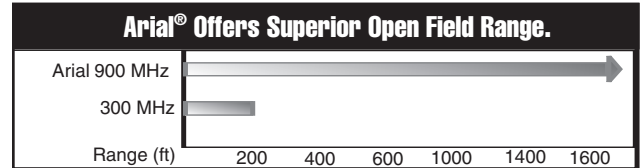


## Three Key Reasons Why Aerial® 900 MHz Wireless is the Best

### 1 Better Range

Arial® 900 MHz technology provides a far superior range compared to that of the 300MHz products. Single channel 300 MHz is the same limited range frequency used by garage door openers.

- The FCC allows higher transmission power for 900 MHz spread spectrum systems. Greater transmitting power results in significantly farther range. Aerial 900 MHz wireless offers superior in-building range, and up to 10 times the open field range of 300 MHz products. For example, some Aerial systems cover campuses of several hundred acres.
- The wavelength of transmissions at 900 MHz is much shorter than those in the 300 MHz band. The shorter wavelength is less apt to be blocked by walls and other structural material resulting in a significant improvement in the effective range of transmissions and dramatically improved reliability. This is why many police and fire departments depend on the 900 MHz band for their communications.

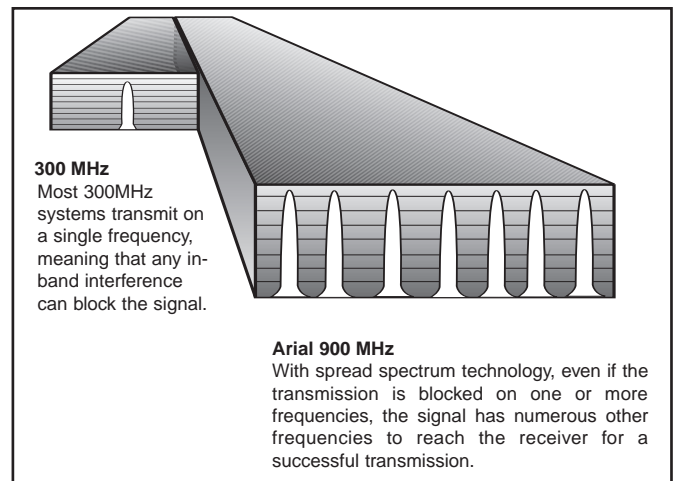


### 2 Automatic Self-Testing (Supervision)

- Aerial transmitters are fully supervised. This means the transmitters automatically send impulses to the receiver on a regular basis to self-test the system for low batteries, tampering, and inactive status. With Aerial 900 MHz the transmitters may check in as frequently as every 10 seconds, allowing the detection of a missing or malfunctioning transmitter in less than one hour. By contrast, 300 MHz systems are restricted by the FCC to one check-in signal every hour, meaning up to 24 hours might pass before detection of a malfunctioning transmitter. In addition, some 300 MHz systems that claim “full supervision” in reality offer only low battery supervision.

### 3 Spread Spectrum Means Increased Reliability

- Virtually all 300 MHz systems send information on a single narrow band channel. As a result, these radio systems are susceptible to interference. A single interfering signal at or near the 300MHz frequency might easily render the system inoperable.
- With spread spectrum technology, the Aerial system sends a redundant signal 24 times over 24 different channels across a 10 MHz band width, to virtually eliminate interference and maximize range and reliability.



## **Frequently asked questions about Arial® wireless technology:**

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### **What is spread spectrum?**

Spread spectrum technology was developed by the U.S. government for use in secure, highly classified, interference immune radio communication systems. The technology was eventually released to the public and the FCC allocated radio spectrum for its use in 1985.

With spread spectrum, every signal sent from an Arial transmitter is sent 24 times over 24 different frequencies within the 900 MHz band width, for increased reliability. Spread spectrum is perhaps the most reliable technology available to address interference avoidance.

In the past, radio airspace was thought of as a limited resource to be rationed. Transmitter and receiver operations were limited to specific points on the frequency spectrum to minimize interference. With spread spectrum, multiple radio transmitters in the same geographic location can successfully operate within the same frequency. This was discovered in a 1995 analysis by Mr. Timothy Shepard at the Massachusetts Institute of Technology. His study demonstrated that spread spectrum allows one frequency range to be used by thousands of transmitters with minimal possibility of interference. *Source: A Channel Access Scheme for Large Packet Radio Networks: Timothy J. Shepard, BBN Systems and Technologies. Cambridge, MA; 1996*

### **Is the Arial system susceptible to interference from 900 MHz phones?**

The FCC has allocated a 26 MHz range for spread spectrum communications (902 to 928), a relatively wide portion of the radio spectrum. While there are other products operating in this band, many of these products (such as the majority of 900 MHz cordless phones) are low power communication devices, transmitting within a narrow bandwidth. There is little to no chance of interference.

### **Will there be any potential modifications by the FCC that could change the way the 902-928 MHz frequency is used?**

It would be very unlikely. A check with the FCC can verify that the users of spread spectrum technology in the 902-928 MHz band are not likely to need licenses or have their existing operations changed. The potential impact on an individual level (such as those people with 900 MHz cordless phones) would be far too great to make this kind of change in the existing 902-928 MHz frequency band.