

Speed, Accuracy and Precision – All in One Package

The MultiStar family of products features Field Analyzers and a Multi-Tone Radiated Immunity Test System that utilizes groundbreaking technology to perform multiple tasks simultaneously. These products dramatically reduce test time, provide more information and assure the highest degree of accuracy.

The MultiStar Field Analyzers measure modulated electric fields and CW fields with a sampling rate of 1.5 million times per second. The MultiStar Multi-Tone Radiated Immunity Test System tests multiple frequencies concurrently, taking just minutes to perform tests that used to require hours.

Carl Mueller Demonstrates AR's Multi-Tone Test Solution



Visit www.arworld.us/MultiToneVid to view a demo on our Multi-Tone Tester or scan this page with the Layar app to watch on your mobile device.



MultiStar Field Analyzer

multi star[®]

family of products



MultiStar Multi-Tone Tester



For a capsule summary of the Multitone system, watch this 60 second video by AR Sales Manager, Chuck Britten: www.arworld.us/tour

RF Immunity Testing Faster And More Versatile Than Ever!



Wider Bandwidth Now Available!

The MultiStar Multi-Tone Tester Offers a Complete Testing Solutions to the Following Standards:

MT06000A

Radiated Immunity

- EN/IEC 61000-4-3
- EN/IEC 60601-1, -2
- EN 50130-4
- EN 61000-6-1/2
- EN 55024

New! MT06002

Radiated Immunity

- EN/IEC 61000-4-3
- ISO11452-2 Auto (ALSE)
- ISO11452-3 Auto (TEM cells)
- ISO11451-5 Auto (Strip Line)
- ISO11451-2 Full Vehicle
- DO-160 Section 20.5 (Substitution Method)
- EN/IEC 60601-1, -2
- EN 50130-4
- EN 61000-6-1/2
- EN 55024

Conducted Immunity

- EN/IEC 61000-4-6
- ISO11452-4 Auto (BCI Method)
- DO-160 Section 20.4 (Substitution Method)
- MIL STD 461 CS114
- EN/IEC 60601-1, -2

NEW FEATURES
Additional Automotive Test Profiles
Ability to Operate Up to 4 Field Probes Simultaneously
Testing Now From 30 Hz to 6 GHz

Maximize Your RF Immunity Testing and Minimize Costs

Models MT06000A and MT06002

The MT06000A and MT06002 models (MultiStar Multi-Tone Tester) are state-of-the-art systems that are designed to test RF Radiated and Conducted Immunity faster than ever before. With the enhanced AR MultiStar Multi-Tone Tester commercial, aviation, and automotive industries, will perform RF radiated and conducted immunity testing faster, more accurately, more efficiently, and more closely to a real-world environment.

The number of tones is only limited by the signal generator bandwidth (up to 1 GHz) and the size of the amplifier.

The **MT06000A** contains all the features needed to perform IEC 61000-4-3 RF radiated immunity testing, required by many European test standard standards.

The **new enhanced MT06002** offers testing from 10 kHz to 6 GHz, greatly expanding testing capabilities to include both RF radiated and conducted immunity standards. And, with a 1GHz instantaneous bandwidth the number of tones has increased exponentially, vastly increasing the speed of testing.

Amplifiers, antennas and directional couplers can be sized and selected based on your required field levels and testing needs.

Up to 4 RF amplifiers, antennas and directional couplers can be controlled by the MultiStar Multi-Tone Tester. In addition, up to 4 field probes can be monitored with the M1 option.

These systems contain a vector signal transceiver, RF pre-amplifier, RF field probe(s), RF switch matrix, and automated immunity test software. These system components are contained in a single housing, which eliminates setup issues.

The MultiStar software includes automated routines to calibrate the field and maximize the speed of the test, by generating the most tones possible, while still meeting the Linearity and Harmonics requirements.

In the event of an EUT failure, margin investigation (thresholding) and traditional single tone testing can be performed to window the test only in the areas of concern.

New! Try Our Interactive MultiStar ROI Calculator

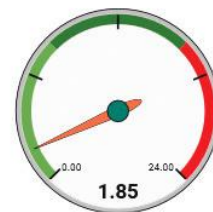
Enter your actual data to discover labor hours savings, ROI and more. Visit arworld.us/MTCalc

This file can be accessed by one user at a time. If you have an immediate need for the file, please email your contact information with 'ROI Calculator' in the subject line to info@arworld.us. You will receive the file within one or two business days.

Single Tone Test Time (Hrs.)
Based on your inputs



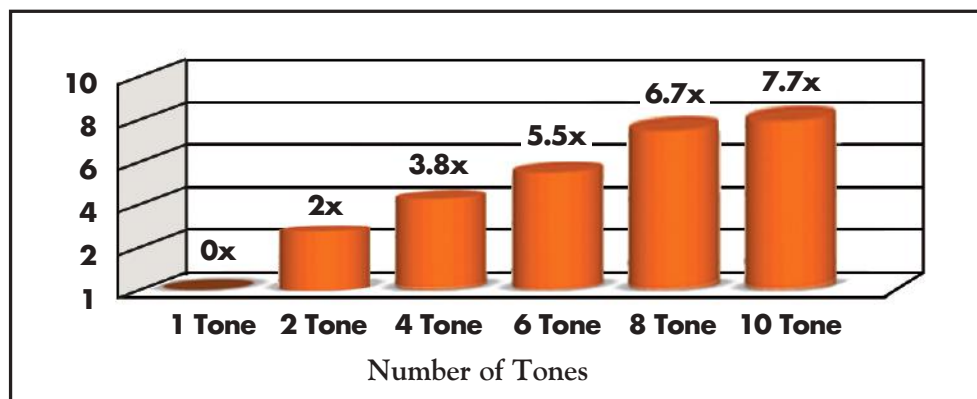
Multi-Tone Test Time (Hrs.)
Based on your inputs



RF Immunity Test Time (Cycle)

(test cycle: 2 Antenna polarities, 1-sec dwell, 4sides of EUT & 8160 frequency step size)

Improvements in Testing



IEC 61000-4-3 1% step sizes, taking into account dwell time

* For More Information See Application Note #71 at www.arworld.us/pdfs/appNotes/AppNote71.pdf

MultiStar Field Analyzers

FA7000 Series Makes Electric Field Measurements Faster, Easier, More Accurate Than Ever

The FA7000 series of Field Analyzers represents a new patent-pending approach to more accurately measure modulated electric fields as well as CW electric fields. This innovative approach uses an isotropic field sensor to sample the composite field and transmit its amplitude digitally over optical fiber to a processor unit. The sample rate of the FA7000 Field Analyzer is 1.5 million samples per second – significantly faster than conventional RF field probes – enabling them to accurately measure pulsed electric fields in the microsecond range.

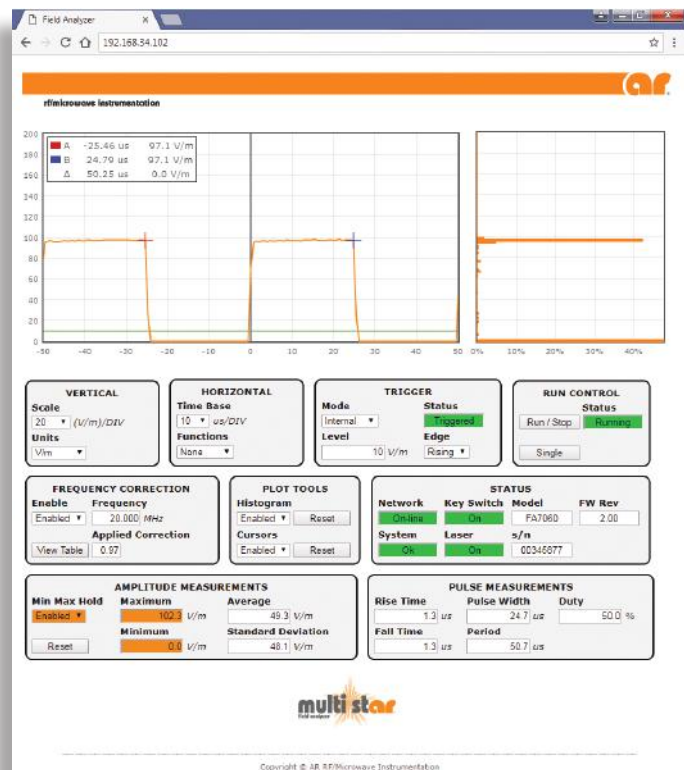
Each of the FA7000 series analyzer kits provides a web-based, oscilloscope-type display of the instantaneous electric field strength or power density over time and calculates the minimum, maximum, and average field strength of the waveform as displayed. Each kit consists of an isotropic field sensor, glass fiber-optic cabling, and a processor unit. The processor unit stores all of the necessary amplitude corrections for its associated field sensor.

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 is realized.

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



FA7006, FA7218, FA7040, &
FA7060 Processor Unit



FA7000 Series Processor Unit

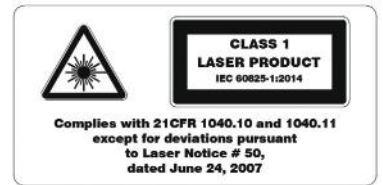
Dimensions (W x H x D)	21.91 x 4.45 x 27.69 cm
Weight	1.36 kg
Operating Temperature Range	10°C to 40°C @ 5% to 95% RH non-condensing
Fiber Optic Connector	E2000 compact duplex (Yellow, keying #3)
Fiber Optic Cable length	20m (supplied with kit)
Max Fiber Optic length	100m (sold separately)
Remote Interfaces	LAN (Ethernet) USB 2.0 (Test and Measurement class) IEEE-488 (GPIB) Fiber Optic Serial (FSMA connectors; Reserved for use with FM7004A Field Monitor)
Max Remote Transfer Rate	20 queries per second
External Trigger Port	
Impedance	>10MO
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	1 μ s/Div to 400 μ s/Div
Scale Range	0.1 (V/m)/Div to 5000 (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	830nm
Output Power	\leq 500mW
Shutdown Time	<1 ms after fiber disconnect
Power Requirements	
Input Voltage	90-260 VAC, 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	250 Hz to 750 kHz
Measurement Format	Composite only
Calibration Data	Accredited Calibration Report supplied with kit



FA7006 Field Sensor



FA7218,
FA7040, &
FA7060
Field Sensor



FA7000 Series Field Sensors

	FA7006	FA7218	FA7040	FA7060
Amplitude Accuracy ¹	\pm 1.0dB @ 10 MHz ² 0.8dB, 100 kHz-1 GHz ^{3,4} 1.4dB, 1 GHz-6 GHz ^{3,4}	\pm 1.0dB @ 10 MHz ² 0.8dB, 2 MHz-1 GHz ^{3,4} 1.4dB, 1 GHz-18 GHz ^{3,4}	\pm 1.0dB @ 10 MHz ² 0.8dB, 2 MHz-1 GHz ^{3,4} 1.4dB, 1 GHz-40 GHz ^{3,4}	\pm 1.0 dB @ 10 MHz ² 0.95dB, 2 MHz-1 GHz ^{3,4} 1.5dB, 1 GHz-60 GHz ^{3,4}
Isotropic Deviation ^{4,5}	\pm 1.2dB @ 10 MHz \leq 200V/m \pm 2.0dB @ 10 MHz > 200V/m	\pm 1.0dB @ 10 MHz \leq 200V/m \pm 2.0dB @ 10 MHz > 200V/m	\pm 1.0dB @ 10 MHz \leq 200V/m \pm 2.0dB @ 10 MHz > 200V/m	\pm 1.0dB @ 10 MHz \leq 200V/m \pm 2.0dB @ 10 MHz > 200V/m
Operating Range ⁹	9-900V/m	14-1400V/m	14-1400V/m	14-1400V/m
Linearity	\pm 0.5dB	\pm 0.5dB	\pm 0.5dB	\pm 0.5dB
Typical Analog Rise Time ^{6,7}	300nS	300nS	300nS	300nS
Minimum Pulse Width	1 μ s	1 μ s	1 μ s	1 μ s
Damage Level (CW)	1000V/m	1200V/m	1200V/m	1200V/m
Temperature Stability	\pm 1.0dB, 10°C-40°C ⁸	\pm 1.0dB, 10°C-40°C ⁸	\pm 1.0dB, 10°C-40°C ⁸	\pm 1.0dB, 10°C-40°C ⁸
Approximate Dimensions (w x h x d)	5.7 x 5.7 x 5.7 cm	27.8 x 6.5 x 6.5 cm	27.8 x 6.5 x 6.5 cm	27.8 x 6.5 x 6.5 cm
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