PK	74.0	-6.3	1.53 V	360	62.97	4.73
8	4874.00	53.2 AV	54.0	-0.8	1.53 V	360	48.47	4.73
9	7311.00	45.4 PK	74.0	-28.6	1.65 V	31	36.06	9.34
10	7311.00	35.0 AV	54.0	-19.0	1.65 V	31	25.66	9.34

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	98.8 PK			2.16 H	262	102.83	-4.03
2	*2452.00	89.5 AV			2.16 H	262	93.53	-4.03
3	2483.50	56.3 PK	74.0	-17.7	2.16 H	262	60.23	-3.93
4	2483.50	41.5 AV	54.0	-12.5	2.16 H	262	45.43	-3.93
5	4904.00	46.9 PK	74.0	-27.1	1.68 H	351	42.12	4.78
6	4904.00	42.7 AV	54.0	-11.3	1.68 H	351	37.92	4.78
7	7356.00	45.4 PK	74.0	-28.6	1.76 H	360	35.84	9.56
8	7356.00	31.8 AV	54.0	-22.2	1.76 H	360	22.24	9.56
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	102.1 PK			1.57 V	345	106.13	-4.03
2	*2452.00	93.1 AV			1.57 V	345	97.13	-4.03
3	2483.50	60.7 PK	74.0	-13.3	1.57 V	345	64.63	-3.93
4	2483.50	45.9 AV	54.0	-8.1	1.57 V	345	49.83	-3.93
5	4904.00	65.7 PK	74.0	-8.3	1.57 V	360	60.92	4.78
6	4904.00	53.4 AV	54.0	-0.6	1.57 V	360	48.62	4.78
7	7356.00	45.6 PK	74.0	-28.4	1.63 V	2	36.04	9.56
8	7356.00	35.2 AV	54.0	-18.8	1.63 V	2	25.64	9.56

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 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 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	232.49	35.4 QP	46.0	-10.6	1.50 H	91	50.66	-15.22
2	279.97	34.8 QP	46.0	-11.2	1.00 H	282	47.42	-12.63
3	324.98	33.1 QP	46.0	-12.9	1.00 H	62	44.35	-11.21
4	461.31	31.4 QP	46.0	-14.6	2.00 H	48	39.03	-7.63
5	625.00	40.9 QP	46.0	-5.1	1.50 H	46	44.61	-3.74
6	877.25	33.6 QP	46.0	-12.4	1.00 H	190	33.46	0.18
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	94.80	32.7 QP	43.5	-10.8	1.00 V	25	51.05	-18.34
2	232.49	32.6 QP	46.0	-13.4	1.50 V	340	47.85	-15.22
3	327.50	29.2 QP	46.0	-16.8	1.50 V	130	40.31	-11.15
4	461.55	31.3 QP	46.0	-14.7	1.00 V	301	38.95	-7.63
5	625.00	36.7 QP	46.0	-9.3	1.50 V	0	40.48	-3.74
6	875.02	31.9 QP	46.0	-14.1	1.00 V	360	31.66	0.24

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	100375	May 06, 2015	May 05, 2016
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK-8127	8127-522	Sep. 15, 2014	Sep. 14, 2015
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 11, 2015	June 10, 2016
RF Cable	5D-FB	COCCAB-001	Mar. 09, 2015	Mar. 08, 2016
50 ohms Terminator	N/A	EMC-03	Sep. 22, 2014	Sep. 21, 2015
50 ohms Terminator	N/A	EMC-02	Sep. 30, 2014	Sep. 29, 2015
Software BVADT	BVADT_Cond_ V7.3.7.3	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. C.
3 The VCCI Con C Registration No. is C-3611.
4 Tested Date: Aug. 17, 2015

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.

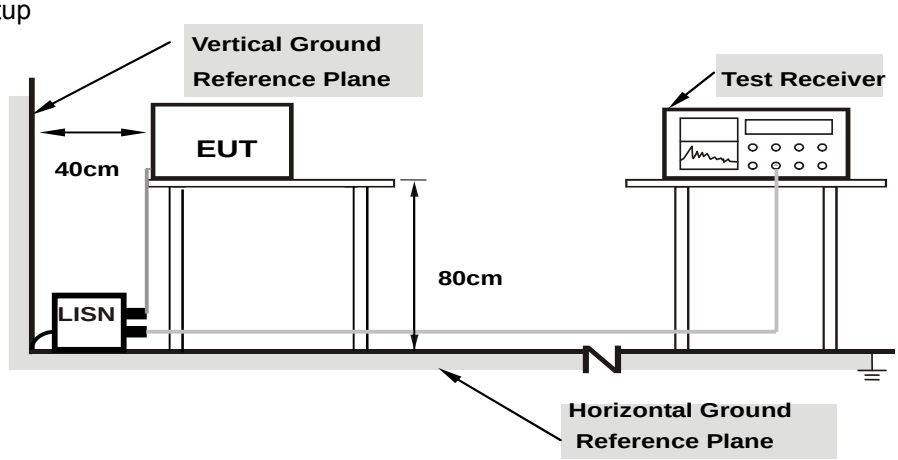
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

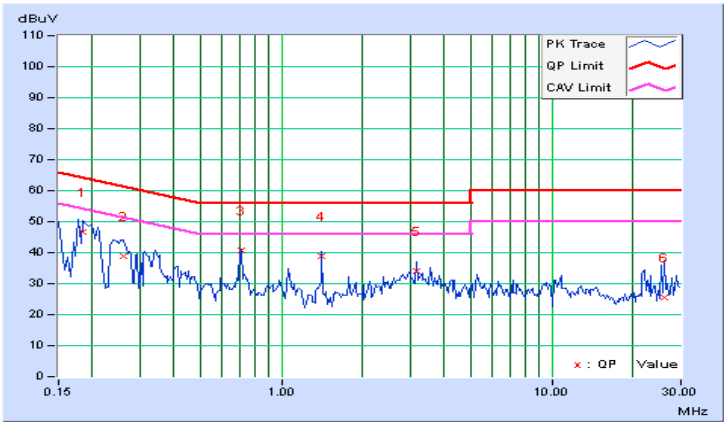
4.2.7 Test Results

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

No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18516	0.09	46.50	27.37	46.59	27.46	64.25	54.25	-17.66	-26.79
2	0.25938	0.09	38.81	21.38	38.90	21.47	61.45	51.45	-22.55	-29.98
3	**0.70859**	**0.12**	**40.53**	**39.57**	**40.65**	**39.69**	**56.00**	**46.00**	**-15.35**	**-6.31**
4	1.41406	0.15	38.60	38.12	38.75	38.27	56.00	46.00	-17.25	-7.73
5	3.17969	0.20	33.92	31.41	34.12	31.61	56.00	46.00	-21.88	-14.39
6	26.14844	0.84	24.69	21.93	25.53	22.77	60.00	50.00	-34.47	-27.23

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

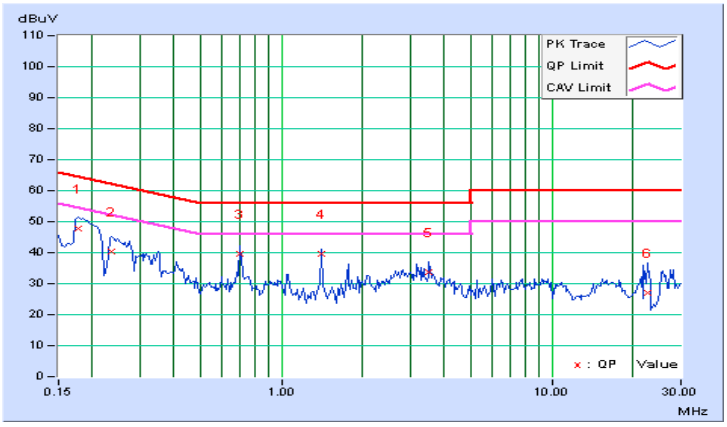


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17734	0.08	47.75	24.56	47.83	24.64	64.61	54.61	-16.78	-29.97
2	0.23594	0.08	40.38	16.18	40.46	16.26	62.24	52.24	-21.77	-35.97
3	0.70469	0.12	39.66	39.34	39.78	39.46	56.00	46.00	-16.22	-6.54
4	1.41016	0.15	39.41	38.74	39.56	38.89	56.00	46.00	-16.44	-7.11
5	3.52344	0.22	33.56	30.76	33.78	30.98	56.00	46.00	-22.22	-15.02
6	22.54688	0.80	26.18	17.62	26.98	18.42	60.00	50.00	-33.02	-31.58

Remarks:

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

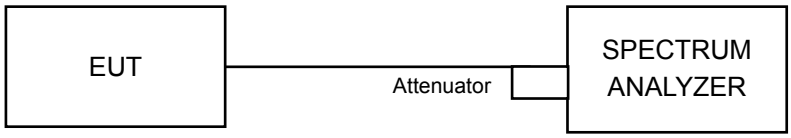


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedures

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 Results

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	7.57	7.10	6.64	0.5	Pass
6	2437	7.12	7.11	7.12	0.5	Pass
11	2462	7.09	7.09	7.10	0.5	Pass

802.11g

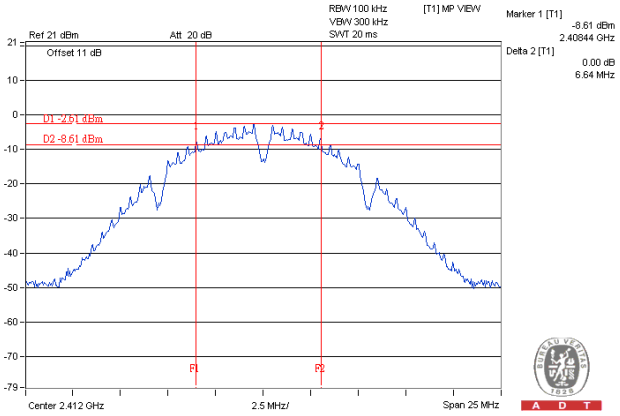
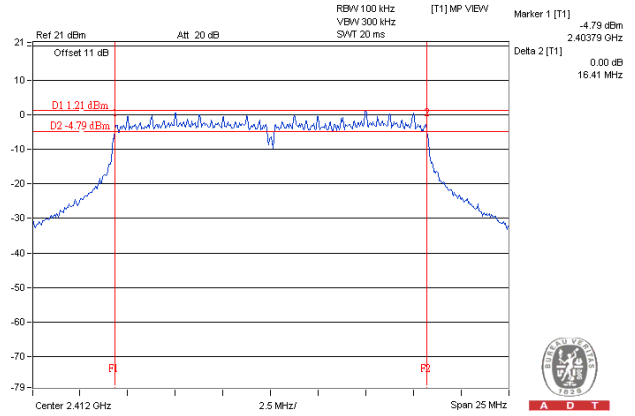
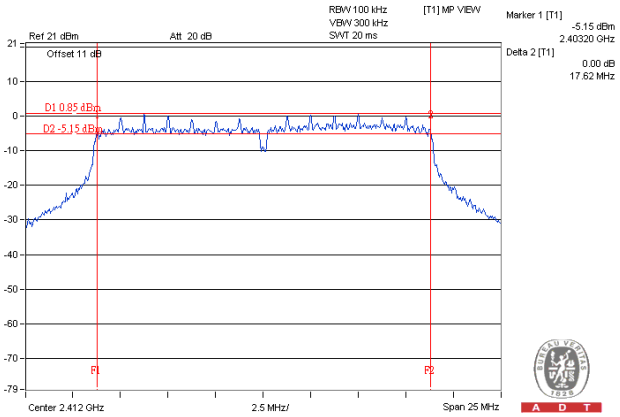
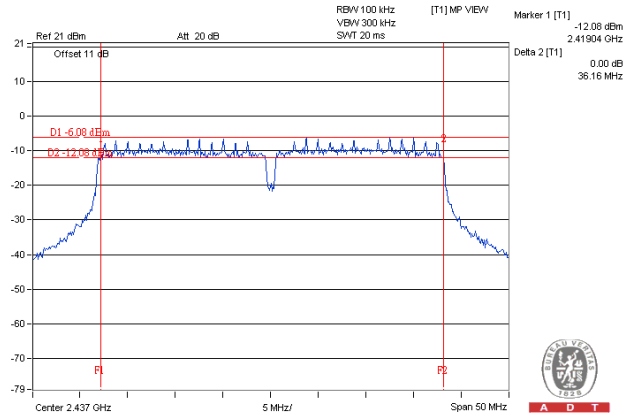
Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	16.43	16.43	16.41	0.5	Pass
6	2437	16.42	16.45	16.44	0.5	Pass
11	2462	16.43	16.43	16.42	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
1	2412	17.62	17.63	17.65	0.5	Pass
6	2437	17.64	17.65	17.63	0.5	Pass
11	2462	17.62	17.64	17.64	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
3	2422	36.18	36.46	36.46	0.5	Pass
6	2437	36.16	36.17	36.43	0.5	Pass
9	2452	36.44	36.44	36.42	0.5	Pass

Spectrum Plot of Worst Value	
802.11b_Chain 2 / CH1	**802.11g_Chain 2 / CH1**
	
802.11n (HT20) _Chain 0 / CH1	**802.11n (HT40) _Chain 0 / CH6**
	

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

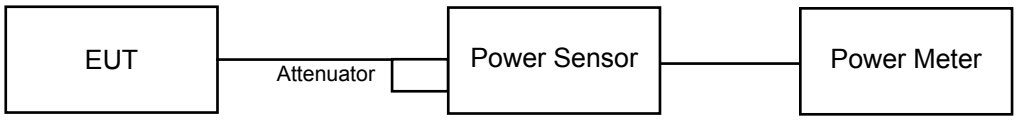
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

Per KDB 662911 D01 Multiple Transmitter Output v02r01 Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;
Array Gain = 5 log(NANT/NSS) dB or 3 dB, whichever is less for 20-MHz channel widths with NANT ≥ 5.

For power measurements on all other devices: Array Gain = 10 log(NANT/NSS) 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

The 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.	Chan. Freq. (MHz)	Peak Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	7.43	7.31	7.35	16.35	12.14	30	Pass
6	2437	5.91	5.30	5.56	10.884	10.37	30	Pass
11	2462	3.96	4.16	3.57	7.37	8.67	30	Pass

802.11g

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	18.71	18.68	19.81	243.811	23.87	30	Pass
6	2437	15.62	15.55	15.92	111.451	20.47	30	Pass
11	2462	9.94	9.74	9.88	29.009	14.63	30	Pass

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
1	2412	19.46	19.53	19.66	270.521	24.32	30	Pass
6	2437	16.35	16.41	16.19	128.495	21.09	30	Pass
11	2462	11.11	11.52	11.19	40.255	16.05	30	Pass

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)			Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
3	2422	16.52	17.19	17.22	149.958	21.76	30	Pass
6	2437	16.02	16.05	16.36	123.517	20.92	30	Pass
9	2452	13.78	13.56	13.36	68.254	18.34	30	Pass

FOR AVERAGE POWER

802.11b

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1	Chain 2		
1	2412	3.97	3.77	3.78	7.265	8.61
6	2437	2.71	2.25	2.53	5.336	7.27
11	2462	0.19	0.34	-0.23	3.075	4.88

802.11g

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1	Chain 2		
1	2412	10.88	10.83	11.18	37.474	15.74
6	2437	7.45	7.31	7.76	16.912	12.28
11	2462	2.65	2.37	2.57	5.374	7.30

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1	Chain 2		
1	2412	11.15	11.27	11.77	41.46	16.18
6	2437	6.83	6.85	7.34	15.081	11.78
11	2462	2.52	2.71	2.61	5.476	7.38

802.11n (HT40)

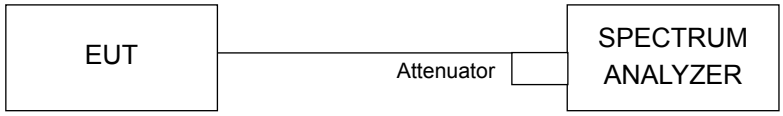
Chan.	Chan. Freq. (MHz)	Average Power (dBm)			Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1	Chain 2		
3	2422	8.11	8.45	8.72	20.916	13.20
6	2437	7.46	7.47	7.65	16.978	12.30
9	2452	4.92	4.60	4.56	8.847	9.47

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 Procedures

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 Conditions

Same as Item 4.3.6

4.5.7 Test Results

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=3) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-17.56	4.77	-12.79	5.26	Pass
	6	2437	-22.31	4.77	-17.54	5.26	Pass
	11	2462	-23.62	4.77	-18.85	5.26	Pass
1	1	2412	-17.50	4.77	-12.73	5.26	Pass
	6	2437	-21.70	4.77	-16.93	5.26	Pass
	11	2462	-25.47	4.77	-20.70	5.26	Pass
2	1	2412	-17.59	4.77	-12.82	5.26	Pass
	6	2437	-21.63	4.77	-16.86	5.26	Pass
	11	2462	-24.97	4.77	-20.20	5.26	Pass

Note: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 8.74dBi > 6dBi , so the power density limit shall be reduced to 8-(8.74-6) = 5.26dBm.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=3) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-13.03	4.77	-8.26	5.26	Pass
	6	2437	-18.36	4.77	-13.59	5.26	Pass
	11	2462	-24.50	4.77	-19.73	5.26	Pass
1	1	2412	-14.16	4.77	-9.39	5.26	Pass
	6	2437	-16.98	4.77	-12.21	5.26	Pass
	11	2462	-25.54	4.77	-20.77	5.26	Pass
2	1	2412	-12.99	4.77	-8.22	5.26	Pass
	6	2437	-17.23	4.77	-12.46	5.26	Pass
	11	2462	-24.42	4.77	-19.65	5.26	Pass

Note: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 8.74dBi > 6dBi , so the power density limit shall be reduced to 8-(8.74-6) = 5.26dBm.

802.11n (HT20)

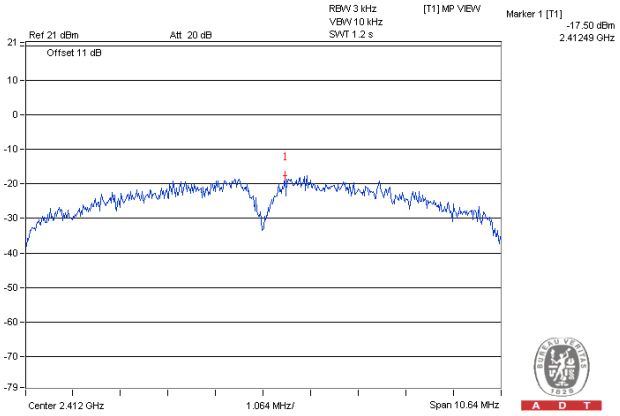
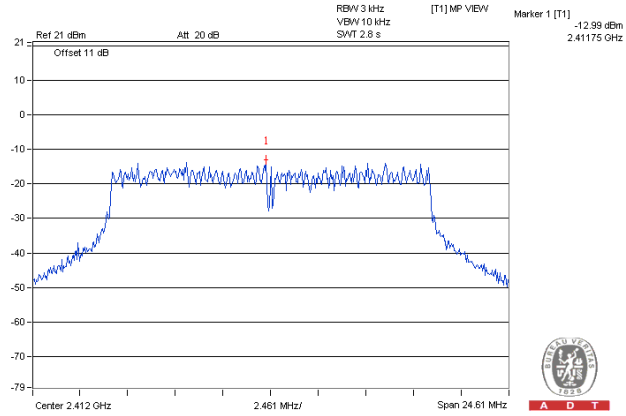
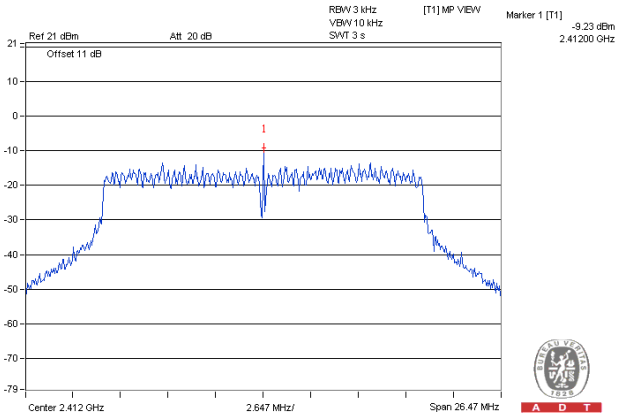
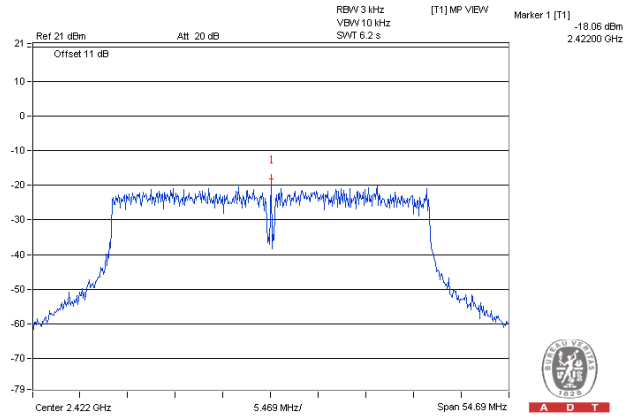
TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=3) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-13.42	4.77	-8.65	5.26	Pass
	6	2437	-18.83	4.77	-14.06	5.26	Pass
	11	2462	-25.05	4.77	-20.28	5.26	Pass
1	1	2412	-14.03	4.77	-9.26	5.26	Pass
	6	2437	-18.43	4.77	-13.66	5.26	Pass
	11	2462	-25.76	4.77	-20.99	5.26	Pass
2	1	2412	-9.23	4.77	-4.46	5.26	Pass
	6	2437	-18.12	4.77	-13.35	5.26	Pass
	11	2462	-24.97	4.77	-20.20	5.26	Pass

Note: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 8.74dBi > 6dBi , so the power density limit shall be reduced to 8-(8.74-6) = 5.26dBm.

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=3) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	3	2422	-19.11	4.77	-14.34	5.26	Pass
	6	2437	-21.32	4.77	-16.55	5.26	Pass
	9	2452	-23.11	4.77	-18.34	5.26	Pass
1	3	2422	-18.06	4.77	-13.29	5.26	Pass
	6	2437	-19.97	4.77	-15.20	5.26	Pass
	9	2452	-23.36	4.77	-18.59	5.26	Pass
2	3	2422	-18.76	4.77	-13.99	5.26	Pass
	6	2437	-19.77	4.77	-15.00	5.26	Pass
	9	2452	-20.41	4.77	-15.64	5.26	Pass

Note: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2$ / 3] = 8.74dBi > 6dBi , so the power density limit shall be reduced to 8-(8.74-6) = 5.26dBm.

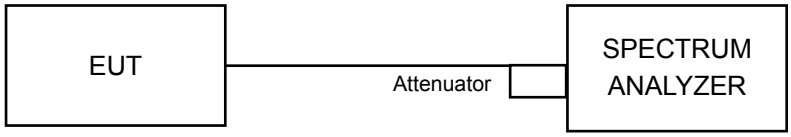
Spectrum Plot of Worst Value	
802.11b_Chain 1 / CH1	**802.11g_Chain 2 / CH1**
	
802.11n (HT20)_Chain 2 / CH1	**802.11n (HT40)_Chain 1 / CH3**
	

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 Procedures

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 Conditions

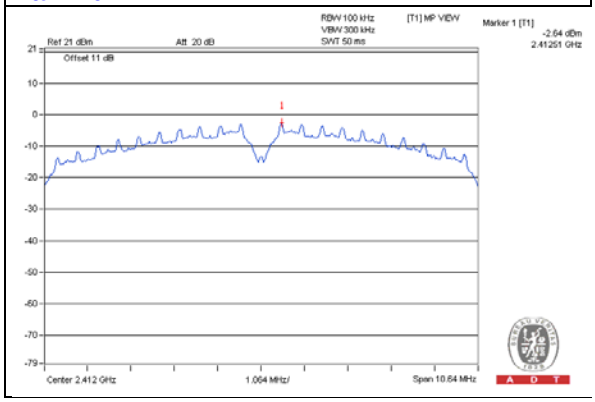
Same as Item 4.3.6

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.

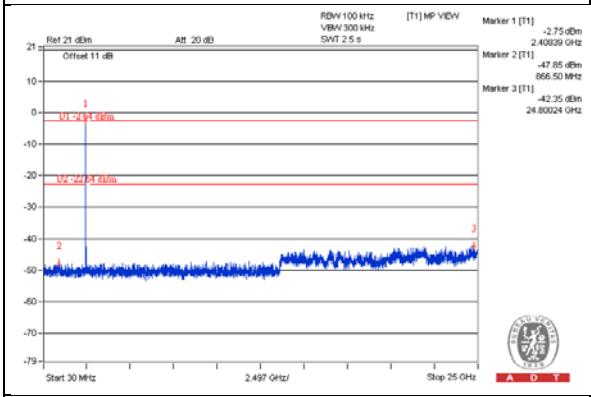
802.11b

Maximum REF

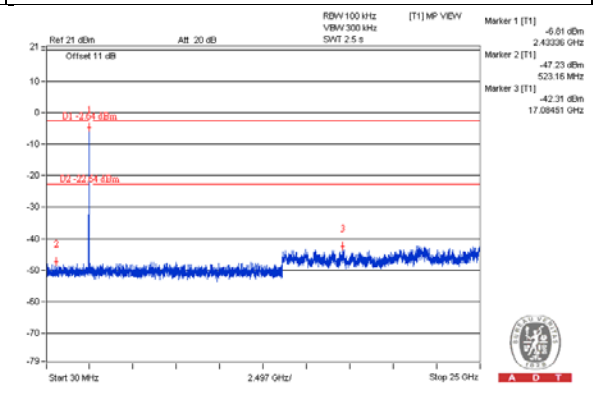


Chain 0

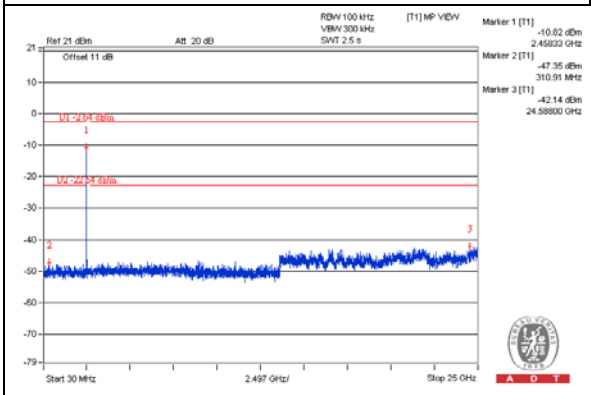
CH 1



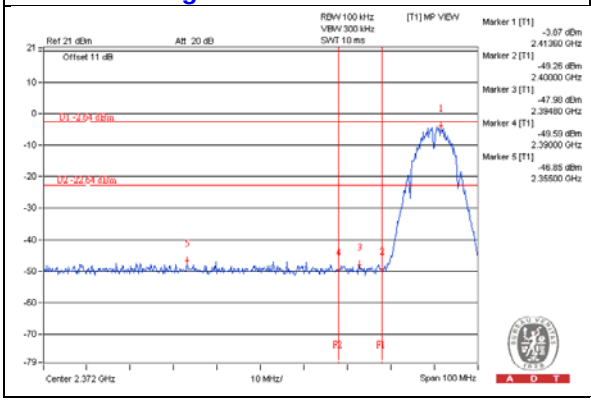
CH 6



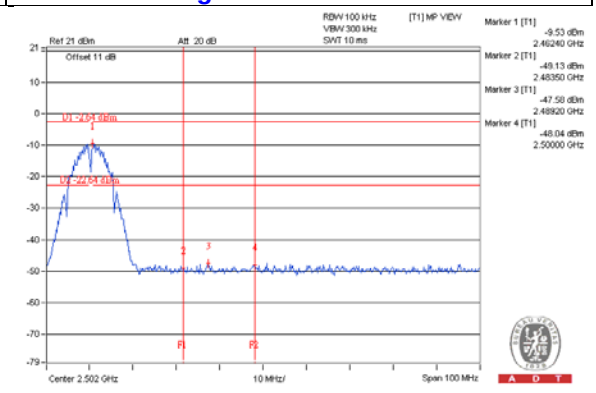
CH 11



CH 1 Band edge

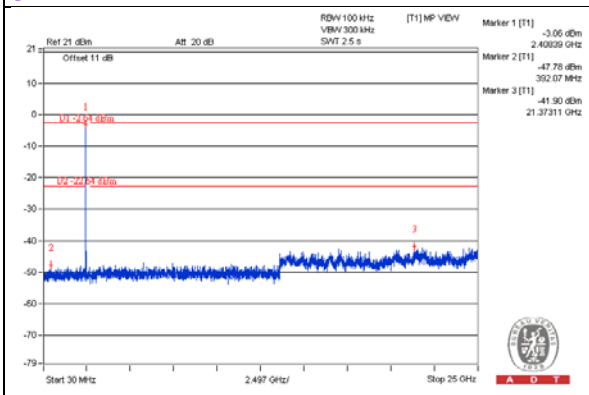


CH 11 Band edge

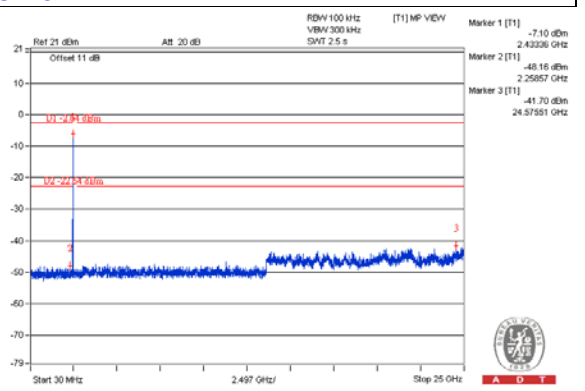


Chain 1

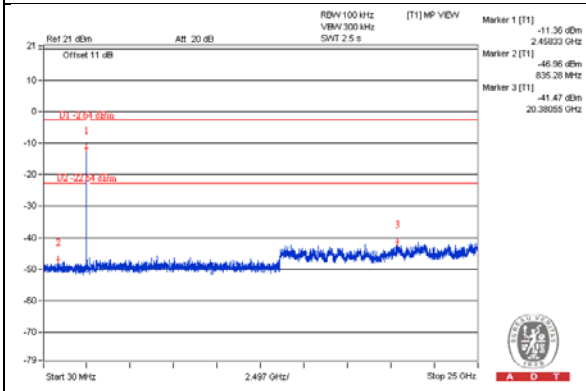
CH 1



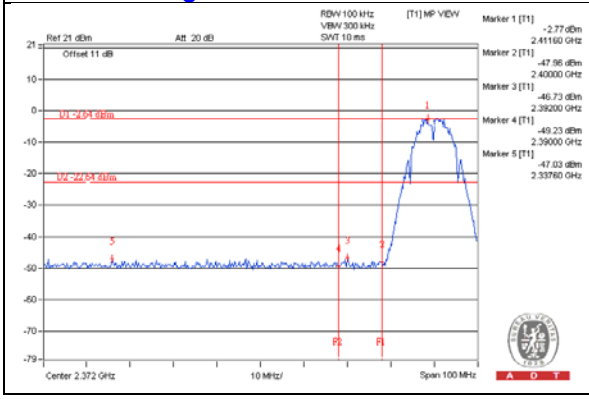
CH 6



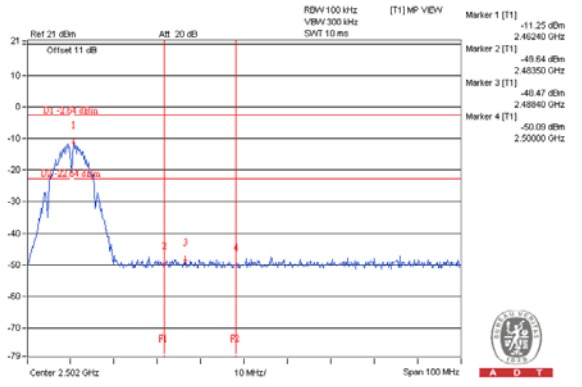
CH 11



CH 1 Band edge

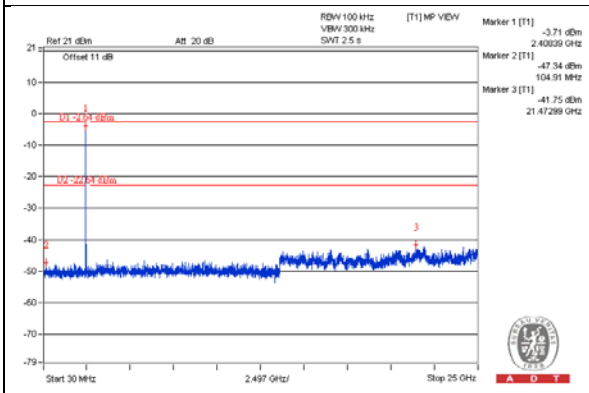


CH 11 Band edge

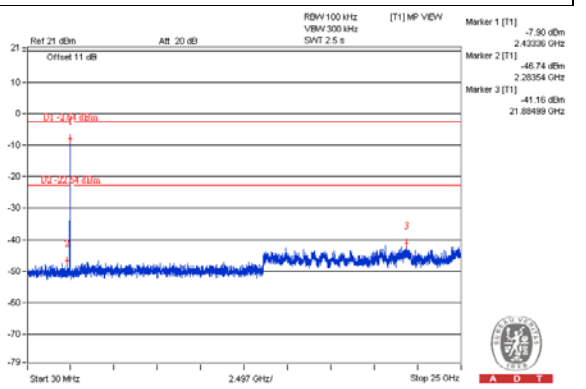


Chain 2

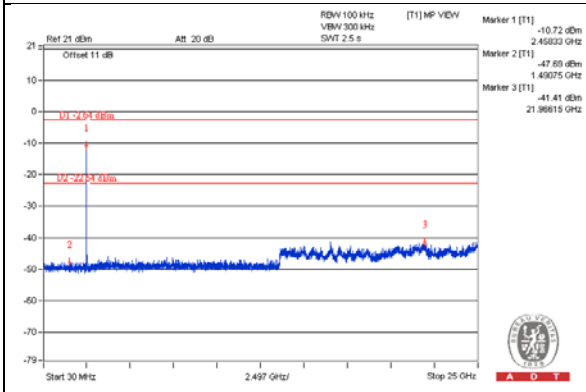
CH 1



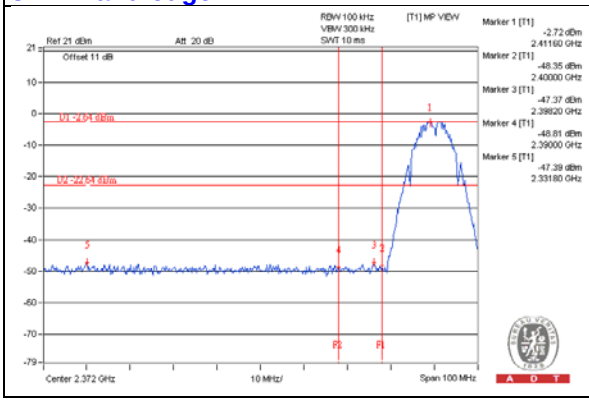
CH 6



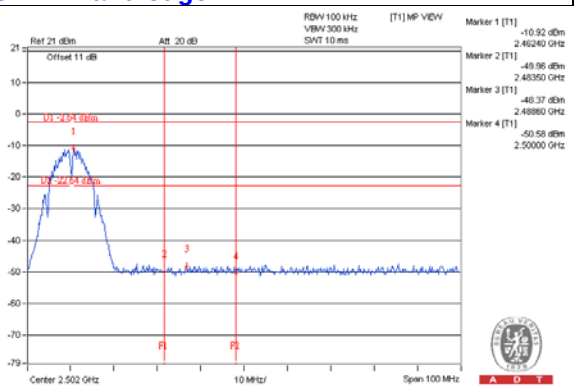
CH 11



CH 1 Band edge

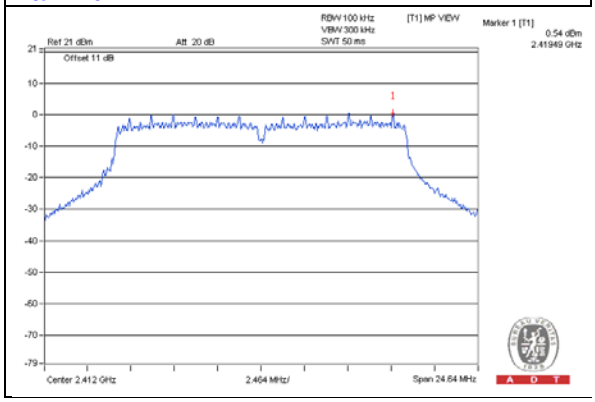


CH 11 Band edge



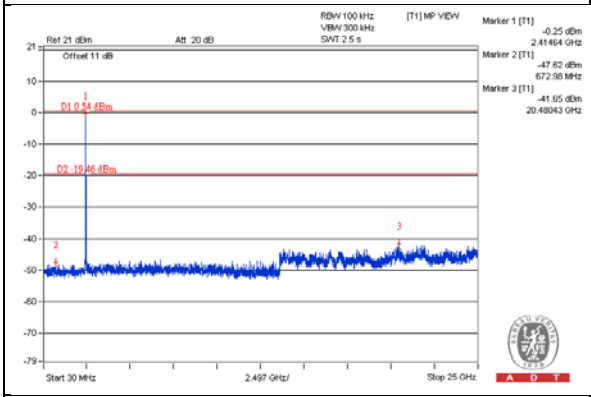
802.11g

Maximum REF

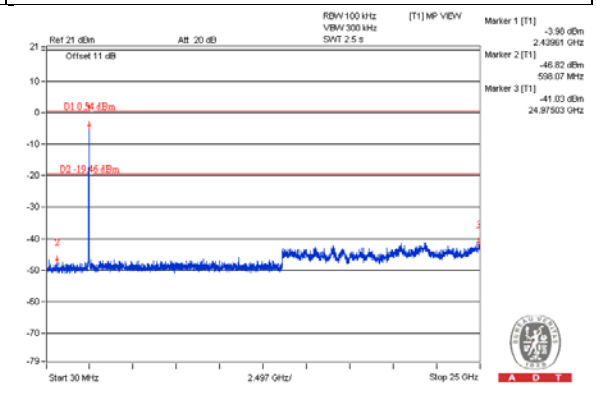


Chain 0

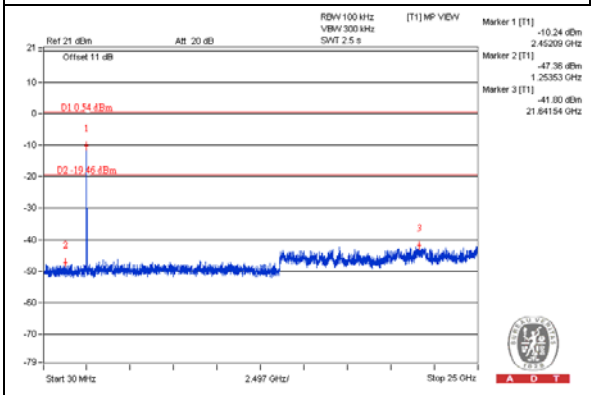
CH 1



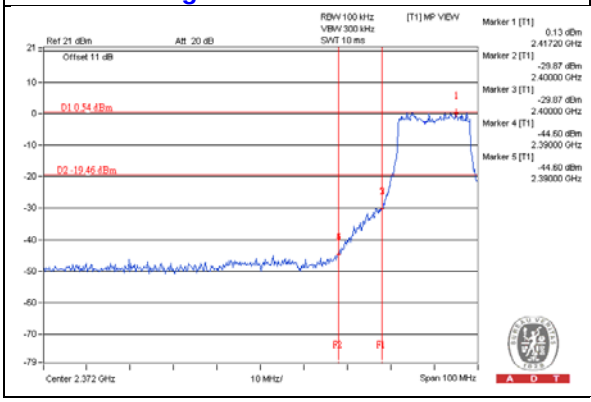
CH 6



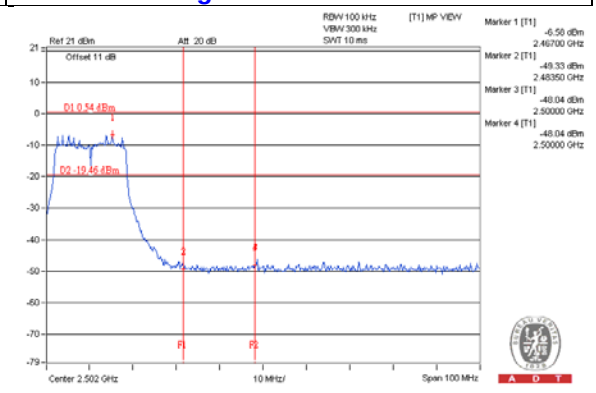
CH 11



CH 1 Band edge

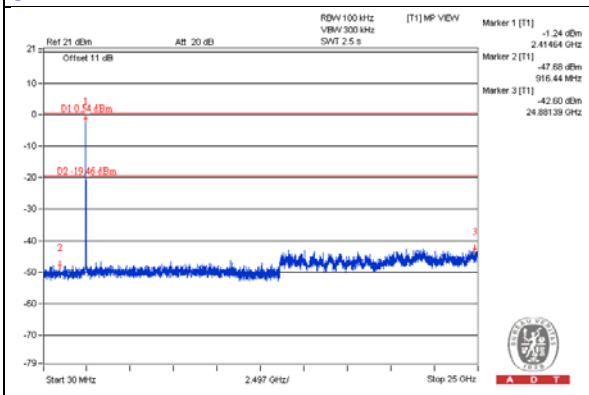


CH 11 Band edge

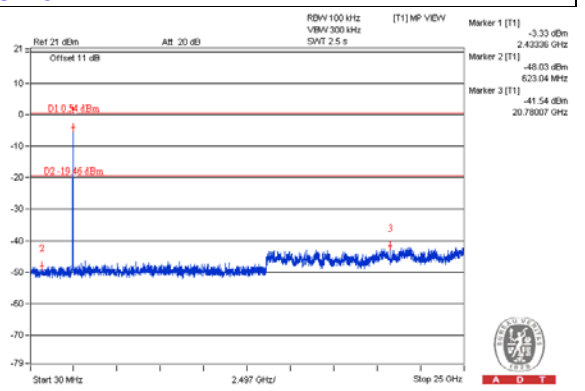


Chain 1

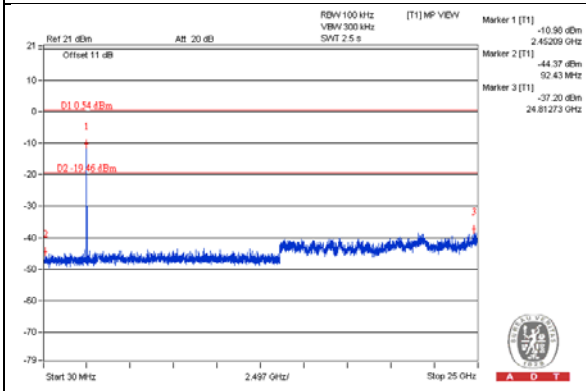
CH 1



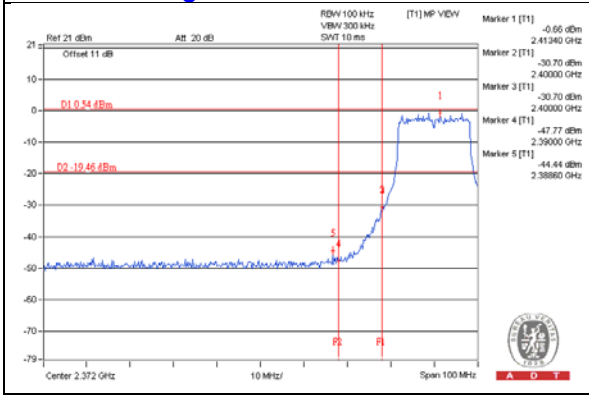
CH 6



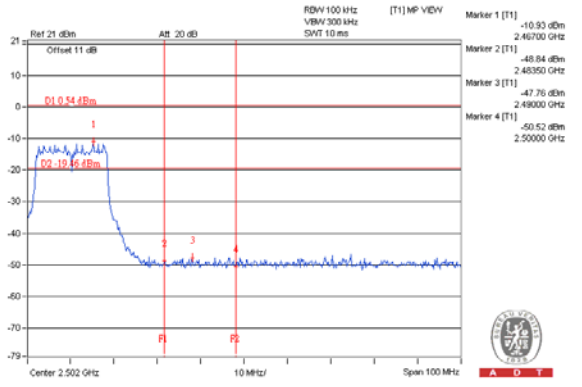
CH 11



CH 1 Band edge

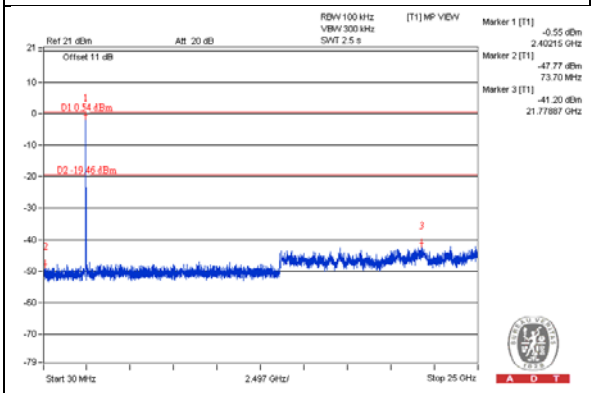


CH 11 Band edge

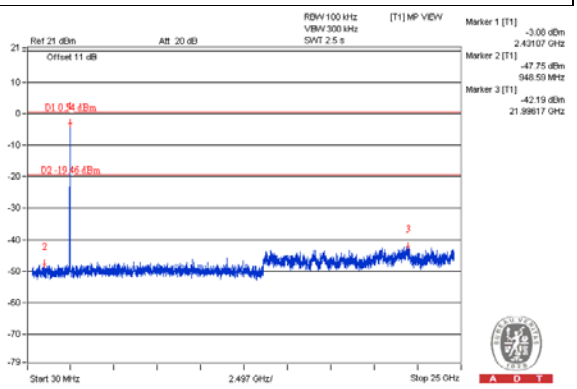


Chain 2

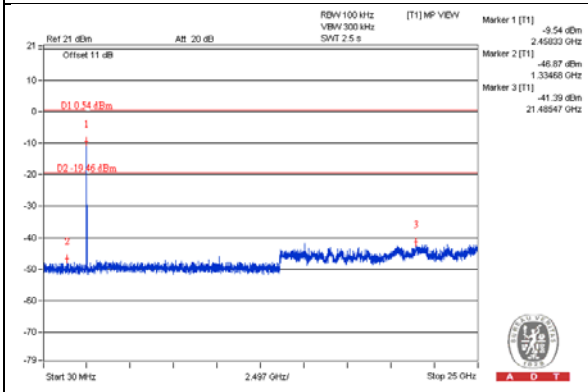
CH 1



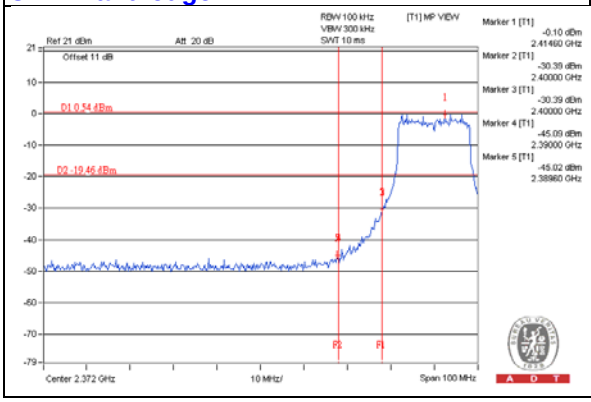
CH 6



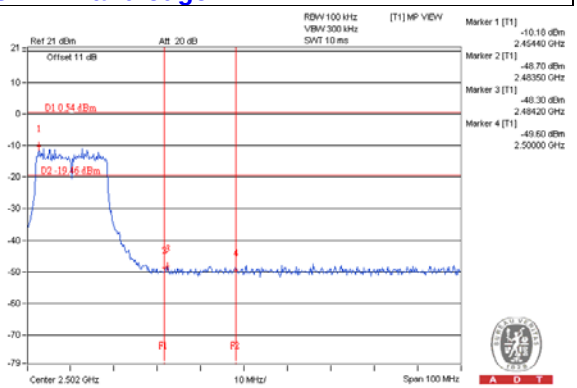
CH 11



CH 1 Band edge

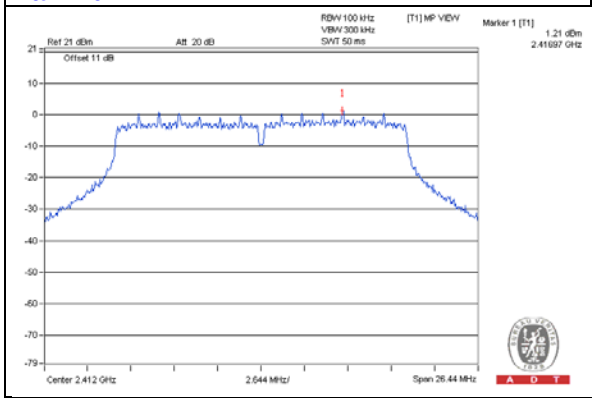


CH 11 Band edge



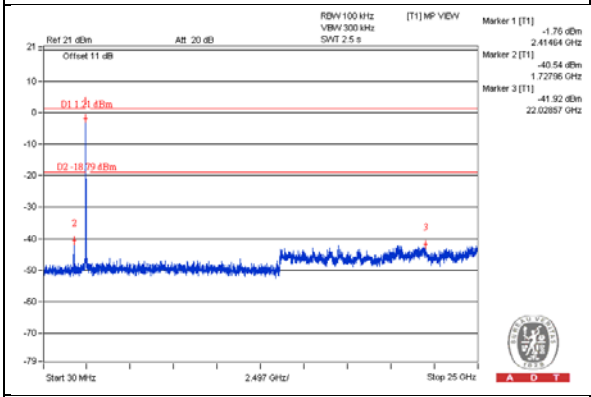
802.11n (HT20)

Maximum REF

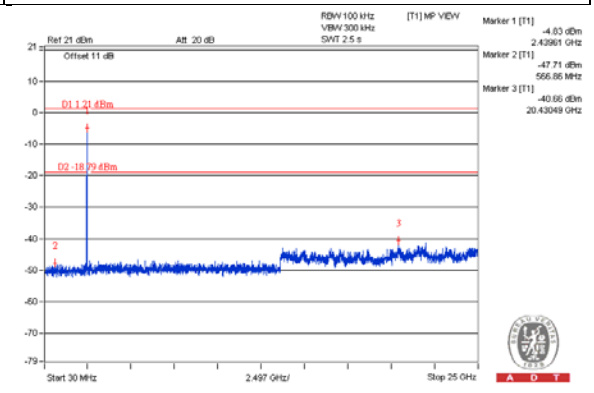


Chain 0

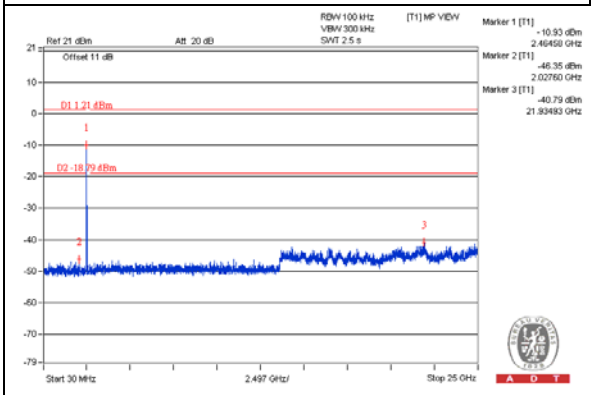
CH 1



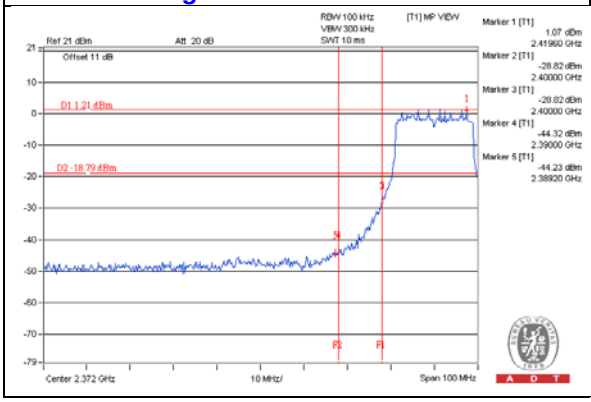
CH 6



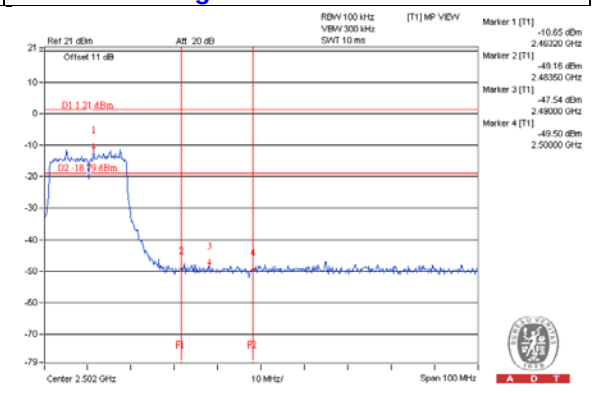
CH 11



CH 1 Band edge

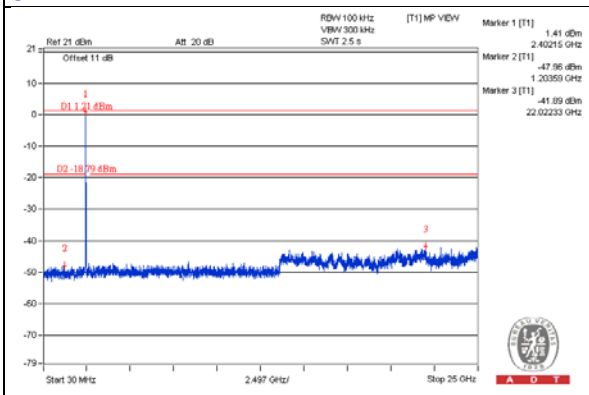


CH 11 Band edge

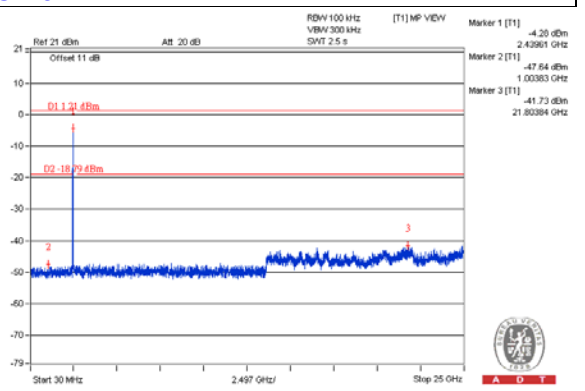


Chain 1

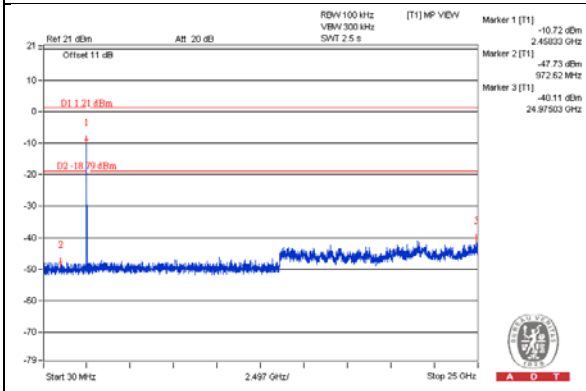
CH 1



CH 6



CH 11



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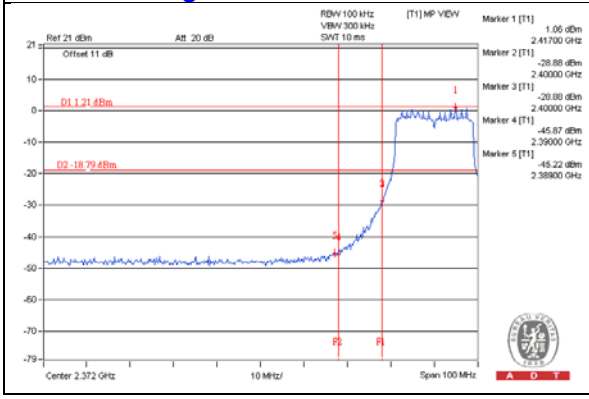
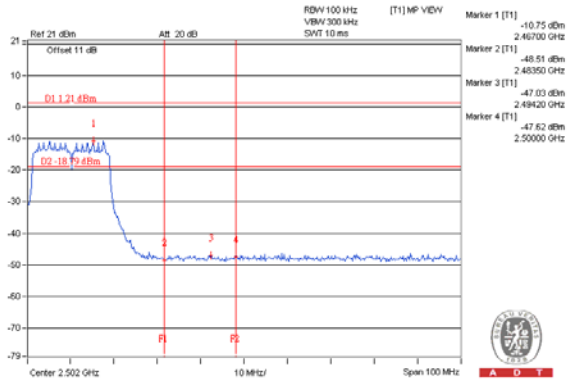
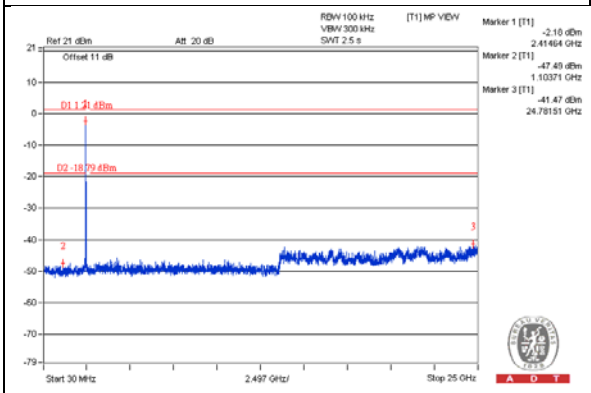


CH 11 Band edge

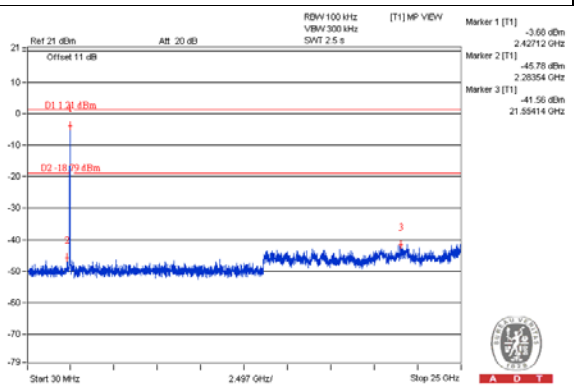


Chain 2

CH 1



CH 6



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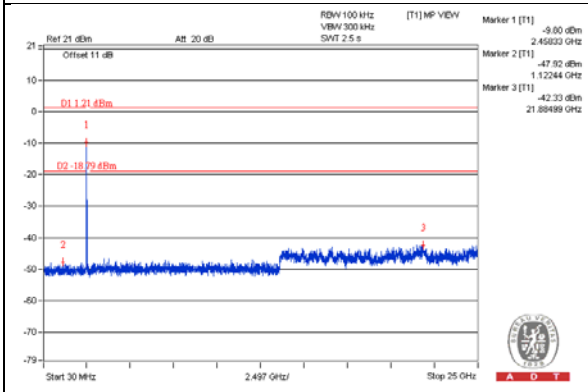
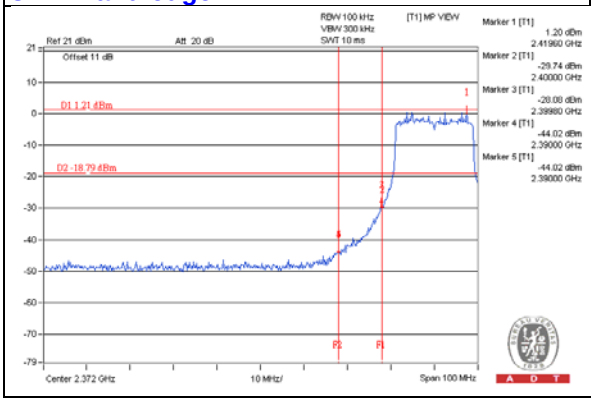
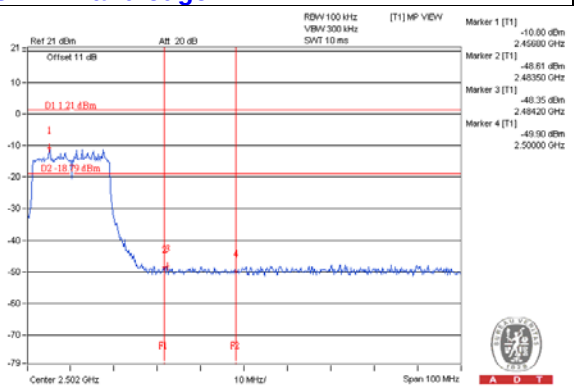


CH 1 Band edge

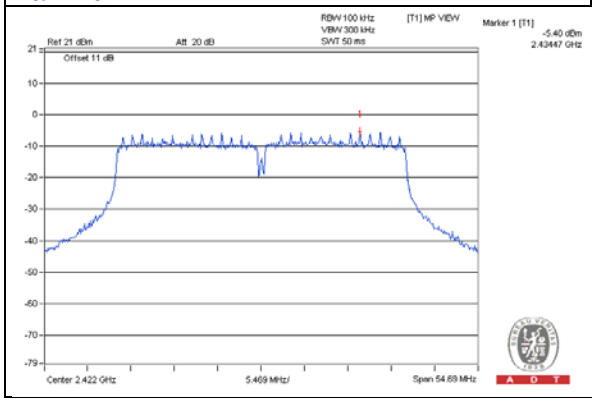


CH 11 Band edge



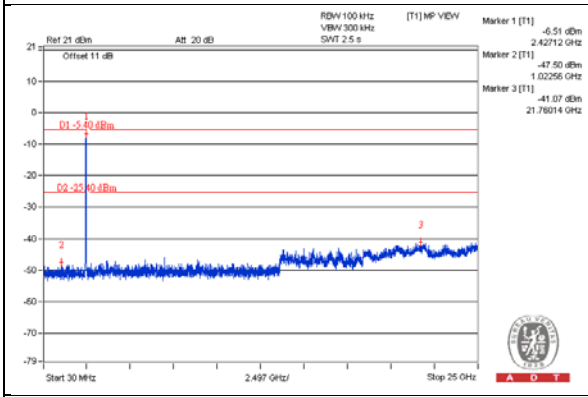
802.11n (HT40)

Maximum REF

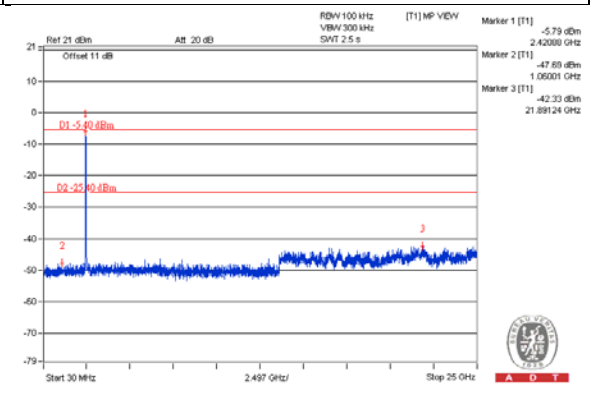


Chain 0

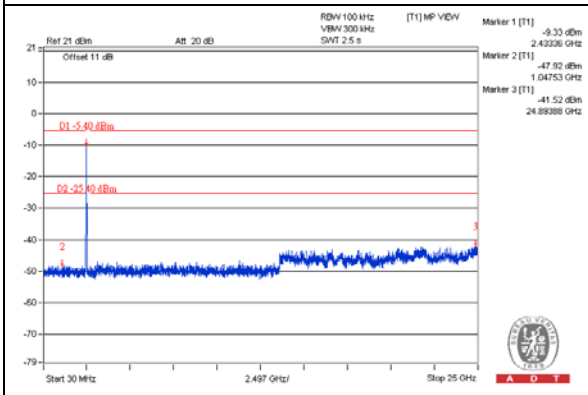
CH 3



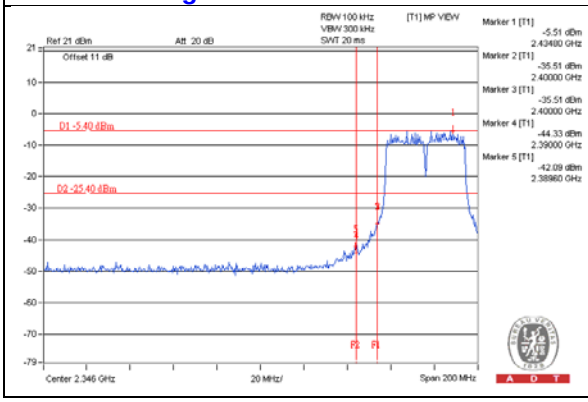
CH 6



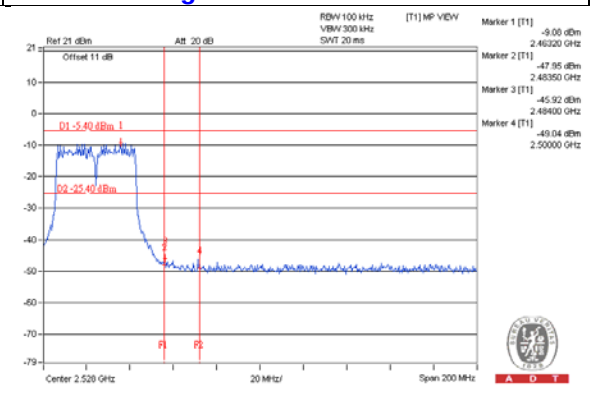
CH 9



CH 3 Band edge

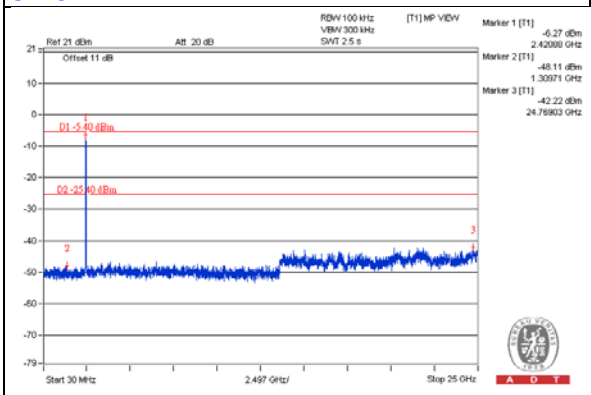


CH 9 Band edge

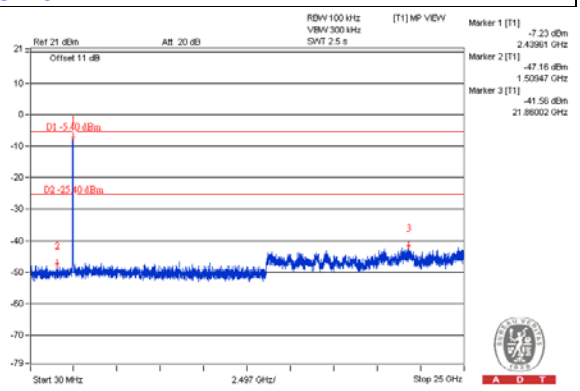


Chain 1

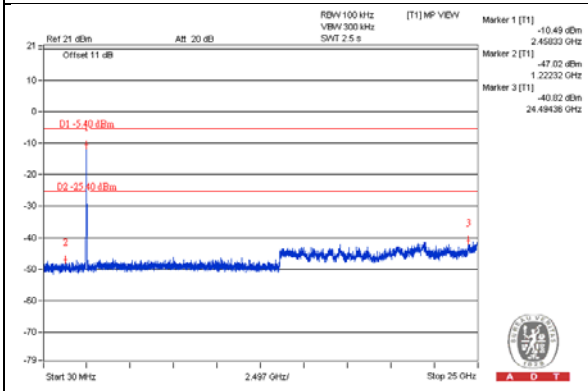
CH 3



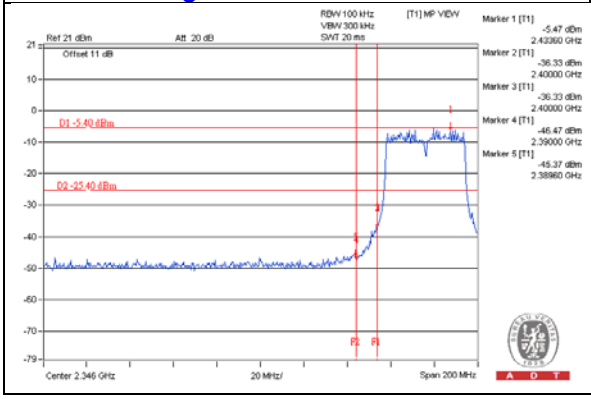
CH 6



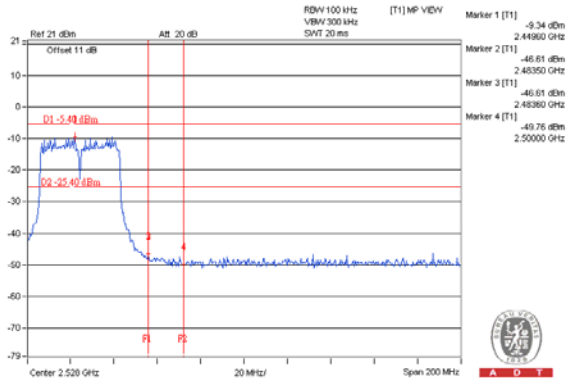
CH 9



CH 3 Band edge

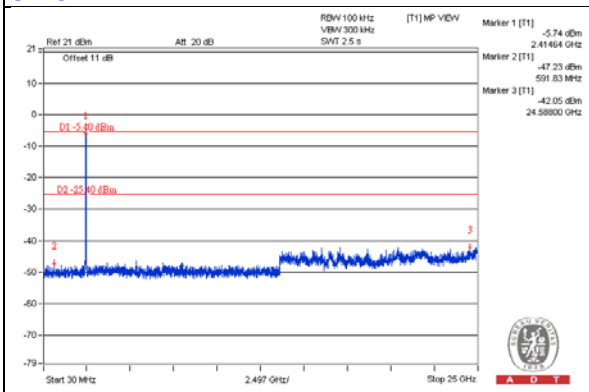


CH 9 Band edge

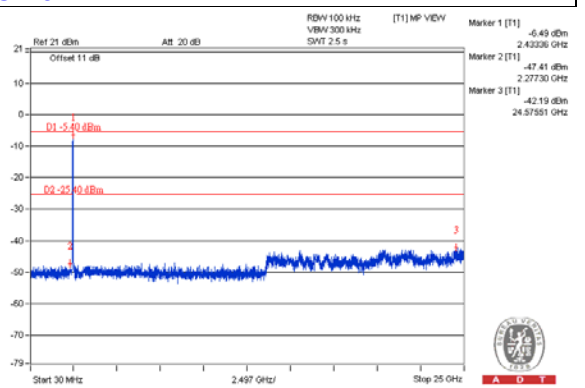


Chain 2

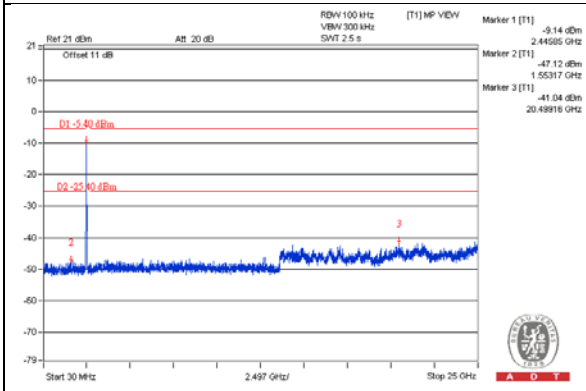
CH 3



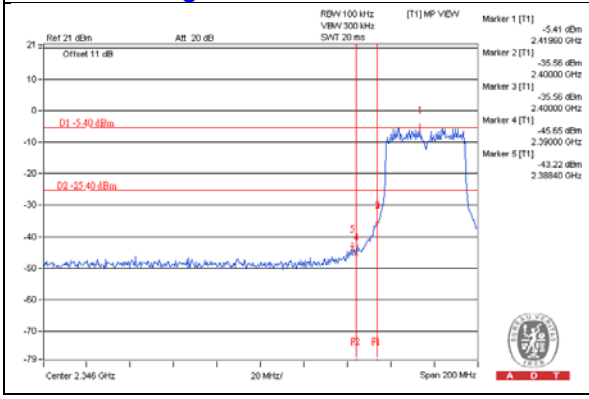
CH 6



CH 9



CH 3 Band edge



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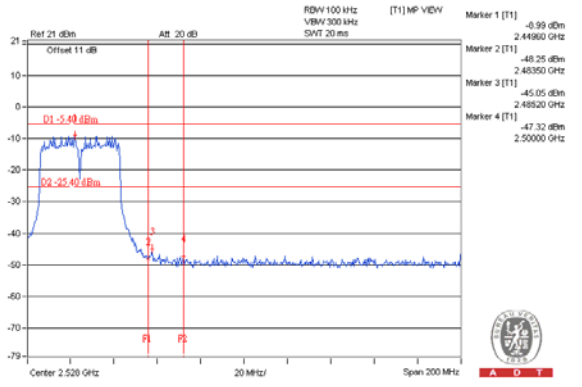

5 Pictures of Test Arrangements

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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