Application for FCC Certification
On behalf of

Creatcomm Technology Inc.

Product Name	Model No.
Intelligent wireless transmission equipment	TB5E

FCC ID: 2AHYNTURBOBRIDGE5

Prepared For : Creatcomm Technology Inc.
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Kunshan, JiangSu, China

Prepared By :Audix Technology (Shanghai) Co., Ltd.
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Report No. : ACI-F16066
Date of Test : May. 13 – 24, 2016
Date of Report : May. 25, 2016

TABLE OF CONTENTS

Page

TEST REPORT FOR FCC CERTIFICATE

Applicant : Creatcomm Technology Inc.

Manufacturer : Creatcomm Technology Inc.

EUT Description :

EUT	Model No.
Intelligent wireless transmission equipment	TB5E

Power Supply : DC 24V (POE Power)

Test Voltage : AC 120V/60Hz (to POE adapter)

Test Procedure Used:

FCC RULES AND REGULATIONS PART 15 SUBPART C OCTOBER 2015 AND ANSI C63.10-2013

The device described above is tested by Audix Technology (Shanghai) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C and Subpart E limits.

The test results are contained in this test report and Audix Technology (Shanghai) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. This report also shows that the EUT (M/N: TB5E), which was tested on May. 13 – 24, 2016 is technically compliance with the FCC limits.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shanghai) Co., Ltd.

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

The test results for EUT's other function are contained in No. ACI-F16063, a FCC Verification report.

Date of Test : May. 13 – 24, 2016 Date of Report : May. 25, 2016

Producer : Alan He
ALAN HE / Assistant

Review : Sammy Chen
SAMMY CHEN / Manager

For and on behalf of
Audix Technology (Shanghai) Co., Ltd.

Signatory : Byron Kwo
Authorized Signature EMC BYRON KWO / Assistant General Manager

1 SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below:

Description / Test Item	Test Standard	Results	Meets Limit
EMISSION			
Conducted Emission	FCC RULES AND REGULATIONS PART 15 SUBPART C October 2015 AND ANSI C63.10:2013	Pass	15.207
Radiated Emission	FCC RULES AND REGULATIONS PART 15 SUBPART C October 2015 AND ANSI C63.10:2013	Pass	15.209 (a) 15.205 (a)
6 dB and 26dB Bandwidth Measurement	FCC RULES AND REGULATIONS PART 15 SUBPART E October 2015 AND ANSI C63.10:2013	Pass	15.407 (e)
Maximum Conducted Output Power Measurement	FCC RULES AND REGULATIONS PART 15 SUBPART E October 2015 AND ANSI C63.10:2013	Pass	15.407 (a)(1)(3)
Power Spectral Density Measurement	FCC RULES AND REGULATIONS PART 15 SUBPART E October 2015 AND ANSI C63.10:2013	Pass	15.407 (a)(1)(3)
Undesirable Emission	FCC RULES AND REGULATIONS PART 15 SUBPART E October 2015 AND ANSI C63.10:2013	Pass	15.407 (b)(1)(4)
Frequency Stability	FCC RULES AND REGULATIONS PART 15 SUBPART E October 2015 AND ANSI C63.10:2013	Pass	15.407 (g)

2 GENERAL INFORMATION

2.1 Description of Equipment Under Test

Description :

EUT	Model Number
Intelligent wireless transmission equipment	TB5E

Type of EUT : ☑ Production ☐ Pre-product ☐ Pro-type

Radio Tech : IEEE 802.11a/n, HT20, HT40

Freq. Band : IEEE 802.11a: 5180MHz—5240MHz
5745MHz—5825MHz
IEEE802.11nHT20: 5180MHz—5240MHz
5745MHz—5825MHz
IEEE802.11nHT40: 5190MHz—5230MHz
5755MHz—5795MHz

Modulation : OFDM

Test Mode : The EUT was set at TX100 test mode through test program "art" during all the test in the report, which means continuous TX with duty cycle 100% (nearly. 100% duty cycle)

Tested mode, channel, and data rate information

Mode	data rate (Mpbs)(see Note)	Channel	Frequency (MHz)	Tx Power Setting (dB)
IEEE 802.11a	6	Low :CH36	5180	17
	6	Middle: CH40	5200	17
	6	High: CH48	5240	17
	6	Low :CH149	5745	13
	6	Middle: CH157	5785	11
	6	High: CH165	5825	11
IEEE 802.11nHT20	MCS0	Low :CH36	5180	17
	MCS0	Middle: CH40	5200	17
	MCS0	High: CH48	5240	17
	MCS0	Low :CH149	5745	13
	MCS0	Middle: CH157	5785	11
	MCS0	High: CH165	5825	11
IEEE 802.11nHT40	MCS0	Low :CH38	5190	17
	MCS0	High: CH46	5230	17
	MCS0	Low :CH151	5755	11
	MCS0	High: CH159	5795	9

Note: 1. According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.
2. This is 2T2R device, test comply with the ANSI C63.10:2013.
3. IEEE802.11a use SISO and 11n use MIMO mode during the test.

Antenna Gain	:	15 dBi two outputs driving antennas that are cross-polarized, directional gain is the gain of an individual antenna
POE Power Supply	:	Manufacturer : Foshan Great Power Co., Ltd. Model Number : GRT-240050 Input : AC100~240V 50/60Hz Output : DC24V ⎓ 500mA
Applicant	:	Creatcomm Technology Inc. Suite 619, Building A, Modern Plaza, No.18 Weiye Road, Kunshan, JiangSu, China
Manufacturer	:	Same as Applicant

2.2 Peripherals

2.2.1 Notebook PC

Manufacturer	:	DELL
Model Number	:	P51F
Serial Number	:	GQRT062
Certificate	:	FCC DoC; CE/EMC; VCCI; C-Tick

2.3 Description of Test Facility

Site Description (Semi-Anechoic Chamber)	: Sept. 17, 1998 file on Jan. 15, 2015 Renewed Federal Communications Commission FCC Engineering Laboratory 7435 Oakland Mills Road Columbia, MD 21046, USA
Name of Firm	: Audix Technology (Shanghai) Co., Ltd.
Site Location	: 3 F 34 Bldg 680 Guiping Rd., Caohejing Hi-Tech Park, Shanghai 200233, China
FCC registration Number	: 91789
Accredited by NVLAP, Lab Code	: 200371-0

2.4 Measurement Uncertainty

Conducted Emission Expanded Uncertainty	: U = 3.4 dB
Radiated Emission Expanded Uncertainty (30-200MHz):	U = 4.3 dB (Horizontal) U = 4.6 dB (Vertical)
Radiated Emission Expanded Uncertainty (200M-1GHz):	U = 4.5 dB (Horizontal) U = 5.4 dB (Vertical)
Radiated Emission Expanded Uncertainty (Above 1GHz):	U= 5.1 dB (1-6GHz) U= 5.3 dB (> 6GHz)
Bandwidth Expanded Uncertainty	: U = $\pm 1 \times 10^{-8}$ MHz
Maximum Conducted Output Power Expanded Uncertainty	: U = ±1.56dB
Power Spectral Density Expanded Uncertainty	: U = ±1.75dB
Undesirable Emission Expanded Uncertainty	: U = ±1.75dB

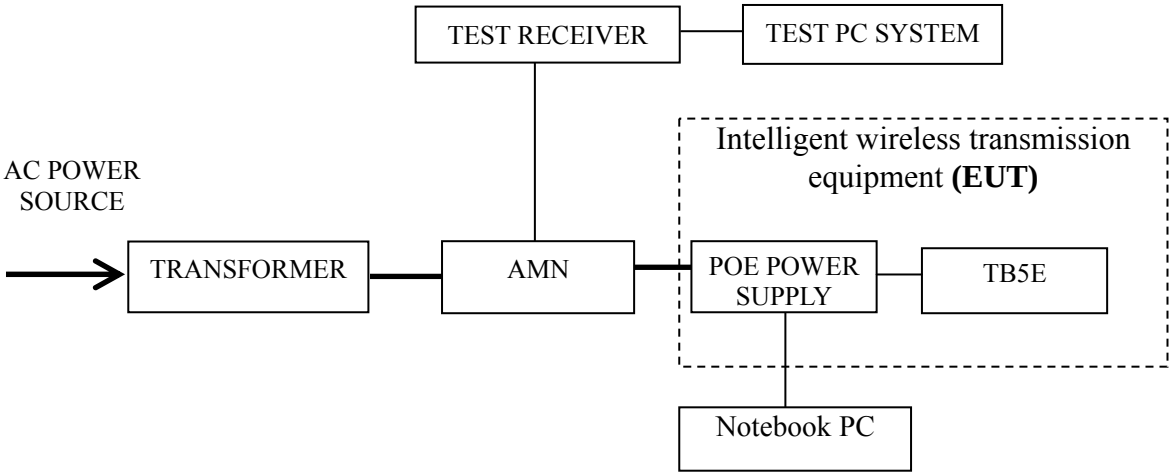
3 CONDUCTED EMISSION TEST

3.1 Test Equipment

The following test equipments are used during the conducted emission test in a shielded room:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	100841	Mar 20, 2016	Mar 19, 2017
2.	Artificial Mains Network (AMN)	R&S	ESH2-Z5	843890/011	Feb 25, 2016	Feb 24, 2017
3.	50Ω Coaxial Switch	ANRITSU	MP59B	6200426389	Mar 18, 2016	Sep 17, 2016
4.	Software	Audix	e3	SET00200 9804M592	--	--

3.2 Block Diagram of Test Setup



—— : Signal Line
—— : Power Line

3.3 Conducted Emission Limits [FCC Part 15 Subpart C 15.207]

Frequency Range (MHz)	Conducted Limit (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66~56*	56~46*
0.5 ~ 5	56	46
5 ~ 30	60	50
NOTE – *Decreases with the logarithm of the frequency.		

3.4 Test Configuration

The EUT (listed in Sec.2.1) was installed as shown on Sec.3.2 to meet FCC requirement and operating in a manner that tends to maximize its emission level in a normal application.

3.5 Operating Condition of EUT

3.5.1 Setup the EUT as shown in Sec. 3.2.

3.5.2 Turn on the power of all equipments and the EUT.

3.5.3 Set the EUT on the test mode (Transmitting), and then test.

3.6 Test Procedures

The EUT was connected to the power mains through an Artificial Mains Network (AMN). This provided a 50 ohm coupling impedance for the measuring equipment.

Both sides of AC line (Line & Neutral) were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables were changed or manipulated according to ANSI C63.10:2013 during conducted emission test.

The bandwidth of R&S Test Receiver ESCI was set at 9 kHz.

The frequency range from 150 kHz to 30 MHz was checked.

The test modes were done on conducted disturbance test and all the test results are listed in Sec. 3.7.

3.7 Test Results

< PASS >

The frequency and amplitude of the highest conducted emission relative to the limit is reported. All emissions not reported below are too low against the prescribed limits.

Model Number	Data Page
TB5E	P10

NOTE 1 – Factor = Cable Loss + AMN Factor.
NOTE 2 – Emission Level = Meter Reading + Factor.
NOTE 3 – "QP" means "Quasi-Peak" values, "AV" means "Average" values.
NOTE 4 – The worst emission is detected at 0.516 MHz (AV Value) with corrected signal level of 42.81 dB (μV) (limit is 46.00 dB (μV)), when the Neutral of theTB5E is connected to AMN.

EUT	:	Intelligent wireless transmission equipment	Temperature :	25℃	
Model No.	:	TB5E	Humidity	:	44%RH
Test Mode	:	Transmitting	Date of Test	:	May. 13, 2016

Test Line	Frequency (MHz)	Meter Reading dB(μV)	Factor (dB)	Emission Level dB(μV)	Limits dB(μV)	Margin (dB)	Remark
Line	0.150	50.30	0.16	50.46	66.00	15.54	QP
	0.511	49.30	0.21	49.51	56.00	6.49	
	1.359	39.51	0.27	39.78	56.00	16.22	
	3.919	40.60	0.37	40.97	56.00	15.03	
	13.600	35.29	0.72	36.01	60.00	23.99	
	24.900	39.30	1.01	40.31	60.00	19.69	
	0.150	38.50	0.16	38.66	56.00	17.34	AV
	0.511	42.30	0.21	42.51	46.00	3.49	
	1.359	31.51	0.27	31.78	46.00	14.22	
	3.919	32.20	0.37	32.57	46.00	13.43	
	13.600	29.99	0.72	30.71	50.00	19.29	
	24.900	35.20	1.01	36.21	50.00	13.79	
Neutral	0.150	48.90	0.16	49.06	66.00	16.94	QP
	0.516	50.30	0.21	50.51	56.00	5.49	
	0.986	38.90	0.24	39.14	56.00	16.86	
	4.693	41.30	0.36	41.66	56.00	14.34	
	13.600	36.60	0.54	37.14	60.00	22.86	
	24.900	39.50	0.61	40.11	60.00	19.89	
	0.150	37.50	0.16	37.66	56.00	18.34	AV
	0.516	**42.60**	**0.21**	**42.81**	**46.00**	**3.19**	
	0.986	30.60	0.24	30.84	46.00	15.16	
	4.693	33.90	0.36	34.26	46.00	11.74	
	13.600	31.30	0.54	31.84	50.00	18.16	
	24.900	35.30	0.61	35.91	50.00	14.09	

TEST ENGINEER: ERIC TANG

4 RADIATED EMISSION TEST

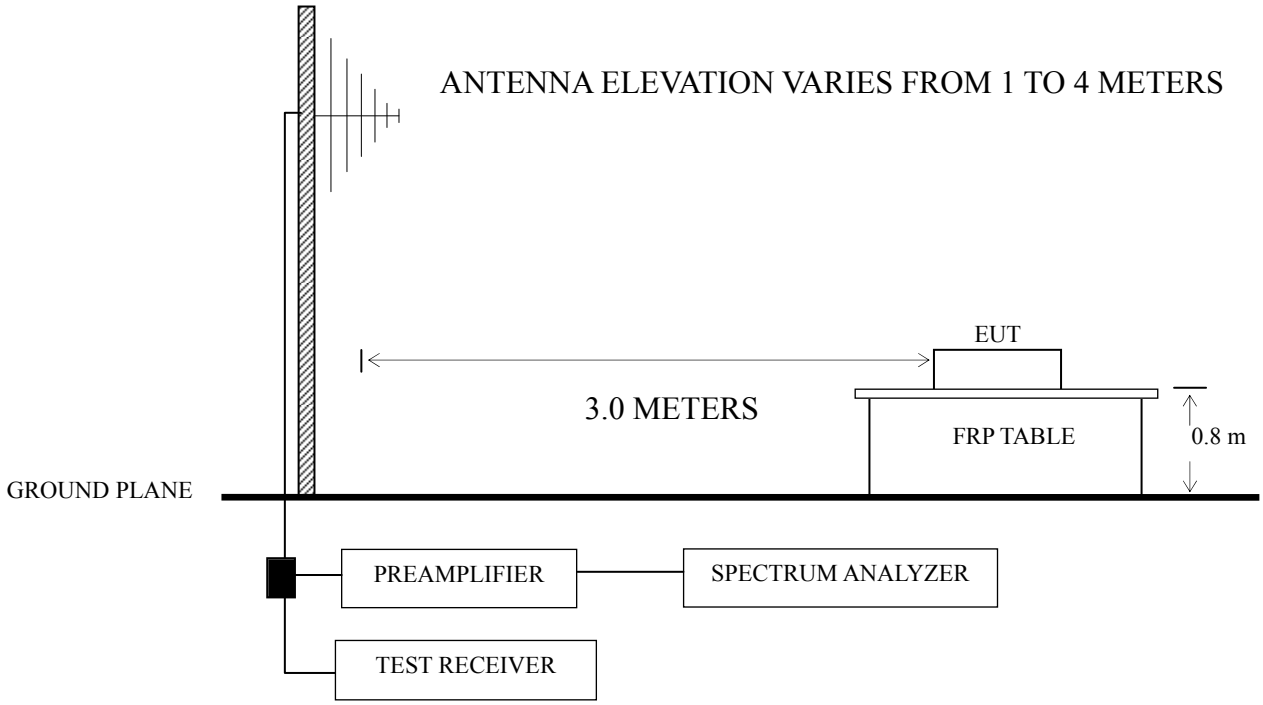
4.1 Test Equipment

The following test equipment are used during the radiated emission test in a semi-anechoic chamber:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R&S	ESCI	101303	May 07, 2016	May 06, 2017
2.	Preamplifier	Agilent	8447D	2944A06664	Apr 27, 2016	Apr 26, 2017
3.	Preamplifier	HP	8449B	3008A00864	Mar 20, 2016	Sep 19, 2016
4.	Bi-log Antenna	TESEQ	CBL6112D	23193	May 15, 2016	May 14, 2017
5.	Horn Antenna	EMCO	3115	9607-4878	Jun 03, 2016	Jun 02, 2017
6.	Spectrum	Agilent	E7405A	MY45106600	Jun 12, 2016	Jun 11, 2017
7.	Software	Audix	e3	6.2007-9-10		

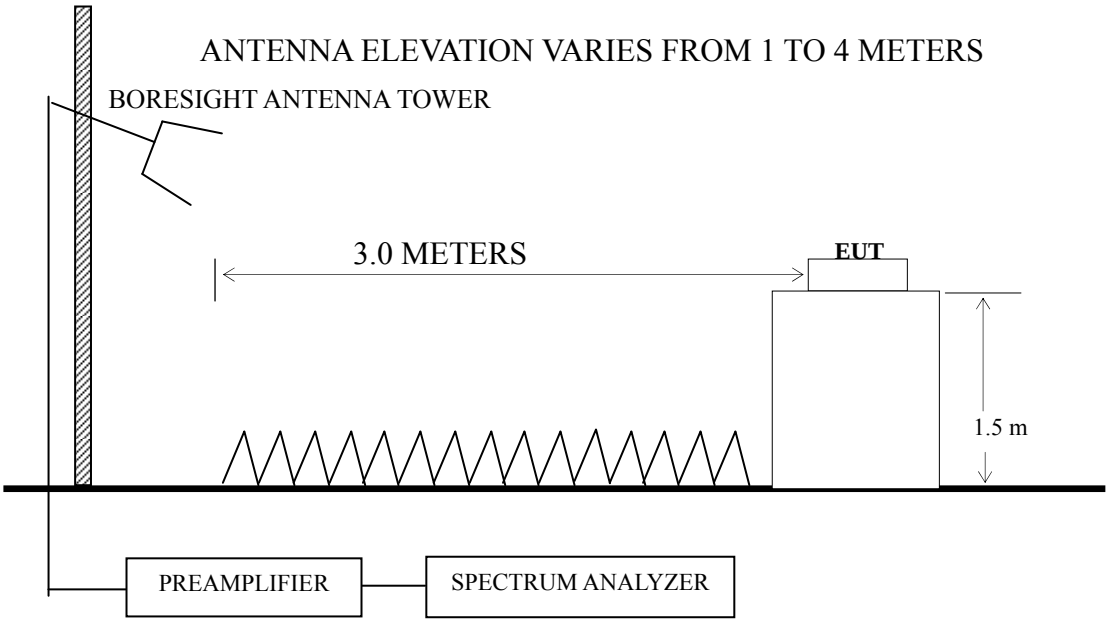
4.2 Block Diagram of Test Setup

4.2.1 Below 1GHz



■ : 50 ohm Coaxial Switch

4.2.2 Below 1GHz



4.3 Radiated Emission Limit [FCC Part 15 Subpart C 15.209&15.407]

For transmitters operating in the 5.15-5.25 GHz; 5.725-5.850GHz band: all emissions outside of those band shall not exceed an EIRP of -27 dBm/MHz. Unwanted emissions below 1 GHz and those emissions appearing within 15.205 restricted frequency bands must comply with the general field strength limits set forth in Section 15.209

Frequency (MHz)	Distance (m)	Field strength limits (μV/m)	
		(μV/m)	dB(μV/m)
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0

NOTE 1 - Emission Level dB (μV/m) = 20 log Emission Level (μV/m)
NOTE 2 - The tighter limit applies at the band edges.
NOTE 3 - Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
NOTE 4 - The limits shown are based on Quasi-peak value detector below or equal to 1GHz.

4.4 Test Configuration

The EUT (listed in Sec.2.1) and the simulators (listed in Sec.2.2) were installed as shown on Sec.3.2 to meet FCC requirements and operating in a manner that tends to maximize its emission level in a normal application.

4.5 Operating Condition of EUT

4.5.1 Setup the EUT as shown in Sec. 3.2.

4.5.2 Turn on the power of all equipment.

4.5.3 Turn the EUT on the test mode, and then test.

4.6 Test Procedures

Radiated emission test applies to harmonics/spurious that fall in the restricted bands listed in Section 15.205. The maximum permitted average field strength is listed in Section 15.209. A pre-amp is necessary for this measurement. For measurement above 1 GHz, set RBW = 1MHz, VBW = 10 Hz, Sweep: Auto. If the emission is pulsed, modify the unit for continuous operation; use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.

The EUT was placed on a turntable. Below 1 GHz, the table height is 80 cm above the reference ground plane. Above 1 GHz, the table height is 1.5 m. The turntable rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. The antenna moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (Calibrated Bilog Antenna) or Horn antenna was used as receiving antenna. Both horizontal and vertical polarizations of the antenna were set on measurement. In order to find the maximum emission, all of the interference cables were manipulated according to ANSI C63.10: 2013 requirements during radiated emission test.

Per ANSI C63.10: 2013 clause 12.7.2 d).if the test distance is 3m, the EIRP(dBm)=E(dBuV/m)-95.2 Get the result of all unwanted emission outside the restricted band is less than the -27dBm/MHz.

We had checked frequency range that is 30MHz to 10th harmonic (40GHz) and no any emissions were found from 18GHz to 40GHz, so the radiated emission from 18GHz to 40GHz were not record.

4.7 Test Results

<PASS>

The frequency and amplitude of the highest radiated emission relative the limit is reported. All the emissions not reported below are too low against the FCC limit.

Test Model	Memo	Data Page
TB5E	emissions < 1GHz(15.209)	P15
	emissions > 1GHz(15.209)	P16 – P21
	e.r.i.p. > 1GHz(15.407)	P22

NOTE 1 – Level = Read Level + Antenna Factor + Cable Loss (<1GHz)
NOTE 2 – Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor (>1GHz)
NOTE 3 – EUT configured in Lying, Side & Stand direction were all evaluated. The emission levels recorded below is data of EUT configured in **Lying** direction, for **Lying** direction was the maximum emission direction during the test.
NOTE 4 – All reading are Quasi-Peak values below or equal to 1GHz, Peak and Average values above 1GHz.
For above 1GHz test, if the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.

Worst case emission < 1GHz

EUT	:	Intelligent wireless transmission equipment	Temperature :	25℃	
Model No.	:	TB5E	Humidity	:	45%RH
Test Mode	:	Transmitting	Date of Test	:	May 13, 2016

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	35.005	17.83	15.70	0.69	34.22	40.00	5.78	QP
	43.966	**24.31**	**11.80**	**0.76**	**36.87**	**40.00**	**3.13**	
	80.927	22.62	9.46	1.09	33.17	40.00	6.83	
	104.720	26.30	12.50	1.35	40.15	43.50	3.35	
	138.874	19.09	12.52	1.57	33.18	43.50	10.32	
	183.844	18.53	10.50	1.87	30.90	43.50	12.60	
Vertical	43.966	11.76	11.80	0.76	24.32	40.00	15.68	QP
	104.903	15.90	12.50	1.35	29.75	43.50	13.75	
	138.874	18.60	12.52	1.57	32.69	43.50	10.81	
	294.114	18.65	13.60	2.52	34.77	46.00	11.23	
	438.655	17.58	16.90	2.81	37.29	46.00	8.71	
	845.088	**13.20**	**20.73**	**4.07**	**38.00**	**46.00**	**8.00**	

TEST ENGINEER: WENCY YANG

Emission 1GHz~18GHz

EUT	:	Intelligent wireless transmission equipment	Temperature :	25℃	
Model No.	:	TB5E	Humidity :	45%RH	
Test Mode	:	802.11a	Date of Test :	May 13, 2016	

5180 MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	10360	40.24	38.84	11.87	35.37	55.58	74.00	18.42	PK
	10360	29.32	38.84	11.87	35.37	44.66	54.00	9.34	AV
	15540	40.87	38.75	15.21	35.66	59.17	74.00	14.83	PK
	15540	26.72	38.75	15.21	35.66	45.02	54.00	8.98	AV
Vertical	10360	40.48	38.84	11.87	35.37	55.82	74.00	18.18	PK
	10360	29.55	38.84	11.87	35.37	44.89	54.00	9.11	AV
	15540	40.21	38.75	15.21	35.66	58.51	74.00	15.49	PK
	15540	26.24	38.75	15.21	35.66	44.54	54.00	9.46	AV

5200 MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	10400	40.71	38.85	11.87	35.38	56.05	74.00	17.95	PK
	10400	29.36	38.85	11.87	35.38	44.70	54.00	9.30	AV
	15600	40.09	38.86	15.21	35.62	58.54	74.00	15.46	PK
	15600	27.00	38.86	15.21	35.62	45.45	54.00	8.55	AV
Vertical	10400	39.86	38.85	11.87	35.38	55.20	74.00	18.80	PK
	10400	29.45	38.85	11.87	35.38	44.79	54.00	9.21	AV
	15600	39.58	38.86	15.21	35.62	58.03	74.00	15.97	PK
	15600	26.29	38.86	15.21	35.62	44.74	54.00	9.26	AV

5240 MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	10480	40.09	38.89	11.97	35.40	55.55	74.00	18.45	PK
	10480	29.57	38.89	11.97	35.40	45.03	54.00	8.97	AV
	15720	39.14	38.97	15.31	35.50	57.92	74.00	16.08	PK
	15720	25.78	38.97	15.31	35.50	44.56	54.00	9.44	AV
Vertical	10480	39.74	38.89	11.97	35.40	55.20	74.00	18.80	PK
	10480	28.98	38.89	11.97	35.40	44.44	54.00	9.56	AV
	15720	39.79	38.97	15.31	35.50	58.57	74.00	15.43	PK
	15720	26.10	38.97	15.31	35.50	44.88	54.00	9.12	AV

TEST ENGINEER: WENCY YANG

5745 MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	11490	39.55	39.30	12.65	35.55	55.95	74.00	18.05	PK
	11490	28.08	39.30	12.65	35.55	44.48	54.00	9.52	AV
	17235	36.02	42.95	16.58	35.48	60.07	74.00	13.93	PK
	17235	22.69	42.95	16.58	35.48	46.74	54.00	7.26	AV
Vertical	11490	39.13	39.30	12.65	35.55	55.53	74.00	18.47	PK
	11490	27.87	39.30	12.65	35.55	44.27	54.00	9.73	AV
	17235	36.22	42.95	16.58	35.48	60.27	74.00	13.73	PK
	17235	23.39	42.95	16.58	35.48	47.44	54.00	6.56	AV

5785 MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	11570	39.29	39.27	12.78	35.56	55.78	74.00	18.22	PK
	11570	28.24	39.27	12.78	35.56	44.73	54.00	9.27	AV
	17355	36.48	43.81	16.76	35.42	61.63	74.00	12.37	PK
	17355	22.84	43.81	16.76	35.42	47.99	54.00	6.01	AV
Vertical	11570	39.19	39.27	12.78	35.56	55.68	74.00	18.32	PK
	11570	27.81	39.27	12.78	35.56	44.30	54.00	9.70	AV
	17355	35.84	43.81	16.76	35.42	60.99	74.00	13.01	PK
	17355	22.92	43.81	16.76	35.42	48.07	54.00	5.93	AV

5825 MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	11650	39.43	39.25	12.78	35.57	55.89	74.00	18.11	PK
	11650	27.97	39.25	12.78	35.57	44.43	54.00	9.57	AV
	17475	35.86	45.10	16.76	35.36	62.36	74.00	11.64	PK
	17475	22.69	45.10	16.76	35.36	49.19	54.00	4.81	AV
Vertical	11650	39.26	39.25	12.78	35.57	55.72	74.00	18.28	PK
	11650	28.23	39.25	12.78	35.57	44.69	54.00	9.31	AV
	17475	36.14	45.10	16.76	35.36	62.64	74.00	11.36	PK
	17475	22.04	45.10	16.76	35.36	48.54	54.00	5.46	AV

TEST ENGINEER: WENCY YANG

EUT	:	Intelligent wireless transmission equipment	Temperature :	25℃	
Model No.	:	TB5E	Humidity	:	45%RH
Test Mode	:	802.11n HT20	Date of Test	:	May 13, 2016

5180MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	10360	40.57	38.84	11.87	35.37	55.91	74.00	18.09	PK
	10360	29.62	38.84	11.87	35.37	44.96	54.00	9.04	AV
	15540	39.73	38.75	15.21	35.66	58.03	74.00	15.97	PK
	15540	27.19	38.75	15.21	35.66	45.49	54.00	8.51	AV
Vertical	10360	40.02	38.84	11.87	35.37	55.36	74.00	18.64	PK
	10360	29.34	38.84	11.87	35.37	44.68	54.00	9.32	AV
	15540	40.28	38.75	15.21	35.66	58.58	74.00	15.42	PK
	15540	26.96	38.75	15.21	35.66	45.26	54.00	8.74	AV

5200MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	10400	39.81	38.85	11.87	35.38	55.15	74.00	18.85	PK
	10400	29.41	38.85	11.87	35.38	44.75	54.00	9.25	AV
	15600	39.74	38.86	15.21	35.62	58.19	74.00	15.81	PK
	15600	26.10	38.86	15.21	35.62	44.55	54.00	9.45	AV
Vertical	10400	40.38	38.85	11.87	35.38	55.72	74.00	18.28	PK
	10400	29.53	38.85	11.87	35.38	44.87	54.00	9.13	AV
	15600	39.46	38.86	15.21	35.62	57.91	74.00	16.09	PK
	15600	26.85	38.86	15.21	35.62	45.30	54.00	8.70	AV

5240MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	10480	39.63	38.89	11.97	35.40	55.09	74.00	18.91	PK
	10480	28.96	38.89	11.97	35.40	44.42	54.00	9.58	AV
	15720	38.95	38.97	15.31	35.50	57.73	74.00	16.27	PK
	15720	25.95	38.97	15.31	35.50	44.73	54.00	9.27	AV
Vertical	10480	40.18	38.89	11.97	35.40	55.64	74.00	18.36	PK
	10480	29.69	38.89	11.97	35.40	45.15	54.00	8.85	AV
	15720	39.76	38.97	15.31	35.50	58.54	74.00	15.46	PK
	15720	25.97	38.97	15.31	35.50	44.75	54.00	9.25	AV

TEST ENGINEER: WENCY YANG

5745MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	11490	39.21	39.30	12.65	35.55	55.61	74.00	18.39	PK
	11490	28.65	39.30	12.65	35.55	45.05	54.00	8.95	AV
	17235	36.25	42.95	16.58	35.48	60.30	74.00	13.70	PK
	17235	22.89	42.95	16.58	35.48	46.94	54.00	7.06	AV
Vertical	11490	38.72	39.30	12.65	35.55	55.12	74.00	18.88	PK
	11490	28.36	39.30	12.65	35.55	44.76	54.00	9.24	AV
	17235	36.08	42.95	16.58	35.48	60.13	74.00	13.87	PK
	17235	22.52	42.95	16.58	35.48	46.57	54.00	7.43	AV

5785MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	11570	39.54	39.27	12.78	35.56	56.03	74.00	17.97	PK
	11570	28.10	39.27	12.78	35.56	44.59	54.00	9.41	AV
	17355	36.02	43.81	16.76	35.42	61.17	74.00	12.83	PK
	17355	22.85	43.81	16.76	35.42	48.00	54.00	6.00	AV
Vertical	11570	39.56	39.27	12.78	35.56	56.05	74.00	17.95	PK
	11570	28.14	39.27	12.78	35.56	44.63	54.00	9.37	AV
	17355	36.29	43.81	16.76	35.42	61.44	74.00	12.56	PK
	17355	22.57	43.81	16.76	35.42	47.72	54.00	6.28	AV

5825MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	11650	39.11	39.25	12.78	35.57	55.57	74.00	18.43	PK
	11650	27.75	39.25	12.78	35.57	44.21	54.00	9.79	AV
	17475	35.27	45.10	16.76	35.36	61.77	74.00	12.23	PK
	17475	22.12	45.10	16.76	35.36	48.62	54.00	5.38	AV
Vertical	11650	38.86	39.25	12.78	35.57	55.32	74.00	18.68	PK
	11650	27.81	39.25	12.78	35.57	44.27	54.00	9.73	AV
	17475	35.78	45.10	16.76	35.36	62.28	74.00	11.72	PK
	17475	22.15	45.10	16.76	35.36	48.65	54.00	5.35	AV

TEST ENGINEER: WENCY YANG

EUT	:	Intelligent wireless transmission equipment	Temperature :	25℃	
Model No.	:	TB5E	Humidity :	45%RH	
Test Mode	:	802.11n HT40	Date of Test :	May 13, 2016	

5190MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	10380	40.48	38.85	11.87	35.38	55.82	74.00	18.18	PK
	10380	29.63	38.85	11.87	35.38	44.97	54.00	9.03	AV
	15570	39.80	38.81	15.21	35.62	58.20	74.00	15.80	PK
	15570	26.35	38.81	15.21	35.62	44.75	54.00	9.25	AV
Vertical	10380	40.34	38.85	11.87	35.38	55.68	74.00	18.32	PK
	10380	29.50	38.85	11.87	35.38	44.84	54.00	9.16	AV
	15570	40.09	38.81	15.21	35.62	58.49	74.00	15.51	PK
	15570	26.51	38.81	15.21	35.62	44.91	54.00	9.09	AV

5230MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	10460	39.64	38.88	11.97	35.39	55.10	74.00	18.90	PK
	10460	28.82	38.88	11.97	35.39	44.28	54.00	9.72	AV
	15690	39.03	38.92	15.31	35.54	57.72	74.00	16.28	PK
	15690	26.77	38.92	15.31	35.54	45.46	54.00	8.54	AV
Vertical	10460	40.20	38.88	11.97	35.39	55.66	74.00	18.34	PK
	10460	28.88	38.88	11.97	35.39	44.34	54.00	9.66	AV
	15690	39.34	38.92	15.31	35.54	58.03	74.00	15.97	PK
	15690	26.81	38.92	15.31	35.54	45.50	54.00	8.50	AV

TEST ENGINEER: WENCY YANG

5755MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	11510	38.83	39.30	12.65	35.55	55.23	74.00	18.77	PK
	11510	28.57	39.30	12.65	35.55	44.97	54.00	9.03	AV
	17265	35.93	43.38	16.58	35.48	60.41	74.00	13.59	PK
	17265	22.97	43.38	16.58	35.48	47.45	54.00	6.55	AV
Vertical	11510	39.36	39.30	12.65	35.55	55.76	74.00	18.24	PK
	11510	28.76	39.30	12.65	35.55	45.16	54.00	8.84	AV
	17265	35.58	43.38	16.58	35.48	60.06	74.00	13.94	PK
	17265	22.38	43.38	16.58	35.48	46.86	54.00	7.14	AV

5795MHz

Polarization	Frequency (MHz)	Meter Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	11590	39.49	39.26	12.78	35.56	55.97	74.00	18.03	PK
	11590	28.64	39.26	12.78	35.56	45.12	54.00	8.88	AV
	17385	35.89	44.24	16.76	35.42	61.47	74.00	12.53	PK
	17385	22.42	44.24	16.76	35.42	48.00	54.00	6.00	AV
Vertical	11590	39.59	39.26	12.78	35.56	56.07	74.00	17.93	PK
	11590	28.40	39.26	12.78	35.56	44.88	54.00	9.12	AV
	17385	35.29	44.24	16.76	35.42	60.87	74.00	13.13	PK
	17385	22.40	44.24	16.76	35.42	47.98	54.00	6.02	AV

TEST ENGINEER: WENCY YANG

All other emission comply with 15.407 (b)(1) requirements.
EIRP(dBm)=E(dBuV/m)-95.2

Mode	Emission Level * (dBμV/m)	EIRP (dBm/MHz)	Limit (dBm/MHz)	Conclusion
U-NII 5150-5250MHz Band:				
11a	59.17	-36.03	-27	Pass
11n HT20	58.58	-36.62	-27	Pass
11n HT40	58.49	-36.71	-27	Pass
U-NII 5725-5850MHz Band:				
11a	62.64	-32.56	-27	Pass
11n HT20	62.28	-32.92	-27	Pass
11n HT40	61.47	-33.73	-27	Pass

(* the worse case result for each mode)

5 BAND EDGE MEASUREMENT

5.1 Test Equipment

The following test equipment are used during the radiated emission test in a semi-anechoic chamber:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Preamplifier	HP	8449B	3008A00864	Mar 20, 2016	Sep 19, 2016
2.	Horn Antenna	EMCO	3115	9607-4878	Jun 03, 2016	Jun 02, 2017
3.	Spectrum	Agilent	E7405A	MY45106600	Jun 12, 2016	Jun 11, 2017
4.	Software	Audix	e3	6.2007-9-10		

5.2 Block Diagram of Test Setup

Same as 4.2.2:

5.3 Limit

For transmitters operating in the 5.15-5.25 GHz, all emissions outside of those band shall not exceed an EIRP of -27 dBm/MHz. For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz

5.4 Operating Condition of EUT

The test program “art” was used to enable the EUT to transmit data at different channel frequency individually.

5.5 Test Procedure

Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
(a) PEAK: RBW=1MHz; VBW=3MHz; Sweep=AUTO
Per ANSI C63.10: 2013 clause 12.7.2 d) if the test distance is 3m,the EIRP(dBm)=E(dBuV/m)-95.2
Get the final compare with limit.

5.6 Test Results

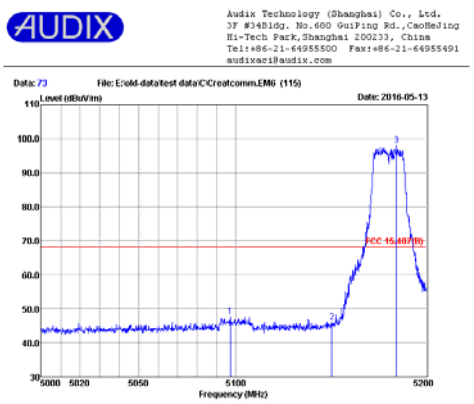
PASSED.

All the test results are attached in next pages.

Mode	Emission Level * (dBμV/m)	EIRP (dBm/MHz)	Limit (dBm/MHz)	Conclusion
U-NII 5150-5250 MHz Band:				
11a Ant0 lower	47.79	-47.41	-27	Pass
11a Ant0 upper	46.31	-48.89	-27	Pass
11a Ant1 lower	49.48	-45.72	-27	Pass
11a Ant1 upper	46.43	-48.77	-27	Pass
11n HT20 lower	51.37	-43.83	-27	Pass
11n HT20 upper	47.77	-47.43	-27	Pass
11n HT40 lower	63.73	-31.47	-27	Pass
11n HT40 upper	47.28	-47.92	-27	Pass
U-NII 5725-5850 MHz Band:				
11a Ant0 lower > 10MHz	47.14	-48.06	-27	Pass
11a Ant0 lower < 10MHz	47.10	-48.10	-17	Pass
11a Ant0 upper < 10MHz	47.41	-47.79	-17	Pass
11a Ant0 upper > 10MHz	47.36	-47.84	-27	Pass
11a Ant1 lower > 10MHz	46.91	-48.29	-27	Pass
11a Ant1 lower < 10MHz	51.08	-44.12	-17	Pass
11a Ant1 upper < 10MHz	46.23	-48.97	-17	Pass
11a Ant1 upper > 10MHz	46.45	-48.75	-27	Pass
11n HT20 lower > 10MHz	48.14	-47.06	-27	Pass
11n HT20 lower < 10MHz	49.59	-45.61	-17	Pass
11n HT20 upper < 10MHz	47.77	-47.43	-17	Pass
11n HT20 upper > 10MHz	47.89	-47.31	-27	Pass
11n HT40 lower > 10MHz	52.77	-42.43	-27	Pass
11n HT40 lower < 10MHz	63.97	-31.23	-17	Pass
11n HT40 upper < 10MHz	46.49	-48.71	-17	Pass
11n HT40 upper > 10MHz	47.19	-48.01	-27	Pass

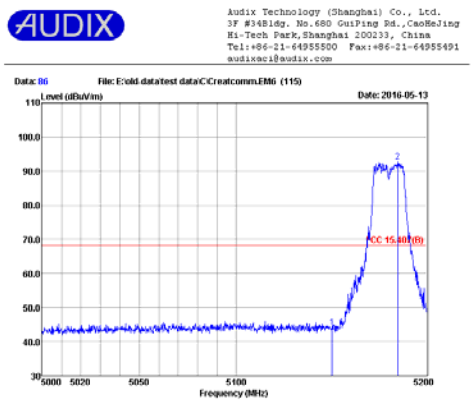
(* the worse case result for each mode)

U-NII 5150 - 5250 MHz Band:
IEEE 802.11a Antenna0



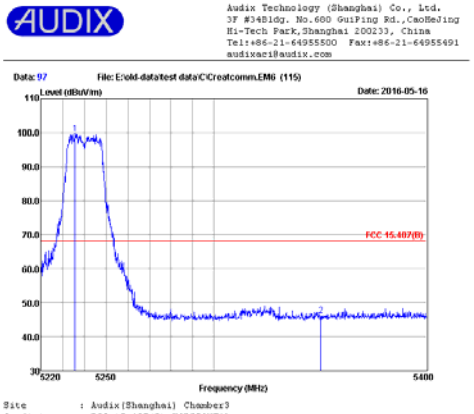
Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) HORIZONTAL
Project No. :
Applicant :
EUT : Intellgent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11a CH36 5180 ANT0
Test Engineer: Henry
Memo : Tx Power:17

	Freq	Read Level	Cable	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5097.22	41.15	6.31	34.25	68.20	47.79	-20.41	Peak
2	5150.07	38.92	6.58	34.34	68.20	45.91	-22.29	Peak
3	5184.12	90.99	6.58	34.39	68.20	98.02	29.82	Peak



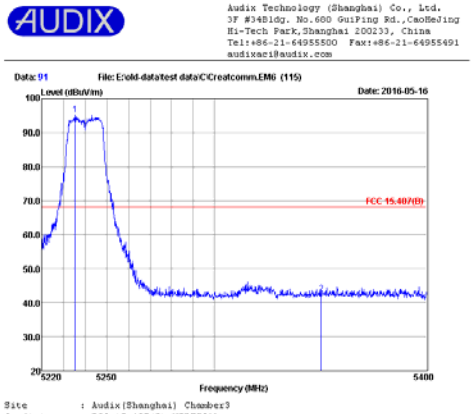
Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) VERTICAL
Project No. :
Applicant :
EUT : Intellgent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11a CH36 5180 ANT0
Test Engineer: Henry
Memo : Tx Power:17

	Freq	Read Level	Cable	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5150.07	37.07	6.58	34.34	68.20	44.06	-24.14	Peak
2	5184.73	85.67	6.58	34.39	68.20	92.70	24.50	Peak



Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) HORIZONTAL
Project No. :
Applicant :
EUT : Intellgent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11a CH40 5240 ANT0
Test Engineer: Henry
Memo : Tx Power:17

	Freq	Read Level	Cable	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5235.60	92.47	6.84	34.49	68.20	99.85	31.65	Peak
2	5350.07	38.52	7.10	34.66	68.20	46.31	-21.89	Peak



Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) VERTICAL
Project No. :
Applicant :
EUT : Intellgent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11a CH40 5240 ANT0
Test Engineer: Henry
Memo : Tx Power:17

	Freq	Read Level	Cable	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5235.24	87.86	6.84	34.49	68.20	95.24	27.04	Peak
2	5350.07	34.74	7.10	34.66	68.20	42.53	-25.67	Peak

U-NII 5150 - 5250 MHz Band:
IEEE 802.11a Antenna1

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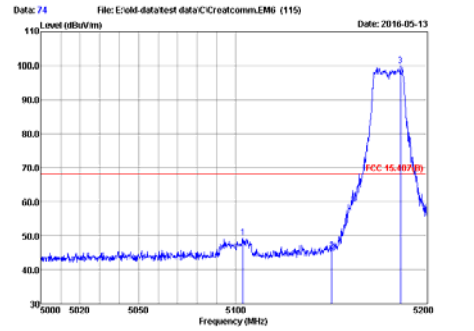

Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) HORIZONTAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11a CH36 5180 ANT1
Test Engineer: Henry
Memo : Tx Power:17

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5103.82	42.82	6.31	34.27	68.20	49.48	-18.72	Peak
2	5150.07	38.54	6.58	34.34	68.20	45.53	-22.67	Peak
3	5186.35	92.92	6.58	34.39	68.20	99.95	31.75	Peak

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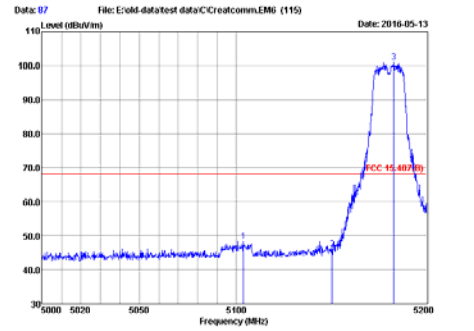

Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) VERTICAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11a CH36 5180 ANT1
Test Engineer: Henry
Memo : Tx Power:17

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5103.82	41.64	6.31	34.27	68.20	48.30	-19.90	Peak
2	5150.07	38.95	6.58	34.34	68.20	45.94	-22.26	Peak
3	5182.69	94.00	6.58	34.39	68.20	101.03	32.83	Peak

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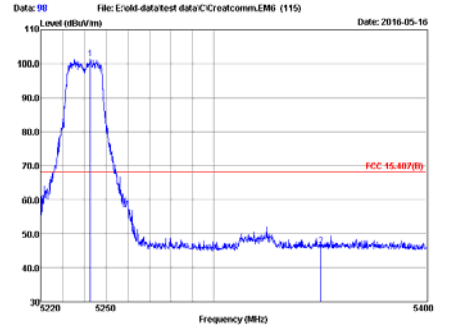

Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) HORIZONTAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11a CH40 5240 ANT1
Test Engineer: Henry
Memo : Tx Power:17

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5242.70	94.11	6.84	34.49	68.20	101.49	33.29	Peak
2	5350.07	38.64	7.10	34.66	68.20	46.43	-21.77	Peak

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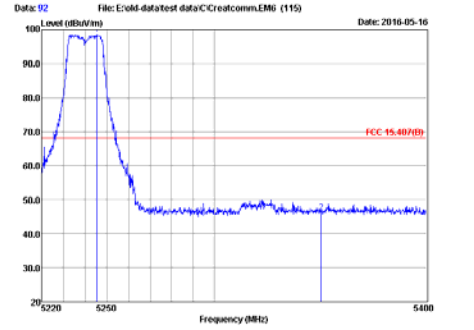

Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) VERTICAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11a CH40 5240 ANT1
Test Engineer: Henry
Memo : Tx Power:17

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5245.37	91.32	6.84	34.49	68.20	98.70	30.50	Peak
2	5350.07	38.42	7.10	34.66	68.20	46.21	-21.99	Peak

U-NII 5150 - 5250 MHz Band:
IEEE 802.11n HT20

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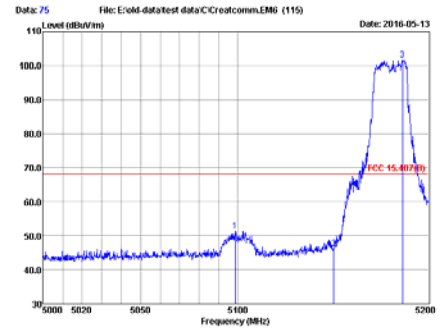

Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) HORIZONTAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11n HT20 CH36 5180 ANT0+1
Test Engineer: Henry
Memo : Tx Power:17

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5098.82	44.71	6.31	34.27	68.20	51.37	-16.83	Peak
2	5150.07	39.31	6.58	34.34	68.20	46.30	-21.90	Peak
3	5186.35	94.58	6.58	34.39	68.20	101.61	33.41	Peak

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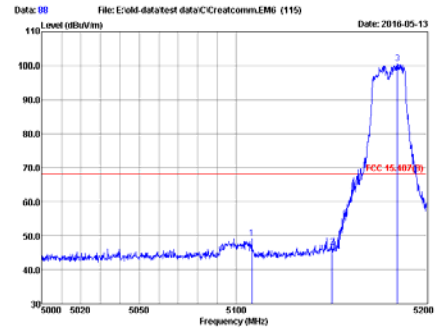

Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) VERTICAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11n HT20 CH36 5180 ANT0+1
Test Engineer: Henry
Memo : Tx Power:17

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5108.23	42.54	6.31	34.27	68.20	49.19	-19.01	Peak
2	5150.07	39.65	6.58	34.34	68.20	46.64	-21.56	Peak
3	5184.52	93.60	6.58	34.39	68.20	100.63	32.43	Peak

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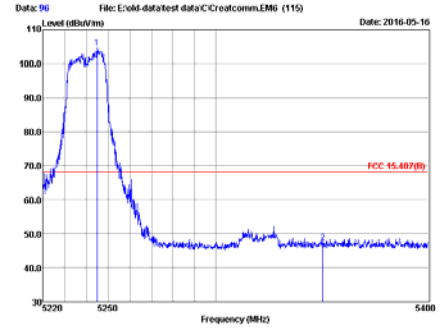

Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) HORIZONTAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11n HT20 CH40 5240 ANT0+1
Test Engineer: Henry
Memo : Tx Power:17

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5244.83	97.20	6.84	34.49	68.20	104.58	36.38	Peak
2	5350.07	39.59	7.10	34.66	68.20	47.38	-20.82	Peak

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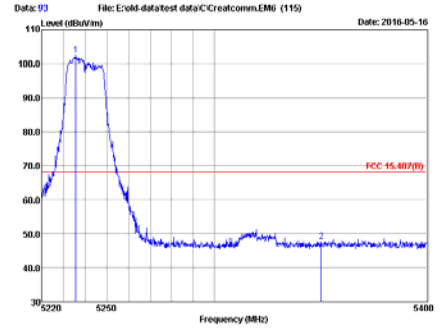
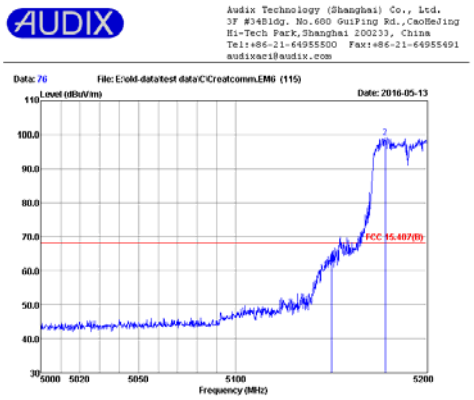


Site : site
Condition : FCC 15.407(B) VERTICAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11n HT20 CH40 5240 ANT0+1
Test Engineer: Henry
Memo : Tx Power:17

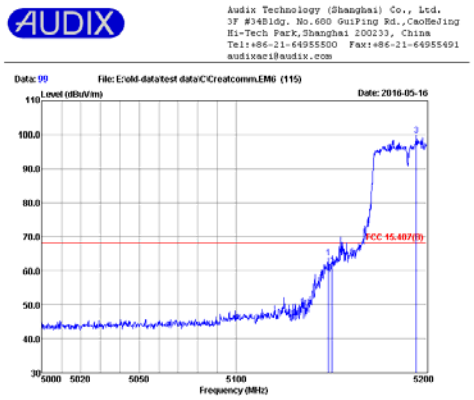
	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5235.60	95.12	6.84	34.49	68.20	102.50	34.30	Peak
2	5350.07	39.98	7.10	34.66	68.20	47.77	-20.43	Peak

U-NII 5150 - 5250 MHz Band:
IEEE 802.11n HT40



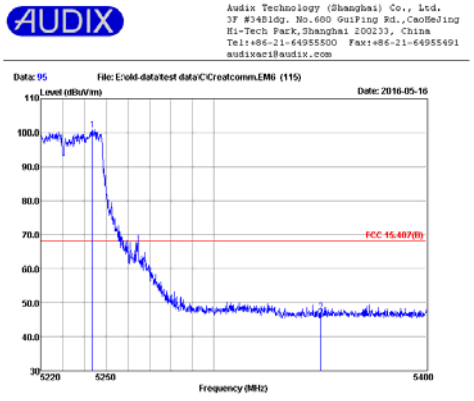
Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) HORIZONTAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11n HT40 CH38 5190 ANT0+1
Test Engineer: Henry
Memo : Tx Power:17

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5150.07	55.07	6.58	34.34	68.20	62.06	-6.14	Peak
2	5178.22	92.11	6.58	34.39	68.20	99.14	30.94	Peak



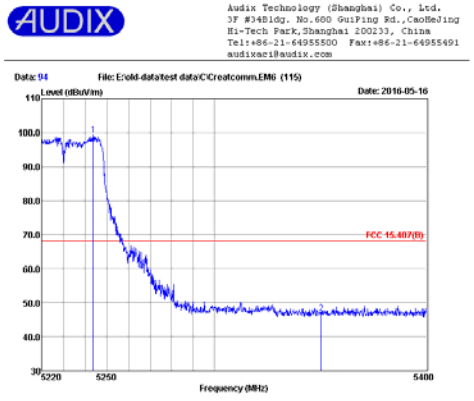
Site : site
Condition : FCC 15.407(B) VERTICAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11n HT40 CH38 5190 ANT0+1
Test Engineer: Henry
Memo : Tx Power:17

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5148.25	56.74	6.58	34.34	68.20	63.73	-4.47	Peak
2	5150.07	54.20	6.58	34.34	68.20	61.19	-7.01	Peak
3	5194.50	92.67	6.58	34.42	68.20	99.73	31.53	Peak



Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) HORIZONTAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11n HT40 CH46 5230 ANT0+1
Test Engineer: Henry
Memo : Tx Power:17

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5243.59	93.47	6.84	34.49	68.20	100.85	32.65	Peak
2	5350.07	39.49	7.10	34.66	68.20	47.28	-20.92	Peak



Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) VERTICAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11n HT40 CH46 5230 ANT0+1
Test Engineer: Henry
Memo : Tx Power:17

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5243.59	91.87	6.84	34.49	68.20	99.25	31.05	Peak
2	5350.07	39.01	7.10	34.66	68.20	46.80	-21.40	Peak

U-NII 5725 - 5850 MHz Band:
IEEE 802.11a Antenna0

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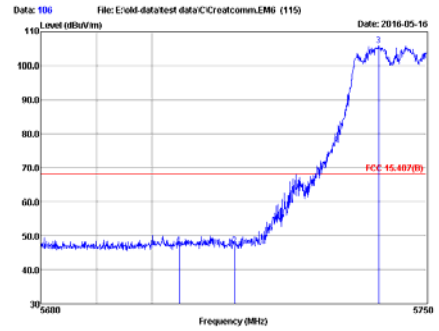
audixaci@audix.com



Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) HORIZONTAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11a CH149 5745 ANT0
Test Engineer: Henry
Memo : Tx Power:13

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5705.03	38.16	8.04	34.98	68.20	47.14	-21.06	Peak
2	5715.03	38.12	8.04	34.99	68.20	47.10	-21.10	Peak
3	5741.27	97.04	8.04	35.00	68.20	106.03	37.83	Peak

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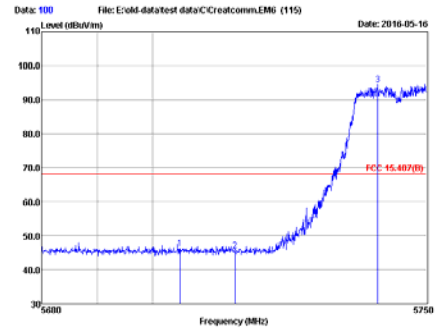
audixaci@audix.com



Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) VERTICAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11a CH149 5745 ANT0
Test Engineer: Henry
Memo : Tx Power:13

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5705.03	37.20	8.04	34.98	68.20	46.18	-22.02	Peak
2	5715.03	36.53	8.04	34.99	68.20	45.51	-22.69	Peak
3	5741.06	85.43	8.04	35.00	68.20	94.42	26.22	Peak

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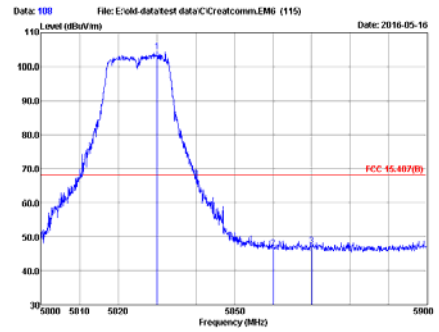

Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) HORIZONTAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11a CH165 5825 ANT0
Test Engineer: Henry
Memo : Tx Power:11

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5829.92	95.29	8.18	35.03	68.20	104.43	36.23	Peak
2	5860.00	37.33	8.31	35.05	68.20	46.62	-21.58	Peak
3	5870.02	38.07	8.31	35.05	68.20	47.36	-20.84	Peak

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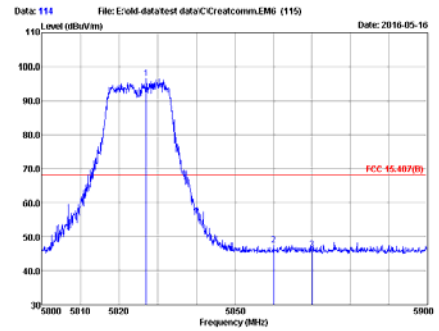

Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) VERTICAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11a CH165 5825 ANT0
Test Engineer: Henry
Memo : Tx Power:11

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5826.93	87.38	8.18	35.03	68.20	96.52	28.32	Peak
2	5860.00	38.12	8.31	35.05	68.20	47.41	-20.79	Peak
3	5870.02	36.84	8.31	35.05	68.20	46.13	-22.07	Peak

U-NII 5725 - 5850 MHz Band:
IEEE 802.11a Antenna1

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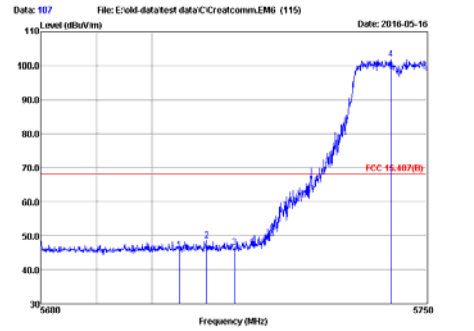

Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) HORIZONTAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11a CH149 5745 ANT1
Test Engineer: Henry
Memo : Tx Power:13

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5705.03	36.84	8.04	34.98	68.20	45.82	-22.38	Peak
2	5710.00	39.53	8.04	34.99	68.20	48.51	-19.69	Peak
3	5715.03	37.59	8.04	34.99	68.20	46.57	-21.63	Peak
4	5743.52	92.92	8.04	35.00	68.20	101.91	33.71	Peak

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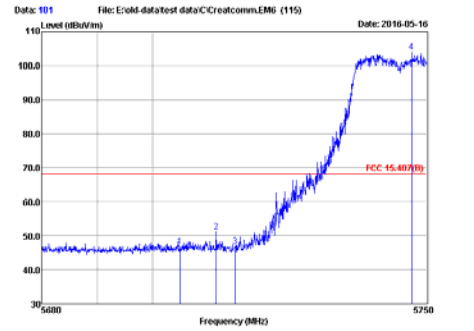

Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) VERTICAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11a CH149 5745 ANT1
Test Engineer: Henry
Memo : Tx Power:13

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5705.03	37.93	8.04	34.98	68.20	46.91	-21.29	Peak
2	5711.53	42.10	8.04	34.99	68.20	51.08	-17.12	Peak
3	5715.03	37.93	8.04	34.99	68.20	46.91	-21.29	Peak
4	5747.25	94.99	8.04	35.00	68.20	103.98	35.78	Peak

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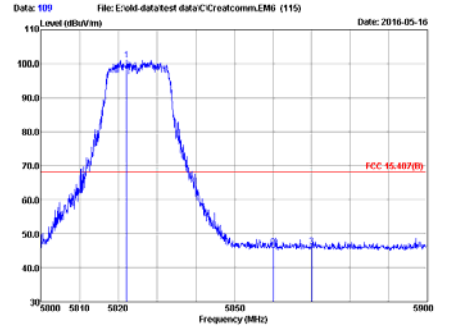

Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) HORIZONTAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11a CH165 5825 ANT1
Test Engineer: Henry
Memo : Tx Power:11

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5822.05	91.95	8.18	35.03	68.20	101.09	32.89	Peak
2	5860.00	36.70	8.31	35.05	68.20	45.99	-22.21	Peak
3	5870.02	36.94	8.31	35.05	68.20	46.23	-21.97	Peak

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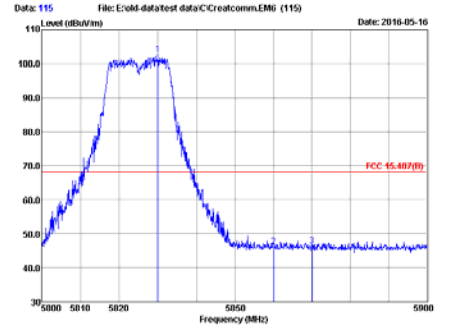

Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) VERTICAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11a CH165 5825 ANT1
Test Engineer: Henry
Memo : Tx Power:11

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5829.92	93.58	8.18	35.03	68.20	102.72	34.52	Peak
2	5860.00	36.94	8.31	35.05	68.20	46.23	-21.97	Peak
3	5870.02	37.16	8.31	35.05	68.20	46.45	-21.75	Peak

U-NII 5725 - 5850 MHz Band:
IEEE 802.11n HT20

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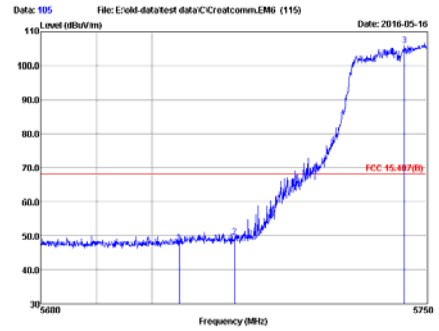
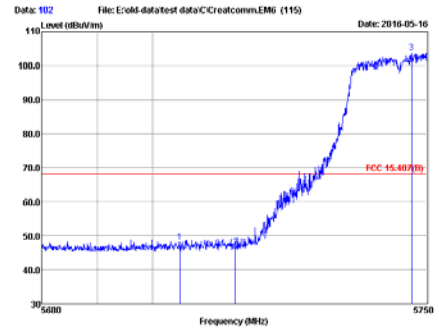
audixaci@audix.com



Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) HORIZONTAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11n HT20 CH149 5745 ANT0+1
Test Engineer: Henry
Memo : Tx Power:13

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5705.03	38.95	8.04	34.98	68.20	47.93	-20.27	Peak
2	5715.03	40.61	8.04	34.99	68.20	49.59	-18.61	Peak
3	5745.99	97.05	8.04	35.00	68.20	106.04	37.84	Peak



Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) VERTICAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11n HT20 CH149 5745 ANT0+1
Test Engineer: Henry
Memo : Tx Power:13

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5705.03	39.16	8.04	34.98	68.20	48.14	-20.06	Peak
2	5715.03	37.69	8.04	34.99	68.20	46.67	-21.53	Peak
3	5747.25	94.81	8.04	35.00	68.20	103.80	35.60	Peak

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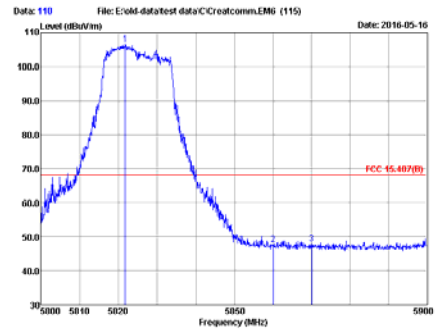
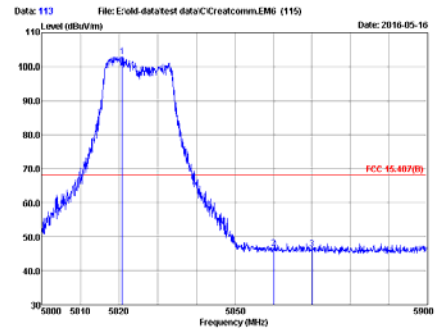
audixaci@audix.com



Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) HORIZONTAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11n HT20 CH165 5825 ANT0+1
Test Engineer: Henry
Memo : Tx Power:11

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5821.65	97.49	8.18	35.03	68.20	106.63	38.43	Peak
2	5860.00	38.48	8.31	35.05	68.20	47.77	-20.43	Peak
3	5870.02	38.60	8.31	35.05	68.20	47.89	-20.31	Peak



Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) VERTICAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11n HT20 CH165 5825 ANT0+1
Test Engineer: Henry
Memo : Tx Power:11

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5820.76	93.73	8.18	35.03	68.20	102.88	34.68	Peak
2	5860.00	37.43	8.31	35.05	68.20	46.72	-21.48	Peak
3	5870.02	37.14	8.31	35.05	68.20	46.43	-21.77	Peak

U-NII 5725 - 5850 MHz Band:
IEEE 802.11n HT40

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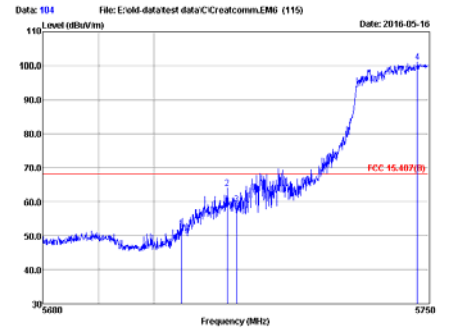

Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) HORIZONTAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11n HT40 CH151 5755 ANT0+1
Test Engineer: Henry
Memo : Tx Power:11

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5705.03	42.91	8.04	34.98	68.20	51.89	-16.31	Peak
2	5713.35	54.99	8.04	34.99	68.20	63.97	-4.23	Peak
3	5718.03	50.30	8.04	34.99	68.20	59.28	-8.92	Peak
4	5747.96	91.95	8.04	35.00	68.20	100.94	32.74	Peak

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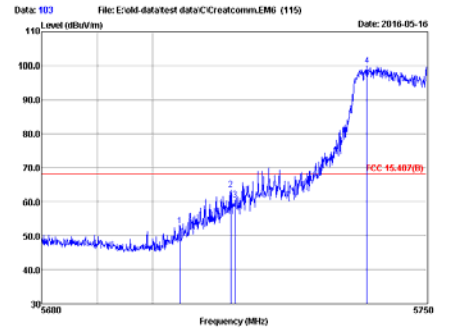

Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) VERTICAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11n HT40 CH151 5755 ANT0+1
Test Engineer: Henry
Memo : Tx Power:11

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5705.03	43.79	8.04	34.98	68.20	52.77	-15.43	Peak
2	5714.26	54.45	8.04	34.99	68.20	63.43	-4.77	Peak
3	5718.03	51.61	8.04	34.99	68.20	60.59	-7.61	Peak
4	5739.09	90.98	8.04	35.00	68.20	99.97	31.77	Peak

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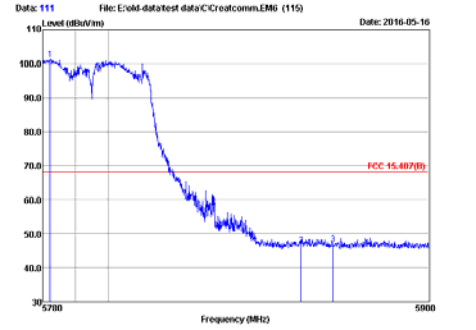
audixaci@audix.com



Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) HORIZONTAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11n HT40 CH159 5795 ANT0+1
Test Engineer: Henry
Memo : Tx Power:9

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5782.14	92.16	8.18	35.01	68.20	101.29	33.09	Peak
2	5860.01	37.20	8.31	35.05	68.20	46.49	-21.71	Peak
3	5870.01	37.51	8.31	35.05	68.20	46.80	-21.40	Peak

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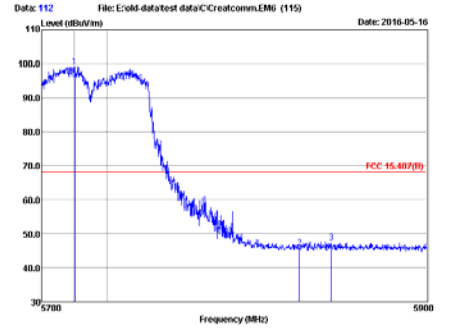


Site : Audix(Shanghai) Chamber3
Condition : FCC 15.407(B) VERTICAL
Project No. :
Applicant :
EUT : Intelligent wireless transmission
: equipment
M/N : TBSE
Power Supply : 120V/60Hz
Ambient : 22°C 60%RH
Test mode : IEEE 802.11n HT40 CH159 5795 ANT0+1
Test Engineer: Henry
Memo : Tx Power:9

	Freq	Read Level	Cable Loss	Antenna Factor	Limit Line	Level	Over Limit	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	5790.10	90.08	8.18	35.02	68.20	99.22	31.02	Peak
2	5860.01	36.55	8.31	35.05	68.20	45.84	-22.36	Peak
3	5870.01	37.90	8.31	35.05	68.20	47.19	-21.01	Peak

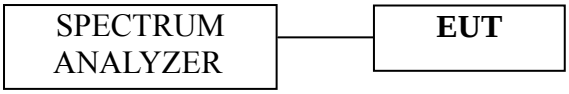
6 6dB & 26dB BANDWIDTH MEASUREMENT

6.1 Test Equipment

The following test equipment was used during the Emission Bandwidth measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9010A	MY52221182	Jun 12, 2015	Jun 11, 2016

6.2 Block Diagram of Test Setup



6.3 Specification Limits (§15.407(e))

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

6.4 Operating Condition of EUT

The test program "art" was used to enable the EUT to transmit data at different channel frequency individually.

6.5 Test Procedure

6dB Bandwidth:
The transmitter output was connected to a spectrum analyzer. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 kHz RBW and 300 kHz VBW.

26dB Bandwidth (Emission Bandwidth):
The transmitter output was connected to a spectrum analyzer. The bandwidth of the fundamental frequency was measured by spectrum analyzer with approximately 1% of the emission bandwidth RBW and 300 kHz VBW. The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

6.6 Test Results

PASSED.

All the test results are attached in next pages.

(Test Date: May. 24, 2016 Temperature: 24℃ Humidity: 45 %)

6dB Bandwidth:

Mode	Frequency (MHz)	6 dB Bandwidth (MHz)		Result
		Ant0	Ant1	
IEEE 802.11a	5745	16.36	16.35	PASS
	5785	16.34	16.06	PASS
	5825	16.35	16.34	PASS
IEEE 802.11nHT20	5745	17.58	17.63	PASS
	5785	17.21	17.59	PASS
	5825	17.68	17.30	PASS
IEEE 802.11nHT40	5755	35.92	35.69	PASS
	5795	36.09	35.97	PASS

26 dB Emission Bandwidth:

Mode	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Ant0	Ant1
IEEE 802.11a	5180	21.72	21.89
	5200	22.48	21.87
	5240	21.78	21.66
	5745	21.75	21.25
	5785	21.47	20.89
	5825	21.42	20.59
IEEE 802.11nHT20	5180	22.31	22.39
	5200	21.95	22.80
	5240	21.81	22.60
	5745	21.48	22.45
	5785	22.09	22.36
	5825	22.19	22.06
IEEE 802.11nHT40	5190	46.40	46.79
	5230	46.86	45.69
	5755	45.06	45.85
	5795	45.21	45.59

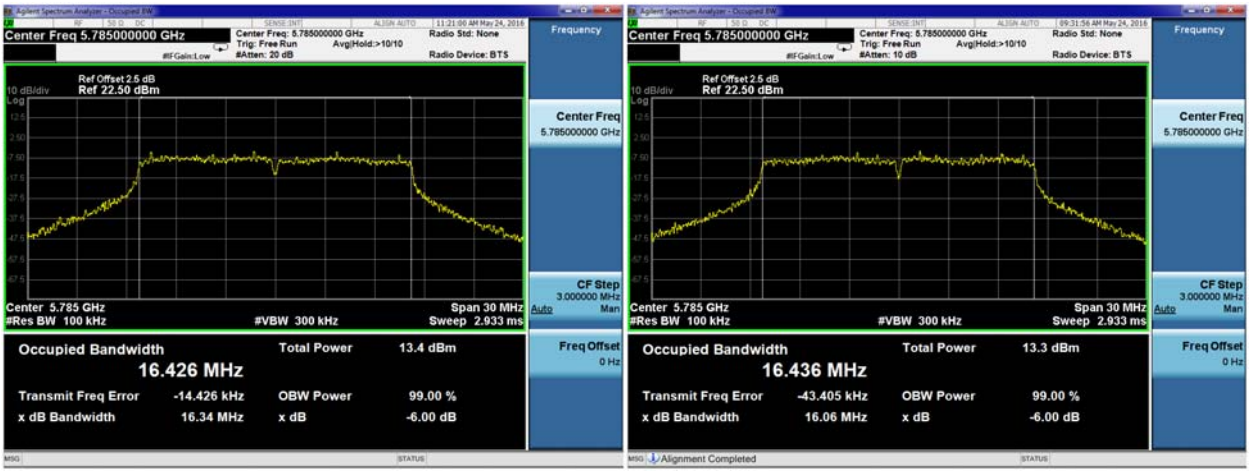
UNII-1 Upper Band Edge Freq. of Occupied BW (99%BW)

Mode	Frequency (MHz)	Upper Band Edge Freq.(MHz)		Requirement
		Ant0	Ant1	< 5250MHz
IEEE 802.11a	5240	5248.3025	5248.2912	Pass
IEEE 802.11nHT20	5240	5248.8388	5248.8988	Pass
IEEE 802.11nHT40	5230	5248.2650	5248.3325	Pass

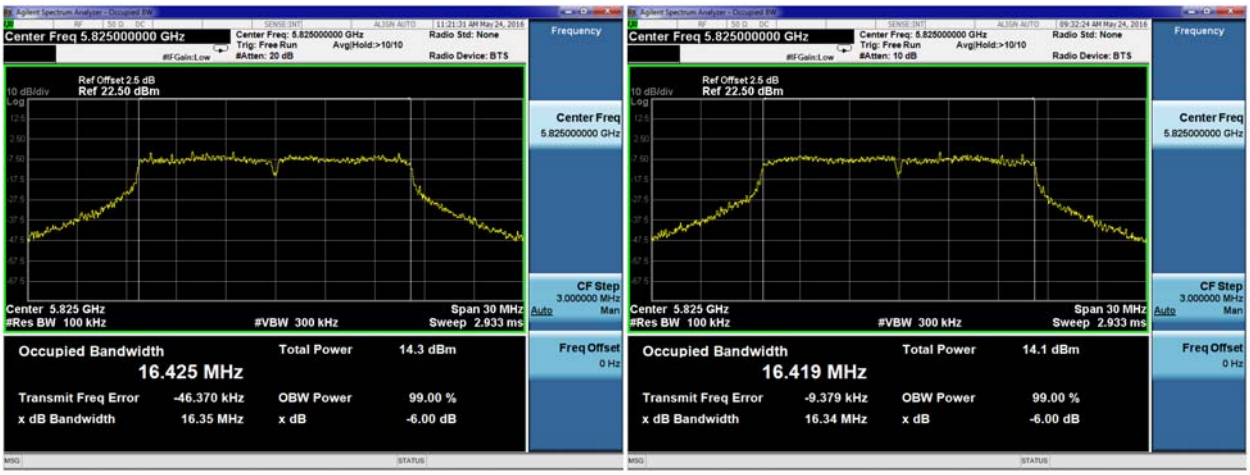
6 dB Bandwidth

IEEE 802.11a 5745 MHz Antenna 0 and Antenna 1

IEEE 802.11a 5785 MHz Antenna 0 and Antenna 1



IEEE 802.11a 5825 MHz Antenna 0 and Antenna 1



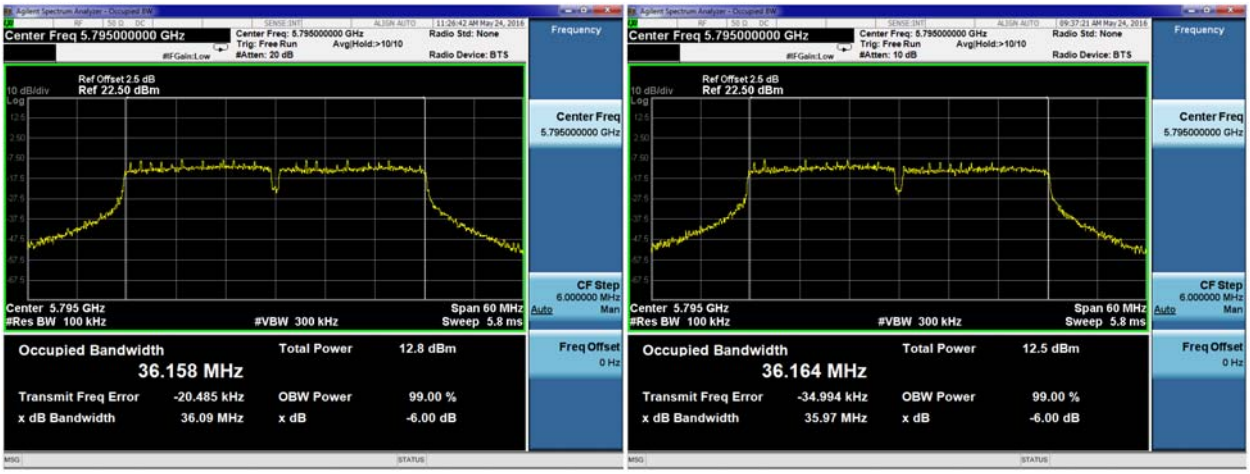
IEEE 802.11n HT20 5745 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT20 5785 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT20 5825 MHz Antenna 0 and Antenna 1

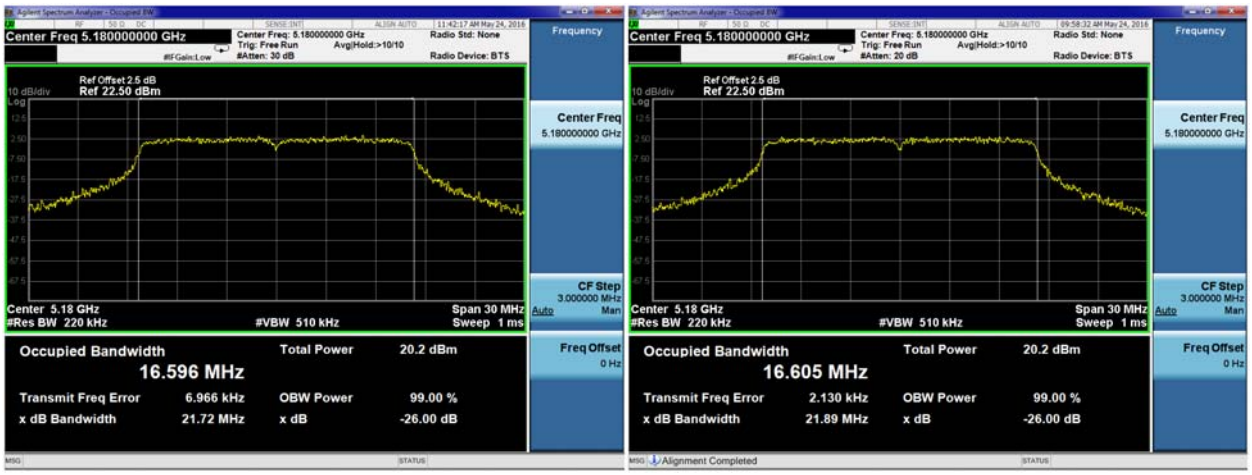
IEEE 802.11n HT40 5755 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT40 5795 MHz Antenna 0 and Antenna 1



26 dB Bandwidth

IEEE 802.11a 5180 MHz Antenna 0 and Antenna 1



IEEE 802.11a 5200 MHz Antenna 0 and Antenna 1

IEEE 802.11a 5240 MHz Antenna 0 and Antenna 1

IEEE 802.11a 5745 MHz Antenna 0 and Antenna 1

IEEE 802.11a 5785 MHz Antenna 0 and Antenna 1

IEEE 802.11a 5825 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT20 5180 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT20 5200 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT20 5240 MHz Antenna 0 and Antenna 1

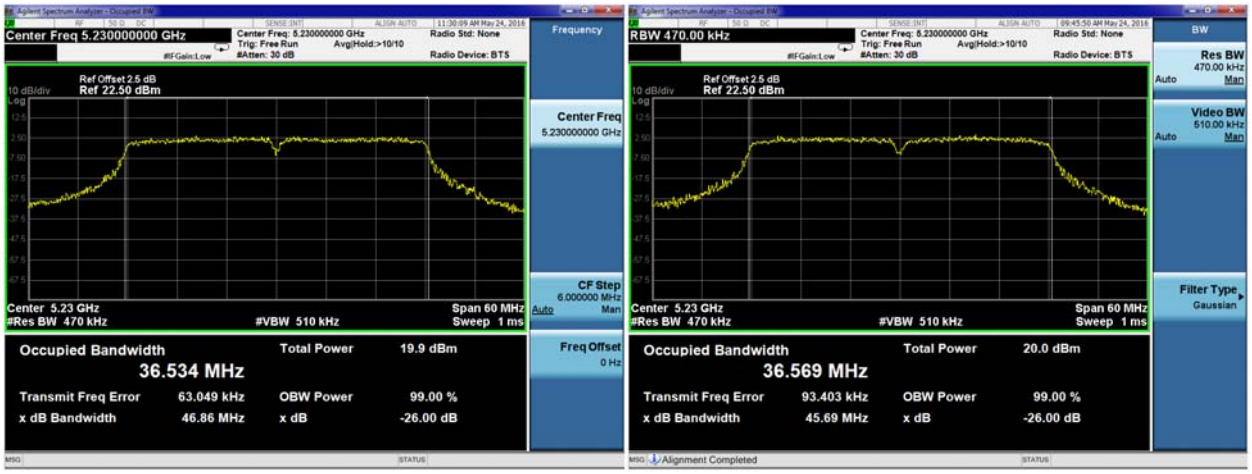
IEEE 802.11n HT20 5745 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT20 5785 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT20 5825 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT40 5190 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT40 5230 MHz Antenna 0 and Antenna 1



IEEE 802.11n HT40 5755 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT40 5795 MHz Antenna 0 and Antenna 1

UNII-1 Upper Band Edge of Occupied Bandwidth (99%BW)

IEEE 802.11a 5240 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT20 5240 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT40 5230 MHz Antenna 0 and Antenna 1

7 MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

7.1 Test Equipment

The following test equipment was used during the maximum peak output power measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9010A	MY52221182	Jun 12, 2015	Jun 11, 2016

7.2 Block Diagram of Test Setup

The same as section.6.2.

7.3 Specification Limits (§15.407(a))

For an outdoor access point operating in the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500 kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

7.4 Operating Condition of EUT

The test program “art” was used to enable the EUT to transmit data at different channel frequency individually.

7.5 Test Procedure

This is an RF conducted test.

Use a direct connection between the antenna port of the transmitter and the spectrum analyzer, through suitable attenuation. We use Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep) which defined in ANSI C63.10:2013 to measure the power output:
Set RBW = 1MHz, VBW ≥ 3MHz, Detector = RMS, Trace average at least 100 traces, then use the band power measurement function with band limit set equal to the 26dB EBW.

7.6 Test Results

PASSED. All the test results are listed below.

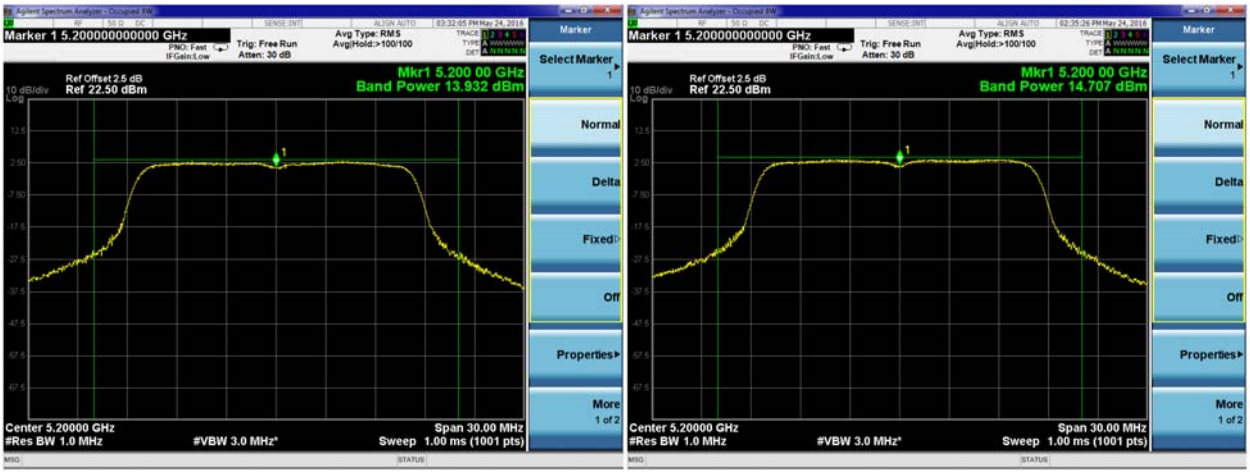
(Test Date: May. 24, 2016 Temperature: 24℃ Humidity: 45 %)

Note: 1W = 30 dBm
The antenna gain is 15 dBi, which is 9 dB exceeds 6 dBi.
Therefore, the limit shall be reduced by 9 dB.

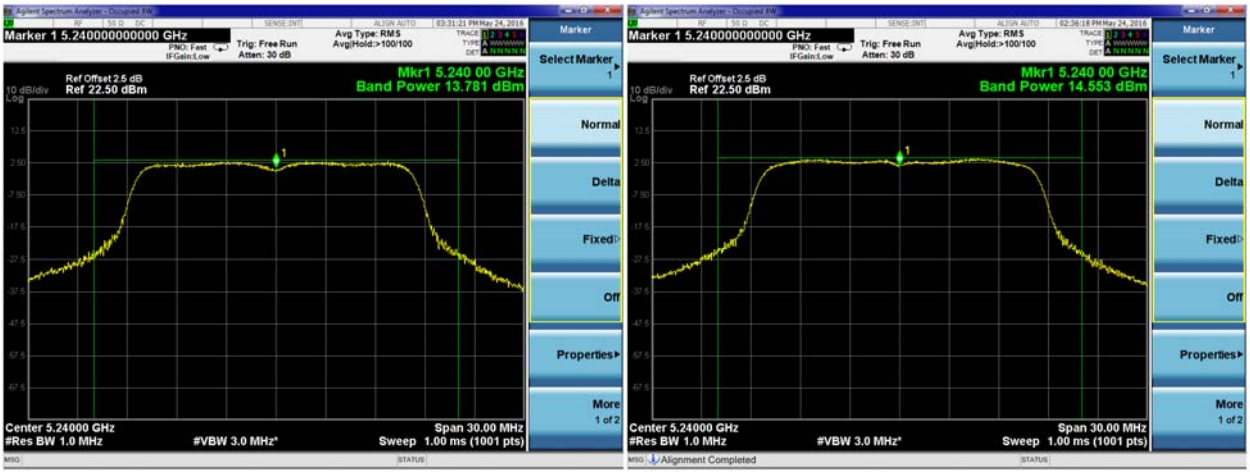
Mode	Frequency (MHz)	Max Conducted Output Power (dBm)			Limit (dBm)	Result
		Ant0	Ant1	Total		
IEEE 802.11a	5180	14.126	14.708	N/A	21	PASS
	5200	13.932	14.707	N/A	21	PASS
	5240	13.781	14.553	N/A	21	PASS
	5745	9.080	9.159	N/A	21	PASS
	5785	7.624	7.673	N/A	21	PASS
	5825	8.744	8.846	N/A	21	PASS
IEEE 802.11nHT20	5180	13.848	13.918	16.893	21	PASS
	5200	13.867	13.757	16.823	21	PASS
	5240	13.736	13.471	16.616	21	PASS
	5745	8.972	8.940	11.966	21	PASS
	5785	7.580	7.578	10.589	21	PASS
	5825	8.693	8.573	11.643	21	PASS
IEEE 802.11nHT40	5190	14.227	14.093	17.171	21	PASS
	5230	13.571	13.259	16.428	21	PASS
	5755	6.857	7.291	10.090	21	PASS
	5795	6.403	6.629	9.528	21	PASS

IEEE 802.11a 5180 MHz Antenna 0 and Antenna 1

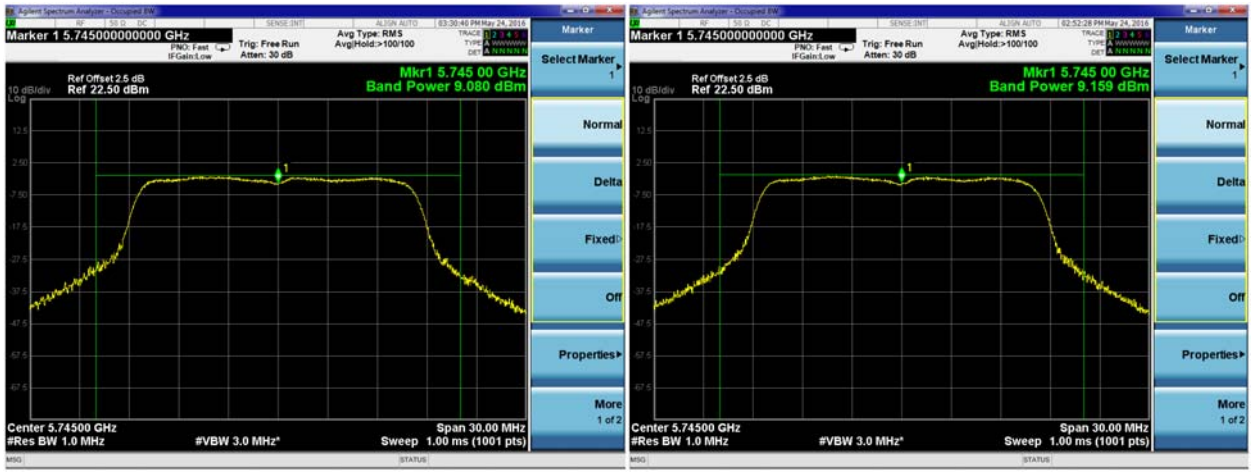
IEEE 802.11a 5200 MHz Antenna 0 and Antenna 1



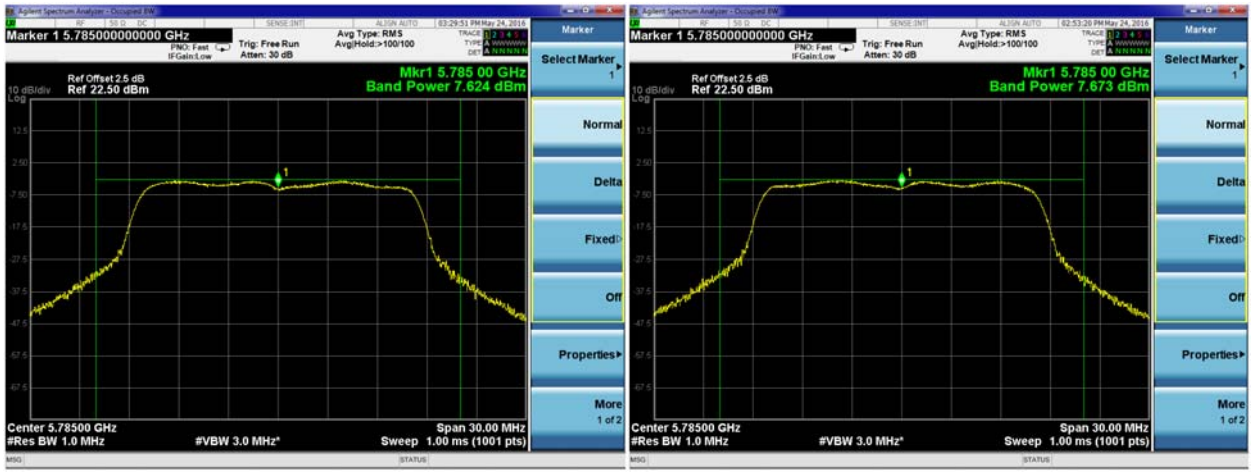
IEEE 802.11a 5240 MHz Antenna 0 and Antenna 1



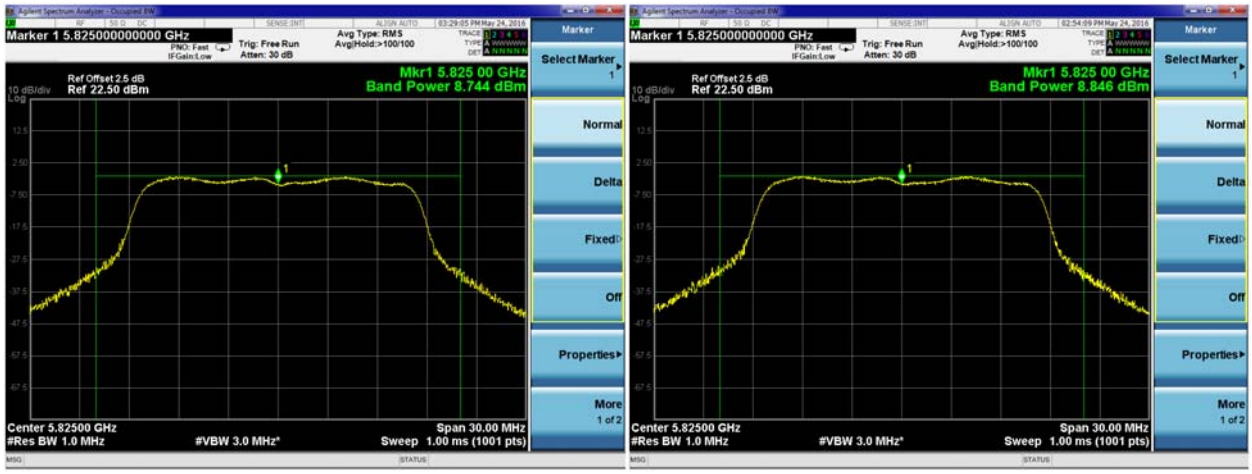
IEEE 802.11a 5745 MHz Antenna 0 and Antenna 1



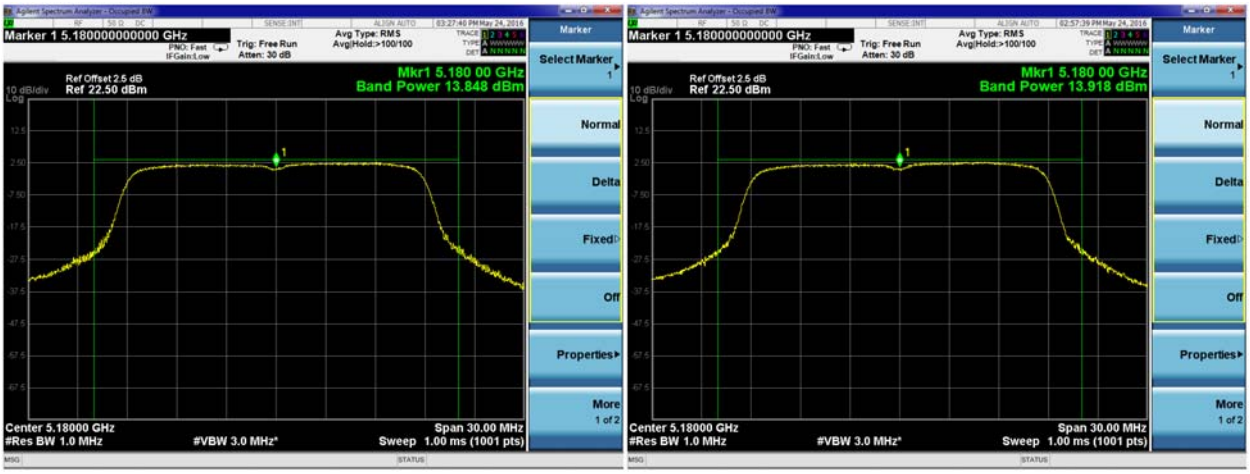
IEEE 802.11a 5785 MHz Antenna 0 and Antenna 1



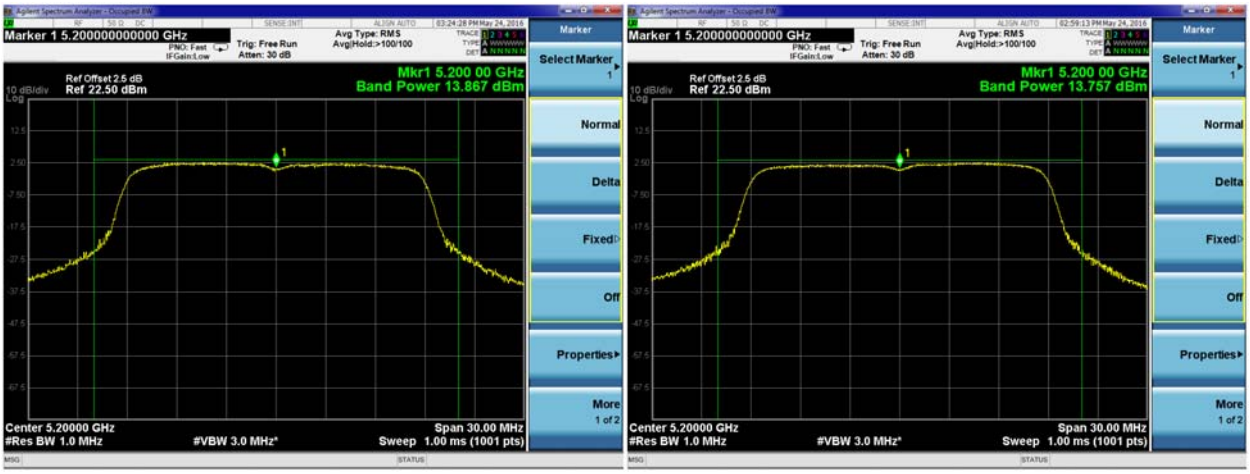
IEEE 802.11a 5825 MHz Antenna 0 and Antenna 1



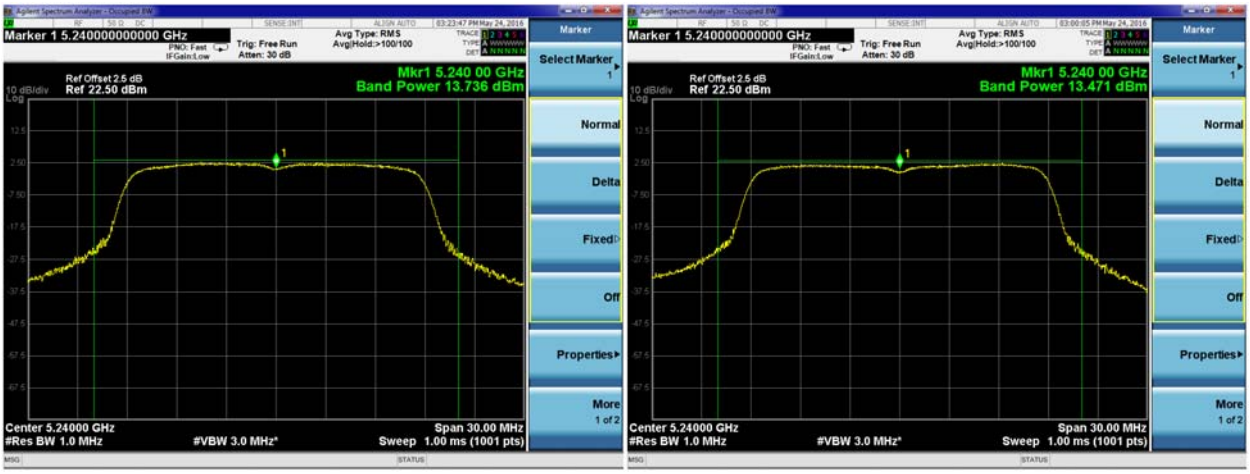
IEEE 802.11n HT20 5180 MHz Antenna 0 and Antenna 1



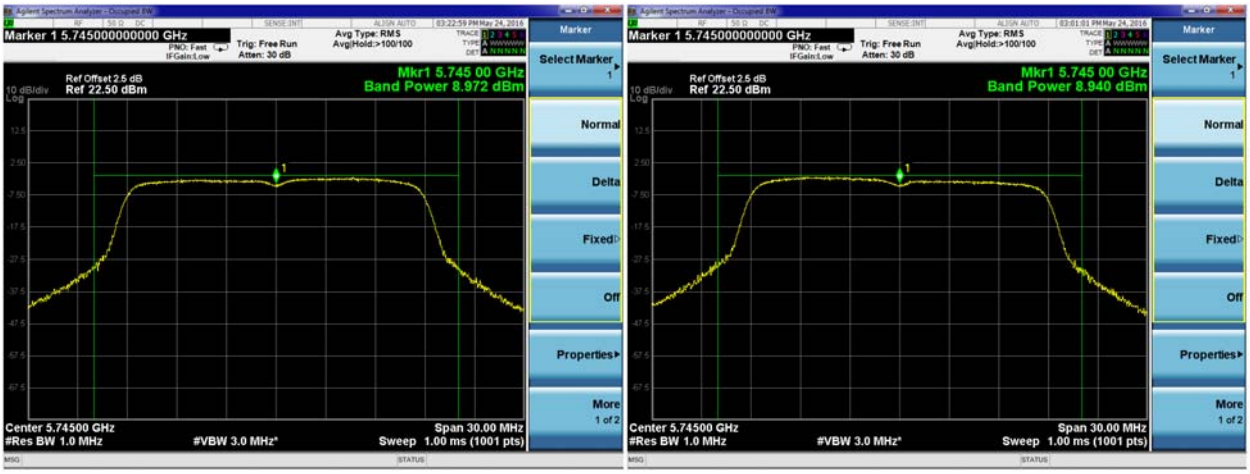
IEEE 802.11n HT20 5200 MHz Antenna 0 and Antenna 1



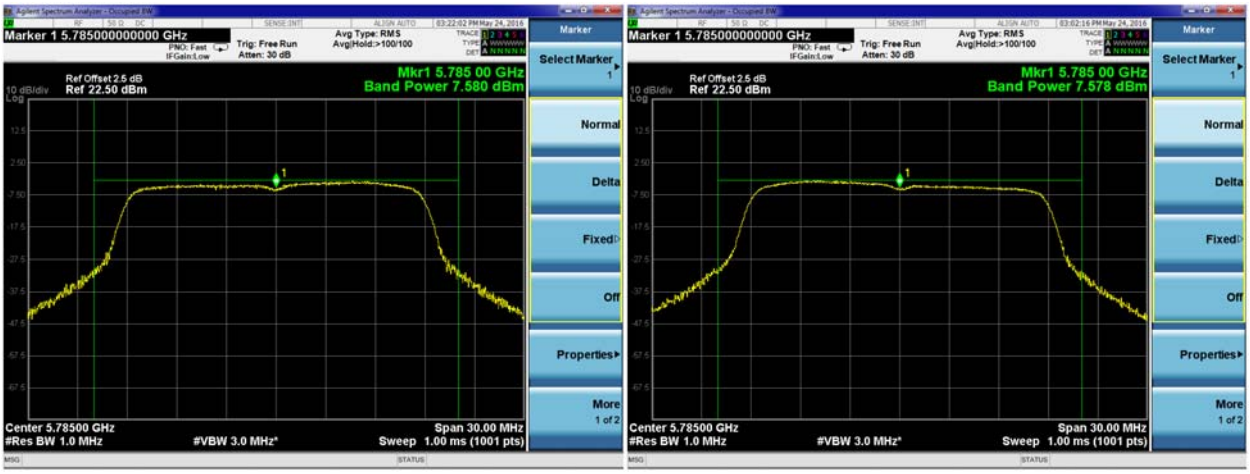
IEEE 802.11n HT20 5240 MHz Antenna 0 and Antenna 1



IEEE 802.11n HT20 5745 MHz Antenna 0 and Antenna 1

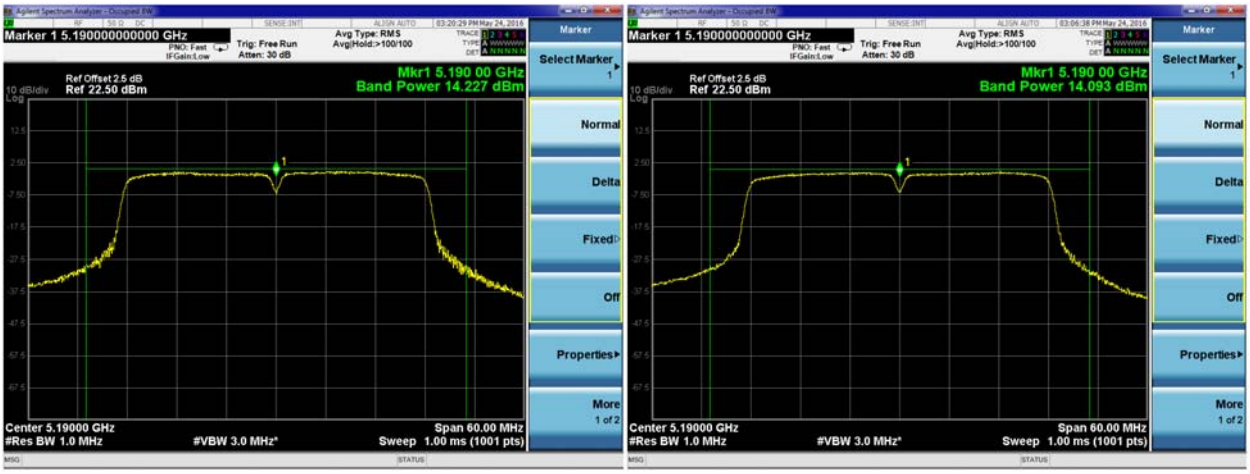


IEEE 802.11n HT20 5785 MHz Antenna 0 and Antenna 1



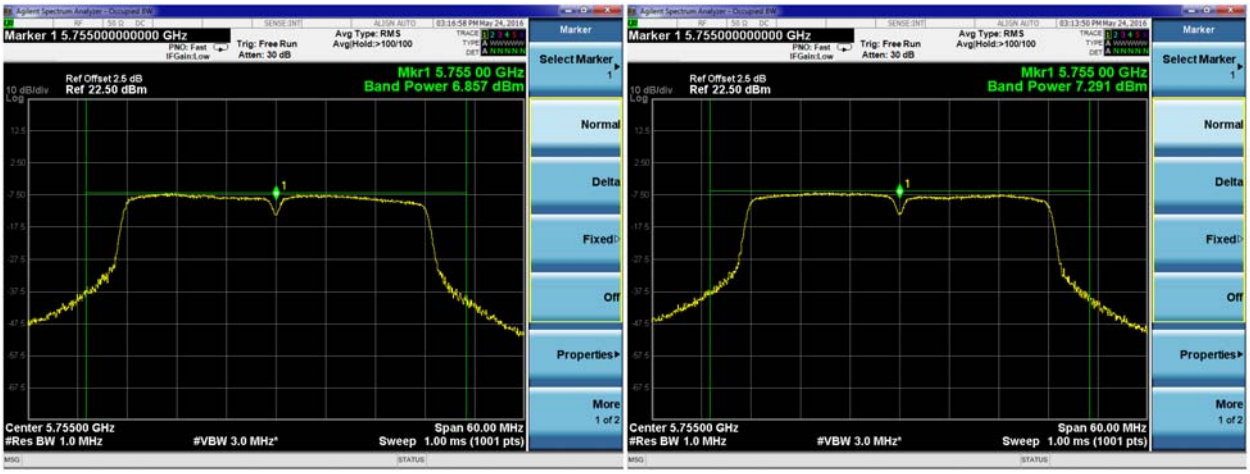
IEEE 802.11n HT20 5825 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT40 5190 MHz Antenna 0 and Antenna 1

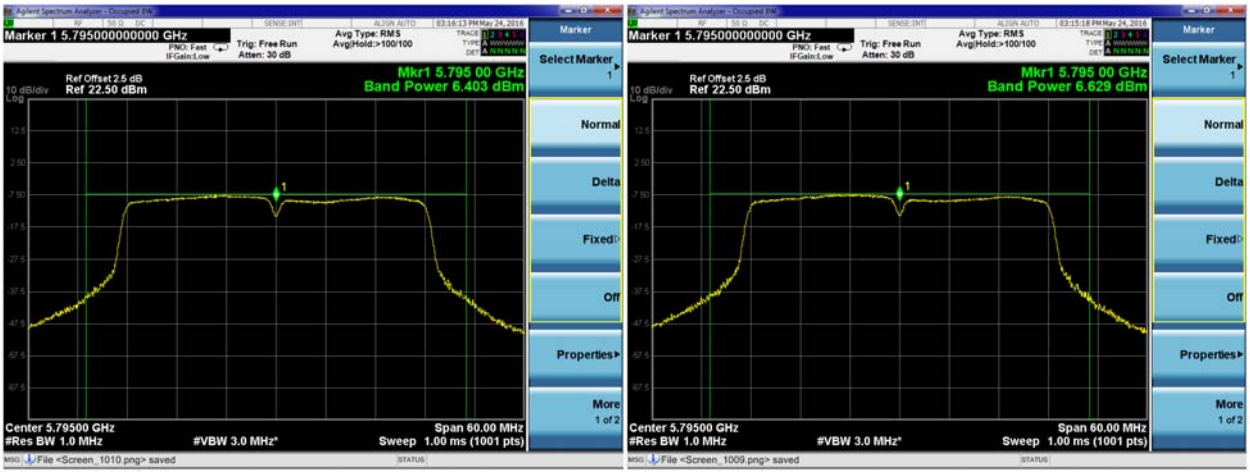


IEEE 802.11n HT40 5230 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT40 5755 MHz Antenna 0 and Antenna 1



IEEE 802.11n HT40 5795 MHz Antenna 0 and Antenna 1



8 POWER SPECTRAL DENSITY MEASUREMENT

8.1 Test Equipment

The following test equipment was used during the power spectral density measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9010A	MY52221182	Jun 12, 2015	Jun 11, 2016

8.2 Block Diagram of Test Setup

The same as section.6.2.

8.3 Specification Limits (§15.407(a))

For an outdoor access point operating in the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500 kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

8.4 Operating Condition of EUT

The test program “art” was used to enable the EUT to transmit data at different channel frequency individually.

8.5 Test Procedure

For the Band 5.15-5.25GHz:
The transmitter output was connected to a spectrum analyzer. Power density was measured by spectrum analyzer with 1MHz RBW and 3MHz VBW; Detector: RMS mode.

For the Band 5.725-5.85GHz:
The transmitter output was connected to the spectrum analyzer. The spectrum analyzer was set as RBW = 100 kHz, VBW ≥ 3 MHz, detector = RMS. Use the peak search function on the spectrum analyzer to find the peak of the spectrum. then add 10log (500kHz/RBW) to the measured result. The result is the PSD.
The test procedure is defined in ANSI C64.10:2013.

8.6 Test Results

PASSED. All the test results are listed below.

(Test Date: May. 23, 2016 Temperature: 24℃ Humidity: 46 %)

Note: The antenna gain is 15 dBi, which is 9 dB exceeds 6 dBi.
Therefore, the limit shall be reduced by 9 dB.

U-NII 5725 - 5850 MHz Band:

Mode	Frequency (MHz)	Power Spectral Density (dBm/MHz)			Limit (dBm/MHz)	Result
		Ant0	Ant1	Total		
IEEE 802.11a	5180	4.518	3.849	N/A	8	PASS
	5200	4.339	3.991	N/A	8	PASS
	5240	4.573	4.400	N/A	8	PASS
IEEE 802.11nHT20	5180	4.144	4.152	7.158	8	PASS
	5200	4.205	3.903	7.067	8	PASS
	5240	4.396	4.176	7.298	8	PASS
IEEE 802.11nHT40	5190	1.336	1.320	4.338	8	PASS
	5230	0.666	0.982	3.837	8	PASS

U-NII 5725 - 5850 MHz Band:

Mode	Frequency (MHz)	Power Spectral Density (dBm/MHz)			Limit (dBm/MHz)	Result
		Ant0	Ant1	Total		
IEEE 802.11a	5745	-10.512	-11.085	N/A	8	PASS
	5785	-12.560	-12.843	N/A	8	PASS
	5825	-12.423	-12.097	N/A	8	PASS
IEEE 802.11nHT20	5745	-11.570	-11.005	-8.268	8	PASS
	5785	-13.154	-13.579	-10.351	8	PASS
	5825	-12.708	-12.669	-9.678	8	PASS
IEEE 802.11nHT40	5755	-16.577	-16.777	-13.666	8	PASS
	5795	-17.481	-17.597	-14.528	8	PASS

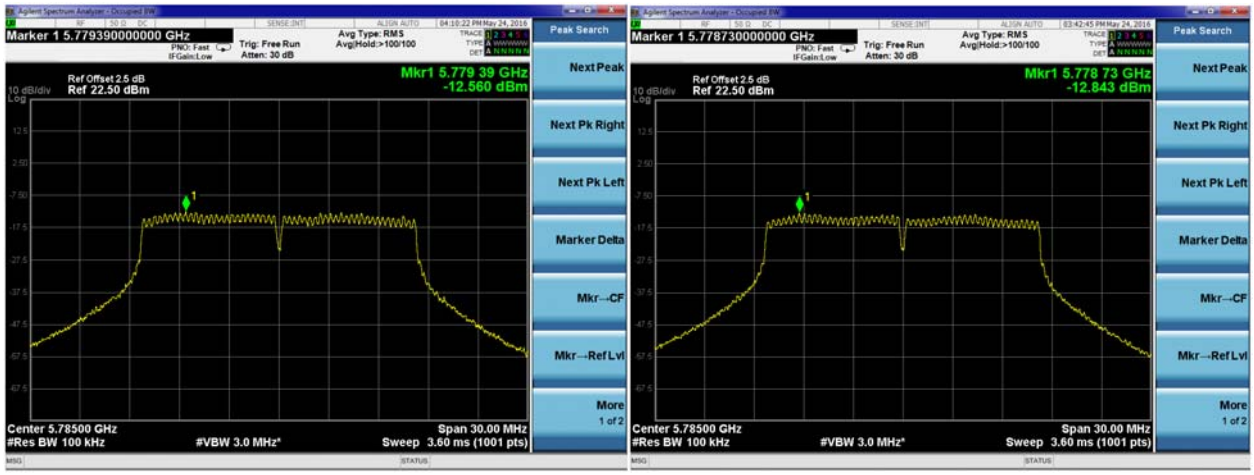
IEEE 802.11a 5180 MHz Antenna 0 and Antenna 1

IEEE 802.11a 5200 MHz Antenna 0 and Antenna 1

IEEE 802.11a 5240 MHz Antenna 0 and Antenna 1

IEEE 802.11a 5745 MHz Antenna 0 and Antenna 1

IEEE 802.11a 5785 MHz Antenna 0 and Antenna 1



IEEE 802.11a 5825 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT20 5180 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT20 5200 MHz Antenna 0 and Antenna 1

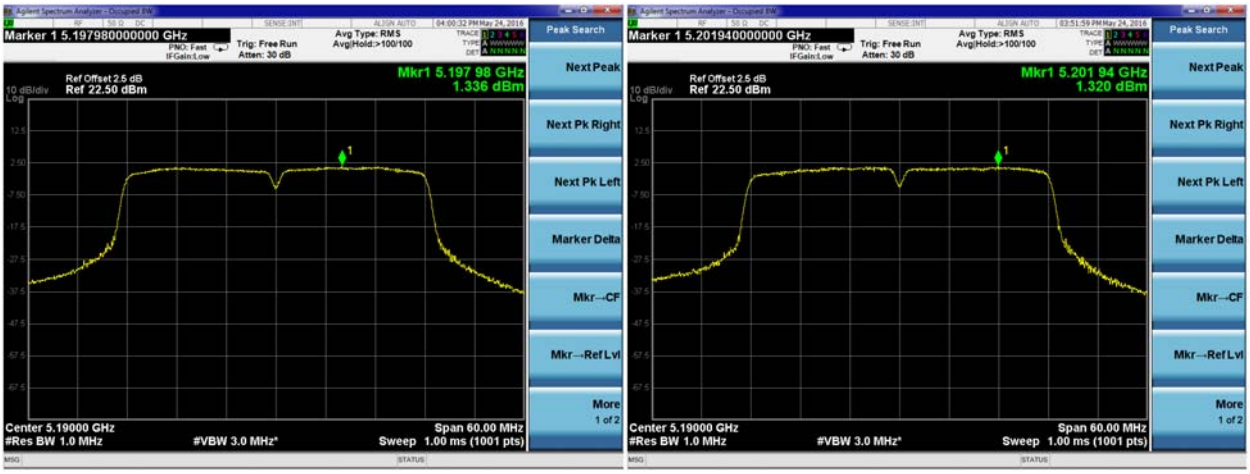
IEEE 802.11n HT20 5240 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT20 5745 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT20 5785 MHz Antenna 0 and Antenna 1

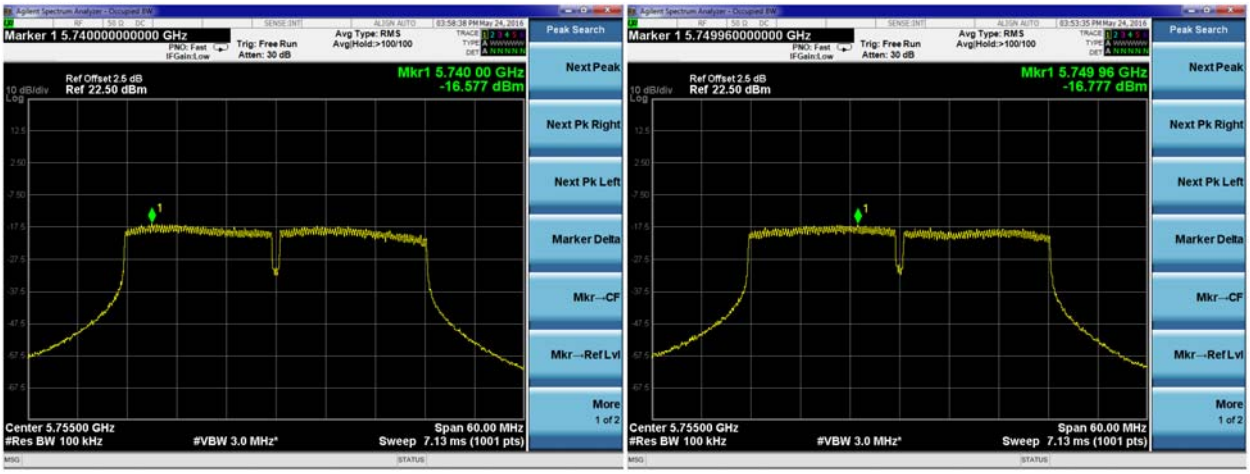
IEEE 802.11n HT20 5825 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT40 5190 MHz Antenna 0 and Antenna 1

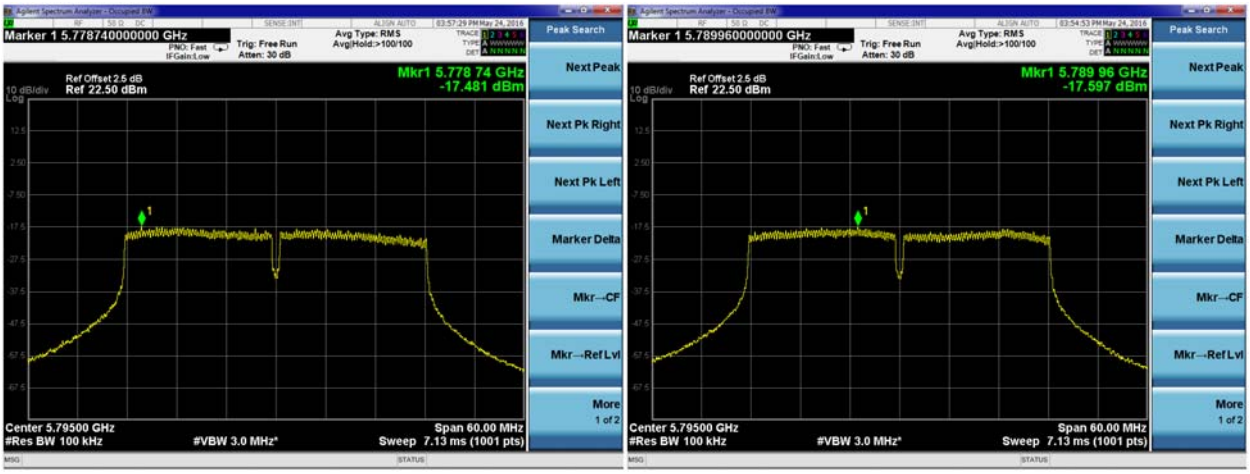


IEEE 802.11n HT40 5230 MHz Antenna 0 and Antenna 1

IEEE 802.11n HT40 5755 MHz Antenna 0 and Antenna 1



IEEE 802.11n HT40 5795 MHz Antenna 0 and Antenna 1



9 FREQUENCY STABILITY MEASUREMENT

9.1 Test Equipment

The following test equipment was used during the Frequency Stability measurement:

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Spectrum Analyzer	Agilent	N9010A	MY52221182	Jun 12, 2015	Jun 11, 2016
2.	Temperature and Humidity Test Chamber	TECRCHY	MHU-150L	850811	Mar 20, 2016	Mar 20, 2017

9.2 Block Diagram of Test Setup

The same as section.6.2.

9.3 Specification Limits (§15.407(g))

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emissions is maintained within the band of operation under all conditions of normal operation as specified in the user's manual or ±20ppm

9.4 Operating Condition of EUT

The test program "art" was used to enable the EUT to transmit data at different channel frequency individually.

9.5 Test Procedure

The transmitter output (antenna port) was connected to the spectrum analyzer.
Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings. fc is declaring of channel frequency. Then the frequency error formula is $(fc-f)/fc \times 10^6$ ppm and the limit is less than ±20ppm.
The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.
The test extreme temperature is -30°C~70°C according to the user manual.

9.6 Test Results

PASSED.

All the test results are attached in next pages.

(Test Date: May. 23, 2016 Temperature: 24℃ Humidity: 45 %)

Frequency Stability during Voltage (Temp. 20℃)

Test Voltage (V)	Test Frequency (MHz)	Test Result (MHz)	Max deviation (MHz)	Max deviation (ppm)	Limit	Conclusion
102	5180	5179.995	0.005	0.965	±20ppm	PASS
120		5179.995				PASS
138		5179.995				PASS
102	5200	5199.996	0.004	0.769		PASS
120		5199.996				PASS
138		5199.996				PASS
102	5240	5239.995	0.005	0.956		PASS
120		5239.995				PASS
138		5239.995				PASS
102	5745	5744.997	0.003	0.522		PASS
120		5744.997				PASS
138		5744.997				PASS
102	5785	5784.995	0. 005	0.864		PASS
120		5784.995				PASS
138		5784.995				PASS
102	5825	5824.996	0.004	0.687		PASS
120		5824.996				PASS
138		5824.996				PASS
102	5190	5189.995	0.005	0.963		PASS
120		5189.995				PASS
138		5189.995				PASS
102	5230	5229.998	0.002	0.382		PASS
120		5229.998				PASS
138		5229.998				PASS
102	5755	5754.997	0.003	0.521		PASS
120		5754.997				PASS
138		5754.997				PASS
102	5795	5794.997	0.003	0.518		PASS
120		5794.997				PASS
138		5794.997				PASS

Frequency Stability during Temp. (Voltage AC 120V/60Hz)

Temp. (℃)	Test Frequency (MHz)	Test Result (MHz)	Max deviation (MHz)	Max deviation (ppm)	Limit	Conclusion
-30	5180	5179.976	0.024	4.63	±20ppm	PASS
-20		5179.982				PASS
-10		5179.985				PASS
0		5179.989				PASS
10		5179.992				PASS
20		5179.995				PASS
30		5179.996				PASS
40		5180.004				PASS
50		5180.009				PASS
60		5180.013				PASS
70		5180.018				PASS

10 DEVIATION TO TEST SPECIFICATIONS

None.