



## CASE STUDY

# CRADLESTONE MALL: PROVIDING WIRELESS COVERAGE TO SOUTH AFRICA'S LATEST GREEN DESIGN SHOPPING MALL.

### The Floor plan of Cradlestone Mall



### The Challenge

The 76,000sqm Cradlestone Mall will introduce a wide variety of unique, leading and exciting retail shops in the heart of Mogale City, creating an enticing shopping destination for consumers in Johannesburg's West Rand, and its surrounds.

This Architectural Masterpiece is set to become one of South Africa's preeminent shopping destinations, it enjoys a unique location near the world-renowned heritage site, the Cradle of Humankind.

With the mass proliferation of smartphones, all these visitors expect to make calls, text and browse the internet while moving between the areas in the mall. Therefore it was vital that coverage was provided in all areas inside the mall to cater for its customers.

Radio Network Solutions, a service provider to the telecoms market, approached Axell Wireless to provide the equipment required for comprehensive 2G, 3G and 4G coverage across the site – including MIMO in all retail areas of the mall.

### The Solution

The solution provided needed to support the two leading South African Operators simultaneously with MIMO capability in all retail areas except the basement parking areas.

An Active DAS is the obvious choice for a building this size providing the most cost-effective and efficient wireless coverage in a mixed-use environment such as required for Cradlestone Mall.

An Active DAS can be fed using a base station close-by, a base-station located off-site, or alternatively it can be fed using an off-air digital repeater. A master unit then takes the Radio Frequency (RF) signal and converts it into an optical signal, then re-distributes it through fibre optic cable to a series of optical remotes. The signal is then converted back at the remote unit and distributed to the network users via a series of coaxial cables, antennas or leaky feeder cable.

In this deployment, a base station hotel onsite was used to feed the DAS. The DAS consisted of 14 MBF-40 remote tri-band units, working on 900, 1800 and

2100MHz (supporting GSM/3G and LTE) and an additional 10 MBF-40 MIMO remote units working on 1800MHz only.

The remote units were all connected to several Optical Master Units (OMUs) located in various places onsite.

The remote units supplied on this project provide an exceptionally low noise figure which reduces any interference transmitted to the base station. As a result it ensures optimum performance on the network and the maximising of throughput.

*"Cradlestone Mall is a complex environment that needed comprehensive, seamless wireless coverage in order to serve all its occupants. Working with Axell Wireless meant that we could provide the latest in RF-over-fibre technology while future-proofing the system for future expansion".*  
Radio Network Solutions

## The Benefit

Cradlestone Mall and its customers and occupants now benefit from a state-of-the-art in-building wireless coverage system.

In many locations like this, outdoor cellular coverage is blocked by **high penetration loss** of modern buildings. The materials used to build such structures often shield wireless signals from outside so the in-building Fibre DAS used around Cradlestone Mall helps the property owners to overcome this problem.

Dominant **cell definitions are often disturbed by multiple cells from outside** but by providing designated coverage within the building itself this problem is eliminated completely.

Compared to other technologies in this space, an Axell Wireless Fibre DAS is a **multi-band, multi-operator system** that works in any frequency combination that is required. This flexibility means systems are able to cope with growth as and when it is required. It also means less equipment needs to be deployed, resulting in a smaller footprint within the building and savings on both CAPEX and OPEX - as well as simplifying the network design, of course.



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