

Question: Verify that all of the channels are used before repeating a channel.

Answer:

All channels are used according to the table below showing hopping sequence for North America.

i	f(i)	i	f(i)	i	f(i)	i	f(i)	i	f(i)	i	f(i)	i	f(i)	i	f(i)
0	0	10	76	20	18	30	34	40	14	50	20	60	48	70	55
1	23	11	29	21	11	31	66	41	57	51	73	61	15	71	35
2	62	12	59	22	36	32	7	42	41	52	64	62	5	72	53
3	8	13	22	23	72	33	68	43	74	53	39	63	17	73	24
4	43	14	52	24	54	34	75	44	32	54	13	64	6	74	44
5	16	15	63	25	69	35	4	45	70	55	33	65	67	75	51
6	71	16	26	26	21	36	60	46	9	56	65	66	49	76	38
7	47	17	77	27	3	37	27	47	58	57	50	67	40	77	30
8	19	18	31	28	37	38	12	48	78	58	56	68	1	78	46
9	61	19	2	29	10	39	25	49	45	59	42	69	28		

Frequency $f(i)$: $2400.983 + CN * 1.033570$ MHz

(i) is table number and $f(i)$ is the Channel reference to this number.

(i) is incremented with a ring counter

Question: Verify that there is no coordination of hopping sequences between two or more transmitters.

Answer:

The frequencies will be hopping in an offset in both time and channel to achieve that the probability for correlation is low.

In basic this formula take care of this by creating random channel offsets:

$$CN = (f((PHIN + HIO) \bmod NUF) + SQC) \bmod NUF$$

$$f((PHIN + HIO) \bmod NUF) = f(i)$$

NUF: Number of Used Frequencies

PHIN= is a number that come from a ring counter that counts from (0-(NUF-1))

HIO = is a random number that is calculated from the actual RSSI level every time you go offhook.

SQC = is a number that is calculated from the RFPI form the base. This is a unique number fore each base station. (This is a offset in channel)

$f(i)$: See table above.