

Certification Report on Compliance with Respect to FCC CFR 47, Para. 15.247(e)
Measurement of Processing Gain of Direct Sequence Spread Spectrum

Product: Intersil HWB3163 Rev B WLAN PCMCIA

Tested for: Samsung Electro-Mechanics Co., LTD
314, Maetan-3Dong, Paldal-Gu, Suwon,
Kyunggi-Do, Korea, 442-743

Tested by: Intersil Corp.
2401 Palm Bay Rd.
Palm Bay, FL 32905

Prepared by: Robert J. Rood, Staff Eng.
Ph (407)724-7108
Fax(407)724-7886
e-mail: rrood@intersil.com

Date: October 14, 1999

ENGINEERING SUMMARY AND CERTIFICATION

This report contains the results of the engineering evaluation performed on an Intersil Wireless LAN PC Card, Model HWB3163 Rev B. The tests were carried out in accordance with FCC CFR 47, Para. 15.247(e).

Robert Rood is a Wireless Applications Staff Engineer at Intersil Corporation. Intersil is a new independent company as of August 13, 1999, previously known as Harris Semiconductor. Robert received a BSEE from the University of Florida in 1979 and his Masters of Science in Engineering Management from Florida Tech in 1988. He joined Harris Semiconductor in 1983 as a Test Engineer after 3 ½ years with Burr Brown Research Corp. He was promoted to Test Staff Engineer in 1989 and moved into Applications in 1991 where he has built on his experience with high speed linear and currently leads the wireless radio development team.

I certify that this data was taken by me or at my direction and to the best of my knowledge and belief, is true and accurate. Based on the test results, it is certified that the product meets the requirements as set forth in the above specification.

Submitted by: Robert Rood _____ Date: _____
Staff Engineer, Wireless Applications, Intersil Corp.

Processing Gain of a Direct Sequence Spread Spectrum, FCC CFR 47, Para. 15.247(e)

Product Name: HWB3163 Rev B

FCC Requirements: The processing gain of a direct sequence system shall be at least 10dB. The processing gain shall be determined from the ratio in dB of the signal-to-noise ratio with the system spreading code turned off to the signal-to-noise ratio with the system spreading code turned on, as measured at the demodulated output of the receiver.

Environmental Conditions: Room Temperature and Humidity: 25°C and 50%.

Power Input: DC Power from a laptop computer.

Test Equipment: Hewlett Packard Spectrum Analyzer, Model HP8593E 9kHz to 22GHz
Marconi Signal Generator, Model 2031, Freq. Range 10kHz to 2.7GHz
Hewlett Packard Power Meter, Model HP438A
Hewlett Packard Power Sensor, Model HP8481D, -20 to -70dBm
Hewlett Packard Attenuators, Model HP8493A, 6dB and 10dB
Hewlett Packard Step Attenuator, Model HP8494A, 1dB steps
Hewlett Packard Step Attenuator, Model HP8495D, 10dB steps
Hewlett Packard Power Splitter, Model HP11667B
Cmpaq Laptop Computers (Qty 2), Model Armada 1700

Method of Measurement: Jamming Margin Method. The processing gain may be measured using the CW jamming margin method. Figure 1 shows the test configuration. The test consists of stepping a signal generator in 50kHz increments across the passband of the system. At each point, the generator level required to produce the recommended Bit Error Rate (BER) is recorded. This level is the jammer level. The output power of the transmitting unit is measured at the same point. The Jammer to Signal (J/S) ratio is calculated. Discard the worst 20% of the J/S data points. The lowest remaining J/S ratio is used when calculating the Process Gain.

The use of 8% FER frame error rate (or PER packet error rate) as a substitute for the recommended BER bit error rate and the ideal signal to noise ratio per symbol (E_s/N_0) is derived in the attached document; "Testing for compliance with FCC rules 15-247e", by Carl Andren.

Testing for compliance with FCC rules 15-247e

Carl Andren
intersil Corporation
October 7, 1999
candren@intersil.com
407-724-7535

Scope

This report presents the test procedure, test configuration and test data associated with a FCC Part 15.247 (e) Jamming Margin test for the indirect measurement of processing gain.

Applicable Reference Documents.

1. "Operation within the bands 902-928 MHz, 2400-2483.5, and 5725-5850 MHz" **Title 47 Part 15 section 247 (e) Code of Federal Regulations. (47 CFR 15.247).**
2. "Report and Order: Amendment of Parts 2 and 15 of the Commission's Rules Regarding Spread Spectrum Transmitters. Appendix C: 'Guidance on Measurements for Direct Sequence Spread Spectrum Systems" **FCC 97-114. ET Docket No. 96-8, RM-8435, RM-8608, RM-8609.**
3. "HFA3861A Direct Sequence Spread Spectrum Baseband Processor" **Harris Corporation Semiconductor Sector Preliminary Data Sheet**, Melbourne FL, July 1999.
4. "M-ary Orthogonal Keying BER Curve",

Test Background and Procedure.

According to FCC regulations [1], a direct sequence spread spectrum system must have a processing gain, G_p of at 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 10 dB) between the case where spread spectrum processes (coding, modulation) are engaged relative to

the processes being bypassed. In some practical systems, the spread spectrum processing cannot simply be bypassed. In these cases, the processing gain can be indirectly measured by a jamming margin test [2]. 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.

Theoretical calculations

The processing gain is related to the jamming margin as follows [2]:

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

Where $\text{BER}_{\text{REFERENCE}}$ is the reference bit error ratio with its corresponding, theoretical output signal to noise ratio per symbol, $(S/N)_{\text{output}}$, (J/S) 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.

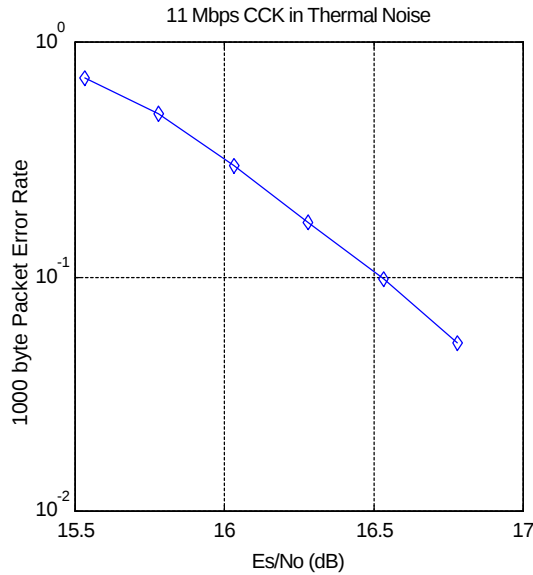
The HFA3861A direct sequence spread spectrum baseband processor uses CCK modulation which is a form of M-ary Orthogonal Keying. The BER performance curve is given by [5]:

“ The probability of error for generalized M-ary Orthogonal signaling using coherent demodulation is given by:

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

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.

1.1 1000 byte PER vs. Es/No



The reference PER is specified as 8% . 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 18.4 dB. The minimum processing gain is again, 10 dB, therefore:

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

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

The minimum jammer to signal ratio is as follows:

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

For the case of the HFA3861A, the bit rates are 1, 2, 5.5, and 11 Mbps. The corresponding symbol rates are 1, 1, 1.375, and 1.375 MSps. The chip rate is

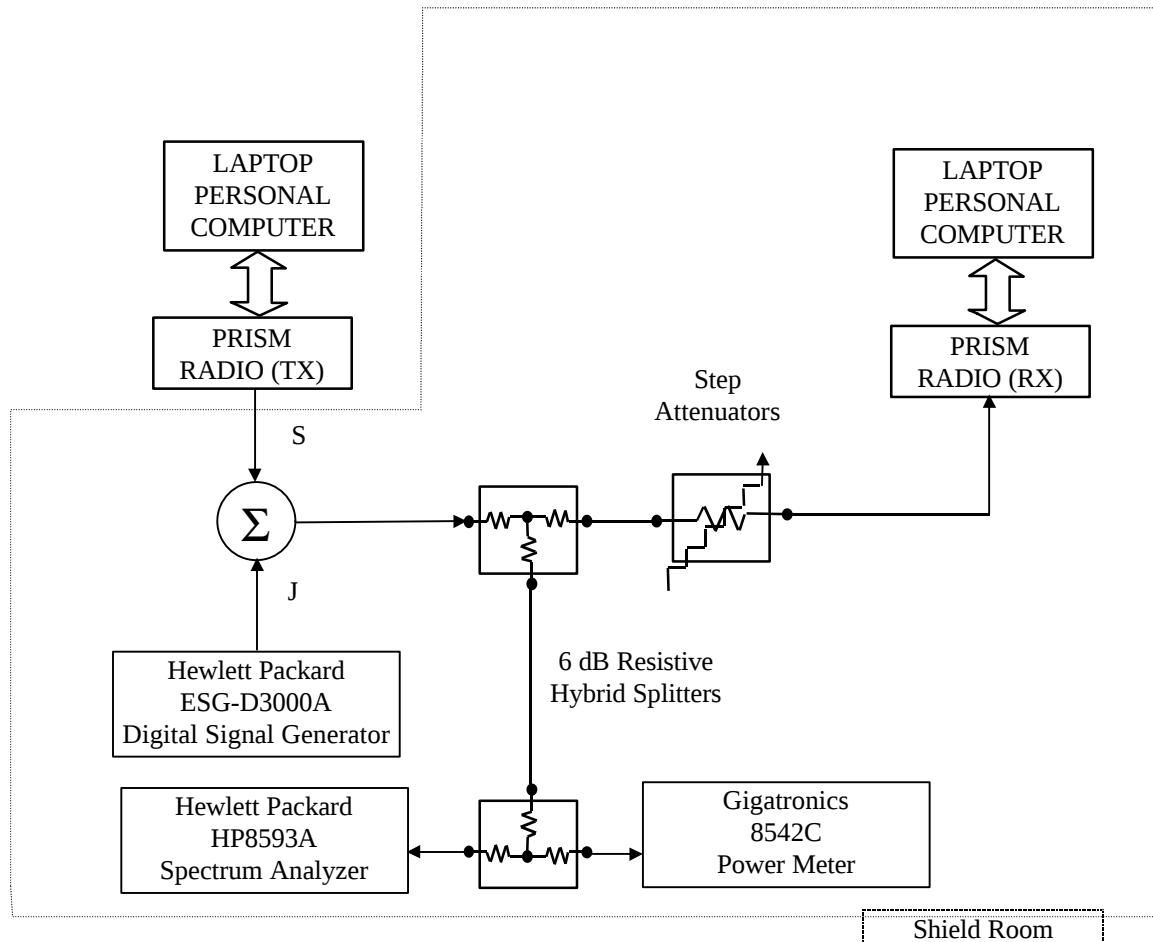
always 11 MCps, so the ratio of chip rate to symbol rate is 11:1 for the 1 and 2 Mbps rates and 8:1 for the 5.5 and 11 Mbps rates. Since the symbol rate to bit rate is less than 10 for the higher rates, we supply the theoretical processing gain calculation for these cases where both spread spectrum processing gain and coding gain are utilized. This is reasonable in that they cannot be separated in the demodulation process. If a separable FEC coding scheme were used, we would not be comfortable making this assertion.

As can be seen from the curve of figure 1, the E_s/N_0 is 16.4 dB at the PER of 8%. This PER can be related to a BER of $1e-5$ on 1000 byte packets. With 8 bits per symbol, the E_b/N_0 is then 7.4 dB or 9 dB less than the E_s/N_0 . It is well known that the E_b/N_0 of BPSK is 9.6 dB for $1e-5$ BER, so therefore the coding gain of CCK over BPSK is 2.2 dB. We add this to the processing gain of 9 dB to get 11.2 dB overall processing gain for the CW jammer test.

Taking the calculations above, if the $\left(\frac{J}{S}\right) \geq -8.4dB$ then the equipment passes the CW jamming test.

Test Configuration: CW Jamming Margin (15.247) (e)

Basic Test Block Diagram



Test Procedure

Obtain the simplex link shown. Perform all independent instrumentation calibrations prior to this procedure. Set operating power levels using fixed and variable attenuators in system to meet the following objectives:

1. Signal Power at receiver approximately -60 dBm (above thermal sensitivity such that thermal noise does not cause bit errors).
2. Signal Power at power meter between -20 and -30 dBm for optimal linearity.
3. Use spectrum analyzer to monitor test.

4. Ensure that CW Jammer generator RF output is disabled and measure the power at the power meter port using the power meter. This is the relative signal power, S_r .
5. Disable Transmitter, and 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 .
6. Disable CW Jammer, re-establish link. PER test should be operating essentially error-free.
7. Enable CW Jammer at the reference power level and verify that the PER test indicates a PER of less than 8%.
8. Alternatively, adjust the CW Jammer level to that which causes 8% PER and verify that the S/J is less than 8.4 dB.
9. Repeat step 7 for uniform steps in frequency increments of 50 kHz across the receiver passband with the CW Jammer. In this case the receiver passband is ± 8.5 MHz.

The number of points where the PER fails 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 informational purposes) can be determined from the average of the remaining points' PERs scaled on the PER curve above.

The numerical data associated with the following radio channels is tabulated and presented for:

Channel 1: 2412 MHz
Channel 6: 2437 MHz
Channel 11: 2462 MHz

11Mbps CHANNEL 1 Processing Gain							
Gp = (S/N)o + Mj + Lsys							
Freq.	Gp	(S/N)o	Mj = J/S	Lsys	Jammer	LVL	FER
(GHz)	(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)	
2.4035	20	16.4	1.6	2	-38.4	8	5.4
2.40355	19.5	16.4	1.1	2	-38.9	7.5	6.2
2.4036	19.4	16.4	1	2	-39	7.4	7.3
2.40365	19	16.4	0.6	2	-39.4	7	6.1
2.4037	18.9	16.4	0.5	2	-39.5	6.9	5.8
2.40375	18.8	16.4	0.4	2	-39.6	6.8	5.8
2.4038	18.9	16.4	0.5	2	-39.5	6.9	5.7
2.40385	18.9	16.4	0.5	2	-39.5	6.9	7.1
2.4039	19	16.4	0.6	2	-39.4	7	7.3
2.40395	19.1	16.4	0.7	2	-39.3	7.1	5.6
2.404	19.5	16.4	1.1	2	-38.9	7.5	6.7
2.40405	19.8	16.4	1.4	2	-38.6	7.8	7.2
2.4041	19.6	16.4	1.2	2	-38.8	7.6	6.8
2.40415	19.5	16.4	1.1	2	-38.9	7.5	6
2.4042	19.6	16.4	1.2	2	-38.8	7.6	7.8
2.40425	19.4	16.4	1	2	-39	7.4	7.5
2.4043	19.3	16.4	0.9	2	-39.1	7.3	6.5
2.40435	19.3	16.4	0.9	2	-39.1	7.3	5.2
2.4044	19.2	16.4	0.8	2	-39.2	7.2	6.5
2.40445	19.1	16.4	0.7	2	-39.3	7.1	4.9
2.4045	19	16.4	0.6	2	-39.4	7	7.5
2.40455	18.6	16.4	0.2	2	-39.8	6.6	7.9
2.4046	18.5	16.4	0.1	2	-39.9	6.5	7.5
2.40465	18.1	16.4	-0.3	2	-40.3	6.1	5.7
2.4047	18.1	16.4	-0.3	2	-40.3	6.1	6.1
2.40475	18	16.4	-0.4	2	-40.4	6	5.2
2.4048	18.1	16.4	-0.3	2	-40.3	6.1	7.9
2.40485	18	16.4	-0.4	2	-40.4	6	4.9
2.4049	18	16.4	-0.4	2	-40.4	6	5
2.40495	18.2	16.4	-0.2	2	-40.2	6.2	7.1
2.405	18.5	16.4	0.1	2	-39.9	6.5	7.9
2.40505	18.6	16.4	0.2	2	-39.8	6.6	7.7
2.4051	18.6	16.4	0.2	2	-39.8	6.6	8

2.40515	18.5	16.4	0.1	2	-39.9	6.5	6.2
2.4052	18.4	16.4	0	2	-40	6.4	6.4
2.40525	18.3	16.4	-0.1	2	-40.1	6.3	5.6
2.4053	18.3	16.4	-0.1	2	-40.1	6.3	6.2
2.40535	18.2	16.4	-0.2	2	-40.2	6.2	5.2
2.4054	18.2	16.4	-0.2	2	-40.2	6.2	6.6
2.40545	18.1	16.4	-0.3	2	-40.3	6.1	6.8
2.4055	17.8	16.4	-0.6	2	-40.6	5.8	6.5
2.40555	17.4	16.4	-1	2	-41	5.4	6.8
2.4056	17.2	16.4	-1.2	2	-41.2	5.2	6.7
2.40565	17	16.4	-1.4	2	-41.4	5	5.7
2.4057	16.9	16.4	-1.5	2	-41.5	4.9	6.9
2.40575	16.8	16.4	-1.6	2	-41.6	4.8	7.3
2.4058	16.7	16.4	-1.7	2	-41.7	4.7	6.1
2.40585	16.7	16.4	-1.7	2	-41.7	4.7	8
2.4059	16.6	16.4	-1.8	2	-41.8	4.6	7
2.40595	16.7	16.4	-1.7	2	-41.7	4.7	7.5
2.406	16.7	16.4	-1.7	2	-41.7	4.7	5.8
2.40605	16.7	16.4	-1.7	2	-41.7	4.7	5.8
2.4061	16.7	16.4	-1.7	2	-41.7	4.7	7.9
2.40615	16.6	16.4	-1.8	2	-41.8	4.6	7.1
2.4062	16.4	16.4	-2	2	-42	4.4	5.9
2.40625	16.3	16.4	-2.1	2	-42.1	4.3	7.7
2.4063	16	16.4	-2.4	2	-42.4	4	5.3
2.40635	15.9	16.4	-2.5	2	-42.5	3.9	7
2.4064	15.7	16.4	-2.7	2	-42.7	3.7	6.2
2.40645	15.6	16.4	-2.8	2	-42.8	3.6	7.6
2.4065	15.4	16.4	-3	2	-43	3.4	6.4
2.40655	15.3	16.4	-3.1	2	-43.1	3.3	6.1
2.4066	15.3	16.4	-3.1	2	-43.1	3.3	7.2
2.40665	15.2	16.4	-3.2	2	-43.2	3.2	7
2.4067	15.2	16.4	-3.2	2	-43.2	3.2	7.3
2.40675	15.1	16.4	-3.3	2	-43.3	3.1	5.3
2.4068	15.1	16.4	-3.3	2	-43.3	3.1	6.2
2.40685	15.1	16.4	-3.3	2	-43.3	3.1	7
2.4069	15	16.4	-3.4	2	-43.4	3	8
2.40695	14.8	16.4	-3.6	2	-43.6	2.8	7.2

2.407	14.7	16.4	-3.7	2	-43.7	2.7	7.8
2.40705	14.5	16.4	-3.9	2	-43.9	2.5	6.5
2.4071	14.4	16.4	-4	2	-44	2.4	6.5
2.40715	14.3	16.4	-4.1	2	-44.1	2.3	6.9
2.4072	14.2	16.4	-4.2	2	-44.2	2.2	7.3
2.40725	14.1	16.4	-4.3	2	-44.3	2.1	6.4
2.4073	14.1	16.4	-4.3	2	-44.3	2.1	7.8
2.40735	14	16.4	-4.4	2	-44.4	2	6.6
2.4074	14	16.4	-4.4	2	-44.4	2	8
2.40745	13.9	16.4	-4.5	2	-44.5	1.9	7.2
2.4075	13.8	16.4	-4.6	2	-44.6	1.8	6.3
2.40755	13.7	16.4	-4.7	2	-44.7	1.7	5.9
2.4076	13.6	16.4	-4.8	2	-44.8	1.6	6.9
2.40765	13.5	16.4	-4.9	2	-44.9	1.5	7.4
2.4077	13.4	16.4	-5	2	-45	1.4	8
2.40775	13.3	16.4	-5.1	2	-45.1	1.3	7.9
2.4078	13.2	16.4	-5.2	2	-45.2	1.2	7.6
2.40785	13.1	16.4	-5.3	2	-45.3	1.1	6
2.4079	13.1	16.4	-5.3	2	-45.3	1.1	6.6
2.40795	13.1	16.4	-5.3	2	-45.3	1.1	6.5
2.408	13.1	16.4	-5.3	2	-45.3	1.1	6.8
2.40805	13.1	16.4	-5.3	2	-45.3	1.1	8
2.4081	13.1	16.4	-5.3	2	-45.3	1.1	6.5
2.40815	13.2	16.4	-5.2	2	-45.2	1.2	7.5
2.4082	13.1	16.4	-5.3	2	-45.3	1.1	8
2.40825	12.9	16.4	-5.5	2	-45.5	0.9	6.1
2.4083	12.7	16.4	-5.7	2	-45.7	0.7	5.2
2.40835	12.7	16.4	-5.7	2	-45.7	0.7	7.3
2.4084	12.5	16.4	-5.9	2	-45.9	0.5	6.7
2.40845	12.4	16.4	-6	2	-46	0.4	7.2
2.4085	12.4	16.4	-6	2	-46	0.4	8
2.40855	12.3	16.4	-6.1	2	-46.1	0.3	7
2.4086	12.3	16.4	-6.1	2	-46.1	0.3	5.1
2.40865	12.3	16.4	-6.1	2	-46.1	0.3	8
2.4087	12.2	16.4	-6.2	2	-46.2	0.2	6.2
2.40875	12.3	16.4	-6.1	2	-46.1	0.3	7.2
2.4088	12.2	16.4	-6.2	2	-46.2	0.2	6.9

2.40885	12.2	16.4	-6.2	2	-46.2	0.2	7.8
2.4089	12	16.4	-6.4	2	-46.4	0	7.3
2.40895	11.9	16.4	-6.5	2	-46.5	-0.1	7.6
2.409	11.7	16.4	-6.7	2	-46.7	-0.3	6.9
2.40905	11.6	16.4	-6.8	2	-46.8	-0.4	7.9
2.4091	11.4	16.4	-7	2	-47	-0.6	6.6
2.40915	11.4	16.4	-7	2	-47	-0.6	8
2.4092	11.3	16.4	-7.1	2	-47.1	-0.7	7.9
2.40925	11.2	16.4	-7.2	2	-47.2	-0.8	6.8
2.4093	11.2	16.4	-7.2	2	-47.2	-0.8	7
2.40935	11.2	16.4	-7.2	2	-47.2	-0.8	7
2.4094	11.3	16.4	-7.1	2	-47.1	-0.7	7.7
2.40945	11.3	16.4	-7.1	2	-47.1	-0.7	6.9
2.4095	11.3	16.4	-7.1	2	-47.1	-0.7	6.3
2.40955	11.4	16.4	-7	2	-47	-0.6	6.9
2.4096	11.4	16.4	-7	2	-47	-0.6	7.4
2.40965	11.4	16.4	-7	2	-47	-0.6	7.3
2.4097	11.3	16.4	-7.1	2	-47.1	-0.7	6.7
2.40975	11.3	16.4	-7.1	2	-47.1	-0.7	8
2.4098	11.1	16.4	-7.3	2	-47.3	-0.9	6.7
2.40985	11.1	16.4	-7.3	2	-47.3	-0.9	7.6
2.4099	11	16.4	-7.4	2	-47.4	-1	6.5
2.40995	11	16.4	-7.4	2	-47.4	-1	7.4
2.41	10.9	16.4	-7.5	2	-47.5	-1.1	6.1
2.41005	11	16.4	-7.4	2	-47.4	-1	8
2.4101	11	16.4	-7.4	2	-47.4	-1	6.6
2.41015	11.1	16.4	-7.3	2	-47.3	-0.9	7.6
2.4102	11.2	16.4	-7.2	2	-47.2	-0.8	7.7
2.41025	11.3	16.4	-7.1	2	-47.1	-0.7	7.5
2.4103	11.3	16.4	-7.1	2	-47.1	-0.7	6.3
2.41035	11.4	16.4	-7	2	-47	-0.6	8
2.4104	11.3	16.4	-7.1	2	-47.1	-0.7	6.4
2.41045	11.3	16.4	-7.1	2	-47.1	-0.7	6.5
2.4105	11.3	16.4	-7.1	2	-47.1	-0.7	7.2
2.41055	11.2	16.4	-7.2	2	-47.2	-0.8	6.5
2.4106	11.2	16.4	-7.2	2	-47.2	-0.8	6.6
2.41065	11.3	16.4	-7.1	2	-47.1	-0.7	7.8

2.4107	11.3	16.4	-7.1	2	-47.1	-0.7	7
2.41075	11.3	16.4	-7.1	2	-47.1	-0.7	6
2.4108	11.4	16.4	-7	2	-47	-0.6	6.2
2.41085	11.5	16.4	-6.9	2	-46.9	-0.5	6.5
2.4109	11.6	16.4	-6.8	2	-46.8	-0.4	6.9
2.41095	11.6	16.4	-6.8	2	-46.8	-0.4	6.7
2.411	11.6	16.4	-6.8	2	-46.8	-0.4	7.8
2.41105	11.4	16.4	-7	2	-47	-0.6	7.2
2.4111	11.5	16.4	-6.9	2	-46.9	-0.5	7
2.41115	11.6	16.4	-6.8	2	-46.8	-0.4	7.4
2.4112	11.5	16.4	-6.9	2	-46.9	-0.5	6.3
2.41125	11.5	16.4	-6.9	2	-46.9	-0.5	6.6
2.4113	11.5	16.4	-6.9	2	-46.9	-0.5	6.9
2.41135	11.4	16.4	-7	2	-47	-0.6	6.1
2.4114	11.4	16.4	-7	2	-47	-0.6	6
2.41145	11.4	16.4	-7	2	-47	-0.6	6.7
2.4115	11.4	16.4	-7	2	-47	-0.6	7.3
2.41155	11.4	16.4	-7	2	-47	-0.6	6.6
2.4116	11.6	16.4	-6.8	2	-46.8	-0.4	7.7
2.41165	11.6	16.4	-6.8	2	-46.8	-0.4	6.6
2.4117	11.5	16.4	-6.9	2	-46.9	-0.5	6
2.41175	11.4	16.4	-7	2	-47	-0.6	6.8
2.4118	11.2	16.4	-7.2	2	-47.2	-0.8	5.8
2.41185	11.1	16.4	-7.3	2	-47.3	-0.9	7.1
2.4119	11	16.4	-7.4	2	-47.4	-1	5.6
2.41195	10.8	16.4	-7.6	2	-47.6	-1.2	6
2.412	10.9	16.4	-7.5	2	-47.5	-1.1	6.1
2.41205	10.9	16.4	-7.5	2	-47.5	-1.1	4
2.4121	11.1	16.4	-7.3	2	-47.3	-0.9	3.5
2.41215	11.4	16.4	-7	2	-47	-0.6	6.5
2.4122	11.5	16.4	-6.9	2	-46.9	-0.5	5.4
2.41225	11.6	16.4	-6.8	2	-46.8	-0.4	7.5
2.4123	11.7	16.4	-6.7	2	-46.7	-0.3	4.5
2.41235	11.7	16.4	-6.7	2	-46.7	-0.3	7.2
2.4124	11.7	16.4	-6.7	2	-46.7	-0.3	6.7
2.41245	11.6	16.4	-6.8	2	-46.8	-0.4	5.9
2.4125	11.6	16.4	-6.8	2	-46.8	-0.4	6.6

2.41255	11.6	16.4	-6.8	2	-46.8	-0.4	6.2
2.4126	11.6	16.4	-6.8	2	-46.8	-0.4	5.5
2.41265	11.6	16.4	-6.8	2	-46.8	-0.4	5.6
2.4127	11.7	16.4	-6.7	2	-46.7	-0.3	7
2.41275	11.6	16.4	-6.8	2	-46.8	-0.4	7.3
2.4128	11.8	16.4	-6.6	2	-46.6	-0.2	7
2.41285	11.8	16.4	-6.6	2	-46.6	-0.2	7.1
2.4129	11.8	16.4	-6.6	2	-46.6	-0.2	6.3
2.41295	11.9	16.4	-6.5	2	-46.5	-0.1	7.7
2.413	11.8	16.4	-6.6	2	-46.6	-0.2	5.9
2.41305	11.8	16.4	-6.6	2	-46.6	-0.2	6.5
2.4131	11.8	16.4	-6.6	2	-46.6	-0.2	7.5
2.41315	11.7	16.4	-6.7	2	-46.7	-0.3	6.3
2.4132	11.6	16.4	-6.8	2	-46.8	-0.4	7.6
2.41325	11.7	16.4	-6.7	2	-46.7	-0.3	7
2.4133	11.6	16.4	-6.8	2	-46.8	-0.4	6.8
2.41335	11.6	16.4	-6.8	2	-46.8	-0.4	8
2.4134	11.6	16.4	-6.8	2	-46.8	-0.4	7.9
2.41345	11.6	16.4	-6.8	2	-46.8	-0.4	7.5
2.4135	11.6	16.4	-6.8	2	-46.8	-0.4	7.1
2.41355	11.6	16.4	-6.8	2	-46.8	-0.4	6.7
2.4136	11.7	16.4	-6.7	2	-46.7	-0.3	7.8
2.41365	11.7	16.4	-6.7	2	-46.7	-0.3	7.1
2.4137	11.7	16.4	-6.7	2	-46.7	-0.3	6.9
2.41375	11.7	16.4	-6.7	2	-46.7	-0.3	7.3
2.4138	11.6	16.4	-6.8	2	-46.8	-0.4	7
2.41385	11.5	16.4	-6.9	2	-46.9	-0.5	6.4
2.4139	11.4	16.4	-7	2	-47	-0.6	7.5
2.41395	11.3	16.4	-7.1	2	-47.1	-0.7	7.5
2.414	11.2	16.4	-7.2	2	-47.2	-0.8	6.3
2.41405	11.2	16.4	-7.2	2	-47.2	-0.8	6.9
2.4141	11.2	16.4	-7.2	2	-47.2	-0.8	6.4
2.41415	11.2	16.4	-7.2	2	-47.2	-0.8	6
2.4142	11.3	16.4	-7.1	2	-47.1	-0.7	6.6
2.41425	11.4	16.4	-7	2	-47	-0.6	6.7
2.4143	11.5	16.4	-6.9	2	-46.9	-0.5	7.5
2.41435	11.5	16.4	-6.9	2	-46.9	-0.5	6.3

2.4144	11.5	16.4	-6.9	2	-46.9	-0.5	6.5
2.41445	11.5	16.4	-6.9	2	-46.9	-0.5	7.4
2.4145	11.4	16.4	-7	2	-47	-0.6	6.6
2.41455	11.3	16.4	-7.1	2	-47.1	-0.7	6.2
2.4146	11.3	16.4	-7.1	2	-47.1	-0.7	6.5
2.41465	11.3	16.4	-7.1	2	-47.1	-0.7	7.3
2.4147	11.3	16.4	-7.1	2	-47.1	-0.7	7.3
2.41475	11.4	16.4	-7	2	-47	-0.6	7.1
2.4148	11.5	16.4	-6.9	2	-46.9	-0.5	7.7
2.41485	11.6	16.4	-6.8	2	-46.8	-0.4	7.5
2.4149	11.6	16.4	-6.8	2	-46.8	-0.4	6
2.41495	11.8	16.4	-6.6	2	-46.6	-0.2	6.5
2.415	11.9	16.4	-6.5	2	-46.5	-0.1	7.2
2.41505	12	16.4	-6.4	2	-46.4	0	7
2.4151	12.1	16.4	-6.3	2	-46.3	0.1	6.5
2.41515	12.1	16.4	-6.3	2	-46.3	0.1	6
2.4152	12.1	16.4	-6.3	2	-46.3	0.1	6.4
2.41525	12.1	16.4	-6.3	2	-46.3	0.1	6.7
2.4153	12.1	16.4	-6.3	2	-46.3	0.1	6.5
2.41535	12.1	16.4	-6.3	2	-46.3	0.1	7.2
2.4154	12.1	16.4	-6.3	2	-46.3	0.1	6.8
2.41545	12.1	16.4	-6.3	2	-46.3	0.1	6.1
2.4155	12.1	16.4	-6.3	2	-46.3	0.1	5.3
2.41555	12.3	16.4	-6.1	2	-46.1	0.3	7.7
2.4156	12.4	16.4	-6	2	-46	0.4	7.4
2.41565	12.5	16.4	-5.9	2	-45.9	0.5	7
2.4157	12.6	16.4	-5.8	2	-45.8	0.6	5.9
2.41575	12.7	16.4	-5.7	2	-45.7	0.7	6
2.4158	12.8	16.4	-5.6	2	-45.6	0.8	6.9
2.41585	12.8	16.4	-5.6	2	-45.6	0.8	7.1
2.4159	12.8	16.4	-5.6	2	-45.6	0.8	6.8
2.41595	12.8	16.4	-5.6	2	-45.6	0.8	7.3
2.416	12.8	16.4	-5.6	2	-45.6	0.8	7.7
2.41605	12.8	16.4	-5.6	2	-45.6	0.8	6.4
2.4161	12.9	16.4	-5.5	2	-45.5	0.9	8
2.41615	12.9	16.4	-5.5	2	-45.5	0.9	7
2.4162	13	16.4	-5.4	2	-45.4	1	7

Sheet2

2.41625	13.1	16.4	-5.3	2	-45.3	1.1	6.8
2.4163	13.2	16.4	-5.2	2	-45.2	1.2	6.3
2.41635	13.4	16.4	-5	2	-45	1.4	7
2.4164	13.6	16.4	-4.8	2	-44.8	1.6	8
2.41645	13.6	16.4	-4.8	2	-44.8	1.6	6.3
2.4165	13.6	16.4	-4.8	2	-44.8	1.6	5.4
2.41655	13.7	16.4	-4.7	2	-44.7	1.7	6.9
2.4166	13.7	16.4	-4.7	2	-44.7	1.7	7.2
2.41665	13.7	16.4	-4.7	2	-44.7	1.7	6.6
2.4167	13.7	16.4	-4.7	2	-44.7	1.7	6.5
2.41675	13.8	16.4	-4.6	2	-44.6	1.8	8
2.4168	13.8	16.4	-4.6	2	-44.6	1.8	6.3
2.41685	13.9	16.4	-4.5	2	-44.5	1.9	6.5
2.4169	14	16.4	-4.4	2	-44.4	2	6.2
2.41695	14.2	16.4	-4.2	2	-44.2	2.2	7.2
2.417	14.2	16.4	-4.2	2	-44.2	2.2	4.6
2.41705	14.4	16.4	-4	2	-44	2.4	5.2
2.4171	14.6	16.4	-3.8	2	-43.8	2.6	5.9
2.41715	14.8	16.4	-3.6	2	-43.6	2.8	7
2.4172	14.9	16.4	-3.5	2	-43.5	2.9	7.7
2.41725	15	16.4	-3.4	2	-43.4	3	8
2.4173	15	16.4	-3.4	2	-43.4	3	7.6
2.41735	15	16.4	-3.4	2	-43.4	3	6.6
2.4174	15.1	16.4	-3.3	2	-43.3	3.1	6.7
2.41745	15.2	16.4	-3.2	2	-43.2	3.2	6.6
2.4175	15.4	16.4	-3	2	-43	3.4	7.5
2.41755	15.5	16.4	-2.9	2	-42.9	3.5	6.7
2.4176	15.7	16.4	-2.7	2	-42.7	3.7	6.4
2.41765	15.9	16.4	-2.5	2	-42.5	3.9	6.5
2.4177	16.1	16.4	-2.3	2	-42.3	4.1	6.3
2.41775	16.4	16.4	-2	2	-42	4.4	7.9
2.4178	16.6	16.4	-1.8	2	-41.8	4.6	6.7
2.41785	16.7	16.4	-1.7	2	-41.7	4.7	6.5
2.4179	16.8	16.4	-1.6	2	-41.6	4.8	7.3
2.41795	16.8	16.4	-1.6	2	-41.6	4.8	6.6
2.418	16.9	16.4	-1.5	2	-41.5	4.9	7.4
2.41805	16.7	16.4	-1.7	2	-41.7	4.7	5.3

2.4181	16.7	16.4	-1.7	2	-41.7	4.7	6.7
2.41815	16.7	16.4	-1.7	2	-41.7	4.7	6.1
2.4182	16.7	16.4	-1.7	2	-41.7	4.7	6.1
2.41825	16.8	16.4	-1.6	2	-41.6	4.8	6.7
2.4183	16.9	16.4	-1.5	2	-41.5	4.9	6.8
2.41835	17	16.4	-1.4	2	-41.4	5	6.8
2.4184	17.2	16.4	-1.2	2	-41.2	5.2	8
2.41845	17.4	16.4	-1	2	-41	5.4	6.2
2.4185	17.8	16.4	-0.6	2	-40.6	5.8	6.6
2.41855	17.9	16.4	-0.5	2	-40.5	5.9	5.5
2.4186	18.1	16.4	-0.3	2	-40.3	6.1	7.7
2.41865	18.1	16.4	-0.3	2	-40.3	6.1	5.6
2.4187	18.1	16.4	-0.3	2	-40.3	6.1	5.8
2.41875	18.2	16.4	-0.2	2	-40.2	6.2	7.3
2.4188	18.3	16.4	-0.1	2	-40.1	6.3	8
2.41885	18.3	16.4	-0.1	2	-40.1	6.3	5.6
2.4189	18.3	16.4	-0.1	2	-40.1	6.3	6.3
2.41895	18.3	16.4	-0.1	2	-40.1	6.3	6.5
2.419	18.2	16.4	-0.2	2	-40.2	6.2	6.5
2.41905	18	16.4	-0.4	2	-40.4	6	7.3
2.4191	17.9	16.4	-0.5	2	-40.5	5.9	7.5
2.41915	17.9	16.4	-0.5	2	-40.5	5.9	8
2.4192	17.8	16.4	-0.6	2	-40.6	5.8	7
2.41925	17.8	16.4	-0.6	2	-40.6	5.8	5.4
2.4193	17.9	16.4	-0.5	2	-40.5	5.9	7.6
2.41935	18	16.4	-0.4	2	-40.4	6	8
2.4194	18.1	16.4	-0.3	2	-40.3	6.1	6.5
2.41945	18.4	16.4	0	2	-40	6.4	5.5
2.4195	18.8	16.4	0.4	2	-39.6	6.8	6.7
2.41955	19	16.4	0.6	2	-39.4	7	7.3
2.4196	19.1	16.4	0.7	2	-39.3	7.1	7
2.41965	19.1	16.4	0.7	2	-39.3	7.1	5.2
2.4197	19.2	16.4	0.8	2	-39.2	7.2	7.3
2.41975	19.2	16.4	0.8	2	-39.2	7.2	5.6
2.4198	19.3	16.4	0.9	2	-39.1	7.3	6.4
2.41985	19.4	16.4	1	2	-39	7.4	7.7
2.4199	19.4	16.4	1	2	-39	7.4	7.1

Sheet2

2.41995	19.4	16.4	1	2	-39	7.4	5.7
2.42	19.3	16.4	0.9	2	-39.1	7.3	6
2.42005	19.1	16.4	0.7	2	-39.3	7.1	7.7
2.4201	18.9	16.4	0.5	2	-39.5	6.9	6.5
2.42015	18.9	16.4	0.5	2	-39.5	6.9	7.9
2.4202	18.8	16.4	0.4	2	-39.6	6.8	5.5
2.42025	18.9	16.4	0.5	2	-39.5	6.9	7.7
2.4203	18.9	16.4	0.5	2	-39.5	6.9	5.3
2.42035	19.1	16.4	0.7	2	-39.3	7.1	7.8
2.4204	19.3	16.4	0.9	2	-39.1	7.3	7.3
2.42045	19.5	16.4	1.1	2	-38.9	7.5	6.6
2.4205	19.9	16.4	1.5	2	-38.5	7.9	5
Processing Gain (dB) @ 20th percentile =				11.5			

Test Conditions						
HWB3163-04 Rev A						
Tx Card = 9928-007 Rx Card = 9928-009						
Transmitter Signal Level at Rx= -40dBm						
Firmware = 0907 Rev 0.4+						
Mode = 11Mb , Pseudo IBSS						
PktSize = 1000 bytes						
PktDly = 1, PktBurst = 6						
Intersil Chip Versions on Card						
HFA3983 Rev A11						
HFA3683A RevC						
HFA3783 Rev D01						
HFA3861A						
HFA3841						

11Mbps Channel 6 Processing Gain							
Gp = (S/N)o + Mj + Lsys							
Freq.	Gp	(S/N)o	Mj = J/S	Lsys	Jammer	Lvl	FER
(GHz)	(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)	
2.4285	19.5	16.4	1.1	2	-38.9	5.2	6.6
2.42855	19.1	16.4	0.7	2	-39.3	4.8	7.7
2.4286	18.8	16.4	0.4	2	-39.6	4.5	8
2.42865	18.7	16.4	0.3	2	-39.7	4.4	6.8
2.4287	18.5	16.4	0.1	2	-39.9	4.2	6
2.42875	18.5	16.4	0.1	2	-39.9	4.2	6.3
2.4288	18.5	16.4	0.1	2	-39.9	4.2	6.1
2.42885	18.6	16.4	0.2	2	-39.8	4.3	6.9
2.4289	18.6	16.4	0.2	2	-39.8	4.3	5.2
2.42895	18.9	16.4	0.5	2	-39.5	4.6	7.4
2.429	19.3	16.4	0.9	2	-39.1	5	7.7
2.42905	19.3	16.4	0.9	2	-39.1	5	7.6
2.4291	19.2	16.4	0.8	2	-39.2	4.9	5.8
2.42915	19.2	16.4	0.8	2	-39.2	4.9	7.5
2.4292	19.1	16.4	0.7	2	-39.3	4.8	6.4
2.42925	19.1	16.4	0.7	2	-39.3	4.8	7.1
2.4293	19.1	16.4	0.7	2	-39.3	4.8	7.9
2.42935	19	16.4	0.6	2	-39.4	4.7	7.8
2.4294	18.9	16.4	0.5	2	-39.5	4.6	7.5
2.42945	18.8	16.4	0.4	2	-39.6	4.5	7.2
2.4295	18.6	16.4	0.2	2	-39.8	4.3	7.8
2.42955	18.1	16.4	-0.3	2	-40.3	3.8	7.7
2.4296	17.9	16.4	-0.5	2	-40.5	3.6	5.6
2.42965	17.8	16.4	-0.6	2	-40.6	3.5	7.4
2.4297	17.8	16.4	-0.6	2	-40.6	3.5	7.7
2.42975	17.7	16.4	-0.7	2	-40.7	3.4	7.2
2.4298	17.7	16.4	-0.7	2	-40.7	3.4	6
2.42985	17.8	16.4	-0.6	2	-40.6	3.5	7.3
2.4299	17.8	16.4	-0.6	2	-40.6	3.5	7.3
2.42995	17.9	16.4	-0.5	2	-40.5	3.6	6.4
2.43	18.2	16.4	-0.2	2	-40.2	3.9	7.3
2.43005	18.2	16.4	-0.2	2	-40.2	3.9	6.2
2.4301	18.2	16.4	-0.2	2	-40.2	3.9	6
2.43015	18.2	16.4	-0.2	2	-40.2	3.9	7.3
2.4302	18.1	16.4	-0.3	2	-40.3	3.8	5.6
2.43025	18.1	16.4	-0.3	2	-40.3	3.8	7
2.4303	18	16.4	-0.4	2	-40.4	3.7	6
2.43035	18	16.4	-0.4	2	-40.4	3.7	6.6
2.4304	17.9	16.4	-0.5	2	-40.5	3.6	5.6
2.43045	17.9	16.4	-0.5	2	-40.5	3.6	7.8
2.4305	17.6	16.4	-0.8	2	-40.8	3.3	7.6
2.43055	17.1	16.4	-1.3	2	-41.3	2.8	5.1
2.4306	16.9	16.4	-1.5	2	-41.5	2.6	5.6
2.43065	16.7	16.4	-1.7	2	-41.7	2.4	6.9
2.4307	16.6	16.4	-1.8	2	-41.8	2.3	7.3
2.43075	16.4	16.4	-2	2	-42	2.1	5.3

2.4308	16.4	16.4	-2	2	-42	2.1	6.6
2.43085	16.3	16.4	-2.1	2	-42.1	2	6.5
2.4309	16.3	16.4	-2.1	2	-42.1	2	6.3
2.43095	16.4	16.4	-2	2	-42	2.1	6.3
2.431	16.5	16.4	-1.9	2	-41.9	2.2	7.6
2.43105	16.5	16.4	-1.9	2	-41.9	2.2	7.6
2.4311	16.4	16.4	-2	2	-42	2.1	7
2.43115	16.3	16.4	-2.1	2	-42.1	2	7.3
2.4312	16.2	16.4	-2.2	2	-42.2	1.9	7.9
2.43125	16	16.4	-2.4	2	-42.4	1.7	7.6
2.4313	15.8	16.4	-2.6	2	-42.6	1.5	7.4
2.43135	15.6	16.4	-2.8	2	-42.8	1.3	6.8
2.4314	15.5	16.4	-2.9	2	-42.9	1.2	7.3
2.43145	15.3	16.4	-3.1	2	-43.1	1	7.5
2.4315	15.2	16.4	-3.2	2	-43.2	0.9	7.7
2.43155	15	16.4	-3.4	2	-43.4	0.7	6.1
2.4316	15	16.4	-3.4	2	-43.4	0.7	7.1
2.43165	14.9	16.4	-3.5	2	-43.5	0.6	6.3
2.4317	14.9	16.4	-3.5	2	-43.5	0.6	6.8
2.43175	14.9	16.4	-3.5	2	-43.5	0.6	6.9
2.4318	14.9	16.4	-3.5	2	-43.5	0.6	7.3
2.43185	14.8	16.4	-3.6	2	-43.6	0.5	6.7
2.4319	14.7	16.4	-3.7	2	-43.7	0.4	6.9
2.43195	14.5	16.4	-3.9	2	-43.9	0.2	7.1
2.432	14.4	16.4	-4	2	-44	0.1	7.9
2.43205	14.2	16.4	-4.2	2	-44.2	-0.1	6.7
2.4321	14.1	16.4	-4.3	2	-44.3	-0.2	6.8
2.43215	14	16.4	-4.4	2	-44.4	-0.3	6.7
2.4322	14	16.4	-4.4	2	-44.4	-0.3	7.5
2.43225	13.9	16.4	-4.5	2	-44.5	-0.4	7.5
2.4323	13.8	16.4	-4.6	2	-44.6	-0.5	6.1
2.43235	13.8	16.4	-4.6	2	-44.6	-0.5	7
2.4324	13.8	16.4	-4.6	2	-44.6	-0.5	7.4
2.43245	13.7	16.4	-4.7	2	-44.7	-0.6	6.8
2.4325	13.7	16.4	-4.7	2	-44.7	-0.6	7.6
2.43255	13.6	16.4	-4.8	2	-44.8	-0.7	7.8
2.4326	13.4	16.4	-5	2	-45	-0.9	6.7
2.43265	13.3	16.4	-5.1	2	-45.1	-1	7.7
2.4327	13.1	16.4	-5.3	2	-45.3	-1.2	6.5
2.43275	13	16.4	-5.4	2	-45.4	-1.3	6.6
2.4328	13	16.4	-5.4	2	-45.4	-1.3	7.6
2.43285	12.9	16.4	-5.5	2	-45.5	-1.4	6.4
2.4329	12.9	16.4	-5.5	2	-45.5	-1.4	7.3
2.43295	12.9	16.4	-5.5	2	-45.5	-1.4	7
2.433	12.9	16.4	-5.5	2	-45.5	-1.4	6.9
2.43305	12.9	16.4	-5.5	2	-45.5	-1.4	7.2
2.4331	12.9	16.4	-5.5	2	-45.5	-1.4	6
2.43315	12.9	16.4	-5.5	2	-45.5	-1.4	6.3
2.4332	12.9	16.4	-5.5	2	-45.5	-1.4	6.7
2.43325	12.8	16.4	-5.6	2	-45.6	-1.5	6.9

2.4333	12.7	16.4	-5.7	2	-45.7	-1.6	7.1
2.43335	12.6	16.4	-5.8	2	-45.8	-1.7	7.9
2.4334	12.4	16.4	-6	2	-46	-1.9	6.5
2.43345	12.3	16.4	-6.1	2	-46.1	-2	7.5
2.4335	12.3	16.4	-6.1	2	-46.1	-2	8
2.43355	12.1	16.4	-6.3	2	-46.3	-2.2	6.4
2.4336	12.1	16.4	-6.3	2	-46.3	-2.2	6.7
2.43365	12.1	16.4	-6.3	2	-46.3	-2.2	7.1
2.4337	12.1	16.4	-6.3	2	-46.3	-2.2	7.2
2.43375	12.1	16.4	-6.3	2	-46.3	-2.2	7.5
2.4338	12	16.4	-6.4	2	-46.4	-2.3	6.6
2.43385	12	16.4	-6.4	2	-46.4	-2.3	8
2.4339	11.8	16.4	-6.6	2	-46.6	-2.5	6.1
2.43395	11.6	16.4	-6.8	2	-46.8	-2.7	5.7
2.434	11.5	16.4	-6.9	2	-46.9	-2.8	7
2.43405	11.4	16.4	-7	2	-47	-2.9	7.8
2.4341	11.3	16.4	-7.1	2	-47.1	-3	7.7
2.43415	11.2	16.4	-7.2	2	-47.2	-3.1	7.4
2.4342	11.2	16.4	-7.2	2	-47.2	-3.1	8
2.43425	11	16.4	-7.4	2	-47.4	-3.3	6.1
2.4343	11	16.4	-7.4	2	-47.4	-3.3	6.5
2.43435	11	16.4	-7.4	2	-47.4	-3.3	6.7
2.4344	11	16.4	-7.4	2	-47.4	-3.3	6.1
2.43445	11.1	16.4	-7.3	2	-47.3	-3.2	6.2
2.4345	11.2	16.4	-7.2	2	-47.2	-3.1	7
2.43455	11.2	16.4	-7.2	2	-47.2	-3.1	6.1
2.4346	11.2	16.4	-7.2	2	-47.2	-3.1	5.7
2.43465	11.3	16.4	-7.1	2	-47.1	-3	6.4
2.4347	11.3	16.4	-7.1	2	-47.1	-3	7.4
2.43475	11.2	16.4	-7.2	2	-47.2	-3.1	7
2.4348	11.1	16.4	-7.3	2	-47.3	-3.2	6.9
2.43485	11.1	16.4	-7.3	2	-47.3	-3.2	7.8
2.4349	11	16.4	-7.4	2	-47.4	-3.3	7.4
2.43495	11	16.4	-7.4	2	-47.4	-3.3	6.7
2.435	11	16.4	-7.4	2	-47.4	-3.3	6.7
2.43505	11.1	16.4	-7.3	2	-47.3	-3.2	8
2.4351	11.1	16.4	-7.3	2	-47.3	-3.2	7.1
2.43515	11.2	16.4	-7.2	2	-47.2	-3.1	7.3
2.4352	11.3	16.4	-7.1	2	-47.1	-3	7.7
2.43525	11.3	16.4	-7.1	2	-47.1	-3	6
2.4353	11.4	16.4	-7	2	-47	-2.9	7.7
2.43535	11.4	16.4	-7	2	-47	-2.9	7.8
2.4354	11.3	16.4	-7.1	2	-47.1	-3	7.1
2.43545	11.3	16.4	-7.1	2	-47.1	-3	7.3
2.4355	11.2	16.4	-7.2	2	-47.2	-3.1	6.5
2.43555	11.2	16.4	-7.2	2	-47.2	-3.1	6.4
2.4356	11.2	16.4	-7.2	2	-47.2	-3.1	6.1
2.43565	11.2	16.4	-7.2	2	-47.2	-3.1	6
2.4357	11.2	16.4	-7.2	2	-47.2	-3.1	6.5
2.43575	11.3	16.4	-7.1	2	-47.1	-3	7.1

2.4358	11.4	16.4	-7	2	-47	-2.9	7.4
2.43585	11.5	16.4	-6.9	2	-46.9	-2.8	7.2
2.4359	11.5	16.4	-6.9	2	-46.9	-2.8	7.1
2.43595	11.5	16.4	-6.9	2	-46.9	-2.8	6.2
2.436	11.5	16.4	-6.9	2	-46.9	-2.8	6.4
2.43605	11.4	16.4	-7	2	-47	-2.9	7.3
2.4361	11.5	16.4	-6.9	2	-46.9	-2.8	7.9
2.43615	11.5	16.4	-6.9	2	-46.9	-2.8	7
2.4362	11.5	16.4	-6.9	2	-46.9	-2.8	7.1
2.43625	11.5	16.4	-6.9	2	-46.9	-2.8	7.5
2.4363	11.5	16.4	-6.9	2	-46.9	-2.8	8
2.43635	11.4	16.4	-7	2	-47	-2.9	7.2
2.4364	11.4	16.4	-7	2	-47	-2.9	6.7
2.43645	11.4	16.4	-7	2	-47	-2.9	6.3
2.4365	11.4	16.4	-7	2	-47	-2.9	6.5
2.43655	11.4	16.4	-7	2	-47	-2.9	6.9
2.4366	11.4	16.4	-7	2	-47	-2.9	6.7
2.43665	11.5	16.4	-6.9	2	-46.9	-2.8	7.7
2.4367	11.5	16.4	-6.9	2	-46.9	-2.8	6.3
2.43675	11.4	16.4	-7	2	-47	-2.9	6.7
2.4368	11.3	16.4	-7.1	2	-47.1	-3	7.7
2.43685	11.1	16.4	-7.3	2	-47.3	-3.2	6.4
2.4369	11	16.4	-7.4	2	-47.4	-3.3	6.6
2.43695	10.9	16.4	-7.5	2	-47.5	-3.4	6.5
2.437	10.9	16.4	-7.5	2	-47.5	-3.4	5.6
2.43705	11	16.4	-7.4	2	-47.4	-3.3	8
2.4371	11.1	16.4	-7.3	2	-47.3	-3.2	7.2
2.43715	11.2	16.4	-7.2	2	-47.2	-3.1	5.5
2.4372	11.3	16.4	-7.1	2	-47.1	-3	5.3
2.43725	11.5	16.4	-6.9	2	-46.9	-2.8	6.6
2.4373	11.6	16.4	-6.8	2	-46.8	-2.7	6.3
2.43735	11.6	16.4	-6.8	2	-46.8	-2.7	6.1
2.4374	11.5	16.4	-6.9	2	-46.9	-2.8	5.8
2.43745	11.4	16.4	-7	2	-47	-2.9	5.6
2.4375	11.4	16.4	-7	2	-47	-2.9	6.3
2.43755	11.5	16.4	-6.9	2	-46.9	-2.8	7.8
2.4376	11.5	16.4	-6.9	2	-46.9	-2.8	7.1
2.43765	11.5	16.4	-6.9	2	-46.9	-2.8	5.6
2.4377	11.5	16.4	-6.9	2	-46.9	-2.8	6
2.43775	11.5	16.4	-6.9	2	-46.9	-2.8	7.9
2.4378	11.6	16.4	-6.8	2	-46.8	-2.7	6.4
2.43785	11.7	16.4	-6.7	2	-46.7	-2.6	7.2
2.4379	11.8	16.4	-6.6	2	-46.6	-2.5	6.6
2.43795	11.7	16.4	-6.7	2	-46.7	-2.6	7.4
2.438	11.7	16.4	-6.7	2	-46.7	-2.6	7.9
2.43805	11.6	16.4	-6.8	2	-46.8	-2.7	6.2
2.4381	11.6	16.4	-6.8	2	-46.8	-2.7	7.6
2.43815	11.5	16.4	-6.9	2	-46.9	-2.8	6.4
2.4382	11.5	16.4	-6.9	2	-46.9	-2.8	7.5
2.43825	11.4	16.4	-7	2	-47	-2.9	6.6

2.4383	11.4	16.4	-7	2	-47	-2.9	7.7
2.43835	11.3	16.4	-7.1	2	-47.1	-3	6.8
2.4384	11.3	16.4	-7.1	2	-47.1	-3	7.2
2.43845	11.3	16.4	-7.1	2	-47.1	-3	6.7
2.4385	11.3	16.4	-7.1	2	-47.1	-3	6.3
2.43855	11.4	16.4	-7	2	-47	-2.9	7.8
2.4386	11.4	16.4	-7	2	-47	-2.9	6.2
2.43865	11.4	16.4	-7	2	-47	-2.9	6.8
2.4387	11.4	16.4	-7	2	-47	-2.9	6.5
2.43875	11.4	16.4	-7	2	-47	-2.9	6.9
2.4388	11.3	16.4	-7.1	2	-47.1	-3	6.7
2.43885	11.3	16.4	-7.1	2	-47.1	-3	8
2.4389	11.2	16.4	-7.2	2	-47.2	-3.1	7.7
2.43895	11.1	16.4	-7.3	2	-47.3	-3.2	7.1
2.439	11.1	16.4	-7.3	2	-47.3	-3.2	7.8
2.43905	11	16.4	-7.4	2	-47.4	-3.3	6.5
2.4391	11	16.4	-7.4	2	-47.4	-3.3	7.8
2.43915	11	16.4	-7.4	2	-47.4	-3.3	7.8
2.4392	11	16.4	-7.4	2	-47.4	-3.3	6.7
2.43925	11.1	16.4	-7.3	2	-47.3	-3.2	6.8
2.4393	11.2	16.4	-7.2	2	-47.2	-3.1	7.4
2.43935	11.2	16.4	-7.2	2	-47.2	-3.1	6.5
2.4394	11.4	16.4	-7	2	-47	-2.9	6.5
2.43945	11.4	16.4	-7	2	-47	-2.9	6.5
2.4395	11.2	16.4	-7.2	2	-47.2	-3.1	6.5
2.43955	11.3	16.4	-7.1	2	-47.1	-3	6.6
2.4396	11.3	16.4	-7.1	2	-47.1	-3	7.1
2.43965	11.3	16.4	-7.1	2	-47.1	-3	8
2.4397	11.1	16.4	-7.3	2	-47.3	-3.2	7.8
2.43975	11.1	16.4	-7.3	2	-47.3	-3.2	7
2.4398	11.1	16.4	-7.3	2	-47.3	-3.2	6.9
2.43985	11.2	16.4	-7.2	2	-47.2	-3.1	6.5
2.4399	11.3	16.4	-7.1	2	-47.1	-3	6.2
2.43995	11.7	16.4	-6.7	2	-46.7	-2.6	6.1
2.44	11.8	16.4	-6.6	2	-46.6	-2.5	6.8
2.44005	11.9	16.4	-6.5	2	-46.5	-2.4	6.2
2.4401	12.1	16.4	-6.3	2	-46.3	-2.2	7.5
2.44015	12.1	16.4	-6.3	2	-46.3	-2.2	7
2.4402	12.1	16.4	-6.3	2	-46.3	-2.2	6.7
2.44025	12.1	16.4	-6.3	2	-46.3	-2.2	6.7
2.4403	12.1	16.4	-6.3	2	-46.3	-2.2	6.5
2.44035	12.1	16.4	-6.3	2	-46.3	-2.2	7
2.4404	12.1	16.4	-6.3	2	-46.3	-2.2	6.9
2.44045	12	16.4	-6.4	2	-46.4	-2.3	6
2.4405	12.1	16.4	-6.3	2	-46.3	-2.2	6.6
2.44055	12.2	16.4	-6.2	2	-46.2	-2.1	6.1
2.4406	12.4	16.4	-6	2	-46	-1.9	8
2.44065	12.5	16.4	-5.9	2	-45.9	-1.8	6.3
2.4407	12.7	16.4	-5.7	2	-45.7	-1.6	7.3
2.44075	12.7	16.4	-5.7	2	-45.7	-1.6	5.8

2.4408	12.8	16.4	-5.6	2	-45.6	-1.5	7.2
2.44085	12.8	16.4	-5.6	2	-45.6	-1.5	7.3
2.4409	12.8	16.4	-5.6	2	-45.6	-1.5	7.3
2.44095	12.8	16.4	-5.6	2	-45.6	-1.5	7.3
2.441	12.8	16.4	-5.6	2	-45.6	-1.5	7
2.44105	12.8	16.4	-5.6	2	-45.6	-1.5	7.2
2.4411	12.8	16.4	-5.6	2	-45.6	-1.5	6.3
2.44115	12.9	16.4	-5.5	2	-45.5	-1.4	6.9
2.4412	13	16.4	-5.4	2	-45.4	-1.3	7.2
2.44125	13.1	16.4	-5.3	2	-45.3	-1.2	6.7
2.4413	13.3	16.4	-5.1	2	-45.1	-1	7.6
2.44135	13.4	16.4	-5	2	-45	-0.9	6.8
2.4414	13.5	16.4	-4.9	2	-44.9	-0.8	6.6
2.44145	13.6	16.4	-4.8	2	-44.8	-0.7	6.2
2.4415	13.7	16.4	-4.7	2	-44.7	-0.6	7
2.44155	13.7	16.4	-4.7	2	-44.7	-0.6	6.4
2.4416	13.7	16.4	-4.7	2	-44.7	-0.6	6.3
2.44165	13.7	16.4	-4.7	2	-44.7	-0.6	5.7
2.4417	13.8	16.4	-4.6	2	-44.6	-0.5	7.3
2.44175	13.8	16.4	-4.6	2	-44.6	-0.5	6.3
2.4418	13.9	16.4	-4.5	2	-44.5	-0.4	6.9
2.44185	14.1	16.4	-4.3	2	-44.3	-0.2	7.8
2.4419	14.2	16.4	-4.2	2	-44.2	-0.1	7.1
2.44195	14.3	16.4	-4.1	2	-44.1	0	5.9
2.442	14.5	16.4	-3.9	2	-43.9	0.2	6.6
2.44205	14.7	16.4	-3.7	2	-43.7	0.4	6.9
2.4421	14.8	16.4	-3.6	2	-43.6	0.5	5.7
2.44215	14.9	16.4	-3.5	2	-43.5	0.6	5.5
2.4422	15	16.4	-3.4	2	-43.4	0.7	5.5
2.44225	15.1	16.4	-3.3	2	-43.3	0.8	6.8
2.4423	15.1	16.4	-3.3	2	-43.3	0.8	6.5
2.44235	15.2	16.4	-3.2	2	-43.2	0.9	7.3
2.4424	15.2	16.4	-3.2	2	-43.2	0.9	6.7
2.44245	15.3	16.4	-3.1	2	-43.1	1	6.9
2.4425	15.4	16.4	-3	2	-43	1.1	6
2.44255	15.6	16.4	-2.8	2	-42.8	1.3	6.7
2.4426	15.8	16.4	-2.6	2	-42.6	1.5	7
2.44265	16	16.4	-2.4	2	-42.4	1.7	7
2.4427	16.2	16.4	-2.2	2	-42.2	1.9	6.7
2.44275	16.4	16.4	-2	2	-42	2.1	5.7
2.4428	16.7	16.4	-1.7	2	-41.7	2.4	8
2.44285	16.8	16.4	-1.6	2	-41.6	2.5	6.3
2.4429	16.9	16.4	-1.5	2	-41.5	2.6	7
2.44295	16.9	16.4	-1.5	2	-41.5	2.6	6.8
2.443	17	16.4	-1.4	2	-41.4	2.7	7.2
2.44305	16.9	16.4	-1.5	2	-41.5	2.6	7.8
2.4431	16.8	16.4	-1.6	2	-41.6	2.5	6.7
2.44315	16.8	16.4	-1.6	2	-41.6	2.5	5.9
2.4432	16.9	16.4	-1.5	2	-41.5	2.6	7.3
2.44325	16.9	16.4	-1.5	2	-41.5	2.6	6.4

Sheet2

2.4433	17	16.4	-1.4	2	-41.4	2.7	6.3
2.44335	17.1	16.4	-1.3	2	-41.3	2.8	6.2
2.4434	17.4	16.4	-1	2	-41	3.1	7.1
2.44345	17.6	16.4	-0.8	2	-40.8	3.3	5.8
2.4435	18	16.4	-0.4	2	-40.4	3.7	6
2.44355	18.2	16.4	-0.2	2	-40.2	3.9	7.8
2.4436	18.2	16.4	-0.2	2	-40.2	3.9	6.6
2.44365	18.3	16.4	-0.1	2	-40.1	4	6.8
2.4437	18.3	16.4	-0.1	2	-40.1	4	6.5
2.44375	18.4	16.4	0	2	-40	4.1	7.1
2.4438	18.5	16.4	0.1	2	-39.9	4.2	7
2.44385	18.5	16.4	0.1	2	-39.9	4.2	6.7
2.4439	18.5	16.4	0.1	2	-39.9	4.2	8
2.44395	18.5	16.4	0.1	2	-39.9	4.2	6.8
2.444	18.4	16.4	0	2	-40	4.1	8
2.44405	18.2	16.4	-0.2	2	-40.2	3.9	7.8
2.4441	18.1	16.4	-0.3	2	-40.3	3.8	7.9
2.44415	18	16.4	-0.4	2	-40.4	3.7	5.4
2.4442	18	16.4	-0.4	2	-40.4	3.7	6.1
2.44425	18.1	16.4	-0.3	2	-40.3	3.8	7.7
2.4443	18.1	16.4	-0.3	2	-40.3	3.8	6.8
2.44435	18.1	16.4	-0.3	2	-40.3	3.8	5
2.4444	18.4	16.4	0	2	-40	4.1	6.1
2.44445	18.7	16.4	0.3	2	-39.7	4.4	6.2
2.4445	19	16.4	0.6	2	-39.4	4.7	6.5
2.44455	19.2	16.4	0.8	2	-39.2	4.9	6.6
2.4446	19.3	16.4	0.9	2	-39.1	5	6.3
2.44465	19.3	16.4	0.9	2	-39.1	5	5
2.4447	19.4	16.4	1	2	-39	5.1	7.8
2.44475	19.5	16.4	1.1	2	-38.9	5.2	6.5
2.4448	19.5	16.4	1.1	2	-38.9	5.2	7.3
2.44485	19.5	16.4	1.1	2	-38.9	5.2	5
2.4449	19.6	16.4	1.2	2	-38.8	5.3	7.5
2.44495	19.6	16.4	1.2	2	-38.8	5.3	8
2.445	19.5	16.4	1.1	2	-38.9	5.2	8
2.44505	19.2	16.4	0.8	2	-39.2	4.9	6.7
2.4451	19.2	16.4	0.8	2	-39.2	4.9	7.6
2.44515	19	16.4	0.6	2	-39.4	4.7	7.4
2.4452	19	16.4	0.6	2	-39.4	4.7	5.5
2.44525	19	16.4	0.6	2	-39.4	4.7	4.8
2.4453	19.1	16.4	0.7	2	-39.3	4.8	5.9
2.44535	19.3	16.4	0.9	2	-39.1	5	6.6
2.4454	19.5	16.4	1.1	2	-38.9	5.2	6
2.44545	19.9	16.4	1.5	2	-38.5	5.6	7.5
2.4455	20.3	16.4	1.9	2	-38.1	6	7.7
Processing Gain(dB) @ 20th Percentile =				11.4			

Test Conditions						
HWB3163-04 Rev A						
Tx Card = 9928-007 Rx Card = 9928-009						
Transmitter Signal Level at Rx = -40dBm						
Firmware = 0907 Rev 0.4+						
Mode = 11Mb , Pseudo IBSS						
PktSize = 1000 bytes						
PktDly = 1, PktBurst = 6						
Intersil Chip Versions on Card						
HFA3983 Rev A11						
HFA3683A RevC						
HFA3783 Rev D01						
HFA3861A						
HFA3841						

11Mbps Channel 11 Processing Gain							
Gp = (S/N)o +Mj +Lsys							
Freq.	Gp	(S/N)o	Mj = J/S	Lsys	Jammer	Lvl	FER
(GHz)	(dB)	(dB)	(dB)	(dB)	(dBm)	(dBm)	
2.4535	19.5	16.4	1.1	2	-38.9	2.9	7.7
2.45355	19.1	16.4	0.7	2	-39.3	2.5	7.4
2.4536	18.8	16.4	0.4	2	-39.6	2.2	6.9
2.45365	18.5	16.4	0.1	2	-39.9	1.9	5.3
2.4537	18.4	16.4	0	2	-40	1.8	6
2.45375	18.4	16.4	0	2	-40	1.8	7.2
2.4538	18.4	16.4	0	2	-40	1.8	6.8
2.45385	18.5	16.4	0.1	2	-39.9	1.9	7.4
2.4539	18.6	16.4	0.2	2	-39.8	2	7
2.45395	18.8	16.4	0.4	2	-39.6	2.2	6.6
2.454	19.1	16.4	0.7	2	-39.3	2.5	7.1
2.45405	19.1	16.4	0.7	2	-39.3	2.5	5.7
2.4541	19.1	16.4	0.7	2	-39.3	2.5	6.4
2.45415	19	16.4	0.6	2	-39.4	2.4	5
2.4542	19	16.4	0.6	2	-39.4	2.4	7.5
2.45425	18.9	16.4	0.5	2	-39.5	2.3	5.4
2.4543	18.9	16.4	0.5	2	-39.5	2.3	6.8
2.45435	18.8	16.4	0.4	2	-39.6	2.2	5
2.4544	18.8	16.4	0.4	2	-39.6	2.2	6.4
2.45445	18.7	16.4	0.3	2	-39.7	2.1	6.4
2.4545	18.5	16.4	0.1	2	-39.9	1.9	6.1
2.45455	18.2	16.4	-0.2	2	-40.2	1.6	6.4
2.4546	17.9	16.4	-0.5	2	-40.5	1.3	5.7
2.45465	17.7	16.4	-0.7	2	-40.7	1.1	5.5
2.4547	17.7	16.4	-0.7	2	-40.7	1.1	6.4
2.45475	17.7	16.4	-0.7	2	-40.7	1.1	7.2
2.4548	17.7	16.4	-0.7	2	-40.7	1.1	7
2.45485	17.7	16.4	-0.7	2	-40.7	1.1	6.6
2.4549	17.8	16.4	-0.6	2	-40.6	1.2	6.4
2.45495	17.9	16.4	-0.5	2	-40.5	1.3	6.2
2.455	18.1	16.4	-0.3	2	-40.3	1.5	5.6
2.45505	18.2	16.4	-0.2	2	-40.2	1.6	6
2.4551	18.2	16.4	-0.2	2	-40.2	1.6	6.5

2.45515	18.1	16.4	-0.3	2	-40.3	1.5	5.3
2.4552	18	16.4	-0.4	2	-40.4	1.4	5.2
2.45525	18	16.4	-0.4	2	-40.4	1.4	7.6
2.4553	17.9	16.4	-0.5	2	-40.5	1.3	5.2
2.45535	17.9	16.4	-0.5	2	-40.5	1.3	5.7
2.4554	17.9	16.4	-0.5	2	-40.5	1.3	6.3
2.45545	17.8	16.4	-0.6	2	-40.6	1.2	5.4
2.4555	17.7	16.4	-0.7	2	-40.7	1.1	7.4
2.45555	17.2	16.4	-1.2	2	-41.2	0.6	6.5
2.4556	16.9	16.4	-1.5	2	-41.5	0.3	5.9
2.45565	16.7	16.4	-1.7	2	-41.7	0.1	6.5
2.4557	16.6	16.4	-1.8	2	-41.8	0	7.3
2.45575	16.5	16.4	-1.9	2	-41.9	-0.1	7.2
2.4558	16.4	16.4	-2	2	-42	-0.2	6.9
2.45585	16.3	16.4	-2.1	2	-42.1	-0.3	5.1
2.4559	16.3	16.4	-2.1	2	-42.1	-0.3	5.4
2.45595	16.4	16.4	-2	2	-42	-0.2	6.1
2.456	16.5	16.4	-1.9	2	-41.9	-0.1	7.6
2.45605	16.4	16.4	-2	2	-42	-0.2	5.7
2.4561	16.4	16.4	-2	2	-42	-0.2	6.4
2.45615	16.3	16.4	-2.1	2	-42.1	-0.3	6.7
2.4562	16.2	16.4	-2.2	2	-42.2	-0.4	7.5
2.45625	16	16.4	-2.4	2	-42.4	-0.6	7.1
2.4563	15.8	16.4	-2.6	2	-42.6	-0.8	6.3
2.45635	15.7	16.4	-2.7	2	-42.7	-0.9	7
2.4564	15.6	16.4	-2.8	2	-42.8	-1	7.4
2.45645	15.4	16.4	-3	2	-43	-1.2	6.6
2.4565	15.3	16.4	-3.1	2	-43.1	-1.3	7.4
2.45655	15.1	16.4	-3.3	2	-43.3	-1.5	5.6
2.4566	15.1	16.4	-3.3	2	-43.3	-1.5	6.5
2.45665	15	16.4	-3.4	2	-43.4	-1.6	6
2.4567	15	16.4	-3.4	2	-43.4	-1.6	6.6
2.45675	15	16.4	-3.4	2	-43.4	-1.6	6.4
2.4568	15	16.4	-3.4	2	-43.4	-1.6	6.7
2.45685	14.9	16.4	-3.5	2	-43.5	-1.7	6.1
2.4569	14.8	16.4	-3.6	2	-43.6	-1.8	6.2
2.45695	14.6	16.4	-3.8	2	-43.8	-2	6

2.457	14.5	16.4	-3.9	2	-43.9	-2.1	6.2
2.45705	14.4	16.4	-4	2	-44	-2.2	7
2.4571	14.3	16.4	-4.1	2	-44.1	-2.3	7.7
2.45715	14.2	16.4	-4.2	2	-44.2	-2.4	7.6
2.4572	14	16.4	-4.4	2	-44.4	-2.6	5.2
2.45725	14	16.4	-4.4	2	-44.4	-2.6	6.8
2.4573	13.9	16.4	-4.5	2	-44.5	-2.7	6
2.45735	13.9	16.4	-4.5	2	-44.5	-2.7	6.9
2.4574	13.9	16.4	-4.5	2	-44.5	-2.7	7.3
2.45745	13.9	16.4	-4.5	2	-44.5	-2.7	8
2.4575	13.8	16.4	-4.6	2	-44.6	-2.8	7.3
2.45755	13.7	16.4	-4.7	2	-44.7	-2.9	7.4
2.4576	13.5	16.4	-4.9	2	-44.9	-3.1	6.5
2.45765	13.4	16.4	-5	2	-45	-3.2	7.1
2.4577	13.3	16.4	-5.1	2	-45.1	-3.3	7.5
2.45775	13.2	16.4	-5.2	2	-45.2	-3.4	7.6
2.4578	13.1	16.4	-5.3	2	-45.3	-3.5	6.4
2.45785	13.1	16.4	-5.3	2	-45.3	-3.5	7.1
2.4579	13.1	16.4	-5.3	2	-45.3	-3.5	7.7
2.45795	13.1	16.4	-5.3	2	-45.3	-3.5	7.4
2.458	13.1	16.4	-5.3	2	-45.3	-3.5	7.4
2.45805	13	16.4	-5.4	2	-45.4	-3.6	6.4
2.4581	13.1	16.4	-5.3	2	-45.3	-3.5	7.1
2.45815	13.1	16.4	-5.3	2	-45.3	-3.5	7
2.4582	13	16.4	-5.4	2	-45.4	-3.6	6.3
2.45825	12.9	16.4	-5.5	2	-45.5	-3.7	5.9
2.4583	12.8	16.4	-5.6	2	-45.6	-3.8	6.5
2.45835	12.7	16.4	-5.7	2	-45.7	-3.9	7.6
2.4584	12.6	16.4	-5.8	2	-45.8	-4	7.5
2.45845	12.5	16.4	-5.9	2	-45.9	-4.1	7.5
2.4585	12.4	16.4	-6	2	-46	-4.2	7
2.45855	12.4	16.4	-6	2	-46	-4.2	7.4
2.4586	12.4	16.4	-6	2	-46	-4.2	7.6
2.45865	12.4	16.4	-6	2	-46	-4.2	7.4
2.4587	12.4	16.4	-6	2	-46	-4.2	7.4
2.45875	12.4	16.4	-6	2	-46	-4.2	6
2.4588	12.5	16.4	-5.9	2	-45.9	-4.1	8

2.45885	12.4	16.4	-6	2	-46	-4.2	6.3
2.4589	12.3	16.4	-6.1	2	-46.1	-4.3	6.8
2.45895	12.2	16.4	-6.2	2	-46.2	-4.4	6.5
2.459	12.1	16.4	-6.3	2	-46.3	-4.5	7.1
2.45905	11.9	16.4	-6.5	2	-46.5	-4.7	6.4
2.4591	11.8	16.4	-6.6	2	-46.6	-4.8	6
2.45915	11.8	16.4	-6.6	2	-46.6	-4.8	7.3
2.4592	11.7	16.4	-6.7	2	-46.7	-4.9	7
2.45925	11.7	16.4	-6.7	2	-46.7	-4.9	7.6
2.4593	11.6	16.4	-6.8	2	-46.8	-5	6
2.45935	11.7	16.4	-6.7	2	-46.7	-4.9	7.5
2.4594	11.7	16.4	-6.7	2	-46.7	-4.9	7
2.45945	11.7	16.4	-6.7	2	-46.7	-4.9	6.2
2.4595	11.7	16.4	-6.7	2	-46.7	-4.9	5.8
2.45955	11.8	16.4	-6.6	2	-46.6	-4.8	7.1
2.4596	11.8	16.4	-6.6	2	-46.6	-4.8	6.5
2.45965	11.7	16.4	-6.7	2	-46.7	-4.9	5.9
2.4597	11.7	16.4	-6.7	2	-46.7	-4.9	7.6
2.45975	11.6	16.4	-6.8	2	-46.8	-5	8
2.4598	11.5	16.4	-6.9	2	-46.9	-5.1	7.1
2.45985	11.4	16.4	-7	2	-47	-5.2	7.5
2.4599	11.4	16.4	-7	2	-47	-5.2	8
2.45995	11.3	16.4	-7.1	2	-47.1	-5.3	7
2.46	11.3	16.4	-7.1	2	-47.1	-5.3	6.6
2.46005	11.3	16.4	-7.1	2	-47.1	-5.3	6.6
2.4601	11.4	16.4	-7	2	-47	-5.2	7.1
2.46015	11.5	16.4	-6.9	2	-46.9	-5.1	7.1
2.4602	11.5	16.4	-6.9	2	-46.9	-5.1	6
2.46025	11.6	16.4	-6.8	2	-46.8	-5	6.4
2.4603	11.6	16.4	-6.8	2	-46.8	-5	6
2.46035	11.6	16.4	-6.8	2	-46.8	-5	6.8
2.4604	11.6	16.4	-6.8	2	-46.8	-5	7.2
2.46045	11.5	16.4	-6.9	2	-46.9	-5.1	6.6
2.4605	11.5	16.4	-6.9	2	-46.9	-5.1	7.2
2.46055	11.4	16.4	-7	2	-47	-5.2	6.6
2.4606	11.4	16.4	-7	2	-47	-5.2	7.1
2.46065	11.5	16.4	-6.9	2	-46.9	-5.1	8

Sheet2

2.4607	11.5	16.4	-6.9	2	-46.9	-5.1	6.7
2.46075	11.6	16.4	-6.8	2	-46.8	-5	7.8
2.4608	11.6	16.4	-6.8	2	-46.8	-5	6
2.46085	11.8	16.4	-6.6	2	-46.6	-4.8	7.7
2.4609	11.9	16.4	-6.5	2	-46.5	-4.7	7.6
2.46095	12	16.4	-6.4	2	-46.4	-4.6	7.9
2.461	12	16.4	-6.4	2	-46.4	-4.6	7.8
2.46105	11.9	16.4	-6.5	2	-46.5	-4.7	8
2.4611	12	16.4	-6.4	2	-46.4	-4.6	7.7
2.46115	12.1	16.4	-6.3	2	-46.3	-4.5	7.4
2.4612	12.1	16.4	-6.3	2	-46.3	-4.5	6.8
2.46125	12.1	16.4	-6.3	2	-46.3	-4.5	6.5
2.4613	12.1	16.4	-6.3	2	-46.3	-4.5	7
2.46135	12.1	16.4	-6.3	2	-46.3	-4.5	6.5
2.4614	12.1	16.4	-6.3	2	-46.3	-4.5	6.5
2.46145	12.1	16.4	-6.3	2	-46.3	-4.5	6
2.4615	12.2	16.4	-6.2	2	-46.2	-4.4	7.8
2.46155	12.2	16.4	-6.2	2	-46.2	-4.4	6.8
2.4616	12.3	16.4	-6.1	2	-46.1	-4.3	6.8
2.46165	12.3	16.4	-6.1	2	-46.1	-4.3	5.4
2.4617	12.4	16.4	-6	2	-46	-4.2	7.1
2.46175	12.3	16.4	-6.1	2	-46.1	-4.3	5.8
2.4618	12.2	16.4	-6.2	2	-46.2	-4.4	6.5
2.46185	12.1	16.4	-6.3	2	-46.3	-4.5	7
2.4619	12	16.4	-6.4	2	-46.4	-4.6	6.2
2.46195	12	16.4	-6.4	2	-46.4	-4.6	7
2.462	11.9	16.4	-6.5	2	-46.5	-4.7	6.2
2.46205	12	16.4	-6.4	2	-46.4	-4.6	7
2.4621	12.1	16.4	-6.3	2	-46.3	-4.5	7
2.46215	12.2	16.4	-6.2	2	-46.2	-4.4	6.6
2.4622	12.3	16.4	-6.1	2	-46.1	-4.3	5.8
2.46225	12.4	16.4	-6	2	-46	-4.2	5.2
2.4623	12.5	16.4	-5.9	2	-45.9	-4.1	7.3
2.46235	12.4	16.4	-6	2	-46	-4.2	5.5
2.4624	12.4	16.4	-6	2	-46	-4.2	7.3
2.46245	12.3	16.4	-6.1	2	-46.1	-4.3	6.2
2.4625	12.3	16.4	-6.1	2	-46.1	-4.3	6.4

2.46255	12.3	16.4	-6.1	2	-46.1	-4.3	6.5
2.4626	12.3	16.4	-6.1	2	-46.1	-4.3	7.2
2.46265	12.3	16.4	-6.1	2	-46.1	-4.3	7.8
2.4627	12.2	16.4	-6.2	2	-46.2	-4.4	6.3
2.46275	12.3	16.4	-6.1	2	-46.1	-4.3	7.1
2.4628	12.3	16.4	-6.1	2	-46.1	-4.3	7.9
2.46285	12.3	16.4	-6.1	2	-46.1	-4.3	7.5
2.4629	12.2	16.4	-6.2	2	-46.2	-4.4	6.6
2.46295	12.2	16.4	-6.2	2	-46.2	-4.4	6.7
2.463	12.2	16.4	-6.2	2	-46.2	-4.4	7.8
2.46305	12.1	16.4	-6.3	2	-46.3	-4.5	7.2
2.4631	12	16.4	-6.4	2	-46.4	-4.6	6.5
2.46315	11.9	16.4	-6.5	2	-46.5	-4.7	5.6
2.4632	11.9	16.4	-6.5	2	-46.5	-4.7	7.5
2.46325	11.8	16.4	-6.6	2	-46.6	-4.8	6.3
2.4633	11.8	16.4	-6.6	2	-46.6	-4.8	6.8
2.46335	11.7	16.4	-6.7	2	-46.7	-4.9	5.9
2.4634	11.8	16.4	-6.6	2	-46.6	-4.8	7
2.46345	11.8	16.4	-6.6	2	-46.6	-4.8	7.5
2.4635	11.9	16.4	-6.5	2	-46.5	-4.7	8.2
2.46355	11.9	16.4	-6.5	2	-46.5	-4.7	7.2
2.4636	12	16.4	-6.4	2	-46.4	-4.6	7.4
2.46365	12	16.4	-6.4	2	-46.4	-4.6	6.8
2.4637	12.1	16.4	-6.3	2	-46.3	-4.5	7.9
2.46375	12.1	16.4	-6.3	2	-46.3	-4.5	8
2.4638	12	16.4	-6.4	2	-46.4	-4.6	6.8
2.46385	12	16.4	-6.4	2	-46.4	-4.6	7.6
2.4639	11.9	16.4	-6.5	2	-46.5	-4.7	7
2.46395	11.8	16.4	-6.6	2	-46.6	-4.8	6.9
2.464	11.8	16.4	-6.6	2	-46.6	-4.8	7.5
2.46405	11.8	16.4	-6.6	2	-46.6	-4.8	7.8
2.4641	11.8	16.4	-6.6	2	-46.6	-4.8	7.6
2.46415	11.8	16.4	-6.6	2	-46.6	-4.8	6.6
2.4642	11.9	16.4	-6.5	2	-46.5	-4.7	7.2
2.46425	12	16.4	-6.4	2	-46.4	-4.6	7.4
2.4643	12.1	16.4	-6.3	2	-46.3	-4.5	7.2
2.46435	12.2	16.4	-6.2	2	-46.2	-4.4	7.4

Sheet2

2.4644	12.2	16.4	-6.2	2	-46.2	-4.4	6.8
2.46445	12.2	16.4	-6.2	2	-46.2	-4.4	6.2
2.4645	12.2	16.4	-6.2	2	-46.2	-4.4	7.9
2.46455	12.1	16.4	-6.3	2	-46.3	-4.5	6.8
2.4646	12	16.4	-6.4	2	-46.4	-4.6	6.1
2.46465	12	16.4	-6.4	2	-46.4	-4.6	6.3
2.4647	12.1	16.4	-6.3	2	-46.3	-4.5	7.4
2.46475	12.1	16.4	-6.3	2	-46.3	-4.5	6.1
2.4648	12.2	16.4	-6.2	2	-46.2	-4.4	7
2.46485	12.3	16.4	-6.1	2	-46.1	-4.3	7.5
2.4649	12.3	16.4	-6.1	2	-46.1	-4.3	5.9
2.46495	12.5	16.4	-5.9	2	-45.9	-4.1	7.5
2.465	12.6	16.4	-5.8	2	-45.8	-4	6.8
2.46505	12.7	16.4	-5.7	2	-45.7	-3.9	6.9
2.4651	12.7	16.4	-5.7	2	-45.7	-3.9	5.8
2.46515	12.8	16.4	-5.6	2	-45.6	-3.8	7.6
2.4652	12.7	16.4	-5.7	2	-45.7	-3.9	6.2
2.46525	12.7	16.4	-5.7	2	-45.7	-3.9	7
2.4653	12.7	16.4	-5.7	2	-45.7	-3.9	7.1
2.46535	12.6	16.4	-5.8	2	-45.8	-4	5.9
2.4654	12.7	16.4	-5.7	2	-45.7	-3.9	7.7
2.46545	12.7	16.4	-5.7	2	-45.7	-3.9	8
2.4655	12.7	16.4	-5.7	2	-45.7	-3.9	6.2
2.46555	12.9	16.4	-5.5	2	-45.5	-3.7	8
2.4656	12.9	16.4	-5.5	2	-45.5	-3.7	6.2
2.46565	13.1	16.4	-5.3	2	-45.3	-3.5	7
2.4657	13.2	16.4	-5.2	2	-45.2	-3.4	6.8
2.46575	13.3	16.4	-5.1	2	-45.1	-3.3	6.5
2.4658	13.3	16.4	-5.1	2	-45.1	-3.3	5.7
2.46585	13.4	16.4	-5	2	-45	-3.2	7.1
2.4659	13.4	16.4	-5	2	-45	-3.2	7.1
2.46595	13.4	16.4	-5	2	-45	-3.2	7.4
2.466	13.4	16.4	-5	2	-45	-3.2	7.7
2.46605	13.4	16.4	-5	2	-45	-3.2	7.5
2.4661	13.4	16.4	-5	2	-45	-3.2	6.7
2.46615	13.5	16.4	-4.9	2	-44.9	-3.1	7.2
2.4662	13.6	16.4	-4.8	2	-44.8	-3	7.3

2.46625	13.7	16.4	-4.7	2	-44.7	-2.9	7
2.4663	13.8	16.4	-4.6	2	-44.6	-2.8	5.9
2.46635	13.9	16.4	-4.5	2	-44.5	-2.7	5
2.4664	14.2	16.4	-4.2	2	-44.2	-2.4	8
2.46645	14.2	16.4	-4.2	2	-44.2	-2.4	5.8
2.4665	14.3	16.4	-4.1	2	-44.1	-2.3	6.5
2.46655	14.3	16.4	-4.1	2	-44.1	-2.3	5.8
2.4666	14.3	16.4	-4.1	2	-44.1	-2.3	6
2.46665	14.4	16.4	-4	2	-44	-2.2	7.7
2.4667	14.4	16.4	-4	2	-44	-2.2	7.2
2.46675	14.5	16.4	-3.9	2	-43.9	-2.1	7.8
2.4668	14.5	16.4	-3.9	2	-43.9	-2.1	7
2.46685	14.6	16.4	-3.8	2	-43.8	-2	6.5
2.4669	14.7	16.4	-3.7	2	-43.7	-1.9	6
2.46695	14.9	16.4	-3.5	2	-43.5	-1.7	7.6
2.467	15	16.4	-3.4	2	-43.4	-1.6	6
2.46705	15.1	16.4	-3.3	2	-43.3	-1.5	5
2.4671	15.3	16.4	-3.1	2	-43.1	-1.3	5.5
2.46715	15.5	16.4	-2.9	2	-42.9	-1.1	6.4
2.4672	15.6	16.4	-2.8	2	-42.8	-1	7.1
2.46725	15.7	16.4	-2.7	2	-42.7	-0.9	8
2.4673	15.6	16.4	-2.8	2	-42.8	-1	5.7
2.46735	15.7	16.4	-2.7	2	-42.7	-0.9	6.7
2.4674	15.8	16.4	-2.6	2	-42.6	-0.8	6.4
2.46745	15.9	16.4	-2.5	2	-42.5	-0.7	6.6
2.4675	16.1	16.4	-2.3	2	-42.3	-0.5	8
2.46755	16.2	16.4	-2.2	2	-42.2	-0.4	6.3
2.4676	16.4	16.4	-2	2	-42	-0.2	6.5
2.46765	16.6	16.4	-1.8	2	-41.8	0	6.1
2.4677	16.8	16.4	-1.6	2	-41.6	0.2	5.6
2.46775	17.1	16.4	-1.3	2	-41.3	0.5	7.2
2.4678	17.3	16.4	-1.1	2	-41.1	0.7	6.5
2.46785	17.5	16.4	-0.9	2	-40.9	0.9	7.7
2.4679	17.5	16.4	-0.9	2	-40.9	0.9	6.1
2.46795	17.6	16.4	-0.8	2	-40.8	1	8
2.468	17.7	16.4	-0.7	2	-40.7	1.1	7.3
2.46805	17.5	16.4	-0.9	2	-40.9	0.9	5.6

2.4681	17.4	16.4	-1	2	-41	0.8	5.1
2.46815	17.5	16.4	-0.9	2	-40.9	0.9	7.4
2.4682	17.5	16.4	-0.9	2	-40.9	0.9	6.9
2.46825	17.6	16.4	-0.8	2	-40.8	1	8
2.4683	17.7	16.4	-0.7	2	-40.7	1.1	7.9
2.46835	17.7	16.4	-0.7	2	-40.7	1.1	4.9
2.4684	18	16.4	-0.4	2	-40.4	1.4	5.6
2.46845	18.3	16.4	-0.1	2	-40.1	1.7	6.2
2.4685	18.7	16.4	0.3	2	-39.7	2.1	7.3
2.46855	18.9	16.4	0.5	2	-39.5	2.3	6.4
2.4686	18.9	16.4	0.5	2	-39.5	2.3	5
2.46865	19	16.4	0.6	2	-39.4	2.4	7.5
2.4687	18.9	16.4	0.5	2	-39.5	2.3	6.3
2.46875	19	16.4	0.6	2	-39.4	2.4	7.8
2.4688	19.1	16.4	0.7	2	-39.3	2.5	7.6
2.46885	19.1	16.4	0.7	2	-39.3	2.5	5.8
2.4689	19.1	16.4	0.7	2	-39.3	2.5	5.7
2.46895	19.1	16.4	0.7	2	-39.3	2.5	7.7
2.469	19.1	16.4	0.7	2	-39.3	2.5	8
2.46905	18.9	16.4	0.5	2	-39.5	2.3	8
2.4691	18.7	16.4	0.3	2	-39.7	2.1	6.4
2.46915	18.6	16.4	0.2	2	-39.8	2	6
2.4692	18.6	16.4	0.2	2	-39.8	2	7.1
2.46925	18.6	16.4	0.2	2	-39.8	2	6.1
2.4693	18.6	16.4	0.2	2	-39.8	2	5.5
2.46935	18.8	16.4	0.4	2	-39.6	2.2	6.9
2.4694	19	16.4	0.6	2	-39.4	2.4	6.4
2.46945	19.3	16.4	0.9	2	-39.1	2.7	5.9
2.4695	19.6	16.4	1.2	2	-38.8	3	6.3
2.46955	19.8	16.4	1.4	2	-38.6	3.2	6.4
2.4696	19.9	16.4	1.5	2	-38.5	3.3	5.6
2.46965	20	16.4	1.6	2	-38.4	3.4	6.8
2.4697	20	16.4	1.6	2	-38.4	3.4	6
2.46975	20.1	16.4	1.7	2	-38.3	3.5	6.9
2.4698	20.1	16.4	1.7	2	-38.3	3.5	6.3
2.46985	20.2	16.4	1.8	2	-38.2	3.6	7.8
2.4699	20.2	16.4	1.8	2	-38.2	3.6	5.5

Sheet2

2.46995	20.2	16.4	1.8	2	-38.2	3.6	5.5
2.47	20.1	16.4	1.7	2	-38.3	3.5	5.7
2.47005	20	16.4	1.6	2	-38.4	3.4	8
2.4701	19.8	16.4	1.4	2	-38.6	3.2	7
2.47015	19.7	16.4	1.3	2	-38.7	3.1	5.7
2.4702	19.7	16.4	1.3	2	-38.7	3.1	6.4
2.47025	19.7	16.4	1.3	2	-38.7	3.1	6.3
2.4703	19.8	16.4	1.4	2	-38.6	3.2	6
2.47035	20	16.4	1.6	2	-38.4	3.4	6.6
2.4704	20.3	16.4	1.9	2	-38.1	3.7	7.6
2.47045	20.5	16.4	2.1	2	-37.9	3.9	6.3
2.4705	20.8	16.4	2.4	2	-37.6	4.2	5.7
Processing Gain(dB) @ 20th Percentile =				12			

Test Conditions						
HWB3163-04 Rev A						
Tx Card = 9928-007 Rx Card = 9928-009						
Transmitter Signal Level at Rx = -40dBm						
Firmware = 0907 Rev 0.4+						
Mode = 11Mb , Pseudo IBSS						
PktSize = 1000 bytes						
PktDly = 1, PktBurst = 6						
Intersil Chip Versions on Card						
HFA3983 Rev A11						
HFA3683A RevC						
HFA3783 Rev D01						
HFA3861A						
HFA3841						