AE TECHRON

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

- Fast, per-step calibration

- Easy import from csv file; automatically create tests with non-linear or equation-driven frequency/voltage/duration increments

- Can be used as a free-standing test system or connected to an Ethernet network and controlled remotely

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.
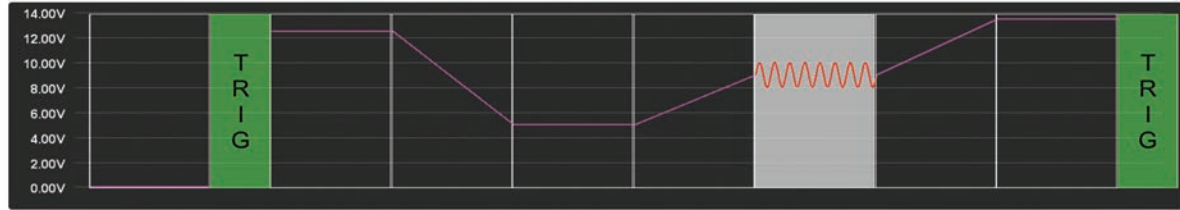
Standards Library

The 3110 comes with an extensive library of tests for many automotive and industry 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.

Microsoft Partner

Clear Template | Files | Settings | Help

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

14.00V
12.00V
10.00V
8.00V
6.00V
4.00V
2.00V
0.00V

T R I G

T R I G

Output Enabled

Add Wave | Add Control

System Status: IDLE

— DC x | Trigger x | — DC x | — DC x | — DC x | — DC x | Sine x | — DC x
— DC x | Trigger x

Wave Properties

☑ Segment Enabled | Calibration

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 µS or as long as 49 days.

Clear Template | Files | Settings | Help

\Standards Library\AUTOMOTIVE\Toyota\TSC7021G (2007-06)\TSC7021G 5.2 Waveform 14 (+B) IG Operation When Battery Voltage Dropped, 12VDC, (2007-06)
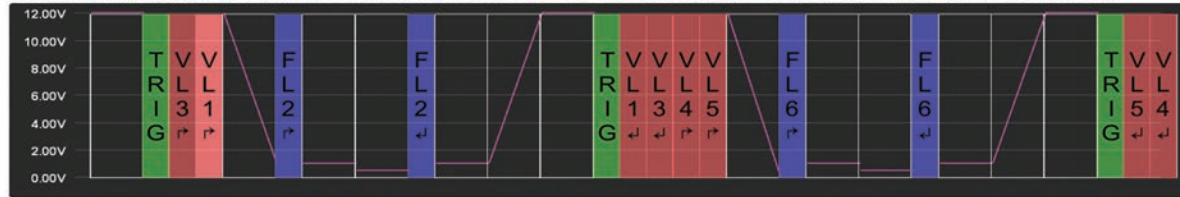
12.00V
10.00V
8.00V
6.00V
4.00V
2.00V
0.00V

TRIG | VL3 | VL1 | FL2 | FL2 | TRIG | VL1 VL3 VL4 VL5 | FL6 | FL6 | TRIG | VL5 VL4

Output Enabled

Add Wave | Add Control

System Status: IDLE

— 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 | — DC x | FL6 x | — DC x | — DC x
— DC x | Trigger x | VL5 x | VL4 x

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: In/Decrement By...	0 Loops
Variable D: Start:	Starting Value...	End:	Ending Value...	By: In/Decrement 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 wave form, it is possible to cause the program to stop (either holding the previous condition or muting) and wait for an external trigger.

3110 Datasheet
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Information subject to change.
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Performance

The 3110 produces standard signals and wave-forms 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 µs. Individual signal duration can be as short as 50 µs 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 wave-forms ionly.

BUILD A SYSTEM

Together, the 3110 and 7000-series amplifiers create a powerful, 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.

Multi-amp Systems

The 3110 and AE Techron amplifiers can be used together to create powerful test systems. All AE Techron 7000-series amplifiers can be easily configured into series or parallel systems for a wide range of voltage and current capabilities.

Series system capabilities include surges up to 360 VAC, and parallel systems can be capable of up to 240A DC.

Technical Details - Hardware

Output channels: 1

Output Voltage: 10 Vpk

Signal Generation:
  DAC:
    18 bit
    DC – 20 kHz (any wave form)
    1 µs rise time

  Sine:
    14 bit
    DC – 300 kHz
    400 Msps
    0.01 Hz frequency resolution or better
    0.002° phase granularity

  Amplitude:
    76 µV resolution

  Frequency:
    Stability: ±50 ppm
    Accuracy: ±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, 120 VAC, 50/60 Hz, 1.0 VA service; 230 VAC, 50/60 Hz, 0.5 VA 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:
  Amplitude, frequency and DC offset (fixed or linear, logarithmic* or exponential sweep); phase angle; duration

Waveform Controls:
  Trigger, Fixed Loop, Variable Loop, Template Playback, GPIO Output, LAN Output

Test Capabilities,
  Maximum Waveform Duration: 1193 hours
  Minimum Waveform Duration: 50 µs
  Maximum Number of Loop Repeats: >1 million

Storage Capabilities, Number of Tests:
  300,000 (expandable to 1 million)

*Logarithmic sweep available for sine, ripple and DC offset waveforms only.

3110 Datasheet

Information subject to change.

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