

CommScope low-loss combiners deliver site-sharing solutions to Tunisia's largest wireless carrier



Customer

Ooredoo

Country

Tunisia

Challenges

Rooftops and towers are already overloaded, but need to implement site sharing solution to expedite network improvements for meeting connectivity demands.

CommScope solution

Ooredoo Tunisia executed a successful trial using a CommScope 900 MHz low-loss combiner (LLC) for site sharing between Ooredoo and another carrier, swapping out a hybrid 3 dB combiner with the LLC 900 unit.



The Middle East–Africa (MEA) region is among the fastest-growing wireless markets in the world. But with explosive growth comes significant challenges, including overloaded towers and rooftops, and few available options for new sites. With minimal insertion loss compared to traditional hybrid units, CommScope’s customized low-loss combiners (LLC) enable Ooredoo Tunisia to share existing sites with other carriers and generate new revenue—without a major CapEx investment.

“As network demands increase, the competition for limited tower space is intensifying. The CommScope LLC’s versatility and customizability give operators the option of sharing tower space and/or upgrading their networks to increase coverage and capacity while reducing the number of antennas and associated components on the tower—a true win-win solution.”

— Indeeep Sidhu, Director, Filters, EMEA and APAC, CommScope

Ooredoo leads Tunisia's rapid wireless network expansion

Founded in 2002, Ooredoo Tunisia is Tunisia's first privately-owned telecommunications company and is now the largest mobile operator—and one of the most recognized brands—in the country. Each day, Ooredoo's truly national network delivers a range of prepaid and postpaid voice and data services to more than five million individuals and businesses across Tunisia. Ooredoo is a long-time CommScope customer that has relied on CommScope solutions to enable their rapid network expansion and delivery of high-quality service.



A new kind of combiner for today's new connectivity demands

To meet the increased connectivity demanded by speeded-up network deployment in Tunisia, Ooredoo was forced to implement site-sharing strategies with other carriers, which required adding new antennas on rooftops or towers. Most of the time, they are facing situations where rooftops are already full of antennas—or towers are already overloaded, with serious stability and wind-load issues.

One solution is a same-band combiner—a unit that combines two base stations on the same band (GSM900 and UMTS900 or GSM Op1 and GSM Op2) into a common port to reduce the number of antennas required. But introducing a passive unit in the RF path usually leads to an insertion loss that reduces the power available for coverage and capacity.

To minimize this power loss, CommScope developed a new type of in-band combiner designed to deliver only 0.5 dB of insertion loss—compared with traditional one-size-fits-all hybrid combiners that lose 3 dB and essentially waste most of the power available. CommScope's 900 MHz and 1800 MHz LLC models are custom combiner solutions, tailored to the client's spectrum, that enable carriers to reduce the number of antennas and speed up network expansion using same-band combiners to introduce new systems like UMTS900 or LTE1800 at existing sites—or to share tower infrastructure with other operators

and reduce tower load. CommScope LLCs have excellent spectrum efficiency, with a minimal guard band of 0.6 MHz for LLC 900 and 0.7 MHz for LLC 1800.

Because of their flexibility, CommScope LLCs are ideal for site-sharing applications, where the antenna, jumpers and feeder cables are shared between two or three operators to open up new capacity on existing sites.

CommScope LLCs simplify site sharing for Ooredoo

Ooredoo Tunisia executed a successful trial using a CommScope 900 MHz low-loss combiner for site sharing between Ooredoo and another carrier, swapping out a hybrid 3 dB combiner with the LLC 900 unit.

Drive test and statistic counters analysis indicated that site traffic was increased by 50 percent and received total wideband power (RTWP) was reduced by 20 percent after the LLC 900 installation. The solution also increased site revenue by 50 percent and improved network performance and quality of experience, while delivering cost reductions due to cost sharing between two operators. The trial was so successful that Ooredoo is planning to use the LLC solution with a 12-port antenna for a three-operator shared site.

“Installing the CommScope LLC 900 combiner achieved our goals of improving network coverage and RTWP while allowing for increased traffic at the site. The quality of experience for subscribers has also improved, enhancing their satisfaction with our wireless service.”

— Trabelsi Medjebrane, Tunisia Radio Design Technical Manager, Ooredoo Tunisia

Benefits of the CommScope LLC solution for site sharing include:

- Cost savings from sharing the full RF path—antennas, feeders, cables and jumpers—as well as the tower structure, with associated rent reduction
- Reduced tower loading for increased safety and stability
- Faster deployment due to easier installation—no need for an additional antenna and feeders for the new operator
- Faster network rollout by avoiding the lengthy, complicated, and often uncertain site acquisition phase of deployment.

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