TEST REPORT CONCERNING THE COMPLIANCE OF A RECIRCULATION AIRFILTER, BRAND PLASMA MADE ®, MODEL GUC1214, WITH PARTS OF THE STANDARD EN 60730-1

FCC listed	: 90828
Industry Canada	: 2932G-1
R&TTE, LVD, EMC Notified Body	: 1856

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Description of test item

Test item	:	Recirculation Airfilter
Manufacturer	:	Van Der Sluis Staphorst B.V.
Brand mark	:	Plasma Made®
Model	:	GUC1214
Serial number	:	-

Applicant information

Applicant's representative	:	Mr. M. van der Sluis
Company	:	Van Der Sluis Staphorst B.V.
Address	:	Burg. Niemeijerstraat 2
City	:	Staphorst
Post	:	7951 TD
Country	:	Netherlands
Telephone number	:	+31 (0)522-468077
Telefax number	:	+31 (0)522-468458
Email	:	mvdsluis@rvs-werken.nl
Internet	:	www.plasmamade.com

Test(s) performed

Location	:	Leek
Test(s) started	:	December 19, 2012
Test(s) completed	:	January 8, 2013
Purpose of tests	:	Compliance with standards
Test specification(s)	:	EMC parts of EN 60730-1

Project leader	:	T.E.T. Koning
Test engineer	:	K.F. van der Molen
Report written by	:	K.F. van der Molen
Report approved by	:	T.E.T. Koning
Report date	:	January 8, 2013

Table of contents

1 General.

1.1 Applied standards.

EN 60730-1 2007: Automatic electrical controls for household and similar use – Part 1: General requirements

1.2 Description of EUT.

The Recirculation Airfilter, brand Plasma Made ® , model GUC1214, will be referred to as EUT for the purpose of this test report.

Photo 1: GUC1214 (EUT)

2 Test conditions.

2.1 General.

Environmental condition	Parameter	Range
Temperature	°C	20 – 23
Relative humidity	%	30 – 60
Air pressure	hPa	990 - 1030
Supply voltage	Volts AC	230

The system was configured for testing in a typical fashion (as a customer would normally use it). During all tests the EUT was set up to function in accordance with the manufacturer's instructions.

2.1.1 Description of test configuration.

Test item 1 (EUT)	:	Air filter
Manufacturer	:	Van Der Sluis Staphorst B.V.
Brand	:	Plasma Made ®
Voltage input rating	:	230VAC
Type	:	GUC1214

2.1.2 Description of tested input and output ports EUT & General test setup.

2.1.2.1 GUC1214

Number	Terminal	From	To	Length
1	AC power	Supply	EUT	<3m

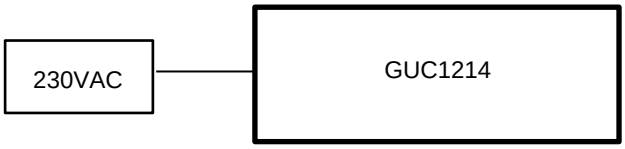


Photo 2: Test setup

3 Emission.

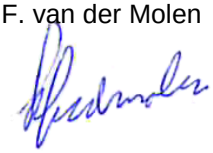
The EUT has been tested in conformity with parts of the standard:

EN 60730-1 2007: Automatic electrical controls for household and similar use – Part 1: General requirements

3.1 AC mains power input ports EUT.

The disturbance voltage levels at the AC mains power input port of the EUT to be measured in conformity with- and according to the criteria as stated below.

Basic standards	:	EN 60730-1 2007
Test set-up	:	CISPR 22
Frequency range 1	:	0.15 MHz – 0.5 MHz
Limit	:	66.0 – 56.0 dB(μV) quasi peak, 56.0 – 46.0 dB(μV) average
Frequency range 2	:	0.5 – 5.0 MHz
Limit	:	56.0 dB(μV) quasi peak, 46.0 dB(μV) average
Frequency range 3	:	5.0 - 30 MHz
Limit	:	60.0 dB(μV) quasi peak, 50.0 dB(μV) average

Result of the measurements concerning the emission of disturbance voltage levels at the AC mains input port of the EUT	**PASS ~~/ FAIL / NOT APPLICABLE~~**
Name of test engineer: Signature: Date:	K.F. van der Molen  January 8, 2013
REMARKS: **Measured with Universal adapter HQ P.SUP.EU1000**	

Utilized test equipment:

Inventory number	Description	Brand	Type
12507	Artificial mains network 3-phase	Rohde & Schwarz	ESH2-Z5
13313	Impulse limiter	Rohde & Schwarz	ESH3Z2.357...
15667	EMI test receiver	Rohde & Schwarz	ESCS 30
99113	Probe	Rohde & Schwarz	TK9416

Frequency	Measured values (QP)		Limits
	Line	Neutral	
(MHz)	(dBµV)	(dBµV)	(dBµV)
0.15-0.5	<20.0	<20.0	66.0-56.0
Except for:			
0.150	49.0	49.9	66.0
0.158	49.4	49.4	65.5
0.222	44.7	44.8	62.8
0.242	40.2	40.7	62.1
0.258	38.7	39.0	61.4
0.338	35.0	35.6	59.2
0.5-5.0	<25.0	<25.0	56.0
Except for:			
1.01	35.8	35.8	56.0
3.386	35.5	29.8	56.0
5.0-30.0	<30.0	<30.0	60.0
Except for:			
29.97	27.5	26.7	60.0

Table 3

The results of the measurements carried out in conformity with the standard CISPR 22, concerning conducted disturbance levels, emitted by the EUT in the configuration and operation mode(s) as stated in this test report, are depicted in table 3. Results are quasi-peak values.

Frequency	Measured values (AV)		Limits
	Line	Neutral	
(MHz)	(dBµV)	(dBµV)	(dBµV)
0.15-0.5	<19.0	<19.0	56.0-46.0
Except for:			
0.150	30.0	30.5	56.0
0.158	29.2	30.3	55.5
0.222	22.5	25.0	52.8
0.242	22.8	24.3	52.1
0.258	18.9	21.4	51.4
0.338	28.5	29.6	49.2
0.5-5.0	<20.0	<20.0	46.0
Except for:			
1.01	34.3	34.3	46.0
3.386	23.2	18.2	46.0
5.0-30.0	<30.0	<30.0	50.0
Except for:			
29.97	13.6	13.0	50.0

Table 4

The results of the measurements carried out in conformity with the standard CISPR 22, concerning conducted disturbance levels, emitted by the EUT in the configuration and operation mode(s) as stated in this test report, are depicted in table 4. Results are average values.

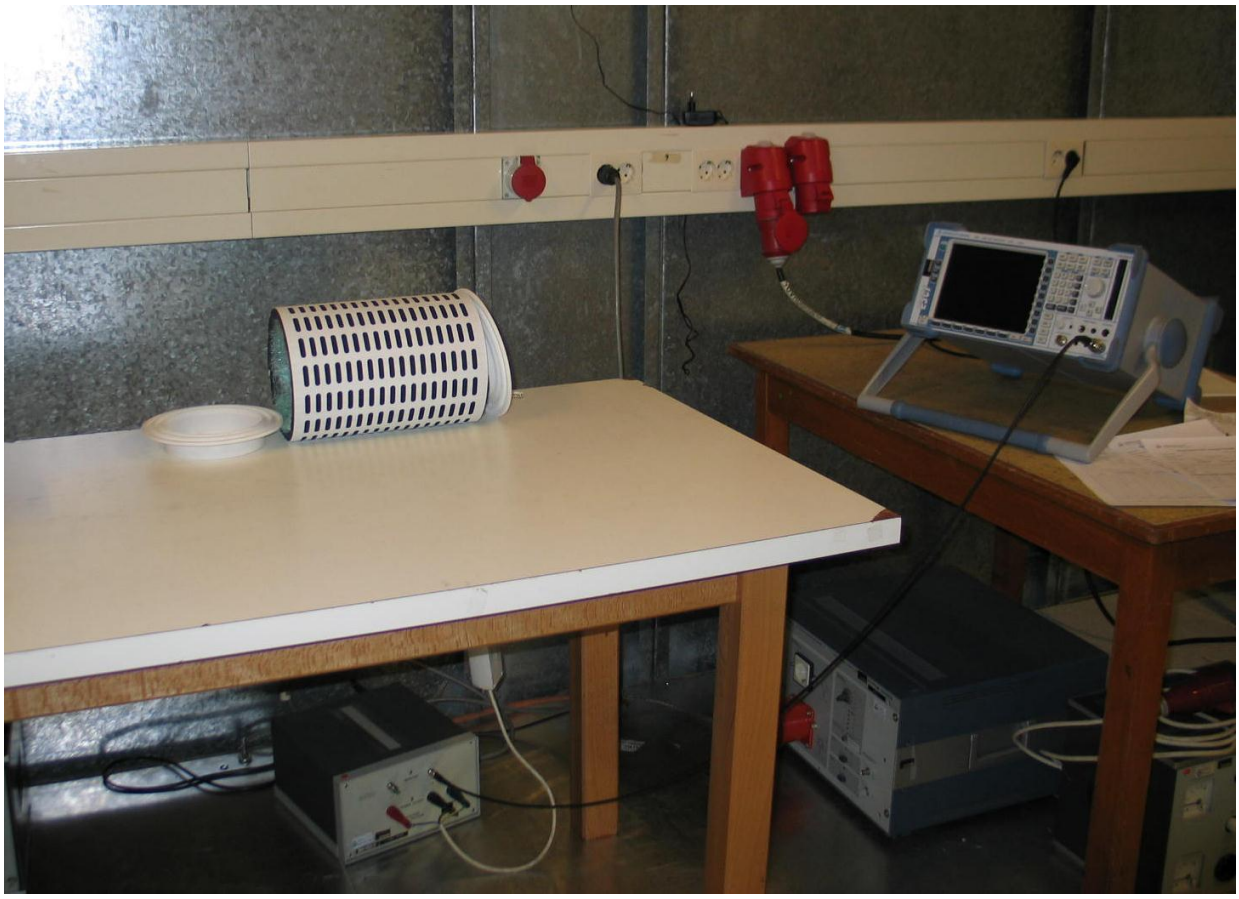


Photo 3: Basic set-up during conducted emission

3.2 DC power input ports.

The disturbance voltage levels at the DC power input port of the EUT to be measured in conformity with- and according to the criteria as stated below.

Basic standards	:	EN 61000-6-3: 2007
Test set-up	:	CISPR 16-2-1 7.4.1, CISPR 16-1-2 4.3
Frequency range 1	:	0.15 MHz – 0.5 MHz
Limit	:	66.0 – 56.0 dB(μV) quasi peak, 56.0 – 46.0 dB(μV) average
Frequency range 2	:	0.5 – 5.0 MHz
Limit	:	56.0 dB(μV) quasi peak, 46.0 dB(μV) average
Frequency range 3	:	5.0 - 30 MHz
Limit	:	60.0 dB(μV) quasi peak, 50.0 dB(μV) average

Result of the measurements concerning the emission of disturbance voltage levels at the DC power input port of the EUT	~~**PASS / FAIL**~~ **/ NOT APPLICABLE**
Name of test engineer: Signature: Date:	K.F. van der Molen  January 8, 2013
REMARKS: **EUT has no DC input port**	

3.3 Radiated Emission. (Pretest results)

The radiated field strength levels (electric component) has been measured in conformity with- and according to the criteria as stated below.

Basic standard	:	EN 60730-1 2007
Test set-up	:	CISPR 22
Measuring distance	:	3 meters
Frequency range 1	:	30 MHz - 230 MHz
Limits	:	40 dB(μV/m)
Frequency range 2	:	230 MHz - 1000 MHz
Limits	:	47 dB(μV/m)

Result of the measurements concerning radiated electromagnetic fields (electric component) emitted by the total set-up of the EUT.	**PRETEST**
Name of test engineer:	K.F. van der Molen
Signature:	
Date:	January 8, 2013
REMARKS: **Pretest results, final test will be done soon.**	

Utilized test equipment:

Inventory number	Description	Brand	Type
99609	Antenna mast 4.7m	EMCS	AP-4702C
99608	Mast controller	EMCS	DOC202
99858	Low Att coax cable	GigaLink	APGXXXX
99861	Turntable and controller	Maturo	SCU
99699	Receiver	R&S	ESCI
15633	Biconilog antenna	Chase	CBL6111B

Frequency (MHz)	Measurement results dB(µV)/m @ 3 metres Quasi-peak		Limits dB(µV)/m @ 3 metres Quasi-peak	Result
	Vertical	Horizontal		
30.0 – 230.0	<25.0	<25.0	40.0	
Except for:				
30.00	16.1		40.0	
35.40		6.2	40.0	
48.24		12.0	40.0	
73.68	17.2	14.9	40.0	
95.28	13.1		40.0	
117.96	9.1		40.0	
158.92		8.0	40.0	
230.0 – 1000.0	<25.0	<25.0	47.0	

Table 5

The results of the measurements carried out in conformity with the standard CISPR 22, concerning radiated disturbance levels, emitted by the EUT in the configuration and operation mode(s) as stated in this test report, are depicted in table 5. Results are Quasi Peak values.

Notes:

The reported field strength values are the worst-case values at the indicated frequency, obtained by rotation of the EUT and orientation of the antenna and maximizing EUT wiring.

3.4 Harmonic current emissions.

The emission of harmonic currents at the AC mains connection terminals of the EUT to be measured in conformity with- and according to the criteria as stated below.

Basic standard : EN 61000-6-3: 2007
Test set-up : EN 61000-3-2: 2006
Frequency range : 100 Hz - 2000 Hz

Result of the measurements concerning the emission of harmonic currents at the AC mains connection terminals of the EUT.	~~**PASS / FAIL**~~ **/ NOT APPLICABLE**
Name of test engineer: Signature: Date:	K.F. van der Molen  January 8, 2013
REMARKS: **EUT Power < 75 watt, herefore no limits apply**	

Utilized test equipment:

Inventory number	Description	Brand	Type
99836 99009	Harmonics & Flicker Analyzer Power Source	EM Test EM Test	DPA500 ACS500N6

3.5 Voltage fluctuations and flicker.

Voltage fluctuations and flicker at the AC mains connection terminals of the EUT to be measured in conformity with- and according to the criteria as stated below.

Basic standard : EN 61000-6-3: 2007
Test set-up : EN 61000-3-3: 2008

Result of the measurements concerning voltage fluctuations and flicker at the AC mains connection terminals of the EUT.	**PASS ~~/ FAIL / NOT APPLICABLE~~**
Name of test engineer: Signature: Date:	K.F. van der Molen  January 8, 2013
REMARKS: **The EUT is deemed not to generate Voltage Fluctuations and Flicker and therefore the EUT complies**	

Utilized test equipment:

Inventory number	Description	Brand	Type
99836	Harmonics & Flicker Analyzer	EM Test	DPA500
99009	Power Source	EM Test	ACS500N6

4 Immunity.

The EUT has been tested in conformity with parts of the standard:

EN 60730-1 2007: Automatic electrical controls for household and similar use – Part 1: General requirements

4.1 Performance criteria

The general principles (performance criteria) for the evaluation of the immunity test results are given below. The details are in EN 61000-6-2: 2005.

4.1.1 Performance criterion A:

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

4.1.2 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 specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. 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, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.

4.1.3 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.

4.2 Enclosure Port.

4.2.1 Radio-frequency electromagnetic field. Amplitude modulated.

The susceptibility of the EUT to radio-frequency electromagnetic fields has been tested based upon the criteria as stated below.

Basic standard	:	EN 60730-1: 2007
Test set-up	:	EN 61000-4-6: 2009
Frequency range	:	80 MHz - 2700 MHz
Field strength level	:	3 V_{rms}/m (selected without modulation, applied with modulation)
Modulation	:	1 kHz, modulation depth 80%
Performance criterion	:	A

Result of the tests concerning the susceptibility of the EUT to radio-frequency electromagnetic fields (amplitude modulated, enclosure port)	**PASS / ~~FAIL / NOT APPLICABLE~~**
Name of test engineer:	K.F. van der Molen
Signature:	
Date:	January 8, 2013
REMARKS: **NONE**	

Utilized test equipment:

Inventory number	Description	Brand	Type
12527	Generator 10kHz – 5.4GHz	Marconi	Model 2032
80000+80001	RF measuring probe system 0.5-6GHz	Holaday	HI-4416+HI4433
12485	Biconical antenna 30MHz - 200MHz	Eaton	
80052	Log per antenna 200MHz – 1000MHz	Comtest	96005
12483	Guide horn antenna 1GHz – 18GHz	Emco	3115
99130	Amplifier 1-200MHz 80W	EATON	5020B
99133	Amplifier 100-512MHz 50W	EATON	3552B
99134	Amplifier 500-1000MHz 25W	EATON	15100B
13826	Amplifier 1-2GHz 30 W	Milmega	AS0102
80005	Amplifier 2-4GHz 15W	Milmega	AS0204

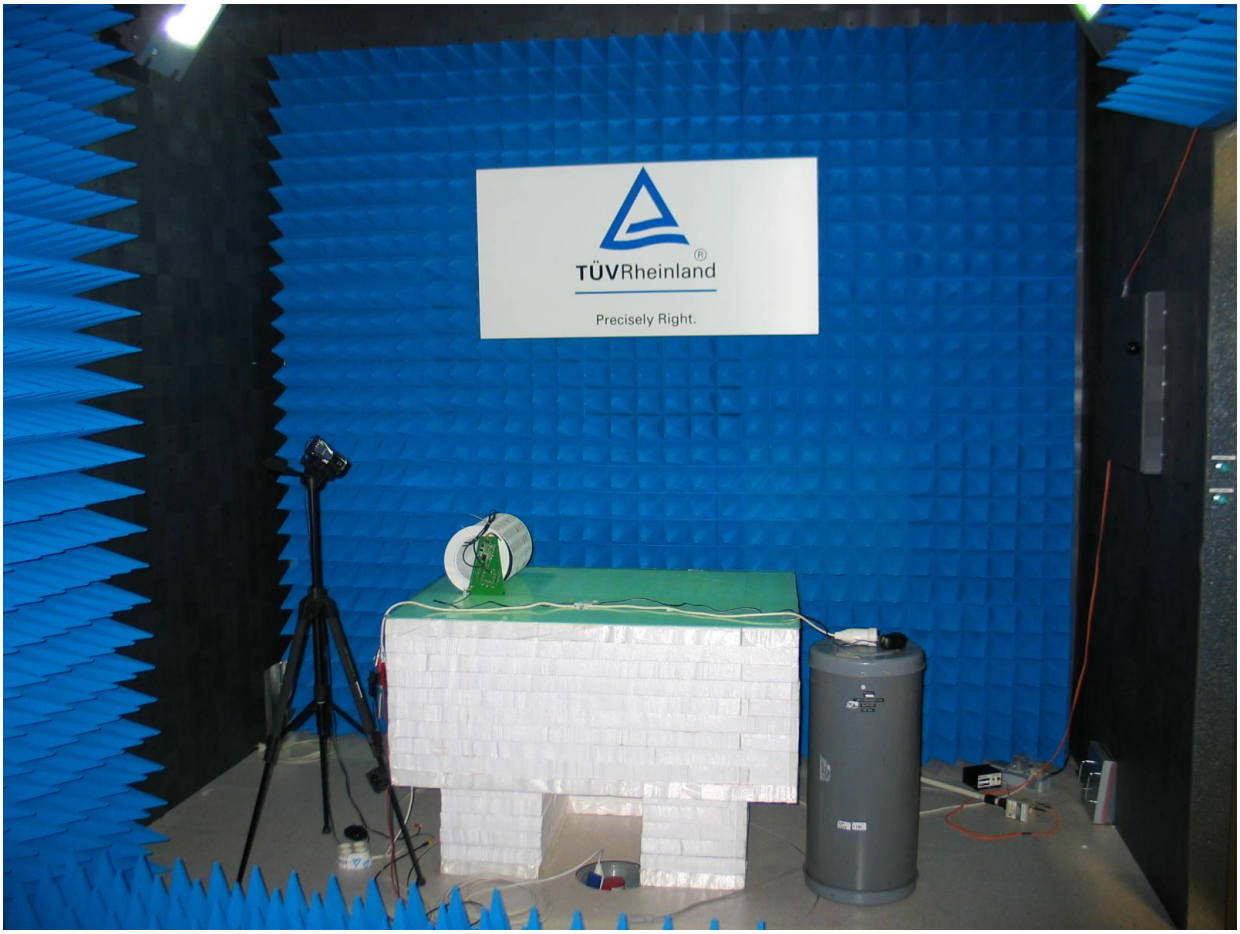


Photo 4: Basic set-up during radiated immunity

4.2.2 Electrostatic Discharges.

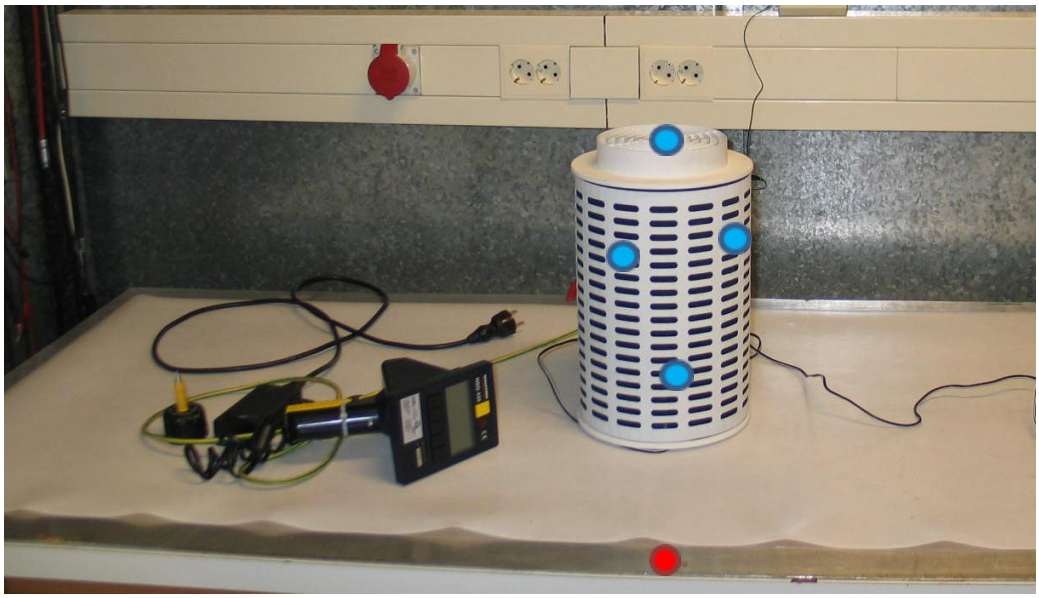
The susceptibility of the EUT to electrostatic discharges has been tested in conformity with- and according to the criteria as stated below.

Basic standard	:	EN 60730-1: 2007
Test set-up	:	EN 61000-4-2: 2008
Test levels	:	±4 kV and ±8 kV air discharge ±2 kV and ±4 kV contact discharge
Performance criterion	:	B

Result of the tests concerning the susceptibility of the EUT to electrostatic discharges (enclosure port)	**PASS/ ~~FAIL / NOT APPLICABLE~~**
Name of test engineer: Signature: Date:	K.F. van der Molen  January 8, 2013
REMARKS: **NONE**	

Utilized test equipment:

Inventory number	Description	Brand	Type
99002	ESD simulator system	Schaffner	NSG 435-01
99604	ESD validation unit	TUV	
99660+99661	Resistor 470K	Philips	



Air discharge =
Contact discharge =

Photo 5: Basic set-up during ESD

4.3 Signal ports including telecommunication ports.

4.3.1 Radio-frequency (common mode). Amplitude modulated.

The susceptibility of the EUT to radio-frequency (common mode)[1)], amplitude modulated, to be tested based upon the criteria as stated below.

Basic standard	:	EN 60730-1: 2007
Test set-up	:	EN 61000-4-6: 2006
Frequency range	:	0.15 MHz - 80 MHz
Test level	:	3 V_{rms} (selected without modulation, applied with modulation)
Modulation	:	1 kHz, modulation depth 80%
Source impedance	:	150 Ohms
Performance criterion	:	A
Note[1)]	:	Conducted only on ports interfacing with cables whose total length, according to the manufacturer's functional specification, may exceed 3 meters

Result of the tests concerning the susceptibility of the EUT to radio-frequency (common mode, amplitude modulated, ports for signal lines including telecommunication ports)	~~**PASS / FAIL**~~ **/ NOT APPLICABLE**
Name of test engineer:	K.F. van der Molen
Signature:	
Date:	January 8, 2013
REMARKS: **EUT has no signal port**	

Utilized test equipment:

Inventory number	Description	Brand	Type
99522	Signal generator 0.1 MHz - 1000 MHz	Rohde & Schwarz	SMY
15627	Amplifier 10 kHz - 250 MHz, 75 Watts	Amplifier Research	75A250
99039	Attenuator 6 dB	Trilithic	HFP-560/6-NM/NF
99138	RF injection clamp	Lüthi	EM101
99393	Power meter	Rohde & Schwarz	NRVD
99395	Power sensor, 2 mV - 100 V	Rohde & Schwarz	URV5-Z4
59601/x	CDN coupling devices	Air Parts	Mx
-	Test software conducted immunity	Rohde & Schwarz	ES-K1

4.3.2 Fast transients.

The susceptibility of the EUT to fast transients to be tested based upon the criteria as stated below.

Basic standard	:	EN 60730-1: 2007
Test set-up	:	EN 61000-4-4: 2005
Test level	:	± 0.5 kV, ± 1 kV (with capacitive clamp)
Tr/Th	:	5/50 ns
Repetition frequency	:	5 kHz
Performance criterion	:	B

Note[1)] : Conducted only on ports interfacing with cables whose total length, according to the manufacturer's functional specification, may exceed 3 meters

Result of the tests concerning the susceptibility of the EUT to fast transients	~~**PASS / FAIL**~~ **/ NOT APPLICABLE**
Name of test engineer:	K.F. van der Molen
Signature:	
Date:	January 8, 2013
REMARKS: **EUT has no signal port**	

Utilized test equipment:

Inventory number	Description	Brand	Type
15110	Three phase burst simulator system	Schaffner	NSG 2025-4
99001	IEC 1000-4-4 capacitive coupling clamp	Schaffner	CDN 126
99005	3-phase IEC 309 coupling adapter 32A	Schaffner	INA 250
99006	1-phase Schuko coupling adapter 16A	Schaffner	INA 252
99007	Blind cover	Schaffner	-
99014	Attenuator 30 dB for burst verification	Schaffner	INA 265
99015	Software control package	Schaffner	WIN 2025

4.3.3 Surges.

The susceptibility of the EUT to surges[1)] to be tested based upon the criteria as stated below.

Basic standard	:	EN 60730-1: 2007
Test set-up	:	EN 61000-4-5: 2007
Test level 1	:	±0.5 kV, ±1.0 kV
Tr/Th	:	1.2/50 (8/20) μs
Number of pulses	:	5
Performance criterion	:	B

Note[1)] : Applicable only to input ports

Result of the tests concerning the susceptibility of the EUT to surges (Signal ports)	~~**PASS / FAIL**~~ **/ NOT APPLICABLE**
Name of test engineer:	K.F. van der Molen
Signature:	
Date:	January 8, 2013
REMARKS: **EUT has no signal port**	

4.4 DC input and DC output power ports.

4.4.1 Radio-frequency (common mode). Amplitude modulated.

The susceptibility of the EUT to radio-frequency (common mode), amplitude modulated, to be tested based upon the criteria as stated below.

Basic standard	:	EN 60730-1: 2007
Test set-up	:	EN 61000-4-6: 2006
Frequency range	:	0.15 MHz - 80 MHz
Test level	:	10 V_{rms} (selected without modulation, applied with modulation)
Modulation	:	1 kHz, modulation depth 80%
Source impedance	:	150 Ohms
Performance criterion	:	A

Result of the tests concerning the susceptibility of the EUT to radio-frequency (common mode, amplitude modulated, DC input and DC output power ports)	~~**PASS / FAIL**~~ **/ NOT APPLICABLE**
Name of test engineer:	K.F. van der Molen
Signature:	
Date:	January 8, 2013
REMARKS: **EUT has no DC port**	

4.4.2 Surges.

The susceptibility of the EUT to surges[1)] to be tested based upon the criteria as stated below.

Basic standard	:	EN 60730-1: 2007
Test set-up	:	EN 61000-4-5: 2007
Test level 1	:	±0.5 kV, ±1.0 kV
Tr/Th	:	1.2/50 (8/20) μs
Number of pulses	:	5
Performance criterion	:	B

Note[1)] : Applicable only to input ports

Result of the tests concerning the susceptibility of the EUT to surges (DC input and DC output power ports)	~~**PASS / FAIL**~~ **/ NOT APPLICABLE**
Name of test engineer:	K.F. van der Molen
Signature:	
Date:	January 8, 2013
REMARKS: **EUT has no DC port**	

4.4.3 Fast transients (common mode).

The susceptibility of the EUT to fast transients (common mode) to be tested based upon the criteria as stated below.

Basic standard	:	EN 60730-1: 2007
Test set-up	:	EN 61000-4-4: 2005
Test level	:	± 0.5 and ± 1 kV
Tr/Th	:	5/50 ns
Repetition frequency	:	5 kHz
Performance criterion	:	B

Result of the tests concerning the susceptibility of the EUT to fast transients (common mode, DC input and DC output power ports)	~~**PASS / FAIL**~~ **/ NOT APPLICABLE**
Name of test engineer: Signature: Date:	K.F. van der Molen  January 8, 2013
REMARKS: **EUT has no DC port**	

4.5 AC mains input/output ports.

4.5.1 Radio-frequency (common mode). Amplitude modulated.

The susceptibility of the EUT to radio-frequency (common mode), amplitude modulated, has been tested in conformity with- and according to the criteria as stated below.

Basic standard	:	EN 60730-1: 2007
Test set-up	:	EN 61000-4-6: 2006 (CDN network)
Frequency range	:	0.15 – 80 MHz
Frequency steps	:	1%
Test level	:	3 V_{rms} (selected without modulation, applied with modulation)
Modulation 1	:	AM, modulation depth 80%, sinusoidal audio signal of 1 kHz
Source impedance	:	150 Ohms
Performance criteria	:	A

Result of the tests concerning the susceptibility of the EUT to radio-frequency (common mode, amplitude modulated, AC input /output power ports).	**PASS / ~~FAIL / NOT APPLICABLE~~**
Name of test engineer:	K.F. van der Molen
Signature:	
Date:	January 8, 2013
REMARKS: **None**	

Utilized test equipment:

Inventory number	Description	Brand	Type
99522	Signal generator 0.1 MHz - 1000 MHz	Rohde & Schwarz	SMY
15627	Amplifier 10 kHz - 250 MHz, 75 Watts	Amplifier Research	75A250
99039	Attenuator 6 dB	Trilithic	HFP-560/6-NM/NF
99138	RF injection clamp	Lüthi	EM101
99393	Power meter	Rohde & Schwarz	NRVD
99395	Power sensor, 2 mV - 100 V	Rohde & Schwarz	URV5-Z4
59601/x	CDN coupling devices	Air Parts	Mx
-	Test software conducted immunity	Rohde & Schwarz	ES-K1

Photo 6: Basic set-up during conducted Immunity EUT

4.5.2 Fast transients (common mode).

The susceptibility of the EUT to fast transients (true common mode)[1)] has been tested in conformity with- and according to the criteria as stated below.

Basic standard	:	EN 60730-1: 2007
Test set-up	:	EN 61000-4-4: 2005
Test level	:	±1 kV
Tr/Th	:	5/50 ns
Repetition frequency	:	5 kHz
Performance criteria	:	B

Note[1)] : The fast transients are applied in parallel to all the wires in the cable with reference to the cabinet reference ground

Result of the tests concerning the susceptibility of the EUT to fast transients (common mode, AC input/output power ports).	**PASS / ~~FAIL / NOT APPLICABLE~~**
Name of test engineer:	K.F. van der Molen
Signature:	
Date:	January 8, 2013
REMARKS: **None**	

Utilized test equipment:

Inventory number	Description	Brand	Type
15110	Three phase burst simulator system	Schaffner	NSG 2025-4
99001	IEC 1000-4-4 capacitive coupling clamp	Schaffner	CDN 126
99005	3-phase IEC 309 coupling adapter 32A	Schaffner	INA 250
99006	1-phase Schuko coupling adapter 16A	Schaffner	INA 252
99007	Blind cover	Schaffner	-
99014	Attenuator 30 dB for burst verification	Schaffner	INA 265
99015	Software control package	Schaffner	WIN 2025

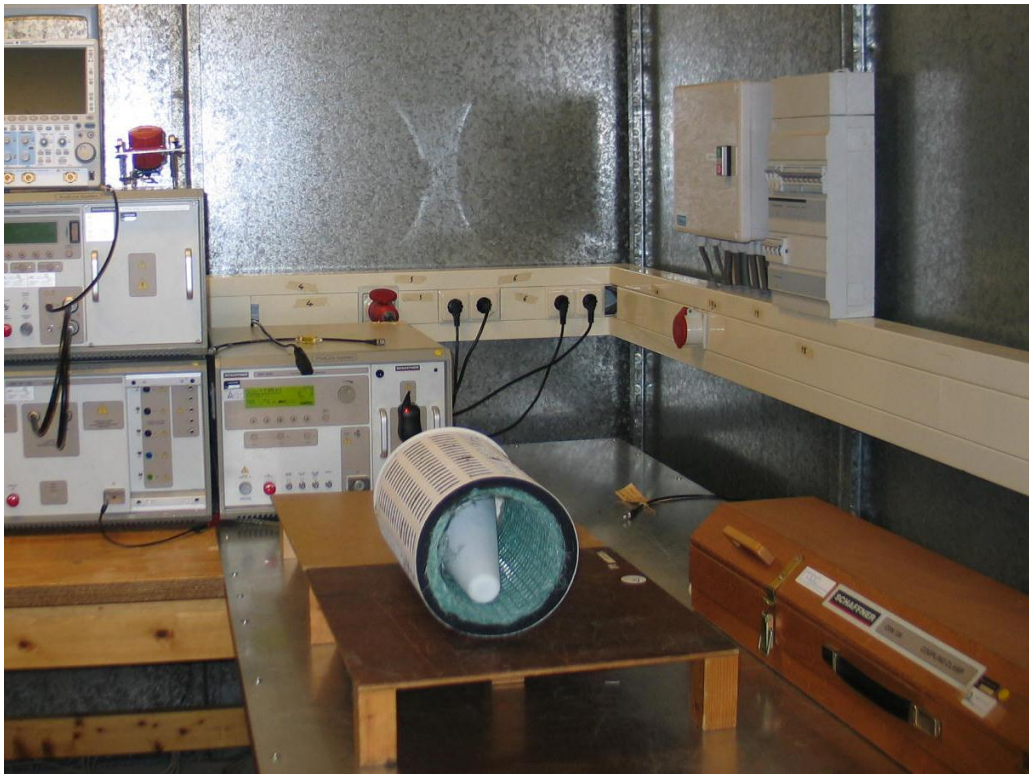


Photo 7: Basic set-up during EFT

4.5.3 Voltage dips and interruptions.

The susceptibility of the EUT to voltage dips and interruptions has been tested in conformity with- and according to the criteria as stated below.

Basic standard	:	EN 60730-1 2007
Test set-up	:	EN 61000-4-11: 2004
Test level (1.a)	:	Reduction of the supply voltage of 100% for 20 ms
Performance criterion	:	B
Test level (1.b)	:	Reduction of the supply voltage of 60% for 50 ms
Test level (1.b)	:	Reduction of the supply voltage of 30% for 50 ms
Test level (c)	:	Reduction of the supply voltage of 100% for 5000 and 50 ms
Performance criterion	:	C

Result of the tests concerning the susceptibility of the EUT to voltage dips and interruptions (AC input power ports).	**PASS / ~~FAIL / NOT APPLICABLE~~**
Name of test engineer:	K.F. van der Molen
Signature:	
Date:	January 8, 2013
REMARKS: **None**	

Utilized test equipment:

Inventory number	Description	Brand	Type
99835	Generator	EMTest	UCS 500N
---	Transformer	EMTest	V4780

Photo 8: Basic set-up during Voltage dips & interruptions

4.5.4 Surges.

The susceptibility of the EUT to surges common and differential mode has been tested in conformity with- and according to the criteria as stated below.

Basic standard	:	EN 60730-1: 2007
Test set-up	:	EN 61000-4-5: 2007
Test level (a)	:	±1 kV (true common mode)[1)]
Impedance	:	Series resistance of 10 Ohms for common mode (total impedance is 12 Ohms)
Performance criterion	:	B
Note[1)]	:	The surges are applied in parallel to all the wires in the cable with reference to the cabinet reference ground

Result of the tests concerning the susceptibility of the EUT to surges (common mode, differential mode, AC input/output power ports).	**PASS / ~~FAIL / NOT APPLICABLE~~**
Name of test engineer:	K.F. van der Molen
Signature:	
Date:	December 18, 2012
REMARKS: **None**	

Utilized test equipment:

Inventory number	Description	Brand	Type
15108	Surge simulator syst. mainframe 25A	Schaffner	NSG 2050
15111	Pulse network 1.2/50 μs 6.6 kV 3.3 kA	Schaffner	PNW 2050
99004	3-phase coupling network 25A	Schaffner	CDN 133
99006	1-phase Schuko coupling adapter 16A	Schaffner	INA 252
99008	Blind cover	Schaffner	-
99010	3-phase IEC 309 coupling adapter 32A	Schaffner	INA 250
99029	Software control package	Schaffner	WIN 2050

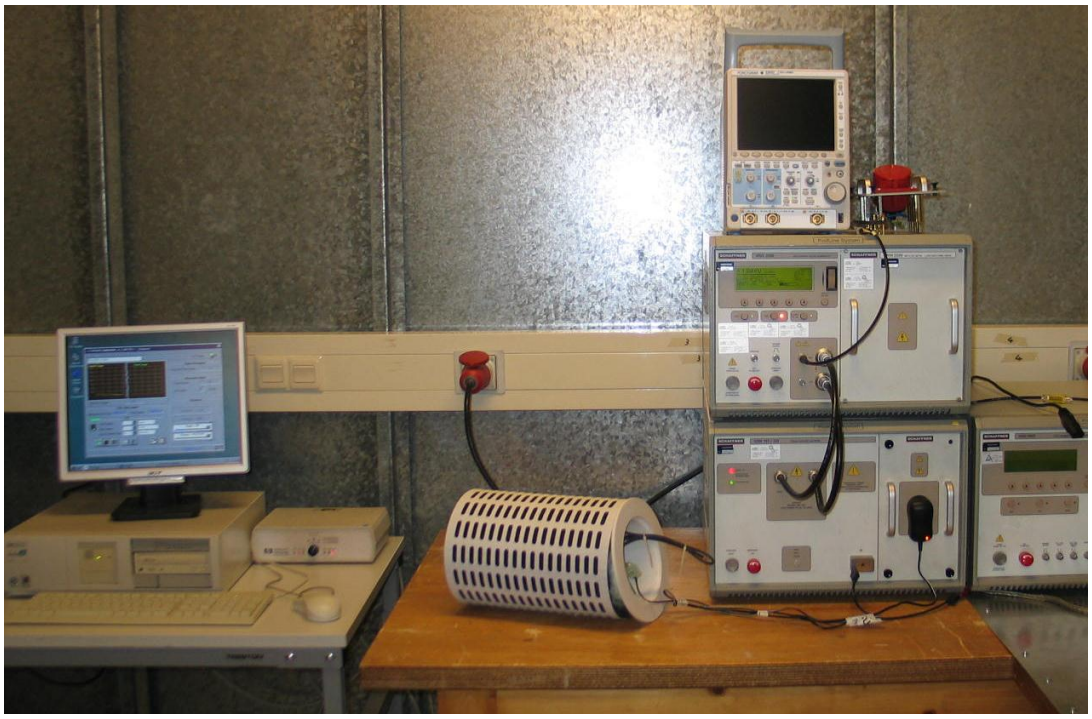


Photo 9: Basic set-up during Surges

5 Conclusion.

The Recirculation Airfilter, brand Plasma Made ® , model GUC1214, complies with parts of the standard:

EN 60730-1 2007: Automatic electrical controls for household and similar use – Part 1: General requirements

In the configuration and operation mode(s) as stated in this test report.