

## FCC Test Report

**Report No.:** RF150422E04

**FCC ID:** H8N-TC7300

**Test Model:** TC7300.TI

**Series Model:** TC7300XXXXXX ("X" can be 0-9; A-Z; a-z; -, . or blank for marketing),  
TC7300.d1TI,  
TC7300XXXXXX ("X" can be 0-9; A-Z; a-z; -, . or blank for marketing)

**Received Date:** Apr. 22, 2015

**Test Date:** Apr. 27 to May 13, 2015

**Issued Date:** June 23, 2015

**Applicant:** ASKEY COMPUTER CORP.

**Address:** 10F, NO.119, JIANKANG RD., ZHONGHE DIST., NEW TAIPEI CITY 23585,  
TAIWAN, R.O.C.

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Hsin Chu Laboratory

**Lab Address:** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin  
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**Test Location (1):** No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung Tsuen, Chiung Lin Hsiang, Hsin  
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**Test Location (2):** No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin  
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**Table of Contents**

<b>Release Control Record</b> .....	<b>4</b>
<b>1 Certificate of Conformity</b> .....	<b>5</b>
<b>2 Summary of Test Results</b> .....	<b>6</b>
2.1 Measurement Uncertainty.....	6
2.2 Modification Record.....	6
<b>3 General Information</b> .....	<b>7</b>
3.1 General Description of EUT.....	7
3.2 Description of Test Modes.....	9
3.2.1 Test Mode Applicability and Tested Channel Detail.....	10
3.3 Duty Cycle of Test Signal.....	12
3.4 Description of Support Units.....	13
3.4.1 Configuration of System under Test.....	14
3.5 General Description of Applied Standards.....	15
<b>4 Test Types and Results</b> .....	<b>16</b>
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.....	19
4.1.4 Deviation from Test Standard.....	19
4.1.5 Test Set Up.....	20
4.1.6 EUT Operating Conditions.....	21
4.1.7 Test Results.....	22
4.2 Conducted Emission Measurement.....	35
4.2.1 Limits of Conducted Emission Measurement.....	35
4.2.2 Test Instruments.....	35
4.2.3 Test Procedures.....	36
4.2.4 Deviation from Test Standard.....	36
4.2.5 Test Setup.....	36
4.2.6 EUT Operating Conditions.....	36
4.2.7 Test Results(Mode 1).....	37
4.2.8 Test Results(Mode 2).....	39
4.3 6dB Bandwidth Measurement.....	41
4.3.1 Limits of 6dB Bandwidth Measurement.....	41
4.3.2 Test Setup.....	41
4.3.3 Test Instruments.....	41
4.3.4 Test Procedure.....	41
4.3.5 Deviation from Test Standard.....	41
4.3.6 EUT Operating Conditions.....	41
4.3.7 Test Result.....	42
4.4 Conducted Output Power Measurement.....	44
4.4.1 Limits of Conducted Output Power Measurement.....	44
4.4.2 Test Setup.....	44
4.4.3 Test Instruments.....	44
4.4.4 Test Procedures.....	44
4.4.5 Deviation from Test Standard.....	44
4.4.6 EUT Operating Conditions.....	44
4.4.7 Test Results.....	45
4.5 Power Spectral Density Measurement.....	47
4.5.1 Limits of Power Spectral Density Measurement.....	47
4.5.2 Test Setup.....	47
4.5.3 Test Instruments.....	47
4.5.4 Test Procedure.....	47
4.5.5 Deviation from Test Standard.....	47



4.5.6 EUT Operating Condition .....	47
4.5.7 Test Results .....	48
4.6 Conducted Out of Band Emission Measurement.....	50
4.6.1 Limits of Conducted Out of Band Emission Measurement .....	50
4.6.2 Test Setup.....	50
4.6.3 Test Instruments .....	50
4.6.4 Test Procedure .....	50
4.6.5 Deviation from Test Standard .....	50
4.6.6 EUT Operating Condition .....	50
4.6.7 Test Results .....	50
<b>5 Pictures of Test Arrangements.....</b>	<b>58</b>
<b>Appendix – Information on the Testing Laboratories .....</b>	<b>59</b>



A D T

### Release Control Record

Issue No.	Description	Date Issued
RF150422E04	Original release.	June 23, 2015



## 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 -10.26dB at 0.17734MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.3dB at 2483.50MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is i-pex(MHF) not a standard connector.

### 2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) ( $\pm$ )
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.89 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1000MHz	5.37 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.72 dB
	6GHz ~ 18GHz	4.00 dB
	18GHz ~ 40GHz	4.11 dB

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

Product	Cable Modem
Brand	TECHNICOLOR
Test Model	TC7300.TI
Series Model	TC7300XXXXXX ("X" can be 0-9; A-Z; a-z; -; . or blank for marketing), TC7300.d1TI, TC7300XXXXXX ("X" can be 0-9; A-Z; a-z; -; . or blank for marketing)
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	DC 12V from adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11g: up to 54Mbps 802.11n: up to 300Mbps
Operating Frequency	2.412 ~ 2.462GHz
Number of Channel	11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
Output Power	802.11b: 142.561mW 802.11g: 680.002mW 802.11n (HT20): 646.813mW 802.11n (HT40): 197.141mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	RJ45 cable (Unshielded, 1.5m)

Note:

- All models are listed as below.

Brand	Model	Difference
TECHNICOLOR	TC7300.TI	Chipset:BCM3383Z, SW different, with VoIP
	TC7300XXXXXX ("X" can be 0-9; A-Z; a-z; -; . or blank for marketing)	
	TC7300.d1TI	Chipset:BCM3383G, SW different, without VoIP
	TC7300XXXXXX ("X" can be 0-9; A-Z; a-z; -; . or blank for marketing)	

\*Model: TC7300.TI is the main test model.

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

Chain No.	Brand	Model	Gain (dBi)	Antenna Type	Connector Type	Frequency range (MHz to MHz)	Cable Length
Chain (0)	HONGLIN	260-23445	2	Dipole	i-pex(MHF)	2400~2483.5	157mm
Chain (1)	HONGLIN	260-23446	2	Dipole	i-pex(MHF)	2400~2483.5	308mm

3. The EUT must be supplied with a power adapter and following two different models could be chosen as following table:

No	Brand	Model No.	Spec.
1	LEI	MU18-D120150-A1	Input: 100-240V, 0.6A, 50/60Hz Output: 12V, 1.5A DC power cable (unshielded, 1.5m)
2	Sunny	SYS1428-1812-W2	Input: 100-240V, 1.0A, 50/60Hz Output: 12V, 1.5A DC power cable (unshielded, 1.4m)

From the above adapters, the worst radiated test item was found in Adapter 1. Therefore only the test data of the mode was recorded in this report.

4. The EUT incorporates a MIMO function.

MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
<b>802.11b</b>	1 ~ 11Mbps	1TX diversity	1RX diversity
<b>802.11g</b>	6 ~ 54Mbps	2TX	2RX
<b>802.11n (HT20)</b>	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
<b>802.11n (HT40)</b>	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX

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



### 3.2 Description of Test Modes

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

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

7 channels are provided for 802.11n (HT40):

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

### 3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
1	√	√	√	√	Adapter 1
2	-	-	√	-	Adapter 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:** The EUT had been pre-tested on the positioned of each 2 axis. The worst case was found when positioned on **X-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
<b>RE<math>\geq</math>1G</b>	23deg. C, 70%RH 23deg. C, 65%RH	120Vac, 60Hz	Tim Ho
<b>RE&lt;1G</b>	19deg. C, 67%RH	120Vac, 60Hz	Weiwei Lo
<b>PLC</b>	25deg. C, 70%RH	120Vac, 60Hz	Mike Hsieh
<b>APCM</b>	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.

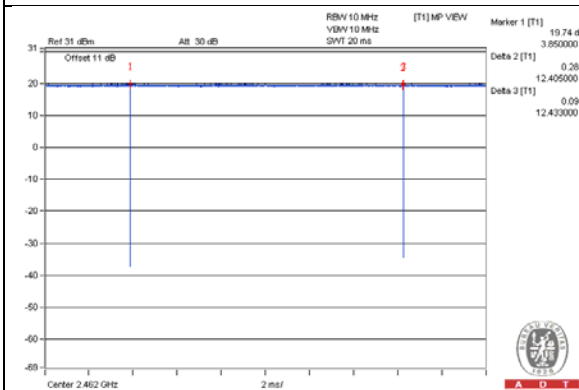
**802.11b**: Duty cycle = 12.405 ms/12.433 ms = 0.998

**802.11g**: Duty cycle = 2.063 ms/2.085 ms = 0.989

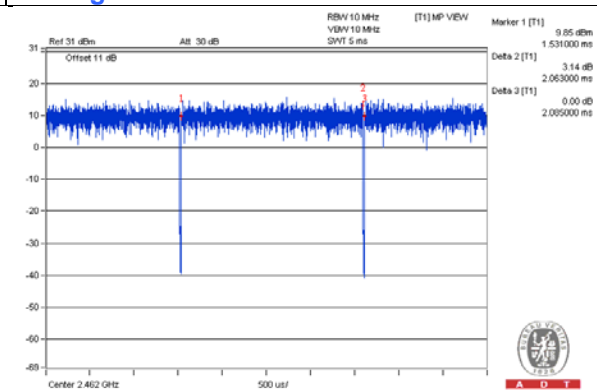
**802.11n (HT20)**: Duty cycle = 1.907 ms/1.945 ms = 0.98

**802.11n (HT40)**: Duty cycle = 0.929 ms/0.951 ms = 0.977, Duty factor =  $10 * \log(1/0.977) = 0.1$

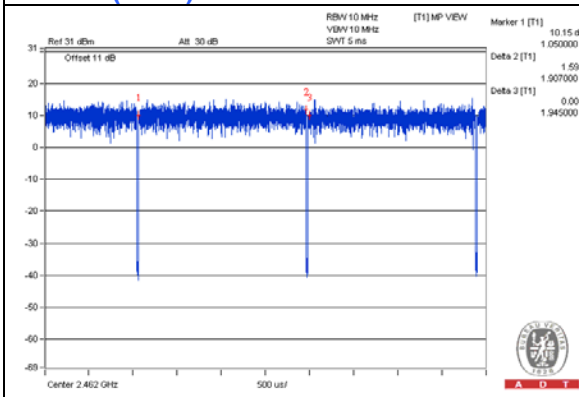
**802.11b**



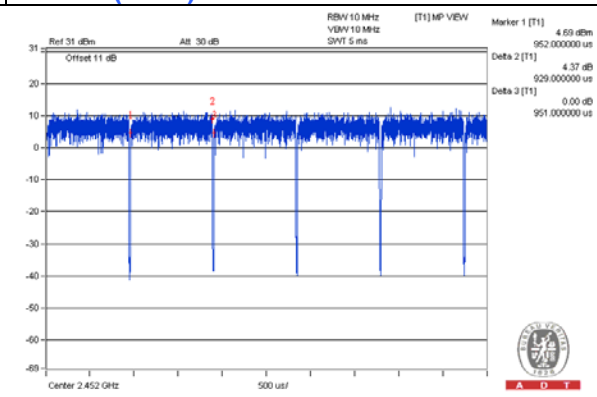
**802.11g**



**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.

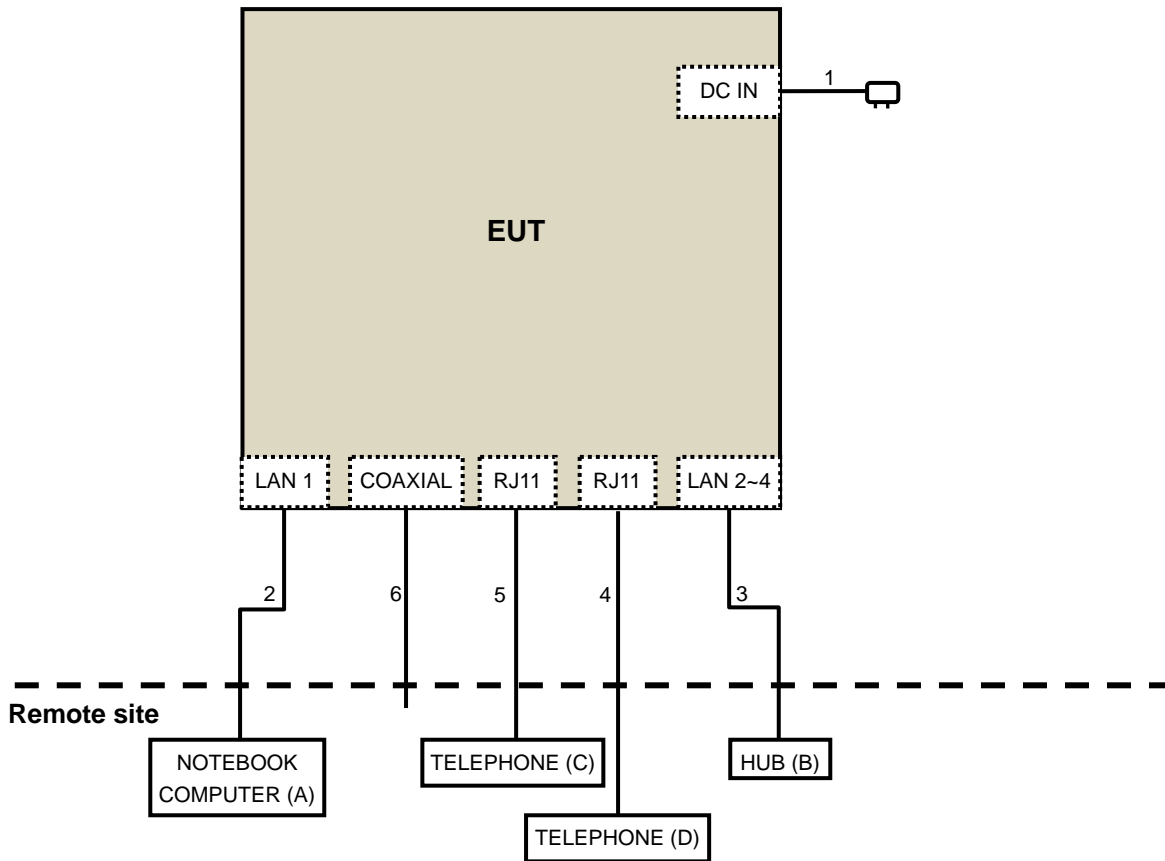
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	NOTEBOOK COMPUTER	DELL	E6420	H62T3R1	FCC DoC	Provided by Lab
B.	HUB	ZyXEL	ES-116P	S060H02000215	FCC Doc	Provided by Lab
C.	TELEPHONE	WONDER	WD-303	7C17KA 04011	NA	Provided by Lab
D.	TELEPHONE	WONDER	WD-303	7C17KA 04440	NA	Provided by Lab

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.	DC	1	1.5	No	0	Supplied by Client
2.	RJ45	1	10	No	0	Provided by Lab
3.	RJ45	3	10	No	0	Provided by Lab
4.	RJ11	1	10	No	0	Provided by Lab
5.	RJ11	1	10	No	0	Provided by Lab
6.	Coaxial	1	10	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 v03r02**  
**662911 D01 Multiple Transmitter Output v02r01**  
ANSI C63.10-2009

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

##### For above 1GHz test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	Aug. 11, 2014	Aug. 10, 2015
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-04	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Feb. 06, 2015	Feb. 05, 2016
RF Cable	NA	CHHCAB_001	Oct. 05, 2014	Oct. 04, 2015
Horn_Antenna AISI	AIH.8018	0000220091110	Feb. 06, 2015	Feb. 05, 2016
Pre-Amplifier Agilent	8449B	300801923	Oct. 28, 2014	Oct. 27, 2015
RF Cable	NA	131206 131213 131215 SNMY23685/4	Jan. 16, 2015	Jan. 15, 2016
Spectrum Analyzer R&S	FSV40	100964	July 05, 2014	July 04, 2015
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

##### 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 horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in 966 Chamber No. H.
4. The FCC Site Registration No. is 797305.
5. The CANADA Site Registration No. is IC 7450H-3.
6. Tested Date: Apr. 29 to May 12, 2015

**For below 1GHz test:**

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
MXE EMI Receiver Agilent	N9038A	MY51210105	July 21,2014	July 20,2015
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. 09, 2015	Feb. 08, 2016
RF Cable	NA	CHGCAB_001	Oct. 04, 2014	Oct. 03, 2015
Horn_Antenna AISI	AIH.8018	0000320091110	Feb. 09, 2015	Feb. 08, 2016
Pre-Amplifier Agilent	8449B	3008A02578	June 24, 2014	June 23, 2015
RF Cable	NA	131205 131216 131217 SNMY23684/4	Jan. 16, 2015	Jan. 15, 2016
Spectrum Analyzer R&S	FSV40	100964	July 05, 2014	July 04, 2015
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
Antenna Tower & Turn Table CT	NA	NA	NA	NA

**Note:**

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in 966 Chamber No. G.
4. The FCC Site Registration No. is 966073.
5. The VCCI Site Registration No. is G-137.
6. The CANADA Site Registration No. is IC 7450H-2.
7. Tested Date: Apr. 27, 2015

#### 4.1.3 Test Procedures

- a. The EUT was placed on the top of a rotating table 0.8 meters 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:

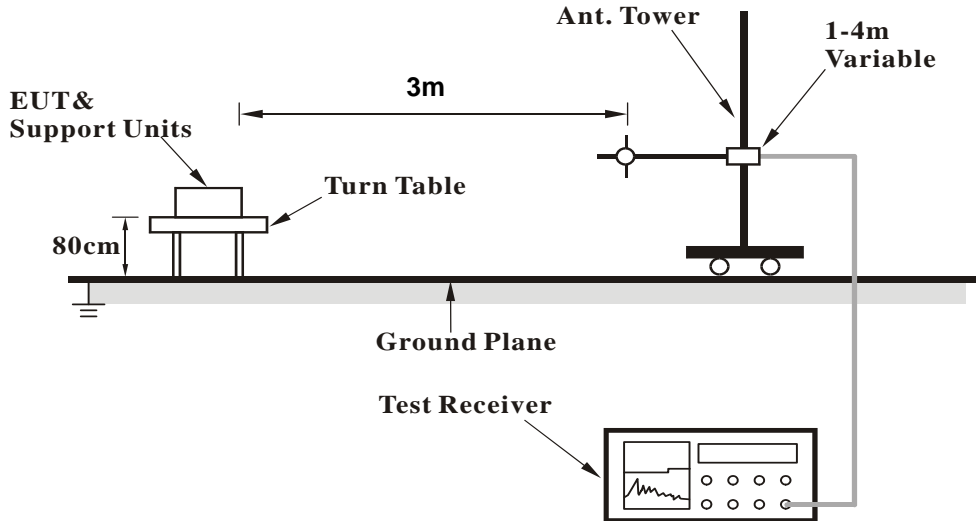
1. For emission measurements above 1 GHz, the EUT shall be placed at a height of 1.5 m above the ground at 3 meter chamber room for test
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
4. 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 ( $10 \log(1/\text{duty cycle})$ ).
5. 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.
6. All modes of operation were investigated and the worst-case emissions are reported.

#### 4.1.4 Deviation from Test Standard

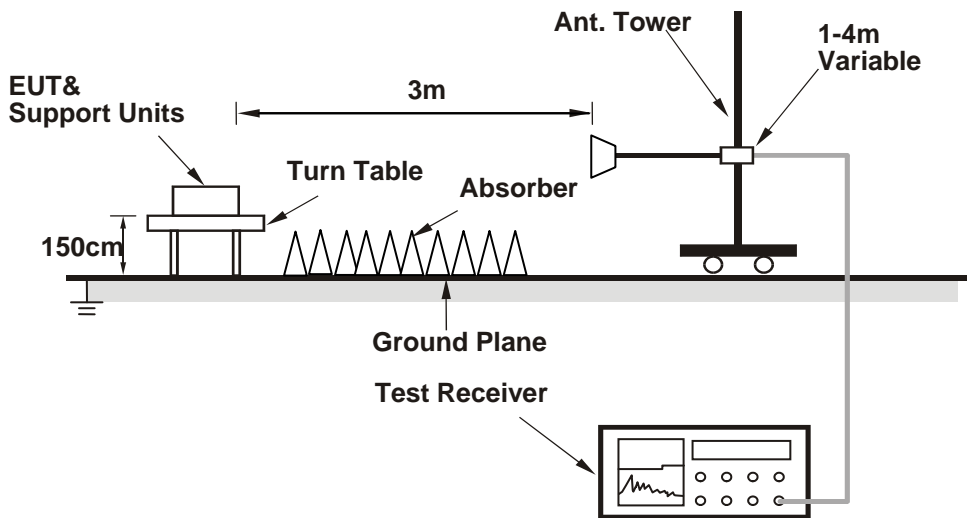
No deviation.

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 (MTool\_2.0.1.0) has been activated to set the EUT on specific status.

4.1.7 Test Results

Above 1GHz Data :

802.11b

<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	54.9 PK	74.0	-19.1	2.10 H	264	60.77	-5.87
2	2390.00	46.0 AV	54.0	-8.0	2.10 H	264	51.87	-5.87
3	*2412.00	99.0 PK			2.10 H	264	104.80	-5.80
4	*2412.00	96.7 AV			2.10 H	264	102.50	-5.80
5	4824.00	52.9 PK	74.0	-21.1	1.00 H	231	49.48	3.42
6	4824.00	46.6 AV	54.0	-7.4	1.00 H	231	43.18	3.42

**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	55.3 PK	74.0	-18.7	1.55 V	134	61.17	-5.87
2	2390.00	46.4 AV	54.0	-7.6	1.55 V	134	52.27	-5.87
3	*2412.00	108.1 PK			1.83 V	262	113.90	-5.80
4	*2412.00	105.7 AV			1.83 V	262	111.50	-5.80
5	4824.00	56.6 PK	74.0	-17.4	1.44 V	98	53.18	3.42
6	4824.00	53.1 AV	54.0	-0.9	1.44 V	98	49.68	3.42

**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.

<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	51.8 PK	74.0	-22.2	2.12 H	257	57.67	-5.87
2	2390.00	41.3 AV	54.0	-12.7	2.12 H	257	47.17	-5.87
3	*2437.00	97.2 PK			2.12 H	257	102.90	-5.70
4	*2437.00	94.7 AV			2.12 H	257	100.40	-5.70
5	2483.50	54.1 PK	74.0	-19.9	2.12 H	257	59.59	-5.49
6	2483.50	42.8 AV	54.0	-11.2	2.12 H	257	48.29	-5.49
7	4874.00	49.7 PK	74.0	-24.3	1.38 H	213	46.30	3.40
8	4874.00	43.1 AV	54.0	-10.9	1.38 H	213	39.70	3.40
9	7311.00	53.5 PK	74.0	-20.5	2.49 H	128	45.74	7.76
10	7311.00	45.8 AV	54.0	-8.2	2.49 H	128	38.04	7.76

**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	52.4 PK	74.0	-21.6	1.31 V	232	58.27	-5.87
2	2390.00	41.7 AV	54.0	-12.3	1.31 V	232	47.57	-5.87
3	*2437.00	106.9 PK			1.31 V	232	112.60	-5.70
4	*2437.00	104.1 AV			1.31 V	232	109.80	-5.70
5	2483.50	53.9 PK	74.0	-20.1	1.31 V	232	59.39	-5.49
6	2483.50	42.6 AV	54.0	-11.4	1.31 V	232	48.09	-5.49
7	4874.00	53.6 PK	74.0	-20.4	1.39 V	99	50.20	3.40
8	4874.00	50.1 AV	54.0	-3.9	1.39 V	99	46.70	3.40
9	7311.00	56.7 PK	74.0	-17.3	1.32 V	111	48.94	7.76
10	7311.00	53.3 AV	54.0	-0.7	1.32 V	111	45.54	7.76

**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.

<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	101.1 PK			2.08 H	260	106.69	-5.59
2	*2462.00	98.7 AV			2.08 H	260	104.29	-5.59
3	2483.50	53.7 PK	74.0	-20.3	2.08 H	260	59.19	-5.49
4	2483.50	44.7 AV	54.0	-9.3	2.08 H	260	50.19	-5.49
5	4924.00	50.3 PK	74.0	-23.7	1.44 H	205	46.91	3.39
6	4924.00	43.5 AV	54.0	-10.5	1.44 H	205	40.11	3.39
7	7386.00	54.0 PK	74.0	-20.0	2.51 H	118	45.95	8.05
8	7386.00	46.3 AV	54.0	-7.7	2.51 H	118	38.25	8.05

**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	*2462.00	109.8 PK			1.57 V	131	115.39	-5.59
2	*2462.00	107.5 AV			1.57 V	131	113.09	-5.59
3	2483.50	62.4 PK	74.0	-11.6	1.57 V	131	67.89	-5.49
4	2483.50	53.5 AV	54.0	-0.5	1.57 V	131	58.99	-5.49
5	4924.00	54.9 PK	74.0	-19.1	1.46 V	103	51.51	3.39
6	4924.00	49.6 AV	54.0	-4.4	1.46 V	103	46.21	3.39
7	7386.00	58.8 PK	74.0	-15.2	1.00 V	236	50.75	8.05
8	7386.00	53.3 AV	54.0	-0.7	1.00 V	236	45.25	8.05

**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
5. " \* ": Fundamental frequency.



**802.11g**

<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	55.4 PK	74.0	-18.6	2.05 H	278	61.27	-5.87
2	2390.00	44.5 AV	54.0	-9.5	2.05 H	278	50.37	-5.87
3	*2412.00	101.1 PK			2.05 H	278	106.90	-5.80
4	*2412.00	92.4 AV			2.05 H	278	98.20	-5.80
5	4824.00	50.1 PK	74.0	-23.9	1.43 H	222	46.68	3.42
6	4824.00	43.3 AV	54.0	-10.7	1.43 H	222	39.88	3.42

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.1 PK	74.0	-9.9	1.41 V	213	69.97	-5.87
2	2390.00	53.1 AV	54.0	-0.9	1.41 V	213	58.97	-5.87
3	*2412.00	110.4 PK			1.33 V	232	116.20	-5.80
4	*2412.00	101.8 AV			1.33 V	232	107.60	-5.80
5	4824.00	49.9 PK	74.0	-24.1	1.49 V	114	46.48	3.42
6	4824.00	43.3 AV	54.0	-10.7	1.49 V	114	39.88	3.42

**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.

<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	62.3 PK	74.0	-11.7	2.06 H	276	68.17	-5.87
2	2390.00	45.0 AV	54.0	-9.0	2.06 H	276	50.87	-5.87
3	*2437.00	103.2 PK			2.06 H	276	108.90	-5.70
4	*2437.00	94.4 AV			2.06 H	276	100.10	-5.70
5	2483.50	61.5 PK	74.0	-12.5	2.06 H	276	66.99	-5.49
6	2483.50	44.8 AV	54.0	-9.2	2.06 H	276	50.29	-5.49
7	4874.00	49.0 PK	74.0	-25.0	1.43 H	213	45.60	3.40
8	4874.00	42.7 AV	54.0	-11.3	1.43 H	213	39.30	3.40
9	7311.00	53.6 PK	74.0	-20.4	2.47 H	129	45.84	7.76
10	7311.00	46.1 AV	54.0	-7.9	2.47 H	129	38.34	7.76

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.1 PK	74.0	-11.9	1.52 V	174	67.97	-5.87
2	2390.00	44.9 AV	54.0	-9.1	1.52 V	174	50.77	-5.87
3	*2437.00	112.3 PK			1.66 V	174	118.00	-5.70
4	*2437.00	103.7 AV			1.66 V	174	109.40	-5.70
5	2483.50	70.1 PK	74.0	-3.9	1.52 V	174	75.59	-5.49
6	2483.50	53.6 AV	54.0	-0.4	1.52 V	174	59.09	-5.49
7	4874.00	49.5 PK	74.0	-24.5	1.44 V	110	46.10	3.40
8	4874.00	42.8 AV	54.0	-11.2	1.44 V	110	39.40	3.40
9	7311.00	53.9 PK	74.0	-20.1	1.35 V	123	46.14	7.76
10	7311.00	46.0 AV	54.0	-8.0	1.35 V	123	38.24	7.76

**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.

<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	100.5 PK			2.06 H	274	106.09	-5.59
2	*2462.00	92.4 AV			2.06 H	274	97.99	-5.59
3	2483.50	56.3 PK	74.0	-17.7	2.06 H	274	61.79	-5.49
4	2483.50	43.9 AV	54.0	-10.1	2.06 H	274	49.39	-5.49
5	4924.00	49.6 PK	74.0	-24.4	1.33 H	228	46.21	3.39
6	4924.00	43.0 AV	54.0	-11.0	1.33 H	228	39.61	3.39
7	7386.00	53.7 PK	74.0	-20.3	2.46 H	112	45.65	8.05
8	7386.00	46.2 AV	54.0	-7.8	2.46 H	112	38.15	8.05

**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	*2462.00	109.4 PK			1.51 V	215	114.99	-5.59
2	*2462.00	101.0 AV			1.51 V	215	106.59	-5.59
3	2483.50	65.6 PK	74.0	-8.4	1.68 V	189	71.09	-5.49
4	2483.50	53.1 AV	54.0	-0.9	1.68 V	189	58.59	-5.49
5	4924.00	49.4 PK	74.0	-24.6	1.49 V	114	46.01	3.39
6	4924.00	42.6 AV	54.0	-11.4	1.49 V	114	39.21	3.39
7	7386.00	54.0 PK	74.0	-20.0	1.30 V	124	45.95	8.05
8	7386.00	46.2 AV	54.0	-7.8	1.30 V	124	38.15	8.05

**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
5. " \* ": Fundamental frequency.

**802.11n (HT20)**

<b>CHANNEL</b>	TX Channel 1	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	54.9 PK	74.0	-19.1	2.05 H	277	60.77	-5.87
2	2390.00	43.9 AV	54.0	-10.1	2.05 H	277	49.77	-5.87
3	*2412.00	101.5 PK			2.05 H	277	107.30	-5.80
4	*2412.00	92.7 AV			2.05 H	277	98.50	-5.80
5	4824.00	50.0 PK	74.0	-24.0	1.32 H	201	46.58	3.42
6	4824.00	43.3 AV	54.0	-10.7	1.32 H	201	39.88	3.42

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.2 PK	74.0	-9.8	1.43 V	213	70.07	-5.87
2	2390.00	53.3 AV	54.0	-0.7	1.43 V	213	59.17	-5.87
3	*2412.00	110.6 PK			1.28 V	247	116.40	-5.80
4	*2412.00	102.0 AV			1.28 V	247	107.80	-5.80
5	4824.00	49.3 PK	74.0	-24.7	1.39 V	97	45.88	3.42
6	4824.00	42.6 AV	54.0	-11.4	1.39 V	97	39.18	3.42

**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.

<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	62.1 PK	74.0	-11.9	2.15 H	257	67.97	-5.87
2	2390.00	44.8 AV	54.0	-9.2	2.15 H	257	50.67	-5.87
3	*2437.00	103.4 PK			2.15 H	257	109.10	-5.70
4	*2437.00	94.9 AV			2.15 H	257	100.60	-5.70
5	2483.50	60.0 PK	74.0	-14.0	2.15 H	257	65.49	-5.49
6	2483.50	43.7 AV	54.0	-10.3	2.15 H	257	49.19	-5.49
7	4874.00	50.1 PK	74.0	-23.9	1.33 H	213	46.70	3.40
8	4874.00	43.4 AV	54.0	-10.6	1.33 H	213	40.00	3.40
9	7311.00	53.0 PK	74.0	-21.0	2.47 H	125	45.24	7.76
10	7311.00	45.5 AV	54.0	-8.5	2.47 H	125	37.74	7.76

**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	61.8 PK	74.0	-12.2	1.54 V	170	67.67	-5.87
2	2390.00	44.5 AV	54.0	-9.5	1.54 V	170	50.37	-5.87
3	*2437.00	112.6 PK			1.60 V	173	118.30	-5.70
4	*2437.00	104.0 AV			1.60 V	173	109.70	-5.70
5	2483.50	69.4 PK	74.0	-4.6	1.57 V	187	74.89	-5.49
6	2483.50	53.1 AV	54.0	-0.9	1.57 V	187	58.59	-5.49
7	4874.00	48.9 PK	74.0	-25.1	1.41 V	104	45.50	3.40
8	4874.00	42.5 AV	54.0	-11.5	1.41 V	104	39.10	3.40
9	7311.00	53.8 PK	74.0	-20.2	1.41 V	123	46.04	7.76
10	7311.00	46.0 AV	54.0	-8.0	1.41 V	123	38.24	7.76

**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.

<b>CHANNEL</b>	TX Channel 11	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	99.3 PK			2.10 H	263	104.89	-5.59
2	*2462.00	91.0 AV			2.10 H	263	96.59	-5.59
3	2483.50	56.0 PK	74.0	-18.0	2.10 H	263	61.49	-5.49
4	2483.50	44.3 AV	54.0	-9.7	2.10 H	263	49.79	-5.49
5	4924.00	49.5 PK	74.0	-24.5	1.38 H	215	46.11	3.39
6	4924.00	42.7 AV	54.0	-11.3	1.38 H	215	39.31	3.39
7	7386.00	52.9 PK	74.0	-21.1	2.52 H	143	44.85	8.05
8	7386.00	45.4 AV	54.0	-8.6	2.52 H	143	37.35	8.05

**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	*2462.00	108.3 PK			1.07 V	210	113.89	-5.59
2	*2462.00	100.2 AV			1.07 V	210	105.79	-5.59
3	2483.50	65.1 PK	74.0	-8.9	1.17 V	216	70.59	-5.49
4	2483.50	53.2 AV	54.0	-0.8	1.17 V	216	58.69	-5.49
5	4924.00	49.8 PK	74.0	-24.2	1.49 V	116	46.41	3.39
6	4924.00	43.2 AV	54.0	-10.8	1.49 V	116	39.81	3.39
7	7386.00	54.6 PK	74.0	-19.4	1.35 V	116	46.55	8.05
8	7386.00	46.5 AV	54.0	-7.5	1.35 V	116	38.45	8.05

**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
5. " \* ": Fundamental frequency.

802.11n (HT40)

<b>CHANNEL</b>	TX Channel 3	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	55.2 PK	74.0	-18.8	2.01 H	270	58.39	-3.19
2	2390.00	44.2 AV	54.0	-9.8	2.01 H	270	47.39	-3.19
3	*2422.00	95.7 PK			2.13 H	275	98.79	-3.09
4	*2422.00	86.2 AV			2.13 H	275	89.29	-3.09
5	4844.00	48.9 PK	74.0	-25.1	1.33 H	188	42.91	5.99
6	4844.00	42.1 AV	54.0	-11.9	1.33 H	188	36.11	5.99
7	7266.00	53.1 PK	74.0	-20.9	2.49 H	150	42.21	10.89
8	7266.00	45.3 AV	54.0	-8.7	2.49 H	150	34.41	10.89

**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	67.6 PK	74.0	-6.4	1.78 V	191	70.79	-3.19
2	2390.00	53.3 AV	54.0	-0.7	1.78 V	191	56.49	-3.19
3	*2422.00	104.6 PK			1.83 V	154	107.69	-3.09
4	*2422.00	95.9 AV			1.83 V	154	98.99	-3.09
5	4844.00	49.3 PK	74.0	-24.7	1.34 V	89	43.31	5.99
6	4844.00	42.5 AV	54.0	-11.5	1.34 V	89	36.51	5.99
7	7266.00	53.5 PK	74.0	-20.5	1.36 V	143	42.61	10.89
8	7266.00	45.5 AV	54.0	-8.5	1.36 V	143	34.61	10.89

**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.

<b>CHANNEL</b>	TX Channel 6	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	62.2 PK	74.0	-11.8	2.12 H	244	65.39	-3.19
2	2390.00	44.7 AV	54.0	-9.3	2.12 H	244	47.89	-3.19
3	*2437.00	96.4 PK			2.09 H	274	99.44	-3.04
4	*2437.00	86.9 AV			2.09 H	274	89.94	-3.04
5	2483.50	63.8 PK	74.0	-10.2	2.09 H	266	66.67	-2.87
6	2483.50	45.7 AV	54.0	-8.3	2.09 H	266	48.57	-2.87
7	4874.00	48.7 PK	74.0	-25.3	1.32 H	184	42.65	6.05
8	4874.00	41.8 AV	54.0	-12.2	1.32 H	184	35.75	6.05
9	7311.00	53.6 PK	74.0	-20.4	2.43 H	142	42.66	10.94
10	7311.00	45.6 AV	54.0	-8.4	2.43 H	142	34.66	10.94

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.3 PK	74.0	-9.7	1.58 V	193	67.49	-3.19
2	2390.00	50.2 AV	54.0	-3.8	1.58 V	193	53.39	-3.19
3	*2437.00	105.1 PK			1.49 V	156	108.14	-3.04
4	*2437.00	96.4 AV			1.49 V	156	99.44	-3.04
5	2483.50	68.2 PK	74.0	-5.8	1.57 V	158	71.07	-2.87
<b>6</b>	<b>2483.50</b>	<b>53.7 AV</b>	<b>54.0</b>	<b>-0.3</b>	<b>1.57 V</b>	<b>158</b>	<b>56.57</b>	<b>-2.87</b>
7	4874.00	49.9 PK	74.0	-24.1	1.39 V	103	43.85	6.05
8	4874.00	43.0 AV	54.0	-11.0	1.39 V	103	36.95	6.05
9	7311.00	54.0 PK	74.0	-20.0	1.29 V	120	43.06	10.94
10	7311.00	45.9 AV	54.0	-8.1	1.29 V	120	34.96	10.94

**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.



<b>CHANNEL</b>	TX Channel 9	<b>DETECTOR FUNCTION</b>	Peak (PK)
<b>FREQUENCY RANGE</b>	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	94.5 PK			2.11 H	254	97.48	-2.98
2	*2452.00	84.9 AV			2.11 H	254	87.88	-2.98
3	2483.50	54.5 PK	74.0	-19.5	2.08 H	266	57.37	-2.87
4	2483.50	43.7 AV	54.0	-10.3	2.08 H	266	46.57	-2.87
5	4904.00	49.1 PK	74.0	-24.9	1.35 H	189	43.02	6.08
6	4904.00	42.2 AV	54.0	-11.8	1.35 H	189	36.12	6.08
7	7356.00	53.0 PK	74.0	-21.0	2.55 H	140	41.78	11.22
8	7356.00	44.9 AV	54.0	-9.1	2.55 H	140	33.68	11.22

**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	103.2 PK			1.38 V	156	106.18	-2.98
2	*2452.00	94.5 AV			1.38 V	156	97.48	-2.98
3	2483.50	66.4 PK	74.0	-7.6	1.46 V	188	69.27	-2.87
4	<b>2483.50</b>	<b>53.7 AV</b>	<b>54.0</b>	<b>-0.3</b>	<b>1.46 V</b>	<b>188</b>	<b>56.57</b>	<b>-2.87</b>
5	4904.00	49.5 PK	74.0	-24.5	1.36 V	97	43.42	6.08
6	4904.00	43.0 AV	54.0	-11.0	1.36 V	97	36.92	6.08
7	7356.00	53.6 PK	74.0	-20.4	1.29 V	129	42.38	11.22
8	7356.00	45.9 AV	54.0	-8.1	1.29 V	129	34.68	11.22

**REMARKS:**

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

**Below 1GHz Data:**
**802.11n (HT20)**

<b>CHANNEL</b>	TX Channel 13	<b>DETECTOR FUNCTION</b>	Quasi-Peak (QP)
<b>FREQUENCY RANGE</b>	30MHz ~ 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	166.31	38.1 QP	43.5	-5.4	2.00 H	107	51.42	-13.33
2	250.00	39.7 QP	46.0	-6.3	1.50 H	256	53.75	-14.01
3	366.98	37.3 QP	46.0	-8.7	1.00 H	298	47.51	-10.23
4	625.00	40.4 QP	46.0	-5.6	1.00 H	360	44.11	-3.74
5	750.03	39.3 QP	46.0	-6.7	1.00 H	308	40.52	-1.21
6	875.02	42.6 QP	46.0	-3.5	1.50 H	8	42.31	0.24

**ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M**

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	58.71	34.9 QP	40.0	-5.1	1.00 V	48	48.49	-13.55
2	139.71	40.1 QP	43.5	-3.4	1.00 V	208	53.51	-13.41
3	161.92	37.7 QP	43.5	-5.8	2.00 V	300	50.70	-13.03
4	194.08	37.7 QP	43.5	-5.8	2.00 V	201	53.49	-15.83
5	625.00	39.0 QP	46.0	-7.0	1.00 V	67	42.74	-3.74
6	875.00	36.9 QP	46.0	-9.1	1.00 V	3	36.62	0.25

**REMARKS:**

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

## 4.2 Conducted Emission Measurement

### 4.2.1 Limits of Conducted Emission Measurement

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

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

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

### 4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS 30	847124/029	Oct. 22, 2014	Oct. 21, 2015
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK-8127	8127-522	Sep. 15, 2014	Sep. 14, 2015
Line-Impedance Stabilization Network (for Peripheral) ROHDE & SCHWARZ	ENV216	100071	Nov. 10, 2014	Nov. 09, 2015
RF Cable (JYEBAO)	5D-FB	COCCAB-001	Mar. 09, 2015	Mar. 08, 2016
50 ohms Terminator	N/A	EMC-03	Sep. 22, 2014	Sep. 21, 2015
50 ohms Terminator	N/A	EMC-02	Sep. 30, 2014	Sep. 29, 2015
Software ADT	BV ADT_Cond_V7.3.7.3	NA	NA	NA

**Note:**

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
3. The VCCI Con C Registration No. is C-3611.
4. Tested Date: Apr. 27, 2015

4.2.3 Test Procedures

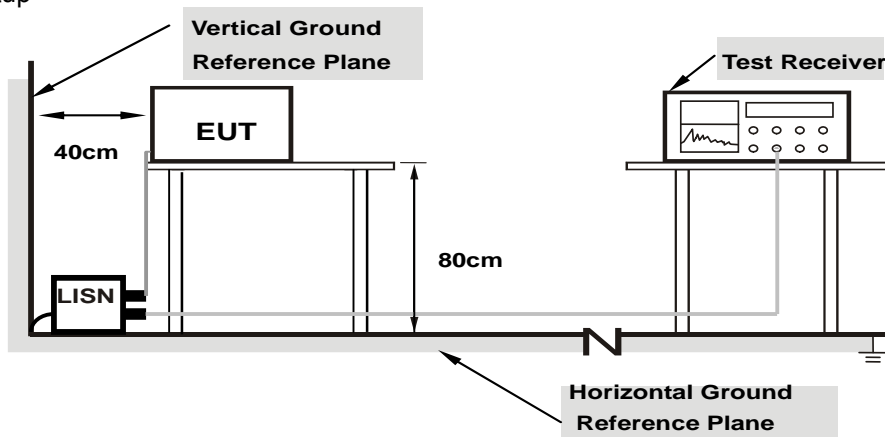
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

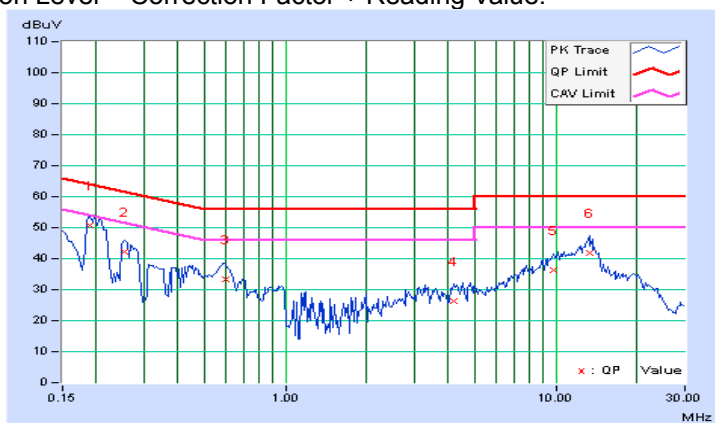
4.2.7 Test Results(Mode 1)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor (dB)	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.
1	0.18906	0.09	50.80	36.08	50.89	36.17	64.08	54.08	-13.19	-17.91
2	0.25547	0.09	42.11	27.97	42.20	28.06	61.58	51.58	-19.37	-23.51
3	0.59922	0.11	33.26	20.53	33.37	20.64	56.00	46.00	-22.63	-25.36
4	4.21094	0.23	25.99	18.07	26.22	18.30	56.00	46.00	-29.78	-27.70
5	9.84375	0.44	35.83	28.83	36.27	29.27	60.00	50.00	-23.73	-20.73
6	13.30469	0.53	41.14	35.15	41.67	35.68	60.00	50.00	-18.33	-14.32

REMARKS:

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

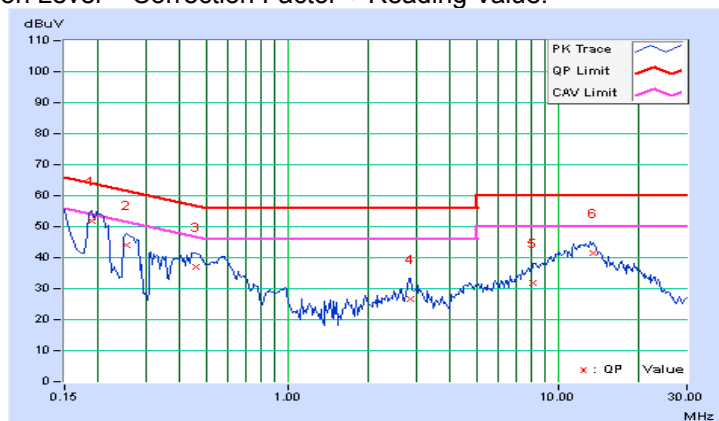


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.18906	0.08	51.93	36.97	52.01	37.05	64.08	54.08	-12.07	-17.03
2	0.25547	0.09	44.03	30.09	44.12	30.18	61.58	51.58	-17.46	-21.40
3	0.45859	0.10	37.04	25.54	37.14	25.64	56.72	46.72	-19.58	-21.08
4	2.85547	0.20	26.45	17.44	26.65	17.64	56.00	46.00	-29.35	-28.36
5	8.05859	0.39	31.62	24.89	32.01	25.28	60.00	50.00	-27.99	-24.72
6	13.58984	0.56	40.89	34.48	41.45	35.04	60.00	50.00	-18.55	-14.96

**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.



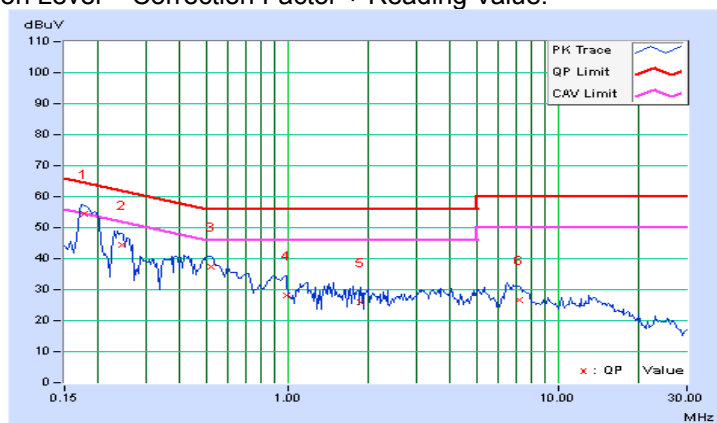
4.2.8 Test Results(Mode 2)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor (dB)	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.
1	0.17734	0.09	54.26	41.13	54.35	41.22	64.61	54.61	-10.26	-13.39
2	0.24375	0.09	44.33	30.86	44.42	30.95	61.97	51.97	-17.55	-21.02
3	0.52109	0.11	37.20	26.99	37.31	27.10	56.00	46.00	-18.69	-18.90
4	0.99375	0.13	28.09	17.71	28.22	17.84	56.00	46.00	-27.78	-28.16
5	1.86719	0.16	25.79	19.19	25.95	19.35	56.00	46.00	-30.05	-26.65
6	7.20703	0.34	26.46	21.05	26.80	21.39	60.00	50.00	-33.20	-28.61

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.

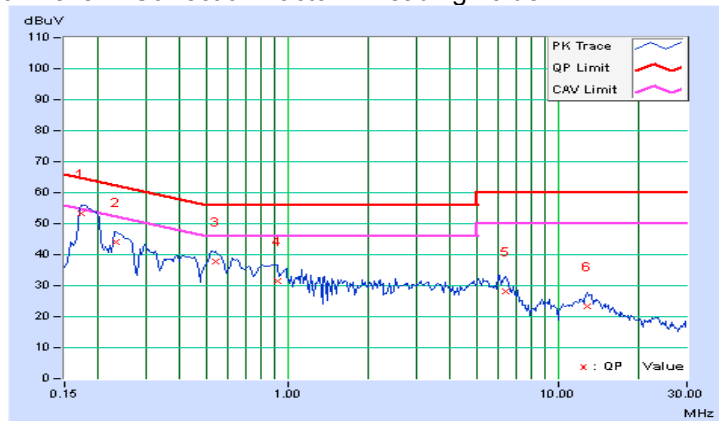


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	
1	0.17344	0.08	53.34	36.81	53.42	36.89	64.79	54.79	-11.37	-17.90
2	0.23203	0.08	44.01	28.41	44.09	28.49	62.38	52.38	-18.28	-23.88
3	0.54453	0.11	37.50	25.44	37.61	25.55	56.00	46.00	-18.39	-20.45
4	0.91953	0.13	31.32	20.35	31.45	20.48	56.00	46.00	-24.55	-25.52
5	6.37109	0.32	27.71	21.85	28.03	22.17	60.00	50.00	-31.97	-27.83
6	12.83203	0.54	22.62	17.25	23.16	17.79	60.00	50.00	-36.84	-32.21

**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.



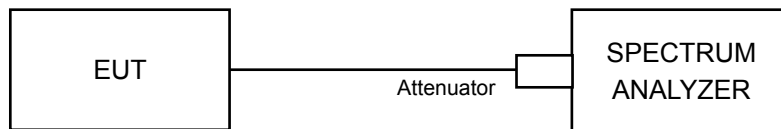


### 4.3 6dB Bandwidth Measurement

#### 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
1	2412	8.13	0.5	PASS
6	2437	8.11	0.5	PASS
11	2462	8.12	0.5	PASS

**802.11g**

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		CHAIN 0	CHAIN 1		
1	2412	15.15	15.17	0.5	PASS
6	2437	15.14	15.13	0.5	PASS
11	2462	15.18	15.17	0.5	PASS

**802.11n (HT20)**

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		CHAIN 0	CHAIN 1		
1	2412	15.18	15.18	0.5	Pass
6	2437	15.16	16.36	0.5	Pass
11	2462	15.17	16.34	0.5	Pass

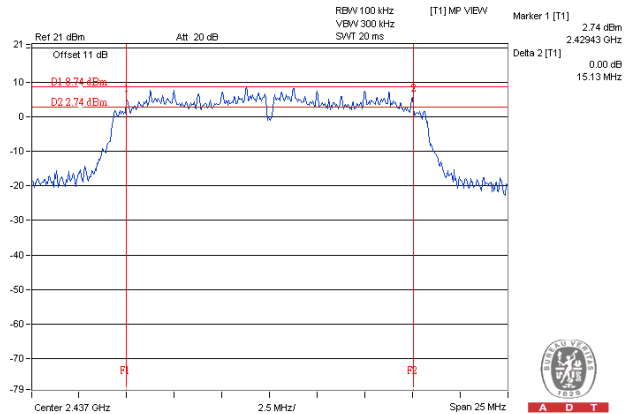
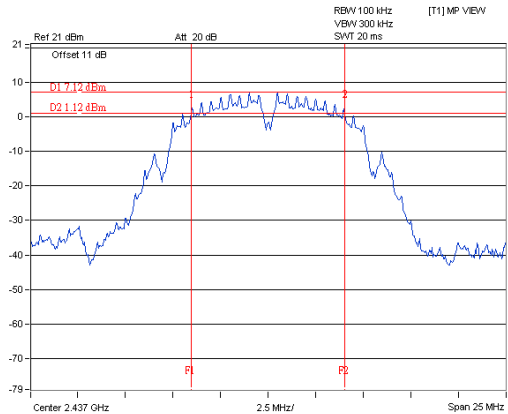
**802.11n (HT40)**

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		CHAIN 0	CHAIN 1		
3	2422	36.18	36.44	0.5	Pass
6	2437	36.43	36.17	0.5	Pass
9	2452	36.43	36.45	0.5	Pass

Spectrum Plot of Worst Value

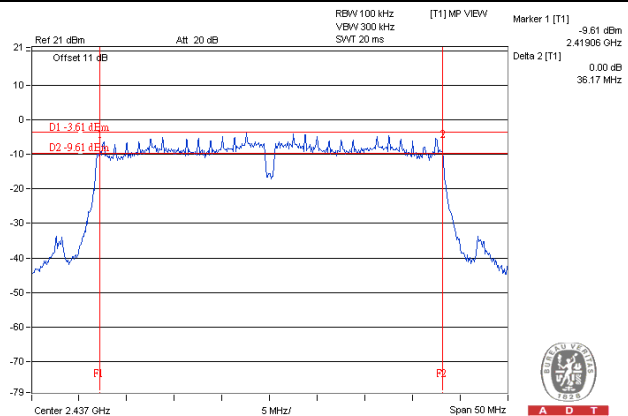
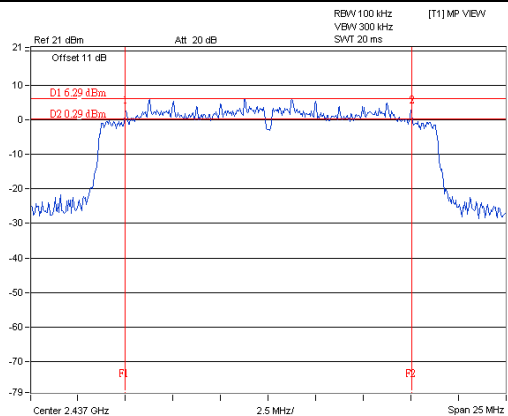
802.11b / CH 6

802.11g: CHAIN 1 / CH6



802.11n (HT20): CHAIN 0 / CH6

802.11n (HT40) : CHAIN 1 / CH6

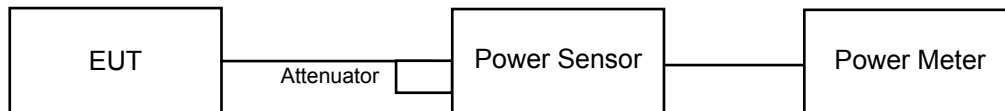


#### 4.4 Conducted Output Power Measurement

##### 4.4.1 Limits of Conducted Output Power Measurement

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

##### 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

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	106.905	20.29	30	Pass
6	2437	101.625	20.07	30	Pass
11	2462	142.561	21.54	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	21.83	22.24	319.899	25.05	30	Pass
6	2437	24.88	25.71	680.002	28.33	30	Pass
11	2462	18.98	20.38	188.212	22.75	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	19.88	20.36	205.918	23.14	30	Pass
6	2437	24.69	25.47	646.813	28.11	30	Pass
11	2462	18.23	19.59	157.518	21.97	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	17.99	19.35	149.05	21.73	30	Pass
6	2437	18.51	21.01	197.141	22.95	30	Pass
9	2452	16.71	19.65	139.138	21.43	30	Pass

**FOR AVERAGE POWER**
**802.11b**

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	44.978	16.53
6	2437	43.652	16.40
11	2462	60.395	17.81

**802.11g**

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	11.78	12.88	34.475	15.38
6	2437	18.67	20.04	174.546	22.42
11	2462	9.70	11.35	22.979	13.61

**802.11n (HT20)**

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	10.81	12.24	28.799	14.59
6	2437	17.79	18.77	135.453	21.32
11	2462	9.84	11.13	22.610	13.54

**802.11n (HT40)**

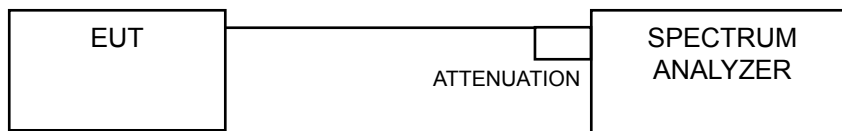
Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	10.26	11.80	25.753	14.11
6	2437	10.92	12.68	30.894	14.90
9	2452	9.23	10.87	20.593	13.14

## 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

Channel	Freq. (MHz)	PSD (dBm)	Limit (dBm)	Pass /Fail
1	2412	-7.07	8	Pass
6	2437	-8.12	8	Pass
11	2462	-6.36	8	Pass

##### 802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-14.96	3.01	-11.95	8	Pass
	6	2437	-7.22	3.01	-4.21	8	Pass
	11	2462	-16.33	3.01	-13.32	8	Pass
1	1	2412	-11.39	3.01	-8.38	8	Pass
	6	2437	-5.61	3.01	-2.60	8	Pass
	11	2462	-15.43	3.01	-12.42	8	Pass

**NOTE:** Directional gain =  $2\text{dBi} + 10\log(2) = 5.01\text{dBi} < 6\text{dBi}$  , so the power density limit shall not be reduced.

##### 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	-15.93	3.01	-12.92	8	Pass
	6	2437	-8.81	3.01	-5.80	8	Pass
	11	2462	-15.87	3.01	-12.86	8	Pass
1	1	2412	-13.74	3.01	-10.73	8	Pass
	6	2437	-6.43	3.01	-3.42	8	Pass
	11	2462	-15.42	3.01	-12.41	8	Pass

**NOTE:** Directional gain =  $2\text{dBi} + 10\log(2) = 5.01\text{dBi} < 6\text{dBi}$  , so the power density limit shall not be reduced.



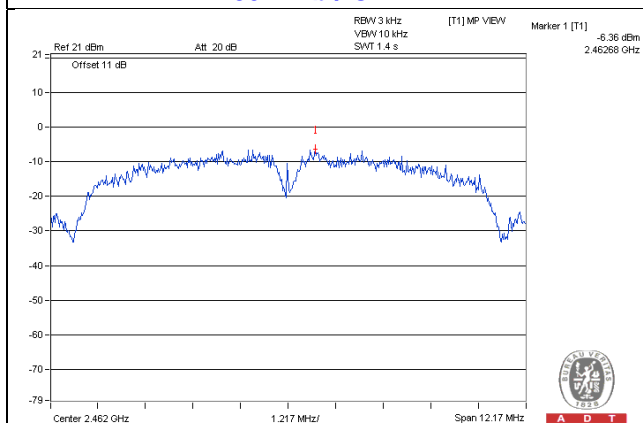
802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	3	2422	-19.20	3.01	-16.19	8	Pass
	6	2437	-18.25	3.01	-15.24	8	Pass
	9	2452	-19.11	3.01	-16.10	8	Pass
1	3	2422	-19.64	3.01	-16.63	8	Pass
	6	2437	-18.72	3.01	-15.71	8	Pass
	9	2452	-19.33	3.01	-16.32	8	Pass

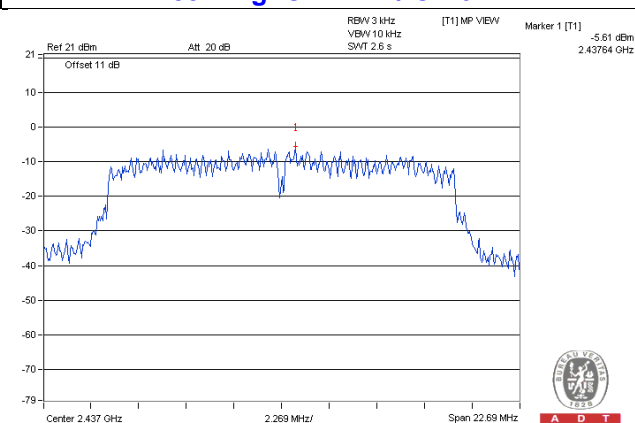
**NOTE:** Directional gain = 2dBi + 10log(2) = 5.01dBi < 6dBi , so the power density limit shall not be reduced.

Spectrum Plot of Worst Value

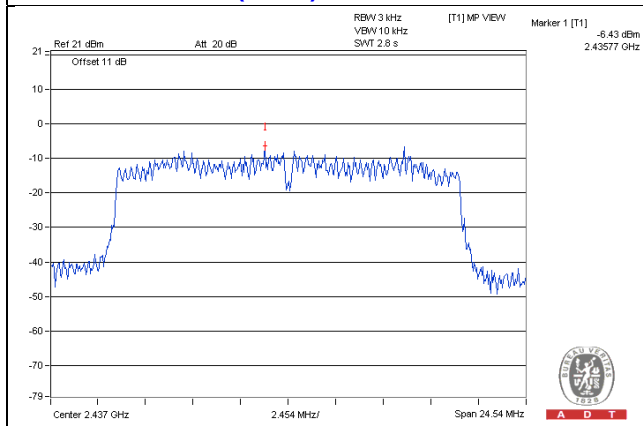
802.11b / CH 11



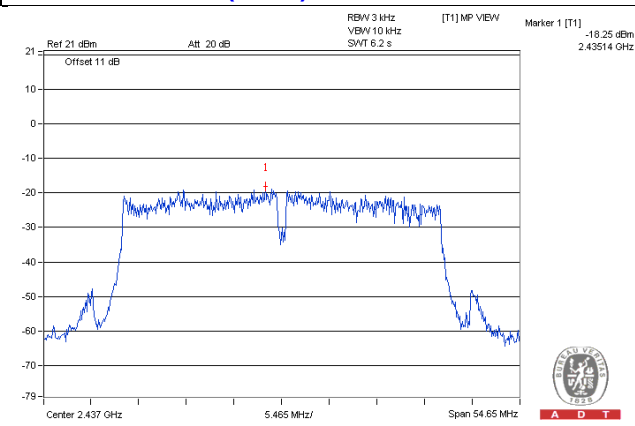
802.11g: CHAIN 1 / CH 6



802.11n (HT20): CHAIN 1 / CH 6



802.11n (HT40) : CHAIN 0 / CH 6

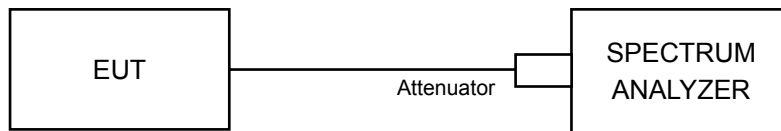


## 4.6 Conducted Out of Band Emission Measurement

### 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  $\geq$  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 OOB

1. Set RBW = 100 kHz.
2. Set VBW  $\geq$  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

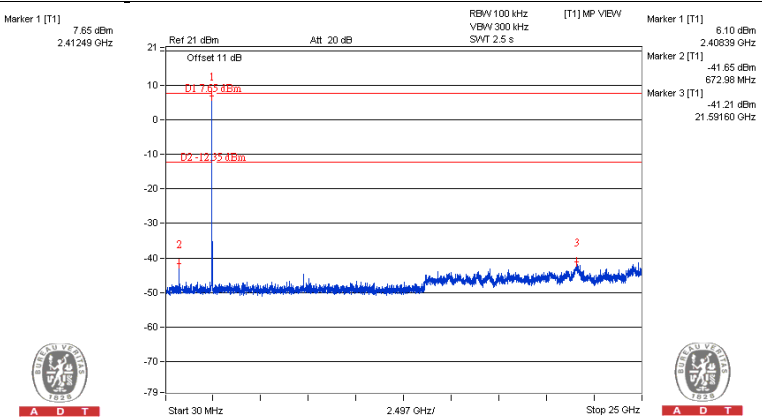
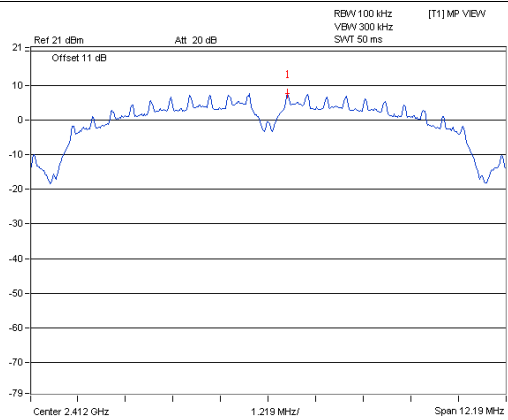
Same as Item 4.3.6

### 4.6.7 Test Results

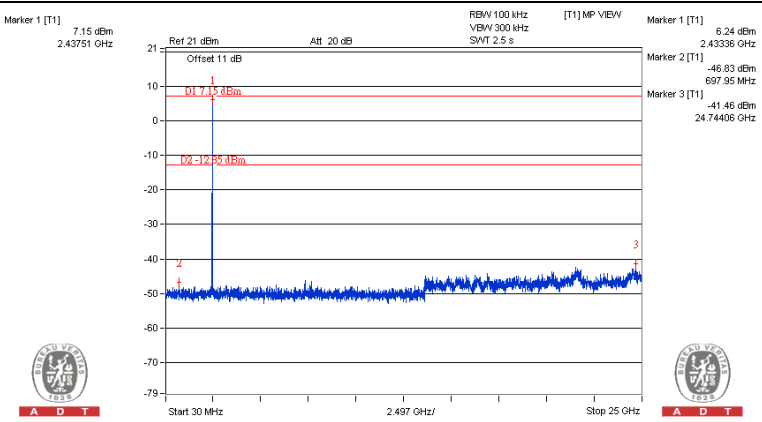
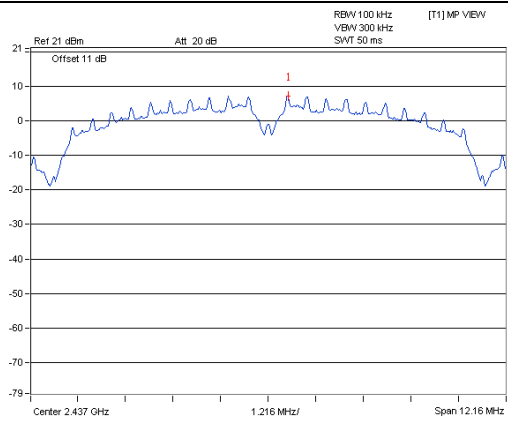
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

802.11b

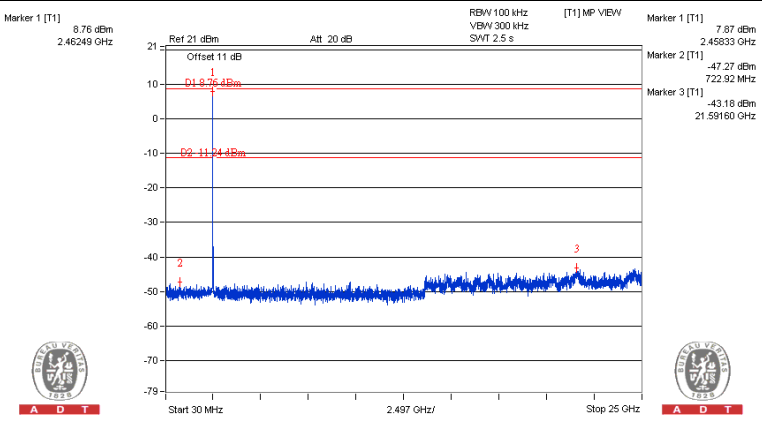
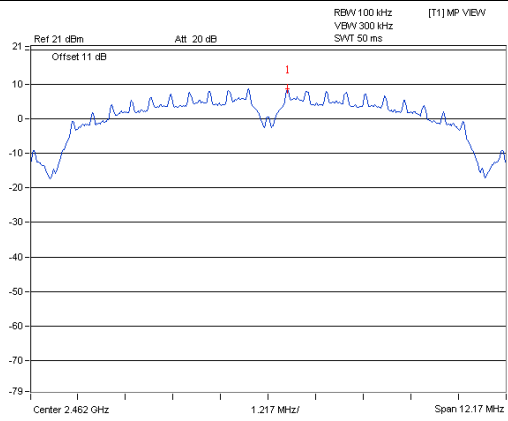
CH 1



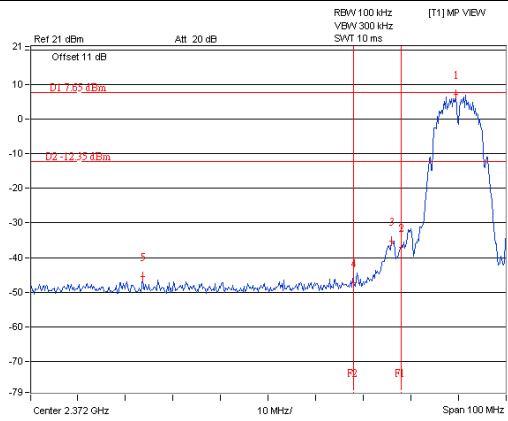
CH 6



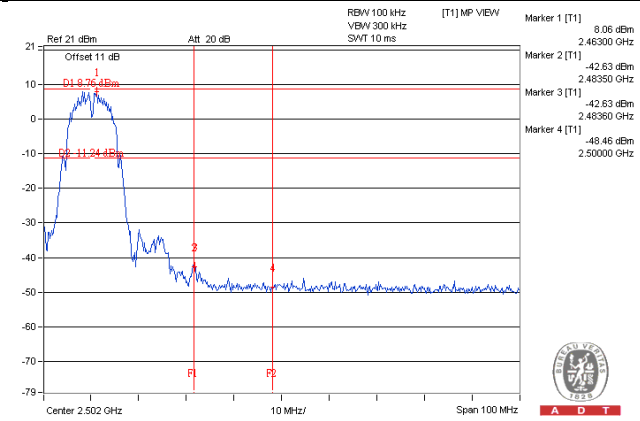
CH 11



CH 1 Band edge

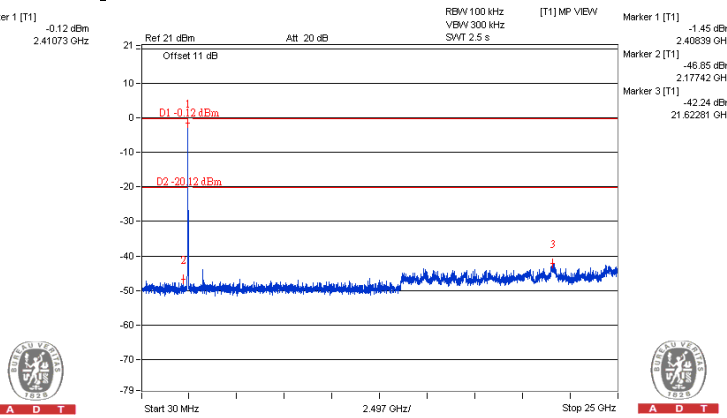
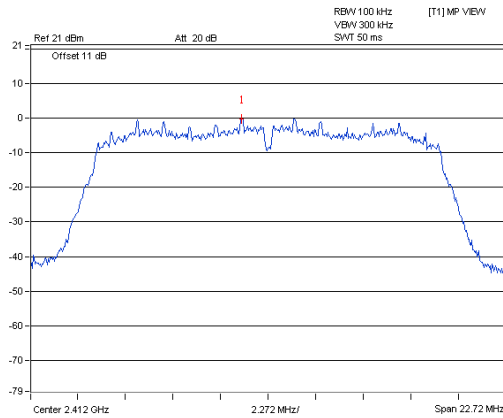


CH 11 Band edge

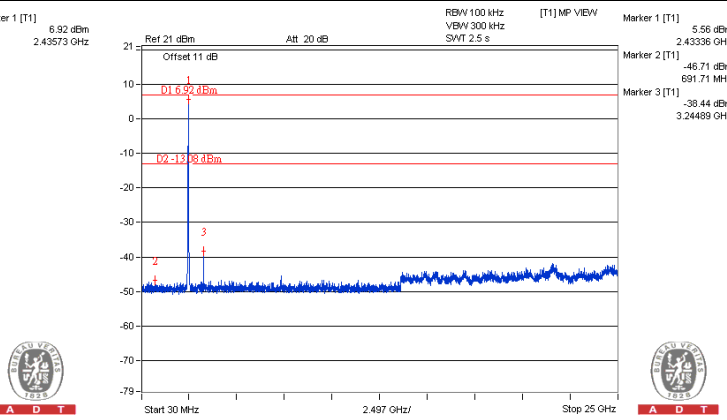
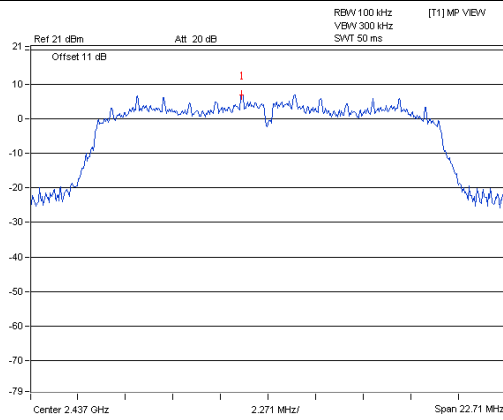


802.11g: CHAIN 0

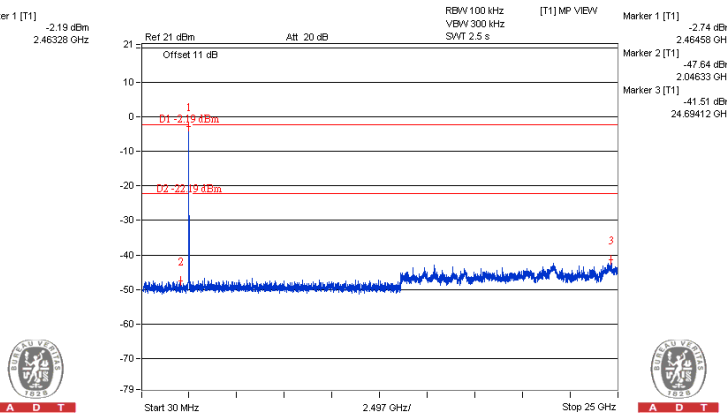
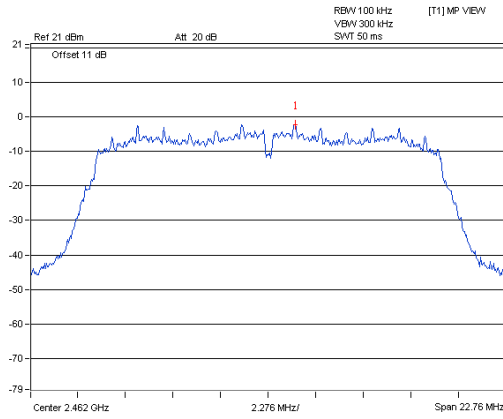
CH 1



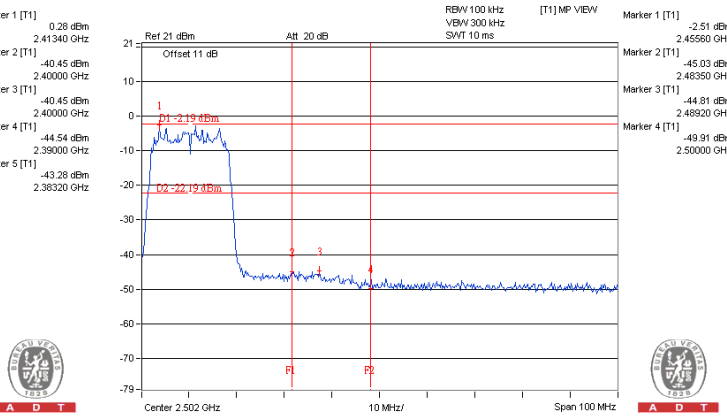
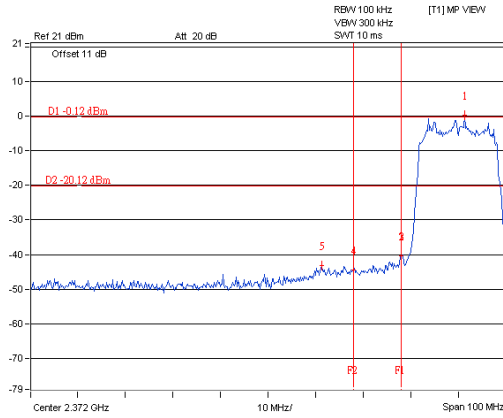
CH 6



CH 11

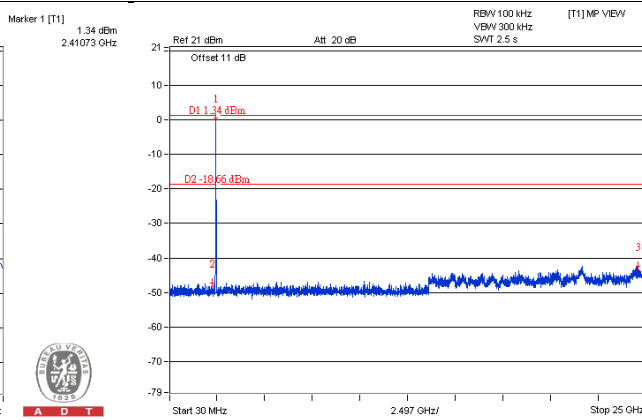
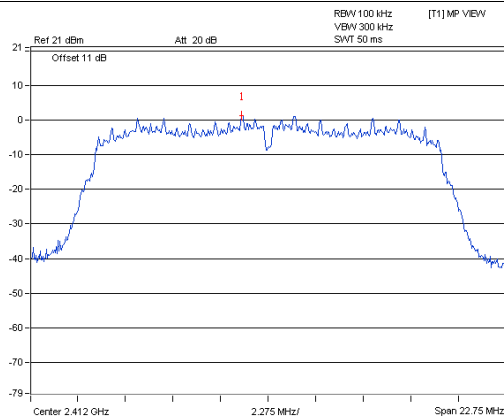


CH 1 Band edge

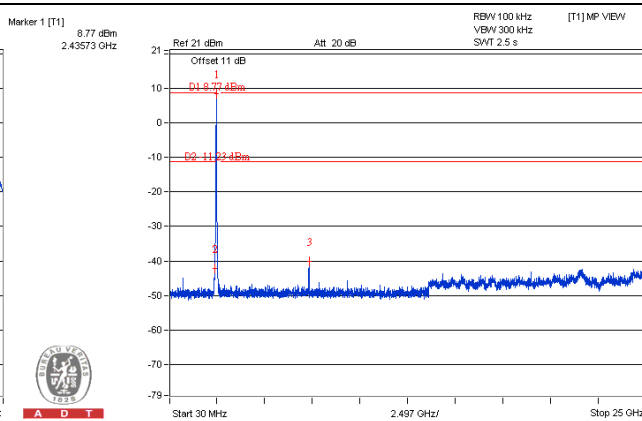
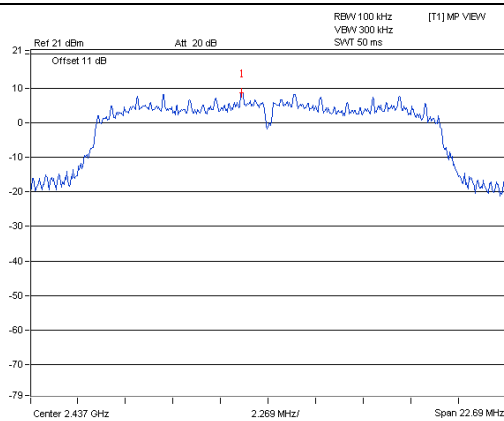


CHAIN 1

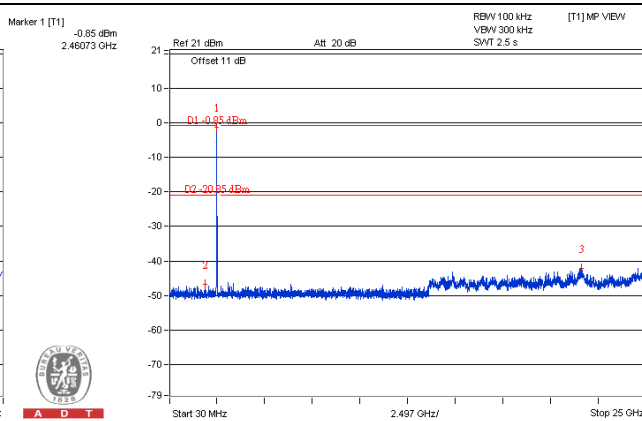
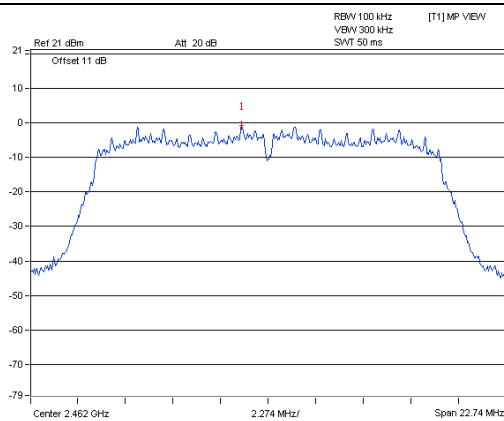
CH 1



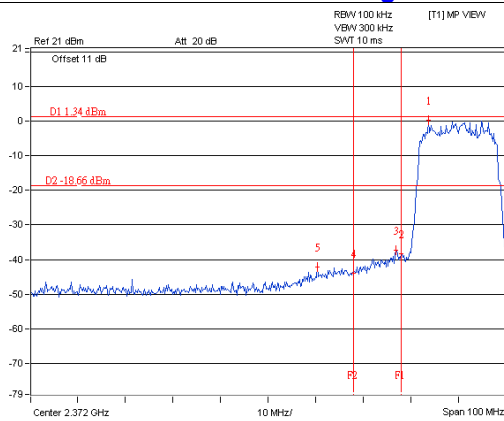
CH 6



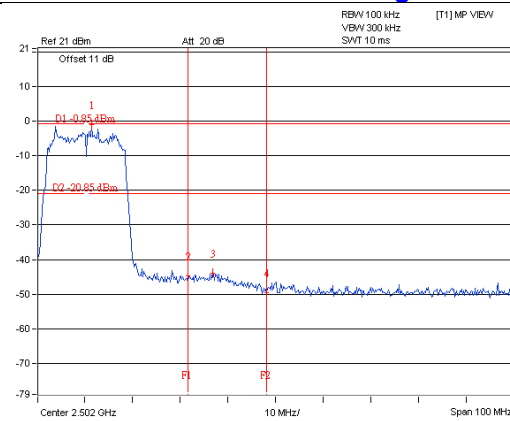
CH 11



CH 1 Band edge

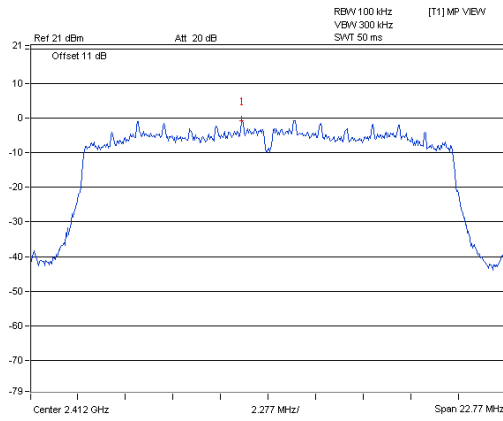


CH 11 Band edge

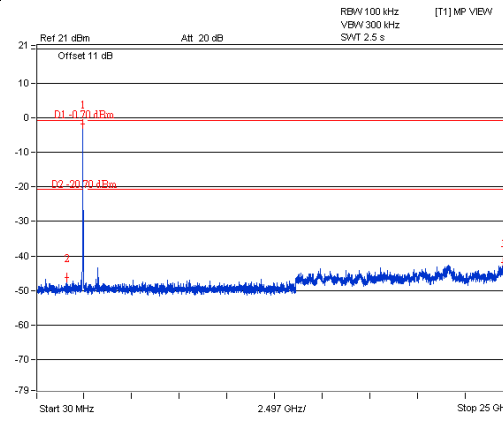


## 802.11n (HT20):CHAIN 0

## CH 1

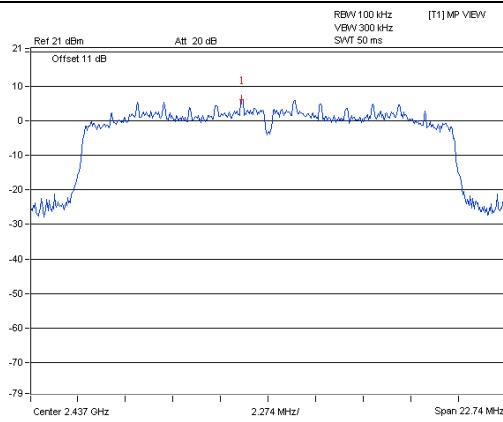


A D T

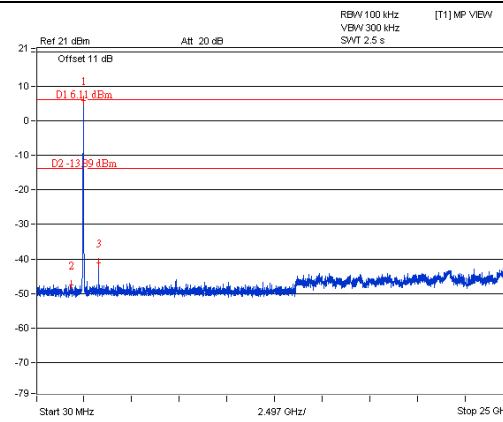


A D T

## CH 6

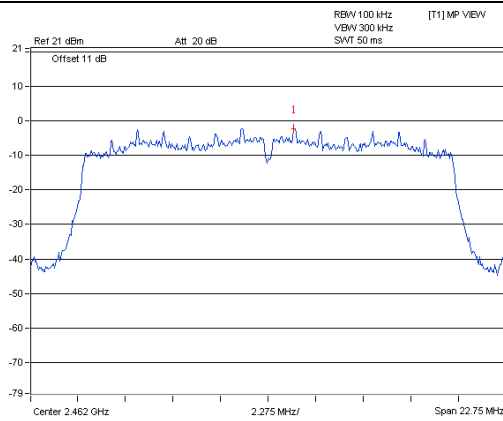


A D T

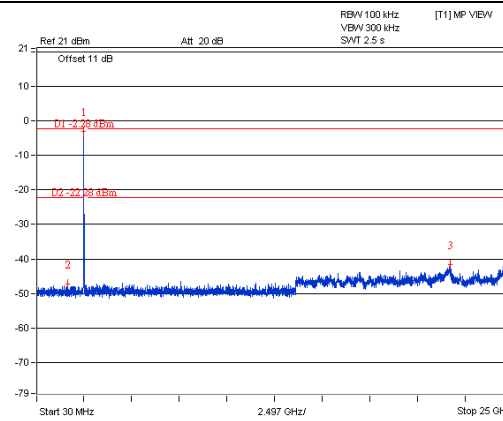


A D T

## CH 11

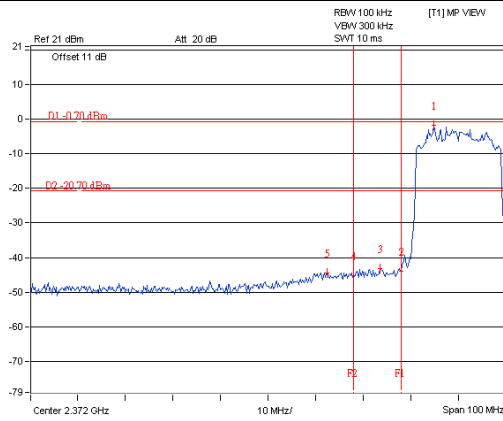


A D T



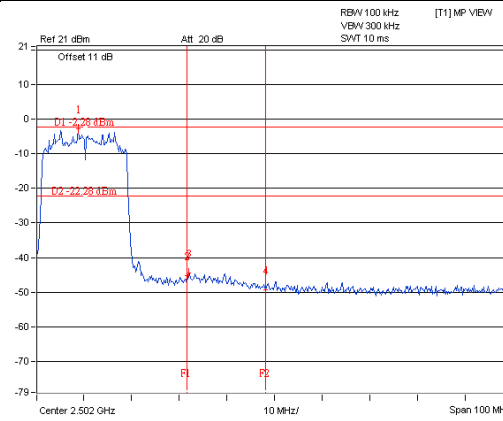
A D T

## CH 1 Band edge



A D T

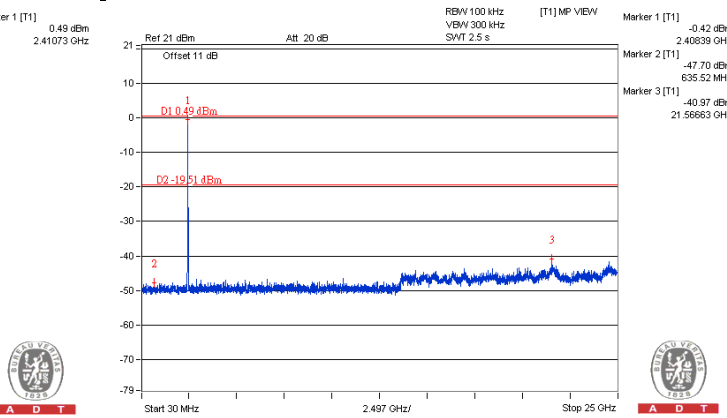
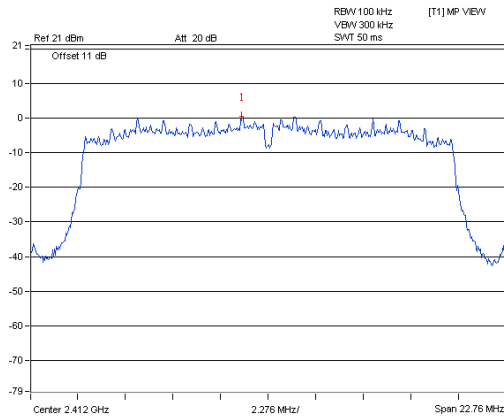
## CH 11 Band edge



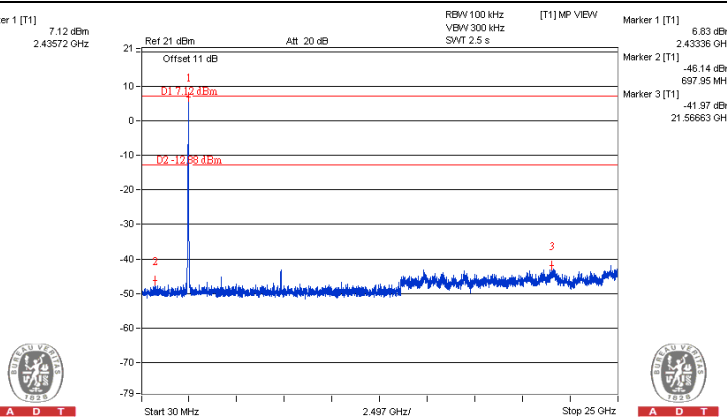
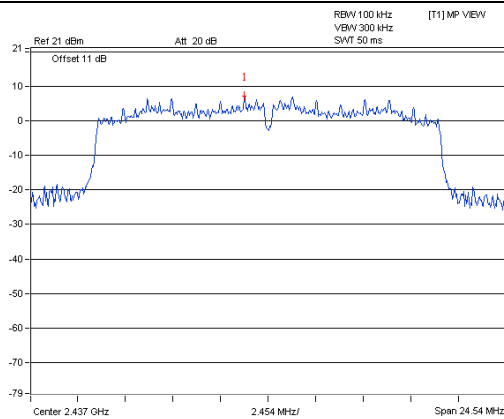
A D T

CHAIN 1

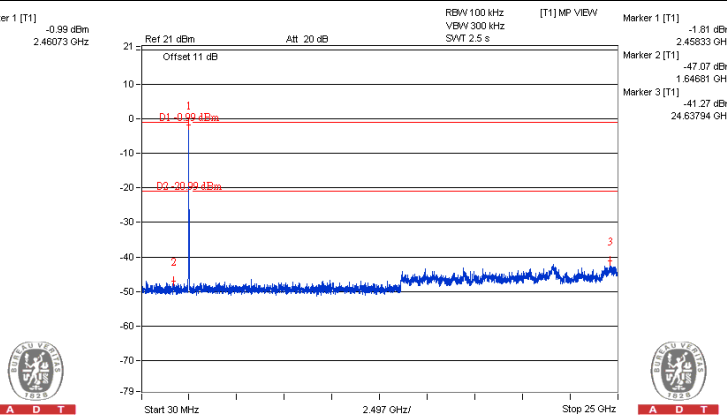
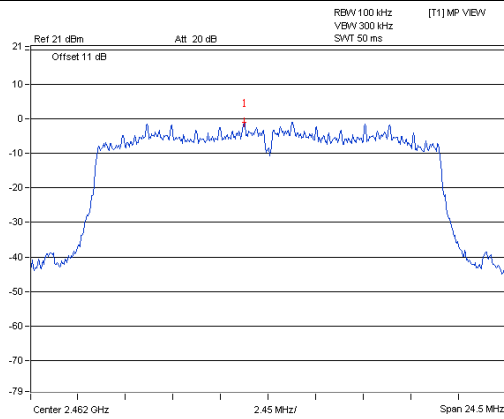
CH 1



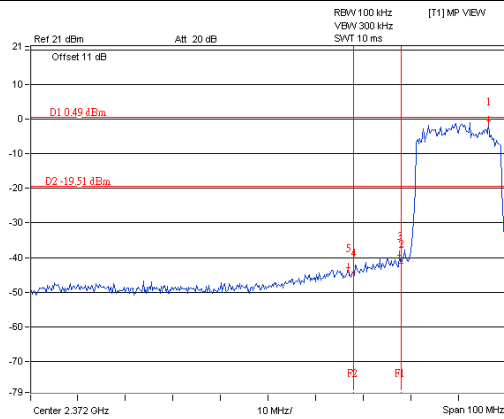
CH 6



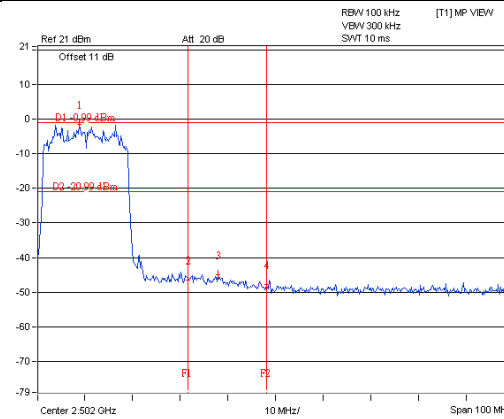
CH 11



CH 1 Band edge

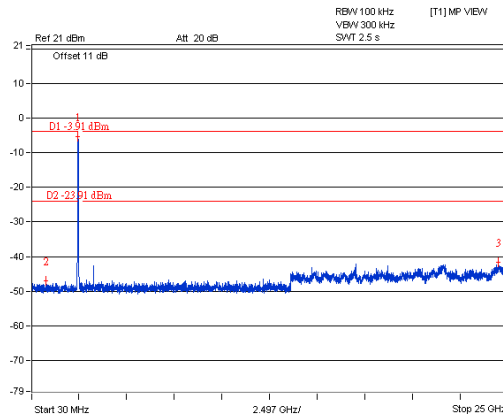
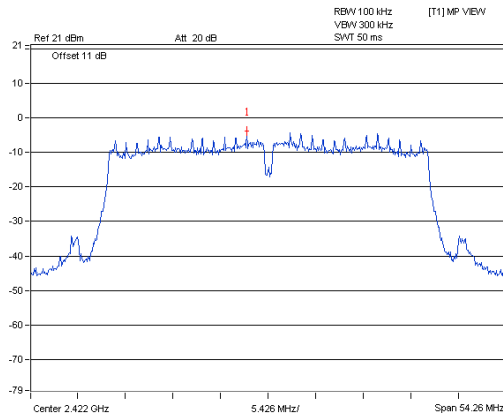


CH 11 Band edge

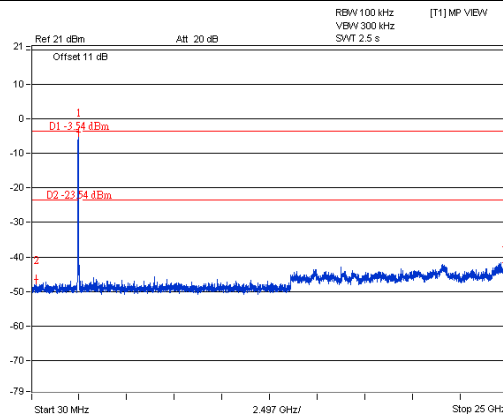
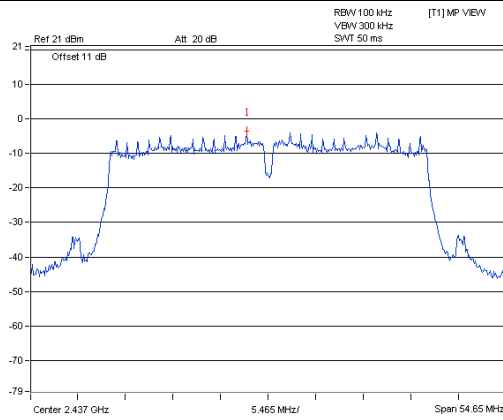


### 802.11n (HT40): CHAIN 0

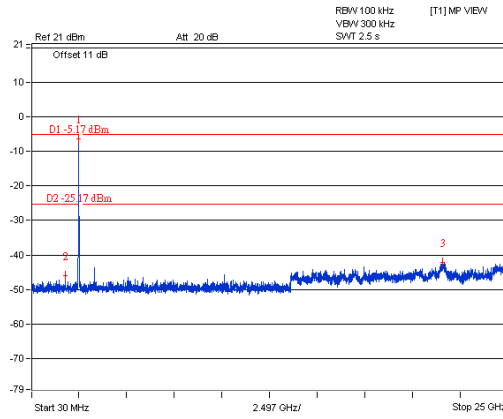
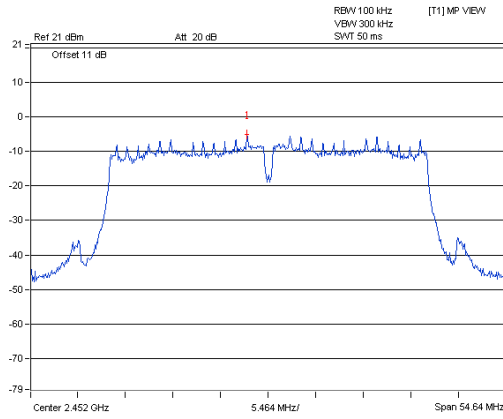
#### CH 3



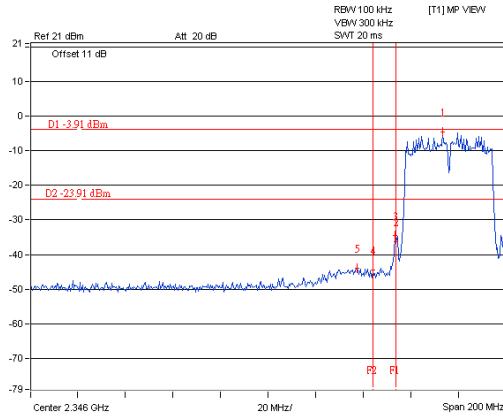
#### CH 6



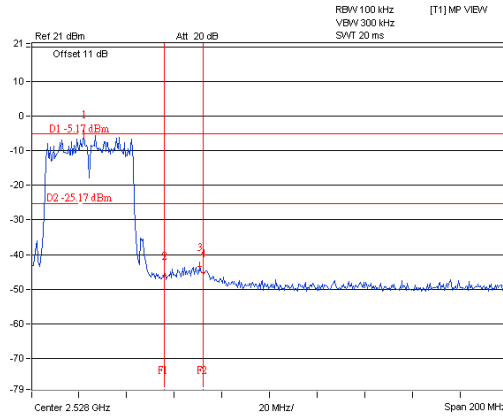
#### CH 9



#### CH 3 Band edge



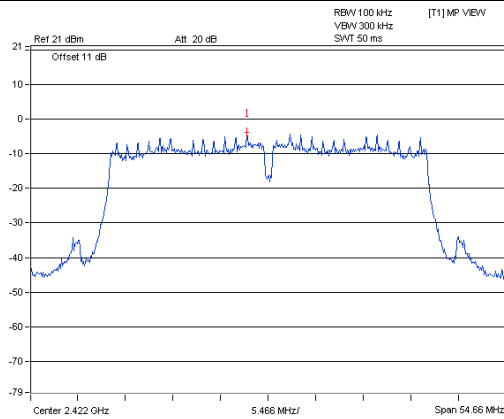
#### CH 9 Band edge



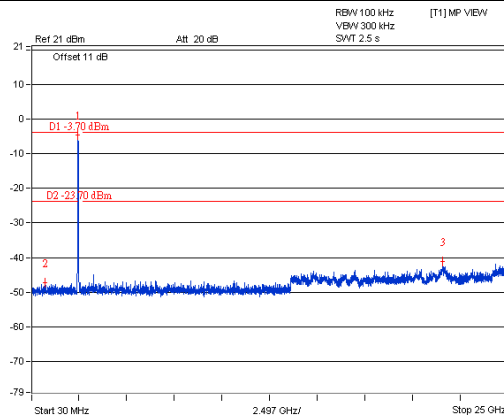


CHAIN 1

CH 3

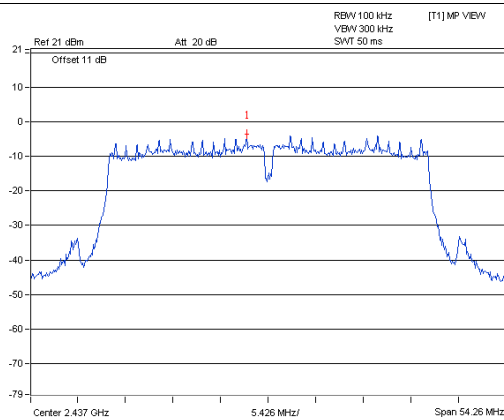


A D T

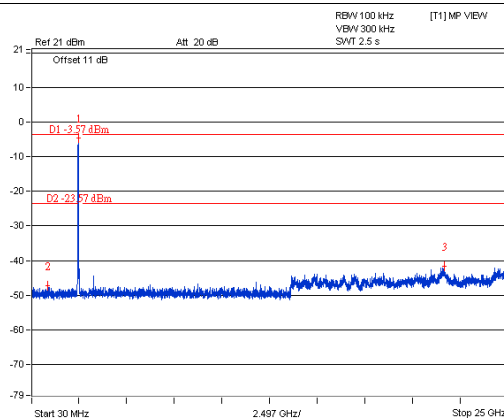


A D T

CH 6

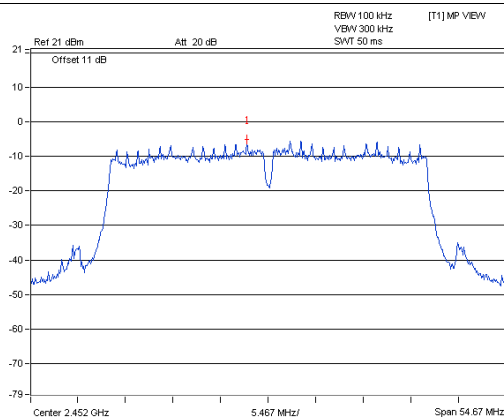


A D T

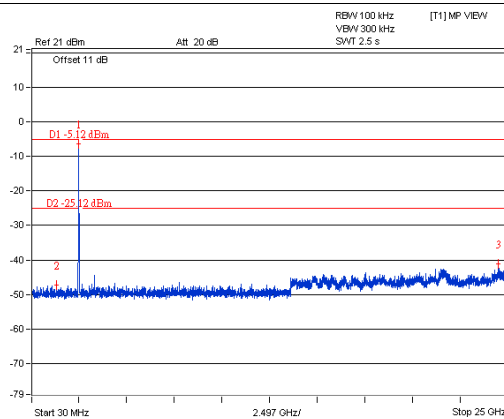


A D T

CH 9



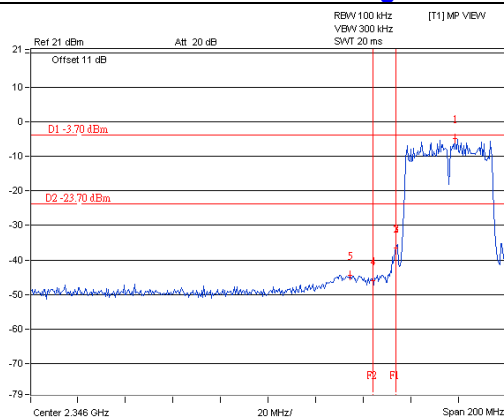
A D T



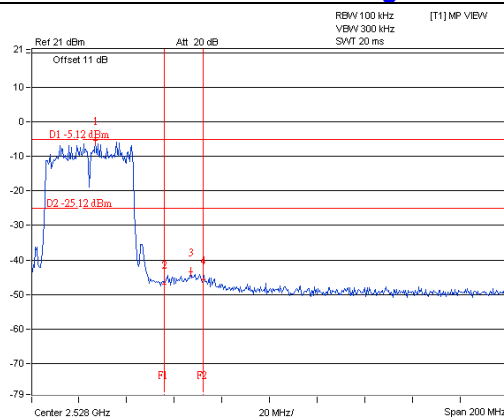
A D T

CH 3 Band edge

CH 9 Band edge



A D T



A D T

## 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.

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

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