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Report No.: SZEM120700380601

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FCC Test Report (Verification)

Application No.: SZEM1207003806IT
Applicant: Astro Gaming, Inc.
Address of Applicant: 348 6th St.San Francisco, CA 94103
Manufacturer/Factory: Shenzhen Grandsun Electronic Co.,Ltd
Address of Manufacturer/Factory: Pingdi Gaoqiao Industry Zone,Longgang District,Shenzhen,China
Equipment Under Test (EUT):
EUT Name: MIXAMPTM PRO
Model No.: MA3
Trade mark: ASTRO
FCC ID: YQ6-AG20120001
Standards: 47 CFR PART 15,Subpart B:2011
Date of Receipt: 2012-07-10
Date of Test: 2012-07-16 to 2012-07-18
Date of Issue: 2012-09-11

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	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission (30MHz to 1GHz) §	47 CFR PART 15,Subpart B:2011	ANSI C63.4:2009	Class B	PASS
Conducted Emission (150kHz to 30MHz)	47 CFR PART 15,Subpart B:2011	ANSI C63.4:2009	Class B	PASS

§

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement Range (MHz)
Below 1.705	30
1.705 to 108	1000
108 to 500	2000
500 to 1000	5000
Above 1000	5th harmonic of the highest frequency or 40GHz, whichever is lower

Remark: Pretest EUT in the different connection (PC or PS3 or XBOX 360) to find the worst case. Complete test was conducted at the connection (PC), since no worst case was found.

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4 General Information

4.1 Details of E.U.T.

Power Supply:	Supply By PC or PS3 or XBOX 360 (only connect)
Optical Cable:	297cm (Unshielded)
USB Power Cable:	298cm (Unshielded)
Aux Cable:	151cm (Unshielded)
PC Splitter:	7cm (Unshielded)
XBOX Live Cable:	151cm (Unshielded)
The highest working frequency:	12.288MHz

4.2 Description of Support Units

The EUT has been tested with associated equipment below.

Description	Manufacturer	Model No.
PC	DELL	DCSM
LCD-displaying	DELL	SP2208WFPt
KEYBOARD	DELL	SK-8115
MOUSE	Lenovo	MO28UOL
PC	IBM	8172
LCD-displaying	Lenovo	L1711pC
KEYBOARD	IBM	SK-8115
MOUSE	Lenovo	MO28UOA
PS3	Sony Computer Entertainment Inc.	CECHP12
Xbox 360	Microsoft	Xbox 360 console
TV	DELL	SP2208WFPt
Earphone	Supply by client	A40

4.3 Standards Applicable for Testing

The customer requested FCC tests for MIXAMPTM PRO.
The standard used was 47 CFR PART 15, Subpart B

4.4 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.

4.5 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)**
The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1.

4.6 Deviation from Standards

None.

4.7 Abnormalities from Standard Conditions

None.

5 Equipments Used during Test

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	2013-06-10
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	2013-05-17
3	EMI Test software	AUDIX	E3	SEL0050	N/A
4	Coaxial cable	SGS	N/A	SEL0028	2013-05-29
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	2012-10-29
6	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	2013-05-17
7	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0006	2012-10-29
8	Pre-Amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEL0168	2012-10-26
9	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	2012-10-29
10	Band filter	Amindeon	Asi 3314	SEL0094	2013-05-17
11	Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	2012-10-28

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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	2013-06-10
2	LISN	Rohde & Schwarz	ENV216	SEL0152	2012-10-23
3	LISN	ETS-LINDGREN	3816/2	SEL0021	2013-5-17
4	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T8-02	EMC0120	2012-11-11
5	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T4-02	EMC0121	2012-11-11
6	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLISN-T2-02	EMC0122	2012-11-11
7	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	2013-5-17
8	Coaxial Cable	SGS	N/A	SEL0025	2013-05-29

General used equipment					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Due date (yyyy-mm-dd)
1	Humidity/ Temperature Indicator	Shanghai	ZJ1-2B	SEL0102 to SEL0103	2012-10-27
2	Humidity/ Temperature Indicator	Shanghai	ZJ1-2B	SEL0101	2012-10-27
3	Barometer	ChangChun	DYM3	SEL0088	2013-05-17

6 Test Results

6.1 Conducted Emissions Mains Terminals, 150kHz to 30MHz

Test Requirement:	47 CFR PART 15, Subpart B
Test Method:	ANSI C63.4
Test Voltage:	AC 120V 60Hz
Frequency Range:	150kHz to 30MHz
Class / Severity:	Class B
Limit:	
0.15M-0.5MHz	66dB(dBμV)-56dB(dBμV) quasi-peak, 56dB(dBμV)-46dB(dBμV) average
0.5M-5MHz	56dB(dBμV) quasi-peak, 46dB(dBμV) average
5M-30MHz	60dB(dBμV) quasi-peak, 50dB(dBμV) average
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)
	Quasi-Peak if maximised peak within 6dB of Quasi-Peak limit

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 25.0 °C Humidity: 50 % RH Atmospheric Pressure: 1005 mbar

EUT Operation: Test the EUT in USB in mode, (pre-test was performed at OPT in mode, USB in mode and MP3 in mode, completed test was conducted at USB in mode since it was the worst case.) Input the external audio source to EUT via USB cable, Keep EUT working normally.

6.1.2 Measurement Data

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

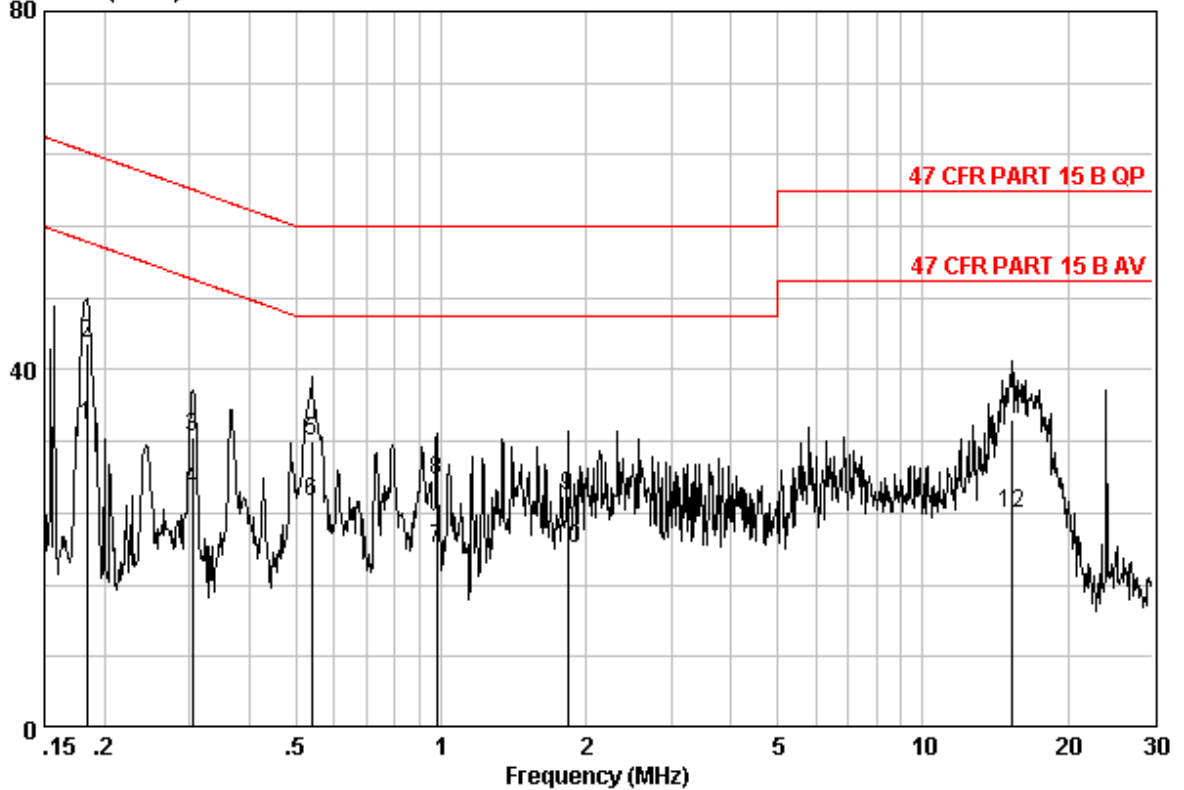
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

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Live line

Data: 584
Level (dBuV)



Site : Shielding Room
Condition : 47 CFR PART 15 B QP CE LINE
Job No. : 3806IT
Mode : USB in

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.18346	0.04	9.60	24.23	33.87	54.33	-20.45	Average
2	0.18346	0.04	9.60	33.28	42.92	64.33	-21.41	QP
3	0.30509	0.05	9.60	22.93	32.58	60.10	-27.52	QP
4	0.30509	0.05	9.60	16.96	26.61	50.10	-23.49	Average
5	0.53782	0.06	9.62	22.27	31.95	56.00	-24.05	QP
6	0.53782	0.06	9.62	15.55	25.23	46.00	-20.77	Average
7	0.97871	0.08	9.70	10.20	19.98	46.00	-26.02	Average
8	0.97871	0.08	9.70	17.96	27.74	56.00	-28.26	QP
9	1.829	0.11	9.70	16.14	25.95	56.00	-30.05	QP
10	1.829	0.11	9.70	10.27	20.08	46.00	-25.92	Average
11	15.307	0.25	10.01	24.27	34.53	60.00	-25.47	QP
12	15.307	0.25	10.01	13.78	24.04	50.00	-25.96	Average



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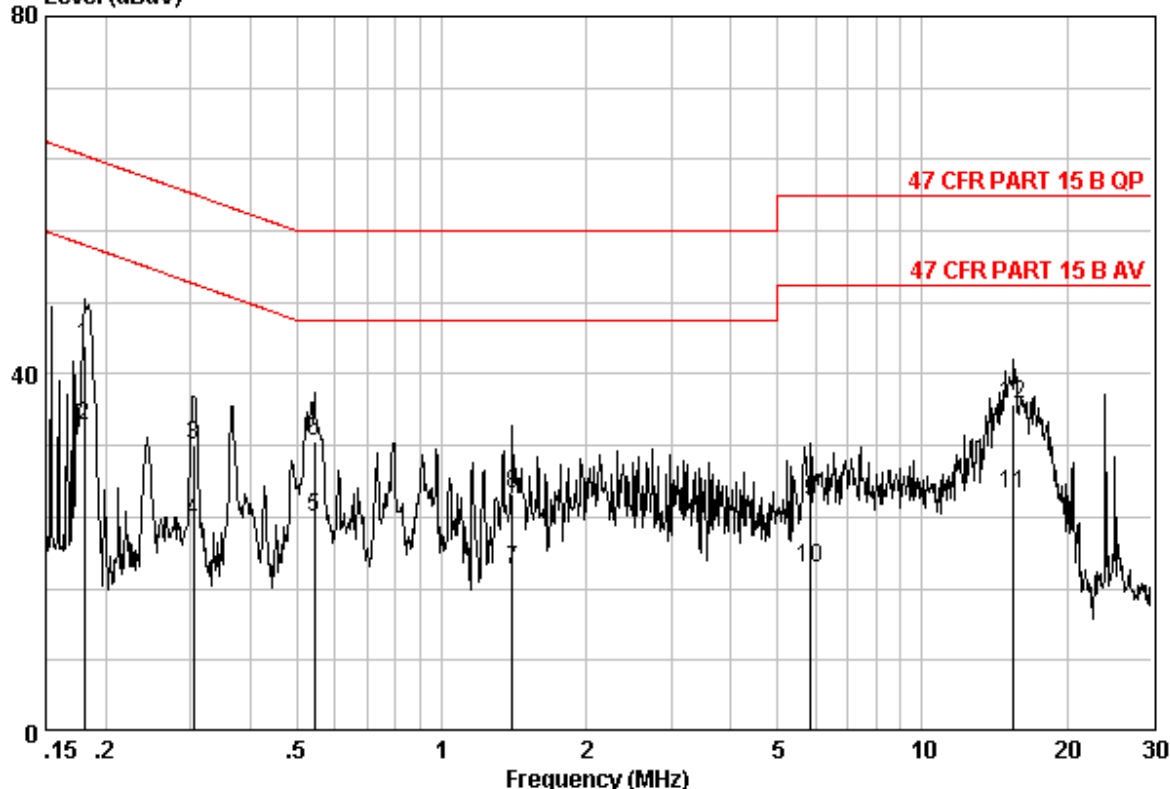
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Neutral line

Data: 585

Level (dBuV)



Site : Shielding Room
Condition : 47 CFR PART 15 B QP CE NEUTRAL
Job No. : 3806IT
Mode : USB in

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.18056	0.04	9.60	33.62	43.26	64.46	-21.20	QP
2	0.18056	0.04	9.60	24.65	34.29	54.46	-20.17	Average
3	0.30509	0.05	9.60	22.45	32.10	60.10	-28.00	QP
4	0.30509	0.05	9.60	13.90	23.55	50.10	-26.55	Average
5	0.54355	0.06	9.63	14.20	23.89	46.00	-22.11	Average
6	0.54355	0.06	9.63	22.82	32.51	56.00	-23.49	QP
7	1.403	0.10	9.70	8.39	18.19	46.00	-27.81	Average
8	1.403	0.10	9.70	16.69	26.49	56.00	-29.51	QP
9	5.867	0.18	9.80	15.82	25.80	60.00	-34.20	QP
10	5.867	0.18	9.80	8.35	18.33	50.00	-31.67	Average
11	15.470	0.25	10.01	16.32	26.58	50.00	-23.42	Average
12	15.470	0.25	10.01	26.33	36.59	60.00	-23.41	QP

6.2 Radiated Emissions, 30MHz to 1GHz

Test Requirement:	47 CFR PART 15, Subpart B
Test Method:	ANSI C63.4
Test Voltage:	AC 120V 60Hz
Frequency Range:	30MHz to 1GHz
Measurement Distance:	3m
Class:	Class B
Limit:	40.0 dB μ V/m between 30MHz & 88MHz 43.5 dB μ V/m between 88MHz & 216MHz 46.0 dB μ V/m between 216MHz & 960MHz 54.0 dB μ V/m above 960MHz
Detector:	Peak for pre-scan (120kHz resolution bandwidth) Quasi-Peak if maximised peak within 6dB of limit

6.2.1 E.U.T. Operation

Operating Environment:					
Temperature:	25.0 °C	Humidity:	50 % RH	Atmospheric Pressure:	1005 mbar
EUT Operation:	Test the EUT in USB IN mode, input the external audio source to EUT via USB cable, Keep EUT working normally.				
	Test the EUT in MP3 IN mode, input the external audio source to EUT via MP3 port, Keep EUT working normally.				
	Test the EUT in OPT IN mode, input the external audio source to EUT via optical cable, Keep EUT working normally.				

6.2.2 Measurement Data

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

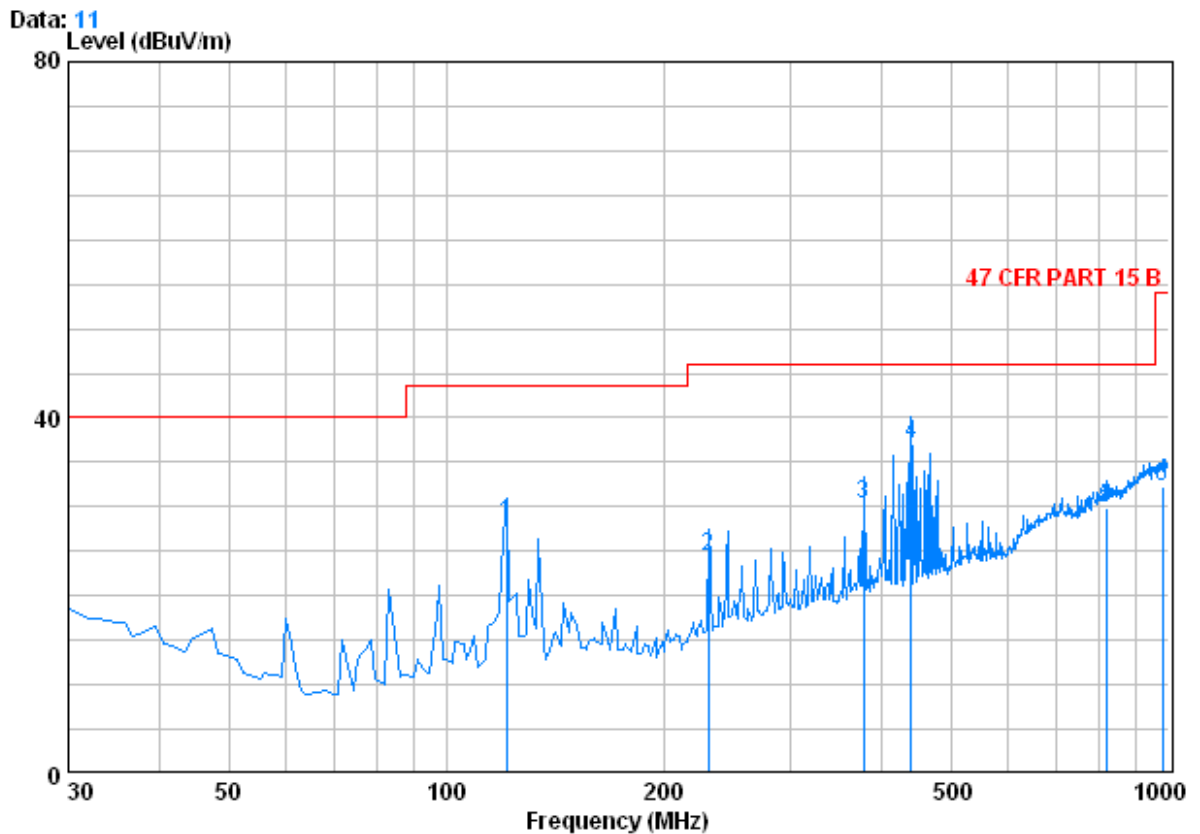
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USB IN mode

Horizontal



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

Job No. : 3806IT

Test mode : USB IN

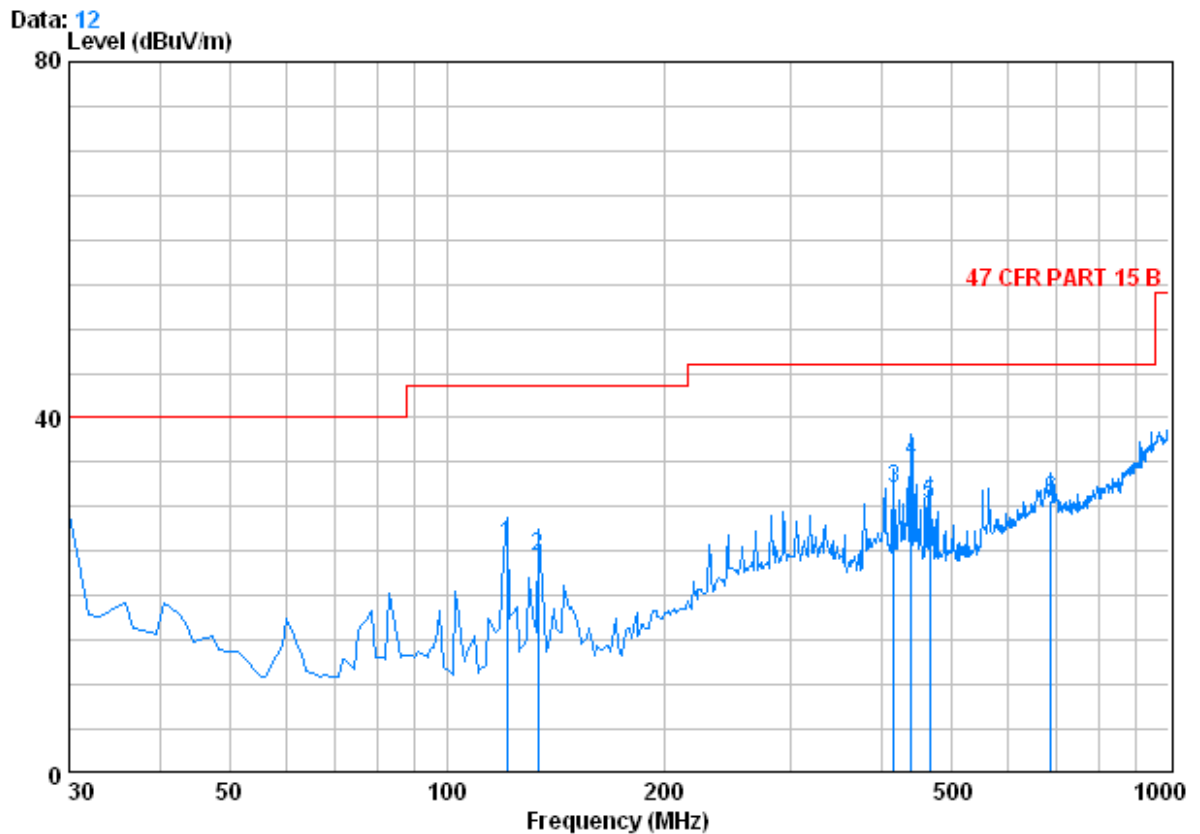
	Freq	Cable Loss	Antenna Factor	Preamplifier Factor	Read Level	Level	Limit	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	121.180	1.26	7.87	27.06	45.96	28.02	43.50	-15.48
2	230.790	1.58	11.70	26.59	37.73	24.41	46.00	-21.59
3	378.230	2.14	16.03	26.99	39.21	30.39	46.00	-15.61
4	440.310	2.37	16.71	27.38	45.39	37.10	46.00	-8.90
5	819.580	3.28	22.33	27.20	31.52	29.93	46.00	-16.07
6	979.630	3.68	24.04	26.40	31.04	32.36	54.00	-21.64

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Vertical



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

Job No. : 3806IT

Test mode : USB IN

	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	121.180	1.26	7.87	27.06	43.65	25.71	43.50	-17.79
2	133.790	1.28	7.86	26.99	42.22	24.37	43.50	-19.13
3	416.060	2.27	16.36	27.23	40.75	32.15	46.00	-13.85
4	440.310	2.37	16.71	27.38	43.40	35.11	46.00	-10.89
5	466.500	2.48	17.48	27.54	37.87	30.29	46.00	-15.71
6	687.660	2.88	21.50	27.43	33.74	30.69	46.00	-15.31

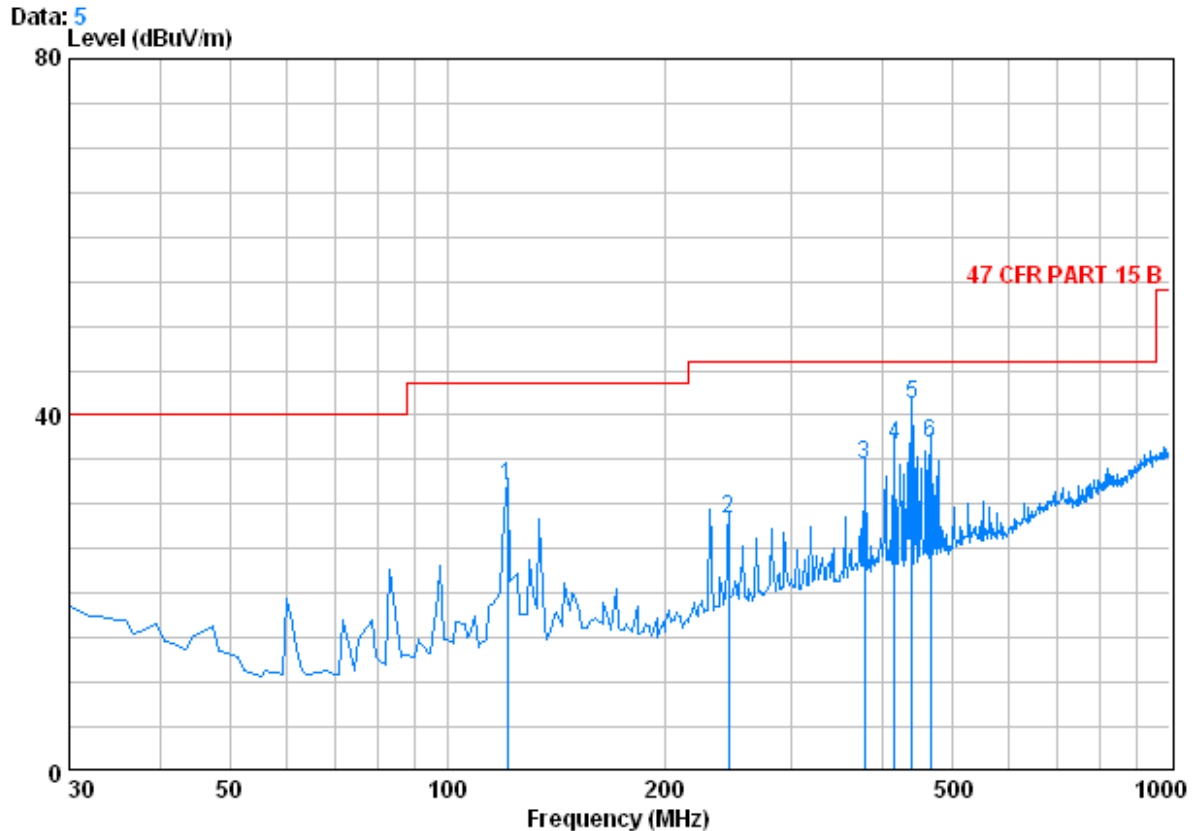
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MP3 IN mode

Horizontal



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

Job No. : 3806IT

Test mode : MP3 IN

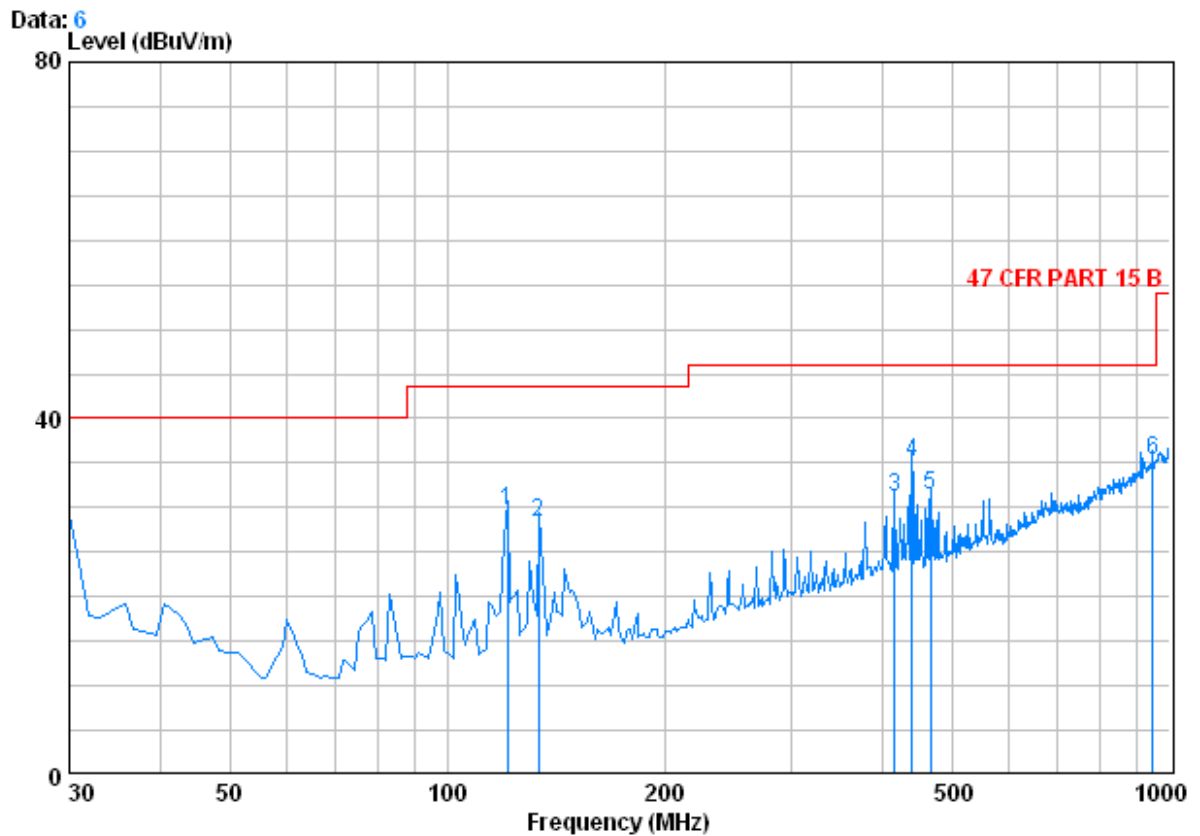
	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit	Over
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	121.180	1.26	7.87	27.06	49.96	32.02	43.50	-11.48
2	245.340	1.65	12.16	26.55	40.98	28.23	46.00	-17.77
3	378.230	2.14	16.03	26.99	43.21	34.39	46.00	-11.61
4	416.060	2.27	16.36	27.23	45.30	36.70	46.00	-9.30
5 @	440.310	2.37	16.71	27.38	49.39	41.10	46.00	-4.90
6	466.500	2.48	17.48	27.54	44.44	36.86	46.00	-9.14

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Vertical



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

Job No. : 3806IT

Test mode : MP3 IN

	Freq	Cable Loss	Antenna Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	121.180	1.26	7.87	27.06	47.65	29.71	43.50	-13.79
2	133.790	1.28	7.86	26.99	46.22	28.37	43.50	-15.13
3	416.060	2.27	16.36	27.23	39.75	31.15	46.00	-14.85
4	440.310	2.37	16.71	27.38	43.40	35.11	46.00	-10.89
5	466.500	2.48	17.48	27.54	38.87	31.29	46.00	-14.71
6	947.620	3.65	23.30	26.54	34.90	35.31	46.00	-10.69

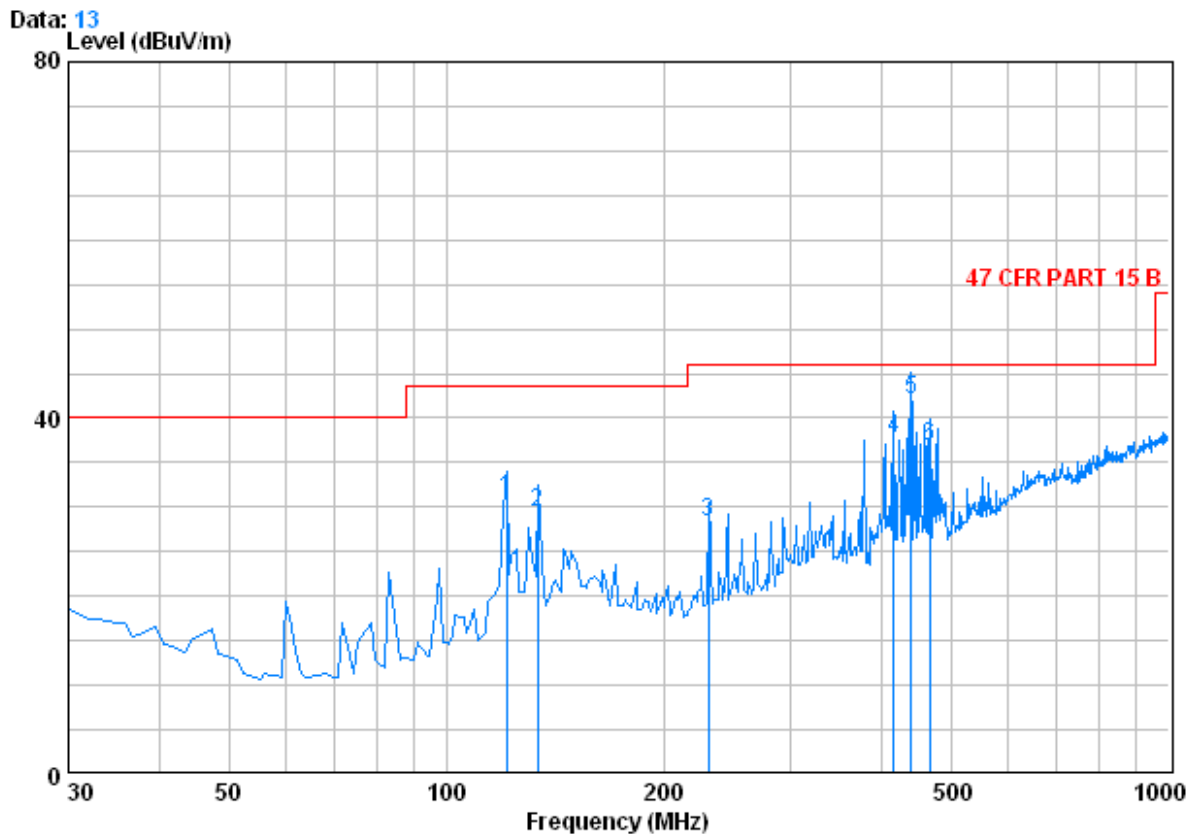
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OPT IN mode

Horizontal



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

Job No. : 3806IT

Test mode : OPT IN

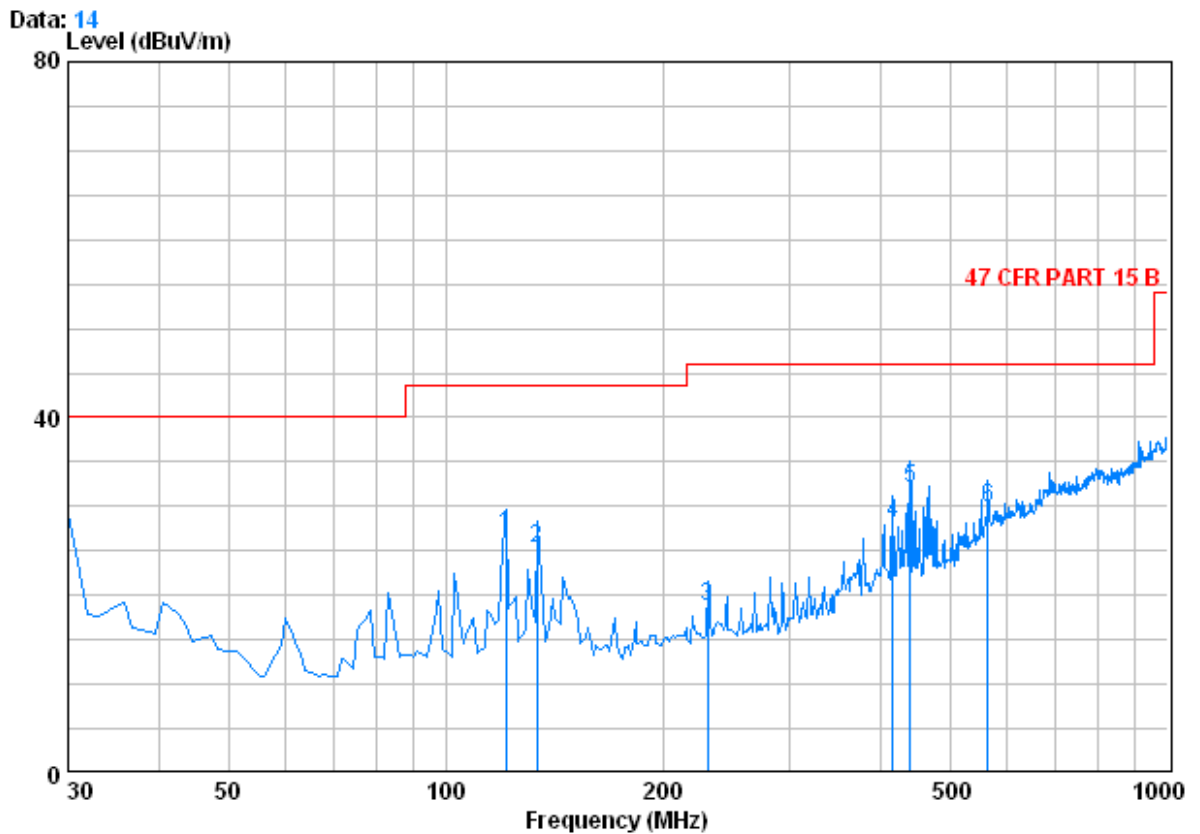
		CableAntenna		Preamplifier	Read		Limit	Over
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	121.180	1.26	7.87	27.06	48.96	31.02	43.50	-12.48
2	133.790	1.28	7.86	26.99	47.25	29.40	43.50	-14.10
3	230.790	1.58	11.70	26.59	41.73	28.41	46.00	-17.59
4	416.060	2.27	16.36	27.23	46.30	37.70	46.00	-8.30
5	440.310	2.37	16.71	27.38	50.39	42.10	46.00	-3.90
6	466.500	2.48	17.48	27.54	44.44	36.86	46.00	-9.14

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Vertical



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

Job No. : 3806IT

Test mode : OPT IN

	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	121.180	1.26	7.87	27.06	44.65	26.71	43.50	-16.79
2	133.790	1.28	7.86	26.99	43.22	25.37	43.50	-18.13
3	230.790	1.58	11.70	26.59	31.99	18.67	46.00	-27.33
4	416.060	2.27	16.36	27.23	36.75	28.15	46.00	-17.85
5	440.310	2.37	16.71	27.38	40.40	32.11	46.00	-13.89
6	563.500	2.67	19.02	27.59	35.87	29.96	46.00	-16.04