

Case Study

Intermittent In-Band Interference Resolved with InterferenceAdvisor

Signal booster installed inside an elevator caused high peak in-band interference.

A Taiwan operator reported a high Received Total Wideband Power (RTWP) problem in a residential area of Taipei. The VIAVI team was brought in to help them to resolve the problem by locating the interference sources using the InterferenceAdvisor™, an automated interference hunting solution from VIAVI.

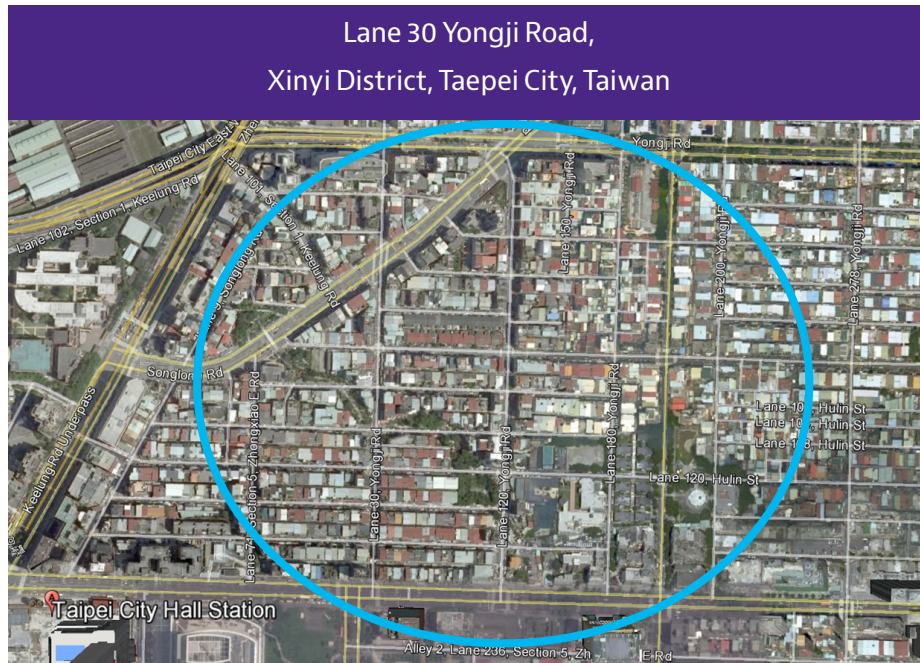
The operator reported the following problems:

- Illegal signal boosters were being used by apartment residents to improve in-building coverage.
- Since the problem area had an urban morphology, identifying the exact interference source was difficult due to signal reflection.
- The issue was difficult to troubleshoot as it was intermittent.

Understanding the interference characteristics

The affected area consisted of several residential buildings, include some luxury apartments.

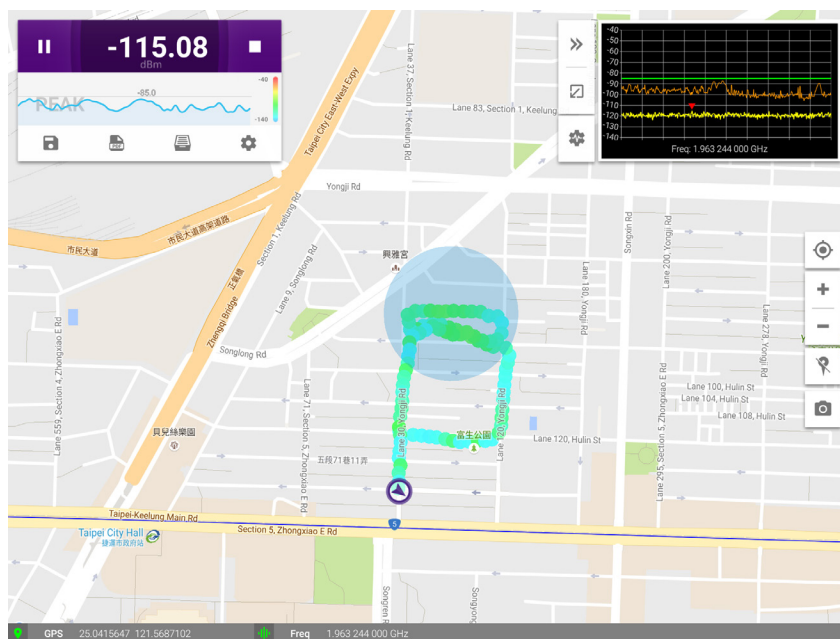
All of the streets between those buildings had to be driven to identify the location of highest power (minimum number of reflections) of the interference source.



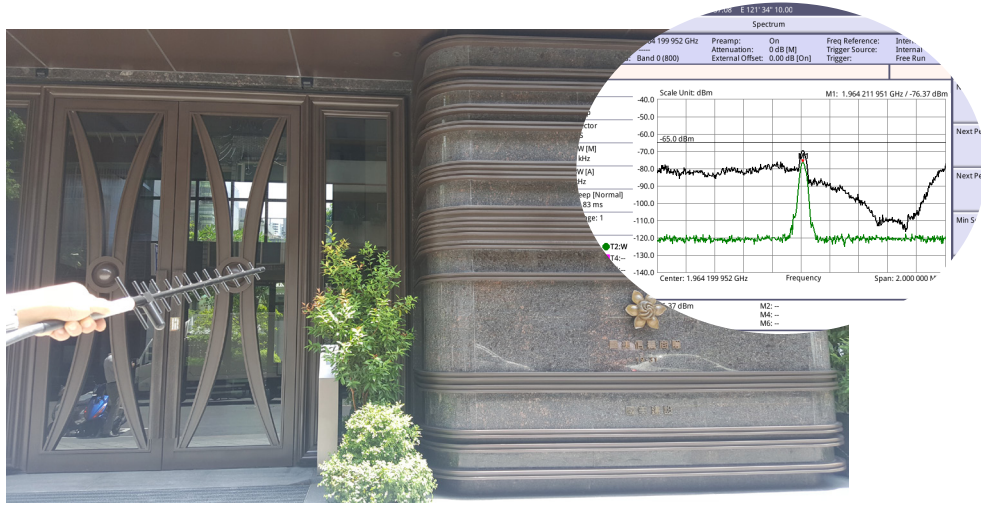
Problem area

Driving around to find the source area

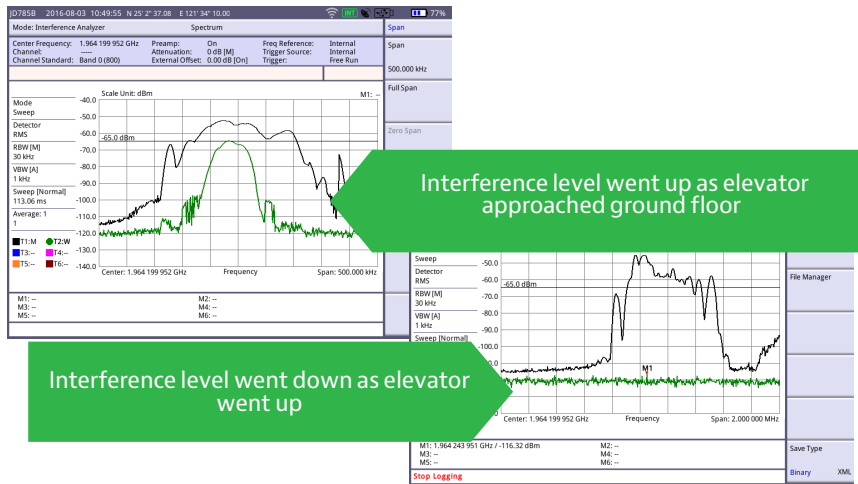
The team optimized the EagleEye™ software to track down the identified interference signal using its peak power mode, and InterferenceAdvisor successfully located the most suspected area of interference, a signal booster located inside an elevator.



Most probable area found by EagleEye software (blue circle)



Interference level measured outside of the luxury apartment building



Manually locating the source in the suspected area

An RF engineer conducted a local interference hunt with VIAVI CellAdvisor™ and AntennaAdvisor, and discovered that the signal level of the interferer fell when the elevator went up, and rose when it approached ground floor. Once the source was identified, the service provider worked with the resident to remove the signal booster, eliminating the RF interference.

Best Practices

- Start with the problem site
- Drive around a relatively large area to understand the problem details and the interferer's characteristics (e.g. intermittent, single-tone, multi-peak, oscillating, drifting, band-noise, etc.)
- Optimize EagleEye settings using three different tracking modes (RSSI, Channel Power and Peak Power)
- Drive in the direction of the strongest signal to estimate the most probable location of the source (circle indication, directions, and navigation)
- Manually pinpoint the source using AntennaAdvisor within the estimated area



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