Product Service

FCC Test Report

Project Number	:	4842015258100	Date of Issue: November 23, 2015
Model / Serial No.	:	AP4030DN, AP4130DN,	
Product Type	:	Wireless LAN Access Point	
Applicant	:	HUAWEI TECHNOLOGIES CO., LTD	
Manufacturer	:	HUAWEI TECHNOLOGIES CO., LTD	
License holder	:	HUAWEI TECHNOLOGIES CO., LTD	
Address	:	Administration Building, Huawei Base, Bantian, Longgang District Shenzhen 518129, P.R.C	
Test Result	:	■Positive ☐ Negative	
Total pages		29	
Date of Test	:	Nov. 15, 2015	
Prepared by	:		
Approved by	:		

TÜV SÜD CHINA

TÜV SÜD Certification and Testing (China) Co., Ltd.
10 Huaxia Road(m), Dongting, Wuxi, Jiangsu, P.R.China PC:214100
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1. Test Facility

Test Site: TÜV SÜD Certification and Testing (China) Co., Ltd.

10 Huaxia M. Road, Wuxi, Jiangsu, 214100, P.R. China

FCC Registration Number: 767285

TÜV SÜD Certification and Testing (China) Co., Ltd. is an accredited test laboratory, whose measurement data is accepted in conjunction with applications for certifications under part 15 or 18 of the Commission's rules.

Ambient Condition in laboratory:

Items	Test	Required(IEC68-1)	Actual
Temperature(°C)	ANSI.C 63.4 CE	15-35	23°C
Humidity (%)		25-75	58%
Atmospheric Pressure(mbar)		860-1060	1028 mBar
Temperature(°C)	ANSI.C 63.4 Antenna power conduction	15-35	23°C
Humidity (%)		25-75	55%
Atmospheric Pressure(mbar)		860-1060	1028 mBar
Temperature(°C)	ANSI.C 63.4 RE	15-35	23°C
Humidity (%)		25-75	55%
Atmospheric Pressure(mbar)		860-1060	1028 mBar

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2. EUT Information

2.1 EUT Description

Product Type	:	Wireless LAN Access Point
Model / Serial No.	:	AP4030DN, AP4130DN,
EUT Voltage	:	120V

2.2 EUT Configuration

AP4030DN, AP4130DN,	:	Wireless LAN Access Point

2.3 EUT Operating Mode

The equipment under test was operated under the following conditions during emissions testing:

☐ - Standby

☐ - Test Program (H - Pattern)

☐ - Test Program (Color Bar)

☐ - Test Program (Customer Specified)

■ - Normal Operating Mode

■ - Power on

2.4 Peripheral devices and interface cables were connected during the testing:

☐ - _____ Type : _____

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☐ - _____ Type : _____

☐ - _____ Type : _____

2.5 EUT Exercise Software:

The EUT is not programmable and does not use software.

2.6 EUT Modification

3. Test Summary

Test	Specification	Test Result	Remark
Conducted Emission	FCC part 15.107	Complied	Refer to page 6-10
Antenna power conduction	FCC part 15.111(a)	N/A	N/A
Radiated Emission	FCC part 15.109	Complied	Refer to page 11-22

Remarks:

Due to the fact that all the models have the same circuits configuration, so only AP4030DN was tested.

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4. Conducted Emission

4.1 Test Equipment

The following test Equipment are used :

	Model Number	Manufacturer	Description	Calibration Date	Interval(year)
■ -	ESR7	Rohde & Schwarz	EMI Test Receiver	2016/11/07	1
☐ -		TÜV PS	Artificial Hand	N/A	N/A
■ -	ENV216	Rohde & Schwarz	Two-Line V-Network	2016/11/07	1
☐ -	No.2	Jinlida	Shielding Room	N/A	N/A
☐ -	LAG-120A	LEADER	Audio Generator	2014.11.22	1

4.2 Test Specification

Tests are performed according to FCC part 15 : 2013,subpart B. Limit as below:

FCC part 15 subpart B para. 15.107 Limits (dBμV)				
Frequency (MHz)	Class A		Class B	
	QP	AV	QP	AV
0.15-0.5	79	66	66-56	56-46
0.5-5.0	73	60	56	46
5.0-30	73	60	60	50

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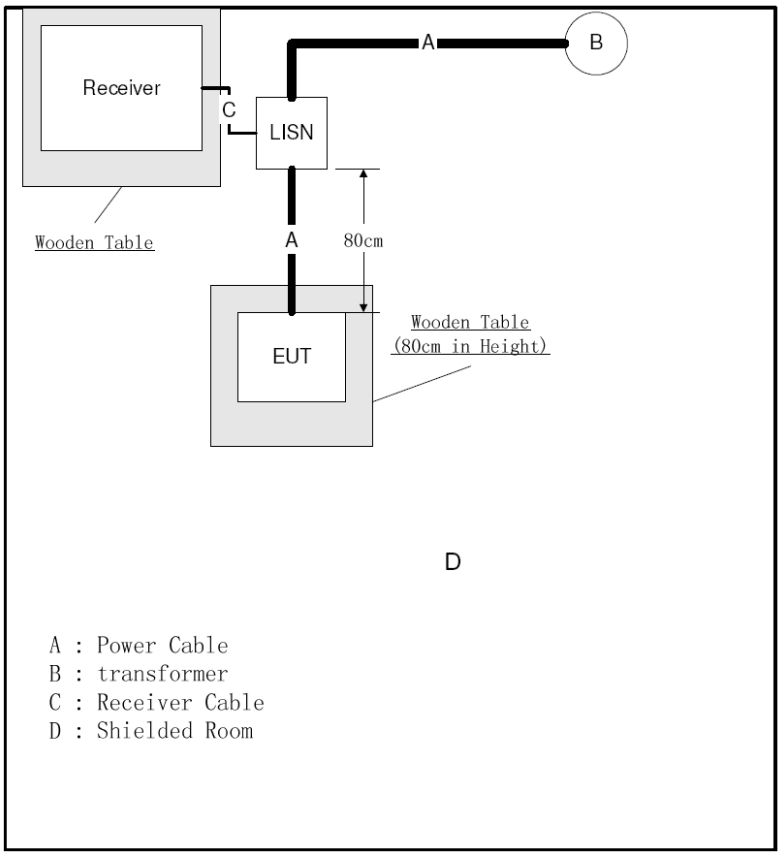
4.3 Test Procedure

The test is performed in shield room. EUT is placed on the table which is 80cm above ground plane and connected to a line Impedance Stabilization Network (LISN). The conducted emission is scanned over the frequency from 150KHz to 30MHz with peak detector. A final measurement is performed with quasi-peak detector and average detector. IF bandwidth is 10KHz.

4.4 Test Setup



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4.5 Test Photo

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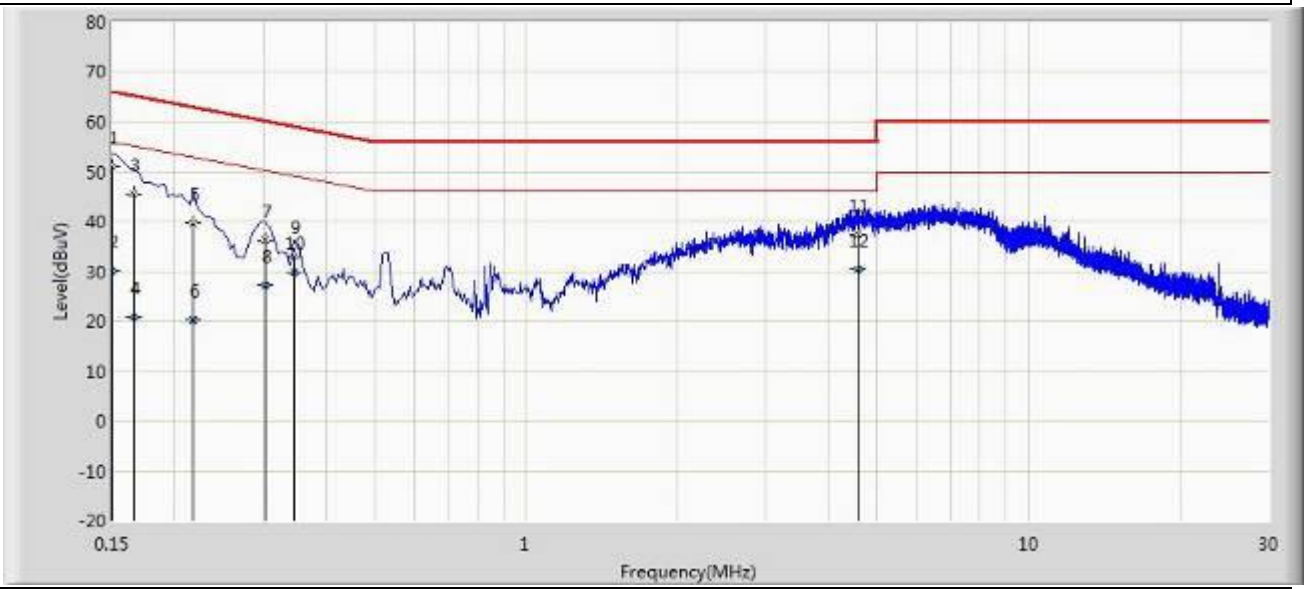
4.6 Test Result

Site: SR2	Time: 2015/11/15 - 16:38
Limit: FCC_Part15.107_CE_AC Power_ClassB	Engineer: Roy Cheng
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: Access point	Power: AC 120V/60Hz
Note: Powered by Adapter	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		*	0.150	51.018	39.850	-14.982	66.000	11.168	QP
2			0.150	30.187	19.018	-25.813	56.000	11.168	AV
3			0.166	45.392	35.304	-19.767	65.158	10.087	QP
4			0.166	20.866	10.779	-34.292	55.158	10.087	AV
5			0.218	39.663	29.718	-23.232	62.895	9.945	QP
6			0.218	20.358	10.413	-32.537	52.895	9.945	AV
7			0.302	36.270	26.264	-23.918	60.188	10.006	QP
8			0.302	27.236	17.230	-22.952	50.188	10.006	AV
9			0.346	33.092	23.051	-25.966	59.058	10.041	QP
10			0.346	29.893	19.852	-19.165	49.058	10.041	AV
11			4.586	37.273	27.277	-18.727	56.000	9.996	QP
12			4.586	30.380	20.383	-15.620	46.000	9.996	AV

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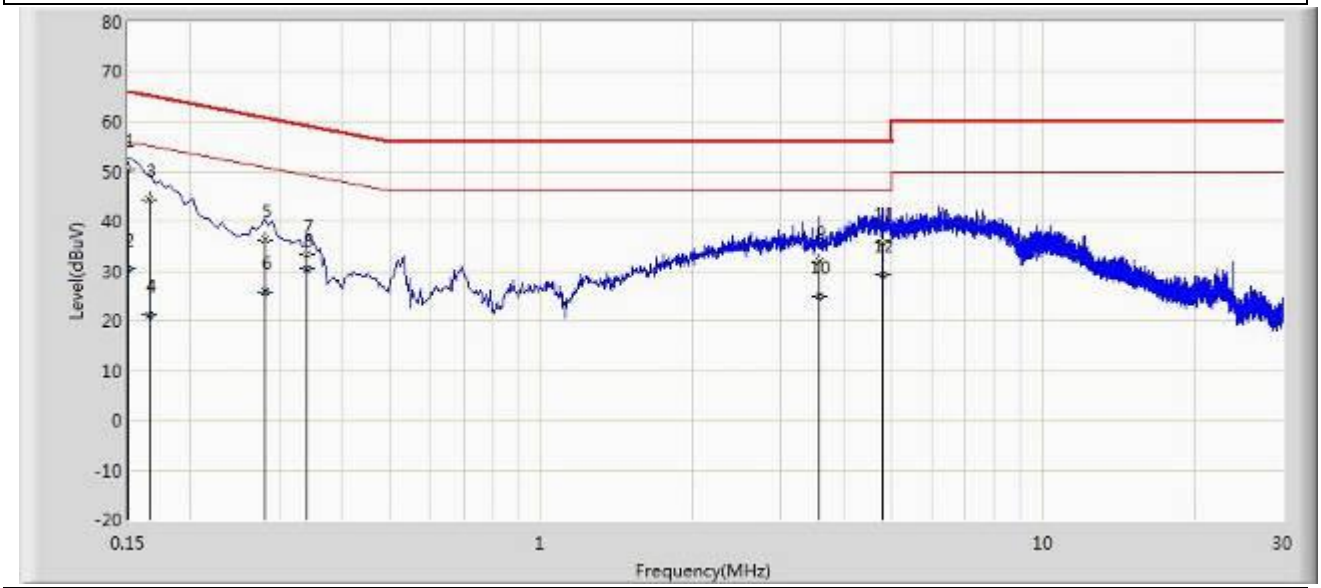
Site: SR2	Time: 2015/11/15 - 16:54
Limit: FCC_Part15.107_CE_AC Power_ClassB	Engineer: Roy Cheng
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: Access point	Power: AC 120V/60Hz
Note: Powered by Adapter	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		*	0.150	50.322	39.180	-15.678	66.000	11.142	QP
2			0.150	30.442	19.300	-25.558	56.000	11.142	AV
3			0.166	44.269	34.198	-20.889	65.158	10.071	QP
4			0.166	21.222	11.151	-33.936	55.158	10.071	AV
5			0.282	36.142	26.118	-24.614	60.757	10.025	QP
6			0.282	25.696	15.671	-25.061	50.757	10.025	AV
7			0.342	33.247	23.178	-25.908	59.155	10.069	QP
8			0.342	30.493	20.425	-18.661	49.155	10.069	AV
9			3.578	31.827	21.904	-24.173	56.000	9.922	QP
10			3.578	24.828	14.906	-21.172	46.000	9.922	AV
11			4.802	35.762	25.727	-20.238	56.000	10.035	QP
12			4.802	29.322	19.287	-16.678	46.000	10.035	AV

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5 Radiated Emission

5.1 Test Equipment

The following test Equipment are used :

	Model Number	Manufacturer	Description	Calibration Date	Interval(year)
■ -	ESR7	Rohde & Schwarz	EMI Test Receiver	2016.11.07	1
■ -	VULB 9162	Schwarzbeck	Broadband Antenna	2016.11.08	1
☐ -			10m Chamber	N/A	N/A
■ -	AP01G18	MRT	Preamplifier	2015.12.13	1
■ -			3m Chamber	N/A	N/A
■ -	E4447A	Agilent	Spectrum Analyzer	2015.12.09	1
■ -	BBHA9120D	Rohde & Schwarz	Broad-Band Horn Antenna 1-18GHz	2016.11.08	1

5.2 Test Specification

Tests are performed according to FCC part 15 : 2013,subpart B. Limit as below:

FCC part 15 subpart B para. 15.109 Limits (dBμV/m)				
Frequency (MHz)	Class A		Class B	
	Distance	QP	Distance	QP
30-88	10m	39	3m	40
88-216	10m	43.5	3m	43.5
216-960	10m	46.4	3m	46

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Above 960	10m	49.5	3m	54
Frequency (GHz)	Class B			
	Distance	PK	Distance	AV
1-18	3m	74	3m	54

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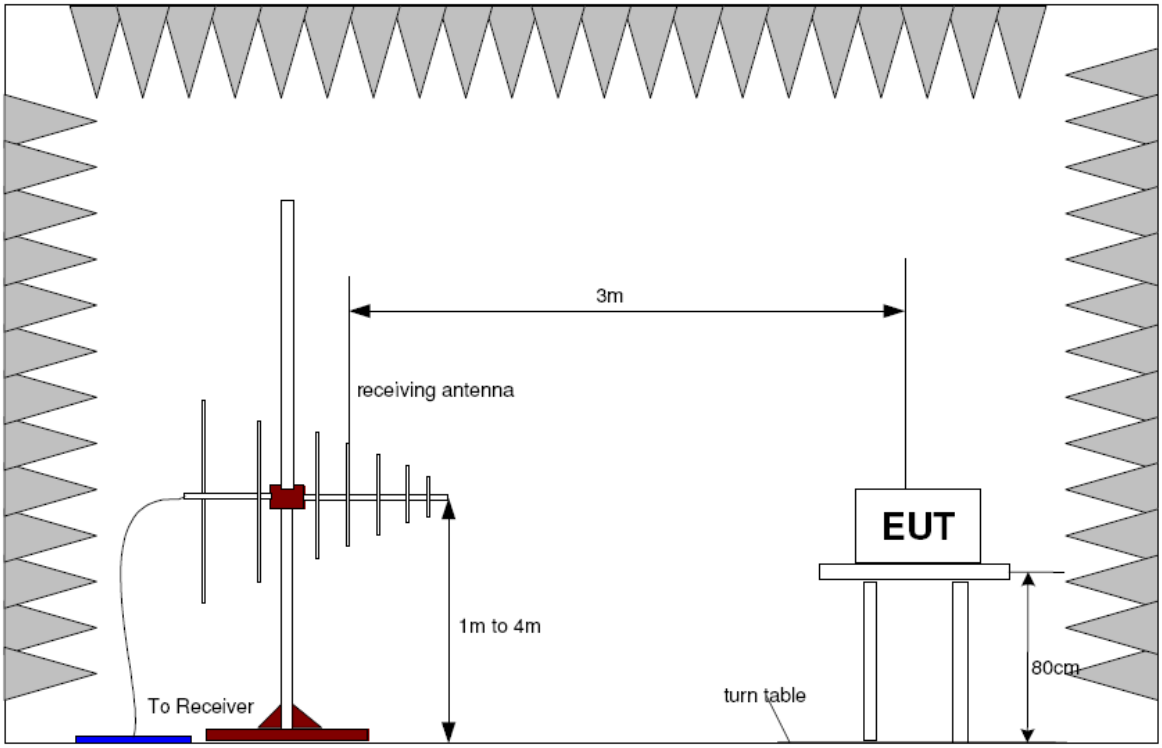
6.3 Test Procedure

The EUT is placed on a turntable which is 80cm above ground plane. The turn table rotates 360 degrees and antenna moves up and down between 1m and 4 m to find maximum emission. Both horizontal and vertical polarizations of antenna are set in the measurement. For class A equipment, the EUT is positioned at 10m away from antenna and for class B equipment, the EUT is positioned at 3m away from antenna.

6.4 Test Setup



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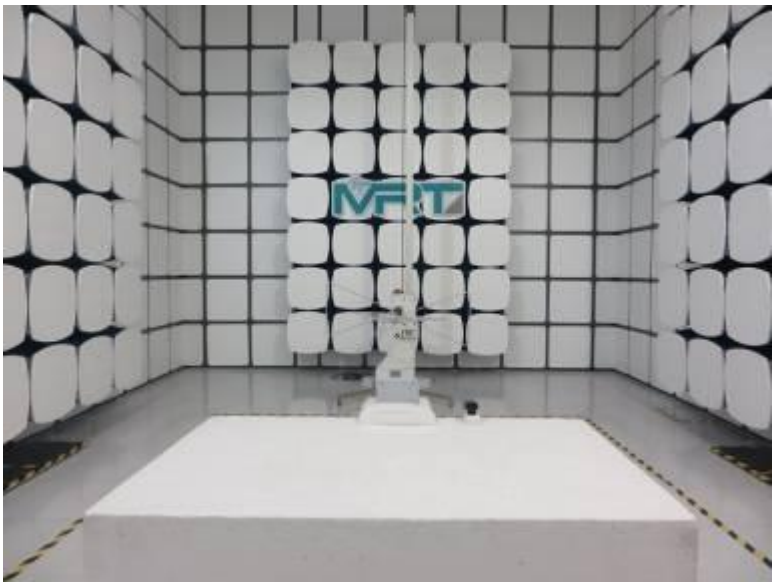
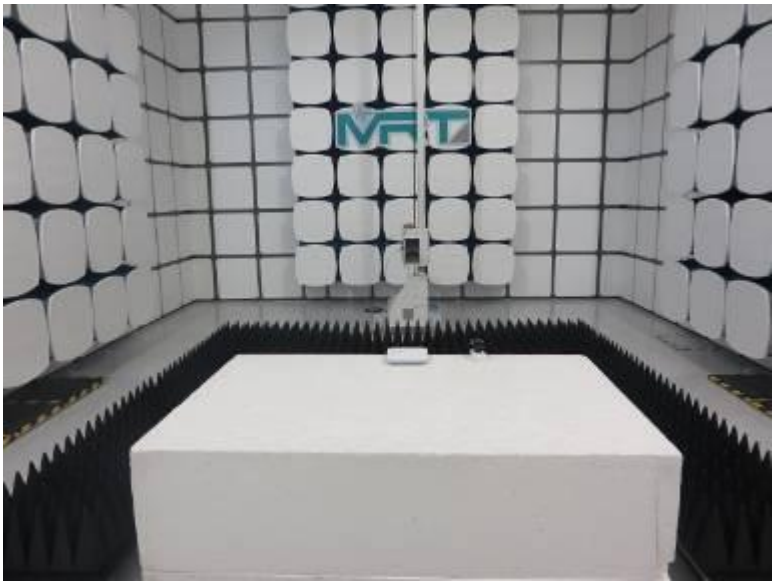
6.5 Test Photo





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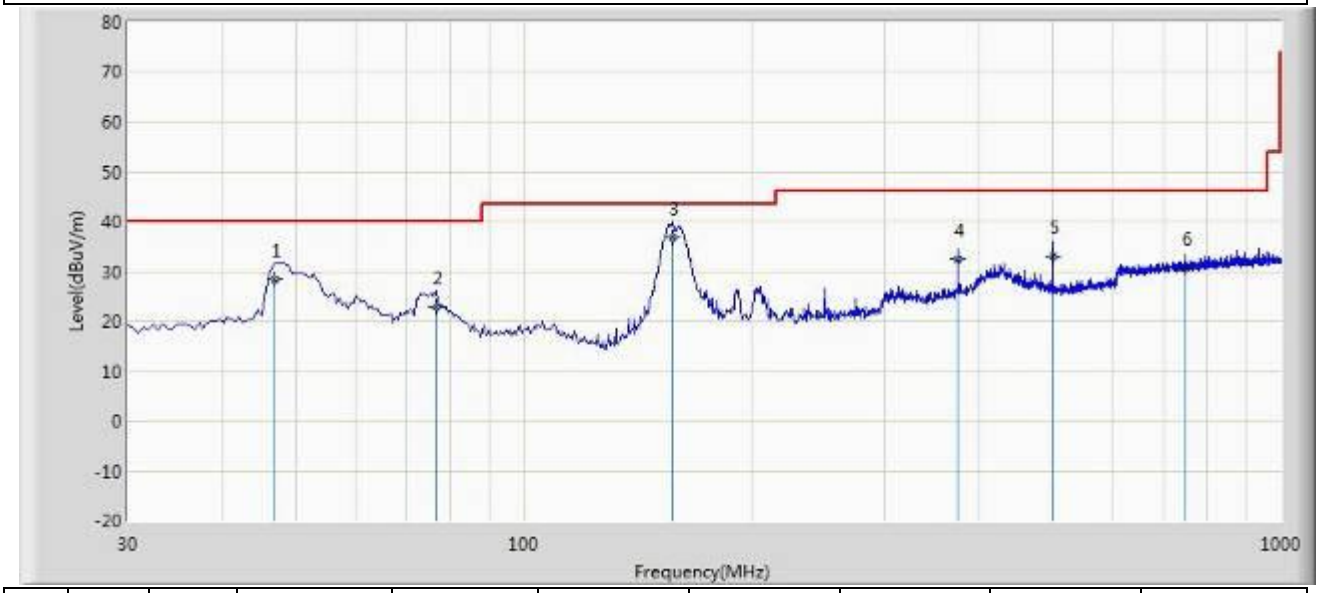
6.6 Test Result

Site: AC1	Time: 2015/11/15 - 17:41
Limit: FCC_Part15.109_RE(3m)_ClassB	Engineer: Roy Cheng
Probe: VULB9162_0.03-8GHz	Polarity: Horizontal
EUT: Access point	Power: AC 120V/60Hz
Note: Powered by Adapter	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			46.975	28.542	13.640	-11.458	40.000	14.902	QP
2			76.560	22.902	13.580	-17.098	40.000	9.322	QP
3		*	157.530	36.697	27.000	-6.803	43.500	9.697	QP
4			374.835	32.554	16.340	-13.446	46.000	16.214	QP
5			499.965	32.999	14.670	-13.001	46.000	18.328	QP
6			750.225	30.614	8.360	-15.386	46.000	22.253	QP

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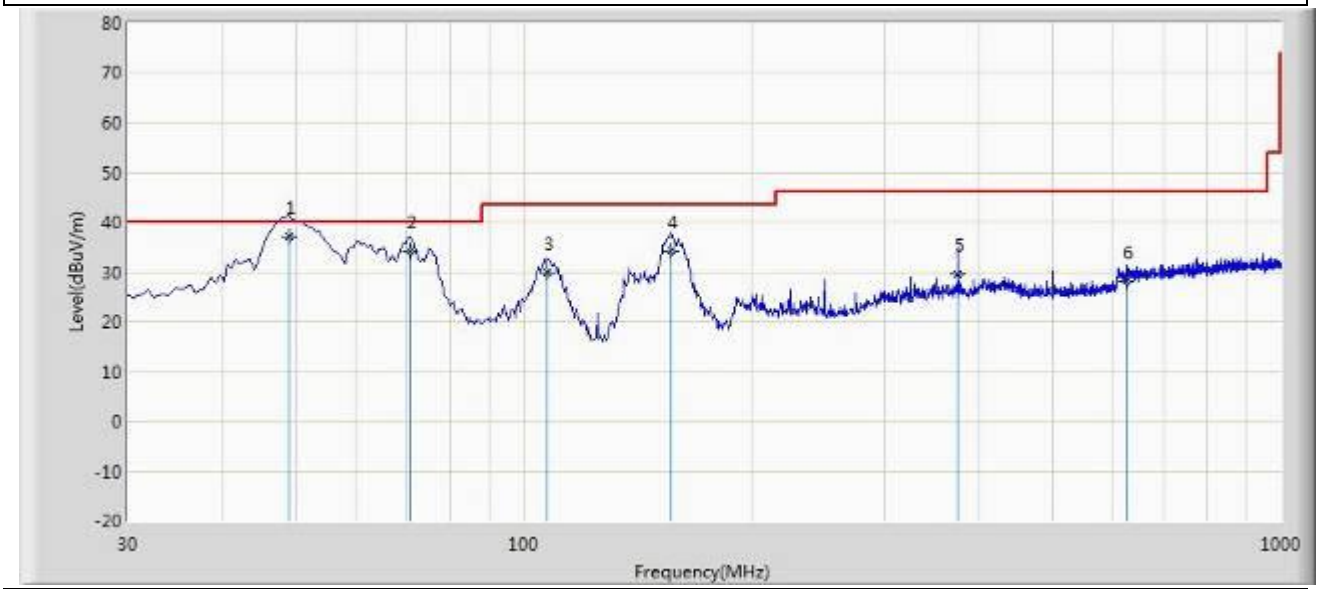
Site: AC1	Time: 2015/11/16 - 21:42
Limit: FCC_Part15.109_RE(3m)_ClassB	Engineer: Roy Cheng
Probe: VULB9162_0.03-8GHz	Polarity: Vertical
EUT: Access point	Power: AC 120V/60Hz
Note: Powered by Adapter	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	48.915	37.110	22.240	-2.890	40.000	14.870	QP
2			70.740	34.138	23.470	-5.862	40.000	10.668	QP
3			107.600	29.910	16.940	-13.590	43.500	12.970	QP
4			156.585	34.294	24.630	-9.206	43.500	9.664	QP
5			374.835	29.684	13.470	-16.316	46.000	16.214	QP
6			625.095	28.039	7.640	-17.961	46.000	20.399	QP

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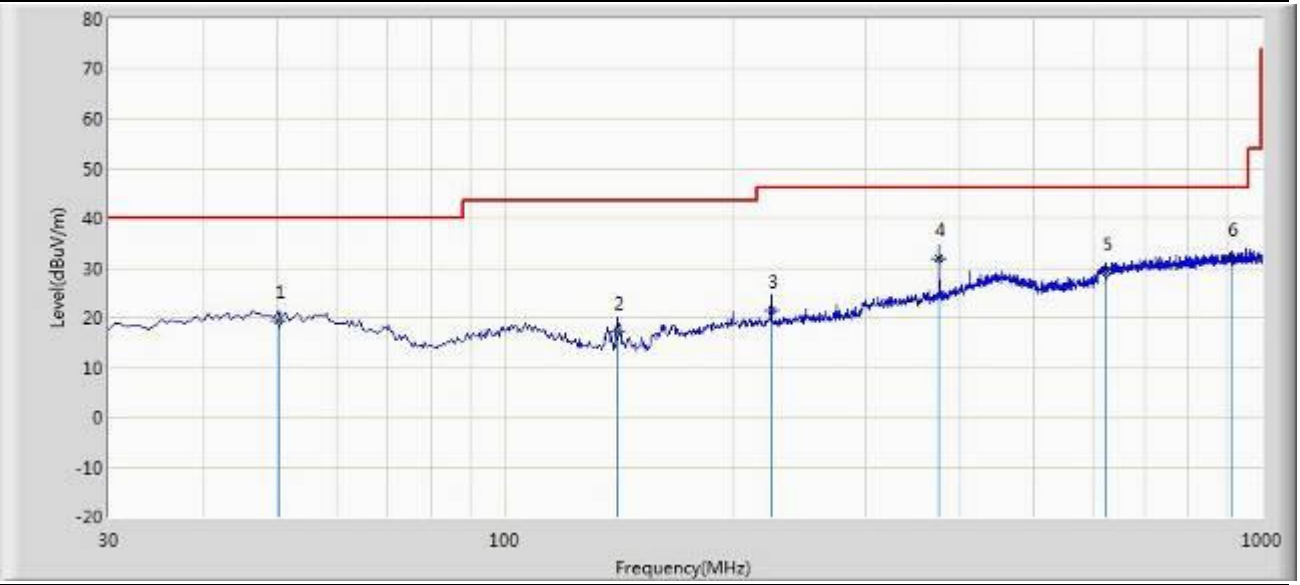
Site: AC1	Time: 2015/11/15 - 17:56
Limit: FCC_Part15.109_RE(3m)_ClassB	Engineer: Roy Cheng
Probe: VULB9162_0.03-8GHz	Polarity: Horizontal
EUT: Access point	Power: AC 120V/60Hz
Note: Powered by POE	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			50.370	19.512	4.680	-20.488	40.000	14.832	QP
2			141.065	17.060	7.640	-26.440	43.500	9.420	QP
3			224.970	21.472	8.640	-24.528	46.000	12.832	QP
4			374.835	31.854	15.640	-14.146	46.000	16.214	QP
5			621.700	28.992	8.640	-17.008	46.000	20.352	QP
6		*	911.730	31.879	7.640	-14.121	46.000	24.239	QP

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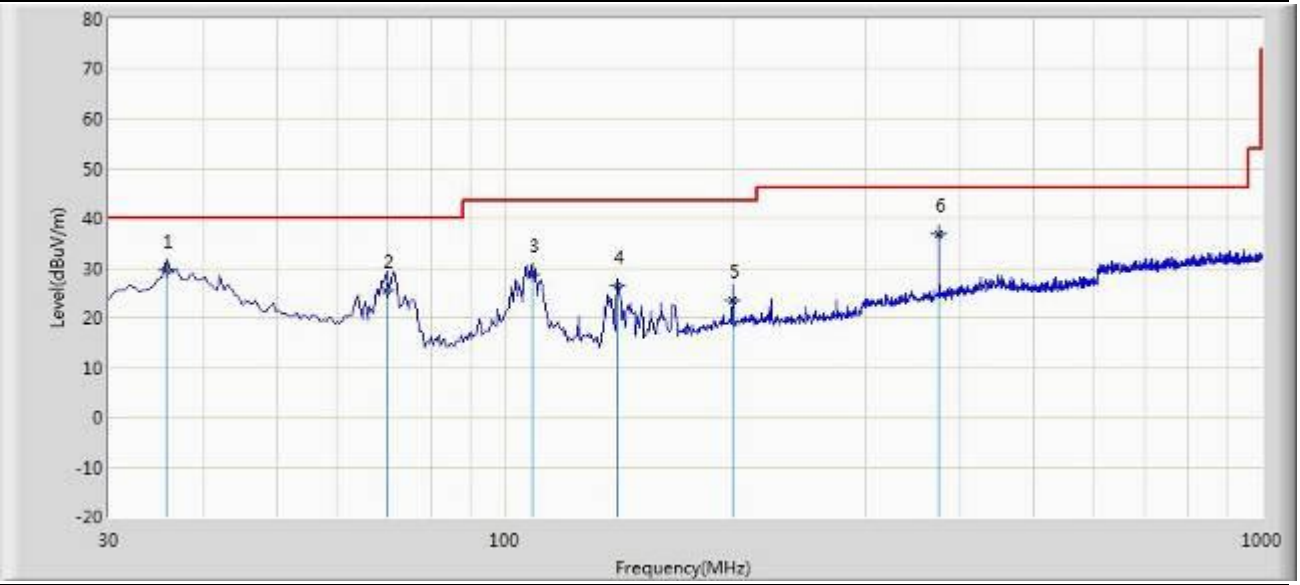
Site: AC1	Time: 2015/11/15 - 18:08
Limit: FCC_Part15.109_RE(3m)_ClassB	Engineer: Roy Cheng
Probe: VULB9162_0.03-8GHz	Polarity: Vertical
EUT: Access point	Power: AC 120V/60Hz
Note: Powered by POE	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			35.820	29.477	16.480	-10.523	40.000	12.997	QP
2			69.770	25.574	14.670	-14.426	40.000	10.904	QP
3			109.055	28.568	15.640	-14.932	43.500	12.928	QP
4			141.065	26.260	16.840	-17.240	43.500	9.420	QP
5			200.235	23.582	11.350	-19.918	43.500	12.231	QP
6		*	374.835	36.684	20.470	-9.316	46.000	16.214	QP

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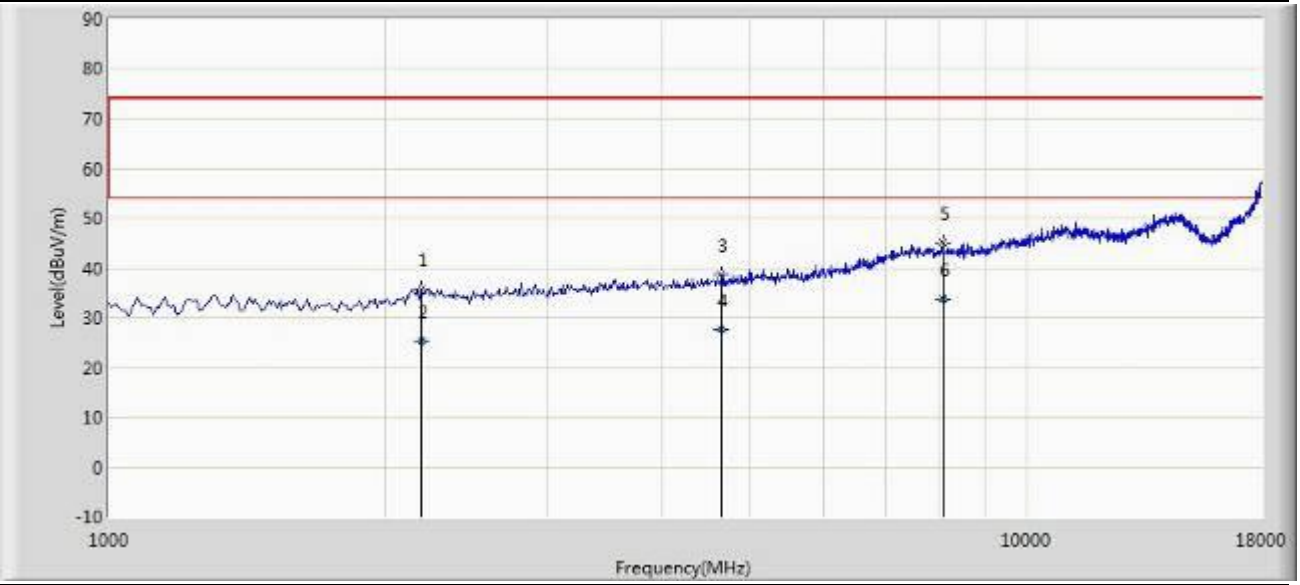
Site: AC1	Time: 2015/11/16 - 20:57
Limit: FCC_Part15.109_RE(3m)_ClassB	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Access point	Power: AC 120V/60Hz
Note: Powered by Adapter	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2190.000	35.936	39.326	-38.064	74.000	-3.389	PK
2			2190.310	25.253	28.640	-28.747	54.000	-3.387	AV
3			4646.500	38.726	35.847	-35.274	74.000	2.879	PK
4			4646.514	27.559	24.680	-26.441	54.000	2.879	AV
5			8097.500	45.130	34.876	-28.870	74.000	10.255	PK
6		*	8097.512	33.724	23.470	-20.276	54.000	10.254	AV

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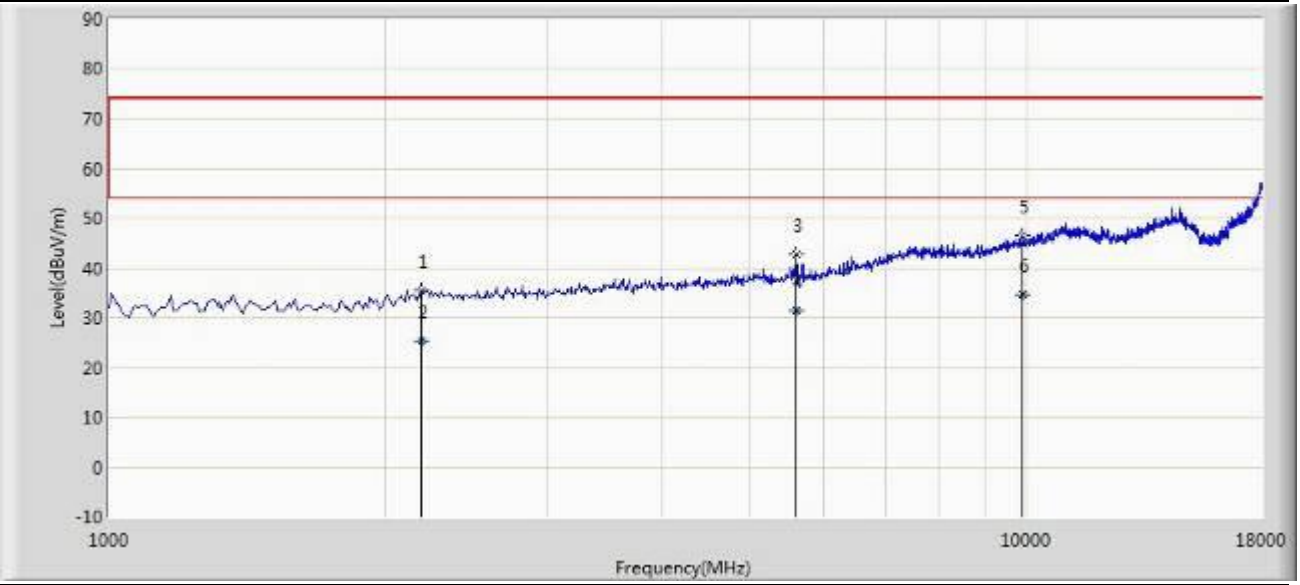
Site: AC1	Time: 2015/11/16 - 20:58
Limit: FCC_Part15.109_RE(3m)_ClassB	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Access point	Power: AC 120V/60Hz
Note: Powered by Adapter	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2190.000	35.508	38.898	-38.492	74.000	-3.389	PK
2			2190.364	25.263	28.649	-28.737	54.000	-3.386	AV
3			5607.000	42.661	38.130	-31.339	74.000	4.532	PK
4			5607.360	31.471	26.940	-22.529	54.000	4.531	AV
5			9874.000	46.437	33.144	-27.563	74.000	13.293	PK
6		*	9874.639	34.650	21.364	-19.350	54.000	13.285	AV

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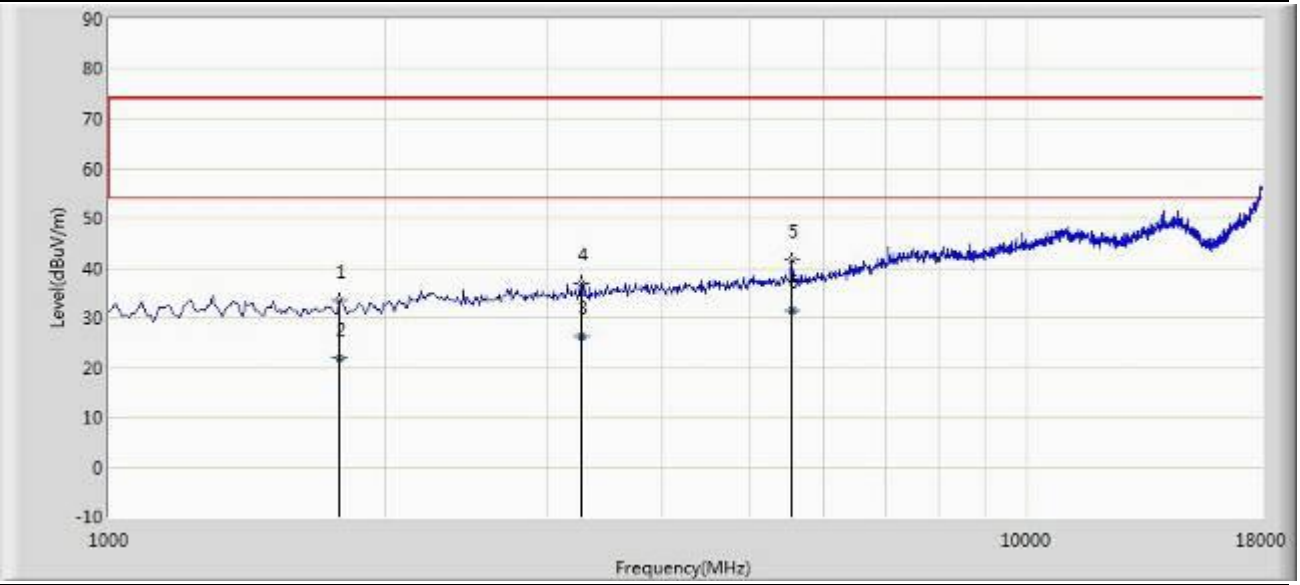
Site: AC1	Time: 2015/11/16 - 21:00
Limit: FCC_Part15.109_RE(3m)_ClassB	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Access point	Power: AC 120V/60Hz
Note: Powered by POE	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			1782.000	33.370	40.156	-40.630	74.000	-6.786	PK
2			1782.320	21.889	28.674	-32.111	54.000	-6.785	AV
3			3269.345	26.128	26.940	-27.872	54.000	-0.812	AV
4			3269.500	37.072	37.885	-36.928	74.000	-0.813	PK
5			5539.000	41.725	37.220	-32.275	74.000	4.505	PK
6		*	5539.320	31.452	26.947	-22.548	54.000	4.505	AV

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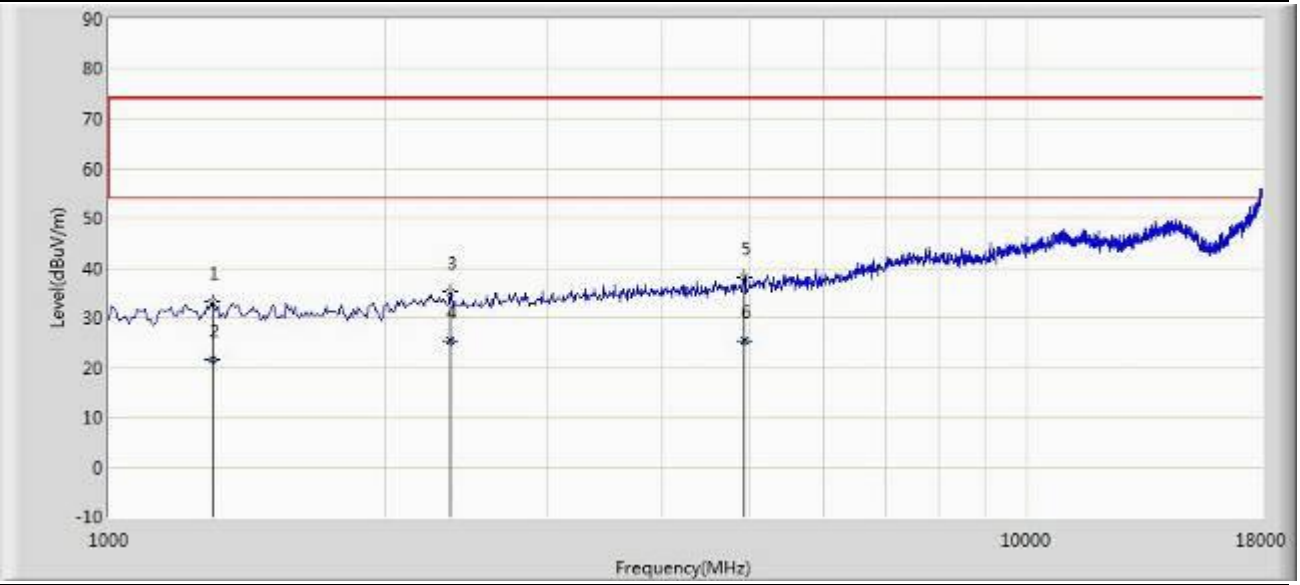
Site: AC1	Time: 2015/11/16 - 21:00
Limit: FCC_Part15.109_RE(3m)_ClassB	Engineer: Roy Cheng
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Access point	Power: AC 120V/60Hz
Note: Powered by POE	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			1297.500	33.259	41.315	-40.741	74.000	-8.056	PK
2			1298.512	21.590	29.640	-32.410	54.000	-8.050	AV
3			2351.500	35.113	38.417	-38.887	74.000	-3.304	PK
4		*	2351.540	25.366	28.670	-28.634	54.000	-3.304	AV
5			4927.000	38.085	34.429	-35.915	74.000	3.656	PK
6			4927.320	25.297	21.640	-28.703	54.000	3.656	AV

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EUT Photograph

Antenna inside

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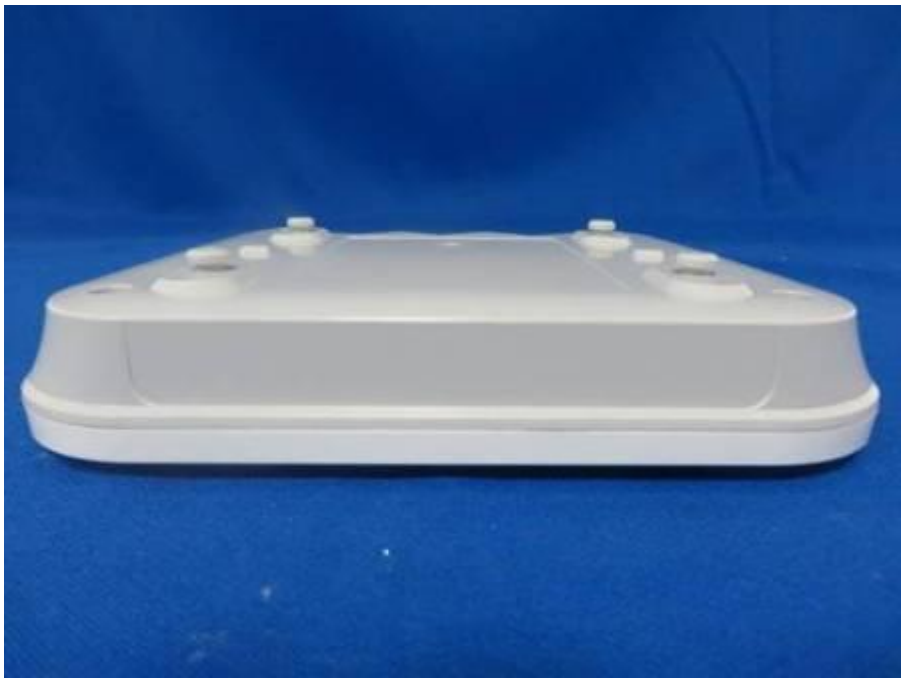

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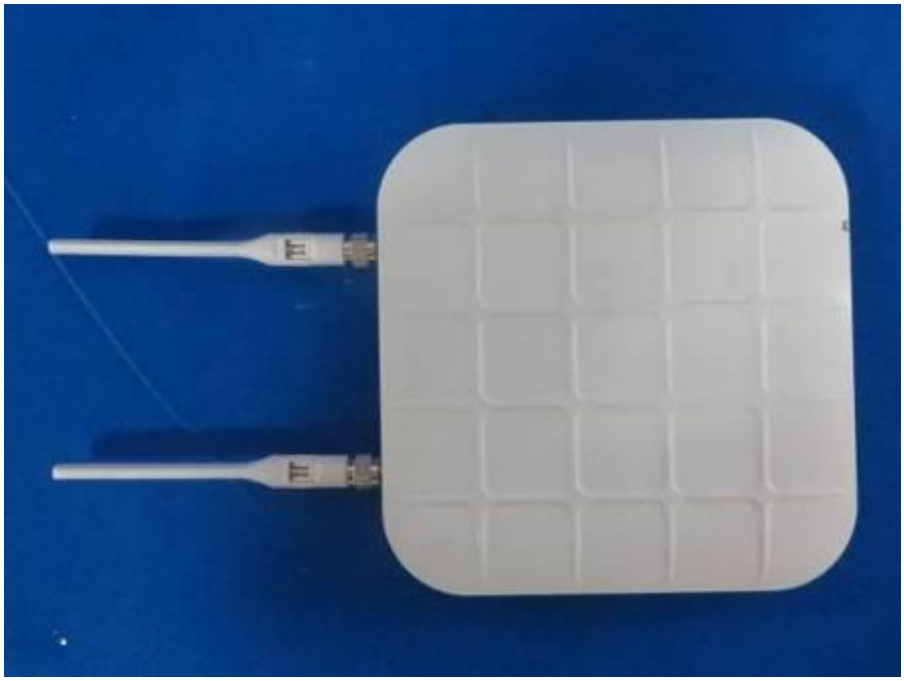
Antenna outside



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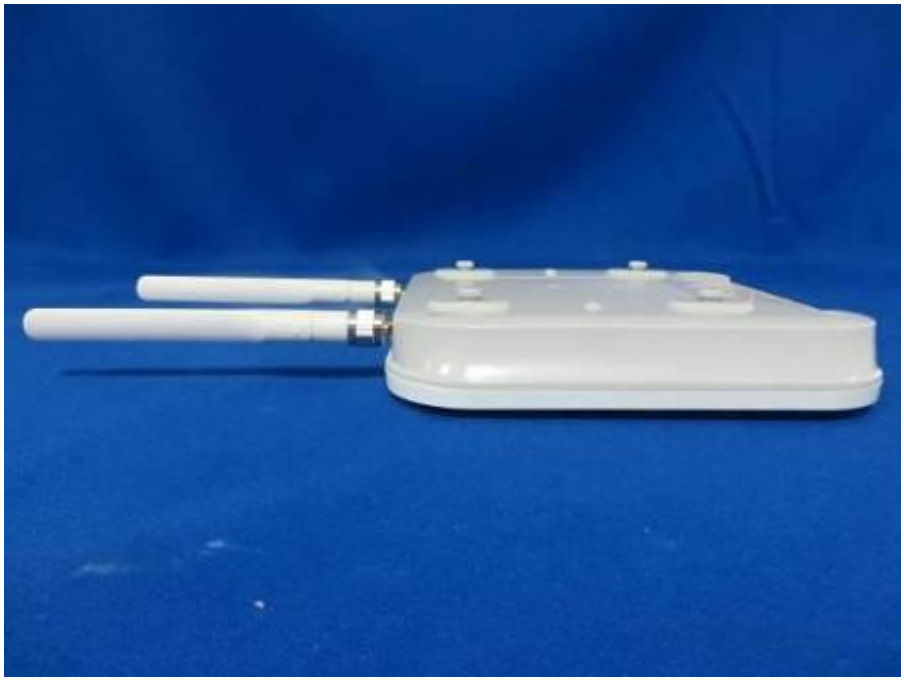

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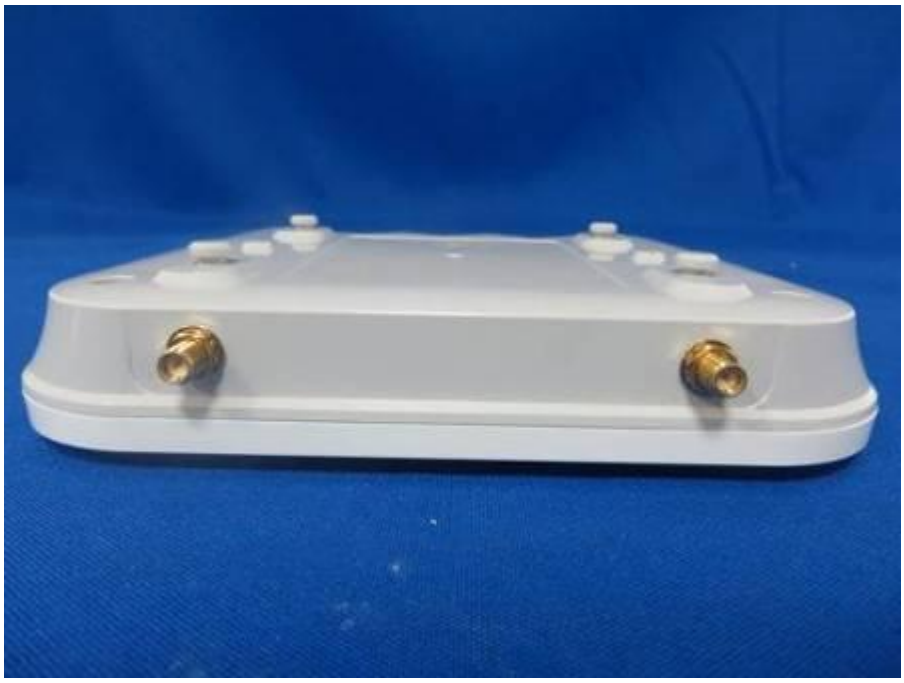

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