







**AF-5000**  
**5G EMF Meter - Up To 10GHz**  
**User's Manual**








HB4AF5000001  
MADE IN TAIWAN

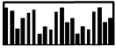


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## 1 Features

- Data Hold (HOLD)
- Low Battery indication : HIGH  LOW 
- Over Load Display "OL".
- Brightness Options: 3 options.
- Magnetic Unit: Gauss(mG) or Tesla( $\mu$ T).
- RF Strength Unit: ( $\mu$ W/m<sup>2</sup> ~mW/m<sup>2</sup>) ( $\mu$ W/cm<sup>2</sup>) (mV/m ~V/m) (mA/m) (dBm).
- Languages: English; Traditional Chinese; Simplified Chinese; Japanese; Español.
- Power Off Time : No; 1; 3; 5; 10; 15; 30. Factory default sets as "5". Settings can be changed by the user.  is displayed on the screen after power off time is set.
- Keys and Danger Level High (red color) Alarm Sounds: On ; Off 
- Historical Records:
 



Up to 20 groups 
- Low-Frequency EMF measurement.
- High-frequency 5G, RF, Microwave field strength measurement.
- Electric and Magnetic field measurement.

## 2 Accessories

- 1 Meter
- 1 User's Manual
- 6 Battery 1.5V AAA alkaline
- 1 Carrying case



### 3 Safety Precaution

	Caution! Please refer to this manual. Improper use may damage the meter and its components.
	Complies with European Directive.

- Do not operate in environments with flammable gas or humid environments.
- Operating altitude: Up to 2000M.
- Operating environment: Indoor use; Pollution degree 2.
- Clean with soft cloth when dirty, such as glasses cloth. Do not clean with chemicals and other solvents.
- EMC: EN61326-1: CISPR 11: Group 1, Class B
  - ✧ Class B – Equipment for use in all establishments.
  - ✧ Group 1 – RF energy generated is needed for internal functioning.

## 4 Instrument Description

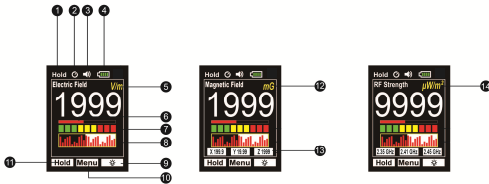
### 4.1 Identifying Parts



#### Instrument Description:

1. 2.4" 240\*320 resolution color TFT
2. Power button
3. Hold and Enter button
4. Menu button
5. Brightness select and menu setup set select button
6. EF Electric field button
7. MF Magnetic field button
8. RF strength field button
9. Battery cover

## 4.2 TFT description



1. Data Hold indicator
2. Auto power off indicator
3. Buzzer indicator
4. Battery indicator
5. Unit of EF: V/m
6. Bar graph
7. Danger level color indication
8. Histogram display
9. Screen brightness options
10. Menu key indication
11. Hold/Enter key indicator
12. Unit of MF:  $\mu\text{T}$  or mG
13. Individual XYZ axial value of LF electromagnetic wave display
14. Unit of RF: mV/m;  $\mu\text{W}/\text{m}^2$ ;  $\mu\text{W}/\text{cm}^2$ ; mA/m and dBm


## 4.3 Safe Level Color Indication

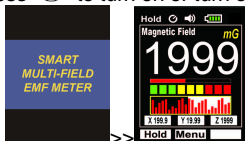
	EF Mode – LF Electric Fields	MF Mode – LF Magnetic Fields	RF Mode – RF Fields
Green Zone	0 - 9V/m	0.0 - 1mG	0 - 100mV/m
Yellow Zone	10 - 30v/m	1.1 - 4mG	101 - 300mV/m
Red Zone	> 30v/m	> 4mG	> 300mV/m

➤ The color zones are for reference only.

## 5 Measurement Procedures

### 5.1 Power ON/OFF Button:

- Press  to turn on or turn off.




### 5.2 Electric Field Button

Select  to measure the electric field.

Please hold the meter from the bottom of the display, as shown in the figure below:



### 5.3 Magnetic Field Button

Select  to measure magnetic field.




Reading Individual and Aggregated XYZ Axial Data:  
Direct the front section of the meter at the desired electromagnetic field for measurements.

The meter simultaneously displays the electromagnetic field readings of individual and aggregated XYZ axes, where the aggregated calculation equation can be expressed as follows:

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

Because of environment-related magnetic field factors, this electromagnetic field EMF meter may display a reading of under 0.50mG prior to testing. This is caused by the magnetic noise in the environment, rather than meter failure.

## 5.4 RF Field Strength Button

Select  to measure the RF strength.

High-frequency field strength measuring: Please test in positive direction.




## 5.5 Data hold (HOLD)

Press  to enable or disable the data hold function.



## 5.6 Screen Brightness Options


The Brightness setting is comprised of Low, Medium and High.


## 5.7 Menu Settings

On the measurement screen: Press the  button to enter the main menu, where 6 options can be selected:

- Magnetic unit
- RF Strength Unit
- Language
- Power off
- Sound
- Information

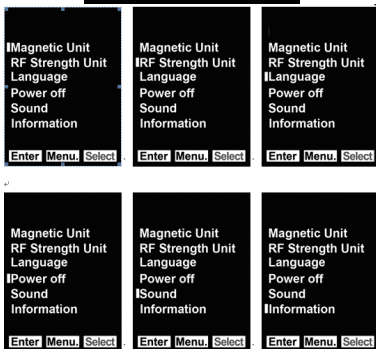
Press the  button to make the displayed blue brick scroll down. Press the  button repeatedly, and the displayed blue brick will cycle through the options.

Press the  button to enter the selected option.

Press the  button again to exit the selected option and return to the main menu.

Press the  button to return to the measuring mode.

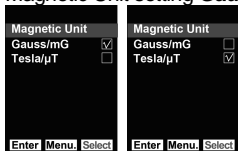
**Enter Menu. Select**



## 5.8 Magnetic Unit

Following the operation procedures in 5.7.

Magnetic Unit setting **Gauss/mG** or **Tesla/ $\mu$ T**.

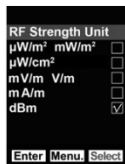


**Default: Gauss/mG**

## 5.9 RF Strength Unit

Following the operation procedures in 5.7.

RF Strength Unit setting option:  $\mu$ W/m<sup>2</sup>~mW/m<sup>2</sup>,  $\mu$ W/cm<sup>2</sup>, mV/m~V/m, mA/m, and dBm.



**Default:  $\mu$ V/m<sup>2</sup> ~ mW/m<sup>2</sup>**



## 5.10 Language

Following the operation procedures in 5.7.

Language setting option: English, Traditional Chinese, Simplified Chinese, Japanese, and Español (Spanish).

Language	
English	<input checked="" type="checkbox"/>
繁體中文	<input type="checkbox"/>
簡體中文	<input type="checkbox"/>
日本語	<input type="checkbox"/>
Español	<input type="checkbox"/>

Enter Menu. Select

Language	
English	<input type="checkbox"/>
繁體中文	<input checked="" type="checkbox"/>
簡體中文	<input type="checkbox"/>
日本語	<input type="checkbox"/>
Español	<input type="checkbox"/>

Enter Menu. Select

Language	
English	<input type="checkbox"/>
繁體中文	<input type="checkbox"/>
簡體中文	<input checked="" type="checkbox"/>
日本語	<input type="checkbox"/>
Español	<input type="checkbox"/>

Enter Menu. Select

Language	
English	<input type="checkbox"/>
繁體中文	<input type="checkbox"/>
簡體中文	<input type="checkbox"/>
日本語	<input checked="" type="checkbox"/>
Español	<input type="checkbox"/>

Enter Menu. Select

Language	
English	<input type="checkbox"/>
繁體中文	<input type="checkbox"/>
簡體中文	<input type="checkbox"/>
日本語	<input type="checkbox"/>
Español	<input checked="" type="checkbox"/>

Enter Menu. Select

**Default: English**

## 5.11 Power Off Time

Following the operation procedures in 5.7.

Power Off setting options: NO, 1, 3, 5, 10, 15, and 30 (min). Under the sub-directory, use the option buttons to select and confirm the desired selection.

Power off	
NO	<input checked="" type="checkbox"/>
1	<input type="checkbox"/>
3	<input type="checkbox"/>
5	<input type="checkbox"/>
10	<input type="checkbox"/>
15	<input type="checkbox"/>
30	<input type="checkbox"/>

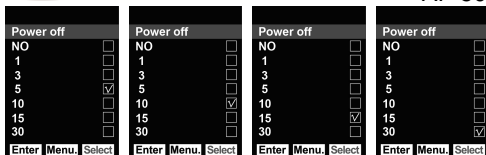
Enter Menu. Select

Power off	
NO	<input type="checkbox"/>
1	<input checked="" type="checkbox"/>
3	<input type="checkbox"/>
5	<input type="checkbox"/>
10	<input type="checkbox"/>
15	<input type="checkbox"/>
30	<input type="checkbox"/>

Enter Menu. Select

Power off	
NO	<input type="checkbox"/>
1	<input type="checkbox"/>
3	<input checked="" type="checkbox"/>
5	<input type="checkbox"/>
10	<input type="checkbox"/>
15	<input type="checkbox"/>
30	<input type="checkbox"/>

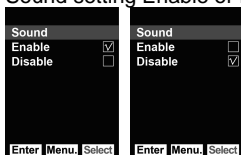
Enter Menu. Select



**Default: 5 minutes**

## 5.12 Sound ON/OFF

Following the operation procedures in 5.7.  
Sound setting Enable or Disable.



## 5.13 Information

Following the operation procedures in 5.7.  
Select the Information option to display the software version (V1.0).



## 6 General Specifications

- Display: 4 digits Triple LCD display.
- Sample rate: 1 second per time.
- Battery life: Approximate 8 hours.
- Audible Key tone alarm: Buzzer
- Operating temperature & humidity: 5°C to 40°C, below 80%RH.
- Storage temperature & humidity: -10°C to 60°C, below 70%RH.
- Weight: About 120g.
- Dimensions: 150.3(L)x65.6(W)x20.5(H) mm.

### 6.1 RF Strength

- Frequency range: 50MHz to 10GHz.
- Accuracy:  $\pm 2$ dB at 2.45GHz.
- Under 1GHz and from 8GHz to 10GHz field strength levels are for reference only.
- Measurement units:  $\mu\text{W}/\text{m}^2 \sim \text{mW}/\text{m}^2$ ;  $\mu\text{W}/\text{cm}^2$ ;  $\text{mV}/\text{m} \sim \text{V}/\text{m}$ ,  $\text{mA}/\text{m}$ , and dBm.
- Specified measurement range: ( $0.02\mu\text{W}/\text{m}^2$  to  $554.6\text{mW}/\text{m}^2$ ).
- ( $0.02\mu\text{W}/\text{cm}^2$  to  $55.4\mu\text{W}/\text{cm}^2$ ) ( $36.1\text{mV}/\text{m}$  to  $14.46\text{V}/\text{m}$ ) ( $0.02\text{mA}/\text{m}$  to  $38.35\text{mA}/\text{m}$ ) ( $-51\text{dBm}$  to  $16\text{dBm}$ )
- Display resolution:  $0.02\mu\text{W}/\text{m}^2$ ,  $0.2\mu\text{A}/\text{m}$ ,  $0.2\text{mV}/\text{m}$ ,  $\text{m}$ ,  $0.002\mu\text{W}/\text{cm}^2$ ,  $2\text{dBm}$ .

## 6.2 Magnetic Fields (MF)

- The meter is equipped with three individual aerial sensors to measure EMFs. The overload indications can be displayed simultaneously on three axes (X, Y, Z):
- Range: 20/200/2000mG, 2/20/200 $\mu$ T.
- Resolution: 0.02/0.1/1 mG or 0.02/0.1/1  $\mu$ T.
- Frequency response: 50/60 Hz.
- Sensor: Triple Axis (X, Y, Z).
- Accuracy:  $\pm$  (15%+100dgt).

## 6.3 Electric Fields (EF)

- Range: 50V/m to 2000V/m.
- Frequency response: 50/60Hz.
- Accuracy:  $\pm$  (7% + 50dgt).

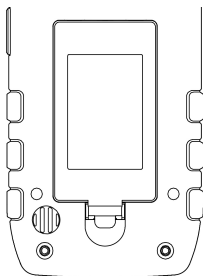
## 7 Battery replacement



### WARNING

If the symbol “  ” appears on the screen, please replace the battery immediately

- Turn off the instrument.
- Open the battery cover and remove the batteries.
- Take 3 new 1.5VAAA alkaline batteries, and install the batteries according to the polarity.
- Put the battery cover back on.



## 8 Safety and Maintenance Standards

- Do not operate around combustible gases or in damp environment.
- Operating altitude: Below 2,000m.
- Operating environment: For indoor use, expose to pollution level II.
- This is a precision device. During use or storage, do not go beyond its spec. to prevent any possible damage or danger.
- Do not put this device in direct sunlight or where it is hot and/or damp.
- For long storage, remove the battery to prevent the battery from leaking and causing damage to the parts inside.
- Clean the device with a soft dry cloth. The use of wet cloths, liquid and water is prohibited.

## 9 Disposal



Caution

This symbol indicates that equipment and its accessories shall be subject to a separate collection and correct disposal.



## **10 Liability Waiver**

You hereby agree to release and forever discharge EMR Shielding Solutions Inc and its affiliates, successors, assigns, officers, employees, representatives, partners, agents and anyone claiming through them, in their individual and/or corporate capacities, from causes of action of any nature and kind, known or unknown, which you may have arising out of or relating to any injury, loss or damage of any kind to person or property that may be sustained as a result of using the meter and/or EMR Shielding Solutions Inc product(s). EMR Shielding Solutions Inc is not responsible for any bodily injury or bodily harm that occur while using the meter and/or EMR Shielding Solutions Inc product(s). EMR Shielding Solutions Inc assumes no responsibility and will not be held responsible for any damage, liability, claim or lawsuit related thereto. You agree to indemnify EMR Shielding Solutions Inc against any and all claims arising out of or related thereto.



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