



LUMILOOP

LASER-POWERED SENSOR SYSTEMS

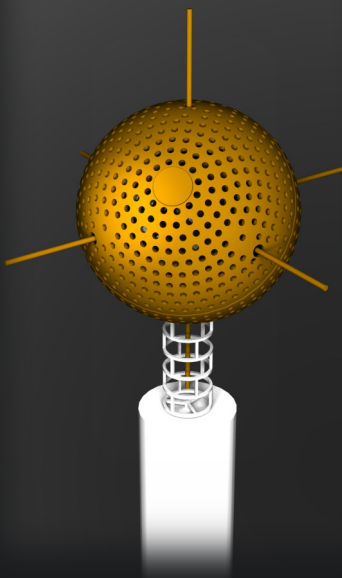
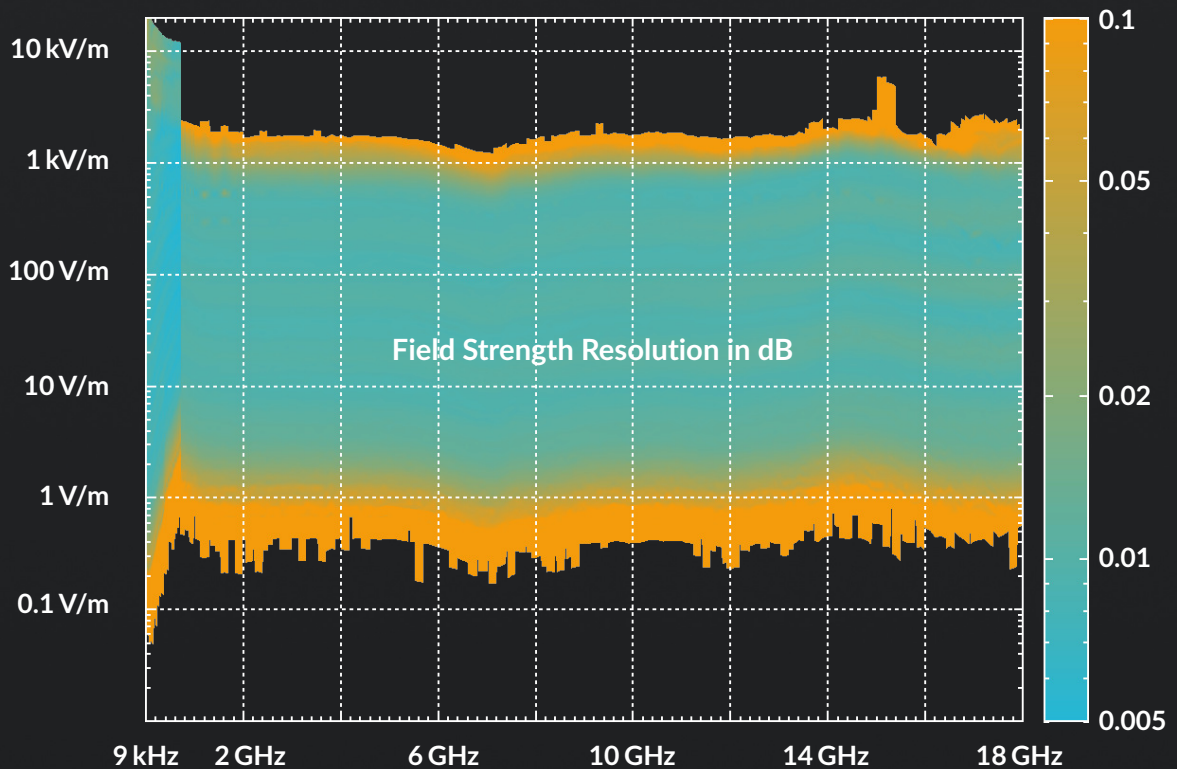


———— LSProbe 2.0 ————

Electric-Field Probe
9 kHz - 18 GHz

The LSProbe 2.0 Field Probe is a next-generation, high speed, high accuracy and high dynamic range electric-field probe. Its frequency range is 9 kHz to 18 GHz. The Field Probe's six-monopole antenna design ensures isotropic operation at all frequencies.

LSProbe 2.0 Field Probe employs fine-grained compensation of linearity, frequency and temperature, guaranteeing accurate measurements from less than 1 V/m to at least 1 kV/m. A dynamic range of 60 dB is achieved for all frequencies. Please contact LUMILOOP support for detailed information.



LSProbe 2.0 Field Probe contains a low-frequency and high-frequency detector for each of the six monopoles. The detectors can be operated continuously at 500 kSamples/s or in burst mode at 2 MS/s. This enables direct radar pulse measurements and accelerated, frequency sweep-based measurements.

A single axis, continuously sampling mode, operating at 2 MS/s, can be used for Equivalent Isotropically Radiated Power (EIRP) measurements of IoT products without antenna connectors in accordance with EN 300 328 and EN 301 893.

Laser-powered operation eliminates battery recharging and replacement. Extensive in-house calibration data are provided with each field probe and is handled automatically by the LSProbe TCP ServerSoftware.

LSProbe 2.0 Field Probe is backward compatible with LSProbe 1.2, supporting the same SCPI commands. Consequently, it inherits third-party EMC-software support for R&S EMC32, R&S ELEKTRA, emcware, BAT-EMC, Tepto, Tile, Win6000, Compliance5/6 and Radimation.

LSProbe 2.0 Field Sensor

Supported Frequency Ranges	
Low Band Detector	9 kHz ... 1 GHz
High Band Detector	700 MHz ... 18 GHz
Field Strength Range	
9 kHz ... 1 GHz	<1 V/m ... >5 kV/m
1 GHz ... 18 GHz	<1 V/m ... >1 kV/m
Damage Level	
9 kHz ... 1 GHz	>25 kV/m
1 GHz ... 18 GHz	>5 kV/m
Sampling Rate, Minimum Pulse Width	
Burst Mode	2 MSamples/s, 500 ns
Continuous Mode	500 kSamples/s, 2 μs
Single Axis Continuous Mode	2 MSamples/s, 500 ns
Analog Rise Time	
Low Band, low bandwidth	2 ms
Low Band, high bandwidth	<1.5 μs
High Band	<7 ns
Resolution	<0.05 dB
Typical Worst-Case Isotropy Error	
@ 1 GHz	±0.5 dB
@ 6 GHz	±1.5 dB
@ 18 GHz	tbd
Amplitude Accuracy	
10 kHz ... < 10 MHz	Accr. Cal. at AMETEK, Germany ±1.3 dB
10 MHz ... 1 GHz	±1.5 dB
> 1 GHz ... 18 GHz	±1.0 dB
Linearity Error	±0.2 dB relating to 10 V/m
Fiber Optic Connectors	ST/FC
Standard Fiber Optic Cables	5 m permanently attached, 15 m ST/FC extension, two E2000 Sacrificial Cable Kits
Max. Fiber Optic Cable Length	500 m
Fiber Optic Cable Bending Radius	>30 mm
Ambient Temperature	10 °C ... 40 °C
Dimensions (W × D × H)	46 × 46 × 114 mm ³

LSProbe Computer Interface

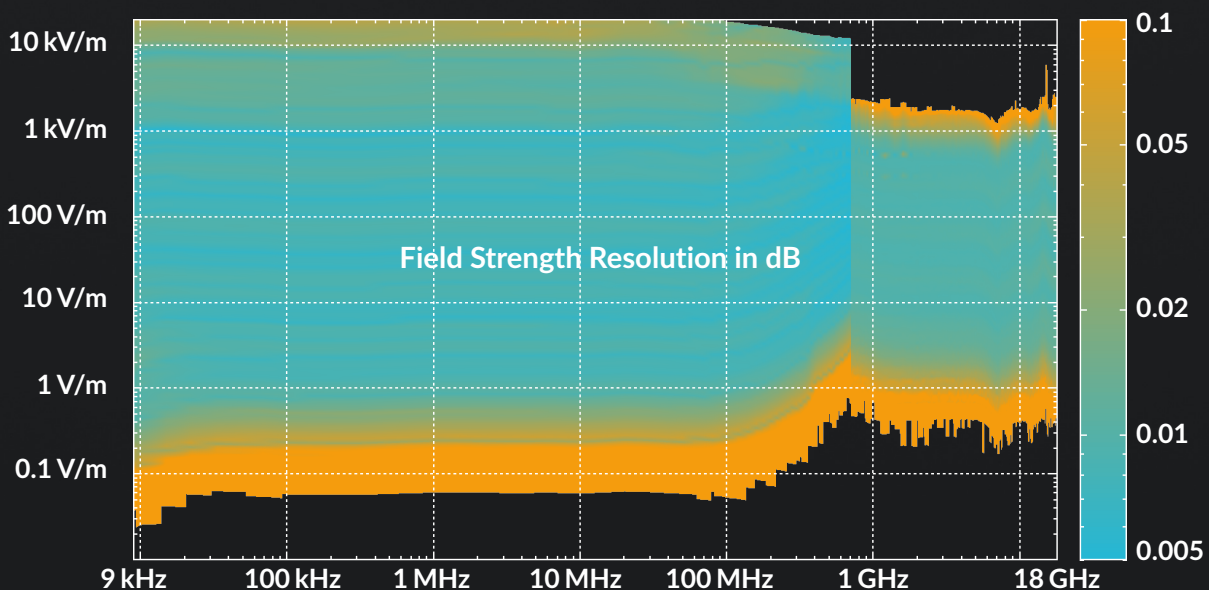
PC Interface	USB 2.0
Application Software	LSProbe TCP Server, LUMILOOP GUI
Trigger Voltage	5 V
Trigger Connector	BNC
Laser Wavelength	830 nm
Laser, Max. Output Power	1,000 mW
Laser Class	1M
Laser Shutdown Time	1 ms
Fiber Optic Connectors	ST/FC
Number of Fiber Optic Couplers	>6
Input Voltage	5 V ±5 %
Input Current	<3 A
Ambient Temperature	10 °C ... 40 °C
Dimensions (W × D × H)	135 × 120 × 38 mm ³
Certifications	CE, IEC 60825-1:2014



Computer Interface Rear Side View

Selected International Standards

ISO	11451-2, WD 11451-5, 11452-2, 11452-11
IEC	61000-4-3, 61000-4-21
EN	300 328, 301 893
Other	RTCA/DO-160



LSProbe Documentation and Application Notes (AN)

- LSProbe User's Manual
- AN 1: Measuring Radio Jammers
- AN 2: Measuring Pulsed Fields
- AN 3: Multi-Probe EUT-Monitoring using EMC32
- AN 4: Reliable Operation of LSProbe Electric-Field Probes
- AN 5: Third Party EMC-Software Integration of LSProbe Electric-Field Probes

LSProbe Accessories

E2000 Sacrificial Cable Kit



- prevents contamination of connectors
- quick and simple replacement in case of connector burn-in
- includes two 0.5 m E2000 to ST/FC cables
- includes E2000 and ST/FC couplers

Optic Fiber Cable Extension



- includes ST/FC coupler
- arbitrary length of cable available on request

Tabletop Probe Stand Base



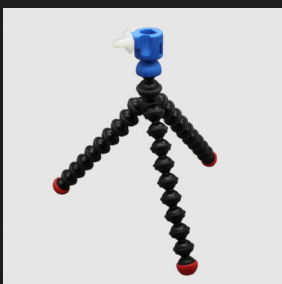
- quick positioning for table and ground-plane setups
- horizontal probe position 100 mm relative to all edges
- relative permittivity better than 2.7 @ 1 kHz

Tabletop Probe Stand Mounting Pole



- to position the field sensors center at 100 mm, 125 mm, 150 mm, 200 mm or 300 mm above surface
- well-defined field probe alignment with quick mount/release
- relative permittivity better than 2.7 @ 1 kHz

Flexible Probe Stand



- flexible tripod feet for versatile positioning
- vertical position approximately 150 to 250 mm above surface
- strong magnetic feet with rubber coating
- no metal parts
- quick mount/release

Fiber Connector Cleaning Kit



- optical fiber microscope
- lint-free cassette cleaner wipes
- an unfilled isopropyl alcohol (IPA) pipette/bottle
- spare FC/ST dust caps and two E2000 locking caps



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