COMMSCOPE®

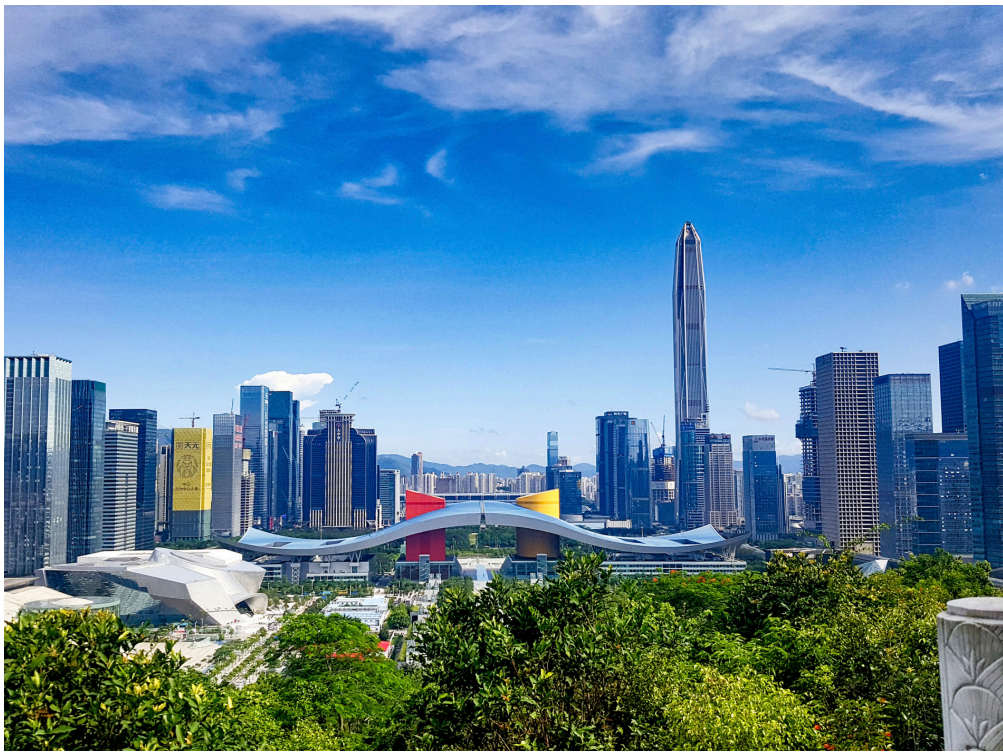
With full coverage—and free of interference—CommScope built the networks for Shenzhen Citizen Square

Shenzhen Citizen Square

- This important city square, located between the citizen center and Shennan Road, offers many functions, such as recreation, leisure, entertainment and sports.

Country/region

China/Guangdong Province



Current demand

Citizen Square is a Shenzhen icon. As a result, good wireless coverage in the square enhances the overall image of Shenzhen and provides better services to citizens.

Citizen Square was officially opened to the public on October 1, 2006, and—after years of use—the original wireless network configuration and antenna features are unable to meet requirements. Citizen Square is facing a new upgrade and must quickly choose high-quality antennas for the upgrade.

Full coverage of high-density areas

Citizen Square is overcrowded—particularly during the peak hour of the light show, during which there are 3-4 people per square meter. This imposes extremely high requirements for the wireless coverage and network capacity of the Square.

In such a densely populated area, and due to the limited spectrum bandwidth, there is a strong conflict between network interference and the deployment equipment's ability to meet ultra-large capacity requirements. For example, to ensure network capacity and coverage, it is necessary to establish multiple base stations. The large number of antennas will cause severe overlaps in signals—directly affecting the access experience of users. This is the main reason Citizen Square desperately needs to upgrade the existing wireless networks and antennas.

In addition, the significance of the location and the aesthetics of the Square require improved antenna installation and maintenance. The original antenna has been unable to meet the new application requirements in these respects.

CommScope has undertaken the task of upgrading the wireless network of Citizen Square. Before the official implementation of the project, the relevant parties held several meetings to discuss the transformation scheme, conducted technical scheme configuration and product selection, conducted a field installation test in Citizen Square, analyzed the test results in detail, and optimized the transformation scheme again. Citizen Square ultimately decided to completely replace the original antenna system and adopt the brand-new antenna solution from CommScope with the aim of resolving all related issues once and for all.

Citizen Square deployed CommScope's high-quality narrow-beam antenna, which provides dense partition of coverage and achieves high capacity with low interference. CommScope's ultra wideband antenna covers the 1710 MHz-3.5 GHz or 1710-2700 MHz frequency band. In such a wide frequency band, the consistency of the radiation field diagram in each frequency band can be maintained—reducing interference and facilitating optimization. The carefully designed radiation field pattern has very low horizontal and vertical sidelobes, further reducing interference to the adjacent cells. Even in the case of dense partition, it can still reduce the leakage of signals between adjacent cells, improve the SINAD of the cells, and lay a solid foundation for improving capacity.

CommScope's antenna is small, but it ensures a relatively high gain—so the useful signal in the coverage area has more power. It also plays a decisive role in improving the SINAD. Although the antenna is small, it contains four sets of antennas, which provide the hardware foundation for 4x4 MIMO and also helps improve the network capacity in terms of infrastructure. In addition, it meets the antenna configuration requirements for 5G deployment. The antenna does not require a large amount of space, so it is very suitable for installation in places with limited space. For example, Citizen Square has limited space for antennas and aesthetics. This is where CommScope antennas provide an advantage.

Break through the limitation of the Square

The difficulty in the construction of the Square lies in the limited choices of installation sites, as no buildings are permitted in the middle of the Square—and there are no spaces for antenna installation other than the surrounding trees. Solving the coverage issue and reducing interference requires an antenna with higher standards. The density of people in Shenzhen Citizen Square is higher than that of ordinary venues. Thus, the density of partitions on cells must also be higher, and each antenna must provide more bandwidth. This requires CommScope to complete more accurate and meticulous optimization tasks.

For instance, CommScope provided high-reliability antennas to resolve the problem of network capacity and coverage of the Square. During the research phase of the project, CommScope provided professional and technical consulting services to avoid (as much as possible) possible implementation errors. To solve the likely problem of close cell spacing causing same-frequency interference, CommScope proposed grouping frequency points and adopting the deployment of inter-cell cross-frequency. Based on test results, CommScope proposed a specific optimization plan—accelerating the deployment of the antenna and preventing errors.

With CommScope's antenna solution, the network capacity of Citizen Square has been increased by 40 percent. CommScope's solution completely replaces the antenna of the original manufacturer and solves the problem of interference and coverage overlap between networks. In addition, the performance of CommScope's antenna achieved accuracy in network coverage and solves the problems of incomplete network coverage and severe inter-cell interference. It thus effectively improved the network access experience of users and achieved the KPI index requested by the customer.

Advance preparation for 5G

At present, 5G has not been deployed in Shenzhen Citizen Square. CommScope's end-to-end solution fully covers 3G/4G/5G and supports multiple 5G frequency bands. For example, the operator's 5G frequency band is in the 2,700 MHz band, which is covered by CommScope antennas. If Shenzhen Citizen Square adopts the operator's 5G communication network in this frequency band in the future, then it does not need to change the CommScope antenna already deployed as long as the additional 5G wireless devices can support 5G applications seamlessly.

CommScope (NASDAQ stock code: COMM) helps design, build and manage wired and wireless networks across the world. As the leader in communication infrastructure, we build always-online networks of the future. For over 40 years, a global team of more than 2,000 employees, innovators and technicians has been dedicated to helping customers from all over the world predict future trends and overcome current limits. Learn more at: zh.commscope.com

Customer evaluation: A reliable end-to-end supplier

The upgraded wireless network and antenna have made Shenzhen Citizen Square a truly "borderless" urban reception hall. Wireless access is unobstructed even during peak hours on holidays, and lag time or signal interference that had occurred before have since disappeared. **CommScope's high-quality, full-coverage, and professional end-to-end solutions have been fully approved by customers.**

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