

Hytera DMR Network Delivers Reliable Comms and Real-Time GPS Tracking for Space Company Southern Launch



Introduction

Hytera partner D2N supplied a multi-site Hytera XPT radio network with real-time GPS tracking across a large rocket launch site with difficult terrain for Southern Launch in Australia.

The Background

Southern Launch is a rocket launch service provider based in Adelaide, South Australia. Its goal is to develop a space launch capability to send satellites into orbit from its Whalers Way Orbital Launch Complex on the Eyre Peninsula in South Australia. The company also has a suborbital testing facility at the Koonibba Test Range. To ensure it can operate smoothly and safely, the company required a reliable and secure communications system for their launch facilities and ranges.

User Name

Southern Launch

Date

2021

Industry

Space Rockets

Products

- DMR RD98X Repeaters
- DMR PD66X Hand Portable Radio Terminals
- Smart XPT Dispatch System
- XPT Licensing for Repeaters

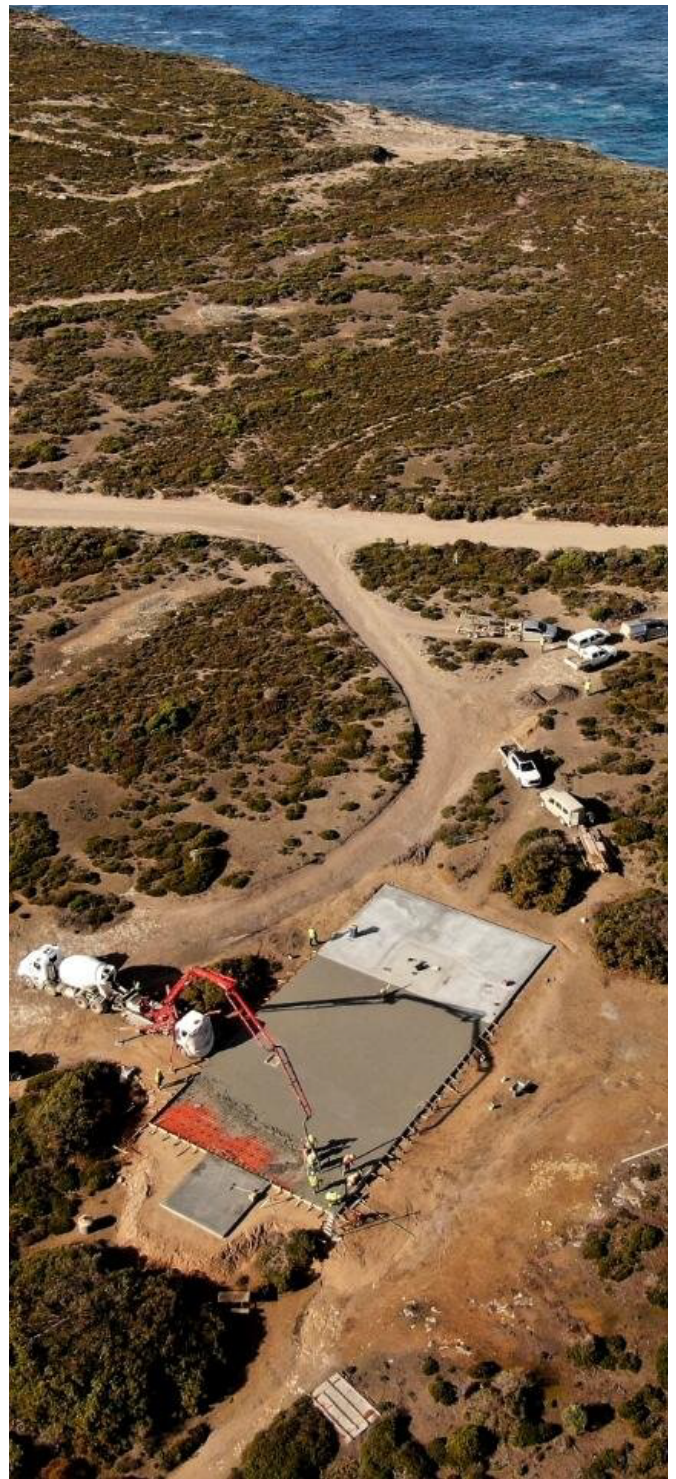
“The D2N comms solution met all of our requirements and also freed up funding that would otherwise have been spent on more expensive brands. That financial advantage along with the flexibility of their Hytera solution simply means we have the very best communications solution for our requirements.”

Shane Bennett, Mission Control Manager, Southern Launch

The Challenge: Full Radio and GPS Coverage Across A Very Rugged Terrain

Southern Launch required a fully encrypted and mission critical communications system that would also provide blue force GPS tracking, recording of all conversations, and dispatch covering a huge site. Southern Launch also needed high speed, 4K video streaming capabilities, which could be reliably transmitted across the launch range networks in real time.

One of the key challenges was to ensure the GPS tracking worked over the complex site topography, as the landscape is large, undulating and geographically challenging. Another challenge was that the repeater sites had to be designed so they could be installed and removed on a regular basis to suit the rocket launch schedule.



The Solution

Southern Launch contacted several communications suppliers and decided that Hytera partner D2N Technology Solutions proposed the most suitable solutions to meet the company's unique and challenging requirements. D2N first offered a multiple rental solution, so that Southern Launch could trial the technology to see if it really suited their needs.

Southern Launch was able to test the technology and coverage with and without repeaters. D2N worked with Southern Launch to ensure the right accessories were selected given the high noise level during launch operations as well. The rental offer also meant that the company did not have to commit to a big capital expenditure without first trialling the kit, which it saw as a major bonus.

D2N's proposed solution comprised a Hytera DMR two-way radio network consisting of three Hytera XPT (Extended Pseudo Trunking) repeater sites and Kiloview IP video encoders. Each XPT site runs two DMR RD98X repeaters with RFI combining and multi-coupling hardware linked together by IP connectivity.

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The Benefits

Fast Delivery Time

The lead time was a key driver for the project as the chosen supplier only had 4-6 weeks to deliver the entire network from the order date. No other manufacturer besides Hytera could deliver the hardware in that time frame.

Optimised Spectrum Resources

Hytera XPT technology uses available spectrum resources more efficiently by dynamically assigning channel resources without needing a dedicated control channel. This provides enhanced value as it combines the advantages of DMR Tier II conventional networks with the properties of trunked radio systems.

Full Radio Coverage

The radio system ensured all staff are contactable and accounted for during all safety critical stages of the launch, as staff are able to communicate clearly across the very rugged terrain.

Real-Time GPS Tracking for Safety

The GPS tracking capabilities provided the Southern Launch senior operational team with real-time situational awareness of all staff locations and status.

Cost Effective Solution

D2N provided a fit-for-purpose solution from Hytera with a high level of encryption and quality, which was more competitive in terms of price and feature set compared with other manufacturers and with no sacrifice in performance.

The radio sites have to be installed, configured, and then deactivated and removed on a regular basis to suit the rocket launch schedule, including antennas, power and IP connectivity. D2N has built the racks in a way that allows for a quick install and removal by people without much engineering knowledge. The ease of packaging and the durability of the kit are therefore very important for Southern Launch.



The radio solution delivers ultra-reliable communications across the entire rocket launch site. The system provides the backbone for Southern Launch's security, range management and mission control, and is a critical enabler for it to undertake safe and secure launch operations.



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