RADWIN

Please confirm or correct my understanding of the protocol at the algorithmic level based on your latest description: the system employs a fixed 1.25 ms frame and the transmitter listens for 10 us at the beginning of each frame over the entire operation bandwidth. That transmitter can occupy the entire 1.25 ms afterward or in the case of TDD operation, the receiving system can transmit after the sender ends and determines that the channel is free.When a multiple number of frames (sync loss threshold) provide no clearance for transmission, the transmitter falls back to a random or pre-determine channel; the receiver performs a cold search in the former case or re-sync in the latter case. There is no co-channel detection during the 1.25 ms transmission period; and there is no "backoff" or "time-out" in the sense that the transmitter will try again in the next 1.25 ms frame.

RADWIN's answer:

1. **1.25 ms is the total frame duration size of transmit and receive path of each radio device-(TDD duplex mode).**
2. **The transmitter does not transmit during the entire 1.25ms frame. It occupies up to 50% of the 1.25 ms frame duration (~550us).**
3. **The transmitter always performs a pre-scan for co-channel signal detection before starting a transmission.**
4. **In case of re-sync the transmitter performs a co-channel scanning before transmitting on a random or pre-determined channel (stated as initialization stage).**
In this case the receiver side remains in receive mode until it re-syncs with the transmitter side in the new selected channel.
5. **Co-channel scanning is always performed prior a transmission.**

The receive sensitivity is -65 dBm. With a 25 dBi antenna, this means that the client(s) can be "-90 dBm away" from the master. Since the co-channel detection threshold is -75 dBm, there is a 15 dB gap. This means that, picturing the coverage areas of -75 dBm and -90 dBm, the non-overlapping area would be the area that the master and clients can still communicate and assume no co-channel occupant because the competitor's signal is too weak to detect. Please also confirm or correct the above understanding.

RADWIN's answer:

> **The -75 dBm detection threshold is the minimum interference signal strength to be detected at the RF connector of the receiver (0 dBi antenna gain). This actually means that the operational link sensitivity threshold is -65 dBm (with 0 dBi antenna gain) whereas the interference detection threshold is 10 dB lower.**

In this case, according to your description, since the detection threshold is not changeable by the users, what should people do when their system interfere another system? TX power reduction mechanism would not kick in if the transmitter is not aware of the existence of a competing system.

RADWIN's answer:

> **Following the answer above, this case is not valid since the system can detect down to -75 dbm co-channel interference (with 0 dBi antenna gain). This value is 10 dB lower than the -65 dbm operational link sensitivity level (with 0 dBi antenna gain).**

Sincerely,

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