

# TEST REPORT

**Reference No.**..... : WTU19N10074448E  
**Applicant**..... : LUMATEK LTD.  
**Address**..... : Ewropa Business centre Level 3 – 701 Dun Karm Street  
Birkirkara BKR 9034 MALTA  
**Manufacturer** ..... : LUMATEK LTD.  
**Address**..... : Ewropa Business centre Level 3 – 701 Dun Karm Street  
Birkirkara BKR 9034 MALTA  
**Product Name** ..... : Digital Ballast  
**Model No.**..... : Refer to section 3.2  
**Standards** ..... : EN 55015:2013+A1:2015  
EN 61547:2009  
EN 61000-3-2:2014  
EN 61000-3-3:2013  
**Date of Receipt sample** .... : 2016-10-13  
**Date of Test** ..... : 2016-10-13 to 2018-11-14  
**Date of Issue** ..... : 2019-11-11  
**Test Report Form No.**..... : WEL-55015A-01A  
**Test Result** ..... : **Pass**

**Remarks:**

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

**Prepared By:**

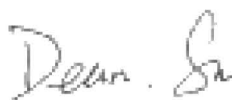
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## 1 Test Summary

| <b>EMISSION</b>  |                                    |                             |               |
|--|------------------------------------|-----------------------------|---------------|
| <b>Test Item</b>                                       | <b>Test Standard</b>               | <b>Class / Severity</b>     | <b>Result</b> |
| Mains Terminal Disturbance Voltage, 9kHz to 30MHz      | EN 55015:2013+A1:2015              | Clause 4.3.1                | Pass          |
| Radiated electromagnetic disturbance, 9kHz to 30MHz    | EN 55015:2013+A1:2015              | Clause 4.4.1                | Pass          |
| Radiated Emission, 30MHz to 300MHz                     | EN 55015:2013+A1:2015              | Clause 4.4.2                | Pass          |
| Harmonic Current emission                              | EN 61000-3-2:2014                  | Clause 7                    | Pass          |
| Voltage Fluctuation and Flicker                        | EN 61000-3-3:2013                  | Clause 5                    | Pass          |
| <b>IMMUNITY (EN 61547:2009)</b>                        |                                    |                             |               |
| <b>Test Item</b>                                       | <b>Test Method</b>                 | <b>Performance Criteria</b> | <b>Result</b> |
| Electrostatic Discharge(ESD)                           | IEC 61000-4-2:2008                 | B                           | Pass          |
| Radio-frequency electromagnetic fields (80MHz to 1GHz) | IEC 61000-4-3:2006+A1:2007+A2:2010 | A                           | Pass          |
| Electrical Fast Transients (EFT)                       | IEC 61000-4-4:2012                 | B                           | Pass          |
| Surge  | IEC 61000-4-5:2014+A1:2017         | C                           | Pass          |
| Injected Currents, 0.15MHz to 80MHz                    | IEC 61000-4-6:2013                 | A                           | Pass          |
| Power-frequency magnetic field                         | IEC 61000-4-8:2009                 | A                           | N/A           |
| Voltage Dips   | IEC 61000-4-11:2004+A1:2017        | C                           | Pass          |
| Voltage short interruptions                            |                                    | B                           | Pass          |

Remark:

|      |   |
|------|---|
| Pass | Test item meets the requirement             |
| Fail | Test item does not meet the requirement     |
| N/A  | Test case does not apply to the test object |

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### 3 General Information

#### 3.1 General Description of E.U.T.

|                               |   |   |
|-------------------------------|---|---|
| <b>Product Name</b> .....     | : | Digital Ballast   |
| <b>Model No.</b> .....        | : | Refer to section 3.2  |
| <b>Protection Class</b> ..... | : | Class I   |
| <b>Remark</b> .....           | : | <ol style="list-style-type: none"> <li>1. The EUT (equipment under test) is an ordinary Digital Ballast for Lighting and similar use. For the further information, refer to the user's manual.</li> <li>2. In electrical characteristics, NO.1-NO.6 have different circuit principle and PCB layout, NO.6 and No.7 have the similar circuit principle and PCB layout, only rated power is different. For detailed information, refer to section 3.2.</li> <li>3. For the test results, the EUT had been tested with the rated input range. But only the worst case was shown in test report.</li> </ol> |

#### 3.2 Details of E.U.T.

Technical Data..... :

| No. | Model              | Rated Input        | Max Power | Note |
|-----|--------------------|--------------------|-----------|------|
| 1   | Aurora 315W        | 220-240V~, 50/60Hz | 315W      |      |
| 2   | Pro 1000W 400V     | 220-240V~, 50/60Hz | 1000W     |      |
| 3   | 1000W              | 220-240V~, 50/60Hz | 1000W     |      |
| 4   | 315W               | 220-240V~, 50/60Hz | 315W      |      |
| 5   | 600W               | 220-240V~, 50/60Hz | 600W      |      |
| 6   | Ultimate 600W 400V | 220-240V~, 50/60Hz | 600W      |      |
| 7   | 630W               | 220-240V~, 50/60Hz | 630W      |      |

#### 3.3 Description of Support Units

The EUT has been tested as an independent unit. Aurora 315W, Pro 1000W 400V, 1000W, 315W, 600W and 630W are test samples. All tests were performed in the condition of 230V a.c., 50Hz input.

#### 3.4 Standards Applicable for Testing

The tests were performed according to following standards:

|                       |  |
|-----------------------|--|
| EN 55015:2013+A1:2015 | Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment  |
| EN 61547:2009         | Equipment for general lighting purposes — EMC immunity requirements  |
| EN 61000-3-2:2014     | Electromagnetic compatibility (EMC) Part 3-2: Limits — Limits for harmonic current emissions (equipment input current $\leq$ 16 A per phase).  |
| EN 61000-3-3:2013     | Electromagnetic compatibility (EMC) Part 3-3: Limits — Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current $\leq$ 16 A per phase and not subject to conditional connection. |

### **3.5 Subcontracted**

Whether parts of tests for the product have been subcontracted to other labs:

Yes       No

If Yes, list the related test items and lab information:

Test items: All test items

Lab information: Waltek Services (Suzhou) Co., Ltd.

### **3.6 Abnormalities from Standard Conditions**

None.

#### 4 Equipment Used during Test

| <b>Mains Terminal Disturbance Voltage (Conducted Emission)</b> |                                     |                     |                  |                   |                           |
|--|-------------------------------------|---------------------|------------------|-------------------|---------------------------|
| <b>Item</b>  | <b>Equipment</b>                    | <b>Manufacturer</b> | <b>Model No.</b> | <b>Serial No.</b> | <b>Calibration Status</b> |
| 1  | Test Receiver                       | ROHDE& SCHWARZ      | ESCI             | 101297            | Valid                     |
| 2  | Two-Line V-Network                  | ROHDE& SCHWARZ      | ENV216           | 101538            | Valid                     |
| 3  | Manual RF SW                        | ESE                 | RSU-A41          | -                 | N/A                       |
| 4  | 3m,50 ohms Cable                    | HUBER SUHNER        | 1016873          | -                 | N/A                       |
| <b>Radiated electromagnetic disturbance(9kHz to 30MHz)</b>     |                                     |                     |                  |                   |                           |
| <b>Item</b>  | <b>Equipment</b>                    | <b>Manufacturer</b> | <b>Model No.</b> | <b>Serial No.</b> | <b>Calibration Status</b> |
| 1  | Test Receiver                       | ROHDE& SCHWARZ      | ESCI             | 101297            | Valid                     |
| 2  | Three Loops Antenna                 | SCHWARZBECK         | HXYZ9170         | 240               | Valid                     |
| 3  | Manual RF SW                        | ESE                 | RSU-A41          | -                 | N/A                       |
| 4  | 3m,50 ohms Cable                    | HUBER SUHNER        | 1064494          | -                 | N/A                       |
| <b>3m Semi-anechoic Chamber for Radiated Emission</b>          |                                     |                     |                  |                   |                           |
| <b>Item</b>  | <b>Equipment</b>                    | <b>Manufacturer</b> | <b>Model No.</b> | <b>Serial No.</b> | <b>Calibration Status</b> |
| 1.   | Test Receiver                       | ROHDE& SCHWARZ      | ESCI             | 101346            | Valid                     |
| 2.   | Trilog Broadband Antenna            | SCHWARZBECK         | VULB9163         | 580               | Valid                     |
| 3.   | Broad-band Horn Antenna             | SCHWARZBECK         | BBHA 9120 D      | 1092              | Valid                     |
| 4.   | Broadband Preamplifier              | SCHWARZBECK         | BBV 9743         | 0069              | Valid                     |
| 5.   | 8m 50 Ohm Coaxial Cable with N-plug | HUBER SUHNER        | 1016873          | -                 | N/A                       |
| 6.   | 3m 50 Ohm Coaxial Cable with N-plug | HUBER SUHNER        | 1016873          | -                 | N/A                       |
| <b>Harmonics System</b>  |                                     |                     |                  |                   |                           |
| <b>Item</b>  | <b>Equipment</b>                    | <b>Manufacturer</b> | <b>Model No.</b> | <b>Serial No.</b> | <b>Calibration Status</b> |
| 1  | Digital Power Analyzer              | Em Test AG          | ADP500           | V0745103095       | Valid                     |
| 2  | Power Source                        | Em Test AG          | ACS500           | V0745103096       | Valid                     |
| <b>ESD</b>   |                                     |                     |                  |                   |                           |
| <b>Item</b>  | <b>Equipment</b>                    | <b>Manufacturer</b> | <b>Model No.</b> | <b>Serial No.</b> | <b>Calibration Status</b> |
| 1  | Electrostatic Discharge Simulator   | TESEQ               | NSG 438          | 1235              | Valid                     |
| <b>Radio-frequency electromagnetic fields</b>                  |                                     |                     |                  |                   |                           |
| <b>Item</b>  | <b>Equipment</b>                    | <b>Manufacturer</b> | <b>Model No.</b> | <b>Serial No.</b> | <b>Calibration Status</b> |
| 1  | Signal Generator                    | R&S                 | SML03            | 103287            | Valid                     |
| 2  | Power Sensor                        | R&S                 | NRP-Z91          | 100383            | Valid                     |

|   |                               |              |                      |        |       |
|---|-------------------------------|--------------|----------------------|--------|-------|
| 3 | Power Sensor                  | R&S          | NRP-Z91              | 100384 | Valid |
| 4 | Power Meter                   | R&S          | NRP                  | 101206 | Valid |
| 5 | Power Amplifier               | BONN         | BLWA0830-160/100/40D | 076659 | Valid |
| 6 | Istropic Electric Field Probe | EST.LINDGREN | HI-6105              | 137445 | Valid |
| 7 | EMS Antenna                   | R&S          | HL046E               | 100028 | Valid |

**EFT & Voltage Dips and Interruptions**

| Item | Equipment                 | Manufacturer | Model No. | Serial No. | Calibration Status |
|------|---------------------------|--------------|-----------|------------|--------------------|
| 1    | EFT Simulator             | TESEQ        | NSG 3040  | 1982       | Valid              |
| 2    | Capacitive Coupling Clamp | TESEQ        | CDN 3425  | 1690       | Valid              |
| 3    | Manual step transformer   | TESEQ        | INA6501   | 226        |                    |

**Surge**

| Item | Equipment                   | Manufacturer | Model No.   | Serial No. | Calibration Status |
|------|-----------------------------|--------------|-------------|------------|--------------------|
| 1.   | Surge Simulator             | TESEQ        | NSG3060     | 1516       | Valid              |
| 2    | Coupling Decoupling Network | TESEQ        | CDN3061-S16 | 1434       | Valid              |

**Injected Currents**

| Item | Equipment                   | Manufacturer | Model No.    | Serial No. | Calibration Status |
|------|-----------------------------|--------------|--------------|------------|--------------------|
| 1    | RF generator                | TESEQ        | NSG4070      | 35088      | Valid              |
| 2    | Power Amplifier             | TESEQ        | CBA 400M-110 | T44225     | Valid              |
| 3    | EM Clamp                    | TESEQ        | KEMZ801A     | 33477      | Valid              |
| 4    | Coupling Decoupling Network | TESEQ        | CDN M016     | 34615      | Valid              |
| 5    | Dual Directional Coupler    | TESEQ        | DCP 0100A    | 34574      | Valid              |

**4.1 Measurement Uncertainty**

| Test Item                            | Frequency Range | Uncertainty | Note |
|--------------------------------------|-----------------|-------------|------|
| Mains Terminal Disturbance Voltage   | 9kHz~30MHz      | ±2.66dB     | (1)  |
| Radiated electromagnetic disturbance | 9kHz ~30MHz     | ±3.00dB     | (1)  |
| Radiated Emission                    | 30MHz~300MHz    | ±5.03dB     | (1)  |

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .



## 5 Emission Test Results

### 5.1 Mains Terminals Disturbance Voltage, 9kHz to 30MHz

|                       |                        |
|-----------------------|------------------------|
| Test Requirement..... | : EN 55015             |
| Test Method.....      | : EN 55015             |
| Test Result.....      | : Pass                 |
| Frequency Range.....  | : 9kHz to 30MHz        |
| Class/Severity.....   | : Table 2a of EN 55015 |

#### 5.1.1 E.U.T. Operation

##### Operating Environment:

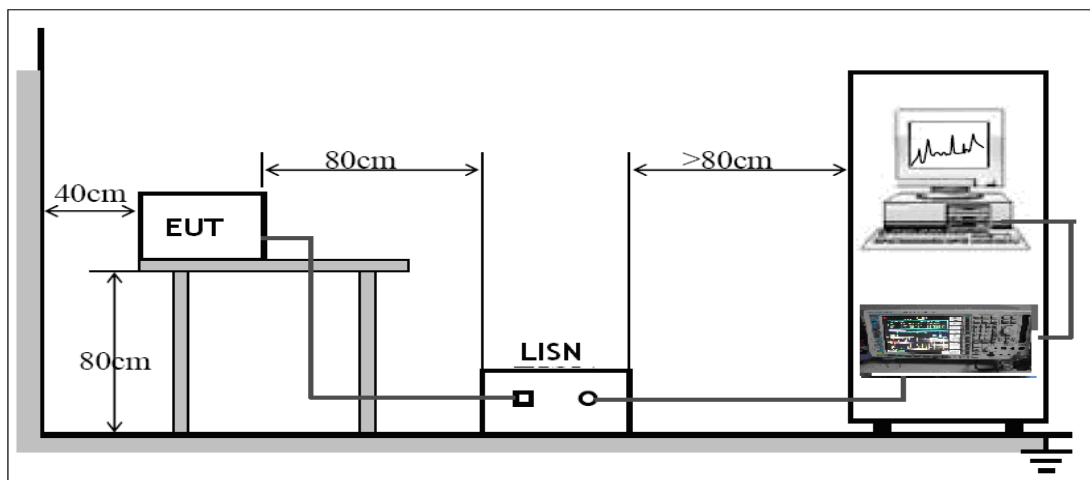
|                  |          |
|------------------|----------|
| Temperature..... | : 24.0°C |
| Humidity.....    | : 60%RH  |

##### EUT Operation:

|                     |   |
|---------------------|---|
| Input Voltage.....  | : 230V~, 50Hz   |
| Operating Mode..... | : Mode1: Dimming 100% mode<br>Mode2: Dimming super mode |

#### 5.1.2 Block Diagram of Test Setup

The Mains Terminals Disturbance Voltage tests were performed in accordance with the EN 55015.

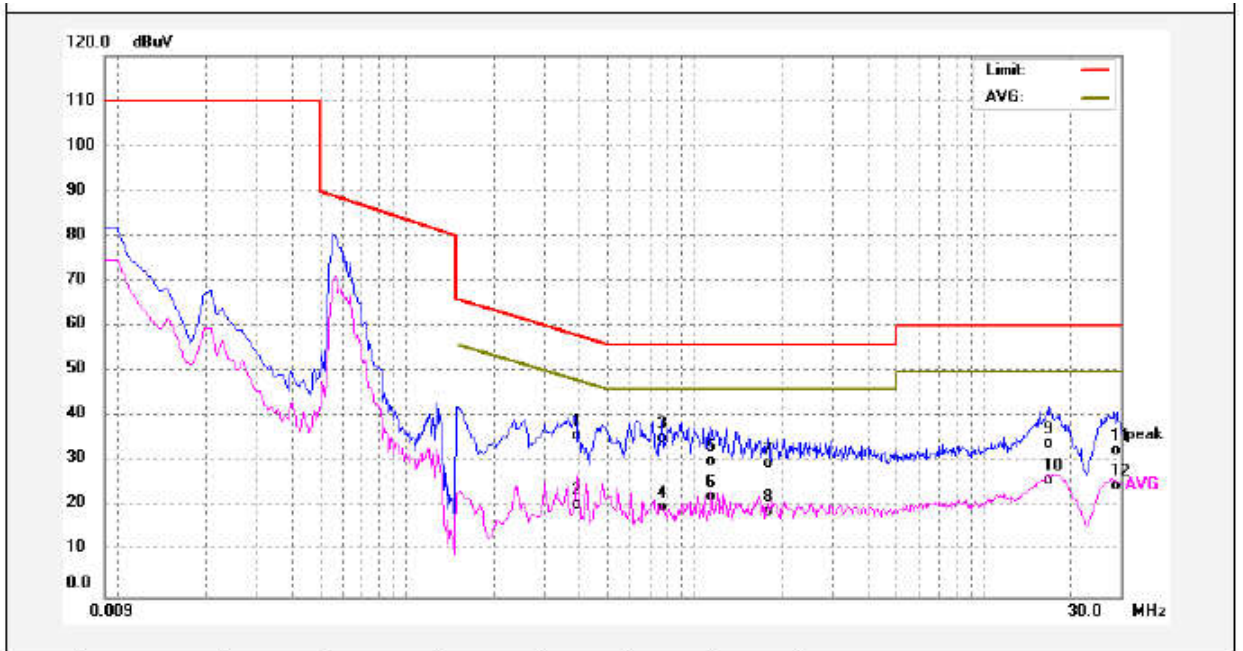


#### 5.1.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

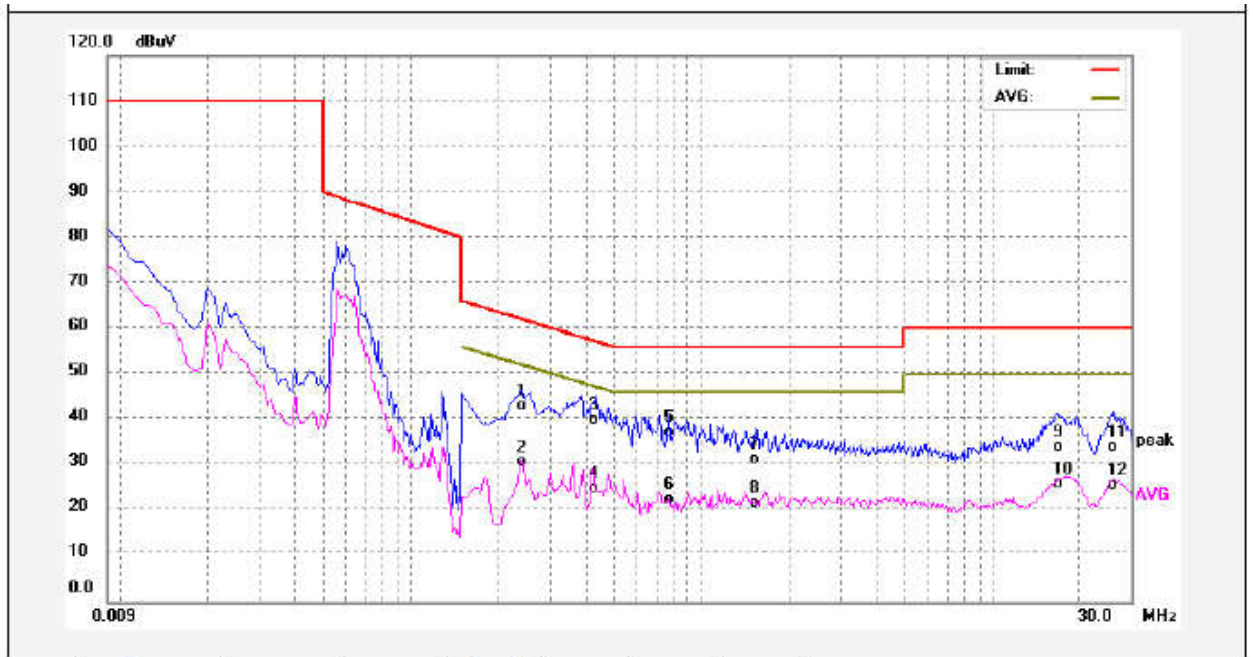
### 5.1.4 Mains Terminals Disturbance Voltage Test Data

#### Live Line Aurora 315W



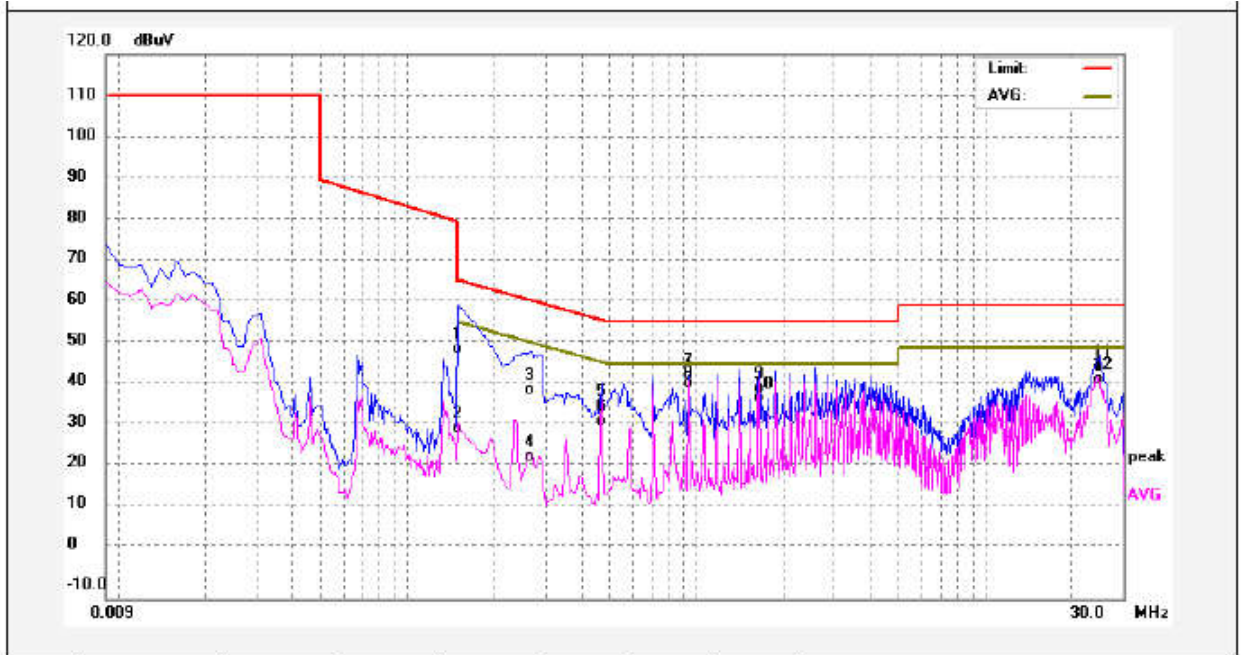
| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit dBuV | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.3817      | 26.14          | 9.70        | 35.84         | 58.24      | -22.40      | QP       |        |
| 2   | 0.3817      | 10.83          | 9.70        | 20.53         | 48.24      | -27.71      | AVG      |        |
| 3   | 0.7731      | 25.47          | 9.72        | 35.19         | 56.00      | -20.81      | QP       |        |
| 4   | 0.7731      | 10.11          | 9.72        | 19.83         | 46.00      | -26.17      | AVG      |        |
| 5   | 1.1413      | 20.36          | 9.72        | 30.08         | 56.00      | -25.92      | QP       |        |
| 6   | 1.1413      | 12.75          | 9.72        | 22.47         | 46.00      | -23.53      | AVG      |        |
| 7   | 1.7975      | 19.75          | 9.74        | 29.49         | 56.00      | -26.51      | QP       |        |
| 8   | 1.7975      | 9.28           | 9.74        | 19.02         | 46.00      | -26.98      | AVG      |        |
| 9   | 16.7291     | 23.92          | 10.00       | 33.92         | 60.00      | -26.08      | QP       |        |
| 10  | 16.7291     | 16.03          | 10.00       | 26.03         | 50.00      | -23.97      | AVG      |        |
| 11  | 29.0422     | 22.21          | 10.22       | 32.43         | 60.00      | -27.57      | QP       |        |
| 12  | 29.0422     | 14.68          | 10.22       | 24.90         | 50.00      | -25.10      | AVG      |        |

**Neutral Line Aurora 315W**



| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit dBuV | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.2420      | 33.24          | 9.70        | 42.94         | 62.02      | -19.08      | QP       |        |
| 2   | 0.2420      | 20.93          | 9.70        | 30.63         | 52.02      | -21.39      | AVG      |        |
| 3   | 0.4340      | 30.44          | 9.70        | 40.14         | 57.18      | -17.04      | QP       |        |
| 4   | 0.4340      | 15.42          | 9.70        | 25.12         | 47.18      | -22.06      | AVG      |        |
| 5   | 0.7700      | 27.73          | 9.72        | 37.45         | 56.00      | -18.55      | QP       |        |
| 6   | 0.7700      | 13.08          | 9.72        | 22.80         | 46.00      | -23.20      | AVG      |        |
| 7   | 1.5260      | 21.51          | 9.75        | 31.26         | 56.00      | -24.74      | QP       |        |
| 8   | 1.5260      | 11.98          | 9.75        | 21.73         | 46.00      | -24.27      | AVG      |        |
| 9   | 16.6340     | 24.09          | 10.00       | 34.09         | 60.00      | -25.91      | QP       |        |
| 10  | 16.6340     | 15.89          | 10.00       | 25.89         | 50.00      | -24.11      | AVG      |        |
| 11  | 25.9420     | 23.86          | 10.16       | 34.02         | 60.00      | -25.98      | QP       |        |
| 12  | 25.9420     | 15.62          | 10.16       | 25.78         | 50.00      | -24.22      | AVG      |        |

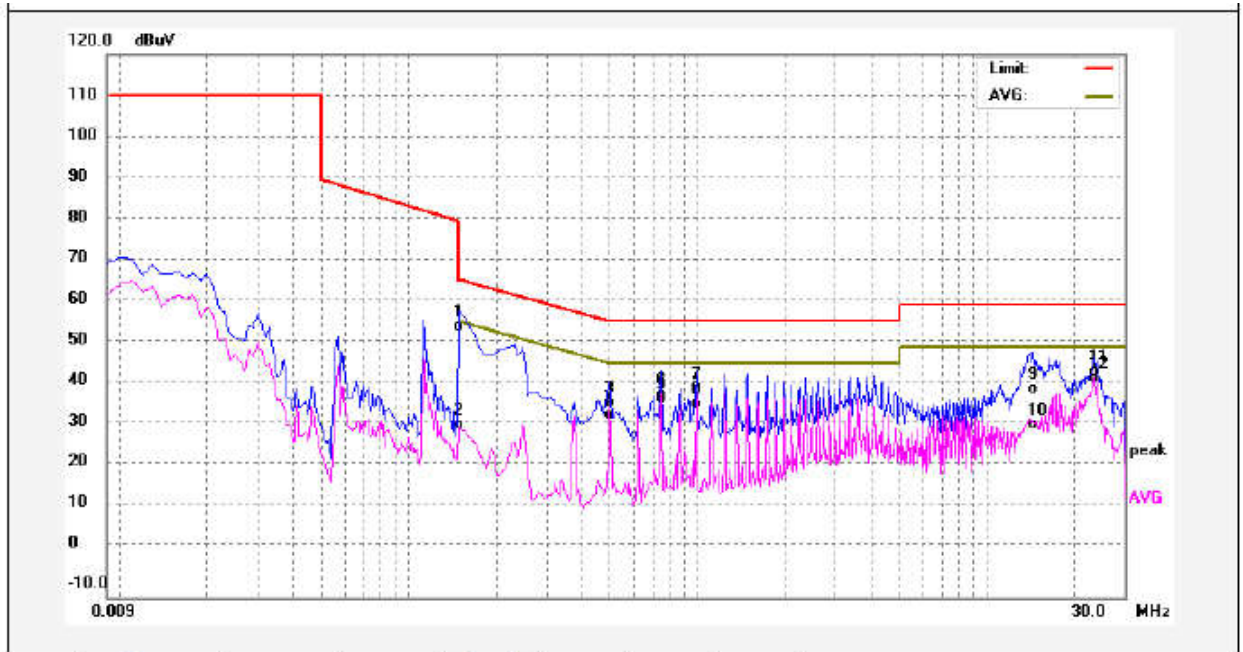
Live Line Pro 1000W 400V



| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit dBuV | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.1499      | 40.13          | 9.63        | 49.76         | 66.00      | -16.24      | QP       |        |
| 2   | 0.1499      | 21.20          | 9.63        | 30.83         | 56.00      | -25.17      | AVG      |        |
| 3   | 0.2671      | 30.28          | 9.66        | 39.94         | 61.20      | -21.26      | QP       |        |
| 4   | 0.2671      | 14.33          | 9.66        | 23.99         | 51.20      | -27.21      | AVG      |        |
| 5   | 0.4699      | 26.31          | 9.62        | 35.93         | 56.52      | -20.59      | QP       |        |
| 6   | 0.4699      | 22.84          | 9.62        | 32.46         | 46.52      | -14.06      | AVG      |        |
| 7   | 0.9420      | 33.84          | 9.66        | 43.50         | 56.00      | -12.50      | QP       |        |
| 8   | 0.9420      | 31.94          | 9.66        | 41.60         | 46.00      | -4.40       | AVG      |        |
| 9   | 1.6459      | 30.62          | 9.67        | 40.29         | 56.00      | -15.71      | QP       |        |
| 10  | 1.6459      | 28.26          | 9.67        | 37.93         | 46.00      | -8.07       | AVG      |        |
| 11  | 25.0539     | 35.23          | 10.07       | 45.30         | 60.00      | -14.70      | QP       |        |
| 12  | 25.0539     | 32.52          | 10.07       | 42.59         | 50.00      | -7.41       | AVG      |        |

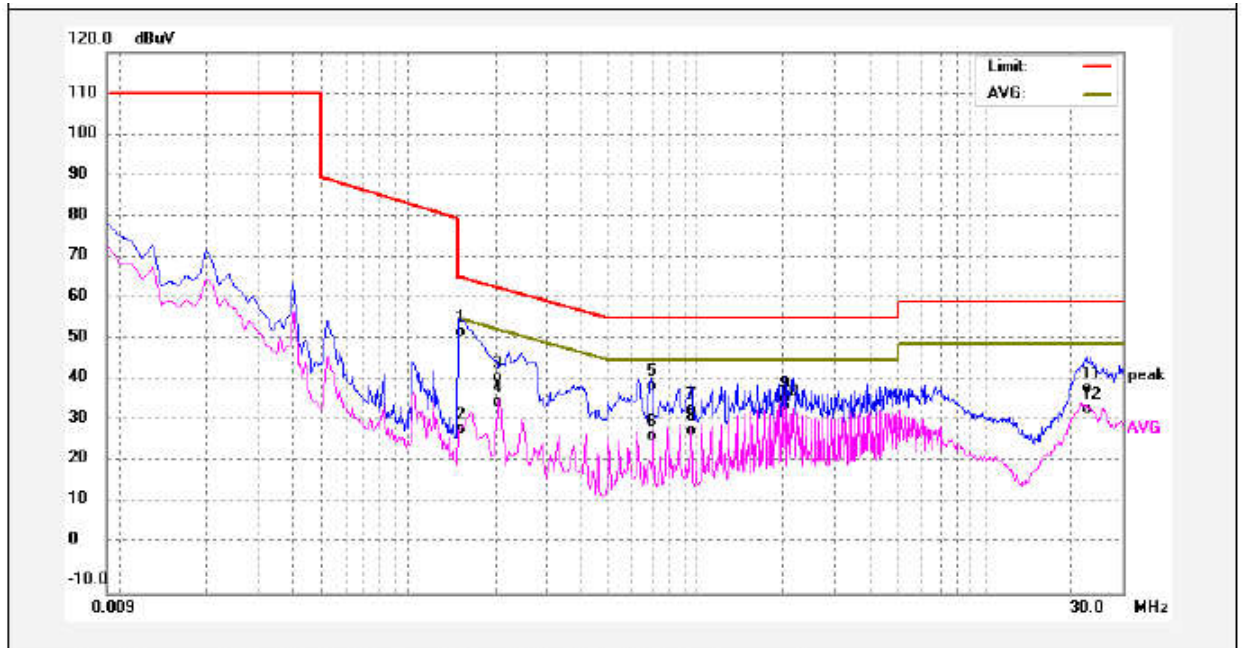


## Neutral Line Pro 1000W 400V



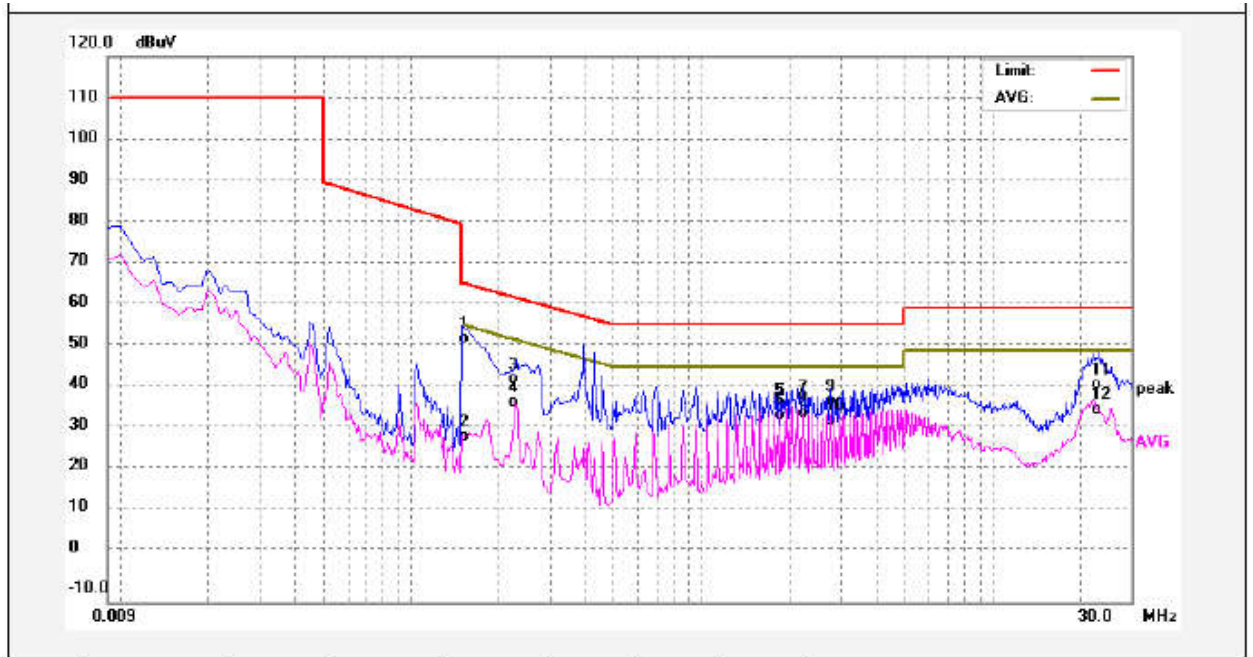
| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit dBuV | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.1500      | 45.07          | 9.63        | 54.70         | 65.99      | -11.29      | QP       |        |
| 2   | 0.1500      | 21.69          | 9.63        | 31.32         | 55.99      | -24.67      | AVG      |        |
| 3   | 0.4980      | 27.16          | 9.61        | 36.77         | 56.03      | -19.26      | QP       |        |
| 4   | 0.4980      | 24.24          | 9.61        | 33.85         | 46.03      | -12.18      | AVG      |        |
| 5   | 0.7460      | 28.01          | 9.67        | 37.68         | 56.00      | -18.32      | QP       |        |
| 6   | 0.7460      | 28.89          | 9.67        | 38.56         | 46.00      | -7.44       | AVG      |        |
| 7   | 0.9940      | 30.17          | 9.66        | 39.83         | 56.00      | -16.17      | QP       |        |
| 8   | 0.9940      | 26.73          | 9.66        | 36.39         | 46.00      | -9.61       | AVG      |        |
| 9   | 14.4740     | 29.74          | 10.01       | 39.75         | 60.00      | -20.25      | QP       |        |
| 10  | 14.4740     | 21.53          | 10.01       | 31.54         | 50.00      | -18.46      | AVG      |        |
| 11  | 23.7060     | 33.96          | 10.07       | 44.03         | 60.00      | -15.97      | QP       |        |
| 12  | 23.7060     | 32.46          | 10.07       | 42.53         | 50.00      | -7.47       | AVG      |        |

## Live Line 1000W



| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit dBuV | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.1500      | 43.15          | 9.63        | 52.78         | 65.99      | -13.21      | QP       |        |
| 2   | 0.1500      | 19.78          | 9.63        | 29.41         | 55.99      | -26.58      | AVG      |        |
| 3   | 0.2060      | 32.08          | 9.67        | 41.75         | 63.36      | -21.61      | QP       |        |
| 4   | 0.2060      | 26.33          | 9.67        | 36.00         | 53.36      | -17.36      | AVG      |        |
| 5   | 0.6940      | 30.25          | 9.67        | 39.92         | 56.00      | -16.08      | QP       |        |
| 6   | 0.6940      | 18.33          | 9.67        | 28.00         | 46.00      | -18.00      | AVG      |        |
| 7   | 0.9580      | 24.62          | 9.66        | 34.28         | 56.00      | -21.72      | QP       |        |
| 8   | 0.9580      | 19.49          | 9.66        | 29.15         | 46.00      | -16.85      | AVG      |        |
| 9   | 2.0180      | 27.32          | 9.68        | 37.00         | 56.00      | -19.00      | QP       |        |
| 10  | 2.0180      | 25.32          | 9.68        | 35.00         | 46.00      | -11.00      | AVG      |        |
| 11  | 22.4300     | 29.18          | 10.07       | 39.25         | 60.00      | -20.75      | QP       |        |
| 12  | 22.4300     | 24.20          | 10.07       | 34.27         | 50.00      | -15.73      | AVG      |        |

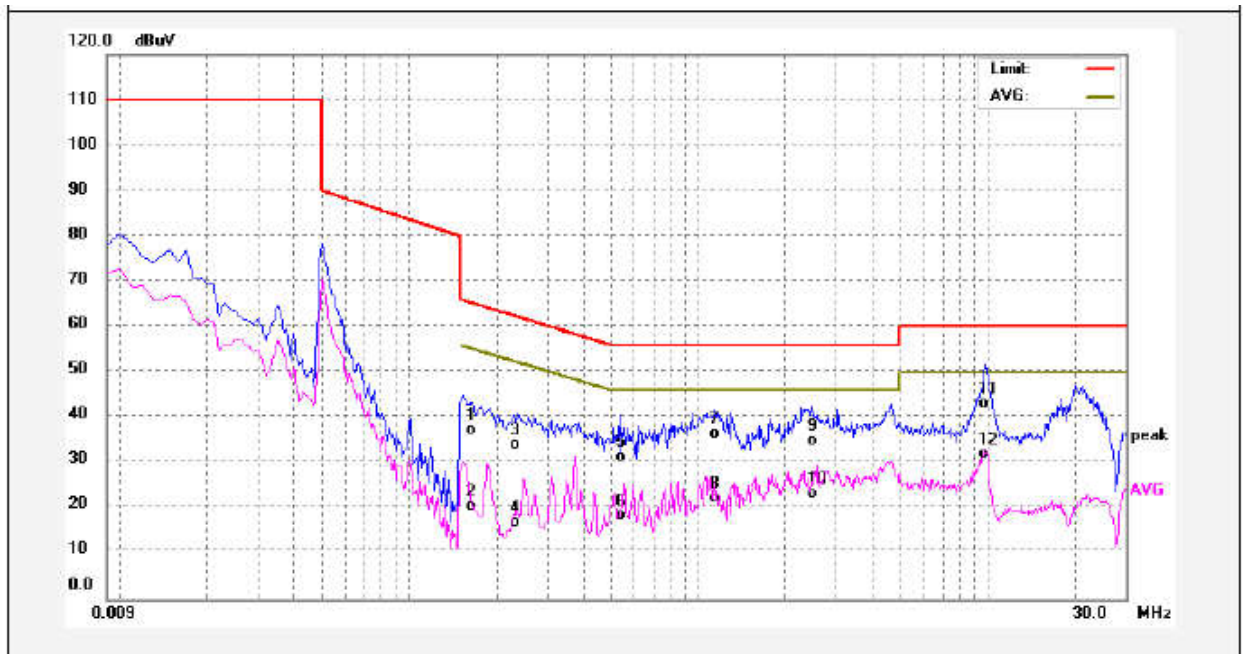
## Neutral Line 1000W



| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit dBuV | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.1500      | 43.25          | 9.63        | 52.88         | 65.99      | -13.11      | QP       |        |
| 2   | 0.1500      | 19.91          | 9.63        | 29.54         | 55.99      | -26.45      | AVG      |        |
| 3   | 0.2272      | 33.47          | 9.66        | 43.13         | 62.55      | -19.42      | QP       |        |
| 4   | 0.2272      | 28.11          | 9.66        | 37.77         | 52.55      | -14.78      | AVG      |        |
| 5   | 1.8620      | 27.33          | 9.67        | 37.00         | 56.00      | -19.00      | QP       |        |
| 6   | 1.8620      | 25.01          | 9.67        | 34.68         | 46.00      | -11.32      | AVG      |        |
| 7   | 2.2260      | 27.98          | 9.68        | 37.66         | 56.00      | -18.34      | QP       |        |
| 8   | 2.2260      | 25.23          | 9.68        | 34.91         | 46.00      | -11.09      | AVG      |        |
| 9   | 2.7740      | 28.32          | 9.68        | 38.00         | 56.00      | -18.00      | QP       |        |
| 10  | 2.7740      | 23.65          | 9.68        | 33.33         | 46.00      | -12.67      | AVG      |        |
| 11  | 23.3300     | 31.66          | 10.07       | 41.73         | 60.00      | -18.27      | QP       |        |
| 12  | 23.3300     | 26.08          | 10.07       | 36.15         | 50.00      | -13.85      | AVG      |        |



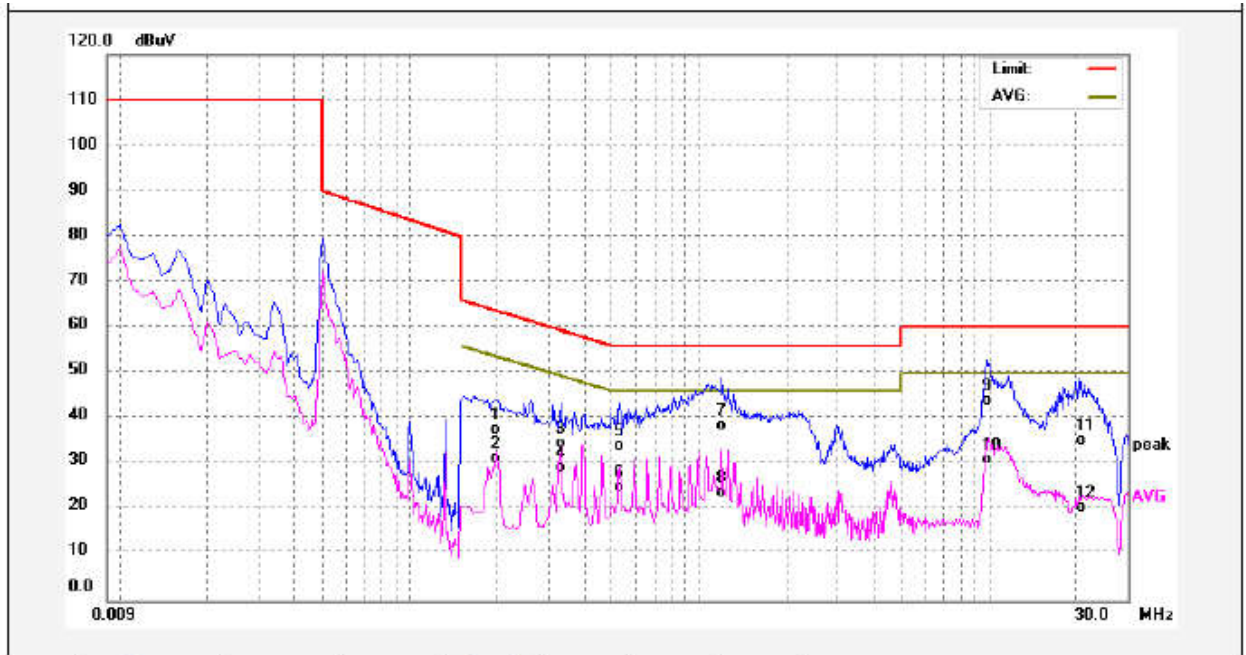
## Live Line 315W



| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit dBuV | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.1660      | 27.55          | 9.70        | 37.25         | 65.15      | -27.90      | QP       |        |
| 2   | 0.1660      | 10.90          | 9.70        | 20.60         | 55.15      | -34.55      | AVG      |        |
| 3   | 0.2380      | 24.26          | 9.70        | 33.96         | 62.16      | -28.20      | QP       |        |
| 4   | 0.2380      | 7.29           | 9.70        | 16.99         | 52.16      | -35.17      | AVG      |        |
| 5   | 0.5340      | 21.67          | 9.71        | 31.38         | 56.00      | -24.62      | QP       |        |
| 6   | 0.5340      | 8.88           | 9.71        | 18.59         | 46.00      | -27.41      | AVG      |        |
| 7   | 1.1460      | 26.76          | 9.73        | 36.49         | 56.00      | -19.51      | QP       |        |
| 8   | 1.1460      | 12.57          | 9.73        | 22.30         | 46.00      | -23.70      | AVG      |        |
| 9   | 2.4660      | 25.22          | 9.76        | 34.98         | 56.00      | -21.02      | QP       |        |
| 10  | 2.4660      | 13.56          | 9.76        | 23.32         | 46.00      | -22.68      | AVG      |        |
| 11  | 9.8100      | 33.28          | 9.89        | 43.17         | 60.00      | -16.83      | QP       |        |
| 12  | 9.8100      | 22.02          | 9.89        | 31.91         | 50.00      | -18.09      | AVG      |        |

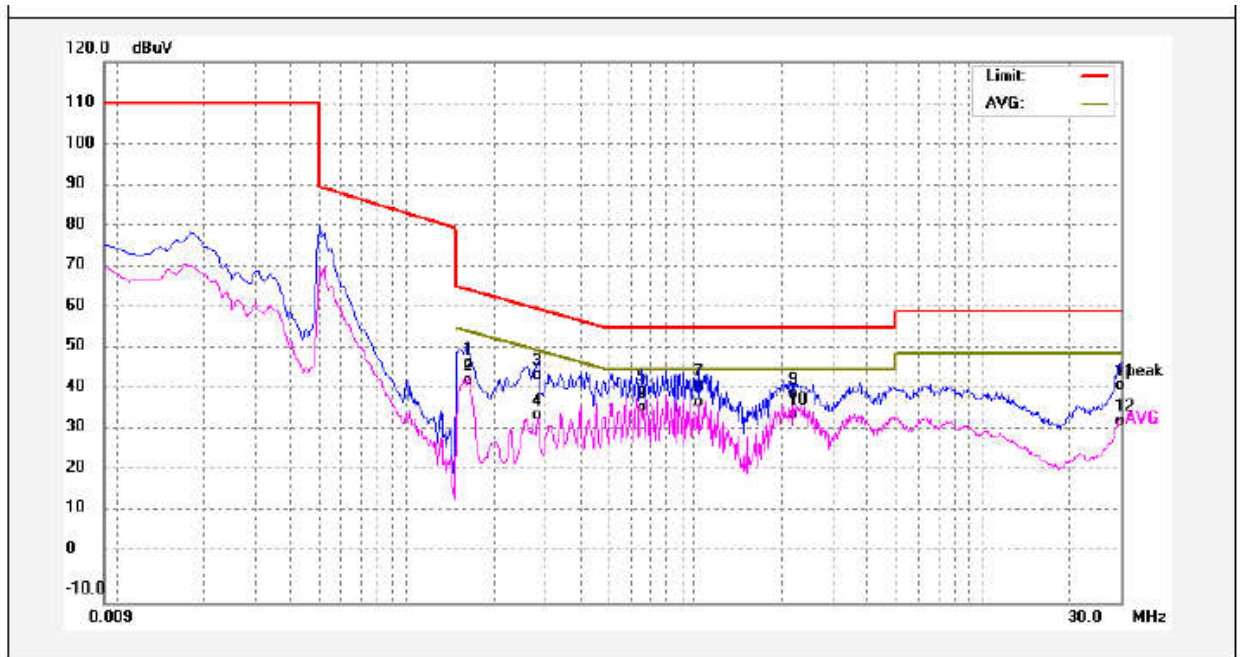


## Neutral Line 315W



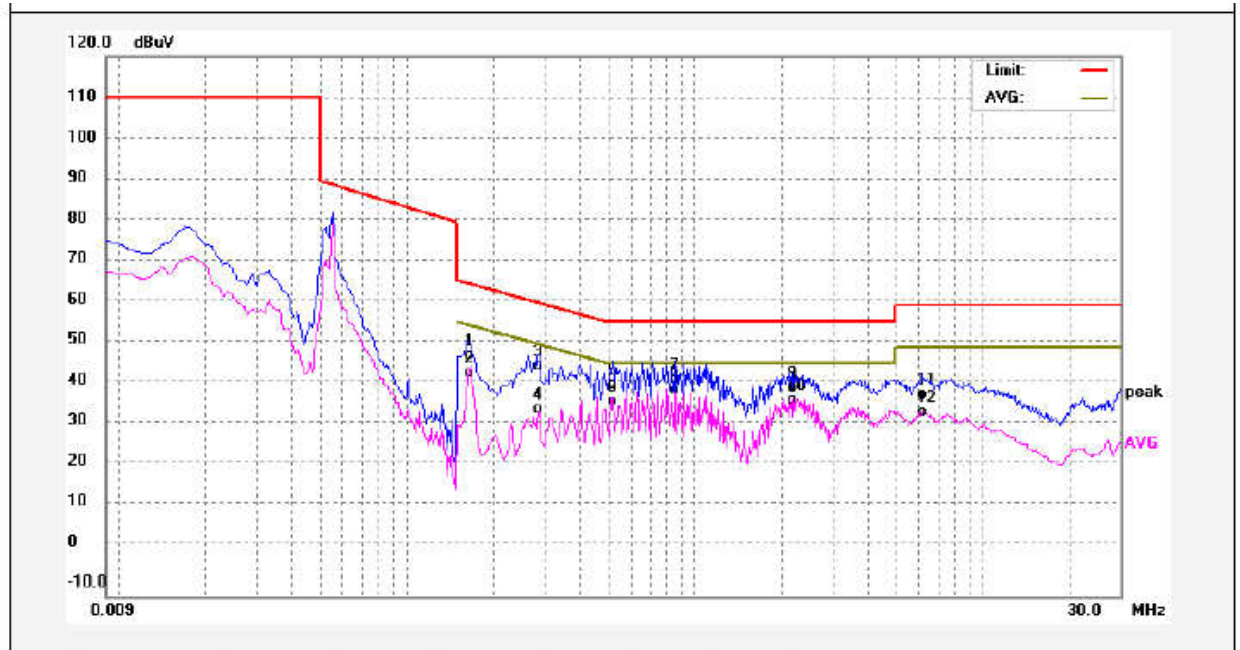
| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit dBuV | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.1980      | 28.10          | 9.68        | 37.78         | 63.69      | -25.91      | QP       |        |
| 2   | 0.1980      | 21.76          | 9.68        | 31.44         | 53.69      | -22.25      | AVG      |        |
| 3   | 0.3300      | 25.10          | 9.70        | 34.80         | 59.45      | -24.65      | QP       |        |
| 4   | 0.3300      | 19.66          | 9.70        | 29.36         | 49.45      | -20.09      | AVG      |        |
| 5   | 0.5299      | 24.34          | 9.71        | 34.05         | 56.00      | -21.95      | QP       |        |
| 6   | 0.5299      | 15.31          | 9.71        | 25.02         | 46.00      | -20.98      | AVG      |        |
| 7   | 1.1900      | 28.91          | 9.72        | 38.63         | 56.00      | -17.37      | QP       |        |
| 8   | 1.1900      | 14.12          | 9.72        | 23.84         | 46.00      | -22.16      | AVG      |        |
| 9   | 9.8139      | 34.00          | 9.89        | 43.89         | 60.00      | -16.11      | QP       |        |
| 10  | 9.8139      | 21.23          | 9.89        | 31.12         | 50.00      | -18.88      | AVG      |        |
| 11  | 20.5100     | 25.34          | 10.06       | 35.40         | 60.00      | -24.60      | QP       |        |
| 12  | 20.5100     | 10.61          | 10.06       | 20.67         | 50.00      | -29.33      | AVG      |        |

## Live Line 600W Mode 1



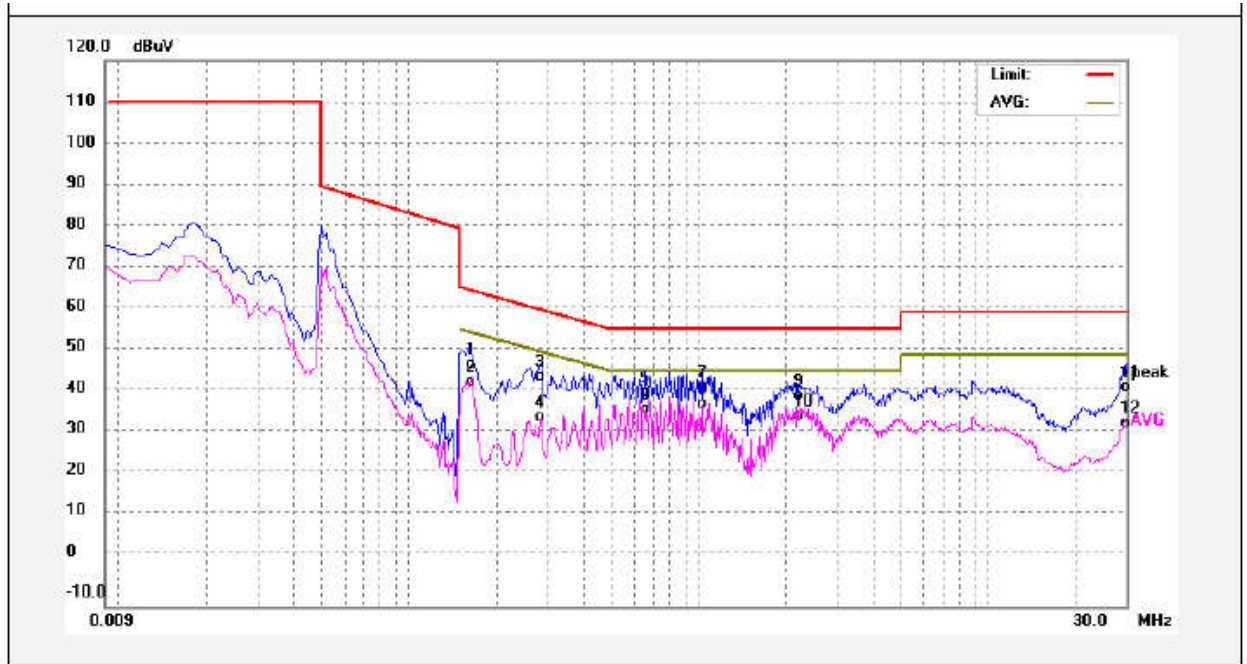
| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit dBuV | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.1620      | 37.87          | 9.64        | 47.51         | 65.36      | -17.85      | QP       |        |
| 2   | 0.1620      | 33.71          | 9.64        | 43.35         | 55.36      | -12.01      | AVG      |        |
| 3   | 0.2860      | 34.98          | 9.65        | 44.63         | 60.64      | -16.01      | QP       |        |
| 4   | 0.2860      | 25.21          | 9.65        | 34.86         | 50.64      | -15.78      | AVG      |        |
| 5   | 0.6620      | 31.33          | 9.66        | 40.99         | 56.00      | -15.01      | QP       |        |
| 6   | 0.6620      | 27.23          | 9.66        | 36.89         | 46.00      | -9.11       | AVG      |        |
| 7   | 1.0300      | 32.50          | 9.66        | 42.16         | 56.00      | -13.84      | QP       |        |
| 8   | 1.0300      | 28.48          | 9.66        | 38.14         | 46.00      | -7.86       | AVG      |        |
| 9   | 2.2620      | 30.40          | 9.68        | 40.08         | 56.00      | -15.92      | QP       |        |
| 10  | 2.2620      | 25.64          | 9.68        | 35.32         | 46.00      | -10.68      | AVG      |        |
| 11  | 29.8780     | 31.95          | 10.24       | 42.19         | 60.00      | -17.81      | QP       |        |
| 12  | 29.8780     | 23.47          | 10.24       | 33.71         | 50.00      | -16.29      | AVG      |        |

## Neutral Line 600W Mode 1



| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit dBuV | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.1620      | 38.52          | 9.64        | 48.16         | 65.36      | -17.20      | QP       |        |
| 2   | 0.1620      | 34.16          | 9.64        | 43.80         | 55.36      | -11.56      | AVG      |        |
| 3   | 0.2860      | 35.73          | 9.65        | 45.38         | 60.64      | -15.26      | QP       |        |
| 4   | 0.2860      | 25.37          | 9.65        | 35.02         | 50.64      | -15.62      | AVG      |        |
| 5   | 0.5180      | 31.16          | 9.61        | 40.77         | 56.00      | -15.23      | QP       |        |
| 6   | 0.5180      | 27.48          | 9.61        | 37.09         | 46.00      | -8.91       | AVG      |        |
| 7   | 0.8580      | 32.66          | 9.66        | 42.32         | 56.00      | -13.68      | QP       |        |
| 8   | 0.8580      | 30.00          | 9.66        | 39.66         | 46.00      | -6.34       | AVG      |        |
| 9   | 2.1780      | 30.45          | 9.68        | 40.13         | 56.00      | -15.87      | QP       |        |
| 10  | 2.1780      | 27.51          | 9.68        | 37.19         | 46.00      | -8.81       | AVG      |        |
| 11  | 6.1860      | 28.82          | 9.74        | 38.56         | 60.00      | -21.44      | QP       |        |
| 12  | 6.1860      | 24.53          | 9.74        | 34.27         | 50.00      | -15.73      | AVG      |        |

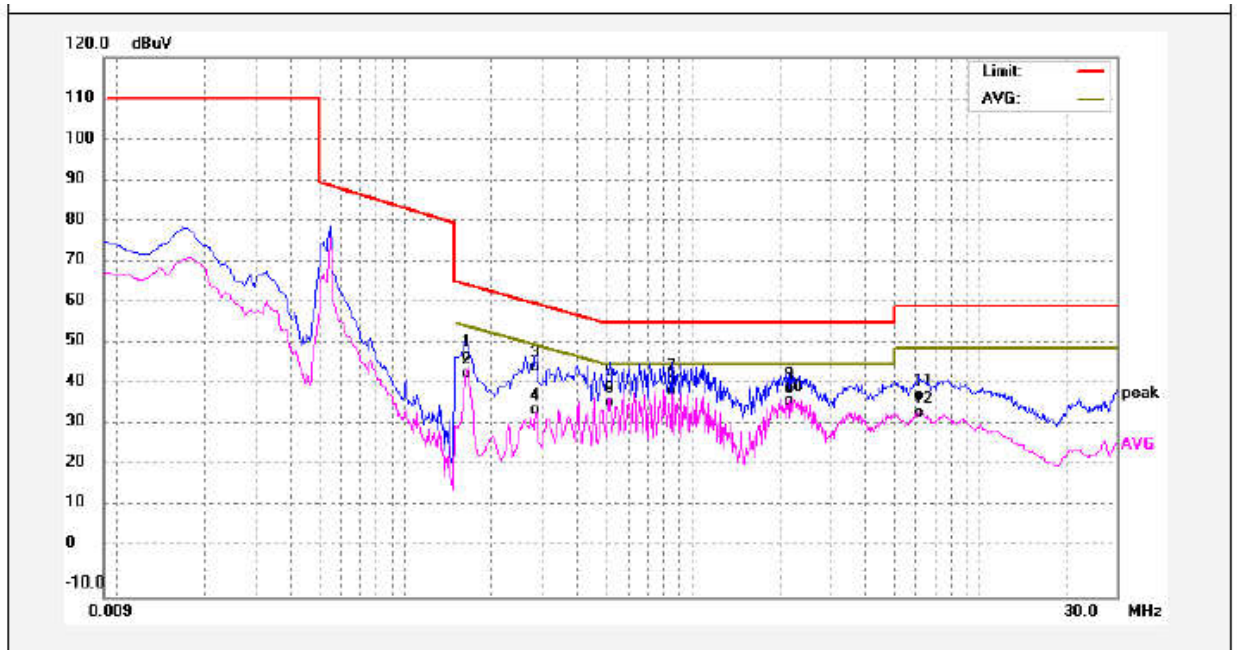
**Live Line, 600W Model 2**



| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit dBuV | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.1620      | 37.90          | 9.64        | 47.54         | 65.36      | -17.82      | QP       |        |
| 2   | 0.1620      | 33.70          | 9.64        | 43.34         | 55.36      | -12.02      | AVG      |        |
| 3   | 0.2860      | 35.03          | 9.65        | 44.68         | 60.64      | -15.96      | QP       |        |
| 4   | 0.2860      | 25.21          | 9.65        | 34.86         | 50.64      | -15.78      | AVG      |        |
| 5   | 0.6620      | 31.33          | 9.66        | 40.99         | 56.00      | -15.01      | QP       |        |
| 6   | 0.6620      | 27.18          | 9.66        | 36.84         | 46.00      | -9.16       | AVG      |        |
| 7   | 1.0300      | 32.50          | 9.66        | 42.16         | 56.00      | -13.84      | QP       |        |
| 8   | 1.0300      | 28.50          | 9.66        | 38.16         | 46.00      | -7.84       | AVG      |        |
| 9   | 2.2620      | 30.40          | 9.68        | 40.08         | 56.00      | -15.92      | QP       |        |
| 10  | 2.2620      | 25.64          | 9.68        | 35.32         | 46.00      | -10.68      | AVG      |        |
| 11  | 29.8780     | 31.95          | 10.24       | 42.19         | 60.00      | -17.81      | QP       |        |
| 12  | 29.8780     | 23.51          | 10.24       | 33.75         | 50.00      | -16.25      | AVG      |        |

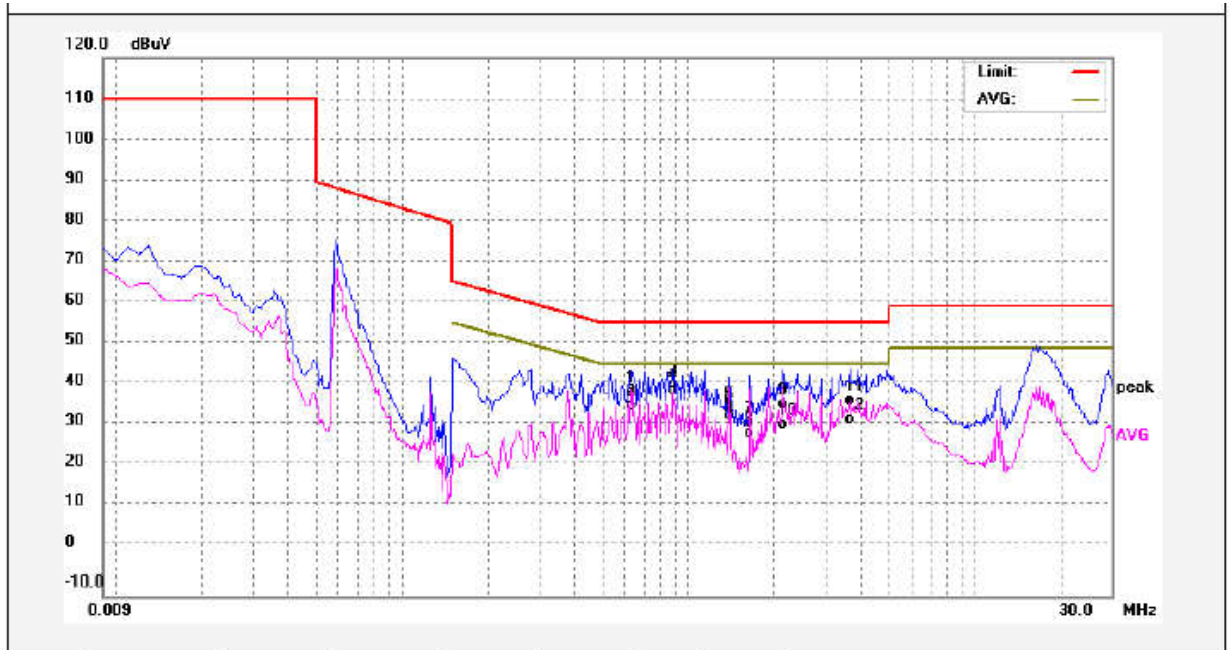


**Neutral Line, 600W Mode 2**



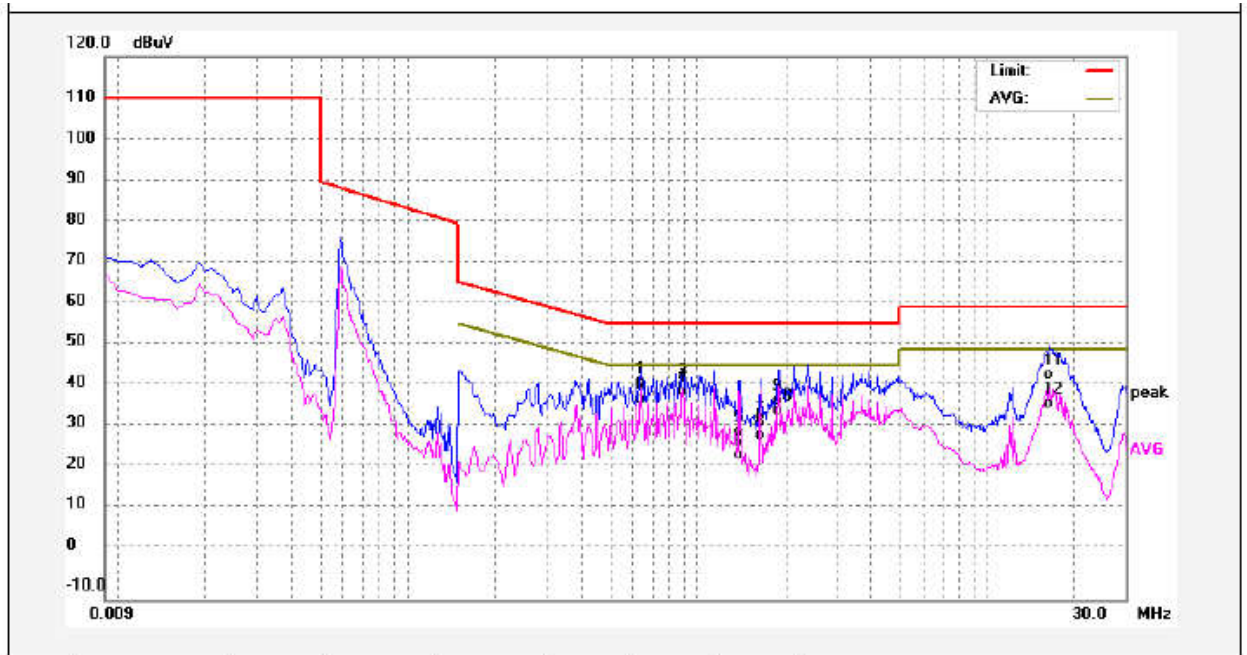
| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit dBuV | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.1620      | 38.47          | 9.64        | 48.11         | 65.36      | -17.25      | QP       |        |
| 2   | 0.1620      | 34.16          | 9.64        | 43.80         | 55.36      | -11.56      | AVG      |        |
| 3   | 0.2860      | 35.67          | 9.65        | 45.32         | 60.64      | -15.32      | QP       |        |
| 4   | 0.2860      | 25.37          | 9.65        | 35.02         | 50.64      | -15.62      | AVG      |        |
| 5   | 0.5180      | 31.16          | 9.61        | 40.77         | 56.00      | -15.23      | QP       |        |
| 6   | 0.5180      | 27.45          | 9.61        | 37.06         | 46.00      | -8.94       | AVG      |        |
| 7   | 0.8580      | 32.66          | 9.66        | 42.32         | 56.00      | -13.68      | QP       |        |
| 8   | 0.8580      | 30.00          | 9.66        | 39.66         | 46.00      | -6.34       | AVG      |        |
| 9   | 2.1780      | 30.47          | 9.68        | 40.15         | 56.00      | -15.85      | QP       |        |
| 10  | 2.1780      | 27.51          | 9.68        | 37.19         | 46.00      | -8.81       | AVG      |        |
| 11  | 6.1860      | 28.82          | 9.74        | 38.56         | 60.00      | -21.44      | QP       |        |
| 12  | 6.1860      | 24.50          | 9.74        | 34.24         | 50.00      | -15.76      | AVG      |        |

**Live Line, 630W Model 1**



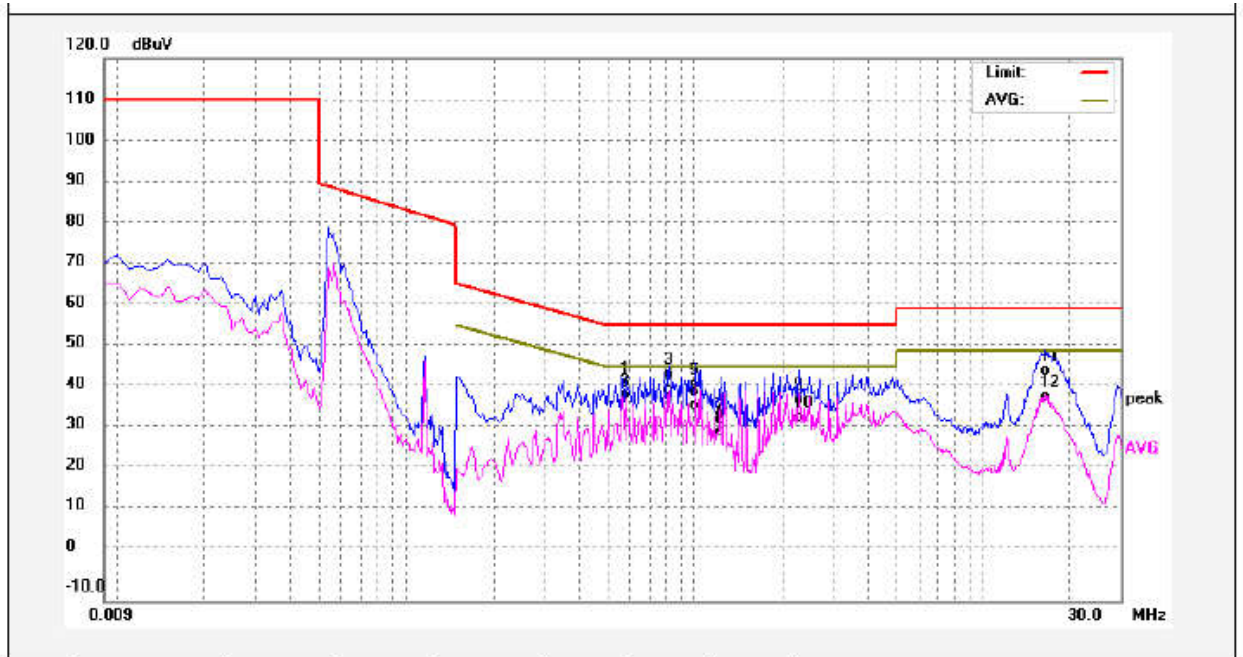
| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit dBuV | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.6300      | 29.50          | 9.64        | 39.14         | 56.00      | -16.86      | QP       |        |
| 2   | 0.6300      | 26.25          | 9.64        | 35.89         | 46.00      | -10.11      | AVG      |        |
| 3   | 0.8860      | 31.64          | 9.66        | 41.30         | 56.00      | -14.70      | QP       |        |
| 4   | 0.8860      | 30.15          | 9.66        | 39.81         | 46.00      | -6.19       | AVG      |        |
| 5   | 1.3900      | 25.55          | 9.66        | 35.21         | 56.00      | -20.79      | QP       |        |
| 6   | 1.3900      | 24.01          | 9.66        | 33.67         | 46.00      | -12.33      | AVG      |        |
| 7   | 1.6420      | 22.24          | 9.67        | 31.91         | 56.00      | -24.09      | QP       |        |
| 8   | 1.6420      | 19.69          | 9.67        | 29.36         | 46.00      | -16.64      | AVG      |        |
| 9   | 2.1460      | 26.78          | 9.68        | 36.46         | 56.00      | -19.54      | QP       |        |
| 10  | 2.1460      | 21.64          | 9.68        | 31.32         | 46.00      | -14.68      | AVG      |        |
| 11  | 3.6620      | 27.57          | 9.70        | 37.27         | 56.00      | -18.73      | QP       |        |
| 12  | 3.6620      | 23.08          | 9.70        | 32.78         | 46.00      | -13.22      | AVG      |        |

**Neutral Line, 630W Mode 1**



| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit dBuV | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.6340      | 32.09          | 9.64        | 41.73         | 56.00      | -14.27      | QP       |        |
| 2   | 0.6340      | 28.21          | 9.64        | 37.85         | 46.00      | -8.15       | AVG      |        |
| 3   | 0.8900      | 31.81          | 9.66        | 41.47         | 56.00      | -14.53      | QP       |        |
| 4   | 0.8900      | 30.09          | 9.66        | 39.75         | 46.00      | -6.25       | AVG      |        |
| 5   | 1.3940      | 20.45          | 9.66        | 30.11         | 56.00      | -25.89      | QP       |        |
| 6   | 1.3940      | 14.91          | 9.66        | 24.57         | 46.00      | -21.43      | AVG      |        |
| 7   | 1.6500      | 22.79          | 9.67        | 32.46         | 56.00      | -23.54      | QP       |        |
| 8   | 1.6500      | 19.72          | 9.67        | 29.39         | 46.00      | -16.61      | AVG      |        |
| 9   | 1.9060      | 28.09          | 9.67        | 37.76         | 56.00      | -18.24      | QP       |        |
| 10  | 1.9060      | 25.61          | 9.67        | 35.28         | 46.00      | -10.72      | AVG      |        |
| 11  | 16.3779     | 33.78          | 10.05       | 43.83         | 60.00      | -16.17      | QP       |        |
| 12  | 16.3779     | 26.76          | 10.05       | 36.81         | 50.00      | -13.19      | AVG      |        |

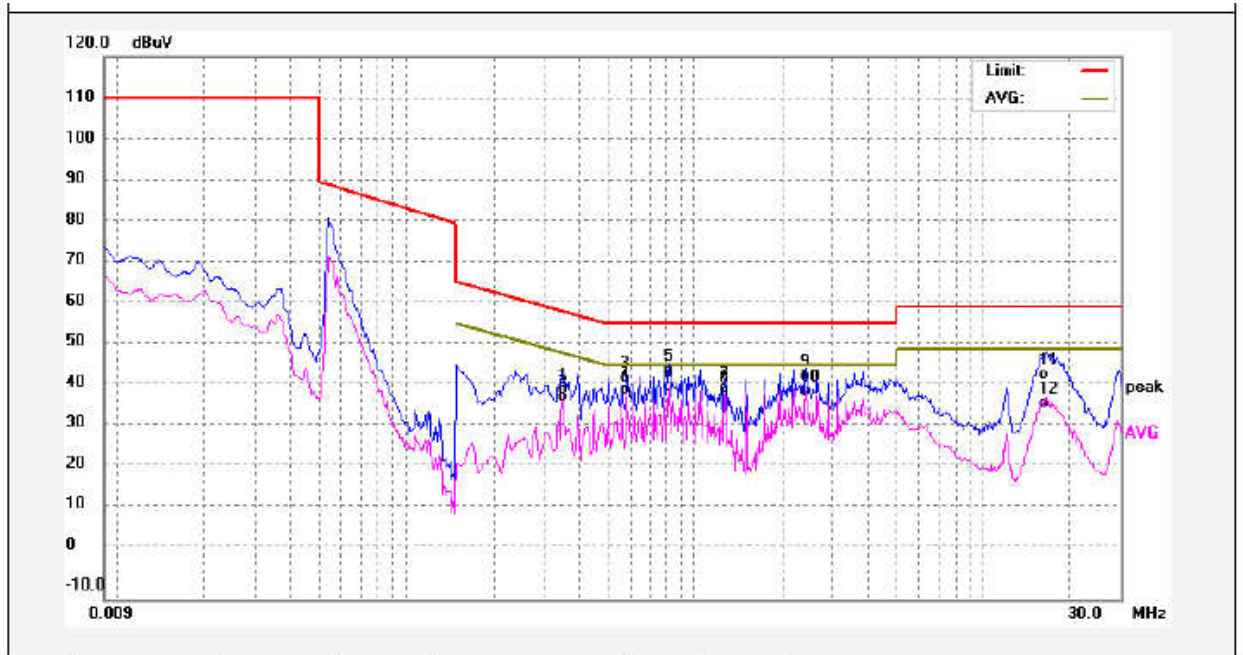
**Live Line, 630W Model 2**



| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit dBuV | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.5820      | 32.67          | 9.63        | 42.30         | 56.00      | -13.70      | QP       |        |
| 2   | 0.5820      | 29.74          | 9.63        | 39.37         | 46.00      | -6.63       | AVG      |        |
| 3   | 0.8139      | 34.87          | 9.67        | 44.54         | 56.00      | -11.46      | QP       |        |
| 4   | 0.8139      | 30.97          | 9.67        | 40.64         | 46.00      | -5.36       | AVG      |        |
| 5   | 1.0100      | 32.04          | 9.66        | 41.70         | 56.00      | -14.30      | QP       |        |
| 6   | 1.0100      | 27.35          | 9.66        | 37.01         | 46.00      | -8.99       | AVG      |        |
| 7   | 1.2300      | 23.69          | 9.66        | 33.35         | 56.00      | -22.65      | QP       |        |
| 8   | 1.2300      | 20.77          | 9.66        | 30.43         | 46.00      | -15.57      | AVG      |        |
| 9   | 2.3020      | 28.66          | 9.68        | 38.34         | 56.00      | -17.66      | QP       |        |
| 10  | 2.3020      | 24.37          | 9.68        | 34.05         | 46.00      | -11.95      | AVG      |        |
| 11  | 16.4660     | 35.11          | 10.05       | 45.16         | 60.00      | -14.84      | QP       |        |
| 12  | 16.4660     | 28.84          | 10.05       | 38.89         | 50.00      | -11.11      | AVG      |        |



**Neutral Line, 630W Mode 2**



| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit dBuV | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.3500      | 30.64          | 9.64        | 40.28         | 58.96      | -18.68      | QP       |        |
| 2   | 0.3500      | 28.94          | 9.64        | 38.58         | 48.96      | -10.38      | AVG      |        |
| 3   | 0.5820      | 33.38          | 9.63        | 43.01         | 56.00      | -12.99      | QP       |        |
| 4   | 0.5820      | 30.51          | 9.63        | 40.14         | 46.00      | -5.86       | AVG      |        |
| 5   | 0.8139      | 35.11          | 9.67        | 44.78         | 56.00      | -11.22      | QP       |        |
| 6   | 0.8139      | 31.17          | 9.67        | 40.84         | 46.00      | -5.16       | AVG      |        |
| 7   | 1.2780      | 30.72          | 9.66        | 40.38         | 56.00      | -15.62      | QP       |        |
| 8   | 1.2780      | 29.92          | 9.66        | 39.58         | 46.00      | -6.42       | AVG      |        |
| 9   | 2.4420      | 33.87          | 9.68        | 43.55         | 56.00      | -12.45      | QP       |        |
| 10  | 2.4420      | 30.32          | 9.68        | 40.00         | 46.00      | -6.00       | AVG      |        |
| 11  | 16.6980     | 33.82          | 10.05       | 43.87         | 60.00      | -16.13      | QP       |        |
| 12  | 16.6980     | 26.93          | 10.05       | 36.98         | 50.00      | -13.02      | AVG      |        |

## 5.2 Radiated Electromagnetic Disturbance, 9kHz to 30MHz

|                       |   |                      |
|-----------------------|---|----------------------|
| Test Requirement..... | : | EN 55015             |
| Test Method.....      | : | EN 55015             |
| Test Result.....      | : | Pass                 |
| Frequency Range.....  | : | 9kHz to 30MHz        |
| Class/Severity.....   | : | Table 3a of EN 55015 |

### 5.2.1 E.U.T. Operation

#### Operating Environment:

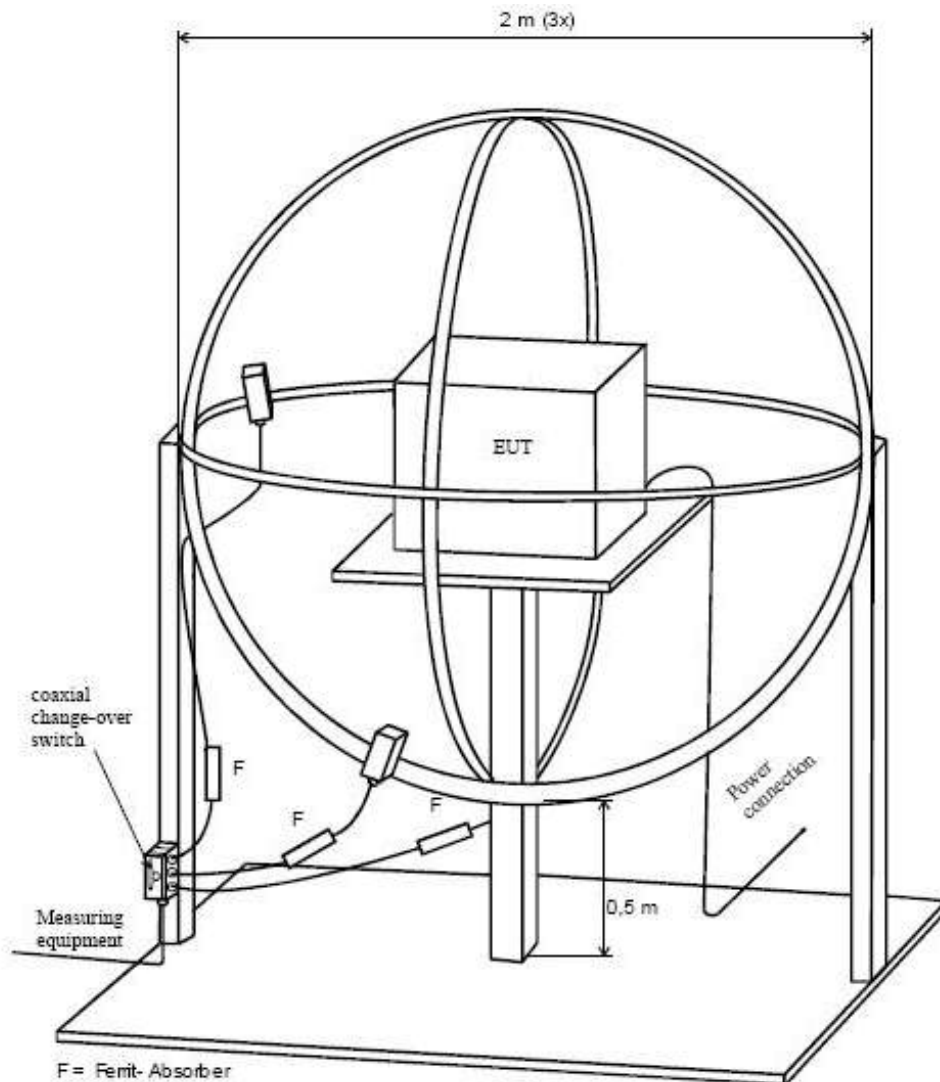
|                   |   |        |
|-------------------|---|--------|
| Temperature ..... | : | 24.0°C |
| Humidity.....     | : | 60%RH  |

#### EUT Operation:

|                     |   |   |
|---------------------|---|---|
| Input Voltage ..... | : | 230V~, 50Hz   |
| Operating Mode..... | : | Mode1: Dimming 100% mode<br>Mode2: Dimming super mode |

### 5.2.2 Block Diagram of Test Setup

The Radiated Electromagnetic Disturbance (9kHz to 30MHz) test was performed in accordance with the EN 55015.

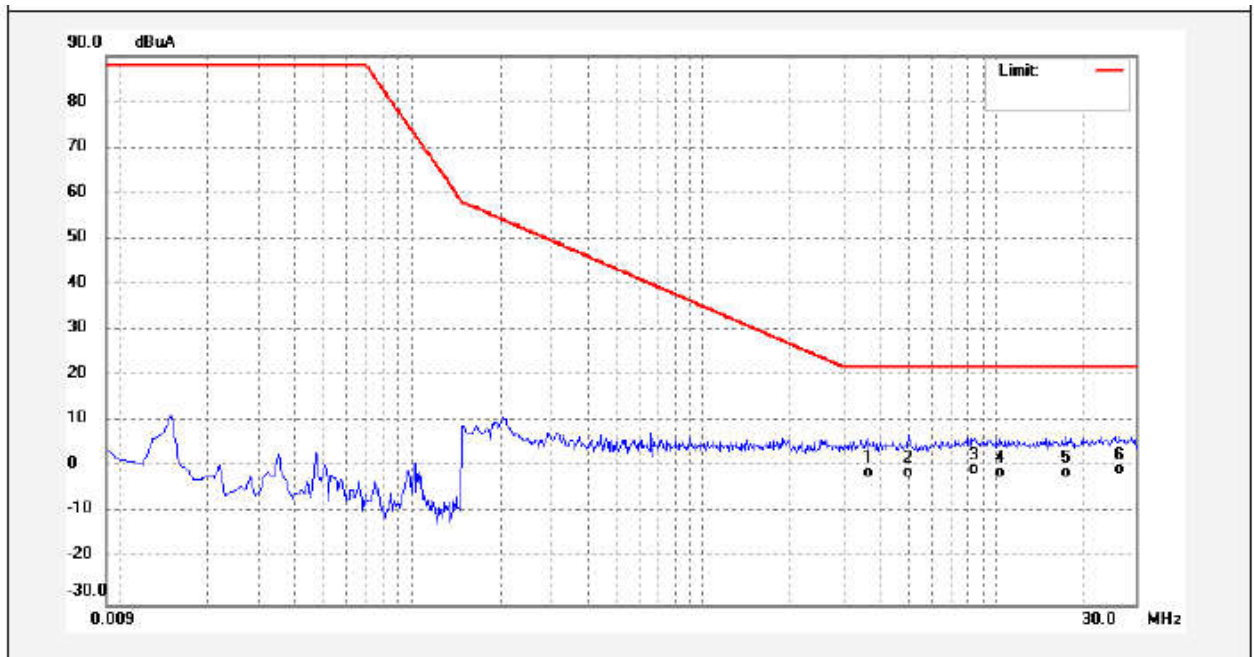


### 5.2.3 Measurement Data

According to the data in section 5.2.4, the EUT complied with the EN 55015 standards.

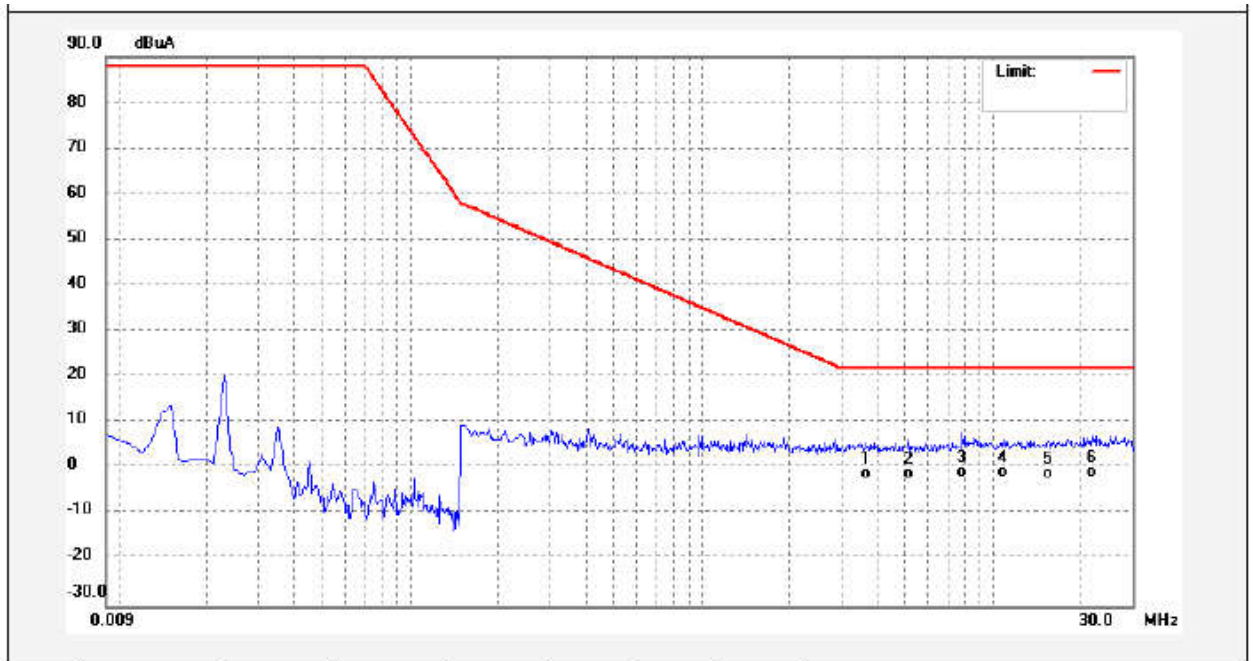
## 5.2.4 Radiated Electromagnetic Disturbance test data, 9kHz to 30MHz

### Loop X Aurora 315W



| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 3.6620      | -35.09         | 34.08       | -1.01         | 22.00      | -23.01      | QP       |        |
| 2   | 5.0180      | -35.25         | 34.09       | -1.16         | 22.00      | -23.16      | QP       |        |
| 3   | 8.4140      | -34.44         | 34.11       | -0.33         | 22.00      | -22.33      | QP       |        |
| 4   | 10.3500     | -35.03         | 34.13       | -0.90         | 22.00      | -22.90      | QP       |        |
| 5   | 17.4300     | -35.14         | 34.18       | -0.96         | 22.00      | -22.96      | QP       |        |
| 6   | 26.6620     | -34.70         | 34.25       | -0.45         | 22.00      | -22.45      | QP       |        |

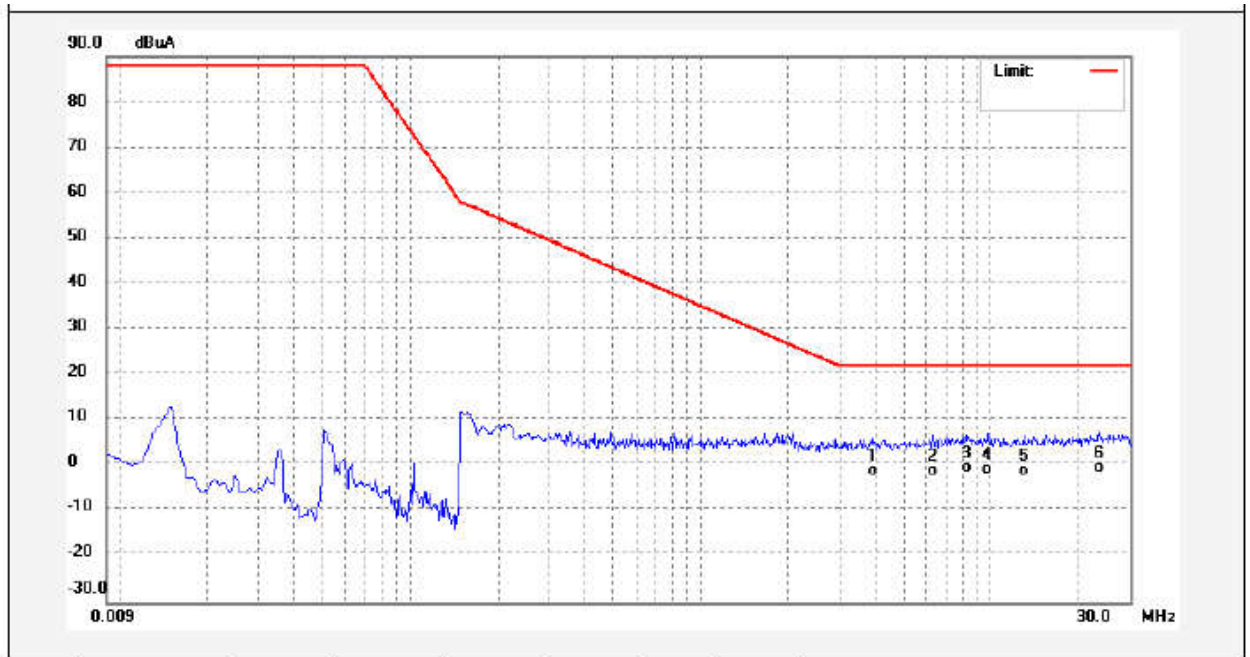
**Loop Y Aurora 315W**



| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 3.6900      | -34.99         | 34.08       | -0.91         | 22.00      | -22.91      | QP       |        |
| 2   | 5.1460      | -35.27         | 34.09       | -1.18         | 22.00      | -23.18      | QP       |        |
| 3   | 7.8620      | -34.75         | 34.11       | -0.64         | 22.00      | -22.64      | QP       |        |
| 4   | 10.8660     | -35.00         | 34.13       | -0.87         | 22.00      | -22.87      | QP       |        |
| 5   | 15.4380     | -35.08         | 34.17       | -0.91         | 22.00      | -22.91      | QP       |        |
| 6   | 21.7260     | -34.93         | 34.22       | -0.71         | 22.00      | -22.71      | QP       |        |

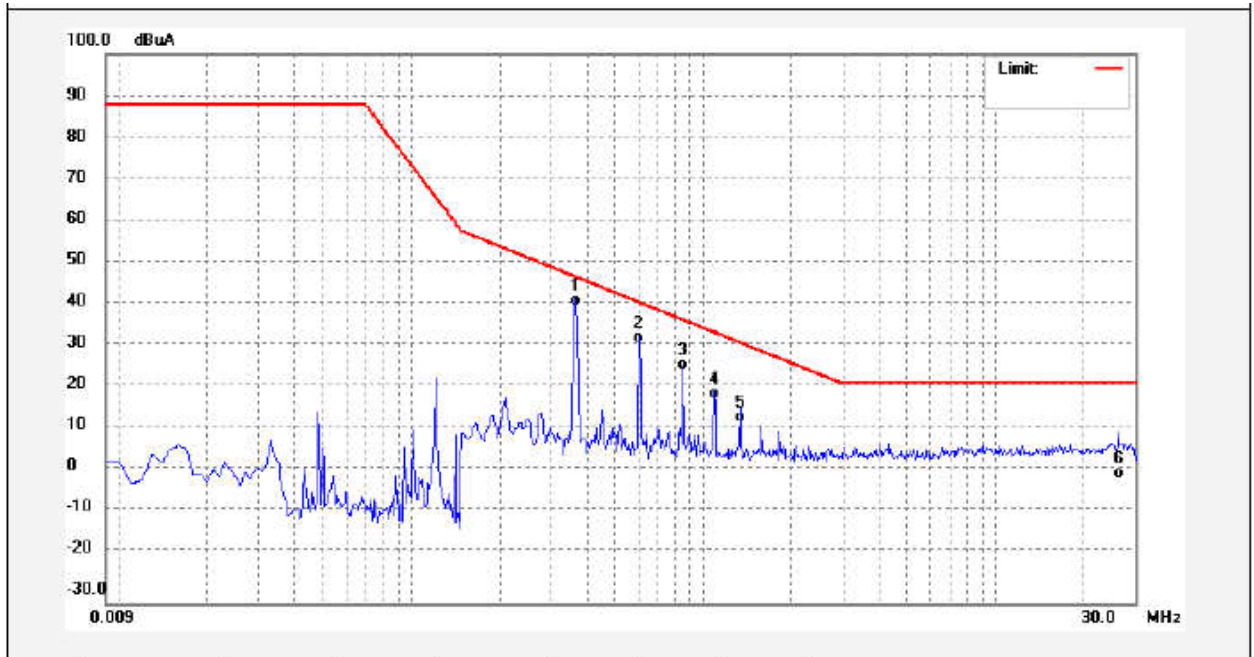


**Loop Z Aurora 315W**



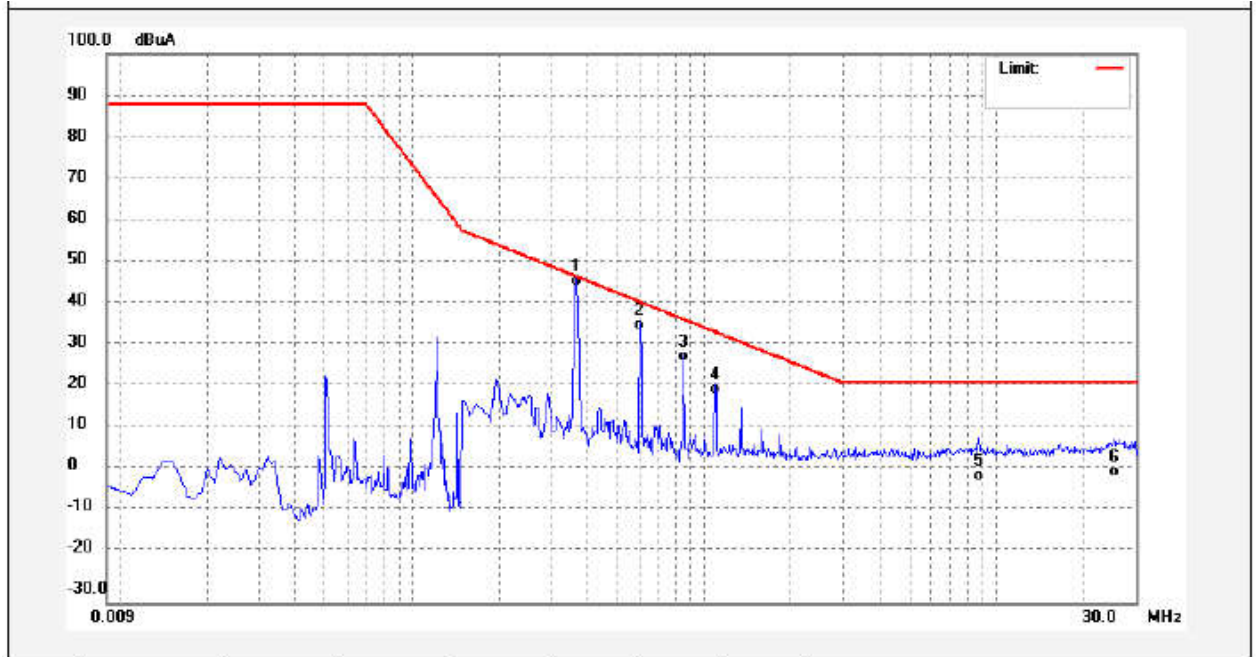
| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 3.9140      | -35.09         | 34.08       | -1.01         | 22.00      | -23.01      | QP       |        |
| 2   | 6.2819      | -35.25         | 34.10       | -1.15         | 22.00      | -23.15      | QP       |        |
| 3   | 8.2980      | -34.44         | 34.11       | -0.33         | 22.00      | -22.33      | QP       |        |
| 4   | 9.7739      | -34.92         | 34.12       | -0.80         | 22.00      | -22.80      | QP       |        |
| 5   | 12.9780     | -35.08         | 34.15       | -0.93         | 22.00      | -22.93      | QP       |        |
| 6   | 23.6420     | -34.58         | 34.23       | -0.35         | 22.00      | -22.35      | QP       |        |

## Loop X, Pro 1000W 400V:



| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.3660      | 7.74           | 34.05       | 41.79         | 47.28      | -5.49       | QP       |        |
| 2   | 0.6060      | -1.24          | 34.05       | 32.81         | 41.22      | -8.41       | QP       |        |
| 3   | 0.8500      | -7.72          | 34.06       | 26.34         | 37.15      | -10.81      | QP       |        |
| 4   | 1.0940      | -14.60         | 34.06       | 19.46         | 34.12      | -14.66      | QP       |        |
| 5   | 1.3380      | -20.16         | 34.06       | 13.90         | 31.70      | -17.80      | QP       |        |
| 6   | 26.5100     | -33.50         | 34.25       | 0.75          | 22.00      | -21.25      | QP       |        |

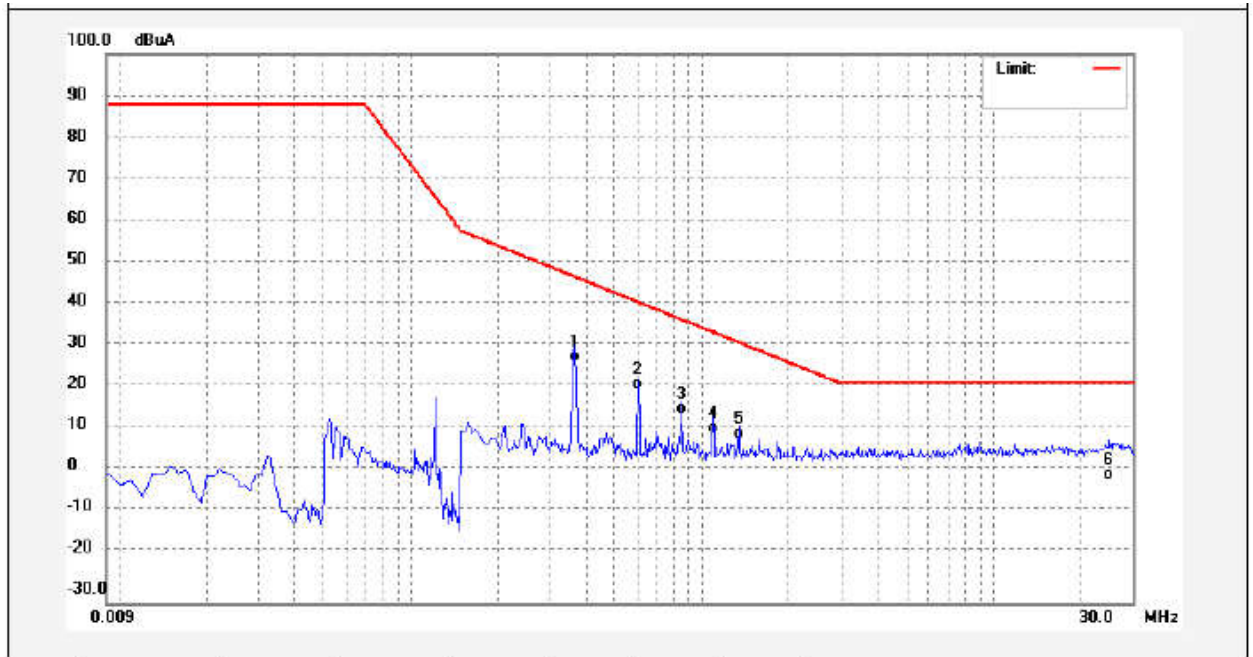
## Loop Y, Pro 1000W 400V:



| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.3660      | 12.20          | 34.05       | 46.25         | 47.28      | -1.03       | QP       |        |
| 2   | 0.6060      | 1.89           | 34.05       | 35.94         | 41.22      | -5.28       | QP       |        |
| 3   | 0.8500      | -5.61          | 34.06       | 28.45         | 37.15      | -8.70       | QP       |        |
| 4   | 1.0940      | -13.42         | 34.06       | 20.64         | 34.12      | -13.48      | QP       |        |
| 5   | 8.7299      | -34.02         | 34.12       | 0.10          | 22.00      | -21.90      | QP       |        |
| 6   | 25.4060     | -33.28         | 34.24       | 0.96          | 22.00      | -21.04      | QP       |        |

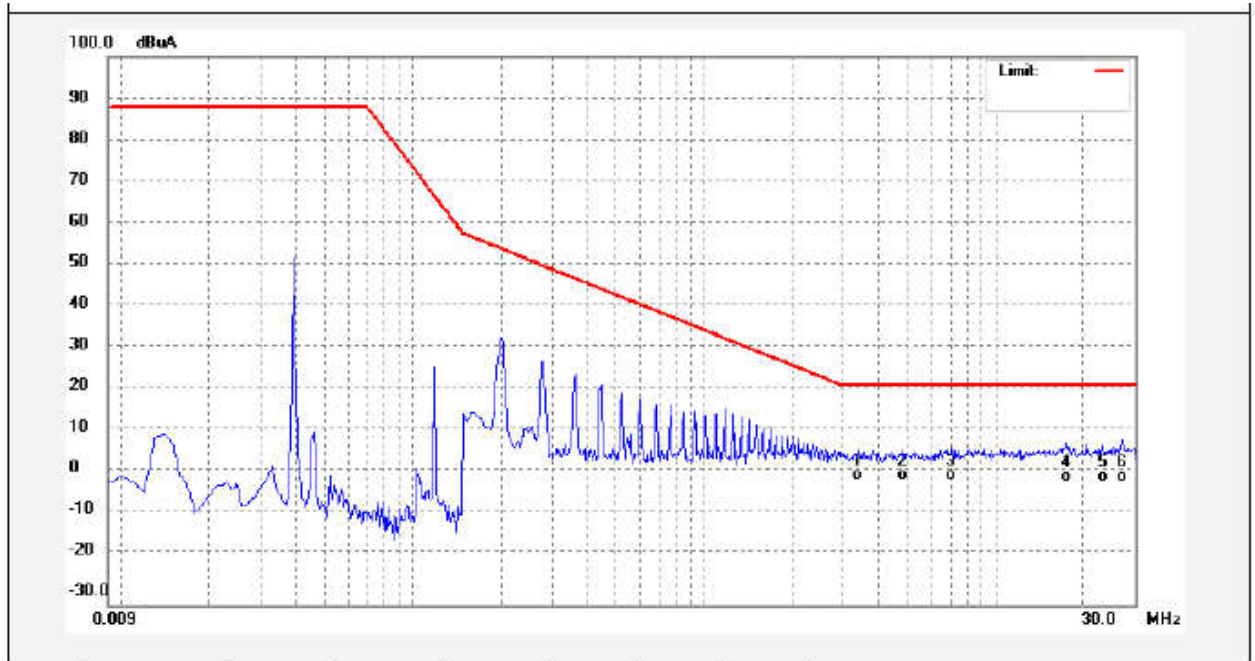


## Loop Z, Pro 1000W 400V:



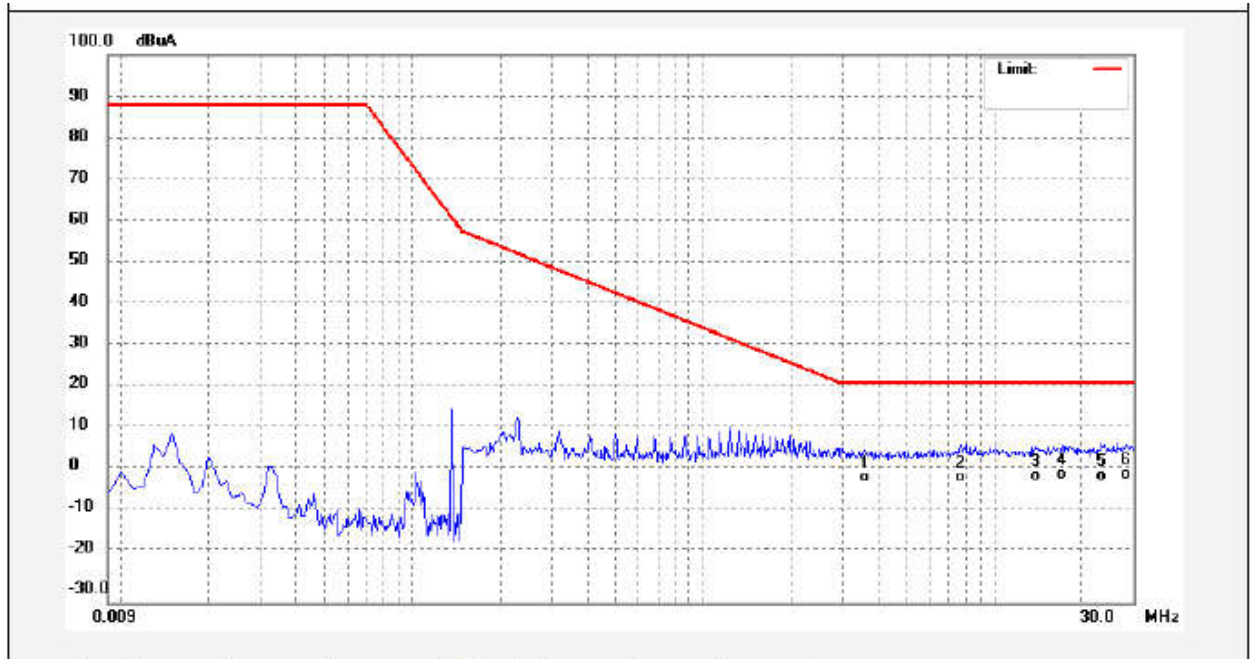
| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.3660      | -5.66          | 34.05       | 28.39         | 47.28      | -18.89      | QP       |        |
| 2   | 0.6060      | -12.05         | 34.05       | 22.00         | 41.22      | -19.22      | QP       |        |
| 3   | 0.8500      | -18.08         | 34.06       | 15.98         | 37.15      | -21.17      | QP       |        |
| 4   | 1.0940      | -22.50         | 34.06       | 11.56         | 34.12      | -22.56      | QP       |        |
| 5   | 1.3380      | -23.83         | 34.06       | 10.23         | 31.70      | -21.47      | QP       |        |
| 6   | 24.9540     | -33.72         | 34.24       | 0.52          | 22.00      | -21.48      | QP       |        |

**Loop X, 1000W:**



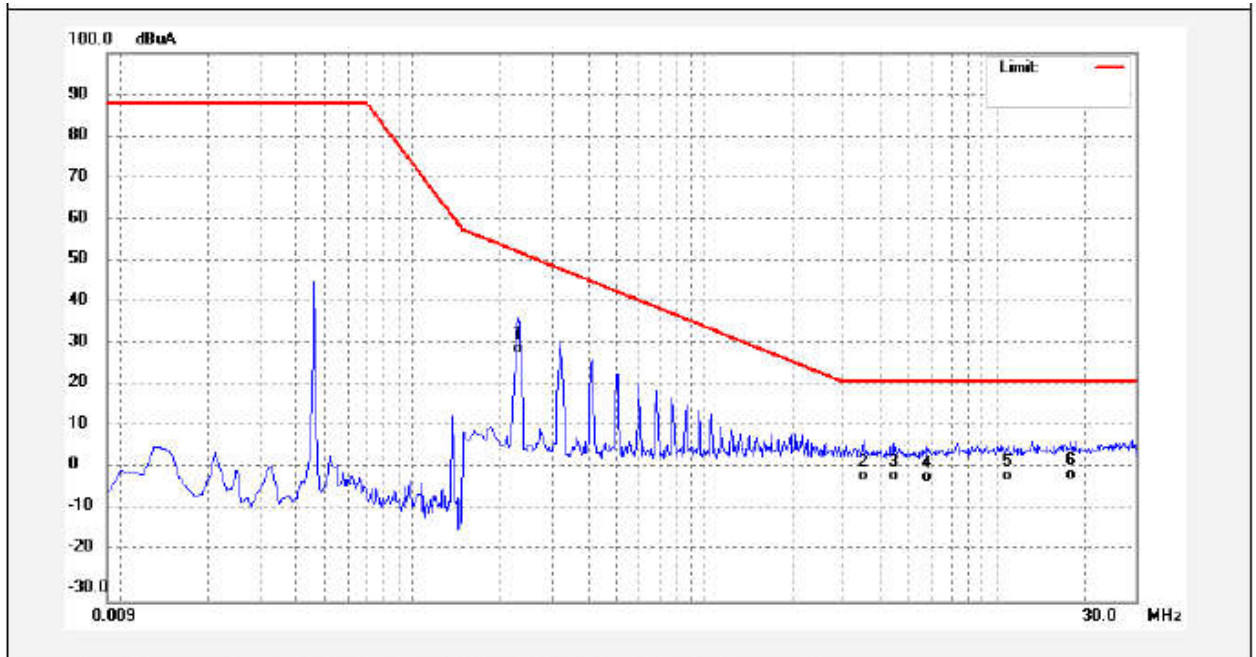
| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 3.3700      | -33.26         | 34.08       | 0.82          | 22.00      | -21.18      | QP       |        |
| 2   | 4.8339      | -33.29         | 34.09       | 0.80          | 22.00      | -21.20      | QP       |        |
| 3   | 7.0739      | -33.39         | 34.10       | 0.71          | 22.00      | -21.29      | QP       |        |
| 4   | 17.5060     | -33.88         | 34.18       | 0.30          | 22.00      | -21.70      | QP       |        |
| 5   | 23.1858     | -33.84         | 34.23       | 0.39          | 22.00      | -21.61      | QP       |        |
| 6   | 27.1180     | -33.82         | 34.26       | 0.44          | 22.00      | -21.56      | QP       |        |

**Loop Y, 1000W:**



| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 3.5940      | -34.48         | 34.08       | -0.40         | 22.00      | -22.40      | QP       |        |
| 2   | 7.6620      | -34.36         | 34.11       | -0.25         | 22.00      | -22.25      | QP       |        |
| 3   | 13.9820     | -34.13         | 34.16       | 0.03          | 22.00      | -21.97      | QP       |        |
| 4   | 17.1100     | -33.90         | 34.18       | 0.28          | 22.00      | -21.72      | QP       |        |
| 5   | 23.4220     | -34.08         | 34.23       | 0.15          | 22.00      | -21.85      | QP       |        |
| 6   | 28.5620     | -33.81         | 34.27       | 0.46          | 22.00      | -21.54      | QP       |        |

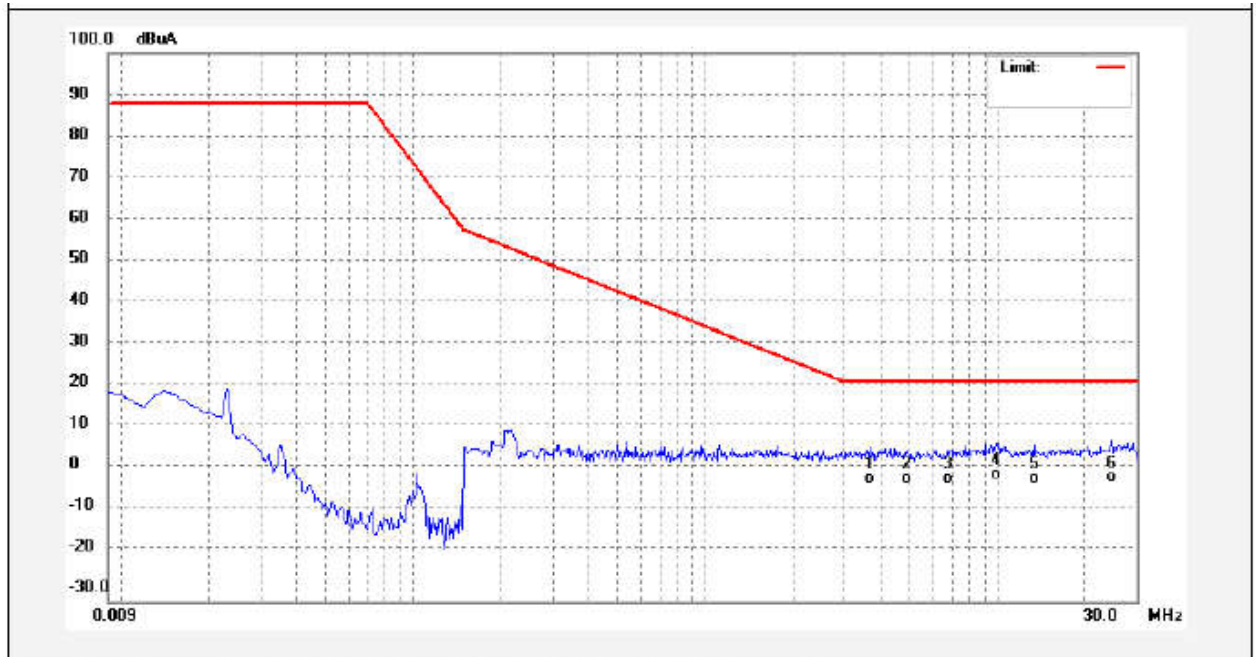
**Loop Z, 1000W:**



| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.2300      | -4.03          | 34.05       | 30.02         | 52.86      | -22.84      | QP       |        |
| 2   | 3.5180      | -34.44         | 34.08       | -0.36         | 22.00      | -22.36      | QP       |        |
| 3   | 4.4740      | -34.48         | 34.08       | -0.40         | 22.00      | -22.40      | QP       |        |
| 4   | 5.7619      | -34.54         | 34.09       | -0.45         | 22.00      | -22.45      | QP       |        |
| 5   | 10.8900     | -34.46         | 34.13       | -0.33         | 22.00      | -22.33      | QP       |        |
| 6   | 17.9700     | -34.11         | 34.19       | 0.08          | 22.00      | -21.92      | QP       |        |

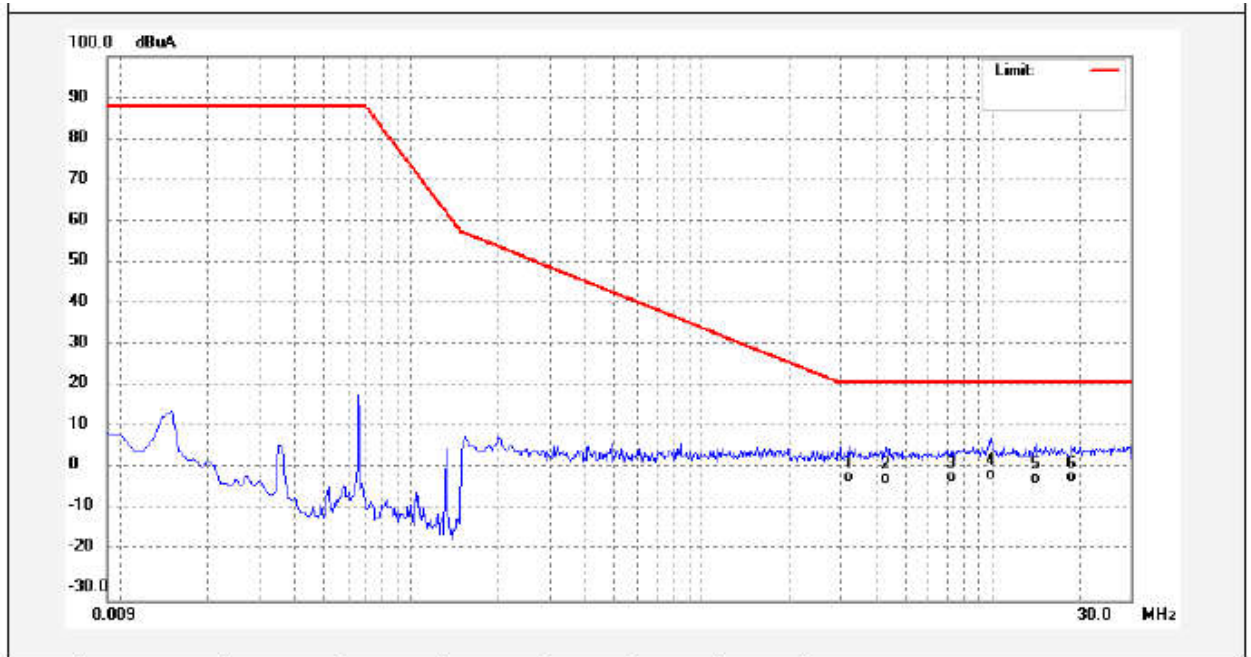


## Loop X, 315W:



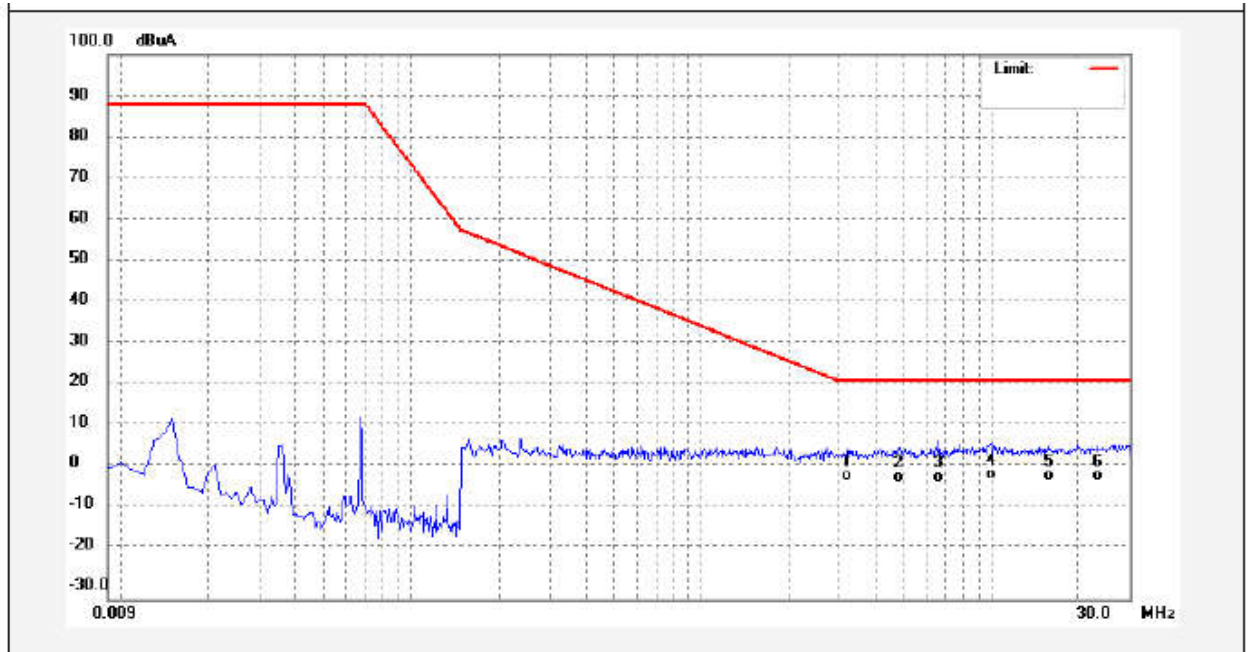
| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit (dBuA) | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|--------------|-------------|----------|--------|
| 1   | 3.6500      | -0.97          | 0.16        | -0.81         | 22.00        | -22.81      | QP       |        |
| 2   | 4.8859      | -1.24          | 0.18        | -1.06         | 22.00        | -23.06      | QP       |        |
| 3   | 6.7819      | -1.13          | 0.19        | -0.94         | 22.00        | -22.94      | QP       |        |
| 4   | 9.9219      | -0.08          | 0.20        | 0.12          | 22.00        | -21.88      | QP       |        |
| 5   | 13.3939     | -1.08          | 0.22        | -0.86         | 22.00        | -22.86      | QP       |        |
| 6   | 24.5700     | -0.70          | 0.26        | -0.44         | 22.00        | -22.44      | QP       |        |

**Loop Y 315W:**



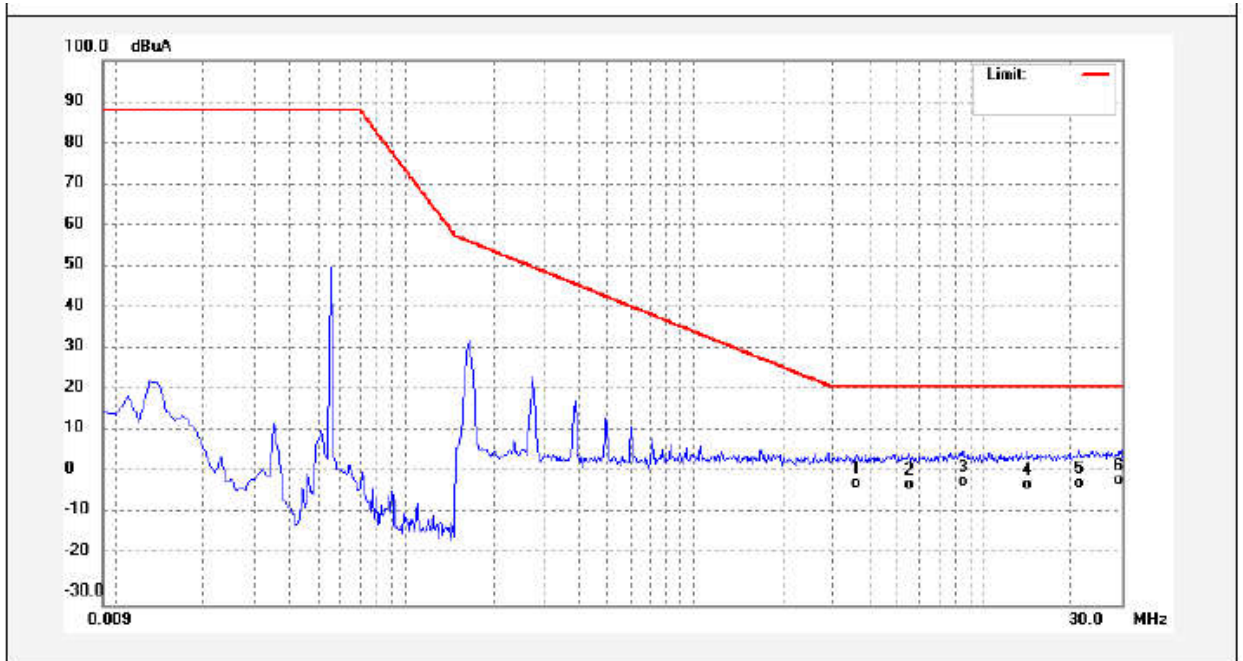
| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 3.2060      | -0.82          | 0.16        | -0.66         | 22.00      | -22.66      | QP       |        |
| 2   | 4.2940      | -1.18          | 0.17        | -1.01         | 22.00      | -23.01      | QP       |        |
| 3   | 7.2820      | -0.90          | 0.19        | -0.71         | 22.00      | -22.71      | QP       |        |
| 4   | 9.9220      | -0.08          | 0.20        | 0.12          | 22.00      | -21.88      | QP       |        |
| 5   | 14.1500     | -1.02          | 0.22        | -0.80         | 22.00      | -22.80      | QP       |        |
| 6   | 18.8900     | -0.97          | 0.24        | -0.73         | 22.00      | -22.73      | QP       |        |

## Loop Z 315W:



| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit (dBuA) | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|--------------|-------------|----------|--------|
| 1   | 3.1820      | -0.90          | 0.16        | -0.74         | 22.00        | -22.74      | QP       |        |
| 2   | 4.8020      | -1.08          | 0.18        | -0.90         | 22.00        | -22.90      | QP       |        |
| 3   | 6.6060      | -1.14          | 0.19        | -0.95         | 22.00        | -22.95      | QP       |        |
| 4   | 9.9580      | -0.43          | 0.20        | -0.23         | 22.00        | -22.23      | QP       |        |
| 5   | 15.7980     | -0.80          | 0.23        | -0.57         | 22.00        | -22.57      | QP       |        |
| 6   | 23.3260     | -0.81          | 0.26        | -0.55         | 22.00        | -22.55      | QP       |        |

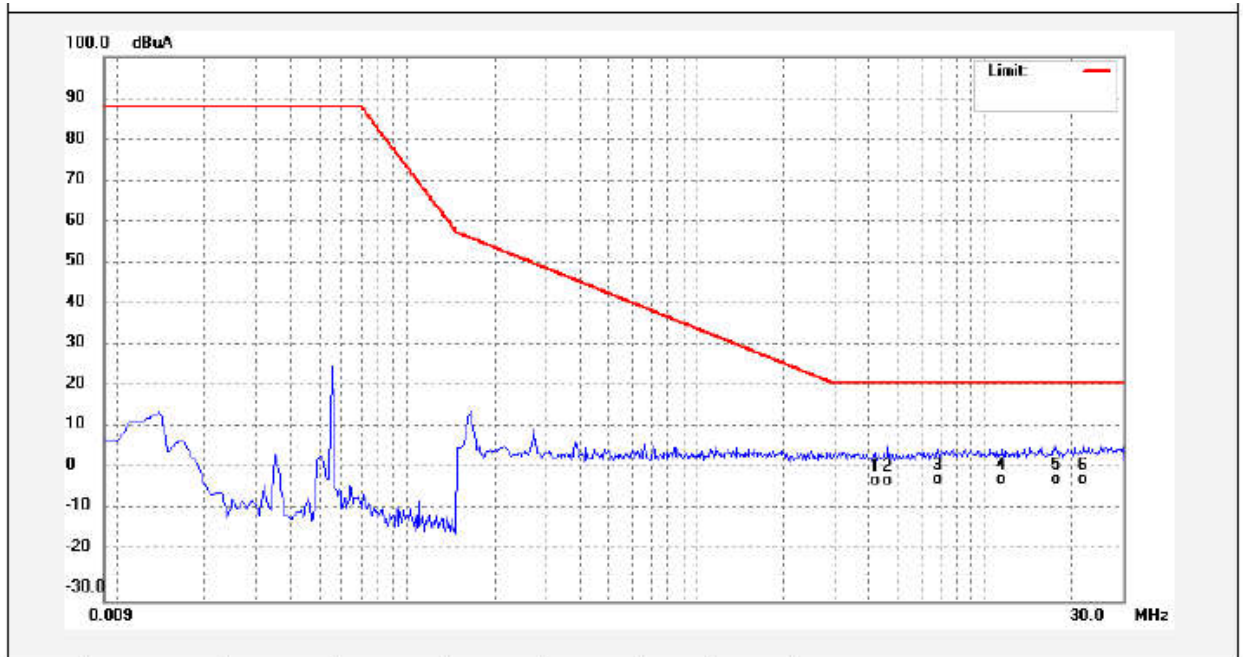
**LoopX 600W Mode 1:**



| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 3.6340      | -34.83         | 34.08       | -0.75         | 22.00      | -22.75      | QP       |        |
| 2   | 5.5380      | -35.25         | 34.09       | -1.16         | 22.00      | -23.16      | QP       |        |
| 3   | 8.5500      | -34.76         | 34.12       | -0.64         | 22.00      | -22.64      | QP       |        |
| 4   | 14.1780     | -35.25         | 34.16       | -1.09         | 22.00      | -23.09      | QP       |        |
| 5   | 21.3819     | -34.96         | 34.21       | -0.75         | 22.00      | -22.75      | QP       |        |
| 6   | 29.9060     | -34.42         | 34.28       | -0.14         | 22.00      | -22.14      | QP       |        |

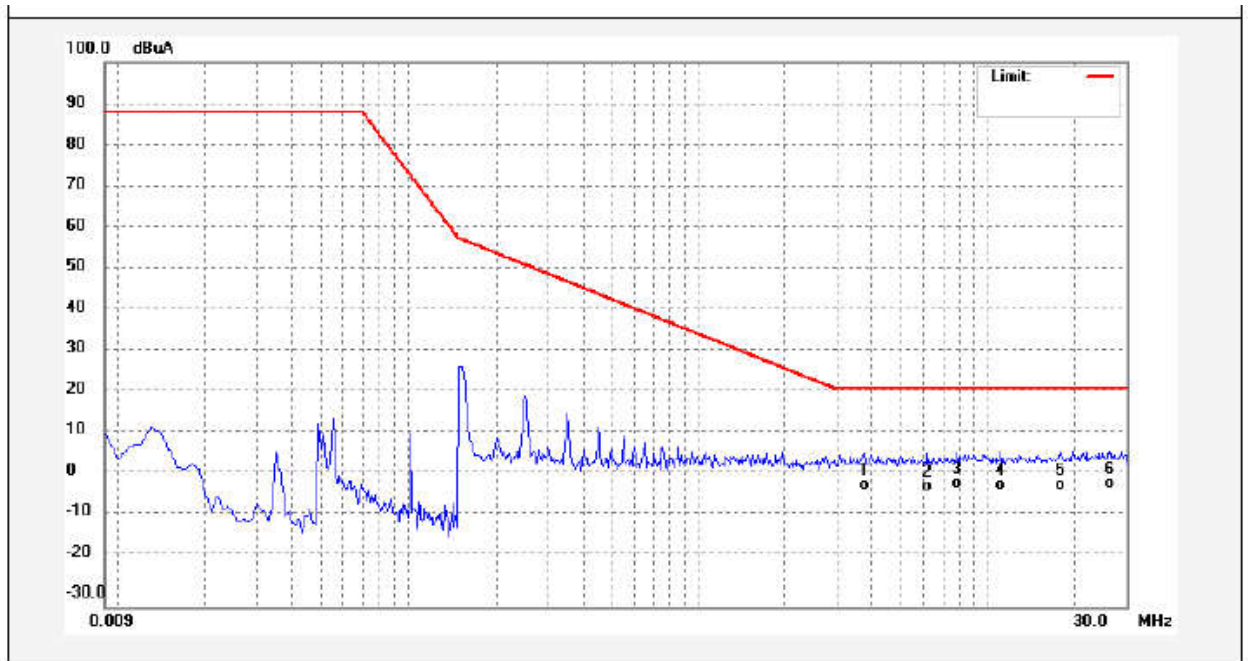


**LoopY 600W Mode 1:**



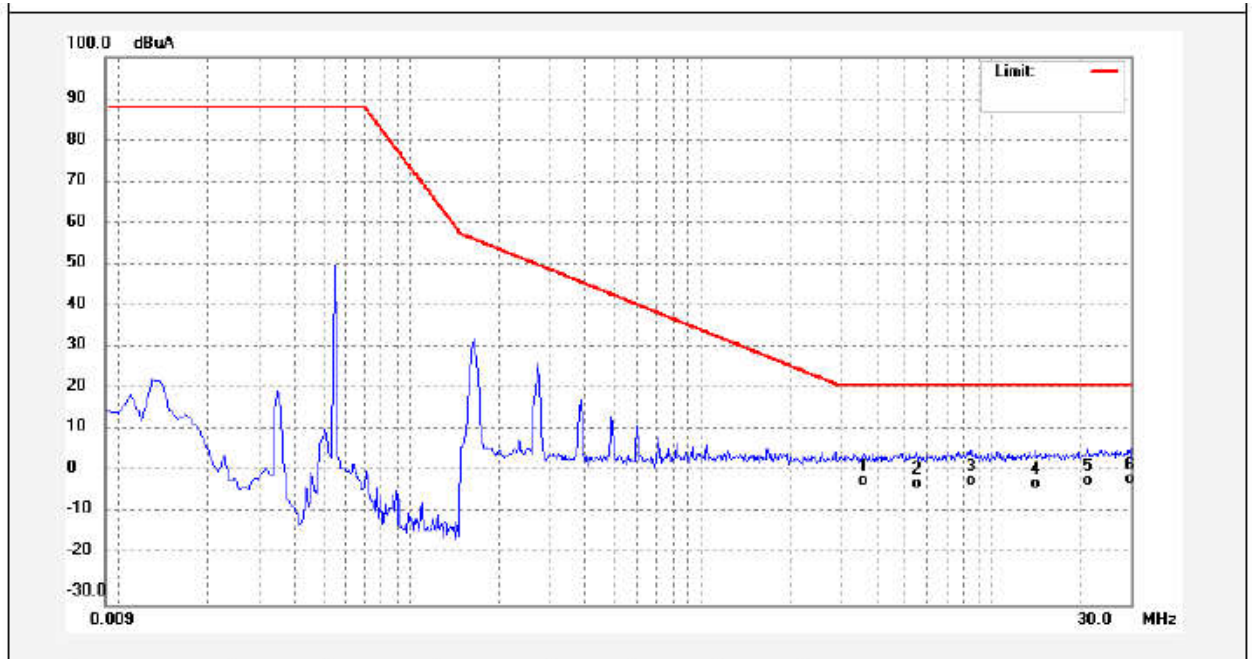
| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 4.1540      | -35.22         | 34.08       | -1.14         | 22.00      | -23.14      | QP       |        |
| 2   | 4.6180      | -35.20         | 34.09       | -1.11         | 22.00      | -23.11      | QP       |        |
| 3   | 6.8980      | -35.05         | 34.10       | -0.95         | 22.00      | -22.95      | QP       |        |
| 4   | 11.4300     | -35.07         | 34.14       | -0.93         | 22.00      | -22.93      | QP       |        |
| 5   | 17.6900     | -35.14         | 34.19       | -0.95         | 22.00      | -22.95      | QP       |        |
| 6   | 21.9820     | -35.05         | 34.22       | -0.83         | 22.00      | -22.83      | QP       |        |

**LoopZ 600W Mode 1:**



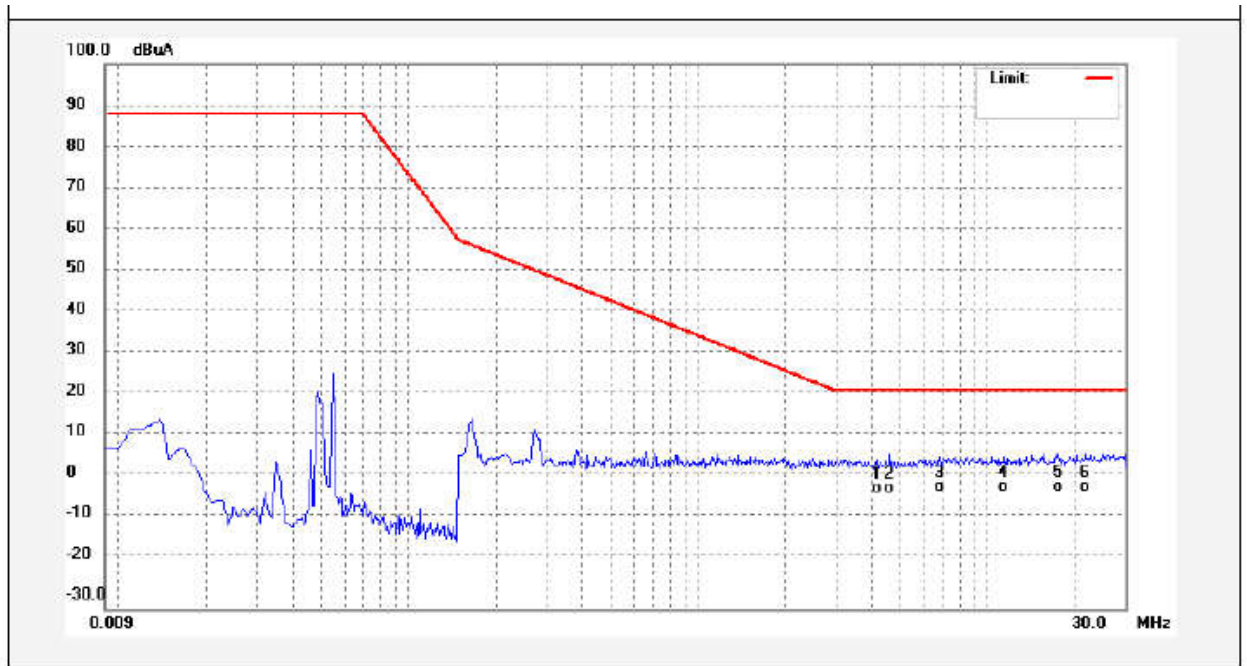
| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 3.7580      | -34.94         | 34.08       | -0.86         | 22.00      | -22.86      | QP       |        |
| 2   | 6.1900      | -35.27         | 34.10       | -1.17         | 22.00      | -23.17      | QP       |        |
| 3   | 7.8380      | -34.75         | 34.11       | -0.64         | 22.00      | -22.64      | QP       |        |
| 4   | 11.0860     | -35.03         | 34.13       | -0.90         | 22.00      | -22.90      | QP       |        |
| 5   | 17.7180     | -35.11         | 34.19       | -0.92         | 22.00      | -22.92      | QP       |        |
| 6   | 26.3060     | -34.74         | 34.25       | -0.49         | 22.00      | -22.49      | QP       |        |

## LoopX 600W Mode 2:



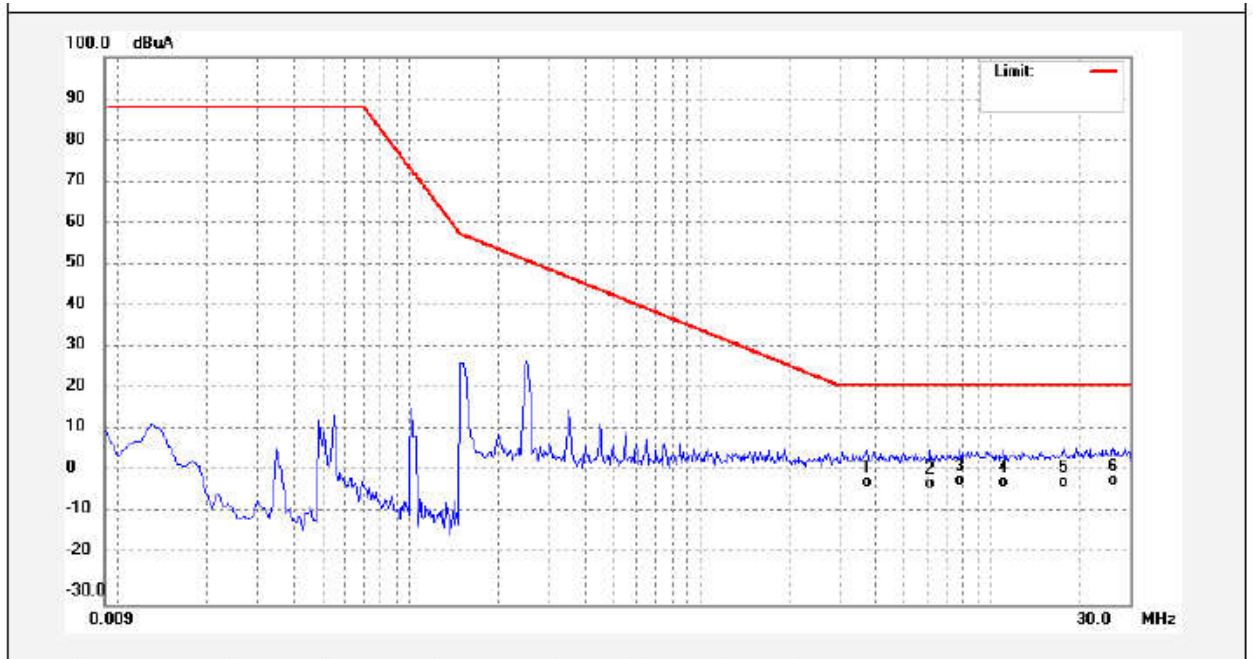
| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 3.6340      | -34.82         | 34.08       | -0.74         | 22.00      | -22.74      | QP       |        |
| 2   | 5.5380      | -35.22         | 34.09       | -1.13         | 22.00      | -23.13      | QP       |        |
| 3   | 8.5500      | -34.78         | 34.12       | -0.66         | 22.00      | -22.66      | QP       |        |
| 4   | 14.1780     | -35.25         | 34.16       | -1.09         | 22.00      | -23.09      | QP       |        |
| 5   | 21.3819     | -34.95         | 34.21       | -0.74         | 22.00      | -22.74      | QP       |        |
| 6   | 29.9060     | -34.40         | 34.28       | -0.12         | 22.00      | -22.12      | QP       |        |

**LoopY 600W Mode 2:**



| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 4.1540      | -35.21         | 34.08       | -1.13         | 22.00      | -23.13      | QP       |        |
| 2   | 4.6180      | -35.20         | 34.09       | -1.11         | 22.00      | -23.11      | QP       |        |
| 3   | 6.8980      | -35.02         | 34.10       | -0.92         | 22.00      | -22.92      | QP       |        |
| 4   | 11.4300     | -35.07         | 34.14       | -0.93         | 22.00      | -22.93      | QP       |        |
| 5   | 17.6900     | -35.10         | 34.19       | -0.91         | 22.00      | -22.91      | QP       |        |
| 6   | 21.9820     | -35.09         | 34.22       | -0.87         | 22.00      | -22.87      | QP       |        |

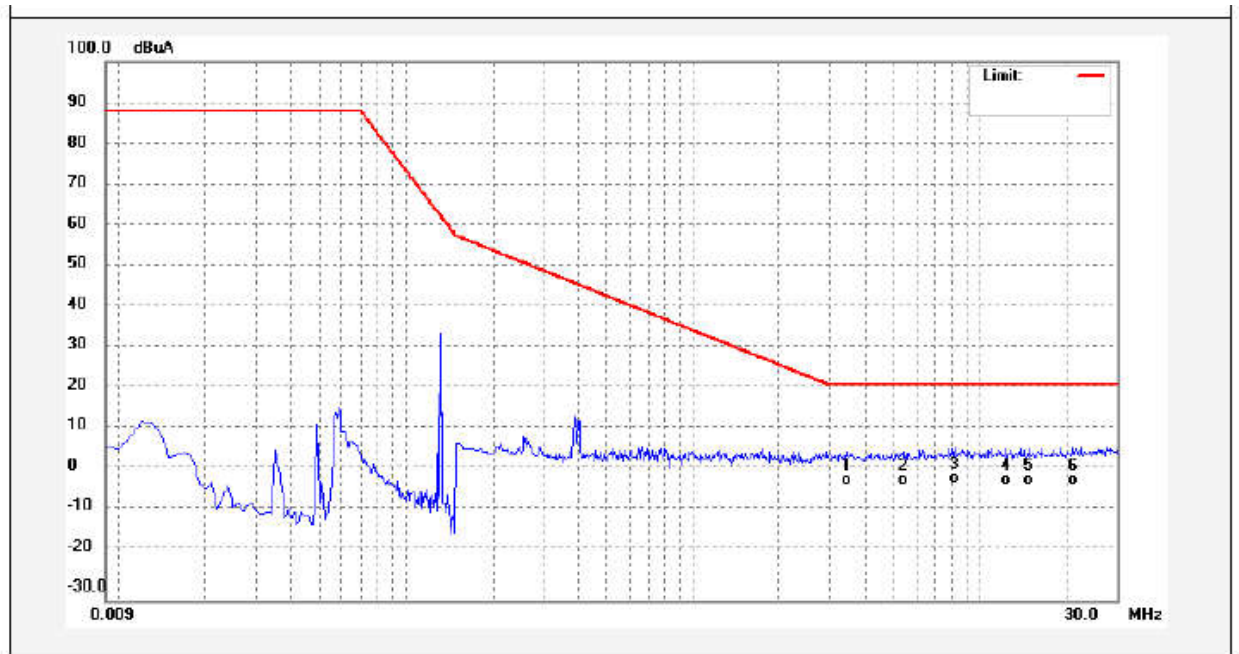
**LoopZ 600W Mode 2:**



| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 3.7580      | -34.93         | 34.08       | -0.85         | 22.00      | -22.85      | QP       |        |
| 2   | 6.1900      | -35.27         | 34.10       | -1.17         | 22.00      | -23.17      | QP       |        |
| 3   | 7.8380      | -34.73         | 34.11       | -0.62         | 22.00      | -22.62      | QP       |        |
| 4   | 11.0860     | -35.03         | 34.13       | -0.90         | 22.00      | -22.90      | QP       |        |
| 5   | 17.7180     | -35.14         | 34.19       | -0.95         | 22.00      | -22.95      | QP       |        |
| 6   | 26.3060     | -34.73         | 34.25       | -0.48         | 22.00      | -22.48      | QP       |        |

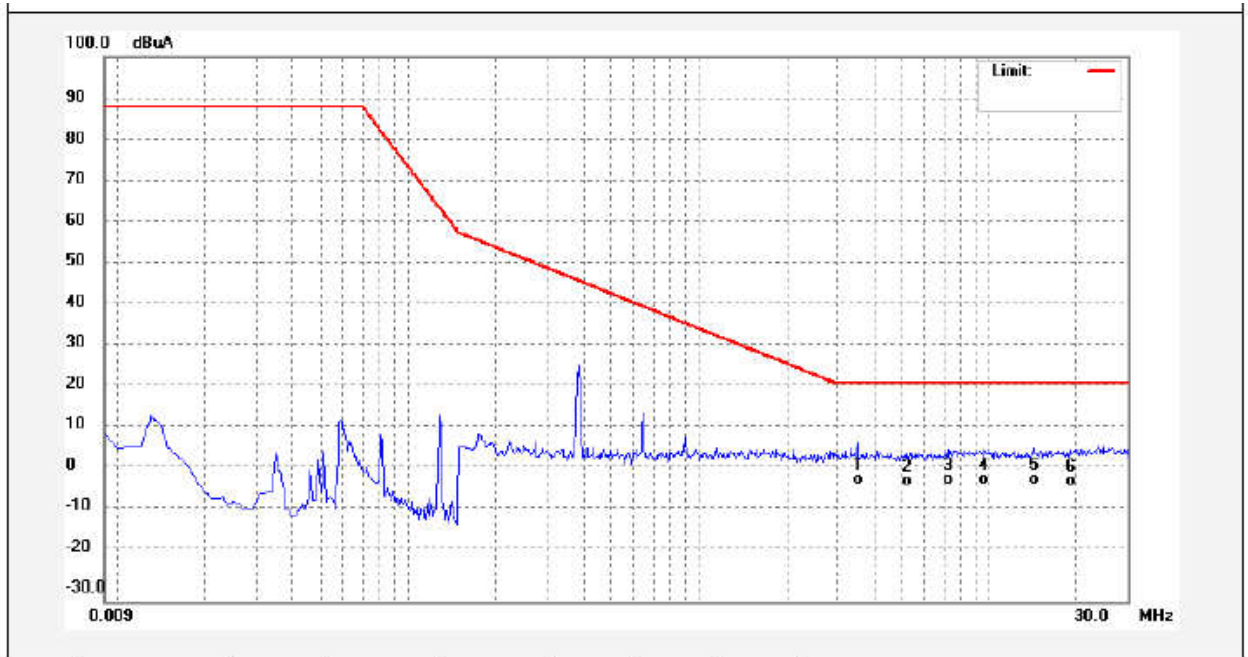


**LoopX 630W Mode 1:**



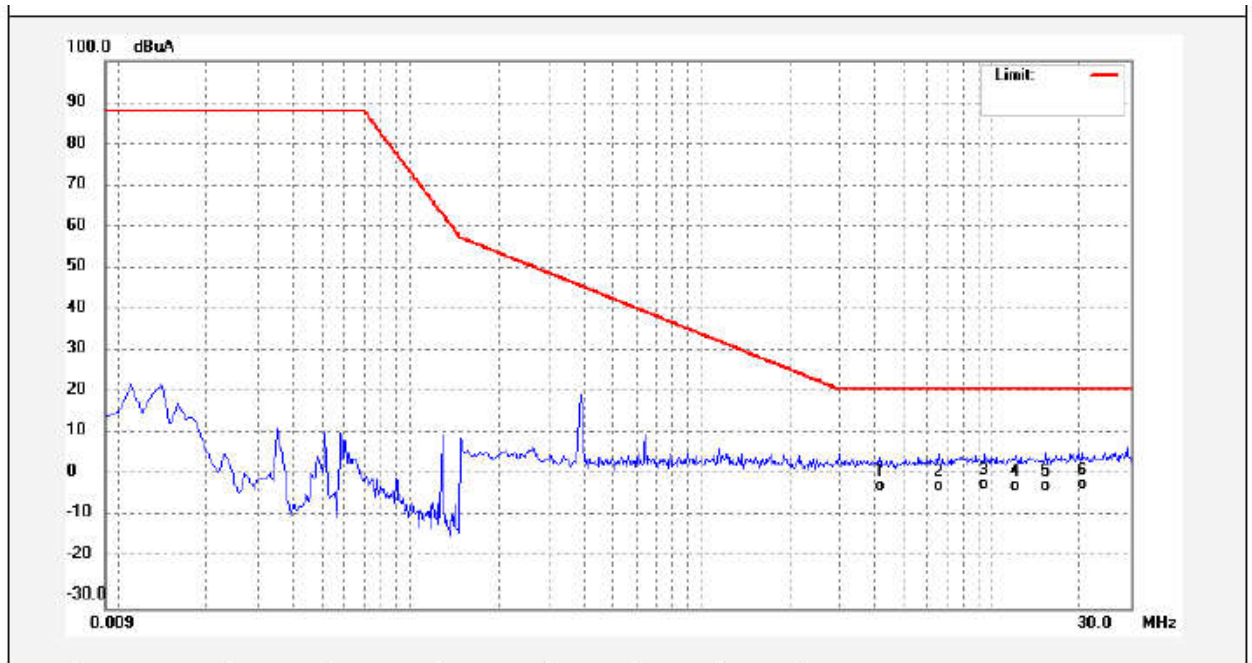
| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 3.4380      | -35.02         | 34.08       | -0.94         | 22.00      | -22.94      | QP       |        |
| 2   | 5.4180      | -35.13         | 34.09       | -1.04         | 22.00      | -23.04      | QP       |        |
| 3   | 8.1540      | -34.60         | 34.11       | -0.49         | 22.00      | -22.49      | QP       |        |
| 4   | 12.3500     | -35.06         | 34.14       | -0.92         | 22.00      | -22.92      | QP       |        |
| 5   | 14.7580     | -35.18         | 34.16       | -1.02         | 22.00      | -23.02      | QP       |        |
| 6   | 21.0860     | -35.04         | 34.21       | -0.83         | 22.00      | -22.83      | QP       |        |

**LoopY 630W Mode 1:**



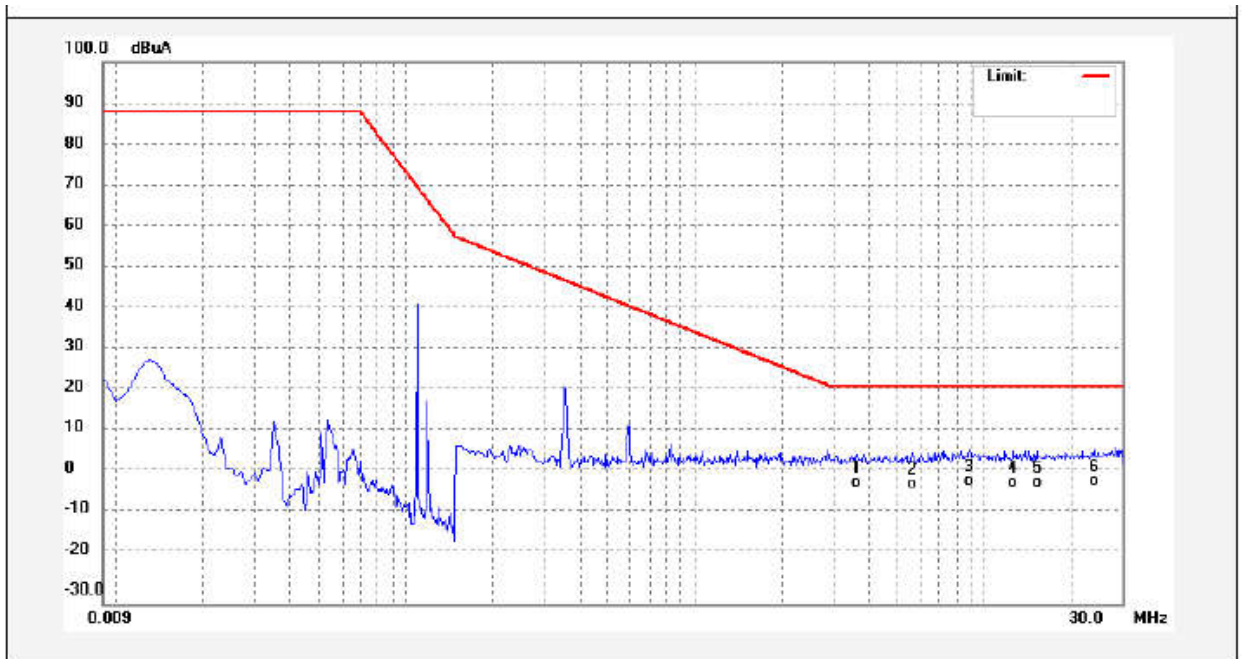
| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 3.5260      | -34.91         | 34.08       | -0.83         | 22.00      | -22.83      | QP       |        |
| 2   | 5.2180      | -35.25         | 34.09       | -1.16         | 22.00      | -23.16      | QP       |        |
| 3   | 7.2060      | -35.04         | 34.11       | -0.93         | 22.00      | -22.93      | QP       |        |
| 4   | 9.5820      | -34.94         | 34.12       | -0.82         | 22.00      | -22.82      | QP       |        |
| 5   | 14.2900     | -35.00         | 34.16       | -0.84         | 22.00      | -22.84      | QP       |        |
| 6   | 19.2220     | -35.29         | 34.20       | -1.09         | 22.00      | -23.09      | QP       |        |

## LoopZ 630W Mode 1:



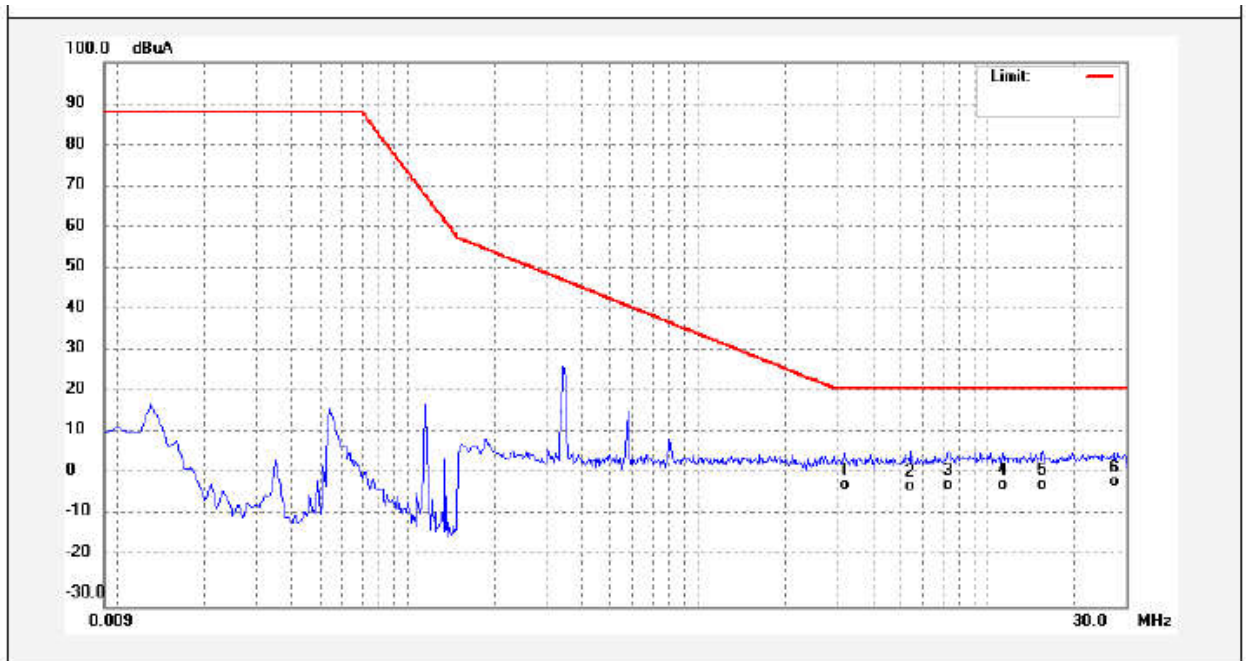
| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 4.1420      | -35.09         | 34.08       | -1.01         | 22.00      | -23.01      | QP       |        |
| 2   | 6.5740      | -35.08         | 34.10       | -0.98         | 22.00      | -22.98      | QP       |        |
| 3   | 9.4340      | -34.84         | 34.12       | -0.72         | 22.00      | -22.72      | QP       |        |
| 4   | 12.0620     | -35.13         | 34.14       | -0.99         | 22.00      | -22.99      | QP       |        |
| 5   | 15.4220     | -35.13         | 34.17       | -0.96         | 22.00      | -22.96      | QP       |        |
| 6   | 20.3540     | -34.87         | 34.21       | -0.66         | 22.00      | -22.66      | QP       |        |

**LoopX 630W Mode 2:**



| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 3.6300      | -35.01         | 34.08       | -0.93         | 22.00      | -22.93      | QP       |        |
| 2   | 5.6620      | -35.37         | 34.09       | -1.28         | 22.00      | -23.28      | QP       |        |
| 3   | 8.9340      | -34.78         | 34.12       | -0.66         | 22.00      | -22.66      | QP       |        |
| 4   | 12.6620     | -34.96         | 34.15       | -0.81         | 22.00      | -22.81      | QP       |        |
| 5   | 15.2940     | -35.04         | 34.17       | -0.87         | 22.00      | -22.87      | QP       |        |
| 6   | 23.9140     | -34.85         | 34.23       | -0.62         | 22.00      | -22.62      | QP       |        |

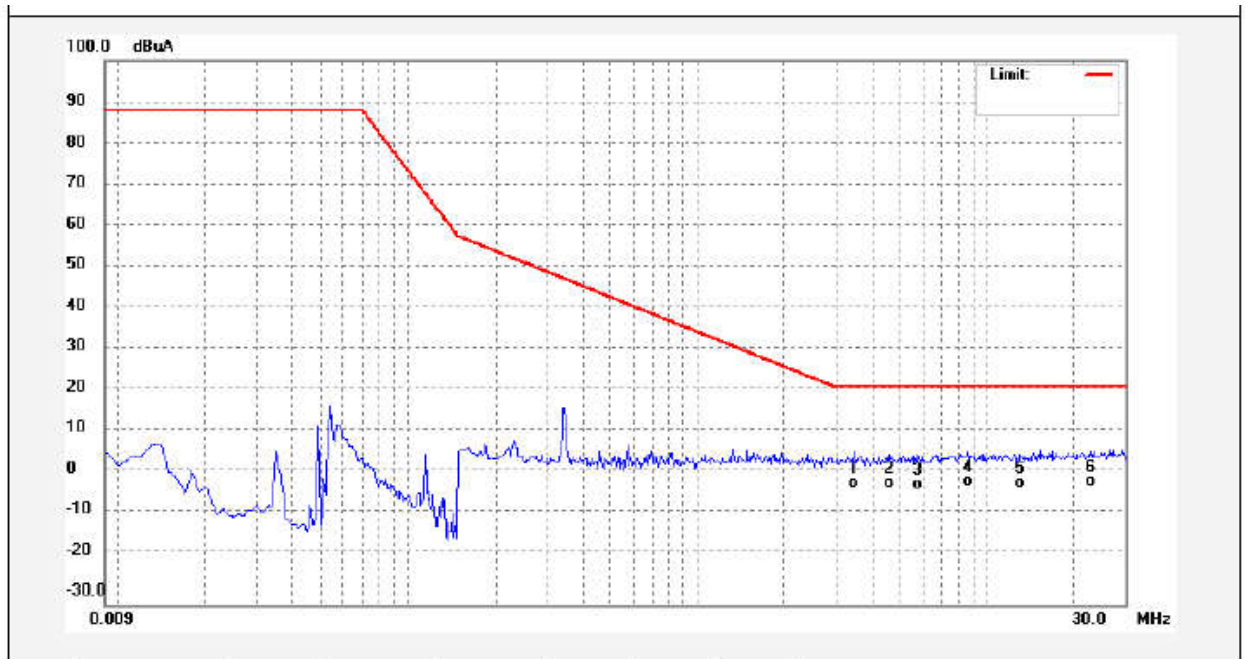
**LoopY 630W Mode 2:**



| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 3.2100      | -34.92         | 34.07       | -0.85         | 22.00      | -22.85      | QP       |        |
| 2   | 5.4220      | -35.29         | 34.09       | -1.20         | 22.00      | -23.20      | QP       |        |
| 3   | 7.3540      | -34.90         | 34.11       | -0.79         | 22.00      | -22.79      | QP       |        |
| 4   | 11.3300     | -34.96         | 34.14       | -0.82         | 22.00      | -22.82      | QP       |        |
| 5   | 15.5140     | -34.99         | 34.17       | -0.82         | 22.00      | -22.82      | QP       |        |
| 6   | 27.2900     | -34.58         | 34.26       | -0.32         | 22.00      | -22.32      | QP       |        |



**LoopZ 630W Mode 2:**



| No. | Freq. (MHz) | Reading (dBuA) | Factor (dB) | Result (dBuA) | Limit dBuA | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 3.4860      | -35.00         | 34.08       | -0.92         | 22.00      | -22.92      | QP       |        |
| 2   | 4.5980      | -34.87         | 34.09       | -0.78         | 22.00      | -22.78      | QP       |        |
| 3   | 5.7819      | -35.23         | 34.09       | -1.14         | 22.00      | -23.14      | QP       |        |
| 4   | 8.6420      | -34.73         | 34.12       | -0.61         | 22.00      | -22.61      | QP       |        |
| 5   | 13.0340     | -35.12         | 34.15       | -0.97         | 22.00      | -22.97      | QP       |        |
| 6   | 22.8540     | -34.77         | 34.23       | -0.54         | 22.00      | -22.54      | QP       |        |

### 5.3 Radiated Emission, 30MHz to 300MHz

|                       |                        |
|-----------------------|------------------------|
| Test Requirement..... | : EN 55015             |
| Test Method.....      | : CISPR 32             |
| Test Result.....      | : Pass                 |
| Frequency Range.....  | : 30MHz to 300MHz      |
| Class/Severity.....   | : Table 3b of EN 55015 |

#### 5.3.1 E.U.T. Operation

##### Operating Environment:

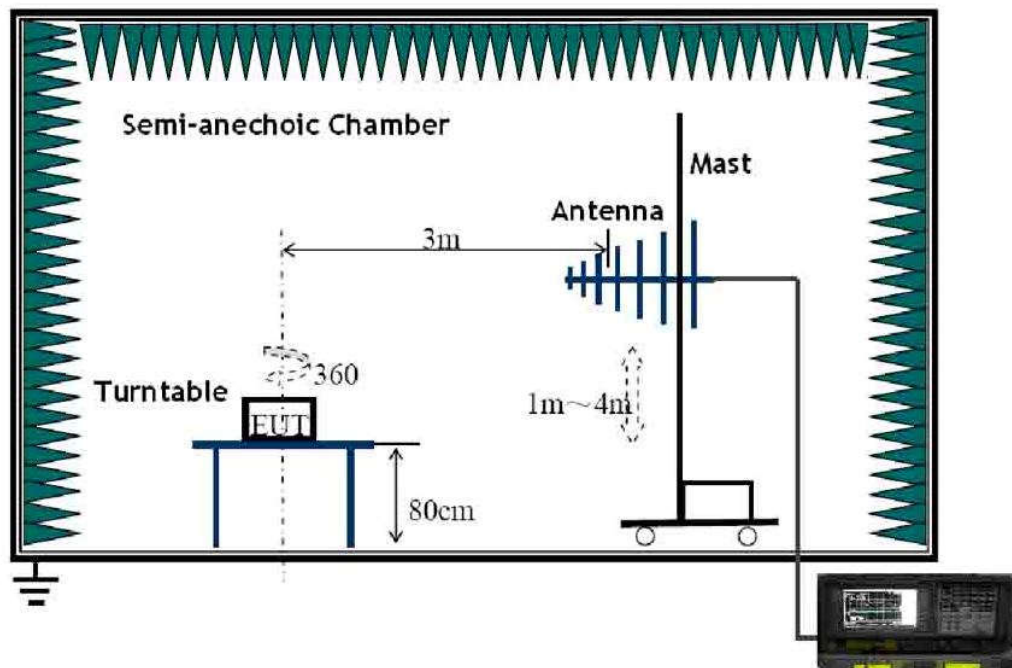
|                  |         |
|------------------|---------|
| Temperature..... | : 24°C  |
| Humidity.....    | : 60%RH |

##### EUT Operation :

|                     |   |
|---------------------|---|
| Input Voltage.....  | : 230V~, 50Hz   |
| Operating Mode..... | : Mode1: Dimming 100% mode<br>Mode2: Dimming super mode |

#### 5.3.2 Block Diagram of Setup

The Radiated Emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the CISPR 32.

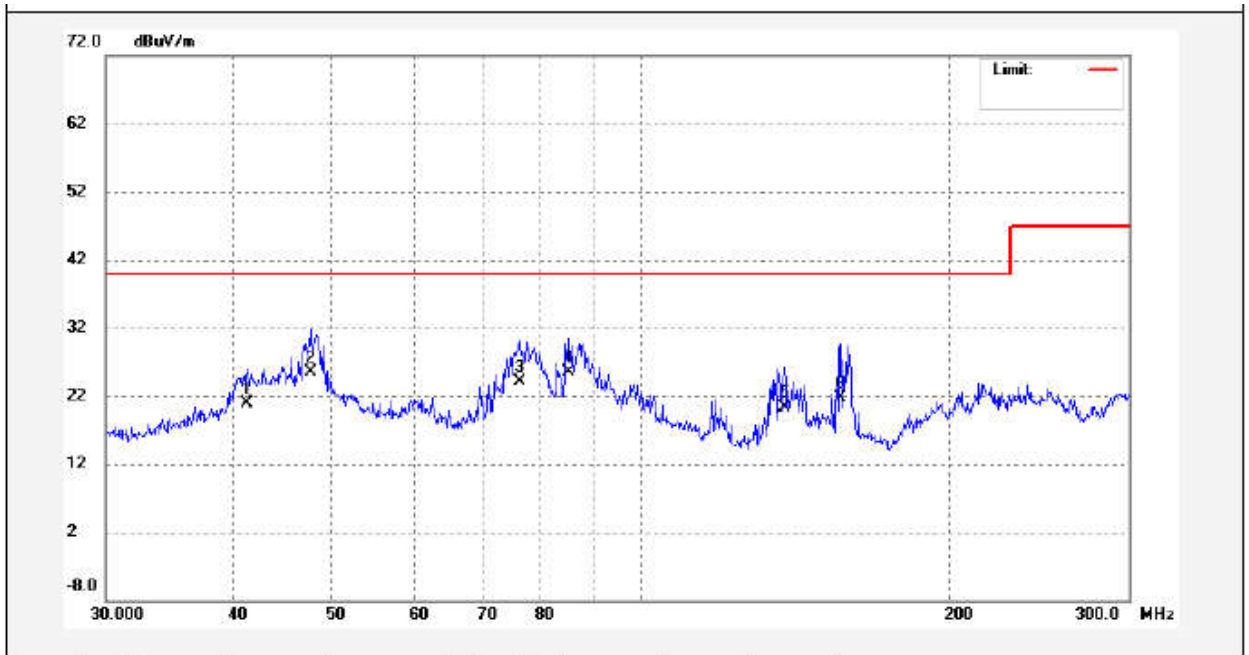


#### 5.3.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for Horizontal & Vertical polarisation. Quasi-peak measurements were performed if peak emissions were within 6dB of the limit line. According to the data in section 5.3.4, the EUT complied with the EN 55015 standards.

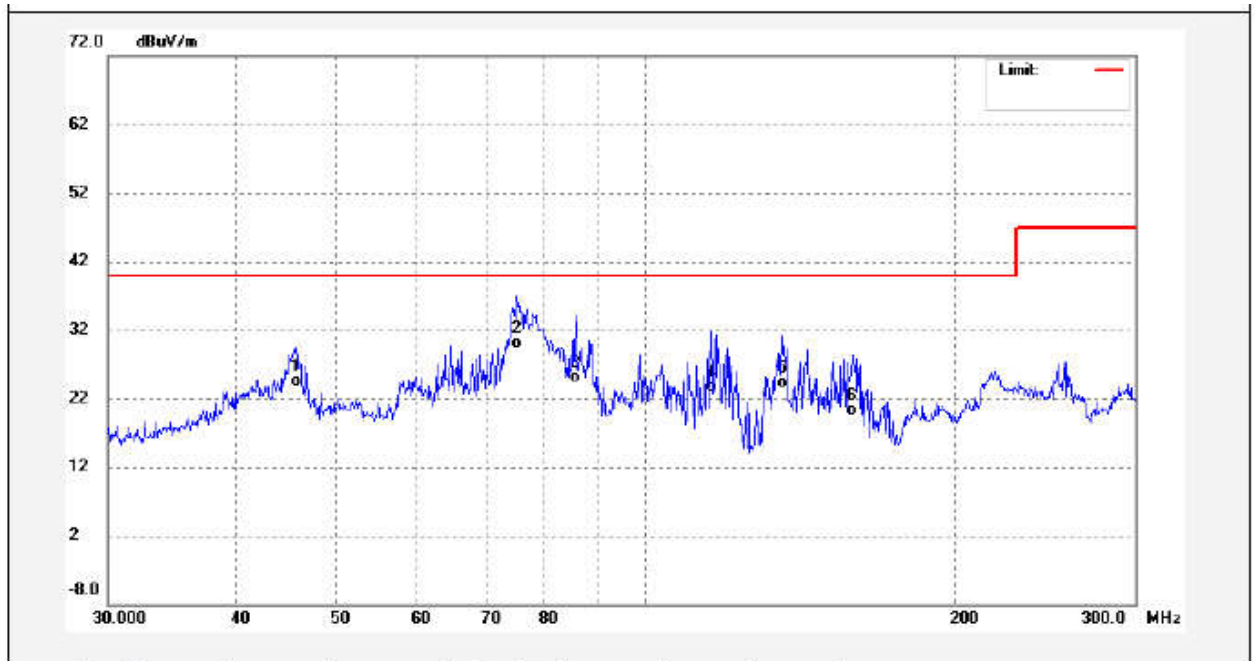
### 5.3.4 Radiated Emission test data, 30MHz to 300MHz

#### Vertical Aurora 315W



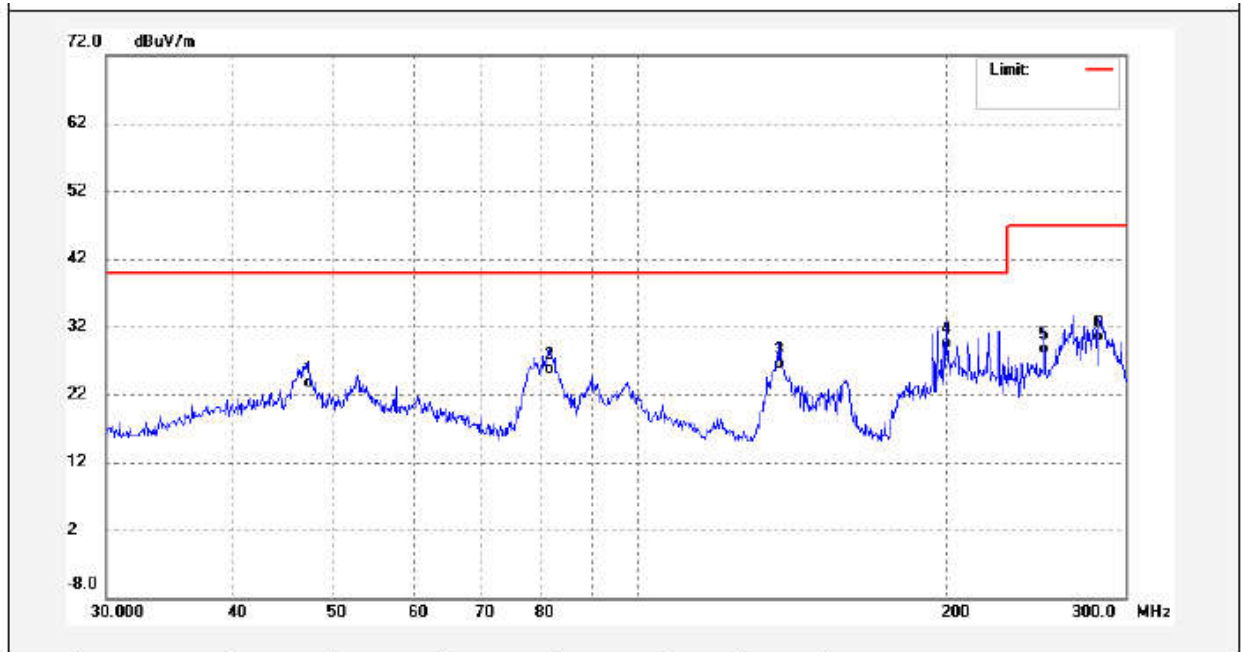
| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 41.2213     | 6.10             | 14.89       | 20.99           | 40.00          | -19.01      | peak     |        |
| 2   | 47.5468     | 11.69            | 13.91       | 25.60           | 40.00          | -14.40      | peak     |        |
| 3   | 76.0539     | 12.69            | 11.34       | 24.03           | 40.00          | -15.97      | peak     |        |
| 4   | 84.9418     | 12.88            | 12.65       | 25.53           | 40.00          | -14.47      | peak     |        |
| 5   | 138.0770    | 8.58             | 11.65       | 20.23           | 40.00          | -19.77      | peak     |        |
| 6   | 156.7189    | 11.25            | 10.54       | 21.79           | 40.00          | -18.21      | peak     |        |

**Horizontal Aurora 315W**



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 45.7215     | 10.63            | 13.85       | 24.48           | 40.00          | -15.52      | QP       |        |
| 2   | 75.0104     | 18.78            | 11.31       | 30.09           | 40.00          | -9.91       | QP       |        |
| 3   | 85.5305     | 12.46            | 12.67       | 25.13           | 40.00          | -14.87      | QP       |        |
| 4   | 115.9101    | 12.09            | 11.54       | 23.63           | 40.00          | -16.37      | QP       |        |
| 5   | 136.1825    | 12.56            | 11.68       | 24.24           | 40.00          | -15.76      | QP       |        |
| 6   | 159.2652    | 9.33             | 11.06       | 20.39           | 40.00          | -19.61      | QP       |        |

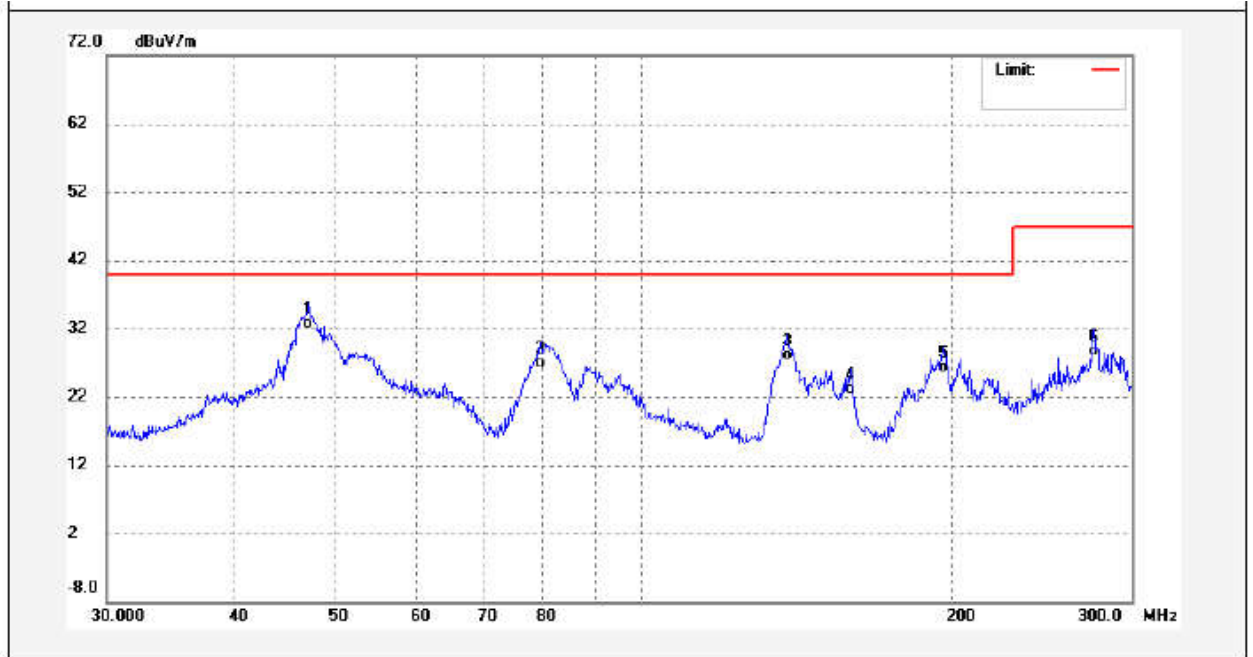
## Vertical Pro 1000W 400V



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 47.4374     | 9.81             | 13.90       | 23.71           | 40.00          | -16.29      | QP       |        |
| 2   | 81.6810     | 13.95            | 11.85       | 25.80           | 40.00          | -14.20      | QP       |        |
| 3   | 137.4425    | 14.94            | 11.66       | 26.60           | 40.00          | -13.40      | QP       |        |
| 4   | 200.0420    | 16.07            | 13.52       | 29.59           | 40.00          | -10.41      | QP       |        |
| 5   | 250.1044    | 13.85            | 14.83       | 28.68           | 47.00          | -18.32      | QP       |        |
| 6   | 282.5668    | 16.21            | 14.32       | 30.53           | 47.00          | -16.47      | QP       |        |

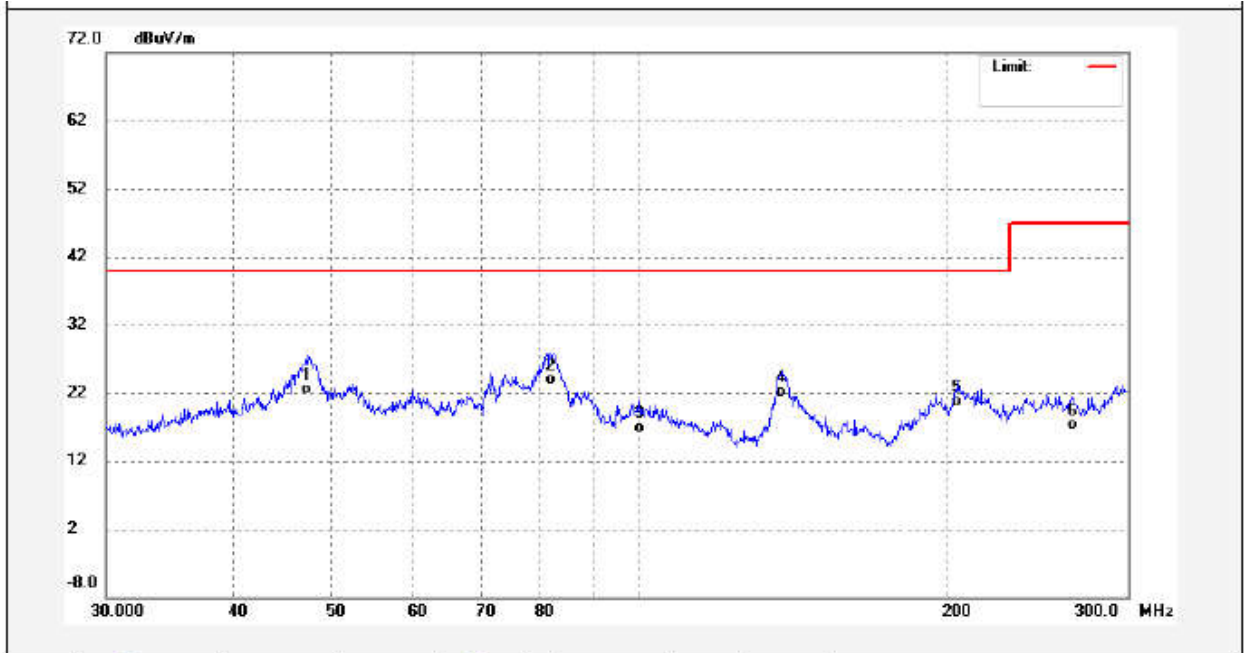


**Horizontal Pro 1000W 400V**



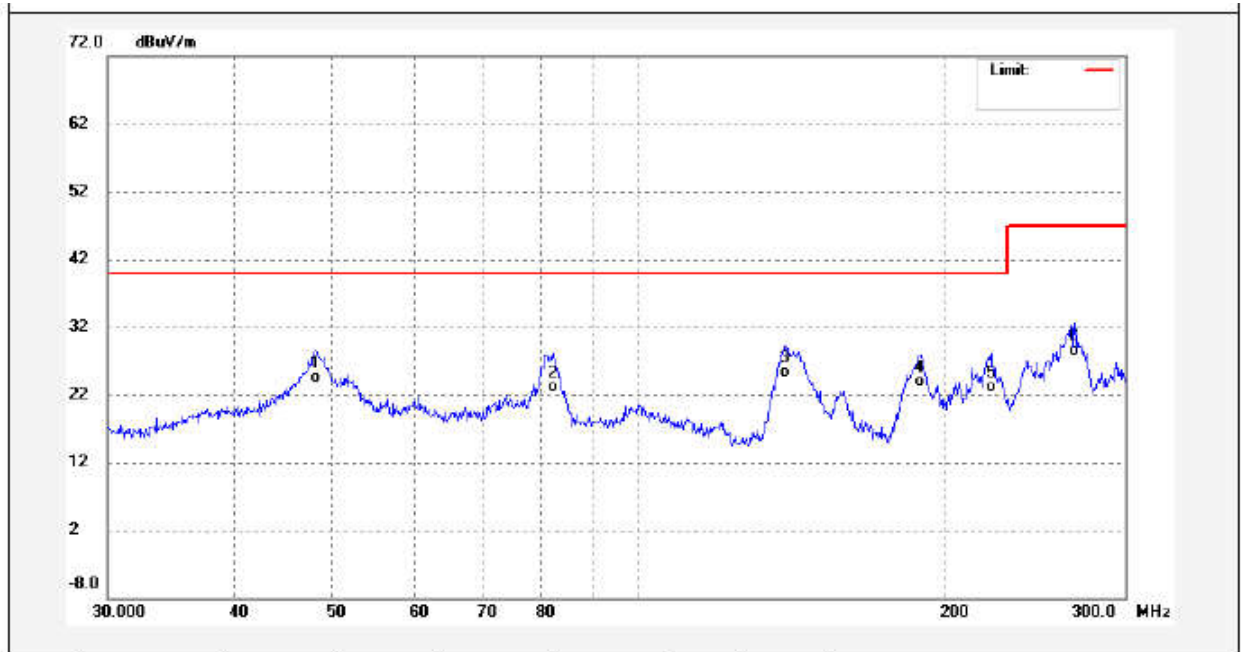
| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 47.2195     | 18.90            | 13.86       | 32.76           | 40.00          | -7.24       | QP       |        |
| 2   | 79.4550     | 15.49            | 11.42       | 26.91           | 40.00          | -13.09      | QP       |        |
| 3   | 138.3953    | 16.52            | 11.64       | 28.16           | 40.00          | -11.84      | QP       |        |
| 4   | 159.6325    | 11.91            | 11.14       | 23.05           | 40.00          | -16.95      | QP       |        |
| 5   | 196.3909    | 11.65            | 14.64       | 26.29           | 40.00          | -13.71      | QP       |        |
| 6   | 275.4998    | 14.43            | 14.29       | 28.72           | 47.00          | -18.28      | QP       |        |

**Vertical 1000W**



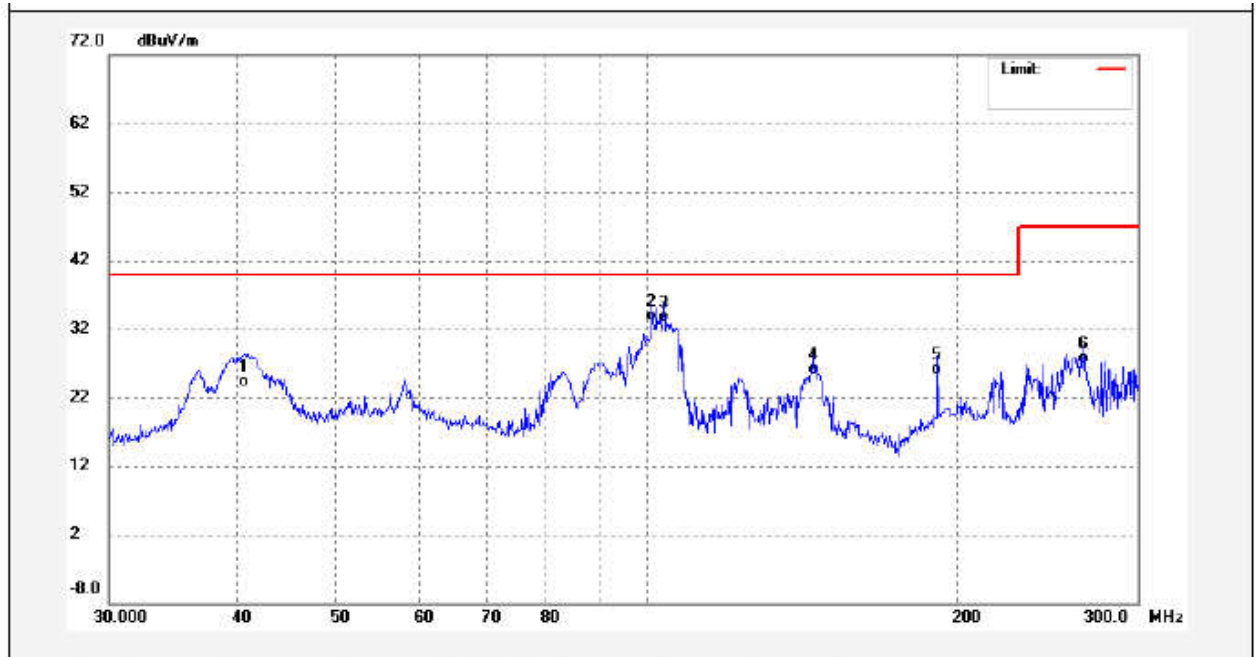
| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 47.1109     | 8.60             | 13.85       | 22.45           | 40.00          | -17.55      | QP       |        |
| 2   | 81.6810     | 12.03            | 11.85       | 23.88           | 40.00          | -16.12      | QP       |        |
| 3   | 99.7978     | 2.26             | 14.67       | 16.93           | 40.00          | -23.07      | QP       |        |
| 4   | 137.1265    | 10.42            | 11.67       | 22.09           | 40.00          | -17.91      | QP       |        |
| 5   | 204.2308    | 6.08             | 14.55       | 20.63           | 40.00          | -19.37      | QP       |        |
| 6   | 264.9239    | 2.69             | 14.60       | 17.29           | 47.00          | -29.71      | QP       |        |

## Horizontal 1000W



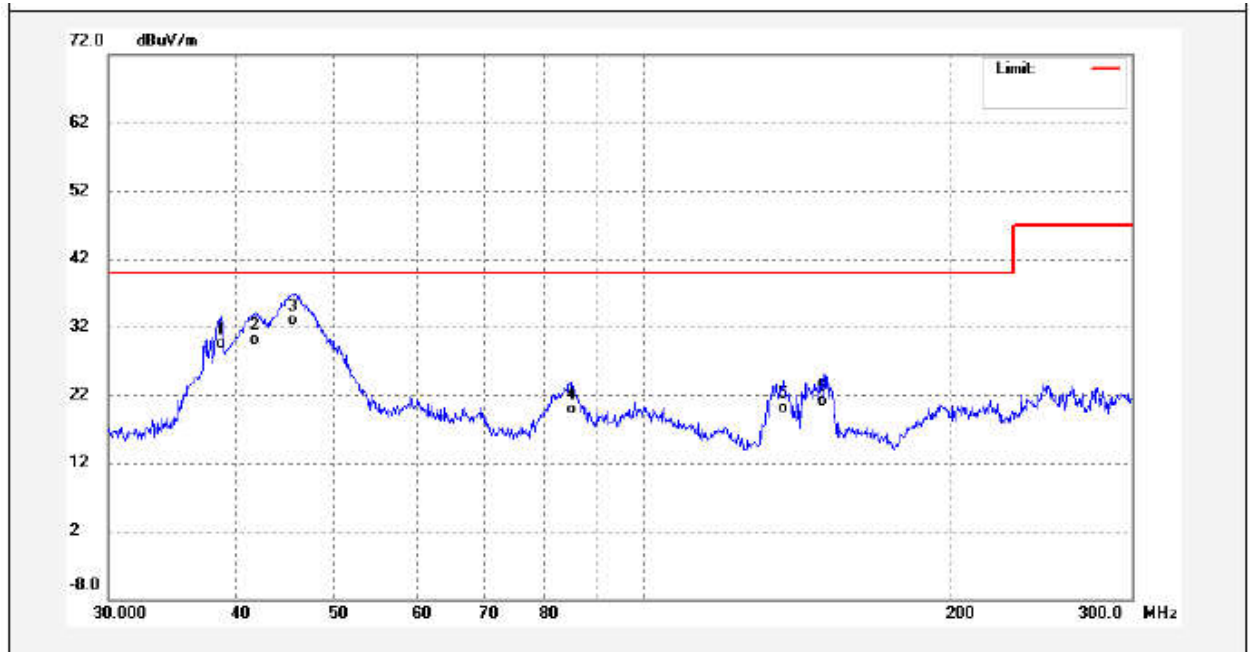
| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 48.0974     | 10.52            | 14.00       | 24.52           | 40.00          | -15.48      | QP       |        |
| 2   | 82.2472     | 11.09            | 11.99       | 23.08           | 40.00          | -16.92      | QP       |        |
| 3   | 139.0341    | 13.62            | 11.64       | 25.26           | 40.00          | -14.74      | QP       |        |
| 4   | 188.4175    | 10.79            | 13.10       | 23.89           | 40.00          | -16.11      | QP       |        |
| 5   | 221.3713    | 9.05             | 13.98       | 23.03           | 40.00          | -16.97      | QP       |        |
| 6   | 267.3753    | 14.81            | 13.73       | 28.54           | 47.00          | -18.46      | QP       |        |

## Vertical 315W



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 40.5621     | 9.61             | 14.76       | 24.37           | 40.00          | -15.63      | QP       |        |
| 2   | 100.9535    | 19.39            | 14.47       | 33.86           | 40.00          | -6.14       | QP       |        |
| 3   | 103.7818    | 20.00            | 13.69       | 33.69           | 40.00          | -6.31       | QP       |        |
| 4   | 144.9176    | 15.31            | 10.85       | 26.16           | 40.00          | -13.84      | QP       |        |
| 5   | 191.4790    | 12.21            | 13.87       | 26.08           | 40.00          | -13.92      | QP       |        |
| 6   | 265.5347    | 13.30            | 14.42       | 27.72           | 47.00          | -19.28      | QP       |        |

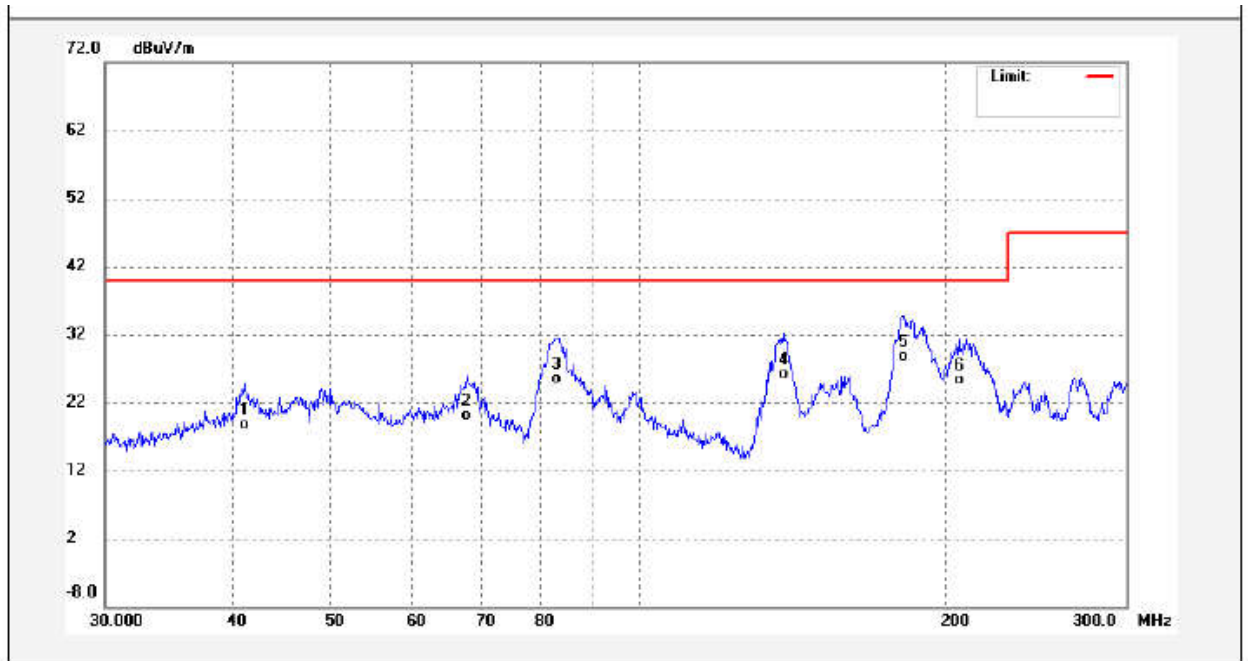
## Horizontal 315W



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 38.6475     | 15.30            | 14.30       | 29.60           | 40.00          | -10.40      | QP       |        |
| 2   | 41.6986     | 15.05            | 15.00       | 30.05           | 40.00          | -9.95       | QP       |        |
| 3   | 45.4067     | 18.82            | 14.06       | 32.88           | 40.00          | -7.12       | QP       |        |
| 4   | 85.1376     | 7.32             | 12.66       | 19.98           | 40.00          | -20.02      | QP       |        |
| 5   | 136.8111    | 8.41             | 11.67       | 20.08           | 40.00          | -19.92      | QP       |        |
| 6   | 149.6653    | 10.51            | 10.59       | 21.10           | 40.00          | -18.90      | QP       |        |

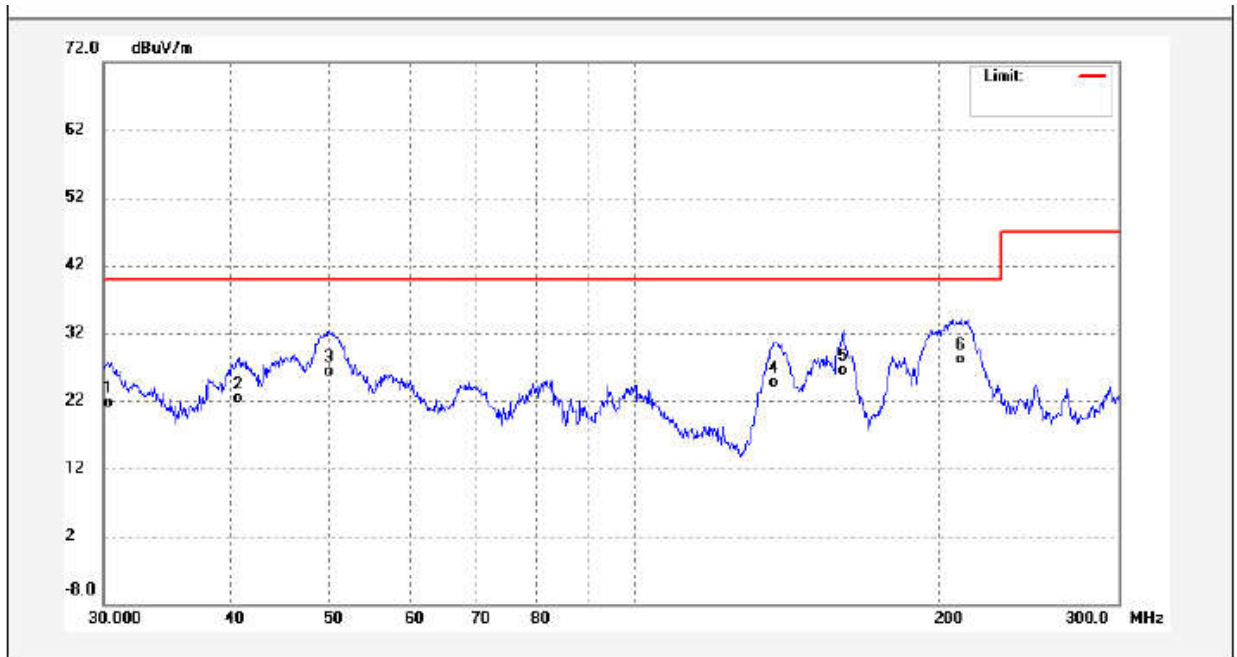


**Vertical 600W Mode 1**



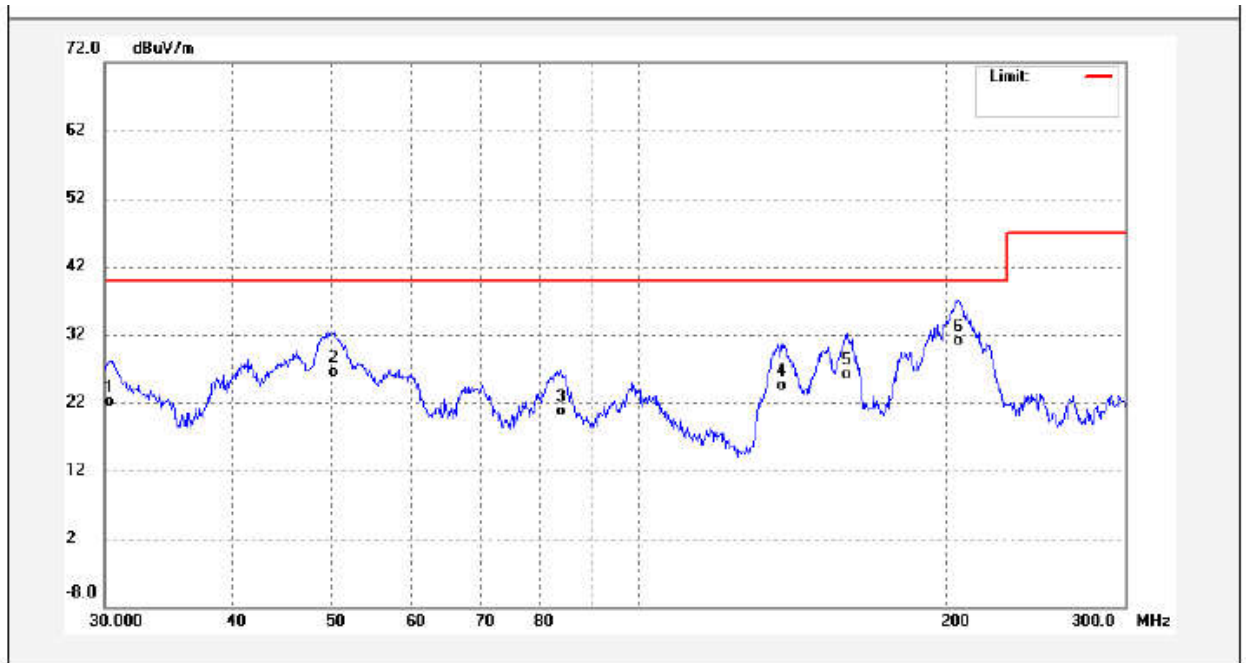
| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 41.0319     | 3.81             | 14.86       | 18.67           | 40.00          | -21.33      | QP       |        |
| 2   | 67.7831     | 7.72             | 12.31       | 20.03           | 40.00          | -19.97      | QP       |        |
| 3   | 83.0082     | 13.34            | 12.17       | 25.51           | 40.00          | -14.49      | QP       |        |
| 4   | 138.3953    | 14.48            | 11.64       | 26.12           | 40.00          | -13.88      | QP       |        |
| 5   | 181.6023    | 17.16            | 11.57       | 28.73           | 40.00          | -11.27      | QP       |        |
| 6   | 205.6465    | 10.79            | 14.59       | 25.38           | 40.00          | -14.62      | QP       |        |

## Horizontal 600W Mode 1



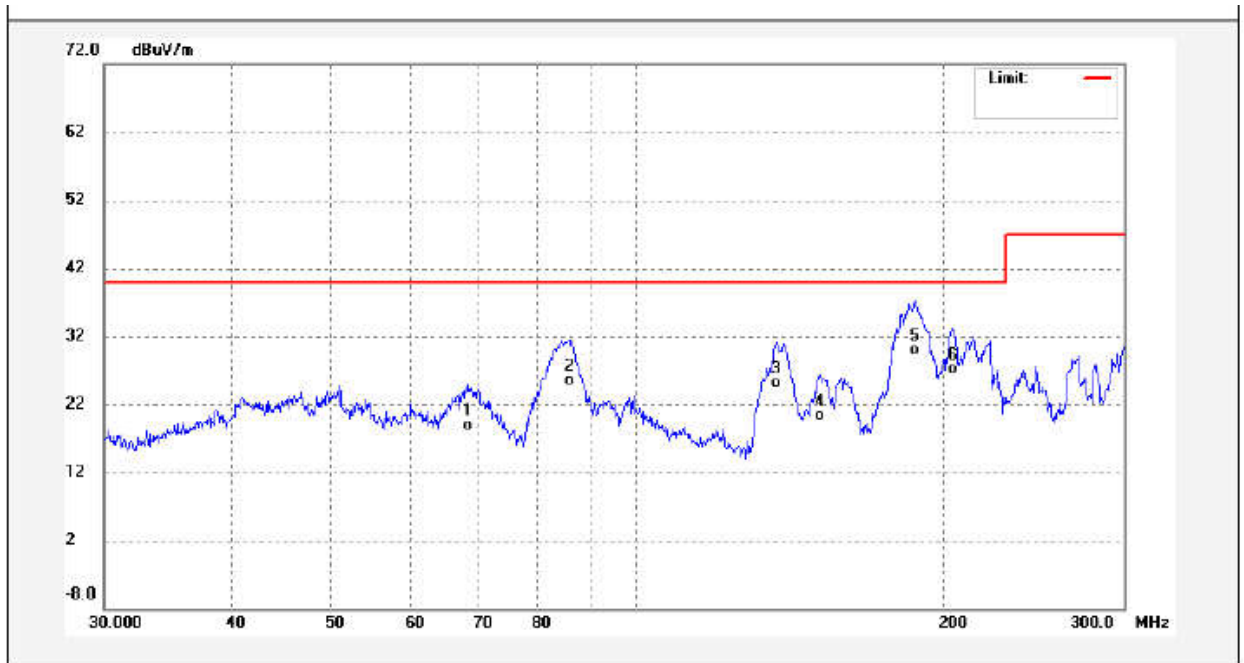
| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 30.3473     | 10.35            | 11.45       | 21.80           | 40.00          | -18.20      | QP       |        |
| 2   | 40.6556     | 7.61             | 14.78       | 22.39           | 40.00          | -17.61      | QP       |        |
| 3   | 50.0174     | 11.97            | 14.30       | 26.27           | 40.00          | -13.73      | QP       |        |
| 4   | 137.4425    | 13.04            | 11.66       | 24.70           | 40.00          | -15.30      | QP       |        |
| 5   | 160.3693    | 15.29            | 11.20       | 26.49           | 40.00          | -13.51      | QP       |        |
| 6   | 209.4697    | 14.29            | 13.77       | 28.06           | 40.00          | -11.94      | QP       |        |

**Vertical 600W Mode 2**



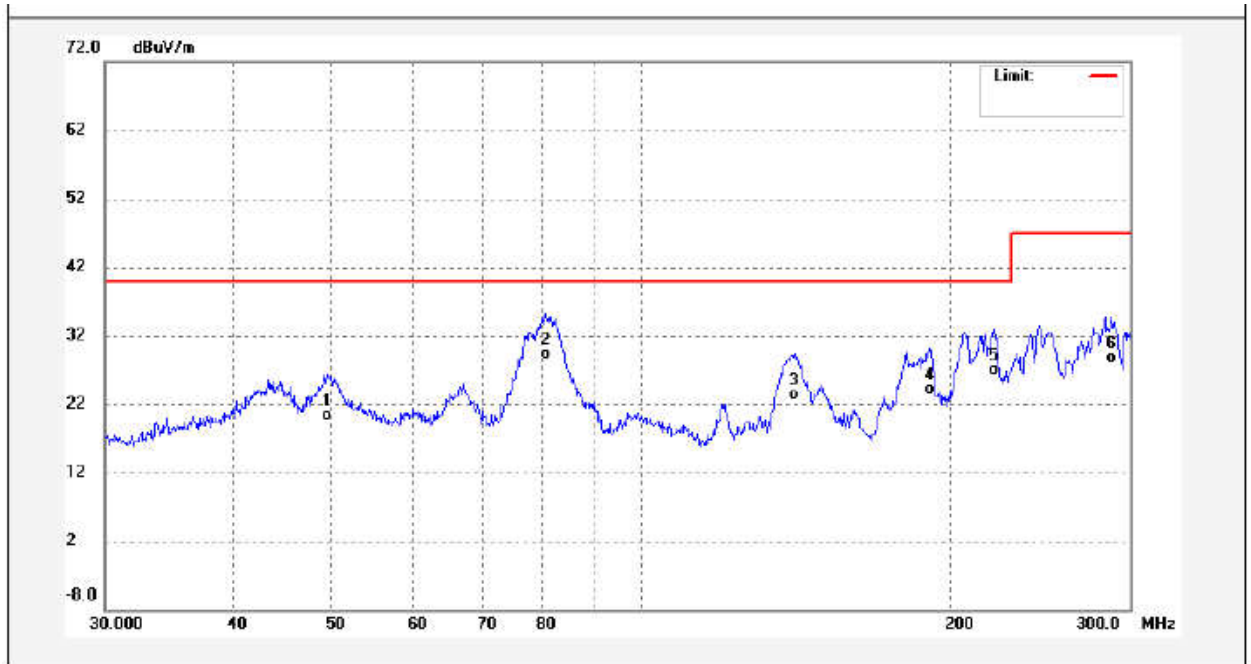
| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 30.2774     | 10.63            | 11.46       | 22.09           | 40.00          | -17.91      | QP       |        |
| 2   | 50.3641     | 12.17            | 14.41       | 26.58           | 40.00          | -13.42      | QP       |        |
| 3   | 83.9693     | 8.38             | 12.41       | 20.79           | 40.00          | -19.21      | QP       |        |
| 4   | 138.0767    | 12.90            | 11.65       | 24.55           | 40.00          | -15.45      | QP       |        |
| 5   | 160.0004    | 14.93            | 11.22       | 26.15           | 40.00          | -13.85      | QP       |        |
| 6   | 205.6464    | 16.61            | 14.59       | 31.20           | 40.00          | -8.80       | QP       |        |

## Horizontal 600W Mode 2



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 68.2529     | 6.54             | 12.28       | 18.82           | 40.00          | -21.18      | QP       |        |
| 2   | 85.7277     | 12.77            | 12.67       | 25.44           | 40.00          | -14.56      | QP       |        |
| 3   | 136.8110    | 13.37            | 11.67       | 25.04           | 40.00          | -14.96      | QP       |        |
| 4   | 151.0501    | 9.86             | 10.49       | 20.35           | 40.00          | -19.65      | QP       |        |
| 5   | 187.1205    | 17.10            | 12.89       | 29.99           | 40.00          | -10.01      | QP       |        |
| 6   | 203.7610    | 12.71            | 14.42       | 27.13           | 40.00          | -12.87      | QP       |        |

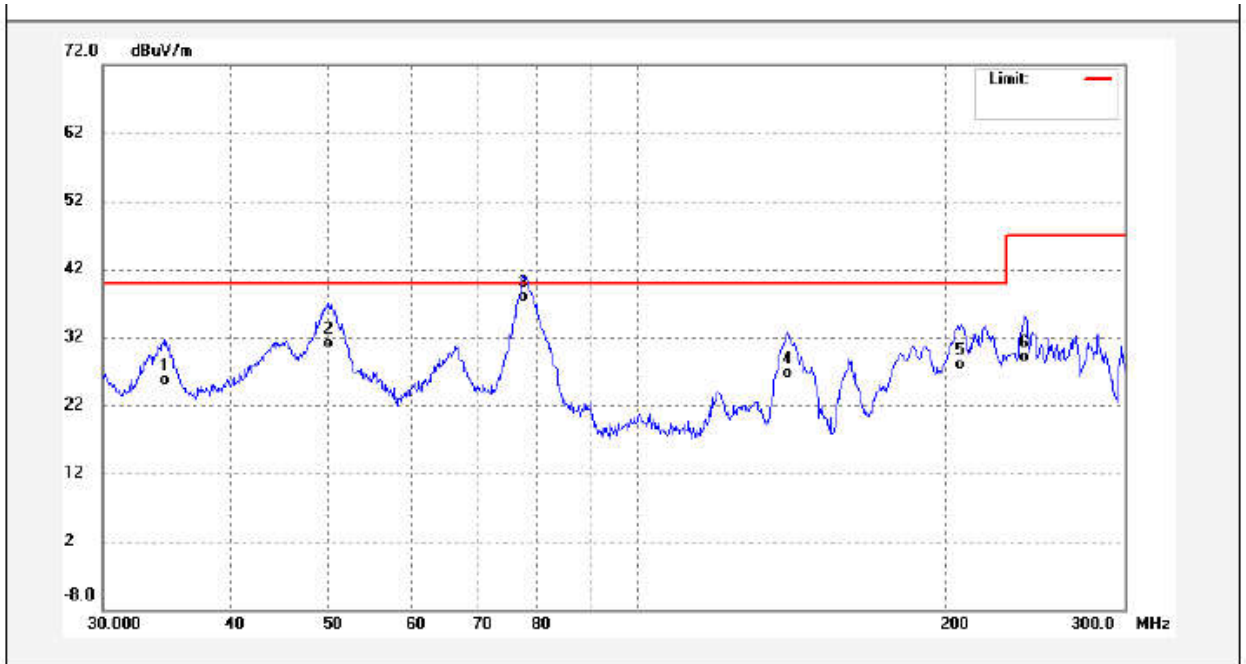
**Vertical 630W Mode 1**



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 49.4449     | 6.10             | 14.21       | 20.31           | 40.00          | -19.69      | QP       |        |
| 2   | 80.7460     | 17.64            | 11.62       | 29.26           | 40.00          | -10.74      | QP       |        |
| 3   | 141.2932    | 11.83            | 11.42       | 23.25           | 40.00          | -16.75      | QP       |        |
| 4   | 191.0387    | 10.36            | 13.71       | 24.07           | 40.00          | -15.93      | QP       |        |
| 5   | 220.8621    | 12.72            | 14.10       | 26.82           | 40.00          | -13.18      | QP       |        |
| 6   | 287.8202    | 12.99            | 15.65       | 28.64           | 47.00          | -18.36      | QP       |        |

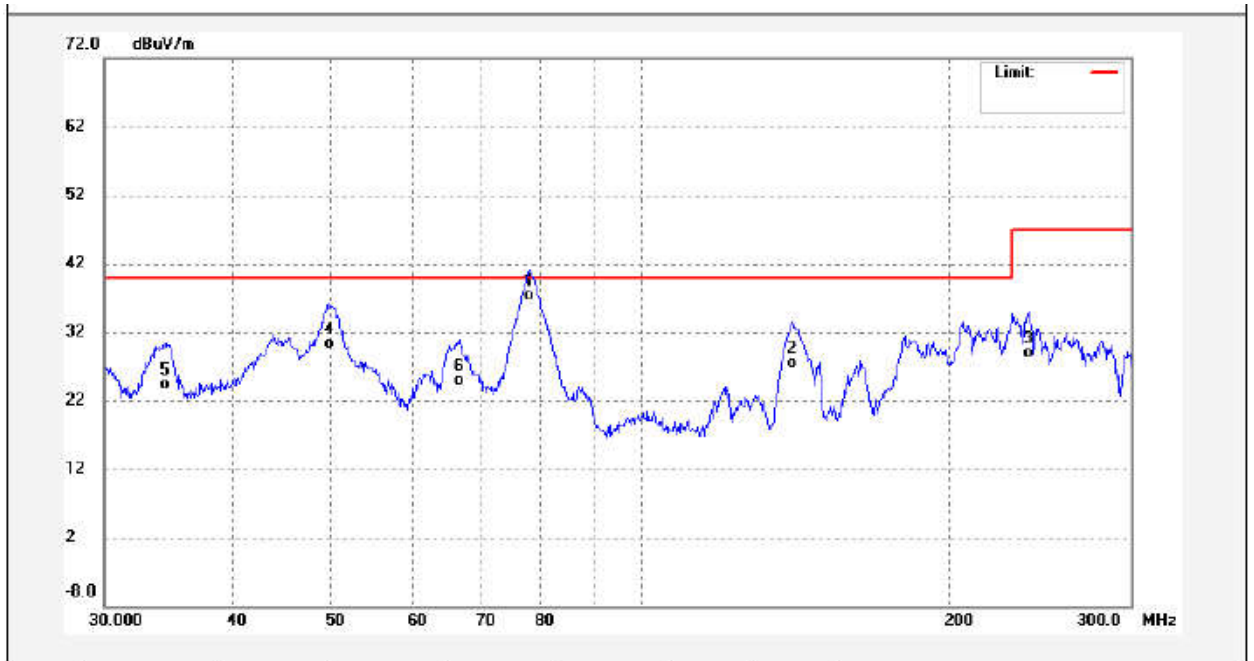


## Horizontal, 630W Mode 1



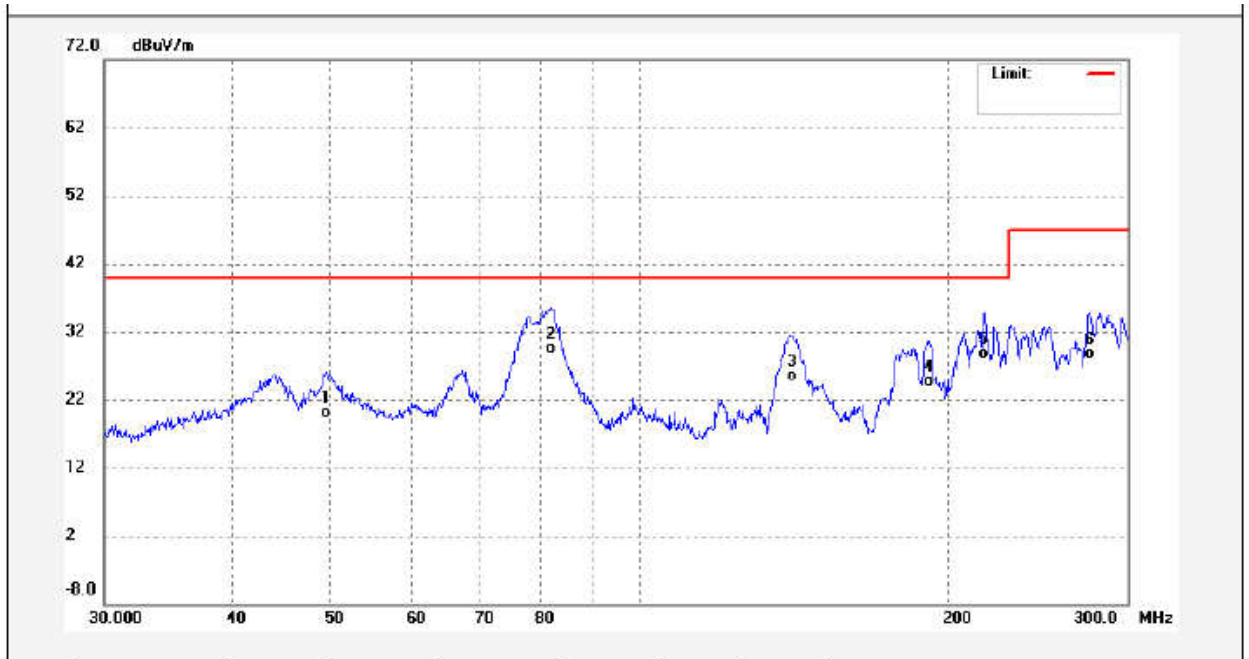
| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 34.5240     | 13.02            | 12.73       | 25.75           | 40.00          | -14.25      | QP       |        |
| 2   | 49.7876     | 16.86            | 14.26       | 31.12           | 40.00          | -8.88       | QP       |        |
| 3   | 77.2896     | 26.53            | 11.37       | 37.90           | 40.00          | -2.10       | QP       |        |
| 4   | 140.3204    | 15.04            | 11.57       | 26.61           | 40.00          | -13.39      | QP       |        |
| 5   | 207.0719    | 13.67            | 14.28       | 27.95           | 40.00          | -12.05      | QP       |        |
| 6   | 239.3984    | 14.26            | 14.92       | 29.18           | 47.00          | -17.82      | QP       |        |

## Vertical, 630W Mode 2



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 77.8254     | 25.92            | 11.39       | 37.31           | 40.00          | -2.69       | QP       |        |
| 2   | 140.3204    | 15.92            | 11.57       | 27.49           | 40.00          | -12.51      | QP       |        |
| 3   | 238.2984    | 14.02            | 14.79       | 28.81           | 47.00          | -18.19      | QP       |        |
| 4   | 49.6730     | 15.97            | 14.24       | 30.21           | 40.00          | -9.79       | QP       |        |
| 5   | 34.3653     | 11.67            | 12.67       | 24.34           | 40.00          | -15.66      | QP       |        |
| 6   | 66.5457     | 12.59            | 12.38       | 24.97           | 40.00          | -15.03      | QP       |        |

## Horizontal, 630W Mode 2



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 49.4449     | 5.90             | 14.21       | 20.11           | 40.00          | -19.89      | QP       |        |
| 2   | 81.8693     | 17.68            | 11.90       | 29.58           | 40.00          | -10.42      | QP       |        |
| 3   | 140.9682    | 14.01            | 11.47       | 25.48           | 40.00          | -14.52      | QP       |        |
| 4   | 191.9205    | 10.61            | 14.02       | 24.63           | 40.00          | -15.37      | QP       |        |
| 5   | 216.8309    | 14.23            | 14.54       | 28.77           | 40.00          | -11.23      | QP       |        |
| 6   | 275.4998    | 14.47            | 14.29       | 28.76           | 47.00          | -18.24      | QP       |        |

## 5.4 Harmonics Current Emission

|                       |   |              |
|-----------------------|---|--------------|
| Test Requirement..... | : | EN 61000-3-2 |
| Test Method.....      | : | EN 61000-3-2 |
| Test Result.....      | : | Pass         |
| Class/Severity.....   | : | Class C      |

### 5.4.1 E.U.T. Operation

#### Operating Environment:

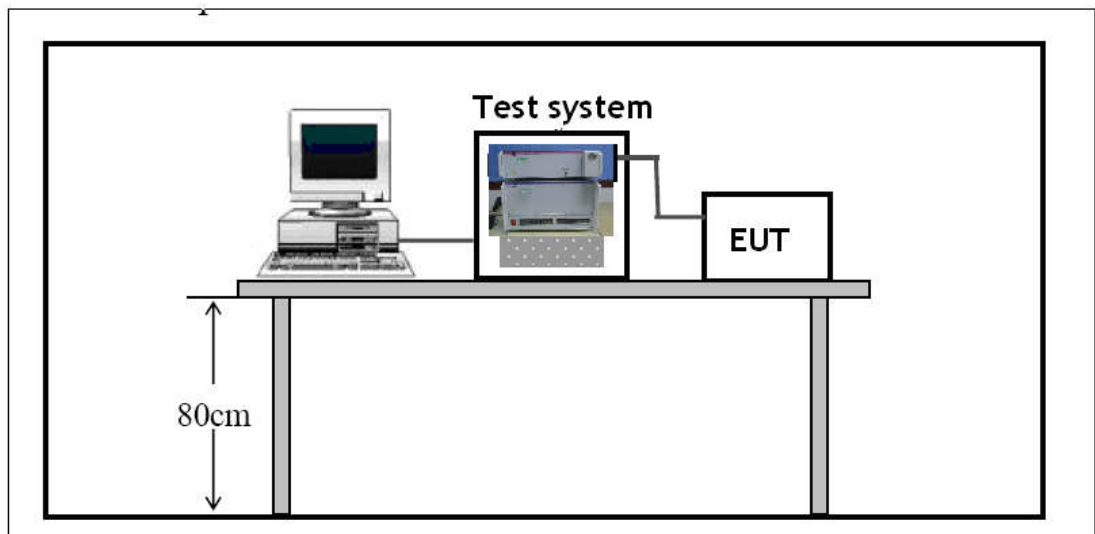
|                   |   |       |
|-------------------|---|-------|
| Temperature ..... | : | 24°C  |
| Humidity.....     | : | 60%RH |

#### EUT Operation:

|                     |   |   |
|---------------------|---|---|
| Input Voltage ..... | : | 230V~, 50Hz   |
| Operating Mode..... | : | Mode1: Dimming 100% mode<br>Mode2: Dimming super mode |

### 5.4.2 Block Diagram of Setup

The Harmonics Current emission test was performed in accordance with the EN 61000-3-2.



### 5.4.3 Harmonic Current Emission Test Data, Pro 1000W 400V

|                            |   |
|----------------------------|---|
| Report title:              |   |
| Company Name:              |   |
| Date of test:              | 16:57 18.Okt 2018                                       |
| Measurement file name:     | 1018.rsd  |
| Tester:                    | Asa   |
| Standard used:             | EN/IEC 61000-3-2 Ed.3 Short cyclic<br>Equipment class C |
| Observation time:          | 150s  |
| Windows width:             | 10 periods - (EN/IEC 61000-4-7 Edition 2002)            |
| Customer:                  |   |
| E. U. T.:                  |   |
| Measurement smoothed data: | Fund. Current: 5.245 A<br>Power Factor : 0.993          |

#### **Power and THD results - DS: 1**

|                   |          |                   |         |
|-------------------|----------|-------------------|---------|
| True power P:     | 643.9W   | Apparent power S: | 656.9VA |
| Reactiv power Q:  | 130.1var | Power factor:     | 0.980   |
| THD (U):          | 0.001    | THD (I):          | 0.096   |
| Crest Factor (U): | 1.414    | Crest Factor (I): | 1.589   |

#### **Check harmonics 2..40 [exception odd 21..39]:**

|  |      |
|--|------|
| <b>Harmonic(s) &gt; 150%:</b>              |      |
| Order (n):                                 | None |
| <b>Harmonic(s) with average &gt; 100%:</b> |      |
| Order (n):                                 | None |

#### **Check odd harmonics 21..39:**

|  |      |
|--|------|
| <b>All Partial Odd Harmonics below partial limits.</b> |      |
| <b>Harmonic(s) &gt; 150%:</b>                          |      |
| Order (n):   | None |
| <b>Harmonic(s) with average &gt; 150%:</b>             |      |
| Order (n):   | None |



### Average harmonic current results

| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 4.081                | 77.810               |           |        |
| 2  | 969.998E-6           | 0.018                | 2.00      | PASS   |
| 3  | 266.782E-3           | 5.087                | 29.79     | PASS   |
| 4  | 3.097E-3             | 0.059                |           | PASS   |
| 5  | 15.166E-3            | 0.289                | 10.00     | PASS   |
| 6  | 819.101E-6           | 0.016                |           | PASS   |
| 7  | 28.908E-3            | 0.551                | 7.00      | PASS   |
| 8  | 788.245E-6           | 0.015                |           | PASS   |
| 9  | 14.672E-3            | 0.280                | 5.00      | PASS   |
| 10 | 822.286E-6           | 0.016                |           | PASS   |
| 11 | 42.053E-3            | 0.802                | 3.00      | PASS   |
| 12 | 813.832E-6           | 0.016                |           | PASS   |
| 13 | 28.704E-3            | 0.547                | 3.00      | PASS   |
| 14 | 794.221E-6           | 0.015                |           | PASS   |
| 15 | 28.122E-3            | 0.536                | 3.00      | PASS   |
| 16 | 743.823E-6           | 0.014                |           | PASS   |
| 17 | 21.490E-3            | 0.410                | 3.00      | PASS   |
| 18 | 1.097E-3             | 0.021                |           | PASS   |
| 19 | 21.236E-3            | 0.405                | 3.00      | PASS   |
| 20 | 752.558E-6           | 0.014                |           | PASS   |
| 21 | 23.644E-3            | 0.451                | 4.50      | PASS   |
| 22 | 1.088E-3             | 0.021                |           | PASS   |
| 23 | 11.971E-3            | 0.228                | 4.50      | PASS   |
| 24 | 768.884E-6           | 0.015                |           | PASS   |
| 25 | 17.051E-3            | 0.325                | 4.50      | PASS   |
| 26 | 807.651E-6           | 0.015                |           | PASS   |
| 27 | 8.783E-3             | 0.167                | 4.50      | PASS   |
| 28 | 778.274E-6           | 0.015                |           | PASS   |
| 29 | 12.787E-3            | 0.244                | 4.50      | PASS   |
| 30 | 808.724E-6           | 0.015                |           | PASS   |
| 31 | 12.884E-3            | 0.246                | 4.50      | PASS   |
| 32 | 780.222E-6           | 0.015                |           | PASS   |
| 33 | 7.076E-3             | 0.135                | 4.50      | PASS   |
| 34 | 791.799E-6           | 0.015                |           | PASS   |
| 35 | 11.302E-3            | 0.216                | 4.50      | PASS   |
| 36 | 917.809E-6           | 0.018                |           | PASS   |
| 37 | 5.260E-3             | 0.100                | 4.50      | PASS   |
| 38 | 783.068E-6           | 0.015                |           | PASS   |
| 39 | 9.477E-3             | 0.181                | 4.50      | PASS   |
| 40 | 985.195E-6           | 0.019                |           | PASS   |

### Maximum harmonic current results

| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 5.245                | 100.000              |           |        |
| 2  | 1.649E-3             | 0.031                | 3.00      | PASS   |
| 3  | 271.400E-3           | 5.175                | 44.68     | PASS   |
| 4  | 3.364E-3             | 0.064                |           | PASS   |
| 5  | 19.315E-3            | 0.368                | 15.00     | PASS   |
| 6  | 964.287E-6           | 0.018                |           | PASS   |
| 7  | 34.975E-3            | 0.667                | 10.50     | PASS   |
| 8  | 894.157E-6           | 0.017                |           | PASS   |
| 9  | 17.037E-3            | 0.325                | 7.50      | PASS   |
| 10 | 952.947E-6           | 0.018                |           | PASS   |
| 11 | 45.004E-3            | 0.858                | 4.50      | PASS   |
| 12 | 950.186E-6           | 0.018                |           | PASS   |
| 13 | 31.413E-3            | 0.599                | 4.50      | PASS   |
| 14 | 905.871E-6           | 0.017                |           | PASS   |
| 15 | 31.534E-3            | 0.601                | 4.50      | PASS   |
| 16 | 867.380E-6           | 0.017                |           | PASS   |
| 17 | 24.268E-3            | 0.463                | 4.50      | PASS   |
| 18 | 1.226E-3             | 0.023                |           | PASS   |
| 19 | 24.602E-3            | 0.469                | 4.50      | PASS   |
| 20 | 860.204E-6           | 0.016                |           | PASS   |
| 21 | 26.804E-3            | 0.511                | 4.50      | PASS   |
| 22 | 1.224E-3             | 0.023                |           | PASS   |
| 23 | 15.847E-3            | 0.302                | 4.50      | PASS   |
| 24 | 911.192E-6           | 0.017                |           | PASS   |
| 25 | 22.718E-3            | 0.433                | 4.50      | PASS   |
| 26 | 1.004E-3             | 0.019                |           | PASS   |
| 27 | 12.050E-3            | 0.230                | 4.50      | PASS   |
| 28 | 963.874E-6           | 0.018                |           | PASS   |
| 29 | 17.085E-3            | 0.326                | 4.50      | PASS   |
| 30 | 969.544E-6           | 0.018                |           | PASS   |
| 31 | 15.707E-3            | 0.299                | 4.50      | PASS   |
| 32 | 997.677E-6           | 0.019                |           | PASS   |
| 33 | 10.180E-3            | 0.194                | 4.50      | PASS   |
| 34 | 958.092E-6           | 0.018                |           | PASS   |
| 35 | 15.302E-3            | 0.292                | 4.50      | PASS   |
| 36 | 1.131E-3             | 0.022                |           | PASS   |
| 37 | 8.903E-3             | 0.170                | 4.50      | PASS   |
| 38 | 942.236E-6           | 0.018                |           | PASS   |
| 39 | 15.605E-3            | 0.298                | 4.50      | PASS   |
| 40 | 1.124E-3             | 0.021                |           | PASS   |

### Maximum harmonic voltage results

| Hn | Ueff [V]  | Ueff [%] | Limit [%] | Result |
|----|-----------|----------|-----------|--------|
| 1  | 230.94    | 100.408  |           |        |
| 2  | 84.08E-3  | 0.037    | 0.2       | PASS   |
| 3  | 120.04E-3 | 0.052    | 0.9       | PASS   |
| 4  | 12.34E-3  | 0.005    | 0.2       | PASS   |
| 5  | 65.60E-3  | 0.029    | 0.4       | PASS   |
| 6  | 12.56E-3  | 0.005    | 0.2       | PASS   |
| 7  | 78.15E-3  | 0.034    | 0.3       | PASS   |
| 8  | 10.51E-3  | 0.005    | 0.2       | PASS   |
| 9  | 76.29E-3  | 0.033    | 0.2       | PASS   |
| 10 | 17.08E-3  | 0.007    | 0.2       | PASS   |
| 11 | 98.45E-3  | 0.043    | 0.1       | PASS   |
| 12 | 17.84E-3  | 0.008    | 0.1       | PASS   |
| 13 | 100.58E-3 | 0.044    | 0.1       | PASS   |
| 14 | 11.78E-3  | 0.005    | 0.1       | PASS   |
| 15 | 96.18E-3  | 0.042    | 0.1       | PASS   |
| 16 | 11.07E-3  | 0.005    | 0.1       | PASS   |
| 17 | 92.92E-3  | 0.040    | 0.1       | PASS   |
| 18 | 9.50E-3   | 0.004    | 0.1       | PASS   |
| 19 | 94.34E-3  | 0.041    | 0.1       | PASS   |
| 20 | 7.89E-3   | 0.003    | 0.1       | PASS   |
| 21 | 79.95E-3  | 0.035    | 0.1       | PASS   |
| 22 | 9.88E-3   | 0.004    | 0.1       | PASS   |
| 23 | 83.20E-3  | 0.036    | 0.1       | PASS   |
| 24 | 12.21E-3  | 0.005    | 0.1       | PASS   |
| 25 | 81.86E-3  | 0.036    | 0.1       | PASS   |
| 26 | 9.85E-3   | 0.004    | 0.1       | PASS   |
| 27 | 85.24E-3  | 0.037    | 0.1       | PASS   |
| 28 | 8.96E-3   | 0.004    | 0.1       | PASS   |
| 29 | 83.49E-3  | 0.036    | 0.1       | PASS   |
| 30 | 9.07E-3   | 0.004    | 0.1       | PASS   |
| 31 | 85.70E-3  | 0.037    | 0.1       | PASS   |
| 32 | 9.52E-3   | 0.004    | 0.1       | PASS   |
| 33 | 78.86E-3  | 0.034    | 0.1       | PASS   |
| 34 | 8.31E-3   | 0.004    | 0.1       | PASS   |
| 35 | 78.80E-3  | 0.034    | 0.1       | PASS   |
| 36 | 10.33E-3  | 0.004    | 0.1       | PASS   |
| 37 | 73.32E-3  | 0.032    | 0.1       | PASS   |
| 38 | 8.88E-3   | 0.004    | 0.1       | PASS   |
| 39 | 73.37E-3  | 0.032    | 0.1       | PASS   |
| 40 | 8.37E-3   | 0.004    | 0.1       | PASS   |

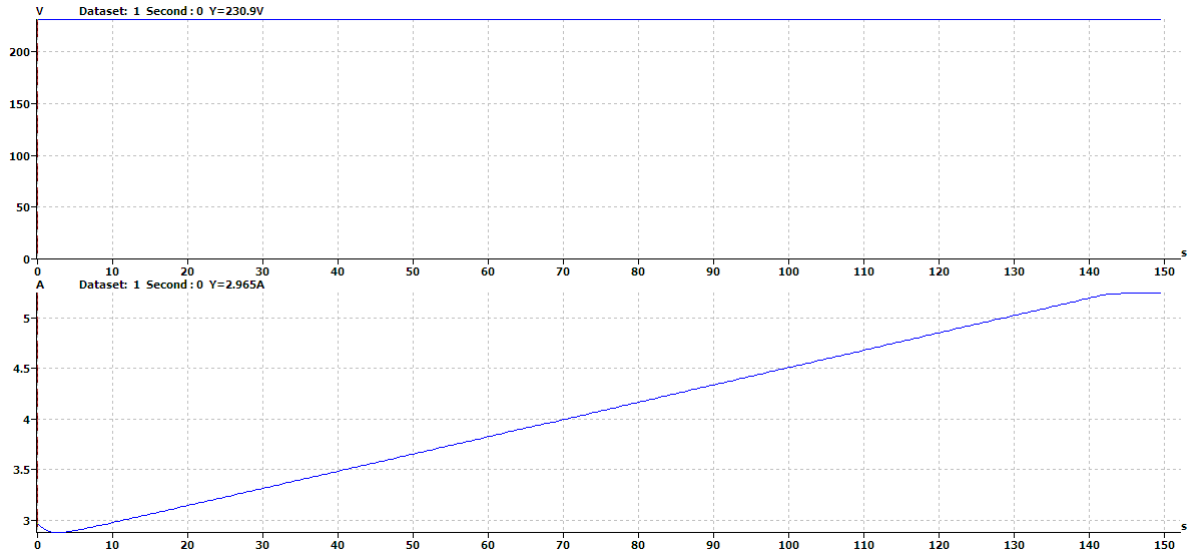
### Harmonic current results - DS: 1

| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 2.965                | 56.532               |           |        |
| 2  | 910.299E-6           | 0.017                | 2.00      | PASS   |
| 3  | 259.988E-3           | 4.957                | 29.79     | PASS   |
| 4  | 2.940E-3             | 0.056                |           | PASS   |
| 5  | 11.770E-3            | 0.224                | 10.00     | PASS   |
| 6  | 773.923E-6           | 0.015                |           | PASS   |
| 7  | 34.290E-3            | 0.654                | 7.00      | PASS   |
| 8  | 807.017E-6           | 0.015                |           | PASS   |
| 9  | 14.931E-3            | 0.285                | 5.00      | PASS   |
| 10 | 796.546E-6           | 0.015                |           | PASS   |
| 11 | 43.417E-3            | 0.828                | 3.00      | PASS   |
| 12 | 798.984E-6           | 0.015                |           | PASS   |
| 13 | 27.811E-3            | 0.530                | 3.00      | PASS   |
| 14 | 724.323E-6           | 0.014                |           | PASS   |
| 15 | 30.291E-3            | 0.578                | 3.00      | PASS   |
| 16 | 715.906E-6           | 0.014                |           | PASS   |
| 17 | 18.665E-3            | 0.356                | 3.00      | PASS   |
| 18 | 1.063E-3             | 0.020                |           | PASS   |
| 19 | 19.147E-3            | 0.365                | 3.00      | PASS   |
| 20 | 713.745E-6           | 0.014                |           | PASS   |
| 21 | 21.841E-3            | 0.416                | 3.00      | PASS   |
| 22 | 1.067E-3             | 0.020                |           | PASS   |
| 23 | 7.010E-3             | 0.134                | 3.00      | PASS   |
| 24 | 721.197E-6           | 0.014                |           | PASS   |
| 25 | 14.257E-3            | 0.272                | 3.00      | PASS   |
| 26 | 889.891E-6           | 0.017                |           | PASS   |
| 27 | 4.217E-3             | 0.080                | 3.00      | PASS   |
| 28 | 750.581E-6           | 0.014                |           | PASS   |
| 29 | 11.891E-3            | 0.227                | 3.00      | PASS   |
| 30 | 725.366E-6           | 0.014                |           | PASS   |
| 31 | 9.176E-3             | 0.175                | 3.00      | PASS   |
| 32 | 694.886E-6           | 0.013                |           | PASS   |
| 33 | 6.933E-3             | 0.132                | 3.00      | PASS   |
| 34 | 764.562E-6           | 0.015                |           | PASS   |
| 35 | 4.103E-3             | 0.078                | 3.00      | PASS   |
| 36 | 779.615E-6           | 0.015                |           | PASS   |
| 37 | 3.443E-3             | 0.066                | 3.00      | PASS   |
| 38 | 752.214E-6           | 0.014                |           | PASS   |
| 39 | 2.010E-3             | 0.038                | 3.00      | PASS   |
| 40 | 1.022E-3             | 0.019                |           | PASS   |

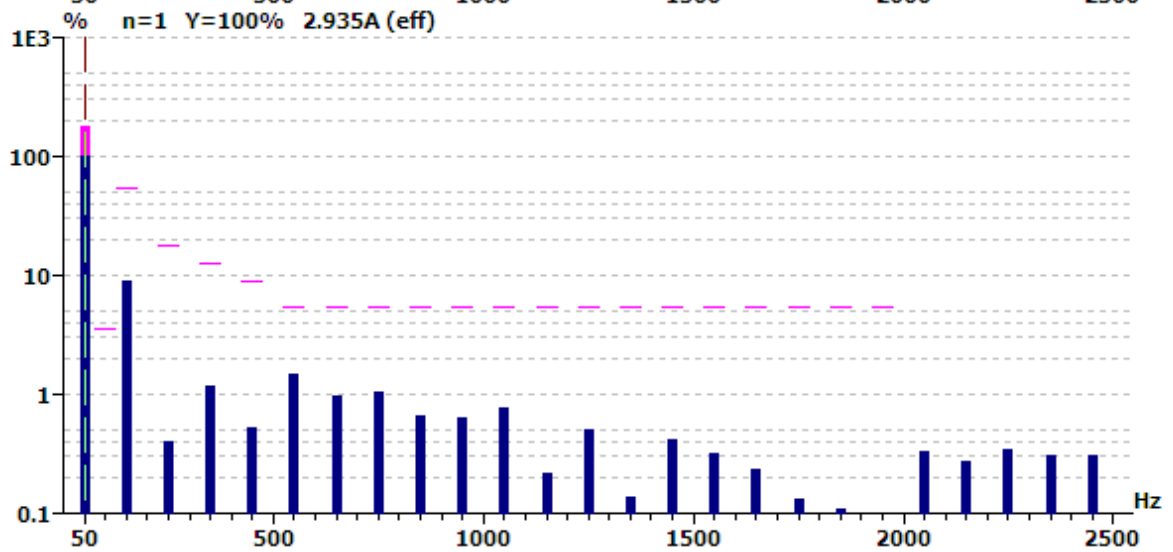
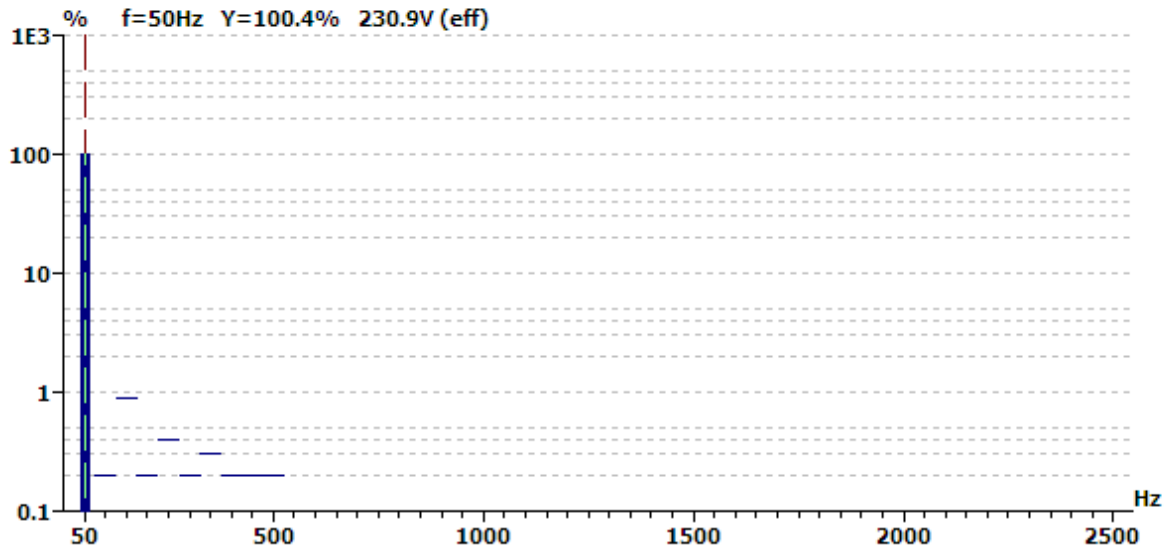
### Harmonic voltage results - DS: 1

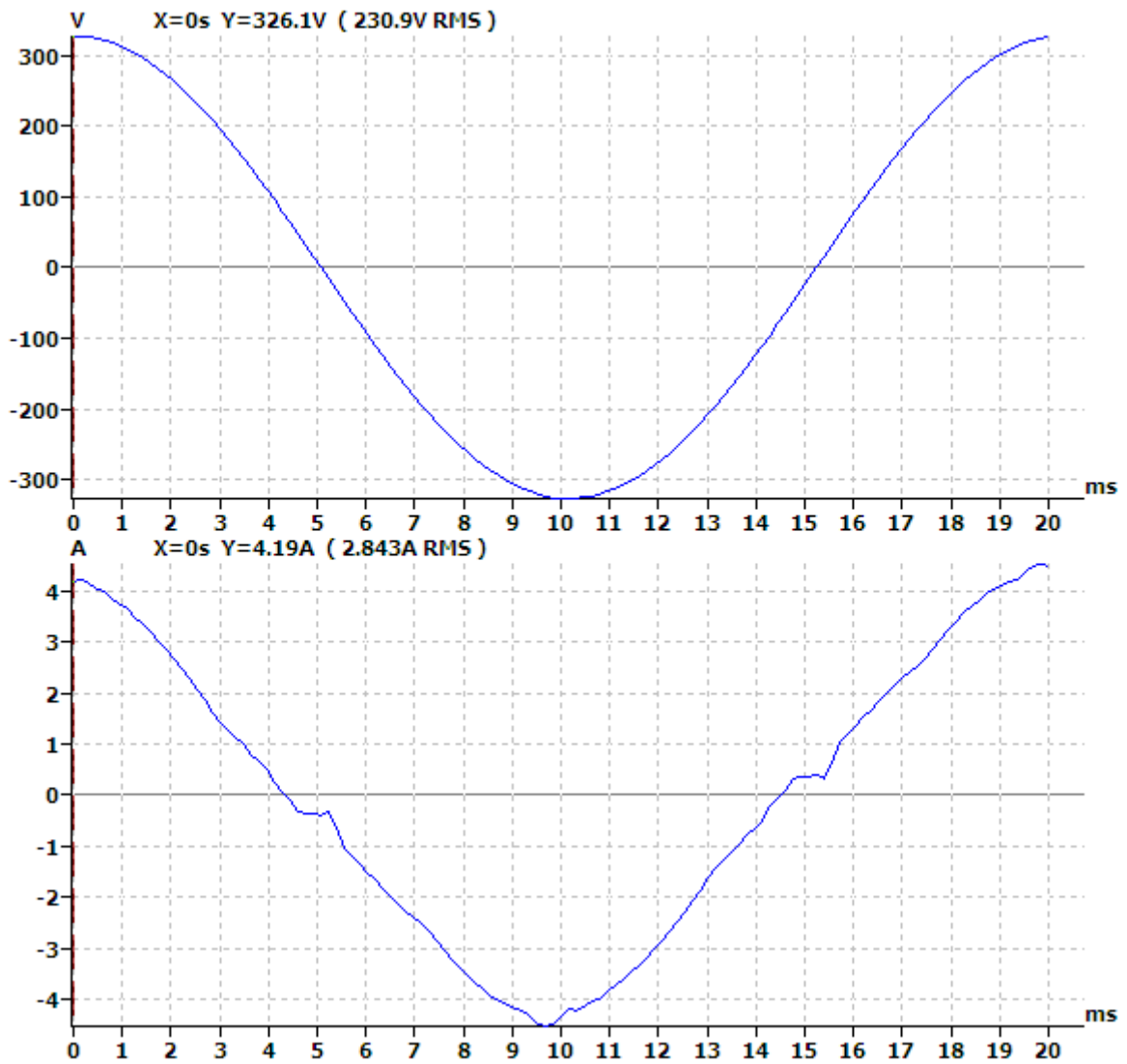
| Hn | Ueff [V]  | Ueff [%] | Limit [%] | Result |
|----|-----------|----------|-----------|--------|
| 1  | 230.94    | 100.408  |           |        |
| 2  | 78.57E-3  | 0.034    | 0.2       | PASS   |
| 3  | 110.74E-3 | 0.048    | 0.9       | PASS   |
| 4  | 7.99E-3   | 0.003    | 0.2       | PASS   |
| 5  | 56.06E-3  | 0.024    | 0.4       | PASS   |
| 6  | 6.98E-3   | 0.003    | 0.2       | PASS   |
| 7  | 8.37E-3   | 0.004    | 0.3       | PASS   |
| 8  | 6.94E-3   | 0.003    | 0.2       | PASS   |
| 9  | 61.04E-3  | 0.027    | 0.2       | PASS   |
| 10 | 11.08E-3  | 0.005    | 0.2       | PASS   |
| 11 | 27.95E-3  | 0.012    | 0.1       | PASS   |
| 12 | 13.10E-3  | 0.006    | 0.1       | PASS   |
| 13 | 58.75E-3  | 0.026    | 0.1       | PASS   |
| 14 | 6.79E-3   | 0.003    | 0.1       | PASS   |
| 15 | 71.45E-3  | 0.031    | 0.1       | PASS   |
| 16 | 3.91E-3   | 0.002    | 0.1       | PASS   |
| 17 | 29.20E-3  | 0.013    | 0.1       | PASS   |
| 18 | 3.63E-3   | 0.002    | 0.1       | PASS   |
| 19 | 79.80E-3  | 0.035    | 0.1       | PASS   |
| 20 | 1.08E-3   | 0.000    | 0.1       | PASS   |
| 21 | 26.74E-3  | 0.012    | 0.1       | PASS   |
| 22 | 2.58E-3   | 0.001    | 0.1       | PASS   |
| 23 | 69.82E-3  | 0.030    | 0.1       | PASS   |
| 24 | 1.72E-3   | 0.001    | 0.1       | PASS   |
| 25 | 57.60E-3  | 0.025    | 0.1       | PASS   |
| 26 | 3.95E-3   | 0.002    | 0.1       | PASS   |
| 27 | 44.97E-3  | 0.020    | 0.1       | PASS   |
| 28 | 2.28E-3   | 0.001    | 0.1       | PASS   |
| 29 | 76.21E-3  | 0.033    | 0.1       | PASS   |
| 30 | 3.59E-3   | 0.002    | 0.1       | PASS   |
| 31 | 16.40E-3  | 0.007    | 0.1       | PASS   |
| 32 | 2.85E-3   | 0.001    | 0.1       | PASS   |
| 33 | 66.11E-3  | 0.029    | 0.1       | PASS   |
| 34 | 3.97E-3   | 0.002    | 0.1       | PASS   |
| 35 | 17.97E-3  | 0.008    | 0.1       | PASS   |
| 36 | 1.73E-3   | 0.001    | 0.1       | PASS   |
| 37 | 48.49E-3  | 0.021    | 0.1       | PASS   |
| 38 | 2.54E-3   | 0.001    | 0.1       | PASS   |
| 39 | 46.99E-3  | 0.020    | 0.1       | PASS   |
| 40 | 1.22E-3   | 0.001    | 0.1       | PASS   |





No partial calculation (average odd harmonics [21..39] < 100%)





#### 5.4.4 Harmonic Current Emission Test Data, 1000W

|                            |   |
|----------------------------|---|
| Report title:              |   |
| Company Name:              |   |
| Date of test:              | 8:53 9.Nov 2018   |
| Measurement file name:     | 8204E.rsd   |
| Tester:                    | Lobei   |
| Standard used:             | EN/IEC 61000-3-2 Ed.3 Short cyclic<br>Equipment class C |
| Observation time:          | 150s  |
| Windows width:             | 10 periods - (EN/IEC 61000-4-7 Edition 2002)            |
| Customer:                  |   |
| E. U. T.:                  |   |
| Measurement smoothed data: | Fund. Current: 5.130 A<br>Power Factor : 0.988          |

#### **Power and THD results - DS: 1**

|                   |          |                   |       |
|-------------------|----------|-------------------|-------|
| True power P:     | 773.6W   | Apparent power S: | 792VA |
| Reactiv power Q:  | 169.7var | Power factor:     | 0.977 |
| THD (U):          | 0.001    | THD (I):          | 0.123 |
| Crest Factor (U): | 1.416    | Crest Factor (I): | 1.573 |

#### **Check harmonics 2..40 [exception odd 21..39]:**

|  |      |
|--|------|
| <b>Harmonic(s) &gt; 150%:</b>              |      |
| Order (n):                                 | None |
| <b>Harmonic(s) with average &gt; 100%:</b> |      |
| Order (n):                                 | None |

#### **Check odd harmonics 21..39:**

|  |      |
|--|------|
| <b>All Partial Odd Harmonics below partial limits.</b> |      |
| <b>Harmonic(s) &gt; 150%:</b>                          |      |
| Order (n):   | None |
| <b>Harmonic(s) with average &gt; 150%:</b>             |      |
| Order (n):   | None |

### Average harmonic current results

| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 4.603                | 89.720               |           |        |
| 2  | 1.052E-3             | 0.021                | 2.00      | PASS   |
| 3  | 407.401E-3           | 7.941                | 29.63     | PASS   |
| 4  | 2.954E-3             | 0.058                |           | PASS   |
| 5  | 79.812E-3            | 1.556                | 10.00     | PASS   |
| 6  | 813.978E-6           | 0.016                |           | PASS   |
| 7  | 51.233E-3            | 0.999                | 7.00      | PASS   |
| 8  | 774.439E-6           | 0.015                |           | PASS   |
| 9  | 52.028E-3            | 1.014                | 5.00      | PASS   |
| 10 | 828.291E-6           | 0.016                |           | PASS   |
| 11 | 58.515E-3            | 1.141                | 3.00      | PASS   |
| 12 | 831.718E-6           | 0.016                |           | PASS   |
| 13 | 51.106E-3            | 0.996                | 3.00      | PASS   |
| 14 | 774.545E-6           | 0.015                |           | PASS   |
| 15 | 27.355E-3            | 0.533                | 3.00      | PASS   |
| 16 | 730.265E-6           | 0.014                |           | PASS   |
| 17 | 27.118E-3            | 0.529                | 3.00      | PASS   |
| 18 | 1.086E-3             | 0.021                |           | PASS   |
| 19 | 18.876E-3            | 0.368                | 3.00      | PASS   |
| 20 | 737.395E-6           | 0.014                |           | PASS   |
| 21 | 16.882E-3            | 0.329                | 4.50      | PASS   |
| 22 | 1.061E-3             | 0.021                |           | PASS   |
| 23 | 14.627E-3            | 0.285                | 4.50      | PASS   |
| 24 | 732.639E-6           | 0.014                |           | PASS   |
| 25 | 6.456E-3             | 0.126                | 4.50      | PASS   |
| 26 | 765.915E-6           | 0.015                |           | PASS   |
| 27 | 5.557E-3             | 0.108                | 4.50      | PASS   |
| 28 | 754.739E-6           | 0.015                |           | PASS   |
| 29 | 7.794E-3             | 0.152                | 4.50      | PASS   |
| 30 | 765.195E-6           | 0.015                |           | PASS   |
| 31 | 5.800E-3             | 0.113                | 4.50      | PASS   |
| 32 | 766.203E-6           | 0.015                |           | PASS   |
| 33 | 9.538E-3             | 0.186                | 4.50      | PASS   |
| 34 | 745.170E-6           | 0.015                |           | PASS   |
| 35 | 3.660E-3             | 0.071                | 4.50      | PASS   |
| 36 | 835.156E-6           | 0.016                |           | PASS   |
| 37 | 3.905E-3             | 0.076                | 4.50      | PASS   |
| 38 | 766.427E-6           | 0.015                |           | PASS   |
| 39 | 7.622E-3             | 0.149                | 4.50      | PASS   |
| 40 | 949.662E-6           | 0.019                |           | PASS   |

### Maximum harmonic current results

| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 5.130                | 100.000              |           |        |
| 2  | 1.775E-3             | 0.035                | 3.00      | PASS   |
| 3  | 411.183E-3           | 8.015                | 44.45     | PASS   |
| 4  | 3.233E-3             | 0.063                |           | PASS   |
| 5  | 82.476E-3            | 1.608                | 15.00     | PASS   |
| 6  | 938.482E-6           | 0.018                |           | PASS   |
| 7  | 53.937E-3            | 1.051                | 10.50     | PASS   |
| 8  | 859.864E-6           | 0.017                |           | PASS   |
| 9  | 55.802E-3            | 1.088                | 7.50      | PASS   |
| 10 | 920.478E-6           | 0.018                |           | PASS   |
| 11 | 60.533E-3            | 1.180                | 4.50      | PASS   |
| 12 | 971.078E-6           | 0.019                |           | PASS   |
| 13 | 55.284E-3            | 1.078                | 4.50      | PASS   |
| 14 | 880.266E-6           | 0.017                |           | PASS   |
| 15 | 30.306E-3            | 0.591                | 4.50      | PASS   |
| 16 | 836.861E-6           | 0.016                |           | PASS   |
| 17 | 29.616E-3            | 0.577                | 4.50      | PASS   |
| 18 | 1.188E-3             | 0.023                |           | PASS   |
| 19 | 24.134E-3            | 0.470                | 4.50      | PASS   |
| 20 | 828.392E-6           | 0.016                |           | PASS   |
| 21 | 20.733E-3            | 0.404                | 4.50      | PASS   |
| 22 | 1.173E-3             | 0.023                |           | PASS   |
| 23 | 17.961E-3            | 0.350                | 4.50      | PASS   |
| 24 | 820.825E-6           | 0.016                |           | PASS   |
| 25 | 10.556E-3            | 0.206                | 4.50      | PASS   |
| 26 | 859.736E-6           | 0.017                |           | PASS   |
| 27 | 8.414E-3             | 0.164                | 4.50      | PASS   |
| 28 | 857.986E-6           | 0.017                |           | PASS   |
| 29 | 11.411E-3            | 0.222                | 4.50      | PASS   |
| 30 | 850.546E-6           | 0.017                |           | PASS   |
| 31 | 9.512E-3             | 0.185                | 4.50      | PASS   |
| 32 | 897.757E-6           | 0.017                |           | PASS   |
| 33 | 11.461E-3            | 0.223                | 4.50      | PASS   |
| 34 | 843.590E-6           | 0.016                |           | PASS   |
| 35 | 8.346E-3             | 0.163                | 4.50      | PASS   |
| 36 | 988.924E-6           | 0.019                |           | PASS   |
| 37 | 5.997E-3             | 0.117                | 4.50      | PASS   |
| 38 | 1.002E-3             | 0.020                |           | PASS   |
| 39 | 12.164E-3            | 0.237                | 4.50      | PASS   |
| 40 | 1.079E-3             | 0.021                |           | PASS   |



### Maximum harmonic voltage results

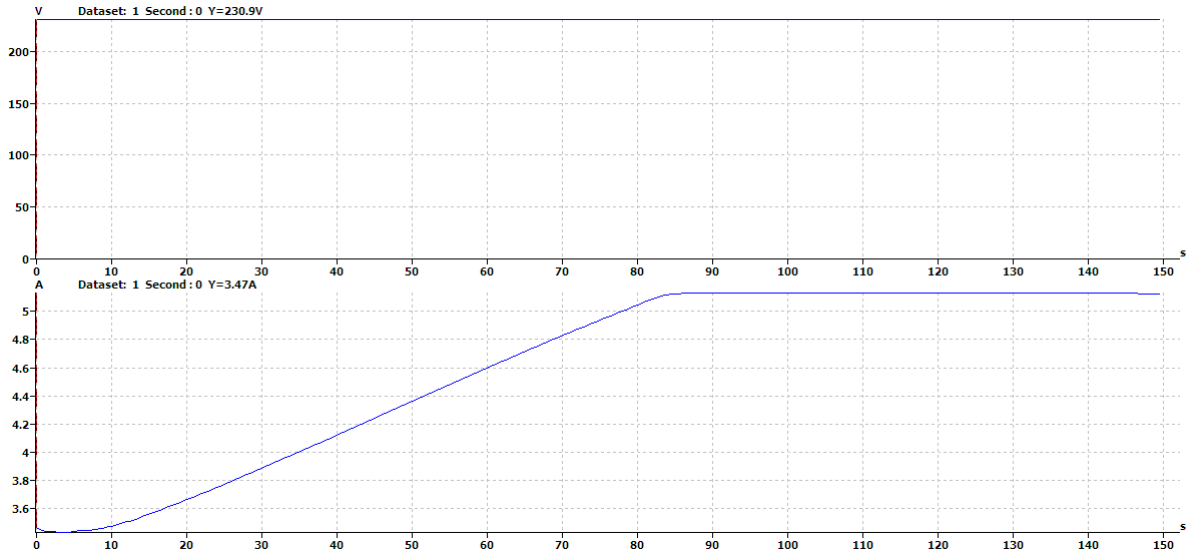
| Hn | Ueff [V]  | Ueff [%] | Limit [%] | Result |
|----|-----------|----------|-----------|--------|
| 1  | 230.91    | 100.396  |           |        |
| 2  | 87.89E-3  | 0.038    | 0.2       | PASS   |
| 3  | 117.88E-3 | 0.051    | 0.9       | PASS   |
| 4  | 12.61E-3  | 0.005    | 0.2       | PASS   |
| 5  | 73.04E-3  | 0.032    | 0.4       | PASS   |
| 6  | 13.87E-3  | 0.006    | 0.2       | PASS   |
| 7  | 85.82E-3  | 0.037    | 0.3       | PASS   |
| 8  | 12.03E-3  | 0.005    | 0.2       | PASS   |
| 9  | 60.62E-3  | 0.026    | 0.2       | PASS   |
| 10 | 19.16E-3  | 0.008    | 0.2       | PASS   |
| 11 | 88.31E-3  | 0.038    | 0.1       | PASS   |
| 12 | 18.61E-3  | 0.008    | 0.1       | PASS   |
| 13 | 97.17E-3  | 0.042    | 0.1       | PASS   |
| 14 | 13.33E-3  | 0.006    | 0.1       | PASS   |
| 15 | 79.54E-3  | 0.035    | 0.1       | PASS   |
| 16 | 9.00E-3   | 0.004    | 0.1       | PASS   |
| 17 | 87.13E-3  | 0.038    | 0.1       | PASS   |
| 18 | 10.53E-3  | 0.005    | 0.1       | PASS   |
| 19 | 85.57E-3  | 0.037    | 0.1       | PASS   |
| 20 | 9.09E-3   | 0.004    | 0.1       | PASS   |
| 21 | 83.63E-3  | 0.036    | 0.1       | PASS   |
| 22 | 8.79E-3   | 0.004    | 0.1       | PASS   |
| 23 | 87.82E-3  | 0.038    | 0.1       | PASS   |
| 24 | 9.56E-3   | 0.004    | 0.1       | PASS   |
| 25 | 85.75E-3  | 0.037    | 0.1       | PASS   |
| 26 | 8.00E-3   | 0.003    | 0.1       | PASS   |
| 27 | 86.67E-3  | 0.038    | 0.1       | PASS   |
| 28 | 10.76E-3  | 0.005    | 0.1       | PASS   |
| 29 | 82.69E-3  | 0.036    | 0.1       | PASS   |
| 30 | 9.39E-3   | 0.004    | 0.1       | PASS   |
| 31 | 79.80E-3  | 0.035    | 0.1       | PASS   |
| 32 | 9.12E-3   | 0.004    | 0.1       | PASS   |
| 33 | 79.98E-3  | 0.035    | 0.1       | PASS   |
| 34 | 8.75E-3   | 0.004    | 0.1       | PASS   |
| 35 | 67.62E-3  | 0.029    | 0.1       | PASS   |
| 36 | 7.67E-3   | 0.003    | 0.1       | PASS   |
| 37 | 67.07E-3  | 0.029    | 0.1       | PASS   |
| 38 | 9.15E-3   | 0.004    | 0.1       | PASS   |
| 39 | 70.93E-3  | 0.031    | 0.1       | PASS   |
| 40 | 9.16E-3   | 0.004    | 0.1       | PASS   |

### Harmonic current results - DS: 1

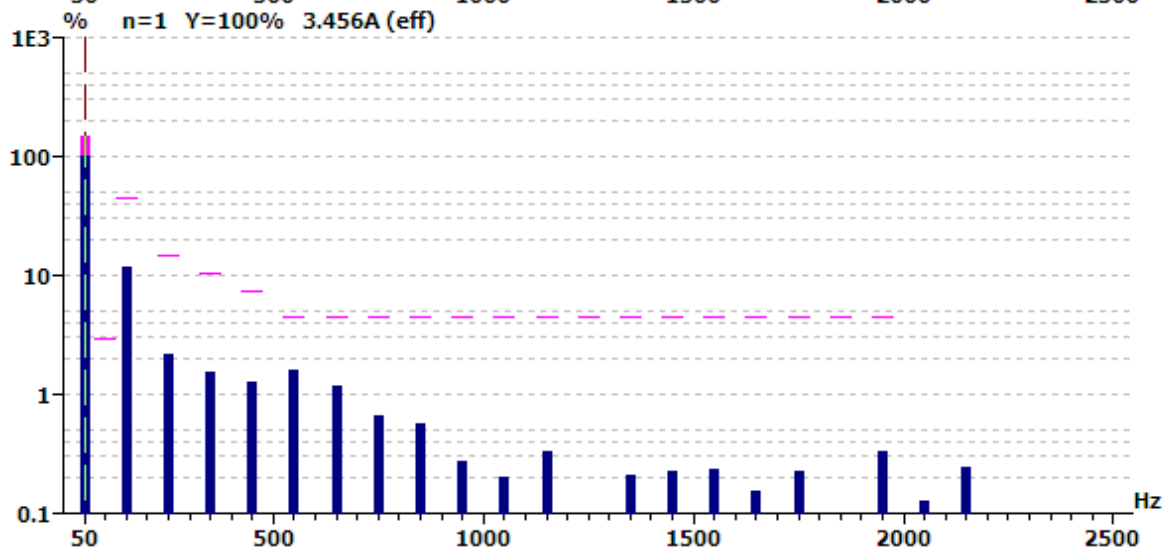
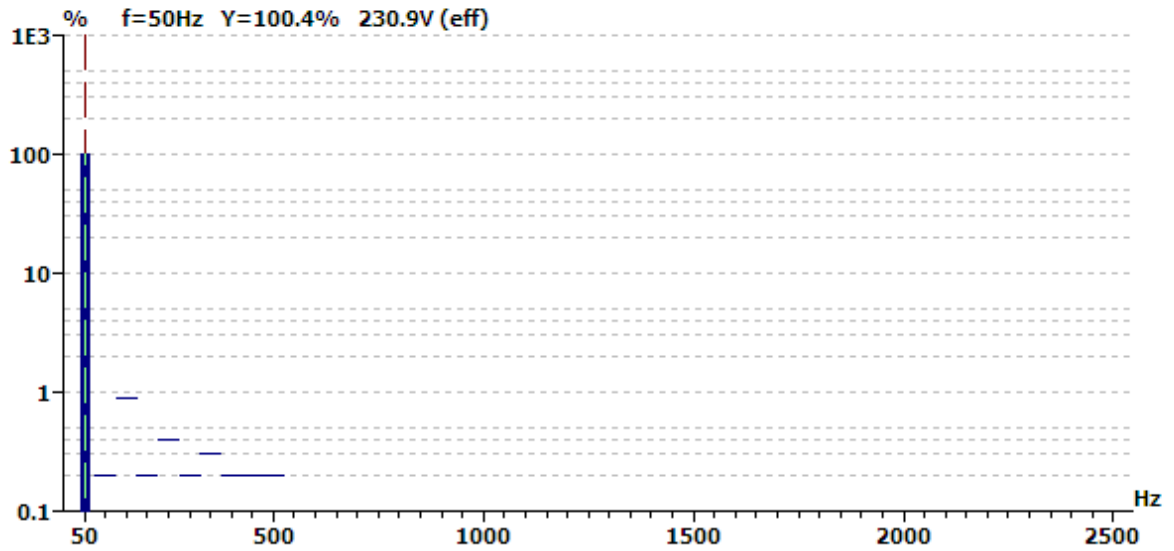
| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 3.470                | 67.633               |           |        |
| 2  | 1.034E-3             | 0.020                | 2.00      | PASS   |
| 3  | 399.841E-3           | 7.794                | 29.63     | PASS   |
| 4  | 3.173E-3             | 0.062                |           | PASS   |
| 5  | 73.312E-3            | 1.429                | 10.00     | PASS   |
| 6  | 843.159E-6           | 0.016                |           | PASS   |
| 7  | 53.412E-3            | 1.041                | 7.00      | PASS   |
| 8  | 803.518E-6           | 0.016                |           | PASS   |
| 9  | 44.044E-3            | 0.859                | 5.00      | PASS   |
| 10 | 808.222E-6           | 0.016                |           | PASS   |
| 11 | 53.842E-3            | 1.050                | 3.00      | PASS   |
| 12 | 864.844E-6           | 0.017                |           | PASS   |
| 13 | 40.967E-3            | 0.799                | 3.00      | PASS   |
| 14 | 797.412E-6           | 0.016                |           | PASS   |
| 15 | 22.089E-3            | 0.431                | 3.00      | PASS   |
| 16 | 758.100E-6           | 0.015                |           | PASS   |
| 17 | 20.205E-3            | 0.394                | 3.00      | PASS   |
| 18 | 1.074E-3             | 0.021                |           | PASS   |
| 19 | 8.994E-3             | 0.175                | 3.00      | PASS   |
| 20 | 801.443E-6           | 0.016                |           | PASS   |
| 21 | 7.339E-3             | 0.143                | 3.00      | PASS   |
| 22 | 1.130E-3             | 0.022                |           | PASS   |
| 23 | 11.384E-3            | 0.222                | 3.00      | PASS   |
| 24 | 734.013E-6           | 0.014                |           | PASS   |
| 25 | 2.704E-3             | 0.053                | 3.00      | PASS   |
| 26 | 764.651E-6           | 0.015                |           | PASS   |
| 27 | 7.017E-3             | 0.137                | 3.00      | PASS   |
| 28 | 765.488E-6           | 0.015                |           | PASS   |
| 29 | 7.363E-3             | 0.144                | 3.00      | PASS   |
| 30 | 794.749E-6           | 0.015                |           | PASS   |
| 31 | 8.147E-3             | 0.159                | 3.00      | PASS   |
| 32 | 765.114E-6           | 0.015                |           | PASS   |
| 33 | 5.247E-3             | 0.102                | 3.00      | PASS   |
| 34 | 754.961E-6           | 0.015                |           | PASS   |
| 35 | 7.861E-3             | 0.153                | 3.00      | PASS   |
| 36 | 791.825E-6           | 0.015                |           | PASS   |
| 37 | 2.632E-3             | 0.051                | 3.00      | PASS   |
| 38 | 744.538E-6           | 0.015                |           | PASS   |
| 39 | 11.654E-3            | 0.227                | 3.00      | PASS   |
| 40 | 974.630E-6           | 0.019                |           | PASS   |

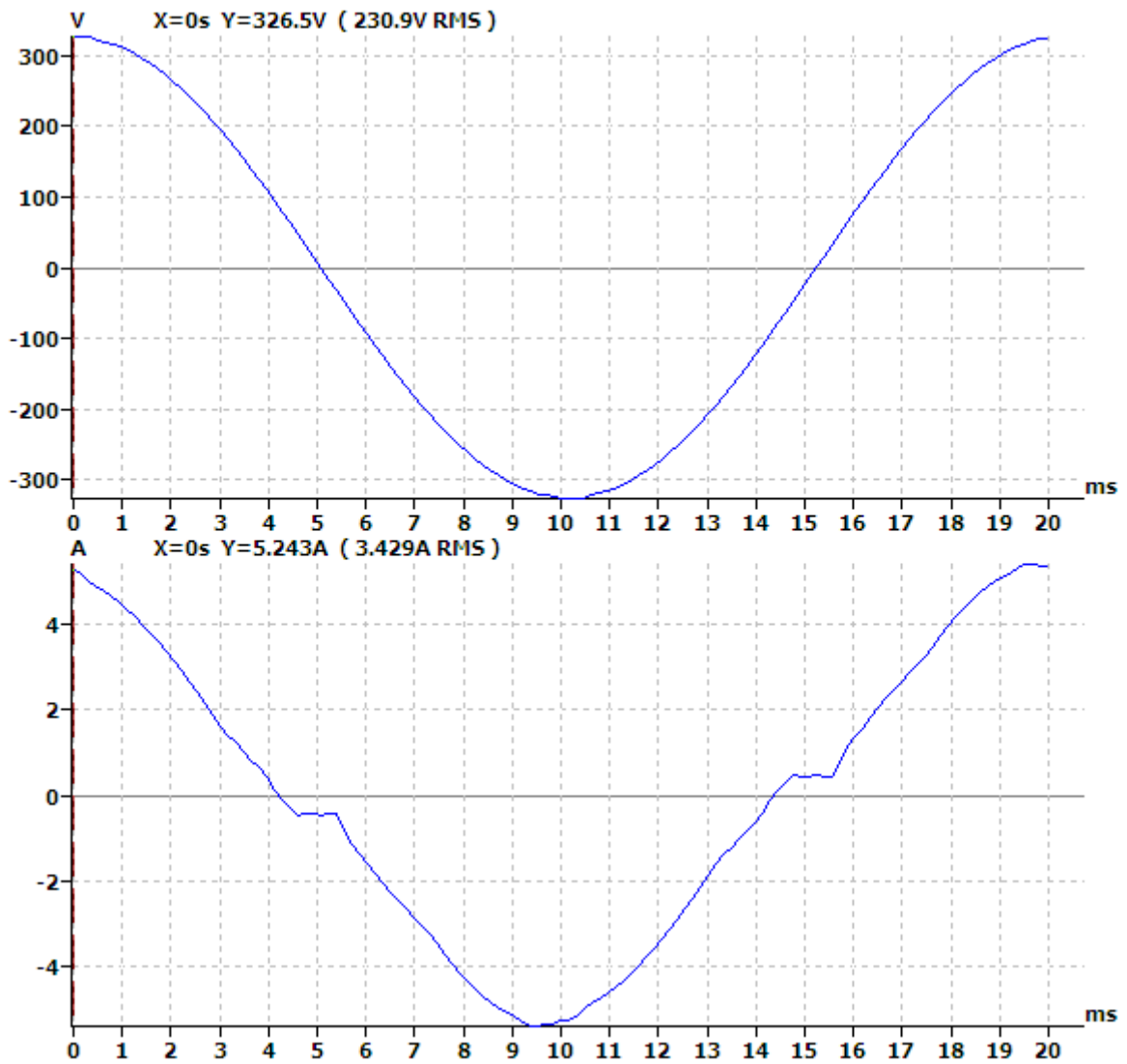
### Harmonic voltage results - DS: 1

| Hn | Ueff [V]  | Ueff [%] | Limit [%] | Result |
|----|-----------|----------|-----------|--------|
| 1  | 230.91    | 100.395  |           |        |
| 2  | 76.67E-3  | 0.033    | 0.2       | PASS   |
| 3  | 113.13E-3 | 0.049    | 0.9       | PASS   |
| 4  | 6.03E-3   | 0.003    | 0.2       | PASS   |
| 5  | 62.07E-3  | 0.027    | 0.4       | PASS   |
| 6  | 7.38E-3   | 0.003    | 0.2       | PASS   |
| 7  | 47.19E-3  | 0.021    | 0.3       | PASS   |
| 8  | 5.59E-3   | 0.002    | 0.2       | PASS   |
| 9  | 43.25E-3  | 0.019    | 0.2       | PASS   |
| 10 | 18.89E-3  | 0.008    | 0.2       | PASS   |
| 11 | 65.20E-3  | 0.028    | 0.1       | PASS   |
| 12 | 13.90E-3  | 0.006    | 0.1       | PASS   |
| 13 | 20.24E-3  | 0.009    | 0.1       | PASS   |
| 14 | 1.63E-3   | 0.001    | 0.1       | PASS   |
| 15 | 77.29E-3  | 0.034    | 0.1       | PASS   |
| 16 | 2.36E-3   | 0.001    | 0.1       | PASS   |
| 17 | 63.72E-3  | 0.028    | 0.1       | PASS   |
| 18 | 2.27E-3   | 0.001    | 0.1       | PASS   |
| 19 | 7.86E-3   | 0.003    | 0.1       | PASS   |
| 20 | 4.30E-3   | 0.002    | 0.1       | PASS   |
| 21 | 74.40E-3  | 0.032    | 0.1       | PASS   |
| 22 | 1.03E-3   | 0.000    | 0.1       | PASS   |
| 23 | 54.65E-3  | 0.024    | 0.1       | PASS   |
| 24 | 7.57E-3   | 0.003    | 0.1       | PASS   |
| 25 | 41.85E-3  | 0.018    | 0.1       | PASS   |
| 26 | 2.61E-3   | 0.001    | 0.1       | PASS   |
| 27 | 77.74E-3  | 0.034    | 0.1       | PASS   |
| 28 | 5.66E-3   | 0.002    | 0.1       | PASS   |
| 29 | 14.18E-3  | 0.006    | 0.1       | PASS   |
| 30 | 4.34E-3   | 0.002    | 0.1       | PASS   |
| 31 | 52.13E-3  | 0.023    | 0.1       | PASS   |
| 32 | 4.10E-3   | 0.002    | 0.1       | PASS   |
| 33 | 59.14E-3  | 0.026    | 0.1       | PASS   |
| 34 | 6.94E-3   | 0.003    | 0.1       | PASS   |
| 35 | 1.70E-3   | 0.001    | 0.1       | PASS   |
| 36 | 3.01E-3   | 0.001    | 0.1       | PASS   |
| 37 | 58.39E-3  | 0.025    | 0.1       | PASS   |
| 38 | 0.00      | 0.000    | 0.1       | PASS   |
| 39 | 50.33E-3  | 0.022    | 0.1       | PASS   |
| 40 | 3.18E-3   | 0.001    | 0.1       | PASS   |



No partial calculation (average odd harmonics [21..39] < 100%)







### 5.4.5 Harmonic Current Emission Test Data, 315W

|                            |   |
|----------------------------|---|
| Report title:              |   |
| Company Name:              |   |
| Date of test:              | 14:05 4.Jul 2018  |
| Measurement file name:     | 0704.rsd  |
| Tester:                    | Lobei   |
| Standard used:             | EN/IEC 61000-3-2 Ed.3 Short cyclic<br>Equipment class C |
| Observation time:          | 150s  |
| Windows width:             | 10 periods - (EN/IEC 61000-4-7 Edition 2002)            |
| Customer:                  |   |
| E. U. T.:                  |   |
| Measurement smoothed data: | Fund. Current: 1.490 A<br>Power Factor : 0.991          |

#### **Power and THD results - DS: 1**

|                   |          |                   |         |
|-------------------|----------|-------------------|---------|
| True power P:     | 340.9W   | Apparent power S: | 343.9VA |
| Reactiv power Q:  | 45.77var | Power factor:     | 0.991   |
| THD (U):          | 0.001    | THD (I):          | 0.049   |
| Crest Factor (U): | 1.414    | Crest Factor (I): | 1.469   |

#### **Check harmonics 2..40 [exception odd 21..39]:**

|  |      |
|--|------|
| <b>Harmonic(s) &gt; 150%:</b>              |      |
| Order (n):                                 | None |
| <b>Harmonic(s) with average &gt; 100%:</b> |      |
| Order (n):                                 | None |

#### **Check odd harmonics 21..39:**

|  |      |
|--|------|
| <b>All Partial Odd Harmonics below partial limits.</b> |      |
| <b>Harmonic(s) &gt; 150%:</b>                          |      |
| Order (n):   | None |
| <b>Harmonic(s) with average &gt; 150%:</b>             |      |
| Order (n):   | None |

### Average harmonic current results

| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 1.489                | 99.958               |           |        |
| 2  | 789.326E-6           | 0.053                | 2.00      | PASS   |
| 3  | 65.892E-3            | 4.422                | 29.73     | PASS   |
| 4  | 1.515E-3             | 0.102                |           | PASS   |
| 5  | 20.139E-3            | 1.352                | 10.00     | PASS   |
| 6  | 822.332E-6           | 0.055                |           | PASS   |
| 7  | 15.895E-3            | 1.067                | 7.00      | PASS   |
| 8  | 737.192E-6           | 0.049                |           | PASS   |
| 9  | 11.732E-3            | 0.787                | 5.00      | PASS   |
| 10 | 749.389E-6           | 0.050                |           | PASS   |
| 11 | 9.230E-3             | 0.619                | 3.00      | PASS   |
| 12 | 773.874E-6           | 0.052                |           | PASS   |
| 13 | 6.919E-3             | 0.464                | 3.00      | PASS   |
| 14 | 1.094E-3             | 0.073                |           | PASS   |
| 15 | 6.420E-3             | 0.431                | 3.00      | PASS   |
| 16 | 739.335E-6           | 0.050                |           | PASS   |
| 17 | 4.386E-3             | 0.294                | 3.00      | PASS   |
| 18 | 1.040E-3             | 0.070                |           | PASS   |
| 19 | 3.460E-3             | 0.232                | 3.00      | PASS   |
| 20 | 716.553E-6           | 0.048                |           | PASS   |
| 21 | 2.699E-3             | 0.181                | 4.50      | PASS   |
| 22 | 713.407E-6           | 0.048                |           | PASS   |
| 23 | 3.028E-3             | 0.203                | 4.50      | PASS   |
| 24 | 741.734E-6           | 0.050                |           | PASS   |
| 25 | 2.679E-3             | 0.180                | 4.50      | PASS   |
| 26 | 750.030E-6           | 0.050                |           | PASS   |
| 27 | 2.529E-3             | 0.170                | 4.50      | PASS   |
| 28 | 734.026E-6           | 0.049                |           | PASS   |
| 29 | 3.324E-3             | 0.223                | 4.50      | PASS   |
| 30 | 731.385E-6           | 0.049                |           | PASS   |
| 31 | 3.200E-3             | 0.215                | 4.50      | PASS   |
| 32 | 964.567E-6           | 0.065                |           | PASS   |
| 33 | 2.462E-3             | 0.165                | 4.50      | PASS   |
| 34 | 723.051E-6           | 0.049                |           | PASS   |
| 35 | 2.620E-3             | 0.176                | 4.50      | PASS   |
| 36 | 796.525E-6           | 0.053                |           | PASS   |
| 37 | 2.032E-3             | 0.136                | 4.50      | PASS   |
| 38 | 789.992E-6           | 0.053                |           | PASS   |
| 39 | 1.125E-3             | 0.076                | 4.50      | PASS   |
| 40 | 711.883E-6           | 0.048                |           | PASS   |

### Maximum harmonic current results

| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 1.490                | 100.000              |           |        |
| 2  | 892.064E-6           | 0.060                | 3.00      | PASS   |
| 3  | 66.283E-3            | 4.449                | 44.60     | PASS   |
| 4  | 1.720E-3             | 0.115                |           | PASS   |
| 5  | 20.432E-3            | 1.371                | 15.00     | PASS   |
| 6  | 940.226E-6           | 0.063                |           | PASS   |
| 7  | 16.090E-3            | 1.080                | 10.50     | PASS   |
| 8  | 840.886E-6           | 0.056                |           | PASS   |
| 9  | 11.951E-3            | 0.802                | 7.50      | PASS   |
| 10 | 833.544E-6           | 0.056                |           | PASS   |
| 11 | 9.441E-3             | 0.634                | 4.50      | PASS   |
| 12 | 886.387E-6           | 0.059                |           | PASS   |
| 13 | 7.093E-3             | 0.476                | 4.50      | PASS   |
| 14 | 1.216E-3             | 0.082                |           | PASS   |
| 15 | 6.632E-3             | 0.445                | 4.50      | PASS   |
| 16 | 821.080E-6           | 0.055                |           | PASS   |
| 17 | 4.547E-3             | 0.305                | 4.50      | PASS   |
| 18 | 1.135E-3             | 0.076                |           | PASS   |
| 19 | 3.586E-3             | 0.241                | 4.50      | PASS   |
| 20 | 819.119E-6           | 0.055                |           | PASS   |
| 21 | 2.926E-3             | 0.196                | 4.50      | PASS   |
| 22 | 819.496E-6           | 0.055                |           | PASS   |
| 23 | 3.200E-3             | 0.215                | 4.50      | PASS   |
| 24 | 819.688E-6           | 0.055                |           | PASS   |
| 25 | 2.855E-3             | 0.192                | 4.50      | PASS   |
| 26 | 833.327E-6           | 0.056                |           | PASS   |
| 27 | 2.678E-3             | 0.180                | 4.50      | PASS   |
| 28 | 840.532E-6           | 0.056                |           | PASS   |
| 29 | 3.504E-3             | 0.235                | 4.50      | PASS   |
| 30 | 822.714E-6           | 0.055                |           | PASS   |
| 31 | 3.393E-3             | 0.228                | 4.50      | PASS   |
| 32 | 1.082E-3             | 0.073                |           | PASS   |
| 33 | 2.631E-3             | 0.177                | 4.50      | PASS   |
| 34 | 812.885E-6           | 0.055                |           | PASS   |
| 35 | 2.815E-3             | 0.189                | 4.50      | PASS   |
| 36 | 900.283E-6           | 0.060                |           | PASS   |
| 37 | 2.189E-3             | 0.147                | 4.50      | PASS   |
| 38 | 890.684E-6           | 0.060                |           | PASS   |
| 39 | 1.319E-3             | 0.089                | 4.50      | PASS   |
| 40 | 806.372E-6           | 0.054                |           | PASS   |

### Maximum harmonic voltage results

| Hn | Ueff [V]  | Ueff [%] | Limit [%] | Result |
|----|-----------|----------|-----------|--------|
| 1  | 230.65    | 100.282  |           |        |
| 2  | 82.40E-3  | 0.036    | 0.2       | PASS   |
| 3  | 114.88E-3 | 0.050    | 0.9       | PASS   |
| 4  | 13.28E-3  | 0.006    | 0.2       | PASS   |
| 5  | 28.11E-3  | 0.012    | 0.4       | PASS   |
| 6  | 11.98E-3  | 0.005    | 0.2       | PASS   |
| 7  | 57.82E-3  | 0.025    | 0.3       | PASS   |
| 8  | 10.66E-3  | 0.005    | 0.2       | PASS   |
| 9  | 66.00E-3  | 0.029    | 0.2       | PASS   |
| 10 | 16.75E-3  | 0.007    | 0.2       | PASS   |
| 11 | 15.10E-3  | 0.007    | 0.1       | PASS   |
| 12 | 12.88E-3  | 0.006    | 0.1       | PASS   |
| 13 | 75.40E-3  | 0.033    | 0.1       | PASS   |
| 14 | 12.58E-3  | 0.005    | 0.1       | PASS   |
| 15 | 75.77E-3  | 0.033    | 0.1       | PASS   |
| 16 | 13.03E-3  | 0.006    | 0.1       | PASS   |
| 17 | 39.15E-3  | 0.017    | 0.1       | PASS   |
| 18 | 11.58E-3  | 0.005    | 0.1       | PASS   |
| 19 | 75.95E-3  | 0.033    | 0.1       | PASS   |
| 20 | 12.90E-3  | 0.006    | 0.1       | PASS   |
| 21 | 59.85E-3  | 0.026    | 0.1       | PASS   |
| 22 | 12.85E-3  | 0.006    | 0.1       | PASS   |
| 23 | 49.32E-3  | 0.021    | 0.1       | PASS   |
| 24 | 12.53E-3  | 0.005    | 0.1       | PASS   |
| 25 | 69.95E-3  | 0.030    | 0.1       | PASS   |
| 26 | 10.39E-3  | 0.005    | 0.1       | PASS   |
| 27 | 33.70E-3  | 0.015    | 0.1       | PASS   |
| 28 | 9.54E-3   | 0.004    | 0.1       | PASS   |
| 29 | 59.30E-3  | 0.026    | 0.1       | PASS   |
| 30 | 8.00E-3   | 0.003    | 0.1       | PASS   |
| 31 | 49.76E-3  | 0.022    | 0.1       | PASS   |
| 32 | 10.92E-3  | 0.005    | 0.1       | PASS   |
| 33 | 32.95E-3  | 0.014    | 0.1       | PASS   |
| 34 | 10.50E-3  | 0.005    | 0.1       | PASS   |
| 35 | 47.82E-3  | 0.021    | 0.1       | PASS   |
| 36 | 9.12E-3   | 0.004    | 0.1       | PASS   |
| 37 | 32.07E-3  | 0.014    | 0.1       | PASS   |
| 38 | 11.07E-3  | 0.005    | 0.1       | PASS   |
| 39 | 41.16E-3  | 0.018    | 0.1       | PASS   |
| 40 | 8.63E-3   | 0.004    | 0.1       | PASS   |

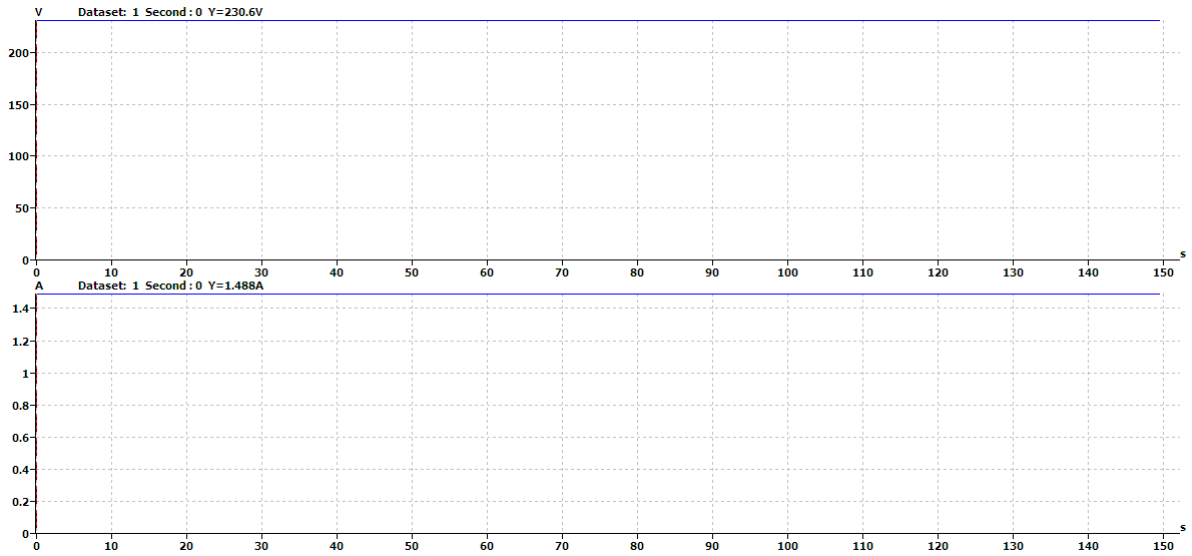
### Harmonic current results - DS: 1

| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 1.488                | 99.873               |           |        |
| 2  | 814.620E-6           | 0.055                | 2.00      | PASS   |
| 3  | 65.427E-3            | 4.391                | 29.73     | PASS   |
| 4  | 1.490E-3             | 0.100                |           | PASS   |
| 5  | 19.844E-3            | 1.332                | 10.00     | PASS   |
| 6  | 816.689E-6           | 0.055                |           | PASS   |
| 7  | 15.749E-3            | 1.057                | 7.00      | PASS   |
| 8  | 774.724E-6           | 0.052                |           | PASS   |
| 9  | 11.627E-3            | 0.780                | 5.00      | PASS   |
| 10 | 745.430E-6           | 0.050                |           | PASS   |
| 11 | 9.068E-3             | 0.609                | 3.00      | PASS   |
| 12 | 815.012E-6           | 0.055                |           | PASS   |
| 13 | 7.027E-3             | 0.472                | 3.00      | PASS   |
| 14 | 1.099E-3             | 0.074                |           | PASS   |
| 15 | 6.449E-3             | 0.433                | 3.00      | PASS   |
| 16 | 774.326E-6           | 0.052                |           | PASS   |
| 17 | 4.287E-3             | 0.288                | 3.00      | PASS   |
| 18 | 1.109E-3             | 0.074                |           | PASS   |
| 19 | 3.439E-3             | 0.231                | 3.00      | PASS   |
| 20 | 732.987E-6           | 0.049                |           | PASS   |
| 21 | 2.764E-3             | 0.186                | 3.00      | PASS   |
| 22 | 741.499E-6           | 0.050                |           | PASS   |
| 23 | 3.151E-3             | 0.211                | 3.00      | PASS   |
| 24 | 788.073E-6           | 0.053                |           | PASS   |
| 25 | 2.595E-3             | 0.174                | 3.00      | PASS   |
| 26 | 768.498E-6           | 0.052                |           | PASS   |
| 27 | 2.576E-3             | 0.173                | 3.00      | PASS   |
| 28 | 752.165E-6           | 0.050                |           | PASS   |
| 29 | 3.394E-3             | 0.228                | 3.00      | PASS   |
| 30 | 801.263E-6           | 0.054                |           | PASS   |
| 31 | 3.142E-3             | 0.211                | 3.00      | PASS   |
| 32 | 1.030E-3             | 0.069                |           | PASS   |
| 33 | 2.503E-3             | 0.168                | 3.00      | PASS   |
| 34 | 746.117E-6           | 0.050                |           | PASS   |
| 35 | 2.655E-3             | 0.178                | 3.00      | PASS   |
| 36 | 855.719E-6           | 0.057                |           | PASS   |
| 37 | 2.129E-3             | 0.143                | 3.00      | PASS   |
| 38 | 738.442E-6           | 0.050                |           | PASS   |
| 39 | 1.167E-3             | 0.078                | 3.00      | PASS   |
| 40 | 771.236E-6           | 0.052                |           | PASS   |

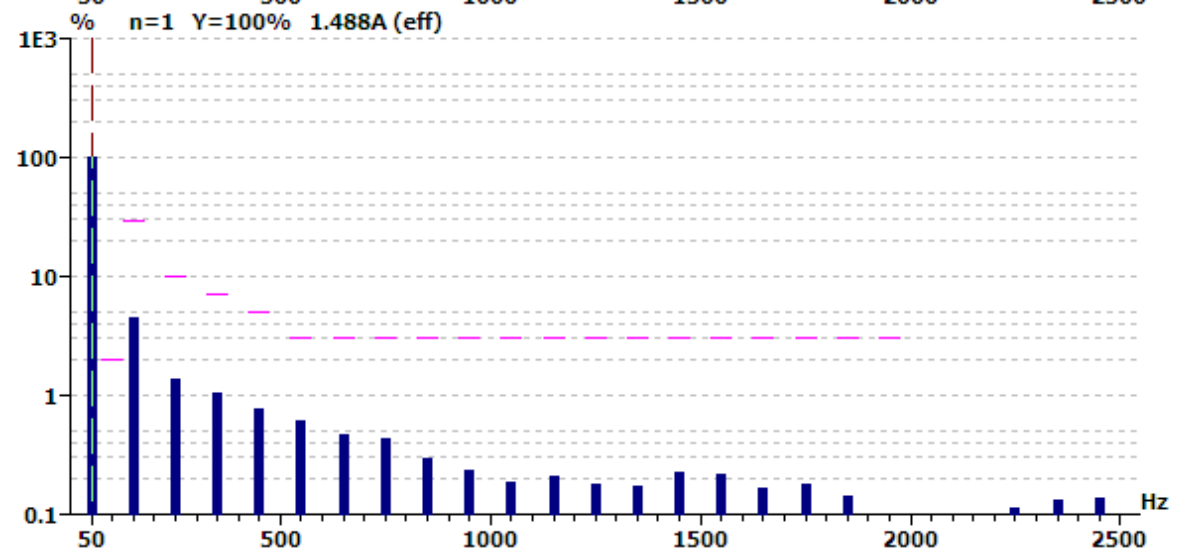
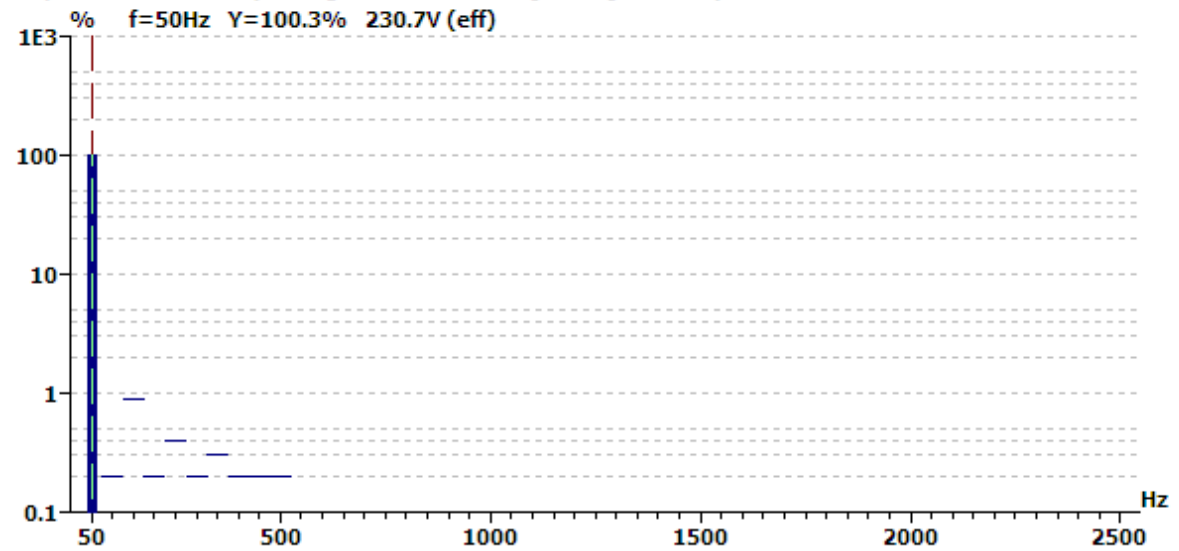


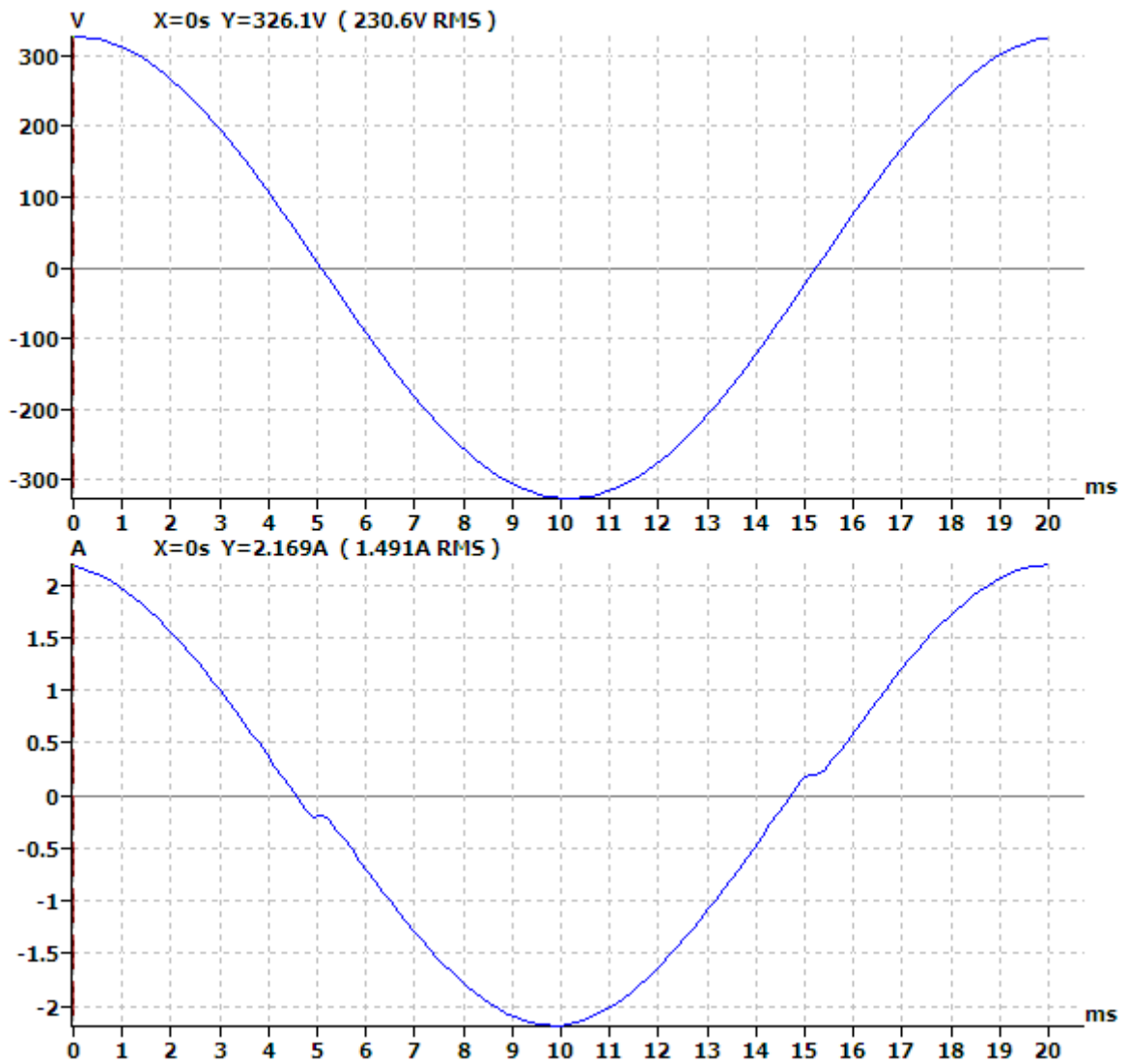
### Harmonic voltage results - DS: 1

| Hn | Ueff [V]  | Ueff [%] | Limit [%] | Result |
|----|-----------|----------|-----------|--------|
| 1  | 230.65    | 100.281  |           |        |
| 2  | 75.12E-3  | 0.033    | 0.2       | PASS   |
| 3  | 113.69E-3 | 0.049    | 0.9       | PASS   |
| 4  | 5.50E-3   | 0.002    | 0.2       | PASS   |
| 5  | 19.73E-3  | 0.009    | 0.4       | PASS   |
| 6  | 7.25E-3   | 0.003    | 0.2       | PASS   |
| 7  | 44.45E-3  | 0.019    | 0.3       | PASS   |
| 8  | 6.23E-3   | 0.003    | 0.2       | PASS   |
| 9  | 58.78E-3  | 0.026    | 0.2       | PASS   |
| 10 | 11.18E-3  | 0.005    | 0.2       | PASS   |
| 11 | 5.23E-3   | 0.002    | 0.1       | PASS   |
| 12 | 4.73E-3   | 0.002    | 0.1       | PASS   |
| 13 | 55.59E-3  | 0.024    | 0.1       | PASS   |
| 14 | 4.66E-3   | 0.002    | 0.1       | PASS   |
| 15 | 61.06E-3  | 0.027    | 0.1       | PASS   |
| 16 | 8.46E-3   | 0.004    | 0.1       | PASS   |
| 17 | 24.13E-3  | 0.010    | 0.1       | PASS   |
| 18 | 4.40E-3   | 0.002    | 0.1       | PASS   |
| 19 | 57.81E-3  | 0.025    | 0.1       | PASS   |
| 20 | 7.36E-3   | 0.003    | 0.1       | PASS   |
| 21 | 35.07E-3  | 0.015    | 0.1       | PASS   |
| 22 | 2.52E-3   | 0.001    | 0.1       | PASS   |
| 23 | 36.85E-3  | 0.016    | 0.1       | PASS   |
| 24 | 7.83E-3   | 0.003    | 0.1       | PASS   |
| 25 | 59.29E-3  | 0.026    | 0.1       | PASS   |
| 26 | 4.09E-3   | 0.002    | 0.1       | PASS   |
| 27 | 24.90E-3  | 0.011    | 0.1       | PASS   |
| 28 | 4.02E-3   | 0.002    | 0.1       | PASS   |
| 29 | 50.69E-3  | 0.022    | 0.1       | PASS   |
| 30 | 2.50E-3   | 0.001    | 0.1       | PASS   |
| 31 | 37.45E-3  | 0.016    | 0.1       | PASS   |
| 32 | 5.26E-3   | 0.002    | 0.1       | PASS   |
| 33 | 21.72E-3  | 0.009    | 0.1       | PASS   |
| 34 | 5.44E-3   | 0.002    | 0.1       | PASS   |
| 35 | 41.38E-3  | 0.018    | 0.1       | PASS   |
| 36 | 5.91E-3   | 0.003    | 0.1       | PASS   |
| 37 | 27.83E-3  | 0.012    | 0.1       | PASS   |
| 38 | 3.24E-3   | 0.001    | 0.1       | PASS   |
| 39 | 32.59E-3  | 0.014    | 0.1       | PASS   |
| 40 | 3.35E-3   | 0.001    | 0.1       | PASS   |



No partial calculation (average odd harmonics [21..39] < 100%)





## 5.4.6 Harmonic Current Emission Test Data, 600W

### Mode 1

|                            |   |
|----------------------------|---|
| Report title:              |   |
| Company Name:              |   |
| Date of test:              | 10:44 20.Okt 2016                                       |
| Measurement file name:     | 600B-600.rsd  |
| Tester:                    | GREN  |
| Standard used:             | EN/IEC 61000-3-2 Ed.3 Short cyclic<br>Equipment class C |
| Observation time:          | 150s  |
| Windows width:             | 10 periods - (EN/IEC 61000-4-7 Edition 2002)            |
| Customer:                  |   |
| E. U. T.:                  |   |
| Measurement smoothed data: | Fund. Current: 2.751 A<br>Power Factor : 0.988          |

### **Power and THD results - DS: 1**

|                   |          |                   |         |
|-------------------|----------|-------------------|---------|
| True power P:     | 626.4W   | Apparent power S: | 634.3VA |
| Reactiv power Q:  | 99.71var | Power factor:     | 0.988   |
| THD (U):          | 0.001    | THD (I):          | 0.058   |
| Crest Factor (U): | 1.413    | Crest Factor (I): | 1.481   |

### **Check harmonics 2..40 [exception odd 21..39]:**

|  |      |
|--|------|
| <b>Harmonic(s) &gt; 150%:</b>              |      |
| Order (n):                                 | None |
| <b>Harmonic(s) with average &gt; 100%:</b> |      |
| Order (n):                                 | None |

### **Check odd harmonics 21..39:**

|  |      |
|--|------|
| <b>All Partial Odd Harmonics below partial limits.</b> |      |
| <b>Harmonic(s) &gt; 150%:</b>                          |      |
| Order (n):   | None |
| <b>Harmonic(s) with average &gt; 150%:</b>             |      |
| Order (n):   | None |

### Average harmonic current results

| Hn | leff [A]   | leff [%] | Limit [%] | Result |
|----|------------|----------|-----------|--------|
| 1  | 2.749      | 99.954   |           |        |
| 2  | 965.281E-6 | 0.035    | 2.00      | PASS   |
| 3  | 143.524E-3 | 5.218    | 29.63     | PASS   |
| 4  | 2.760E-3   | 0.100    |           | PASS   |
| 5  | 42.495E-3  | 1.545    | 10.00     | PASS   |
| 6  | 953.038E-6 | 0.035    |           | PASS   |
| 7  | 32.318E-3  | 1.175    | 7.00      | PASS   |
| 8  | 913.368E-6 | 0.033    |           | PASS   |
| 9  | 26.499E-3  | 0.963    | 5.00      | PASS   |
| 10 | 937.041E-6 | 0.034    |           | PASS   |
| 11 | 19.778E-3  | 0.719    | 3.00      | PASS   |
| 12 | 893.832E-6 | 0.032    |           | PASS   |
| 13 | 17.366E-3  | 0.631    | 3.00      | PASS   |
| 14 | 966.566E-6 | 0.035    |           | PASS   |
| 15 | 12.739E-3  | 0.463    | 3.00      | PASS   |
| 16 | 900.626E-6 | 0.033    |           | PASS   |
| 17 | 11.822E-3  | 0.430    | 3.00      | PASS   |
| 18 | 1.218E-3   | 0.044    |           | PASS   |
| 19 | 8.586E-3   | 0.312    | 3.00      | PASS   |
| 20 | 907.796E-6 | 0.033    |           | PASS   |
| 21 | 7.024E-3   | 0.255    | 4.50      | PASS   |
| 22 | 1.167E-3   | 0.042    |           | PASS   |
| 23 | 6.183E-3   | 0.225    | 4.50      | PASS   |
| 24 | 942.151E-6 | 0.034    |           | PASS   |
| 25 | 4.201E-3   | 0.153    | 4.50      | PASS   |
| 26 | 925.422E-6 | 0.034    |           | PASS   |
| 27 | 6.952E-3   | 0.253    | 4.50      | PASS   |
| 28 | 1.002E-3   | 0.036    |           | PASS   |
| 29 | 4.583E-3   | 0.167    | 4.50      | PASS   |
| 30 | 952.531E-6 | 0.035    |           | PASS   |
| 31 | 7.251E-3   | 0.264    | 4.50      | PASS   |
| 32 | 956.776E-6 | 0.035    |           | PASS   |
| 33 | 3.790E-3   | 0.138    | 4.50      | PASS   |
| 34 | 905.077E-6 | 0.033    |           | PASS   |
| 35 | 6.788E-3   | 0.247    | 4.50      | PASS   |
| 36 | 1.111E-3   | 0.040    |           | PASS   |
| 37 | 2.430E-3   | 0.088    | 4.50      | PASS   |
| 38 | 920.536E-6 | 0.033    |           | PASS   |
| 39 | 4.524E-3   | 0.164    | 4.50      | PASS   |
| 40 | 1.087E-3   | 0.040    |           | PASS   |



### Maximum harmonic current results

| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 2.751                | 100.000              |           |        |
| 2  | 1.133E-3             | 0.041                | 3.00      | PASS   |
| 3  | 143.853E-3           | 5.230                | 44.44     | PASS   |
| 4  | 3.267E-3             | 0.119                |           | PASS   |
| 5  | 42.833E-3            | 1.557                | 15.00     | PASS   |
| 6  | 1.096E-3             | 0.040                |           | PASS   |
| 7  | 32.941E-3            | 1.198                | 10.50     | PASS   |
| 8  | 1.015E-3             | 0.037                |           | PASS   |
| 9  | 26.876E-3            | 0.977                | 7.50      | PASS   |
| 10 | 1.053E-3             | 0.038                |           | PASS   |
| 11 | 20.101E-3            | 0.731                | 4.50      | PASS   |
| 12 | 985.263E-6           | 0.036                |           | PASS   |
| 13 | 17.770E-3            | 0.646                | 4.50      | PASS   |
| 14 | 1.119E-3             | 0.041                |           | PASS   |
| 15 | 13.202E-3            | 0.480                | 4.50      | PASS   |
| 16 | 1.043E-3             | 0.038                |           | PASS   |
| 17 | 12.310E-3            | 0.448                | 4.50      | PASS   |
| 18 | 1.383E-3             | 0.050                |           | PASS   |
| 19 | 9.019E-3             | 0.328                | 4.50      | PASS   |
| 20 | 1.036E-3             | 0.038                |           | PASS   |
| 21 | 7.408E-3             | 0.269                | 4.50      | PASS   |
| 22 | 1.334E-3             | 0.048                |           | PASS   |
| 23 | 6.577E-3             | 0.239                | 4.50      | PASS   |
| 24 | 1.050E-3             | 0.038                |           | PASS   |
| 25 | 4.758E-3             | 0.173                | 4.50      | PASS   |
| 26 | 1.070E-3             | 0.039                |           | PASS   |
| 27 | 7.408E-3             | 0.269                | 4.50      | PASS   |
| 28 | 1.118E-3             | 0.041                |           | PASS   |
| 29 | 5.034E-3             | 0.183                | 4.50      | PASS   |
| 30 | 1.105E-3             | 0.040                |           | PASS   |
| 31 | 7.637E-3             | 0.278                | 4.50      | PASS   |
| 32 | 1.079E-3             | 0.039                |           | PASS   |
| 33 | 4.285E-3             | 0.156                | 4.50      | PASS   |
| 34 | 1.048E-3             | 0.038                |           | PASS   |
| 35 | 7.099E-3             | 0.258                | 4.50      | PASS   |
| 36 | 1.240E-3             | 0.045                |           | PASS   |
| 37 | 2.940E-3             | 0.107                | 4.50      | PASS   |
| 38 | 1.053E-3             | 0.038                |           | PASS   |
| 39 | 4.938E-3             | 0.180                | 4.50      | PASS   |
| 40 | 1.228E-3             | 0.045                |           | PASS   |

### Maximum harmonic voltage results

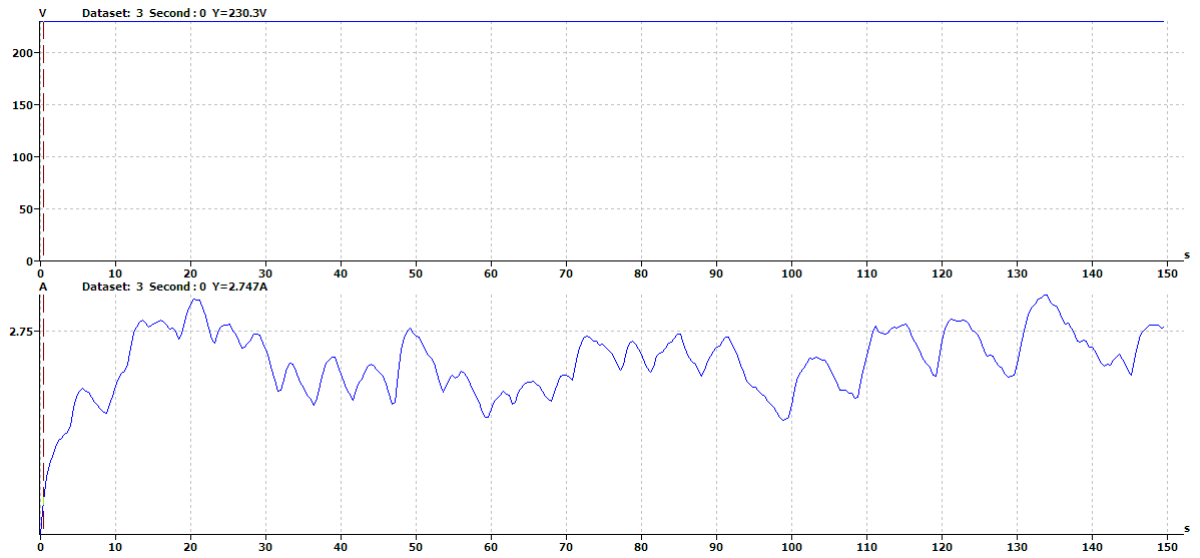
| Hn | Ueff [V]  | Ueff [%] | Limit [%] | Result |
|----|-----------|----------|-----------|--------|
| 1  | 230.34    | 100.149  |           |        |
| 2  | 77.52E-3  | 0.034    | 0.2       | PASS   |
| 3  | 105.64E-3 | 0.046    | 0.9       | PASS   |
| 4  | 12.02E-3  | 0.005    | 0.2       | PASS   |
| 5  | 66.78E-3  | 0.029    | 0.4       | PASS   |
| 6  | 10.21E-3  | 0.004    | 0.2       | PASS   |
| 7  | 43.05E-3  | 0.019    | 0.3       | PASS   |
| 8  | 11.33E-3  | 0.005    | 0.2       | PASS   |
| 9  | 77.09E-3  | 0.034    | 0.2       | PASS   |
| 10 | 16.98E-3  | 0.007    | 0.2       | PASS   |
| 11 | 27.27E-3  | 0.012    | 0.1       | PASS   |
| 12 | 16.46E-3  | 0.007    | 0.1       | PASS   |
| 13 | 88.89E-3  | 0.039    | 0.1       | PASS   |
| 14 | 15.11E-3  | 0.007    | 0.1       | PASS   |
| 15 | 39.44E-3  | 0.017    | 0.1       | PASS   |
| 16 | 10.41E-3  | 0.005    | 0.1       | PASS   |
| 17 | 86.69E-3  | 0.038    | 0.1       | PASS   |
| 18 | 10.94E-3  | 0.005    | 0.1       | PASS   |
| 19 | 53.22E-3  | 0.023    | 0.1       | PASS   |
| 20 | 7.65E-3   | 0.003    | 0.1       | PASS   |
| 21 | 73.81E-3  | 0.032    | 0.1       | PASS   |
| 22 | 8.42E-3   | 0.004    | 0.1       | PASS   |
| 23 | 67.50E-3  | 0.029    | 0.1       | PASS   |
| 24 | 8.98E-3   | 0.004    | 0.1       | PASS   |
| 25 | 63.22E-3  | 0.027    | 0.1       | PASS   |
| 26 | 7.29E-3   | 0.003    | 0.1       | PASS   |
| 27 | 75.58E-3  | 0.033    | 0.1       | PASS   |
| 28 | 8.97E-3   | 0.004    | 0.1       | PASS   |
| 29 | 50.78E-3  | 0.022    | 0.1       | PASS   |
| 30 | 8.63E-3   | 0.004    | 0.1       | PASS   |
| 31 | 69.97E-3  | 0.030    | 0.1       | PASS   |
| 32 | 7.67E-3   | 0.003    | 0.1       | PASS   |
| 33 | 30.04E-3  | 0.013    | 0.1       | PASS   |
| 34 | 8.96E-3   | 0.004    | 0.1       | PASS   |
| 35 | 66.92E-3  | 0.029    | 0.1       | PASS   |
| 36 | 8.85E-3   | 0.004    | 0.1       | PASS   |
| 37 | 22.11E-3  | 0.010    | 0.1       | PASS   |
| 38 | 7.88E-3   | 0.003    | 0.1       | PASS   |
| 39 | 61.26E-3  | 0.027    | 0.1       | PASS   |
| 40 | 7.85E-3   | 0.003    | 0.1       | PASS   |

### Harmonic current results - DS: 1

| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 2.746                | 99.836               |           |        |
| 2  | 976.571E-6           | 0.036                | 2.00      | PASS   |
| 3  | 143.381E-3           | 5.213                | 29.63     | PASS   |
| 4  | 2.744E-3             | 0.100                |           | PASS   |
| 5  | 42.143E-3            | 1.532                | 10.00     | PASS   |
| 6  | 859.672E-6           | 0.031                |           | PASS   |
| 7  | 32.268E-3            | 1.173                | 7.00      | PASS   |
| 8  | 864.347E-6           | 0.031                |           | PASS   |
| 9  | 26.492E-3            | 0.963                | 5.00      | PASS   |
| 10 | 859.543E-6           | 0.031                |           | PASS   |
| 11 | 19.812E-3            | 0.720                | 3.00      | PASS   |
| 12 | 955.867E-6           | 0.035                |           | PASS   |
| 13 | 17.435E-3            | 0.634                | 3.00      | PASS   |
| 14 | 864.065E-6           | 0.031                |           | PASS   |
| 15 | 12.741E-3            | 0.463                | 3.00      | PASS   |
| 16 | 833.765E-6           | 0.030                |           | PASS   |
| 17 | 11.784E-3            | 0.428                | 3.00      | PASS   |
| 18 | 1.173E-3             | 0.043                |           | PASS   |
| 19 | 8.527E-3             | 0.310                | 3.00      | PASS   |
| 20 | 936.676E-6           | 0.034                |           | PASS   |
| 21 | 7.043E-3             | 0.256                | 3.00      | PASS   |
| 22 | 1.157E-3             | 0.042                |           | PASS   |
| 23 | 6.058E-3             | 0.220                | 3.00      | PASS   |
| 24 | 888.300E-6           | 0.032                |           | PASS   |
| 25 | 4.048E-3             | 0.147                | 3.00      | PASS   |
| 26 | 884.214E-6           | 0.032                |           | PASS   |
| 27 | 6.916E-3             | 0.251                | 3.00      | PASS   |
| 28 | 1.008E-3             | 0.037                |           | PASS   |
| 29 | 4.526E-3             | 0.165                | 3.00      | PASS   |
| 30 | 947.984E-6           | 0.034                |           | PASS   |
| 31 | 7.476E-3             | 0.272                | 3.00      | PASS   |
| 32 | 1.040E-3             | 0.038                |           | PASS   |
| 33 | 3.703E-3             | 0.135                | 3.00      | PASS   |
| 34 | 954.129E-6           | 0.035                |           | PASS   |
| 35 | 6.723E-3             | 0.244                | 3.00      | PASS   |
| 36 | 1.184E-3             | 0.043                |           | PASS   |
| 37 | 2.317E-3             | 0.084                | 3.00      | PASS   |
| 38 | 904.945E-6           | 0.033                |           | PASS   |
| 39 | 4.477E-3             | 0.163                | 3.00      | PASS   |
| 40 | 1.118E-3             | 0.041                |           | PASS   |

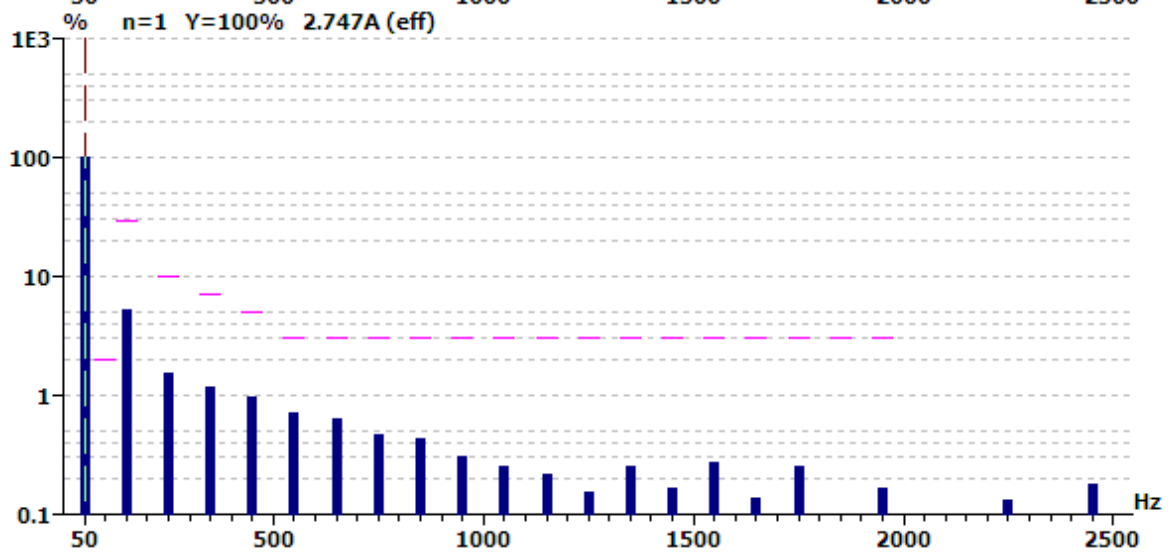
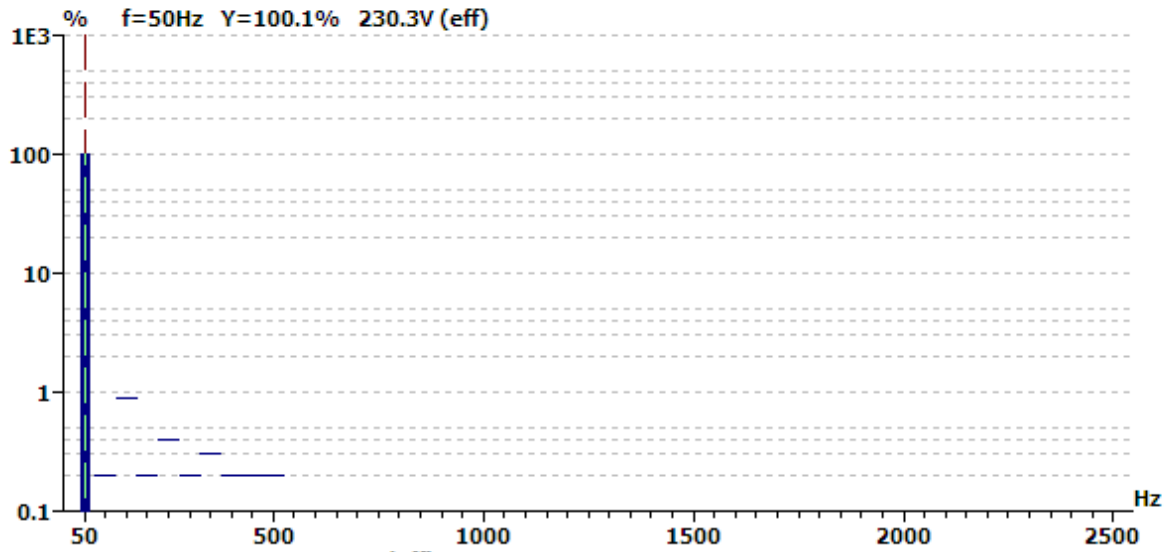
### Harmonic voltage results - DS: 1

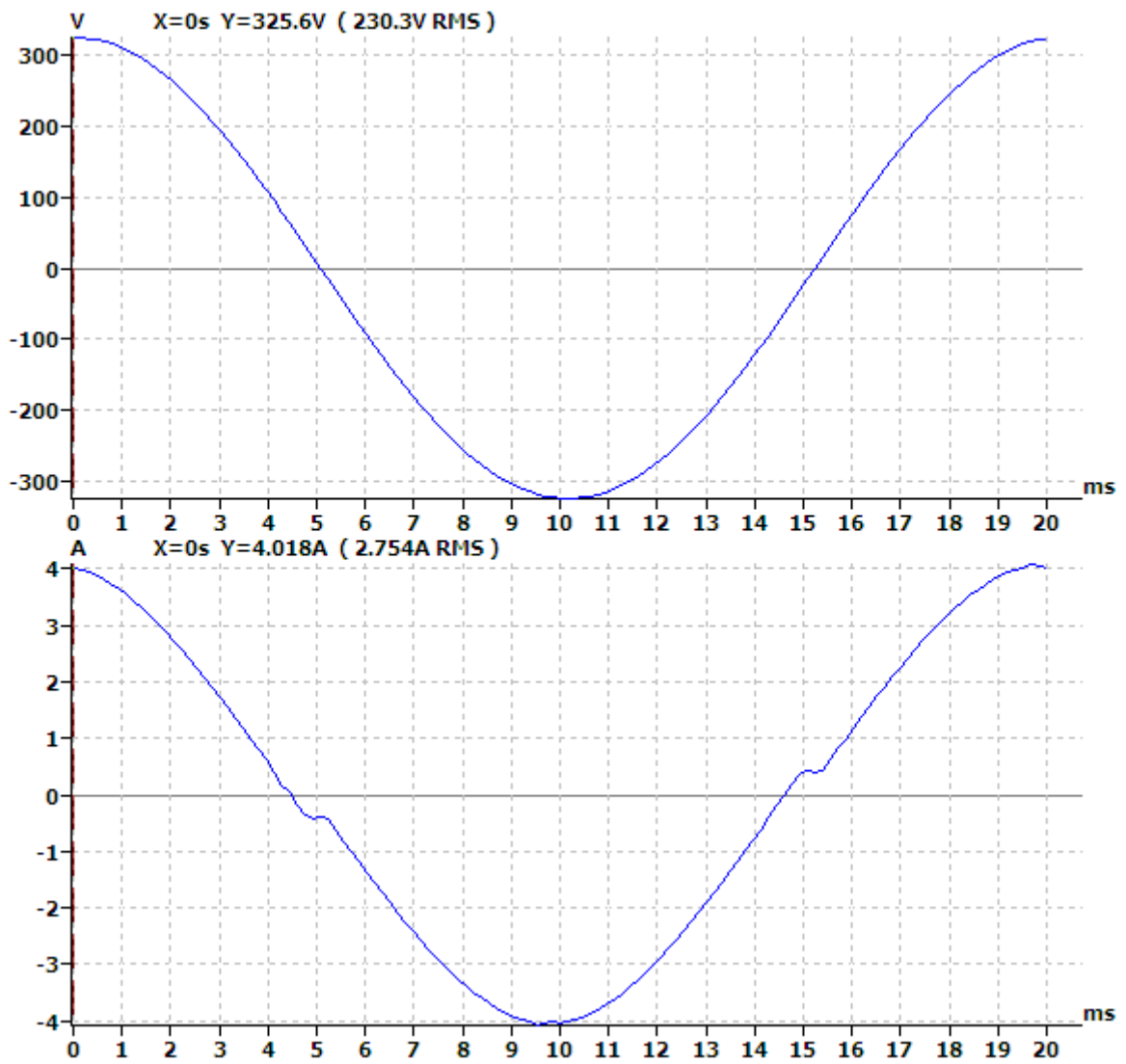
| Hn | Ueff [V]  | Ueff [%] | Limit [%] | Result |
|----|-----------|----------|-----------|--------|
| 1  | 230.34    | 100.147  |           |        |
| 2  | 73.86E-3  | 0.032    | 0.2       | PASS   |
| 3  | 93.97E-3  | 0.041    | 0.9       | PASS   |
| 4  | 3.31E-3   | 0.001    | 0.2       | PASS   |
| 5  | 65.39E-3  | 0.028    | 0.4       | PASS   |
| 6  | 2.79E-3   | 0.001    | 0.2       | PASS   |
| 7  | 30.60E-3  | 0.013    | 0.3       | PASS   |
| 8  | 5.27E-3   | 0.002    | 0.2       | PASS   |
| 9  | 71.59E-3  | 0.031    | 0.2       | PASS   |
| 10 | 9.74E-3   | 0.004    | 0.2       | PASS   |
| 11 | 13.09E-3  | 0.006    | 0.1       | PASS   |
| 12 | 11.06E-3  | 0.005    | 0.1       | PASS   |
| 13 | 81.64E-3  | 0.035    | 0.1       | PASS   |
| 14 | 9.03E-3   | 0.004    | 0.1       | PASS   |
| 15 | 29.90E-3  | 0.013    | 0.1       | PASS   |
| 16 | 3.39E-3   | 0.001    | 0.1       | PASS   |
| 17 | 73.48E-3  | 0.032    | 0.1       | PASS   |
| 18 | 1.90E-3   | 0.001    | 0.1       | PASS   |
| 19 | 33.95E-3  | 0.015    | 0.1       | PASS   |
| 20 | 1.13E-3   | 0.000    | 0.1       | PASS   |
| 21 | 56.71E-3  | 0.025    | 0.1       | PASS   |
| 22 | 948.30E-6 | 0.000    | 0.1       | PASS   |
| 23 | 67.50E-3  | 0.029    | 0.1       | PASS   |
| 24 | 1.50E-3   | 0.001    | 0.1       | PASS   |
| 25 | 39.28E-3  | 0.017    | 0.1       | PASS   |
| 26 | 2.48E-3   | 0.001    | 0.1       | PASS   |
| 27 | 75.46E-3  | 0.033    | 0.1       | PASS   |
| 28 | 1.71E-3   | 0.001    | 0.1       | PASS   |
| 29 | 12.99E-3  | 0.006    | 0.1       | PASS   |
| 30 | 5.09E-3   | 0.002    | 0.1       | PASS   |
| 31 | 65.42E-3  | 0.028    | 0.1       | PASS   |
| 32 | 1.70E-3   | 0.001    | 0.1       | PASS   |
| 33 | 8.20E-3   | 0.004    | 0.1       | PASS   |
| 34 | 1.88E-3   | 0.001    | 0.1       | PASS   |
| 35 | 58.56E-3  | 0.025    | 0.1       | PASS   |
| 36 | 2.52E-3   | 0.001    | 0.1       | PASS   |
| 37 | 17.30E-3  | 0.008    | 0.1       | PASS   |
| 38 | 2.77E-3   | 0.001    | 0.1       | PASS   |
| 39 | 49.29E-3  | 0.021    | 0.1       | PASS   |
| 40 | 3.14E-3   | 0.001    | 0.1       | PASS   |





No partial calculation (average odd harmonics [21..39] < 100%)





**Mode 2**

|                            |   |
|----------------------------|---|
| Report title:              |   |
| Company Name:              |   |
| Date of test:              | 10:38 20.Okt 2016                                       |
| Measurement file name:     | 600B-660.rsd  |
| Tester:                    | GREN  |
| Standard used:             | EN/IEC 61000-3-2 Ed.3 Short cyclic<br>Equipment class C |
| Observation time:          | 150s  |
| Windows width:             | 10 periods - (EN/IEC 61000-4-7 Edition 2002)            |
| Customer:                  |   |
| E. U. T.:                  |   |
| Measurement smoothed data: | Fund. Current: 3.024 A<br>Power Factor : 0.990          |

**Power and THD results - DS: 1**

|                   |          |                   |         |
|-------------------|----------|-------------------|---------|
| True power P:     | 690.3W   | Apparent power S: | 697.5VA |
| Reactiv power Q:  | 99.54var | Power factor:     | 0.990   |
| THD (U):          | 0.001    | THD (I):          | 0.055   |
| Crest Factor (U): | 1.414    | Crest Factor (I): | 1.48    |

**Check harmonics 2..40 [exception odd 21..39]:**

|  |      |
|--|------|
| <b>Harmonic(s) &gt; 150%:</b>              |      |
| Order (n):                                 | None |
| <b>Harmonic(s) with average &gt; 100%:</b> |      |
| Order (n):                                 | None |

**Check odd harmonics 21..39:**

|  |      |
|--|------|
| <b>All Partial Odd Harmonics below partial limits.</b> |      |
| <b>Harmonic(s) &gt; 150%:</b>                          |      |
| Order (n):   | None |
| <b>Harmonic(s) with average &gt; 150%:</b>             |      |
| Order (n):   | None |

### Average harmonic current results

| Hn | leff [A]   | leff [%] | Limit [%] | Result |
|----|------------|----------|-----------|--------|
| 1  | 3.023      | 99.958   |           |        |
| 2  | 1.045E-3   | 0.035    | 2.00      | PASS   |
| 3  | 150.458E-3 | 4.976    | 29.69     | PASS   |
| 4  | 2.812E-3   | 0.093    |           | PASS   |
| 5  | 42.364E-3  | 1.401    | 10.00     | PASS   |
| 6  | 976.705E-6 | 0.032    |           | PASS   |
| 7  | 32.308E-3  | 1.068    | 7.00      | PASS   |
| 8  | 930.528E-6 | 0.031    |           | PASS   |
| 9  | 26.382E-3  | 0.872    | 5.00      | PASS   |
| 10 | 1.016E-3   | 0.034    |           | PASS   |
| 11 | 19.992E-3  | 0.661    | 3.00      | PASS   |
| 12 | 986.890E-6 | 0.033    |           | PASS   |
| 13 | 17.704E-3  | 0.585    | 3.00      | PASS   |
| 14 | 1.031E-3   | 0.034    |           | PASS   |
| 15 | 13.055E-3  | 0.432    | 3.00      | PASS   |
| 16 | 931.232E-6 | 0.031    |           | PASS   |
| 17 | 12.726E-3  | 0.421    | 3.00      | PASS   |
| 18 | 1.239E-3   | 0.041    |           | PASS   |
| 19 | 7.999E-3   | 0.265    | 3.00      | PASS   |
| 20 | 906.264E-6 | 0.030    |           | PASS   |
| 21 | 8.252E-3   | 0.273    | 4.50      | PASS   |
| 22 | 1.178E-3   | 0.039    |           | PASS   |
| 23 | 3.989E-3   | 0.132    | 4.50      | PASS   |
| 24 | 928.473E-6 | 0.031    |           | PASS   |
| 25 | 6.513E-3   | 0.215    | 4.50      | PASS   |
| 26 | 903.753E-6 | 0.030    |           | PASS   |
| 27 | 3.573E-3   | 0.118    | 4.50      | PASS   |
| 28 | 936.565E-6 | 0.031    |           | PASS   |
| 29 | 7.176E-3   | 0.237    | 4.50      | PASS   |
| 30 | 974.956E-6 | 0.032    |           | PASS   |
| 31 | 4.215E-3   | 0.139    | 4.50      | PASS   |
| 32 | 1.015E-3   | 0.034    |           | PASS   |
| 33 | 7.432E-3   | 0.246    | 4.50      | PASS   |
| 34 | 957.468E-6 | 0.032    |           | PASS   |
| 35 | 4.643E-3   | 0.154    | 4.50      | PASS   |
| 36 | 1.153E-3   | 0.038    |           | PASS   |
| 37 | 6.877E-3   | 0.227    | 4.50      | PASS   |
| 38 | 950.106E-6 | 0.031    |           | PASS   |
| 39 | 2.750E-3   | 0.091    | 4.50      | PASS   |
| 40 | 1.083E-3   | 0.036    |           | PASS   |

### Maximum harmonic current results

| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 3.024                | 100.000              |           |        |
| 2  | 1.161E-3             | 0.038                | 3.00      | PASS   |
| 3  | 150.721E-3           | 4.984                | 44.54     | PASS   |
| 4  | 3.214E-3             | 0.106                |           | PASS   |
| 5  | 42.619E-3            | 1.409                | 15.00     | PASS   |
| 6  | 1.085E-3             | 0.036                |           | PASS   |
| 7  | 32.523E-3            | 1.076                | 10.50     | PASS   |
| 8  | 1.040E-3             | 0.034                |           | PASS   |
| 9  | 27.066E-3            | 0.895                | 7.50      | PASS   |
| 10 | 1.148E-3             | 0.038                |           | PASS   |
| 11 | 20.245E-3            | 0.670                | 4.50      | PASS   |
| 12 | 1.098E-3             | 0.036                |           | PASS   |
| 13 | 17.868E-3            | 0.591                | 4.50      | PASS   |
| 14 | 1.307E-3             | 0.043                |           | PASS   |
| 15 | 13.340E-3            | 0.441                | 4.50      | PASS   |
| 16 | 1.054E-3             | 0.035                |           | PASS   |
| 17 | 12.977E-3            | 0.429                | 4.50      | PASS   |
| 18 | 1.350E-3             | 0.045                |           | PASS   |
| 19 | 8.365E-3             | 0.277                | 4.50      | PASS   |
| 20 | 1.029E-3             | 0.034                |           | PASS   |
| 21 | 8.491E-3             | 0.281                | 4.50      | PASS   |
| 22 | 1.290E-3             | 0.043                |           | PASS   |
| 23 | 4.194E-3             | 0.139                | 4.50      | PASS   |
| 24 | 1.015E-3             | 0.034                |           | PASS   |
| 25 | 6.768E-3             | 0.224                | 4.50      | PASS   |
| 26 | 1.041E-3             | 0.034                |           | PASS   |
| 27 | 4.200E-3             | 0.139                | 4.50      | PASS   |
| 28 | 1.066E-3             | 0.035                |           | PASS   |
| 29 | 7.396E-3             | 0.245                | 4.50      | PASS   |
| 30 | 1.080E-3             | 0.036                |           | PASS   |
| 31 | 4.788E-3             | 0.158                | 4.50      | PASS   |
| 32 | 1.142E-3             | 0.038                |           | PASS   |
| 33 | 7.737E-3             | 0.256                | 4.50      | PASS   |
| 34 | 1.066E-3             | 0.035                |           | PASS   |
| 35 | 5.320E-3             | 0.176                | 4.50      | PASS   |
| 36 | 1.294E-3             | 0.043                |           | PASS   |
| 37 | 7.217E-3             | 0.239                | 4.50      | PASS   |
| 38 | 1.067E-3             | 0.035                |           | PASS   |
| 39 | 3.121E-3             | 0.103                | 4.50      | PASS   |
| 40 | 1.194E-3             | 0.039                |           | PASS   |

### Maximum harmonic voltage results

| Hn | Ueff [V]  | Ueff [%] | Limit [%] | Result |
|----|-----------|----------|-----------|--------|
| 1  | 230.36    | 100.141  |           |        |
| 2  | 79.60E-3  | 0.035    | 0.2       | PASS   |
| 3  | 102.83E-3 | 0.045    | 0.9       | PASS   |
| 4  | 12.14E-3  | 0.005    | 0.2       | PASS   |
| 5  | 72.24E-3  | 0.031    | 0.4       | PASS   |
| 6  | 10.91E-3  | 0.005    | 0.2       | PASS   |
| 7  | 28.03E-3  | 0.012    | 0.3       | PASS   |
| 8  | 9.81E-3   | 0.004    | 0.2       | PASS   |
| 9  | 85.56E-3  | 0.037    | 0.2       | PASS   |
| 10 | 14.71E-3  | 0.006    | 0.2       | PASS   |
| 11 | 30.59E-3  | 0.013    | 0.1       | PASS   |
| 12 | 16.33E-3  | 0.007    | 0.1       | PASS   |
| 13 | 80.13E-3  | 0.035    | 0.1       | PASS   |
| 14 | 12.21E-3  | 0.005    | 0.1       | PASS   |
| 15 | 75.11E-3  | 0.033    | 0.1       | PASS   |
| 16 | 8.42E-3   | 0.004    | 0.1       | PASS   |
| 17 | 59.76E-3  | 0.026    | 0.1       | PASS   |
| 18 | 8.15E-3   | 0.004    | 0.1       | PASS   |
| 19 | 88.86E-3  | 0.039    | 0.1       | PASS   |
| 20 | 8.31E-3   | 0.004    | 0.1       | PASS   |
| 21 | 28.74E-3  | 0.012    | 0.1       | PASS   |
| 22 | 7.22E-3   | 0.003    | 0.1       | PASS   |
| 23 | 86.99E-3  | 0.038    | 0.1       | PASS   |
| 24 | 7.22E-3   | 0.003    | 0.1       | PASS   |
| 25 | 37.57E-3  | 0.016    | 0.1       | PASS   |
| 26 | 6.89E-3   | 0.003    | 0.1       | PASS   |
| 27 | 78.80E-3  | 0.034    | 0.1       | PASS   |
| 28 | 9.02E-3   | 0.004    | 0.1       | PASS   |
| 29 | 73.21E-3  | 0.032    | 0.1       | PASS   |
| 30 | 7.67E-3   | 0.003    | 0.1       | PASS   |
| 31 | 57.49E-3  | 0.025    | 0.1       | PASS   |
| 32 | 9.85E-3   | 0.004    | 0.1       | PASS   |
| 33 | 70.94E-3  | 0.031    | 0.1       | PASS   |
| 34 | 7.14E-3   | 0.003    | 0.1       | PASS   |
| 35 | 33.03E-3  | 0.014    | 0.1       | PASS   |
| 36 | 8.53E-3   | 0.004    | 0.1       | PASS   |
| 37 | 67.98E-3  | 0.030    | 0.1       | PASS   |
| 38 | 7.80E-3   | 0.003    | 0.1       | PASS   |
| 39 | 36.11E-3  | 0.016    | 0.1       | PASS   |
| 40 | 7.56E-3   | 0.003    | 0.1       | PASS   |

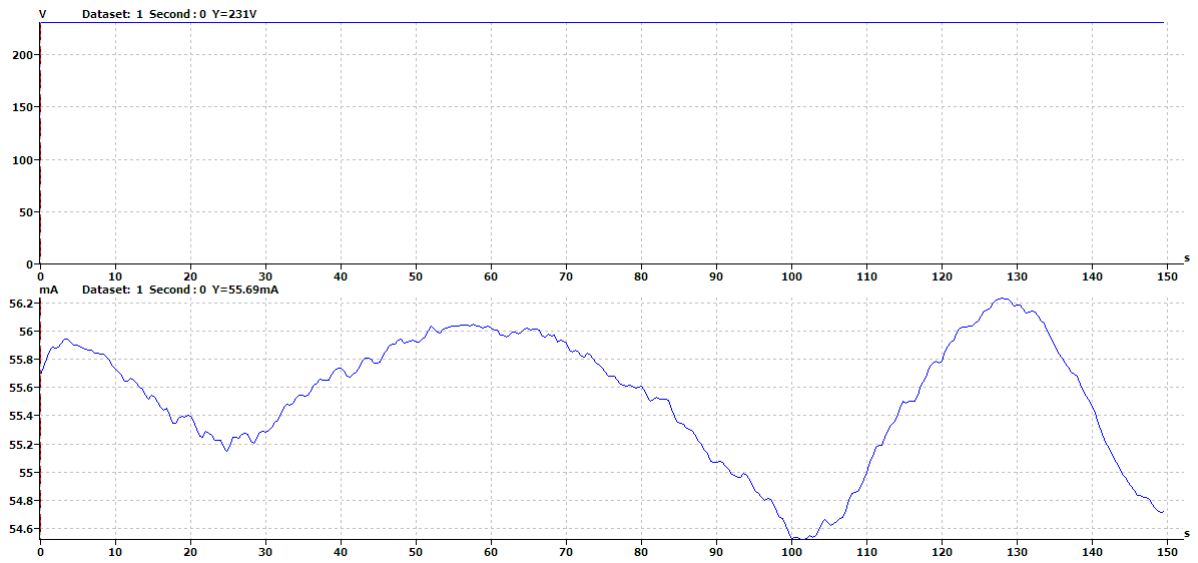


### Harmonic current results - DS: 1

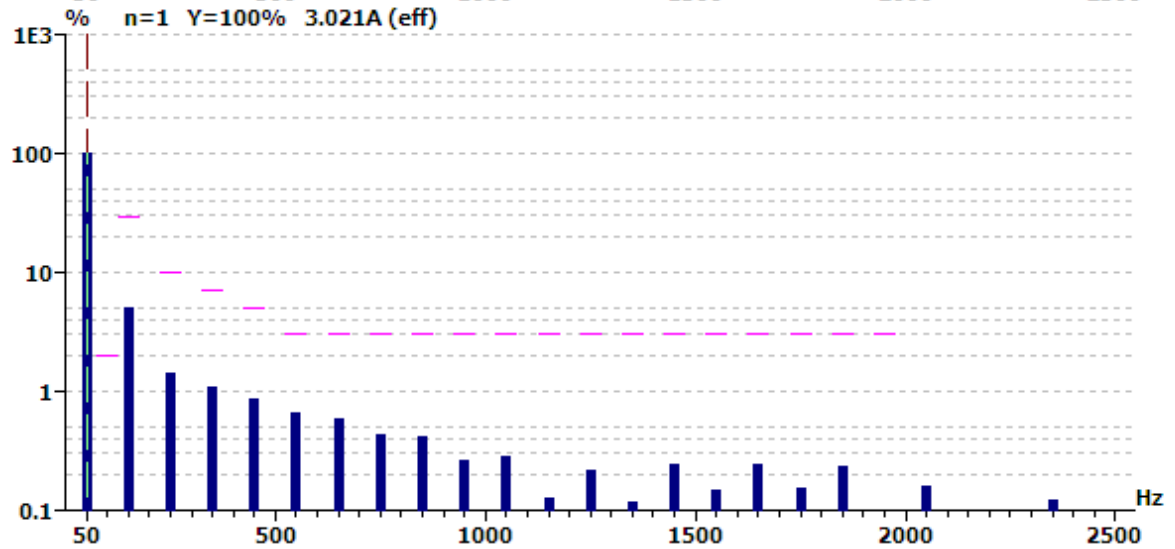
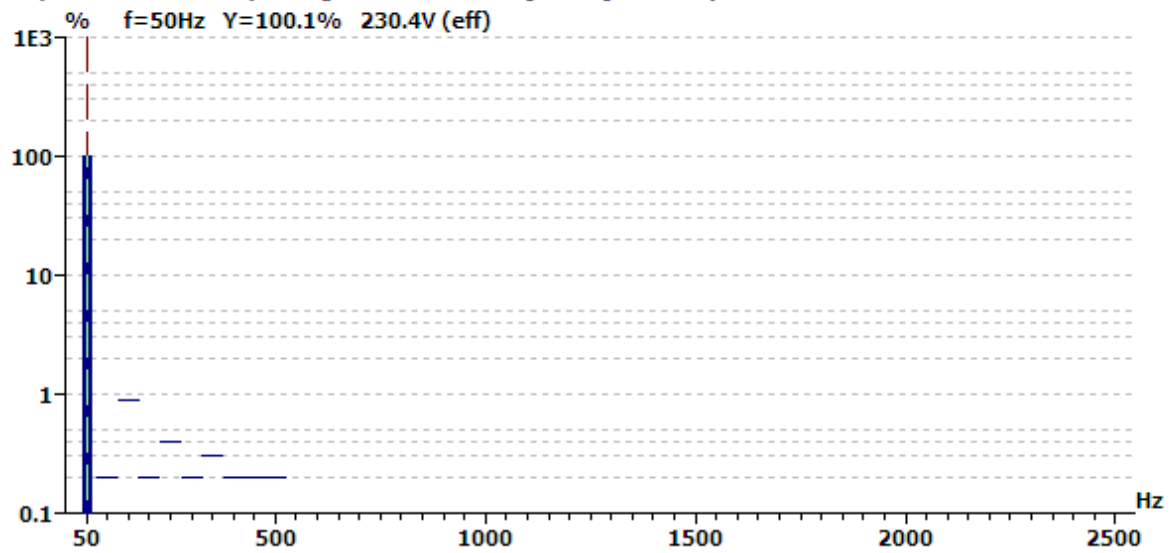
| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 3.021                | 99.892               |           |        |
| 2  | 1.052E-3             | 0.035                | 2.00      | PASS   |
| 3  | 150.343E-3           | 4.972                | 29.69     | PASS   |
| 4  | 2.875E-3             | 0.095                |           | PASS   |
| 5  | 42.286E-3            | 1.398                | 10.00     | PASS   |
| 6  | 990.696E-6           | 0.033                |           | PASS   |
| 7  | 32.198E-3            | 1.065                | 7.00      | PASS   |
| 8  | 991.047E-6           | 0.033                |           | PASS   |
| 9  | 26.284E-3            | 0.869                | 5.00      | PASS   |
| 10 | 1.004E-3             | 0.033                |           | PASS   |
| 11 | 20.064E-3            | 0.664                | 3.00      | PASS   |
| 12 | 940.406E-6           | 0.031                |           | PASS   |
| 13 | 17.683E-3            | 0.585                | 3.00      | PASS   |
| 14 | 1.024E-3             | 0.034                |           | PASS   |
| 15 | 12.855E-3            | 0.425                | 3.00      | PASS   |
| 16 | 896.466E-6           | 0.030                |           | PASS   |
| 17 | 12.662E-3            | 0.419                | 3.00      | PASS   |
| 18 | 1.277E-3             | 0.042                |           | PASS   |
| 19 | 7.980E-3             | 0.264                | 3.00      | PASS   |
| 20 | 841.938E-6           | 0.028                |           | PASS   |
| 21 | 8.329E-3             | 0.275                | 3.00      | PASS   |
| 22 | 1.137E-3             | 0.038                |           | PASS   |
| 23 | 3.895E-3             | 0.129                | 3.00      | PASS   |
| 24 | 1.001E-3             | 0.033                |           | PASS   |
| 25 | 6.445E-3             | 0.213                | 3.00      | PASS   |
| 26 | 946.348E-6           | 0.031                |           | PASS   |
| 27 | 3.528E-3             | 0.117                | 3.00      | PASS   |
| 28 | 1.057E-3             | 0.035                |           | PASS   |
| 29 | 7.119E-3             | 0.235                | 3.00      | PASS   |
| 30 | 991.050E-6           | 0.033                |           | PASS   |
| 31 | 4.405E-3             | 0.146                | 3.00      | PASS   |
| 32 | 1.068E-3             | 0.035                |           | PASS   |
| 33 | 7.348E-3             | 0.243                | 3.00      | PASS   |
| 34 | 918.248E-6           | 0.030                |           | PASS   |
| 35 | 4.659E-3             | 0.154                | 3.00      | PASS   |
| 36 | 1.244E-3             | 0.041                |           | PASS   |
| 37 | 6.926E-3             | 0.229                | 3.00      | PASS   |
| 38 | 917.934E-6           | 0.030                |           | PASS   |
| 39 | 2.828E-3             | 0.094                | 3.00      | PASS   |
| 40 | 1.032E-3             | 0.034                |           | PASS   |

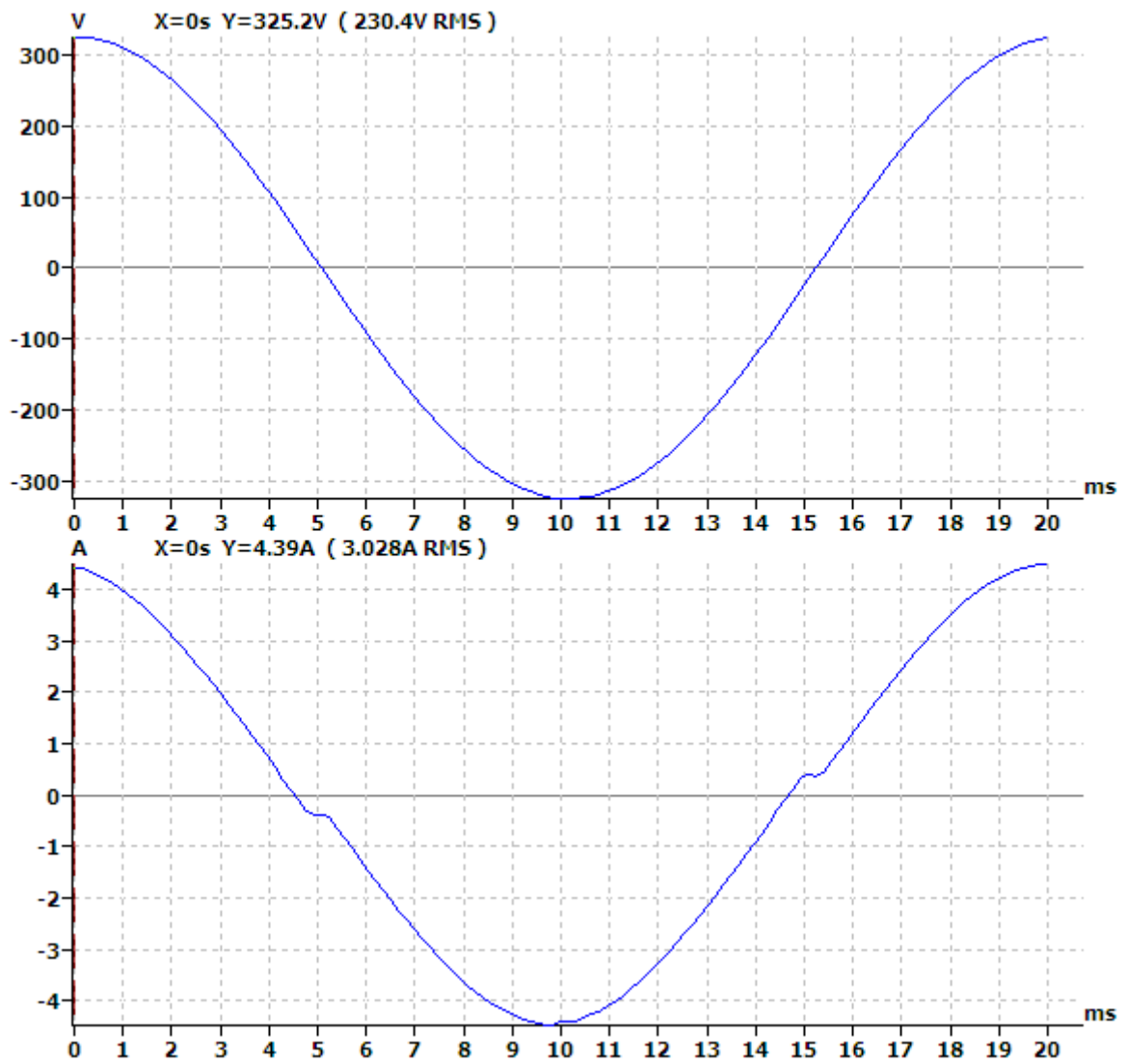
### Harmonic voltage results - DS: 1

| Hn | Ueff [V]  | Ueff [%] | Limit [%] | Result |
|----|-----------|----------|-----------|--------|
| 1  | 230.36    | 100.138  |           |        |
| 2  | 71.79E-3  | 0.031    | 0.2       | PASS   |
| 3  | 84.27E-3  | 0.037    | 0.9       | PASS   |
| 4  | 6.80E-3   | 0.003    | 0.2       | PASS   |
| 5  | 63.92E-3  | 0.028    | 0.4       | PASS   |
| 6  | 2.44E-3   | 0.001    | 0.2       | PASS   |
| 7  | 16.41E-3  | 0.007    | 0.3       | PASS   |
| 8  | 4.58E-3   | 0.002    | 0.2       | PASS   |
| 9  | 67.49E-3  | 0.029    | 0.2       | PASS   |
| 10 | 10.93E-3  | 0.005    | 0.2       | PASS   |
| 11 | 15.47E-3  | 0.007    | 0.1       | PASS   |
| 12 | 8.16E-3   | 0.004    | 0.1       | PASS   |
| 13 | 66.61E-3  | 0.029    | 0.1       | PASS   |
| 14 | 5.26E-3   | 0.002    | 0.1       | PASS   |
| 15 | 67.69E-3  | 0.029    | 0.1       | PASS   |
| 16 | 2.42E-3   | 0.001    | 0.1       | PASS   |
| 17 | 45.74E-3  | 0.020    | 0.1       | PASS   |
| 18 | 706.82E-6 | 0.000    | 0.1       | PASS   |
| 19 | 84.08E-3  | 0.037    | 0.1       | PASS   |
| 20 | 1.47E-3   | 0.001    | 0.1       | PASS   |
| 21 | 7.87E-3   | 0.003    | 0.1       | PASS   |
| 22 | 399.84E-6 | 0.000    | 0.1       | PASS   |
| 23 | 74.66E-3  | 0.032    | 0.1       | PASS   |
| 24 | 965.02E-6 | 0.000    | 0.1       | PASS   |
| 25 | 26.61E-3  | 0.012    | 0.1       | PASS   |
| 26 | 2.15E-3   | 0.001    | 0.1       | PASS   |
| 27 | 60.15E-3  | 0.026    | 0.1       | PASS   |
| 28 | 1.09E-3   | 0.000    | 0.1       | PASS   |
| 29 | 62.81E-3  | 0.027    | 0.1       | PASS   |
| 30 | 2.58E-3   | 0.001    | 0.1       | PASS   |
| 31 | 39.30E-3  | 0.017    | 0.1       | PASS   |
| 32 | 1.70E-3   | 0.001    | 0.1       | PASS   |
| 33 | 62.69E-3  | 0.027    | 0.1       | PASS   |
| 34 | 1.30E-3   | 0.001    | 0.1       | PASS   |
| 35 | 10.52E-3  | 0.005    | 0.1       | PASS   |
| 36 | 1.22E-3   | 0.001    | 0.1       | PASS   |
| 37 | 62.88E-3  | 0.027    | 0.1       | PASS   |
| 38 | 2.43E-3   | 0.001    | 0.1       | PASS   |
| 39 | 24.81E-3  | 0.011    | 0.1       | PASS   |
| 40 | 3.06E-3   | 0.001    | 0.1       | PASS   |



No partial calculation (average odd harmonics [21..39] < 100%)





### 5.4.7 Harmonic Current Emission Test Data, 630W

Mode 1

|                            |   |
|----------------------------|---|
| Report title:              |   |
| Company Name:              |   |
| Date of test:              | 11:24 20.Okt 2016                                       |
| Measurement file name:     | 600A-600.rsd  |
| Tester:                    | GREN  |
| Standard used:             | EN/IEC 61000-3-2 Ed.3 Short cyclic<br>Equipment class C |
| Observation time:          | 150s  |
| Windows width:             | 10 periods - (EN/IEC 61000-4-7 Edition 2002)            |
| Customer:                  |   |
| E. U. T.:                  |   |
| Measurement smoothed data: | Fund. Current: 2.790 A<br>Power Factor : 0.991          |

#### **Power and THD results - DS: 1**

|                   |          |                   |         |
|-------------------|----------|-------------------|---------|
| True power P:     | 637.7W   | Apparent power S: | 643.2VA |
| Reactiv power Q:  | 83.99var | Power factor:     | 0.991   |
| THD (U):          | 0.001    | THD (I):          | 0.058   |
| Crest Factor (U): | 1.413    | Crest Factor (I): | 1.473   |

#### **Check harmonics 2..40 [exception odd 21..39]:**

Harmonic(s) > 150%:

Order (n): None

Harmonic(s) with average > 100%:

Order (n): None

#### **Check odd harmonics 21..39:**

All Partial Odd Harmonics below partial limits.

Harmonic(s) > 150%:

Order (n): None

Harmonic(s) with average > 150%:

Order (n): None

### Average harmonic current results

| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 2.788                | 99.952               |           |        |
| 2  | 806.957E-6           | 0.029                | 2.00      | PASS   |
| 3  | 143.061E-3           | 5.128                | 29.74     | PASS   |
| 4  | 2.765E-3             | 0.099                |           | PASS   |
| 5  | 46.668E-3            | 1.673                | 10.00     | PASS   |
| 6  | 844.600E-6           | 0.030                |           | PASS   |
| 7  | 34.808E-3            | 1.248                | 7.00      | PASS   |
| 8  | 802.694E-6           | 0.029                |           | PASS   |
| 9  | 28.187E-3            | 1.010                | 5.00      | PASS   |
| 10 | 813.180E-6           | 0.029                |           | PASS   |
| 11 | 21.157E-3            | 0.758                | 3.00      | PASS   |
| 12 | 805.471E-6           | 0.029                |           | PASS   |
| 13 | 18.430E-3            | 0.661                | 3.00      | PASS   |
| 14 | 920.553E-6           | 0.033                |           | PASS   |
| 15 | 14.041E-3            | 0.503                | 3.00      | PASS   |
| 16 | 774.597E-6           | 0.028                |           | PASS   |
| 17 | 12.379E-3            | 0.444                | 3.00      | PASS   |
| 18 | 1.161E-3             | 0.042                |           | PASS   |
| 19 | 9.354E-3             | 0.335                | 3.00      | PASS   |
| 20 | 831.398E-6           | 0.030                |           | PASS   |
| 21 | 7.535E-3             | 0.270                | 4.50      | PASS   |
| 22 | 1.074E-3             | 0.038                |           | PASS   |
| 23 | 6.512E-3             | 0.233                | 4.50      | PASS   |
| 24 | 829.712E-6           | 0.030                |           | PASS   |
| 25 | 3.961E-3             | 0.142                | 4.50      | PASS   |
| 26 | 837.740E-6           | 0.030                |           | PASS   |
| 27 | 5.932E-3             | 0.213                | 4.50      | PASS   |
| 28 | 818.751E-6           | 0.029                |           | PASS   |
| 29 | 3.801E-3             | 0.136                | 4.50      | PASS   |
| 30 | 764.589E-6           | 0.027                |           | PASS   |
| 31 | 6.089E-3             | 0.218                | 4.50      | PASS   |
| 32 | 864.427E-6           | 0.031                |           | PASS   |
| 33 | 3.515E-3             | 0.126                | 4.50      | PASS   |
| 34 | 767.629E-6           | 0.028                |           | PASS   |
| 35 | 5.700E-3             | 0.204                | 4.50      | PASS   |
| 36 | 976.184E-6           | 0.035                |           | PASS   |
| 37 | 2.828E-3             | 0.101                | 4.50      | PASS   |
| 38 | 791.334E-6           | 0.028                |           | PASS   |
| 39 | 4.084E-3             | 0.146                | 4.50      | PASS   |
| 40 | 922.051E-6           | 0.033                |           | PASS   |



### Maximum harmonic current results

| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 2.790                | 100.000              |           |        |
| 2  | 918.151E-6           | 0.033                | 3.00      | PASS   |
| 3  | 143.382E-3           | 5.139                | 44.62     | PASS   |
| 4  | 3.371E-3             | 0.121                |           | PASS   |
| 5  | 46.947E-3            | 1.683                | 15.00     | PASS   |
| 6  | 1.032E-3             | 0.037                |           | PASS   |
| 7  | 35.183E-3            | 1.261                | 10.50     | PASS   |
| 8  | 934.825E-6           | 0.034                |           | PASS   |
| 9  | 28.809E-3            | 1.033                | 7.50      | PASS   |
| 10 | 922.543E-6           | 0.033                |           | PASS   |
| 11 | 21.416E-3            | 0.768                | 4.50      | PASS   |
| 12 | 1.007E-3             | 0.036                |           | PASS   |
| 13 | 18.757E-3            | 0.672                | 4.50      | PASS   |
| 14 | 1.171E-3             | 0.042                |           | PASS   |
| 15 | 14.431E-3            | 0.517                | 4.50      | PASS   |
| 16 | 891.603E-6           | 0.032                |           | PASS   |
| 17 | 12.765E-3            | 0.458                | 4.50      | PASS   |
| 18 | 1.303E-3             | 0.047                |           | PASS   |
| 19 | 9.817E-3             | 0.352                | 4.50      | PASS   |
| 20 | 959.821E-6           | 0.034                |           | PASS   |
| 21 | 7.893E-3             | 0.283                | 4.50      | PASS   |
| 22 | 1.202E-3             | 0.043                |           | PASS   |
| 23 | 6.991E-3             | 0.251                | 4.50      | PASS   |
| 24 | 1.030E-3             | 0.037                |           | PASS   |
| 25 | 4.316E-3             | 0.155                | 4.50      | PASS   |
| 26 | 986.277E-6           | 0.035                |           | PASS   |
| 27 | 6.313E-3             | 0.226                | 4.50      | PASS   |
| 28 | 953.805E-6           | 0.034                |           | PASS   |
| 29 | 4.108E-3             | 0.147                | 4.50      | PASS   |
| 30 | 908.835E-6           | 0.033                |           | PASS   |
| 31 | 6.580E-3             | 0.236                | 4.50      | PASS   |
| 32 | 1.121E-3             | 0.040                |           | PASS   |
| 33 | 4.012E-3             | 0.144                | 4.50      | PASS   |
| 34 | 887.741E-6           | 0.032                |           | PASS   |
| 35 | 6.159E-3             | 0.221                | 4.50      | PASS   |
| 36 | 1.123E-3             | 0.040                |           | PASS   |
| 37 | 3.569E-3             | 0.128                | 4.50      | PASS   |
| 38 | 985.573E-6           | 0.035                |           | PASS   |
| 39 | 4.535E-3             | 0.163                | 4.50      | PASS   |
| 40 | 1.078E-3             | 0.039                |           | PASS   |

### Maximum harmonic voltage results

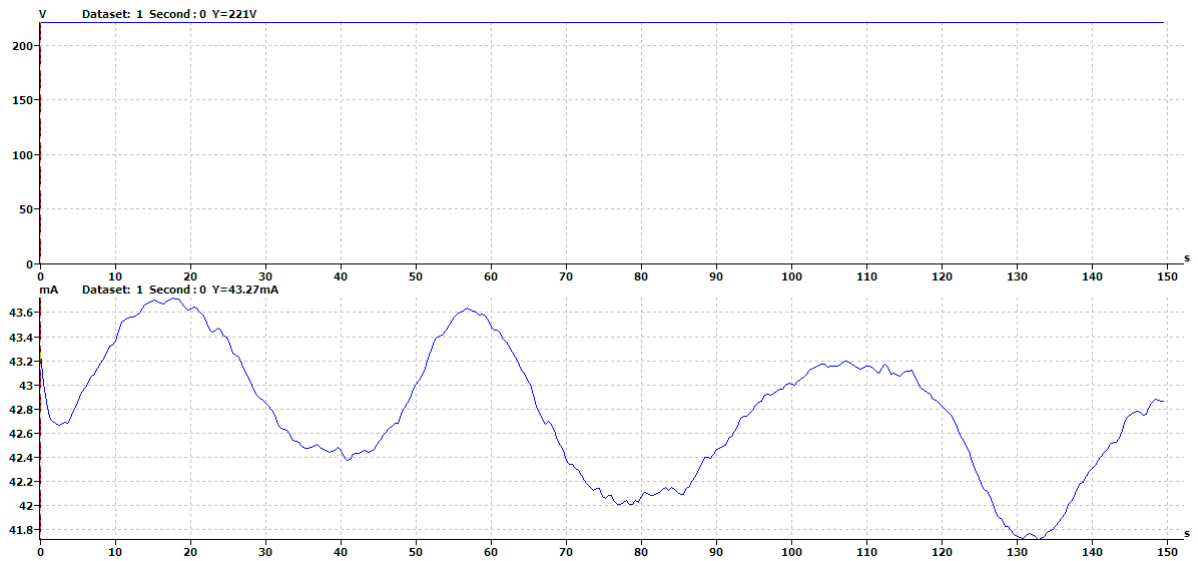
| Hn | Ueff [V]  | Ueff [%] | Limit [%] | Result |
|----|-----------|----------|-----------|--------|
| 1  | 230.33    | 100.127  |           |        |
| 2  | 76.27E-3  | 0.033    | 0.2       | PASS   |
| 3  | 106.49E-3 | 0.046    | 0.9       | PASS   |
| 4  | 12.70E-3  | 0.006    | 0.2       | PASS   |
| 5  | 68.42E-3  | 0.030    | 0.4       | PASS   |
| 6  | 12.17E-3  | 0.005    | 0.2       | PASS   |
| 7  | 51.42E-3  | 0.022    | 0.3       | PASS   |
| 8  | 10.41E-3  | 0.005    | 0.2       | PASS   |
| 9  | 77.07E-3  | 0.034    | 0.2       | PASS   |
| 10 | 15.99E-3  | 0.007    | 0.2       | PASS   |
| 11 | 34.41E-3  | 0.015    | 0.1       | PASS   |
| 12 | 16.80E-3  | 0.007    | 0.1       | PASS   |
| 13 | 92.52E-3  | 0.040    | 0.1       | PASS   |
| 14 | 11.53E-3  | 0.005    | 0.1       | PASS   |
| 15 | 24.49E-3  | 0.011    | 0.1       | PASS   |
| 16 | 8.49E-3   | 0.004    | 0.1       | PASS   |
| 17 | 88.65E-3  | 0.039    | 0.1       | PASS   |
| 18 | 9.35E-3   | 0.004    | 0.1       | PASS   |
| 19 | 40.34E-3  | 0.018    | 0.1       | PASS   |
| 20 | 8.16E-3   | 0.004    | 0.1       | PASS   |
| 21 | 79.08E-3  | 0.034    | 0.1       | PASS   |
| 22 | 9.38E-3   | 0.004    | 0.1       | PASS   |
| 23 | 57.07E-3  | 0.025    | 0.1       | PASS   |
| 24 | 8.04E-3   | 0.003    | 0.1       | PASS   |
| 25 | 70.10E-3  | 0.030    | 0.1       | PASS   |
| 26 | 7.87E-3   | 0.003    | 0.1       | PASS   |
| 27 | 66.21E-3  | 0.029    | 0.1       | PASS   |
| 28 | 8.40E-3   | 0.004    | 0.1       | PASS   |
| 29 | 59.00E-3  | 0.026    | 0.1       | PASS   |
| 30 | 8.70E-3   | 0.004    | 0.1       | PASS   |
| 31 | 67.44E-3  | 0.029    | 0.1       | PASS   |
| 32 | 8.19E-3   | 0.004    | 0.1       | PASS   |
| 33 | 43.17E-3  | 0.019    | 0.1       | PASS   |
| 34 | 8.22E-3   | 0.004    | 0.1       | PASS   |
| 35 | 66.35E-3  | 0.029    | 0.1       | PASS   |
| 36 | 7.60E-3   | 0.003    | 0.1       | PASS   |
| 37 | 28.67E-3  | 0.012    | 0.1       | PASS   |
| 38 | 9.46E-3   | 0.004    | 0.1       | PASS   |
| 39 | 63.57E-3  | 0.028    | 0.1       | PASS   |
| 40 | 9.05E-3   | 0.004    | 0.1       | PASS   |

### Harmonic current results - DS: 1

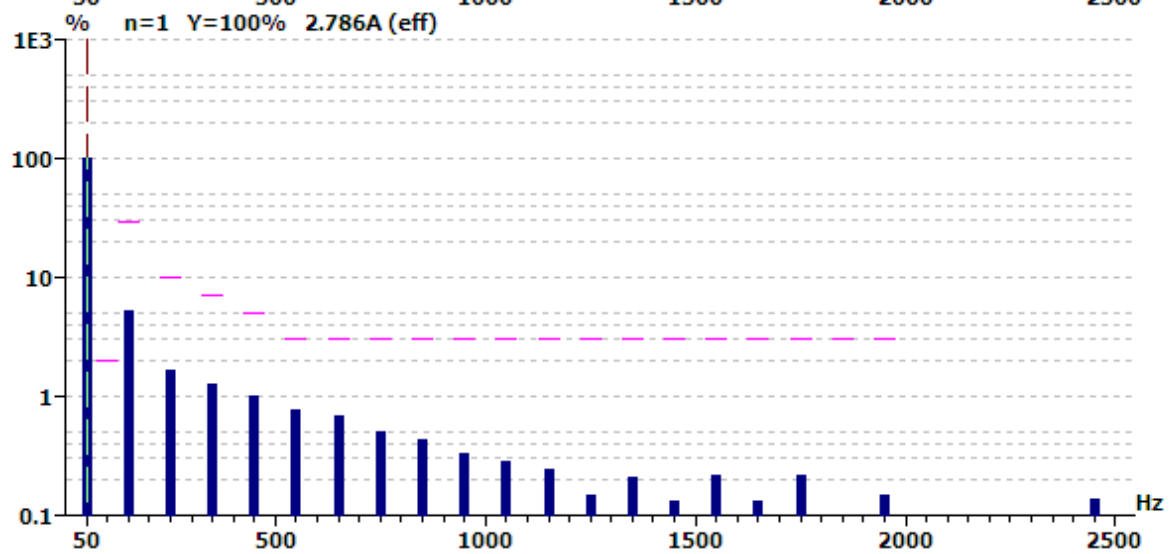
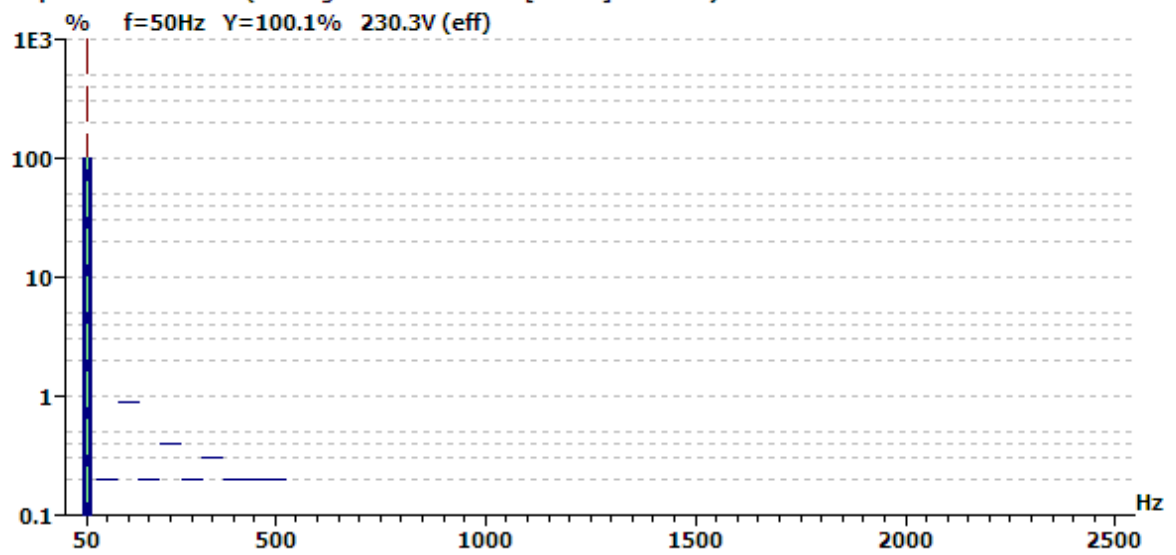
| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 2.786                | 99.851               |           |        |
| 2  | 744.023E-6           | 0.027                | 2.00      | PASS   |
| 3  | 142.987E-3           | 5.125                | 29.74     | PASS   |
| 4  | 2.584E-3             | 0.093                |           | PASS   |
| 5  | 46.557E-3            | 1.669                | 10.00     | PASS   |
| 6  | 842.370E-6           | 0.030                |           | PASS   |
| 7  | 34.645E-3            | 1.242                | 7.00      | PASS   |
| 8  | 732.450E-6           | 0.026                |           | PASS   |
| 9  | 28.052E-3            | 1.006                | 5.00      | PASS   |
| 10 | 810.459E-6           | 0.029                |           | PASS   |
| 11 | 21.085E-3            | 0.756                | 3.00      | PASS   |
| 12 | 794.376E-6           | 0.028                |           | PASS   |
| 13 | 18.629E-3            | 0.668                | 3.00      | PASS   |
| 14 | 807.000E-6           | 0.029                |           | PASS   |
| 15 | 13.970E-3            | 0.501                | 3.00      | PASS   |
| 16 | 776.540E-6           | 0.028                |           | PASS   |
| 17 | 12.186E-3            | 0.437                | 3.00      | PASS   |
| 18 | 1.178E-3             | 0.042                |           | PASS   |
| 19 | 9.181E-3             | 0.329                | 3.00      | PASS   |
| 20 | 804.644E-6           | 0.029                |           | PASS   |
| 21 | 7.689E-3             | 0.276                | 3.00      | PASS   |
| 22 | 1.064E-3             | 0.038                |           | PASS   |
| 23 | 6.779E-3             | 0.243                | 3.00      | PASS   |
| 24 | 784.489E-6           | 0.028                |           | PASS   |
| 25 | 4.157E-3             | 0.149                | 3.00      | PASS   |
| 26 | 822.172E-6           | 0.029                |           | PASS   |
| 27 | 5.856E-3             | 0.210                | 3.00      | PASS   |
| 28 | 822.947E-6           | 0.029                |           | PASS   |
| 29 | 3.750E-3             | 0.134                | 3.00      | PASS   |
| 30 | 738.485E-6           | 0.026                |           | PASS   |
| 31 | 5.938E-3             | 0.213                | 3.00      | PASS   |
| 32 | 875.946E-6           | 0.031                |           | PASS   |
| 33 | 3.680E-3             | 0.132                | 3.00      | PASS   |
| 34 | 692.425E-6           | 0.025                |           | PASS   |
| 35 | 5.894E-3             | 0.211                | 3.00      | PASS   |
| 36 | 1.006E-3             | 0.036                |           | PASS   |
| 37 | 2.822E-3             | 0.101                | 3.00      | PASS   |
| 38 | 759.608E-6           | 0.027                |           | PASS   |
| 39 | 4.043E-3             | 0.145                | 3.00      | PASS   |
| 40 | 950.914E-6           | 0.034                |           | PASS   |

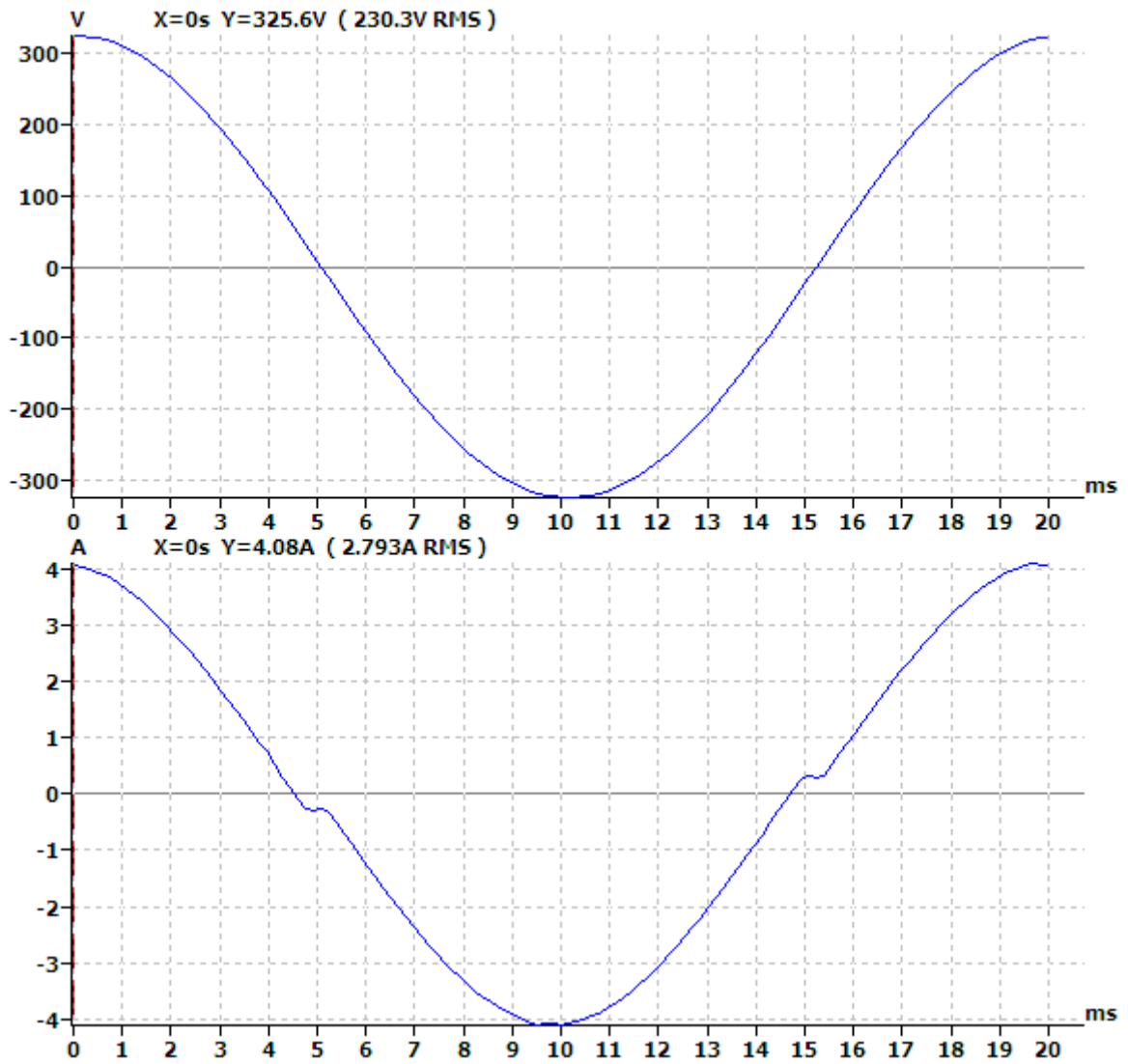
### Harmonic voltage results - DS: 1

| Hn | Ueff [V]  | Ueff [%] | Limit [%] | Result |
|----|-----------|----------|-----------|--------|
| 1  | 230.32    | 100.123  |           |        |
| 2  | 68.42E-3  | 0.030    | 0.2       | PASS   |
| 3  | 90.70E-3  | 0.039    | 0.9       | PASS   |
| 4  | 6.30E-3   | 0.003    | 0.2       | PASS   |
| 5  | 67.86E-3  | 0.029    | 0.4       | PASS   |
| 6  | 3.25E-3   | 0.001    | 0.2       | PASS   |
| 7  | 32.80E-3  | 0.014    | 0.3       | PASS   |
| 8  | 3.20E-3   | 0.001    | 0.2       | PASS   |
| 9  | 74.26E-3  | 0.032    | 0.2       | PASS   |
| 10 | 9.06E-3   | 0.004    | 0.2       | PASS   |
| 11 | 23.73E-3  | 0.010    | 0.1       | PASS   |
| 12 | 10.05E-3  | 0.004    | 0.1       | PASS   |
| 13 | 83.74E-3  | 0.036    | 0.1       | PASS   |
| 14 | 4.74E-3   | 0.002    | 0.1       | PASS   |
| 15 | 19.34E-3  | 0.008    | 0.1       | PASS   |
| 16 | 1.16E-3   | 0.001    | 0.1       | PASS   |
| 17 | 81.29E-3  | 0.035    | 0.1       | PASS   |
| 18 | 340.45E-6 | 0.000    | 0.1       | PASS   |
| 19 | 36.88E-3  | 0.016    | 0.1       | PASS   |
| 20 | 2.06E-3   | 0.001    | 0.1       | PASS   |
| 21 | 68.26E-3  | 0.030    | 0.1       | PASS   |
| 22 | 4.01E-3   | 0.002    | 0.1       | PASS   |
| 23 | 47.95E-3  | 0.021    | 0.1       | PASS   |
| 24 | 1.98E-3   | 0.001    | 0.1       | PASS   |
| 25 | 53.91E-3  | 0.023    | 0.1       | PASS   |
| 26 | 1.80E-3   | 0.001    | 0.1       | PASS   |
| 27 | 55.86E-3  | 0.024    | 0.1       | PASS   |
| 28 | 5.74E-3   | 0.002    | 0.1       | PASS   |
| 29 | 37.36E-3  | 0.016    | 0.1       | PASS   |
| 30 | 3.72E-3   | 0.002    | 0.1       | PASS   |
| 31 | 62.69E-3  | 0.027    | 0.1       | PASS   |
| 32 | 911.78E-6 | 0.000    | 0.1       | PASS   |
| 33 | 19.03E-3  | 0.008    | 0.1       | PASS   |
| 34 | 4.23E-3   | 0.002    | 0.1       | PASS   |
| 35 | 64.32E-3  | 0.028    | 0.1       | PASS   |
| 36 | 1.98E-3   | 0.001    | 0.1       | PASS   |
| 37 | 1.88E-3   | 0.001    | 0.1       | PASS   |
| 38 | 2.43E-3   | 0.001    | 0.1       | PASS   |
| 39 | 56.20E-3  | 0.024    | 0.1       | PASS   |
| 40 | 2.83E-3   | 0.001    | 0.1       | PASS   |



No partial calculation (average odd harmonics [21..39] < 100%)







## Mode 2

|                            |   |
|----------------------------|---|
| Report title:              |   |
| Company Name:              |   |
| Date of test:              | 11:06 20.Okt 2016                                       |
| Measurement file name:     | 600A-600SL.rsd  |
| Tester:                    | GREN  |
| Standard used:             | EN/IEC 61000-3-2 Ed.3 Short cyclic<br>Equipment class C |
| Observation time:          | 150s  |
| Windows width:             | 10 periods - (EN/IEC 61000-4-7 Edition 2002)            |
| Customer:                  |   |
| E. U. T.:                  |   |
| Measurement smoothed data: | Fund. Current: 2.794 A<br>Power Factor : 0.992          |

**Power and THD results - DS: 1**

|                   |          |                   |         |
|-------------------|----------|-------------------|---------|
| True power P:     | 648.9W   | Apparent power S: | 644.3VA |
| Reactiv power Q:  | 83.45var | Power factor:     | 0.992   |
| THD (U):          | 0.001    | THD (I):          | 0.056   |
| Crest Factor (U): | 1.413    | Crest Factor (I): | 1.473   |

**Check harmonics 2..40 [exception odd 21..39]:**

|  |      |
|--|------|
| <b>Harmonic(s) &gt; 150%:</b>              |      |
| Order (n):                                 | None |
| <b>Harmonic(s) with average &gt; 100%:</b> |      |
| Order (n):                                 | None |

**Check odd harmonics 21..39:**

|  |      |
|--|------|
| <b>All Partial Odd Harmonics below partial limits.</b> |      |
| <b>Harmonic(s) &gt; 150%:</b>                          |      |
| Order (n):   | None |
| <b>Harmonic(s) with average &gt; 150%:</b>             |      |
| Order (n):   | None |

### Average harmonic current results

| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 2.793                | 99.963               |           |        |
| 2  | 835.232E-6           | 0.030                | 2.00      | PASS   |
| 3  | 140.309E-3           | 5.022                | 29.75     | PASS   |
| 4  | 2.882E-3             | 0.103                |           | PASS   |
| 5  | 45.289E-3            | 1.621                | 10.00     | PASS   |
| 6  | 847.131E-6           | 0.030                |           | PASS   |
| 7  | 33.451E-3            | 1.197                | 7.00      | PASS   |
| 8  | 790.999E-6           | 0.028                |           | PASS   |
| 9  | 27.480E-3            | 0.984                | 5.00      | PASS   |
| 10 | 838.080E-6           | 0.030                |           | PASS   |
| 11 | 20.750E-3            | 0.743                | 3.00      | PASS   |
| 12 | 827.849E-6           | 0.030                |           | PASS   |
| 13 | 18.250E-3            | 0.653                | 3.00      | PASS   |
| 14 | 832.610E-6           | 0.030                |           | PASS   |
| 15 | 13.710E-3            | 0.491                | 3.00      | PASS   |
| 16 | 819.329E-6           | 0.029                |           | PASS   |
| 17 | 12.315E-3            | 0.441                | 3.00      | PASS   |
| 18 | 1.153E-3             | 0.041                |           | PASS   |
| 19 | 9.061E-3             | 0.324                | 3.00      | PASS   |
| 20 | 816.788E-6           | 0.029                |           | PASS   |
| 21 | 7.355E-3             | 0.263                | 4.50      | PASS   |
| 22 | 1.072E-3             | 0.038                |           | PASS   |
| 23 | 6.212E-3             | 0.222                | 4.50      | PASS   |
| 24 | 896.018E-6           | 0.032                |           | PASS   |
| 25 | 4.313E-3             | 0.154                | 4.50      | PASS   |
| 26 | 821.584E-6           | 0.029                |           | PASS   |
| 27 | 5.755E-3             | 0.206                | 4.50      | PASS   |
| 28 | 830.788E-6           | 0.030                |           | PASS   |
| 29 | 3.683E-3             | 0.132                | 4.50      | PASS   |
| 30 | 886.597E-6           | 0.032                |           | PASS   |
| 31 | 6.227E-3             | 0.223                | 4.50      | PASS   |
| 32 | 810.740E-6           | 0.029                |           | PASS   |
| 33 | 3.941E-3             | 0.141                | 4.50      | PASS   |
| 34 | 789.877E-6           | 0.028                |           | PASS   |
| 35 | 6.052E-3             | 0.217                | 4.50      | PASS   |
| 36 | 1.015E-3             | 0.036                |           | PASS   |
| 37 | 2.963E-3             | 0.106                | 4.50      | PASS   |
| 38 | 841.397E-6           | 0.030                |           | PASS   |
| 39 | 4.509E-3             | 0.161                | 4.50      | PASS   |
| 40 | 937.023E-6           | 0.034                |           | PASS   |

### Maximum harmonic current results

| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 2.794                | 100.000              |           |        |
| 2  | 954.379E-6           | 0.034                | 3.00      | PASS   |
| 3  | 140.839E-3           | 5.041                | 44.62     | PASS   |
| 4  | 3.415E-3             | 0.122                |           | PASS   |
| 5  | 45.687E-3            | 1.635                | 15.00     | PASS   |
| 6  | 961.552E-6           | 0.034                |           | PASS   |
| 7  | 33.895E-3            | 1.213                | 10.50     | PASS   |
| 8  | 905.913E-6           | 0.032                |           | PASS   |
| 9  | 27.951E-3            | 1.000                | 7.50      | PASS   |
| 10 | 1.002E-3             | 0.036                |           | PASS   |
| 11 | 21.046E-3            | 0.753                | 4.50      | PASS   |
| 12 | 956.015E-6           | 0.034                |           | PASS   |
| 13 | 18.662E-3            | 0.668                | 4.50      | PASS   |
| 14 | 970.662E-6           | 0.035                |           | PASS   |
| 15 | 14.143E-3            | 0.506                | 4.50      | PASS   |
| 16 | 934.359E-6           | 0.033                |           | PASS   |
| 17 | 12.901E-3            | 0.462                | 4.50      | PASS   |
| 18 | 1.283E-3             | 0.046                |           | PASS   |
| 19 | 9.433E-3             | 0.338                | 4.50      | PASS   |
| 20 | 930.881E-6           | 0.033                |           | PASS   |
| 21 | 7.674E-3             | 0.275                | 4.50      | PASS   |
| 22 | 1.182E-3             | 0.042                |           | PASS   |
| 23 | 6.609E-3             | 0.237                | 4.50      | PASS   |
| 24 | 1.093E-3             | 0.039                |           | PASS   |
| 25 | 4.642E-3             | 0.166                | 4.50      | PASS   |
| 26 | 1.004E-3             | 0.036                |           | PASS   |
| 27 | 6.026E-3             | 0.216                | 4.50      | PASS   |
| 28 | 961.102E-6           | 0.034                |           | PASS   |
| 29 | 3.997E-3             | 0.143                | 4.50      | PASS   |
| 30 | 1.071E-3             | 0.038                |           | PASS   |
| 31 | 6.630E-3             | 0.237                | 4.50      | PASS   |
| 32 | 974.044E-6           | 0.035                |           | PASS   |
| 33 | 4.355E-3             | 0.156                | 4.50      | PASS   |
| 34 | 924.832E-6           | 0.033                |           | PASS   |
| 35 | 6.345E-3             | 0.227                | 4.50      | PASS   |
| 36 | 1.145E-3             | 0.041                |           | PASS   |
| 37 | 3.450E-3             | 0.123                | 4.50      | PASS   |
| 38 | 995.462E-6           | 0.036                |           | PASS   |
| 39 | 4.862E-3             | 0.174                | 4.50      | PASS   |
| 40 | 1.055E-3             | 0.038                |           | PASS   |

### Maximum harmonic voltage results

| Hn | Ueff [V]  | Ueff [%] | Limit [%] | Result |
|----|-----------|----------|-----------|--------|
| 1  | 230.27    | 100.117  |           |        |
| 2  | 77.60E-3  | 0.034    | 0.2       | PASS   |
| 3  | 103.44E-3 | 0.045    | 0.9       | PASS   |
| 4  | 15.64E-3  | 0.007    | 0.2       | PASS   |
| 5  | 67.56E-3  | 0.029    | 0.4       | PASS   |
| 6  | 11.70E-3  | 0.005    | 0.2       | PASS   |
| 7  | 47.42E-3  | 0.021    | 0.3       | PASS   |
| 8  | 10.10E-3  | 0.004    | 0.2       | PASS   |
| 9  | 77.44E-3  | 0.034    | 0.2       | PASS   |
| 10 | 15.21E-3  | 0.007    | 0.2       | PASS   |
| 11 | 32.85E-3  | 0.014    | 0.1       | PASS   |
| 12 | 16.16E-3  | 0.007    | 0.1       | PASS   |
| 13 | 89.88E-3  | 0.039    | 0.1       | PASS   |
| 14 | 11.80E-3  | 0.005    | 0.1       | PASS   |
| 15 | 26.53E-3  | 0.012    | 0.1       | PASS   |
| 16 | 8.09E-3   | 0.004    | 0.1       | PASS   |
| 17 | 88.18E-3  | 0.038    | 0.1       | PASS   |
| 18 | 9.31E-3   | 0.004    | 0.1       | PASS   |
| 19 | 44.23E-3  | 0.019    | 0.1       | PASS   |
| 20 | 8.72E-3   | 0.004    | 0.1       | PASS   |
| 21 | 78.35E-3  | 0.034    | 0.1       | PASS   |
| 22 | 8.75E-3   | 0.004    | 0.1       | PASS   |
| 23 | 59.20E-3  | 0.026    | 0.1       | PASS   |
| 24 | 8.37E-3   | 0.004    | 0.1       | PASS   |
| 25 | 68.95E-3  | 0.030    | 0.1       | PASS   |
| 26 | 7.66E-3   | 0.003    | 0.1       | PASS   |
| 27 | 67.92E-3  | 0.030    | 0.1       | PASS   |
| 28 | 8.29E-3   | 0.004    | 0.1       | PASS   |
| 29 | 54.77E-3  | 0.024    | 0.1       | PASS   |
| 30 | 8.28E-3   | 0.004    | 0.1       | PASS   |
| 31 | 70.14E-3  | 0.030    | 0.1       | PASS   |
| 32 | 8.63E-3   | 0.004    | 0.1       | PASS   |
| 33 | 38.66E-3  | 0.017    | 0.1       | PASS   |
| 34 | 7.28E-3   | 0.003    | 0.1       | PASS   |
| 35 | 67.85E-3  | 0.030    | 0.1       | PASS   |
| 36 | 8.70E-3   | 0.004    | 0.1       | PASS   |
| 37 | 25.14E-3  | 0.011    | 0.1       | PASS   |
| 38 | 8.79E-3   | 0.004    | 0.1       | PASS   |
| 39 | 65.24E-3  | 0.028    | 0.1       | PASS   |
| 40 | 7.62E-3   | 0.003    | 0.1       | PASS   |

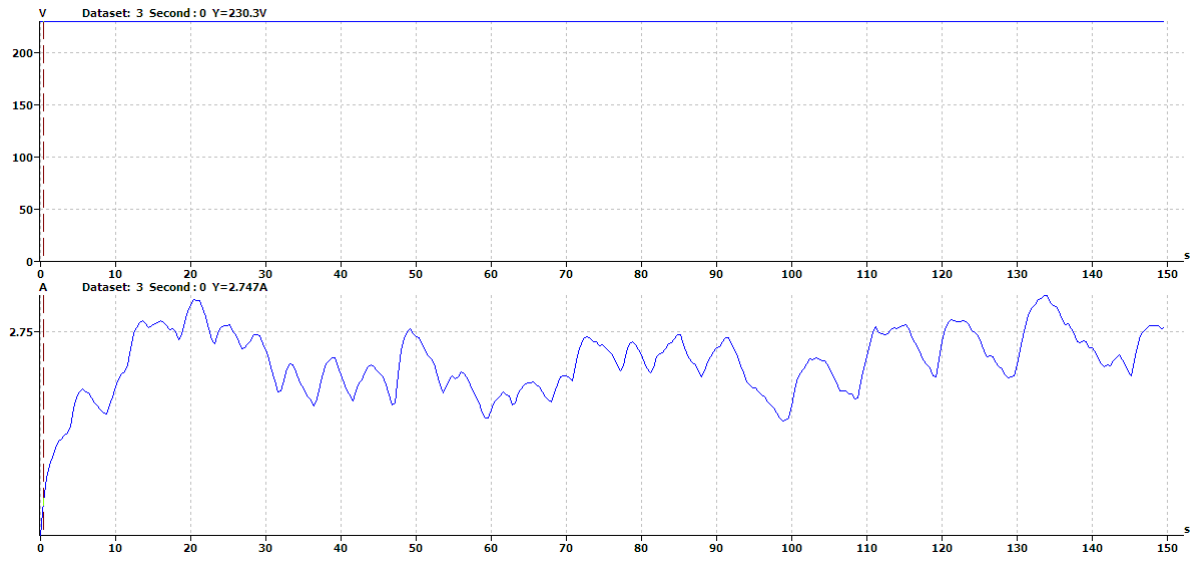
### Harmonic current results - DS: 1

| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 2.790                | 99.877               |           |        |
| 2  | 845.511E-6           | 0.030                | 2.00      | PASS   |
| 3  | 139.934E-3           | 5.009                | 29.75     | PASS   |
| 4  | 2.654E-3             | 0.095                |           | PASS   |
| 5  | 45.152E-3            | 1.616                | 10.00     | PASS   |
| 6  | 808.113E-6           | 0.029                |           | PASS   |
| 7  | 33.140E-3            | 1.186                | 7.00      | PASS   |
| 8  | 771.592E-6           | 0.028                |           | PASS   |
| 9  | 27.222E-3            | 0.974                | 5.00      | PASS   |
| 10 | 808.545E-6           | 0.029                |           | PASS   |
| 11 | 20.542E-3            | 0.735                | 3.00      | PASS   |
| 12 | 789.441E-6           | 0.028                |           | PASS   |
| 13 | 17.919E-3            | 0.641                | 3.00      | PASS   |
| 14 | 781.786E-6           | 0.028                |           | PASS   |
| 15 | 13.655E-3            | 0.489                | 3.00      | PASS   |
| 16 | 819.837E-6           | 0.029                |           | PASS   |
| 17 | 12.072E-3            | 0.432                | 3.00      | PASS   |
| 18 | 1.118E-3             | 0.040                |           | PASS   |
| 19 | 9.311E-3             | 0.333                | 3.00      | PASS   |
| 20 | 795.249E-6           | 0.028                |           | PASS   |
| 21 | 7.079E-3             | 0.253                | 3.00      | PASS   |
| 22 | 1.069E-3             | 0.038                |           | PASS   |
| 23 | 6.592E-3             | 0.236                | 3.00      | PASS   |
| 24 | 858.837E-6           | 0.031                |           | PASS   |
| 25 | 4.311E-3             | 0.154                | 3.00      | PASS   |
| 26 | 778.170E-6           | 0.028                |           | PASS   |
| 27 | 5.977E-3             | 0.214                | 3.00      | PASS   |
| 28 | 771.433E-6           | 0.028                |           | PASS   |
| 29 | 3.884E-3             | 0.139                | 3.00      | PASS   |
| 30 | 807.320E-6           | 0.029                |           | PASS   |
| 31 | 6.203E-3             | 0.222                | 3.00      | PASS   |
| 32 | 821.829E-6           | 0.029                |           | PASS   |
| 33 | 4.224E-3             | 0.151                | 3.00      | PASS   |
| 34 | 782.599E-6           | 0.028                |           | PASS   |
| 35 | 6.012E-3             | 0.215                | 3.00      | PASS   |
| 36 | 986.136E-6           | 0.035                |           | PASS   |
| 37 | 3.301E-3             | 0.118                | 3.00      | PASS   |
| 38 | 825.441E-6           | 0.030                |           | PASS   |
| 39 | 4.291E-3             | 0.154                | 3.00      | PASS   |
| 40 | 939.931E-6           | 0.034                |           | PASS   |

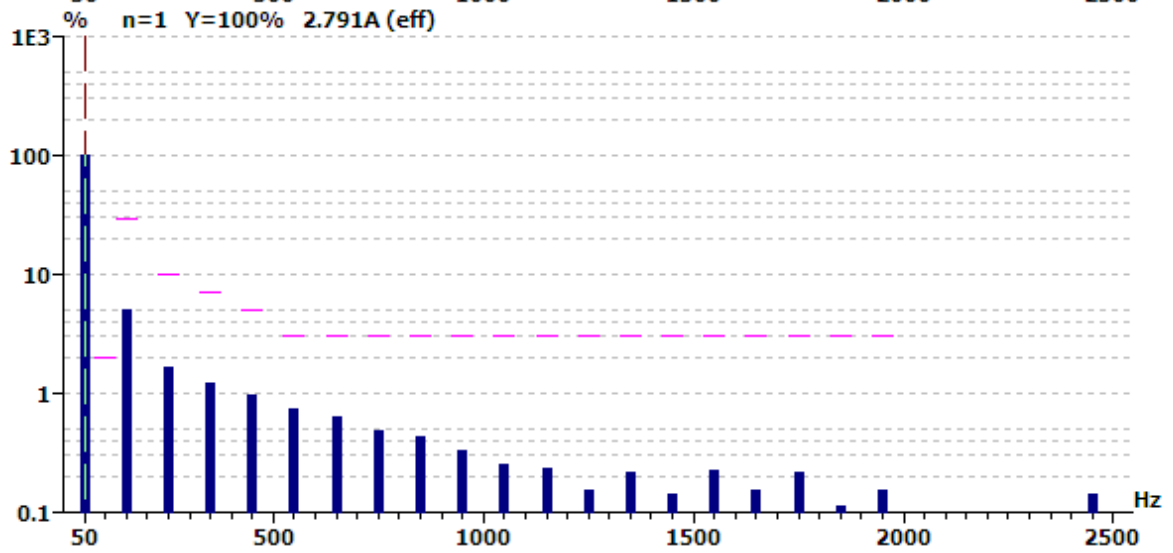
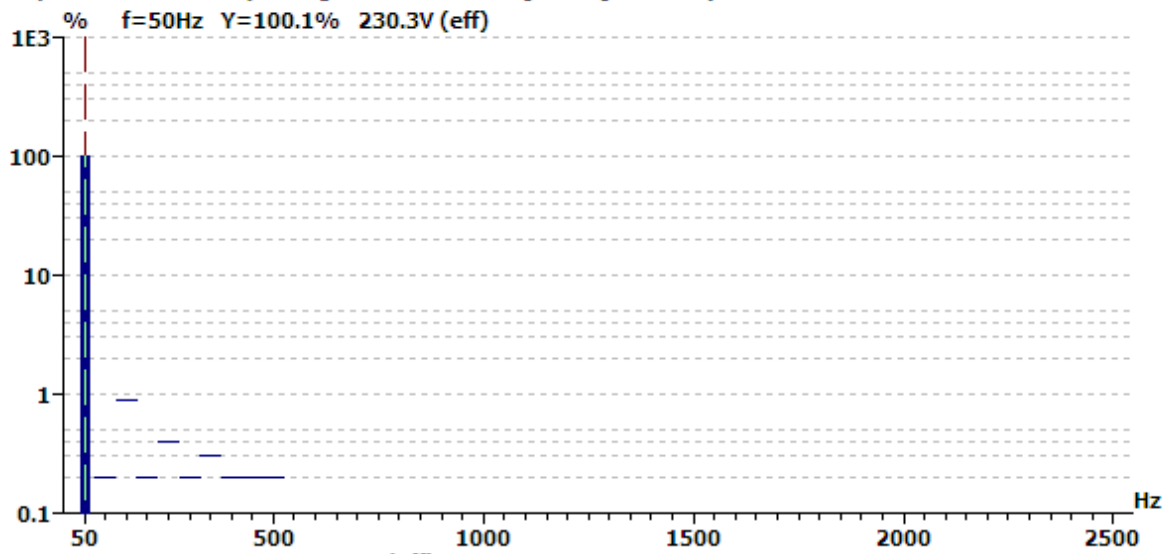
### Harmonic voltage results - DS: 1

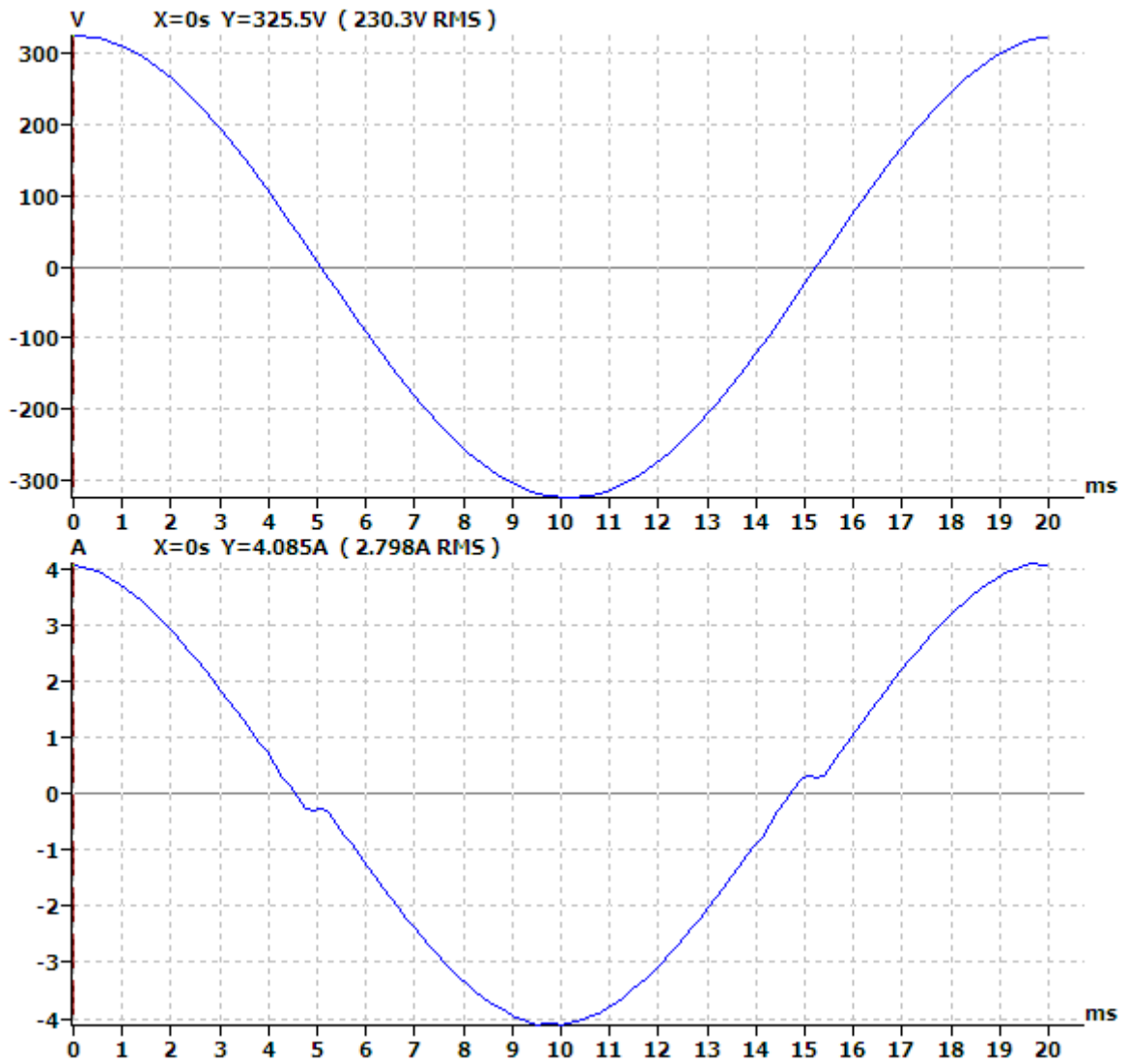
| Hn | Ueff [V] | Ueff [%] | Limit [%] | Result |
|----|----------|----------|-----------|--------|
| 1  | 230.27   | 100.116  |           |        |
| 2  | 69.38E-3 | 0.030    | 0.2       | PASS   |
| 3  | 90.49E-3 | 0.039    | 0.9       | PASS   |
| 4  | 5.92E-3  | 0.003    | 0.2       | PASS   |
| 5  | 64.05E-3 | 0.028    | 0.4       | PASS   |
| 6  | 6.41E-3  | 0.003    | 0.2       | PASS   |
| 7  | 29.00E-3 | 0.013    | 0.3       | PASS   |
| 8  | 3.86E-3  | 0.002    | 0.2       | PASS   |
| 9  | 57.93E-3 | 0.025    | 0.2       | PASS   |
| 10 | 4.29E-3  | 0.002    | 0.2       | PASS   |
| 11 | 25.96E-3 | 0.011    | 0.1       | PASS   |
| 12 | 15.24E-3 | 0.007    | 0.1       | PASS   |
| 13 | 82.14E-3 | 0.036    | 0.1       | PASS   |
| 14 | 3.80E-3  | 0.002    | 0.1       | PASS   |
| 15 | 15.43E-3 | 0.007    | 0.1       | PASS   |
| 16 | 3.22E-3  | 0.001    | 0.1       | PASS   |
| 17 | 74.56E-3 | 0.032    | 0.1       | PASS   |
| 18 | 2.28E-3  | 0.001    | 0.1       | PASS   |
| 19 | 19.84E-3 | 0.009    | 0.1       | PASS   |
| 20 | 4.73E-3  | 0.002    | 0.1       | PASS   |
| 21 | 71.79E-3 | 0.031    | 0.1       | PASS   |
| 22 | 1.39E-3  | 0.001    | 0.1       | PASS   |
| 23 | 43.89E-3 | 0.019    | 0.1       | PASS   |
| 24 | 2.42E-3  | 0.001    | 0.1       | PASS   |
| 25 | 54.37E-3 | 0.024    | 0.1       | PASS   |
| 26 | 3.41E-3  | 0.001    | 0.1       | PASS   |
| 27 | 53.62E-3 | 0.023    | 0.1       | PASS   |
| 28 | 3.42E-3  | 0.001    | 0.1       | PASS   |
| 29 | 35.97E-3 | 0.016    | 0.1       | PASS   |
| 30 | 1.10E-3  | 0.000    | 0.1       | PASS   |
| 31 | 59.57E-3 | 0.026    | 0.1       | PASS   |
| 32 | 2.06E-3  | 0.001    | 0.1       | PASS   |
| 33 | 26.02E-3 | 0.011    | 0.1       | PASS   |
| 34 | 2.19E-3  | 0.001    | 0.1       | PASS   |
| 35 | 59.89E-3 | 0.026    | 0.1       | PASS   |
| 36 | 3.01E-3  | 0.001    | 0.1       | PASS   |
| 37 | 12.35E-3 | 0.005    | 0.1       | PASS   |
| 38 | 1.74E-3  | 0.001    | 0.1       | PASS   |
| 39 | 57.64E-3 | 0.025    | 0.1       | PASS   |
| 40 | 2.43E-3  | 0.001    | 0.1       | PASS   |





No partial calculation (average odd harmonics [21..39] < 100%)





### 5.4.8 Harmonic Current Emission Test Data, Aurora 315W

|                            |   |
|----------------------------|---|
| Report title:              |   |
| Company Name:              |   |
| Date of test:              | 11:22 27.Jun 2018                                       |
| Measurement file name:     | Å¿ËË'5988E.rsd  |
| Tester:                    | Lobei   |
| Standard used:             | EN/IEC 61000-3-2 Ed.3 Short cyclic<br>Equipment class C |
| Observation time:          | 150s  |
| Windows width:             | 10 periods - (EN/IEC 61000-4-7 Edition 2002)            |
| Customer:                  |   |
| E. U. T.:                  |   |
| Measurement smoothed data: | Fund. Current: 1.461 A<br>Power Factor : 0.991          |

#### **Power and THD results - DS: 1**

|                   |          |                   |         |
|-------------------|----------|-------------------|---------|
| True power P:     | 258.4W   | Apparent power S: | 262.6VA |
| Reactiv power Q:  | 46.48var | Power factor:     | 0.984   |
| THD (U):          | 0.001    | THD (I):          | 0.057   |
| Crest Factor (U): | 1.414    | Crest Factor (I): | 1.482   |

#### **Check harmonics 2..40 [exception odd 21..39]:**

|  |      |
|--|------|
| <b>Harmonic(s) &gt; 150%:</b>              |      |
| Order (n):                                 | None |
| <b>Harmonic(s) with average &gt; 100%:</b> |      |
| Order (n):                                 | None |

#### **Check odd harmonics 21..39:**

|  |      |
|--|------|
| <b>All Partial Odd Harmonics below partial limits.</b> |      |
| <b>Harmonic(s) &gt; 150%:</b>                          |      |
| Order (n):   | None |
| <b>Harmonic(s) with average &gt; 150%:</b>             |      |
| Order (n):   | None |

### Average harmonic current results

| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 1.422                | 97.333               |           |        |
| 2  | 1.138E-3             | 0.078                | 2.00      | PASS   |
| 3  | 65.663E-3            | 4.493                | 29.72     | PASS   |
| 4  | 3.868E-3             | 0.265                |           | PASS   |
| 5  | 21.897E-3            | 1.498                | 10.00     | PASS   |
| 6  | 2.728E-3             | 0.187                |           | PASS   |
| 7  | 12.323E-3            | 0.843                | 7.00      | PASS   |
| 8  | 995.392E-6           | 0.068                |           | PASS   |
| 9  | 12.307E-3            | 0.842                | 5.00      | PASS   |
| 10 | 993.672E-6           | 0.068                |           | PASS   |
| 11 | 10.410E-3            | 0.712                | 3.00      | PASS   |
| 12 | 898.772E-6           | 0.062                |           | PASS   |
| 13 | 5.596E-3             | 0.383                | 3.00      | PASS   |
| 14 | 1.010E-3             | 0.069                |           | PASS   |
| 15 | 6.069E-3             | 0.415                | 3.00      | PASS   |
| 16 | 885.524E-6           | 0.061                |           | PASS   |
| 17 | 5.221E-3             | 0.357                | 3.00      | PASS   |
| 18 | 1.194E-3             | 0.082                |           | PASS   |
| 19 | 3.260E-3             | 0.223                | 3.00      | PASS   |
| 20 | 901.756E-6           | 0.062                |           | PASS   |
| 21 | 2.488E-3             | 0.170                | 4.50      | PASS   |
| 22 | 1.053E-3             | 0.072                |           | PASS   |
| 23 | 3.807E-3             | 0.261                | 4.50      | PASS   |
| 24 | 878.852E-6           | 0.060                |           | PASS   |
| 25 | 2.826E-3             | 0.193                | 4.50      | PASS   |
| 26 | 878.122E-6           | 0.060                |           | PASS   |
| 27 | 2.836E-3             | 0.194                | 4.50      | PASS   |
| 28 | 883.311E-6           | 0.060                |           | PASS   |
| 29 | 3.478E-3             | 0.238                | 4.50      | PASS   |
| 30 | 878.205E-6           | 0.060                |           | PASS   |
| 31 | 3.130E-3             | 0.214                | 4.50      | PASS   |
| 32 | 940.279E-6           | 0.064                |           | PASS   |
| 33 | 2.466E-3             | 0.169                | 4.50      | PASS   |
| 34 | 858.065E-6           | 0.059                |           | PASS   |
| 35 | 2.583E-3             | 0.177                | 4.50      | PASS   |
| 36 | 1.034E-3             | 0.071                |           | PASS   |
| 37 | 1.473E-3             | 0.101                | 4.50      | PASS   |
| 38 | 850.279E-6           | 0.058                |           | PASS   |
| 39 | 1.054E-3             | 0.072                | 4.50      | PASS   |
| 40 | 962.825E-6           | 0.066                |           | PASS   |

### Maximum harmonic current results

| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 1.461                | 100.000              |           |        |
| 2  | 2.077E-3             | 0.142                | 3.00      | PASS   |
| 3  | 67.248E-3            | 4.602                | 44.59     | PASS   |
| 4  | 4.189E-3             | 0.287                |           | PASS   |
| 5  | 22.540E-3            | 1.542                | 15.00     | PASS   |
| 6  | 3.202E-3             | 0.219                |           | PASS   |
| 7  | 12.905E-3            | 0.883                | 10.50     | PASS   |
| 8  | 1.262E-3             | 0.086                |           | PASS   |
| 9  | 13.210E-3            | 0.904                | 7.50      | PASS   |
| 10 | 1.176E-3             | 0.080                |           | PASS   |
| 11 | 10.749E-3            | 0.736                | 4.50      | PASS   |
| 12 | 1.022E-3             | 0.070                |           | PASS   |
| 13 | 5.892E-3             | 0.403                | 4.50      | PASS   |
| 14 | 1.208E-3             | 0.083                |           | PASS   |
| 15 | 6.422E-3             | 0.439                | 4.50      | PASS   |
| 16 | 1.028E-3             | 0.070                |           | PASS   |
| 17 | 5.551E-3             | 0.380                | 4.50      | PASS   |
| 18 | 1.445E-3             | 0.099                |           | PASS   |
| 19 | 3.850E-3             | 0.263                | 4.50      | PASS   |
| 20 | 1.177E-3             | 0.081                |           | PASS   |
| 21 | 2.850E-3             | 0.195                | 4.50      | PASS   |
| 22 | 1.247E-3             | 0.085                |           | PASS   |
| 23 | 4.035E-3             | 0.276                | 4.50      | PASS   |
| 24 | 1.009E-3             | 0.069                |           | PASS   |
| 25 | 4.034E-3             | 0.276                | 4.50      | PASS   |
| 26 | 995.482E-6           | 0.068                |           | PASS   |
| 27 | 3.270E-3             | 0.224                | 4.50      | PASS   |
| 28 | 1.062E-3             | 0.073                |           | PASS   |
| 29 | 3.787E-3             | 0.259                | 4.50      | PASS   |
| 30 | 1.051E-3             | 0.072                |           | PASS   |
| 31 | 3.518E-3             | 0.241                | 4.50      | PASS   |
| 32 | 1.119E-3             | 0.077                |           | PASS   |
| 33 | 2.738E-3             | 0.187                | 4.50      | PASS   |
| 34 | 1.061E-3             | 0.073                |           | PASS   |
| 35 | 3.001E-3             | 0.205                | 4.50      | PASS   |
| 36 | 1.218E-3             | 0.083                |           | PASS   |
| 37 | 1.842E-3             | 0.126                | 4.50      | PASS   |
| 38 | 991.186E-6           | 0.068                |           | PASS   |
| 39 | 1.422E-3             | 0.097                | 4.50      | PASS   |
| 40 | 1.115E-3             | 0.076                |           | PASS   |



### Maximum harmonic voltage results

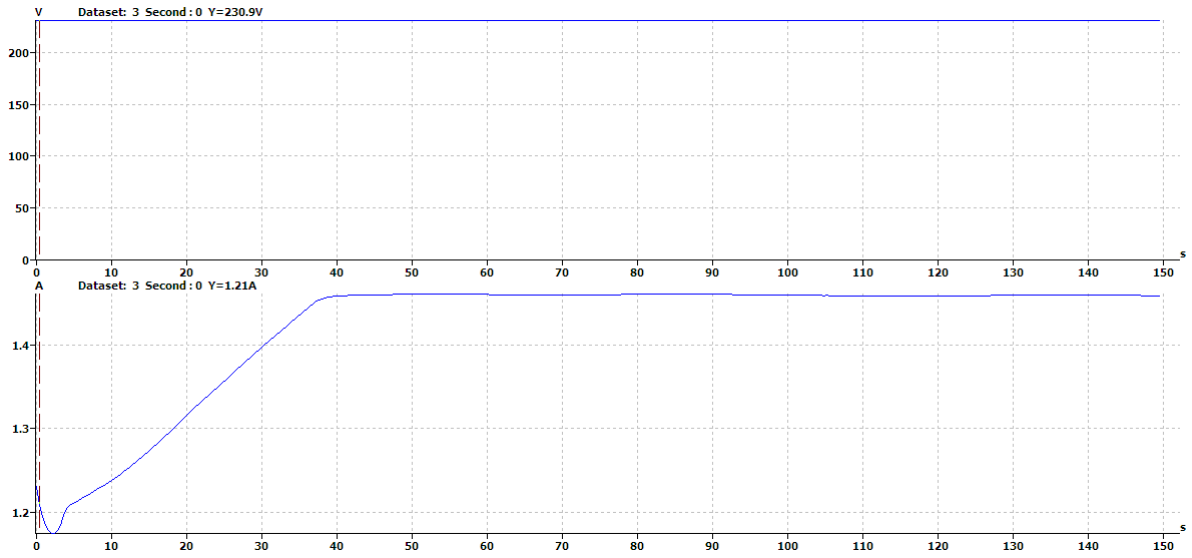
| Hn | Ueff [V]  | Ueff [%] | Limit [%] | Result |
|----|-----------|----------|-----------|--------|
| 1  | 230.91    | 100.394  |           |        |
| 2  | 82.02E-3  | 0.036    | 0.2       | PASS   |
| 3  | 106.83E-3 | 0.046    | 0.9       | PASS   |
| 4  | 12.16E-3  | 0.005    | 0.2       | PASS   |
| 5  | 27.40E-3  | 0.012    | 0.4       | PASS   |
| 6  | 12.60E-3  | 0.005    | 0.2       | PASS   |
| 7  | 56.22E-3  | 0.024    | 0.3       | PASS   |
| 8  | 10.16E-3  | 0.004    | 0.2       | PASS   |
| 9  | 68.26E-3  | 0.030    | 0.2       | PASS   |
| 10 | 17.49E-3  | 0.008    | 0.2       | PASS   |
| 11 | 21.71E-3  | 0.009    | 0.1       | PASS   |
| 12 | 17.39E-3  | 0.008    | 0.1       | PASS   |
| 13 | 78.68E-3  | 0.034    | 0.1       | PASS   |
| 14 | 13.31E-3  | 0.006    | 0.1       | PASS   |
| 15 | 64.95E-3  | 0.028    | 0.1       | PASS   |
| 16 | 13.17E-3  | 0.006    | 0.1       | PASS   |
| 17 | 47.41E-3  | 0.021    | 0.1       | PASS   |
| 18 | 11.46E-3  | 0.005    | 0.1       | PASS   |
| 19 | 74.94E-3  | 0.033    | 0.1       | PASS   |
| 20 | 11.40E-3  | 0.005    | 0.1       | PASS   |
| 21 | 57.51E-3  | 0.025    | 0.1       | PASS   |
| 22 | 13.01E-3  | 0.006    | 0.1       | PASS   |
| 23 | 65.33E-3  | 0.028    | 0.1       | PASS   |
| 24 | 10.97E-3  | 0.005    | 0.1       | PASS   |
| 25 | 67.28E-3  | 0.029    | 0.1       | PASS   |
| 26 | 12.61E-3  | 0.005    | 0.1       | PASS   |
| 27 | 40.72E-3  | 0.018    | 0.1       | PASS   |
| 28 | 11.46E-3  | 0.005    | 0.1       | PASS   |
| 29 | 67.87E-3  | 0.030    | 0.1       | PASS   |
| 30 | 13.10E-3  | 0.006    | 0.1       | PASS   |
| 31 | 53.22E-3  | 0.023    | 0.1       | PASS   |
| 32 | 10.42E-3  | 0.005    | 0.1       | PASS   |
| 33 | 45.45E-3  | 0.020    | 0.1       | PASS   |
| 34 | 11.25E-3  | 0.005    | 0.1       | PASS   |
| 35 | 48.37E-3  | 0.021    | 0.1       | PASS   |
| 36 | 11.00E-3  | 0.005    | 0.1       | PASS   |
| 37 | 34.87E-3  | 0.015    | 0.1       | PASS   |
| 38 | 11.80E-3  | 0.005    | 0.1       | PASS   |
| 39 | 45.24E-3  | 0.020    | 0.1       | PASS   |
| 40 | 13.41E-3  | 0.006    | 0.1       | PASS   |

### Harmonic current results - DS: 1

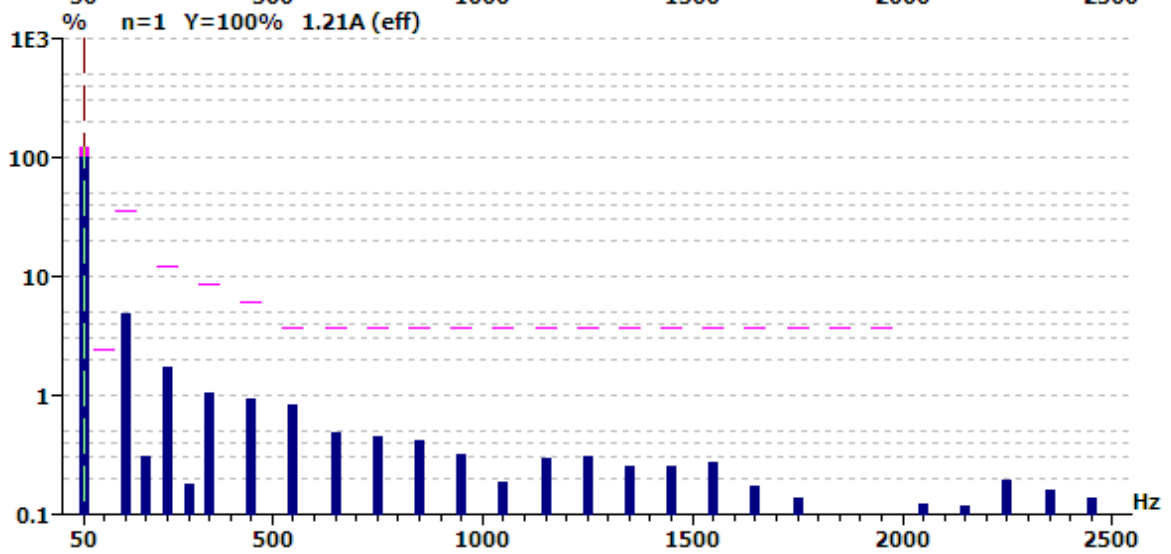
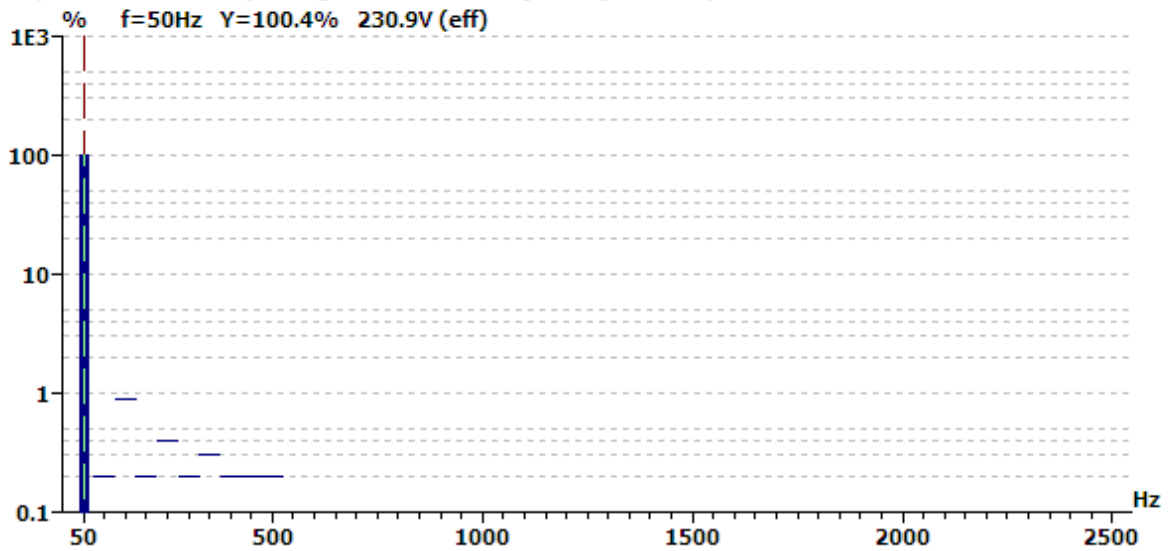
| Hn | I <sub>eff</sub> [A] | I <sub>eff</sub> [%] | Limit [%] | Result |
|----|----------------------|----------------------|-----------|--------|
| 1  | 1.231                | 84.257               |           |        |
| 2  | 977.738E-6           | 0.067                | 2.00      | PASS   |
| 3  | 59.032E-3            | 4.040                | 29.72     | PASS   |
| 4  | 3.719E-3             | 0.254                |           | PASS   |
| 5  | 20.640E-3            | 1.412                | 10.00     | PASS   |
| 6  | 2.196E-3             | 0.150                |           | PASS   |
| 7  | 12.658E-3            | 0.866                | 7.00      | PASS   |
| 8  | 913.652E-6           | 0.063                |           | PASS   |
| 9  | 11.118E-3            | 0.761                | 5.00      | PASS   |
| 10 | 977.269E-6           | 0.067                |           | PASS   |
| 11 | 10.169E-3            | 0.696                | 3.00      | PASS   |
| 12 | 856.176E-6           | 0.059                |           | PASS   |
| 13 | 5.790E-3             | 0.396                | 3.00      | PASS   |
| 14 | 857.430E-6           | 0.059                |           | PASS   |
| 15 | 5.366E-3             | 0.367                | 3.00      | PASS   |
| 16 | 745.638E-6           | 0.051                |           | PASS   |
| 17 | 4.993E-3             | 0.342                | 3.00      | PASS   |
| 18 | 1.171E-3             | 0.080                |           | PASS   |
| 19 | 3.812E-3             | 0.261                | 3.00      | PASS   |
| 20 | 792.074E-6           | 0.054                |           | PASS   |
| 21 | 2.276E-3             | 0.156                | 3.00      | PASS   |
| 22 | 1.124E-3             | 0.077                |           | PASS   |
| 23 | 3.596E-3             | 0.246                | 3.00      | PASS   |
| 24 | 767.440E-6           | 0.053                |           | PASS   |
| 25 | 3.713E-3             | 0.254                | 3.00      | PASS   |
| 26 | 813.270E-6           | 0.056                |           | PASS   |
| 27 | 3.090E-3             | 0.211                | 3.00      | PASS   |
| 28 | 815.370E-6           | 0.056                |           | PASS   |
| 29 | 3.090E-3             | 0.211                | 3.00      | PASS   |
| 30 | 755.088E-6           | 0.052                |           | PASS   |
| 31 | 3.349E-3             | 0.229                | 3.00      | PASS   |
| 32 | 794.602E-6           | 0.054                |           | PASS   |
| 33 | 2.052E-3             | 0.140                | 3.00      | PASS   |
| 34 | 779.012E-6           | 0.053                |           | PASS   |
| 35 | 1.743E-3             | 0.119                | 3.00      | PASS   |
| 36 | 0.998E-3             | 0.068                |           | PASS   |
| 37 | 1.006E-3             | 0.069                | 3.00      | PASS   |
| 38 | 790.237E-6           | 0.054                |           | PASS   |
| 39 | 965.710E-6           | 0.066                | 3.00      | PASS   |
| 40 | 924.418E-6           | 0.063                |           | PASS   |

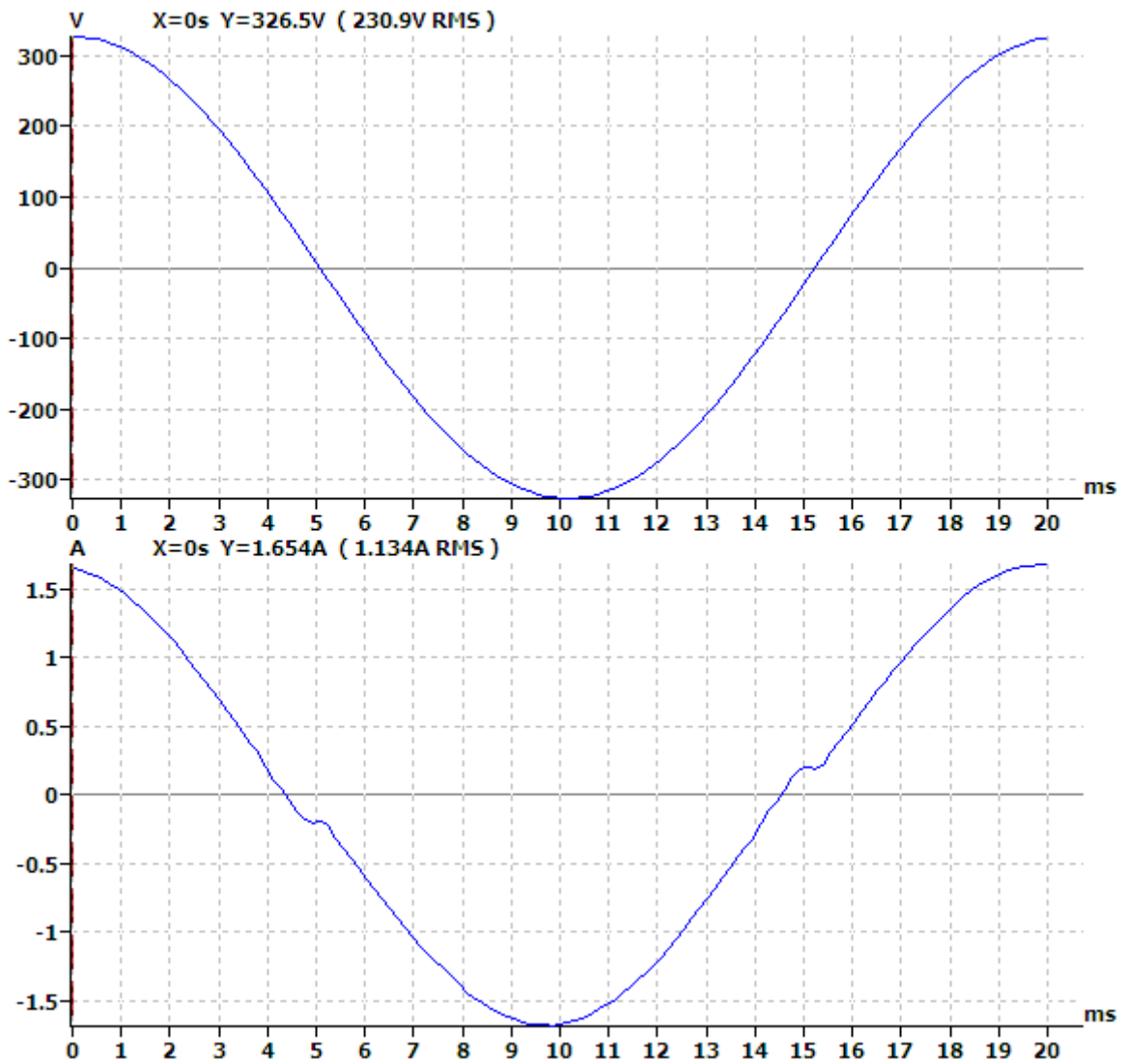
### Harmonic voltage results - DS: 1

| Hn | Ueff [V]  | Ueff [%] | Limit [%] | Result |
|----|-----------|----------|-----------|--------|
| 1  | 230.90    | 100.393  |           |        |
| 2  | 76.01E-3  | 0.033    | 0.2       | PASS   |
| 3  | 100.58E-3 | 0.044    | 0.9       | PASS   |
| 4  | 4.44E-3   | 0.002    | 0.2       | PASS   |
| 5  | 22.37E-3  | 0.010    | 0.4       | PASS   |
| 6  | 5.10E-3   | 0.002    | 0.2       | PASS   |
| 7  | 40.44E-3  | 0.018    | 0.3       | PASS   |
| 8  | 5.51E-3   | 0.002    | 0.2       | PASS   |
| 9  | 52.59E-3  | 0.023    | 0.2       | PASS   |
| 10 | 12.12E-3  | 0.005    | 0.2       | PASS   |
| 11 | 8.69E-3   | 0.004    | 0.1       | PASS   |
| 12 | 10.75E-3  | 0.005    | 0.1       | PASS   |
| 13 | 53.24E-3  | 0.023    | 0.1       | PASS   |
| 14 | 3.36E-3   | 0.001    | 0.1       | PASS   |
| 15 | 64.60E-3  | 0.028    | 0.1       | PASS   |
| 16 | 2.46E-3   | 0.001    | 0.1       | PASS   |
| 17 | 20.32E-3  | 0.009    | 0.1       | PASS   |
| 18 | 3.16E-3   | 0.001    | 0.1       | PASS   |
| 19 | 48.40E-3  | 0.021    | 0.1       | PASS   |
| 20 | 4.30E-3   | 0.002    | 0.1       | PASS   |
| 21 | 56.04E-3  | 0.024    | 0.1       | PASS   |
| 22 | 5.99E-3   | 0.003    | 0.1       | PASS   |
| 23 | 23.87E-3  | 0.010    | 0.1       | PASS   |
| 24 | 3.53E-3   | 0.002    | 0.1       | PASS   |
| 25 | 51.84E-3  | 0.023    | 0.1       | PASS   |
| 26 | 5.05E-3   | 0.002    | 0.1       | PASS   |
| 27 | 36.23E-3  | 0.016    | 0.1       | PASS   |
| 28 | 7.96E-3   | 0.003    | 0.1       | PASS   |
| 29 | 26.53E-3  | 0.012    | 0.1       | PASS   |
| 30 | 911.78E-6 | 0.000    | 0.1       | PASS   |
| 31 | 42.84E-3  | 0.019    | 0.1       | PASS   |
| 32 | 4.12E-3   | 0.002    | 0.1       | PASS   |
| 33 | 23.65E-3  | 0.010    | 0.1       | PASS   |
| 34 | 4.81E-3   | 0.002    | 0.1       | PASS   |
| 35 | 32.70E-3  | 0.014    | 0.1       | PASS   |
| 36 | 6.14E-3   | 0.003    | 0.1       | PASS   |
| 37 | 32.32E-3  | 0.014    | 0.1       | PASS   |
| 38 | 2.13E-3   | 0.001    | 0.1       | PASS   |
| 39 | 28.95E-3  | 0.013    | 0.1       | PASS   |
| 40 | 1.19E-3   | 0.001    | 0.1       | PASS   |



No partial calculation (average odd harmonics [21..39] < 100%)





## 6 Immunity Test Results

### 6.1 Performance Criteria

**Performance criterion A:** During the test, no change of the luminous intensity shall be observed and the regulating control, if any, shall operate during the test as intended.

**Performance criterion B:** During the test, the luminous intensity may change to any value. After the test, the luminous intensity shall be restored to its initial value within 1 min. Regulating controls need not function during the test, but after the test, the mode of the control shall be the same as before the test provided that during the test no mode changing commands were given.

**Performance criterion C:** During and after the test, any change of the luminous intensity is allowed and the lamp(s) may be extinguished. After the test, within 30 min, all functions shall return to normal, if necessary by temporary interruption of the mains supply and/or operating the regulating control.

### 6.2 Electrostatic Discharge (ESD)

|                                  |   |   |
|----------------------------------|---|---|
| <b>Test Requirement</b> .....    | : | EN 61547  |
| <b>Test Method</b> .....         | : | IEC 61000-4-2   |
| <b>Test Result</b> .....         | : | Pass  |
| <b>Discharge Impedance</b> ..... | : | 330Ω / 150pF  |
| <b>Discharge Voltage</b> .....   | : | Air Discharge: ±8kV<br>Contact Discharge: ±4kV<br>HCP & VCP: ±4kV |
| <b>Polarity</b> .....            | : | Positive & Negative   |
| <b>Number of Discharge</b> ..... | : | Minimum 10 times at each test point                               |
| <b>Discharge Mode</b> .....      | : | Single Discharge  |
| <b>Discharge Period</b> .....    | : | 1 second minimum  |

#### 6.2.1 E.U.T. Operation

##### Operating Environment:

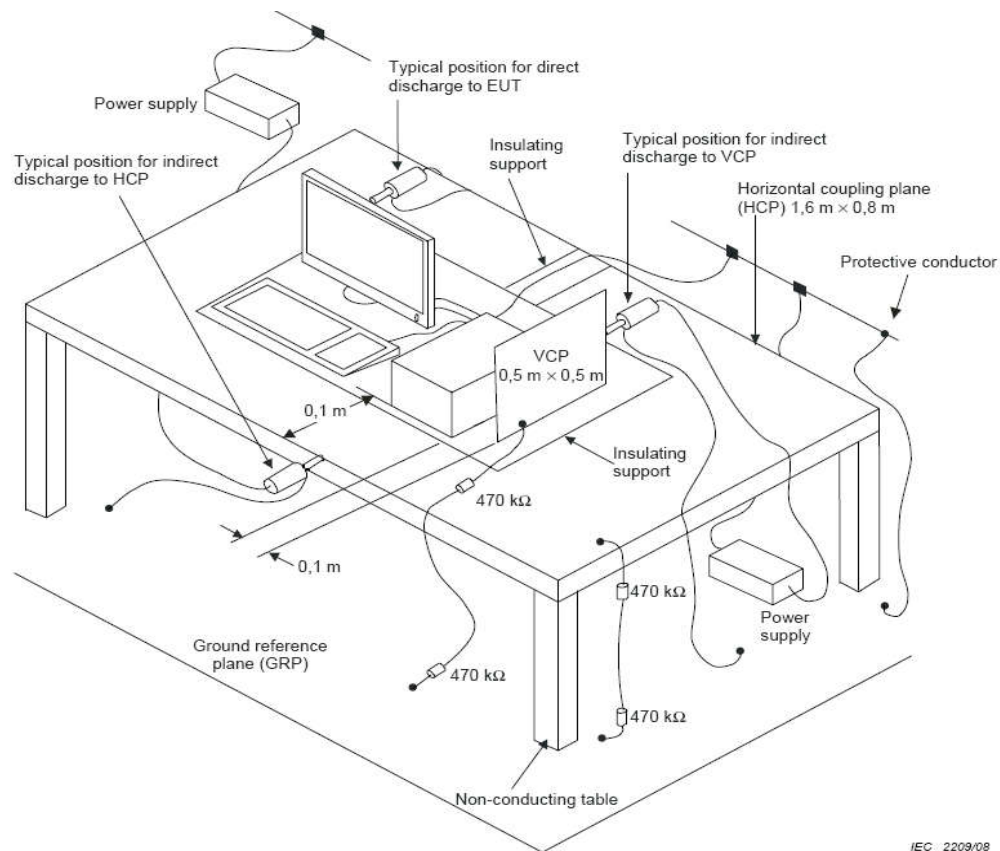
|                                  |   |          |
|----------------------------------|---|----------|
| <b>Temperature</b> .....         | : | 24°C     |
| <b>Humidity</b> .....            | : | 48%RH    |
| <b>Barometric Pressure</b> ..... | : | 100.3kPa |

##### EUT Operation:

|                             |   |   |
|-----------------------------|---|---|
| <b>Input Voltage</b> .....  | : | 230V~, 50Hz   |
| <b>Operating Mode</b> ..... | : | Mode1: Dimming 100% mode<br>Mode2: Dimming super mode |

## 6.2.2 Block Diagram of Setup

The ESD test was performed in accordance with the IEC 61000-4-2.



## 6.2.3 Direct Discharge Test Results

Observations:

Test points:

1. All Exposed Surface & Seams;
2. All metallic part

| Direct Discharge     |                       |            | Test Results      |               |
|----------------------|-----------------------|------------|-------------------|---------------|
| Applied Voltage (kV) | Performance Criterion | Test Point | Contact Discharge | Air Discharge |
| ±8                   | B                     | 1          | N/A               | Pass*         |
| ±4                   | B                     | 2          | Pass*             | N/A           |

Remark:

- \* During the test no deviation was detected to the selected operation mode(s)



## 6.2.4 Indirect Discharge Test Results

Observations: Test points: 1. All sides.

| Indirect Discharge   |                       |            | Test Results        |                   |
|----------------------|-----------------------|------------|---------------------|-------------------|
| Applied Voltage (kV) | Performance Criterion | Test Point | Horizontal Coupling | Vertical Coupling |
| ±4                   | B                     | 1          | Pass*               | Pass*             |

Remark:

\* During the test no deviation was detected to the selected operation mode(s)

## 6.3 Radio-frequency electromagnetic fields, 80MHz to 1GHz

Test Requirement ..... : EN 61547  
 Test Method ..... : IEC 61000-4-3  
 Test Result ..... : Pass  
 Frequency Range ..... : 80MHz to 1GHz  
 Test level ..... : 3V/m  
 Modulation ..... : 80%, 1kHz Amplitude Modulation.  
 Face of EUT ..... : Front, Back, Left, Right  
 Antenna polarisation..... : Horizontal& Vertical

### 6.3.1E.U.T. Operation

Operating Environment:

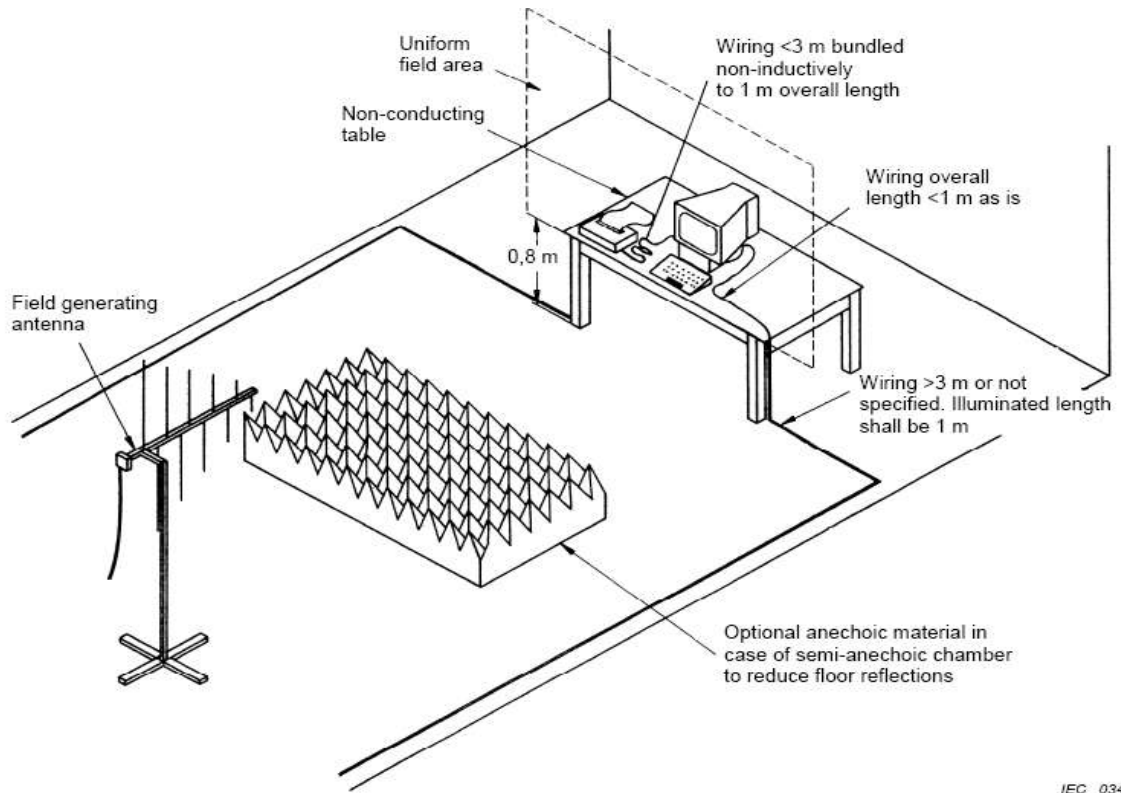
Temperature ..... : 24.0°C  
 Humidity ..... : 60%RH

EUT Operation:

Input Voltage ..... : 230V~, 50Hz  
 Operating Mode ..... : Mode1: Dimming 100% mode  
 Mode2: Dimming super mode

### 6.3.2 Block Diagram of Setup

The Radio-frequency electromagnetic fields Immunity test was performed in accordance with the IEC 61000-4-3.



IEC 034/06

### 6.3.3 Test Results

| Frequency     | Face of EUT              | Antenna polarisation | Test Level | Step Size | Dwell Time | Performance Criterion | Result |
|---------------|--------------------------|----------------------|------------|-----------|------------|-----------------------|--------|
| 80 to 1000MHz | Front, Back, Left, Right | Horizontal           | 3V/m       | 1%        | 3s         | A                     | Pass*  |
| 80 to 1000MHz | Front, Back, Left, Right | Vertical             | 3V/m       | 1%        | 3s         | A                     | Pass*  |

Remark:

- \* During the test no deviation was detected to the selected operation mode(s)

## 6.4 Electrical Fast Transients (EFT)

|                           |   |                                |
|---------------------------|---|--------------------------------|
| Test Requirement.....     | : | EN 61547                       |
| Test Method.....          | : | IEC 61000-4-4                  |
| Test Result.....          | : | Pass                           |
| Test Level .....          | : | 1.0kV on AC Mains              |
| Polarity .....            | : | Positive & Negative            |
| Repetition Frequency .... | : | 5kHz                           |
| Burst Duration .....      | : | 300ms                          |
| Test Duration.....        | : | 2 minutes per level & polarity |

### 6.4.1 E.U.T. Operation

#### Operating Environment:

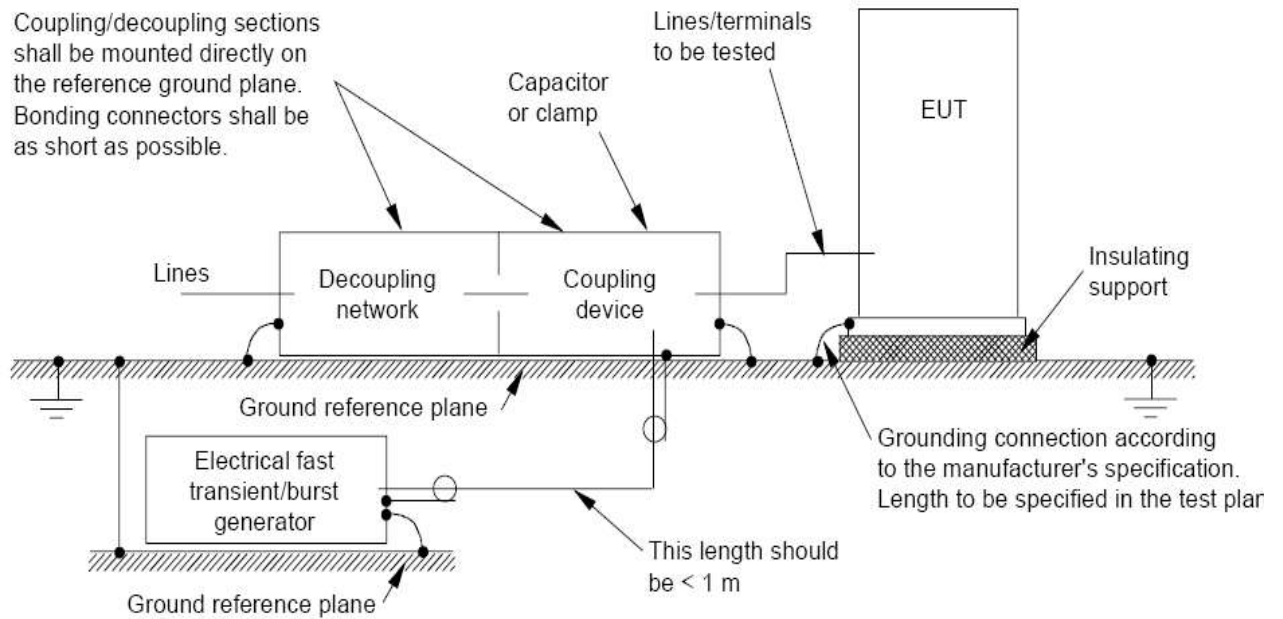
|                   |   |       |
|-------------------|---|-------|
| Temperature ..... | : | 24°C  |
| Humidity.....     | : | 60%RH |

#### EUT Operation:

|                     |   |   |
|---------------------|---|---|
| Input Voltage ..... | : | 230V~, 50Hz   |
| Operating Mode..... | : | Mode1: Dimming 100% mode<br>Mode2: Dimming super mode |

### 6.4.2 Block Diagram of Setup

The Electrical Fast Transients Immunity test was performed in accordance with the IEC 61000-4-4.



IEC 900/1

### 6.4.3 Test Results

| Test Port       | Test Level(kV) | Performance Criterion | Result |
|-----------------|----------------|-----------------------|--------|
| Line-Neutral-PE | ±1.0           | B                     | Pass*  |

Remark:

- \* During the test no deviation was detected to the selected operation mode(s)

### 6.5 Surge

**Test Requirement**..... : EN 61547  
**Test Method**..... : IEC 61000-4-5  
**Test Result**..... : Pass  
**Test level**..... : Table 10 of EN 61547  
**Interval** ..... : 60s between each surge  
**No. of surges** ..... : 5 positive at 90°, 5 negative at 270°.

#### 6.5.1E.U.T. Operation

**Operating Environment:**

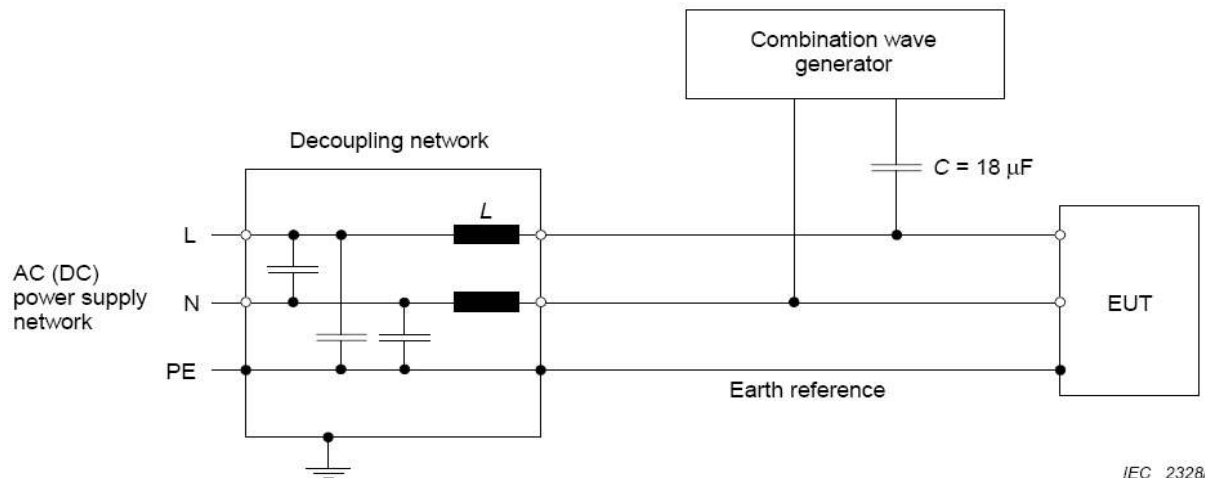
**Temperature** ..... : 24°C  
**Humidity**..... : 60%RH

**EUT Operation:**

**Input Voltage** ..... : 230V~, 50Hz  
**Operating Mode**..... : Mode1: Dimming 100% mode  
 Mode2: Dimming super mode

#### 6.5.2Block Diagram of Setup

The Surge Immunity test was performed in accordance with the IEC 61000-4-5.



IEC 2328/05

#### 6.5.3Test Results

| Test Port                  | Applied Voltage (kV) | Performance criterion | Result |
|----------------------------|----------------------|-----------------------|--------|
| Between Live And Neutral   | ±1                   | C                     | Pass*  |
| Between Live And Earth:    | ±2                   | C                     | Pass*  |
| Between Neutral And Earth: | ±2                   | C                     | Pass*  |

Remark:

\* During the test no deviation was detected to the selected operation mode(s)

### 6.6 Injected Currents Immunity 0.15MHz to 80MHz

**Test Requirement** ..... : EN 61547  
**Test Method** ..... : IEC 61000-4-6  
**Test Result** ..... : Pass  
**Frequency Range** ..... : 0.15MHz to 80MHz  
**Test level** ..... : 3V r.m.s. (unmodulated emf into 150 Ω)  
**Modulation** ..... : 80%, 1kHz Amplitude Modulation.

#### 6.6.1 E.U.T. Operation

**Operating Environment:**

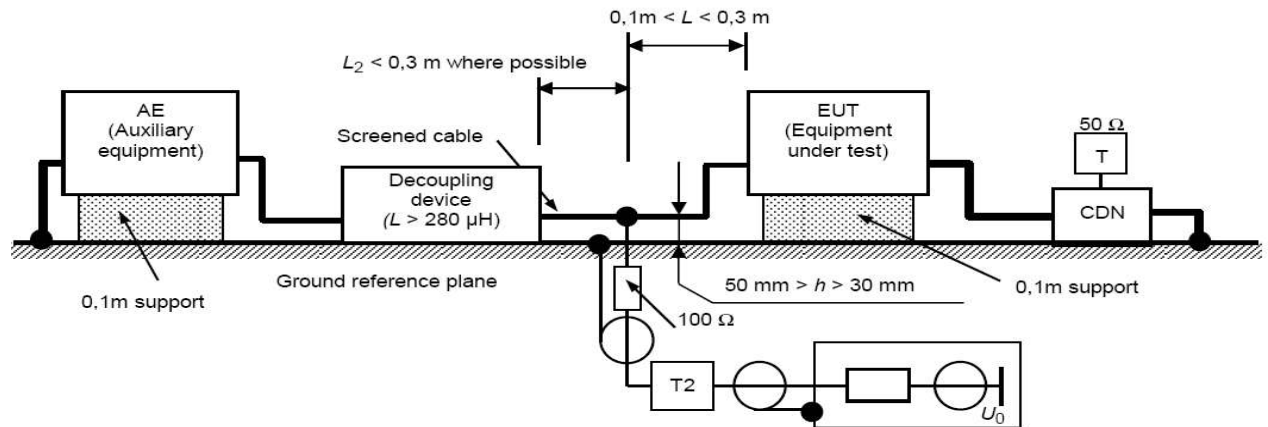
**Temperature** ..... : 24°C  
**Humidity** ..... : 60%RH

**EUT Operation:**

**Input Voltage** ..... : 230V~, 50Hz  
**Operating Mode** ..... : Mode1: Dimming 100% mode  
 Mode2: Dimming super mode

#### 6.6.2 Block Diagram of Setup

The Injected Currents Immunity test was performed in accordance with the IEC 61000-4-6.



IEC 1586/03

#### 6.6.3 Test Results

| Frequency        | Line                    | Test Level | Modulation          | Step Size | Dwell Time | Performance Criterion | Result |
|------------------|-------------------------|------------|---------------------|-----------|------------|-----------------------|--------|
| 0.15MHz to 80MHz | 3 Wire AC Supply Cables | 3Vr.m.s.   | 80%, 1kHz Amp. Mod. | 1%        | 3s         | A                     | Pass*  |

Remark:

\* During the test no deviation was detected to the selected operation mode(s)

### 6.7 Voltage Dips and Interruptions

**Test Requirement**..... EN 61547  
**Test Method**..... IEC 61000-4-11  
**Test Result**..... Pass  
**Test Level(Voltage reduction)** 0%&70 % of  $U_T$  (Supply Voltage)  
**No. of Dips / Interruptions**..... 1 per Level at 20ms intervals

#### 6.7.1 E.U.T. Operation

**Operating Environment:**

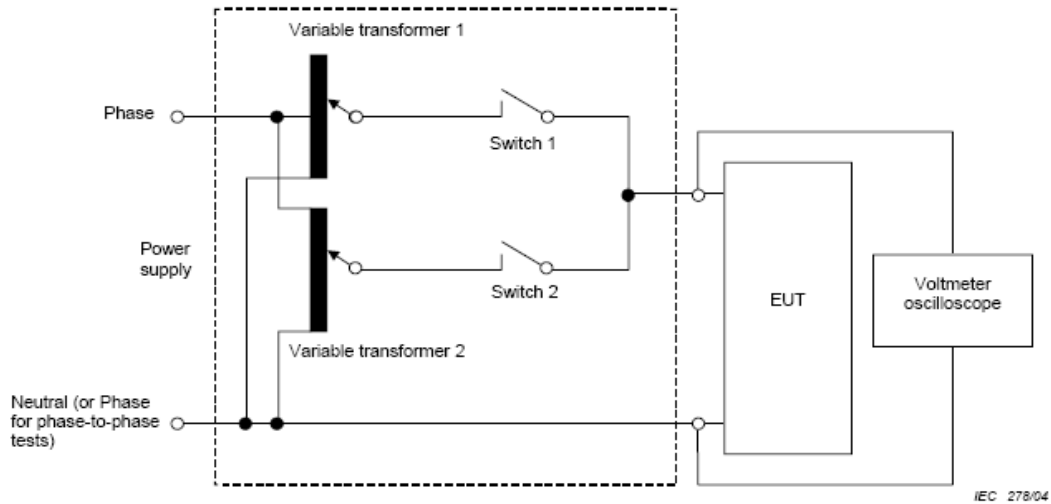
**Temperature** ..... 24°C  
**Humidity**..... 60%RH

**EUT Operation:**

**Input Voltage** ..... 230V~, 50Hz  
**Operating Mode**..... Mode1: Dimming 100% mode  
 Mode2: Dimming super mode

#### 6.7.2 Block Diagram of Setup

The Voltage Dips and Interruptions Immunity test was performed in accordance with the IEC 61000-4-11.



#### 6.7.3 Test Results

| Test Level in % $U_T$ | Phase     | Performance criterion | Duration | Result |
|-----------------------|-----------|-----------------------|----------|--------|
| 0                     | 0° & 180° | B                     | 0.5      | Pass*  |
| 70                    | 0° & 180° | C                     | 10       | Pass*  |

Remark:

\* During the test no deviation was detected to the selected operation mode(s)



## 7 Photographs – Test Setup

### 7.1 Photograph – Mains Terminal Disturbance Voltage Test Setup



### 7.2 Photograph – Radiated electromagnetic disturbance Test Setup, 9kHz to 30MHz



### 7.3 Photograph – Radiated Emission Test Setup, 30MHz to 300MHz



### 7.4 Photograph – Harmonic Current and Flicker Test Setup



### 7.5 Photograph – ESD Immunity Test Setup



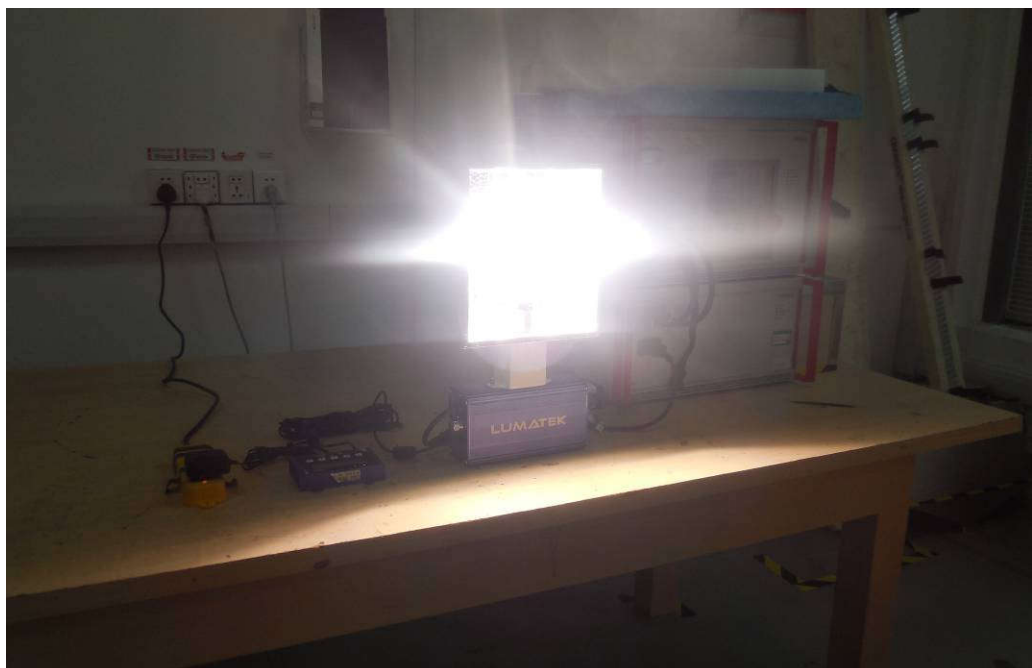
### 7.6 Photograph – Radio-frequency electromagnetic fields Immunity Test Setup



### 7.7 Photograph – EFT & Voltage Dips and Interruptions Immunity Test Setup



### 7.8 Photograph – Surge Immunity Test Setup



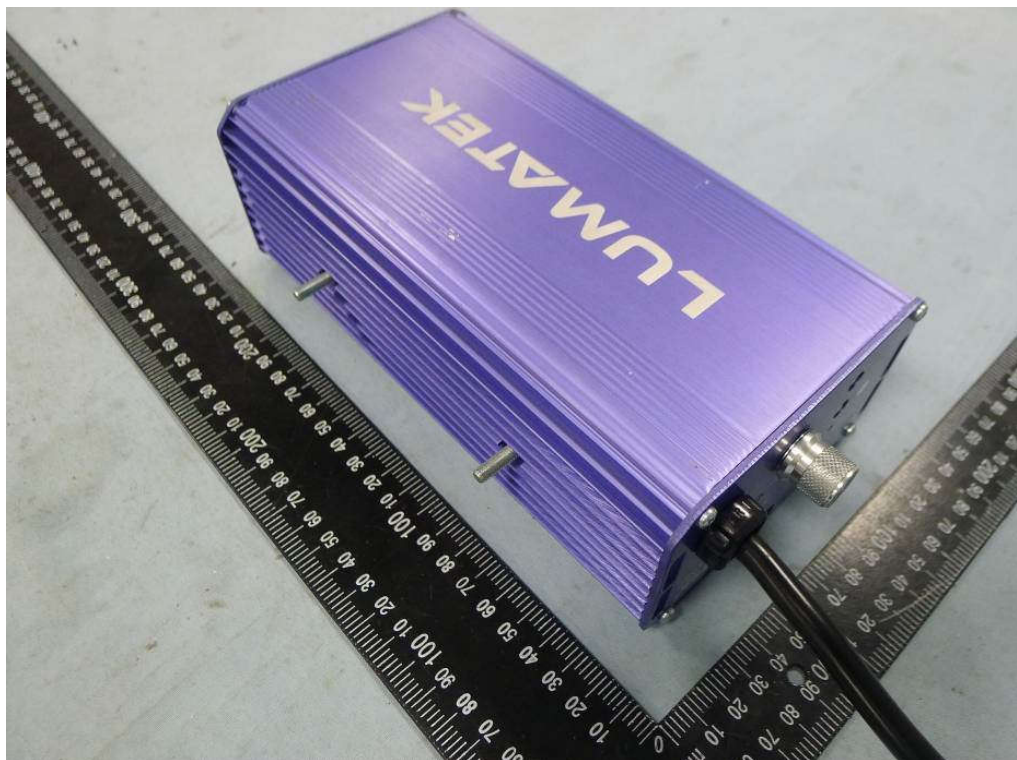
## 7.9 Photograph – Injected Currents Immunity Test Setup



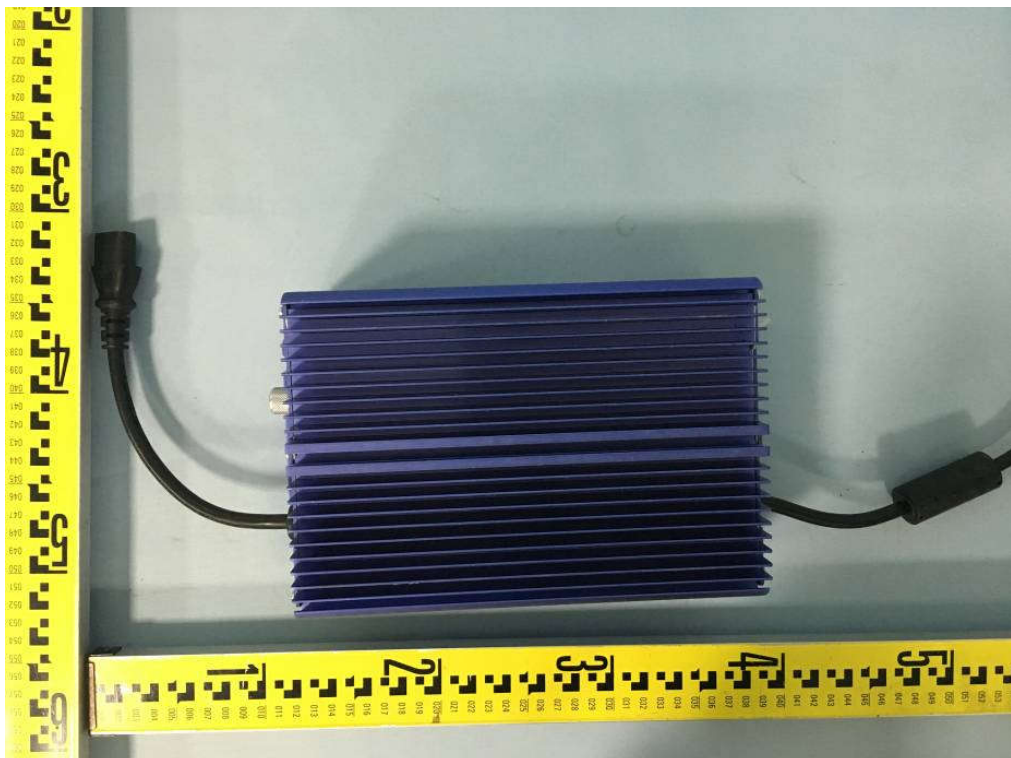


## 8 Photographs – Constructional Details

### 8.1 EUT – Appearance View, Aurora 315W



## 8.2 EUT – Appearance View, Pro 1000W 400V

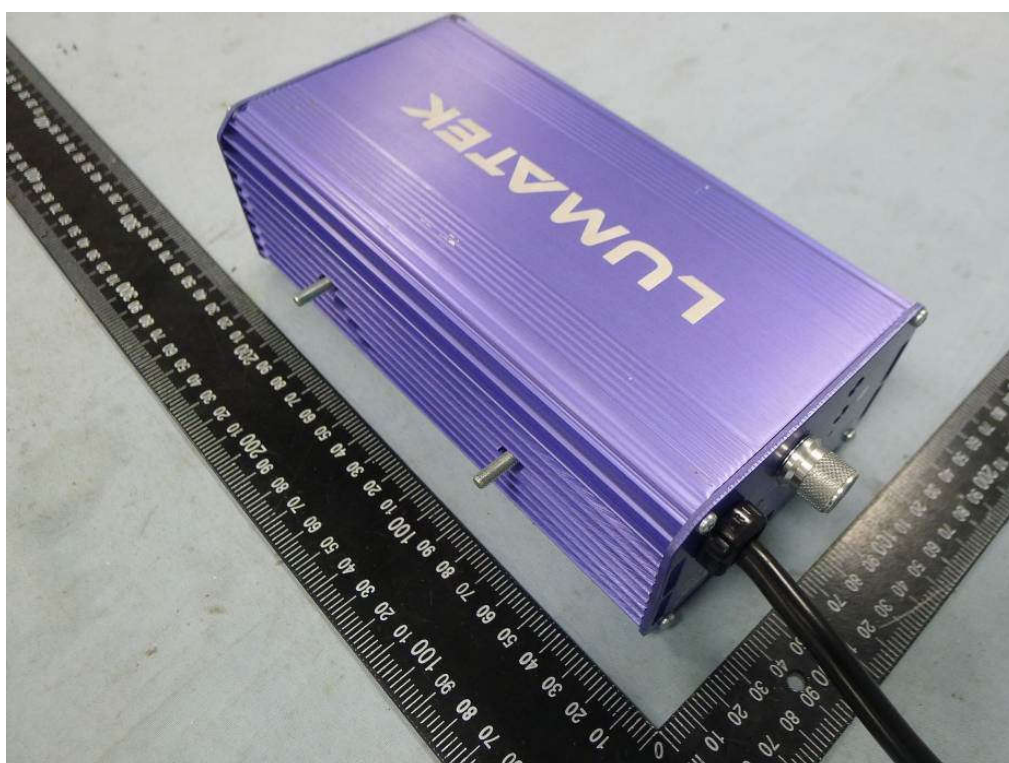
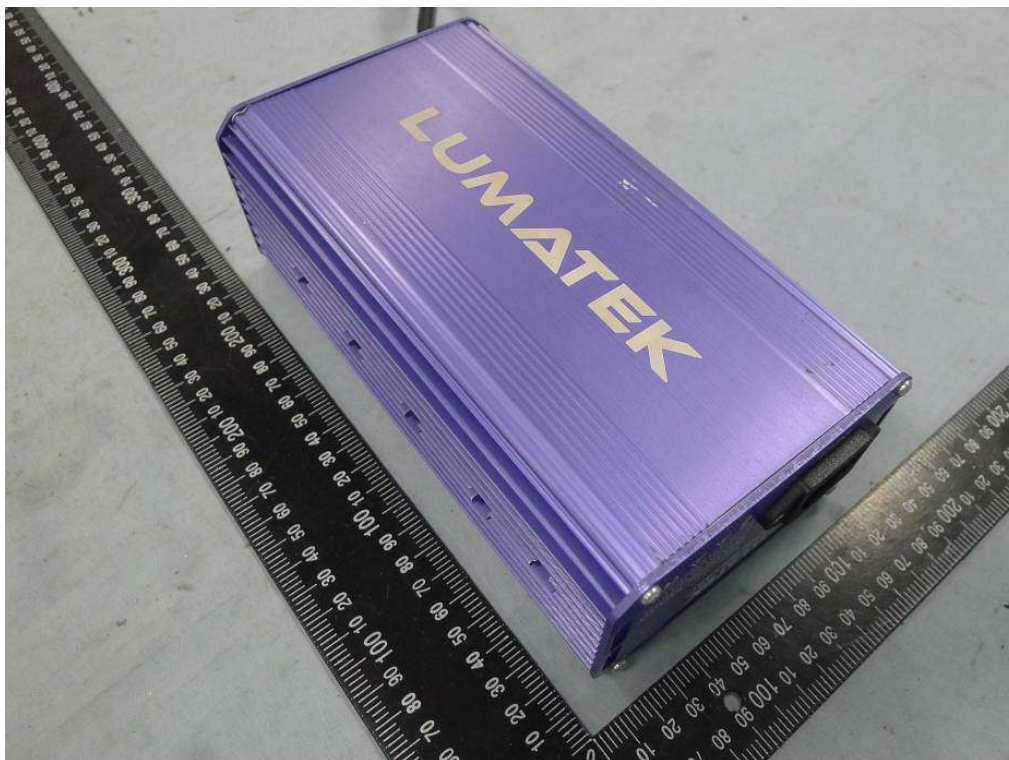




### 8.3 EUT – Appearance View, 1000W



### 8.4 EUT – Appearance View, 315W

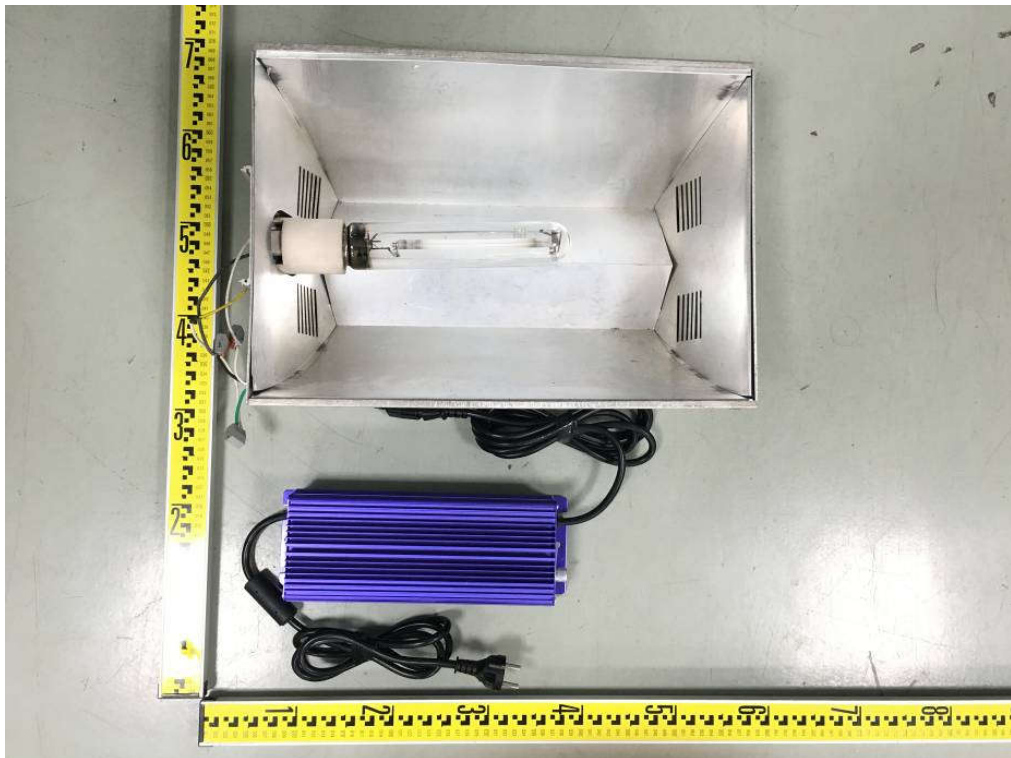




### 8.5 EUT – Appearance View, 600W



### 8.6 EUT – Appearance View, 630W



====End of Report====