1. Compliance with 15.247(a)(1):

1. The system is a star-topology, time-synchronized network.
2. The timeline of the network is divided into time-slots. The duration of one time-slot is 15.6 milisecond. This means that there are 64 time-slots every second
3. At the beginning of every time-slot, every element of the network (i.e. network-coordinator and all end-nodes) calculates the proper frequency channel for that time-slot. This means that system switches frequency channel 64 times every second.
4. Every element in the network (network-coordinator and all end-nodes) calculates the proper frequency channel in the following way:

1. The system clock is first AES-128 encrypted. Then the proper frequency channel is derived as a function of the encrypted system clock
2. Since the system clock rolls over every 1.5 days, the hopping sequence is 1.5 days long
3. Since the frequency channel number is a function of the encrypted system clock (and since the system clock changes constantly) the hopping sequence is both pseudo-random and evenly distributed (this is a fundamental concept in encryption theory, otherwise, the encryption would have been useless). Evenly distributed frequency hopping sequence means that each frequency is used equally on the average by each transceiver
5. The bandwidth of a frequency channel (and hence the receiver bandwidth) is set to ~130KHz. The bandwidth is selected to be ~130KHz to accommodate ~100KHz signal bandwidth (50kbps, GFSK modulation and 25KHz deviation yields an effective bandwidth of ~100KHz and 20dB bandwidth of ~129KHz)
6. I'm attaching a file with an example of the hopping sequence. The channels are numbered 0 to 49 (i.e. 50 channels). I captured ~4500 hops.

2. Compliance with 15.247(g) and 15.247(h):

1. The system is a star-topology, time-synchronized, time-slotted network
2. The system comprises one network-coordinator (control panel) and multiple end-nodes (devices).
3. Each end-node has an attached sensor. The end-node wakes up periodically (typically every 10s seconds) and samples the sensor. After sampling the sensor, the end-node selects the next available time-slot and transmits a short burst (message) comprising the data sampled from the sensor (the message is less than one time-slot length, i.e. less than 15.6 milisecond length)
4. The short burst is sent at the proper frequency channel, the one associated with the time-slot in which the message is sent
5. The system uses 50 frequency channels. The hopping sequence is 1.5 days long, and since it derived as a function of the encrypted system clock it is both pseudo-random and evenly distributed. Over time, both transmissions from a certain end-node and the overall transmissions from all end-nodes are both pseudo-random and evenly distributed.
6. No coordination of frequency hopping systems, in any manner, for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is incorporate in the system

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