Report No: CCIS12100022501

FCC REPORT

Applicant:	Shenzhen AraTek Biometrics Technology Co.,Ltd.
Address of Applicant:	2F,T2-A Building,ShenZhen Sofeware Park,South Area, Hi-Tech Park,ShenZhen,China

Equipment Under Test (EUT)

Product Name:	AraTek optical live fingerprint scanner
Model No.:	CID5000,CID3000,CID4000, CID7000
FCC ID:	REZ-CID5000
Applicable standards:	FCC CFR Title 47 Part 15 Subpart B: 2011
Date of sample receipt:	31 Oct., 2012
Date of Test:	02 Nov., to 11 Dec., 2012
Date of report issued:	12 Dec., 2012
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	12 Dec., 2012	*Original*

Prepared By:  ***Date:*** 12 Dec.,2012

Report Clerk

Check By:  ***Date:*** 12 Dec.,2012

Project Engineer

3 Contents

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4 Test Summary

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

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

5 General Information

5.1 Client Information

Applicant:	Shenzhen AraTek Biometrics Technology Co.,Ltd.
Address of Applicant:	2F,T2-A Building,ShenZhen Sofeware Park,South Area,Hi-Tech Park,ShenZhen,China
Manufacturer/ Factory:	Shenzhen AraTek Biometrics Technology Co.,Ltd.
Address of Manufacturer/ Factory:	2F,T2-A Building,ShenZhen Sofeware Park,South Area,Hi-Tech Park,ShenZhen,China

5.2 General Description of E.U.T.

Product Name:	AraTek optical live fingerprint scanner
Model No.:	CID5000,CID3000,CID4000,CID7000
Power supply:	DC 5.0V from USB port
Remark:	Model CID3000,CID4000, CID7000 were all same with model CID5000 which was selected for full test, the only difference was the model name due to marketing purpose.

5.3 Operating Modes

Operating mode	Detail description
working mode	Keep the EUT in working with PC.

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 Deviation from Standards

None

5.6 Abnormalities from Standard Conditions

None.

5.7 Other Information Requested by the Customer

None.

5.8 Test Facility

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

● **FCC —Registration No.:** 817957

China Certification & Inspection Services Co., Ltd., Shenzhen 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

● **Industry Canada (IC)**

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

5.9 Test Location

All tests were performed at:

China Certification & Inspection Services Co., Ltd.
Address: 1st Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China
Tel: 0755-23118282
Fax: 0755-23116366

6 Test Instruments list

Radiated Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
1	3m Semi- Anechoic Chamber	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	June 09 2012	June 08 2013
2	EMI Test Receiver	Rohde & Schwarz	ESPI	CCIS0022	Apr 01 2012	Mar. 31 2013
3	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	June 04 2012	June 03 2013
4	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	May 30 2012	May 29 2013
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
6	Coaxial Cable	CCIS	N/A	CCIS0016	Apr. 01 2012	Mar. 31 2013
7	Coaxial Cable	CCIS	N/A	CCIS0017	Apr. 01 2012	Mar. 31 2013
8	Coaxial cable	CCIS	N/A	CCIS0018	Apr. 01 2012	Mar. 31 2013
9	Coaxial Cable	CCIS	N/A	CCIS0019	Apr. 01 2012	Mar. 31 2013
10	Coaxial Cable	CCIS	N/A	CCIS0087	Apr. 01 2012	Mar. 31 2013
11	Amplifier(10kHz-1.3GHz)	HP	8447D	CCIS0003	Apr. 01 2012	Mar. 31 2013
12	Amplifier(1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	June 09 2012	June 08 2013
13	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	Apr. 01 2012	Mar. 31 2013
14	Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 30 2012	Mar. 29 2013
15	CMU200	RoHDE&SCHWARZ	1100.0008.02	CCIS0069	May. 29 2012	May. 29 2013

Conducted Emission:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (dd-mm-yy)**	**Cal.Due date (dd-mm-yy)**
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	June 09 2012	June 09 2013
2	EMI Test Receiver	Rohde & Schwarz	ESPI	CCIS0022	Apr 01 2012	Apr 01 2013
3	LISN	CHASE	MN2050D	CCIS0074	Apr 01 2012	Apr 01 2013
4	Coaxial Cable	CCIS	N/A	CCIS0086	Apr. 01 2012	Apr. 01 2013
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

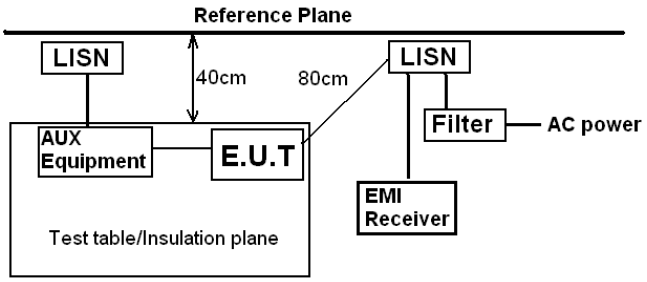
7 Test results and Measurement Data

7.1 Conducted Emissions

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

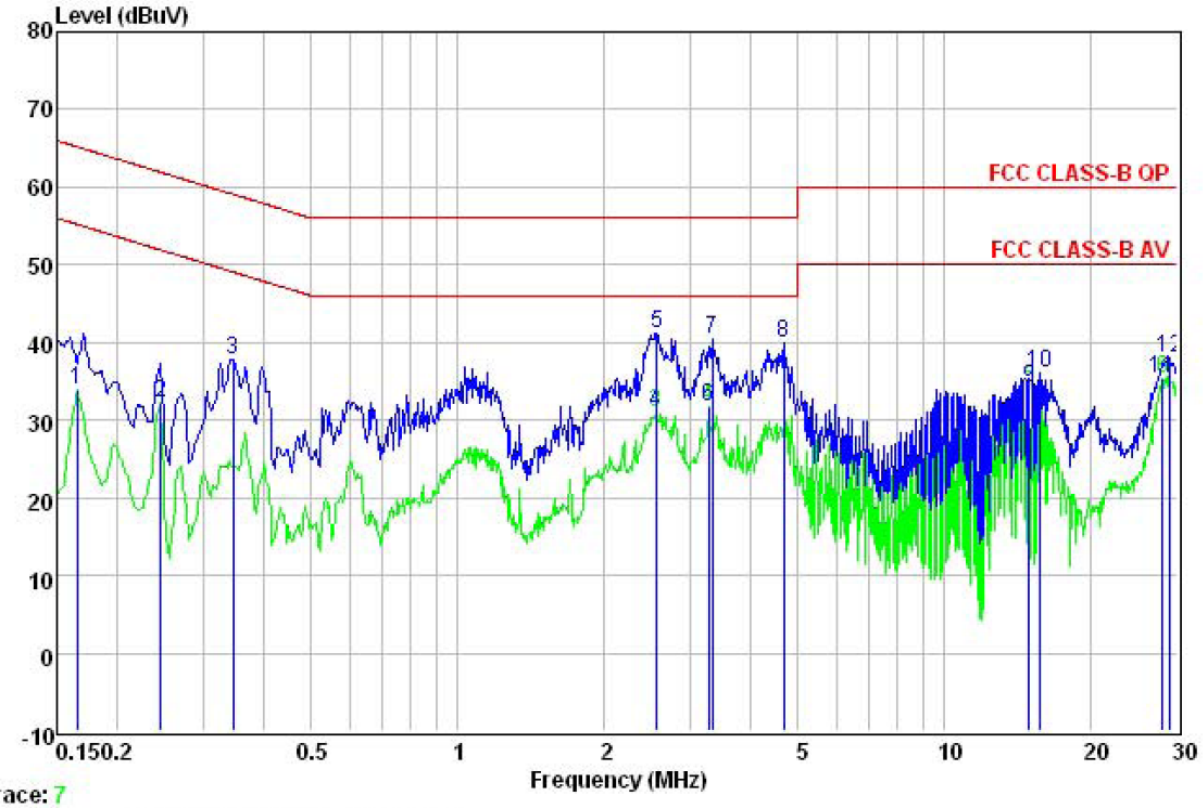
Test procedure

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 6 for details				
Test mode:	Please refer to section 5.3				
Test results:	Pass				

Measurement data:

Line:

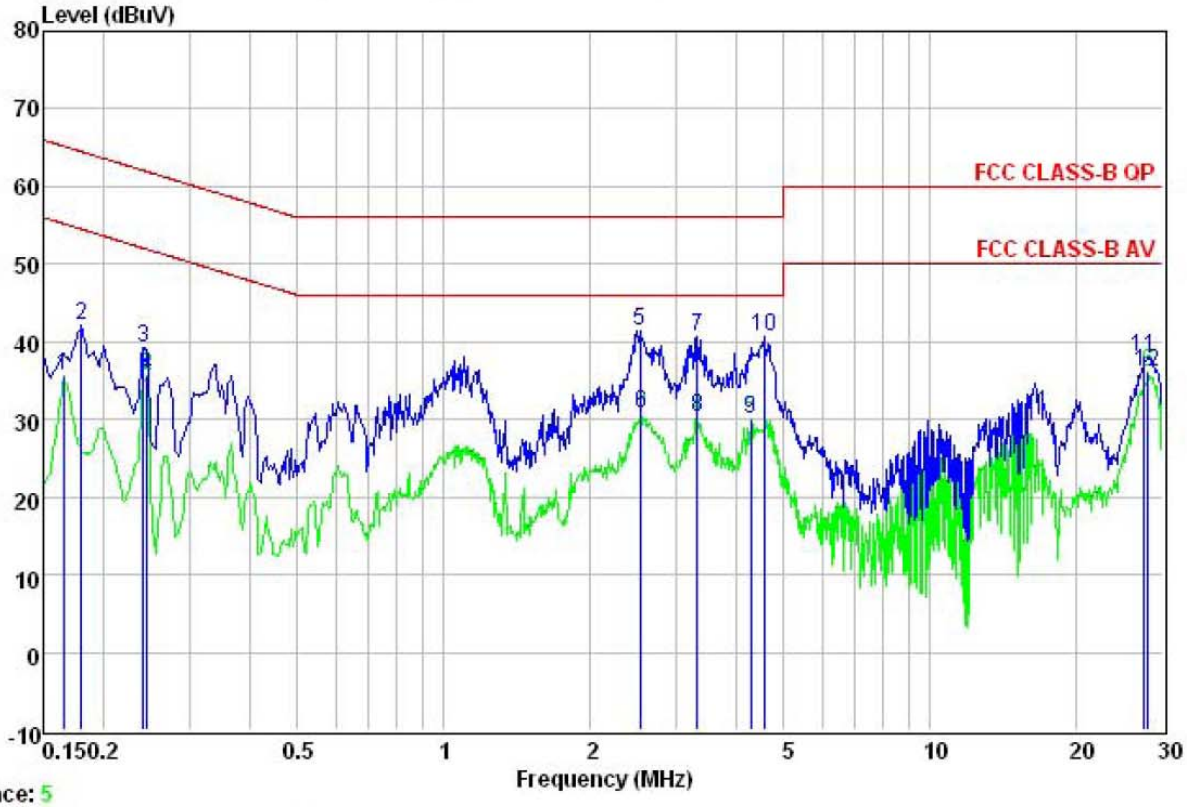


Trace: 7

Site : CCIS Conducted Test Site
Condition : FCC CLASS-B QP LISN LINE
Job No. : 225IT
EUT : AraTek optical fingerprint live
Model : CID5000
Test Mode : On
Power Rating : AC 120V/60Hz
Environment : Temp: 23 'C Huni:56% Atmos:101KPa
Test Engineer: Winner

	Freq	LISN Factor	Read Level	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dBuV	dBuV	dB	
1	0.165	10.24	22.87	0.78	33.89	65.21	-31.32	Average
2	0.246	10.24	21.17	0.75	32.16	61.91	-29.75	Average
3	0.345	10.27	26.78	0.73	37.78	59.09	-21.31	QP
4	2.554	10.28	19.68	0.94	30.90	56.00	-25.10	Average
5	2.567	10.28	30.01	0.94	41.23	56.00	-14.77	QP
6	3.276	10.29	20.49	0.90	31.68	56.00	-24.32	Average
7	3.328	10.29	29.18	0.90	40.37	56.00	-15.63	QP
8	4.672	10.28	28.88	0.87	40.03	56.00	-15.97	QP
9	14.907	10.23	22.93	0.90	34.06	60.00	-25.94	Average
10	15.635	10.24	25.03	0.90	36.17	60.00	-23.83	QP
11	28.003	10.76	23.64	0.87	35.27	60.00	-24.73	Average
12	28.908	10.81	26.25	0.87	37.93	60.00	-22.07	QP

Neutral:



Trace: 5

Site : CCIS Conducted Test Site
Condition : FCC CLASS-B QP LISN NEUTRAL
Job No. : 225IT
EUT : AraTek optical fingerprint live
Model : CID5000
Test Mode : On
Power Rating : AC 120V/60Hz
Environment : Temp: 23 'C Huni:56% Atmos:101KPa
Test Engineer: Winner

	Freq	LISN Factor	Read Level	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dB	dBuV	dBuV	dB	
1	0.165	10.26	24.58	0.78	35.62	55.21	-19.59	Average
2	0.180	10.24	31.18	0.77	42.19	64.50	-22.31	QP
3	0.240	10.23	28.34	0.75	39.32	62.08	-22.76	QP
4	0.246	10.24	24.54	0.75	35.53	51.91	-16.38	Average
5	2.527	10.27	30.18	0.94	41.39	56.00	-14.61	QP
6	2.540	10.27	19.58	0.94	30.79	46.00	-15.21	Average
7	3.310	10.28	29.40	0.90	40.58	56.00	-15.42	QP
8	3.310	10.28	19.14	0.90	30.32	46.00	-15.68	Average
9	4.269	10.28	18.80	0.88	29.96	46.00	-16.04	Average
10	4.549	10.28	29.48	0.88	40.64	56.00	-15.36	QP
11	27.562	10.72	26.47	0.87	38.06	60.00	-21.94	QP
12	28.003	10.75	24.35	0.87	35.97	50.00	-14.03	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.

7.2 Radiated Emission

Test Requirement:	FCC Part15 B Section 15.109
Test Method:	ANSI C63.4:2003
Test Frequency Range:	30MHz to 1000MHz
Remark:	The highest working frequency of internal is 12MHz.
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)

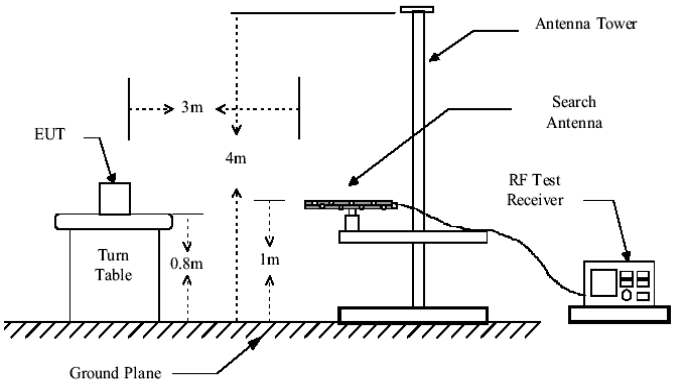
Receiver setup:

Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak 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

Test setup:



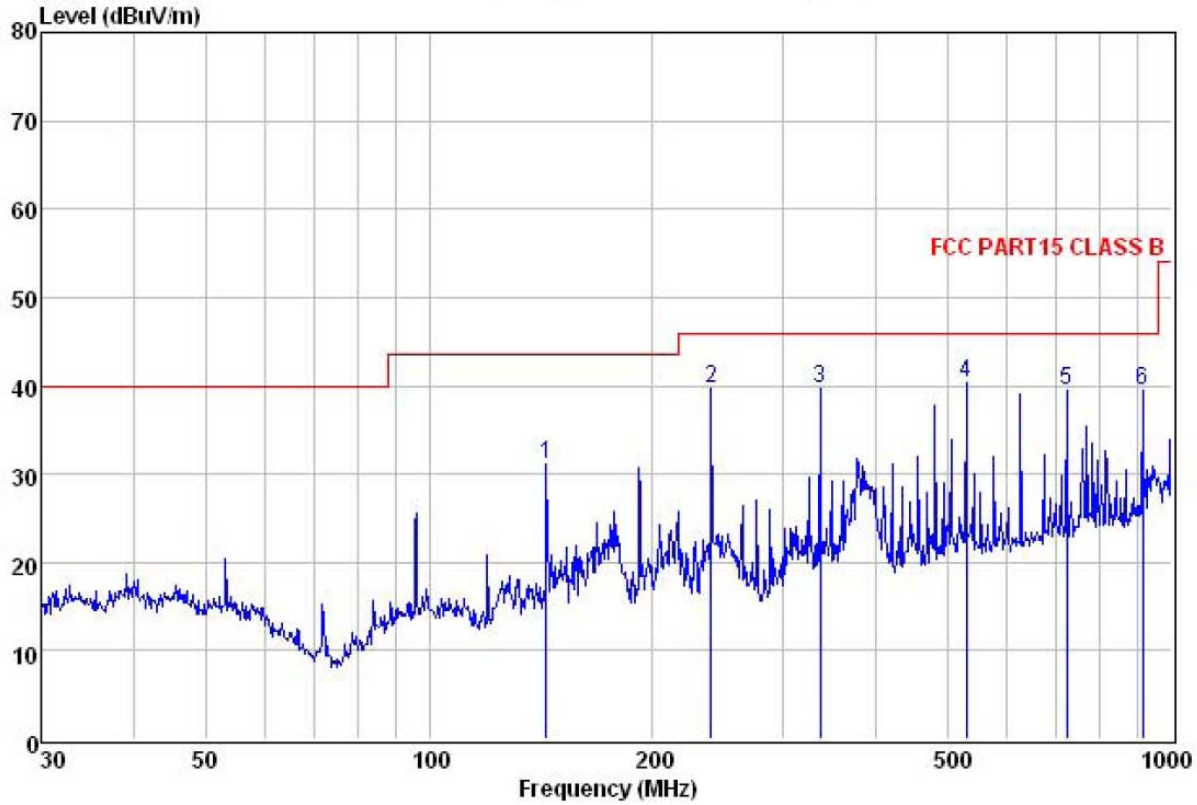
Test Procedure:

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.:	25.5 °C	Humid.:	55%	Press.:	1 01kPa	
Measurement Record:						Uncertainty: 4.88dB	
Test Instruments:	Refer to section 6 for details						
Test mode:	c						
Test results:	Passed						

Measurement Data

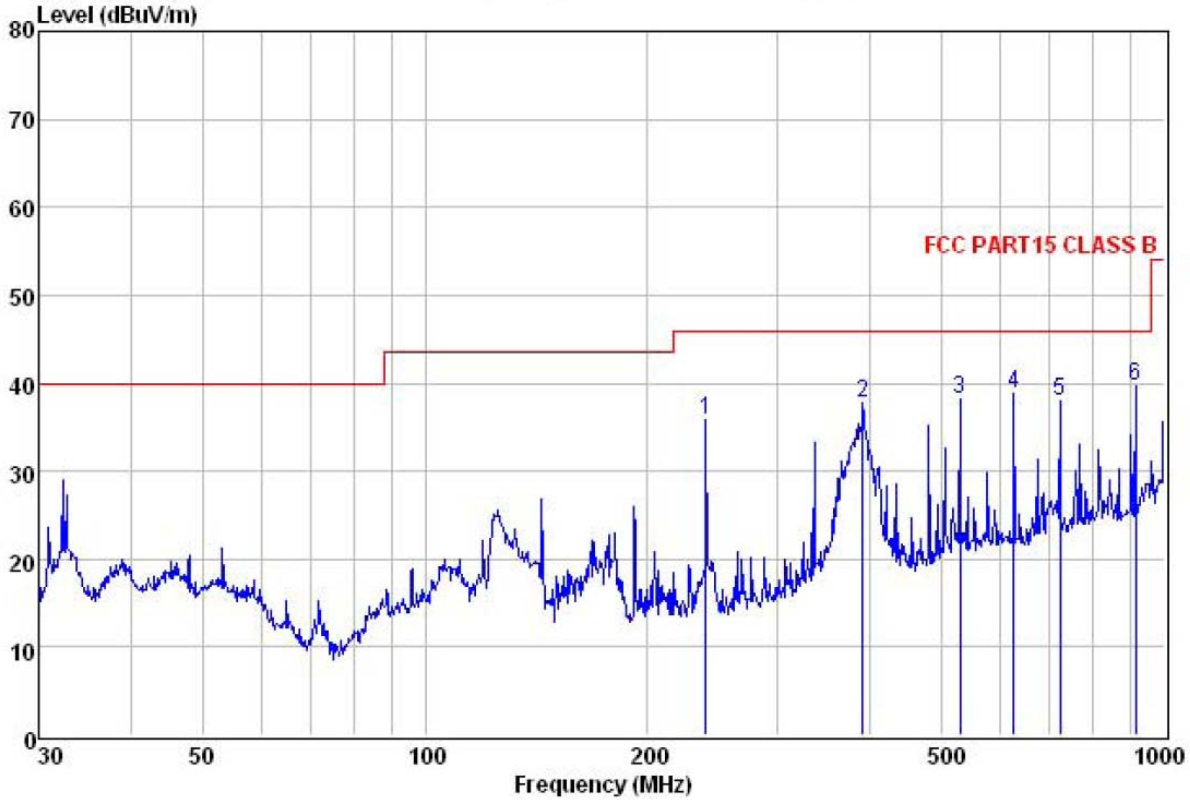
Horizontal:




```
Site          : 3m chamber
Condition     : FCC PART15 CLASS B 3m VULB9163(2012.4.1) HORIZONTAL
Job No.       : 225IT
EUT           : AraTek optical fingerprint live scanner
Model         : CID5000
Test mode     : ON
Power Rating  : AC 120V/60Hz
Environment   : Temp:25.5'C  Huni:55%  Atmos:101KPa
Test Engineer: Winner
```

	Freq	ReadAntenna 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	143.830	49.78	8.22	2.44	29.32	31.12	43.50	-12.38	QP
2	239.987	54.32	12.09	2.82	29.64	39.59	46.00	-6.41	QP
3	336.035	52.27	13.99	3.05	29.61	39.70	46.00	-6.30	QP
4	528.246	49.98	17.15	3.77	30.53	40.37	46.00	-5.63	QP
5	721.726	46.68	19.10	4.26	30.55	39.49	46.00	-6.51	QP
6	912.862	44.51	21.18	3.84	30.08	39.45	46.00	-6.55	QP

Vertical:



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163(2012.4.1) VERTICAL
Job No. : 225IT
EUT : AraTek optical fingerprint live scanner
Model : CID5000
Test mode : ON
Power Rating : AC 120V/60Hz
Environment : Temp:25.5℃ Huni:55% Atmos:101KPa
Test Engineer: Winner

	Freq	ReadAntenna 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	239.987	50.49	12.09	2.82	29.64	35.76	46.00	-10.24	QP
2	390.723	49.58	14.87	3.08	29.86	37.67	46.00	-8.33	QP
3	528.246	47.88	17.15	3.77	30.53	38.27	46.00	-7.73	QP
4	625.078	46.92	18.54	3.90	30.57	38.79	46.00	-7.21	QP
5	721.726	45.22	19.10	4.26	30.55	38.03	46.00	-7.97	QP
6	912.862	44.72	21.18	3.84	30.08	39.66	46.00	-6.34	QP