Resonant Field Imaging™ Digital Frequency Counter

This is the same frequency counter that is supplied with ITEM's proprietary Resonant Field Imaging™ (**RFI**) energy field imaging system. The counter is selected for **RFI** due to its sensitivity to subtle electromagnetic fields.

Features include:

- **50 Ω (ohm) input for full range 1 MHz to 3 GHz coverage** – the antenna supplied with the frequency counter is a standard receiving dipole antenna with a maximum input impedance of 50 ohms. Impedance is defined as voltage divided by current. When electromagnetic (EM) waves interact with the antenna, an alternating charge (voltage) is produced on the surface of the antenna, which induces an alternating electric current. The current travels to the internal electrical circuitry of the frequency counter where the amplitude of the current is detected and converted into frequencies. Impedance (also called resistance) is present in the antenna to protect the internal circuitry against damage that would result from high electric current. The maximum 50-ohm impedance is found at the ends of the antenna – and is constant for the entire bandwidth that the frequency counter can measure (1 MHz to 3 GHz). The minimum impedance in the antenna (i.e., any dipole antenna) is found at the center. Therefore, when measuring weak fields, it is important to ensure that the center of the antenna is within the area intended for measurement, since the antenna is most sensitive at the center. However, conversely, since the center of the antenna has the least impedance it is also the location where the antenna is most vulnerable to damage from high-strength electric fields. The higher the impedance applied to the antenna, the lower the current that reaches the counter's circuit and the lower the frequencies detected. To test this principle, turn on the frequency counter and then watch the frequencies decrease once you press the tip of the antenna firmly with your fingertips.

- **Filter prevents display of random noise** – the frequency counter comes equipped with a filter module which, when turned to the "**ON**" position, causes the internal circuitry to ignore fluctuating currents induced by rapid changes in the electric field strength of EM waves. The manufacturer designed the filter module as a tool for electricians and electronic engineers to identify discrete, "industrial strength" EM waves of relatively constant field strength radiating from transmitters, and to effectively ignore harmonic waves and EM waves with weaker field strengths (i.e., "random noise") interacting with the "industrial strength" waves. Ironically, the EM fields referred to as "random noise" or "phantom readings" by the electronics industry are the same fields that we are interested in for Aura and bioenergy measurements. Therefore, we recommend that unless you are performing a scan to determine whether or not interference is present (as discussed further below), you should keep the filter turned to the "**OFF**" position.

- **High speed 300 MHz direct count with 0.1 Hz per second resolution** – there are two frequency ranges on the frequency counter – "300 MHz" (for measuring frequencies less than 300 MHz, down to 1 MHz) and "3 GHz" (for measuring frequencies up to 3 GHz). ITEM recommends that you collect your RFI measurements using the 3 GHz range; at this range, the maximum display resolution is 10 Hz (i.e., the counter will display frequencies to the nearest 10 Hz). However, if you used the 300 MHz range, the maximum display resolution is 0.1 Hz. Therefore, the 300 MHz range is 100 times more "sensitive" than the 3 GHz range, although such display sensitivity matters relatively little within the context of MHz-range frequency measurements. The range switch of the frequency counter should be set on "3 GHz" if you expect the frequencies to be within the range of 10 MHz to 3 GHz, which it will be for most or all RFI measurements. As discussed below, you should rarely ever need to use the "300 MHz" range setting.

- **Ultra sensitive synchronous detector bar graph of RF signal strength** – the frequency counter includes a feature that indicates the relative electric field strengths of the EM waves or field interacting with the antenna (bottom of display). The sensitivity of this bar graph is as follows:

Frequency	First Segment	Full Scale
27 MHz	7 mV	100 mV
150 MHz	5 mV	90 mV
800 MHz	10 mV	200 mV

At a frequency of 27 MHz, the first segment of the bar graph will appear if the wave has an associated electric field strength of at least 7 mV, and the full bar graph will appear if the electric field strength is at least 100 mV. Similarly, the first segment appears at 10 mV for an 800 MHz frequency, and the full scale appears at 200 mV. In most cases, the only frequencies "high" enough and "strong" enough to elicit a response from the signal strength bar graph are those frequencies associated with commercial or industrial applications, e.g., a cellular phone transmission. It is unusual for subtle Aura or bioenergy frequencies to have electric field strengths of a magnitude to cause a response in this signal strength detector and bar graph. An exception may be a circumstance where there is a "highly charged" environment resulting from many people projecting strong thought forms or from metaphysical entities. A response in this bar graph while performing **RFI** measurements is a good reason to suspect some form of "interference," such as cellular telephone transmissions.

- **Low power consumption 6-hour NiCd battery operation** – the counter comes with a built-in nickel-cadmium (NiCd) rechargeable battery that should last several years. The batteries will usually last up to 6 hours between recharging. To recharge the battery, insert the enclosed AC adapter into an electrical outlet and plug the adapter probe into the "9-12 VDC" inlet on the top of the frequency counter. Full recharge will be complete within 12 to 16 hours. ITEM has attempted to provide you with a recharging adapter than can be used for the power supply in your location; however, in the event that you cannot use the adapter for some reason, you should purchase a 9-12 V adapter that is compatible with your local electrical supply. Such adapters are commonly sold at electronics stores and are generally inexpensive. Please note that using the frequency counter while plugged in to an electrical outlet is not recommended. Also, ITEM recommends that upon receipt, you immediately charge the frequency counter for 12-16 hours to ensure maximum life of the battery.

- **Low battery indicator** – when the stored energy in the NiCd battery is nearly depleted, a low battery indicator will appear on the bottom right of the LCD display screen, which indicates that it is time to recharge the battery.

- **Hold switch locks display** – the "Hold" button can be used anytime you would like to stop the continuous display of frequencies and record the specific frequency currently displayed. As discussed in more detail below, we recommend that you press the "Hold" button after a predetermined period of time to determine the frequency to be entered into the **RFI** software program.

- **Supplied with telescoping whip antenna and AC wall adapter** – the "telescoping whip antenna" is a vertical dipole antenna used for passively receiving a broad range of EM waves and fields. The total length of the antenna, when fully extended, is approximately 57 cm (22.5 inches) long from the base of the antenna (above the BNC connector) to the base of the tip (black nodule). There are a total of 7 segments in the antenna, with lengths as follows: first segment (base of antenna) – approximately 9.75 cm, second segment – 8.5 cm, third segment – 8.25 cm, fourth segment – 8.0 cm, fifth segment – 7.75 cm, sixth

segment – 7.5 cm, and seventh segment (tip of antenna) – 7.25 cm. Instructions on how to extend the antenna for **RFI** measurements are presented below. The AC wall adapter was discussed above in the section on NiCd batteries.

- **Gate button** – the gate button is critical for collecting frequency data. The gate button controls the speed at which frequencies are displayed, or the time between the display of frequencies. When you first turn the power on, the display time is approximately one-twentieth of a second (i.e., approximately twenty frequency values are displayed every second). When you press the gate button once, the display time slows to approximately one-fourth of a second. When pressed twice, the display time slows to one second. When pressed a third time, the display time slows to four seconds. The use of the gate button is a good way to take **RFI** measurements because frequencies are averaged over the display period; for example, the average frequency that the counter detects over a period of four seconds is displayed if you press the gate button three times.

- **Calibration** – another feature of the frequency counter is the calibration adjustment opening (labeled "CAL" on the right side). All frequency counters are calibrated at the manufacturer prior to shipment. Preliminary tests at ITEM indicate that you should not need to calibrate the frequency counter during your use. However, if you have a function generator or other device transmitting a known frequency, you could adjust the displayed frequency to match the known frequency by using a small pointed object, like a paperclip, and pressing into the opening until the counter display matches the known frequency. If you decide to calibrate the counter, make sure that you press the gate speed button three times to slow the display.

- **Input Sensitivity** – the minimum electric field strength voltage that will induce a response in the frequency counter is as follows for specific frequencies: < 0.8 mV at 100 MHz, < 6 mV at 300 MHz, < 7 mV at 1 GHz, and < 100 mV at 2.4 GHz. For example, at a frequency of 300 MHz, the counter can detect EM fields with electric field strengths below 6 mV. From these values, you can see that if the EM field has a frequency of, say, 500 MHz and an electric field component of only 4 mV, the counter will not detect it. At 500 MHz, the EM field must have an electric field strength of at least 6 mV for the counter to detect it. The Auras of living things generally produce EM fields with electric field strengths greater than the minimum values required to generate a reading (though not usually strong enough to generate a response in the bar graph discussed above), so you can feel confident that the frequency counter is indeed detecting bioenergy fields.

  The maximum input of the frequency counter is 15 dBm. The unit dBm expresses the power that the antenna can receive in decibels (dB) relative to one milliwatt; the decibel is the standard unit in the electronics industry for expressing an antenna's transmitting and receiving power (or "gain"). The equation for converting dBm to milliwatts is: milliwatts = $10^{(dBm/10)}$. Therefore, 15 dBm equals 32 milliwatts (mW) or 0.032 Watts (W). The antenna supplied with the FC1003 frequency counter, is, therefore, perfectly suited for subtle bioenergy measurements. It will generally exclude high-power direct EM fields and waves with electric field strengths greater than 32 mW, which is desirable for **RFI** measurements of subtle energy fields.