



115 Juliad Court, Suite 105
Fredericksburg VA, 22406
Phone 540 286 1984
Fax 540 286 1865
www.vitatech.net

Mr. Andy Kaps
Project Manager
2130 Filmore St., Suite 282
San Francisco, CA 94115

Tel: 510.601.1775
Email: andy@infraredsauna.com

Subject: AC ELF EMF EMC Magnetic and Electric Field Testing for Clearlight Sauna Heaters

Dear Mr. Kaps

Vitatech Electromagnetics was commissioned by Clearlight Sauna to perform comprehensive AC ELF EMF EMC and Electric field (electromagnetic compatibility) testing for two 300 watt 240 V panel heater at our office in Virginia. Vitatech operated the heater under normal electrical load and its regular "ON/OFF" settings to identify the peak magnetic field emission level emitted from the heater per full-compliance testing. In addition to the normal magnetic and electric field testing at the common power frequency of 60 Hz, Vitatech measured the AC ELF magnetic field emanating from the sauna heaters from 12 Hz to 50 kHz as spot readings to ensure low-level magnetic flux density levels at the harmonic frequencies as well. In addition to individual heater compliance testing the effectiveness of an electric field shielding screen was evaluated and compared to the unshielded heater. The site survey was performed on Monday, July 27, 2015 by EMF Engineer Joe Ferro.

AC ELF Electromagnetic Interference (EMI)

Electromagnetic induction occurs when time-varying AC magnetic fields couple with any conductive object including wires, electronic equipment and people, thereby inducing circulating currents and voltages. In unshielded (susceptible) electronic equipment (computer monitors, video projectors, computers, televisions, LANs, diagnostic instruments, magnetic media, etc.) and signal cables (audio, video, telephone, data), electromagnetic induction generates electromagnetic interference (EMI), which is manifested as visible screen jitter in displays, hum in analog telephone/audio equipment, lost sync in video equipment and data errors in magnetic media or digital signal cables.

Magnetic flux density susceptibility can be specified in one of three terms: Brms, Bpeak-to-peak (p-p) and Bpeak (p) according to Equation 1 below:

$$\text{Equation 1: } B_{rms} = \frac{B_p - p}{2\sqrt{2}} = \frac{B_p}{\sqrt{2}}$$

The objective of the AC ELF EMF testing services performed for the 120 watt heater was to identify the peak magnetic flux density levels emanating from the sauna heater under its normal “ON” setting and compare the recorded data with both current federal/state/industry standards and Vitatech Electromagnetics’ recommendation for long-term human health exposure. It should be noted that all recorded magnetic flux density level within this report is presented in units of milligauss, RMS (BRMS, Bx, By, Bz).

AC ELF Magnetic Flux Density Site Assessments & Conclusions

Vitatech recorded timed, mapped, lateral, and spot-reading AC ELF magnetic flux density levels as a set of data plots to ascertain the magnetic field emission profile of the Clearlight 300 watt 240 volt panel heater. It should be noted that due to the nature of the testing, a push-button was used to record spot-reading measurements with the FieldStar1000 gaussmeter collecting data at 60 Hz and a single-axis MEDA 8532 gaussmeter used to collect data from 12 Hz to 50 kHz. Lastly, it should also be noted that all AC magnetic flux density levels were recorded in units of milligauss RMS (root-means-square), and it is important to distinguish between the resultant magnetic field measurements recorded by the FieldStar 1000 three-axis gaussmeter and the directional-component magnetic field measurements recorded by the MEDA 8532 single-axis gaussmeter. In addition to magnetic field measurements, electric field measurements were also take on the two heater panels to evaluate the effectiveness of the installed shielding system. A detailed assessment of the recorded magnetic flux density data is presented as a series of graphics, Figure #1 through Figure #10 attached as an addendum and described and analyzed bellow.

Figure Descriptions

Figure #1, Shielded Timed Plot, presents the magnetic flux density levels recorded with a FieldStar 1000 gaussmeter atop (separation distance = ~2 inches) the Clearlight 300 watt 240 volt sauna heater panel. Data is presented as a timed plot over a period of 35 seconds during typical operation. This plot was recorded to identify/measure the peak magnetic field levels of the heater panel and to identify the magnetic field emission profile of the heater under typical load. As shown by Figure #1, the peak magnetic flux density level recorded atop the energized sauna heater panel was 0.12 mG, which was recorded at the top left corner of the heater panel where the electrical wiring leads into the heater panel. This location produced the peak magnetic field level as a result of high current density in the power supplying lead wires. This peak level is within Vitatech’s recommended 10 mG human health exposure limit.

Figure #2, Shielded Magnetic Field Spot Reading, presents the magnetic flux density levels recorded with a MEDA 8532 gaussmeter atop (separation distance = ~2 inches) the Clearlight 300 watt 240 volt sauna heater panel as a Spot Reading

during typical operational modes. These spot readings were taken to further refine the understanding of the magnetic field output of the heater. The results of the spot readings are tabulated in the chart below and the location of the measurement can be obtained from Figure #2.

Location	B _x (mG _{RMS})	B _y (mG _{RMS})	B _z (mG _{RMS})	B _r (mG _{RMS})
Spot #1	0.07	0.06	0.07	0.12
Spot #2	0.00	0.05	0.03	0.06
Spot #3	0.11	0.02	0.03	0.12
Spot #4	0.05	0.06	0.06	0.10
Spot #5	0.04	0.01	0.04	0.06

Table 1: tabulating spot measurement readings at 2 inches separation distance from heater with calculated resultant magnetic field measurements.

It can be seen from the table above that the peak magnetic flux density level was 0.12 mG recorded at spot #1 and #3 on the heater panel directly above the supply wires for spot #1 and the center of the panel. This peak level is within Vitatech's recommended 10 mG human health exposure limit.

Figure #3, Shielded Contour Plot, Presents the magnetic flux density levels recorded above the Clearlight 300 watt 240 volt heater as a pair of contour magnetic field plots. The top contour plot represents the magnetic flux density at a separation distance of ~2 inches from the heater. It can be seen that at that distance the peak magnetic field recorded was 0.24 mG. The bottom contour plot represents the magnetic flux density at a separation distance of 1 meter from the heater. At this distance the peak magnetic field level is 0.00 mG. This large decrease in the magnetic flux density as a result of increasing separation distance shows that this heater has excellent decay rates away from the heater.

Figure #4, Shielded Vertical Plots, presents the magnetic flux density levels recorded above the Clearlight 300 watt 240 volt heater as a series of vertical plots from three panel locations (left, center, and right) to complete the magnetic field emission profile of the source and relative magnetic field decay rate. Similar to the contour plots, these plots were recorded to identify the peak magnetic field levels from the entire heater panel under typical operation. As shown by Figure #4, the three lateral plots recorded a magnetic field level of 0.0 mG throughout all three tests on the panel heater.

Figure #5, Shielded Electric Field Spot Reading, presents the electric field levels recorded with a PMM 8053 portable field meter atop (separation distance = ~2 inches) the Clearlight 300 watt 240 volt sauna heater panel as a Spot Reading during typical operational modes. These spot readings were taken to identify the value of the electric field with and without the Clearlight shielding system used. The results of the spot readings are tabulated in the chart below and the location of the measurement can be obtained from Figure #2.

Location	Er(V/m)
Spot #1	8.570
Spot #2	2.485
Spot #3	2.711
Spot #4	1.701
Spot #5	1.577

Table 2: tabulating spot measurement readings at 2 inches separation distance from heater with resultant electric field measurements.

It can be seen from the table above that the peak electric field level was 8.570 V/m recorded at spot #1 on the heater panel directly above the supply wires. This peak level is within Vitatech's recommended 4,167 V/m human health exposure limit which is compliant with the ICNIRP electric field standard.

Figure #6, Unshielded Timed Plot, presents the magnetic flux density levels recorded with a FieldStar 1000 gaussmeter atop (separation distance = ~2 inches) the Clearlight 300 watt 240 volt sauna heater panel. Data is presented as a timed plot over a period of 40 seconds during typical operation. This plot was recorded to identify/measure the peak magnetic field levels of the heater panel and to identify the magnetic field emission profile of the heater under typical load. As shown by Figure #6, the peak magnetic flux density level recorded atop the energized sauna heater panel was 0.36 mG, which was recorded at the bottom right corner of the heater panel. This peak level is within Vitatech's recommended 10 mG human health exposure limit.

Figure #7, Unshielded Magnetic Field Spot Reading, presents the magnetic flux density levels recorded with a MEDA 8532 gaussmeter atop (separation distance = ~2 inches) the Clearlight 300 watt 240 volt sauna heater panel as a Spot Reading during typical operational modes. These spot readings were taken to further refine the understanding of the magnetic field output of the heater. The results of the spot readings are tabulated in the chart below and the location of the measurement can be obtained from Figure #2.

Location	Bx(mG _{RMS})	By(mG _{RMS})	Bz(mG _{RMS})	Br(mG _{RMS})
Spot #1	0.24	0.12	0.20	0.34
Spot #2	0.13	0.03	0.02	0.13
Spot #3	0.33	0.02	0.02	0.33
Spot #4	0.20	0.07	0.02	0.21
Spot #5	0.20	0.05	0.03	0.20

Table 3: tabulating spot measurement readings at 2 inches separation distance from heater with calculated resultant magnetic field measurements.

It can be seen from the table above that the peak magnetic flux density level was 0.34 mG recorded at spot #1 on the heater panel directly above the supply wires. This peak level is within Vitatech's recommended 10 mG human health exposure limit.

Figure #8, Unshielded Contour Plot, Presents the magnetic flux density levels recorded above the Clearlight 300 watt 240 volt heater as a pair of contour magnetic field plots. The top contour plot represents the magnetic flux density at a separation distance of ~2 inches from the heater. It can be seen that at that distance the peak magnetic field recorded was 0.28 mG. The bottom contour plot represents the magnetic flux density at a separation distance of 1 meter from the heater. At this distance the peak magnetic field level is 0.00 mG. This large decrease in the magnetic flux density as a result of increasing separation distance shows that this heater has excellent decay rates away from the heater.

Figure #9, Unshielded Vertical Plots, presents the magnetic flux density levels recorded above the Clearlight 300 watt 240 volt heater as a series of vertical plots from three panel locations (left, center, and right) to complete the magnetic field emission profile of the source and relative magnetic field decay rate. Similar to the contour plots, these plots were recorded to identify the peak magnetic field levels from the entire heater panel under typical operation. As shown by Figure #9, the three lateral plots recorded a magnetic field level of 0.0 mG throughout all three tests on the panel heater.

Figure #10, Unshielded Electric Field Spot Reading, presents the electric field levels recorded with a PMM 8053 portable field meter atop (separation distance = ~2 inches) the Clearlight 300 watt 240 volt sauna heater panel as a Spot Reading during typical operational modes. These spot readings were taken to identify the value of the electric field with and without the Clearlight shielding system used. The results of the spot readings are tabulated in the chart below and the location of the measurement can be obtained from Figure #10.

Location	Er(V/m)
Spot #1	357.7
Spot #2	352.8
Spot #3	196.7
Spot #4	241.7
Spot #5	248.5

Table 4: tabulating spot measurement readings at 2 inches separation distance from heater with resultant electric field measurements.

It can be seen from the table above that the peak electric field level was 357.7 V/m recorded at spot #1 on the heater panel directly above the supply wires. This peak level is within Vititech's recommended 4,167 V/m human health exposure limit which is compliant with the ICNIRP electric field standard for the general public.

Conclusions

It was found that at a separation distance of 1 meter the magnetic field levels produced by the Clearlight 300 watt 240 volt heating elements drop to 0.0 mG which complies with Vititech's long-term human health exposure threshold recommendation of 10 mG. As the magnetic field decay-rate, from the True Infra

heater tested in this study is excellent, Vitatech concludes that the heater panel devices complies with regard to Vitatech's recommended long term magnetic field human health exposure of 10 mG RMS.

When comparing the measured values of the electric field for each heater at a separation distance of ~2 inches it is found that a substantial reduction in the electric field strength is seen. There were some hot spots due to inconsistencies in the conductivity of the screen shield. However, overall the shielding system performed very well in reducing both the electric and the magnetic field levels.

Therefore, Vitatech concludes that both the shielded and unshielded heaters not only comply with but also emit magnetic and electric fields significantly lower than the recommended long term human health EMI exposure limits and can be considered very low EMI noise heaters.

AC ELF Test Instruments

PMM8053 Portable Field Meter

Vititech recorded electric field levels using a PMM8053 electric field meter. This meter has a measurement frequency range of 5Hz-50GHz (depending on the probe used). For testing of the electric field in the 5Hz-100kHz range the EPH50B probe was used. The probe has a electric field measurement range of 0.1 V/m – 100 kV/m in each axis (Ex, Ey, Ez). Data is recorded in resultant *Erms* (root-mean-square) which is the vector sum of the individual Cartesian coordinates according to the following formula.

$$R_{rms} = \sqrt{B_x^2 + B_y^2 + B_z^2}$$

MEDA 8532 Single-Axis Gaussmeter

Vititech recorded the AC LF-ELF magnetic flux density data using a single-axis gaussmeter oriented in each axis. The MEDA 8532 gaussmeter has a resolution of 0.01 mG and a frequency response of 12 Hz to 50 kHz. After collection of the 12 Hz to 50 kHz magnetic field data, the measurements were then converted to true RMS magnetic flux density (milligauss) readings of each axis (Bx, By, Bz) and then to the resultant *Rrms* (root-mean-square) vector according to the following formula:

$$R_{rms} = \sqrt{B_x^2 + B_y^2 + B_z^2}$$

FieldStar 1000 Gaussmeter - AC ELF Magnetic Flux Density

Vititech recorded the AC ELF magnetic flux density data using a FieldStar 1000 gaussmeter with a NIST traceable calibration certificate manufactured by Dexcel Corporation. The FieldStar 1000 has a resolution of 0.04 mG in the 0 - 10 mG range, 1% full-scale accuracy to 1000 mG and a frequency response of 60 Hz (55 - 65 Hz @ 3dB). Three orthogonal powdered-iron core coils are oriented to reduce interference to less than 0.25% over the full dynamic range. The three coils are arranged inside the unit holding horizontal with the display forward: Bx horizontal coil points

forward, By horizontal coil points to the right side, and Bz vertical coil points upward. The microprocessor instantly converts the magnetic field to true RMS magnetic flux density (milligauss) readings of each axis (Bx, By, Bz) and simultaneously calculates the resultant R_{rms} (root-means-square) vector according to the following formula:

$$R_{rms} = \sqrt{Bx^2 + By^2 + Bz^2}$$

When collecting contour path data, a nonmetallic survey wheel is attached to the FieldStar 1000 gaussmeter and the unit is programmed to record mapped magnetic flux density data at selected (1-ft., 5-ft., 10-ft. etc.) intervals. The FieldStar 1000 is exactly 39.37 inches (1 meter) above the ground with the survey wheel attached. Along each path the distance is logged by the survey wheel and the relative direction (turns) entered on the keyboard. Up to 22,000 spot, mapped and timed data points can be stored, each containing three components (Bx, By & Bz), event markers and turn information. After completing the path surveys, magnetic flux density data is uploaded and processed. All plots display a title, time/date stamp, ID path number, and the following statistical data (in milligauss) defined below:

Peak - maximum magnetic field (flux) value measured in group.

Mean - arithmetic average of all magnetic field (flux) values collected.

The following is a quick description of the Hatch, Profile and 3-D Contour plots presented in the figures of this report:

Hatch Plot - data is represented by four difference hatch marks (1 mG, 5 mG, 10 mG and 25 mG thresholds) based on width and color as a function of distance along the survey path that shows 90 and 45 degree turns. Note: the site drawing and all Hatch Plots were scaled in feet to verify actual recorded distances and correct survey locations.

Profile Plot - data shows each recorded component (Bx, By, Bz) axis and the resultant (Br) levels as a function of distance: Bx (red) is the horizontal component parallel to the survey path, By (green) is the horizontal component normal (perpendicular) to the survey path, and Bz (blue) is the vertical component with the computed Br resultant RMS (root-means-square) summation of the three components.

AC ELF EMF Health Issues

VitaTech defines AC ELF magnetic flux density emissions according to six orders of magnitude from *low*, *elevated*, *high*, *very high*, *extremely high* to *potentially hazardous*:

First order of magnitude 1- to 9.9-mG as *low*,

Second order of magnitude 10- to 99-mG as *elevated*,

Third order of magnitude 100- to 999-mG as *high*,

Fourth order of magnitude 1000- to 9,999 mG (1 - 9.9 Gauss) as *very high*,

Fifth order 10,000- to 99,999-mG (10 - 99.9 Gauss) as *extremely high*.
Sixth order 100,000- to 999,999-mG (100 - 999.9 Gauss) as *potentially hazardous*.

Warning: at AC ELF magnetic flux density levels exceeding 50 Gauss (10 mA/m² induced current density threshold used by WHO, ACGHI, CENELEC, DIN/VDE, NRPG & NCRP), the human body experiences physiological and / or neurological responses because of induced currents within body tissues, organs and neurons. The actual biological effect depends on the magnitude, polarization, proximity and exposure time to *extremely high and potentially hazardous* magnetic field sources. Finally, information about *AC ELF EMF Health Issues* and VitaTech's 10 mG (1 µT) recommended long-term human exposure limit are discussed in the next section.

AC ELF Magnetic Field Health Issues, Standards & Guidelines

Currently, there are no Federal standards for AC ELF electric and magnetic field levels. The National Energy Policy Act of 1992 authorized the Secretary of the Department of Energy (DOE) to establish a five-year, \$65 million EMF Research and Public Information Dissemination (RAPID) Program to ascertain the affects of ELF EMF on human health, develop magnetic field mitigation technologies, and provide information to the public. In May 1999, the NIEHS Director Kenneth Olden, Ph.D. delivered his final report, *Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields*, to Congress that stated the following in the Cover Letter and Executive Summary below:

*The scientific evidence suggesting that ELF-EMF exposures pose any health risk is weak. The strongest evidence for health effects comes from associations observed in human populations with two forms of cancer: childhood leukemia and **chronic lymphocytic leukemia in occupationally exposed adults...** The NIEHS concludes that ELF-EMI exposure cannot be recognized at this time as entirely safe because of weak scientific evidence that exposure may pose a leukemia hazard.*

U.S. & International Organizational AC ELF EMF Standards

The International Commission on Non-Ionizing Radiation Protection (IRPA/INIRC) have established 833 mG maximum human exposure limit over 24 hours for the general public and 4,167 mG for occupational workers. Whereas The American Conference of Governmental Industrial Hygienists (ACGIH) recommends a 10,000 mG (10 Gauss) exposure limit over 24 hours for occupational workers, but specifies 1,000 mG (1 Gauss) as a maximum exposure for workers with cardiac pacemakers.

New York State Public Service Commission AC ELF EMF Standards

Effective September 1990, the State of New York Public Service Commission (PSC) "began a process looking toward the adoption of an interim magnetic field standard for future major electric transmission facilities". The Commission concludes that a prudent approach should be taken that will avoid unnecessary increases in existing levels of magnetic field exposure. Therefore, future transmission circuits shall be

designed, constructed and operated such that magnetic fields at the edges of their rights-of-way will not exceed 200 mG when the circuit phase currents are equal to the winter-normal conductor rating. They also established an electric field strength interim standard of 1.6 kV/m electric transmission facilities.

IARC June 2002 Report

In June 2002, the International Agency for Research on Cancer (IARC) issued a 400+ page report formally classifying extremely low frequency magnetic fields as ***possibly carcinogenic to humans*** based on studies of EMF and childhood leukemia. **This is the first time that a recognized public health organization has formally classified EMF as a possible cause of human cancer.** IARC found that, while selection bias in the childhood leukemia studies could not be ruled out, pooled analyses of data from a number of well-conducted studies show a fairly consistent statistical association between childhood leukemia and power-frequency residential magnetic fields above 4 milliGauss (mG), with an approximately two-fold increase in risk that is unlikely to be due to chance.

IARC is a branch of the World Health Organization. The IARC classification of EMF was made by a panel of scientists from the U.S. National Institute of Environmental Health Sciences, the U.S. Environmental Protection Agency, the U.K. National Radiological Protection Board, the California Department of Health Services, EPRI, and other institutions around the world.

Switzerland's February 2000 AC ELF Standard

The Swiss Bundersrat in February 2000 set by law an emission control limit of 10 mG from overhead and underground transmission lines, substations, transformer vaults and all electrical power sources.

Vititech's & NCRP Draft Recommended 10 mG Standard

Section 8.4.1.3 option 3 in the National Council of Radiation Protection and Measurements (NCRP) draft report published in the July/August 1995 issue of *Microwave News* (visit the Microwave News Homepage <www.microwavenews.com> for the entire draft report) recommended the following on the next page:

8.4.1.3 Option 3: *An exposure guideline of 1 μ T (10 mG) and 100 V/m: A considerable body of observations has documented bioeffects of fields at these strengths across the gamut from isolated cells to animals, and in man. Although the majority of these reported effects do not fall directly in the category of hazards, many may be regarded as potentially hazardous. Since epidemiological studies point to increased cancer risks at even lower levels, a case can be made for recommending 1 μ T (10 mG) and 100 V/m as levels not to be exceeded in prolonged human exposures. Most homes and occupational environments are within these values, but it would be prudent to assume that higher levels may constitute a health risk. In the short term, a safety guideline set at this level would have significant consequences, particularly in occupational settings and close to high voltage transmission and distribution*

systems, but it is unlikely to disrupt the present pattern of electricity usage. These levels may be exceeded in homes close to transmission lines, distribution lines and transformer substations, in some occupational environments, and for users of devices that operate close to the body, such as hair dryers and electric blankets. From a different perspective, adoption of such a guideline would serve a dual purpose: first, as a vehicle for public instruction on potential health hazards of existing systems that generate fields above these levels, as a basis for "prudent avoidance"; and second, as a point of departure in planning for acceptable field levels in future developments in housing, schooling, and the workplace, and in transportation systems, both public and private, that will be increasingly dependent on electric propulsion.

This completes the AC ELF EMF EMC Magnetic Field Testing for Clearlight Infra Sauna Heaters.

The contents of this report are intended for the exclusive use of Clearlight company and their subsidiaries.

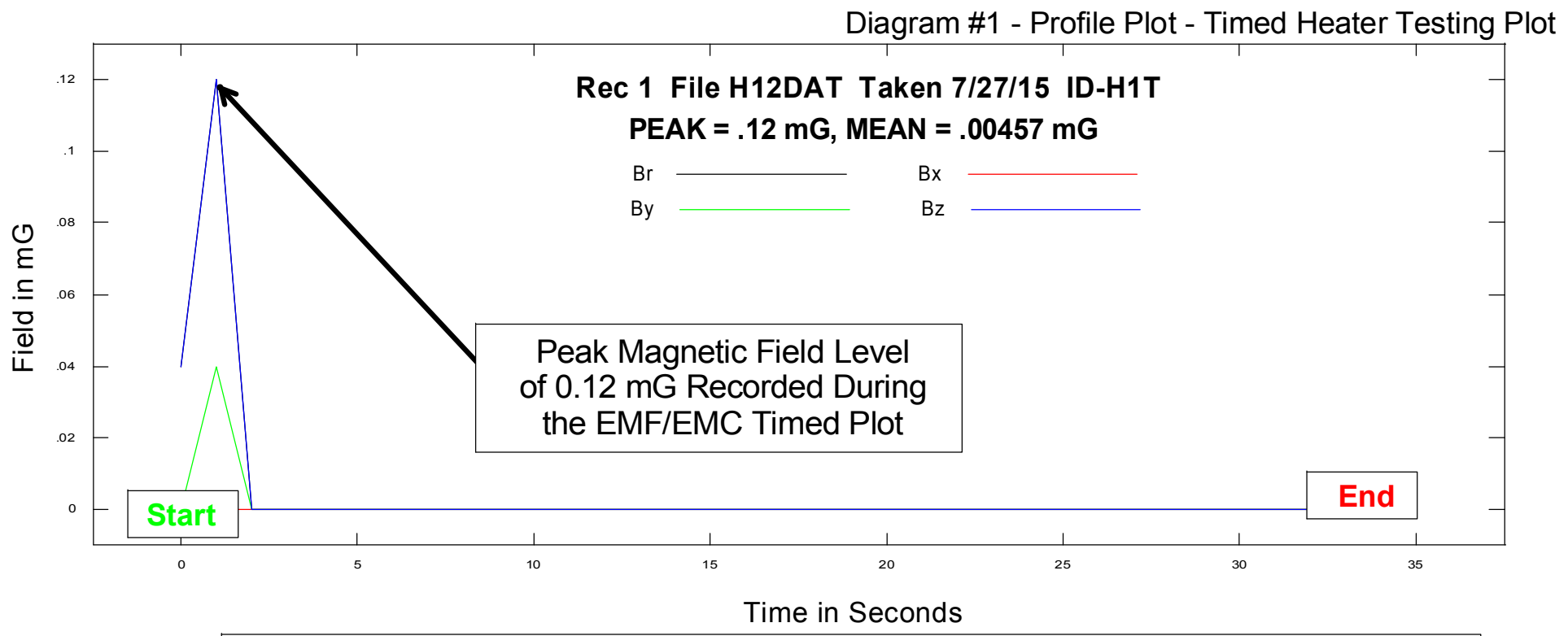
Please call if you have any further questions.

Best regards,

Joe Ferro

EMF Technician/Simulation Programmer

Enclosures: Figure #1 – Figure #10

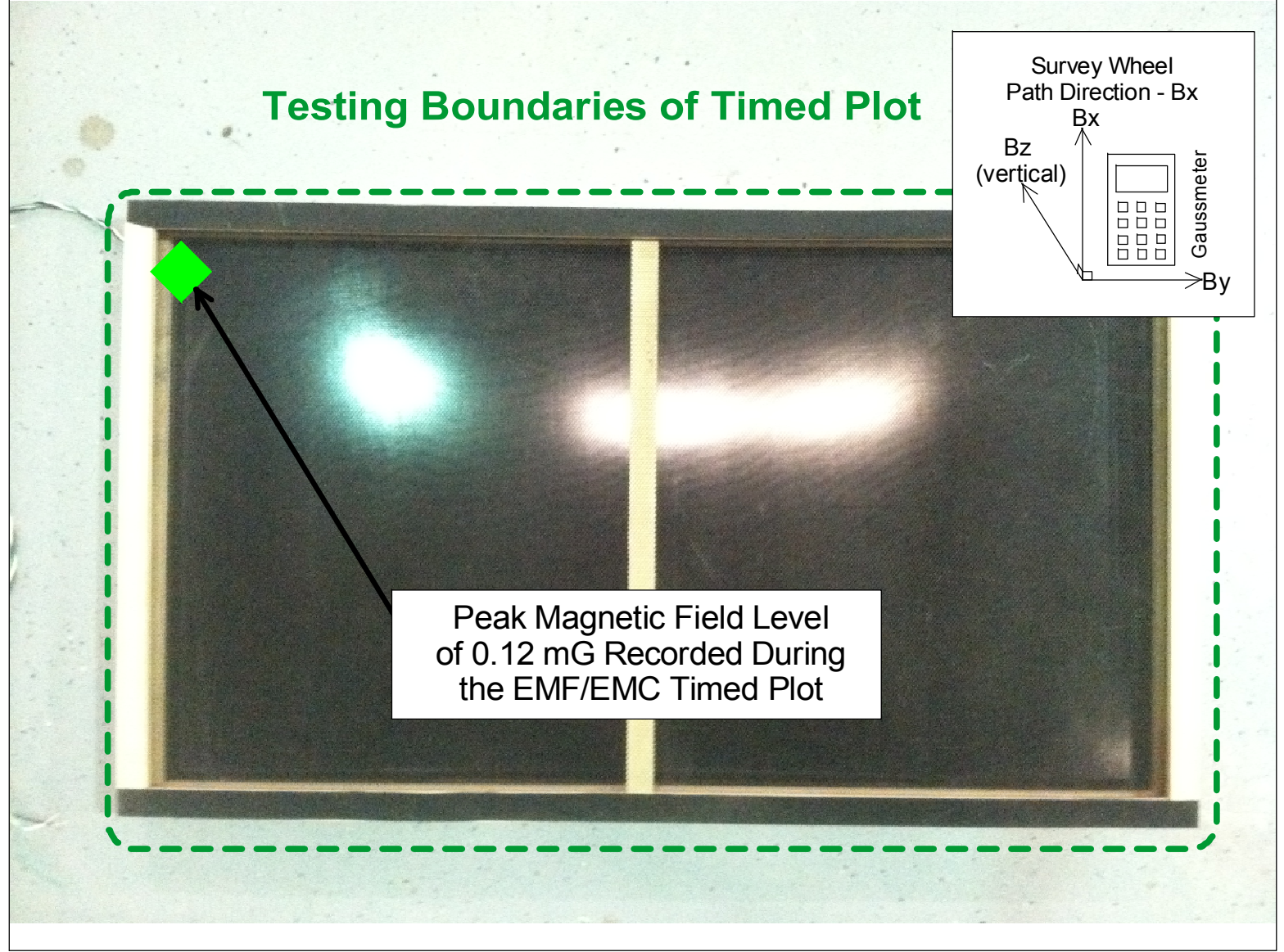


**Figure #1, Sauna Heater AC ELF Data
EMF/EMC Magnetic Field Testing**

**Magnetic Flux Density Levels
Recorded as a Timed Plot**

Sauna Works
2184 Sutter St. Suite 282
San Francisco, CA

VitaTech Electromagnetics Fredericksburg, VA 540-286-1984



**FieldStar 1000 Gaussmeter
used during EMF/EMC Study**



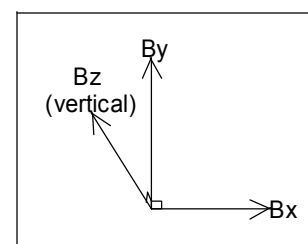
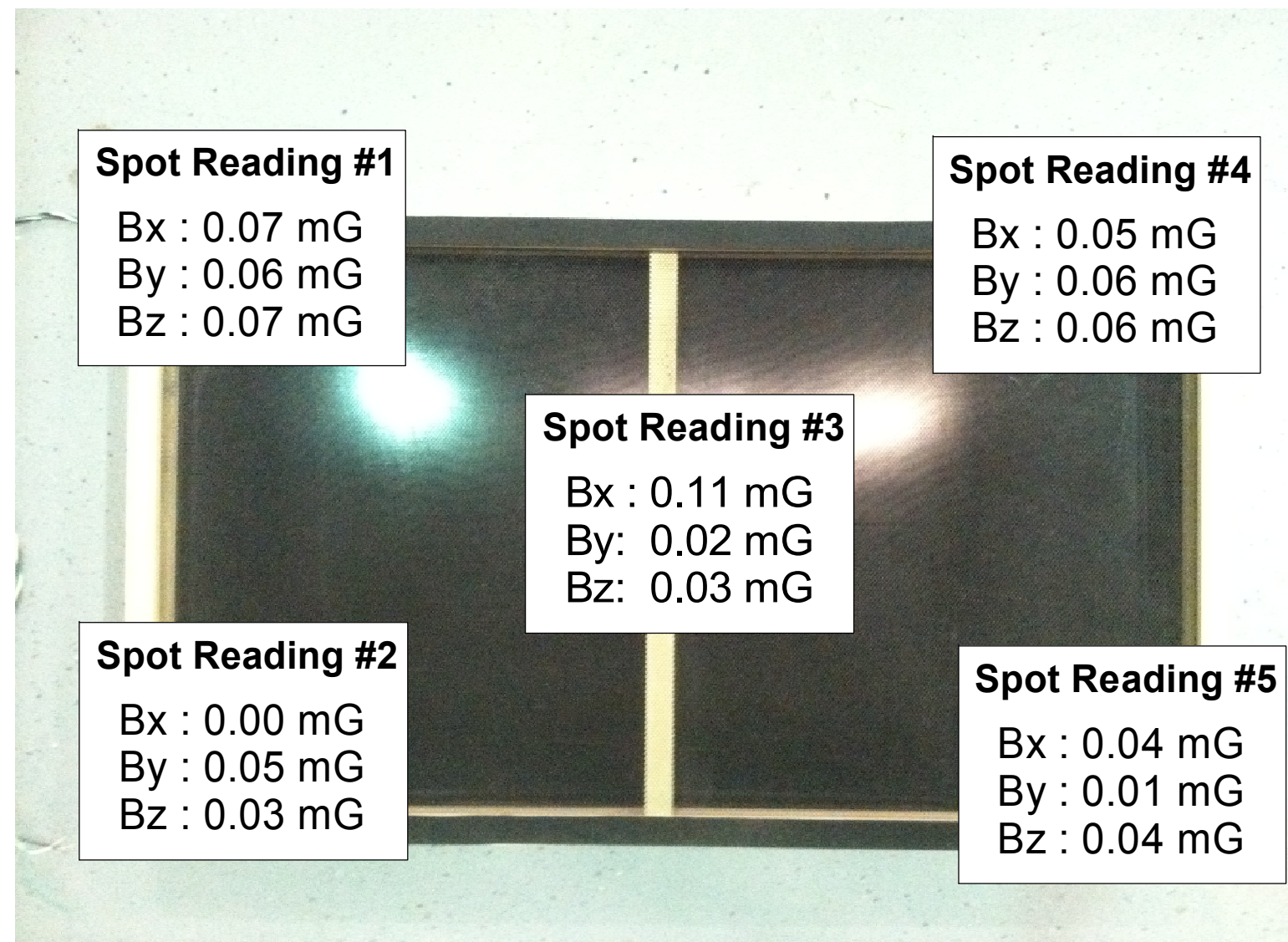
**Current Draw from Sauna Panel
per reading on Ammeter (0.66A)**

**Figure #2, Sauna Heater AC ELF Data
EMF/EMC Magnetic Field Testing
Magnetic Flux Density Levels
Recorded as a Spot Reading**

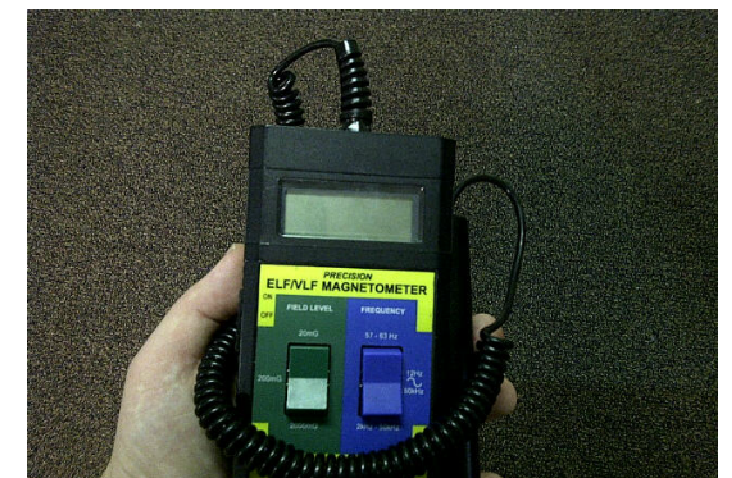
Sauna Works
2184 Sutter St. Suite 282
San Francisco, CA

VitaTech Electromagnetics Fredericksburg, VA 540-286-1984

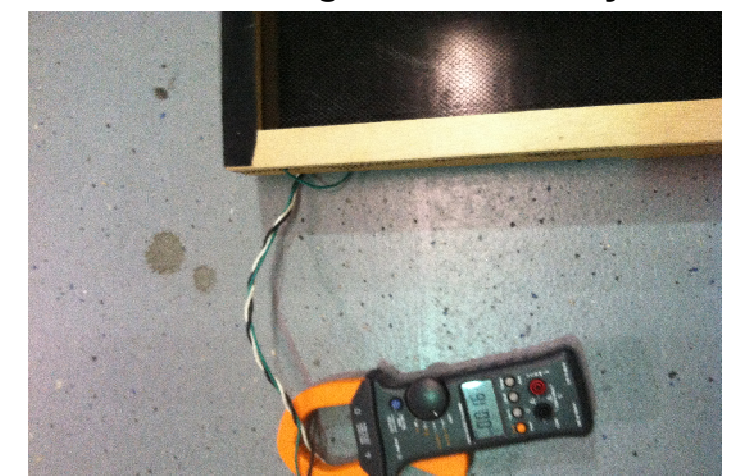
Diagram #1 - Spot Testing Drawing - Sauna Heater



Data recorded in units of milligauss, RMS using a single-axis MEDA 8532 gaussmeter.

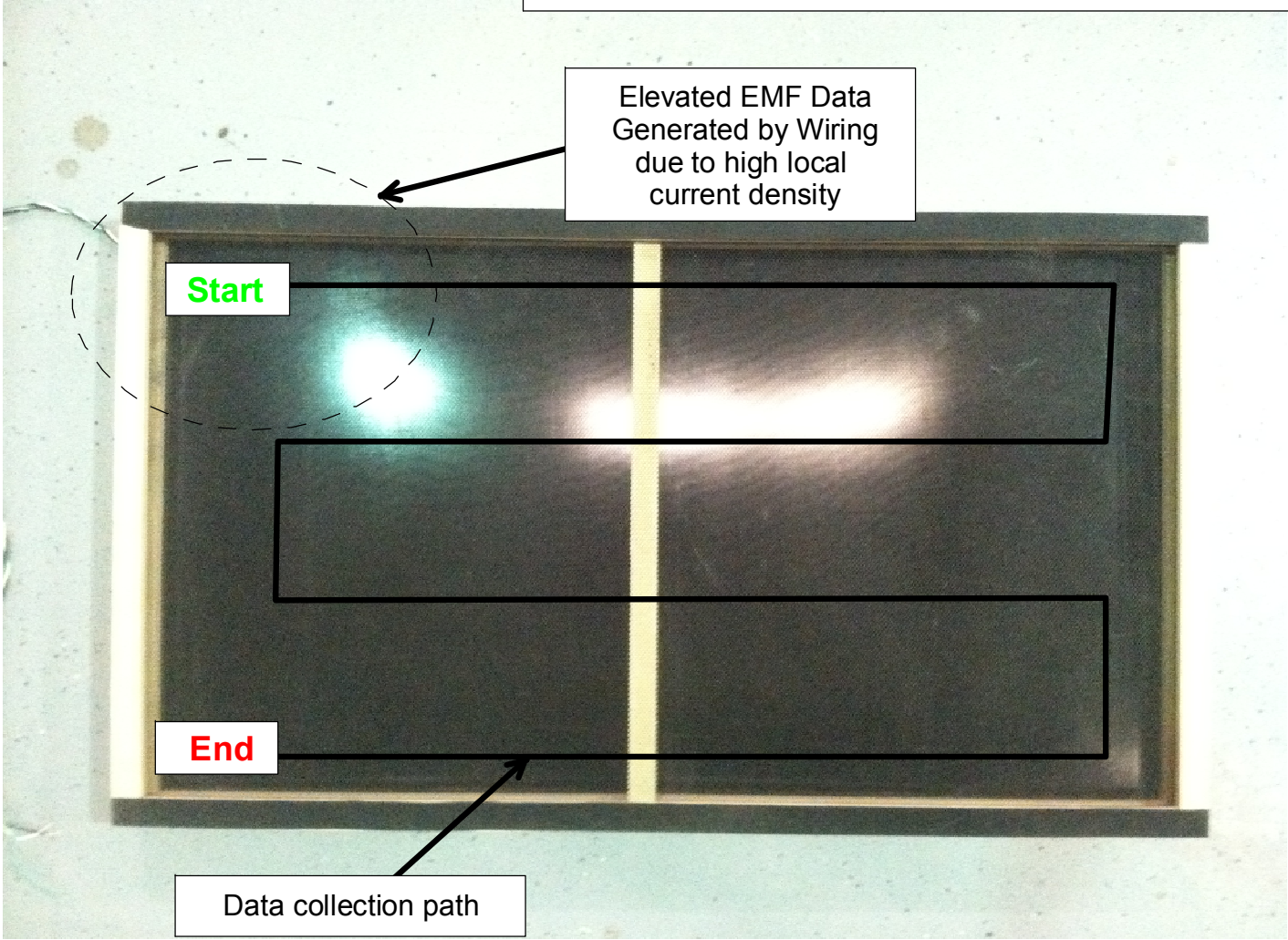


**MEDA 8532 Single-Axis Gaussmeter
used during EMF/EMC Study**

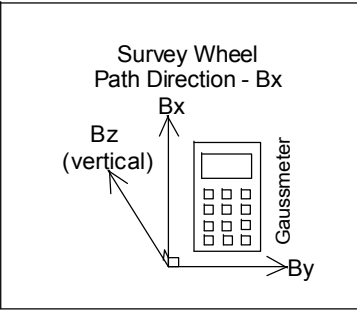
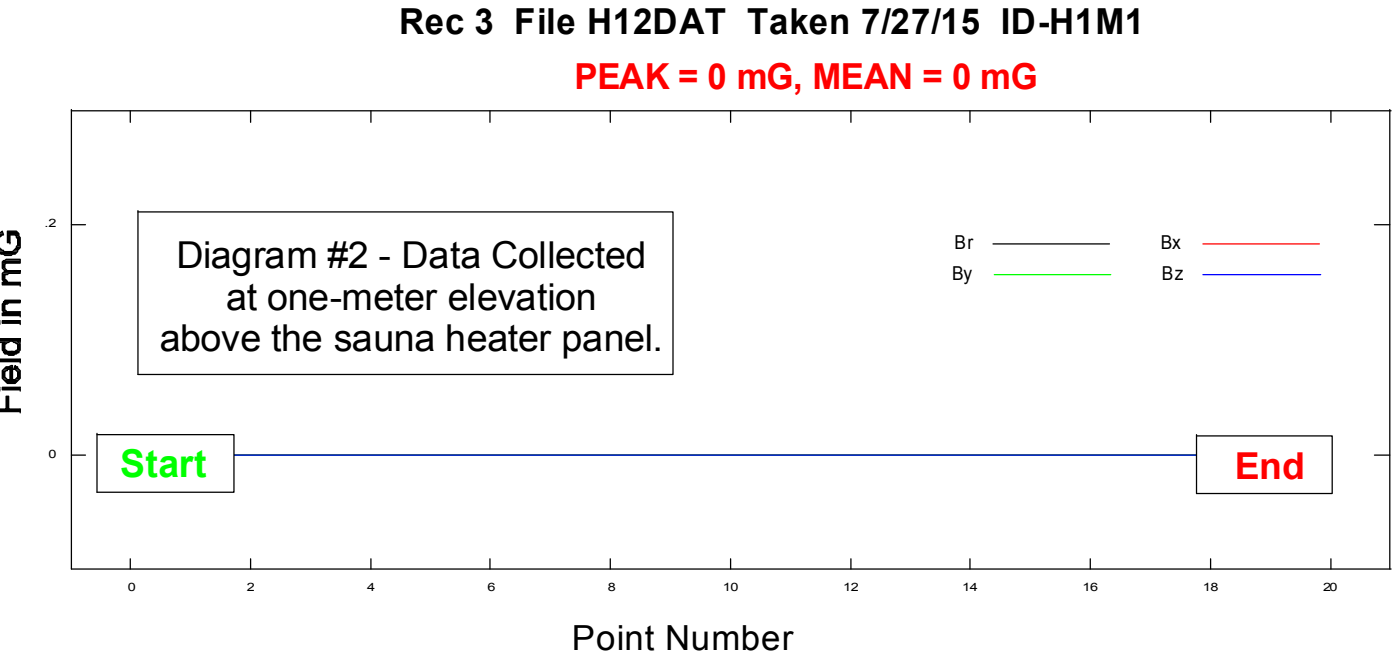
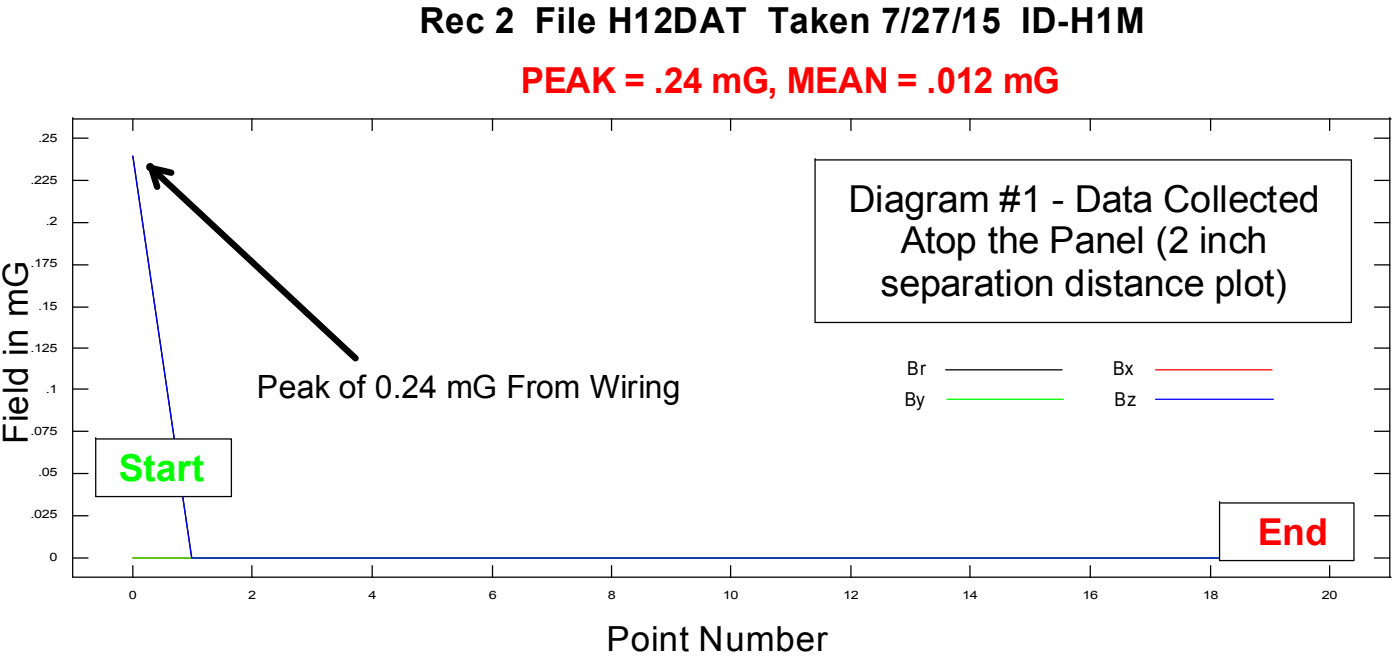


**Current Draw from Sauna Panel
per reading on Ammeter (0.66A)**

Rec 3 File H12DAT Taken 7/27/15 ID-H1M1
PEAK = 0 mG, MEAN = 0 mG



**Figure #3, Sauna Heater AC ELF Data
EMF/EMC Magnetic Field Testing
Magnetic Flux Density Levels
Recorded as Contour Plots**
Sauna Works
2184 Sutter St. Suite 282
San Francisco, CA
VitaTech Electromagnetics Fredericksburg, VA 540-286-1984



Rec 5 File H12DAT Taken 7/27/15 ID-H1L1L
PEAK = 0 mG, MEAN = 0 mG

Rec 6 File H12DAT Taken 7/27/15 ID-H1L1C
PEAK = 0 mG, MEAN = 0 mG

Rec 7 File H12DAT Taken 7/27/15 ID-H1L1R
PEAK = 0 mG, MEAN = 0 mG

**Figure #4, Sauna Heater AC ELF Data
EMF/EMC Magnetic Field Testing**
**Magnetic Flux Density Levels
Recorded as Vertical Plots**
Sauna Works
2184 Sutter St. Suite 282
San Francisco, CA
VitaTech Electromagnetics Fredericksburg, VA 540-286-1984

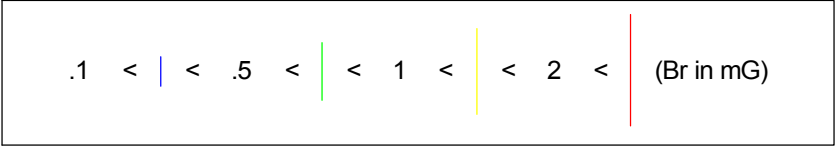
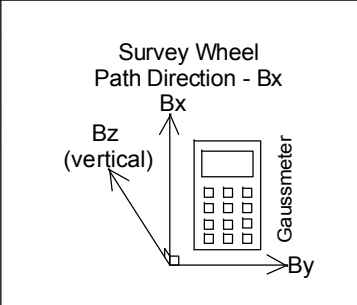
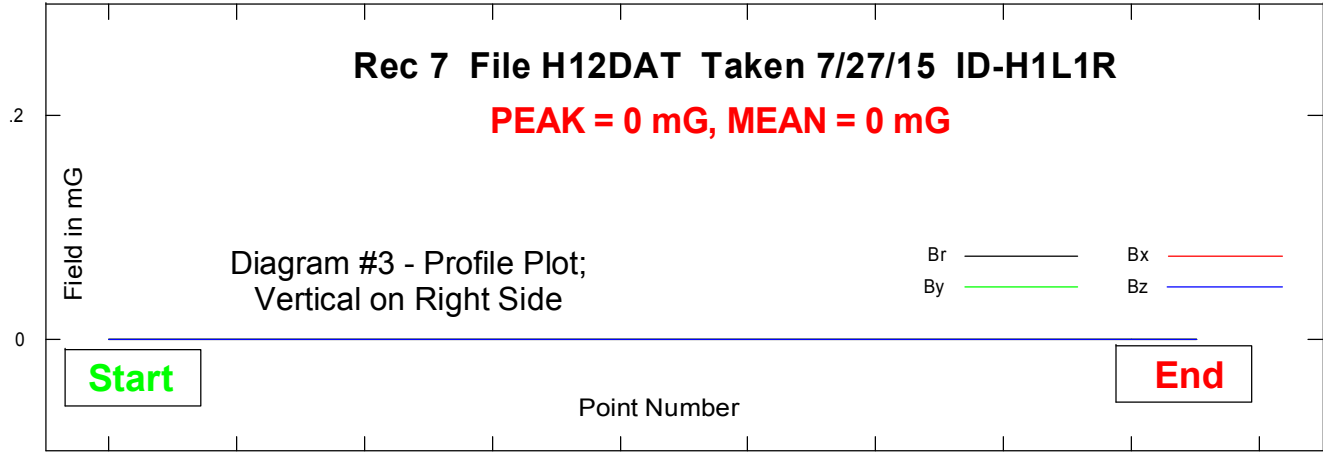
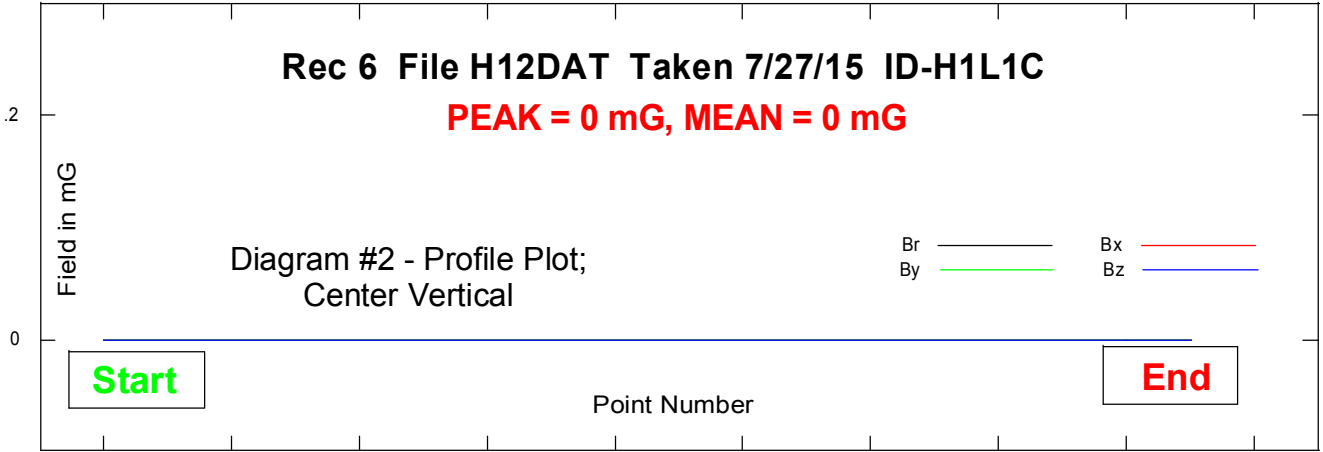
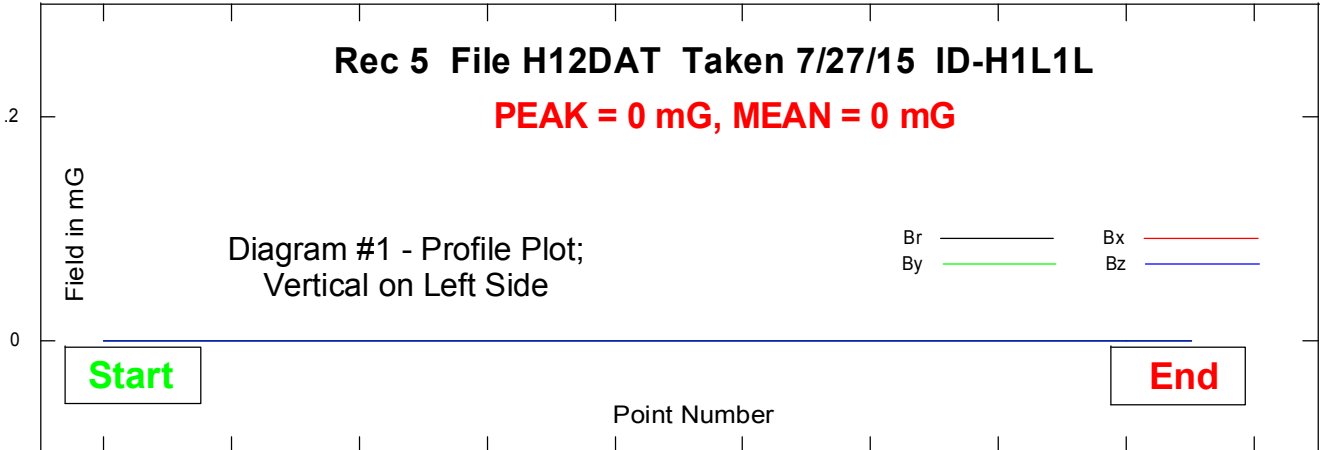
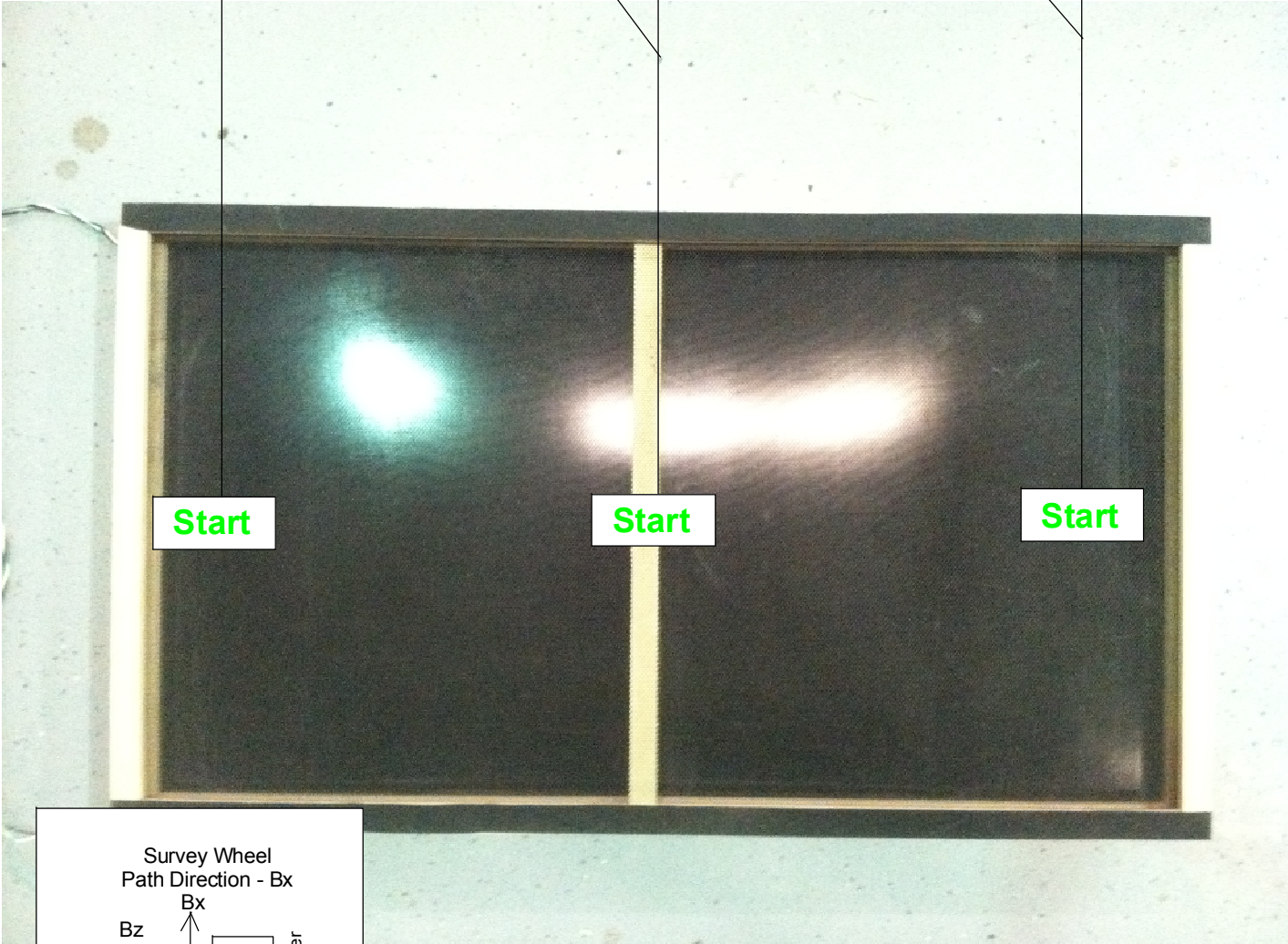
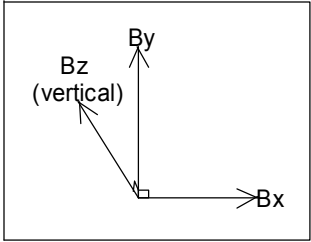
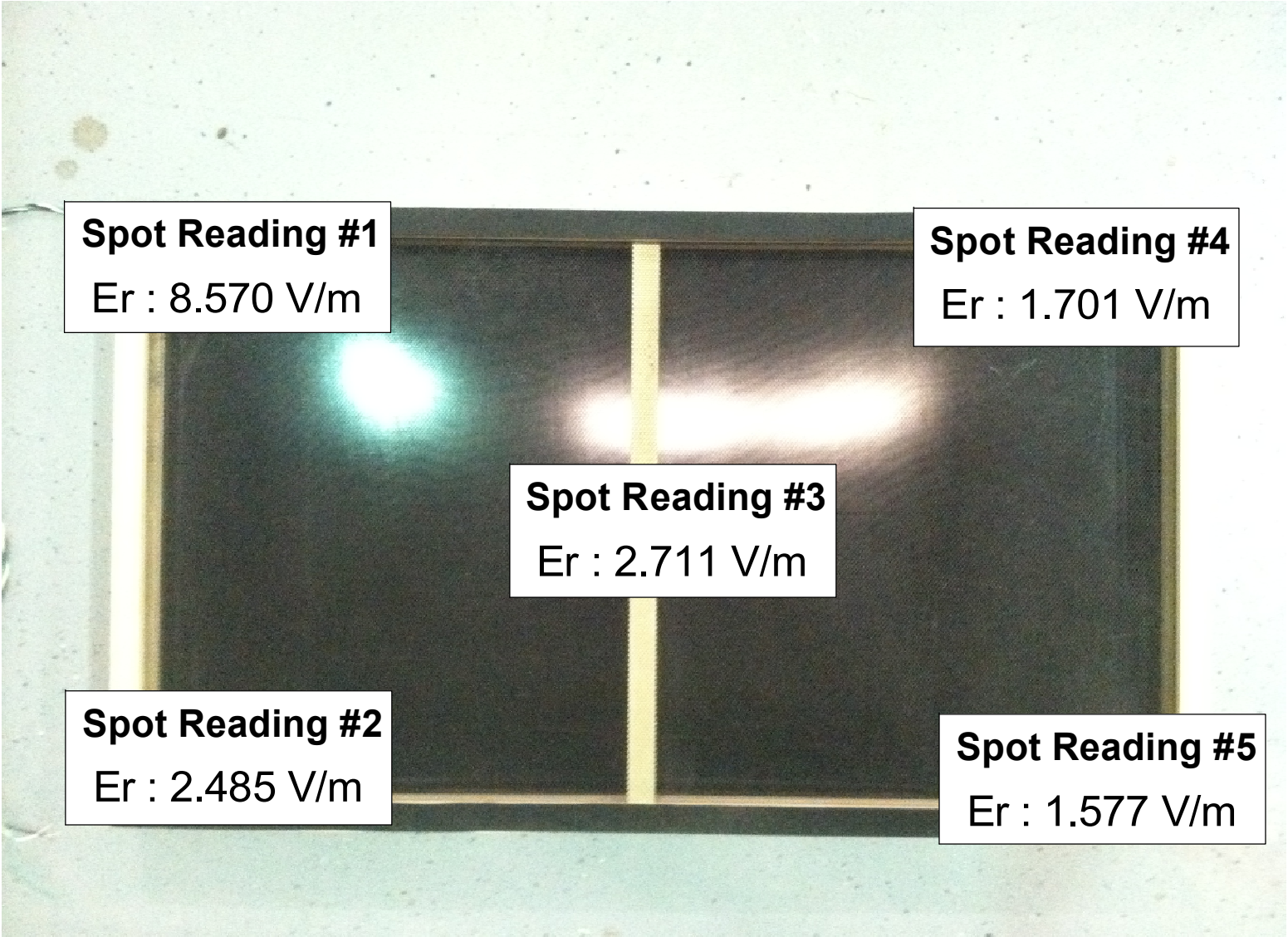


Diagram #1 - Spot Testing Drawing - Sauna Heater



Data recorded in units of Volts/meter resultant, using a 3-axis PMM 8053 Portable Field Meter and EPH 50B Probe

**Figure #5, Sauna Heater AC Data
Electric Field Testing
Electric Field Levels
Recorded as a Spot Reading**

Sauna Works
2184 Sutter St. Suite 282
San Francisco, CA

VitaTech Electromagnetics Fredericksburg, VA 540-286-1984

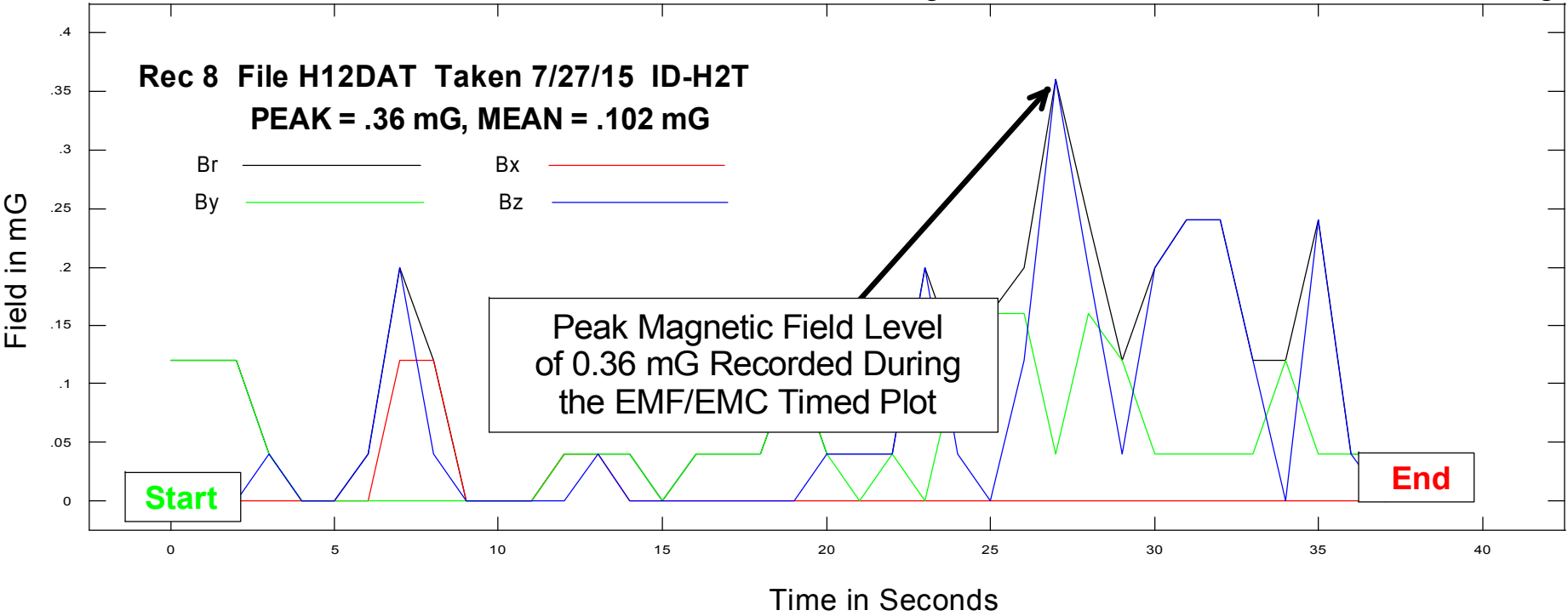


**PMM 8053 3-Axis field meter
used to take electric field readings**



**Current Draw from Sauna Panel
per reading on Ammeter (0.66A)**

Diagram #1 - Profile Plot - Timed Heater Testing Plot



**Figure #6, Sauna Heater AC ELF Data
EMF/EMC Magnetic Field Testing**

**Magnetic Flux Density Levels
Recorded as a Timed Plot**

Sauna Works
2184 Sutter St. Suite 282
San Francisco, CA

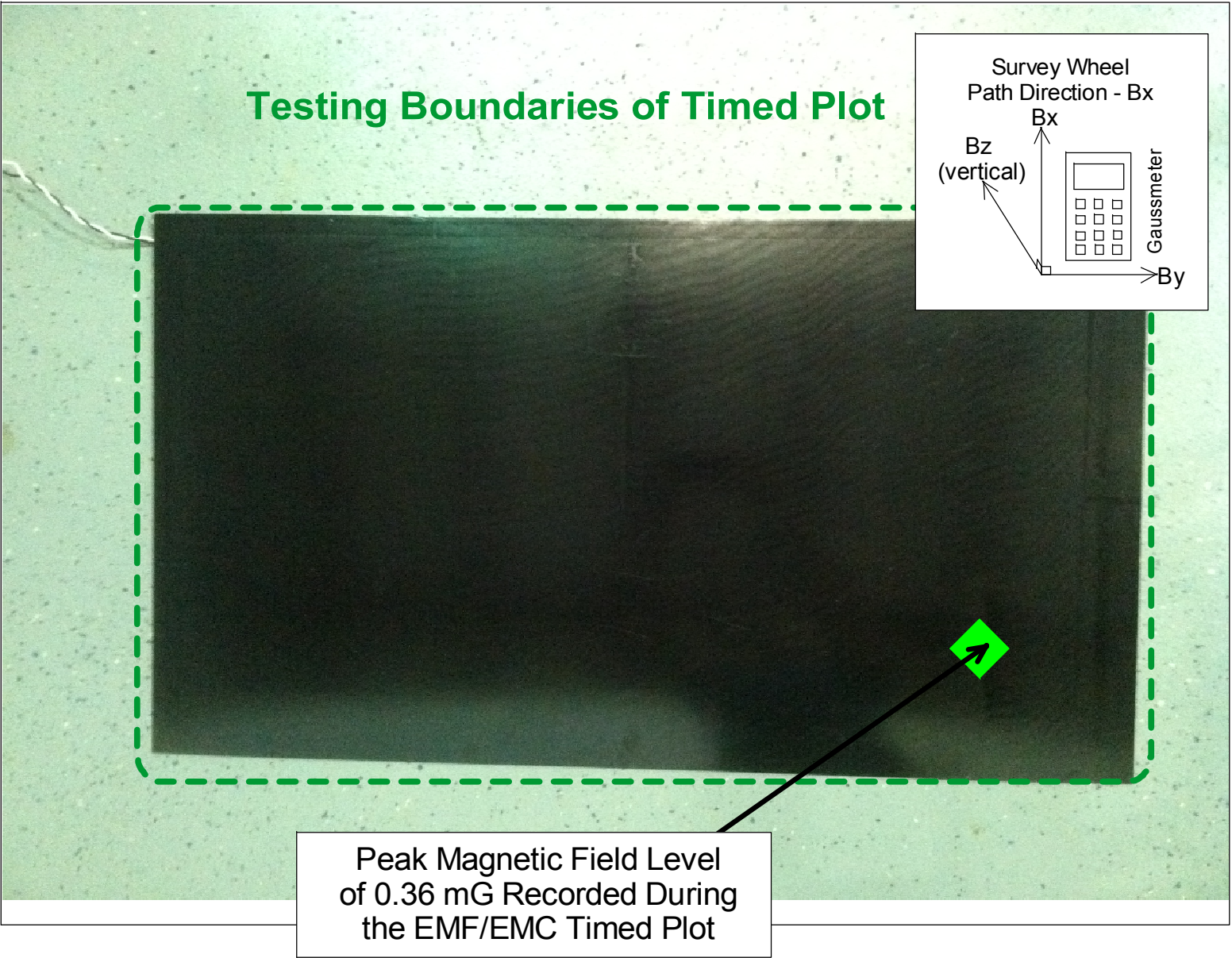
VitaTech Electromagnetics Fredericksburg, VA 540-286-1984



FieldStar 1000 Gaussmeter
used during EMF/EMC Study



Current Draw from Sauna Panel
per reading on Ammeter (0.88A)

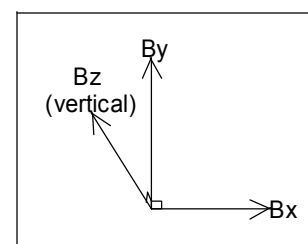
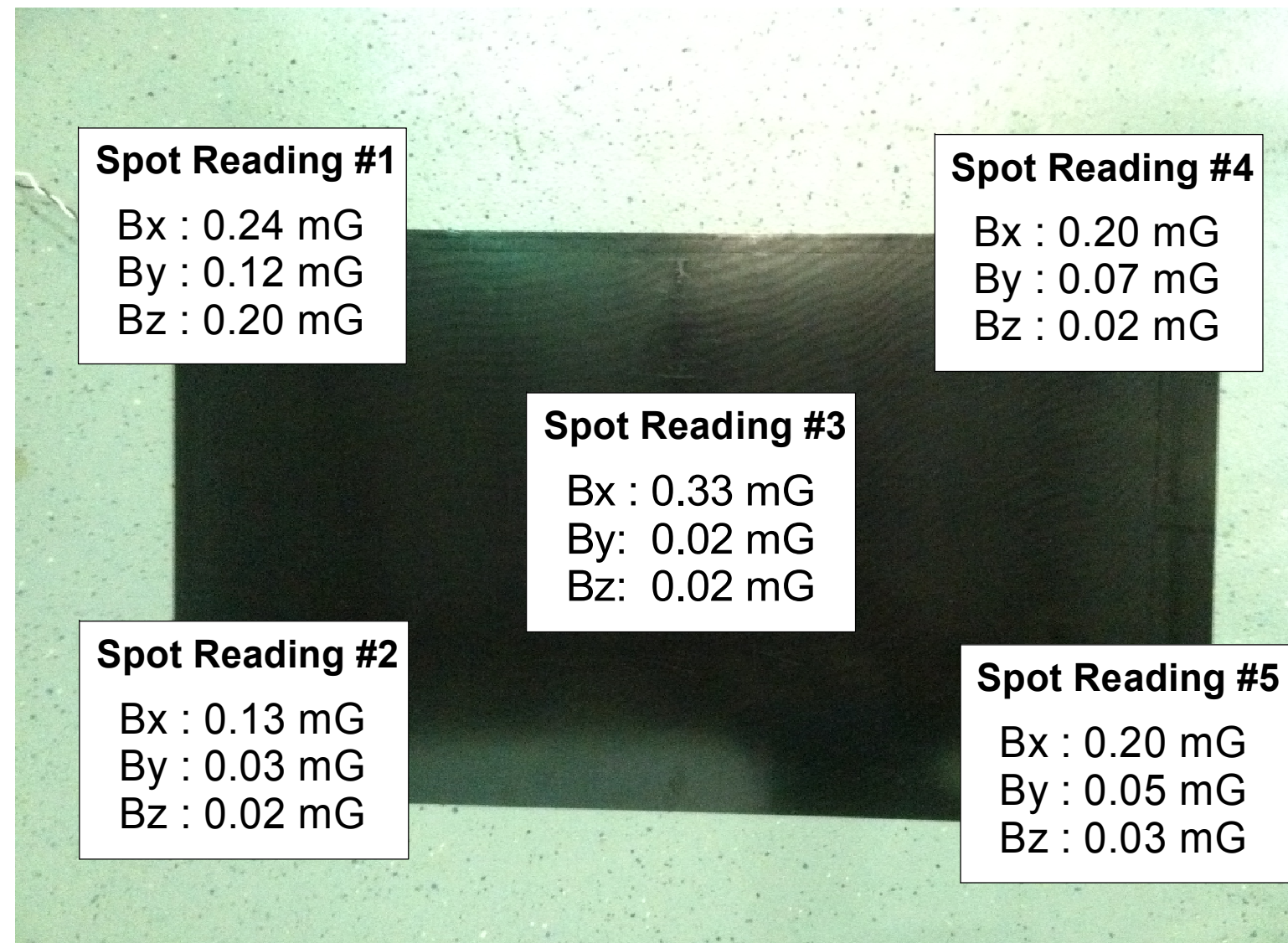


**Figure #7, Sauna Heater AC ELF Data
EMF/EMC Magnetic Field Testing
Magnetic Flux Density Levels
Recorded as a Spot Reading**

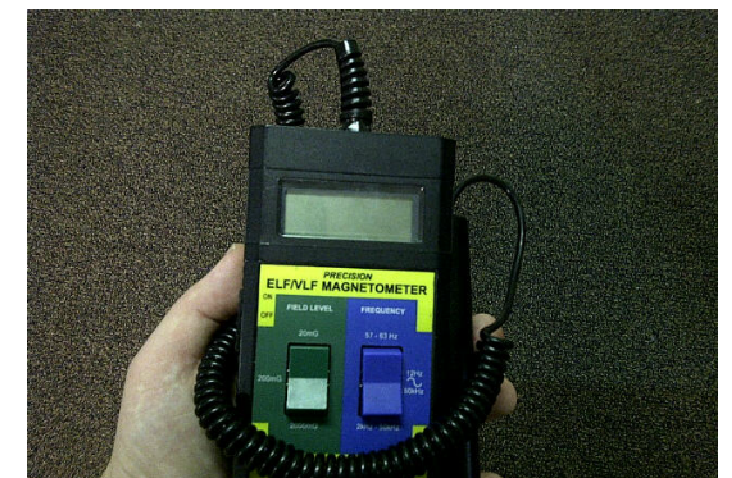
Sauna Works
2184 Sutter St. Suite 282
San Francisco, CA

VitaTech Electromagnetics Fredericksburg, VA 540-286-1984

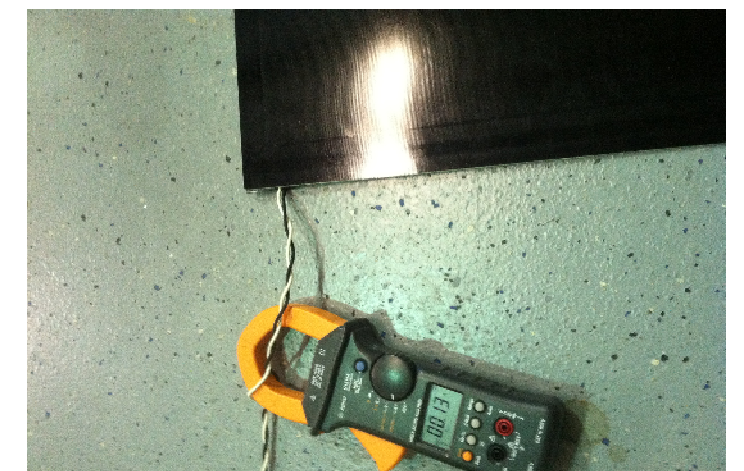
Diagram #1 - Spot Testing Drawing - Sauna Heater



Data recorded in units of milligauss, RMS using a single-axis MEDA 8532 gaussmeter.



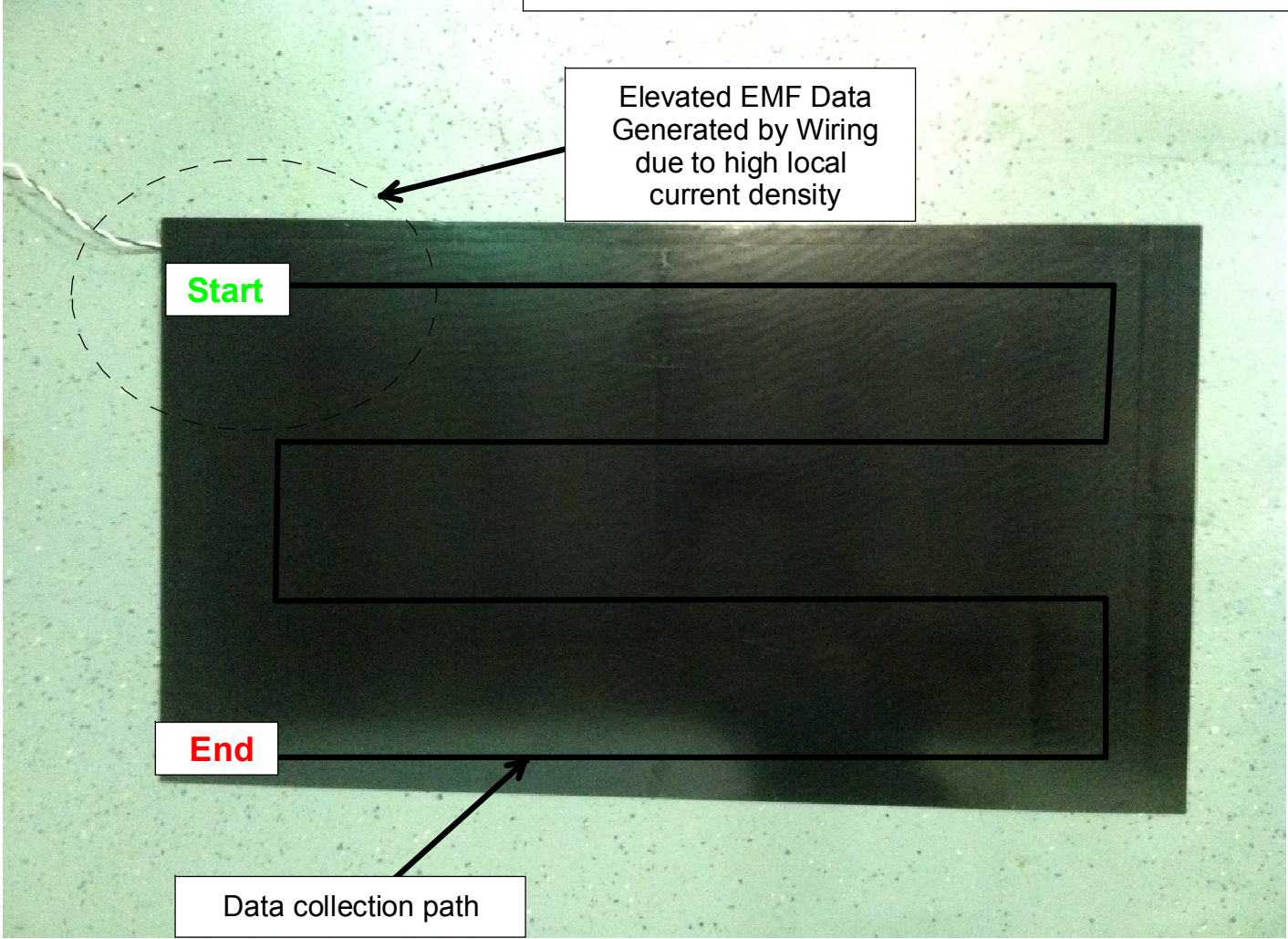
**MEDA 8532 Single-Axis Gaussmeter
used during EMF/EMC Study**



**Current Draw from Sauna Panel
per reading on Ammeter (0.88A)**

Rec 10 File H12DAT Taken 7/27/15 ID-H2M1

PEAK = 0 mG, MEAN = 0 mG



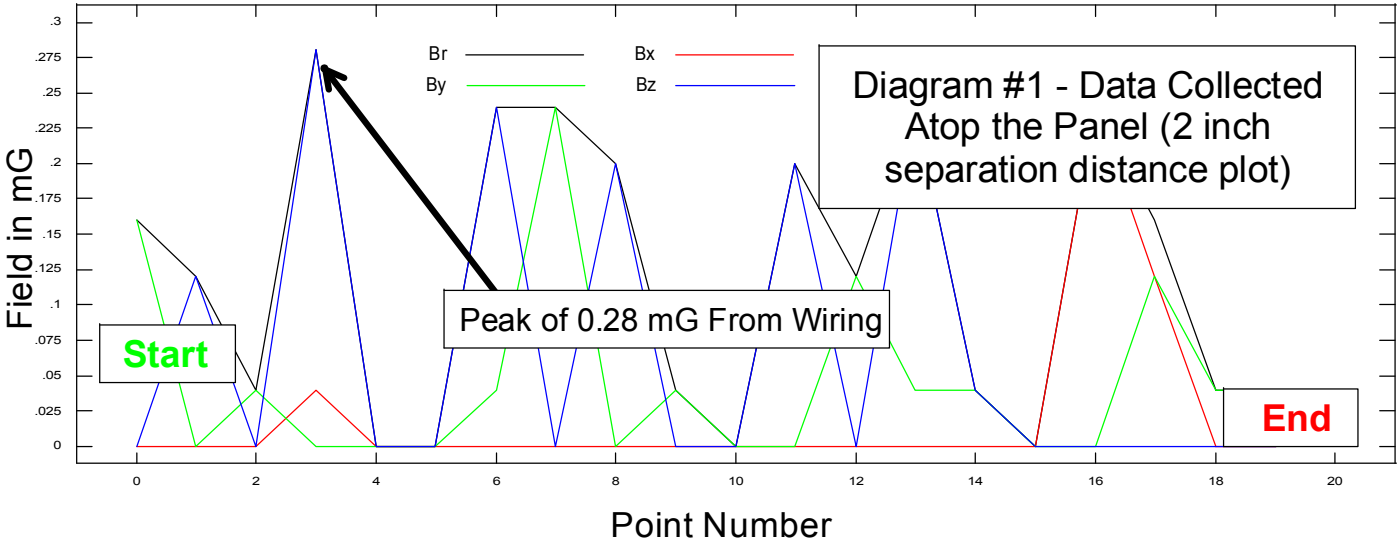
**Figure #8, Sauna Heater AC ELF Data
EMF/EMC Magnetic Field Testing
Magnetic Flux Density Levels
Recorded as Contour Plots**

Sauna Works
2184 Sutter St. Suite 282
San Francisco, CA

VitaTech Electromagnetics Fredericksburg, VA 540-286-1984

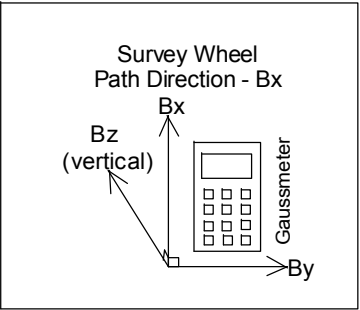
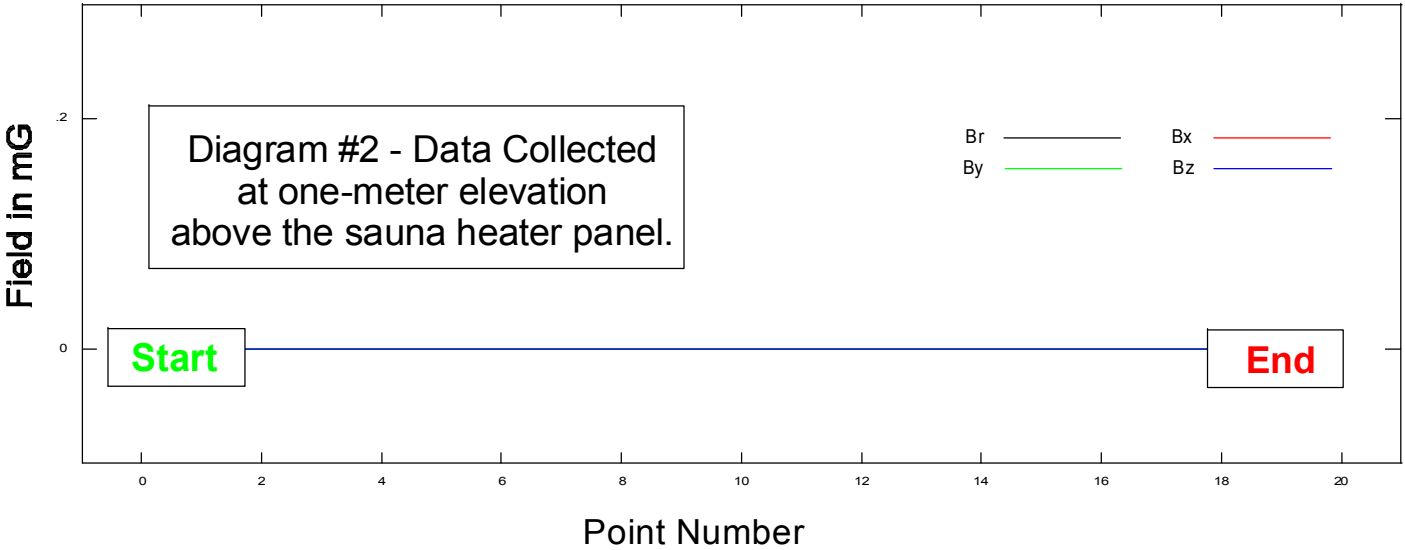
Rec 9 File H12DAT Taken 7/27/15 ID-H2M

PEAK = .28 mG, MEAN = .12 mG



Rec 10 File H12DAT Taken 7/27/15 ID-H2M1

PEAK = 0 mG, MEAN = 0 mG



Rec 12 File H12DAT Taken 7/27/15 ID-H2L1L
PEAK = 0 mG, MEAN = 0 mG

Rec 11 File H12DAT Taken 7/27/15 ID-H2L1C
PEAK = 0 mG, MEAN = 0 mG

Rec 13 File H12DAT Taken 7/27/15 ID-H2L1R
PEAK = 0 mG, MEAN = 0 mG

**Figure #9, Sauna Heater AC ELF Data
EMF/EMC Magnetic Field Testing**
**Magnetic Flux Density Levels
Recorded as Vertical Plots**
Sauna Works
2184 Sutter St. Suite 282
San Francisco, CA
VitaTech Electromagnetics Fredericksburg, VA 540-286-1984

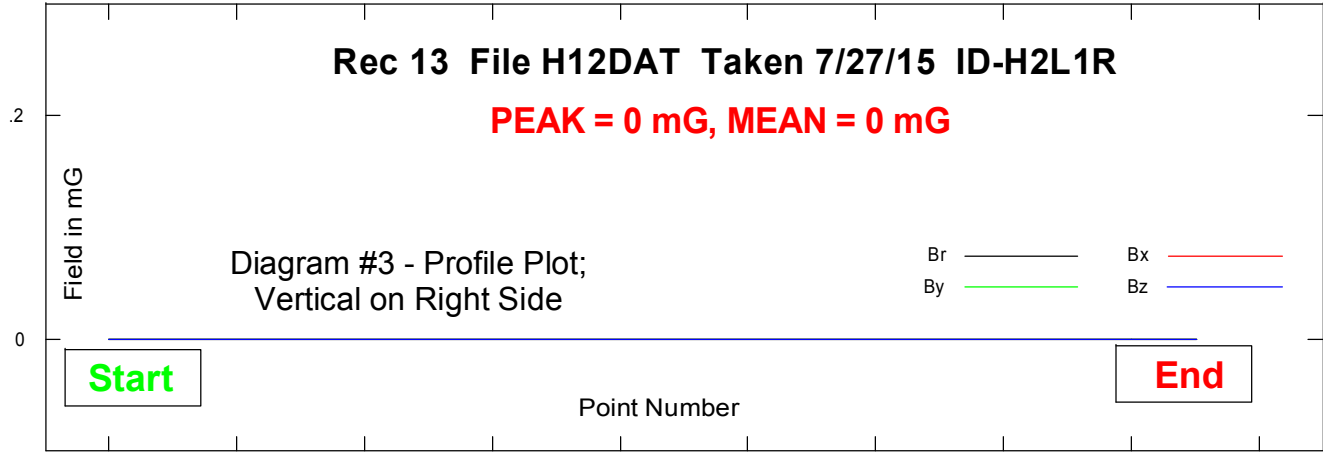
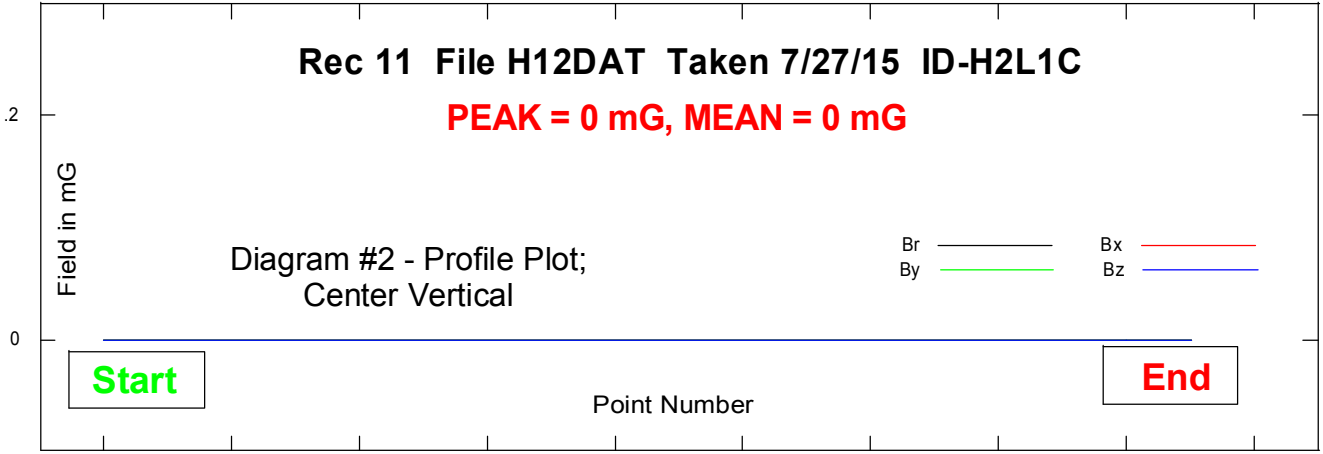
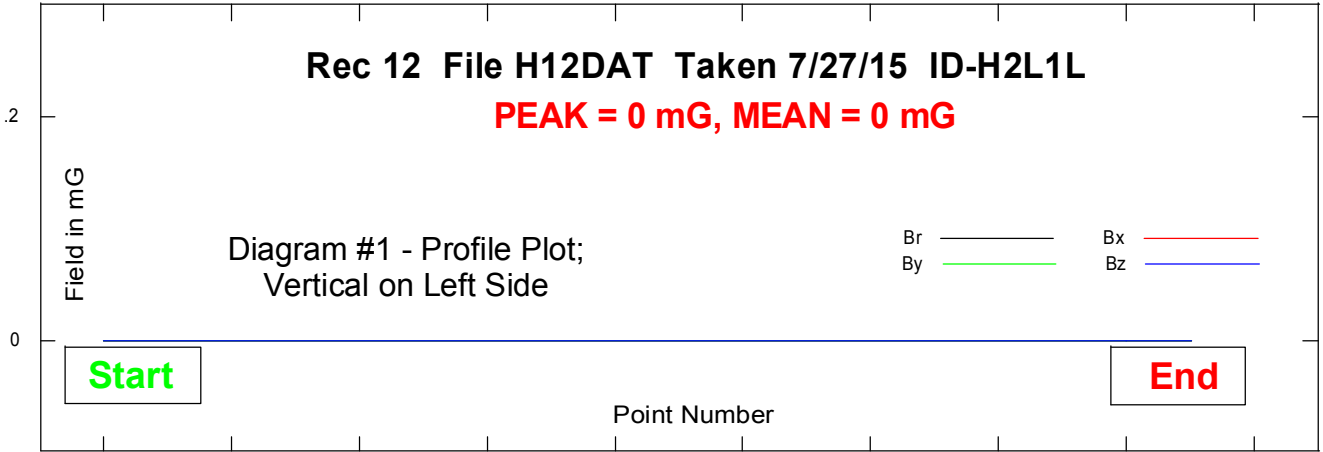
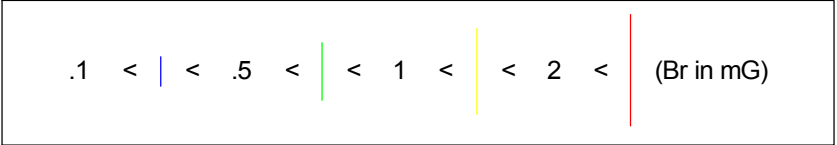
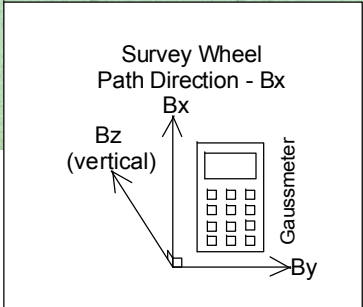
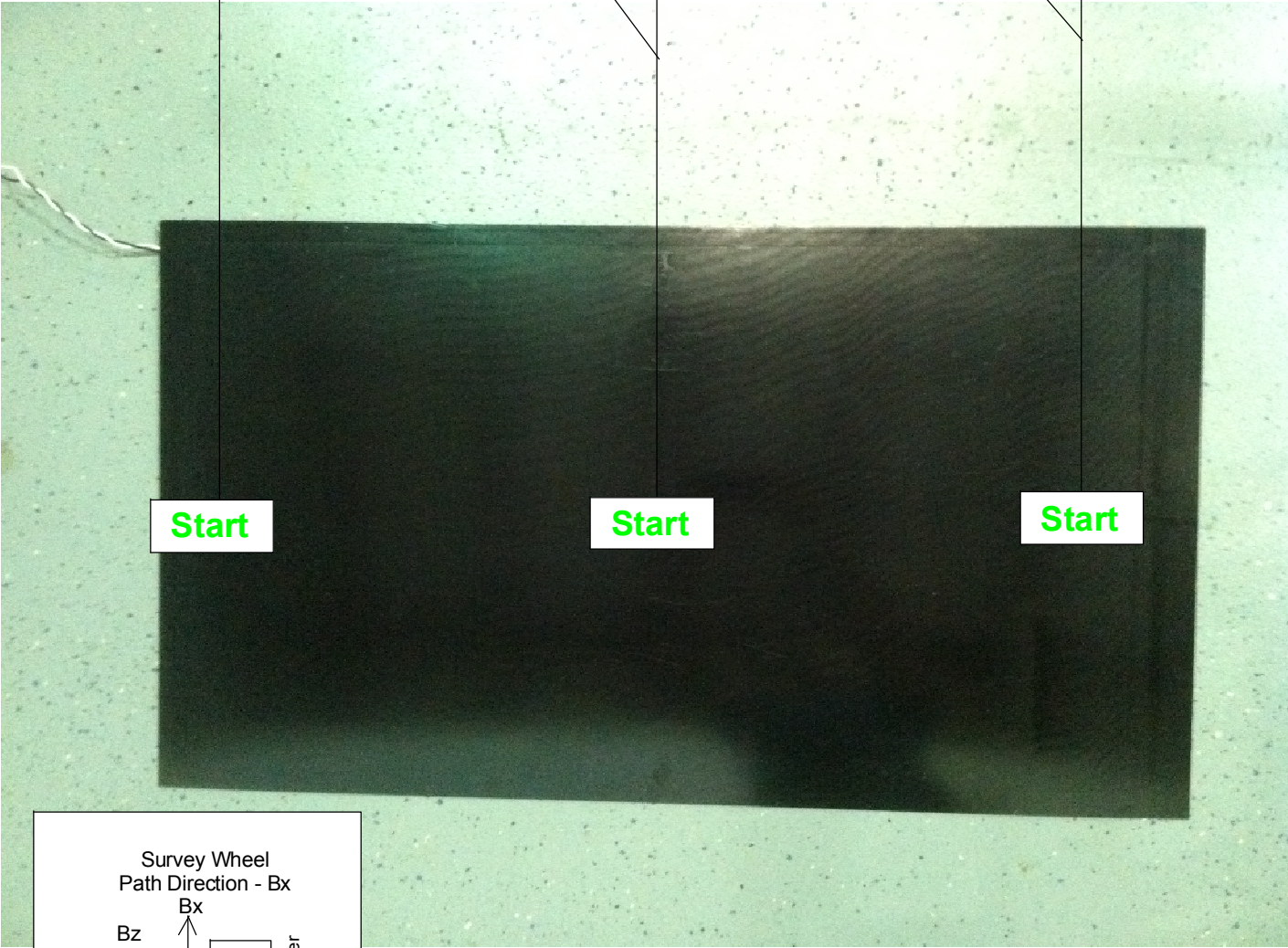
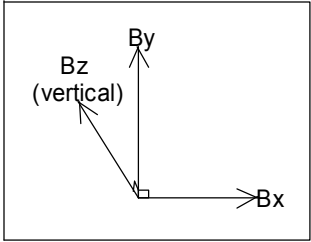
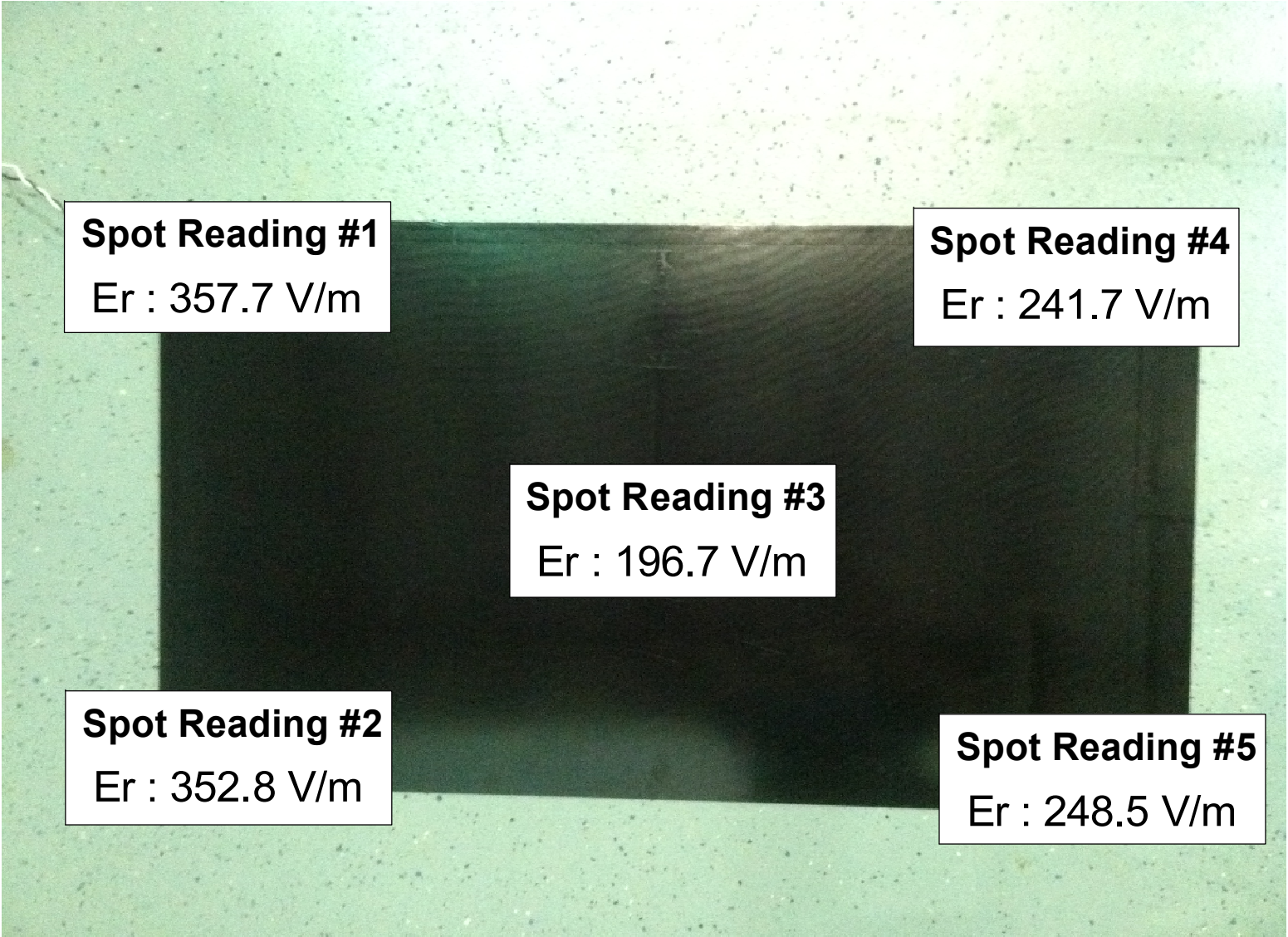


Diagram #1 - Spot Testing Drawing - Sauna Heater



Data recorded in units of Volts/meter resultant, using a 3-axis PMM 8053 Portable Field Meter and EPH 50B Probe

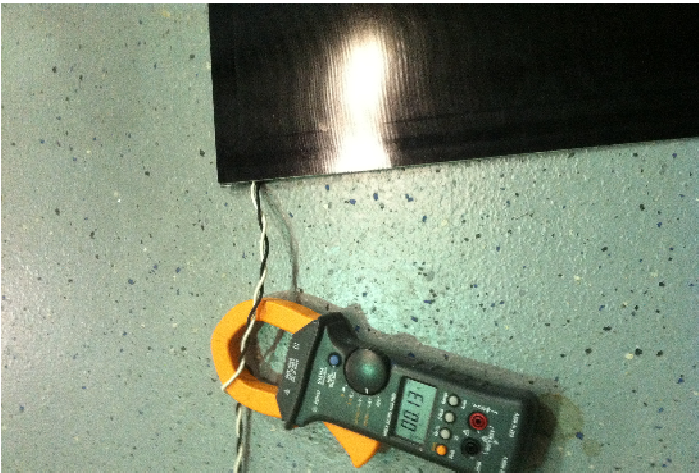
**Figure #10, Sauna Heater AC Data
Electric Field Testing
Electric Field Levels
Recorded as a Spot Reading**

Sauna Works
2184 Sutter St. Suite 282
San Francisco, CA

VitaTech Electromagnetics Fredericksburg, VA 540-286-1984



**PMM 8053 3-Axis field meter
used to take electric field readings**



**Current Draw from Sauna Panel
per reading on Ammeter (0.88A)**