

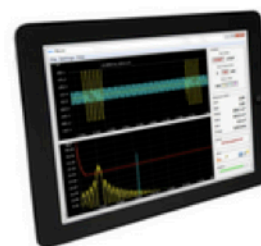


# NHT-3D

## ANALYSER FOR COMPLEX SIGNALS

### KEY FEATURES:

- Selective measurements for magnetic induction (H) and electric fields with any form factor.
- Frequency range from DC - 400 KHz.
- Time domain analysis (oscilloscope mode with automatic and manual trigger)
- Frequency domain analysis and FFT spectral analysis in real time up to 65536 points
- Dynamic Range > 100 dB without range changing
- Selectable indexes:
  - I198 (Icnirp 1998 Health Physics 74:494-522-1998)
  - WP10 (Icnirp 2010 Health Physics 99:818-836-2010)
  - IB50 (Time domain Analysis CEI EN 62233)
  - IRSS (Frequency domain Analysis CEI EN 62233)
- Calculation and display of RMS, IRMS, Max, Min, instant, Fmax
- Display screen which indicates safety threshold limits according to current safety standards in the public or the professional sphere
- Complete signal recording the possibility of multiple sessions:
  - > 72 h @ 1 kHz Freq. Span
  - > 200 min @ 20 kHz Freq. Span
  - > 10 min @ 400 kHz frq. Span
- Power supply: Li-ion battery with over 8 hours of operation time (operation time over 24h available on option)
- Fibre optic communication (up to 40mt)
- Firmware updating directly by user



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Piazza delle Azalee, 13/14 05018 – Orvieto (TR) - Italy  
Tel. +39 0763 393291 /Fax. +39 0763 394423 [info@microrad.it](mailto:info@microrad.it) - [www.microrad.it](http://www.microrad.it)



# NHT-3D

## DESCRIPTION AND APPLICATIONS

NHT-3D is a high-performance handheld analyzer designed for measurement of electric and magnetic fields which are characterised by complex or impulse form factors.

Thanks to the interchangeability of the probes it is possible to configure the instrument for measurements in different spheres of work and in full compliance with industry standards.

The “Real Time” operating mode function provides a quick view of the main indexes and the trend of the field in the time and frequency domains through repeated acquisitions generating up to 65.536 samples. These acquisitions may be triggered manually or automatically.

The “Monitoring” operating mode function allows for the signals to be recorded to the non-volatile internal memory of the instrument from the probe. Thanks to this feature it is possible to download the data to a PC and extract the relevant information such as signal amplitude / frequency and indexes acquired during the monitoring period. This feature together with the instrument’s battery autonomy allow it perform monitoring tasks with a span of 1 kHz bandwidth for over 8hours, longer operation time (>24h) is available as option.

### Main Areas of Application:

- **Energy**
- **Telecommunication (TLC)**
- **Medical**
- **Railway**
- **Automotive**
- **Military**



## NHT-3D MAIN REFERENCE STANDARDS

NHT-3D can be used with probes which conform to the following standards / directives:

- *DIRECTIVE 2013/35/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 June 2013 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields) (20th individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC) and repealing Directive 2004/40/EC*
- *CEI EN 50500 "Measurement procedures of magnetic field levels generated by electronic and electrical apparatus in the railway environment with respect to human exposure."*
- *CEI EN 62233 "Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure"*
- *CEI EN 62311 "Assessment of electronic and electrical equipment related to the restrictions for the electromagnetic fields (0 Hz - 300 GHz)"*





# NHT-3D

## WAVES SOFTWARE

The Waves software application allows the user to analyse the recorded data in both time domain and frequency domain as well as providing the user with real time processing and post processing capabilities.

During the real-time processing the oscilloscope function captures the signal in automatic or manual mode using a special trigger. The signals displayed can then be controlled or managed by way of a pan / zoom control.

The measurements are more easily interpreted by the use of a marker function which simultaneously provides the value of the level and frequency / time.

The same concept applies in the frequency domain where the user can insert the various masks of the curves required by the safety standards for the purpose of comparison.

The Waves software allows the selection of four indexes: the weighted peak WP10, the index IB50, I198 and IRSS.

The readings always reported include: The average RMS, the RMS average normalized with respect to the frequency limit predominant (IRMS), the maximum and minimum value, the frequency with the highest spectral content. (Fmax).

A special command provide the user with the possibility to filter spectral content in the frequency domain, eliminating that contents which have a value of less than 10% which is indicated below the red threshold line. This function is specifically requested by CEI EN 50500.

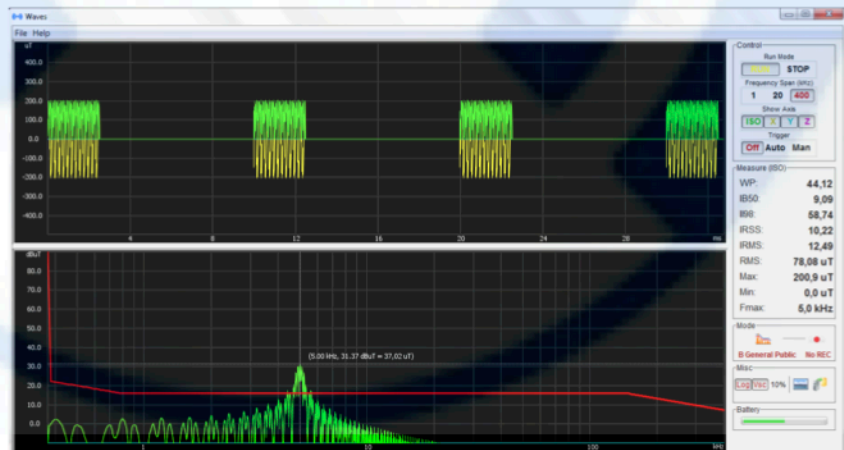
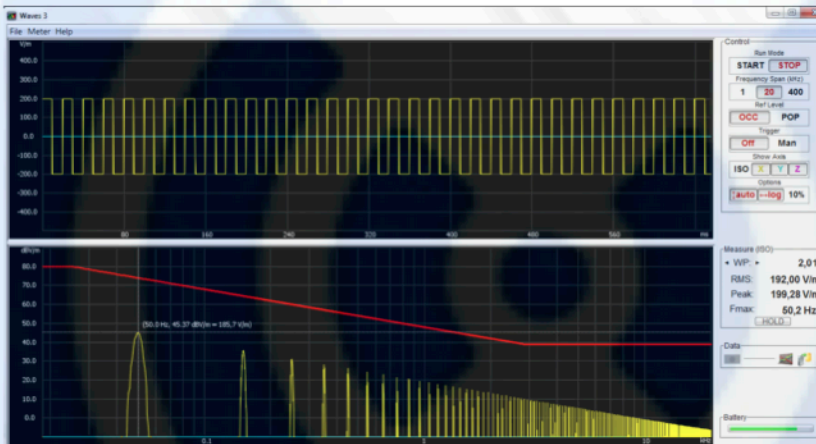
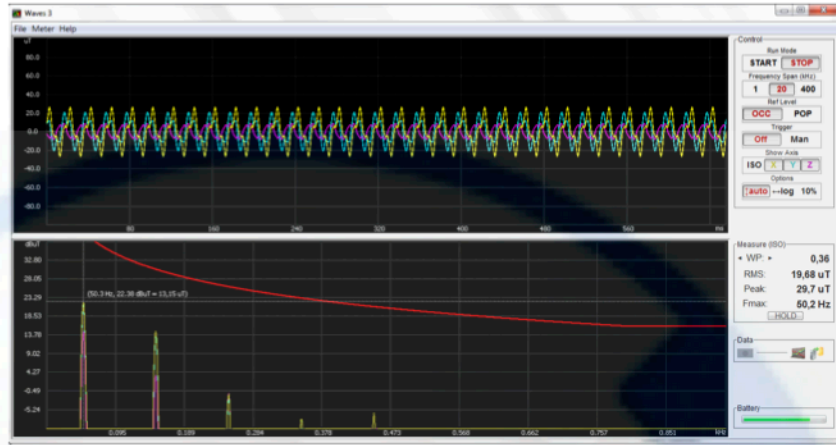
All information displayed can be exported either as images or as tabulated data.

The Waves software application can be installed on systems running Microsoft Windows XP, Windows Vista, Windows 7 and Windows 8, both 32 and 64 bit.

The screenshot shows the 'Control' panel of the Waves software. It includes a 'Run Mode' section with 'RUN' and 'STOP' buttons. Below that is 'Frequency Span (kHz)' with buttons for '1', '20', and '400'. The 'Ref Level' section has 'OCC' and 'POP' buttons. The 'Trigger' section has 'Off' and 'Man' buttons. The 'Show Axis' section has 'ISO', 'X', 'Y', and 'Z' buttons. The 'Options' section has '↑auto', '↔log', and '10%' buttons. Below the control panel is the 'Measure (ISO)' section, which displays the following data: WP: 0,02; RMS: 0,09uT; Peak: 0,7uT; Fmax: 0,0 Hz. There is a 'HOLD' button below the measurements. At the bottom of the panel is a 'Data' section with a small grid icon and a 'Battery' section with a green progress bar.



# NHT-3D WAVES SOFTWARE



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# NHT-3D

## TECHNICAL SPECIFICATIONS

Frequency Range		0 ÷ 400 kHz
SPAN / Frequency Resolution		0 Hz ÷ 1 kHz / 0.075 Hz
		0 Hz ÷ 20 kHz / 1.5 Hz
		0 Hz ÷ 400 kHz / 30 Hz
Measurements	Unit of Measures	V/m, Tesla
	Type of Measures (Isotropic, RSS)	Actual, Max, Min , RMS, IRMS, F <sub>Max</sub>
	Type of Measures (X – Y – Z)	Simultaneous acquisition of the X, Y, Z axes
	selectable indexes	<b>II98, WP10, IB50, IRSS</b>
Memory		65.536 measurements (continuous monitoring) real time acquisiti
Dynamic		>100 dB
Interface	Optical Interface	Serial, full duplex optical
	Probe Input	Plug-and-play automatic recognition, connector LEMO™
GPS		Embedded on board
Software		Waves (S.O.: Windows XP, 7 and Vista, Windows 8)
<b>GENERAL SPECIFICATION</b>		
Battery		Lithium-ion
Operation Time		> 8 h (>24h as option)
Charging time		3 h
Battery level indicator		On Waves application or display
Temperature Range		Operative: -10°C ÷ +50°C
		Storage: -20°C ÷ +70°C
		Charging Temperature: 0°C ÷ 40°C
Humidity		5% ÷ 95% non condensing
Dimensions (h x w x d)		160 x 98 x 46 mm (without Probe)
Weight		600g ( batteries included, without probes)
Country of origin		Italy



# NHT-3D

## TECHNICAL SPECIFICATIONS

### NHT-3D Accessories Kit

- NHT-3D Meter
- Optical/USB Converter
- Fibre optical cable (10mt)
- AC/DC Power Supply
- Standard calibration certificate
- User Manual



### Optional Accessories:

- Wooden Tripod (1-2 mt.) with soft carrying bag
- Rigid Case
- Fibre Optic Cable (40mt.)
- Accredited calibration certificate

