

# EMC Test Report

Prepared for: Tazla Energy Ltd  
Product Name: BeCoola  
Model Number: SPARKSMD V1.3  
Test Standards: EN 55014-1:2006 + A1:2009 + A2:2011\*  
EN 55014-2:1997 + A1:2001 + A2:2008  
EN 61000-3-2:2006 + A1:2009\* + A2:2009\*  
EN 61000-3-3:2008



2667

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Test Report Issue Date: 29 November 2012

Tested by:

Test Engineer

Approved by:

Technical Management

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This amended test report replaces all previous releases with the same report number and lower issue numbers.

Amendments marked with \* are currently outside the scope of our UKAS accreditation.

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## **Section 1: Overview**

### **Section 1.1: General**

This test report contains details of testing carried out on sample(s) submitted to Kiwa Blackwood Compliance Laboratories for an assessment against Electromagnetic Compatibility (EMC) standards in accordance with an agreed Test Plan.

This test report relates only to the specific items detailed in Section 1.3 and Section 2 as Equipment Under Test (EUT). The results given in this report relate only to the tests, configurations, operation modes and arrangements of the EUT as defined within this report.

The results contained in this test report do not relate to any Auxiliary Equipment (AE) which has been used to exercise, monitor and/or provide suitable loading for the EUT. AE, where applicable, is also detailed in Section 2.

Deviations from, additions to, or exclusions from the standard test method and, where applicable, information on specific test conditions, or where tests are not covered by our UKAS Accreditation schedule, are stated in the Results Summary Table in Section 3.1.

Fully testing to a harmonised standards as listed in the Official Journal is the equivalent of the *EMC Assessment* and this gives a *presumption of conformity* to the EMC Directive 2004/108/EC. The customer is advised to keep up to date with changes to standards in the Official Journal which may affect the compliance of the product.

Opinions and interpretations where given in this test report are outside of the scope of our UKAS Accreditation.

### **Section 1.2: Customer Details**

This test report was prepared for:

Tazla Energy Ltd  
491 High Street  
Harrow Weald  
Middlesex  
HA3 6HL

### **Section 1.3: Equipment Under Test (EUT)**

The equipment under test was a low carbon room cooling device with mains adaptor for use in areas with a volume of up to 100 cubic metres.

The device creates a high voltage direct current that is discharged in very short pulses through a spark gap and electrostatic emitter.

## Section 2: Details relating to the Equipment Under Test

Test Start Date: 22 October 2012  
Test Completed Date: 08 November 2012

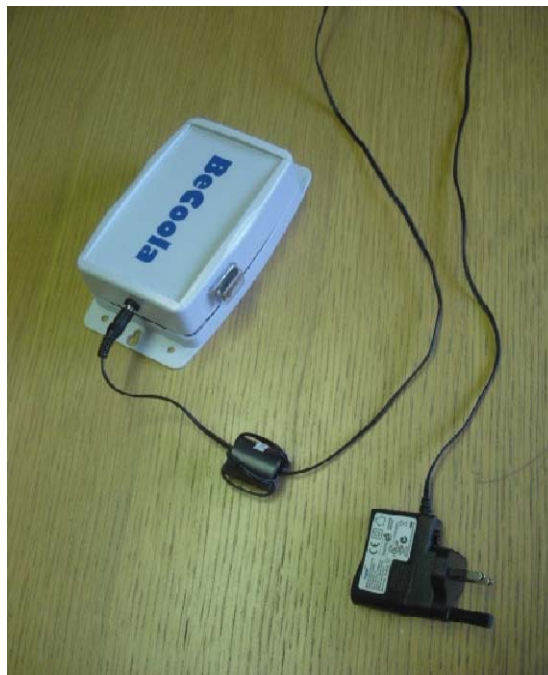
### Section 2.1: Equipment Under Test (EUT)

Product Name:	BeCoola
Manufacturer:	Tazla Energy Ltd
Description:	Low energy cooling device
Model No:	SPARKSMD V1.3
Part No:	Not Stated
Serial No:	Not Stated
Build State:	Pre-production sample
Condition:	Good
Software Version:	Not applicable

### Section 2.2: Auxiliary Equipment (AE)

Product Name:	Switching Mode Power Supply
Manufacturer:	MPW
Description:	9V 600mA Power Supply
Model No:	GPE060A-090060-Z
Part No:	981091143
Serial No:	Not Listed
Build State:	Production
Condition:	Good
Software Version:	N/A

### Section 2.3: Configuration Diagram/Photograph of EUT



## Section 3: Test Results Summary

### Section 3.1: Test Results Summary Table

Test:	Standard:	Test Level/Frequency Range:	Mod.:	Result:
Mains Port Conducted Emissions	EN 55014-1:2006 + A1:2009 + A2:2011*	Household and similar products	0	Pass
Discontinuous Conducted Emissions	EN 55014-1:2006 + A1:2009 + A2:2011*	Household and similar products	0	Pass
Disturbance Power Emissions	EN 55014-1:2006 + A1:2009 + A2:2011*	Household and similar products	0	Pass
Radiated Emissions	EN 55014-1:2006 + A1:2009 + A2:2011*	Household and similar products	0	N/A
Mains Harmonics	EN 61000-3-2:2006 + A1:2009* + A2:2009*	Class A	0	Pass
Voltage Fluctuations	EN 61000-3-3:2008	Pst/dc(%) / dmax(%) / d(t)	0	Pass
Electrostatic Discharge	EN 55014-2:1997 + A1:2001 + A2:2008	±4.0kV Contact / ±8.0kV Air	0	Pass
EFT/Bursts	EN 55014-2:1997 + A1:2001 + A2:2008	±1.0kV, Live, Neutral and Earth	0	Pass
Surge Immunity	EN 55014-2:1997 + A1:2001 + A2:2008	±1.0kV Line to Line, ±2.0kV Line to Earth	0	Pass
Conducted RF Immunity	EN 55014-2:1997 + A1:2001 + A2:2008	150kHz to 80MHz, 3V 80% AM 1kHz	0	Pass
Dips & Interruptions	EN 55014-2:1997 + A1:2001 + A2:2008	>95%/60%/30%	0	Pass

All of the above tests are included on the Kiwa Blackwood UKAS accreditation schedule (No. 2667) except the amendments marked with \*.

#### Mod. (modification status):

- 0 The EUT was tested as received, i.e. with a ferrite attached to the DC Power Cable (Fair-rite 2643102002) as shown in Section 2.3.

## **Section 3.2: Measurement Uncertainty**

ISO/IEC 17025:2005 “General requirements for the competence of testing and calibration laboratories” requires measurement uncertainty to be estimated for all testing done.

Measurements Uncertainty for conducted and radiated emissions has been calculated and applied in accordance with CISPR 16-4-2:2003. Measurement Uncertainty has been calculated for all other tests in accordance with UKAS document LAB 34 Edition 1:2002.

With regard to emissions testing Ulab meets Ucispr meaning that a simple pass or fail is reported.

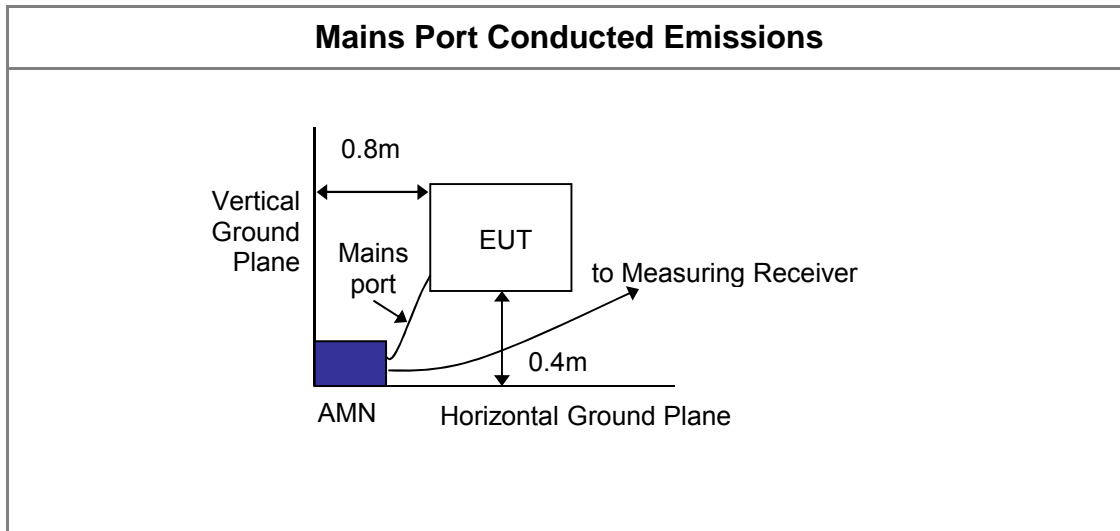
With regard to Radiated Field Immunity and Conducted RF Immunity testing the test level generation uncertainty has not been added to the test level. It is therefore only possible to state that the test level was achieved with a 50% level of confidence. This is in line with current Cenelec interpretation sheets on the two basic standards EN 61000-4-3 and EN 61000-4-6.

With regard to other Immunity tests the calibration parameters of the test equipment meet the basic standard requirement for tolerances even when extended by the calibration uncertainty.

## Section 4: Formal Test Results

### Section 4.1: Mains Port Conducted Emissions

Test Standard: EN 55014-1:2006 + A1:2009 + A2:2011\*  
 Frequency Range: 150 kHz to 30 MHz  
 Operation Mode: The EUT was powered up and operating throughout the test.



#### Test Equipment Used:

8501	EMCO 3825/2 Line Impedance Stabilisation Network
8523	Regavolt Type 708 RegaSafe Variac
8521	Fluke 73 series Multimeter
8627	Telegartner J01006A0836 10dB Attenuator
8508	10m BNC cable
8657	50Ω Termination
8513	HP8568B Spectrum Analyser System
8636	HP Conducted Emissions Software
8525	Ladybird Nightlight
8648	Oregon Scientific BAA898HG Environmental Monitor

#### Test Results:

Below are the worst case mains port conducted emissions:

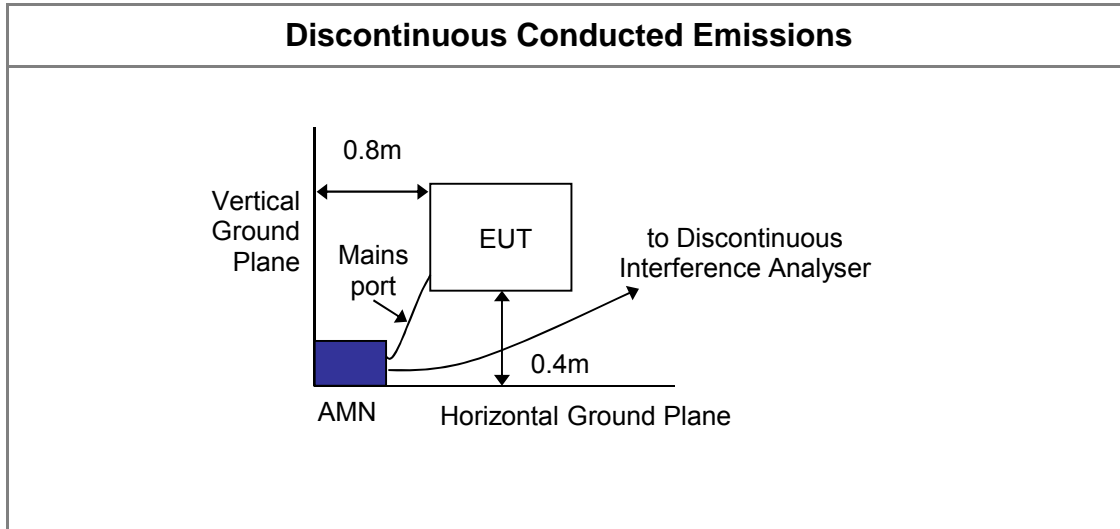
Mains Voltage (Vac):	Terminal:	Detector:	Frequency (MHz):	Level (dB(μV)):	Limit (dB(μV)):	Margin (dB):	Result:
230Vac	L	QP	4.369	46.6	56	-9.4	Pass
230Vac	L	QP	3.93	46.3	56	-9.7	Pass
230Vac	L	QP	3.993	46.3	56	-9.7	Pass
230Vac	L	QP	4.036	46.3	56	-9.7	Pass
230Vac	L	QP	4.755	46.3	56	-9.7	Pass
230Vac	L	Av	0.3214	35.2	50.7	-15.5	Pass

#### Additional Comments:

None.

## Section 4.2: Discontinuous Conducted Emissions

Test Standard: EN 55014-1:2006 + A1:2009 + A2:2011\*  
 Frequency Range: 150 kHz to 30 MHz  
 Operation Mode: The EUT was powered and operating throughout the test.



### Test Equipment Used:

- 8501 EMCO 3825/2 Line Impedance Stabilisation Network
- 8523 Regavolt Type 708 RegaSafe Variac
- 8521 Fluke 73 series Multimeter
- 8627 Telegartner J01006A0836 10dB Attenuator
- 8508 10m BNC cable
- 8657 50Ω Termination
- 8513 HP8568B Spectrum Analyser System
- 8636 HP Conducted Emissions Software
- 8648 Oregon Scientific BAA898HG Environmental Monitor

### Test Results:

Frequency (MHz):	Detector:	Limit, L (dB(μV)):	No of clicks over Limit, L:	Time (min):	Relaxed Limit, Lq (dB(μV)):	No of clicks over Lq:	Result:
0.15	Quasi-Peak	-	-	-	-	-	Pass
0.5	Quasi-Peak	-	-	-	-	-	Pass
1.4	Quasi-Peak	-	-	-	-	-	Pass
30	Quasi-Peak	-	-	-	-	-	Pass

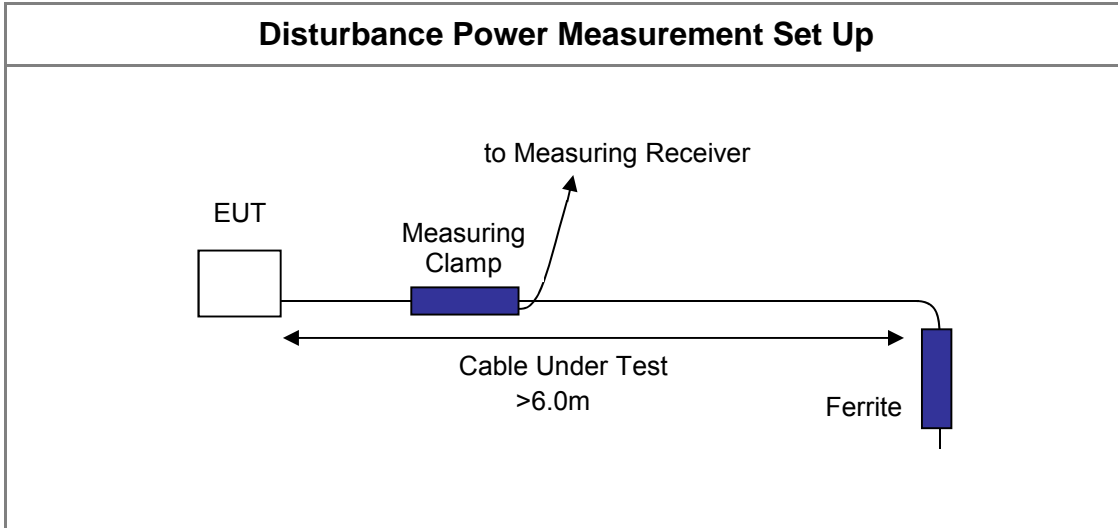
### Additional Comments:

Discontinuous conducted emissions were manually observed at 0.15 MHz and 0.5 MHz. They were observed as not exceeding the continuous conducted emissions limits.



### Section 4.3: Disturbance Power Emissions

Test Standard: EN 55014-1:2006 + A1:2009 + A2:2011\*  
 Frequency Range: 30 MHz to 300 MHz  
 Operation Mode: The EUT was powered and operating during the test.



**Test Equipment Used:**

- 8521 Fluke 73 series Multimeter
- 8523 Regavolt Type 708 RegaSafe Variac
- 8651 Chase CEC8110 Ferrite Absorbing Clamp
- 8651A Telegartner J01006A0835 6dB Attenuator
- 8651B 10m BNC cable
- 8512 HP8568B Spectrum Analyser System
- 8637 HP Radiated Emissions Pre-scan Software
- 8648 Oregon Scientific BAA898HG Environmental Monitor

**Test Results:**

Below are the top six recorded worst case disturbance power emissions:

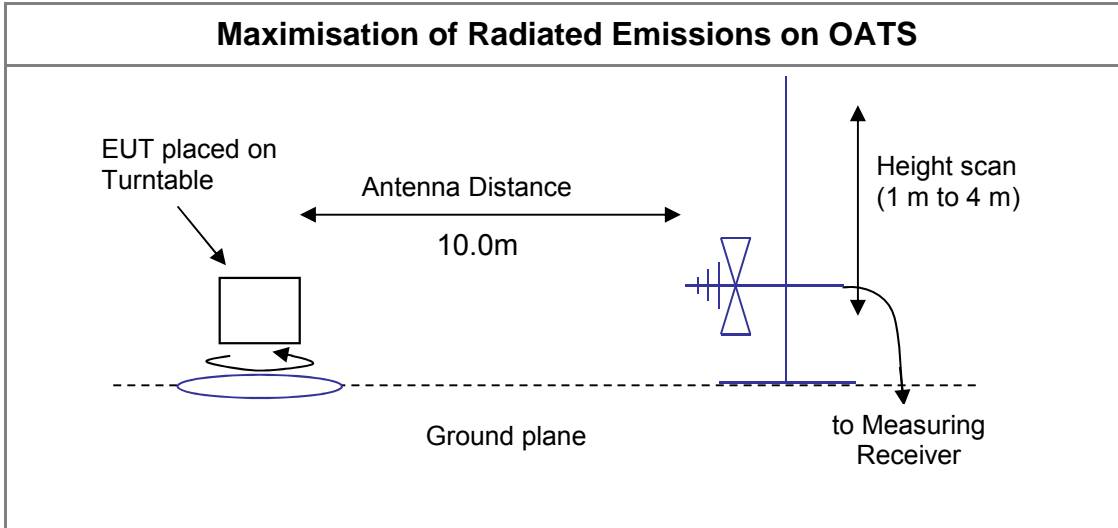
Mains Voltage (Vac):	Cable Under Test:	Detector:	Frequency (MHz):	Level (dBpW):	Limit (dBpW):	Margin (dB):	Result:
230Vac	EUT to PSU	QP	32.89	44.4	45.1	-0.7	Pass
230Vac	PSU to EUT	QP	34.84	41.6	45.2	-3.6	Pass
230Vac	PSU to EUT	QP	34.36	41.5	45.2	-3.7	Pass
230Vac	PSU to EUT	QP	35.81	40.1	45.2	-5.1	Pass
230Vac	Mains	QP	44.77	40.2	45.6	-5.4	Pass
230Vac	Mains	QP	65.13	40.8	46.3	-5.5	Pass
230Vac	EUT to PSU	QP	41.11	39.9	45.4	-5.5	Pass
230Vac	Mains	QP	73.91	40.7	46.6	-5.9	Pass
230Vac	EUT to PSU	QP	44.87	39.7	45.6	-5.9	Pass

**Additional Comments:**

None.

**Section 4.4: Radiated Emissions**

Test Standard: EN 55014-1:2006 + A1:2009 + A2:2011\*  
 Frequency Range: 30 MHz to 1000 MHz  
 Operation Mode: Not applicable



Test Equipment Used:

None

Test Results:

Below are the top recorded worst case radiated emissions:

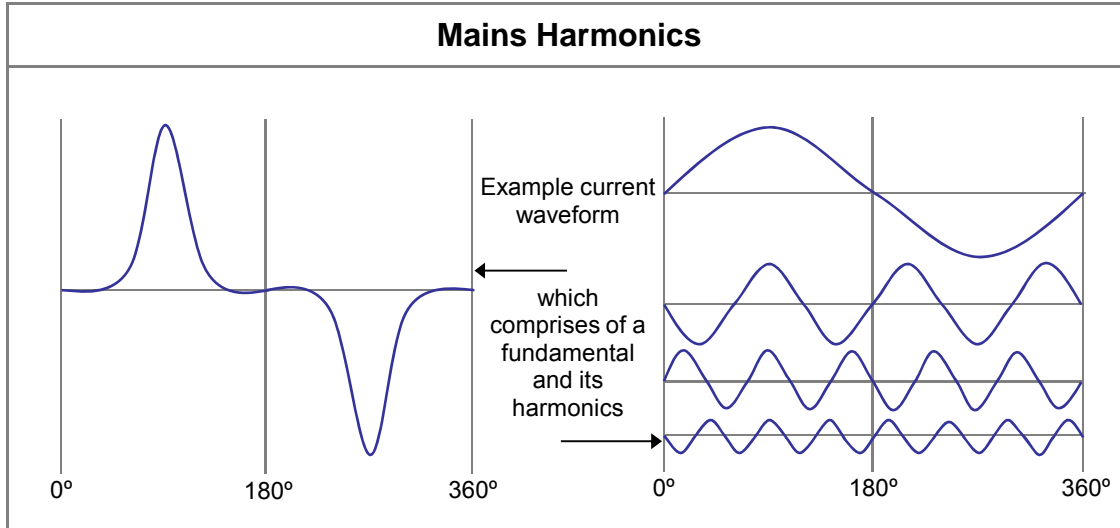
Antenna Polarisation:	Antenna Distance (m):	Detector:	Frequency (MHz):	Level (dB(μV/m)):	Limit (dB(μV/m)):	Margin (dB):	Result:
V	-	-	-	-	-	-	N/A
H	-	-	-	-	-	-	N/A

Additional Comments:

The EUT had no clock frequencies >30MHz and meets the requirements of clause 4.1.2.3.2 and figure 10 of EN 55014-1:2006 + A1:2009, therefore this test is not required.

### Section 4.5: Mains Harmonics

Test Standard: EN 61000-3-2:2006 + A1:2009\* + A2:2009\*  
 Class: A  
 Test Method: Assessed by fluctuating harmonics over 2.5 minutes  
 Frequency Range: 100 Hz to 2.0 kHz  
 Operation Mode: The EUT was powered up and operating throughout the test.  
 Mains Voltage: 230Vac



Test Equipment Used:

8562 Voltech IEC555 Reference Impedance Network (short-circuited)  
 8693 Voltech PM6000 Power Analyser  
 8675 Schaffner NSG1007-5 InterHarmonics Power Source  
 8688 IEC1000-3 Software Release 3.11.07

Test Results:

The test was performed more than once in order to obtain a repeatability of the result within  $\pm 5\%$ .

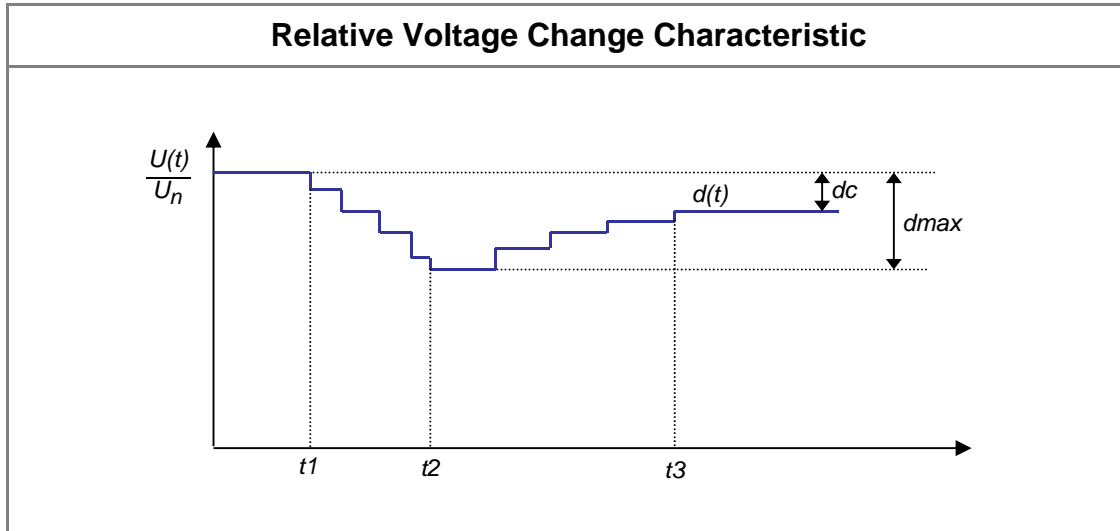
Test Observation Period:	Power Consumption (W):	Repeatability achieved (Y/N):	Result:
2.5 minutes	4.5	yes	Pass

Additional Comments:

The power consumption of the EUT was <75W, therefore no limits apply.

**Section 4.6: Voltage Fluctuations**

Test Standard: EN 61000-3-3:2008  
 Operation Mode: The EUT was switched on at 1 minute and was then operating for alternate minutes during the test.  
 Mains Voltage: 230Vac



Test Equipment Used:

- 8675 Schaffner NSG1007-5 InterHarmonics Power Source
- 8562 Voltech IEC555 Reference Impedance Network (open-circuited)
- 8563 Voltech PM6000 Power Analyser
- 8688 IEC1000-3 Software Release 3.11.07

Test Results:

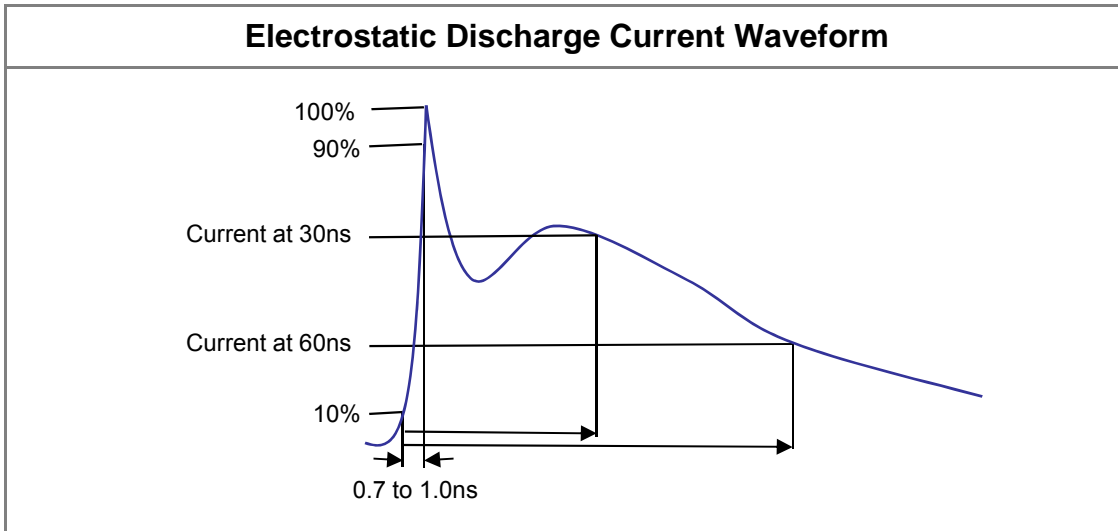
Parameter measured:	Measured level:	Limit:	Result:
dc	0.005	3.3	Pass
dmax	0.142	4	Pass
d(t)	0	500	Pass
Pst	0.16	1	Pass

Additional Comments:

None

**Section 4.7: Electrostatic Discharge**

Test Standard: EN 55014-2:1997 + A1:2001 + A2:2008  
 Basic Standard: EN 61000-4-2:1995 + A1:1998 + A2:2001  
 Operation Mode: The EUT was powered up and operating during the test.  
 Observing: The "power on" light and the waveform output of the BeCoola was monitored throughout the test for any change.  
 Performance Criteria: B  
 Temperature (C): 16.3  
 Relative Humidity (%): 52  
 Atmospheric Pressure (mb): 999



**Test Equipment Used:**

- 8015 Fluke 123 scopemeter
- 8082 TesTec HVP-40 high voltage probe
- 8709 Teseq NSG434 ESD Simulator
- Horizontal Coupling Plane
- Vertical Coupling Plane
- 8648 Oregon Scientific BAA898HG Environmental Monitor

**Test Results:**

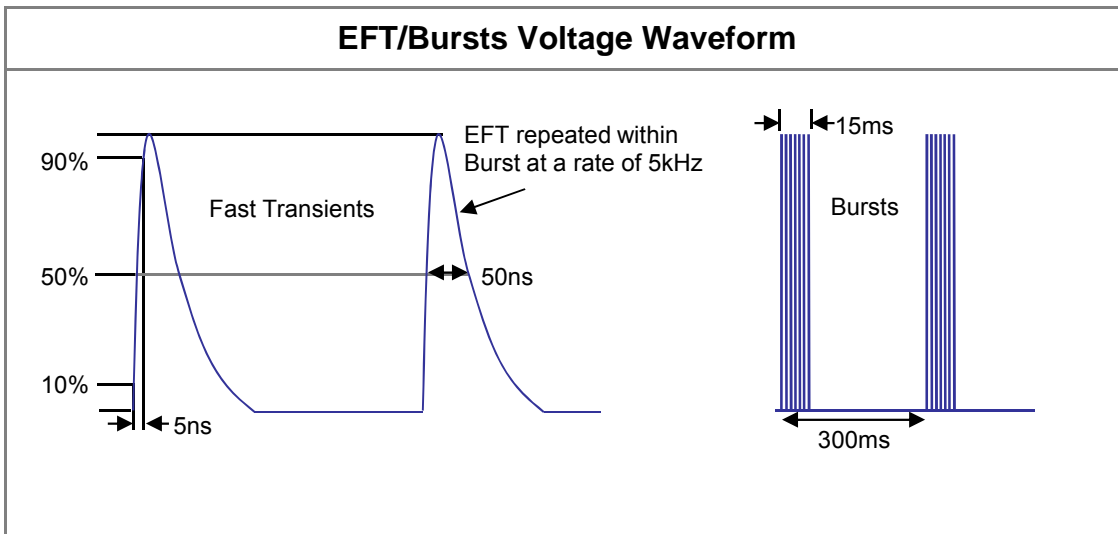
Contact or Air Discharge?	Applied to:	+2kV	-2kV	+4kV	-4kV	+6kV	-6kV	+8kV	-8kV	Result:
Contact	HCP	N/A	N/A	OK	OK	N/A	N/A	N/A	N/A	Pass
Contact	VCP	N/A	N/A	OK	OK	N/A	N/A	N/A	N/A	Pass
Contact	DC input	N/A	N/A	OK	OK	N/A	N/A	N/A	N/A	Pass
Air	Top	N/A	N/A	N/A	N/A	N/A	N/A	OK	OK	Pass
Air	Sides	N/A	N/A	N/A	N/A	N/A	N/A	OK	OK	Pass
Air	PSU	N/A	N/A	N/A	N/A	N/A	N/A	OK	OK	Pass

**Additional Comments:**

None.

**Section 4.8: EFT/Bursts**

Test Standard: EN 55014-2:1997 + A1:2001 + A2:2008  
 Basic Standard: EN 61000-4-4:2004  
 Operation Mode: The EUT was powered up and operating during the test.  
 Observing: The "power on" light and the waveform output of the BeCoola was monitored throughout the test for any change.  
 Test Duration: 2.0 minutes  
 Performance Criteria: B  
 Temperature (C): 16.3  
 Relative Humidity (%): 52  
 Atmospheric Pressure (mb): 999



**Test Equipment Used:**

- 8555 Schaffner NSG2025 Transient Generator
- 8638 Schaffner WIN2025 EFT/Bursts Software
- 8015 Fluke 123 scopemeter
- 8082 TesTec HVP-40 high voltage probe
- 8648 Oregon Scientific BAA898HG Environmental Monitor

**Test Results:**

Port Under Test:	+0.5kV	-0.5kV	+1kV	-1kV	+2kV	-2kV	Result:
LNE	N/A	N/A	Obs1	Obs1	N/A	N/A	Pass

**Observations:**

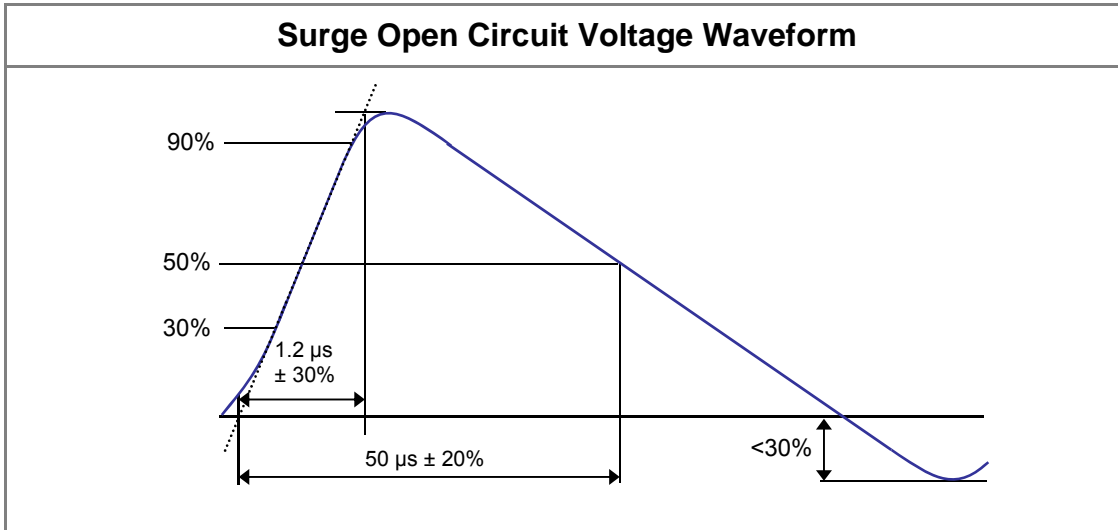
Obs 1 During application of the phenomena the waveshape output was intermittent. The normal waveshape was self-recovering once the test was completed. The "power on" light remained lit throughout the test.

**Additional Comments:**

None.

**Section 4.9: Surge Immunity**

Test Standard: EN 55014-2:1997 + A1:2001 + A2:2008  
 Basic Standard: EN 61000-4-5:2006  
 Operation Mode: The EUT was powered up and operating during the test.  
 Observing: The "power on" light and the waveform output of the BeCoola was monitored throughout the test for any change.  
 Performance Criteria: B  
 Temperature (C): 19.6  
 Relative Humidity (%): 42  
 Atmospheric Pressure (mb): 1001



Test Equipment Used:

8715 Teseq NSG3040  
 8015 Fluke 123 scopemeter  
 8082 TesTec HVP-40 high voltage probe  
 8648 Oregon Scientific BAA898HG Environmental Monitor

Test Results:

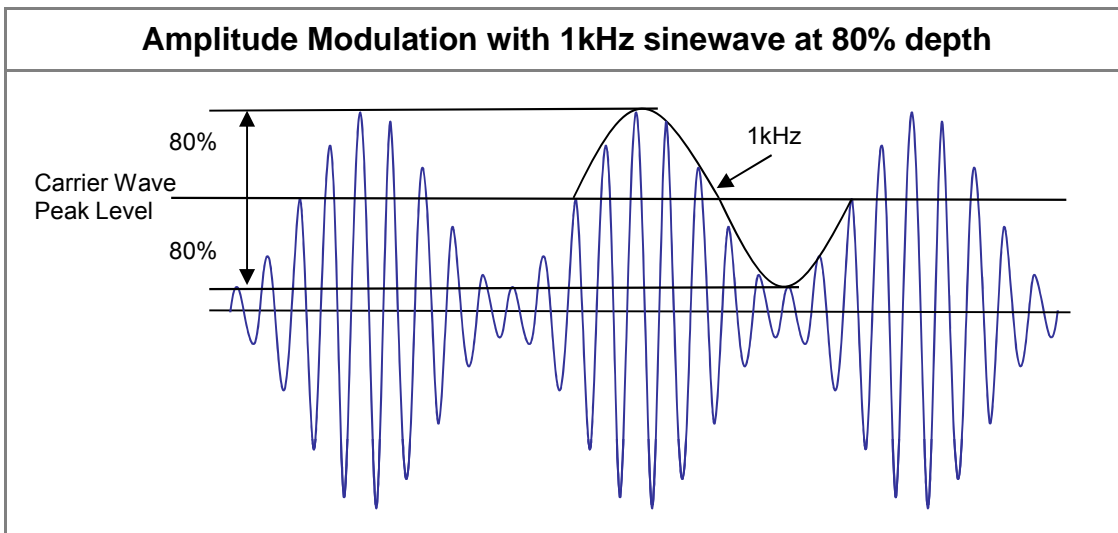
Applied:	$\phi$ Angle:	R	C	+0.5kV	-0.5kV	+1kV	-1kV	+2kV	-2kV	Result:
L-N	0	2 $\Omega$	18 $\mu\text{F}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A
L-N	90	2 $\Omega$	18 $\mu\text{F}$	N/A	N/A	OK	N/A	N/A	N/A	Pass
L-N	270	2 $\Omega$	18 $\mu\text{F}$	N/A	N/A	N/A	OK	N/A	N/A	Pass
L-E	0	12 $\Omega$	9 $\mu\text{F}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A
L-E	90	12 $\Omega$	9 $\mu\text{F}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A
L-E	270	12 $\Omega$	9 $\mu\text{F}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N-E	0	12 $\Omega$	9 $\mu\text{F}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N-E	90	12 $\Omega$	9 $\mu\text{F}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N-E	270	12 $\Omega$	9 $\mu\text{F}$	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Additional Comments:

None.

**Section 4.10: Conducted RF Immunity**

Test Standard: EN 55014-2:1997 + A1:2001 + A2:2008  
 Basic Standard: EN 61000-4-6:2007 + Corr 2007  
 Operation Mode: The EUT was powered up and operating throughout the test.  
 Observing: The "power on" light and the waveform output of the BeCoola was monitored throughout the test for any change.  
 Frequency Range: 0.15 MHz to 230 MHz  
 Frequency Step Rate: 1.0 %  
 Dwell time: 3.0 s  
 Test Level: 3.0 V (RMS)  
 Modulation: 80 % Amplitude Modulation with 1.0 kHz sine wave  
 Performance Criteria: A  
 Temperature (C): 19.6  
 Relative Humidity (%): 42



**Test Equipment Used:**

- 8527 HP8567A Signal Generator
- 8531 AR 25A250 RF Amplifier
- 8722 Bird 25-A-MFB-10 10dB Attenuator
- 8677 Schaffner CDN-M2-16 Coupling / Decoupling Network
- Associated Cables
- 8015 Fluke 123 scopemeter
- 8082 TesTec HVP-40 high voltage probe
- 8635 EMC Hire Conducted Immunity Software
- 8648 Oregon Scientific BAA898HG Environmental Monitor

**Test Results:**

Port Under Test:	RF coupled via:	Observed effect on EUT:	Result:
Mains	M2	No malfunctions observed	Pass

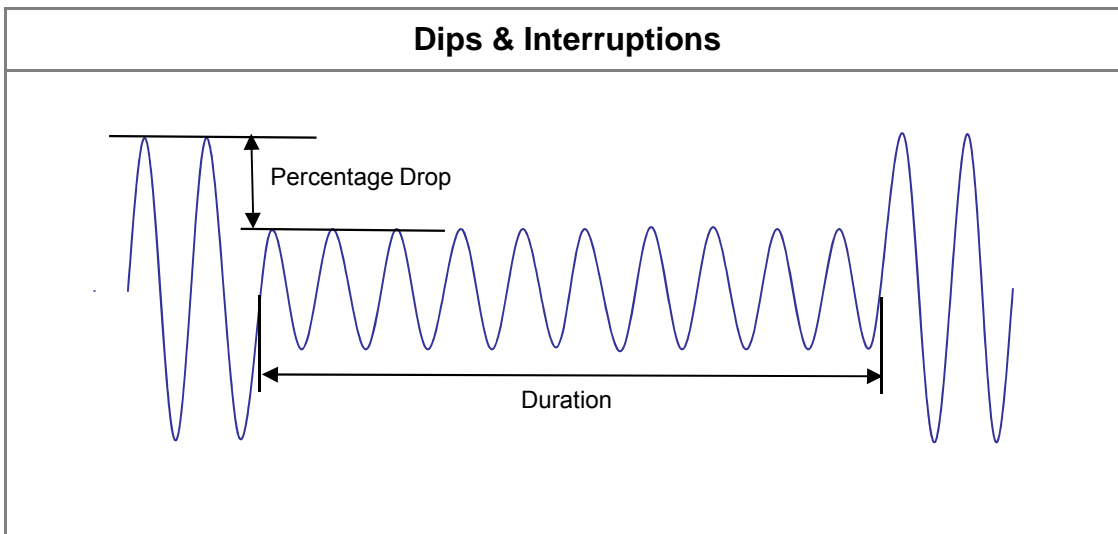
**Additional Comments:**

None.



**Section 4.11: Dips & Interruptions**

Test Standard: EN 55014-2:1997 + A1:2001 + A2:2008  
 Basic Standard: EN 61000-4-11:2004  
 Operation Mode: The EUT was powered up and operating during the test.  
 Observing: The "power on" light and the waveform output of the BeCoola was monitored throughout the test for any change.  
 Mains Voltage: 230Vac  
 Performance Criteria: C  
 Temperature (C): 16.3  
 Relative Humidity (%): 52  
 Atmospheric Pressure (mb): 999



**Test Equipment Used:**

- 8715 Teseq NSG3040
- 8522 Beckman T100B Multimeter
- 8524 Varatran Z710R Variac
- 8015 Fluke 123 scopemeter
- 8082 TesTec HVP-40 high voltage probe
- 8648 Oregon Scientific BAA898HG Environmental Monitor

**Test Results:**

Percentage Drop:	Duration:	Performance Criteria:	Observed effect on EUT:	Result:
>95	+ve 0.5	C	No malfunctions observed.	Pass
>95	-ve 0.5	C	No malfunctions observed.	Pass
60	10	C	No malfunctions observed.	Pass
30	25	C	No malfunctions observed.	Pass

**Additional Comments:**

None.

## Section 5: Performance Criteria

Below is the performance criteria as expressed in EN 55014-2 EMC immunity standard.

**Performance criterion A:** The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

**Performance criterion B:** The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however, no change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

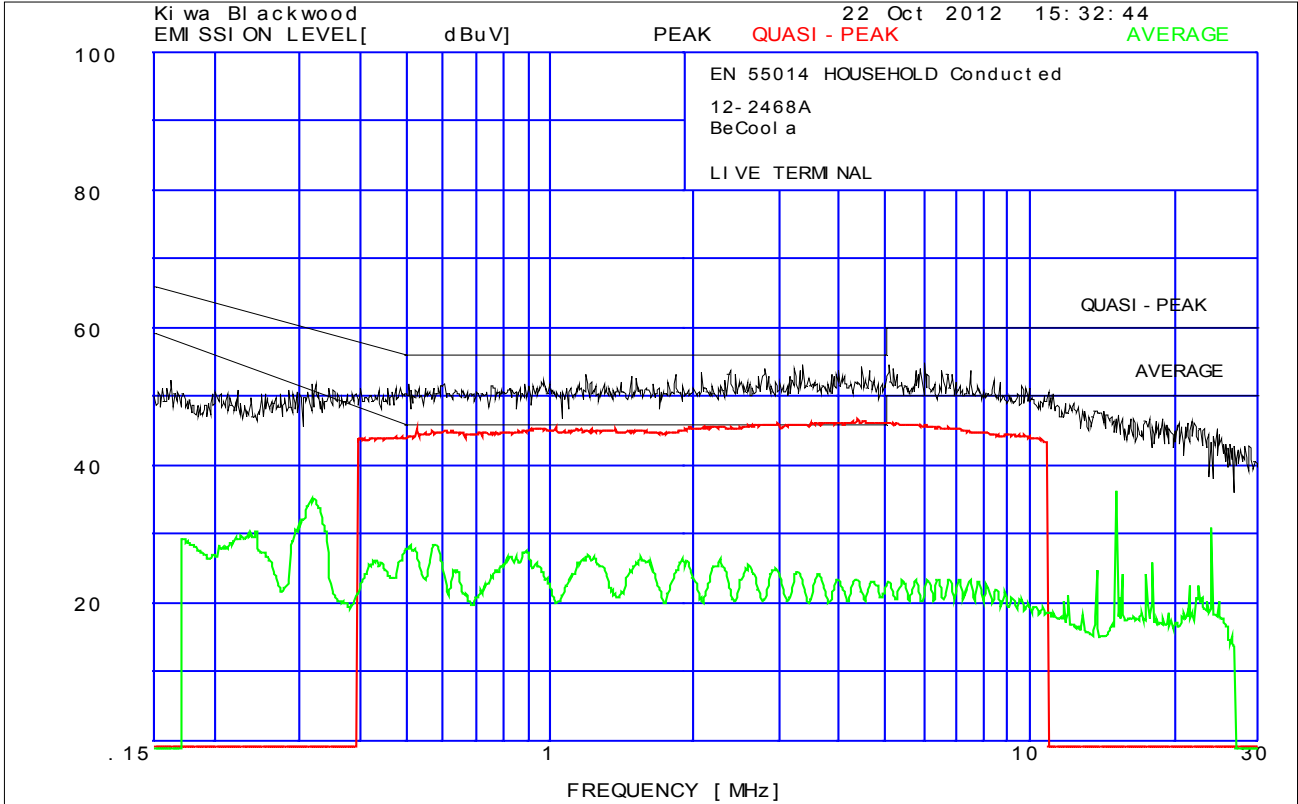
**Performance criterion C:** Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

## Section 6: List of Abbreviations

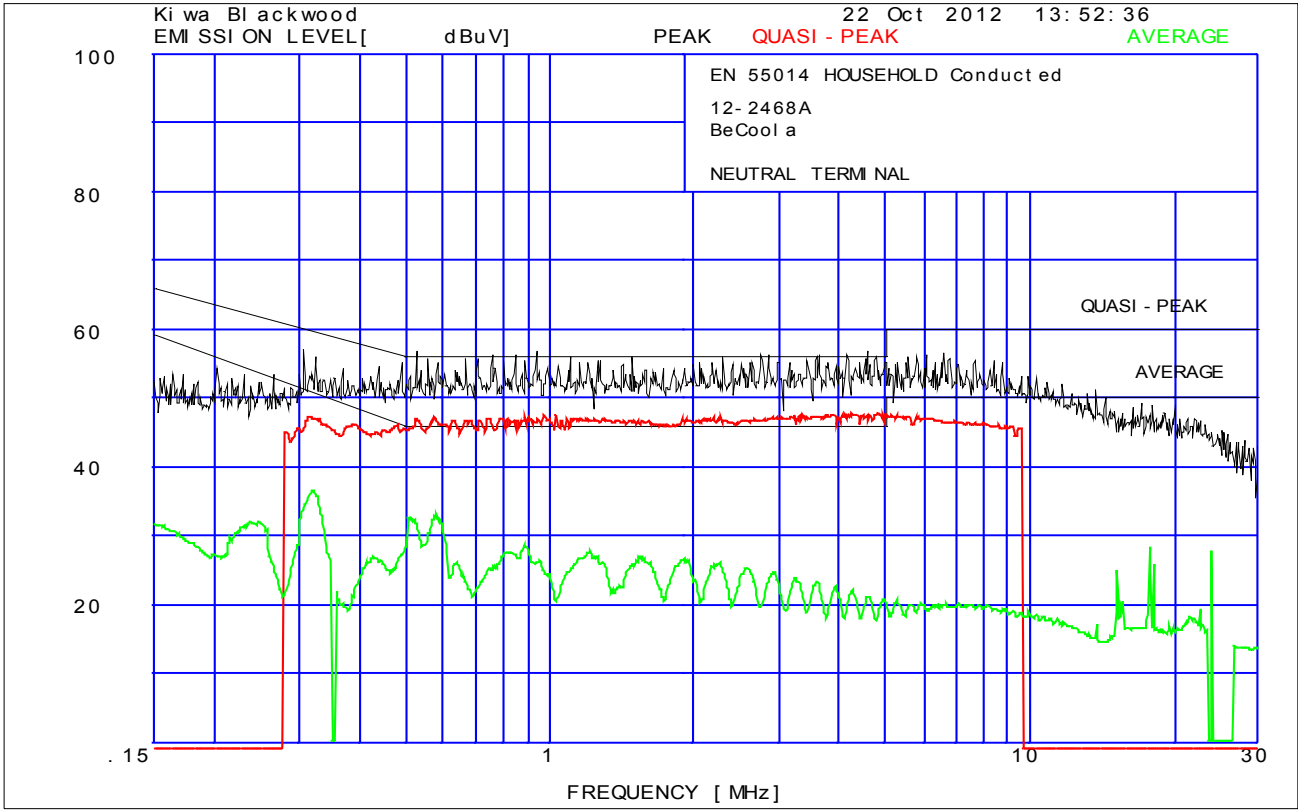
<b>EUT:</b>	Equipment Under Test
<b>AE:</b>	Auxiliary Equipment (i.e. equipment connected to the EUT)
<b>PK:</b>	Peak Measurement Detector
<b>QP:</b>	Quasi-Peak Measurement Detector
<b>AV:</b>	Average Measurement Detector
<b>L:</b>	Live Terminal
<b>N:</b>	Neutral Terminal
<b>E:</b>	Earth Terminal
<b>L-N:</b>	Applied between Live and Neutral terminals
<b>L-E:</b>	Applied between Live and Earth terminals
<b>N-E:</b>	Applied between Neutral and Earth terminals
<b>V:</b>	Vertical Polarisation
<b>H:</b>	Horizontal Polarisation

## Annex A: Graphical Results

### Graph 1: Mains Port Conducted Emissions - Live Terminal



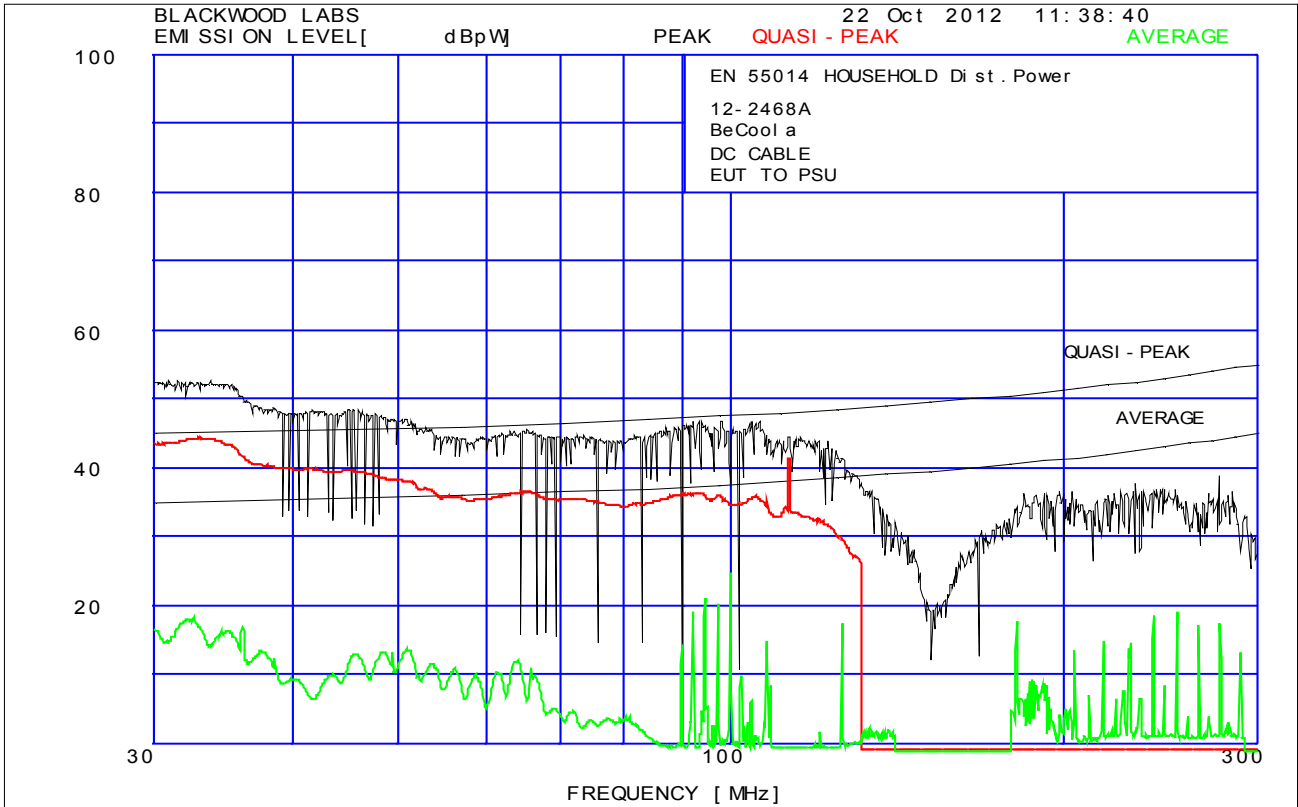
**Graph 2: Mains Port Conducted Emissions - Neutral Terminal**



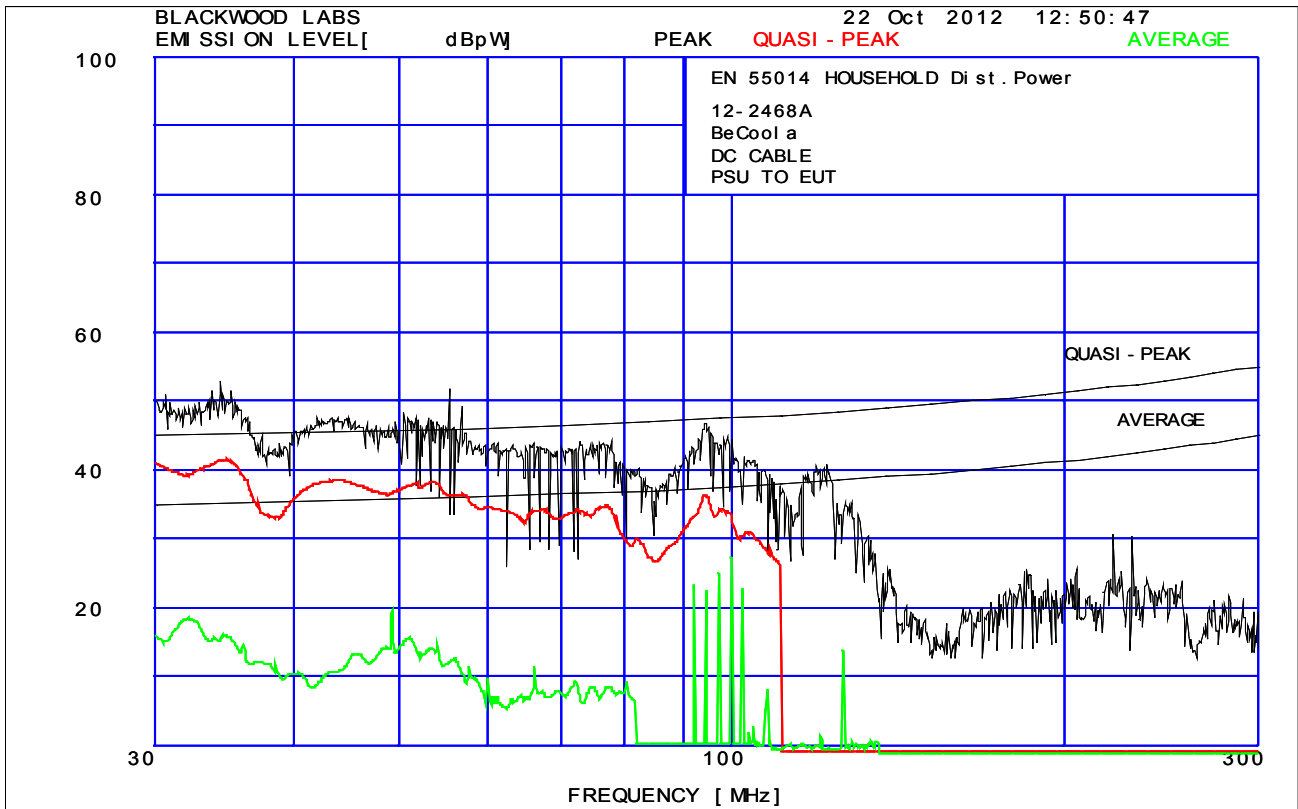
### Graph 3: Disturbance Power Emissions - Mains Cable



**Graph 4: Disturbance Power Emissions - DC Cable - from EUT to PSU**



**Graph 5: Disturbance Power Emissions - DC Cable - from PSU to EUT**



## Annex B: Tabular Results

**Table 1: Mains Harmonics Results**

Product:	BECOOLA	18 Sep 2012 15:48
Serial no:		Page 1 of 1
Description:		
Result Name:	TEST1	
Voltech IEC61000-3 Windows Software 1.12.05RC1		Test Date: 18 Sep 2012 14:54
Type of Test:	Fluctuating Harmonics Test - Worst Case Table (2006)	
Power Analyzer:	Voltech PM6000 SN: 100006700179 Firmware version: v1.20.06RC4	
Channel(s):	1. SN: 090015501412, 28 Adjusted Date: 14 MAR 2009. 2. SN:None Adjusted Date:None	
	3. SN:None Adjusted Date:None 4. SN:None Adjusted Date:None	
	5. SN:None Adjusted Date:None 6. SN:None Adjusted Date:None	
Shunt(s):	1. SN: 091024300522, 4 Adjusted Date: 16 MAR 2009. 2. SN:None Adjusted Date:None	
	3. SN:None Adjusted Date:None 4. SN:None Adjusted Date:None	
	5. SN:None Adjusted Date:None 6. SN:None Adjusted Date:None	
AC Source:	Mains / Manual Source	
Overall Result:	<b>N/A</b>	

Class	Class A
Class Multiplier	1

Harm	Limit 1	Limit 2	Average Reading	<L1 <L2	Max Reading	<L2	Pass FAIL	Harm	Limit 1	Limit 2	Average Reading	<L1 <L2	Max Reading	<L2	Pass FAIL
2	1 0800A	1 6200A	0.329mA	✓✓	0.357mA	✓	N/A	3	2 3000A	3 4500A	18.35mA	✓✓	18.68mA	✓	N/A
4	430.0mA	645.0mA	0.339mA	✓✓	0.371mA	✓	N/A	5	1 1400A	1 7100A	17.90mA	✓✓	18.20mA	✓	N/A
6	300.0mA	450.0mA	0.373mA	✓✓	0.405mA	✓	N/A	7	770.0mA	1 1550A	17.29mA	✓✓	17.54mA	✓	N/A
8	230.0mA	345.0mA	0.381mA	✓✓	0.418mA	✓	N/A	9	400.0mA	600.0mA	16.50mA	✓✓	16.74mA	✓	N/A
10	184.0mA	276.0mA	0.403mA	✓✓	0.451mA	✓	N/A	11	330.0mA	495.0mA	15.57mA	✓✓	15.77mA	✓	N/A
12	153.3mA	230.0mA	0.467mA	✓✓	0.518mA	✓	N/A	13	210.0mA	315.0mA	14.49mA	✓✓	14.67mA	✓	N/A
14	131.4mA	197.1mA	0.457mA	✓✓	0.516mA	✓	N/A	15	150.0mA	225.0mA	13.32mA	✓✓	13.47mA	✓	N/A
16	115.0mA	172.5mA	0.478mA	✓✓	0.532mA	✓	N/A	17	132.3mA	198.5mA	12.07mA	✓✓	12.18mA	✓	N/A
18	102.2mA	153.3mA	0.506mA	✓✓	0.566mA	✓	N/A	19	118.4mA	177.6mA	10.78mA	✓✓	10.88mA	✓	N/A
20	92.00mA	138.0mA	0.519mA	✓✓	0.572mA	✓	N/A	21	107.1mA	160.7mA	9.477mA	✓✓	9.545mA	✓	N/A
22	83.63mA	125.4mA	0.536mA	✓✓	0.589mA	✓	N/A	23	97.82mA	146.7mA	8.200mA	✓✓	8.244mA	✓	N/A
24	76.66mA	115.0mA	0.563mA	✓✓	0.624mA	✓	N/A	25	90.00mA	135.0mA	6.955mA	✓✓	6.982mA	✓	N/A
26	70.76mA	106.1mA	0.548mA	✓✓	0.592mA	✓	N/A	27	83.33mA	125.0mA	5.805mA	✓✓	5.824mA	✓	N/A
28	65.71mA	98.57mA	0.541mA	✓✓	0.581mA	✓	N/A	29	77.58mA	116.3mA	4.739mA	✓✓	4.758mA	✓	N/A
30	61.33mA	92.00mA	0.535mA	✓✓	0.572mA	✓	N/A	31	72.58mA	108.8mA	3.810mA	✓✓	3.834mA	✓	N/A
32	57.50mA	86.25mA	0.519mA	✓✓	0.551mA	✓	N/A	33	68.18mA	102.2mA	3.016mA	✓✓	3.041mA	✓	N/A
34	54.11mA	81.17mA	0.500mA	✓✓	0.528mA	✓	N/A	35	64.28mA	96.42mA	2.400mA	✓✓	2.420mA	✓	N/A
36	51.11mA	76.66mA	0.476mA	✓✓	0.520mA	✓	N/A	37	60.81mA	91.21mA	1.965mA	✓✓	1.981mA	✓	N/A
38	48.42mA	72.63mA	0.448mA	✓✓	0.504mA	✓	N/A	39	57.69mA	86.53mA	1.697mA	✓✓	1.725mA	✓	N/A
40	46.00mA	69.00mA	0.417mA	✓✓	0.487mA	✓	N/A								



## Annex C: Photographs

### Photograph 1: Disturbance power Setup



End of Report