

Case Study

Troubleshooting Interference Issues during Radio Head Deployments with CellAdvisor

Interference reduces coverage area by desensitizing the receiver and increasing the noise floor. Throughput rate also suffers when interference lowers signal-to-noise ratio (SNR), preventing the use of higher modulation coding schemes and efficient resource block allocation as the scheduler attempts to avoid impacted spectrum.

It is essential for operators to identify, isolate, and eliminate sources of interference in a timely manner to ensure that user QoE is not impacted.

Background

In preparation for a customer trial, a leading NEM was having issues in keeping the radio head on air. After troubleshooting the network, it appeared that the physical links could be the issue. VIAVI Solutions partnered with the NEM to help identify and isolate the issue that was causing the radio failure.

A VIAVI Certifier40G™ handheld determined that the CAT-6 link between the radio head and the baseband unit was working within specs. It also indicated that the RF link was the most-likely suspect causing the failure.

Even though overall spectrum clearance activities may have been performed, local and isolated interference sources cannot be totally eliminated in certain scenarios.



The Challenge

Quickly and easily identifying radio link issues such as interference is a big challenge for the entire RF industry. Customers require tools that can quickly isolate local interference issues and help quickly turn up cell sites.

The Solution

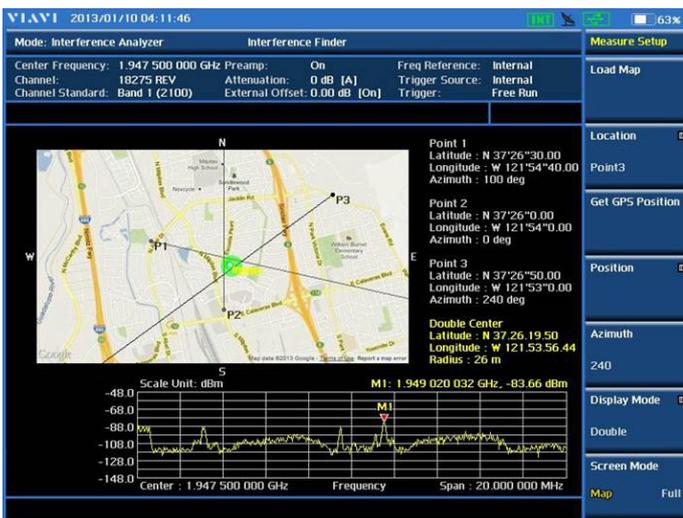
The CellAdvisor™ spectrum analyzer function significantly reduces the time it takes to identify interference issues. Using this function with the CellAdvisor JD785B and a directional Yagi antenna, an engineer was quickly able to identify interference on the uplink: it was seen across the 10 MHz LTE spectrum in use.



To meet trial deadlines, the VIAVI NEM partner was not able to remove the source of interference. Instead, they used CellAdvisor measurements to relocate the radio head. Consequent measurements indicated a reduced level of interference near the new location. The radio was brought back in service. This let our NEM partner complete their customer proof-of-concept in a timely manner.

Summary

Several kinds of licensed and unlicensed transmitters can generate interference signals that cause poor service quality. Identifying, isolating, and eliminating interference in a timely manner is an absolute must-have for service providers.



CellAdvisor is the perfect tool for identifying and eliminating interference. Additional features include:

- It enables spectrum clearance, capturing just the events where the received signal exceeds the defined power limit
- The audible tone volume is proportional to the signal's power strength, and a built-in AM/FM audio demodulator conveniently identifies AM/FM signals
- Interference ID automatically classifies interfering signals and lists the possible signal types corresponding to the signal selected
- The Spectrogram feature captures spectrum activity over time and uses various colors to differentiate spectrum power levels
- Spectrogram is also effective for identifying periodic or intermittent signals, and post-processing analyzes each measurement over time using a time cursor



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