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Report No.: SZEM140100028101

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FCC REPORT

Application No. : SZEM1401000281RF
Applicant: Leaf Holdings, Inc.
Manufacturer: Leaf Holdings, Inc.
Product Name: LeafPresenter Tablet
Model No.(EUT): v2
FCC ID: COJTALPV2B7I1
Trade Mark: Yes
Standards: 47 CFR Part 15B (2013)
Date of Receipt: 2014-01-22
Date of Test: 2014-02-19 to 2014-04-15
Date of Issue: 2014-04-30

Test Result:	PASS *
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* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Jack Zhang

EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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2 Test Summary

Test Item	Test Requirement	Test method	Result
Radiated Emission	47 CFR Part 15B	ANSI C63.4 (2009)	PASS
Conducted Emission (150kHz to 30MHz)	47 CFR Part 15B	ANSI C63.4 (2009)	PASS



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4 General Information

4.1 Client Information

Applicant:	Leaf Holdings, Inc.
Address of Applicant:	215 1 st Street, 4 th Floor, Cambridge, MA 02142, United States
Manufacturer:	Leaf Holdings, Inc.
Address of Manufacturer:	215 1 st Street, 4 th Floor, Cambridge, MA 02142, United States

4.2 General Description of EUT

Name:	LeafPresenter Tablet	
Model No.:	v2	
Trade Mark:	Yes	
Sample Type:	Portable production	
EUT Function:	LeafPresenter Tablet	
Power Supply:	Adapter:	Model No.: AF1805-A Input: AC 100-120V 0.4A, 50~60Hz LF Output: DC 5.0V 2.5A
	Battery:	3.7V 3000mAh (Li-ion Rechargeable Battery)
Test Voltage:	AC 120V 60Hz DC 3.7V battery fully charged	
AC Cable:	180cm (Unshield)	

4.3 Test Environment and Mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	50 % RH
Atmospheric Pressure:	1010 mbar
Test mode:	
Play mode:	Keep the EUT playing with standard testing signal.
Charge mode:	Keep the EUT charging.

4.4 Description of Support Units

The EUT has been tested independent unit.





4.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch E&E Lab,
No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China.
518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.6 Test Facility

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

- **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **VCCI**

The 3m Semi-anechoic chamber, Full-anechoic Chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2197, G-416, T-1153 and C-2383 respectively.

- **FCC – Registration No.: 556682**

SGS-CSTC Standards Technical 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 our files. Registration No.: 556682.

- **Industry Canada (IC)**

Two 3m Semi-anechoic chambers of SGS-CSTC Standards Technical Services Co., Ltd. have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1 & 4620C-2.



4.7 Deviation from Standards

None.

4.8 Abnormalities from Standard Conditions

None.

4.9 Other Information Requested by the Customer

None.

4.10 Equipment List

RE in Chamber					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	2014-06-10
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	2014-05-16
3	EMI Test software	AUDIX	E3	SEL0050	N/A
4	Coaxial cable	SGS	N/A	SEL0027	2014-05-29
5	Coaxial cable	SGS	N/A	SEL0189	2014-05-29
6	Coaxial cable	SGS	N/A	SEL0121	2014-05-29
7	Coaxial cable	SGS	N/A	SEL0178	2014-05-29
8	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	2014-10-24
9	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0006	2014-10-24
10	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	2014-05-16
11	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEL0168	2014-10-24
12	Barometer	ChangChun	DYM3	SEL0088	2014-05-24
13	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2014-10-24
14	Humidity/ Temperature Indicator	Shanghai Qixiang	ZJ1-2B	SEL0103	2014-10-24
15	Signal Generator	Rohde & Schwarz	SMY01	SEL0155	2014-10-24
16	Signal Generator (10M-27GHz)	Rohde & Schwarz	SMR27	SEL0067	2014-05-16
17	Loop Antenna	Beijing Daze	ZN30401	SEL0203	2014-06-04



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Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	2014-06-10
2	LISN	Rohde & Schwarz	ENV216	SEL0152	2014-10-24
3	LISN	ETS-LINDGREN	3816/2	SEL0021	2014-05-16
4	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	SEL0162	2014-11-10
5	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	SEL0163	2014-11-10
6	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	SEL0164	2014-11-10
7	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	2014-05-16
8	Coaxial Cable	SGS	N/A	SEL0025	2014-05-29
9	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2014-10-24
10	Humidity/ Temperature Indicator	Shanghai Qixiang	ZJ1-2B	SEL0103	2014-10-24
11	Barometer	Chang Chun	DYM3	SEL0088	2014-05-24

Note: The calibration interval is one year, all the instruments are valid.

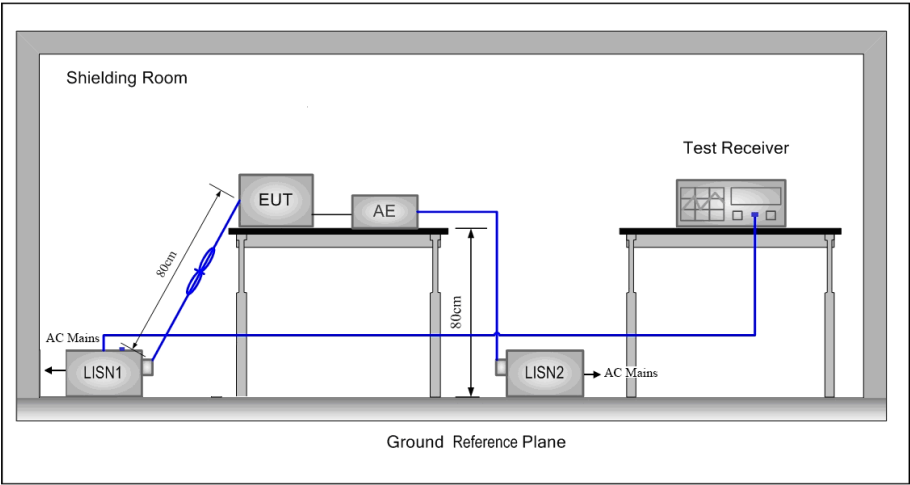
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5 Test results and Measurement Data

5.1 Conducted Emissions

Test Requirement:	47 CFR Part 15B		
Test Method:	ANSI C63.4: 2009		
Test Frequency Range:	150kHz to 30MHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test Procedure:	1) The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 5) 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: 2009 on conducted measurement.		

Test setup:	
Instruments Used:	Refer to section 4.10 for details
Test Mode:	Charge mode
Test Results:	Pass

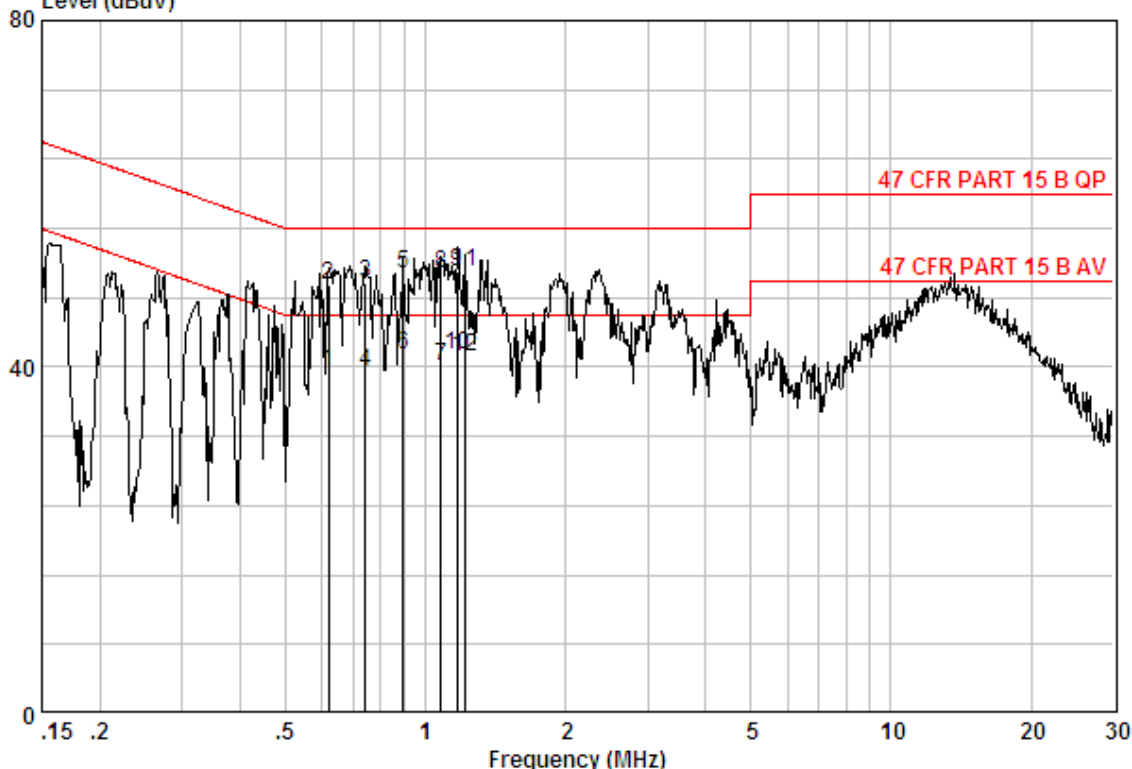
**Measurement Data**

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Live Line:

Data: 8
Level (dBuV)



Site : Shielding Room
Condition : 47 CFR PART 15 B QP CE LINE
Job No. : 0281RF
Mode : Charge

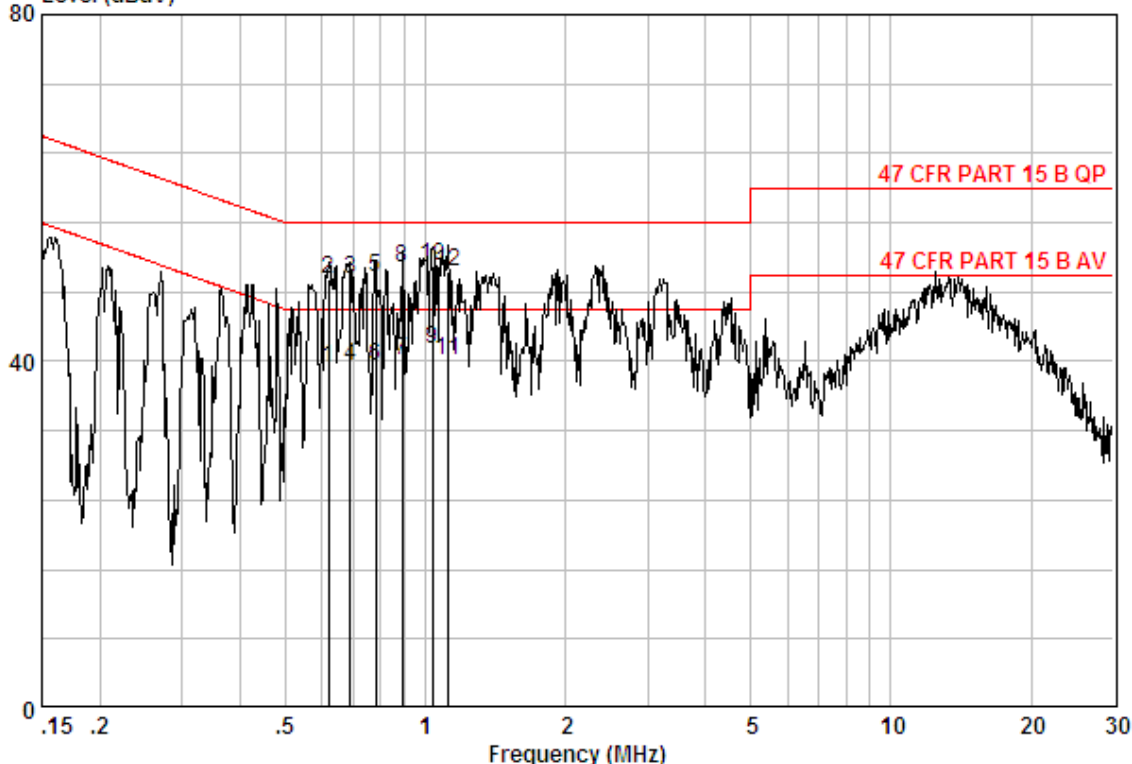
	Freq	Cable	LISN	Read	Limit	Over	
	MHz	Loss	Factor	Level	Line	Limit	Remark
		dB		dBuV	dBuV	dB	
1	0.62054	0.02	9.80	29.63	39.45	46.00	-6.55 Average
2	0.62054	0.02	9.80	39.69	49.51	56.00	-6.49 QP
3	0.74302	0.02	9.80	39.86	49.68	56.00	-6.32 QP
4	0.74302	0.02	9.80	29.64	39.46	46.00	-6.54 Average
5	0.89441	0.02	9.80	41.04	50.86	56.00	-5.14 QP
6 @	0.89441	0.02	9.80	31.65	41.47	46.00	-4.53 Average
7	1.082	0.02	9.80	30.28	40.10	46.00	-5.90 Average
8	1.082	0.02	9.80	40.99	50.81	56.00	-5.19 QP
9	1.172	0.02	9.80	41.11	50.93	56.00	-5.07 QP
10 @	1.172	0.02	9.80	31.65	41.47	46.00	-4.53 Average
11	1.216	0.02	9.80	41.24	51.06	56.00	-4.94 QP
12	1.216	0.02	9.80	31.27	41.09	46.00	-4.91 Average

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Neutral Line:

Data: 7
Level (dBuV)



Site : Shielding Room
Condition : 47 CFR PART 15 B QP CE NEUTRAL
Job No. : 0281RF
Mode : Charge

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.62054	0.02	9.80	29.34	39.16	46.00	-6.84	Average
2	0.62054	0.02	9.80	39.68	49.49	56.00	-6.51	QP
3	0.68990	0.02	9.80	39.64	49.46	56.00	-6.54	QP
4	0.68990	0.02	9.80	29.65	39.47	46.00	-6.53	Average
5	0.78345	0.02	9.80	39.91	49.73	56.00	-6.27	QP
6	0.78345	0.02	9.80	29.65	39.47	46.00	-6.53	Average
7	0.88969	0.02	9.80	30.22	40.04	46.00	-5.96	Average
8	0.88969	0.02	9.80	40.99	50.81	56.00	-5.19	QP
9 @	1.037	0.02	9.80	31.64	41.46	46.00	-4.54	Average
10	1.037	0.02	9.80	41.28	51.10	56.00	-4.90	QP
11	1.123	0.02	9.80	30.28	40.10	46.00	-5.90	Average
12	1.123	0.02	9.80	40.63	50.45	56.00	-5.55	QP

Notes:

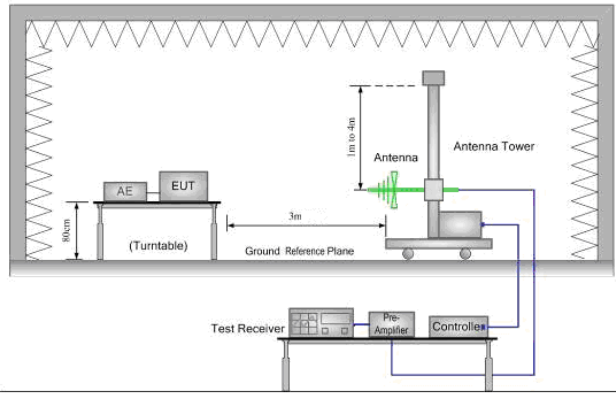
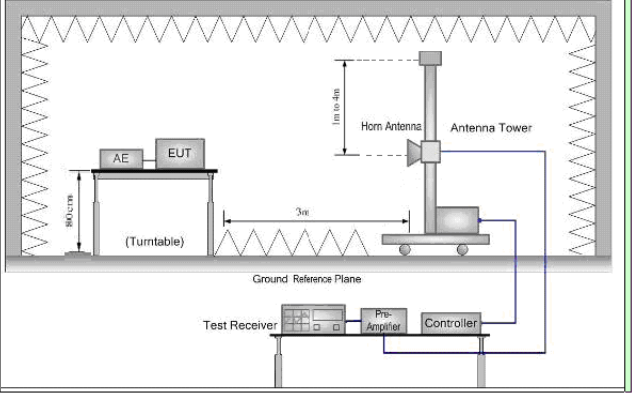
1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.

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5.2 Radiated Emission

Test Requirement:	47 CFR Part 15B				
Test Method:	ANSI C63.4: 2009				
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	100kHz	300kHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	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
	Above 1GHz		54.0		Average Value
			74.0		Peak Value
Test Procedure:	a. 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. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. 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. d. 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. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. 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.				

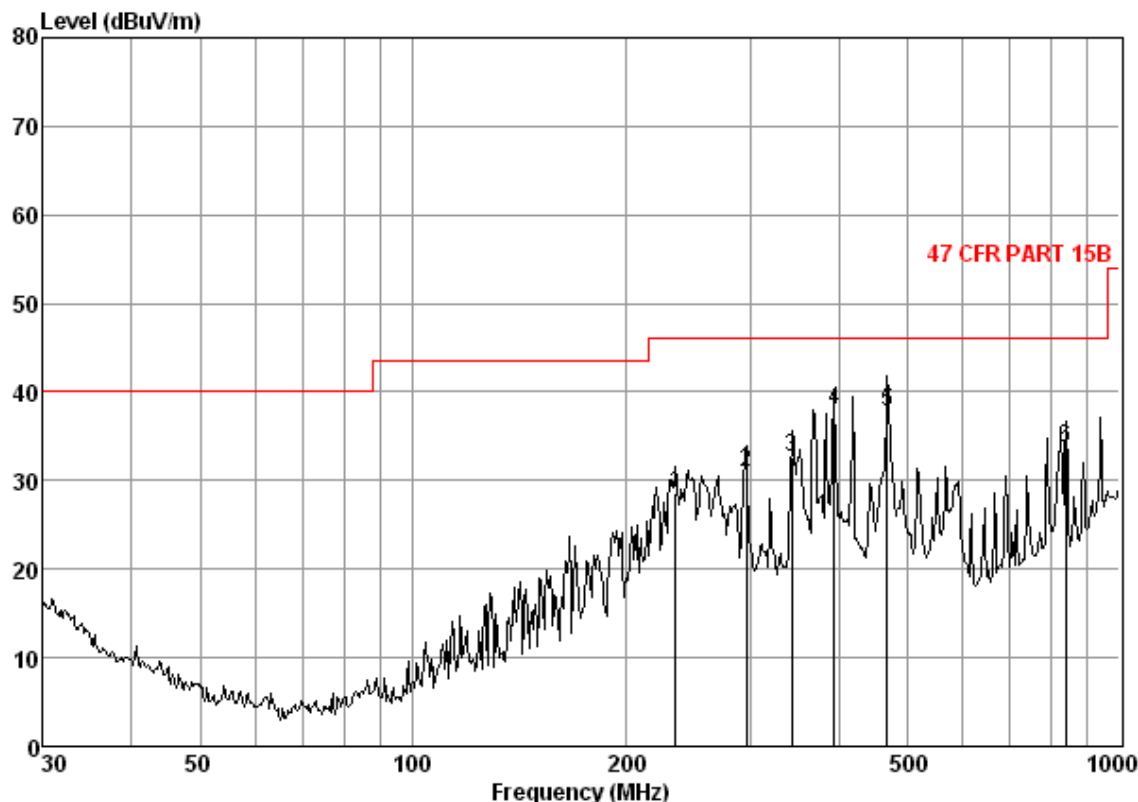
Test Setup:	
	
Figure 1. 30MHz to 1GHz	Figure 2. Above 1 GHz
Instruments Used:	Refer to section 4.10 for details
Exploratory Test Mode:	Play mode and Charge mode
Final Test Mode:	Through Pre-scan, find the Play mode is the worse case. Only the worst case mode is recorded in the report.
Test Results:	Pass





QP value: 30MHz~1GHz

Horizontal



Condition: 47 CFR PART 15B 3m 3142C HORIZONTAL

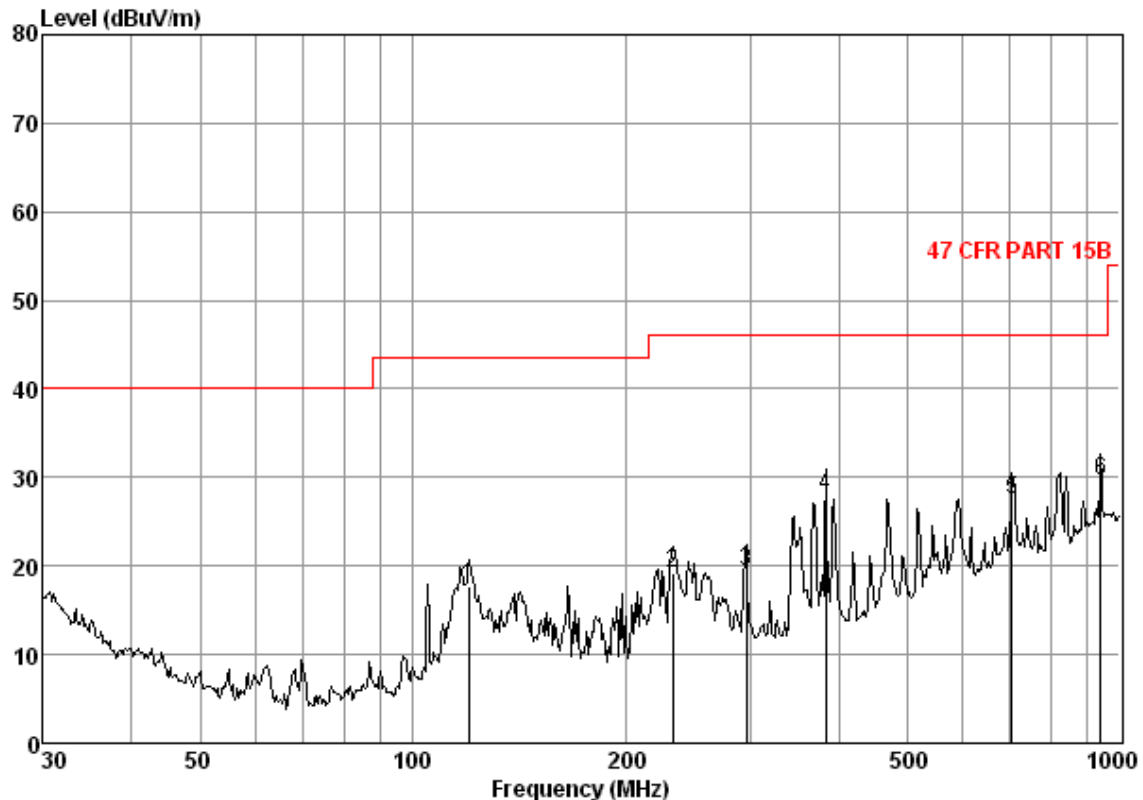
Job No. : 0281RF

Mode : Play

	Freq	Cable	Antenna	Preamp	Read		Limit	Over
		Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	234.99	1.60	8.50	26.58	45.14	28.66	46.00	-17.34
2	296.18	1.88	9.54	26.41	45.88	30.89	46.00	-15.11
3	343.18	2.04	10.56	26.75	46.83	32.68	46.00	-13.32
4	394.85	2.19	11.59	27.09	51.26	37.95	46.00	-8.05
5	468.88	2.49	13.20	27.54	49.69	37.84	46.00	-8.16
6	839.18	3.36	19.22	27.09	38.13	33.62	46.00	-12.38



Vertical



Condition: 47 CFR PART 15B 3m 3142C VERTICAL

Job No. : 0281RF

Mode : Play

	Freq	Cable	Antenna	Preamp	Read	Limit	Over
		Loss	Factor	Factor	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m
1	119.86	1.25	7.70	27.07	35.78	17.66	43.50
2	233.35	1.59	8.42	26.58	35.83	19.26	46.00
3	296.18	1.88	9.54	26.41	34.42	19.43	46.00
4	383.93	2.16	11.66	27.03	41.24	28.03	46.00
5	704.23	2.92	16.95	27.41	35.15	27.61	46.00
6	938.83	3.64	20.60	26.58	31.92	29.58	46.00



above 1GHz

Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarity
1619.283	2.59	28.96	39.41	52.82	44.96	74	-29.04	Vertical
2329.632	2.96	32.39	39.81	49.65	45.19	74	-28.81	Vertical
3136.610	3.42	33.34	40.40	51.09	47.45	74	-26.55	Vertical
3772.333	3.98	33.53	40.87	51.42	48.06	74	-25.94	Vertical
4377.203	4.41	34.87	41.32	49.34	47.30	74	-26.70	Vertical
5446.670	4.94	34.85	41.40	51.61	50.00	74	-24.00	Vertical
1596.237	2.58	28.84	39.39	53.19	45.22	74	-28.78	Horizontal
2055.023	2.86	31.89	39.61	50.19	45.33	74	-28.67	Horizontal
2816.900	3.21	33.14	40.17	50.20	46.38	74	-27.62	Horizontal
3339.610	3.61	33.26	40.55	50.91	47.23	74	-26.77	Horizontal
4345.943	4.38	34.78	41.29	50.74	48.61	74	-25.39	Horizontal
5321.268	4.89	34.72	41.52	48.13	46.22	74	-27.78	Horizontal

Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.