

FA7006/Kit
FA7218/Kit
FA7040/Kit
FA7060/Kit
Electric Field Analyzer
Kits

Features

The FA7000 series Field Analyzers are specifically designed to measure modulated electric fields. Each kit provides a web-based, oscilloscope-type display of the instantaneous electric field strength or power density over time and calculates the minimum, maximum, and average field strength of the waveform as displayed. Each kit consists of an isotropic Field Sensor, glass fiber-optic cabling, a miniature tripod, and a Processor Unit. The Processor Unit stores all of the necessary linearity corrections for its associated Field Sensor.

The Field Sensor is laser powered to allow for continuous operation without recharging or battery replacement. An ortho angle mount and adapter foot is provided for ease of mounting in common orientations.

Correction factors for many frequencies are provided with each kit. These factors can be loaded into the Processor Unit to automatically correct the field readings at user-specified frequencies. When correction factors are applied, the true accuracy of this device can be realized.

The glass fiber optic cabling between the Field Sensor and the Processor Unit can be up to 100 meters long.

The export classification for this equipment is EAR99. This equipment is controlled for export in accordance with the U.S. Export Administration Regulations. Diversion contrary to U.S. law is prohibited.



FA7218, FA7040, & FA7060 Field
Sensor



FA7006 Field Sensor



FA7006, FA7218, FA7040, & FA7060 Processor Unit

AR RF/Microwave
Instrumentation
160 School House Rd
Souderton, PA 18964
215-723-8181

For an applications engineer call: 800.933.8181

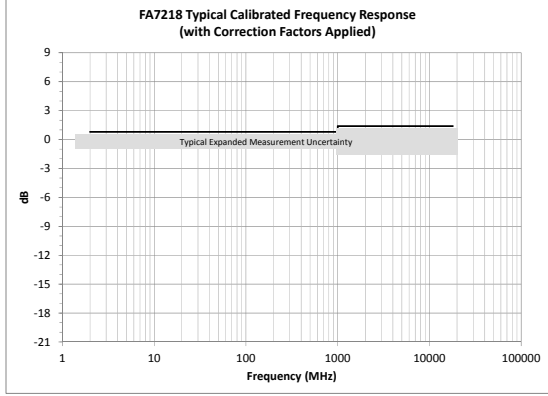
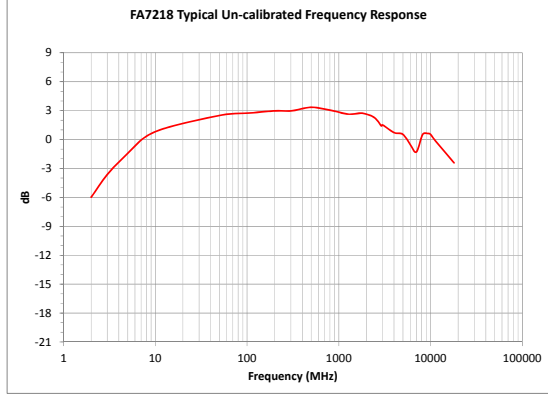
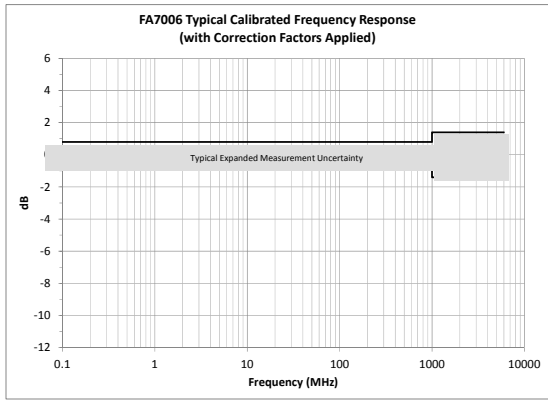
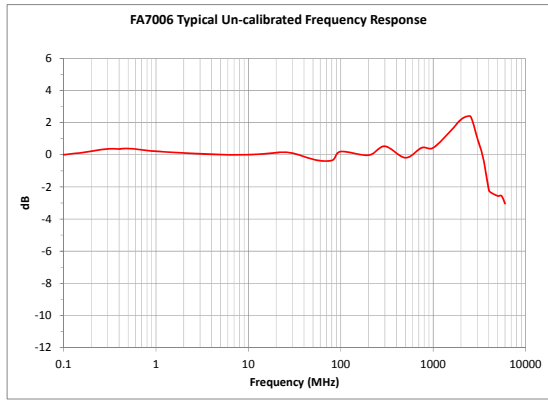
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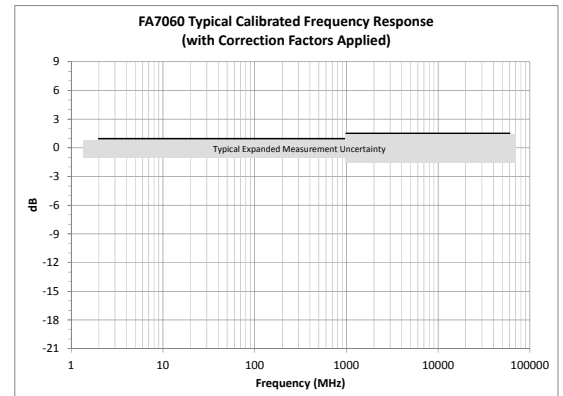
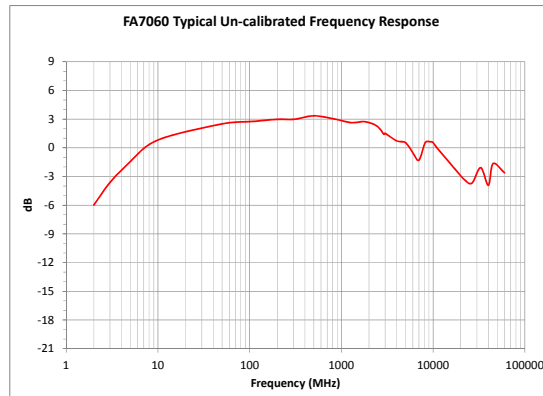
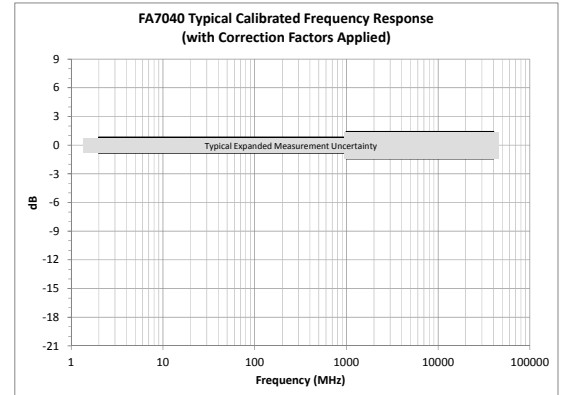
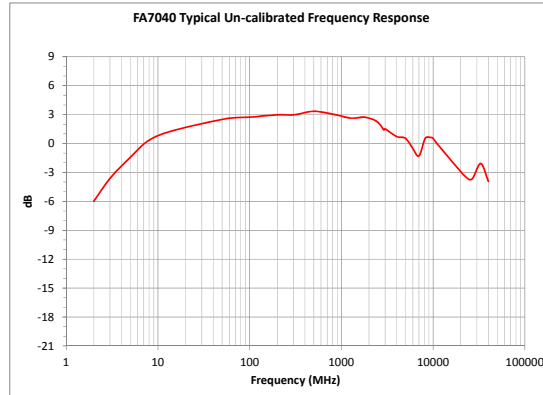
The screenshot shows the 'Field Analyzer' web interface. At the top, there's a browser window with the URL '192.168.0.104'. Below that is the 'rf/microwave instrumentation' logo. The main display area shows a waveform with three cursors: A (-56.28 μ S, 21.1 V/m), B (44.22 μ S, 21.0 V/m), and Δ (100.50 μ S, 0.1 V/m). The waveform is a square pulse with a flat top and sharp edges. Below the waveform are several control panels: 'Scale' (5 V/m/DIV), 'Time Base' (20 μ S/DIV), 'Trigger Mode' (Internal), 'Trigger Level' (10 V/m), and 'Trigger Edge' (Rising). There are also sections for 'Frequency Correction' (Enabled), 'Frequency' (10,000 MHz), 'Applied Correction' (0.98 Multiplier), 'Min Max Hold' (Enabled), 'Histogram' (Enabled), 'Cursors' (Enabled), 'Units' (V/m), and 'Waveform Functions' (Averaging). At the bottom, there are status indicators for 'Run / Stop', 'Single', 'Display' (Running), 'Triggered' (Yes), 'Connection' (On-line), 'Key' (On), 'Laser' (On), and 'System' (OK). The model and serial number are listed as 'Model FA7040' and 's/n 00340371', with 'Firmware Rev 1.40'. The 'multistar' logo is also present.

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Embedded webpage for viewing the modulation envelope of the measured electric field



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Specifications

Processor Unit:

Dimensions (W x H x D):

21.91 x 4.45 x 27.69 cm (8.63 x 1.75 x 10.9 in)

Field Processor Weight: 1.36 kg (3 lbs)

Operating Temperature Range: 10°C to 40°C
(50°F to 104°F) @ 5% to 95% RH non-condensing

Fiber Optic Connector: E2000 compact duplex connectors (yellow, keying #3).

Fiber Optic Cable length: 20m (supplied with kit)

Max Fiber Optic length: 100m (sold separately)

Remote Interfaces:

LAN (Ethernet)
USB 2.0 (Test and Measurement class)
IEEE-488 (GPIB)
Fiber Optic Serial (FSMA connectors; Reserved for use with FM7004 Field Monitor)

Max Remote Transfer Rate: 20 queries per second

External Trigger Port:

Impedance: > 10MΩ
Threshold Voltage: 3V
Maximum Input Voltage: 5V
Minimum Pulse Width: 40ns

Readout Display: Embedded Web Application through PC (PC not included)

Remote Interface: LAN (Ethernet)

Compatible Web Browsers: Chrome, Internet Explorer, Safari, Firefox, Opera (Some features not available in all browsers.)

Timebase Range: 1μs/Div to 400μs/Div

Scale Range: 0.1(V/m)/Div to 500(V/m)/Div

Trigger Modes: Free Run, Internal (conventional threshold), External

Edges (Threshold trigger): Rising and Falling

Vertical Divisions: 10

Horizontal Divisions: 10

Laser:

Wavelength: 850nm

Output Power: < 500mW

Shutdown Time: < 1 ms after fiber disconnect

Power Requirements:

Input Voltage: 90–260VAC, 50–60Hz

Input Current: 0.2–0.6A

Input type: IEC inlet with filter

Sample Rate: 1.5MS/s

Max Record Length: 6kPoints

Modulation Frequency Range: 250Hz to 750kHz

Measurement Format: Composite only

Calibration Data: Accredited Calibration Report supplied with kit.

Field Sensors

	FA7006	FA7218	FA7040	FA7060
Amplitude Accuracy¹	±1.0dB @ 10MHz ² 0.8dB, 100kHz–1GHz ^{3,4} 1.4dB, 1GHz–6GHz ^{3,4}	±1.0dB @ 10MHz ² 0.8dB, 2MHz–1GHz ^{3,4} 1.4dB, 1GHz–18GHz ^{3,4}	±1.0dB @ 10MHz ² 0.8dB, 2MHz–1GHz ^{3,4} 1.4dB, 1GHz–40GHz ^{3,4}	±1.0dB @ 10MHz ² 0.95dB, 2MHz–1GHz ^{3,4} 1.5dB, 1GHz–60GHz ^{3,4}
Isotropic Deviation^{4,5}	±1.2dB @ 10MHz ≤ 200V/m	±1.0dB @ 10MHz ≤ 200V/m	±1.0dB @ 10MHz ≤ 200V/m	±1.0dB @ 10MHz ≤ 200V/m
	±2.0dB @ 10MHz > 200V/m	±2.0dB @ 10MHz > 200V/m	±2.0dB @ 10MHz > 200V/m	±2.0dB @ 10MHz > 200V/m
Operating Range⁹	9 – 900V/m	14–1400V/m	14–1400V/m	14–1400V/m
Linearity	±0.5dB	±0.5dB	±0.5dB	±0.5dB
Typical Analog Rise Time^{6,7}	300nS	300nS	300nS	300nS
Minimum Pulse Width	1μs	1μs	1μs	1μs
Damage Level (CW)	1000V/m	1200V/m	1200V/m	1200V/m
Temperature Stability	±1.0dB, 10°C - 40°C ⁸	±1.0dB, 10°C - 40°C ⁸	±1.0dB, 10°C - 40°C ⁸	±1.0dB, 10°C - 40°C ⁸
Approximate Dimensions (W x H x D)	5.7 x 5.7 x 5.7cm	27.8 x 6.5 x 6.5cm	27.8 x 6.5 x 6.5cm	27.8 x 6.5 x 6.5cm
Weight	62.5g	150g	150g	150g

¹ Single axis aligned with field
² Without correction factors applied
³ With correction factors applied
⁴ Typical expanded measurement uncertainty (95% confidence interval)
⁵ Measured at the ortho angle
⁶ 10% - 90%
⁷ Pre-digitization
⁸ 5% - 95% Relative humidity, non-condensing
⁹ Less than 50% duty



Compatible Accessories

Model	Description
FM7004	Field Monitor
RK7000	Rack mount kit for up to two Processor Units (1.75" height x 19" width)
FAC7010	10 meter fiber optic cable
FAC7020	20 meter fiber optic cable
FAC7050	50 meter fiber optic cable
FAC7100	100 meter fiber optic cable
FAM7000	Fiber optic mating adapter