FCC REPORT

Applicant:	Aruba Networks, Inc.
Address of Applicant:	1344 Crossman Ave. Sunnyvale, CA 94089-1113, USA

Equipment Under Test (EUT)

Product Name:	Aruba BT-101 Location Beacon
Model No.:	ARBT0101
FCC ID:	Q9DBT101
Applicable standards:	FCC CFR Title 47 Part 15 Subpart B
Date of sample receipt:	04 Nov., 2014
Date of Test:	05 Nov., to 13 Nov., 2014
Date of report issued:	14 Nov., 2014
Test Result:	PASS*

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Bruce Zhang
Laboratory Manager

2 Version

Version No.	Date	Description
00	*14 Nov., 2014*	*Original*

Prepared by: Luna Gao ***Date:*** *14 Nov., 2014*

Report Clerk

Reviewed by: Abomb Yang ***Date:*** *14 Nov., 2014*

Project Engineer

3 Contents

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4 Test Summary

Test Item	Section in CFR 47	Result
Conducted Emission	Part15.107	Pass
Radiated Emission	Part15.109	Pass

Pass: The EUT complies with the essential requirements in the standard.

5 General Information

5.1 Client Information

Applicant:	Aruba Networks, Inc.
Address of Applicant:	1344 Crossman Ave. Sunnyvale, CA 94089-1113, USA
Manufacturer:	Aruba Networks, Inc.
Address of Manufacturer:	1344 Crossman Ave. Sunnyvale, CA 94089-1113, USA

5.2 General Description of E.U.T.

Product Name:	Aruba BT-101 Location Beacon
Model No.:	ARBT0101
Power supply:	DC 5V by USB port

5.3 Test Mode

Operating mode	Detail description
PC mode	Keep the EUT in data exchange mode with PC.
The sample was placed 0.8m above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.	

5.4 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
DELL	PC	OPTIPLEX745	N/A	DoC
DELL	MONITOR	E178FPC	N/A	DoC
DELL	KEYBOARD	SK-8115	N/A	DoC
DELL	MOUSE	MOC5UO	N/A	DoC
HP	Printer	CB495A	05257893	DoC

5.5 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

● **FCC - Registration No.: 817957**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in out files. Registration 817957, February 27, 2012.

● **IC - Registration No.: 10106A-1**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

● **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing.The Registration No. is CNAS L6048.

5.6 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
Address: No.B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,
Bao'an District,Shenzhen, Guangdong,China
Tel: +86-755-23118282
Fax: +86-755-23116366

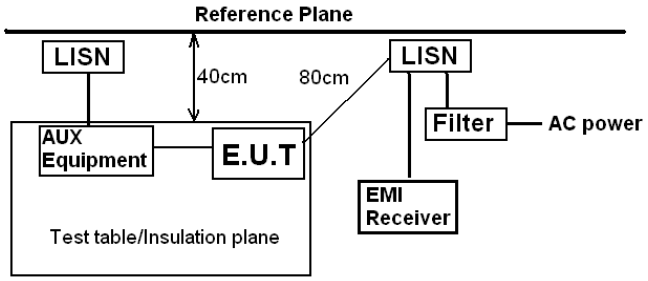
5.7 Test Instruments list

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal. Date (mm-dd-yy)**	**Cal. Due date (mm-dd-yy)**
1	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	04-19-2014	04-19-2015
2	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	04-19-2014	04-19-2015
3	Amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	04-01-2014	03-31-2015
4	Amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	06-09-2014	06-08-2015
5	Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP	CCIS0023	04-19-2014	04-19-2015
6	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	04-01-2014	03-31-2015

Conducted Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	10-10-2012	10-09-2015
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	04-10-2014	04-10-2015
3	LISN	CHASE	MN2050D	CCIS0074	04-10-2014	04-10-2015
4	Coaxial Cable	CCIS	N/A	CCIS0086	04-01-2014	03-31-2015

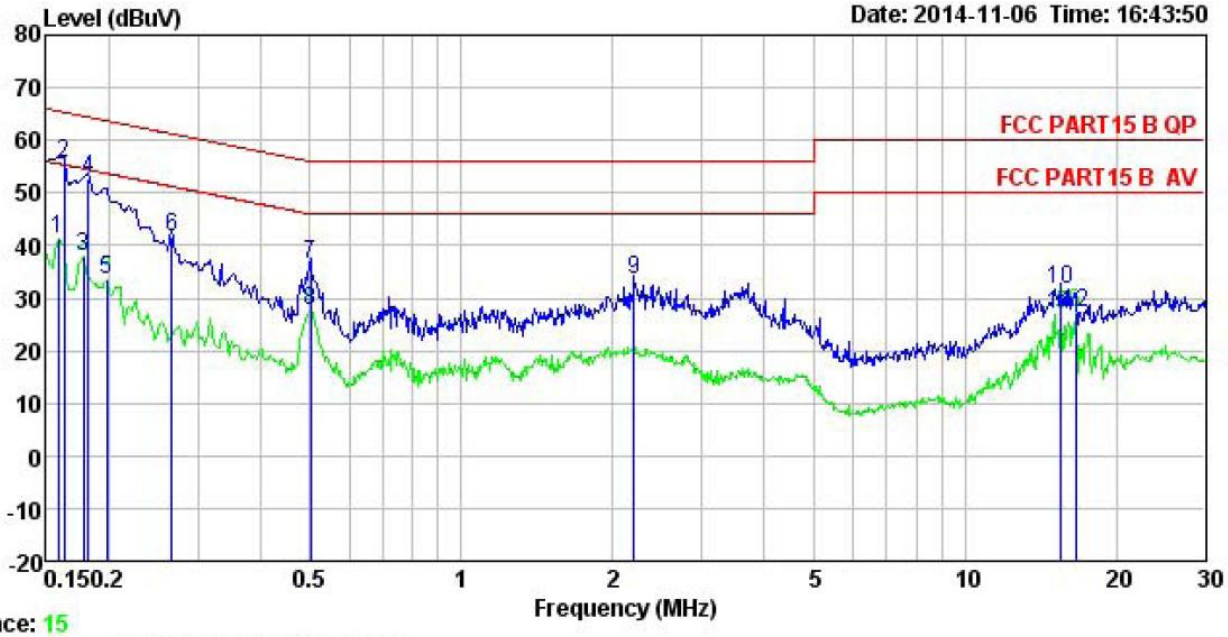
6 Test results and Measurement Data

6.1 Conducted Emission

Test Requirement:	FCC Part15 B Section 15.107
Test Method:	ANSI C63.4:2003
Test Frequency Range:	150kHz to 30MHz
Class / Severity:	Class B
Receiver setup:	RBW=9kHz, VBW=30kHz
Limit:	Frequency range (MHz) / Limit (dBμV): Quasi-peak / Average 0.15-0.5: 66 to 56* / 56 to 46* 0.5-5: 56 / 46 0.5-30: 60 / 50
Test setup:	 *Remark:* *E.U.T: Equipment Under Test* *LISN: Line Impedence Stabilization Network* *Test table height=0.8m*
Test procedure	1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.
Test environment:	Temp.: 23 °C / Humid.: 56% / Press.: 1 01kPa
Measurement Record:	Uncertainty: 3.28dB
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement data:

Line:

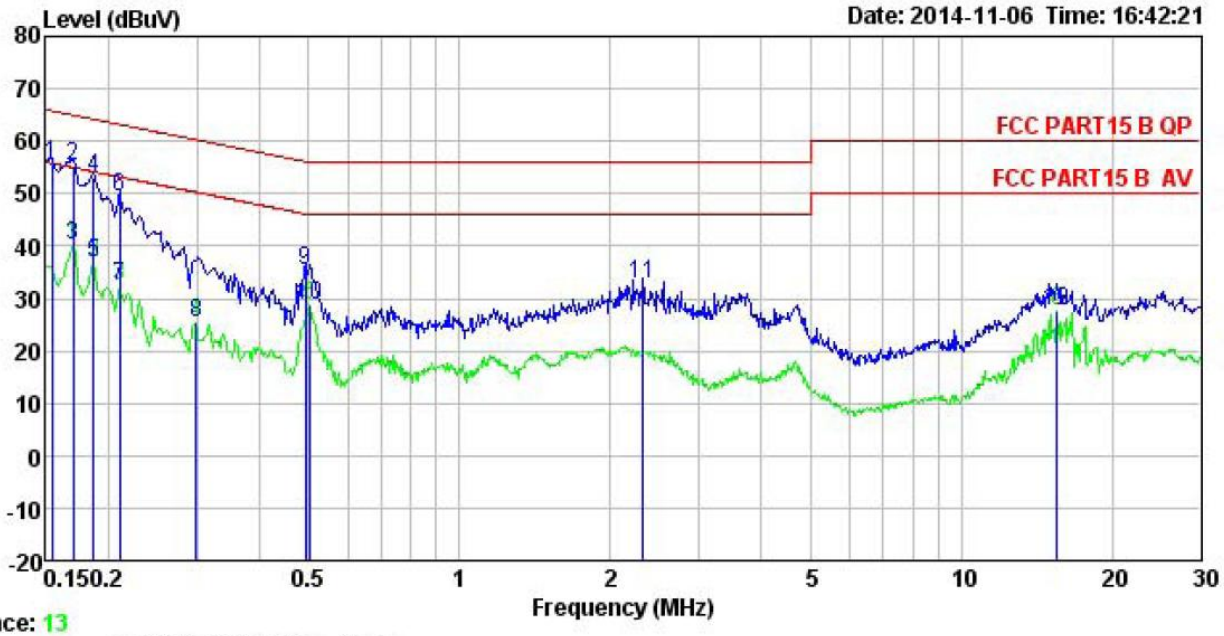


Trace: 15

Site : CCIS Shielding Room
Condition : FCC PART15 B QP LISN LINE
Job No. : 913RF
Model : ARBT0101
Test Mode : PC mode
Power Rating : DC 5V
Environment : Temp: 23 ℃ Huni:56% Atmos:101KPa
Test Engineer: Wendell
Remark :

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.158	30.33	0.27	10.78	41.38	55.56	-14.18	Average
2	0.162	44.74	0.27	10.77	55.78	65.34	-9.56	QP
3	0.178	26.87	0.28	10.77	37.92	54.59	-16.67	Average
4	0.182	41.72	0.28	10.77	52.77	64.42	-11.65	QP
5	0.198	22.32	0.28	10.76	33.36	53.71	-20.35	Average
6	0.266	30.76	0.27	10.75	41.78	61.25	-19.47	QP
7	0.502	25.50	0.29	10.76	36.55	56.00	-19.45	QP
8	0.502	16.57	0.29	10.76	27.62	46.00	-18.38	Average
9	2.201	22.21	0.26	10.95	33.42	56.00	-22.58	QP
10	15.470	20.42	0.32	10.90	31.64	60.00	-28.36	QP
11	15.552	15.57	0.32	10.90	26.79	50.00	-23.21	Average
12	16.573	15.95	0.33	10.91	27.19	50.00	-22.81	Average

Neutral:



Trace: 13

Site : CCIS Shielding Room
Condition : FCC PART15 B QP LISN NEUTRAL
Job No. : 913RF
Model : ARBT0101
Test Mode : PC mode
Power Rating : DC 5V
Environment : Temp: 23 ℃ Huni:56% Atmos:101KPa
Test Engineer: Wendell
Remark :

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.154	44.76	0.25	10.78	55.79	65.78	-9.99	QP
2	0.170	44.26	0.25	10.77	55.28	64.94	-9.66	QP
3	0.170	29.23	0.25	10.77	40.25	54.94	-14.69	Average
4	0.186	41.97	0.25	10.76	52.98	64.20	-11.22	QP
5	0.186	25.85	0.25	10.76	36.86	54.20	-17.34	Average
6	0.211	38.31	0.25	10.76	49.32	63.18	-13.86	QP
7	0.211	21.32	0.25	10.76	32.33	53.18	-20.85	Average
8	0.299	14.52	0.26	10.74	25.52	50.28	-24.76	Average
9	0.494	24.48	0.29	10.76	35.53	56.10	-20.57	QP
10	0.502	17.50	0.29	10.76	28.55	46.00	-17.45	Average
11	2.321	21.66	0.29	10.94	32.89	56.00	-23.11	QP
12	15.552	16.31	0.25	10.90	27.46	50.00	-22.54	Average

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT

2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.

6.2 Radiated Emission

Test Requirement:	FCC Part15 B Section 15.109
Test Method:	ANSI C63.4:2003
Test Frequency Range:	30MHz to 6000MHz
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)

Receiver setup:

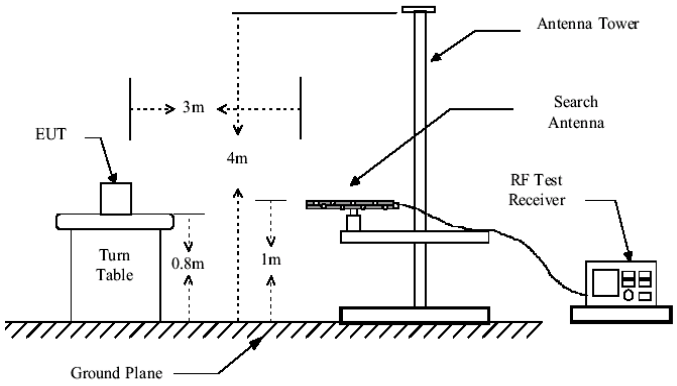
Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	Quasi-peak	120 kHz	300KHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	Peak	1MHz	10Hz	Average Value

Limit:

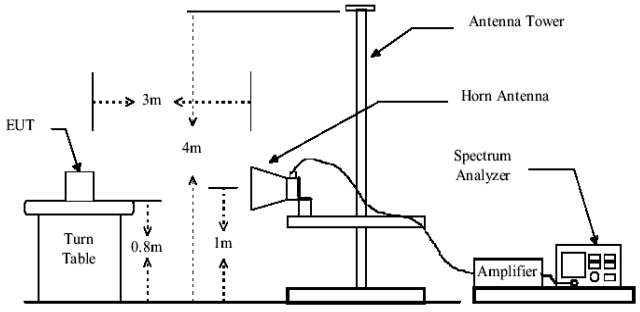
Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
	74.0	Peak Value

Test setup:

Below 1GHz



Above 1GHz

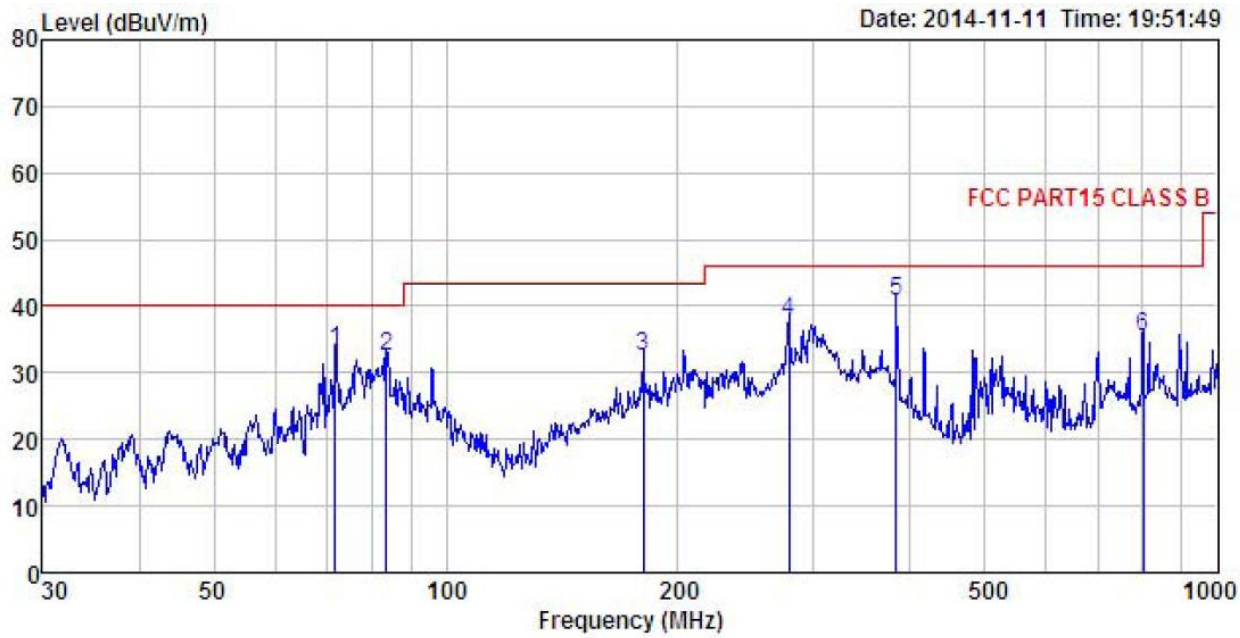


Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test environment:	Temp.: 25 °C | Humid.: 55% | Press.: 1 01kPa
Measurement Record:	Uncertainty: 4.88dB
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

Below 1GHz

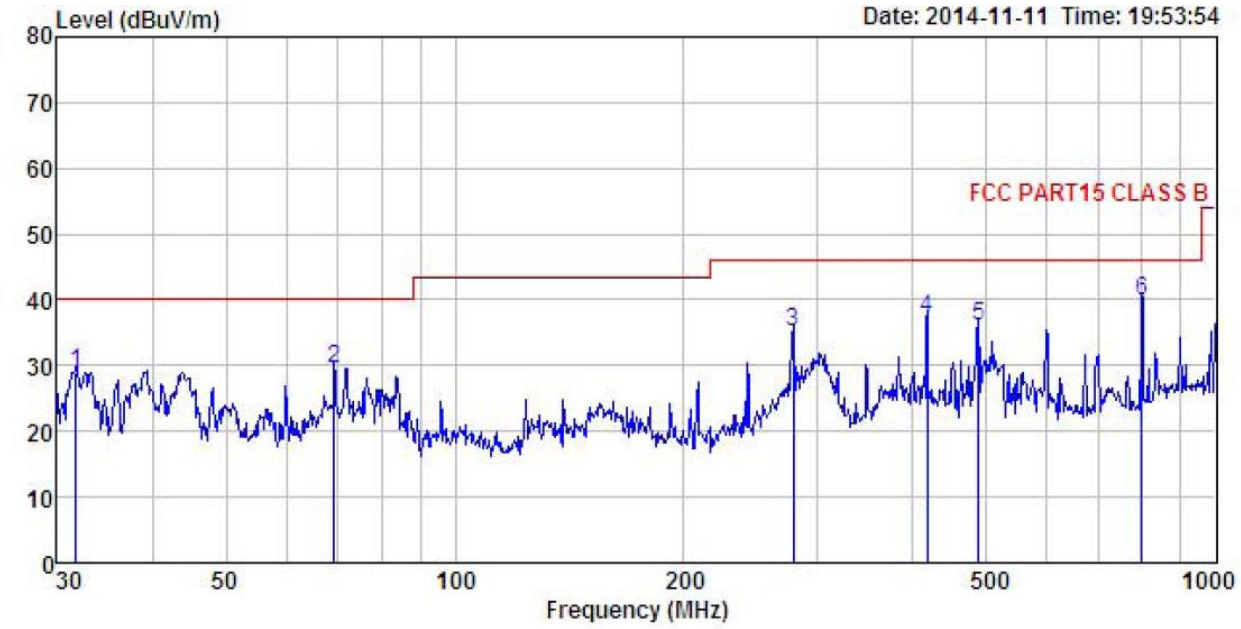
Horizontal:



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) HORIZONTAL
Model : ARBT0101
Test mode : PC Mode
Power Rating : DC 5V
Environment : Temp:25.5℃ Huni:55%
Test Engineer: Wendell
REMARK :

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	71.832	53.95	8.32	0.80	29.71	33.36	40.00	-6.64	QP
2	83.816	51.43	9.87	0.87	29.61	32.56	40.00	-7.44	QP
3	180.017	50.27	9.68	1.36	28.97	32.34	43.50	-11.16	QP
4	278.067	52.07	12.63	1.71	28.49	37.92	46.00	-8.08	QP
5	383.932	52.76	14.68	2.06	28.71	40.79	46.00	-5.21	QP
6	801.786	40.31	20.06	3.17	28.19	35.35	46.00	-10.65	QP

Vertical:

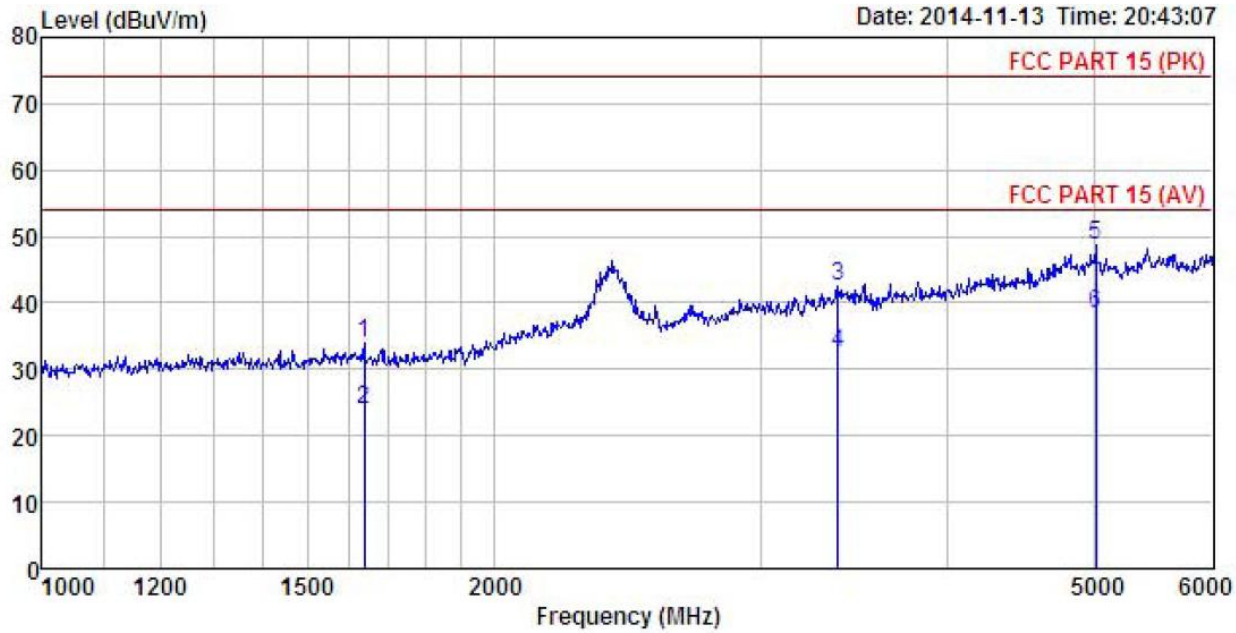


Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163(30M1G) VERTICAL
Model : ARBT0101
Test mode : PC Mode
Power Rating : DC 5V
Environment : Temp:25.5'C Huni:55%
Test Engineer: Wendell
REMARK :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	31.731	46.03	12.32	0.45	29.97	28.83	40.00	-11.17	QP
2	69.357	49.64	8.92	0.78	29.73	29.61	40.00	-10.39	QP
3	278.067	49.43	12.63	1.71	28.49	35.28	46.00	-10.72	QP
4	417.641	48.52	15.43	2.17	28.81	37.31	46.00	-8.69	QP
5	487.315	46.23	16.26	2.37	28.93	35.93	46.00	-10.07	QP
6	798.980	44.73	20.06	3.17	28.20	39.76	46.00	-6.24	QP

Above 1GHz

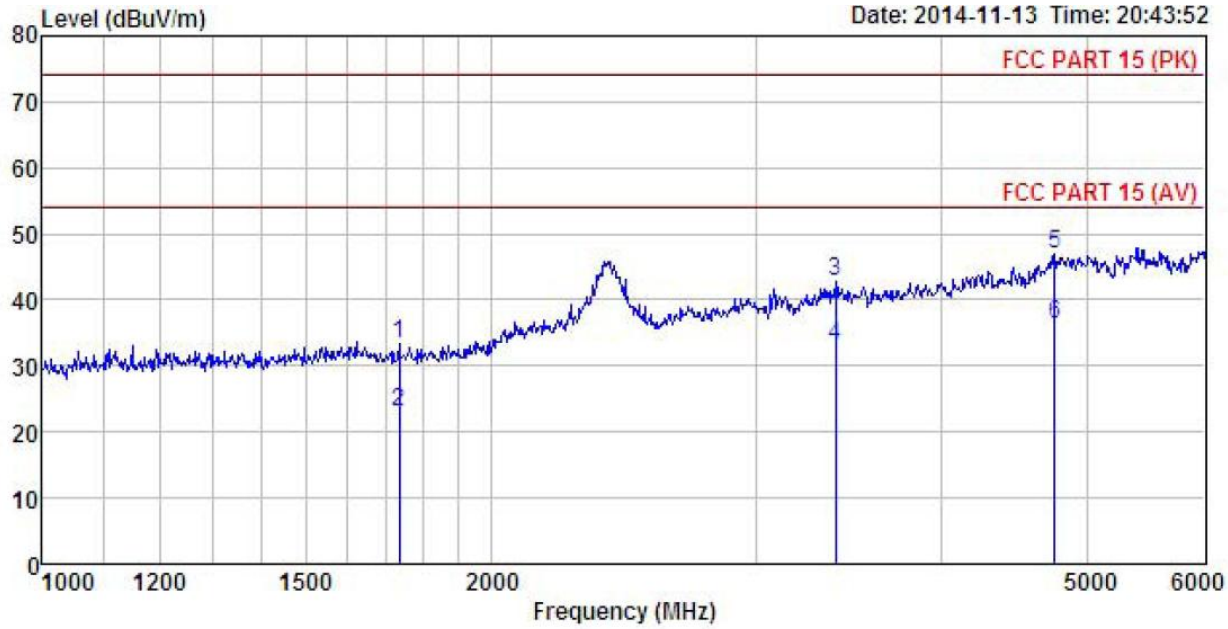
Horizontal:



Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL
Model : ARBT0101
Test mode : PC Mode
Power Rating : DC 5V
Environment : Temp:25.5℃ Huni:55%
Test Engineer: Wendell
REMARK :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1636.785	45.92	24.90	4.18	40.97	34.03	74.00	-39.97	Peak
2	1636.785	35.95	24.90	4.18	40.97	24.06	54.00	-29.94	Average
3	3381.760	46.75	28.40	6.40	39.00	42.55	74.00	-31.45	Peak
4	3381.760	36.73	28.40	6.40	39.00	32.53	54.00	-21.47	Average
5	5015.753	47.66	31.85	9.12	39.99	48.64	74.00	-25.36	Peak
6	5015.753	37.49	31.85	9.12	39.99	38.47	54.00	-15.53	Average

Vertical:

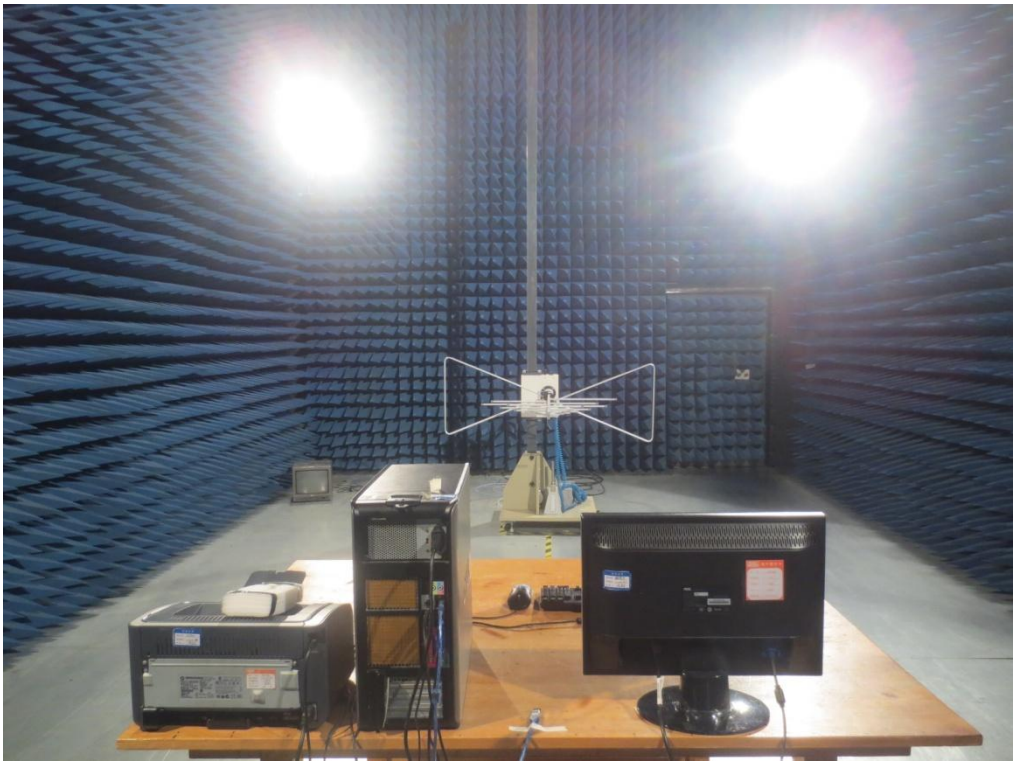


Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL
Model : ARBT0101
Test mode : PC Mode
Power Rating : DC 5V
Environment : Temp:25.5℃ Huni:55%
Test Engineer: Wendell
REMARK :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1733.375	44.77	25.04	4.47	40.98	33.30	74.00	-40.70	Peak
2	1733.375	34.37	25.04	4.47	40.98	22.90	54.00	-31.10	Average
3	3393.901	46.72	28.46	6.44	38.84	42.78	74.00	-31.22	Peak
4	3393.901	36.96	28.46	6.44	38.84	33.02	54.00	-20.98	Average
5	4761.785	47.00	31.47	8.84	40.31	47.00	74.00	-27.00	Peak
6	4761.785	36.23	31.47	8.84	40.31	36.23	54.00	-17.77	Average

7 Test Setup Photo

Radiated Emission



Conducted Emission

8 EUT Constructional Details

Reference to the test report No. CCIS14110091301

------End of report------