



## EMC Test Report

Reference number: EMC-140702/1

Manufacturer: Vízisztító Szervíz Kft.  
H1138. Budapest, Váci út 108.  
Hungary

Contact Person: Teodora PANKER  
GSM: +36703394791

Tested Product: LOURDES hydrogen water maker.  
Type: HS-71-H  
S/N: HS-0010596/14

Environmental conditions: Temperature: 25 °C  
Humidity: 68 %

Date of tests: 01/07/2014

The tests were carried out by EMC Test Laboratory's engineers on behalf of T-Network Ltd Budapest, Hungary:

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Geza RATKY

Laboratory Leader:

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Sandor TATAR

The contact person participating in the tests considers the procedure convincing. The results verify the product's EMC compliance.

On behalf of Vízisztító Szervíz Kft:

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Teodora PANKER

### Summary of the test results

Description of the tests	Limits and test levels of the related Standard	Result
<b>Disturbance emission tests</b>		
Radiated RF emission test	<b>EN 61326-2-6:2006</b> <b>EN 55011:2009+A1:2012</b> 30-1000 MHz	<b>Passed</b>
Conducted disturbance voltage on AC port	<b>EN 61326-2-6:2006</b> <b>EN 55011:2009+A1:2012</b> 0.15-30 MHz	<b>Passed</b>
Mains frequency harmonics emission	<b>EN 61326-2-6:2006</b> <b>EN 61000-3-2:2006+A1+A2:2009</b> 100-2 kHz	<b>NA</b>
Flicker	<b>EN 61326-2-6:2006</b> <b>IEC 61000-3-3:2013</b>	<b>NA</b>
<b>Immunity tests</b>		
Immunity against radiated RF disturbances	<b>EN 61326-2-6:2006</b> 3 V/m, 0.08-2.5 GHz Modulation: 1 kHz, 80 %,AM Criteria : A	<b>Passed</b> <b>Evaluation:</b> operation in compliance with the specification
Immunity against conducted RF disturbances on AC power lines	<b>EN 61326-2-6:2006</b> 3 V 0.15 – 80 MHz Modulation: 1 kHz, 80 % AM Criteria : A	<b>Passed</b> <b>Evaluation:</b> operation in compliance with the specification
Immunity against EFT signals	<b>EN 61326-2-6:2006</b> ±1 kV between L, N and ground Criteria : B	<b>Passed</b> <b>Evaluation:</b> operation in compliance with the specification
Immunity against SURGE voltages	<b>EN 61326-2-6:2006</b> ±1kV between L and N Criteria : B	<b>Passed</b> <b>Evaluation:</b> operation in compliance with the specification
Immunity against voltage DIPS	<b>EN 61326-2-6:2006</b> 0 %, 40 %, 70 % 1, 5, 25 periods Criteria : C and B	<b>Passed</b> <b>Evaluation:</b> operation in compliance with the specification
Immunity against short AC voltage interruptions	<b>EN 61326-2-6:2006</b> 5 % for 250 periods Criteria : C	<b>Passed</b> <b>Evaluation:</b> operation in compliance with the specification
Immunity against electrostatic discharges (ESD)	<b>EN 61326-2-6:2006</b> ±8kV air, ±4kV contact Criteria : B	<b>Passed</b> <b>Evaluation:</b> operation in compliance with the specification
Immunity against mains frequency magnetic field	<b>EN 61326-2-6:2006</b> 50 Hz 3 A/m	<b>NA</b>

Mains frequency harmonic emission measurements was not performed because the power consumption is less then 75 W. Flicker measurement was omitted because the equipment does not cause flicker. Immunity test against mains frequency magnetic field was omitted as far as the equipment does not comprise magnetic field sensitive components.

**The test results relate exclusively to the tested equipment, and valid for equally manufactured products only!**

**Operational conditions during the tests**

The equipment operated continuously during the tests, and was powered from 24VDC/1A mains adaptor. Meanwhile the immunity tests the water making time displayed on the equipment were observed for checking the normal operation. The DC24V cable length was 1.5 m.

**Changes on the equipment**

To reduce the radiated emission two Würth 74271222 ferrite clamps were applied on the DC24V cable with two turns.

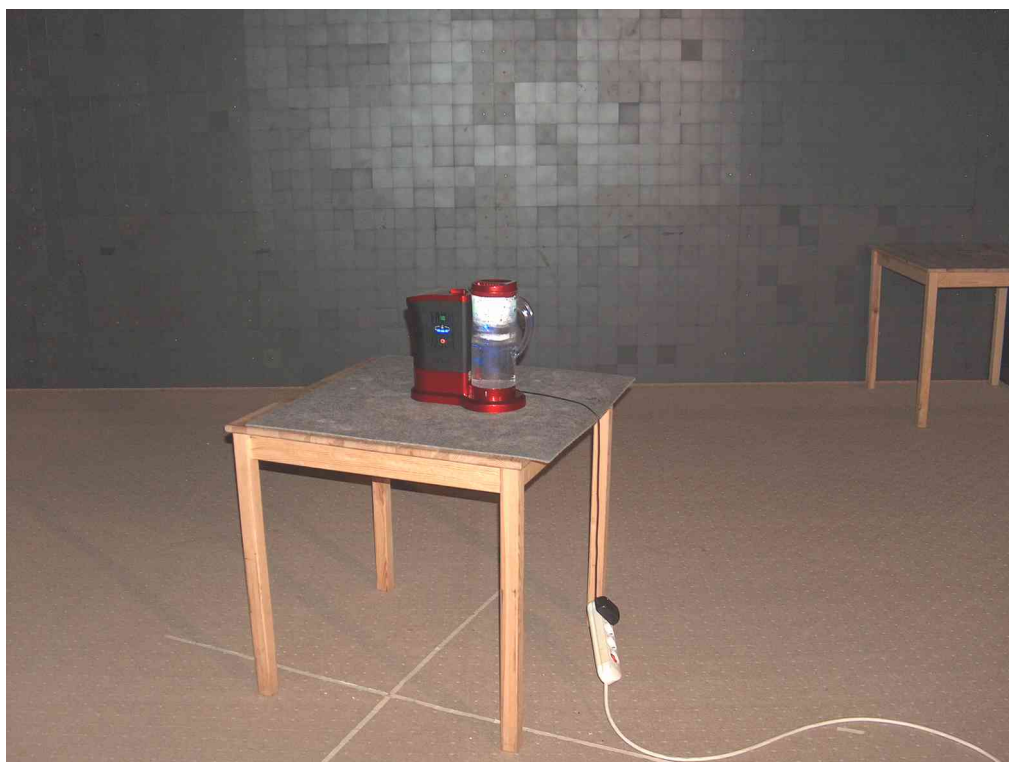
**1. Radiated RF emission test**

The applied limit values are according to the related EN 55011:2009+A1:2010 Standard, Class B.

**Test equipment**

Device name	Type	S/N	Calibration expires
Spectrum Analyzer	Wayne Kerr SSA1000A	000552	2016. March
Receiver Antenna	Sunol JB1	A121307	2017. January
Antenna MAST	INN-CO, MA4000-EP	222/18061207/L	2016. December
MAST controller	INN-CO, CO-2000	462/18061207/L	2016. December
Test Chamber	T-Network SAR	-	2016. January

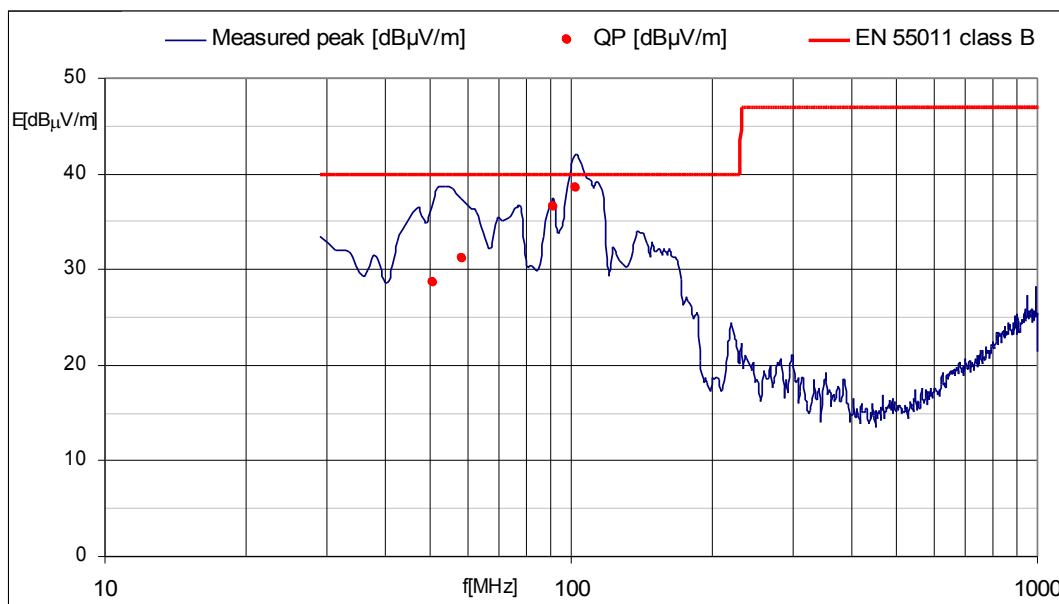
**Test setup and method:** as per EN 55022:2010/AC:2011, test distance 3 m



The equipment's placement on the test site at 0° position

## Radiated emission test result

The limit line on the diagrams below relates to quasi peak measurement at 3 m test distance and is calculated from values given for 10 m in the EN 55011:2009/A1:2010 Standard.



f [MHz]	QP [dBµV/m]	Polarization	Height [cm]	Angle [°]	Margin [dB]
50.57	28.7	PV	100	0	11.3
58.72	31.2	PV	116	0	8.8
91.59	36.5	PV	144	0	3.5
102.69	38.5	PV	112	0	1.5

**Evaluation of the test result:** The equipment fulfils the EN 55011:2009+A1:2010 requirements.

## 2. Conducted disturbance emission measurement on AC power port

Test method is according to the related EN 55022:2010/AC:2011 Standard.

The equipment was placed 40 cm height above the reference ground plate. The applied limit values are determined according to the EN 55011:2009+A1:2010 Standard, Class B.

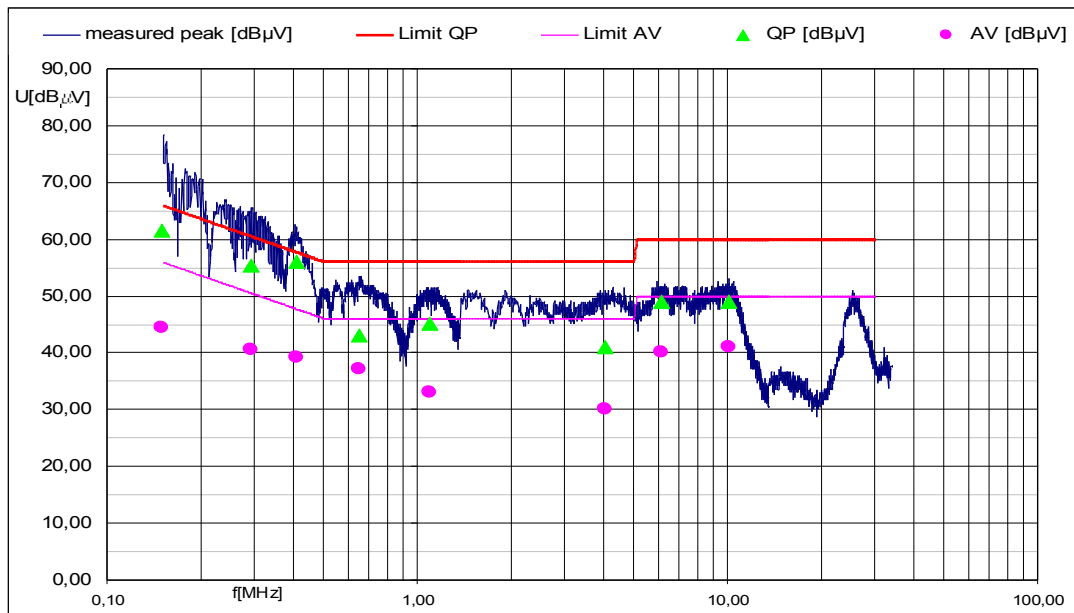
### Test equipment

Device name	Type	S/N	Calibration expires
Spectrum Analyzer	Wayne Kerr SSA1000A	000552	2016. March
LISN	AFJ LT32	32030750159	2016. December
Test Chamber	T-Network FAR	-	2016. January



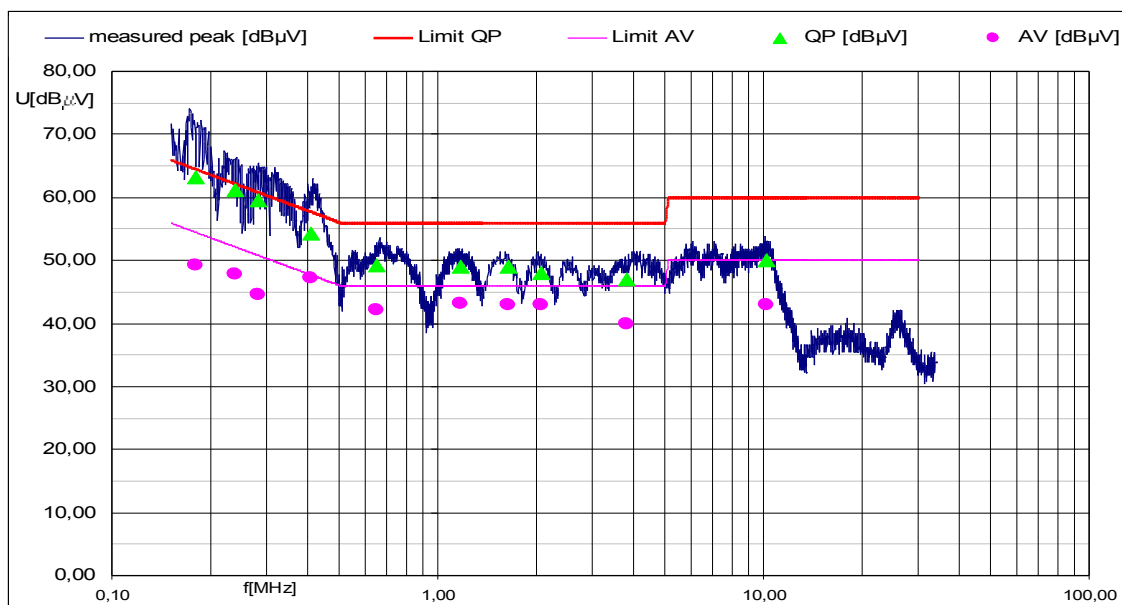
The equipment's placement on the test site

## 2.1 Result of conducted disturbance emission test on line N



Disturbance emission			Limit value		Margin	
f [MHz]	QP [dBµV]	AV [dBµV]	QP [dBµV]	AV [dBµV]	QP [dB]	AV [dB]
0.15	61.5	44.5	66.0	59.0	4.5	14.5
0.29	55.5	40.5	60.5	51.9	5.1	11.4
0.41	56.0	39.3	56.9	47.1	0.9	7.9
0.65	43.2	37.2	56.0	46.0	12.8	8.8
1.10	45.1	33.1	56.0	46.0	10.9	12.9
4.06	41.0	30.1	56.0	46.0	15.0	15.9
6.17	49.0	40.0	60.0	50.0	11.0	10.0
10.07	49.0	41.0	60.0	50.0	11.0	9.0

## 2.2 Result of conducted disturbance emission test on line L



Disturbance emission			Limit value		Margin	
f [MHz]	QP [dBµV]	AV [dBµV]	QP [dBµV]	AV [dBµV]	QP [dB]	AV [dB]
0.18	63.3	49.3	64.5	57.0	1.2	7.8
0.24	61.2	47.8	62.1	53.9	0.9	6.1
0.28	59.5	44.5	60.8	52.3	1.3	7.7
0.41	54.3	47.3	57.6	48.1	3.4	0.9
0.65	49.2	42.2	56.0	46.0	6.8	3.8
1.18	49.1	43.1	56.0	46.0	6.9	2.9
1.64	49.0	43.0	56.0	46.0	7.0	3.0
2.08	48.0	43.0	56.0	46.0	8.0	3.0
3.83	47.0	40.0	56.0	46.0	9.0	6.0
10.19	50.0	43.0	60.0	50.0	10.0	7.0

### Evaluation of the test result:

The equipment fulfils the EN 55011:2009+A1:2010 Standard requirements.

## 3. Immunity test against radiated RF disturbances

### Test equipment

Device name	Type	S/N	Calibration expires
Signal Generator	R&S SMG 100 kHz-1000 MHz	883 210/067	2016. September
Power Amplifier	AR PST 1-2 GHz	11747	-
Power Amplifier	HP 491C 2-4 GHz	1223-5286	-
Power Amplifier	Frankonia FLH20B	1084	-
Test Chamber	T-Network FAR	-	2016. January
Sweep Generator	HP8350A	25209	-
RF-Plug in	HP 83592B 10 MHz-20 GHz	25562	-
LF Generator	HP3310A	22513	-
Antenna (1-18 GHz)	TN/DRH	01/2005	-
Antenna (80-1000 MHz)	TN/Logper	1/2008	-
Electric Field Probe	Narda EP300	000WJ70717	2016. December

Test method is according to the related EN 61000-4-3:2006+A1:2008+A2:2010 Standard.

Test signal: 3 V/m, 0.08-2.5 GHz, modulation 1 kHz 80 % AM as per EN 61326-2-6:2006 Standard.



The equipment's placement on the test site

**Evaluation of the test result:** The equipment operated perfectly during the test.

#### **4. Immunity test against conducted electromagnetic disturbances on AC power lines**

Test method is according to the related EN 61000-4-6:2009 Standard.

Test signal: 3 V<sub>eff</sub>, 0.15-80 MHz, modulation 1 kHz 80 % AM as per EN 61326-2-6:2006 Standard.

#### **Test equipment**

Device name	Type	S/N	Calibration expires
Test Generator	Frankonia CIT 10/75	102D1320	2016. December
CDN	Frankonia CDN-M3	A3003063	2016. December
Test Chamber	T-Network FAR	-	2016. January



The equipment's placement on the test site

**Evaluation of the test result:** The equipment operated perfectly during the test.

### **5. Immunity against mains frequency electric fast transients (EFT)**

Test method is according to the related EN 61000-4-4:2005+A1:2010 Standard.  
 Test signal:  $\pm 1$  kV between L, N and ground as per EN 61326-2-6:2006 Standard.  
 Impulse: 5/50 ns, period: 5 kHz, duration: 15 ms, pauset: 300 ms. Test time: 2x 60 s.

#### **Test equipment**

Device name	Type	S/N	Calibration expires
Test Generator	EMC Partner TRA-2000	969	2016. December
Test Chamber	T-Network FAR	-	2016. January





The equipment's placement on the test site

**Evaluation of the test result:** The equipment operated perfectly during the test.

## 6. Immunity test against over-voltage (SURGE)

Test method is according to the related EN 61000-4-5:2006 Standard.

Test signal:  $\pm 1$  kV between L-N as per EN 61326-2-6:2006 Standard.

Impulse: 1.2/50  $\mu$ s, synchronization: 0°, 90°, 270°, repetition: 10 s. Test time: 4x60 s.

### Test equipment

Device name	Type	S/N	Calibration expires
CWG Generator	EMC Partner TRA-2000	969	2016. December
Test Chamber	T-Network FAR	-	2016. January

**Evaluation of the test result:** The equipment operated perfectly during the test.

## 7. Immunity test against AC voltage DIPs and short interruptions

Test method is according to the related EN 61000-4-11: 2004 Standard.

The applied test levels are according to EN 61326-2-6:2006 Standard.

### Test equipment

Device name	Type	S/N	Calibration expires
CWG Generator	EMC Partner TRA-2000	969	2016. December
Test Chamber	T-Network FAR	-	2016. January

Test level	30 % DIP	60 % DIP	100 % DIP	Interruption 95 %
Test time [s]	60	60	60	60
Repetition [s]	10	10	10	10
Duration [ms]	500	100	20	5000
Start	0°	0°	0°	0°
Stop	0°	0°	0°	0°

**Evaluation of the test result:** The equipment operated perfectly during the test.

### 8. Electrostatic Discharge (ESD) Test

Test method is according to the related EN 61000-4-2:2009 Standard.

The applied test voltages are according to the EN 61326-2-6:2006 Standard.

#### Test equipment

Device name	Type	S/N	Calibration expires
CWG Generator	EMC Partner TRA-2000	969	2016. December
ESD Pistol	EMC Partner ESD2000	0360	2015. Augustus
Test Chamber	T-Network FAR	-	2016. January

±4 kV contact discharges were applied ten times at 4 sides of the equipment to the horizontal and vertical coupling plate, ±4 kV contact discharges were applied ten times to the touchable conductive parts of the equipment, ±8 kV air discharges were performed ten times to the non conductive parts of the equipment.



The equipment's placement on the test site

**Evaluation of the test result:** The equipment operated perfectly during the test.