

Traco Power

Model: TOP 100-112

EMC – Test Report

Amendment to EMC-Report: EMC_TOP100_112_19.12.08

EUT: Traco Power Model: TOP 100-112

Serial No.: 51314074302

Manufacturer No.: 100HPP182

Manufacturer: Convertec Ltd.
Whitemill Industrial Estate
Wexford
Republic of Ireland

Tester: Gunnar Tapper, Convertec Ltd

Date: 17/06/2014

It should be noted, that combining two or more CE compliant finished appliances does not automatically produce a compliant system. The manufacturer of an apparatus or a fixed installation as defined in the “Guide for the EMC Directive 2004/108EC, 21. May 2007” is responsible for the EMC-compliance of the final apparatus.

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1. Conducted RF Immunity Test at AC Mains Terminals

Equipment under Test: TOP 100-112
EUT Serial No.: 51314074302
Customer Spec: CS-100HPPseries.doc
Date: 16/06/2014
Standard: IEC61000-6-2: 2005 referring to IEC 61000-4-6:2004

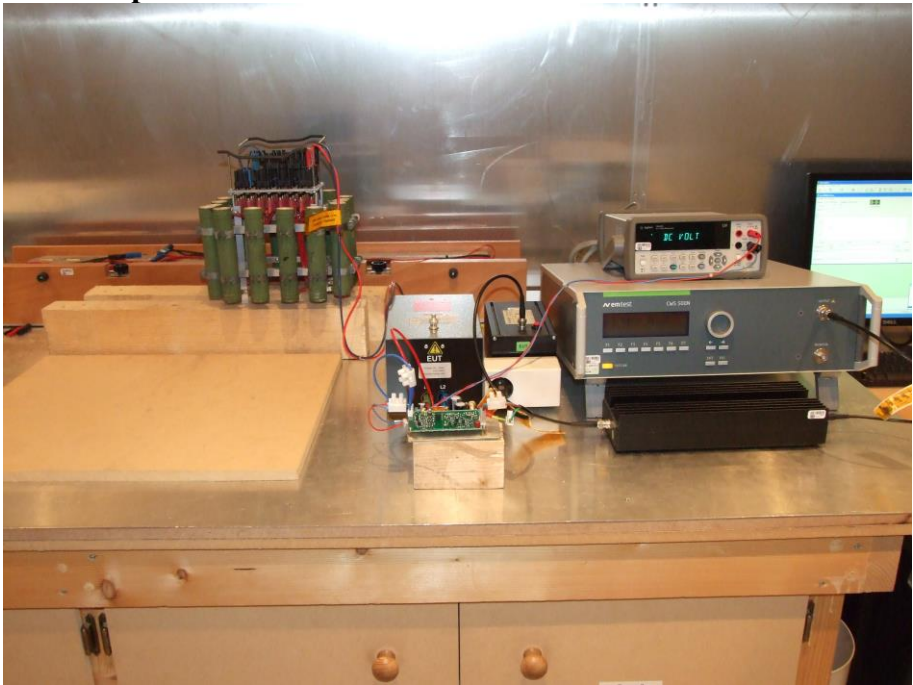
- Notes:**
- EUT tested under normal operating conditions of 230V 50Hz input at nominal load (12V/8.3A Resistive).
 - Test carried out using test generator “EM Test CWS 500N”, Coupling/Decoupling network “EM Test CDN M2/M3”, an attenuator “EM Test ATT6/75” and measurement instrument “Agilent 34410A”.
 - Unit tested to IEC61000-4-6 test level 3.

1.1. Test Setup

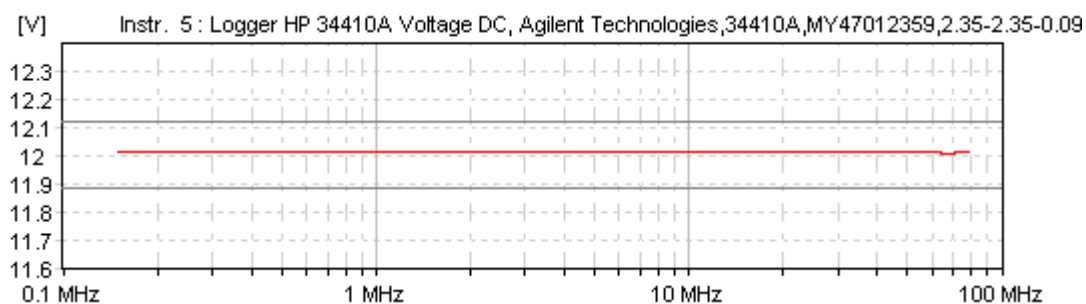
Test Equipment Settings:

| Frq. start [MHz] | Level start [V] | Frq. stop [MHz] | Level stop [V] | Frq. step | td [s] | tp [s] | Modulation |
|------------------|-----------------|-----------------|----------------|-----------|--------|--------|-------------|
| 0.150 | 10.0 | 80.000 | 10.0 | 1.0 % | 0.5 | 0.0 | AM 1kHz 80% |

Test Setup:



1.2. Conducted RF Immunity Test Results



Conclusion:

The EUT meets Classification A (Ref. Section 9, IEC 61000-4-3).

The test results were evaluated in relation to the Customer Specification

CS-100HPPseries.doc and the output did not change by more than $\pm 120\text{mV}$ therefore the EUT was considered to have PASSED the tests.

PASS

2. Conducted RF Immunity Test at DC Output Terminals

Equipment under Test: TOP 100-112
EUT Serial No.: 51314074302
Customer Spec: CS-100HPPseries.doc
Date: 17/06/2014
Standard: IEC61000-6-2: 2005 referring to IEC 61000-4-6:2004

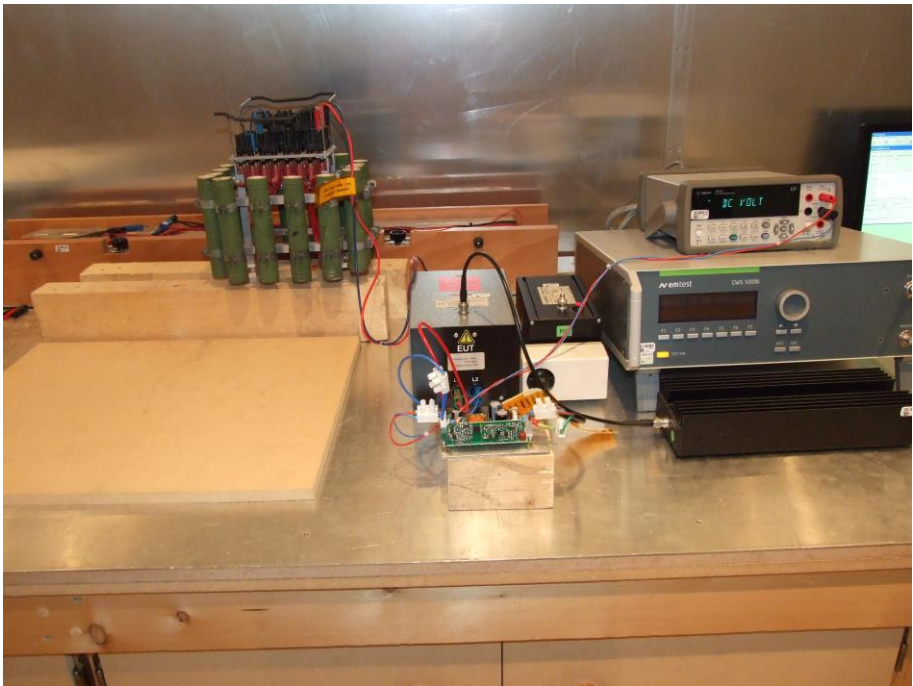
- Notes:**
- EUT tested under normal operating conditions of 230V 50Hz input at nominal load (12V/8.3A Resistive).
 - Test carried out using test generator “EM Test CWS 500N”, Coupling/Decoupling network “EM Test CDN M2/M3”, an attenuator “EM Test ATT6/75”, measurement instrument “Agilent 34410A” and FCC-801-M2-50A Coupling/Decoupling network.
 - Unit tested to IEC61000-4-6 test level 3.

2.1. Test Setup:

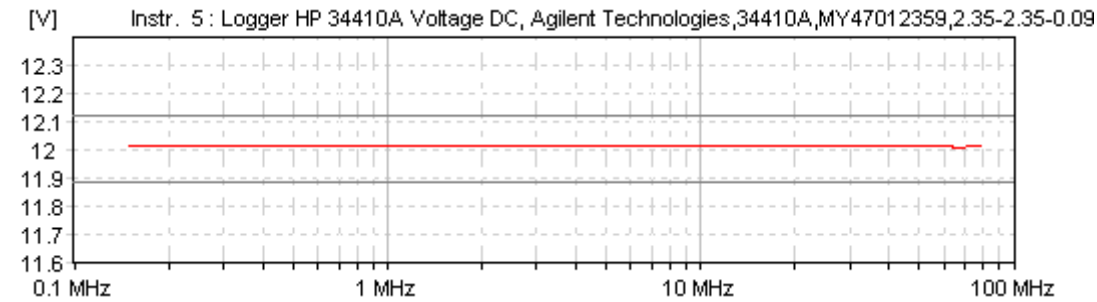
Test Equipment Settings:

| Frq. start [MHz] | Level start [V] | Frq. stop [MHz] | Level stop [V] | Frq. step | td [s] | tp [s] | Modulation |
|---------------------|--------------------|--------------------|-------------------|-----------|-----------|-----------|-------------|
| 0.150 | 10.0 | 80.000 | 10.0 | 1.0 % | 0.5 | 0.0 | AM 1kHz 80% |

Test Setup:



2.2. Conducted RF Immunity Test Results



Conclusion:
Meets Classification A (Ref. Section 9, IEC 61000-4-3)
Test Results were evaluated in relation to the Customer Specification
CS-100HPPseries.doc and the output did not change by more than +/-120mV therefore
the EUT was considered to have PASSED the tests.

PASS

3. Radiated RF Immunity Test

Equipment under Test: TOP 100-112
EUT Serial No.: 51314074302
Customer Spec: CS-100HPPseries.doc
Date: 17/06/2014
Standard: IEC61000-6-2: 2005 referring to IEC61000-4-3: 2004

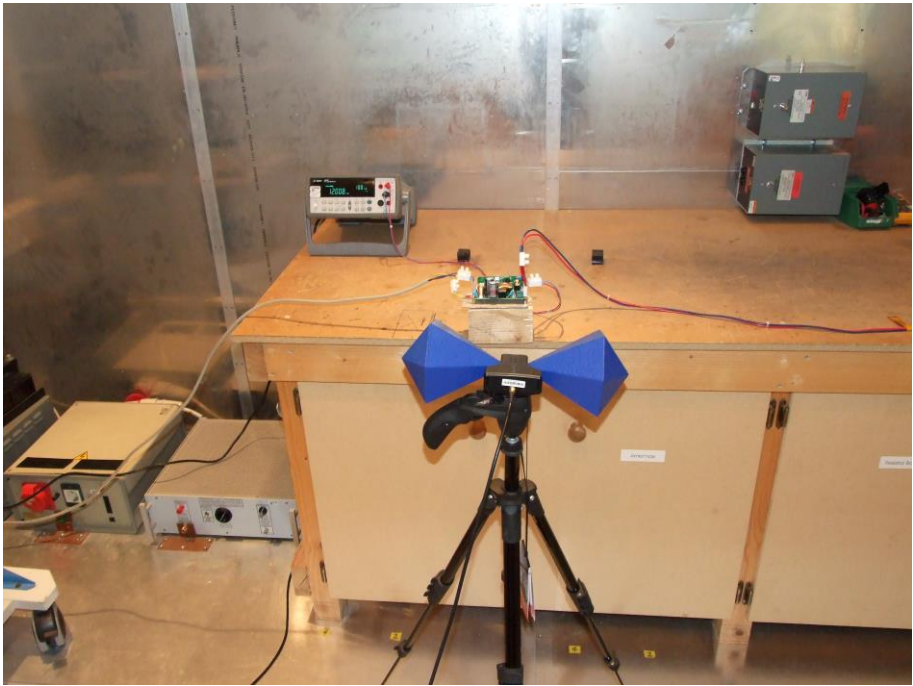
- Notes:**
- EUT tested under normal operating conditions of 230V 50Hz input at nominal load (12V/8.3A Resistive).
 - Test carried out using test generator “EM Test CWS 500N”, Antenna BicoLOG 30100 X and Digitizing Multi Meter “Agilent 34405A”
 - Measurement was carried out in a shielded room
 - The input power port of the EUT was connected to mains via a 1.5m 3-core cable
 - The output power port of the EUT was connected to the resistor bank via 1.5m long single core wires –wire size 14AWG

3.1. Test Setup

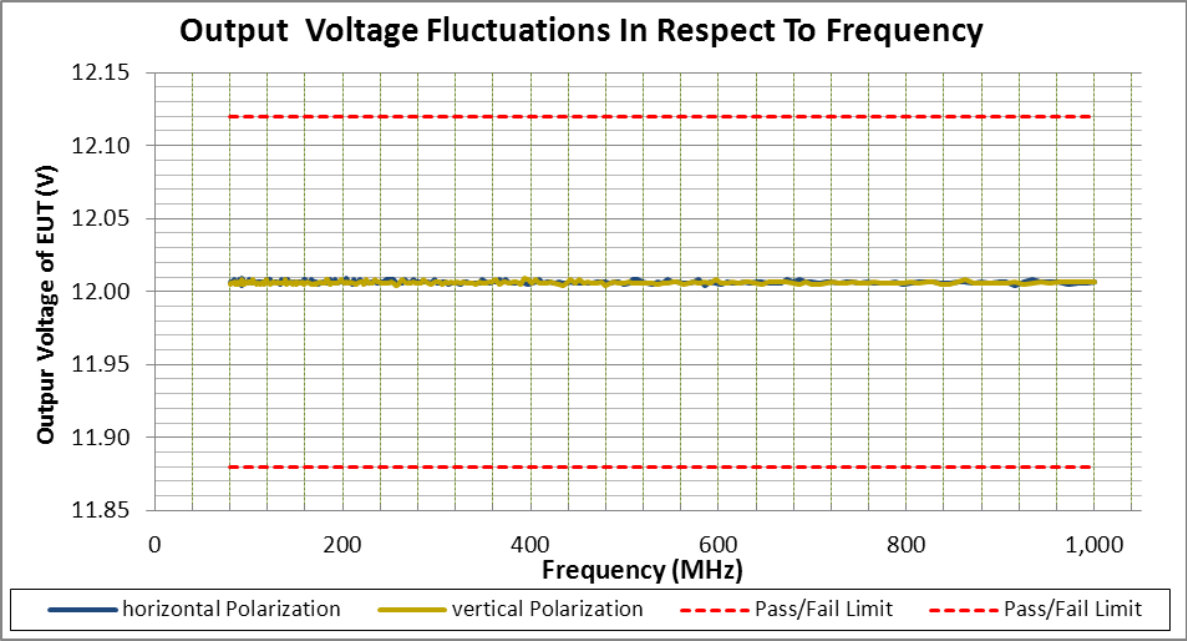
Test Equipment Settings:

| Frq. start [MHz] | Level start [V/m] | Frq. stop [MHz] | Level stop [V/m] | Frq. step | td [s] |
|---------------------|----------------------|--------------------|---------------------|-----------|-----------|
| 80.0 | 10.0 | 1000.0 | 10.0 | 1.0 % | 1 |

Test Setup:



3.2. Radiated RF Immunity Test Results



Conclusion:
The EUT meets classification A (Ref. Section 9, IEC 61000-4-3). The test results were evaluated in relation to the Customer Specification CS-100HPPseries.doc and the output did not change by more than +/-120mV therefore the EUT was considered to have PASSED the tests.

PASS

4. Power Frequency Magnetic Field Immunity Test

Equipment under Test: TOP 100-112
EUT Serial No.: 51314074302
Customer Spec: CS-100HPPseries.doc
Date: 17/06/2014
Standard: IEC61000-6-2: 2005 referring to IEC61000-4-8: 2001

Notes:

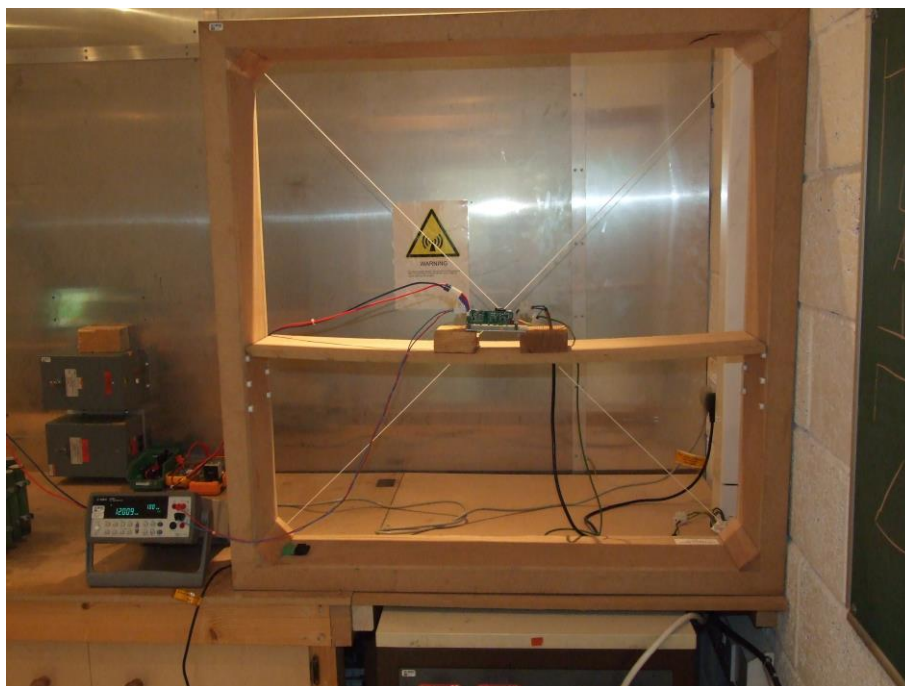
- EUT tested under normal operating conditions of 230V 50Hz input at nominal load (12V/8.3A Resistive).
- Test carried out using test generator “Chroma Programmable AC Source”, “1meter x 1meter 100 turn Induction Coil” and measurement instrument “Agilent 34405A”.
- Unit only required to meet test level 4 but tested to IEC61000-4-8 test levels 5.

4.1. Test Setup

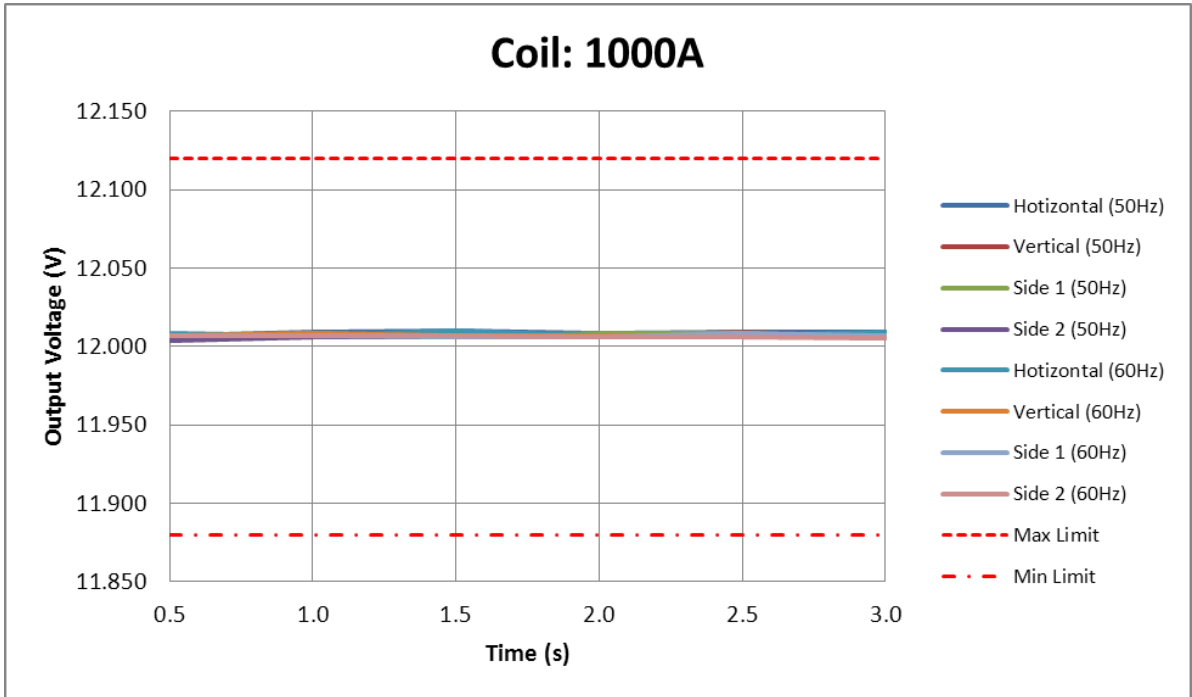
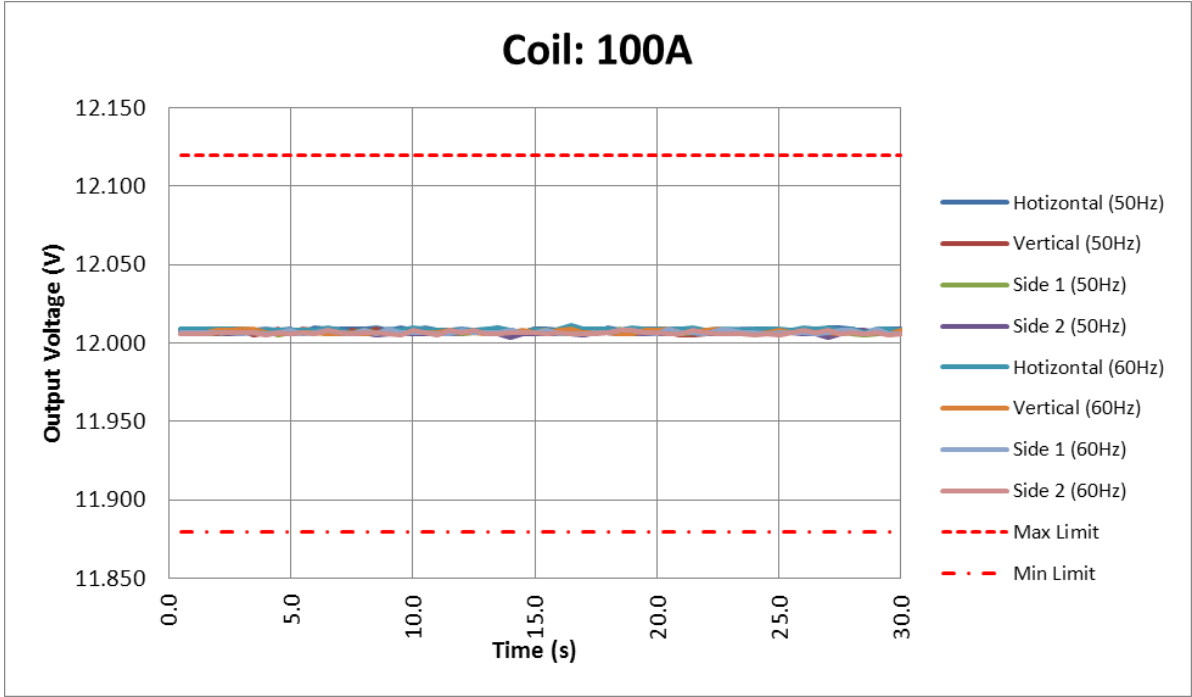
Test Equipment Settings:

| Test generator settings | | | |
|-------------------------|--|-------------------------------|----------------------------|
| Frequency | AC Current through Induction Coil (Arms) | Magnetic Field Strength (A/m) | Applied Field duration [s] |
| 50Hz | 1 | 100 | Continuous |
| 60Hz | 1 | 100 | Continuous |
| 50Hz | 10 | 1000 | 3 |
| 60Hz | 10 | 1000 | 3 |

Test Setup:



4.2. Power Frequency Magnetic Field Immunity Test Results



Conclusion:

The EUT meets classification A (Ref. Section 9, IEC 61000-4-8). The test results were evaluated in relation to the Customer Specification CS-100HPPseries.doc and the output did not change by more than +/-120mV therefore the EUT was considered to have PASSED the tests.

PASS

Environmental conditions

5. Summary

| Regulation | Class/Test Level | Result | Comments |
|--|-------------------------|--------|----------|
| IEC61000-6-2: 2005 + IEC61000-4-6:2004 | | | |
| Conducted Input RF Immunity | Level III 10V (Class A) | PASS | |
| Conducted Output RF Immunity | Level III 10V (Class A) | PASS | |
| IEC61000-6-2: 2005 + IEC61000-4-3:2004 | | | |
| Radiated RF Immunity | Level III 10V (Class A) | PASS | |
| IEC61000-6-2: 2005 + IEC61000-4-8: 2001 | | | |
| Power Frequency Magnetic Field Immunity | Level 5 (Class A) | PASS | |

6. List of Equipment Used:

| Description | Model No. | Manufacturer | Serial No. |
|-----------------------------|-----------------|-------------------|-----------------|
| EMC Analyzer | E7402A | Agilent | MY45119210 |
| LISN 1 | PMM L2-16 | PMM | 1230L00301 |
| LISN 2 | FCC-801-M2-50A | FCC | 3035 |
| LISN 3 | NSLK 8127 | Schwarzbeck | 8127683 |
| RF Current Probe | F-33-1 | FCC | 759 |
| Transient Limiter | 11947A | Agilent | 3107A03645 |
| Precision Power Meter | LMG95 | Zimmer | 10790709 |
| ESD Gun | SESD 200 | Schloder | 142261 |
| Surge Generator | PSURGE 4010 | Haefely | 583 334-63 |
| Burst generator | PEFT 4010 | Haefely | 080 981-08 |
| Coupling Capacitor | IP4A | Haefely | 171241 |
| Electronic Load | ELA 500 | Zentro-Electrik | 63145803 |
| High Power Resistors | n/a | n/a | n/a |
| Multimeter | 34405A | Agilent | TW46290007 |
| Multimeter | 34405A | Agilent | TW46290015 |
| Multimeter | 34410A | Agilent | MY47012359 |
| Multimeter | 1906 | TTI | n/a |
| High frequency generator | CWS 500N | EM Test | V0847104427 |
| Coupling/Decoupling Network | CDN M2/M3 | EM Test | 1108-34 |
| Attenuator | ATT6/75 | EM Test | 1107-53 |
| Oscilloscope | TDS1002 | Tektronix | C016388 |
| Oscilloscope | TDS2014C | Tektronix | C010602 |
| Programmable AC Source | 61604 | Chroma | ABR000000672 |
| DC power supply | SM 7020 - D | Delta electronika | 014604000011 |
| DC power supply | SM 7020 - D | Delta electronika | 014604000024 |
| Pulse Generator | 33220A | AGILENT | MY44044002 |
| Biconical Antenna | BicoLOG 30100 X | AARONIA | 79479 |
| Cables | Type | Length | Comments |
| Mains Supply Cable | 3-wire | 1m | Unshielded |
| Mains Supply Cable | 3-wire | 1.5m | Unshielded |
| DC Lines Cable | 2-wire | 1m | Unshielded |
| DC Lines Cable | 2-wire | 1.5m | Unshielded |