Radio Modem Summary

433 Beth Bartel June 18, 2020 Radio Modems 5394

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Wireless technology offered by radio modems provides an effective data throughput (2.4-19.2kbps) using a carrier-independent mode of transmission over distances of up to 100 km so long as line-of-sight is maintained. For remote sites, this may be the only alternative to ensure regular data downloads. Radio modems require an external antenna for transmission and, therefore, inter visibility between the receiver and download sites is required. For truly remote sites, consideration should be placed on high power antennas, radio repeater sites, or the use of in-line amplifiers to boost the range and data throughput. Inquire with local communication licensing authorities regarding the use of high-powered radio communications. Another option for enhanced communications is the choice of a directional (Yagi) antenna over an omnidirectional one, particularly if only one leg is required between the access point and endpoint.

The initial investment for a radio modem is relatively high (2 to 3 times the cost of a phone modem), but the cost is somewhat offset by the fact that, once installed, the user does not incur additional toll charges for each connection. A mixed communication mode may also be a viable alternative where a remote radio link is connected to a remotely located phone line. The modems are divided into types according to modulation and frequency range.

Modulation Types

- Direct Sequence Spread Spectrum
- Frequency Hopping Spread Spectrum
- Narrowband

Frequency Ranges (modems operate unlicensed in the following ISM bands)

- 915 MHz (902-928 MHz)
- 2.4 GHz (2400-2483.5 MHz)
- 5.8 GHz (5728-5850 MHz)

For interfacing with GPS receivers, the modems have to be RS-232 compatible.

Suggested minimum requirements

- Range up to 60km (Line-of-sight)
- Low power consumption (2-5W)
- Light weight (0.5-1.0 kg)
- High effective data throughput (2.4-19.2kbps)
- Environmentally durable (temperature, humidity, shock resistant)
- RS-232 compatible

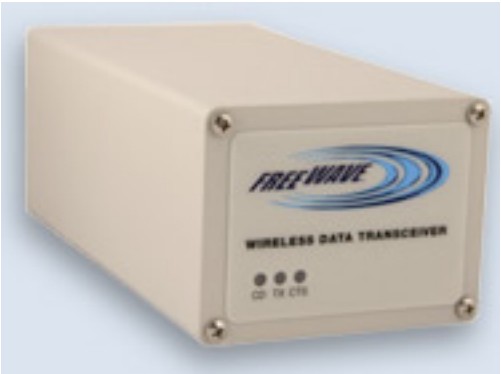
Information on radio modems used by UNAVCO

Intuicom (all models)



- UNAVCO Summary of Intuicom radio modems and networking

Freewave (all models)



- UNAVCO Summary of FreeWave radio modems and networking

Online URL: https://kb.unavco.org/article/radio-modem-summary-433.html