

### Definitions:

**DC (Static Field):** 0 Hz (WPH-DC)

**LF (Low Frequencies):** 1 Hz – 10 MHz (WP10M, WP400, WP400-3, WP50, WPH-DC)

**HF (High Frequencies):** 100 kHz – 300 GHz (WPF3, -6, -8, -18, -40, -60, -90, WPH60, -1000)

### Static Field Human Exposure Assessment

- Select the **Field** type to **DC** (Button AC/DC).
- Move the SMP3 around and **look for maximum levels** or **place it at the desired position**.
- Set **MODE** to “**Time**”.
- Go to **MENU** → **MEASUREMENT OPTIONS**.
- Set “**Measurement time**” to “**Not limited**”.
- Optionally, select a limit (pacemakers, workers, public) from the menu **LIMIT**.
- Press **LOG** to start the measurement.
- Your **Max** value will appear in the **Max/Min** set of results.
- Leave your unit stationary for the desired duration or until you see the max value is not increasing any more.
- Press **LOG** to save the measurement.
- The maximum DC value in absolute units (for example, in  $\mu\text{T}$ ) can be compared with other standards.

### LF Human Exposure Assessment

- In the **MEASUREMENT OPTIONS** menu, set **Measurement time**.
- Select **FIELD** (**E** or **H**).
- Set the **FILTER** (**HPF**) and **Bandwidth** (**BW**) according to the frequency range specified in the standard.
- Select applicable **LIMIT**.

*For Time domain measurement:*

- Set **MODE** to “**Time**”.
- Set **RANGE** to “**Autoincrease**”.

*For FFT measurement:*

- Set **MODE** to “**FFT**”.
- **Move the SMP3 around** to have a first view of the existing levels.
- Set **HOLD** to “**Max**”.
- Your **Max value** results will appear as the main big numbers on the screen.
- **Place the SMP3 on a tripod** at the heights and distance specified in the standard.
- Press **LOG** to perform measurements. The results will be saved after the set measurement time.
- If **Peak and RMS values are below 100%** you are below the limit.
- Find your measurement in **MENU** → **MEASUREMENT LOG**.

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## HF Human Exposure Assessment

- Go to **MENU** → **MEASUREMENT OPTIONS** → “**Quick Setup**” and select the applicable standard configuration <sup>(1)</sup>.
- If you need a “**Spatial average**”, set to “**Yes**”.
- Scroll down to the **POST-PROCESSING** section and set “**Limit value for results in %**” to “**Lowest value**”.
- Press the **HOME** or **BACK** button to return to the main screen.
- Set “**LIMIT**” to the applicable limit.
- Move the **SMP3** around and **look for the maximum value**.
- At that point, **place the SMP3 on a tripod at the correct height** <sup>(2)</sup>.
- Press the **LOG** button to start the measurement.
- A beep will warn you when the measurement is finished <sup>(3)</sup>.
- If the **final average value is below 100%** you are below the limit.
- Find your measurement in **MENU** → **MEASUREMENT LOG**.

(1) This will set the key measurement parameters to the selected standard values. It is also possible to manually set them all to custom values by selecting “None.”

(2) Please check your applicable standard for the correct height.

(3) If you have set the “Spatial average” option to “Yes”, change the height at the end of each measurement.

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## LF Spectrum Analysis

- Select applicable **LIMIT** (optional).
- Select **FIELD (E or H)**.
- Set the unit **MODE** to “**FFT**”.
- Set **FILTER (HPF)** to “**10 Hz**” <sup>(4)</sup>.
- Set **BW** to correspond with the standard <sup>(5)</sup>.
- Set **AXIS** to “**Total**” (or any axis you want to investigate).
- Set **SPAN** to “**400 kHz**” or “**10 MHz**” depending on probe <sup>(6)</sup>.
- Moving the cursor:
  - **Right arrow:** next frequency.
  - **Left arrow:** previous frequency.
  - **Up arrow:** next peak.
  - **Down arrow:** previous peak.
- Change **MODE** to “**Freq Log**” in case you want to have a time evolution graph of the field level at the cursor frequency.

(4) If you suspect there is field below 10 Hz, use HPF of 1 Hz. In this case, always take the measurement with the device mounted on a tripod to prevent movement. If you want to investigate the mains 50/60 Hz and harmonics, you can set the filter to “10 Hz”.

(5) The bandwidth function determines the frequency range which the device will measure to comply with specific product and exposure standards. For railway applications, select BW up to 20 kHz as this is the maximum frequency in the standard.

(6) If there is no signal in high frequencies, you may want to change the SPAN to a lower value for a more detailed FFT view.