

CONNECT MORE WITH LESS

Baicells

# CASE STUDY

with *Surf Air Wireless*

## Why Surf Air Wireless Chose **the Nova227**



### Overview

Benton County is one of Indiana's top agricultural communities and home to the state's first wind farm. In the southwest corner of the county sits Ambia, a small town of just over 200 people. Despite its small size, it contains two churches, a post office, and multiple businesses. In Ambia and other rural communities, access to fast, reliable internet has a direct impact on education, medical care, and employment. High-speed broadband is now the "lifeline" of local communities across the country and plays an important role in their economic growth.

Surf Air Wireless has been the premier broadband provider in this area of Indiana since 2010. Its mission is to provide the greatest number of people with the best possible access to the Internet. Their network is fast and has the latest technology, thus allowing their customers to experience reliable internet to enhance their daily lives.



"Surf Air Wireless wants to target niche markets that are underserved. We really want to be able to connect everyone. Connecting the unconnected is important to us in order to move our neighborhoods forward," reports Patrick Wheeland, VP of Broadband Operations at Surf Air Wireless.

Mr. Wheeland describes how using the Baicells product line enabled Surf Air Wireless to provide broadband services to one of the communities they aim to assist.



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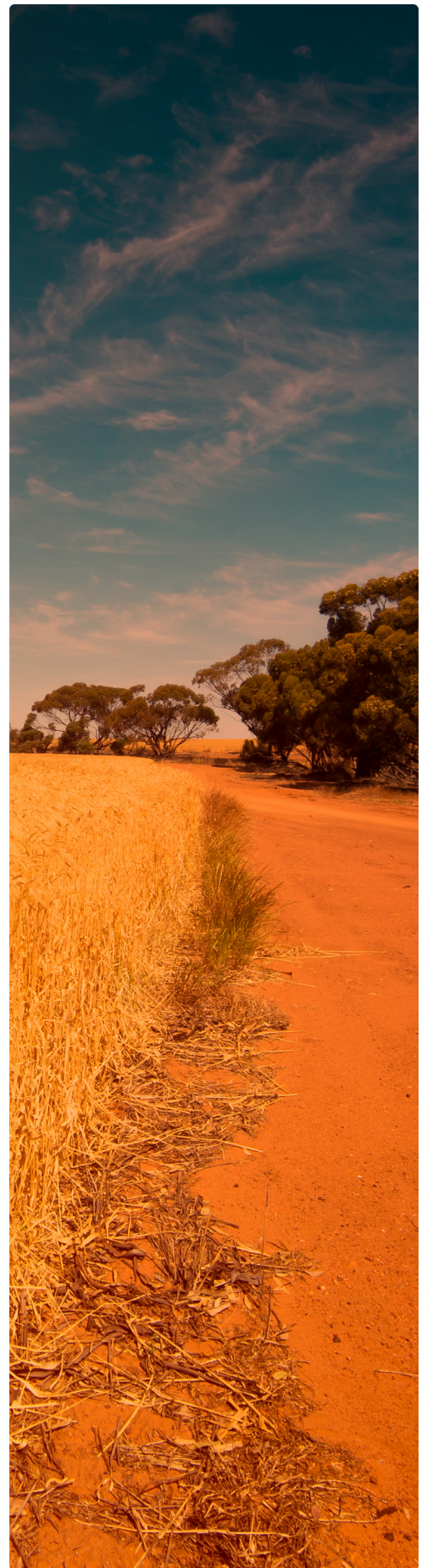
# The Problem

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Known to the IT industry, the propagation of signals between a transmitter and a receiver is central to the reliability and availability of any wireless radio link. In an ideal scenario, two radios would have a clear Line-of-Sight (LOS). Non-Line-of-Sight (NLOS), as the name suggests, is when the transmitter and receiver cannot “see” each other because of obstructions in the transmission path (i.e., trees), thus impacting how the signals propagate.

Although Ambia contains miles and miles of flat farmers’ fields, the residents’ homes are predominantly situated in a large cluster of trees. When Mr. Wheeland performed the initial survey of the town, from atop its water tower, he could see for miles in all directions, except for where most of the population resides. What did he see? Trees. “In that direction, we really could not see many rooftops at all,” recalls Wheeland, “so we knew we were going to need a non-line-of-sight product.”

Surf Air needed a product ideal for non-line-of-sight connectivity; one that could target pockets of tightly clustered customers. Additionally, the product would need to be compact enough to fit on top of the water tower and be easy to install, yet remain cost-effective.



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# The **Solution**

## Nova227

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Surf Air Wireless deployed the Baicells Nova227 eNodeB (eNB) in Ambia for several reasons.

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### **Wheeland explains:**

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*“We found that the 227, with its small form-factor, was a perfect fit for this location because we only needed to direct the signal to a small radius in the town. We also had very limited mounting [space] on top of the water tower, and again, the 227 was a perfect fit. We also like the non-line-of-sight capabilities of the Long Term Evolution (LTE) product line.”*



### **Wheeland goes on to say:**

*“...we typically install these on smaller, self-supporting towers, so we need something that’s compact. We’ve also found it very easy to install because of the lack of the external antenna. With a built-in antenna, it’s a lot easier for our installers to run up and install. Then, it’s easily powered using power over ethernet.”*

Furthermore, he adds, “... and the CloudCore on the back-end really simplifies things. It ties in with our billing platform, everything is automated, and our installers really like the Baicells equipment because of its ease of installation.” Wheeland affirms that the Nova227 and the Baicells product line “has worked out well for us.”



## **The Solution - Nova227**

Wheeland recommends using Baicells products for any carrier looking for an LTE solution. He reports that Surf Air Wireless plans to continue using the Nova227 for its non-line-of-sight performance and low-cost-of-entry. “We’ve found the pricing really palatable...” and “...the back-end hardware supported by the Baicells CloudCore makes it easy for us. It ties in well with our back-end systems.”

### **About the Nova227**

The Nova227 is a high-performance, outdoor micro base station, built and priced specifically for tightly clustered pockets of customers, coverage holes, edges of your network, or simply opportunistic micro-targeting (i.e., RV parks, marinas, and high-density dwellings such as townhomes and apartments). This low-power microcell eNB has an incredibly low-cost-of-entry, an integrated antenna, and contains Baicells Plug-and-Play technology.

The Nova227 is easily installed, and when paired with self-install indoor user equipment, it gives operators a near-immediate return on their investment. As with all Baicells products, the Nova227 supports LTE technology and operates in Time Division Duplexing (TDD) mode. For private network operators, this microcell is perfect for clusters of cameras, such as those used at traffic intersections and other devices.



**For more information about the Nova227 and other Baicells products, visit [baicells.com](http://baicells.com).**

