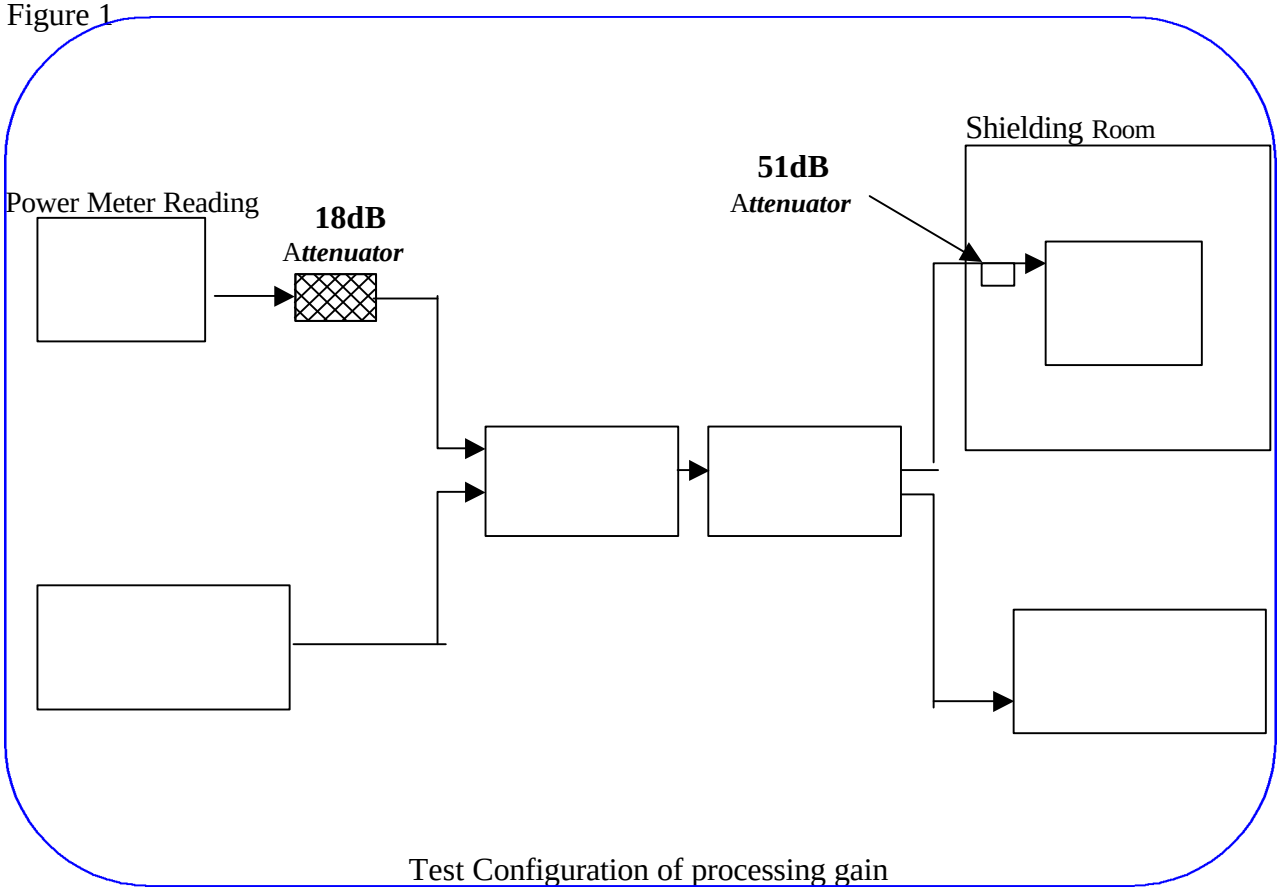
Section 15.247(e): Processing Gain

Test Instruments Configuration

Figure 1



Test Configuration of processing gain

List of Test Instruments

Instrument Name	Model No	Brand	Serial No.	Last time	Next time
Signal Generator	83711A	HP	3429A00434	05/19/00	05/19/01
Power Meter	E4418B	HP	GB39291240	09/11/00	09/11/01
Combiner	15542 ZAPD-4	Mini Circuits	N/A	N/A	N/A
Attenuator (6dB to 18 GHz)	MCL BW-S6W2	Mini Circuits			

Bit Error Rate (BER)

(1) Test Background and procedure

According to FCC regulation, a direct sequence spread spectrum system must have processing gain , G_P of the least 10 dB. Compliance to this requirement can be shown by demonstrating a relative bit-error-ratio (BER) performance improvement (and corresponding signal to noise ratio per symbol improvement of at least 10dB)between the case where spread spectrum processes (coding, modulation) are engaged relative to the processes being bypassed. In some practical system, the spread spectrum processing cannot simply bypassed. In accordance with the new NPRM 99-231, if the vendor has a system with less than 10 chips per symbol, the CW jamming results must be supported by a theoretical explanation of the system processing gain.

(2) Theoretical calculations

The processing gain is related to the jamming margin as follows:

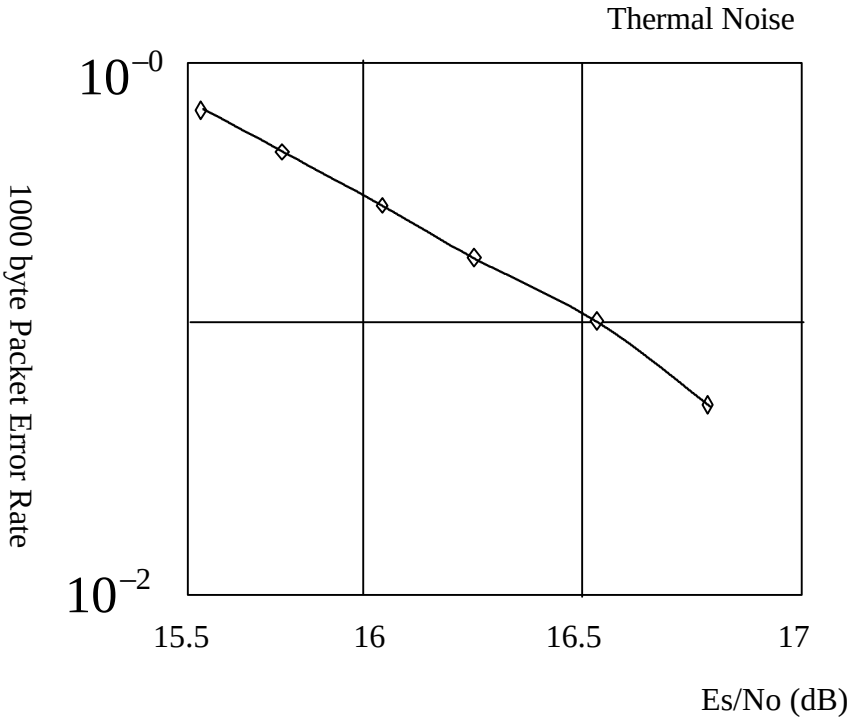
$$G_p = \left(\frac{S}{N}\right)_{output} + \left(\frac{J}{S}\right) + L_{system}$$

Where $BER_{REFERENCE}$ is the reference bit error ratio with its corresponding, theoretical output signal to noise ratio per symbol, $\left(S/N\right)_{output}$, $\left(J/S\right)$ is the jamming margin (jamming signal power relative to desired signal power),and L_{system} are the system implementation losses. The maximum allowed total system implementation loss is 2 dB. The HFA3861A direct sequence spread spectrum base band processor uses CCK modulation, which is a form of M-ray Orthogonal Keying. The BER performance curve is given by: The probability of error for generalized M-ary Orthogonal signaling using coherent demodulation is given by:

$$P_e = 1 - P_{c1} = 1 - \frac{1}{\sqrt{2p}} \int_{-\frac{S_{01}}{N_0}}^{\infty} \left[2\left(1 - Q\left\{ z + \sqrt{2\frac{E_b}{h}} \right\}\right) \right]^{\frac{M}{2}-1} \exp\left\{ -\frac{Z^2}{2} \right\} dz$$

This integral cannot be solved in closed form, and numerical integration must be used. This is done in a MATHCAD environment and is displayed in graphical format

1000 byte PER vs. Es/No



The reference PER is specified as 8% . When operating DQPSKCCK at 11Mbps, the corresponding Es/No (signal to noise ratio per symbol) is 16.4 dB. The Es/No required to achieve the desired BER with maximum system implementation losses is 18.4dB. The minimum processing gain is again, 10dB, therefore:

$$G_p = \left(\frac{E_s}{N_o}\right)_{output} + \left(\frac{J}{S}\right) + L_{system} = \mathbf{16.4}\text{dB} + 2.0\,dB + \left(\frac{J}{S}\right) \geq 10\,dB$$

$$G_p = \mathbf{18.4} + \left(\frac{J}{S}\right) \geq 10\,dB$$

The minimum jammer to signal ratio is as follow:

$$\left(\frac{J}{S}\right) \geq -8.4dB$$

7.4 Test Procedure

The test block diagram in the figure (1) and the procedure as below.

(1) Install two lan card into PC.

(2) Install DOS Test into computers for E.U.T. and Reference.

(3) Set the two LAN card of computer as “Port1 ping Port2”.

(4) Generated the Log File in the Reference Port1 of computer and send the test file.

(5) The port 1of pc (Reference) send 1000 packet to EUT. Then EUT response to Port 2 of PC. Also, PC can calculated packet data bit error rate.

(6) Ensure that CW Jammer generator RF out put is disabled and measure the power at the power meter port using the power meter 1. This is the relative signal power, S_r.

(7) Set CW Jammer generator RF output frequency equal to the carrier frequency and enable generator output Set reference CW Jammer power level at power meter port 8.4 dB below S_r (minimum J/S, or 10 dB processing gain reference level).Note the power level setting on the generator, this is the reference CW Jammer power setting, J_r (Power Meter 2) .

(8) Enable CW Jammer at the reference power level and verify that the PER test indicates a per of less than 8%.

(9) Alternatively, adjust the CW Jammer level to that which causes 8% PER and verify that the S/J is less than 8.4dB.

(10) Repeat step 7 for uniform steps in frequency increments of 50kHz across the receiver passband with the CW Jammer. In this case the receiver passband is $\pm$5.0MHz.

The number of points where the PER fail to achieve 8% (is higher than 8%) is determined and if this is above 20% of the total, the test is failed otherwise it is passed.

The margin by which the radio passes the test (for information purposes) can be determined from the average of the remaining points’ PERs scaled on the PER curve above.

Test Result summary

Date rate	Channel number	Process gain(dB)
2M	6	12.3(dB)
11M	6	11.3(dB)

NOTE:

1.S = Power Meter Reading + Duty Cycle factor

2.N = Power Meter Reading when S turn off.

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DQPSK

Gp = (S/N 0) + Mj +Lsys

Gp = 12.6 + Mj + 2

Gp = 14.6 + Mj

DQPSK CCK

Gp = (S/N 0) + Mj +Lsys

Gp = 16.4 + Mj + 2

Gp = 18.4 + Mj

7.5 Test Result of Processing Gain

Table 1 Processing Gain [Channel 6, CCK 11Mbps, 2.43205GHz to 2.44205GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2432.05	-12.2	-16.05	-3.85	14.55
2432.10	-12.2	-16.53	-4.33	14.07
2432.15	-12.2	-16.75	-4.55	13.85
2432.20	-12.2	-16.55	-4.35	14.05
2432.25	-12.2	-16.42	-4.22	14.18
2432.30	-12.2	-16.88	-4.68	13.72
2432.35	-12.2	-16.62	-4.42	13.98
2432.40	-12.2	-16.02	-3.82	14.58
2432.45	-12.2	-16.88	-4.68	13.72
2432.50	-12.2	-16.62	-4.42	13.98
2432.55	-12.2	-16.49	-4.29	14.11
2432.60	-12.2	-16.9	-4.7	13.7
2432.65	-12.2	-16.88	-4.68	13.72
2432.70	-12.2	-17.03	-4.83	13.57
2432.75	-12.2	-17.05	-4.85	13.55
2432.80	-12.2	-17.44	-5.24	13.16
2432.85	-12.2	-17.16	-4.96	13.44
2432.90	-12.2	-17.44	-5.24	13.16
2432.95	-12.2	-18	-5.8	12.6
2433.00	-12.2	-17.49	-5.29	13.11
2433.05	-12.2	-17.69	-5.49	12.91
2433.10	-12.2	-17.55	-5.35	13.05
2433.15	-12.2	-17.5	-5.3	13.1
2433.20	-12.2	-17.61	-5.41	12.99
2433.25	-12.2	-17.86	-5.66	12.74
2433.30	-12.2	-17.69	-5.49	12.91
2433.35	-12.2	-18.07	-5.87	12.53
2433.40	-12.2	-17.94	-5.74	12.66
2433.45	-12.2	-18.07	-5.87	12.53
2433.50	-12.2	-18.11	-5.91	12.49
2433.55	-12.2	-18.2	-6	12.4
2433.60	-12.2	-18.16	-5.96	12.44
2433.65	-12.2	-18.29	-6.09	12.31
2433.70	-12.2	-18.28	-6.08	12.32
2433.75	-12.2	-18.45	-6.25	12.15
2433.80	-12.2	-18.36	-6.16	12.24

Table 1 Processing Gain [Channel 6, CCK 11Mbps, 2.43205GHz to 2.44205GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2433.85	-12.2	-18.63	-6.43	11.97
2433.90	-12.2	-18.63	-6.43	11.97
2433.95	-12.2	-18.79	-6.59	11.81
2434.00	-12.2	-18.56	-6.36	12.04
2434.05	-12.2	-18.82	-6.62	11.78
2434.10	-12.2	-18.65	-6.45	11.95
2434.15	-12.2	-19.29	-7.09	11.31
2434.20	-12.2	-19.08	-6.88	11.52
2434.25	-12.2	-18.67	-6.47	11.93
2434.30	-12.2	-18.52	-6.32	12.08
2434.35	-12.2	-19.2	-7	11.4
2434.40	-12.2	-18.6	-6.4	12
2434.45	-12.2	-19.04	-6.84	11.56
2434.50	-12.2	-18.95	-6.75	11.65
2434.55	-12.2	-19.3	-7.1	11.3
2434.60	-12.2	-19.58	-7.38	11.02
2434.65	-12.2	-19.23	-7.03	11.37
2434.70	-12.2	-19.47	-7.27	11.13
2434.75	-12.2	-19.25	-7.05	11.35
2434.80	-12.2	-19.51	-7.31	11.09
2434.85	-12.2	-19.28	-7.08	11.32
2434.90	-12.2	-19.3	-7.1	11.3
2434.95	-12.2	-19.23	-7.03	11.37
2435.00	-12.2	-19.52	-7.32	11.08
2435.05	-12.2	-19.03	-6.83	11.57
2435.10	-12.2	-18.57	-6.37	12.03
2435.15	-12.2	-19.17	-6.97	11.43
2435.20	-12.2	-18.95	-6.75	11.65
2435.25	-12.2	-19.29	-7.09	11.31
2435.30	-12.2	-19.22	-7.02	11.38
2435.35	-12.2	-18.83	-6.63	11.77
2435.40	-12.2	-18.84	-6.64	11.76
2435.45	-12.2	-19.49	-7.29	11.11
2435.50	-12.2	-19.31	-7.11	11.29
2435.55	-12.2	-19.29	-7.09	11.31
2435.60	-12.2	-19.09	-6.89	11.51

Table 1 Processing Gain [Channel 6, CCK 11Mbps, 2.43205GHz to 2.44205GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2435.65	-12.2	-19.11	-6.91	11.49
2435.70	-12.2	-19.03	-6.83	11.57
2435.75	-12.2	-18.59	-6.39	12.01
2435.80	-12.2	-19.23	-7.03	11.37
2435.85	-12.2	-18.7	-6.5	11.9
2435.90	-12.2	-19	-6.8	11.6
2435.95	-12.2	-18.64	-6.44	11.96
2436.00	-12.2	-18.91	-6.71	11.69
2436.05	-12.2	-18.68	-6.48	11.92
2436.10	-12.2	-18.84	-6.64	11.76
2436.15	-12.2	-18.79	-6.59	11.81
2436.20	-12.2	-18.74	-6.54	11.86
2436.25	-12.2	-18.65	-6.45	11.95
2436.30	-12.2	-18.4	-6.2	12.2
2436.35	-12.2	-18.69	-6.49	11.91
2436.40	-12.2	-18.44	-6.24	12.16
2436.45	-12.2	-18.82	-6.62	11.78
2436.50	-12.2	-18.61	-6.41	11.99
2436.55	-12.2	-18.54	-6.34	12.06
2436.60	-12.2	-19.05	-6.85	11.55
2436.65	-12.2	-18.91	-6.71	11.69
2436.70	-12.2	-19.16	-6.96	11.44
2436.75	-12.2	-19.11	-6.91	11.49
2436.80	-12.2	-18.97	-6.77	11.63
2436.85	-12.2	-20.33	-8.13	10.27
2436.90	-12.2	-21.01	-8.81	9.59
2436.95	-12.2	-21.02	-8.82	9.58
2437.00	-12.2	-20.99	-8.79	9.61
2437.05	-12.2	-20.63	-8.43	9.97
2437.10	-12.2	-20.53	-8.33	10.07
2437.15	-12.2	-20.72	-8.52	9.88
2437.20	-12.2	-20.34	-8.14	10.26
2437.25	-12.2	-20.24	-8.04	10.36
2437.30	-12.2	-20.37	-8.17	10.23
2437.35	-12.2	-20.13	-7.93	10.47
2437.40	-12.2	-20.31	-8.11	10.29

Table 1 Processing Gain [Channel 6, CCK 11Mbps, 2.43205GHz to 2.44205GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2437.45	-12.2	-18.53	-6.33	12.07
2437.50	-12.2	-18.77	-6.57	11.83
2437.55	-12.2	-19.08	-6.88	11.52
2437.60	-12.2	-18.79	-6.59	11.81
2437.65	-12.2	-19.08	-6.882	11.518
2437.70	-12.2	-18.73	-6.53	11.87
2437.75	-12.2	-18.8	-6.6	11.8
2437.80	-12.2	-18.99	-6.79	11.61
2437.85	-12.2	-19.41	-7.21	11.19
2437.90	-12.2	-20.01	-7.81	10.59
2437.95	-12.2	-18.82	-6.62	11.78
2438.00	-12.2	-18.79	-6.59	11.81
2438.05	-12.2	-19.1	-6.9	11.5
2438.10	-12.2	-18.96	-6.76	11.64
2438.15	-12.2	-19.21	-7.01	11.39
2438.20	-12.2	-18.95	-6.75	11.65
2438.25	-12.2	-18.74	-6.54	11.86
2438.30	-12.2	-19.07	-6.87	11.53
2438.35	-12.2	-19.24	-7.04	11.36
2438.40	-12.2	-19.19	-6.99	11.41
2438.45	-12.2	-18.96	-6.76	11.64
2438.50	-12.2	-18.97	-6.77	11.63
2438.55	-12.2	-19.17	-6.97	11.43
2438.60	-12.2	-19.19	-6.99	11.41
2438.65	-12.2	-18.48	-6.28	12.12
2438.70	-12.2	-18.89	-6.69	11.71
2438.75	-12.2	-18.8	-6.6	11.8
2438.80	-12.2	-19.31	-7.11	11.29
2438.85	-12.2	-19.66	-7.46	10.94
2438.90	-12.2	-19.49	-7.29	11.11
2438.95	-12.2	-19.43	-7.23	11.17
2439.00	-12.2	-19.14	-6.94	11.46
2439.05	-12.2	-19.4	-7.2	11.2
2439.10	-12.2	-19.3	-7.1	11.3
2439.15	-12.2	-19.16	-6.96	11.44
2439.20	-12.2	-19.08	-6.88	11.52

Table 1 Processing Gain [Channel 6, CCK 11Mbps, 2.43205GHz to 2.44205GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2439.25	-12.2	-19.24	-7.04	11.36
2439.30	-12.2	-19.16	-6.96	11.44
2439.35	-12.2	-19	-6.8	11.6
2439.40	-12.2	-19.24	-7.04	11.36
2439.45	-12.2	-19.01	-6.81	11.59
2439.50	-12.2	-19.37	-7.17	11.23
2439.55	-12.2	-19.25	-7.05	11.35
2439.60	-12.2	-18.92	-6.72	11.68
2439.65	-12.2	-19.1	-6.9	11.5
2439.70	-12.2	-19	-6.8	11.6
2439.75	-12.2	-18.93	-6.73	11.67
2439.80	-12.2	-19.14	-6.94	11.46
2439.85	-12.2	-18.7	-6.5	11.9
2439.90	-12.2	-18.66	-6.46	11.94
2439.95	-12.2	-18.42	-6.22	12.18
2440.00	-12.2	-18.4	-6.2	12.2
2440.05	-12.2	-18.26	-6.06	12.34
2440.10	-12.2	-18.01	-5.81	12.59
2440.15	-12.2	-18.01	-5.81	12.59
2440.20	-12.2	-17.96	-5.76	12.64
2440.25	-12.2	-17.98	-5.78	12.62
2440.30	-12.2	-18.04	-5.84	12.56
2440.35	-12.2	-17.71	-5.51	12.89
2440.40	-12.2	-17.79	-5.59	12.81
2440.45	-12.2	-17.66	-5.46	12.94
2440.50	-12.2	-17.95	-5.75	12.65
2440.55	-12.2	-5.87	6.33	12.93
2440.60	-12.2	-17.95	-5.75	12.65
2440.65	-12.2	-18.11	-5.91	12.49
2440.70	-12.2	-17.51	-5.31	13.09
2440.75	-12.2	-17.39	-5.19	13.21
2440.80	-12.2	-17.31	-5.11	13.29
2440.85	-12.2	-17.7	-5.5	12.9
2440.90	-12.2	-17.78	-5.58	12.82
2440.95	-12.2	-17.7	-5.5	12.9
2441.00	-12.2	-17.7	-5.5	12.9

Table 1 Processing Gain [Channel 6, CCK 11Mbps, 2.43205GHz to 2.44205GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2441.05	-12.2	-17.68	-5.48	12.92
2441.10	-12.2	-17.62	-5.42	12.98
2441.15	-12.2	-17.73	-5.53	12.87
2441.20	-12.2	-17.04	-4.84	13.56
2441.25	-12.2	-16.95	-4.75	13.65
2441.30	-12.2	-16.82	-4.62	13.78
2441.35	-12.2	-16.64	-4.44	13.96
2441.40	-12.2	-16.87	-4.67	13.73
2441.45	-12.2	-16.57	-4.37	14.03
2441.50	-12.2	-16.54	-4.34	14.06
2441.55	-12.2	-16.72	-4.52	13.88
2441.60	-12.2	-16.33	-4.13	14.27
2441.65	-12.2	-16.6	-4.4	14
2441.70	-12.2	-16.45	-4.25	14.15
2441.75	-12.2	-7.61	4.59	14.19
2441.80	-12.2	-16.45	-4.25	14.15
2441.85	-12.2	-15.98	-3.78	14.62
2441.90	-12.2	-16.08	-3.88	14.52
2441.95	-12.2	-15.9	-3.7	14.7
2442.00	-12.2	-15.94	-3.74	14.66
2442.05	-12.2	-16	-3.8	14.6

Table 2 Processing Gain [Channel 6,DQPSK 2Mbps, 2.43205GHz to 2.44205GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2432.05	-12.5	12.61	-0.11	14.49
2432.10	-12.5	13.05	-0.55	14.05
2432.15	-12.5	13.17	-0.67	13.93
2432.20	-12.5	13.2	-0.7	13.9
2432.25	-12.5	13.23	-0.73	13.87
2432.30	-12.5	13.45	-0.95	13.65
2432.35	-12.5	13.34	-0.84	13.76
2432.40	-12.5	13.36	-0.86	13.74
2432.45	-12.5	13.1	-0.6	14
2432.50	-12.5	12.94	-0.44	14.16
2432.55	-12.5	12.92	-0.42	14.18
2432.60	-12.5	12.91	-0.41	14.19
2432.65	-12.5	12.44	0.06	14.66
2432.70	-12.5	12.99	-0.49	14.11
2432.75	-12.5	12.6	-0.1	14.5
2432.80	-12.5	12.97	-0.47	14.13
2432.85	-12.5	12.82	-0.32	14.28
2432.90	-12.5	12.63	-0.13	14.47
2432.95	-12.5	12.91	-0.41	14.19
2433.00	-12.5	13.49	-0.99	13.61
2433.05	-12.5	13.41	-0.91	13.69
2433.10	-12.5	13.74	-1.24	13.36
2433.15	-12.5	14.08	-1.58	13.02
2433.20	-12.5	14.22	-1.72	12.88
2433.25	-12.5	13.76	-1.26	13.34
2433.30	-12.5	13.84	-1.34	13.26
2433.35	-12.5	14.02	-1.52	13.08
2433.40	-12.5	13.67	-1.17	13.43
2433.45	-12.5	13.94	-1.44	13.16
2433.50	-12.5	13.73	-1.23	13.37
2433.55	-12.5	13.61	-1.11	13.49
2433.60	-12.5	13.41	-0.91	13.69
2433.65	-12.5	13.43	-0.93	13.67
2433.70	-12.5	13.89	-1.39	13.21
2433.75	-12.5	13.76	-1.26	13.34
2433.80	-12.5	14.07	-1.57	13.03

Table 2 Processing Gain [Channel 6, DQPSK 2Mbps, 2.43205GHz to 2.44205GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2433.85	-12.5	14.24	-1.74	12.86
2433.90	-12.5	14.14	-1.64	12.96
2433.95	-12.5	14.28	-1.78	12.82
2434.00	-12.5	14.56	-2.06	12.54
2434.05	-12.5	13.57	-1.07	13.53
2434.10	-12.5	14.72	-2.22	12.38
2434.15	-12.5	14.74	-2.24	12.36
2434.20	-12.5	14.91	-2.41	12.19
2434.25	-12.5	13.57	-1.07	13.53
2434.30	-12.5	13.68	-1.18	13.42
2434.35	-12.5	13.76	-1.26	13.34
2434.40	-12.5	14.75	-2.25	12.35
2434.45	-12.5	14.44	-1.94	12.66
2434.50	-12.5	14.37	-1.87	12.73
2434.55	-12.5	14.69	-2.19	12.41
2434.60	-12.5	14.76	-2.26	12.34
2434.65	-12.5	14.68	-2.18	12.42
2434.70	-12.5	14.79	-2.29	12.31
2434.75	-12.5	14.81	-2.31	12.29
2434.80	-12.5	14.65	-2.15	12.45
2434.85	-12.5	14.8	-2.3	12.3
2434.90	-12.5	14.89	-2.39	12.21
2434.95	-12.5	15.08	-2.58	12.02
2435.00	-12.5	15.37	-2.87	11.73
2435.05	-12.5	15.12	-2.62	11.98
2435.10	-12.5	15.35	-2.85	11.75
2435.15	-12.5	15.65	-3.15	11.45
2435.20	-12.5	15.92	-3.42	11.18
2435.25	-12.5	15.35	-2.85	11.75
2435.30	-12.5	15.66	-3.16	11.44
2435.35	-12.5	15.67	-3.17	11.43
2435.40	-12.5	15.53	-3.03	11.57
2435.45	-12.5	15.18	-2.68	11.92
2435.50	-12.5	15.05	-2.55	12.05
2435.55	-12.5	15.03	-2.53	12.07
2435.60	-12.5	14.96	-2.46	12.14

Table 2 Processing Gain [Channel 6, DQPSK 2Mbps, 2.43205GHz to 2.44205GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2435.65	-12.5	14.73	-2.23	12.37
2435.70	-12.5	15.04	-2.54	12.06
2435.75	-12.5	14.83	-2.33	12.27
2435.80	-12.5	15.06	-2.56	12.04
2435.85	-12.5	15.61	-3.11	11.49
2435.90	-12.5	15.18	-2.68	11.92
2435.95	-12.5	15.53	-3.03	11.57
2436.00	-12.5	15.4	-2.9	11.7
2436.05	-12.5	15.5	-3	11.6
2436.10	-12.5	15.96	-3.46	11.14
2436.15	-12.5	16.15	-3.65	10.95
2436.20	-12.5	16.3	-3.8	10.8
2436.25	-12.5	16.35	-3.85	10.75
2436.30	-12.5	15.7	-3.2	11.4
2436.35	-12.5	15.75	-3.25	11.35
2436.40	-12.5	16.17	-3.67	10.93
2436.45	-12.5	15.67	-3.17	11.43
2436.50	-12.5	15.37	-2.87	11.73
2436.55	-12.5	14.08	-1.58	13.02
2436.60	-12.5	12.4	0.1	14.7
2436.65	-12.5	12.52	-0.02	14.58
2436.70	-12.5	12.69	-0.19	14.41
2436.75	-12.5	12.03	0.47	15.07
2436.80	-12.5	11.79	0.71	15.31
2436.85	-12.5	11.09	1.41	16.01
2436.90	-12.5	10.34	2.16	16.76
2436.95	-12.5	9.86	2.64	17.24
2437.00	-12.5	9.75	2.75	17.35
2437.05	-12.5	9.92	2.58	17.18
2437.10	-12.5	10.67	1.83	16.43
2437.15	-12.5	10.53	1.97	16.57
2437.20	-12.5	12.24	0.26	14.86
2437.25	-12.5	12.54	-0.04	14.56
2437.30	-12.5	13.4	-0.9	13.7
2437.35	-12.5	15.35	-2.85	11.75
2437.40	-12.5	14.64	-2.14	12.46

Table 2 Processing Gain [Channel 6, DQPSK 2Mbps, 2.43205GHz to 2.44205GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2437.45	-12.5	15.1	-2.6	12
2437.50	-12.5	15.77	-3.27	11.33
2437.55	-12.5	15.88	-3.38	11.22
2437.60	-12.5	16.24	-3.74	10.86
2437.65	-12.5	16.35	-3.85	10.75
2437.70	-12.5	16.22	-3.72	10.88
2437.75	-12.5	15.84	-3.34	11.26
2437.80	-12.5	16.47	-3.97	10.63
2437.85	-12.5	15.97	-3.47	11.13
2437.90	-12.5	15.89	-3.39	11.21
2437.95	-12.5	15.88	-3.38	11.22
2438.00	-12.5	15.48	-2.98	11.62
2438.05	-12.5	15.69	-3.19	11.41
2438.10	-12.5	15.63	-3.13	11.47
2438.15	-12.5	15.88	-3.38	11.22
2438.20	-12.5	14.94	-2.44	12.16
2438.25	-12.5	15.01	-2.51	12.09
2438.30	-12.5	14.73	-2.23	12.37
2438.35	-12.5	14.99	-2.49	12.11
2438.40	-12.5	14.95	-2.45	12.15
2438.45	-12.5	15.11	-2.61	11.99
2438.50	-12.5	15.88	-3.38	11.22
2438.55	-12.5	15.46	-2.96	11.64
2438.60	-12.5	15.82	-3.32	11.28
2438.65	-12.5	15.78	-3.28	11.32
2438.70	-12.5	16.12	-3.62	10.98
2438.75	-12.5	15.84	-3.34	11.26
2438.80	-12.5	15.89	-3.39	11.21
2438.85	-12.5	15.59	-3.09	11.51
2438.90	-12.5	15.21	-2.71	11.89
2438.95	-12.5	15.2	-2.7	11.9
2439.00	-12.5	14.94	-2.44	12.16
2439.05	-12.5	15.22	-2.72	11.88
2439.10	-12.5	15.13	-2.63	11.97
2439.15	-12.5	15.12	-2.62	11.98
2439.20	-12.5	14.76	-2.26	12.34

Table 2 Processing Gain [Channel 6, DQPSK 2Mbps, 2.43205GHz to 2.44205GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2439.25	-12.5	14.98	-2.48	12.12
2439.30	-12.5	14.86	-2.36	12.24
2439.35	-12.5	14.76	-2.26	12.34
2439.40	-12.5	14.84	-2.34	12.26
2439.45	-12.5	14.79	-2.29	12.31
2439.50	-12.5	14.98	-2.48	12.12
2439.55	-12.5	15.19	-2.69	11.91
2439.60	-12.5	15.15	-2.65	11.95
2439.65	-12.5	15.04	-2.54	12.06
2439.70	-12.5	14.94	-2.44	12.16
2439.75	-12.5	15.08	-2.58	12.02
2439.80	-12.5	15.23	-2.73	11.87
2439.85	-12.5	14.77	-2.27	12.33
2439.90	-12.5	14.94	-2.44	12.16
2439.95	-12.5	14.55	-2.05	12.55
2440.00	-12.5	14.77	-2.27	12.33
2440.05	-12.5	14.87	-2.37	12.23
2440.10	-12.5	14.87	-2.37	12.23
2440.15	-12.5	13.9	-1.4	13.2
2440.20	-12.5	14	-1.5	13.1
2440.25	-12.5	14.3	-1.8	12.8
2440.30	-12.5	13.89	-1.39	13.21
2440.35	-12.5	14.17	-1.67	12.93
2440.40	-12.5	13.94	-1.44	13.16
2440.45	-12.5	14.27	-1.77	12.83
2440.50	-12.5	13.8	-1.3	13.3
2440.55	-12.5	14.09	-1.59	13.01
2440.60	-12.5	10.44	2.06	12.86
2440.65	-12.5	14.11	-1.61	12.99
2440.70	-12.5	14.21	-1.71	12.89
2440.75	-12.5	13.91	-1.41	13.19
2440.80	-12.5	14.05	-1.55	13.05
2440.85	-12.5	13.66	-1.16	13.44
2440.90	-12.5	14.04	-1.54	13.06
2440.95	-12.5	13.4	-0.9	13.7
2441.00	-12.5	13.32	-0.82	13.78

Table 2 Processing Gain [Channel 6, DQPSK 2Mbps, 2.43205GHz to 2.44205GHz]

Jammer Frequency (MHz)	Signal Level S (dBm)	Signal Generator RF Output J (dBm)	Mj (J/S)	Process Gain (dB)
2441.05	-12.5	13.03	-0.53	14.07
2441.10	-12.5	12.59	-0.09	14.51
2441.15	-12.5	12.95	-0.45	14.15
2441.20	-12.5	13.03	-0.53	14.07
2441.25	-12.5	13.14	-0.64	13.96
2441.30	-12.5	12.89	-0.39	14.21
2441.35	-12.5	12.85	-0.35	14.25
2441.40	-12.5	12.54	-0.04	14.56
2441.45	-12.5	12.65	-0.15	14.45
2441.50	-12.5	12.84	-0.34	14.26
2441.55	-12.5	13.41	-0.91	13.69
2441.60	-12.5	13.36	-0.86	13.74
2441.65	-12.5	13.32	-0.82	13.78
2441.70	-12.5	13.52	-1.02	13.58
2441.75	-12.5	13.81	-1.31	13.29
2441.80	-12.5	13.75	-1.25	13.35
2441.85	-12.5	13.72	-1.22	13.38
2441.90	-12.5	12.95	-0.45	14.15
2441.95	-12.5	12.97	-0.47	14.13
2442.00	-12.5	12.59	-0.09	14.51
2442.05	-12.5	12.82	-0.32	14.28