

FCC Test Report

Report No.: RF150812E02

FCC ID: Q87-RE6300

Test Model: RE6300

Received Date: July 31, 2015

Test Date: July 31 to Aug. 28, 2015

Issued Date: Sep. 11, 2015

Applicant: Linksys LLC

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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Taiwan R.O.C.



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Table of Contents

Release Control Record	4
1 Certificate of Conformity	5
2 Summary of Test Results	6
2.1 Measurement Uncertainty.....	6
2.2 Modification Record.....	6
3 General Information	7
3.1 General Description of EUT.....	7
3.2 Description of Test Modes.....	10
3.2.1 Test Mode Applicability and Tested Channel Detail.....	11
3.3 Duty Cycle of Test Signal.....	13
3.4 Description of Support Units.....	14
3.4.1 Configuration of System under Test.....	14
3.5 General Description of Applied Standards.....	15
4 Test Types and Results	16
4.1 Radiated Emission and Bandedge Measurement.....	16
4.1.1 Limits of Radiated Emission and Bandedge Measurement.....	16
4.1.2 Test Instruments.....	17
4.1.3 Test Procedures.....	18
4.1.4 Deviation from Test Standard.....	18
4.1.5 Test Set Up.....	19
4.1.6 EUT Operating Conditions.....	19
4.1.7 Test Results (Mode 2).....	20
4.1.8 Test Results (Mode 3).....	33
4.2 Conducted Emission Measurement.....	45
4.2.1 Limits of Conducted Emission Measurement.....	45
4.2.2 Test Instruments.....	45
4.2.3 Test Procedures.....	46
4.2.4 Deviation from Test Standard.....	46
4.2.5 Test Setup.....	46
4.2.6 EUT Operating Conditions.....	46
4.2.7 Test Results (Mode 1).....	47
4.2.8 Test Results (Mode 2).....	49
4.3 6dB Bandwidth Measurement.....	51
4.3.1 Limits of 6dB Bandwidth Measurement.....	51
4.3.2 Test Setup.....	51
4.3.3 Test Instruments.....	51
4.3.4 Test Procedure.....	51
4.3.5 Deviation from Test Standard.....	51
4.3.6 EUT Operating Conditions.....	51
4.3.7 Test Result.....	52
4.4 Conducted Output Power Measurement.....	54
4.4.1 Limits of Conducted Output Power Measurement.....	54
4.4.2 Test Setup.....	54
4.4.3 Test Instruments.....	54
4.4.4 Test Procedures.....	54
4.4.5 Deviation from Test Standard.....	54
4.4.6 EUT Operating Conditions.....	54
4.4.7 Test Results.....	55
4.5 Power Spectral Density Measurement.....	57
4.5.1 Limits of Power Spectral Density Measurement.....	57
4.5.2 Test Setup.....	57
4.5.3 Test Instruments.....	57
4.5.4 Test Procedure.....	57



4.5.5	Deviation from Test Standard	57
4.5.6	EUT Operating Condition	57
4.5.7	Test Results	58
4.6	Conducted Out of Band Emission Measurement.....	60
4.6.1	Limits of Conducted Out of Band Emission Measurement	60
4.6.2	Test Setup.....	60
4.6.3	Test Instruments	60
4.6.4	Test Procedure	60
4.6.5	Deviation from Test Standard	60
4.6.6	EUT Operating Condition	60
4.6.7	Test Results	60
5	Pictures of Test Arrangements.....	69
	Appendix – Information on the Testing Laboratories	70



A D T

Release Control Record

Issue No.	Description	Date Issued
RF150812E02	Original release.	Sep. 11, 2015



A D T

1 Certificate of Conformity

Product: Wireless Extender

Brand: Linksys

Test Model: RE6300

Sample Status: ENGINEERING SAMPLE

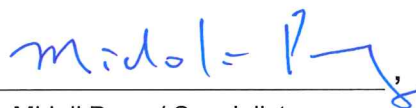
Applicant: Linksys LLC

Test Date: July 31 to Aug. 28, 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 :



Date:

Sep. 11, 2015

Midoli Peng / Specialist

Approved by :



Date:

Sep. 11, 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 -8.03dB at 0.69297MHz.
15.205 / 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -3.4dB at 4874.00MHz.
15.247(d)	Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 2483.5MHz & 2390.00MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is i-pex(MHF) not a standard connector.

NOTE: The EUT was operating in 2400 ~ 2483.5MHz, 5150~5250MHz and 5725~5850MHz frequencies band. This report was recorded the RF parameters including 2400 ~ 2483.5MHz. For the 5150~5250MHz and 5725~5850MHz 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	Expanded Uncertainty (k=2) (\pm)
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	3.65 dB
	6GHz ~ 18GHz	3.88 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	Wireless Extender
Brand	Linksys
Test Model	RE6300
Status of EUT	ENGINEERING SAMPLE
Driver version	1.1.00.001
Power Supply Rating	Refer to Note
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode and VHT20 and VHT40 mode of 2.4GHz Band.
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	For 15.407 5.18 ~ 5.24GHz, 5.745 ~ 5.825GHz
	For 15.247 2.412 ~ 2.462GHz
Number of Channel	For 15.407 9 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 4 for 802.11n (HT40), 802.11ac (VHT40) 2 for 802.11ac (VHT80)
	For 15.247 11 for 802.11b, 802.11g, 802.11n (HT20), VHT20 7 for 802.11n (HT40), VHT40
Output Power	For 15.407(5.18 ~ 5.24GHz) CDD Mode 802.11a: 111.245mW Beamforming Mode 802.11ac (VHT20): 120.11mW 802.11ac (VHT40): 187.351mW 802.11ac (VHT80): 30.771mW
	For 15.407(5.745 ~ 5.825GHz) CDD Mode 802.11a: 220.008mW Beamforming Mode 802.11ac (VHT20): 191.049mW 802.11ac (VHT40): 104.343mW 802.11ac (VHT80): 19.114mW
	For 15.247 802.11b: 698.11mW 802.11g: 750.59mW 802.11n(HT20): 746.18mW 802.11n(HT40): 592.23mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. According to the applicant's requirement two test samples were tested for radiated (above 1GHz) emission only.
2. The antennas provided to the EUT, please refer to the following table:

Transmitter Circuit	Gain (dBi)	Frequency Range (GHz to GHz)	Antenna Type	Connector Type	Cable Length (mm)
Chain (0)	3.97	2.4~2.4835	Dipole	i-pex(MHF)	160
	5.97	5.15~5.85			
Chain (1)	3.97	2.4~2.4835	Dipole	i-pex(MHF)	160
	5.97	5.15~5.85			

3. 2.4GHz and 5GHz technology can transmit at same time.
4. The EUT uses following internal power supply and following two different model names could be chosen:

No.	Brand	Model No.	Spec.
1	Amigo-PSU	AMS151-1201500F	Input: 100-240V, 0.8A, 47~63Hz Output: 12V, 1.5A
2	HON-KWANG	HK-XX18-A12	Input: 100-240V, 0.8A, 47~63Hz Output: 12V, 1.5A

Note: From the above modes, the worst radiated test was found in **internal power supply 2**. Therefore only the test data of the modes were recorded in this report.

5. The EUT incorporates a MIMO function with beamforming.

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
VHT20	MCS0~8 Nss=1	2TX	2RX
	MCS0~8 Nss=2	2TX	2RX
VHT40	MCS0~9 Nss=1	2TX	2RX
	MCS0~9 Nss=2	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

Note: 1. For 2.4GHz band and 5GHz band (802.11a), the EUT doesn't support beamforming mode.
 2. 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 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), VHT20:

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), VHT40:

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE \geq 1G	RE $<$ 1G	PLC	APCM	
1	-	-	√	-	Sample 1 + internal power supply 1
2	√	√	√	√	Sample 1 + internal power supply 2
3	√	-	-	-	Sample 2 + internal power supply 2

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

- Note:** 1. "-" means no effect.
 2. The EUT had been pre-tested on the positioned of each 2 axis. The worst case was found when positioned on Y-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	TESTED BY
RE≥1G	26deg. C, 64%RH	120Vac, 60Hz	Tim Ho
RE<1G	24deg. C, 70%RH	120Vac, 60Hz	Weiwei Lo
PLC	26deg. C, 60%RH	120Vac, 60Hz	Barry Lee
	27deg. C, 65%RH		Wythe Lin
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen

3.3 Duty Cycle of Test Signal

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

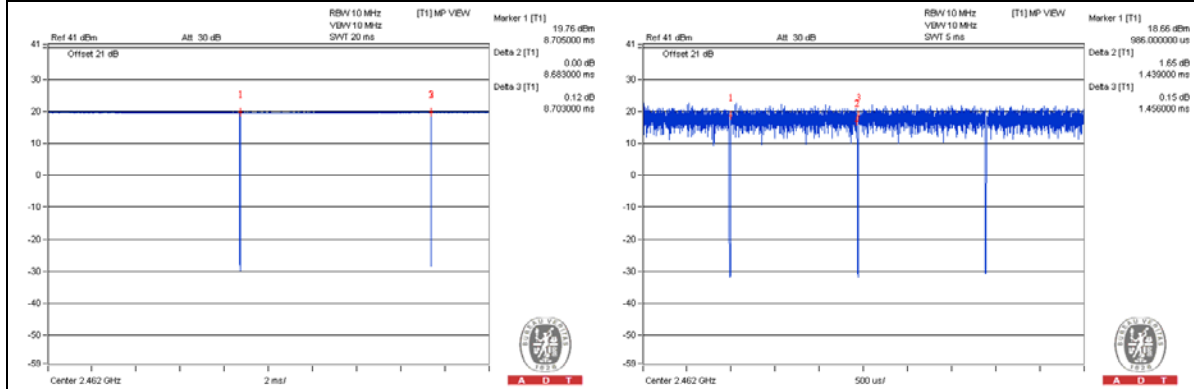
802.11b: Duty cycle = $8.683\text{ ms}/8.703\text{ ms} = 0.998$

802.11g: Duty cycle = $1.439\text{ ms}/1.456\text{ ms} = 0.988$

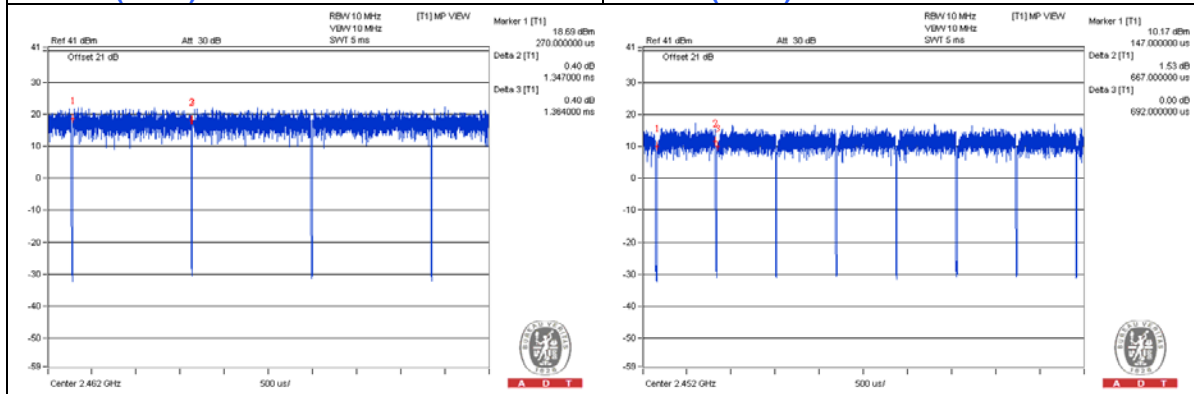
802.11n (HT20): Duty cycle = $1.347\text{ ms}/1.364\text{ ms} = 0.988$

802.11n (HT40): Duty cycle = $0.667\text{ ms}/0.692\text{ ms} = 0.964$, Duty factor = $10 * \log(1/0.964) = 0.2$

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.

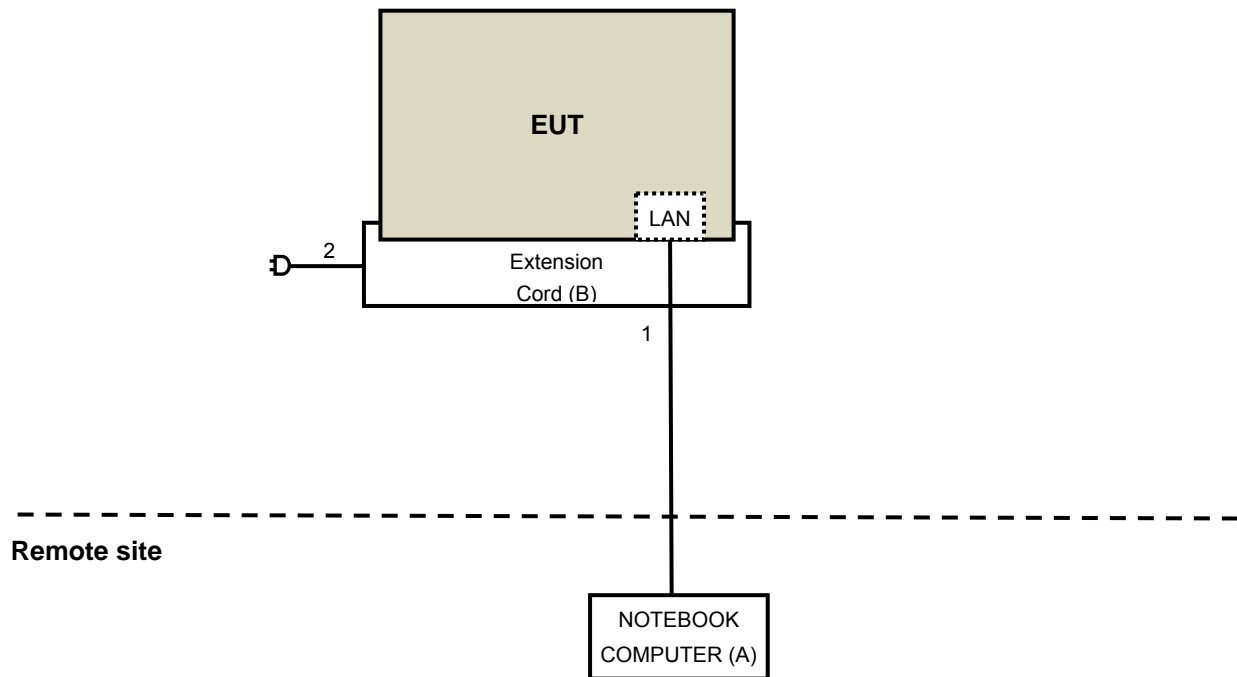
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	NOTEBOOK COMPUTER	DELL	E5430	4YV4VY1	FCC DoC	Provided by Lab
B.	Extension Cord	NA	NA	NA	NA	Provided by Lab

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.	AC	1	1.8	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)

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.

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

NOTE:

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



4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY51210105	July 24, 2015	July 23, 2016
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	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
Horn_Antenna AISI	AIH.8018	000032009111 0	Feb. 09, 2015	Feb. 08, 2016
Pre-Amplifier Agilent	8449B	3008A02578	June 23, 2015	June 22, 2016
RF Cable	NA	131205 131216 131217 SNMY23684/ 4	Jan. 16, 2015	Jan. 15, 2016
Spectrum Analyzer R&S	FSV40	100964	June 26, 2015	June 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
Power Meter Anritsu	ML2495A	1014008	Apr. 28, 2015	Apr. 27, 2016
Power Sensor Anritsu	MA2411B	0917122	Apr. 28, 2015	Apr. 27, 2016
Spectrum Analyzer R&S	FSP 40	100060	May 08, 2015	May 07, 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. G.
3. The FCC Site Registration No. is 966073.
4. The VCCI Site Registration No. is G-137.
5. The CANADA Site Registration No. is IC 7450H-2.
6. Tested Date: July 31 to Aug. 28, 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:

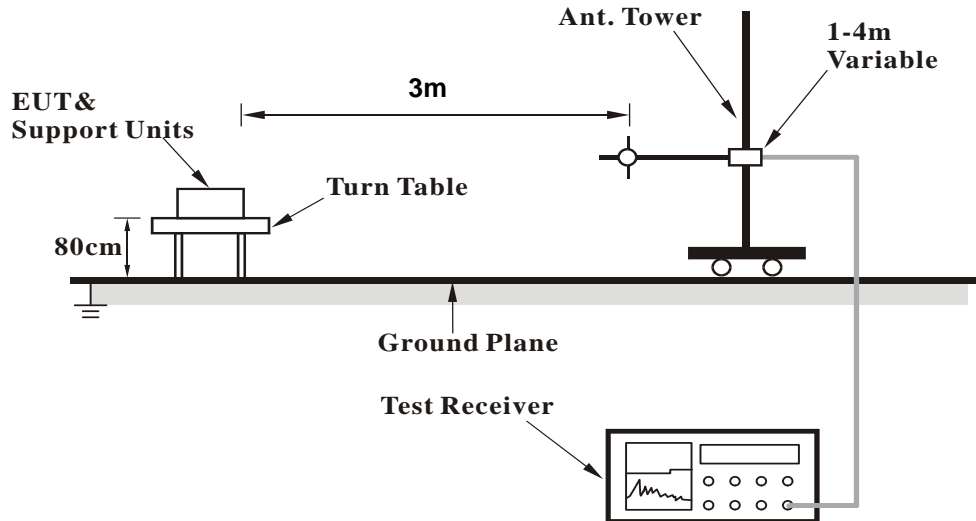
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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 ($10 \log(1/\text{duty cycle})$).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle $\geq 98\%$) 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

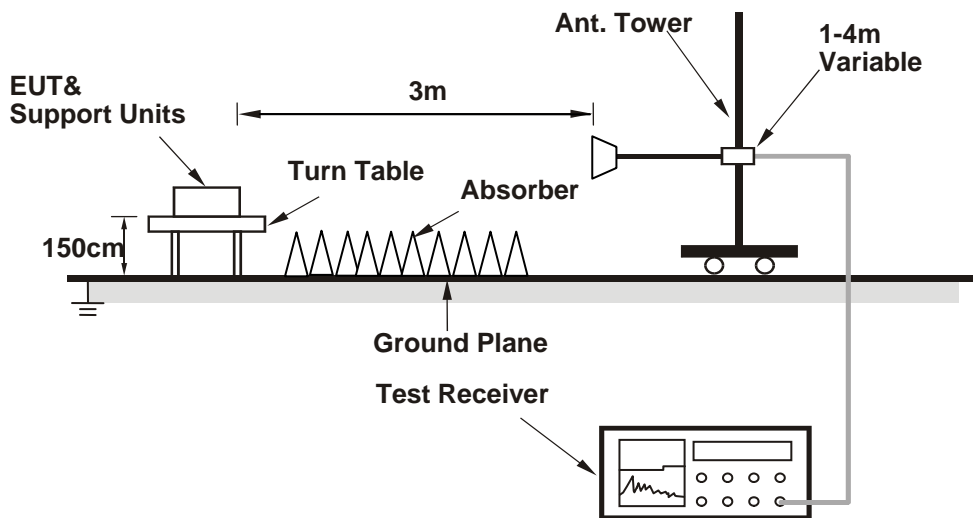
No deviation.

4.1.5 Test Set Up

<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. Connect the EUT with the support unit A (Notebook Computer) which is placed on remote site.
2. Controlling software (MT76xxE_AP.exe V1.0.3.1) has been activated to set the EUT on specific status.

4.1.7 Test Results (Mode 2)
Above 1GHz Data
802.11b

CHANNEL	TX Channel 1	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	61.2 PK	74.0	-12.8	1.87 H	75	61.32	-0.12
2	2390.00	37.5 AV	54.0	-16.5	1.87 H	75	37.62	-0.12
3	*2412.00	106.1 PK			1.87 H	75	106.13	-0.03
4	*2412.00	102.3 AV			1.87 H	75	102.33	-0.03
5	4824.00	48.1 PK	74.0	-25.9	1.15 H	65	39.08	9.02
6	4824.00	41.7 AV	54.0	-12.3	1.15 H	65	32.68	9.02

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	73.0 PK	74.0	-1.0	1.58 V	127	73.12	-0.12
2	2390.00	44.3 AV	54.0	-9.7	1.58 V	127	44.42	-0.12
3	*2412.00	114.4 PK			1.58 V	127	114.43	-0.03
4	*2412.00	111.2 AV			1.58 V	127	111.23	-0.03
5	4824.00	48.3 PK	74.0	-25.7	1.55 V	345	39.28	9.02
6	4824.00	41.0 AV	54.0	-13.0	1.55 V	345	31.98	9.02

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	*2437.00	105.3 PK			1.88 H	73	105.22	0.08
2	*2437.00	101.8 AV			1.88 H	73	101.72	0.08
3	4874.00	53.2 PK	74.0	-20.8	1.35 H	47	44.08	9.12
4	4874.00	50.6 AV	54.0	-3.4	1.35 H	47	41.48	9.12
5	7311.00	51.9 PK	74.0	-22.1	1.35 H	46	35.39	16.51
6	7311.00	42.2 AV	54.0	-11.8	1.35 H	46	25.69	16.51

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	54.8 PK	74.0	-19.2	1.45 V	134	54.92	-0.12
2	2390.00	41.4 AV	54.0	-12.6	1.45 V	134	41.52	-0.12
3	*2437.00	114.1 PK			1.45 V	136	114.02	0.08
4	*2437.00	110.1 AV			1.45 V	136	110.02	0.08
5	2483.50	58.3 PK	74.0	-15.7	1.45 V	134	57.99	0.31
6	2483.50	44.7 AV	54.0	-9.3	1.45 V	134	44.39	0.31
7	4874.00	49.8 PK	74.0	-24.2	1.28 V	149	40.68	9.12
8	4874.00	45.3 AV	54.0	-8.7	1.28 V	149	36.18	9.12
9	7311.00	51.2 PK	74.0	-22.8	2.10 V	324	34.69	16.51
10	7311.00	42.0 AV	54.0	-12.0	2.10 V	324	25.49	16.51

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)
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	*2462.00	105.7 PK			2.00 H	70	105.49	0.21
2	*2462.00	96.1 AV			2.00 H	70	95.89	0.21
3	2483.50	61.5 PK	74.0	-12.5	2.00 H	70	61.19	0.31
4	2483.50	37.5 AV	54.0	-16.5	2.00 H	70	37.19	0.31
5	4924.00	50.1 PK	74.0	-23.9	1.12 H	71	40.83	9.27
6	4924.00	45.5 AV	54.0	-8.5	1.12 H	71	36.23	9.27
7	7386.00	52.2 PK	74.0	-21.8	1.33 H	38	35.58	16.62
8	7386.00	42.3 AV	54.0	-11.7	1.33 H	38	25.68	16.62

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	111.9 PK			1.60 V	133	111.69	0.21
2	*2462.00	101.9 AV			1.60 V	133	101.69	0.21
3	2483.50	73.0 PK	74.0	-1.0	1.60 V	133	72.69	0.31
4	2483.50	42.7 AV	54.0	-11.3	1.60 V	133	42.39	0.31
5	4924.00	49.2 PK	74.0	-24.8	1.31 V	162	39.93	9.27
6	4924.00	44.9 AV	54.0	-9.1	1.31 V	162	35.63	9.27
7	7386.00	50.9 PK	74.0	-23.1	2.16 V	336	34.28	16.62
8	7386.00	41.9 AV	54.0	-12.1	2.16 V	336	25.28	16.62

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.

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CHANNEL	TX Channel 1	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	59.4 PK	74.0	-14.6	1.22 H	80	59.52	-0.12
2	2390.00	41.5 AV	54.0	-12.5	1.22 H	80	41.62	-0.12
3	*2412.00	103.7 PK			1.22 H	80	103.73	-0.03
4	*2412.00	91.4 AV			1.22 H	80	91.43	-0.03
5	4824.00	47.6 PK	74.0	-26.4	1.15 H	79	38.58	9.02
6	4824.00	41.3 AV	54.0	-12.7	1.15 H	79	32.28	9.02

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	73.0 PK	74.0	-1.0	1.70 V	120	73.12	-0.12
2	2390.00	53.0 AV	54.0	-1.0	1.70 V	120	53.12	-0.12
3	*2412.00	112.7 PK			1.70 V	120	112.73	-0.03
4	*2412.00	100.6 AV			1.70 V	120	100.63	-0.03
5	4824.00	47.2 PK	74.0	-26.8	1.28 V	164	38.18	9.02
6	4824.00	41.1 AV	54.0	-12.9	1.28 V	164	32.08	9.02

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	*2437.00	108.7 PK			1.18 H	77	108.62	0.08
2	*2437.00	96.6 AV			1.18 H	77	96.52	0.08
3	4874.00	48.3 PK	74.0	-25.7	1.11 H	69	39.18	9.12
4	4874.00	41.8 AV	54.0	-12.2	1.11 H	69	32.68	9.12
5	7311.00	52.1 PK	74.0	-21.9	1.35 H	42	35.59	16.51
6	7311.00	42.3 AV	54.0	-11.7	1.35 H	42	25.79	16.51

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.1 PK	74.0	-8.9	1.62 V	120	65.22	-0.12
2	2390.00	46.7 AV	54.0	-7.3	1.62 V	120	46.82	-0.12
3	*2437.00	116.5 PK			1.62 V	120	116.42	0.08
4	*2437.00	105.1 AV			1.62 V	120	105.02	0.08
5	2483.50	68.9 PK	74.0	-5.1	1.62 V	120	68.59	0.31
6	2483.50	47.0 AV	54.0	-7.0	1.62 V	120	46.69	0.31
7	4874.00	47.2 PK	74.0	-26.8	1.32 V	155	38.08	9.12
8	4874.00	40.9 AV	54.0	-13.1	1.32 V	155	31.78	9.12
9	7311.00	50.8 PK	74.0	-23.2	2.17 V	326	34.29	16.51
10	7311.00	41.7 AV	54.0	-12.3	2.17 V	326	25.19	16.51

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)
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	*2462.00	104.7 PK			1.23 H	85	104.49	0.21
2	*2462.00	92.3 AV			1.23 H	85	92.09	0.21
3	2483.50	59.3 PK	74.0	-14.7	1.23 H	85	58.99	0.31
4	2483.50	41.4 AV	54.0	-12.6	1.23 H	85	41.09	0.31
5	4924.00	47.8 PK	74.0	-26.2	1.13 H	78	38.53	9.27
6	4924.00	41.6 AV	54.0	-12.4	1.13 H	78	32.33	9.27
7	7386.00	51.8 PK	74.0	-22.2	1.29 H	40	35.18	16.62
8	7386.00	41.9 AV	54.0	-12.1	1.29 H	40	25.28	16.62

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	113.8 PK			1.60 V	133	113.59	0.21
2	*2462.00	101.3 AV			1.60 V	133	101.09	0.21
3	2483.50	72.5 PK	74.0	-1.5	1.60 V	133	72.19	0.31
4	2483.50	53.0 AV	54.0	-1.0	1.60 V	133	52.69	0.31
5	4924.00	46.8 PK	74.0	-27.2	1.34 V	148	37.53	9.27
6	4924.00	40.8 AV	54.0	-13.2	1.34 V	148	31.53	9.27
7	7386.00	50.8 PK	74.0	-23.2	2.21 V	327	34.18	16.62
8	7386.00	41.9 AV	54.0	-12.1	2.21 V	327	25.28	16.62

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)
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	59.3 PK	74.0	-14.7	1.22 H	92	59.42	-0.12
2	2390.00	41.2 AV	54.0	-12.8	1.22 H	92	41.32	-0.12
3	*2412.00	103.4 PK			1.22 H	92	103.43	-0.03
4	*2412.00	91.1 AV			1.22 H	92	91.13	-0.03
5	4824.00	48.1 PK	74.0	-25.9	1.20 H	57	39.08	9.02
6	4824.00	41.4 AV	54.0	-12.6	1.20 H	57	32.38	9.02

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	73.0 PK	74.0	-1.0	1.60 V	125	73.12	-0.12
2	2390.00	52.6 AV	54.0	-1.4	1.60 V	125	52.72	-0.12
3	*2412.00	111.2 PK			1.60 V	125	111.23	-0.03
4	*2412.00	99.9 AV			1.60 V	125	99.93	-0.03
5	4824.00	47.1 PK	74.0	-26.9	1.26 V	157	38.08	9.02
6	4824.00	40.5 AV	54.0	-13.5	1.26 V	157	31.48	9.02

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	*2437.00	108.8 PK			1.14 H	89	108.72	0.08
2	*2437.00	96.5 AV			1.14 H	89	96.42	0.08
3	4874.00	48.2 PK	74.0	-25.8	1.18 H	65	39.08	9.12
4	4874.00	42.0 AV	54.0	-12.0	1.18 H	65	32.88	9.12
5	7311.00	52.0 PK	74.0	-22.0	1.14 H	89	35.49	16.51
6	7311.00	42.1 AV	54.0	-11.9	1.14 H	89	25.59	16.51

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.2 PK	74.0	-6.8	1.70 V	112	67.32	-0.12
2	2390.00	47.4 AV	54.0	-6.6	1.70 V	112	47.52	-0.12
3	*2437.00	115.6 PK			1.70 V	112	115.52	0.08
4	*2437.00	104.3 AV			1.70 V	112	104.22	0.08
5	2483.50	71.8 PK	74.0	-2.2	1.70 V	112	71.49	0.31
6	2483.50	47.6 AV	54.0	-6.4	1.70 V	112	47.29	0.31
7	4874.00	47.0 PK	74.0	-27.0	1.40 V	149	37.88	9.12
8	4874.00	40.9 AV	54.0	-13.1	1.40 V	149	31.78	9.12
9	7311.00	51.2 PK	74.0	-22.8	2.18 V	341	34.69	16.51
10	7311.00	42.2 AV	54.0	-11.8	2.18 V	341	25.69	16.51

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)
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	*2462.00	105.7 PK			1.20 H	72	105.49	0.21
2	*2462.00	93.9 AV			1.20 H	72	93.69	0.21
3	2483.50	59.0 PK	74.0	-15.0	1.20 H	72	58.69	0.31
4	2483.50	41.2 AV	54.0	-12.8	1.20 H	72	40.89	0.31
5	4924.00	48.0 PK	74.0	-26.0	1.12 H	75	38.73	9.27
6	4924.00	41.4 AV	54.0	-12.6	1.12 H	75	32.13	9.27
7	7386.00	52.3 PK	74.0	-21.7	1.39 H	62	35.68	16.62
8	7386.00	42.5 AV	54.0	-11.5	1.39 H	62	25.88	16.62

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	114.7 PK			1.70 V	145	114.49	0.21
2	*2462.00	102.8 AV			1.70 V	145	102.59	0.21
3	2483.50	73.0 PK	74.0	-1.0	1.70 V	145	72.69	0.31
4	2483.50	52.4 AV	54.0	-1.6	1.70 V	145	52.09	0.31
5	4924.00	47.3 PK	74.0	-26.7	1.33 V	155	38.03	9.27
6	4924.00	41.2 AV	54.0	-12.8	1.33 V	155	31.93	9.27
7	7386.00	50.6 PK	74.0	-23.4	2.23 V	339	33.98	16.62
8	7386.00	41.5 AV	54.0	-12.5	2.23 V	339	24.88	16.62

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)
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	59.8 PK	74.0	-14.2	1.22 H	78	59.92	-0.12
2	2390.00	41.8 AV	54.0	-12.2	1.22 H	78	41.92	-0.12
3	*2422.00	98.4 PK			1.22 H	78	98.39	0.01
4	*2422.00	86.1 AV			1.22 H	78	86.09	0.01
5	4844.00	48.1 PK	74.0	-25.9	1.20 H	73	39.04	9.06
6	4844.00	41.9 AV	54.0	-12.1	1.20 H	73	32.84	9.06
7	7266.00	51.4 PK	74.0	-22.6	1.40 H	49	34.74	16.66
8	7266.00	41.8 AV	54.0	-12.2	1.40 H	49	25.14	16.66

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	73.0 PK	74.0	-1.0	1.75 V	123	73.12	-0.12
2	2390.00	53.0 AV	54.0	-1.0	1.75 V	123	53.12	-0.12
3	*2422.00	106.3 PK			1.75 V	123	106.29	0.01
4	*2422.00	94.5 AV			1.75 V	123	94.49	0.01
5	4844.00	46.4 PK	74.0	-27.6	1.33 V	153	37.34	9.06
6	4844.00	40.3 AV	54.0	-13.7	1.33 V	153	31.24	9.06
7	7266.00	51.0 PK	74.0	-23.0	2.25 V	339	34.34	16.66
8	7266.00	42.3 AV	54.0	-11.7	2.25 V	339	25.64	16.66

REMARKS:

- Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
- The other emission levels were very low against the limit.
- Margin value = Emission Level – Limit value
- " * ": 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	*2437.00	101.6 PK			1.20 H	64	101.52	0.08
2	*2437.00	89.3 AV			1.20 H	64	89.22	0.08
3	4874.00	47.8 PK	74.0	-26.2	1.17 H	73	38.68	9.12
4	4874.00	41.6 AV	54.0	-12.4	1.17 H	73	32.48	9.12
5	7311.00	52.6 PK	74.0	-21.4	1.31 H	61	36.09	16.51
6	7311.00	42.7 AV	54.0	-11.3	1.31 H	61	26.19	16.51

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	72.4 PK	74.0	-1.6	1.85 V	130	72.52	-0.12
2	2390.00	52.7 AV	54.0	-1.3	1.85 V	130	52.82	-0.12
3	*2437.00	109.2 PK			1.85 V	130	109.12	0.08
4	*2437.00	97.2 AV			1.85 V	130	97.12	0.08
5	2483.50	72.8 PK	74.0	-1.2	1.75 V	134	72.49	0.31
6	2483.50	53.0 AV	54.0	-1.0	1.75 V	134	52.69	0.31
7	4874.00	47.0 PK	74.0	-27.0	1.32 V	160	37.88	9.12
8	4874.00	40.9 AV	54.0	-13.1	1.32 V	160	31.78	9.12
9	7311.00	51.1 PK	74.0	-22.9	2.25 V	330	34.59	16.51
10	7311.00	42.3 AV	54.0	-11.7	2.25 V	330	25.79	16.51

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)
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	*2452.00	98.8 PK			1.20 H	86	98.65	0.15
2	*2452.00	86.4 AV			1.20 H	86	86.25	0.15
3	2483.50	59.7 PK	74.0	-14.3	1.20 H	86	59.39	0.31
4	2483.50	42.0 AV	54.0	-12.0	1.20 H	86	41.69	0.31
5	4904.00	48.1 PK	74.0	-25.9	1.21 H	55	38.91	9.19
6	4904.00	42.1 AV	54.0	-11.9	1.21 H	55	32.91	9.19
7	7356.00	52.3 PK	74.0	-21.7	1.37 H	41	35.71	16.59
8	7356.00	42.7 AV	54.0	-11.3	1.37 H	41	26.11	16.59

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	105.7 PK			1.80 V	130	105.55	0.15
2	*2452.00	93.4 AV			1.80 V	130	93.25	0.15
3	2483.50	71.1 PK	74.0	-2.9	1.80 V	131	70.79	0.31
4	2483.50	53.0 AV	54.0	-1.0	1.80 V	131	52.69	0.31
5	4904.00	46.5 PK	74.0	-27.5	1.32 V	160	37.31	9.19
6	4904.00	40.3 AV	54.0	-13.7	1.32 V	160	31.11	9.19
7	7356.00	50.2 PK	74.0	-23.8	2.19 V	313	33.61	16.59
8	7356.00	41.6 AV	54.0	-12.4	2.19 V	313	25.01	16.59

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	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	163.47	28.7 QP	43.5	-14.8	1.50 H	68	41.70	-13.03
2	374.98	32.0 QP	46.0	-14.0	1.00 H	44	41.95	-9.98
3	500.01	35.5 QP	46.0	-10.5	1.50 H	320	42.30	-6.83
4	749.98	31.5 QP	46.0	-14.5	1.00 H	340	32.68	-1.21
5	874.97	36.0 QP	46.0	-10.0	1.50 H	333	35.79	0.25
6	1000.00	46.9 QP	54.0	-7.1	2.00 H	342	44.81	2.05

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	41.40	30.8 QP	40.0	-9.2	1.00 V	331	44.21	-13.40
2	348.31	25.2 QP	46.0	-20.9	1.00 V	360	35.99	-10.84
3	374.98	29.6 QP	46.0	-16.4	1.00 V	360	39.58	-9.98
4	500.01	35.8 QP	46.0	-10.2	1.00 V	358	42.61	-6.83
5	966.68	42.4 QP	54.0	-11.6	1.00 V	250	40.69	1.73
6	1000.00	42.1 QP	54.0	-11.9	1.00 V	288	40.07	2.05

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

4.1.8 Test Results (Mode 3)

Above 1GHz Data

802.11b

CHANNEL	TX Channel 1	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	61.0 PK	74.0	-13.0	1.88 H	84	61.12	-0.12
2	2390.00	37.5 AV	54.0	-16.5	1.88 H	84	37.62	-0.12
3	*2412.00	105.7 PK			1.85 H	80	105.73	-0.03
4	*2412.00	102.0 AV			1.85 H	80	102.03	-0.03
5	4824.00	48.3 PK	74.0	-25.7	1.09 H	64	39.28	9.02
6	4824.00	41.9 AV	54.0	-12.1	1.09 H	64	32.88	9.02

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	72.3 PK	74.0	-1.7	1.57 V	135	72.42	-0.12
2	2390.00	44.5 AV	54.0	-9.5	1.57 V	135	44.62	-0.12
3	*2412.00	114.6 PK			1.64 V	132	114.63	-0.03
4	*2412.00	111.4 AV			1.64 V	132	111.43	-0.03
5	4824.00	48.3 PK	74.0	-25.7	1.53 V	345	39.28	9.02
6	4824.00	40.8 AV	54.0	-13.2	1.53 V	345	31.78	9.02

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	*2437.00	105.8 PK			1.90 H	86	105.72	0.08
2	*2437.00	102.3 AV			1.90 H	86	102.22	0.08
3	4874.00	53.1 PK	74.0	-20.9	1.33 H	41	43.98	9.12
4	4874.00	50.6 AV	54.0	-3.4	1.33 H	41	41.48	9.12
5	7311.00	51.8 PK	74.0	-22.2	1.40 H	55	35.29	16.51
6	7311.00	41.9 AV	54.0	-12.1	1.40 H	55	25.39	16.51

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	54.1 PK	74.0	-19.9	1.48 V	135	54.22	-0.12
2	2390.00	40.9 AV	54.0	-13.1	1.48 V	135	41.02	-0.12
3	*2437.00	114.1 PK			1.45 V	147	114.02	0.08
4	*2437.00	110.0 AV			1.45 V	147	109.92	0.08
5	2483.50	58.1 PK	74.0	-15.9	1.44 V	142	57.79	0.31
6	2483.50	44.8 AV	54.0	-9.2	1.44 V	142	44.49	0.31
7	4874.00	49.9 PK	74.0	-24.1	1.27 V	150	40.78	9.12
8	4874.00	45.6 AV	54.0	-8.4	1.27 V	150	36.48	9.12
9	7311.00	50.9 PK	74.0	-23.1	2.07 V	313	34.39	16.51
10	7311.00	41.8 AV	54.0	-12.2	2.07 V	313	25.29	16.51

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)
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	*2462.00	105.8 PK			1.97 H	84	105.59	0.21
2	*2462.00	96.0 AV			1.97 H	84	95.79	0.21
3	2483.50	61.2 PK	74.0	-12.8	2.01 H	63	60.89	0.31
4	2483.50	37.2 AV	54.0	-16.8	2.01 H	63	36.89	0.31
5	4924.00	50.5 PK	74.0	-23.5	1.09 H	81	41.23	9.27
6	4924.00	45.9 AV	54.0	-8.1	1.09 H	81	36.63	9.27
7	7386.00	51.6 PK	74.0	-22.4	1.39 H	32	34.98	16.62
8	7386.00	41.8 AV	54.0	-12.2	1.39 H	32	25.18	16.62

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.6 PK			1.57 V	141	111.39	0.21
2	*2462.00	101.8 AV			1.57 V	141	101.59	0.21
3	2483.50	72.9 PK	74.0	-1.1	1.59 V	127	72.59	0.31
4	2483.50	42.4 AV	54.0	-11.6	1.59 V	127	42.09	0.31
5	4924.00	49.4 PK	74.0	-24.6	1.33 V	159	40.13	9.27
6	4924.00	45.1 AV	54.0	-8.9	1.33 V	159	35.83	9.27
7	7386.00	51.6 PK	74.0	-22.4	2.17 V	320	34.98	16.62
8	7386.00	42.4 AV	54.0	-11.6	2.17 V	320	25.78	16.62

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)
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	59.1 PK	74.0	-14.9	1.20 H	72	59.22	-0.12
2	2390.00	41.0 AV	54.0	-13.0	1.20 H	72	41.12	-0.12
3	*2412.00	104.0 PK			1.22 H	94	104.03	-0.03
4	*2412.00	91.4 AV			1.22 H	94	91.43	-0.03
5	4824.00	48.0 PK	74.0	-26.0	1.21 H	78	38.98	9.02
6	4824.00	41.7 AV	54.0	-12.3	1.21 H	78	32.68	9.02

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	72.3 PK	74.0	-1.7	1.70 V	123	72.42	-0.12
2	2390.00	52.5 AV	54.0	-1.5	1.70 V	123	52.62	-0.12
3	*2412.00	113.2 PK			1.72 V	116	113.23	-0.03
4	*2412.00	100.9 AV			1.72 V	116	100.93	-0.03
5	4824.00	46.6 PK	74.0	-27.4	1.24 V	176	37.58	9.02
6	4824.00	40.6 AV	54.0	-13.4	1.24 V	176	31.58	9.02

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	*2437.00	109.2 PK			1.23 H	87	109.12	0.08
2	*2437.00	97.1 AV			1.23 H	87	97.02	0.08
3	4874.00	47.7 PK	74.0	-26.3	1.14 H	69	38.58	9.12
4	4874.00	41.5 AV	54.0	-12.5	1.14 H	69	32.38	9.12
5	7311.00	51.8 PK	74.0	-22.2	1.30 H	51	35.29	16.51
6	7311.00	42.2 AV	54.0	-11.8	1.30 H	51	25.69	16.51

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.3 PK	74.0	-8.7	1.60 V	124	65.42	-0.12
2	2390.00	47.1 AV	54.0	-6.9	1.60 V	124	47.22	-0.12
3	*2437.00	117.2 PK			1.66 V	131	117.12	0.08
4	*2437.00	105.5 AV			1.66 V	131	105.42	0.08
5	2483.50	69.2 PK	74.0	-4.8	1.66 V	115	68.89	0.31
6	2483.50	47.4 AV	54.0	-6.6	1.66 V	115	47.09	0.31
7	4874.00	47.4 PK	74.0	-26.6	1.34 V	150	38.28	9.12
8	4874.00	41.3 AV	54.0	-12.7	1.34 V	150	32.18	9.12
9	7311.00	50.4 PK	74.0	-23.6	2.14 V	339	33.89	16.51
10	7311.00	41.3 AV	54.0	-12.7	2.14 V	339	24.79	16.51

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)
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	*2462.00	105.2 PK			1.21 H	87	104.99	0.21
2	*2462.00	92.6 AV			1.21 H	87	92.39	0.21
3	2483.50	59.0 PK	74.0	-15.0	1.20 H	85	58.69	0.31
4	2483.50	41.2 AV	54.0	-12.8	1.20 H	85	40.89	0.31
5	4924.00	47.3 PK	74.0	-26.7	1.08 H	80	38.03	9.27
6	4924.00	41.2 AV	54.0	-12.8	1.08 H	80	31.93	9.27
7	7386.00	51.7 PK	74.0	-22.3	1.23 H	35	35.08	16.62
8	7386.00	41.6 AV	54.0	-12.4	1.23 H	35	24.98	16.62

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	114.3 PK			1.62 V	134	114.09	0.21
2	*2462.00	101.6 AV			1.62 V	134	101.39	0.21
3	2483.50	72.5 PK	74.0	-1.5	1.65 V	137	72.19	0.31
4	2483.50	52.7 AV	54.0	-1.3	1.65 V	137	52.39	0.31
5	4924.00	46.9 PK	74.0	-27.1	1.35 V	158	37.63	9.27
6	4924.00	41.2 AV	54.0	-12.8	1.35 V	158	31.93	9.27
7	7386.00	50.2 PK	74.0	-23.8	2.24 V	339	33.58	16.62
8	7386.00	41.5 AV	54.0	-12.5	2.24 V	339	24.88	16.62

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)
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	59.5 PK	74.0	-14.5	1.25 H	101	59.62	-0.12
2	2390.00	41.6 AV	54.0	-12.4	1.25 H	101	41.72	-0.12
3	*2412.00	103.1 PK			1.21 H	88	103.13	-0.03
4	*2412.00	90.7 AV			1.21 H	88	90.73	-0.03
5	4824.00	48.4 PK	74.0	-25.6	1.15 H	50	39.38	9.02
6	4824.00	41.5 AV	54.0	-12.5	1.15 H	50	32.48	9.02

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	72.8 PK	74.0	-1.2	1.59 V	109	72.92	-0.12
2	2390.00	52.6 AV	54.0	-1.4	1.59 V	109	52.72	-0.12
3	*2412.00	111.1 PK			1.62 V	125	111.13	-0.03
4	*2412.00	100.1 AV			1.62 V	125	100.13	-0.03
5	4824.00	47.3 PK	74.0	-26.7	1.30 V	141	38.28	9.02
6	4824.00	40.6 AV	54.0	-13.4	1.30 V	141	31.58	9.02

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	*2437.00	109.2 PK			1.14 H	98	109.12	0.08
2	*2437.00	96.8 AV			1.14 H	98	96.72	0.08
3	4874.00	48.4 PK	74.0	-25.6	1.22 H	66	39.28	9.12
4	4874.00	42.4 AV	54.0	-11.6	1.22 H	66	33.28	9.12
5	7311.00	51.6 PK	74.0	-22.4	1.17 H	95	35.09	16.51
6	7311.00	42.0 AV	54.0	-12.0	1.17 H	95	25.49	16.51

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.5 PK	74.0	-6.5	1.73 V	113	67.62	-0.12
2	2390.00	47.6 AV	54.0	-6.4	1.73 V	113	47.72	-0.12
3	*2437.00	115.8 PK			1.69 V	99	115.72	0.08
4	*2437.00	104.6 AV			1.69 V	99	104.52	0.08
5	2483.50	72.5 PK	74.0	-1.5	1.69 V	118	72.19	0.31
6	2483.50	48.0 AV	54.0	-6.0	1.69 V	118	47.69	0.31
7	4874.00	46.6 PK	74.0	-27.4	1.44 V	136	37.48	9.12
8	4874.00	40.6 AV	54.0	-13.4	1.44 V	136	31.48	9.12
9	7311.00	51.6 PK	74.0	-22.4	2.23 V	339	35.09	16.51
10	7311.00	42.3 AV	54.0	-11.7	2.23 V	339	25.79	16.51

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)
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	*2462.00	106.1 PK			1.16 H	74	105.89	0.21
2	*2462.00	94.1 AV			1.16 H	74	93.89	0.21
3	2483.50	58.5 PK	74.0	-15.5	1.16 H	74	58.19	0.31
4	2483.50	40.7 AV	54.0	-13.3	1.16 H	74	40.39	0.31
5	4924.00	47.4 PK	74.0	-26.6	1.07 H	90	38.13	9.27
6	4924.00	41.1 AV	54.0	-12.9	1.07 H	90	31.83	9.27
7	7386.00	52.1 PK	74.0	-21.9	1.36 H	77	35.48	16.62
8	7386.00	42.2 AV	54.0	-11.8	1.36 H	77	25.58	16.62

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	115.2 PK			1.66 V	130	114.99	0.21
2	*2462.00	103.0 AV			1.66 V	130	102.79	0.21
3	2483.50	72.9 PK	74.0	-1.1	1.72 V	130	72.59	0.31
4	2483.50	52.6 AV	54.0	-1.4	1.72 V	130	52.29	0.31
5	4924.00	46.8 PK	74.0	-27.2	1.27 V	164	37.53	9.27
6	4924.00	40.7 AV	54.0	-13.3	1.27 V	164	31.43	9.27
7	7386.00	50.5 PK	74.0	-23.5	2.23 V	332	33.88	16.62
8	7386.00	41.1 AV	54.0	-12.9	2.23 V	332	24.48	16.62

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)
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	59.9 PK	74.0	-14.1	1.24 H	77	60.02	-0.12
2	2390.00	42.0 AV	54.0	-12.0	1.24 H	77	42.12	-0.12
3	*2422.00	98.6 PK			1.19 H	86	98.59	0.01
4	*2422.00	86.2 AV			1.19 H	86	86.19	0.01
5	4844.00	48.3 PK	74.0	-25.7	1.20 H	65	39.24	9.06
6	4844.00	42.3 AV	54.0	-11.7	1.20 H	65	33.24	9.06
7	7266.00	51.6 PK	74.0	-22.4	1.42 H	55	34.94	16.66
8	7266.00	41.7 AV	54.0	-12.3	1.42 H	55	25.04	16.66

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	72.6 PK	74.0	-1.4	1.80 V	137	72.72	-0.12
2	2390.00	52.7 AV	54.0	-1.3	1.80 V	137	52.82	-0.12
3	*2422.00	107.1 PK			1.75 V	124	107.09	0.01
4	*2422.00	95.0 AV			1.75 V	124	94.99	0.01
5	4844.00	46.4 PK	74.0	-27.6	1.36 V	161	37.34	9.06
6	4844.00	40.1 AV	54.0	-13.9	1.36 V	161	31.04	9.06
7	7266.00	51.8 PK	74.0	-22.2	2.30 V	333	35.14	16.66
8	7266.00	42.8 AV	54.0	-11.2	2.30 V	333	26.14	16.66

REMARKS:

- Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
- The other emission levels were very low against the limit.
- Margin value = Emission Level – Limit value
- " * ": 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	*2437.00	101.7 PK			1.22 H	72	101.62	0.08
2	*2437.00	89.7 AV			1.22 H	72	89.62	0.08
3	4874.00	47.3 PK	74.0	-26.7	1.12 H	68	38.18	9.12
4	4874.00	41.3 AV	54.0	-12.7	1.12 H	68	32.18	9.12
5	7311.00	53.1 PK	74.0	-20.9	1.28 H	60	36.59	16.51
6	7311.00	43.2 AV	54.0	-10.8	1.28 H	60	26.69	16.51

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	72.6 PK	74.0	-1.4	1.79 V	134	72.72	-0.12
2	2390.00	52.7 AV	54.0	-1.3	1.79 V	134	52.82	-0.12
3	*2437.00	109.7 PK			1.82 V	115	109.62	0.08
4	*2437.00	97.7 AV			1.82 V	115	97.62	0.08
5	2483.50	71.7 PK	74.0	-2.3	1.76 V	119	71.39	0.31
6	2483.50	52.7 AV	54.0	-1.3	1.76 V	119	52.39	0.31
7	4874.00	47.5 PK	74.0	-26.5	1.30 V	175	38.38	9.12
8	4874.00	41.2 AV	54.0	-12.8	1.30 V	175	32.08	9.12
9	7311.00	51.6 PK	74.0	-22.4	2.24 V	339	35.09	16.51
10	7311.00	42.8 AV	54.0	-11.2	2.24 V	339	26.29	16.51

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)
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	*2452.00	98.5 PK			1.15 H	99	98.35	0.15
2	*2452.00	86.3 AV			1.15 H	99	86.15	0.15
3	2483.50	60.1 PK	74.0	-13.9	1.15 H	89	59.79	0.31
4	2483.50	42.3 AV	54.0	-11.7	1.15 H	89	41.99	0.31
5	4904.00	48.0 PK	74.0	-26.0	1.20 H	61	38.81	9.19
6	4904.00	42.2 AV	54.0	-11.8	1.20 H	61	33.01	9.19
7	7356.00	51.6 PK	74.0	-22.4	1.42 H	50	35.01	16.59
8	7356.00	42.2 AV	54.0	-11.8	1.42 H	50	25.61	16.59

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	106.2 PK			1.84 V	129	106.05	0.15
2	*2452.00	93.7 AV			1.84 V	129	93.55	0.15
3	2483.50	71.4 PK	74.0	-2.6	1.77 V	138	71.09	0.31
4	2483.50	52.9 AV	54.0	-1.1	1.77 V	138	52.59	0.31
5	4904.00	46.6 PK	74.0	-27.4	1.36 V	173	37.41	9.19
6	4904.00	40.6 AV	54.0	-13.4	1.36 V	173	31.41	9.19
7	7356.00	50.6 PK	74.0	-23.4	2.16 V	302	34.01	16.59
8	7356.00	42.0 AV	54.0	-12.0	2.16 V	302	25.41	16.59

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.

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	100287	Apr. 17, 2015	Apr. 16, 2016
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK-8127	8127-523	Sep. 29, 2014	Sep. 28, 2015
RF Cable	5D-FB	COACAB-001	May 25, 2015	May 24, 2016
50 ohms Terminator	50	3	Oct. 17, 2014	Oct. 16, 2015
50 ohms Terminator	N/A	EMC-04	Oct. 21, 2014	Oct. 20, 2015
Software BVADT	BVADT_Cond_ V7.3.7.3	NA	NA	NA
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100071	Nov. 10, 2014	Nov. 09, 2015

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. A.
- 3 The VCCI Con A Registration No. is C-817.
4. Tested Date: July 31 to Aug. 07, 2015

4.2.3 Test Procedures

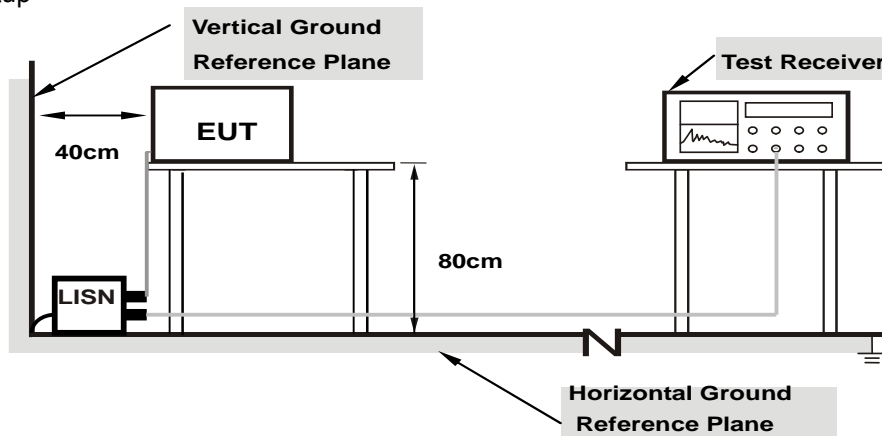
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

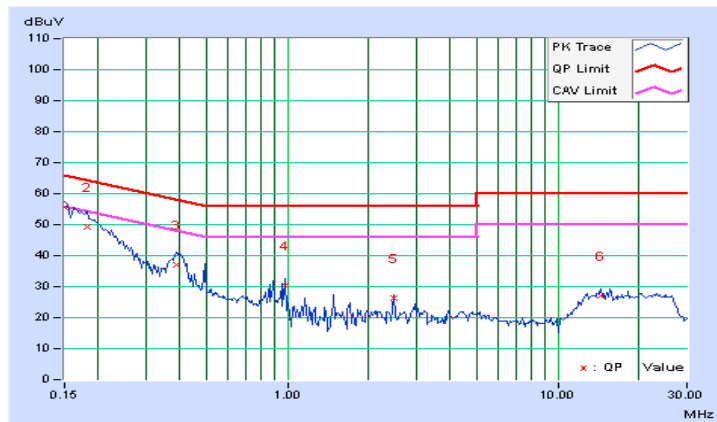
4.2.7 Test Results (Mode 1)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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Phase Of Power : Line (L)										
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	0.15000	0.08	55.32	42.28	55.40	42.36	66.00	56.00	-10.60	-13.64
2	0.18125	0.09	49.16	35.90	49.25	35.99	64.43	54.43	-15.18	-18.44
3	0.38828	0.10	36.78	27.68	36.88	27.78	58.10	48.10	-21.22	-20.32
4	0.98594	0.13	30.38	28.60	30.51	28.73	56.00	46.00	-25.49	-17.27
5	2.47266	0.18	25.94	24.94	26.12	25.12	56.00	46.00	-29.88	-20.88
6	14.33594	0.56	26.40	21.56	26.96	22.12	60.00	50.00	-33.04	-27.88

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

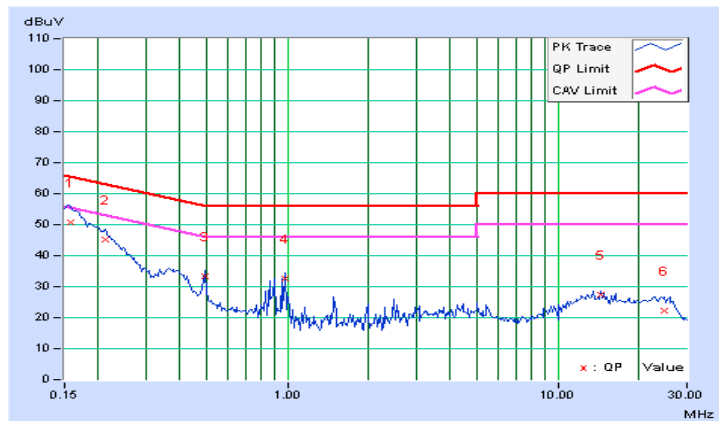


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	0.08	50.76	35.80	50.84	35.88	65.58	55.58	-14.74	-19.70
2	0.21250	0.08	45.26	34.28	45.34	34.36	63.11	53.11	-17.77	-18.75
3	0.49375	0.10	33.30	32.16	33.40	32.26	56.10	46.10	-22.70	-13.84
4	0.98594	0.13	32.34	29.38	32.47	29.51	56.00	46.00	-23.53	-16.49
5	14.33203	0.58	26.68	21.96	27.26	22.54	60.00	50.00	-32.74	-27.46
6	24.68359	0.85	21.20	16.14	22.05	16.99	60.00	50.00	-37.95	-33.01

Remarks:

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



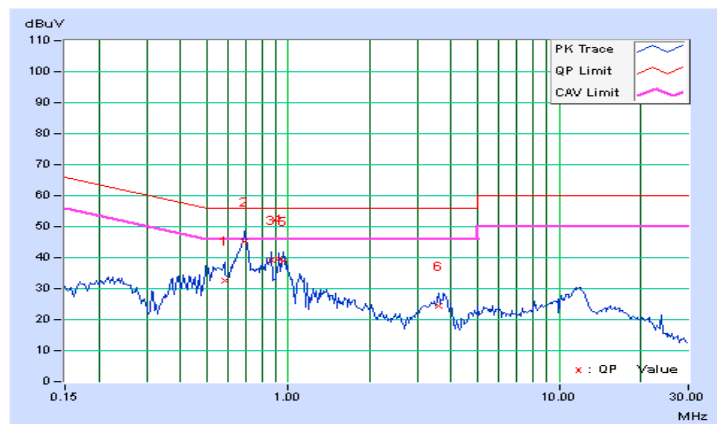
4.2.8 Test Results (Mode 2)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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Phase Of Power : Line (L)										
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	0.58359	0.18	32.40	23.58	32.58	23.76	56.00	46.00	-23.42	-22.24
2	0.69297	0.19	45.18	37.78	45.37	37.97	56.00	46.00	-10.63	-8.03
3	0.86484	0.21	39.12	36.90	39.33	37.11	56.00	46.00	-16.67	-8.89
4	0.92734	0.22	39.30	37.46	39.52	37.68	56.00	46.00	-16.48	-8.32
5	0.95859	0.23	38.80	36.26	39.03	36.49	56.00	46.00	-16.97	-9.51
6	3.57813	0.33	24.04	19.76	24.37	20.09	56.00	46.00	-31.63	-25.91

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

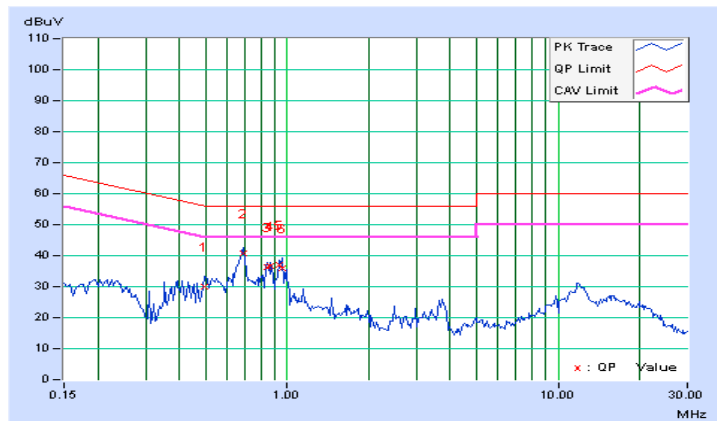


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
-------	-------------	-------------------	--------------------------------

Phase Of Power : Neutral (N)										
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	0.49375	0.16	29.96	19.00	30.12	19.16	56.10	46.10	-25.99	-26.95
2	0.68516	0.18	40.48	30.52	40.66	30.70	56.00	46.00	-15.34	-15.30
3	0.84141	0.19	36.24	33.86	36.43	34.05	56.00	46.00	-19.57	-11.95
4	0.87116	0.20	36.60	35.98	36.80	36.18	56.00	46.00	-19.20	-9.82
5	0.93125	0.20	36.98	36.34	37.18	36.54	56.00	46.00	-18.82	-9.46
6	0.96200	0.21	35.74	34.82	35.95	35.03	56.00	46.00	-20.05	-10.97

Remarks:

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

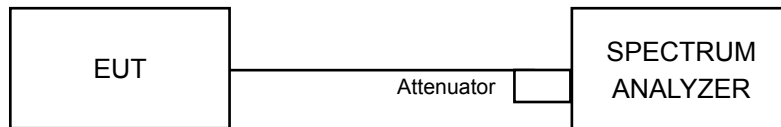


4.3 6dB Bandwidth Measurement

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result
802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	10.06	10.12	0.5	Pass
6	2437	10.13	10.13	0.5	Pass
11	2462	10.11	10.12	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.40	16.39	0.5	Pass
6	2437	16.42	16.40	0.5	Pass
11	2462	16.41	16.41	0.5	Pass

802.11n (HT20)

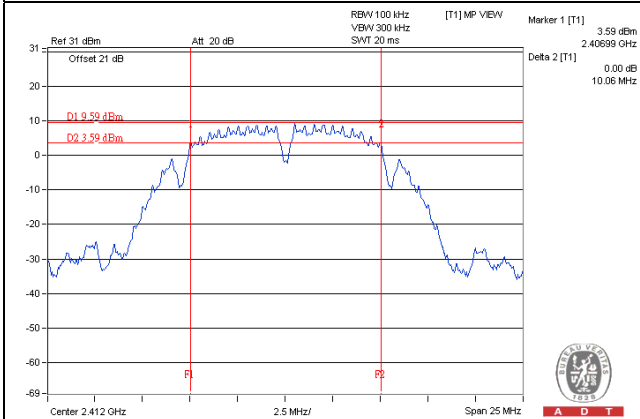
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.13	17.12	0.5	Pass
6	2437	17.14	17.35	0.5	Pass
11	2462	17.68	17.13	0.5	Pass

802.11n (HT40)

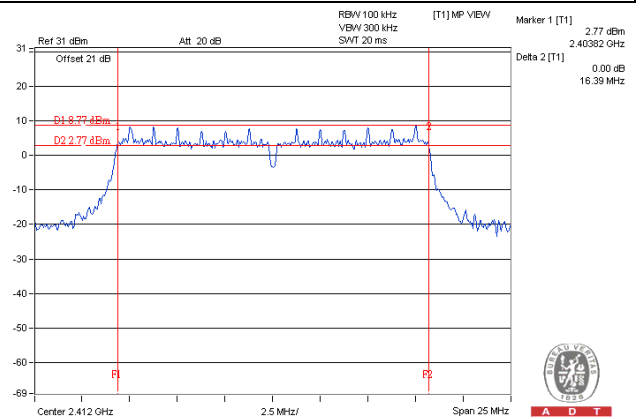
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	36.41	36.16	0.5	Pass
6	2437	36.08	36.10	0.5	Pass
9	2452	36.15	36.45	0.5	Pass

Spectrum Plot of Worst Value

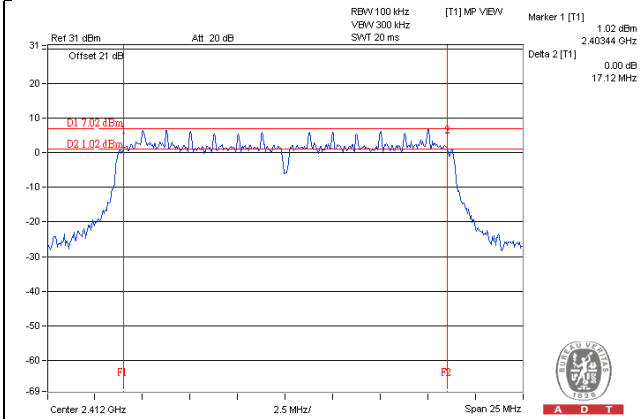
802.11b_Chain 0 / CH1



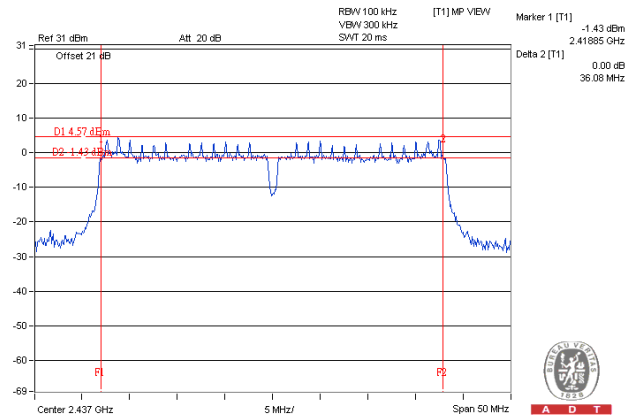
802.11g_Chain 1 / CH1



802.11n (HT20)_Chain 1 / 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 Method of conducted output power measurement on IEEE 802.11 devices,

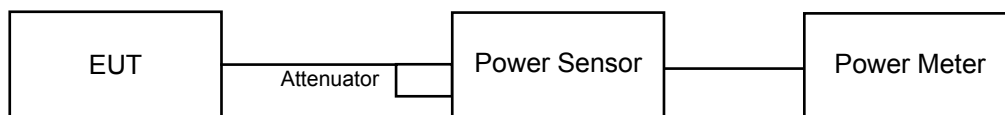
Array Gain = 0 dB (i.e., no array gain) for $NANT \leq 4$;

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 $NANT \geq 5$.

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

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results

FOR PEAK POWER

802.11b

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	23.90	24.02	497.819	26.97	30	Pass
6	2437	25.24	25.61	698.11	28.44	30	Pass
11	2462	20.97	22.01	283.881	24.53	30	Pass

802.11g

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	25.44	24.97	663.996	28.22	30	Pass
6	2437	25.92	25.56	750.59	28.75	30	Pass
11	2462	24.56	24.86	591.955	27.72	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	24.81	25.01	619.648	27.92	30	Pass
6	2437	25.55	25.88	746.18	28.73	30	Pass
11	2462	24.58	24.73	584.245	27.67	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	22.13	22.75	351.67	25.46	30	Pass
6	2437	24.91	24.51	592.23	27.72	30	Pass
9	2452	23.02	23.56	427.433	26.31	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	21.33	21.64	281.712	24.50
6	2437	23.36	24.05	470.867	26.73
11	2462	17.69	19.31	144.059	21.59

802.11g

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	19.84	19.45	184.488	22.66
6	2437	22.19	21.98	323.338	25.10
11	2462	18.59	19.71	165.818	22.20

802.11n (HT20)

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	19.02	19.07	160.523	22.06
6	2437	22.19	22.77	354.811	25.50
11	2462	18.44	19.14	151.858	21.81

802.11n (HT40)

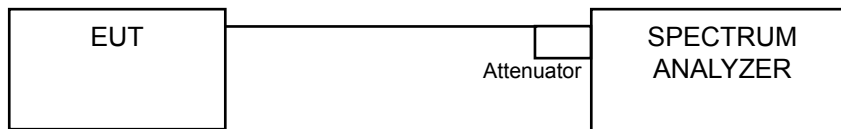
Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	15.78	15.92	76.928	18.86
6	2437	20.02	20.73	218.766	23.40
9	2452	16.74	17.85	108.160	20.34

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: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- d. Set the VBW $\geq 3 \times \text{RBW}$.
- 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)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-5.95	3.01	-2.94	7.02	Pass
	6	2437	-3.69	3.01	-0.68	7.02	Pass
	11	2462	-9.42	3.01	-6.41	7.02	Pass
1	1	2412	-4.68	3.01	-1.67	7.02	Pass
	6	2437	-2.71	3.01	0.30	7.02	Pass
	11	2462	-7.55	3.01	-4.54	7.02	Pass

NOTE: Directional gain = 3.97dBi + 10log(2) = 6.98dBi > 6dBi , so the power density limit shall be reduced to 8-(6.98-6) = 7.02dBm.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-6.56	3.01	-3.55	7.02	Pass
	6	2437	-4.71	3.01	-1.70	7.02	Pass
	11	2462	-8.35	3.01	-5.34	7.02	Pass
1	1	2412	-7.02	3.01	-4.01	7.02	Pass
	6	2437	-4.91	3.01	-1.90	7.02	Pass
	11	2462	-8.37	3.01	-5.36	7.02	Pass

NOTE: Directional gain = 3.97dBi + 10log(2) = 6.98dBi > 6dBi , so the power density limit shall be reduced to 8-(6.98-6) = 7.02dBm.

802.11n (HT20)

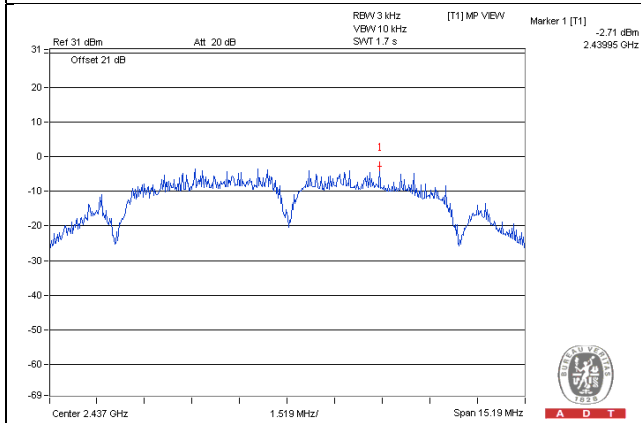
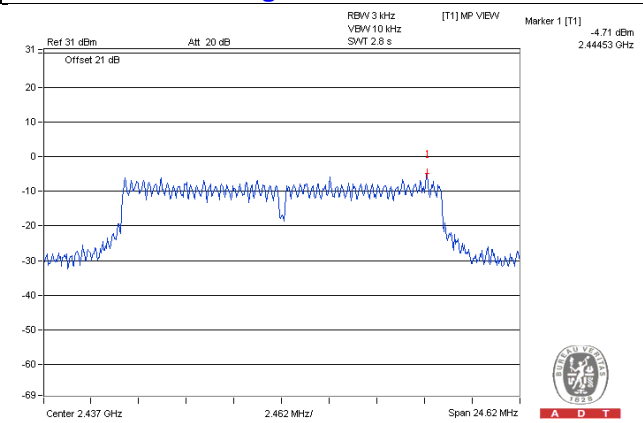
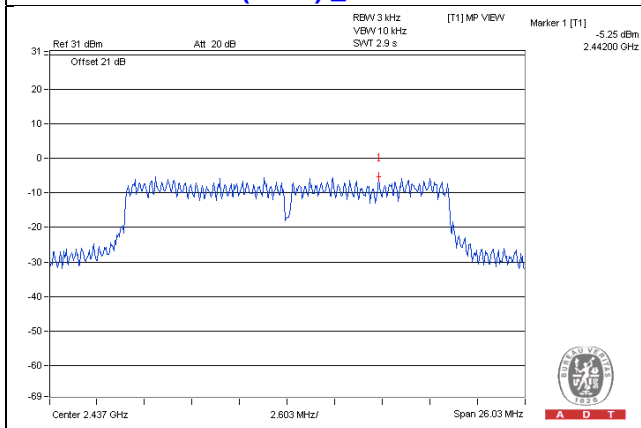
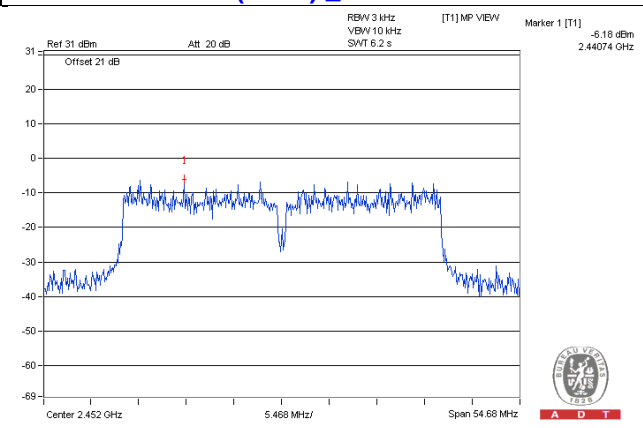
TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-9.08	3.01	-6.07	7.02	Pass
	6	2437	-5.81	3.01	-2.80	7.02	Pass
	11	2462	-5.80	3.01	-2.79	7.02	Pass
1	1	2412	-8.25	3.01	-5.24	7.02	Pass
	6	2437	-5.25	3.01	-2.24	7.02	Pass
	11	2462	-9.41	3.01	-6.40	7.02	Pass

NOTE: Directional gain = 3.97dBi + 10log(2) = 6.98dBi > 6dBi , so the power density limit shall be reduced to 8-(6.98-6) = 7.02dBm.

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	3	2422	-13.02	3.01	-10.01	7.02	Pass
	6	2437	-11.56	3.01	-8.55	7.02	Pass
	9	2452	-14.68	3.01	-11.67	7.02	Pass
1	3	2422	-12.78	3.01	-9.77	7.02	Pass
	6	2437	-10.05	3.01	-7.04	7.02	Pass
	9	2452	-6.18	3.01	-3.17	7.02	Pass

NOTE: Directional gain = 3.97dBi + 10log(2) = 6.98dBi > 6dBi , so the power density limit shall be reduced to 8-(6.98-6) = 7.02dBm.

Spectrum Plot of Worst Value
802.11b_Chain 1 / CH6

802.11g_Chain 0 / CH6

802.11n (HT20)_Chain 1 / CH6

802.11n (HT40)_Chain 1 / CH9


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

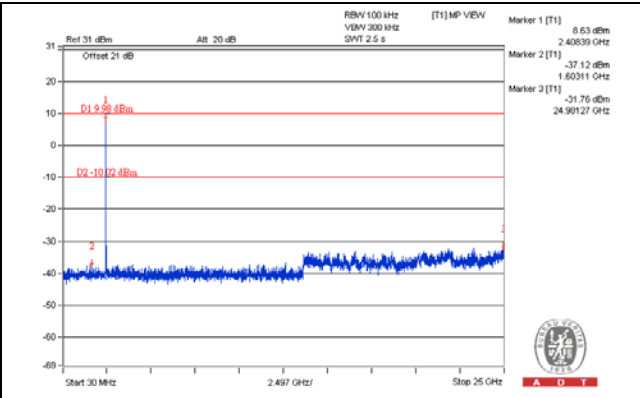
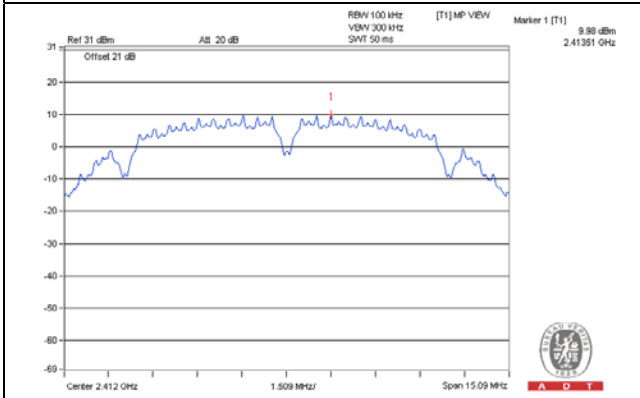
Same as Item 4.3.6

4.6.7 Test Results

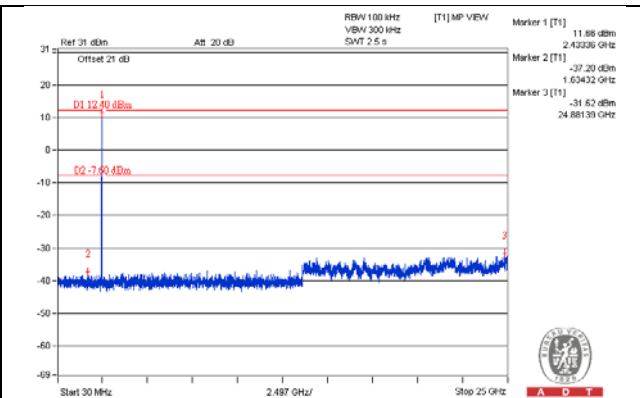
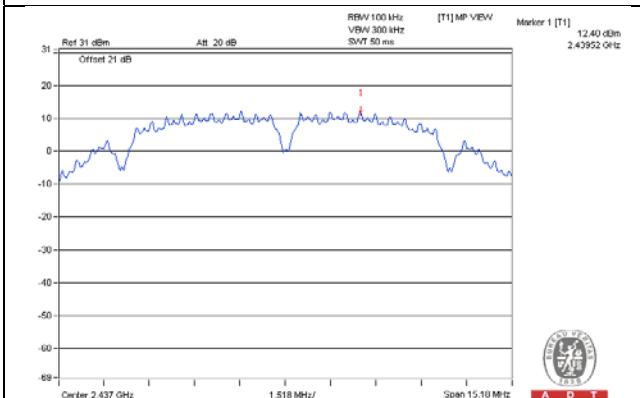
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

802.11b
Chain 0

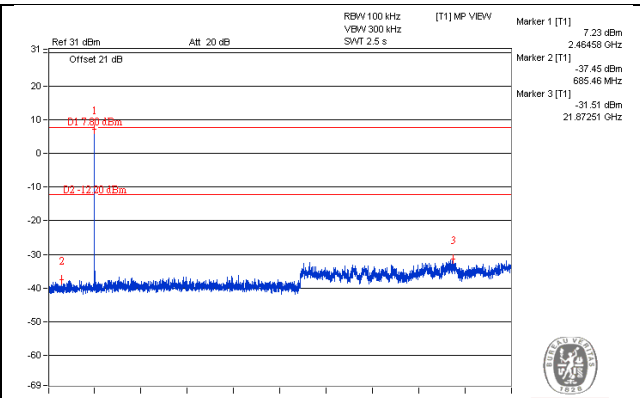
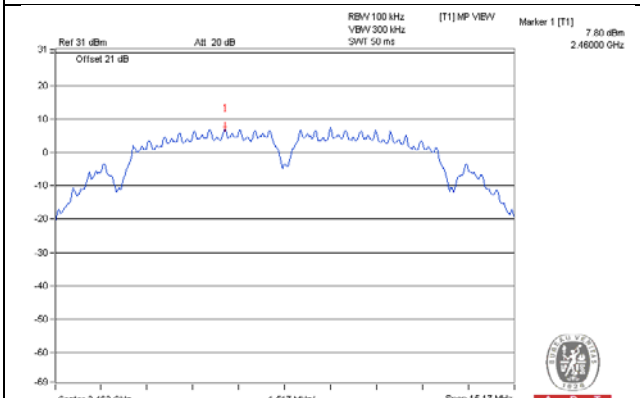
CH 1



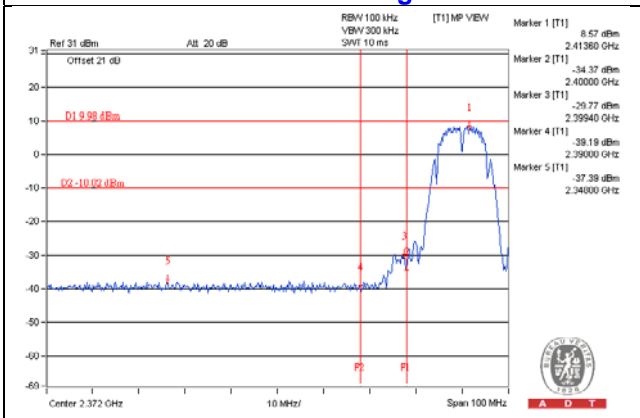
CH 6



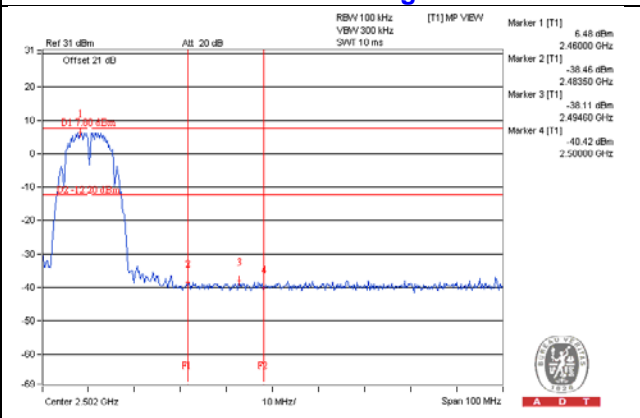
CH 11



CH 1 Band edge

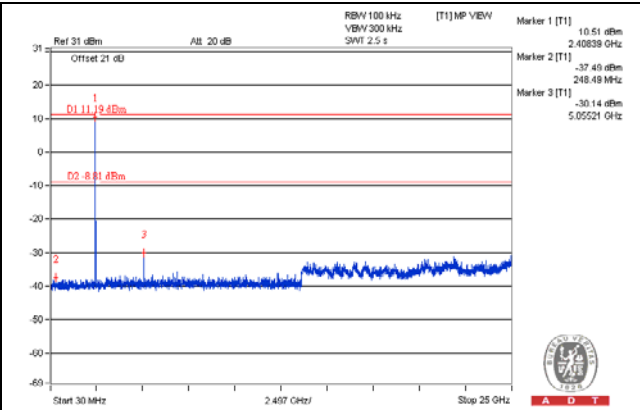
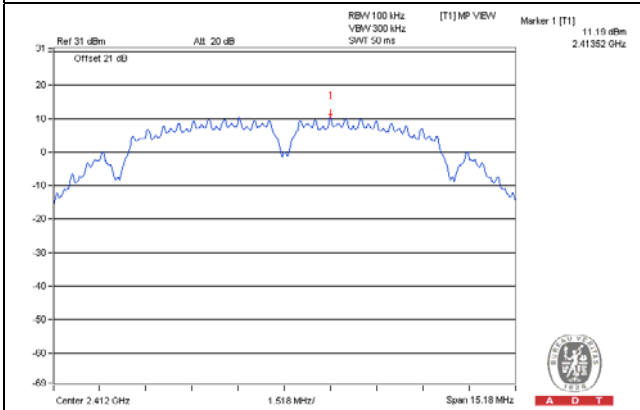


CH 11 Band edge

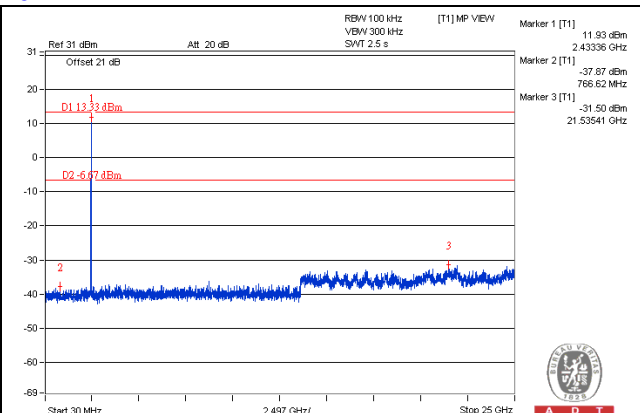
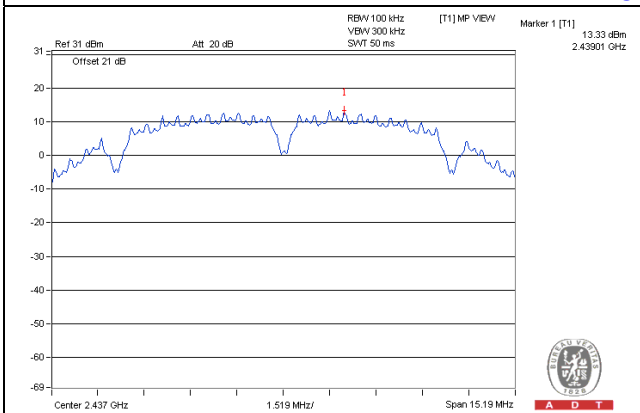


Chain 1

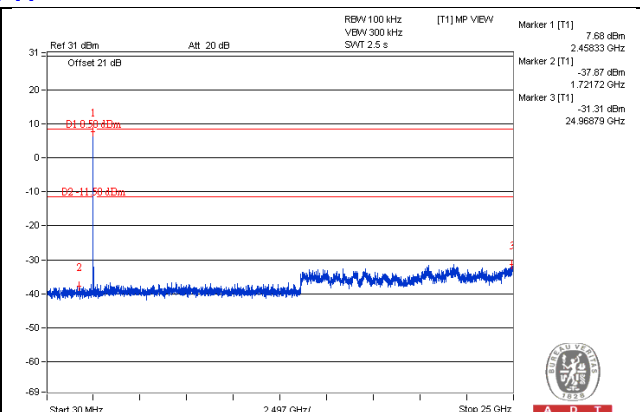
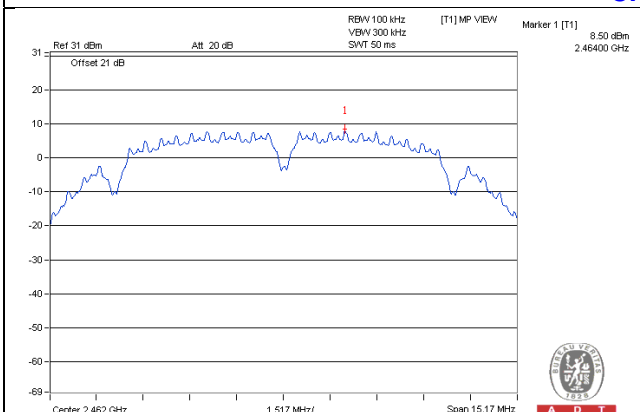
CH 1



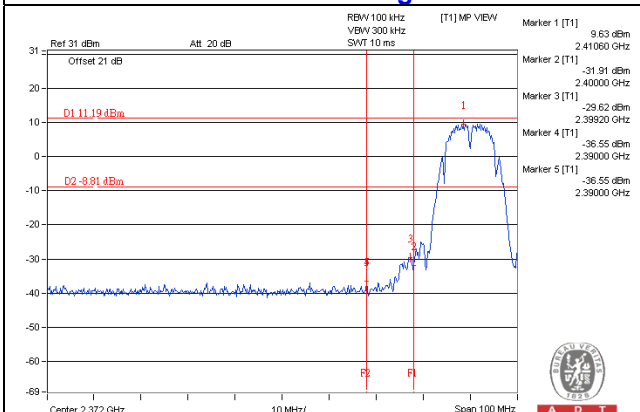
CH 6



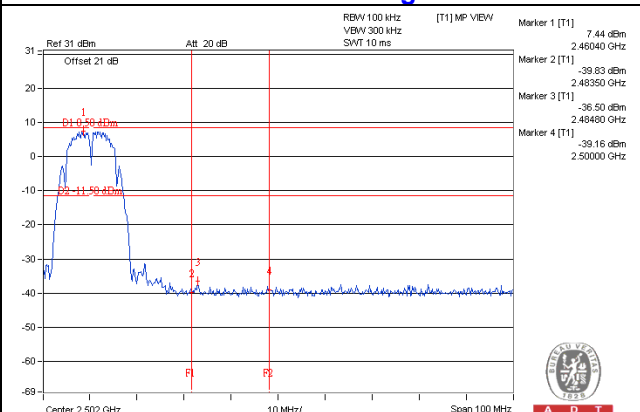
CH 11



CH 1 Band edge

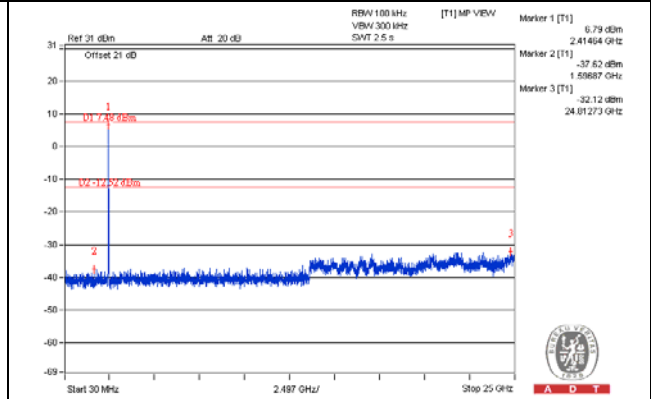
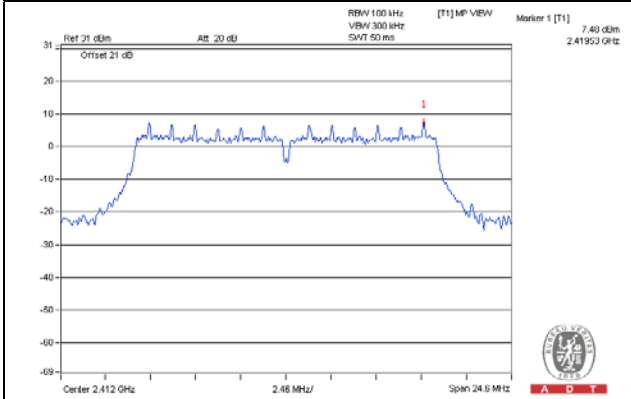


CH 11 Band edge

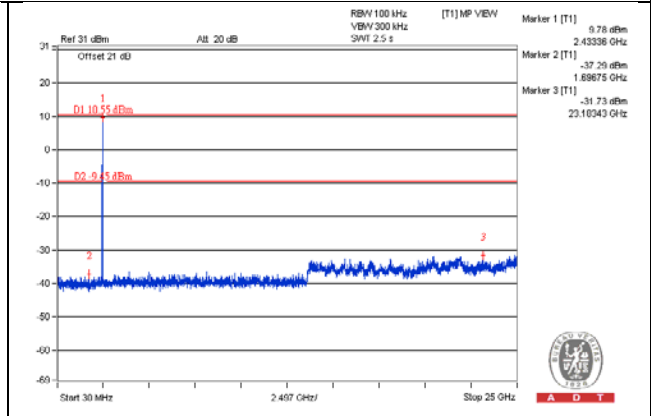
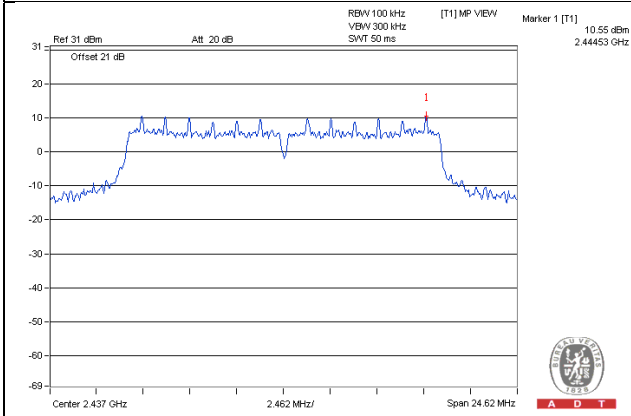


802.11g
Chain 0

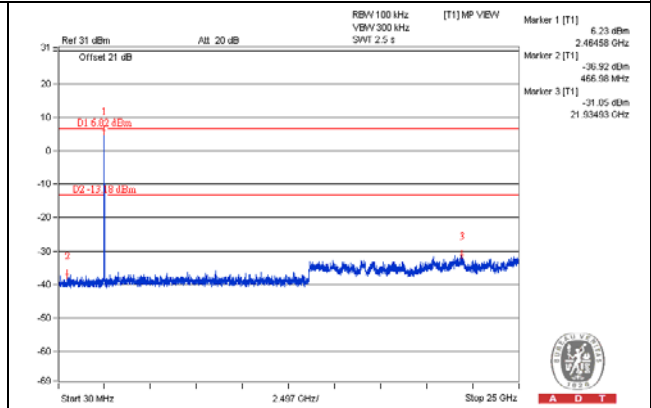
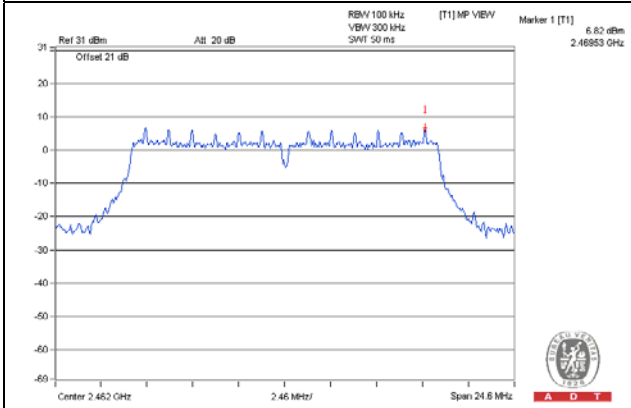
CH 1



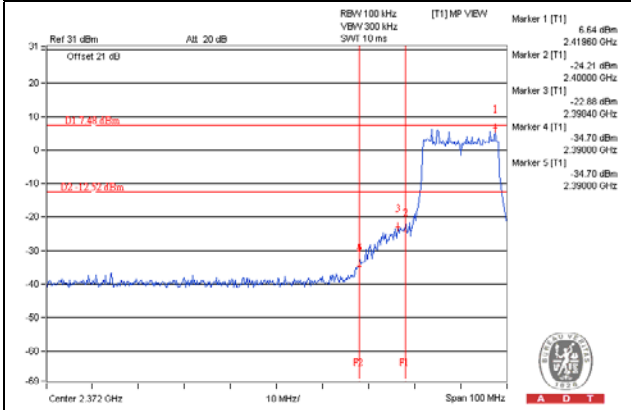
CH 6



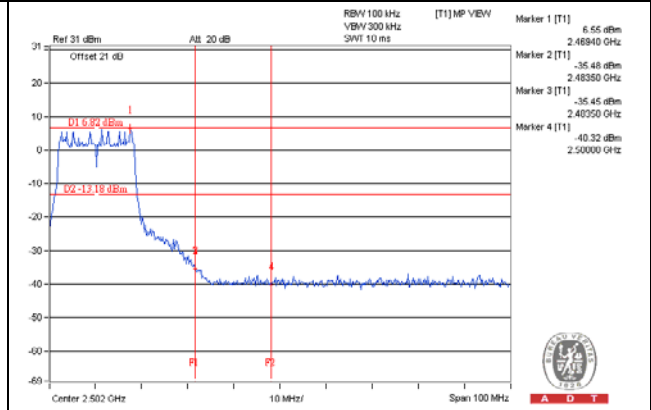
CH 11



CH 1 Band edge

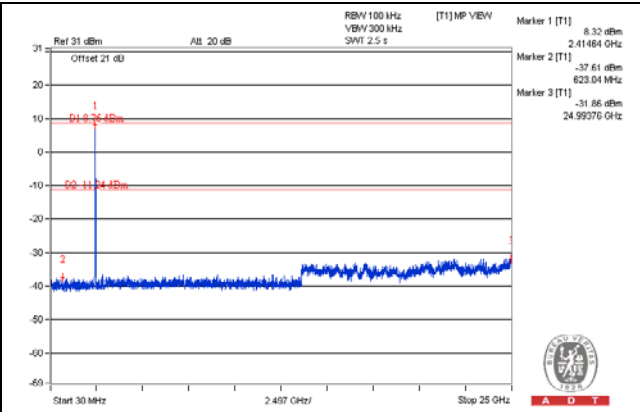
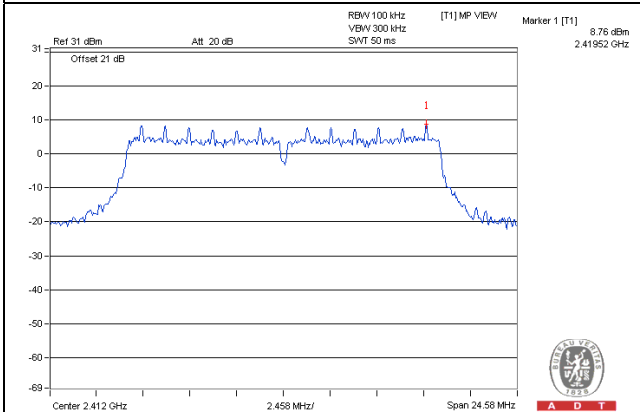


CH 11 Band edge

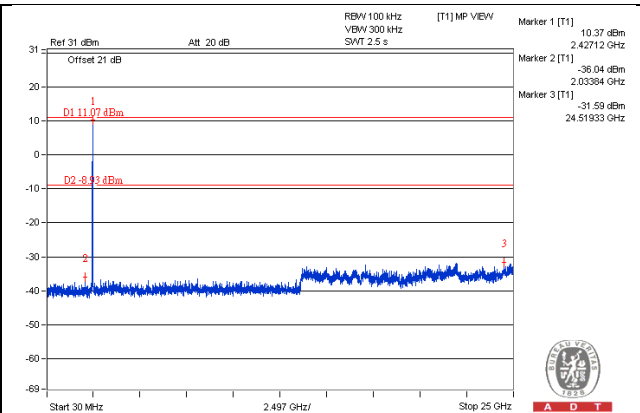
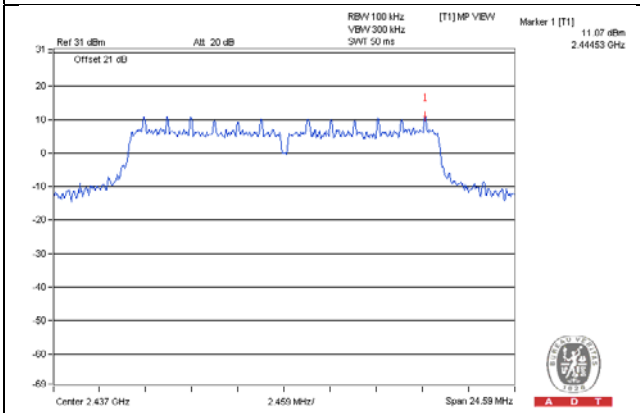


Chain 1

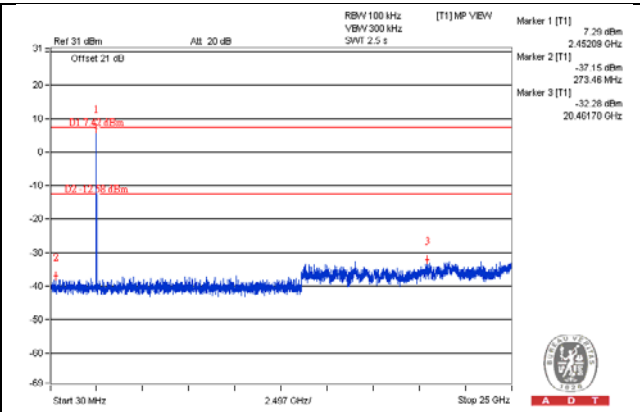
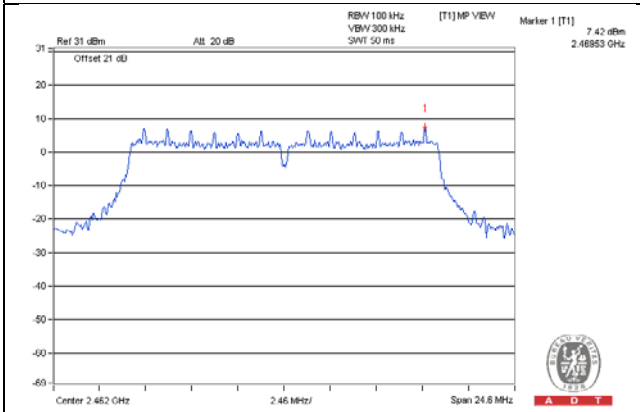
CH 1



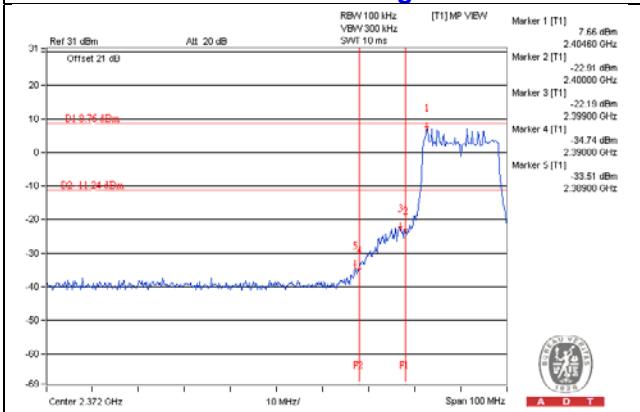
CH 6



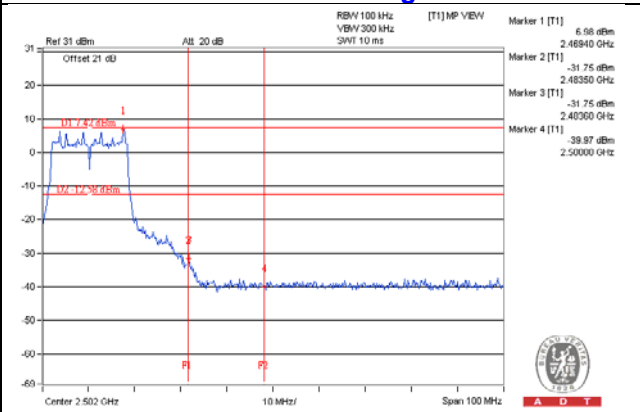
CH 11



CH 1 Band edge

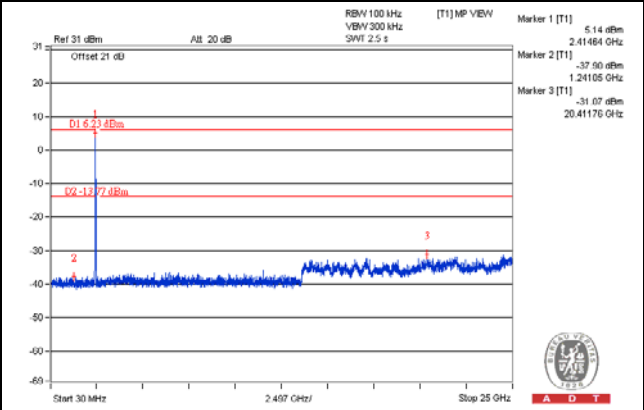
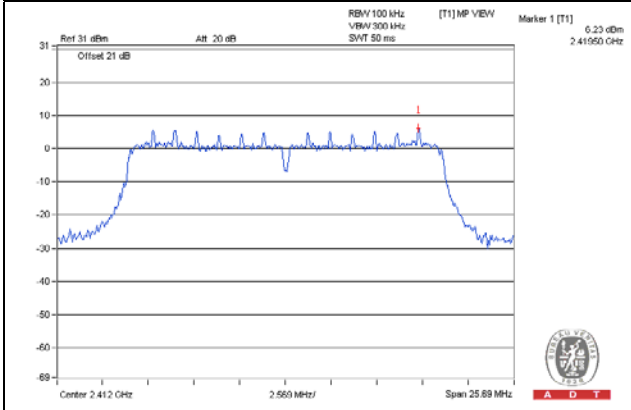


CH 11 Band edge

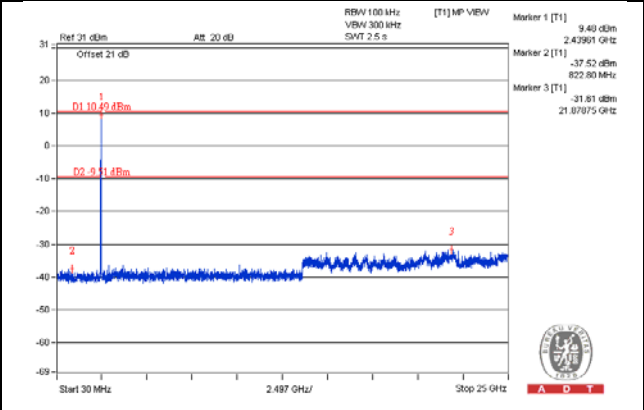
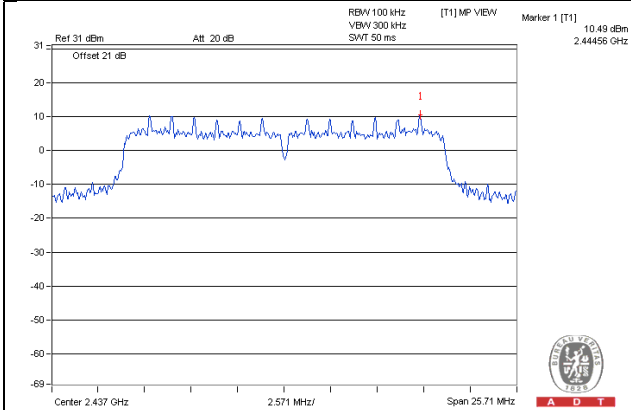


802.11n (HT20)
Chain 0

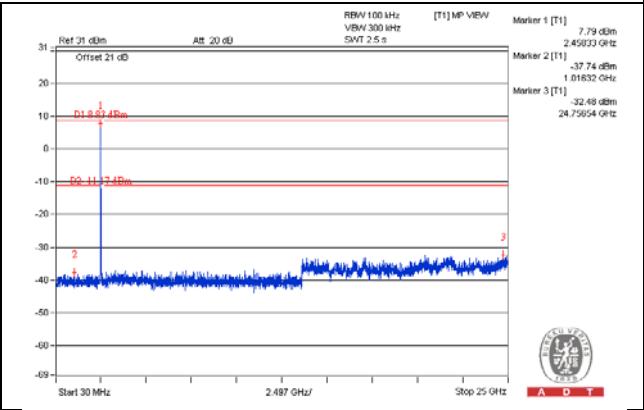
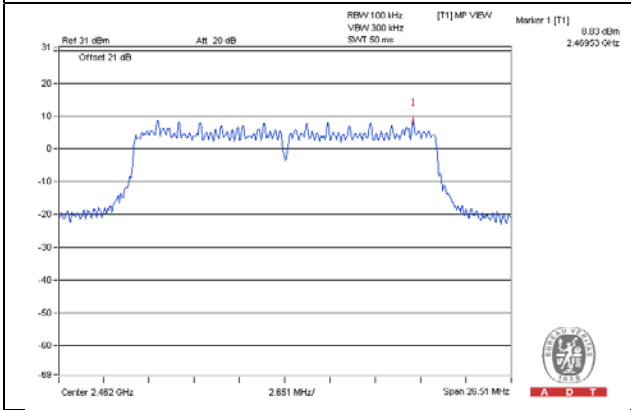
CH 1



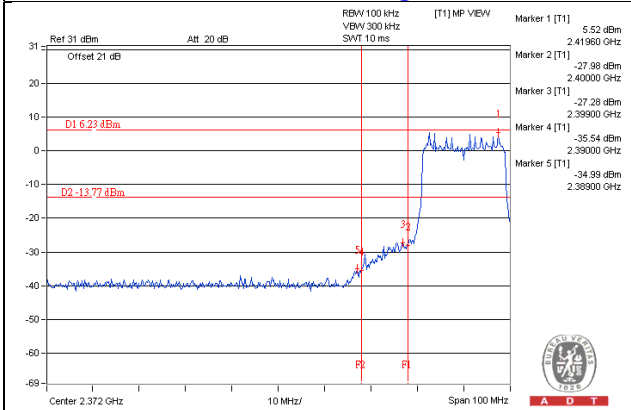
CH 6



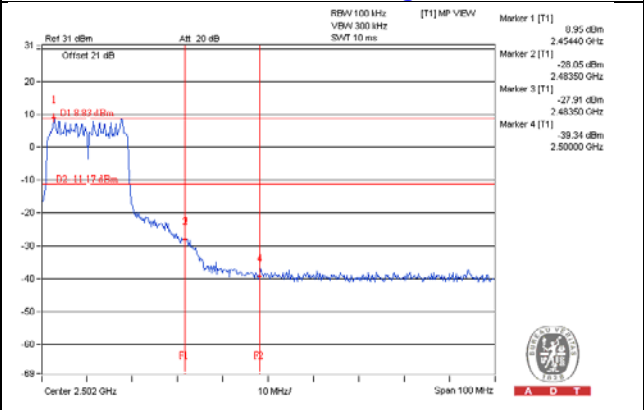
CH 11



CH 1 Band edge

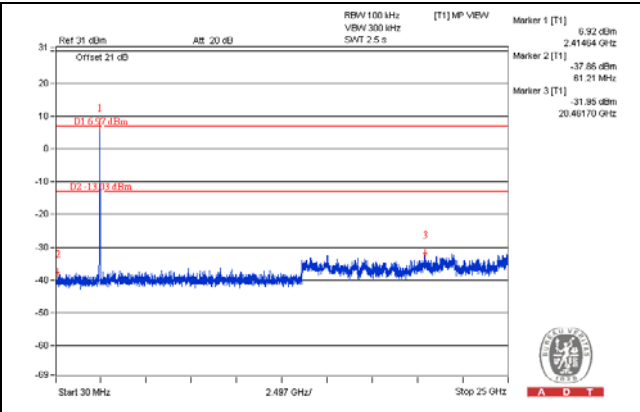
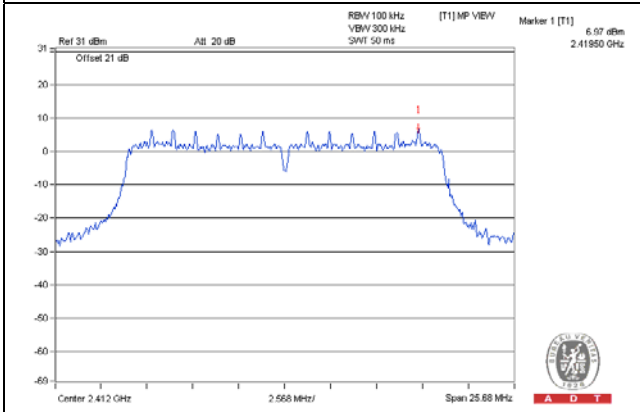


CH 11 Band edge

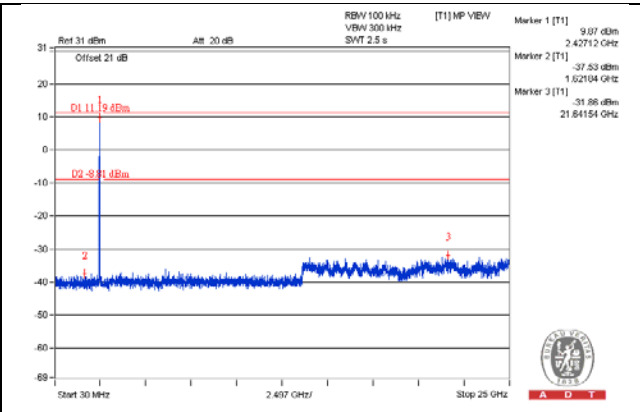
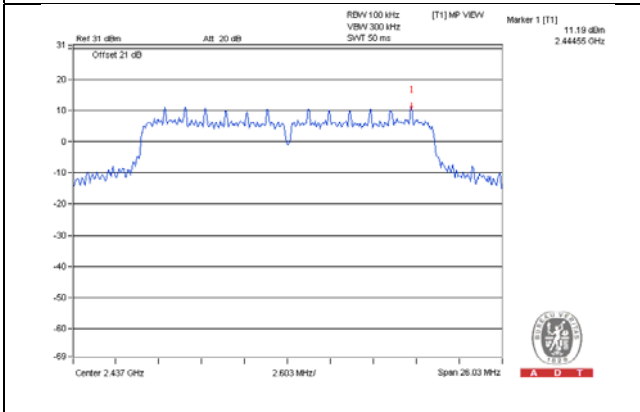


Chain 1

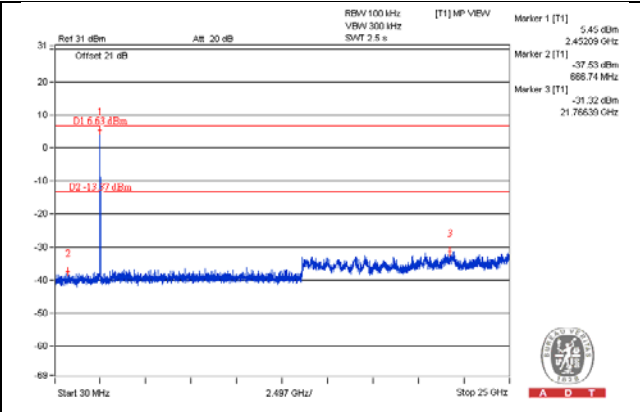
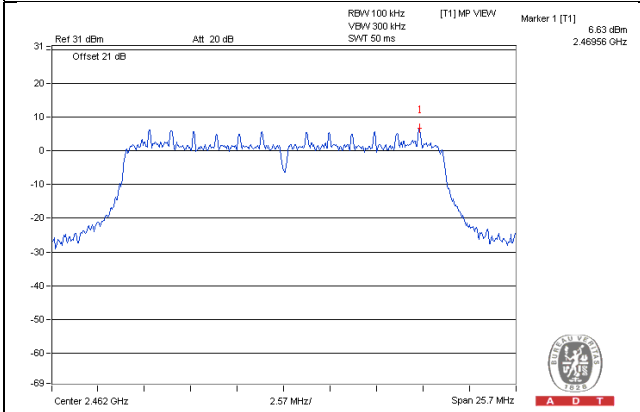
CH 1



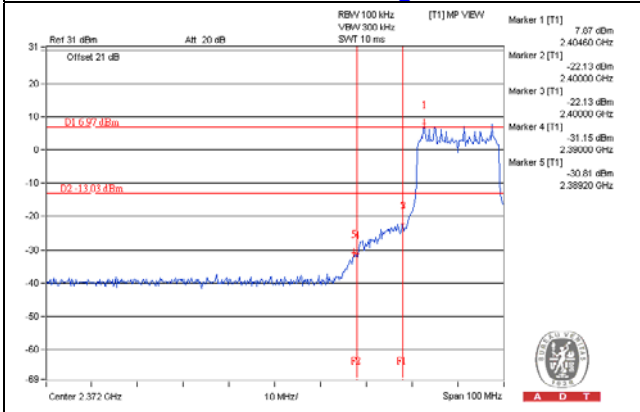
CH 6



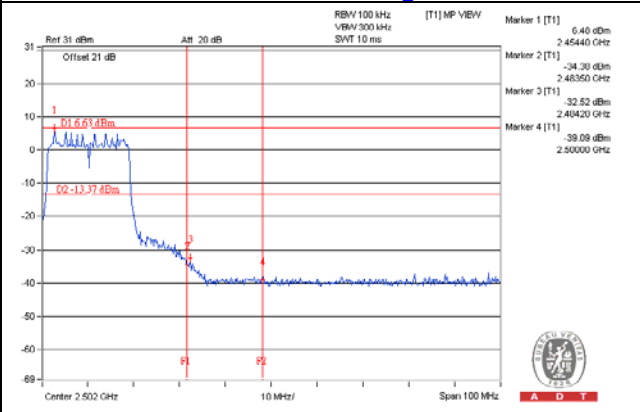
CH 11



CH 1 Band edge

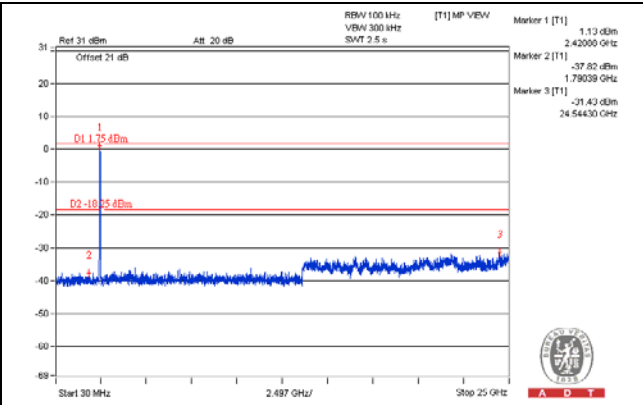
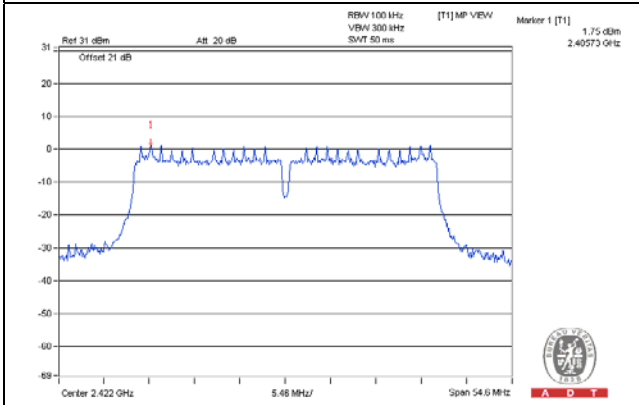


CH 11 Band edge

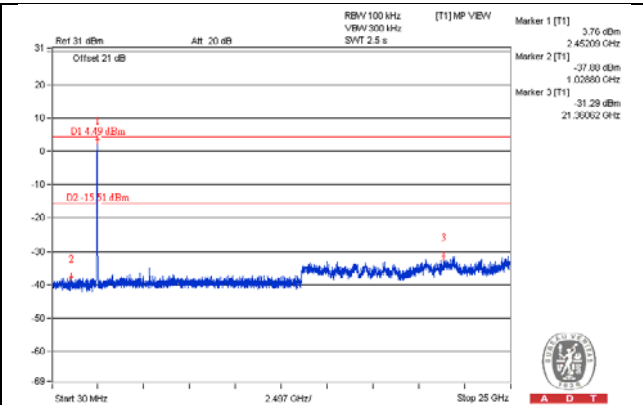
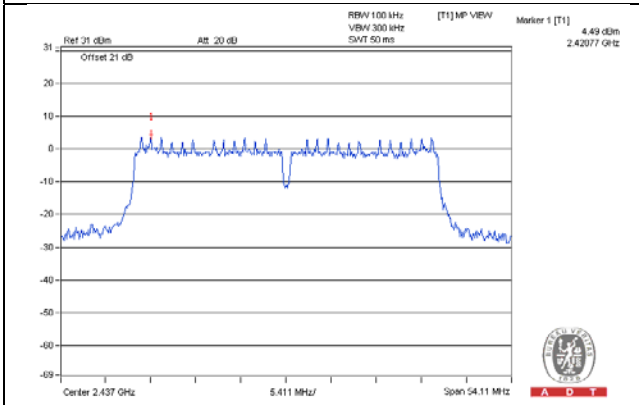


802.11n (HT40)
Chain 0

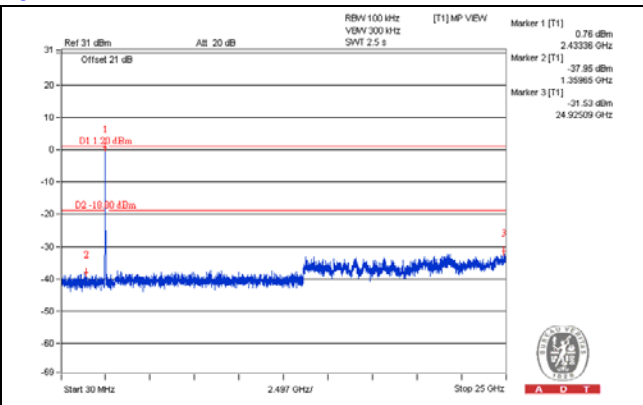
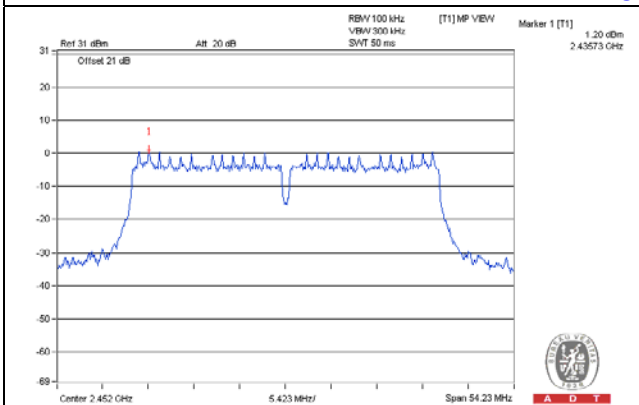
CH 3



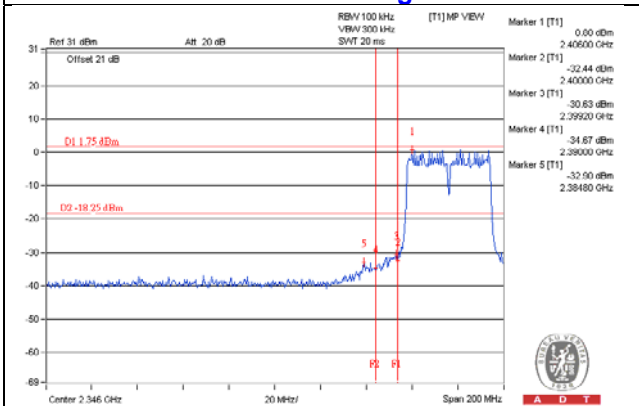
CH 6



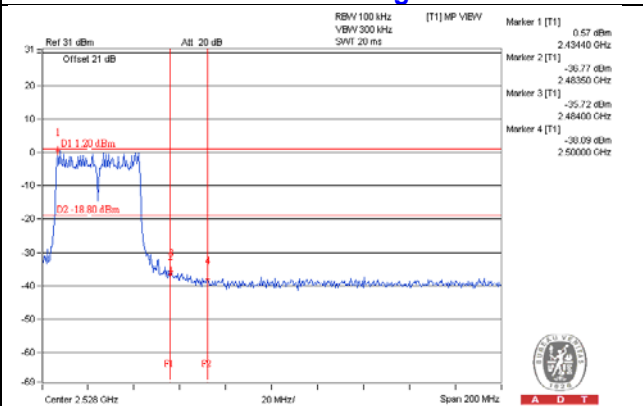
CH 9



CH 3 Band edge

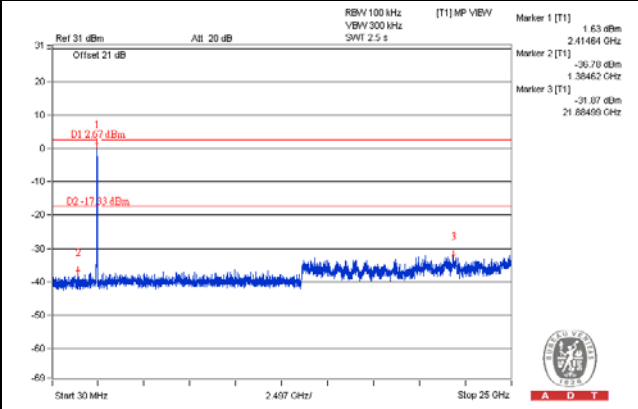
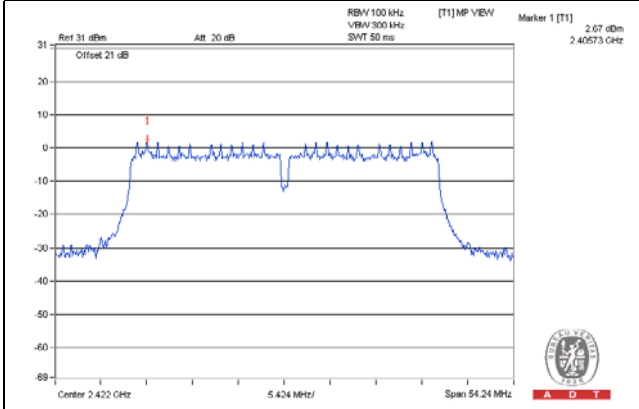


CH 9 Band edge

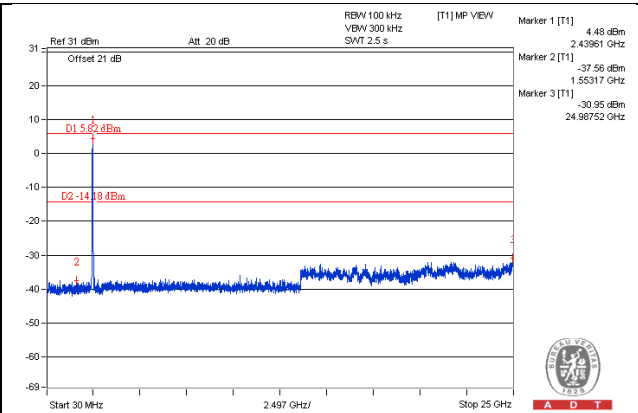
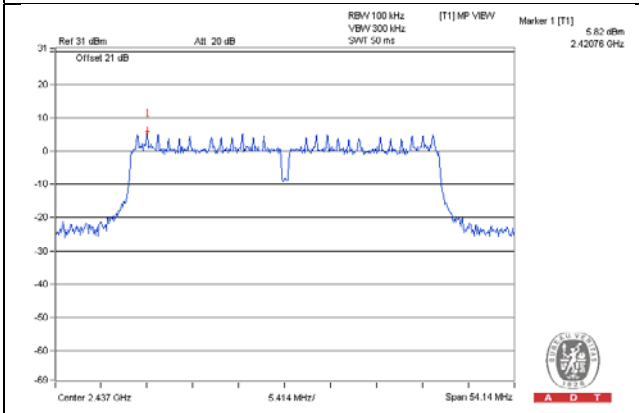


Chain 1

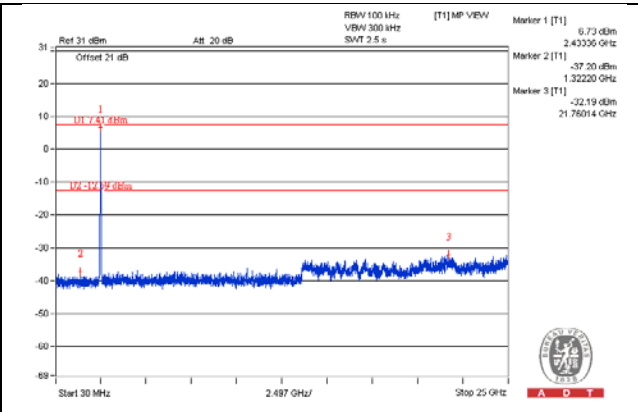
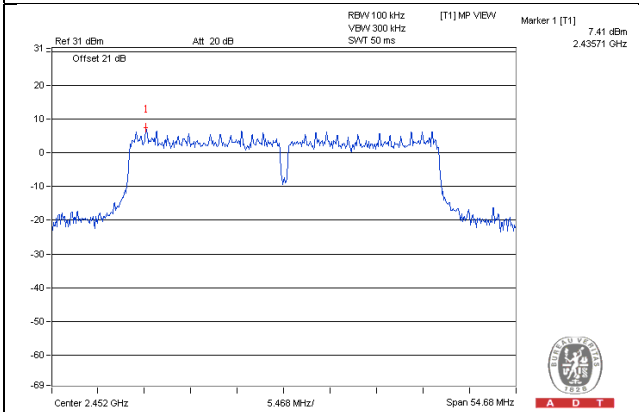
CH 3



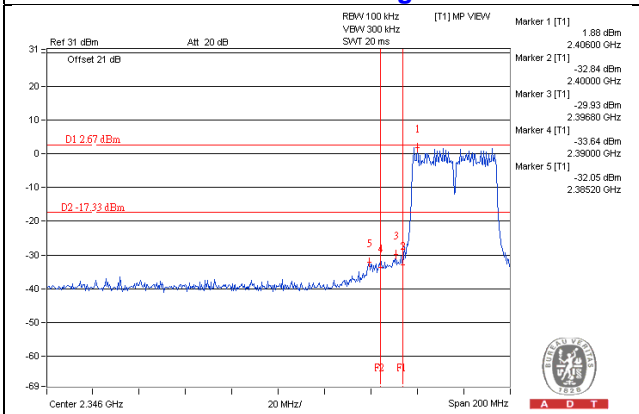
CH 6



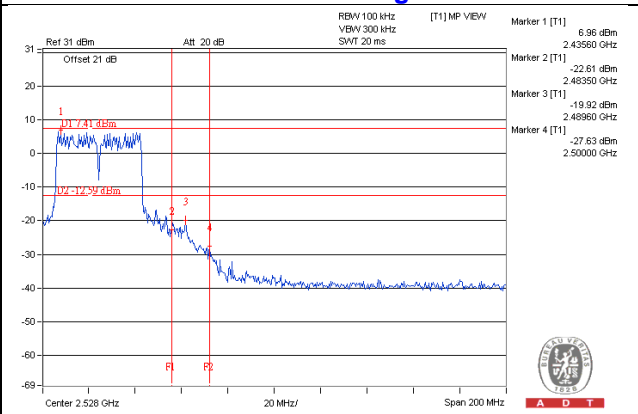
CH 9



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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