FCC 47 CFR PART 15 SUBPART C
RF Test Report

Applicant	:	BaudTec Corporation
Applicant Address	:	12F,NO,181,Sec.1.TatungRd.,His-chih City,Taipei county ,221 Taiwan
Product Type	:	Wireless ADSL2+ Router
Trade Name	:	Baudtec
Model Number	:	RN243R4-2T2R-A9, RN243R4-2T2R-B9, RN243R4-1T1R-A9, RN243R4-1T1R-B9, RN243R4H-2T2R-A9, RN243R4H-2T2R-B9, RN243R4H-1T1R-A9, RN243R4H-1T1R-B9, RN243R4-2T2R-A6-V2, RN243R4-2T2R-A6-V3
Applicable Standard	:	FCC 47 CFR PART 15 SUBPART C: Oct., 2014 ANSI C63.10:2013
Receive Date	:	Jun. 30, 2015
Test Period	:	Jul. 07 ~ 14, 2015
Issue Date	:	Jul. 22, 2015

Issue by

A Test Lab Techno Corp.
No. 140-1, Changan Street, Bade City,
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Taiwan Accreditation Foundation accreditation number: 1330

Revision History

Rev.	Issue Date	Revisions	Revised By
00	Jul. 22, 2015	Initial Issue	

Verification of Compliance

Issued Date: 07/22/2015

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FCC ID	:	XKR-RN243R4A9
EUT Rated Voltage	:	DC 12V, 500mA
Test Voltage	:	120 Vac / 60 Hz
Applicable Standard	:	FCC 47 CFR PART 15 SUBPART C: Oct., 2014 ANSI C63.10:2013
Test Result	:	Complied
Performing Lab.	:	A Test Lab Techno Corp. No. 140-1, Changan Street, Bade City, Taoyuan County 334, Taiwan R.O.C. Tel：+886-3-2710188 / Fax：+886-3-2710190 Taiwan Accreditation Foundation accreditation number: 1330 http://www.atl-lab.com.tw/e-index.htm

A Test Lab Techno Corp. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by A Test Lab Techno Corp. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Approved By	:	Fly Lu	Reviewed By	:	Eric Ou Yang
(Manager)		(Fly Lu)	(Testing Engineer)		(Eric Ou Yang)

TABLE OF CONTENTS

1 General Information

1.1 Summary of Test Result

Standard	Item	Result	Remark
15.247			
15.207	AC Power Conducted Emission	PASS	-----
Standard	Item	Result	Remark
15.247			
15.247(d)	Transmitter Radiated Emissions	PASS	-----
15.247(b)(3)	Max. Output Power	PASS	-----
15.247(a)(2)	6dB RF Bandwidth	PASS	-----
15.247(e)	Power Spectral Density	PASS	-----
15.247(d)	Out of Band Conducted Spurious Emission	PASS	-----
15.247(d)	Band Edge Measurement	PASS	-----
15.203	Antenna Requirement	PASS	-----

The test results of this report relate only to the tested sample(s) identified in this report. Manufacturer or whom it may concern should recognize the pass or fail of the test result.

1.2 Measurement Uncertainty

Test Item	Frequency Range		Uncertainty (dB)
Conducted Emission	9kHz ~ 30MHz		± 2.02
Radiated Emission	30MHz ~ 1000MHz	Horizontal	± 3.98
		Vertical	± 3.62
	1000MHz ~ 18000MHz	Horizontal	± 3.11
		Vertical	± 3.07
	18000MHz ~ 40000MHz	Horizontal	± 3.66
		Vertical	± 3.54

2 EUT Description

Applicant	BaudTec Corporation
Applicant Address	12F,NO,181,Sec.1.TatungRd.,His-chih City,Taipei county ,221 Taiwan
Manufacturer	BaudTec Corporation
Manufacturer Address	12F,NO,181,Sec.1.TatungRd.,His-chih City,Taipei county ,221 Taiwan
Product Type	Wireless ADSL2+ Router
Trade Name	Baudtec
Model Number	RN243R4-2T2R-A9, RN243R4-2T2R-B9, RN243R4-1T1R-A9, RN243R4-1T1R-B9, RN243R4H-2T2R-A9, RN243R4H-2T2R-B9, RN243R4H-1T1R-A9, RN243R4H-1T1R-B9, RN243R4-2T2R-A6-V2, RN243R4-2T2R-A6-V3
Different Description	These model numbers differ from each other in selling region.
FCC ID	XKR-RN243R4A9
Operate Band	IEEE 802.11b / 802.11g / 802.11n 2.4GHz 20MHz & 40MHz
Frequency Range	IEEE 802.11b / 802.11g / 802.11n 2.4GHz 20MHz: 2412 ~ 2462 MHz IEEE 802.11n 2.4GHz 40MHz: 2422 ~ 2452 MHz
Modulation Type	IEEE 802.11b:DSSS IEEE 802.11g:DSSS + OFDM IEEE 802.11n 2.4GHz 20MHz: OFDM IEEE 802.11n 2.4GHz 40MHz: OFDM
Antenna Delivery	IEEE 802.11b/g: 1TX + 1RX IEEE 802.11n 2.4GHz 20MHz/40MHz: 2TX + 2RX
Antenna Type	PIFA Antenna
Antenna Gain	2.54 dBi
RF Output Power	IEEE 802.11b: 0.067 W /18.26 dBm IEEE 802.11g: 0.268 W / 24.28 dBm IEEE 802.11n 2.4GHz 20MHz: 0.263 W / 24.20 dBm IEEE 802.11n 2.4GHz 40MHz: 0.260 W / 24.15 dBm

3 Test Methodology

3.1. Mode of Operation

Decision of Test ATL has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Normal operation mode
Mode 2: IEEE 802.11b link mode
Mode 3: IEEE 802.11g link mode
Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode
Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode

Software used to control the EUT for staying in continuous transmitting mode was programmed.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode only.

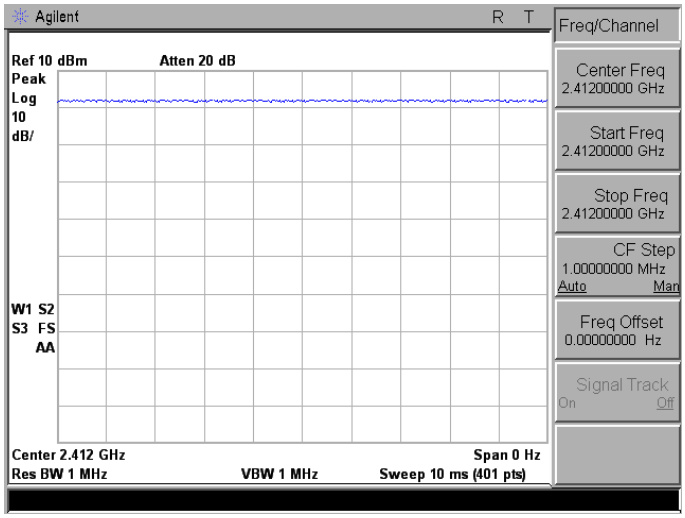
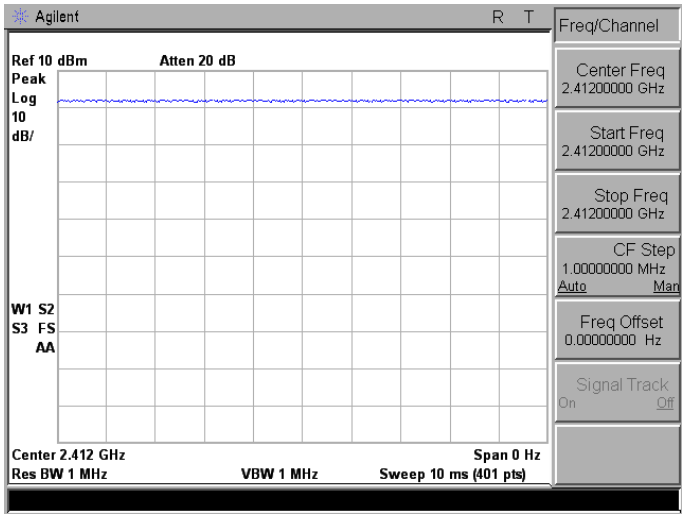
Test Mode	ANT-0	ANT-1	ANT-0+1
Mode 2: IEEE 802.11b link mode	V	V	
Mode 3: IEEE 802.11g link mode	V	V	
Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode	V	V	V
Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode	V	V	V

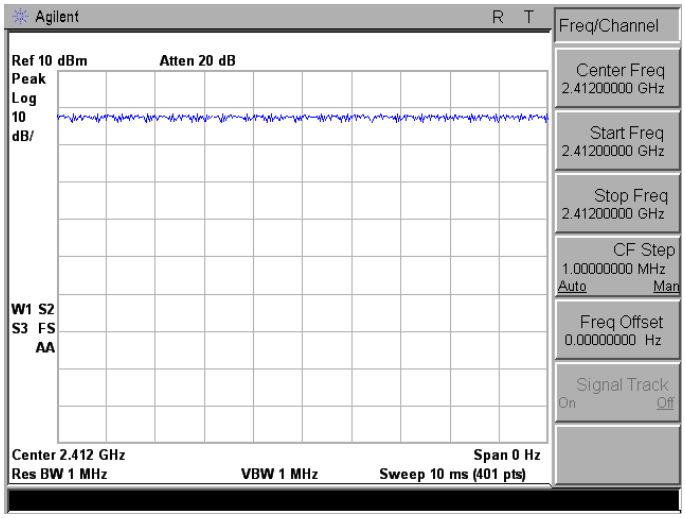
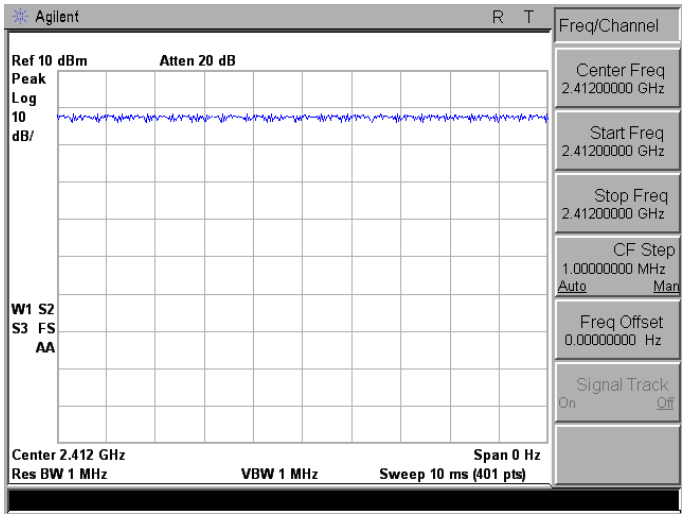
Test Mode	Antenna Delivery	Test Channel	Data Rate
Mode 2: IEEE 802.11b link mode	1TX / 1RX	1, 6, 11	1
Mode 3: IEEE 802.11g link mode	1TX / 1RX	1, 6, 11	6
Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode	2TX / 2RX	1, 6, 11	13
Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode	2TX / 2RX	3, 6, 9	27

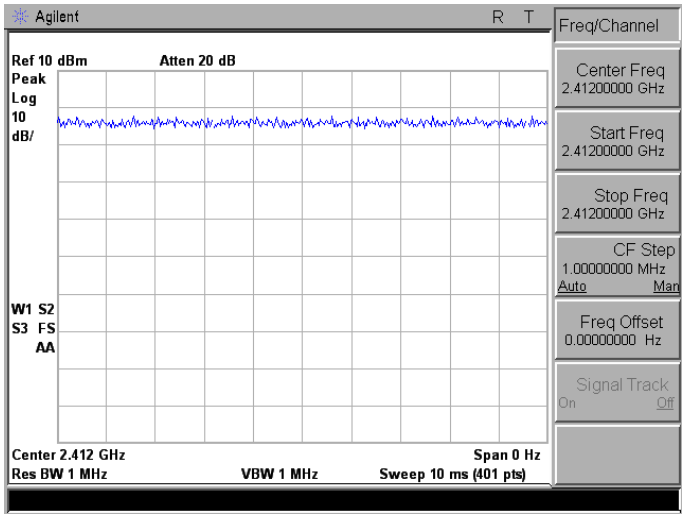
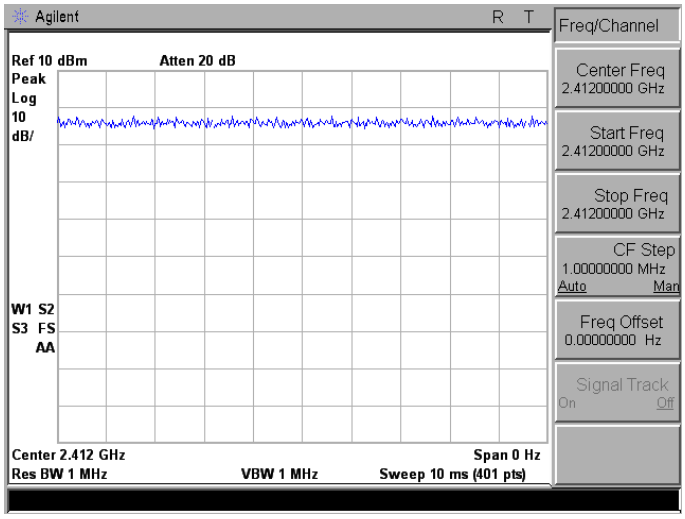
Duty cycle

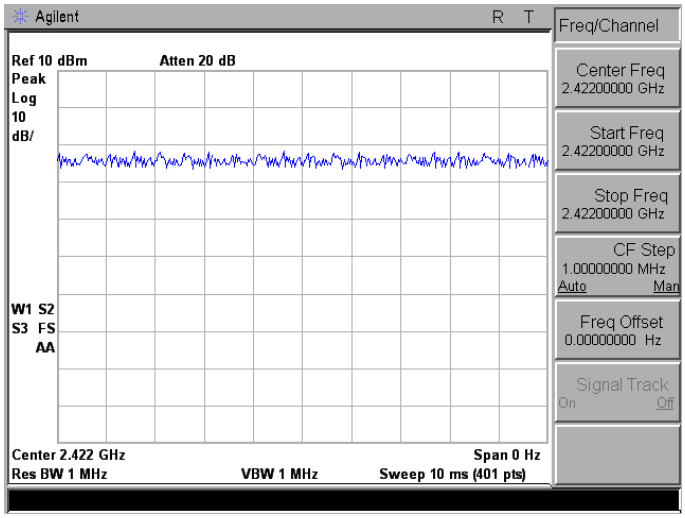
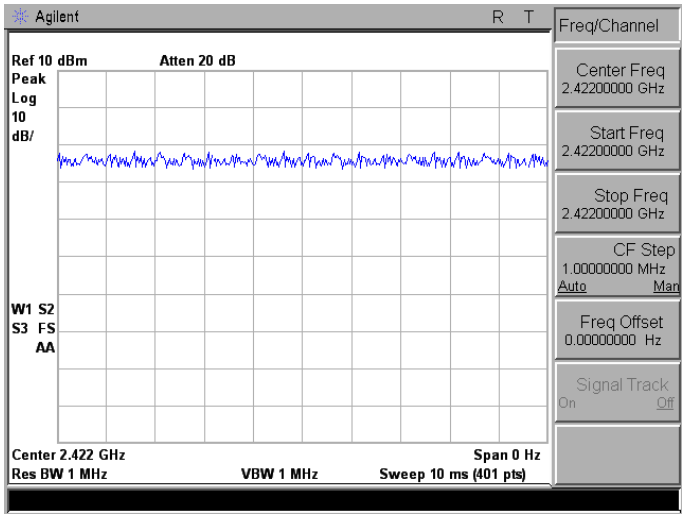
Test Mode	Frequency (MHz)	on time (ms)	on+off time (ms)	Duty cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
Mode 2: IEEE 802.11b link mode	2412.0	1.000	1.000	1.000	0.000	0.010
Mode 3: IEEE 802.11g link mode	2412.0	1.000	1.000	1.000	0.000	0.010
Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode	2412.0	1.000	1.000	1.000	0.000	0.010
Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode	2422.0	1.000	1.000	1.000	0.000	0.010

Duty Cycle Graphs

Mode 2: IEEE 802.11b link mode	
On time	
On+off time	

Mode 3: IEEE 802.11g Mode	
On time	
On+off time	

Mode 4: IEEE 802.11n 2.4GHz 20MHz Mode	
On time	
On+off time	

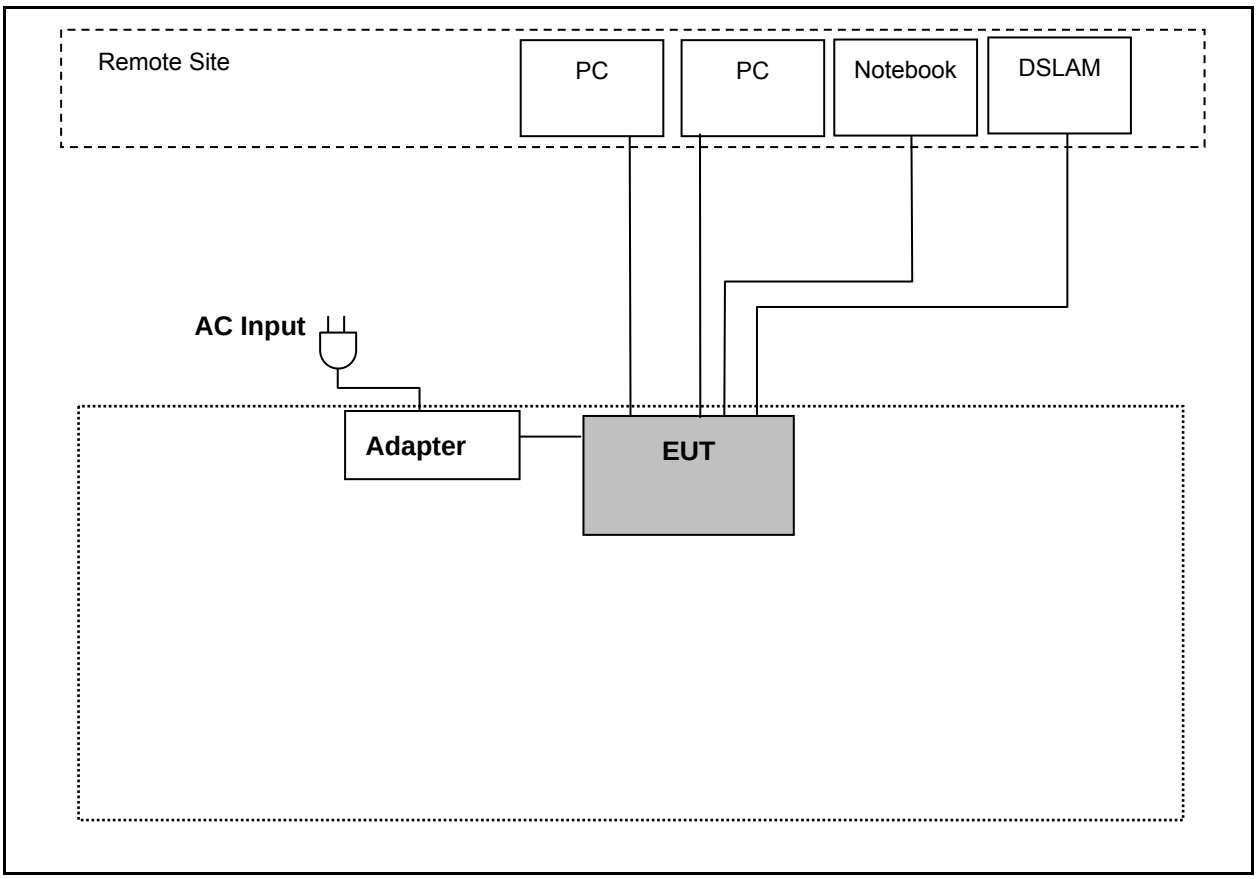
Mode 5: IEEE 802.11n 2.4GHz 40MHz Mode	
On time	
On+off time	

3.2. EUT Exercise Software

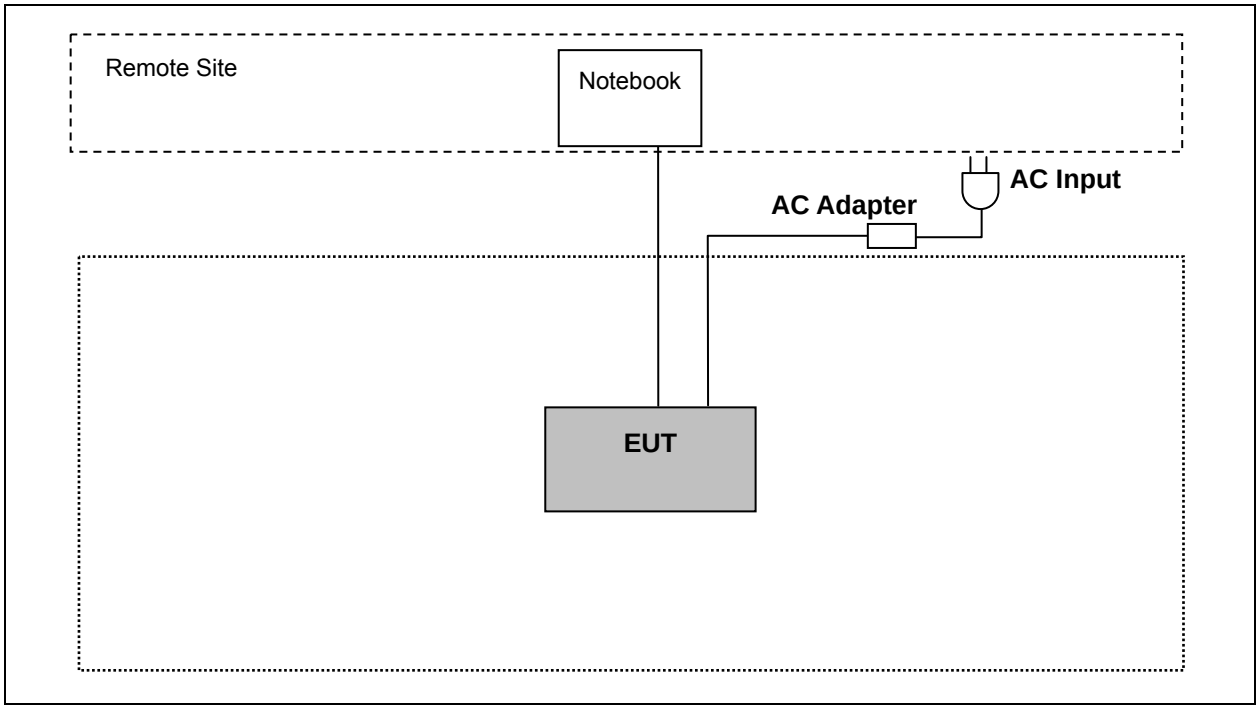
1. Setup the EUT shown on 3.3.
2. Turn on the power of all equipment.
3. Turn on Wi-Fi function.
4. EUT run test program.

3.3. Configuration of Test System Details

Conducted Emissions



Radiated Emissions



3.4. Test Site Environment

Items	Required (IEC 60068-1)	Actual
Temperature (°C)	15-35	26
Humidity (%RH)	25-75	60
Barometric pressure (mbar)	860-1060	950

4 Conducted Emission Measurement

4.1. Limit

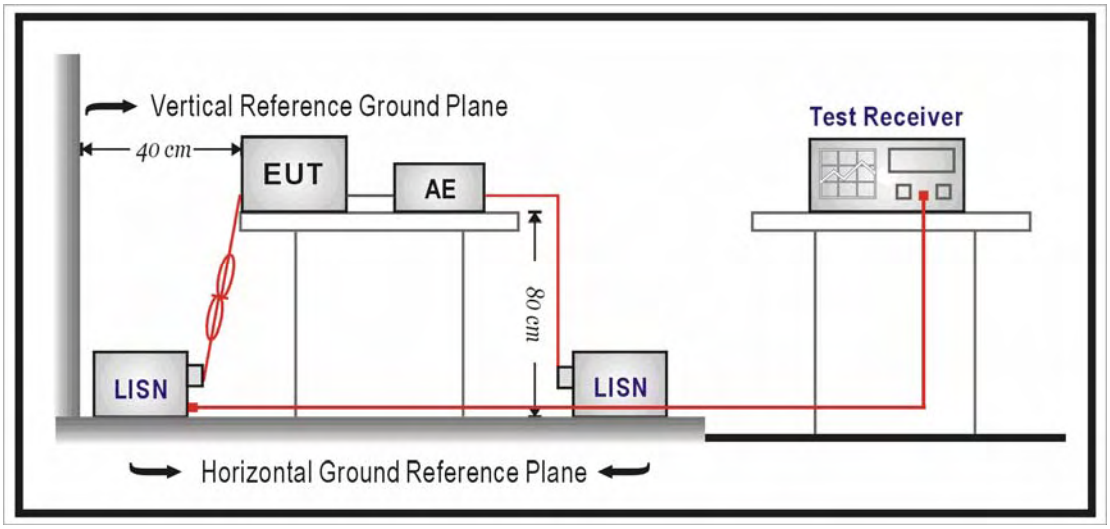
Frequency (MHz)	Quasi-peak	Average
0.15 - 0.5	66 to 56	56 to 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

4.2. Test Instruments

Describe	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Test Receiver	R&S	ESCI	100367	06/25/2015	(1)
LISN	R&S	ENV216	101040	03/10/2015	(1)
LISN	R&S	ENV216	101041	03/06/2015	(1)
RF Cable	EMCI	RG 214/U	TE-02	06/29/2015	(1)
Test Site	ATL	TE02	TE02	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years. (3) Calibration period 3 years.
Note: N.C.R. = No Calibration Request.

4.3. Test Setup



4.4. Test Procedure

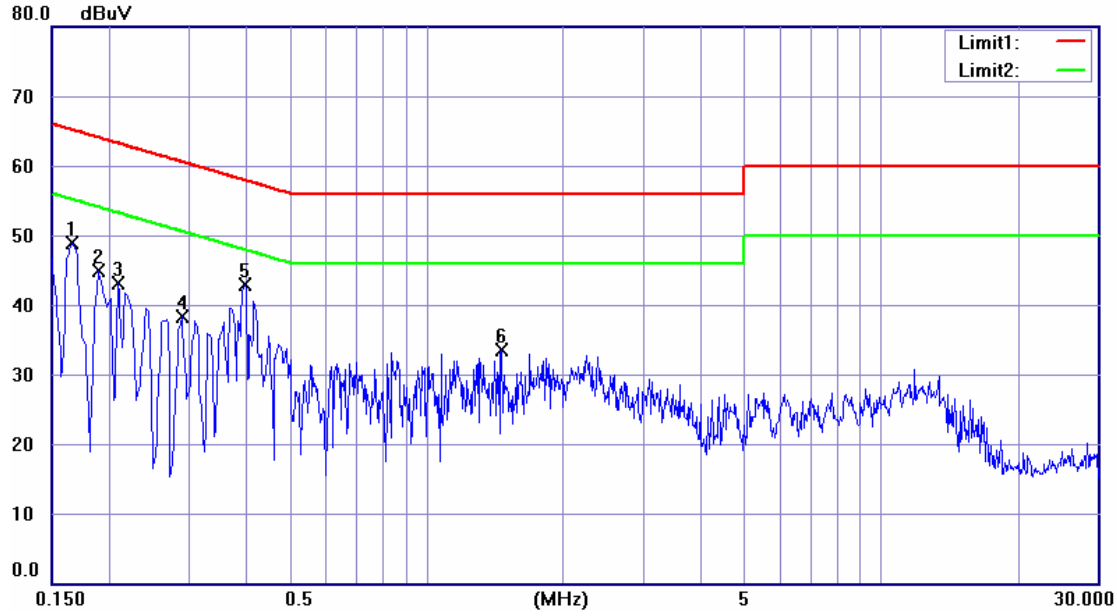
The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the back wall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3162/2 SH Line Impedance Stabilization Networks (LISN). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPR quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 4.1.

4.5. Test Result

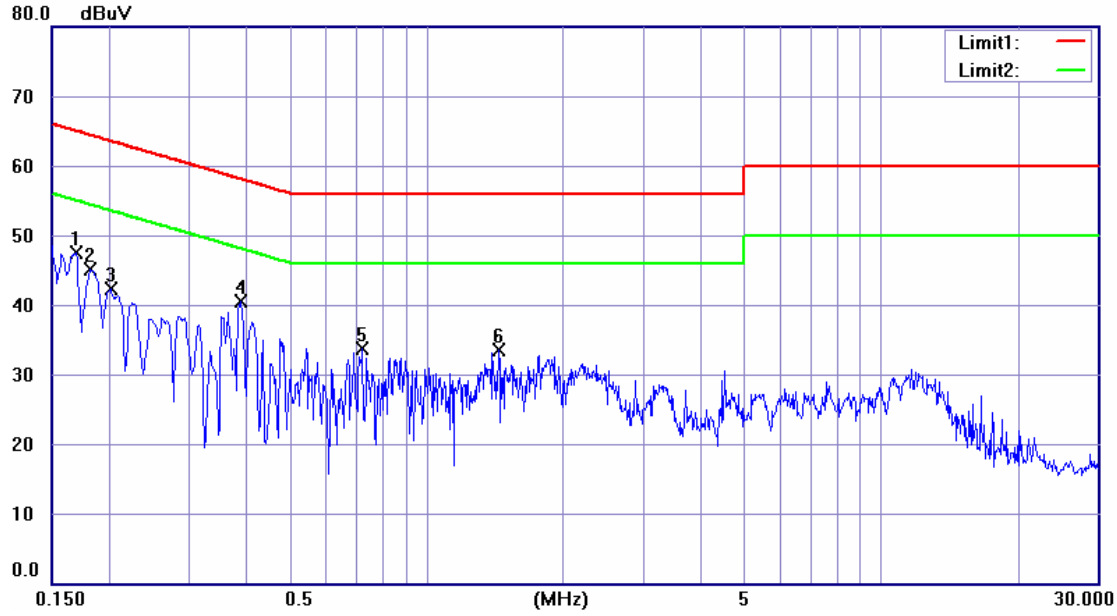
Standard:	FCC Part 15C	Line:	L1
Test item:	Conducted Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 1	Date:	07/07/2015
		Test By:	Eric Ou Yang
Description:			



No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1660	37.75	28.24	9.60	47.35	37.84	65.16	55.16	-17.81	-17.32	Pass
2	0.1900	33.91	23.10	9.60	43.51	32.70	64.04	54.04	-20.53	-21.34	Pass
3	0.2100	30.66	20.58	9.60	40.26	30.18	63.21	53.21	-22.95	-23.03	Pass
4	0.2900	27.20	19.07	9.61	36.81	28.68	60.52	50.52	-23.71	-21.84	Pass
5	0.3980	30.98	23.38	9.61	40.59	32.99	57.90	47.90	-17.31	-14.91	Pass
6	1.4660	19.18	8.98	9.67	28.85	18.65	56.00	46.00	-27.15	-27.35	Pass

Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).
2. Correction factor (dB) = Cable loss (dB) + L.I.S.N. factor (dB).

Standard:	FCC Part 15C	Line:	N
Test item:	Conducted Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 1	Date:	07/07/2015
		Test By:	Eric Ou Yang
Description:			



No.	Frequency (MHz)	QP reading (dBuV)	AVG reading (dBuV)	Correction factor (dB)	QP result (dBuV)	AVG result (dBuV)	QP limit (dBuV)	AVG limit (dBuV)	QP margin (dB)	AVG margin (dB)	Remark
1	0.1700	35.54	23.91	9.60	45.14	33.51	64.96	54.96	-19.82	-21.45	Pass
2	0.1820	33.58	21.47	9.60	43.18	31.07	64.39	54.39	-21.21	-23.32	Pass
3	0.2030	30.63	20.41	9.60	40.23	30.01	63.49	53.49	-23.26	-23.48	Pass
4	0.3900	29.47	20.46	9.61	39.08	30.07	58.06	48.06	-18.98	-17.99	Pass
5	0.7260	20.92	10.79	9.62	30.54	20.41	56.00	46.00	-25.46	-25.59	Pass
6	1.4460	16.85	6.14	9.67	26.52	15.81	56.00	46.00	-29.48	-30.19	Pass

Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).
2. Correction factor (dB) = Cable loss (dB) + L.I.S.N. factor (dB).

5 Radiated Emission Measurement

5.1. Limit

According to §15.209(a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (μV/m at 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

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

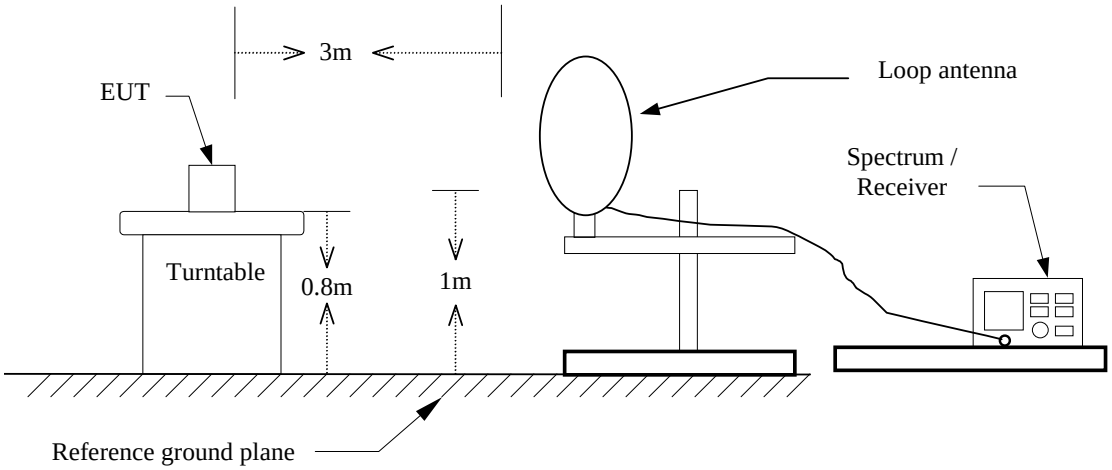
5.2. Test Instruments

3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/06/2015	(1)
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/06/2015	(1)
Pre Amplifier	Agilent	8449B	3008A02237	02/24/2015	(1)
Pre Amplifier	Agilent	8447D	2944A10961	02/24/2015	(1)
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	07/22/2014	(1)
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/12/2015	(1)
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	07/06/2015	(1)
Loop Antenna	COM-POWER CORPORATION	AL-130	121014	02/02/2015	(1)
Microwave Cable	EMCI	EMC-104-SM-SM-14000	140202	02/24/2015	(1)
Microwave Cable	EMCI	EMC104-SM-SM-600	140301	02/24/2015	(1)
Test Site	ATL	TE01	888001	08/28/2014	(1)

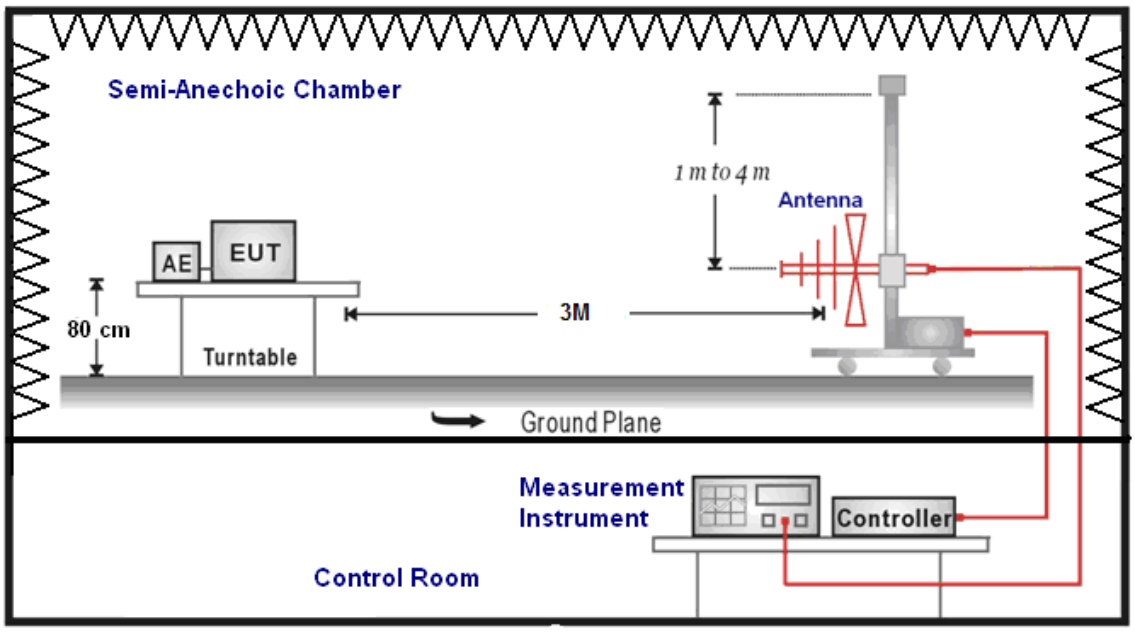
Remark: (1) Calibration period 1 year. (2) Calibration period 2 years. (3) Calibration period 3 years.
Note: N.C.R. = No Calibration Request.

5.3. Setup

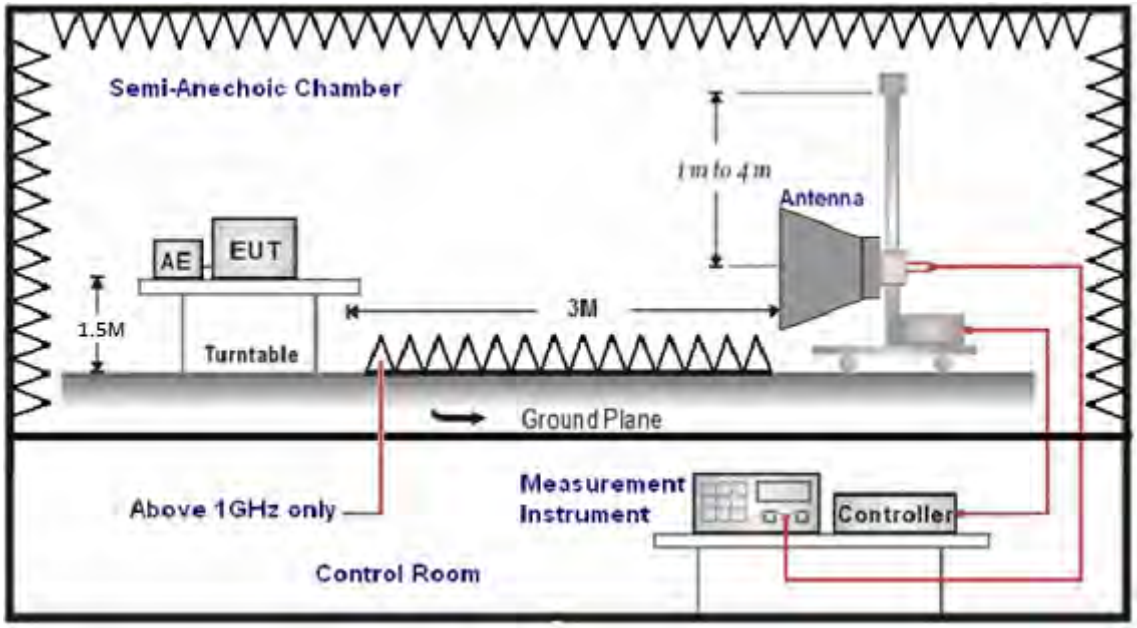
9kHz ~ 30MHz



Below 1GHz



Above 1GHz


Semi-Anechoic Chamber
1 m to 4 m
Antenna
AE
EUT
1.5M
3M
Turntable
Ground Plane
Above 1GHz only
Measurement
Instrument
Controller
Control Room

5.4. Test Procedure

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 or 1.5 meters height(below 1GHz use 0.8m turntable / above 1GHz use 1.5m turntable), top surface 1.0 x 1.5 meter. The spectrum was examined from 250 MHz to 2.5 GHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to transmit continuously & Measurements spectrum range from 9 kHz to 26.5 GHz is investigated.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements when Duty cycle >98% / 1/T for average measurements when Duty cycle <98%. A nonconductive material surrounded the EUT to supporting the EUT for standing on tree orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

SCHWARZBECK MESS-ELEKTRONIK Biconilog Antenna (mode VULB9163) at 3 Meter and the SCHWARZBECK Double Ridged Guide Antenna (model BBHA9120D&9170) was used in frequencies 1 – 26.5 GHz at a distance of 1 meter. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20dB/decade).

For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts pre meter (uV/m).

The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro colts per meter (dBuV/m).

The actual field is intensity in referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and Subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

(1) Amplitude (dBuV/m) = FI (dBuV) +AF (dBuV) +CL (dBuV)-Gain (dB)
FI= Reading of the field intensity.
AF= Antenna factor.
CL= Cable loss.
P.S Amplitude is auto calculate in spectrum analyzer.

(2) Actual Amplitude (dBuV/m) = Amplitude (dBuV)-Dis(dB)
The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:
(a) For fundamental frequency : Transmitter Output < +30dBm
(b) For spurious frequency : Spurious emission limits = fundamental emission limit /10

Data of measurement within this frequency range without mark 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.

5.5. Test Result

Below 1GHz

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 1	Date:	07/14/2015
		Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
169.0000	41.51	-11.57	29.94	43.50	-13.56	QP	H
318.5000	45.31	-9.08	36.23	46.00	-9.77	QP	H
394.0000	45.90	-7.49	38.41	46.00	-7.59	QP	H
525.0000	40.32	-4.95	35.37	46.00	-10.63	QP	H
787.5000	38.00	0.26	38.26	46.00	-7.74	QP	H
917.0000	34.23	2.86	37.09	46.00	-8.91	QP	H
225.0000	49.82	-12.80	37.02	46.00	-8.98	QP	V
300.0000	44.91	-9.42	35.49	46.00	-10.51	QP	V
375.0000	43.14	-7.91	35.23	46.00	-10.77	QP	V
487.5000	43.03	-5.65	37.38	46.00	-8.62	QP	V
675.0000	29.76	-2.00	27.76	46.00	-18.24	QP	V
900.0000	35.40	2.68	38.08	46.00	-7.92	QP	V

Note: No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).

Above 1GHz

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 2	Date:	07/13/2015
Frequency:	2412MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3002.000	37.16	6.12	43.28	74.00	-30.72	peak	H
4824.000	38.24	10.26	48.50	74.00	-25.50	peak	H
6649.000	33.66	12.74	46.40	74.00	-27.60	peak	H
3030.000	38.19	6.21	44.40	74.00	-29.60	peak	V
4824.000	51.51	10.26	61.77	74.00	-12.23	peak	V
4824.000	42.86	10.26	53.12	54.00	-0.88	AVG	V
7236.000	38.34	13.03	51.37	74.00	-22.63	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 2	Date:	07/13/2015
Frequency:	2437MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3051.000	37.19	6.28	43.47	74.00	-30.53	peak	H
4874.000	39.69	10.33	50.02	74.00	-23.98	peak	H
7311.000	35.80	13.05	48.85	74.00	-25.15	peak	H
3058.000	38.78	6.30	45.08	74.00	-28.92	peak	V
4874.000	41.53	10.33	51.86	74.00	-22.14	peak	V
7311.000	38.50	13.05	51.55	74.00	-22.45	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 2	Date:	07/13/2015
Frequency:	2462MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3037.000	38.04	6.23	44.27	74.00	-29.73	peak	H
4924.000	40.99	10.41	51.40	74.00	-22.60	peak	H
7386.000	38.82	13.07	51.89	74.00	-22.11	peak	H
3051.000	38.06	6.28	44.34	74.00	-29.66	peak	V
4924.000	40.51	10.41	50.92	74.00	-23.08	peak	V
7386.000	43.50	13.07	56.57	74.00	-17.43	peak	V
7386.000	39.81	13.07	52.88	54.00	-1.12	AVG	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 3	Date:	07/14/2015
Frequency:	2412MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3016.000	38.67	6.16	44.83	74.00	-29.17	peak	H
4542.000	33.21	9.83	43.04	74.00	-30.96	peak	H
6691.000	33.23	12.78	46.01	74.00	-27.99	peak	H
3023.000	36.28	6.18	42.46	74.00	-31.54	peak	V
4824.000	39.27	10.26	49.53	74.00	-24.47	peak	V
7236.000	38.18	13.03	51.21	74.00	-22.79	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 3	Date:	07/14/2015
Frequency:	2437MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3037.000	37.68	6.23	43.91	74.00	-30.09	peak	H
4874.000	38.10	10.33	48.43	74.00	-25.57	peak	H
6621.000	33.15	12.72	45.87	74.00	-28.13	peak	H
3009.000	37.13	6.14	43.27	74.00	-30.73	peak	V
4874.000	40.10	10.33	50.43	74.00	-23.57	peak	V
7311.000	38.77	13.05	51.82	74.00	-22.18	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 3	Date:	07/14/2015
Frequency:	2462MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3030.000	37.87	6.21	44.08	74.00	-29.92	peak	H
4924.000	38.74	10.41	49.15	74.00	-24.85	peak	H
7386.000	38.30	13.07	51.37	74.00	-22.63	peak	H
3009.000	38.65	6.14	44.79	74.00	-29.21	peak	V
4924.000	38.07	10.41	48.48	74.00	-25.52	peak	V
7386.000	43.13	13.07	56.20	74.00	-17.80	peak	V
7386.000	34.37	13.07	47.44	54.00	-6.56	AVG	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 4	Date:	07/14/2015
Frequency:	2412MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3002.000	36.91	6.12	43.03	74.00	-30.97	peak	H
4619.000	33.77	9.94	43.71	74.00	-30.29	peak	H
6761.000	34.56	12.81	47.37	74.00	-26.63	peak	H
3037.000	38.54	6.23	44.77	74.00	-29.23	peak	V
4824.000	40.12	10.26	50.38	74.00	-23.62	peak	V
6621.000	34.55	12.72	47.27	74.00	-26.73	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 4	Date:	07/14/2015
Frequency:	2437MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3051.000	37.20	6.28	43.48	74.00	-30.52	peak	H
4549.000	32.98	9.83	42.81	74.00	-31.19	peak	H
6691.000	34.02	12.78	46.80	74.00	-27.20	peak	H
3002.000	39.06	6.12	45.18	74.00	-28.82	peak	V
4874.000	37.14	10.33	47.47	74.00	-26.53	peak	V
7311.000	35.95	13.05	49.00	74.00	-25.00	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 4	Date:	07/14/2015
Frequency:	2462MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2974.000	37.25	6.04	43.29	74.00	-30.71	peak	H
4570.000	34.95	9.87	44.82	74.00	-29.18	peak	H
6663.000	34.65	12.75	47.40	74.00	-26.60	peak	H
3023.000	37.47	6.18	43.65	74.00	-30.35	peak	V
4924.000	37.90	10.41	48.31	74.00	-25.69	peak	V
7386.000	38.37	13.07	51.44	74.00	-22.56	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 5	Date:	07/14/2015
Frequency:	2422MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3009.000	36.71	6.14	42.85	74.00	-31.15	peak	H
4563.000	33.53	9.86	43.39	74.00	-30.61	peak	H
6775.000	33.02	12.82	45.84	74.00	-28.16	peak	H
3009.000	37.20	6.14	43.34	74.00	-30.66	peak	V
4577.000	34.08	9.87	43.95	74.00	-30.05	peak	V
6705.000	34.18	12.78	46.96	74.00	-27.04	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 5	Date:	07/14/2015
Frequency:	2437MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3030.000	37.01	6.21	43.22	74.00	-30.78	peak	H
4570.000	33.58	9.87	43.45	74.00	-30.55	peak	H
6719.000	33.38	12.79	46.17	74.00	-27.83	peak	H
3030.000	37.46	6.21	43.67	74.00	-30.33	peak	V
4619.000	34.76	9.94	44.70	74.00	-29.30	peak	V
6691.000	34.46	12.78	47.24	74.00	-26.76	peak	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 5	Date:	07/14/2015
Frequency:	2452MHz	Test By:	Eric Ou Yang

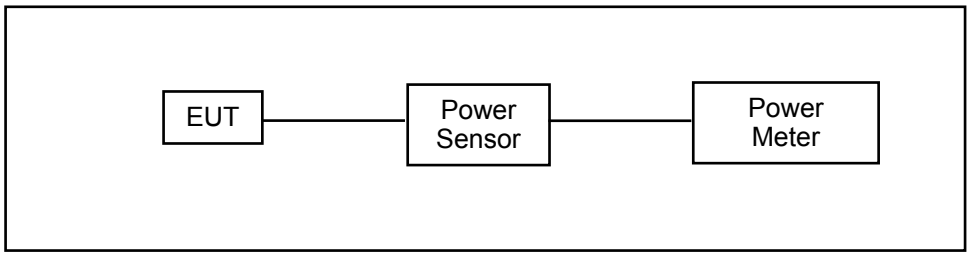
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
3058.000	37.26	6.30	43.56	74.00	-30.44	peak	H
4605.000	33.85	9.92	43.77	74.00	-30.23	peak	H
6670.000	33.49	12.76	46.25	74.00	-27.75	peak	H
3002.000	37.89	6.12	44.01	74.00	-29.99	peak	V
4591.000	34.16	9.90	44.06	74.00	-29.94	peak	V
6663.000	33.90	12.75	46.65	74.00	-27.35	peak	V

6 Maximum Conducted Output Power Measurement

6.1. Limit

For systems using digital modulation in the 2400-2483.5MHz, the limit for maximum output power is 30dBm.

6.2. Test Setup



6.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Power Sensor	Anritsu	MA2411B	1126022	08/21/2014	(1)
Power Meter	Anritsu	ML2495A	1135009	08/21/2014	(1)
Test Site	ATL	TE05	TE05	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years. (3) Calibration period 3 years.
Note: N.C.R. = No Calibration Request.

6.4. Test Procedure

The tests below are run with the EUT's transmitter set at high power in TX mode. The EUT is needed to force selection of output power level and channel number. While testing, EUT was set to transmit continuously. Remove the Subjective device's antenna and connect the RF output port to power sensor. The maximum output power shall not exceed 1 watt.

Use a direct connection between the antenna port of transmitter and the power sensor, for prevent the power sensor input attenuation 40-50 dB. Set the RBW Bandwidth of the emission or use a channel power meter mode.

For antennas with gains of 6 dBi or less, maximum allowed transmitter output is 1 watt (+30 dBm). For antennas with gains greater than 6 dBi, transmitter output level must be decreased by an amount equal to (GAIN - 6)/3 dBm.

The antenna port of the EUT was connected to the input of a power sensor. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.

6.5. Test Result

Model Number	RN243R4-2T2R-A9								
Test Item	Maximum Conducted Output Power								
Test Mode	Mode 2: IEEE 802.11b link mode								
Date of Test	07/07/2015						Test Site		TE05

Frequency (MHz)	Data Rate	Average Power				Peak Power				Limit (dBm)
		ANT-0		ANT-1		ANT-0		ANT-1		
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
2412	1M	14.93	0.031	14.95	0.031	17.04	0.051	17.12	0.052	< 30
2437		16.07	0.040	16.09	0.041	18.18	0.066	**18.26**	**0.067**	< 30
2462		16.02	0.040	16.03	0.040	18.14	0.065	18.19	0.066	< 30
2437	2M	16.02	0.040	15.99	0.040	18.11	0.065	18.19	0.066	< 30
2437	5.5M	15.98	0.040	15.91	0.039	18.05	0.064	18.13	0.065	< 30
2437	11M	15.92	0.039	15.86	0.039	18.00	0.063	18.07	0.064	< 30

Model Number	RN243R4-2T2R-A9								
Test Item	Maximum Conducted Output Power								
Test Mode	Mode 3: IEEE 802.11g link mode								
Date of Test	07/07/2015						Test Site		TE05

Frequency (MHz)	Data Rate	Average Power				Peak Power				Limit (dBm)
		ANT-0		ANT-1		ANT-0		ANT-1		
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
2412	6M	14.99	0.032	15.04	0.032	24.16	0.261	**24.28**	**0.268**	< 30
2437		14.68	0.029	14.94	0.031	23.92	0.247	24.20	0.263	< 30
2462		14.59	0.029	14.85	0.031	23.84	0.242	24.13	0.259	< 30
2437	9M	14.61	0.029	14.88	0.031	23.85	0.243	24.13	0.259	< 30
2437	12M	14.57	0.029	14.85	0.031	23.81	0.240	24.09	0.256	< 30
2437	18M	14.52	0.028	14.81	0.030	23.75	0.237	24.04	0.254	< 30
2437	24M	14.49	0.028	14.74	0.030	23.71	0.235	23.93	0.247	< 30
2437	36M	14.46	0.028	14.71	0.030	23.68	0.233	23.88	0.244	< 30
2437	48M	14.42	0.028	14.68	0.029	23.64	0.231	23.85	0.243	< 30
2437	54M	14.38	0.027	14.65	0.029	23.61	0.230	23.81	0.240	< 30

Model Number	RN243R4-2T2R-A9								
Test Item	Maximum Conducted Output Power								
Test Mode	Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode								
Date of Test	07/07/2015						Test Site		TE05

Frequency (MHz)	Data Rate	Average Power				Peak Power				Limit (dBm)
		ANT-0		ANT-1		ANT-0		ANT-1		
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
2412	13M	11.07	0.013	11.23	0.013	21.03	0.127	21.35	0.136	< 30
2437		10.91	0.012	11.15	0.013	20.85	0.122	21.28	0.134	< 30
2462		10.81	0.012	11.06	0.013	20.72	0.118	21.21	0.132	< 30
2437	26M	10.86	0.012	11.11	0.013	20.81	0.121	21.24	0.133	< 30
2437	39M	10.82	0.012	11.08	0.013	20.76	0.119	21.21	0.132	< 30
2437	52M	10.77	0.012	11.05	0.013	20.71	0.118	21.19	0.132	< 30
2437	78M	10.73	0.012	11.01	0.013	20.68	0.117	21.14	0.130	< 30
2437	104M	10.68	0.012	10.96	0.012	20.64	0.116	21.06	0.128	< 30
2437	117M	10.62	0.012	10.91	0.012	20.59	0.115	21.00	0.126	< 30
2437	130M	10.57	0.011	10.86	0.012	20.55	0.114	20.93	0.124	< 30

Frequency (MHz)	Data Rate	Average Power		Peak Power		Limit (dBm)
		ANT-0+1		ANT-0+1		
		(dBm)	(W)	(dBm)	(W)	
2412	13M	14.16	0.026	**24.20**	**0.263**	< 30
2437		14.04	0.025	24.08	0.256	< 30
2462		13.95	0.025	23.98	0.250	< 30
2437	26M	14.00	0.025	24.04	0.254	< 30
2437	39M	13.96	0.025	24.00	0.251	< 30
2437	52M	13.92	0.025	23.97	0.249	< 30
2437	78M	13.88	0.024	23.93	0.247	< 30
2437	104M	13.83	0.024	23.87	0.244	< 30
2437	117M	13.78	0.024	23.81	0.240	< 30
2437	130M	13.73	0.024	23.75	0.237	< 30

Model Number	RN243R4-2T2R-A9								
Test Item	Maximum Conducted Output Power								
Test Mode	Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode								
Date of Test	07/07/2015						Test Site		TE05

Frequency (MHz)	Data Rate	Average Power				Peak Power				Limit (dBm)
		ANT-0		ANT-1		ANT-0		ANT-1		
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	(dBm)	(W)	
2422	27M	11.22	0.013	11.38	0.014	21.11	0.129	21.16	0.131	< 30
2437		11.04	0.013	11.24	0.013	20.98	0.125	21.04	0.127	< 30
2452		10.91	0.012	11.13	0.013	20.82	0.121	20.93	0.124	< 30
2437	54M	11.01	0.013	11.21	0.013	20.91	0.123	21.00	0.126	< 30
2437	81M	10.98	0.013	11.17	0.013	20.86	0.122	20.96	0.125	< 30
2437	108M	10.93	0.012	11.13	0.013	20.83	0.121	20.92	0.124	< 30
2437	162M	10.89	0.012	11.08	0.013	20.79	0.120	20.86	0.122	< 30
2437	216M	10.84	0.012	11.04	0.013	20.73	0.118	20.81	0.121	< 30
2437	243M	10.81	0.012	10.99	0.013	20.68	0.117	20.76	0.119	< 30
2437	270M	10.76	0.012	10.94	0.012	20.63	0.116	20.70	0.117	< 30

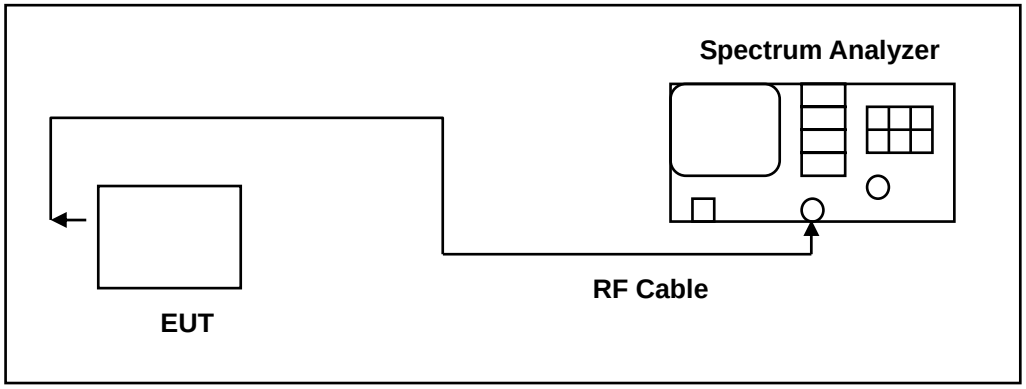
Frequency (MHz)	Data Rate	Average Power		Peak Power		Limit (dBm)
		ANT-0+1		ANT-0+1		
		(dBm)	(W)	(dBm)	(W)	
2422	27M	14.31	0.027	**24.15**	**0.260**	< 30
2437		14.15	0.026	24.02	0.252	< 30
2452		14.03	0.025	23.89	0.245	< 30
2437	54M	14.12	0.026	23.97	0.249	< 30
2437	81M	14.09	0.026	23.92	0.247	< 30
2437	108M	14.04	0.025	23.89	0.245	< 30
2437	162M	14.00	0.025	23.84	0.242	< 30
2437	216M	13.95	0.025	23.78	0.239	< 30
2437	243M	13.91	0.025	23.73	0.236	< 30
2437	270M	13.86	0.024	23.68	0.233	< 30

7 6dB RF Bandwidth Measurement

7.1. Limit

6dB RF Bandwidth: Systems using digital modulation techniques may operate in the 2400–2483.5 MHz bands. The minimum 6 dB band-width shall be at least 500 kHz.

7.2. Test Setup



7.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/16/2014	(1)
Test Site	ATL	TE05	TE05	N.C.R.	-----

dRemark: (1) Calibration period 1 year. (2) Calibration period 2 years. (3) Calibration period 3 years.
Note: N.C.R. = No Calibration Request.

7.4. Test Procedure

The EUT tested to DTS test procedure of KDB558074D01 for compliance to FCC 47CFR 15.247 requirements.
6dB RF Bandwidth: The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES RBW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A peak output reading was taken, a DISPLAY line was drawn 6 dB lower than peak level. The 6 dB bandwidth was determined from where the channel output spectrum intersected the display line.
The test was performed at 3 channels (Channel low, middle, high)

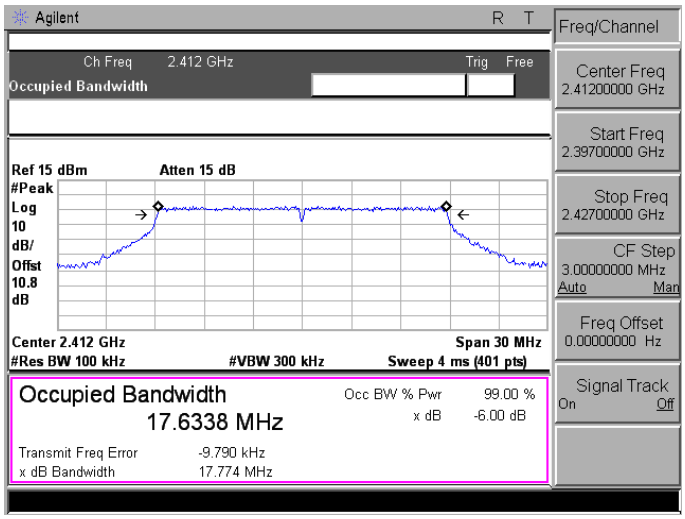
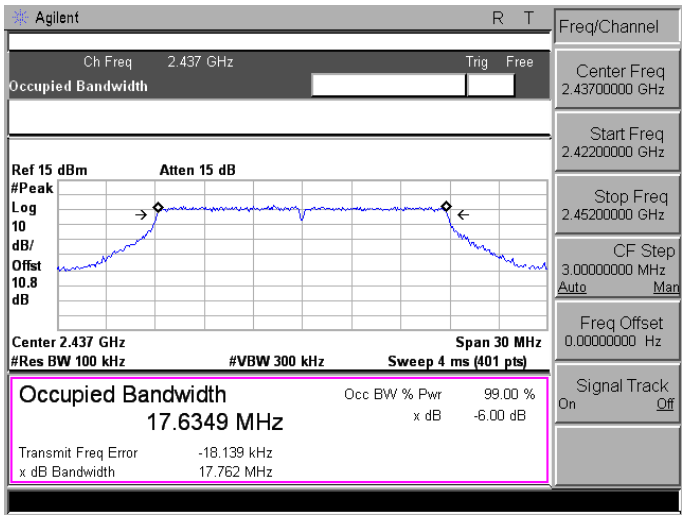
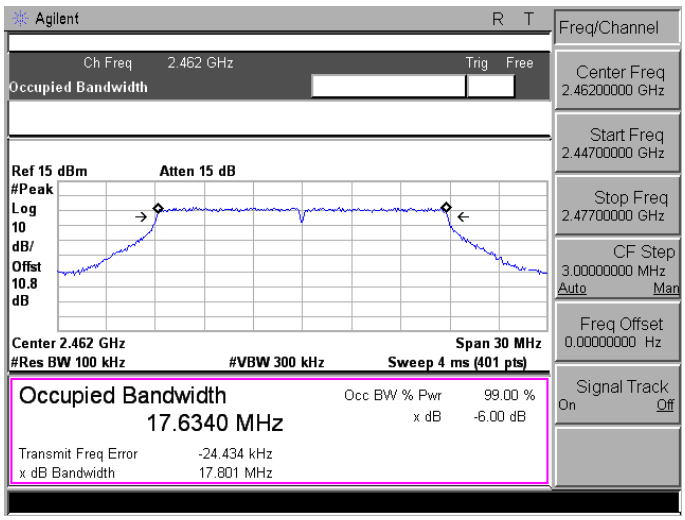
99 % Occupied Bandwidth: The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded.

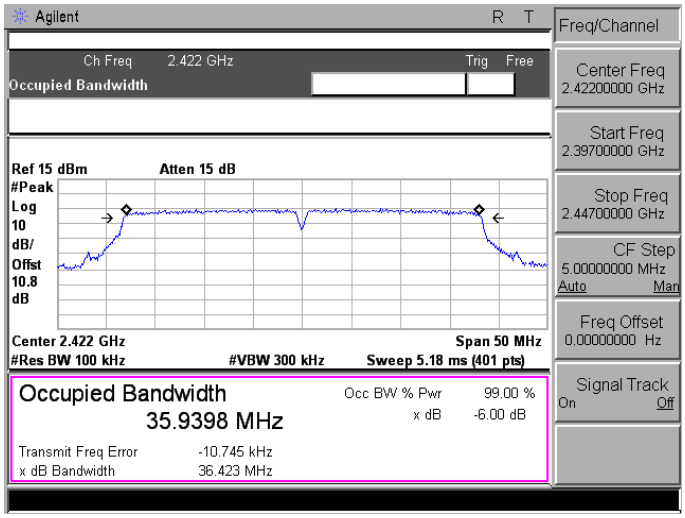
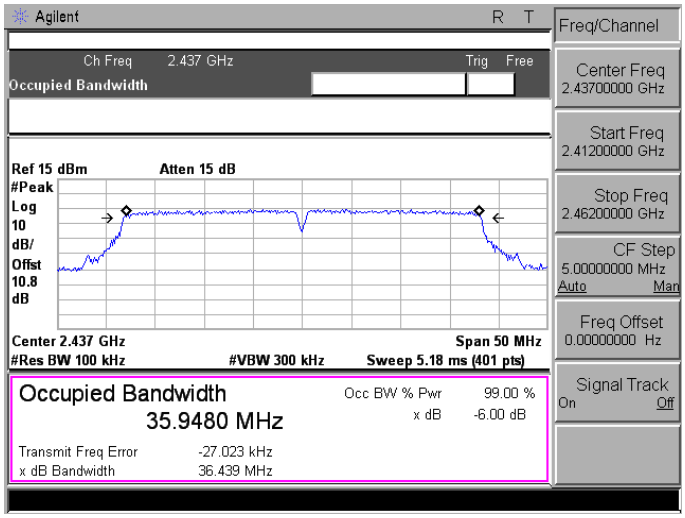
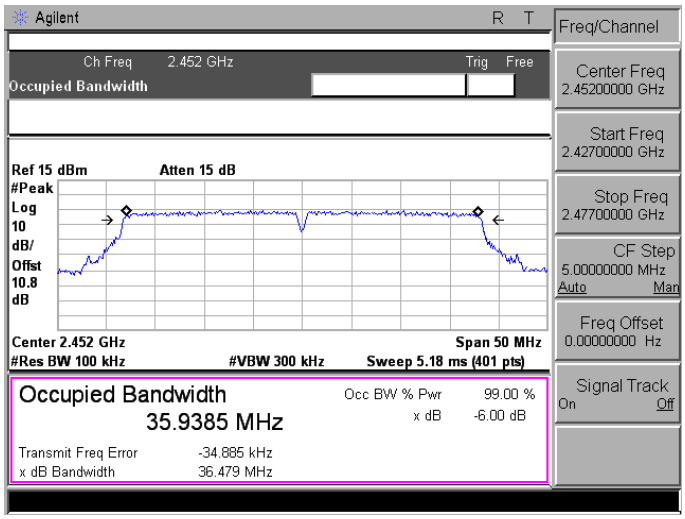
7.5. Test Result

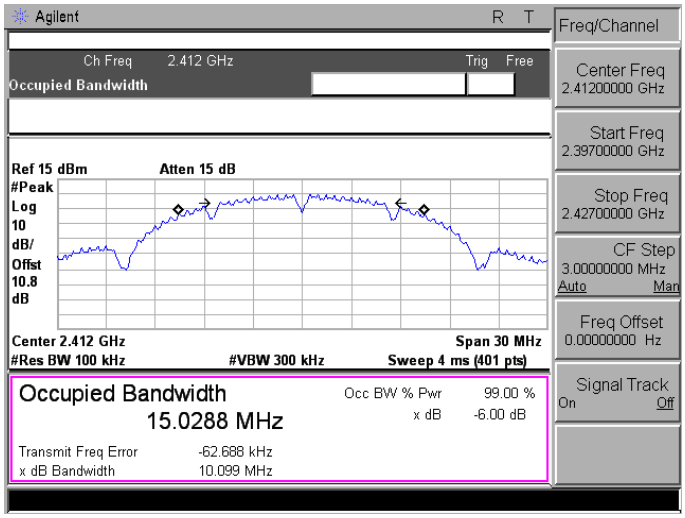
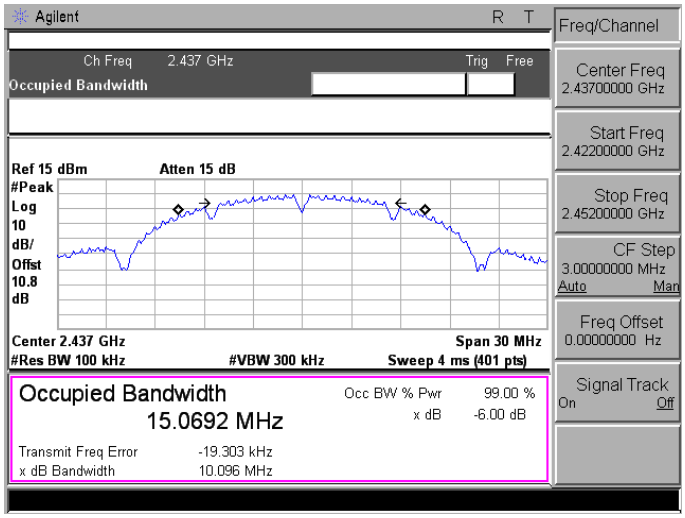
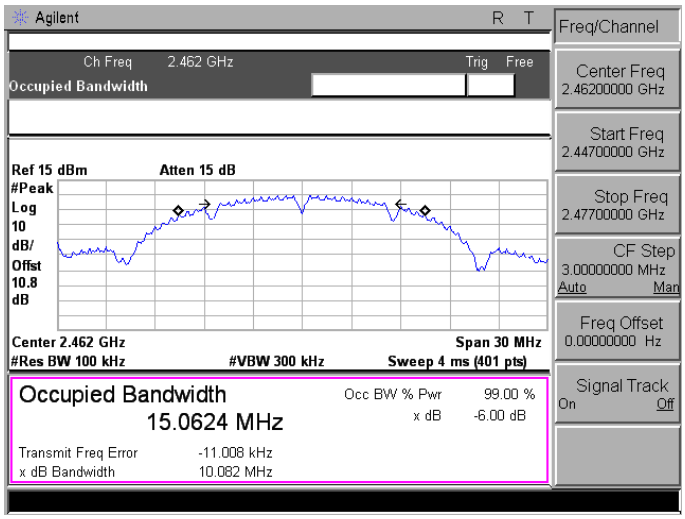
Model Number	RN243R4-2T2R-A9			
Test Item	6dB RF Bandwidth			
Test Mode	Mode 2: IEEE 802.11b link mode Mode 3: IEEE 802.11g link mode Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode			
Date of Test	07/13/2015		Test Site	TE05

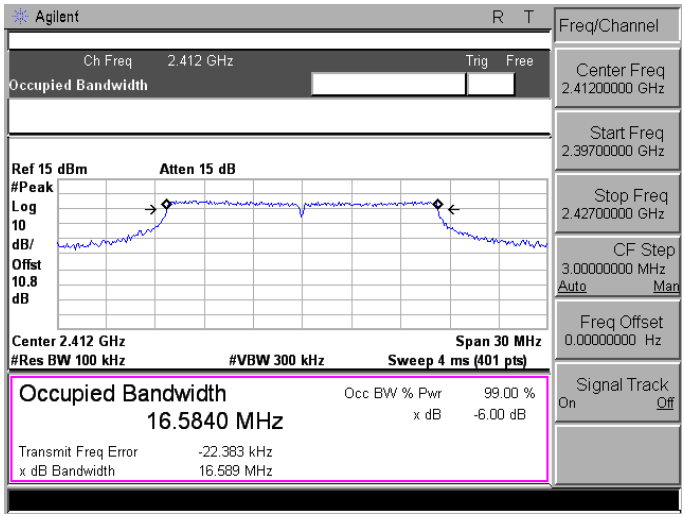
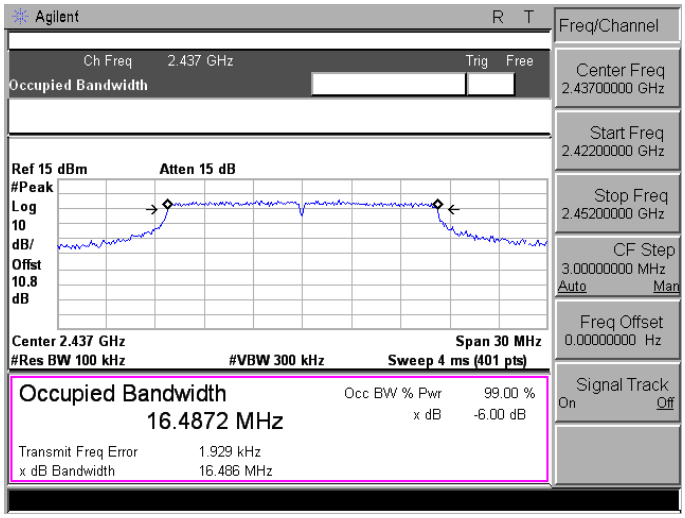
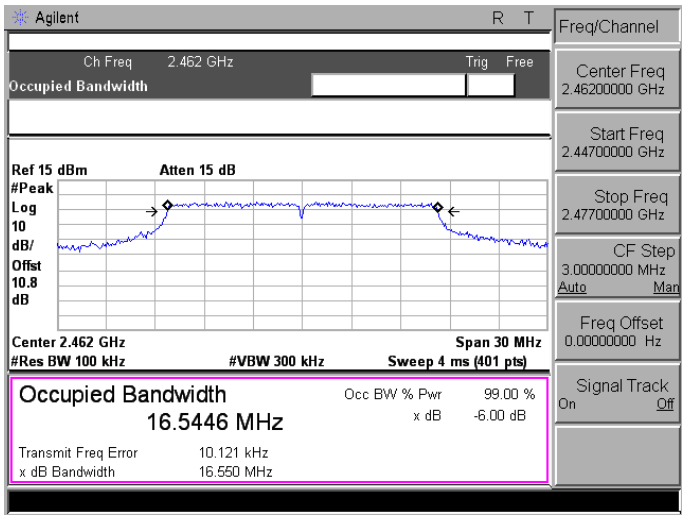
Test Mode	Frequency (MHz)	Measurement (MHz)		Limit (MHz)
		ANT-0	ANT-1	
Mode 2	2412	---	10099	> 0.500
	2437	---	10096	> 0.500
	2462	---	10082	> 0.500
Mode 3	2412	---	16589	> 0.500
	2437	---	16486	> 0.500
	2462	---	16550	> 0.500
Mode 4	2412	17774	17802	> 0.500
	2437	17762	17811	> 0.500
	2462	17801	17779	> 0.500
Mode 5	2422	36423	36426	> 0.500
	2437	36439	36390	> 0.500
	2452	36479	36455	> 0.500

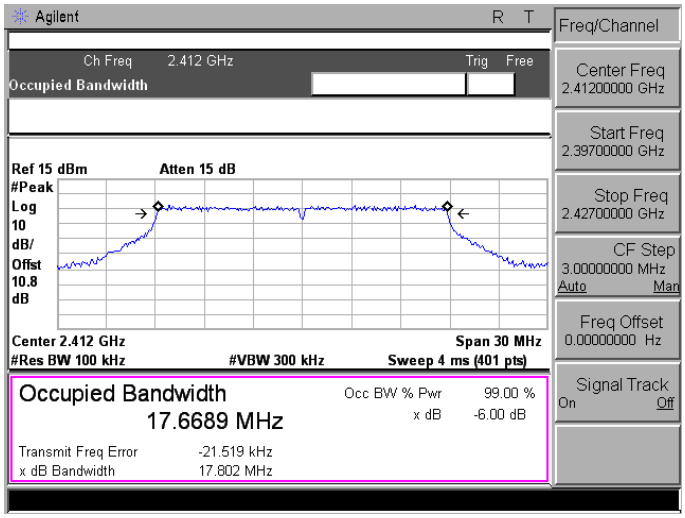
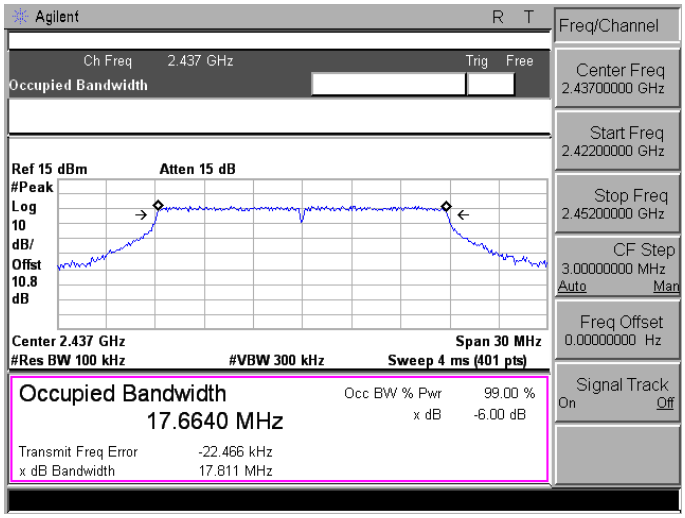
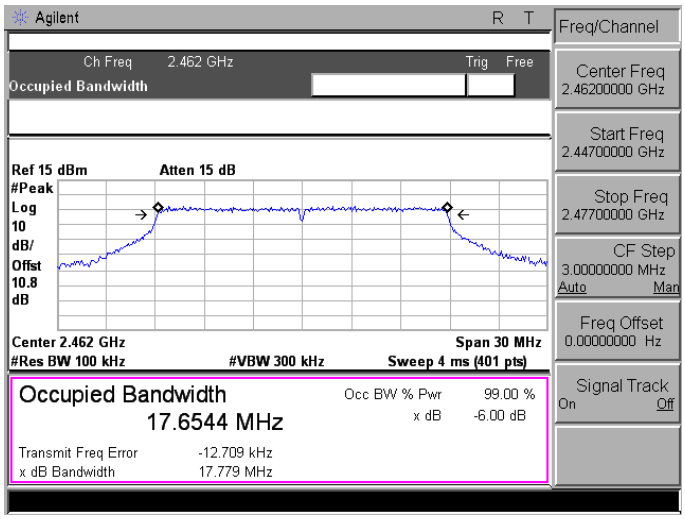
7.6. Test Graphs

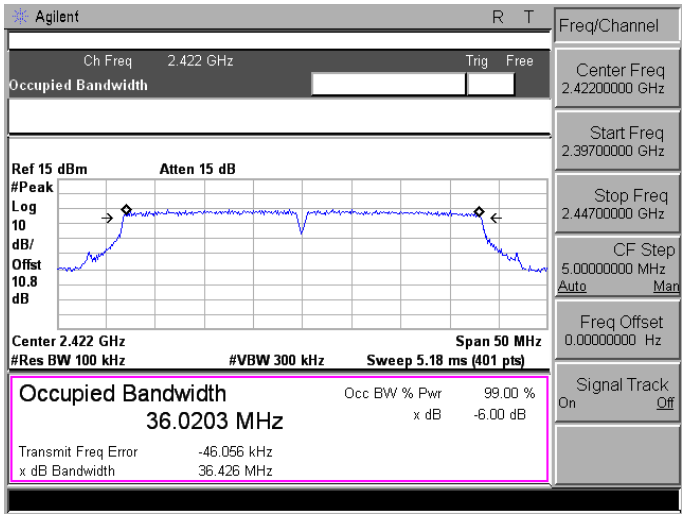
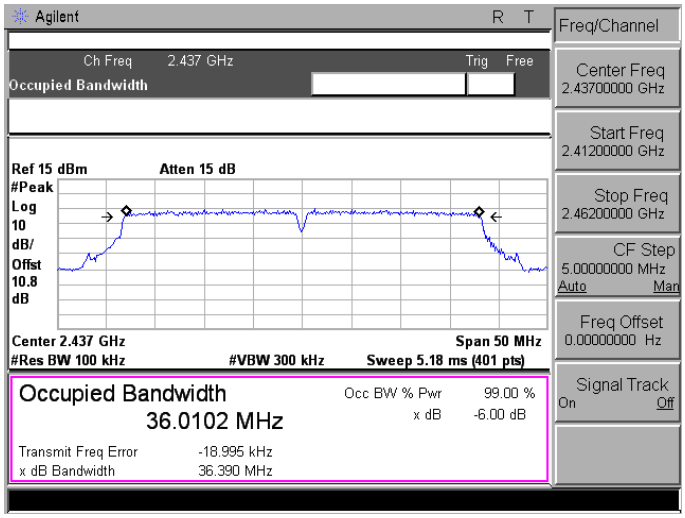
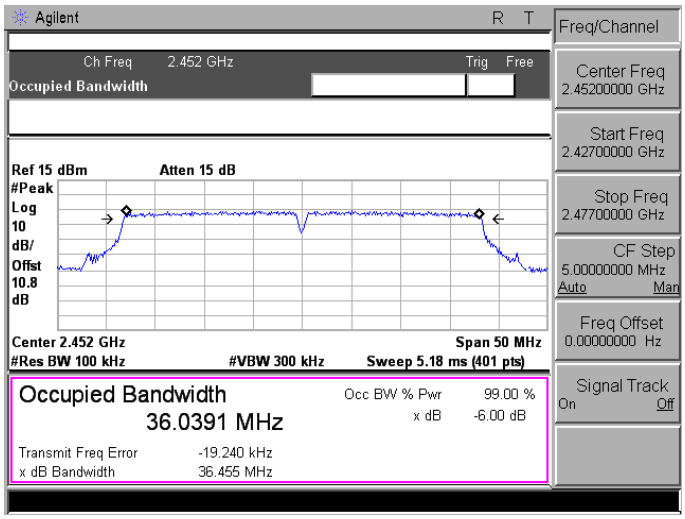
Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode_ANT-0	
2412	
2437	
2462	

Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode_ANT-0	
2422	
2437	
2452	

Mode 2: IEEE 802.11b link mode_ANT-1	
2412	
2437	
2462	

Mode 3: IEEE 802.11g link mode_ANT-1	
2412	
2437	
2462	

Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode_ANT-1	
2412	
2437	
2462	

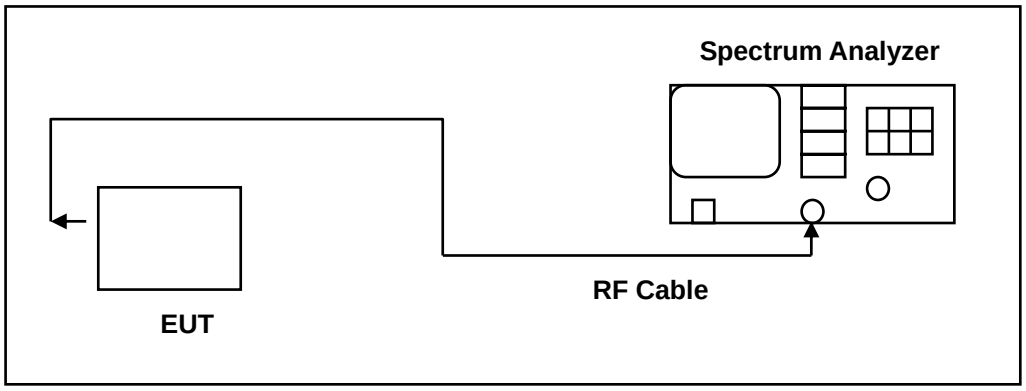
Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode_ANT-1	
2422	
2437	
2452	

8 Maximum Power Density Measurement

8.1. Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

8.2. Test Setup



8.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/16/2014	(1)
Test Site	ATL	TE05	TE05	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years. (3) Calibration period 3 years.
Note: N.C.R. = No Calibration Request.

8.4. Test Procedure

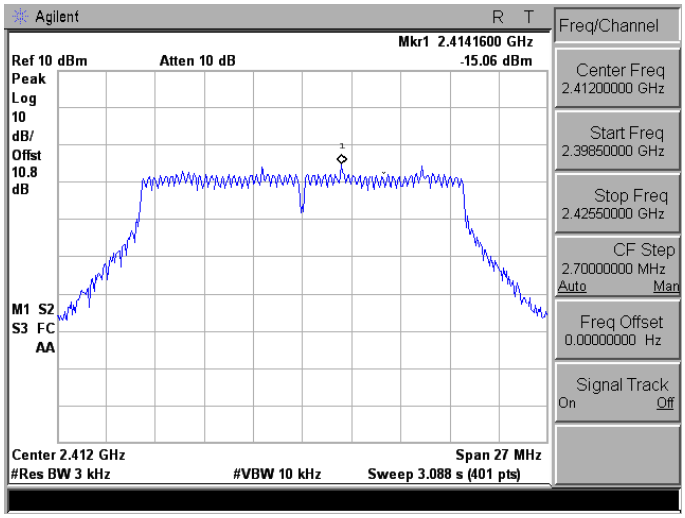
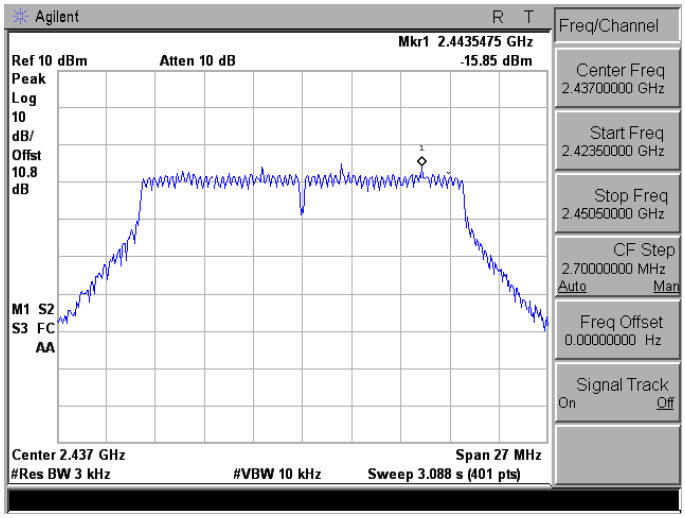
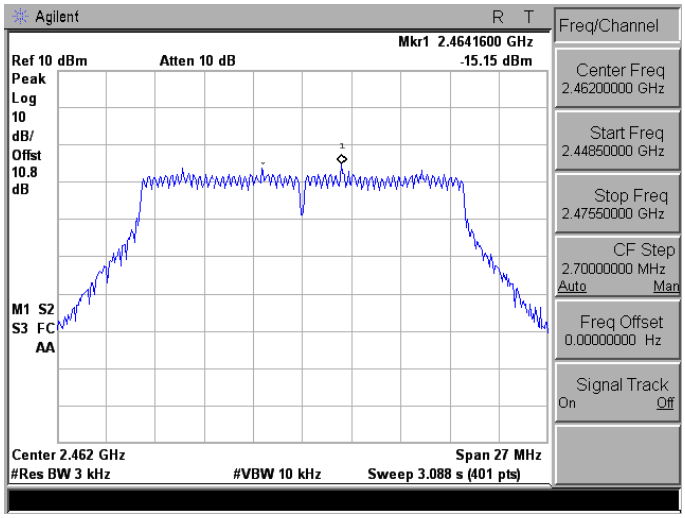
The EUT tested to DTS test procedure of KDB558074D01 for compliance to FCC 47CFR 15.247 requirements.

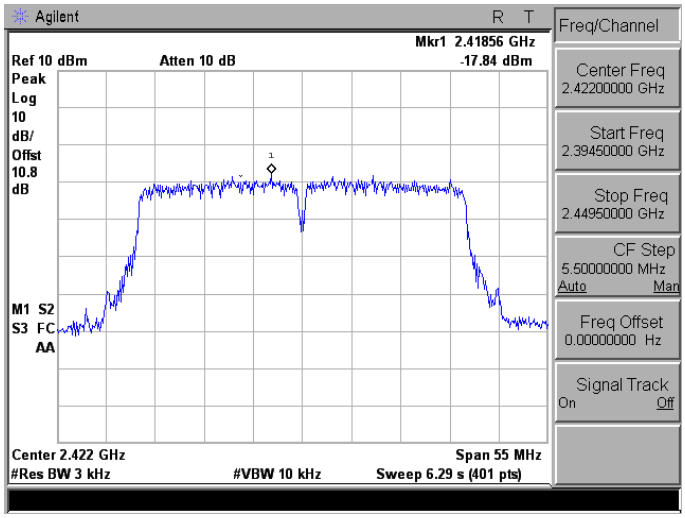
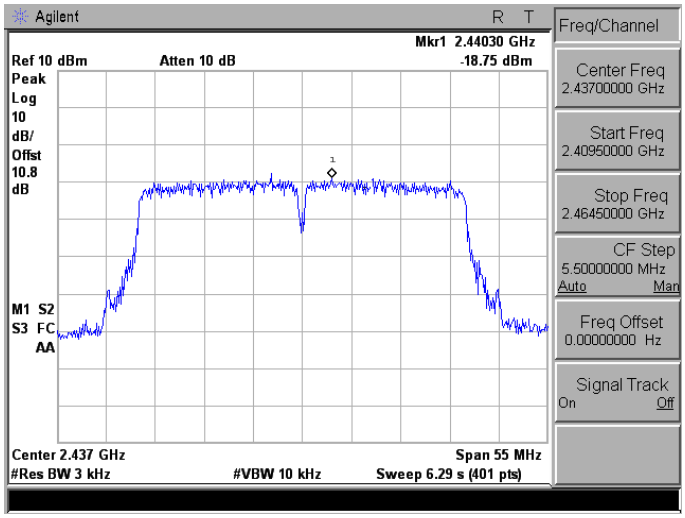
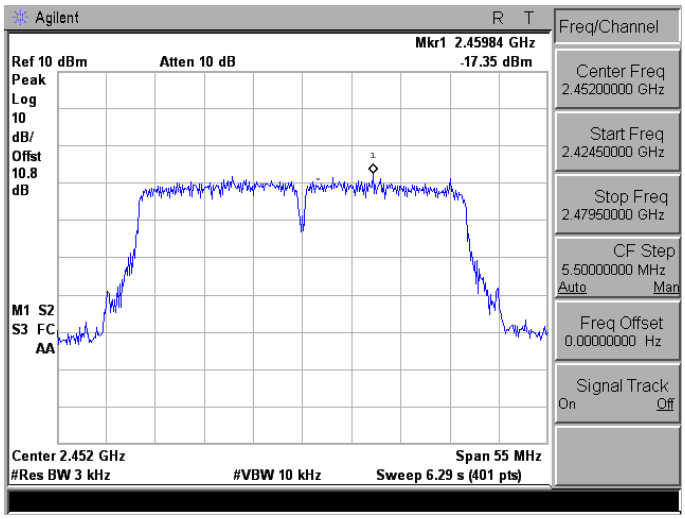
1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
4. Set the VBW ≥ 3 × RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

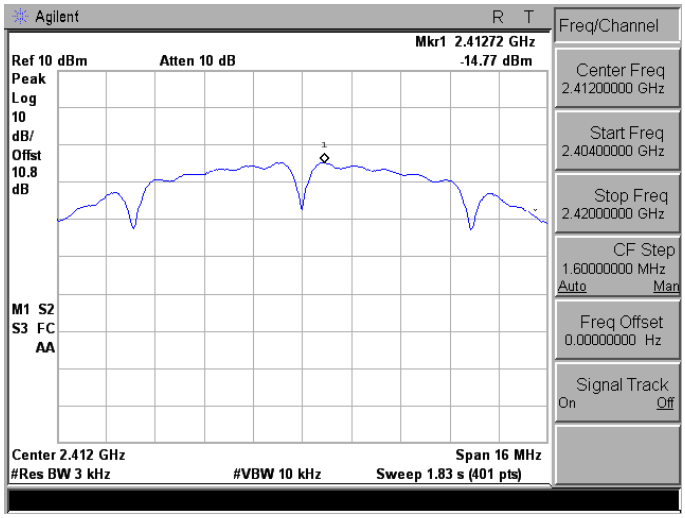
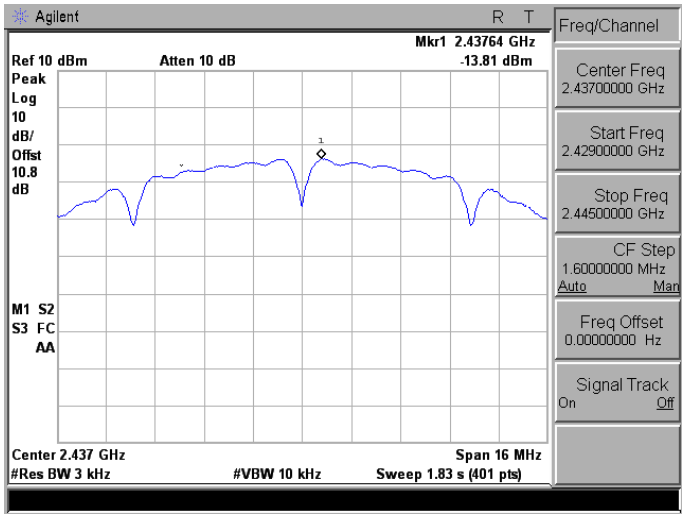
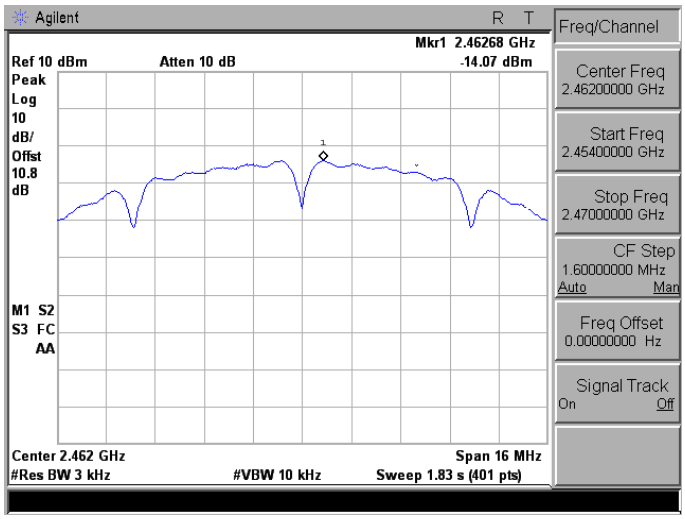
8.5. Test Result

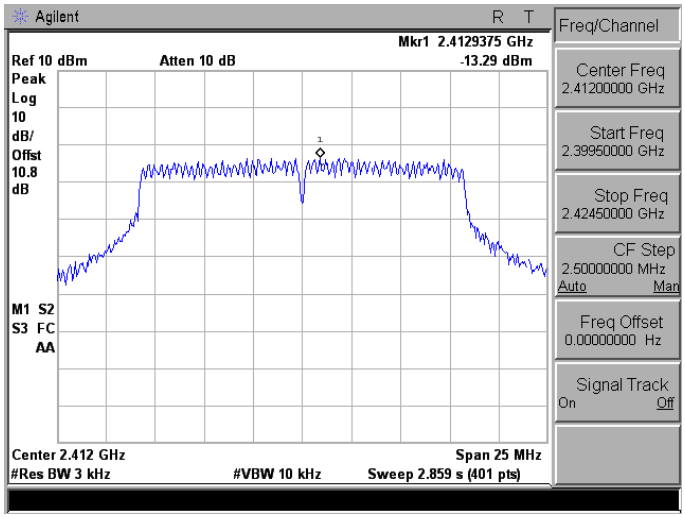
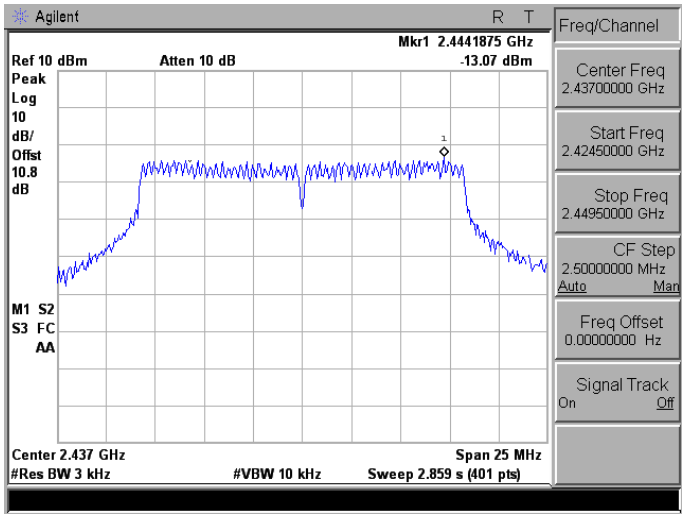
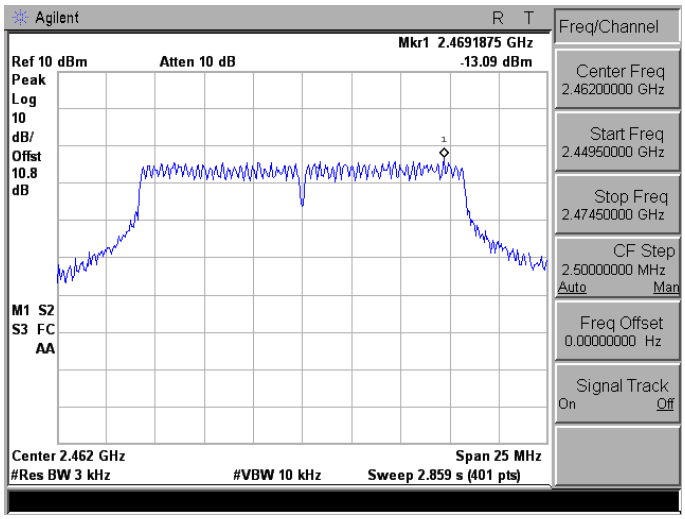
Model Number	RN243R4-2T2R-A9				
Test Item	Maximum Power Density				
Test Mode	Mode 2: IEEE 802.11b link mode Mode 3: IEEE 802.11g link mode Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode				
Date of Test	07/13/2015			Test Site	TE05
Test Mode	Frequency (MHz)	Measurement (dBm/3KHz)			Limit (dBm/3KHz)
		ANT-0	ANT-1	ANT-0+1	
Mode 2	2412	---	-14.77	---	< 8
	2437	---	-13.81	---	< 8
	2462	---	-14.07	---	< 8
Mode 3	2412	---	-13.29	---	< 8
	2437	---	-13.07	---	< 8
	2462	---	-13.09	---	< 8
Mode 4	2412	-15.06	-16.57	-12.74	< 8
	2437	-15.85	-16.24	-13.03	< 8
	2462	-15.15	-15.77	-12.44	< 8
Mode 5	2422	-17.84	-19.85	-15.72	< 8
	2437	-18.75	-19.44	-16.07	< 8
	2452	-17.35	-19.75	-15.38	< 8

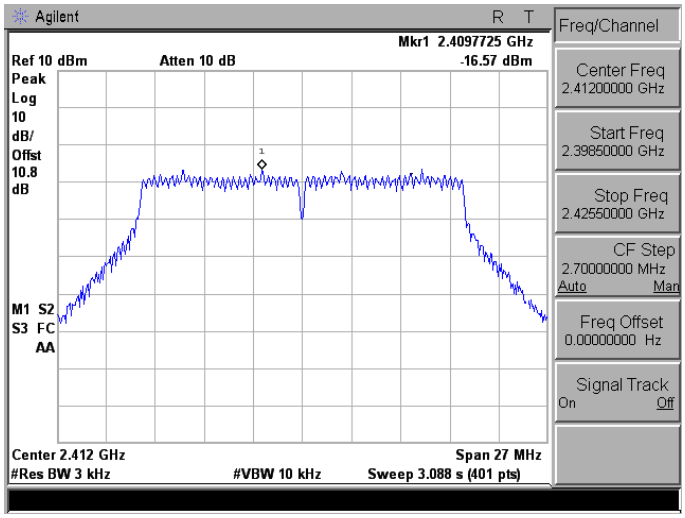
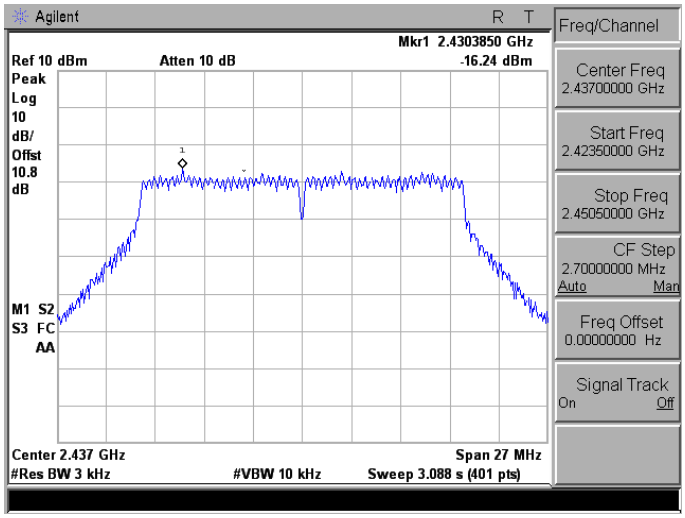
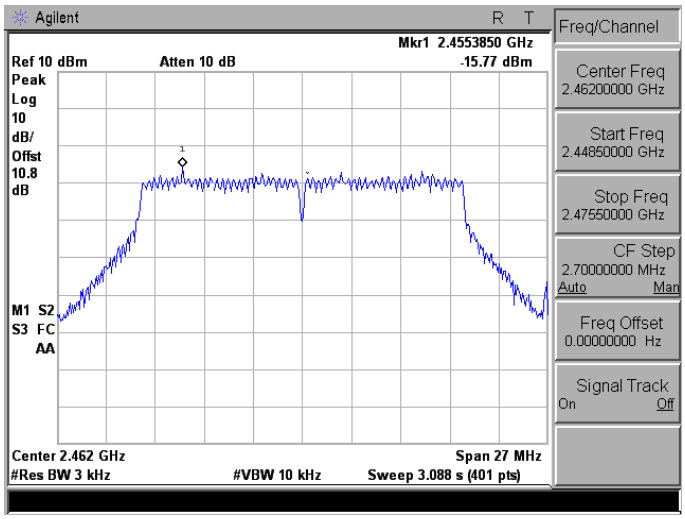
8.6. Test Graphs

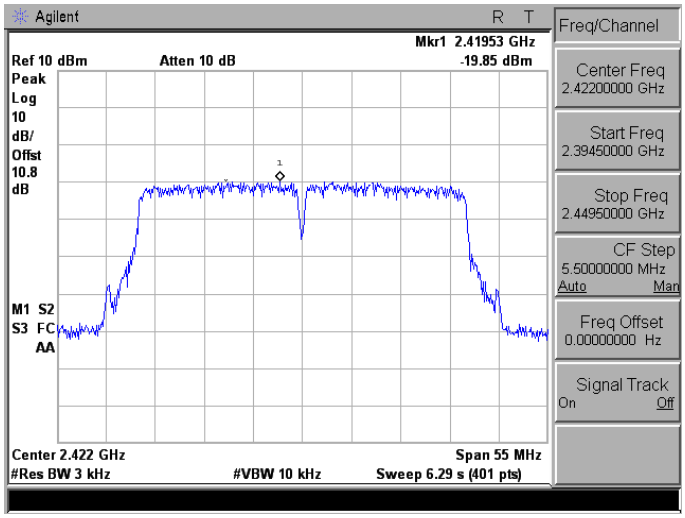
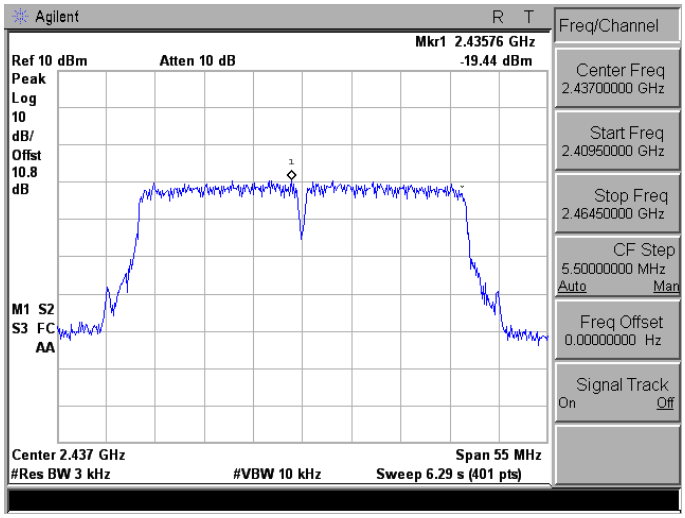
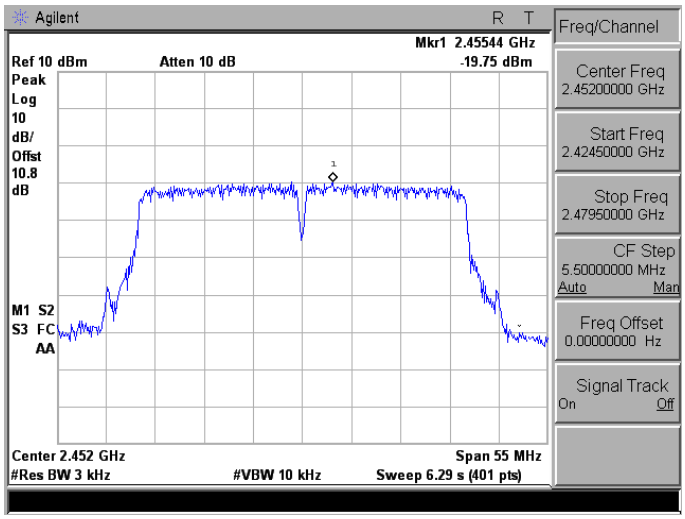
Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode_ANT-0	
2412	
2437	
2462	

Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode_ANT-0	
2422	
2437	
2452	

Mode 2: IEEE 802.11b link mode_ANT-1	
2412	
2437	
2462	

Mode 3: IEEE 802.11g link mode_ANT-1	
2412	
2437	
2462	

Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode_ANT-1	
2412	
2437	
2462	

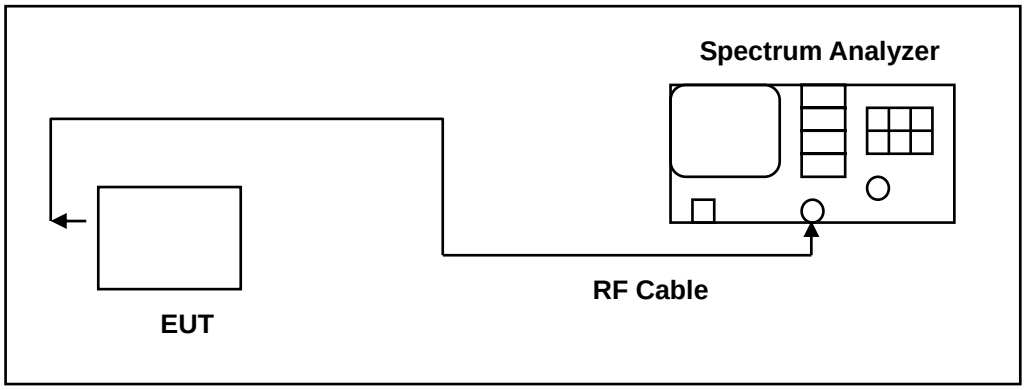
Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode_ANT-1	
2422	
2437	
2452	

9 Out of Band Conducted Emissions Measurement

9.1. 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

9.2. Test Setup



9.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4445A	MY45300744	12/16/2014	(1)
Spectrum Analyzer	Agilent	E4408B	MY45107753	07/24/2014	(1)
Test Site	ATL	TE05	TE05	N.C.R.	-----

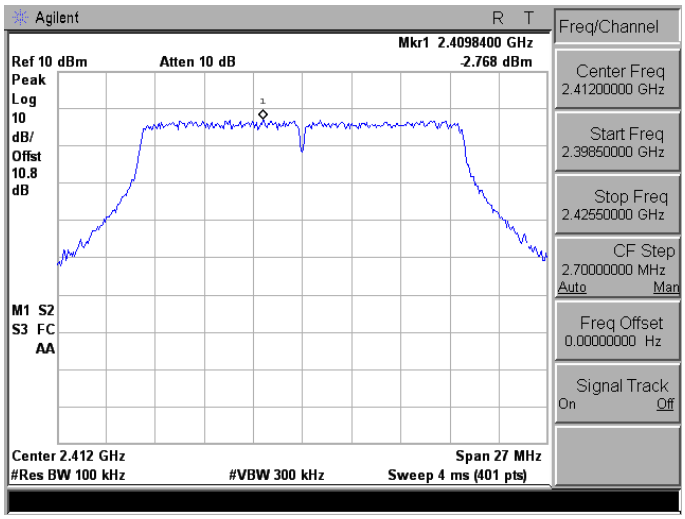
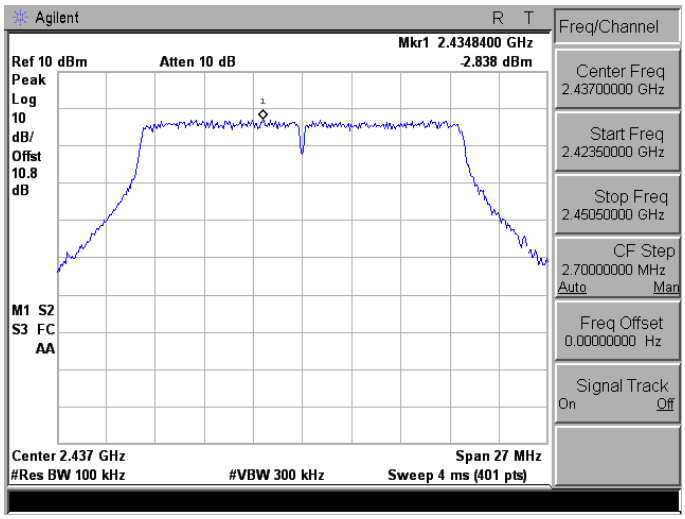
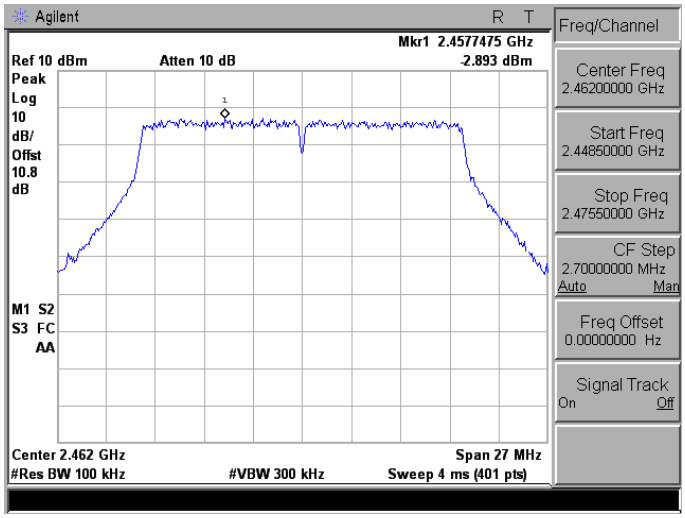
Remark: (1) Calibration period 1 year. (2) Calibration period 2 years. (3) Calibration period 3 years.
Note: N.C.R. = No Calibration Request.

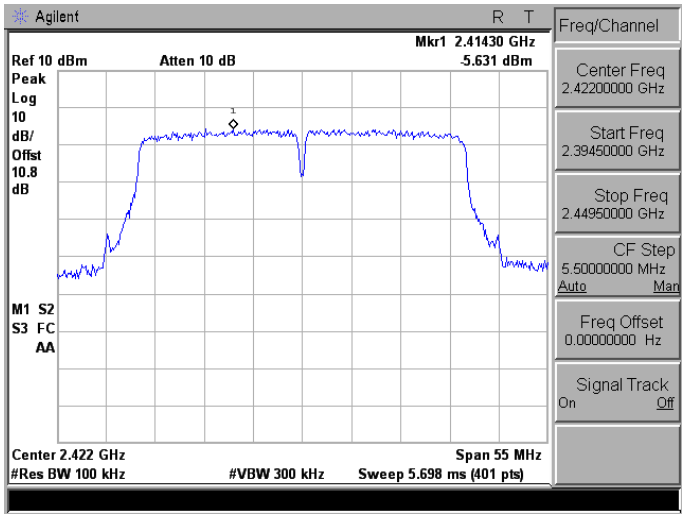
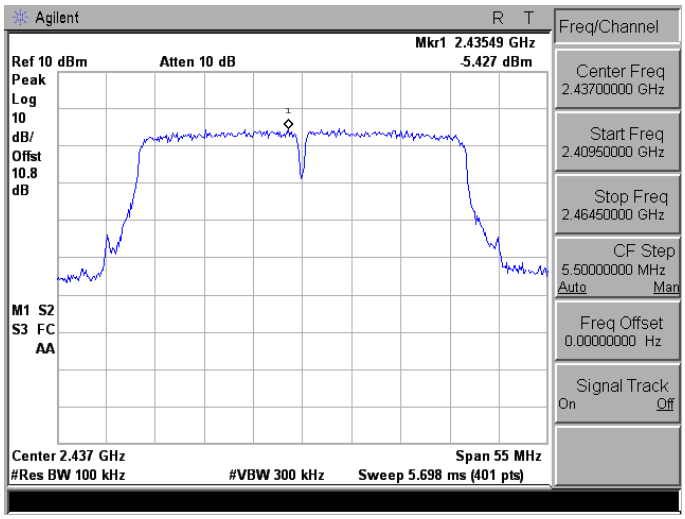
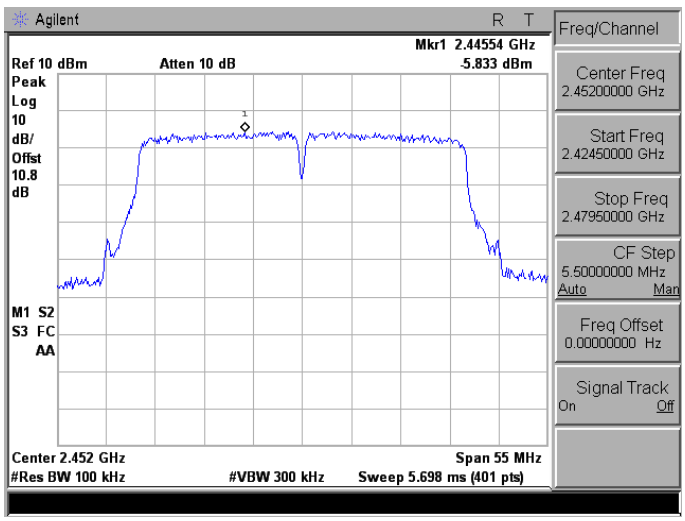
9.4. Test Procedure

In any 100 kHz bandwidth outside the EUT pass band, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20 dB below that of the maximum in-band 100 kHz emission, antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.
All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the pass band.
The test was performed at 3 channels.

9.5. Test Graphs

Reference level

Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode_ANT-0	
2412	
2437	
2462	

Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode_ANT-0	
2422	
2437	
2452	

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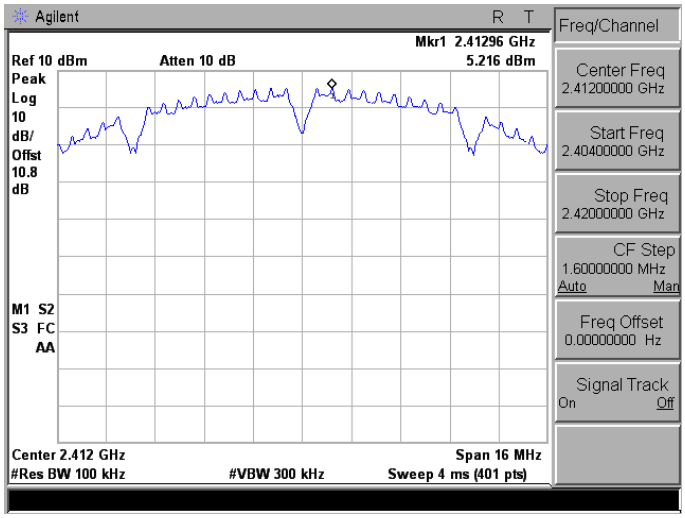
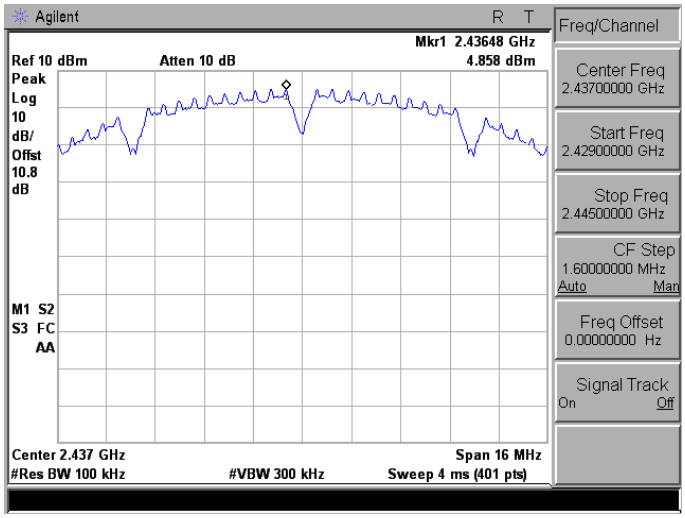
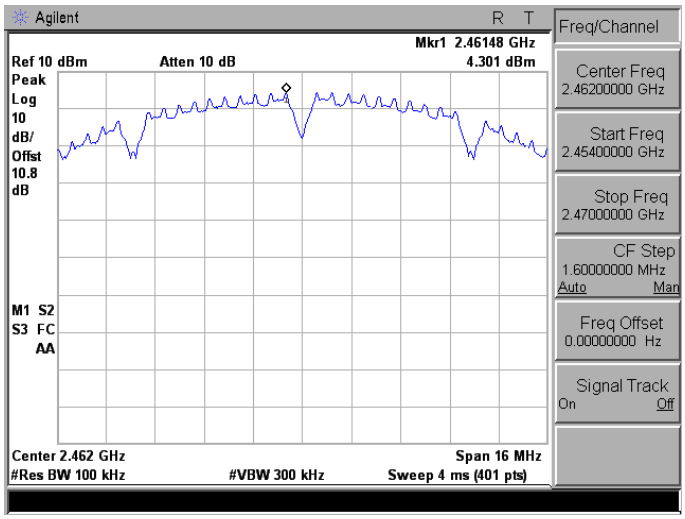
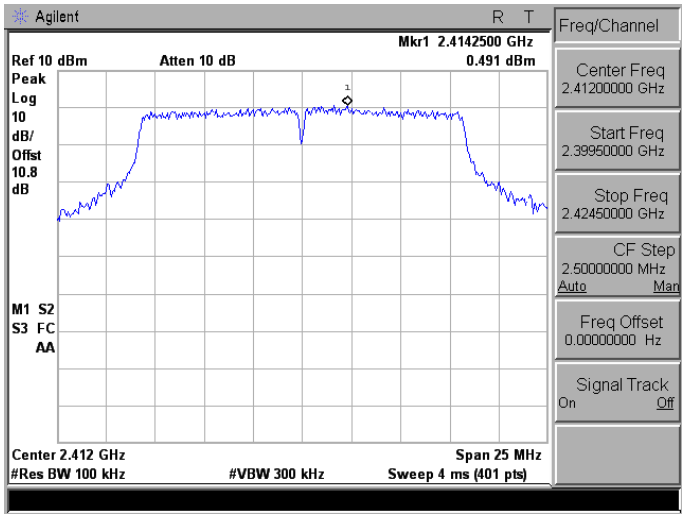
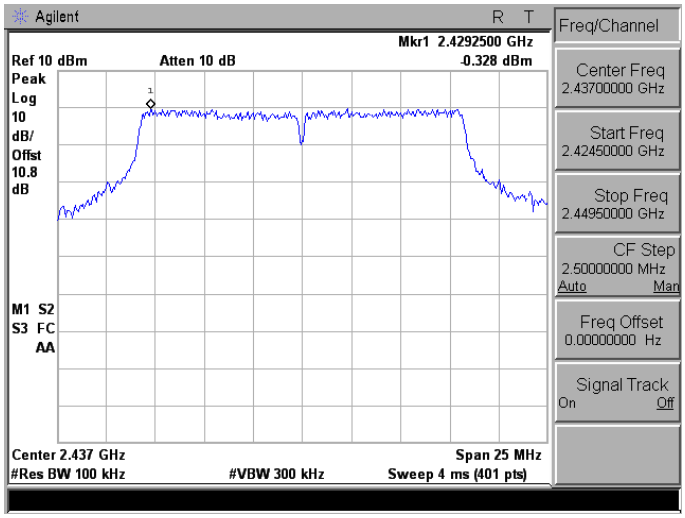
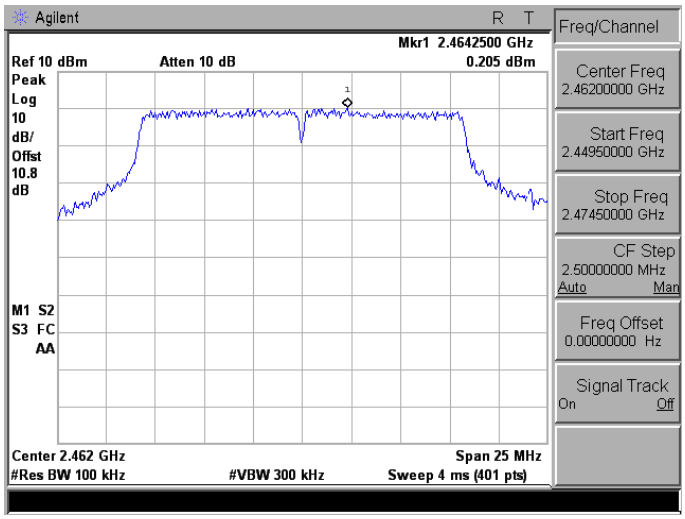
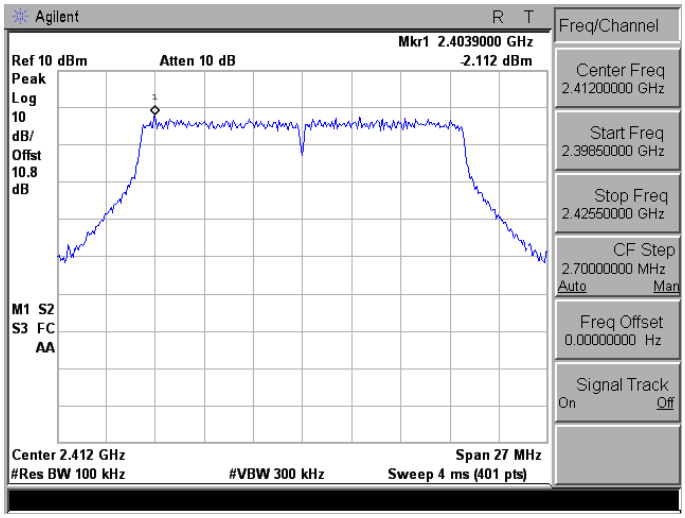
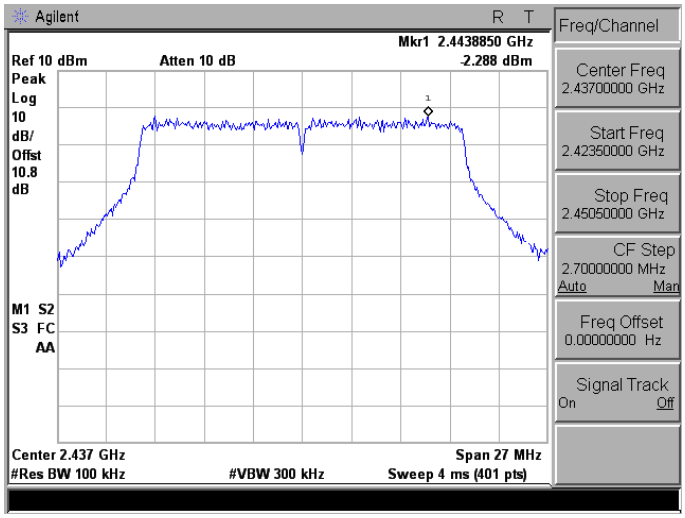
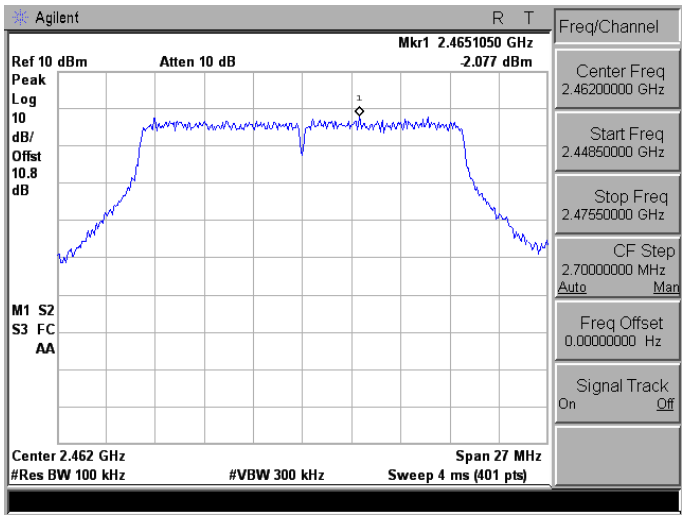
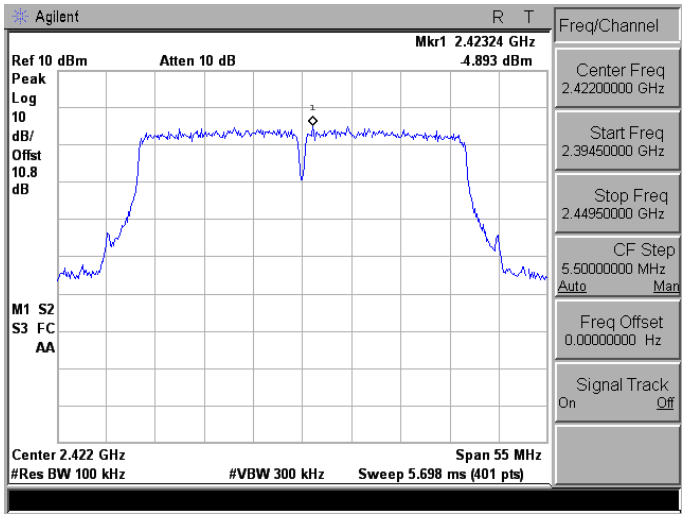
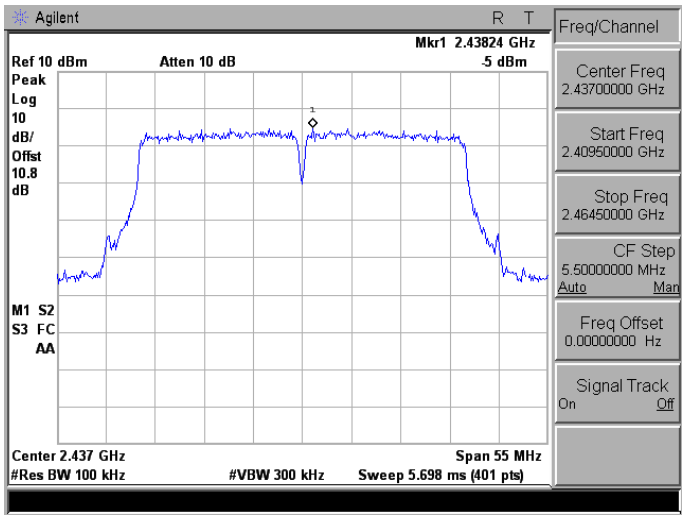
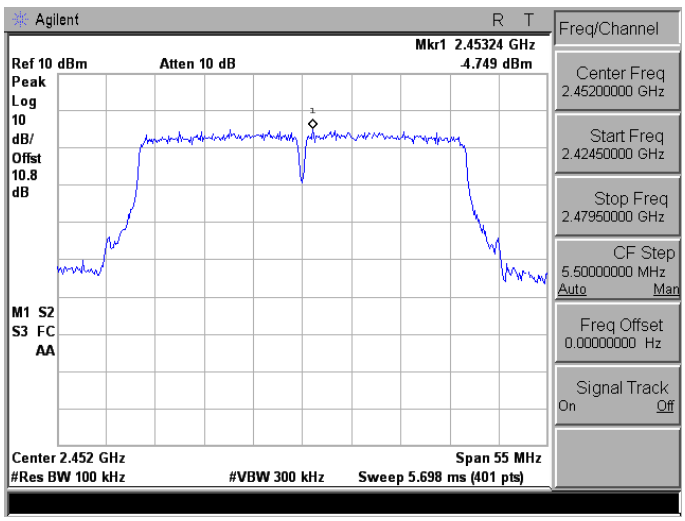
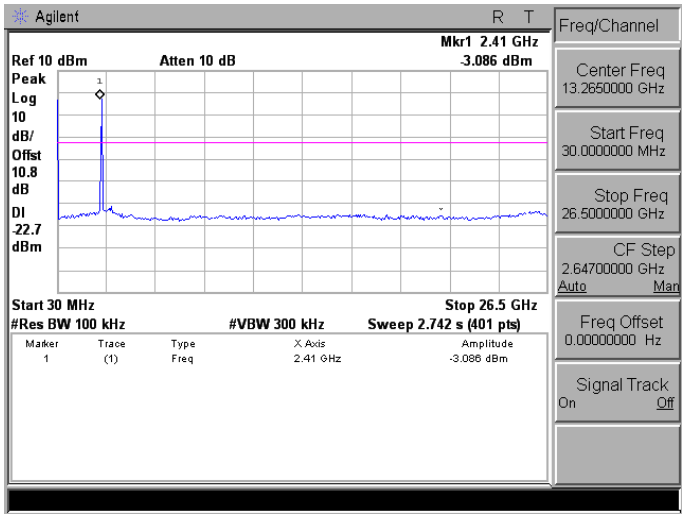
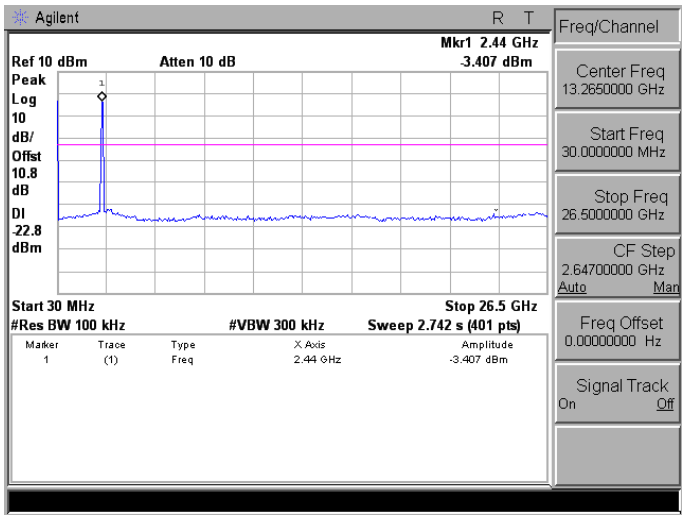
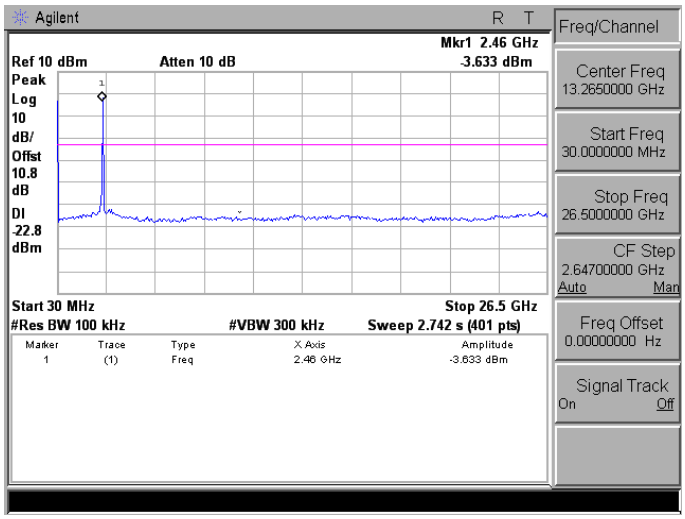
2412	
2437	
2462	

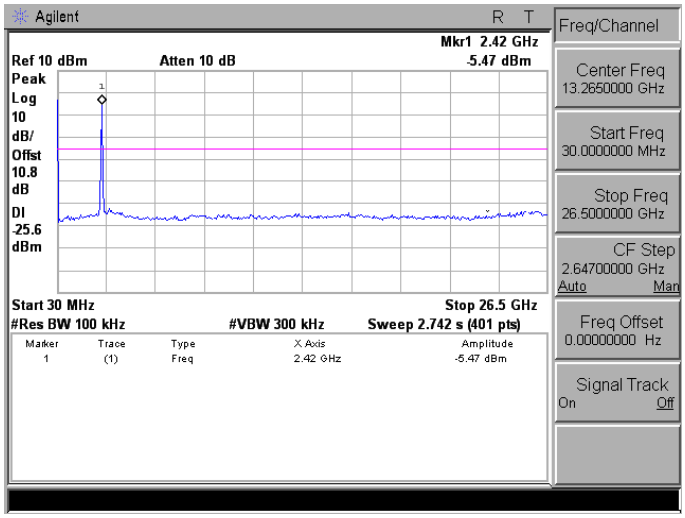
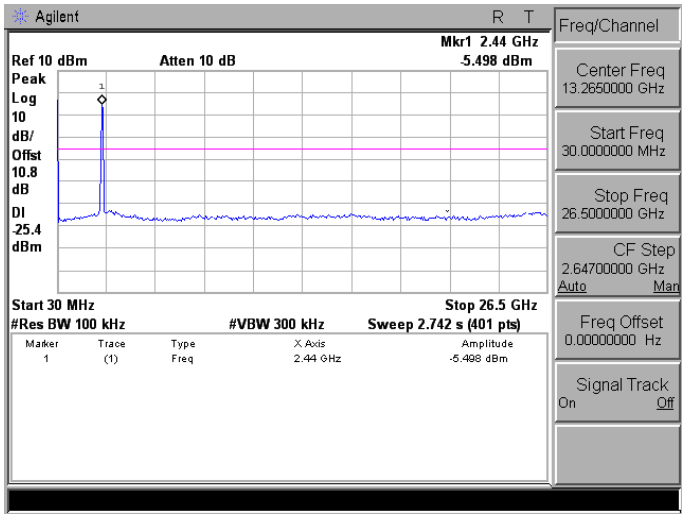
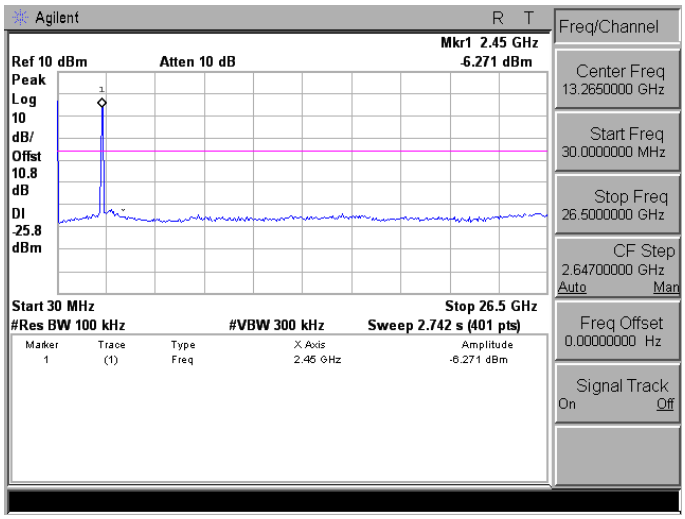
Mode 3: IEEE 802.11g link mode_ANT-1	
2412	
2437	
2462	

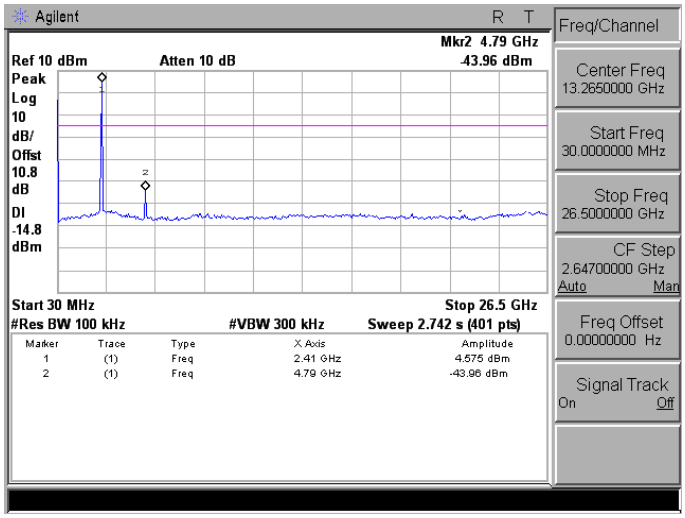
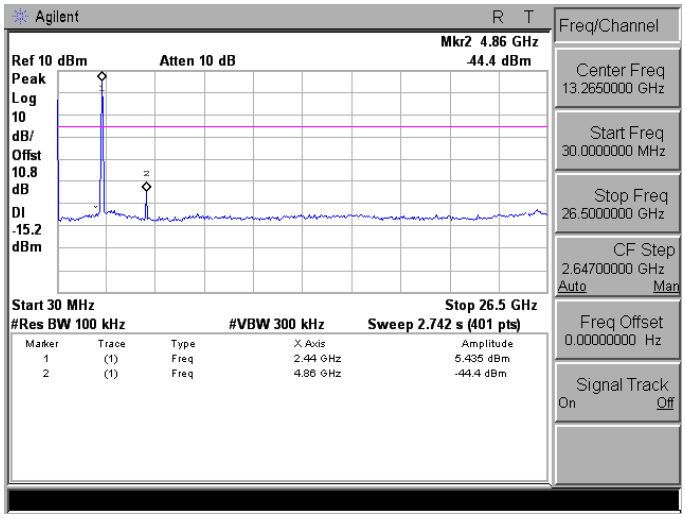
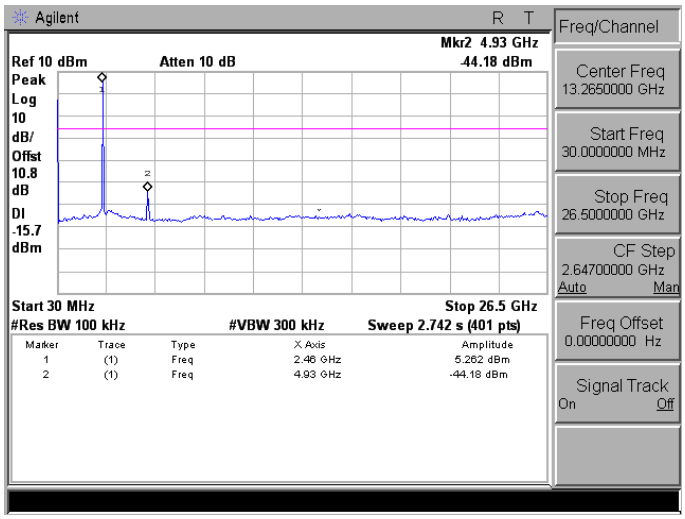
Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode_ANT-1	
2412	
2437	
2462	

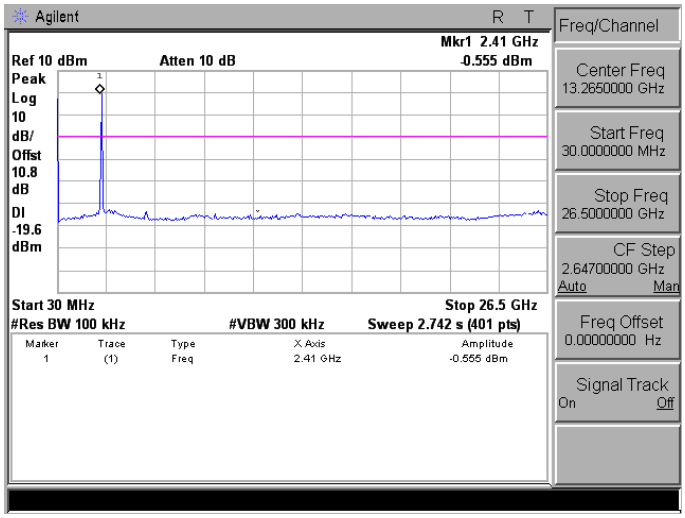
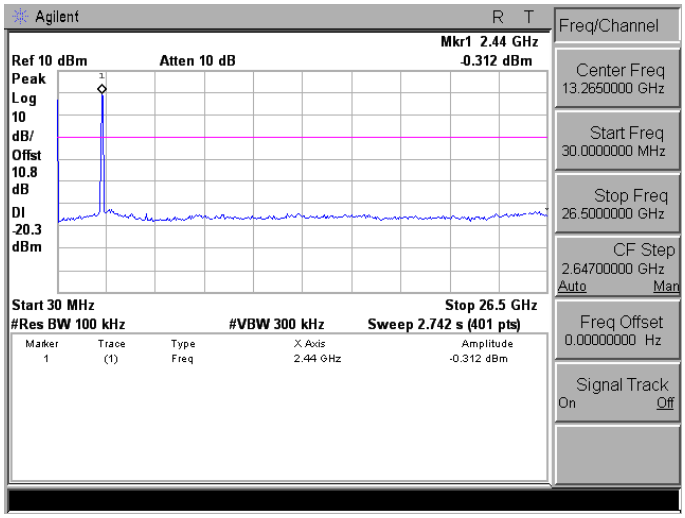
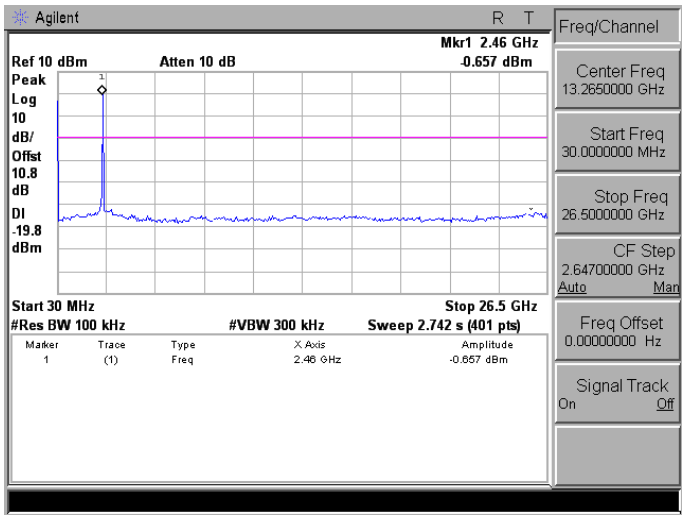
Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode_ANT-1	
2422	
2437	
2452	

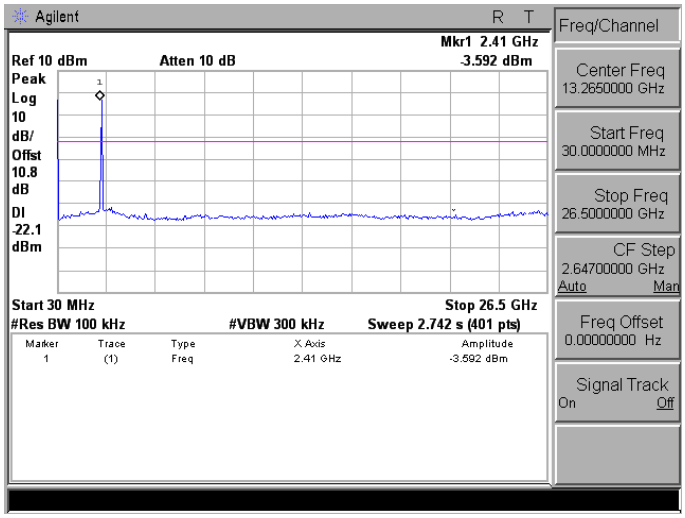
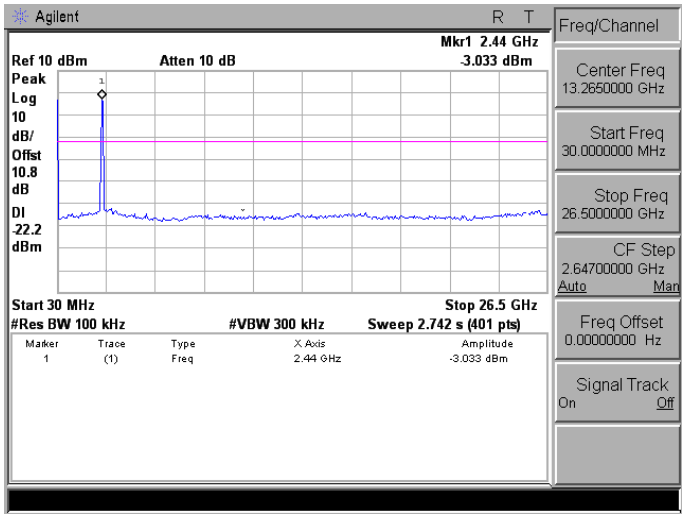
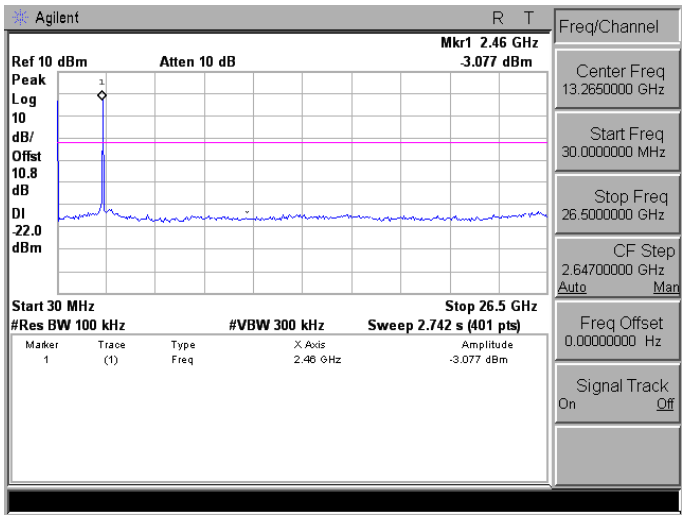
Out of Band Conducted Emissions

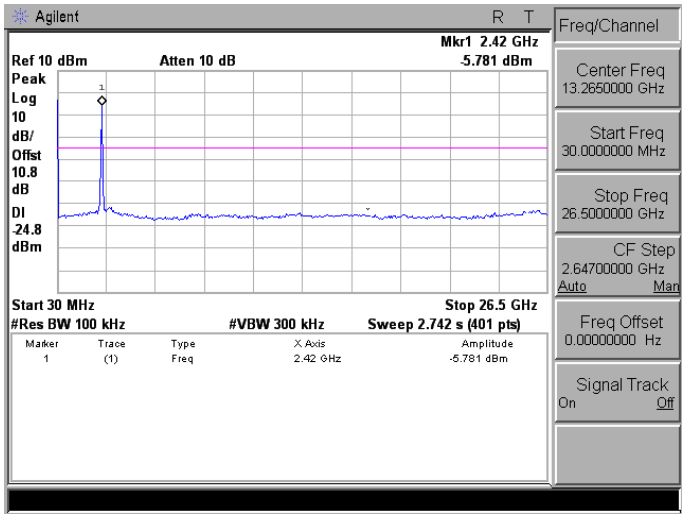
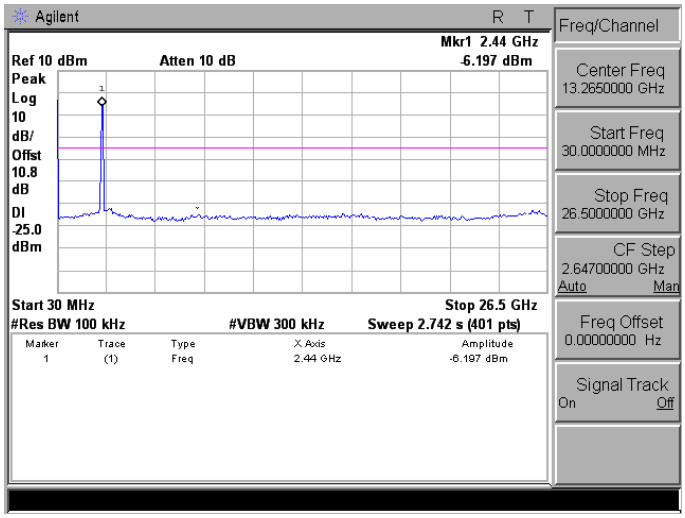
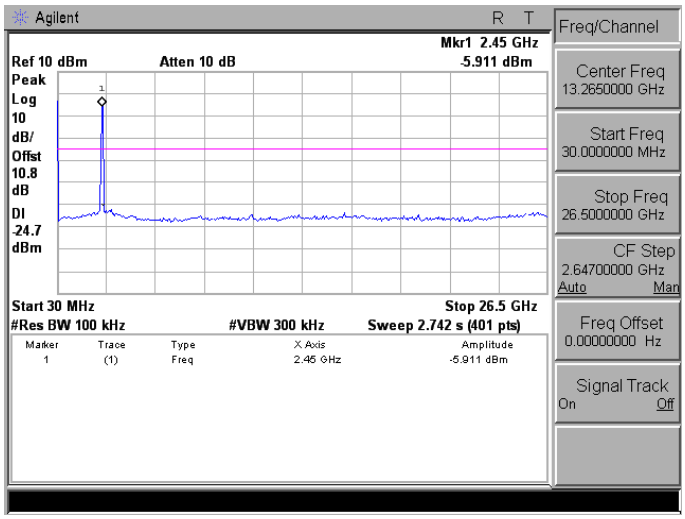
Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode_ANT-0	
2412	
2437	
2462	

Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode_ANT-0	
2422	
2437	
2452	

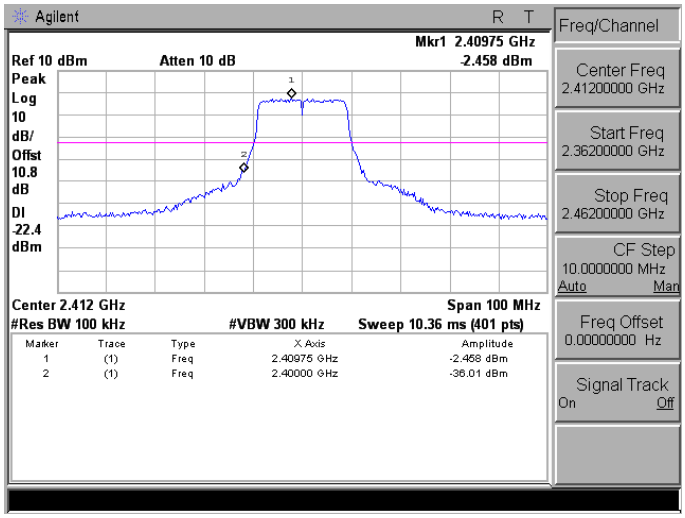
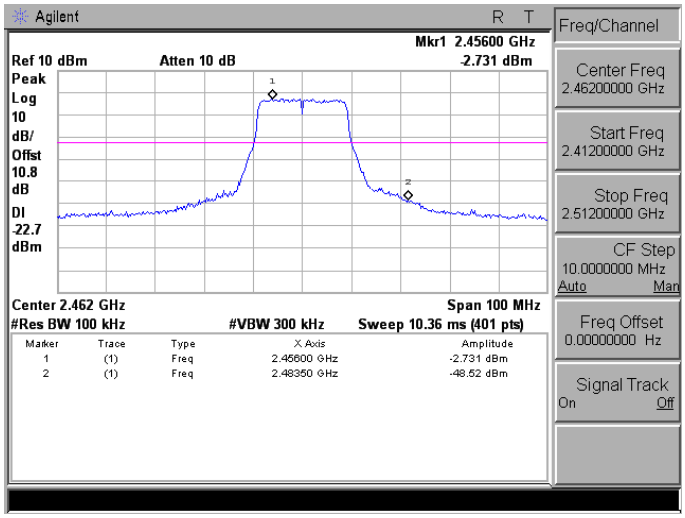
Mode 2: IEEE 802.11b link mode_ANT-1	
2412	
2437	
2462	

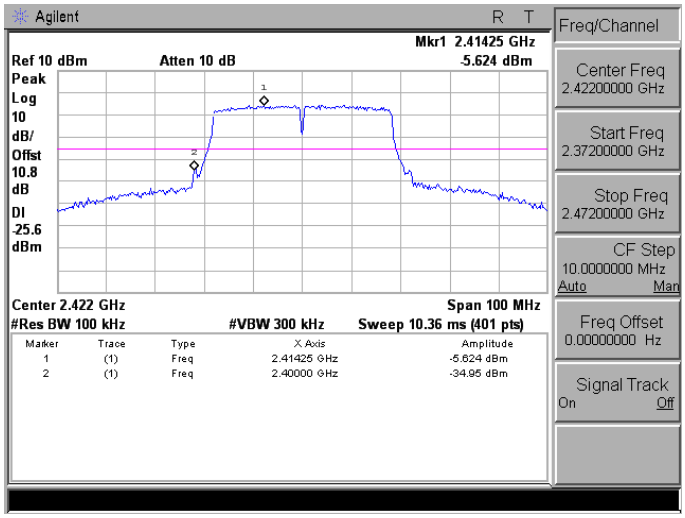
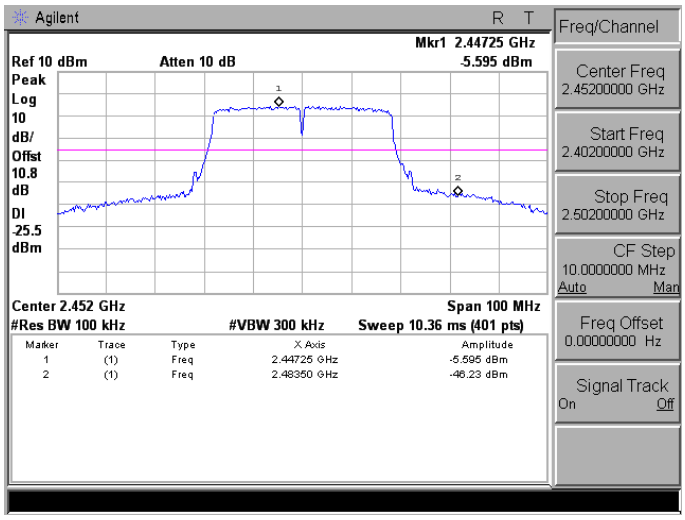
Mode 3: IEEE 802.11g link mode_ANT-1	
2412	
2437	
2462	

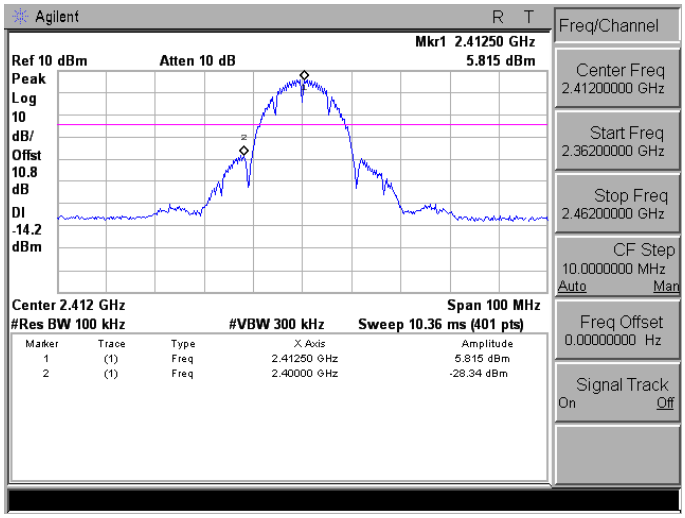
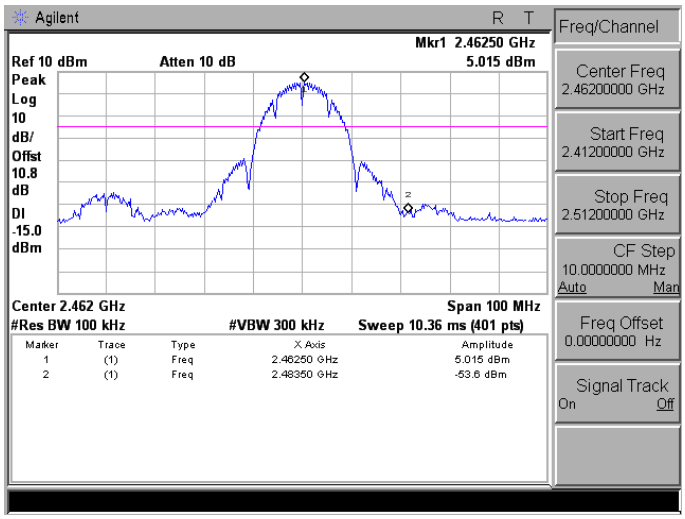
Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode_ANT-1	
2412	
2437	
2462	

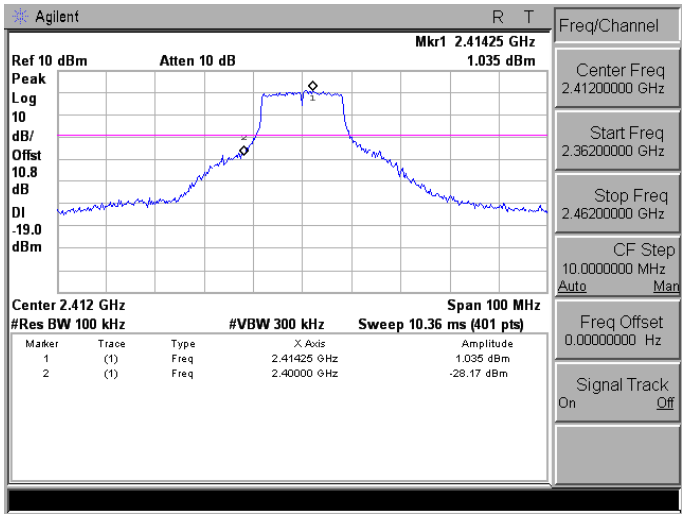
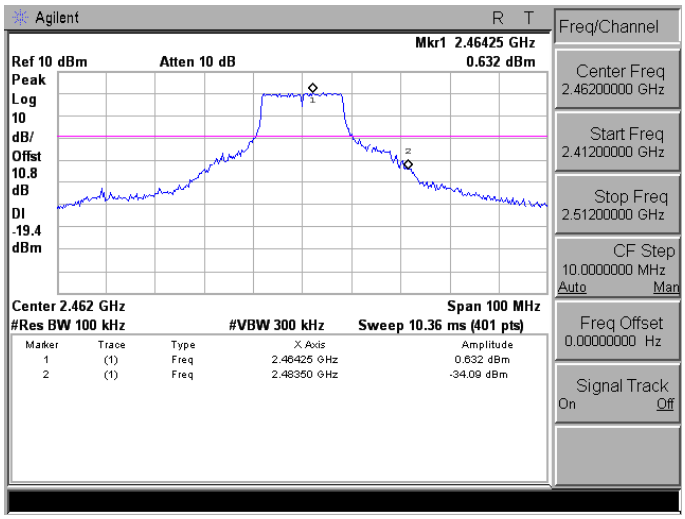
Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode_ANT-1	
2422	
2437	
2452	

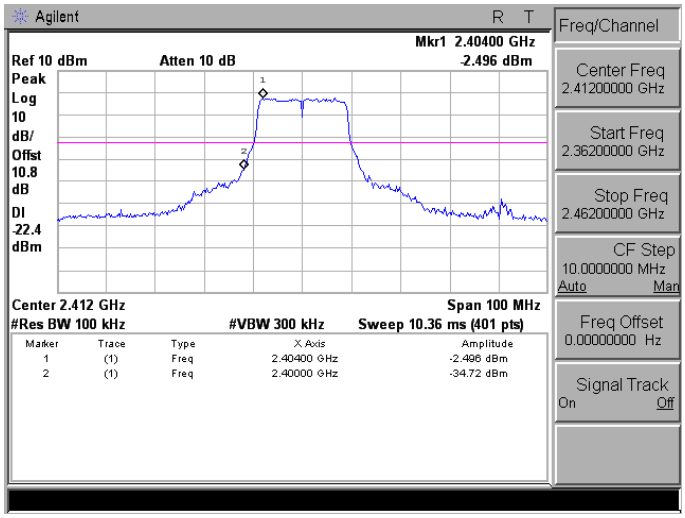
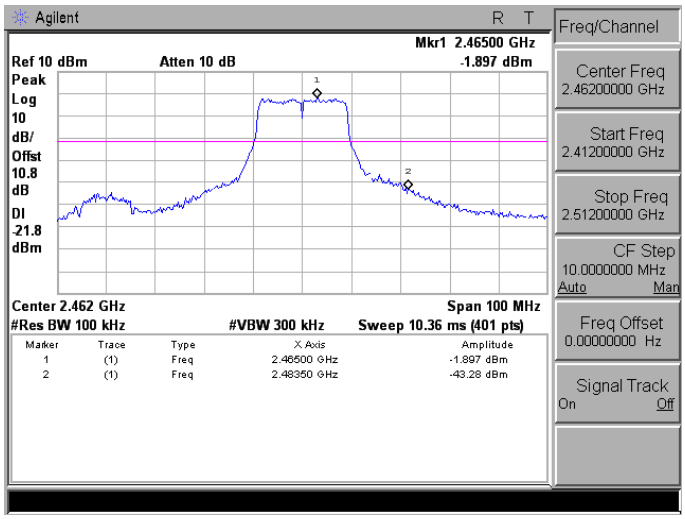
Conducted Band Edge

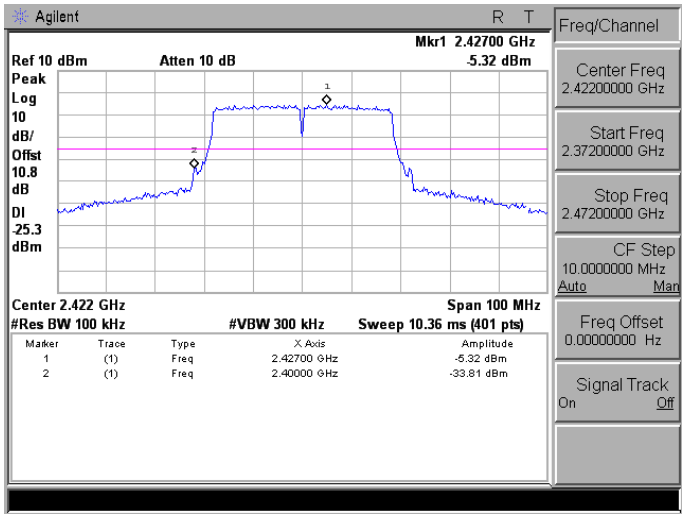
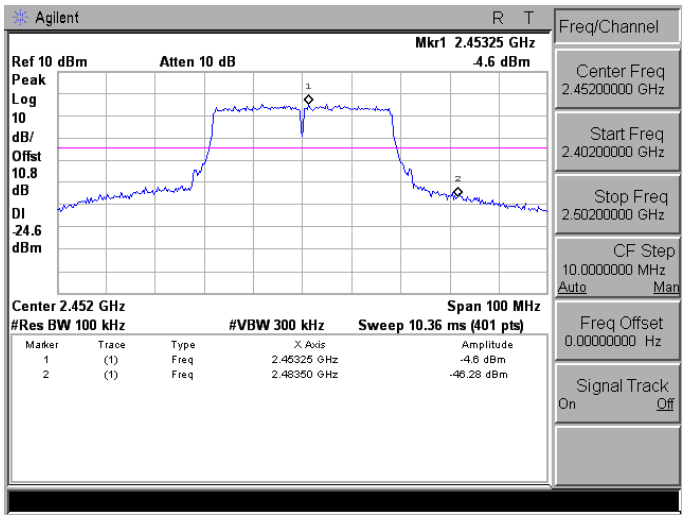
Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode_ANT-0	
2412	
2462	

Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode_ANT-0	
2422	
2452	

Mode 2: IEEE 802.11b link mode_ANT-1	
2412	
2462	

Mode 3: IEEE 802.11g link mode_ANT-1	
2412	
2462	

Mode 4: IEEE 802.11n 2.4GHz 20MHz link mode_ANT-1	
2412	
2462	

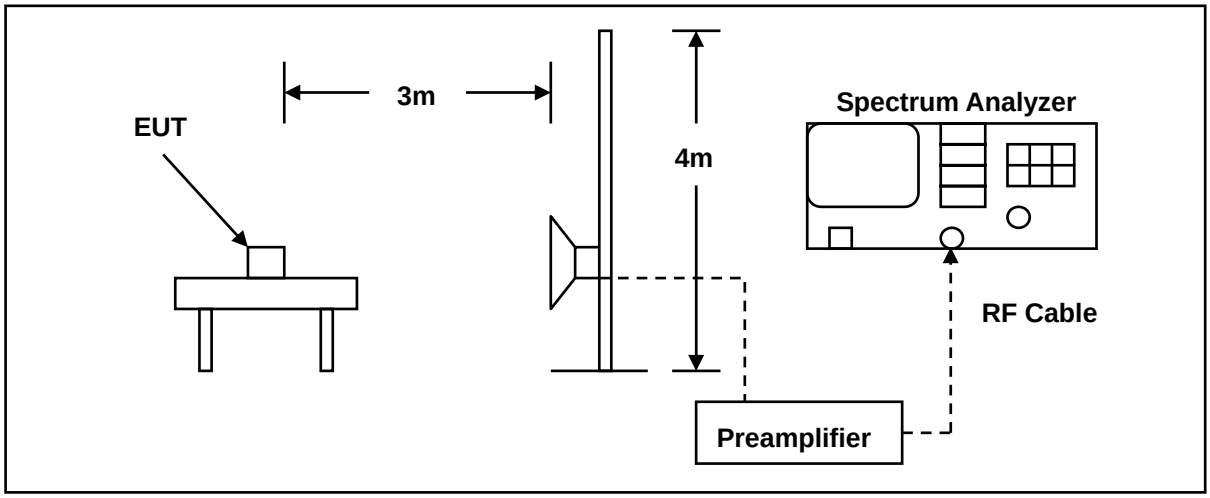
Mode 5: IEEE 802.11n 2.4GHz 40MHz link mode_ANT-1	
2422	
2452	

10 Band Edges Measurement

10.1.Limit

In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.

10.2.Test Setup



10.3.Test Instruments

3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/06/2015	(1)
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/06/2015	(1)
Pre Amplifier	Agilent	8449B	3008A02237	02/24/2015	(1)
Pre Amplifier	Agilent	8447D	2944A10961	02/24/2015	(1)
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/12/2015	(1)
Microwave Cable	EMCI	EMC-104-SM-SM-14000	140202	02/24/2015	(1)
Microwave Cable	EMCI	EMC104-SM-SM-600	140301	02/24/2015	(1)
Test Site	ATL	TE01	888001	08/28/2014	(1)

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years. (3) Calibration period 3 years.
Note: N.C.R. = No Calibration Request.

10.4. Test Procedure

The EUT tested to DTS test procedure of KDB558074D01 for compliance to FCC 47CFR 15.247 requirements.

The emissions on the harmonics frequencies, the limits, and the margin of compliance are presented. These tests were made when the transmitter was in full radiated power. The additional test was performed to show compliance with the requirement at the band-edge frequency 2483.5 MHz and up to 2500 MHz and at 2390.0 MHz.

The transmitter was configured with the worst case antenna and setup to transmit at the highest channel. Then the field strength was measured at 2483.5 MHz.

The transmitter was then configured with the worst case antenna and setup to transmit at the lowest channel. Then the field strength was measured at 2390.0 MHz. These tests were performed at 4 different bit rates.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements when Duty cycle >98% / 1/T for average measurements when Duty cycle <98%.

10.5.Test Result

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 2	Date:	07/13/2015
Frequency:	2412 MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2385.680	51.06	4.36	55.42	74.00	-18.58	peak	H
2385.680	39.97	4.36	44.33	54.00	-9.67	AVG	H
2390.000	49.87	4.38	54.25	74.00	-19.75	peak	H
2390.000	39.99	4.38	44.37	54.00	-9.63	AVG	H
2387.440	52.03	4.37	56.40	74.00	-17.60	peak	V
2387.440	40.38	4.37	44.75	54.00	-9.25	AVG	V
2390.000	50.10	4.38	54.48	74.00	-19.52	peak	V
2390.000	39.44	4.38	43.82	54.00	-10.18	AVG	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 2	Date:	07/13/2015
Frequency:	2462 MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2483.500	48.53	4.75	53.28	74.00	-20.72	peak	H
2483.500	39.07	4.75	43.82	54.00	-10.18	AVG	H
2486.440	51.40	4.75	56.15	74.00	-17.85	peak	H
2486.440	38.93	4.75	43.68	54.00	-10.32	AVG	H
2483.500	49.22	4.75	53.97	74.00	-20.03	peak	V
2483.500	39.71	4.75	44.46	54.00	-9.54	AVG	V
2487.280	52.10	4.75	56.85	74.00	-17.15	peak	V
2487.280	39.27	4.75	44.02	54.00	-9.98	AVG	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 3	Date:	07/13/2015
Frequency:	2412 MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2389.530	64.85	4.38	69.23	74.00	-4.77	peak	H
2389.530	46.01	4.38	50.39	54.00	-3.61	AVG	H
2390.000	63.61	4.38	67.99	74.00	-6.01	peak	H
2390.000	47.10	4.38	51.48	54.00	-2.52	AVG	H
2388.980	63.76	4.38	68.14	74.00	-5.86	peak	V
2388.980	47.75	4.38	52.13	54.00	-1.87	AVG	V
2390.000	63.92	4.38	68.30	74.00	-5.70	peak	V
2390.000	48.72	4.38	53.10	54.00	-0.90	AVG	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 3	Date:	07/13/2015
Frequency:	2462 MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2483.500	58.08	4.75	62.83	74.00	-11.17	peak	H
2483.500	45.92	4.75	50.67	54.00	-3.33	AVG	H
2484.880	59.35	4.75	64.10	74.00	-9.90	peak	H
2484.880	45.49	4.75	50.24	54.00	-3.76	AVG	H
2483.500	59.34	4.75	64.09	74.00	-9.91	peak	V
2483.500	47.53	4.75	52.28	54.00	-1.72	AVG	V
2484.280	63.49	4.75	68.24	74.00	-5.76	peak	V
2484.280	46.15	4.75	50.90	54.00	-3.10	AVG	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 4	Date:	07/13/2015
Frequency:	2412 MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2388.540	54.47	4.38	58.85	74.00	-15.15	peak	H
2388.540	42.93	4.38	47.31	54.00	-6.69	AVG	H
2390.000	54.59	4.38	58.97	74.00	-15.03	peak	H
2390.000	43.76	4.38	48.14	54.00	-5.86	AVG	H
2388.870	54.87	4.38	59.25	74.00	-14.75	peak	V
2388.870	42.68	4.38	47.06	54.00	-6.94	AVG	V
2390.000	54.74	4.38	59.12	74.00	-14.88	peak	V
2390.000	43.43	4.38	47.81	54.00	-6.19	AVG	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 4	Date:	07/13/2015
Frequency:	2462 MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2483.500	54.67	4.75	59.42	74.00	-14.58	peak	H
2483.500	45.84	4.75	50.59	54.00	-3.41	AVG	H
2483.800	58.02	4.75	62.77	74.00	-11.23	peak	H
2483.800	45.48	4.75	50.23	54.00	-3.77	AVG	H
2483.500	57.13	4.75	61.88	74.00	-12.12	peak	V
2483.500	46.52	4.75	51.27	54.00	-2.73	AVG	V
2484.440	59.02	4.75	63.77	74.00	-10.23	peak	V
2484.440	44.64	4.75	49.39	54.00	-4.61	AVG	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 5	Date:	07/13/2015
Frequency:	2422 MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2389.560	57.03	4.38	61.41	74.00	-12.59	peak	H
2389.560	47.62	4.38	52.00	54.00	-2.00	AVG	H
2390.000	57.47	4.38	61.85	74.00	-12.15	peak	H
2390.000	47.88	4.38	52.26	54.00	-1.74	AVG	H
2386.800	57.67	4.37	62.04	74.00	-11.96	peak	V
2386.800	46.05	4.37	50.42	54.00	-3.58	AVG	V
2390.000	56.90	4.38	61.28	74.00	-12.72	peak	V
2390.000	46.78	4.38	51.16	54.00	-2.84	AVG	V

Standard:	FCC Part 15C	Test Distance:	3m
Test item:	Radiated Emission	Power:	AC 120V/60Hz
Model Number:	RN243R4-2T2R-A9	Temp.(℃)/Hum.(%RH):	26(℃)/60%RH
Mode:	Mode 5	Date:	07/13/2015
Frequency:	2452 MHz	Test By:	Eric Ou Yang

Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Ant.Polar. H / V
2483.500	56.00	4.75	60.75	74.00	-13.25	peak	H
2483.500	48.22	4.75	52.97	54.00	-1.03	AVG	H
2484.650	58.80	4.75	63.55	74.00	-10.45	peak	H
2484.650	47.79	4.75	52.54	54.00	-1.46	AVG	H
2483.500	58.34	4.75	63.09	74.00	-10.91	peak	V
2483.500	47.85	4.75	52.60	54.00	-1.40	AVG	V
2487.750	61.39	4.76	66.15	74.00	-7.85	peak	V
2487.750	47.42	4.76	52.18	54.00	-1.82	AVG	V

11 Antenna Measurement

11.1. Limit

For intentional device, according to 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 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

11.2. Antenna Connector Construction

The antenna used in this product is PIFA Antenna. And the maximum Gain of this antenna is 2.54 dBi.