1101 (PC0248)
Pseudorandom Hopping Sequence

1100 Series Wireless uses 52 hop channels. They are evenly spaced between 902.9729MHz and 927.0271MHz. They are listed in order below:

Standard Sequence	
Channel Number	Frequency
0	903325657.9
1	903774671.1
2	904223684.2
3	904672697.4
4	905121710.5
5	905570723.7
6	906019736.8
7	906468750
8	906917763.2
9	907366776.3
10	907815789.5
11	908264802.6
12	908713815.8
13	909162828.9
14	909611842.1
15	910060855.3
16	910509868.4
17	910958881.6
18	911407894.7
19	911856907.9
20	912305921.1
21	912754934.2
22	913203947.4
23	913652960.5
24	914101973.7
25	914550986.8
26	915000000
27	915449013.2
28	915898026.3
29	916347039.5
30	916796052.6
31	917245065.8
32	917694078.9
33	918143092.1
34	918592105.3
35	919041118.4
36	919490131.6
37	919939144.7
38	920388157.9
39	920837171.1

Low Interference Sequence	
Channel Number	Frequency
0	905592773.4
1	905954589.8
2	906316406.3
3	906678222.7
4	907040039.1
5	907401855.5
6	907763671.9
7	908125488.3
8	908487304.7
9	908849121.1
10	909210937.5
11	909572753.9
12	909934570.3
13	910296386.7
14	910658203.1
15	911020019.5
16	911381835.9
17	911743652.3
18	912105468.8
19	912467285.2
20	912829101.6
21	913190918
22	913552734.4
23	913914550.8
24	914276367.2
25	914638183.6
26	915000000
27	915361816.4
28	915723632.8
29	916085449.2
30	916447265.6
31	916809082
32	917170898.4
33	917532714.8
34	917894531.3
35	918256347.7
36	918618164.1
37	918979980.5
38	919341796.9
39	919703613.3

Standard Sequence	
Channel Number	Frequency
40	921286184.2
41	921735197.4
42	922184210.5
43	922633223.7
44	923082236.8
45	923531250
46	923980263.2
47	924429276.3
48	924878289.5
49	925327302.6
50	925776315.8
51	926225328.9
52	926674342.1

Low Interference Sequence	
Channel Number	Frequency
40	920065429.7
41	920427246.1
42	920789062.5
43	921150878.9
44	921512695.3
45	921874511.7
46	922236328.1
47	922598144.5
48	922959960.9
49	923321777.3
50	923683593.8
51	924045410.2
52	924407226.6

The order is determined by cycling through the numbers 0-60 in order, and generating a channel number to use with the following equation:

Channel # = Hop XOR (Hop * 8) AND 0x3F

If Channel > 52, try again

Where Hop is the sequence: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11…51, 52, 0, 1…

This generates the channel numbers as follows: 0, 9, 18, 27, 36, 45, 6, 7, 8, 1, 26, 19, and so on.

A complete cycle is as follows:

0	905592773.4
9	908849121.1
18	912105468.8
27	915361816.4
36	918618164.1
45	918618164.1
6	907763671.9
7	908125488.3
8	908487304.7
1	905954589.8
26	915000000
19	912467285.2
44	921512695.3
37	918979980.5
14	910658203.1
15	911020019.5
16	911381835.9
25	914638183.6

2	906316406.3
11	909572753.9
52	924407226.6
21	913190918
38	919341796.9
47	922598144.5
24	914276367.2
17	911743652.3
10	909210937.5
3	906678222.7
28	915723632.8
29	916085449.2
46	922236328.1
39	919703613.3
32	917170898.4
41	920427246.1
50	923683593.8
35	918256347.7

4	907040039.1
13	910296386.7
22	913552734.4
31	916809082
40	920065429.7
33	917532714.8
42	920789062.5
51	924045410.2
12	909934570.3
5	907401855.5
30	916447265.6
23	913914550.8
48	922959960.9
49	923321777.3
34	917894531.3
43	921150878.9
20	912829101.6

Multiple System Coexistence

For multiple systems to coexist properly, each system within range of another is assigned a unique number between 1 and 52. That number is modified by multiplying each hop number by a system number (1-52) and using that value modulo 53 as the hop number. For example, rather than hopping 0, 1, 2, 3, 4, a system with a system number of 3 would use hop sequence 0, 3, 6, 9, 12…, which would lead to the channel sequence 0, 27, 6, 1, 44, and so on. This allows up to 52 systems to coexist because of the unique hopping sequence of each.

General Operation

A wireless system consists of one 1100 base receiver and one or more transmitter(s). The 1100 receiver transmits poll messages to devices in the system every 30ms for approximately 15ms, then listens for a reply for approximately 15ms. Transmitters reply in these slots periodically based on their scheduled check-in interval.