

**TEST REPORT ADDENDUM – CONDUCTED**

FROM



Test of: Hewlett Packard Enterprise APIN0344 & APIN0345

To: FCC Subpart E 15.407 & ISED RSS-247

Test Report Serial No.: HPEN111-U12\_Conducted DFS Bands Rev A

Issue Date: 20<sup>th</sup> August 2017

Master Document Number	Addendum Reports
HPEN111-U12_Master Radio 0 (DFS Bands)	HPEN111-U12_Conducted
	HPEN111-U12_Radiated_RSE Radio 0
	HPEN111-U12_Radiated_BE Radio 0
	HPEN111-U12_Radiated Radio 1
	HPEN111-U12_DFS

This report is only valid in conjunction with the reports listed in the above table. Together these reports address the requirements for the type of device operating under the standard as listed.

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**To:** FCC Subpart E 15.407 & ISED RSS-247  
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## 1. TEST RESULTS

### 1.1. Peak Transmit Power

Conducted Test Conditions for Maximum Conducted Output Power			
<b>Standard:</b>	FCC CFR 47:15.407	<b>Ambient Temp. (°C):</b>	24.0 - 27.5
<b>Test Heading:</b>	Maximum Conducted Output Power	<b>Rel. Humidity (%):</b>	32 - 45
<b>Standard Section(s):</b>	15.407 (a)	<b>Pressure (mBars):</b>	999 - 1001
<b>Reference Document(s):</b>	See Normative References		

#### Test Procedure for Maximum Conducted Output Power Measurement

Method PM (Measurement using an RF average power meter). KDB 789033 defines a methodology using an average wideband power meter. Measurements were made while the EUT was operating in a continuous transmission mode (100% duty cycle) at the appropriate center frequency. All operational modes and frequency bands were measured independently and the resultant calculated. Where the device operated with multiple antenna ports i.e. MIMO device, each port was measured and reported separately. A summation ( $\Sigma$ ) of each antenna port output power is provided which includes any offset due to Duty Cycle Correction Factor (DCCF). Testing was performed under ambient conditions at nominal voltage.

Test configuration and setup used for the measurement was per the Conducted Test Set-up section specified in this document.  
Supporting Information

Calculated Power =  $A + G + Y + 10 \log(1/x)$  dBm

A = Total Power [ $10 \cdot \log_{10}(10^{a/10} + 10^{b/10} + 10^{c/10} + 10^{d/10})$ ]

G = Antenna Gain

Y = Beamforming Gain

x = Duty Cycle (average power measurements only)

#### Limits Maximum Conducted Output Power

##### Operating Frequency Band 5150-5250 MHz

###### 15.407 (a)(1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

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

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

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(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**Operating Frequency Band 5250-5350 and 5470 – 5725 MHz**

15. 407 (a)(2)

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**Operating Frequency Band 5725 – 5850 MHz**

15. 407 (a)(3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

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**Equipment Configuration for Peak Transmit Power**

<b>Variant:</b>	802.11a	<b>Duty Cycle (%):</b>	99.0
<b>Data Rate:</b>	6.00 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5260.0	16.86	16.03	15.13	16.28	22.14	32.670	24.00	-1.86	72.00
5300.0	16.92	15.94	15.20	16.25	22.14	25.500	24.00	-1.86	72.00
5320.0	13.85	12.50	12.99	13.28	19.20	25.500	24.00	-4.80	57.00

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

**Equipment Configuration for Peak Transmit Power**

<b>Variant:</b>	802.11ac-80	<b>Duty Cycle (%):</b>	92.0
<b>Data Rate:</b>	29.30 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5290.0	10.17	9.56	9.70	9.77	15.83	128.700	24.00	-8.17	48.00

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

NOTE: Power restrictions may be due to radiated emission measurements namely spurious or band-edge measurements

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**Equipment Configuration for Peak Transmit Power**

<b>Variant:</b>	802.11ac-80+80	<b>Duty Cycle (%):</b>	92.0
<b>Data Rate:</b>	29.30 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b> Mode 1: Radio 1 Disabled; Radio 0 Enabled			

**Test Measurement Results**

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5290.0	--	--	12.09	10.91	14.44	188.000	22.00	-7.56	52.00

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	

**Equipment Configuration for Peak Transmit Power**

<b>Variant:</b>	802.11n HT-20	<b>Duty Cycle (%):</b>	99.0
<b>Data Rate:</b>	6.50 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b> Mode 1: Radio 1 Disabled; Radio 0 Enabled			

**Test Measurement Results**

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5260.0	14.81	13.70	12.90	14.16	19.97	21.330	24.00	-4.03	62.00
5300.0	14.90	13.67	12.82	14.01	19.93	27.500	24.00	-4.07	62.00
5320.0	14.27	13.13	13.67	13.96	19.80	21.500	24.00	-4.20	60.00

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

NOTE: Power restrictions may be due to radiated emission measurements namely spurious or band-edge measurements

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**Equipment Configuration for Peak Transmit Power**

<b>Variant:</b>	802.11n HT-40	<b>Duty Cycle (%):</b>	98.0
<b>Data Rate:</b>	13.50 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5270.0	16.50	15.39	14.78	16.10	21.76	64.000	24.00	-2.24	72.00
5310.0	11.21	10.38	10.65	10.90	16.82	63.300	24.00	-7.18	50.00

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

**Equipment Configuration for Peak Transmit Power**

<b>Variant:</b>	802.11a	<b>Duty Cycle (%):</b>	99.0
<b>Data Rate:</b>	6.00 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5500.0	14.68	13.43	14.31	14.67	20.32	28.670	24.00	-3.68	62.00
5580.0	16.62	15.35	14.43	15.19	21.49	29.170	24.00	-2.51	72.00
5720.0	16.42	15.34	14.77	15.54	21.58	28.500	24.00	-2.42	72.00

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

NOTE: Power restrictions may be due to radiated emission measurements namely spurious or band-edge measurements

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**Equipment Configuration for Peak Transmit Power**

<b>Variant:</b>	802.11ac-80	<b>Duty Cycle (%):</b>	92.0
<b>Data Rate:</b>	29.30 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b> Mode 1: Radio 1 Disabled; Radio 0 Enabled			

**Test Measurement Results**

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5530.0	10.83	9.75	10.26	10.51	16.38	141.300	24.00	-7.62	49.00
5610.0	16.37	15.16	14.51	15.41	21.44	149.300	24.00	-2.56	72.00
5690.0	16.00	14.94	14.29	15.07	21.14	149.300	24.00	-2.86	72.00

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

**Equipment Configuration for Peak Transmit Power**

<b>Variant:</b>	802.11ac-80+80	<b>Duty Cycle (%):</b>	92.0
<b>Data Rate:</b>	58.5 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>			

**Test Measurement Results**

Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
Test Frequency (MHz)								
5530		5610		Σ Port(s) dBm	MHz	dBm	dB	
a	b	c	d					
10.62	9.58	10.16	9.44	15.98	200.00	22.00	-6.02	48.00

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

NOTE: Power restrictions may be due to radiated emission measurements namely spurious or band-edge measurements

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**Equipment Configuration for Peak Transmit Power**

<b>Variant:</b>	802.11n HT-20	<b>Duty Cycle (%):</b>	99.0
<b>Data Rate:</b>	6.50 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b> Mode 1: Radio 1 Disabled; Radio 0 Enabled			

**Test Measurement Results**

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5500.0	13.50	12.27	13.14	13.40	19.12	23.170	24.00	-4.88	57.00
5580.0	15.32	14.09	13.04	13.89	20.18	27.830	24.00	-3.82	62.00
5720.0	14.68	13.40	12.88	13.54	19.70	23.000	24.00	-4.30	62.00

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

**Equipment Configuration for Peak Transmit Power**

<b>Variant:</b>	802.11n HT-40	<b>Duty Cycle (%):</b>	99.0
<b>Data Rate:</b>	13.50 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b> Mode 1: Radio 1 Disabled; Radio 0 Enabled			

**Test Measurement Results**

Test Frequency	Measured Conducted Output Power (dBm)				Calculated Total Power	Minimum 26 dB Bandwidth	Limit	Margin	EUT Power Setting
	Port(s)								
MHz	a	b	c	d	Σ Port(s) dBm	MHz	dBm	dB	
5510.0	10.96	9.97	10.50	10.70	16.57	69.700	24.00	-7.43	48.00
5550.0	17.13	15.75	15.16	16.04	22.10	75.300	24.00	-1.90	72.00
5710.0	15.90	14.80	14.58	14.99	21.12	70.300	24.00	-2.88	70.00

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

The above measurements are true pulse readings and therefore a Duty Cycling correction factor is not required.

NOTE: Power restrictions may be due to radiated emission measurements namely spurious or band-edge measurements

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## 1.2. 26 dB & 99% Bandwidth

Conducted Test Conditions for 26 dB and 99% Bandwidth			
<b>Standard:</b>	FCC CFR 47:15.407	<b>Ambient Temp. (°C):</b>	24.0 - 27.5
<b>Test Heading:</b>	26 dB and 99 % Bandwidth	<b>Rel. Humidity (%):</b>	32 - 45
<b>Standard Section(s):</b>	15.407 (a)	<b>Pressure (mBars):</b>	999 - 1001
<b>Reference Document(s):</b>	See Normative References		

### Test Procedure for 26 dB and 99% Bandwidth Measurement

The bandwidth at 26 dB and 99 % is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency. The Resolution Bandwidth was set to approximately 1% of the emission bandwidth.

Testing was performed under ambient conditions at nominal voltage. Where the device operated with multiple antenna ports i.e. MIMO device, each port was measured and reported.

Test configuration and setup used for the measurement was per the Conducted Test Set-up section specified in this document.

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**Equipment Configuration for 26 dB & 99% Occupied Bandwidth**

<b>Variant:</b>	802.11a	<b>Duty Cycle (%):</b>	99.0
<b>Data Rate:</b>	6.00 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5260.0	<a href="#">33.670</a>	<a href="#">32.670</a>	<a href="#">33.330</a>	<a href="#">33.500</a>	33.670	32.670		
5300.0	<a href="#">25.500</a>	<a href="#">27.670</a>	<a href="#">25.500</a>	<a href="#">27.500</a>	27.670	25.500		
5320.0	<a href="#">27.830</a>	<a href="#">26.000</a>	<a href="#">27.670</a>	<a href="#">25.500</a>	27.830	25.500		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5260.0	<a href="#">18.712</a>	<a href="#">18.111</a>	<a href="#">17.951</a>	<a href="#">18.298</a>	18.712	17.951		
5300.0	<a href="#">17.124</a>	<a href="#">17.054</a>	<a href="#">16.946</a>	<a href="#">17.059</a>	17.124	16.946		
5320.0	<a href="#">17.124</a>	<a href="#">17.081</a>	<a href="#">16.982</a>	<a href="#">17.053</a>	17.124	16.982		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

Note: click the links in the above matrix to view the graphical image (plot).

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**Equipment Configuration for 26 dB & 99% Occupied Bandwidth**

<b>Variant:</b>	802.11ac-80	<b>Duty Cycle (%):</b>	99.0
<b>Data Rate:</b>	29.30 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5290.0	<a href="#">145.300</a>	<a href="#">130.700</a>	<a href="#">140.700</a>	<a href="#">128.700</a>	145.300	128.700		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5290.0	<a href="#">77.372</a>	<a href="#">76.918</a>	<a href="#">77.007</a>	<a href="#">76.676</a>	77.372	76.676		

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

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**Equipment Configuration for 26 dB & 99% Occupied Bandwidth**

<b>Variant:</b>	802.11ac-80+80	<b>Duty Cycle (%):</b>	92.0
<b>Data Rate:</b>	29.30 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5290.0	--	--	<a href="#">192.000</a>	<a href="#">188.000</a>	192.000	188.000		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5290.0	--	--	<a href="#">107.792</a>	<a href="#">111.770</a>	111.770	107.792		

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	2.81 dB

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**Equipment Configuration for 26 dB & 99% Occupied Bandwidth**

<b>Variant:</b>	802.11n HT-20	<b>Duty Cycle (%):</b>	99.0
<b>Data Rate:</b>	6.50 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5260.0	<a href="#">28.170</a>	<a href="#">21.330</a>	<a href="#">21.830</a>	<a href="#">21.830</a>	28.170	21.330		
5300.0	<a href="#">30.830</a>	<a href="#">27.500</a>	<a href="#">30.170</a>	<a href="#">29.500</a>	30.830	27.500		
5320.0	<a href="#">26.330</a>	<a href="#">22.500</a>	<a href="#">30.830</a>	<a href="#">21.500</a>	30.830	21.500		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5260.0	<a href="#">18.074</a>	<a href="#">17.939</a>	<a href="#">17.930</a>	<a href="#">17.963</a>	18.074	17.930		
5300.0	<a href="#">18.219</a>	<a href="#">18.058</a>	<a href="#">18.025</a>	<a href="#">18.056</a>	18.219	18.025		
5320.0	<a href="#">18.078</a>	<a href="#">17.940</a>	<a href="#">17.925</a>	<a href="#">17.928</a>	18.078	17.925		

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

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**Equipment Configuration for 26 dB & 99% Occupied Bandwidth**

<b>Variant:</b>	802.11n HT-40	<b>Duty Cycle (%):</b>	98.0
<b>Data Rate:</b>	13.50 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5270.0	<a href="#">72.300</a>	<a href="#">65.300</a>	<a href="#">65.000</a>	<a href="#">64.000</a>	72.300	64.000		
5310.0	<a href="#">73.300</a>	<a href="#">63.300</a>	<a href="#">65.000</a>	<a href="#">70.300</a>	73.300	63.300		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5270.0	<a href="#">37.529</a>	<a href="#">36.798</a>	<a href="#">36.890</a>	<a href="#">36.990</a>	37.529	36.798		
5310.0	<a href="#">37.521</a>	<a href="#">36.824</a>	<a href="#">36.844</a>	<a href="#">36.916</a>	37.521	36.824		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

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**Equipment Configuration for 26 dB & 99% Occupied Bandwidth**

<b>Variant:</b>	802.11a	<b>Duty Cycle (%):</b>	99.0
<b>Data Rate:</b>	6.00 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5500.0	<a href="#">33.170</a>	<a href="#">34.330</a>	<a href="#">33.830</a>	<a href="#">28.670</a>	34.330	28.670		
5580.0	<a href="#">33.670</a>	<a href="#">33.670</a>	<a href="#">33.500</a>	<a href="#">29.170</a>	33.670	29.170		
5720.0	<a href="#">29.670</a>	<a href="#">31.500</a>	<a href="#">32.830</a>	<a href="#">28.500</a>	32.830	28.500		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5500.0	<a href="#">18.042</a>	<a href="#">18.313</a>	<a href="#">17.450</a>	<a href="#">17.197</a>	18.313	17.197		
5580.0	<a href="#">18.278</a>	<a href="#">18.404</a>	<a href="#">17.974</a>	<a href="#">17.377</a>	18.404	17.377		
5720.0	<a href="#">17.402</a>	<a href="#">17.353</a>	<a href="#">17.429</a>	<a href="#">17.298</a>	17.429	17.298		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

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**Equipment Configuration for 26 dB & 99% Occupied Bandwidth**

<b>Variant:</b>	802.11ac-80	<b>Duty Cycle (%):</b>	92.0
<b>Data Rate:</b>	29.30 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5530.0	<a href="#">166.000</a>	<a href="#">166.700</a>	<a href="#">148.700</a>	<a href="#">141.300</a>	166.700	141.300		
5610.0	<a href="#">166.700</a>	<a href="#">156.000</a>	<a href="#">166.000</a>	<a href="#">149.300</a>	166.700	149.300		
5690.0	<a href="#">150.700</a>	<a href="#">153.300</a>	<a href="#">160.700</a>	<a href="#">149.300</a>	160.700	149.300		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5530.0	<a href="#">84.449</a>	<a href="#">79.383</a>	<a href="#">80.032</a>	<a href="#">77.348</a>	84.449	77.348		
5610.0	<a href="#">83.530</a>	<a href="#">78.473</a>	<a href="#">83.431</a>	<a href="#">77.887</a>	83.530	77.887		
5690.0	<a href="#">78.356</a>	<a href="#">77.782</a>	<a href="#">78.541</a>	<a href="#">77.324</a>	78.541	77.324		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

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**Equipment Configuration for 26 dB & 99% Occupied Bandwidth**

<b>Variant:</b>	802.11ac-80+80	<b>Duty Cycle (%):</b>	92.0
<b>Data Rate:</b>	29.30 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5530.0	<a href="#">200.000</a>	<a href="#">202.700</a>	--	--	202.700	200.000		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5530.0	<a href="#">135.187</a>	<a href="#">132.306</a>	--	--	135.187	132.306		

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

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**Equipment Configuration for 26 dB & 99% Occupied Bandwidth**

<b>Variant:</b>	802.11ac-80+80	<b>Duty Cycle (%):</b>	92.0
<b>Data Rate:</b>	29.30 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5610.0	--	--	<a href="#">196.000</a>	<a href="#">203.300</a>	203.300	196.000		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5610.0	--	--	<a href="#">120.485</a>	<a href="#">134.936</a>	134.936	120.485		

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

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**Equipment Configuration for 26 dB & 99% Occupied Bandwidth**

<b>Variant:</b>	802.11n HT-20	<b>Duty Cycle (%):</b>	99.0
<b>Data Rate:</b>	6.50 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5500.0	<a href="#">32.000</a>	<a href="#">31.000</a>	<a href="#">29.500</a>	<a href="#">23.170</a>	32.000	23.170		
5580.0	<a href="#">33.170</a>	<a href="#">33.330</a>	<a href="#">32.000</a>	<a href="#">27.830</a>	33.330	27.830		
5720.0	<a href="#">30.330</a>	<a href="#">26.670</a>	<a href="#">26.170</a>	<a href="#">23.000</a>	30.330	23.000		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5500.0	<a href="#">18.177</a>	<a href="#">18.165</a>	<a href="#">18.026</a>	<a href="#">17.943</a>	18.177	17.943		
5580.0	<a href="#">18.253</a>	<a href="#">18.282</a>	<a href="#">18.068</a>	<a href="#">18.015</a>	18.282	18.015		
5720.0	<a href="#">18.045</a>	<a href="#">18.009</a>	<a href="#">18.027</a>	<a href="#">17.957</a>	18.045	17.957		

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

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**Equipment Configuration for 26 dB & 99% Occupied Bandwidth**

<b>Variant:</b>	802.11n HT-40	<b>Duty Cycle (%):</b>	99.0
<b>Data Rate:</b>	13.50 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured 26 dB Bandwidth (MHz)				26 dB Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5510.0	<a href="#">81.300</a>	<a href="#">72.000</a>	<a href="#">76.300</a>	<a href="#">69.700</a>	81.300	69.700		
5550.0	<a href="#">80.300</a>	<a href="#">75.700</a>	<a href="#">77.700</a>	<a href="#">75.300</a>	80.300	75.300		
5710.0	<a href="#">78.300</a>	<a href="#">70.300</a>	<a href="#">73.000</a>	<a href="#">72.000</a>	78.300	70.300		

Test Frequency	Measured 99% Bandwidth (MHz)				99% Bandwidth (MHz)			
	Port(s)				Highest	Lowest		
MHz	a	b	c	d				
5510.0	<a href="#">39.975</a>	<a href="#">37.532</a>	<a href="#">37.343</a>	<a href="#">36.995</a>	39.975	36.995		
5550.0	<a href="#">42.288</a>	<a href="#">37.948</a>	<a href="#">38.244</a>	<a href="#">37.272</a>	42.288	37.272		
5710.0	<a href="#">37.619</a>	<a href="#">36.959</a>	<a href="#">37.334</a>	<a href="#">37.045</a>	37.619	36.959		

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

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### 1.3. Power Spectral Density

Conducted Test Conditions for Power Spectral Density			
<b>Standard:</b>	FCC CFR 47:15.407	<b>Ambient Temp. (°C):</b>	24.0 - 27.5
<b>Test Heading:</b>	Power Spectral Density	<b>Rel. Humidity (%):</b>	32 - 45
<b>Standard Section(s):</b>	15.407 (a)	<b>Pressure (mBars):</b>	999 - 1001
<b>Reference Document(s):</b>	See Normative References		

#### Test Procedure for Power Spectral Density

The in-band power spectral density was measured using the test technique specified in KDB 789033. A 1 MHz measurement bandwidth was implemented for the analyzer sweep. Once the sweep is complete the analyzer trace data is downloaded and used for post processing purposes.

Where the device operated with multiple antenna ports i.e. MIMO device, each port was measured separately. The Peak Power Spectral Density is the highest level found across the emission bandwidth. With multiple antenna port measurements the numerical analyzer data from each port is summed (å) and a link to this additional graphic is provided.

Test configuration and setup used for the measurement was per the Conducted Test Set-up section specified in this document.

Measure and sum the spectra across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The individual spectra are then summed mathematically in linear power units. Unlike in-band power measurements, in which the sum involves a single measured value (output power) from each output, measurements for compliance with PSD limits involve summing entire spectra across corresponding frequency bins on the various outputs. Consistency is maintained for any device with multiple transmitter outputs to be certain the individual outputs are all aligned with the same span and same number of points. In this instance, the linear power spectrum value within the first spectral bin of output 0 is summed with that in the first spectral bin of output 1, and the first spectral bin of output 2, and so on up to the Nth output to obtain the true value for the first frequency bin of the summed spectrum. The summed spectrum value for each frequency bin is computed in this fashion. These summed spectral values were post processed and the resulting numerical and graphical data presented.

NOTE: It may be observed that spectrum in some plots break the limit line however this in itself does NOT constitute a failure. In all cases a spectrum summation plot is provided in order to prove compliance. A failure occurs only after the summation of all spectrum plots have been summed and are found to be greater than the limit line.

#### Supporting Information

Calculated Power =  $A + 10 \log(1/x)$  dBm

A = Total Power Spectral Density [ $10 \cdot \text{Log}_{10}(10^{a/10} + 10^{b/10} + 10^{c/10} + 10^{d/10})$ ]

x = Duty Cycle

#### Limits Power Spectral Density

##### Operating Frequency Band 5150-5250 MHz

15.407 (a)(1)

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

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



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(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### **Operating Frequency Band 5250-5350 and 5470 – 5725 MHz**

##### **15.407 (a)(2)**

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### **Operating Frequency Band 5725 – 5850 MHz**

##### **15.407 (a)(3)**

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

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**Equipment Configuration for Power Spectral Density**

<b>Variant:</b>	802.11a	<b>Duty Cycle (%):</b>	99.0
<b>Data Rate:</b>	6.00 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

Test Measurement Results							
Test Frequency	Measured Power Spectral Density				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5260.0	<a href="#">5.379</a>	<a href="#">4.578</a>	<a href="#">4.446</a>	<a href="#">4.612</a>	<a href="#">10.767</a>	11.0	-0.3
5300.0	<a href="#">5.374</a>	<a href="#">4.712</a>	<a href="#">4.358</a>	<a href="#">4.785</a>	<a href="#">10.807</a>	11.0	-0.2
5320.0	<a href="#">5.432</a>	<a href="#">4.859</a>	<a href="#">4.370</a>	<a href="#">4.766</a>	<a href="#">10.841</a>	11.0	-0.2

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

DCCF - Duty Cycle Correction Factor

Note: click the links in the above matrix to view the graphical image (plot).

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**Equipment Configuration for Power Spectral Density**

<b>Variant:</b>	802.11ac-80	<b>Duty Cycle (%):</b>	92.0
<b>Data Rate:</b>	29.30 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured Power Spectral Density				Summation Peak Marker + DCCF (+0.36 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5290.0	<a href="#">-1.330</a>	<a href="#">-2.235</a>	<a href="#">-2.472</a>	<a href="#">-1.904</a>	<a href="#">4.290</a>	9.0	-4.7

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

DCCF - Duty Cycle Correction Factor

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**Equipment Configuration for Power Spectral Density**

<b>Variant:</b>	802.11ac-80+80	<b>Duty Cycle (%):</b>	92.0
<b>Data Rate:</b>	29.30 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured Power Spectral Density				Summation Peak Marker + DCCF (+0.36 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5290.0	--	--	<a href="#">1.847</a>	<a href="#">1.243</a>	<a href="#">4.823</a>	9.0	-4.2

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	2.81 dB

DCCF - Duty Cycle Correction Factor

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Equipment Configuration for Power Spectral Density			
<b>Variant:</b>	802.11n HT-20	<b>Duty Cycle (%):</b>	99.0
<b>Data Rate:</b>	6.50 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

Test Measurement Results							
Test Frequency	Measured Power Spectral Density				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5260.0	<a href="#">3.072</a>	<a href="#">2.014</a>	<a href="#">1.829</a>	<a href="#">2.144</a>	<a href="#">8.258</a>	9.0	-0.8
5300.0	<a href="#">3.074</a>	<a href="#">2.127</a>	<a href="#">1.676</a>	<a href="#">2.134</a>	<a href="#">8.271</a>	9.0	-0.7
5320.0	<a href="#">3.123</a>	<a href="#">2.183</a>	<a href="#">1.843</a>	<a href="#">2.384</a>	<a href="#">8.367</a>	9.0	-0.7

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

DCCF - Duty Cycle Correction Factor

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**Equipment Configuration for Power Spectral Density**

<b>Variant:</b>	802.11n HT-40	<b>Duty Cycle (%):</b>	98.0
<b>Data Rate:</b>	13.50 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured Power Spectral Density				Summation Peak Marker + DCCF (+0.09 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5270.0	<a href="#">2.024</a>	<a href="#">1.125</a>	<a href="#">0.791</a>	<a href="#">1.228</a>	<a href="#">7.326</a>	9.0	-1.7
5310.0	<a href="#">1.871</a>	<a href="#">1.177</a>	<a href="#">0.655</a>	<a href="#">1.403</a>	<a href="#">7.299</a>	9.0	-1.7

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

DCCF - Duty Cycle Correction Factor

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**Equipment Configuration for Power Spectral Density**

<b>Variant:</b>	802.11a	<b>Duty Cycle (%):</b>	99.0
<b>Data Rate:</b>	6.00 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	Not Applicable
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

Test Measurement Results							
Test Frequency	Measured Power Spectral Density				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5500.0	<a href="#">5.238</a>	<a href="#">4.362</a>	<a href="#">3.808</a>	<a href="#">4.410</a>	<a href="#">10.487</a>	11.0	-0.5
5580.0	<a href="#">5.232</a>	<a href="#">4.449</a>	<a href="#">3.922</a>	<a href="#">4.321</a>	<a href="#">10.504</a>	11.0	-0.5
5720.0	<a href="#">4.546</a>	<a href="#">3.819</a>	<a href="#">3.804</a>	<a href="#">4.018</a>	<a href="#">10.061</a>	11.0	-1.0

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

DCCF - Duty Cycle Correction Factor

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**Equipment Configuration for Power Spectral Density**

<b>Variant:</b>	802.11ac-80	<b>Duty Cycle (%):</b>	92.0
<b>Data Rate:</b>	29.30 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

**Test Measurement Results**

Test Frequency	Measured Power Spectral Density				Summation Peak Marker + DCCF (+0.36 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5530.0	<a href="#">-1.303</a>	<a href="#">-2.331</a>	<a href="#">-2.646</a>	<a href="#">-2.259</a>	<a href="#">4.133</a>	9.0	-4.9

**Traceability to Industry Recognized Test Methodologies**

Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

DCCF - Duty Cycle Correction Factor

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**Equipment Configuration for Power Spectral Density**

<b>Variant:</b>	802.11ac-80+80	<b>Duty Cycle (%):</b>	92.0
<b>Data Rate:</b>	29.30 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

Test Measurement Results							
Test Frequency	Measured Power Spectral Density				Summation Peak Marker + DCCF (+0.36 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5530.0	<a href="#">1.525</a>	<a href="#">0.518</a>	--	--	<a href="#">4.316</a>	9.0	-4.7
5610.0	--	--	<a href="#">1.058</a>	<a href="#">-0.411</a>	<a href="#">3.740</a>	9.0	-5.3

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

DCCF - Duty Cycle Correction Factor

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Equipment Configuration for Power Spectral Density			
<b>Variant:</b>	802.11n HT-20	<b>Duty Cycle (%):</b>	99.0
<b>Data Rate:</b>	6.50 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

Test Measurement Results							
Test Frequency	Measured Power Spectral Density				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5500.0	<a href="#">3.649</a>	<a href="#">2.596</a>	<a href="#">1.916</a>	<a href="#">2.074</a>	<a href="#">8.579</a>	9.0	-0.4
5580.0	<a href="#">3.384</a>	<a href="#">2.633</a>	<a href="#">1.854</a>	<a href="#">2.156</a>	<a href="#">8.554</a>	9.0	-0.5
5720.0	<a href="#">2.727</a>	<a href="#">1.730</a>	<a href="#">1.524</a>	<a href="#">1.813</a>	<a href="#">7.928</a>	9.0	-1.1

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

DCCF - Duty Cycle Correction Factor

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**Equipment Configuration for Power Spectral Density**

<b>Variant:</b>	802.11n HT-40	<b>Duty Cycle (%):</b>	99.0
<b>Data Rate:</b>	13.50 MBit/s	<b>Antenna Gain (dBi):</b>	2.00
<b>Modulation:</b>	OFDM	<b>Beam Forming Gain (Y)(dB):</b>	6.00
<b>TPC:</b>	Not Applicable	<b>Tested By:</b>	CC
<b>Engineering Test Notes:</b>	Mode 1: Radio 1 Disabled; Radio 0 Enabled		

Test Measurement Results							
Test Frequency	Measured Power Spectral Density				Summation Peak Marker + DCCF (+0.04 dB)	Limit	Margin
	Port(s) (dBm/MHz)						
MHz	a	b	c	d	dBm/MHz	dBm/MHz	dB
5510.0	<a href="#">1.629</a>	<a href="#">0.737</a>	<a href="#">0.453</a>	<a href="#">0.603</a>	<a href="#">6.834</a>	9.0	-2.2
5550.0	<a href="#">2.260</a>	<a href="#">1.214</a>	<a href="#">1.091</a>	<a href="#">1.343</a>	<a href="#">7.465</a>	9.0	-1.6
5710.0	<a href="#">1.065</a>	<a href="#">0.119</a>	<a href="#">0.399</a>	<a href="#">0.627</a>	<a href="#">6.575</a>	9.0	-2.4

Traceability to Industry Recognized Test Methodologies	
Work Instruction:	WI-03 MEASURING RF SPECTRUM MASK
Measurement Uncertainty:	±2.81 dB

DCCF - Duty Cycle Correction Factor

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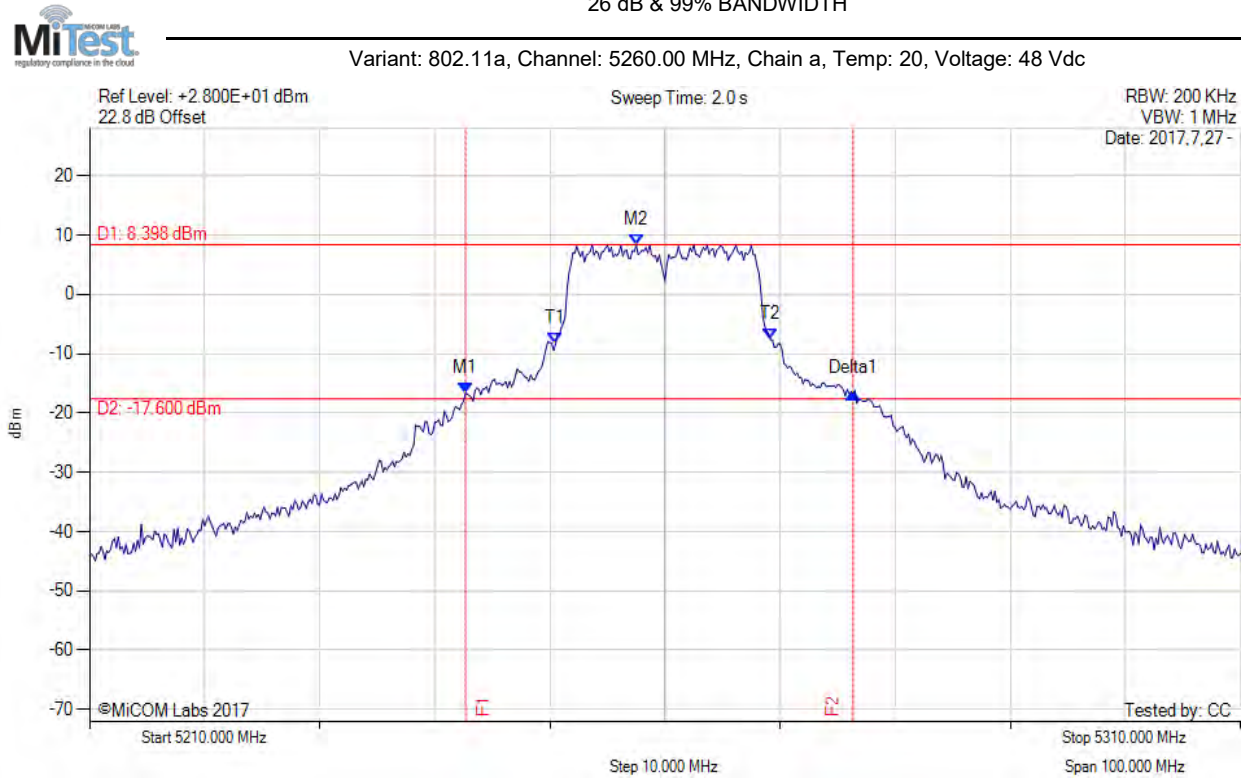
## **A. APPENDIX - GRAPHICAL IMAGES**

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### A.1. 26 dB & 99% Bandwidth



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5242.670 MHz : -16.719 dBm M2 : 5257.500 MHz : 8.398 dBm Delta1 : 33.670 MHz : -0.008 dB T1 : 5250.500 MHz : -8.296 dBm T2 : 5269.167 MHz : -7.582 dBm OBW : 18.712 MHz	Measured 26 dB Bandwidth: 33.670 MHz Measured 99% Bandwidth: 18.712 MHz

[back to matrix](#)

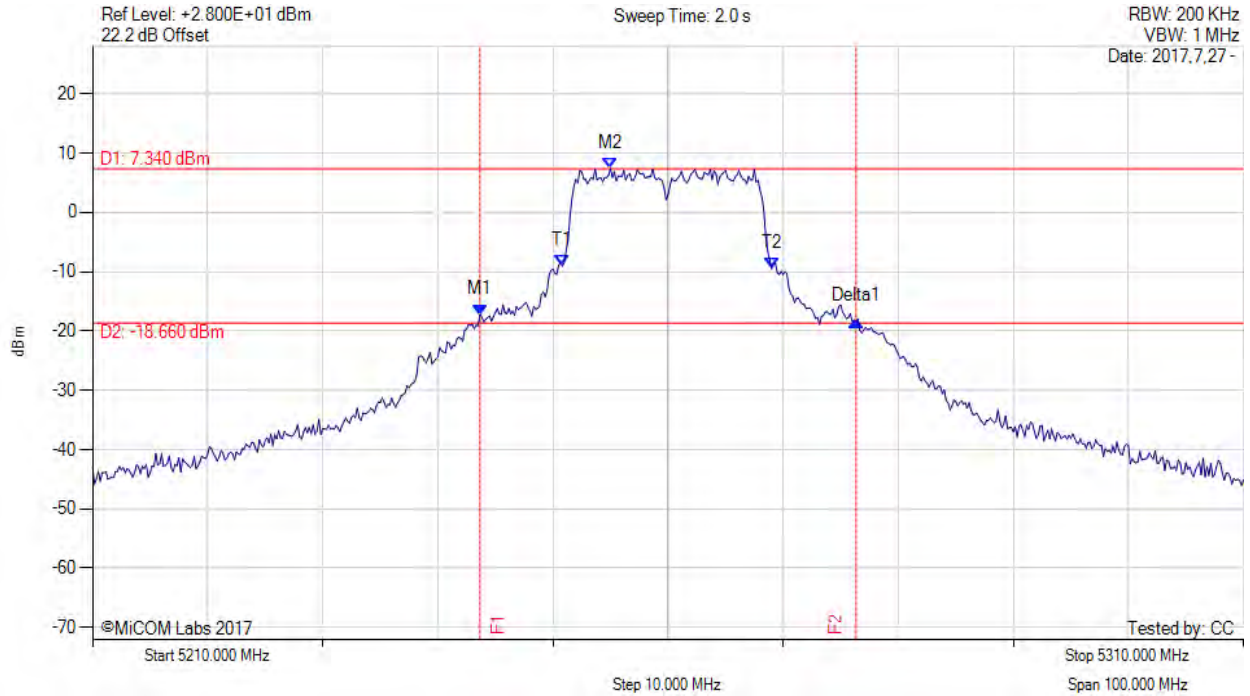
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5260.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5243.670 MHz : -17.240 dBm M2 : 5255.000 MHz : 7.340 dBm Delta1 : 32.670 MHz : -1.117 dB T1 : 5250.833 MHz : -9.053 dBm T2 : 5269.000 MHz : -9.519 dBm OBW : 18.111 MHz	Measured 26 dB Bandwidth: 32.670 MHz Measured 99% Bandwidth: 18.111 MHz

[back to matrix](#)

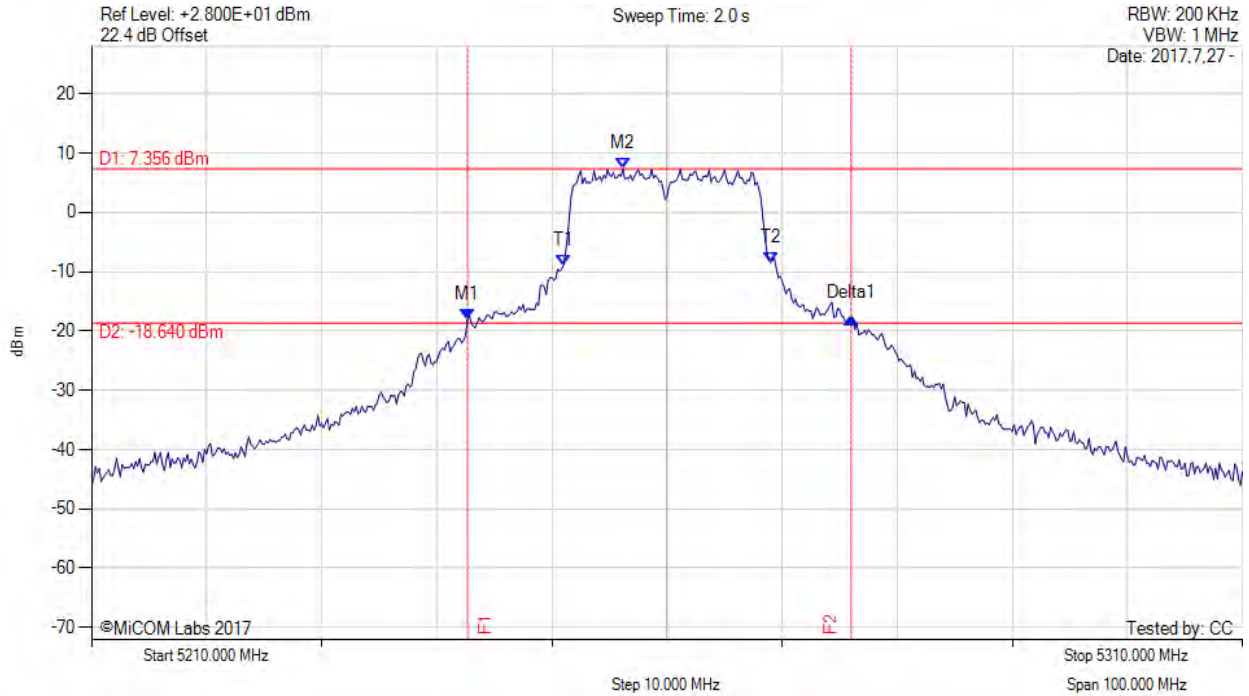
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5260.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5242.670 MHz : -18.011 dBm M2 : 5256.170 MHz : 7.356 dBm Delta1 : 33.330 MHz : 0.113 dB T1 : 5251.000 MHz : -8.925 dBm T2 : 5269.000 MHz : -8.405 dBm OBW : 17.951 MHz	Measured 26 dB Bandwidth: 33.330 MHz Measured 99% Bandwidth: 17.951 MHz

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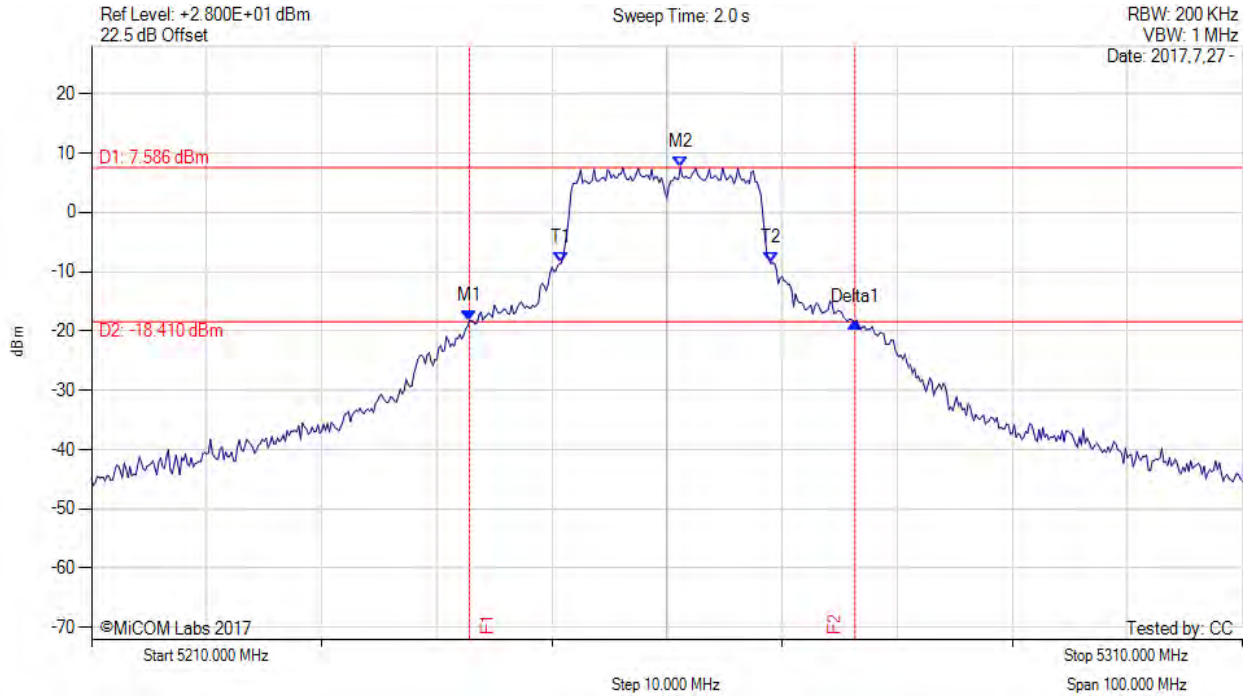
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5260.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5242.830 MHz : -18.336 dBm M2 : 5261.170 MHz : 7.586 dBm Delta1 : 33.500 MHz : -0.120 dB T1 : 5250.833 MHz : -8.509 dBm T2 : 5269.000 MHz : -8.585 dBm OBW : 18.298 MHz	Measured 26 dB Bandwidth: 33.500 MHz Measured 99% Bandwidth: 18.298 MHz

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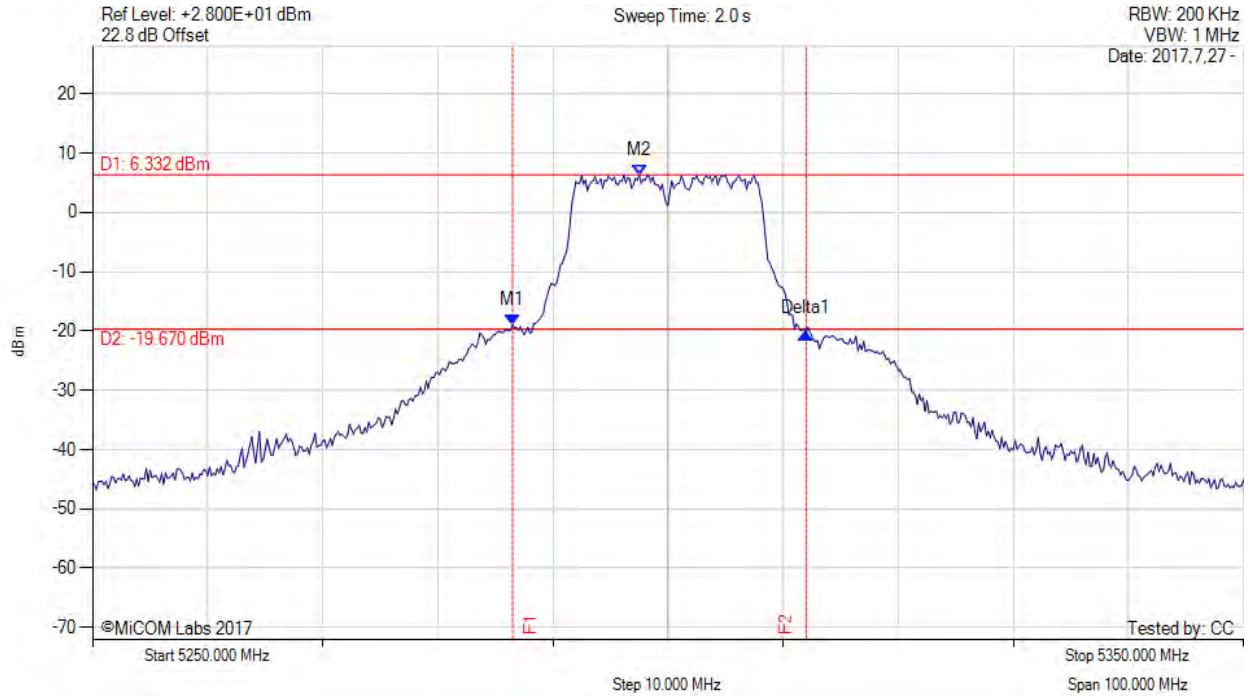
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5300.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5286.500 MHz : -18.948 dBm M2 : 5297.500 MHz : 6.332 dBm Delta1 : 25.500 MHz : -1.523 dB T1 : 0 Hz : 0.000 dBm T2 : 0 Hz : 0.000 dBm OBW : 17.124 MHz	Measured 26 dB Bandwidth: 25.500 MHz Measured 99% Bandwidth: 17.124 MHz

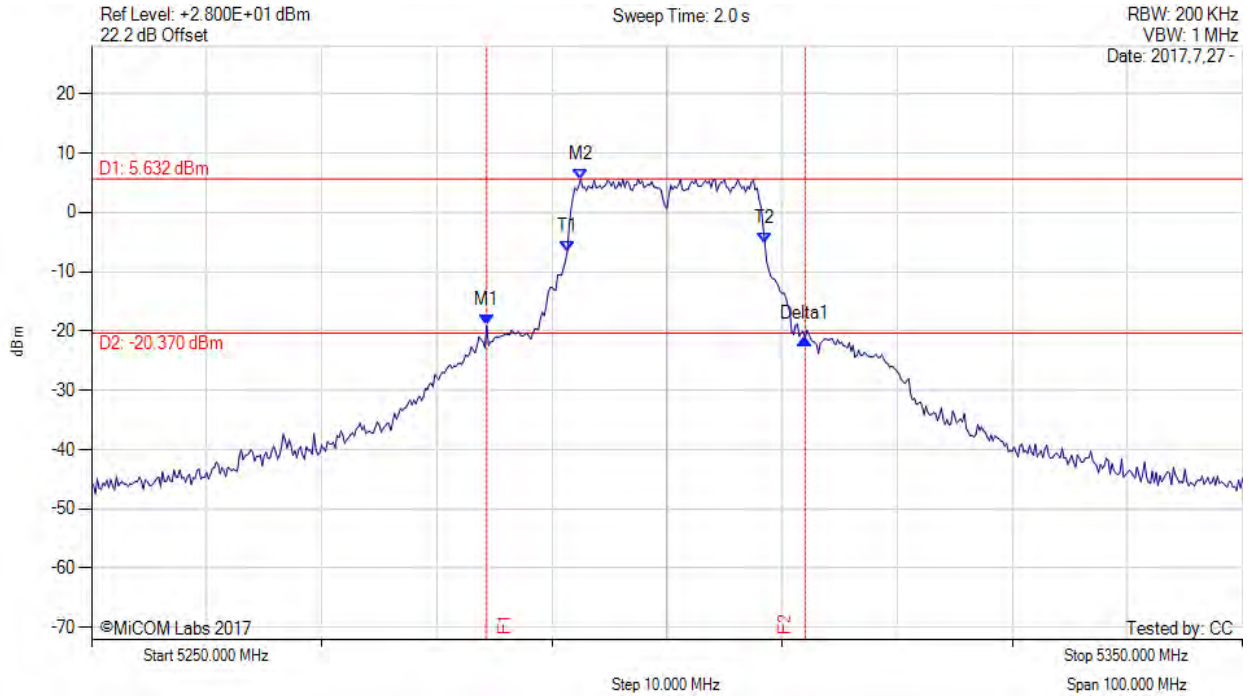
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26 dB & 99% BANDWIDTH

Variant: 802.11a, Channel: 5300.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5284.330 MHz : -19.070 dBm M2 : 5292.500 MHz : 5.632 dBm Delta1 : 27.670 MHz : -2.175 dB T1 : 5291.333 MHz : -6.680 dBm T2 : 5308.500 MHz : -5.191 dBm OBW : 17.054 MHz	Measured 26 dB Bandwidth: 27.670 MHz Measured 99% Bandwidth: 17.054 MHz

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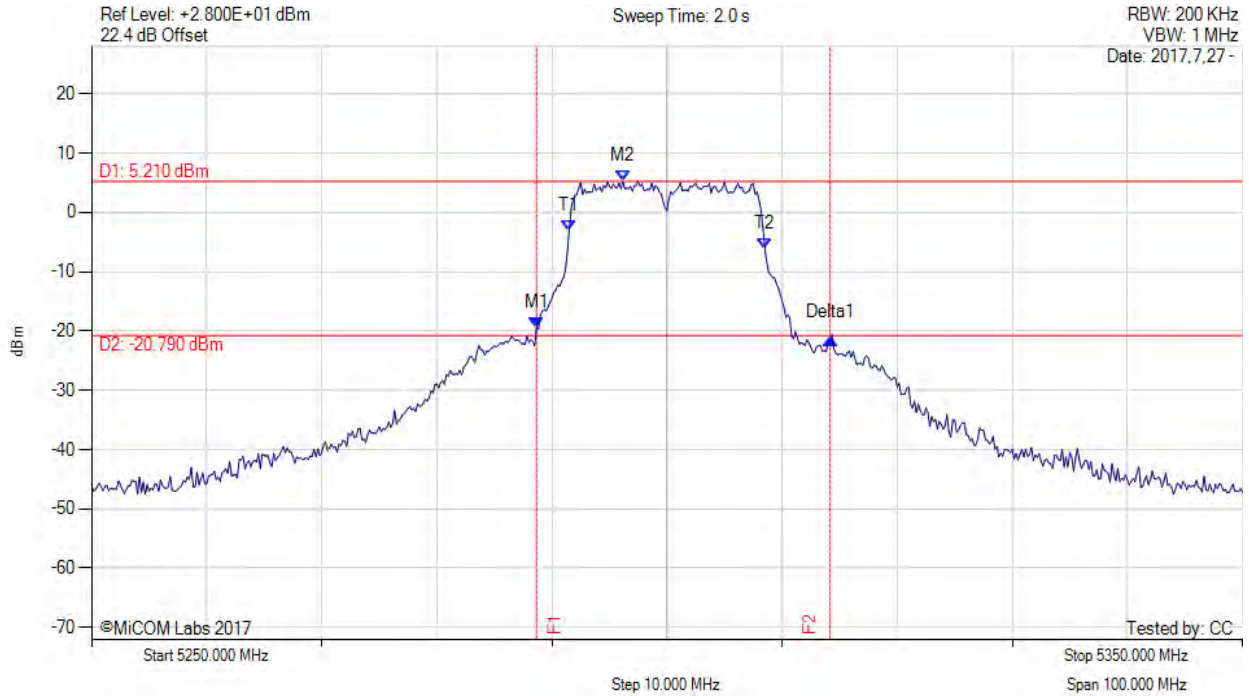




26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5300.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5288.670 MHz : -19.397 dBm M2 : 5296.170 MHz : 5.210 dBm Delta1 : 25.500 MHz : -1.841 dB T1 : 5291.500 MHz : -3.074 dBm T2 : 5308.500 MHz : -6.110 dBm OBW : 16.946 MHz	Measured 26 dB Bandwidth: 25.500 MHz Measured 99% Bandwidth: 16.946 MHz

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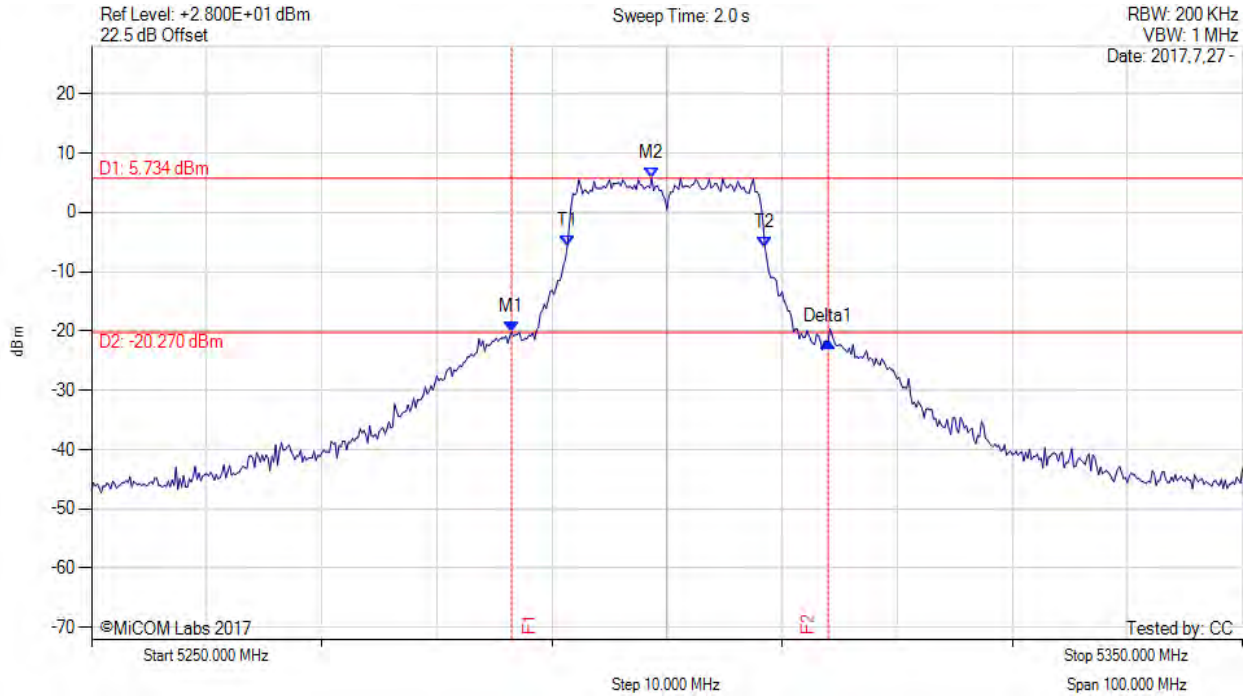
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5300.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5286.500 MHz : -20.237 dBm M2 : 5298.670 MHz : 5.734 dBm Delta1 : 27.500 MHz : -1.528 dB T1 : 5291.333 MHz : -5.766 dBm T2 : 5308.500 MHz : -5.820 dBm OBW : 17.059 MHz	Measured 26 dB Bandwidth: 27.500 MHz Measured 99% Bandwidth: 17.059 MHz

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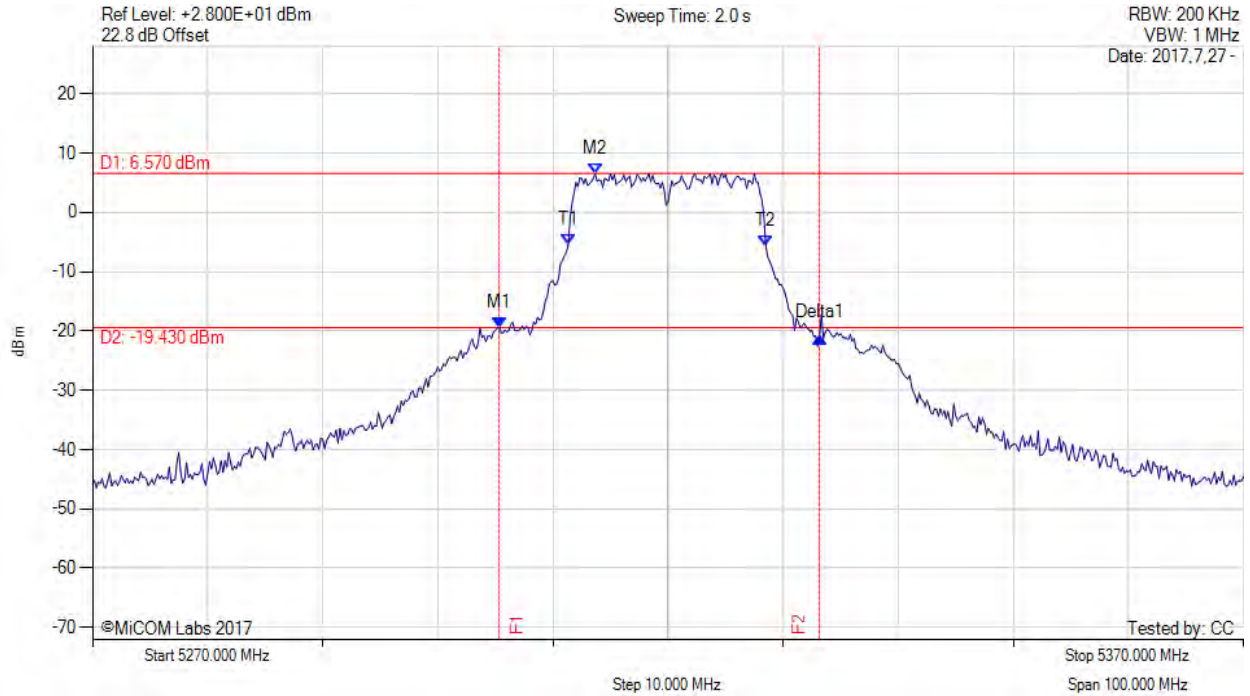
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5320.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5305.330 MHz : -19.381 dBm M2 : 5313.670 MHz : 6.570 dBm Delta1 : 27.830 MHz : -1.725 dB T1 : 5311.333 MHz : -5.483 dBm T2 : 5328.500 MHz : -5.703 dBm OBW : 17.124 MHz	Measured 26 dB Bandwidth : 27.830 MHz Measured 99% Bandwidth: 17.124 MHz

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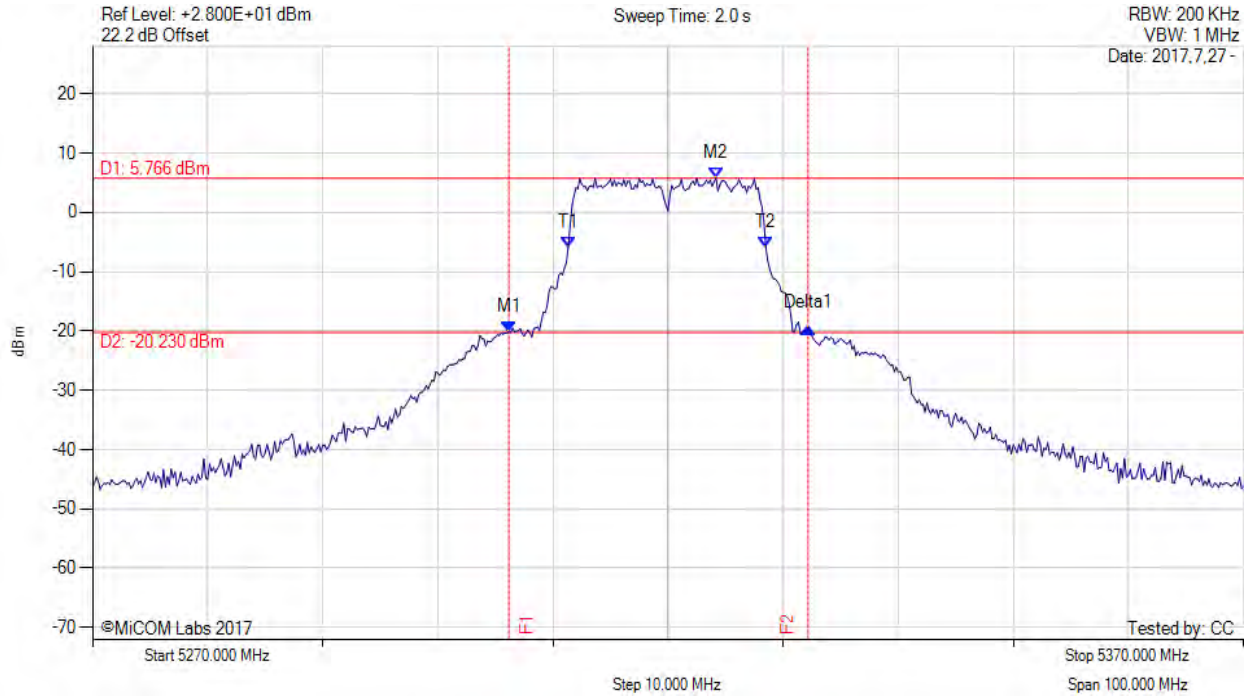
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5320.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5306.170 MHz : -20.138 dBm M2 : 5324.170 MHz : 5.766 dBm Delta1 : 26.000 MHz : 0.733 dB T1 : 5311.333 MHz : -5.841 dBm T2 : 5328.500 MHz : -5.942 dBm OBW : 17.081 MHz	Measured 26 dB Bandwidth: 26.000 MHz Measured 99% Bandwidth: 17.081 MHz

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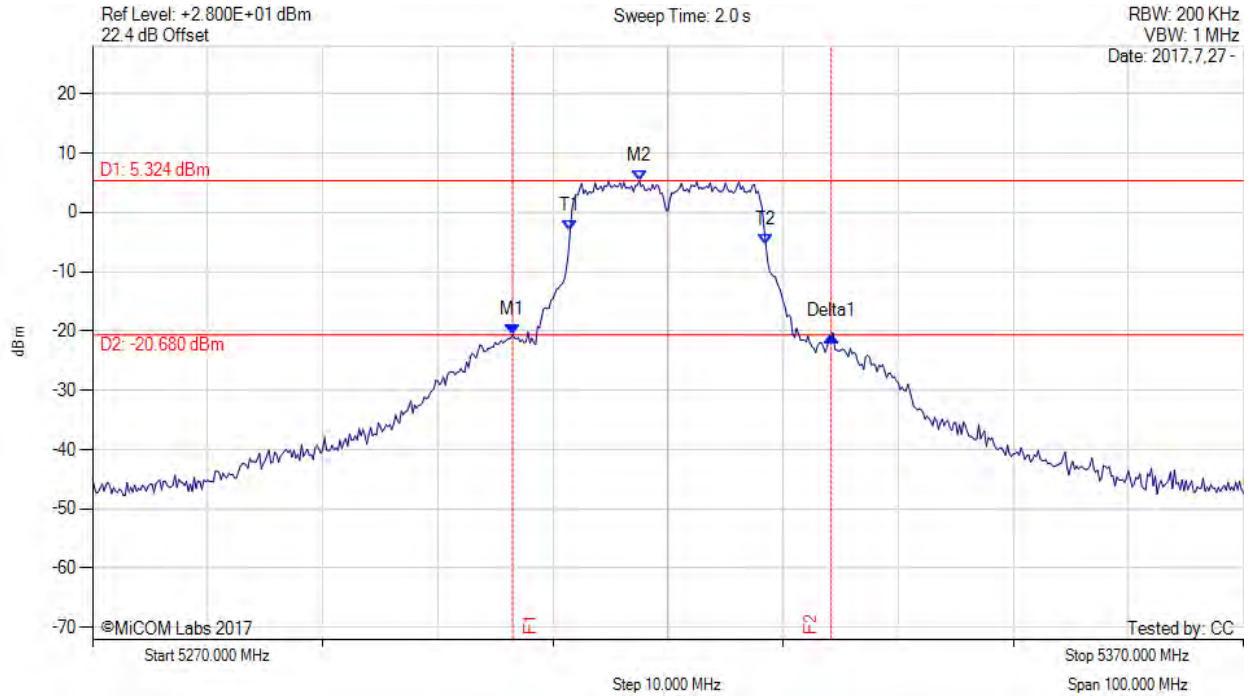
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5320.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5306.500 MHz : -20.606 dBm M2 : 5317.500 MHz : 5.324 dBm Delta1 : 27.670 MHz : -0.231 dB T1 : 5311.500 MHz : -3.059 dBm T2 : 5328.500 MHz : -5.482 dBm OBW : 16.982 MHz	Measured 26 dB Bandwidth: 27.670 MHz Measured 99% Bandwidth: 16.982 MHz

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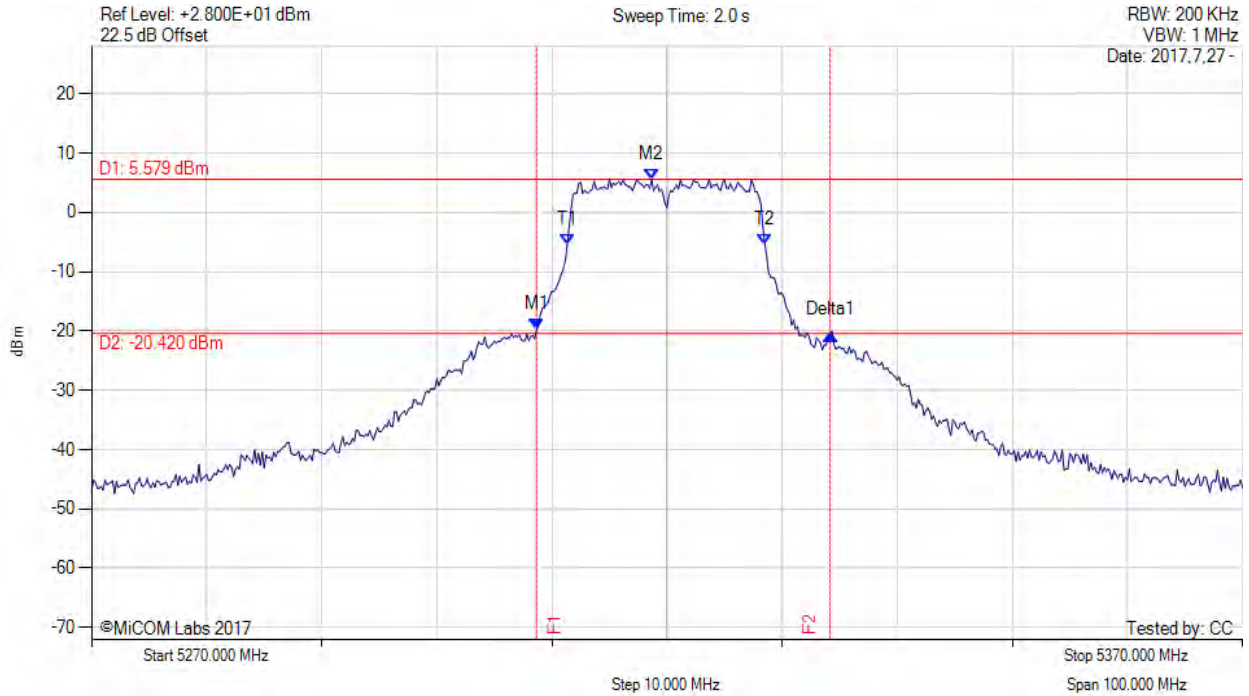
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5320.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5308.670 MHz : -19.737 dBm M2 : 5318.670 MHz : 5.579 dBm Delta1 : 25.500 MHz : -0.826 dB T1 : 5311.333 MHz : -5.492 dBm T2 : 5328.500 MHz : -5.357 dBm OBW : 17.053 MHz	Measured 26 dB Bandwidth: 25.500 MHz Measured 99% Bandwidth: 17.053 MHz

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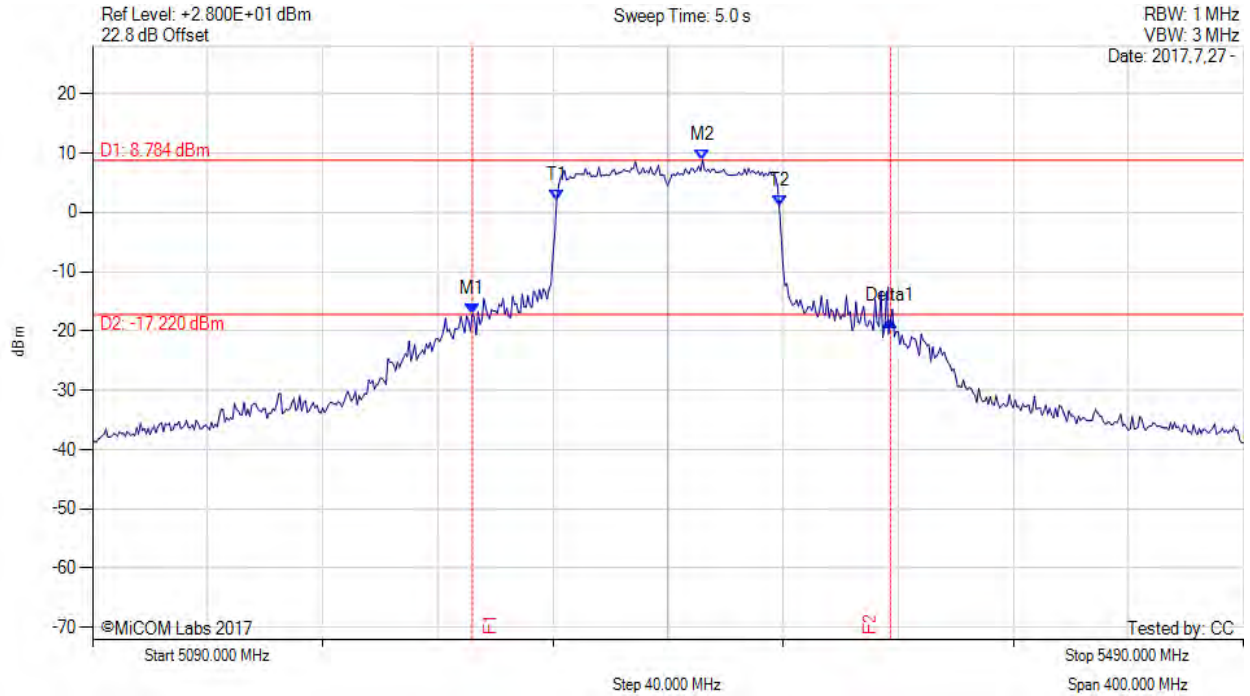


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISSED RSS-247  
**Serial #:** HPEN111-U12\_Conducted DFS Bands Rev A  
**Issue Date:** 20<sup>th</sup> August 2017  
**Page:** 47 of 229

26 dB & 99% BANDWIDTH



Variant: 802.11ac-80, Channel: 5290.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5222.000 MHz : -17.088 dBm M2 : 5302.000 MHz : 8.784 dBm Delta1 : 145.300 MHz : -1.279 dB T1 : 5251.333 MHz : 2.122 dBm T2 : 5328.667 MHz : 1.153 dBm OBW : 77.372 MHz	Measured 26 dB Bandwidth: 145.300 MHz Measured 99% Bandwidth: 77.372 MHz

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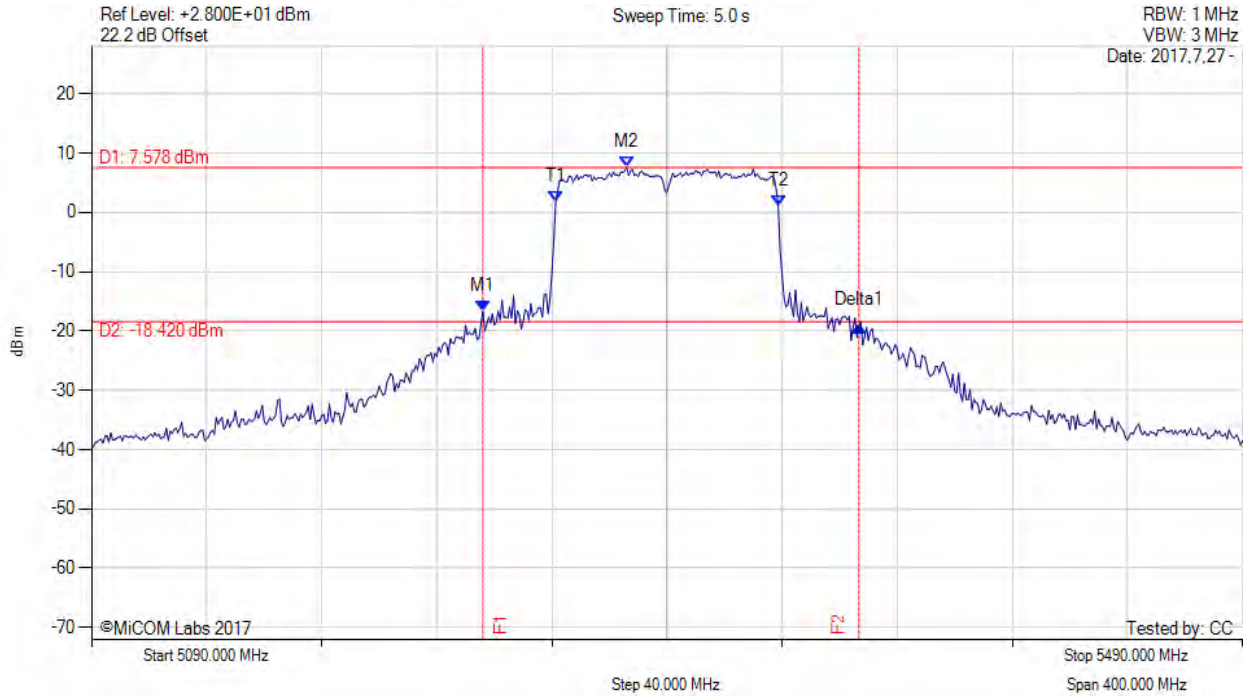


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
**Serial #:** HPEN111-U12\_Conducted DFS Bands Rev A  
**Issue Date:** 20<sup>th</sup> August 2017  
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26 dB & 99% BANDWIDTH



Variant: 802.11ac-80, Channel: 5290.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5226.000 MHz : -16.737 dBm M2 : 5276.000 MHz : 7.578 dBm Delta1 : 130.700 MHz : -2.384 dB T1 : 5251.333 MHz : 1.728 dBm T2 : 5328.667 MHz : 1.073 dBm OBW : 76.918 MHz	Measured 26 dB Bandwidth: 130.700 MHz Measured 99% Bandwidth: 76.918 MHz

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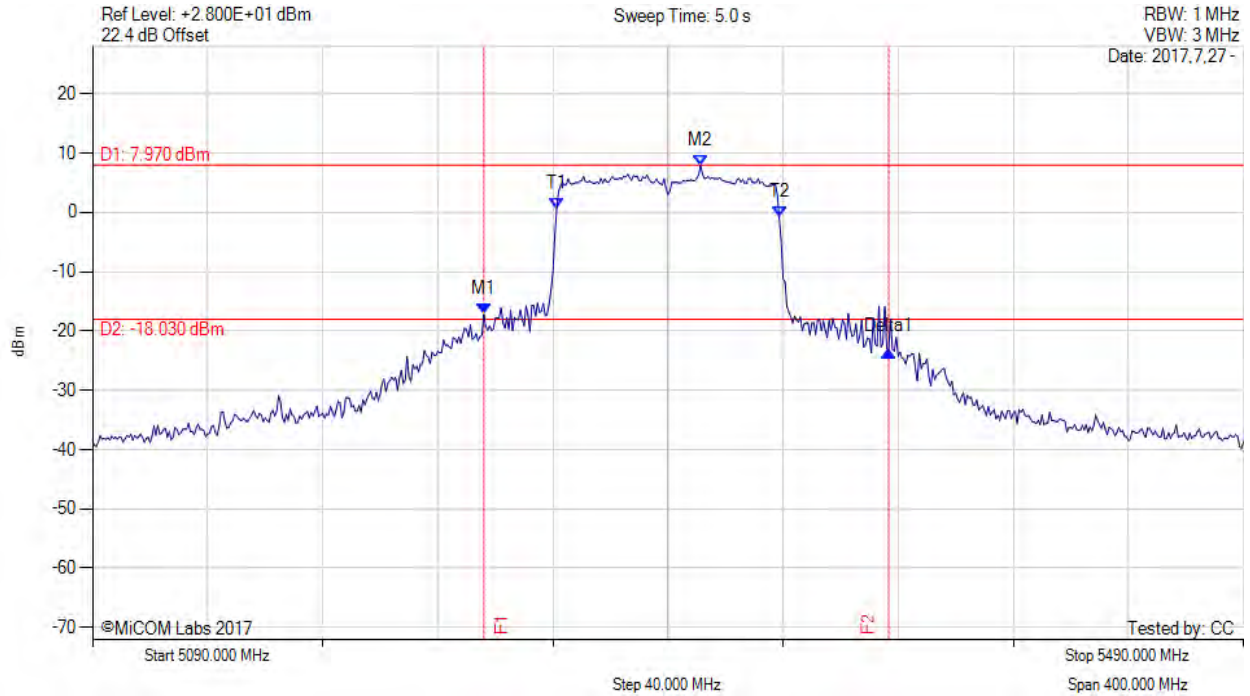


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
**Serial #:** HPEN111-U12\_Conducted DFS Bands Rev A  
**Issue Date:** 20<sup>th</sup> August 2017  
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26 dB & 99% BANDWIDTH



Variant: 802.11ac-80, Channel: 5290.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5226.000 MHz : -17.224 dBm M2 : 5301.300 MHz : 7.970 dBm Delta1 : 140.700 MHz : -6.146 dB T1 : 5251.333 MHz : 0.634 dBm T2 : 5328.667 MHz : -0.840 dBm OBW : 77.007 MHz	Measured 26 dB Bandwidth: 140.700 MHz Measured 99% Bandwidth: 77.007 MHz

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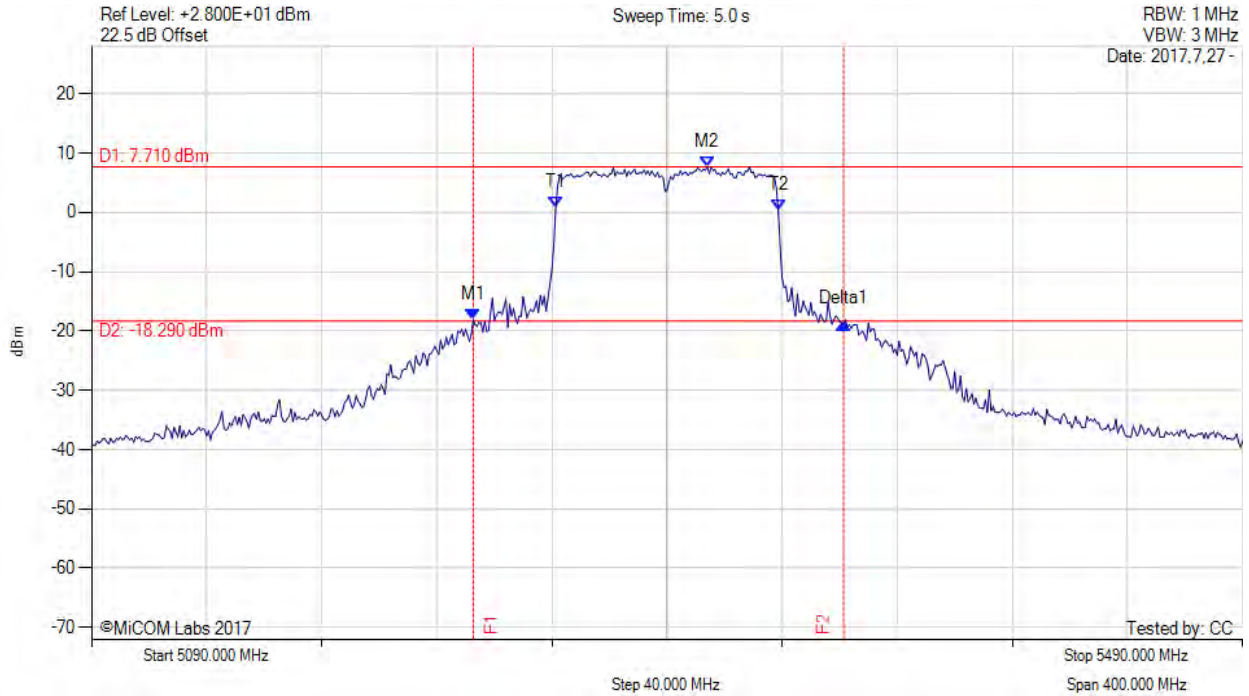
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26 dB & 99% BANDWIDTH



Variant: 802.11ac-80, Channel: 5290.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5222.700 MHz : -18.107 dBm M2 : 5304.000 MHz : 7.710 dBm Delta1 : 128.700 MHz : -0.583 dB T1 : 5251.333 MHz : 0.787 dBm T2 : 5328.667 MHz : 0.461 dBm OBW : 76.676 MHz	Measured 26 dB Bandwidth: 128.700 MHz Measured 99% Bandwidth: 76.676 MHz

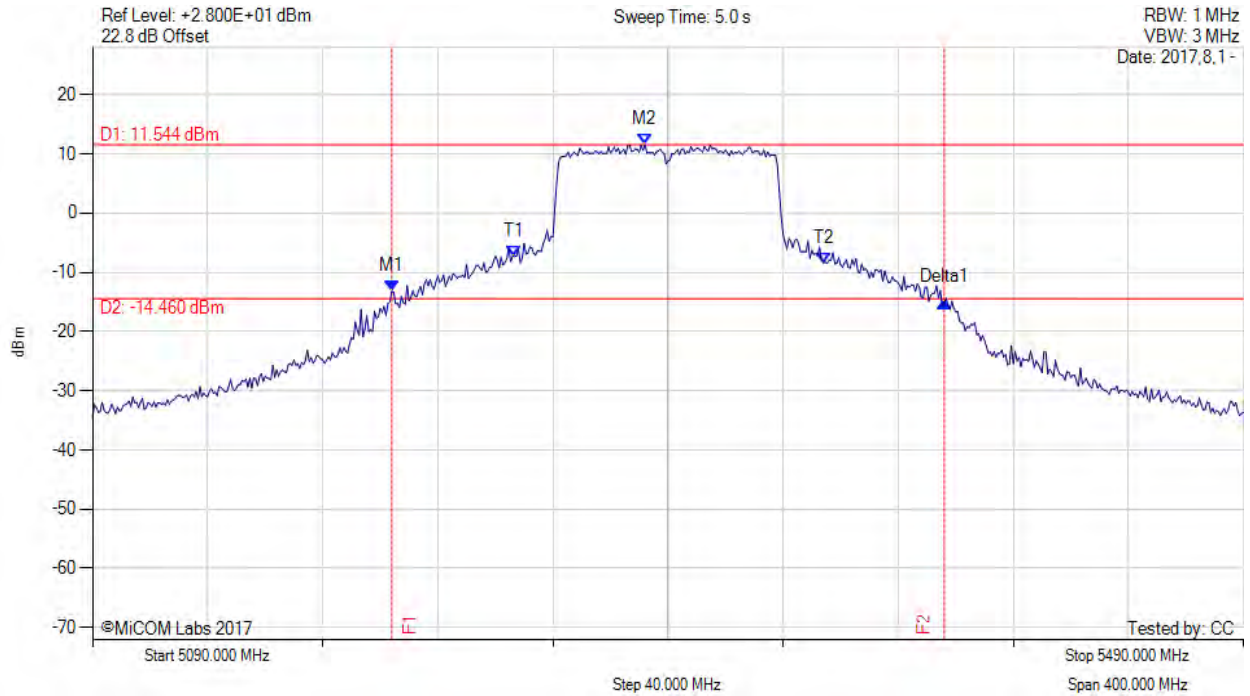
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26 dB & 99% BANDWIDTH

Variante: 802.11ac-80+80, Channel: 5290.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5194.000 MHz : -13.257 dBm M2 : 5282.000 MHz : 11.544 dBm Delta1 : 192.000 MHz : -1.876 dB T1 : 5236.667 MHz : -7.323 dBm T2 : 5344.000 MHz : -8.391 dBm OBW : 107.792 MHz	Measured 26 dB Bandwidth: 192.000 MHz Measured 99% Bandwidth: 107.792 MHz

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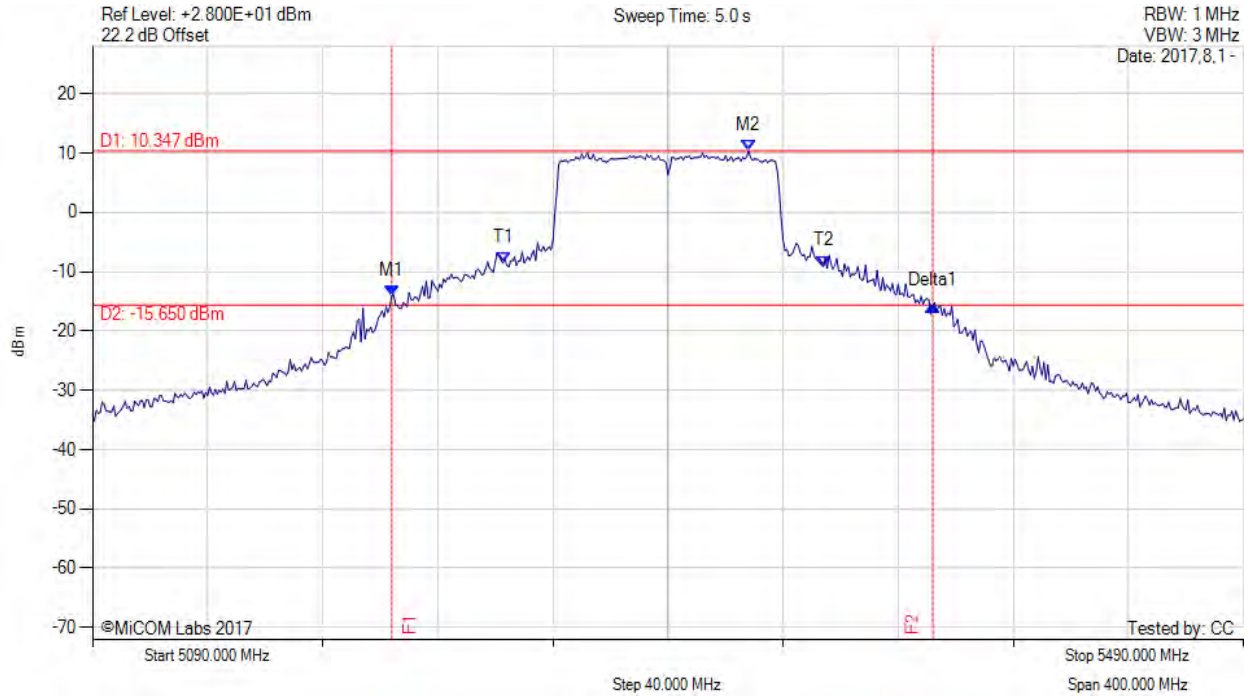
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26 dB & 99% BANDWIDTH



Variant: 802.11ac-80+80, Channel: 5290.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5194.000 MHz : -14.059 dBm M2 : 5318.000 MHz : 10.347 dBm Delta1 : 188.000 MHz : -1.700 dB T1 : 5232.667 MHz : -8.512 dBm T2 : 5344.000 MHz : -9.058 dBm OBW : 111.770 MHz	Measured 26 dB Bandwidth: 188.000 MHz Measured 99% Bandwidth: 111.770 MHz

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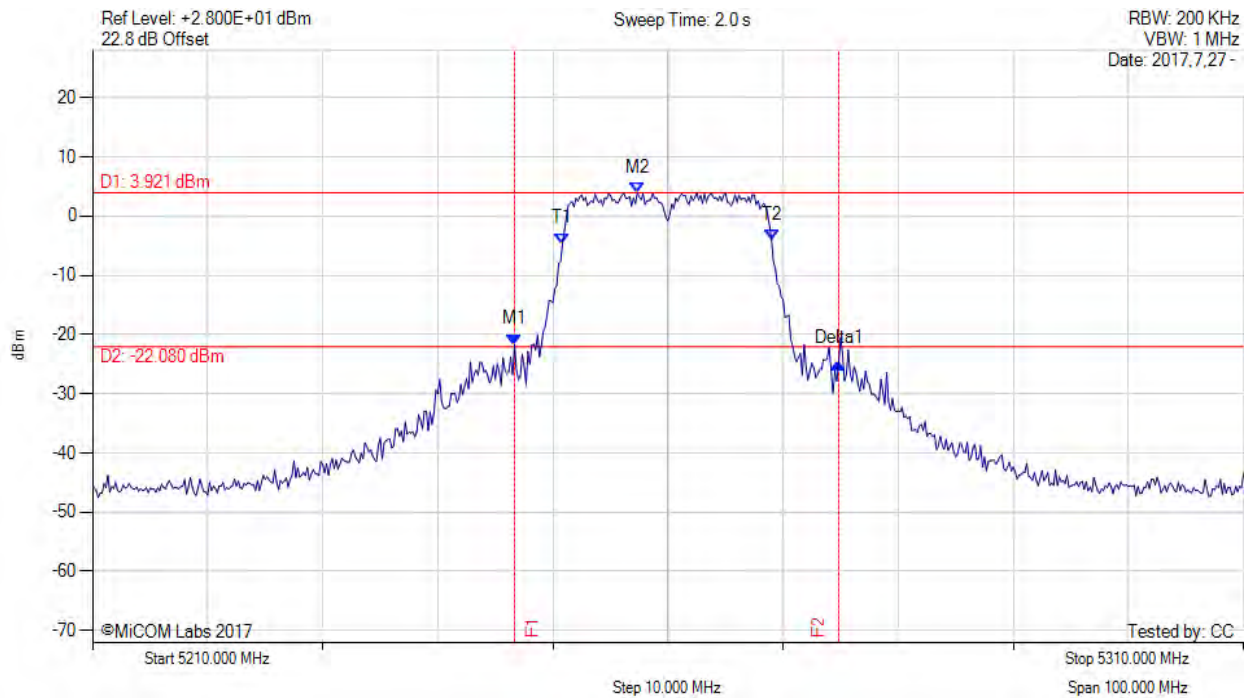
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5246.670 MHz : -21.701 dBm M2 : 5257.330 MHz : 3.921 dBm Delta1 : 28.170 MHz : -3.083 dB T1 : 5250.833 MHz : -4.629 dBm T2 : 5269.000 MHz : -4.011 dBm OBW : 18.074 MHz	Measured 26 dB Bandwidth: 28.170 MHz Measured 99% Bandwidth: 18.074 MHz

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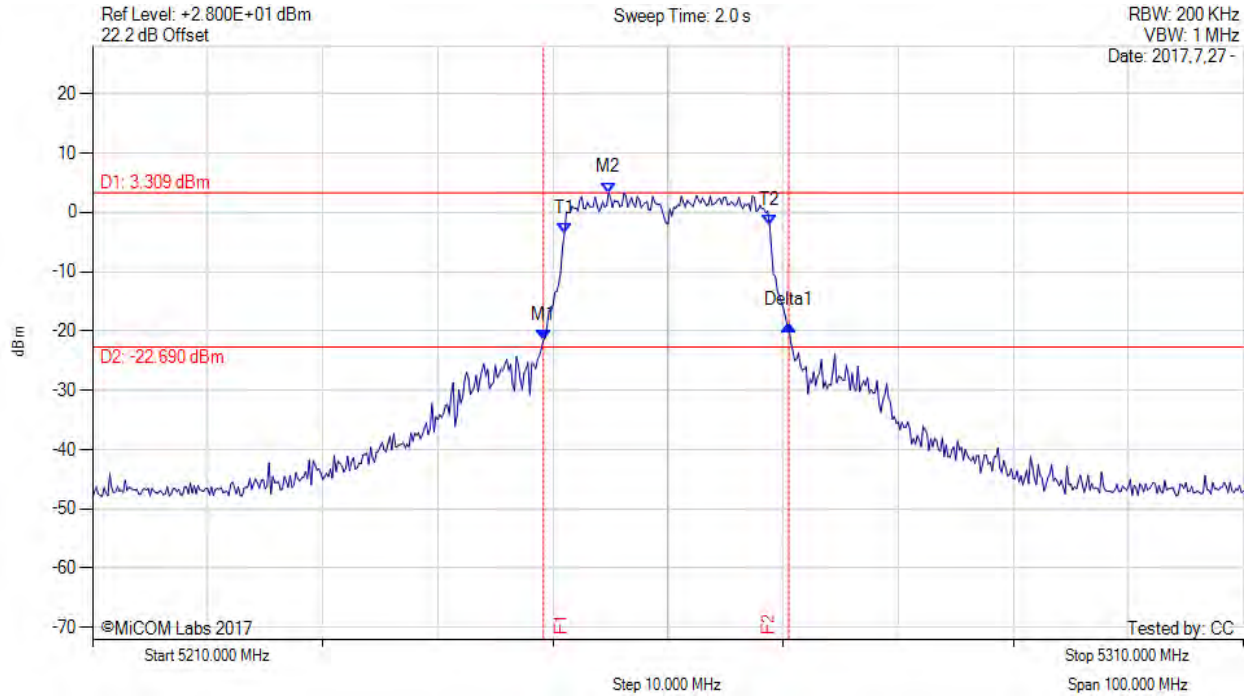
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5249.170 MHz : -21.585 dBm M2 : 5254.830 MHz : 3.309 dBm Delta1 : 21.330 MHz : 2.503 dB T1 : 5251.000 MHz : -3.551 dBm T2 : 5268.833 MHz : -2.155 dBm OBW : 17.939 MHz	Measured 26 dB Bandwidth: 21.330 MHz Measured 99% Bandwidth: 17.939 MHz

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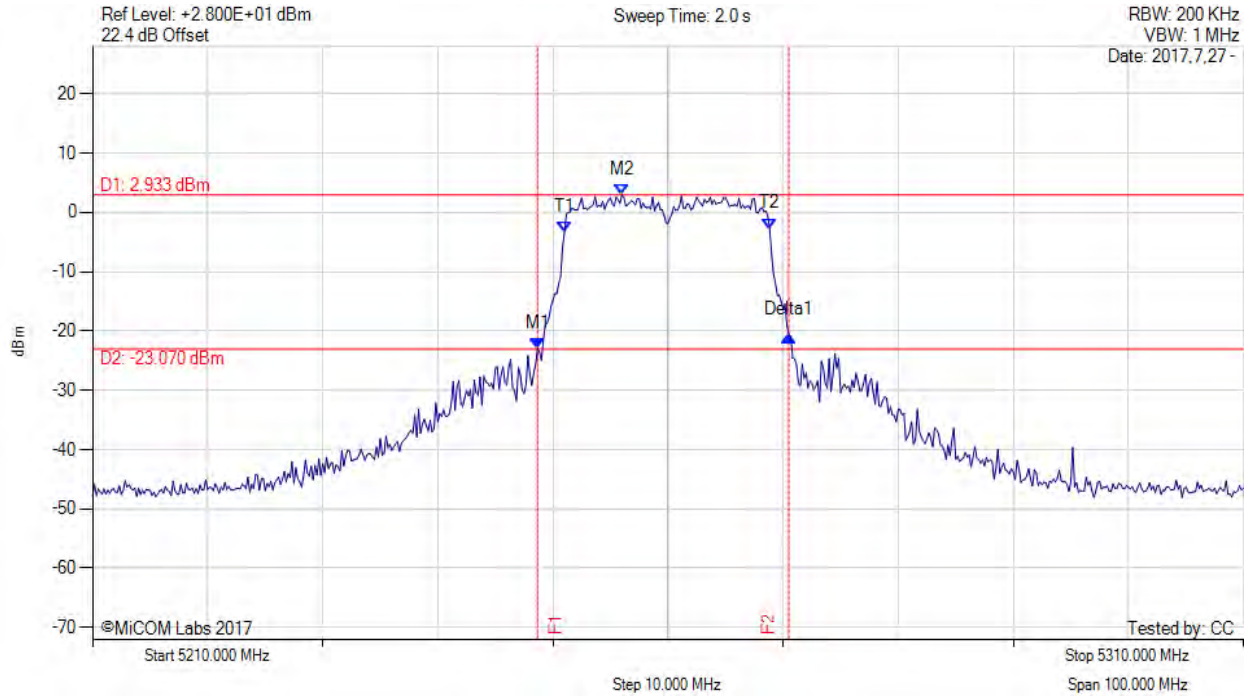
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5248.670 MHz : -22.991 dBm M2 : 5256.000 MHz : 2.933 dBm Delta1 : 21.830 MHz : 2.239 dB T1 : 5251.000 MHz : -3.374 dBm T2 : 5268.833 MHz : -2.769 dBm OBW : 17.930 MHz	Measured 26 dB Bandwidth: 21.830 MHz Measured 99% Bandwidth: 17.930 MHz

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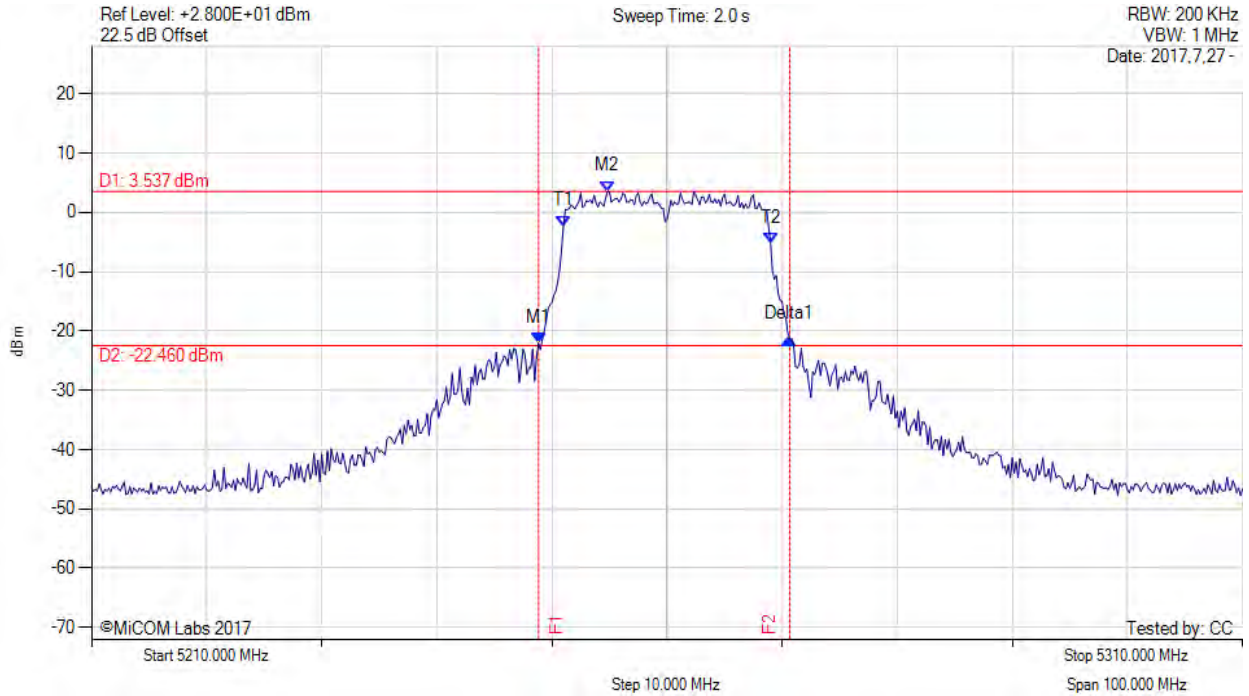
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5248.830 MHz : -22.116 dBm M2 : 5254.830 MHz : 3.537 dBm Delta1 : 21.830 MHz : 0.678 dB T1 : 5251.000 MHz : -2.283 dBm T2 : 5269.000 MHz : -5.191 dBm OBW : 17.963 MHz	Measured 26 dB Bandwidth: 21.830 MHz Measured 99% Bandwidth: 17.963 MHz

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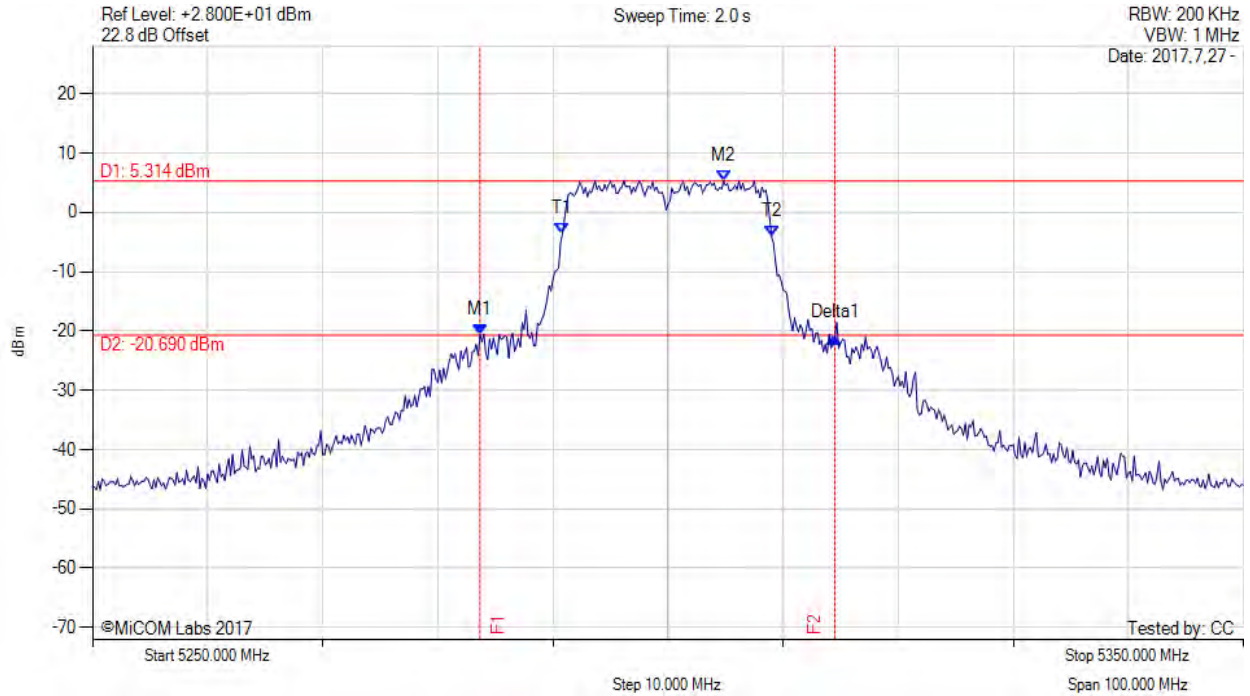




26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5300.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5283.670 MHz : -20.606 dBm M2 : 5304.830 MHz : 5.314 dBm Delta1 : 30.830 MHz : -0.451 dB T1 : 5290.833 MHz : -3.591 dBm T2 : 5309.000 MHz : -4.064 dBm OBW : 18.219 MHz	Measured 26 dB Bandwidth: 30.830 MHz Measured 99% Bandwidth: 18.219 MHz

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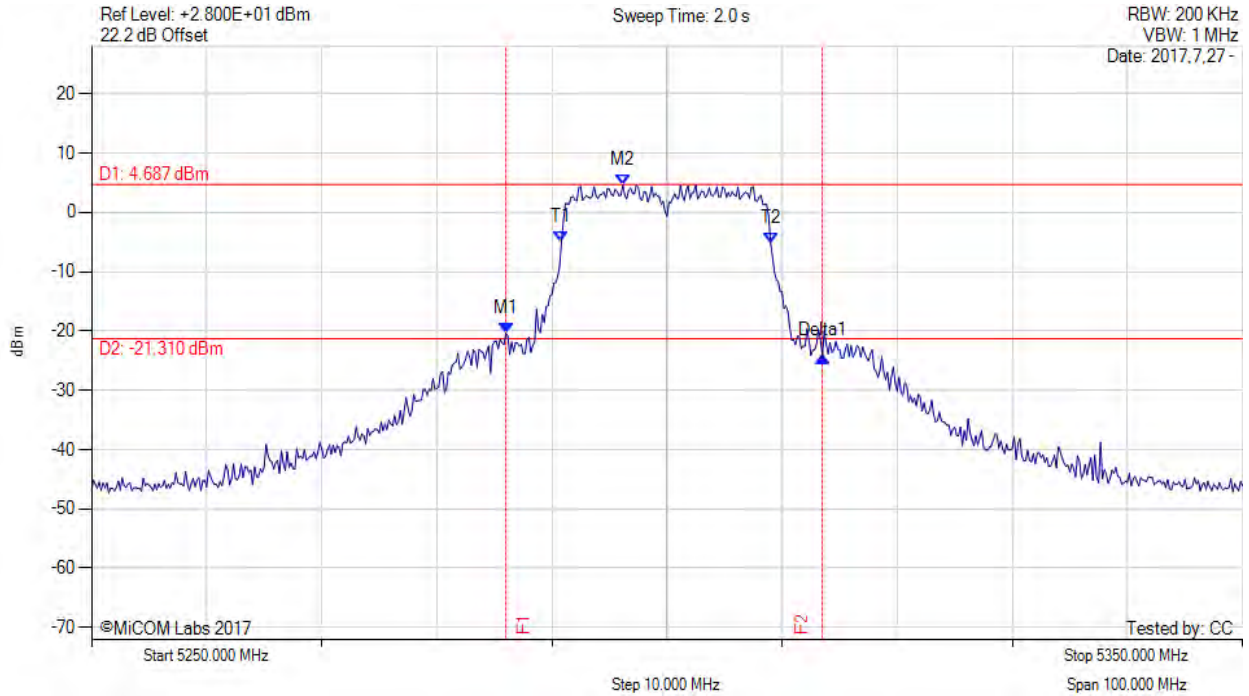
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5300.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5286.000 MHz : -20.422 dBm M2 : 5296.170 MHz : 4.687 dBm Delta1 : 27.500 MHz : -3.851 dB T1 : 5290.833 MHz : -4.945 dBm T2 : 5309.000 MHz : -5.163 dBm OBW : 18.058 MHz	Measured 26 dB Bandwidth: 27.500 MHz Measured 99% Bandwidth: 18.058 MHz

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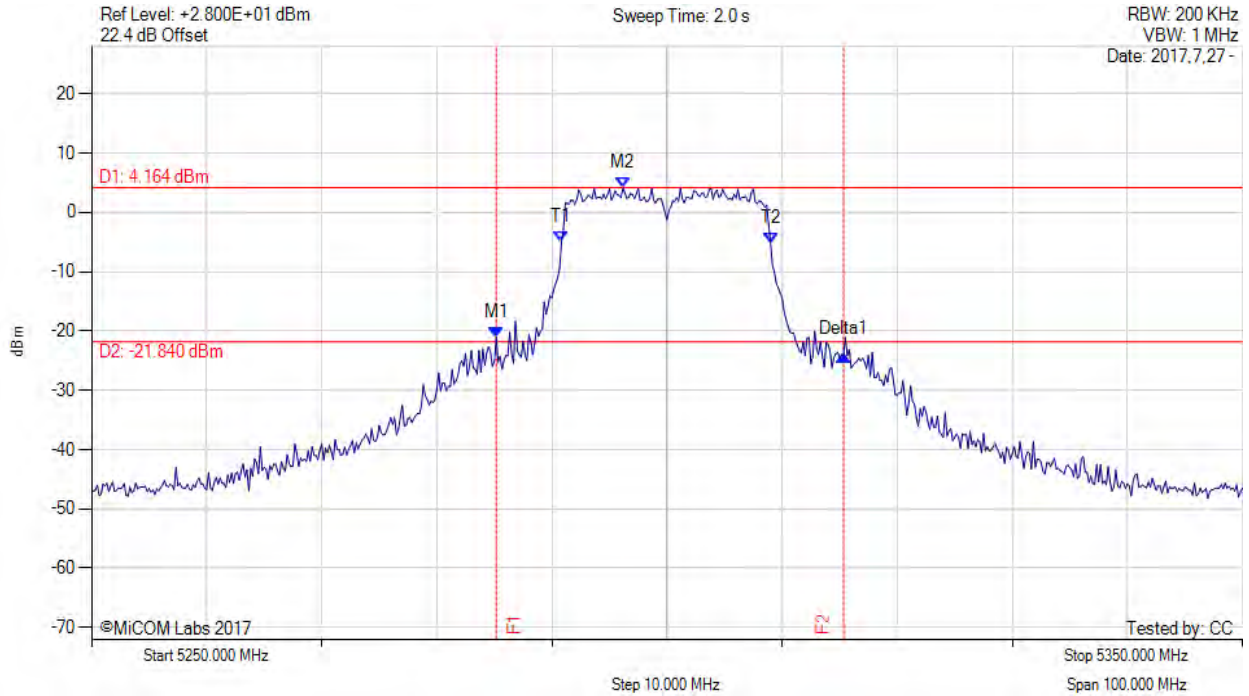
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5300.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5285.170 MHz : -21.114 dBm M2 : 5296.170 MHz : 4.164 dBm Delta1 : 30.170 MHz : -2.925 dB T1 : 5290.833 MHz : -5.021 dBm T2 : 5309.000 MHz : -5.265 dBm OBW : 18.025 MHz	Measured 26 dB Bandwidth: 30.170 MHz Measured 99% Bandwidth: 18.025 MHz

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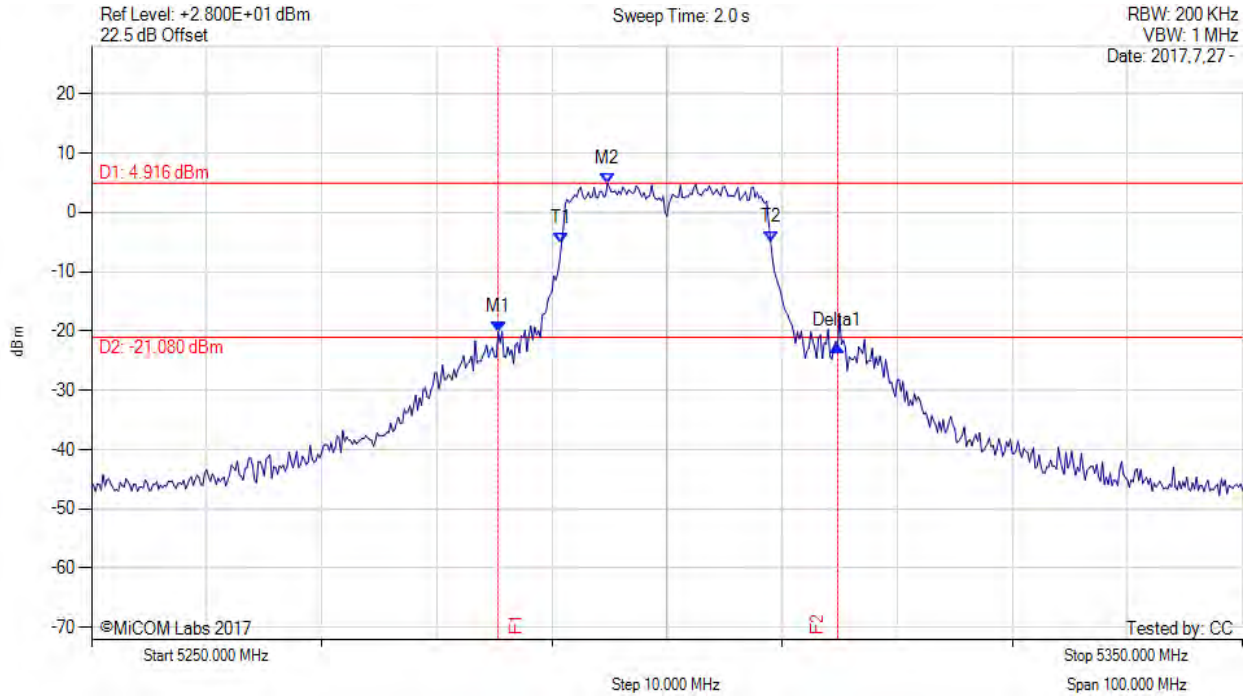
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5300.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5285.330 MHz : -20.123 dBm M2 : 5294.830 MHz : 4.916 dBm Delta1 : 29.500 MHz : -2.353 dB T1 : 5290.833 MHz : -5.259 dBm T2 : 5309.000 MHz : -4.909 dBm OBW : 18.056 MHz	Measured 26 dB Bandwidth: 29.500 MHz Measured 99% Bandwidth: 18.056 MHz

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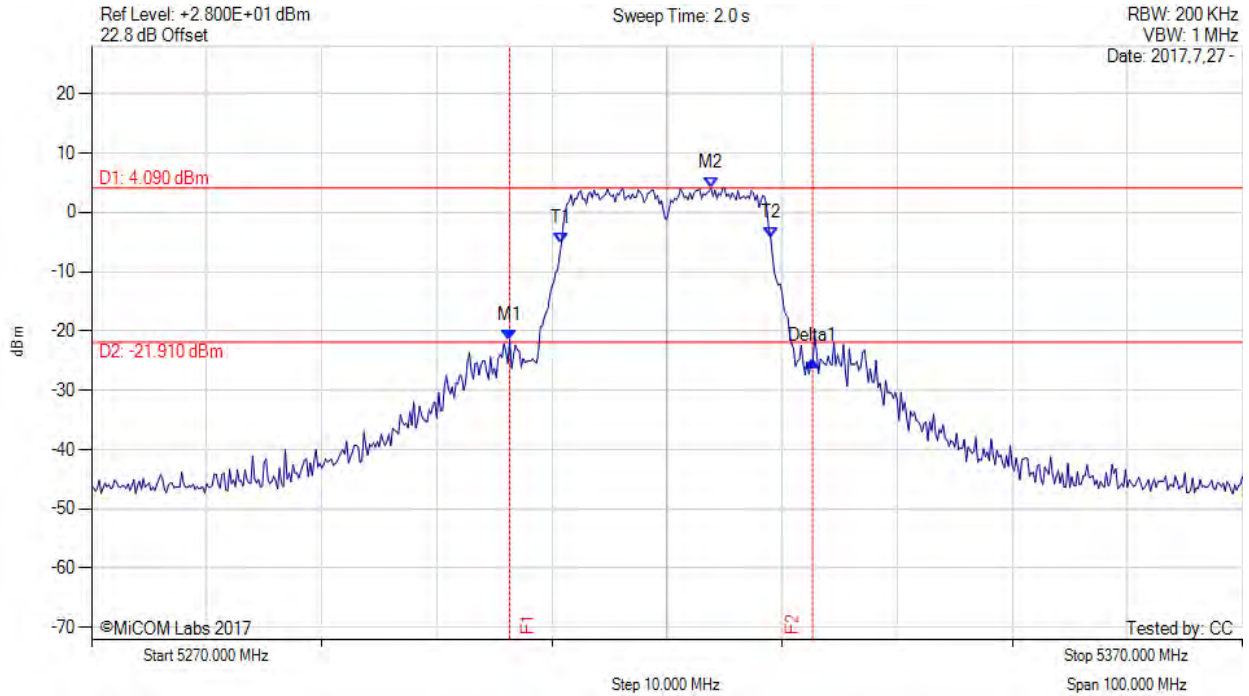
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5320.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5306.330 MHz : -21.504 dBm M2 : 5323.830 MHz : 4.090 dBm Delta1 : 26.330 MHz : -3.522 dB T1 : 5310.833 MHz : -5.240 dBm T2 : 5329.000 MHz : -4.190 dBm OBW : 18.078 MHz	Measured 26 dB Bandwidth: 26.330 MHz Measured 99% Bandwidth: 18.078 MHz

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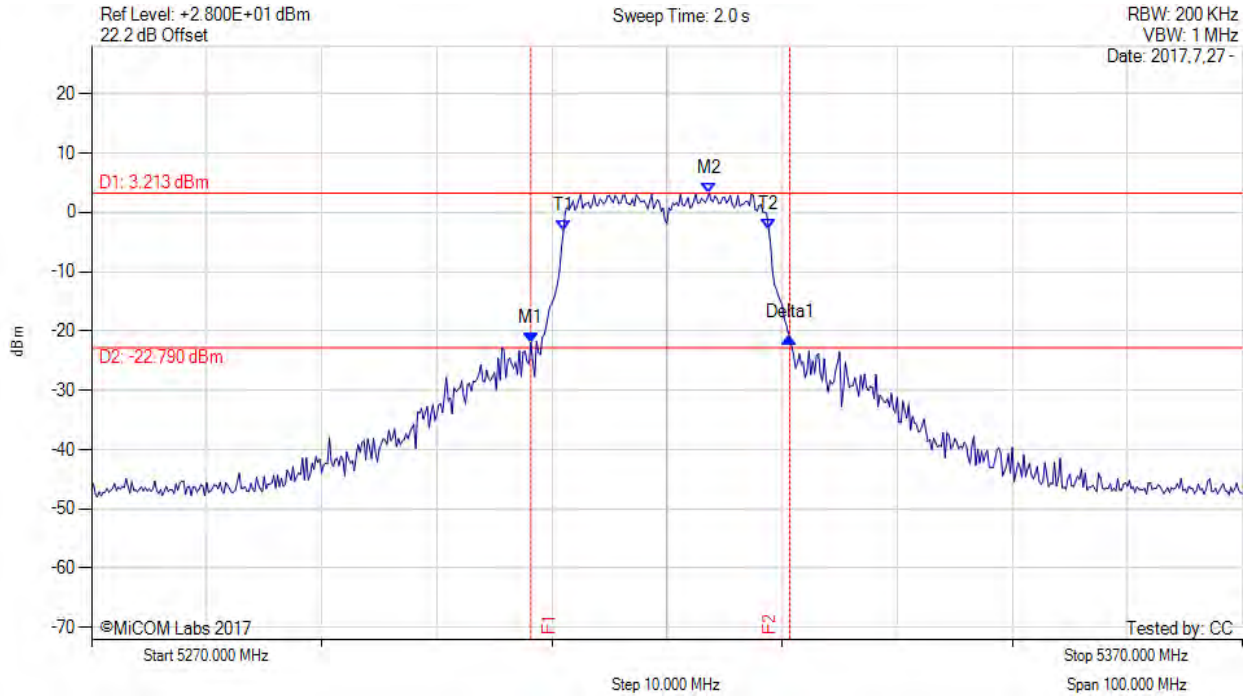
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5320.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5308.170 MHz : -21.992 dBm M2 : 5323.670 MHz : 3.213 dBm Delta1 : 22.500 MHz : 0.920 dB T1 : 5311.000 MHz : -3.156 dBm T2 : 5328.833 MHz : -2.840 dBm OBW : 17.940 MHz	Measured 26 dB Bandwidth: 22.500 MHz Measured 99% Bandwidth: 17.940 MHz

[back to matrix](#)

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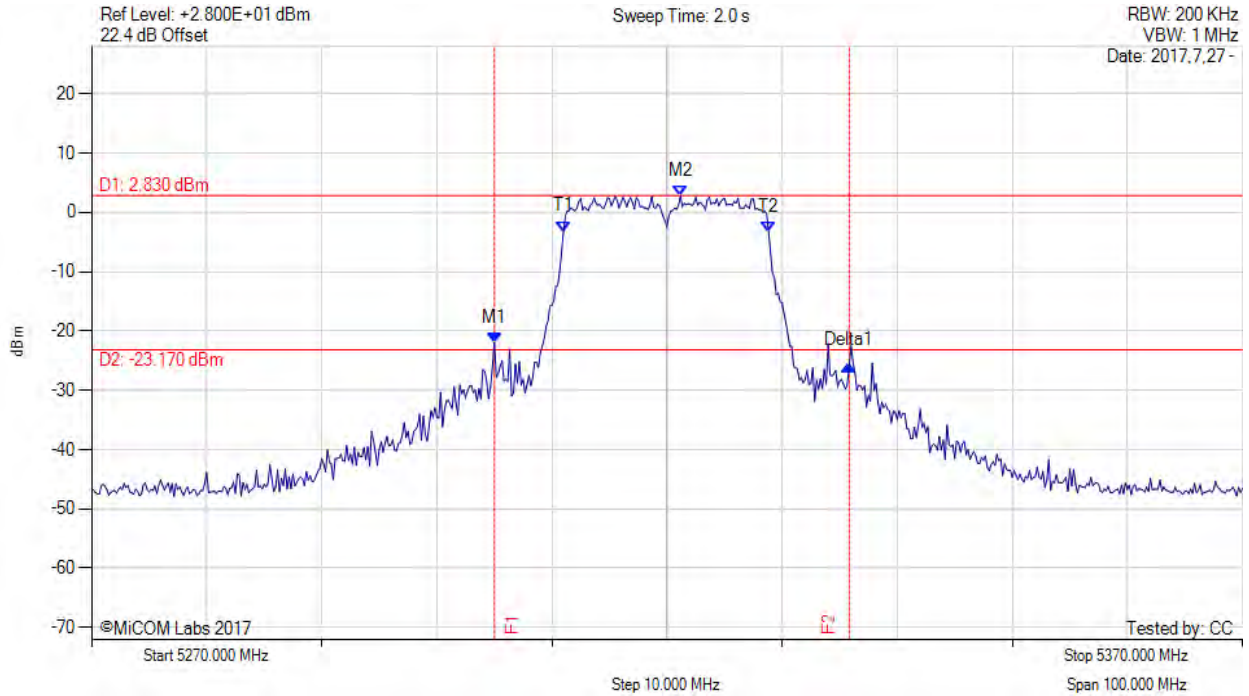


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
**Serial #:** HPEN111-U12\_Conducted DFS Bands Rev A  
**Issue Date:** 20<sup>th</sup> August 2017  
**Page:** 63 of 229

26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5320.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5305.000 MHz : -21.949 dBm M2 : 5321.170 MHz : 2.830 dBm Delta1 : 30.830 MHz : -3.919 dB T1 : 5311.000 MHz : -3.236 dBm T2 : 5328.833 MHz : -3.379 dBm OBW : 17.925 MHz	Measured 26 dB Bandwidth: 30.830 MHz Measured 99% Bandwidth: 17.925 MHz

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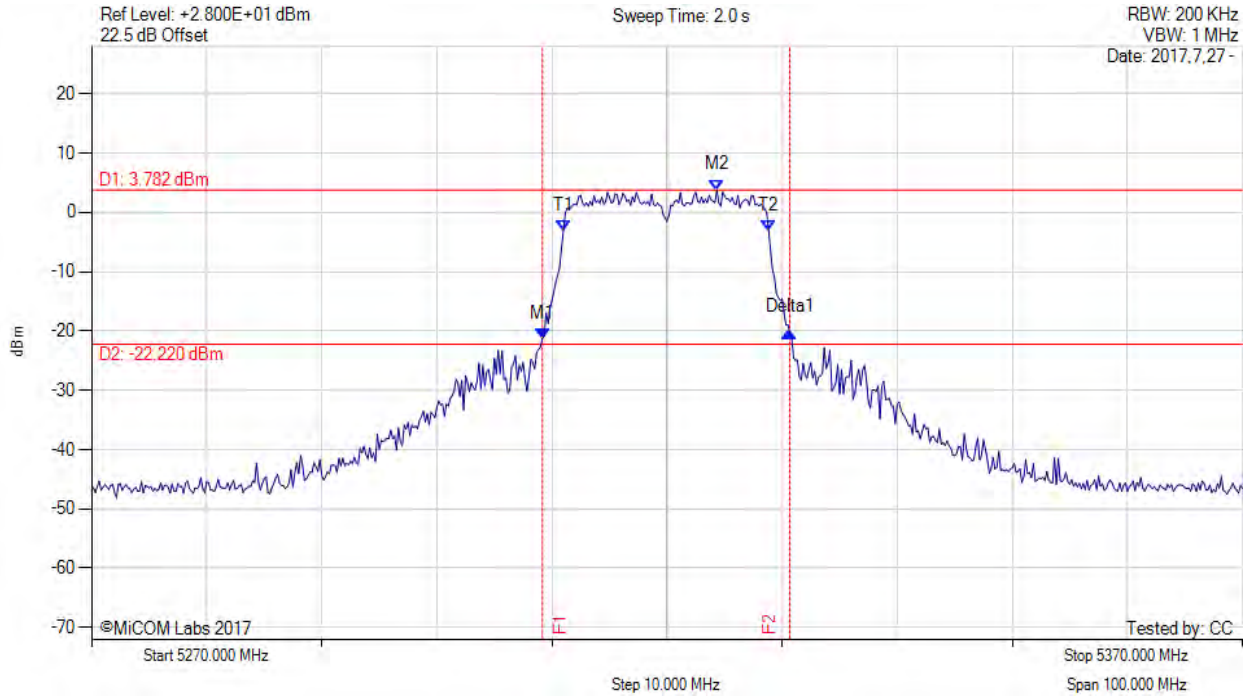
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5320.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5309.170 MHz : -21.239 dBm M2 : 5324.330 MHz : 3.782 dBm Delta1 : 21.500 MHz : 1.042 dB T1 : 5311.000 MHz : -3.058 dBm T2 : 5328.833 MHz : -3.098 dBm OBW : 17.928 MHz	Measured 26 dB Bandwidth: 21.500 MHz Measured 99% Bandwidth: 17.928 MHz

[back to matrix](#)

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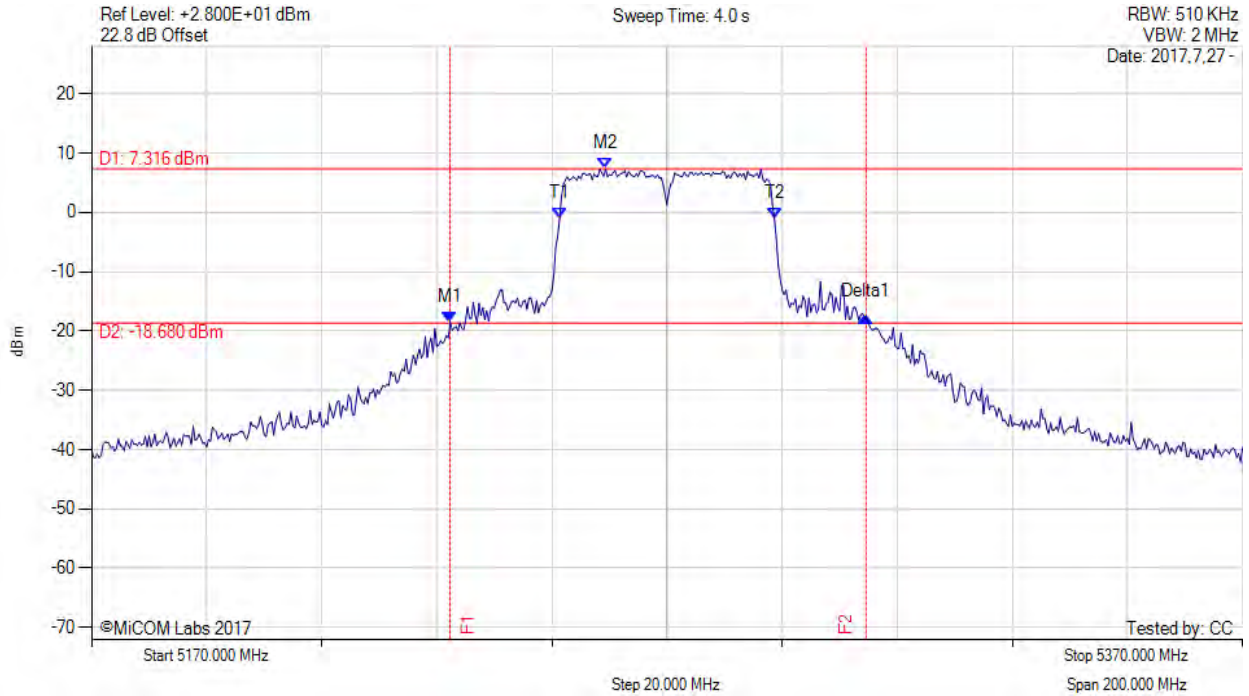




26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5270.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5232.300 MHz : -18.438 dBm M2 : 5259.300 MHz : 7.316 dBm Delta1 : 72.300 MHz : 0.763 dB T1 : 5251.333 MHz : -0.981 dBm T2 : 5288.667 MHz : -0.994 dBm OBW : 37.529 MHz	Measured 26 dB Bandwidth: 72.300 MHz Measured 99% Bandwidth: 37.529 MHz

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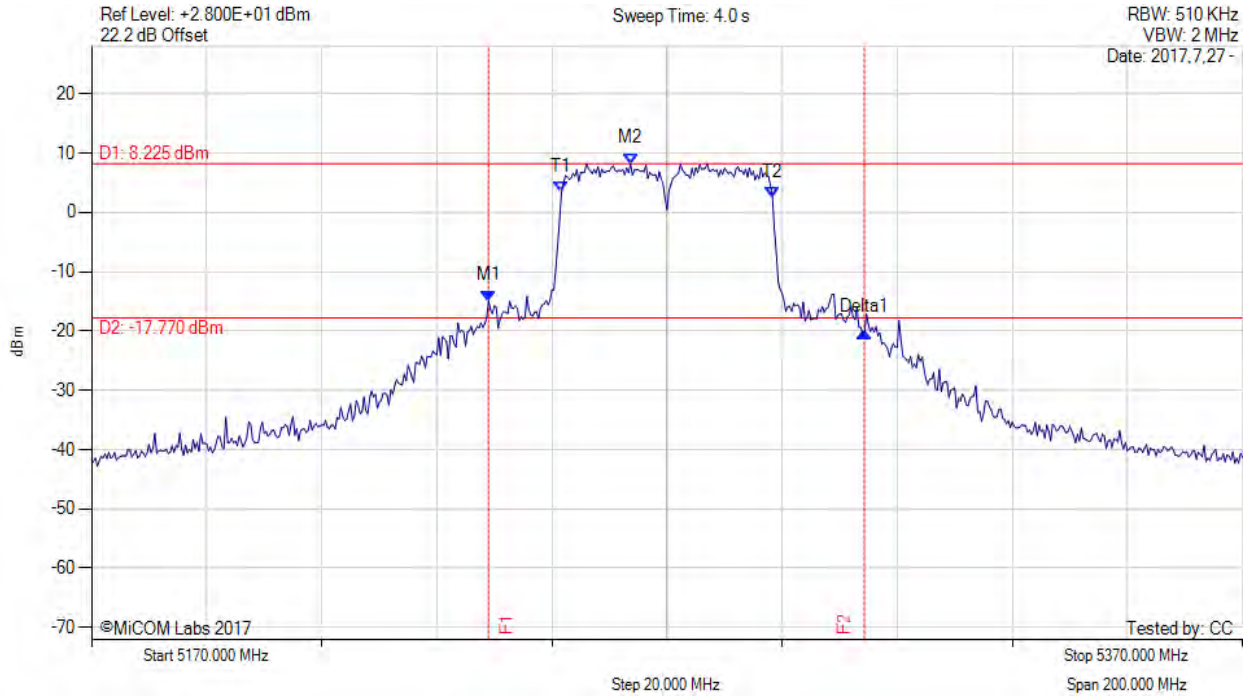
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5270.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5239.000 MHz : -14.912 dBm M2 : 5263.700 MHz : 8.225 dBm Delta1 : 65.300 MHz : -5.239 dB T1 : 5251.667 MHz : 3.452 dBm T2 : 5288.333 MHz : 2.511 dBm OBW : 36.798 MHz	Measured 26 dB Bandwidth: 65.300 MHz Measured 99% Bandwidth: 36.798 MHz

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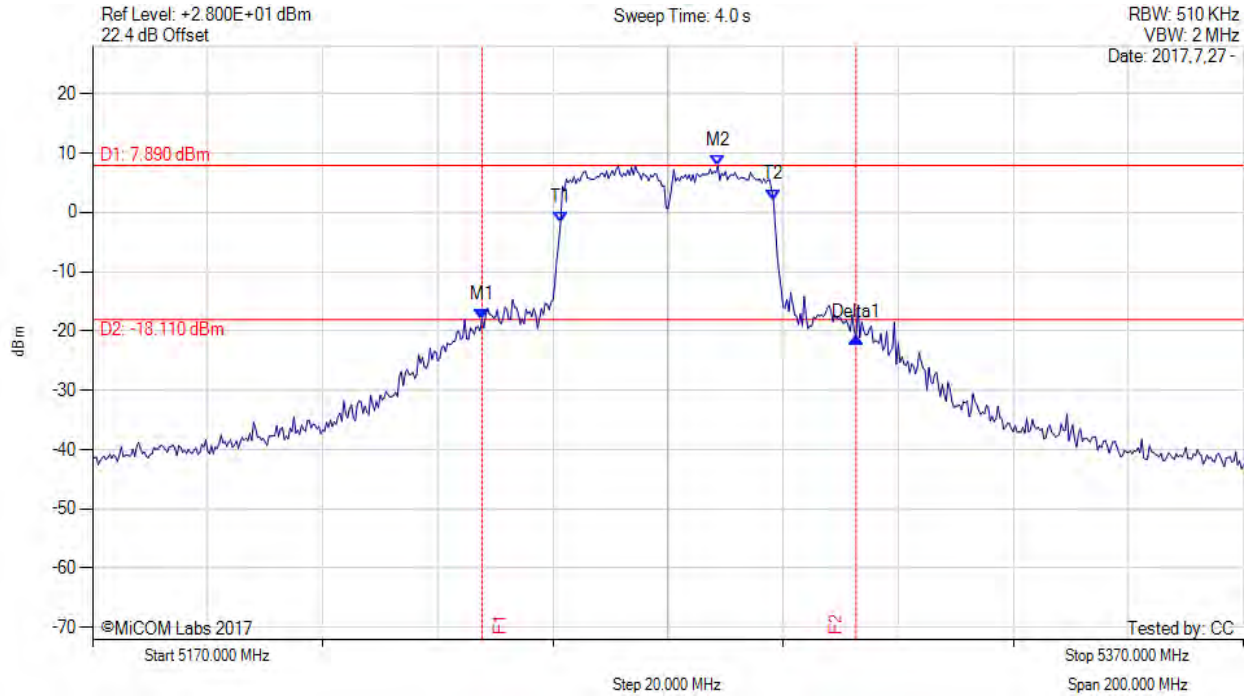
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5270.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5237.700 MHz : -17.987 dBm M2 : 5278.700 MHz : 7.890 dBm Delta1 : 65.000 MHz : -3.176 dB T1 : 5251.333 MHz : -1.659 dBm T2 : 5288.333 MHz : 2.155 dBm OBW : 36.890 MHz	Measured 26 dB Bandwidth: 65.000 MHz Measured 99% Bandwidth: 36.890 MHz

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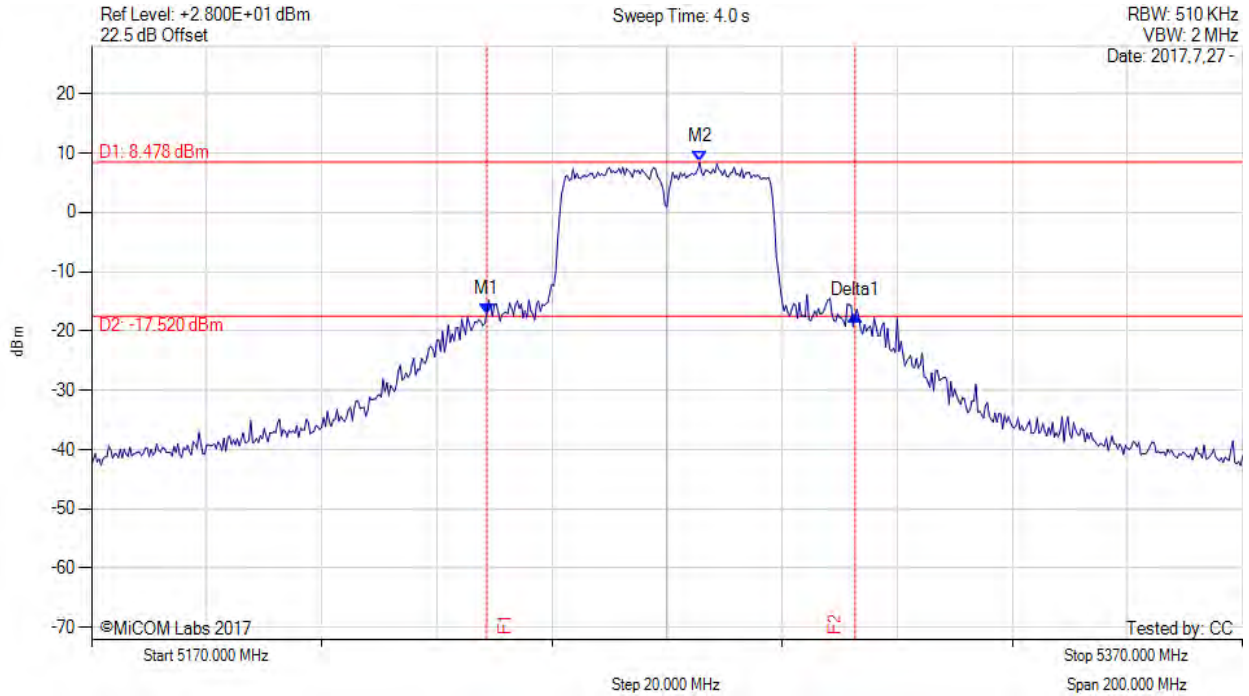
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5270.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5238.700 MHz : -17.086 dBm M2 : 5275.700 MHz : 8.478 dBm Delta1 : 64.000 MHz : -0.336 dB T1 : 0 Hz : 0.000 dBm T2 : 0 Hz : 0.000 dBm OBW : 36.990 MHz	Measured 26 dB Bandwidth: 64.000 MHz Measured 99% Bandwidth: 36.990 MHz

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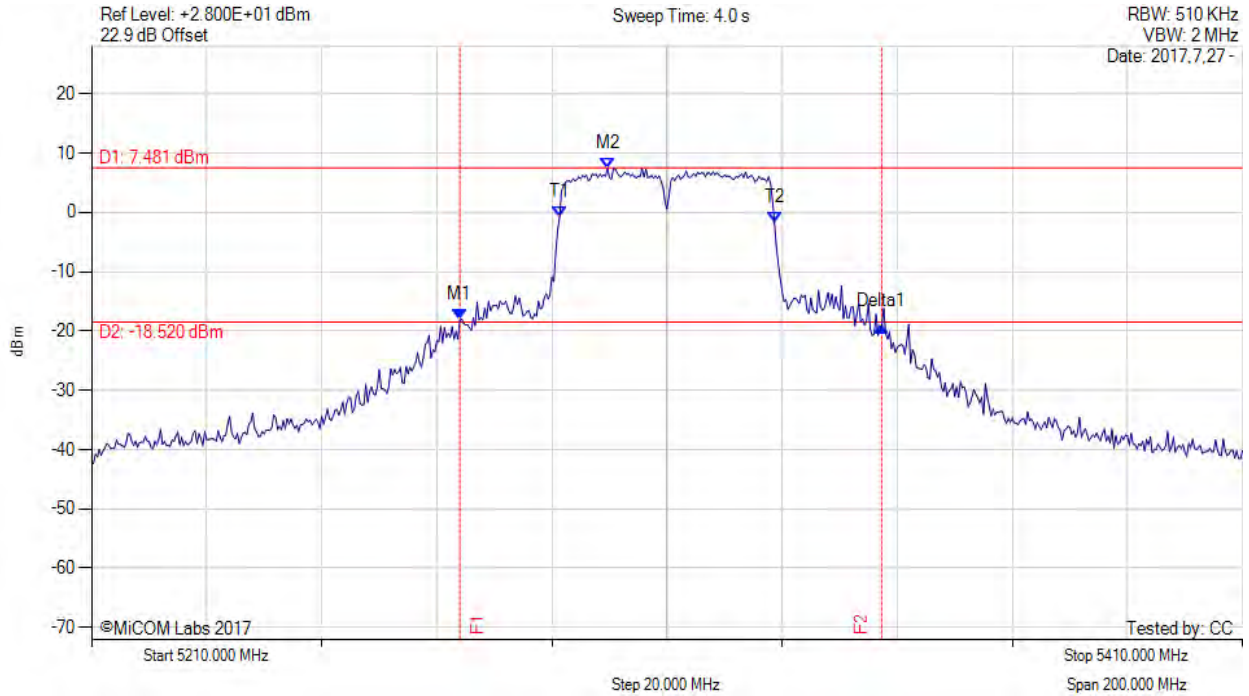
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5274.000 MHz : -18.137 dBm M2 : 5299.700 MHz : 7.481 dBm Delta1 : 73.300 MHz : -1.033 dB T1 : 5291.333 MHz : -0.791 dBm T2 : 5328.667 MHz : -1.644 dBm OBW : 37.521 MHz	Measured 26 dB Bandwidth: 73.300 MHz Measured 99% Bandwidth: 37.521 MHz

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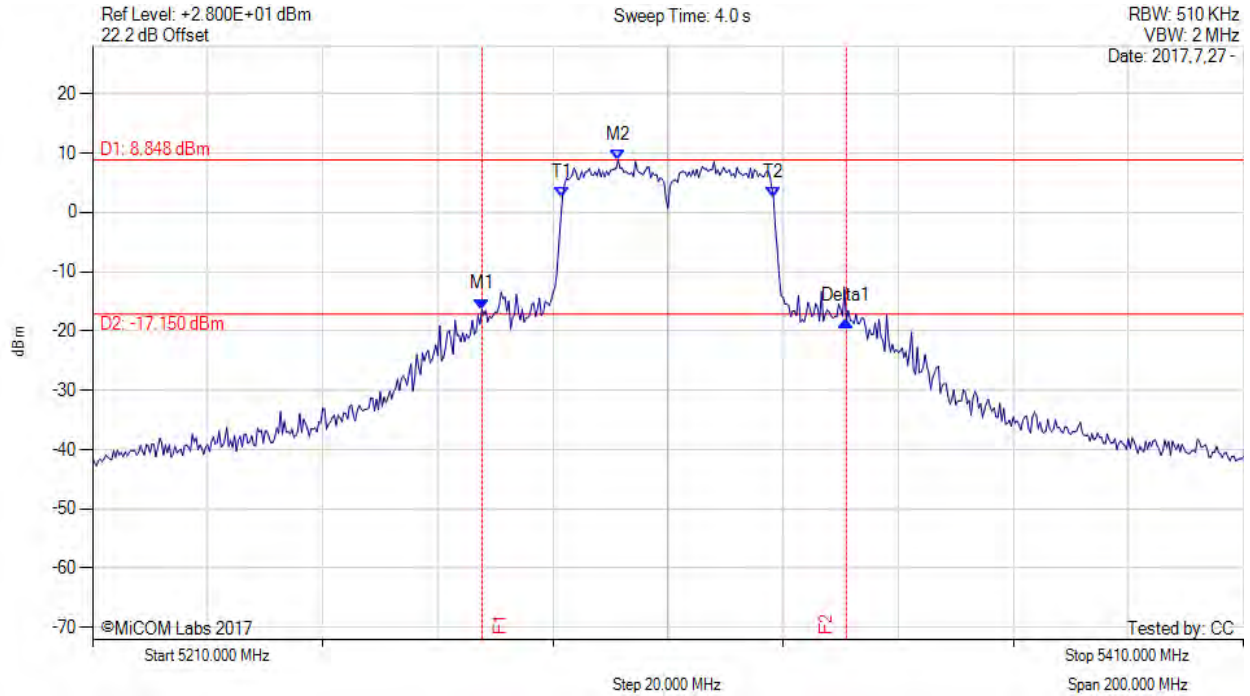
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5277.700 MHz : -16.329 dBm M2 : 5301.300 MHz : 8.848 dBm Delta1 : 63.300 MHz : -1.903 dB T1 : 5291.667 MHz : 2.570 dBm T2 : 5328.333 MHz : 2.586 dBm OBW : 36.824 MHz	Measured 26 dB Bandwidth: 63.300 MHz Measured 99% Bandwidth: 36.824 MHz

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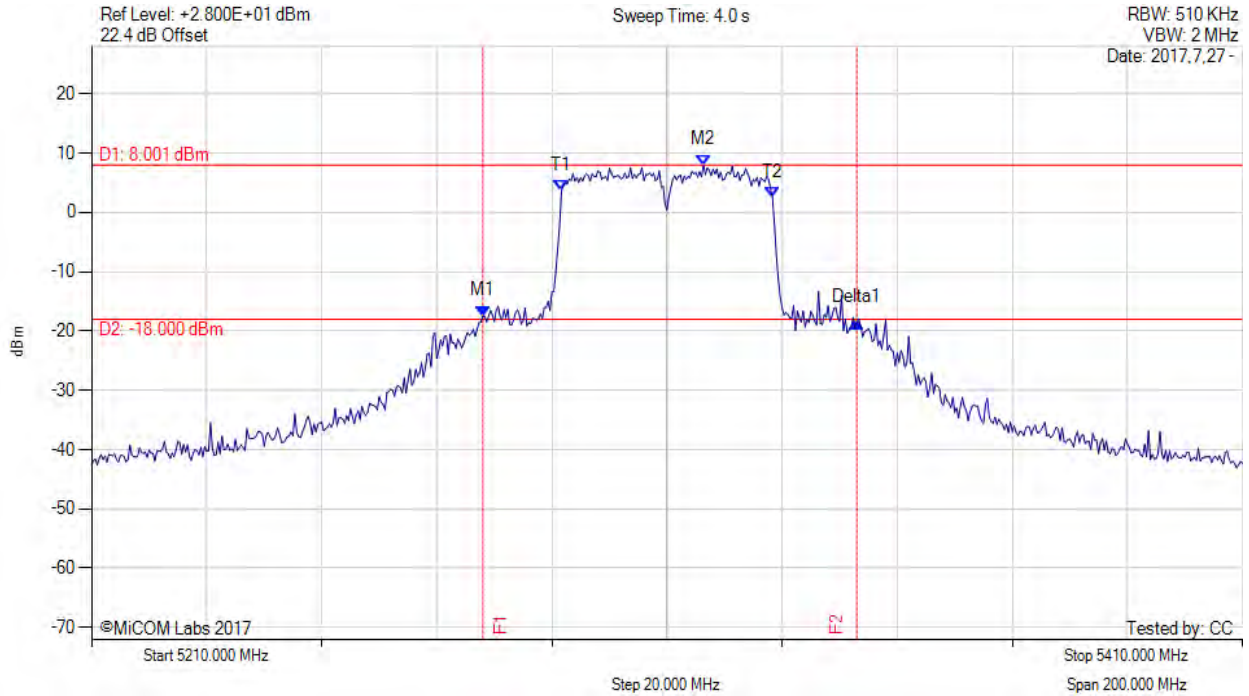


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
**Serial #:** HPEN111-U12\_Conducted DFS Bands Rev A  
**Issue Date:** 20<sup>th</sup> August 2017  
**Page:** 71 of 229

26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5278.000 MHz : -17.497 dBm M2 : 5316.300 MHz : 8.001 dBm Delta1 : 65.000 MHz : -1.110 dB T1 : 5291.667 MHz : 3.614 dBm T2 : 5328.333 MHz : 2.536 dBm OBW : 36.844 MHz	Measured 26 dB Bandwidth: 65.000 MHz Measured 99% Bandwidth: 36.844 MHz

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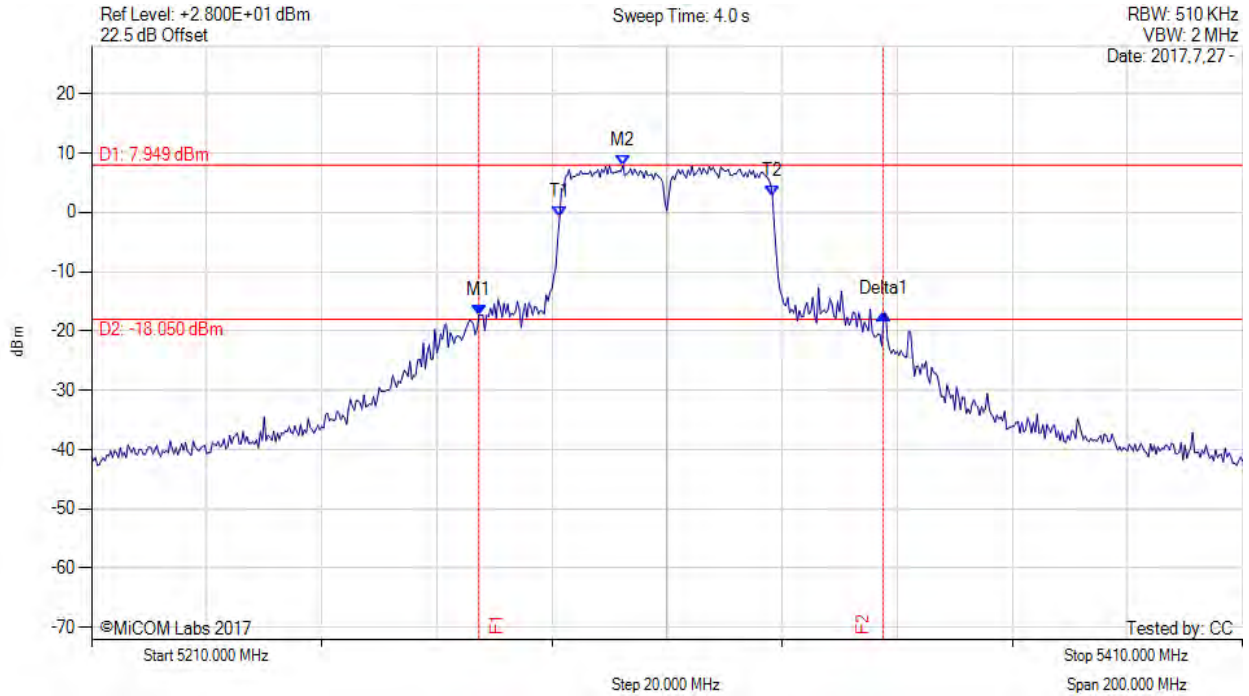
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5277.300 MHz : -17.371 dBm M2 : 5302.300 MHz : 7.949 dBm Delta1 : 70.300 MHz : 0.150 dB T1 : 5291.333 MHz : -0.850 dBm T2 : 5328.333 MHz : 2.803 dBm OBW : 36.916 MHz	Measured 26 dB Bandwidth: 70.300 MHz Measured 99% Bandwidth: 36.916 MHz

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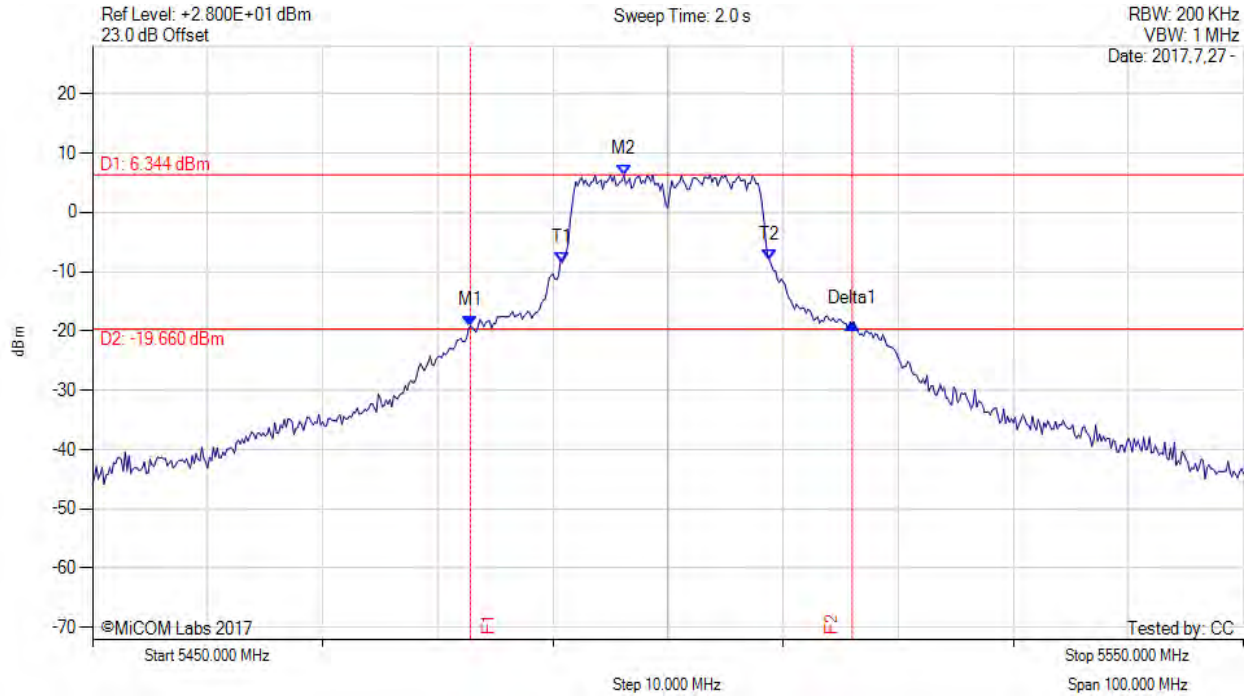




26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5500.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5482.830 MHz : -19.109 dBm M2 : 5496.170 MHz : 6.344 dBm Delta1 : 33.170 MHz : 0.412 dB T1 : 5490.833 MHz : -8.392 dBm T2 : 5508.833 MHz : -8.083 dBm OBW : 18.042 MHz	Measured 26 dB Bandwidth: 33.170 MHz Measured 99% Bandwidth: 18.042 MHz

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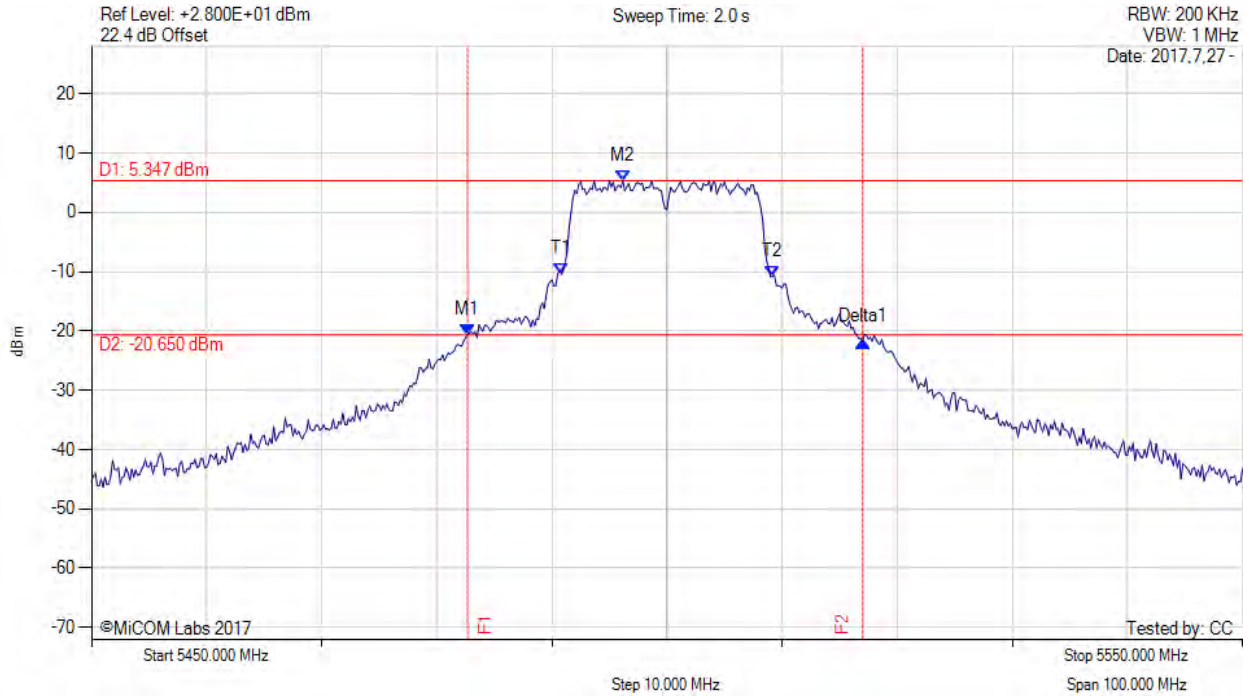
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5500.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5482.670 MHz : -20.595 dBm M2 : 5496.170 MHz : 5.347 dBm Delta1 : 34.330 MHz : -1.170 dB T1 : 5490.833 MHz : -10.427 dBm T2 : 5509.167 MHz : -10.761 dBm OBW : 18.313 MHz	Measured 26 dB Bandwidth: 34.330 MHz Measured 99% Bandwidth: 18.313 MHz

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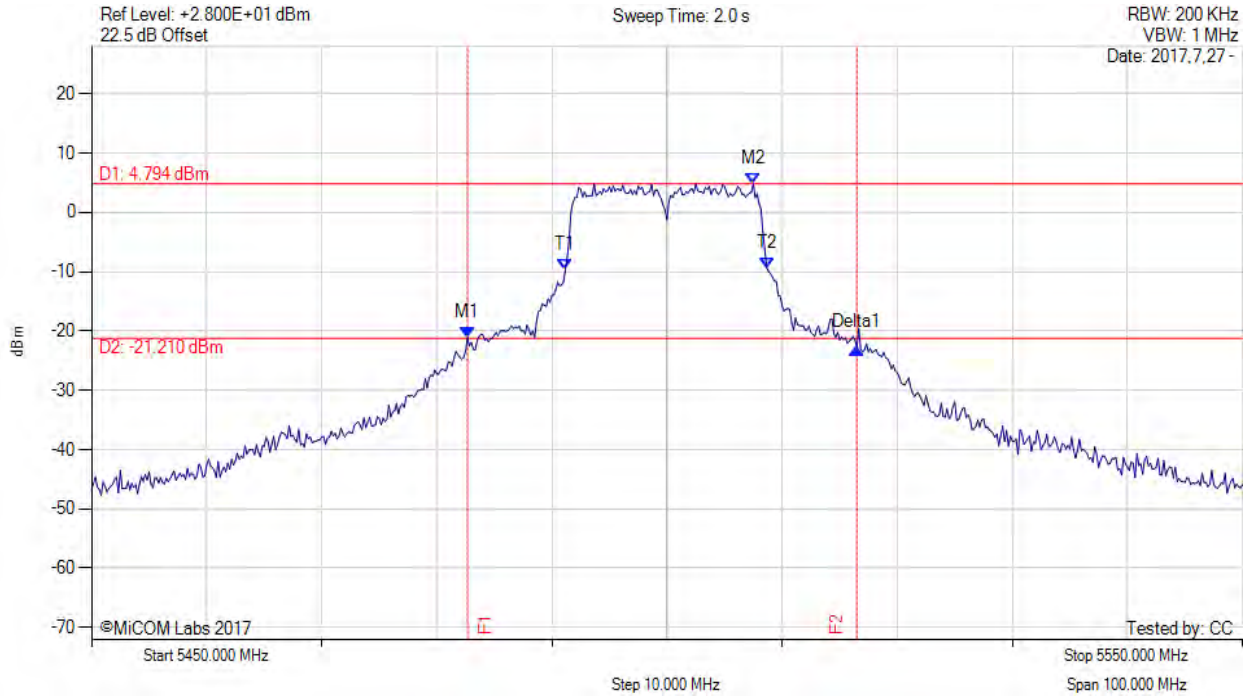
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5500.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5482.670 MHz : -21.096 dBm M2 : 5507.500 MHz : 4.794 dBm Delta1 : 33.830 MHz : -1.778 dB T1 : 5491.167 MHz : -9.666 dBm T2 : 5508.667 MHz : -9.330 dBm OBW : 17.450 MHz	Measured 26 dB Bandwidth: 33.830 MHz Measured 99% Bandwidth: 17.450 MHz

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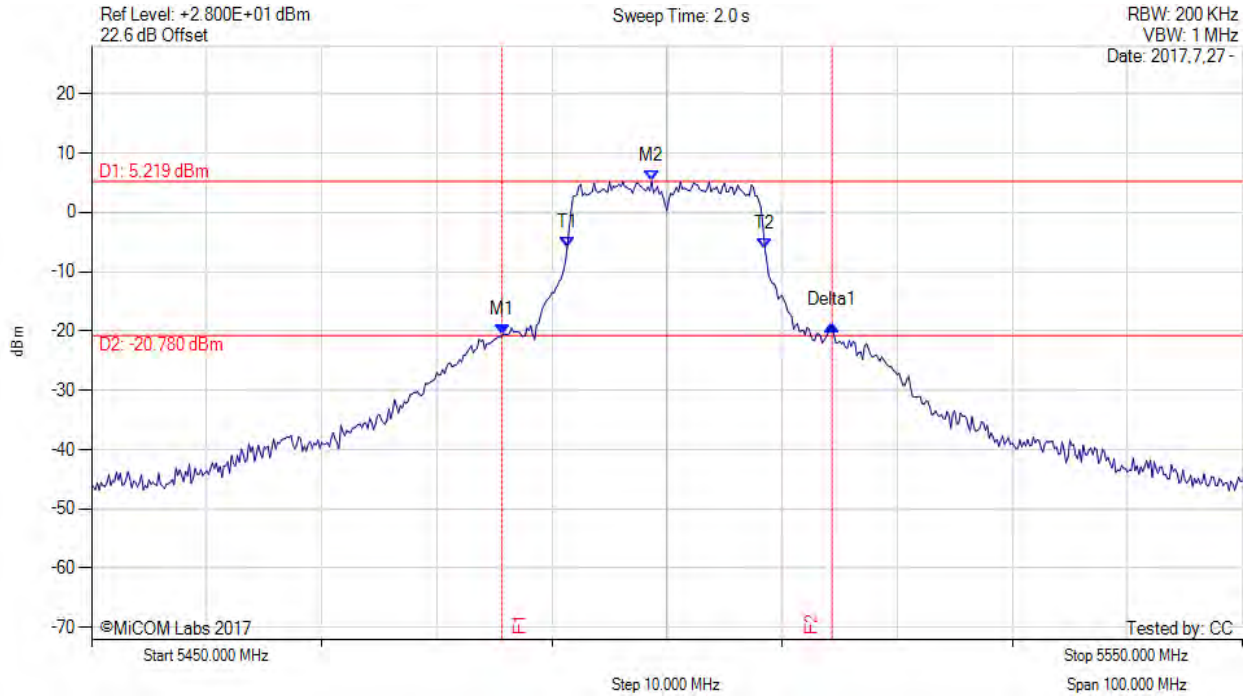
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5500.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5485.670 MHz : -20.707 dBm M2 : 5498.670 MHz : 5.219 dBm Delta1 : 28.670 MHz : 1.613 dB T1 : 5491.333 MHz : -5.927 dBm T2 : 5508.500 MHz : -6.093 dBm OBW : 17.197 MHz	Measured 26 dB Bandwidth: 28.670 MHz Measured 99% Bandwidth: 17.197 MHz

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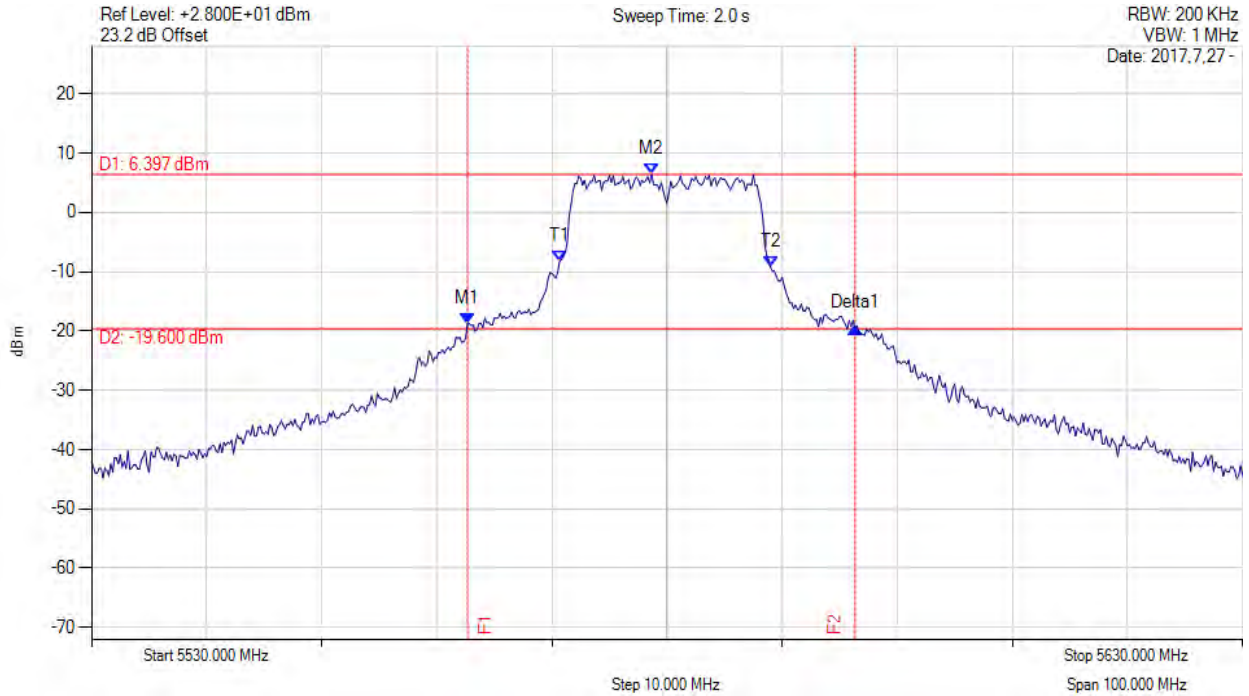
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5580.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5562.670 MHz : -18.770 dBm M2 : 5578.670 MHz : 6.397 dBm Delta1 : 33.670 MHz : -0.691 dB T1 : 5570.667 MHz : -8.214 dBm T2 : 5589.000 MHz : -9.291 dBm OBW : 18.278 MHz	Measured 26 dB Bandwidth: 33.670 MHz Measured 99% Bandwidth: 18.278 MHz

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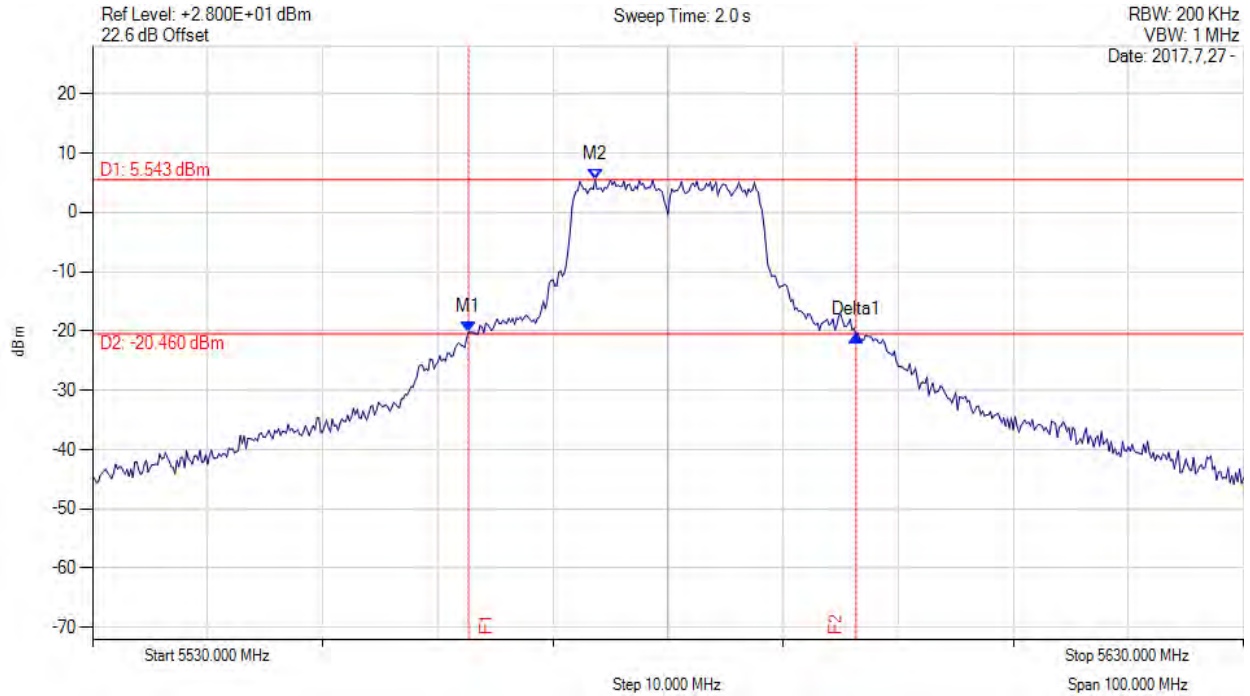
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5580.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5562.670 MHz : -20.271 dBm M2 : 5573.670 MHz : 5.543 dBm Delta1 : 33.670 MHz : -0.480 dB T1 : 0 Hz : 0.000 dBm T2 : 0 Hz : 0.000 dBm OBW : 18.404 MHz	Measured 26 dB Bandwidth: 33.670 MHz Measured 99% Bandwidth: 18.404 MHz

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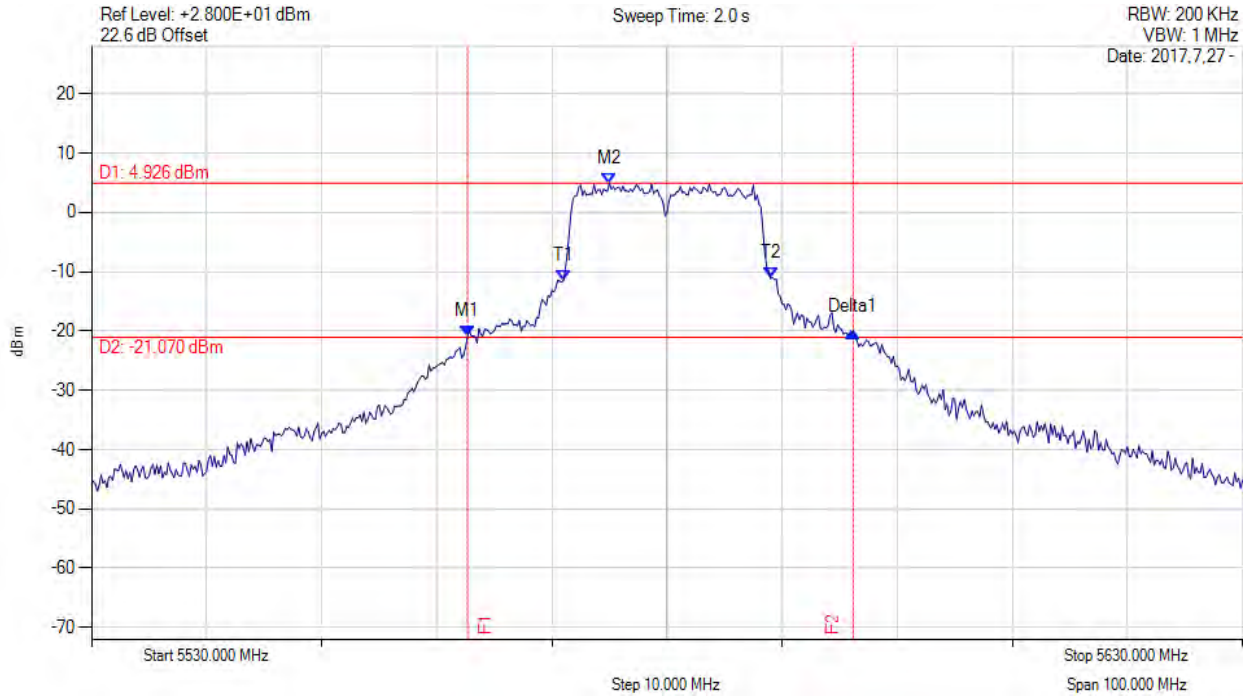
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5580.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5562.670 MHz : -20.899 dBm M2 : 5575.000 MHz : 4.926 dBm Delta1 : 33.500 MHz : 0.753 dB T1 : 5571.000 MHz : -11.524 dBm T2 : 5589.000 MHz : -11.157 dBm OBW : 17.974 MHz	Measured 26 dB Bandwidth: 33.500 MHz Measured 99% Bandwidth: 17.974 MHz

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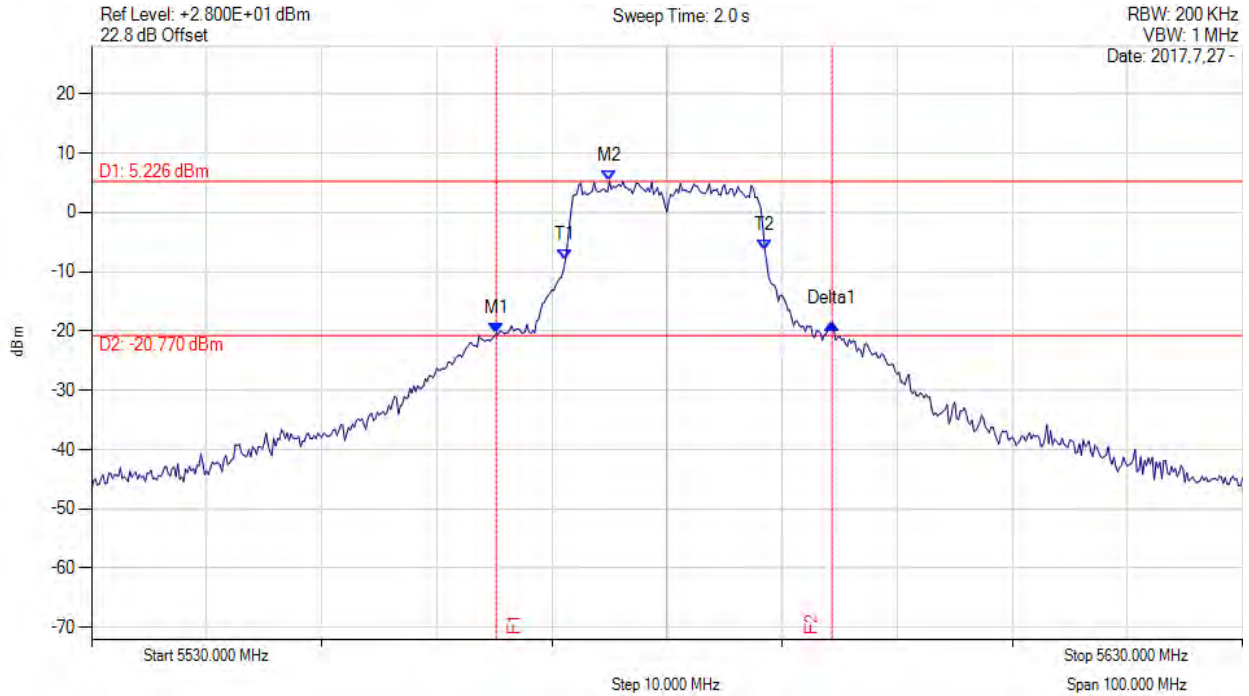
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5580.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5565.170 MHz : -20.438 dBm M2 : 5575.000 MHz : 5.226 dBm Delta1 : 29.170 MHz : 1.734 dB T1 : 5571.167 MHz : -8.105 dBm T2 : 5588.500 MHz : -6.299 dBm OBW : 17.377 MHz	Measured 26 dB Bandwidth: 29.170 MHz Measured 99% Bandwidth: 17.377 MHz

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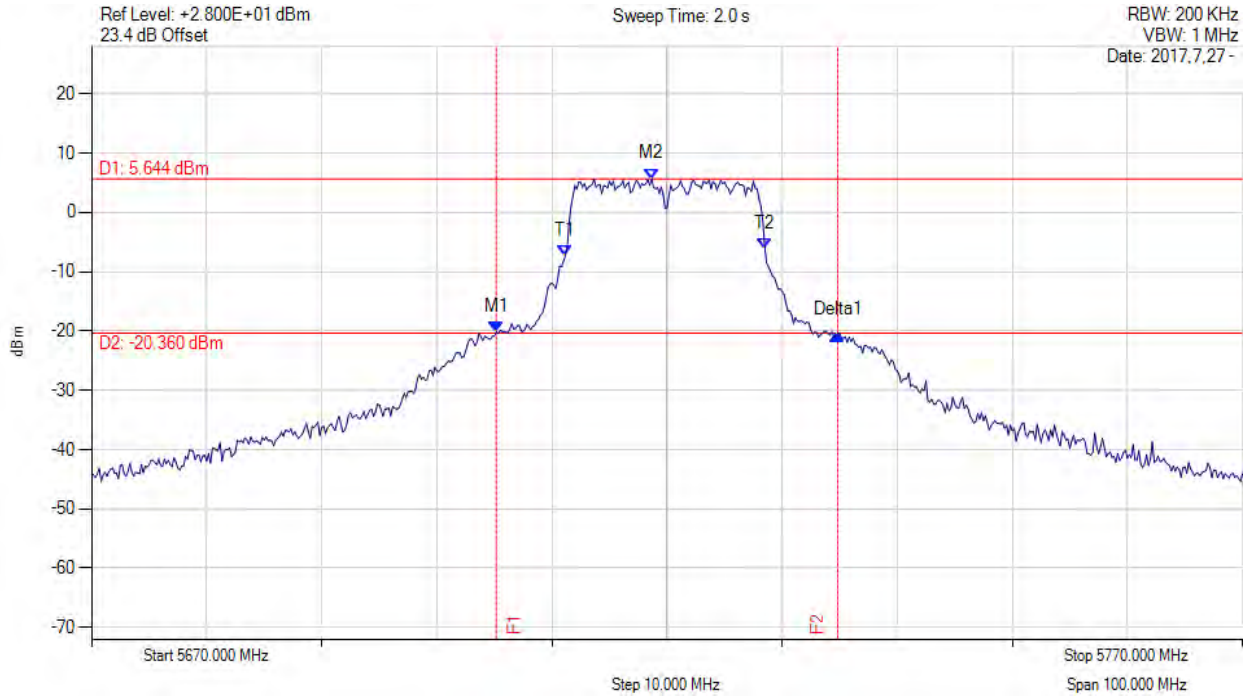




26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5720.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5705.170 MHz : -20.149 dBm M2 : 5718.670 MHz : 5.644 dBm Delta1 : 29.670 MHz : -0.545 dB T1 : 5711.167 MHz : -7.274 dBm T2 : 5728.500 MHz : -6.104 dBm OBW : 17.402 MHz	Measured 26 dB Bandwidth: 29.670 MHz Measured 99% Bandwidth: 17.402 MHz

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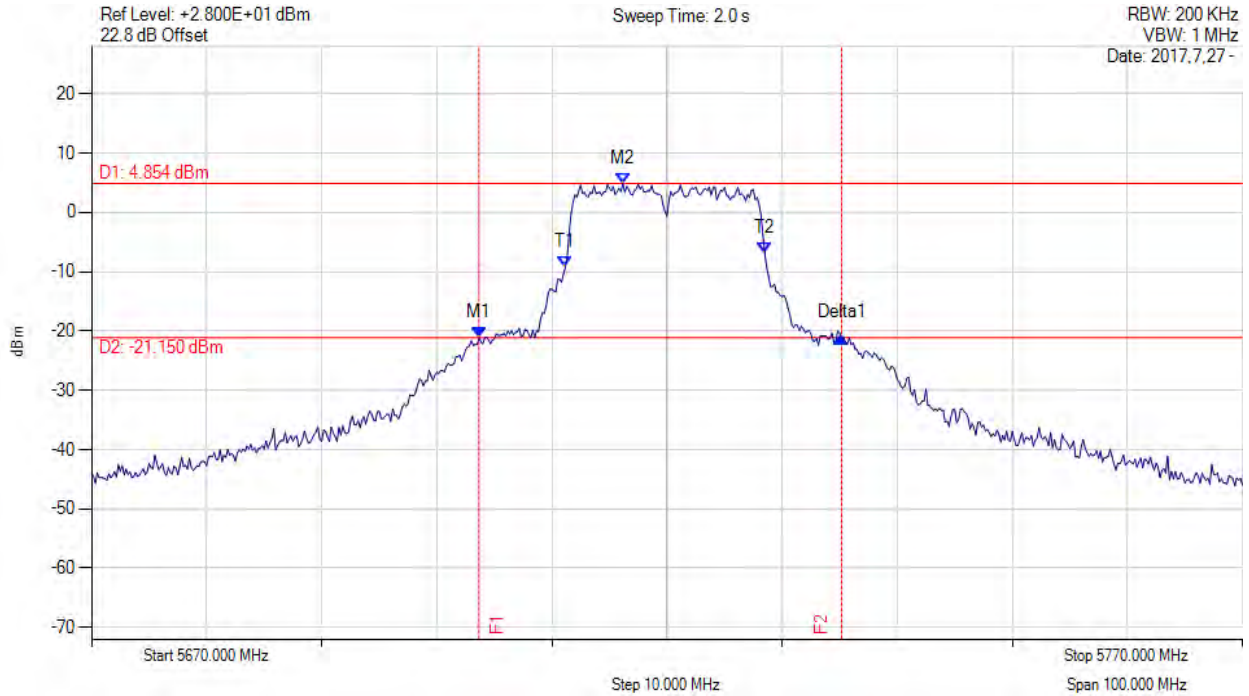
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5720.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5703.670 MHz : -21.132 dBm M2 : 5716.170 MHz : 4.854 dBm Delta1 : 31.500 MHz : 0.032 dB T1 : 5711.167 MHz : -9.267 dBm T2 : 5728.500 MHz : -6.893 dBm OBW : 17.353 MHz	Measured 26 dB Bandwidth: 31.500 MHz Measured 99% Bandwidth: 17.353 MHz

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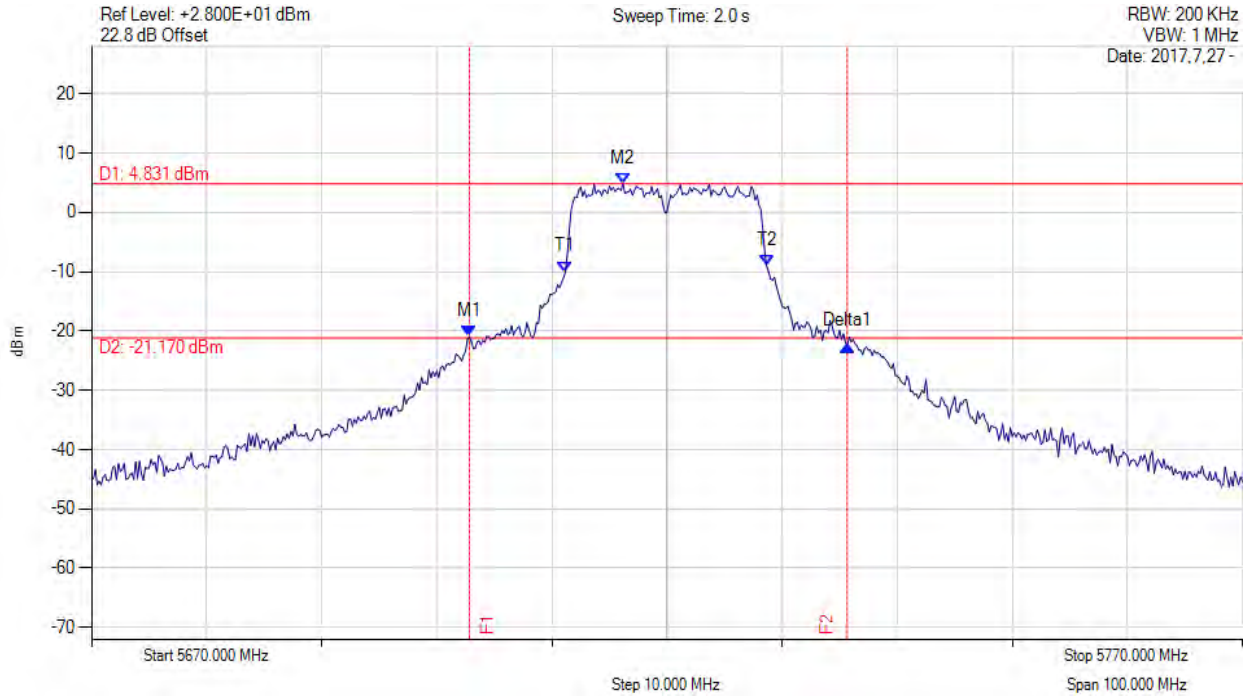
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5720.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5702.830 MHz : -20.953 dBm M2 : 5716.170 MHz : 4.831 dBm Delta1 : 32.830 MHz : -1.455 dB T1 : 5711.167 MHz : -9.994 dBm T2 : 5728.667 MHz : -9.057 dBm OBW : 17.429 MHz	Measured 26 dB Bandwidth: 32.830 MHz Measured 99% Bandwidth: 17.429 MHz

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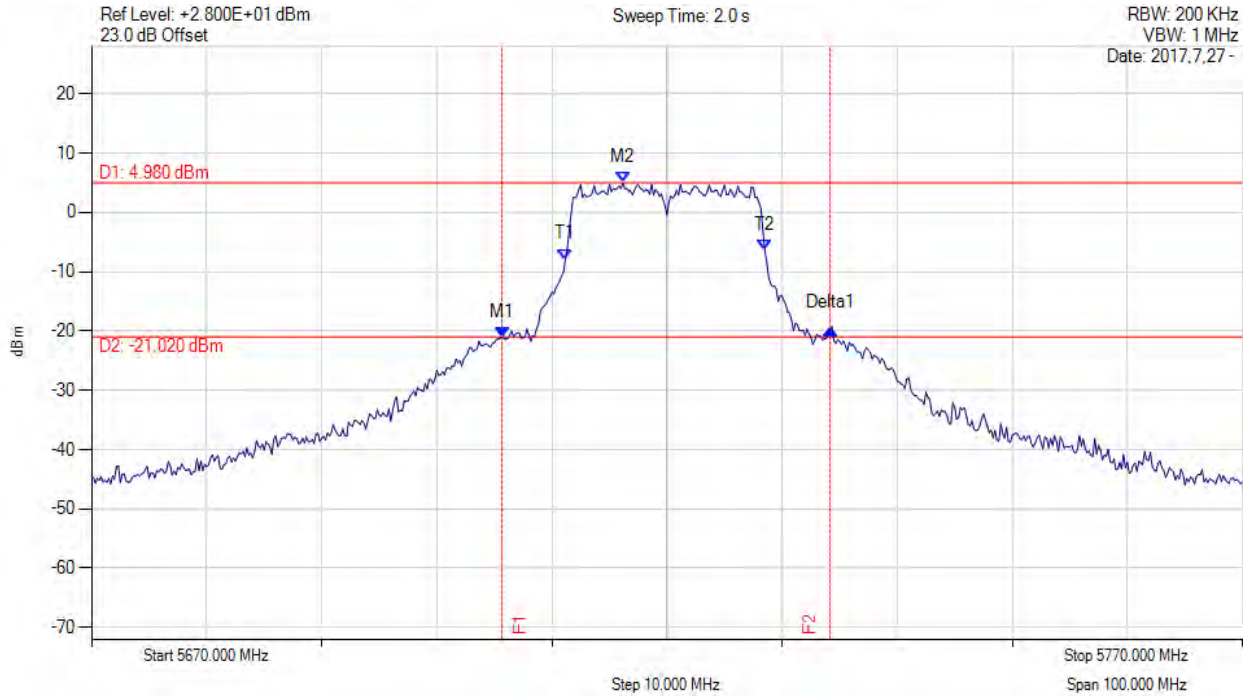
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26 dB & 99% BANDWIDTH



Variant: 802.11a, Channel: 5720.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5705.670 MHz : -21.008 dBm M2 : 5716.170 MHz : 4.980 dBm Delta1 : 28.500 MHz : 1.417 dB T1 : 5711.167 MHz : -7.903 dBm T2 : 5728.500 MHz : -6.307 dBm OBW : 17.298 MHz	Measured 26 dB Bandwidth: 28.500 MHz Measured 99% Bandwidth: 17.298 MHz

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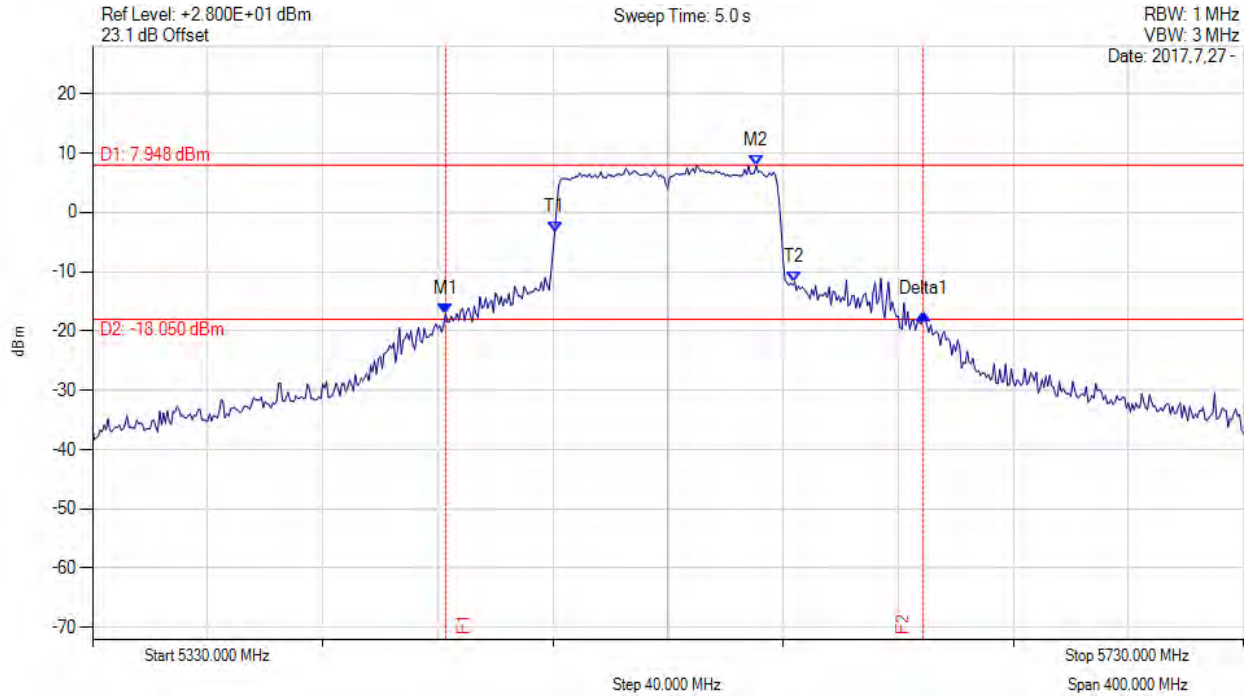
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26 dB & 99% BANDWIDTH



Variant: 802.11ac-80, Channel: 5530.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5452.700 MHz : -17.075 dBm M2 : 5560.700 MHz : 7.948 dBm Delta1 : 166.000 MHz : -0.100 dB T1 : 5490.667 MHz : -3.350 dBm T2 : 5574.000 MHz : -11.771 dBm OBW : 84.449 MHz	Measured 26 dB Bandwidth: 166.000 MHz Measured 99% Bandwidth: 84.449 MHz

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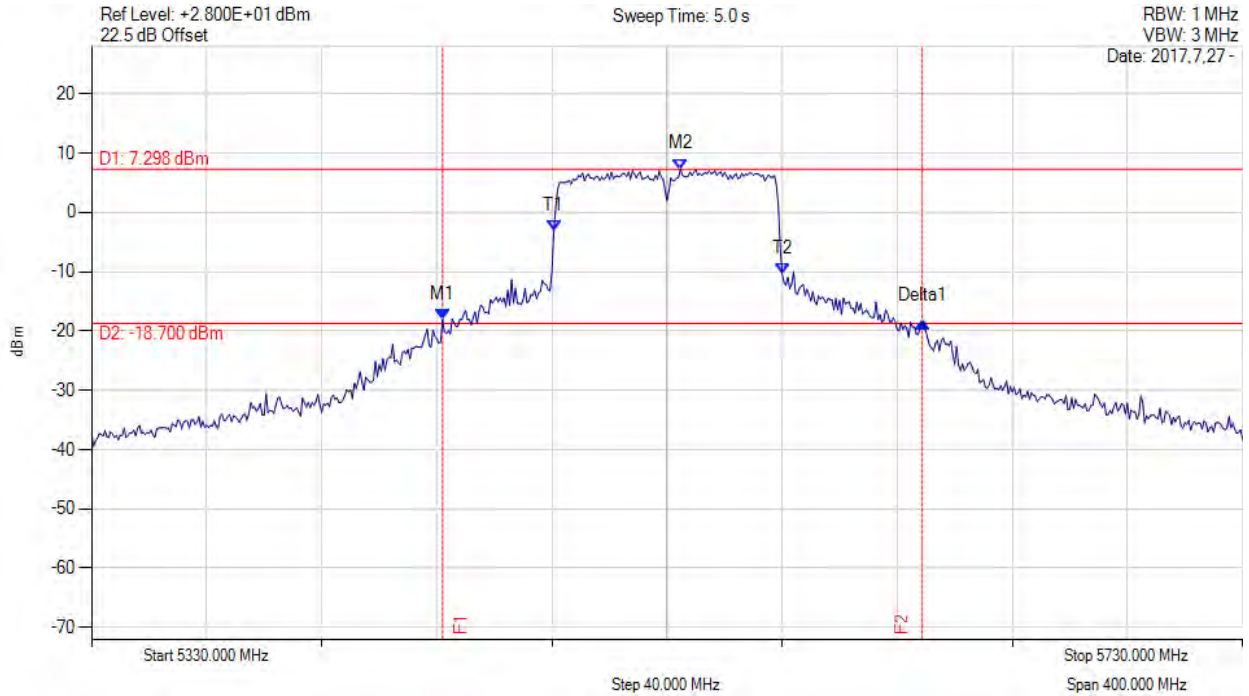
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26 dB & 99% BANDWIDTH



Variant: 802.11ac-80, Channel: 5530.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5452.000 MHz : -17.990 dBm M2 : 5534.700 MHz : 7.298 dBm Delta1 : 166.700 MHz : -0.419 dB T1 : 5490.667 MHz : -3.120 dBm T2 : 5570.000 MHz : -10.347 dBm OBW : 79.383 MHz	Measured 26 dB Bandwidth: 166.700 MHz Measured 99% Bandwidth: 79.383 MHz

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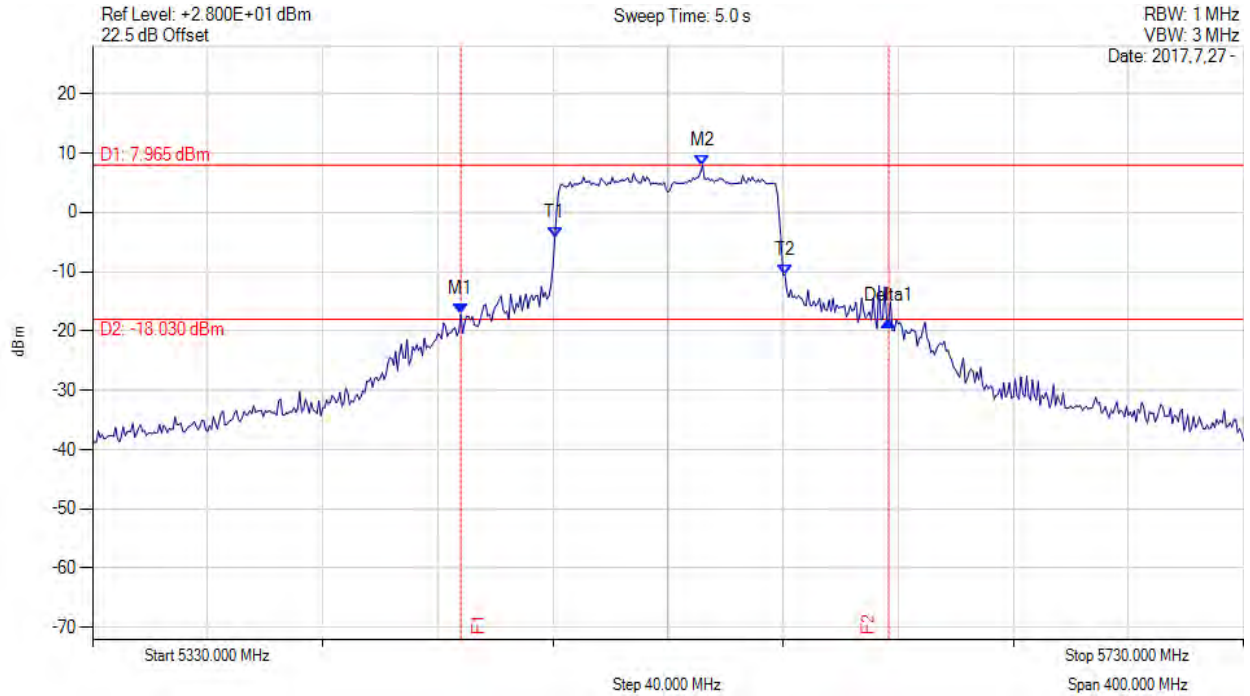
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26 dB & 99% BANDWIDTH



Variant: 802.11ac-80, Channel: 5530.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5458.000 MHz : -17.181 dBm M2 : 5542.000 MHz : 7.965 dBm Delta1 : 148.700 MHz : -1.142 dB T1 : 5490.667 MHz : -4.347 dBm T2 : 5570.667 MHz : -10.510 dBm OBW : 80.032 MHz	Measured 26 dB Bandwidth: 148.700 MHz Measured 99% Bandwidth: 80.032 MHz

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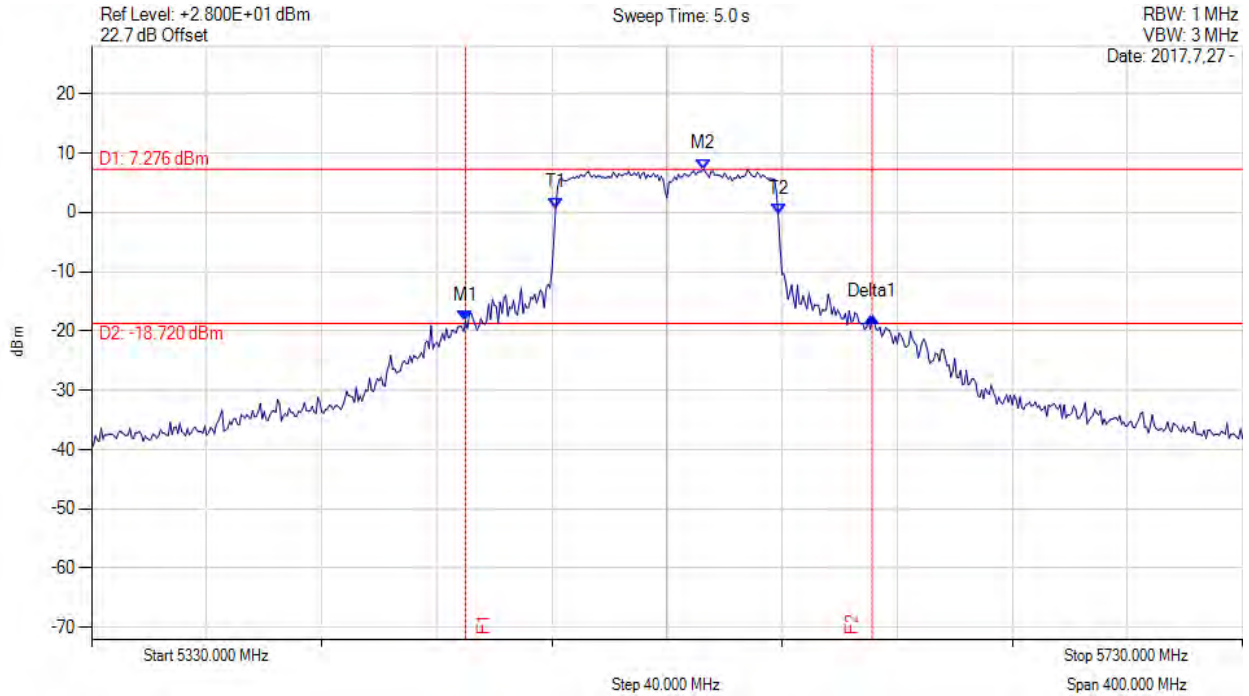
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26 dB & 99% BANDWIDTH



Variant: 802.11ac-80, Channel: 5530.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5460.000 MHz : -18.395 dBm M2 : 5542.700 MHz : 7.276 dBm Delta1 : 141.300 MHz : 0.725 dB T1 : 5491.333 MHz : 0.736 dBm T2 : 5568.667 MHz : -0.301 dBm OBW : 77.348 MHz	Measured 26 dB Bandwidth: 141.300 MHz Measured 99% Bandwidth: 77.348 MHz

[back to matrix](#)

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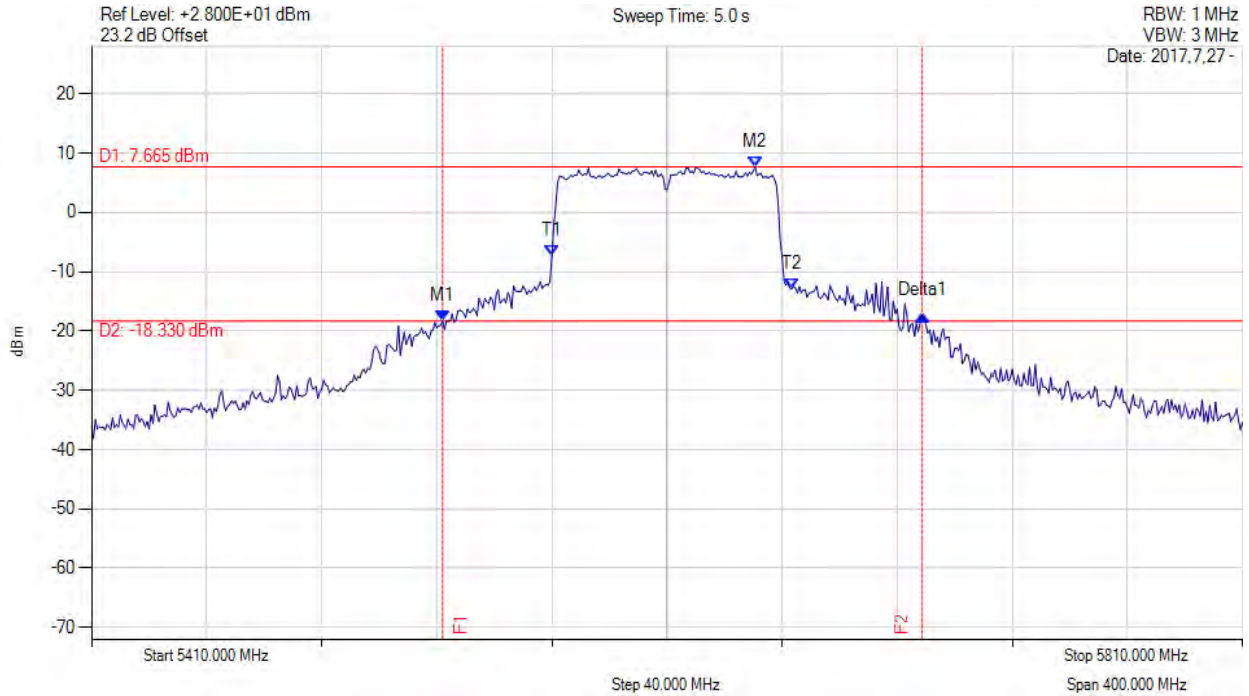




26 dB & 99% BANDWIDTH



Variant: 802.11ac-80, Channel: 5610.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5532.000 MHz : -18.310 dBm M2 : 5640.700 MHz : 7.665 dBm Delta1 : 166.700 MHz : 1.021 dB T1 : 5570.000 MHz : -7.305 dBm T2 : 5653.333 MHz : -12.899 dBm OBW : 83.530 MHz	Measured 26 dB Bandwidth: 166.700 MHz Measured 99% Bandwidth: 83.530 MHz

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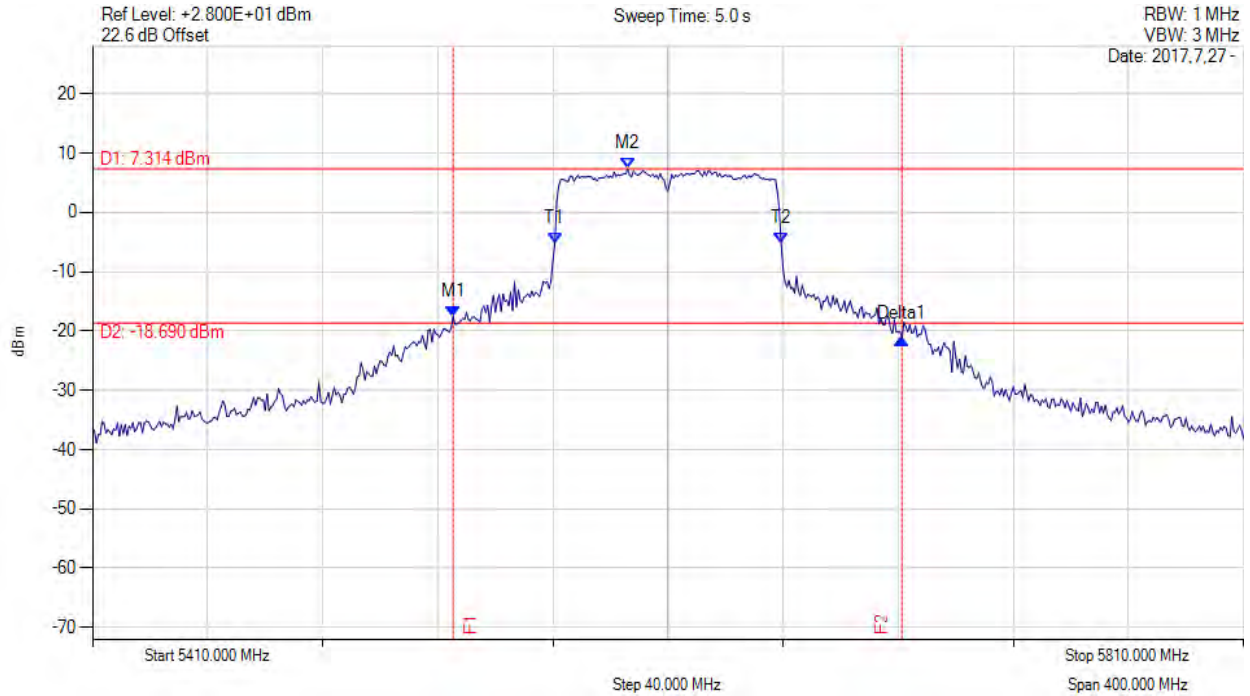
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26 dB & 99% BANDWIDTH



Variant: 802.11ac-80, Channel: 5610.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5535.300 MHz : -17.531 dBm M2 : 5596.000 MHz : 7.314 dBm Delta1 : 156.000 MHz : -3.716 dB T1 : 5570.667 MHz : -5.265 dBm T2 : 5649.333 MHz : -5.313 dBm OBW : 78.473 MHz	Measured 26 dB Bandwidth: 156.000 MHz Measured 99% Bandwidth: 78.473 MHz

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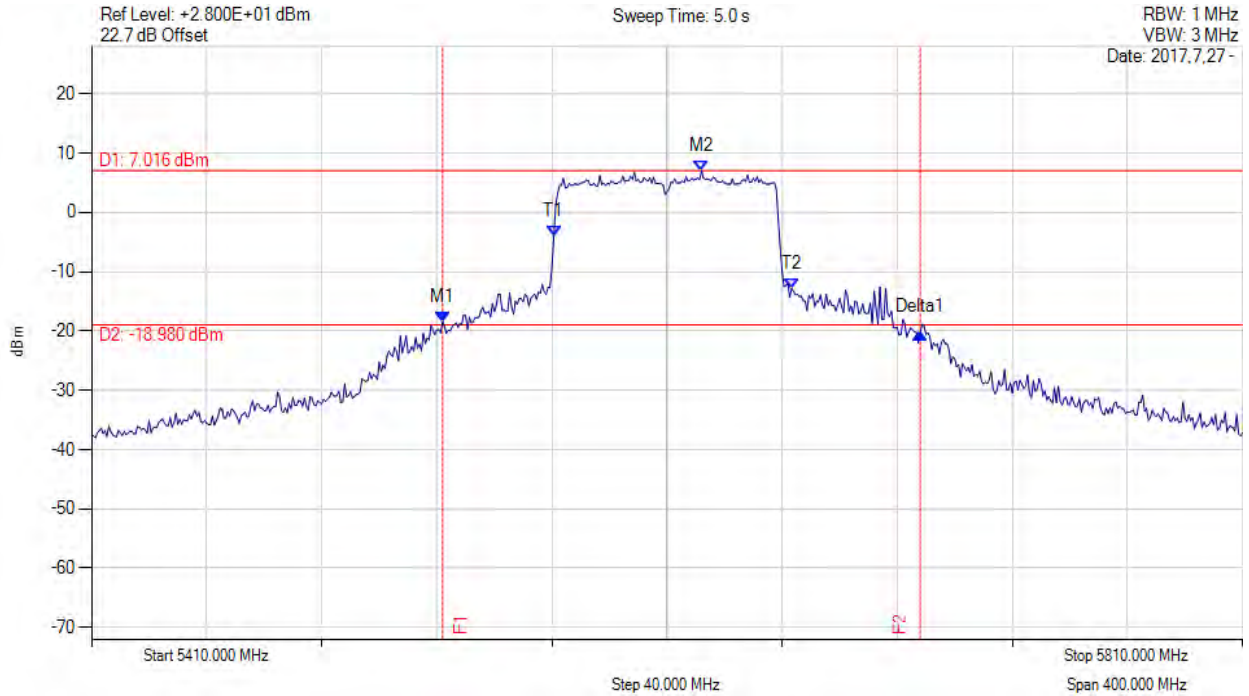
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26 dB & 99% BANDWIDTH



Variant: 802.11ac-80, Channel: 5610.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5532.000 MHz : -18.439 dBm M2 : 5622.000 MHz : 7.016 dBm Delta1 : 166.000 MHz : -1.863 dB T1 : 5570.667 MHz : -4.029 dBm T2 : 5653.333 MHz : -12.847 dBm OBW : 83.431 MHz	Measured 26 dB Bandwidth: 166.000 MHz Measured 99% Bandwidth: 83.431 MHz

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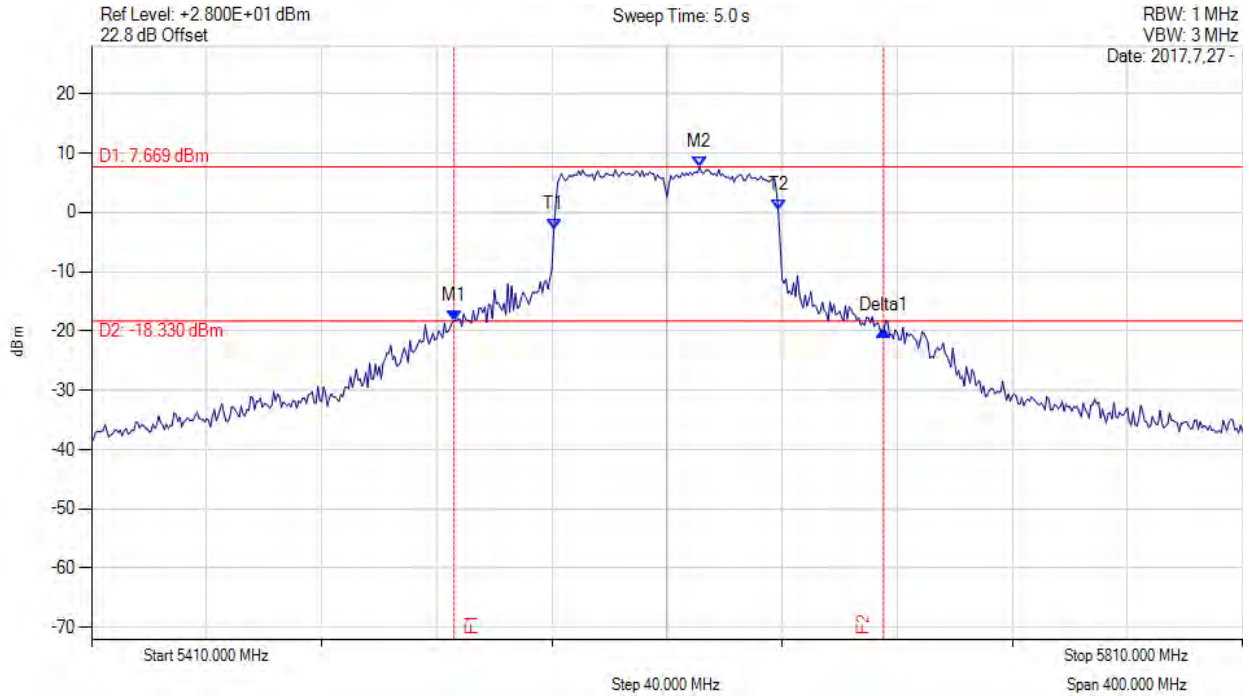
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26 dB & 99% BANDWIDTH



Variant: 802.11ac-80, Channel: 5610.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5536.000 MHz : -18.225 dBm M2 : 5621.300 MHz : 7.669 dBm Delta1 : 149.300 MHz : -1.781 dB T1 : 5570.667 MHz : -2.911 dBm T2 : 5648.667 MHz : 0.388 dBm OBW : 77.887 MHz	Measured 26 dB Bandwidth: 149.300 MHz Measured 99% Bandwidth: 77.887 MHz

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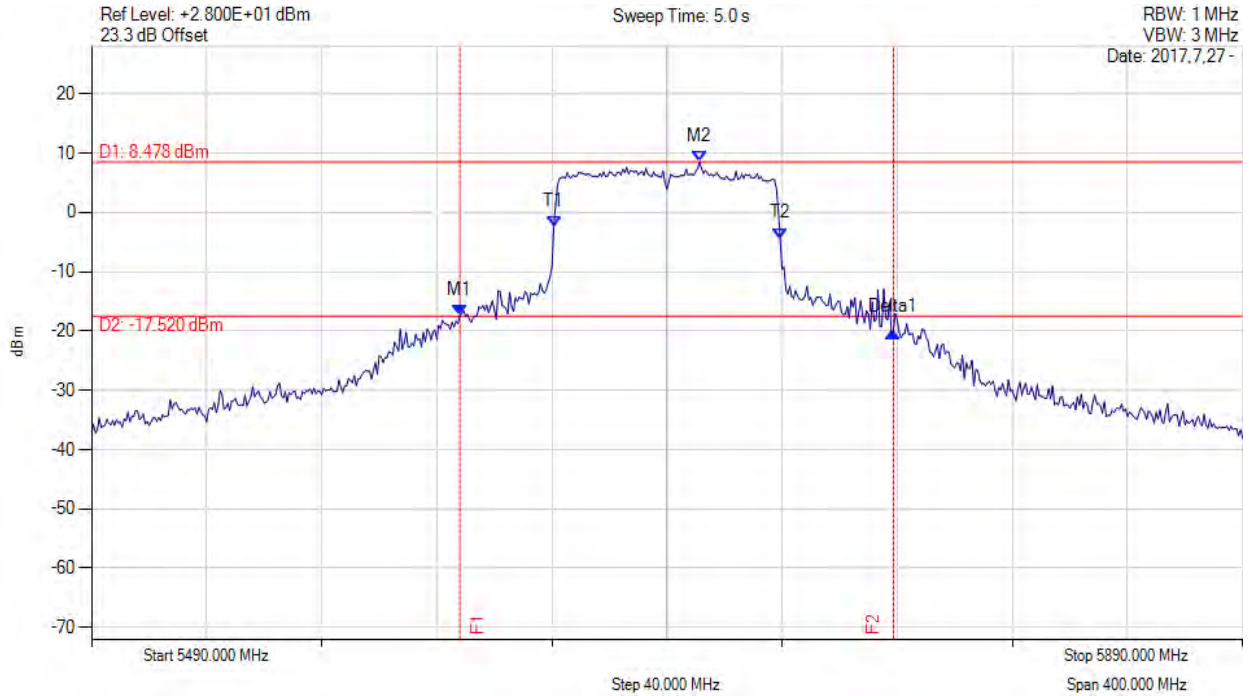
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26 dB & 99% BANDWIDTH



Variant: 802.11ac-80, Channel: 5690.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5618.000 MHz : -17.467 dBm M2 : 5701.300 MHz : 8.478 dBm Delta1 : 150.700 MHz : -2.718 dB T1 : 5650.667 MHz : -2.412 dBm T2 : 5729.333 MHz : -4.409 dBm OBW : 78.356 MHz	Measured 26 dB Bandwidth: 150.700 MHz Measured 99% Bandwidth: 78.356 MHz

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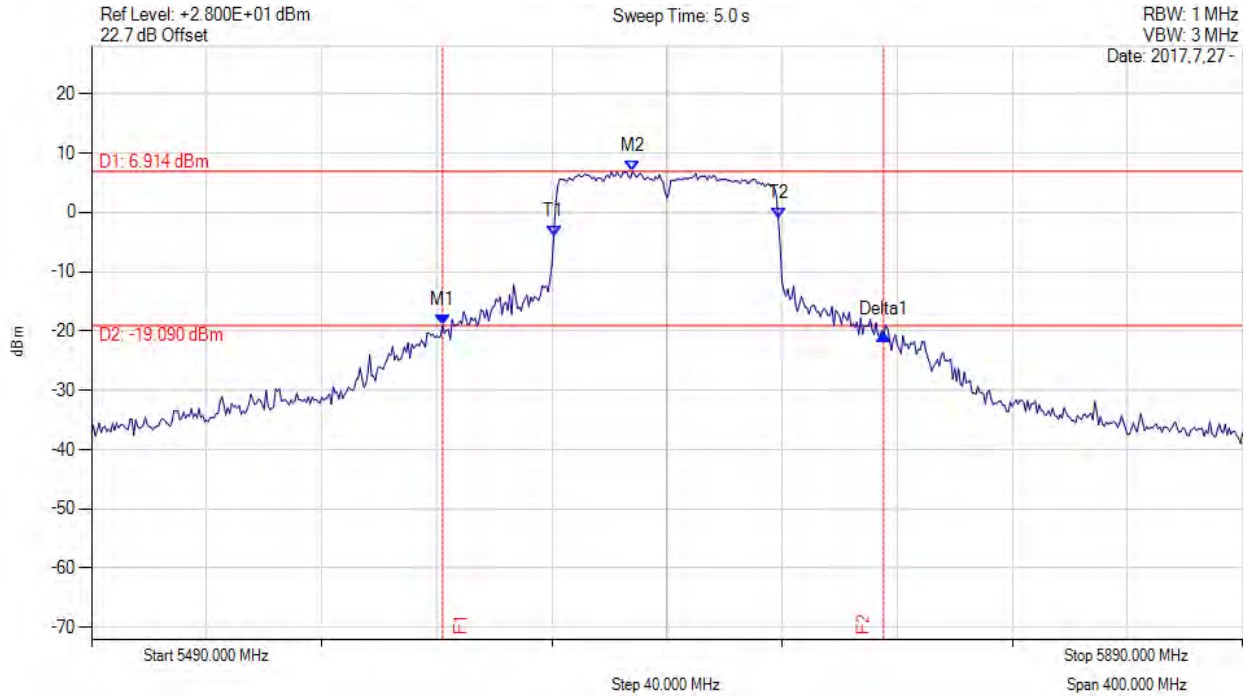
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26 dB & 99% BANDWIDTH



Variant: 802.11ac-80, Channel: 5690.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5612.000 MHz : -19.031 dBm M2 : 5678.000 MHz : 6.914 dBm Delta1 : 153.300 MHz : -1.568 dB T1 : 5650.667 MHz : -4.041 dBm T2 : 5728.667 MHz : -0.955 dBm OBW : 77.782 MHz	Measured 26 dB Bandwidth: 153.300 MHz Measured 99% Bandwidth: 77.782 MHz

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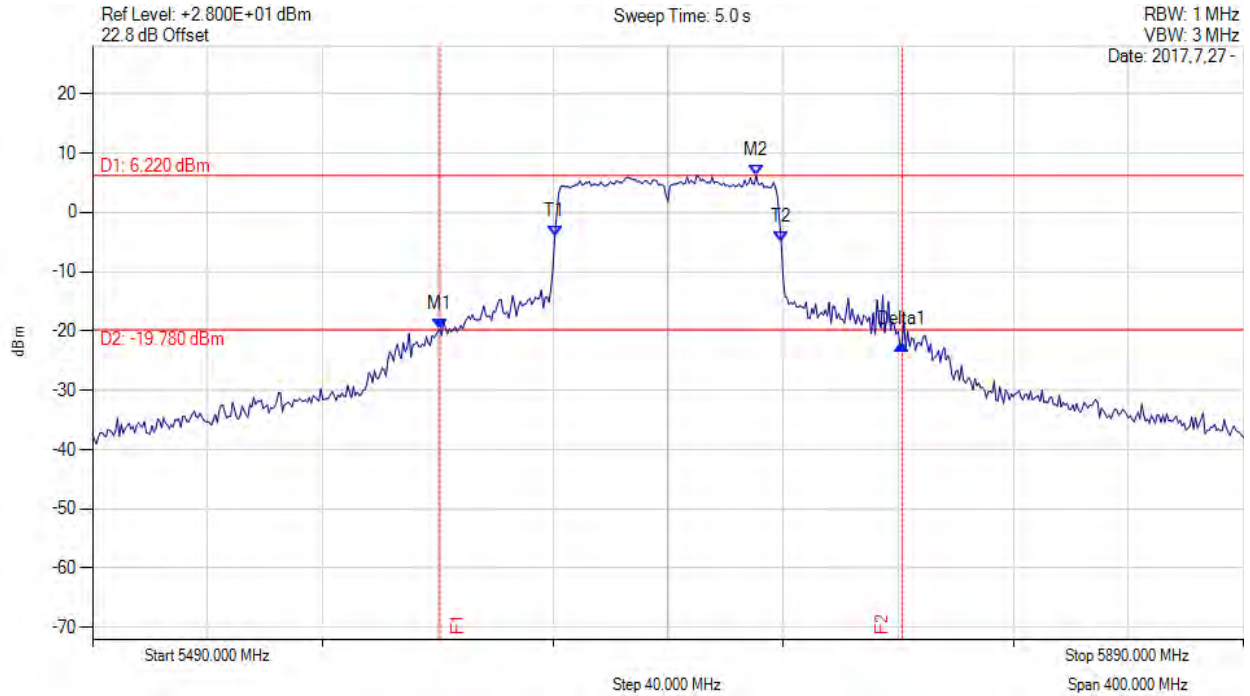
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26 dB & 99% BANDWIDTH



Variant: 802.11ac-80, Channel: 5690.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5610.700 MHz : -19.741 dBm M2 : 5720.700 MHz : 6.220 dBm Delta1 : 160.700 MHz : -2.520 dB T1 : 5650.667 MHz : -3.969 dBm T2 : 5729.333 MHz : -4.916 dBm OBW : 78.541 MHz	Measured 26 dB Bandwidth: 160.700 MHz Measured 99% Bandwidth: 78.541 MHz

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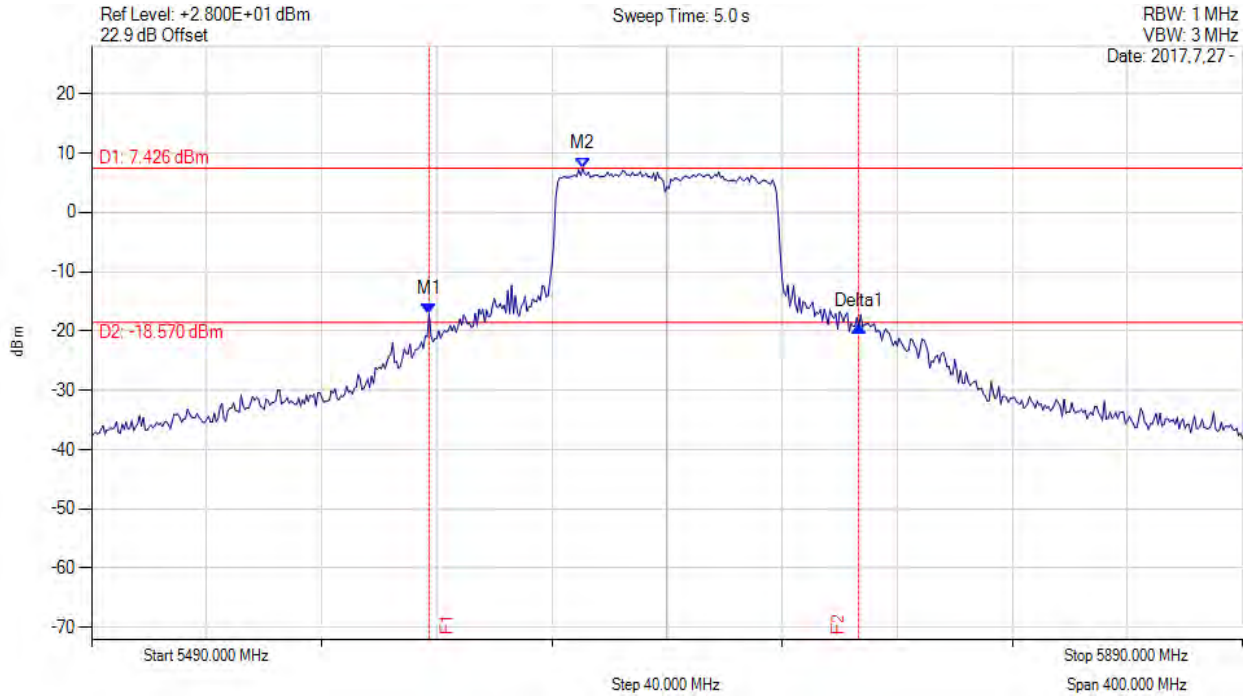
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26 dB & 99% BANDWIDTH



Variant: 802.11ac-80, Channel: 5690.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5607.300 MHz : -17.067 dBm M2 : 5660.700 MHz : 7.426 dBm Delta1 : 149.300 MHz : -2.184 dB T1 : 0 Hz : 0.000 dBm T2 : 0 Hz : 0.000 dBm OBW : 77.324 MHz	Measured 26 dB Bandwidth: 149.300 MHz Measured 99% Bandwidth: 77.324 MHz

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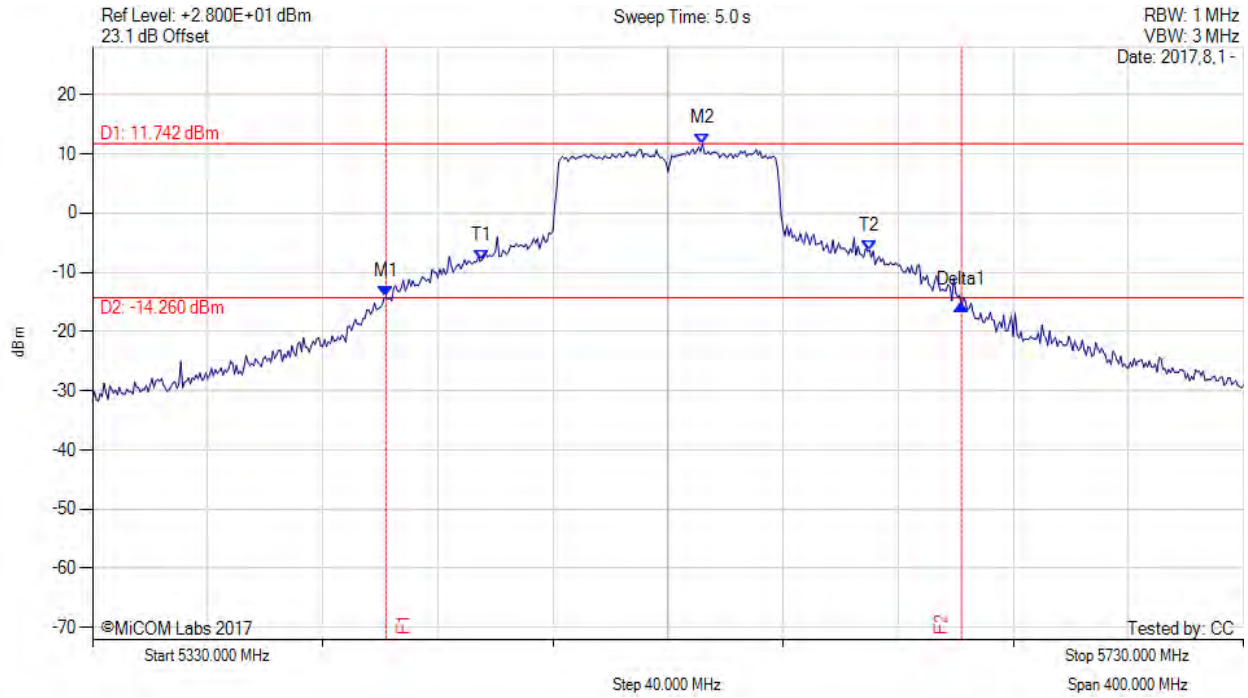




26 dB & 99% BANDWIDTH



Variant: 802.11ac-80+80, Channel: 5530.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5432.000 MHz : -14.111 dBm M2 : 5542.000 MHz : 11.742 dBm Delta1 : 200.000 MHz : -1.451 dB T1 : 5465.333 MHz : -7.924 dBm T2 : 5600.000 MHz : -6.298 dBm OBW : 135.187 MHz	Measured 26 dB Bandwidth: 200.000 MHz Measured 99% Bandwidth: 135.187 MHz

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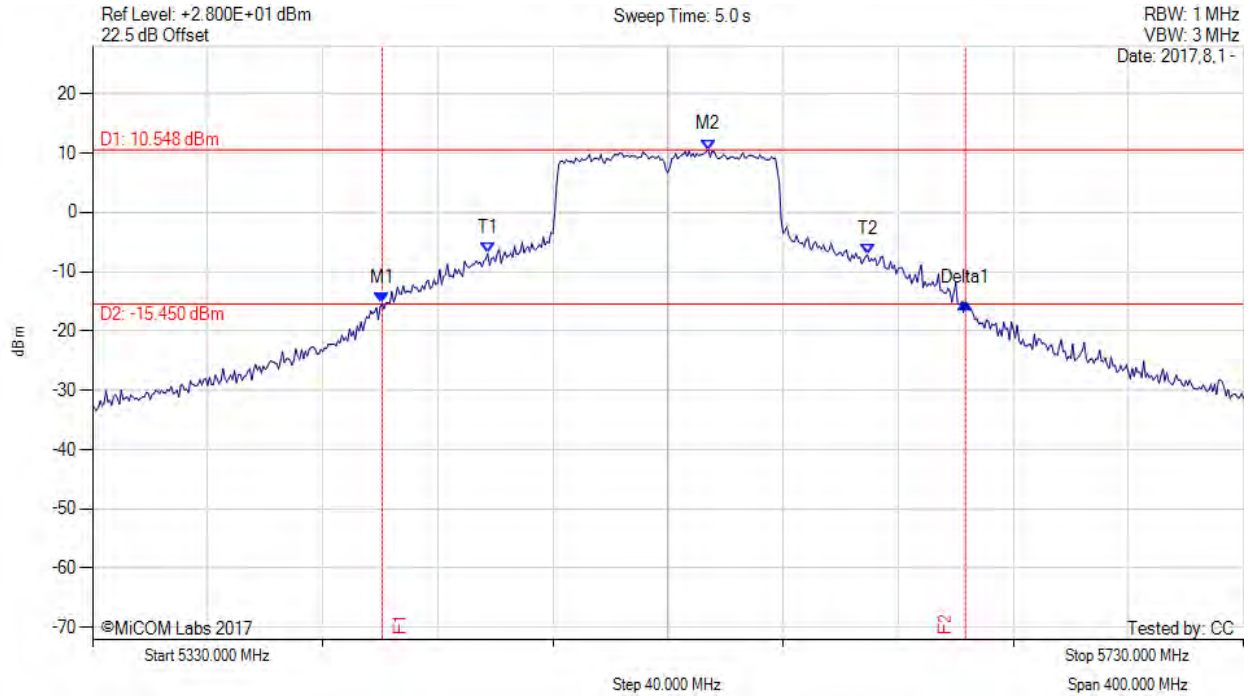
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26 dB & 99% BANDWIDTH



Variant: 802.11ac-80+80, Channel: 5530.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5430.700 MHz : -15.336 dBm M2 : 5544.000 MHz : 10.548 dBm Delta1 : 202.700 MHz : -0.013 dB T1 : 5467.333 MHz : -6.935 dBm T2 : 5599.333 MHz : -7.139 dBm OBW : 132.306 MHz	Measured 26 dB Bandwidth: 202.700 MHz Measured 99% Bandwidth: 132.306 MHz

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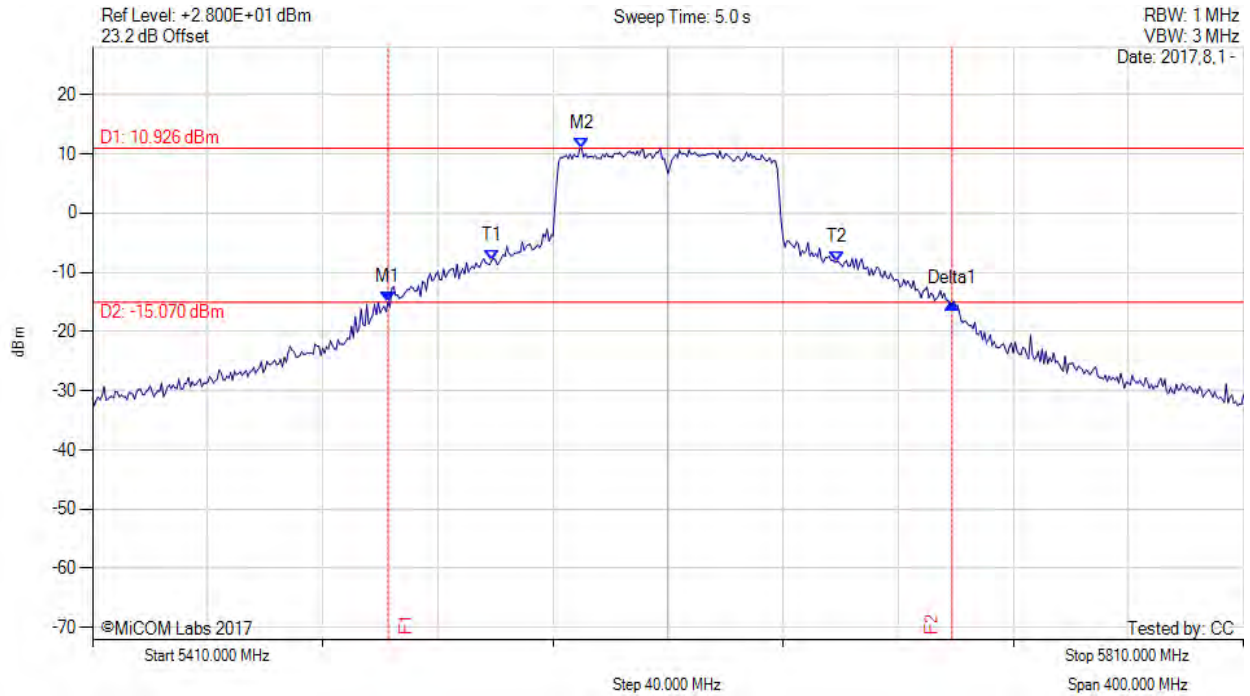
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26 dB & 99% BANDWIDTH



Variant: 802.11ac-80+80, Channel: 5610.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5512.700 MHz : -15.005 dBm M2 : 5580.000 MHz : 10.926 dBm Delta1 : 196.000 MHz : -0.280 dB T1 : 5548.667 MHz : -8.016 dBm T2 : 5668.667 MHz : -8.198 dBm OBW : 120.485 MHz	Measured 26 dB Bandwidth: 196.000 MHz Measured 99% Bandwidth: 120.485 MHz

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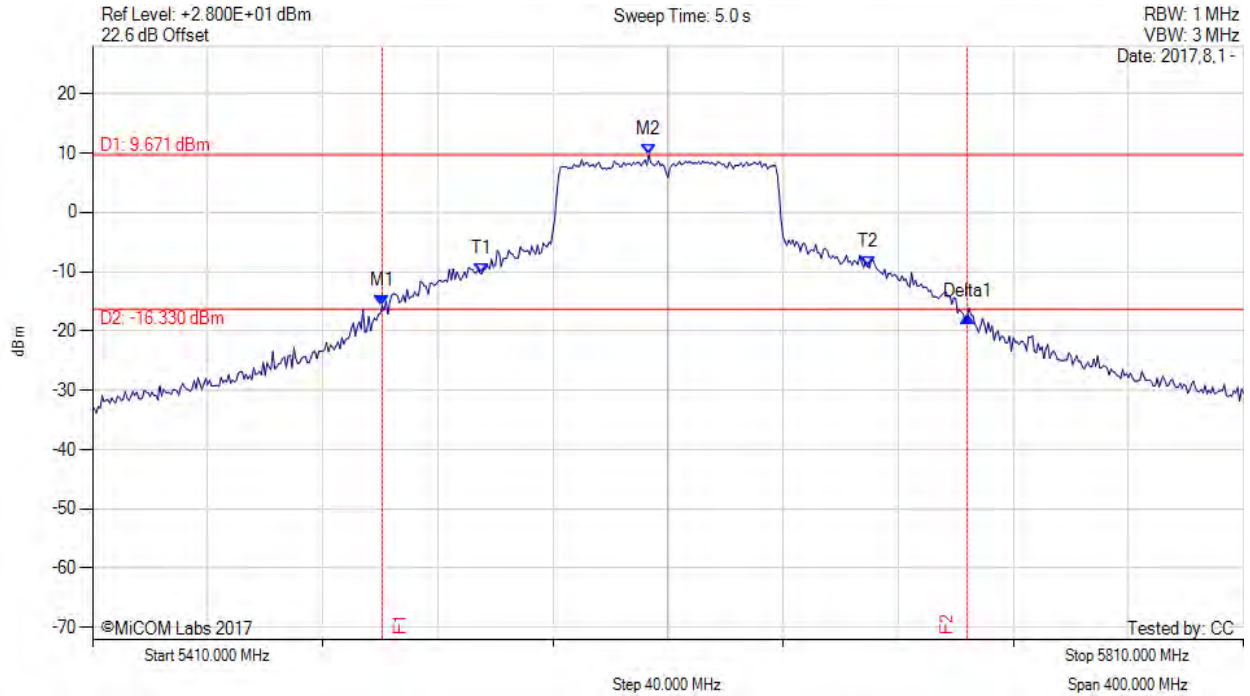
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26 dB & 99% BANDWIDTH



Variant: 802.11ac-80+80, Channel: 5610.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5510.700 MHz : -15.704 dBm M2 : 5603.300 MHz : 9.671 dBm Delta1 : 203.300 MHz : -1.826 dB T1 : 5545.333 MHz : -10.357 dBm T2 : 5679.333 MHz : -9.118 dBm OBW : 134.936 MHz	Measured 26 dB Bandwidth: 203.300 MHz Measured 99% Bandwidth: 134.936 MHz

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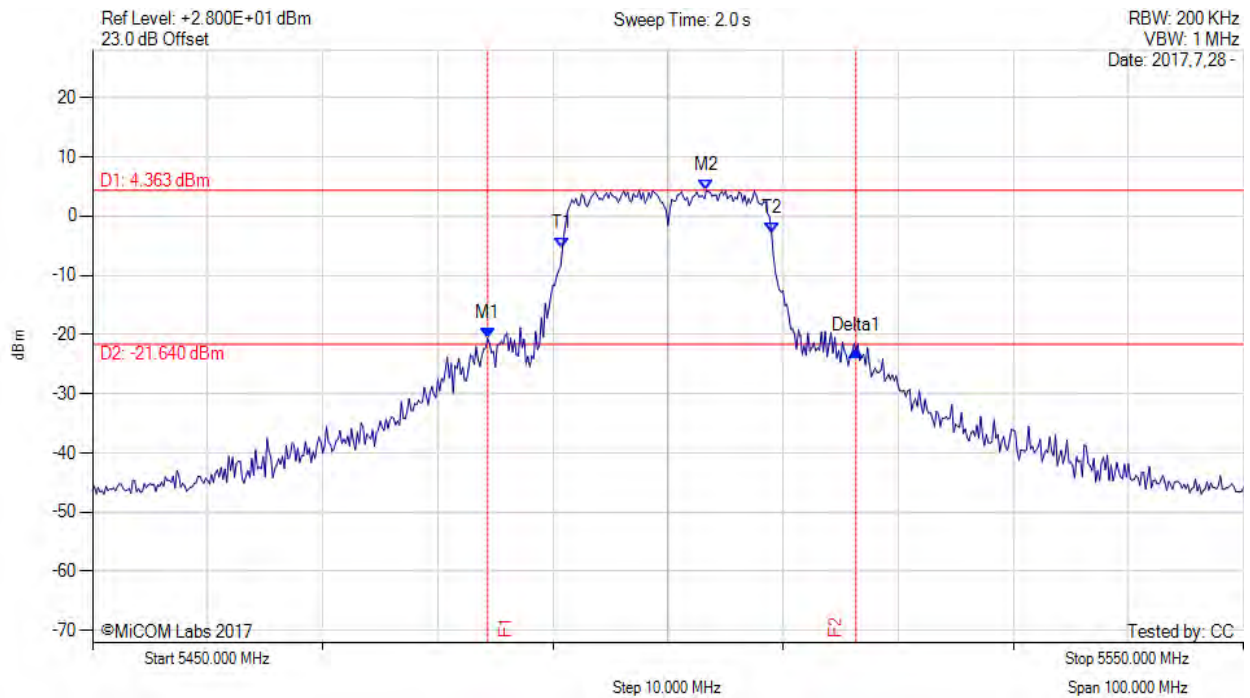
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5500.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5484.330 MHz : -20.623 dBm M2 : 5503.330 MHz : 4.363 dBm Delta1 : 32.000 MHz : -2.070 dB T1 : 5490.833 MHz : -5.422 dBm T2 : 5509.000 MHz : -2.946 dBm OBW : 18.177 MHz	Measured 26 dB Bandwidth: 32.000 MHz Measured 99% Bandwidth: 18.177 MHz

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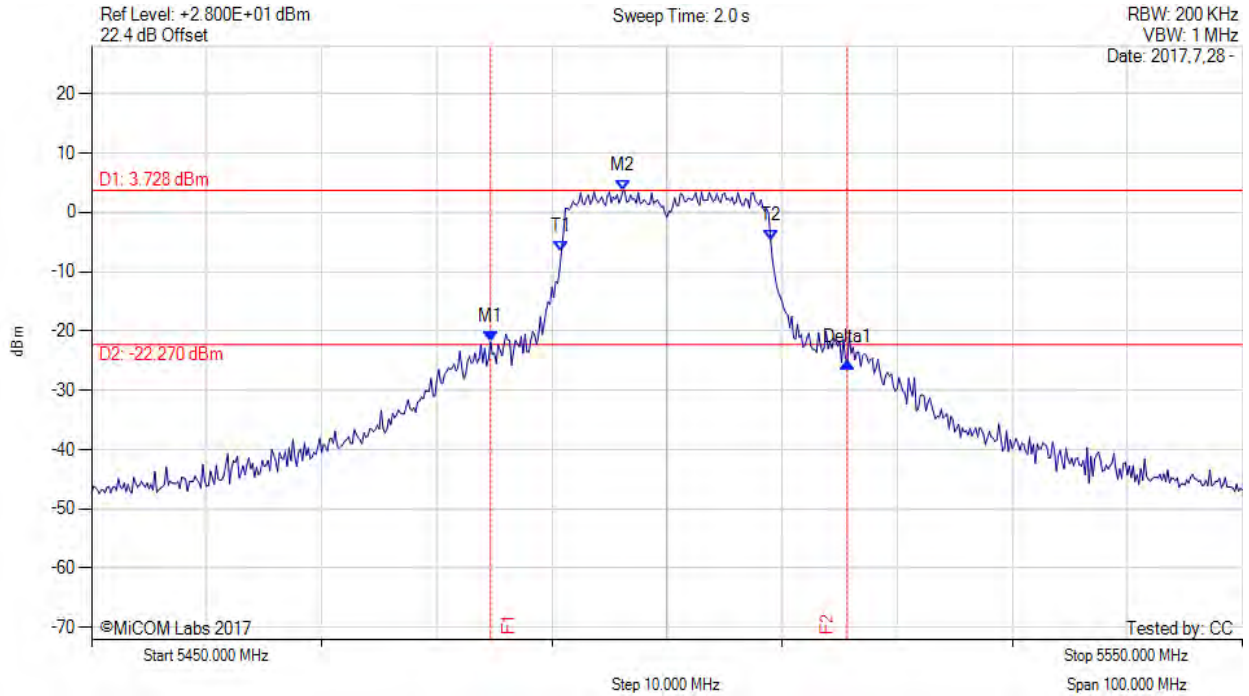


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
**Serial #:** HPEN111-U12\_Conducted DFS Bands Rev A  
**Issue Date:** 20<sup>th</sup> August 2017  
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5500.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5484.670 MHz : -21.823 dBm M2 : 5496.170 MHz : 3.728 dBm Delta1 : 31.000 MHz : -3.415 dB T1 : 5490.833 MHz : -6.579 dBm T2 : 5509.000 MHz : -4.681 dBm OBW : 18.165 MHz	Measured 26 dB Bandwidth: 31.000 MHz Measured 99% Bandwidth: 18.165 MHz

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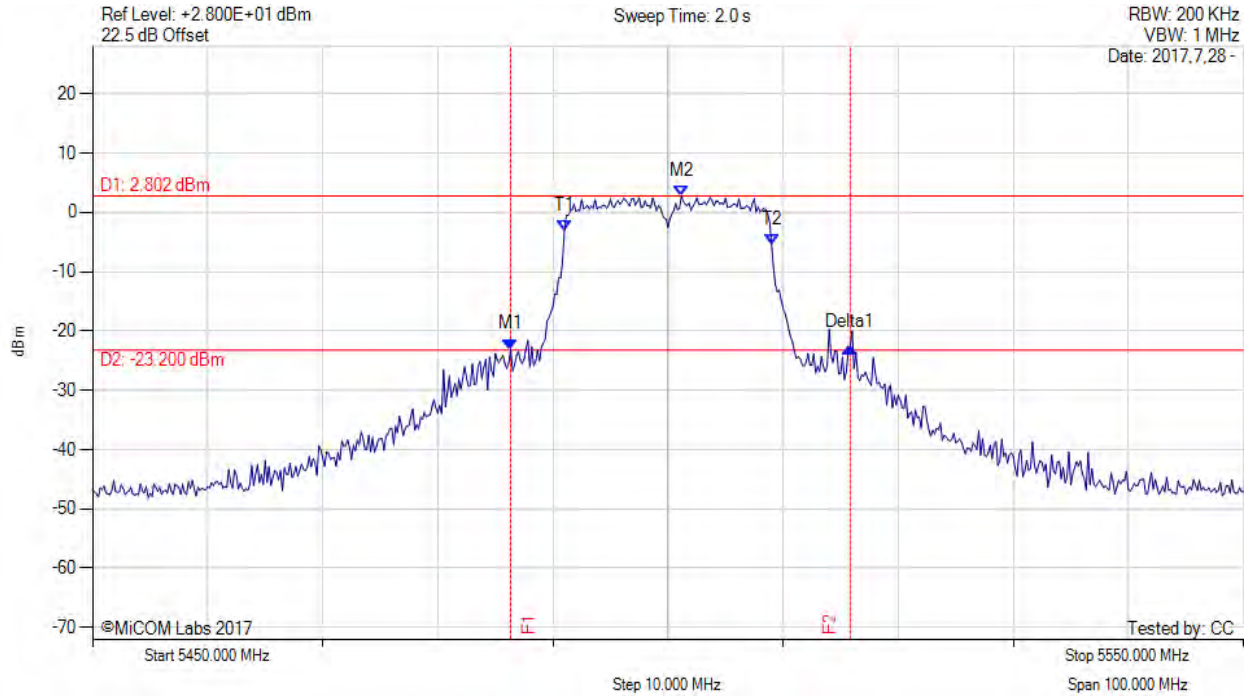


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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**Serial #:** HPEN111-U12\_Conducted DFS Bands Rev A  
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5500.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5486.330 MHz : -23.099 dBm M2 : 5501.170 MHz : 2.802 dBm Delta1 : 29.500 MHz : 0.401 dB T1 : 5491.000 MHz : -3.109 dBm T2 : 5509.000 MHz : -5.350 dBm OBW : 18.026 MHz	Measured 26 dB Bandwidth: 29.500 MHz Measured 99% Bandwidth: 18.026 MHz

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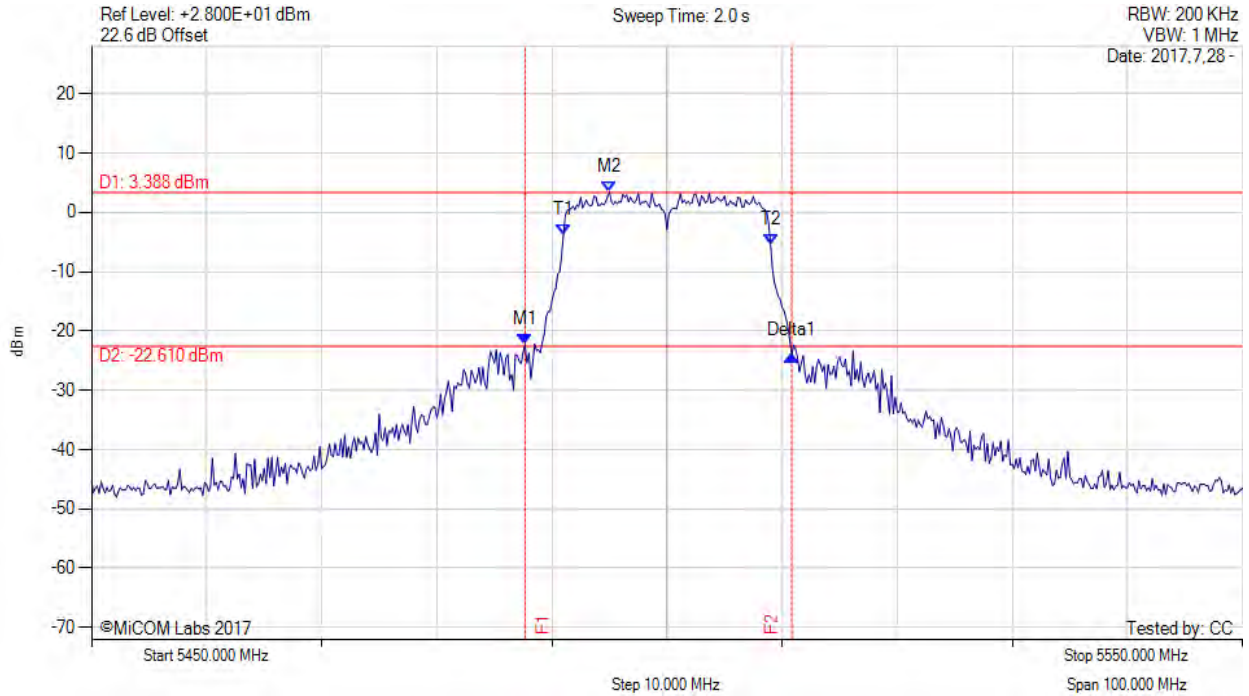
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5500.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5487.670 MHz : -22.355 dBm M2 : 5495.000 MHz : 3.388 dBm Delta1 : 23.170 MHz : -1.734 dB T1 : 5491.000 MHz : -3.796 dBm T2 : 5509.000 MHz : -5.538 dBm OBW : 17.943 MHz	Measured 26 dB Bandwidth: 23.170 MHz Measured 99% Bandwidth: 17.943 MHz

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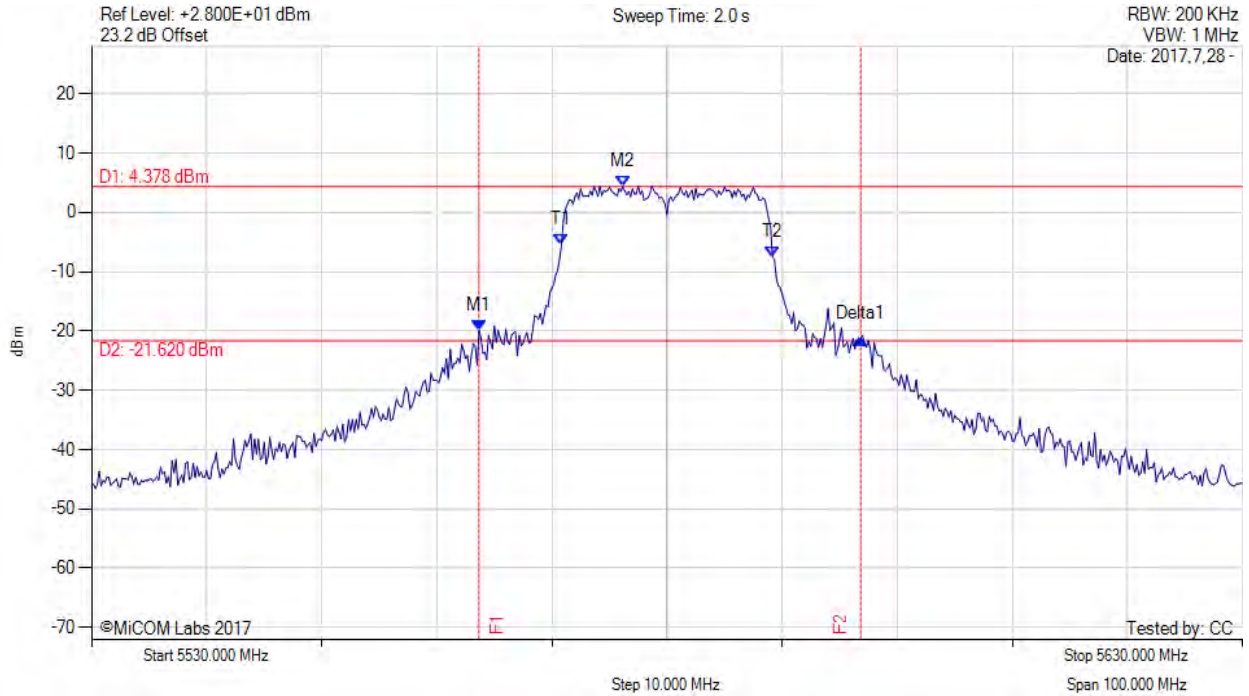


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**Serial #:** HPEN111-U12\_Conducted DFS Bands Rev A  
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5580.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5563.670 MHz : -19.940 dBm M2 : 5576.170 MHz : 4.378 dBm Delta1 : 33.170 MHz : -1.357 dB T1 : 5570.833 MHz : -5.442 dBm T2 : 5589.167 MHz : -7.466 dBm OBW : 18.253 MHz	Measured 26 dB Bandwidth: 33.170 MHz Measured 99% Bandwidth: 18.253 MHz

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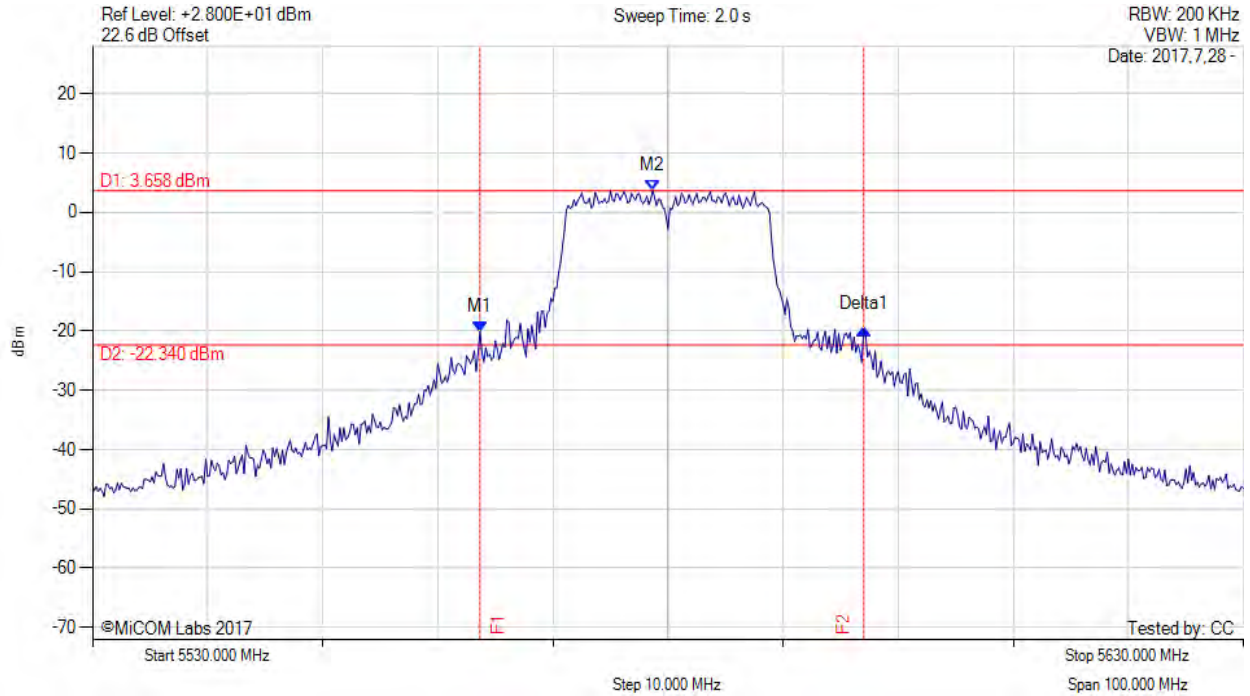
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5580.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5563.670 MHz : -20.172 dBm M2 : 5578.670 MHz : 3.658 dBm Delta1 : 33.330 MHz : 0.394 dB T1 : 0 Hz : 0.000 dBm T2 : 0 Hz : 0.000 dBm OBW : 18.282 MHz	Measured 26 dB Bandwidth: 33.330 MHz Measured 99% Bandwidth: 18.282 MHz

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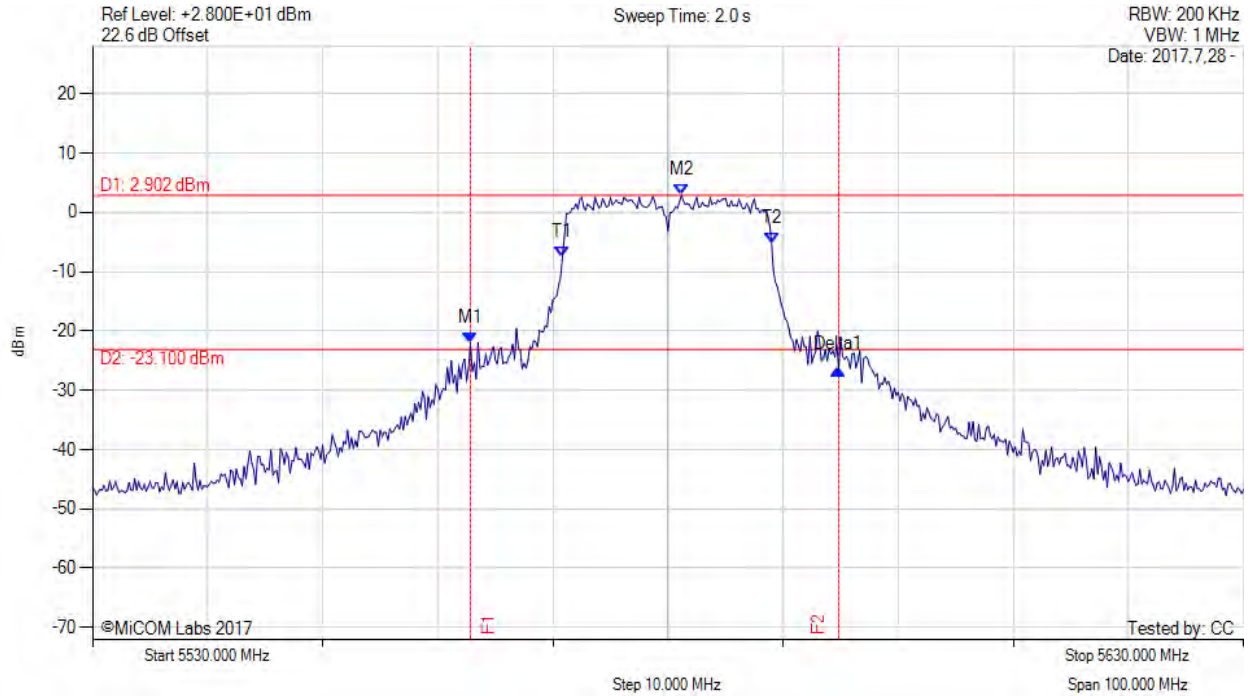
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5580.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5562.830 MHz : -22.062 dBm M2 : 5581.170 MHz : 2.902 dBm Delta1 : 32.000 MHz : -4.420 dB T1 : 5570.833 MHz : -7.462 dBm T2 : 5589.000 MHz : -5.244 dBm OBW : 18.068 MHz	Measured 26 dB Bandwidth: 32.000 MHz Measured 99% Bandwidth: 18.068 MHz

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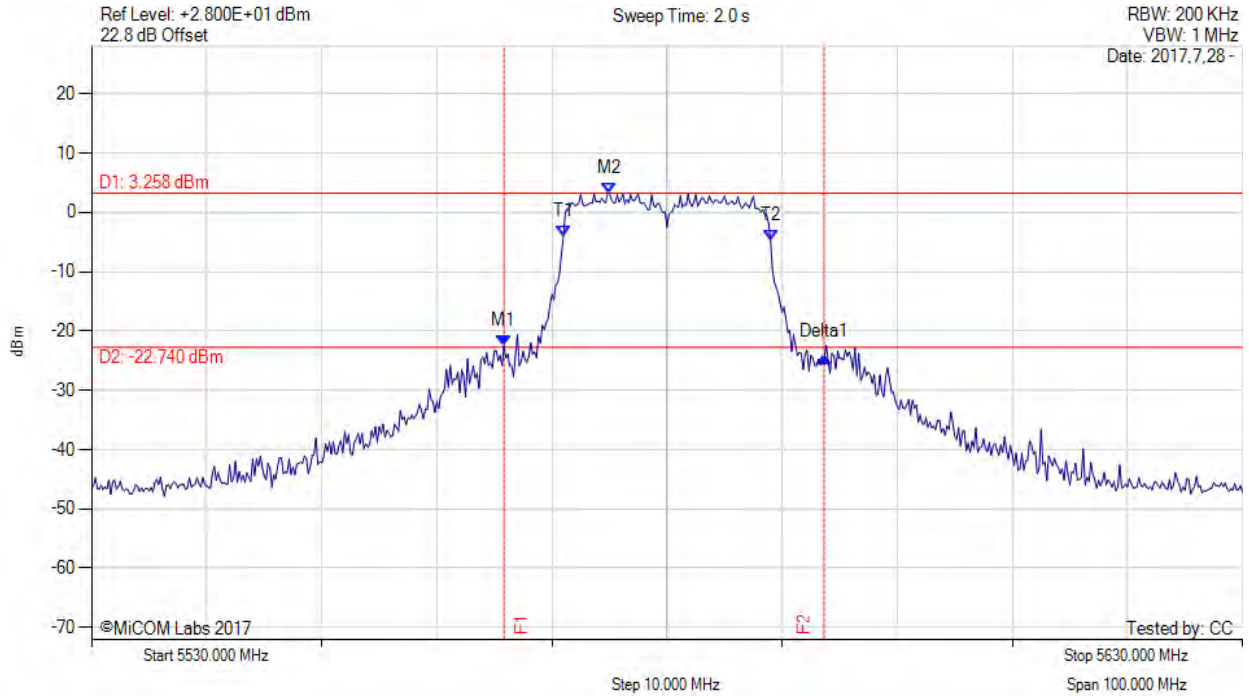
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5580.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5565.830 MHz : -22.431 dBm M2 : 5575.000 MHz : 3.258 dBm Delta1 : 27.830 MHz : -1.978 dB T1 : 5571.000 MHz : -3.950 dBm T2 : 5589.000 MHz : -4.793 dBm OBW : 18.015 MHz	Measured 26 dB Bandwidth: 27.830 MHz Measured 99% Bandwidth: 18.015 MHz

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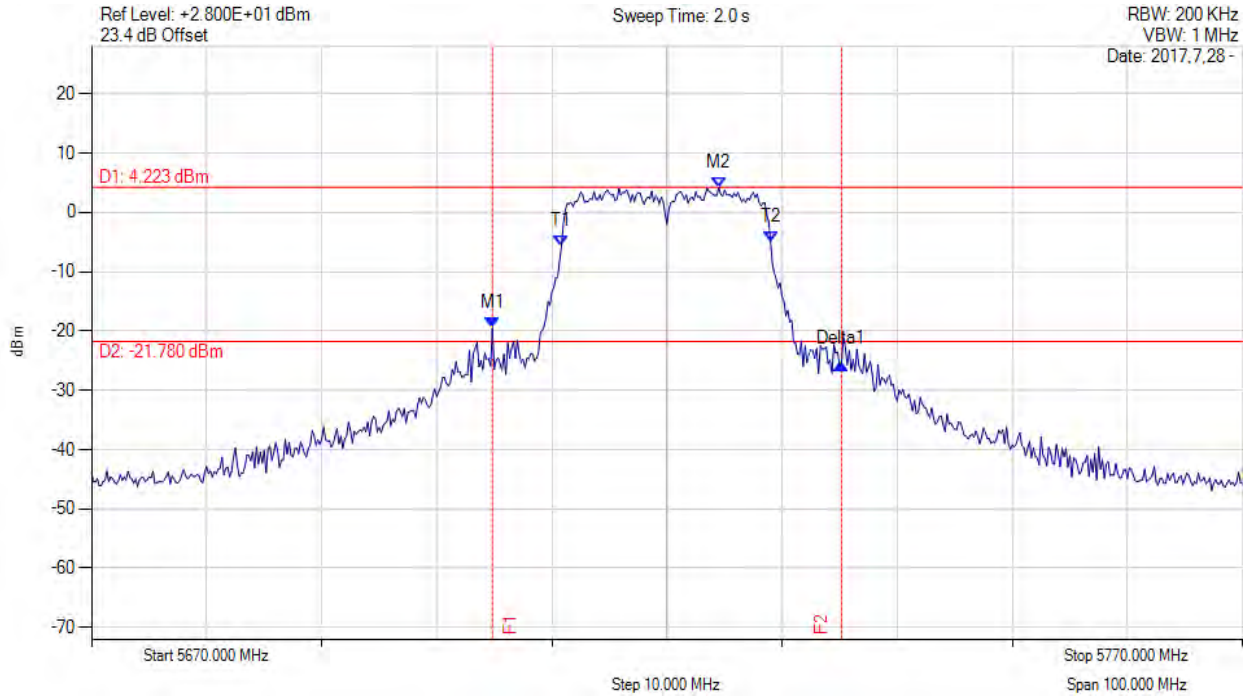
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5720.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5704.830 MHz : -19.543 dBm M2 : 5724.500 MHz : 4.223 dBm Delta1 : 30.330 MHz : -5.919 dB T1 : 5710.833 MHz : -5.710 dBm T2 : 5729.000 MHz : -4.912 dBm OBW : 18.045 MHz	Measured 26 dB Bandwidth: 30.330 MHz Measured 99% Bandwidth: 18.045 MHz

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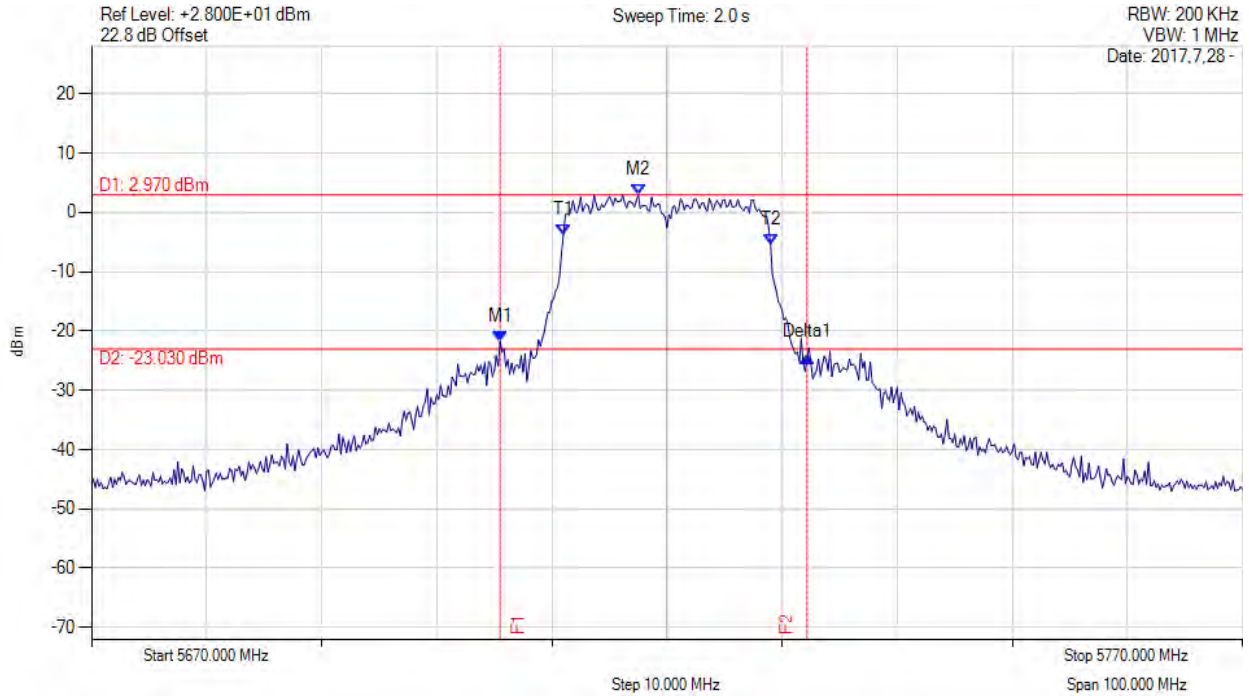
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5720.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5705.500 MHz : -21.766 dBm M2 : 5717.500 MHz : 2.970 dBm Delta1 : 26.670 MHz : -2.610 dB T1 : 5711.000 MHz : -3.750 dBm T2 : 5729.000 MHz : -5.428 dBm OBW : 18.009 MHz	Measured 26 dB Bandwidth: 26.670 MHz Measured 99% Bandwidth: 18.009 MHz

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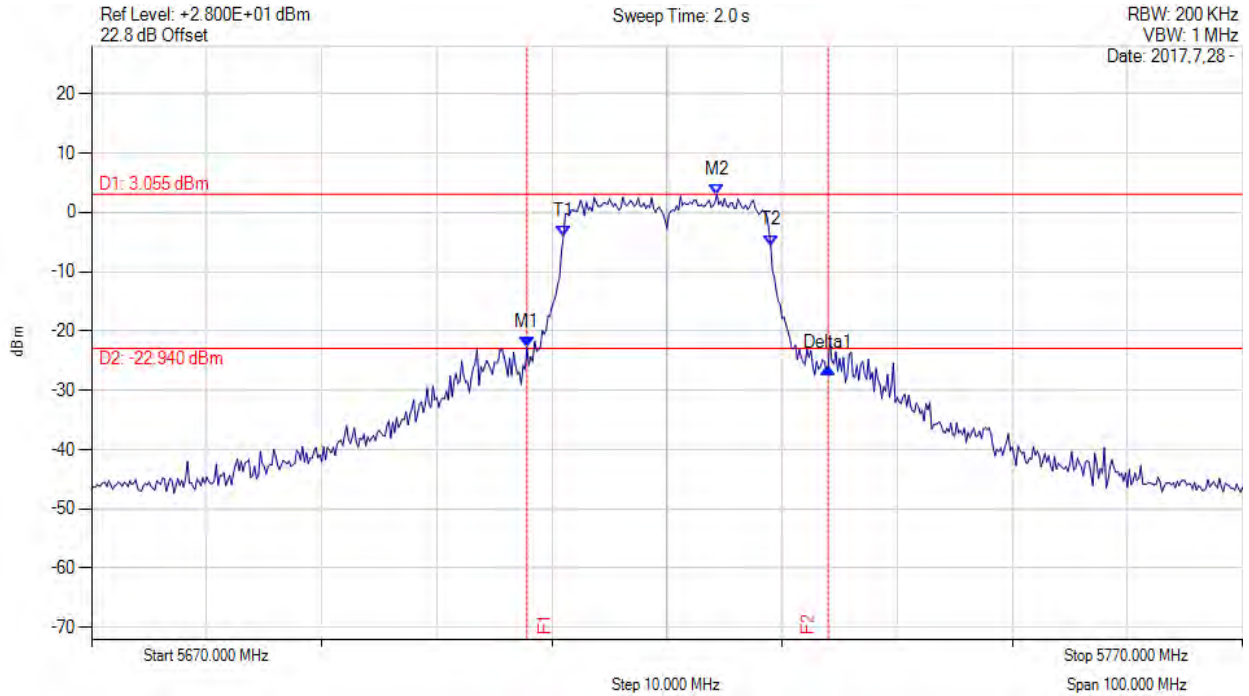


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**To:** FCC Subpart E 15.407 & ISED RSS-247  
**Serial #:** HPEN111-U12\_Conducted DFS Bands Rev A  
**Issue Date:** 20<sup>th</sup> August 2017  
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5720.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5707.830 MHz : -22.756 dBm M2 : 5724.330 MHz : 3.055 dBm Delta1 : 26.170 MHz : -3.552 dB T1 : 5711.000 MHz : -4.031 dBm T2 : 5729.000 MHz : -5.563 dBm OBW : 18.027 MHz	Measured 26 dB Bandwidth: 26.170 MHz Measured 99% Bandwidth: 18.027 MHz

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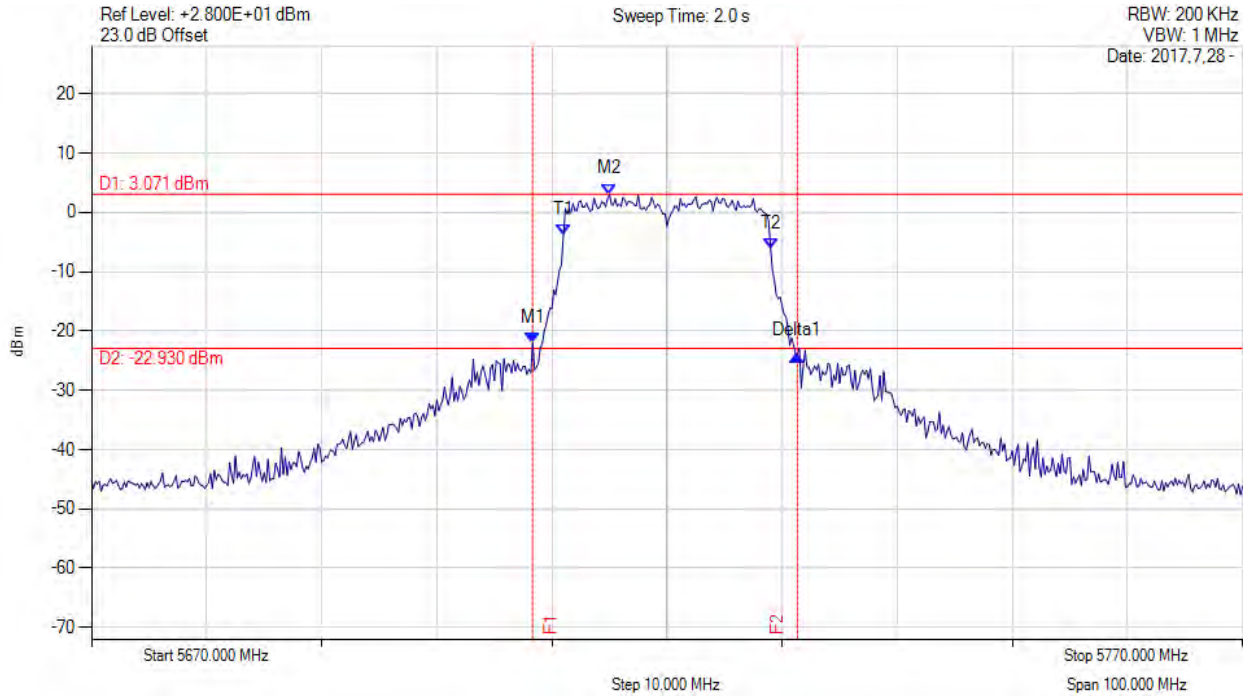
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-20, Channel: 5720.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5708.330 MHz : -22.018 dBm M2 : 5715.000 MHz : 3.071 dBm Delta1 : 23.000 MHz : -2.069 dB T1 : 5711.000 MHz : -3.820 dBm T2 : 5729.000 MHz : -6.062 dBm OBW : 17.957 MHz	Measured 26 dB Bandwidth: 23.000 MHz Measured 99% Bandwidth: 17.957 MHz

[back to matrix](#)

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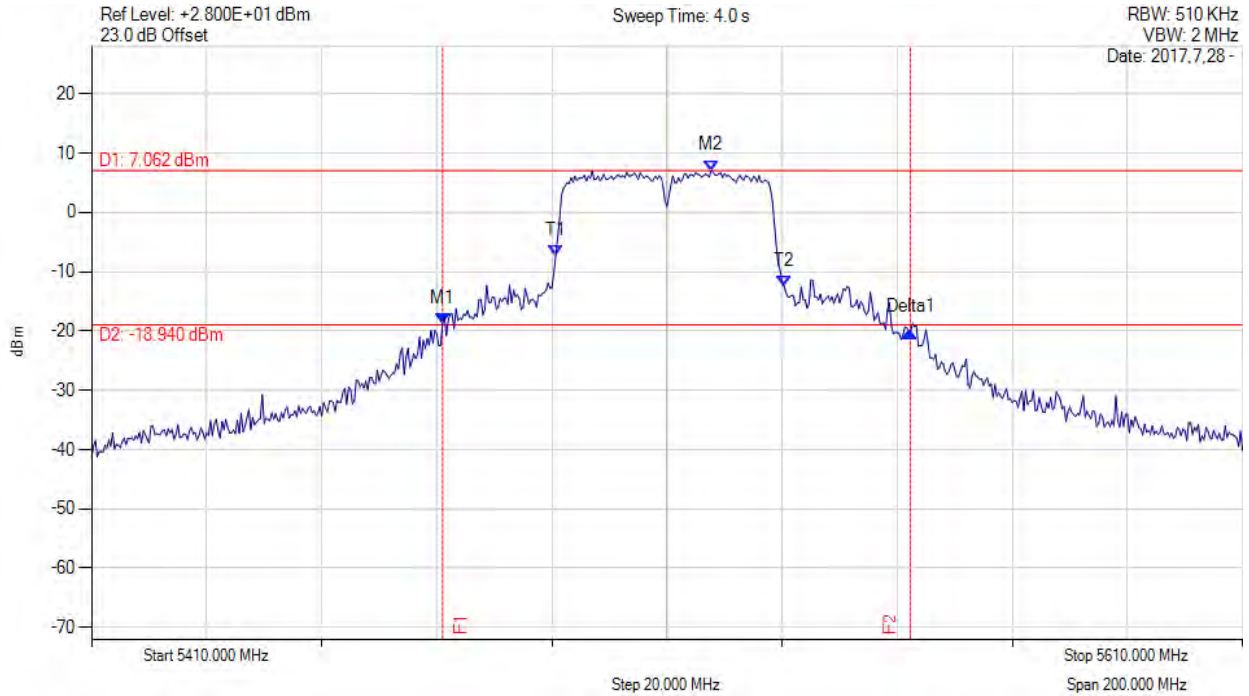




26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5510.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5471.000 MHz : -18.762 dBm M2 : 5517.700 MHz : 7.062 dBm Delta1 : 81.300 MHz : -1.321 dB T1 : 5490.667 MHz : -7.339 dBm T2 : 5530.333 MHz : -12.489 dBm OBW : 39.975 MHz	Measured 26 dB Bandwidth: 81.300 MHz Measured 99% Bandwidth: 39.975 MHz

[back to matrix](#)

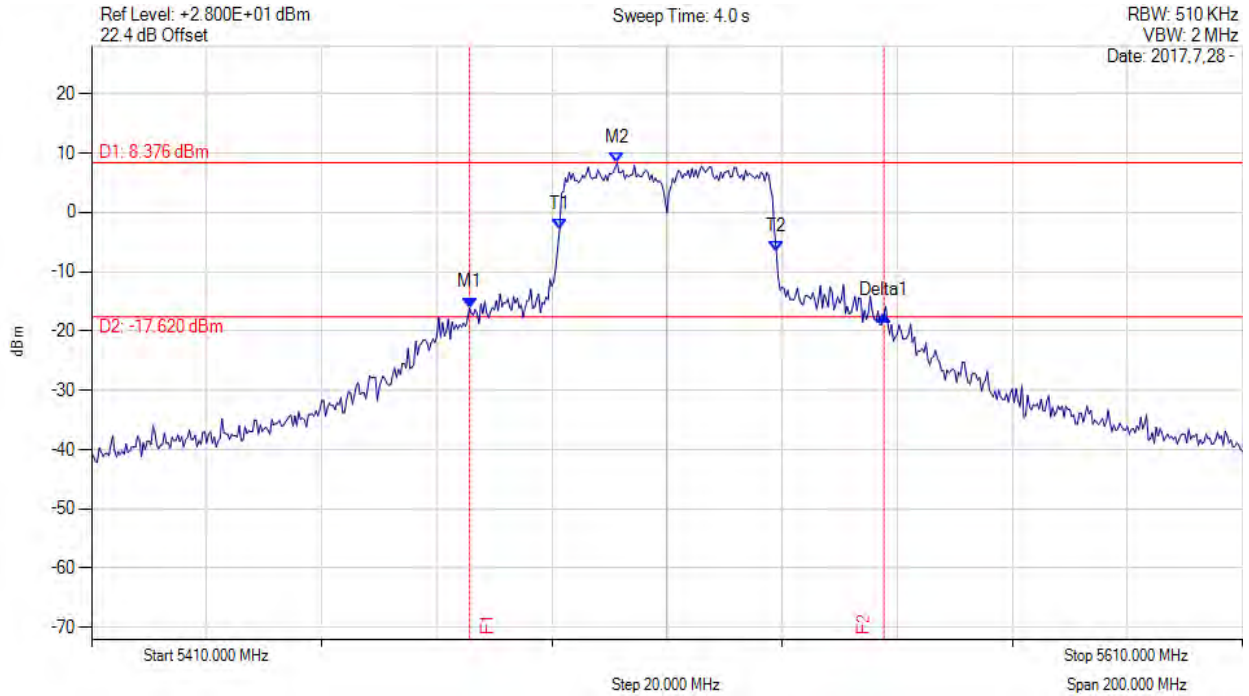
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5510.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5475.700 MHz : -16.081 dBm M2 : 5501.300 MHz : 8.376 dBm Delta1 : 72.000 MHz : -1.271 dB T1 : 5491.333 MHz : -2.789 dBm T2 : 5529.000 MHz : -6.626 dBm OBW : 37.532 MHz	Measured 26 dB Bandwidth: 72.000 MHz Measured 99% Bandwidth: 37.532 MHz

[back to matrix](#)

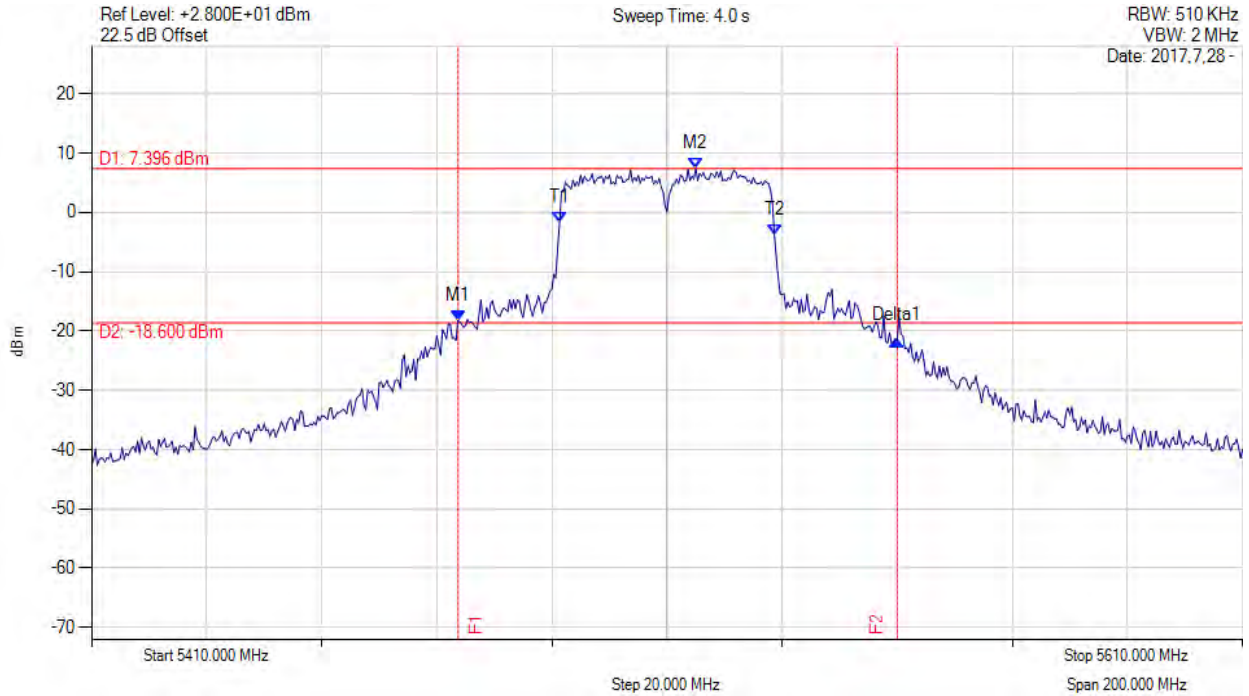
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5510.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5473.700 MHz : -18.235 dBm M2 : 5515.000 MHz : 7.396 dBm Delta1 : 76.300 MHz : -3.410 dB T1 : 5491.333 MHz : -1.693 dBm T2 : 5528.667 MHz : -3.880 dBm OBW : 37.343 MHz	Measured 26 dB Bandwidth: 76.300 MHz Measured 99% Bandwidth: 37.343 MHz

[back to matrix](#)

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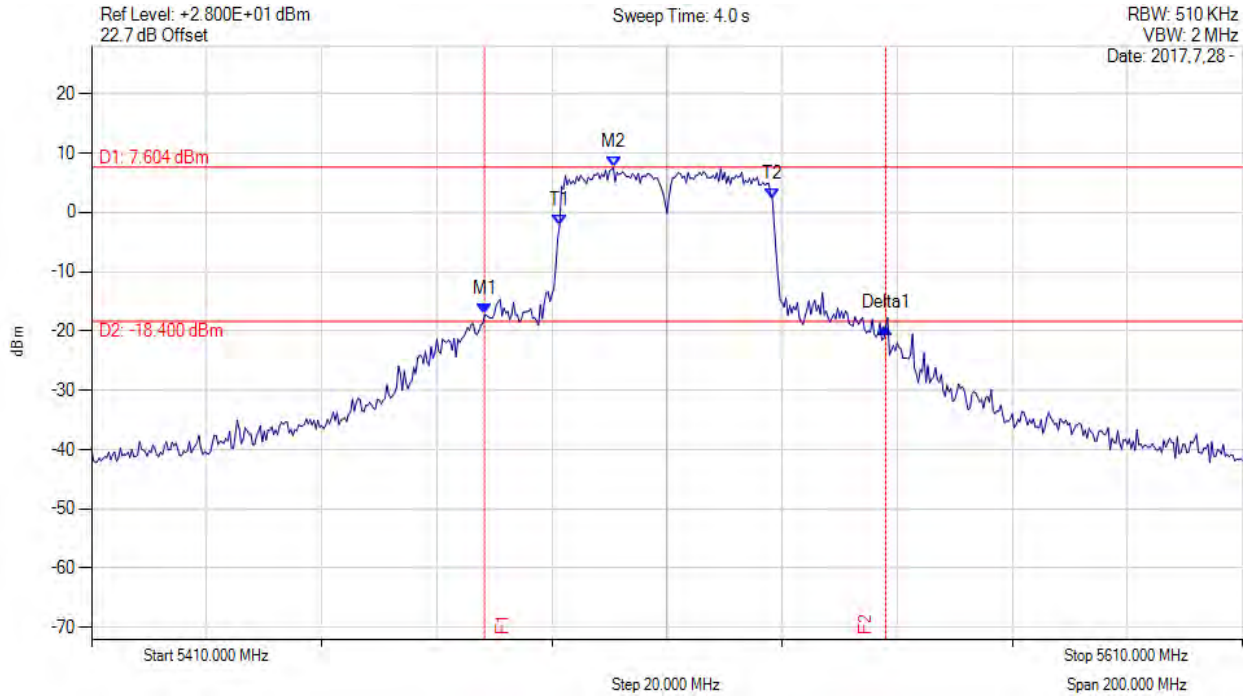


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**To:** FCC Subpart E 15.407 & ISSED RSS-247  
**Serial #:** HPEN111-U12\_Conducted DFS Bands Rev A  
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5510.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5478.300 MHz : -17.215 dBm M2 : 5500.700 MHz : 7.604 dBm Delta1 : 69.700 MHz : -2.325 dB T1 : 5491.333 MHz : -2.213 dBm T2 : 5528.333 MHz : 2.198 dBm OBW : 36.995 MHz	Measured 26 dB Bandwidth: 69.700 MHz Measured 99% Bandwidth: 36.995 MHz

[back to matrix](#)

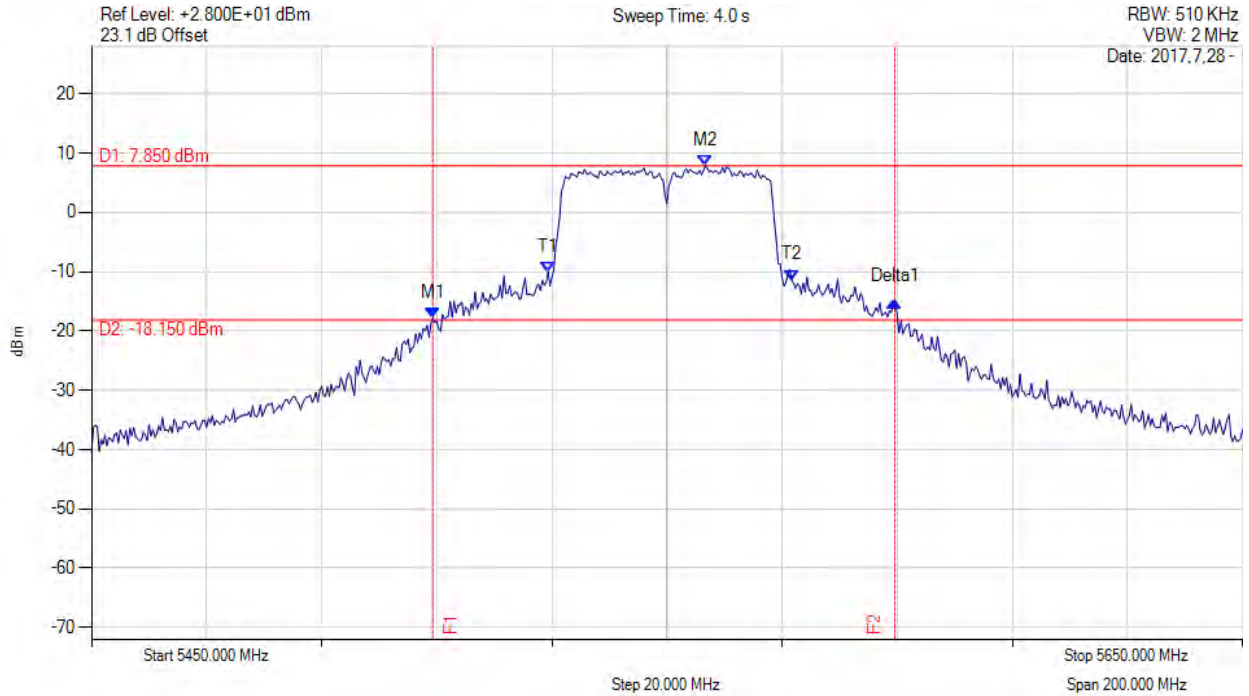
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5550.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5509.300 MHz : -17.822 dBm M2 : 5556.700 MHz : 7.850 dBm Delta1 : 80.300 MHz : 2.808 dB T1 : 5529.333 MHz : -10.043 dBm T2 : 5571.667 MHz : -11.397 dBm OBW : 42.288 MHz	Measured 26 dB Bandwidth: 80.300 MHz Measured 99% Bandwidth: 42.288 MHz

[back to matrix](#)

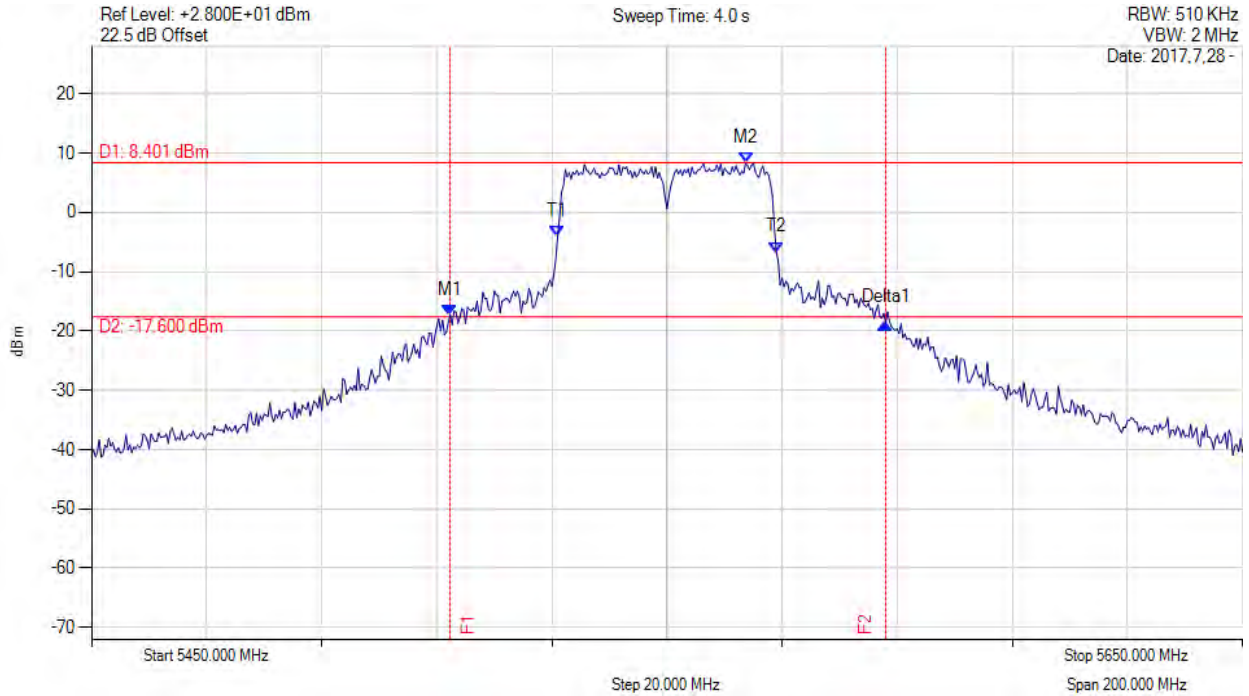
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5550.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5512.300 MHz : -17.292 dBm M2 : 5563.700 MHz : 8.401 dBm Delta1 : 75.700 MHz : -1.355 dB T1 : 5531.000 MHz : -4.125 dBm T2 : 5569.000 MHz : -6.733 dBm OBW : 37.948 MHz	Measured 26 dB Bandwidth: 75.700 MHz Measured 99% Bandwidth: 37.948 MHz

[back to matrix](#)

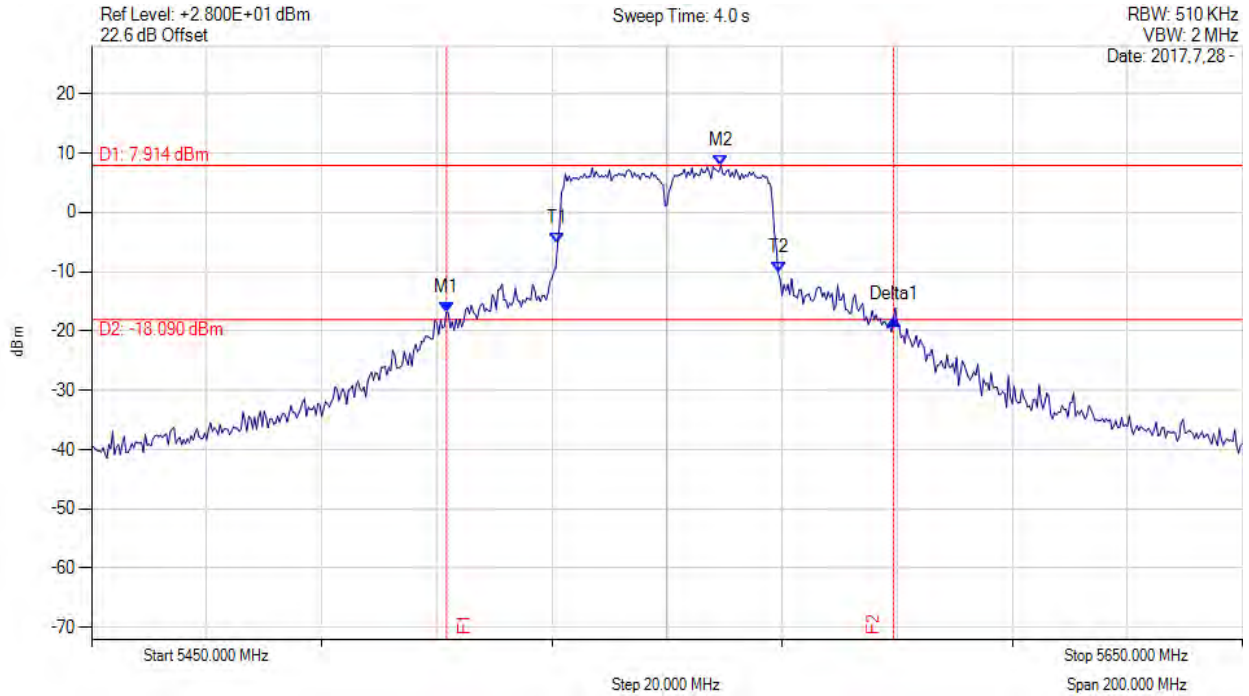
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5550.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5511.700 MHz : -16.871 dBm M2 : 5559.300 MHz : 7.914 dBm Delta1 : 77.700 MHz : -1.222 dB T1 : 5531.000 MHz : -5.246 dBm T2 : 5569.333 MHz : -10.208 dBm OBW : 38.244 MHz	Measured 26 dB Bandwidth: 77.700 MHz Measured 99% Bandwidth: 38.244 MHz

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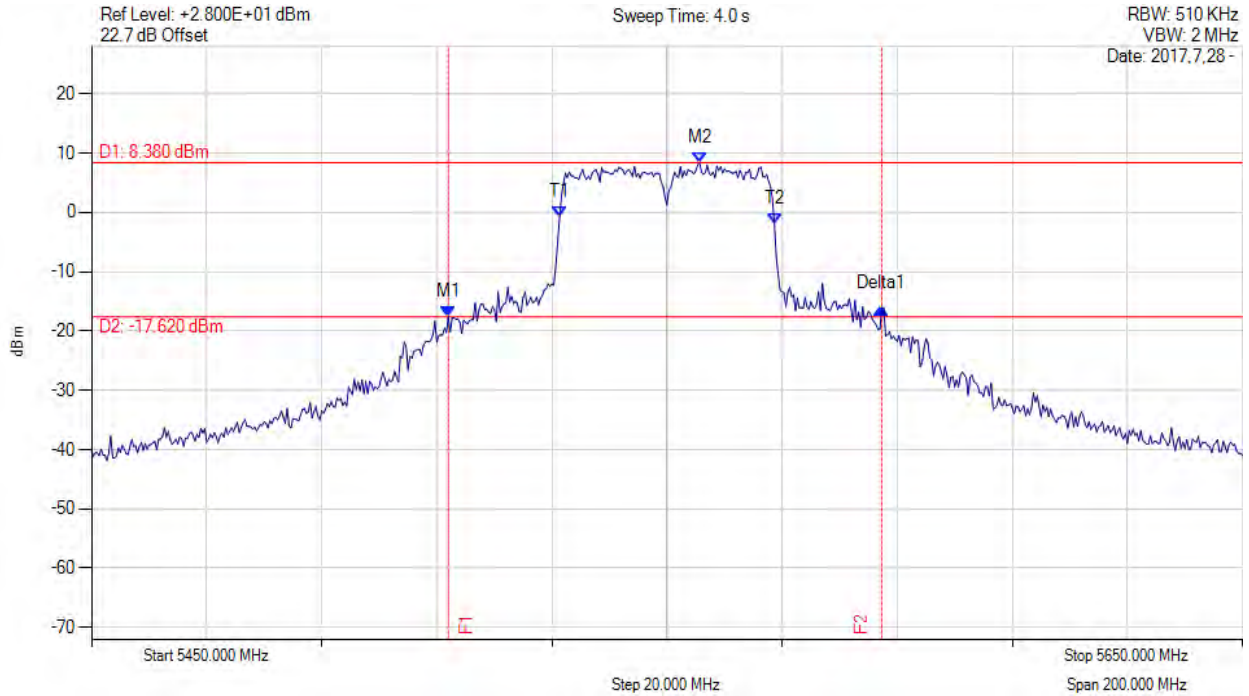
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5550.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5512.000 MHz : -17.566 dBm M2 : 5555.700 MHz : 8.380 dBm Delta1 : 75.300 MHz : 1.422 dB T1 : 5531.333 MHz : -0.803 dBm T2 : 5568.667 MHz : -1.914 dBm OBW : 37.272 MHz	Measured 26 dB Bandwidth: 75.300 MHz Measured 99% Bandwidth: 37.272 MHz

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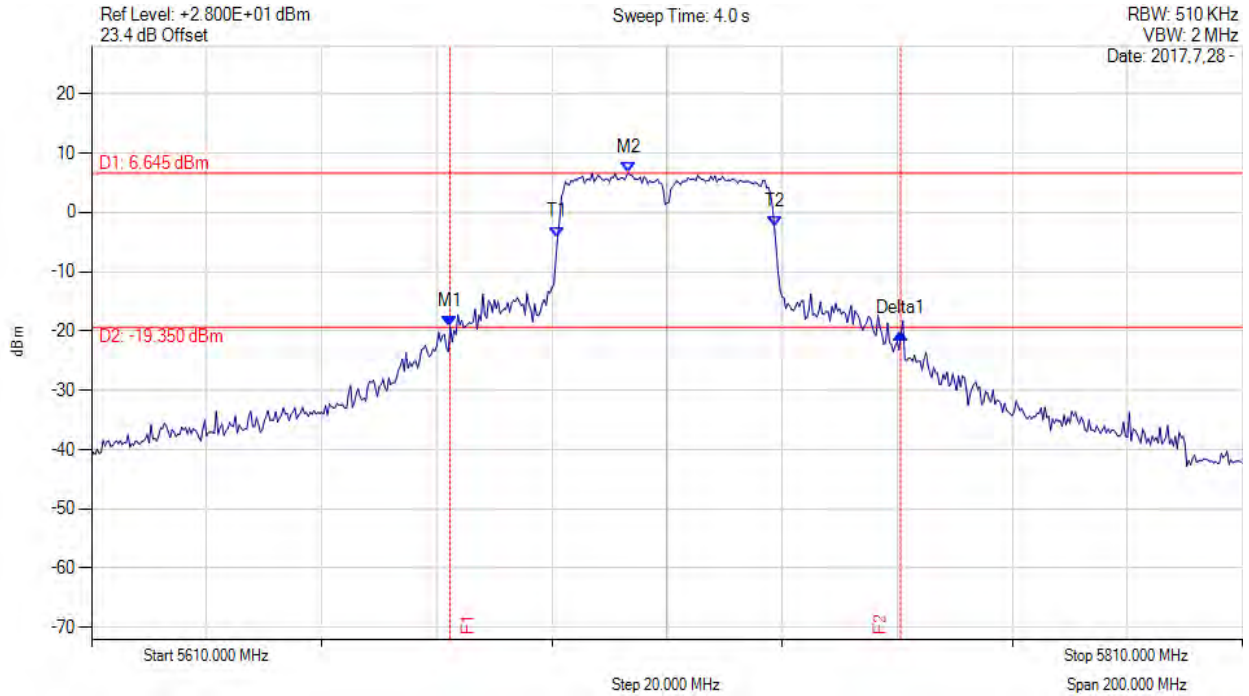




26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5710.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5672.300 MHz : -19.319 dBm M2 : 5703.300 MHz : 6.645 dBm Delta1 : 78.300 MHz : -1.025 dB T1 : 5691.000 MHz : -4.160 dBm T2 : 5728.667 MHz : -2.506 dBm OBW : 37.619 MHz	Measured 26 dB Bandwidth: 78.300 MHz Measured 99% Bandwidth: 37.619 MHz

[back to matrix](#)

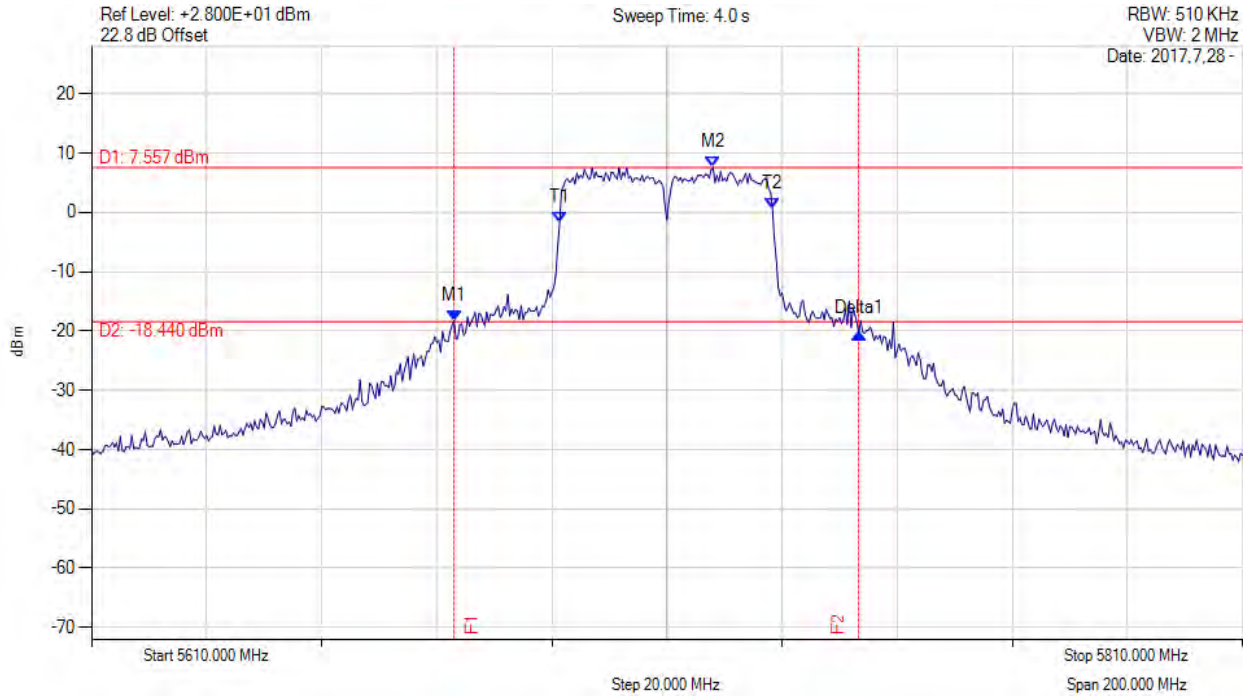
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5710.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5673.000 MHz : -18.297 dBm M2 : 5718.000 MHz : 7.557 dBm Delta1 : 70.300 MHz : -2.084 dB T1 : 5691.333 MHz : -1.755 dBm T2 : 5728.333 MHz : 0.687 dBm OBW : 36.959 MHz	Measured 26 dB Bandwidth: 70.300 MHz Measured 99% Bandwidth: 36.959 MHz

[back to matrix](#)

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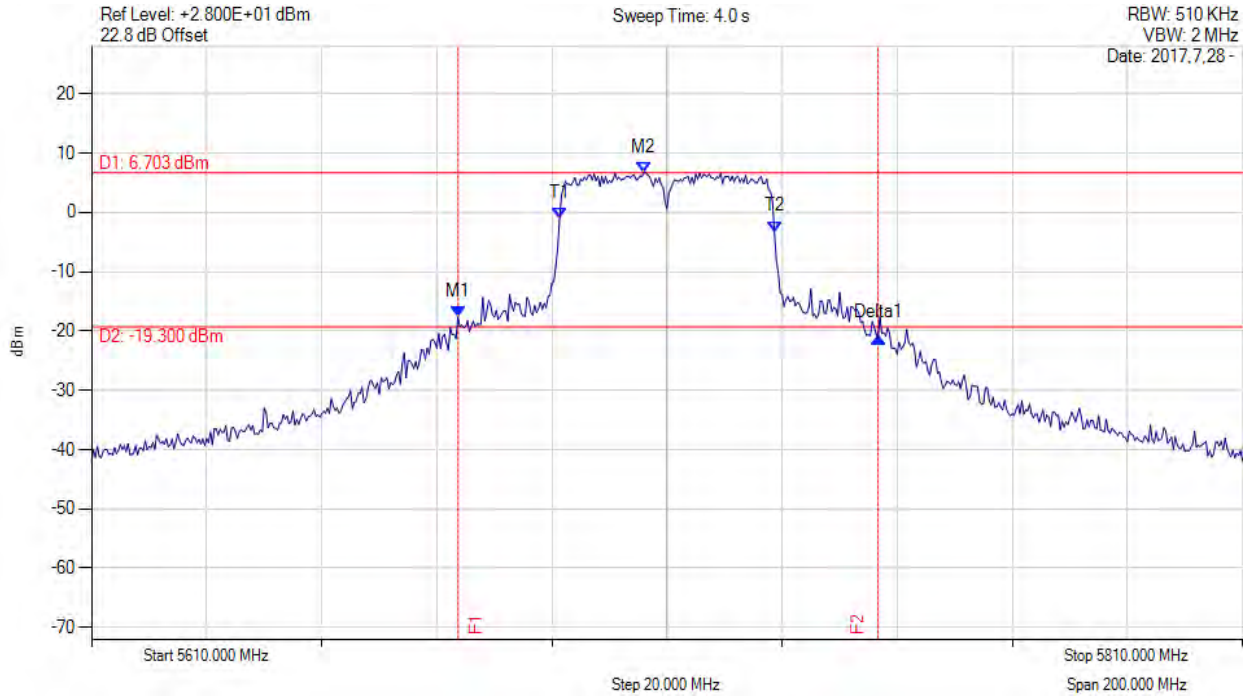


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
**Serial #:** HPEN111-U12\_Conducted DFS Bands Rev A  
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5710.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5673.700 MHz : -17.659 dBm M2 : 5706.000 MHz : 6.703 dBm Delta1 : 73.000 MHz : -3.477 dB T1 : 5691.333 MHz : -0.946 dBm T2 : 5728.667 MHz : -3.225 dBm OBW : 37.334 MHz	Measured 26 dB Bandwidth: 73.000 MHz Measured 99% Bandwidth: 37.334 MHz

[back to matrix](#)

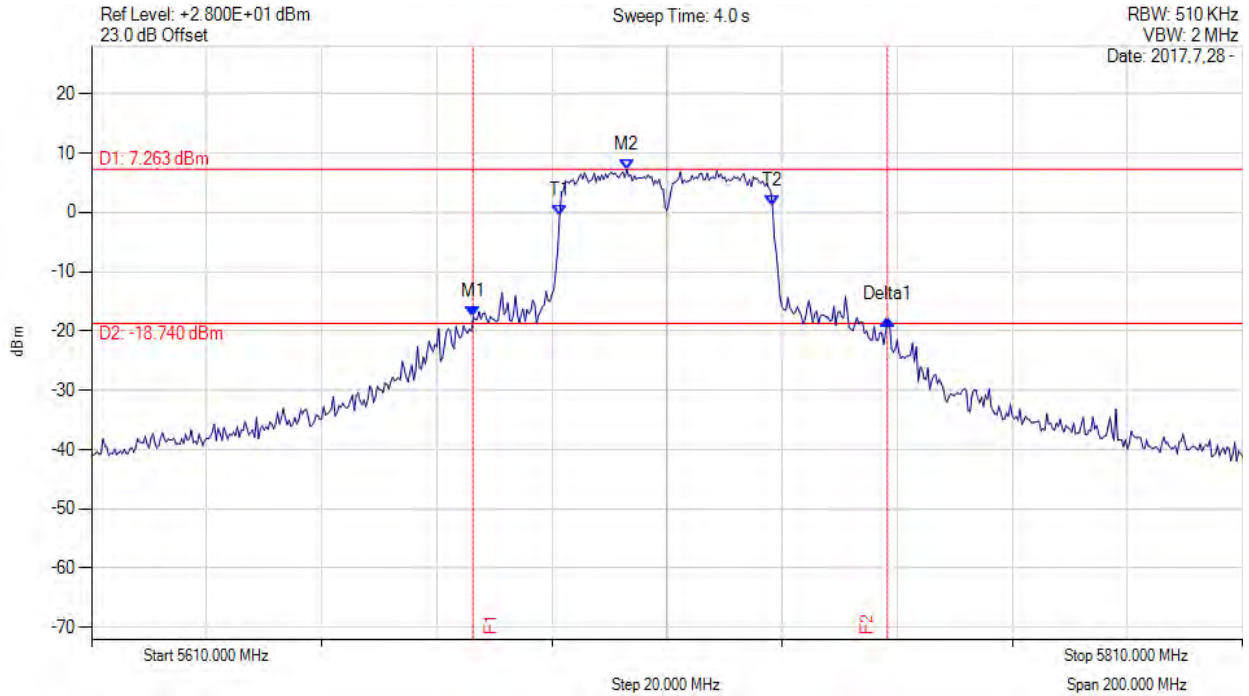
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26 dB & 99% BANDWIDTH



Variant: 802.11n HT-40, Channel: 5710.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = POS Sweep Count = 0 RF Atten (dB) = 20 Trace Mode = MAXH	M1 : 5676.300 MHz : -17.632 dBm M2 : 5703.000 MHz : 7.263 dBm Delta1 : 72.000 MHz : -0.523 dB T1 : 5691.333 MHz : -0.595 dBm T2 : 5728.333 MHz : 1.107 dBm OBW : 37.045 MHz	Measured 26 dB Bandwidth: 72.000 MHz Measured 99% Bandwidth: 37.045 MHz

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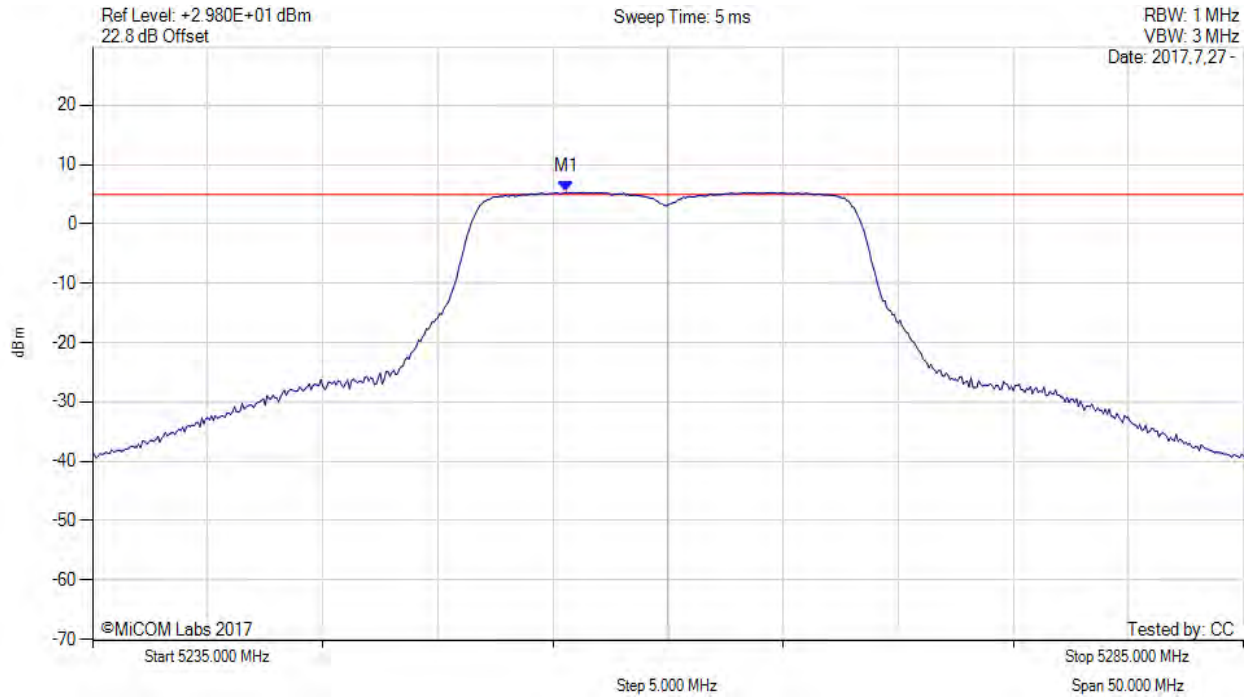


## A.2. Power Spectral Density



### POWER SPECTRAL DENSITY

Variant: 802.11a, Channel: 5260.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5255.580 MHz : 5.379 dBm	Limit: ≤ 4.980 dBm

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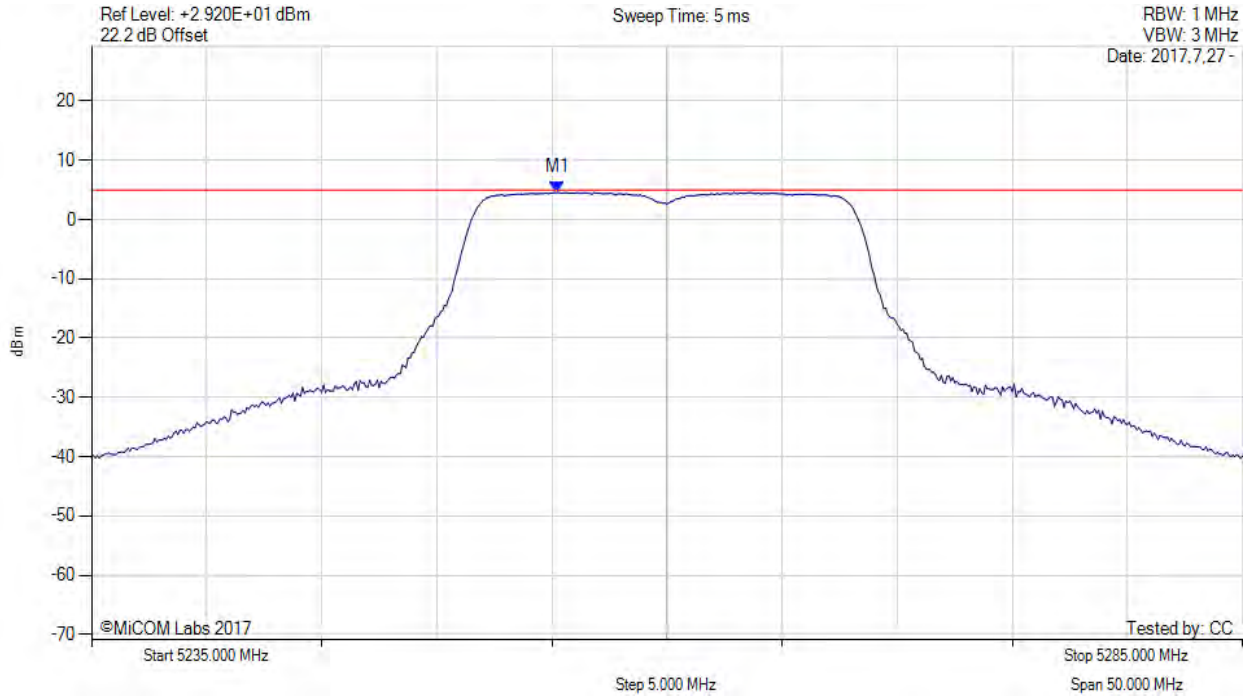


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**To:** FCC Subpart E 15.407 & ISED RSS-247  
**Serial #:** HPEN111-U12\_Conducted DFS Bands Rev A  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5260.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5255.250 MHz : 4.578 dBm	Limit: ≤ 4.980 dBm

[back to matrix](#)

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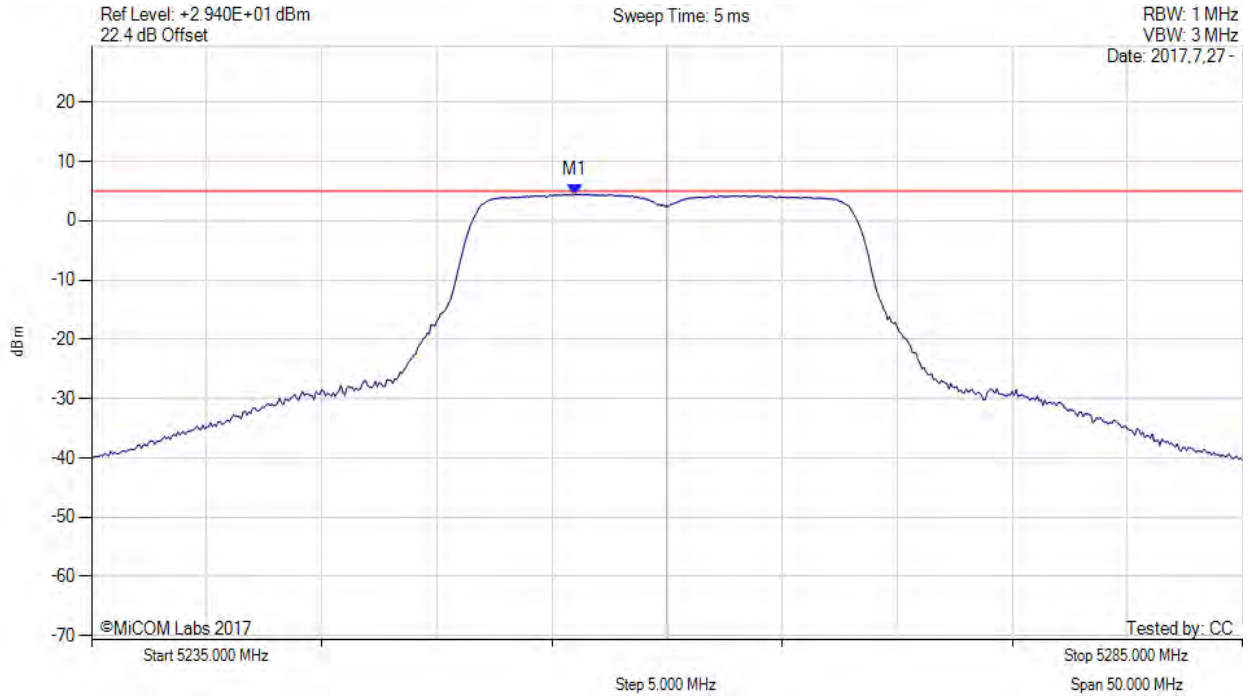


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5260.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5256.000 MHz : 4.446 dBm	Limit: ≤ 4.980 dBm

[back to matrix](#)

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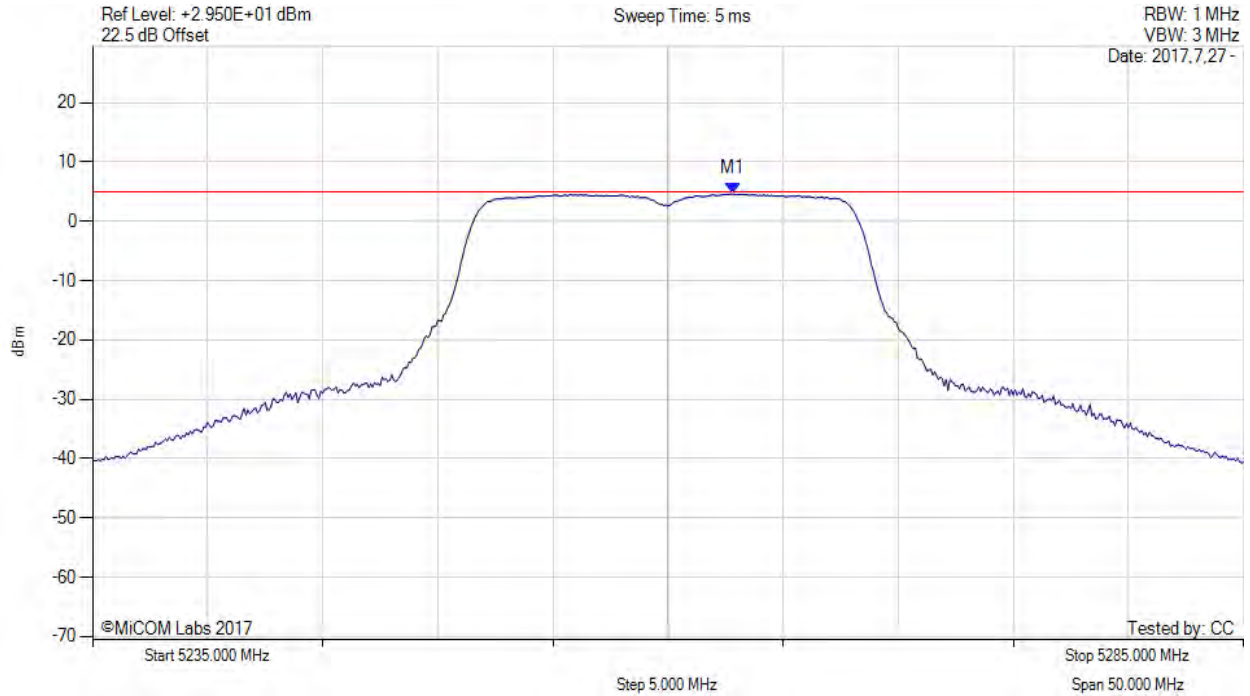


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5260.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5262.830 MHz : 4.612 dBm	Limit: ≤ 4.980 dBm

[back to matrix](#)

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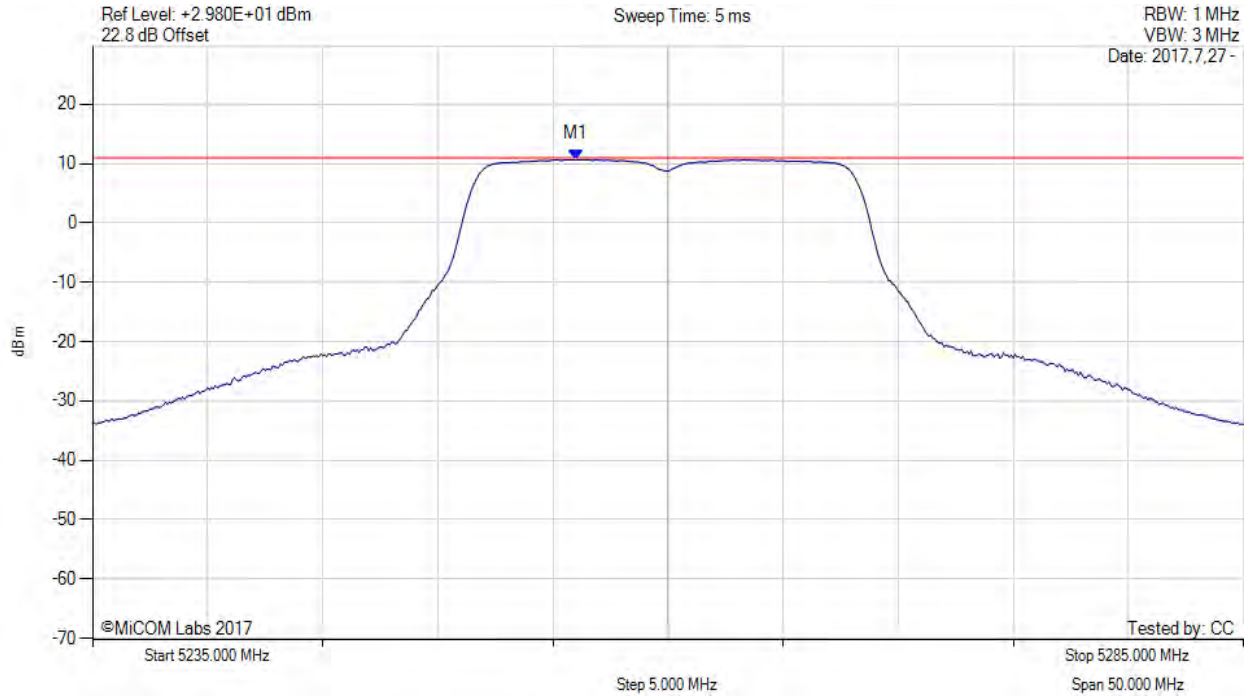


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5260.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5256.000 MHz : 10.723 dBm M1 + DCCF : 5256.000 MHz : 10.767 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: $\leq 11.0$ dBm Margin: $-0.3$ dB

[back to matrix](#)

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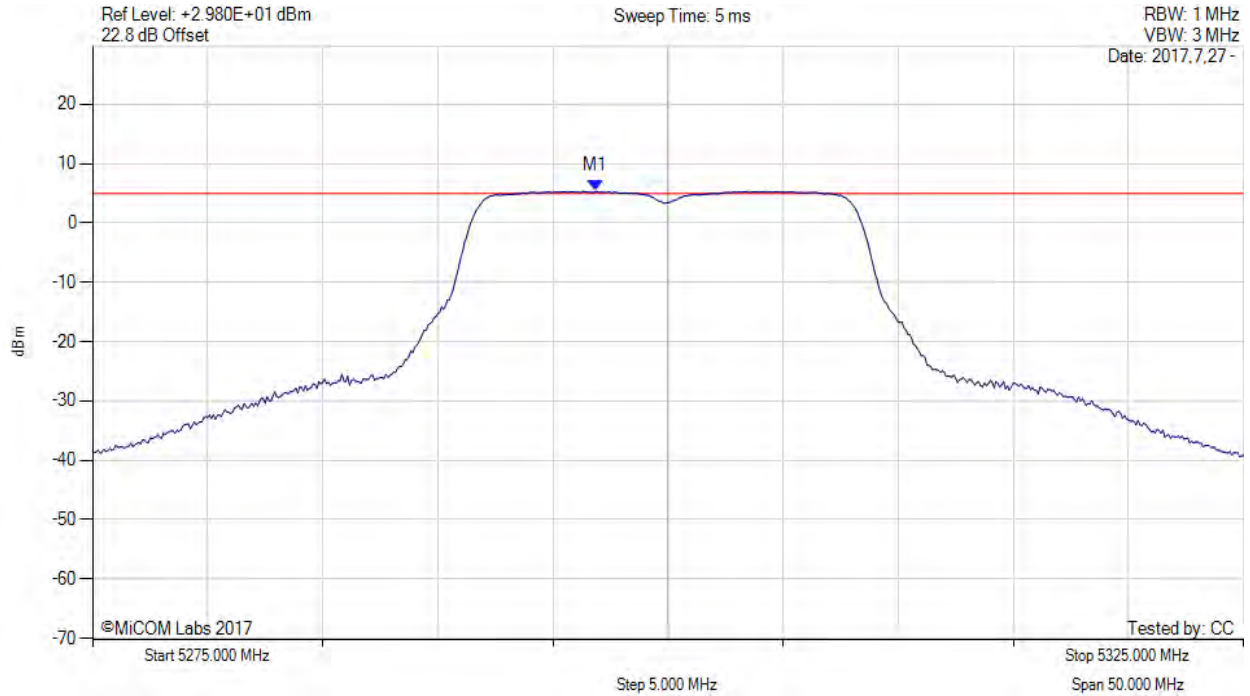


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5300.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5296.830 MHz : 5.374 dBm	Limit: ≤ 4.980 dBm

[back to matrix](#)

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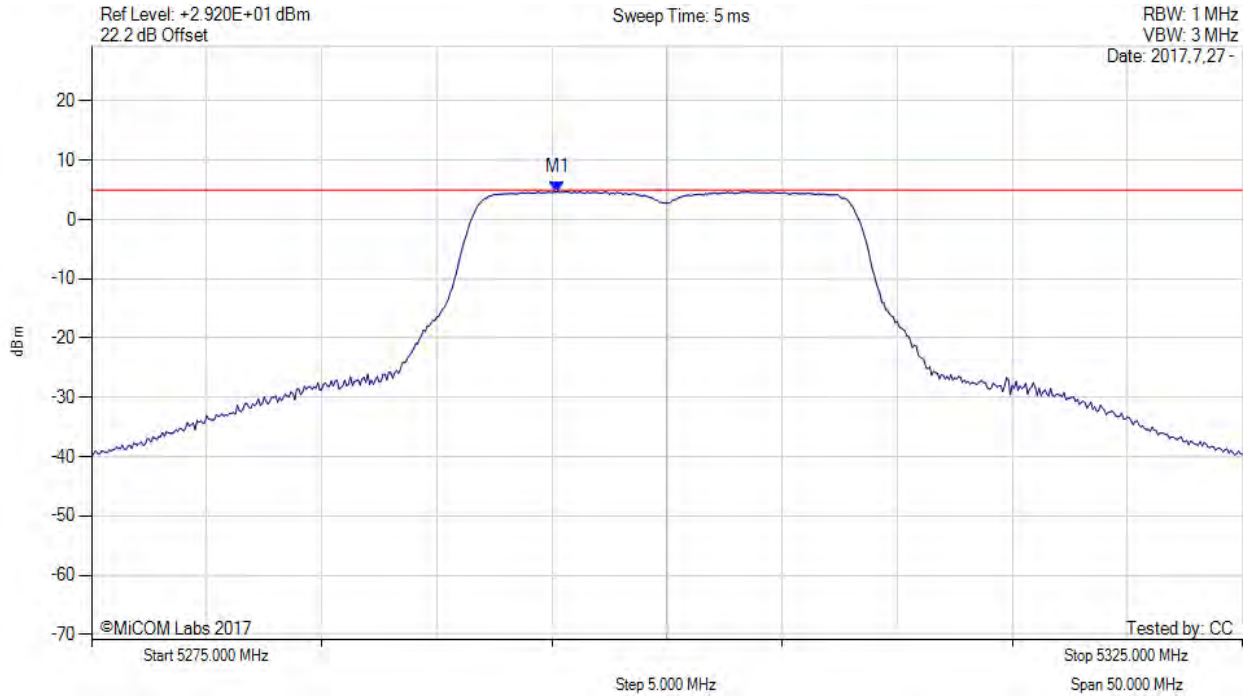


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5300.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5295.250 MHz : 4.712 dBm	Channel Frequency: 5300.00 MHz

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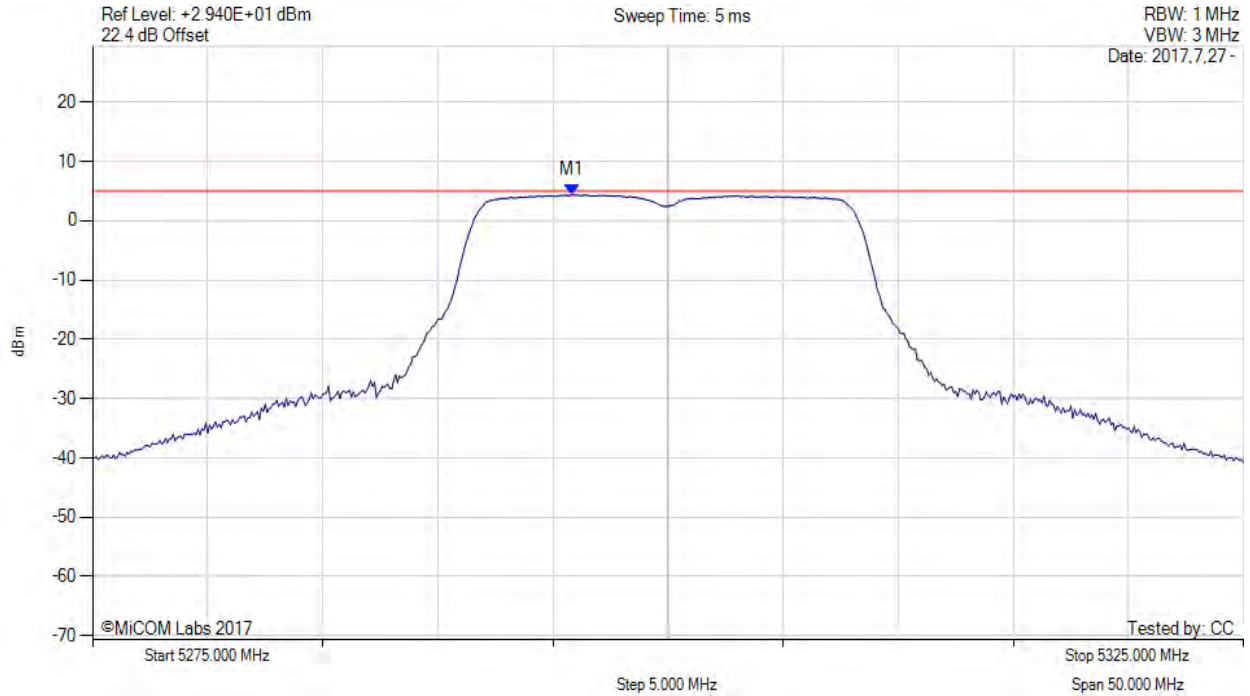


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5300.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5295.830 MHz : 4.358 dBm	Limit: ≤ 4.980 dBm

[back to matrix](#)

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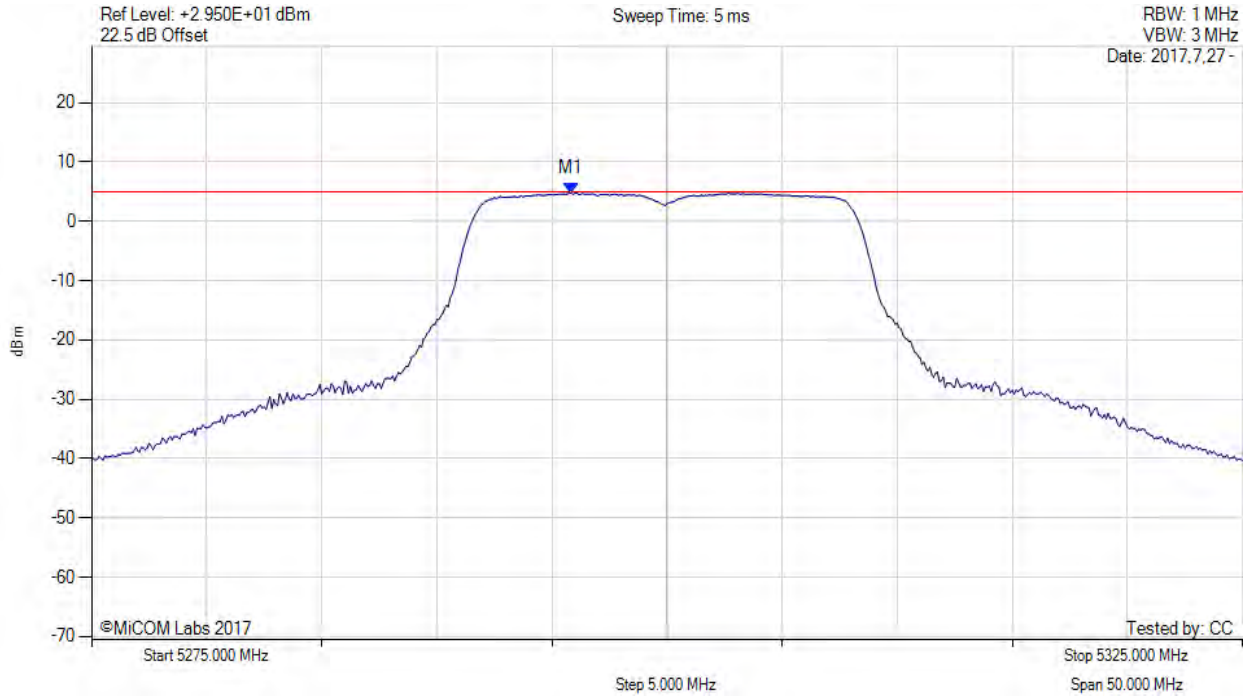


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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5300.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5295.830 MHz : 4.785 dBm	Limit: ≤ 4.980 dBm

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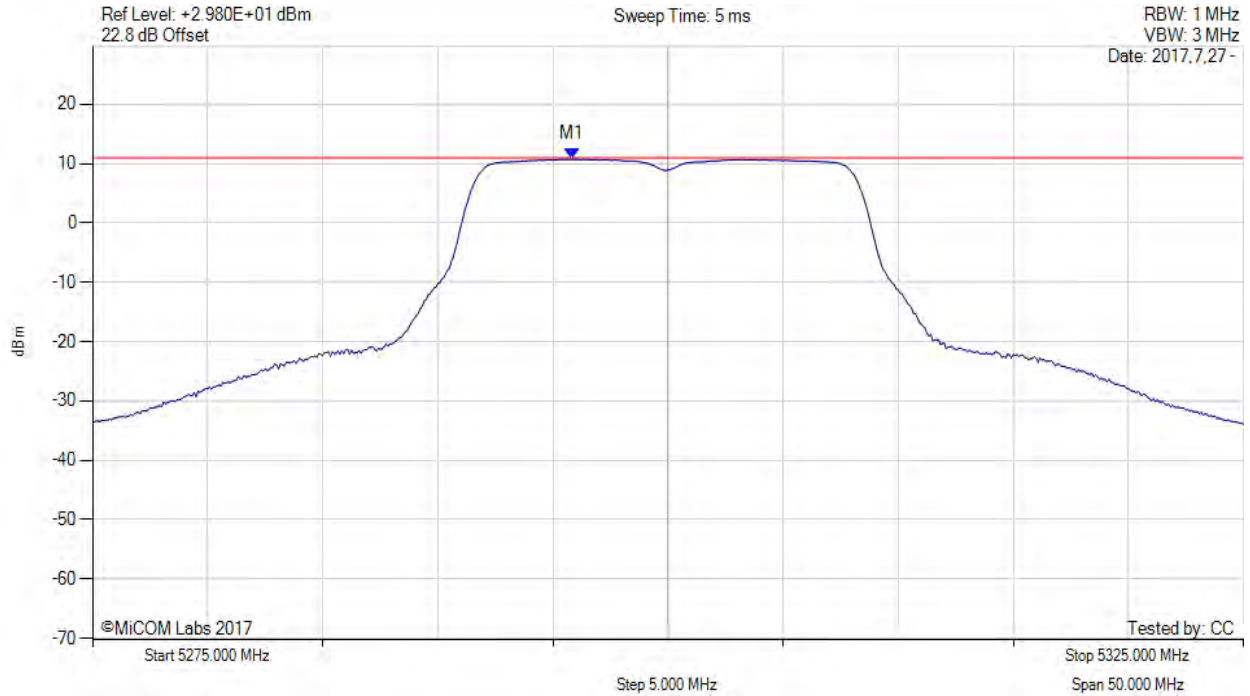


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5300.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5295.800 MHz : 10.763 dBm M1 + DCCF : 5295.800 MHz : 10.807 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: $\leq 11.0$ dBm Margin: $-0.2$ dB

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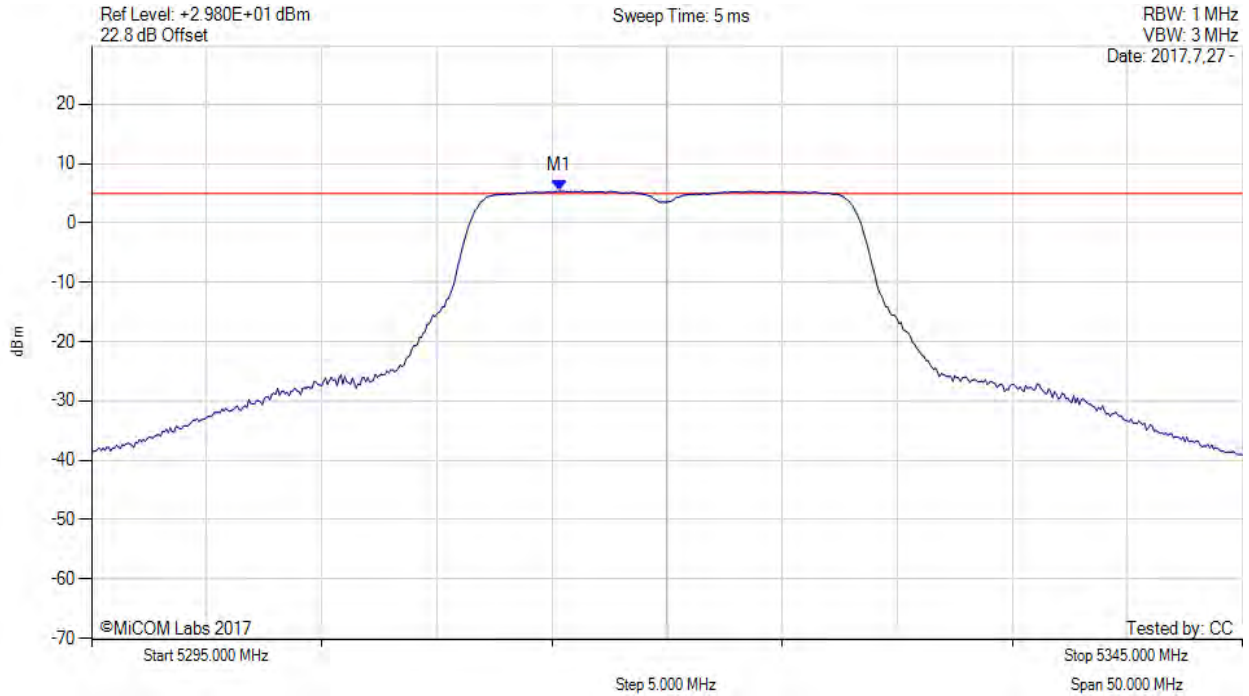


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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5320.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5315.330 MHz : 5.432 dBm	Limit: ≤ 4.980 dBm

[back to matrix](#)

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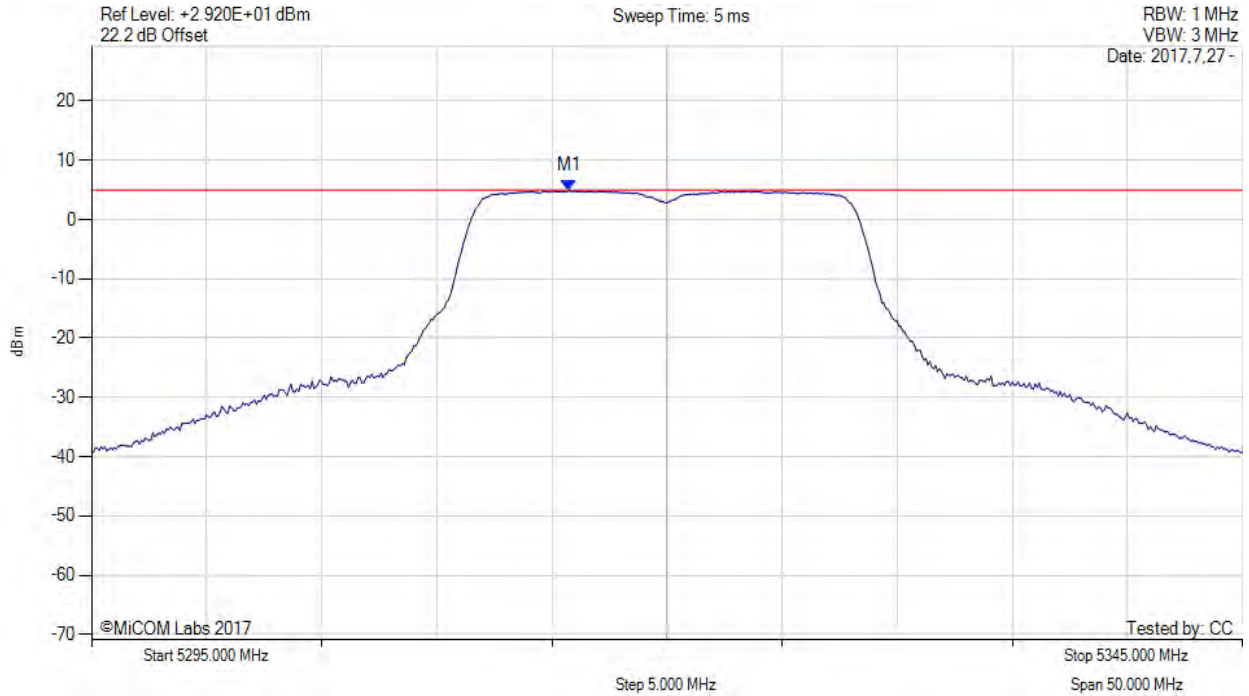


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
**Serial #:** HPEN111-U12\_Conducted DFS Bands Rev A  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5320.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5315.750 MHz : 4.859 dBm	Limit: ≤ 4.980 dBm

[back to matrix](#)

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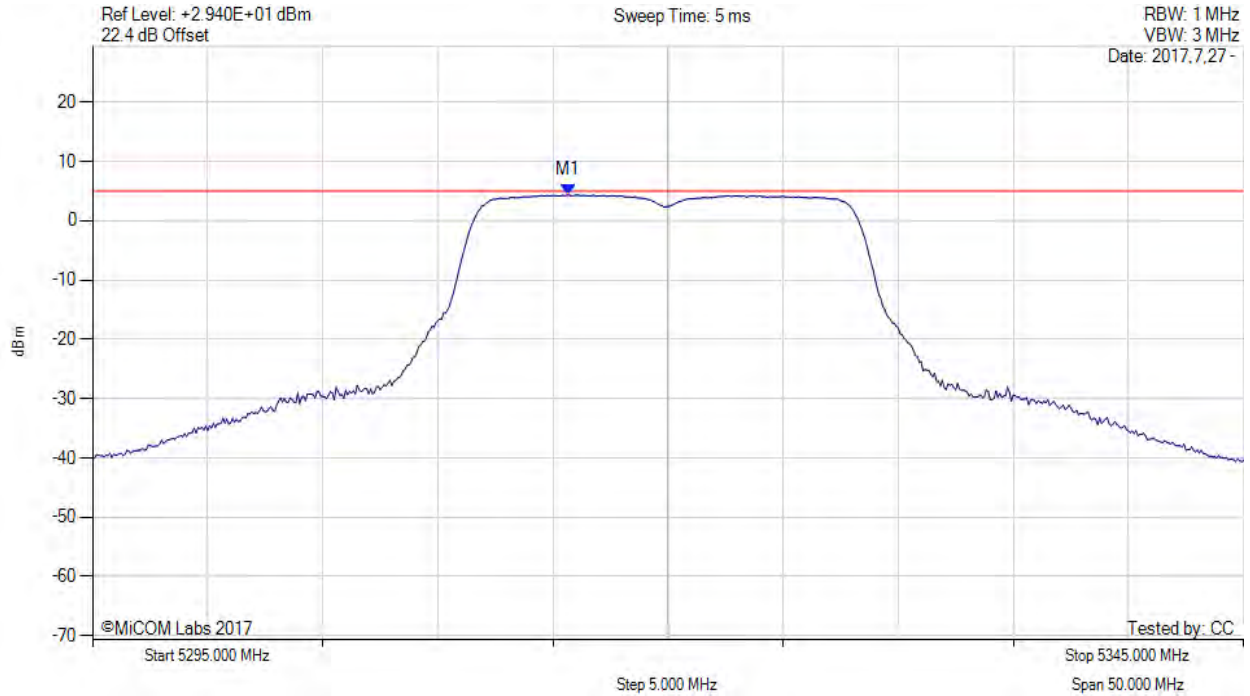


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
**Serial #:** HPEN111-U12\_Conducted DFS Bands Rev A  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5320.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5315.670 MHz : 4.370 dBm	Limit: ≤ 4.980 dBm

[back to matrix](#)

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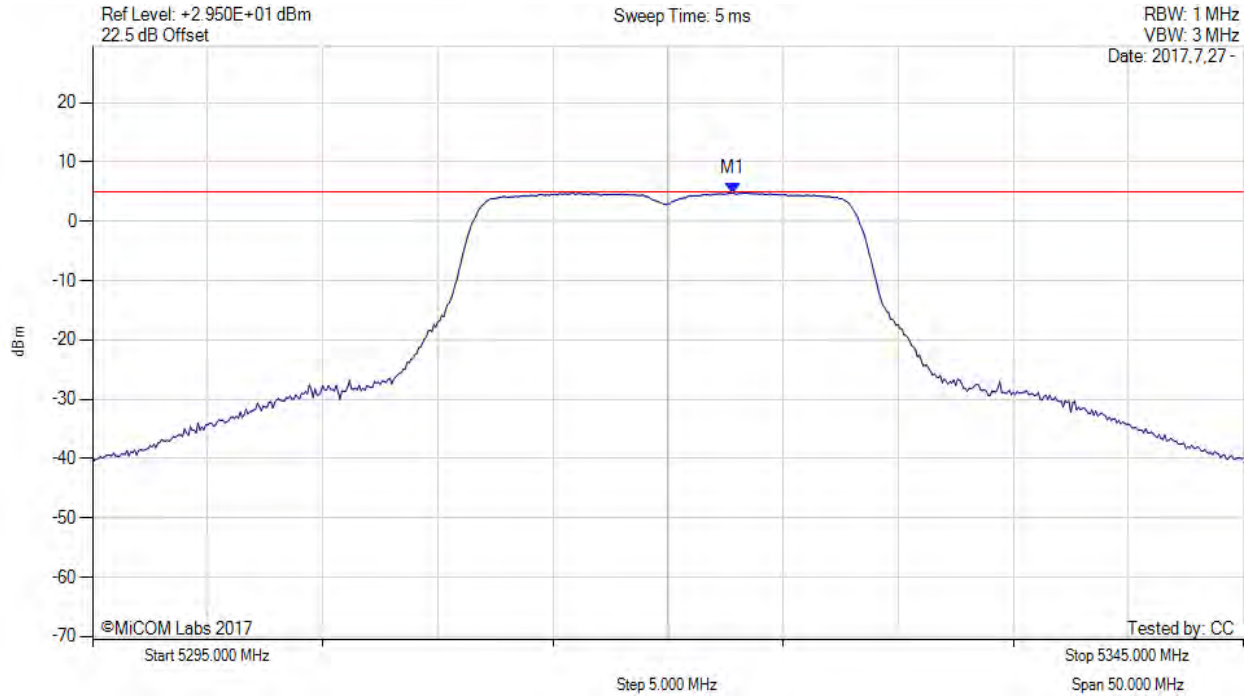


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5320.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5322.830 MHz : 4.766 dBm	Limit: ≤ 4.980 dBm

[back to matrix](#)

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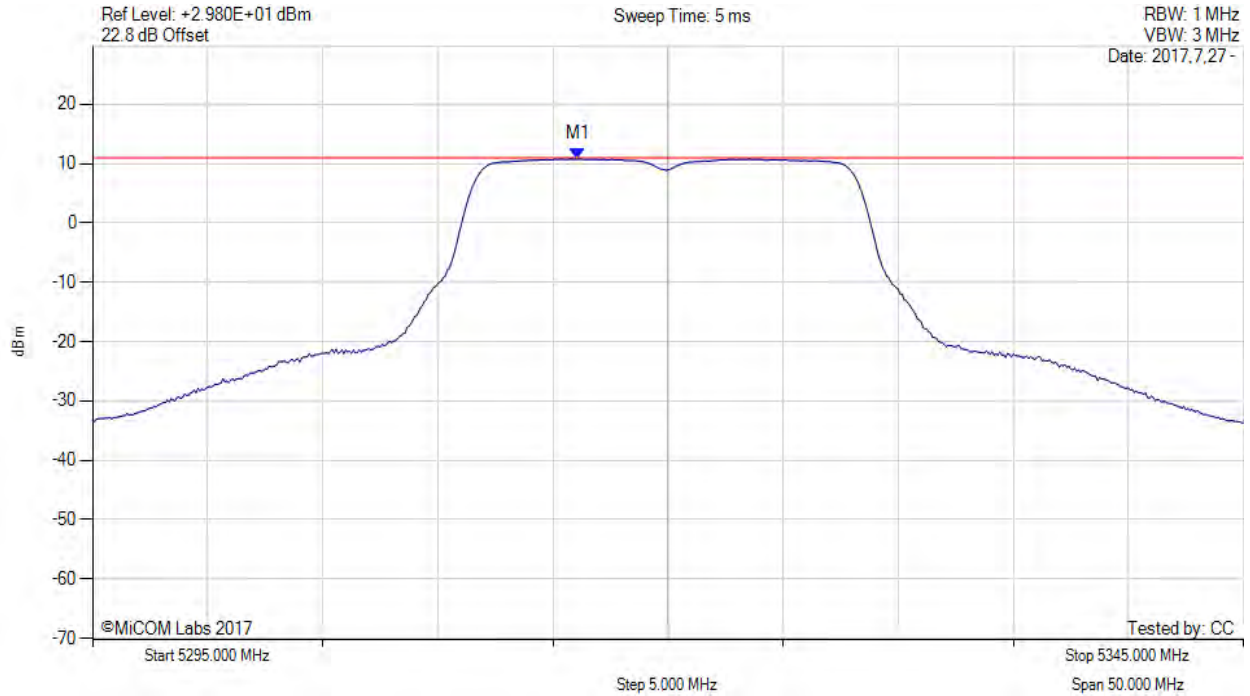


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5320.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5316.100 MHz : 10.797 dBm M1 + DCCF : 5316.100 MHz : 10.841 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: $\leq 11.0$ dBm Margin: $-0.2$ dB

[back to matrix](#)

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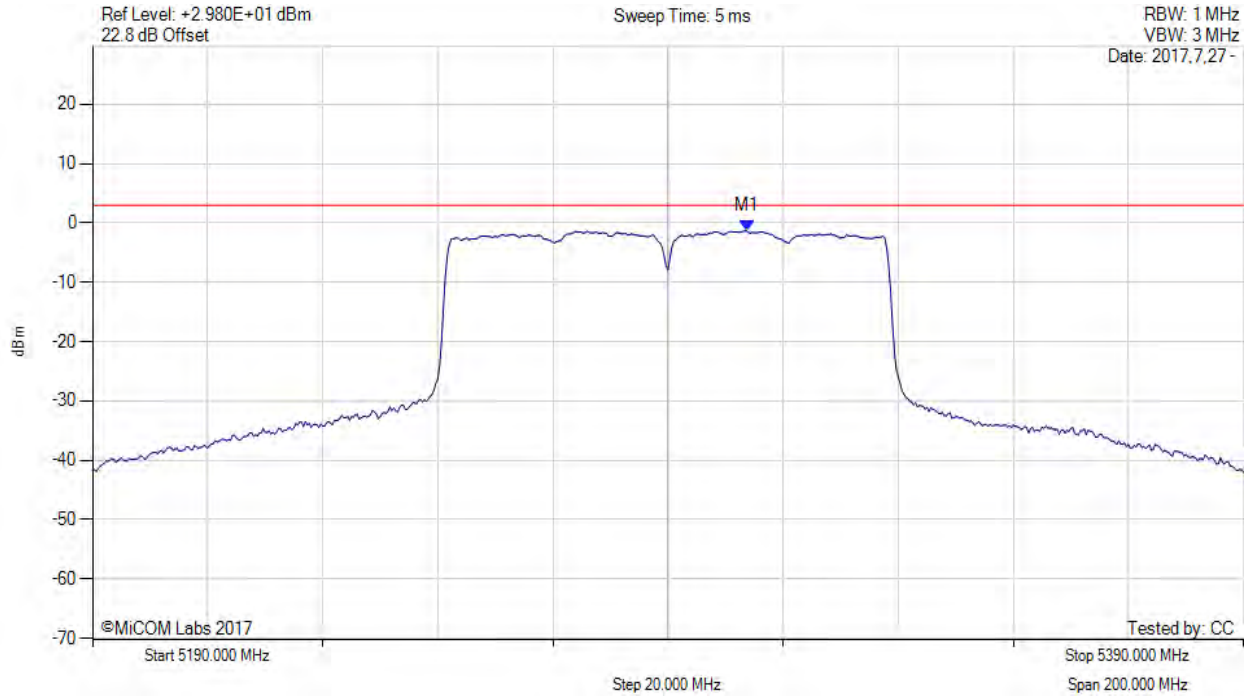


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11ac-80, Channel: 5290.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5303.700 MHz : -1.330 dBm	Limit: ≤ 2.980 dBm

[back to matrix](#)

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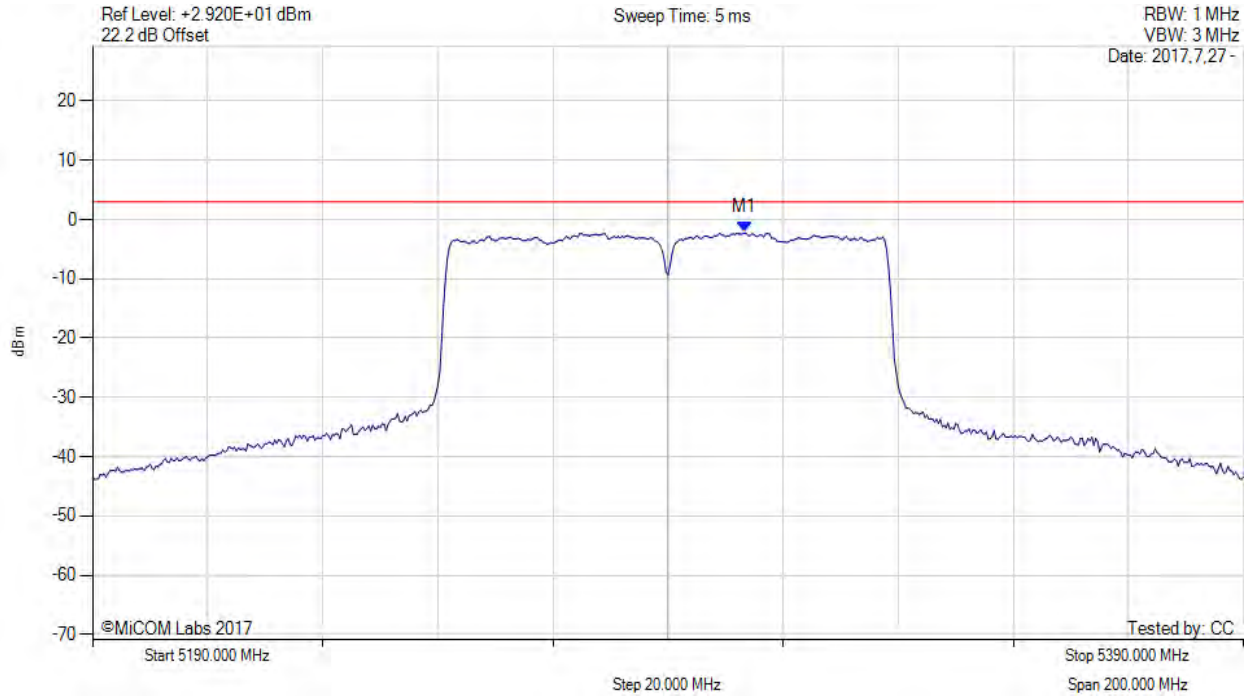


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11ac-80, Channel: 5290.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5303.300 MHz : -2.235 dBm	Limit: ≤ 2.980 dBm

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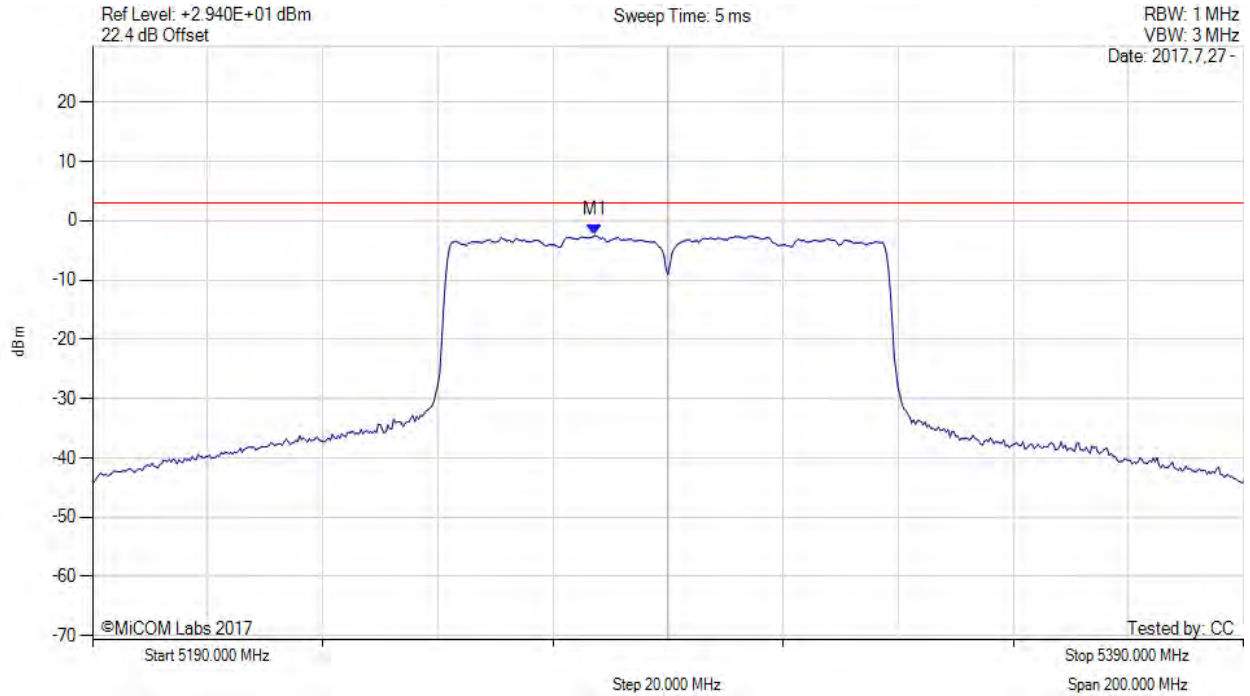


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11ac-80, Channel: 5290.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5277.300 MHz : -2.472 dBm	Limit: ≤ 2.980 dBm

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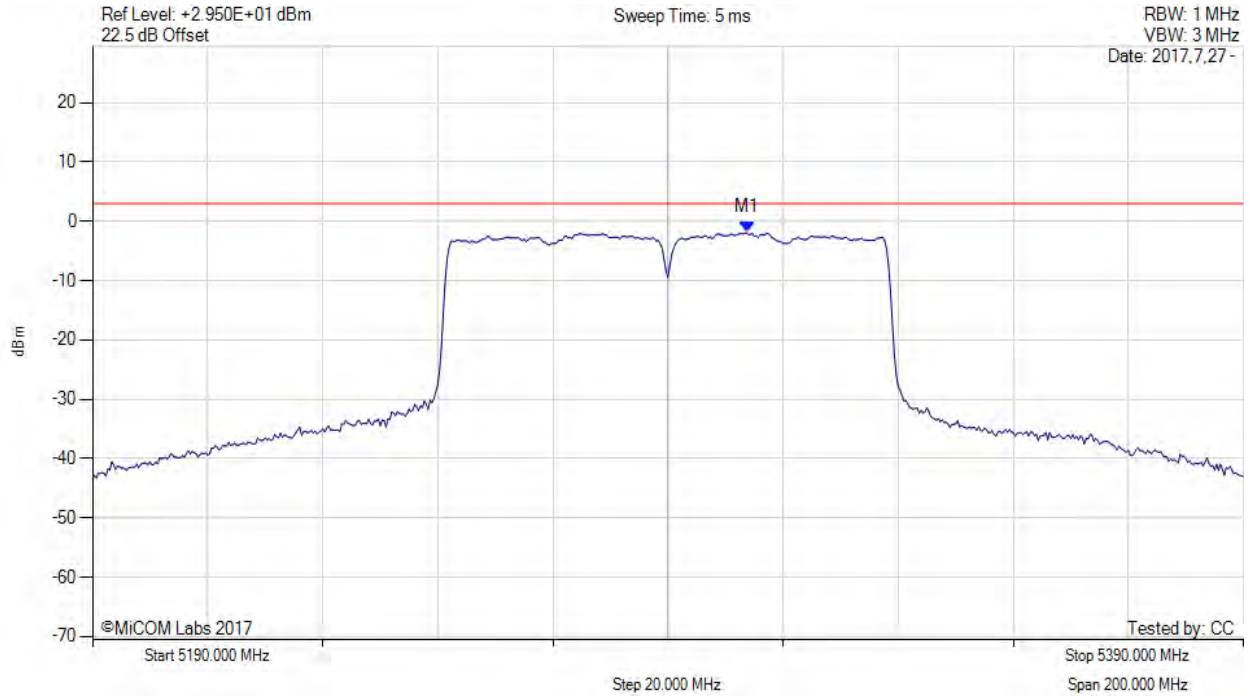


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11ac-80, Channel: 5290.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5303.700 MHz : -1.904 dBm	Limit: ≤ 2.980 dBm

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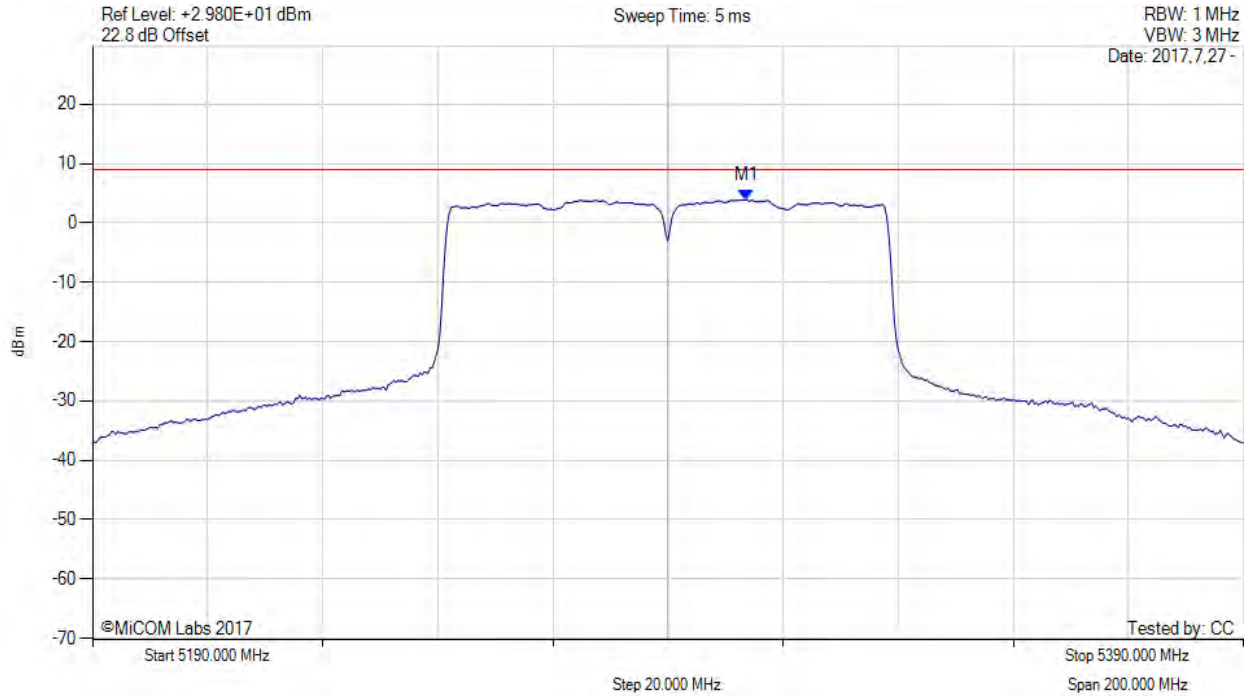


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11ac-80, Channel: 5290.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5303.700 MHz : 3.928 dBm M1 + DCCF : 5303.700 MHz : 4.290 dBm Duty Cycle Correction Factor : +0.36 dB	Limit: ≤ 9.0 dBm Margin: -4.7 dB

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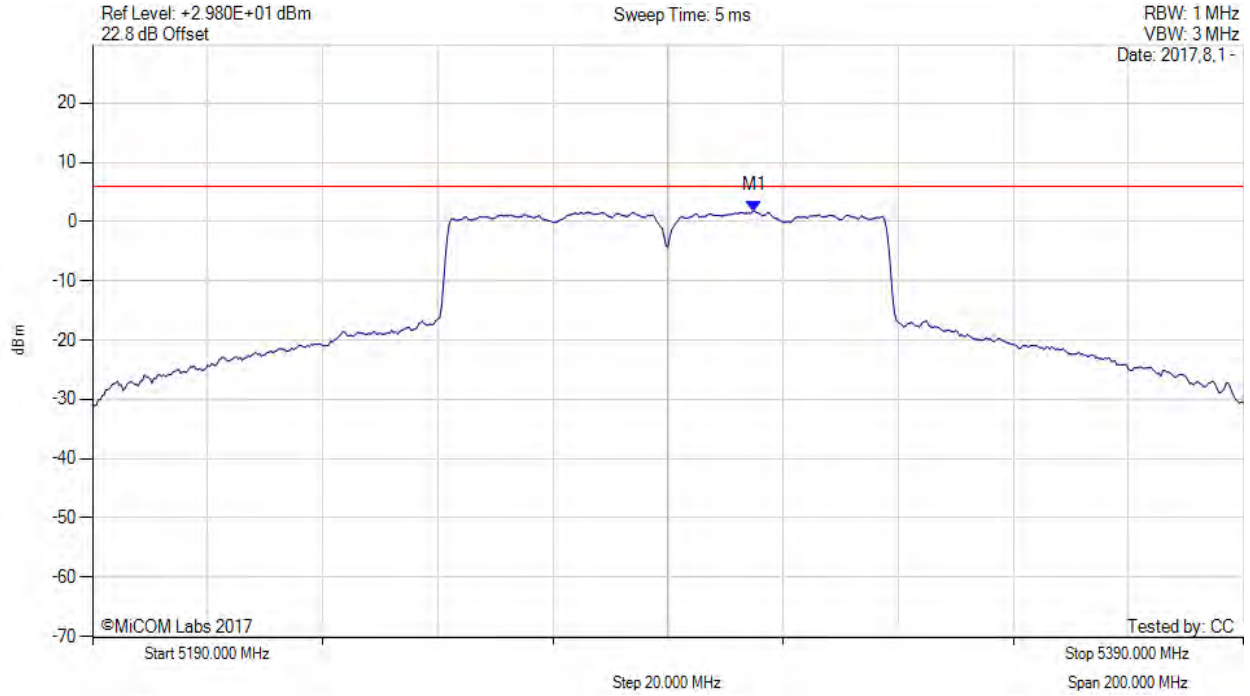


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
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POWER SPECTRAL DENSITY



Variant: 802.11ac-80+80, Channel: 5290.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5305.000 MHz : 1.847 dBm	Limit: ≤ 5.990 dBm

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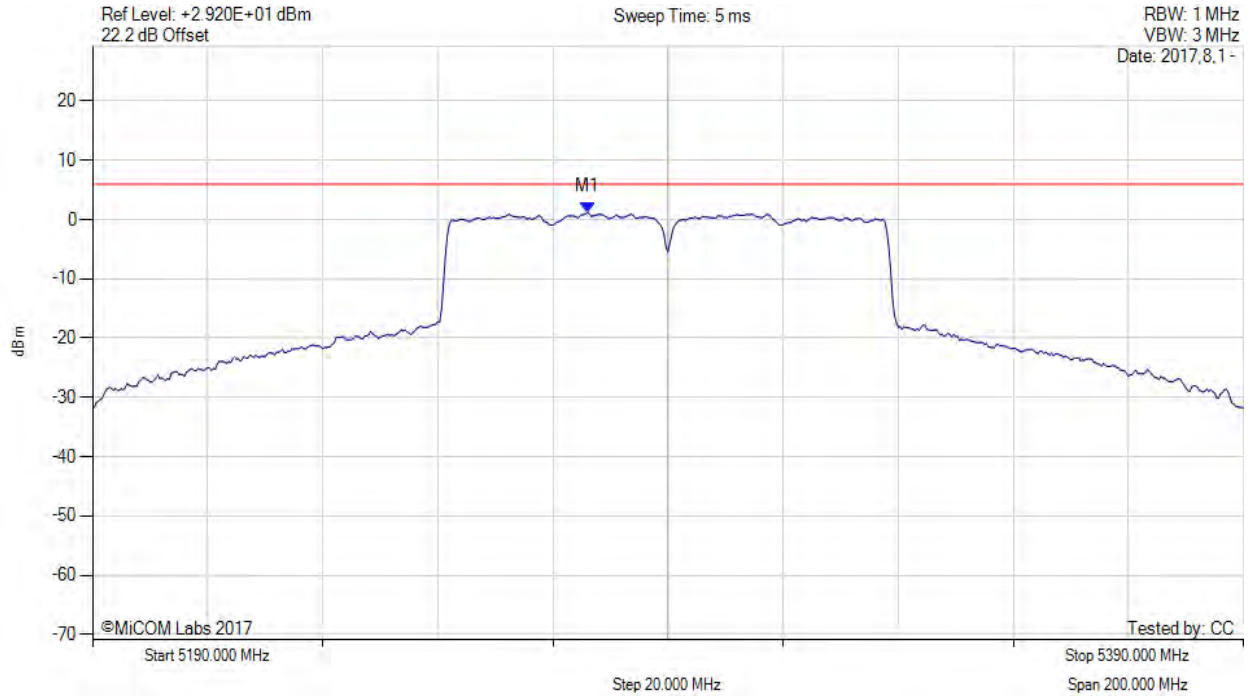


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11ac-80+80, Channel: 5290.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5276.000 MHz : 1.243 dBm	Limit: ≤ 5.990 dBm

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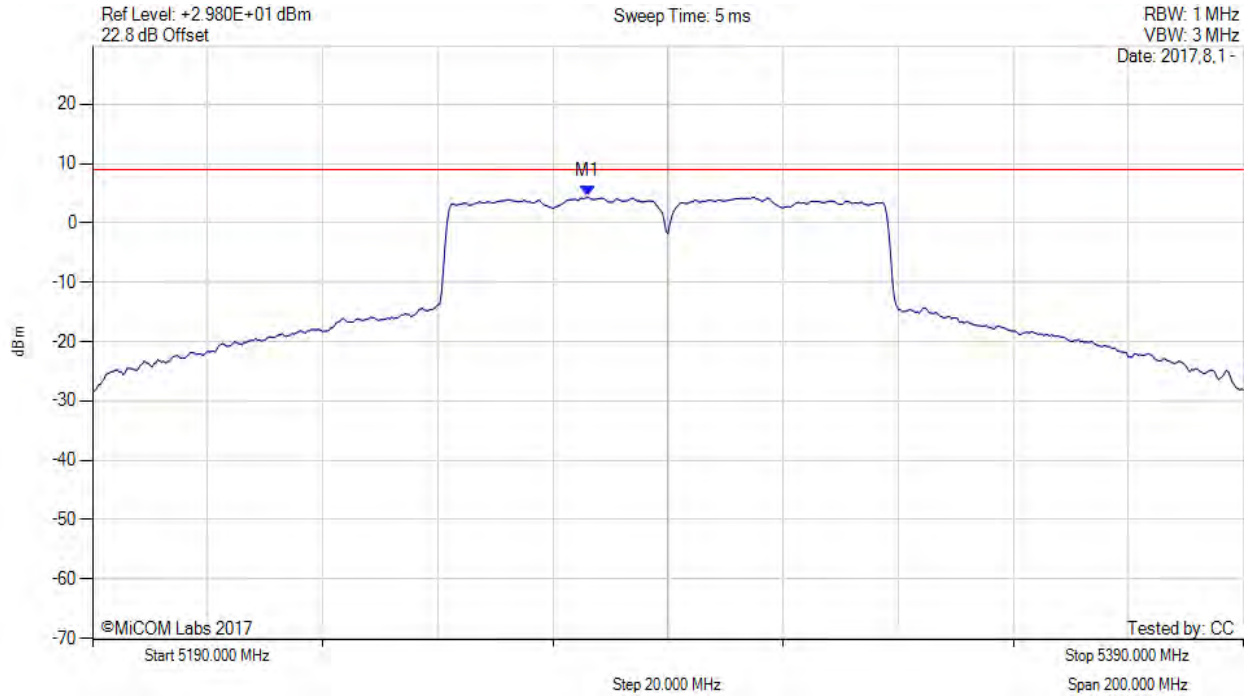


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11ac-80+80, Channel: 5290.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5276.000 MHz : 4.461 dBm M1 + DCCF : 5276.000 MHz : 4.823 dBm Duty Cycle Correction Factor : +0.36 dB	Limit: ≤ 9.0 dBm Margin: -4.2 dB

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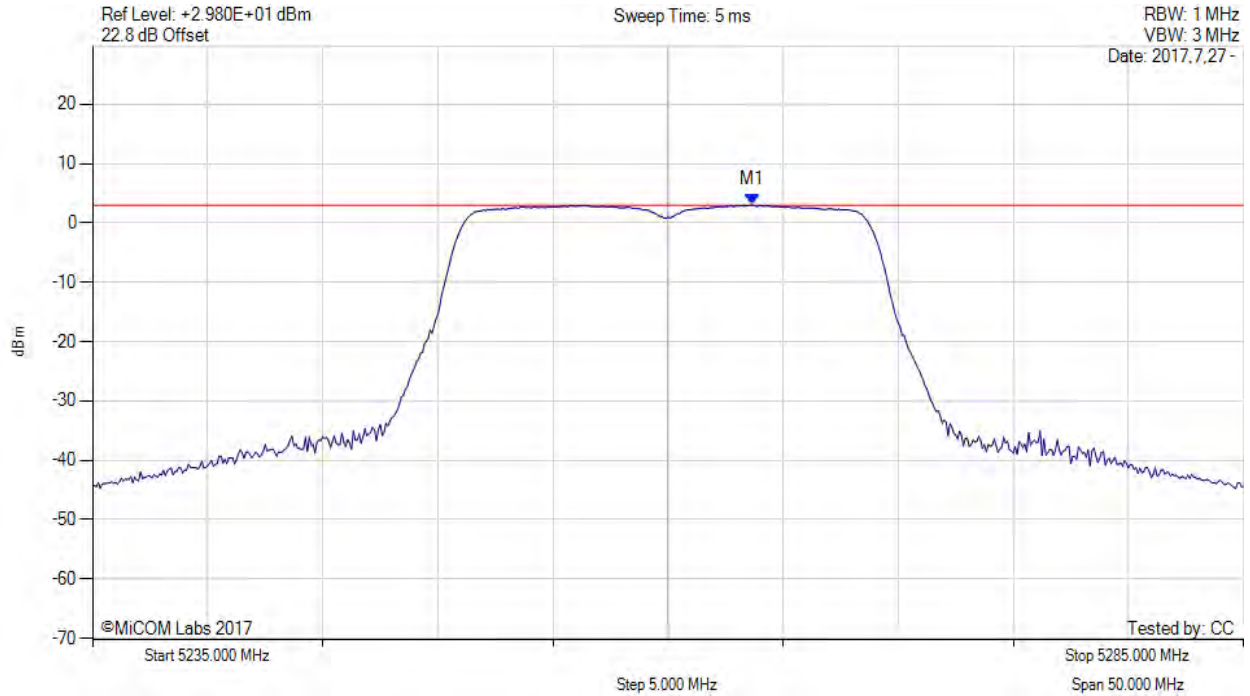


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5263.670 MHz : 3.072 dBm	Limit: ≤ 2.980 dBm

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This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

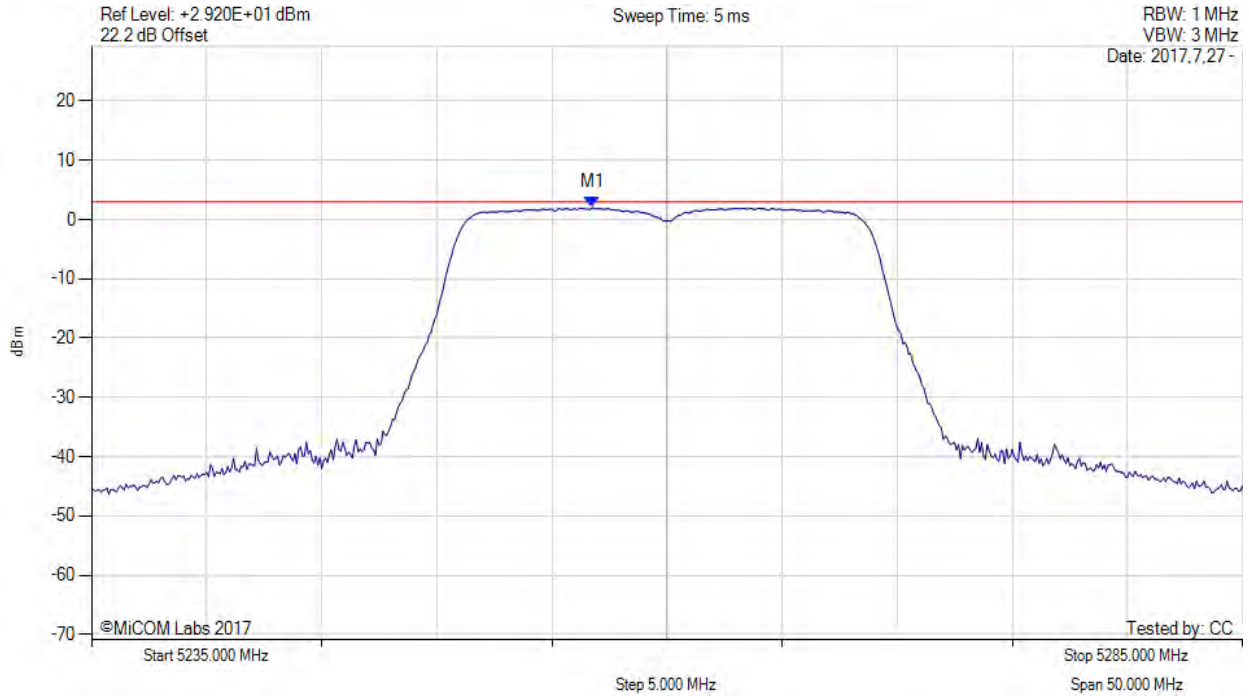


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5256.750 MHz : 2.014 dBm	Limit: ≤ 2.980 dBm

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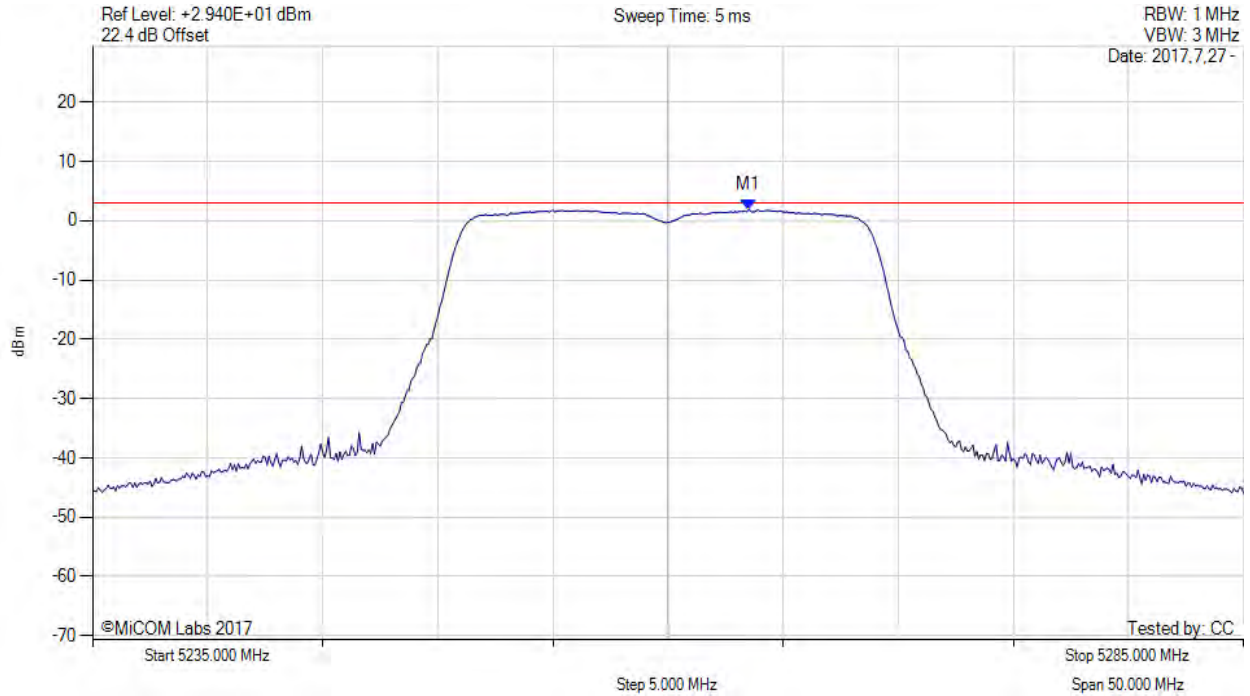


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5263.500 MHz : 1.829 dBm	Limit: ≤ 2.980 dBm

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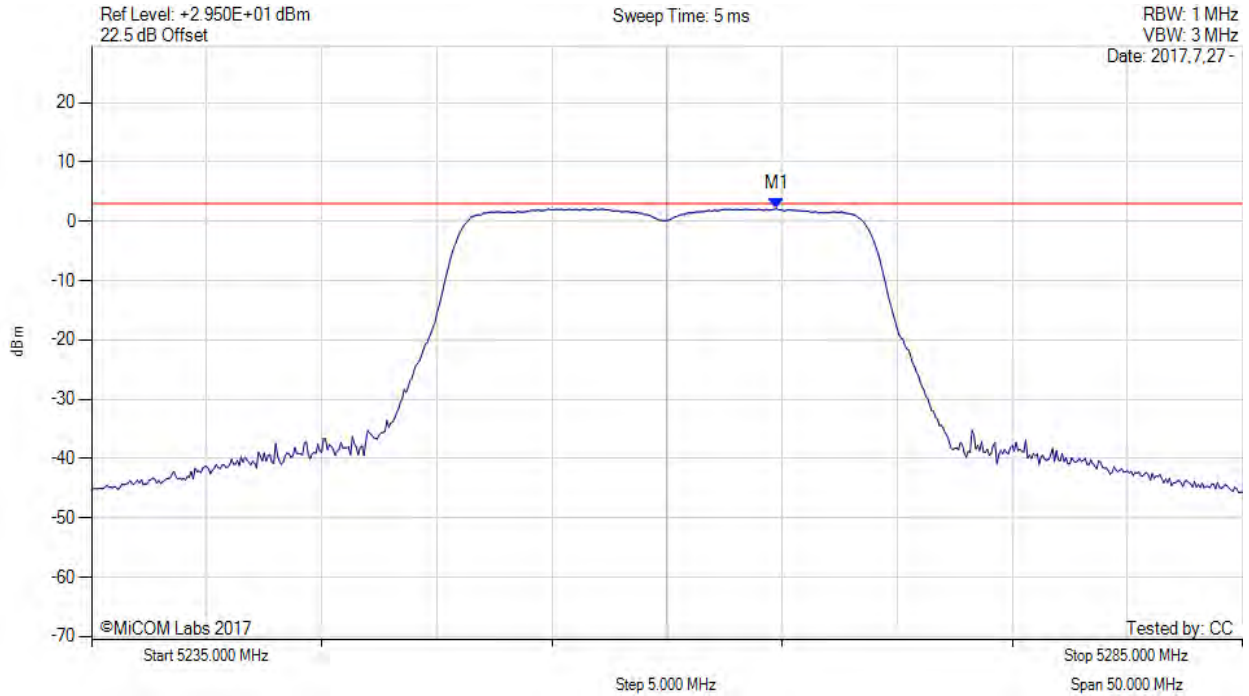


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5260.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5264.750 MHz : 2.144 dBm	Limit: ≤ 2.980 dBm

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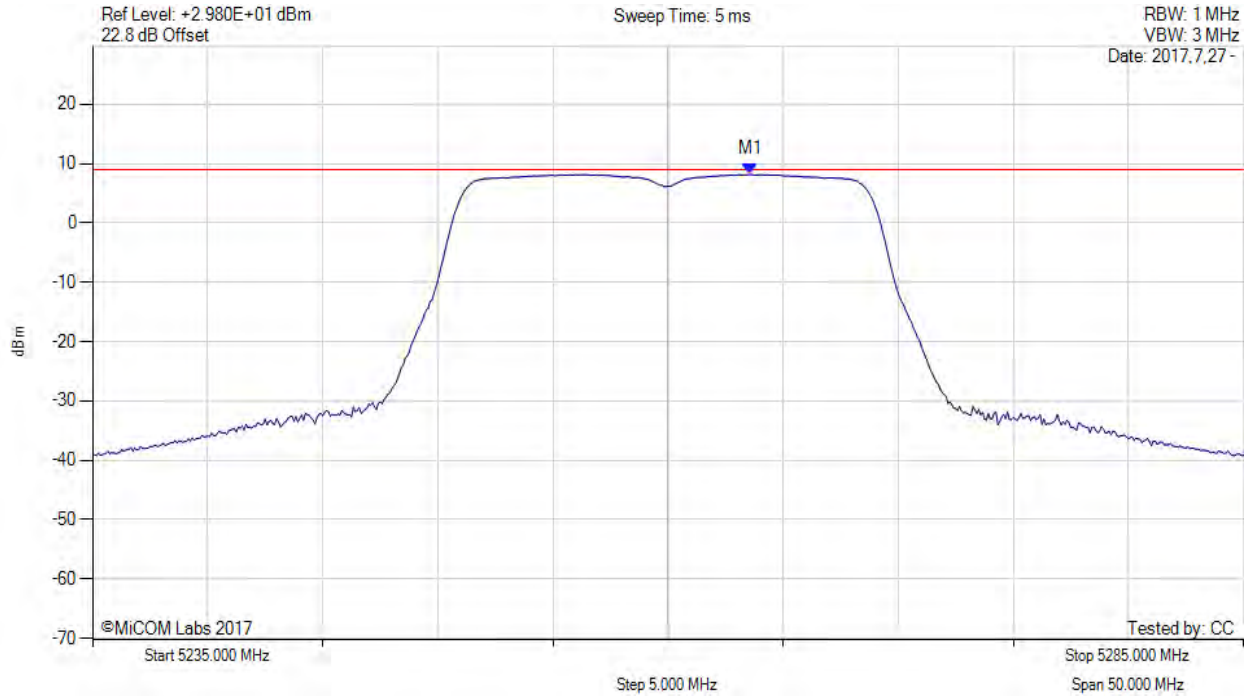


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5260.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5263.600 MHz : 8.214 dBm M1 + DCCF : 5263.600 MHz : 8.258 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: $\leq 9.0$ dBm Margin: $-0.8$ dB

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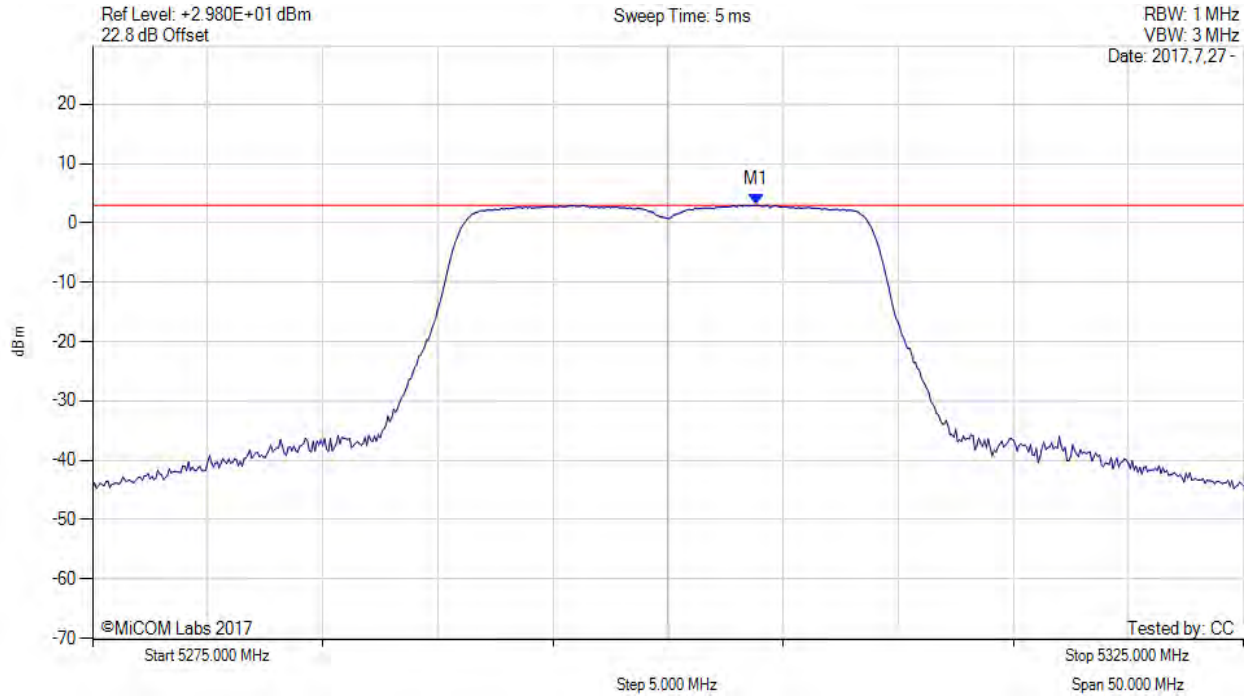


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5300.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5303.830 MHz : 3.074 dBm	Limit: ≤ 2.980 dBm

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This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.

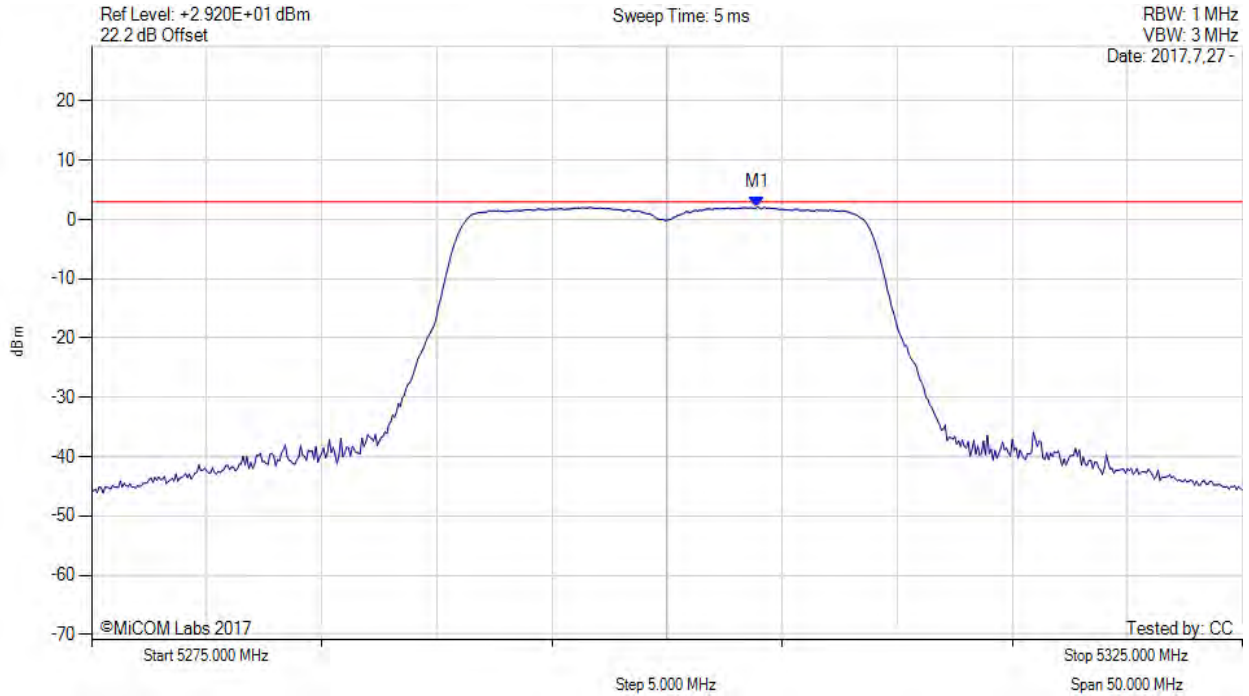


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5300.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5303.920 MHz : 2.127 dBm	Channel Frequency: 5300.00 MHz

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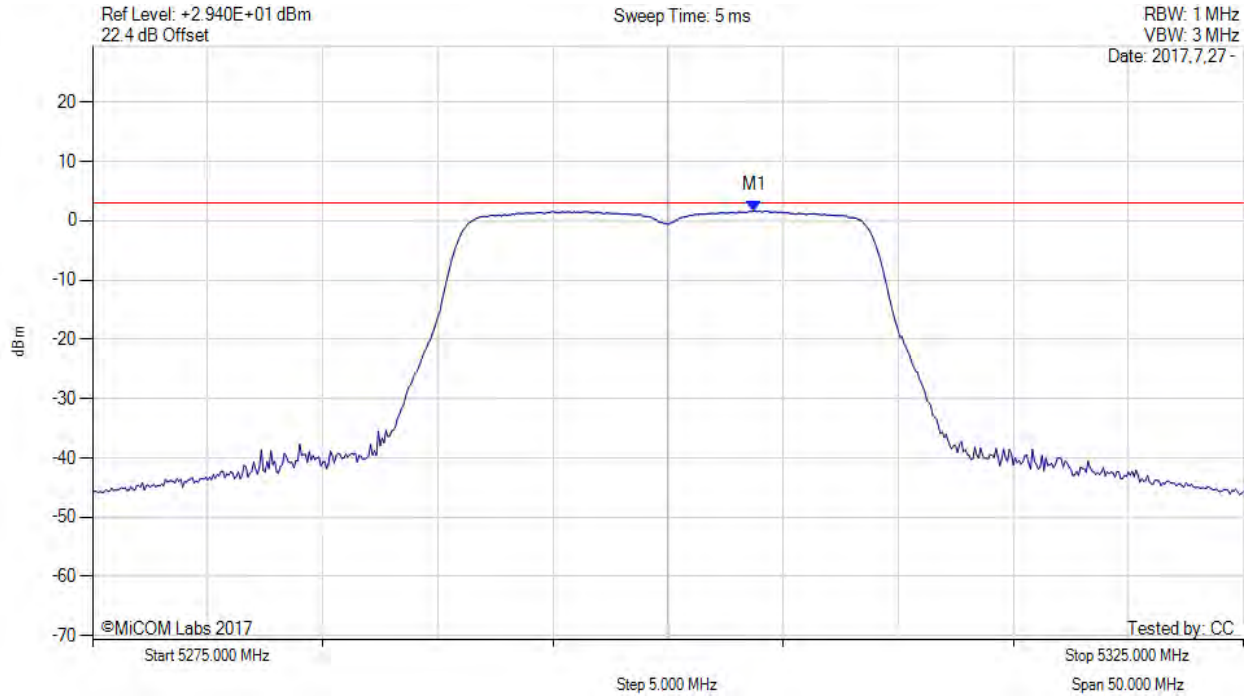


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5300.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5303.750 MHz : 1.676 dBm	Limit: ≤ 2.980 dBm

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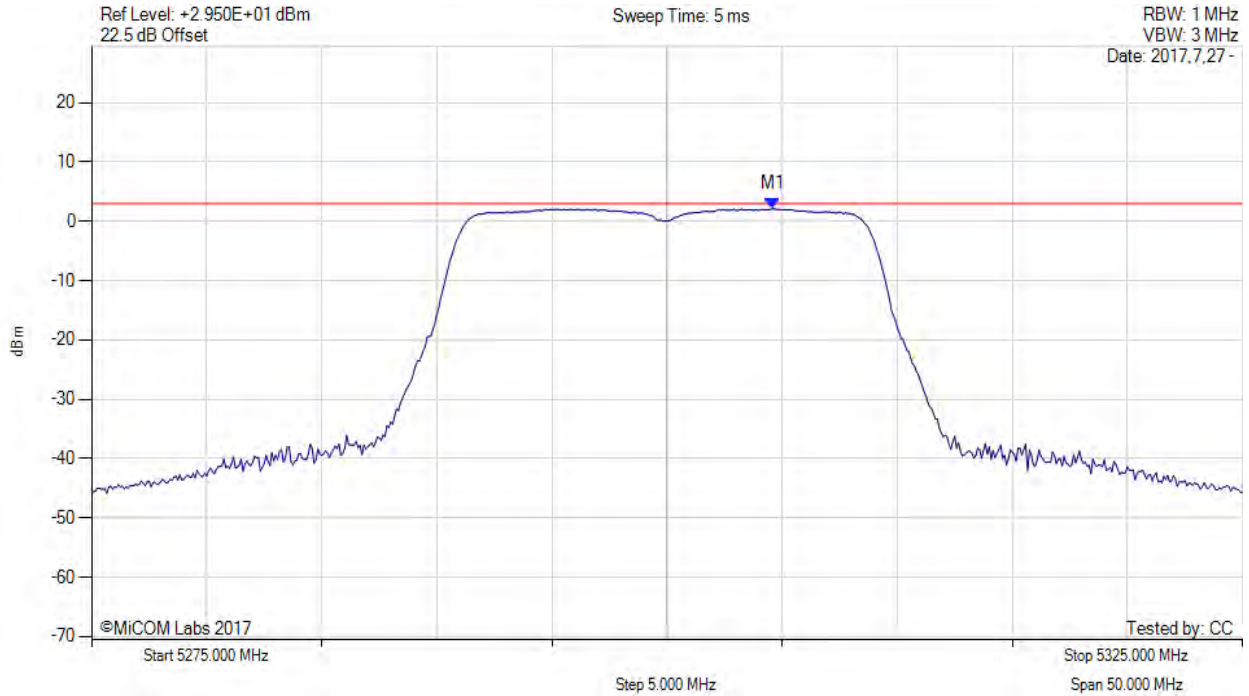


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5300.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5304.580 MHz : 2.134 dBm	Limit: ≤ 2.980 dBm

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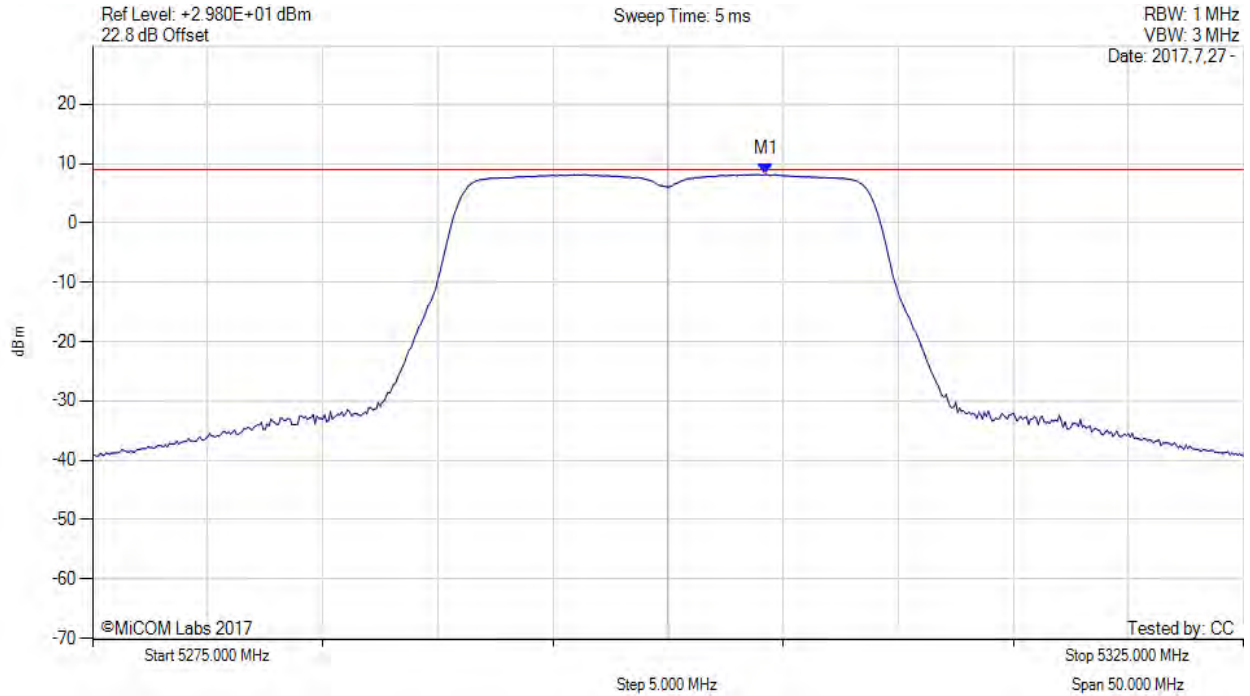


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5300.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5304.300 MHz : 8.227 dBm M1 + DCCF : 5304.300 MHz : 8.271 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 9.0 dBm Margin: -0.7 dB

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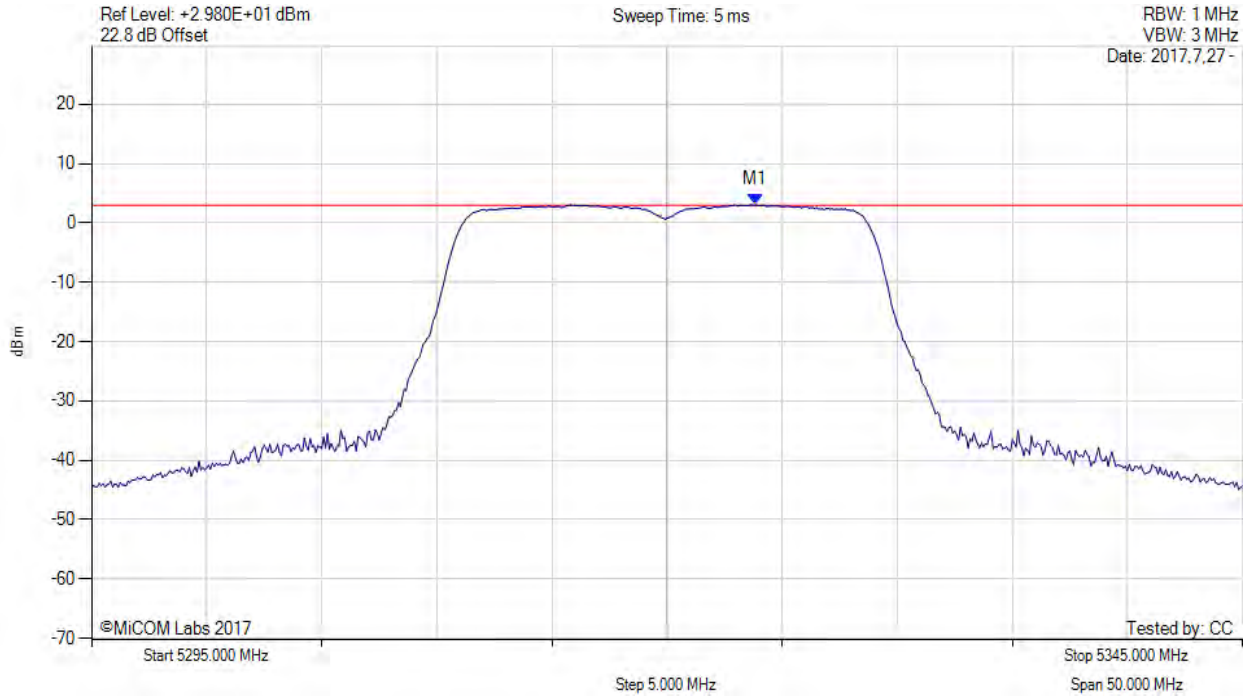


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5320.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5323.830 MHz : 3.123 dBm	Limit: ≤ 2.980 dBm

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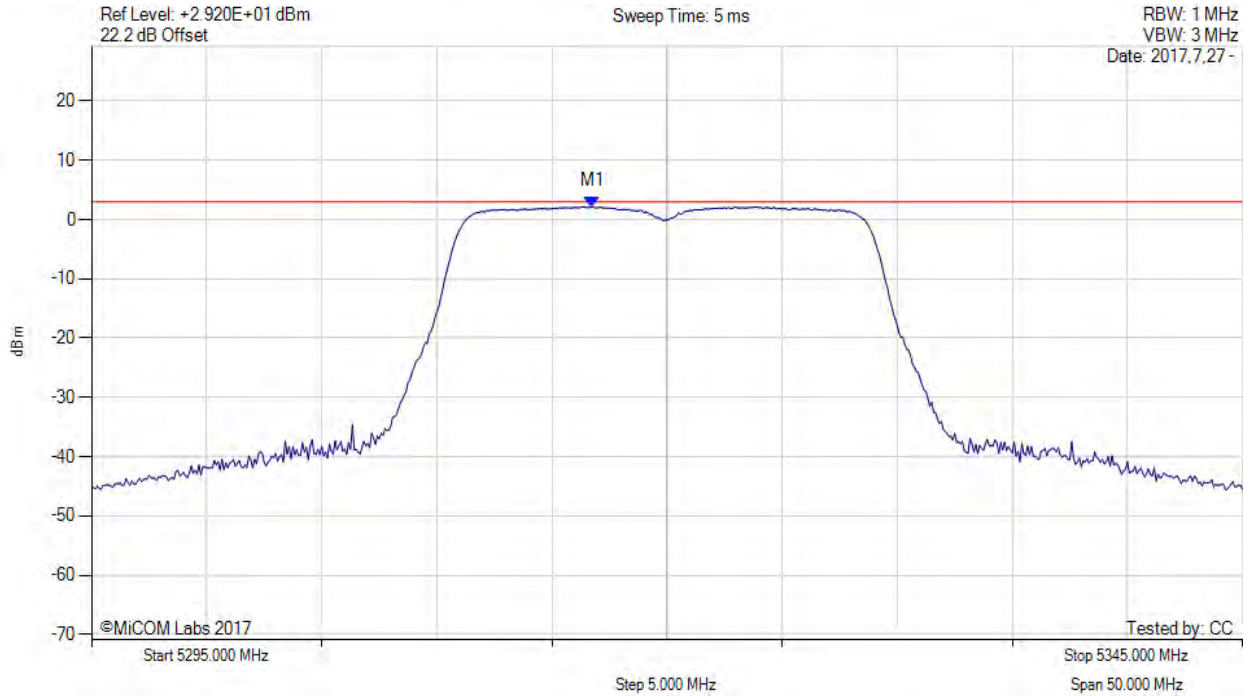


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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5320.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5316.750 MHz : 2.183 dBm	Limit: ≤ 2.980 dBm

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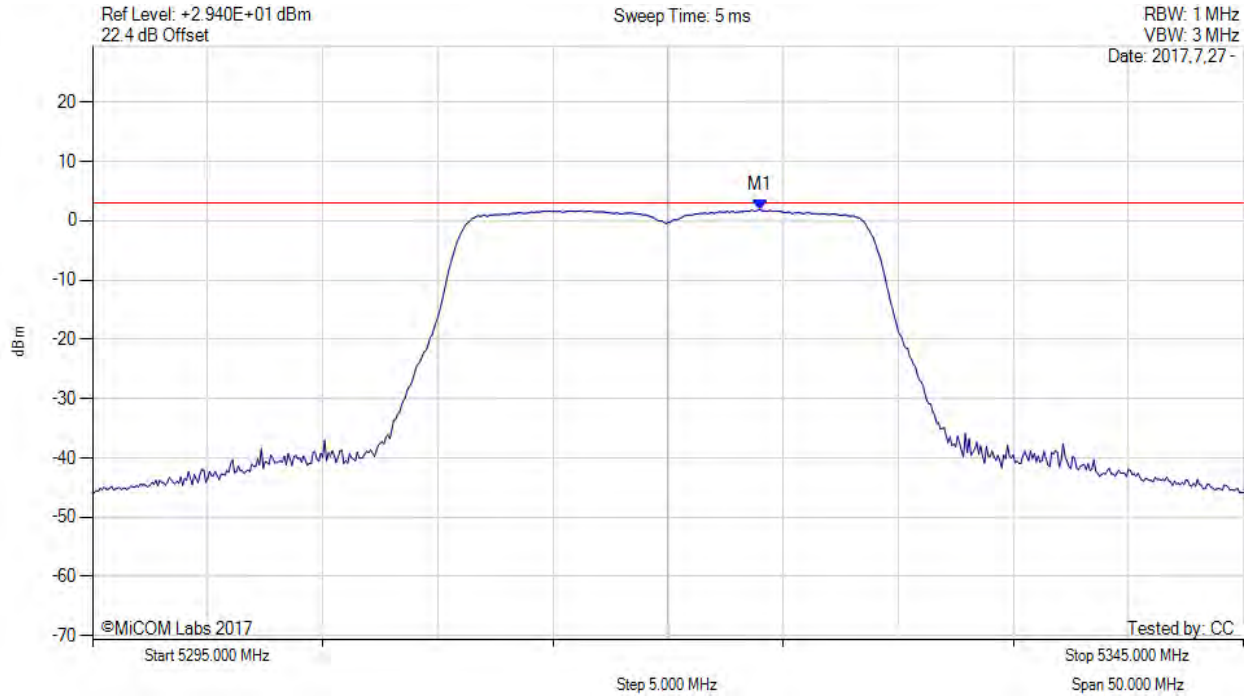


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
**Serial #:** HPEN111-U12\_Conducted DFS Bands Rev A  
**Issue Date:** 20<sup>th</sup> August 2017  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5320.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5324.000 MHz : 1.843 dBm	Limit: ≤ 2.980 dBm

[back to matrix](#)

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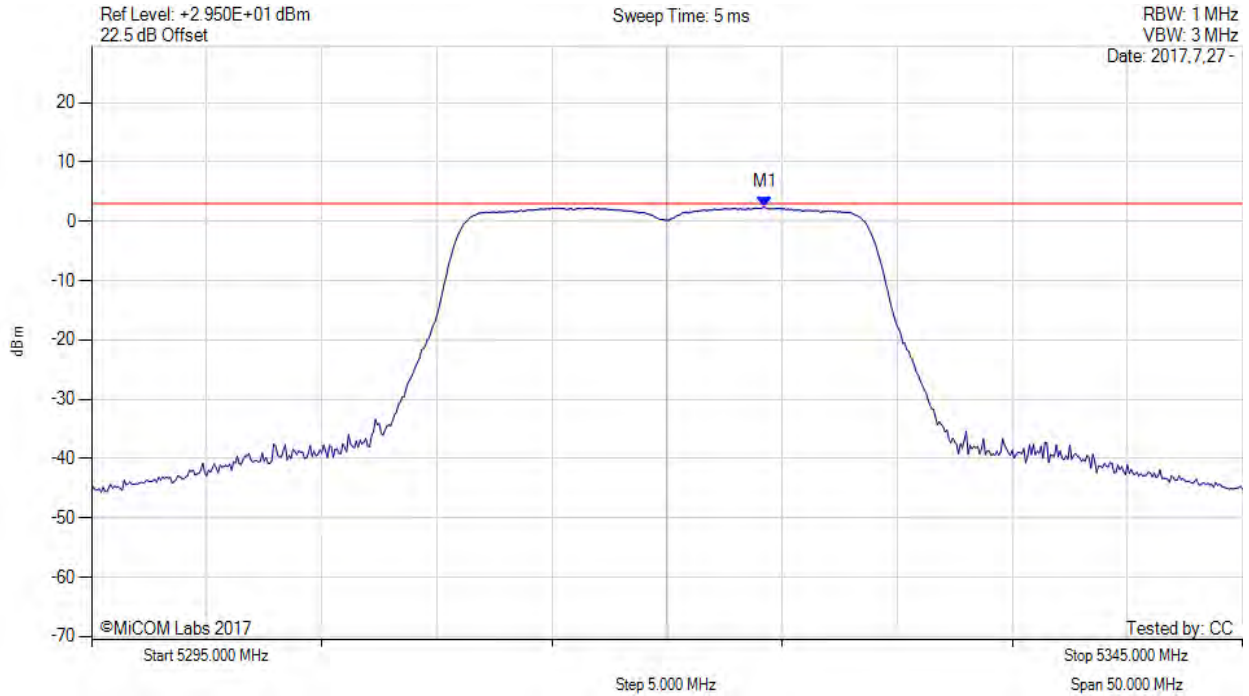


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5320.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5324.250 MHz : 2.384 dBm	Limit: ≤ 2.980 dBm

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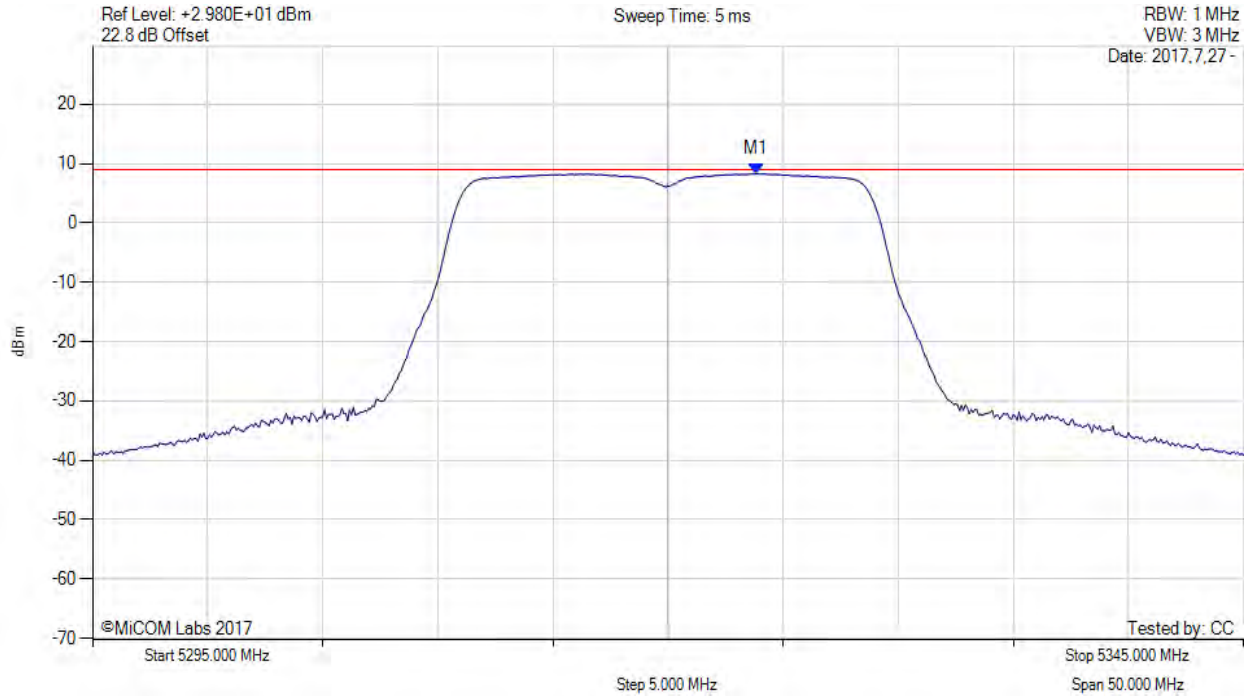


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5320.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5323.800 MHz : 8.323 dBm M1 + DCCF : 5323.800 MHz : 8.367 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 9.0 dBm Margin: -0.7 dB

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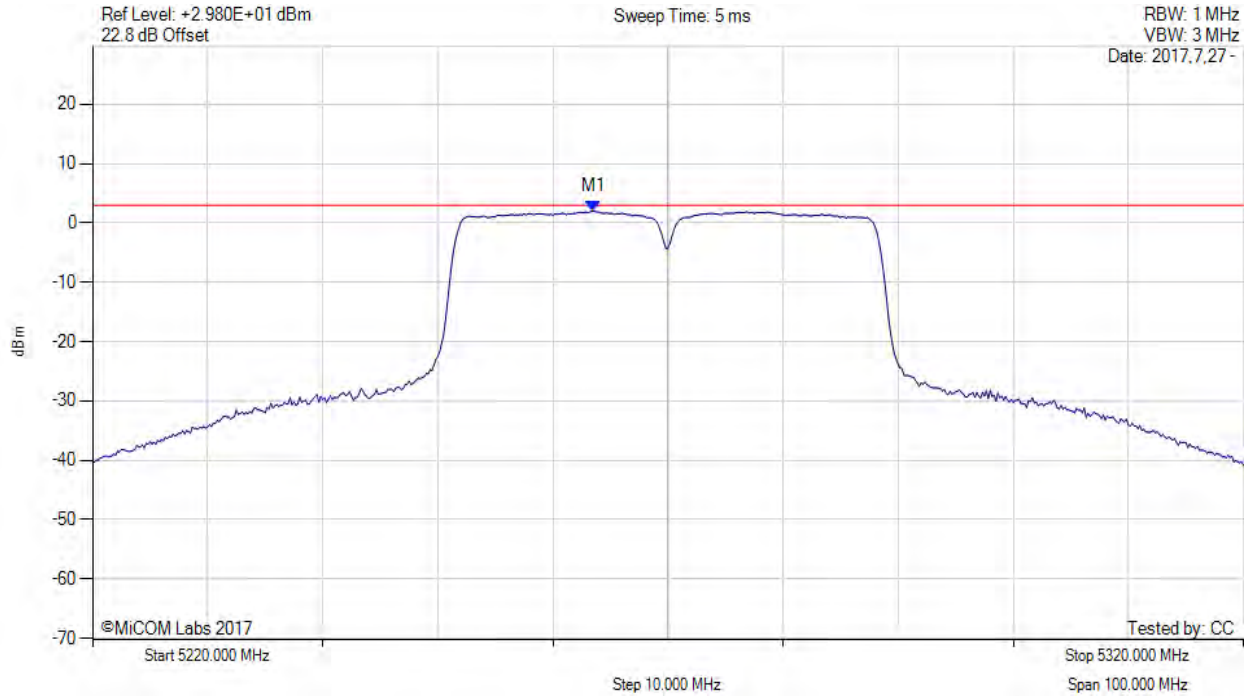


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5270.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5263.500 MHz : 2.024 dBm	Limit: ≤ 2.980 dBm

[back to matrix](#)

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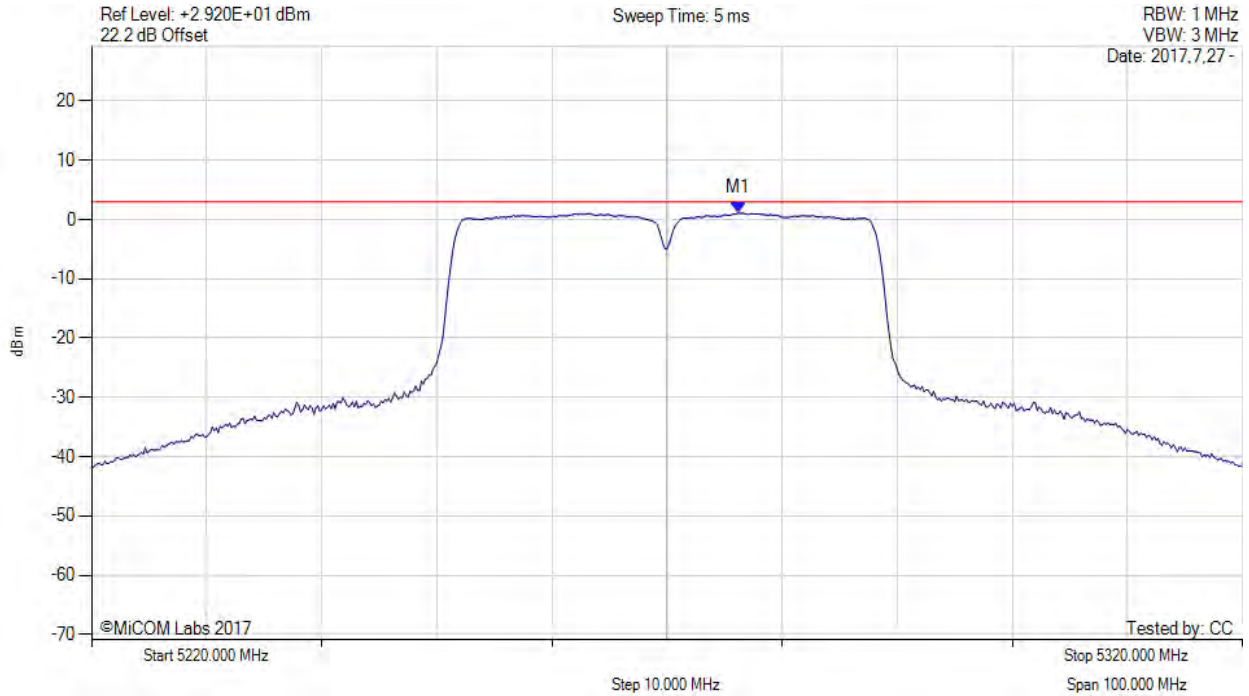


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5270.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5276.170 MHz : 1.125 dBm	Limit: ≤ 2.980 dBm

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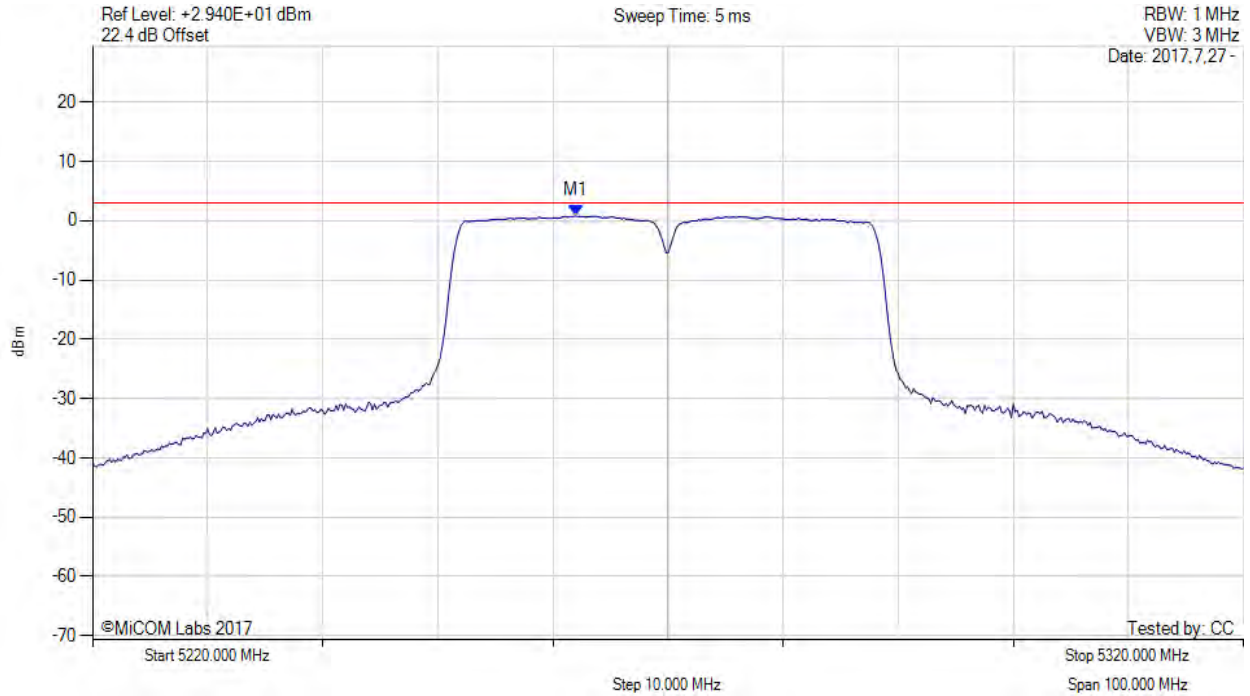


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5270.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5262.000 MHz : 0.791 dBm	Limit: ≤ 2.980 dBm

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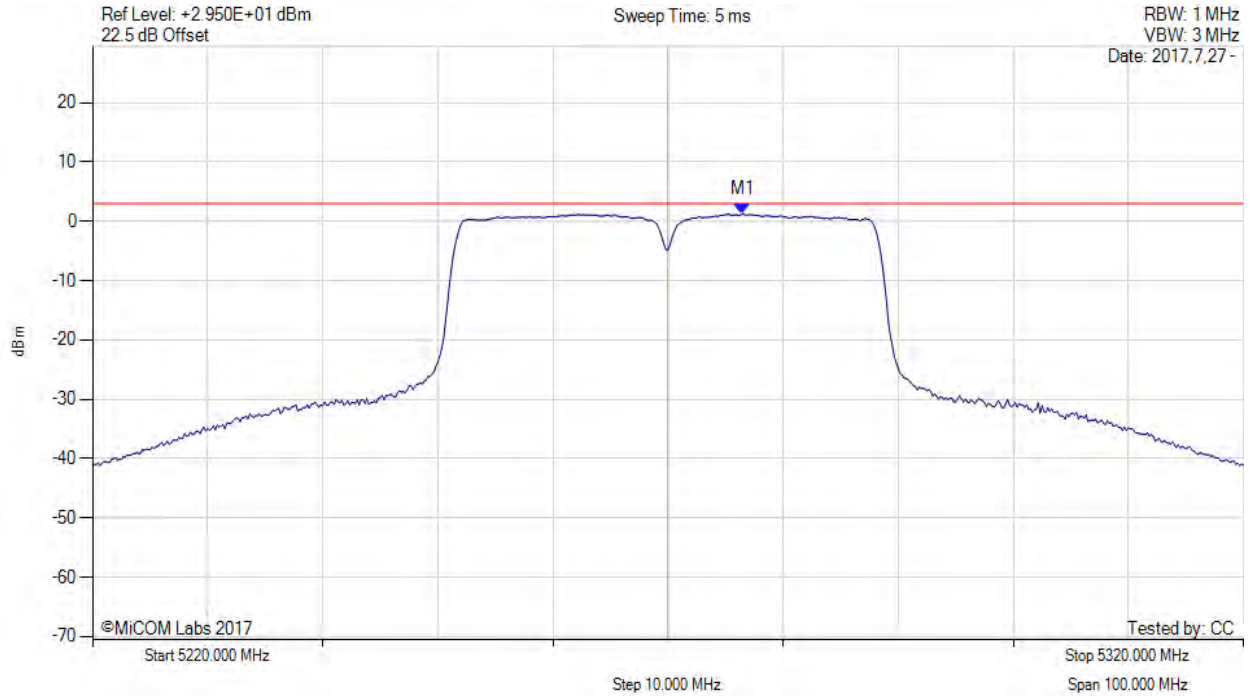


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5270.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5276.500 MHz : 1.228 dBm	Limit: ≤ 2.980 dBm

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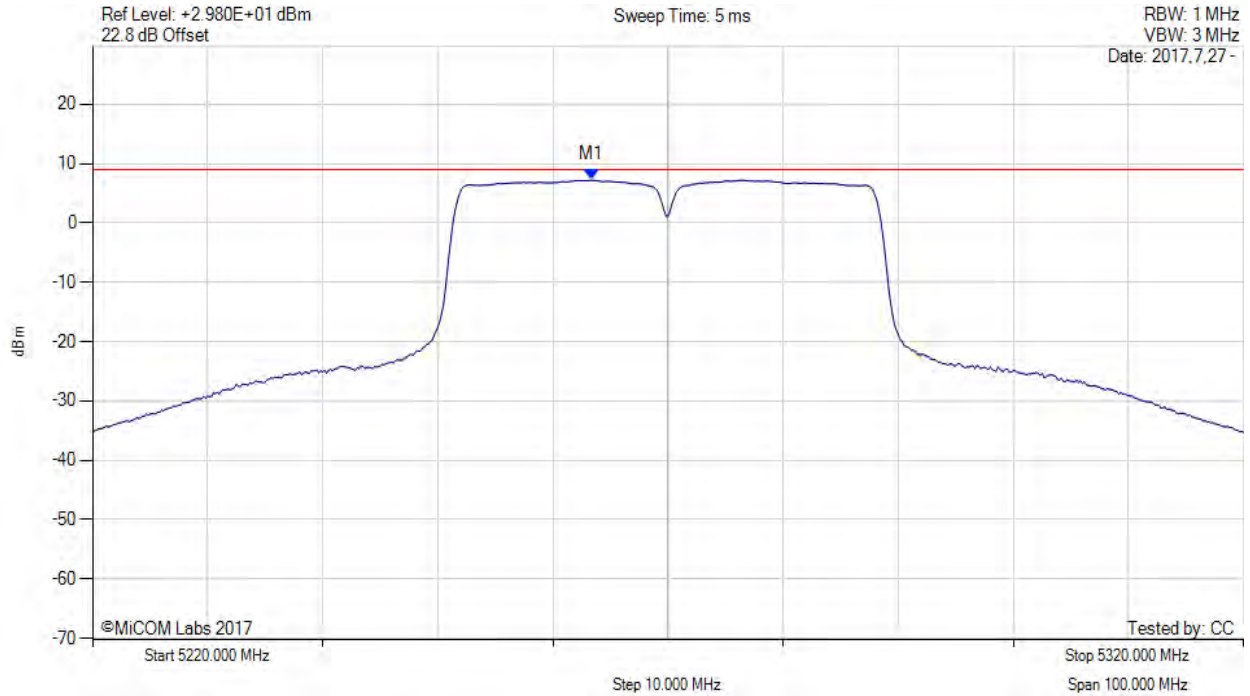


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5270.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5263.300 MHz : 7.238 dBm M1 + DCCF : 5263.300 MHz : 7.326 dBm Duty Cycle Correction Factor : +0.09 dB	Limit: ≤ 9.0 dBm Margin: -1.7 dB

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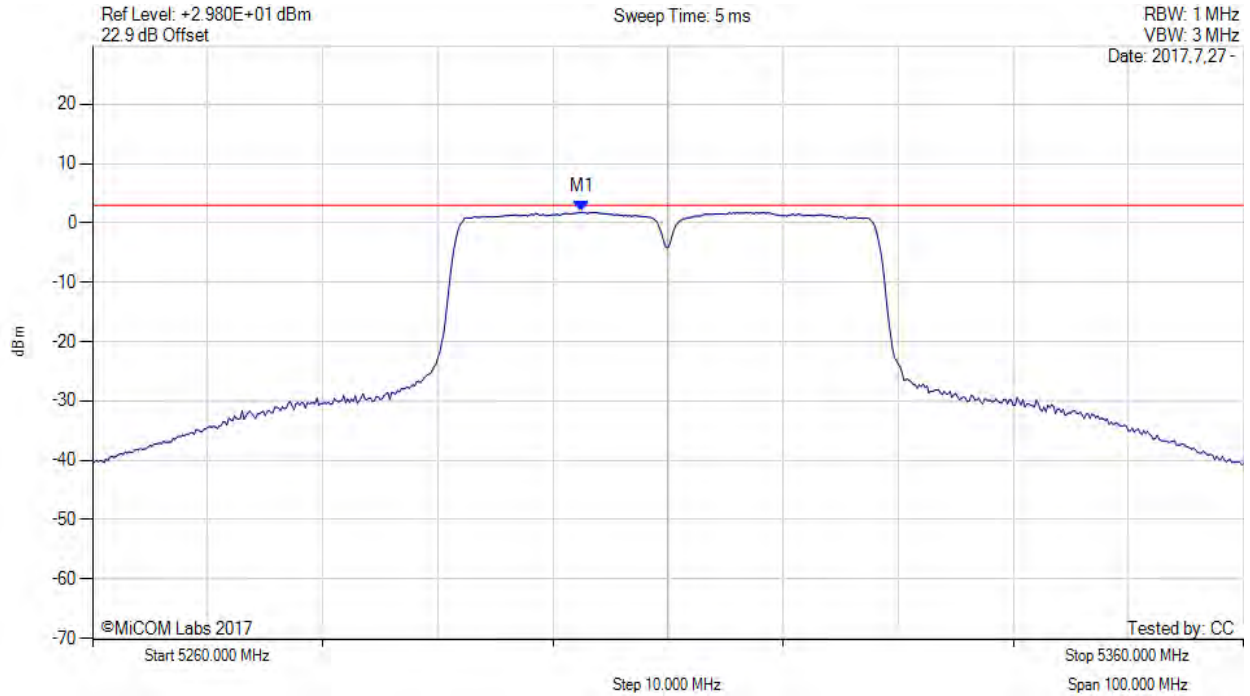


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5302.500 MHz : 1.871 dBm	Limit: ≤ 2.980 dBm

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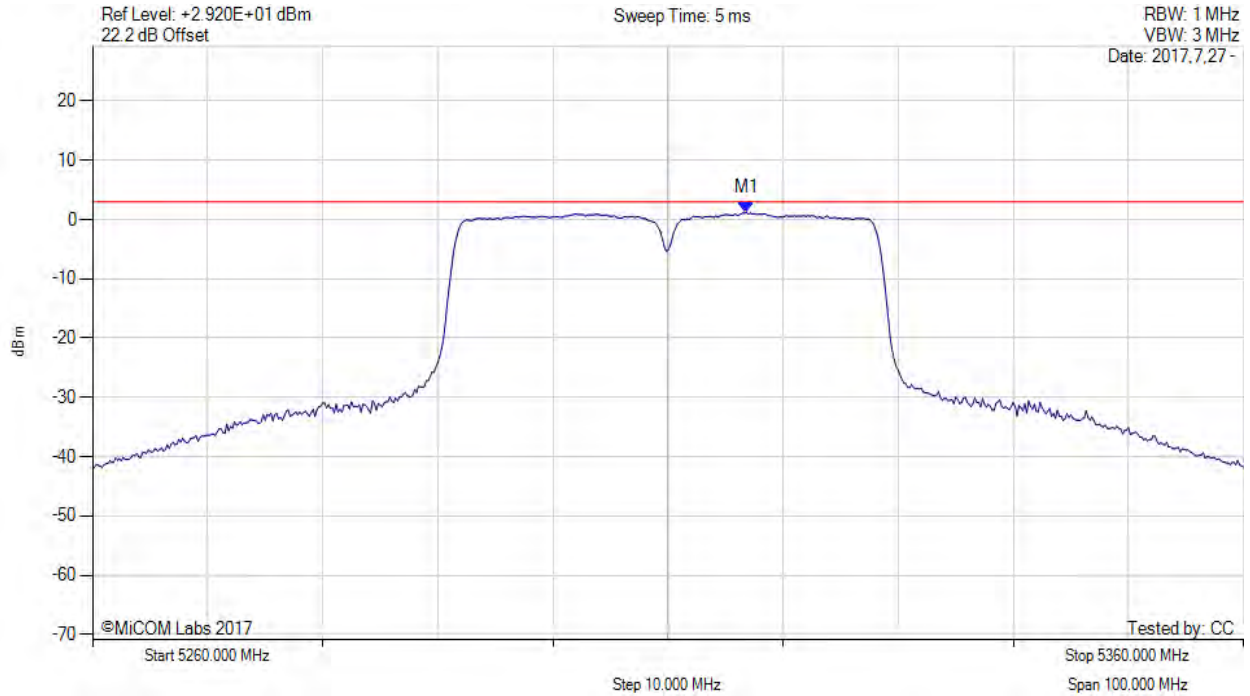


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5316.830 MHz : 1.177 dBm	Limit: ≤ 2.980 dBm

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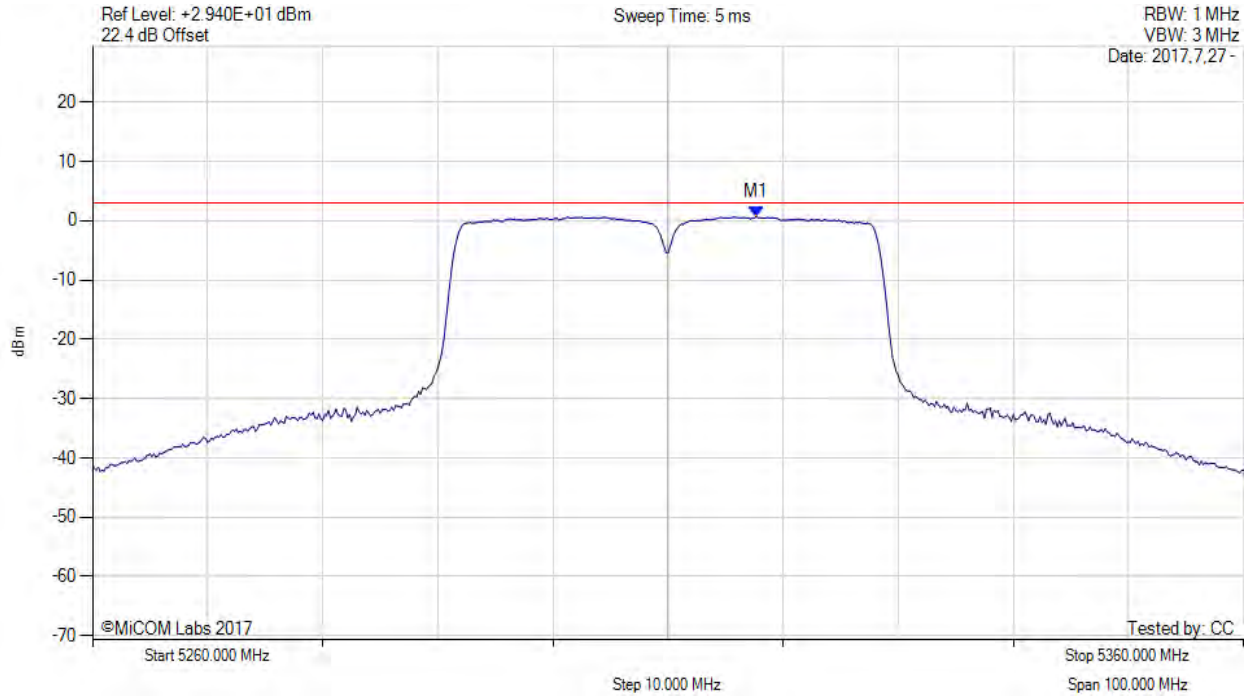


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5317.670 MHz : 0.655 dBm	Limit: ≤ 2.980 dBm

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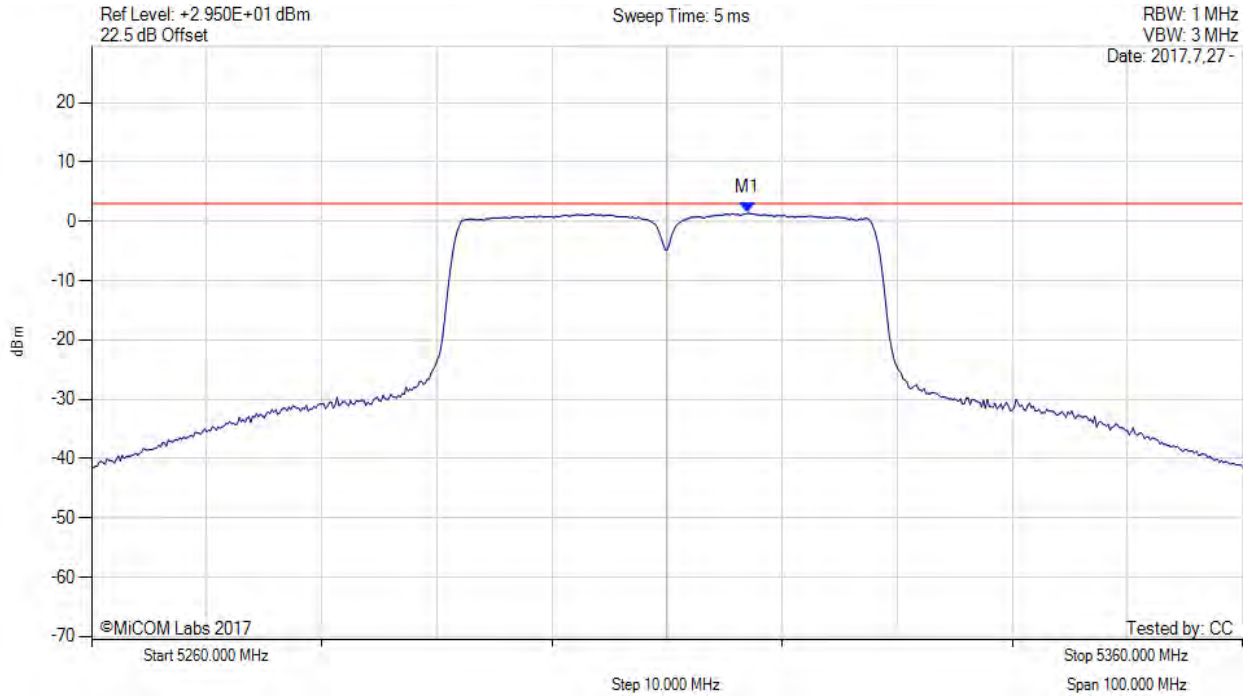


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5310.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5317.000 MHz : 1.403 dBm	Limit: ≤ 2.980 dBm

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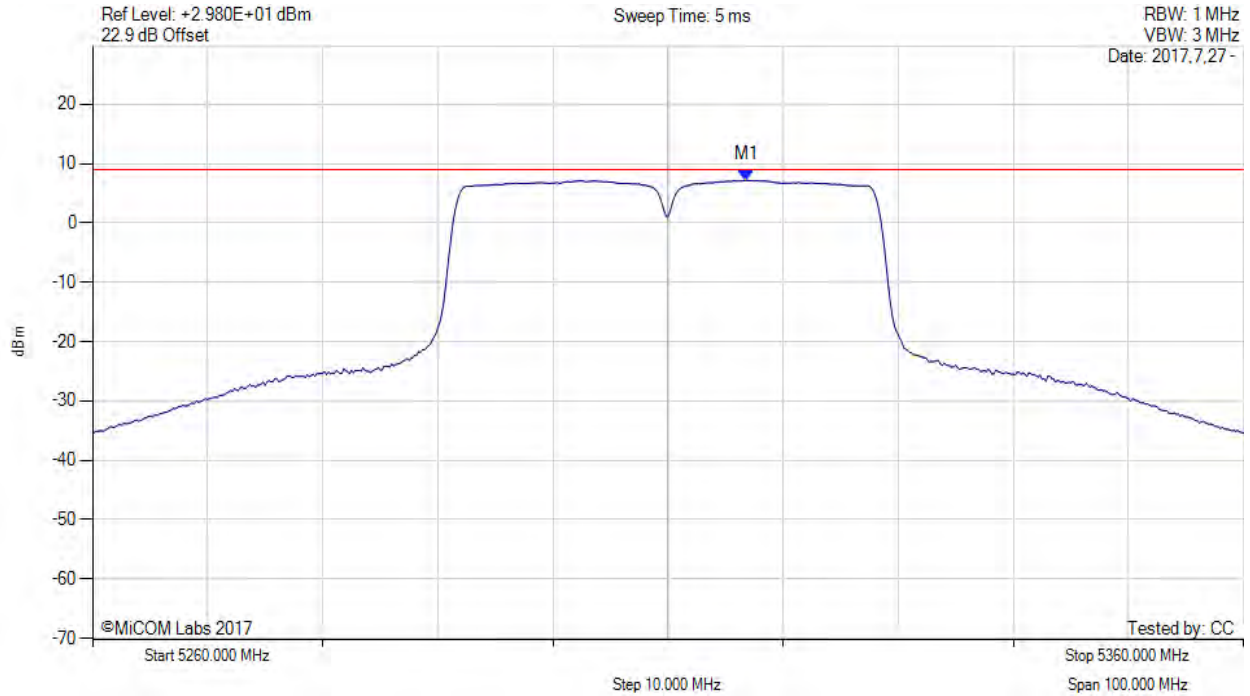


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5310.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5316.800 MHz : 7.211 dBm M1 + DCCF : 5316.800 MHz : 7.299 dBm Duty Cycle Correction Factor : +0.09 dB	Limit: $\leq 9.0$ dBm Margin: $-1.7$ dB

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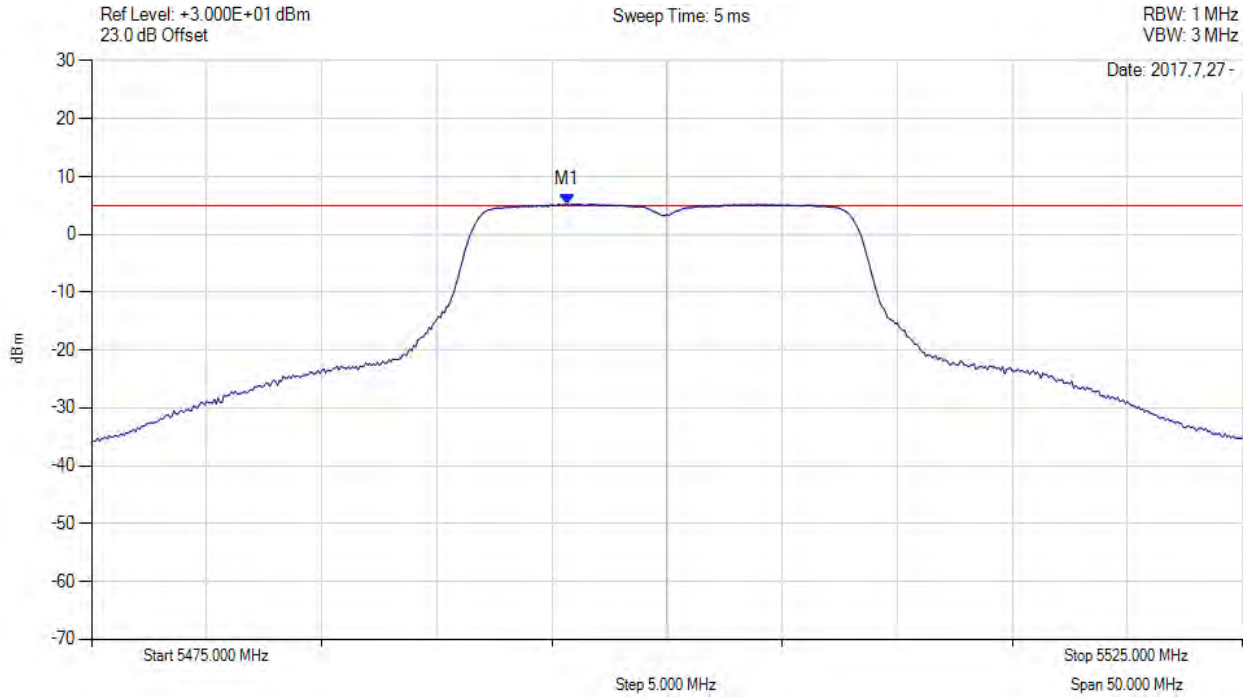


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5500.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5495.670 MHz : 5.238 dBm	Limit: ≤ 4.980 dBm

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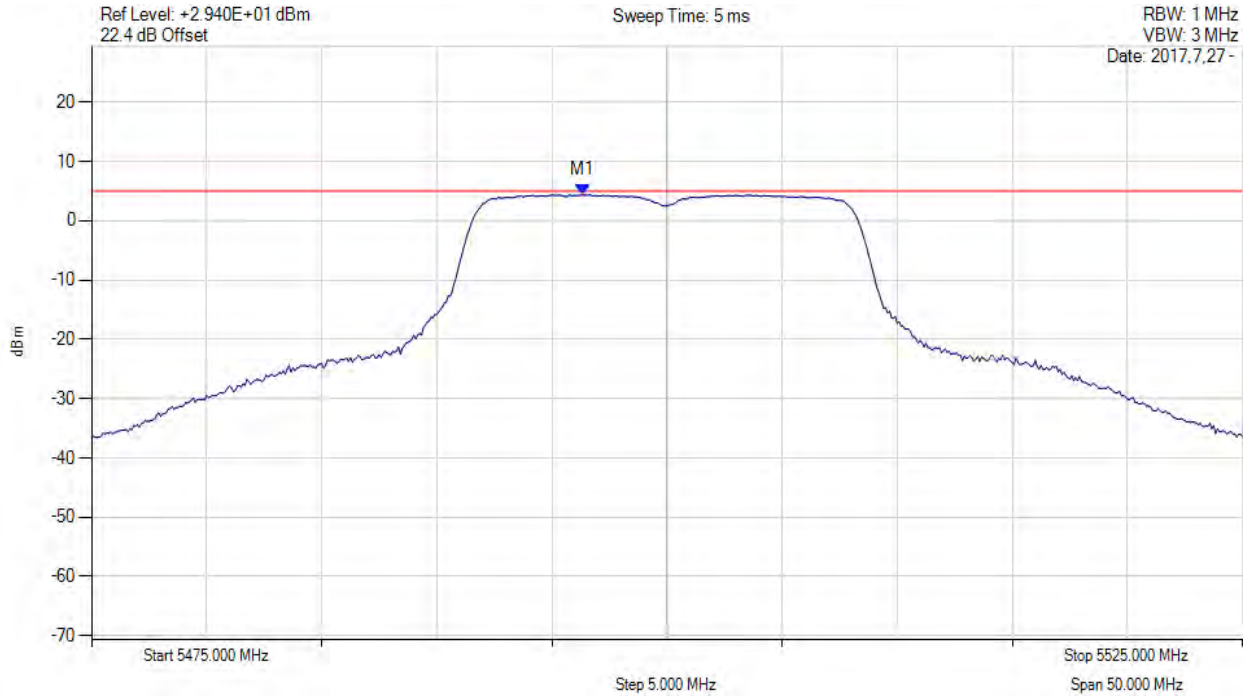


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5500.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5496.330 MHz : 4.362 dBm	Limit: ≤ 4.980 dBm

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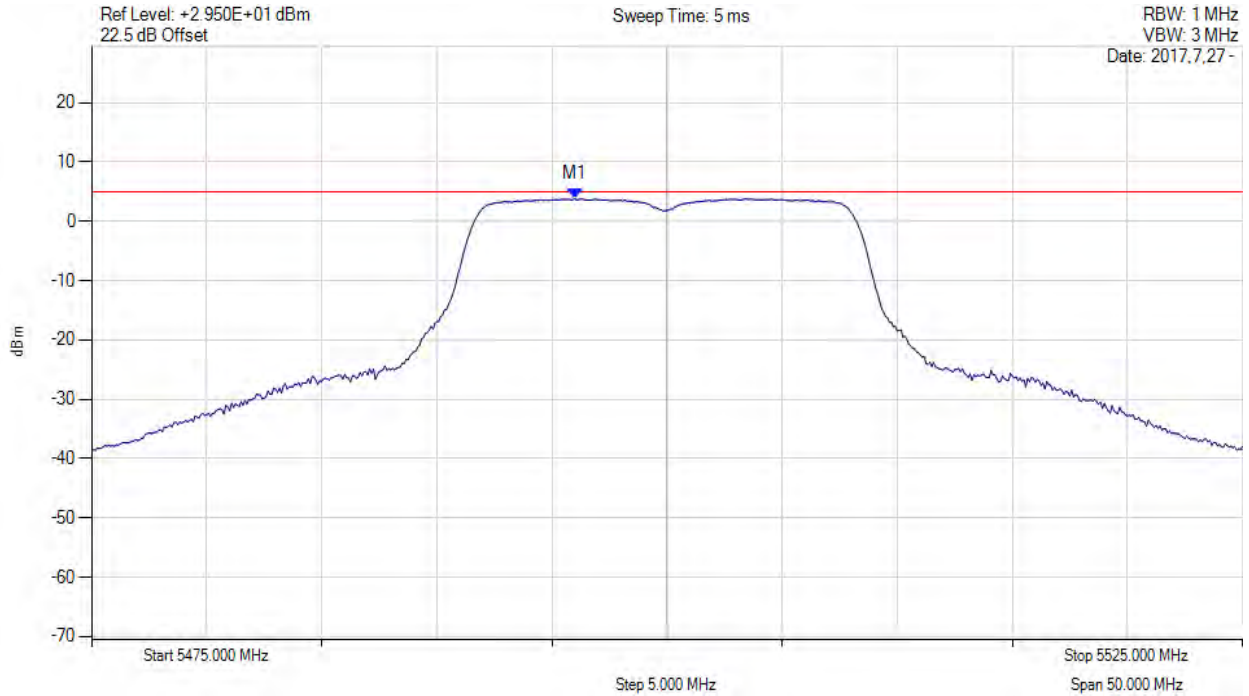


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5500.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5496.000 MHz : 3.808 dBm	Limit: ≤ 4.980 dBm

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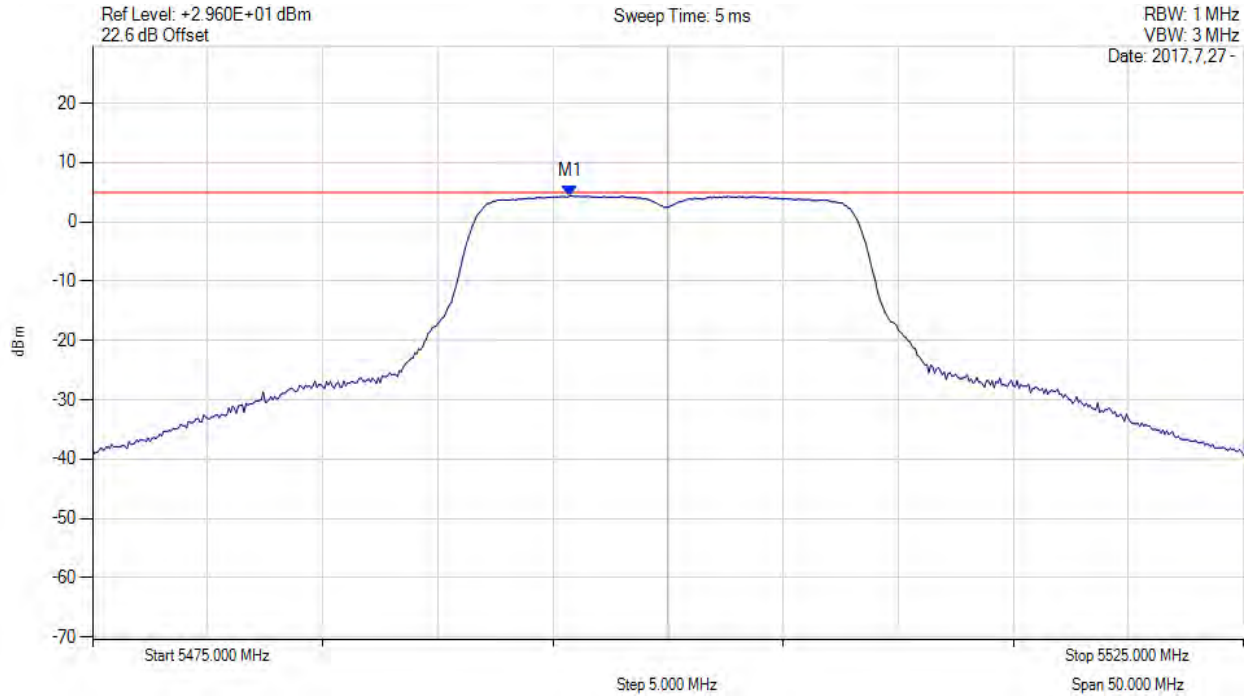


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5500.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5495.750 MHz : 4.410 dBm	Limit: ≤ 4.980 dBm

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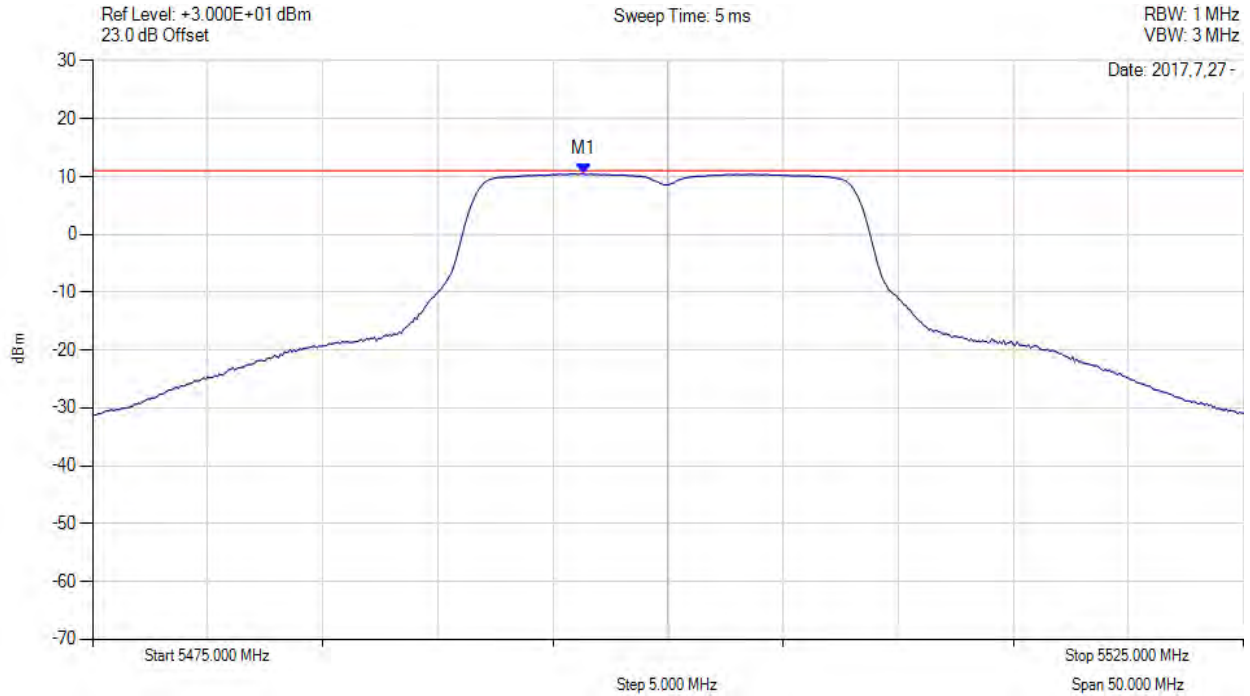


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5500.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5496.300 MHz : 10.443 dBm M1 + DCCF : 5496.300 MHz : 10.487 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: $\leq 11.0$ dBm Margin: $-0.5$ dB

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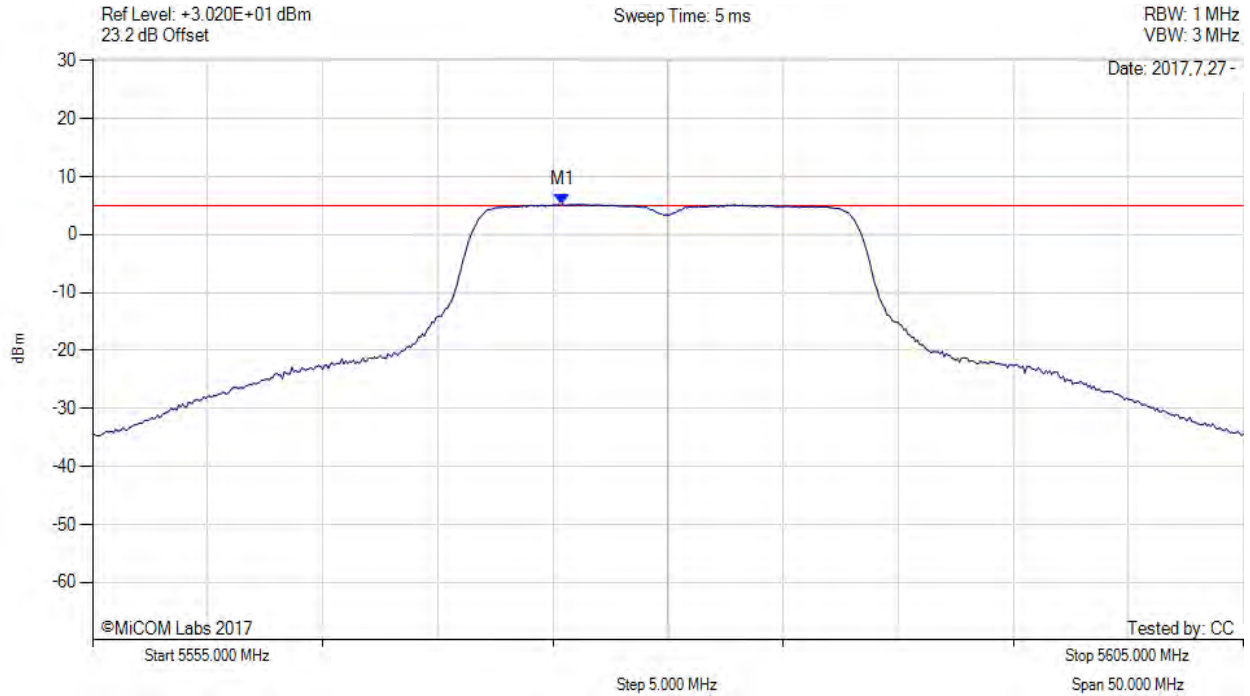


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5580.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5575.420 MHz : 5.232 dBm	Limit: ≤ 4.980 dBm

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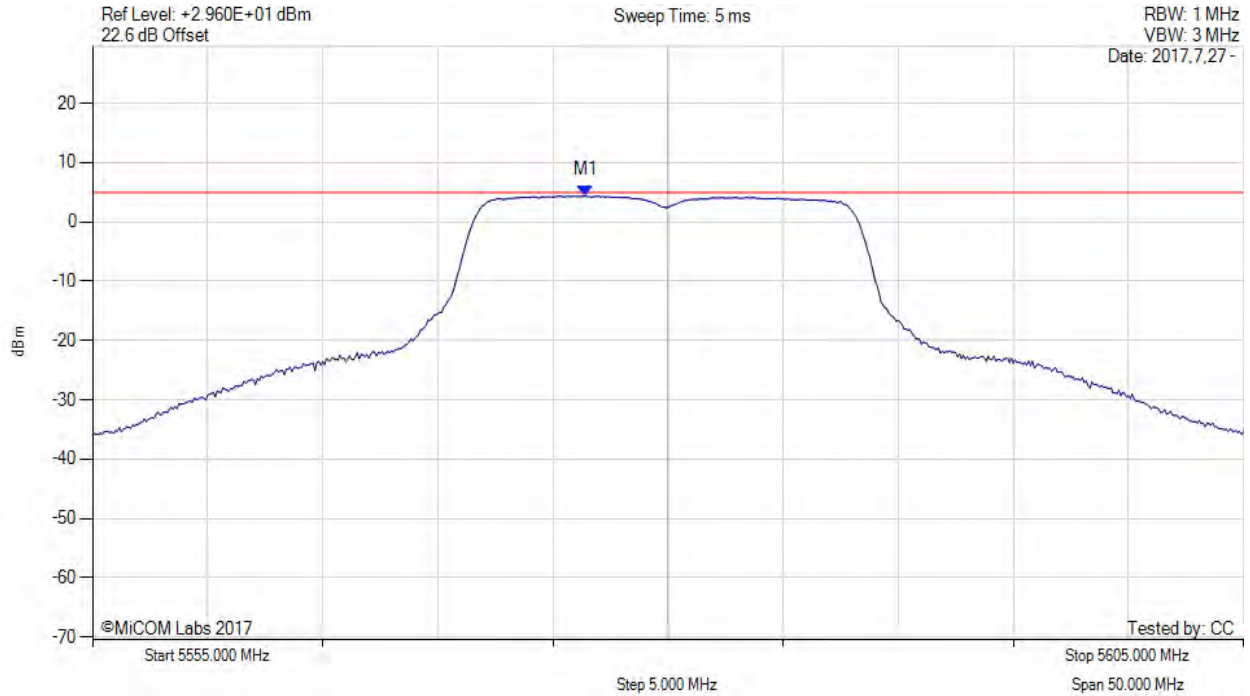


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5580.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5576.420 MHz : 4.449 dBm	Channel Frequency: 5580.00 MHz

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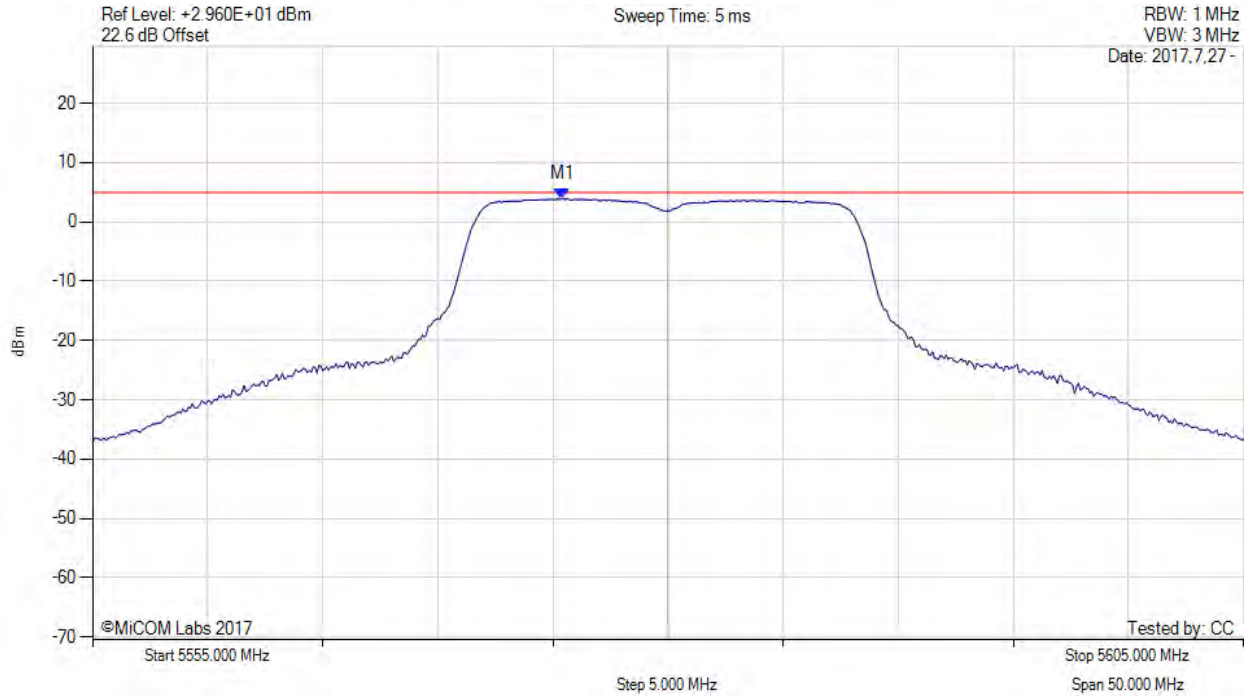


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5580.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5575.420 MHz : 3.922 dBm	Limit: ≤ 4.980 dBm

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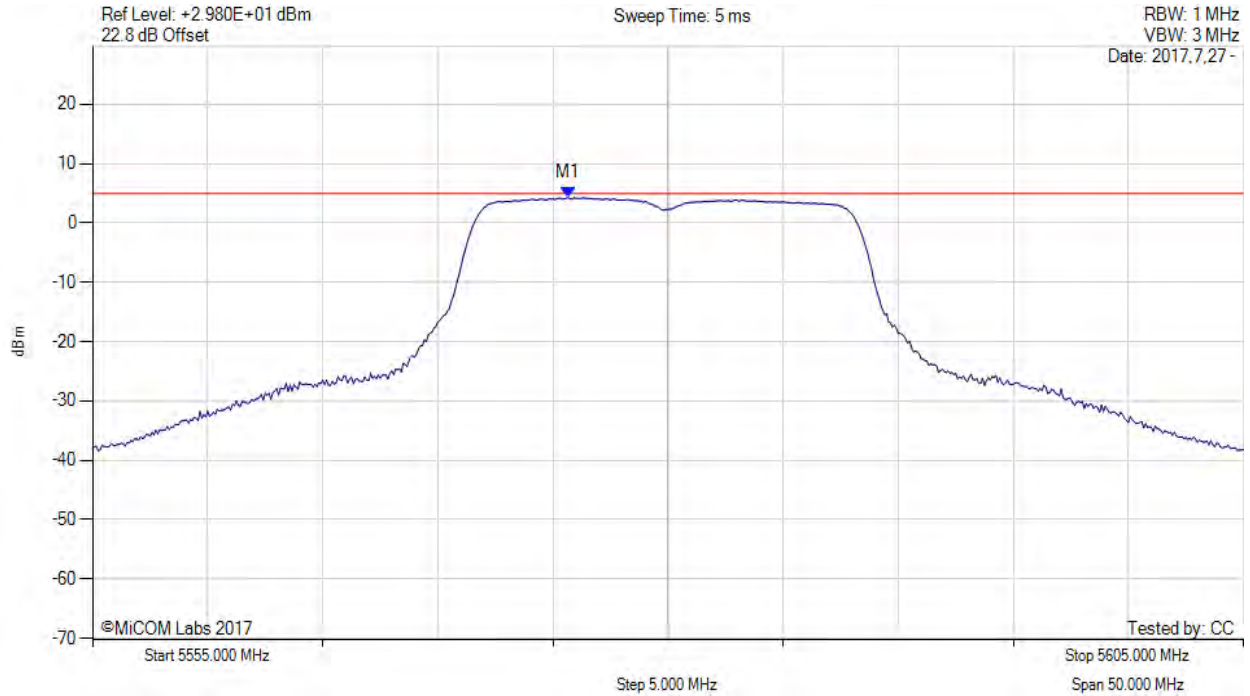


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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5580.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5575.670 MHz : 4.321 dBm	Limit: ≤ 4.980 dBm

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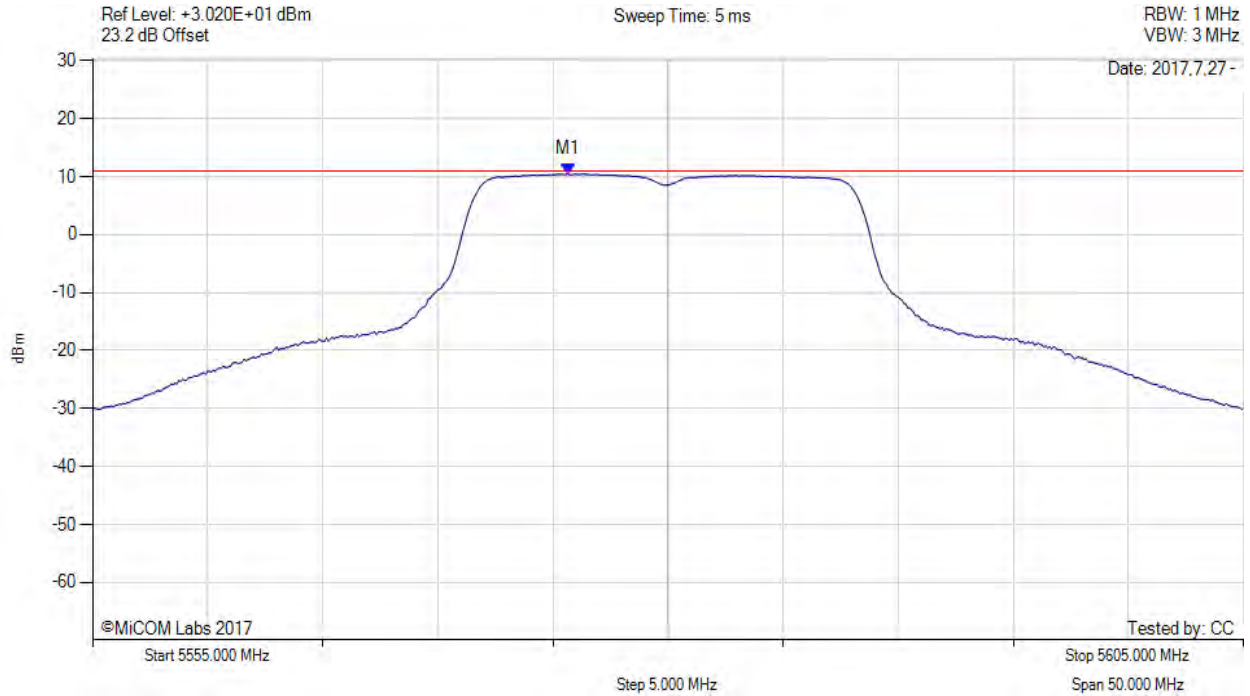


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POWER SPECTRAL DENSITY



Variation: 802.11a, Channel: 5580.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5575.700 MHz : 10.460 dBm M1 + DCCF : 5575.700 MHz : 10.504 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 11.0 dBm Margin: -0.5 dB

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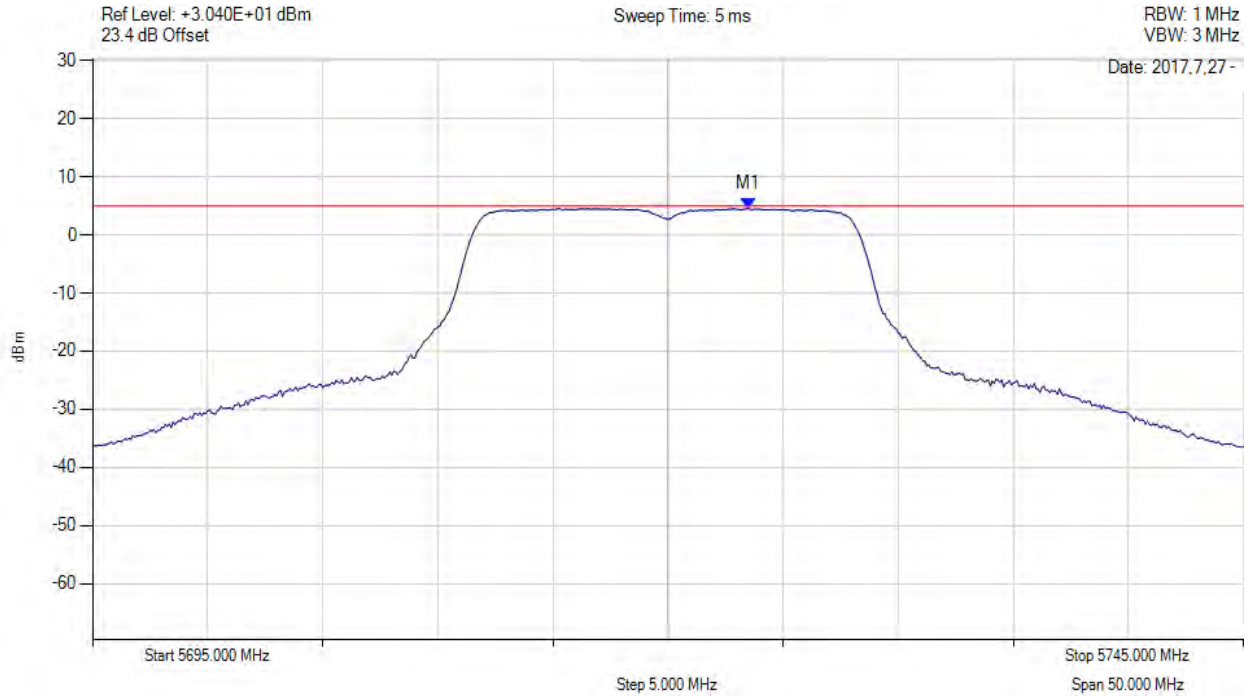


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5720.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5723.500 MHz : 4.546 dBm	Limit: ≤ 4.980 dBm

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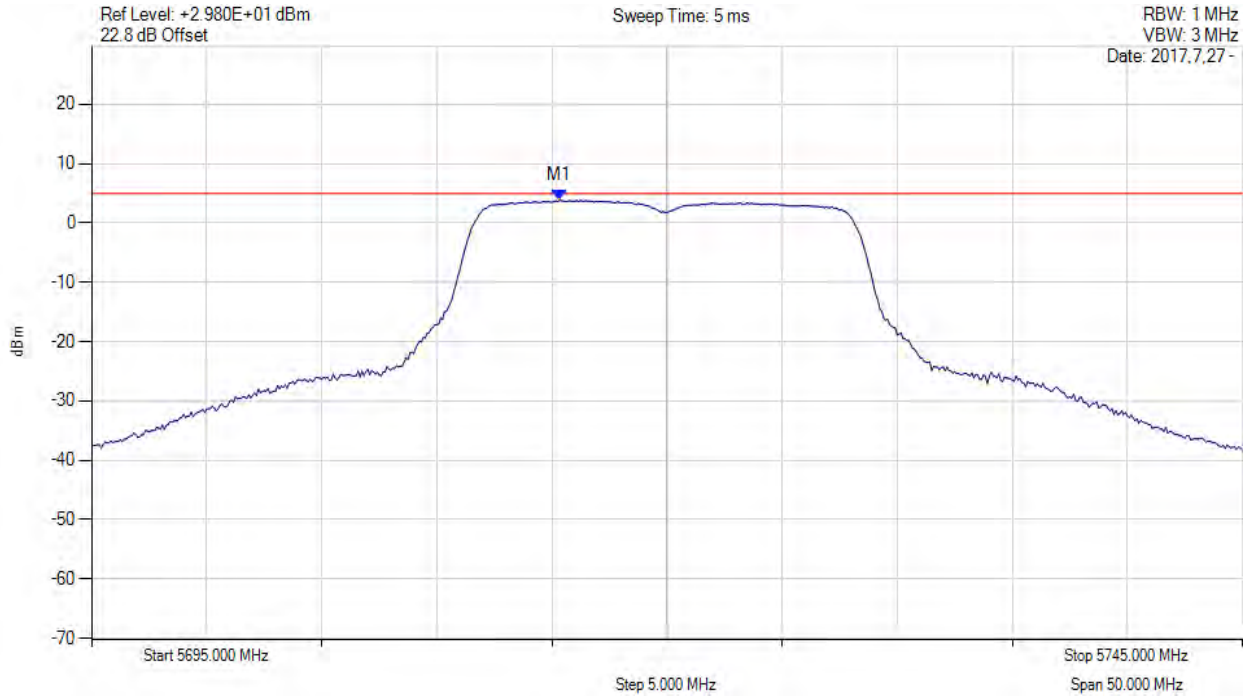


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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5720.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5715.330 MHz : 3.819 dBm	Limit: ≤ 4.980 dBm

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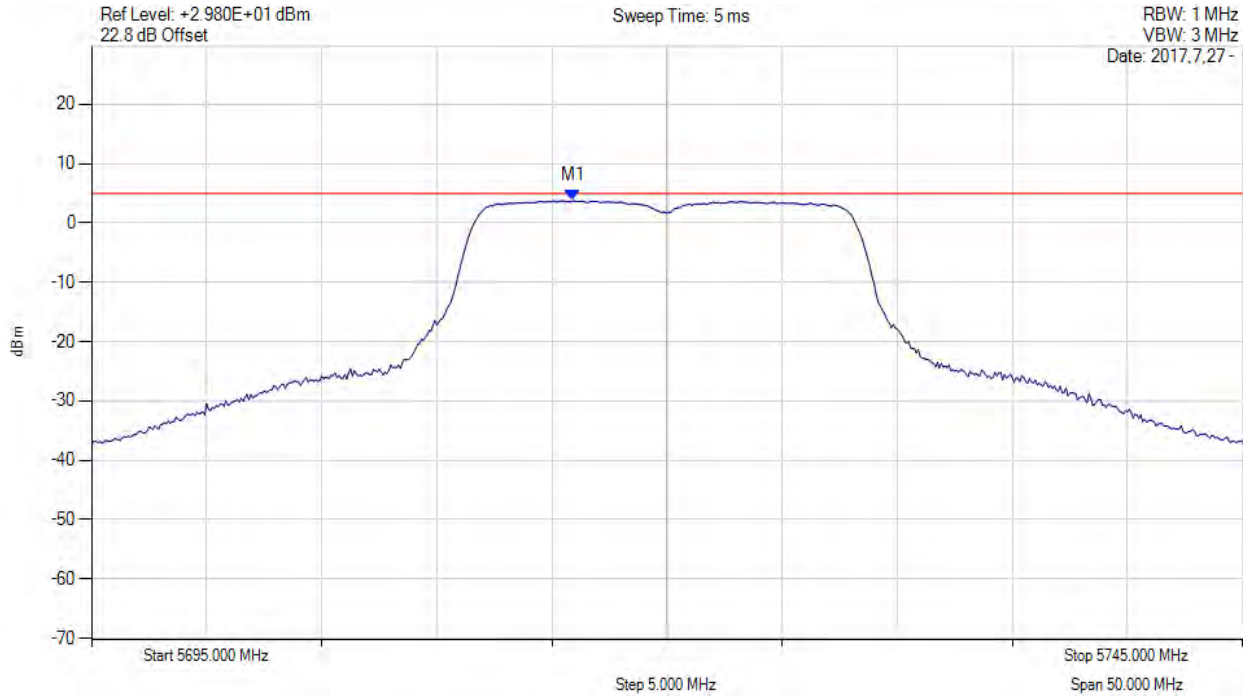


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
**Serial #:** HPEN111-U12\_Conducted DFS Bands Rev A  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5720.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5715.920 MHz : 3.804 dBm	Limit: ≤ 4.980 dBm

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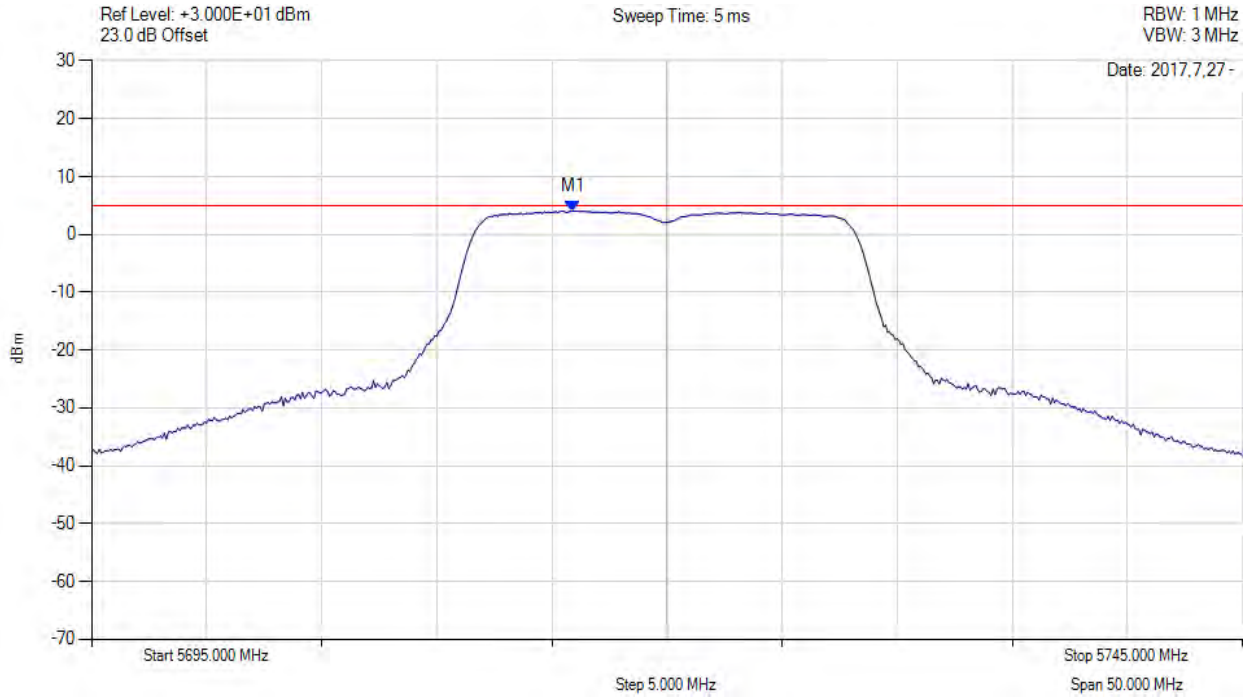


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11a, Channel: 5720.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5715.920 MHz : 4.018 dBm	Limit: ≤ 4.980 dBm

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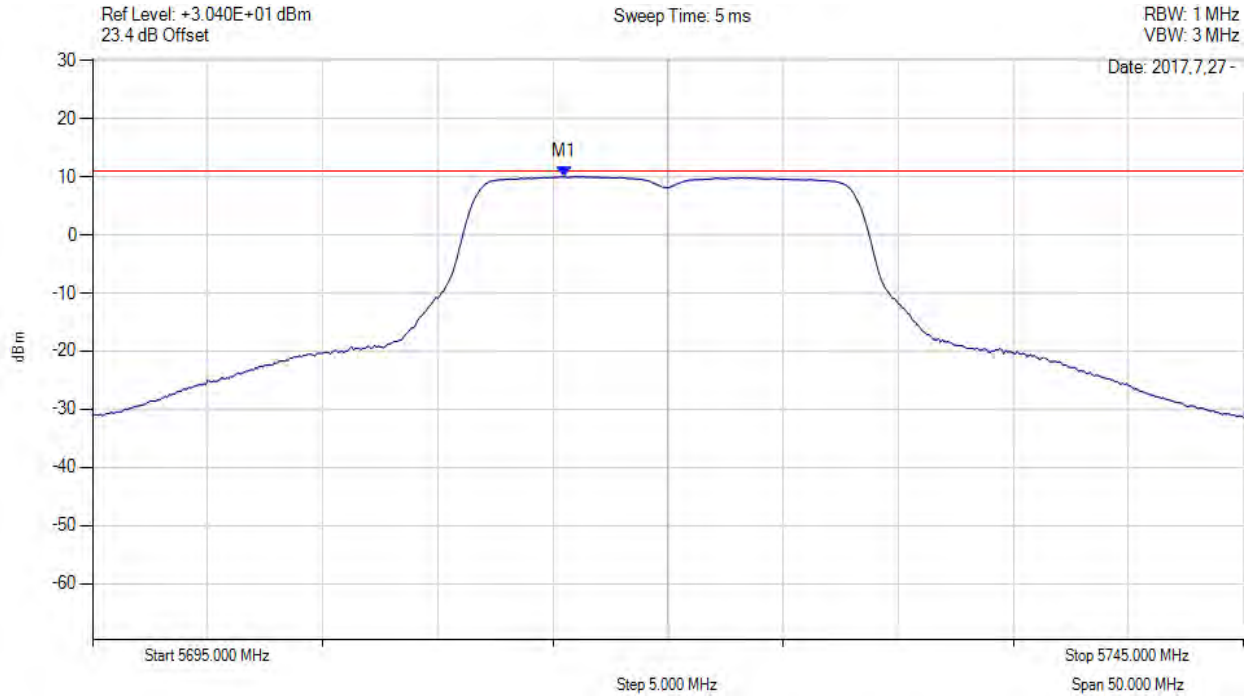


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variation: 802.11a, Channel: 5720.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5715.500 MHz : 10.017 dBm M1 + DCCF : 5715.500 MHz : 10.061 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: $\leq 11.0$ dBm Margin: -1.0 dB

[back to matrix](#)

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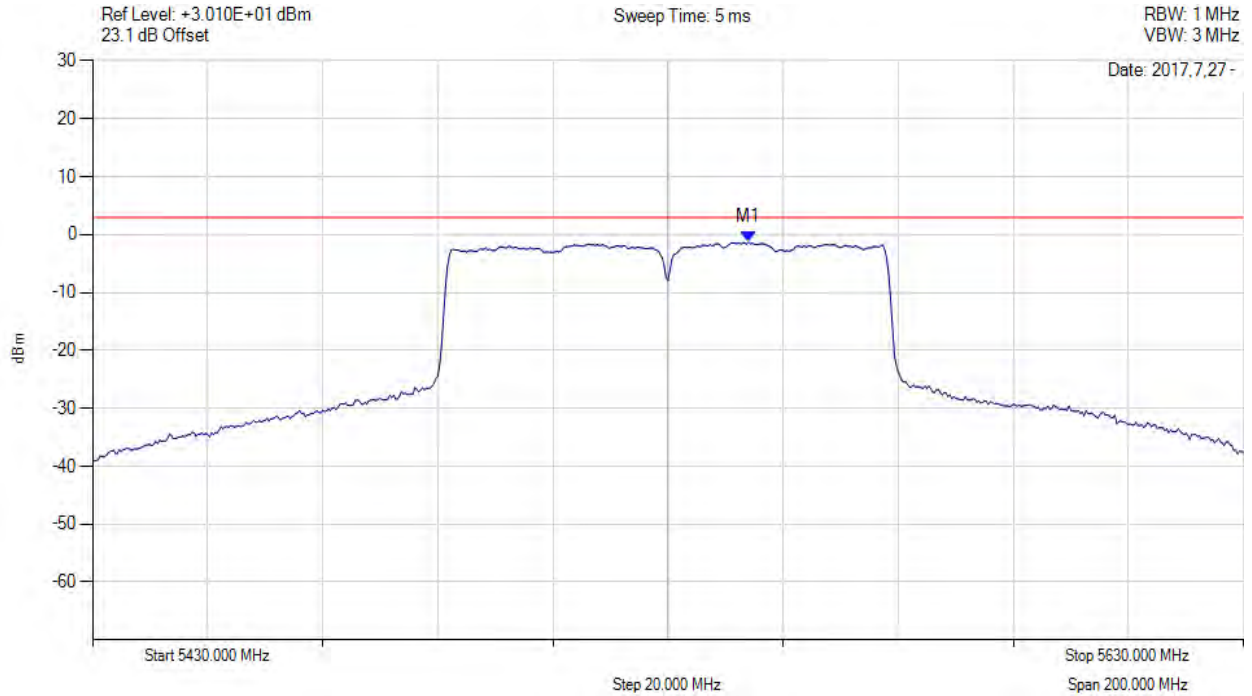


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11ac-80, Channel: 5530.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5544.000 MHz : -1.303 dBm	Limit: ≤ 2.980 dBm

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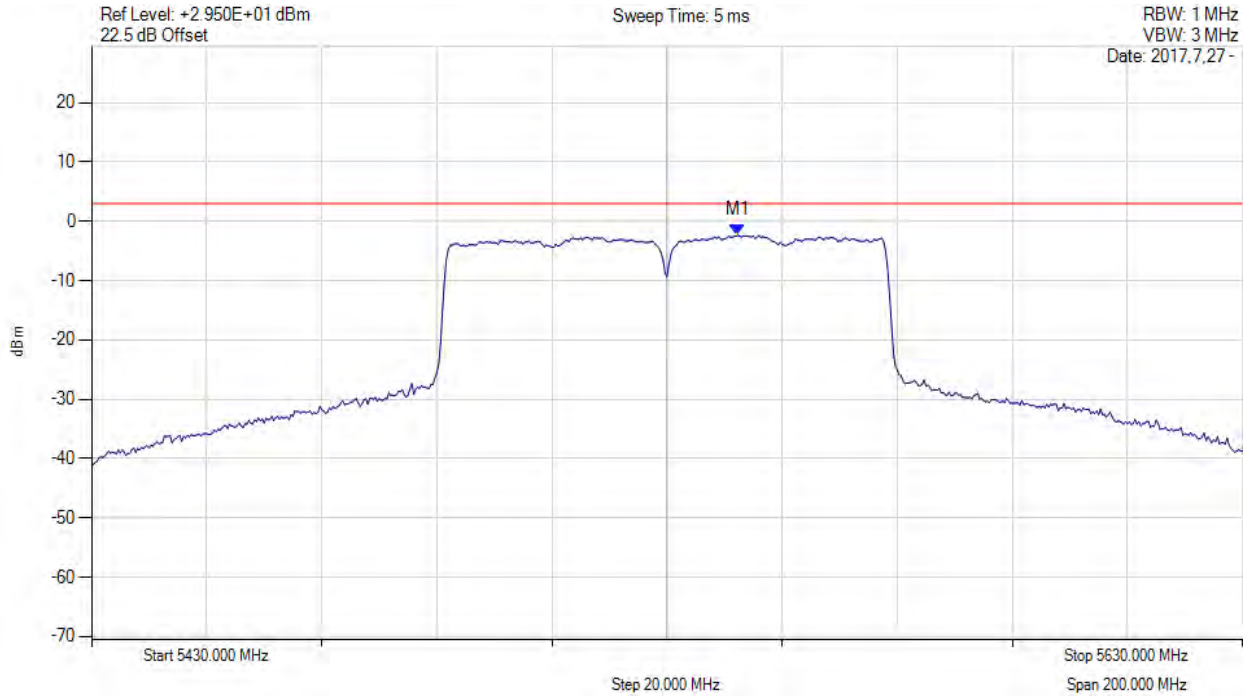


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11ac-80, Channel: 5530.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5542.300 MHz : -2.331 dBm	Limit: ≤ 2.980 dBm

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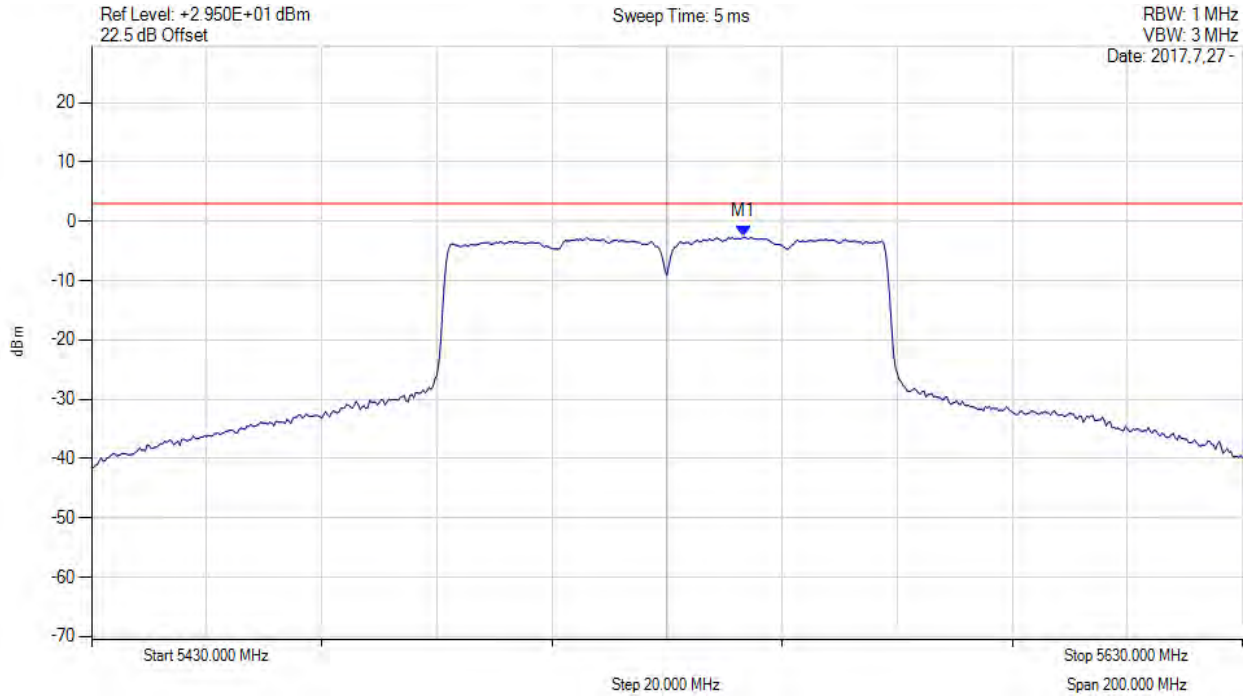


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11ac-80, Channel: 5530.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5543.300 MHz : -2.646 dBm	Limit: ≤ 2.980 dBm

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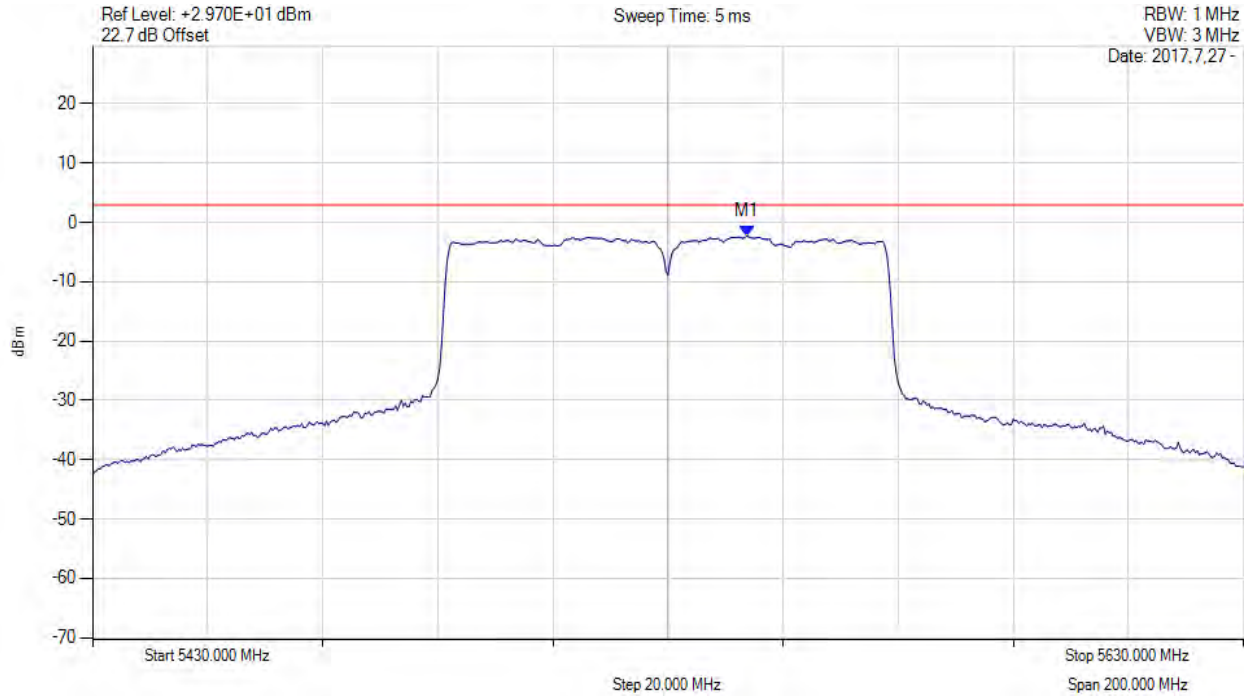


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POWER SPECTRAL DENSITY



Variant: 802.11ac-80, Channel: 5530.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5543.700 MHz : -2.259 dBm	Limit: ≤ 2.980 dBm

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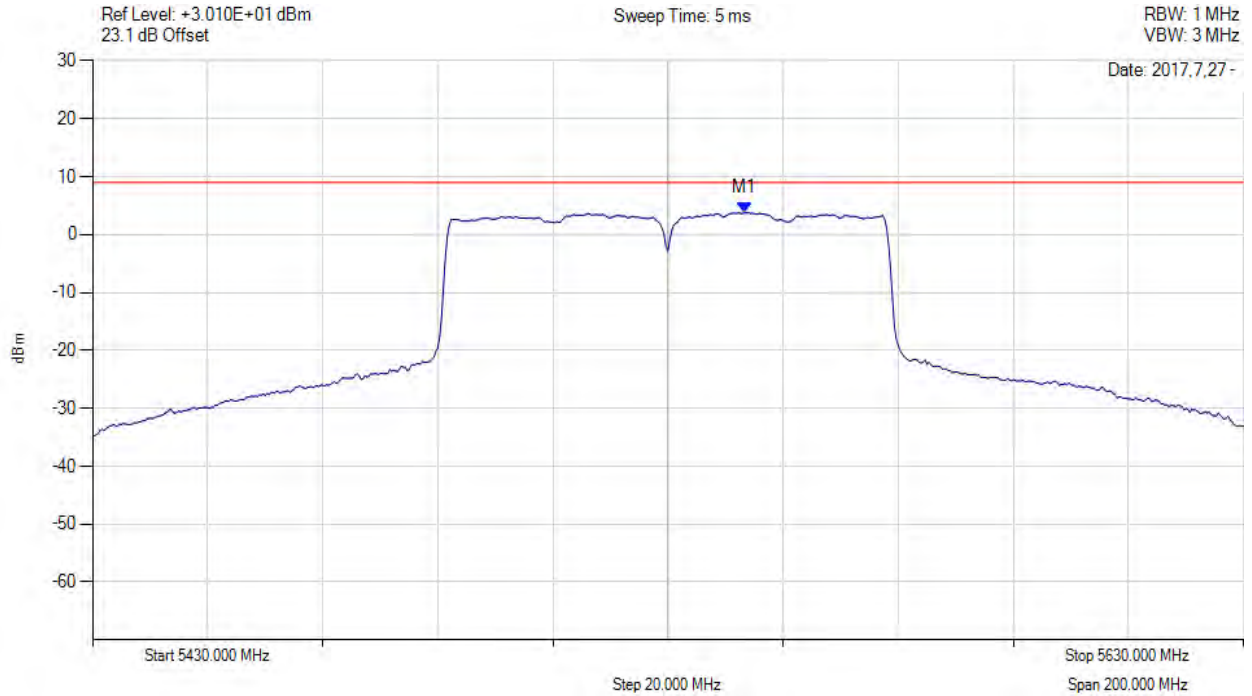


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POWER SPECTRAL DENSITY



Variant: 802.11ac-80, Channel: 5530.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5543.300 MHz : 3.771 dBm M1 + DCCF : 5543.300 MHz : 4.133 dBm Duty Cycle Correction Factor : +0.36 dB	Limit: ≤ 9.0 dBm Margin: -4.9 dB

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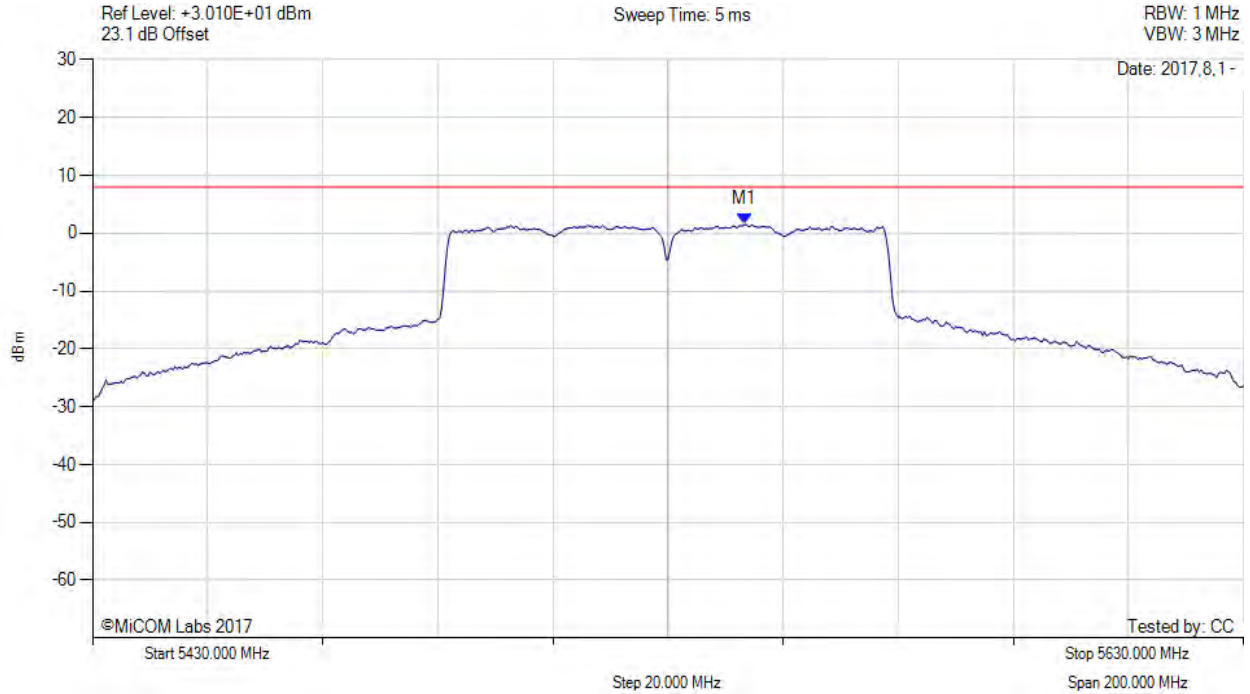


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POWER SPECTRAL DENSITY



Variant: 802.11ac-80+80, Channel: 5530.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5543.300 MHz : 1.525 dBm	Limit: ≤ 5.990 dBm

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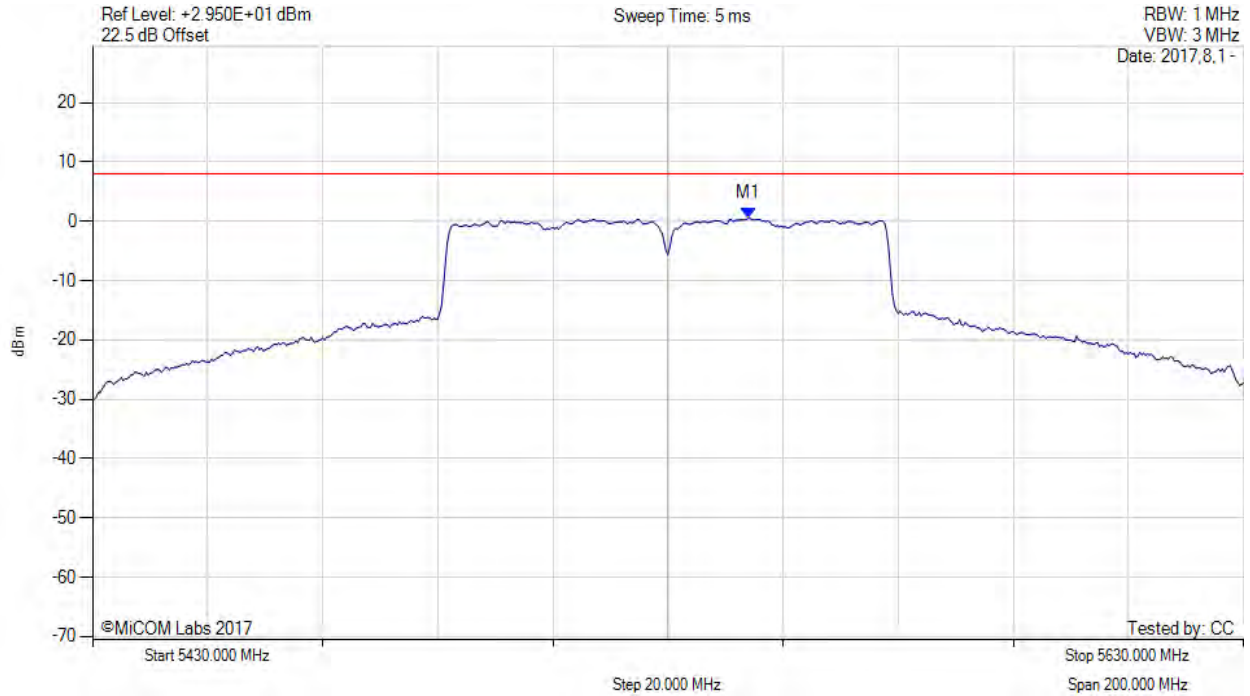


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POWER SPECTRAL DENSITY



Variant: 802.11ac-80+80, Channel: 5530.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5544.000 MHz : 0.518 dBm	Limit: ≤ 5.990 dBm

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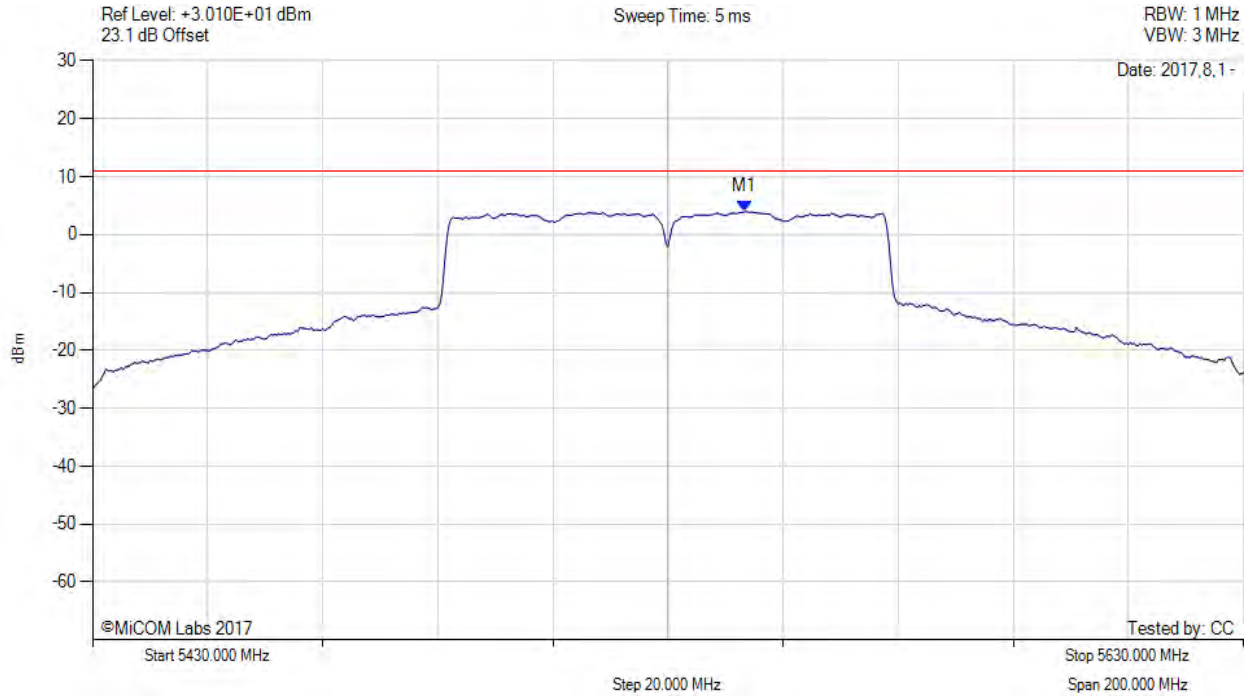


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POWER SPECTRAL DENSITY



Variant: 802.11ac-80+80, Channel: 5530.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5543.300 MHz : 3.954 dBm M1 + DCCF : 5543.300 MHz : 4.316 dBm Duty Cycle Correction Factor : +0.36 dB	Limit: ≤ 9.0 dBm Margin: -4.7 dB

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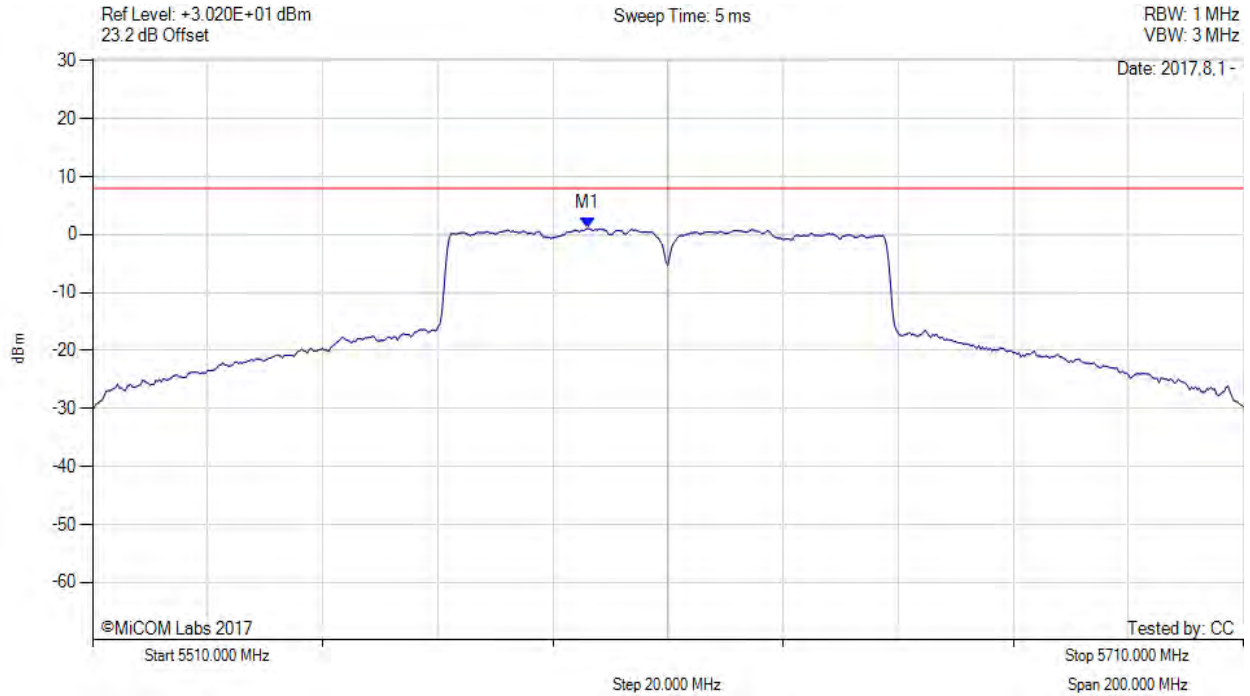


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11ac-80+80, Channel: 5610.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5596.000 MHz : 1.058 dBm	Limit: ≤ 5.990 dBm

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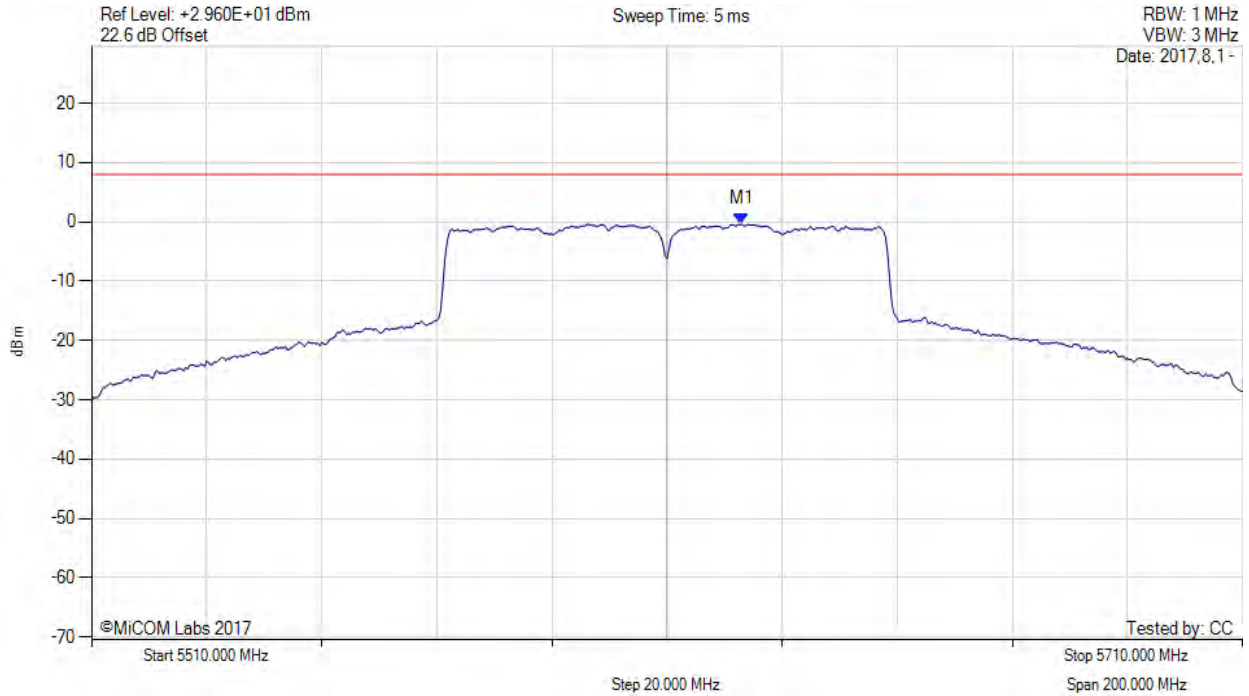


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11ac-80+80, Channel: 5610.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5623.000 MHz : -0.411 dBm	Channel Frequency: 5610.00 MHz

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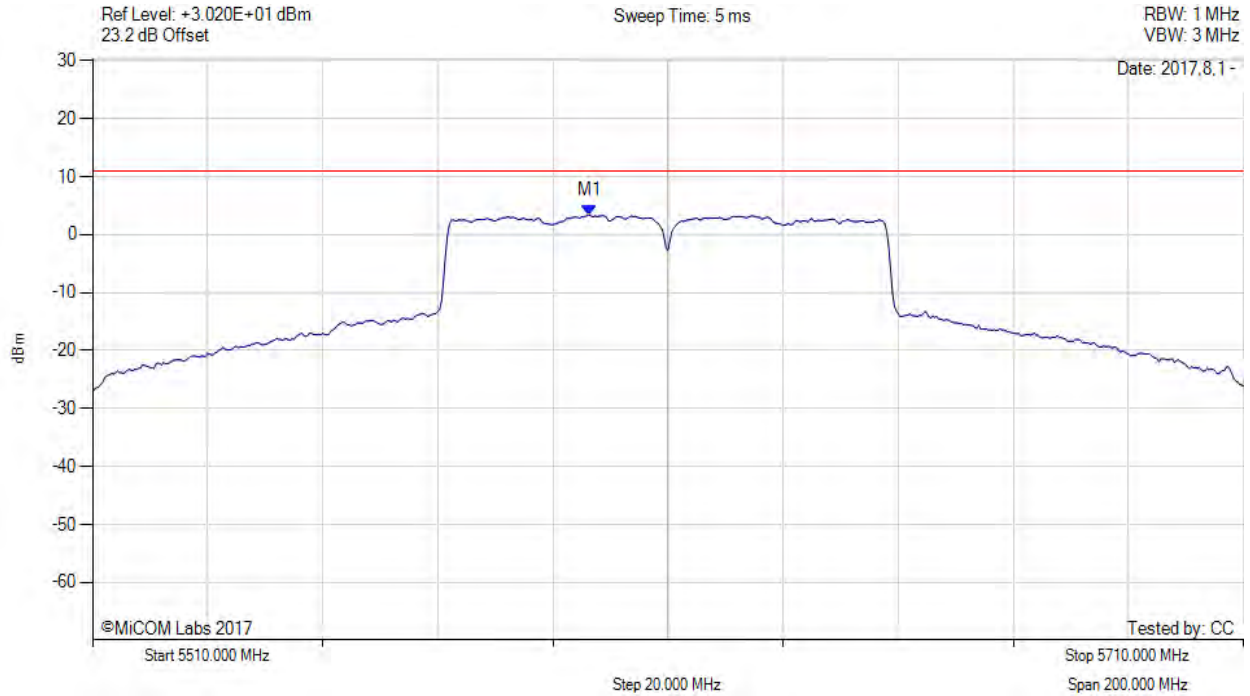


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11ac-80+80, Channel: 5610.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5596.300 MHz : 3.378 dBm M1 + DCCF : 5596.300 MHz : 3.740 dBm Duty Cycle Correction Factor : +0.36 dB	Limit: ≤ 9.0 dBm Margin: -5.3 dB

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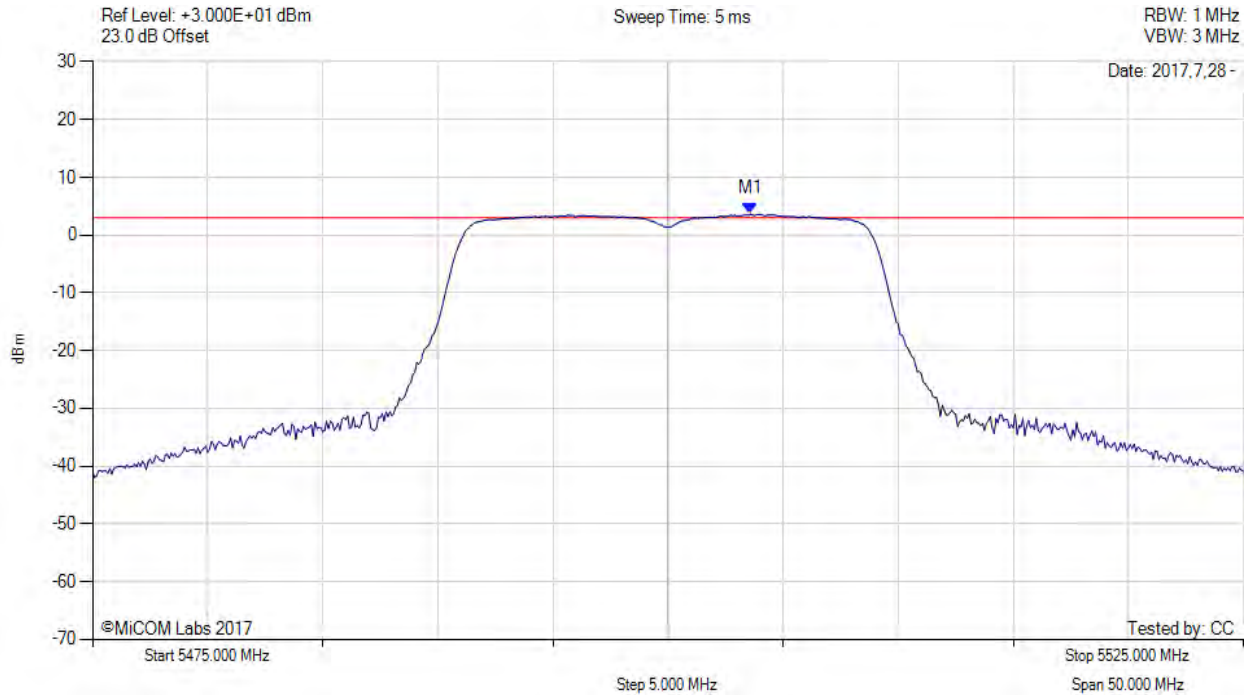


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5500.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5503.580 MHz : 3.649 dBm	Limit: ≤ 2.980 dBm

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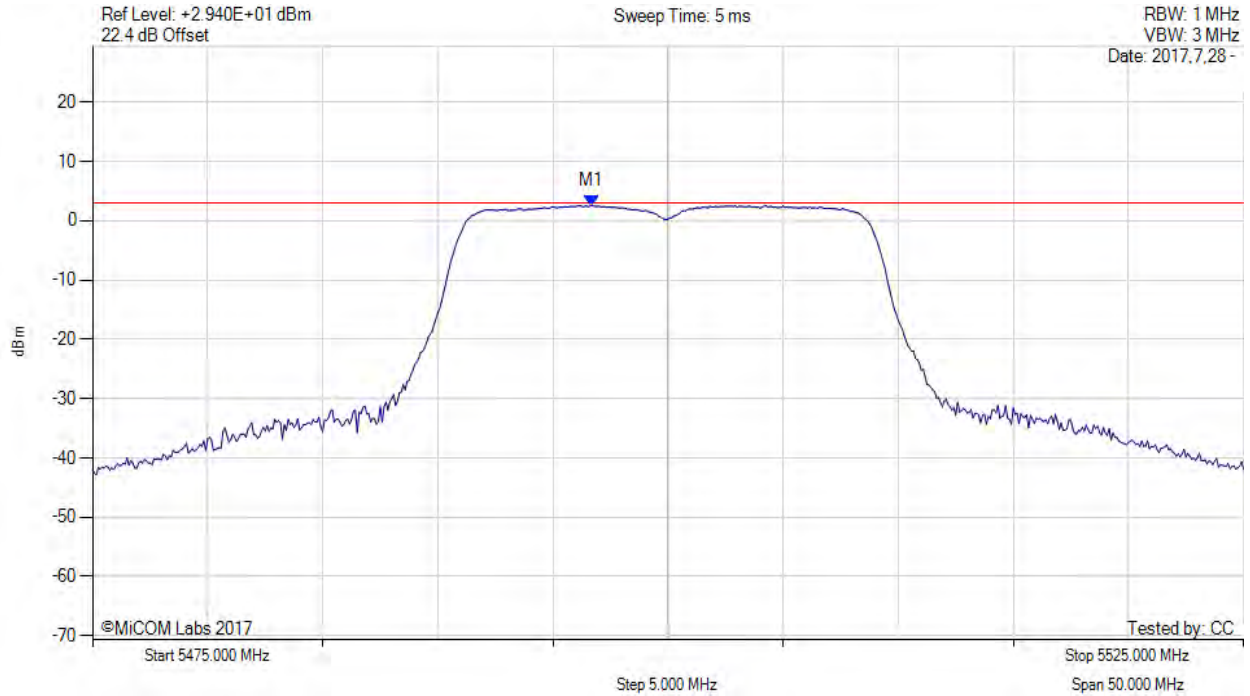


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5500.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5496.670 MHz : 2.596 dBm	Limit: ≤ 2.980 dBm

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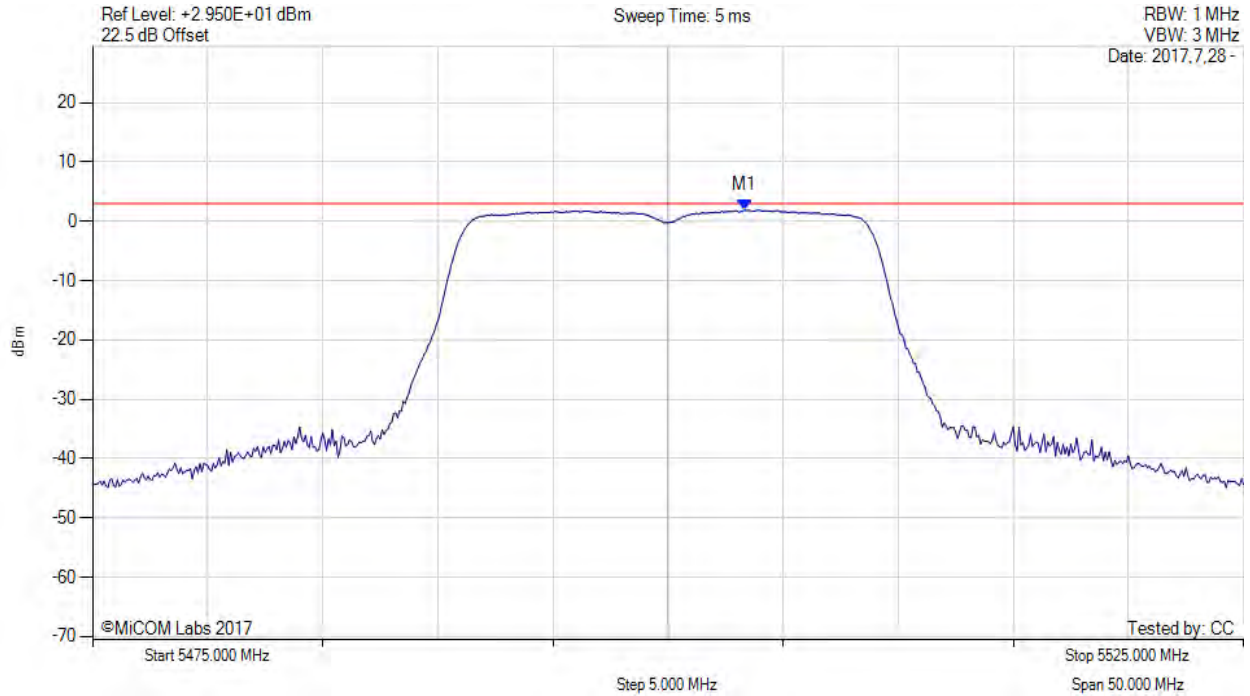


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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5500.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5503.330 MHz : 1.916 dBm	Limit: ≤ 2.980 dBm

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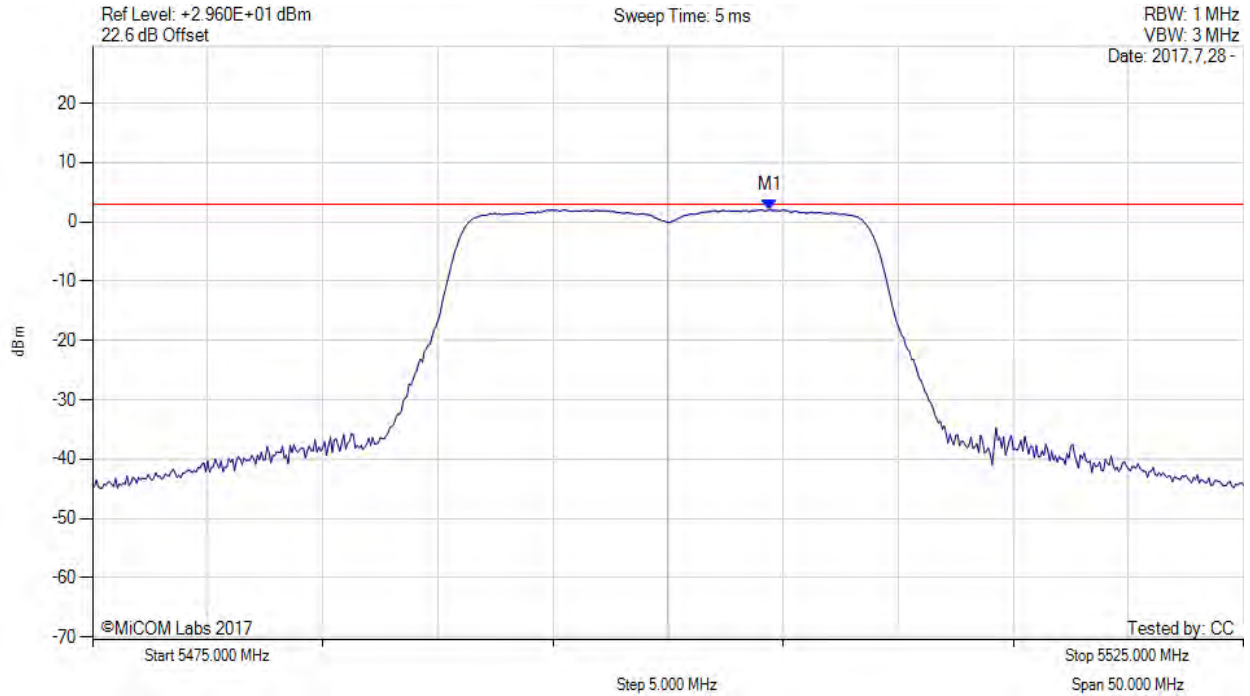


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5500.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5504.420 MHz : 2.074 dBm	Limit: ≤ 2.980 dBm

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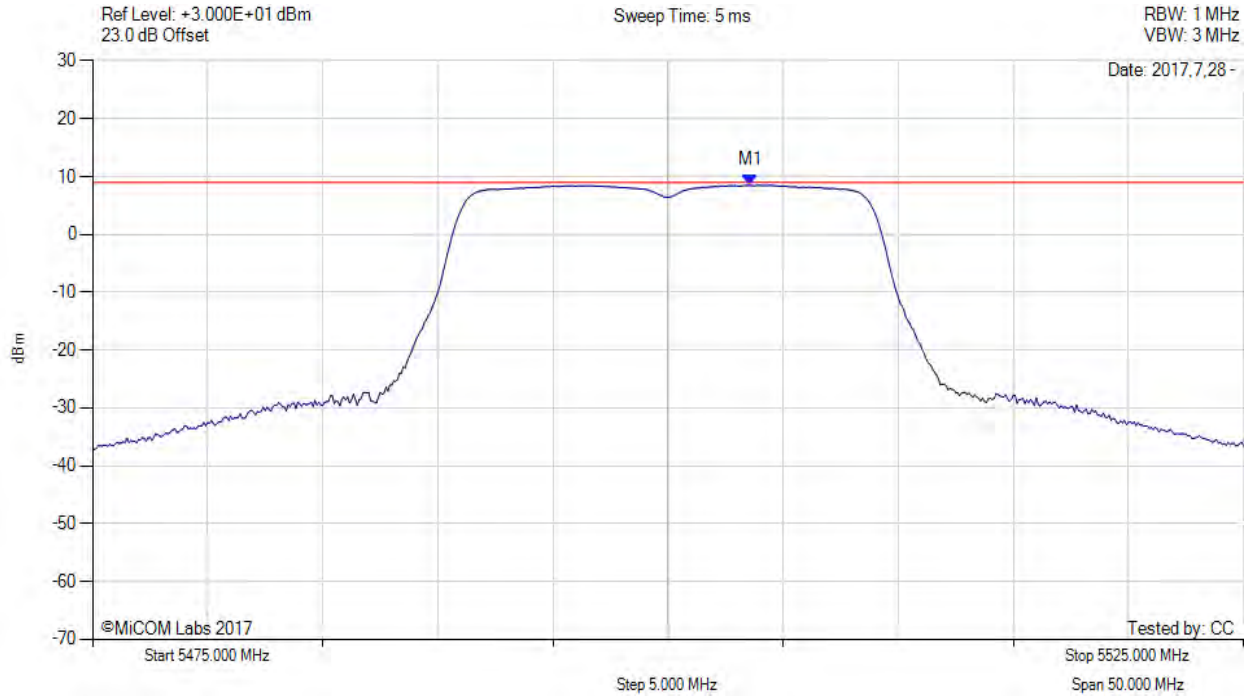


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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5500.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5503.600 MHz : 8.535 dBm M1 + DCCF : 5503.600 MHz : 8.579 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 9.0 dBm Margin: -0.4 dB

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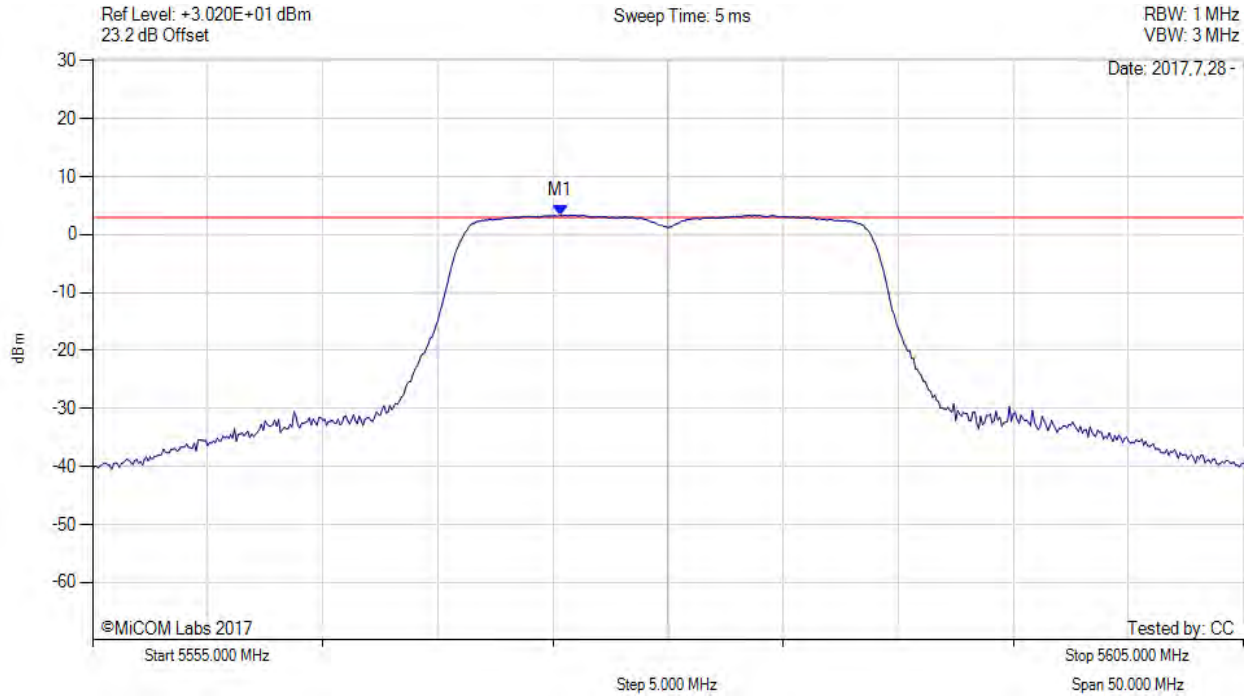


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5580.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5575.330 MHz : 3.384 dBm	Limit: ≤ 2.980 dBm

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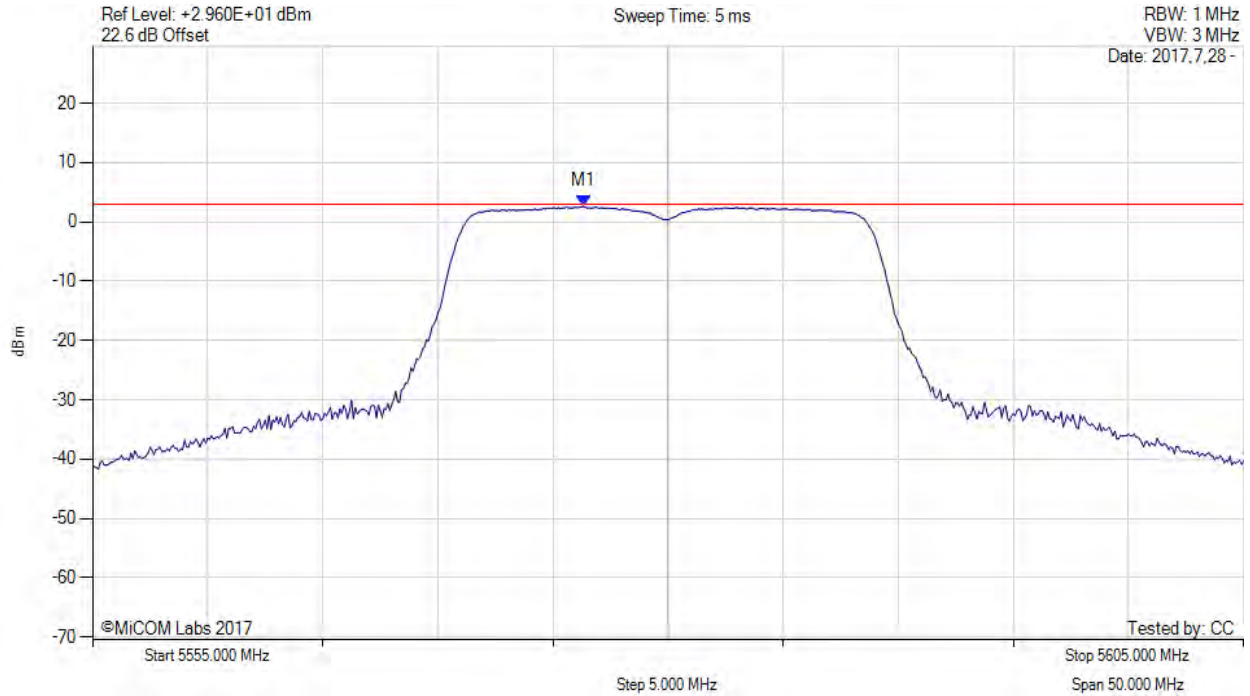


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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5580.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5576.330 MHz : 2.633 dBm	Channel Frequency: 5580.00 MHz

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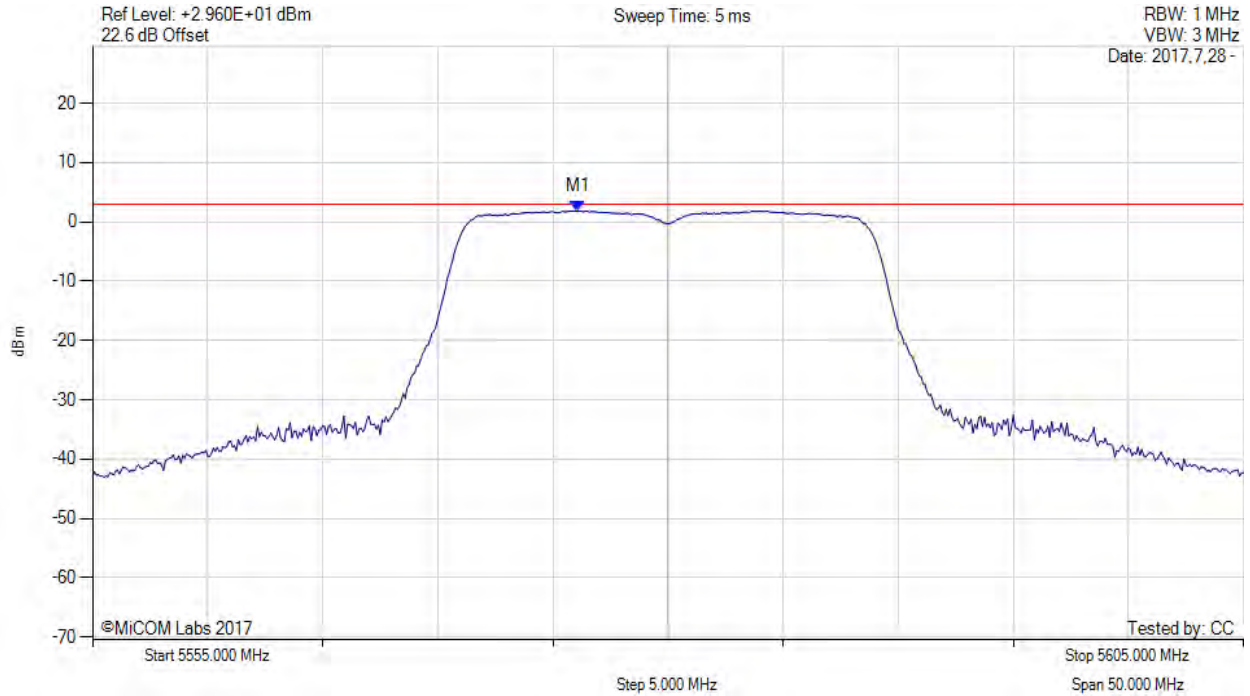


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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5580.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5576.080 MHz : 1.854 dBm	Limit: ≤ 2.980 dBm

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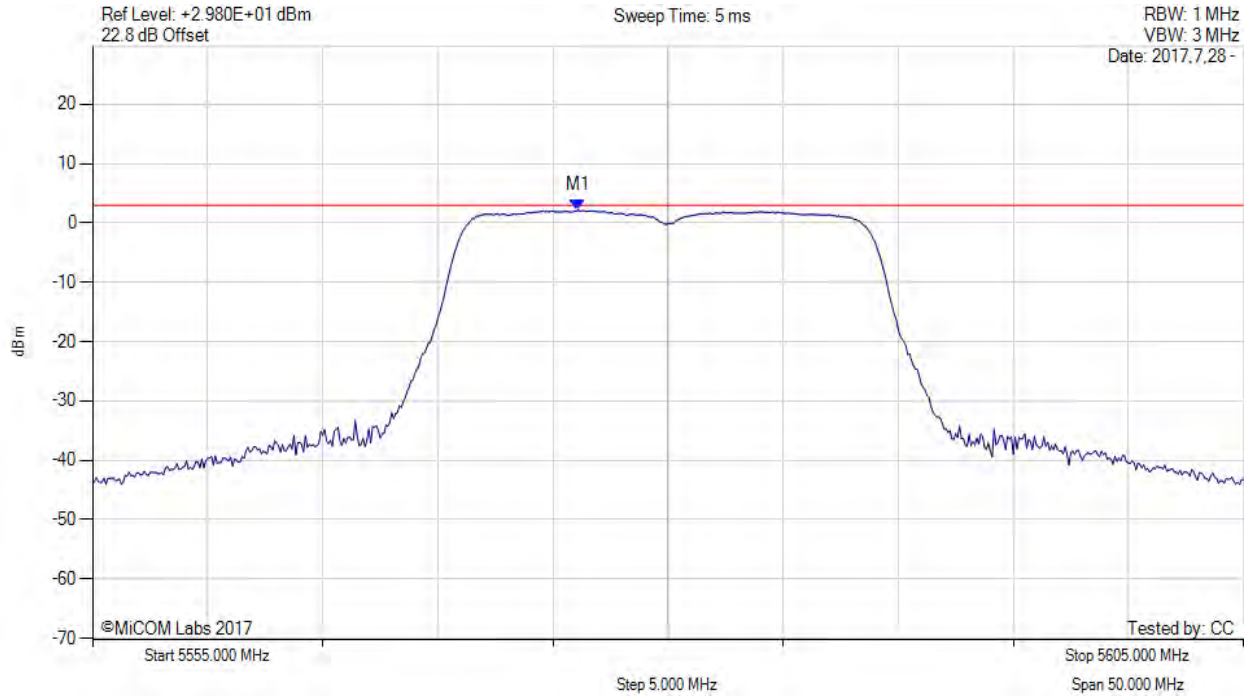


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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5580.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5576.080 MHz : 2.156 dBm	Limit: ≤ 2.980 dBm

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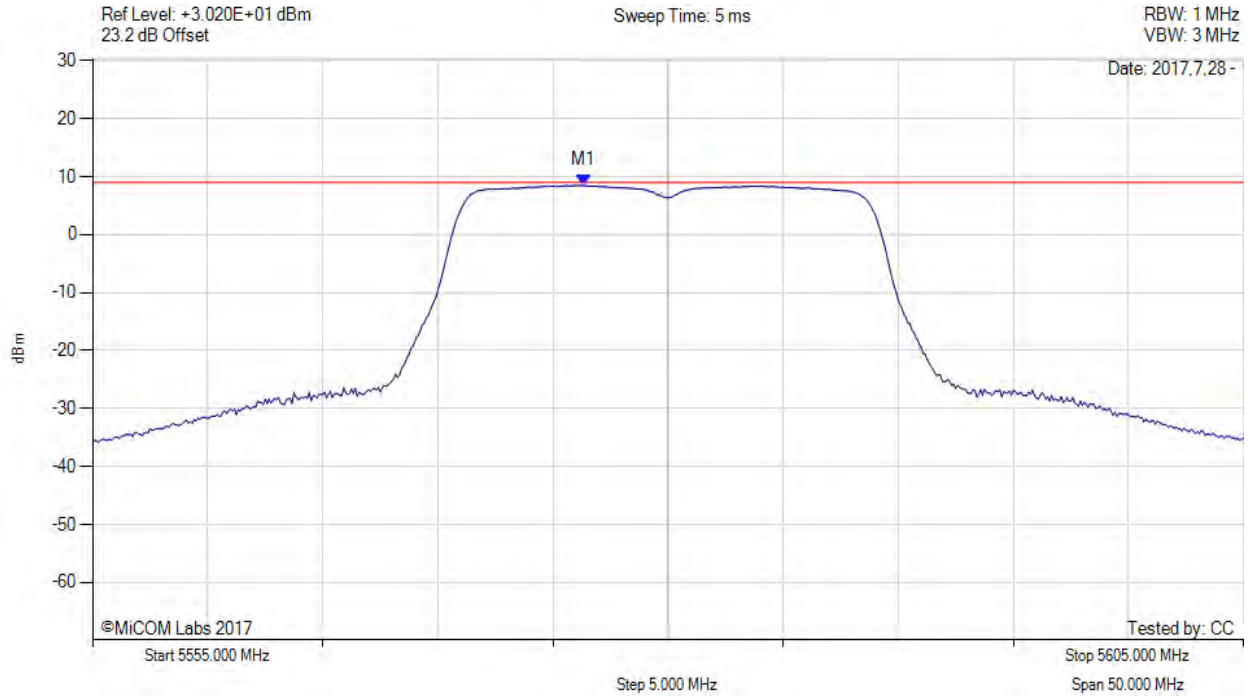


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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5580.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5576.300 MHz : 8.510 dBm M1 + DCCF : 5576.300 MHz : 8.554 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: ≤ 9.0 dBm Margin: -0.5 dB

[back to matrix](#)

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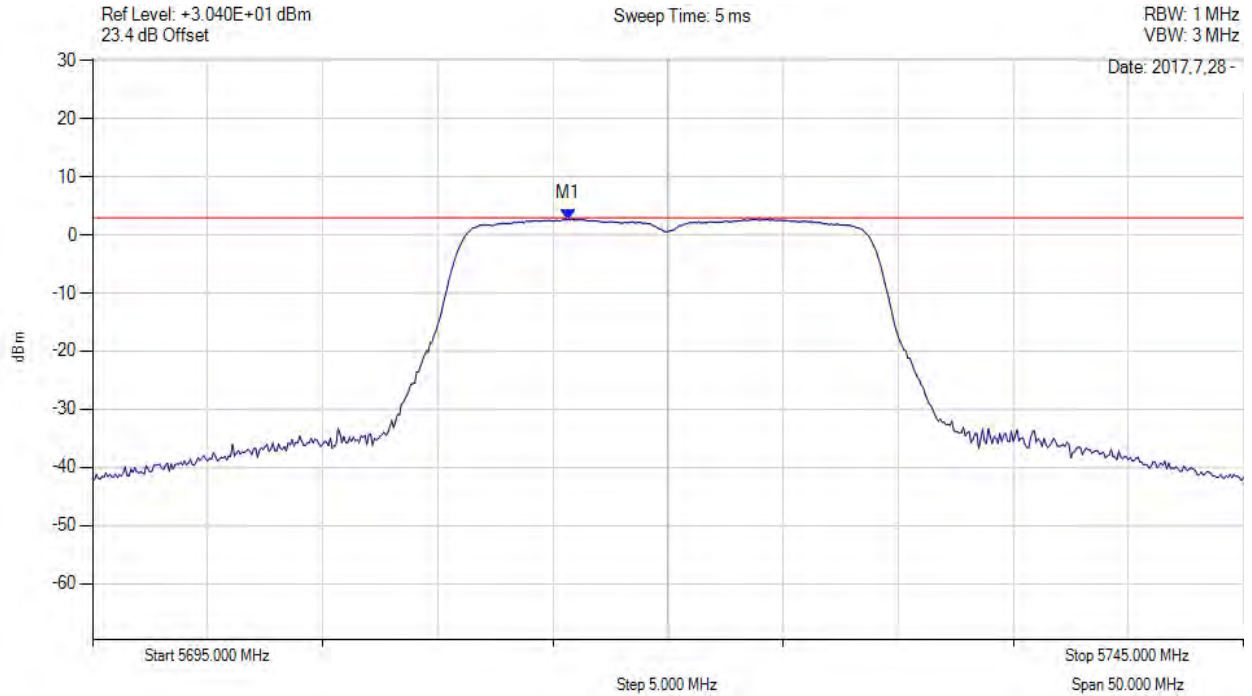


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
**Serial #:** HPEN111-U12\_Conducted DFS Bands Rev A  
**Issue Date:** 20<sup>th</sup> August 2017  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5720.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5715.670 MHz : 2.727 dBm	Limit: ≤ 2.980 dBm

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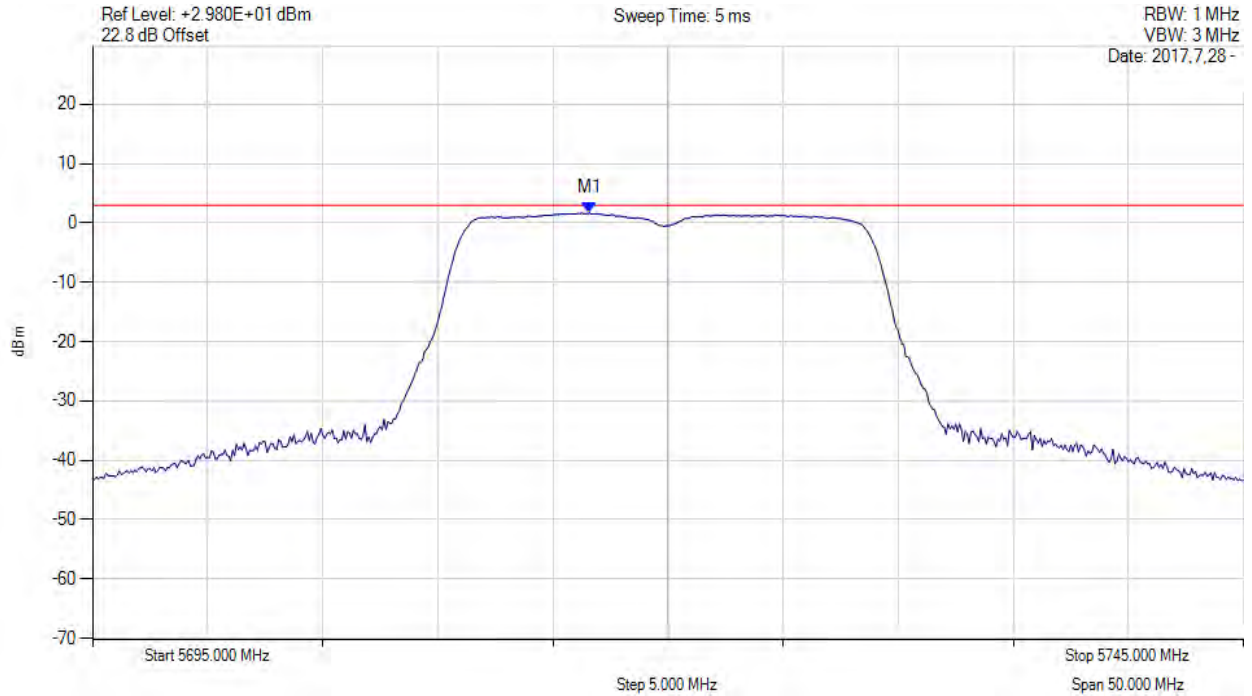


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
**To:** FCC Subpart E 15.407 & ISED RSS-247  
**Serial #:** HPEN111-U12\_Conducted DFS Bands Rev A  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5720.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5716.580 MHz : 1.730 dBm	Limit: ≤ 2.980 dBm

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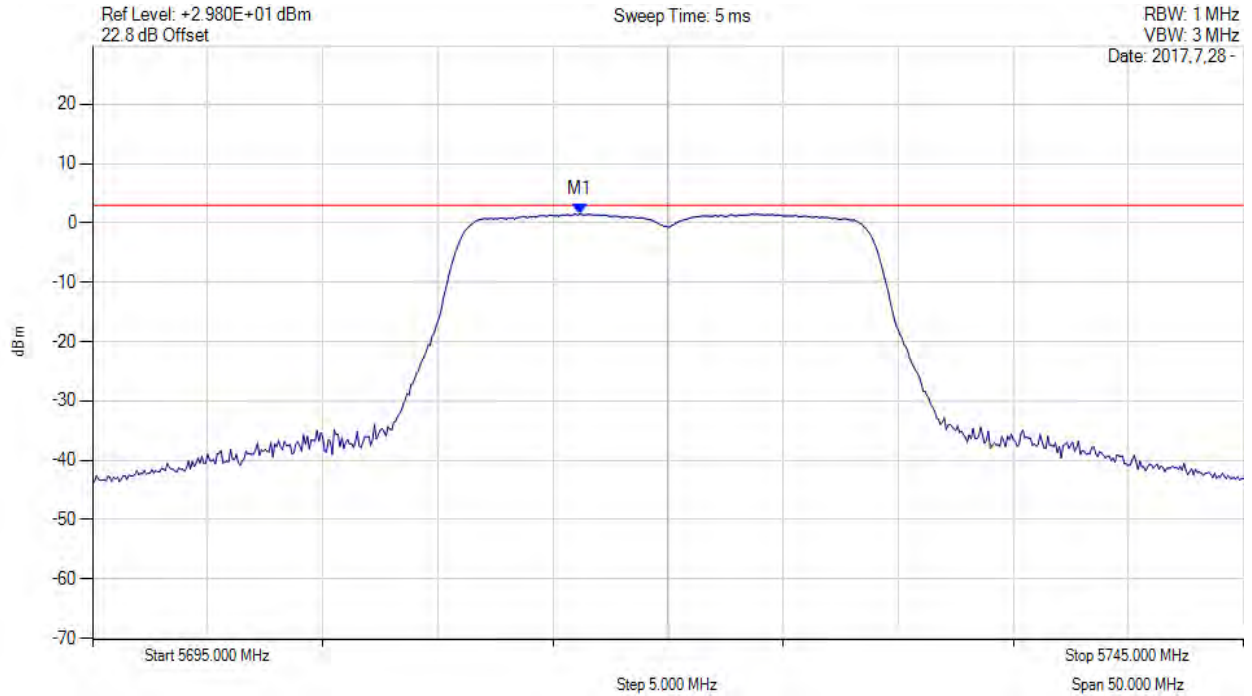


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5720.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5716.170 MHz : 1.524 dBm	Limit: ≤ 2.980 dBm

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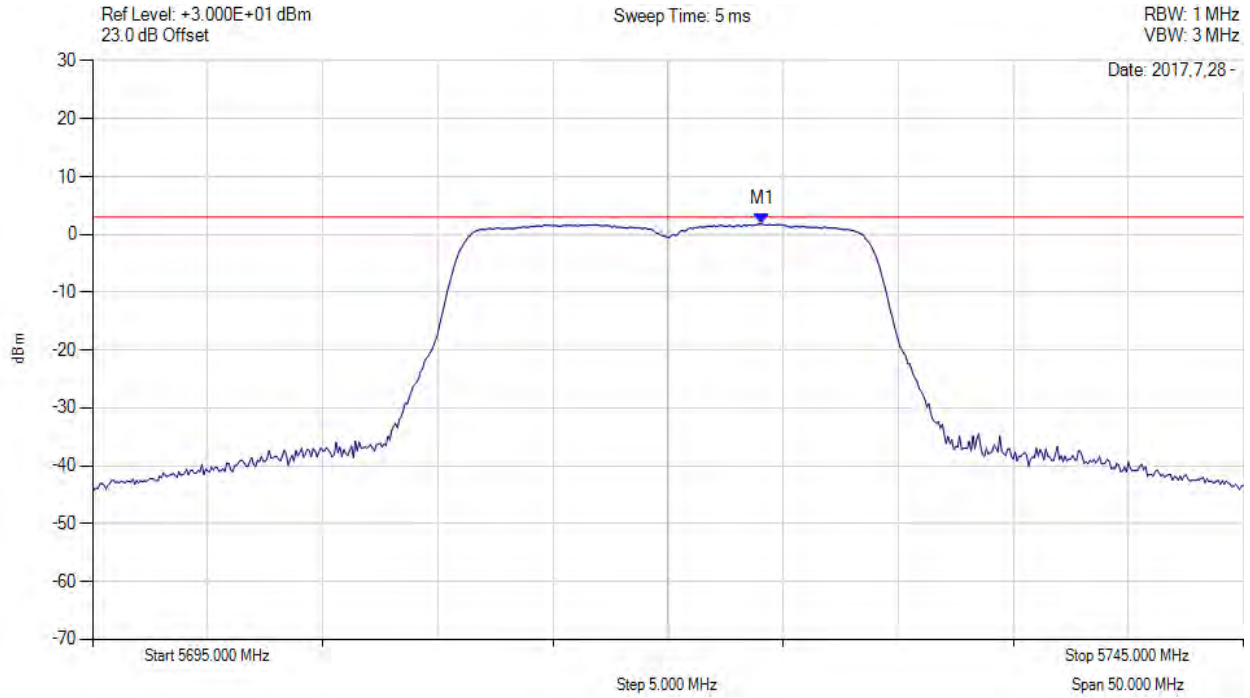


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5720.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5724.080 MHz : 1.813 dBm	Limit: ≤ 2.980 dBm

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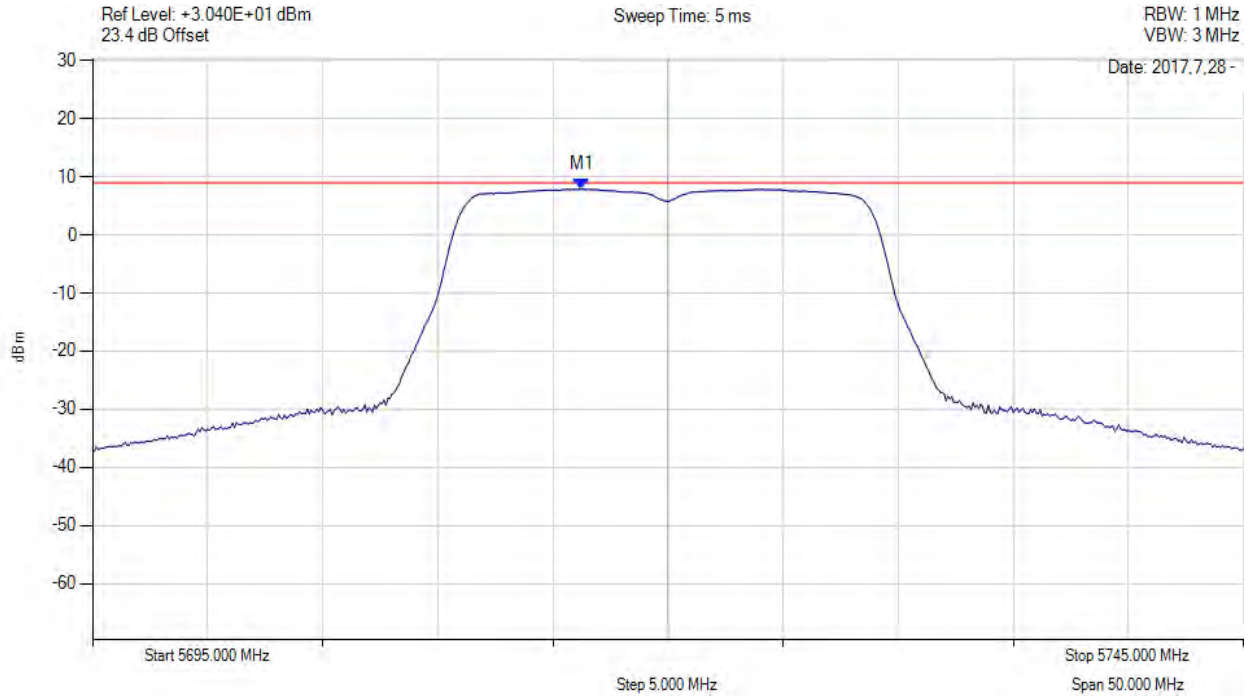


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-20, Channel: 5720.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5716.300 MHz : 7.884 dBm M1 + DCCF : 5716.300 MHz : 7.928 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: $\leq 9.0$ dBm Margin: $-1.1$ dB

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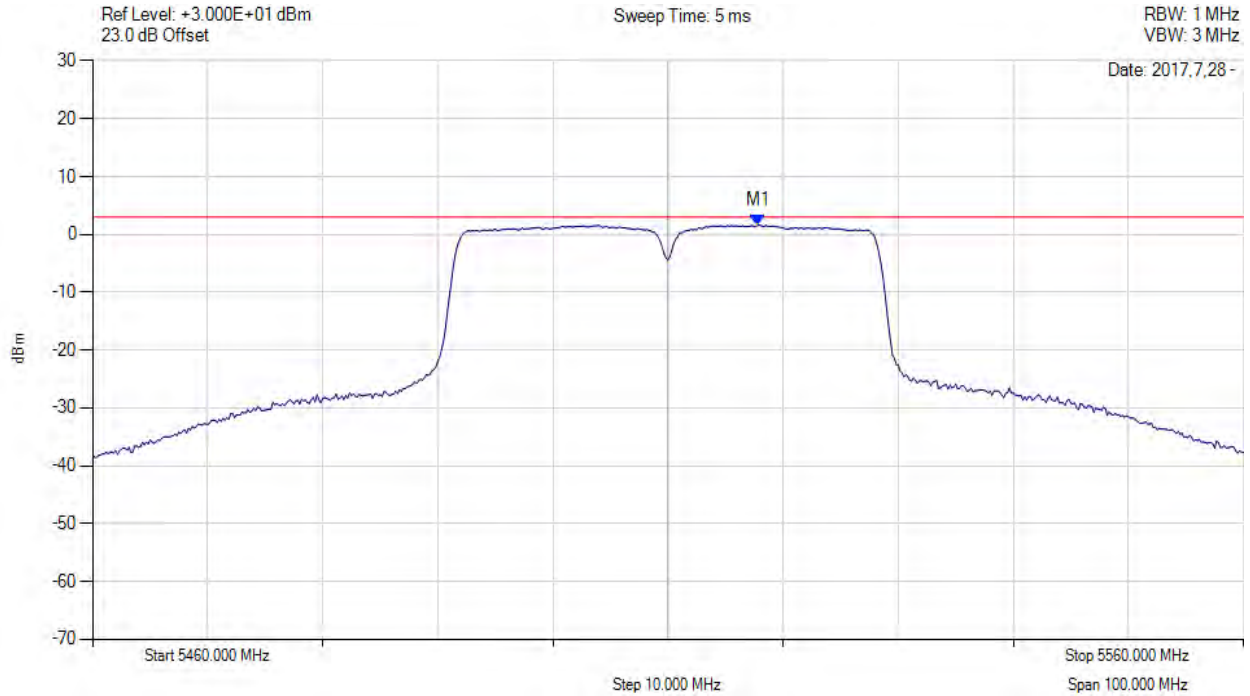


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5510.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5517.830 MHz : 1.629 dBm	Limit: ≤ 2.980 dBm

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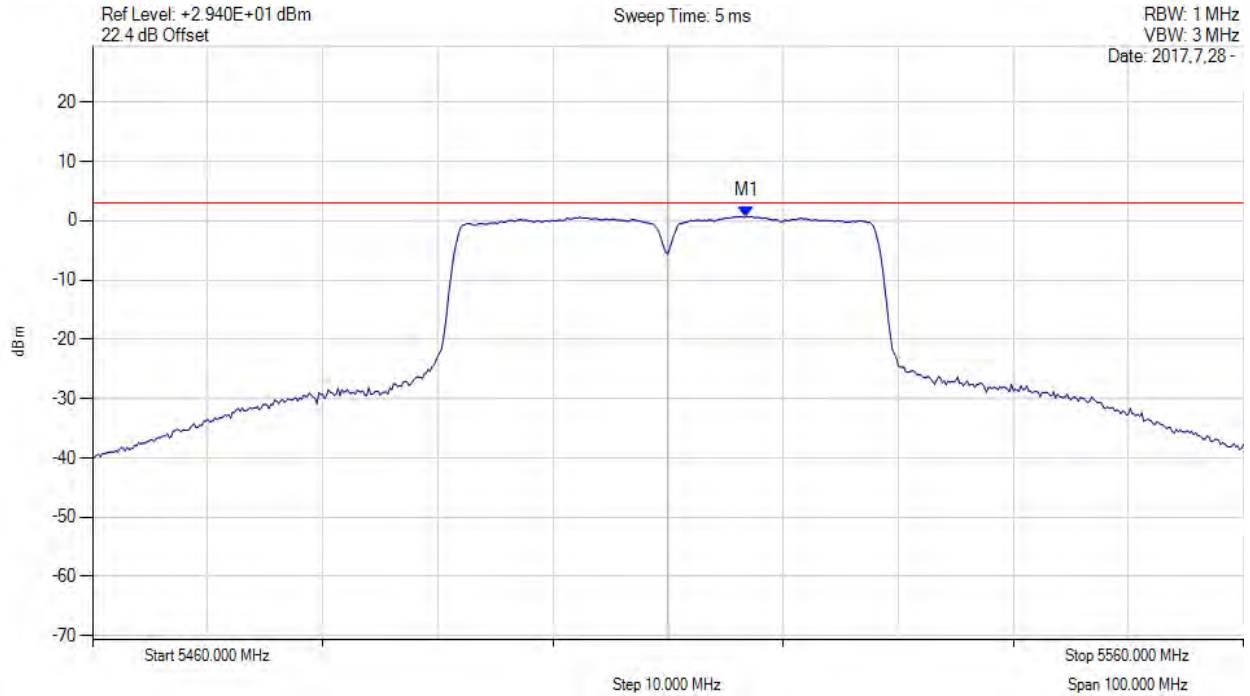


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5510.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5516.830 MHz : 0.737 dBm	Limit: ≤ 2.980 dBm

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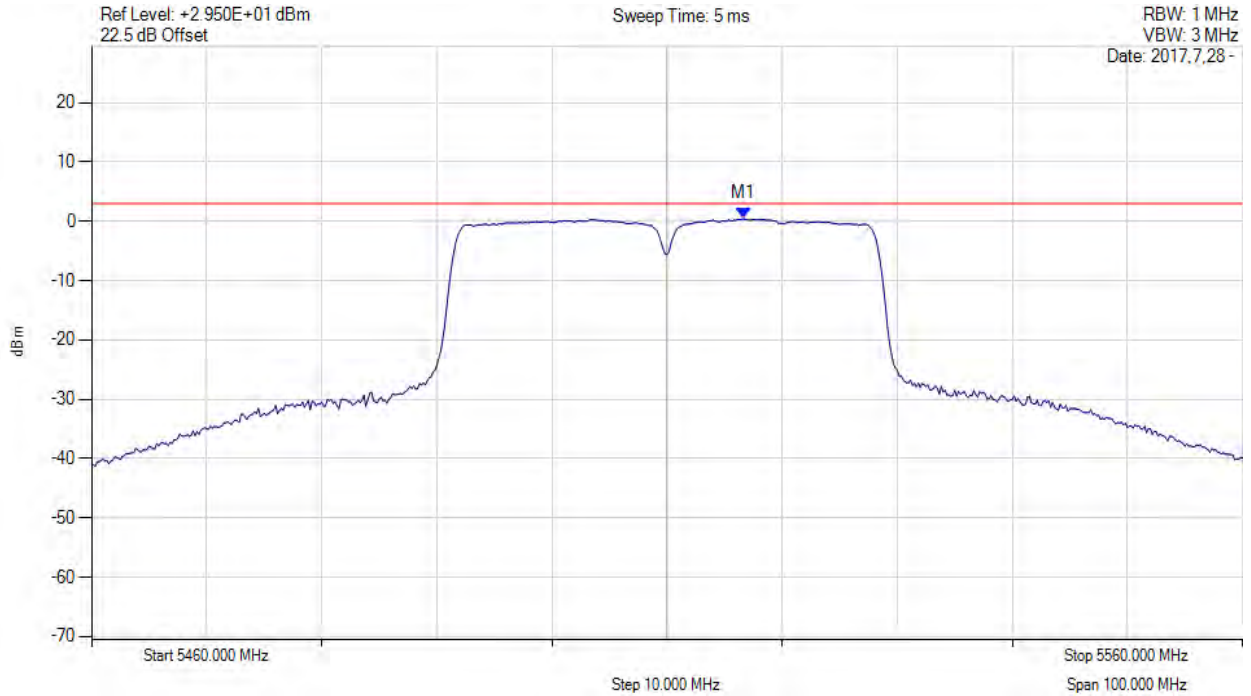


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5510.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5516.670 MHz : 0.453 dBm	Limit: ≤ 2.980 dBm

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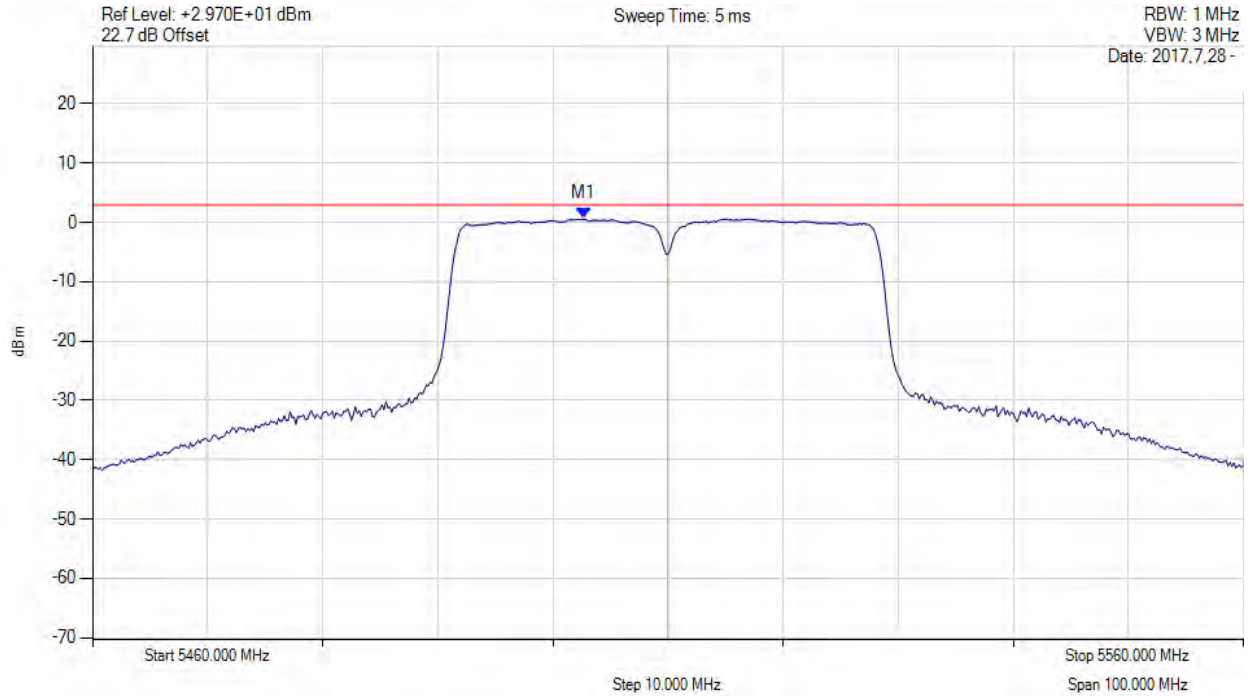


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5510.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5502.670 MHz : 0.603 dBm	Limit: ≤ 2.980 dBm

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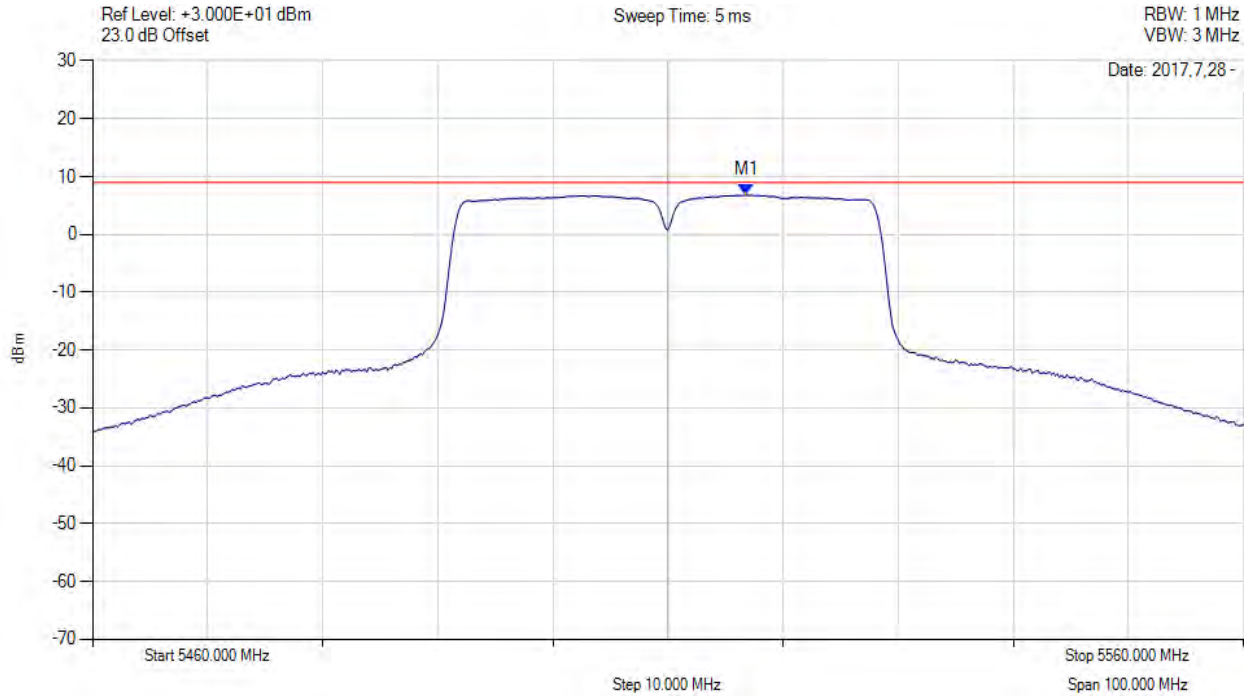
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5510.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5516.800 MHz : 6.790 dBm M1 + DCCF : 5516.800 MHz : 6.834 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: $\leq 9.0$ dBm Margin: $-2.2$ dB

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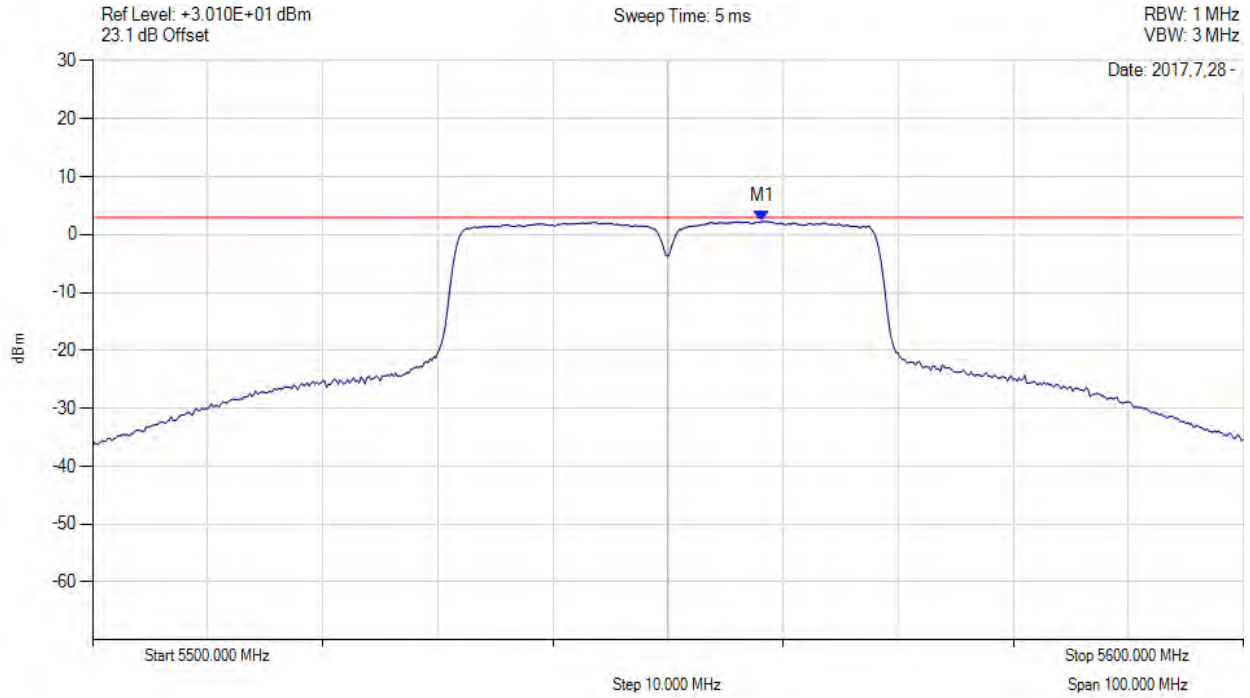


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5550.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5558.170 MHz : 2.260 dBm	Limit: ≤ 2.980 dBm

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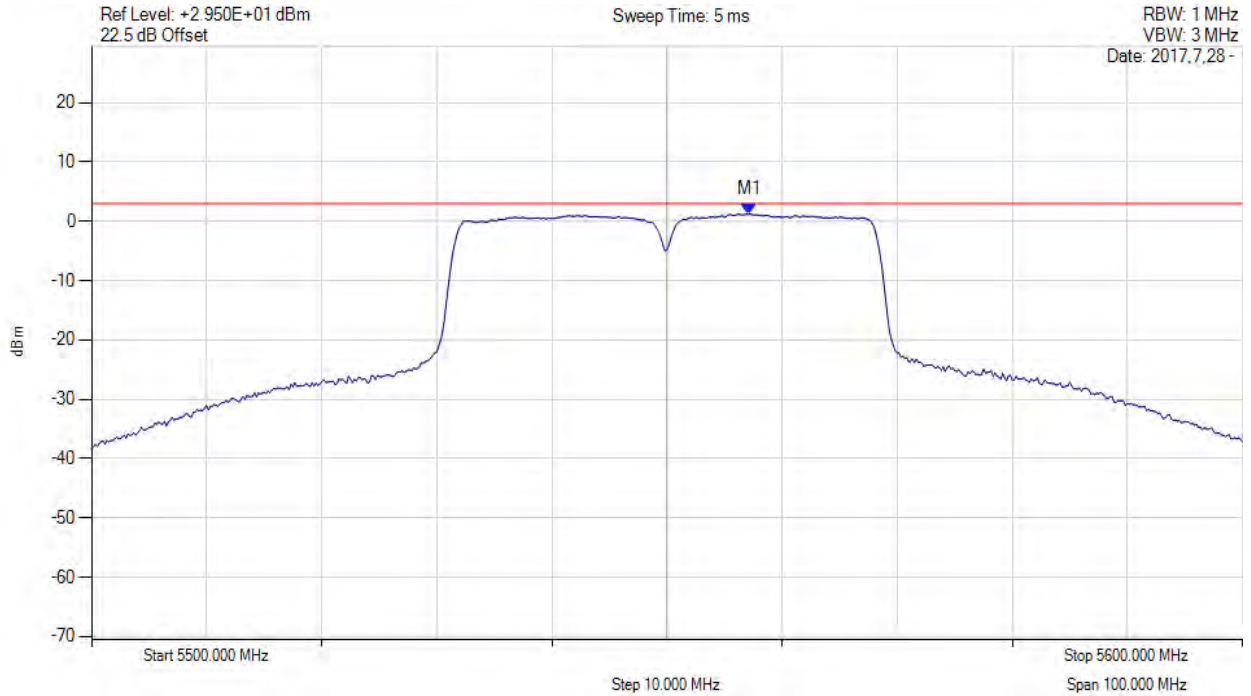


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5550.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5557.170 MHz : 1.214 dBm	Channel Frequency: 5550.00 MHz

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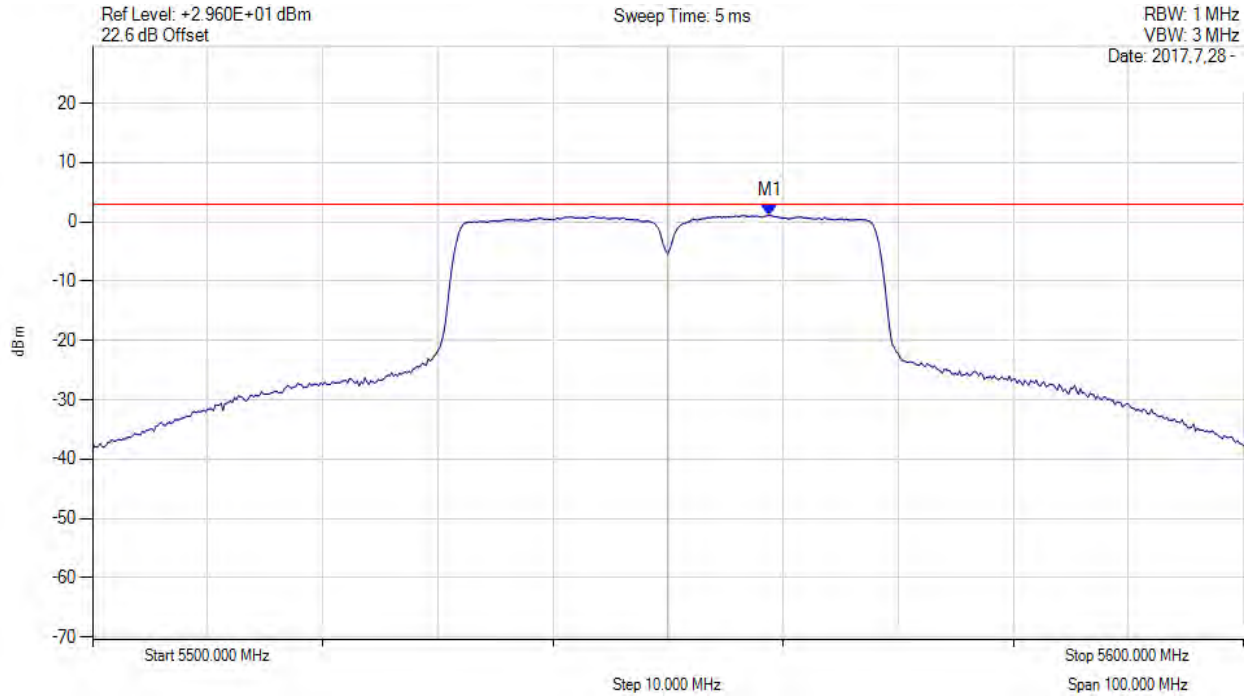


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5550.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5558.830 MHz : 1.091 dBm	Limit: ≤ 2.980 dBm

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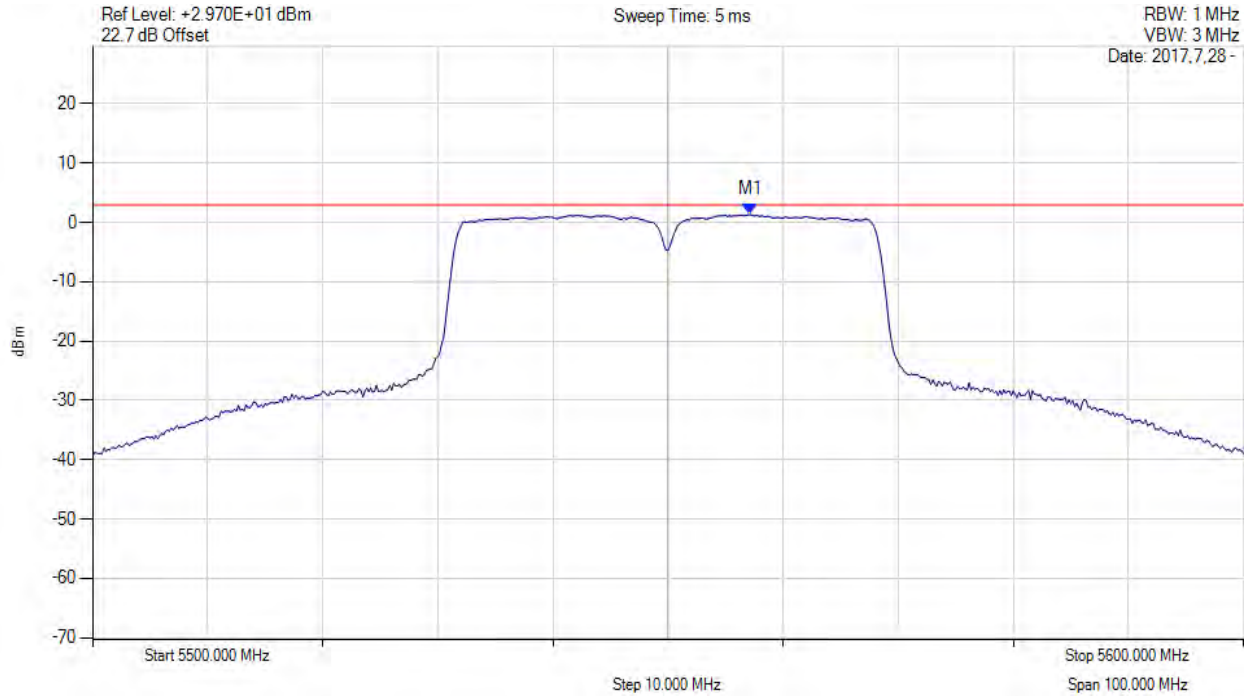


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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5550.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5557.170 MHz : 1.343 dBm	Limit: ≤ 2.980 dBm

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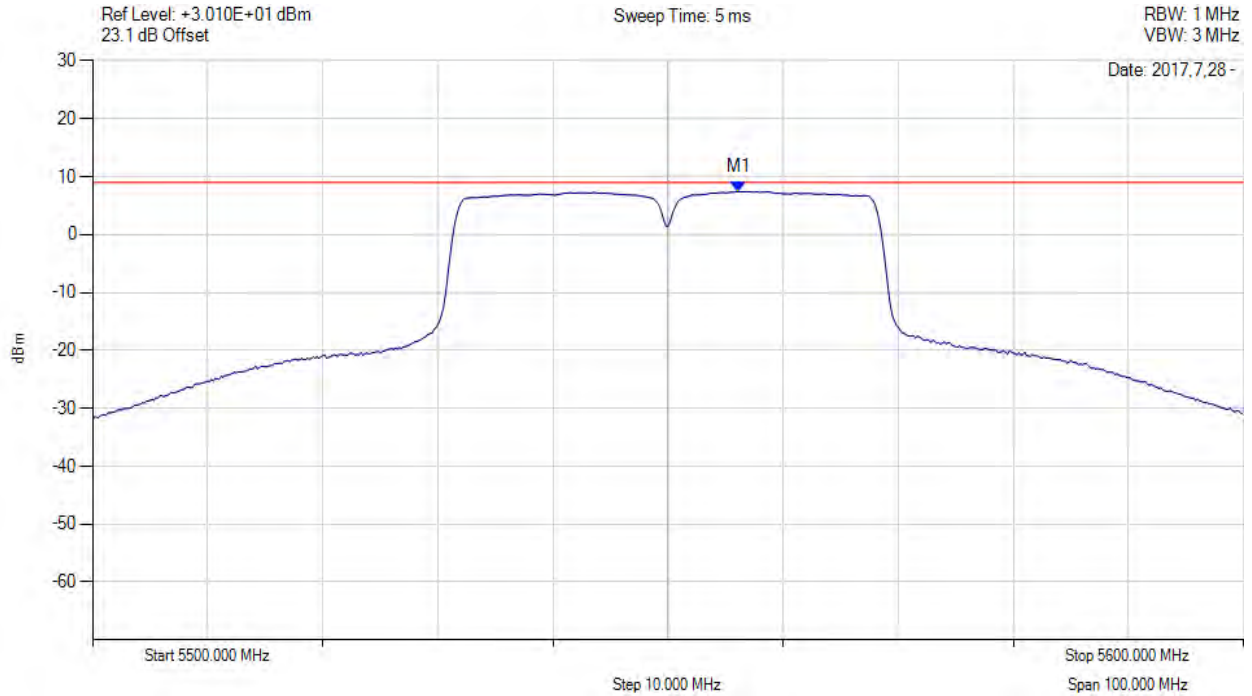


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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5550.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5556.200 MHz : 7.421 dBm M1 + DCCF : 5556.200 MHz : 7.465 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: $\leq 9.0$ dBm Margin: $-1.6$ dB

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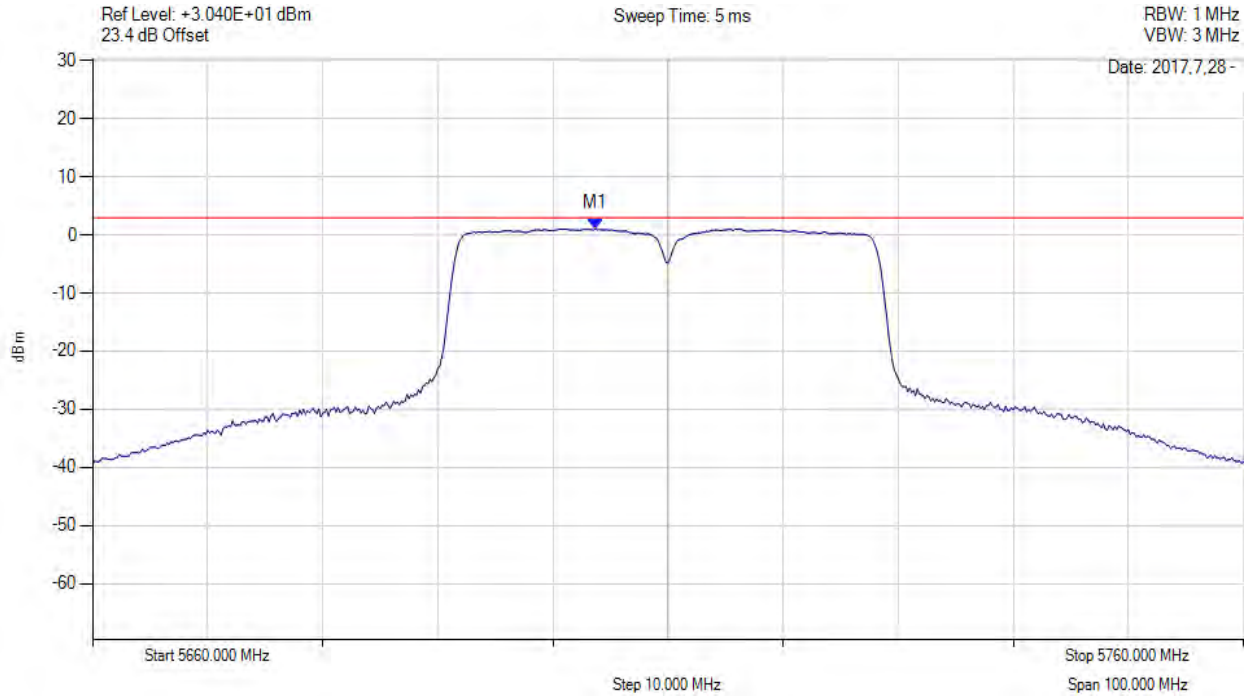


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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5710.00 MHz, Chain a, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5703.670 MHz : 1.065 dBm	Limit: ≤ 2.980 dBm

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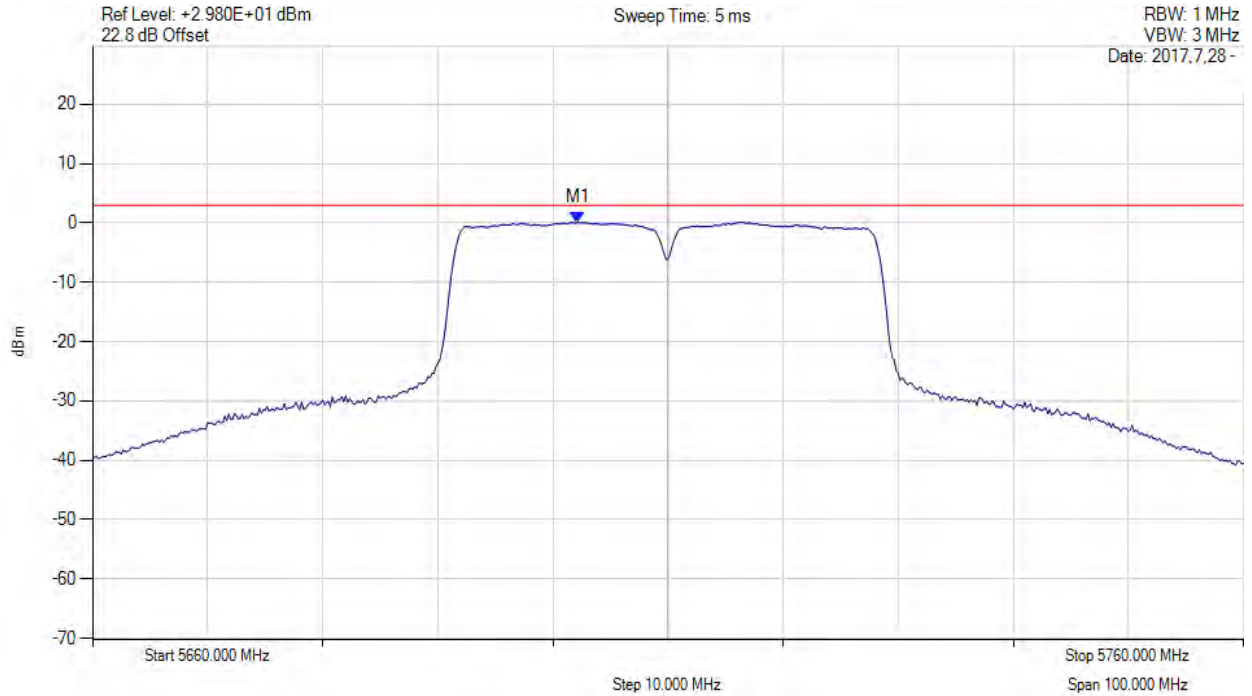


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5710.00 MHz, Chain b, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5702.170 MHz : 0.119 dBm	Limit: ≤ 2.980 dBm

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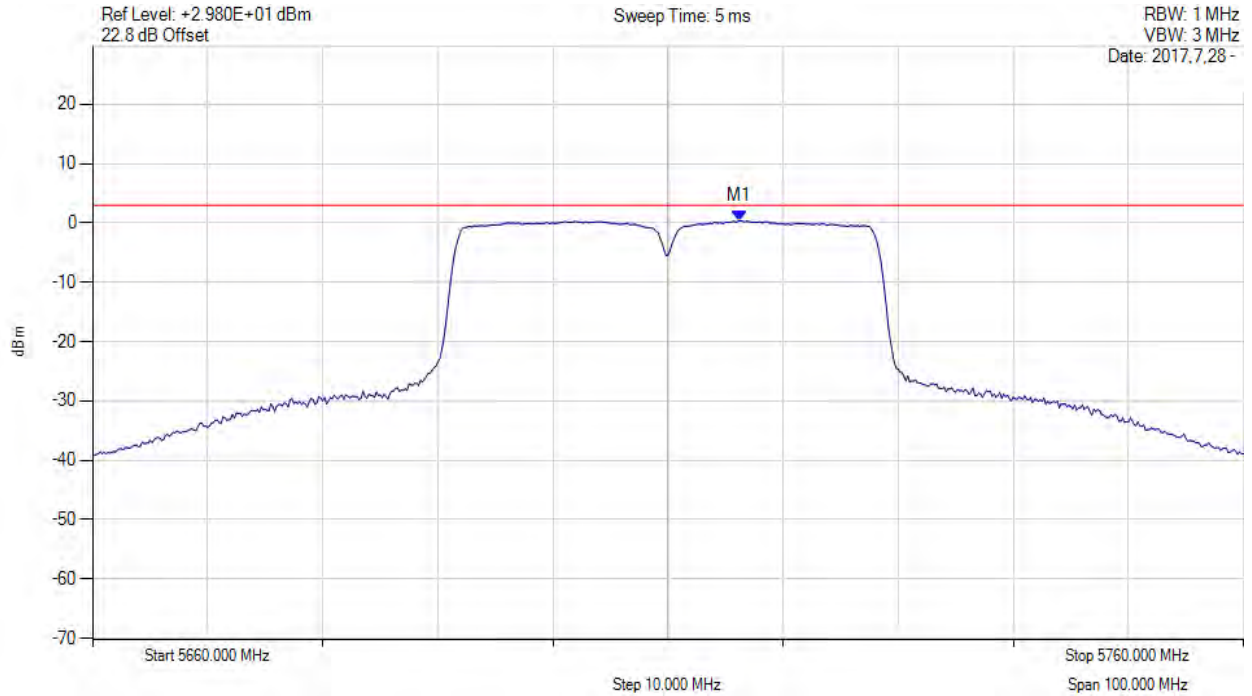


**Title:** Hewlett Packard Enterprise APIN0344 & APIN0345  
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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5710.00 MHz, Chain c, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5716.170 MHz : 0.399 dBm	Limit: ≤ 2.980 dBm

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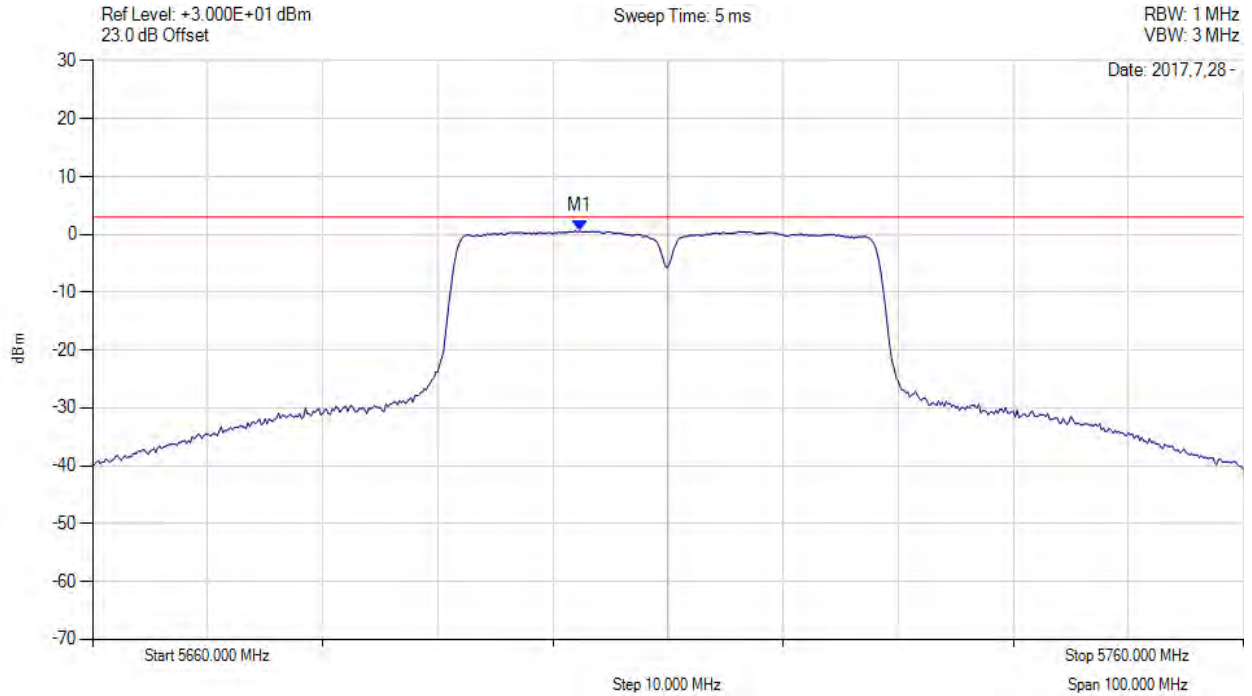


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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5710.00 MHz, Chain d, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5702.330 MHz : 0.627 dBm	Limit: ≤ 2.980 dBm

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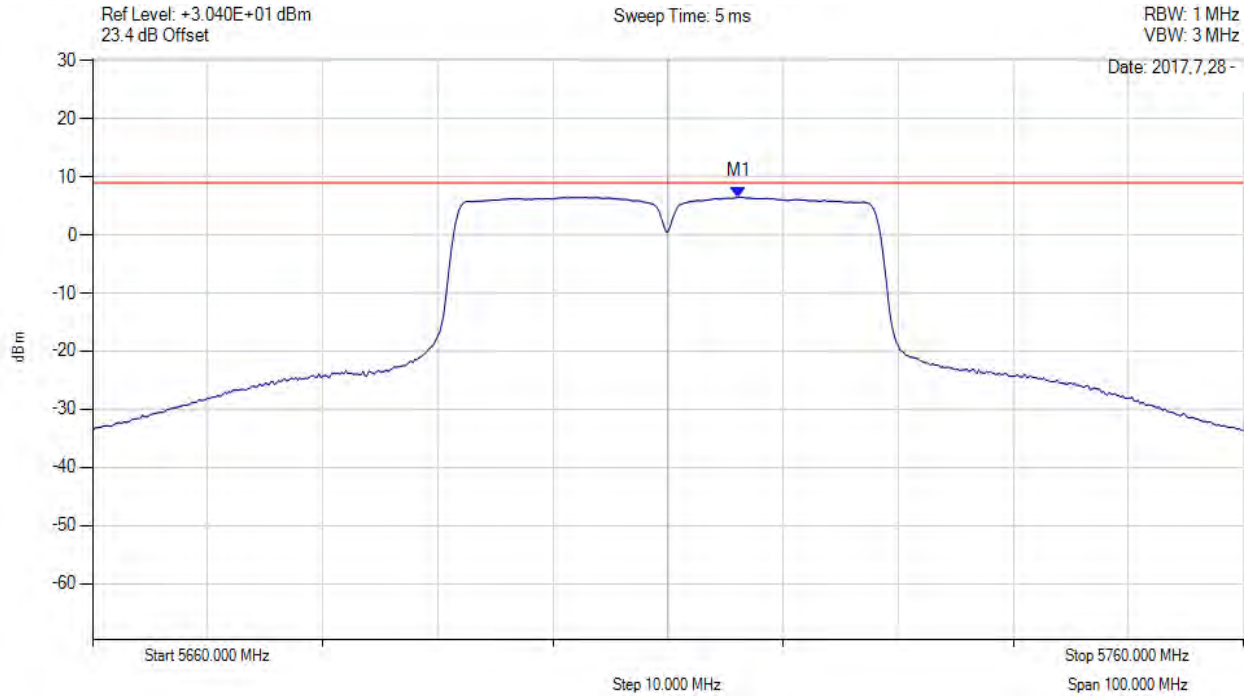


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POWER SPECTRAL DENSITY



Variant: 802.11n HT-40, Channel: 5710.00 MHz, SUM, Temp: 20, Voltage: 48 Vdc



Analyzer Setup	Marker:Frequency:Amplitude	Test Results
Detector = AVER Sweep Count = +100 RF Atten (dB) = 20 Trace Mode = VIEW	M1 : 5716.200 MHz : 6.531 dBm M1 + DCCF : 5716.200 MHz : 6.575 dBm Duty Cycle Correction Factor : +0.04 dB	Limit: $\leq 9.0$ dBm Margin: -2.4 dB

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