Protecting the Public Safety Communications Network

Comba reduces noise to the network with **NetProtect**

Did you know that a Class B BDA transmits continuously, even when there is no radio traffic in the building, which means it is transmitting noise? If this amplified noise is not sufficiently attenuated, it will desense the repeater site and place lives at risk.

Class A narrowband BDAs are certainly better at reducing noise than Class B devices, however even Class A BDAs do transmit some noise. Digital Signal Processing/FPGA circuits used in most Class A BDAs today offer superior filtering and squelch circuits, meaning essentially only active channels get transmitted. However, the output from DSP/FPGA circuitry is low power and still needs to be amplified. This is where the BDA's Power Amplifier (PA) takes over and offers wideband amplification to all channels that make it through the digital sections. The PA is generally responsible for 40-50dB of the BDA's gain. Therefore, even in a Class A BDA, we may see upwards of 50dB of noise being transmitted continuously.

Even though the Class A device generates 1000 times less noise than Class B, 50dB noise rise may still cause interference. If, for example, we take a major metro area where possibly 40 Class A BDAs are installed in surrounding buildings, we have essentially 40 noise generators where additive noise powers can be harmful to the repeater site.

Furthermore, with a growing number of buildings being equipped with Emergency Responder Radio Communications Systems (ERRCS), it has become imperative that cellular and ERRCS work in harmony. No one can question the value of cellular services in keeping the general public safe, and for that reason every effort should be made to prevent Public Safety systems out-of-band noise from interfering with commercial systems.

In an ideal world, a BDA would transmit no in-band or out-of-band noise.

Comba has introduced a new feature in our CriticalPoint™ Public Safety product line called **NetProtect**, which is as close to an ideal no-noise BDA as physics will allow. This new feature places the BDA's PA in a standby mode when no RF is detected over a given period. In this mode, the PA does not transmit, which means ZERO noise. Once RF is detected, instantaneous transmission resumes with no loss of performance or quality of communications.

The NetProtect feature is another example of Comba's commitment to the safety of our First Responders. Comba listens to the concerns of AHJs and our Public Safety community and strives to deliver innovative, reliable, benchmark products and services.

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