High Power Arbitrary Waveform Generation

All N4L's power sources feature proprietary dual channel arbitrary waveform generator technology developed by N4L. This technology utilizes dual channel direct digital synthesis a summing amplifier circuitry to combine the two DDS generators. Thus, providing the user with simultaneous, multiple harmonic generation as well as frequency sweeping and long sequencing capabilities.

This metrology permits long custom waveform sequences to be produced without a reduction in the resolution of each spectral component. This is especially beneficial when the harmonic is very small in comparison to the fundamental power signal. Traditional single DAQ arbitrary generators suffer from poor resolution when generating low level harmonics alongside large fundamentals. As a result of this technology, the accuracy of the N4A far exceeds the requirements of IEC61000-4-13 (harmonic and inter-harmonic susceptibility testing) and its competitors.

The N4A AC Source also features 10-bit vertical resolution and a maximum waveform resolution of 16,384 points to produce a single periodic waveform. There is also an internal storage function for imported custom wave forms featuring user intuitive library menus that display the waveform graphically on the user interface.

The N4A range of AC+DC Power Sources are available with a variety of output power ratings from 3kVA up to and above 100 kVA. They are the perfect solution for general power source applications as well as IEC61000 electromagnetic compatibility standards testing, offering low THD and excellent reliability.

http://download.caltech.se/download/web/Datablad/N4L/EMC_Test_system.pdf

Flicker Simulation with the Newtons4th N4Axx Power Sources

Flicker simulation may be required for a number of reasons, these include calibration of flicker meters or to verify the operation of a product within an environment that is exhibiting flicker itself. Flicker simulation with the Newtons4th N4A power sources allows R&D engineers to create a supply signal for a DUT(device under test) which exhibits flicker characteristics. This simulation is performed by modulating the amplitude of the applied signal (in this case 230Vrms, 50Hz) in the time domain. IEC61000-3-3 provides a number of tables and graphs which can be used to determine the modulation depth and changes/min that equate to a PST of 1. A wide variety of PST values can also be simulated by altering the modulation depth and the frequency at which the amplitude change occurs, this frequency is commonly referred to as the "changes/min" modulation rate.

Flicker simulation can be programmed via the "SEQUENCE" mode within the standard firmware of the N4A. Referring to the PST=1 curve in the IEC61000-3-3 international test standard, voltage modulation depth (d%) and voltage changes per minute can be derived.

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