

TEST REPORT

Applicant:	Cross Point B.V.
Address of Applicant:	Waanderweg 12, Emmen, 7812 HZ, The Netherlands
Manufacturer:	Cross Point B.V.
Address of Manufacturer:	Waanderweg 12, Emmen, 7812 HZ, The Netherlands
Product name:	Electronic Article Surveillance (EAS) AM Deactivator
Model:	AM Deactivator XAMD-2
Rating(s):	100-240Vac, 50/60Hz, 45W
Trademark:	Cross Point
Standards:	47 CFR PART 15 Subpart C
FCC ID:	N9G-XAMD2
Data of Receipt:	2022-04-10
Date of Test:	2022-04-10~2022-05-10
Date of Issue:	2022-05-10
Test Result	Pass*

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

Authorized for issue by:

Test by:

May.10, 2022

Chivas Zeng



Project Engineer

Date

Name/Position

Signature

Reviewed by:

May.10, 2022

Victor Meng



Project Engineer

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: ITL Co., Ltd.

Address.....: No.8, JinQianLing street 5, DongHuan Road, Huangjiang Town, Dongguan, China.

Testing location : Same as above

Tel : 0086-769-39001678

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:

Label:

AM Deactivator XAMD-2		CROSS POINT
 Serial Number: 100122012345		HW: CP324 FW: 0.10 ID: 012345
 Article Number: 2108-1400-0000		FCC ID: N9G-XAMD2
   		Designed in the Netherlands, assembled in China Disconnect from mains power before opening!

1 Test Summary

Test	Test Requirement	Test method	Result
Antenna Requirement	FCC PART 15 section 15.203	FCC PART 15 section 15.203	PASS
Radiated Emission	FCC PART 15 section 15.209	ANSI C 63.10	PASS
Emission Bandwidth	FCC PART 15 section 15.215(c)	ANSI C 63.10	PASS
Conducted Emission	FCC PART 15 section 15.207	ANSI C 63.10	PASS

Remark:

N/A: because the device is battery operated.
EUT: In this whole report EUT means Equipment Under Test.
Tx: In this whole report Tx (or tx) means Transmitter.
Rx: In this whole report Rx (or rx) means Receiver.
RF: In this whole report RF means Radio Frequency.
ANSI C63.10: the detail version is ANSI C63.10:2013 in the whole report.

2 Contents

TEST REPORT	1
1 TEST SUMMARY	3
2 CONTENTS	4
3 GENERAL INFORMATION	5
3.1 CLIENT INFORMATION	5
3.2 GENERAL DESCRIPTION OF E.U.T.	5
3.3 DETAILS OF E.U.T.	5
3.4 DESCRIPTION OF SUPPORT UNITS	5
3.5 TEST LOCATION	6
3.6 DEVIATION FROM STANDARDS	6
3.7 ABNORMALITIES FROM STANDARD CONDITIONS	6
3.8 OTHER INFORMATION REQUESTED BY THE CUSTOMER	6
3.9 TEST FACILITY	6
3.10 MEASUREMENT UNCERTAINTY	6
4 INSTRUMENTS USED DURING TEST	7
5 TEST RESULTS	8
5.1 ANTENNA REQUIREMENT	8
5.2 RADIATED EMISSIONS	9
5.3 EMISSION BANDWIDTH	15
5.4 CONDUCTED EMISSIONS AT MAINS TERMINALS 150 KHZ TO 30MHZ	17

3 General Information

3.1 Client Information

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

3.2 General Description of E.U.T.

Name: Electronic Article Surveillance (EAS)
AM Deactivator
Model No.: AM Deactivator XAMD-2
Trade Mark: Cross Point
Operating Frequency: 58kHz (Detection mode)
1.4kHz (Deactivation mode)
Type of Modulation: Acousto Magnetic
Function: AM Deactivator
Antenna Type: Coil antenna

3.3 Details of E.U.T.

EUT Power Supply: AC 120V, 60Hz
Test mode: 58kHz working (Detection mode)
Power cord: /

3.4 Description of Support Units

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

3.5 Test Location

All tests were performed at:

ITL Co., Ltd.

No.8, JinQianLing street 5, DongHuan Road, Huangjiang Town, Dongguan, China.

0086-769-39001678

itl@i-testlab.com

No tests were sub-contracted.

3.6 Deviation from Standards

None.

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:L9342
- FCC Designation No.:CN5035
- IC Registration NO.: 12593A
- NVLAP LAB CODE: 600199-0

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	2022/01/14	2023/01/13
ITL-154	EMI test receiver 9kHz to 26.5GHz	R&S	ESR26	101257	2022/01/14	2023/01/13
ITL-116	Pre Amplifier	HP	8447F	3113A05905	2022/01/14	2023/01/13
ITL-117	Wideband Amplifier Super Ultra	Mini-circuits	ZVA-183-S+	469101134	2022/01/14	2023/01/13
ITL-164	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	9168-0844	2020/06/19	2022/06/18
ITL-110	Horn Antenna	A-INFOMW	JXTXLB-10180-N	J2031090612133	2020/06/19	2022/06/18
ITL-115	50Ω Coaxial Cable	Mini-ircuits	CBL	C001	2020/06/19	2022/06/18
ITL-100	Semi-Anechoic chamber	ETS•Lindgren	FACT3 2.0	CT09015	2019/10/16	2022/10/15
ITL-145	Loop Antenna	ZHINAN	ZN30900A	002489	2020/06/19	2022/06/18
ITL-146	Horn Antenna	Schwarzbeck	BBHA 9170	B09806543	2020/06/19	2022/06/18
ITL-166	Power Sensor	Agilent	U2021XA	MY5365004	2022/01/14	2023/01/13

5 Test Results

5.1 Antenna Requirement

According to FCC Part 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

Test Result

This requirement does not apply to intentional radiators that must be professionally installed (§ 15.203 Antenna requirement).

5.2 Radiated Emissions

Test Requirement: FCC Part 15 C section 209(a)

Test Method: ANSI C63.10

Operating Environment:

Temperature: 25.0 °C Humidity: 50 % RH Atmospheric Pressure: 101 kPa

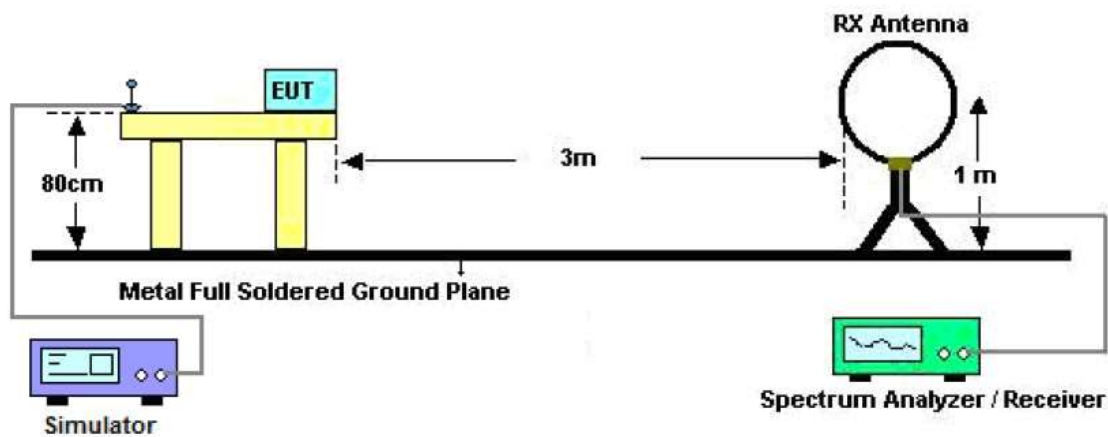
Test Status: Test the transmitter in continuous transmitting mode.

Limit: The field strength of emissions from intentional radiators operated under this Section shall not exceed the following:

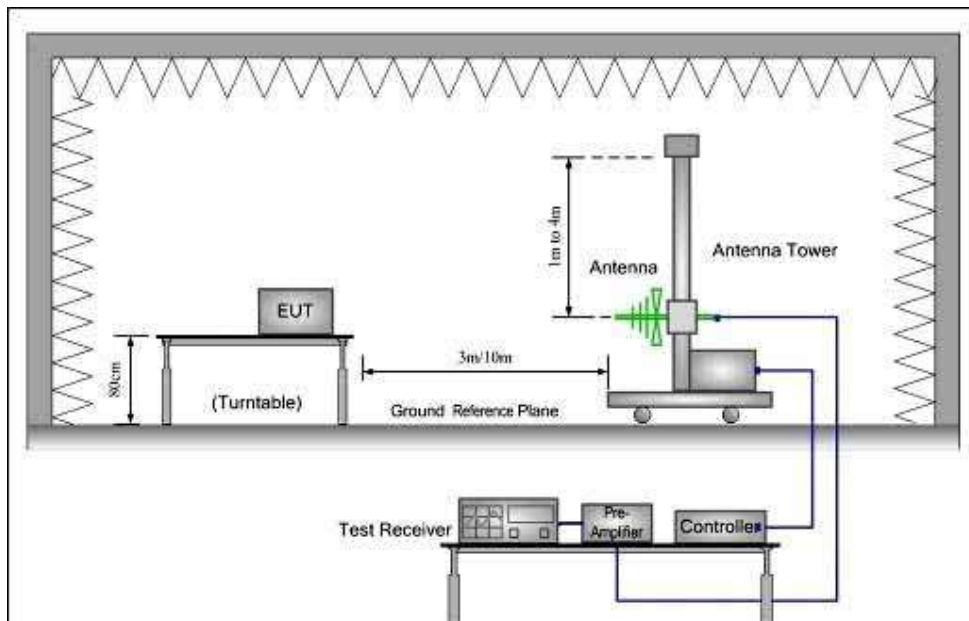
Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	$2400/F(\text{kHz})$	300	$10000 * 2400/F(\text{kHz})$	$20\log^{(2400/F(\text{kHz}))} + 80$
0.490 ~ 1.705	$24000/F(\text{kHz})$	30	$100 * 24000/F(\text{kHz})$	$20\log^{(24000/F(\text{kHz}))}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

Test Configuration:

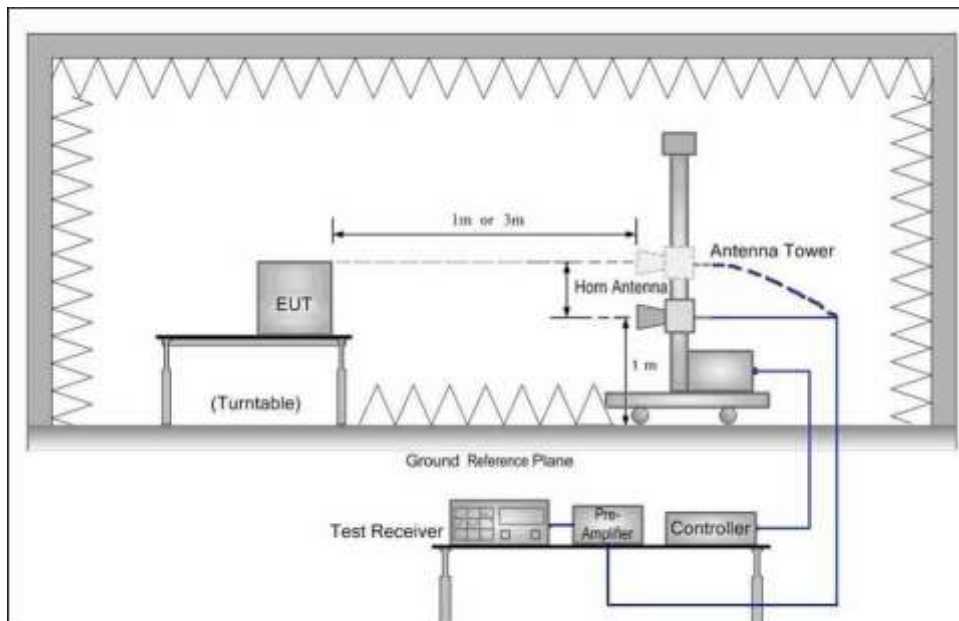
1) 9 kHz to 30 MHz emissions:



2) 30 MHz to 1 GHz emissions:



3) 1 GHz to 40 GHz emissions:



Test Procedure:

1) 9 kHz to 30 MHz emissions:

For testing performed with the loop antenna. The centre of the loop was positioned 1 m above the ground and positioned with its plane vertical at the special distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane.

2) 30 MHz to 1 GHz emissions:

For testing performed with the bi-log type antenna. The measurement is performed with the EUT rotated 360°, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

3) 1 GHz to 40 GHz emissions:

Test site with RF absorbing material covering the ground plane that met the site validation criterion called out in CISPR 16-1-4:2007 was used to perform radiated emission test above 1 GHz.

For testing performed with the horn antenna. The measurement is performed with the EUT rotated 360°, the antenna height scanned between 1m and 4m, and the antenna rotated to repeat the measurement for both the horizontal and vertical antenna polarizations.

The field strength of radiation emission was measured in the following position: EUT stand-up position (Y axis), lie-down position (X, Z axis). The worst case of X axis was reported.

Detector: Resolution bandwidth for Peak and Quasi-Peak value:

200 Hz for 9 kHz to 150 kHz

9 kHz for 150 kHz to 30 MHz

120 kHz for 30 MHz to 1GHz

1 MHz for above 1 GHz,

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

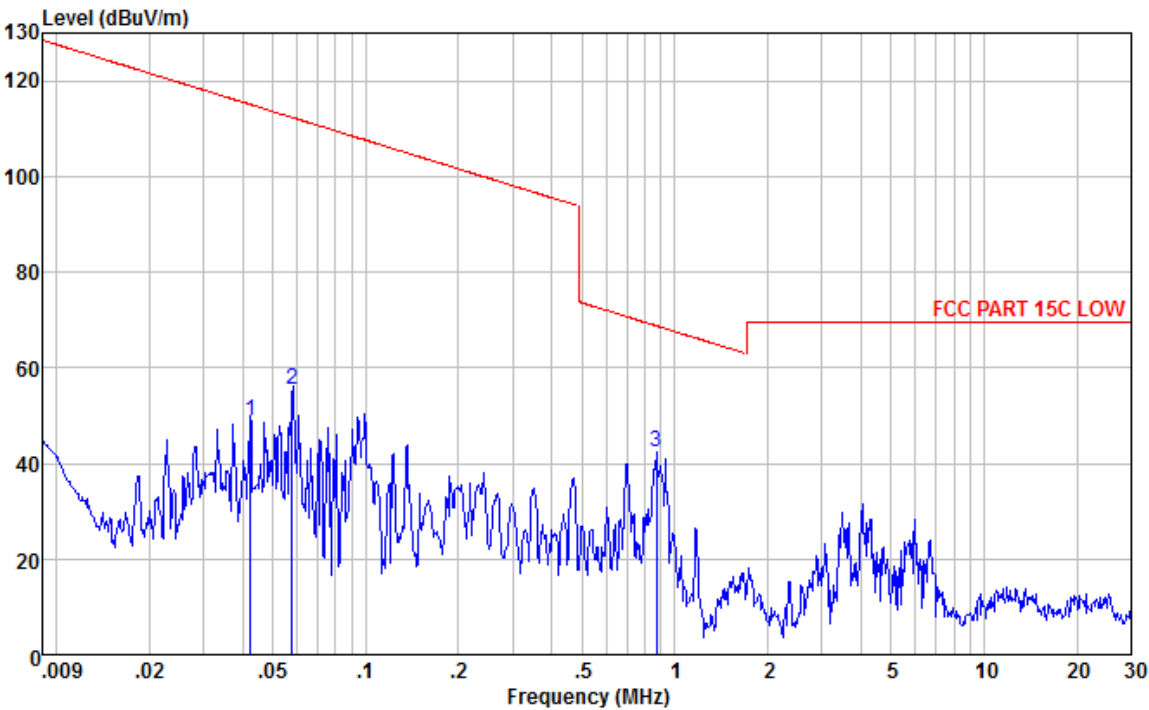
Trace = max hold

For AV value:

Average = Peak value + 20log (Duty cycle)

Evaluation has been done with the antenna placed vertically and horizontally. Only the worst case test setup pictures and results are presented in the report

9kHz~30MHz Test result

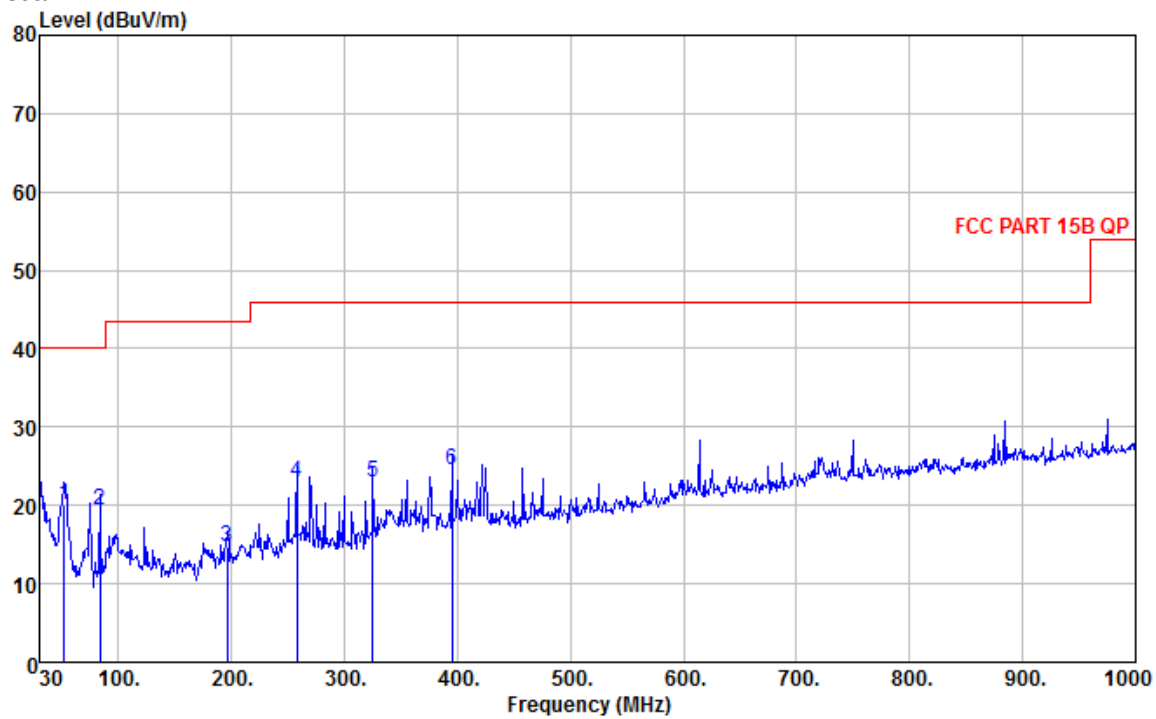


Frequency (MHz)	Emission Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
0.042	48.90	115.06	-66.16	PK
0.058	55.30	112.34	-57.04	PK
0.873	42.37	68.78	-26.41	PK

30 MHz~1 GHz Spurious Emissions .Quasi-Peak Measurement

Horizontal:

Peak scan

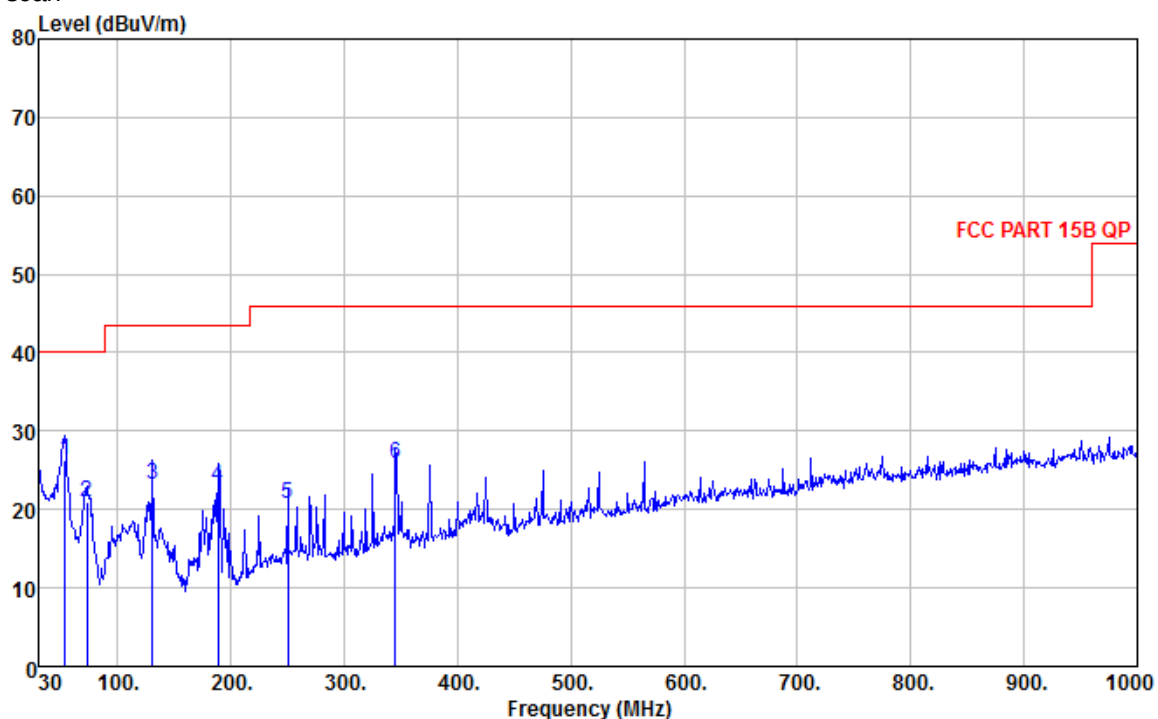


No.	Freq MHz	Read Level dBuV	Antenna Factor dB	Cable Loss dB	Preamp Factor dB	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Pol/Phase	Remark
1	52.310	41.14	6.52	0.83	28.50	19.99	40.00	-20.01	HORIZONTAL	QP
2	83.350	38.74	7.83	1.06	28.20	19.43	40.00	-20.57	HORIZONTAL	QP
3	195.870	31.13	9.68	1.69	27.78	14.72	43.50	-28.78	HORIZONTAL	QP
4	257.950	35.34	13.13	1.96	27.54	22.89	46.00	-23.11	HORIZONTAL	QP
5	324.880	34.43	13.87	2.20	27.50	23.00	46.00	-23.00	HORIZONTAL	QP
6	394.720	34.93	15.48	2.43	28.24	24.60	46.00	-21.40	HORIZONTAL	QP

Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor

Vertical:

Peak scan



No.	Freq MHz	Read Level dBuV	Antenna Factor dB	Cable Loss dB	Preamp Factor dB	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Pol/Phase	Remark
1	53.280	47.70	6.28	0.83	28.46	26.35	40.00	-13.65	VERTICAL	QP
2	72.680	40.79	7.41	1.00	28.24	20.96	40.00	-19.04	VERTICAL	QP
3	130.880	41.64	8.65	1.36	28.38	23.27	43.50	-20.23	VERTICAL	QP
4	188.110	39.23	9.64	1.65	27.64	22.88	43.50	-20.62	VERTICAL	QP
5	250.190	33.11	13.10	1.93	27.31	20.83	46.00	-25.17	VERTICAL	QP
6	345.250	36.49	14.34	2.27	27.34	25.76	46.00	-20.24	VERTICAL	QP

Level=Read Level + Antenna Factor + Cable Loss - Preamp Factor

Note: Testing is carried out with frequency rang 9kHz to the 1GHz.

5.3 Emission Bandwidth

Test Requirement: FCC Part 15 C section 15.215 (c)
Test Method: ANSI C63.10:
Test Status: Test in transmitting mode at lowest and highest channel.
Operating Environment:
Temperature: 25.0 °C Humidity: 50 % RH Atmospheric Pressure: 101 kPa
Requirements:

According to 15.215 (c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

Method of measurement: The useful radiated emission from the EUT was detected by the spectrum analyzer with peak detector. Record the 20 dB bandwidth of the carrier.

According to the ANSI 63.10-2013, the emission bandwidth test method as follows.

Set centered on a transmitting channel

RBW $\geq$ 1-5% OBW, VBW $\geq$ 3RBW

Sweep = auto

Detector function = peak

Trace = max hold

Test result:

Test Frequency kHz	20dB Bandwidth kHz
58	29.76

Test plot:



5.4 Conducted Emissions at Mains Terminals 150 kHz to 30MHz

Test Requirement: FCC Part 15 C section 15.207

Test Method: ANSI C63.10

Operating Environment:

Temperature: 25.0 °C Humidity: 50 % RH Atmospheric Pressure: 101 kPa

Frequency Range: 150 kHz to 30 MHz

Detector: Peak for pre-scan (9 kHz Resolution Bandwidth)

Test Limit

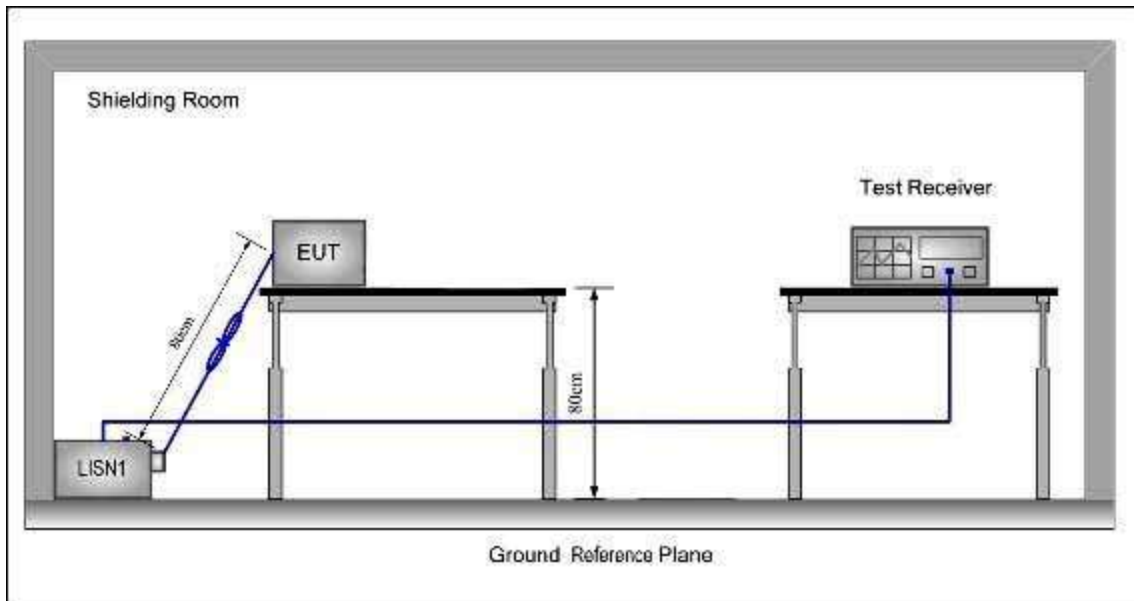
Limits for conducted disturbance at the mains ports of class B

Frequency Range (MHz)	Class B Limit dB(μV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
NOTE 1 The limit decreases linearly with the logarithm of the frequency in the range 0,15 MHz to 0,50 MHz.		

EUT Operation:

Test in normal operating mode. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, channels and antenna ports (if EUT with antenna diversity architecture).

Test Configuration:**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 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. 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, but separated from metallic contact with the ground reference plane by 0.1m of insulation.
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 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..

Measurement Data

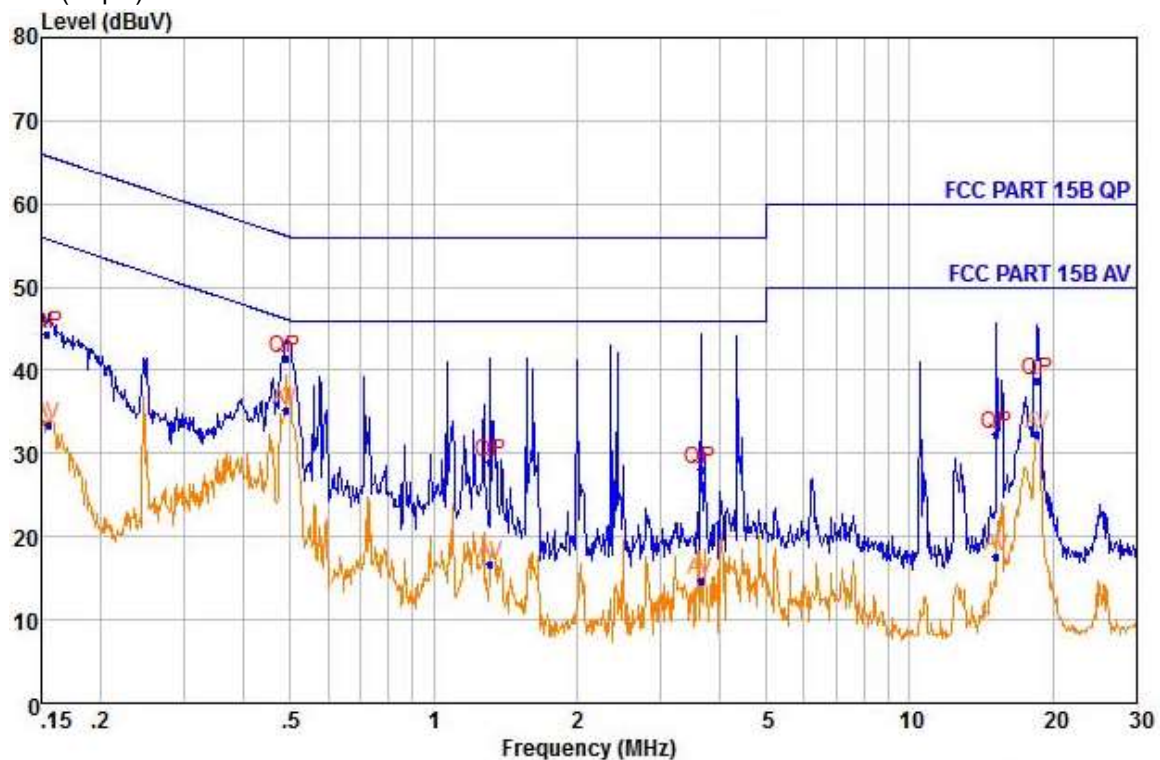
An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected. For EUT the communicating was worst case mode.

The following Quasi-Peak and Average measurements were performed on the EUT Live line

Peak Scan:

Level (dBμV)



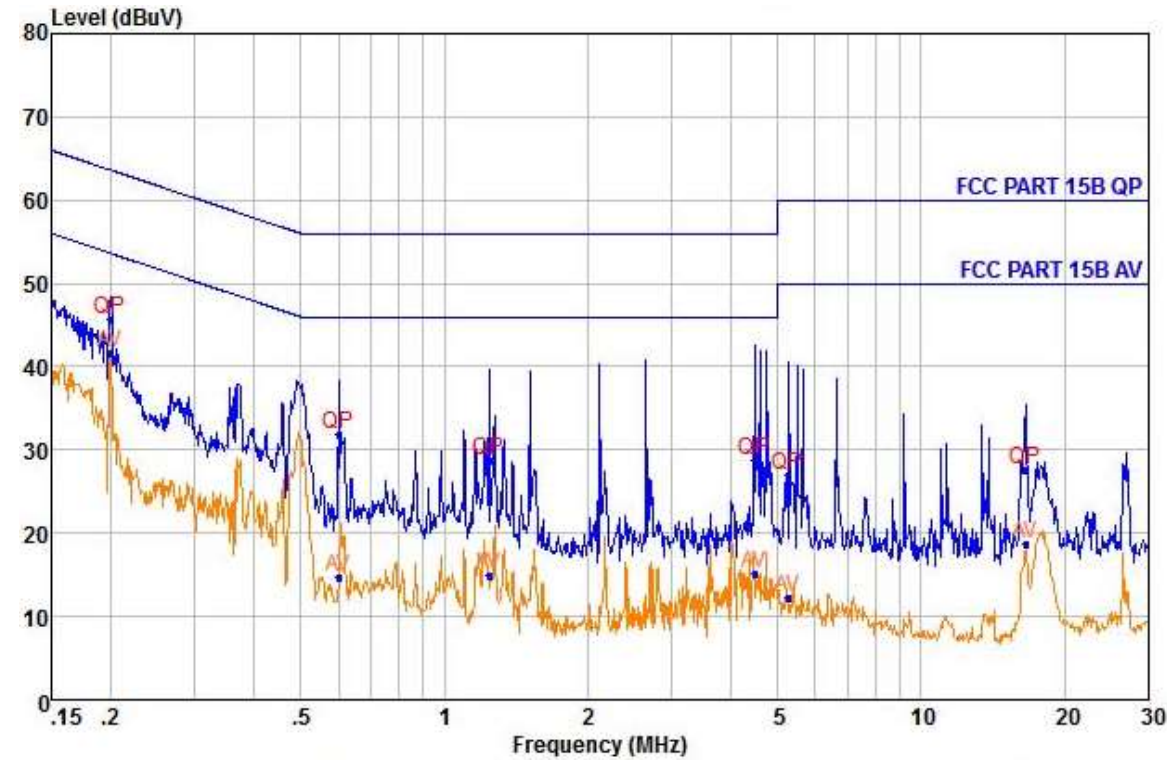
Quasi-peak and Average measurement

NO.	Freq MHz	Level dBμV	Remark	LISN Factor dB	Cable Loss dB	Limit Line dBμV	Over Limit dB
1	0.155	44.33	QP	9.70	0.20	65.75	-21.42
2	0.155	33.46	Average	9.70	0.20	55.74	-22.28
3	0.488	41.48	QP	9.65	0.27	56.20	-14.72
4	0.488	35.13	Average	9.65	0.27	46.20	-11.07
5	1.313	28.91	QP	9.66	0.32	56.00	-27.09
6	1.313	16.66	Average	9.66	0.32	46.00	-29.34
7	3.635	28.15	QP	9.62	0.38	56.00	-27.85
8	3.635	14.73	Average	9.62	0.38	46.00	-31.27
9	15.188	32.36	QP	9.71	0.46	60.00	-27.64
10	15.188	17.59	Average	9.71	0.46	50.00	-32.41
11	18.524	38.76	QP	9.69	0.47	60.00	-21.24
12	18.524	32.41	Average	9.69	0.47	50.00	-17.59

Neutral Line

Peak Scan:

Level (dBμV)



Quasi-peak and Average measurement

N0.	Freq MHz	Level dBuV	Remark	LISN Factor dB	Cable Loss dB	Limit Line dBuV	Over Limit dB
1	0.199	45.63	QP	9.63	0.22	63.65	-18.02
2	0.200	41.61	Average	9.63	0.22	53.62	-12.01
3	0.600	31.93	QP	9.64	0.28	56.00	-24.07
4	0.600	14.69	Average	9.64	0.28	46.00	-31.31
5	1.240	28.74	QP	9.63	0.32	56.00	-27.26
6	1.240	14.91	Average	9.63	0.32	46.00	-31.09
7	4.467	28.75	QP	9.62	0.39	56.00	-27.25
8	4.467	15.19	Average	9.62	0.39	46.00	-30.81
9	5.265	26.95	QP	9.62	0.40	60.00	-33.05
10	5.265	12.19	Average	9.62	0.40	50.00	-37.81
11	16.540	27.59	QP	9.63	0.47	60.00	-32.41
12	16.540	18.69	Average	9.63	0.47	50.00	-31.31