AN011
Programming the CC1000 frequency for best sensitivity

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Keywords

- *CC1000, frequency programming*
- *ISM band frequencies*
- *Optimum sensitivity*
- *Software compensation for crystal frequency errors*
- *Optimum frequencies for frequency hopping the 902-928 MHz band, USA (FCC)*

Introduction

The CC1000 is a highly integrated multi-channel RF transceiver. Although it is designed with a frequency resolution of 250 Hz, there are some frequencies (with the right programming) that will give optimum sensitivity. There are no such settings for transmit, here the full resolution of 250 Hz can be utilized.

It is possible to use CC1000 for other frequencies than the optimised ones, but this will degrade the sensitivity. This loss in sensitivity (for non-optimised settings) is also a strong function of VDD supply. The degradation can be from a few dB to 20 dB worst case.

All the ISM band frequencies are covered for the optimised settings using a 11.0592 or a 14.7456 MHz crystal. SmartRF Studio will automatically find the nearest optimised setting (for all RF frequencies/crystal reference) if this option is chosen in the software. The spreadsheet that was used to make the tables below is available from our web page:www.chipcon.com (CC1000_Optimal_Frequency_Calculator_1_0).

How to use the tables

The tables are meant as an overview of the optimal frequencies available with a **11.0592 MHz and a 14.7456 MHz** crystal and with a 64kHz FSK separation (32kHz deviation). Please use the newest version of SmartRF Studio to generate the complete register settings for CC1000. The reason for this is that not only frequency programming, but also some VCO current settings may vary from different frequency bands and from Transmit to Receive. Note that for some frequency bands in the European 868 MHz band, you need to use low side LO to be able to program the desired frequency (for example 868.2972 MHz ≅ 868.3 MHz). Note that High side LO will invert the received data on the DIO pin, while Low side LO will not. This parameter is chosen in the Smart RF Studio.

All numbers regarding the frequency programming registers are in HEX.

Crystal reference frequency

The tables are calculated based on a 11.0592 and a 14.7456 MHz crystal. There are fewer optimised frequencies available if you use a reference crystal with a lower frequency. If the internal bit-synchroniser is to be used for CC1000 for the 'common' telecom data rates of 1.2 kbit/s, 2.4 kbit/s…76.8 kbit/s, then 4 standard crystal frequencies are possible: 3.6864 MHz, 7.3728 MHz, 11.0592 MHz and 14.7456 MHz. Do **NOT** use the 3.6864 MHz option if many optimum frequency channels or if low RF frequencies (i.e. below 433 MHz) are needed. For data rates of 38.4 kbaud and above, a 14.7456 MHz xtal **must** be chosen.

Note that CC1000 also can use an external reference, for example from the crystal driving the microcontroller.

Adjusting the PLL for crystal variation (software TCXO)

For CC400/CC900 the PLL can be used to compensate for the crystal initial tolerance and temperature drift if you know the temperature drift of your crystal and you have a temperature sensor in your system). For CC1000, this can also be done for the TX frequency without degradation. However, the RX programming should not be altered if the optimised sensitivity is required.

Frequency hopping in the 902-928MHz band (USA, FCC regulations)

FCC regulations allows higher output power if frequency hopping is used. Direct sequence and frequency hopping systems are regulated by part 15.247.

Frequency hopping systems must use at least 50 hopping frequencies if the 20 dB bandwidth is < 250 kHz, having a duration of <0.4 s of a 20 s period, and maximum 1W output power. For bandwidths >250kHz, at least 25 channels must be used, having a duration of <0.4s of a 10 s period, and maximum 0.25W output power. Maximum 20 dB bandwidth is 500kHz.
For more info see application note AN001.

Optimised frequency settings for the 433 MHz (Europe) ISM frequency band for a **14.7456 MHz** crystal

The frequency separation is 64 kHz (i.e. 32 kHz frequency deviation).

Please use the newest version of SmartRF Studio to generate the complete register settings for CC1000. Blue colour indicate low side LO (for example 433.134), yellow indicate high side LO. Note that SmartRF Studio (at least up to ver. 3.20) uses high side LO as default. Using high side LO will invert the received data.

Frequency band covered: 433.05 – 434.79 MHz, see application note AN001 (www.chipcon.com) for regulation issues.

Channel [MHz]	REFDIV	RX FREQ	TX FREQ	FSEP
433.134	11	50A000	50A5A2	030E
433.144	13	5F6000	5F55BB	039C
433.207	9	420000	41F8E4	0280
433.265	14	66C000	66B4F0	03E3
433.302	12	580000	580625	0355
433.371	10	496000	495819	02C7
433.444	13	5F6000	5F66A8	039C
433.505	11	50C000	50B74F	030E
433.507	9	420000	42049C	0280
433.565	14	66C000	66C72B	03E3
433.616	12	582000	581685	0355
433.671	10	496000	49651F	02C7
433.711	13	5F8000	5F75BB	039C
433.792	14	66E000	66D4F0	03E3
433.805	11	50C000	50C5A2	030E
433.916	12	582000	582625	0355
434.011	13	5F8000	5F86A8	039C
434.026	9	422000	4218E4	0280
434.092	14	66E000	66E72B	03E3
434.108	10	498000	497819	02C7
434.175	11	50E000	50D74F	030E
434.231	12	584000	583685	0355
434.278	13	5FA000	5F95BB	039C
434.319	14	670000	66F4F0	03E3
434.326	9	422000	42249C	0280
434.408	10	498000	49851F	02C7
434.475	11	50E000	50E5A2	030E
434.531	12	584000	584625	0355
434.578	13	5FA000	5FA6A8	039C
434.619	14	670000	67072B	03E3

Optimised frequency settings for the 868 MHz (Europe) ISM frequency band for a **14.7456 MHz** crystal

The frequency separation is 64 kHz (i.e. 32 kHz frequency deviation).

Please use the newest version of SmartRF Studio to generate the complete register settings for CC1000. Blue colour indicate low side LO (for example 868.034), yellow indicate high side LO. Note that SmartRF Studio (at least up to ver. 3.20) uses high side LO as default. Using high side LO will invert the received data.

Frequency band covered: 868 – 870 MHz, see application note AN001 (www.chipcon.com) for regulation issues.

Channel [MHz]	REFDIV	RX FREQ	TX FREQ	FSEP
868.034	7	66E000	66E395	01F1
868.130	11	A1C000	A1C5A2	030E
868.139	13	BF4000	BF35BB	039C
868.202	9	846000	8458E4	0280
868.261	14	CE0000	CDF4F0	03E3
868.297	8	75A000	75A418	0238
868.366	10	932000	931819	02C7
868.439	13	BF4000	BF46A8	039C
868.500	11	A1E000	A1D74F	030E
868.502	9	846000	84649C	0280
868.561	14	CE0000	CE072B	03E3
868.612	6	584000	583B42	01AA
868.666	10	932000	93251F	02C7
868.706	13	BF6000	BF55BB	039C
868.787	7	670000	66FA78	01F1
868.800	11	A1E000	A1E5A2	030E
868.912	12	B0A000	B0A625	0355
868.919	8	75C000	75B9AE	0238
869.006	13	BF6000	BF66A8	039C
869.021	9	848000	8478E3	0280
869.087	7	670000	670395	01F1
869.103	10	934000	933819	02C7
869.170	11	A20000	A1F74F	030E
869.219	8	75C000	75C418	0238
869.226	12	B0C000	B0B685	0355
869.273	13	BF8000	BF75BB	039C
869.314	14	CE4000	CE34F0	03E3
869.321	9	848000	84849C	0280
869.403	10	934000	93411F	02C7
869.470	11	A20000	A205A2	030E
869.526	12	B0C000	B0C625	0355
869.573	13	BF8000	BF86A8	039C
869.614	14	CE4000	CE472B	03E3
869.840	6	586000	585B42	01AA

Optimized frequency settings for the 915 MHz band for a **14.7456 MHz crystal**

This table shows optimised frequencies for the 902-928 MHz band (USA). All frequencies are low side LO (the data is NOT inverted).
The frequency separation is 64 kHz (i.e. 32 kHz frequency deviation). Ch spacing is 526 kHz which is 2000 in HEX
Please use the newest version of SmartRF Studio to generate the complete register settings. Note that for every second frequency SmartRF Studio will choose REFDIV=7, this will give different frequency/separation words.

ch no	Channel [MHz]	REFDIV	RX FREQ	TX FREQ	FSEP
1	902.265	14	D60000	D6072B	03E3
2	902.791	14	D62000	D6272B	03E3
3	903.318	14	D64000	D6472B	03E3
4	903.845	14	D66000	D6672B	03E3
5	904.371	14	D68000	D6872B	03E3
6	904.898	14	D6A000	D6A72B	03E3
7	905.425	14	D6C000	D6C72B	03E3
8	905.951	14	D6E000	D6E72B	03E3
9	906.478	14	D70000	D7072B	03E3
10	907.004	14	D72000	D7272B	03E3
11	907.531	14	D74000	D7472B	03E3
12	908.058	14	D76000	D7672B	03E3
13	908.584	14	D78000	D7872B	03E3
14	909.111	14	D7A000	D7A72B	03E3
15	909.638	14	D7C000	D7C72B	03E3
16	910.164	14	D7E000	D7E72B	03E3
17	910.691	14	D80000	D8072B	03E3
18	911.217	14	D82000	D8272B	03E3
19	911.744	14	D84000	D8472B	03E3
20	912.271	14	D86000	D8672B	03E3
21	912.797	14	D88000	D8872B	03E3
22	913.324	14	D8A000	D8A72B	03E3
23	913.851	14	D8C000	D8C72B	03E3
24	914.377	14	D8E000	D8E72B	03E3
25	914.904	14	D90000	D9072B	03E3
26	915.430	14	D92000	D9272B	03E3
27	915.957	14	D94000	D9472B	03E3
28	916.484	14	D96000	D9672B	03E3
29	917.010	14	D98000	D9872B	03E3
30	917.537	14	D9A000	D9A72B	03E3
31	918.064	14	D9C000	D9C72B	03E3
32	918.590	14	D9E000	D9E72B	03E3
33	919.117	14	DA0000	DA072B	03E3
34	919.643	14	DA2000	DA272B	03E3
35	920.170	14	DA4000	DA472B	03E3
36	920.697	14	DA6000	DA672B	03E3
37	921.223	14	DA8000	DA872B	03E3
38	921.750	14	DAA000	DAA72B	03E3
39	922.277	14	DAC000	DAC72B	03E3
40	922.803	14	DAE000	DAE72B	03E3
41	923.330	14	DB0000	DB072B	03E3
42	923.857	14	DB2000	DB272B	03E3
43	924.383	14	DB4000	DB472B	03E3
44	924.910	14	DB6000	DB672B	03E3
45	925.436	14	DB8000	DB872B	03E3
46	925.963	14	DBA000	DBA72B	03E3
47	926.490	14	DBC000	DBC72B	03E3
48	927.016	14	DBE000	DBE72B	03E3
49	927.543	14	DC0000	DC072B	03E3
50	Use SmartRF Studio				

Optimized frequency settings for ISM frequency bands for 11.0592 MHz crystal

This table is meant as an overview only, please use SmartRF Studio to generate the settings for CC1000
This table shows all available optimized frequencies for a given crystal frequency, The frequency separation is 64 kHz (i.e. 32 kHz frequency deviation)

Europe, (433.050 - 434.790 MHz)

Frequency [MHz]	RX FREQ	TX FREQ	FSEP	REFDIV
433.11768	61C000	61C6D4	0003B4	10
433.2324	4E4000	4E3792	0002F6	8
433.302	580000	580625	0355	9
433.37064	61E000	61D577	03B4	10
433.5286286	448000	4478A0	000297	7
433.5324	4E4000	4E4576	0002F6	8
433.6164	582000	581685	000355	9
433.67064	61E000	61E6D4	03B4	10
433.8286286	448000	4484C7	000297	7
433.9164	582000	582625	000355	9
433.9236	4E6000	4E5792	0002F6	8
434.2236	4E6000	4E6576	0002F6	8
434.2308	584000	583685	000355	9
434.3185714	44A000	4498A0	000297	7
434.47656	622000	621577	03B4	10
434.5308	584000	584625	000355	9
434.6148	4E8000	4E7792	0002F6	8
434.6185714	44A000	44A4C7	000297	7
434.77656	622000	6226D4	03B4	10

This color indicate low side LO
This color indicate high side LO (data inverted in RX)

Europe, (868 – 870 MHz)

Frequency [MHz]	RX FREQ	TX FREQ	FSEP	REFDIV
868.2972	620000	62036A	0001DA	5
868.55016	C44000	C43577	0003B4	10
868.6116	B0A000	B09685	000355	9
868.6884	9D0000	9CF792	0002F6	8
868.7871429	896000	8958A0	000297	7
868.85016	C44000	C446D4	0003B4	10
868.9116	B0A000	B0A625	000355	9
868.9188	75C000	75B9AE	000238	6
868.9884	9D0000	9D0576	0002F6	8
869.0871429	896000	8964C7	000297	7
869.10312	622000	621ABB	0001DA	5
869.2188	75C000	75C418	000238	6
869.226	B0C000	B0B685	000355	9
869.3796	9D2000	9D1792	0002F6	8
869.40312	622000	62236A	0001DA	5
869.526	B0C000	B0C625	000355	9
869.5770857	898000	8978A0	000297	7
869.65608	C48000	C47577	0003B4	10
869.6796	9D2000	9D2576	0002F6	8
869.8404	75E000	75D9AE	000238	6
869.8770857	898000	8984C7	000297	7
869.95608	C48000	C486D4	0003B4	10

Note that only selected channels are shown (all high side LO and 11.0592 MHz crystal), use SmartRF Studio for other channels.
The frequency separation is 64 kHz (i.e. 32 kHz frequency deviation), use SmartRF Studio for other deviations. High side LO will invert the data

USA, (902 – 928 MHz), 54 channels

Nr	Freq [MHz]	RX FREQ	TX FREQ	FSEP	REFDIV
1	902.0964	7A4000	7A39AE	0238	6
2	902.5572	A32000	A31792	02F6	8
3	903.018	7A6000	7A59AE	0238	6
4	903.6324	B7C000	B7B685	0355	9
5	904.33457	8F0000	8EF8A0	0297	7
6	904.8612	B80000	B7F685	0355	9
7	905.322	A3A000	A39792	02F6	8
8	905.7828	7AC000	7AB9AE	0238	6
9	906.15144	CCC000	CCB577	03B4	10
10	906.7044	666000	665ABB	01DA	5
11	907.25736	CD0000	CCF577	03B4	10
12	907.626	7B0000	7AF9AE	0238	6
13	908.0868	A42000	A41792	02F6	8
14	908.5476	7B2000	7B19AE	0238	6
15	908.91624	66A000	669ABB	01DA	5
16	909.4692	7B4000	7B39AE	0238	6
17	909.86417	8FE000	8FD8A0	0297	7
18	910.3908	7B6000	7B59AE	0238	6
19	910.8516	A4A000	A49792	02F6	8
20	911.3124	7B8000	7B79AE	0238	6
21	911.68104	CE0000	CDF577	03B4	10
22	912.234	670000	66FABB	01DA	5
23	912.78696	CE4000	CE3577	03B4	10
24	913.1556	7BC000	7BB9AE	0238	6
25	913.6164	A52000	A51792	02F6	8
26	914.0772	B9E000	B9D685	0355	9
27	914.44584	674000	673ABB	01DA	5
28	914.9988	7C0000	7BF9AE	0238	6
29	915.39377	90C000	90B8A0	0297	7
30	915.9204	7C2000	7C19AE	0238	6

USA, (902 – 928 MHz) continues...

Nr	Freq [MHz]	RX FREQ	TX FREQ	FSEP	REFDIV
31	916.3812	A5A000	A59792	02F6	8
32	916.842	7C4000	7C39AE	0238	6
33	917.21064	CF4000	CF3577	03B4	10
34	917.7636	67A000	679ABB	01DA	5
35	918.31656	CF8000	CF7577	03B4	10
36	918.6852	7C8000	7C79AE	0238	6
37	919.146	A62000	A61792	02F6	8
38	919.6068	7CA000	7C99AE	0238	6
39	919.97544	67E000	67DABB	01DA	5
40	920.5284	7CC000	7CB9AE	0238	6
41	920.92337	91A000	9198A0	0297	7
42	921.45	7CE000	7CD9AE	0238	6
43	921.9108	A6A000	A69792	02F6	8
44	922.3716	7D0000	7CF9AE	0238	6
45	922.74024	D08000	D07577	03B4	10
46	923.2932	D0A000	D09577	03B4	10
47	923.84616	D0C000	D0B577	03B4	10
48	924.39912	D0E000	D0D577	03B4	10
49	924.95208	D10000	D0F577	03B4	10
50	925.50504	D12000	D11577	03B4	10
51	926.058	D14000	D13577	03B4	10
52	926.61096	D16000	D15577	03B4	10
53	927.16392	D18000	D17577	03B4	10
54	927.71688	D1A000	D19577	03B4	10

These frequencies have been chosen trying to obtain 500kHz channel-Spacing. The highest reference frequency have been selected in most cases. The table above is quite memory consuming in a uC, see the table below for a less memory consuming solution. All frequencies below are high side LO, this will invert received the data.

More optimised frequencies for a 11.0592 MHz crystal :
The frequencies below have a channel spacing of 552.96 kHz. This will only give 47 different frequencies in the 902-928 band, so 3 other frequencies Must be chosen for the high-power (1W) Part 15.247 regulation. For simplicity this could be the mirror frequency for 3 of the other frequencies.
Compared to the frequencies above, these are easier to implement in an µC (low memory requirements)
Note that SmartRF Studio will select the lowest number of REFDIV for about half of the frequencies below, giving different frequency words.
All frequencies are high side LO, so all the data will be inverted.

USA, (902 – 928 MHz) , 552.96 kHz channels

Nr	Freq [MHz]	RX FREQ	TX FREQ	FSEP	REFDIV
1	902.28072	CBE000	CBD577	03B4	10
2	902.83368	CC0000	CBF577	03B4	10
3	903.38664	CC2000	CC1577	03B4	10
4	903.9396	CC4000	CC3577	03B4	10
5	904.49256	CC6000	CC5577	03B4	10
6	905.04552	CC8000	CC7577	03B4	10
7	905.59848	CCA000	CC9577	03B4	10
8	906.15144	CCC000	CCB577	03B4	10
9	906.7044	CCE000	CCD577	03B4	10
10	907.25736	CD0000	CCF577	03B4	10
11	907.81032	CD2000	CD1577	03B4	10
12	908.36328	CD4000	CD3577	03B4	10
13	908.91624	CD6000	CD5577	03B4	10
14	909.4692	CD8000	CD7577	03B4	10
15	910.02216	CDA000	CD9577	03B4	10
16	910.57512	CDC000	CDB577	03B4	10
17	911.12808	CDE000	CDD577	03B4	10
18	911.68104	CE0000	CDF577	03B4	10
19	912.234	CE2000	CE1577	03B4	10
20	912.78696	CE4000	CE3577	03B4	10
21	913.33992	CE6000	CE5577	03B4	10
22	913.89288	CE8000	CE7577	03B4	10
23	914.44584	CEA000	CE9577	03B4	10

USA, (902 – 928 MHz) continues...

Nr	Freq [MHz]	RX FREQ	TX FREQ	FSEP	REFDIV
24	914.9988	CEC000	CEB577	03B4	10
25	915.55176	CEE000	CED577	03B4	10
26	916.10472	CF0000	CEF577	03B4	10
27	916.65768	CF2000	CF1577	03B4	10
28	917.21064	CF4000	CF3577	03B4	10
29	917.7636	CF6000	CF5577	03B4	10
30	918.31656	CF8000	CF7577	03B4	10
31	918.86952	CFA000	CF9577	03B4	10
32	919.42248	CFC000	CFB577	03B4	10
33	919.97544	CFE000	CFD577	03B4	10
34	920.5284	D00000	CFF577	03B4	10
35	921.08136	D02000	D01577	03B4	10
36	921.63432	D04000	D03577	03B4	10
37	922.18728	D06000	D05577	03B4	10
38	922.74024	D08000	D07577	03B4	10
39	923.2932	D0A000	D09577	03B4	10
40	923.84616	D0C000	D0B577	03B4	10
41	924.39912	D0E000	D0D577	03B4	10
42	924.95208	D10000	D0F577	03B4	10
43	925.50504	D12000	D11577	03B4	10
44	926.058	D14000	D13577	03B4	10
45	926.61096	D16000	D15577	03B4	10
46	927.16392	D18000	D17577	03B4	10
47	927.71688	D1A000	D19577	03B4	10

More optimised frequencies for a 11.0592 MHz crystal :

Same as the table above. The frequencies below have a channel spacing of 552.96 kHz (or 2000 in HEX).
Note that SmartRF Studio will select the lowest number of REFDIV for about half of the frequencies below, giving different frequency words, but the same RF frequency. The only reason for choosing the same REFDIV is to make it easier to write the software.
All frequencies are low side LO, so the received data will NOT be inverted.

ch no	Channel [MHz]	REFDIV	RX FREQ	TX FREQ	FSEP
1	902.028	10	CBC000	CBC6D4	03B4
2	902.581	10	CBE000	CBE6D4	03B4
3	903.134	10	CC0000	CC06D4	03B4
4	903.687	10	CC2000	CC26D4	03B4
5	904.240	10	CC4000	CC46D4	03B4
6	904.793	10	CC6000	CC66D4	03B4
7	905.346	10	CC8000	CC86D4	03B4
8	905.898	10	CCA000	CCA6D4	03B4
9	906.451	10	CCC000	CCC6D4	03B4
10	907.004	10	CCE000	CCE6D4	03B4
11	907.557	10	CD0000	CD06D4	03B4
12	908.110	10	CD2000	CD26D4	03B4
13	908.663	10	CD4000	CD46D4	03B4
14	909.216	10	CD6000	CD66D4	03B4
15	909.769	10	CD8000	CD86D4	03B4
16	910.322	10	CDA000	CDA6D4	03B4
17	910.875	10	CDC000	CDC6D4	03B4
18	911.428	10	CDE000	CDE6D4	03B4
19	911.981	10	CE0000	CE06D4	03B4
20	912.534	10	CE2000	CE26D4	03B4
21	913.087	10	CE4000	CE46D4	03B4
22	913.640	10	CE6000	CE66D4	03B4
23	914.193	10	CE8000	CE86D4	03B4
24	914.746	10	CEA000	CEA6D4	03B4
25	915.299	10	CEC000	CEC6D4	03B4

ch no	Channel [MHz]	REFDIV	RX FREQ	TX FREQ	FSEP
26	915.852	10	CEE000	CEE6D4	03B4
27	916.405	10	CF0000	CF06D4	03B4
28	916.958	10	CF2000	CF26D4	03B4
29	917.511	10	CF4000	CF46D4	03B4
30	918.064	10	CF6000	CF66D4	03B4
31	918.617	10	CF8000	CF86D4	03B4
32	919.170	10	CFA000	CFA6D4	03B4
33	919.722	10	CFC000	CFC6D4	03B4
34	920.275	10	CFE000	CFE6D4	03B4
35	920.828	10	D00000	D006D4	03B4
36	921.381	10	D02000	D026D4	03B4
37	921.934	10	D04000	D046D4	03B4
38	922.487	10	D06000	D066D4	03B4
39	923.040	10	D08000	D086D4	03B4
40	923.593	10	D0A000	D0A6D4	03B4
41	924.146	10	D0C000	D0C6D4	03B4
42	924.699	10	D0E000	D0E6D4	03B4
43	925.252	10	D10000	D106D4	03B4
44	925.805	10	D12000	D126D4	03B4
45	926.358	10	D14000	D146D4	03B4
46	926.911	10	D16000	D166D4	03B4
47	927.464	10	D18000	D186D4	03B4
48	If you need 50 channels, use SmartRF Studio to find 3 other optimised frequencies, or use 3 mirror frequencies (300 kHz above the freq. in this table)				
49					
50					

Note that only selected channels are shown (all high side LO and 11.0592 MHz crystal), use SmartRF Studio for other channels.
The frequency separation is 64kHz (i.e. 32kHz frequency deviation), use SmartRF Studio for other deviations
Note that high side LO will invert the received data.

USA, (260-470 MHz)				
Frequency [MHz]	RX FREQ	TX FREQ	FSEP	REFDIV
284.0714	402000	401577	03B4	10
use SmartRF Studio				
313.9313	46E000	46D577	03B4	10
314.4842	470000	46F577	03B4	10
315.0372	472000	471577	03B4	10
315.5902	474000	473577	03B4	10
316.1431	476000	475577	03B4	10
use SmartRF Studio				
469.866	4A4000	4A38A0	0297	7

Summary

By using optimised frequency settings, this guaranties good sensitivity for all the ISM frequencies. The spread sheet that was used to generate these tables are available form our web page. Always use the newest SmartRF Studio on our web page to generate the correct settings for CC1000. For a high number of optimised frequencies, use a high crystal frequency reference (i.e. 11.0592 MHz or 14.7456 MHz).

This application note is written by the staff of Chipcon to the courtesy of our customers. Chipcon is a world-wide supplier of RFICs. For further information on the products from Chipcon please contact us or visit our web site. An updated list of distributors is also available at our web site.

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