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FCC
Federal Communications Commission

Additional declaration part according to FCC 15.247 for a 902 MHz to 928 MHz FHSS devices

1. Frequency range

The frequency range of this device is 903.500 to 926.800 MHz as declared by the applicant. This is divided into N Channels [N=81].

2. Equally average use of frequencies in data mode

For regulatory environments where frequency hopping is a statutory requirement, and N is the number of available frequency channels, a pseudo random hop sequence of length [6 x N] will be generated. The sequence will include every frequency channel available in the band, and the relative occurrence frequency of each channel will be equal. This is known as the group hop sequence (GHS). N will be determined from the radio transceiver performance and regulatory requirements; for US systems N=81.

3. Examples of hopping sequences

The Fisher-Yates algorithm is used to randomly shuffle the list of channel numbers (from 1-N) to create a pseudo-random sub-sequence of channels of length N. The algorithm works by generating a pseudo-random number using a linear feedback shift register (lfsr) and then swapping entries in the list using the random number as an index. To avoid repetition of sequences, each group requires its own unique prime number to act as a seed to the random number generator.



[6 x 81] channel hopping sequence:

59, 30, 12, 52, 26, 72, 24, 76, 69, 25, 22, 36, 4, 71, 57, 20, 58, 35, 42, 45, 16, 50, 64,
56, 11, 67, 68, 29, 32, 31, 28, 48, 5, 38, 80, 37, 34, 17, 43, 23, 75, 65, 55, 41, 47, 70,
77, 46, 66, 14, 7, 40, 61, 6, 21, 8, 79, 74, 53, 9, 49, 39, 33, 62, 1, 18, 81, 54, 2, 27, 73,
63, 3, 19, 78, 44, 15, 10, 60, 51, 13, 44, 79, 67, 66, 29, 20, 30, 25, 16, 33, 43, 47, 78,
56, 27, 72, 19, 5, 57, 36, 74, 73, 77, 6, 28, 48, 14, 37, 40, 75, 8, 45, 24, 42, 62, 26, 69,
32, 15, 59, 3, 12, 52, 21, 31, 4, 53, 46, 11, 39, 49, 17, 64, 41, 61, 60, 13, 68, 35, 51,
58, 38, 81, 1, 18, 63, 80, 10, 50, 71, 2, 76, 55, 34, 65, 23, 70, 9, 54, 22, 7, 33, 76, 68,
79, 22, 57, 67, 32, 72, 80, 44, 29, 15, 69, 2, 26, 56, 54, 9, 60, 38, 46, 21, 75, 73, 19,
61, 59, 77, 62, 34, 6, 55, 10, 66, 50, 5, 18, 17, 27, 28, 23, 4, 49, 12, 3, 31, 63, 70, 1,
25, 36, 71, 37, 30, 64, 39, 40, 53, 11, 35, 24, 20, 7, 47, 41, 65, 45, 74, 42, 8, 1, 48, 52,
14, 81, 78, 43, 58, 13, 16, 26, 34, 39, 30, 71, 5, 62, 19, 11, 58, 61, 50, 74, 3, 16, 20,
43, 37, 2, 12, 59, 10, 25, 21, 65, 36, 80, 41, 52, 44, 51, 68, 54, 56, 28, 75, 69, 9, 23,
33, 27, 79, 45, 60, 32, 49, 63, 57, 31, 4, 38, 18, 64, 42, 29, 17, 70, 73, 13, 72, 66, 55,
40, 47, 46, 7, 48, 53, 77, 35, 24, 81, 76, 22, 1, 8, 6, 67, 78, 15, 14, 25, 74, 16, 11, 40,
53, 59, 54, 23, 5, 77, 42, 21, 4, 76, 64, 6, 57, 28, 73, 17, 14, 36, 79, 71, 52, 26, 45, 67,
43, 37, 22, 9, 68, 3, 44, 62, 55, 78, 61, 1, 48, 8, 7, 75, 51, 13, 50, 20, 70, 19, 65, 81,
69, 18, 35, 56, 39, 72, 32, 30, 29, 66, 49, 24, 2, 41, 58, 80, 46, 38, 60, 31, 10, 47, 63,
34, 27, 15, 12, 33, 16, 51, 55, 47, 37, 13, 45, 79, 70, 77, 36, 76, 61, 60, 57, 9, 38, 10,
34, 33, 35, 2, 65, 8, 22, 63, 49, 81, 48, 42, 28, 53, 14, 21, 24, 30, 27, 72, 40, 59, 4, 50,
73, 23, 80, 54, 19, 39, 69, 52, 67, 71, 62, 7, 68, 6, 17, 56, 44, 3, 66, 11, 31, 46, 74, 26,
18, 75, 43, 78, 1, 32, 12, 25, 15, 20, 29, 41, 58, 5, 64,

4. The receiver input bandwidth

The maximum bandwidth at each frequency channel of the receiver is 125,39 kHz followed by external analog and internal digital filtering in the receiver. The bandwidth of the filter depends on the software settings.