

Empowering Home Users with Instant 3G Coverage through Small Cell Technology

How Jiahuxin City residents improved their 3G coverage with Comba's TD-SCDMA Home Small Cell



About Jiahuxin City

The Jiahuxin City residential complex is located in Zhaoqing, a city in China's Guangdong province. With natural environment surroundings, the area aims to become a center of executive, business and tourism activities.

Jiahuxin City has a total land area of 156,000 m², and 320,000 m² gross floor area. The development is targeted at high end consumers and nationally qualified as an "A Grade" development with large retail facilities and a luxury clubhouse.

(Source: Dongguan Residential News Network)

About the Installation Site

Measuring around 90m², the apartment suffered from strong interference and poor quality of service. Since it was owned by the resident, access was prohibited in order to deploy additional backhaul cable for coverage.

Subsequently, Comba was contacted to provide a robust and cost-effective solution for these issues and improve enable effective quality of service.

The Comba TD-SCDMA Home Small Cell

When deployed inside a building, Comba's **TD-SCDMA Home Small Cell** adds 3G capacity and coverage and raises service quality in small spaces like homes, offices, and classrooms—helping operators deliver an enhanced user experience for a fraction of the CAPEX and OPEX required by a macro base station.

Features:

- Adds 3G capacity and coverage to small or hard-to-reach areas
- Precise coverage, allowing fine-grained 3G service delivery to target users
- Quick, plug-and-play installation
- Built-in WiFi 802.11b/g/n
- Self-optimizing, self-configuring functions avoid interference with adjacent cells
- Backhaul through pre-existing public broadband eliminates the CAPEX of acquiring and building new sites, and reduces OPEX from backhaul transmission, power and operations
- Remote control and management through Comba's Home NodeB Management System (HMS)



TD-SCDMA Home
Small Cell

The Scenario

Jiahuxin City is a high-end luxury residential complex and the facilities and services were carefully designed to reflect this status – including ubiquitous and high-quality wireless communications.

The residents of at least one of the apartments reported poor coverage and unstable 3G network services. As an experienced in-building solutions partner, Comba was contacted to resolve the issue.



The signal quality of the 3G signal was not reflective of the image of the Jiahuxin City complex.

Deeper investigation revealed two key issues:

- **Poor signal quality** due to strong interference, especially on higher floors
- **Difficulty carrying out construction work** due to the ownership of the flat

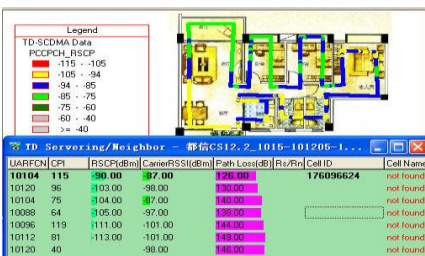
Case Study

Jiahuxin City

Macrocell antennas located at the top of the buildings provided coverage for a large area, so the output power of the antennas needed to be high. Due to the high density of the antennas, however, interference severely impacted service quality.

Moreover, since the resident lived in the flat, it would be very inconvenient to them if the new solution required construction work (as would a DAS), and such a solution would not necessarily be cost-effective either for a single flat.

Incidentally, the resident of this flat did have a home broadband service subscription. If the new solution could make use of the home broadband, it could further save capital expenditure.



Comba's TD-SCDMA Small Cell was installed in the apartment with a satisfactory result

The Solution

Working with the operator, Comba assessed a number of possible solutions to resolve the problem whilst being cognizant of operation and capital expenditure costs.

Amongst those assessed included

- (1) **Installing DAS** – this would help improve the coverage, but require construction work and careful frequency planning
- (2) **Adjust the output power of the antennas** – this would solve the interference problem. However, this option will reduce the coverage area of the base stations.
- (3) **Install a TD-SCDMA Small Cell.** By installing a TD-SCDMA Small Cell, the coverage issues could be solved while also minimizing interference.

After careful analysis, the 3rd scenario was deemed the most effective option in terms of efficiency and cost.

As a result, Comba deployed a **TD-SCDMA Home Small Cell** in the apartment and used the existing home broadband as the backhaul. The benefits of deploying this solution included:

- (1) **Easy upgrade path:** the TD-SCDMA Small Cell can make use of existing public broadband.
- (2) **Can provide high quality 3G coverage** for up to 4 simultaneous users each
- (3) **Can provide Wi-Fi coverage** simultaneously
- (4) **Avoided CAPEX and OPEX** from backhaul and in-building installation
- (5) **Ease of management:** the TD-SCDMA Home Small Cell can adjust its output power in order to reduce interference. No extra frequency planning is required.

The Results

Prior and post installation of the TD-SCDMA Home Small Cell, Comba monitored the signal performance and noted that the TD-SCDMA Home Small Cell significantly improved 3G service and coverage. In testing, the received signal quality significantly improved.

Post-installation, the operator reported a marked decrease in complaints from residents on the quality of their 3G services.

Comba Products & Services

- TD-SCDMA Home Small Cell Base Station
- Installation & Commissioning
- Post Installation Support

For more information, contact your Comba representative, or visit <http://www.comba-telecom.com>

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