

FCC 47 CFR PART 15 SUBPART E

Product Type : Notebook Computer
Applicant : MilDef Crete Inc.
Address : 7F, No. 250, Sec 3, Pei Shen Rd., Shen Keng District, New Taipei City, Taiwan
Trade Name : MilDef Crete Inc.
Model Number : RT10
Test Specification : FCC 47 CFR PART 15 SUBPART E: Oct., 2014
ANSI C63.10:2009
Application Purpose : Original
Receive Date : Apr. 30, 2015
Test Period : May 14 ~ 23, 2015
Issue Date : Jun. 24, 2015

Issue by

A Test Lab Techno Corp.
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Taiwan Accreditation Foundation accreditation number: 1330

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Revision History

Rev.	Issue Date	Revisions	Revised By
00	Jun. 24, 2015	Initial Issue	

Verification of Compliance

Issued Date: 06/24/2015

Product Type : Notebook Computer
Applicant : MilDef Crete Inc.
Address : 7F, No. 250, Sec 3, Pei Shen Rd., Shen Keng District, New Taipei City, Taiwan
Trade Name : MilDef Crete Inc.
Model Number : RT10
FCC ID : IR5RT10
EUT Rated Voltage : DC 19V, 4.75A
Test Voltage : 120 Vac / 60 Hz
Applicable Standard : FCC 47 CFR PART 15 SUBPART E: Oct., 2014
ANSI C63.10:2009
Test Result : Complied
Application Purpose : Original
Performing Lab. : A Test Lab Techno Corp.

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<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.

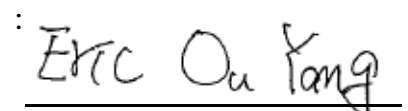
Approved By :



(Manager)

(Fly Lu)

Reviewed By :



(Testing Engineer)

(Eric Ou Yang)

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1 General Information

1.1. Summary of Test Result

Standard	Item	Result	Remark
FCC			
15.407(b)(6) 15.207	AC Power Conducted Emission	PASS	---
15.407(b) 15.205 / 15.209	Transmitter Radiated Emissions	PASS	---
15.407(a)	Maximum Conducted Output Power	PASS	---
15.407(a)	26dB RF Bandwidth	Reference	---
15.407(a)	6dB RF Bandwidth	PASS	----
15.407(a)	Peak Power Spectral Density	PASS	---
15.407(g)	Frequency Stability	PASS	---
15.407(a) 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

Measurement Item	Frequency Range		Uncertainty (dB)
Conducted Emission	9kHz ~ 30MHz		± 2.020
Radiated Emission	30MHz ~ 1000MHz	Horizontal	± 3.960
		Vertical	± 3.570
	1000MHz ~ 18000MHz	Horizontal	± 3.072
		Vertical	± 3.028
	18000MHz ~ 40000MHz	Horizontal	± 3.622
		Vertical	± 3.506

2 EUT Description

Product Type	Notebook Computer			
Trade Name	MilDef Crete Inc.			
Model No.	RT10			
Applicant	MilDef Crete Inc. 7F, No. 250, Sec 3, Pei Shen Rd., Shen Keng District,New Taipei City, Taiwan			
Manufacturer	MilDef Crete Inc. 7F, No. 250, Sec 3, Pei Shen Rd., Shen Keng District,New Taipei City, Taiwan			
FCC ID	IR5RT10			
Frequency Range	Band	Mode	Frequency Range (MHz)	Number of Channels
	U-NII Band I	IEEE 802.11a	5180 – 5240	4 Channels
		IEEE 802.11n 20 MHz	5180 – 5240	4 Channels
		IEEE 802.11n 40 MHz	5190 – 5230	2 Channels
	U-NII Band III	IEEE 802.11a	5745 – 5825	5 Channels
		IEEE 802.11n 20 MHz	5745 – 5825	5 Channels
		IEEE 802.11n 40 MHz	5755 – 5795	2 Channels
Modulation Type	OFDM			
Equipment Type	Client			
Antenna Used	Antenna Port	Type	Max. Gain	
	MAIN (ANT-1)	PIFA Antenna	U-NII Band I: 0.49 dBi U-NII Band III: -4.40 dBi	
	AUX (ANT-2)	PIFA Antenna	U-NII Band I: 0.85 dBi U-NII Band III: -1.48 dBi	
Antenna Delivery	IEEE 802.11a: 1TX + 1RX IEEE 802.11n 20MHz / 40MHz: 2TX + 2RX			
RF Output Power	IEEE 802.11a U-NII Band I : 0.068 W / 18.35 dBm IEEE 802.11a U-NII Band III : 0.061 W / 17.83 dBm IEEE 802.11n 20MHz U-NII Band I: 0.095 W / 19.78 dBm IEEE 802.11n 20MHz U-NII Band III: 0.097 W / 19.87 dBm IEEE 802.11n 40MHz U-NII Band I: 0.035 W / 15.41 dBm IEEE 802.11n 40MHz U-NII Band III: 0.032 W / 15.10 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 802.11a Link Mode
Mode 3: IEEE 802.11n 20MHz Link Mode
Mode 4: IEEE 802.11n 40MHz Link Mode

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

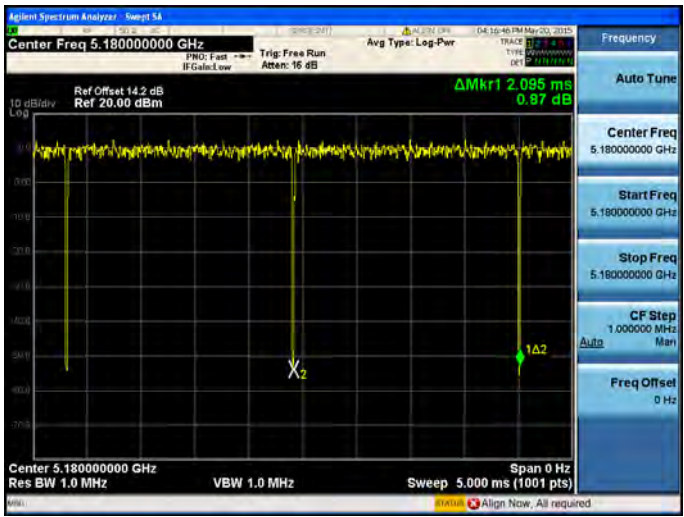
After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode only.

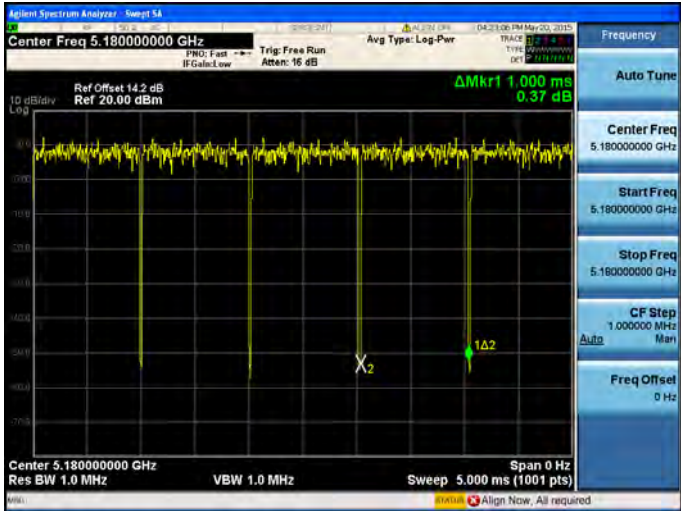
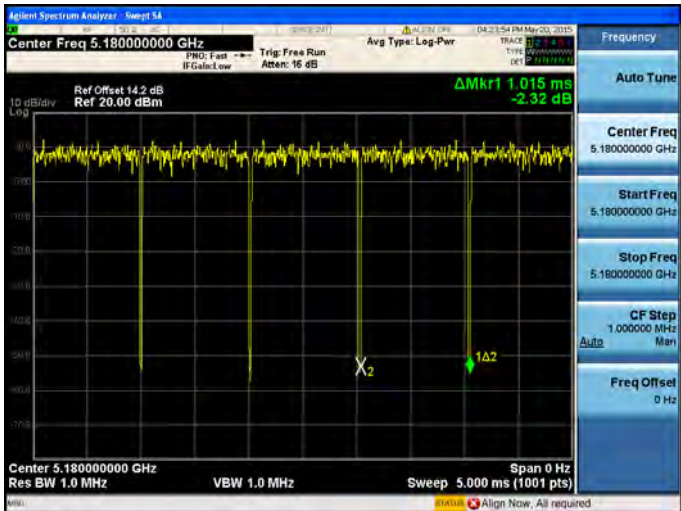
Test Mode	ANT-1	ANT-2	ANT-1+2
Mode 2: IEEE 802.11a Link Mode	V	V	
Mode 3: IEEE 802.11n 20MHz Link Mode	V	V	V
Mode 4: IEEE 802.11n 40MHz Link Mode	V	V	V

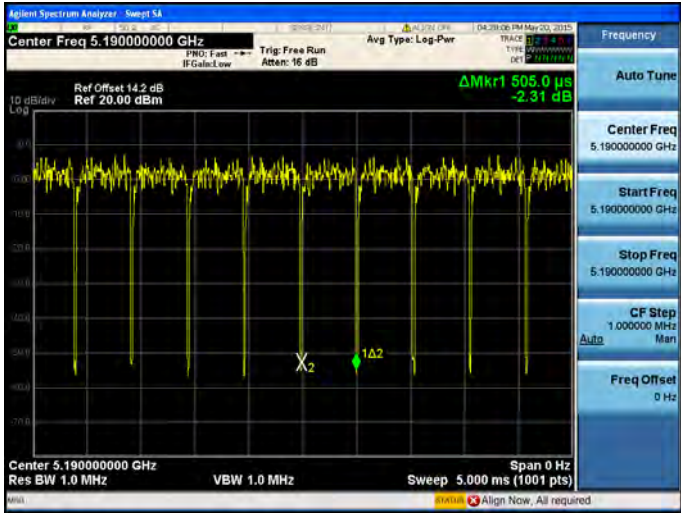
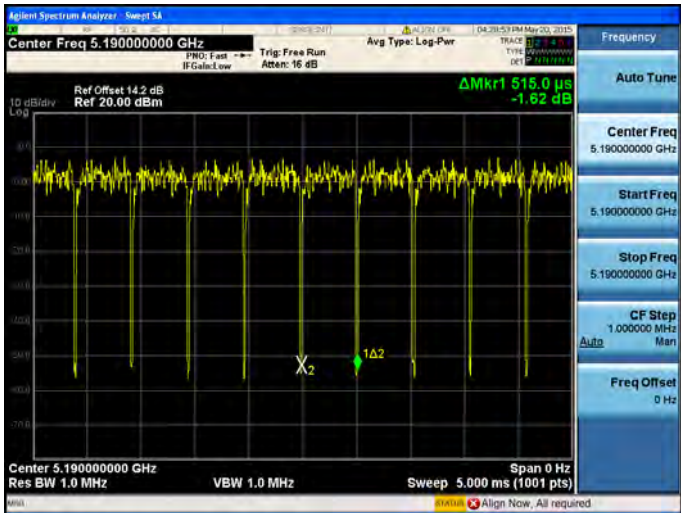
Test Mode	Band	Data Rate	Test Channel
IEEE 802.11a Link Mode	U-NII Band I	6M	36, 40, 44, 48
	U-NII Band III		149, 153, 157, 161, 165
IEEE 802.11n 20MHz Link Mode	U-NII Band I	13M	36, 40, 44, 48
	U-NII Band III		149, 153, 157, 161, 165
IEEE 802.11n 40MHz Link Mode	U-NII Band I	27M	38, 46
	U-NII Band III		151, 159

Duty cycle of test signal is >98%

Test Mode	Frequency (MHz)	on time (ms)	on+off time (ms)	Duty cycle (%)
Mode 2: IEEE 802.11a Link Mode	5180.0	2.085	2.095	0.995
Mode 3: IEEE 802.11n 20MHz Link Mode	5180.0	1.000	1.015	0.985
Mode 4: IEEE 802.11n 40MHz Link Mode	5190.0	0.505	0.515	0.981

Mode 2: IEEE 802.11a Link Mode	
On time	
On+off time	

Mode 3: IEEE 802.11n 20MHz Link Mode	
On time	
On+off time	

Mode 4: IEEE 802.11n 40MHz Link Mode	
On time	
On+off time	

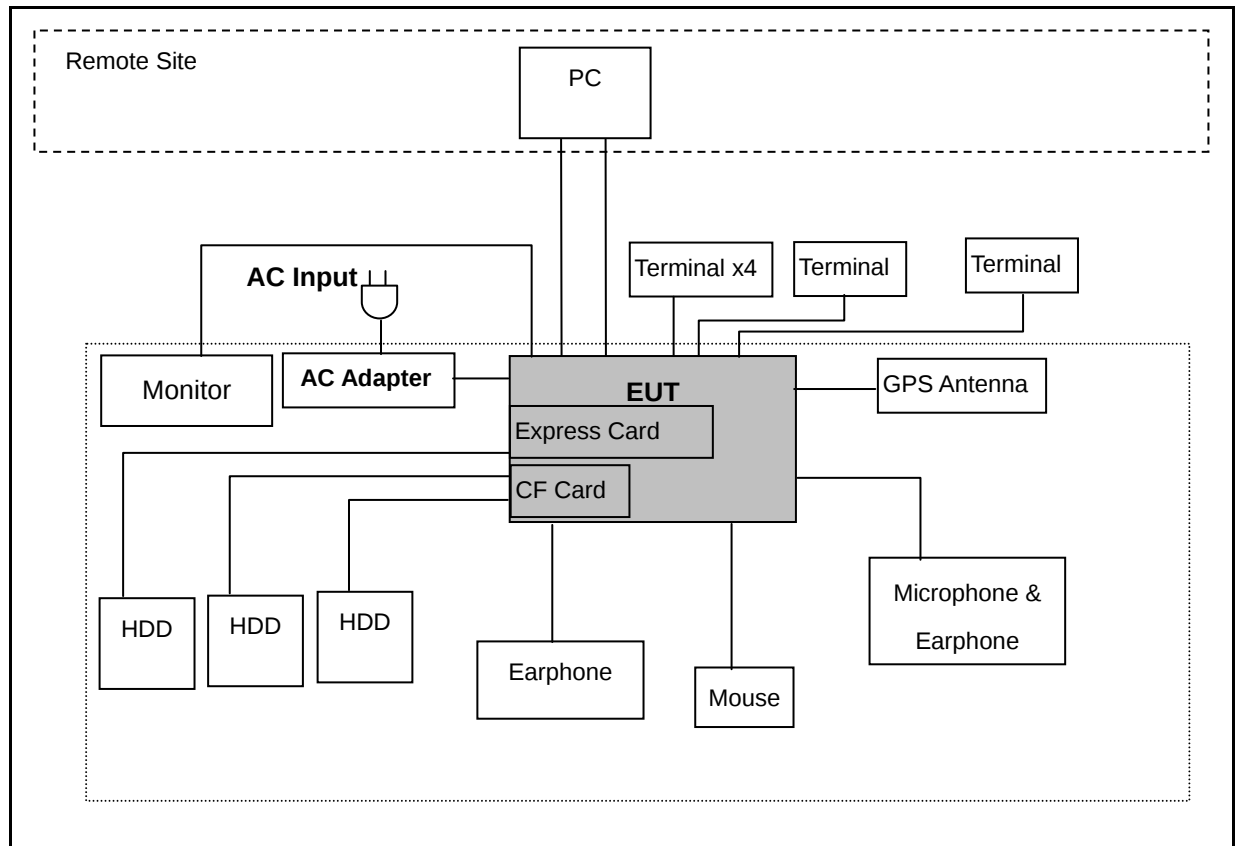
3.2. EUT Exercise Software

The EUT is operated in the engineering mode to fix the TX frequency for the purposes of measurement. According to its specifications, the EUT must comply with the requirements of Section 15.407 under the FCC Rules Part 15 Subpart E.

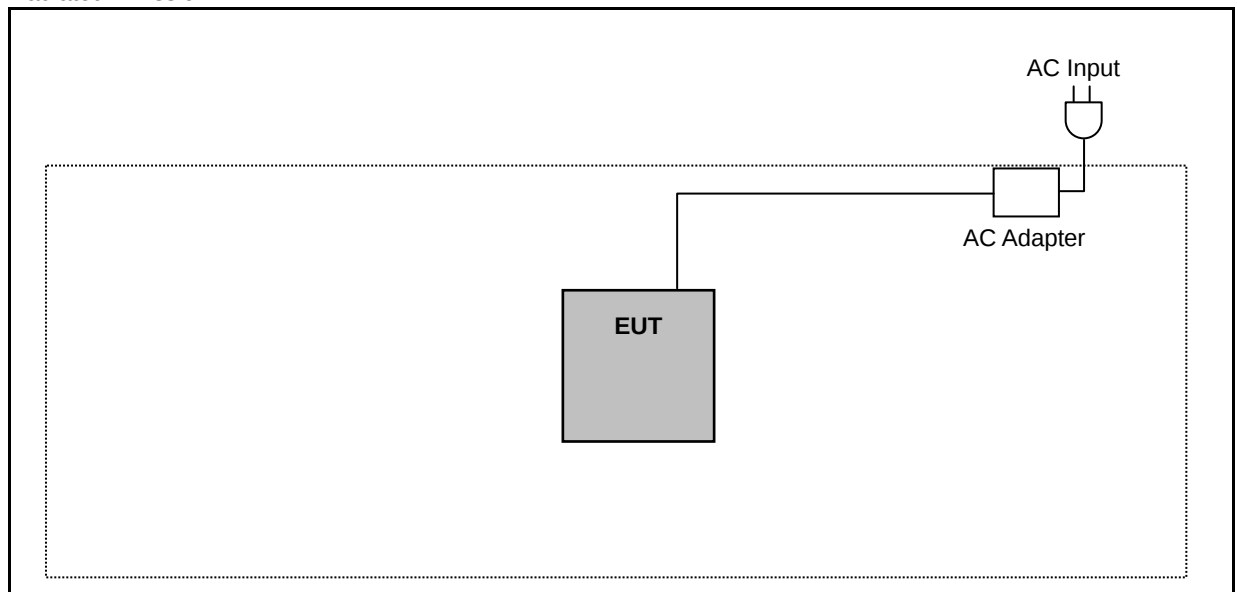
1.	Setup the EUT shown on 3.3.
2.	Turn on the power of all equipment.
3.	Turn on Wi-Fi function link to Notebook.
4.	EUT run test program.

3.3. Configuration of Test System Details

Conducted Emission



Radiated Emission



3.4. Test Site Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	26
Humidity (%RH)	25-75	60
Barometric pressure (mbar)	860-1060	950

4 AC Power 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

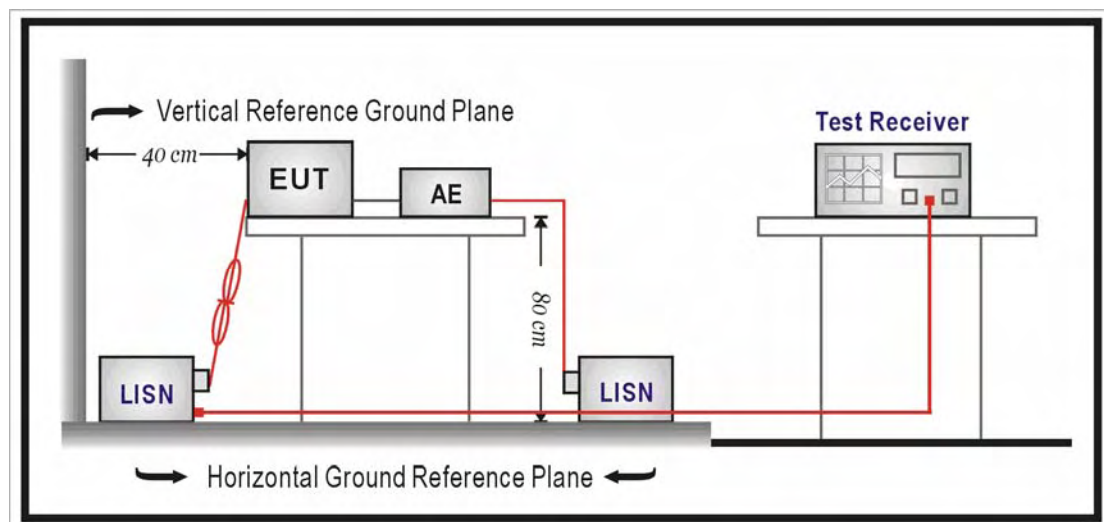
4.2. Test Instruments

Describe	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Test Receiver	R&S	ESCI	100367	06/12/2014	(1)
LISN	R&S	ENV216	101040	03/10/2015	(1)
LISN	R&S	ENV216	101041	03/06/2015	(1)
Test Site	ATL	TE05	TE05	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

4.3. Test Setup



4.4. Test Procedure

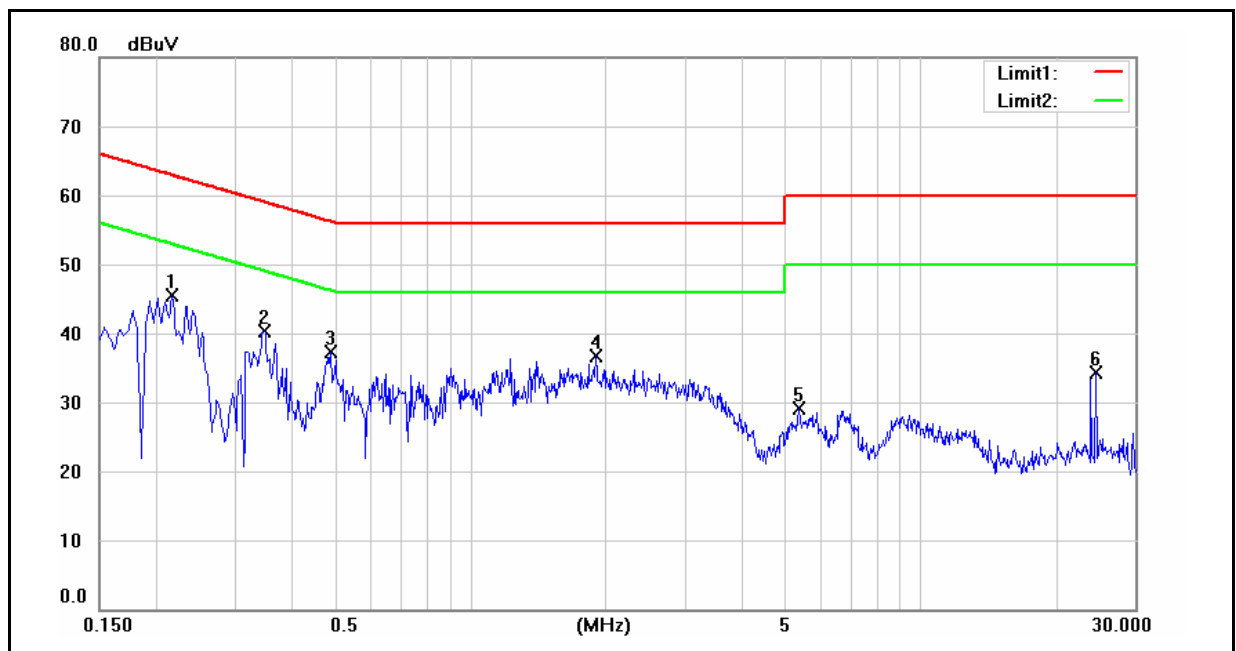
The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the back wall and at least 1 meter from the sidewall.

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.

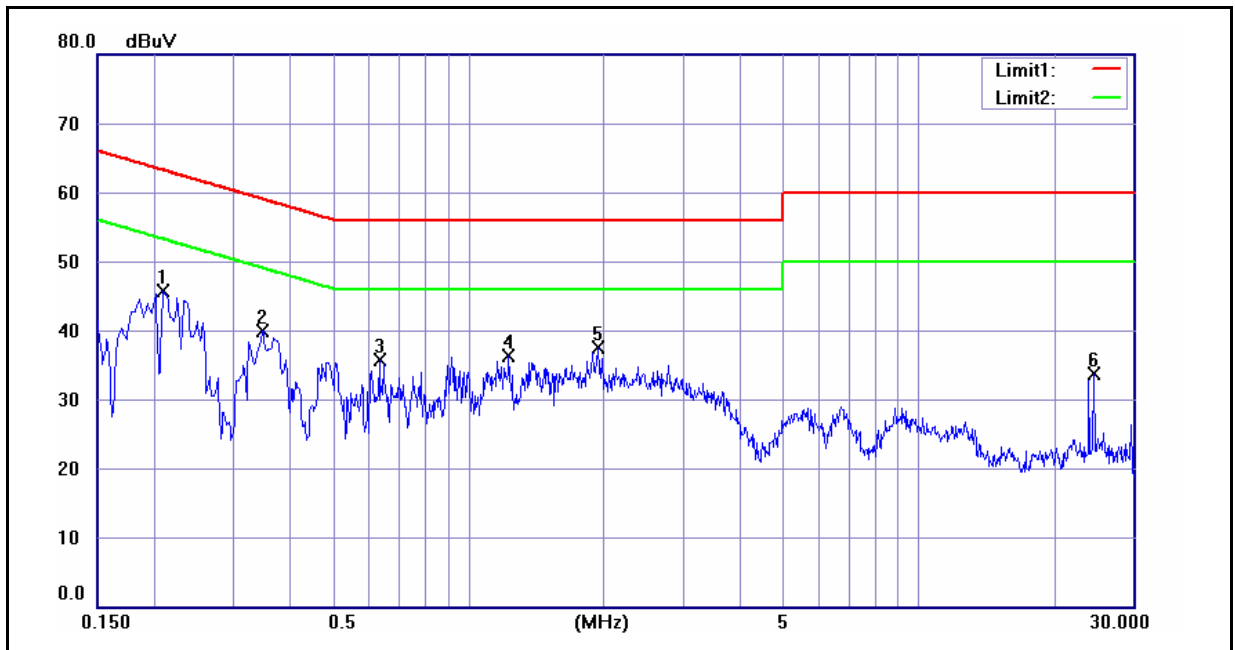
4.5. Test Result

Standard:	FCC Part 15E	Line:	L1
Test item:	Conducted Emission	Power:	AC 120V/60Hz
Model Number:	RT10	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 1	Date:	05/14/2015
		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	0.2180	33.00	18.66	9.60	42.60	28.26	62.89	52.89	-20.29	-24.63	Pass
2	0.3500	26.80	17.38	9.61	36.41	26.99	58.96	48.96	-22.55	-21.97	Pass
3	0.4900	23.15	13.97	9.62	32.77	23.59	56.17	46.17	-23.40	-22.58	Pass
4	1.9020	23.07	17.04	9.69	32.76	26.73	56.00	46.00	-23.24	-19.27	Pass
5	5.3660	13.90	8.80	9.81	23.71	18.61	60.00	50.00	-36.29	-31.39	Pass
6	24.5740	22.84	22.51	10.28	33.12	32.79	60.00	50.00	-26.88	-17.21	Pass

Standard:	FCC Part 15E	Line:	N
Test item:	Conducted Emission	Power:	AC 120V/60Hz
Model Number:	RT10	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 1	Date:	05/14/2015
		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	0.2100	33.21	17.40	9.60	42.81	27.00	63.21	53.21	-20.40	-26.21	Pass
2	0.3500	26.48	17.47	9.61	36.09	27.08	58.96	48.96	-22.87	-21.88	Pass
3	0.6340	20.35	14.48	9.62	29.97	24.10	56.00	46.00	-26.03	-21.90	Pass
4	1.2340	21.37	15.63	9.66	31.03	25.29	56.00	46.00	-24.97	-20.71	Pass
5	1.9420	21.15	16.57	9.70	30.85	26.27	56.00	46.00	-25.15	-19.73	Pass
6	24.5780	22.00	21.55	10.31	32.31	31.86	60.00	50.00	-27.69	-18.14	Pass

5 Radiated Emission Measurement

5.1. Limit

Limits of Radiated Emission Measurement

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequency Range (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	10	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

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

2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

5.2. Test Instruments

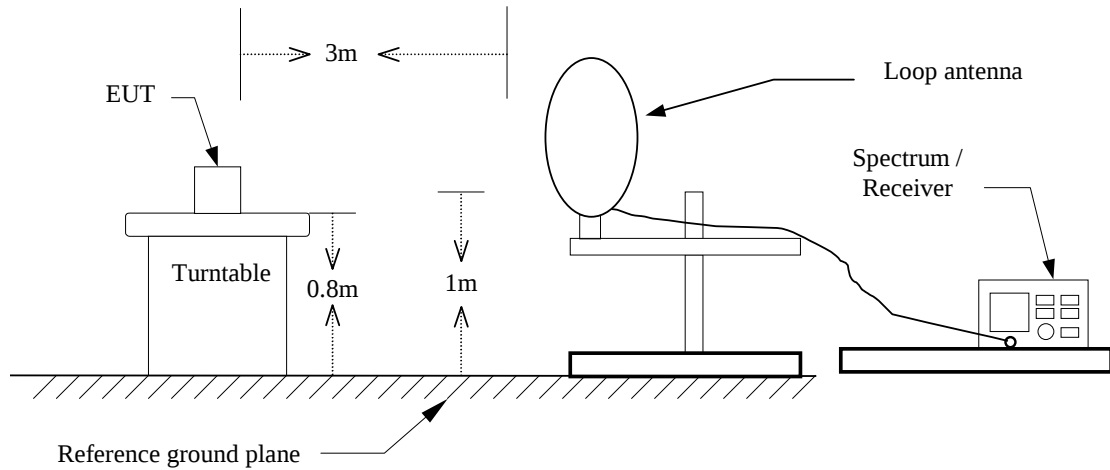
3 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
RF Pre-selector	Agilent	N9039A	MY46520256	01/06/2015	(1)
Spectrum Analyzer	Agilent	E4446A	MY46180578	01/06/2015	(1)
Pre Amplifier	Agilent	8449B	3008A02237	02/24/2015	(1)
Pre Amplifier	Agilent	8447D	2944A10961	02/24/2015	(1)
Broadband Antenna (30MHz~1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	9163-270	07/18/2014	(1)
Horn Antenna (1~18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	9120D-550	06/11/2014	(1)
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	06/13/2014	(1)
Test Site	ATL	TE01	888001	08/28/2013	(1)

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

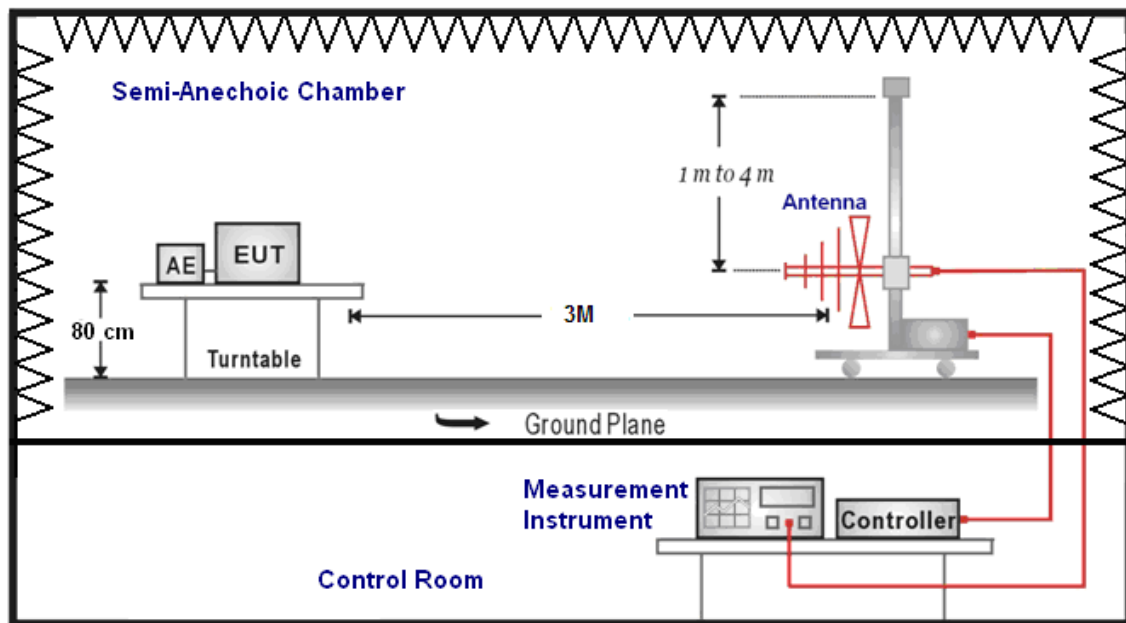
Note: N.C.R. = No Calibration Request.

5.3. Setup

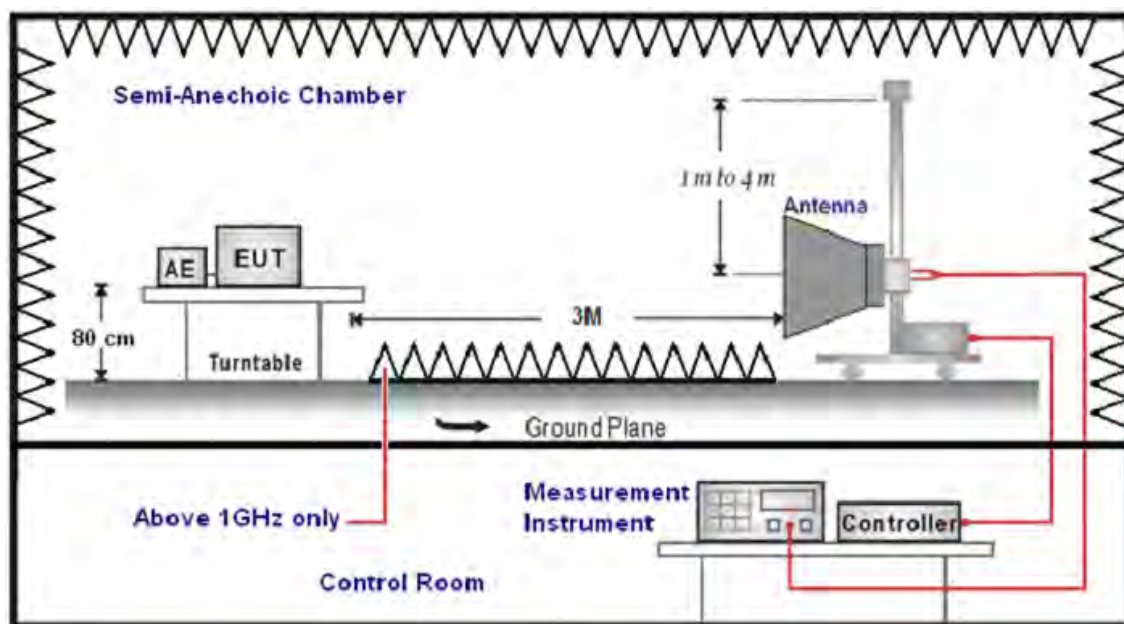
9kHz ~ 30MHz



30MHz ~ 1GHz



Above 1GHz



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 meters height, 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 40 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 3 MHz for peak measurements and 3 MHz for average measurements.

A nonconductive material surrounded the EUT to supporting the EUT for standing on three 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 Trilog-Broadband Antenna (mode SB AC VULB) at 3 Meter and the ETS-Lindgren Double-Ridged Waveguide Horn antenna (model 3117) Schwarzbeck Mess-Elektronik Broadband Horn Antenna (BBHA 9170) was used in frequencies 1 – 40 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 per meter (uV/m).

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

The actual field intensity in decibels 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) $\text{Amplitude (dBuV/m)} = \text{FI (dBuV)} + \text{AF (dBuV)} + \text{CL (dBuV)} - \text{Gain (dB)}$

FI= Reading of the field intensity.

AF= Antenna factor.

CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

(2) $\text{Actual Amplitude (dBuV/m)} = \text{Amplitude (dBuV)} - \text{Dis(dB)}$

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

5.5. Test Result

Below 1GHz

Standard:		FCC Part 15E		Test Distance:		3m	
Test item:		Radiated Emission		Power:		AC 120V/60Hz	
Model Number:		RT10		Temp.(°C)/Hum.(%RH):		26(°C)/60%RH	
Test Mode:		Mode 1		Date:		05/23/2015	
				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
132.8200	48.63	-12.66	35.97	43.50	-7.53	QP	H
258.9200	48.83	-11.03	37.80	46.00	-8.20	QP	H
322.9400	48.62	-8.99	39.63	46.00	-6.37	QP	H
359.8000	46.97	-8.27	38.70	46.00	-7.30	QP	H
387.9300	47.15	-7.62	39.53	46.00	-6.47	QP	H
455.8300	43.12	-6.20	36.92	46.00	-9.08	QP	H
161.9200	48.38	-11.44	36.94	43.50	-6.56	QP	V
263.7700	49.08	-10.86	38.22	46.00	-7.78	QP	V
322.9400	47.69	-8.99	38.70	46.00	-7.30	QP	V
387.9300	46.38	-7.62	38.76	46.00	-7.24	QP	V
455.8300	45.61	-6.20	39.41	46.00	-6.59	QP	V
581.9300	40.20	-3.63	36.57	46.00	-9.43	QP	V

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

Above 1GHz

Standard:		FCC Part 15E		Test Distance:		3m	
Test item:		Radiated Emission		Power:		AC 120V/60Hz	
Model Number:		RT10		Temp.(℃)/Hum.(%RH):		26(℃)/60%RH	
Test Mode:		Mode 2		Date:		05/23/2015	
Frequency:		5180MHz		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
2806.000	35.60	1.05	36.65	74.00	-37.35	peak	H
4542.000	33.73	6.59	40.32	74.00	-33.68	peak	H
7671.000	32.09	14.30	46.39	74.00	-27.61	peak	H
2799.000	36.26	1.03	37.29	74.00	-36.71	peak	V
4619.000	33.45	6.83	40.28	74.00	-33.72	peak	V
7650.000	31.36	14.26	45.62	74.00	-28.38	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	RT10			Temp.(℃)/Hum.(%RH):	26(℃)/60%RH		
Test Mode:	Mode 2			Date:	05/23/2015		
Frequency:	5200MHz			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
2827.000	34.98	1.12	36.10	74.00	-37.90	peak	H
4577.000	33.84	6.69	40.53	74.00	-33.47	peak	H
7699.000	31.49	14.35	45.84	74.00	-28.16	peak	H
2799.000	36.21	1.03	37.24	74.00	-36.76	peak	V
4570.000	34.42	6.68	41.10	74.00	-32.90	peak	V
7678.000	32.24	14.31	46.55	74.00	-27.45	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	RT10			Temp.(℃)/Hum.(%RH):	26(℃)/60%RH		
Test Mode:	Mode 2			Date:	05/23/2015		
Frequency:	5240MHz			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
2813.000	36.84	1.07	37.91	74.00	-36.09	peak	H
4563.000	33.22	6.66	39.88	74.00	-34.12	peak	H
7685.000	31.38	14.32	45.70	74.00	-28.30	peak	H
2806.000	37.28	1.05	38.33	74.00	-35.67	peak	V
4605.000	35.26	6.79	42.05	74.00	-31.95	peak	V
7678.000	31.93	14.31	46.24	74.00	-27.76	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	RT10			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 2			Date:	05/23/2015		
Frequency:	5745MHz			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
2827.000	35.83	1.12	36.95	74.00	-37.05	peak	H
4591.000	33.94	6.74	40.68	74.00	-33.32	peak	H
7671.000	31.44	14.30	45.74	74.00	-28.26	peak	H
2827.000	36.49	1.12	37.61	74.00	-36.39	peak	V
4577.000	34.48	6.69	41.17	74.00	-32.83	peak	V
7657.000	31.64	14.28	45.92	74.00	-28.08	peak	V

Standard:		FCC Part 15E		Test Distance:		3m	
Test item:		Radiated Emission		Power:		AC 120V/60Hz	
Model Number:		RT10		Temp.(℃)/Hum.(%RH):		26(℃)/60%RH	
Test Mode:		Mode 2		Date:		05/23/2015	
Frequency:		5785MHz		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
2799.000	35.76	1.03	36.79	74.00	-37.21	peak	H
4591.000	34.75	6.74	41.49	74.00	-32.51	peak	H
7629.000	31.37	14.23	45.60	74.00	-28.40	peak	H
2799.000	35.89	1.03	36.92	74.00	-37.08	peak	V
4570.000	34.67	6.68	41.35	74.00	-32.65	peak	V
7699.000	32.65	14.35	47.00	74.00	-27.00	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	RT10			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 2			Date:	05/23/2015		
Frequency:	5825MHz			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
2827.000	36.87	1.12	37.99	74.00	-36.01	peak	H
4591.000	34.58	6.74	41.32	74.00	-32.68	peak	H
7685.000	31.41	14.32	45.73	74.00	-28.27	peak	H
2806.000	36.98	1.05	38.03	74.00	-35.97	peak	V
4563.000	33.44	6.66	40.10	74.00	-33.90	peak	V
7657.000	33.11	14.28	47.39	74.00	-26.61	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	RT10			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 3			Date:	05/23/2015		
Frequency:	5180MHz			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
2827.000	36.29	1.12	37.41	74.00	-36.59	peak	H
4598.000	33.68	6.77	40.45	74.00	-33.55	peak	H
7671.000	30.69	14.30	44.99	74.00	-29.01	peak	H
2806.000	35.51	1.05	36.56	74.00	-37.44	peak	V
4598.000	34.41	6.77	41.18	74.00	-32.82	peak	V
7629.000	31.86	14.23	46.09	74.00	-27.91	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	RT10			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 3			Date:	05/23/2015		
Frequency:	5200MHz			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
2813.000	37.97	1.07	39.04	74.00	-34.96	peak	H
4605.000	34.88	6.79	41.67	74.00	-32.33	peak	H
7678.000	31.75	14.31	46.06	74.00	-27.94	peak	H
2806.000	37.01	1.05	38.06	74.00	-35.94	peak	V
4605.000	33.67	6.79	40.46	74.00	-33.54	peak	V
7650.000	32.84	14.26	47.10	74.00	-26.90	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	RT10			Temp.(℃)/Hum.(%RH):	26(℃)/60%RH		
Test Mode:	Mode 3			Date:	05/23/2015		
Frequency:	5240MHz			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
2813.000	35.76	1.07	36.83	74.00	-37.17	peak	H
4577.000	34.64	6.69	41.33	74.00	-32.67	peak	H
7657.000	31.81	14.28	46.09	74.00	-27.91	peak	H
2799.000	37.35	1.03	38.38	74.00	-35.62	peak	V
4591.000	33.62	6.74	40.36	74.00	-33.64	peak	V
7671.000	32.44	14.30	46.74	74.00	-27.26	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	RT10			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 3			Date:	05/23/2015		
Frequency:	5745MHz			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
2827.000	35.77	1.12	36.89	74.00	-37.11	peak	H
4577.000	33.49	6.69	40.18	74.00	-33.82	peak	H
7685.000	31.34	14.32	45.66	74.00	-28.34	peak	H
2827.000	36.85	1.12	37.97	74.00	-36.03	peak	V
4598.000	33.26	6.77	40.03	74.00	-33.97	peak	V
7685.000	31.82	14.32	46.14	74.00	-27.86	peak	V

Standard:		FCC Part 15E		Test Distance:		3m	
Test item:		Radiated Emission		Power:		AC 120V/60Hz	
Model Number:		RT10		Temp.(℃)/Hum.(%RH):		26(℃)/60%RH	
Test Mode:		Mode 3		Date:		05/23/2015	
Frequency:		5785MHz		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
2785.000	36.53	0.97	37.50	74.00	-36.50	peak	H
4577.000	34.30	6.69	40.99	74.00	-33.01	peak	H
7657.000	32.12	14.28	46.40	74.00	-27.60	peak	H
2806.000	36.29	1.05	37.34	74.00	-36.66	peak	V
4570.000	33.63	6.68	40.31	74.00	-33.69	peak	V
7671.000	32.33	14.30	46.63	74.00	-27.37	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	RT10			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 3			Date:	05/23/2015		
Frequency:	5825MHz			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
2799.000	36.76	1.03	37.79	74.00	-36.21	peak	H
4570.000	33.53	6.68	40.21	74.00	-33.79	peak	H
7685.000	31.00	14.32	45.32	74.00	-28.68	peak	H
2834.000	36.15	1.14	37.29	74.00	-36.71	peak	V
4577.000	34.27	6.69	40.96	74.00	-33.04	peak	V
7657.000	33.21	14.28	47.49	74.00	-26.51	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	RT10			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 4			Date:	05/23/2015		
Frequency:	5190MHz			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
2806.000	35.54	1.05	36.59	74.00	-37.41	peak	H
4570.000	33.62	6.68	40.30	74.00	-33.70	peak	H
7657.000	31.84	14.28	46.12	74.00	-27.88	peak	H
2827.000	36.11	1.12	37.23	74.00	-36.77	peak	V
4633.000	33.99	6.88	40.87	74.00	-33.13	peak	V
7685.000	31.19	14.32	45.51	74.00	-28.49	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	RT10			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 4			Date:	05/23/2015		
Frequency:	5230MHz			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
2813.000	37.23	1.07	38.30	74.00	-35.70	peak	H
4619.000	34.05	6.83	40.88	74.00	-33.12	peak	H
7650.000	33.33	14.26	47.59	74.00	-26.41	peak	H
2827.000	37.32	1.12	38.44	74.00	-35.56	peak	V
4577.000	34.51	6.69	41.20	74.00	-32.80	peak	V
7657.000	31.72	14.28	46.00	74.00	-28.00	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	RT10			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 4			Date:	05/23/2015		
Frequency:	5755MHz			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
2806.000	36.61	1.05	37.66	74.00	-36.34	peak	H
4591.000	34.21	6.74	40.95	74.00	-33.05	peak	H
7643.000	31.04	14.25	45.29	74.00	-28.71	peak	H
2806.000	36.33	1.05	37.38	74.00	-36.62	peak	V
4605.000	34.42	6.79	41.21	74.00	-32.79	peak	V
7685.000	32.18	14.32	46.50	74.00	-27.50	peak	V

Standard:	FCC Part 15E			Test Distance:	3m		
Test item:	Radiated Emission			Power:	AC 120V/60Hz		
Model Number:	RT10			Temp.(°C)/Hum.(%RH):	26(°C)/60%RH		
Test Mode:	Mode 4			Date:	05/23/2015		
Frequency:	5795MHz			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
2806.000	35.07	1.05	36.12	74.00	-37.88	peak	H
4605.000	34.72	6.79	41.51	74.00	-32.49	peak	H
7671.000	31.85	14.30	46.15	74.00	-27.85	peak	H
2827.000	36.87	1.12	37.99	74.00	-36.01	peak	V
4598.000	33.42	6.77	40.19	74.00	-33.81	peak	V
7671.000	31.64	14.30	45.94	74.00	-28.06	peak	V

Band Edge

Standard:		FCC Part 15E		Test Distance:		3m	
Test item:		Radiated Emission		Power:		AC 120V/60Hz	
Model Number:		RT10		Temp.(℃)/Hum.(%RH):		26(℃)/60%RH	
Test Mode:		Mode 2		Date:		05/19/2015	
Frequency:		5180 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
5147.500	57.02	8.21	65.23	74.00	-8.77	peak	H
5147.500	42.33	8.21	50.54	54.00	-3.46	AVG	H
5150.000	57.26	8.21	65.47	74.00	-8.53	peak	H
5150.000	43.75	8.21	51.96	54.00	-2.04	AVG	H
5144.700	54.06	8.21	62.27	74.00	-11.73	peak	V
5144.700	40.96	8.21	49.17	54.00	-4.83	AVG	V
5150.000	59.07	8.21	67.28	74.00	-6.72	peak	V
5150.000	44.24	8.21	52.45	54.00	-1.55	AVG	V

Standard:		FCC Part 15E		Test Distance:		3m	
Test item:		Radiated Emission		Power:		AC 120V/60Hz	
Model Number:		RT10		Temp.(℃)/Hum.(%RH):		26(℃)/60%RH	
Test Mode:		Mode 2		Date:		05/19/2015	
Frequency:		5240 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
5350.000	42.26	8.48	50.74	74.00	-23.26	peak	H
5421.060	44.41	8.57	52.98	74.00	-21.02	peak	H
5421.060	31.95	8.57	40.52	54.00	-13.48	AVG	H
5350.000	42.41	8.48	50.89	74.00	-23.11	peak	V
5366.280	44.96	8.50	53.46	74.00	-20.54	peak	H
5366.280	31.94	8.50	40.44	54.00	-13.56	AVG	V

Standard:		FCC Part 15E		Test Distance:		3m	
Test item:		Radiated Emission		Power:		AC 120V/60Hz	
Model Number:		RT10		Temp.(℃)/Hum.(%RH):		26(℃)/60%RH	
Test Mode:		Mode 3		Date:		05/19/2015	
Frequency:		5180 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
5145.400	54.50	8.21	62.71	74.00	-11.29	peak	H
5145.400	41.22	8.21	49.43	54.00	-4.57	AVG	H
5150.000	57.46	8.21	65.67	74.00	-8.33	peak	H
5150.000	43.55	8.21	51.76	54.00	-2.24	AVG	H
5144.700	52.79	8.21	61.00	74.00	-13.00	peak	V
5144.700	39.13	8.21	47.34	54.00	-6.66	AVG	V
5150.000	53.58	8.21	61.79	74.00	-12.21	peak	V
5150.000	41.86	8.21	50.07	54.00	-3.93	AVG	V

Standard:		FCC Part 15E			Test Distance:		3m	
Test item:		Radiated Emission			Power:		AC 120V/60Hz	
Model Number:		RT10			Temp.(°C)/Hum.(%RH):		26(°C)/60%RH	
Test Mode:		Mode 3			Date:		05/19/2015	
Frequency:		5240 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	
5350.000	42.84	8.48	51.32	74.00	-22.68	peak	H	
5381.460	44.25	8.52	52.77	74.00	-21.23	peak	H	
5381.460	31.64	8.52	40.16	54.00	-13.84	AVG	H	
5350.000	42.01	8.48	50.49	74.00	-23.51	peak	V	
5360.120	44.56	8.49	53.05	74.00	-20.95	peak	V	
5360.120	31.73	8.49	40.22	54.00	-13.78	AVG	V	

Standard:		FCC Part 15E		Test Distance:		3m	
Test item:		Radiated Emission		Power:		AC 120V/60Hz	
Model Number:		RT10		Temp.(℃)/Hum.(%RH):		26(℃)/60%RH	
Test Mode:		Mode 4		Date:		05/19/2015	
Frequency:		5190 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
5147.500	48.27	8.21	56.48	74.00	-17.52	peak	H
5147.500	40.55	8.21	48.76	54.00	-5.24	AVG	H
5150.000	52.77	8.21	60.98	74.00	-13.02	peak	H
5150.000	42.33	8.21	50.54	54.00	-3.46	AVG	H
5147.500	48.14	8.21	56.35	74.00	-17.65	peak	V
5148.900	39.66	8.21	47.87	54.00	-6.13	AVG	V
5150.000	50.24	8.21	58.45	74.00	-15.55	peak	V
5150.000	40.26	8.21	48.47	54.00	-5.53	AVG	V

Standard:		FCC Part 15E			Test Distance:		3m	
Test item:		Radiated Emission			Power:		AC 120V/60Hz	
Model Number:		RT10			Temp.(°C)/Hum.(%RH):		26(°C)/60%RH	
Test Mode:		Mode 4			Date:		05/19/2015	
Frequency:		5230 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	
5350.000	42.54	8.48	51.02	74.00	-22.98	peak	H	
5385.710	44.87	8.52	53.39	74.00	-20.61	peak	H	
5385.710	31.89	8.52	40.41	54.00	-13.59	AVG	H	
5350.000	41.67	8.48	50.15	74.00	-23.85	peak	V	
5359.950	44.44	8.49	52.93	74.00	-21.07	peak	V	
5359.950	32.88	8.49	41.37	54.00	-12.63	AVG	V	

6 Maximum Conducted Output Power Measurement

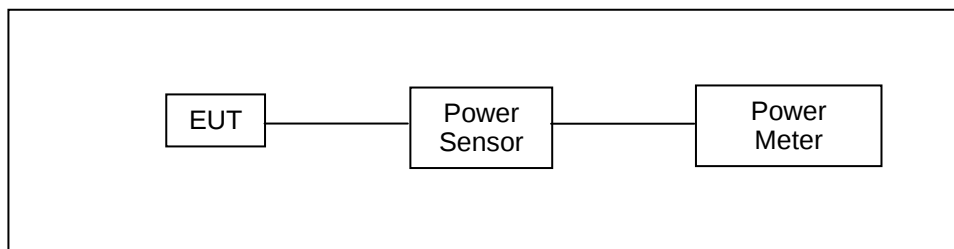
6.1. Limit

Conducted Output Power

Frequency Range (MHz)	FCC Limit
5.150 ~ 5.250 GHz	The lesser of 250mW (24dBm)
5.250 ~ 5.350 GHz	The lesser of 250mW (24dBm) or 11dBm + 10log (B)
5.470 ~ 5.725 GHz	The lesser of 250mW (24dBm) or 11dBm + 10log (B)
5.725 ~ 5.850 GHz	The lesser of 1000mW (30dBm)

Note: Where B is the 26dB emission bandwidth in MHz.

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	TE02	TE02	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

6.4. Test Procedure

The test is performed in accordance with KDB789033: D02 General UNII Test Procedures New Rules v01, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E.

6.5. Test Result

Model Number		RT10				
Test Item		Maximum Conducted Output Power				
Test Mode		Mode 2: IEEE 802.11a Link Mode				
Date of Test		05/14/2015			Test Site	TE02
Frequency (MHz)	Data Rate	Average Power				FCC Limit (dBm)
		ANT-1		ANT-2		
		(dBm)	(W)	(dBm)	(W)	
5180.0	6M	18.06	0.064	17.80	0.060	< 24
5200.0		17.91	0.062	18.35	0.068	
5220.0		17.66	0.058	17.52	0.056	
5240.0		15.37	0.034	15.25	0.033	
5745.0		17.54	0.057	17.83	0.061	< 30
5765.0		17.50	0.056	17.75	0.060	
5785.0		17.55	0.057	17.79	0.060	
5805.0		17.20	0.052	17.12	0.052	
5825.0		16.49	0.045	16.65	0.046	
5180.0	54M	17.43	0.055	17.68	0.059	< 24
5200.0		17.46	0.056	17.77	0.060	
5220.0		17.16	0.052	17.50	0.056	
5240.0		14.85	0.031	15.05	0.032	
5745.0		17.49	0.056	17.14	0.052	< 30
5765.0		17.48	0.056	17.60	0.058	
5785.0		17.46	0.056	17.66	0.058	
5805.0		17.09	0.051	17.05	0.051	
5825.0		16.47	0.044	16.49	0.045	

Model Number		RT10						
Test Item		Maximum Conducted Output Power						
Test Mode		Mode 3: IEEE 802.11n 20MHz Link Mode						
Date of Test		05/14/2015			Test Site		TE02	
Frequency (MHz)	Data Rate	Average Power					FCC Limit (dBm)	
		ANT-1		ANT-2				
		(dBm)	(W)	(dBm)	(W)			
5180.0	13M	16.25	0.042	17.19	0.052		< 24	
5200.0		16.45	0.044	17.07	0.051			
5220.0		16.23	0.042	16.84	0.048			
5240.0		14.55	0.029	14.63	0.029			
5745.0		16.56	0.045	17.06	0.051		< 30	
5765.0		16.51	0.045	17.18	0.052			
5785.0		16.19	0.042	17.05	0.051			
5805.0		15.79	0.038	16.31	0.043			
5825.0		16.38	0.043	16.44	0.044			
5180.0	130M	16.21	0.042	17.06	0.051		< 24	
5200.0		16.38	0.043	17.01	0.050			
5220.0		16.17	0.041	16.52	0.045			
5240.0		13.87	0.024	14.56	0.029			
5745.0		16.49	0.045	16.94	0.049		< 30	
5765.0		16.45	0.044	16.78	0.048			
5785.0		16.09	0.041	16.52	0.045			
5805.0		15.72	0.037	16.18	0.041			
5825.0		16.26	0.042	15.92	0.039			

Model Number		RT10		
Test Item		Maximum Conducted Output Power		
Test Mode		Mode 3: IEEE 802.11n 20MHz Link Mode		
Date of Test		05/14/2015	Test Site	TE02
Frequency (MHz)	Data Rate	Average Power		FCC Limit (dBm)
		ANT-1+2		
		(dBm)	(W)	
5180.0	13M	19.76	0.095	< 24
5200.0		19.78	0.095	
5220.0		19.56	0.090	
5240.0		17.60	0.058	
5745.0		19.83	0.096	< 30
5765.0		19.87	0.097	
5785.0		19.65	0.092	
5805.0		19.07	0.081	
5825.0		19.42	0.088	
5180.0	130M	19.67	0.093	< 24
5200.0		19.72	0.094	
5220.0		19.36	0.086	
5240.0		17.24	0.053	
5745.0		19.73	0.094	< 30
5765.0		19.63	0.092	
5785.0		19.32	0.086	
5805.0		18.97	0.079	
5825.0		19.10	0.081	

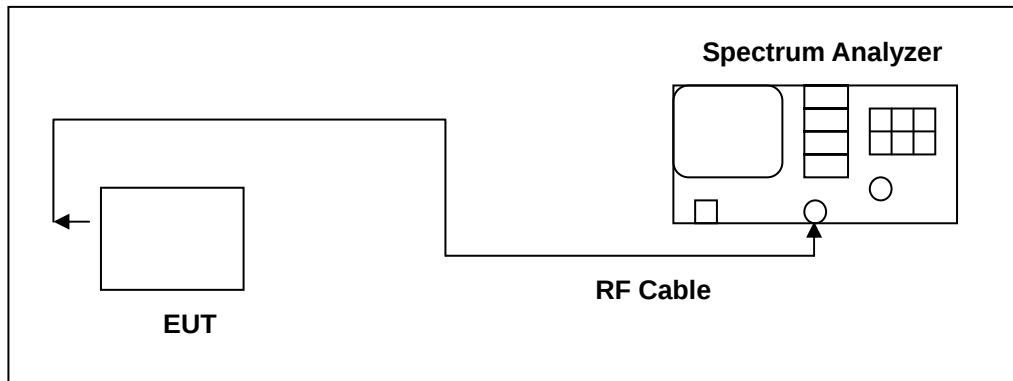
Model Number		RT10							
Test Item		Maximum Conducted Output Power							
Test Mode		Mode 4: IEEE 802.11n 40MHz Link Mode							
Date of Test		05/14/2015				Test Site		TE02	
Frequency (MHz)	Data Rate	Average Power						FCC Limit (dBm)	
		ANT-1		ANT-2		ANT-1+2			
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)		
5190.0	27M	12.12	0.016	12.66	0.018	15.41	0.035	< 24	
5230.0		12.00	0.016	12.32	0.017	15.17	0.033		
5755.0		11.80	0.015	12.36	0.017	15.10	0.032	< 30	
5795.0		11.68	0.015	11.74	0.015	14.72	0.030		
5190.0	270M	11.94	0.016	12.34	0.017	15.15	0.033	< 24	
5230.0		11.61	0.014	12.19	0.017	14.92	0.031		
5755.0		11.01	0.013	11.74	0.015	14.40	0.028	< 30	
5795.0		10.96	0.012	11.50	0.014	14.25	0.027		

7 26dB RF Bandwidth & 99 % Occupied Bandwidth Measurement

7.1. Limit

N/A

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	TE02	TE02	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

7.4. Test Procedure

The test is performed in accordance with KDB789033: D02 General UNII Test Procedures New Rules v01, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E.

7.5. Test Result

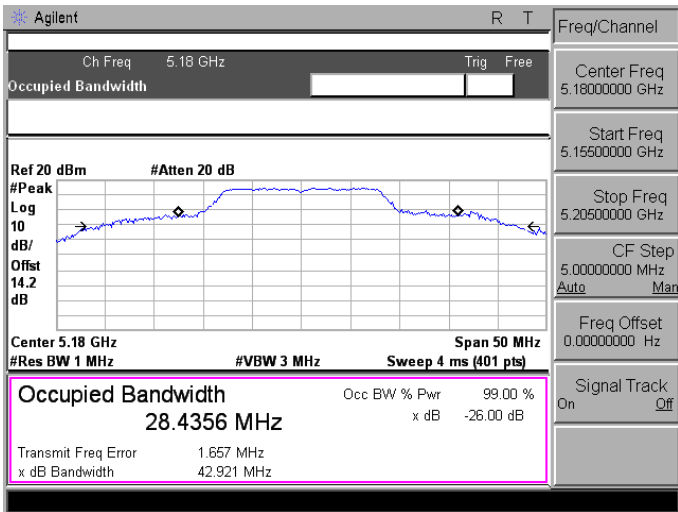
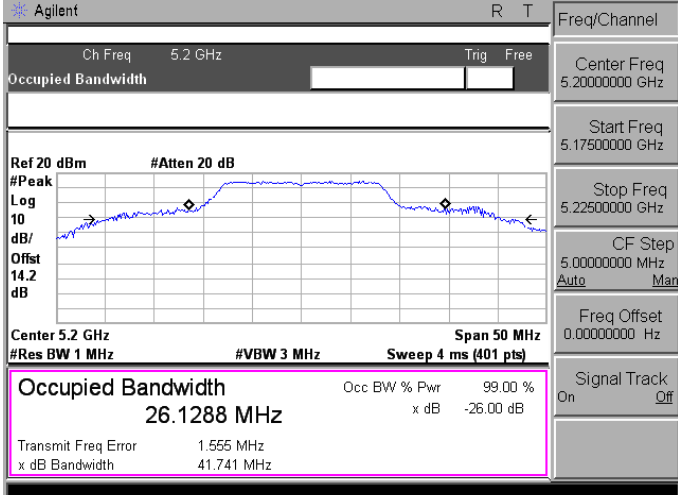
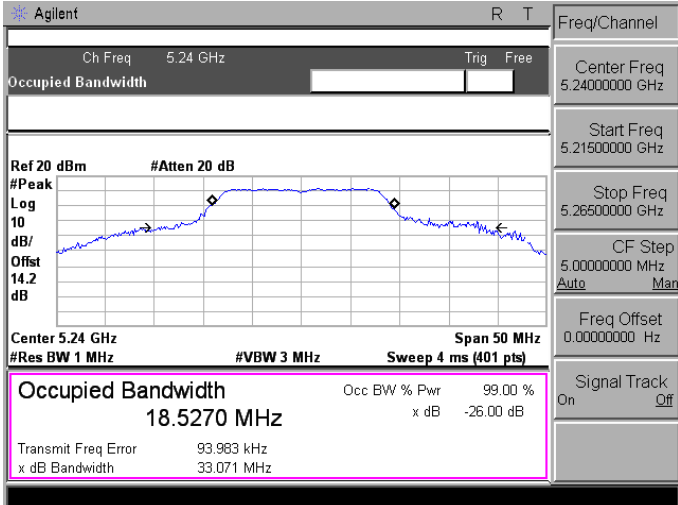
Model Number	RT10		
Test Item	26dB RF Bandwidth Measurement		
Test Mode	Mode 2: IEEE 802.11a Link Mode		
Date of Test	05/20/2015	Test Site	TE02
Frequency (MHz)	ANT-2		
	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	
5180	42.921	28.4356	
5200	41.741	26.1288	
5240	33.071	18.5270	

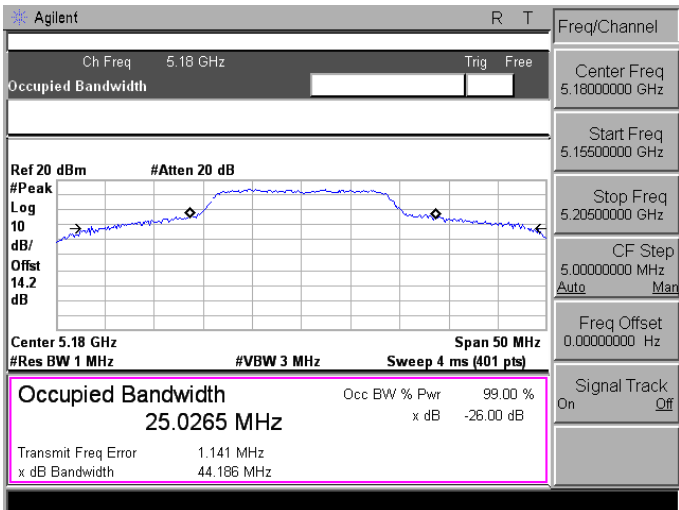
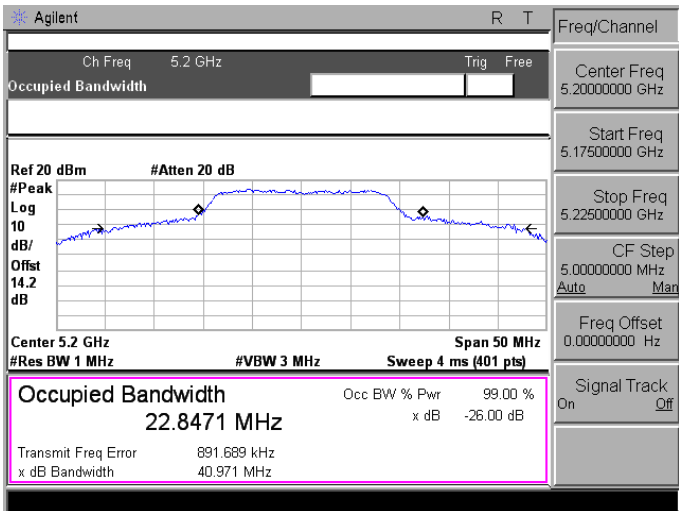
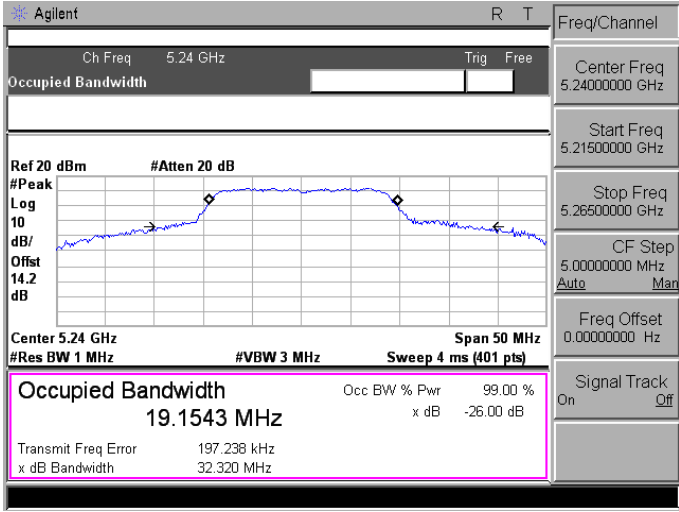
Model Number	RT10			
Test Item	26dB RF Bandwidth Measurement			
Test Mode	Mode 3: IEEE 802.11n 20MHz Link Mode			
Date of Test	05/20/2015	Test Site	TE02	
Frequency (MHz)	ANT-1		ANT-2	
	26dB Bandwidth (MHz)	99 % Occupied Bandwidth	26dB Bandwidth (MHz)	99 % Occupied Bandwidth
5180	44.186	25.0265	39.868	21.6210
5200	40.971	22.8471	36.673	19.5526
5240	32.320	19.1543	35.250	19.2538

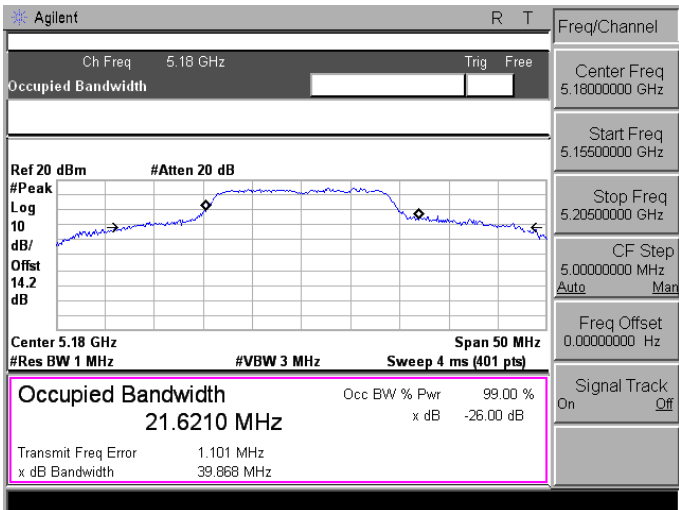
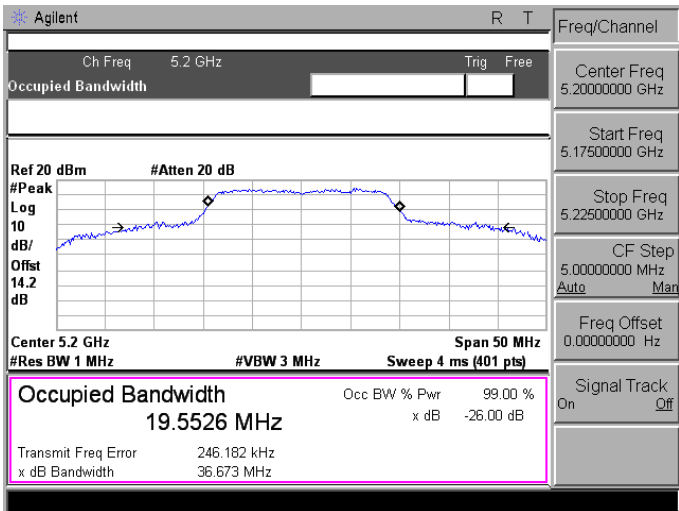
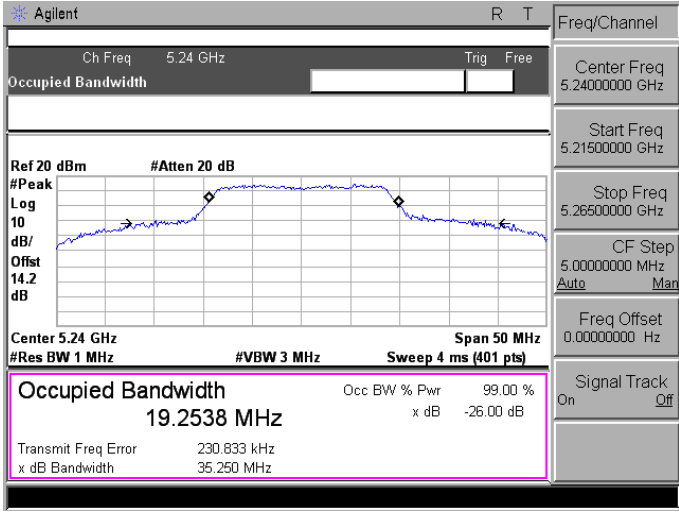
Model Number	RT10			
Test Item	26dB RF Bandwidth Measurement			
Test Mode	Mode 4: IEEE 802.11n 40MHz Link Mode			
Date of Test	05/20/2015	Test Site	TE02	
Frequency (MHz)	ANT-1		ANT-2	
	26dB Bandwidth (MHz)	99 % Occupied Bandwidth	26dB Bandwidth (MHz)	99 % Occupied Bandwidth
5190	40.305	36.3600	40.470	36.3133
5230	46.065	36.2625	40.454	36.3324

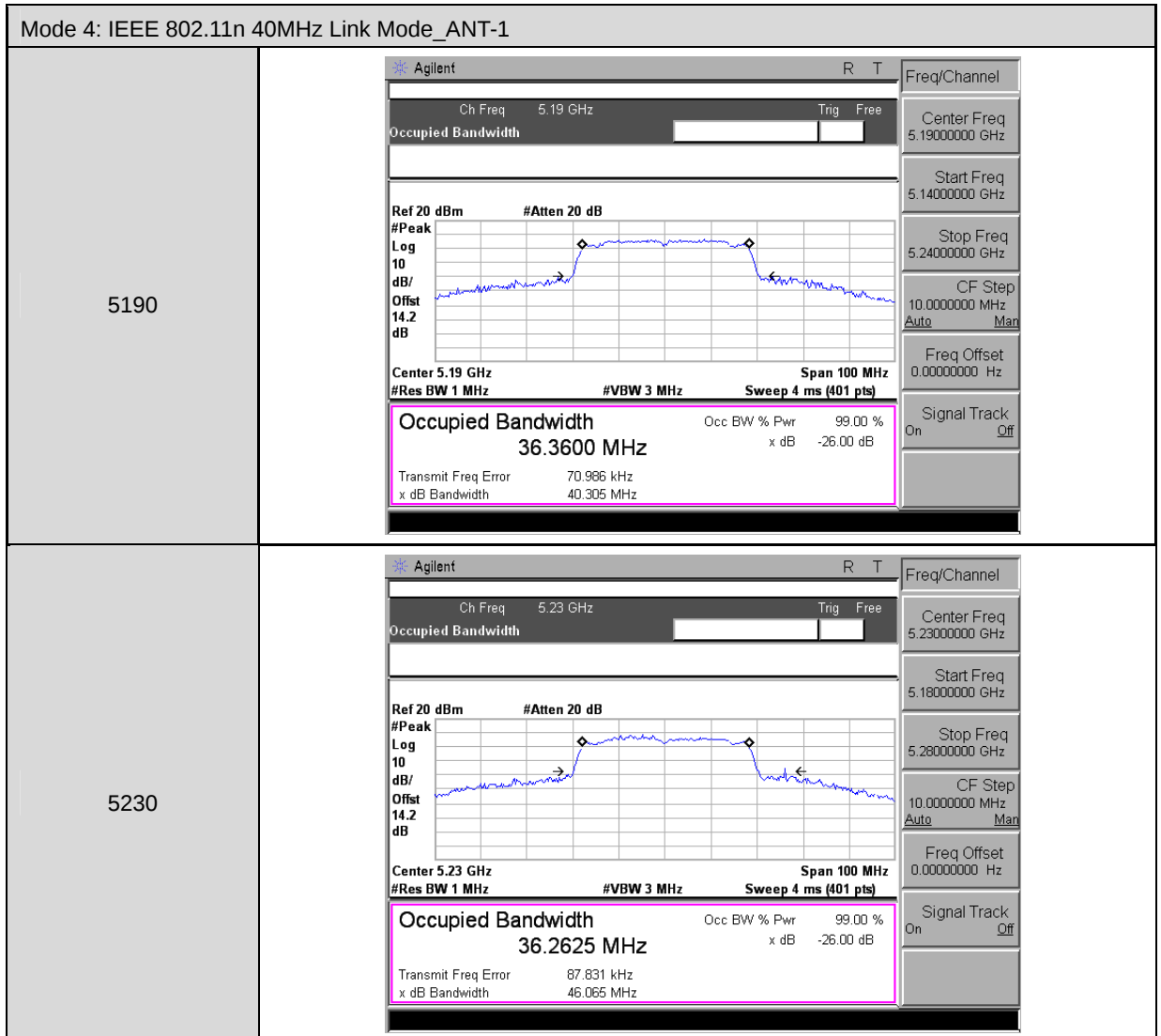
Note: The 99% occupied bandwidth not crossed 5250MHz.

7.6. Test Graphs

5180	Mode 2: IEEE 802.11a Link Mode_ANT-2  Agilent R T Ch Freq 5.18 GHz Tng Free Occupied Bandwidth Ref 20 dBm #Atten 20 dB #Peak Log 10 dB/ Offset 14.2 dB Center 5.18 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts) Occupied Bandwidth 28.4356 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 1.657 MHz x dB Bandwidth 42.921 MHz Freq/Channel Center Freq 5.18000000 GHz Start Freq 5.15500000 GHz Stop Freq 5.20500000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
5200	 Agilent R T Ch Freq 5.2 GHz Tng Free Occupied Bandwidth Ref 20 dBm #Atten 20 dB #Peak Log 10 dB/ Offset 14.2 dB Center 5.2 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts) Occupied Bandwidth 26.1288 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 1.555 MHz x dB Bandwidth 41.741 MHz Freq/Channel Center Freq 5.20000000 GHz Start Freq 5.17500000 GHz Stop Freq 5.22500000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
5240	 Agilent R T Ch Freq 5.24 GHz Tng Free Occupied Bandwidth Ref 20 dBm #Atten 20 dB #Peak Log 10 dB/ Offset 14.2 dB Center 5.24 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts) Occupied Bandwidth 18.5270 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 93.983 kHz x dB Bandwidth 33.071 MHz Freq/Channel Center Freq 5.24000000 GHz Start Freq 5.21500000 GHz Stop Freq 5.26500000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

Mode 3: IEEE 802.11n 20MHz Link Mode_ANT-1	
5180	 Agilent R T Ch Freq 5.18 GHz Tng Free Occupied Bandwidth Ref 20 dBm #Atten 20 dB #Peak Log 10 dB/ Offset 14.2 dB Center 5.18 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts) Occupied Bandwidth 25.0265 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 1.141 MHz x dB Bandwidth 44.186 MHz Freq/Channel Center Freq 5.18000000 GHz Start Freq 5.15500000 GHz Stop Freq 5.20500000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
5200	 Agilent R T Ch Freq 5.2 GHz Tng Free Occupied Bandwidth Ref 20 dBm #Atten 20 dB #Peak Log 10 dB/ Offset 14.2 dB Center 5.2 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts) Occupied Bandwidth 22.8471 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 891.689 kHz x dB Bandwidth 40.971 MHz Freq/Channel Center Freq 5.20000000 GHz Start Freq 5.17500000 GHz Stop Freq 5.22500000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
5240	 Agilent R T Ch Freq 5.24 GHz Tng Free Occupied Bandwidth Ref 20 dBm #Atten 20 dB #Peak Log 10 dB/ Offset 14.2 dB Center 5.24 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts) Occupied Bandwidth 19.1543 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 197.238 kHz x dB Bandwidth 32.320 MHz Freq/Channel Center Freq 5.24000000 GHz Start Freq 5.21500000 GHz Stop Freq 5.26500000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

Mode 3: IEEE 802.11n 20MHz Link Mode_ANT-2	
5180	 Agilent R T Ch Freq 5.18 GHz Tng Free Occupied Bandwidth Ref 20 dBm #Atten 20 dB #Peak Log 10 dB/ Offset 14.2 dB Center 5.18 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts) Occupied Bandwidth 21.6210 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 1.101 MHz x dB Bandwidth 39.868 MHz Freq/Channel Center Freq 5.18000000 GHz Start Freq 5.15500000 GHz Stop Freq 5.20500000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
5200	 Agilent R T Ch Freq 5.2 GHz Tng Free Occupied Bandwidth Ref 20 dBm #Atten 20 dB #Peak Log 10 dB/ Offset 14.2 dB Center 5.2 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts) Occupied Bandwidth 19.5526 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 246.182 kHz x dB Bandwidth 36.673 MHz Freq/Channel Center Freq 5.20000000 GHz Start Freq 5.17500000 GHz Stop Freq 5.22500000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
5240	 Agilent R T Ch Freq 5.24 GHz Tng Free Occupied Bandwidth Ref 20 dBm #Atten 20 dB #Peak Log 10 dB/ Offset 14.2 dB Center 5.24 GHz Span 50 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts) Occupied Bandwidth 19.2538 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 230.833 kHz x dB Bandwidth 35.250 MHz Freq/Channel Center Freq 5.24000000 GHz Start Freq 5.21500000 GHz Stop Freq 5.26500000 GHz CF Step 5.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off



Mode 4: IEEE 802.11n 40MHz Link Mode_ANT-2	
5190	Agilent R T Ch Freq 5.19 GHz Trng Free Occupied Bandwidth Ref 20 dBm #Atten 20 dB #Peak Log 10 dB/ Offset 14.2 dB Center 5.19 GHz Span 100 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts) Occupied Bandwidth 36.3133 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 45.759 kHz x dB Bandwidth 40.470 MHz Freq/Channel Center Freq 5.19000000 GHz Start Freq 5.14000000 GHz Stop Freq 5.24000000 GHz CF Step 10.0000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
5230	Agilent R T Ch Freq 5.23 GHz Trng Free Occupied Bandwidth Ref 20 dBm #Atten 20 dB #Peak Log 10 dB/ Offset 14.2 dB Center 5.23 GHz Span 100 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 4 ms (401 pts) Occupied Bandwidth 36.3324 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB Transmit Freq Error 68.359 kHz x dB Bandwidth 40.454 MHz Freq/Channel Center Freq 5.23000000 GHz Start Freq 5.18000000 GHz Stop Freq 5.28000000 GHz CF Step 10.0000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

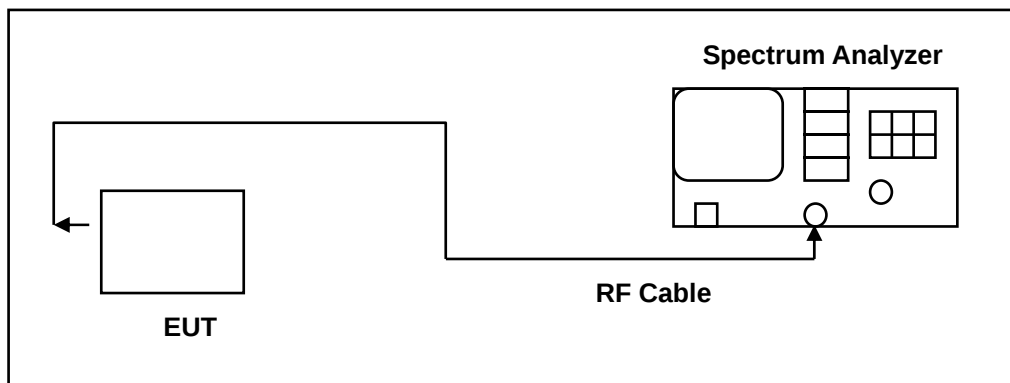
8 6dB RF Bandwidth Measurement

8.1. Limit

6dB RF Bandwidth

Systems using digital modulation techniques may operate in the 5725–5850MHz bands. The minimum 6 dB band-width shall be at least 500 kHz.

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.	-----

dRemark: (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

6dB RF Bandwidth

The EUT tested to UNII test procedure of KDB789033 D02 for compliance to FCC 47CFR 15.247 requirements.

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW 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.

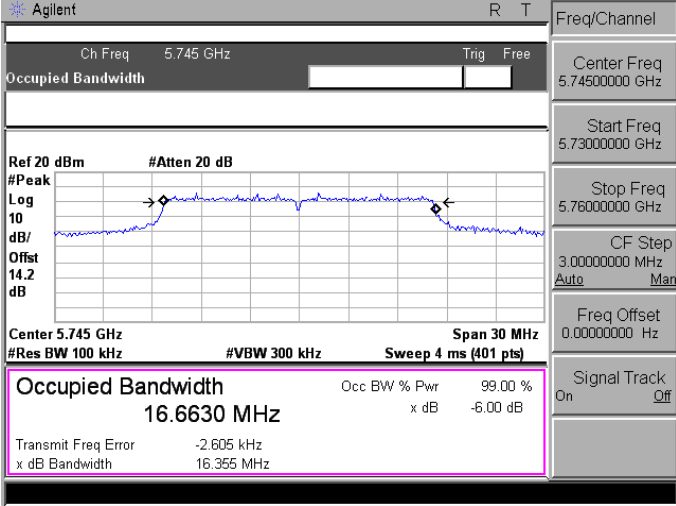
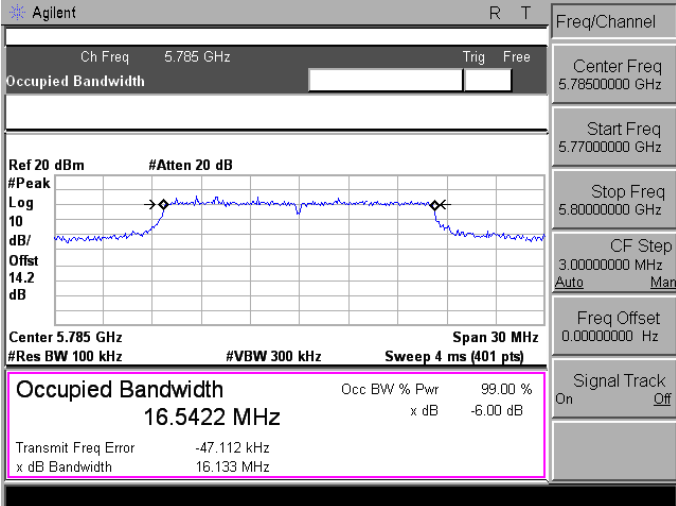
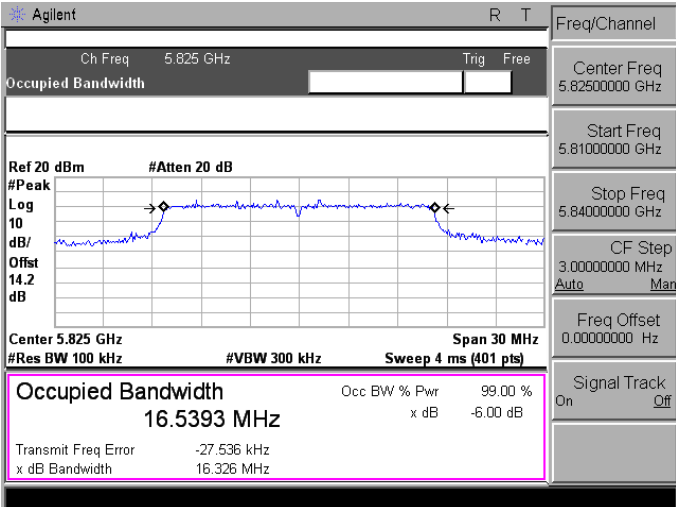
8.5. Test Result

Model Number	RT10		
Test Item	6dB RF Bandwidth		
Test Mode	Mode 2: IEEE 802.11a Link Mode		
Date of Test	05/20/2015	Test Site	TE05
Frequency (MHz)	6dB Bandwidth (kHz)	6dB Bandwidth Limit (kHz)	
	ANT-2		
5745	16355	> 500	
5785	16133	> 500	
5825	16326	> 500	

Model Number	RT10		
Test Item	6dB RF Bandwidth		
Test Mode	Mode 3: IEEE 802.11n 20MHz Link Mode		
Date of Test	05/20/2015	Test Site	TE05
Frequency (MHz)	6dB Bandwidth (kHz)		6dB Bandwidth Limit (kHz)
	ANT-1	ANT-2	
5745	17601	17572	> 500
5785	17636	17635	> 500
5825	17655	17661	> 500

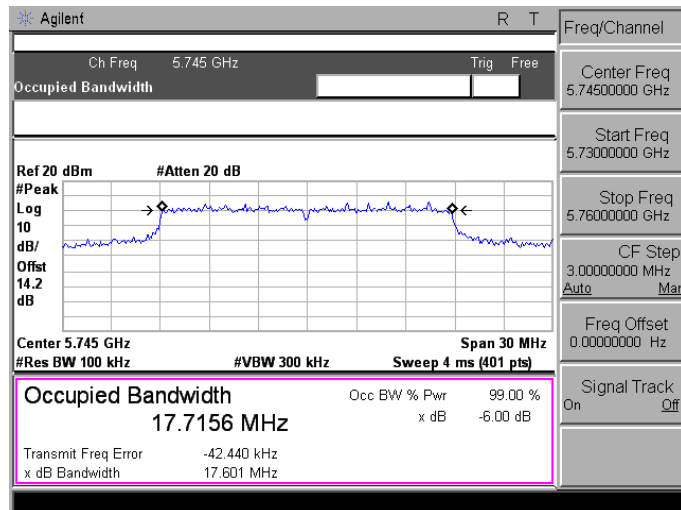
Model Number	RT10		
Test Item	6dB RF Bandwidth		
Test Mode	Mode 4: IEEE 802.11n 40MHz Link Mode		
Date of Test	05/20/2015	Test Site	TE05
Frequency (MHz)	6dB Bandwidth (kHz)		6dB Bandwidth Limit (kHz)
	ANT-1	ANT-2	
5755	35418	35198	> 500
5795	36284	35214	> 500

8.6. Test Graphs

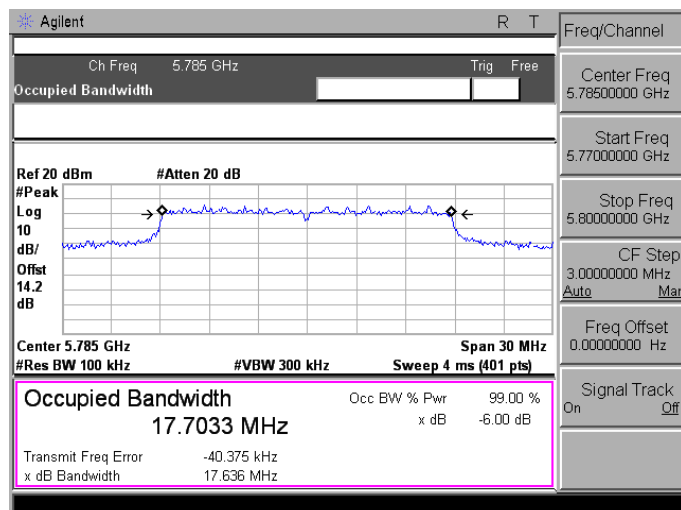
Mode 2: IEEE 802.11a Link Mode_ANT-2	
5745	 Agilent R T Ch Freq 5.745 GHz Trig Free Occupied Bandwidth Ref 20 dBm #Peak Log 10 dB/Offst 14.2 dB Center 5.745 GHz Span 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 4 ms (401 pts) Occupied Bandwidth 16.6630 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error -2.605 kHz x dB Bandwidth 16.355 MHz Freq/Channel Center Freq 5.74500000 GHz Start Freq 5.73000000 GHz Stop Freq 5.76000000 GHz CF Step 3.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
5785	 Agilent R T Ch Freq 5.785 GHz Trig Free Occupied Bandwidth Ref 20 dBm #Peak Log 10 dB/Offst 14.2 dB Center 5.785 GHz Span 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 4 ms (401 pts) Occupied Bandwidth 16.5422 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error -47.112 kHz x dB Bandwidth 16.133 MHz Freq/Channel Center Freq 5.78500000 GHz Start Freq 5.77000000 GHz Stop Freq 5.80000000 GHz CF Step 3.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
5825	 Agilent R T Ch Freq 5.825 GHz Trig Free Occupied Bandwidth Ref 20 dBm #Peak Log 10 dB/Offst 14.2 dB Center 5.825 GHz Span 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 4 ms (401 pts) Occupied Bandwidth 16.5393 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB Transmit Freq Error -27.536 kHz x dB Bandwidth 16.326 MHz Freq/Channel Center Freq 5.82500000 GHz Start Freq 5.81000000 GHz Stop Freq 5.84000000 GHz CF Step 3.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

Mode 3: IEEE 802.11n 20MHz Link Mode_ANT-1

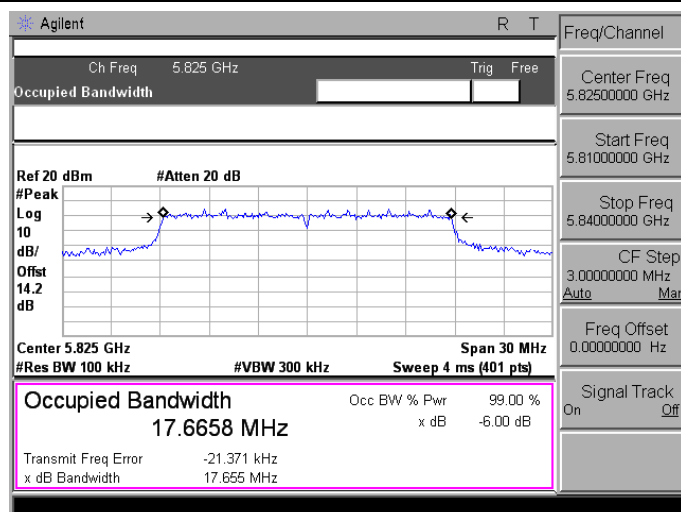
5745



5785

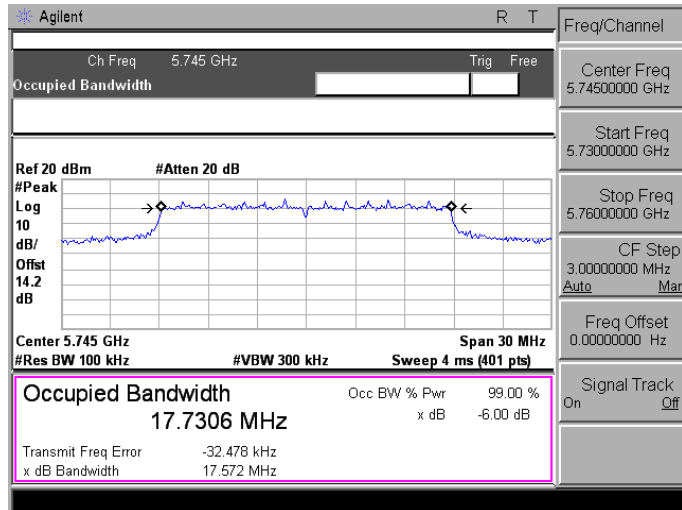


5825

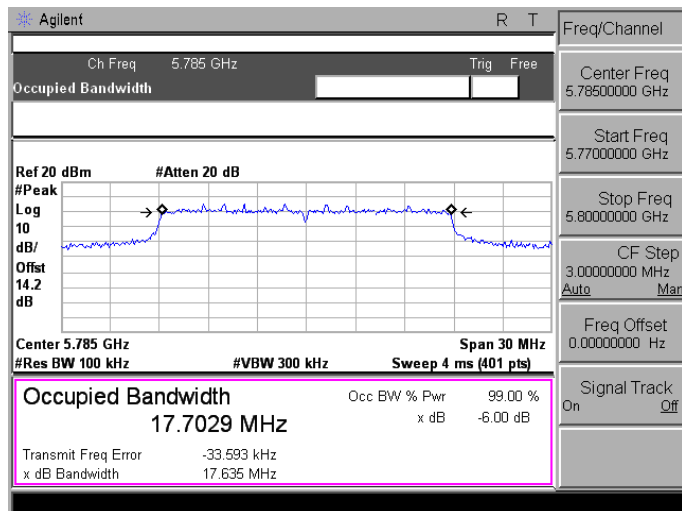


Mode 3: IEEE 802.11n 20MHz Link Mode_ANT-2

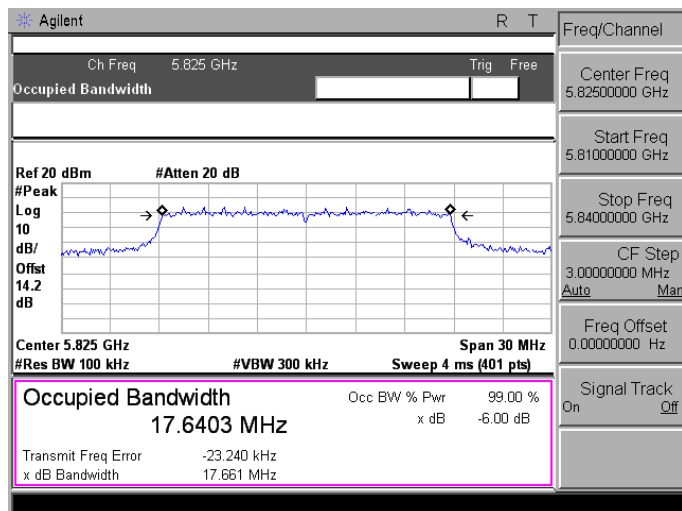
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5785

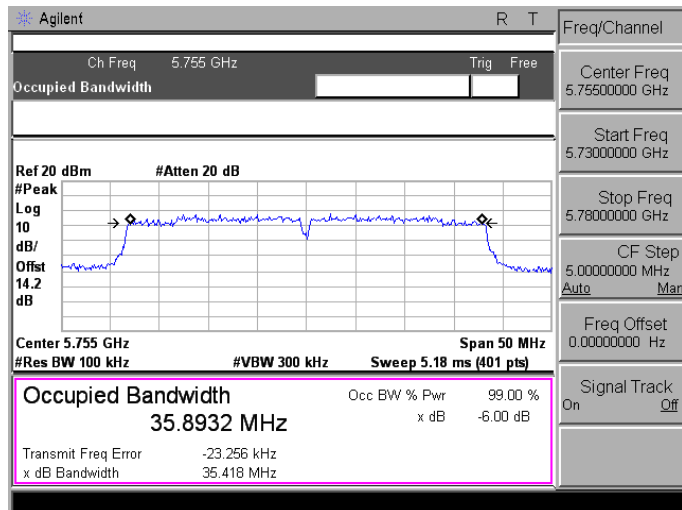


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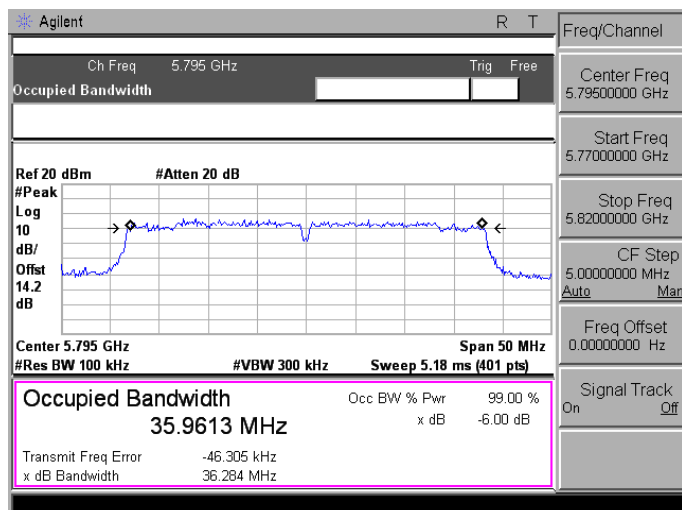


Mode 4: IEEE 802.11n 40MHz Link Mode_ANT-1

5755

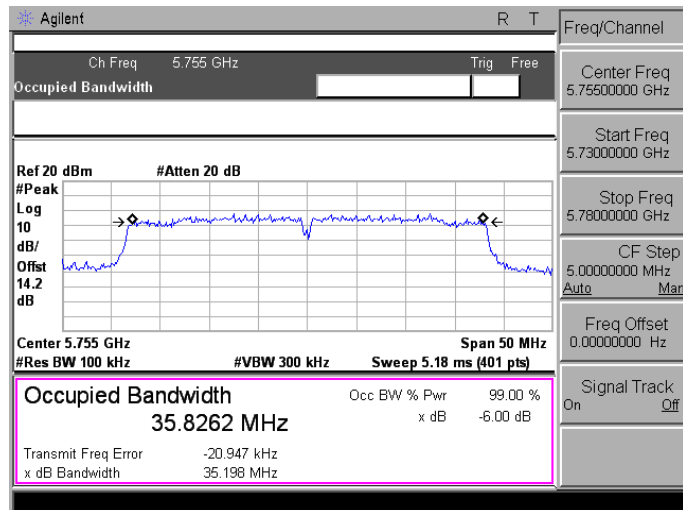


5795

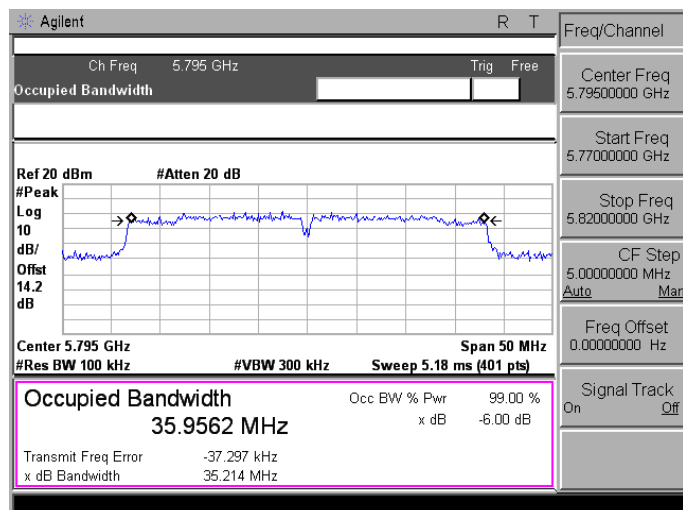


Mode 4: IEEE 802.11n 40MHz Link Mode_ANT-2

5755



5795



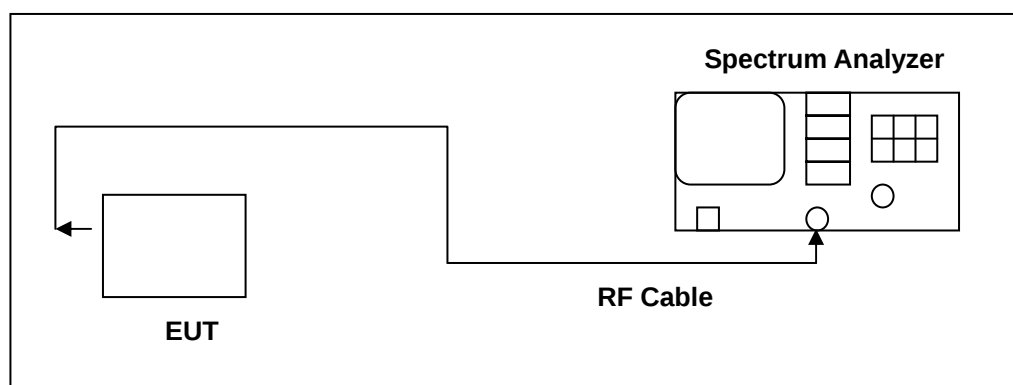
9 Peak Power Spectral Density Measurement

9.1. Limit

Conducted power spectral density

Frequency Range (MHz)	FCC Limit
5.150 ~ 5.250 GHz	11 dBm/MHz
5.250 ~ 5.350 GHz	11 dBm/MHz
5.470 ~ 5.725 GHz	11 dBm/MHz
5.725 ~ 5.850 GHz	30 dBm/500KHz

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)
Test Site	ATL	TE02	TE02	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

9.4. Test Procedure

The test is performed in accordance with KDB789033: D02 General UNII Test Procedures New Rules v01, Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E.

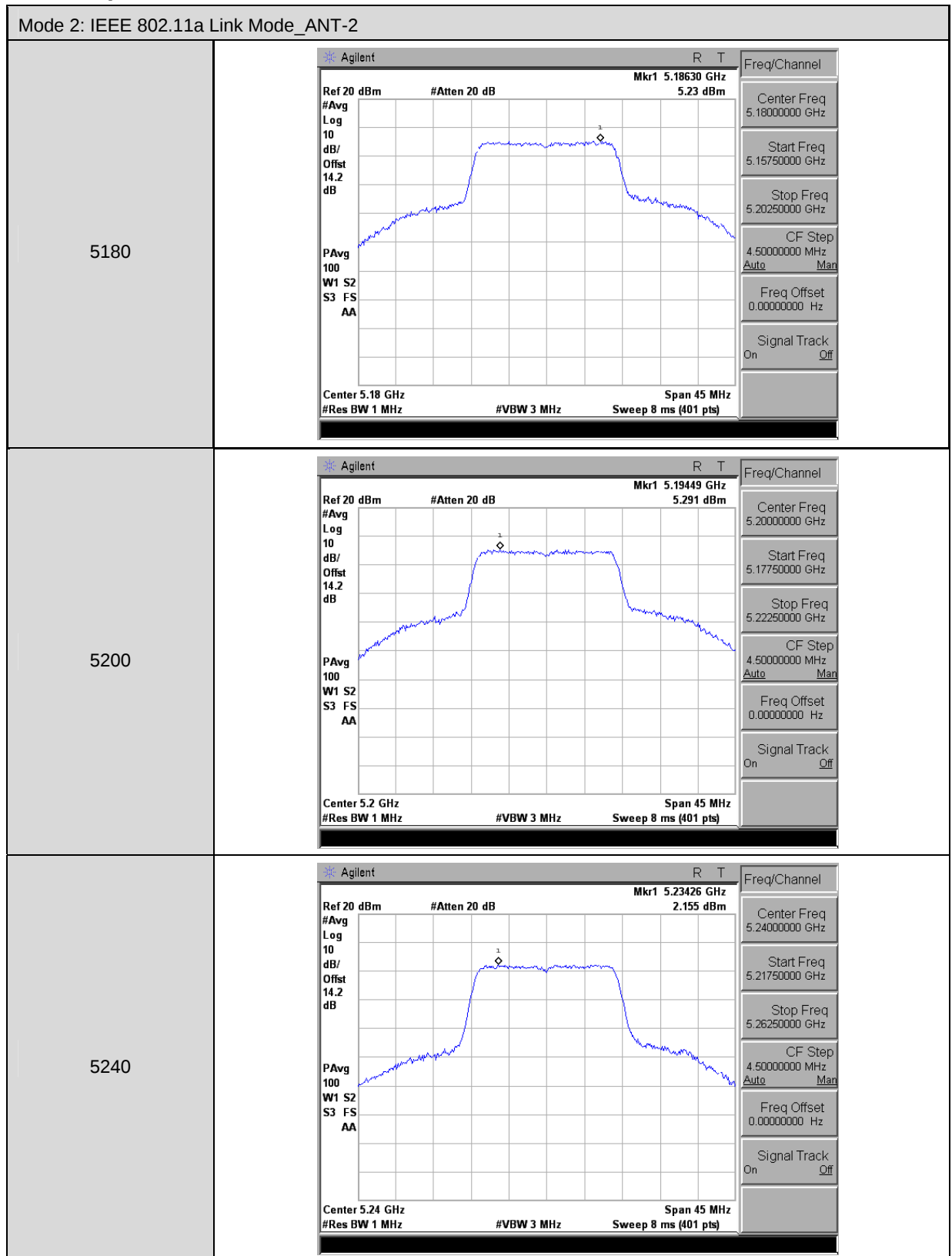
9.5. Test Result

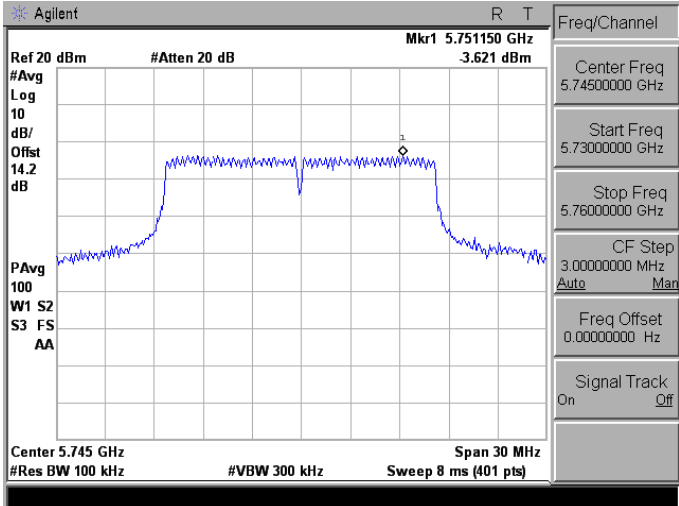
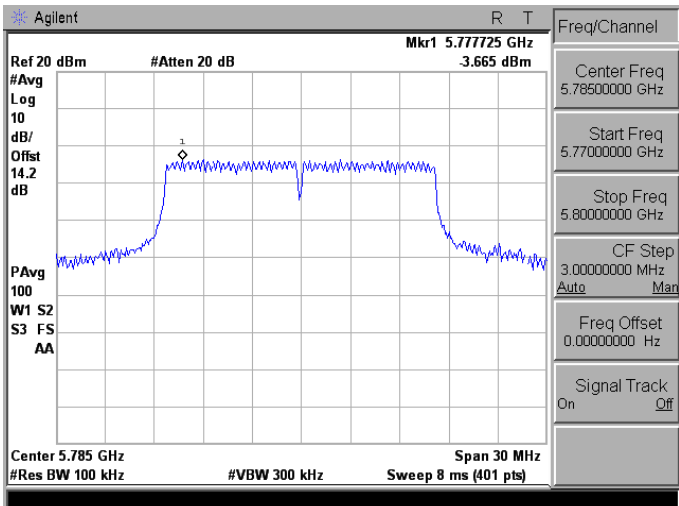
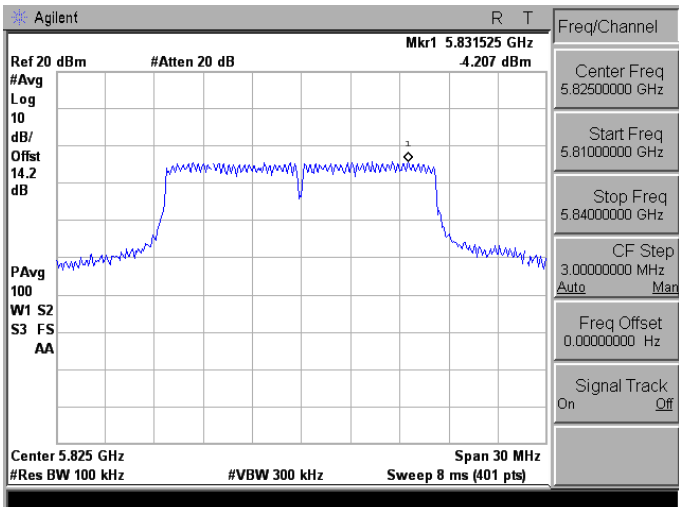
Model Number	RT10		
Test Item	Conducted power spectral density		
Test Mode	Mode 2: IEEE 802.11a Link Mode		
Date of Test	05/20/2015	Test Site	TE02
Frequency (MHz)	Measurement (dBm/MHz)		FCC Limit (dBm/MHz)
	ANT-2		
5180	5.230		< 11
5220	5.291		
5240	2.155		
Frequency (MHz)	Measurement (dBm/100KHz)	Measurement (dBm/500KHz)	FCC Limit (dBm/500KHz)
5745	-3.62	3.37	< 30
5785	-3.67	3.32	
5825	-4.21	2.78	

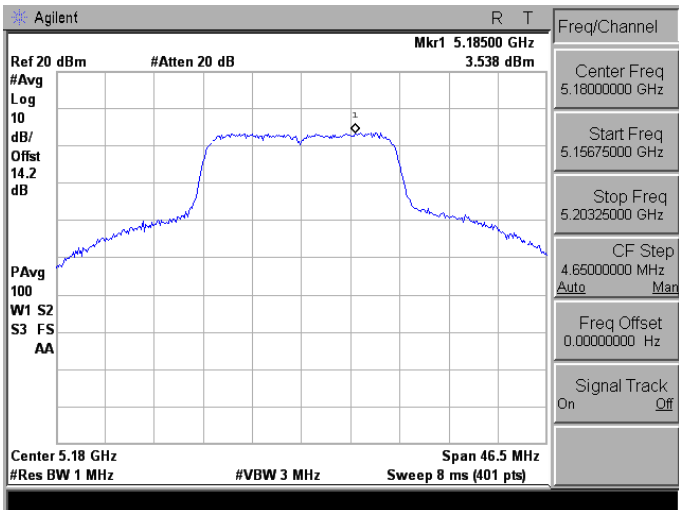
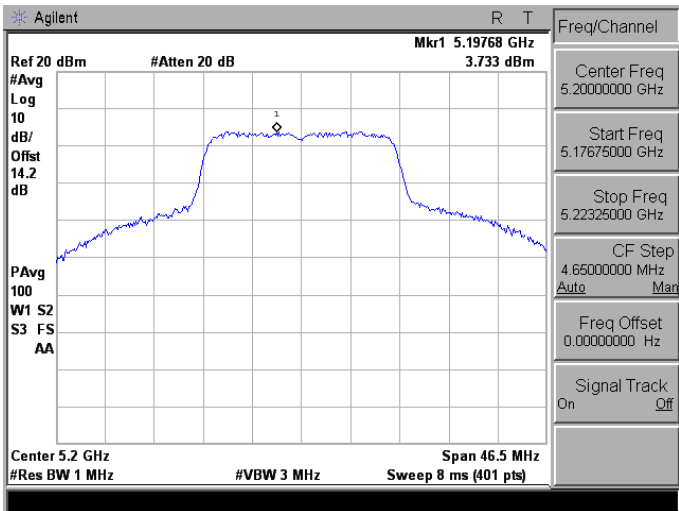
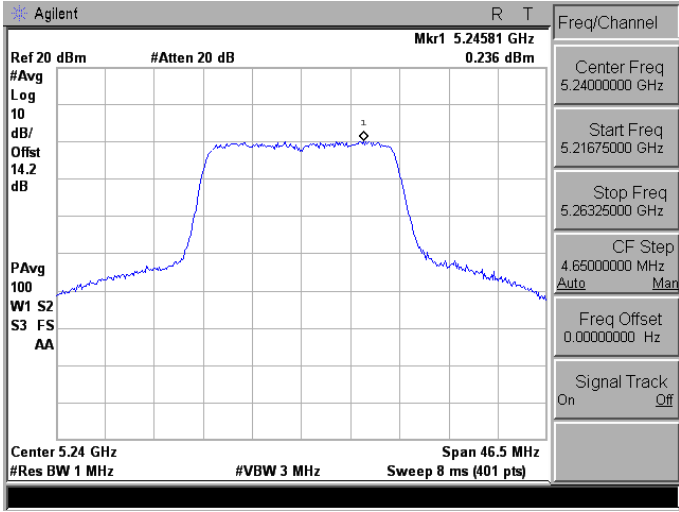
Model Number	RT10				
Test Item	Conducted power spectral density				
Test Mode	Mode 3: IEEE 802.11n 20MHz Link Mode				
Date of Test	05/20/2015		Test Site		TE02
Frequency (MHz)	Measurement (dBm/MHz)				FCC Limit (dBm/MHz)
	ANT-1		ANT-2		
5180	3.538		4.421		< 11
5220	3.733		3.946		
5240	0.236		0.372		
Frequency (MHz)	Measurement (dBm/100KHz)	Measurement (dBm/500KHz)	Measurement (dBm/100KHz)	Measurement (dBm/500KHz)	FCC Limit (dBm/500KHz)
5745	-4.35	2.64	-4.47	2.52	< 30
5785	-4.61	2.38	-4.76	2.23	
5825	-6.21	0.78	-5.17	1.82	
Frequency (MHz)	Measurement (dBm/MHz)				FCC Limit (dBm/MHz)
	ANT-1+2				
5180	7.012				< 11
5220	6.851				
5240	3.315				
Frequency (MHz)	Measurement (dBm/500KHz)				FCC Limit (dBm/500KHz)
5745	5.59				< 30
5785	5.32				
5825	4.34				

Model Number	RT10				
Test Item	Conducted power spectral density				
Test Mode	Mode 4: IEEE 802.11n 40MHz Link Mode				
Date of Test	05/20/2015		Test Site		TE02
Frequency (MHz)	Measurement (dBm/MHz)				FCC Limit (dBm/MHz)
	ANT-1		ANT-2		
5190	-3.059		-2.529		< 11
5230	-3.220		-2.768		
Frequency (MHz)	Measurement (dBm/100KHz)	Measurement (dBm/500KHz)	Measurement (dBm/100KHz)	Measurement (dBm/500KHz)	FCC Limit (dBm/500KHz)
5755	-10.88	-3.89	-11.19	-4.20	< 30
5795	-11.20	-4.21	-12.10	-5.11	
Frequency (MHz)	Measurement (dBm/MHz)				FCC Limit (dBm/MHz)
	ANT-1+2				
5190	0.224				< 11
5230	0.022				
Frequency (MHz)	Measurement (dBm/500KHz)				FCC Limit (dBm/500KHz)
5755	-1.03				< 30
5795	-1.63				

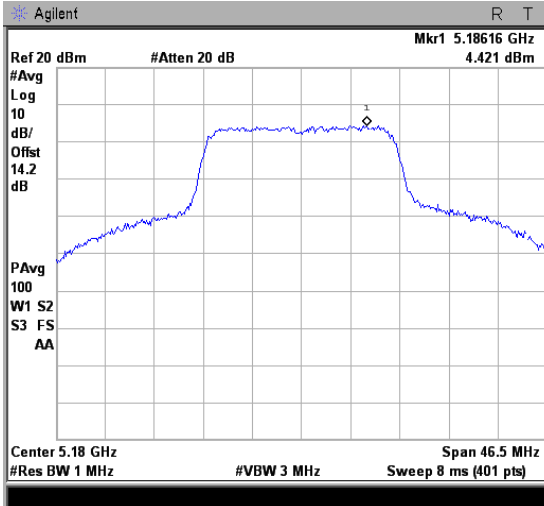
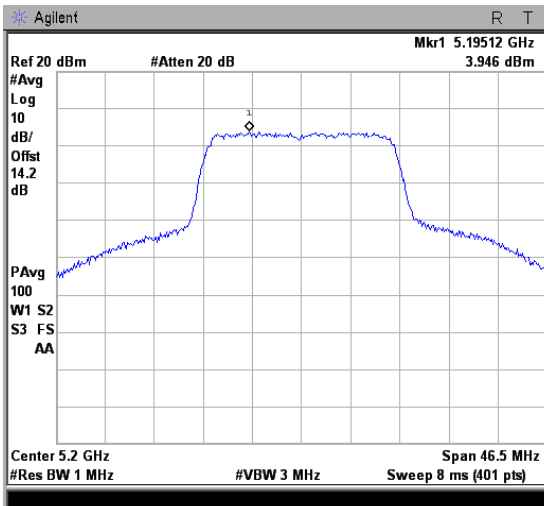
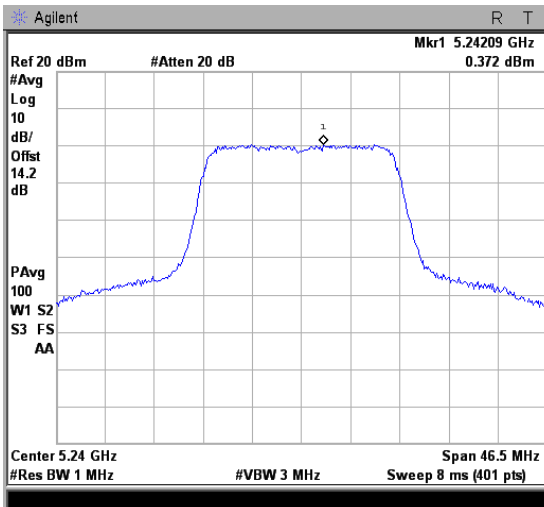
9.6. Test Graphs

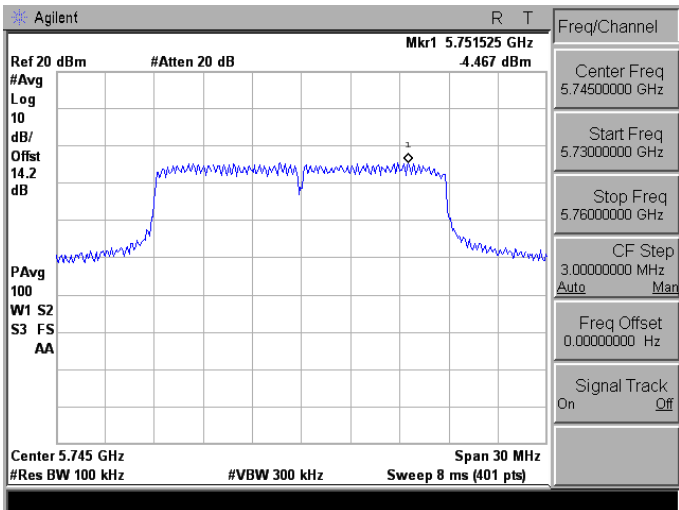
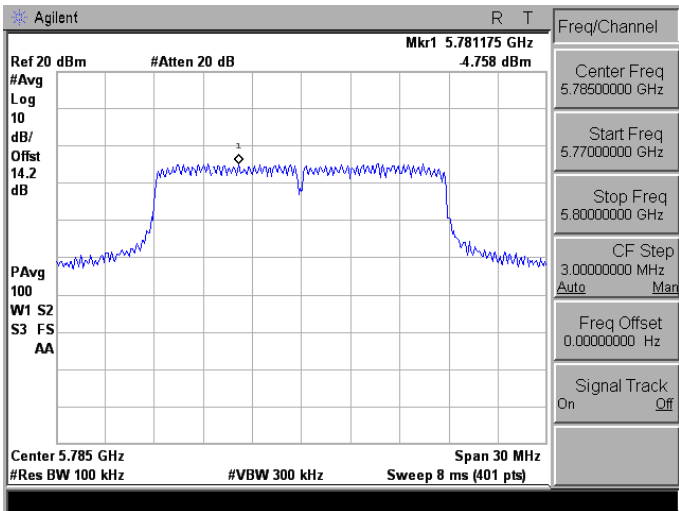
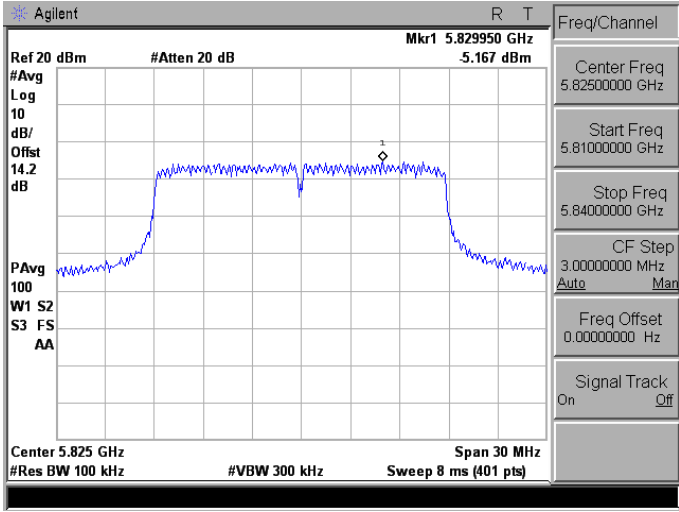


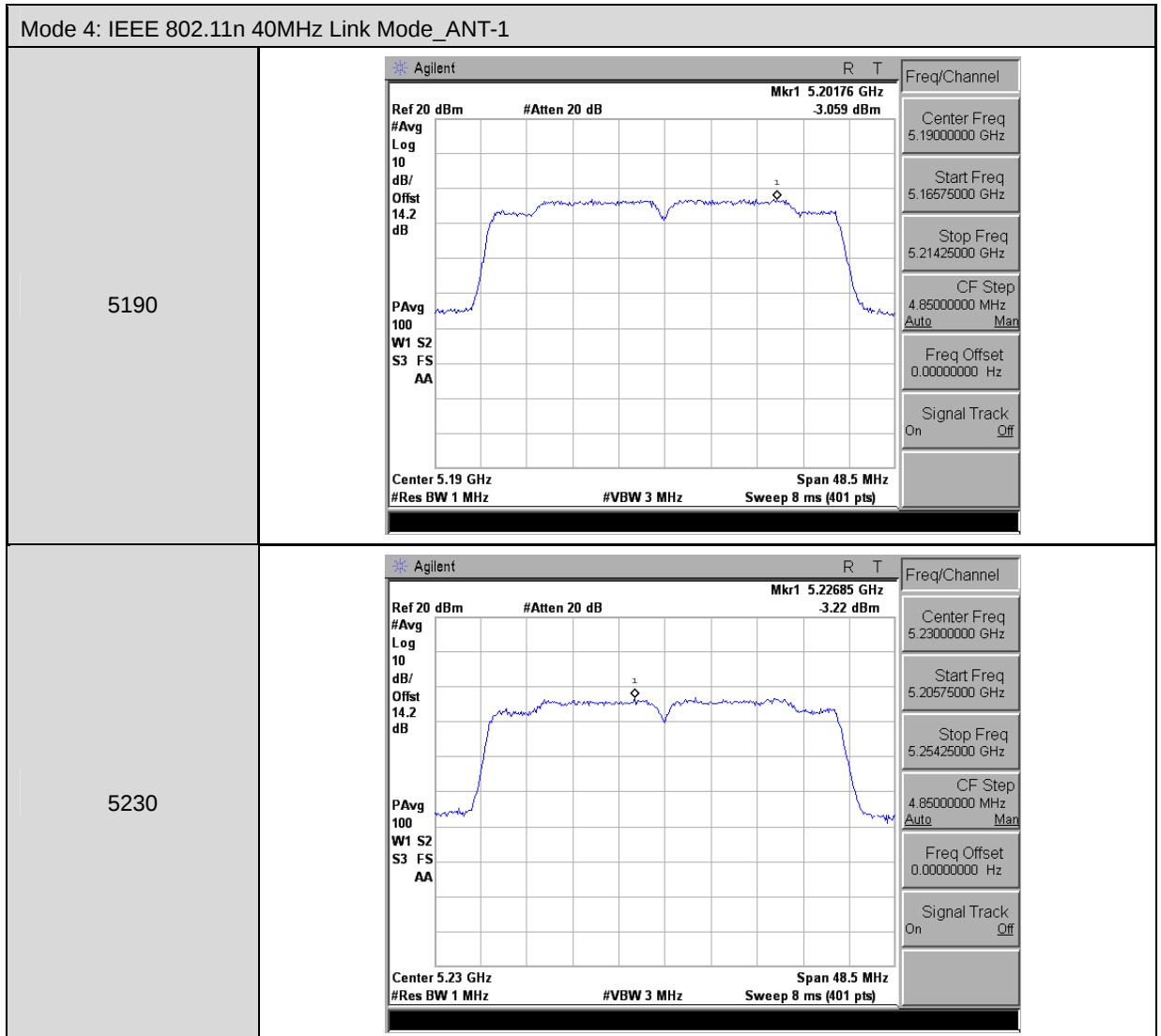
Mode 2: IEEE 802.11a Link Mode_ANT-2	
5745	 Agilent R T Ref 20 dBm #Atten 20 dB Mkr1 5.751150 GHz -3.621 dBm #Avg Log 10 dB/Offset 14.2 dB PAvg 100 W1 S2 S3 FS AA Center 5.745 GHz Span 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 8 ms (401 pts) Freq/Channel Center Freq 5.74500000 GHz Start Freq 5.73000000 GHz Stop Freq 5.76000000 GHz CF Step 3.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
5785	 Agilent R T Ref 20 dBm #Atten 20 dB Mkr1 5.777725 GHz -3.665 dBm #Avg Log 10 dB/Offset 14.2 dB PAvg 100 W1 S2 S3 FS AA Center 5.785 GHz Span 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 8 ms (401 pts) Freq/Channel Center Freq 5.78500000 GHz Start Freq 5.77000000 GHz Stop Freq 5.80000000 GHz CF Step 3.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
5825	 Agilent R T Ref 20 dBm #Atten 20 dB Mkr1 5.831525 GHz -4.207 dBm #Avg Log 10 dB/Offset 14.2 dB PAvg 100 W1 S2 S3 FS AA Center 5.825 GHz Span 30 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 8 ms (401 pts) Freq/Channel Center Freq 5.82500000 GHz Start Freq 5.81000000 GHz Stop Freq 5.84000000 GHz CF Step 3.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

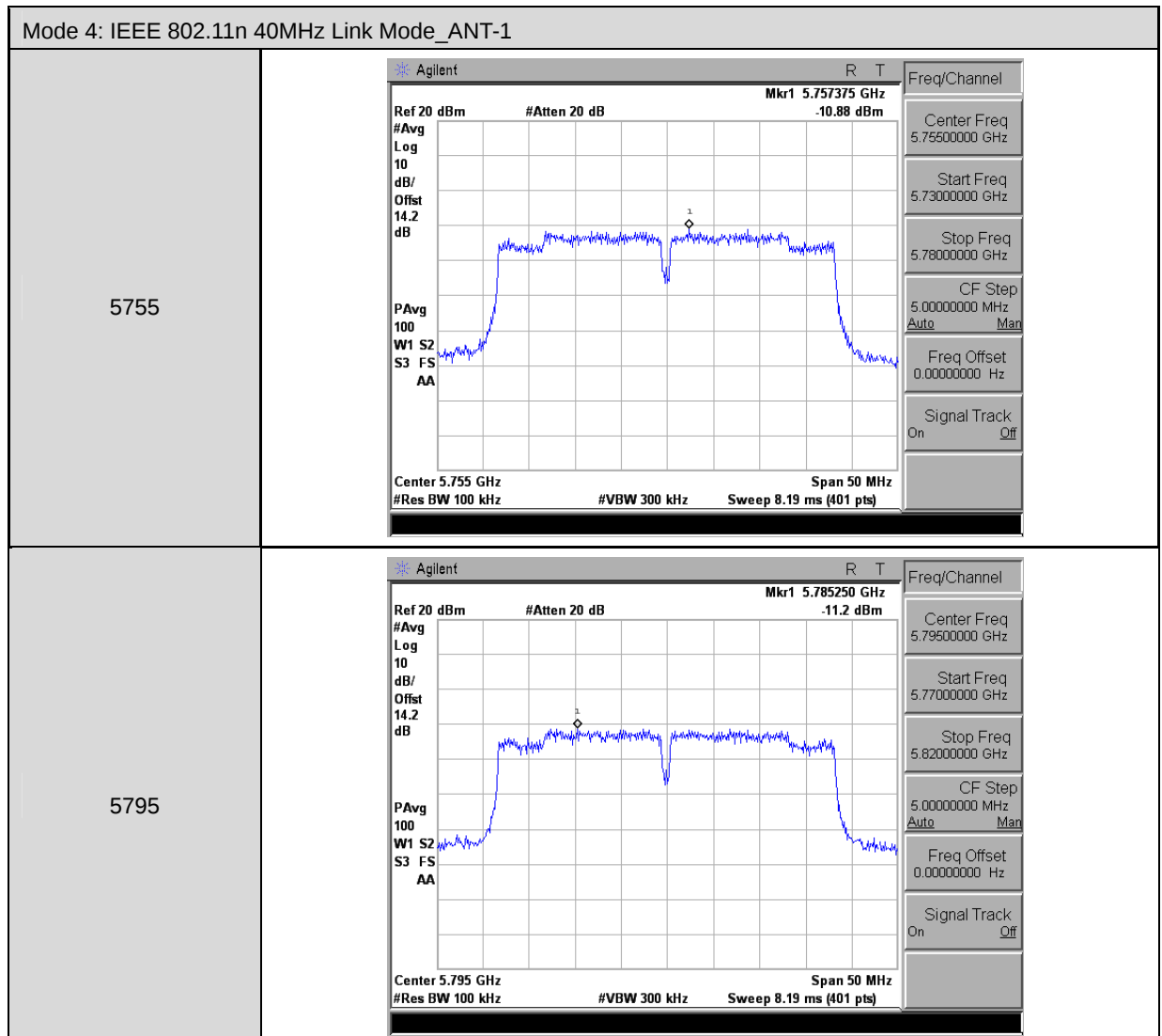
Mode 3: IEEE 802.11n 20MHz Link Mode_ANT-1	
5180	 Agilent R T Ref 20 dBm #Atten 20 dB Mkr1 5.18500 GHz 3.538 dBm #Avg Log 10 dB/ Offst 14.2 dB PAvg 100 W1 S2 S3 FS AA Center 5.18 GHz Span 46.5 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts) Freq/Channel Center Freq 5.18000000 GHz Start Freq 5.15675000 GHz Stop Freq 5.20325000 GHz CF Step 4.65000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
5220	 Agilent R T Ref 20 dBm #Atten 20 dB Mkr1 5.19768 GHz 3.733 dBm #Avg Log 10 dB/ Offst 14.2 dB PAvg 100 W1 S2 S3 FS AA Center 5.2 GHz Span 46.5 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts) Freq/Channel Center Freq 5.20000000 GHz Start Freq 5.17675000 GHz Stop Freq 5.22325000 GHz CF Step 4.65000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
5240	 Agilent R T Ref 20 dBm #Atten 20 dB Mkr1 5.24581 GHz 0.236 dBm #Avg Log 10 dB/ Offst 14.2 dB PAvg 100 W1 S2 S3 FS AA Center 5.24 GHz Span 46.5 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts) Freq/Channel Center Freq 5.24000000 GHz Start Freq 5.21675000 GHz Stop Freq 5.26325000 GHz CF Step 4.65000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

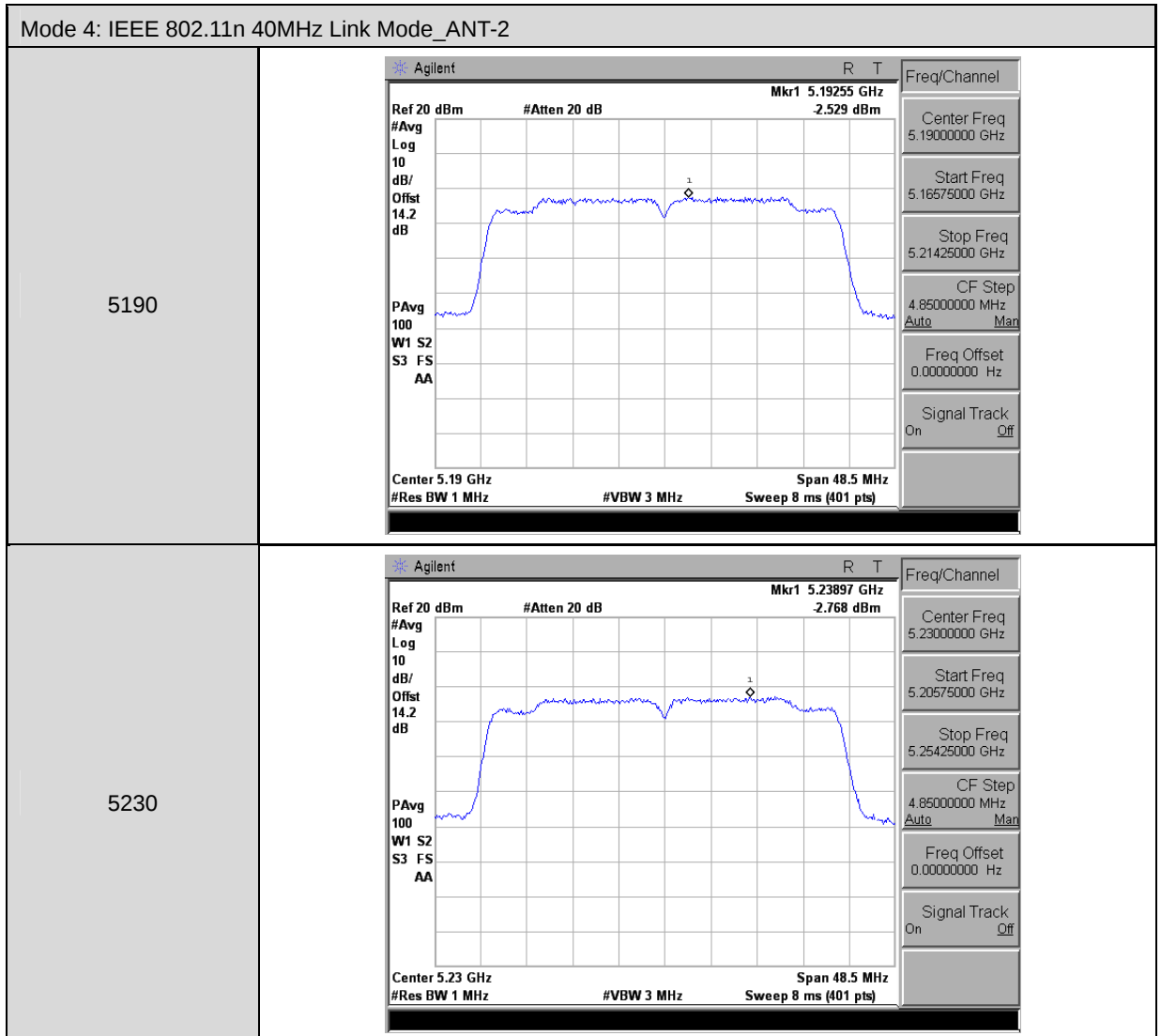
Mode 3: IEEE 802.11n 20MHz Link Mode_ANT-1	
5745	
5785	
5825	

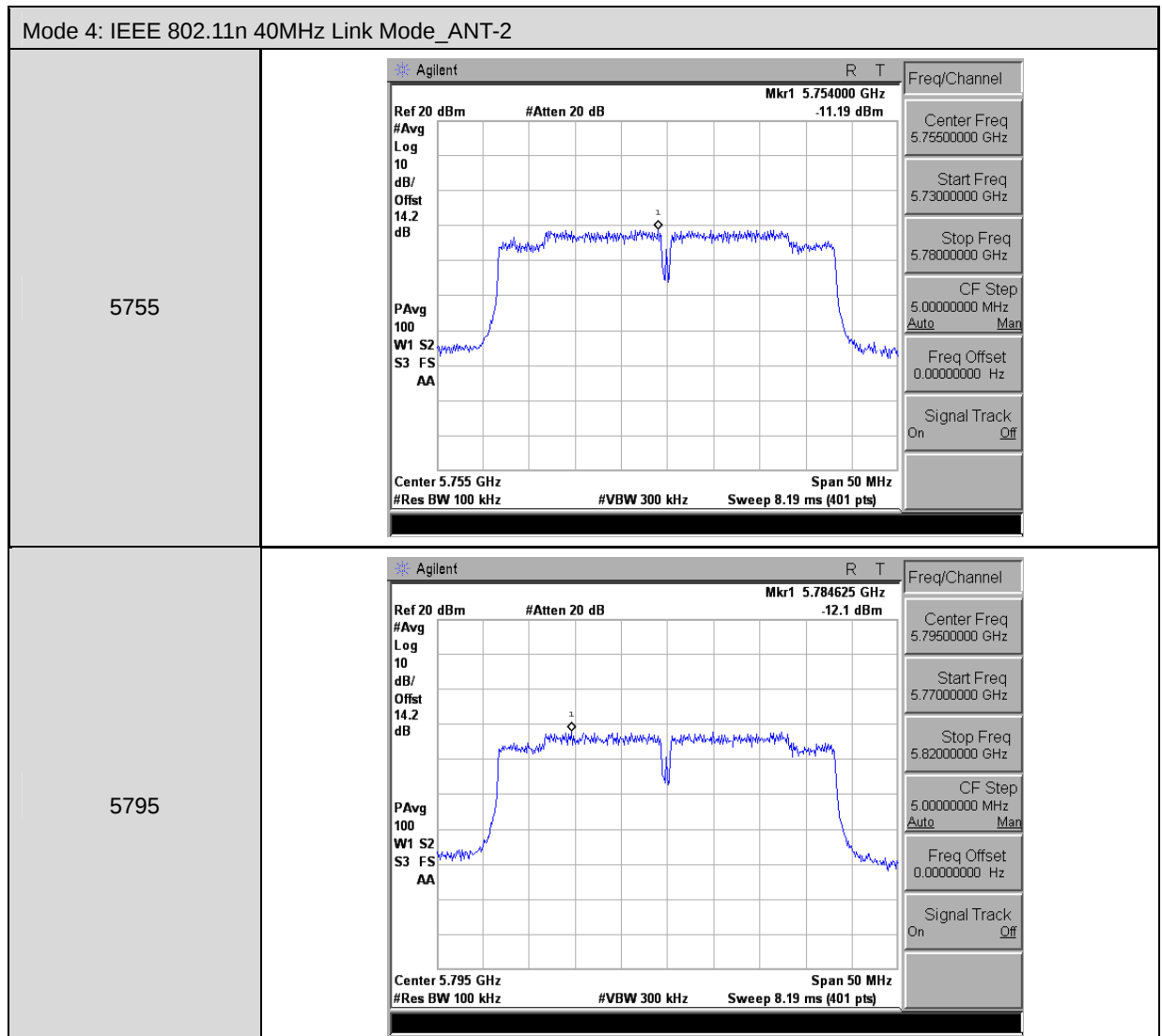
Mode 3: IEEE 802.11n 20MHz Link Mode_ANT-2	
5180	 Agilent R T Ref 20 dBm #Atten 20 dB Mkr1 5.18616 GHz 4.421 dBm #Avg Log 10 dB/Offset 14.2 dB PAvg 100 W1 S2 S3 FS AA Center 5.18 GHz Span 46.5 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts) Freq/Channel Center Freq 5.18000000 GHz Start Freq 5.15675000 GHz Stop Freq 5.20325000 GHz CF Step 4.65000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
5200	 Agilent R T Ref 20 dBm #Atten 20 dB Mkr1 5.19512 GHz 3.946 dBm #Avg Log 10 dB/Offset 14.2 dB PAvg 100 W1 S2 S3 FS AA Center 5.2 GHz Span 46.5 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts) Freq/Channel Center Freq 5.20000000 GHz Start Freq 5.17675000 GHz Stop Freq 5.22325000 GHz CF Step 4.65000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
5240	 Agilent R T Ref 20 dBm #Atten 20 dB Mkr1 5.24209 GHz 0.372 dBm #Avg Log 10 dB/Offset 14.2 dB PAvg 100 W1 S2 S3 FS AA Center 5.24 GHz Span 46.5 MHz #Res BW 1 MHz #VBW 3 MHz Sweep 8 ms (401 pts) Freq/Channel Center Freq 5.24000000 GHz Start Freq 5.21675000 GHz Stop Freq 5.26325000 GHz CF Step 4.65000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off

Mode 3: IEEE 802.11n 20MHz Link Mode_ANT-2	
5745	 Agilent R T Ref 20 dBm #Atten 20 dB Mkr1 5.751525 GHz 4.467 dBm #Avg Log 10 dB/ Offst 14.2 dB PAvg 100 W1 S2 S3 FS AA Center 5.745 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 8 ms (401 pts) Span 30 MHz Freq/Channel Center Freq 5.74500000 GHz Start Freq 5.73000000 GHz Stop Freq 5.76000000 GHz CF Step 3.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
5785	 Agilent R T Ref 20 dBm #Atten 20 dB Mkr1 5.781175 GHz 4.758 dBm #Avg Log 10 dB/ Offst 14.2 dB PAvg 100 W1 S2 S3 FS AA Center 5.785 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 8 ms (401 pts) Span 30 MHz Freq/Channel Center Freq 5.78500000 GHz Start Freq 5.77000000 GHz Stop Freq 5.80000000 GHz CF Step 3.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off
5825	 Agilent R T Ref 20 dBm #Atten 20 dB Mkr1 5.829950 GHz 5.167 dBm #Avg Log 10 dB/ Offst 14.2 dB PAvg 100 W1 S2 S3 FS AA Center 5.825 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 8 ms (401 pts) Span 30 MHz Freq/Channel Center Freq 5.82500000 GHz Start Freq 5.81000000 GHz Stop Freq 5.84000000 GHz CF Step 3.00000000 MHz Auto Man Freq Offset 0.00000000 Hz Signal Track On Off







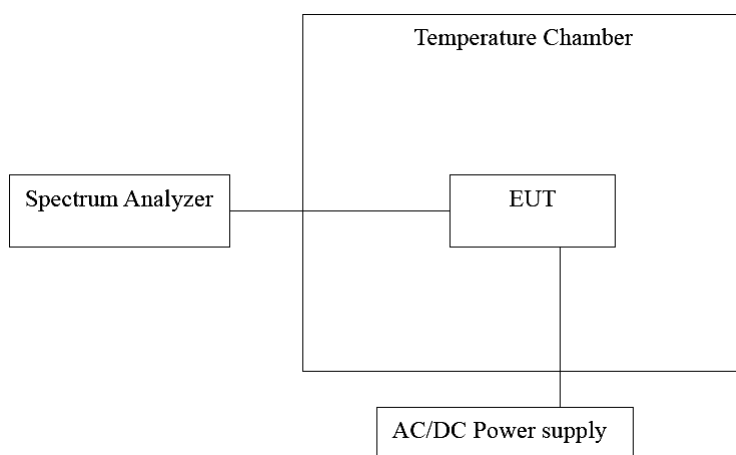


10 Frequency Stability Measurement

10.1. Limit

The frequency tolerance of the carrier signal shall be maintained within the band of operation frequency over a temperature variation of –30 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

10.2. Test Setup



10.3. Test Instruments

Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Remark
Spectrum Analyzer	Agilent	E4408B	MY45107753	07/24/2013	(1)
Temperature & Humidity Chamber	TAICHY	MHU-225LA	980729	08/07/2013	(1)
Test Site	ATL	TE02	TE02	N.C.R.	-----

Remark: (1) Calibration period 1 year. (2) Calibration period 2 years.

Note: N.C.R. = No Calibration Request.

10.4. Test Procedure

1. The EUT was placed inside the environmental test chamber and powered by nominal AC/DC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

10.5. Test Result

Temperature Variations

Model Number	RT10				
Test Mode	Mode 2				
Frequency	5200 MHz				
Date of Test	05/14/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-30	120	5199.9524	-47600	-9.154	Pass
-20		5199.9547	-45300	-8.712	Pass
-10		5199.9546	-45400	-8.731	Pass
0		5199.9480	-52000	-10.000	Pass
10		5199.9580	-42000	-8.077	Pass
20		5199.9580	-42000	-8.077	Pass
30		5199.9613	-38700	-7.442	Pass
40		5199.9672	-32800	-6.308	Pass
50		5199.9591	-40900	-7.865	Pass

Note: The manufacturer's frequency stability specification is better then 20ppm.

Model Number	RT10				
Test Mode	Mode 2				
Frequency	5785 MHz				
Date of Test	05/20/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-30	120	5784.9533	-46700	-8.073	Pass
-20		5784.9478	-52200	-9.023	Pass
-10		5784.9505	-49500	-8.557	Pass
0		5784.9454	-54600	-9.438	Pass
10		5784.9515	-48500	-8.384	Pass
20		5784.9535	-46500	-8.038	Pass
30		5784.9548	-45200	-7.813	Pass
40		5784.9632	-36800	-6.361	Pass
50		5784.9575	-42500	-7.347	Pass

Model Number	RT10				
Test Mode	Mode 3				
Frequency	5200 MHz				
Date of Test	05/20/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-30	120	5199.9606	-39400	-7.577	Pass
-20		5199.9567	-43300	-8.327	Pass
-10		5199.9622	-37800	-7.269	Pass
0		5199.9568	-43200	-8.308	Pass
10		5199.9538	-46200	-8.885	Pass
20		5199.9630	-37000	-7.115	Pass
30		5199.9646	-35400	-6.808	Pass
40		5199.9681	-31900	-6.135	Pass
50		5199.9671	-32900	-6.327	Pass

Note: The manufacturer's frequency stability specification is better than 20ppm.

Model Number	RT10				
Test Mode	Mode 3				
Frequency	5785 MHz				
Date of Test	05/20/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-30	120	5784.95135	-48650	-8.410	Pass
-20		5784.94475	-55250	-9.551	Pass
-10		5784.94485	-55150	-9.533	Pass
0		5784.94495	-55050	-9.516	Pass
10		5784.95045	-49550	-8.565	Pass
20		5784.95425	-45750	-7.908	Pass
30		5784.95595	-44050	-7.615	Pass
40		5784.95495	-45050	-7.787	Pass
50		5784.96225	-37750	-6.525	Pass

Model Number	RT10				
Test Mode	Mode 4				
Frequency	5230 MHz				
Date of Test	05/20/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-30	120	5229.95895	-41050	-7.849	Pass
-20		5229.95985	-40150	-7.677	Pass
-10		5229.95855	-41450	-7.925	Pass
0		5229.95965	-40350	-7.715	Pass
10		5229.95885	-41150	-7.868	Pass
20		5229.96025	-39750	-7.600	Pass
30		5229.96615	-33850	-6.472	Pass
40		5229.96335	-36650	-7.008	Pass
50		5229.96265	-37350	-7.141	Pass

Note: The manufacturer's frequency stability specification is better than 20ppm.

Model Number	RT10				
Test Mode	Mode 4				
Frequency	5795 MHz				
Date of Test	05/20/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
-30	120	5794.94675	-53250	-9.189	Pass
-20		5794.95035	-49650	-8.568	Pass
-10		5794.95305	-46950	-8.102	Pass
0		5794.94945	-50550	-8.723	Pass
10		5794.95575	-44250	-7.636	Pass
20		5794.95575	-44250	-7.636	Pass
30		5794.96165	-38350	-6.618	Pass
40		5794.96425	-35750	-6.169	Pass
50		5794.96375	-36250	-6.255	Pass

Note: The manufacturer's frequency stability specification is better than 20ppm.

Voltage Variations

Model Number	RT10				
Test Mode	Mode 2				
Frequency	5200 MHz				
Date of Test	05/20/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	138.00	5199.9500	-50000	-9.615	Pass
	120.00	5199.9580	-42000	-8.077	Pass
	102.00	5199.9636	-36400	-7.000	Pass

Model Number	RT10				
Test Mode	Mode 2				
Frequency	5785 MHz				
Date of Test	05/20/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	138.00	5784.9513	-48700	-8.418	Pass
	120.00	5784.9535	-46500	-8.038	Pass
	102.00	5784.9537	-46300	-8.003	Pass

Note: The manufacturer's frequency stability specification is better than 20ppm.

Model Number	RT10				
Test Mode	Mode 3				
Frequency	5200 MHz				
Date of Test	05/20/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	138.00	5199.9593	-40700	-7.827	Pass
	120.00	5199.9630	-37000	-7.115	Pass
	102.00	5199.9646	-35400	-6.808	Pass

Model Number	RT10				
Test Mode	Mode 3				
Frequency	5785 MHz				
Date of Test	05/20/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	138.00	5784.94745	-52550	-9.084	Pass
	120.00	5784.95425	-45750	-7.908	Pass
	102.00	5784.95545	-44550	-7.701	Pass

Note: The manufacturer's frequency stability specification is better than 20ppm.

Model Number	RT10				
Test Mode	Mode 4				
Frequency	5230 MHz				
Date of Test	05/20/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	138.00	5229.95175	-48250	-9.226	Pass
	120.00	5229.96025	-39750	-7.600	Pass
	102.00	5229.96795	-32050	-6.128	Pass

Model Number	RT10				
Test Mode	Mode 4				
Frequency	5795 MHz				
Date of Test	05/20/2015			Test Site	TE02
Temp. (°C)	Voltage (VAC)	Measured Frequency (MHz)	Delta Frequency (Hz)	Tolerance (ppm)	Result (Pass/Fail)
20	138.00	5794.94785	-52150	-8.999	Pass
	120.00	5794.95575	-44250	-7.636	Pass
	102.00	5794.96455	-35450	-6.117	Pass

Note: The manufacturer's frequency stability specification is better than 20ppm.

11 Antenna Requirement

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 15.407 (a), 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 listed below.

Antenna Port	Type	Max. Gain
MAIN (ANT-1)	PIFA Antenna	U-NII Band I: 0.49 dBi U-NII Band III: -4.40 dBi
AUX (ANT-2)	PIFA Antenna	U-NII Band I: 0.85 dBi U-NII Band III: -1.48 dBi