

TEST REPORT ADDENDUM – RADIATED RADIO 0

FROM



Test of: Hewlett Packard Enterprise APIN0334, APIN0335

To: FCC Part 15 Subpart E 15.407, ISED RSS-247

Test Report Serial No: HPEN111-U12_Radiated_RSE_Radio 0 DFS Bands
Rev A

Issue Date: 22nd August 2017

Master Document Number	Addendum Reports
HPEN111-U12_Master Radio 0 (DFS Bands)	HPEN111-U12_Conducted Radio 0
	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.

This Test Report is Issued Under the Authority of:

MiCOM Labs, Inc.
575 Boulder Court
Pleasanton California 94566
USA
Phone: +1 (925) 462-0304
Fax: +1 (925) 462-0306
www.micomlabs.com



MiCOM Labs is an ISO 17025 Accredited Testing Laboratory



Title: Hewlett Packard Enterprise APIN0344 & APIN0345
To: FCC CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 2 of 103

Table of Contents

1. MEASUREMENT AND PRESENTATION OF TEST DATA	3
2. TEST RESULTS	4
2.1. Emissions	4
2.1.1. Radiated Emissions	4
2.1.1.1. TX Spurious & Restricted Band Emissions	7
Antenna: AP-ANT-13B.....	7
Antenna: AP-ANT-19	13
Antenna: AP-ANT-1W.....	19
Antenna: AP-ANT-20W.....	25
Antenna: AP-ANT-40	31
Antenna: AP-ANT-45	37
Antenna: AP-ANT-48	43
Antenna: Metal Sheet	49
 A. APPENDIX - GRAPHICAL IMAGES	55
A.1. Emissions	55
A.1.1. Radiated Emissions.....	55
A.1.1.1. TX Spurious & Restricted Band Emissions.....	55
Antenna: AP-ANT-13B.....	55
Antenna: AP-ANT-19	61
Antenna: AP-ANT-1W.....	67
Antenna: AP-ANT-20W.....	73
Antenna: AP-ANT-40	79
Antenna: AP-ANT-45	85
Antenna: AP-ANT-48	91
Antenna: Metal Sheet	97

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 3 of 103

1. MEASUREMENT AND PRESENTATION OF TEST DATA

The measurement and graphical data presented in this test report was generated automatically using state-of-the-art technology creating an easy to read report structure. Numerical measurement data is separated from supporting graphical data (plots) through hyperlinks. Numerical measurement data can be reviewed without scrolling through numerous graphical pages to arrive at the next data matrix.

Plots have been relegated into the Appendix 'Graphical Data' Section of this report

Testing and report automation was performed by [MiTest](#). [MiTest](#) is an automated test system developed by MiCOM Labs. [MiTest](#) is the first cloud based modular test system enabling end-to-end automation of regulatory compliance testing for regulatory compliance.

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.



2. TEST RESULTS

2.1. Emissions

2.1.1. Radiated Emissions

Radiated Test Conditions for Radiated Spurious and Band-Edge Emissions			
Standard:	FCC CFR 47:15.407	Ambient Temp. (°C):	20.0 - 24.5
Test Heading:	Radiated Spurious and Band-Edge Emissions	Rel. Humidity (%):	32 - 45
Standard Section(s):	15.407 (b), 15.205, 15.209	Pressure (mBars):	999 - 1001
Reference Document(s):	See Normative References		

Test Procedure for Radiated Spurious and Band-Edge Emissions

Radiated emissions for restricted bands above 1 GHz are measured in the anechoic chamber at a 3-meter distance on every azimuth in both horizontal and vertical polarities. The emissions are recorded and maximized as a function of azimuth by rotation through 360° with a spectrum analyzer in peak hold mode. Depending on the frequency band spanned a notch filter was used to remove the fundamental frequency. The highest emissions relative to the limit are listed for each frequency spanned.

Measurements on any restricted band frequency or frequencies above 1 GHz are based on the use of measurement instrumentation employing peak and average detectors. All measurements were performed using a resolution bandwidth of 1 MHz.

Test configuration and setup for Undesirable Measurement were per the Radiated Test Set-up specified in this document.

15.407 (b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
- (6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.
- (7) The provisions of §15.205 apply to intentional radiators operating under this section.
- (8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

Limits for Restricted Bands (15.205, 15.209)

Peak emission: 74 dBuV/m

Average emission: 54 dBuV/m



Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Loss, and subtracting Amplifier Gain from the measured reading. All factors are included in the reported data.

$$FS = R + AF + CORR - FO$$

where:

FS = Field Strength

R = Measured Spectrum analyzer Input Amplitude

AF = Antenna Factor

CORR = Correction Factor = CL – AG + NFL

CL = Cable Loss

AG = Amplifier Gain

FO = Distance Falloff Factor

NFL = Notch Filter Loss

Example:

The following formula is used to convert the equipment isotropic radiated power (eirr) to field strength (dBμV/m);

$$E = 1000000 \times \sqrt{30P} / 3 \mu\text{V/m}$$

where P is the EIRP in Watts

Therefore: -27 dBm/MHz equates to 68.23 dBuV/m

Conversion between dBmV/m (or dBmV) and mV/m (or mV) are as follows:

$$\text{Level (dBmV/m)} = 20 * \text{Log (level (mV/m))}$$

40 dBmV/m = 100 mV/m

48 dBmV/m = 250 mV/m

Restricted Bands of Operation (15.205)

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

Frequency Band			
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 6 of 103

8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41			

(b) Except as provided in paragraphs (d) and (e) of this section, the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

(c) Except as provided in paragraphs (d) and (e) of this section, regardless of the field strength limits specified elsewhere in this subpart, the provisions of this section apply to emissions from any intentional radiator.

(d) The following devices are exempt from the requirements of this section:

(1) Swept frequency field disturbance sensors operating between 1.705 and 37 MHz provided their emissions only sweep through the bands listed in paragraph (a) of this section, the sweep is never stopped with the fundamental emission within the bands listed in paragraph (a) of this section, and the fundamental emission is outside of the bands listed in paragraph (a) of this section more than 99% of the time the device is actively transmitting, without compensation for duty cycle.

(2) Transmitters used to detect buried electronic markers at 101.4 kHz which are employed by telephone companies.

(3) Cable locating equipment operated pursuant to §15.213.

(4) Any equipment operated under the provisions of §15.253, 15.255, and 15.256 in the frequency band 75-85 GHz, or §15.257 of this part.

(5) Biomedical telemetry devices operating under the provisions of §15.242 of this part are not subject to the restricted band 608-614 MHz but are subject to compliance within the other restricted bands.

(6) Transmitters operating under the provisions of subparts D or F of this part.

(7) Devices operated pursuant to §15.225 are exempt from complying with this section for the 13.36-13.41 MHz band only.

(8) Devices operated in the 24.075-24.175 GHz band under §15.245 are exempt from complying with the requirements of this section for the 48.15-48.35 GHz and 72.225-72.525 GHz bands only, and shall not exceed the limits specified in §15.245(b).

(9) Devices operated in the 24.0-24.25 GHz band under §15.249 are exempt from complying with the requirements of this section for the 48.0-48.5 GHz and 72.0-72.75 GHz bands only, and shall not exceed the limits specified in §15.249(a).

(e) Harmonic emissions appearing in the restricted bands above 17.7 GHz from field disturbance sensors operating under the provisions of §15.245 shall not exceed the limits specified in §15.245(b).

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 7 of 103

2.1.1.1. TX Spurious & Restricted Band Emissions

Antenna: AP-ANT-13B

5250 - 5350 MHz

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-13B	Variant:	802.11a
Antenna Gain (dBi):	4.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5260.00	Data Rate:	6.00 MBit/s
Power Setting:	100	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5262.32	82.31	3.66	-11.28	74.69	Fundamental	Horizontal	100	0	--	--	
#2	10522.85	43.14	5.43	-4.19	44.38	Peak (NRB)	Vertical	100	0	--	--	Pass
#3	15773.39	53.36	5.97	0.11	59.44	Max Peak	Vertical	98	178	68.2	-8.8	Pass
#4	15773.39	40.47	5.97	0.11	46.55	Max Avg	Vertical	98	178	54.0	-7.5	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH52 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 8 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-13B	Variant:	802.11a
Antenna Gain (dBi):	4.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5280.00	Data Rate:	6.00 MBit/s
Power Setting:	100	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5277.42	80.64	3.72	-11.20	73.16	Fundamental	Horizontal	100	0	--	--	
#2	15838.06	54.87	6.00	0.03	60.90	Max Peak	Vertical	191	206	68.2	-7.3	Pass
#3	15838.06	42.47	6.00	0.03	48.50	Max Avg	Vertical	191	206	54.0	-5.5	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH56 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 9 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-13B	Variant:	802.11a
Antenna Gain (dBi):	4.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5320.00	Data Rate:	6.00 MBit/s
Power Setting:	71	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5322.63	76.48	3.75	-11.06	69.17	Fundamental	Horizontal	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH64 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 10 of 103

5470 - 5725 MHz

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-13B	Variant:	802.11a
Antenna Gain (dBi):	4.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5500.00	Data Rate:	6.00 MBit/s
Power Setting:	75	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5503.33	65.77	3.75	-11.17	58.35	Fundamental	Horizontal	100	0	--	--	

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH100 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 11 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-13B	Variant:	802.11a
Antenna Gain (dBi):	4.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5600.00	Data Rate:	6.00 MBit/s
Power Setting:	100	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5604.21	77.29	3.78	-11.16	69.91	Fundamental	Horizontal	100	0	--	--	
#2	11196.57	52.22	5.34	-4.17	53.39	Max Peak	Vertical	197	25	68.2	-14.8	Pass
#3	11196.57	38.76	5.34	-4.17	39.93	Max Avg	Vertical	197	25	54.0	-14.1	Pass
#4	16802.16	53.63	6.18	1.13	60.94	Peak (NRB)	Vertical	151	48	--	--	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH120 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 12 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-13B	Variant:	802.11a
Antenna Gain (dBi):	4.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5720.00	Data Rate:	6.00 MBit/s
Power Setting:	83	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5712.05	69.53	3.83	-10.77	62.59	Fundamental	Horizontal	200	0	--	--	
#2	17161.01	60.90	6.34	0.40	67.64	Max Peak	Horizontal	197	335	68.2	-0.6	Pass
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH144 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 13 of 103

Antenna: AP-ANT-19

5250 - 5350 MHz

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-19	Variant:	802.11a
Antenna Gain (dBi):	6.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5260.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5262.54	82.51	3.67	-11.28	74.90	Fundamental	Vertical	151	0	--	--	

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH52 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 14 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-19	Variant:	802.11a
Antenna Gain (dBi):	6.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5300.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5302.67	82.23	3.80	-11.08	74.95	Fundamental	Vertical	151	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH60 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 15 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-19	Variant:	802.11a
Antenna Gain (dBi):	6.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5320.00	Data Rate:	6.00 MBit/s
Power Setting:	53	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5312.48	76.81	3.76	-11.07	69.50	Fundamental	Vertical	151	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH64 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 16 of 103

5470 - 5725 MHz

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-19	Variant:	802.11a
Antenna Gain (dBi):	6.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5500.00	Data Rate:	6.00 MBit/s
Power Setting:	54	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5496.61	67.34	3.73	-11.17	59.90	Fundamental	Vertical	151	35	--	--	

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH100 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 17 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-19	Variant:	802.11a
Antenna Gain (dBi):	6.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5580.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5586.35	77.77	3.78	-11.19	70.36	Fundamental	Vertical	100	59	--	--	
#2	16741.29	56.85	6.07	1.50	64.42	Max Peak	Horizontal	146	85	68.2	-3.8	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH116 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 18 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-19	Variant:	802.11a
Antenna Gain (dBi):	6.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5720.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5712.48	66.67	3.83	-10.77	59.73	Fundamental	Vertical	151	0	--	--	
#2	17160.95	53.05	6.34	0.39	59.78	Max Peak	Horizontal	136	345	68.2	-8.5	Pass
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH144 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 19 of 103

Antenna: AP-ANT-1W

5250 - 5350 MHz

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-1W	Variant:	802.11a
Antenna Gain (dBi):	5.80	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5260.00	Data Rate:	6.00 MBit/s
Power Setting:	90	Tested By:	OC

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5253.61	90.14	3.64	-11.32	82.46	Fundamental	Horizontal	171	87	--	--	
#2	15773.83	60.65	5.97	0.11	66.73	Max Peak	Vertical	168	304	68.2	-1.5	Pass
#3	15773.83	46.51	5.97	0.11	52.59	Max Avg	Vertical	168	304	54.0	-1.4	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH52 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 20 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-1W	Variant:	802.11a
Antenna Gain (dBi):	5.80	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5300.00	Data Rate:	6.00 MBit/s
Power Setting:	90	Tested By:	OC

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5302.78	86.85	3.80	-11.08	79.57	Fundamental	Horizontal	100	0	--	--	
#2	15903.56	54.83	5.99	0.19	61.01	Max Peak	Horizontal	150	298	68.2	-7.2	Pass
#3	15903.56	41.76	5.99	0.19	47.94	Max Avg	Horizontal	150	298	54.0	-6.1	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH60 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 21 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-1W	Variant:	802.11a
Antenna Gain (dBi):	5.80	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5320.00	Data Rate:	6.00 MBit/s
Power Setting:	53	Tested By:	OC

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5312.38	77.19	3.76	-11.07	69.88	Fundamental	Horizontal	100	60	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH64 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 22 of 103

5470 - 5725 MHz

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-1W	Variant:	802.11a
Antenna Gain (dBi):	5.80	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5500.00	Data Rate:	6.00 MBit/s
Power Setting:	62	Tested By:	OC

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5498.26	69.10	3.74	-11.17	61.67	Fundamental	Horizontal	175	88	--	--	

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH100 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 23 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-1W	Variant:	802.11a
Antenna Gain (dBi):	5.80	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5580.00	Data Rate:	6.00 MBit/s
Power Setting:	86	Tested By:	OC

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5578.74	84.72	3.80	-11.20	77.32	Fundamental	Horizontal	197	80	--	--	
#2	16741.19	58.87	6.07	1.50	66.44	Max Peak	Horizontal	114	309	68.2	-1.8	Pass
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH1116 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 24 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-1W	Variant:	802.11a
Antenna Gain (dBi):	5.80	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5720.00	Data Rate:	6.00 MBit/s
Power Setting:	90	Tested By:	OC

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5712.48	74.01	3.83	-10.77	67.07	Fundamental	Horizontal	162	264	--	--	
#2	17168.53	57.45	6.30	0.40	64.15	Max Peak	Horizontal	163	290	68.2	-4.1	Pass
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH1144 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 25 of 103

Antenna: AP-ANT-20W

5250 - 5350 MHz

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-20W	Variant:	802.11a
Antenna Gain (dBi):	2.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5260.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	OC

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5262.65	79.24	3.67	-11.28	71.63	Fundamental	Horizontal	100	0	--	--	

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH52 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 26 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-20W	Variant:	802.11a
Antenna Gain (dBi):	2.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5300.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	OC

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5301.35	78.78	3.81	-11.09	71.50	Fundamental	Horizontal	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH60 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 27 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-20W	Variant:	802.11a
Antenna Gain (dBi):	2.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5320.00	Data Rate:	6.00 MBit/s
Power Setting:	57	Tested By:	OC

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5318.11	70.75	3.75	-11.07	63.43	Fundamental	Vertical	100	34	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH64 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 28 of 103

5470 - 5725 MHz

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-20W	Variant:	802.11a
Antenna Gain (dBi):	2.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5500.00	Data Rate:	6.00 MBit/s
Power Setting:	62	Tested By:	OC

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5494.73	63.54	3.72	-11.17	56.09	Fundamental	Horizontal	100	0	--	--	

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH100 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 29 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-20W	Variant:	802.11a
Antenna Gain (dBi):	2.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5580.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	OC

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5575.56	73.15	3.81	-11.21	65.75	Fundamental	Horizontal	100	0	--	--	
#2	16736.23	50.77	6.10	1.52	58.39	Max Peak	Vertical	174	20	68.2	-9.8	Pass
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH116 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 30 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-20W	Variant:	802.11a
Antenna Gain (dBi):	2.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5720.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	OC

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5713.69	66.43	3.82	-10.76	59.49	Fundamental	Horizontal	100	0	--	--	
#2	17161.48	51.13	6.34	0.40	57.87	Max Peak	Vertical	136	288	68.2	-10.4	Pass
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH144 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 31 of 103

Antenna: AP-ANT-40

5250 - 5350 MHz

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-40	Variant:	802.11a
Antenna Gain (dBi):	5.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5260.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5255.60	74.96	3.64	-11.31	67.29	Fundamental	Horizontal	100	0	--	--	

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH52 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 32 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-40	Variant:	802.11a
Antenna Gain (dBi):	5.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5300.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5295.51	75.59	3.79	-11.11	68.27	Fundamental	Horizontal	100	0	--	--	
#2	15901.38	51.22	5.98	0.18	57.38	Max Peak	Horizontal	98	281	68.2	-10.9	Pass
#3	15901.38	34.40	5.98	0.18	40.56	Max Avg	Horizontal	98	281	54.0	-13.4	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH60 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 33 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-40	Variant:	802.11a
Antenna Gain (dBi):	5.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5320.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5326.97	70.85	3.72	-11.06	63.51	Fundamental	Horizontal	151	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH64 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 34 of 103

5470 - 5725 MHz

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-40	Variant:	802.11a
Antenna Gain (dBi):	5.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5500.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5493.08	61.68	3.72	-11.18	54.22	Fundamental	Horizontal	151	0	--	--	

Test Notes: EEUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH100 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 35 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-40	Variant:	802.11a
Antenna Gain (dBi):	5.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5580.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5578.41	71.64	3.81	-11.20	64.25	Fundamental	Horizontal	200	0	--	--	
#2	16741.43	58.10	6.07	1.50	65.67	Max Peak	Horizontal	147	67	68.2	-2.6	Pass

Test Notes: EEUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH116 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 36 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-40	Variant:	802.11a
Antenna Gain (dBi):	5.00	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5720.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5712.59	65.92	3.82	-10.77	58.97	Fundamental	Horizontal	100	39	--	--	
#2	17160.78	54.50	6.34	0.39	61.23	Max Peak	Vertical	198	308	68.2	-7.0	Pass

Test Notes: EEUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH144 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 37 of 103

Antenna: AP-ANT-45

5250 - 5350 MHz

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-45	Variant:	802.11a
Antenna Gain (dBi):	5.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5260.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5264.30	84.10	3.67	-11.27	76.50	Fundamental	Vertical	100	0	--	--	

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH52 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 38 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-45	Variant:	802.11a
Antenna Gain (dBi):	5.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5300.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5295.62	81.86	3.79	-11.11	74.54	Fundamental	Horizontal	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH60 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 39 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-45	Variant:	802.11a
Antenna Gain (dBi):	5.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5320.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5324.39	80.16	3.74	-11.06	72.84	Fundamental	Vertical	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH64 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 40 of 103

5470 - 5725 MHz

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-45	Variant:	802.11a
Antenna Gain (dBi):	5.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5500.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5504.43	70.06	3.75	-11.18	62.63	Fundamental	Vertical	100	162	--	--	

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH100 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 41 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-45	Variant:	802.11a
Antenna Gain (dBi):	5.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5580.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5584.47	79.49	3.79	-11.19	72.09	Fundamental	Vertical	151	0	--	--	
#2	16742.15	55.45	6.07	1.50	63.02	Max Peak	Horizontal	155	70	68.2	-5.2	Pass
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH116 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 42 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-45	Variant:	802.11a
Antenna Gain (dBi):	5.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5720.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5712.48	79.82	3.83	-10.77	72.88	Fundamental	Horizontal	196	157	--	--	
#2	17161.59	46.98	6.34	0.40	53.72	Peak (NRB)	Vertical	200	315	--	--	Pass
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH144 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 43 of 103

Antenna: AP-ANT-48

5250 - 5350 MHz

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-48	Variant:	802.11a
Antenna Gain (dBi):	8.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5260.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5252.95	83.01	3.64	-11.33	75.32	Fundamental	Vertical	100	0	--	--	

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH52 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 44 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-48	Variant:	802.11a
Antenna Gain (dBi):	8.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5300.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5297.49	85.38	3.80	-11.11	78.07	Fundamental	Horizontal	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH60 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 45 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-48	Variant:	802.11a
Antenna Gain (dBi):	8.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5320.00	Data Rate:	6.00 MBit/s
Power Setting:	52	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5312.49	76.17	3.76	-11.07	68.86	Fundamental	Vertical	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH64 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 46 of 103

5470 - 5725 MHz

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-48	Variant:	802.11a
Antenna Gain (dBi):	8.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5500.00	Data Rate:	6.00 MBit/s
Power Setting:	52	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5493.63	65.25	3.72	-11.17	57.80	Fundamental	Vertical	100	0	--	--	

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH100 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 47 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-48	Variant:	802.11a
Antenna Gain (dBi):	8.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5580.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5573.01	78.08	3.81	-11.21	70.68	Fundamental	Vertical	100	0	--	--	
#2	16741.26	54.43	6.07	1.50	62.00	Max Peak	Vertical	194	53	68.2	-6.2	Pass
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH116 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 48 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba AP-ANT-48	Variant:	802.11a
Antenna Gain (dBi):	8.50	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5720.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	JMH

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5713.14	69.29	3.82	-10.77	62.34	Fundamental	Vertical	100	0	--	--	
#2	17161.12	53.97	6.34	0.40	60.71	Max Peak	Vertical	198	315	68.2	-7.5	Pass
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH144 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 49 of 103

Antenna: Metal Sheet

5250 - 5350 MHz

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba Metal Sheet	Variant:	802.11a
Antenna Gain (dBi):	2.70	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5260.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	OC

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5262.21	79.94	3.66	-11.28	72.32	Fundamental	Vertical	100	9	--	--	

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH52 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 50 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba Metal Sheet	Variant:	802.11a
Antenna Gain (dBi):	2.70	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5300.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	OC

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5301.35	80.58	3.81	-11.09	73.30	Fundamental	Vertical	100	9	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH60 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 51 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba Metal Sheet	Variant:	802.11a
Antenna Gain (dBi):	2.70	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5320.00	Data Rate:	6.00 MBit/s
Power Setting:	60	Tested By:	OC

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5324.17	78.09	3.74	-11.06	70.77	Fundamental	Vertical	100	70	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH64 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 52 of 103

5470 - 5725 MHz

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba Metal Sheet	Variant:	802.11a
Antenna Gain (dBi):	2.70	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5500.00	Data Rate:	6.00 MBit/s
Power Setting:	61	Tested By:	OC

Test Measurement Results

1000.00 - 18000.00 MHz

Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5501.46	62.87	3.75	-11.17	55.45	Fundamental	Vertical	100	10	--	--	

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH100 a mode.

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 53 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba Metal Sheet	Variant:	802.11a
Antenna Gain (dBi):	2.70	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5580.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	OC

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBµV	Cable Loss dB	AF dB	Level dBµV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBµV/m	Margin dB	Pass /Fail
#1	5581.39	74.50	3.80	-11.20	67.10	Fundamental	Vertical	100	14	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH116 a mode.												

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 54 of 103

Equipment Configuration for TX Spurious & Restricted Band Emissions

Antenna:	Aruba Metal Sheet	Variant:	802.11a
Antenna Gain (dBi):	2.70	Modulation:	OFDM
Beam Forming Gain (Y):	Not Applicable	Duty Cycle (%):	99
Channel Frequency (MHz):	5720.00	Data Rate:	6.00 MBit/s
Power Setting:	72	Tested By:	OC

Test Measurement Results

1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
#1	5713.58	62.58	3.82	-10.76	55.64	Fundamental	Horizontal	100	83	--	--	
#2	17160.60	50.88	6.34	0.39	57.61	Max Peak	Horizontal	158	178	68.2	-10.6	Pass
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH144 a mode.												

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.

A. APPENDIX - GRAPHICAL IMAGES

A.1. Emissions

A.1.1. Radiated Emissions

A.1.1.1. TX Spurious & Restricted Band Emissions

Antenna: AP-ANT-13B

5250 - 5350 MHz



TX SPURIOUS & RESTRICTED BAND EMISSIONS



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5262.32	82.31	3.66	-11.28	74.69	Fundamental	Horizontal	100	0	--	--	
2	10522.85	43.14	5.43	-4.19	44.38	Peak (NRB)	Vertical	100	0	--	--	Pass
3	15773.39	53.36	5.97	0.11	59.44	Max Peak	Vertical	98	178	68.2	-8.8	Pass
4	15773.39	40.47	5.97	0.11	46.55	Max Avg	Vertical	98	178	54.0	-7.5	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH52 a mode.

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 56 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5280.00 MHz, Antenna: Aruba AP-ANT-13B, Power Setting: 100, Duty Cycle (%): 99

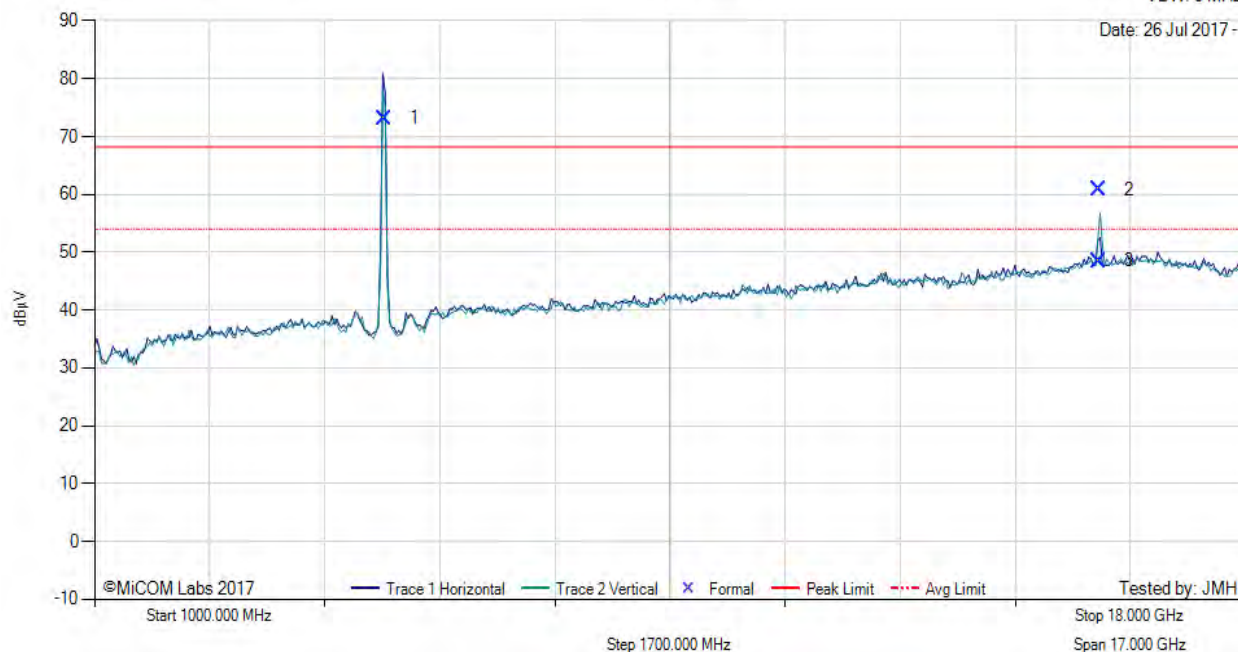
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 26 Jul 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5277.42	80.64	3.72	-11.20	73.16	Fundamental	Horizontal	100	0	--	--	
2	15838.06	54.87	6.00	0.03	60.90	Max Peak	Vertical	191	206	68.2	-7.3	Pass
3	15838.06	42.47	6.00	0.03	48.50	Max Avg	Vertical	191	206	54.0	-5.5	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH56 a mode.

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 57 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5320.00 MHz, Antenna: Aruba AP-ANT-13B, Power Setting: 71, Duty Cycle (%): 99

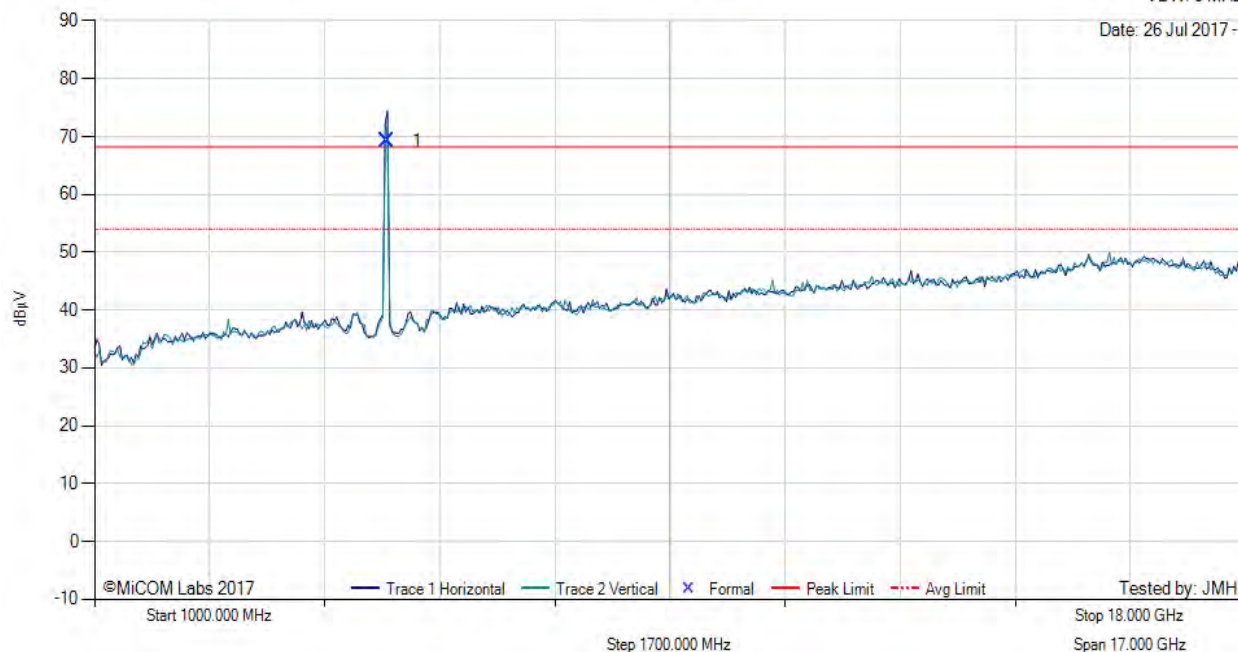
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 26 Jul 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5322.63	76.48	3.75	-11.06	69.17	Fundamental	Horizontal	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH64 a mode.												

[back to matrix](#)

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.

5470 - 5725 MHz

TX SPURIOUS & RESTRICTED BAND EMISSIONS



Variant: 802.11a, Test Freq: 5500.00 MHz, Antenna: Aruba AP-ANT-13B, Power Setting: 75, Duty Cycle (%): 99

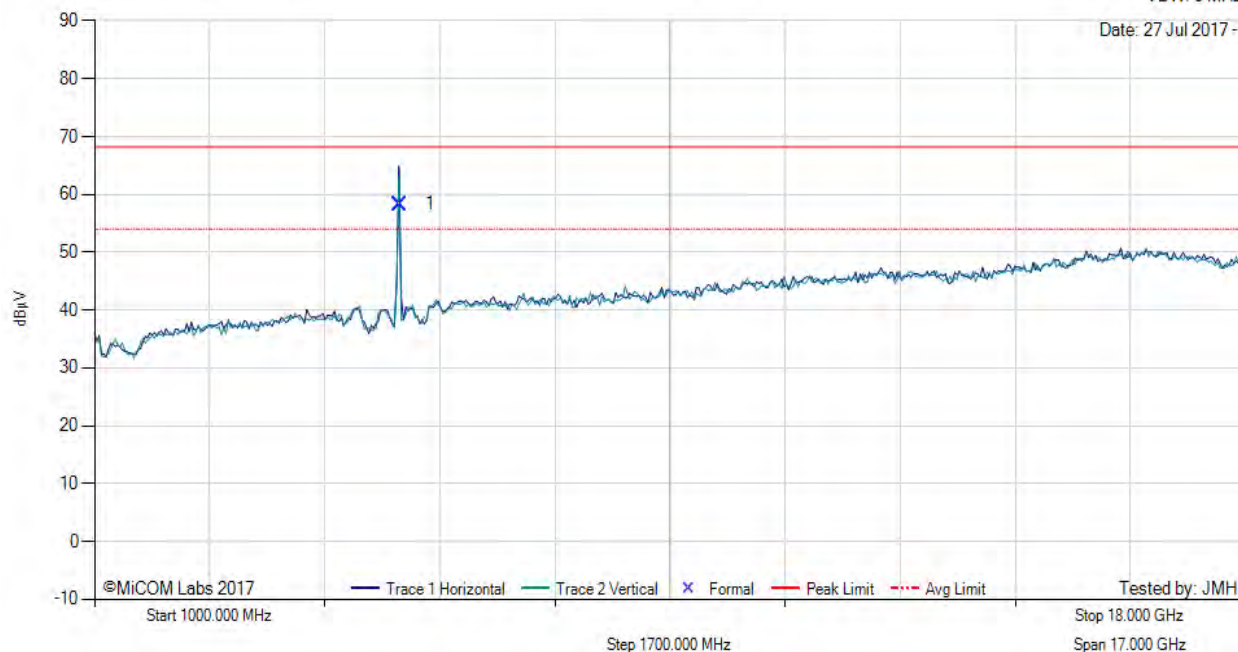
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 27 Jul 2017 -

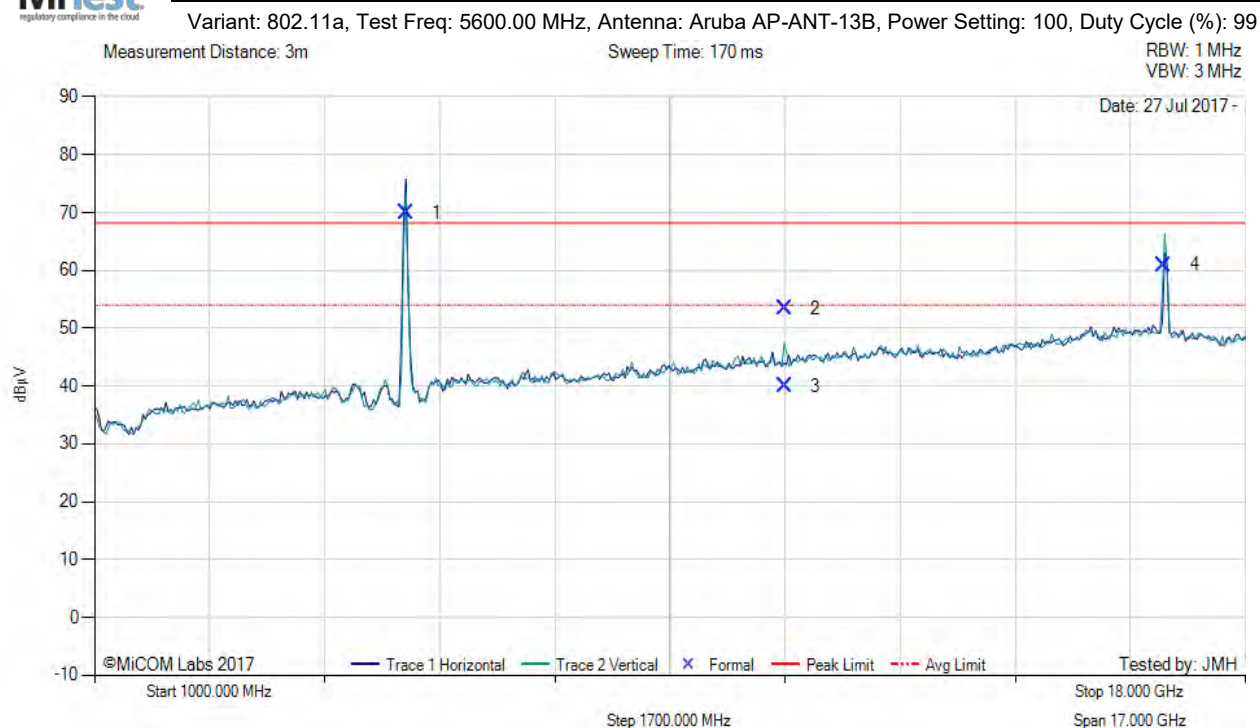


1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5503.33	65.77	3.75	-11.17	58.35	Fundamental	Horizontal	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH100 a mode.												

[back to matrix](#)



TX SPURIOUS & RESTRICTED BAND EMISSIONS



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5604.21	77.29	3.78	-11.16	69.91	Fundamental	Horizontal	100	0	--	--	
2	11196.57	52.22	5.34	-4.17	53.39	Max Peak	Vertical	197	25	68.2	-14.8	Pass
3	11196.57	38.76	5.34	-4.17	39.93	Max Avg	Vertical	197	25	54.0	-14.1	Pass
4	16802.16	53.63	6.18	1.13	60.94	Peak (NRB)	Vertical	151	48	--	--	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH120 a mode.

[back to matrix](#)



Title: Hewlett Packard Enterprise APIN0344 & APIN0345
To: FCC CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 60 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5720.00 MHz, Antenna: Aruba AP-ANT-13B, Power Setting: 83, Duty Cycle (%): 99

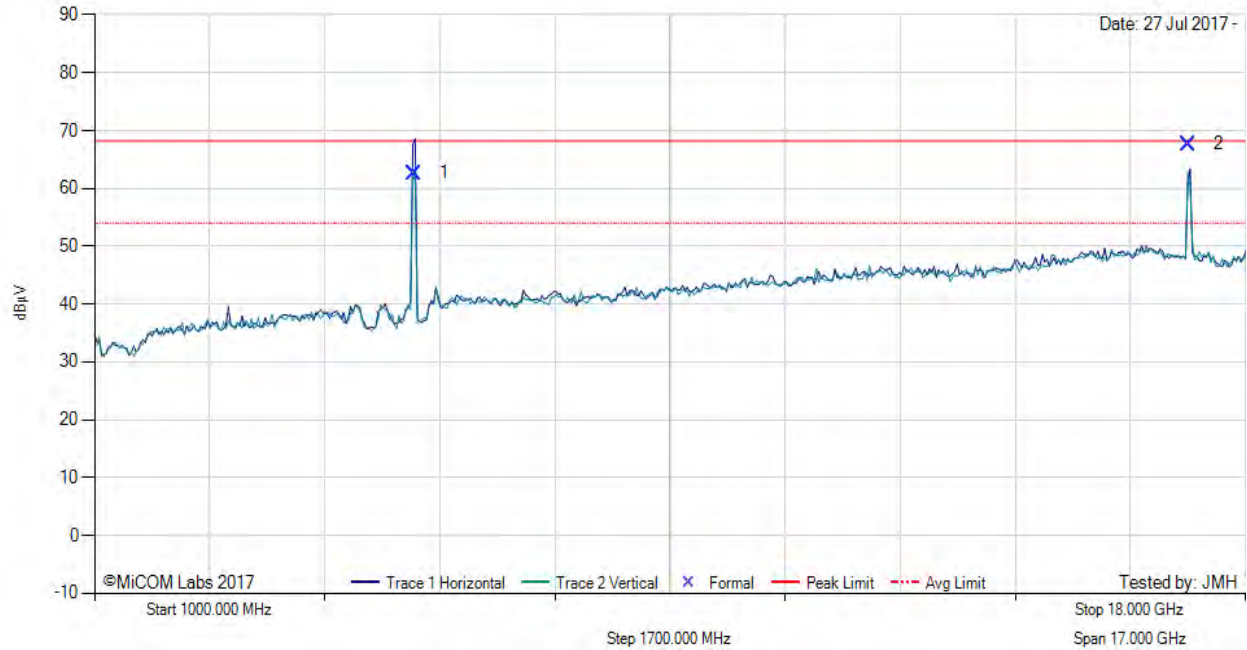
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 27 Jul 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5712.05	69.53	3.83	-10.77	62.59	Fundamental	Horizontal	200	0	--	--	
2	17161.01	60.90	6.34	0.40	67.64	Max Peak	Horizontal	197	335	68.2	-0.6	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH144 a mode.

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 61 of 103

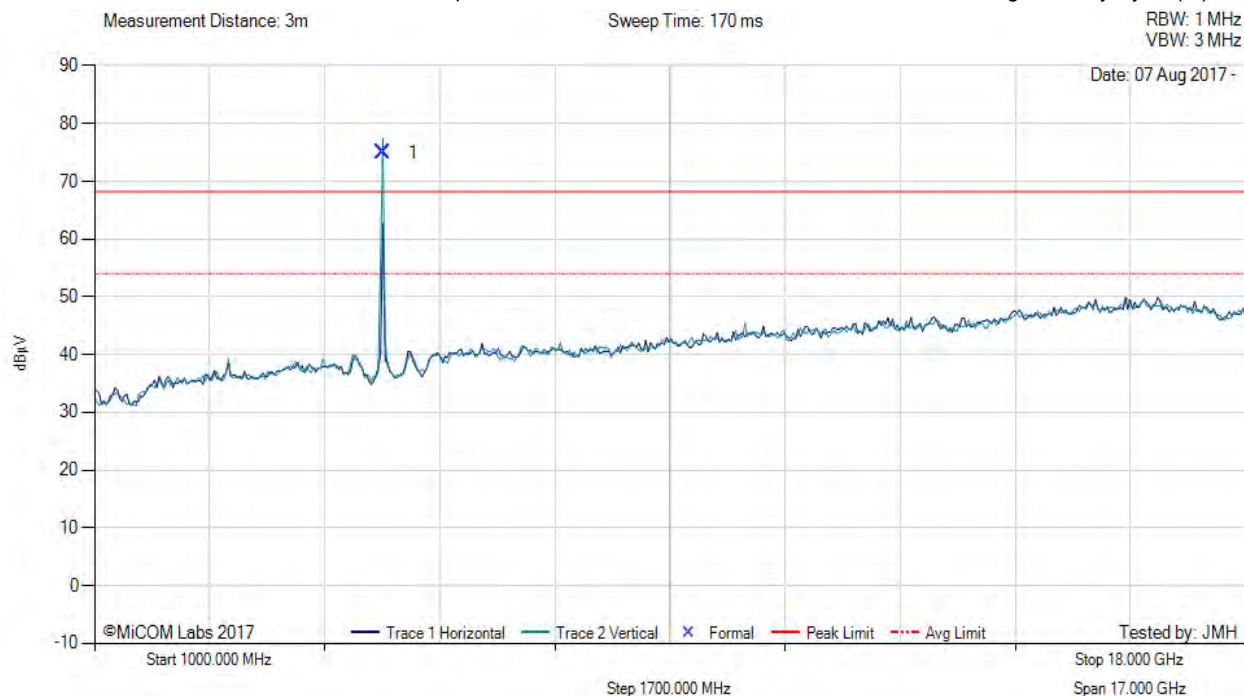
Antenna: AP-ANT-19

5250 - 5350 MHz

TX SPURIOUS & RESTRICTED BAND EMISSIONS



Variant: 802.11a, Test Freq: 5260.00 MHz, Antenna: Aruba AP-ANT-19, Power Setting: 72, Duty Cycle (%): 99



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5262.54	82.51	3.67	-11.28	74.90	Fundamental	Vertical	151	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH52 a mode.												

[back to matrix](#)

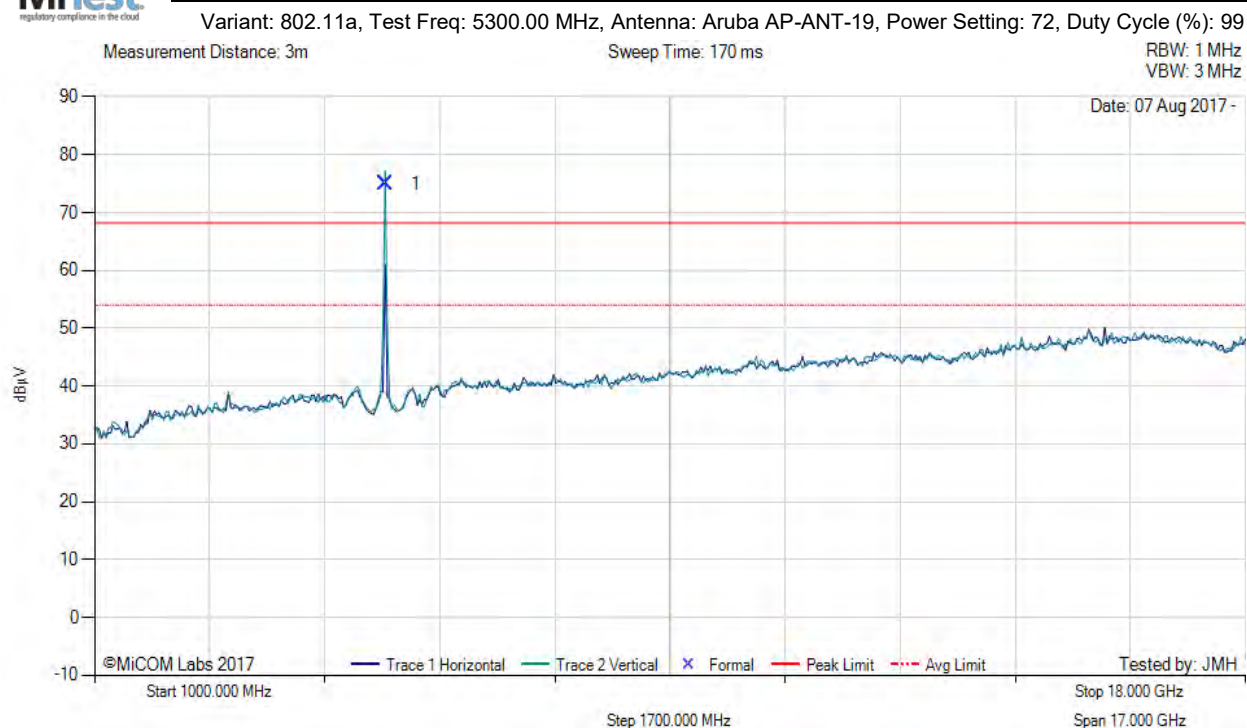
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.



Title: Hewlett Packard Enterprise APIN0344 & APIN0345
To: FCC CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 62 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5302.67	82.23	3.80	-11.08	74.95	Fundamental	Vertical	151	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH60 a mode.												

[back to matrix](#)

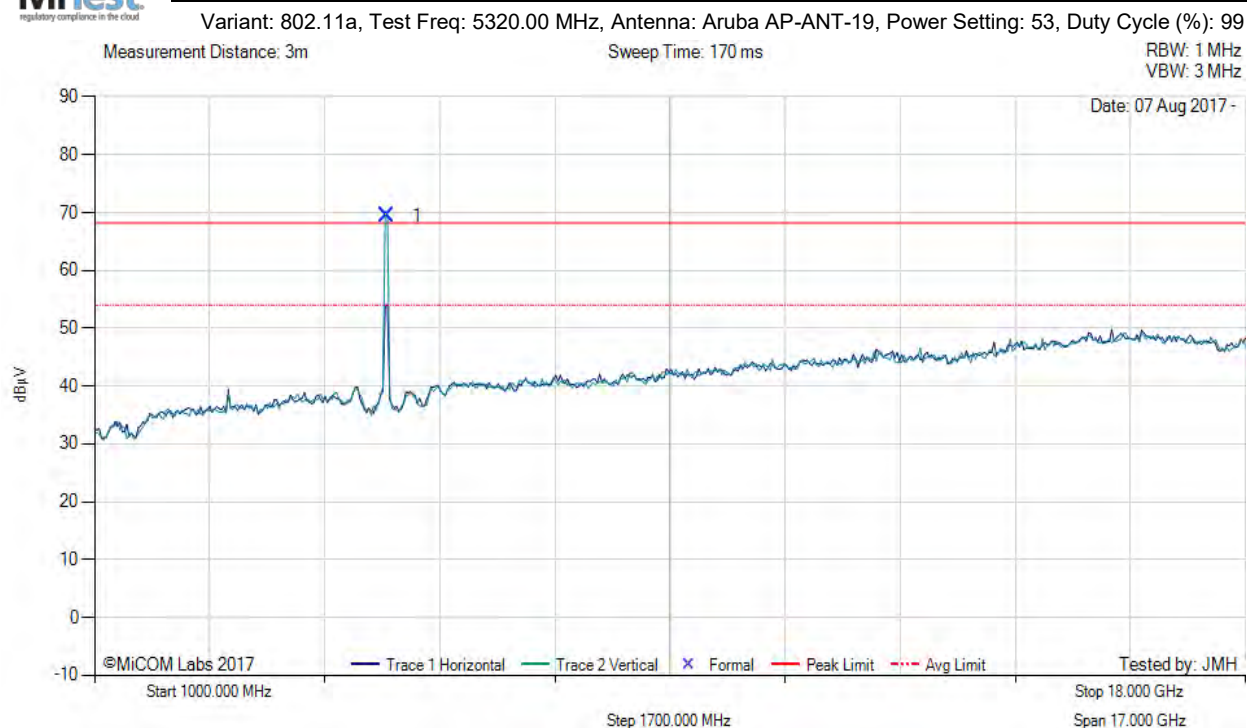
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.



Title: Hewlett Packard Enterprise APIN0344 & APIN0345
To: FCC CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 63 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5312.48	76.81	3.76	-11.07	69.50	Fundamental	Vertical	151	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH64 a mode.												

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 64 of 103

5470 - 5725 MHz

TX SPURIOUS & RESTRICTED BAND EMISSIONS



Variant: 802.11a, Test Freq: 5500.00 MHz, Antenna: Aruba AP-ANT-19, Power Setting: 54, Duty Cycle (%): 99

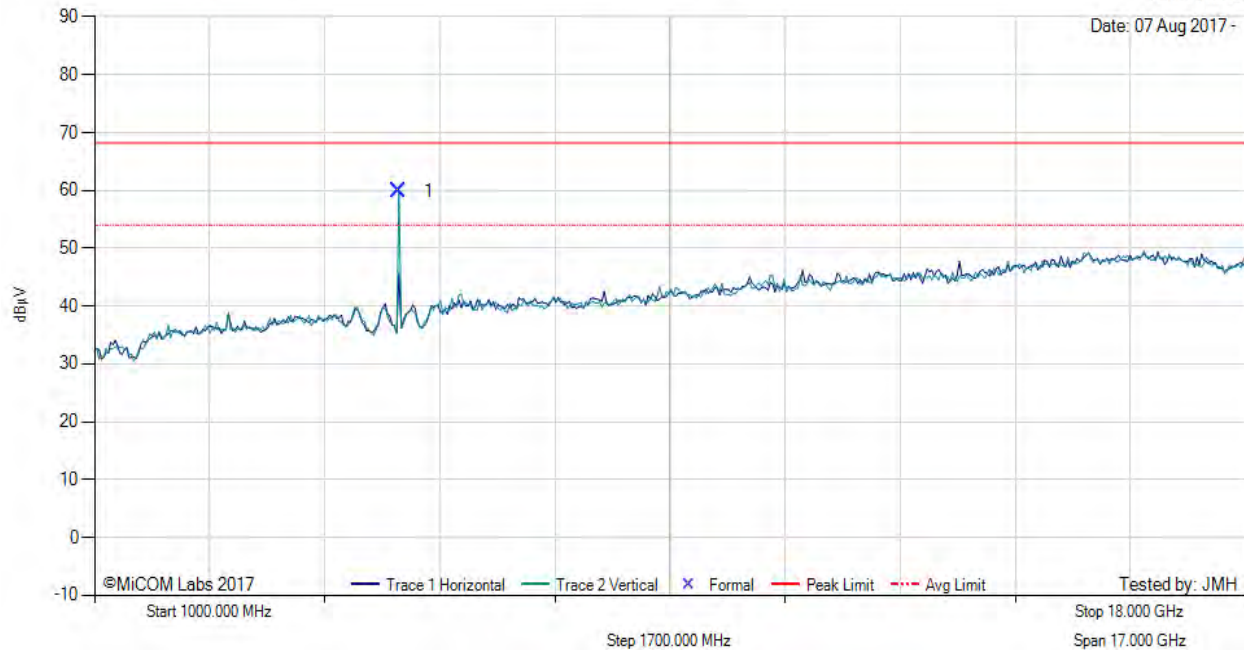
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 07 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5496.61	67.34	3.73	-11.17	59.90	Fundamental	Vertical	151	35	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH100 a mode.												

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 65 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5580.00 MHz, Antenna: Aruba AP-ANT-19, Power Setting: 72, Duty Cycle (%): 99

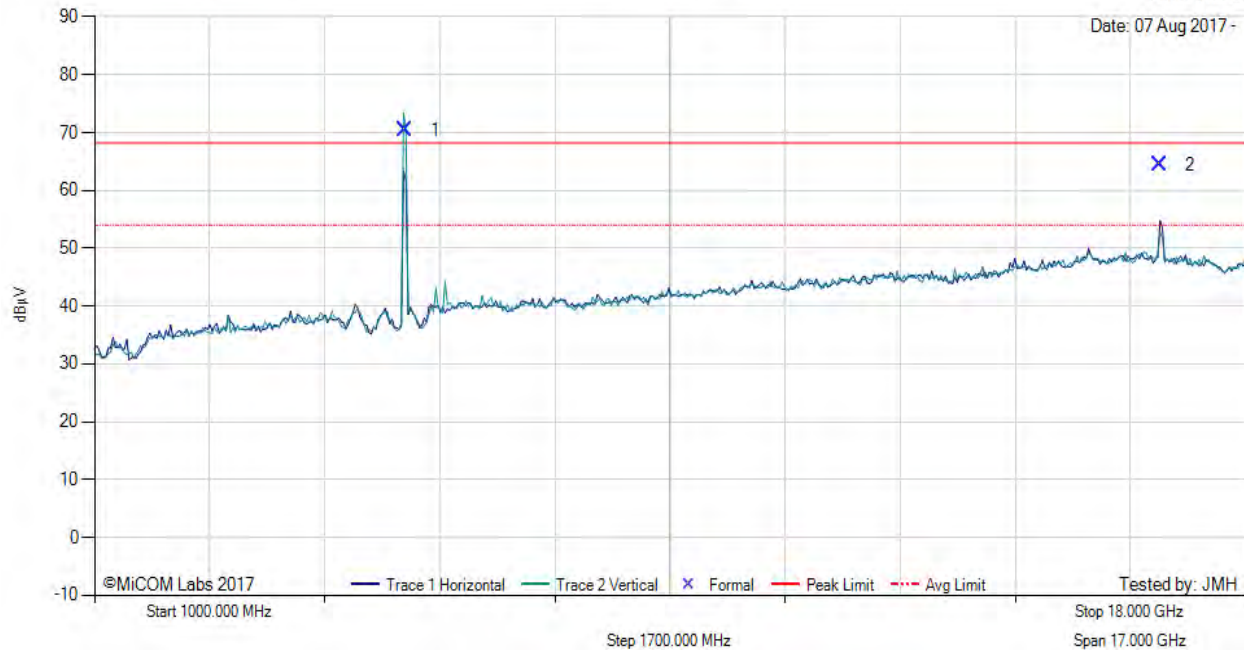
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 07 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5586.35	77.77	3.78	-11.19	70.36	Fundamental	Vertical	100	59	--	--	
2	16741.29	56.85	6.07	1.50	64.42	Max Peak	Horizontal	146	85	68.2	-3.8	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH116 a mode.

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 66 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5720.00 MHz, Antenna: Aruba AP-ANT-19, Power Setting: 72, Duty Cycle (%): 99

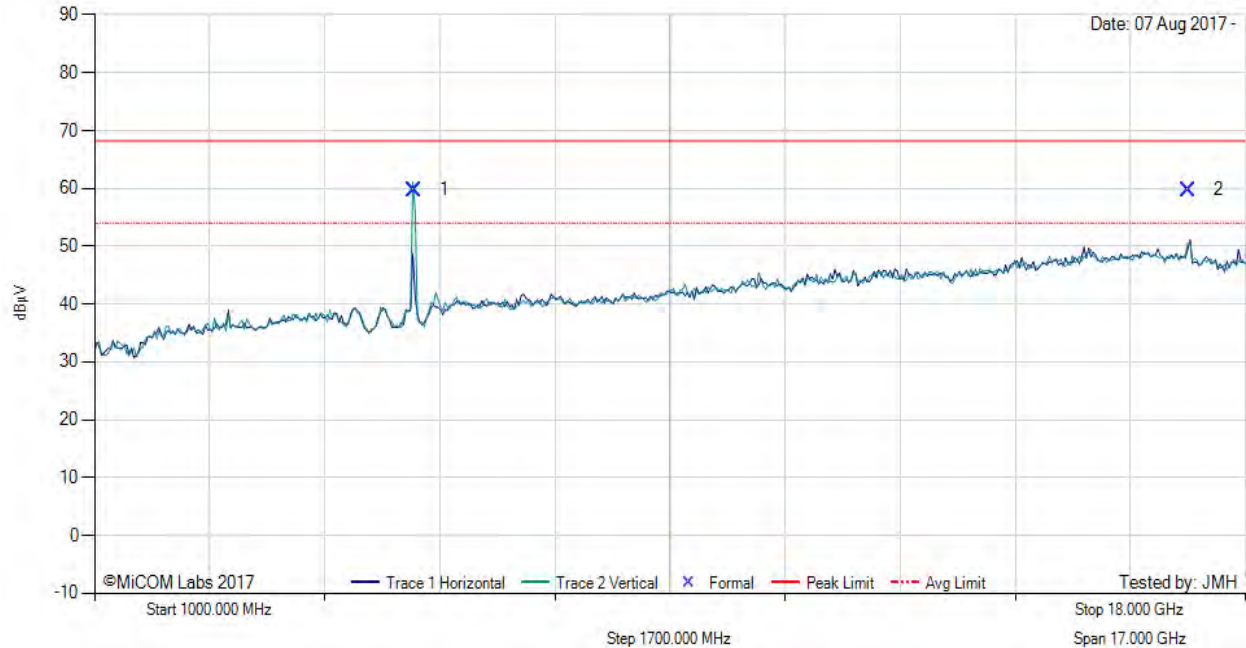
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 07 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5712.48	66.67	3.83	-10.77	59.73	Fundamental	Vertical	151	0	--	--	
2	17160.95	53.05	6.34	0.39	59.78	Max Peak	Horizontal	136	345	68.2	-8.5	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH144 a mode.

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 67 of 103

Antenna: AP-ANT-1W

5250 - 5350 MHz

TX SPURIOUS & RESTRICTED BAND EMISSIONS



Variant: 802.11a, Test Freq: 5260.00 MHz, Antenna: Aruba AP-ANT-1W, Power Setting: 90, Duty Cycle (%): 99

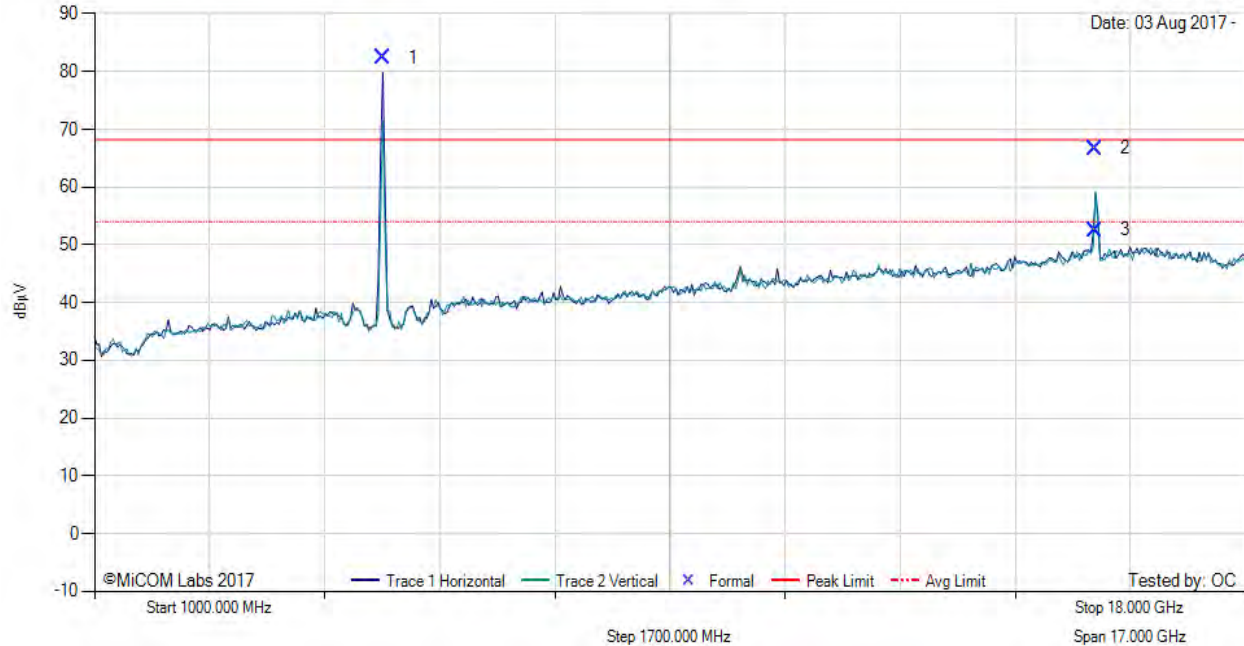
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 03 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5253.61	90.14	3.64	-11.32	82.46	Fundamental	Horizontal	171	87	--	--	
2	15773.83	60.65	5.97	0.11	66.73	Max Peak	Vertical	168	304	68.2	-1.5	Pass
3	15773.83	46.51	5.97	0.11	52.59	Max Avg	Vertical	168	304	54.0	-1.4	Pass

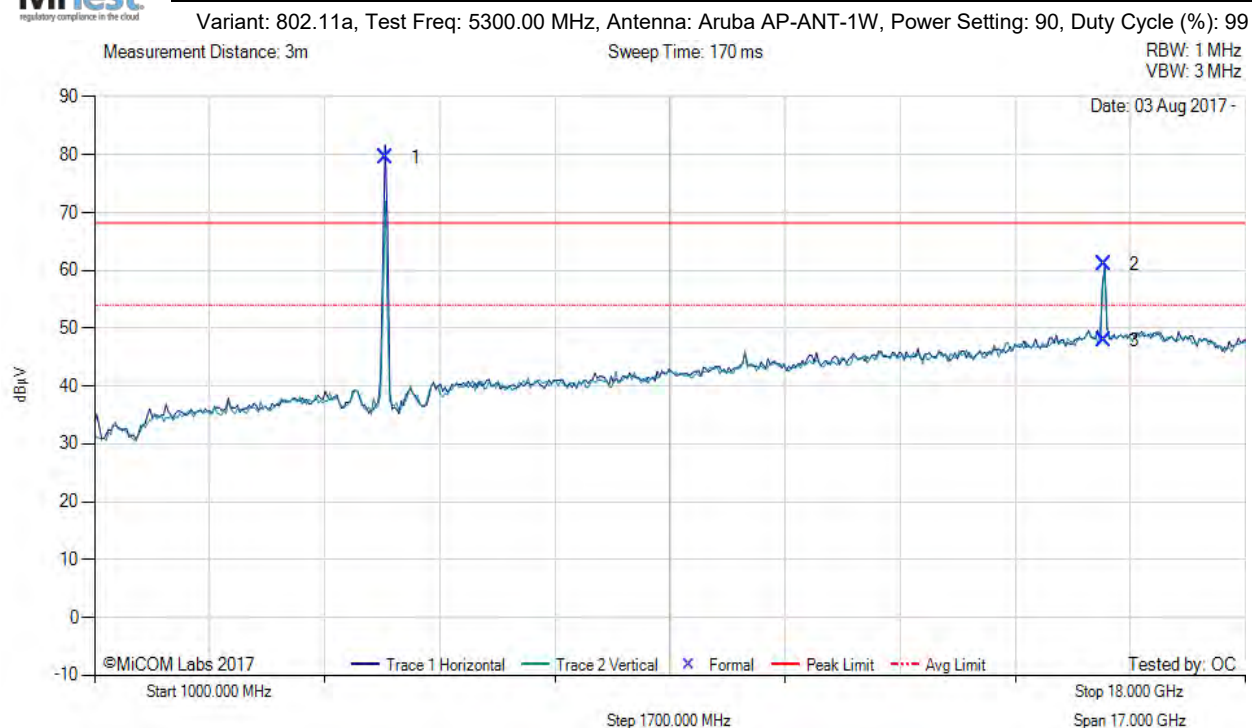
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH52 a mode.

[back to matrix](#)

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.



TX SPURIOUS & RESTRICTED BAND EMISSIONS



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5302.78	86.85	3.80	-11.08	79.57	Fundamental	Horizontal	100	0	--	--	
2	15903.56	54.83	5.99	0.19	61.01	Max Peak	Horizontal	150	298	68.2	-7.2	Pass
3	15903.56	41.76	5.99	0.19	47.94	Max Avg	Horizontal	150	298	54.0	-6.1	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH60 a mode.

[back to matrix](#)



Title: Hewlett Packard Enterprise APIN0344 & APIN0345
To: FCC CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 69 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5320.00 MHz, Antenna: Aruba AP-ANT-1W, Power Setting: 53, Duty Cycle (%): 99

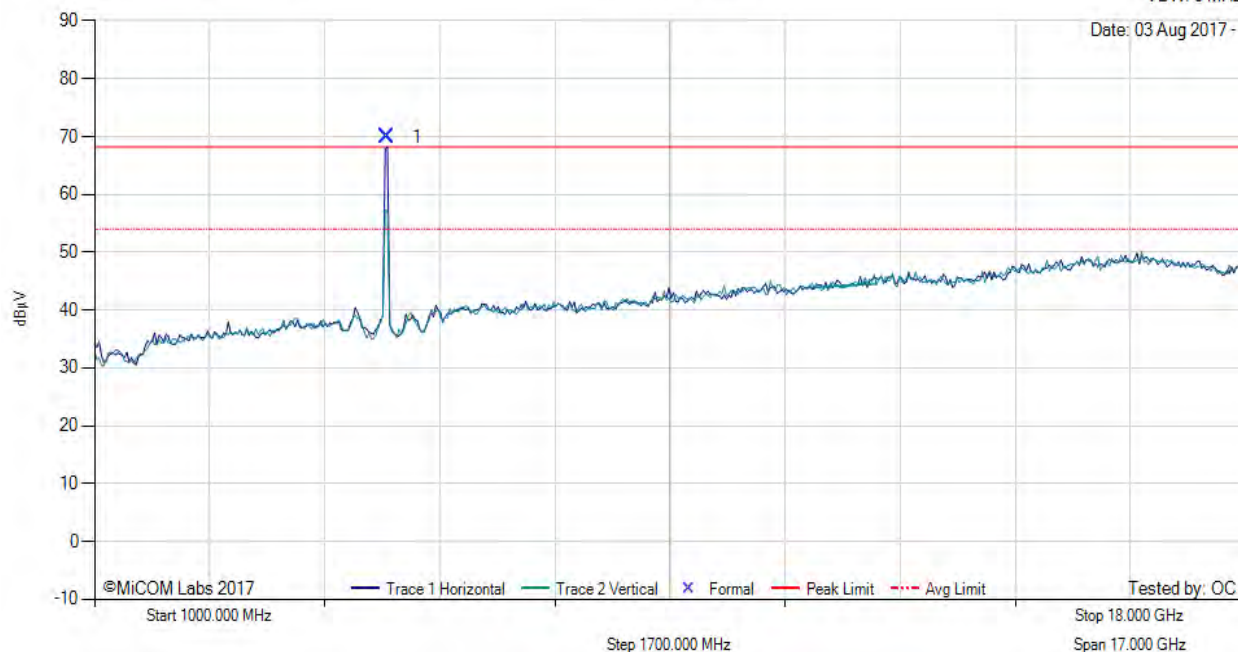
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 03 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5312.38	77.19	3.76	-11.07	69.88	Fundamental	Horizontal	100	60	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH64 a mode.												

[back to matrix](#)

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.

5470 - 5725 MHz

TX SPURIOUS & RESTRICTED BAND EMISSIONS



Variant: 802.11a, Test Freq: 5500.00 MHz, Antenna: Aruba AP-ANT-1W, Power Setting: 62, Duty Cycle (%): 99

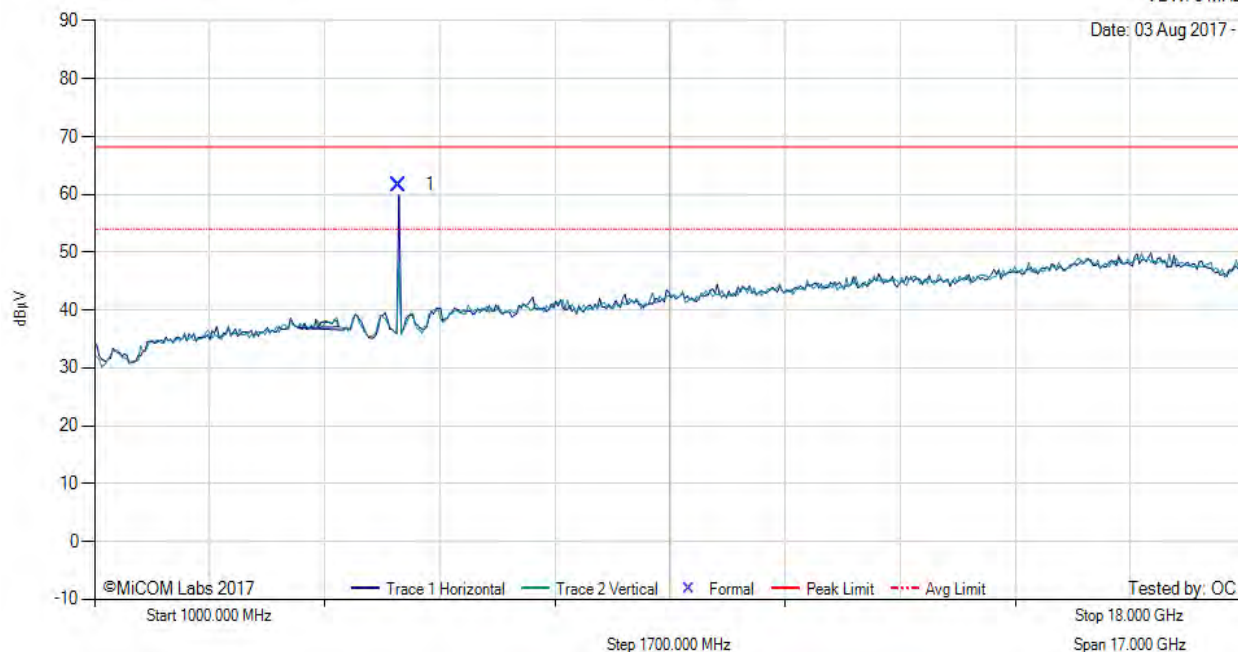
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 03 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5498.26	69.10	3.74	-11.17	61.67	Fundamental	Horizontal	175	88	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH100 a mode.												

[back to matrix](#)



TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5580.00 MHz, Antenna: Aruba AP-ANT-1W, Power Setting: 86, Duty Cycle (%): 99

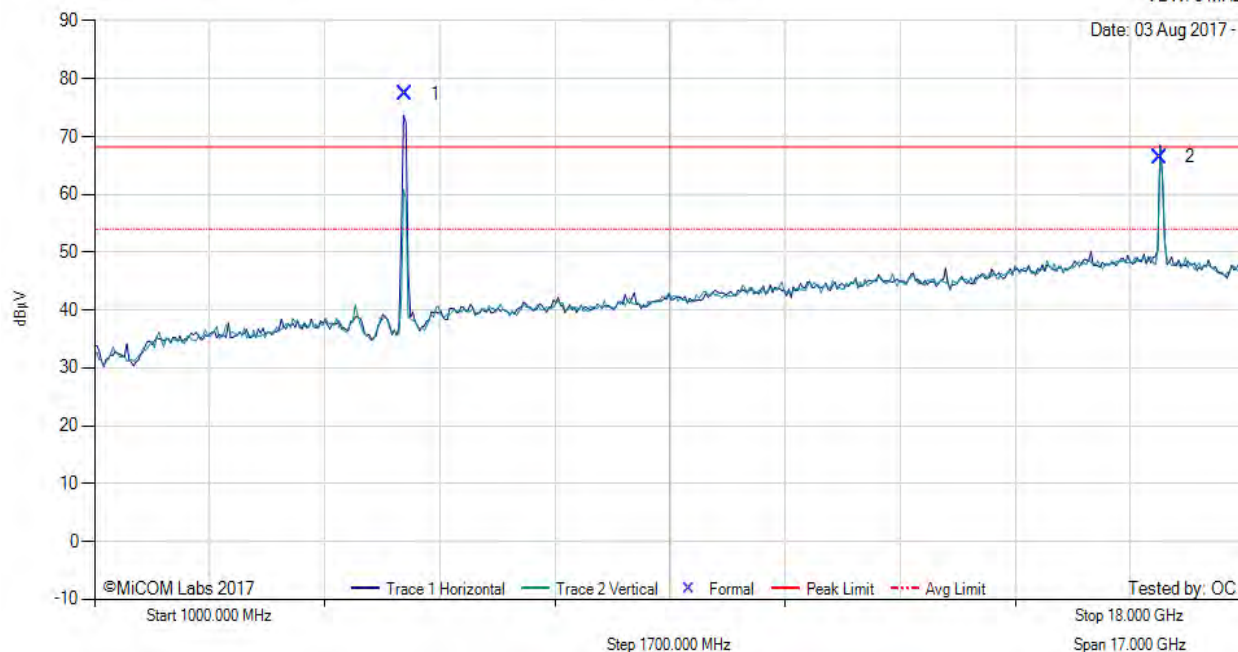
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 03 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5578.74	84.72	3.80	-11.20	77.32	Fundamental	Horizontal	197	80	--	--	
2	16741.19	58.87	6.07	1.50	66.44	Max Peak	Horizontal	114	309	68.2	-1.8	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH1116 a mode.

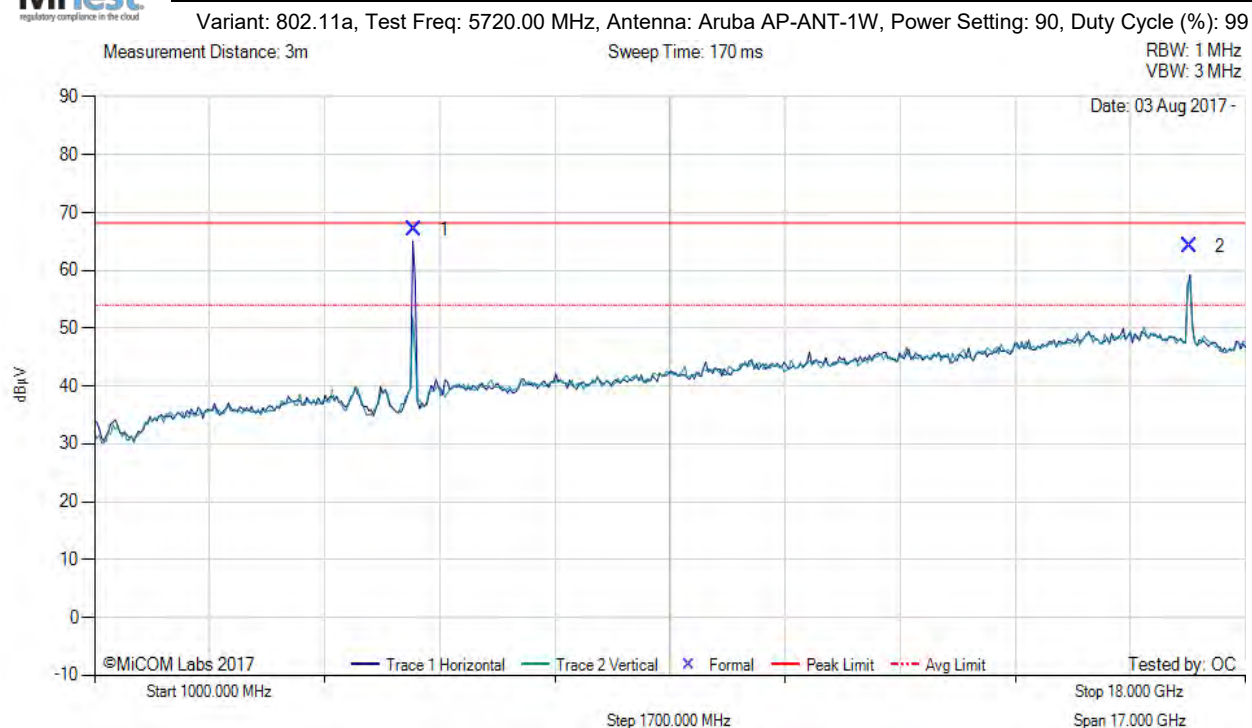
[back to matrix](#)



Title: Hewlett Packard Enterprise APIN0344 & APIN0345
To: FCC CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 72 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5712.48	74.01	3.83	-10.77	67.07	Fundamental	Horizontal	162	264	--	--	
2	17168.53	57.45	6.30	0.40	64.15	Max Peak	Horizontal	163	290	68.2	-4.1	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH1144 a mode.

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 73 of 103

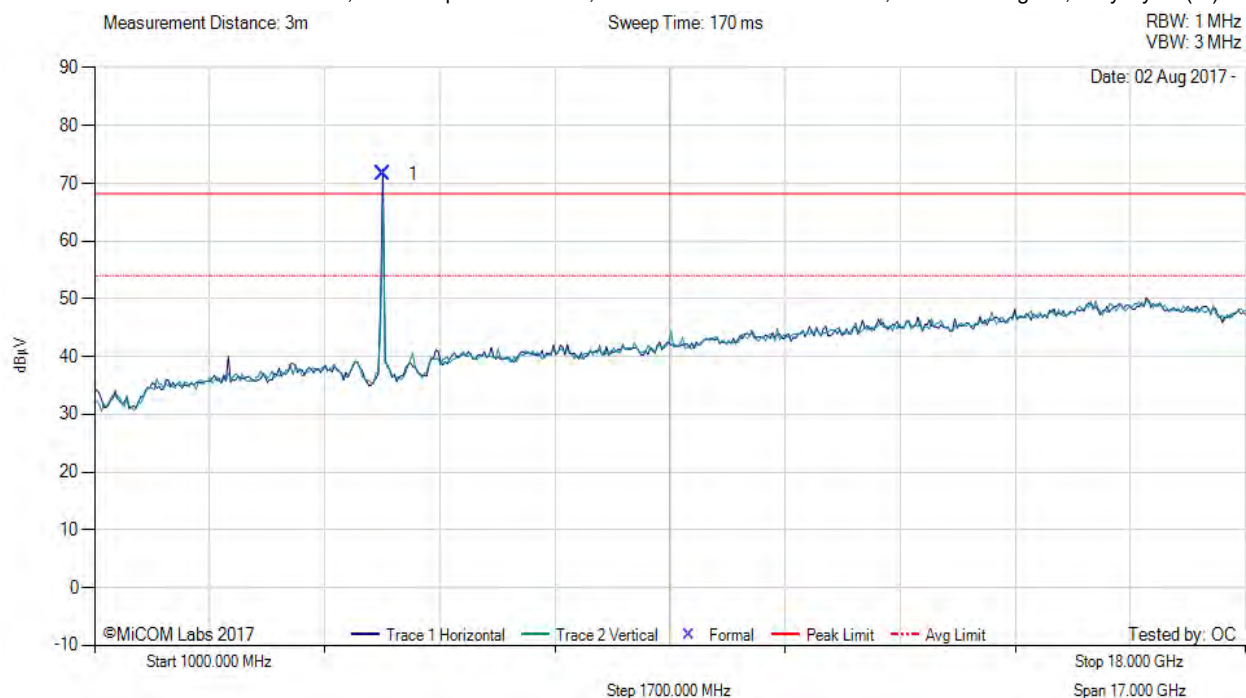
Antenna: AP-ANT-20W

5250 - 5350 MHz

TX SPURIOUS & RESTRICTED BAND EMISSIONS



Variant: 802.11a, Test Freq: 5260.00 MHz, Antenna: Aruba AP-ANT-20W, Power Setting: 72, Duty Cycle (%): 99



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5262.65	79.24	3.67	-11.28	71.63	Fundamental	Horizontal	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH52 a mode.												

[back to matrix](#)

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.



TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5300.00 MHz, Antenna: Aruba AP-ANT-20W, Power Setting: 72, Duty Cycle (%): 99

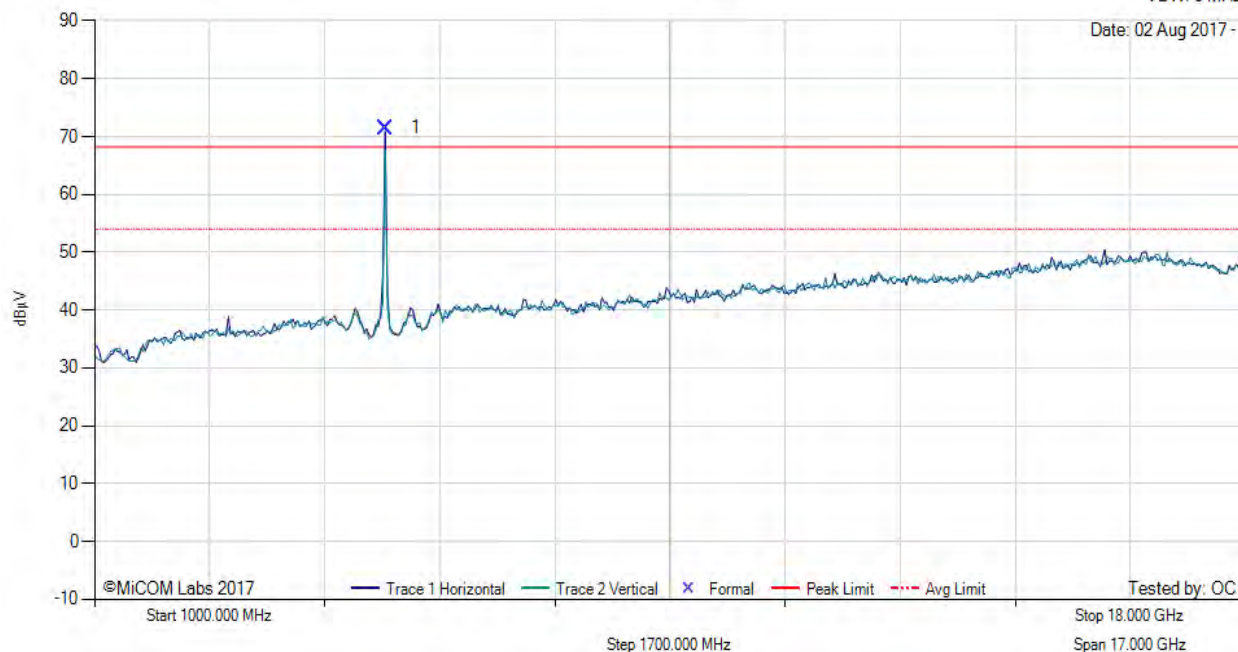
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 02 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5301.35	78.78	3.81	-11.09	71.50	Fundamental	Horizontal	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH60 a mode.												

[back to matrix](#)



TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5320.00 MHz, Antenna: Aruba AP-ANT-20W, Power Setting: 57, Duty Cycle (%): 99

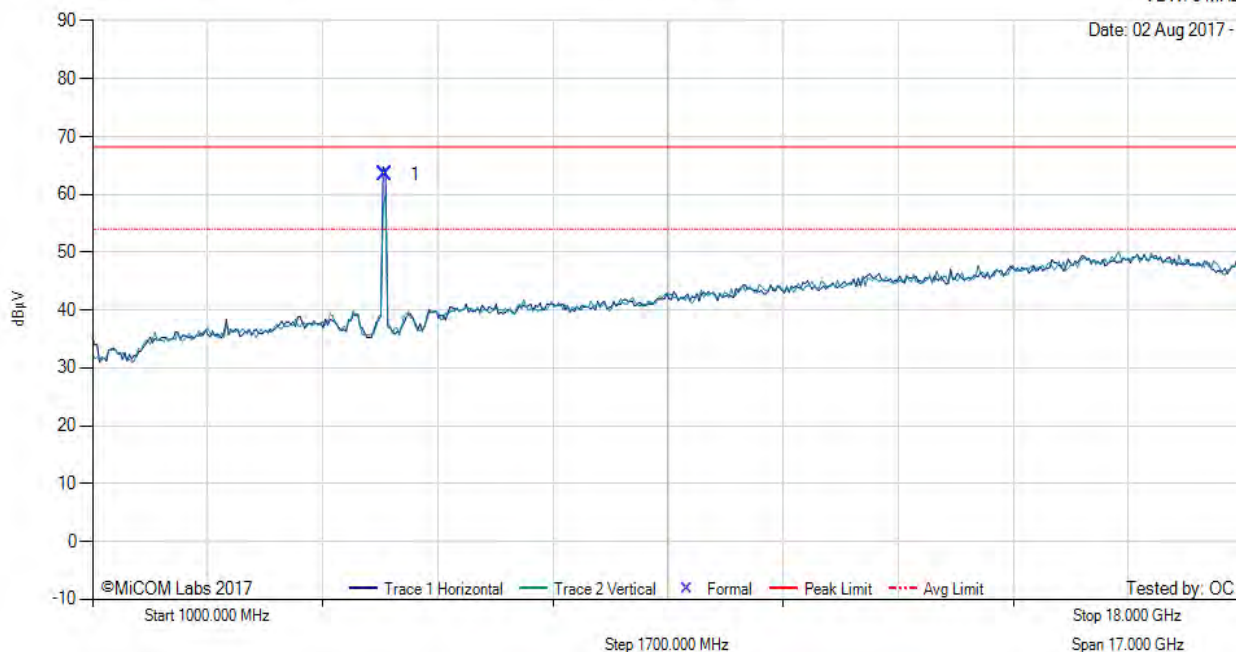
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 02 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5318.11	70.75	3.75	-11.07	63.43	Fundamental	Vertical	100	34	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH64 a mode.												

[back to matrix](#)



Title: Hewlett Packard Enterprise APIN0344 & APIN0345
To: FCC CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 76 of 103

5470 - 5725 MHz

TX SPURIOUS & RESTRICTED BAND EMISSIONS



Variant: 802.11a, Test Freq: 5500.00 MHz, Antenna: Aruba AP-ANT-20W, Power Setting: 62, Duty Cycle (%): 99

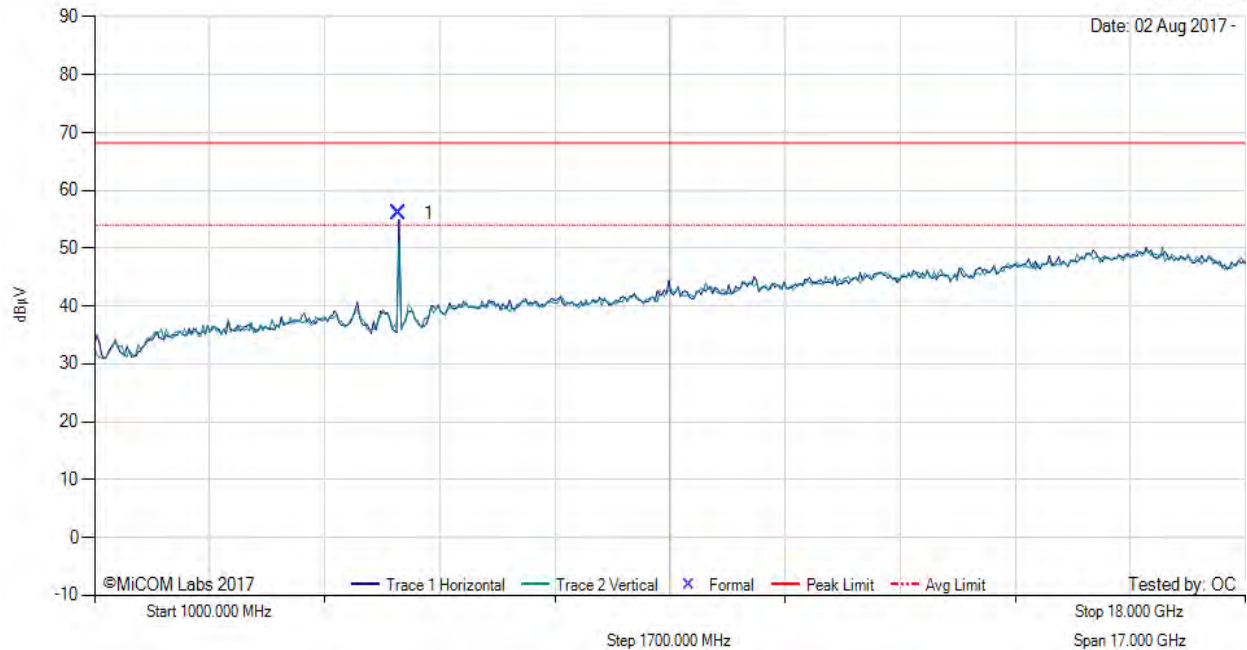
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 02 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5494.73	63.54	3.72	-11.17	56.09	Fundamental	Horizontal	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH100 a mode.												

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 77 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5580.00 MHz, Antenna: Aruba AP-ANT-20W, Power Setting: 72, Duty Cycle (%): 99

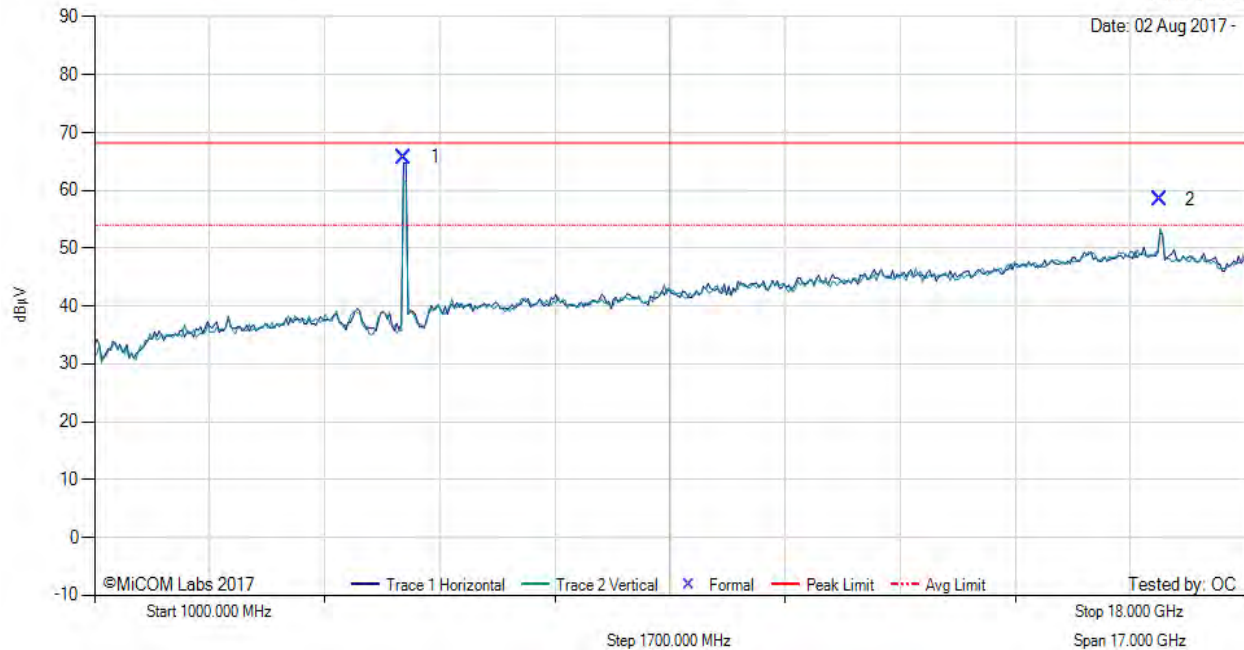
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 02 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5575.56	73.15	3.81	-11.21	65.75	Fundamental	Horizontal	100	0	--	--	
2	16736.23	50.77	6.10	1.52	58.39	Max Peak	Vertical	174	20	68.2	-9.8	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH116 a mode.

[back to matrix](#)

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.



TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5720.00 MHz, Antenna: Aruba AP-ANT-20W, Power Setting: 72, Duty Cycle (%): 99

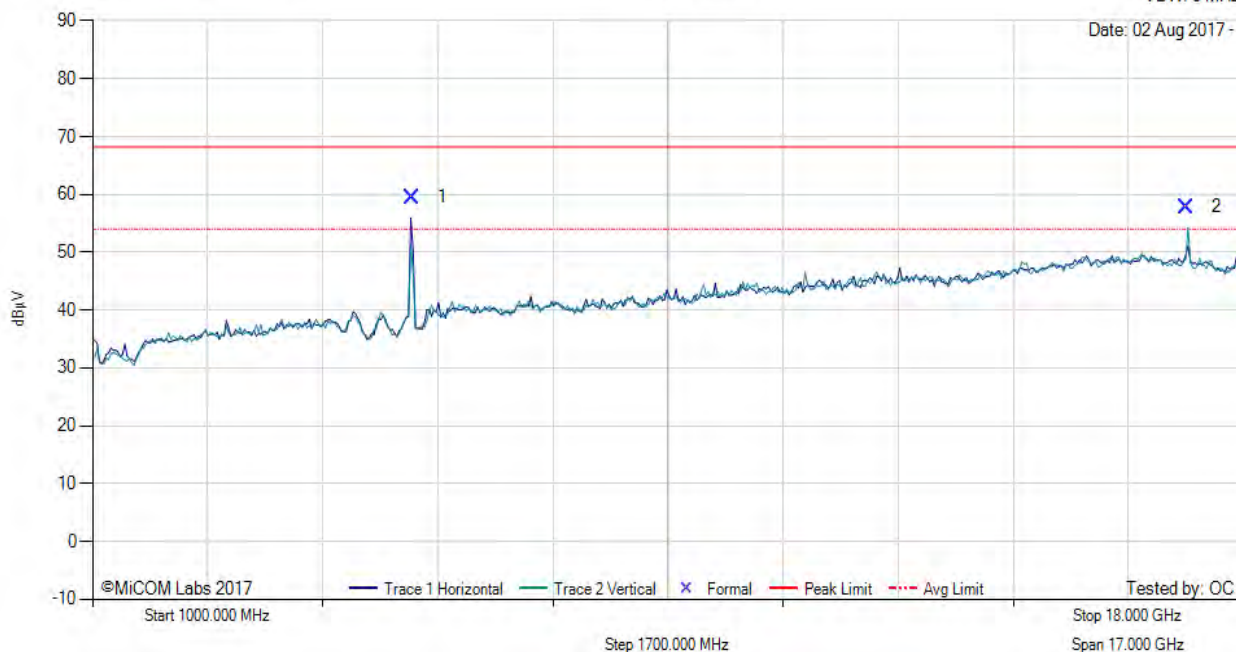
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 02 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5713.69	66.43	3.82	-10.76	59.49	Fundamental	Horizontal	100	0	--	--	
2	17161.48	51.13	6.34	0.40	57.87	Max Peak	Vertical	136	288	68.2	-10.4	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH144 a mode.

[back to matrix](#)



Title: Hewlett Packard Enterprise APIN0344 & APIN0345
To: FCC CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 79 of 103

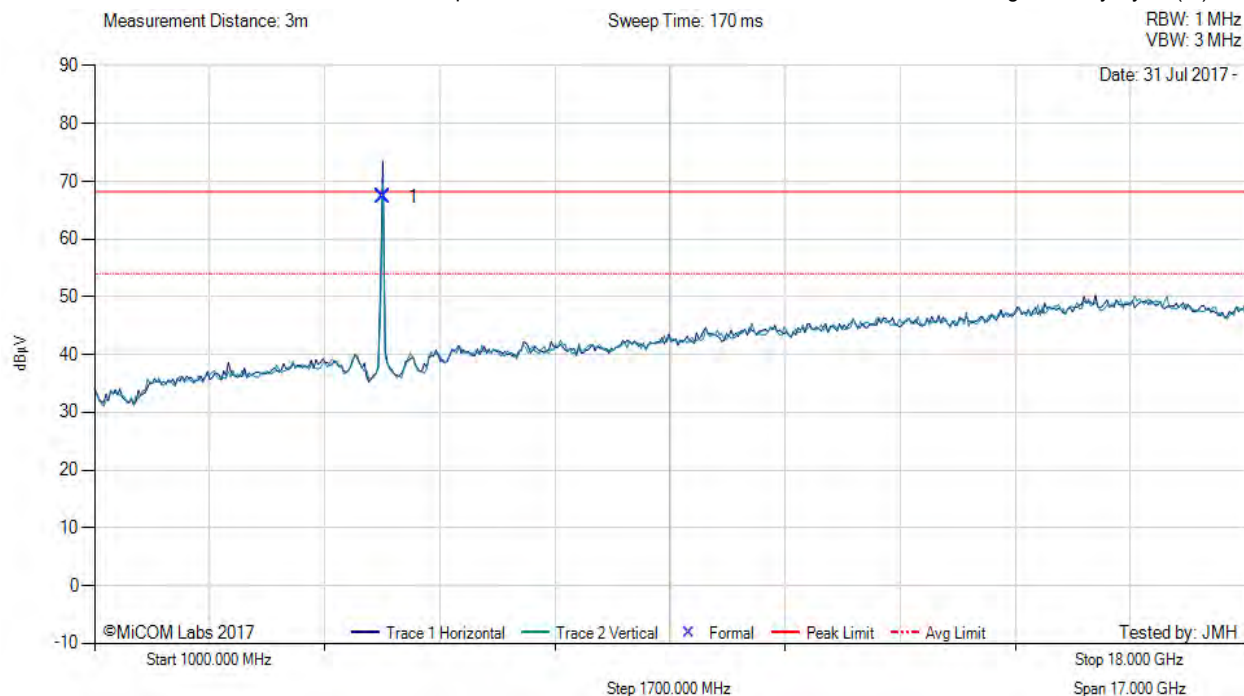
Antenna: AP-ANT-40

5250 - 5350 MHz

TX SPURIOUS & RESTRICTED BAND EMISSIONS



Variant: 802.11a, Test Freq: 5260.00 MHz, Antenna: Aruba AP-ANT-40, Power Setting: 72, Duty Cycle (%): 99



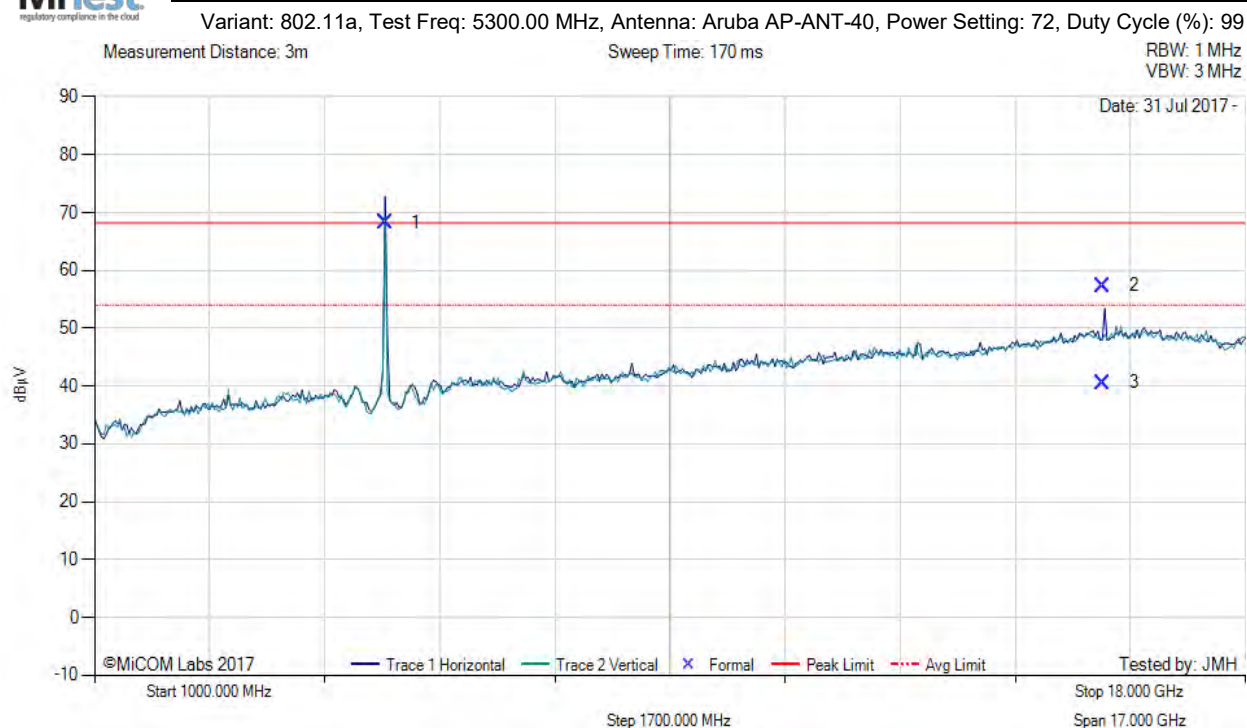
1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5255.60	74.96	3.64	-11.31	67.29	Fundamental	Horizontal	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH52 a mode.												

[back to matrix](#)

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.



TX SPURIOUS & RESTRICTED BAND EMISSIONS



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5295.51	75.59	3.79	-11.11	68.27	Fundamental	Horizontal	100	0	--	--	
2	15901.38	51.22	5.98	0.18	57.38	Max Peak	Horizontal	98	281	68.2	-10.9	Pass
3	15901.38	34.40	5.98	0.18	40.56	Max Avg	Horizontal	98	281	54.0	-13.4	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH60 a mode.

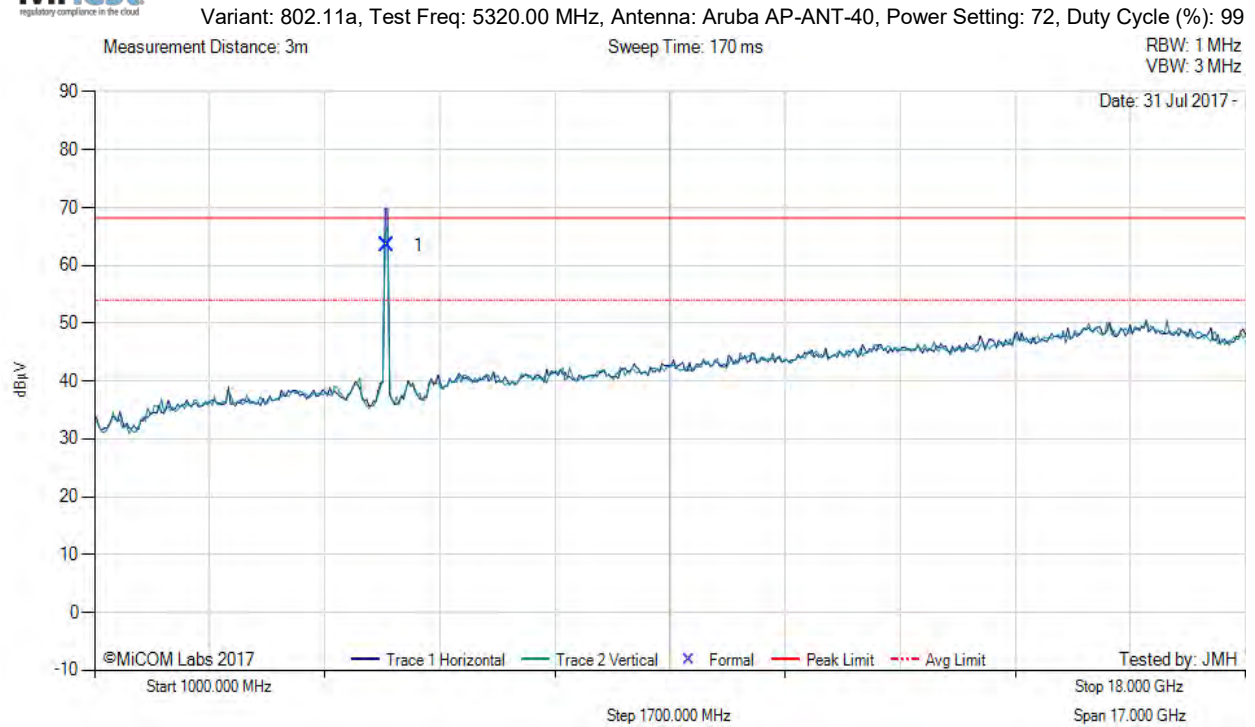
[back to matrix](#)



Title: Hewlett Packard Enterprise APIN0344 & APIN0345
To: FCC CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 81 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5326.97	70.85	3.72	-11.06	63.51	Fundamental	Horizontal	151	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH64 a mode.												

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 82 of 103

5470 - 5725 MHz

TX SPURIOUS & RESTRICTED BAND EMISSIONS



Variant: 802.11a, Test Freq: 5500.00 MHz, Antenna: Aruba AP-ANT-40, Power Setting: 72, Duty Cycle (%): 99

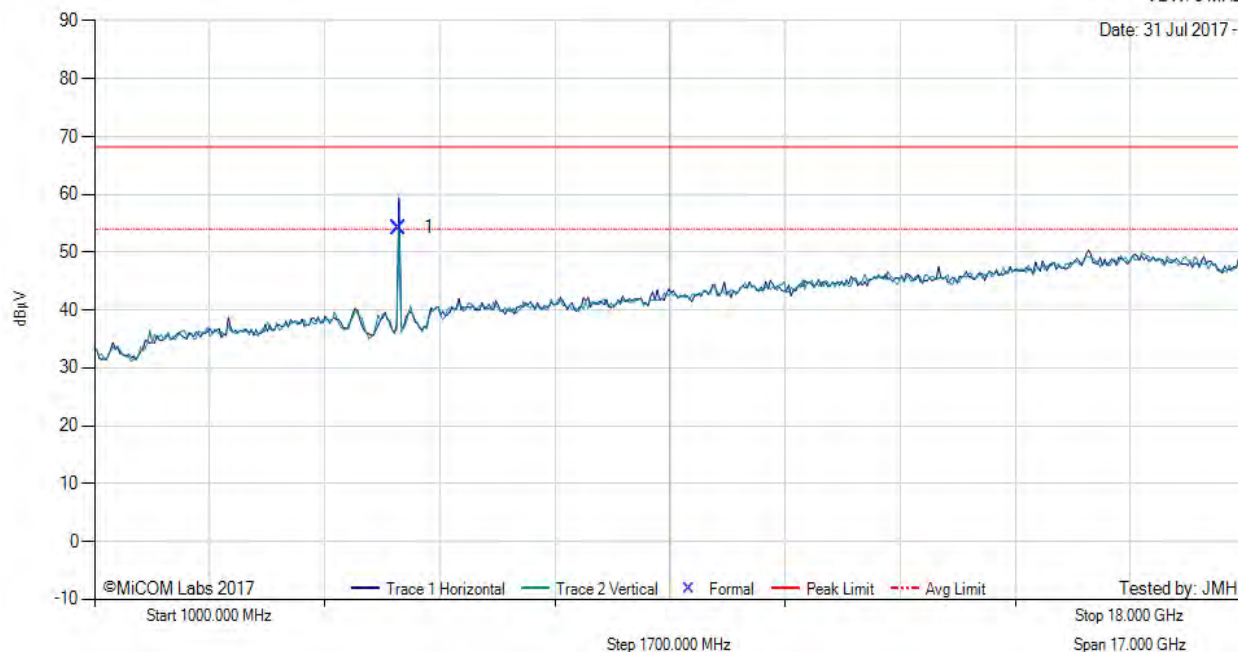
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 31 Jul 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5493.08	61.68	3.72	-11.18	54.22	Fundamental	Horizontal	151	0	--	--	
Test Notes: EEUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH100 a mode.												

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 83 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5580.00 MHz, Antenna: Aruba AP-ANT-40, Power Setting: 72, Duty Cycle (%): 99

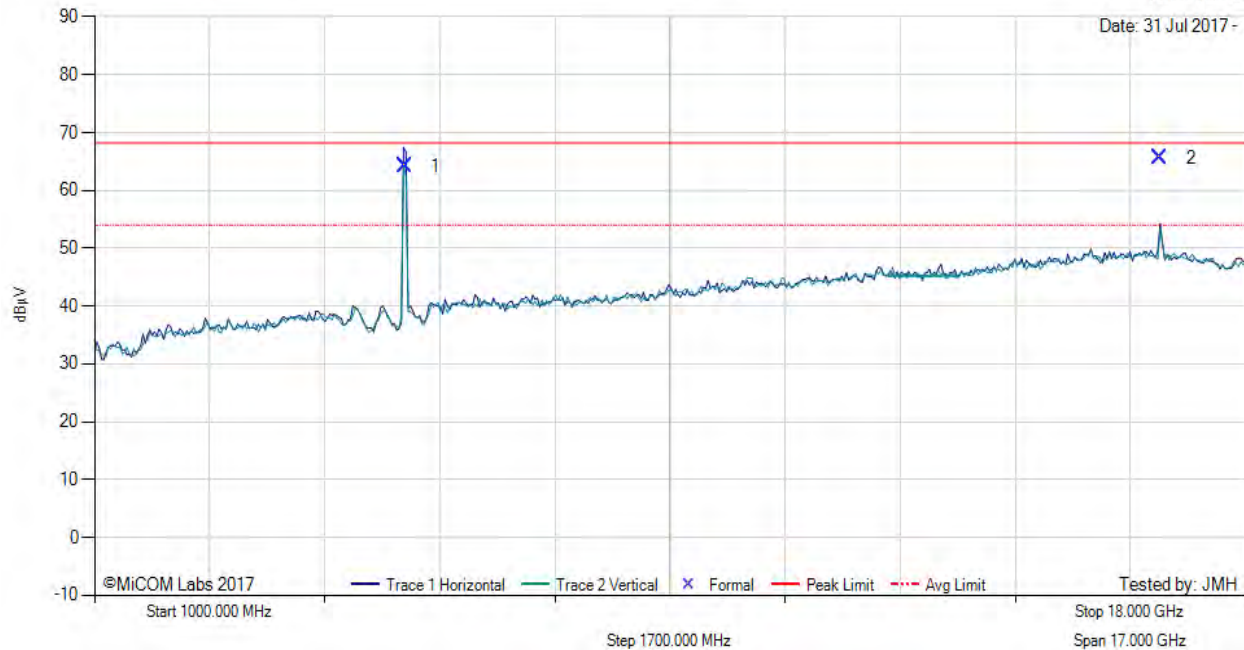
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 31 Jul 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5578.41	71.64	3.81	-11.20	64.25	Fundamental	Horizontal	200	0	--	--	
2	16741.43	58.10	6.07	1.50	65.67	Max Peak	Horizontal	147	67	68.2	-2.6	Pass

Test Notes: EEUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH116 a mode.

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 84 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5720.00 MHz, Antenna: Aruba AP-ANT-40, Power Setting: 72, Duty Cycle (%): 99

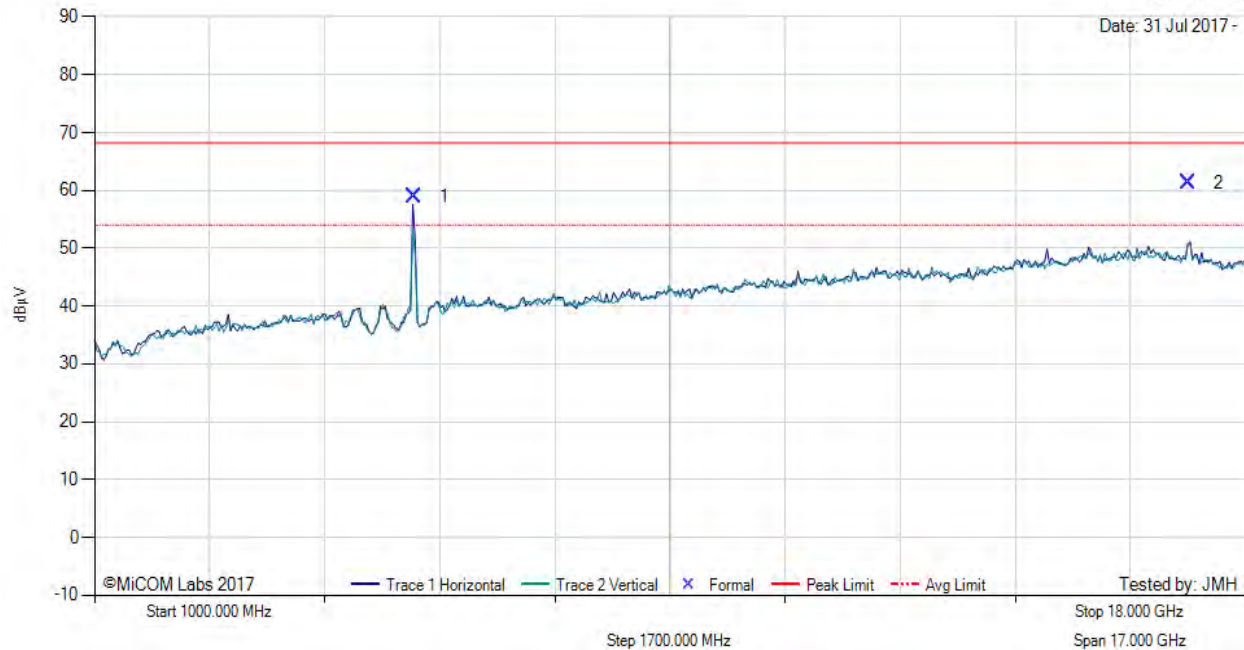
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 31 Jul 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5712.59	65.92	3.82	-10.77	58.97	Fundamental	Horizontal	100	39	--	--	
2	17160.78	54.50	6.34	0.39	61.23	Max Peak	Vertical	198	308	68.2	-7.0	Pass

Test Notes: EEUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH144 a mode.

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 85 of 103

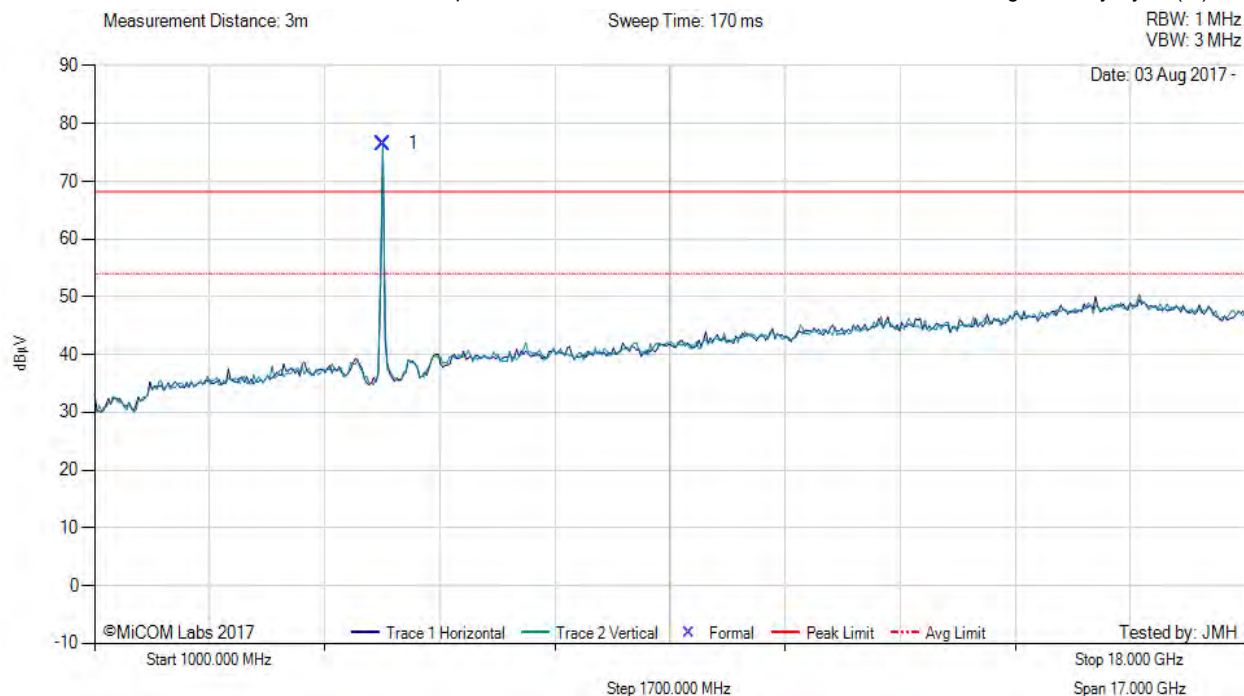
Antenna: AP-ANT-45

5250 - 5350 MHz

TX SPURIOUS & RESTRICTED BAND EMISSIONS



Variant: 802.11a, Test Freq: 5260.00 MHz, Antenna: Aruba AP-ANT-45, Power Setting: 72, Duty Cycle (%): 99



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5264.30	84.10	3.67	-11.27	76.50	Fundamental	Vertical	100	0	--	--	

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH52 a mode.

[back to matrix](#)

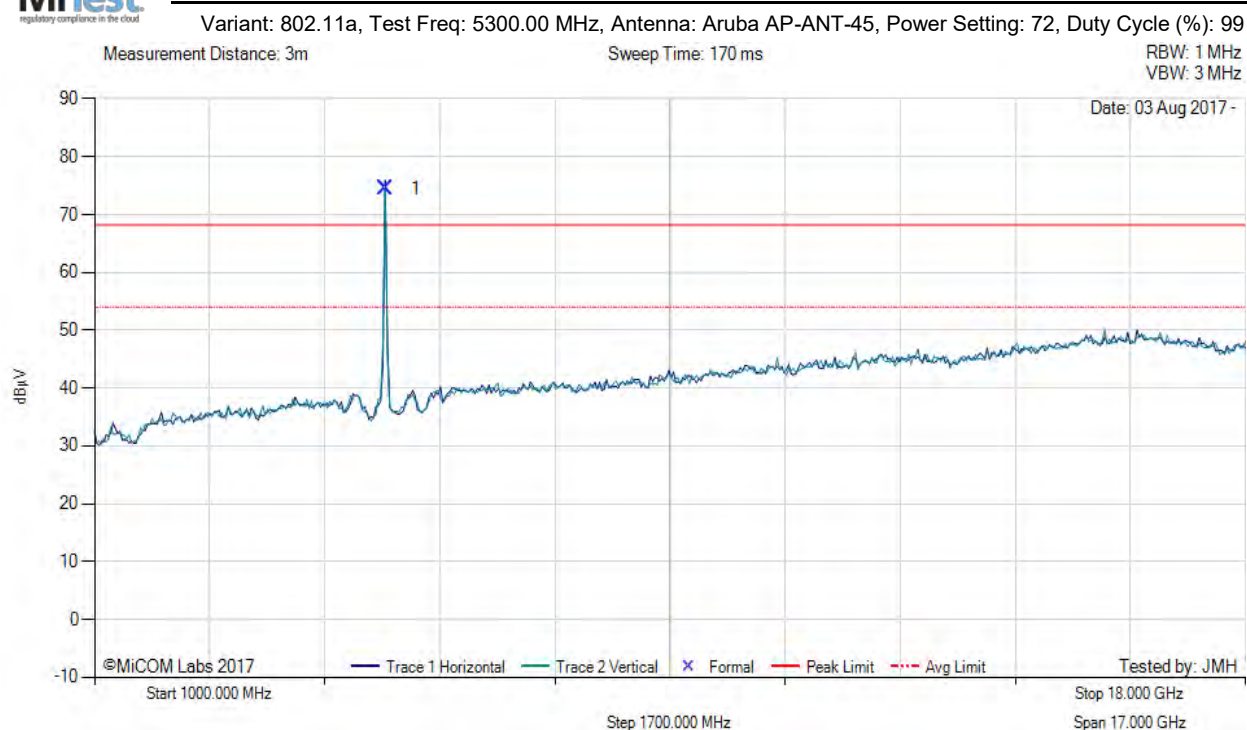
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.



Title: Hewlett Packard Enterprise APIN0344 & APIN0345
To: FCC CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 86 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5295.62	81.86	3.79	-11.11	74.54	Fundamental	Horizontal	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH60 a mode.												

[back to matrix](#)

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.



TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5320.00 MHz, Antenna: Aruba AP-ANT-45, Power Setting: 72, Duty Cycle (%): 99

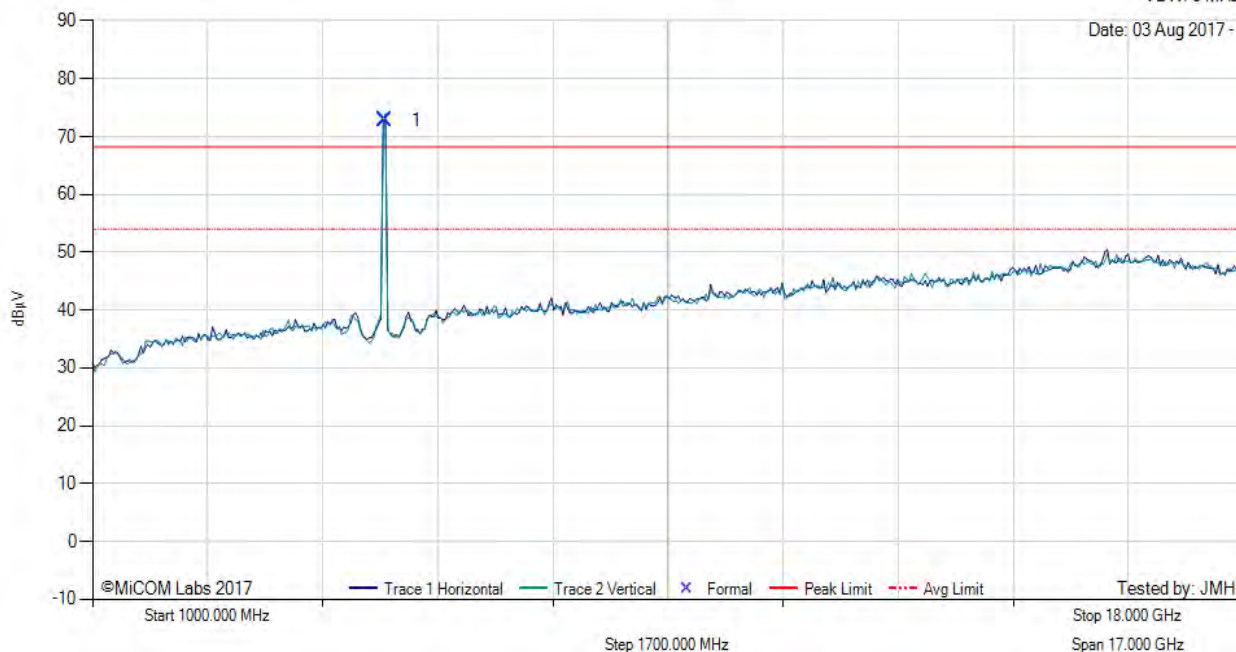
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 03 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5324.39	80.16	3.74	-11.06	72.84	Fundamental	Vertical	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH64 a mode.												

[back to matrix](#)



Title: Hewlett Packard Enterprise APIN0344 & APIN0345
To: FCC CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 88 of 103

5470 - 5725 MHz

TX SPURIOUS & RESTRICTED BAND EMISSIONS



Variant: 802.11a, Test Freq: 5500.00 MHz, Antenna: Aruba AP-ANT-45, Power Setting: 72, Duty Cycle (%): 99

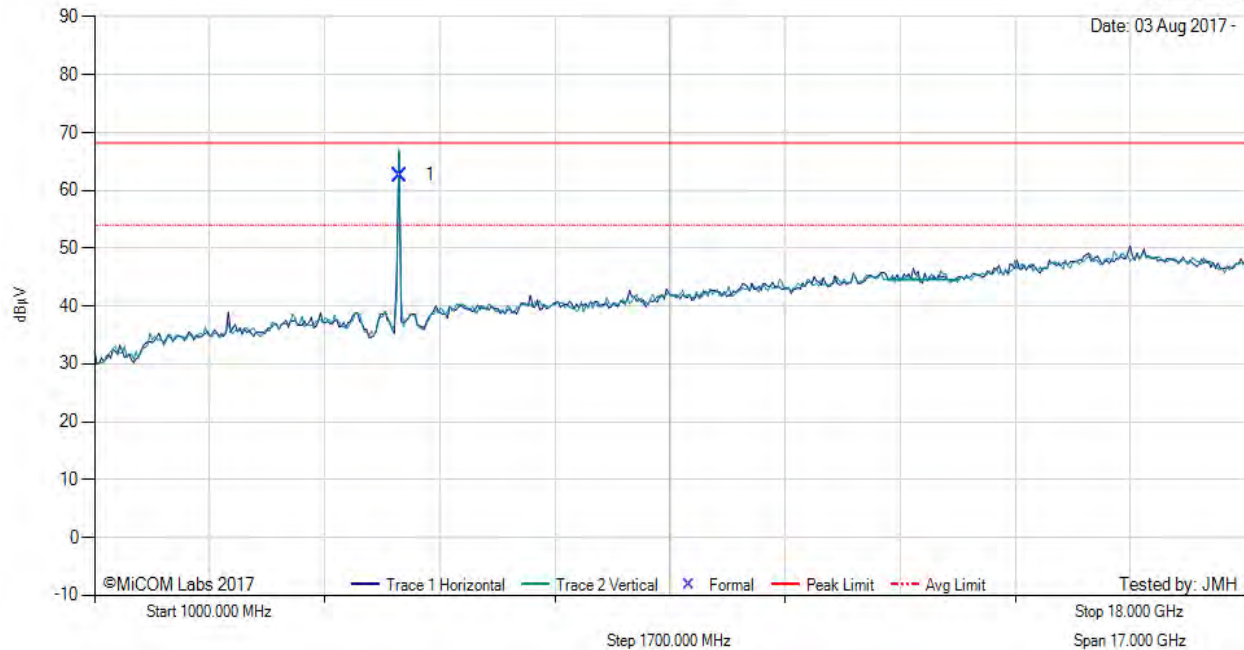
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 03 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5504.43	70.06	3.75	-11.18	62.63	Fundamental	Vertical	100	162	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH100 a mode.												

[back to matrix](#)

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.



TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5580.00 MHz, Antenna: Aruba AP-ANT-45, Power Setting: 72, Duty Cycle (%): 99

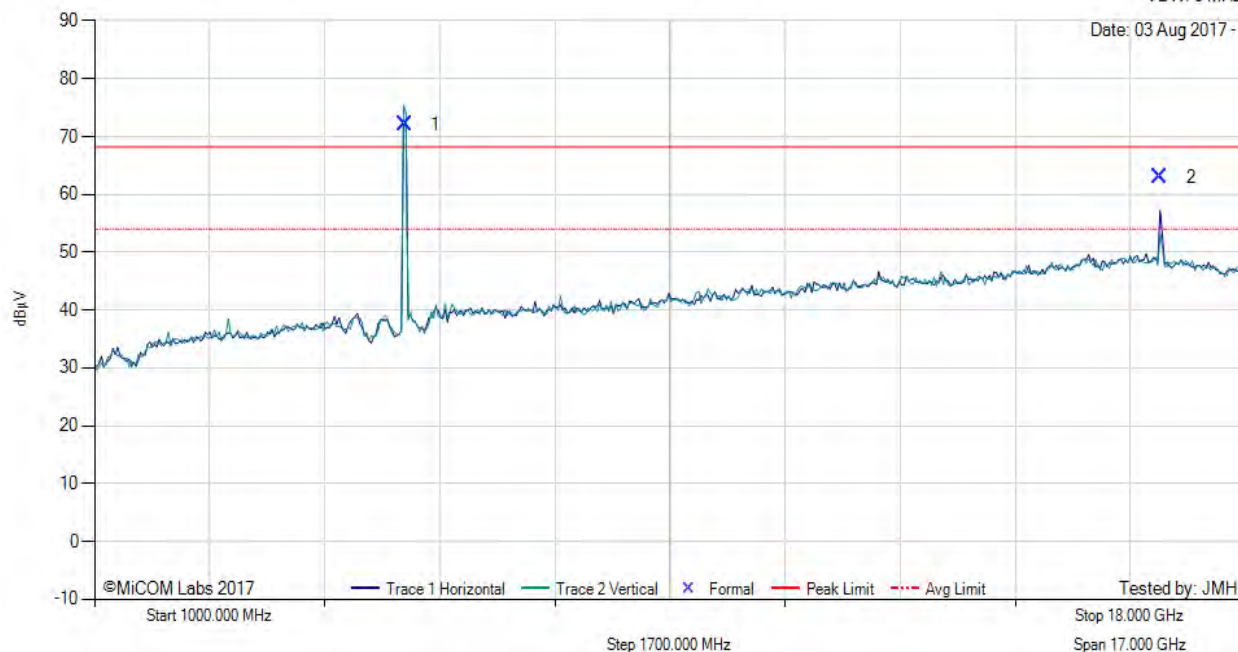
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 03 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5584.47	79.49	3.79	-11.19	72.09	Fundamental	Vertical	151	0	--	--	
2	16742.15	55.45	6.07	1.50	63.02	Max Peak	Horizontal	155	70	68.2	-5.2	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH116 a mode.

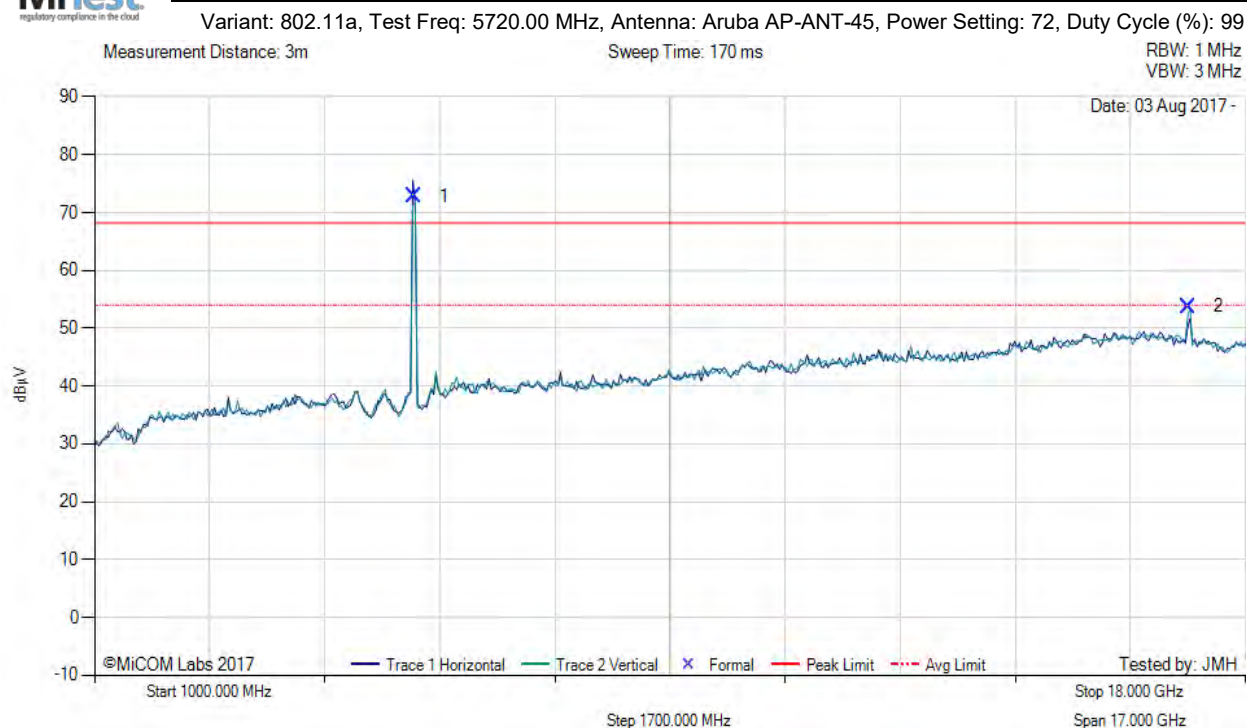
[back to matrix](#)



Title: Hewlett Packard Enterprise APIN0344 & APIN0345
To: FCC CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 90 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5712.48	79.82	3.83	-10.77	72.88	Fundamental	Horizontal	196	157	--	--	
2	17161.59	46.98	6.34	0.40	53.72	Peak (NRB)	Vertical	200	315	--	--	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH144 a mode.

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 91 of 103

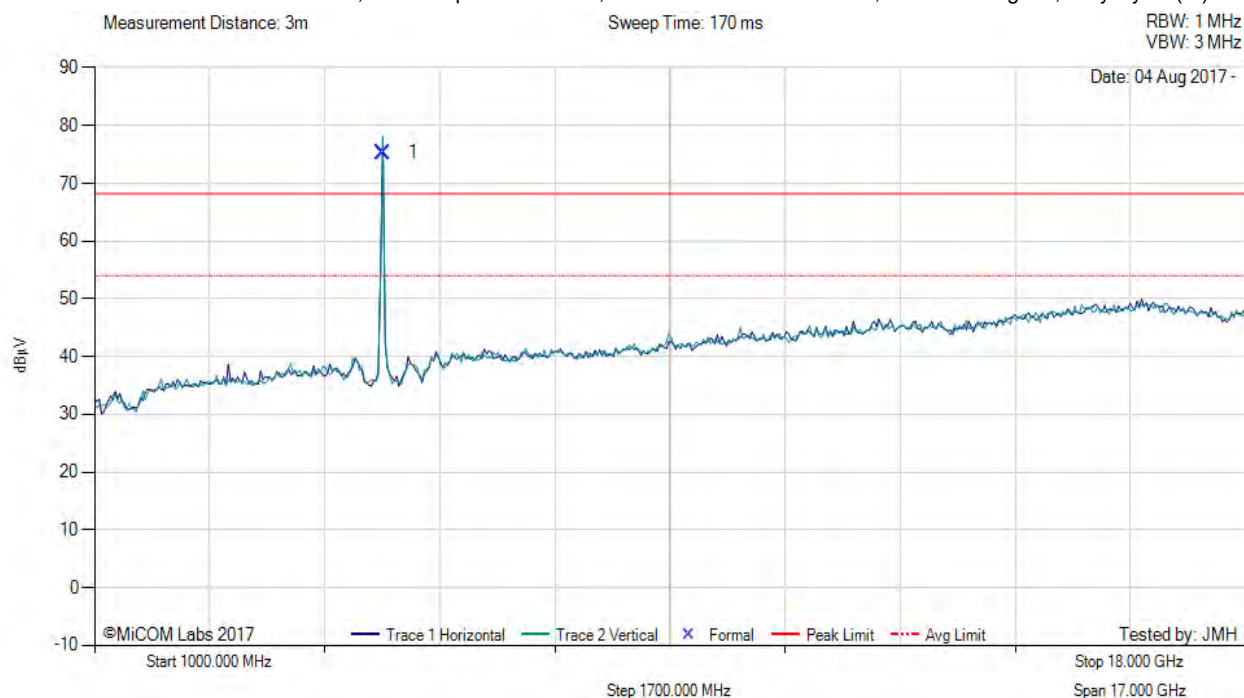
Antenna: AP-ANT-48

5250 - 5350 MHz

TX SPURIOUS & RESTRICTED BAND EMISSIONS



Variant: 802.11a, Test Freq: 5260.00 MHz, Antenna: Aruba AP-ANT-48, Power Setting: 72, Duty Cycle (%): 99



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5252.95	83.01	3.64	-11.33	75.32	Fundamental	Vertical	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH52 a mode.												

[back to matrix](#)

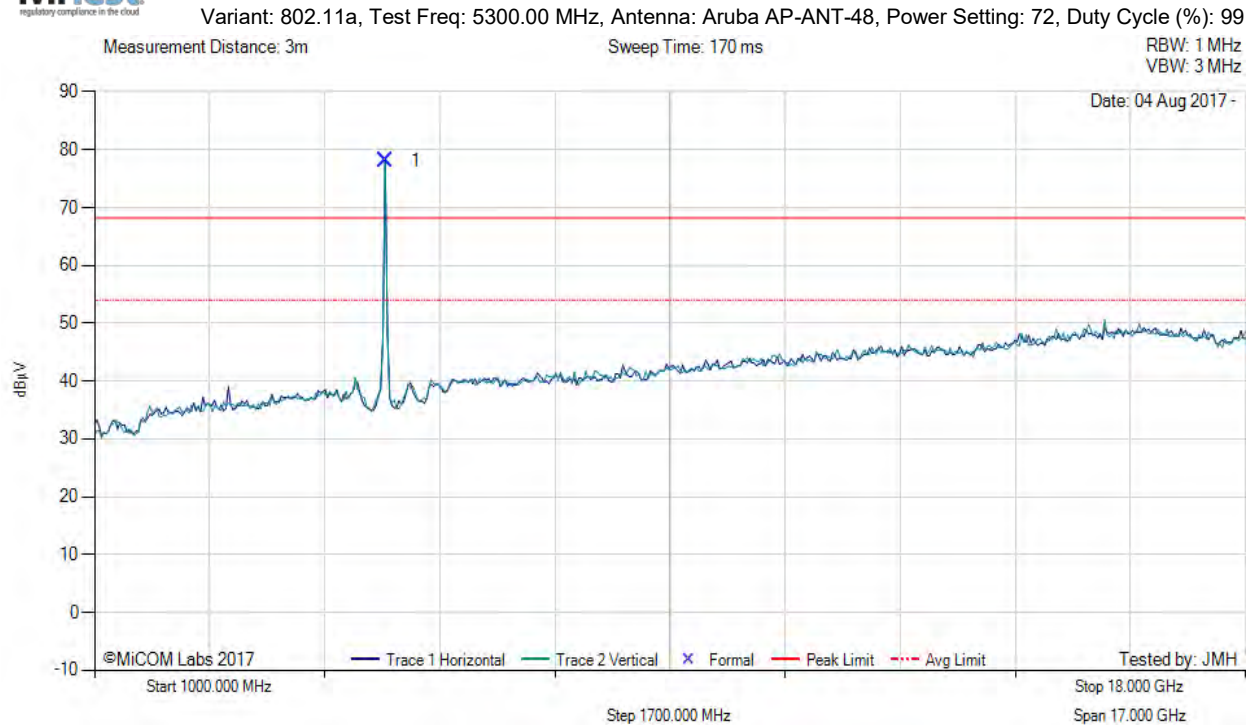
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.



Title: Hewlett Packard Enterprise APIN0344 & APIN0345
To: FCC CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 92 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5297.49	85.38	3.80	-11.11	78.07	Fundamental	Horizontal	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH60 a mode.												

[back to matrix](#)

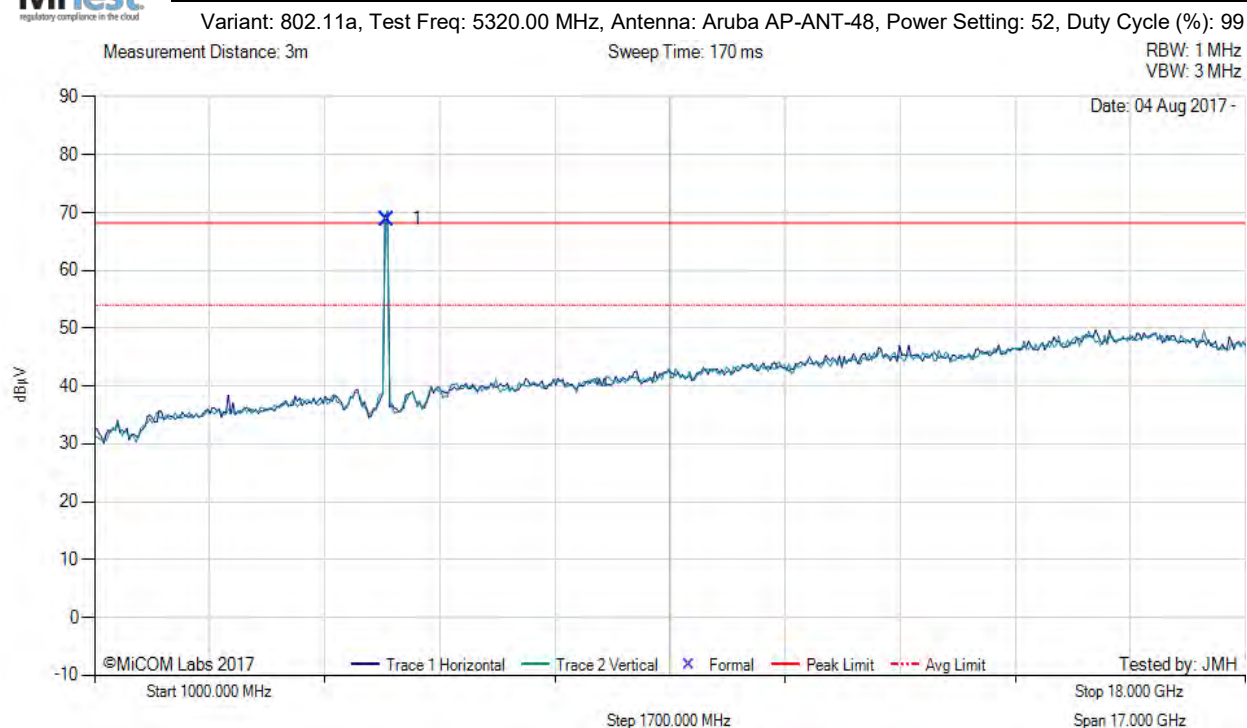
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.



Title: Hewlett Packard Enterprise APIN0344 & APIN0345
To: FCC CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 93 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5312.49	76.17	3.76	-11.07	68.86	Fundamental	Vertical	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH64 a mode.												

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 94 of 103

5470 - 5725 MHz

TX SPURIOUS & RESTRICTED BAND EMISSIONS



Variant: 802.11a, Test Freq: 5500.00 MHz, Antenna: Aruba AP-ANT-48, Power Setting: 52, Duty Cycle (%): 99

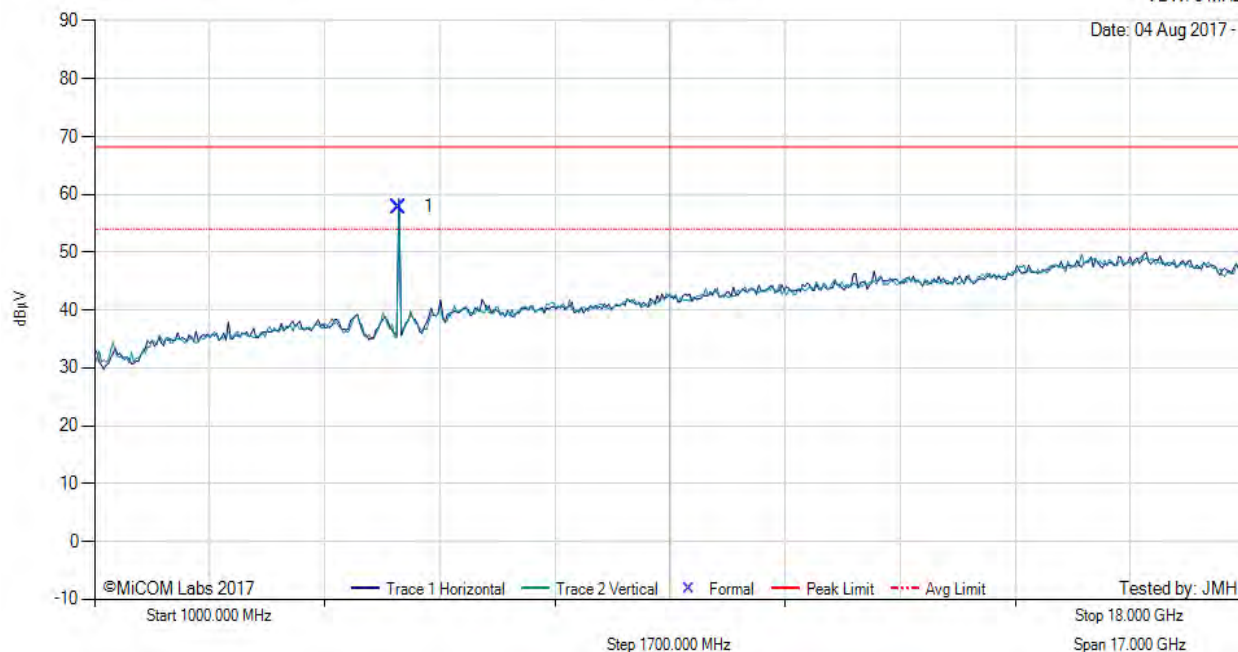
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 04 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5493.63	65.25	3.72	-11.17	57.80	Fundamental	Vertical	100	0	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH100 a mode.												

[back to matrix](#)

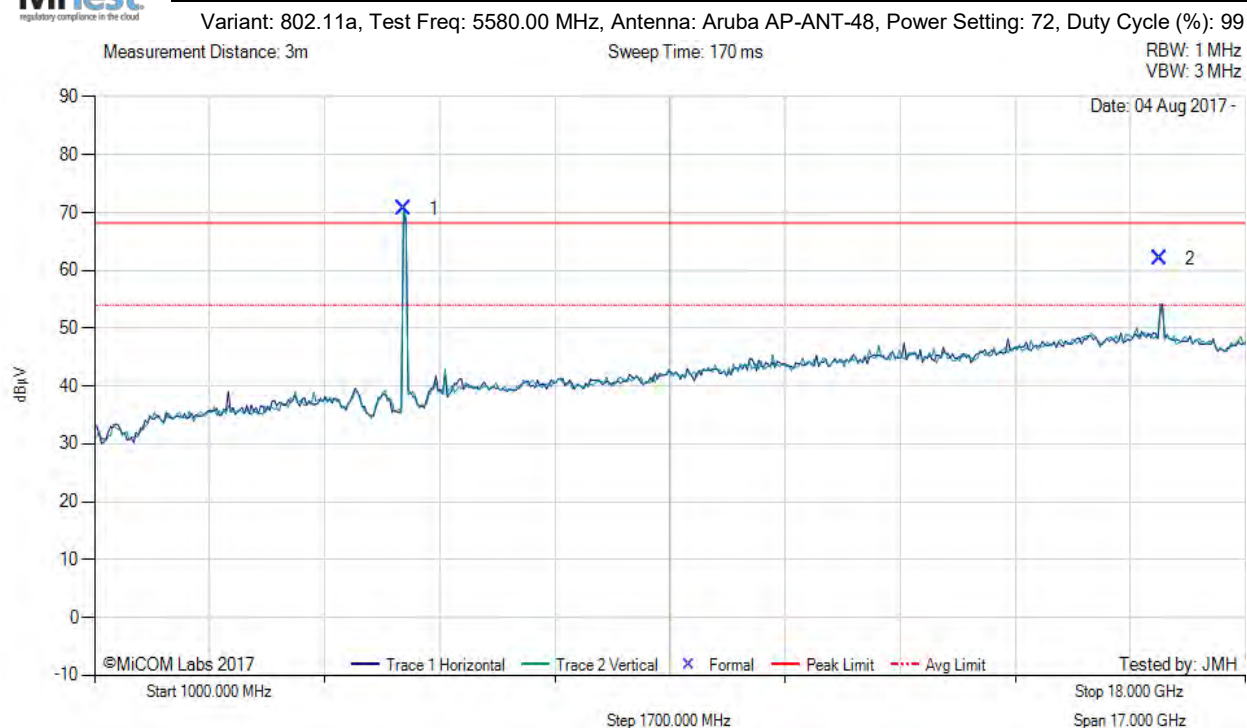
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.



Title: Hewlett Packard Enterprise APIN0344 & APIN0345
To: FCC CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 95 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5573.01	78.08	3.81	-11.21	70.68	Fundamental	Vertical	100	0	--	--	
2	16741.26	54.43	6.07	1.50	62.00	Max Peak	Vertical	194	53	68.2	-6.2	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH116 a mode.

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 96 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5720.00 MHz, Antenna: Aruba AP-ANT-48, Power Setting: 72, Duty Cycle (%): 99

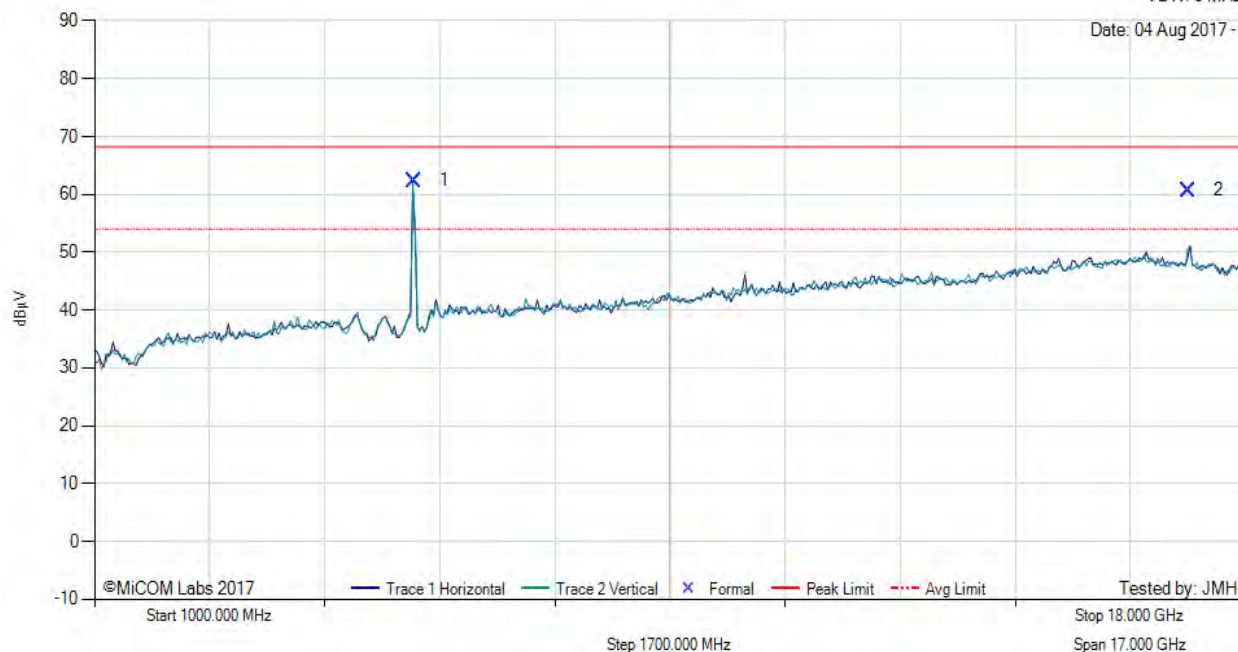
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 04 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5713.14	69.29	3.82	-10.77	62.34	Fundamental	Vertical	100	0	--	--	
2	17161.12	53.97	6.34	0.40	60.71	Max Peak	Vertical	198	315	68.2	-7.5	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH144 a mode.

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 97 of 103

Antenna: Metal Sheet

5250 - 5350 MHz

TX SPURIOUS & RESTRICTED BAND EMISSIONS



Variant: 802.11a, Test Freq: 5260.00 MHz, Antenna: Aruba Metal Sheet, Power Setting: 72, Duty Cycle (%): 99

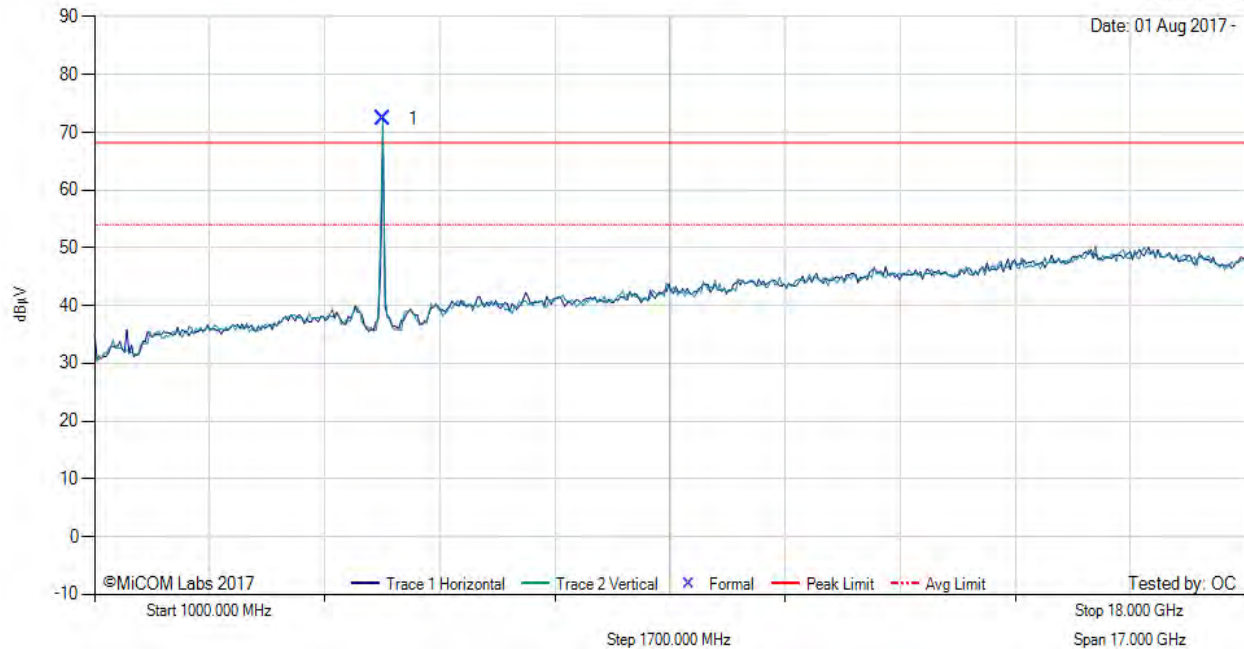
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 01 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5262.21	79.94	3.66	-11.28	72.32	Fundamental	Vertical	100	9	--	--	

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH52 a mode.

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 98 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5300.00 MHz, Antenna: Aruba Metal Sheet, Power Setting: 72, Duty Cycle (%): 99

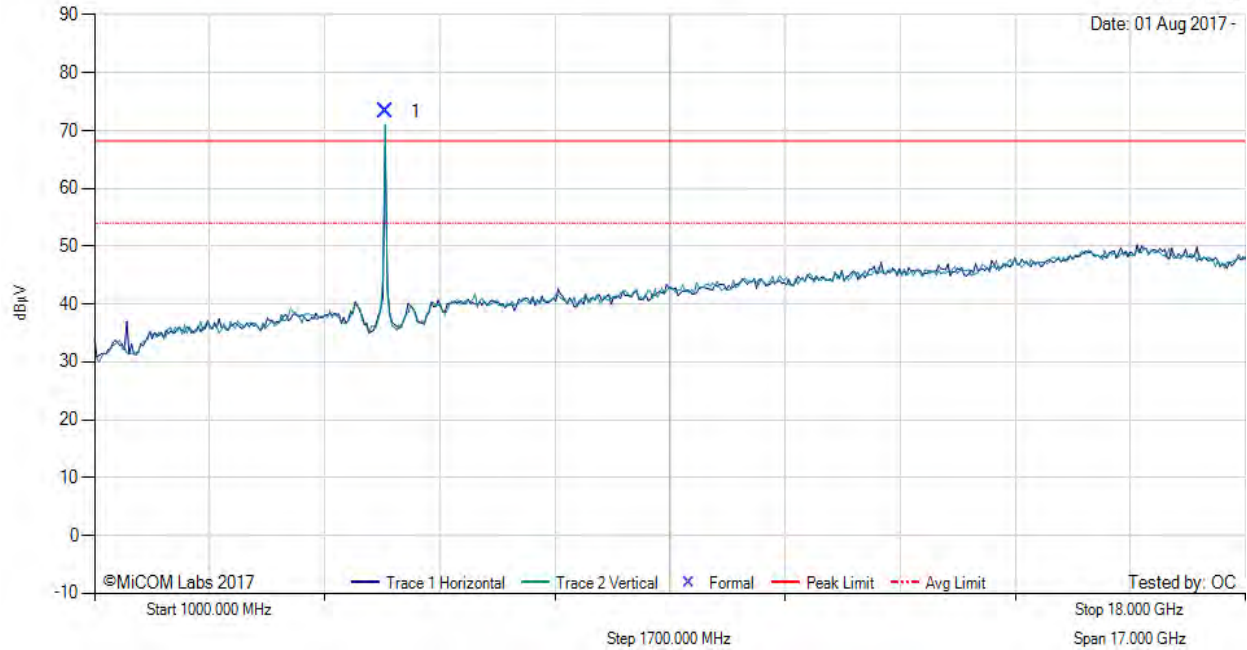
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 01 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5301.35	80.58	3.81	-11.09	73.30	Fundamental	Vertical	100	9	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH60 a mode.												

[back to matrix](#)

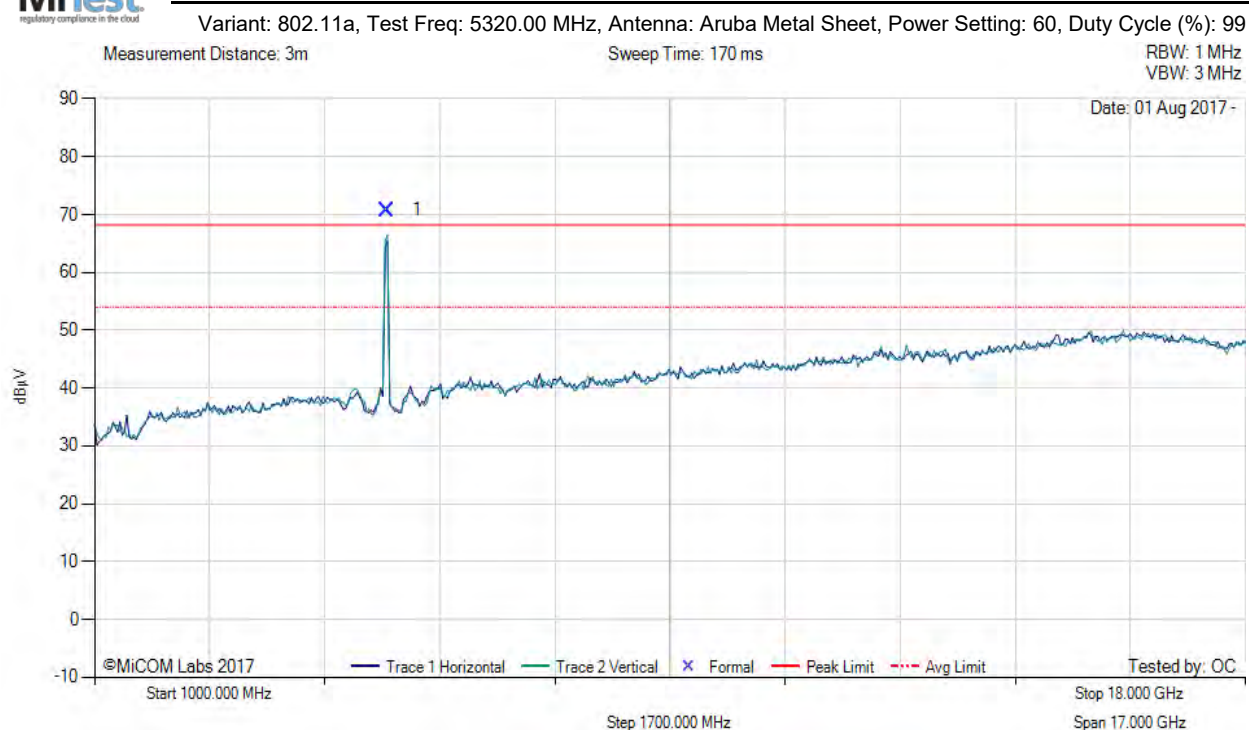
This test report may be reproduced in full only. The document may only be updated by MiCOM Labs personnel. All changes will be noted in the Document History section of the report.



Title: Hewlett Packard Enterprise APIN0344 & APIN0345
To: FCC CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 99 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5324.17	78.09	3.74	-11.06	70.77	Fundamental	Vertical	100	70	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH64 a mode.												

[back to matrix](#)

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 CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 100 of 103

5470 - 5725 MHz



TX SPURIOUS & RESTRICTED BAND EMISSIONS



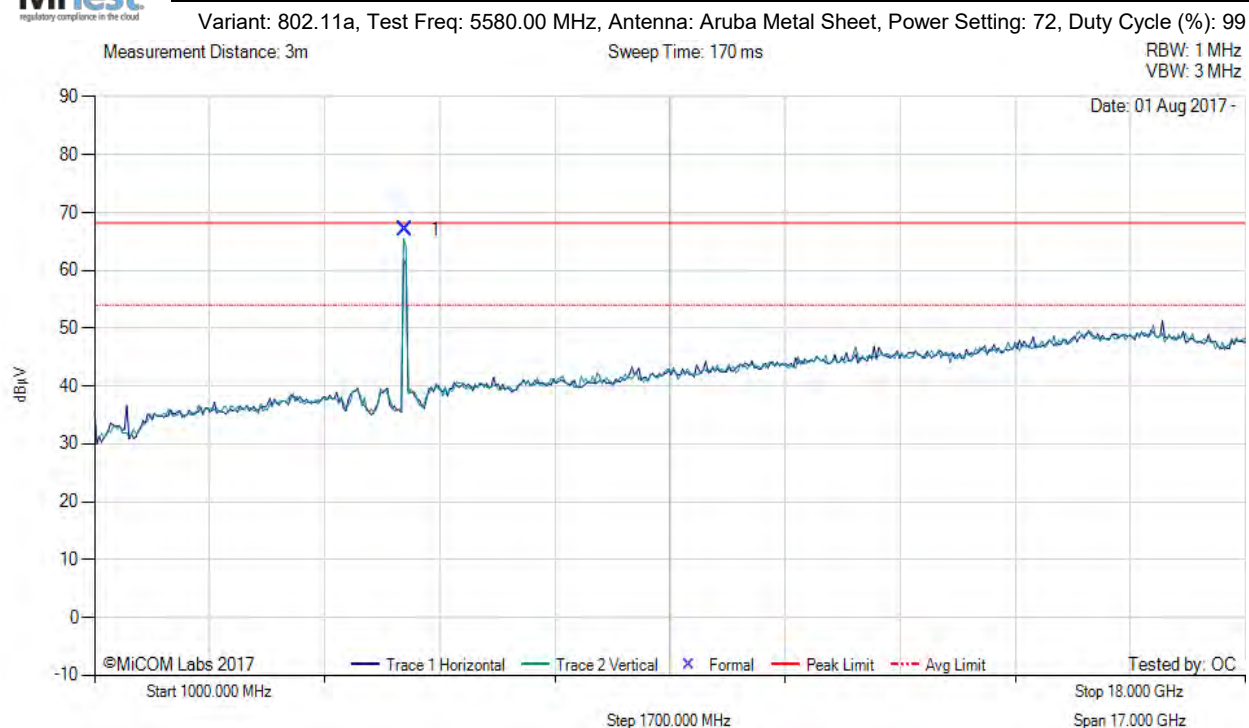
1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5501.46	62.87	3.75	-11.17	55.45	Fundamental	Vertical	100	10	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH100 a mode.												

[back to matrix](#)

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.



TX SPURIOUS & RESTRICTED BAND EMISSIONS



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5581.39	74.50	3.80	-11.20	67.10	Fundamental	Vertical	100	14	--	--	
Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH116 a mode.												

[back to matrix](#)



Title: Hewlett Packard Enterprise APIN0344 & APIN0345
To: FCC CFR 47 Part 15 Subpart E 15.407 DFS Bands
Serial #: HPEN111-U12_Radiated_RSE_Radio 0 Rev A
Issue Date: 24th October 2017
Page: 102 of 103



TX SPURIOUS & RESTRICTED BAND EMISSIONS

Variant: 802.11a, Test Freq: 5720.00 MHz, Antenna: Aruba Metal Sheet, Power Setting: 72, Duty Cycle (%): 99

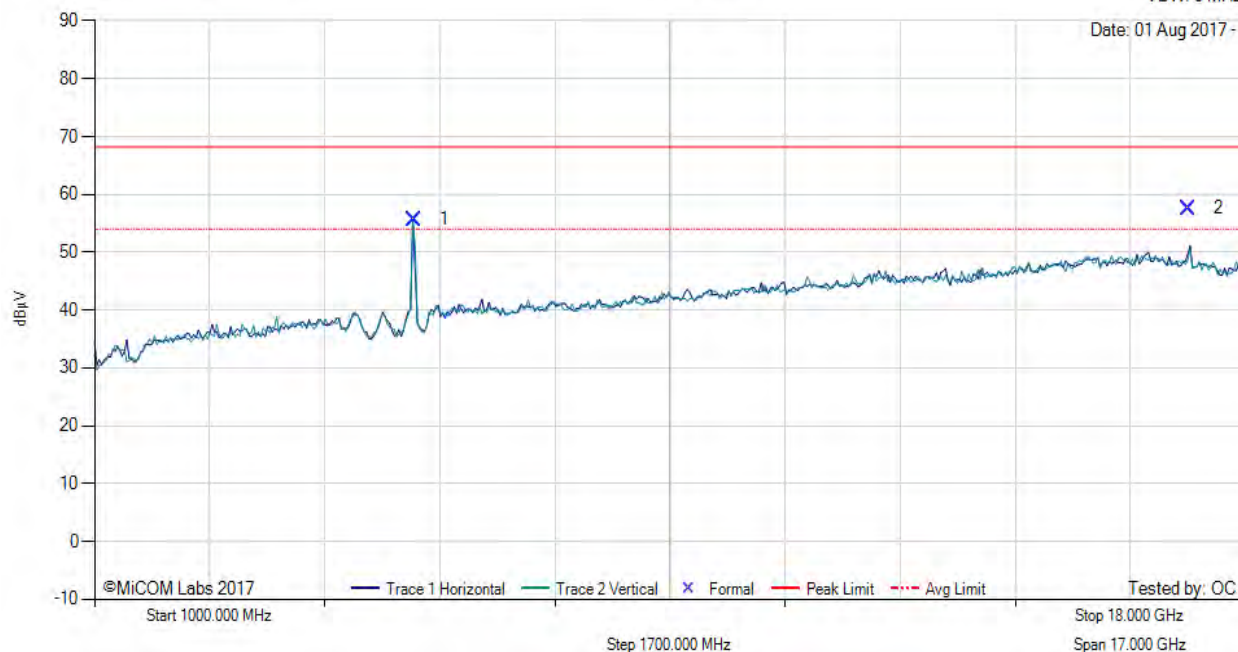
Measurement Distance: 3m

Sweep Time: 170 ms

RBW: 1 MHz

VBW: 3 MHz

Date: 01 Aug 2017 -



1000.00 - 18000.00 MHz												
Num	Frequency MHz	Raw dBμV	Cable Loss dB	AF dB	Level dBμV/m	Measurement Type	Pol	Hgt cm	Azt Deg	Limit dBμV/m	Margin dB	Pass /Fail
1	5713.58	62.58	3.82	-10.76	55.64	Fundamental	Horizontal	100	83	--	--	
2	17160.60	50.88	6.34	0.39	57.61	Max Peak	Horizontal	158	178	68.2	-10.6	Pass

Test Notes: EUT powered by AC/DC PS. Connected to laptop outside chamber via telnet software. Annotation: 2.4F, 5GF Mode 1 Radio 0 CH144 a mode.

[back to matrix](#)

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.



575 Boulder Court
Pleasanton, California 94566, USA
Tel: +1 (925) 462 0304
Fax: +1 (925) 462 0306
www.micomlabs.com