Max™ Wireless

Audio Conferencing

Max™ Wireless Security

Max™ Wireless is designed with digital spread spectrum technology — one of the most reliable technologies available — to ensure calls are private and secure. Spread spectrum technology has been used for more than 50 years by the military because it has a low probability of signal interception and interference. This makes it the ideal technology for the Max Wireless conferencing phone.

Understanding Digital Spread Spectrum and Frequency Hopping

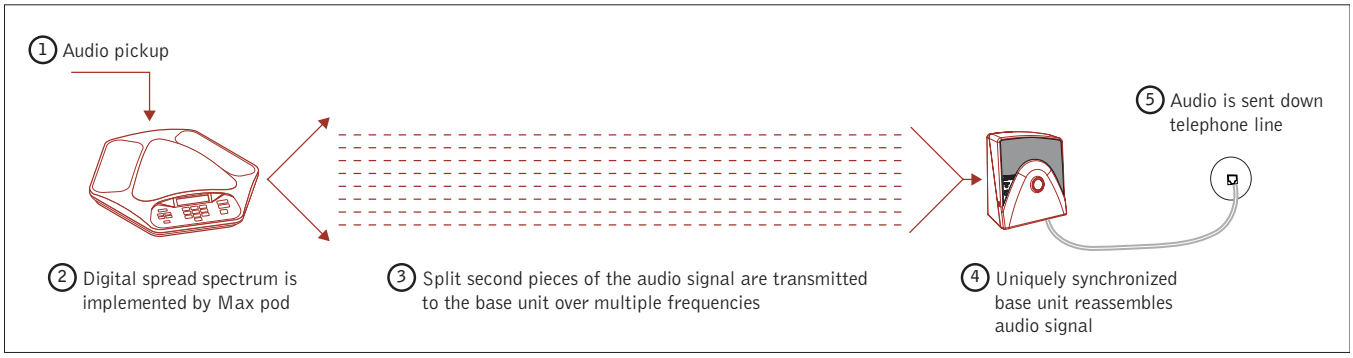
Digital spread spectrum technology breaks the audio signal into split-second pieces and spreads them over a wide range of frequencies for transmission. These pieces are then sent to a receiver. Only the receiver that is uniquely synchronized or registered to the transmitter will be able to reassemble the signal. This ensures maximum security.

Digital spread spectrum is commonly implemented using either direct sequence or frequency hopping encoding methods. The Max Wireless conferencing phone uses frequency hopping, which transmits the split-second pieces of audio signal over rapidly switching frequencies. The frequency hopping occurs over a minimum of 75 channels in the 2.4 GHz band. If a channel starts to experience interference, the transmitter and receiver automatically change the hopping sequence to avoid the interference.

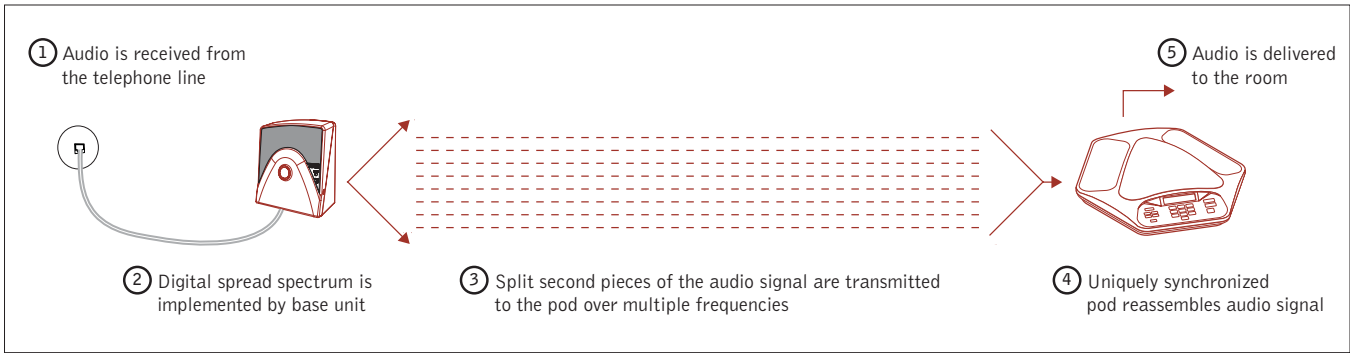
How Max Wireless uses Digital Spread Spectrum and Frequency Hopping

The Max Wireless conferencing pod and base unit act as both transmitters and receivers using digital spread spectrum. The pod and base unit that ship together are uniquely synchronized to each other and use a matched frequency hopping sequence. The pod will only reassemble the signal sent from its matching base unit and vice versa. This ensures that the audio signals sent from and received by Max Wireless are secure.

Transmit audio path



Receive audio path



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The Max pod and base unit will automatically adjust the frequency switching pattern when interference (another device transmitting on the same frequency) is detected on the channel. This eliminates the possibility of interference when multiple Max Wireless units are used in close proximity. Up to 15 Max phones may be used in the same vicinity with no discernable interference between phones, provided the base units and pods are not placed within six inches of other base units and pods.

Using frequency hopping also prevents Max phones from interfering with wireless local area networks (LAN). Typically, 802.11 wireless LANs use direct sequence transmission, which means they use a constant band of frequencies. If the Max phone tries to transmit on one of the frequencies being used by the wireless LAN, it will detect the LAN and avoid that channel if possible. If Max uses the same frequency, audio quality will not be affected and conversations will not be interrupted. It is possible that the LAN may slow down for 100 milliseconds. However, since LANs are packet-based, the interference from Max will not be noticeable.

Wireless Standards

Max Wireless models use either the WDCT (Worldwide Digital Communications Technology) or the DECT (Digital Enhanced Cordless Telecommunications) standard, depending on the wireless requirements where the phone will be used. Both wireless standards are stable, extremely reliable and have a reputation for maintaining excellent sound quality. These are the latest standards for wireless telephones (similar to home phones) and are an improvement over the 900 MHz standard.

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