RELight Technology Corporation

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Hopping Declaration Letter

Date: 2012/05/21

We, RELIGHT TECHNOLOGY CORPORATION, here declare our product with FCC ID: S39RL11101 comply with FCC 15.247 requirements:

A. Standard : 15.247(a)(1)

The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter.

Ans: The hopping sequence of the EUT, a 2.4 GHz Remote Control System, called Transmitter, is generated by a hopping frequency formula developed by our company, RELight. The transmitter will transmit data on one channel for 30 ms and jump to the next channel by following a set of hopping sequence.

Example of a 59 hopping sequence in "general-mode":

35	20	5	50	36	21	6	51	37	22	7	52	38
23	8	53	39	24	9	54	40	25	10	55	41	26
11	56	42	27	12	57	43	28	13	58	44	29	14
59	45	30	15	60	46	31	16	61	47	32	17	62
48	33	18	63	49	34	19						

Example of a 43 hopping sequence in "France-mode":

15	10	5	20	35	30	25	40	12	7	45	17	32
27	22	37	9	47	42	14	29	24	19	34	6	44
39	11	26	21	16	31	46	41	36	8	23	18	13
28	43	38	33									

B. Standard : 15.247 (a)(1)

The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

Ans: The input bandwidth of the receiver is 1 MHz. In every connection the transmitter determines the hopping sequence; its receiver follows this sequence. Both devices shift between Rx and Tx time slot according to the clock of the Transmitter. Additionally the type of connection is set up at the beginning of the connection. The transmitter adapts its hopping frequency and its Tx/Rx timing according to the packet type of the connection. Also the Receiver of the connection will use these settings. Repeating of a packet has no influence on the hopping sequence. The hopping sequence generated by the Transmitter of the connection will be followed in any case. That means, a repeated packet will not be send on the same frequency, it is send on the next frequency of the hopping sequence.

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C. standard :15.247(a)(1)(iii)
Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used. (Note: even in adaptive frequency hopping mode, the minimum channel is not less than 15 channels)
Ans: There are total 59 (2407~2465MHz) channels and the minimum channel use is 59 channels in "general-mode.
There are total 44 (2407~2450MHz) channels and the minimum channel use is 43 channels in "France-mode.

D. standard :15.247(h) The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hopsets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.
Ans: The Transmitter co-ordinates frequency occupation in a set for both transmitter and receiver. As the transmitter hop sequence is derived from its Unique ID, additional transmitter intending to establish new frequency sequence will always use different hop sequences.

E. Does it support hybrid: hybrid systems are those that employ a combination of both frequency hopping and digital modulation techniques (if yes, it is required to comply both standard)
Ans: It does not support hybrid mode.

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Hopping Declaration Letter

Date: 2012/3/5

We, RELIGHT TECHNOLOGY CORPORATION, here declare our product with FCC ID: S39RL11101 comply with §15.247 (a) (1) as below:

Operation under the provisions of this Section is limited to frequency hopping intentional radiators that comply with the following provisions:
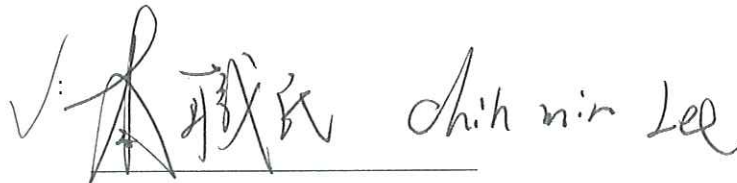
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of the 20 dB bandwidth of the hopping channel. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by two-thirds of the 20 dB bandwidth of the hopping channel, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

FCC Grantee contact person information.

Applicant's company name	:	RELIGHT TECHNOLOGY CORPORATION
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