

Diffusing interference in Northern Iraq



Customer

Asiacell

Country

Iraq

Challenges

Signal interference impacting Asiacell and two other local wireless carriers, caused by the need to operate in close physical proximity and co-location.

CommScope solution

Three interference mitigation filters (IMFs) to address interference in low and high bands, with the third filter custom engineered for use where a smaller guard band is needed in high band operations.



Since 2010, Asiacell's Ooredoo Group has remained at the forefront of Iraq's efforts to rebuild the country's communications infrastructure. Established in 1999 in the city of Sulaimania, Asiacell was the first mobile operator in Iraq. In successfully laying the groundwork for others, the operator has welcomed competition but not the ensuing interference issues.

In 2009, Asiacell began providing cellular service nationwide. Since then, their network has grown to serve over 10 million subscribers and cover 96 percent of the Iraqi population with service that uses low and high frequency bands. Many of those subscribers are located in the Kurdistan region of Iraq, where two other local carriers were creating significant interference issues.

One local carrier operates in the low

frequency band, while a second occupies spectrum in a high frequency band. Both occupy airspace close to Asiacell's high and low frequency bands. Complicating the issue is the fact that a majority of the region's population is concentrated in a few densely-populated areas. As a result, the three carriers often operate in close physical proximity to one another, with many instances of co-location.

For Asiacell, the situation created high levels of adjacent channel interference in both its low and high frequency bands. This negatively impacted their quality of service, spectral efficiency and revenue. To address the problem, the network's management team solicited proposals from a variety of filter providers, including CommScope.



CommScope designs a custom-engineered solution

The team selected CommScope for its technical expertise and demonstrated ability to engineer a customized solution. CommScope's solution featured two existing filters that were slightly modified and one custom engineered filter. The filter resolved the interference issues in the low band while the other filter—a band-stop type filter—addressed these same issues in the high band. Both were modified to meet Asiacell's exact specifications.

In addition, CommScope custom-engineered a third filter for use in the high band. This filter was designed for deployment in the northern regions where Asiacell operated with a smaller guard band. The combined solution provided Asiacell sites with excellent out-of-band emission (OBE) rejection that protected its low and high frequency bands. It also minimized the potential for interfering with two local carriers' signals.

CommScope also played a key role during implementation, working closely with Asiacell's team to provide them with core materials and insights gleaned from years of successful interference mitigation. Asiacell completed its rollout of the custom IMF solutions in 2015.

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