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

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 (V/m 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.

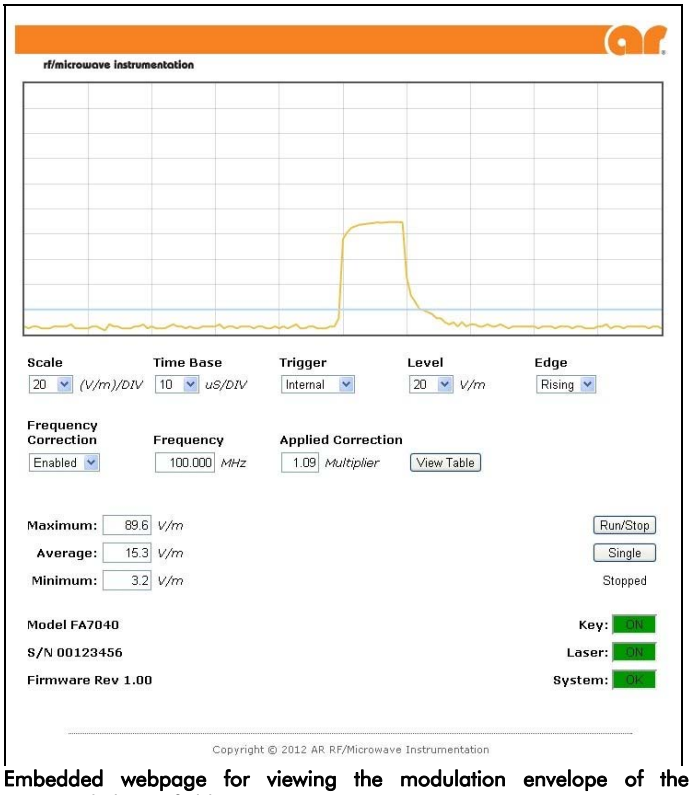
The glass fiber optic cabling between the Field Sensor and the Processer Unit can be up to 100 meters long.

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.

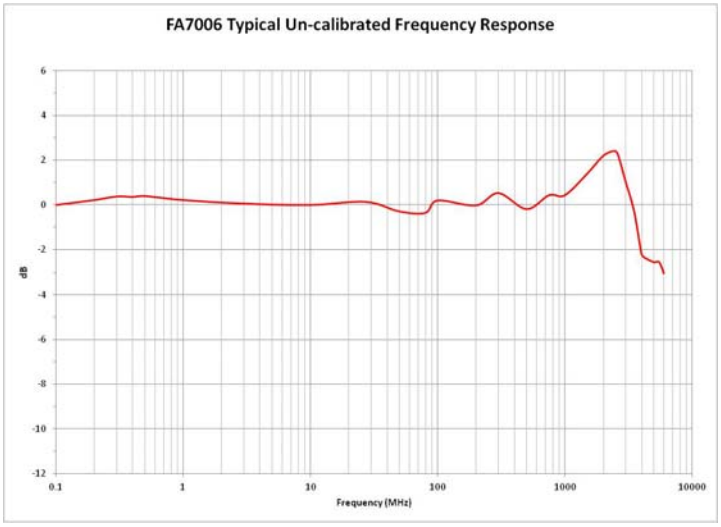
FA7218, FA7040, & FA7060 Field Sensor

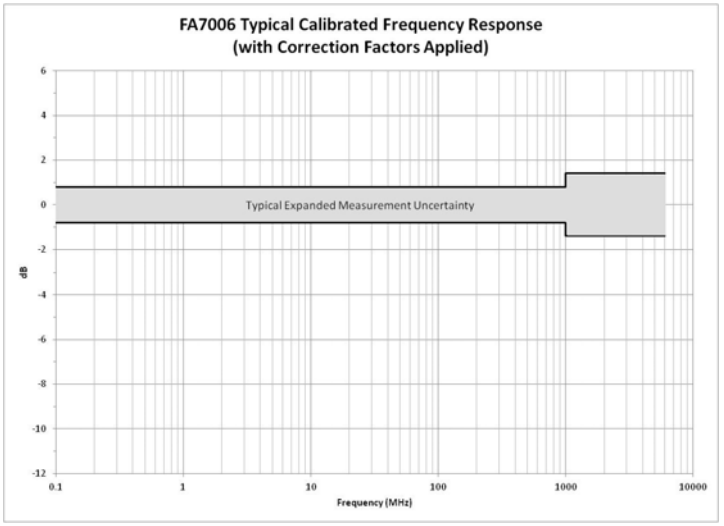
FA7006 Field Sensor

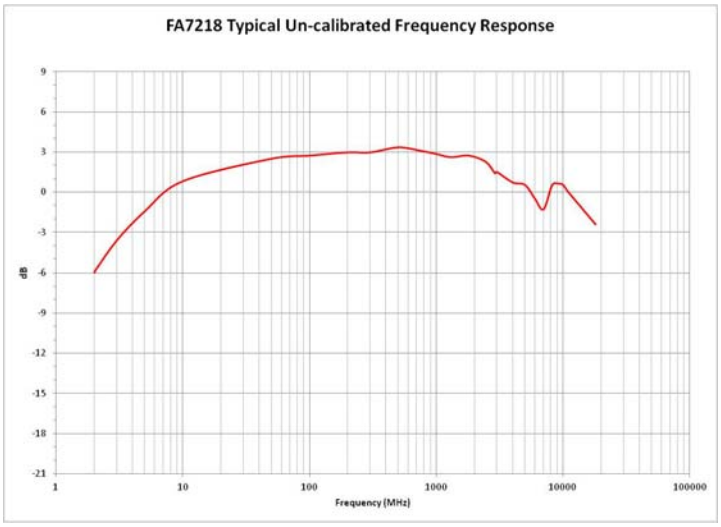
FA7006, FA7218, FA7040, & FA7060 Processor Unit

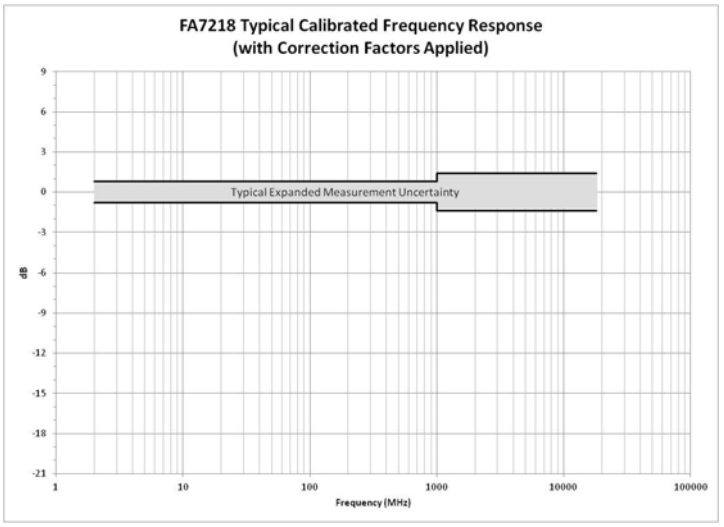


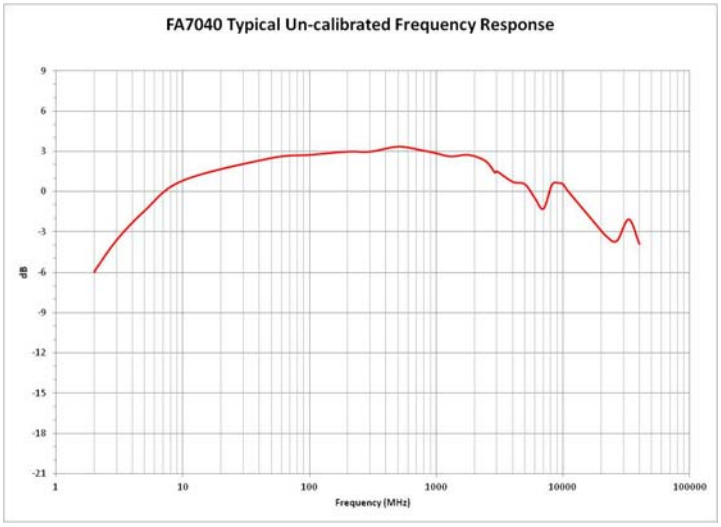
Embedded webpage for viewing the modulation envelope of the measured electric field

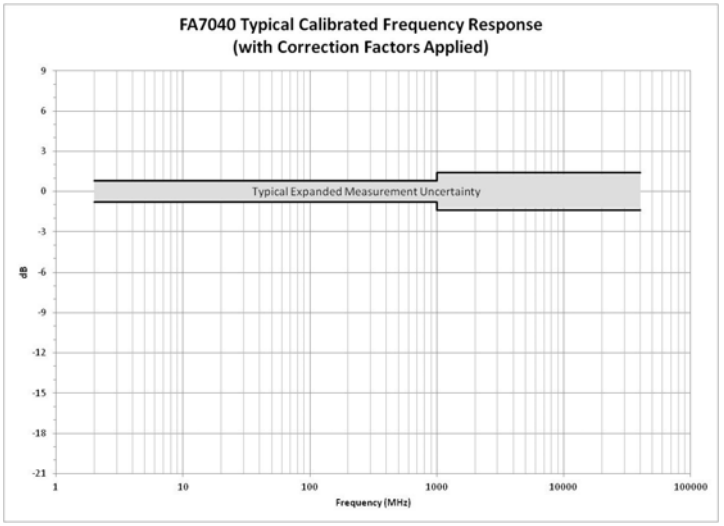

FA7006 Typical Un-calibrated Frequency Response
dB
Frequency (MHz)

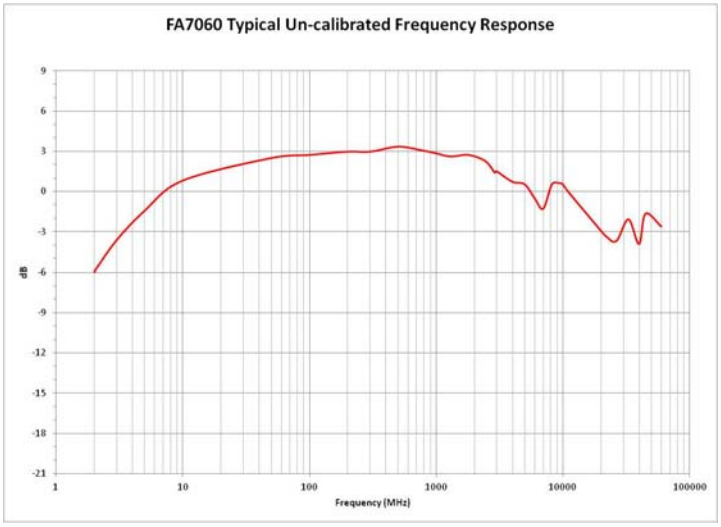

FA7006 Typical Calibrated Frequency Response
(with Correction Factors Applied)
Typical Expanded Measurement Uncertainty
dB
Frequency (MHz)

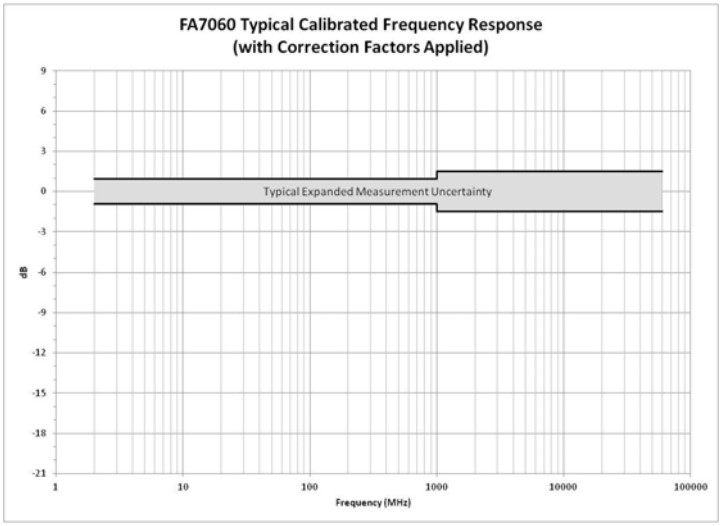

FA7218 Typical Un-calibrated Frequency Response
dB
Frequency (MHz)


FA7218 Typical Calibrated Frequency Response
(with Correction Factors Applied)
Typical Expanded Measurement Uncertainty
dB
Frequency (MHz)


FA7040 Typical Un-calibrated Frequency Response
dB
Frequency (MHz)


FA7040 Typical Calibrated Frequency Response
(with Correction Factors Applied)
Typical Expanded Measurement Uncertainty
dB
Frequency (MHz)


FA7060 Typical Un-calibrated Frequency Response
dB
9
6
3
0
-3
-6
-9
-12
-15
-18
-21
1
10
100
1000
10000
100000
Frequency (MHz)


FA7060 Typical Calibrated Frequency Response
(with Correction Factors Applied)
Typical Expanded Measurement Uncertainty
dB
9
6
3
0
-3
-6
-9
-12
-15
-18
-21
1
10
100
1000
10000
100000
Frequency (MHz)

SPECIFICATIONS, FA7000 Series

Processor Unit

Dimensions (W x H x D)..... 21.91 x 4.45 x 27.69cm

Field Processor Weight 1.36kg

Operating Temperature Range ..... 10°C to 40°C @ 5% to 95% RH non-condensing

Fiber Optic Connector..... E2000 compact duplex (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
- 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

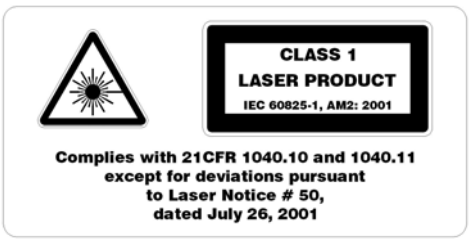
Sample Rate 1.5MS/s

Max Record Length 6kPoints

Modulation Frequency Range ..... 250Hz to 750kHz

Measurement Format ..... Composite only

Calibration Data ..... Accredited Calibration Report supplied with kit



SPECIFICATIONS, FA7000 Series

Field Sensors

	FA7006	FA7218	FA7040	FA7060
Amplitude Accuracy[1]	±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 Range[9]	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	2μs	2μs	2μs	2μs
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