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# **FCC TEST REPORT**

Test report
On Behalf of
WAVE LYNK INC
For
WCDMA Digital Mobile Phone
Model No.: GS1

FCC ID: 2ANGZ-GS1

Prepared for: WAVE LYNK INC

25900 GREENFIELD ROAD suite 150 \* OAK PARK MI 48237

Prepared By: Shenzhen WST Testing Co.,Ltd.

2nd Floor, Caizhiyunchuang Park, No.85 Guangshen Rd,Xin'an St 11 District,

**Bao'an District, Shenzhen** 

Date of Test: Jun. 14, 2017 ~ Jun. 21, 2017

Date of Report: Jun. 21, 2017
Report Number: WST170618074-E

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# **TEST RESULT CERTIFICATION**

Applicant's name:	WAVE LY	NK INC					
Address:	25900 GF	REENFIELD ROAD suite 150 * OAK PARK MI 48237					
Manufacture's Name:	WAVE LY	NK INC					
Address:	25900 GF	REENFIELD ROAD suite 150 * OAK PARK MI 48237					
Product description							
Trade Mark:	WAVE LY	NK					
Product name:	WCDMA	Digital Mobile Phone					
Model and/or type reference :	GS1						
Standards:	FCC Rule ANSI C63	es and Regulations Part 15 Subpart C Section 15.247 3.10: 2013					
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Date (s) of performance of tests	·····	Jun. 14, 2017 ~ Jun. 21, 2017					
Date of Issue	:	Jun. 21, 2017					
Test Result	:	Pass					
Testing Engine Technical Man		(Eric Xie)  Dora Qin  (Dora Qin)					
Authorized Sig	ınatory :	fords.					

(Kait Chen)

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#### 1. TEST SUMMARY

#### 1.1 TEST PROCEDURES AND RESULTS

DESCRIPTION OF TEST **RESULT COMPLIANT** CONDUCTED EMISSIONS TEST RADIATED EMISSION TEST **COMPLIANT BAND EDGE COMPLIANT COMPLIANT** OCCUPIED BANDWIDTH MEASUREMENT POWER SPECTRAL DENSITY **COMPLIANT** PEAK OUTPUT POWEReak **COMPLIANT OUT OF BAND EMISSIONS** COMPLIANT ANTENNA REQUIREMENT **COMPLIANT** 

#### 1.2 TEST FACILITY

Test Firm : QTC Certification & Testing Co., Ltd.

Certificated by FCC, Registration No.: 588523

Address 2nd Floor,B1 Building,Fengyeyuan Industrial Plant, Liuxian 2st. Road,

Xin'an Street, Bao'an District, Shenzhen, China

## 1.3 MEASUREMENT UNCERTAINTY

Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2 Radiated emission expanded uncertainty(9kHz-30MHz) = 3.08dB, k=2 Radiated emission expanded uncertainty(30MHz-1000MHz) = 4.42dB, k=2 Radiated emission expanded uncertainty(Above 1GHz) = 4.06dB, k=2

# 2. GENERAL INFORMATION

# 2.1 GENERAL DESCRIPTION OF EUT

Equipment	WCDMA Digital Mobile Phone
Model Name	GS1
Serial Model	N/A
Model Difference	N/A
FCC ID	2ANGZ-GS1
Antenna Type	Integral Antenna
Antenna Gain	1 dBi
BT Operation frequency	802.11b/g/n 20:2412~2462 MHz 802.11n 40: 2422~2452MHz
Number of Channels	802.11b/g/n20: 11CH 802.11n 40: 7CH
Modulation Type	CCK/OFDM/DBPSK/DAPSK
Power Source	DC Voltage
Power Rating	DC3.8V from battery or DC5V from adapter AC 120V/60Hz

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## 2.1.1 Carrier Frequency of Channels

Channel List for 802.11b/g/n(20MHz)								
				Frequency (MHz)	Channel	Frequency (MHz)		
01	2412	04	2427	07	2442	10	2457	
02	2417	05	2432	80	2447	11	2462	
03	2422	06	2437	09	2452			

Channel List for 802.11n(40MHz)									
Channel Frequency (MHz) Channel			Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)		
03	2422	06	2437	09	2452				
04	2427	07	2442						
05	2432	80	2447						

## Operation of EUT during testing

**Operating Mode** 

The mode is used: Transmitting mode for 802.11b/g/n(20MHz)

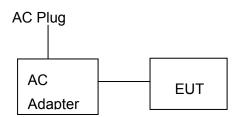
Low Channel: 2412MHz Middle Channel: 2437MHz High Channel: 2462MHz

## Transmitting mode for 802.11n(40MHz)

Low Channel: 2422MHz Middle Channel: 2437MHz High Channel: 2452MHz

#### 2.2 DESCRIPTION OF TEST SETUP

Operation of EUT during conducted testing:



Operation of EUT during Radiation and Above1GHz Radiation testing:

EUT

## 2.3 MEASUREMENT INSTRUMENTS LIST

1.	Equipment EMI Receiver		Model No.	Serial No.	Cal Date	Due Date
+	LIVII IXCCCIVCI	Rohde & Schwarz	ESCI	100627	Feb. 18, 2017	Feb. 17, 2018
2.	LISN	SchwarzBeck	NSLK 8126	8126377	Feb. 18, 2017	Feb. 17, 2018
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Feb. 18, 2017	1 Year
4.	EMI Test Software ES-K1	Rohde & Schwarz	N/A	N/A	N/A	N/A
5.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Feb. 18, 2017	Feb. 17, 2018
6.	Trilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Feb. 18, 2017	Feb. 17, 2018
7.	Pre-amplifier	Compliance Direction	PAP-0203	22008	Feb. 18, 2017	Feb. 17, 2018
8.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A
9.	EMI Receiver	Rohde & Schwarz	ESCI	100627	Feb. 18, 2017	Feb. 17, 2018
10.	LISN	SchwarzBeck	NSLK 8126	8126377	Feb. 18, 2017	Feb. 17, 2018
11.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Feb. 18, 2017	Feb. 17, 2018
12.	EMI Test Software ES-K1	Rohde & Schwarz	N/A	N/A	N/A	N/A
13.	EMI Receiver	Rohde & Schwarz	ESCI	100627	Feb. 18, 2017	Feb. 17, 2018
14.	EMI Receiver	Rohde & Schwarz	ESCI	100627	Feb. 18, 2017	Feb. 17, 2018
15.	LISN	SchwarzBeck	NSLK 8126	8126377	Feb. 18, 2017	Feb. 17, 2018
16.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Feb. 18, 2017	Feb. 17, 2018
17.	EMI Test Software ES-K1	Rohde & Schwarz	N/A	N/A	N/A	N/A
18.	Power Meter	R&S	NRVD	SEL0069	Feb. 18, 2017	Feb. 17, 2018
19.	Power Sensor	R&S	URV5-Z2	SEL0071	Feb. 18, 2017	Feb. 17, 2018
20.	Power Sensor	R&S	URV5-Z2	SEL0072	Feb. 18, 2017	Feb. 17, 2018
21.	Software EMC32	R&S	EMC32-S	SEL0082	N/A	N/A
22.	Log-periodic Antenna	Amplifier Reasearch	APT1.580	SEL0073	Feb. 18, 2017	Feb. 17, 2018
23.	Loop Antenna	Schwarz beck	FMZB 1516	9773	Feb. 18, 2017	Feb. 17, 2018
24.	Broadband Antenna	Schwarz beck	VULB9163	9163-333	Feb. 18, 2017	Feb. 17, 2018
25.	Horn Antenna	ETS	3117	00086197	Feb. 18, 2017	Feb. 17, 2018
26.	Horn Antenna	Schwarzbeck	BBHA9170	BBHA91705	Feb. 18, 2017	Feb. 17, 2018
27.	Antenna Tripod	Amplifier Reasearch	TP1000A	82 SEL0074	Feb. 18, 2017	Feb. 17, 2018
28.	High Gain Horn Antenna	Amplifier Reasearch	AT4002A	SEL0075	Feb. 18, 2017	Feb. 17, 2018
29.	Spectrum analyzer	Agilent	N9020A	MY49911004 8	Feb. 18, 2017	Feb. 17, 2018
30.	Spectrum analyzer	Agilent	E4407B	MY46184326	Feb. 18, 2017	Feb. 17, 2018
31.	Spectrum analyzer	R&S	FSP30	836079/035	Feb. 18, 2017	Feb. 17, 2018
	RF Cable	Micable	C10-01-01-1	100309	Feb. 18, 2017	Feb. 17, 2018

#### 3. CONDUCTED EMISSIONS TEST

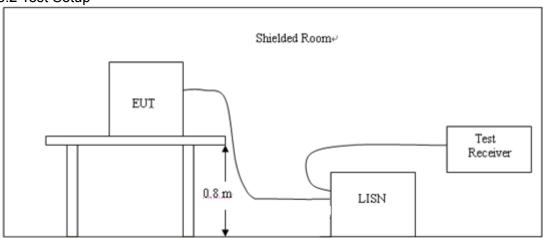
#### 3.1 Conducted Power Line Emission Limit

For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following

Eroguenev	Maximum RF Line Voltage (dBμV)						
Frequency (MHz)	CLAS	SS A	CLASS B				
(11112)	Q.P.	Ave.	Q.P.	Ave.			
0.15 - 0.50	79	66	66-56*	56-46*			
0.50 - 5.00	73	60	56	46			
5.00 - 30.0	73	60	60	50			

\* Decreasing linearly with the logarithm of the frequency
For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

#### 3.2 Test Setup



### 3.3 Test Procedure

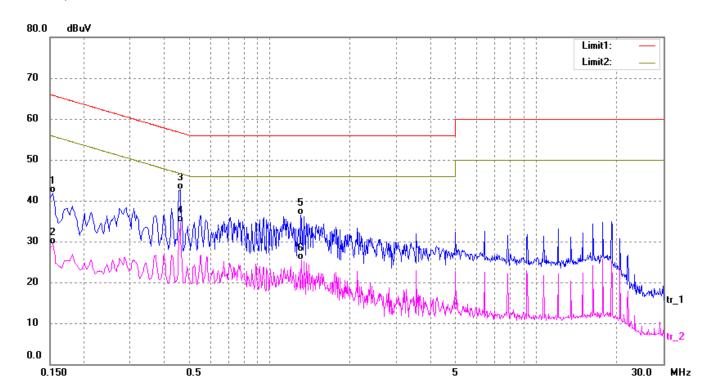
- 1, The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10.
- 2, Support equipment, if needed, was placed as per ANSI C63.10.
- 3, All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4, If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5, All support equipments received AC power from a second LISN, if any.
- 6, The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7, Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.

## 3.4 Test Result

#### **PASS**

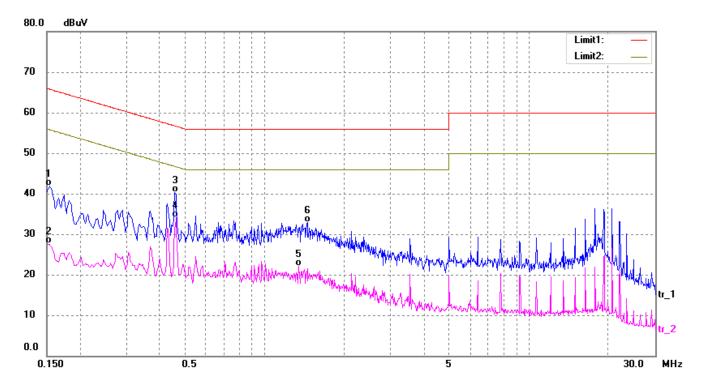
All the test modes completed for test.

# Test Specification: Line



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1540	32.10	9.85	41.95	65.78	-23.83	QP
2	0.1540	19.55	9.85	29.40	55.78	-26.38	AVG
3	0.4620	32.86	9.80	42.66	56.66	-14.00	QP
4*	0.4620	24.87	9.80	34.67	46.66	-11.99	AVG
5	1.3140	26.84	9.75	36.59	56.00	-19.41	QP
6	1.3180	15.75	9.75	25.50	46.00	-20.50	AVG

# Test Specification: Neutral



•	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1540	32.05	9.85	41.90	65.78	-23.88	QP
2	0.1540	17.84	9.85	27.69	55.78	-28.09	AVG
3	0.4580	30.57	9.80	40.37	56.73	-16.36	QP
4*	0.4620	24.25	9.80	34.05	46.66	-12.61	AVG
5	1.3500	12.27	9.75	22.02	46.00	-23.98	AVG
6	1.4500	23.06	9.75	32.81	56.00	-23.19	QP

## **4 RADIATED EMISSION TEST**

#### 4.1 Radiation Limit

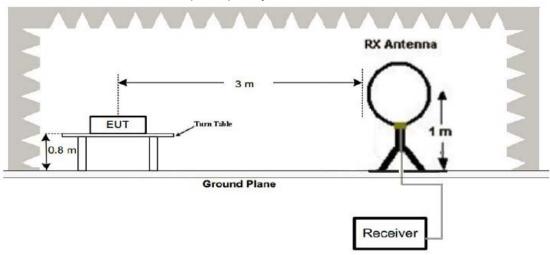
For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance (Meters)	Radiated (dBµV/m)	Radiated (µV/m)
30-88	3	40	100
88-216	3	43.5	150
216-960	3	46	200
Above 960	3	54	500

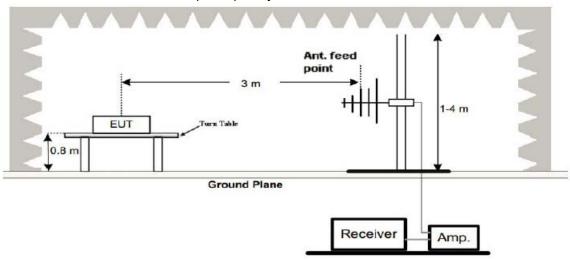
For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

## 4.2 Test Setup

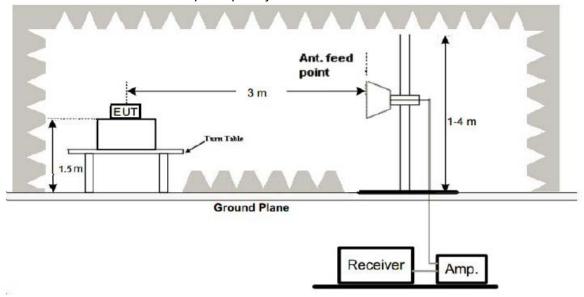
## (1) Radiated Emission Test-Up Frequency Below 30MHz



## (2) Radiated Emission Test-Up Frequency 30MHz~1GHz



### (3) Radiated Emission Test-Up Frequency Above 1GHz



#### 4.3 Test Procedure

- 1. Below 1GHz measurement the EUT is placed on turntable which is 0.8m above ground plane. And above 1GHz measurement EUT was placed on low permittivity and low tangent turn table which is 1.5m above ground plane.
- 2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- 4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 6. Repeat above procedures until the measurements for all frequencies are complete.
- 7. The test frequency range from 9KHz to 25GHz per FCC PART 15.33(a).

#### Note:

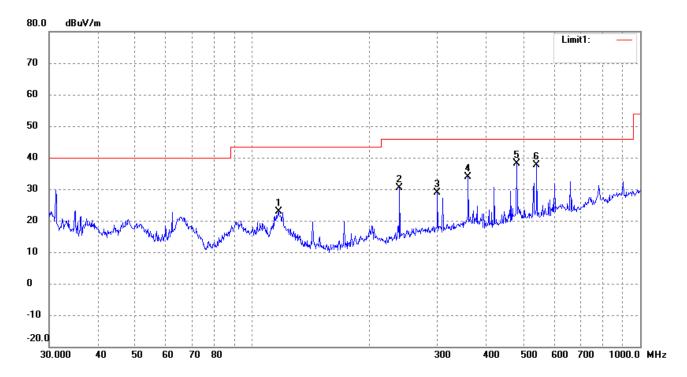
For battery operated equipment, the equipment tests shall be performed using a new battery.

## 4.4 Test Result

#### **PASS**

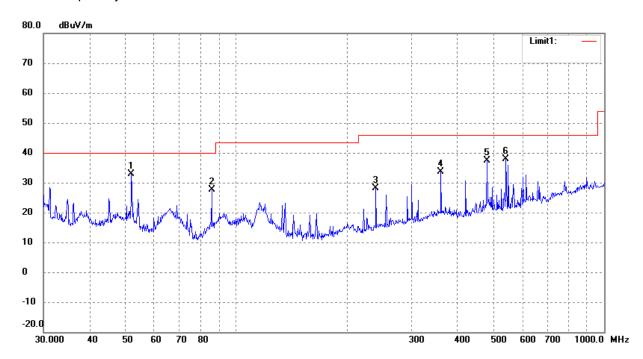
All the test modes completed for test. The worst case of Radiated Emission (802.11b Transmitting High Channel-2462MHz (worst case)); the test data of this mode was reported.

# Below 1GHz Test Results: Antenna polarity: H



No.	Frequency Reading		Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	116.9495	36.15	-13.35	22.80	43.50	-20.70	70	100	peak
2	239.9874	41.34	-10.96	30.38	46.00	-15.62	124	100	peak
3	300.3673	38.68	-9.75	28.93	46.00	-17.07	88	100	peak
4	360.4477	41.72	-7.88	33.84	46.00	-12.16	123	100	peak
5	480.5276	43.38	-5.36	38.02	46.00	-7.98	55	100	peak
6	541.3725	43.37	-5.74	37.63	46.00	-8.37	323	100	peak

## Antenna polarity: V



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz) (dBuV/m) dB/m		dB/m	(dBuV/m) (dBuV/m)		(dB) ( )		(cm)	
1	52.0251	43.96	-11.07	32.89	40.00	-7.11	149	100	peak
2	85.8984	42.99	-15.48	27.51	40.00	-12.49	94	100	peak
3	239.9874	38.99	-10.96	28.03	46.00	-17.97	60	100	peak
4	360.4476	41.57	-7.88	33.69	46.00	-12.31	252	100	peak
5	480.5276	42.80	-5.36	37.44	46.00	-8.56	310	100	peak
6	541.3725	43.72	-5.74	37.98	46.00	-8.02	333	100	peak

#### Remark:

- (1) Measuring frequencies from 9 KHz to the 1 GHz, Radiated emission test from 9KHz to 30MHz was verified, and no any emission was found except system noise floor.
- (2) \* denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (3) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.

## Above 1 GHz Test Results:

LOW CH1 (802.11b Mode)/2412 Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
4824	61.93	-3.64	58.29	74	-15.71	peak
4824	46.27	-3.64	42.63	54	-11.37	AVG
7236	56.11	-0.95	55.16	74	-18.84	peak
7236	41.28	-0.95	40.33	54	-13.67	AVG
Remark: Factor	= Antenna Factor	+ Cable Loss –	Pre-amplifier.			

## Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре	
4824	61.85	-3.64	58.21	74	-15.79	peak	
4824	45.74	-3.64	42.1	54	-11.9	AVG	
7236	56.31	-0.95	55.36	74	-18.64	peak	
7236	42.16	-0.95	41.21	54	-12.79	AVG	
	Antonna Factor		 Dro amplifier				

MID CH6 (802.11b Mode)/2437 Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
4874	61.79	-3.51	58.28	74	-15.72	peak
4874	46.46	-3.51	42.95	54	-11.05	AVG
7311	55.13	-0.82	54.31	74	-19.69	peak
7311	42.08	-0.82	41.26	54	-12.74	AVG
Remark: Factor	= Antenna Factor	+ Cable Loss –	Pre-amplifier		-	-

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

## Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре	
4874	61.57	-3.51	58.06	74	-15.94	peak	
4874	46.14	-3.51	42.63	54	-11.37	AVG	
7311	55.38	-0.82	54.56	74	-19.44	peak	
7311	41.95	-0.82	41.13	54	-12.87	AVG	

### HIGH CH11 (802.11b Mode)/2462 Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
4924	61.82	-3.43	58.39	74	-15.61	peak
4924	45.25	-3.43	41.82	54	-12.18	AVG
7386	55.42	-0.75	54.67	74	-19.33	peak
7386	41.97	-0.75	41.22	54	-12.78	AVG
Remark: Factor	= Antenna Factor	+ Cable Loss –	Pre-amplifier.			-

. . . .

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре	
4924	61.43	-3.43	58	74	-16	peak	
4924	45.74	-3.43	42.31	54	-11.69	AVG	
7386	55.18	-0.75	54.43	74	-19.57	peak	
7386	41.36	-0.75	40.61	54	-13.39	AVG	

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier.

#### Remark:

- (1) Measuring frequencies from 1 GHz to the 25 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) \* denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) Data of measurement within this frequency range shown "--- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

LOW CH1 (802.11g Mode)/2412 Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
4824	61.39	-3.64	57.75	74	-16.25	peak
4824	45.27	-3.64	41.63	54	-12.37	AVG
7236	55.44	-0.95	54.49	74	-19.51	peak
7236	41.02	-0.95	40.07	54	-13.93	AVG
Remark: Factor	= Antenna Factor	+ Cable Loss -	Pre-amplifier.			

## Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре	
4824	60.82	-3.64	57.18	74	-16.82	peak	
4824	45.14	-3.64	41.5	54	-12.5	AVG	
7236	55.37	-0.95	54.42	74	-19.58	peak	
7236	41.49	-0.95	40.54	54	-13.46	AVG	
Domark: Factor	= Antenna Factor	ı Cabla Lasa	Dro omplifier	1	1	1	

MID CH6 (802.11g Mode)/2437 Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
4874	60.95	-3.51	57.44	74	-16.56	peak
4874	46.33	-3.51	42.82	54	-11.18	AVG
7311	56.15	-0.82	55.33	74	-18.67	peak
7311	40.68	-0.82	39.86	54	-14.14	AVG
Remark: Factor	= Antenna Factor	+ Cable Loss -	Pre-amplifier			

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

## Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре	
4874	60.46	-3.51	56.95	74	-17.05	peak	
4874	45.13	-3.51	41.62	54	-12.38	AVG	
7311	55.72	-0.82	54.9	74	-19.1	peak	
7311	40.88	-0.82	40.06	54	-13.94	AVG	

#### HIGH CH11 (802.11g Mode)/2462 Horizontal:

Meter Reading	Factor	Emission Level	Limits	Margin	Detector	
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре	
60.33	-3.43	56.9	74	-17.1	peak	
45.85	-3.43	42.42	54	-11.58	AVG	
55.49	-0.75	54.74	74	-19.26	peak	
40.17	-0.75	39.42	54	-14.58	AVG	
	(dBµV) 60.33 45.85 55.49 40.17	(dBµV) (dB) 60.33 -3.43 45.85 -3.43 55.49 -0.75 40.17 -0.75	(dBμV)     (dB)     (dBμV/m)       60.33     -3.43     56.9       45.85     -3.43     42.42       55.49     -0.75     54.74       40.17     -0.75     39.42	(dBμV)     (dB)     (dBμV/m)     (dBμV/m)       60.33     -3.43     56.9     74       45.85     -3.43     42.42     54       55.49     -0.75     54.74     74       40.17     -0.75     39.42     54	(dBμV)     (dB)     (dBμV/m)     (dBμV/m)     (dBμV/m)       60.33     -3.43     56.9     74     -17.1       45.85     -3.43     42.42     54     -11.58       55.49     -0.75     54.74     74     -19.26       40.17     -0.75     39.42     54     -14.58	

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

#### Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре
4924	60.28	-3.43	56.85	74	-17.15	peak
4924	45.34	-3.43	41.91	54	-12.09	AVG
7386	56.01	-0.75	55.26	74	-18.74	peak
7386	40.16	-0.75	39.41	54	-14.59	AVG

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier.

## Remark:

- (1) Measuring frequencies from 1 GHz to the 25 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge
- (3) \* denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

LOW CH1 (802.11n/H20 Mode)/2412 Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector		
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре		
4824	61.11	-3.64	57.47	74	-16.53	peak		
4824	45.74	-3.64	42.1	54	-11.9	AVG		
7236	55.93	-0.95	54.98	74	-19.02	peak		
7236	41.65	-0.95	40.7	54	-13.3	AVG		
Remark: Factor	Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.							

## Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector		
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре		
4824	60.79	-3.64	57.15	74	-16.85	peak		
4824	45.26	-3.64	41.62	54	-12.38	AVG		
7236	55.18	-0.95	54.23	74	-19.77	peak		
7236	41.43	-0.95	40.48	54	-13.52	AVG		
Remark: Factor	Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.							

MID CH6 (802.11n/H20 Mode)/2437 Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector		
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре		
4874	60.02	-3.51	56.51	74	-17.49	peak		
4874	45.68	-3.51	42.17	54	-11.83	AVG		
7311	55.41	-0.82	54.59	74	-19.41	peak		
7311	40.37	-0.82	39.55	54	-14.45	AVG		
Remark: Factor	Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.							

Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector		
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре		
4874	59.65	-3.51	56.14	74	-17.86	peak		
4874	45.37	-3.51	41.86	54	-12.14	AVG		
7311	55.92	-0.82	55.1	74	-18.9	peak		
7311	40.58	-0.82	39.76	54	-14.24	AVG		
Remark: Factor	Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.							

## HIGH CH11 (802.11n/H20 Mode)/2462 Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type	
4924	60.43	-3.43	57	74	-17	peak	
4924	45.19	-3.43	41.76	54	-12.24	AVG	
7386	55.64	-0.75	54.89	74	-19.11	peak	
7386	40.57	-0.75	39.82	54	-14.18	AVG	
Demonto Factor - Automo Factor - Cable Loca - Dua avantifica							

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

## Vertical:

Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
59.72	-3.43	56.29	74	-17.71	peak
44.84	-3.43	41.41	54	-12.59	AVG
55.12	-0.75	54.37	74	-19.63	peak
40.05	-0.75	39.3	54	-14.7	AVG
	59.72 44.84 55.12 40.05	59.72       -3.43         44.84       -3.43         55.12       -0.75         40.05       -0.75	59.72       -3.43       56.29         44.84       -3.43       41.41         55.12       -0.75       54.37         40.05       -0.75       39.3	59.72     -3.43     56.29     74       44.84     -3.43     41.41     54       55.12     -0.75     54.37     74       40.05     -0.75     39.3     54	59.72     -3.43     56.29     74     -17.71       44.84     -3.43     41.41     54     -12.59       55.12     -0.75     54.37     74     -19.63       40.05     -0.75     39.3     54     -14.7

LOW CH3 (802.11n/H40 Mode)/2422 Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type		
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type		
4924	60.14	-3.63	56.51	74	-17.49	peak		
4924	45.59	-3.63	41.96	54	-12.04	AVG		
7386	55.36	-0.94	54.42	74	-19.58	peak		
7386	40.28	-0.94	39.34	54	-14.66	AVG		
Remark: Factor	Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.							

## Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type	
4924	59.62	-3.63	55.99	74	-18.01	peak	
4924	45.37	-3.63	41.74	54	-12.26	AVG	
7386	55.24	-0.94	54.3	74	-19.7	peak	
7386	40.56	-0.94	39.62	54	-14.38	AVG	
Pomark: Factor - Antonna Factor + Cable Logo - Dro amplifier							

MID CH6 (802.11n/H40 Mode)/2437 Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type		
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type		
4874	59.66	-3.51	56.15	74	-17.85	peak		
4874	45.18	-3.51	41.67	54	-12.33	AVG		
7311	55.27	-0.82	54.45	74	-19.55	peak		
7311	39.45	-0.82	38.63	54	-15.37	AVG		
Remark: Factor	Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.							

## Vertical:

Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
59.34	-3.51	55.83	74	-18.17	peak
45.29	-3.51	41.78	54	-12.22	AVG
54.71	-0.82	53.89	74	-20.11	peak
40.15	-0.82	39.33	54	-14.67	AVG
	(dBμV) 59.34 45.29 54.71 40.15	(dBμV) (dB) 59.34 -3.51 45.29 -3.51 54.71 -0.82 40.15 -0.82	(dBμV)     (dB)     (dBμV/m)       59.34     -3.51     55.83       45.29     -3.51     41.78       54.71     -0.82     53.89       40.15     -0.82     39.33	(dBμV)     (dB)     (dBμV/m)     (dBμV/m)       59.34     -3.51     55.83     74       45.29     -3.51     41.78     54       54.71     -0.82     53.89     74       40.15     -0.82     39.33     54	(dBμV)     (dB)     (dBμV/m)     (dBμV/m)     (dBμV/m)       59.34     -3.51     55.83     74     -18.17       45.29     -3.51     41.78     54     -12.22       54.71     -0.82     53.89     74     -20.11       40.15     -0.82     39.33     54     -14.67

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HIGH CH9 (802.11n/H40 Mode)/2452 Horizontal:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
4904	58.62	-3.43	55.19	74	-18.81	peak
4904	45.37	-3.43	41.94	54	-12.06	AVG
7356	55.94	-0.75	55.19	74	-18.81	peak
7356	39.16	-0.75	38.41	54	-15.59	AVG
Domarky Factor - Antonna Factor I Cable Lago Dra amplifier						

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.

#### Vertical:

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
4904	58.31	-3.43	54.88	74	-19.12	peak
4904	45.49	-3.43	42.06	54	-11.94	AVG
7356	55.27	-0.75	54.52	74	-19.48	peak
7356	39.46	-0.75	38.71	54	-15.29	AVG

Remark: Factor = Antenna Factor + Cable Loss - Pre-amplifier.

#### Remark:

- (1) Measuring frequencies from 1 GHz to the 25 GHz.
- (2) "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) \* denotes emission frequency which appearing within the Restricted Bands specified in provision of 15.205, then the general radiated emission limits in 15.209 apply.
- (4) Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) The IF bandwidth of EMI Test Receiver between 30MHz to 1GHz was 120KHz, 1 MHz for measuring above 1 GHz, below 30MHz was 10KHz.
- (6) When the test results of Peak Detected below the limits of Average Detected, the Average Detected is not need completed. For example: Top Channel at Fundamental 73.16dBuV/m(PK Value) <93.98(AV Limit), at harmonic 53.20 dBuV/m(PK Value) <54 dBuV/m(AV Limit), the Average Detected not need to completed.

#### **5 BAND EDGE**

#### 5.1 Limits

FCC PART 15.247 Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

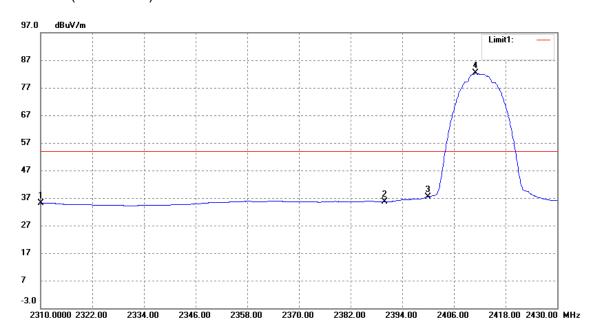
#### 5.2 Test Procedure

The band edge compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW to 100KHz and VBM to 300KHz to measure the peak field strength and set RBW to 1MHz and VBW to 10Hz to measure the average radiated field strength. The conducted RF band edge was measured by using a spectrum analyzer. Set span wide enough to capture the highest in-band emission and the emission at the band edge. Set RBW to 100 KHz and VBW to 300 KHz, to measure the conducted peak band edge.

### 5.3 Test Result

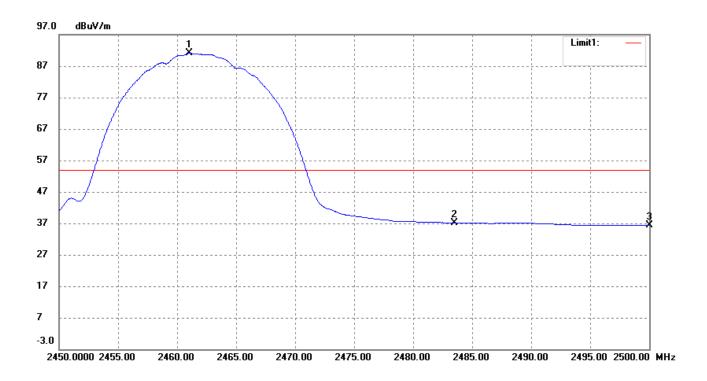
#### **PASS**

Operation Mode: 802.11b-Lowest Bandedge Vertical (Worst case)



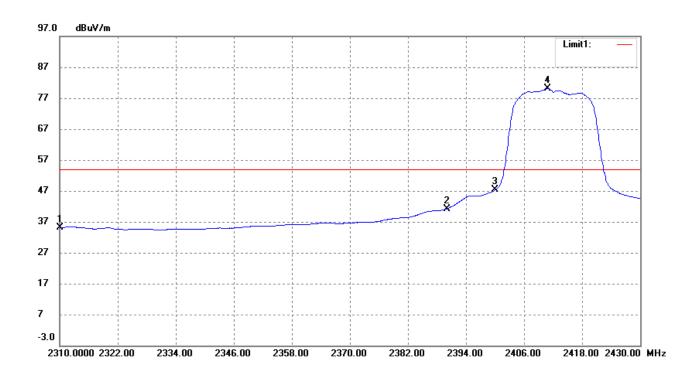
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	18.68	16.34	35.02	54.00	-18.98	Average Detector
	2310.000	31.80	16.34	48.14	74.00	-25.86	Peak Detector
2	2390.000	18.58	17.03	35.61	54.00	-18.39	Average Detector
	2390.000	32.56	17.03	49.59	74.00	-24.41	Peak Detector
3	2400.000	20.30	17.11	37.41	54.00	-16.59	Average Detector
	2400.000	39.71	17.11	56.82	74.00	-17.18	Peak Detector
4*	2411.040	65.20	17.19	82.39	/	/	Average Detector
	2411.400	82.75	17.19	99.94	/	/	Peak Detector

802.11b-Highest Bandedge Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	
1*	2461.050	73.57	17.56	91.13	/	/	Average Detector
	2461.850	81.73	17.57	99.30	/	/	Peak Detector
2	2483.500	19.42	17.73	37.15	54.00	-16.85	Average Detector
	2483.500	32.03	17.73	49.76	74.00	-24.24	Peak Detector
3	2500.000	18.55	17.86	36.41	54.00	-17.59	Average Detector
	2500.000	29.87	17.86	47.73	74.00	-26.27	Peak Detector

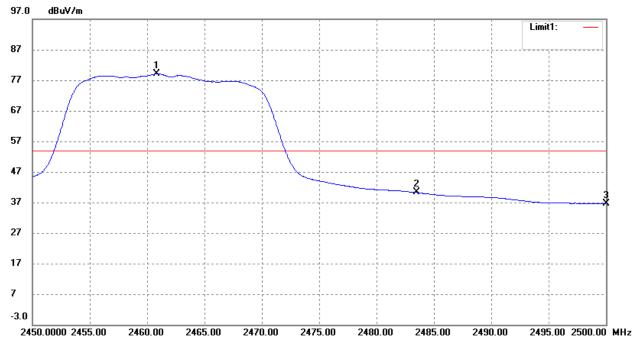
802.11g-Lowest Bandedge Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	18.85	16.34	35.19	54.00	-18.81	Average Detector
	2310.000	30.04	16.34	46.38	74.00	-27.62	Peak Detector
2	2390.000	24.15	17.03	41.18	54.00	-12.82	Average Detector
	2390.000	34.76	17.03	51.79	74.00	-22.21	Peak Detector
3	2400.000	30.16	17.11	47.27	54.00	-6.73	Average Detector
	2400.000	40.33	17.11	57.44	74.00	-16.56	Peak Detector
4*	2410.800	62.88	17.19	80.07	1	/	Average Detector
	2411.400	74.26	17.19	91.45	/	1	Peak Detector

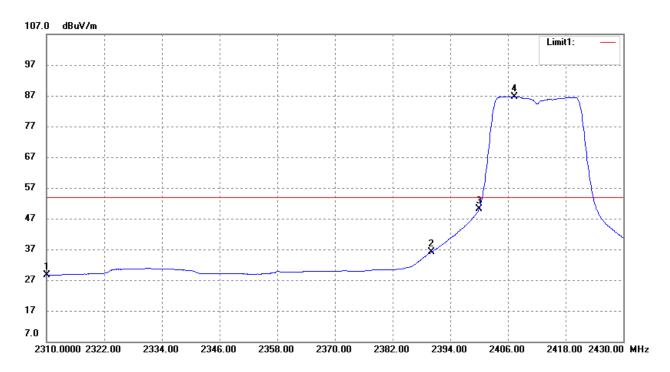
802.11g-Highest Bandedge

## Vertical (Worst case)



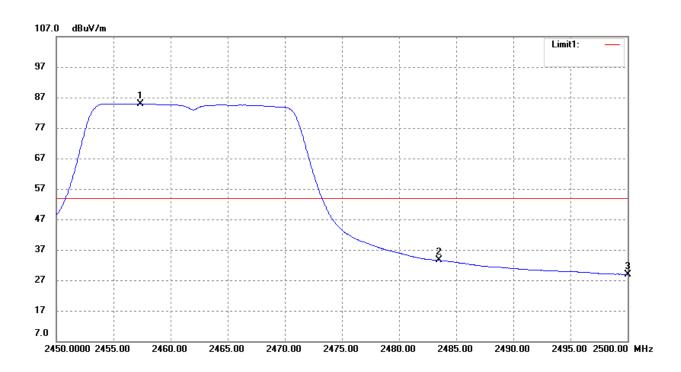
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1*	2460.850	61.58	17.56	79.14	/	/	Average Detector
	2461.250	82.48	17.57	100.05	/	/	Peak Detector
2	2483.500	22.53	17.73	40.26	54.00	-13.74	Average Detector
	2483.500	40.64	17.73	58.37	74.00	-15.63	Peak Detector
3	2500.000	18.71	17.86	36.57	54.00	-17.43	Average Detector
	2500.000	30.32	17.86	48.18	74.00	-25.82	Peak Detector

802.11n-HT20-Lowest Bandedge Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	32.26	-3.71	28.55	54.00	-25.45	Average Detector
	2310.000	45.44	-3.71	41.73	74.00	-32.27	Peak Detector
2	2390.000	39.64	-3.54	36.10	54.00	-17.90	Average Detector
	2390.000	57.67	-3.54	54.13	74.00	-19.87	Peak Detector
3	2400.000	53.71	-3.51	50.20	54.00	-3.80	Average Detector
	2400.000	77.41	-3.51	73.90	74.00	-0.10	Peak Detector
4	2407.320	90.13	-3.49	86.64	1	/	Average Detector
	2407.440	101.28	-3.49	97.79	/	/	Peak Detector

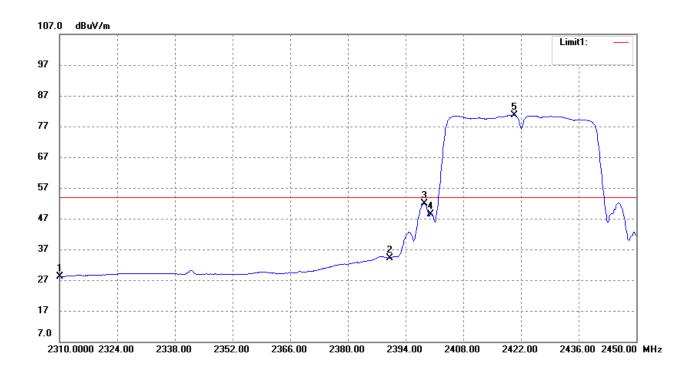
802.11n-HT20-Highest Bandedge Vertical (Worst case)



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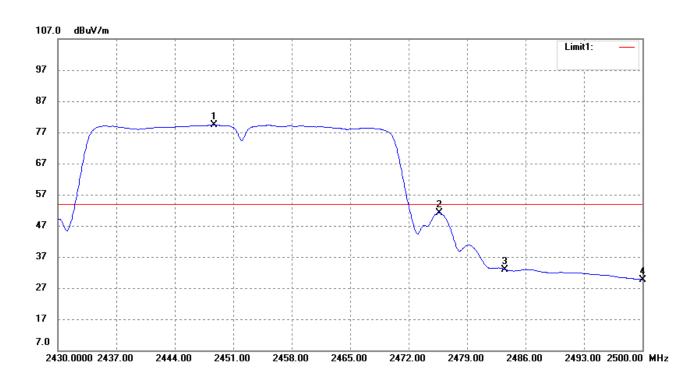
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2457.350	88.34	-3.38	84.96	1	/	Average Detector
	2459.000	99.44	-3.38	96.06	/	/	Peak Detector
2	2483.500	36.88	-3.33	33.55	54.00	-20.45	Average Detector
	2483.500	56.37	-3.33	53.04	74.00	-20.96	Peak Detector
3	2500.000	32.22	-3.28	28.94	54.00	-25.06	Average Detector
	2500.000	44.54	-3.28	41.26	74.00	-32.74	Peak Detector

802.11n-HT40-Lowest Bandedge Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2310.000	31.89	-3.71	28.18	54.00	-25.82	Average Detector
	2310.000	44.45	-3.71	40.74	74.00	-33.26	Peak Detector
2	2390.000	37.74	-3.54	34.20	54.00	-19.80	Average Detector
	2390.000	53.88	-3.54	50.34	74.00	-23.66	Peak Detector
3	2398.480	55.35	-3.51	51.84	54.00	-2.16	Average Detector
4	2400.000	51.98	-3.51	48.47	54.00	-5.53	Average Detector
	2400.000	66.12	-3.51	62.61	74.00	-11.39	Peak Detector
5	2420.320	84.05	-3.46	80.59	/	/	Average Detector
	2425.220	95.57	-3.46	92.11	/	/	Peak Detector

802.11n-HT40-Highest Bandedge Vertical (Worst case)



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	
1	2448.690	82.73	-3.40	79.33	/	/	Average Detector
	2455.130	94.23	-3.38	90.85	/	/	Peak Detector
2	2475.640	54.46	-3.34	51.12	54.00	-2.88	Average Detector
	2475.570	66.14	-3.34	62.80	74.00	-11.20	Peak Detector
3	2483.500	36.32	-3.33	32.99	54.00	-21.01	Average Detector
	2483.500	49.70	-3.33	46.37	74.00	-27.63	Peak Detector
4	2500.000	32.97	-3.28	29.69	54.00	-24.31	Average Detector
	2500.000	47.05	-3.28	43.77	74.00	-30.23	Peak Detector
	+		-	•			

## 6 OCCUPIED BANDWIDTH MEASUREMENT

#### 6.1 Test Limit

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FCC Part15 (15.247) , Subpart C										
Section	Test Item	Limit	Frequency Range (MHz)	Result						
15.247(a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS						

## 6.2 Test Procedure

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. Set EUT as normal operation.
- 3. Based on FCC Part15 C Section 15.247: RBW= 100KHz. VBW= 300 KHz.
- 4. The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector.

## 6.3 Measurement Equipment Used

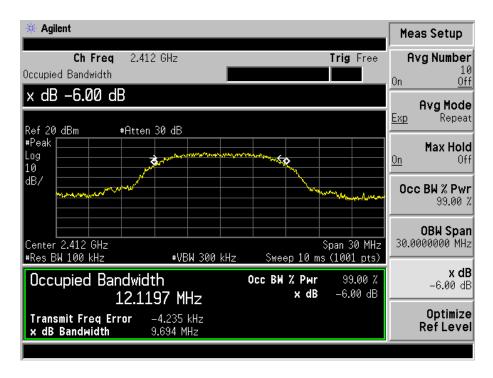
Same as Radiated Emission Measurement

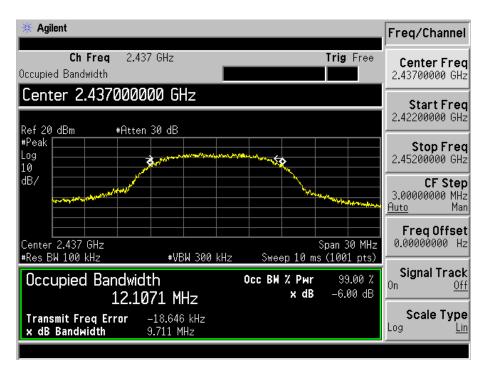
## 6.4 Test Result

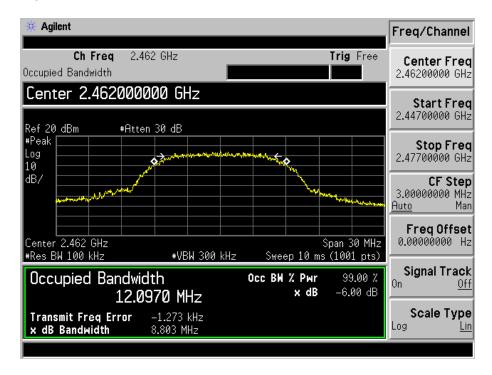
**PASS** 

TX 802.11b Mode Channel 6dB Bandwidth **Frequency** Separation Result (MHz) (MHz) 2412 MHz 9.694 >=500KHz **PASS** 2437 MHz 9.711 >=500KHz **PASS** 2462 MHz 8.803 >=500KHz **PASS** 

CH: 2412MHz

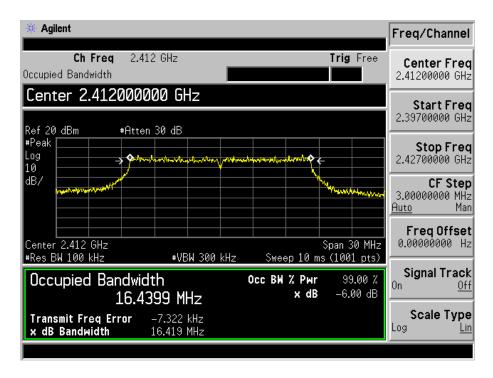


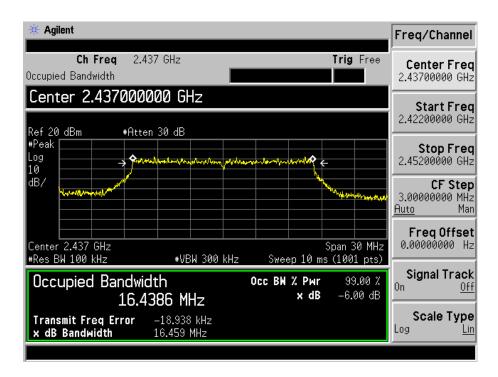


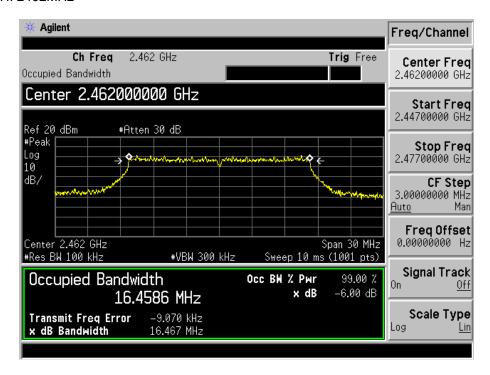


TX 802.11g Mode Channel 6dB Bandwidth **Frequency** Separation Result (MHz) (MHz) 2412 MHz 16.419 >=500KHz **PASS** 2437 MHz 16.459 >=500KHz **PASS** 2462 MHz 16.467 >=500KHz **PASS** 

CH: 2412MHz

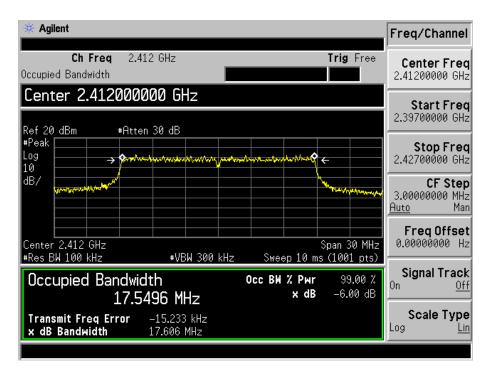




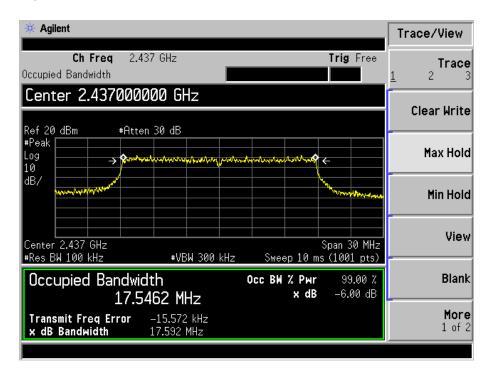


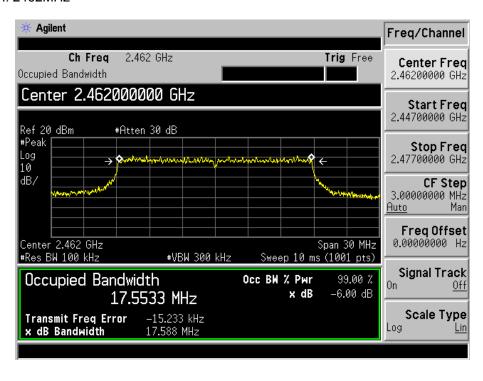
TX 802.11n/HT20 Mode			
Frequency	6dB Bandwidth (MHz)	Channel Separation (MHz)	Result
2412 MHz	17.606	>=500KHz	PASS
2437 MHz	17.592	>=500KHz	PASS
2462 MHz	17.588	>=500KHz	PASS

CH: 2412MHz



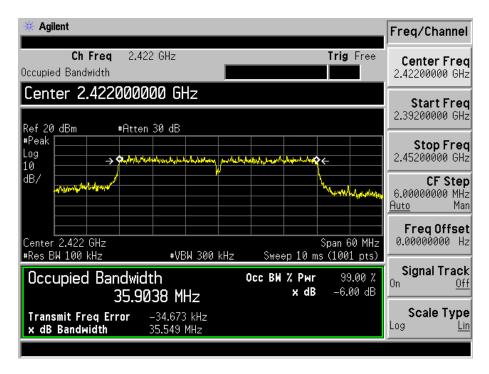
CH: 2437MHz

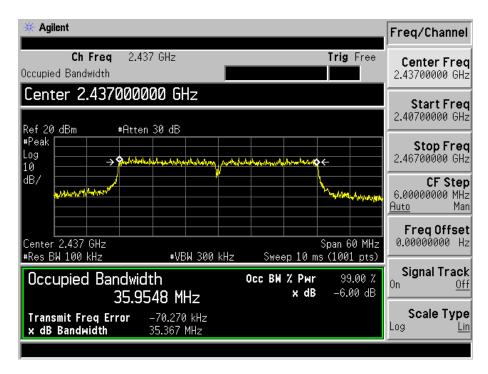


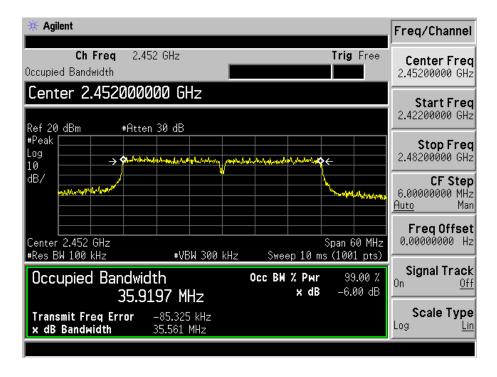


TX 802.11n/HT40 Mode			
Frequency	6dB Bandwidth (MHz)	Channel Separation (MHz)	Result
2422 MHz	35.549	>=500KHz	PASS
2437 MHz	35.367	>=500KHz	PASS
2452 MHz	35.561	>=500KHz	PASS

CH: 2422MHz







# 7 POWER SPECTRAL DENSITY TEST

# 7.1 Test Limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral  Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

## 7.2 Test Procedure

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. Set EUT as normal operation.
- 3. Based on FCC Part15 C Section 15.247: RBW= 3KHz. VBW= 10 KHz, Span=3MHz.
- 4. The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector.

# 7.3 Measurement Equipment Used

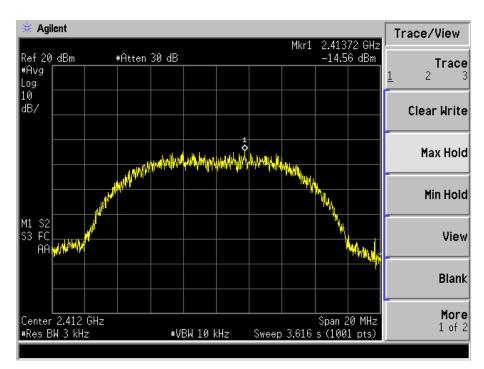
Same as Radiated Emission Measurement

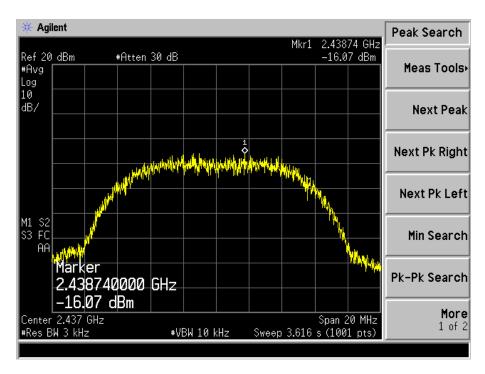
## 7.4 Test Result

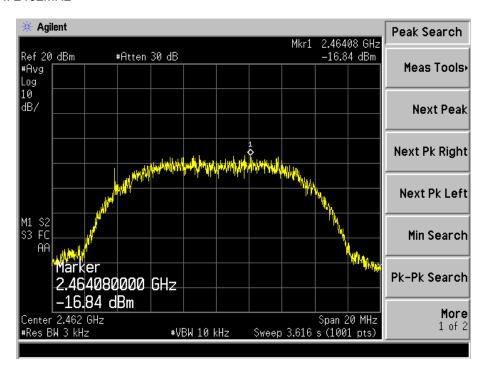
**PASS** 

TX 802.11b Mode			
Frequency	Power Density (dBm/3KHz)	Limit (dBm)	Result
2412 MHz	-14.56	8	PASS
2437 MHz	-16.07	8	PASS
2462 MHz	-16.84	8	PASS

CH: 2412MHz

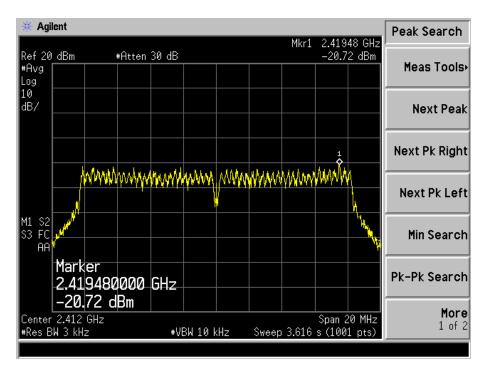




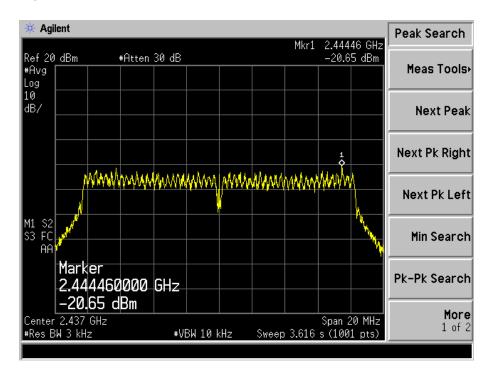


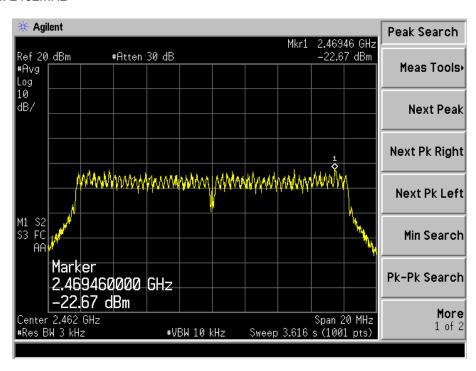
TX 802.11g Mode **Power Density** Limit Frequency Result (dBm/3KHz) (dBm) 8 2412 MHz -20.72 **PASS** 2437 MHz -20.65 8 **PASS** 8 2462 MHz -22.67 **PASS** 

CH: 2412MHz



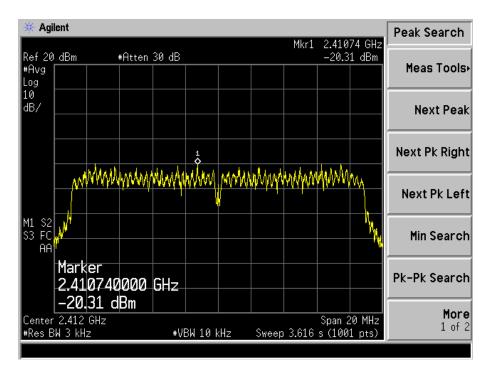
CH: 2437MHz



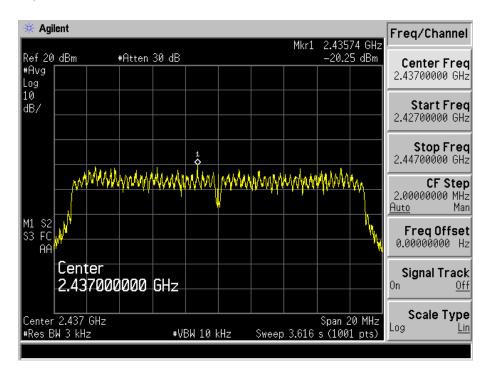


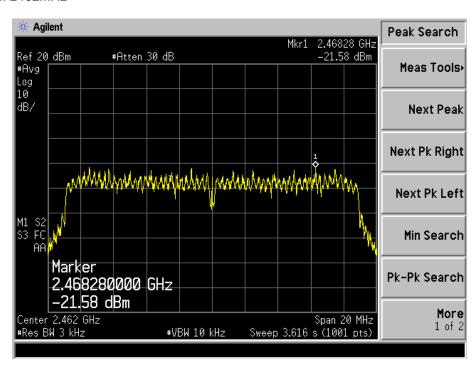
TX 802.11n/HT20 Mode			
Frequency	Power Density (dBm/3KHz)	Limit (dBm)	Result
2412 MHz	-20.31	8	PASS
2437 MHz	-20.25	8	PASS
2462 MHz	-21.58	8	PASS

CH: 2412MHz



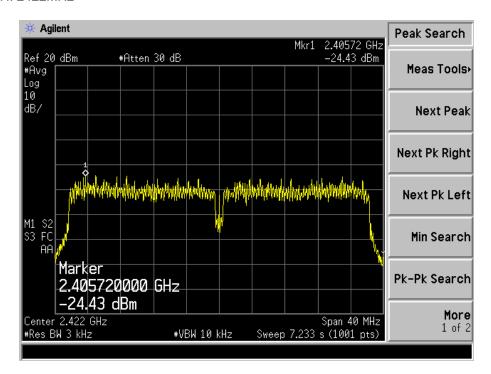
CH: 2437MHz



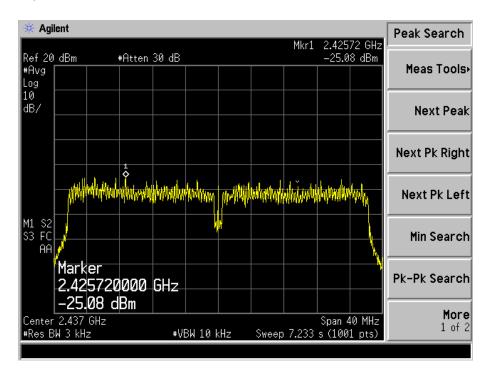


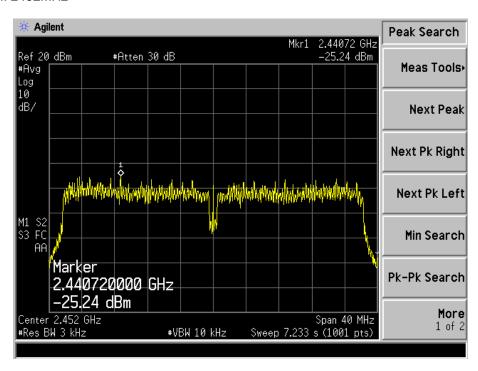
TX 802.11n/HT40 Mode **Power Density** Limit Frequency Result (dBm/3KHz) (dBm) 8 2422 MHz -24.43 **PASS** 2437 MHz -25.08 8 **PASS** 8 2452 MHz -25.24 **PASS** 

CH: 2422MHz



CH: 2437MHz





# **8 PEAK OUTPUT POWER TEST**

# 8.1 Test Limit

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range Resu	
15.247(b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

# 8.2 Test Procedure

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. The EUT was directly connected to the Power meter.

# 8.3 Measurement Equipment Used

Same as Radiated Emission Measurement

# 8.4 Test Result

## **PASS**

All the test modes completed for test

All the test modes completed for test.  TX 802.11b Mode					
Test	Frequency	Maximum Peak Conducted Output Power	LIMIT		
Channe	(MHz)	(dBm)	dBm		
CH01	2412	16.54	30		
CH06	2437	16.73	30		
CH11	2462	16.92	30		
		TX 802.11g Mode			
CH01	2412	16.45	30		
CH06	2437	16.62	30		
CH11	2462	16.84	30		
	TX 802.11n20 Mode				
CH01	2412	16.48	30		
CH06	2437	16.52	30		
CH11	2462	16.63	30		
TX 802.11n40 Mode					
CH03	2422	16.78	30		
CH06	2437	16.53	30		
CH09	2452	16.46	30		

#### 9 OUT OF BAND EMISSIONS TEST

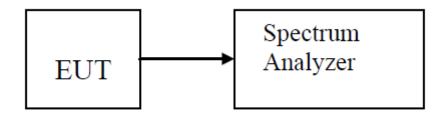
#### 9.1 Test Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

#### 9.2 Test Procedure

- 1. The EUT was placed on a turn table which is 0.8m above ground plane.
- 2. Set EUT as TX operation and connect directly to the spectrum analyzer.
- 3. Set spectrum analyzer RBW= 100KHz. VBW= 300 KHz
- 4. Set detected by the spectrum analyser with peak detector.

## 9.3 Test Setup

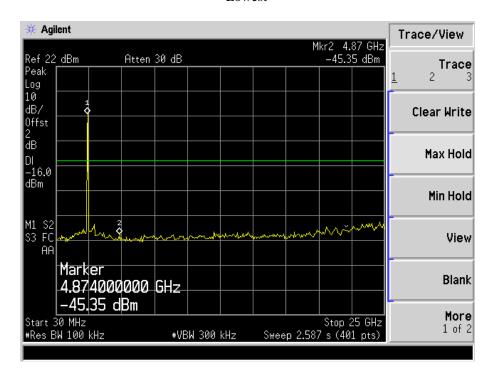


#### 9.4 Test Result

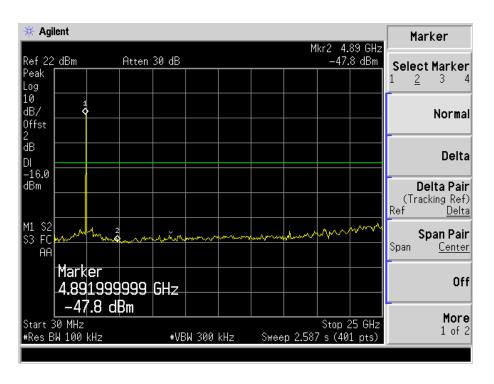
**PASS** 

## TX 802.11b Mode

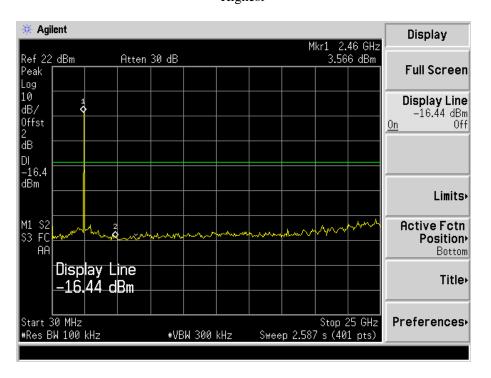
#### Lowest



#### Middle

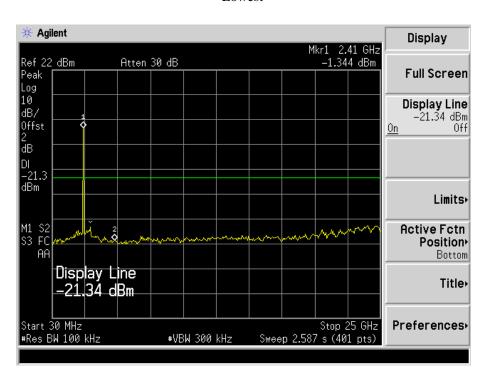


Highest

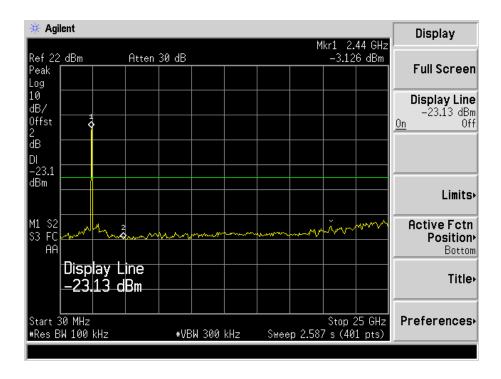


TX 802.11g Mode

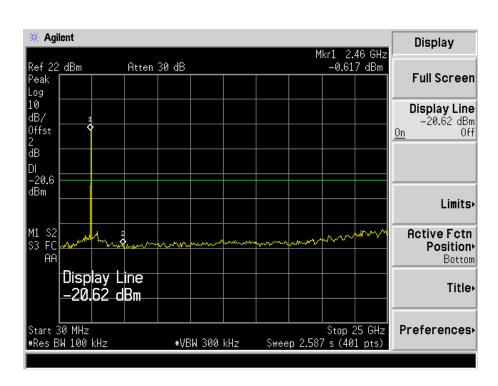
### Lowest



Middle

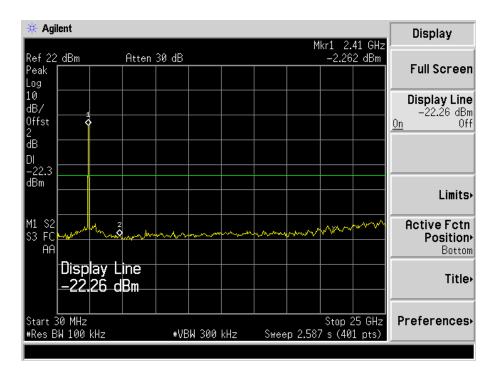


Highest

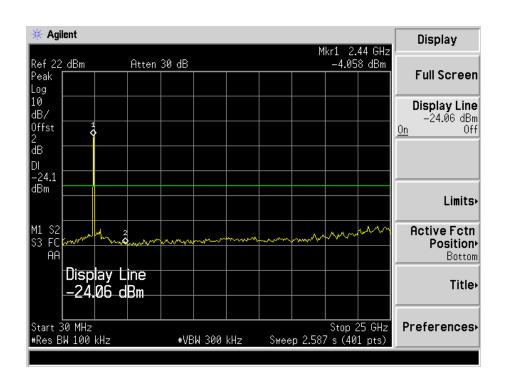


#### TX 802.11n/HT20 Mode

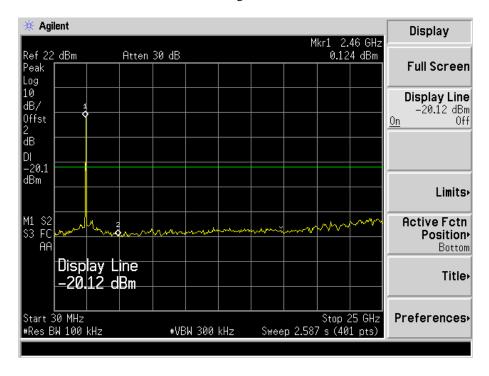
## Lowest



#### Middle

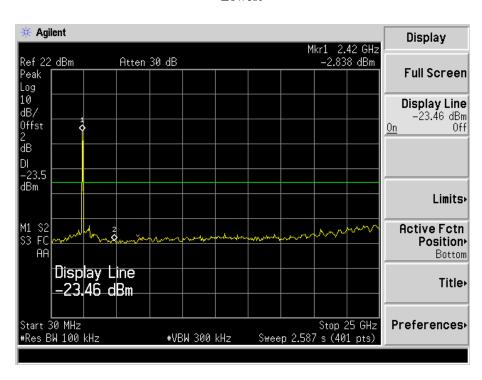


Highest

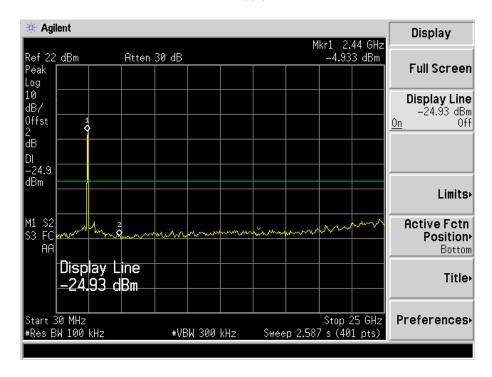


TX 802.11n/HT40 Mode

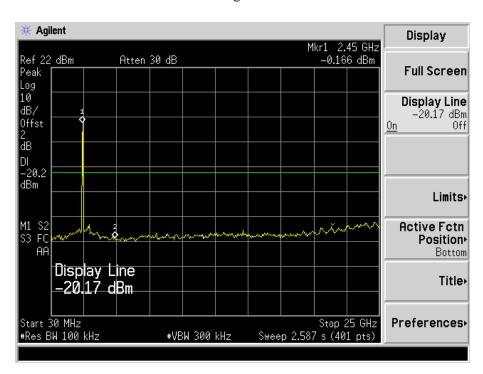
#### Lowest



Middle



Highest



#### 10 ANTENNA REQUIREMENT

#### **Standard Applicable**

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.249, if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

## Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

#### **Antenna Connected Construction**

The antenna used in this product is a Integral Antenna, The directional gains of antenna used for transmitting is 1dBi.

### <u>Antenna</u>



# 11 PHOTOGRAPH OF TEST

# 11.1 Radiated Emission

