

Case Study

Using remote antenna alignment monitoring to reduce OPEX and ensure network performance

Problem: Misaligned antenna caused service degradation, undetected by customer’s Radio Management System

Our customer is a leading European mobile operator providing wireless services in the Adriatic region. Cellular antennas in this area are exposed to strong seasonal winds, particularly during the winter season. These winds often impact the correct alignment of antenna panels and produce noticeable discrepancies in the intended coverage sectors, as well as decreased QoS for common voice and data services.

The customer has installed VIAVI IoA (IoT for Antennas) sensors at a candidate site that is well known for its exposure to extreme winds. One of the sensors issued a misalignment alert just after strong winter winds had seriously impacted one of the antenna panels. However, the customer’s Radio Management System did not detect any service degradation at that particular time. To the Radio Management System, the antenna appeared to be in working condition, with a small amount of user traffic. Several days later, the Radio Management System issued a VSWR alarm for the same antenna system and a crew was dispatched to conduct a diagnostics visit. They confirmed that winds had knocked down the antenna and it was no longer operating properly, therefore impacting network service in that location.

Customer Impact:

A customer in Europe was experiencing service degradation due to misaligned antennas in remote locations.

Misalignment was promptly detected by VIAVI IoA monitoring solution, but service degradation was not reported by the Radio Management System until days later. After conducting a site visit, it was confirmed that the antenna had been knocked down by strong winds and was no longer operating properly.



Solution: Remote antenna alignment monitoring

The VIAVI IoA monitoring sensor promptly reported misalignment values for Azimuth, Tilt and Roll at the time strong winds impacted the antenna. These misalignment values were verified during the diagnostic site inspection. The data provided by the sensor proved to be accurate and indicative of service degradation and the IoA solution will continue to be used to prioritize site visits and ensure proper network performance.

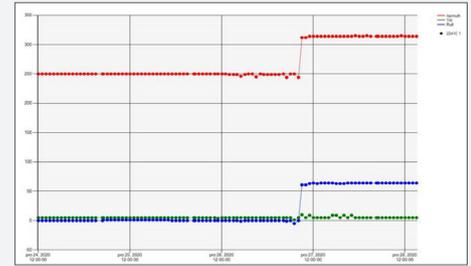
Conclusion

The VIAVI IoA monitoring sensor proves to be a cost-effective, scalable solution to quickly identify alignment degradation of antenna systems and anticipate situations that might otherwise be latently detected or even ignored by the by the standard Radio Management Systems in cellular base-stations.

For critical cell site locations, particularly those remotely located or heavily exposed to harsh weather conditions, the VIAVI IoA antenna monitoring system is a proven solution to help mobile operators reduce OPEX by prioritizing site inspections based on daily alignment data.

If you are interested in more information or would like to conduct a technical evaluation of the VIAVI IoA antenna monitoring solution, please contact your local VIAVI representative

For more details visit: viavisolutions.com/en-us/products/ioa-iot-antennas



Best Practices

- Monitor antennas with VIAVI IoA remote sensors
- Use priority lists based on alignment data to efficiently dispatch response/audit teams
- Inspect misaligned antennas promptly
- Review alignment thresholds periodically to match site specifications