Case Study | HEALTHCARE

Hospital Enhances Emergency Connectivity Using Lighthouse™ Smart NCR and 5G DAS Solution

The Challenge

A Hospital in Muscat, Oman faced significant in-building coverage issues in its underground and indoor areas. The facility's concrete-heavy infrastructure created severe LTE signal degradation, jeopardizing mission-critical communications — especially during emergency response scenarios where staff must always remain reachable.

Dead zones were most prevalent in the underground car park and lower-level corridors. Despite existing 4G infrastructure, LTE throughput levels across the premises ranged between 7 Mbps and 12 Mbps, insufficient for modern healthcare demands or mass notifications.

The Solution

Airgain's Lighthouse Smart Network Repeater solution was deployed by leveraging the hospital's existing passive DAS and repeater infrastructure — a cost-efficient approach with minimal cabling or disruption to hospital operations.

Key deployment elements included

- 5G-wideband rooftop antennas aligned to a nearby gNB site
- Lighthouse 5G repeater integration at strategic points
- Backhaul routing to existing 4G DAS using coax and CAT cabling

The entire IBS (indoor building solution) solution was **installed within 4 hours**, without the need for a retransmission license or operator intervention.

Challenge

LTE signal coverage degradation due to building Infrastructure causing dead zones within facility

Solution

Lighthouse™ solution leveraging existing DAS Infrastructure

Installation

Installation completed within 4 hours using topology mapping, Lighthouse™ repeaters, and multi-band antennas

Results

25x throughput improvement, uplink and downlink stability throughout structure with zero service Interruption during Installation

For more Information:
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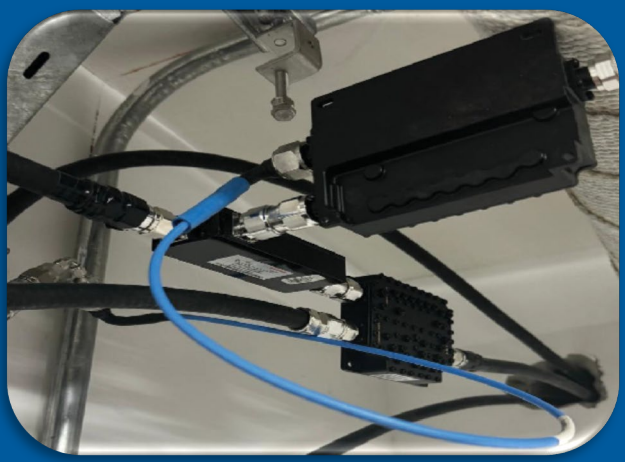
Lighthouse 4G/5G Repeater

4G/5G Antenna



5G Repeater Insertion

Installation Approach

- **Topology Mapping** to identify gNB proximity and building orientation
- **Multi-band Antennas** installed rooftop for 4G/5G macro signal capture
- **Lighthouse Repeaters** mounted at intersection points to minimize latency and maximize distribution efficiency
- **Reuse of Legacy 4G DAS** for unified indoor rebroadcast of upgraded 5G signals

Specialty Hospital
Muscat, Oman

The Results

- **>25x throughput improvement**, with post- deployment speeds ranging from 226 Mbps to 430 Mbps
- **Uplink and downlink stability** optimized throughout all corners of the facility
- **No service interruption** during installation
- Network performance now meets **hospital- grade emergency readiness** benchmarks

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