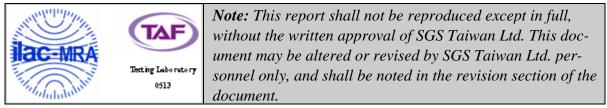


# **ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT**

OF

# INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART E REQUIREMENT

	OF
Product Name:	PDA Phone
Brand Name:	Sony
Type No.:	PM-0871-BV
Model Difference:	N/A
FCC ID:	PY7-PM0871
Report No.:	ER/2015/50043
Issue Date:	Jul. 06, 2015
FCC Rule Part:	<b>§15.407</b>
Prepared for:	Sony Mobile Communications AB
	Nya Vattentornet 22188 Lund/Sweden
Prepared by:	SGS Taiwan Ltd.
	<b>Electronics &amp; Communication Laboratory</b>
	No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan 24803



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# VERIFICATION OF COMPLIANCE

Applicant:	Sony Mobile Communications AB Nya Vattentornet 22188 Lund/Sweden
Product Name:	PDA Phone
Brand Name:	Sony
Type No.:	PM-0871-BV
Model Difference:	N/A
FCC ID:	PY7-PM0871
File Number:	ER/2015/50043
Date of test:	Apr. 22, 2015 ~ Jul. 06, 2015
Date of EUT Received:	Apr. 22, 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 limits.

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

Test By:	Marcus Tseng	Date:	Jul. 06, 2015
Prepared By:	Marcus Tseng / Engineer Tiffany Kao	Date:	Jul. 06, 2015
Approved By:	Tiffany Kao / Clerk Tim Ch ang	Date:	Jul. 06, 2015

Jim Chang / Asst. Manager

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# **Revision History**

Report Number	Revision	Description	Issue Date
ER/2015/50043	Rev.00	Initial creation of document	Jul. 06, 2015

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### **FCC ID: PY7-PM0871**

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#### **GENERAL INFORMATION** 1.

#### 1.1 **Product Description**

General:

Product Name:	PDA Phone		
Brand Name:	Sony		
Type No.:	PM-0871-BV		
Model Difference:	N/A		
Data Cable (USB):	Model No.: EC450, Supplier: K-one Type No.: 1242-6715.3, Length: 100 cm		
Simple Hands-Free (SHF-White):	Model No.: MH410c, Supplier: Foster Electric Type No.: AG-1100		
Car Charger:	Model No.: AN400, Supplier: Salcomp Type No.: CAA-0003013		
BT PHF:	Model No.: MW600, Supplier: BALDA Type No.: DDA-0002029.Bcoupling with Simple Hands Free (Model No.: MH755, Supplier: BALDA, Type No.: AG-0502)		
Product SW/HW version:	30.0.B.1.10 / A		
Radio SW/HW version:	30.0.B.1.10 / A		
Test SW Version:	WIFI Tool for MT6630		
RF power setting in TEST SW:	N/A		
	3.8Vdc		
	Battery: Model No.: AGPB016-A001, Supplier: Sony Type No.: N/A		
Power Supply:	Adapter:1. Model No.: EP800, Supplier: Phihong Type No.: AC-0300-US2. Model No.: EP800, Supplier: Salcomp Type No.: AC-0030-US		

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WLAN 5GHz:

Wi-Fi	Frequency Range	Channels	Rated Power (Avg.)	Modulation Technology
	5150~5250	4	12.92dBm	
11.	5250~5350	4	12.99dBm	OFDM
11a	5470~5725	11	12.99dBm	OFDM
	5725-5850	5	12.98dBm	
	HT20 5150~5250	4	11.92dBm	
11	HT20 5250~5350	4	11.97dBm	OFDM
11n	HT20 5470~5725	11	11.95dBm	OFDM
	HT20 5725-5850	5	11.98dBm	
	HT40 2		11.77dBm	
	HT40 5250~5350	2	11.98dBm	
11n   HT40 5470~5725   5     HT40 5725-5850   2		5	11.89dBm	OFDM
		2	11.90dBm	
Antenna Designation			PIFA Antenna, 5GHz Gain: -6.18dBi (5150MHz-5250MHz) 5GHz Gain: -5.23dBi (5250MHz-5350MHz) 5GHz Gain: -4.84dBi (5470MHz-5725MHz) 5GHz Gain: -5.08dBi (5725MHz-5850MHz)	
Modulation type			64QAM, 16QAM, QPSK, BPSK for OFDM	
Transition	sition Rate: 802.11 a: 6/9/12/18/24/36/48/54 Mbps   802.11 n_20MHz: 6.5 - 65.0Mbps   802.11 n_40MHz: 13.5 - 135.0Mbps			

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#### **Product Feature of Equipment Under Test** 1.2

The equipment under Test (Hereafter Called: EUT) is PDA Phone supporting, GSM / WCDMA / LTE, Wi-Fi 802.11abgn, Bluetooth with GPS and NFC features, and below is details of information.

Product Feature			
Product Name:	PDA Phone		
Brand Name:	Sony		
Type No.:	PM-0871-BV		
Model Difference:	N/A		
FCC ID	PY7-PM0871		
GSM Operating Band(s)	GSM 850/1900MHz		
GPRS / EGPRS Multi Slot Class	Class 12		
WCDMA Operating Band(s)	FDD Band II / V		
WCDMA Rel. Version	Release 8		
LTE Operating Band(s)	FCC Band 2 / 4 / 5 / 7		
LTE Rel. Version	Release 9 / Category 4		
Wi-Fi Specification	802.11a/b/g/n		
Bluetooth Version	V4.0 dual mode + HS		
NFC Specification	NFC		

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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#### 1.3 **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 0.8m height for frequency above 1GHz in accordance with AN-3. SI C63.10:2009.

#### **Test Facility** 1.4

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: 990257

Canada Registration Number: 4620A-5.

#### **Special Accessories** 1.5

There are no special accessories used while test was conducted.

#### **Equipment Modifications** 1.6

There was no modification incorporated into the EUT.

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# 2. SYSTEM TEST CONFIGURATION

# 2.1 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 plane. 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 plane. 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.

### 2.4 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 1.5 dB and 10 dB attenuator.

Offset = RF cable loss (dB)+ attenuation factor(dB) =1.5+10=11.5(dB)

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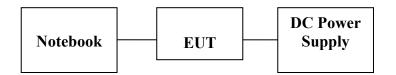


#### 2.5 **Configuration of Tested System**

### 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/Type No.	Series No.	Data Cable	<b>Power Cord</b>
1.	WLAN Test Software	WIFI Tool for MT6630	N/A	N/A	N/A	N/A
2.	DC Power Supply	HP	E3640A	KR93300208	N/A	N/A
3.	Notebook	Lenovo	L420	LR-7HXZA	shielded	Un-shielded

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#### **SUMMARY OF TEST RESULT** 3.

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 Infor- mation	Compliant
§15.407(g)	Frequency Stability	Compliant
\$15.203 \$15.407(a)	Antenna Requirement	Compliant

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#### **DESCRIPTION OF TEST MODES** 4.

#### 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

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

0111111 002.1111, 002.1111_11120					
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

ſ	CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
	102	5510 MHz	126	5630 MHz
	110	5550 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

- 1. The EUT has been tested under operating condition.
- 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:					
				(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	ADIATED EM	<b>ISSION TEST</b>	(ABOVE 1 GHz	)	
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5190 5240	26 40 19	26 11 10	OFDM	6	MAIN
802.11n_HT20	5180~5240	36 to 48	36,44,48	OFDM	MCS0	MAIN
802.11n_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	52,00,04	OFDM	MCS0	MAIN
802.11n_HT40	5270~5310	54 to 62	54,62	OFDM	MCS0	MAIN
802.11a	5500 5700	100 4- 140	100 117 140	OFDM	6	MAIN
802.11n_HT20	5500~5700	100 to 140	100,116,140	OFDM	MCS0	MAIN
802.11n_HT40	5510~5670	102 to 134	102,110,134	OFDM	MCS0	MAIN
802.11a	5715 5075	140 to 165	140 157 165	OFDM	6	MAIN
802.11n_HT20	5745~5825	149 to 165	149,157,165	OFDM	MCS0	MAIN
802.11n_HT40	5755~5795	151 to 159	151,159	OFDM	MCS0	MAIN

### **RADIATED EMISSION TEST:**

### 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 E1 position was reported.

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### ANTENNA PORT CONDUCTED MEASUREMENT:

	CONDUCTED TEST					
MODE	FREQUENCY BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION	DATA RATE (Mbps)	ANTENNA PORT
802.11a	5180~5240	36 to 48	36,44,48	OFDM	6	MAIN
802.11n_HT20		50 10 48	30,44,48	OFDM	MCS0	MAIN
802.11n_HT40	5190~5230	38 to 46	38,46	OFDM	MCS0	MAIN
802.11a	5260~5320	52 to 61	52 60 64	OFDM	6	MAIN
802.11n_HT20		52 to 64	52,60,64	OFDM	MCS0	MAIN
802.11n_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 10 140	100,116,140	OFDM	MCS0	MAIN
802.11n_HT40	5510~5670	102 to 134	102,110,134	OFDM	MCS0	MAIN
802.11a	E745 5975	140 += 165	140 157 165	OFDM	6	MAIN
802.11n_HT20	5745~5825	149 to 165	149,157,165	OFDM	MCS0	MAIN
802.11n_HT40	5755~5795	151 to 159	151,159	OFDM	MCS0	MAIN

### Note:

Type no, PM-0871-BV, and Type no PM-0873-BV share the equivalently identical enclosure, material of coating, I/O function, PCB board, display, and power source. In addition, PM-0871-BV, and Type no.PM-0873-BV implement the same Bluetooth/WLAN chipset/module with the same antenna that operates with the same transmitted power level. Hence, this given test report contains the identical test results that inherent from PM-0873-BV.

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#### **MEASUREMENT UNCERTAINTY** 5.

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

	30MHz - 167MHz: +/- 4.22dB
Measurement uncertainty	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.

	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 t	ransition frequencies					
2. The limit decreases linearly with the	he logarithm of the frequency in the ra	ange 0.15 MHz to 0.50 MHz.				

### 6.2. Measurement Equipment Used

	Conducted Emission Test Site										
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.						
ТҮРЕ		NUMBER	NUMBER	CAL.							
EMI Test Receiver	R&S	ESCI7	100760	05/04/2015	05/03/2016						
LISN	SCHWARZ BECK	NSLK 8127	8127-649	05/15/2015	05/14/2016						
LISN	FCC	FCC-LISN-50/250-25 -2-01	04034	03/13/2015	03/12/2016						
Coaxial Cables	N/A	WK CE Cable	N/A	11/26/2014	11/25/2015						

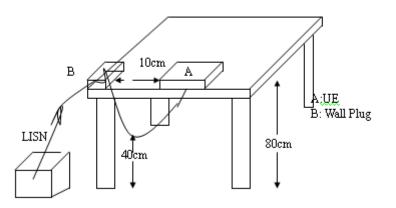
# 6.3. EUT Setup

- 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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## 6.4. Test SET-UP



### 6.5. Measurement Procedure

- 1. The EUT was placed on a table which is 0.8m above ground plane.
- 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

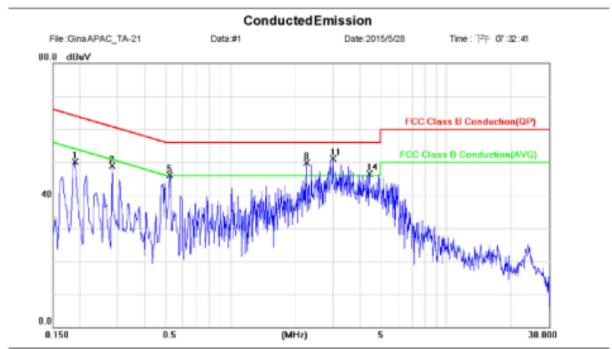
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# AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	Operation mode			Test Date:	May 28, 2015
Temperature:	24	Humidity:	66 %	Test By:	Marcus
Model No.:	Adapter: EP800, S	Supplier: Phihong		Phase:	L1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBul√	œ	dBJV	dBuV	dB	Detector	Comment
1		0.1900	50.03	0.06	50.09	64.04	-13.95	peak	
2		0.2820	48.78	0.06	48.84	60.76	-11.92	peak	
3		0.2820	34.60	0.06	34.66	60.76	-26.10	œ	
4		0.2820	23.70	0.06	23.76	50.76	-27.00	A/G	
5		0.5220	46.00	0.06	46.06	56.00	-9.94	peak	
6		0.5220	43.00	0.06	43.06	56.00	-12.94	œ	
7		0.5220	29.90	0.06	29.96	46.00	-16.04	AVG	
8		2.2580	49.88	0.10	49.98	56.00	-6.02	peak	
9		2.2580	33.90	0.10	34.00	56.00	-22.00	œ	
10		2.2580	25.40	0.10	25.50	46.00	-20.50	AVG	
11	•	2.9860	50.99	0.11	51.10	56.00	-4.90	peak	
12		2.9860	38.10	0.11	38.21	56.00	-17.79	œ	
13		2.9860	28.30	0.11	28.41	46.00	-17.59	A/G	

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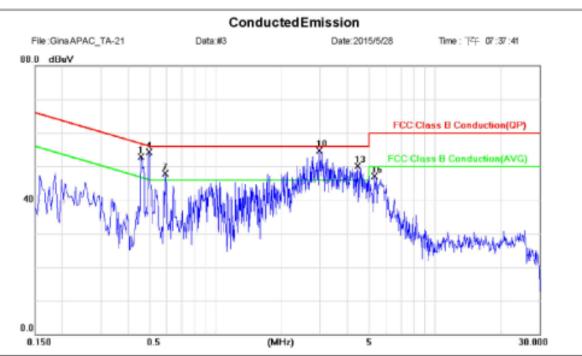
### **FCC ID: PY7-PM0871**

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBulV	dB	Detector	Comment
14		4.4300	46.33	0.15	46.48	56.00	-9.52	peak	
15		4.4300	35.60	0.15	35.75	56.00	-20.25	œ	
16		4.4300	24.80	0.15	24.95	46.00	-21.05	A/G	

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Operation Mode:	Operation mode			Test Date:	May 28, 2015
Temperature:	24	Humidity:	66 %	Test By:	Marcus
Model No.:	Adapter: EP800, S	upplier: Phihong		Phase:	N



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBulV	ďB	dBuV	dBuV	dB	Detector	Comment
1		0.4580	52.82	0.06	52.88	56.73	-3.85	peak	
2		0.4580	39.90	0.06	39.96	56.73	-16.77	œ	
3		0.4580	28.80	0.06	28.86	46.73	-17.87	AVG	
4		0.4980	54.26	0.06	54.32	56.03	-1.71	peak	
5		0.4960	46.40	0.06	46.46	56.03	-9.57	œ	
6		0.4960	33.10	0.06	33.16	46.03	-12.87	AVG	
7		0.5900	47.78	0.06	47.84	56.00	-8.16	peak	
8		0.5900	37.40	0.06	37.46	56.00	-18.54	œ	
9		0.5900	30.80	0.06	30.86	46.00	-15.14	AVG	
10	•	2.9660	54.56	0.11	54.67	56.00	-1.33	peak	
11		2.9660	43.30	0.11	43.41	56.00	-12.59	œ	
12		2.9660	33.20	0.11	33.31	46.00	-12.69	AVG	
13		4.4500	49.90	0.15	50.05	56.00	-5.95	peak	

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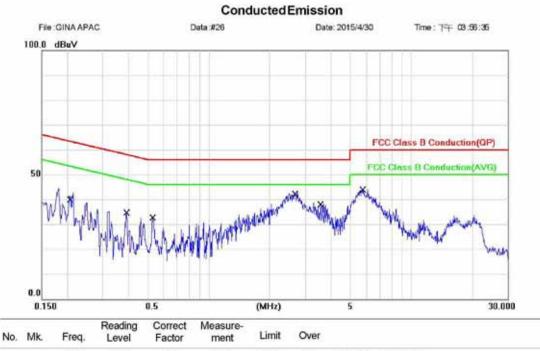
### **FCC ID: PY7-PM0871**

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBul√	æ	dBJV	dBuV	æ	Detector	Comment	
14		4.4500	39.20	0.15	39.35	56.00	-16.65	œ		
15		4.4500	28.80	0.15	28.95	46.00	-17.05	AVG		
16		5.3300	46.99	0.16	47.15	60.00	-12.85	peak		
17		5.3300	35.20	0.16	35.36	60.00	-24.64	œ		
18		5.3300	24.60	0.16	24.76	50.00	-25.24	AVG		

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Operation Mode:	Operation mode			Test Date:	Apr. 30, 2015
Temperature:	24	Humidity:	66 %	Test By:	Tin
Model No.:	Adapter: EP800, S	upplier: Salcomp		Phase:	L1



ter. truce	r rostr	Lorot	1 GOLDI	TINGTA				
	MHz	dBuV	dB	dBuV	dBuV	dB	Delector	Comment
1	0.2100	34.20	9.94	44.14	63.21	-19.07	QP	
2	0.2100	19.60	9.94	29.54	53.21	-23.67	AVG	
3	0.3933	19.70	9.93	29.63	57.99	-28.36	QP	
4	0.3933	6.40	9.93	16.33	47.99	-31.66	AVG	
5	0.5303	15.90	9.93	25.83	56.00	-30.17	QP	
6	0.5303	12.50	9.93	22.43	46.00	-23.57	AVG	
7	2.6300	27.80	9.98	37.78	56.00	-18.22	QP	
8 .	2.6300	18.70	9.98	28.68	46.00	-17.32	AVG	
9	3.5880	18.60	9.99	28.59	56.00	-27.41	QP	
10	3.5880	9.90	9.99	19.89	46.00	-26.11	AVG	
11	5.6860	28.60	10.03	38.63	60.00	-21.37	QP	
12	5.6860	20.70	10.03	30.73	50.00	-19.27	AVG	

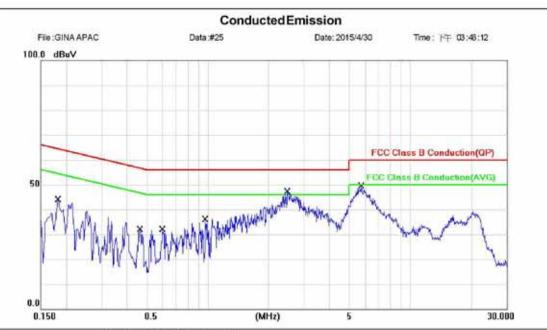
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### **FCC ID: PY7-PM0871**

Operation Mode:	Operation mode			Test Date:	Apr. 30, 2015
Temperature:	24	Humidity:	66 %	Test By:	Tin
Model No.:	Adapter: EP800, S	Supplier: Salcomp		Phase:	Ν



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBJV	dB	Detector	Comment
1		0.1846	32.50	9.92	42.42	64.28	-21.86	QP	
2		0.1846	12.70	9.92	22.62	54.28	-31.66	AVG	
3		0.4652	19.20	9.92	29.12	56.60	-27.48	QP	
4	i	0.4652	9.00	9.92	18.92	46.60	-27.68	AVG	
5		0.5983	20.50	9.92	30.42	56.00	-25.58	QP	
6		0.5983	9.60	9.92	19.52	46.00	-26.48	AVG	
7	č.	0.9827	22.80	9.93	32.73	56.00	-23.27	QP	
8	ł.	0.9827	9.90	9.93	19.83	46.00	-26.17	AVG	
9	•	2.4830	34.60	9.96	44.56	56.00	-11.44	QP	
10		2.4830	21.80	9.96	31.76	46.00	-14.24	AVG	
11		5.7180	32.80	10.02	42.82	60.00	-17.18	QP	
12		5.7180	23.90	10.02	33.92	50.00	-16.08	AVG	

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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	92.80%	0.32
802.11n_20	91.93%	0.37
802.11n_40	85.67%	0.67

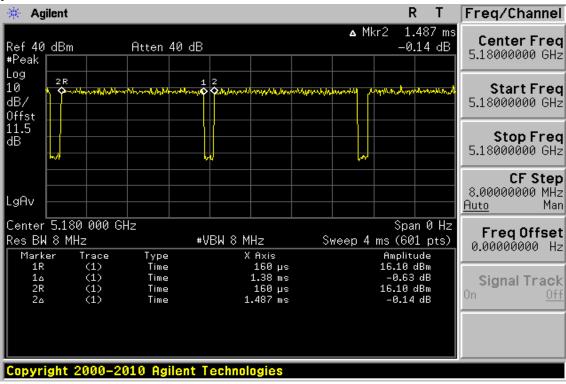
Duty Cycle Factor:  $10 * \log (1/0.9280) = 0.32$ Duty Cycle Factor:  $10 * \log (1/0.9193) = 0.37$ Duty Cycle Factor:  $10 * \log (1/0.8567) = 0.67$ 

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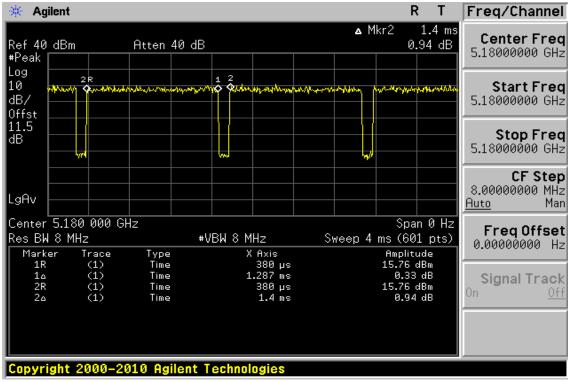
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# **DUTY CYCLE TEST SIGNAL Measurement Result** 802.11a



# 802.11n HT20



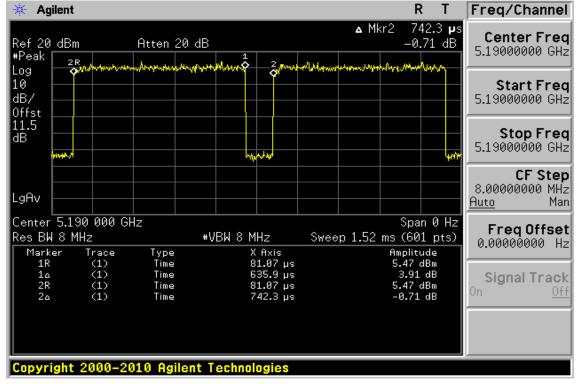
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### 802.11n HT40



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# 8. 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.

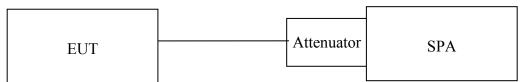
b. Mark the peak frequency and -26dB (upper and lower) frequency.

- 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.

Conducted Emission Test Site					
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
ТҮРЕ		NUMBER	NUMBER	CAL.	
Spectrum Analyzer	Agilent	E4446A	MY51100003	01/29/2015	01/28/2016
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2015	01/01/2016
Attenuator	Mini-Circuit	BW-S10W2+	002	01/02/2015	01/01/2016
Splitter	Agilent	11636B	N/A	01/02/2015	01/01/2016

# 8.3 Measurement Equipment Used

### 8.4 Test Set-up



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#### **Measurement Result** 8.5

### **26dB Bandwidth**

802.11a

Frequency (MHz)	26dB Bandwidth (MHz)	10 Log (B) (dB)
5180	19.653	12.93
5220	20.025	13.02
5240	19.422	12.88
5260	19.848	12.98
5300	19.561	12.91
5320	19.866	12.98
5500	19.546	12.91
5580	19.172	12.83
5700	19.862	12.98

### 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

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### 802.11n HT40

Frequency (MHz)	26dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5190	40.092	16.03
5230	40.192	16.04
5270	39.997	16.02
5310	40.120	16.03
5510	39.638	15.98
5550	39.501	15.97
5670	39.967	16.02

# 6dB Bandwidth (5725 MHz~ 5850 MHz)

### 802.11a

Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5745	15.086	11.79
5785	14.117	11.50
5825	13.201	11.21

### 802.11n\_HT20

Frequency (MHz)	6dB Bandwidth (MHz)	10 Log (B) (dB)
5745	15.169	11.81
5785	12.558	10.99
5825	9.232	9.65

### 802.11n HT40

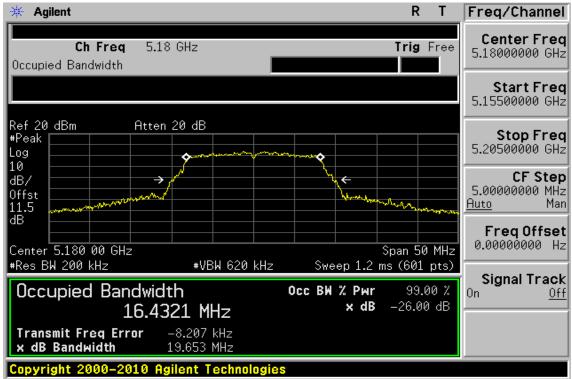
Frequency (MHz)	6dB Bandwidth (B) (MHz)	10 Log (B) (dB)
5755	35.135	15.46
5795	35.070	15.45

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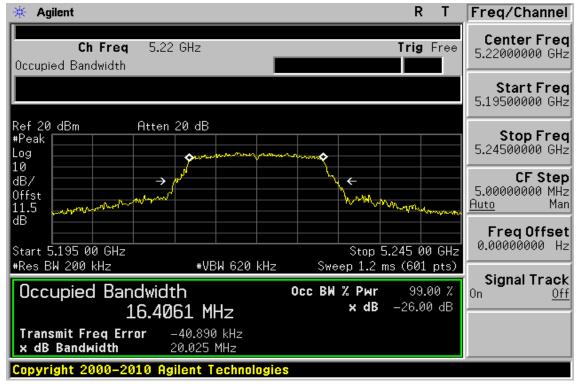
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# 802.11a, 5150~5250 MHz 26dB Band Width Test Data CH-Low (5180MHz)



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

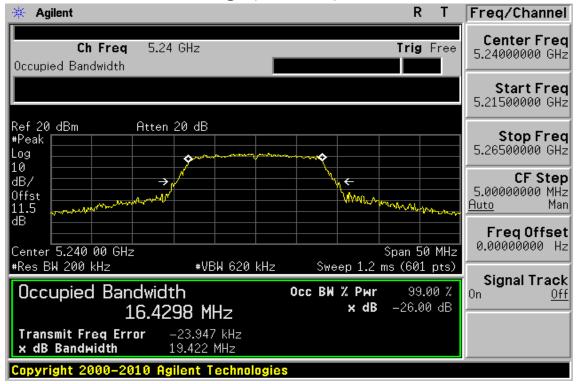


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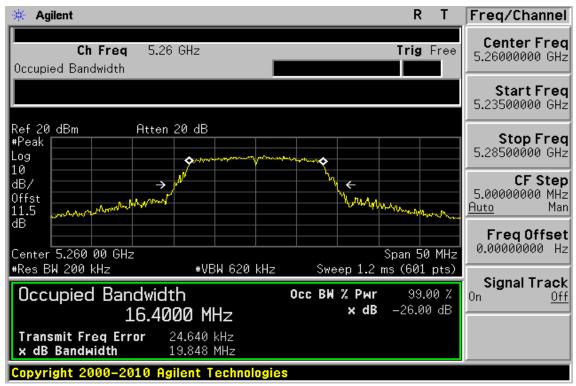
# 26dB Band Width Test Data CH-High (5240MHz)



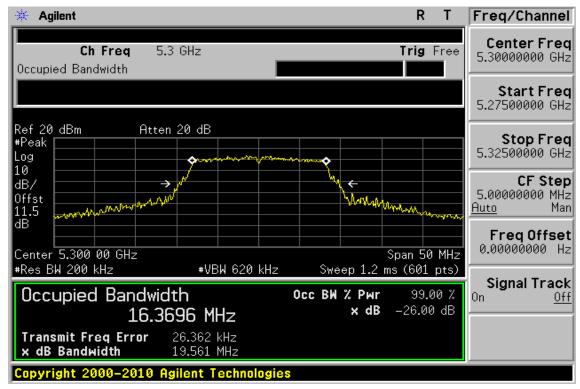
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# 802.11a, 5250~5350 MHz 26dB Band Width Test Data CH-Low (5260MHz)



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

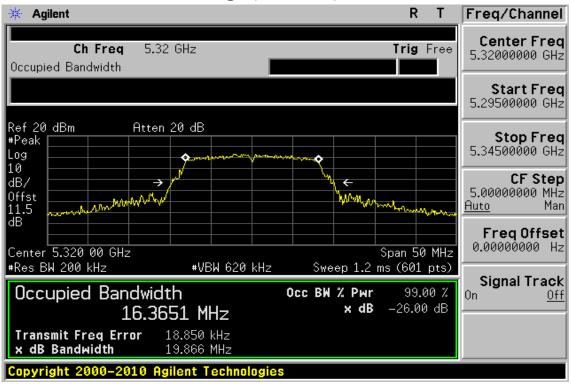


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# 26dB Band Width Test Data CH-High (5320MHz)

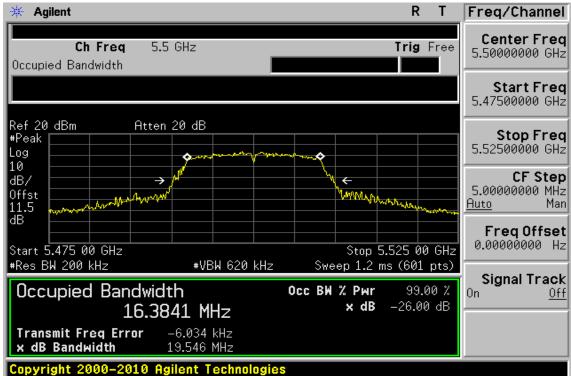


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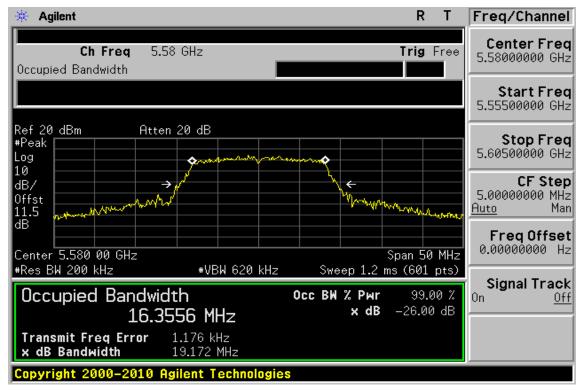
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# 802.11a, 5470~5725 MHz 26dB Band Width Test Data CH-Low (5500MHz)



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



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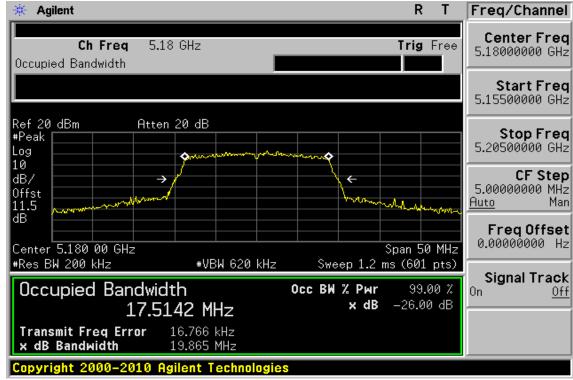
## 26dB Band Width Test Data CH-High (5700MHz)



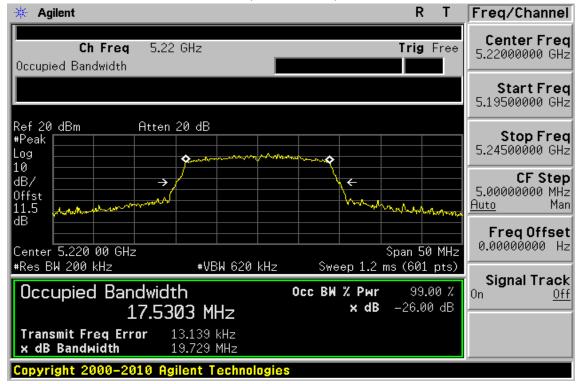
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# 802.11n HT20, 5150~5250 MHz 26dB Band Width Test Data CH-Low (5180 MHz)



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

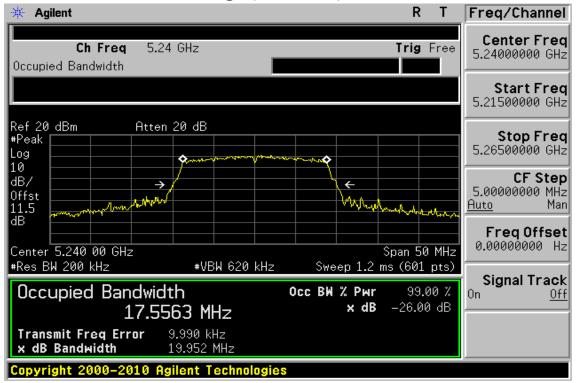


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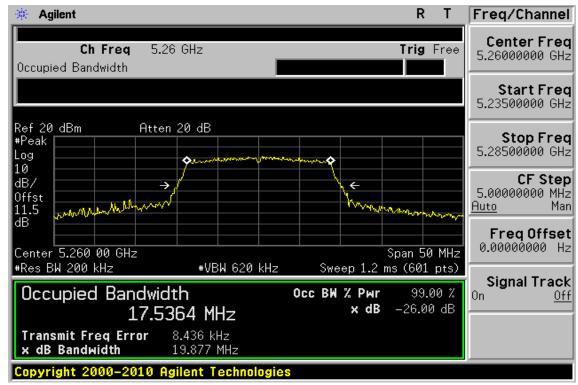
## 26dB Band Width Test Data CH-High (5240 MHz)



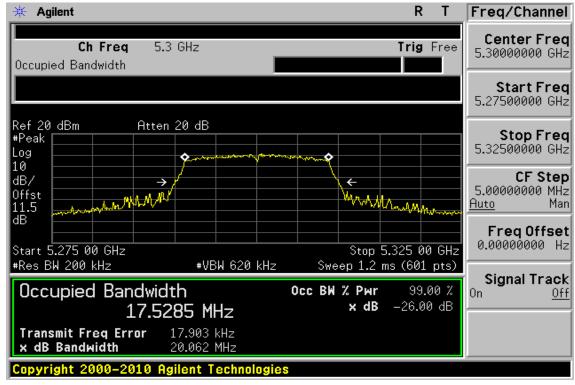
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# 802.11n HT20, 5250~5350 MHz 26dB Band Width Test Data CH-Low (5260 MHz)



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

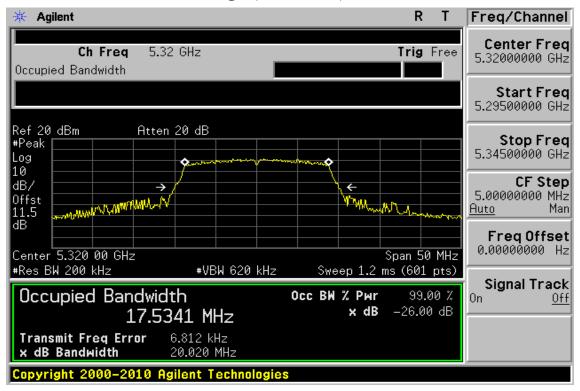


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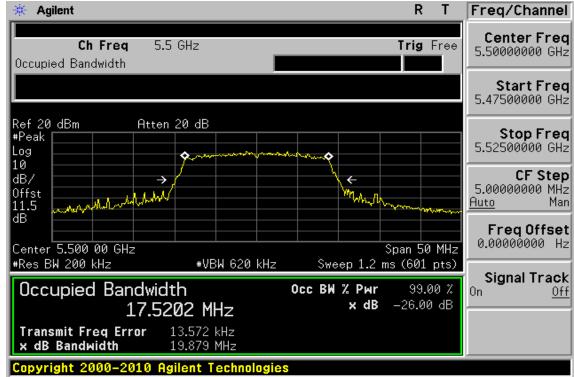
## 26dB Band Width Test Data CH-High (5320 MHz)



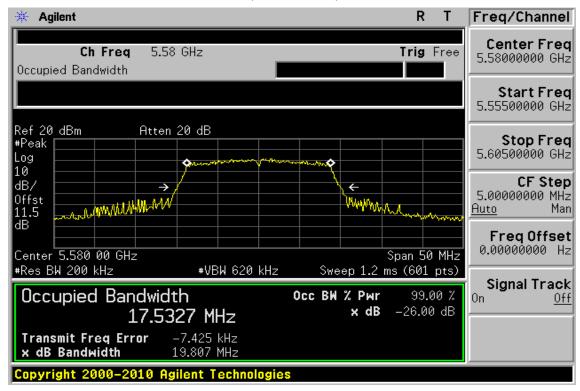
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# 802.11n HT20, 5470~5725 MHz 26dB Band Width Test Data CH-Low (5500 MHz)



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

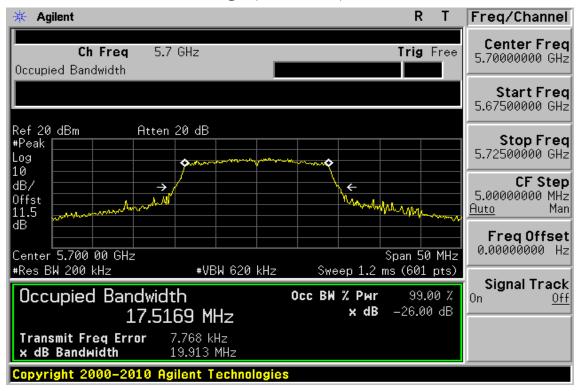


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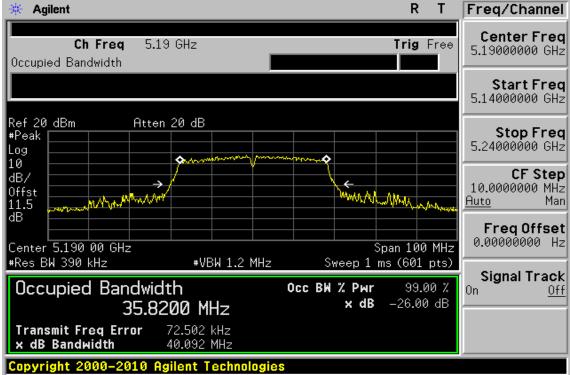
## 26dB Band Width Test Data CH-High (5700 MHz)



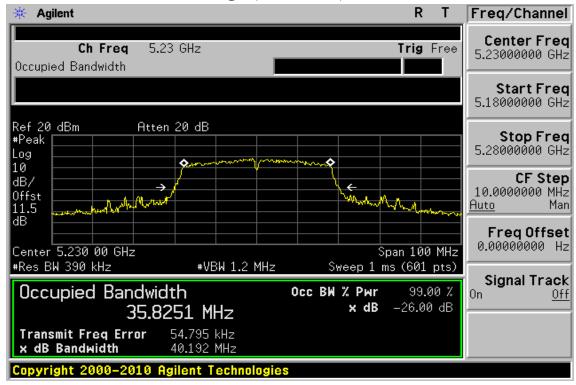
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# 802.11n HT40, 5150~5250 MHz 26dB Band Width Test Data CH-Low (5190 MHz)



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

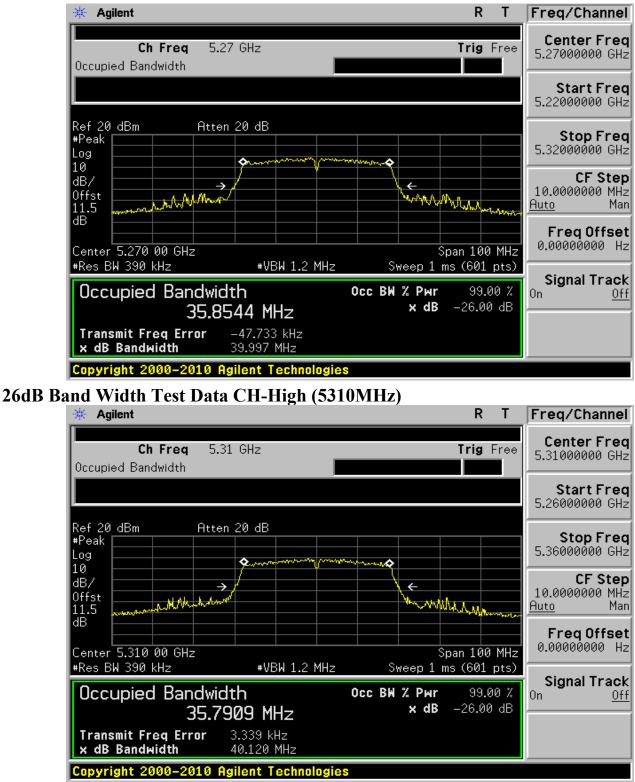


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# 802.11n HT40, 5250~5350 MHz 26dB Band Width Test Data CH-Low (5270 MHz)

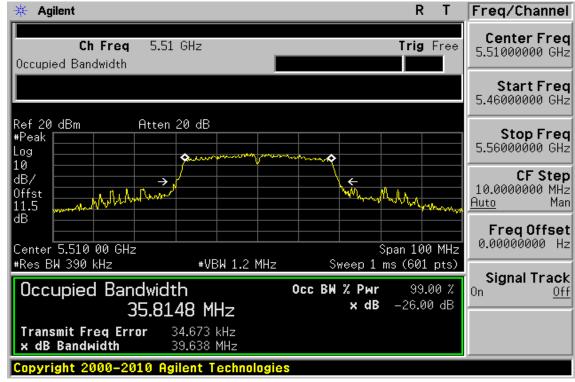


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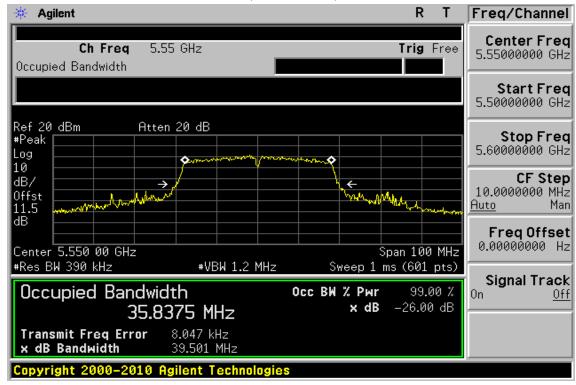
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# 802.11n HT40, 5470~5725 MHz 26dB Band Width Test Data CH-Low (5510 MHz)



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

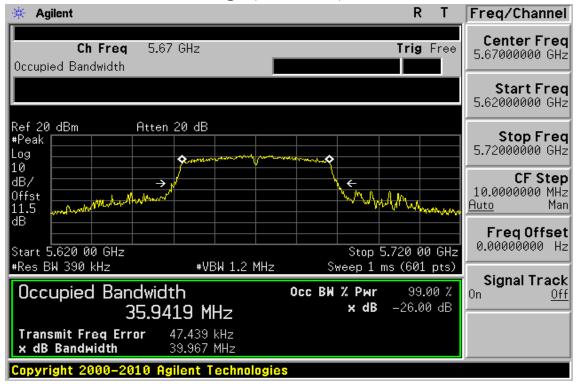


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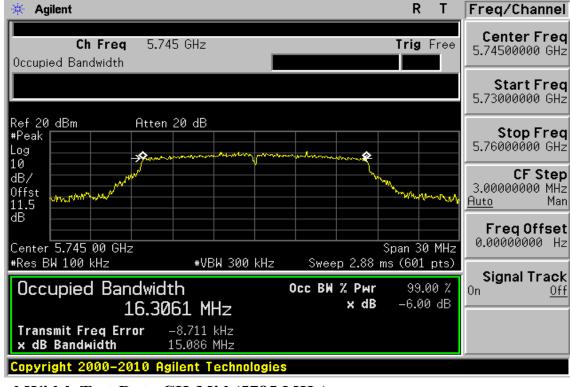
## 26dB Band Width Test Data CH-High (5670 MHz)



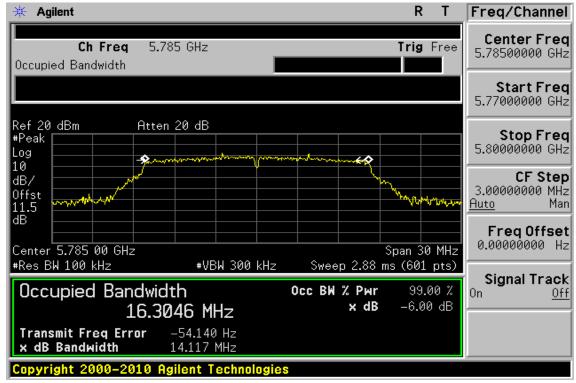
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## 802.11a, 5725~5850 MHz 6dB Band Width Test Data CH-Low (5745 MHz)



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

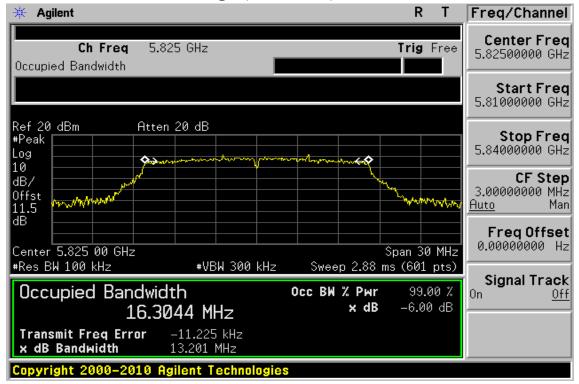


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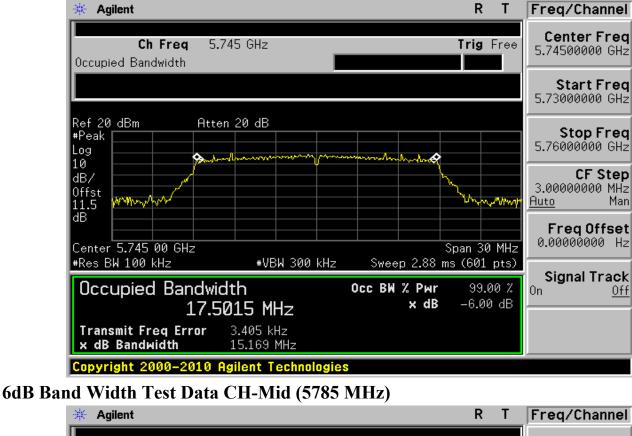
## 6dB Band Width Test Data CH-High (5825 MHz)

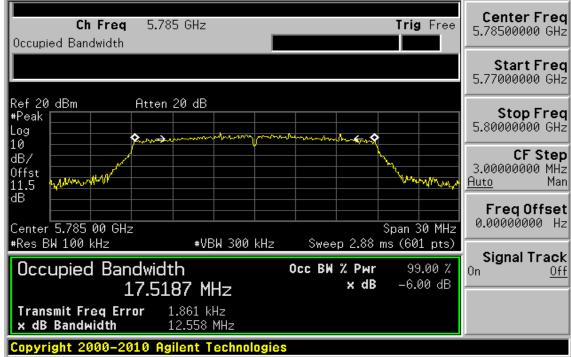


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# 802.11n HT20, 5725~5850 MHz 6dB Band Width Test Data CH-Low (5745 MHz)



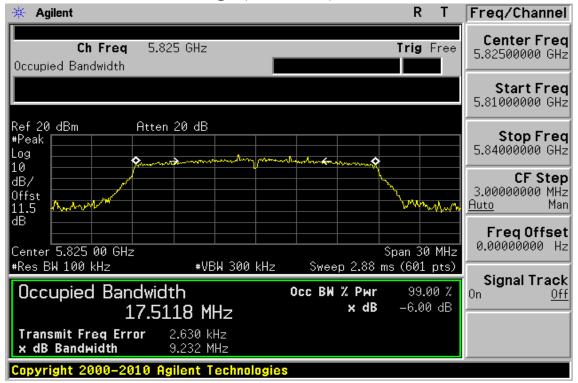


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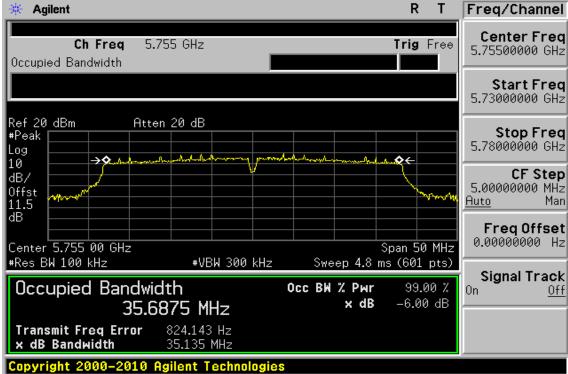
## 6dB Band Width Test Data CH-High (5825 MHz)



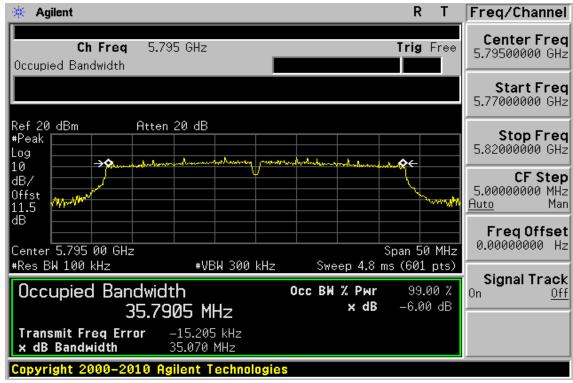
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# 802.11n HT40, 5725~5850 MHz 6dB Band Width Test Data CH-Low (5755 MHz)



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



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## 9. MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

## 9.1 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)	
	$\checkmark$	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	$\checkmark$		1 Watt(30dBm)	

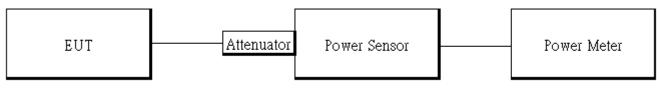
#### 9.2 Measurement Procedure

- 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 power meter
- 4. Power Meter is used as the auxiliary test equipment to conduct the output power measurement.
- 5. Record the max. reading and add 10 log(1/duty cycle).
- 6. Repeat above procedures until all frequency (low, middle, and high channel) measured were complete.

## 9.3 Measurement Equipment Used

Refer to section 8.3 for details.

#### 9.4 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	12.86	19.320	23.98	PASS
44	5220	12.91	19.543	23.98	PASS
48	5240	12.92	19.588	23.98	PASS
52	5260	12.99	19.907	23.98 or 11+10log(B) =24.65	PASS
60	5300	12.99	19.907	23.98 or 11+10log(B) =24.65	PASS
64	5320	12.99	19.907	23.98 or 11+10log(B) =24.65	PASS
100	5500	12.97	19.815	23.98 or 11+10log(B) =24.65	PASS
116	5580	12.99	19.907	23.98 or 11+10log(B) =24.65	PASS
140	5700	12.88	19.409	23.98 or 11+10log(B) =24.65	PASS
149	5745	12.98	19.861	30	PASS
157	5785	12.88	19.409	30	PASS
165	5825	12.81	19.099	30	PASS

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802.11n HT20
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СН	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
36	5180	11.92	15.560	23.98	PASS
44	5220	11.91	15.524	23.98	PASS
48	5240	11.71	14.825	23.98	PASS
52	5260	11.87	15.382	23.98 or 11+10log(B) =24.65	PASS
60	5300	11.97	15.740	23.98 or 11+10log(B) =24.65	PASS
64	5320	11.78	15.066	23.98 or 11+10log(B) =24.65	PASS
100	5500	11.68	14.723	23.98 or 11+10log(B) =24.65	PASS
116	5580	11.86	15.346	23.98 or 11+10log(B) =24.65	PASS
140	5700	11.95	15.668	23.98 or 11+10log(B) =24.65	PASS
149	5745	11.98	15.776	30	PASS
157	5785	11.70	14.791	30	PASS
165	5825	11.95	15.668	30	PASS

#### 802.11n HT40

СН	Frequency (MHz)	TOTAL POWER (dBm)	TOTAL POWER (mW)	REQUIRED LIMIT (dBm)	RESULT
38	5190	11.74	14.928	23.98	PASS
46	5230	11.77	15.031	23.98	PASS
54	5270	11.97	15.740	23.98	PASS
62	5310	11.98	15.776	23.98 or 11+10log(B) =24.65	PASS
102	5510	11.81	15.171	23.98 or 11+10log(B) =24.65	PASS
110	5550	11.89	15.453	23.98 or 11+10log(B) =24.65	PASS
134	5670	11.79	15.101	23.98 or 11+10log(B) =24.65	PASS
151	5755	11.90	15.488	30	PASS
159	5795	11.86	15.346	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 DENSITY10.1 Standard Applicable

OPERZTION Band	EUT CATEGORY		LIMIT
U-NII-1	Access Point (Mater device )		17dBm/ MHz
		Fixed point-to-point Acess Ponit	
	$\checkmark$	Mobile and portable clinet device	11dBm/ MHz
U-NII-2A	$\checkmark$		11dBm/ MHz
U-NII-2C	$\checkmark$		11dBm/ MHz
U-NII-3	$\checkmark$		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 $\geq$  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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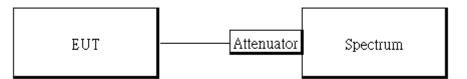
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#### **10.3 Measurement Equipment Used**

Conducted Emission Test Site							
EQUIPMENT	MODEL	SERIAL	LAST	CAL DUE.			
ТҮРЕ		NUMBER	NUMBER	CAL.			
Spectrum Analyzer	Agilent	E4446A	MY51100003	01/29/2015	01/28/2016		
DC Block	Mini-Circuits	BLK-18-S+	1	01/02/2015	01/01/2016		
Attenuator	Mini-Circuit	BW-S10W2+	002	01/02/2015	01/01/2016		

#### 10.4 Test Set-up



#### **10.5 Measurement Result**

802.11a			
Frequency (MHz)	PPSD (dBm)	Limit (dBm)	Margin (dB)
5180	-2.07	11.00	-13.07
5220	-2.19	11.00	-13.19
5240	-1.14	11.00	-12.14
5260	0.11	11.00	-10.89
5300	-2.48	11.00	-13.48
5320	-0.48	11.00	-11.48
5500	-2.04	11.00	-13.04
5580	-2.50	11.00	-13.50
5700	-1.04	11.00	-12.04
5745	7.22	30.00	-22.78
5785	7.21	30.00	-22.79
5825	6.85	30.00	-23.15

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#### 802.11n HT20

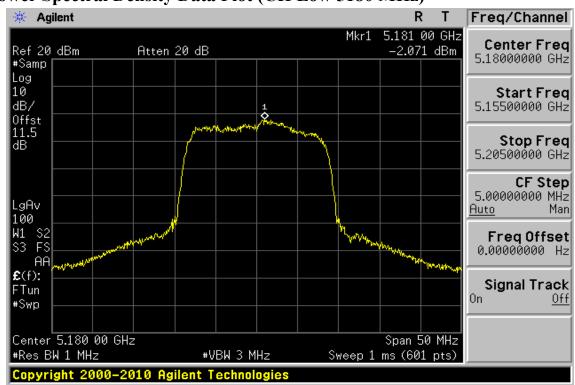
Frequency	PPSD	Limit	Margin
(MHz)	(dBm)	(dBm)	(dB)
5180	-4.71	11.00	-15.71
5220	-3.17	11.00	-14.17
5240	-2.79	11.00	-13.79
5260	-4.57	11.00	-15.57
5300	-4.73	11.00	-15.73
5320	-3.90	11.00	-14.90
5500	-2.58	11.00	-13.58
5580	-3.07	11.00	-14.07
5700	-3.19	11.00	-14.19
5745	6.23	30.00	-23.77
5785	5.85	30.00	-24.15
5825	6.83	30.00	-23.17

#### 802.11n HT40

Frequency	PPSD	Limit	Margin
(MHz)	(dBm)	(dBm)	(dB)
5190	-12.51	11.00	-23.51
5230	-12.52	11.00	-23.52
5270	-9.83	11.00	-20.83
5310	-8.00	11.00	-19.00
5510	-8.62	11.00	-19.62
5550	-8.77	11.00	-19.77
5670	-9.61	11.00	-20.61
5755	2.79	30.00	-27.21
5795	3.76	30.00	-26.24

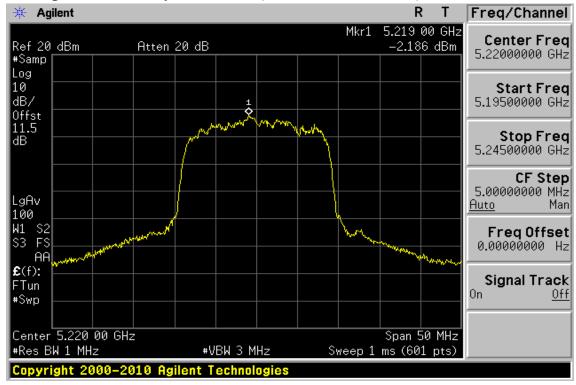
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## 802.11a, 5150~5250 MHz Peak Power Spectral Density Data Plot (CH Low 5180 MHz)

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

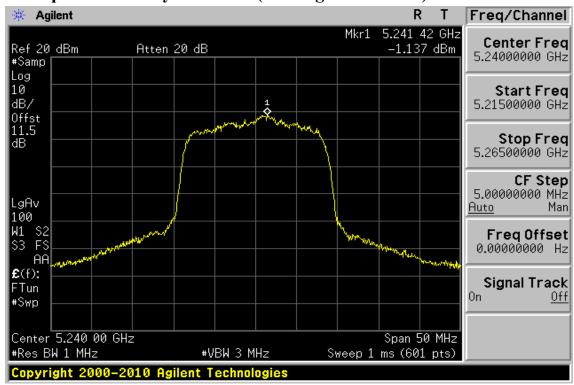


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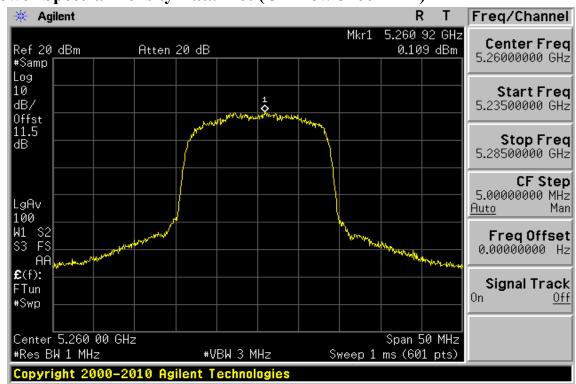




## Peak Power Spectral Density Data Plot (CH High 5240 MHz)

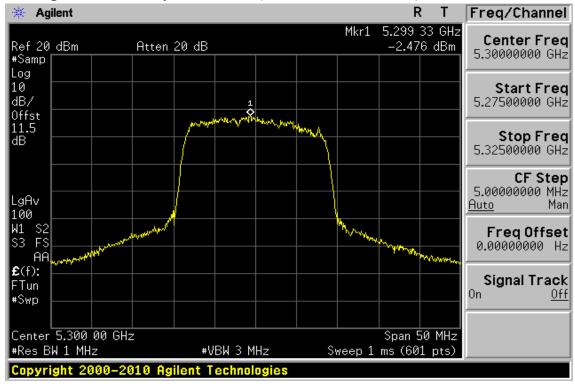
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## 802.11a, 5250~5350 MHz Peak Power Spectral Density Data Plot (CH Low 5260 MHz)

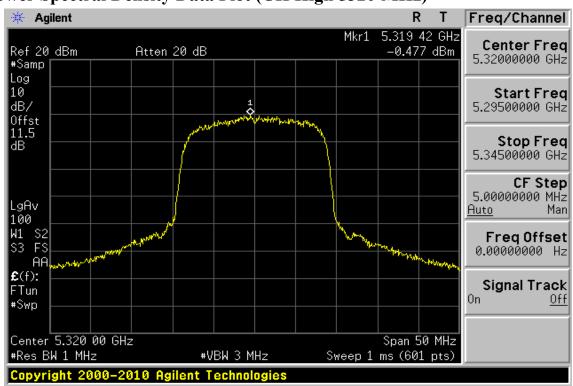
Peak Power Spectral Density Data Plot (CH Mid 5300 MHz)



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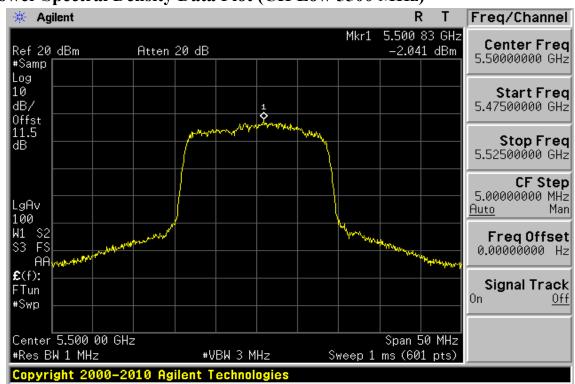




## Peak Power Spectral Density Data Plot (CH High 5320 MHz)

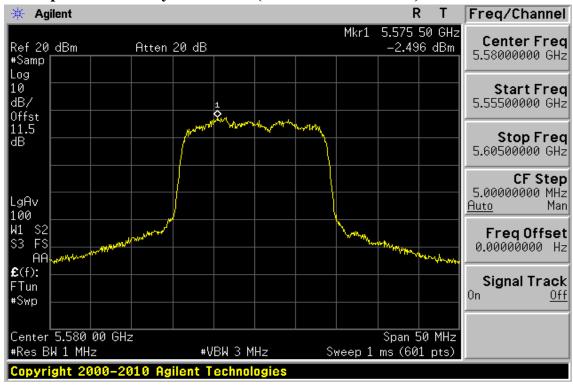
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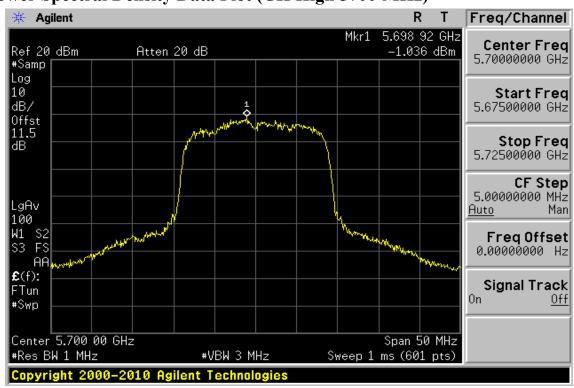
## 802.11a, 5470~5725 MHz Peak Power Spectral Density Data Plot (CH Low 5500 MHz)

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



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

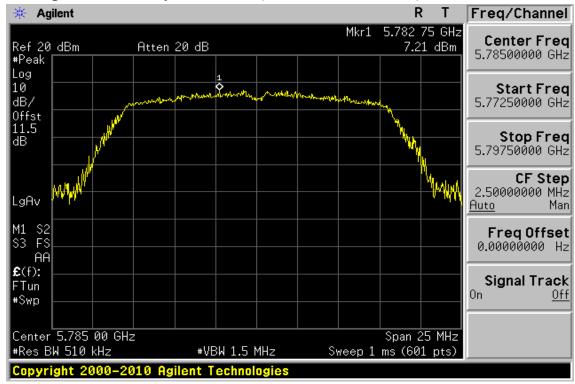
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## 802.11a, 5725~5850 MHz Peak Power Spectral Density Data Plot (CH Low 5745 MHz)

🔆 Agilent R Freg/Channel Mkr1 5.744 12 GHz Center Freq Ref 20 dBm Atten 20 dB 7.22 dBm 5.74500000 GHz #Peak Log ò 10 Start Freq dB/ 5.73250000 GHz Offst 11.5 Stop Freq dB 5.75750000 GHz **CF** Step 2.50000000 MHz LgAv Man <u>Auto</u> Μ1 S2 FS Freq Offset \$3 0.00000000 Hz AA £(f): Signal Track Tun 0n Off #Swp Center 5.745 00 GHz Span 25 MHz #Res BW 510 kHz Sweep 1 ms (601 pts) #VBW 1.5 MHz Copyright 2000-2010 Agilent Technologies

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

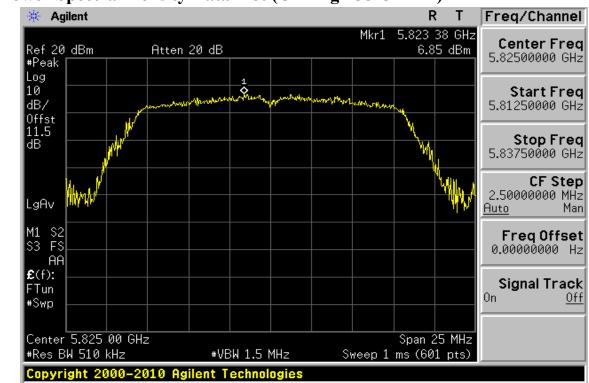


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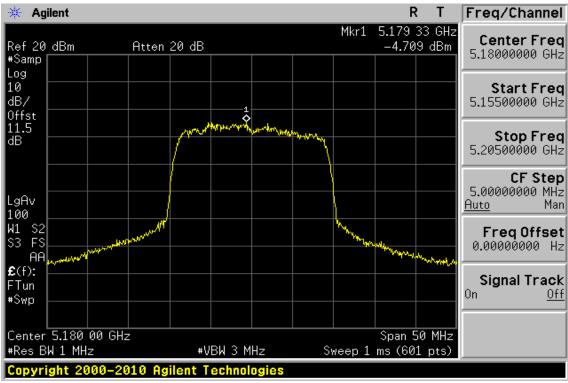


## Peak Power Spectral Density Data Plot (CH High 5825 MHz)

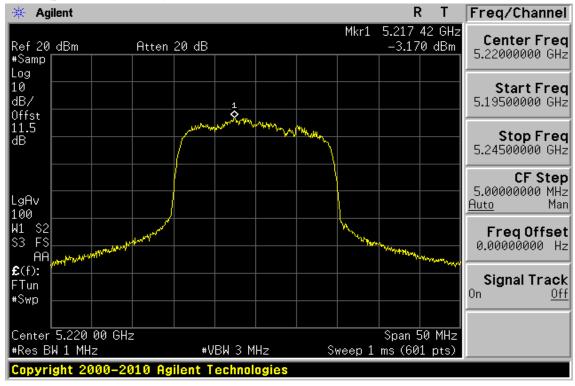
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# 802.11n HT20, 5150~5250 MHz Peak Power Spectral Density Data Plot (CH Low 5180 MHz)



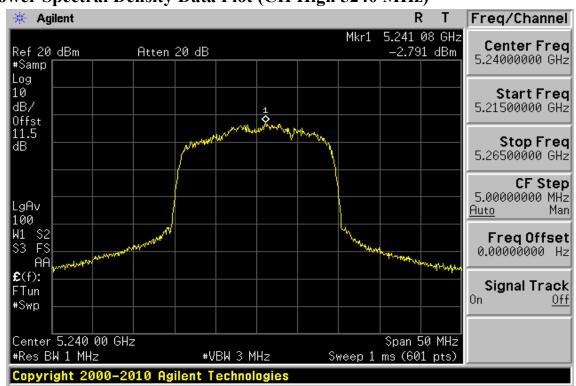
Peak Power Spectral Density Data Plot (CH Mid 5220 MHz)



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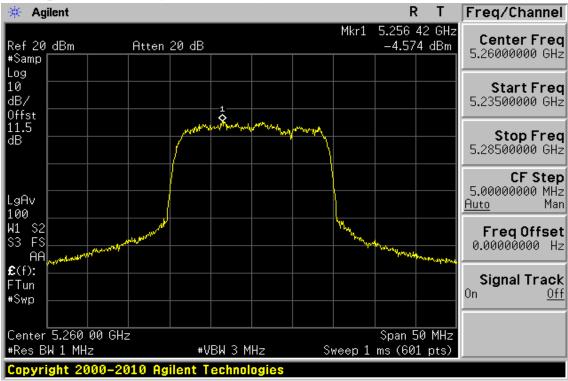


## Peak Power Spectral Density Data Plot (CH High 5240 MHz)

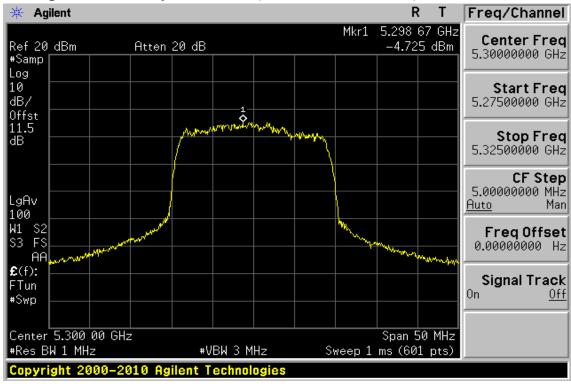
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# 802.11n HT20, 5250~5350 MHz Peak Power Spectral Density Data Plot (CH Low 5260MHz)



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

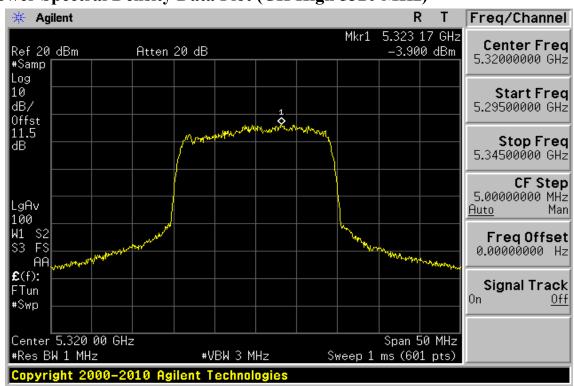


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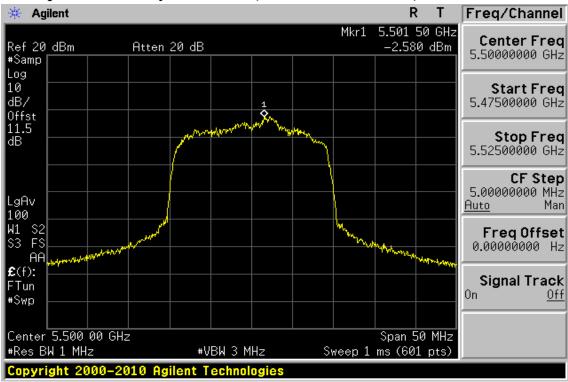


## Peak Power Spectral Density Data Plot (CH High 5320 MHz)

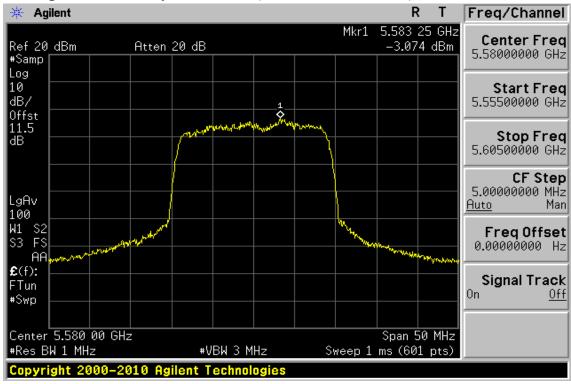
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# 802.11n HT20, 5470~5725 MHz Peak Power Spectral Density Data Plot (CH Low 5500 MHz)



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

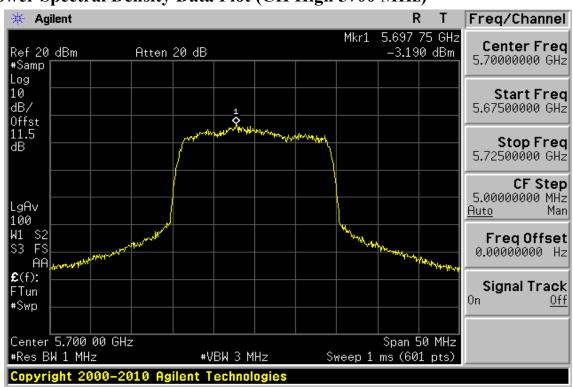


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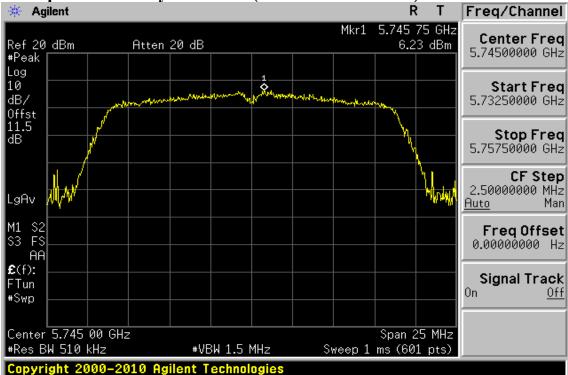


## Peak Power Spectral Density Data Plot (CH High 5700 MHz)

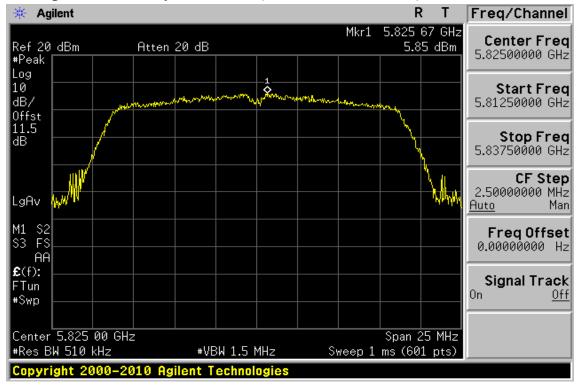
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## 802.11n HT20, 5725~5850 MHz Peak Power Spectral Density Data Plot (CH Low 5745 MHz)



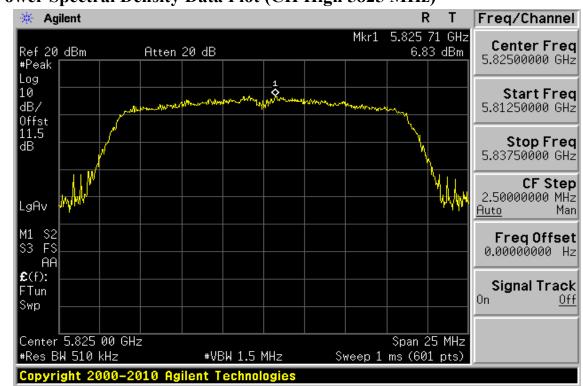
## Peak Power Spectral Density Data Plot (CH Mid 5785 MHz)



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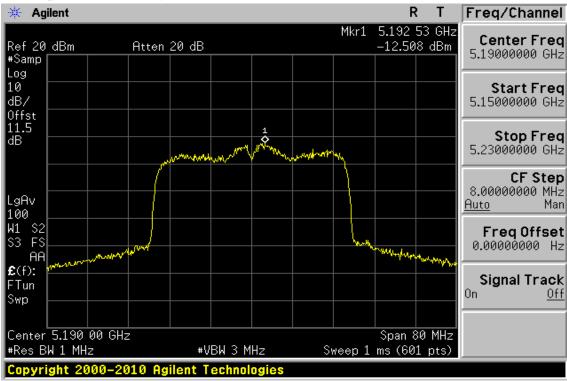
## Peak Power Spectral Density Data Plot (CH High 5825 MHz)

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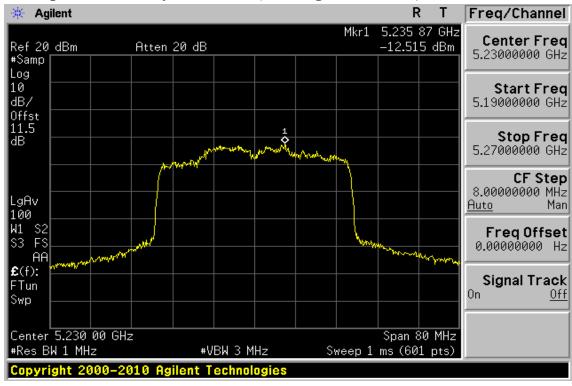
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# 802.11n HT40, 5150~5250 MHz Peak Power Spectral Density Data Plot (CH Low 5190MHz)



## Peak Power Spectral Density Data Plot (CH High 5230MHz)

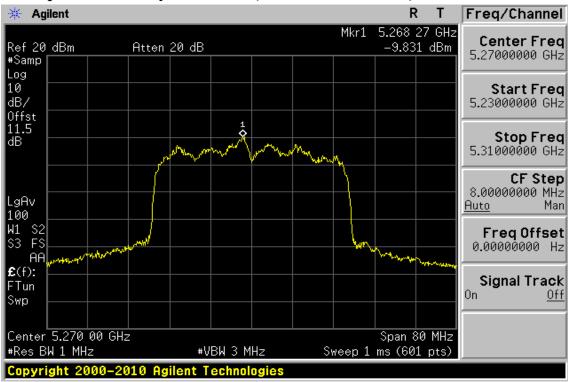


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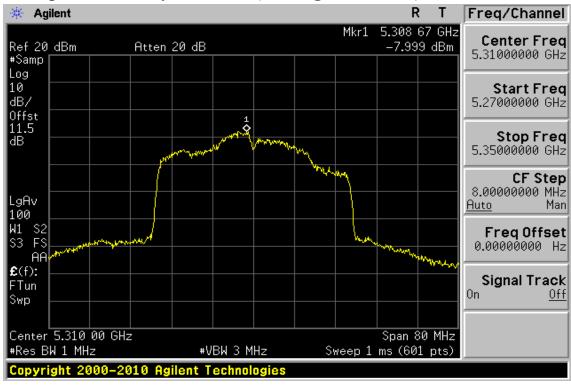
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# 802.11n HT40, 5250~5350 MHz Peak Power Spectral Density Data Plot (CH Low 5270MHz)



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



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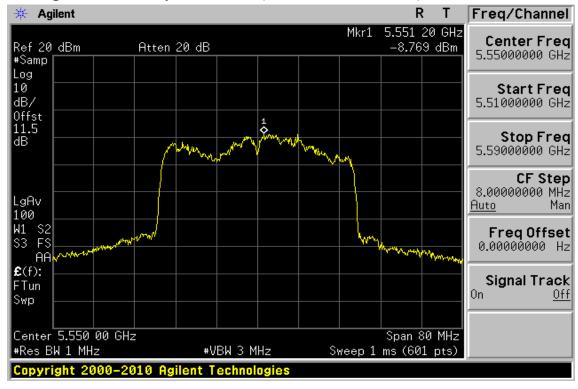
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# 802.11n HT40, 5470~5725 MHz Peak Power Spectral Density Data Plot (CH Low 5510 MHz)

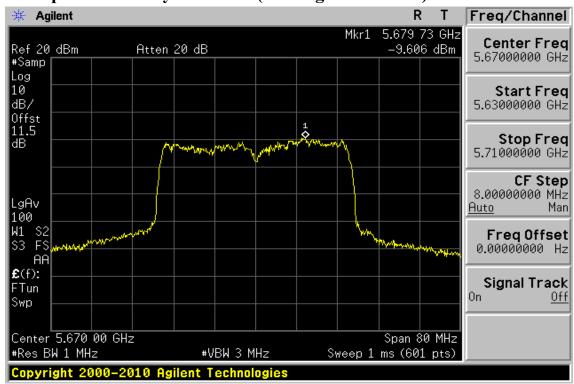


Peak Power Spectral Density Data Plot (CH Mid 5550 MHz)



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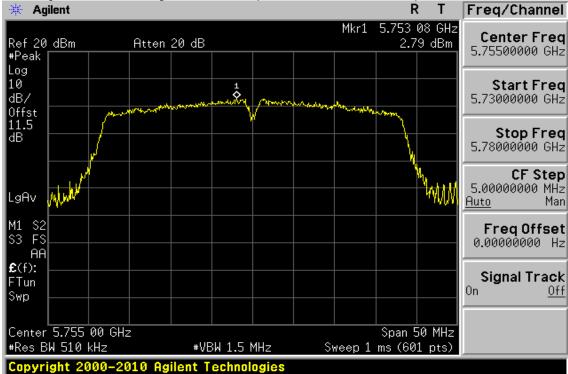
# Peak Power Spectral Density Data Plot (CH High 5670 MHz)

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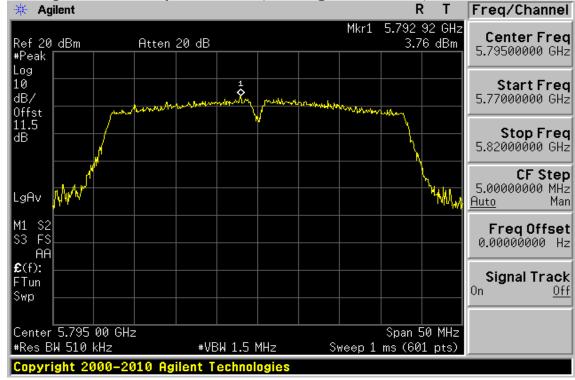
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# 802.11n HT40, 5725~5850 MHz Peak Power Spectral Density Data Plot (CH Low 5755 MHz)



Peak Power Spectral Density Data Plot (CH High 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	LIMIT				
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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#### **Measurement Equipment Used** 11.2

966 Chamber										
EQUIPMENT MFR MODEL SERIAL LAST										
ТҮРЕ		NUMBER	NUMBER	CAL.						
EMI Test Receiver	R&S	ESCI7	100760	05/04/2015	05/03/2016					
Spectrum Analyzer	Agilent	E4446A	MY51100003	01/29/2015	01/28/2016					
EXA Spectrum Analyzer	Agilent	N9010A	MY50420195	12/22/2014	12/21/2015					
Spectrum Analyzer	R&S	FSV-30	101398	10/07/2014	10/06/2015					
Loop Antenna	ETS.LINDGREN	6502	00148045	07/03/2014	07/02/2015					
Bilog Antenna	SCHWAZBECK	VULB9168	378	12/23/2014	12/22/2015					
Horn antenna	ETS.LINDGREN	3117	123995	05/05/2015	05/04/2016					
Horn Antenna	Schwarzbeck	BBHA9170	184	12/25/2014	12/24/2015					
Pre-Amplifier	EMC Instruments Corp.	EMC0126530	980038	01/02/2015	01/01/2016					
Pre-Amplifier	Agilent	8447D	2944A07676	01/02/2015	01/01/2016					
Pre-Amplifier	Agilent	8449B	3008A00578	01/02/2015	01/01/2016					
Pre-Amplifier	EMC Instruments Corp.	EMC184045	980135	01/02/2015	01/01/2016					
5150-5350 Band Reject Filter	Micro-Tronics	BRM50703	1	01/02/2015	01/01/2016					
5470-5725 Band Reject Filter	Micro-Tronics	BRM50704	1	01/02/2015	01/01/2016					
5725-5875 Band Reject Filter	Micro-Tronics	BRM50705	1	01/02/2015	01/01/2016					
1GHz High Pass Filter	Micro-Tronics	HPM50108	32	01/02/2015	01/01/2016					
2GHz High Pass Filter	Micro-Tronics	HPM50110	36	01/02/2015	01/01/2016					
Attenuator	Mini-Circuit	BW-S10W2+	002	01/02/2015	01/01/2016					
Turn Table	HD	DT420	N/A	N.C.R	N.C.R					
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R					
Controller	HD	HD100	N/A	N.C.R	N.C.R					
Low Loss Cable	Huber Suhner	966_Rx	9	01/02/2015	01/01/2016					
3m Site NSA	SGS	966 chamber	N/A	07/15/2014	07/14/2015					

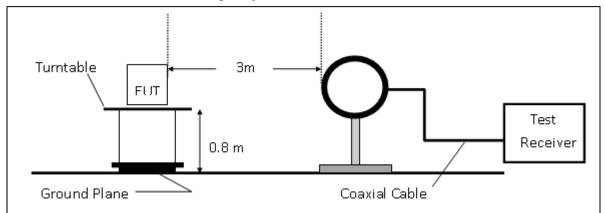
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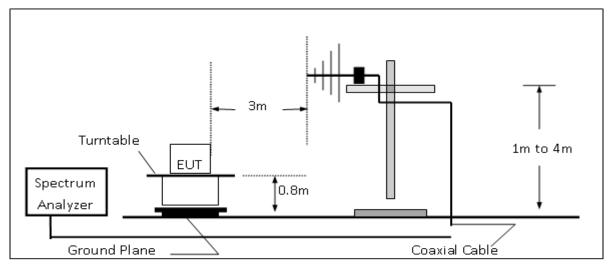


#### **Test SET-UP** 11.3

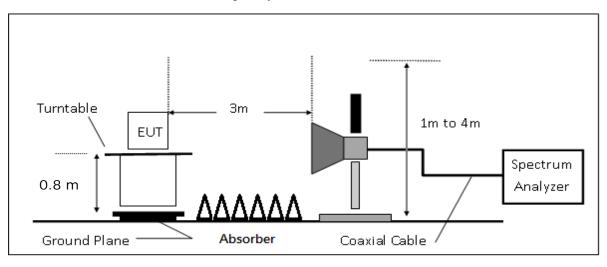
(A) Radiated Emission Test Set-UP Frequency Below 30MHz.



(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 plane. 1.
- 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 plane.
- 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.
- Set the spectrum analyzer as RBW=1 MHz, VBW=3 MHz for Peak Detector at frequency above 1 7. GHz.
- 8. Set the spectrum analyzer as RBW=1 MHz, VBW=10 Hz (Duty cycle > 98%) or VBW  $\ge 1/T$ (Duty cycle  $\leq$  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.

#### **Field Strength Calculation** 11.5

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: DAL AFLOI

	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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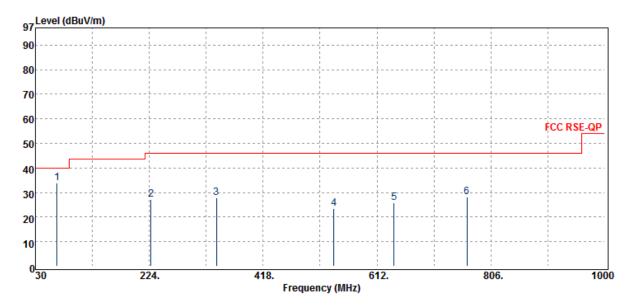
### **Radiated Spurious Emission Measurement Result**

### **Below 1GHz Worst-Case Data:**

#### 802.11a, 5150~5250 MHz

Operation Band	:802.11 a
Fundamental Frequency	:5220 MHz
Operation Mode	:TX MID
EUT Pol.	:E1 Plan

Test Date Temp./Humi. Engineer Measurement Antenna Pol. :2015-05-26 :23 deg C / 58 RH :Curry :VERTICAL

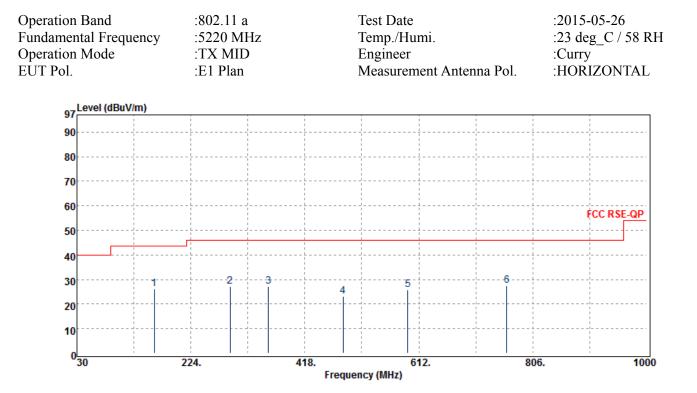


Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
66.86	S	Peak	45.09	-11.21	33.88	40.00	-6.12
226.91	S	Peak	38.39	-11.05	27.34	46.00	-18.66
338.46	S	Peak	35.43	-7.54	27.89	46.00	-18.11
538.28	S	Peak	27.39	-4.00	23.39	46.00	-22.61
641.10	S	Peak	27.58	-1.81	25.77	46.00	-20.23
765.26	S	Peak	27.08	1.11	28.19	46.00	-17.81

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Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
161.92	S	Peak	35.18	-8.85	26.33	43.50	-17.17
290.93	S	Peak	35.24	-8.18	27.06	46.00	-18.94
355.92	S	Peak	34.25	-7.08	27.17	46.00	-18.83
482.99	S	Peak	27.62	-4.46	23.16	46.00	-22.84
593.57	S	Peak	27.51	-1.59	25.92	46.00	-20.08
761.38	S	Peak	26.32	1.13	27.45	46.00	-18.55

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#### 802.11a, 5250~5350 MHz

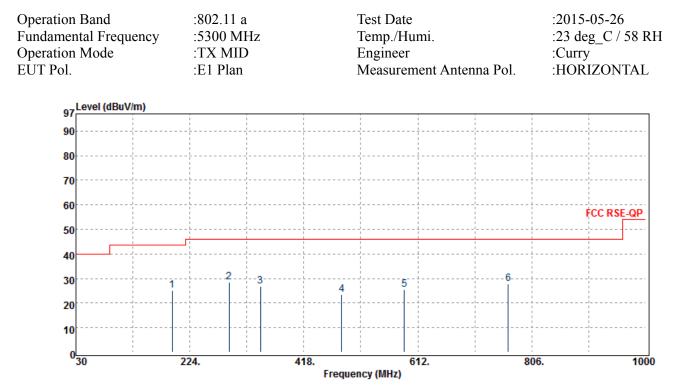
Operation Band Fundamental Frequency Operation Mode EUT Pol.	:802.11 a :5300 MHz :TX MID :E1 Plan	Engi	p./Humi.	:2015-05-26 :23 deg_C / 58 RH :Curry . :VERTICAL
97 Level (dBuV/m)				
90				
80				
70				
60				FCC RSE-QP
50				
40 1				
30		5	6	
20				
10				
0 <mark>30</mark>	224.	418. Frequency (M	612.	806. 1000

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
65.89	S	Peak	44.62	-11.07	33.55	40.00	-6.45
258.92	S	Peak	38.47	-9.60	28.87	46.00	-17.13
291.90	S	Peak	39.42	-8.17	31.25	46.00	-14.75
355.92	S	Peak	34.52	-7.08	27.44	46.00	-18.56
517.91	S	Peak	28.66	-4.47	24.19	46.00	-21.81
681.84	S	Peak	27.81	-1.04	26.77	46.00	-19.23

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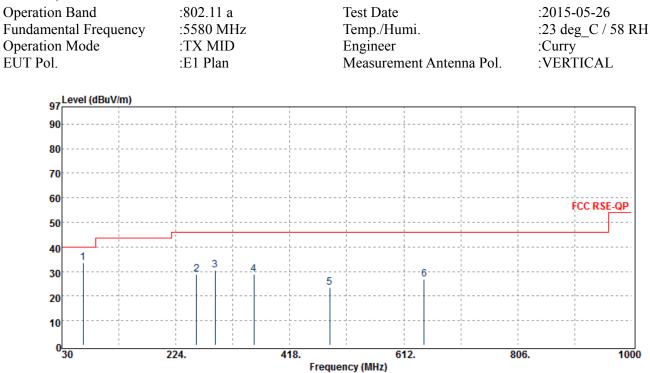


Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
193.93	S	Peak	36.78	-11.69	25.09	43.50	-18.41
290.93	S	Peak	36.78	-8.18	28.60	46.00	-17.40
344.28	S	Peak	34.09	-7.35	26.74	46.00	-19.26
482.02	S	Peak	28.04	-4.51	23.53	46.00	-22.47
588.72	S	Peak	26.93	-1.55	25.38	46.00	-20.62
766.23	S	Peak	26.74	1.09	27.83	46.00	-18.17

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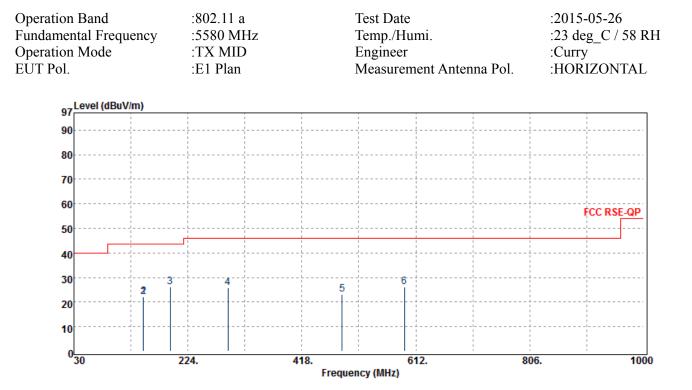
#### 802.11a, 5470~5725 MHz



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
65.89	S	Peak	44.60	-11.07	33.53	40.00	-6.47
258.92	S	Peak	38.48	-9.60	28.88	46.00	-17.12
290.93	S	Peak	38.83	-8.18	30.65	46.00	-15.35
356.89	S	Peak	35.77	-7.07	28.70	46.00	-17.30
485.90	S	Peak	27.98	-4.37	23.61	46.00	-22.39
646.92	S	Peak	28.47	-1.49	26.98	46.00	-19.02

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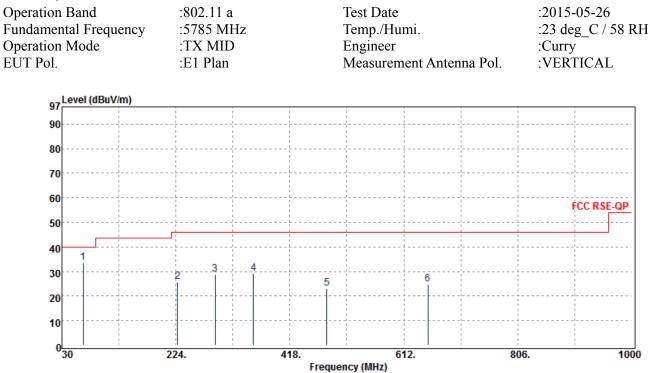


Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
148.34	S	Peak	31.43	-9.43	22.00	43.50	-21.50
148.34	S	Peak	31.43	-9.43	22.00	43.50	-21.50
193.93	S	Peak	37.93	-11.69	26.24	43.50	-17.26
291.90	S	Peak	34.17	-8.17	26.00	46.00	-20.00
486.87	S	Peak	27.38	-4.35	23.03	46.00	-22.97
592.60	S	Peak	27.61	-1.55	26.06	46.00	-19.94

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#### 802.11a, 5725~5850 MHz

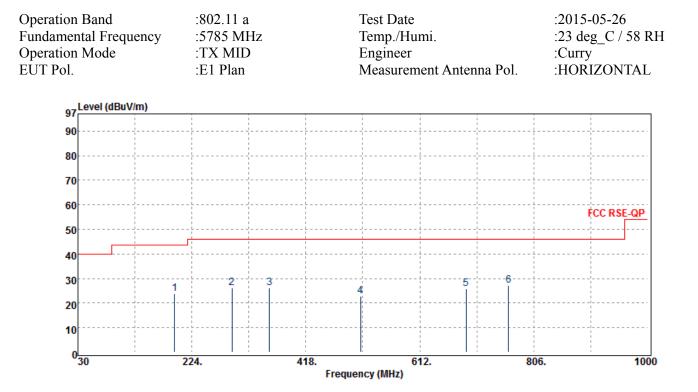


Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
65.89	S	Peak	44.48	-11.07	33.41	40.00	-6.59
226.91	S	Peak	36.85	-11.05	25.80	46.00	-20.20
290.93	S	Peak	37.08	-8.18	28.90	46.00	-17.10
355.92	S	Peak	36.25	-7.08	29.17	46.00	-16.83
481.05	S	Peak	27.72	-4.55	23.17	46.00	-22.83
652.74	S	Peak	26.24	-1.26	24.98	46.00	-21.02

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Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
194.90	S	Peak	35.61	-11.71	23.90	43.50	-19.60
291.90	S	Peak	34.46	-8.17	26.29	46.00	-19.71
355.92	S	Peak	33.26	-7.08	26.18	46.00	-19.82
511.12	S	Peak	27.39	-4.50	22.89	46.00	-23.11
690.57	S	Peak	26.70	-0.83	25.87	46.00	-20.13
763.32	S	Peak	26.10	1.14	27.24	46.00	-18.76

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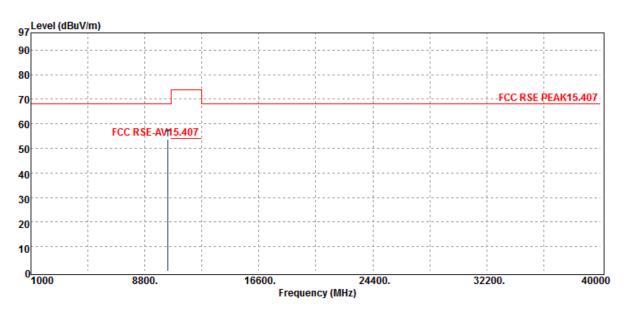
### **Above 1GHz Worst-Case Data:**

#### 802.11a, 5150~5250 MHz

**Operation Band Fundamental Frequency Operation Mode** EUT Pol.

:802.11 a :5180 MHz :TX LOW :E1 Plan

Test Date Temp./Humi. Engineer Measurement Antenna Pol. :2015-05-26 :23 deg C / 58 RH :Curry :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
10360.00	Н	Peak	36.11	17.65	53.76	68.30	-14.54

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Η

Peak

#### **FCC ID: PY7-PM0871**

Operation Band Fundamental Frequency Operation Mode EUT Pol.	:802.11 a :5180 MHz :TX LOW :E1 Plan	]	Fest Date Femp./Humi. Engineer Measurement Ar	ntenna Pol.	:2015-05-26 :23 deg_C / . :Curry :HORIZON	58 RH
97 Level (dBuV/m)						
90						
80						
70					FCC RSE PEAK15.	407
60						
50 FC	C RSE-AV <u>15.407</u>					
40						
30						
20						
10		I I I				
0 <mark></mark>	8800.	16600. Frequen	24400. cy (MHz)	322	200.	40000
Freq. Note	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Leve	el	FS	@3m	
MHz F/H/E/S	B PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB

34.78

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17.65

52.43

68.30



Η

Peak

#### **FCC ID: PY7-PM0871**

Operation Band Fundamental Fro Operation Mode	equency	:802.11 a :5220 MHz :TX MID		Test Date Temp./Humi. Engineer		:2015-05-26 :23 deg_C / :Curry	58 RH
EUT Pol.		:E1 Plan		Measurement A	Antenna Pol.	:VERTICAI	
97 Level (d	BuV/m)						
90							
80	· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·			
70						FCC RSE PEAK15	.407
60	FCC R	SE-AV15.407					
50							
40	· · · · · · · · · · · · · · · · · · ·			i 			
30	· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·			·
20			 				
10							·
0 <mark></mark> 1000	8	800.	16600. Freque	24400. ncy (MHz)	322	200.	40000
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	el	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV∕m	dBµV∕m	dB

34.22

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18.47

52.69

68.30



Η

Peak

#### **FCC ID: PY7-PM0871**

Operation Band Fundamental Fr Operation Mod EUT Pol.	requency	:802.11 a :5220 MHz :TX MID :E1 Plan		Test Date Temp./Humi. Engineer Measurement Antenna Pol.		:2015-05-26 :23 deg_C / 5 :Curry :HORIZONT	
97	dBuV/m)						
90		·					
80			     		· · · · · · · · · · · · · · · · · · ·	     	
70						FCC RSE PEAK15.4	07
60							
	FCC F	RSE-AV1 <u>5.407</u>					
50	1					       	
40	· J						
30			 				·
20							·
10				· · · · · · · · · · · · · · · · · · ·		 	
0 <mark></mark> 1000	8	800.	16600. Freque	24400. ency (MHz)	3220	0. 4	10000
Freq.	Note	Detector Mode	Spectrum Reading Lev		Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
		-	·		·	·	

34.44

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18.47

52.91

68.30



Η

Peak

#### **FCC ID: PY7-PM0871**

Operation Band Fundamental Fi Operation Mod EUT Pol.	requency	:802.11 a :5240 MHz :TX HIGH :E1 Plan		Test Date Temp./Humi. Engineer Measurement Antenna Pol.		:2015-05-26 :23 deg_C / 5 :Curry :VERTICAL	
97	lBuV/m)						
90							
80			       		1 1 1 1 1 1		
70						FCC RSE PEAK15.4	<b>107</b>
60							
50	FCC R	SE-AV1 <u>5.407</u>		· · · · · · · · · · · · · · · · · · ·			
40				· · · · · · · · · · · · · · · · · · ·			
30							
20							
10		- L		d                     			·
0 <mark>1000</mark>	. 8	800.	16600. Freque	24400. ncy (MHz)	322	200.	40000
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	el	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV∕m	dBµV/m	dB
10,400,00			25.42	10.00	52.66	(0.20	14.64

35.43

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18.23

53.66

68.30

-14.64



Η

Peak

#### **FCC ID: PY7-PM0871**

Operation Band Fundamental Frequency Operation Mode EUT Pol.	:802.11 a :5240 MHz :TX HIGH :E1 Plan	Test Date Temp./Humi. Engineer Measurement Antenna Pol.		:2015-05-26 :23 deg_C / 58 :Curry :HORIZONTA	
97					
90					
80		· · · · · · · · · · · · · · · · · · ·			
70				FCC RSE PEAK15.40	7.
					-
	SE-AV <u>15.407</u>				
50					
40					
30					
20					- ·
10					
0					
-1000 88	00. 16600. Fre	24400. equency (MHz)	32200	0. 40	000
Freq. Note	Detector Spectru	um Factor	Actual	Limit	Margin
	Mode Reading I	Level	FS	@3m	
MHz F/H/E/S	PK/QP/AV dBµV	√ dB	dBµV/m	dBµV/m	dB

34.82

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18.23

53.05

68.30



### Band edge falling to restricted band

Operation Ban Fundamental F Operation Mod EUT Pol.	Frequency	:802.11 a :5180 MHz :Band Edge I :E1 Plan	LOW	Test Date Temp./Humi. Engineer Measurement An	itenna Pol.	:2015-05-26 :23 deg_C / 5 :Curry :VERTICAL	8 RH
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	el	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5150.00	Е	Average	30.23	10.32	40.55	54.00	-13.45
5150.00	Е	Peak	43.01	10.32	53.33	74.00	-20.67
Operation Ban Fundamental F Operation Mod EUT Pol.	requency	:802.11 a :5180 MHz :Band Edge I :E1 Plan	LOW	Test Date Temp./Humi. Engineer Measurement An	tenna Pol.	:2015-05-26 :23 deg_C / 5 :Curry :HORIZONT.	
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	el	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5150.00	Е	Average	32.07	10.32	42.39	54.00	-11.61
5150.00	Е	Peak	44.78	10.32	55.10	74.00	-18.90

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Η

Peak

#### Radiated Spurious Emission Measurement Result 802.11n HT20, 5150~5250 MHz **Operation Band** :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5180 MHz Temp./Humi. :23 deg C / 58 RH **Operation Mode** Engineer :TX LOW :Curry :VERTICAL EUT Pol. :E1 Plan Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 24400. 32200. 40000 Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Reading Level Mode FS @3m PK/QP/AV dBµV dBµV/m dBµV/m MHz F/H/E/S dB dB

35.78

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Chiefs 3 and but the state of the results shown in this test report relation of the only of the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有说明,此親告義是僅到測試之樣品負責,同時此樣品僅保留的天。本報告未遂年公司書面許可,不可能倚我覺。 This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <u>www.sgs.com/terms and conditions.htm</u> and, for elec-tronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms e-document.htm</u>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document is upwing the paragraphic to the function to the limit of the low: pearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law

17.65

53.43

68.30

-14.87



Η

Peak

#### **FCC ID: PY7-PM0871**

-16.56

Operation Band :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5180 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX LOW Engineer :Curry EUT Pol. :E1 Plan :HORIZONTAL Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 24400. 32200. 40000 Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Reading Level Mode FS @3m PK/QP/AV dBµV dBµV/m dBµV/m MHz F/H/E/S dB dB

34.09

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17.65

51.74

68.30



Η

Peak

#### **FCC ID: PY7-PM0871**

Operation Band :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5220 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX MID Engineer :Curry :VERTICAL EUT Pol. :E1 Plan Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 24400. 32200. 40000 Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Reading Level Mode FS @3m PK/QP/AV dBµV dBµV/m dBµV/m MHz F/H/E/S dB dB

34.36

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18.47

52.83

68.30



Η

Peak

#### **FCC ID: PY7-PM0871**

Operation Band :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5220 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX MID Engineer :Curry EUT Pol. :E1 Plan :HORIZONTAL Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 24400. 32200. 40000 Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Reading Level Mode FS @3m PK/QP/AV dBµV dBµV/m dBµV/m MHz F/H/E/S dB dB

34.37

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18.47

52.84

68.30



Η

Peak

#### **FCC ID: PY7-PM0871**

Operation Band :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5240 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX HIGH Engineer :Curry :VERTICAL EUT Pol. :E1 Plan Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 24400. 32200. 40000 Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Reading Level Mode FS @3m PK/QP/AV dBµV dBµV/m dBµV/m MHz F/H/E/S dB dB

34.99

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18.23

53.22

68.30



Η

Peak

#### **FCC ID: PY7-PM0871**

Operation Band Fundamental Fi Operation Mod EUT Pol.	requency	:802.11 n20M :5240 MHz :TX HIGH :E1 Plan	Л	Test Date Temp./Humi. Engineer Measurement Antenna Pol.		:2015-05 :23 deg_ :Curry :HORIZ	C / 58 RH
97	dBuV/m)						
90	·						
80					, , , , , , , , , , , , , , , , , , ,		
70						FCC RSE PEA	K15.407
60	FCC F	RSE-AV45.407			   		
50					       		
40					       		
30			       		   		
20					       		
10							
0 1000	8	800.	16600. Freque	2440 ency (MHz)	0. 3	2200.	40000
Freq.	Note	Detector Mode	Spectrum Reading Lev		or Actual FS	Limi @3m	0
MHz	F/H/E/S	PK/QP/AV	dBµV	dB		0	
10,400,00	ŢŢ		24.60	10.0	52.02	(0.20	15.47

34.60

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18.23

52.83

68.30



#### Band edge falling to restricted band

Fundamental H	Operation Band:802.11 n20MTest DateFundamental Frequency:5180 MHzTemp./Humi.Operation Mode:Band Edge LOWEngineerCUT Pol.:E1 PlanMeasurement Antenna Pol.		tenna Pol.	:2015-05-26 :23 deg_C / 58 RH :Curry :VERTICAL			
Freq.	Note	Detector Mode	Spectrum Reading Leve	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5150.00	E	Average	29.32	10.32	39.64	54.00	-14.36
5150.00	E	Peak	41.92	10.32	52.24	74.00	-21.76

Operation Band	:802.11 n20M	Test Date	:2015-05-26
Fundamental Frequency	:5180 MHz	Temp./Humi.	:23 deg_C / 58 RH
Operation Mode	:Band Edge LOW	Engineer	:Curry
EUT Pol.	:E1 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.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5150.00	Е	Average	31.18	10.32	41.50	54.00	-12.50
5150.00	Е	Peak	50.04	10.32	60.36	74.00	-13.64

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Η

#### Radiated Spurious Emission Measurement Result 802.11n HT40, 5150~5250 MHz **Operation Band** :802.11 n40M Test Date :2015-05-26 **Fundamental Frequency** :5190 MHz Temp./Humi. :23 deg C / 58 RH **Operation Mode** Engineer :TX LOW :Curry :VERTICAL EUT Pol. :E1 Plan Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 24400. 32200. 40000 Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Reading Level Mode FS @3m PK/QP/AV dBµV dBµV/m dBµV/m MHz F/H/E/S dB dB

34.18

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

Peak

18.00

52.18

68.30

-16.12

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Η

Peak

## **FCC ID: PY7-PM0871**

Operation Band Fundamental Fr Operation Mode EUT Pol.	requency	:802.11 n40M :5190 MHz :TX LOW :E1 Plan		Test Date Temp./Hum Engineer Measuremen	i. nt Antenna Po	:23 d :Curi	5-05-26 leg_C / 58 R ry RIZONTAL	Η
97 Level (	lBuV/m)							
90 								
80								
70						FCC RSI	E PEAK15.407	
<mark>60</mark>	FCC F	RSE-AV15.407						
50								
40								
30								
20								
10								
0	8	800.	16600. Freque	2440 ency (MHz)	0.	32200.	40000	)
Freq.	Note	Detector Mode	Spectrum Reading Lev		or Act		imit 1 )3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB			uV/m	dB

34.50

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18.00

52.50

68.30

-15.80



Η

Peak

#### **FCC ID: PY7-PM0871**

-15.75

Operation Band :802.11 n40M Test Date :2015-05-26 **Fundamental Frequency** :5230 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX HIGH Engineer :Curry :VERTICAL EUT Pol. :E1 Plan Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 24400. 32200. 40000 Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Reading Level Mode FS @3m PK/QP/AV dBµV dBµV/m dBµV/m MHz F/H/E/S dB dB

34.19

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18.36

52.55

68.30



Η

Peak

## **FCC ID: PY7-PM0871**

Operation Band :802.11 n40M Test Date :2015-05-26 **Fundamental Frequency** :5230 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX HIGH Engineer :Curry Measurement Antenna Pol. EUT Pol. :E1 Plan :HORIZONTAL 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 24400. 32200. 40000 Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Reading Level Mode FS @3m PK/QP/AV dBµV dBµV/m dBµV/m MHz F/H/E/S dB dB

35.11

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18.36

53.47

68.30

-14.83



# Band edge falling to restricted band

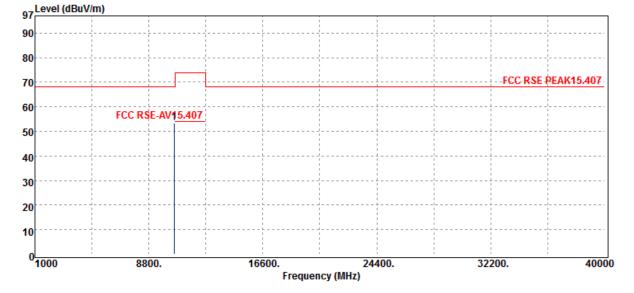
Operation Band Fundamental Frequency Operation Mode EUT Pol.		:5190 MHz :Band Edge LOW		Test Date Temp./Humi. Engineer Measurement Ant	tenna Pol.	:2015-05-26 :23 deg_C / 58 RH :Curry :VERTICAL	
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Leve	el	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5150.00	Е	Average	29.79	10.32	40.11	54.00	-13.89
5150.00	Е	Peak	49.54	10.32	59.86	74.00	-14.14

Operation Band Fundamental Frequency Operation Mode EUT Pol.		:5190 MHz :Band Edge LOW		Test Date Temp./Humi. Engineer Measurement An	tenna Pol	:2015-05-26 :23 deg_C / 58 RH :Curry :HORIZONTAL		
EUT Pol.		.L'I FIAII		Wiedsurennenn An	tenna r or.	IIONIZONI	AL	
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin	
		Mode	Reading Lev	el	FS	@3m		
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
5150.00	Е	Average	30.72	10.32	41.04	54.00	-12.96	
5150.00	Е	Peak	44.54	10.32	54.86	74.00	-19.14	



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

Operation Band	:802.11 a	Test Date	:2015-05-26
Fundamental Frequency	:5260 MHz	Temp./Humi.	:23 deg_C / 58 RH
Operation Mode	:TX LOW	Engineer	:Curry
EUT Pol.	:E1 Plan	Measurement Antenna Pol.	:VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
10520.00	Н	Peak	34.87	18.35	53.22	68.30	-15.08



Η

Peak

#### **FCC ID: PY7-PM0871**

Operation Band Fundamental Fr Operation Mod EUT Pol.	requency	:802.11 a :5260 MHz :TX LOW :E1 Plan		Test Date Temp./Humi. Engineer Measurement An	tenna Pol.	:2015-05-26 :23 deg_C / 5 :Curry :HORIZONT	
97	dBuV/m)						
90							
80							
70						FCC RSE PEAK15.4	07
60							
50	FCC F	RSE-AV1 <u>5.407</u>					
40							
30							
20							
10							
0 <sup>L</sup> 1000	8	: I : :800.	16600. Freque	24400. ency (MHz)	3220	00. 4	0000
Freq.	Note	Detector	Spectrum		Actual	Limit	Margin
		Mode	Reading Lev	vel	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB

34.24

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18.35

52.59

68.30

-15.71



## **FCC ID: PY7-PM0871**

Operation Band Fundamental Fro Operation Mode EUT Pol.		:802.11 a :5300 MHz :TX MID :E1 Plan		Test Date Temp./Humi. Engineer Measurement	Antenna Pol.	:2015-05-2 :23 deg_C :Curry :VERTICA	/ 58 RH
97 Level (d	BuV/m)						
<mark>90</mark>							
80							
70		·				FCC RSE PEAK	15.407
60	FCC F	RSE-AV15.407					
<b>50</b>							
40							
30							
20							
10				· · · · · · · · · · · · · · · · · · ·			
0 <mark></mark> 1000	8	800.	16600. Freque	24400. ncy (MHz)	32	200.	40000
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	el	FS	@3m	

			•			0		
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV∕m	dB	
								_
10600.00	Н	Average	21.80	18.69	40.49	54.00	-13.51	
10600.00	Н	Peak	34.09	18.69	52.78	74.00	-21.22	



**Operation Band** :802.11 a Test Date :2015-05-26 **Fundamental Frequency** :5300 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX MID Engineer :Curry EUT Pol. :E1 Plan :HORIZONTAL Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin

		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV∕m	dB
10600.00	Н	Average	21.82	18.69	40.51	54.00	-13.49
10600.00	Н	Peak	33.62	18.69	52.31	74.00	-21.69

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#### **FCC ID: PY7-PM0871**

Operation Band Fundamental Free Operation Mode EUT Pol.	quency	:802.11 a :5320 MHz :TX HIGH :E1 Plan		Test Date Temp./Hur Engineer Measureme		ina Pol.	:23 de :Curry	-05-26 eg_C / 58 н / ГІСАL	RΗ
97 Level (dB	uV/m)								7
90									
80			       						
70						· · · · · · · · · · · · · · · · · · ·	FCC RSE	PEAK15.407	
60	FCC F	SE-AV25.407	,			· · ·		 	
50			       					   	
40			       			· · · · · · · · · · · · · · · · · · · ·		· · ·	
30			           					   	
20								   	
10			         						
0 <mark></mark> 1000	8	800.	16600. Freque	244 ency (MHz)	00.	32	200.	4000	00
Freq.	Note	Detector Mode	Spectrum Reading Lev		etor	Actual FS		mit 3m	Margin

MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
10640.00	Н	Average	21.89	19.02	40.91	54.00	-13.09	
10640.00	Н	Peak	34.80	19.02	53.82	74.00	-20.18	



Operation Band Fundamental F Operation Mod EUT Pol.	requency	:802.11 a :5320 MHz :TX HIGH :E1 Plan		Test Date Temp./Humi. Engineer Measurement Ai	ntenna Pol.	:2015-05-26 :23 deg_C / 5 :Curry :HORIZONT.	
97 Level (	dBuV/m)						
90	· · · · · · · · · · · · · · · · · · ·				· · · · · · · · · · · · · · · · · · ·		· ·
80							
70						FCC RSE PEAK15.4	<u>07</u> .
<b>60</b>	FCC R	RSE-AV\$5.407					
<b>50</b>	J					       	
40	·····		       			     	
30	J		       			       	· ·
20			       			       	
10						 	
0 <mark></mark> 1000	8	800.	16600. Freque	24400. ncy (MHz)	322	00. 4	0000
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	el	FS	@3m	
MHz	F/H/E/S	PK/OP/AV	dBµV	dB	dBµV/m	dBµV/m	dB

_	MHZ	F/H/E/S	PK/QP/AV	ασμν	¢В	ασμν/Π	ασμν/π	aв	
									_
	10640.00	Н	Average	22.00	19.02	41.02	54.00	-12.98	
			0						
	10640.00	Н	Peak	35.74	19.02	54.76	74.00	-19.24	



#### Band edge falling to restricted band

Operation Band Fundamental Frequency Operation Mode EUT Pol.		U		Test Date Temp./Humi. Engineer Measurement Ant	tenna Pol.	:2015-05-26 :23 deg_C / 58 RH :Curry :VERTICAL		
Freq.	Note	Detector Mode	Spectrum Reading Leve	Factor	Actual FS	Limit @3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
5350.00	Е	Average	30.00	10.97	40.97	54.00	-13.03	
5350.00	Е	Peak	43.20	10.97	54.17	74.00	-19.83	

Operation Band Fundamental Frequency Operation Mode EUT Pol.		:5320 MHz :Band Edge HIGH		Test Date Temp./Humi. Engineer Measurement And	tenna Pol.	:2015-05-26 :23 deg_C / 58 RH :Curry :HORIZONTAL		
Freq.	Note	Detector Mode	Spectrum Reading Lev	Factor	Actual FS	Limit @3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
5350.00	Е	Average	30.16	10.97	41.13	54.00	-12.87	
5350.00	Е	Peak	43.41	10.97	54.38	74.00	-19.62	



Η

#### Radiated Spurious Emission Measurement Result 802.11n HT20, 5250~5350 MHz **Operation Band** :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5260 MHz Temp./Humi. :23 deg C / 58 RH **Operation Mode** Engineer :TX LOW :Curry :VERTICAL EUT Pol. :E1 Plan Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 24400. 32200. 40000 Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Reading Level Mode FS @3m PK/QP/AV dBµV dBµV/m dBµV/m MHz F/H/E/S dB dB

34.38

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Peak

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18.35

52.73

68.30

-15.57



Η

Peak

## **FCC ID: PY7-PM0871**

Operation Band :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5260 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX LOW Engineer :Curry EUT Pol. :E1 Plan :HORIZONTAL Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 24400. 32200. 40000 Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Reading Level Mode FS @3m PK/QP/AV dBµV dBµV/m dBµV/m MHz F/H/E/S dB dB

34.40

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18.35

52.75

68.30

-15.55



**Operation Band** :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5300 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX MID Engineer :Curry :VERTICAL EUT Pol. :E1 Plan Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin

MII-	E/II/E/S	Mode	Reading Level dBµV	П	FS dBµV∕m	@3m dBµV/m	٦Ŀ
MHz	F/H/E/S	PK/QP/AV	ασμν	dB	ασμνγιιι	ασμν/ Πι	dB
10600.00	Н	Average	21.88	18.69	40.57	54.00	-13.43
10600.00	Н	Peak	34.36	18.69	53.05	74.00	-20.95



**Operation Band** :802.11 n20M Test Date :2015-05-26 Fundamental Frequency :5300 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX MID Engineer :Curry EUT Pol. :E1 Plan :HORIZONTAL Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin

rreq.	11010	Dettetter	speenam	1 40001	Tierdai	Linne	maight	
		Mode	Reading Level		FS	@3m		
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	_
10600.00	Н	Average	21.82	18.69	40.51	54.00	-13.49	
10600.00	Н	Peak	34.50	18.69	53.19	74.00	-20.81	



**Operation Band** :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5320 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX HIGH Engineer :Curry :VERTICAL EUT Pol. :E1 Plan Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV 25.407 50 40 30 20 10 0 1000 8800. 16600. 24400. 32200. 40000 Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Mode Reading Level FS @3m

MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
10640.00	Н	Average	21.88	19.02	40.90	54.00	-13.10
10640.00	Н	Peak	34.64	19.02	53.66	74.00	-20.34



**Operation Band** :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5320 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX HIGH Engineer :Curry EUT Pol. :E1 Plan :HORIZONTAL Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV25.407 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq. Note Detector Spectrum Factor Limit Margin Actual Panding Laval Mode EC @2m

		Mode	Reading Level		FS	<i>@</i> 3m		
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV∕m	dB	_
10640.00	Н	Average	21.96	19.02	40.98	54.00	-13.02	
10640.00	Н	Peak	34.92	19.02	53.94	74.00	-20.06	



## Band edge falling to restricted band

Operation Band Fundamental Frequency Operation Mode EUT Pol.		:5320 MHz T :Band Edge HIGH		Test Date Temp./Humi. Engineer Measurement An	tenna Pol.	:2015-05-26 :23 deg_C / 58 RH :Curry :VERTICAL	
Freq.	Note	Detector Mode	Spectrum Reading Leve	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5350.00	Е	Average	30.11	10.97	41.08	54.00	-12.92
5350.00	Е	Peak	42.53	10.97	53.50	74.00	-20.50

Operation Band Fundamental Frequency Operation Mode EUT Pol.		:5320 MHz T :Band Edge HIGH E		Test Date Temp./Humi. Engineer Measurement And	tenna Pol.	:2015-05-26 :23 deg_C / 58 RH :Curry :HORIZONTAL		
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin	
		Mode	Reading Lev	el	FS	@3m		
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
5350.00	Е	Average	30.86	10.97	41.83	54.00	-12.17	
5350.00	Е	Peak	44.09	10.97	55.06	74.00	-18.94	

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Η

Peak

				802.11n HT40	, 5250~5350		
eration Band		:802.11 n40N		Test Date		:2015-05-26	
damental Fi		:5270 MHz :TX LOW		Temp./Humi. Engineer		:23deg_C / 58	KH
T Pol.	e	:E1 Plan		Measurement Ar	itenna Pol	:Curry :VERTICAL	
1 1 01.		.L'i i iun		ivicusurement / m	itelina i ol.	. V LICI IC/IL	
97	dBuV/m)						
90							
80			       	· · · · · · · · · · · · · · · · · · ·			
70			     			FCC RSE PEAK15.4	07.
60							
50	FCC F	RSE-AV1 <u>5.407</u>		· · · · · · · · · · · · · · · · · · ·			
40						     	
30							
20							
10							
0 <mark></mark>	:	3800.	16600.	24400.	3220	0. 4	0000
			Frequer	ncy (MHz)			
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margi
1104.	1,000	Mode	Reading Leve		FS	@3m	i i i i gi
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV∕m	dB

33.98

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18.45

52.43

68.30

-15.87



Η

Peak

## **FCC ID: PY7-PM0871**

Operation Band :802.11 n40M Test Date :2015-05-26 **Fundamental Frequency** :5270 MHz Temp./Humi. :23deg\_C / 58 RH **Operation Mode** :TX LOW Engineer :Curry EUT Pol. :E1 Plan :HORIZONTAL Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 24400. 32200. 40000 Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Reading Level Mode FS @3m PK/QP/AV dBµV dBµV/m dBµV/m MHz F/H/E/S dB dB

34.44

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18.45

52.89

68.30

-15.41



**Operation Band** :802.11 n40M Test Date :2015-05-26 Fundamental Frequency :5310 MHz Temp./Humi. :23deg\_C / 58 RH **Operation Mode** :TX HIGH Engineer :Curry :VERTICAL EUT Pol. :E1 Plan Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq Note Detector Spectrum Factor Actual Limit Margin

	rieq.	1,000	Detector	Speeduum	1 uotor	retuur	Emme	intui Siii	
			Mode	Reading Level		FS	@3m		
-	MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
	10620.00	Н	Average	21.09	18.86	39.95	54.00	-14.05	
	10620.00	Н	Peak	33.95	18.86	52.81	74.00	-21.19	



**Operation Band** :802.11 n40M Test Date :2015-05-26 **Fundamental Frequency** :5310 MHz Temp./Humi. :23deg\_C / 58 RH **Operation Mode** :TX HIGH Engineer :Curry EUT Pol. :E1 Plan :HORIZONTAL Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV 15.407 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Frea Note Detector Spectrum Factor Actual Limit Margin

	rieq.	Note	Delector	Spectrum	racion	Actual	LIIIIIt	Margin	
			Mode	Reading Level		FS	@3m		
	MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV∕m	dBµV/m	dB	
-									_
	10620.00	Н	Average	20.65	18.86	39.51	54.00	-14.49	
	10620.00	Н	Peak	34.50	18.86	53.36	74.00	-20.64	



## Band edge falling to restricted band

Operation Band Fundamental Frequency Operation Mode EUT Pol.		:5310 MHz :Band Edge HIGH		Test Date Temp./Humi. Engineer Measurement Ant	enna Pol.	:2015-05-26 :23deg_C / 58 RH :Curry :VERTICAL	
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	el	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5350.00	Е	Average	30.23	10.97	41.20	54.00	-12.80
5350.00	Е	Peak	45.52	10.97	56.49	74.00	-17.51

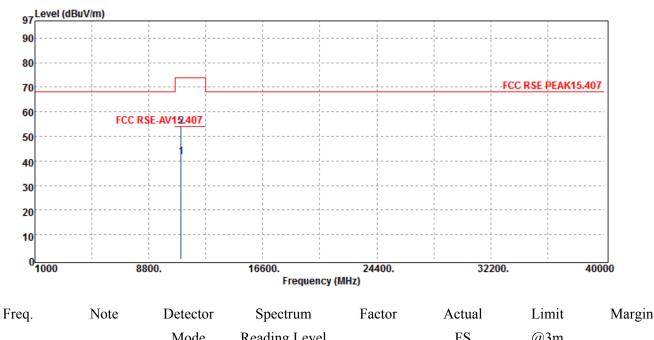
Operation Band Fundamental Frequency Operation Mode EUT Pol.		:5310 MHz :Band Edge HIGH		Test Date Temp./Humi. Engineer Measurement An	tenna Pol.	:2015-05-26 :23deg_C / 58 RH :Curry :HORIZONTAL	
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Leve	el	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5350.00	E	Average	37.23	10.97	48.20	54.00	-5.80
5350.00	E	Peak	54.13	10.97	65.10	74.00	-8.90



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

Operation Band	:802.11 a	Test Date
Fundamental Frequency	:5500 MHz	Temp./H
Operation Mode	:TX LOW	Engineer
EUT Pol.	:E1 Plan	Measure

te Iumi. r ement Antenna Pol. :2015-05-26 :23 deg\_C / 58 RH :Curry :VERTICAL



		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
11000.00	Н	Average	21.76	19.82	41.58	54.00	-12.42
11000.00	Н	Peak	34.18	19.82	54.00	74.00	-20.00



**Operation Band** :802.11 a Test Date :2015-05-26 **Fundamental Frequency** :5500 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX LOW Engineer :Curry EUT Pol. :E1 Plan Measurement Antenna Pol. :HORIZONTAL 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 24400. 32200. 40000 Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Mode Reading Level FS @3m

MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
11000.00	Н	Average	21.75	19.82	41.57	54.00	-12.43	
11000.00	Н	Peak	34.50	19.82	54.32	74.00	-19.68	
11000.00	11	1 Cax	54.50	17.02	57.52	74.00	-17.00	

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**Operation Band** :802.11 a Test Date :2015-05-26 **Fundamental Frequency** :5580 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX MID Engineer :Curry :VERTICAL EUT Pol. :E1 Plan Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV152407 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin

		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV∕m	dB
11160.00	Н	Average	21.40	20.21	41.61	54.00	-12.39
11160.00	Н	Peak	34.55	20.21	54.76	74.00	-19.24



#### **FCC ID: PY7-PM0871**

Operation Band Fundamental F Operation Mod EUT Pol.	requency	:802.11 a :5580 MHz :TX MID :E1 Plan		Test Date Temp./Humi. Engineer Measurement A	ntenna Pol.	:2015-05-26 :23 deg_C / 5 :Curry :HORIZONT	
97 Level (	dBuV/m)						
90					·		
80							·
70						FCC RSE PEAK15.4	07
60	FCC F	RSE-AV152407			·		·
50							
40					·		·
30							
20							
10							
0 1000	8	800.	16600. Freque	24400. ncy (MHz)	3220	00. 4	10000
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	el	FS	@3m	
MHz	F/H/E/S	PK/OP/AV	dBuV	dB	dBuV/m	dBuV/m	dB

_	MHZ	F/H/E/S	PK/QP/AV	ασμν	aв	ασμν/m	авµ∨∕т	đВ	
									_
	11160.00	Н	Average	21.78	20.21	41.99	54.00	-12.01	
			U						
	11160.00	Н	Peak	34.46	20.21	54.67	74.00	-19.33	

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**Operation Band** :802.11 a Test Date :2015-05-26 Fundamental Frequency :5700 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX HIGH Engineer :Curry :VERTICAL EUT Pol. :E1 Plan Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz)

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV∕m	dBµV/m	dB
11400.00	Н	Average	21.59	20.65	42.24	54.00	-11.76
11400.00	Н	Peak	34.36	20.65	55.01	74.00	-18.99



**Operation Band** :802.11 a Test Date :2015-05-26 Fundamental Frequency :5700 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX HIGH Engineer :Curry EUT Pol. :E1 Plan Measurement Antenna Pol. :HORIZONTAL 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) . . 1 T · · · ۰ ۱*۲* 

Note	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Level		FS	@3m	
F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV∕m	dB
Н	Average	21.67	20.65	42.32	54.00	-11.68
Н	Peak	34.67	20.65	55.32	74.00	-18.68
	Н	ModeF/H/E/SPK/QP/AVHAverage	H Average 21.67	ImageModeReading LevelF/H/E/SPK/QP/AVdBµVdBHAverage21.6720.65	ModeReading LevelFSF/H/E/SPK/QP/AVdBµVdBdBµV/mHAverage21.6720.6542.32	ModeReading LevelFS@3mF/H/E/SPK/QP/AVdBµVdBdBµV/mdBµV/mHAverage21.6720.6542.3254.00

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#### Band edge falling to restricted band

rgin
lB
3.19
9.95
4.01
argin
lB
3.16
9.37
4.13



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Operation Band Fundamental Frequency Operation Mode EUT Pol.		:802.11 a :5700 MHz :Band Edge HIGH :E1 Plan		Test Date Temp./Humi. Engineer Measurement An	tenna Pol.	:2015-05-26 :23 deg_C / 58 RH :Curry :VERTICAL	
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	/el	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5725.00	Е	Peak	44.19	11.04	55.23	68.30	-13.07
Operation Band Fundamental Frequency Operation Mode EUT Pol.		:802.11 a :5700 MHz :Band Edge I :E1 Plan	HIGH	Test Date Temp./Humi. Engineer Measurement An	tenna Pol.	:2015-05-26 :23 deg_C / 5 :Curry :HORIZONTA	
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	/el	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5725.00	Е	Peak	43.97	11.04	55.01	68.30	-13.29



#### Radiated Spurious Emission Measurement Result 802.11n HT20, 5470~5725 MHz **Operation Band** :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5500 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX LOW Engineer :Curry :VERTICAL EUT Pol. :E1 Plan Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 40000 24400. 32200. Frequency (MHz)

Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
11000.00	Н	Average	21.51	19.82	41.33	54.00	-12.67
11000.00	Н	Peak	33.87	19.82	53.69	74.00	-20.31



**Operation Band** :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5500 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX LOW Engineer :Curry EUT Pol. :E1 Plan :HORIZONTAL Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV18.407 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq. Note Factor Margin Detector Spectrum Actual Limit . . . ъq ~ ~

			Mode	Reading Level		FS	( <i>a</i> )3m		
_	MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV∕m	dBµV/m	dB	_
									-
	11000.00	Н	Average	21.71	19.82	41.53	54.00	-12.47	
	11000.00	Н	Peak	34.76	19.82	54.58	74.00	-19.42	

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**Operation Band** :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5580 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX MID Engineer :Curry :VERTICAL EUT Pol. :E1 Plan Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV152407 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Mode Reading Level FS @3m

			•			0		
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV∕m	dB	
								_
11160.00	Н	Average	21.47	20.21	41.68	54.00	-12.32	
11160.00	Н	Peak	33.79	20.21	54.00	74.00	-20.00	



**Operation Band** :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5580 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX MID Engineer :Curry EUT Pol. :E1 Plan :HORIZONTAL Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15/407 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin

		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV∕m	dB
11160.00	Н	Average	21.49	20.21	41.70	54.00	-12.30
11160.00	Н	Peak	33.57	20.21	53.78	74.00	-20.22

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**Operation Band** :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5700 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX HIGH Engineer :Curry :VERTICAL EUT Pol. :E1 Plan Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Mode Reading Level FS @3m

MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
11400.00	Н	Average	21.62	20.65	42.27	54.00	-11.73
11400.00	Н	Peak	35.35	20.65	56.00	74.00	-18.00

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**Operation Band** :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5700 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX HIGH Engineer :Curry EUT Pol. :E1 Plan :HORIZONTAL Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15A07 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Mode Reading Level FS @3m

MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
11400.00	Н	Average	21.79	20.65	42.44	54.00	-11.56
11400.00	Н	Peak	33.95	20.65	54.60	74.00	-19.40

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### Band edge falling to restricted band

Operation Ban Fundamental I Operation Mod EUT Pol.	Frequency	:802.11 n20M :5500 MHz :Band Edge LOW :E1 Plan		Test Date Temp./Humi. Engineer Measurement An	itenna Pol.	:2015-05-26 :23 deg_C / 58 RH :Curry :VERTICAL	
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	rel	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5460.00	Е	Average	29.95	10.89	40.84	54.00	-13.16
5460.00	Е	Peak	42.76	10.89	53.65	74.00	-20.35
5470.00	Е	Peak	42.81	10.91	53.72	68.30	-14.58
Operation Band Fundamental Frequency Operation Mode EUT Pol.		:802.11 n20M :5500 MHz :Band Edge LOW :E1 Plan		Test Date Temp./Humi. Engineer Measurement Antenna Pol.		:2015-05-26 :23 deg_C / 58 RH :Curry :HORIZONTAL	
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	rel	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5460.00	Е	Average	31.12	10.89	42.01	54.00	-11.99
5460.00	E	Peak	43.13	10.89	54.02	74.00	-19.98
5470.00	Е	Peak	44.19	10.91	55.10	68.30	-13.20



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Fundamental Frequency:5700 MHzOperation Mode:Band Edge HIGH		Test Date Temp./Humi. Engineer Measurement An	tenna Pol.	:2015-05-26 :23 deg_C / 58 RH :Curry :VERTICAL			
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	/el	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5725.00	Е	Peak	43.04	11.04	54.08	68.30	-14.22
Fundamental Frequency:570Operation Mode:Bar		:802.11 n20N :5700 MHz :Band Edge F :E1 Plan		Test Date Temp./Humi. Engineer Measurement An	tenna Pol.	:2015-05-26 :23 deg_C / 5 :Curry :HORIZONTA	
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	/el	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5725.00	Е	Peak	43.89	11.04	54.93	68.30	-13.37



#### Radiated Spurious Emission Measurement Result 802.11n HT40, 5470~5725 MHz **Operation Band** :802.11 n40M Test Date :2015-05-26 **Fundamental Frequency** :5510 MHz Temp./Humi. :23deg\_C / 58 RH **Operation Mode** :TX LOW Engineer :Curry EUT Pol. :E1 Plan Measurement Antenna Pol. :VERTICAL 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 40000 24400. 32200. Frequency (MHz)

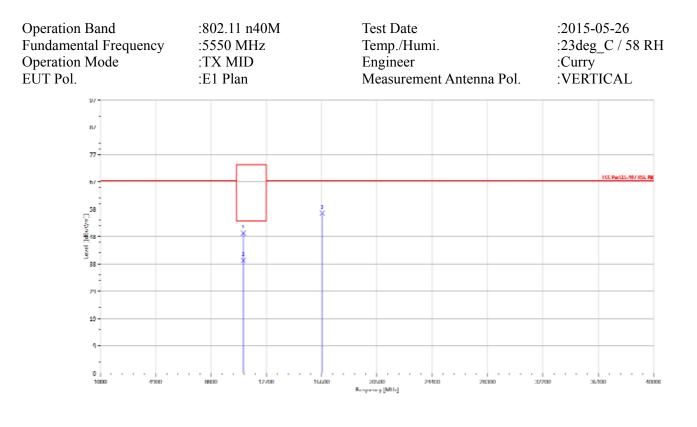
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
11020.00	Н	Average	20.50	19.81	40.31	54.00	-13.69
11020.00	Н	Peak	33.90	19.81	53.71	74.00	-20.29



**Operation Band** :802.11 n40M Test Date :2015-05-26 **Fundamental Frequency** :5510 MHz Temp./Humi. :23deg\_C / 58 RH **Operation Mode** :TX LOW Engineer :Curry EUT Pol. :E1 Plan :HORIZONTAL Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV12.407 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin

		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
11020.00	Н	Average	21.17	19.81	40.98	54.00	-13.02
11020.00	Н	Peak	34.18	19.81	53.99	74.00	-20.01





Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV∕m	dBµV/m	dB
11100.00	Н	Average	20.77	20.23	41.00	54.00	-13.00
11100.00	Н	Peak	34.64	20.23	54.87	74.00	-19.13



**Operation Band** :802.11 n40M Test Date :2015-05-26 **Fundamental Frequency** :5550 MHz Temp./Humi. :23deg\_C / 58 RH **Operation Mode** :TX MID Engineer :Curry EUT Pol. :E1 Plan :HORIZONTAL Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV12407 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin

-		Mode	Reading Level		FS	@3m	0
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
11100.00	Н	Average	20.79	20.23	41.02	54.00	-12.98
11100.00	Н	Peak	33.75	20.23	53.98	74.00	-20.02

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**Operation Band** :802.11 n40M Test Date :2015-05-26 **Fundamental Frequency** :5670 MHz Temp./Humi. :23deg\_C / 58 RH **Operation Mode** :TX HIGH Engineer :Curry :VERTICAL EUT Pol. :E1 Plan Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15:407 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin

		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
11340.00	Н	Average	21.23	20.64	41.87	54.00	-12.13
11340.00	Н	Peak	34.51	20.64	55.15	74.00	-18.85



**Operation Band** :802.11 n40M Test Date :2015-05-26 **Fundamental Frequency** :5670 MHz Temp./Humi. :23deg\_C / 58 RH **Operation Mode** :TX HIGH Engineer :Curry EUT Pol. :E1 Plan :HORIZONTAL Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15/407 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Mode Reading Level FS @3m

MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV∕m	dB
11340.00	Н	Average	20.77	20.64	41.41	54.00	-12.59
11340.00	Н	Peak	33.76	20.64	54.40	74.00	-19.60



#### Band edge falling to restricted band

Operation Band Fundamental Frequency Operation Mode EUT Pol.		:5510 MHz :Band Edge LOW		Test Date Temp./Humi. Engineer Measurement Ant	tenna Pol.	:2015-05-26 :23deg_C / 58 RH :Curry :VERTICAL	
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Leve		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5460.00	E	Average	30.23	10.89	41.12	54.00	-12.88
5460.00	Е	Peak	42.54	10.89	53.43	74.00	-20.57

Operation Band	:802.11 n40M	Test Date	:2015-05-26
Fundamental Frequency	:5510 MHz	Temp./Humi.	:23deg_C / 58 RH
Operation Mode	:Band Edge LOW	Engineer	:Curry
EUT Pol.	:E1 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.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5460.00	Е	Average	30.10	10.89	40.99	54.00	-13.01
5460.00	Е	Peak	42.30	10.89	53.19	74.00	-20.81



Operation Band Fundamental Frequency Operation Mode EUT Pol.		:802.11 n40M :5510 MHz :Band Edge LOW :E1 Plan		Test Date Temp./Humi. Engineer Measurement An	tenna Pol.	:2015-05-26 :23deg_C / 58 RH :Curry :VERTICAL	
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Leve	el	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5470.00	Е	Peak	46.63	10.91	57.54	68.30	-10.76

Operation Band	:802.11 n40M	Test Date	:2015-05-26
Fundamental Frequency	:5510 MHz	Temp./Humi.	:23deg_C / 58 RH
Operation Mode	:Band Edge LOW	Engineer	:Curry
EUT Pol.	:E1 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.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5470.00	Е	Peak	45.92	10.91	56.83	68.30	-11.47

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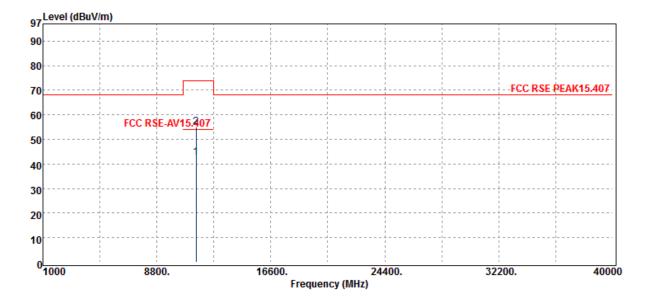
Operation Bar Fundamental I Operation Mo EUT Pol.	Idamental Frequency:5670 MHzeration Mode:Band Edge HIGH		Test Date Temp./Humi. Engineer Measurement An	itenna Pol.	:2015-05-26 :23deg_C / 58 RH :Curry :VERTICAL		
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	vel	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5725.00	Е	Peak	43.65	11.04	54.69	68.30	-13.61
Fundamental I Operation Mo EUT Pol.	Operation Band:802.11 n40MFundamental Frequency:5670 MHzOperation Mode:Band Edge HIGHEUT Pol.:E1 Plan		Test Date Temp./Humi. Engineer Measurement An		:2015-05-26 :23deg_C / 58 :Curry :HORIZONTA	AL	
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	vel	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5725.00	Е	Peak	43.48	11.04	54.52	68.30	-13.78



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

Operation Band	:802.11 a
Fundamental Frequency	:5745 MHz
Operation Mode	:TX LOW
EUT Pol.	:E1 Plan

Test Date Temp./Humi. Engineer Measurement Antenna Pol. :2015-05-26 :23 deg\_C / 58 RH :Curry :VERTICAL



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
11490.00	Н	Average	21.88	20.81	42.69	54.00	-11.31
11490.00	Н	Peak	34.39	20.81	55.20	74.00	-18.80

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:802.11 a

### **FCC ID: PY7-PM0871**

Test Date

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:2015-05-26

**Operation Band Fundamental Frequency** :5745 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX LOW Engineer :Curry EUT Pol. :E1 Plan Measurement Antenna Pol. :HORIZONTAL Level (dBuV/m) 97 90 80 FCC RSE PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0<mark>1000</mark> 8800. 16600. 24400. 32200. 40000 Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin

		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
11490.00	Н	Average	21.78	20.81	42.59	54.00	-11.41
11490.00	Н	Peak	34.38	20.81	55.19	74.00	-18.81

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#### **FCC ID: PY7-PM0871**

Operation Band Fundamental F Operation Mod EUT Pol.	requency	:802.11 a :5785 MHz :TX MID :E1 Plan		Test Date Temp./Humi. Engineer Measurement Ar	ntenna Pol.	:2015-05-26 :23 deg_C / 5 :Curry :VERTICAL	8 RH
97	dBuV/m)			: :			
<b>90</b>							· ·
80							
70						FCC RSE PEAK15.4	<u>07</u> .
60	FCC I	RSE-AV15.407				   	
<b>50</b>							
40						       	
30							
20							
10						         	
0		3800.	16600.	24400.	3220	00. 4	0000
				ncy (MHz)			
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Leve	el	FS	@3m	
$MH_7$	F/H/F/S	<b>ΡΚ/ΟΡ/Δ</b> Υ	dBuV	dB	dBuV/m	dBuV/m	dB

MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
								_
11570.00	Н	Average	21.59	21.16	42.75	54.00	-11.25	
11570.00	Н	Peak	34.96	21.16	56.12	74.00	-17.88	
110,0100			0		00112	,	11.00	



#### **FCC ID: PY7-PM0871**

Operation Band Fundamental F Operation Mod EUT Pol.	requency	:802.11 a :5785 MHz :TX MID :E1 Plan		Test Date Temp./Humi. Engineer Measurement A	ntenna Pol.	:2015-05-26 :23 deg_C / 5 :Curry :HORIZONT	
97 Level (	dBuV/m)			: :			
90							
80							
70						FCC RSE PEAK15.4	07
60	FCC	RSE-AV15.407				   	
50						   	
40						   	
30						   	
20						       	
10						       	·
0		3800.	16600.	24400.	322	00. 4	10000
				ncy (MHz)			
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Leve	el	FS	@3m	
MHz	F/H/F/S	<b>ΡΚ/ΟΡ/Δ</b> Υ	dBuV	dB	dBuV/m	dBuV/m	dB

MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
								_
11570.00	Η	Average	21.55	21.16	42.71	54.00	-11.29	
11570.00	Н	Peak	35.43	21.16	56.59	74.00	-17.41	
11370.00	11	I Cak	55.45	21.10	50.59	/4.00	-1/.41	



11650.00

11650.00

Η

Η

Average

Peak

#### **FCC ID: PY7-PM0871**

Operation Band Fundamental F Operation Mod EUT Pol.	requency	:802.11 a :5825 MHz :TX HIGH :E1 Plan		Test Date Temp./Humi. Engineer Measurement	t Antenna Pol.	:2015-05-2 :23 deg_C :Curry :VERTICA	/ 58 RH
97	dBuV/m)						
90							
80							
70						FCC RSE PEAK	15.407
60	FCC	R\$E-AV15.407					
50							
40							
30							
20							
10							
0 <mark></mark>		B800.	16600.	24400.	. 3:	2200.	40000
			Freque	ncy (MHz)			
Freq.	Note	Detector	Spectrum	Factor	r Actual	Limit	Margin
		Mode	Reading Leve	el	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV∕n	n dBµV∕n	n dB

21.30

34.71

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42.23

55.64

20.93

20.93

-11.77

-18.36

54.00

74.00



11650.00

11650.00

Η

Η

Average

Peak

#### **FCC ID: PY7-PM0871**

Operation Band Fundamental F Operation Mod EUT Pol.	requency	:802.11 a :5825 MHz :TX HIGH :E1 Plan		Test Date Temp./Humi. Engineer Measurement A	ntenna Pol.	:2015-05-26 :23 deg_C / :Curry :HORIZON	58 RH
97 Level (	dBuV/m)						
90							
80							
70				· · · · · · · · · · · · · · · · · · ·		FCC RSE PEAK15	.407
60	FCCI	RSE-AV15.407					·
50							
40		1		· · · · · · · · · · · · · · · · · · ·			
30							
20							
10			     			       	
0							
°1000	ŧ	3800.	16600. Freque	24400. ncy (MHz)	3220	00.	40000
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	el	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB

21.39

34.13

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42.32

55.06

54.00

74.00

-11.68

-18.94

20.93

20.93



#### Band edge falling to restricted band

Operation Bar Fundamental I Operation Mo EUT Pol.	amental Frequency:5745 MHzation Mode:Band Edge LOW		LOW	Test Date Temp./Humi. Engineer Measurement An	tenna Pol.	:2015-05-26 :23 deg_C / 58 RH :Curry :VERTICAL		
Freq.	Note	Detector Mode	Spectrum Reading Lev	Factor	Actual FS	Limit @3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
5725.00	Ε	Peak	44.31	11.04	55.35	78.20	-22.85	
Operation Bar Fundamental I Operation Mo EUT Pol.	Frequency	:802.11 a :5745 MHz :Band Edge I :E1 Plan	LOW	Test Date Temp./Humi. Engineer Measurement An	tenna Pol.	:2015-05-26 :23 deg_C / 58 :Curry :HORIZONTA		
Freq.	Note	Detector Mode	Spectrum Reading Lev	Factor	Actual FS	Limit @3m	Margin	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB	
5725.00	Е	Peak	50.77	11.04	61.81	78.20	-16.39	



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Operation Bar Fundamental I Operation Mo EUT Pol.	Frequency	:802.11 a :5825 MHz :Band Edge I :E1 Plan	HIGH	Test Date Temp./Humi. Engineer Measurement An	tenna Pol.	:2015-05-26 :23 deg_C / 5 :Curry :VERTICAL	8 RH
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	/el	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5850.00	Е	Peak	43.41	11.50	54.91	78.20	-23.29
Operation Bar Fundamental I Operation Mo EUT Pol.	Frequency	:802.11 a :5825 MHz :Band Edge I :E1 Plan	HIGH	Test Date Temp./Humi. Engineer Measurement An	tenna Pol.	:2015-05-26 :23 deg_C / 5 :Curry :HORIZONTA	
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	vel	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5850.00	Е	Peak	43.76	11.50	55.26	78.20	-22.94



11490.00

11490.00

Η

Η

Average

Peak

Radiated Spurious Emiss Operation Band Fundamental Frequency Operation Mode EUT Pol.	sion Measure :802.11 n20N :5745 MHz :TX LOW :E1 Plan	A T	<b>802.11n HT20</b> Fest Date Femp./Humi. Engineer Measurement An		MHz :2015-05-26 :23 deg_C / :Curry :VERTICAI	58 RH
97 Level (dBuV/m)	i i					
90						
80						
70					FCC RSE PEAK15	.407
60 FCC P	SE-AV15.407					
50	3E-AV 1 <u>3.407</u>	L				
40		     				
30		L J				
20						
10						
0 <sup>1</sup> 1000 88	300.	16600. Eroquon	24400. cy (MHz)	3220	0.	40000
		riequei				
Freq. Note	Detector	Spectrum	Factor	Actual	Limit	Margin
	Mode	Reading Leve	1	FS	@3m	
MHz F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB

21.79

35.27

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20.81

20.81

42.60

56.08

54.00

74.00

-11.40

-17.92



Operation Band :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5745 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX LOW Engineer :Curry EUT Pol. :E1 Plan Measurement Antenna Pol. :HORIZONTAL 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15.407 50 40 30 20 10 0 1000 8800. 16600. 24400. 32200. 40000 Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Reading Level FS Mode @3m PK/QP/AV dBµV dBµV/m dBµV/m MHz F/H/E/S dB dB

21.78

35.16

Average

Peak

Η

Η

11490.00

11490.00

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20.81

20.81

42.59

55.97

54.00

74.00

-11.41

-18.03



**Operation Band** :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5785 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX MID Engineer :Curry :VERTICAL EUT Pol. :E1 Plan Measurement Antenna Pol. Level (dBuV/m) 97 90 80 70 ECC RSE PEAK15.407 60 FCC RSE-AV15. 407 50 40 30 20 10 0<sup>L</sup> 1000 8800. 16600. 40000 24400. 32200. Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin

		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
11570.00	Н	Average	21.55	21.16	42.71	54.00	-11.29
11570.00	Н	Peak	35.13	21.16	56.29	74.00	-17.71

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**Operation Band** :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5785 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX MID Engineer :Curry EUT Pol. :E1 Plan :HORIZONTAL Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 407 FCC RSE-AV15 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq. Note Factor Margin Detector Spectrum Actual Limit . . . ъq ~ ~

			Mode	Reading Level		FS	@3m		
_	MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV∕m	dBµV/m	dB	_
	11570.00	Н	Average	21.57	21.16	42.73	54.00	-11.27	
	11570.00	Н	Peak	34.80	21.16	55.96	74.00	-18.04	



-11.78

-16.85

Operation Band :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5825 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX HIGH Engineer :Curry :VERTICAL EUT Pol. :E1 Plan Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 407 FCC RSE-AV15 50 40 30 20 10 0 1000 8800. 16600. 24400. 32200. 40000 Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Reading Level FS Mode @3m PK/QP/AV dBµV dBµV/m dBµV/m MHz F/H/E/S dB dB

21.29

36.22

Average

Peak

Η

Η

11650.00

11650.00

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20.93

20.93

42.22

57.15

54.00

74.00



**Operation Band** :802.11 n20M Test Date :2015-05-26 **Fundamental Frequency** :5825 MHz Temp./Humi. :23 deg\_C / 58 RH **Operation Mode** :TX HIGH Engineer :Curry EUT Pol. :E1 Plan :HORIZONTAL Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 407 FCC RSE-AV15. 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Mode Reading Level FS @3m

MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
11650.00	Н	Average	21.38	20.93	42.31	54.00	-11.69
11650.00	Н	Peak	35.27	20.93	56.20	74.00	-17.80

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#### Band edge falling to restricted band

Operation Band:802.11 n20MFundamental Frequency:5745 MHzOperation Mode:Band Edge LOWEUT Pol.:E1 Plan		Test Date Temp./Humi. Engineer Measurement An	ntenna Pol.	:2015-05-26 :23 deg_C / 58 RH :Curry :VERTICAL			
Freq.	Note	Detector Mode	Spectrum Reading Lev		Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5725.00 Operation Ban	E	Peak :802.11 n20N	43.58	11.04 Test Date	54.62	78.20	-23.58
Fundamental I Operation Mo EUT Pol.	Frequency	:5745 MHz :Band Edge I :E1 Plan		Temp./Humi. Engineer Measurement An	ntenna Pol.	:2013-05-20 :23 deg_C / 53 :Curry :HORIZONTA	
Freq.	Note	Detector Mode	Spectrum Reading Lev	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5725.00	Е	Peak	52.84	11.04	63.88	78.20	-14.32

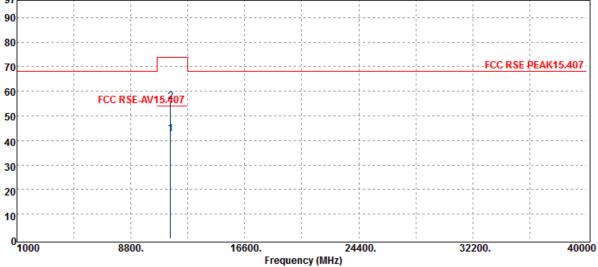


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Operation Bar Fundamental I Operation Mo EUT Pol.	Frequency	:802.11 n20N :5825 MHz :Band Edge F :E1 Plan		Test Date Temp./Humi. Engineer Measurement An	itenna Pol.	:2015-05-26 :23 deg_C / 5 :Curry :VERTICAL	8 RH
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	/el	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5850.00	Е	Peak	43.75	11.50	55.25	78.20	-22.95
Operation Bar Fundamental I Operation Mo EUT Pol.	Frequency	:802.11 n20N :5825 MHz :Band Edge F :E1 Plan		Test Date Temp./Humi. Engineer Measurement An	itenna Pol.	:2015-05-26 :23 deg_C / 5 :Curry :HORIZONTA	
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	/el	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5850.00	Е	Peak	44.49	11.50	55.99	78.20	-22.21



#### Radiated Spurious Emission Measurement Result 802.11n HT40, 5725~5850 MHz **Operation Band** :802.11 n40M Test Date :2015-05-26 **Fundamental Frequency** :5755 MHz Temp./Humi. :23deg\_C / 58 RH **Operation Mode** Engineer :TX LOW :Curry EUT Pol. :E1 Plan Measurement Antenna Pol. :VERTICAL 97 Level (dBuV/m)



Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Level		FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
11510.00	Н	Average	21.47	21.03	42.50	54.00	-11.50
11510.00	Н	Peak	34.63	21.03	55.66	74.00	-18.34



**Operation Band** :802.11 n40M Test Date :2015-05-26 **Fundamental Frequency** :5755 MHz Temp./Humi. :23deg\_C / 58 RH **Operation Mode** :TX LOW Engineer :Curry EUT Pol. :E1 Plan Measurement Antenna Pol. :HORIZONTAL 97 Level (dBuV/m) 90 80 ECC RSE PEAK15 70 60 FCC RSE-AV15.407 50 40 30 20 10 0<mark>1000</mark> 8800. 16600. 24400. 32200. 40000 Frequency (MHz) Detector Spectrum Freq. Note Factor Actual Limit Margin Mode Reading Level FS @3m dD...V dBuV/m DV/OD/AV dBuV/m N / T T JD JD

MHZ	F/H/E/S	PK/QP/AV	αвμν	dB	αβμν/m	αβμν/m	dB	
11510.00	Н	Average	21.88	21.03	42.91	54.00	-11.09	
11010100	••	11,01480	-1.00	-1.00		000	11.07	
11510.00	Н	Peak	34.72	21.03	55.75	74.00	-18.25	



**Operation Band** :802.11 n40M Test Date :2015-05-26 **Fundamental Frequency** :5795 MHz Temp./Humi. :23deg\_C / 58 RH **Operation Mode** :TX HIGH Engineer :Curry :VERTICAL EUT Pol. :E1 Plan Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 FCC RSE-AV15. 407 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq. Note Detector Spectrum Factor Actual Limit Margin Mode Reading Level FS @3m

MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
11590.00	Н	Average	20.92	21.11	42.03	54.00	-11.97
11590.00	Н	Peak	34.58	21.11	55.69	74.00	-18.31



**Operation Band** :802.11 n40M Test Date :2015-05-26 **Fundamental Frequency** :5795 MHz Temp./Humi. :23deg\_C / 58 RH **Operation Mode** :TX HIGH Engineer :Curry EUT Pol. :E1 Plan :HORIZONTAL Measurement Antenna Pol. 97 90 80 FCC RSF PEAK15.407 70 60 407 FCC RSE-AV15. 50 40 30 20 10 0 1000 8800. 16600. 32200. 40000 24400. Frequency (MHz) Freq. Note Spectrum Factor Margin Detector Actual Limit **۱** EC 1  $\sim$ 

	Mode	Reading Level		FS	( <i>a</i> )3m	
F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
Н	Average	20.96	21.11	42.07	54.00	-11.93
Н	Peak	33.88	21.11	54.99	74.00	-19.01
	Н	F/H/E/SPK/QP/AVHAverage	F/H/E/SPK/QP/AVdBµVHAverage20.96	F/H/E/SPK/QP/AVdBµVdBHAverage20.9621.11	F/H/E/S   PK/QP/AV   dBμV   dB   dBμV/m     H   Average   20.96   21.11   42.07	F/H/E/SPK/QP/AVdB $\mu$ VdBdB $\mu$ V/mdB $\mu$ V/mHAverage20.9621.1142.0754.00



#### Band edge falling to restricted band

Operation Bar Fundamental I Operation Mo EUT Pol.	nd Frequency	:802.11 n40M :5755 MHz :Band Edge LOW :E1 Plan		Test Date Temp./Humi. Engineer Measurement Antenna Pol.		:2015-05-26 :23deg_C / 58 RH :Curry :VERTICAL	
Freq.	Note	Detector Mode	Spectrum Reading Lev	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5725.00	Е	Peak	48.24	11.04	59.28	78.20	-18.92
Operation Bar Fundamental I Operation Mo EUT Pol.	Frequency	:802.11 n40N :5755 MHz :Band Edge I :E1 Plan		Test Date Temp./Humi. Engineer Measurement An	itenna Pol.	:2015-05-26 :23deg_C / 58 :Curry :HORIZONTA	
Freq.	Note	Detector Mode	Spectrum Reading Lev	Factor	Actual FS	Limit @3m	Margin
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5725.00	Е	Peak	59.43	11.04	70.47	78.20	-7.73

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Operation Bar Fundamental I Operation Mo EUT Pol.	Frequency	:802.11 n40N :5795 MHz :Band Edge F :E1 Plan		Test Date Temp./Humi. Engineer Measurement An	tenna Pol.	:2015-05-26 :23deg_C / 58 :Curry :VERTICAL	3 RH
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	vel	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5850.00	Е	Peak	44.09	11.50	55.59	78.20	-22.61
Operation Bar Fundamental I Operation Mo EUT Pol.	Frequency	:802.11 n40N :5795 MHz :Band Edge F :E1 Plan		Test Date Temp./Humi. Engineer Measurement An	tenna Pol.	:2015-05-26 :23deg_C / 58 :Curry :HORIZONTA	
Freq.	Note	Detector	Spectrum	Factor	Actual	Limit	Margin
		Mode	Reading Lev	vel	FS	@3m	
MHz	F/H/E/S	PK/QP/AV	dBµV	dB	dBµV/m	dBµV/m	dB
5850.00	Е	Peak	46.44	11.50	57.94	78.20	-20.26



# **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**

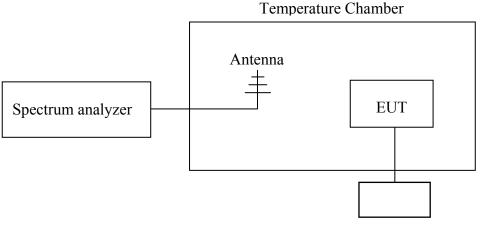
## 13.1 Standard Applicable

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.

## 13.3 Test SET-UP



Variable AC Power Supply

### 13.4 Measurement Equipment Used

Conducted Emission Test Site							
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.		
ТҮРЕ		NUMBER	NUMBER	CAL.	CAL DUE.		
Spectrum Analyzer	Agilent	E4446A	MY51100003	01/29/2015	01/28/2016		
Temperature Chamber	TERCHY	MHG-120LF	911009	05/06/2015	05/05/2016		
AC Power Supply	APW-105N	887592	All Power	N/A	N/A		

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#### **Measurement Result** 13.5

Operation Mode	ТХ	Test Date	2015.5.19
Temperature	25	Test By	Cooper
Humidity	62 %		

Test Temp.	Test Voltage	Channel	Measured Frequency (MHz)	Spectrum Frequency (MHz)	ΔFrequency (MHz)
		36	5180.0000	5,179.999167	0.0008
		44	5220.0000	5,219.999250	0.0008
		48	5240.0000	5,239.999170	0.0008
		52	5260.0000	5,259.999100	0.0009
		60	5300.0000	5,299.999167	0.0008
25	3.8V	64	5320.0000	5,319.999117	0.0009
23	5.0 V	100	5500.0000	5,499.999200	0.0008
		116	5580.0000	5,579.999116	0.0009
		140	5700.0000	5,699.999067	0.0009
		149	5745.0000	5,744.998917	0.0011
		157	5785.0000	5,784.998934	0.0011
		165	5825.0000	5,824.998900	0.0011
		36	5180.0000	5,179.999137	0.0009
		44	5220.0000	5,219.999220	0.0008
		48	5240.0000	5,239.999140	0.0009
		52	5260.0000	5,259.999070	0.0009
		60	5300.0000	5,299.999137	0.0009
		64	5320.0000	5,319.999087	0.0009
-20	3.42V	100	5500.0000	5,499.999170	0.0008
		116	5580.0000	5,579.999086	0.0009
		140	5700.0000	5,699.999037	0.0010
		149	5745.0000	5,744.998887	0.0011
		157	5785.0000	5,784.998904	0.0011
		165	5825.0000	5,824.998870	0.0011

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		1			
		36	5180.0000	5,179.999147	0.0009
		44	5220.0000	5,219.999230	0.0008
		48	5240.0000	5,239.999150	0.0009
		52	5260.0000	5,259.999080	0.0009
		60	5300.0000	5,299.999147	0.0009
		64	5320.0000	5,319.999097	0.0009
-20	4.18V	100	5500.0000	5,499.999180	0.0008
		116	5580.0000	5,579.999096	0.0009
		140	5700.0000	5,699.999047	0.0010
		149	5745.0000	5,744.998897	0.0011
		157	5785.0000	5,784.998914	0.0011
		165	5825.0000	5,824.998880	0.0011
		36	5180.0000	5,179.999121	0.0009
		44	5220.0000	5,219.999204	0.0008
		48	5240.0000	5,239.999124	0.0009
		52	5260.0000	5,259.999054	0.0009
		60	5300.0000	5,299.999121	0.0009
60	2 423 /	64	5320.0000	5,319.999071	0.0009
	3.42V	100	5500.0000	5,499.999154	0.0008
		116	5580.0000	5,579.999070	0.0009
		140	5700.0000	5,699.999021	0.0010
		149	5745.0000	5,744.998871	0.0011
		157	5785.0000	5,784.998888	0.0011
		165	5825.0000	5,824.998854	0.0011
60		36	5180.0000	5,179.999137	0.0009
		44	5220.0000	5,219.999220	0.0008
		48	5240.0000	5,239.999140	0.0009
		52	5260.0000	5,259.999070	0.0009
		60	5300.0000	5,299.999137	0.0009
	4 1037	64	5320.0000	5,319.999087	0.0009
	4.18V	100	5500.0000	5,499.999170	0.0008
		116	5580.0000	5,579.999086	0.0009
		140	5700.0000	5,699.999037	0.0010
		149	5745.0000	5,744.998887	0.0011
		157	5785.0000	5,784.998904	0.0011
		165	5825.0000	5,824.998870	0.0011

### **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.

~ End of Report ~

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