Case

Tx and Rx Antenna Monitors

Background

Transmit and Receive Antenna Line Monitors remotely and continuously measure antenna performance. This decreases the number of preventive maintenance visits to LMR sites and increases the ability to address degrading trends before end users become aware.

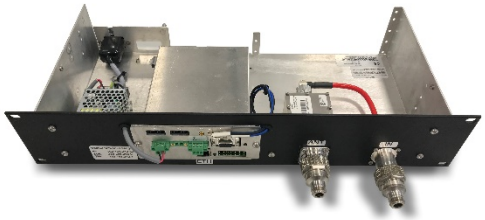
Customer Segment

All customers maintaining radio systems.

Business Case

Sauk County, WI has a 10-site, 7-channel radio system. They see the following benefits from using the frequency selective Tx antenna power monitor and Rx line monitor:

Do more work with less personnel: Technicians are spread thin - they have limited time at radio sites and much work to do at each site. Antenna systems are often overlooked when doing preventive maintenance (PM) and performance analyses. Instead, a service provider can use the monitors to check antenna systems as often as necessary using very little labor time, and expense.



Stand-alone Tx Frequency Selective Power Monitor

Overcome the inexperience of new technicians: Many new technicians do not have enough experience to know what potential problems to look for at a radio site. The monitors mitigate this problem, and thus help a service provider quickly identify issues and resolve them.

Decrease preventive maintenance costs: A service provider that manages a 7-site system with multiple antennas at each site will need 60 – 80 hours to PM just the antenna--combining systems (e.g., benchmarking, disconnecting, connecting, etc.) once a year. The monitors eliminate the need for this PM work and thus eliminate the 60–80-hour cost.

Decrease truck rolls to radio sites: Given the information service providers can view from their desktop, truck rolls to sites to investigate potential problems will decrease. Customers with maintenance contracts that do not cover such work will incur less off-contract expense.

Know the tower work was done correctly: With the ability to monitor combiner and antenna system performance, a service provider can easily determine if a tower crew did its work correctly.

Transmit Antenna Monitor Dashboard

Easy to use and saves time: The monitors are easy to program and use via a web browser dashboard. They eliminate the need to gather data in the field and turn it into useful information at the shop. Anyone at the shop can determine the status of the antenna and combiner systems based on the monitors' feedback.

Tx Composite Power Monitor

Develop solutions without visiting a site: A service provider can quickly see problems, identify their root causes, and develop an action plan without always having to send a technician and/or a tower crew to a site.

Implement an orderly antenna replacement plan and decrease expenses: The monitors give service providers the ability to see trends, and thus have the time to develop and execute an orderly antenna system replacement plan. Service providers can operate within their replacement plan instead of on an emergency basis. Emergencies require more tower crew time and incur more cost.

Show customers you are meeting contract obligations: The monitors can be sold as part of a system to show customers how service providers will be able to meet contract obligations.

Increase customer satisfaction with less downtime: Customers, especially Public Safety, do not want system downtime. To coordinate downtime among departments or businesses to PM a system is often time consuming and costly (especially when downtime is done during off hours and overtime costs are incurred). Alternatively, the antenna-combining systems' performance can be viewed remotely from a desktop without taking the system off-air.

Increase maintenance contract revenue: The monitors give the service providers another layer of preventive maintenance, quick issue identification, and faster problem resolution. Consequently, service providers can provide a higher guarantee (i.e., more value) when it comes to system uptime and therefore charge 5% to 10% more for maintenance.

Increase system uptime by monitoring degrading trends: Compared to reacting to an alarm and then fixing a problem in panic mode, one can react to degrading trends before they negatively impact a system and customer satisfaction. Examples: 1) Identifying issues before they become problems is critically important where combining is used and/or when an antenna system is critical to multiple radio users. 2) The monitors will identify issues (e.g., poor performance from water or ice build-up, age, etc.) one can't see without climbing a tower.

Rx Antenna Monitor

Integrates into a Customer Network Manager: A network operations centre operator can read combiner power output (forward/reflected), alarm levels, antenna (VSWR), and temp. of the combining equipment and shelter.