Fort Collins Hardware Test Center
3404 East Harmony Road MS63
Fort Collins, Colorado 80528

TEST REPORT

WORKORDER NUMBER	**4302 PERCEPT 230V**
TEST TYPE	**RADIATED EMISSIONS**
REGULATION/STANDARD	**CISPR11/CNS13803 & CFR47 Part 15 Class B**
EUT POWER	**230 Volts AC @ 50 Hz, 1-Phase Power**
DATE TEST PERFORMED	**Sep 03, 2003**
PROJECT NAME	**ionCleanse**
MODEL NUMBER	**IONCLEANSE**
QUANTITY TESTED	**1**
CUSTOMER NAME	**Chris Poore – Percept Technology**
COMPANY NAME	**ionCleanse**
COMPANY ADDRESS	**11000 East Yale Avenue #35** **Aurora, CO 80015**
TECHNICIAN	**Don Lighthart**
ENGINEER	**Brian Annis**
REVIEWED BY	**Steve Brauns**

APPROVED BY:  DATE: 5-Sep-03

Brian Annis

ACCREDITED 0905-01 FC 90633 DOTech TTI-P-G053/92-50 BSMI SL2-IN-E-1011 VCCI R-787 C-820

.

SUMMARY:	System passed by 7.9 dB
COMMENTS:	None
DEVIATIONS FROM TEST METHOD:	*Note: Describe deviation and reason; name of client authorizing deviation must also be included.* None

RADIATED EMISSIONS DATA – CISPR11/CNS13803 & CFR47 Part 15 Class B

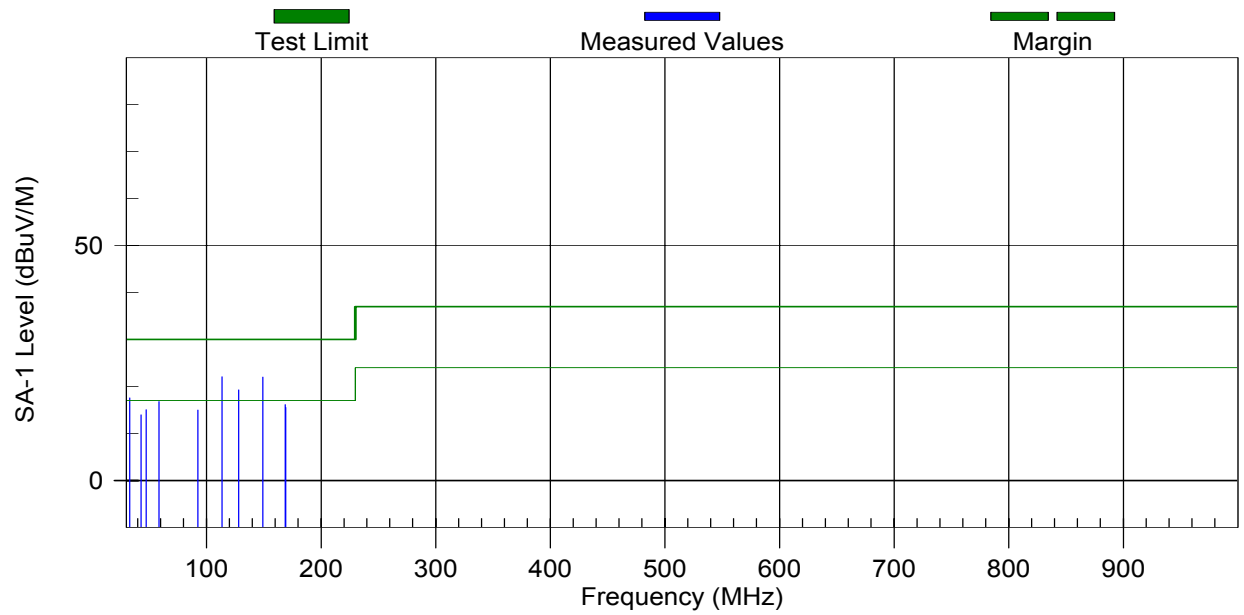
Frequency [MHz]	Polarity [V/H] Height [cm] Azimuth [deg]	Receiver Reading (dBuV)	Correction Factor[1] (dB)	Corrected Reading[2] (dBuV)	Margin (dB)	Limit (dBuV)
113.52	V,111,129	63.3	-41.2	22.1	7.9	30.0
149.29	V,100,205	64.5	-42.5	22.0	8.0	30.0
128.13	V,198,111	60.7	-41.4	19.3	10.7	30.0
33.05	V,351,244	51.3	-33.7	17.6	12.4	30.0
58.65	V,267,311	61.8	-45.0	16.8	13.2	30.0
168.67	V,100,57	59.3	-43.2	16.1	13.9	30.0
169.24	V,107,121	58.8	-43.3	15.5	14.5	30.0
47.34	V,100,298	57.3	-42.3	15.0	15.0	30.0
92.54	V,126,304	58.8	-43.8	15.0	15.0	30.0
42.82	V,156,313	53.5	-39.5	14.0	16.0	30.0

[1] To account for test system losses and gains, a correction factor is added to the spectrum analyzer readings to produce the "corrected" signal levels. This correction factor is the sum of the antenna factor and the cable losses, minus the preamplifier gain.

[2] Quasi-peak detection used for all final signal measurements <= 1 GHz, average detection used > 1 GHz.

Final Test Results

4302 PERCEPT 230V / PERCEPT_IONCLEANSE_A-LO / 01302 / 9/3/2003 @ 6:02:12 PM



EUT DESCRIPTION & SYSTEM CONFIGURATION:

Equipment Under Test:

Product Type	Model	Ser. No.	Description
Electronic Detoxification System	**IONCLEANSE**	**01302**	**Electronic Detoxification System**
Other ionCleanse ionCleanse 01302 Qty=1; Electronic Detoxification System Version 9.5 (FCCID=None) (PartID=NA) Power Supply Meanwell SPU50-5 01334128 Qty=1; AC Power Adapter with 6 Foot Unshielded Cable (FCCID=None) (PartID=NA) Cable (Other) ionCleanse None NA [QTY=1] Element Cable 1 Meter unshielded (CableID=408)			

EUT Support Equipment:

Product Type	Model	Ser. No.	Description
Cable (Power)	Generic E131923	NA	[QTY=1] Standard 15A, 250V (Yellow) Power Cable, 8 Foot, unshielded (CableID=223)

TEST ENVIRONMENT

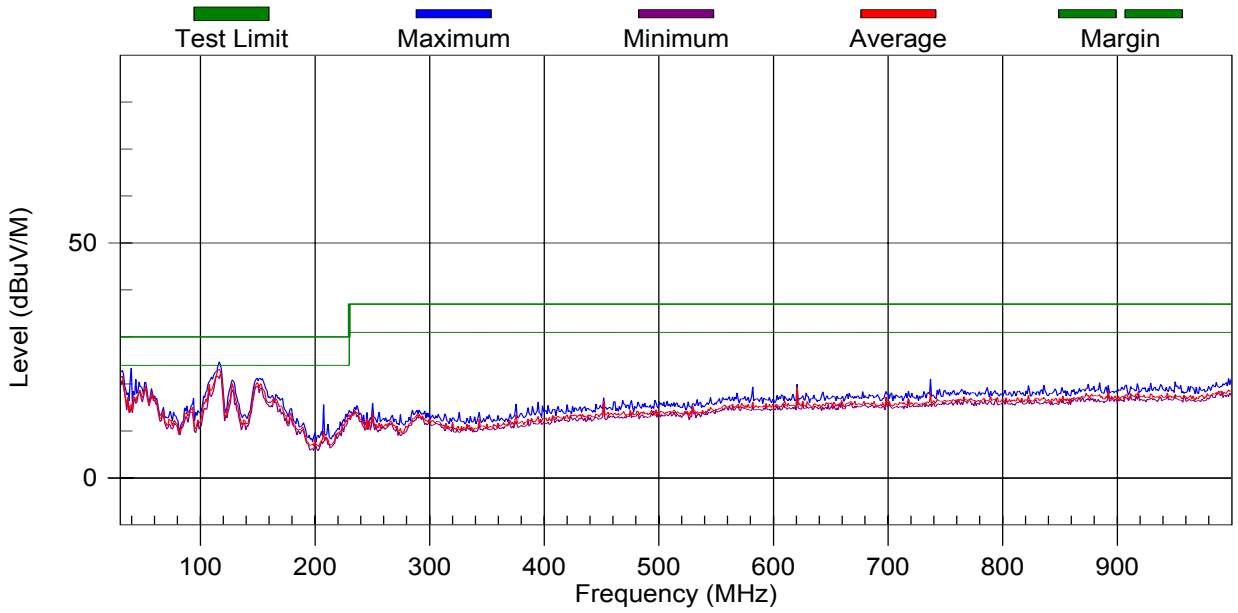
EUT Condition	Functional and undamaged
EUT Software/Firmware	FACTORY INSTALLED FIRMWARE
EUT Verification	IONIZING WATER AT 2.3A
EUT/System Description	EUT, Power Cable
[3,4] EUT Power	230 Volts AC @ 50 Hz, 1-Phase Power
Environmental Conditions	22.2 Deg C, 41.0 % RH, 101.1 kPa

[3] 115V/60Hz power source is the Ft. Collins public power supply system (filtered), and the 230V/50Hz source is the 50Hz motor generator. Power voltages are specified to within ± 5%, and power frequencies are specified to within ± 1%.

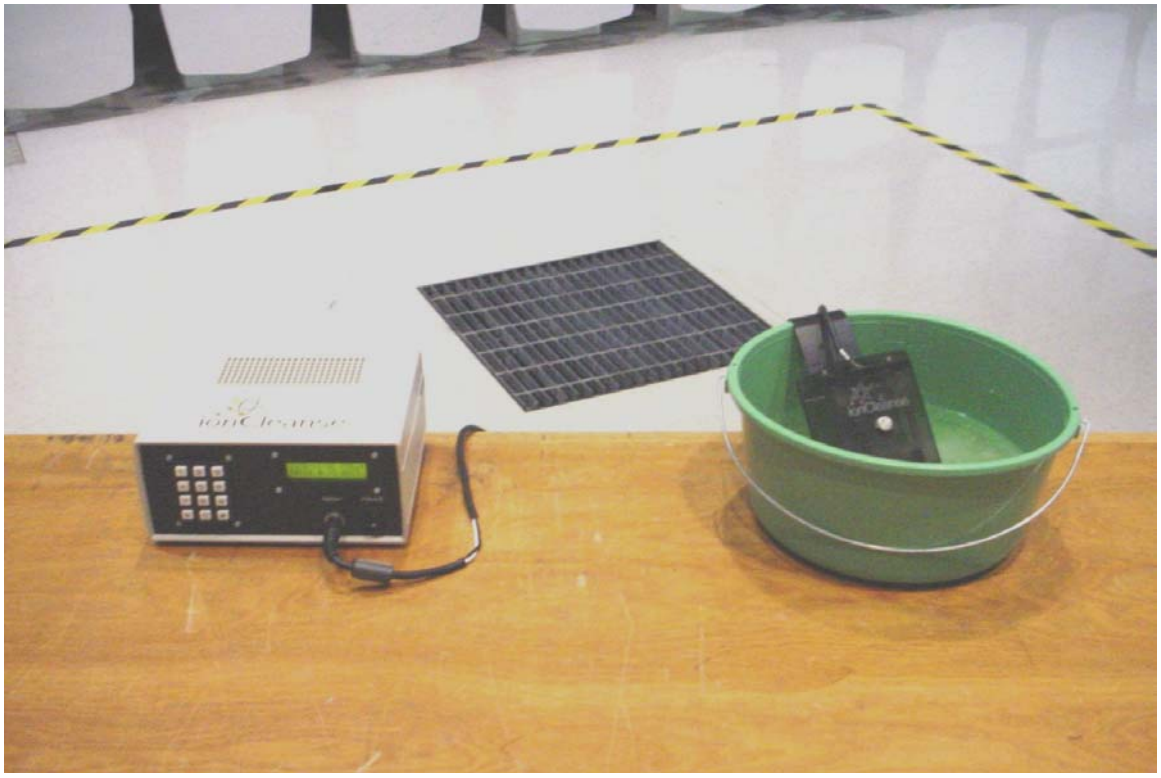
[4] For BSMI qualification, emissions are also evaluated at 110V/60Hz and 220V/60Hz, using the Elgar power source.

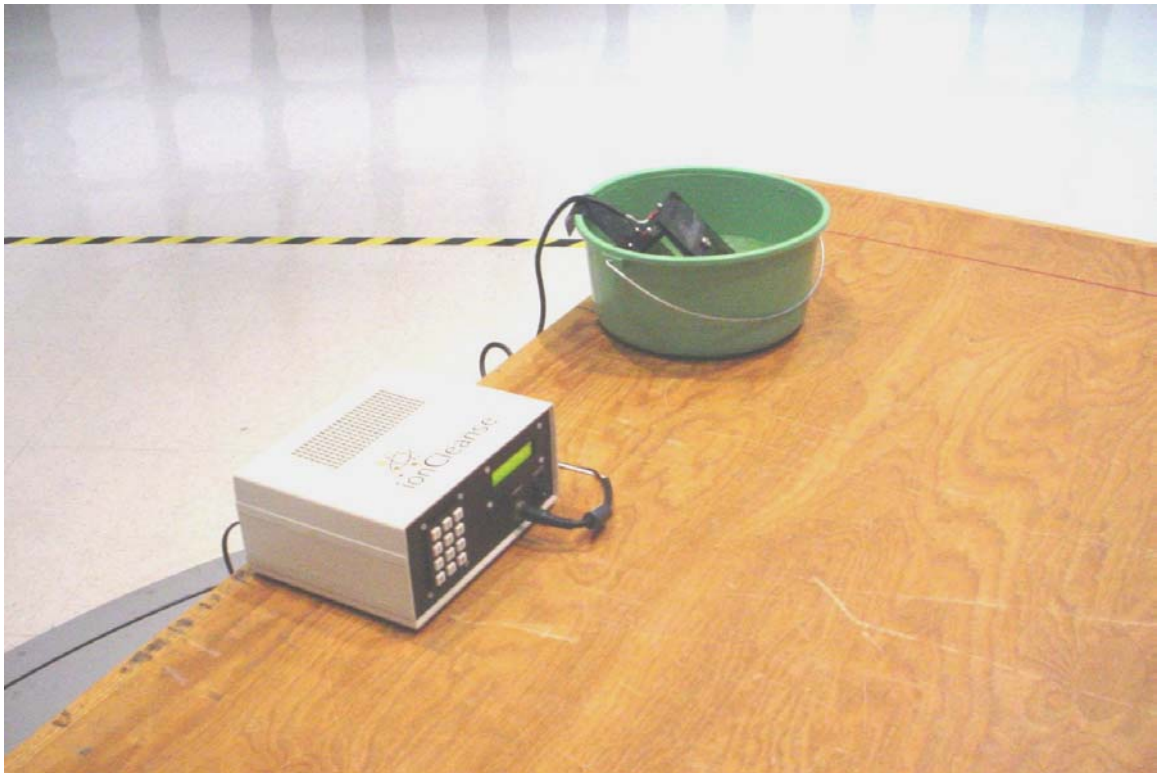
Prescan Test Results

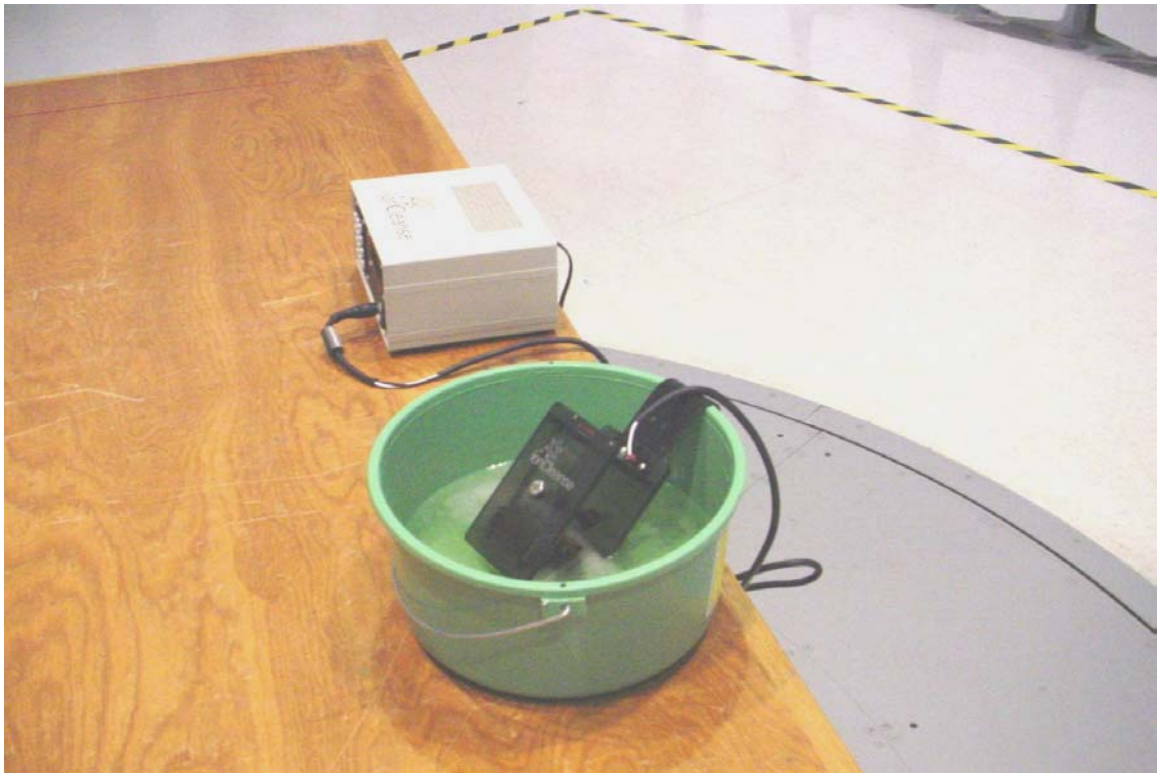
4302 PERCEPT 230V / PERCEPT_IONCLEANSE_A-LO / 01302 / 9/3/2003 @ 5:29:13 PM
(Corrected Data)
Updating Band No. 1 of 1



EUT/SYSTEM PHOTOGRAPHS & DIAGRAMS







TEST DESCRIPTION/PROCEDURE

A system verification test is performed prior to each test run. This "functional" test sequentially transmits a signal at predetermined frequencies across the spectrum of interest, and compares the signal levels received at each antenna with reference values determined when the system was known to be functioning properly. The received signal levels must be within ± 1 dB of the reference values for the functional test to pass. Prior to each test run, any necessary adjustments are also made to the turntable and mast controllers to maintain their specified positioning tolerances (± 5°, ± 3cm). This test measures the radiated emissions of products from 30 MHz to 1000 MHz, as required, using a broadband receiving antenna, preamplifier, quasi-peak adapter, and spectrum analyzer. Testing is performed entirely in a 10-meter semi-anechoic chamber that meets the Normalized Site Attenuation requirements of ANSI C63.4. and CISPR 22. During prescan testing, the turntable is positioned to enable measurements at 16 separate azimuth angles. At each turntable azimuth, peak emission levels are then recorded for antenna elevations of 100, 250, and 400 cm, in both horizontal and vertical polarizations. When prescan testing is completed, the frequency list is typically sorted to include all signals within 6 dB of the specified limit, and must include a minimum of 6 discrete signals. If necessary, the list is re-sorted to include more signals. Each signal in this reduced list is then re-measured using quasi-peak or average detection, at the turntable and antenna positions where the highest signal level was found during prescan. These quasi-peaked and averaged results are then used to generate the final frequency list. During the final test, each signal in the final frequency list is maximized by rotating the turntable and adjusting the antenna position for a maximum signal level on the spectrum analyzer. These maximum signal levels are then measured and recorded by the test software. Quasi-peak detection is used for signals at frequencies less than 1000 MHz, using a bandwidth of 120 kHz and a 20 ms sweep time. Signals greater than 1000 MHz are averaged, using a bandwidth of 1 MHz and a 20 ms sweep time. With the exception of the final signal maximization, the test is completely automated using Hewlett-Packard's *Radiated Emissions Module* (REM 2.2.6) test software. This process is documented in the FCHTC's *Radiated Emissions Test Procedure* (TP018).

TEST AND MEASUREMENT EQUIPMENT

ID	Description	Loc	Model	Mfgr	Serial #	Cal'd	Cal Int	Cal Due
500	Antenna, Horn 1-18 GHz	South	3115	EMCO	9210-3947	16-Sep-02	12	30-Sep-03
687	Bilog Antenna 30MHz-2GHz	North	CBL6112A	Chase	2279	30-Sep-02	12	30-Sep-03
692	Front End, 10m North	North	EC4013	HP	NA	26-Jan-03	12	31-Jan-04
685	Front-End, 10m South	South	EC4009	HP	NA	26-Jan-03	12	31-Jan-04
690	Mast/Turntable Controller	South	SC98V	Sunol	101797-2	NA	NA	NA
691	Mast/Turntable Controller	North	SC98V	Sunol	111997-1	NA	NA	NA
665	Quasi-Peak Adapter	South	85650A	HP	3303A01836	24-Sep-02	12	30-Sep-03
813	Signal Generator	N&S	83650B	HP	3844A00721	6-Jun-03	24	30-Jun-05
790	Synthesized CW Generator	N&S	8671B	HP	3034A01165	1-Nov-02	12	30-Nov-03
595	Spectrum Analyzer	South	8566B	HP	3407A08388	06-Sep-02	6	30-Sep-03
496	Spectrum Analyzer	3m	8566B	HP	3014A06802	16-Jan-03	12	31-Jan-04
659	Spectrum Analyzer	North	8566B	HP	3638A08625	3-Feb-03	12	29-Feb-04
875	Temp/Humidity Indicator	N&S	HMI41	Vaisala	Y1220058	4-Apr-03	12	30-Apr-04
850	Turntable/Mast Controller	N&S	2090	EMCO	9901-1392	NA	NA	NA
759	10-Meter Semi-Anechoic	N&S	AP85	EMC Test	0001	1-Nov-02	12	30-Nov-03
753	Antenna, Horn 1-18 GHz	North	3115	EMCO	9811-5627	9-May-03	12	31-May-04
688	Bilog Antenna 30MHz-2GHz	South	CBL6112A	Chase	2232	31-Mar-03	12	31-Mar-04
797	Motor Generator	Mezz	60-470364	Horlick	75419-3	29-Jul-02	36	31-Jul-05
409	Elgar (AC Power Source)	Mezz	1751SX	Elgar	3140	20-Dec-02	12	31-Dec-03
544	Elgar (AC Power Source)	Mezz	1751SX	Elgar	3138	20-Dec-02	12	31-Dec-03
831	Elgar Programmer Unit	Mezz	9012	Elgar	498000	20-Dec-02	12	31-Dec-03

REGULATORY STANDARDS

Where applicable, test methods are compliant with the following regulatory standards:

EN55022:1998-09	CISPR 22:1997-11	ANSI C63.4-1992	CNS 13438:1997-05
EN 55011:1998-05	CISPR 11:1997-12	FCC Parts 2, 15, 18	CNS 13803
AS/NZS 3548:1995	AS/NZS 2064:1997	EN 61326:1997 + A1:1998	ICES-003:1997