1. Introduction

An external antenna is required for meters in hard-to-reach locations such as meter rooms and metal enclosures.

Due to safety requirement and regulations it is not possible to connect an external antenna directly into the network interface card in the meter.

The Meter Patch Antenna Coupler Kit (MPACK) is a very-low-cost alternative mechanism to connect a meter to an external antenna. The MPACK attaches to the outside of the meter cover, directly over the internal antenna, and captures much of the energy from the network interface card and directs it into a coaxial cable which connects to an external antenna. It can be used on any meter where the antenna of the network interface card is sufficiently close to meter cover. A further advantage of the MPACK is that no additional time-consuming ANSI meter testing is required since the MPACK is applied outside of the meter.

The product requirements for the MPACK are captured in this document.

Figure 1. Meters in meter rooms and metal enclosures require external antennas.

Figure 2. These photos of the MPACK Proof-of-Concept Test (10 Davis St., Belmont, CA, December 2009) show a typical metal enclosure for a commercial & industrial meter, two prototype MPACK coupling antennas, and a “salt shaker” style tamper-resistant antenna mounted temporarily at the top of the metal enclosure. The final product must, of course, be designed to be permanently and durably attached to the meter, the cables must be anchored to the meter panel and dressed neatly, and the antenna for metal enclosures like this is most likely to be a low-profile “hockey puck” style antenna bolted through the top of the enclosure and sealed with a gasket and adhesive, and connectors must be sealed against moisture.