

Model PL7004
Electric Field Probe for Pulsed Fields
800MHz–3.6GHz
80-800 V/m
User-Selectable X, Y, Z Axes



The PL7004 is designed specifically for use in measuring pulsed electric fields found in radiated immunity testing (for example, automotive radar pulse tests General Motors GMW3097 and Ford ES-XW7T-1A278-AC). The probe is calibrated to measure the RMS level during the ON time of a pulsed electric field.

Correction factors are provided with the probe. These factors can be loaded into the Model FM7004 Field Monitor (sold separately) to automatically correct the probe readings at user-specified frequencies. When correction factors are applied, the true accuracy of the probe can be realized.

This probe is NOT designed to respond to CW fields. AR offers an extensive line of field probes for CW measurement.

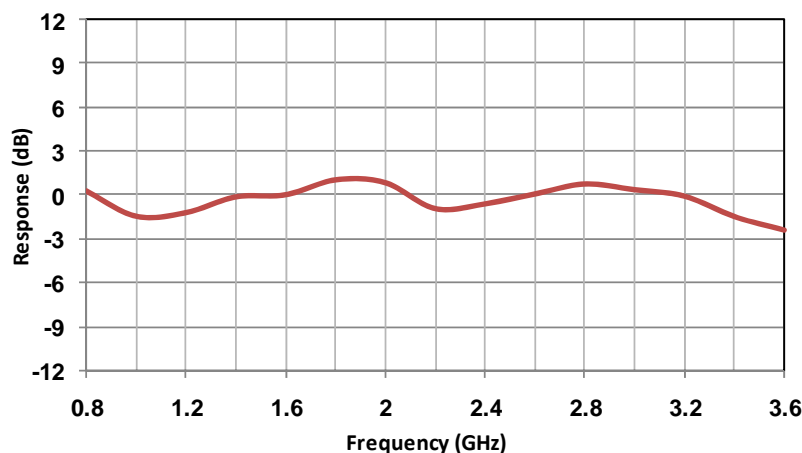
This is a smart, fast, extremely accurate pulsed electric field probe that contains an internal microprocessor to provide linearization, temperature compensation, control, and communication functions. Noise reduction

and temperature compensation allow accurate measurements without zero adjustment.

The probe is laser powered to allow for continuous operation without battery recharging or replacement. It communicates and is powered through glass fiber optic cables, up to 100 meters long, connecting to the FI7000 interface. X, Y, Z, and isotropic readings can be returned through an FI7000 in 20 msec.

The PL7004 extends the range of AR laser powered E-field probes to use in measuring peak pulsed electric fields. Response-smoothing time constants provide consistent readings for pulse rates as low as 200Hz, approximately 1 second after an input change.

*NOTE: This probe requires an FI7000 for power and communication.
 FM7004 is recommended for local monitoring and control.
 PL7004 Typical Frequency Response (1kHz pulse rate, 1% duty)*



SPECIFICATIONS, MODEL PL7004

Relative Flatness (field aligned with sensor axes)	± 2.5 dB, 800 MHz to 3.0 GHz ± 3.0 dB, 3.0 GHz to 3.6 GHz
Amplitude Accuracy (field aligned with sensor axes)	
Without correction factors applied	± 1.5 dB @ 1 GHz
With correction factors applied	Typical expanded measurement uncertainty (95% confidence interval)
	0.8 dB, 800 MHz–1 GHz
	1.4 dB, 1 GHz–3.6 GHz
Response Time/ Sampling Rate (through FI7000)	20 msec/up to 50 samples per second, USB and GPIB only
Isotropic Deviation (measured at the critical angle)	± 1.0 dB @ 1 GHz
	<i>For improved accuracy, this probe should be used with a single axis aligned with the E-field being measured.</i>
Operating Range	80 to 800 V/m
Linearity, 80 to 800 V/m	± 0.5 dB
Pulse Width	1 to 100 microseconds
Pulse Period	Up to 5 milliseconds between pulses (greater than 200 Hz pulse rate)
Pulse Duty	0.02% to 2%
Pulse Measurement Variation	
Over Range of Pulse Width, Period, and Duty relative to a 10 microsecond pulse width and 1 millisecond pulse period (1 kHz pulse rate, 1% duty)	+0.5 dB/–1.0dB typical
Damage Level	1000 V/m continuous field or pulsed field
Ranges	Single range
Data returned from probe	X, Y, Z axes, and composite
Power Requirements	Laser powered from FI7000 interface
Dimensions	5.7 x 5.7 x 5.7 cm (2.25 x 2.25 x 2.25 in) 2.92 cm (1.15 in) DIA spherical housing 3.18 cm (1.25 in) sensor radome per axes
Weight	62.5 g (2.2 oz)
Operating Temperature Range	10°C to 40°C (50°F to 104°F) @ 5% to 95% RH non–condensing
Temperature Stability	± 0.5 dB over operating temperature range
Fiber Optic Cable Connectors	Two E2000 compact duplex connectors at 1 meter, includes fiber optic verification loop.
Calibration Data	Accredited Calibration Report supplied with probe
Measurement Data Processing	The pulse amplitude measurement is smoothed before being sampled and digitized. The smoothing process has a time constant of 300 msec.