

Report No:CCISE171002601

# **FCC REPORT**

Applicant: Lightwave Technology

Address of Applicant: 400 Rue Wright, Saint-Laurent, Quebec, Canada, H4N 1M6

**Equipment Under Test (EUT)** 

Product Name: Lookit

Model No.: RTX1300

FCC ID: 2ABSL1300

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart C Section 15.247

Date of sample receipt: 16 Oct., 2017

**Date of Test:** 17 Oct., to 1 Nov., 2017

Date of report issued: 2 Nov., 2017

Test Result: PASS \*

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

#### Authorized Signature:



#### Bruce Zhang

Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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### 2 Version

Version No.	Date	Description
00	2 Nov., 2017	Original

Tested by: Date: 2 Nov., 2017

Test Engineer

Reviewed by: Date: 2 Nov., 2017

Project Engineer



# 3 Contents

			Page
1	COV	/ER PAGE	1
2	VER	SION	2
3		NTENTS	
4		T SUMMARY	
5	GEN	NERAL INFORMATION	5
	5.1	CLIENT INFORMATION	
	5.2	GENERAL DESCRIPTION OF E.U.T	5
	5.3	TEST ENVIRONMENT AND MODE	6
	5.4	DESCRIPTION OF SUPPORT UNITS	6
	5.5	LABORATORY FACILITY	6
	5.6	LABORATORY LOCATION	6
	5.7	TEST INSTRUMENTS LIST	
	5.8	MEASUREMENT UNCERTAINTY	7
6	TES	T RESULTS AND MEASUREMENT DATA	8
	6.1	ANTENNA REQUIREMENT:	8
	6.2	CONDUCTED OUTPUT POWER	9
	6.3	OCCUPY BANDWIDTH	11
	6.4	POWER SPECTRAL DENSITY	13
	6.5	BAND EDGE	
	6.5.1	1 Conducted Emission Method	15
	6.5.2		
	6.6	Spurious Emission	23
	6.6.	1 Conducted Emission Method	23
	6.6.2	2 Radiated Emission Method	25
7	TES	T SETUP PHOTO	30
Ω	FUT	CONSTRUCTIONAL DETAILS	21



# 4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	N/A
Conducted Peak Output Power	15.247 (b)(3)	Pass
6dB Emission Bandwidth	15.247 (a)(2)	Pass
Power Spectral Density	15.247 (e)	Pass
Band Edge	15.247(d)	Pass
Spurious Emission	15.205/15.209	Pass

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



## **5** General Information

### 5.1 Client Information

Applicant:	Lightwave Technology
Address of Applicant:	400 Rue Wright, Saint-Laurent, Quebec, Canada, H4N 1M6
Manufacturer/ Factory:	DONGGUAN PORTMAN ELECTRONIC SCIENCE AND TECHNOLOGY CO., LTD
Address of Manufacturer/Factory:	NO.10, LUYI 2 ROAD , TANGXIA TOWN, DONGGUAN CITY, GUANGDONG PROVINCE CHINA

# 5.2 General Description of E.U.T.

Product Name:	Lookit
Model No.:	RTX1300
Operation Frequency:	907.035MHz
Channel numbers:	1
Modulation technology:	GFSK
Antenna Type:	Internal Antenna
Antenna gain:	-10dBi
Power supply:	DC 3V CR2016 Battery



5.3 Test environment andmode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test mode:	
Operation mode	Keep the EUT in continuous transmitting with modulation

The sample was placed 0.8m(below 1GHz)/1.5m(above 1GHz) 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. Duty cycle setting during the transmission is 100% with maximum power setting for all modulations.

### 5.4 Description of Support Units

N/A

### 5.5 Laboratory Facility

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

#### • FCC - Registration No.: 817957

Shenzhen ZhongjianNanfang 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 ZhongjianNanfang 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 ZhongjianNanfang 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

Website: http://www.ccis-cb.com

Tel: +86-755-23118282 Fax:+86-755-23116366 Email: info@ccis-cb.com

Shenzhen ZhongjianNanfang Testing Co., Ltd.
No.B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Telephone: +86 (0) 755 23118282 Fax: +86 (0) 755 23116366

Report No: CCISE171002601



# 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	3m SAC	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	07-22-2017	07-21-2020
2	BiConiLog Antenna	SCHWARZBECK	VULB9163	CCIS0005	02-25-2017	02-24-2018
3	Horn Antenna	SCHWARZBECK	BBHA9120D	CCIS0006	02-25-2017	02-24-2018
4	Pre-amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	02-25-2017	02-24-2018
5	Pre-amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	02-25-2017	02-24-2018
6	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	02-25-2017	02-24-2018
7	Horn Antenna	ETS-LINDGREN	3160	GTS217	02-25-2017	02-24-2018
8	Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP30	CCIS0023	02-25-2017	02-24-2018
9	EMI Test Receiver	Rohde & Schwarz	ESRP7	CCIS0167	02-25-2017	02-24-2018
10	Loop antenna	Laplace instrument	RF300	EMC0701	02-25-2017	02-24-2018
11	EMI Test Software	AUDIX	E3	N/A	N/A	N/A

# 5.8 Measurement Uncertainty

Items	Expanded Uncertainty (Confidence of 95%)	
Conducted Emission (9kHz ~ 30MHz)	2.14 dB (k=2)	
Radiated Emission (9kHz ~ 30MHz)	4.24 dB (k=2)	
Radiated Emission (30MHz ~ 1000MHz)	4.35 dB (k=2)	
Radiated Emission (1GHz ~ 18GHz)	4.44 dB (k=2)	
Radiated Emission (18GHz ~ 26.5GHz)	4.56 dB (k=2)	



### 6 Test results and Measurement Data

### 6.1 Antenna requirement:

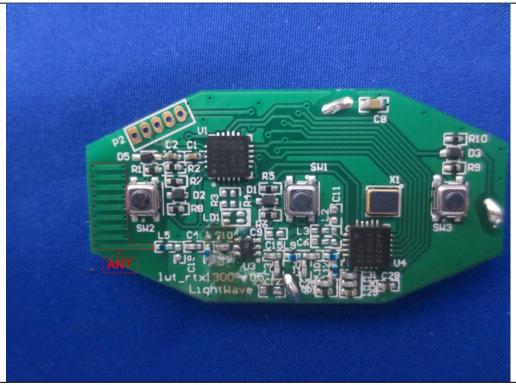
Standard requirement: FCC Part15 C Section 15.203 /247(c)

15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

#### **E.U.T Antenna:**

The antenna is an internal antenna which cannot replace by end-user, the best case gain of the antenna is -10dBi.





# **6.2 Conducted Output Power**

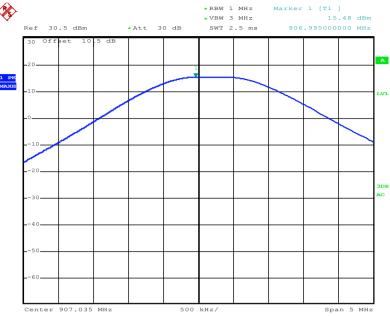
Test Requirement:	FCC Part15 C Section 15.247 (b)(3)	
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v04 section 9.1.1	
Limit:	30dBm	
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane	
Test Instruments:	Refer to section 5.7 for details	
Test mode:	Refer to section 5.3 for details	
Test results:	Passed	

#### Measurement Data

Test Frequency	Maximum Conducted Output Power (dBm)	Limit(dBm)	Result
907.035 MHz	15.48	30.00	Pass



#### Test plot as follows:



Date: 1.NOV.2017 09:00:48



# 6.3 Occupy Bandwidth

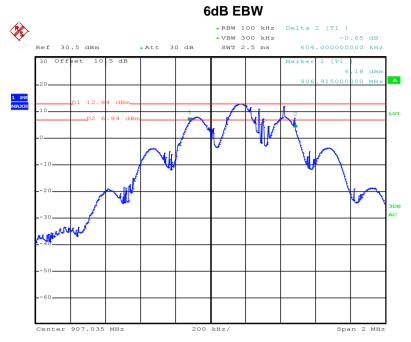
Test Requirement:	FCC Part15 C Section 15.247 (a)(2)		
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v04 section 8.1		
Limit:	>500kHz		
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane		
Test Instruments:	Refer to section 5.7 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Passed		

#### **Measurement Data:**

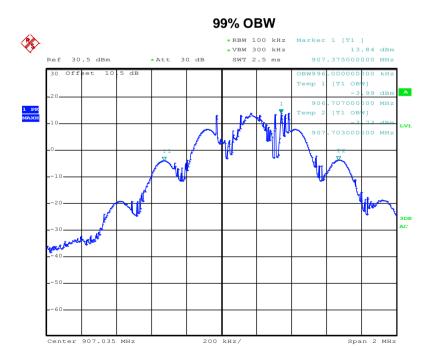
Test Frequency	6dB Emission Bandwidth (MHz)	Limit(kHz)	Result
907.035 MHz	0.604	>500	Pass
Test Frequency	99% Occupy Bandwidth (MHz)	Limit(kHz)	Result
907.035 MHz	0.996	N/A	N/A



#### Test plot as follows:



Date: 1.NOV.2017 09:04:42



Date: 1.NOV.2017 09:03:23



# 6.4 Power Spectral Density

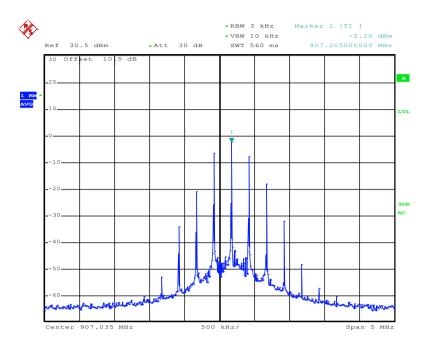
Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v04 section 10.3
Limit:	8dBm
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

#### **Measurement Data:**

Test Frequency	Power Spectral Density (dBm)	Limit(dBm)	Result
907.035 MHz	-2.2	8.00	Pass



#### Test plots as follow:



Date: 1.NOV.2017 09:06:55



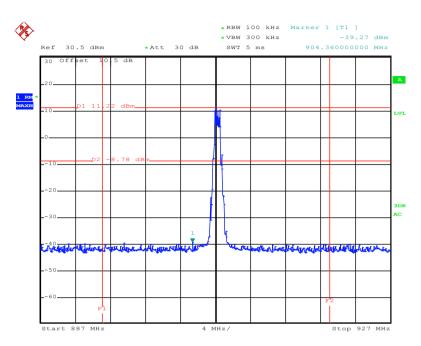
# 6.5 Band Edge

### 6.5.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)						
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v04 section 13						
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spreadspectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.						
Test setup:	Spectrum Analyzer  E.U.T  Non-Conducted Table  Ground Reference Plane						
Test Instruments:	Refer to section 5.7 for details						
Test mode:	Refer to section 5.3 for details						
Test results:	Passed						



#### Test plots as follow:



Date: 30.OCT.2017 13:16:28

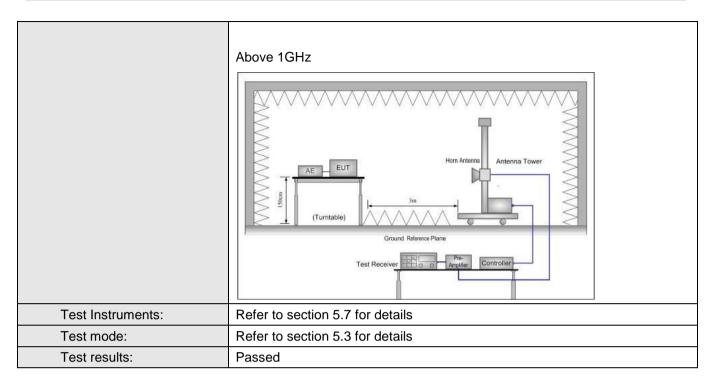


### 6.5.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209 and 15.205								
Test Method:	ANSI C63.10: 201 12.1	3and KDB5	58074	4 D01 DT	S Meas G	uidance v04 section			
TestFrequencyRange:	960MHz to 1.2400								
Test site:	Measurement Dist	ance: 3m							
Receiver setup:	Frequency	Detector	r	RBW	VBW	Remark			
Receiver setup.	960MHz-1GHz Quasi-peak 120kHz 300kH					Quasi-peak Value			
		Peak	ar.	1MHz	3MHz	Peak Value			
	Above 1GHz	RMS		1MHz	3MHz	Average Value			
Limit:	Frequenc	1	Limit	t (dBuV/m		Remark			
	960MHz-10			54.0	<i></i>	Quasi-peak Value			
	Al 4 OI	1-		54.00		Average Value			
	Above 1GI	HZ -		74.00		Peak Value			
Test setup.	was rotated 3 radiation.  2. The EUT was antenna, whice tower.  3. The antenna ground to detended horizontal and measurement and thenthe at the rotatables maximum reasonation.  5. The test-recenspecifiedBander.  6. If the emission limitspecified, EUT wouldbe margin would average methodown.	60 degrees a set 3 mete chwas mour height is va ermine the d vertical pot t. bected emis antenna was vas turned f ding. iver system dwidth with n level of th then testing reported. C bere-tested	ers awanted on ried from one was some EUT g could be the	termine the ray from the top of t	e position le interfere of a variable meter to for e of the fiel le antenna was arrang its from 1 to 360 deg lk Detect F Mode. mode was ped and the missions the sing peak,	s 10dB lower than the ne peak values of the hat did not have 10dB quasi-peak or			
Test setup:	Below 1GHz  EUT  Turr Table  Ground	e O.S.M	lm A		1 1	Search Antenna  RF Test deceiver			





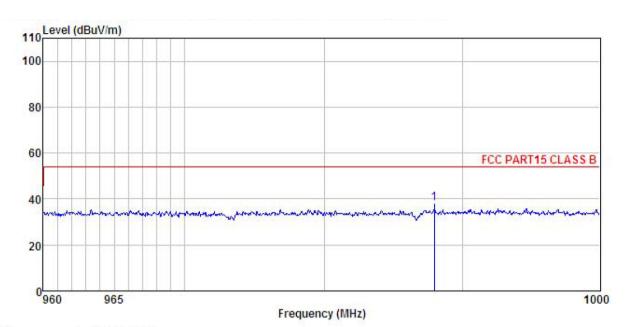






#### Test channel:Lowest

Horizontal:



Site : 3m chamber

Condition : FCC PART15 CLASS B 3m VULB9163(30M2G) HORIZONTAL

EUT : Lookit
Model : RTX1300
Test mode : TX mode
Power Rating : DC 3.0V

Environment : Temp: 25.5°C Huni: 55%

Test Engineer: YT

Remark

ReadAntenna Cable Preamp Limit Over
Freq Level Factor Loss Factor Level Line Limit Remark

MHz dBuV dB/m dB dB dBuV/m dBuV/m dB

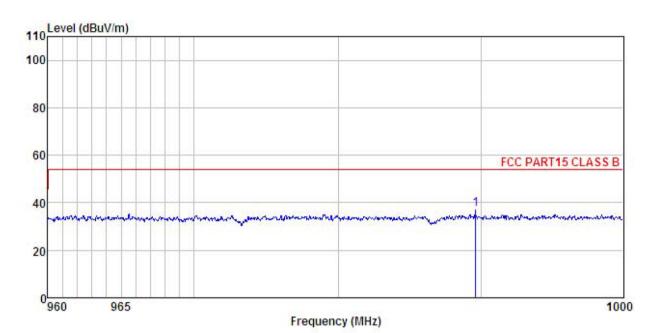
987.909 12.01 21.65 4.41 0.00 38.07 54.00 -15.93 QP





#### Test channel:Lowest

Vertical:



Site

: 3m chamber : FCC PART15 CLASS B 3m VULB9163(30M2G) VERTICAL Condition

EUT : Lookit : RTX1300 Model Test mode: TX mode
Power Rating: DC 3.0V
Environment: Temp:25.5°C Huni:55%
Test Engineer: YT

Remark

1

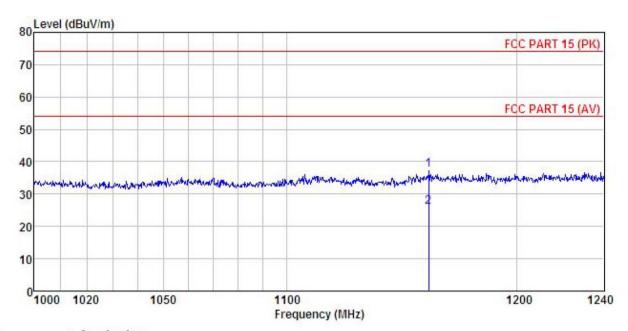
Freq		Antenna Factor						
MHz	—dBu₹	dB/m	āā	<u>d</u> B	dBuV/m	dBuV/m		
989, 564	11.26	21.67	4.41	0.00	37.34	54.00	-16.66	QP





#### Test channel:Highest

Horizontal:



: 3m chamber : FCC PART 15 (PK) 3m BBHA9120(1G18G) HORIZONTAL Condition

EUT : Lookit : RTX1300 Model Test mode : TX mode Power Rating : DC 3.0V

Environment : Temp: 25.5°C Huni: 55%

Test Engineer: YT Remark :

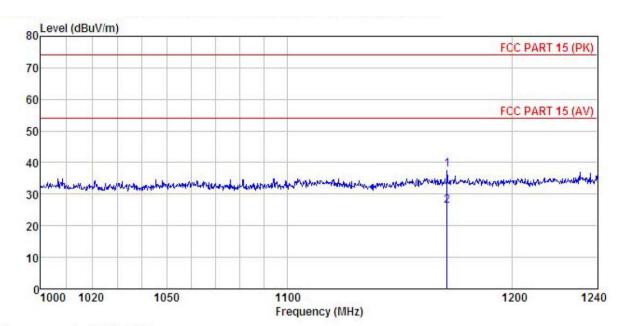
	Rest.		Antenna Factor					
1	MHz	—dBu∇	<u>dB</u> /m	 	dBuV/m	dBuV/m	<u>ab</u>	
	1160.507 1160.507							





#### Test channel:Highest

Vertical:



Site

: 3m chamber : FCC PART 15 (PK) 3m BBHA9120(1G18G) VERTICAL Condition

EUT : Lookit Test mode: TX mode
Power Rating: DC 3.0V
Environment: Temp: 25.5°C Huni: 55%
Test Engineer: YT
Remark Model : RTX1300

Remark

	Freq		Antenna Factor						
2	MHz	dBu₹		<u>d</u> B	<u>ab</u>	$\overline{dBuV/m}$	dBuV/m	<u>dB</u>	 -
	1170.032 1170.032								



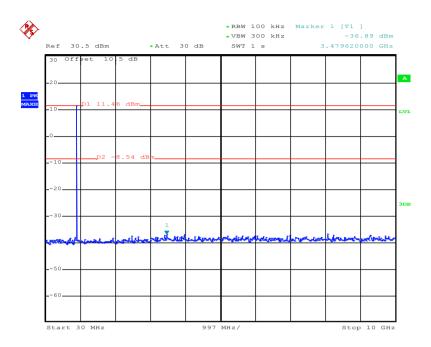
# 6.6 Spurious Emission

### 6.6.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)							
Test Method:	ANSI C63.10:2013 and KDB558074 D01 DTS Meas Guidance v04 section 11							
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spreadspectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.							
Test setup:	Spectrum Analyzer							
	Non-Conducted Table  Ground Reference Plane							
Test Instruments:	Refer to section 5.7 for details							
Test mode:	Refer to section 5.3 for details							
Test results:	Passed							



#### Test plot as follows:



Date: 30.OCT.2017 12:45:11

30MHz~10GHz

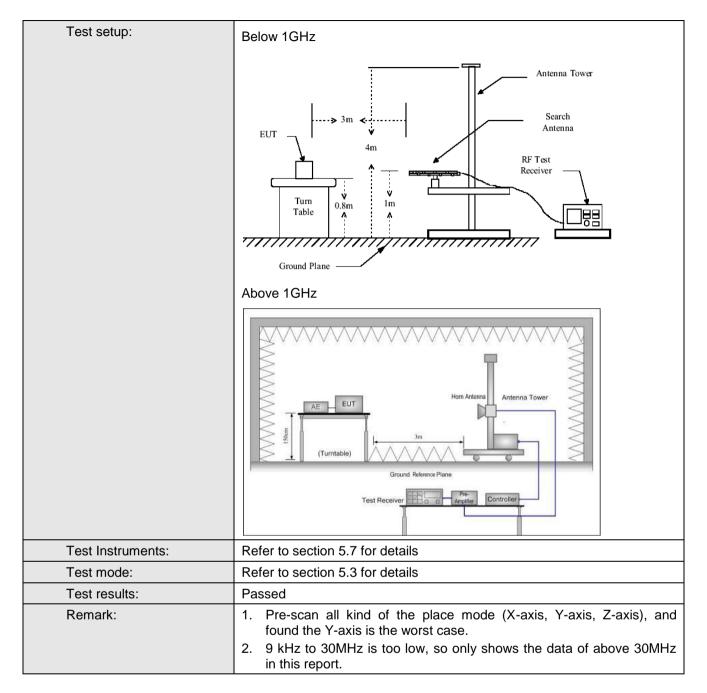


### 6.6.2 Radiated Emission Method

Test Requirement:	FCC Part15 C S	Section 15.20	9 and 15.205			
Test Method:	ANSI C63.10:20	)13				
TestFrequencyRange:	9KHz to 25GHz					
Test site:	Measurement D	istance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark	
·	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value	
	Al 4011-	Peak	1MHz	3MHz	Peak Value	
	Above 1GHz	RMS	1MHz	3MHz	Average Value	
Limit:	Frequency		Limit (dBuV/m	@3m)	Remark	
	30MHz-88MHz		40.0		Quasi-peak Value	
	88MHz-216MHz	-	43.5		Quasi-peak Value	
	216MHz-960MH	lz	46.0		Quasi-peak Value	
	960MHz-1GHz		54.0		Quasi-peak Value	
	Above 1GHz				Average Value	
					Peak Value	
Test Procedure:	216MHz-960MHz         46.0         Quasi-peak Value           960MHz-1GHz         54.0         Quasi-peak Value           Above 1GHz         54.0         Average Value					





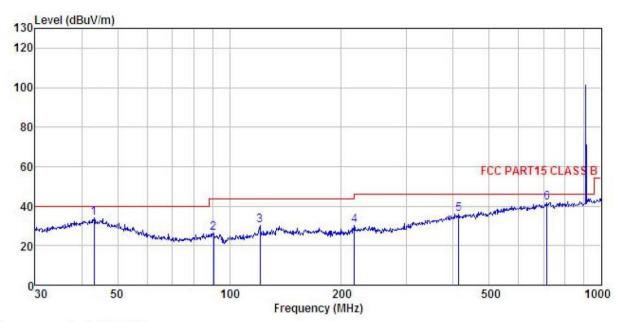






#### **Below 1GHz**

Horizontal:



: 3m chamber : FCC PART15 CLASS B 3m VULB9163(30M2G) HORIZONTAL Condition

EUT : Lookit : RTX1300 Model Test mode : TX mode Power Rating : DC 3.0V

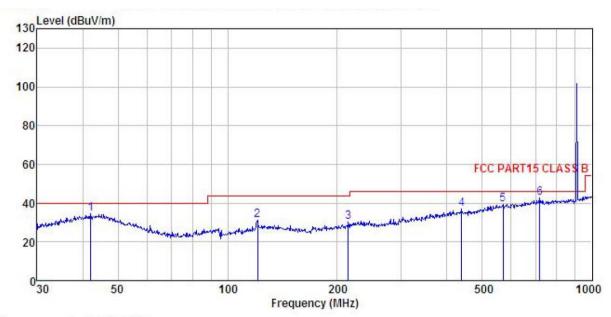
Environment : Temp:25.5°C Huni:55% Test Engineer: YT Remark :

CHILLR									
	Freq		Antenna Factor				Limit Line	Over Limit	Remark
_	MHz	dBu∜	dB/π		<u>ab</u>	$\overline{dBuV/m}$	dBuV/m	<u>dB</u>	
1	43.202	18.63	14.07	1.26	0.00	33.96	40.00	-6.04	QP
2	90.537	13.26	10.87	2.03	0.00	26.16	43.50	-17.34	QP
3	120.699	17.82	10.30	2.18	0.00	30.30	43.50	-13.20	QP
4	216.783	15.85	11.30	2.85	0.00	30.00	46.00	-16.00	QP
5	413.271	17.46	15.23	3.11	0.00	35.80	46.00	-10.20	QP
6	714.173	18.40	19.33	4.23	0.00	41.96	46.00	-4.04	QP





#### Vertical:



: 3m chamber : FCC PART15 CLASS B 3m VULB9163(30M2G) VERTICAL : Lookit Condition

: Lookit

Model : RTX1300
Test mode : TX mode
Power Rating : DC 3.0V
Environment : Temp:25.5°C Huni:55%
Test Engineer: YT
Remark :

MALK									
	Freq		Antenna Factor				Limit Line		Remark
_	MHz	—dBu∇	<u>dB</u> /m	dB	<u>dB</u>	dBuV/m	dBuV/m	dB	
1	42.154	19.69	13.73	1.25	0.00	34.67	40.00	-5.33	QP
1 2 3 4 5 6	120.699	18.46	10.30	2.18	0.00	30.94	43.50	-12.56	QP
3	214.514	15.91	11.30	2.85	0.00	30.06	43.50	-13.44	QP
4	438.655	18.28	15.60	3.17	0.00	37.05	46.00	-8.95	QP
5	570.610	17.80	17.79	3.91	0.00	39.50	46.00	-6.50	QP
6	719.200	18.80	19.52	4.25	0.00	42.57	46.00	-3.43	QP





#### **Above 1GHz**

				Peak value				
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
1814.00	52.90	25.05	4.13	41.25	40.83	74.00	-33.17	Vertical
2721.00	51.92	26.35	5.07	41.74	41.60	74.00	-32.40	Vertical
3628.00	50.99	27.72	5.92	41.58	43.05	74.00	-30.95	Vertical
4535.00	52.53	29.47	6.84	42.08	46.76	74.00	-27.24	Vertical
5442.00	52.62	30.54	7.16	41.85	48.47	74.00	-25.53	Vertical
6349.00	51.12	32.50	8.20	41.94	49.88	74.00	-24.12	Vertical
1814.00	49.93	25.10	4.12	41.21	37.94	74.00	-36.06	Horizontal
2721.00	52.32	26.35	5.07	41.74	42.00	74.00	-32.00	Horizontal
3628.00	51.64	27.72	5.92	41.58	43.70	74.00	-30.30	Horizontal
4535.00	52.81	29.47	6.84	42.08	36.48	74.00	-37.52	Horizontal
5442.00	50.78	30.54	7.18	41.85	46.65	74.00	-27.35	Horizontal
6349.00	50.48	32.47	8.19	41.94	49.20	74.00	-24.80	Horizontal
				Averagevalu	е			
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
1814.00	43.27	25.05	4.13	41.25	31.20	54.00	-22.80	Vertical
2721.00	42.59	26.35	5.07	41.74	32.27	54.00	-21.73	Vertical
3628.00	40.78	27.72	5.92	41.58	32.84	54.00	-21.16	Vertical
4535.00	42.86	29.47	6.84	42.08	37.09	54.00	-16.91	Vertical
5442.00	42.56	30.54	7.16	41.85	38.41	54.00	-15.59	Vertical
6349.00	41.58	32.50	8.20	41.94	40.34	54.00	-13.66	Vertical
1814.00	40.22	25.10	4.12	41.21	28.23	54.00	-25.77	Horizontal
2721.00	43.37	26.35	5.07	41.74	33.05	54.00	-20.95	Horizontal
3628.00	41.29	27.72	5.92	41.58	33.35	54.00	-20.65	Horizontal
4535.00	42.25	29.47	6.84	42.08	36.48	54.00	-17.52	Horizontal
5442.00	41.85	30.54	7.18	41.85	37.72	54.00	-16.28	Horizontal
6349.00	40.25	32.47	8.19	41.94	38.97	54.00	-15.03	Horizontal

#### Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.