How Is Noise Packaged?

Noise sources are used to purposely add noise into a system. Yes, you heard that right – they purposely generate known amounts of noise and deliberately send those noise signals through a particular system. As a result, designers can better understand how the system reacts in its presence, as well as observe and measure the noise’s overall impact. In other words, we’re adding a perceived negative element to benefit the system as a whole, which creates an interesting yet integral relationship between noise and electrical devices.

In previous sections, we learned how noise is generated and controlled, but now it’s time to go over the basics of how noise is packaged. Noise sources come in many different sizes and forms. Starting at the component level, noise modules such as Noisecom’s **NC500/500SM Series BITE modules** create a solution for built-in test (BITE) requirements. These noise sources are (almost) insensitive to temperature and variations in supply voltage, and offer a constant power density output versus frequency. They can tackle a wide array of applications, including signal strength meters for cellular, PCS, and CATV; calibrators; spectrum analyzers; radar warning receivers (RWR); and gain-bandwidth product testing.

Noise can also be packaged as calibrated noise sources, which can be ideal for noise figure measurements and various BITE applications. Take Noisecom’s **NC346 Series** for example, which is developed specifically for precision noise figure measurement applications. Another way to package noise is as coaxial noise sources, which transmit radio frequency (RF) signals and makes them well-suited for receiver testing, noise figure measurements, or applications that require broadband noise and fast switching times. Applications include radar and satellite communications system testing. Check out the **NC3000 Series** to learn more.

Amplified noise modules are yet another way noise sources are packaged. The **NC1000 Series**, for example, can produce AWGN as high as +13 dBm, and has bandwidths up to 10 GHz. This distinction lends their services toward noise immunity tests for cable TV equipment, secure communication channels, and military jamming systems. Modules with a lower power (<= 0 dBm) can serve as random jitter sources for many applications, such as PCIexpress, Infiniband, and 10 GigE. There’s also room for design flexibility to suit various applications by modifying flatness, bandwidth, and output power.

As you can guess by its name, **millimeter wave noise sources** target the millimeter wave range from 30 GHz to 300 GHz on the frequency spectrum. Millimeter waves sit between microwaves (1 GHz to 30 GHz) and infrared (IR) waves. They can be used for certain test applications that range from wireless HD to small cell wireless backhaul, among others.

Lastly, noise can be packaged as benchtop instruments. Take for instance the **UFX7000A Series noise generator**, which provides AWGN with superior flatness, 0.1 dB attenuation steps, a flexible architecture, and various customization options. Noise sources can be packaged in so many different ways, and specifically designed to address unique applications and designs. So what are you waiting for – it’s time to crank up the noise in your electronic designs.