

Report No.: E2/2015/60007 **Issue Date: Jun. 30, 2015**

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ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART E REQUIREMENT

OF

Product Name: Tablet Computer

Brand Name: acer

Marketing Name: B1-830

Model No.: A5006

Model Difference: N/A

FCC ID: **HLZA5006**

E2/2015/60007 **Report No.:**

Issue Date: Jun. 30, 2015

FCC Rule Part: §15.247, Cat: DTS

Acer Incorporated

Prepared for: 8F., No.88, Sec. 1, Hsintai 5th Rd., Hsichih,

New Taipei City 22181, Taiwan (R.O.C.)

SGS Taiwan Ltd.

Electronics & Communication Laboratory

Prepared by: No.2, Keji 1st Rd., Guishan District, Taoyuan

City, Taiwan 333



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VERIFICATION OF COMPLIANCE

Applicant: Acer Incorporated

8F., No.88, Sec. 1, Hsintai 5th Rd., Hsichih, New Taipei City 22181,

Taiwan (R.O.C.)

Product Name: Tablet Computer

acer **Brand Name:**

Marketing Name.: B1-830

Model No.: A5006

Model Difference: N/A

FCC ID: **HLZA5006**

Report Number: E2/2015/60007

Date of test: Jun. 02, 2015 ~ Jun. 30, 2015

Date of EUT Received: Jun. 02, 2015

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2009 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission

The test results of this report relate only to the tested sample identified in this report.

Test By:	Jerry	LU Date:	Jun. 30, 2015	
Prepared By:	Jerry Lu/Eng Allen	rineer [≤∝ī Date:	Jun. 30, 2015	
Approved By:	Allen Tsai / En	h ang Date:	Jun. 30, 2015	

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Revision History

Report Number	Revision	Description	Issue Date
E2/2015/60007	Rev.00	Initial creation of document	Jun. 30, 2015

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GENERAL INFORMATION

Product Description

General:

Cheran.				
Product Name:	Tablet Computer			
Brand Name:	acer			
Marketing Name:	B1-830			
Model No.:	A5006			
Model Difference:	N/A			
Product SW/HW version:	Acer_AV0L_B1_830_RV00RB02_WW_GEN1 / E0			
Radio SW/HW version:	V9.30 / MT6625			
Test SW Version:	SP_META			
RF power setting in TEST SW:	N/A			
	3.8Vdc from Rechargeable Li-polymer Battery or 5.2V/5.35V from AC/DC Adapter			
Power Supply:	Battery:	Model No.:AP14F8K, Supplier: LG CHEM, LTD.		
	Adapter:	 Model No.: PA-1070-07, Supplier: LITEON. Model No.: ADP-10HW A, Supplier: DELTA. 		

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WLAN 5GHz:

WLAN 3GH		<u> </u>			
Wi-Fi	Frequency Range	Channels	Rated Power (Avg.)	Modulation Technology	
	5150~5250	4	12.99dBm		
11a	5250~5350	4	12.96dBm	OFDM	
11a	5470~5725	11	12.97dBm	OFDM	
	5725-5850	5	12.98dBm		
	HT20 5150~5250	4	12.98dBm		
11	HT20 5250~5350	4	12.96dBm	OFDM	
11n	HT20 5470~5725	11	12.98dBm	OFDM	
	HT20 5725-5850	5	12.97dBm		
	HT40 5150~5250	2	12.97dBm	- OFDM	
11	HT40 5250~5350	2	12.94dBm		
11n	HT40 5470~5725	6	12.96dBm		
HT40 5725-5850 2		2	12.98dBm		
Antenna Designation			PCB Wire Antenna, 5GHz Gain: 4.4dBi (5150MHz-5250MHz) 5GHz Gain: 4.4dBi (5250MHz-5350MHz) 5GHz Gain: 3.5dBi (5470MHz-5725MHz) 5GHz Gain: 2.8dBi (5725MHz-5850MHz)		
Modulation type			64QAM, 16QAM, QPSK, BPSK for OFDM		
Transition Rate:			802.11 a: 6/9/12/18/24/36/48/54 Mbps 802.11 n_20MHz: 6.5 – 65Mbps 802.11 n_40MHz: 13.5 – 135Mbps		

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Product Feature of Equipment Under Test

The equipment under Test (Hereafter Called: EUT) is mobile phone supporting, ,Wi-Fi 802.11abgn, Bluetooth features, and below is details of information.

	Product Feature				
Product Name:	Tablet Computer				
Brand Name:	acer				
Marketing Name:	B1-830				
Model Difference:	A5006				
Model No.:	N/A				
FCC ID	HLZA5006				
Wi-Fi Specification	802.11a/b/g/n				
Bluetooth Version	V4.0 dual mode				

Note: The above EUT information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

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Test Methodology of Applied Standards

FCC Part 15, Subpart E §15.407

FCC KDB 789033 D02 General UNII Test Procedures New Rules v01

FCC KDB 662311 D01 Multiple Transmitter Output

ANSI C63.10:2009

Note:

- 1. All test items have been performed and record as per the above standards.
- 2. The composite system is compliance with FCC Subpart B is authorized under the certification procedure.
- The EUT was placed 1.5m height for frequency above 1GHz in accordance with AN-SI C63.10:2009.

Test Facility

SGS Taiwan Ltd. Electronics & Communication Laboratory No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan. (TAF code 0513)

FCC Registration Numbers are: 628985

Canada Registration Number: 4620A-5.

Special Accessories

There are no special accessories used while test was conducted.

Equipment Modifications

There was no modification incorporated into the EUT.

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SYSTEM TEST CONFIGURATION

EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 **EUT Exercise**

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

2.3 **Test Procedure**

2.3.1 Conducted Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plan. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz,. The CISPR Quasi-Peak and Average detector mode is employed according to §15.107. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plan. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

Measurement Results Explanation Example For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

Note:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Following shows an offset computation example with cable loss 2.8 dB and 10 dB attenuator.

Offset = RF cable loss (dB)+ attenuation factor(dB) = 2.8+10=12.8(dB)

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Configuration of Tested System

Fig. 2-1 Radiated Emission

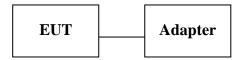


Fig. 2-2 Conducted (Antenna Port) Configuration

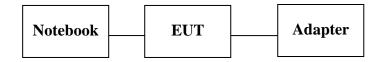


Fig. 2-3 AC Power Line Conducted Emission

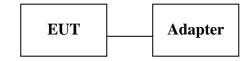


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/Model No.	Series No.	Data Cable	Power Cord
1.	WLAN Test Software	SP_META	N/A	N/A	N/A	N/A
2.	Notebook	Lenovo	L430	R9-YYG88	shielded	Un-shielded

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SUMMARY OF TEST RESULT

FCC Rules	Description Of Test	Result
§15.207	AC Power Line Conducted Emission	Compliant
§15.403(i) §15.407(e)	26 dB & 6dB Emission Bandwidth	Compliant
§15.407(a)	Maximum Conducted Output Power	Compliant
§15.407(a)	Power Spectral Density	Compliant
§15.407(b)	Undesirable Radiated Emissions	Compliant
§15.407(c)	Transmission in case of Absence of Information	Compliant
§15.407(g)	Frequency Stability	Compliant
§15.203 §15.407(a)	Antenna Requirement	Compliant

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DESCRIPTION OF TEST MODES

4.1 Operated in U-NII Bands

Operated band in 5150 MHz ~5250 MHz:

4 channels are provided for 802.11a, 802.11n_HT20

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n_HT40

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

Operated band in 5250 MHz ~5350 MHz:

4 channels are provided for 802.11a, 802.11n_HT20

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

2 channels are provided for 802.11n_HT40, 802.11ac_VHT40

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
54	5270 MHz	62	5310 MHz

Operated band in 5470 MHz ~5725 MHz:

11 channels are provided for 802.11a, 802.11n_HT20

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz		

5 channels are provided for 802.11n_HT40

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
102	5510 MHz	126	5630 MHz
110	5590 MHz	134	5670 MHz
118	5590 MHz		

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Operated band in 5725 MHz ~5850 MHz:

5 channels are provided for 802.11a, 802.11n_HT20

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		

2 channels are provided for 802.11n_HT40

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755 MHz	159	5795 MHz

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4.2 The Worst Test Modes and Channel Details

- The EUT has been tested under operating condition. 1.
- 2. Test program used to control the EUT for staying in continuous transmitting mode is programmed.
- 3. Investigation has been done on all the possible configurations for searching the worst case.

RADIATED EMISSION TEST (Internal Antenna and External Antenna):

RADIATED ENTISSION TEST (Internal Antenna and External Antenna):							
	RADIATED EMISSION TEST (BELOW 1 GHz)						
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT	
802.11a	5180~5240	36 to 48	44	OFDM	6	MAIN	
802.11a	5260~5320	52 to 64	60	OFDM	6	MAIN	
802.11a	5500~5700	100 to 140	116	OFDM	6	MAIN	
802.11a	5745~5825	149 to 165	157	OFDM	6	MAIN	
	RA	DIATED EM	ISSION TEST	(ABOVE 1 GHz)		
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT	
802.11a	5190 5240	26 40 40	26 11 10	OFDM	6	MAIN	
802.11_HT20	5180~5240	36 to 48	36,44,48	OFDM	MCS0	MAIN	
802.11_HT40	5190~5230	38 to 46	38,46	OFDM	MCS0	MAIN	
802.11a	5260~5320	52 to 64	52,60,64	OFDM	6	MAIN	
802.11n_HT20	3200~3320	32 10 04	32,00,04	OFDM	MCS0	MAIN	
802.11_HT40	5270~5310	54 to 62	54,62	OFDM	MCS0	MAIN	
802.11a	5500~5700	100 to 140	100,116,140	OFDM	6	MAIN	
802.11n_HT20	3300~3700	100 to 140	100,110,140	OFDM	MCS0	MAIN	
802.11_HT40	5510~5670	102 to 134	102,110,134	OFDM	MCS0	MAIN	
802.11a	5715 5005	149 to 165	140 157 165	OFDM	6	MAIN	
802.11n_HT20	5745~5825	149 (0 103	149,157,165	OFDM	MCS0	MAIN	
802.11_HT40	5755~5795	151 to 159	151,159	OFDM	MCS0	MAIN	

Note:

The field strength of radiation emission was measured as EUT stand-up position (H mode) and lie down position (E1, E2 mode) for 802.11a/n WLAN Transmitter for channel Low, Mid and High, the worst case E2 position was reported.

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ANTENNA PORT CONDUCTED MEASUREMENT:

	CONDUCTED TEST					
MODE	FREQUENCY BAND (MHz)		TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	£100 £240	26 40 40	26 44 49	OFDM	6	MAIN
802.11_HT20	5180~5240	36 to 48	36,44,48	OFDM	MCS0	MAIN
802.11_HT40	5190~5230	38 to 46	38,46	OFDM	MCS0	MAIN
802.11a	5260 5220	52 to 64	50.60.64	OFDM	6	MAIN
802.11n_HT20	5260~5320	52 to 64	52,60,64	OFDM	MCS0	MAIN
802.11_HT40	5270~5310	54 to 62	54,62	OFDM	MCS0	MAIN
802.11a	5500 5700	100 40 140	100 116 140	OFDM	6	MAIN
802.11n_HT20	5500~5700	100 to 140	100,116,140	OFDM	MCS0	MAIN
802.11_HT40	5510~5670	102 to 134	102,110,134	OFDM	MCS0	MAIN
802.11a	5745 5005	140 + 165	140 157 165	OFDM	6	MAIN
802.11n_HT20	5745~5825	149 to 165	149,157,165	OFDM	MCS0	MAIN
802.11_HT40	5755~5795	151 to 159	151,159	OFDM	MCS0	MAIN

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MEASUREMENT UNCERTAINTY

Test Items	Uncertainty
AC Power Line Conducted Emission	+/- 2.586 dB
26dB Emission Bandwidth	+/- 123.36 Hz
The Maximum Output Power Measurement	+/- 0.96 dB
Peak Power Spectral Density Measurement	+/- 1.67 dB
Frequency Stability	+/- 123.36 Hz
Temperature	+/- 0.65 °C
Humidity	+/- 4.6 %
DC / AC Power Source	DC= +/- 0.13%, AC=+/- 0.2%

Radiated Spurious Emission:

	30MHz - 180MHz: +/- 3.37dB		
Measurement uncertainty	180MHz -417MHz: +/- 3.19dB		
(Polarization : Vertical)	0.417GHz-1GHz: +/- 3.19dB		
	1GHz - 18GHz: +/- 4.04dB		
	18GHz - 40GHz: +/- 4.04dB		

Measurement uncertainty	30MHz - 167MHz: +/- 4.22dB
	167MHz -500MHz: +/- 3.44dB
(Polarization : Horizontal)	0.5GHz-1GHz: +/- 3.39dB
	1GHz - 18GHz: +/- 4.08dB
	18GHz - 40GHz: +/- 4.08dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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6. CONDUCTED EMISSION TEST

6.1. Standard Applicable

Frequency range within 150 kHz to 30 MHz shall not exceed the Limit table as below.

1 8				
	Limits			
Frequency range	dB(uV)			
MHz	Quasi-peak	Average		
0.15 to 0.50	66 to 56	56 to 46		
0.50 to 5	56	46		
5 to 30	60	50		

Note

1.The lower limit shall apply at the transition frequencies

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

6.2. Measurement Equipment Used

Conducted Emission Test Site							
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.		
TYPE		NUMBER	NUMBER	CAL.			
EMI Test Receiver	R&S	ESU 40	100363	04/09/2015	04/08/2016		
Coaxial Cables	N/A	N30N30-1042-150cm	N/A	01/06/2015	01/07/2016		
LISN	Schwarzbeck	NSLK 8127	8127-648	06/09/2015	06/08/2016		
LISN	Rolf-Heine	NNB-2/16Z	99012	03/04/2015	03/03/2016		
Test Software	Farad	EZ-EMC	Ver. SGS-03A2	N.C.R.	N.C.R.		

6.3. EUT Setup

- 1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10:2009.
- 2. The AC/DC Power adaptor of EUT was plug-in LISN. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
- 3. The LISN was connected with 120Vac/60Hz power source.

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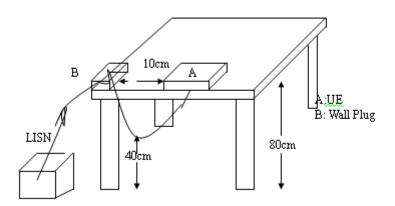
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6.4. Test SET-UP



6.5. Measurement Procedure

- 1. The EUT was placed on a table which is 0.8m above ground plan.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. Repeat above procedures until all phases of power being supplied by given UE are completed.

6.6. Measurement Result

Note: Refer to next page for measurement data and plots.

Note2: The * reveals the worst-case results that that closet to the limit

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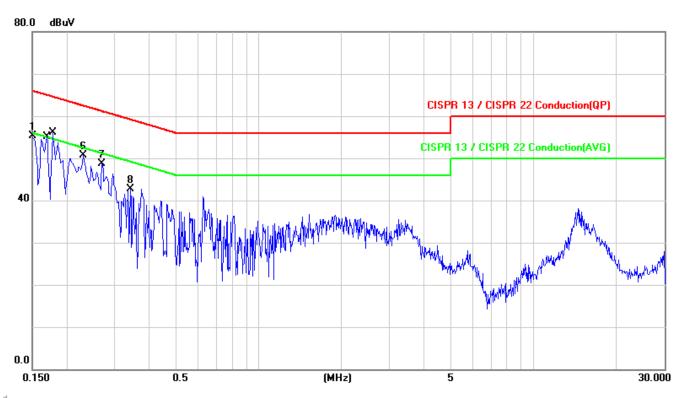


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AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Operation mode			Test Date:	Jun. 12, 2015
Temperature:	26	Humidity:	54 %	Test By:	Ashton
Model No.:	Adapter: ADP-10HW A, Supplier: Delta			Phase:	L1



No.	Mk	Freq.€	Reading€	Factor₽	Measurement←	Limit+	Over⊕	Detector€	Comment4 ³
43	÷	(MHz)√ [□]	dBuV⇔	(dB)¢ [□]	(dBuV)₽	(dBuV)₽	(dB)4□	₽	₽
14□	*47	0.1500↔	55.08₽	0.13₽	55.21₽	66.00₽	-10.79₽	peak⊕	₽
2↔	٠	0.1700↔	50.20₽	0.13₽	50.33₽	64.96₽	-14.63₽	QP₄⋾	₽
34□	٠	0.1700↔	34.40₽	0.13₽	34.53₽	54.96₽	-20.43₽	AVG₽	₽
4↔	47	0.1780₽	49.00₽	0.13₽	49.13₽	64.58₽	-15.45₽	QP₄⋾	₽
54□	÷3	0.1780₽	33.30₽	0.13₽	33.43₽	54.58₽	-21.15₽	AVG₽	₽
64□	٠	0.2300₽	50.65₽	0.13₽	50.78₽	62.45₽	-11.67₽	peak↔	₽
7₽	÷,	0.2700₽	48.54₽	0.15₽	48.69₽	61.12₽	-12.43₽	peak∉	₽
8€	÷,	0.3420₽	42.53₽	0.19₽	42.72₽	59.15₽	-16.43₽	peak₽	₽

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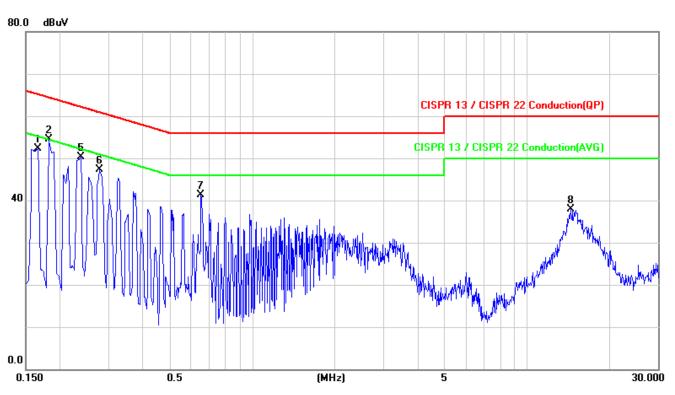
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Operation Mode:	Operation mode			Test Date:	Jun. 12, 2015
Temperature:	26	Humidity:	54 %	Test By:	Ashton
Model No.:	Adapter: ADP-10I	HW A, Supplier: 1	Delta	Phase:	N



No.+	Mk	Freq.€	Reading₽	Factor₽	Measurement€	Limit↩	Over↔	Detector₽	Comment€
42	43	(MHz)∗ [□]	dBuV₽	(dB)₽	(dBuV)₽	(dBuV)₁□	(dB)4□	₽	₽
1↔	٦	0.1660₽	52.25₽	0.11₽	52.36₽	65.16₽	-12.80₽	peak↔	42
2↔	*43	0.1820₽	54.30₽	0.11₽	54.41₽	64.39₽	-9.98₽	peak∻	t)
34□	٠	0.1820₽	48.90₽	0.11₽	49.01₽	64.39₽	-15.38₽	QP₽	÷.
4↔	٦	0.1820₽	32.30₽	0.11₽	32.41₽	54.39₽	-21.98₽	AVG₽	t)
540	٠	0.2380₽	50.19₽	0.12₽	50.31₽	62.17₽	-11.86₽	peak∢	÷.
64□	47	0.2780₽	47.24₽	0.13₽	47.37₽	60.88₽	-13.51₽	peak∻	÷.
7₽	÷	0.6540₽	41.09₽	0.31₽	41.40↔	56.00₽	-14.60₽	peak∢	÷.
84⊃	47	14.5140₽	37.15₽	0.84₽	37.99₽	60.00₽	-22.01₽	peak∢	ė.

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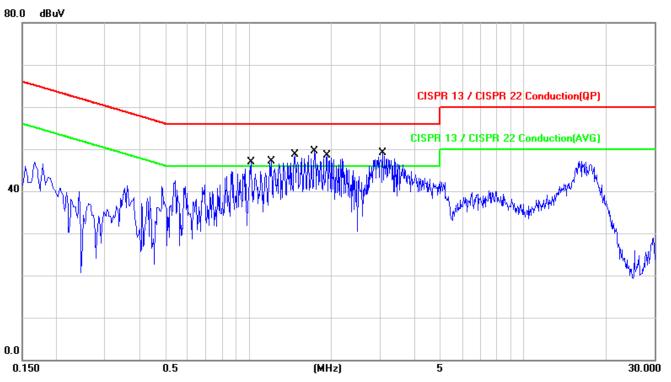
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Operation Mode:	Operation mode			Test Date:	Jun. 12, 2015
Temperature:	26	Humidity:	54 %	Test By:	Ashton
Model No.:	Adapter: PA-1070-07, Supplier: Liteon			Phase:	L1



No	Mk	Freq.€	Reading€	Factor₽	Measurement+	Limit₽	Over↔	Detector₽	Comment€
42	4J	(MHz)₄□	dBuV₽	(dB)4 [□]	(dBuV)₽	(dBuV)₁□	(dB)4 [□]	÷,	₽
142	٦	1.0220₽	40.10₽	0.48₽	40.58₽	56.00₽	-15.42₽	QP₄□	₽
2↔	d)	1.0220₽	28.70₽	0.48₽	29.18₽	46.00₽	-16.82₽	AVG₽	₽
3↔	٦	1.2100₽	40.50₽	0.51₽	41.01₽	56.00₽	-14.99₽	QP₄□	₽
4↔	d)	1.2100₽	28.80₽	0.51₽	29.31₽	46.00₽	-16.69₽	AVG₽	₽
540	٦	1.4740₽	41.70₽	0.56₽	42.26₽	56.00₽	-13.74₽	QP₄⋾	₽
64□	d)	1.4740₽	31.20₽	0.56₽	31.76₽	46.00₽	-14.24₽	AVG₽	₽
7₽	÷,	1.7380₽	41.70₽	0.59₽	42.29₽	56.00₽	-13.71₽	QP₄□	₽
8↔	÷,	1.7380₽	31.60₽	0.59₽	32.19₽	46.00₽	-13.81₽	AVG₽	₽
94□	47	1.9300₽	41.90₽	0.63₽	42.53₽	56.00₽	-13.47₽	QP₽	₽
10₽	÷2	1.9300₽	31.70₽	0.63₽	32.33₽	46.00₽	-13.67₽	AVG₽	₽
11₽	*47	3.0820₽	44.40↩	0.67₽	45.07₽	56.00₽	-10.93₽	QP₽	₽
12↩	٦	3.0820₽	34.40↩	0.67₽	35.07₽	46.00₽	-10.93₽	AVG↔	₽

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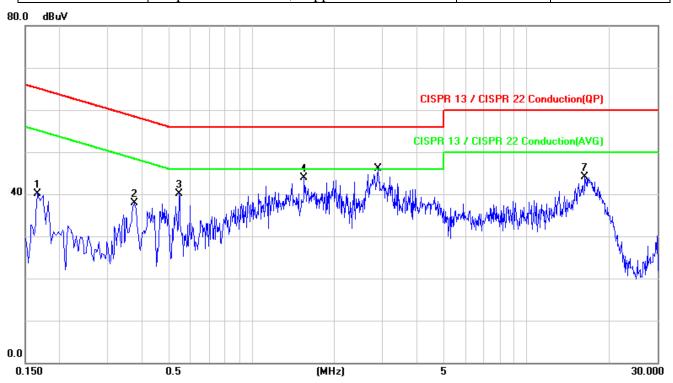
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Operation Mode:	Operation mode			Test Date:	Jun. 12, 2015
Temperature:	26	Humidity:	54 %	Test By:	Ashton
Model No.:	Adapter: PA-1070	Adapter: PA-1070-07, Supplier: Liteon			N



No.	Mk	Freq.€	Reading€	Factor€	Measurement«	Limit*	Over↔	Detector∗ ³	Comment €
43	47	(MHz)∗ [□]	dBuV₽	(dB)₽	(dBuV)₽	(dBuV)₄□	(dB)4□	4	₽
1↔	4	0.1660₽	40.09₽	0.11₽	40.20₽	65.16₽	-24.96₽	peak₽	÷,
2↔	42	0.3740₽	37.73₽	0.18₽	37.91₽	58.41₽	-20.50₽	peak₽	₽.
3↔	4	0.5460₽	39.76₽	0.26₽	40.02₽	56.00₽	-15.98₽	peak₽	÷,
44□	**	1.5580₽	43.30₽	0.55₽	43.85₽	56.00₽	-12.15₽	peak∉	₽
540	42	2.8980₽	38.60₽	0.65₽	39.25₽	56.00₽	-16.75₽	QP₄⋾	÷.
64□	47	2.8980₽	29.80₽	0.65₽	30.45₽	46.00₽	-15.55₽	AVG₽	₽
7₽	47	16.3660₽	43.17₽	0.84₽	44.01₽	60.00₽	-15.99₽	peak↔	₽.

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7. DUTY CYCLE TEST SIGNAL

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle.

All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

Formula:

Duty Cycle = Ton / (Ton+Toff)

Measurement Procedure:

- 1. Set span = Zero
- 2. RBW = 8MHz
- 3. VBW = 8MHz,
- 4. Detector = Peak

Duty Cycle:

	Duty Cycle	Duty Fator (dB)
802.11a	88.87%	0.51
802.11n_20	88.20%	0.55
802.11n_20	78.91%	1.03

Duty Cycle Factor: $10 * \log (1/0.8887) = 0.51$ Duty Cycle Factor: $10 * \log (1/0.8820) = 0.55$ Duty Cycle Factor: $10 * \log (1/0.7891) = 1.03$

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DUTY CYCLE TEST SIGNAL Measurement Result 802.11a



802.11n HT20



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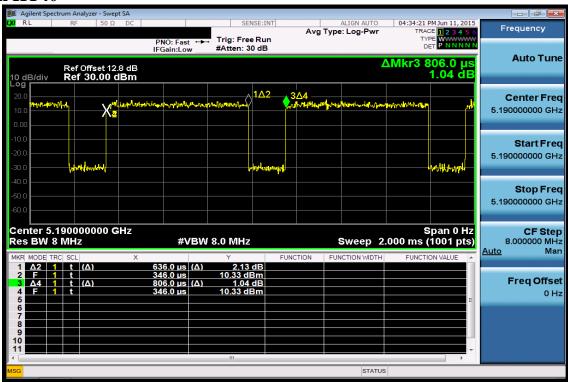
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802.11n HT40



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26dB & 6dB EMISSION BANDWIDTH MEASUREMENT

8.1 Standard Applicable

There is no limit bandwidth for U-NII-1, U-NII-2-A and U-NII-2-C.

The minimum of 6dB Bandwidth measurement is 0.5 MHz for U-NII-3

8.2 Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the Antenna port to the spectrum analyzer.
 - a. 26dB Band width Measurement: Set the spectrum analyzer as 1% of emission BW Sweep=auto, Detector = Peak, Trace Mode = Max Hold, Manually readjust RBW until the RBW/EBW ratio is 1% based on EBW as observed on the result of pre-sequence measurement.
 - b. Mark the peak frequency and –26dB (upper and lower) frequency.
- 4. Repeat the procedures as list above until all test default channels (low, middle, and high) are completed.
- 5. Minimum Emission Bandwidth for the band 5.725-5.850GHz.
 - a. Set the spectrum analyzer as RBW = 100 kHz, VBW = 3*RBW, Span = 30M/50MHz, Detector=Peak, Sweep=auto
 - b. Mark the peak frequency and –6dB (upper and lower) frequency.
- 6. Repeat above procedures until all test default channel measured were complete.

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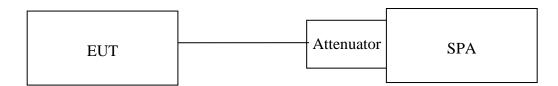
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8.3 Measurement Equipment Used

Conducted Emission Test Site						
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.	
TYPE		NUMBER	NUMBER	CAL.		
Spectrum Analyzer	Agilent	N9010A	MY53400256	10/15/2014	10/14/2015	
DC Block	PASTERNACK	PE8210	RF29	12/19/2014	12/18/2015	
Attenuator	WOKEN	218FS-10	RF23	12/19/2014	12/18/2015	

Test Set-up



8.5 Measurement Result 26dB Bandwidth

802.11a

Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)
5180	19.750	12.96
5220	19.610	12.92
5240	19.810	12.97
5260	19.880	12.98
5300	19.830	12.97
5320	19.680	12.94
5500	19.770	12.96
5580	19.530	12.91
5700	19.590	12.92

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802.11n_HT20

Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)
5180	19.865	12.98
5220	19.729	12.95
5240	19.952	13.00
5260	19.877	12.98
5300	20.062	13.02
5320	20.020	13.01
5500	19.879	12.98
5580	19.807	12.97
5700	19.913	12.99

802.11n HT40

Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)
5190	43.730	16.41
5230	46.630	16.69
5270	44.310	16.47
5310	41.810	16.21
5510	40.660	16.09
5550	39.960	16.02
5670	39.800	16.00



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6dB Bandwidth (5725 MHz~ 5850 MHz)

802.11a

Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5745	16.370	12.14
5785	16.350	12.14
5825	16.370	12.14

802.11n_HT20

Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5745	17.600	12.46
5785	17.600	12.46
5825	17.590	12.45

802.11n_HT40

Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5755	35.180	15.46
5795	35.190	15.46

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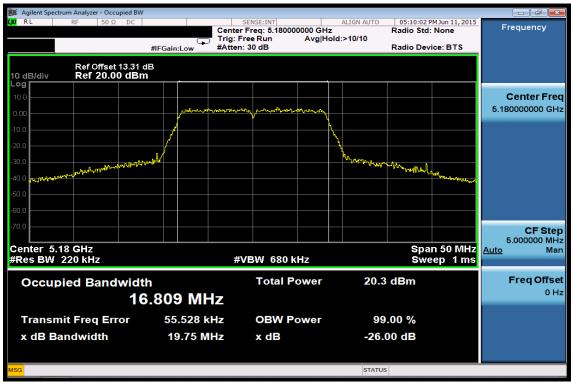
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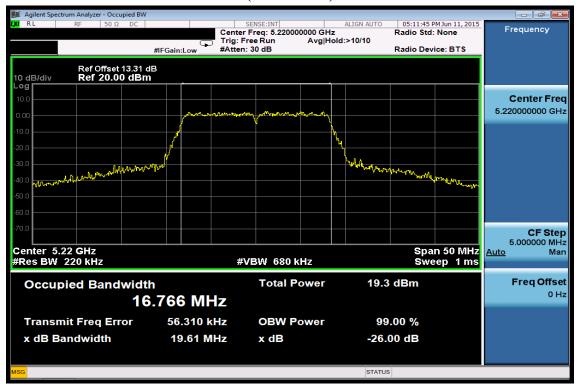
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802.11a, 5150~5250 MHz 26dB Band Width Test Data CH-Low (5180MHz)



26dB Band Width Test Data CH-Mid (5220MHz)



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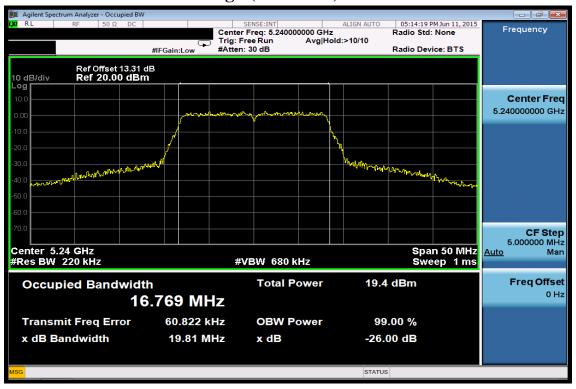
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26dB Band Width Test Data CH-High (5240MHz)



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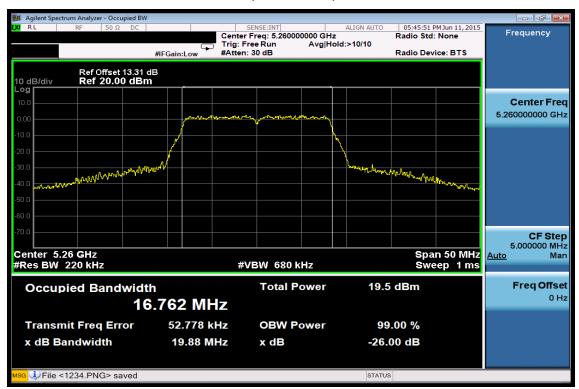
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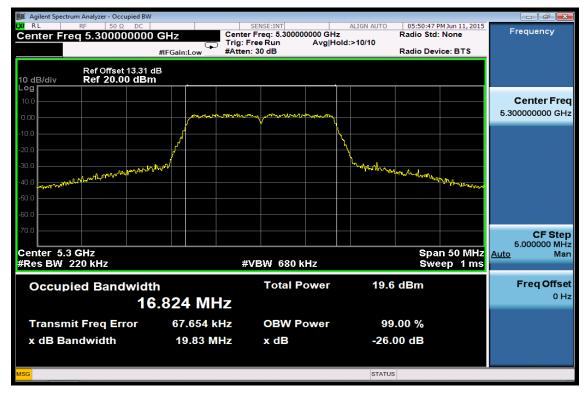
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802.11a, 5250~5350 MHz 26dB Band Width Test Data CH-Low (5260MHz)



26dB Band Width Test Data CH-Mid (5300MHz)



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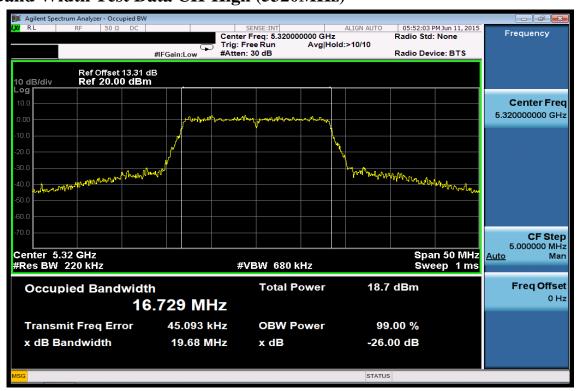
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26dB Band Width Test Data CH-High (5320MHz)



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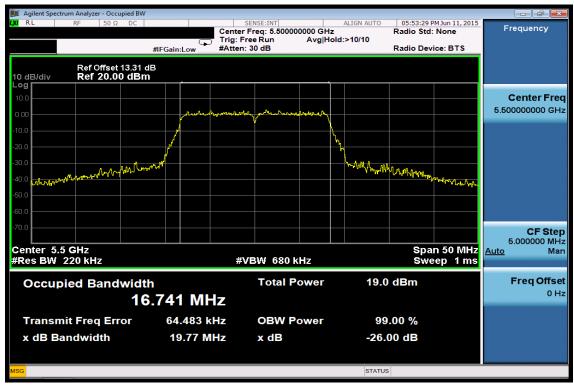
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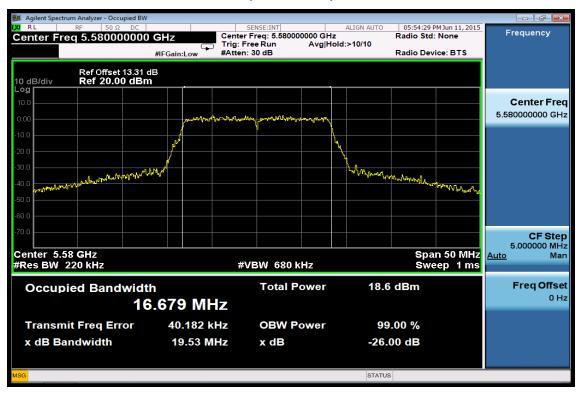
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802.11a, 5470~5725 MHz 26dB Band Width Test Data CH-Low (5500MHz)



26dB Band Width Test Data CH-Mid (5580MHz)



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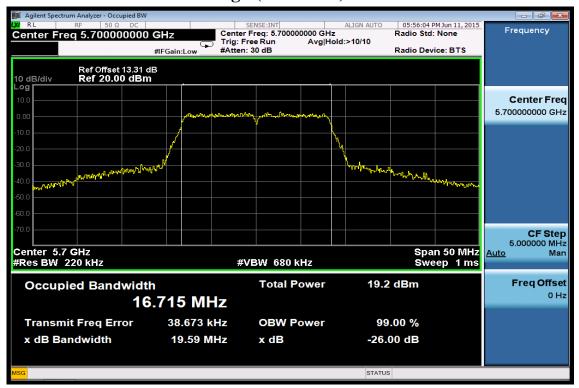
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26dB Band Width Test Data CH-High (5700MHz)



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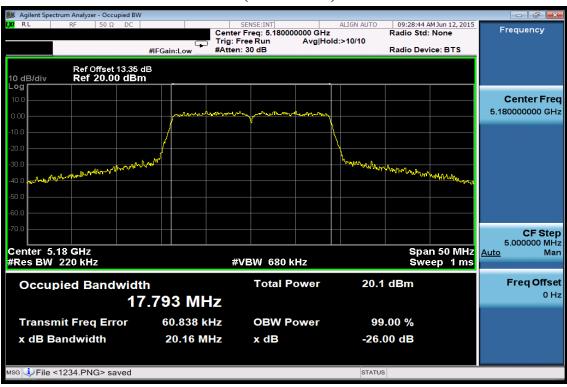
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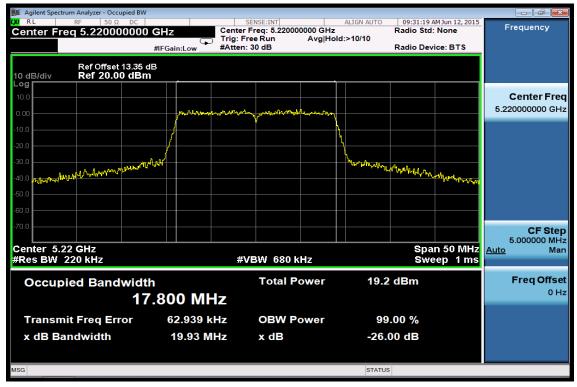
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802.11n HT20, 5150~5250 MHz 26dB Band Width Test Data CH-Low (5180 MHz)



26dB Band Width Test Data CH-Mid (5220 MHz)



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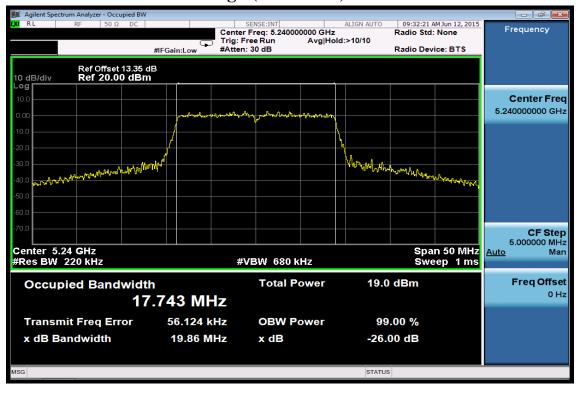
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26dB Band Width Test Data CH-High (5240 MHz)



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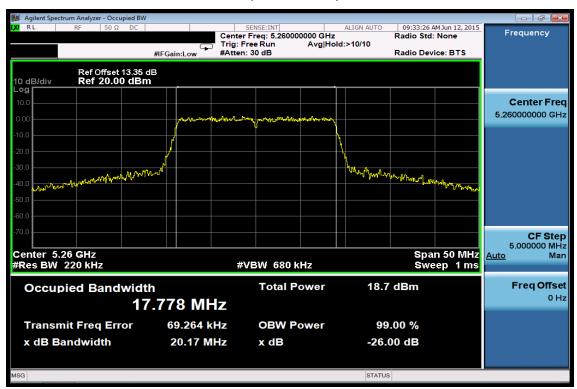
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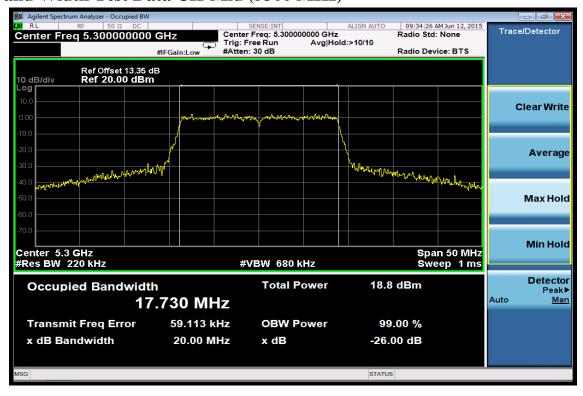
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802.11n HT20, 5250~5350 MHz 26dB Band Width Test Data CH-Low (5260 MHz)



26dB Band Width Test Data CH-Mid (5300 MHz)



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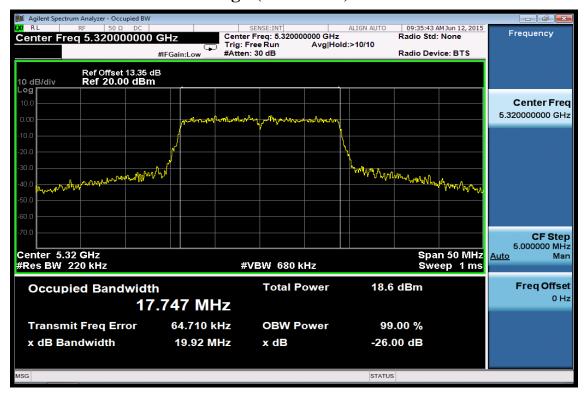
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26dB Band Width Test Data CH-High (5320 MHz)



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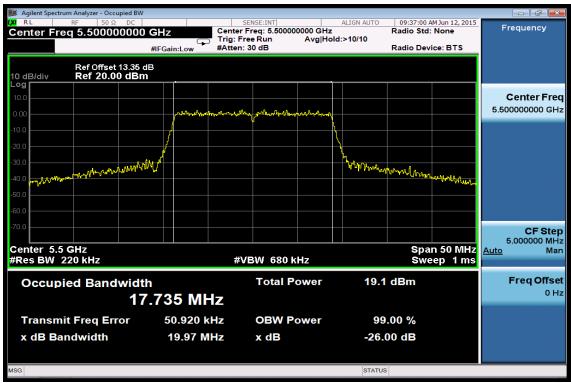
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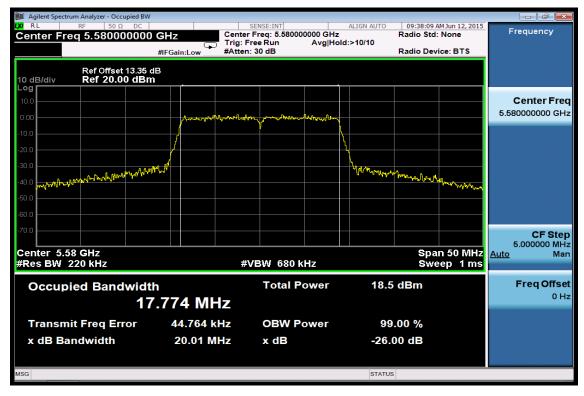
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802.11n HT20, 5470~5725 MHz (Main) 26dB Band Width Test Data CH-Low (5500 MHz)



26dB Band Width Test Data CH-Mid (5580 MHz)



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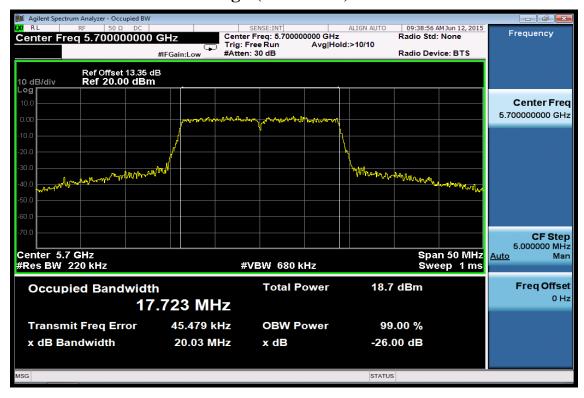
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26dB Band Width Test Data CH-High (5700 MHz)



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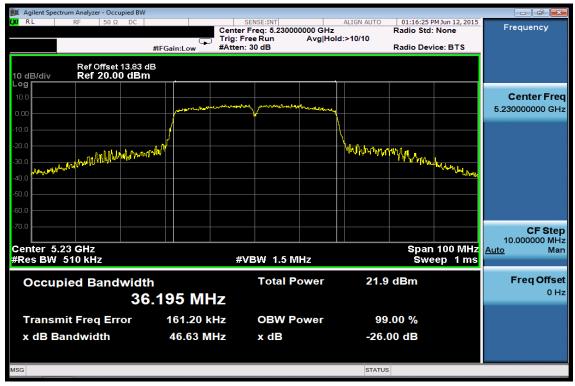
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802.11n HT40, 5150~5250 MHz 26dB Band Width Test Data CH-Low (5190 MHz)



26dB Band Width Test Data CH-Mid (5230 MHz)



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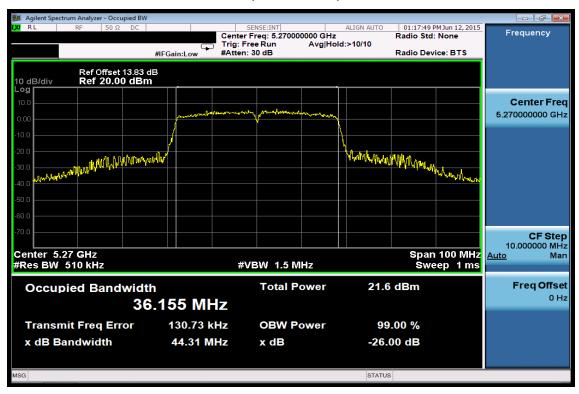
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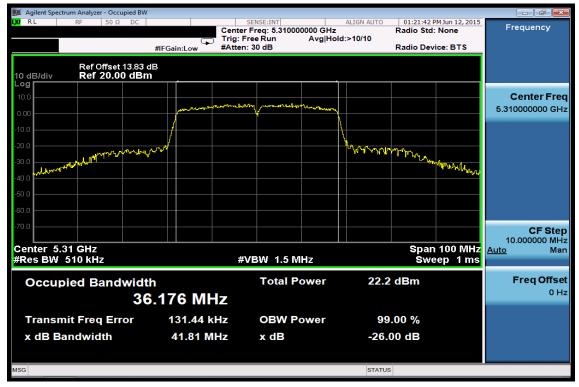
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802.11n HT40, 5250~5350 MHz 26dB Band Width Test Data CH-Low (5270 MHz)



26dB Band Width Test Data CH-Mid (5310 MHz)



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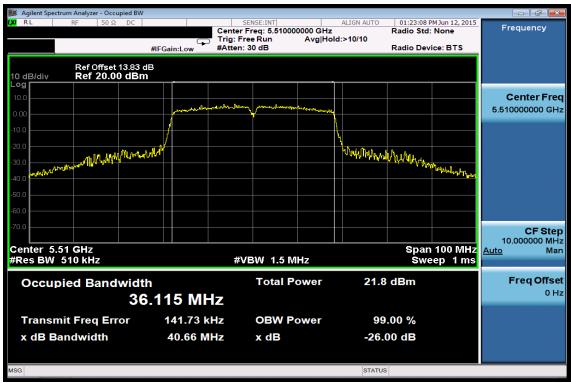
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802.11n HT40, 5470~5725 MHz (Main) 26dB Band Width Test Data CH-Low (5510 MHz)



26dB Band Width Test Data CH-Mid (5550 MHz)



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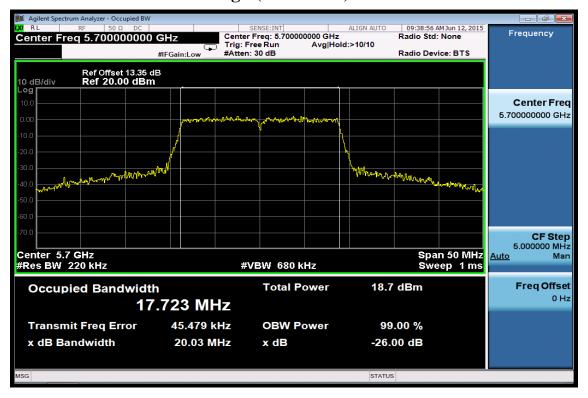
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26dB Band Width Test Data CH-High (5670 MHz)



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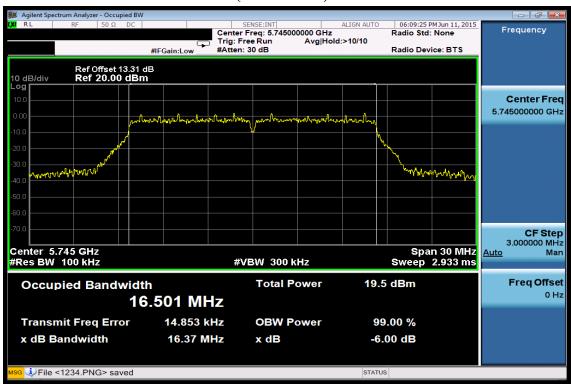
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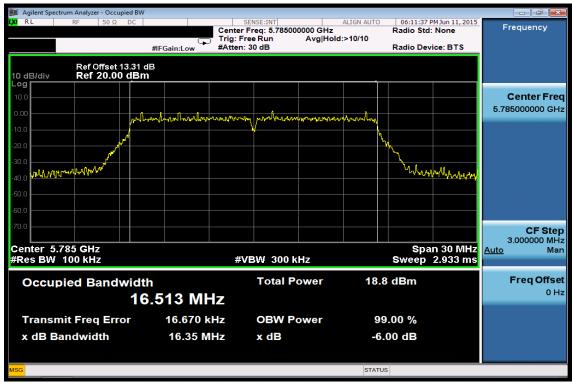
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802.11a, 5725~5850 MHz 6dB Band Width Test Data CH-Low (5745 MHz)



6dB Band Width Test Data CH-Mid (5785 MHz)



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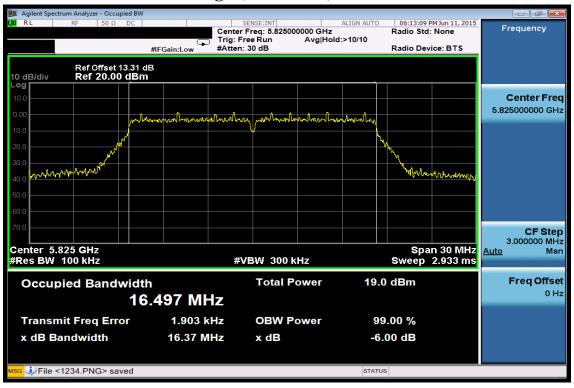
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6dB Band Width Test Data CH-High (5825 MHz)



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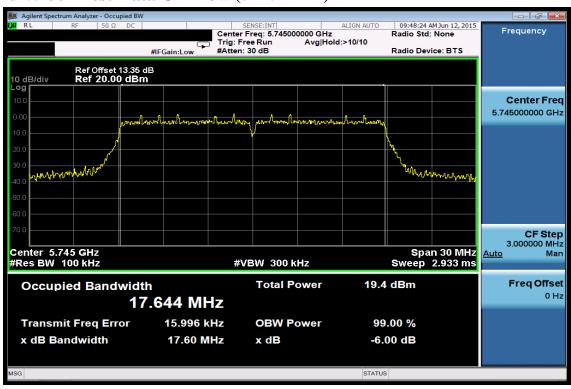
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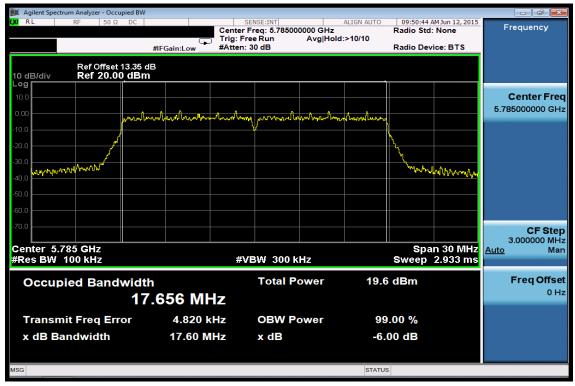
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802.11n HT20, 5725~5850 MHz 6dB Band Width Test Data CH-Low (5745 MHz)



6dB Band Width Test Data CH-Mid (5785 MHz)



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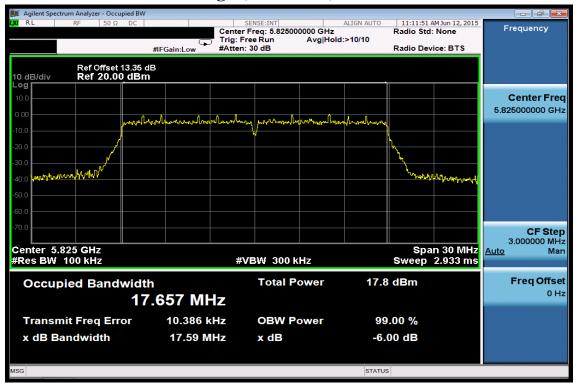
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6dB Band Width Test Data CH-High (5825 MHz)



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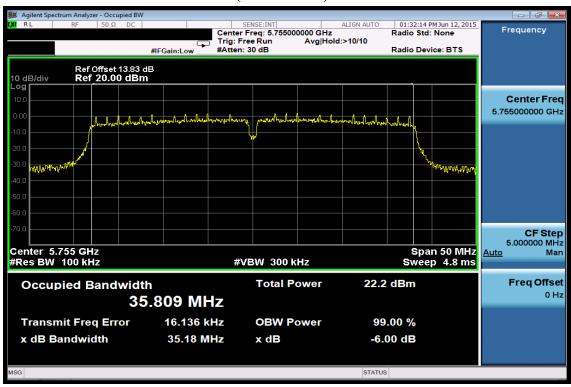
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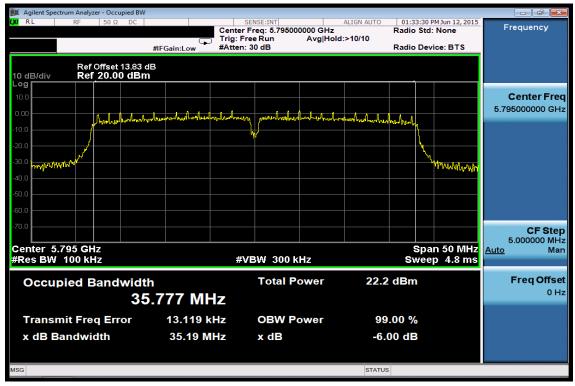
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802.11n HT20, 5725~5850 MHz 6dB Band Width Test Data CH-Low (5755 MHz)



6dB Band Width Test Data CH-Mid (5795 MHz)



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MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

Standard Applicable

OPERZTION Band	EUT CATEGORY		LIMIT
U-NII-1	Access Point (Mater device)		1 Watt(30dBm)
		Fixed point-to-point Acess Ponit	1 Watt(30dBm)
	√	Mobile and portable clinet device	250mW(23.98dBm)
U-NII-2A	√		250mW(23.98dBm) or 11dBm+10 log B
U-NII-2C	√		250mW(23.98dBm) or 11dBm+10 log B
U-NII-3	V		1 Watt(30dBm)

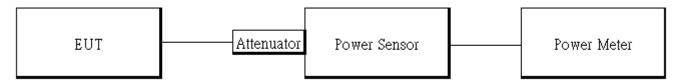
9.2 Measurement Procedure

- Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the power meter
- 4. Power Meter is used as the auxiliary test equipment to conduct the output power measurement.
- Record the max. reading and add 10 log(1/duty cycle).
- Repeat above procedures until all frequency (low, middle, and high channel) measured were complete.

Measurement Equipment Used

Refer to section 8.3 for details.

Test Set-up



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9.5 Measurement Result

802.11a

СН	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	12.94	19.679	23.98	PASS
44	5220	12.98	19.861	23.98	PASS
48	5240	12.99	19.907	23.98	PASS
52	5260	12.96	19.770	23.98 or 11+10log(B) =23.98	PASS
60	5300	12.88	19.409	23.98 or 11+10log(B) =23.97	PASS
64	5320	12.89	19.454	23.98 or 11+10log(B) =23.94	PASS
100	5500	12.97	19.815	23.98 or 11+10log(B) =23.96	PASS
116	5580	12.94	19.679	23.98 or 11+10log(B) =23.91	PASS
140	5700	12.86	19.320	23.98 or 11+10log(B) =23.92	PASS
149	5745	12.72	18.707	30	PASS
157	5785	12.77	18.923	30	PASS
165	5825	12.98	19.861	30	PASS

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802.11n HT20

СН	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	12.58	18.113	23.98	PASS
44	5220	12.98	19.861	23.98	PASS
48	5240	12.96	19.770	23.98	PASS
52	5260	12.89	19.454	23.98 or 11+10log(B) =23.98	PASS
60	5300	12.96	19.770	23.98 or 11+10log(B) =24.02	PASS
64	5320	12.89	19.454	23.98 or 11+10log(B) =24.01	PASS
100	5500	12.96	19.770	23.98 or 11+10log(B) =23.98	PASS
116	5580	12.98	19.861	23.98 or 11+10log(B) =23.97	PASS
140	5700	12.9	19.498	23.98 or 11+10log(B) =23.99	PASS
149	5745	12.8	19.055	30	PASS
157	5785	12.88	19.409	30	PASS
165	5825	12.97	19.815	30	PASS

802.11n HT40

СН	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
38	5190	12.85	19.275	23.98	PASS
46	5230	12.97	19.815	23.98	PASS
54	5270	12.86	19.320	23.98 or 11+10log(B) =27.47	PASS
62	5310	12.94	19.679	23.98 or 11+10log(B) =27.21	PASS
102	5510	12.96	19.770	23.98 or 11+10log(B) =27.09	PASS
110	5550	12.83	19.187	23.98 or 11+10log(B) =27.02	PASS
134	5670	12.96	19.770	23.98 or 11+10log(B) =27.00	PASS
151	5755	12.98	19.861	30	PASS
159	5795	12.93	19.634	30	PASS

^{*} Note: The duty cycle factor is compensated to obtain the maximum value of measurement in average.

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10. PEAK POWER SPECTRAL DENSITY

10.1 Standard Applicable

OPERZTION Band	EUT CATEGORY		LIMIT
U-NII-1		Access Point (Mater device)	17dBm/ MHz
		Fixed point-to-point Acess Ponit	
		Mobile and portable clinet device	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C	√		11dBm/ MHz
U-NII-3			30dBm/ 500kHz

If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

10.2 Measurement Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01.
- 3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to Spectrum.

4. For U-NII1, U-NII-2A, U-NII-2C Band:

Set RBW=1MHz, VBW=3MHz, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)

For U-NII-3 Band:

Set RBW=500 kHz, VBW≥ 3RBW, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)

- 5. User the cursor on spectrum to peak search the highest level of trace
- 6. Record the max. reading and add 10 log(1/duty cycle).
- 7. Repeat above procedures until all default test channel (low, middle, and high) was complete.

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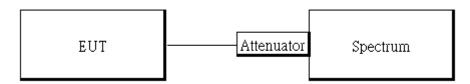
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10.3 Measurement Equipment Used

Conducted Emission Test Site						
EQUIPMENT MFR MODEL SERIAL LAST CAL DUE						
TYPE		NUMBER	NUMBER	CAL.		
Spectrum Analyzer	Agilent	N9010A	MY53400256	10/15/2014	10/14/2015	
DC Block	PASTERNACK	PE8210	RF29	12/19/2014	12/18/2015	
Attenuator	WOKEN	218FS-10	RF23	12/19/2014	12/18/2015	

10.4 Test Set-up



10.5 Measurement Result

802.11a

Frequency	PPSD	Limit	Margin
(MHz)	(dBm)	(dBm)	(dB)
5180	-4.03	11.00	-15.03
5220	-3.20	11.00	-14.20
5240	-4.14	11.00	-15.14
5260	-4.61	11.00	-15.61
5300	-5.05	11.00	-16.05
5320	-2.59	11.00	-13.59
5500	-3.64	11.00	-14.64
5580	-4.97	11.00	-15.97
5700	-5.32	11.00	-16.32
5745	-4.00	30.00	-34.00
5785	-3.61	30.00	-33.61
5825	-3.68	30.00	-33.68

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802.11n HT20

Frequency	PPSD	Limit	Margin
(MHz)	(dBm)	(dBm)	(dB)
5180	-4.80	11.00	-15.80
5220	-5.04	11.00	-16.04
5240	-4.79	11.00	-15.79
5260	-5.67	11.00	-16.67
5300	-5.08	11.00	-16.08
5320	-5.24	11.00	-16.24
5500	-4.97	11.00	-15.97
5580	-3.22	11.00	-14.22
5700	-3.74	11.00	-14.74
5745	-4.07	30.00	-34.07
5785	-4.28	30.00	-34.28
5825	-4.28	30.00	-34.28

802.11n HT40

Frequency	PPSD	Limit	Margin
(MHz)	(dBm)	(dBm)	(dB)
5190	-10.41	11.00	-21.41
5230	-7.75	11.00	-18.75
5270	-9.15	11.00	-20.15
5310	-7.73	11.00	-18.73
5510	-8.53	11.00	-19.53
5550	-9.99	11.00	-20.99
5670	-7.68	11.00	-18.68
5755	-6.39	11.00	-17.39
5795	-9.16	11.00	-20.16

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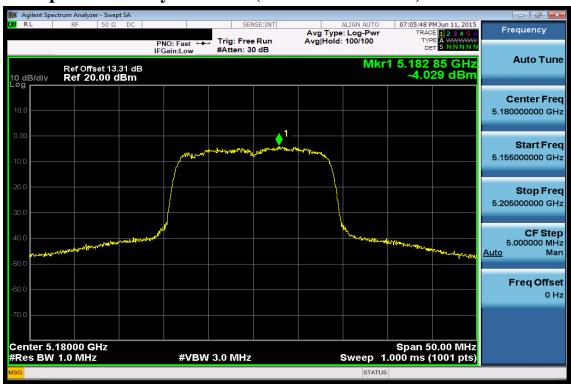
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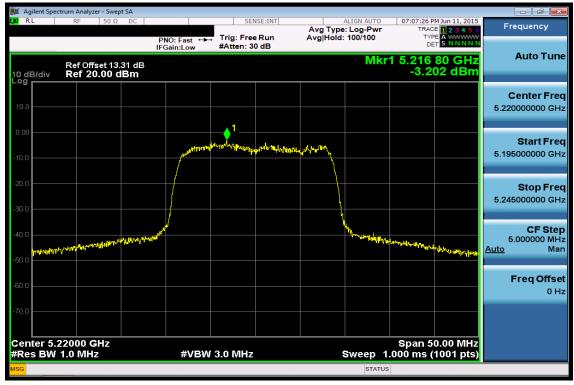
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802.11a, 5150~5250 MHz Peak Power Spectral Density Data Plot (CH Low 5180 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5220 MHz)



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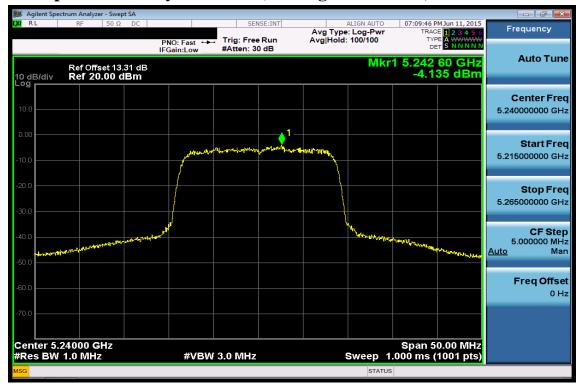
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Peak Power Spectral Density Data Plot (CH High 5240 MHz)



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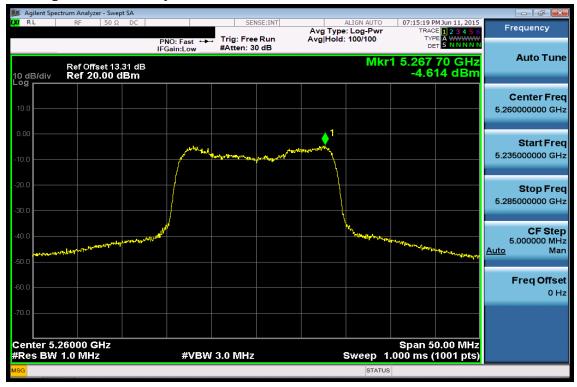


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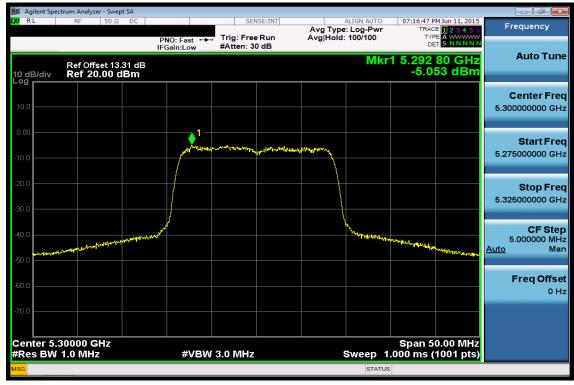
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802.11a, 5250~5350 MHz

Peak Power Spectral Density Data Plot (CH Low 5260 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5300 MHz)



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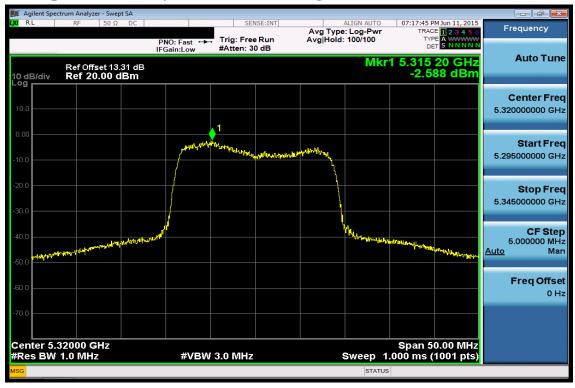
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Peak Power Spectral Density Data Plot (CH High 5320 MHz)



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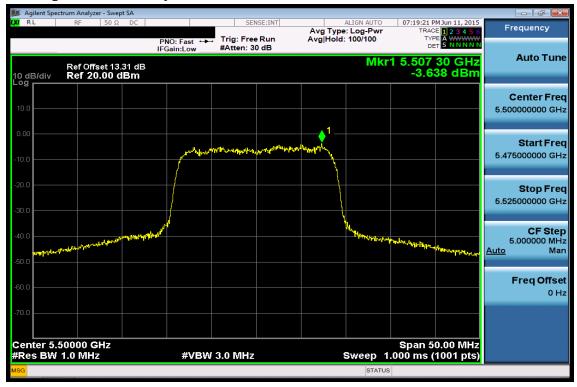


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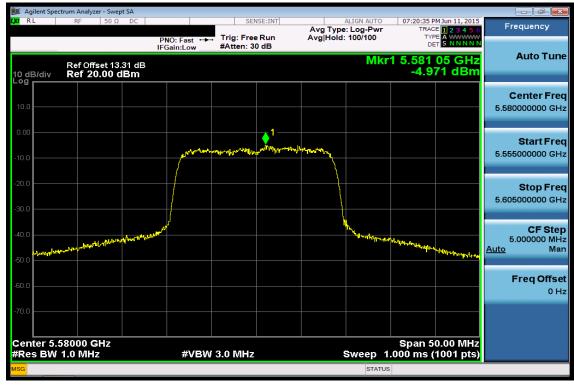
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802.11a, 5470~5725 MHz

Peak Power Spectral Density Data Plot (CH Low 5500 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5580 MHz)



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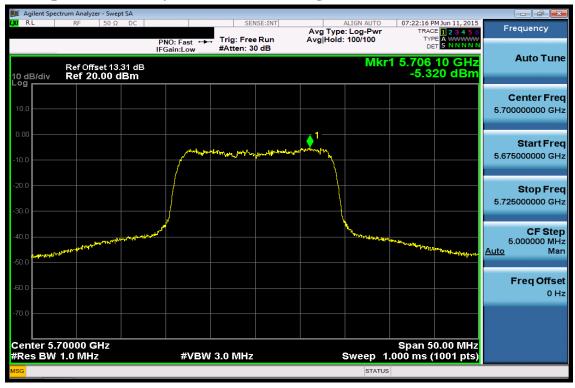
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Peak Power Spectral Density Data Plot (CH High 5700 MHz)



802.11a, 5725~5850 MHz

Peak Power Spectral Density Data Plot (CH Low 5745 MHz)



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Peak Power Spectral Density Data Plot (CH Mid 5785 MHz)



Peak Power Spectral Density Data Plot (CH High 5825 MHz)



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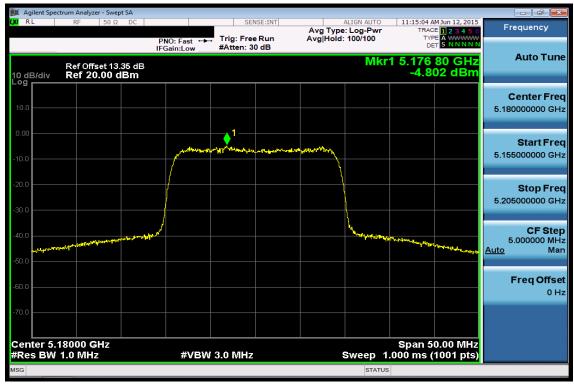


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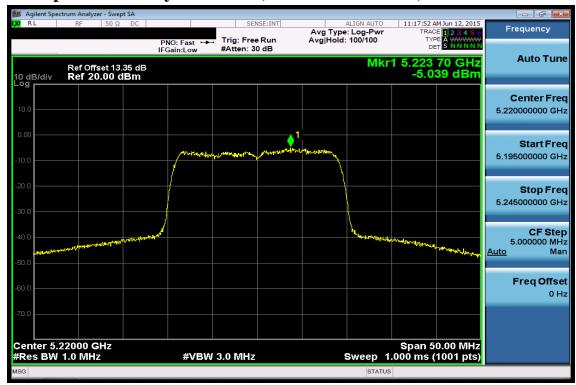
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802.11n HT20, 5150~5250 MHz

Peak Power Spectral Density Data Plot (CH Low 5180 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5220 MHz)



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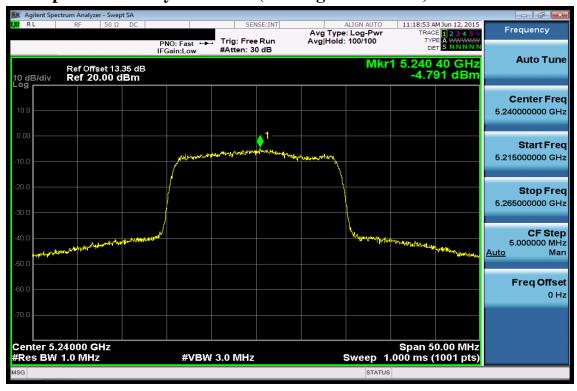
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Peak Power Spectral Density Data Plot (CH High 5240 MHz)



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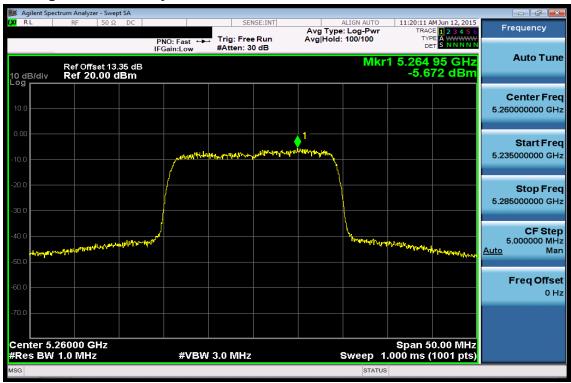


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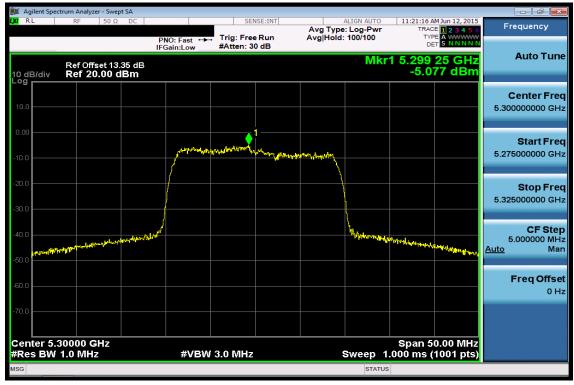
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802.11n HT20, 5250~5350 MHz

Peak Power Spectral Density Data Plot (CH Low 5260MHz)



Peak Power Spectral Density Data Plot (CH Mid 5300 MHz)



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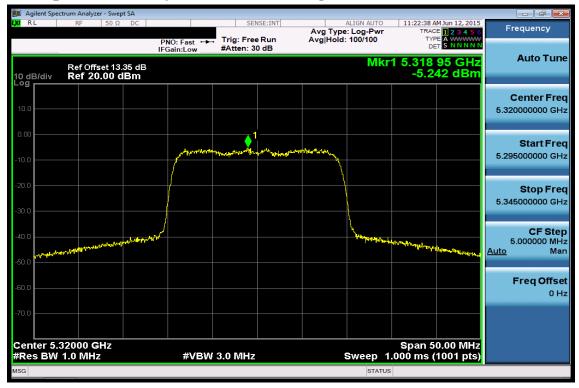
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Peak Power Spectral Density Data Plot (CH High 5320 MHz)



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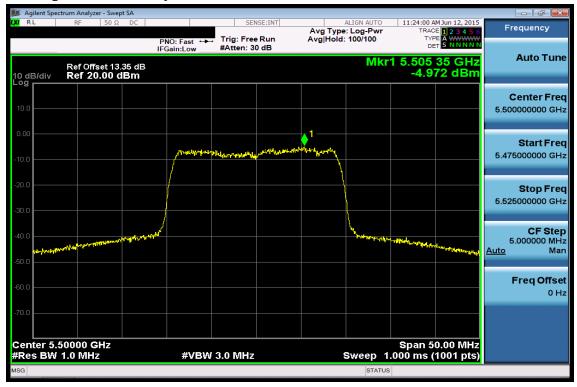


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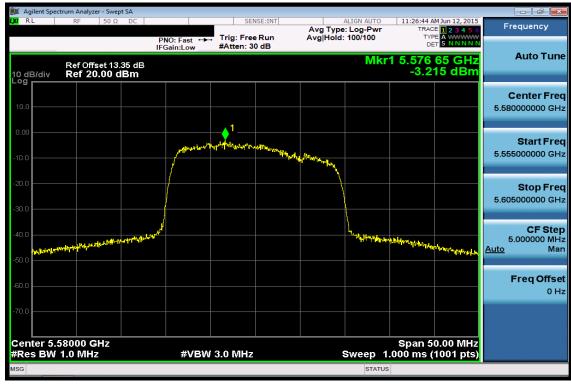
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802.11n HT20, 5470~5725 MHz

Peak Power Spectral Density Data Plot (CH Low 5500 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5580MHz)



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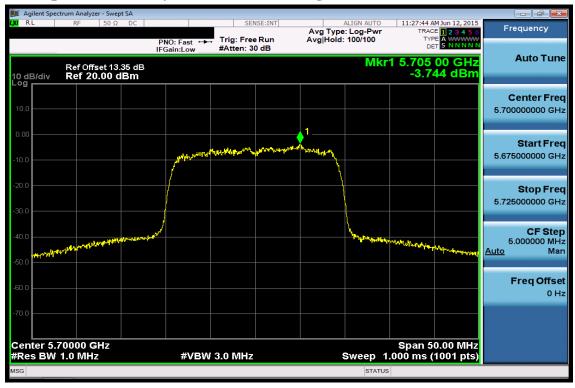
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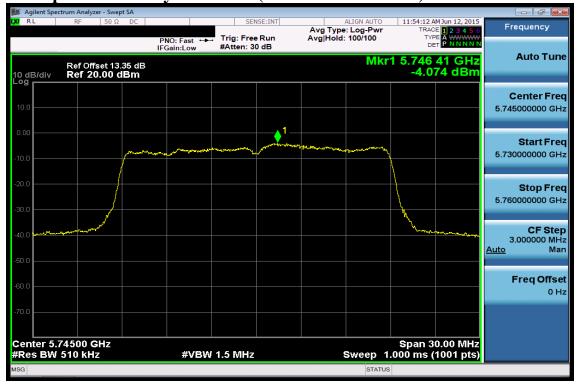
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Peak Power Spectral Density Data Plot (CH High 5700 MHz)



802.11n HT20, 5725~5850 MHz

Peak Power Spectral Density Data Plot (CH Low 5745 MHz)



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Peak Power Spectral Density Data Plot (CH Mid 5785 MHz)



Peak Power Spectral Density Data Plot (CH High 5825 MHz)



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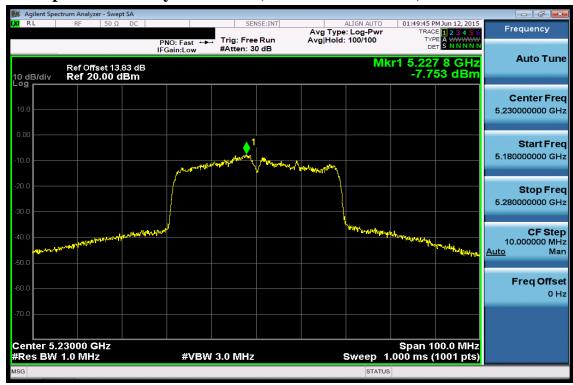
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802.11n HT40, 5150~5250 MHz

Peak Power Spectral Density Data Plot (CH Low 5190 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5230 MHz)



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802.11n HT40, 5250~5350 MHz Peak Power Spectral Density Data Plot (CH Low 5270MHz)



Peak Power Spectral Density Data Plot (CH Mid 5310 MHz)



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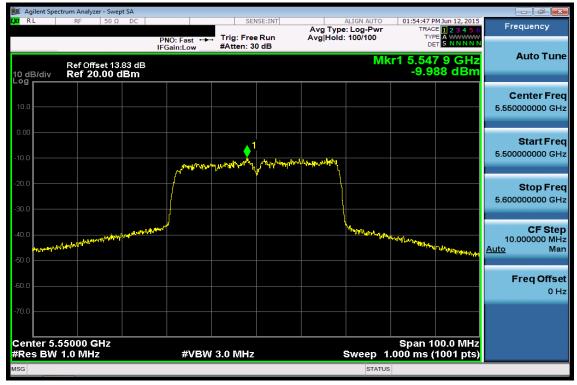
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802.11n HT40, 5470~5725 MHz

Peak Power Spectral Density Data Plot (CH Low 5510 MHz)



Peak Power Spectral Density Data Plot (CH Mid 5550MHz)



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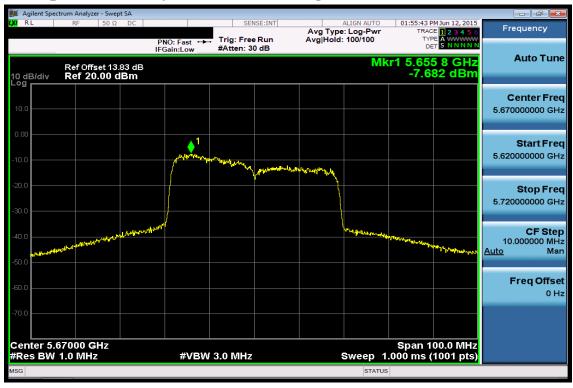
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Peak Power Spectral Density Data Plot (CH High 5670 MHz)



802.11n HT40, 5725~5850 MHz

Peak Power Spectral Density Data Plot (CH Low 5755 MHz)



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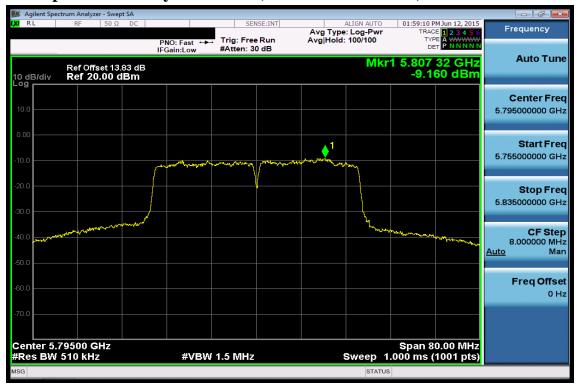
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Peak Power Spectral Density Data Plot (CH Mid 5795 MHz)



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11. UNDESIRABLE RADIATED EMISSION MEASUREMENT1

11.1 Standard Applicable

The maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- 1. For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- 2. For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- 3. For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- 4. 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.

APPLICABLE TO	LII	MIT	
FCC KDB 789033 D02 General UNII Test Procedures New Rules v01	FIELD STRENGTH AT 3m		
	PK: 74 (dBμV/m)	AV 54 (dBμV/m)	
APPLICABLE TO	EIRP LIMIT	FIELD STRENGTH AT 3m	
15.407(b)(1)			
15.407(b)(2)	PK: -27 (dBm/MHz)	PK: 68.3 (dBµV/m)	
15.407(b)(3)			
15.407(b)(4)	PK: -27 (dBm/MHz) PK: -17 (dBm/MHz)	PK: 68.3 (dBμV/m) PK: 78.2 (dBμV/m)	

EIRP = $((E*d)^2) / 30$, where E is the field in V/m, d is the measurement distance (3m), EIRP is the equivalent isotropically radiated power in Watts.

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Unwanted spurious emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

Frequency (MHz)	Field strength (microvolts/meter)	Distance (meters)
0.009-0.490	2400/F(KHz)	300
0.490-1.705	24000/F(KHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Note:

- 1. The lower limit shall apply at the transition frequencies.
- 2. Emission level $(dB\mu V/m) = 20 \log Emission level (dB\mu V/m)$

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11.2 Measurement Equipment Used

966 Chamber									
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.				
TYPE		NUMBER	NUMBER	CAL.					
EMI Test Receiver	R&S	ESU 40	100363	04/09/2015	04/08/2016				
Loop Antenna	ETS-Lindgren	6502	00143303	12/09/2014	12/08/2015				
Broadband Antenna	TESEQ	CBL 6112D	35240	12/05/2014	12/04/2015				
Horn Antenna	ETS-Lindgren	3117	00143272	12/08/2014	12/07/2015				
Horn Antenna	ETS-Lindgren	3160-09	00117911	11/13/2014	11/12/2015				
Horn Antenna	ETS-Lindgren	3160-10	00117783	11/13/2014	11/12/2015				
Pre Amplifier	EMC Instruments	EMC330	980096	12/19/2014	12/18/2015				
Pre Amplifier	EMC Instruments	EMC0011830	980199	12/19/2014	12/18/2015				
Pre Amplifier	R&S	SCU-18	10204	12/19/2014	12/18/2015				
Pre Amplifier	R&S	SCU-26	100780	12/19/2014	12/18/2015				
Pre Amplifier	R&S	SCU-40	100356	12/19/2014	12/18/2015				
Pre Amplifier	EMC Instruments	EMC184045B	980135	12/19/2014	12/18/2015				
Coaxial Cable	Huber+Suhner	RG 214/U	966Rx 9K-30M	12/19/2014	12/18/2015				
Coaxial Cable	Huber+Suhner	RG 214/U SUCOFLEX 104	966Rx 30M-3G	12/19/2014	12/18/2015				
Coaxial Cable	Huber+Suhner	SUCOFLEX 104	966Rx 1G-18G	12/19/2014	12/18/2015				
Coaxial Cable	Huber+Suhner	mini 141-12 SUCOFLEX 104	SUCOFLEX 18G-40G		12/18/2015				
Coaxial Cable	Huber+Suhner	SUCOFLEX 104	966Tx 30M-18G	12/19/2014	12/18/2015				
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	966Tx 18G-40G	12/19/2014	12/18/2015				
Attenuator	WOKEN	218FS-10	RF27	12/19/2014	12/18/2015				
Site NSA	SGS	966 Chamber C	SAC-C	03/04/2015	03/03/2016				
Site VSWR	SGS	966 Chamber C	SAC-C	03/04/2015	03/03/2016				
DC Power Supply	HOLA	DP-3003	D7070035	05/04/2015	05/03/2016				
Controller	MF	MF-7802	N/A	N.C.R.	N.C.R.				
Antenna Master	MF	N/A	N/A	N.C.R.	N.C.R.				
Turn Table	MF	N/A	N/A	N.C.R.	N.C.R.				
Test Software	World-Pallas	Dr. E	V 3.0 Lite	N.C.R.	N.C.R.				

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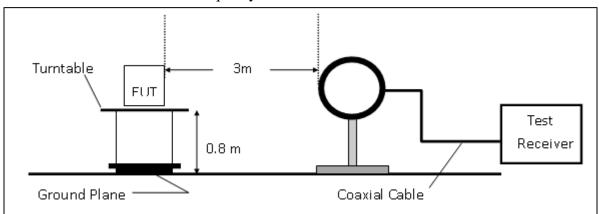


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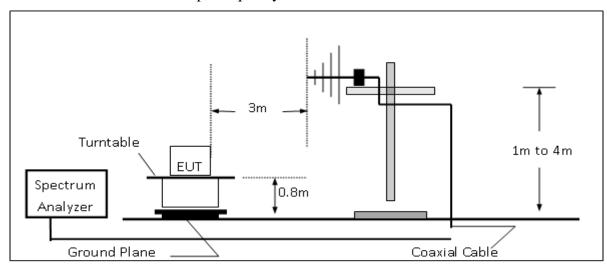
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Test SET-UP 11.3

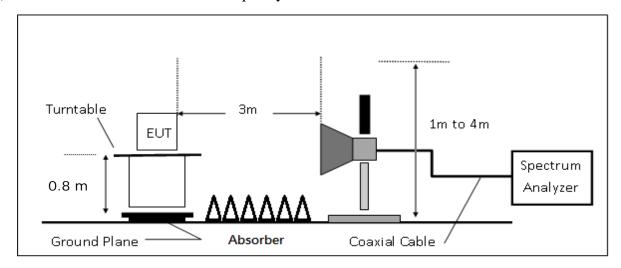
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



(B) Radiated Emission Test Set-Up, Frequency form 30MHz to 1000MHz



(C) Radiated Emission Test Set-UP Frequency Over 1 GHz



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11.4 Measurement Procedure

- The EUT was placed on a turn table which is 0.8m above ground plan.
- 2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01.
- 3. The EUT was placed on a turn table with 0.8m for frequency< 1GHz and 0.8m for frequency> 1GHz above ground plan.
- 4. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
- 5. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
- Set the spectrum analyzer as RBW=120 kHz and VBW=300 kHz for Peak Detector (PK) and 6. Quasi-peak (QP) at frequency below 1 GHz.
- 7. Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 GHz.
- Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW ≥ 1/T (Duty cycle < 98%) for Average Detector at frequency above 1 GHz.
- 9. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 10. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
- 11. Repeat above procedures until all frequency measured were complete.

11.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where	FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
	RA = Reading Amplitude	AG = Amplifier Gain
	AF = Antenna Factor	

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

Note:

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency.

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

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11.6 Test Results of Radiated Spurious Emissions form 9 KHz to 30 MHz

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit per 15.31(o) was not reported.

11.7 **Measurement Result**

Refer to attach tabular data sheets.

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Radiated Spurious Emission Measurement Result

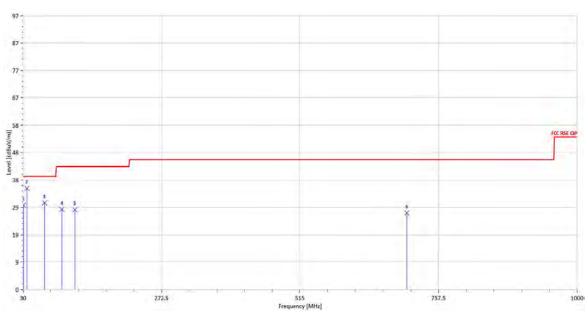
Below 1GHz Worst-Case Data:

802.11a, 5150~5250 MHz

Operation Band :802.11 a Test Date :2015-06-28 Fundamental Frequency :5220 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :TX MID Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
30.97	QP	S	43.50	-13.64	29.86	40.00	-10.14
36.79	Peak	S	52.80	-16.96	35.84	40.00	-4.16
67.83	Peak	S	58.60	-27.95	30.66	40.00	-9.34
97.90	Peak	S	52.54	-24.19	28.35	43.50	-15.15
121.18	Peak	S	49.63	-21.41	28.22	43.50	-15.28
702.21	Peak	S	38.11	-11.03	27.08	46.00	-18.92

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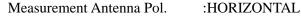
Operation Band Fundamental Frequency

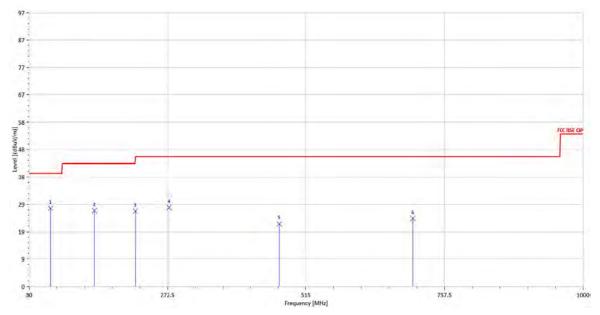
Operation Mode EUT Pol.

:802.11 a :5220 MHz :TX MID :E2 Plan

Test Date Temp./Humi. :2015-06-28 :22 deg_C / 57 RH

Engineer





Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	${ m d} B \mu V$	dB	dBμV/m	dBμV/m	dB
67.83	Peak	S	55.62	-27.95	27.67	40.00	-12.33
144.46	Peak	S	48.98	-22.17	26.82	43.50	-16.68
216.24	Peak	S	49.62	-22.96	26.66	46.00	-19.34
275.41	Peak	S	47.64	-19.71	27.93	46.00	-18.07
468.44	Peak	S	36.37	-14.22	22.15	46.00	-23.85
702.21	Peak	S	35.09	-11.03	24.05	46.00	-21.95

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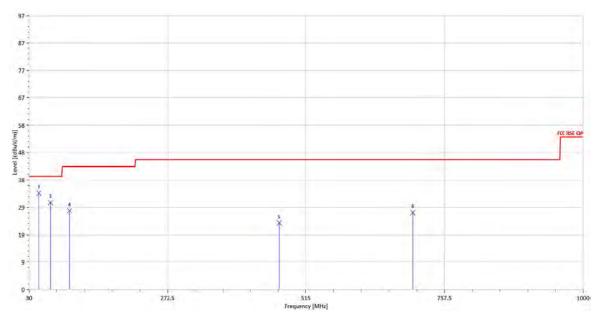
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802.11a, 5250~5350 MHz

Operation Band :802.11 a Test Date :2015-06-28

Fundamental Frequency :5300 MHz Temp./Humi. :22 deg_C / 57 RH Operation Mode :TX MID Engineer

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	${ m d} B \mu V$	dB	dBμV/m	dBμV/m	dB
30.00	Peak	S	48.13	-13.11	35.02	40.00	-4.98
47.46	Peak	S	58.05	-23.95	34.10	40.00	-5.90
67.83	Peak	S	58.69	-27.95	30.74	40.00	-9.26
100.81	Peak	S	51.58	-23.69	27.89	43.50	-15.61
468.44	Peak	S	37.77	-14.22	23.56	46.00	-22.44
702.21	Peak	S	38.25	-11.03	27.21	46.00	-18.79

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Operation Band Fundamental Frequency

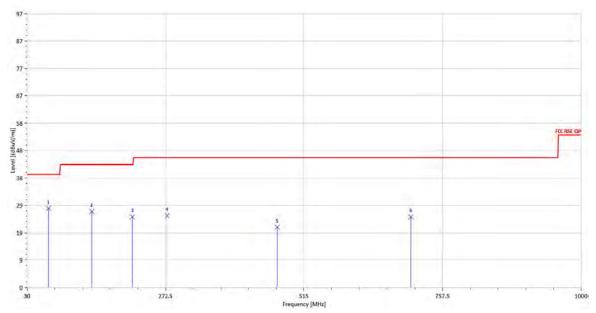
Operation Mode EUT Pol.

:802.11 a :5300 MHz :TX MID :E2 Plan

Test Date Temp./Humi. :2015-06-28 :22 deg_C / 57 RH

Engineer

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	${ m d} B \mu V$	dB	dBμV/m	dBμV/m	dB
67.83	Peak	S	55.95	-27.95	28.01	40.00	-11.99
143.49	Peak	S	48.93	-22.04	26.89	43.50	-16.61
214.30	Peak	S	47.93	-22.94	24.99	43.50	-18.51
275.41	Peak	S	45.17	-19.71	25.46	46.00	-20.54
468.44	Peak	S	35.58	-14.22	21.37	46.00	-24.63
702.21	Peak	S	36.01	-11.03	24.97	46.00	-21.03

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802.11a, 5470~5725 MHz

EUT Pol.

Operation Band :802.11 a Fundamental Frequency :5580 MHz Operation Mode :TX MID

:E2 Plan

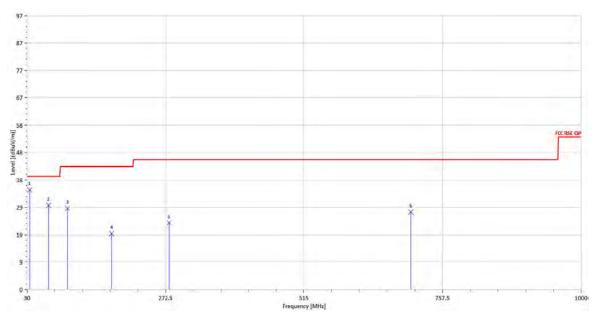
Temp./Humi. Engineer

Test Date

:2015-06-28

:22 deg_C / 57 RH

Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	${ m d} B \mu V$	dB	dBμV/m	dBμV/m	dB
34.85	Peak	S	51.04	-15.75	35.29	40.00	-4.71
67.83	Peak	S	57.74	-27.95	29.79	40.00	-10.21
100.81	Peak	S	52.42	-23.69	28.73	43.50	-14.77
178.41	Peak	S	44.10	-24.30	19.81	43.50	-23.69
279.29	Peak	S	43.29	-19.71	23.58	46.00	-22.42
702.21	Peak	S	38.43	-11.03	27.40	46.00	-18.60

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Operation Band Fundamental Frequency

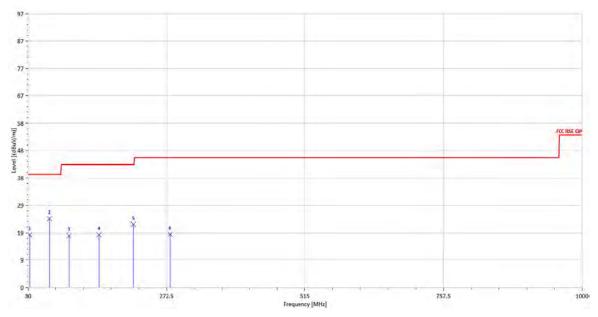
Operation Mode EUT Pol.

:802.11 a :5580 MHz :TX MID :E2 Plan

Test Date Temp./Humi. :2015-06-28 :22 deg_C / 57 RH

Engineer

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	${ m d} B \mu V$	dB	dBμV/m	dBμV/m	dB
32.91	Peak	S	33.33	-14.69	18.63	40.00	-21.37
67.83	Peak	S	52.33	-27.95	24.38	40.00	-15.62
101.78	Peak	S	41.85	-23.54	18.31	43.50	-25.19
154.16	Peak	S	41.48	-22.80	18.68	43.50	-24.82
214.30	Peak	S	45.32	-22.94	22.38	43.50	-21.12
279.29	Peak	S	38.54	-19.71	18.83	46.00	-27.17

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802.11a, 5725~5850 MHz

Operation Band :802.11 a Fundamental Frequency :5785 MHz

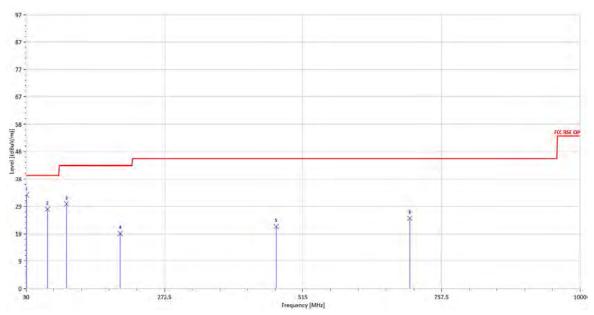
Operation Mode :TX MID

EUT Pol. :E2 Plan

Test Date :2015-06-28 Temp./Humi. :22 deg_C / 57 RH

Engineer

Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	${ m d} B \mu V$	dB	dBμV/m	dBμV/m	dB
30.97	Peak	S	46.77	-13.64	33.13	40.00	-6.87
67.83	Peak	S	56.00	-27.95	28.05	40.00	-11.95
100.81	Peak	S	53.67	-23.69	29.98	43.50	-13.52
194.90	Peak	S	43.18	-23.73	19.45	43.50	-24.05
468.44	Peak	S	36.17	-14.22	21.95	46.00	-24.05
702.21	Peak	S	35.84	-11.03	24.81	46.00	-21.19

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Operation Band Fundamental Frequency

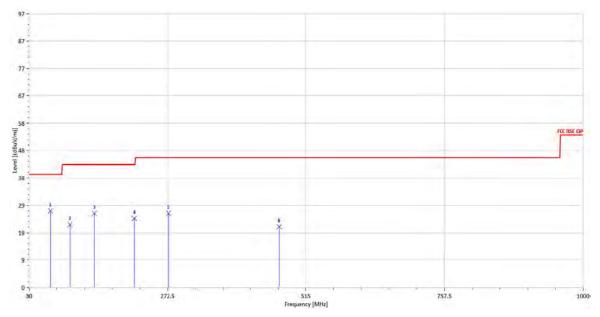
Operation Mode EUT Pol.

:802.11 a :5785 MHz :TX MID :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	${ m d} B \mu V$	dB	dBμV/m	dBμV/m	dB
67.83	Peak	S	55.04	-27.95	27.09	40.00	-12.91
101.78	Peak	S	45.82	-23.54	22.28	43.50	-21.22
144.46	Peak	S	48.38	-22.17	26.22	43.50	-17.28
214.30	Peak	S	47.38	-22.94	24.44	43.50	-19.06
274.44	Peak	S	45.94	-19.69	26.25	46.00	-19.75
468.44	Peak	S	35.73	-14.22	21.52	46.00	-24.48

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:2015-06-28

:22 deg_C / 57 RH

Above 1GHz Worst-Case Data:

802.11a, 5150~5250 MHz Operation Band

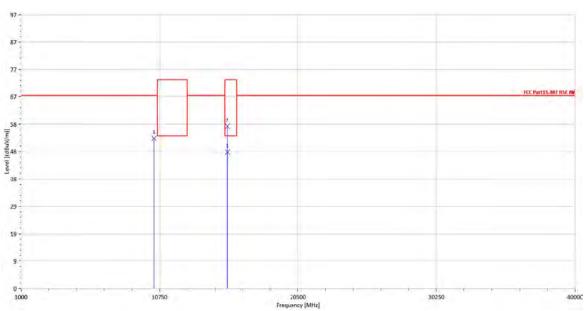
Operation Mode

:802.11 a Fundamental Frequency :5180 MHz

Temp./Humi. :TX LOW

Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL



Test Date

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin	
	Mode		Reading Level		FS	@3m		
MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBμV/m	dB	
10360.00	Peak	Н	34.21	18.94	53.15	68.30	-15.16	
15540.00	Peak	Н	31.67	25.80	57.47	74.00	-16.53	
15540.00	Average	Н	22.48	25.80	48.28	54.00	-5.72	

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台灣檢驗科技股份有限公司



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Operation Band Fundamental Frequency Operation Mode

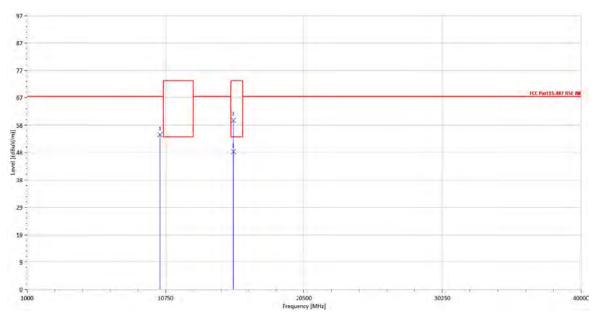
EUT Pol.

:802.11 a :5180 MHz :TX LOW :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10360.00	Peak	Н	35.82	18.94	54.76	68.30	-13.54
15540.00	Peak	Н	34.11	25.80	59.91	74.00	-14.09
15540.00	Average	Н	22.99	25.80	48.79	54.00	-5.21

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Operation Band Fundamental Frequency Operation Mode

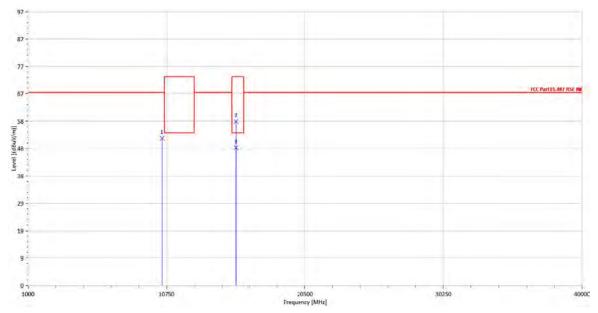
:5220 MHz :TX MID EUT Pol. :E2 Plan

:802.11 a

Test Date Temp./Humi. :2015-06-28 :22 deg_C / 57 RH

Engineer

Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10440.00	Peak	Н	33.11	19.03	52.13	68.30	-16.17
15660.00	Peak	Н	32.00	26.06	58.06	74.00	-15.94
15660.00	Average	Н	22.69	26.06	48.75	54.00	-5.25

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Operation Band Fundamental Frequency

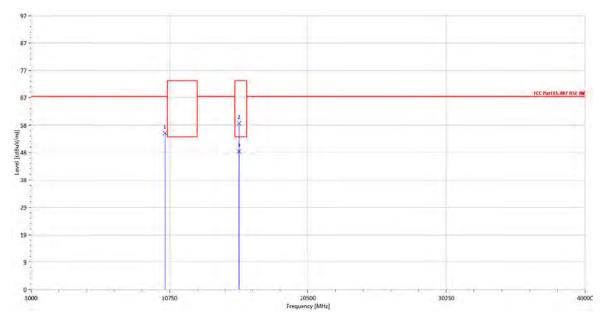
Operation Mode EUT Pol.

:802.11 a :5220 MHz :TX MID :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10440.00	Peak	Н	36.30	19.03	55.33	68.30	-12.97
15660.00	Peak	Н	32.74	26.06	58.80	74.00	-15.20
15660.00	Average	Н	22.85	26.06	48.91	54.00	-5.09

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Operation Band Fundamental Frequency

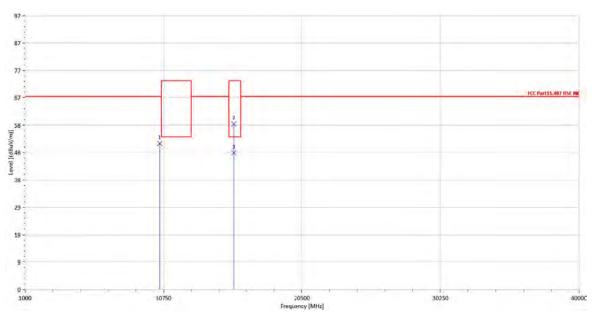
Operation Mode EUT Pol.

:802.11 a :5240 MHz :TX HIGH :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10480.00	Peak	Н	32.57	19.13	51.70	68.30	-16.60
15720.00	Peak	Н	32.49	26.13	58.62	74.00	-15.38
15720.00	Average	Н	22.22	26.13	48.35	54.00	-5.65

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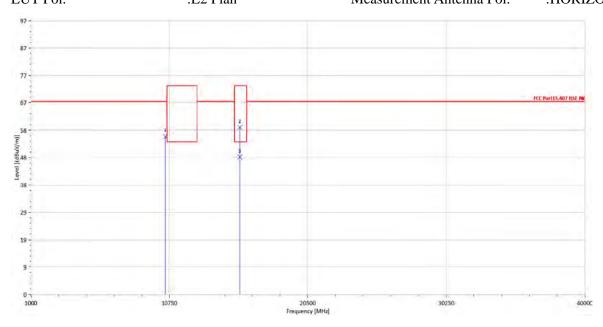
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Operation Band :802.11 a Test Date :2015-06-28

Fundamental Frequency :5240 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :TX HIGH Engineer EUT Pol. :E2 Plan :HORIZONTAL Measurement Antenna Pol.



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10480.00	Peak	Н	36.79	19.13	55.92	68.30	-12.38
15720.00	Peak	Н	32.96	26.13	59.09	74.00	-14.91
15720.00	Average	Н	22.51	26.13	48.64	54.00	-5.36

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Band edge falling to restricted band

Operation Band :802.11 a Test Date :2015-06-28

Fundamental Frequency :5180 MHz Temp./Humi. :22 deg_C / 57 RH Operation Mode Engineer :Band Edge LOW :Vito

:VERTICAL EUT Pol. :E2 Plan Measurement Antenna Pol.

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBμV/m	dB
5148.76	Peak	S	44.89	11.15	56.04	74.00	-17.96
5148.76	Average	S	32.33	11.15	43.48	54.00	-10.52
5150.00	Peak	E	43.51	11.14	54.66	74.00	-19.34
5150.00	Average	E	32.36	11.14	43.50	54.00	-10.50

Operation Band :802.11 a Test Date :2015-06-28 Fundamental Frequency :5180 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge LOW Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

	Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
		Mode		Reading Level		FS	@3m	
_	MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBμV/m	dB
	5150.00	Peak	E	45.55	11.14	56.69	74.00	-17.31
	5150.00	Average	E	33.71	11.14	44.85	54.00	-9.15

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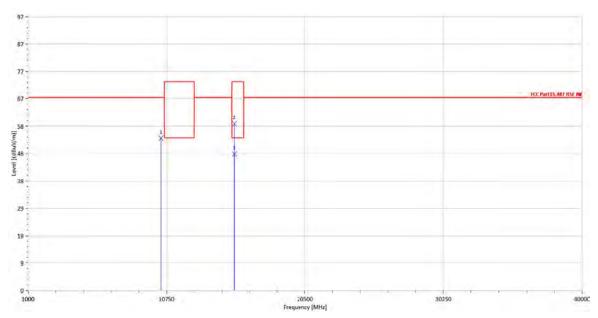
:Vito

Radiated Spurious Emission Measurement Result 802.11n HT20, 5150~5250 MHz

Operation Band :802.11 n20M **Test Date** :2015-06-28

Fundamental Frequency :5180 MHz Temp./Humi. :22 deg_C / 57 RH Engineer Operation Mode :TX LOW

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10360.00	Peak	Н	34.98	18.94	53.92	68.30	-14.38
15540.00	Peak	Н	33.23	25.80	59.03	74.00	-14.97
15540.00	Average	H	22.49	25.80	48.29	54.00	-5.71

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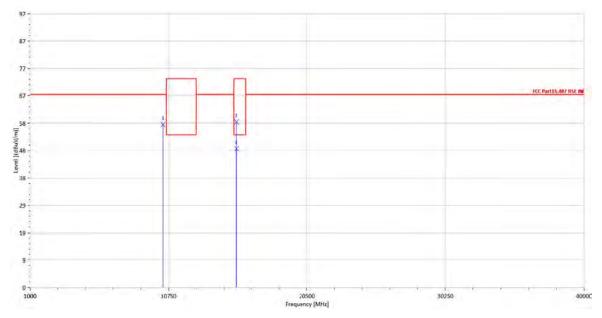
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5180 MHz :TX LOW :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBµV/m	dBµV/m	dB
10360.00	Peak	Н	38.77	18.94	57.71	68.30	-10.59
15540.00	Peak	Н	32.80	25.80	58.60	74.00	-15.40
15540.00	Average	Н	23.36	25.80	49.16	54.00	-4.84

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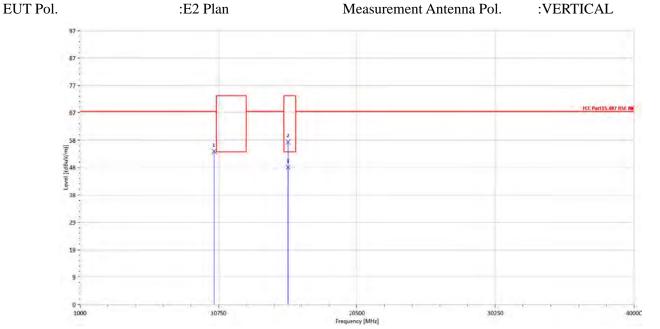
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Operation Band Fundamental Frequency Operation Mode

:802.11 n20M :5220 MHz :TX MID :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10440.00	Peak	Н	35.18	19.03	54.21	68.30	-14.09
15660.00	Peak	Н	31.49	26.06	57.56	74.00	-16.44
15660.00	Average	Н	22.48	26.06	48.54	54.00	-5.46

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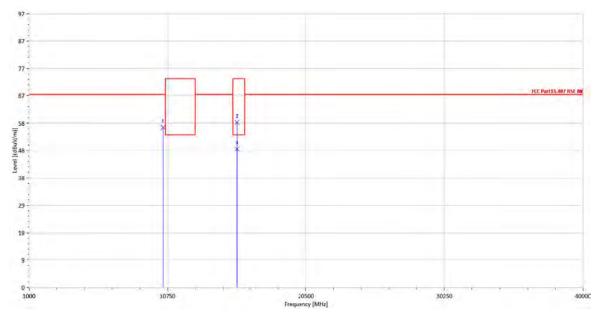
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5220 MHz :TX MID :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10440.00	Peak	Н	37.66	19.03	56.69	68.30	-11.61
15660.00	Peak	Н	32.38	26.06	58.44	74.00	-15.56
15660.00	Average	Н	22.97	26.06	49.03	54.00	-4.97

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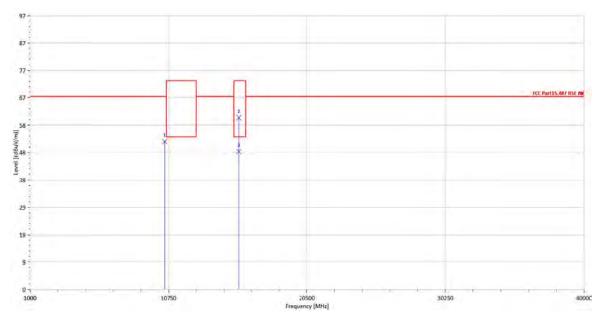
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5240 MHz :TX HIGH :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10480.00	Peak	Н	33.25	19.13	52.38	68.30	-15.92
15720.00	Peak	Н	34.69	26.13	60.82	74.00	-13.18
15720.00	Average	Н	22.69	26.13	48.82	54.00	-5.18

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Operation Band Fundamental Frequency Operation Mode

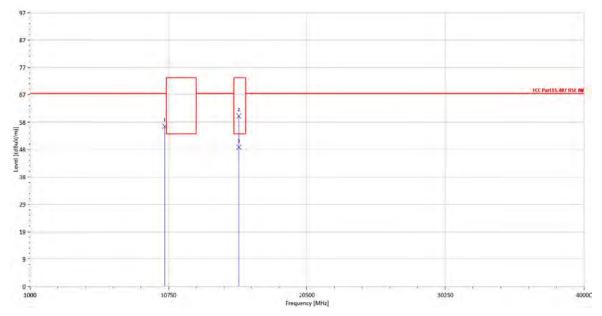
EUT Pol.

:802.11 n20M :5240 MHz :TX HIGH :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d}B\mu\mathrm{V}$	dB	dBμV/m	dBµV/m	dB
10480.00	Н	Peak	34.60	18.23	52.83	68.30	-15.47

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Band edge falling to restricted band

Operation Band :802.11 n20M Test Date :2015-06-28 Fundamental Frequency :5180 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge LOW Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
5150.00	Peak	E	43.46	11.14	54.60	74.00	-19.40
5150.00	Average	E	32.40	11.14	43.54	54.00	-10.46

Operation Band :802.11 n20M Test Date :2015-06-28 Fundamental Frequency :5180 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge LOW Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

Factor(dB) = Antenna Factor($dB\mu V/m$) + Cable Loss(dB) - Pre Amplifier Gain(dB)

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

The trace on RE(radiation emission) plot is as colored blue, and the detection manner we've employed is peak detector.

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBµV/m	dB
5150.00	Peak	E	45.65	11.14	56.79	74.00	-17.21
5150.00	Average	E	33.72	11.14	44.86	54.00	-9.14

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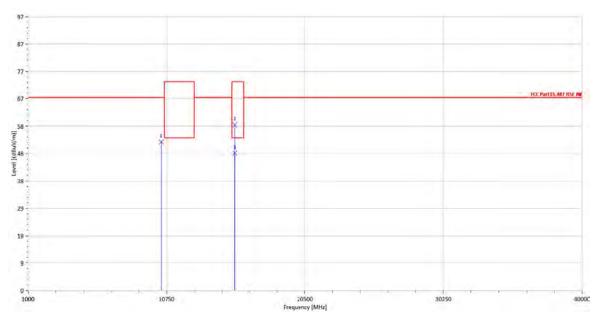
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Radiated Spurious Emission Measurement Result 802.11n HT40, 5150~5250 MHz

Operation B'and :802.11 n40M **Test Date** :2015-06-28

Fundamental Frequency :5190 MHz Temp./Humi. :22 deg_C / 57 RH Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10380.00	Peak	Н	33.60	19.01	52.61	68.30	-15.69
15570.00	Peak	Н	32.80	25.80	58.60	74.00	-15.40
15570.00	Average	Н	22.77	25.80	48.57	54.00	-5.43

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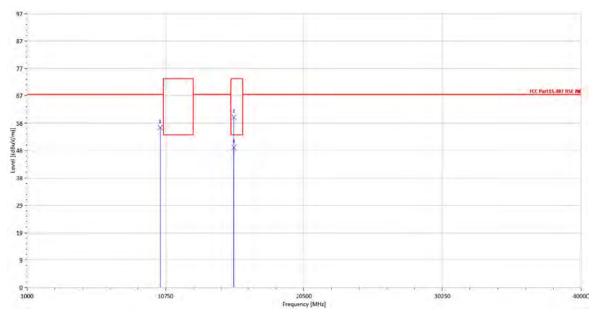
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5190 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10380.00	Peak	Н	37.60	19.01	56.61	68.30	-11.69
15570.00	Peak	Н	34.44	25.80	60.25	74.00	-13.75
15570.00	Average	Н	23.78	25.80	49.58	54.00	-4.42

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Operation Band Fundamental Frequency Operation Mode

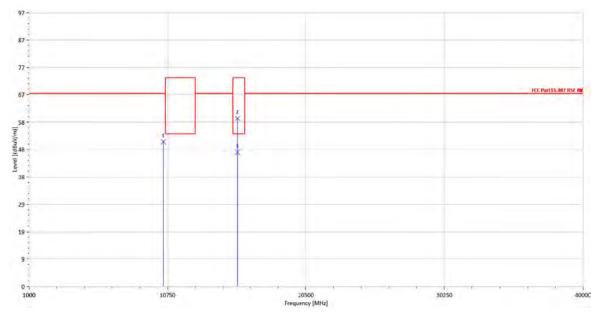
EUT Pol.

:802.11 n40M :5230 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10460.00	Peak	Н	32.12	19.11	51.24	68.30	-17.06
15690.00	Peak	Н	33.49	26.05	59.54	74.00	-14.46
15690.00	Average	Н	21.46	26.05	47.51	54.00	-6.49

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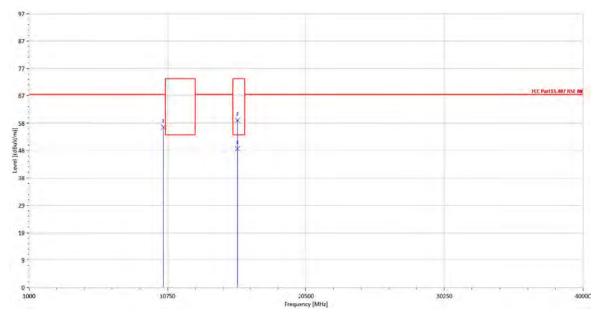
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5230 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10460.00	Peak	Н	37.66	19.11	56.78	68.30	-11.52
15690.00	Peak	Н	33.12	26.05	59.16	74.00	-14.84
15690.00	Average	Н	23.15	26.05	49.20	54.00	-4.80

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Band edge falling to restricted band

Operation Band :802.11 n40M Test Date :2015-06-28 Fundamental Frequency :5190 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge LOW Engineer :Vito

:VERTICAL EUT Pol. :E2 Plane Measurement Antenna Pol.

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBμV/m	dB
5149.36	Peak	S	44.58	11.14	55.72	74.00	-18.28
5149.36	Average	S	32.33	11.14	43.47	54.00	-10.53
5150.00	Peak	E	42.75	11.14	53.89	74.00	-20.11
5150.00	Average	E	32.32	11.14	43.46	54.00	-10.54

Operation Band :802.11 n40M Test Date :2015-06-28 Fundamental Frequency :5190 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge LOW Engineer :Vito

:E2 Plane EUT Pol. Measurement Antenna Pol. :HORIZONTAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBµV/m	dB
5145.52	Peak	S	46.54	11.16	57.70	74.00	-16.30
5145.52	Average	S	33.20	11.16	44.36	54.00	-9.64
5150.00	Peak	E	44.73	11.14	55.87	74.00	-18.13
5150.00	Average	E	33.32	11.14	44.46	54.00	-9.54

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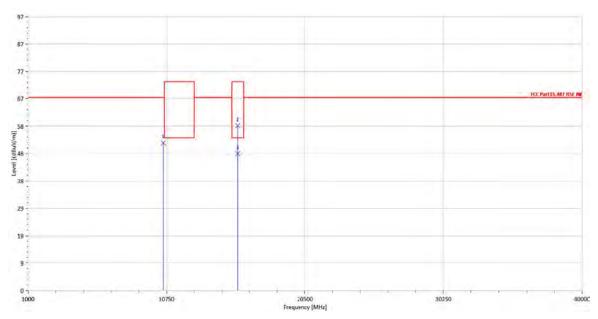
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Radiated Spurious Emission Measurement Result 802.11a, 5250MHz-5350MHz

Operation Band :802.11 a Test Date :2015-06-28

Fundamental Frequency :5260 MHz Temp./Humi. :22 deg_C / 57 RH Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10520.00	Peak	Н	32.99	19.25	52.24	68.30	-16.06
15780.00	Peak	Н	32.08	26.25	58.33	74.00	-15.67
15780.00	Average	H	22.13	26.25	48.38	54.00	-5.62

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Operation Band Fundamental Frequency

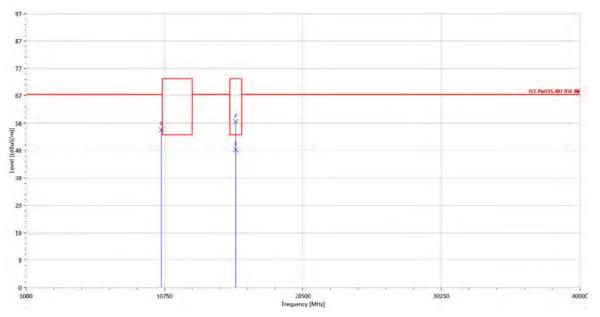
Operation Mode EUT Pol.

:802.11 a :5260 MHz :TX LOW :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10520.00	Peak	Н	36.57	19.25	55.82	68.30	-12.48
15780.00	Peak	Н	32.46	26.25	58.71	74.00	-15.29
15780.00	Average	Н	22.47	26.25	48.72	54.00	-5.28

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GS Taiwan Ltd.



Report No.: E2/2015/60007 Issue Date: Jun. 30, 2015

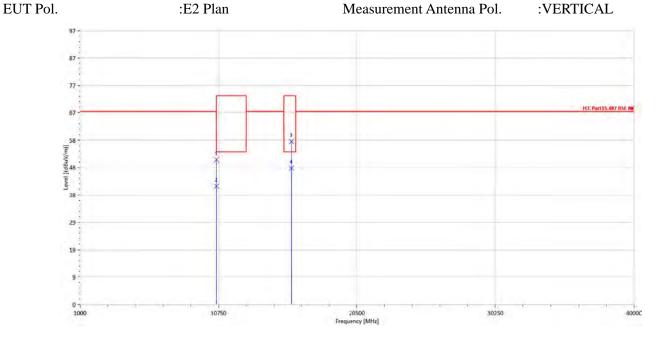
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Operation Band Fundamental Frequency Operation Mode

:802.11 a :5300 MHz :TX MID :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10600.00	Peak	Н	31.91	19.38	51.29	74.00	-22.71
10600.00	Average	Н	22.50	19.38	41.88	54.00	-12.12
15900.00	Peak	Н	31.32	26.39	57.71	74.00	-16.29
15900.00	Average	Н	21.84	26.39	48.23	54.00	-5.77

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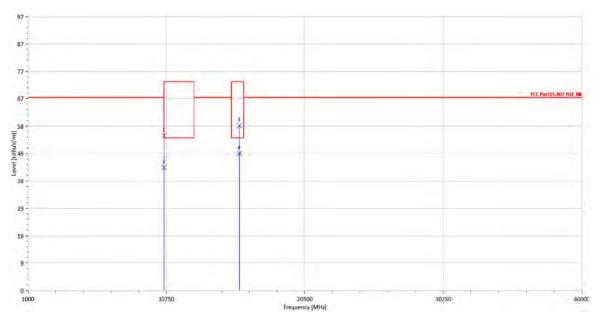
Operation Band :802.11 a Fundamental Frequency :5300 MHz

Operation Mode :TX MID EUT Pol. :E2 Plan

Test Date :2015-06-28 Temp./Humi. :22 deg_C / 57 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10600.00	Peak	Н	35.38	19.38	54.76	74.00	-19.24
10600.00	Average	Н	24.14	19.38	43.52	54.00	-10.48
15900.00	Peak	Н	31.96	26.39	58.35	74.00	-15.65
15900.00	Average	Н	22.05	26.39	48.44	54.00	-5.56

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Operation Band Fundamental Frequency Operation Mode

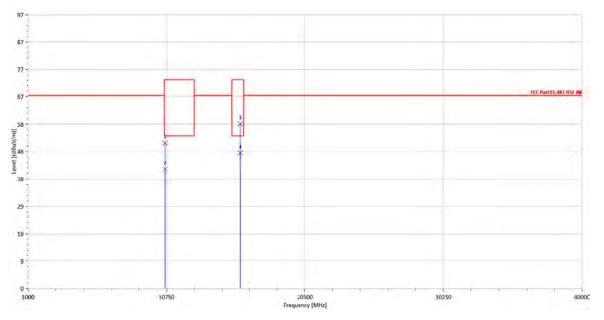
EUT Pol.

:802.11 a :5320 MHz :TX HIGH :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10640.00	Peak	Н	32.23	19.28	51.51	74.00	-22.49
10640.00	Average	Н	22.93	19.28	42.21	54.00	-11.79
15960.00	Peak	Н	31.80	26.48	58.28	74.00	-15.72
15960.00	Average	Н	21.49	26.48	47.97	54.00	-6.03

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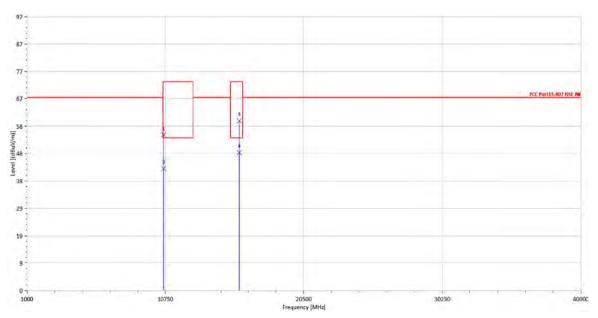
Operation Band :802.11 a

Fundamental Frequency :5320 MHz Operation Mode :TX HIGH

EUT Pol. :E2 Plan Test Date :2015-06-28 Temp./Humi. :22 deg_C / 57 RH

Engineer

:HORIZONTAL Measurement Antenna Pol.



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10640.00	Peak	Н	35.81	19.28	55.09	74.00	-18.91
10640.00	Average	Н	23.86	19.28	43.14	54.00	-10.86
15960.00	Peak	Н	33.63	26.48	60.11	74.00	-13.89
15960.00	Average	Н	22.37	26.48	48.85	54.00	-5.15

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Band edge falling to restricted band

Operation Band :802.11 a Test Date :2015-06-28 Fundamental Frequency :5320 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge HIGH Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
5350.00	Peak	E	43.68	11.30	54.98	74.00	-19.02
5350.00	Average	E	32.75	11.30	44.05	54.00	-9.95

Operation Band :802.11 a Test Date :2015-06-28

Fundamental Frequency :5320 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge HIGH Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Detector	Note	Spectrum	Factor	Actual	Limit	Margin
Mode		Reading Level		FS	@3m	
PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBµV/m	dB
Peak	E	46.02	11.30	57.32	74.00	-16.68
Average	E	34.20	11.30	45.50	54.00	-8.50
Peak	S	47.26	11.31	58.57	74.00	-15.43
Average	S	33.89	11.31	45.20	54.00	-8.80
	Mode PK/QP/AV Peak Average Peak	Mode PK/QP/AV F/H/E/S Peak E Average E Peak S	Mode Reading Level PK/QP/AV F/H/E/S dBμV Peak E 46.02 Average E 34.20 Peak S 47.26	Mode Reading Level PK/QP/AV F/H/E/S dBμV dB Peak E 46.02 11.30 Average E 34.20 11.30 Peak S 47.26 11.31	Mode Reading Level FS PK/QP/AV F/H/E/S dBμV dB dBμV/m Peak E 46.02 11.30 57.32 Average E 34.20 11.30 45.50 Peak S 47.26 11.31 58.57	Mode Reading Level FS @3m PK/QP/AV F/H/E/S dBμV dB dBμV/m dBμV/m Peak E 46.02 11.30 57.32 74.00 Average E 34.20 11.30 45.50 54.00 Peak S 47.26 11.31 58.57 74.00

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Report No.: E2/2015/60007 **Issue Date: Jun. 30, 2015**

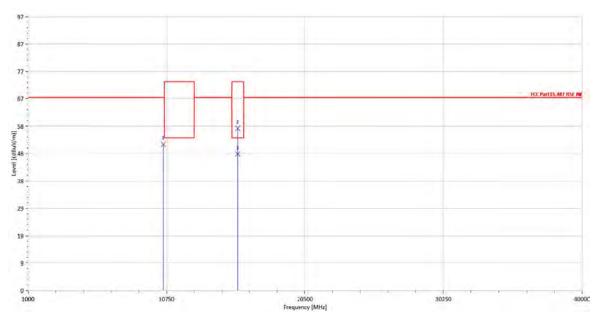
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Radiated Spurious Emission Measurement Result 802.11n HT20, 5250~5350 MHz

Operation Band :802.11 n20M **Test Date** :2015-06-28

Fundamental Frequency :5260 MHz Temp./Humi. :22 deg_C / 57 RH Engineer Operation Mode :TX LOW

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10520.00	Peak	Н	32.52	19.25	51.77	68.30	-16.53
15780.00	Peak	Н	31.18	26.25	57.43	74.00	-16.57
15780.00	Average	Н	22.03	26.25	48.28	54.00	-5.72

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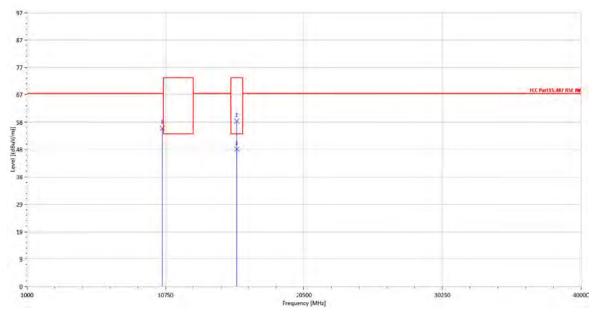
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5260 MHz :TX LOW :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10520.00	Peak	Н	36.81	19.25	56.06	68.30	-12.24
15780.00	Peak	Н	32.30	26.25	58.55	74.00	-15.45
15780.00	Average	Н	22.32	26.25	48.57	54.00	-5.43

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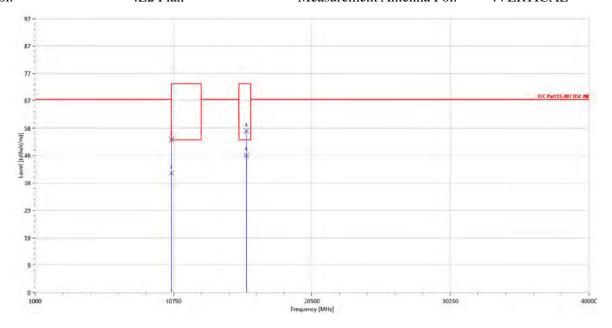
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5300 MHz :TX MID :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBµV/m	dB
10600.00	Peak	Н	34.74	19.38	54.12	74.00	-19.88
10600.00	Average	Н	22.87	19.38	42.25	54.00	-11.75
15900.00	Peak	Н	30.82	26.39	57.21	74.00	-16.79
15900.00	Average	Н	22.17	26.39	48.56	54.00	-5.44

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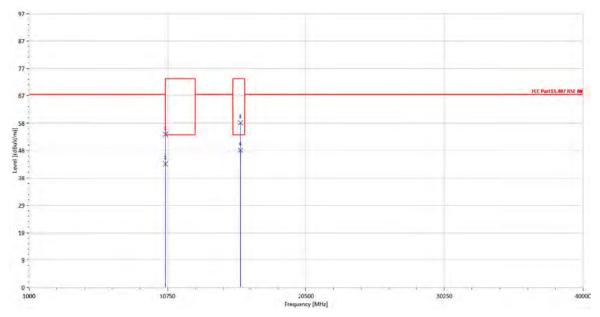
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5300 MHz :TX MID :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10600.00	Peak	Н	34.83	19.38	54.21	74.00	-19.79
10600.00	Average	Н	24.39	19.38	43.77	54.00	-10.23
15900.00	Peak	Н	31.90	26.39	58.29	74.00	-15.71
15900.00	Average	Н	22.18	26.39	48.57	54.00	-5.43

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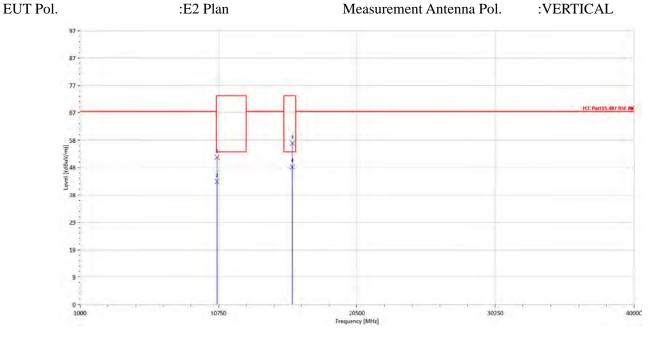
Operation Band Fundamental Frequency Operation Mode

:802.11 n20M :5320 MHz :TX HIGH :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

:VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10640.00	Peak	Н	32.85	19.28	52.13	74.00	-21.87
10640.00	Average	Н	24.32	19.28	43.60	54.00	-10.40
15960.00	Peak	Н	30.64	26.48	57.12	74.00	-16.88
15960.00	Average	Н	22.19	26.48	48.67	54.00	-5.33

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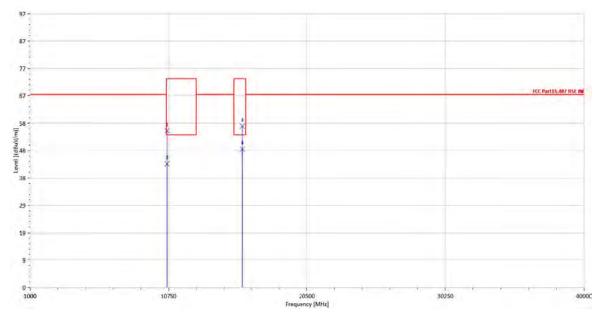
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5320 MHz :TX HIGH :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBµV/m	dB
10640.00	Peak	Н	36.23	19.28	55.51	74.00	-18.49
10640.00	Average	Н	24.52	19.28	43.80	54.00	-10.20
15960.00	Peak	Н	30.64	26.48	57.12	74.00	-16.88
15960.00	Average	Н	22.50	26.48	48.98	54.00	-5.02

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Band edge falling to restricted band

Operation Band :802.11 n20M Test Date :2015-06-28 Fundamental Frequency :5320 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge HIGH Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
5350.00	Peak	E	43.68	11.30	54.98	74.00	-19.02
5350.00	Average	Е	32.77	11.30	44.07	54.00	-9.93

Operation Band :802.11 n20M Test Date :2015-06-28

Fundamental Frequency :5320 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge HIGH Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBµV/m	dB
5350.00	Peak	Н	45.46	11.30	56.76	74.00	-17.24
5350.00	Average	H	33.86	11.30	45.16	54.00	-8.84

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Report No.: E2/2015/60007 **Issue Date: Jun. 30, 2015**

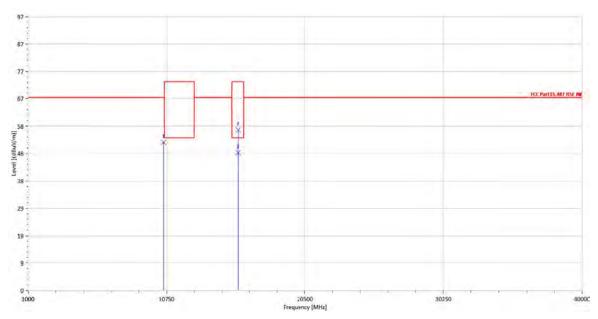
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Radiated Spurious Emission Measurement Result 802.11n HT40, 5250~5350 MHz

Operation Band :802.11 n40M **Test Date** :2015-06-28 Fundamental Frequency :5270 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plane Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10540.00	Peak	Н	33.33	19.13	52.47	68.30	-15.83
15810.00	Peak	Н	30.57	26.30	56.87	74.00	-17.13
15810.00	Average	Н	22.48	26.30	48.78	54.00	-5.22

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Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5270 MHz :TX LOW :E2 Plane

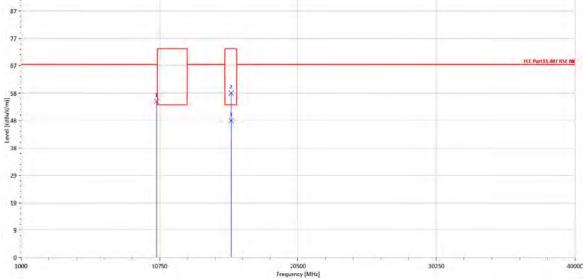
Test Date Temp./Humi. Engineer

Measurement Antenna Pol.

:2015-06-28 :22 deg_C / 57 RH

:HORIZONTAL





Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10540.00	Peak	Н	36.15	19.13	55.29	68.30	-13.01
15810.00	Peak	Н	31.91	26.30	58.21	74.00	-15.79
15810.00	Average	Н	22.19	26.30	48.49	54.00	-5.51

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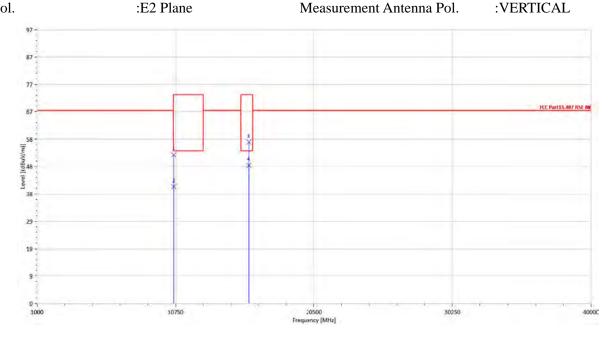
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5310 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

:VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d}B\mu\mathrm{V}$	dB	dBμV/m	dBμV/m	dB
10620.00	Peak	Н	33.28	19.38	52.66	74.00	-21.34
10620.00	Average	H	22.01	19.38	41.39	54.00	-12.61
15930.00	Peak	Н	30.68	26.50	57.18	74.00	-16.82
15930.00	Average	Н	22.41	26.50	48.91	54.00	-5.09

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Operation Band Fundamental Frequency Operation Mode EUT Pol.

1000

:802.11 n40M :5310 MHz :TX HIGH :E2 Plane

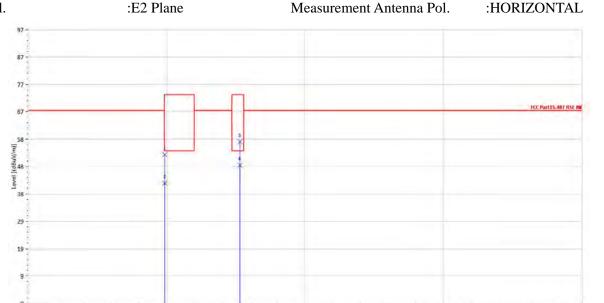
10750

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

4000C

30250



20500

ocy [MHz]

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
10620.00	Peak	Н	33.35	19.38	52.73	74.00	-21.27
10620.00	Average	Н	23.21	19.38	42.59	54.00	-11.41
15930.00	Peak	Н	30.77	26.50	57.27	74.00	-16.73
15930.00	Average	Н	22.48	26.50	48.98	54.00	-5.02

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Band edge falling to restricted band

Operation Band :802.11 n40M Test Date :2015-06-28 Fundamental Frequency :5310 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge HIGH Engineer :Vito

EUT Pol. :E2 Plane Measurement Antenna Pol. :VERTICAL

	Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
		Mode		Reading Level		FS	@3m	
_	MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBµV/m	dB
	5350.00	Peak	E	43.42	11.30	54.72	74.00	-19.28
	5350.00	Average	E	32.58	11.30	43.88	54.00	-10.12

Operation Band :802.11 n40M Test Date :2015-06-28

Fundamental Frequency :5310 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge HIGH Engineer :Vito

EUT Pol. :E2 Plane Measurement Antenna Pol. :HORIZONTAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBµV/m	dB
5350.00	Peak	E	45.41	11.30	56.71	74.00	-17.29
5350.00	Average	E	33.77	11.30	45.07	54.00	-8.93

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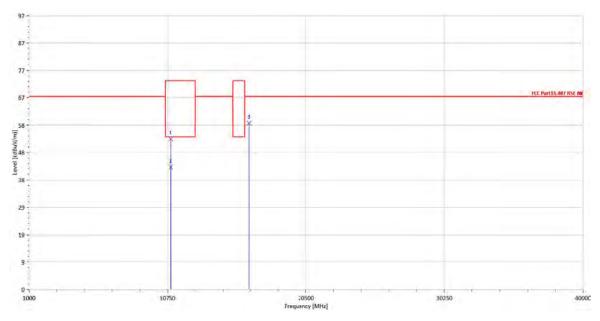
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Radiated Spurious Emission Measurement Result 802.11a, 5470~5725 MHz

Operation Band :802.11 a Test Date :2015-06-28

Fundamental Frequency :5500 MHz Temp./Humi. :22 deg_C / 57 RH Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	${ m d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11000.00	Peak	Н	33.33	20.02	53.34	74.00	-20.66
11000.00	Average	Н	23.30	20.02	43.32	54.00	-10.68
16500.00	Peak	Н	31.75	27.16	58.91	68.30	-9.39

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Operation Band Fundamental Frequency

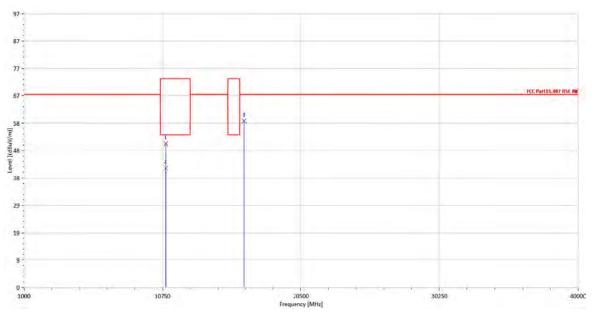
Operation Mode EUT Pol.

:802.11 a :5500 MHz :TX LOW :E2 Plan

Test Date Temp./Humi. :2015-06-28 :22 deg_C / 57 RH

Engineer

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11000.00	Peak	Н	30.87	20.02	50.89	74.00	-23.11
11000.00	Average	Н	22.28	20.02	42.30	54.00	-11.70
16500.00	Peak	Н	31.81	27.16	58.97	68.30	-9.33

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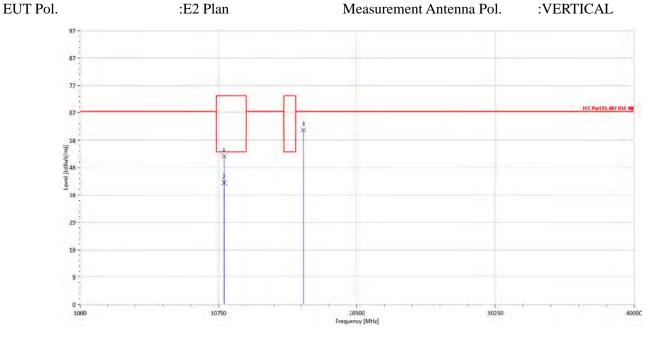
Operation Band Fundamental Frequency Operation Mode

:802.11 a :5580 MHz :TX MID :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

:VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11160.00	Peak	Н	32.17	20.38	52.55	74.00	-21.45
11160.00	Average	Н	22.77	20.38	43.15	54.00	-10.85
16740.00	Peak	Н	34.01	27.79	61.80	68.30	-6.50

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Operation Band Fundamental Frequency

1000

Operation Mode EUT Pol.

:802.11 a :5580 MHz :TX MID :E2 Plan

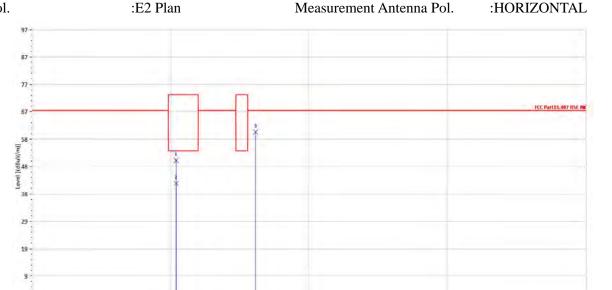
10750

Test Date Temp./Humi. :2015-06-28 :22 deg_C / 57 RH

4000C

Engineer

30250



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11160.00	Peak	Н	30.29	20.38	50.67	74.00	-23.33
11160.00	Average	Н	22.18	20.38	42.56	54.00	-11.44
16740.00	Peak	Н	32.94	27.79	60.73	68.30	-7.57

20500

ocy [MHz]

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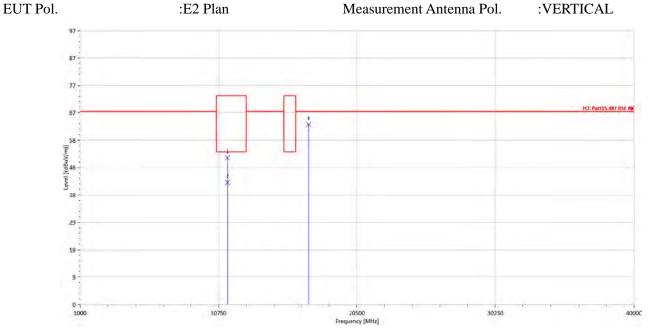
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Operation Band Fundamental Frequency Operation Mode

:802.11 a :5700 MHz :TX HIGH :E2 Plan

Test Date Temp./Humi. :2015-06-28 :22 deg_C / 57 RH

Engineer



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11400.00	Peak	Н	31.13	20.81	51.94	74.00	-22.06
11400.00	Average	Н	22.36	20.81	43.17	54.00	-10.83
17100.00	Peak	Н	35.48	28.26	63.74	68.30	-4.56

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Operation Band Fundamental Frequency Operation Mode

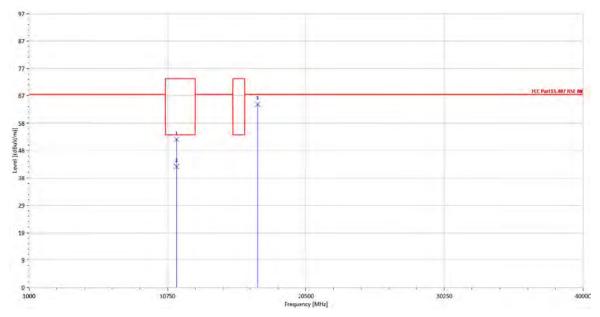
EUT Pol.

:802.11 a :5700 MHz :TX HIGH :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11400.00	Peak	Н	31.61	20.81	52.42	74.00	-21.58
11400.00	Average	Н	22.03	20.81	42.84	54.00	-11.16
17100.00	Peak	Н	36.60	28.26	64.85	68.30	-3.45

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Band edge falling to restricted band

Operation Band :802.11 a Test Date :2015-06-28 Fundamental Frequency :5500 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge LOW Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
5460.00	Peak	E	44.07	11.46	55.53	74.00	-18.47
5460.00	Average	E	32.61	11.46	44.07	54.00	-9.93
5470.00	Peak	E	44.59	11.46	56.04	68.30	-12.26

Operation Band :802.11 a Test Date :2015-06-28

Fundamental Frequency :5500 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge LOW Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBμV/m	dB
5460.00	Peak	E	44.56	11.46	56.02	74.00	-17.98
5460.00	Average	E	33.14	11.46	44.60	54.00	-9.40
5470.00	Peak	E	45.59	11.46	57.04	68.30	-11.26

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:VERTICAL

Operation Band :802.11 a Test Date :2015-06-28

Fundamental Frequency :5700 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge HIGH Engineer :Vito EUT Pol.

:E2 Plan

Spectrum Factor Actual Limit Margin Freq. Detector Note FS Mode Reading Level @3m PK/QP/AV F/H/E/S $dB\mu V$ dΒ dBµV/m $dB\mu V/m$ dB MHz 5725.00 Peak E 43.48 12.27 55.75 68.30 -12.55

Measurement Antenna Pol.

Operation Band :802.11 a Test Date :2015-06-28

Fundamental Frequency :5700 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge HIGH Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	${ m d} B \mu V$	dB	dBμV/m	dBμV/m	dB
5725.00	Peak	Е	45.35	12.27	57.62	68.30	-10.68

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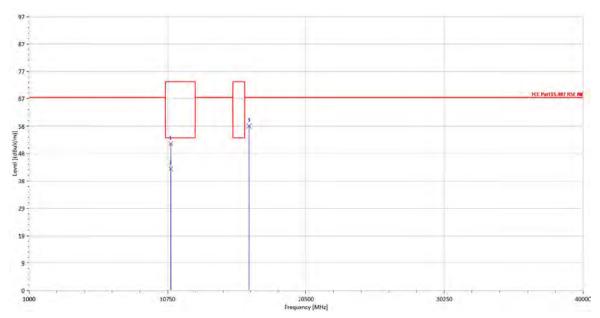
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Radiated Spurious Emission Measurement Result 802.11n HT20, 5470~5725 MHz

Operation Band :802.11 n20M **Test Date** :2015-06-28 Fundamental Frequency :5500 MHz :22 deg_C / 57 RH

Temp./Humi. Engineer Operation Mode :TX LOW :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin	
	Mode		Reading Level		FS	@3m		
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB	
11000.00	Peak	Н	31.88	20.02	51.90	74.00	-22.10	
11000.00	Average	Н	23.07	20.02	43.09	54.00	-10.91	
16500.00	Peak	H	31.05	27.16	58.21	68.30	-10.09	

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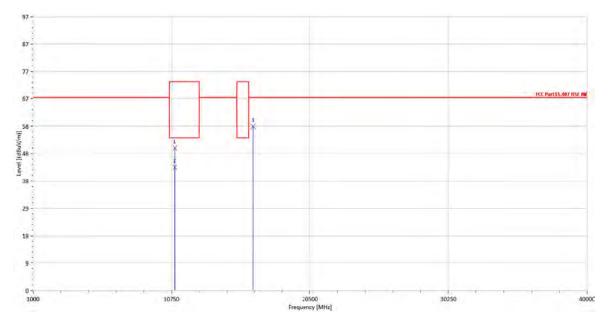
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5500 MHz :TX LOW :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBµV/m	dBμV/m	dB
11000.00	Peak	Н	30.41	20.02	50.43	74.00	-23.57
11000.00	Average	Н	23.61	20.02	43.63	54.00	-10.37
16500.00	Peak	Н	30.93	27.16	58.10	68.30	-10.20

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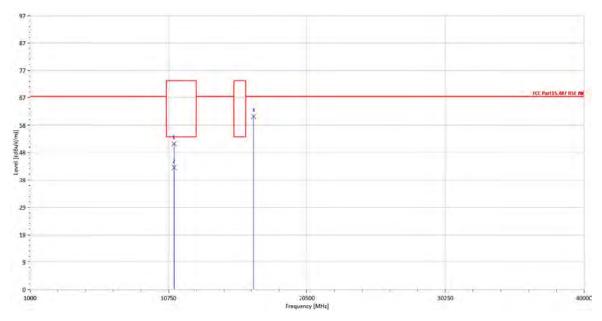
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5580 MHz :TX MID :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11160.00	Peak	Н	31.24	20.38	51.62	74.00	-22.38
11160.00	Average	Н	22.79	20.38	43.17	54.00	-10.83
16740.00	Peak	Н	33.52	27.79	61.31	68.30	-6.99

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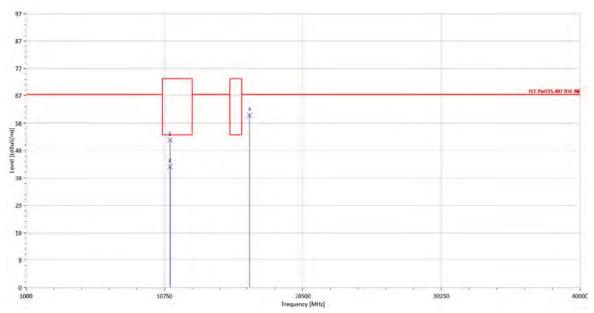
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5580 MHz :TX MID :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11160.00	Peak	Н	31.81	20.38	52.19	74.00	-21.81
11160.00	Average	Н	22.38	20.38	42.76	54.00	-11.24
16740.00	Peak	Н	33.24	27.79	61.03	68.30	-7.27

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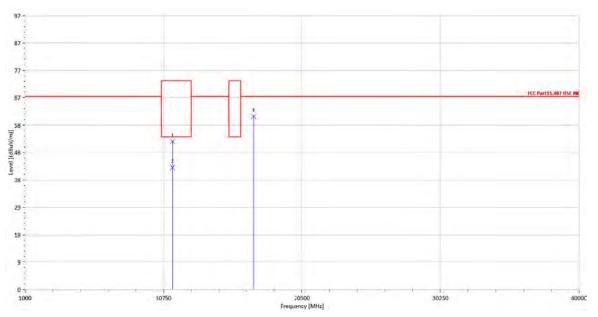
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5700 MHz :TX HIGH :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11400.00	Peak	Н	31.63	20.81	52.44	74.00	-21.56
11400.00	Average	Н	22.37	20.81	43.18	54.00	-10.82
17100.00	Peak	Н	33.05	28.26	61.31	68.30	-6.99

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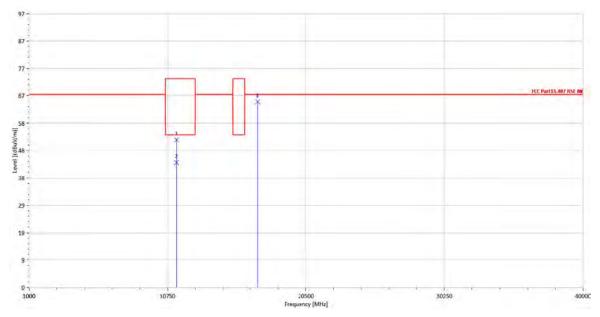
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5700 MHz :TX HIGH :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11400.00	Peak	Н	31.51	20.81	52.32	74.00	-21.68
11400.00	Average	Н	23.41	20.81	44.22	54.00	-9.78
17100.00	Peak	Н	37.52	28.26	65.78	68.30	-2.52

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EUT Pol.

FCC ID: HLZA5006

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:VERTICAL

Band edge falling to restricted band

Operation Band :802.11 n20M Test Date :2015-06-28 Fundamental Frequency :5500 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge LOW Engineer :Vito

:E2 Plan

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} \mathrm{B} \mu \mathrm{V}$	dB	dBμV/m	dBμV/m	dB
5460.00	Peak	E	43.54	11.46	55.00	74.00	-19.00
5460.00	Average	E	32.72	11.46	44.18	54.00	-9.82
5470.00	Peak	E	44.13	11.46	55.58	68.30	-12.72

Measurement Antenna Pol.

Operation Band :802.11 n20M Test Date :2015-06-28 Fundamental Frequency :5500 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge LOW Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBμV/m	dB
5460.00	Peak	E	45.73	11.46	57.20	74.00	-16.80
5460.00	Average	E	33.79	11.46	45.25	54.00	-8.75
5470.00	Peak	S	46.59	11.46	58.04	68.30	-10.26

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:VERTICAL

Operation Band :802.11 n20M Test Date :2015-06-28

Fundamental Frequency :5700 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode Engineer :Band Edge HIGH :Vito EUT Pol.

:E2 Plan

Freq. Detector Note Spectrum Factor Actual Limit Margin Reading Level FS Mode @3m PK/QP/AV dBμV dBµV/m dBµV/m dB MHz F/H/E/S dΒ 5725.00 E 44.60 12.27 68.30 -11.43 Peak 56.87

Measurement Antenna Pol.

Operation Band :802.11 n20M Test Date :2015-06-28

Fundamental Frequency :5700 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge HIGH Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	$dB\mu V/m$	dBμV/m	dB
5725.00	Peak	Е	48.07	12.27	60.34	68.30	-7.96

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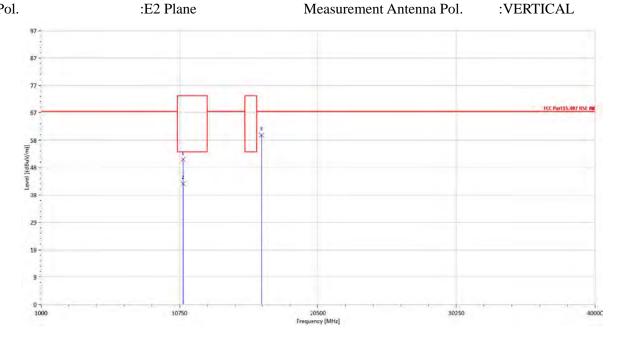
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Radiated Spurious Emission Measurement Result 802.11n HT40, 5470~5725 MHz

Operation Band :802.11 n40M **Test Date** :2015-06-28 Fundamental Frequency :5510 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :TX LOW Engineer :Vito EUT Pol.



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11020.00	Peak	Н	31.34	20.04	51.39	74.00	-22.62
11020.00	Average	Н	22.71	20.04	42.75	54.00	-11.25
16530.00	Peak	Н	32.65	27.29	59.94	68.30	-8.36

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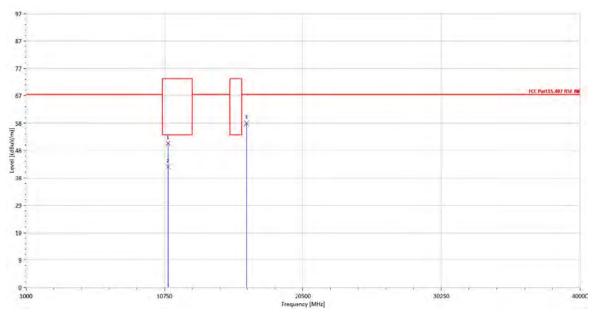
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5510 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11020.00	Peak	Н	30.95	20.04	51.00	74.00	-23.00
11020.00	Average	Н	22.68	20.04	42.72	54.00	-11.28
16530.00	Peak	Н	30.83	27.29	58.13	68.30	-10.17

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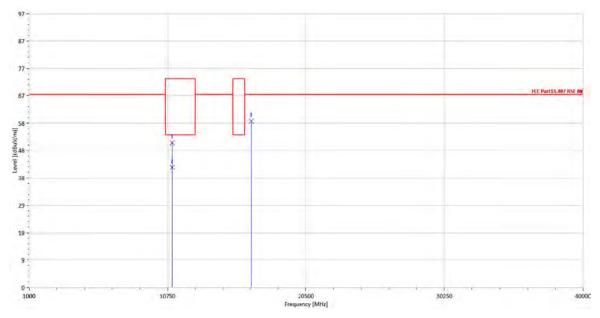
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5550 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11100.00	Peak	Н	31.03	20.21	51.24	74.00	-22.76
11100.00	Average	H	22.36	20.21	42.57	54.00	-11.43
16650.00	Peak	Н	31.34	27.54	58.88	68.30	-9.42

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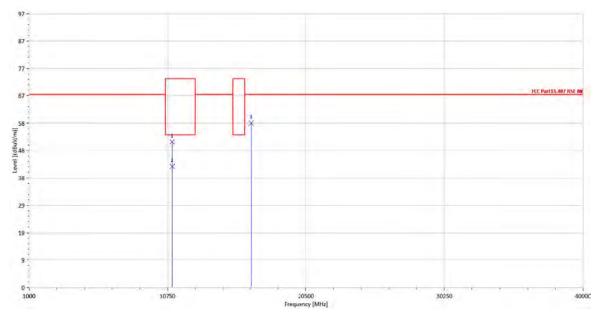
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5550 MHz :TX MID :E2 Plane

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11100.00	Peak	Н	31.36	20.21	51.56	74.00	-22.44
11100.00	Average	Н	22.63	20.21	42.84	54.00	-11.16
16650.00	Peak	Н	30.64	27.54	58.18	68.30	-10.12

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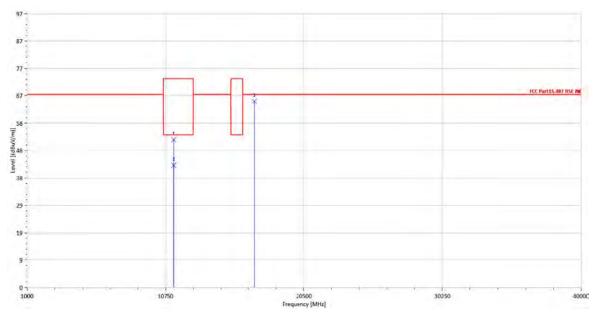
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5670 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11340.00	Peak	Н	31.72	20.61	52.33	74.00	-21.67
11340.00	Average	Н	22.65	20.61	43.26	54.00	-10.74
17010.00	Peak	Н	37.68	28.28	65.95	68.30	-2.35

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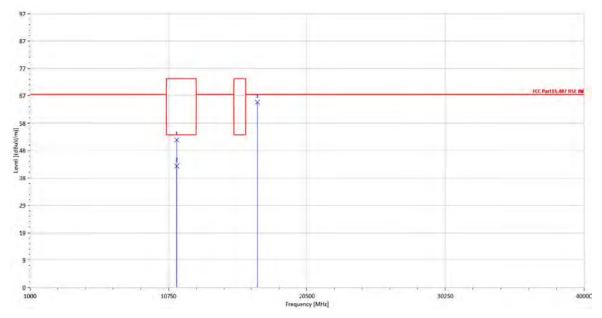
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5670 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11340.00	Peak	Н	31.66	20.61	52.27	74.00	-21.73
11340.00	Average	Н	22.39	20.61	43.00	54.00	-11.00
17010.00	Peak	Н	37.27	28.28	65.55	68.30	-2.75

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Band edge falling to restricted band

Operation Band :802.11 n40M Test Date :2015-06-28 Fundamental Frequency :5510 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge LOW Engineer :Vito

EUT Pol. :E2 Plane Measurement Antenna Pol. :VERTICAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBµV/m	dB
5460.00	Peak	E	44.71	11.46	56.17	74.00	-17.83
5460.00	Average	E	32.59	11.46	44.05	54.00	-9.95
5470.00	Peak	E	44.67	11.46	56.12	68.30	-12.18

Test Date **Operation Band** :802.11 n40M :2015-06-28 Fundamental Frequency :5510 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge LOW Engineer :Vito

EUT Pol. Measurement Antenna Pol. :E2 Plane :HORIZONTAL

Actual $FS(dB\mu V/m) = SPA$. Reading level $(dB\mu V) + Factor(dB)$

 $Factor(dB) = Antenna Factor(dB\mu V/m) + Cable Loss(dB) - Pre_Amplifier Gain(dB)$

"F": denotes Fundamental Frequency.; "H": denotes Harmonic Frequency. Note:

"E": denotes Band Edge Frequency.; "S": denotes Spurious Frequency.

"---": denotes Noise Floor.

The trace on RE (radiation emission) plot is as colored blue, and the detection manner we've employed is peak detector.

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBµV/m	dBµV/m	dB
5460.00	Peak	E	45.34	11.46	56.81	74.00	-17.19
5460.00	Average	E	33.28	11.46	44.74	54.00	-9.26
5470.00	Peak	E	46.17	11.46	57.63	68.30	-10.67

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:Vito

Operation Band :802.11 n40M Test Date :2015-06-28

Fundamental Frequency :5670 MHz Temp./Humi. :22 deg_C / 57 RH Operation Mode :Band Edge HIGH Engineer

EUT Pol. :E2 Plane Measurement Antenna Pol. :VERTICAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	${ m d} B \mu V$	dB	dBμV/m	dBμV/m	dB
5725 00	Peak	F	43.18	12 27	55 45	68 30	-12.85

Operation Band :802.11 n40M Test Date :2015-06-28

Fundamental Frequency Temp./Humi. :5670 MHz :22 deg_C / 57 RH

Operation Mode :Band Edge HIGH Engineer :Vito

EUT Pol. :E2 Plane Measurement Antenna Pol. :HORIZONTAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBµV/m	dB
5725.00	Peak	E	43.80	12.27	56.07	68.30	-12.23
5726.96	Peak	S	45.67	12.27	57.95	68.30	-10.35

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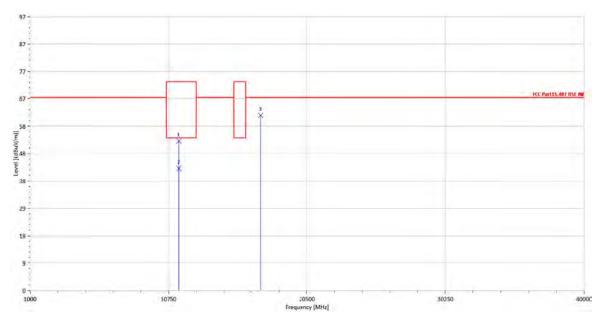
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Radiated Spurious Emission Measurement Result 802.11a, 5725~5850 MHz

Operation Band :802.11 a Test Date :2015-06-28

Fundamental Frequency :5745 MHz Temp./Humi. :22 deg_C / 57 RH Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11490.00	Peak	Н	31.84	21.08	52.92	74.00	-21.08
11490.00	Average	Н	22.15	21.08	43.23	54.00	-10.77
17235.00	Peak	Н	33.95	28.06	62.01	68.30	-6.29

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Report No.: E2/2015/60007 Issue Date: Jun. 30, 2015

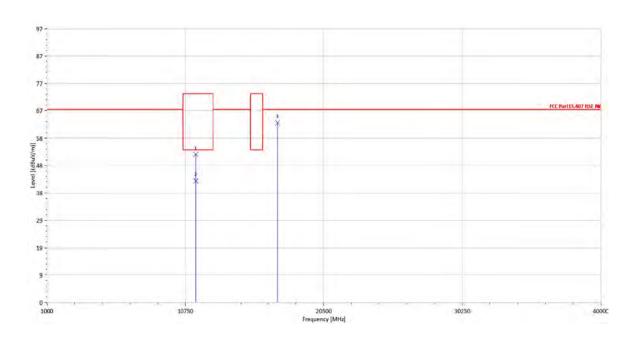
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Operation Band :802.11 a Test Date :2015-06-28

Fundamental Frequency Temp./Humi. :5745 MHz :22 deg_C / 57 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin	
	Mode		Reading Level		FS	@3m		
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB	
11490.00	Peak	Н	31.38	21.08	52.46	74.00	-21.54	
11490.00	Average	Н	21.96	21.08	43.04	54.00	-10.96	
17235.00	Peak	Н	35.55	28.06	63.61	68.30	-4.69	

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Operation Band Fundamental Frequency Operation Mode

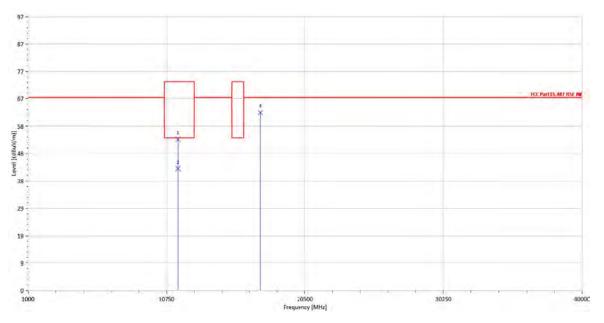
EUT Pol.

:802.11 a :5785 MHz :TX MID :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11570.00	Peak	Н	32.42	21.14	53.56	74.00	-20.44
11570.00	Average	Н	22.01	21.14	43.15	54.00	-10.85
17355.00	Peak	Н	35.15	27.87	63.03	68.30	-5.27

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Operation Band Fundamental Frequency

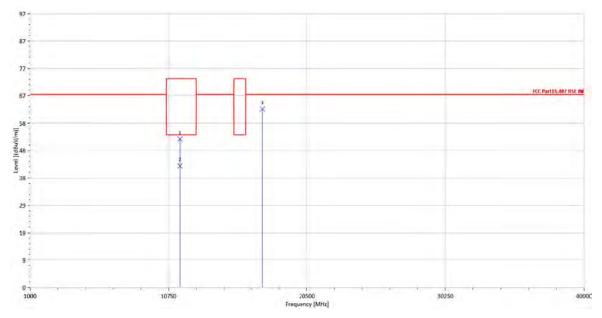
Operation Mode EUT Pol.

:802.11 a :5785 MHz :TX MID :E2 Plan

Test Date Temp./Humi. :2015-06-28 :22 deg_C / 57 RH

Engineer

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11570.00	Peak	Н	31.46	21.14	52.59	74.00	-21.41
11570.00	Average	Н	21.89	21.14	43.03	54.00	-10.97
17355.00	Peak	Н	35.32	27.87	63.20	68.30	-5.10

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Operation Band Fundamental Frequency Operation Mode

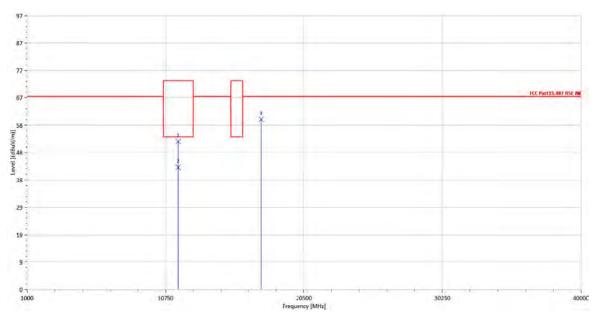
EUT Pol.

:802.11 a :5825 MHz :TX HIGH :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11650.00	Peak	Н	31.15	21.27	52.42	74.00	-21.58
11650.00	Average	Н	21.97	21.27	43.24	54.00	-10.76
17475.00	Peak	Н	32.62	27.65	60.27	68.30	-8.03

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Operation Band Fundamental Frequency Operation Mode

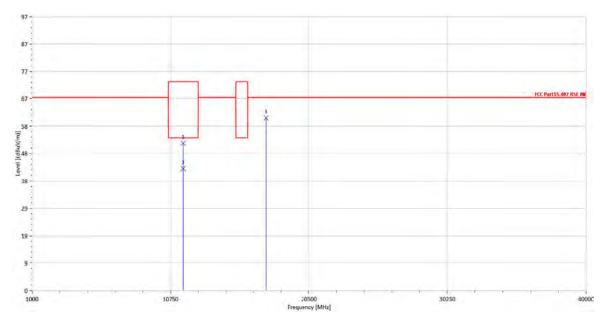
EUT Pol.

:802.11 a :5825 MHz :TX HIGH :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11650.00	Peak	Н	30.88	21.27	52.15	74.00	-21.85
11650.00	Average	Н	21.88	21.27	43.15	54.00	-10.85
17475.00	Peak	Н	33.46	27.65	61.11	68.30	-7.19

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Band edge falling to restricted band

Operation Band :802.11 a Test Date :2015-06-28

Fundamental Frequency :5745 MHz Temp./Humi. :22 deg_C / 57 RH Operation Mode :Band Edge LOW Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
5724.30	Peak	S	55.75	12.27	68.02	78.20	-10.18
5725.00	Peak	Е	53.50	12.27	65.77	78.20	-12.43

Operation Band Test Date :2015-06-28 :802.11 a

Fundamental Frequency :5745 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge LOW Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBμV/m	dB
5724.70	Peak	S	59.91	12.27	72.18	78.20	-6.02
5725.00	Peak	E	58.57	12.27	70.84	78.20	-7.36

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:Vito

Operation Band :802.11 a Test Date :2015-06-28

Fundamental Frequency :5825 MHz Temp./Humi. :22 deg_C / 57 RH Operation Mode :Band Edge HIGH

Engineer EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
5850.00	Peak	Е	43.72	12.61	56.33	78.20	-21.87

Operation Band Test Date :2015-06-28 :802.11 a

Fundamental Frequency Temp./Humi. :5825 MHz :22 deg_C / 57 RH

Operation Mode :Band Edge HIGH Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
5850.00) Peak	Е	46.57	12.61	59.18	78.20	-19.02

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t (886-2) 2299-3279



Report No.: E2/2015/60007 **Issue Date: Jun. 30, 2015**

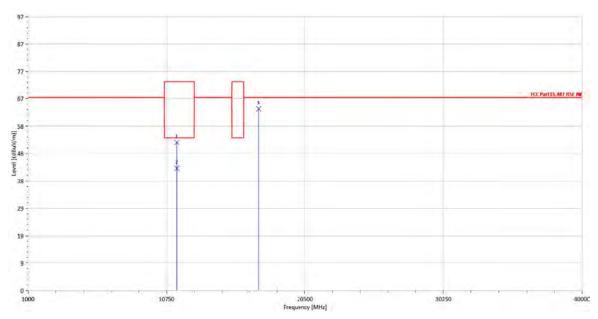
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Radiated Spurious Emission Measurement Result 802.11n HT20, 5725~5850 MHz

:802.11 n20M Operation Band Test Date :2015-06-28 Fundamental Frequency :5745 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :TX LOW Engineer

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11490.00	Peak	Н	31.34	21.08	52.42	74.00	-21.58
11490.00	Average	Н	22.17	21.08	43.25	54.00	-10.75
17235.00	Peak	Н	36.26	28.06	64.32	68.30	-3.98

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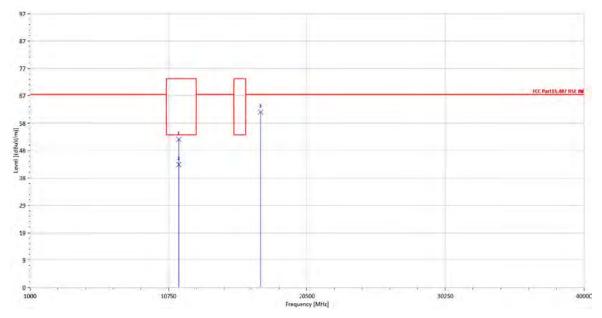
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5745 MHz :TX LOW :E2 Plan

Test Date Temp./Humi. :2015-06-28 :22 deg_C / 57 RH

Engineer

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11490.00	Peak	Н	31.37	21.08	52.45	74.00	-21.55
11490.00	Average	Н	22.43	21.08	43.51	54.00	-10.49
17235.00	Peak	Н	34.06	28.06	62.12	68.30	-6.18

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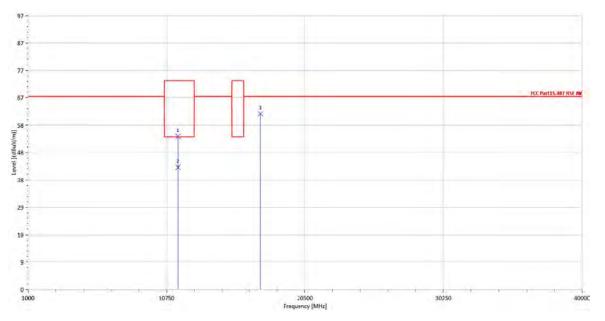
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5785 MHz :TX MID :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11570.00	Peak	H	33.09	21.14	54.23	74.00	-19.77
11570.00	Average	Н	22.09	21.14	43.23	54.00	-10.77
17355.00	Peak	Н	34.32	27.87	62.19	68.30	-6.11

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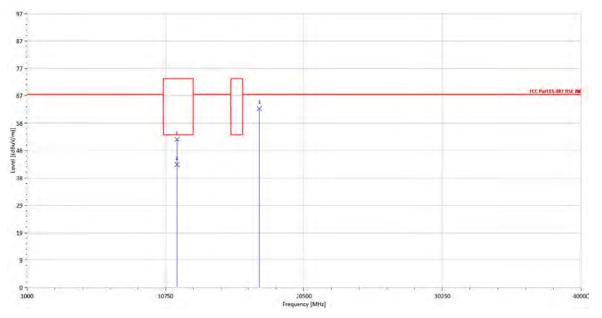
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5785 MHz :TX MID :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBµV/m	dB
11570.00	Peak	Н	31.29	21.14	52.43	74.00	-21.57
11570.00	Average	Н	22.39	21.14	43.53	54.00	-10.47
17355.00	Peak	Н	35.47	27.87	63.35	68.30	-4.95

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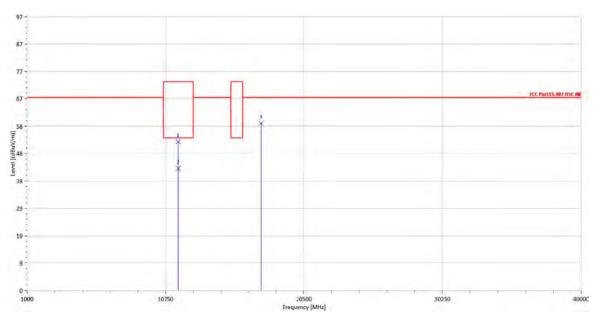
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5825 MHz :TX HIGH :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBµV/m	dB
11650.00	Peak	Н	31.45	21.27	52.72	74.00	-21.28
11650.00	Average	Н	21.94	21.27	43.21	54.00	-10.79
17475.00	Peak	Н	31.53	27.65	59.18	68.30	-9.12

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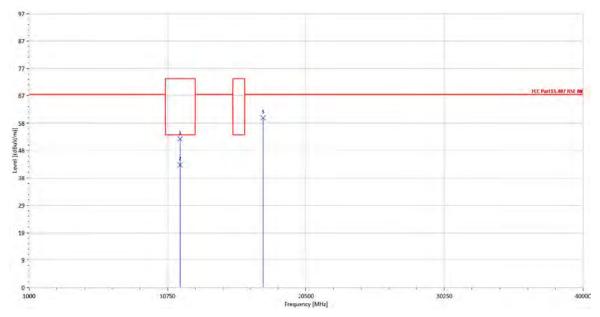
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n20M :5825 MHz :TX HIGH :E2 Plan

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11650.00	Peak	Н	31.37	21.27	52.64	74.00	-21.36
11650.00	Average	Н	22.12	21.27	43.39	54.00	-10.61
17475.00	Peak	Н	32.40	27.65	60.05	68.30	-8.25

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:Vito

Band edge falling to restricted band

Operation Band :802.11 n20M Test Date :2015-06-28

Fundamental Frequency :5745 MHz Temp./Humi. :22 deg_C / 57 RH Operation Mode :Band Edge LOW Engineer

EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBμV/m	dB
5723.70	Peak	S	57.48	12.27	69.76	78.20	-8.44
5725.00	Peak	E	54.77	12.27	67.04	78.20	-11.16

Operation Band :802.11 n20M Test Date :2015-06-28

Fundamental Frequency :5745 MHz Temp./Humi. :22 deg_C / 57 RH

Operation Mode :Band Edge LOW Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBμV/m	dB
5723.90	Peak	S	62.99	12.27	75.26	78.20	-2.94
5725.00	Peak	E	62.01	12.27	74.28	78.20	-3.92

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:Vito

Operation Band :802.11 n20M Test Date :2015-06-28

Fundamental Frequency :5825 MHz Temp./Humi. :22 deg_C / 57 RH Operation Mode

:Band Edge HIGH Engineer EUT Pol. :E2 Plan Measurement Antenna Pol. :VERTICAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
5850.00	Peak	Ē.	43 63	12.61	56.25	78 20	-21 95

Operation Band :802.11 n20M Test Date :2015-06-28

Fundamental Frequency Temp./Humi. :5825 MHz :22 deg_C / 57 RH

Operation Mode :Band Edge HIGH Engineer :Vito

EUT Pol. :E2 Plan Measurement Antenna Pol. :HORIZONTAL

	Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
		Mode		Reading Level		FS	@3m	
_	MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBµV/m	dB
	5850.00	Peak	E	45.88	12.61	58.49	78.20	-19.71
	5850.50	Peak	S	46.95	12.62	59.57	78.20	-18.63

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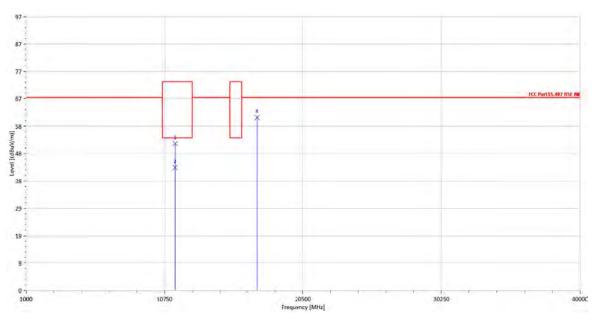
:Vito

Radiated Spurious Emission Measurement Result 802.11n _HT40, 5470~5725 MHz

Operation Band :802.11 n40M Test Date :2015-06-28

Fundamental Frequency :5755 MHz Temp./Humi. :22 deg_C / 57 RH Engineer Operation Mode :TX LOW

EUT Pol. :E2 Plane Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11510.00	Peak	Н	30.88	21.17	52.05	74.00	-21.95
11510.00	Average	Н	22.36	21.17	43.53	54.00	-10.47
17265.00	Peak	Н	33.45	27.82	61.28	68.30	-7.02

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Operation Band Fundamental Frequency Operation Mode

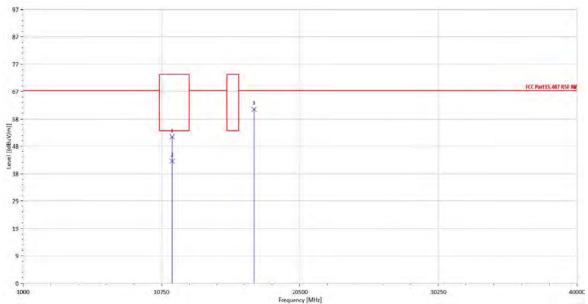
EUT Pol.

:802.11 n40M :5755 MHz :TX LOW :E2 Plane

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin	
	Mode		Reading Level		FS	@3m		
MHz	PK/QP/AV	F/H/E/S	dΒμV	dB	dBμV/m	dBµV/m	dB	
11510.00	Peak	Н	30.70	21.17	51.86	74.00	-22.14	
11510.00	Average	Н	22.09	21.17	43.26	54.00	-10.74	
17265.00	Peak	Н	33.80	27.82	61.63	68.30	-6.68	

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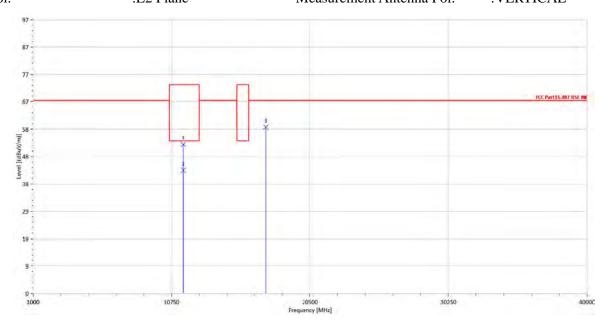
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5795 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :VERTICAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11590.00	Peak	Н	31.53	21.28	52.81	74.00	-21.19
11590.00	Average	Н	22.37	21.28	43.65	54.00	-10.35
17385.00	Peak	Н	31.27	27.61	58.88	68.30	-9.42

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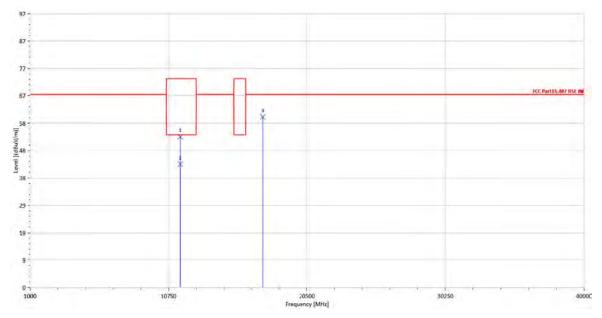
Operation Band Fundamental Frequency Operation Mode EUT Pol.

:802.11 n40M :5795 MHz :TX HIGH :E2 Plane

Test Date Temp./Humi. Engineer

:2015-06-28 :22 deg_C / 57 RH

Measurement Antenna Pol. :HORIZONTAL



Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
11590.00	Peak	H	32.12	21.28	53.40	74.00	-20.60
11590.00	Average	Н	22.39	21.28	43.67	54.00	-10.33
17385.00	Peak	Н	32.78	27.61	60.39	68.30	-7.91

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:Vito

Band edge falling to restricted band

Operation Band :802.11 n40M Test Date :2015-06-28

Fundamental Frequency :5755 MHz Temp./Humi. :22 deg_C / 57 RH Operation Mode :Band Edge LOW Engineer

EUT Pol. :E2 Plane Measurement Antenna Pol. :VERTICAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	dBμV/m	dBμV/m	dB
5725.00	Peak	Е	43.64	12.27	55.91	78.20	-22.29

Operation Band :802.11 n40M Test Date :2015-06-28

Fundamental Frequency Temp./Humi. :5755 MHz :22 deg_C / 57 RH

Operation Mode :Band Edge LOW Engineer :Vito

EUT Pol. :E2 Plane Measurement Antenna Pol. :HORIZONTAL

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	${ m dB}\mu { m V}$	dB	dBμV/m	dBμV/m	dB
5725.00	Peak	Е	45.51	12.27	57.78	78.20	-20.42

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:Vito

Operation Band :802.11 n40M Test Date :2015-06-28

Fundamental Frequency :5795 MHz Temp./Humi. :22 deg_C / 57 RH Operation Mode

EUT Pol. :E2 Plane Measurement Antenna Pol. :VERTICAL

:Band Edge HIGH

Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin
	Mode		Reading Level		FS	@3m	
MHz	PK/QP/AV	F/H/E/S	$\mathrm{d} B \mu V$	dB	$dB\mu V/m$	dBμV/m	dB
5850.00	Peak	Е	43.04	12.61	55.65	78.20	-22.55

Engineer

Operation Band :802.11 n40M Test Date :2015-06-28

Fundamental Frequency Temp./Humi. :5795 MHz :22 deg_C / 57 RH

Operation Mode :Band Edge HIGH Engineer :Vito

EUT Pol. :E2 Plane Measurement Antenna Pol. :HORIZONTAL

•								
Freq.	Detector	Note	Spectrum	Factor	Actual	Limit	Margin	
	Mode		Reading Level		FS	@3m		
MHz	PK/QP/AV	F/H/E/S	${ m d} B \mu V$	dB	dBμV/m	dBμV/m	dB	
5850.00	Peak	Е	43.71	12.61	56.32	78.20	-21.88	

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12. TRANSMISSION IN THE ABSENCE OF DATA

12.1 Standard Applicable

According to §15.407(c)

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

12.2 Result

No non-compliance noted:

Refer to the theory of operation.

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13. FREQUENCY STABILITY

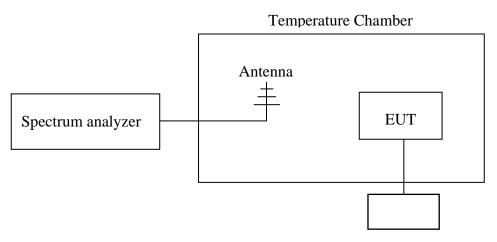
Standard Applicable

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

13.2 Measurement Procedure

- 1. The EUT was placed inside temperature chamber and powered and powered by nominal DC voltage.
- 2. Set EUT as normal operation.
- 3. Turn the EUT on and couple its output to spectrum.
- 4. Turn the EUT off and set the chamber to the highest temperature specified.
- 5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT and measure the operating frequency.
- 6. Repeat step with the temperature chamber set to the lowest temperature.

Test SET-UP 13.3



Variable AC Power Supply

13.4 Measurement Equipment Used

Conducted Emission Test Site								
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.			
TYPE	MIFK	NUMBER	NUMBER	CAL.	CAL DUE.			
Spectrum Analyzer	Agilent	N9010A	MY53400256	10/15/2014	10/14/2015			
Temperature Chamber	TERCHY	MHK-120LK	1020582	06/18/2015	06/17/2016			
AC Power Supply	APW-105N	887592	All Power	N/A	N/A			

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Measurement Result 13.5

Operation Mode	802.11 a	Test Date	2015.06.12
Temperature	22	Test By	Tank
Humidity	68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
		36	5180.0000	5,182.763380	-2.7634
		44	5220.0000	5,222.753460	-2.7535
		48	5240.0000	5,242.757800	-2.7578
		52	5260.0000	5,262.764580	-2.7646
		60	5300.0000	5,302.781260	-2.7813
0	2.017	64	5320.0000	5,322.786140	-2.7861
U	3.8V	100	5500.0000	5,502.756560	-2.7566
		116	5580.0000	5,582.753010	-2.7530
		140	5700.0000	5,702.762720	-2.7627
		149	5745.0000	5,747.752190	-2.7522
		157	5785.0000	5,787.757130	-2.7571
		165	5825.0000	5,827.764370	-2.7644
		36	5180.0000	5,182.749680	-2.7497
		44	5220.0000	5,222.750050	-2.7500
		48	5240.0000	5,242.749900	-2.7499
		52	5260.0000	5,262.750720	-2.7507
		60	5300.0000	5,302.749450	-2.7495
25	2.017	64	5320.0000	5,322.749680	-2.7497
25	3.8V	100	5500.0000	5,502.749350	-2.7494
		116	5580.0000	5,582.749740	-2.7497
		140	5700.0000	5,702.750280	-2.7503
		149	5745.0000	5,747.749270	-2.7493
		157	5785.0000	5,787.750390	-2.7504
		165	5825.0000	5,827.750590	-2.7506

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		36	5180.0000	5,182.769310	-2.7693
		44	5220.0000	5,222.753210	-2.7532
		48	5240.0000	5,242.757940	-2.7579
	3.8V	52	5260.0000	5,262.756320	-2.7563
		60	5300.0000	5,302.764900	-2.7649
45		64	5320.0000	5,322.754640	-2.7546
43		100	5500.0000	5,502.750340	-2.7503
		116	5580.0000	5,582.765460	-2.7655
		140	5700.0000	5,702.758690	-2.7587
		149	5745.0000	5,747.752990	-2.7530
		157	5785.0000	5,787.759650	-2.7596
		165	5825.0000	5,827.754000	-2.7540

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Operation Mode	802.11n 40	Test Date	2015.06.12
Temperature	22	Test By	Tank
Humidity	68 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
		38	5190.0000	5,192.733150	-2.7332
		46	5230.0000	5,232.724230	-2.7242
		54	5270.0000	5,272.726740	-2.7267
		62	5310.0000	5,312.739980	-2.7400
10	3.8V	102	5510.0000	5,512.724050	-2.7240
		110	5550.0000	5,552.724040	-2.7240
		134	5670.0000	5,672.720260	-2.7203
		151	5755.0000	5,757.732720	-2.7327
		159	5795.0000	5,797.734430	-2.7344
		38	5190.0000	5,192.749660	-2.7497
	3.8V	46	5230.0000	5,232.749790	-2.7498
		54	5270.0000	5,272.749860	-2.7499
		62	5310.0000	5,312.750010	-2.7500
25		102	5510.0000	5,512.750710	-2.7507
		110	5550.0000	5,552.750250	-2.7503
		134	5670.0000	5,672.749770	-2.7498
		151	5755.0000	5,757.750170	-2.7502
		159	5795.0000	5,797.749760	-2.7498
		38	5190.0000	5,192.738710	-2.7387
		46	5230.0000	5,232.737360	-2.7374
		54	5270.0000	5,272.723660	-2.7237
		62	5310.0000	5,312.739840	-2.7398
45	3.8V	102	5510.0000	5,512.725000	-2.7250
		110	5550.0000	5,552.728540	-2.7285
		134	5670.0000	5,672.726510	-2.7265
		151	5755.0000	5,757.722570	-2.7226
		159	5795.0000	5,797.724580	-2.7246

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14. ANTENNA REQUIREMENT

14.1 Standard Applicable

According to §15.203, an intentional radiator shall be designed to ensure that no antenna other than furnished by the responsible party shall be used with the device.

According to §15.407, 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.

14.2 Antenna Connected Construction

An embedded-in antenna design is used.

The antenna connector is designed with unique type RF connector and no consideration of replacement. Please see EUT photo and antenna spec. for details.

The antenna gain is less than 6dBi. Therefore, it is not necessary to reduce maximum output power power limit.

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