



3110 Audio- Bandwidth Standards Waveform Generator

Features

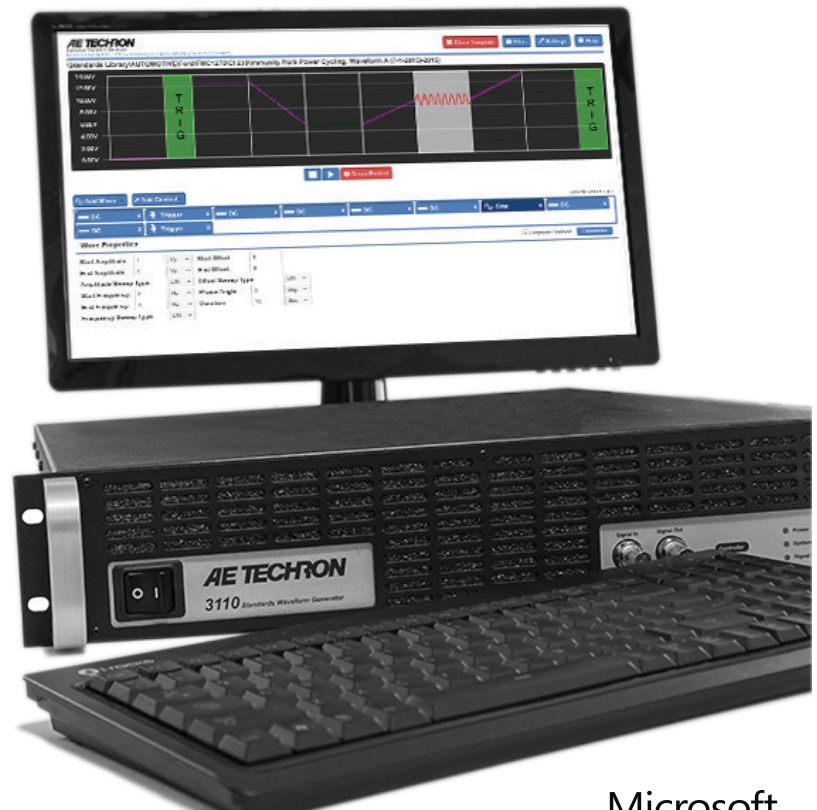
- Includes 1000+ routines for testing to EMC Standards
- Intuitive drag-and-drop interface makes it easy to update existing standards or create tests for new standards
- Easy import from csv file; automatically create tests with non-linear or equation-driven frequency/voltage/duration increments
- Fast, per-step calibration
- Instantly halts testing if an amplifier fault occurs, saving time and preventing potential equipment damage*
- Can be used as a free-standing test system or connected to an Ethernet network and controlled remotely

*When used with AE Techron 7000-series amplifiers.

AE Techron's 3110 is a simple-to-use yet powerful standards waveform generator. It can be combined with other AE Techron products to quickly create a wide range of powerful and intelligent EMC test solutions.

Standards Library

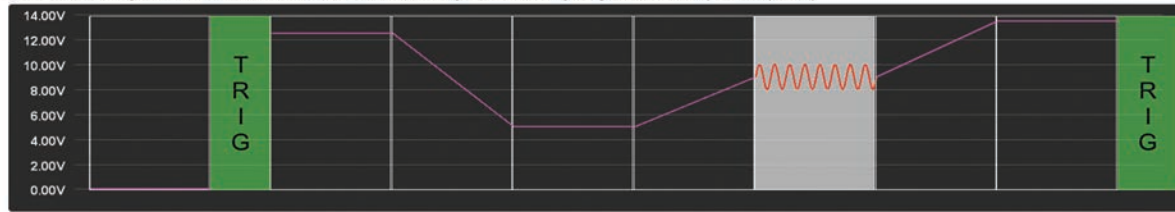
The 3110 comes with an extensive library of tests for many automotive and aviation Standards. Tests can be modified and saved for future use in the 3110's library, which has the space to store more than 300,000 tests total.



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Standards Library\AUTOMOTIVE\Ford\FMC1278\CI 230Immunity from Power Cycling, Waveform A (7-1-2015)-2015



Output Enabled

Add Wave Add Control

DC	x	Trigger	x	DC	x	DC	x	DC	x	DC	x	Sine	x	DC	x
DC	x	Trigger	x												

System Status: IDLE

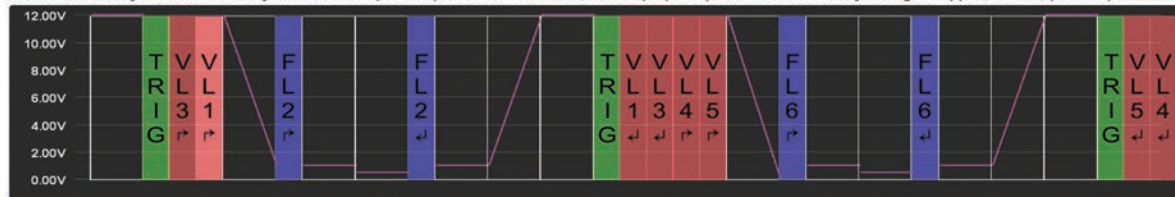
Wave Properties

Start Amplitude: 1 Vp Start Offset: 9
 End Amplitude: 1 Vp End Offset: 9
 Amplitude Sweep Type: LIN Offset Sweep Type: LIN
 Start Frequency: 4 Hz Phase Angle: 0 deg
 End Frequency: 4 Hz Duration: 10 Sec
 Frequency Sweep Type: LIN

BUILD A TEST

Tests are created by combining Wave segments and/or Control segments together. An individual segment within a test, can be as short as 50 μ S or as long as 49 days.

Standards Library\AUTOMOTIVE\Toyota\TSC7021G (2007-06)\TSC7021G 5.2 Waveform 14 (+B) IG Operation When Battery Voltage Dropped, 12VDC, (2007-06)



Output Enabled

Add Wave Add Control

DC	x	Trigger	x	VL3	x	VL1	x	DC	x	FL2	x	DC	x	DC	x
FL2	x	DC	x	DC	x	DC	x	Trigger	x	VL1	x	VL3	x	VL4	x
VL5	x	DC	x	FL6	x	DC	x	DC	x	FL6	x	DC	x	DC	x
DC	x	Trigger	x	VL5	x	VL4	x								

System Status: IDLE

Control Properties

Variable A: Start: 1 End: -1.001 -By: 0.1 21 Loops
 Variable B: Start: 0.5 End: -1.501 -By: 0.1 21 Loops
 Variable C: Start: Starting Value... End: Ending Value... By: InvDecrement By... 0 Loops
 Variable D: Start: Starting Value... End: Ending Value... By: InvDecrement By... 0 Loops

WAVE CONTROLS like Fixed Loop, Variable Loop, and Trigger make the 3110 able to reproduce the most complex standards.

The test shown above highlights several key abilities made possible by these wave controls.

A multi-step waveform can start at one level/condition, then be repeated, with up to 4 variables changing. Single or multi-step waveforms

can be made to repeat (or loop) and these repeating (looping) waveforms can be nested within a larger simple or repeating waveform.

At any point during a simple or repeating waveform, it is possible to cause the program to stop (either holding the previous condition or muting) and wait for an external trigger.

Performance

The 3110 produces standard signals and waveforms with or without a DC offset. Frequency, amplitude and DC offset can be fixed or swept, and sweeps can be linear, logarithmic or exponential.* It can create dropouts and surges with rise and fall times under 1 μ s. Individual signal duration can be as short as 50 μ s or as long as 49 days. It can also produce ripple waveforms of up to 300 kHz.

*Logarithmic sweeps available for Sine, Ripple and DC waveforms only.

BUILD A SYSTEM

Together, the 3110 and 7220- and 7700-series amplifiers create an intelligent, modular test system. When used for automotive testing, test system capabilities include 13.5 VDC with a surge potential of up to 100V, or continuous power ratings from 15A to 240A DC. For aviation testing, system capabilities include 14 VDC/28 VDC or 115 VAC/230 VAC with surge voltages up to 360 VAC.



Signal Control

The 3110 offers unique and powerful controls that make it easy to build complex tests containing repeating waveforms with up to four variables concurrently changing. Tests with non-linear or equation-driven frequency/voltage/duration increments also can be created automatically using the csv import function.

In addition, tests can be imported from the 3110 library and linked to form multi-test programs that can also be set to repeat, loop or wait for a trigger.



Modular Systems

Use the 3110 with AE Techron 7220 or 7700 series amplifiers to create an intelligent, engineered, modular test system. During operation, the 3110 monitors the amplifier status and will automatically abort a test if a fault condition occurs, saving time and preventing poten-

tial equipment damage. In addition, AE Techron amplifiers can be easily configured into series or parallel multi-amp systems for a wide range of voltage and current capabilities.

Technical Details - Hardware

Output channels: 1

Output Voltage: 10 Vpk

Signal Generation:

DAC:

18 bit

DC – 20 kHz (any wave form)

1 μ s rise time

Sine:

14 bit

DC – 300 kHz

400 Msps

0.01 Hz frequency resolution or better

0.002° phase granularity

Amplitude:

76 μ V resolution

Frequency:

Stability: \pm 50 ppm

Accuracy: \pm 0.1%

Control, Status, I/O

Front Panel:

On/Off/Breaker

Signal Output: BNC (analog - 10Vp)

LED Displays: Power, System Fault, Signal-In Enabled

Back Panel:

Power Connection:

120VAC: IEC cable with NEMA 5-15

230VAC: IEC cable with CEE 7/7

Fuse: 2A, 250V slow blow (5 mm)

Physical Characteristics

Chassis:

The 3110 is designed for table-top or rack-mounted operation. The chassis is aluminum with a black powder-coat finish. The unit occupies two EIA 19-inch-wide units.

Weight:

9.5 lbs (4.31 kg)

Shipping Weight: 19.5 lbs (8.85 kg)

AC Power:

Single phase, 120VAC, 50/60 Hz, 1.0VA service; 230VAC, 50/60 Hz, 0.5VA model available

Dimensions:

19 in. x 11.75 in. x 3.5 in.

(48.3 cm x 29.8 cm x 8.9 cm)

Technical Highlights – Software

Waveforms Supported:

Sine, Ripple, DC, Triangle, Square, Sawtooth

Waveform Modifiers,

Sine, Ripple and DC: Fixed or Swept (Linear, Log, Exponential) for amplitude, frequency and DC offset

Triangle, Square and Sawtooth: Fixed or Swept (Linear, Exponential) for amplitude, frequency and DC offset

Waveform Controls:

Trigger, Fixed Loop, Variable Loop, Template Playback, GPIO Output, LAN Output

Test Capabilities,

Maximum Waveform Duration: 1193 hours

Minimum Waveform Duration: 50 μ s

Maximum Number of Loop Repeats: >1 million

Storage Capabilities,

Number of Tests: 300,000

(expandable to 1 million)