Upon request, detailed information about CORSNET® ED-88TPlus Electrosmog meter user’s manual v.2 ©02/27/2018

CORSNET® ED-88TPlus Electrosmog meter is a Tri-mode device for quick measurement of both high frequency (RF) Electromagnetic wave field strength/power density level, low frequency (LF) Magnetic field level(Gauss, Tesla), and Low frequency (ELF) Electric field(V/m) for living environments. It is an excellent device for individual or company with Electromagnetic wave safety concerns. It has RF bandwidth of 100MHz to 8GHz with high sensitivity (0.5uw/m² to 1.8uw/m²), LF bandwidth of 50Hz to 10kHz (or 50Hz to 1kHz) with sensitivity of 0.1uT to 60uT(1mG-600mG) or 0.01uT to 6uT(0.1mG to 10mG), and E-field bandwidth of 50Hz-50kHz with sensitivity of 10vn to 1000vn. The RF Frequency display function (100MHz-2.7GHz) can detect very short burst of digital RF down to 100usec. Data Logging function is also included.

Applications:
- High frequency RF Electromagnetic wave field strength, power density and frequency measurement
- Low frequency LF Magnetic field measurement (Gauss meter function)
- Low frequency ELF Electric field measurement (E-field meter function)
- Mobile phone base station antenna radiation power density measurement
- Wireless communications, Analog & Digital RF (AM/FM, TDMA, GSM, DECT, CDMA,3G,4G)
- RF power measurement for transmitters
- Wireless LAN (Wi-Fi), Bluetooth, Ultra-wide-band detection, installation, optimization
- Spy camera, wireless bug finder, IOT devices
- Cellular/Cordless phone radiation safety level, Electrical Utilities SMARTER METER radiation level
- AC power line, High voltage tower, Power Transformer, motors and small appliance EMF
- Microwave oven leakage detection
- Personal living environment EMF safety evaluation

Usage guide:

(1) Put the 9V battery in the ED88Plus. Handle the unit with right hand in vertical direction, and turn on the volume/power switch to turn on the power, it will come up with RF meter mode.

(2) The RF sensor is located in the left hand side of the ED88Plus; the LF sensor is located in the right hand side of the ED88Plus, the E-field sensor is located in the middle top side of the ED88Plus, please do not cover the sensor area with hand or other objects.

(3) There are 4 push button on the ED88Plus: “Mode”, “Hold”, “Light”, and “Unit” button. “Mode” button is used to switch in between RF mode, two LF modes, and E-field mode. The “Hold” button is used to freeze the data reading of the ED88Plus.

(4) RF mode: measured RF field strength/power density is shown on the digital LCD display (with uT/m, v/m, or mw/m²). 8 LED lights with Red, Yellow, and Green color on the right hand side of LCD window are used for quick RF signal level indications. 3 Red LEDs are used to indicate the 3 safety ranges. The power level of each LED can be found in the table on the ED88Plus back panel. Frequency of signal detected is displayed on the LCD display.

(5) LF mode: measured LF magnetic field strength is shown on the digital LCD display (with uT and Gauss). Two LF modes can be selected by “Mode” button: (a) LF30mode (1mG-10mG) and (b) LF600 mode (1mG-600mG). 8 color LED lights are also available to show the relative strength of the magnetic field.

(6) E-field mode: measured ELF electric field strength is shown on the digital LCD display with V/m or mv/m.

(7) Data Logging menu: previous 30 signal level readings are recorded and shown as a moving graph on the LCD display for RF, LF, and E-field modes. It can be used for finding direction of signal source and recording bursts from digital RF signals such as signals from AC smart meter.

(8) Hold SUNIT: HOLD button can be used to halt the data measurement of the ED88Plus, a “HOLD” Mark will be shown on the LCD screen to indicate the “Hold” condition. Push the “Hold” button again the ED88Plus will exit from the “Hold” condition. “Unit” button can select the mw/m², v/m, or dBm unit.

(9) MAX: Maximum measured data value since the last power-on is shown on the LCD display.

(10) Average: average or peak average value is displayed on the LCD with “A” or “P” mark. It can be used to estimate the duty cycle of the digital RF burst signals or the average of peak signal level.

(11) Sound function & LCD backlight: Toggling the “Light” button can turn-off/on the LCD backlight and the Audio Sound function. (a “B” mark on the LCD indicates the sound mode is on). Volume Wheel control can be used to adjust the sound level. Audio Sound can be used to detect very low level RF signals (down to 0.05uw/m²) especially for the modern digital RF burst signals. In order to reduce the battery current consumption please remember to turn-off the LCD backlight for the sound when it is not needed.

(12) Data Logging menu: Push and hold the “Unit” button then click the “MODE” button to go into LoggerSetup menu. Please see the “ED88TPlus Data Logging User Guide” from www.cornetmicro.com for details of the Data Logging functions.

(13) SysSetup menu: Push and hold the “UNIT” button then push the “HOLD” button to get into the SysSetup menu. Use the “>” button to move the cursor in the Menu and use the “<” button to enable/disable the functions in the SysSetup menu:
- EXIT: exit the SysSetup menu, return to normal mode.
- RF level Select unit: select default mw/m², v/m, or dBm mode when meter is powered on.
- LED Level: used to adjust the color LED segment display level for custom safety standards.
- Average/Frequency: select Peak or Average mode, All average, or Frequency of MAX value display.
- MAX Clear: if the MAX Clear is “ON” the MAX value can be cleared by holding the “HOLD” button. If it is “OFF” the MAX value can be cleared only by power-off the meter.
- Alarm: ON/Off, 0.1, 0.5, -10, -20, -25, -30, -35dBm can be selected to trigger the audio Alarm. *Alarm function is used in RF mode only.
- Reset: reset to default (mw/m² LED Level OFF, MAX_CLEAR ON, Alarm OFF, PeakAvg).
- LED Level: “Light”, “S” button is used to freeze the data reading of the ED88Plus.

When measuring the high frequency digital/pulse type of signals (such as switching power supply) the LF30 mode might have lower reading than the LF600 mode, this is due to the lower frequency coverage range of the LF30 mode.

While in LF (magnet/electric field measurement) or E-field mode, please hold the ED88 steady to get the good stable reading, avoid fast moving of the ED88 to prevent the sudden change of the reading caused by the Earth magnetic field or the induced electric field of nearby objects.

AC Smart Meter radiates RF signal in short burst every few minutes, use MAX function and Histogram function of ED88, and wait a few minutes to capture the RF signals from smart meter.
The European Community provided general guidelines in its Council Recommendation of July 1999.1 In the National field-strength limit values for the general public and continuous exposure (for Reference only!)

<table>
<thead>
<tr>
<th>Frequency Range</th>
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<tbody>
<tr>
<td>950MHz</td>
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<tr>
<td>International Council Recommendation 1999/519/EC</td>
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<tr>
<td>International ICNIRP Guidelines, April 1998</td>
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<tr>
<td>Austria ÖNORM S1120</td>
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<td>Belgium Belgisch Staatsblad F.2001-1365</td>
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<td>Germany 26. Deutsche Verordnung</td>
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<td>Italy Decreto n. 381, 1998</td>
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<td>The Netherlands Health Council</td>
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<td>Switzerland Verordnung 1999</td>
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<tr>
<td>United States IEEE C95.1</td>
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<tr>
<td>China Draft National Quality Technology Monitoring Bureau</td>
</tr>
<tr>
<td>Japan Radio-Radiation Protection Guidelines, 1990</td>
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ED88 is designed for quick living environment RF radiation evaluation and is for reference use only. Official RF safety radiation measurement procedure is complicated and should be handled by trained technical person with lab instruments. Safety range standards listed below is for reference only. ED88 is not a medical instrument. Please do not use it in medical, legal, commercial rental purpose or other related applications. (for personal use only)

- **NOTE:**
  - Most high frequency RF antenna such as Mobile phone base station is vertical polarized (in vertical direction), therefore while in RF mode, the ED88 is normally used in vertical field-strength limit values for the general public and continuous exposure (for Reference only!).
  - Most of modern communication devices (Mobile phone, Wireless LAN, Wi-Fi, etc.) use digital RF burst signals. When measuring this type of signals, several LED lights will blink at the same time. This is normal and it can be used as an indication of burst type of RF signals.
  - Electromagnetic wave field-strength/power density reduces very fast with distance (distance square), keep a good distance from the high frequency RF signal source can reduce the high frequency radiation effect. Alumina foil or window sun reflector film (silvery color) can be used as an effective and low cost shielding material for most of RF radiations.
  - ED88 is designed for quick living environment RF radiation evaluation and is for reference use only. Official RF safety radiation measurement procedure is complicated and should be handled by trained technical person with lab instruments. Safety range standards listed below is for reference only. ED88 is not a medical instrument. Please do not use it in medical, legal, commercial rental purpose or other related applications. (for personal use only)
  - The audio sound output of the sound function is the demodulated RF signal, it is good for AM and modern digital RF signals (pulse/burst) detection, it is not for FM or constant amplitude RF signals or LF/ELF modes. It is an excellent tool for RF signal type indication, (different RF signal such as WiFi, GSM, DECT, ... etc., all has different frequency signature of the demodulated RF signal) and for very low level signal detection.
  - When in E-field mode, the electric field induced by human body or large objects nearby can affect the measurement results, hold the ED88 by hand on the lower right side of the meter, do not cover the E-field sensor area (top of the meter) by hand or other objects, keep away from large metal door or objects. Point the top of the ED88 to the high voltage AC power line (with ED88 at least 1 meter above the ground) when measuring the VLF/ELF E-field radiation from AC power lines or towers. Average value is displayed in E-field mode to reduce background noise. Reading will be lower for narrow spike type of E-field radiation such as from FL lamp.

### Specification

- **Sensor type:** Electric field sensor and Magnetic field sensor
- **Frequency range & Sensitivity:**
  - **RF:** 100MHz to 8GHz (-60dBm to +5dBm), (0.5uw/m2 to 1.8w/m²), (14mV/m to 26.2V/m)
  - **LF1:** 50Hz to 100Hz (0.1uT to 60uT)/(1mG to 600mG)
  - **LF2:** 50Hz to 1KHz (0.01uT to 1uT)/(0.1mG to 10mG)
  - **E-field/ELF:** 50Hz to 50KHz (10v/m to 1000v/m)
- **RF Peak power measurement:** 0.5uw/m² to 1.8w/m²
- **Display type:** digital LCD graphic display
- **Unit of measurements:** dBm, mw/m², v/m, uT, mG, MHz
- **LCD backlight:** 15 seconds auto-off and manual off/on control
- **Display of data:** LCD 4 and 5 digit, 8 LED color segment, Moving Histogram (level/time of previous 30 recorded data, Analog segment bar
- **Data update rate:** Sampling rate: 1000/sec. Display update rate: 2/sec.
- **Error rate:** RF: +/- 3.5dBm, LF: 20%, E-field: 25%
- **Data Logging:** 1000 data storage point memory for logging/recorded measuring RF signal level
- **Battery used:** 9V alkaline battery or external power supply through USB port (5V)
- **Battery life:** >20 hours

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