TEST REPORT

Applicant:	Cross Point B.V.
Address of Applicant:	Waanderweg 12, Emmen, 7812 HZ, Netherlands
Manufacturer:	Cross Point B.V.
Address of Manufacturer:	Waanderweg 12, Emmen, 7812 HZ, Netherlands
Product name:	AM DEACTIVATOR
Model:	XEXUS AM DEACTIVATOR
Rating(s):	AC 230V, 50-60Hz, 0.16A AC 115V, 50-60Hz, 0.32A
Trademark:	/
Standards:	FCC CER 47 Part 15 Section 15C: 2016
FCC ID:	N9G-CP321AMD
Data of Receipt:	2016-07-25
Date of Test:	2016-07-25~2016-08-16
Date of Issue:	2016-11-01
Test Result	**Pass***

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

Authorized for issue by:

Test by:			***Reviewed by:***		
Nov.01, 2016	Jumy Qiu	Jumy qiu	Nov.01, 2016	Pauler Li	Pauler Li
	Project Engineer			Project Manager	
Date	*Name/Position*	*Signature*	*Date*	*Name/Position*	*Signature*

Possible test case verdicts:	
test case does not apply to the test object ..:	N/A
test object does meet the requirement .....:	P (Pass)
test object does not meet the requirement ..:	F (Fail)

Testing Laboratory information:		
Testing Laboratory Name ..... :		I-Test Laboratory
Address ..... :		1-2 floor, South Block, Building A2 , No 3 Keyan Lu, Science City, Guangzhou, Guangdong Province, P.R. China
Testing location	:	Same as above
Tel	:	0086-20-32209330
Fax	:	0086-20-62824387
E-mail	:	itl@i-testlab.com

General remarks:

The test results presented in this report relate only to the object tested.

The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.

This report would be invalid test report without all the signatures of testing technician and approver.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

General product information:

/

1 Test Summary

Description of Test Item	Standard	Results
Radiated Emission (9KHz-1.25MHz)	FCC Part 15: 209 ANSI C63.4: 2014	PASS
Power Line Conducted Emissions (150KHz-30MHz)	FCC Part 15: 15.207 ANSI C63.4: 2014	PASS
Antenna Requirement	FCC Part 15: 15.203	PASS
Remark: /		

2 Contents

3 General Information

3.1 Client Information

Applicant:	Cross Point B.V.
Address of Applicant:	Waanderweg 12, Emmen, 7812 HZ, Netherlands

3.2 General Description of E.U.T.

Name:	AM DEACTIVATOR
Model No.:	NEXUS AM DEACTIVATOR
Trade Mark:	/
Operating Frequency:	58kHz
Radio Technology:	Acoustic Magnetic
Antenna type and gain:	Integrated antenna, PK Gain: 0dBi
Test Software of EUT:	AM_Deactivator_BL_2_01_APP_2_04.hex (2.04.23336)
Test hardware of EUT:	AI 2108-1200-0000_R2

3.3 Details of E.U.T.

EUT Power Supply: AC for power supply

Test mode:

Tested mode, channel, and data rate information		
Mode	Channel	Frequency (kHz)
1	CH1	58
Note: According exploratory test, EUT will have maximum output power in those data rate. So those data rate were used for all test.		

Power cord: 1.8m AC power cord

3.4 Description of Support Units

The EUT has been tested as an independent unit for fixed frequency by testing lab.

Details of Support Equipment(s)

Description	Manufacturer	Model No.	Connection	Working state
/	/	/	/	/

3.5 Test Location

All tests were performed at:

I-Test Laboratory

1-2 floor, South Block, Building A2 , No 3 Keyan Lu, Science City, Guangzhou, Guangdong Province, P.R. China

0086-20-32209330

itl@i-testlab.com

No tests were sub-contracted.

3.6 Deviation from Standards

Biconical and log periodic antennas were used instead of dipole antennas.

3.7 Abnormalities from Standard Conditions

None.

3.8 Other Information Requested by the Customer

None.

3.9 Test Facility

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

- **CNAS(Lab code:L4957)**
- **FCC (Registration No.:935596)**
- **IC (Registration NO.:8368A)**

3.10 Measurement Uncertainty

The below measurement uncertainties given below are based on a 95% confidence level (base on a coverage factor (k=2).)

Parameter	Uncertainty
Radio frequency	$\pm 1.06 \times 10^{-7}$
total RF power, conducted	1.37 dB
RF power density , conducted	2.89 dB
All emissions, radiated	±3.35 dB
Temperature	±0.23 °C
Humidity	±0.3 %
（DC and low frequency voltages	±0.3 %

4 Instruments Used during Test

No.	Test Equipment	Manufacturer	Model	Serial No.	Last Cal.	Cal. Due
ITL-114	Spectrum Analyzer	Agilent	N9010A	MY51250936	2016/01/25	2017/01/25
ITL-154	EMI test receiver 9kHz to 26.5GHz	R&S	ESR26	101257	2016/01/05	2017/01/05
ITL-116	Pre Amplifier	HP	8447F	3113A05905	2016/01/25	2017/01/25
ITL-117	Wideband Amplifier Super Ultra	Mini-circuits	ZVA-183-S+	469101134	2016/01/25	2017/01/25
ITL-105	Biconilog Antenna	ETS•Lindgren	3142D	00108096	2015/01/24	2018/01/24
ITL-110	Horn Antenna	A-INFOMW	JXTXLB-10180-N	J2031090612133	2015/01/24	2018/01/24
ITL-102	EMI Test receiver	R&S	ESCI	100910	2016/06/17	2017/06/17
ITL-103	Two-line v-network	R&S	ENV216	100120	2016/06/17	2017/06/17
ITL-115	50Ω Coaxial Cable	Mini-circuits	CBL	C001	2016/09/07	2017/09/07
ITL-100	Semi-Anechoic chamber	ETS•Lindgren	FACT3 2.0	CT09015	2016/06/17	2017/06/17
ITL-145	Loop Antenna	ZHINAN	ZN30900A	002489	2016/01/25	2017/01/25
ITL-146	Horn Antenna	Schwarzbeck	BBHA 9170	B09806543	2016/06/17	2017/06/17
ITL-101	Shielded Room	ETS•Lindgren	8*4*3	CT09010	2015/03/09	2018/03/09

5 Test Results

5.1 E.U.T. test conditions

Test Voltage:	Input: 120V
Temperature:	20.0 -25.0 °C
Humidity:	38-50 % RH
Atmospheric Pressure:	1000 -1010 mbar

5.2 Antenna requirement

Standard requirement

15.203 requirement:

For intentional device. According to FCC 47 CFR Section 15.203. 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.

15.209 requirement:

According to FCC 47 CFR Section 15.209, if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

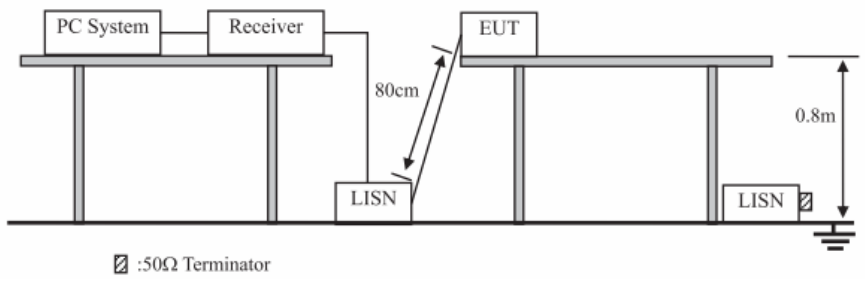
EUT Antenna

The antenna used for this product are integral Antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 0dBi.

Test result: The unit does meet the FCC requirements.

5.3 Power Line Conducted Emissions

Block Diagram of Test Setup:



Limit:

Frequency	Maximum RF Line Voltage	
	QP Level dB(uV)	AV Level dB(uV)
150kHz ~ 500kHz	66 ~ 56*	56 ~46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

Test Procedure:

(1) The EUT was placed on a non-matallic table, 80cm above the ground plane.

(2) Setup the EUT and simulator as shown in Test setup photo.

(3) The EUT power connected to the power mains through a power adapter and a line impedance stabilization network (L.I.S.N1). The other peripheral devices power cord connected to the power mains through a line impedance stabilization network (L.I.S.N1), this provided a 50-ohm coupling impedance for the EUT (Please refer to the block diagram of the test setup and photographs). Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4 2009 and ANSI C64.10:2009 on conducted Emission test.

(4) The bandwidth of test receiver is set at 10KHz.

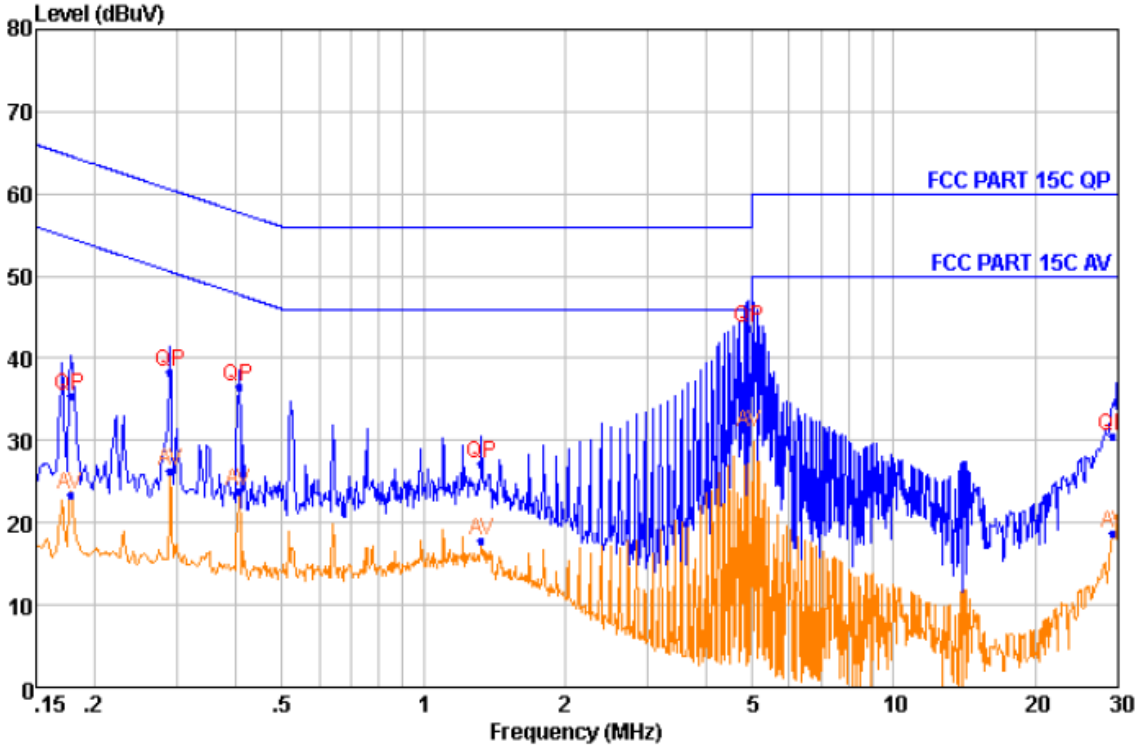
(5) The frequency range from 150 KHz to 30MHz is checked.

Test result:

Pass. (See below detailed test data)

Live Line:

Level (dBμV)

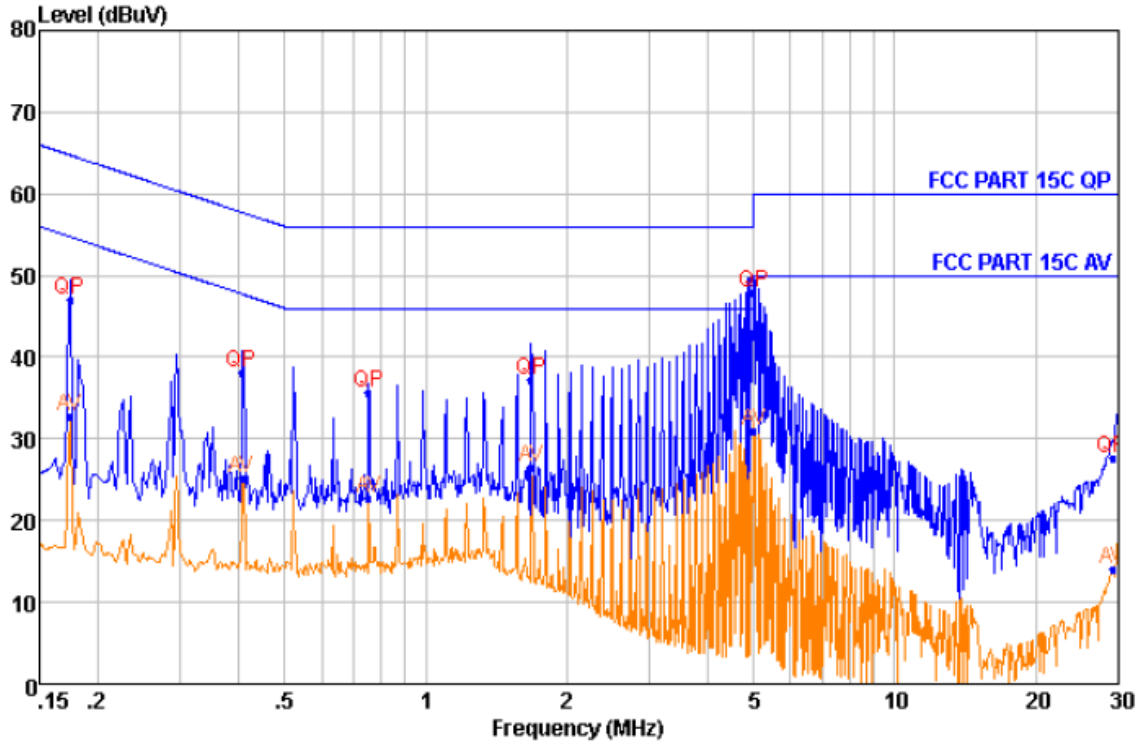


Quasi-peak and Average measurement

NO.	Freq MHz	Level dBuV	Remark	LISN Factor dB	Cable Loss dB	Limit Line dBuV	Over Limit dB
1	0.178	35.37	QP	9.47	0.40	64.59	-29.22
2	0.178	23.37	Average	9.47	0.40	54.59	-31.22
3	0.289	38.40	QP	9.46	0.42	60.54	-22.14
4	0.289	26.32	Average	9.46	0.42	50.54	-24.22
5	0.405	36.53	QP	9.38	0.43	57.74	-21.21
6	0.405	23.89	Average	9.38	0.43	47.74	-23.85
7	1.328	27.11	QP	9.29	0.48	56.00	-28.89
8	1.328	17.86	Average	9.29	0.48	46.00	-28.14
9	4.914	43.72	QP	9.29	0.53	56.00	-12.28
10	4.914	30.96	Average	9.29	0.53	46.00	-15.04
11	29.301	30.60	QP	9.73	0.60	60.00	-29.40
12	29.301	18.71	Average	9.73	0.60	50.00	-31.29

Neutral Line:

Level (dBμV)



Quasi-peak and Average measurement

NO.	Freq MHz	Level dBuV	Remark	LISN Factor dB	Cable Loss dB	Limit Line dBuV	Over Limit dB
1	0.174	47.00	QP	9.37	0.40	64.77	-17.77
2	0.174	32.86	Average	9.37	0.40	54.77	-21.91
3	0.405	38.00	QP	9.36	0.43	57.74	-19.74
4	0.405	25.27	Average	9.36	0.43	47.74	-22.47
5	0.755	35.66	QP	9.36	0.45	56.00	-20.34
6	0.755	22.66	Average	9.36	0.45	46.00	-23.34
7	1.676	37.24	QP	9.38	0.49	56.00	-18.76
8	1.676	26.58	Average	9.38	0.49	46.00	-19.42
9	5.000	47.87	QP	9.43	0.53	56.00	-8.13
10	5.000	31.02	Average	9.43	0.53	46.00	-14.98
11	29.139	27.68	QP	9.92	0.60	60.00	-32.32
12	29.139	13.97	Average	9.92	0.60	50.00	-36.03

5.4 Radiated emissions

Limit:

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))} + 80$
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))} + 40$
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

Nore:

(1) The tighter limit applies at the band edges.

For example: F.S limit at 88MHz is 100uV/m

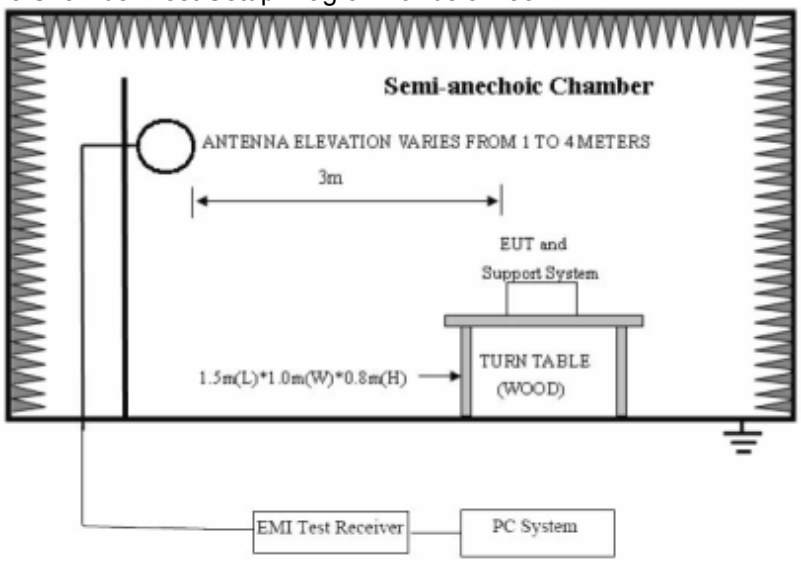
(2) If measurement is made at 3m distance, the F.S limit at 3m distance is adjusted by using the formula of Ld2 * $(d2/d1)^2$.

For example: F.S Limit at 30m(d2) distance is 30uV/m(Ld2), then F.S Limit at 3m(d1) distance is

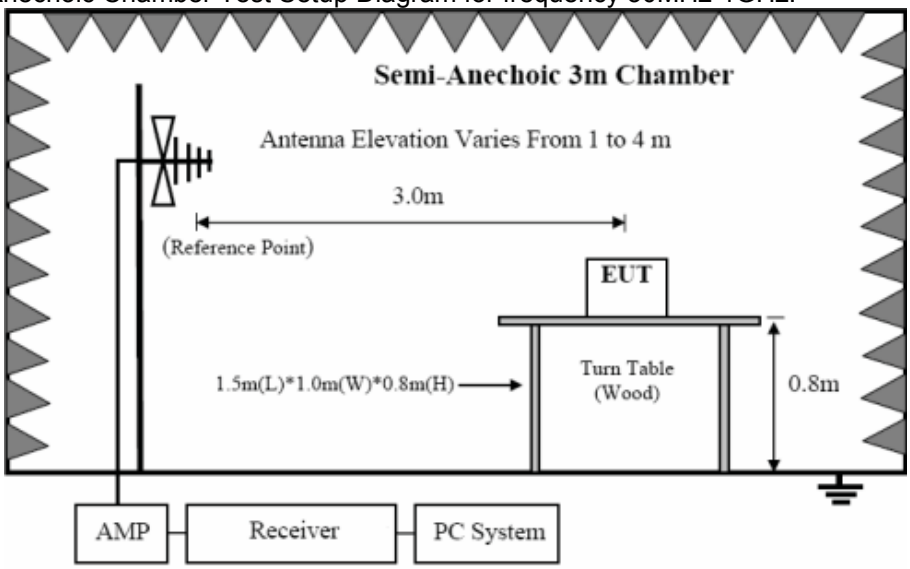
Ld1=30uV/m * $(30/3)^2$ =100 * 30uV/m=69.54 dBuV/m

Test Setup:

In 3m Anechoic Chamber Test Setup Diagram for below 30MHz:



In 3m Anechoic Chamber Test Setup Diagram for frequency 30MHz-1GHz:



Test Procedure:

Procedure of Preliminary Test

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.4 and test equipment as described in clause 4.2 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4:2014.

Mains cables, telephone lines or other connections to auxiliary equipment located outside the test are shall drape to the floor, be fitted with ferrite clamps or ferrite tubes placed on the floor at the point where the cable reaches the floor and then routed to the place where they leave the turntable.

No extension cords shall be used to mains receptacle.

The antenna was placed at 3 meter away from the EUT as stated in ANSI C63.10:2013. The antenna connected to the Spectrum Analyzer via a cable and at times a pre-amplifier would be used.

The Receiver quickly scanned from 9KHz to 30MHz and 30MHz to 1GHz The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

The test mode(s) described in clause 2.4 were scanned during the preliminary test:

After the preliminary scan, we found the test mode producing the highest emission level. The EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for the final test.

Procedure of Final Test

EUT and support equipment were set up on the turntable as per the configuration with highest emission level in the preliminary test.

The Receiver scanned from 9kHz to 30MHz and 30MHz to 1GHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Q.P. reading is presented.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 200Hz for 9 kHz to 150 kHz measure, 10 kHz for 150 kHz to 30MHz measure and 120 kHz for 30 MHz to 1GHz measure.

Test Result:

Pass (See below detailed test result)

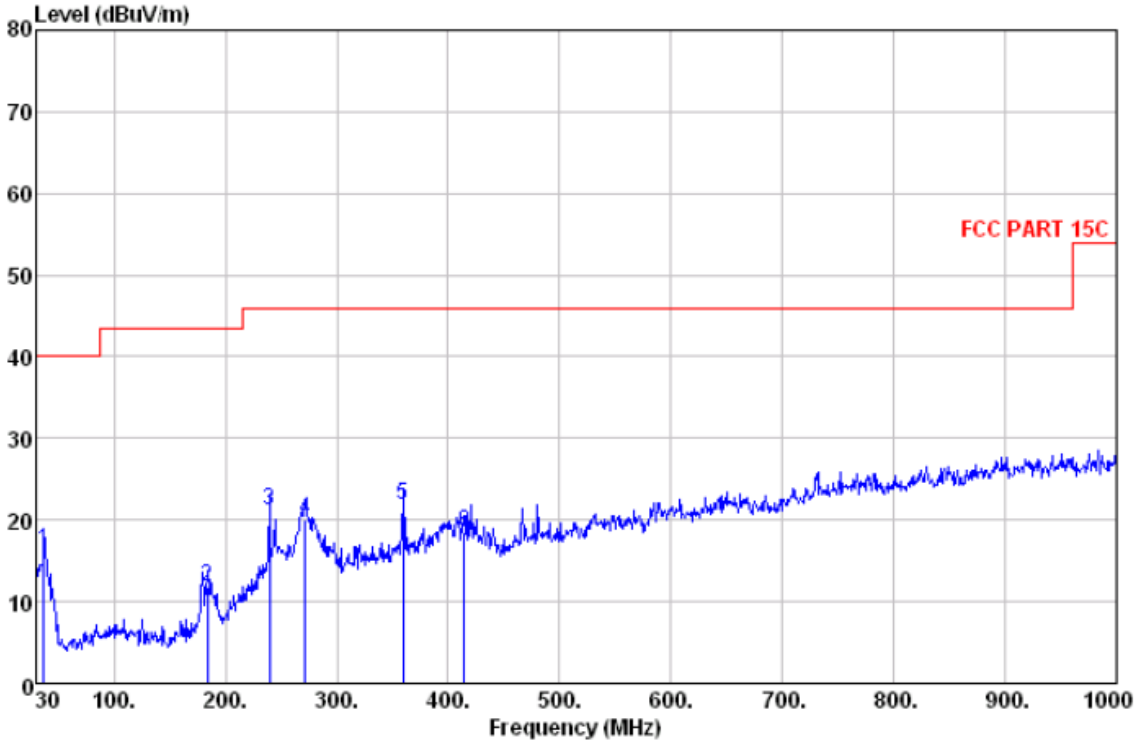
Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	QP Reading (dBuV)	Ant./CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	QP (dBuV/m)				
0.110	H	22.35	----	24.80	47.15	----	126.77	----	79.62	Peak
0.058	H	42.46	----	24.41	66.87	----	132.33	----	66.87	Peak
0.495	H	----	22.12	25.03	----	47.15	----	73.71	26.56	QP
0.500	H	----	20.97	25.03	----	46.00	----	73.62	27.62	QP

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	QP Reading (dBuV)	Ant./CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	QP (dBuV/m)				
0.110	V	22.58	----	24.80	47.38	----	126.77	----	79.39	Peak
0.058	V	44.32	----	24.41	68.73	----	132.33	----	68.73	Peak
0.495	V	----	22.64	25.03	----	47.67	----	73.71	26.04	QP
0.500	V	----	21.21	25.03	----	46.24	----	73.62	27.38	QP

Horizontal:

Peak scan

Level (dBμV/m)



Quasi-peak measurement

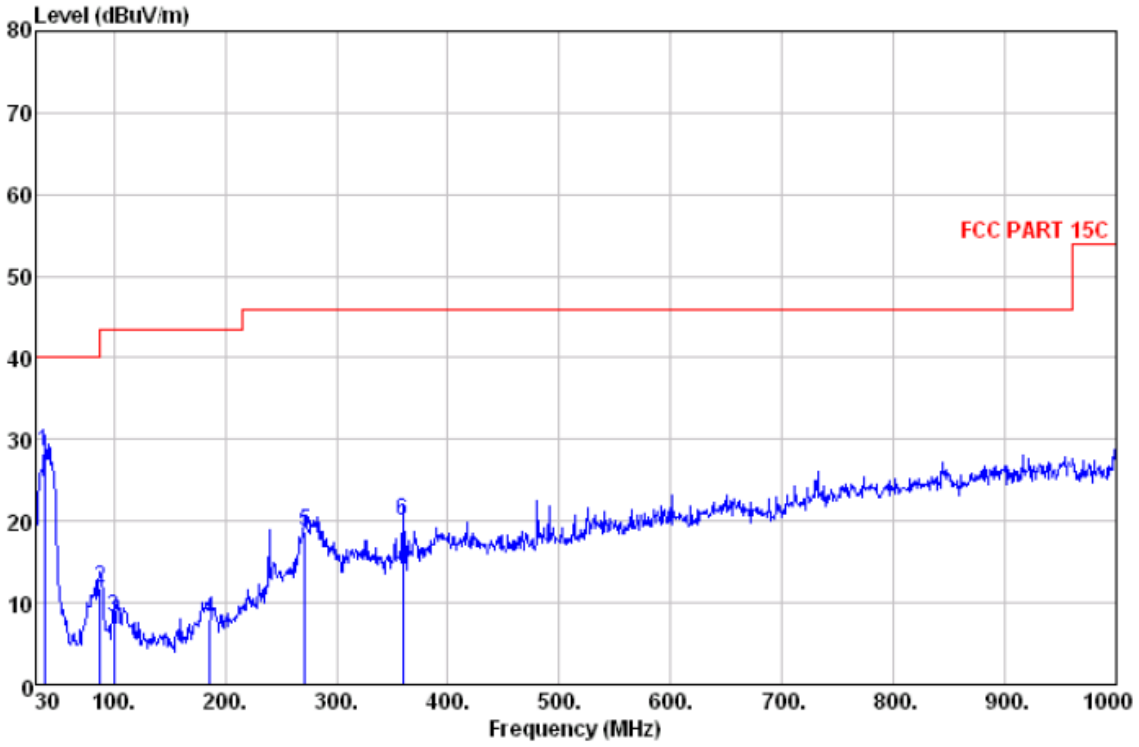
No.	Freq	Level	Remark	Antenna Factor	Cable Loss	Limit Line	Margin	A/pos	T/pos
	MHz	dBuV/m		dB/m	dB	dBuV/m	dB	cm	deg
1	36.790	16.17	QP	13.92	0.69	40.00	-23.83	100	124
2	184.230	11.86	QP	8.30	1.63	43.50	-31.64	100	112
3	239.520	21.21	QP	10.90	1.88	46.00	-24.79	100	102
4	271.530	20.04	QP	12.88	2.01	46.00	-25.96	200	206
5	359.800	21.91	QP	14.39	2.31	46.00	-24.09	200	188
6	414.120	18.57	QP	16.31	2.50	46.00	-27.43	200	174

Level=Read Level + Antenna Factor + Cable Loss

Vertical:

Peak scan

Level (dBμV/m)



Quasi-peak measurement

No.	Freq	Level	Remark	Antenna Factor	Cable Loss	Limit Line	Margin	A/pos	T/pos
	MHz	dBuV/m		dB/m	dB	dBuV/m	dB	cm	deg
1	37.760	28.49	QP	13.34	0.70	40.00	-11.51	100	114
2	88.200	11.76	QP	8.02	1.10	43.50	-31.74	100	201
3	99.840	8.16	QP	8.69	1.17	43.50	-35.34	100	178
4	186.170	7.99	QP	8.44	1.64	43.50	-35.51	200	321
5	271.530	18.75	QP	12.88	2.01	46.00	-27.25	200	285
6	359.800	20.10	QP	14.39	2.31	46.00	-25.90	200	173

Level=Read Level + Antenna Factor + Cable Loss

--End of Report--