A COMPREHENSIVE LOOK AT

WI-FI network in growing fields

For Growers and Decision Makers

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Wi-Fi networks are a game changing in the Smart Farming

Covering hectares with high bandwidth network for automation, communication enabling new possibilities in farms

Wi-Fi technologies are widely utilized in homes and can now be extended to outdoor areas with minimal equipment, ensuring dependable coverage in paddocks. When compared to alternatives like LoRa or mobile (3G/4G/5G) coverage, Wi-Fi offers superior performance for a wide range of applications, including automation, crop monitoring, and surveillance. The equipment is readily accessible and easy to install, while maintenance services are widely available. Wi-Fi provides a cost-effective solution, delivering reliable network coverage and equipment functionality per hectare. A single connection between the Wi-Fi network and the Internet is all that is required to access any online service for your business.

Benefits of Outdoor Wi-Fi in Farms

Long range coverage

Equipment is capable to broadcast reliable signal up to 1km in all directions. Equipment can be combined to work together and cover wide areas

High data rates

Enable, automation, surveillance and future applications any place in the field

Compact and simple installation

The communication pod is compact and simple to build and install. Powered by solar, all equipment is contained in a small area

Wi-Fi has several network topologies to fit with your business needs

WiFi can be organized to fit the farm needs. Network is simple to deploy and maintain during the seasons.

Wi-Fi communication pod

The communication pod is constructed using a sturdy metallic structure designed to accommodate the solar panel, battery, and Wi-Fi radio, elevated approximately 5 meters above the ground. The base of the pod utilizes a durable UTE or tractor tire. Within the pod box, situated behind the solar panel, you will find essential components such as the solar regulator and PoE injector, which efficiently power the Wi-Fi radio.

The communication pod is a comprehensive setup that includes a Wi-Fi radio positioned atop the structure, along with a solar panel, battery, and the option for either a 4G dongle or a Starlink® internet connection. Extensive testing has demonstrated that a single pod can effectively cover approximately 254 hectares of a circular area, providing reliable coverage even at the edges with speeds exceeding 8Mbps within a radius of 1 kilometer.

Wi-Fi communication pod box

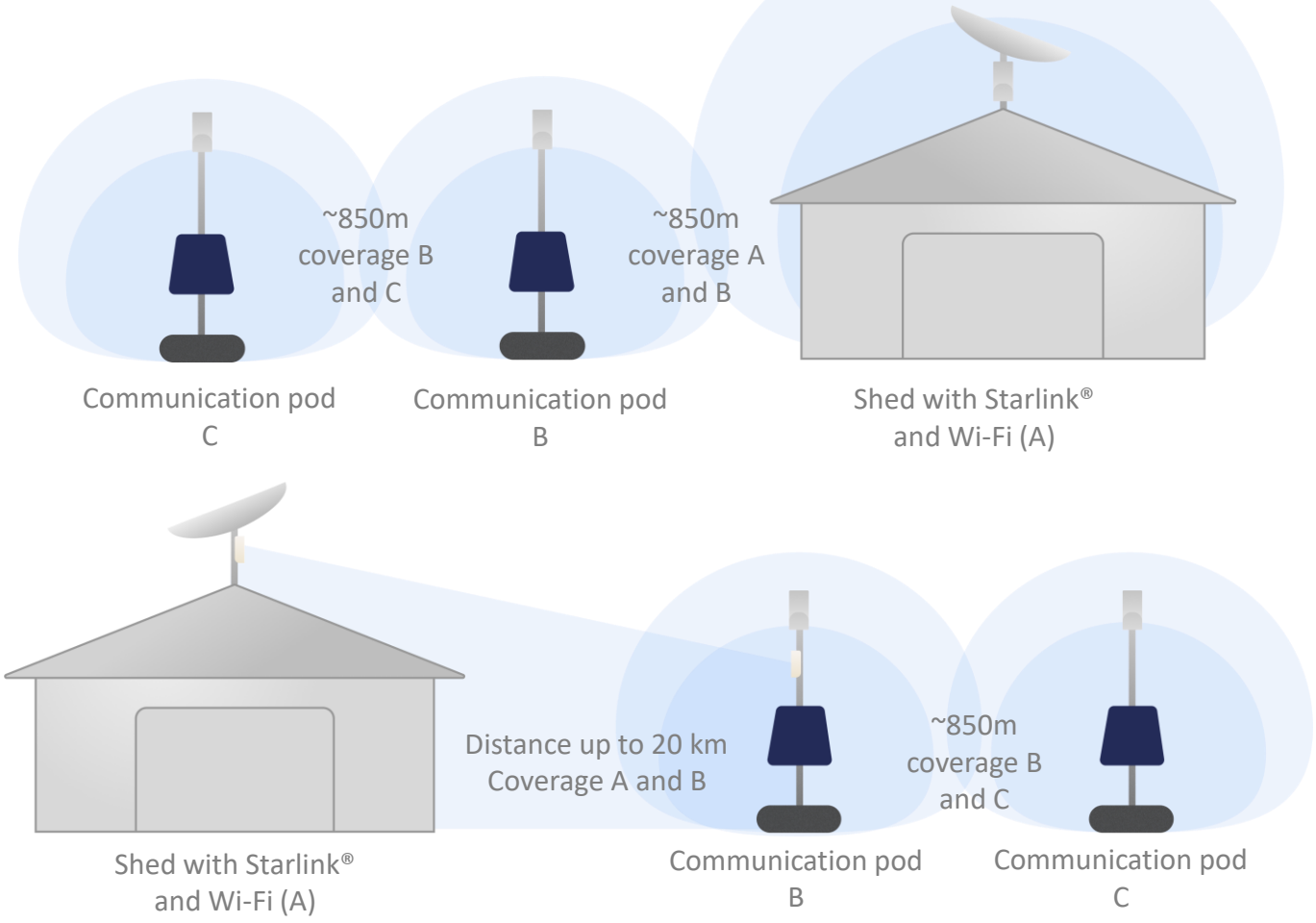
Two Wi-Fi innovative network topologies to cover wide areas

Wi-Fi Mesh covers since the shed to the crop

When the monitored area is near the shed, deploying a Wi-Fi Mesh topology can effectively cover the entire expanse, extending from the shed to the crop. In this setup, a single Internet connection point is established within the shed, which is then shared with Communication pod B via a radio connection (A) installed in the shed. Subsequently, Communication pod B acts as a hub, redistributing the internet connection to Communication pod C, thereby encompassing the surrounding area surrounding each communication pod.

The Point-to-Point plus Wi-Fi Mesh can be applied when the fixed internet connection point is far from the crop area under monitoring

In this scenario, a Point-to-Point Wi-Fi equipment is installed both in the shed and in the first communication pod situated within the monitored area. This establishes a direct link between them. To connect with additional communication pods, a Wi-Fi Mesh network is employed. This combination of Point-to-Point and Wi-Fi Mesh technologies ensures efficient connectivity and coverage throughout the entire network of communication pods.

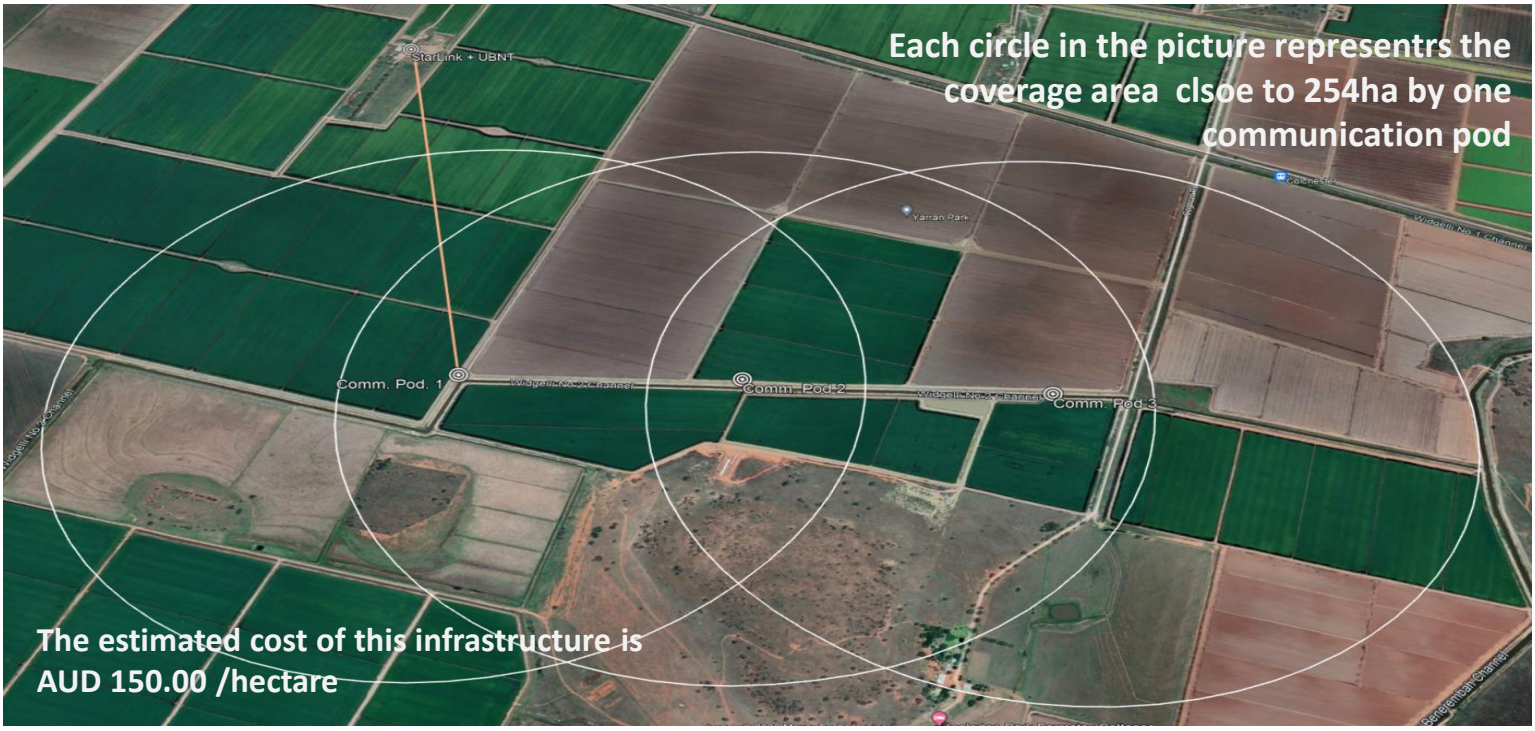


In both scenarios, all internet services available in the shed are also available in the areas covered by Communication pods B and C

Case: Trial in Amberley Pastoral Co.

Wi-Fi automation in aerobic and traditional rice crops

To establish reliable connectivity, a Starlink® system is installed in the shed, while a point-to-point Wi-Fi connection bridges the gap between Communication Pod A and the shed, spanning a distance of 2 kilometers. With this setup, three communication pods effectively cover a sprawling area measuring 569 hectares.



Case: Rice Research Australia Pty - RRAPL

Wi-Fi automation in aerobic and strategic irrigated rice crops

The Wi-Fi MESH network provides reliable and redundant coverage across multiple fields. A Starlink® equipment is installed in a pump shed located in the paddock area, extending the coverage. Additionally, four communication pods are strategically placed to cover an expansive area of nearly 958 hectares. This setup ensures robust connectivity throughout the network, offering stable and efficient coverage across the fields