Creating a Unique Interference Solution in Jamaica

Customer
Digicel
Country
Jamaica

Challenges
Co-location interference from a competitor and another Digicel system, impacting Digicel’s GSM 900 MHz receive path.

CommScope solution
A CommScope custom-designed 900 MHz band-pass filter with 850 MHz band rejection that includes interference mitigation filter (IMF) technology.

The carrier has succeeded on the strength of its network and its quality of service. So, when engineers detected an interference issue in their 900 MHz GSM band, Digicel officials reacted quickly.1 The interference was traced to two sources—a co-located competitor with whom Digicel shares several strategically important sites and another Digicel co-located system.

At those locations, the 850 MHz UMTS and GSM transmissions were leaking into the 900 MHz receive path of Digicel’s radios. They had tried a number of off-the-shelf filters with minimal success.

With an estimated 2.75 million people, Jamaica is the fifth-most populous Caribbean island and a key mobile market for Digicel Jamaica, which serves more than two million subscribers across the island.
After several exploratory phone calls to identify and quantify the problem, CommScope engineers went to work. Unique characteristics of the interfering frequencies dictated a custom filter design. So CommScope built its proposal around a custom-designed 900 MHz band-pass filter with 850 MHz band rejection that featured its interference mitigation filter (IMF) technology.

During a conference call with the Digicel team, the CommScope account team walked Digicel officials through the proposed solution. One of the key reasons Digicel selected CommScope was its ability to provide an end-to-end solution. So, in addition to the custom filter, CommScope’s proposal included its SureFlex® jumper cabling, weatherproofing kits for selected sites, and installation services. Digicel officials accepted the proposal, and the project shifted into high gear.

Within a few weeks, CommScope engineers had developed the custom 900 MHz band-pass filter with 850 MHz band rejection and delivered a prototype to Digicel for testing. The results were exceptional, with the test site showing a 40 dB improvement in interference rejection. The prototype brought the interference and noise levels well within the operator’s specifications. Soon after, Digicel gave CommScope the approval to ramp up production and begin implementation at the first 100 sites.

According to Digicel, as many as 680 of its 811 sites could ultimately be affected by the adjacent cell interference. So the relationship with CommScope remains ongoing and close. As the carrier is planning to roll out its future 700 MHz LTE service across the island, there should be ample opportunity for the two to continue working together.

References
1 Digicel operates in four frequency bands: 850 (A block)/900/1800/1900 with 700 MHz (Planned) in Jamaica.