Case Study | HEALTHCARE

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

## The Challenge

Apollo 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.

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### 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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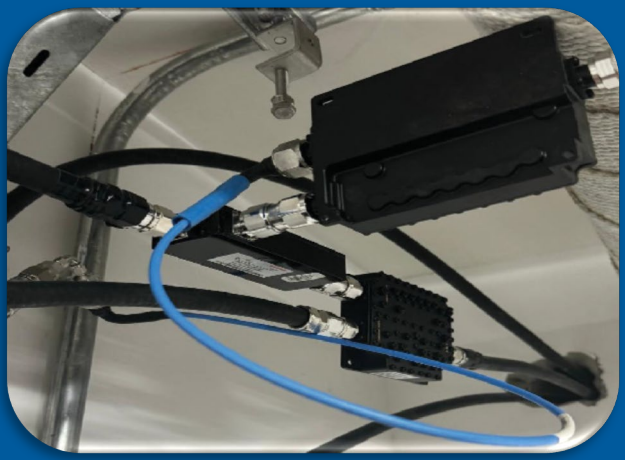
Lighthouse 4G/5G Repeater

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


**Apollo 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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