Sync is programmed for two bytes 0x2DD4. We can get 2D out of this if we take the last 3 bits of the preamble. Coincidence?

Preamble set to 2 nibbles
Reg 35, preath[4:0] = 2
Preamble? (only 7 bits)
Good looking preamble (5 nibbles). Detection set to 2 nibbles. This is the longest preamble I've seen. Most of them are two nibbles ???

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Good looking preamble (5 nibbles). Detection set to 2 nibbles. This is the longest preamble I've seen. Most of them are two nibbles ???
It appears as if the sync detection does not evaluate the first bit of the first sync byte received - or preamble and sync detection overlap by one or more bits at the end of preamble, and the beginning of sync. I have seen more than one example of this behaviour.

2 nibble preamble if bits are grouped into nibble as shown (purple).

If evaluated as a nibble ≠ 2

TRANSMITTER ON ~1" from receiver.
Clear Channel RSSI threshold = 0x80

Pulse is clear channel indicator caused by my transmitter (I assume), but no valid preamble or sync received. If it’s my transmitter, then why don’t I receive a valid preamble or sync since signal strength is high?

Sync Valid Indicator

No Clear Channel indicator here, but it is time for one based on transmitter cadence. Earlier Clear Channel indicators received on this run (not shown). Don’t know why there isn’t one here.

Beginning to think there is another transmitter somewhere, that does not have sufficient signal strength for the RSSI threshold, but my receiver is receiving and demodulating. Will try adjusting RSSI Threshold.

No Clear Channel here, but preamble and sync received with same issues as shown above.
RSSI Threshold reduced from 0x80 to 0x20. Lots more instances of “clear channel” indicators. Still no clear channel indication for preamble and sync received.

RSSI Threshold reduced from 0x20 to 0x10. Now I actually have more indication of clear channel than not. Will try 0x18 next. So far, RSSI not much help.
TRANSMITTER ON, ~1" from receiver
But I don’t think this is my message.

RSSI Threshold = 0x18  
Clear channel indication

Lots of data/noise sent/received after clear channel indication, and before preamble.

Sync received indication

Data received does not match data from my transmitter.
Read FIFO data

Packet Valid interrupt
Packet threshold set to 5

Sync detection looks really fubar. Can't even re-group bits to get 0x2D out of this for first sync byte.

FIFO Data matches received data