Routine performance checks on an RF shielded enclosure are critical to ensure that data and equipment are protected with adequate attenuation levels. PAMS, which stands for Portable Attenuation Measurement System, is Praxsym's solution for an onsite, easy to use tool for measuring shield level. Since PAMS measures shield level, it is ideal for shielded enclosure caretakers whether the application is ensuring equipment radiation is effectively attenuated, equipment is protected from external interfering radiation, or electromagnetic pulse (EMP) protection. Protection of data and equipment can only be confirmed to the last time the shield level of the enclosure was measured.

Most RF shielded enclosures are certified to an applicable standard at the time of installation. Certification is costly in terms of both equipment and time and therefore only conducted sparingly. During the certification process, operations within the shielded enclosure must be shut down. However, a routine performance check can be made weekly or monthly, depending on the sensitivity of the operations within the shielded enclosure, to quickly detect degradation in shield attenuation levels. In addition to conducting these performance checks at periodic intervals, these checks should be made any time work has been done on the shielded enclosure or the utilities entering the enclosure. Using PAMS, a baseline measurement of shield level can be made and then monitored periodically by one operator to quickly identify any problems with the shield integrity of the enclosure.

The PAMS system consists of a battery powered transmitter and receiver in a rugged transportation case. The system can be operated from 864-936MHz. The CW transmitter has an adjustable output level of –30dBm to +30dBm (1 watt). The PAMS signal strength receiver will measure signal levels from 0dBm to -120dBm. With the transmitter and receiver placed 2 meters apart, the system is capable of measuring shield levels as high as 110dB.

To measure the shield level of an enclosure, the transmitter is placed inside the enclosure with its output level set to –30dBm. With the door open, the receiver is positioned outside the enclosure with line-of-sight to the transmitter. The normalization button is then depressed on the receiver to establish a 60dB shield level reference point. The transmitter is set to an output level of +30dBm resulting in a shield level measurement of 0dB on the receiver. The door of the enclosure is then sealed with the transmitter inside. The receiver is now measuring the shielding effectiveness of the enclosure. An adjustable threshold of attenuation can be set to alert the operator if a minimum shield level is not detected. When the threshold is broken, an audible tone is produced which varies in pitch depending on the reading's proximity to the selected threshold level. With its small portable antenna, the receiver can be carried to all sides of the enclosure to sniff seams and utility entry points into the enclosure.

The PAMS system can also be used in Monitor mode. This mode is helpful to users who would like continually monitor the shield level of their enclosure. Antennas are fixed at select locations on the exterior of the enclosure. The antennas are connected to the PAMS receiver through a 12-position RF switch. An operator is able to monitor each antenna location while keeping the receiver at a stationary point outside the enclosure.

By comparing measurement levels with previous data, any degradation of shield level can be easily detected.

Two new features to the receiver have enhanced the operation of the PAMS system to allow error free operation on a clear channel. A signal strength mode has been added to measure the actual signal level of signals at the selected frequency. This mode, allows users to determine if the test channel is clear of interfering signals before the transmitter is set up. Additionally, a scan mode has been added to scan the RF environment to locate a clear channel to use for testing. In scan mode, a 10MHz spectrum plot can be displayed on the backlit LCD.