

8. Processing Gain

8.1. Test Condition

Standard Temperature and Humidity, Standard Test Voltage

8.2. Minimum Standard

The processing gain shall be at least 10 dB.

8.3. Method of Measurement

The processing gain of this spread spectrum was measured the CW jamming method. The Section 9.1 illustrates the measurement setup. The output power of the spread spectrum transmitter is fixed and the output power of jammer is adjustable. The frequency of jammer was stepped through the pass band of nominal channel in 50kHz steps. In each frequency step of the jammer, the output power of jammer is adjusted to cause the Bit Error Rate (BER) to be 1.0×10^{-6} . The power levels are recorded to calculate the J/S as shown in Table 1.

8.4. Calculation of Processing Gain:

The processing gain was determined by measuring the jamming margin of the EUT and using the following formula:

$$G_p = (S/N)_o + M_j + L_{sys}$$

Where $(S/N)_o$ is the required signal to noise ratio at the receiver output

M_j is the jammer to signal ratio (J/S)

L_{sys} is the system loss

The $(S/N)_o$ is calculated from:

$$P_e = 1/2 \exp(-1/2(S/N)_o) \quad ; \quad P_e = \text{probability of error (BER)}$$

For the $P_e(\text{BER}) = 1.0 \times 10^{-6}$, the required $(S/N)_o$ is 14.2dB

From Measurement, the minimum J/S(M_j) is -3.4dB

We assume the system loss is 1dB.

Therefore the processing gain is calculated below:

$$G_p = (S/N)_o + M_j + L_{sys} = 14.2 + (-3.4) + 1 = 11.8 \text{ (dB)}$$

8.5. Test Result of Processing Gain

Product : Wireless LAN PC Card
Test Item : Processing Gain Data
Test Site : No.1 OATS
Test Mode : Transmit

Testing for compliance with FCC rules 15-247e

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]:

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

Where $BER_{REFERENCE}$ is the reference bit error ratio with its corresponding, theoretical output signal to noise ratio per symbol, $(S/N)_{output}$, (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 ISL3873 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]:

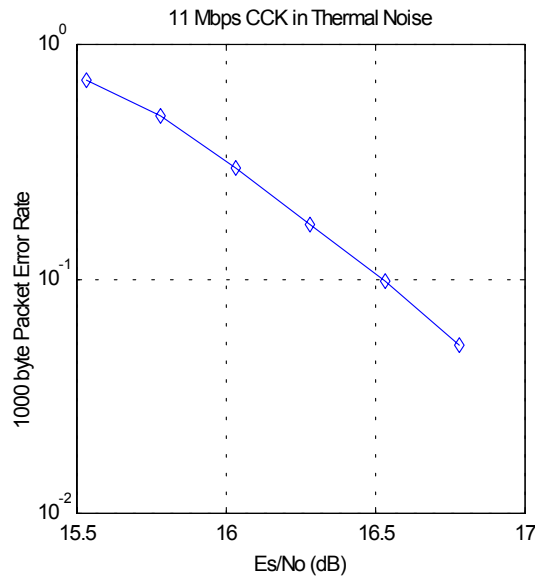
“ The probability of error for generalized M-ary Orthogonal signaling using coherent demodulation is given by:

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

This integral cannot be solved in closed form, and numerical integration must be used. There are error rate extensions for differential decoding and descrambling that are also to be accounted for.

This is done in a MATHCAD environment and is displayed in graphical format below.

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:

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

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

The minimum jammer to signal ratio is as follows:

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

For the case of the ISL3873, 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 spread spectrum processing gain with embedded coding gain is 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 Es/No 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 Eb/No is then 7.4 dB or 9 dB less than the Es/No. It is well known that the Eb/No 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)

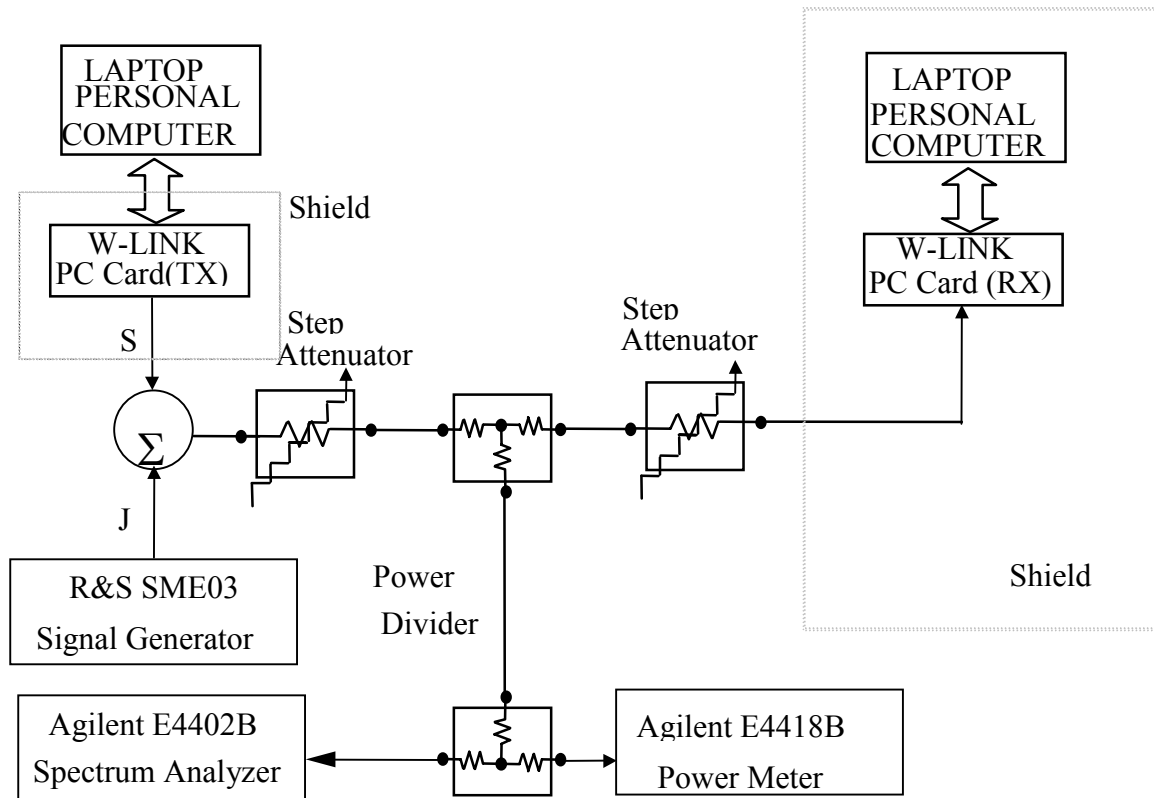
Test Instruments

Manufacturer & Description	Model Number
Agilent Spectrum Analyzer, 9KHz to 3GHz	E4402B
Agilent Power Meter	E4418B
Agilent Power Sensor, -70 to 20dBm	E4412A
Agilent Step Attenuator, 10dB steps, DC to 4GHz	8496A
Agilent Step Attenuator, 1dB steps, DC to 4GHz	8494A
Anaren Power Divider, 2 Way, 2 to 4GHz	40266
ROHDE & SCHWARZ Signal Generator, 5KHz to 3GHz	SME03
Compaq Laptop Computer, Pentium III 700, Windows ME	Presario 1700
Dell Laptop Computer, Pentium III 700, Windows 98	PP01L

Test Environment

25°C, 70%RH.

Test Block Diagram



Test Procedure

Setup 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:

- Signal Power at receiver approximately -60 dBm (above thermal sensitivity such that thermal noise does not cause bit errors).
- Signal Power at power meter (using high sensitivity probe) between -20 and -40 dBm for optimal linearity.
 - Use spectrum analyzer to monitor test.
- 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 .
- 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 .
- Disable CW Jammer, re-establish link. PER test should be operating essentially error-free.
- Adjust the CW Jammer level to that which causes 8% PER and verify that the S/J is less than 8.4 dB.
- 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 S/J fails to achieve 8.4 dB (is higher than 8.4 dB) is determined and if this is above 20% of the total, the test is failed otherwise it is passed.

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

11Mbps:
Channel 1: 2412MHz
Channel 7: 2442MHz
Channel 11: 2462MHz

2Mbps:
Channel 1: 2412MHz

Test Result

11Mbps Channel 1 (2412MHz) Processing Gain							
$G_p=(S/N)_o+L_{sys}+(J_r/S_r)$							
Frequency	(S/N)_o	S_r	J_r	J_r/S_r	L_{sys}	FER	G_p
(MHz)	(dB)	(dBm)	(dBm)	(dB)	(dB)	(%)	(dB)
2403.5	16.4	-62	-60.6	1.4	2	6.2	19.8
2403.55	16.4	-62	-60.9	1.1	2	4.8	19.5
2403.6	16.4	-62	-59.8	2.2	2	5.6	20.6
2403.65	16.4	-62	-61.6	0.4	2	5.4	18.8
2403.7	16.4	-62	-61.3	0.7	2	7.1	19.1
2403.75	16.4	-62	-61.8	0.2	2	6.3	18.6
2403.8	16.4	-62	-60.5	1.5	2	4.8	19.9
2403.85	16.4	-62	-61.7	0.3	2	4.5	18.7
2403.9	16.4	-62	-60.6	1.4	2	5.6	19.8
2403.95	16.4	-62	-61.7	0.3	2	4.2	18.7
2404	16.4	-62	-60.4	1.6	2	4.7	20
2404.05	16.4	-62	-59.7	2.3	2	7	20.7
2404.1	16.4	-62	-60.5	1.5	2	5.2	19.9
2404.15	16.4	-62	-61.3	0.7	2	6.9	19.1
2404.2	16.4	-62	-60.9	1.1	2	5.1	19.5
2404.25	16.4	-62	-60.2	1.8	2	6.3	20.2
2404.3	16.4	-62	-60.3	1.7	2	5.7	20.1
2404.35	16.4	-62	-61.6	0.4	2	4.6	18.8
2404.4	16.4	-62	-61.3	0.7	2	4.9	19.1
2404.45	16.4	-62	-60.5	1.5	2	4.6	19.9
2404.5	16.4	-62	-61	1	2	5.2	19.4
2404.55	16.4	-62	-62.1	-0.1	2	6.1	18.3
2404.6	16.4	-62	-61.6	0.4	2	6.4	18.8
2404.65	16.4	-62	-61.9	0.1	2	4.2	18.5
2404.7	16.4	-62	-62.1	-0.1	2	5.7	18.3
2404.75	16.4	-62	-62.2	-0.2	2	5.9	18.2
2404.8	16.4	-62	-61	1	2	7	19.4
2404.85	16.4	-62	-62	0	2	7.3	18.4
2404.9	16.4	-62	-62.9	-0.9	2	5.1	17.5
2404.95	16.4	-62	-62	0	2	5.5	18.4
2405	16.4	-62	-60.9	1.1	2	6	19.5

2405.05	16.4	-62	-61.9	0.1	2	6.9	18.5
2405.1	16.4	-62	-61.4	0.6	2	5.2	19
2405.15	16.4	-62	-61.2	0.8	2	4.5	19.2
2405.2	16.4	-62	-61.3	0.7	2	4.4	19.1
2405.25	16.4	-62	-62.3	-0.3	2	7	18.1
2405.3	16.4	-62	-61	1	2	6.5	19.4
2405.35	16.4	-62	-62.5	-0.5	2	6.9	17.9
2405.4	16.4	-62	-61.2	0.8	2	4.1	19.2
2405.45	16.4	-62	-61.8	0.2	2	6.3	18.6
2405.5	16.4	-62	-62	0	2	7.2	18.4
2405.55	16.4	-62	-62.7	-0.7	2	6.7	17.7
2405.6	16.4	-62	-63	-1	2	6.8	17.4
2405.65	16.4	-62	-62.6	-0.6	2	7.2	17.8
2405.7	16.4	-62	-63.4	-1.4	2	5.1	17
2405.75	16.4	-62	-63.2	-1.2	2	6.5	17.2
2405.8	16.4	-62	-62.8	-0.8	2	7.8	17.6
2405.85	16.4	-62	-64	-2	2	7.2	16.4
2405.9	16.4	-62	-64	-2	2	5.2	16.4
2405.95	16.4	-62	-63	-1	2	6	17.4
2406	16.4	-62	-63	-1	2	5	17.4
2406.05	16.4	-62	-63	-1	2	5.7	17.4
2406.1	16.4	-62	-63.1	-1.1	2	4	17.3
2406.15	16.4	-62	-64	-2	2	4.8	16.4
2406.2	16.4	-62	-62.8	-0.8	2	6.3	17.6
2406.25	16.4	-62	-63.5	-1.5	2	7.7	16.9
2406.3	16.4	-62	-64.4	-2.4	2	6.8	16
2406.35	16.4	-62	-63.6	-1.6	2	5.4	16.8
2406.4	16.4	-62	-64.2	-2.2	2	5.2	16.2
2406.45	16.4	-62	-64.6	-2.6	2	5.5	15.8
2406.5	16.4	-62	-63.5	-1.5	2	4.3	16.9
2406.55	16.4	-62	-64.2	-2.2	2	6.7	16.2
2406.6	16.4	-62	-65.5	-3.5	2	5.8	14.9
2406.65	16.4	-62	-65.4	-3.4	2	5.3	15
2406.7	16.4	-62	-64.4	-2.4	2	5.5	16
2406.75	16.4	-62	-63.9	-1.9	2	7.6	16.5
2406.8	16.4	-62	-63.9	-1.9	2	6.4	16.5
2406.85	16.4	-62	-65.3	-3.3	2	5.1	15.1
2406.9	16.4	-62	-65.4	-3.4	2	6.1	15

2406.95	16.4	-62	-64.9	-2.9	2	5.1	15.5
2407	16.4	-62	-64.9	-2.9	2	5.2	15.5
2407.05	16.4	-62	-64.9	-2.9	2	5.2	15.5
2407.1	16.4	-62	-66.5	-4.5	2	4.7	13.9
2407.15	16.4	-62	-66.2	-4.2	2	7.7	14.2
2407.2	16.4	-62	-65.2	-3.2	2	5.6	15.2
2407.25	16.4	-62	-65.2	-3.2	2	5.3	15.2
2407.3	16.4	-62	-65.3	-3.3	2	4.5	15.1
2407.35	16.4	-62	-65.2	-3.2	2	4.7	15.2
2407.4	16.4	-62	-66	-4	2	4.4	14.4
2407.45	16.4	-62	-67	-5	2	6	13.4
2407.5	16.4	-62	-66.5	-4.5	2	5.3	13.9
2407.55	16.4	-62	-65.9	-3.9	2	6	14.5
2407.6	16.4	-62	-66.6	-4.6	2	5.7	13.8
2407.65	16.4	-62	-66.4	-4.4	2	5.1	14
2407.7	16.4	-62	-67.2	-5.2	2	7.4	13.2
2407.75	16.4	-62	-67.4	-5.4	2	7.3	13
2407.8	16.4	-62	-67.3	-5.3	2	7.6	13.1
2407.85	16.4	-62	-67.1	-5.1	2	7.5	13.3
2407.9	16.4	-62	-65.9	-3.9	2	5.4	14.5
2407.95	16.4	-62	-66.8	-4.8	2	7.2	13.6
2408	16.4	-62	-67.9	-5.9	2	5.6	12.5
2408.05	16.4	-62	-66.6	-4.6	2	7.3	13.8
2408.1	16.4	-62	-67.3	-5.3	2	4.8	13.1
2408.15	16.4	-62	-67.1	-5.1	2	5.5	13.3
2408.2	16.4	-62	-67.6	-5.6	2	6.7	12.8
2408.25	16.4	-62	-68.1	-6.1	2	4.3	12.3
2408.3	16.4	-62	-67.3	-5.3	2	5.8	13.1
2408.35	16.4	-62	-66.8	-4.8	2	7.4	13.6
2408.4	16.4	-62	-67.2	-5.2	2	4.3	13.2
2408.45	16.4	-62	-67.6	-5.6	2	6.8	12.8
2408.5	16.4	-62	-67.6	-5.6	2	7.7	12.8
2408.55	16.4	-62	-67.1	-5.1	2	7.1	13.3
2408.6	16.4	-62	-67.9	-5.9	2	5.6	12.5
2408.65	16.4	-62	-67.4	-5.4	2	6.8	13
2408.7	16.4	-62	-68.3	-6.3	2	4.8	12.1
2408.75	16.4	-62	-68.2	-6.2	2	6.3	12.2
2408.8	16.4	-62	-67	-5	2	4.8	13.4

2408.85	16.4	-62	-68.3	-6.3	2	6.7	12.1
2408.9	16.4	-62	-68.3	-6.3	2	4.8	12.1
2408.95	16.4	-62	-68.6	-6.6	2	5.5	11.8
2409	16.4	-62	-68.5	-6.5	2	7.3	11.9
2409.05	16.4	-62	-67.9	-5.9	2	7.2	12.5
2409.1	16.4	-62	-68.7	-6.7	2	7.8	11.7
2409.15	16.4	-62	-68.7	-6.7	2	6.6	11.7
2409.2	16.4	-62	-68.2	-6.2	2	7.1	12.2
2409.25	16.4	-62	-67.9	-5.9	2	5.8	12.5
2409.3	16.4	-62	-69.7	-7.7	2	5.4	10.7
2409.35	16.4	-62	-69	-7	2	5.1	11.4
2409.4	16.4	-62	-68.4	-6.4	2	7.9	12
2409.45	16.4	-62	-68.4	-6.4	2	5.9	12
2409.5	16.4	-62	-68.5	-6.5	2	5.8	11.9
2409.55	16.4	-62	-68.7	-6.7	2	6.8	11.7
2409.6	16.4	-62	-68.6	-6.6	2	4	11.8
2409.65	16.4	-62	-69.6	-7.6	2	4.8	10.8
2409.7	16.4	-62	-68.6	-6.6	2	7	11.8
2409.75	16.4	-62	-68	-6	2	7.5	12.4
2409.8	16.4	-62	-68.7	-6.7	2	6.3	11.7
2409.85	16.4	-62	-68.4	-6.4	2	7.1	12
2409.9	16.4	-62	-69.8	-7.8	2	4.5	10.6
2409.95	16.4	-62	-69.4	-7.4	2	6.3	11
2410	16.4	-62	-69.7	-7.7	2	4.6	10.7
2410.05	16.4	-62	-68.8	-6.8	2	3.7	11.6
2410.1	16.4	-62	-69.1	-7.1	2	6.5	11.3
2410.15	16.4	-62	-68.7	-6.7	2	6.7	11.7
2410.2	16.4	-62	-67.8	-5.8	2	4.6	12.6
2410.25	16.4	-62	-69.1	-7.1	2	6.3	11.3
2410.3	16.4	-62	-68.5	-6.5	2	6.2	11.9
2410.35	16.4	-62	-68.3	-6.3	2	5.4	12.1
2410.4	16.4	-62	-68.5	-6.5	2	4.5	11.9
2410.45	16.4	-62	-68.7	-6.7	2	5.4	11.7
2410.5	16.4	-62	-68.4	-6.4	2	4.5	12
2410.55	16.4	-62	-68	-6	2	4	12.4
2410.6	16.4	-62	-68.3	-6.3	2	4.4	12.1
2410.65	16.4	-62	-67.8	-5.8	2	4.6	12.6
2410.7	16.4	-62	-68	-6	2	6.6	12.4

2410.75	16.4	-62	-68.5	-6.5	2	7.6	11.9
2410.8	16.4	-62	-69.4	-7.4	2	4.8	11
2410.85	16.4	-62	-69.4	-7.4	2	6.9	11
2410.9	16.4	-62	-68.8	-6.8	2	5.4	11.6
2410.95	16.4	-62	-68	-6	2	5.5	12.4
2411	16.4	-62	-68.1	-6.1	2	3.9	12.3
2411.05	16.4	-62	-67.7	-5.7	2	5.3	12.7
2411.1	16.4	-62	-69.1	-7.1	2	6.5	11.3
2411.15	16.4	-62	-67.5	-5.5	2	7	12.9
2411.2	16.4	-62	-68.6	-6.6	2	6	11.8
2411.25	16.4	-62	-69.2	-7.2	2	7	11.2
2411.3	16.4	-62	-68.5	-6.5	2	7.2	11.9
2411.35	16.4	-62	-69.1	-7.1	2	4.7	11.3
2411.4	16.4	-62	-69.3	-7.3	2	6.1	11.1
2411.45	16.4	-62	-68.2	-6.2	2	6.2	12.2
2411.5	16.4	-62	-68.1	-6.1	2	6.6	12.3
2411.55	16.4	-62	-68.6	-6.6	2	4.6	11.8
2411.6	16.4	-62	-67.7	-5.7	2	5.7	12.7
2411.65	16.4	-62	-68.8	-6.8	2	6.8	11.6
2411.7	16.4	-62	-68.4	-6.4	2	7.5	12
2411.75	16.4	-62	-69	-7	2	5.1	11.4
2411.8	16.4	-62	-69.8	-7.8	2	4.3	10.6
2411.85	16.4	-62	-68.3	-6.3	2	7.3	12.1
2411.9	16.4	-62	-69.5	-7.5	2	5.8	10.9
2411.95	16.4	-62	-68.1	-6.1	2	6.9	12.3
2412	16.4	-62	-69.3	-7.3	2	4.1	11.1
2412.05	16.4	-62	-69.2	-7.2	2	5.9	11.2
2412.1	16.4	-62	-68.9	-6.9	2	6.3	11.5
2412.15	16.4	-62	-68.1	-6.1	2	5.7	12.3
2412.2	16.4	-62	-68	-6	2	7	12.4
2412.25	16.4	-62	-68.7	-6.7	2	6.8	11.7
2412.3	16.4	-62	-68.1	-6.1	2	5.9	12.3
2412.35	16.4	-62	-68.4	-6.4	2	7.4	12
2412.4	16.4	-62	-68.6	-6.6	2	7.4	11.8
2412.45	16.4	-62	-67.6	-5.6	2	6.7	12.8
2412.5	16.4	-62	-68.3	-6.3	2	6.4	12.1
2412.55	16.4	-62	-67.4	-5.4	2	7	13
2412.6	16.4	-62	-68.8	-6.8	2	4.9	11.6

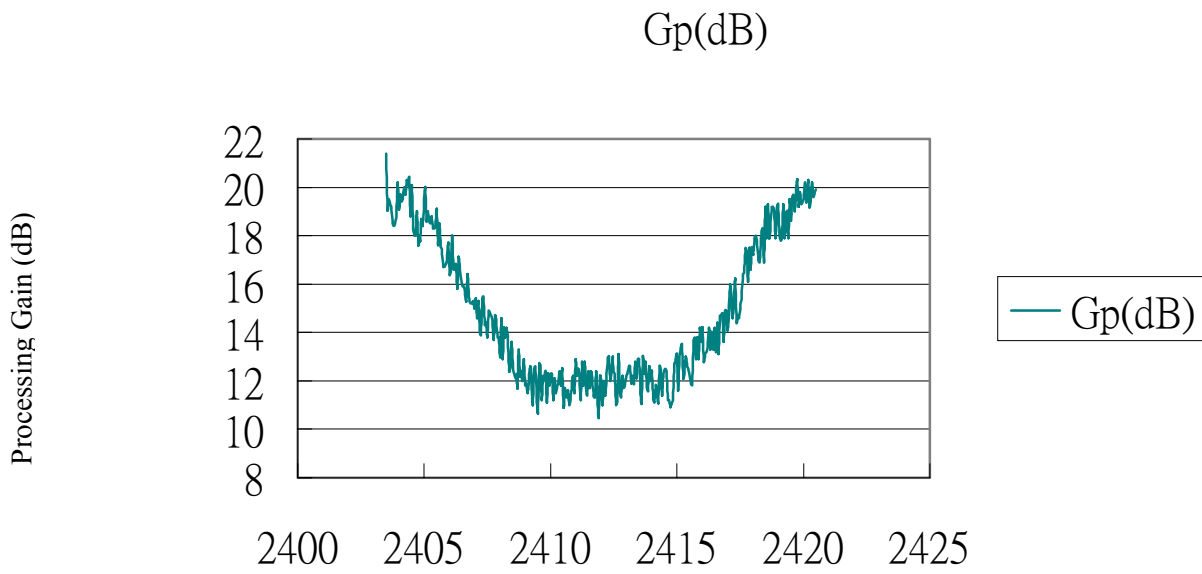
2412.65	16.4	-62	-67.5	-5.5	2	6.7	12.9
2412.7	16.4	-62	-67.4	-5.4	2	6.9	13
2412.75	16.4	-62	-67.5	-5.5	2	6	12.9
2412.8	16.4	-62	-68.5	-6.5	2	6.7	11.9
2412.85	16.4	-62	-67.3	-5.3	2	4.9	13.1
2412.9	16.4	-62	-68.4	-6.4	2	6.1	12
2412.95	16.4	-62	-67.1	-5.1	2	5	13.3
2413	16.4	-62	-67.3	-5.3	2	5.1	13.1
2413.05	16.4	-62	-68.9	-6.9	2	5.7	11.5
2413.1	16.4	-62	-67.7	-5.7	2	4.4	12.7
2413.15	16.4	-62	-67.9	-5.9	2	4.6	12.5
2413.2	16.4	-62	-68.6	-6.6	2	6.4	11.8
2413.25	16.4	-62	-67.5	-5.5	2	4.8	12.9
2413.3	16.4	-62	-69.3	-7.3	2	3.8	11.1
2413.35	16.4	-62	-68.9	-6.9	2	6.5	11.5
2413.4	16.4	-62	-68	-6	2	6.7	12.4
2413.45	16.4	-62	-67.8	-5.8	2	4.1	12.6
2413.5	16.4	-62	-69.2	-7.2	2	4.8	11.2
2413.55	16.4	-62	-67.9	-5.9	2	5.9	12.5
2413.6	16.4	-62	-67.9	-5.9	2	4	12.5
2413.65	16.4	-62	-69.1	-7.1	2	6.5	11.3
2413.7	16.4	-62	-67.8	-5.8	2	6.9	12.6
2413.75	16.4	-62	-68.1	-6.1	2	4	12.3
2413.8	16.4	-62	-68	-6	2	7.3	12.4
2413.85	16.4	-62	-68.2	-6.2	2	6	12.2
2413.9	16.4	-62	-68.4	-6.4	2	6.1	12
2413.95	16.4	-62	-68.8	-6.8	2	6.1	11.6
2414	16.4	-62	-68.1	-6.1	2	5.8	12.3
2414.05	16.4	-62	-69.4	-7.4	2	5.7	11
2414.1	16.4	-62	-69.3	-7.3	2	5.1	11.1
2414.15	16.4	-62	-68	-6	2	5	12.4
2414.2	16.4	-62	-67.9	-5.9	2	3.7	12.5
2414.25	16.4	-62	-69.3	-7.3	2	7.5	11.1
2414.3	16.4	-62	-68.5	-6.5	2	6.3	11.9
2414.35	16.4	-62	-67.6	-5.6	2	5.6	12.8
2414.4	16.4	-62	-68.6	-6.6	2	6.3	11.8
2414.45	16.4	-62	-69	-7	2	4.8	11.4
2414.5	16.4	-62	-68.6	-6.6	2	5.8	11.8

2414.55	16.4	-62	-69.2	-7.2	2	4.6	11.2
2414.6	16.4	-62	-68.6	-6.6	2	6.2	11.8
2414.65	16.4	-62	-68.5	-6.5	2	7.4	11.9
2414.7	16.4	-62	-68.4	-6.4	2	5.6	12
2414.75	16.4	-62	-68.6	-6.6	2	4.5	11.8
2414.8	16.4	-62	-68.9	-6.9	2	5.1	11.5
2414.85	16.4	-62	-69.2	-7.2	2	4	11.2
2414.9	16.4	-62	-68.2	-6.2	2	6.7	12.2
2414.95	16.4	-62	-68.4	-6.4	2	4.7	12
2415	16.4	-62	-68.9	-6.9	2	7.4	11.5
2415.05	16.4	-62	-68.2	-6.2	2	4.4	12.2
2415.1	16.4	-62	-67.3	-5.3	2	5.3	13.1
2415.15	16.4	-62	-68.7	-6.7	2	6.7	11.7
2415.2	16.4	-62	-66.9	-4.9	2	4.2	13.5
2415.25	16.4	-62	-68.6	-6.6	2	5.8	11.8
2415.3	16.4	-62	-67.3	-5.3	2	6.7	13.1
2415.35	16.4	-62	-68.7	-6.7	2	7.5	11.7
2415.4	16.4	-62	-68	-6	2	5.9	12.4
2415.45	16.4	-62	-68.8	-6.8	2	7.4	11.6
2415.5	16.4	-62	-68.3	-6.3	2	6.4	12.1
2415.55	16.4	-62	-68.1	-6.1	2	7.9	12.3
2415.6	16.4	-62	-67.6	-5.6	2	5.1	12.8
2415.65	16.4	-62	-66.9	-4.9	2	6.3	13.5
2415.7	16.4	-62	-66.7	-4.7	2	5.4	13.7
2415.75	16.4	-62	-67.6	-5.6	2	6.8	12.8
2415.8	16.4	-62	-66.6	-4.6	2	5.7	13.8
2415.85	16.4	-62	-66.7	-4.7	2	5.9	13.7
2415.9	16.4	-62	-67.4	-5.4	2	4.9	13
2415.95	16.4	-62	-67.1	-5.1	2	6.1	13.3
2416	16.4	-62	-66.5	-4.5	2	5.8	13.9
2416.05	16.4	-62	-66.5	-4.5	2	6.7	13.9
2416.1	16.4	-62	-66.9	-4.9	2	6.4	13.5
2416.15	16.4	-62	-67.4	-5.4	2	4.5	13
2416.2	16.4	-62	-66.3	-4.3	2	7.9	14.1
2416.25	16.4	-62	-67.5	-5.5	2	6.6	12.9
2416.3	16.4	-62	-67.2	-5.2	2	5.7	13.2
2416.35	16.4	-62	-67.1	-5.1	2	6	13.3
2416.4	16.4	-62	-66	-4	2	5.5	14.4

2416.45	16.4	-62	-66.3	-4.3	2	4.8	14.1
2416.5	16.4	-62	-67	-5	2	5.9	13.4
2416.55	16.4	-62	-67	-5	2	6.5	13.4
2416.6	16.4	-62	-67.2	-5.2	2	6.3	13.2
2416.65	16.4	-62	-66.2	-4.2	2	5.9	14.2
2416.7	16.4	-62	-66.1	-4.1	2	6.2	14.3
2416.75	16.4	-62	-65.8	-3.8	2	6.4	14.6
2416.8	16.4	-62	-66.6	-4.6	2	7.3	13.8
2416.85	16.4	-62	-66.5	-4.5	2	5.5	13.9
2416.9	16.4	-62	-66.9	-4.9	2	5	13.5
2416.95	16.4	-62	-66.3	-4.3	2	6.5	14.1
2417	16.4	-62	-65.7	-3.7	2	4.6	14.7
2417.05	16.4	-62	-65.1	-3.1	2	4.2	15.3
2417.1	16.4	-62	-65.8	-3.8	2	6.3	14.6
2417.15	16.4	-62	-65	-3	2	3.8	15.4
2417.2	16.4	-62	-65.2	-3.2	2	4.5	15.2
2417.25	16.4	-62	-64.3	-2.3	2	5.3	16.1
2417.3	16.4	-62	-65.3	-3.3	2	5.1	15.1
2417.35	16.4	-62	-64.4	-2.4	2	4.6	16
2417.4	16.4	-62	-64.9	-2.9	2	6.7	15.5
2417.45	16.4	-62	-64.7	-2.7	2	3.7	15.7
2417.5	16.4	-62	-63.5	-1.5	2	3.5	16.9
2417.55	16.4	-62	-63.5	-1.5	2	4.6	16.9
2417.6	16.4	-62	-63.4	-1.4	2	7.3	17
2417.65	16.4	-62	-64	-2	2	5.8	16.4
2417.7	16.4	-62	-63.7	-1.7	2	5.6	16.7
2417.75	16.4	-62	-62.5	-0.5	2	4.7	17.9
2417.8	16.4	-62	-63.8	-1.8	2	6.3	16.6
2417.85	16.4	-62	-62.2	-0.2	2	7.3	18.2
2417.9	16.4	-62	-62.3	-0.3	2	7	18.1
2417.95	16.4	-62	-63.2	-1.2	2	4.3	17.2
2418	16.4	-62	-63.2	-1.2	2	5.6	17.2
2418.05	16.4	-62	-62.8	-0.8	2	5.3	17.6
2418.1	16.4	-62	-64.1	-2.1	2	7.4	16.3
2418.15	16.4	-62	-63.4	-1.4	2	6.3	17
2418.2	16.4	-62	-63	-1	2	7	17.4
2418.25	16.4	-62	-62.2	-0.2	2	3.9	18.2
2418.3	16.4	-62	-62.5	-0.5	2	6.2	17.9

2418.35	16.4	-62	-62.4	-0.4	2	5.6	18
2418.4	16.4	-62	-62.1	-0.1	2	6.1	18.3
2418.45	16.4	-62	-62.6	-0.6	2	6.3	17.8
2418.5	16.4	-62	-62.4	-0.4	2	6.9	18
2418.55	16.4	-62	-61.6	0.4	2	4.3	18.8
2418.6	16.4	-62	-61.7	0.3	2	5.2	18.7
2418.65	16.4	-62	-61.2	0.8	2	5.3	19.2
2418.7	16.4	-62	-62.6	-0.6	2	7.8	17.8
2418.75	16.4	-62	-61.9	0.1	2	7.5	18.5
2418.8	16.4	-62	-61.5	0.5	2	6.3	18.9
2418.85	16.4	-62	-62.5	-0.5	2	3.9	17.9
2418.9	16.4	-62	-62.3	-0.3	2	5.9	18.1
2418.95	16.4	-62	-61.8	0.2	2	7.4	18.6
2419	16.4	-62	-62	0	2	6.7	18.4
2419.05	16.4	-62	-61.3	0.7	2	6.5	19.1
2419.1	16.4	-62	-61.2	0.8	2	7.2	19.2
2419.15	16.4	-62	-61.5	0.5	2	6.7	18.9
2419.2	16.4	-62	-62.7	-0.7	2	7.1	17.7
2419.25	16.4	-62	-61.6	0.4	2	4.4	18.8
2419.3	16.4	-62	-62.7	-0.7	2	5	17.7
2419.35	16.4	-62	-62.5	-0.5	2	4.3	17.9
2419.4	16.4	-62	-61.9	0.1	2	5.4	18.5
2419.45	16.4	-62	-62.3	-0.3	2	4.1	18.1
2419.5	16.4	-62	-61.7	0.3	2	4.7	18.7
2419.55	16.4	-62	-60.9	1.1	2	5.8	19.5
2419.6	16.4	-62	-61	1	2	7.6	19.4
2419.65	16.4	-62	-60.6	1.4	2	5.2	19.8
2419.7	16.4	-62	-60.9	1.1	2	5	19.5
2419.75	16.4	-62	-60.6	1.4	2	5.3	19.8
2419.8	16.4	-62	-59.9	2.1	2	7.3	20.5
2419.85	16.4	-62	-60.9	1.1	2	5.8	19.5
2419.9	16.4	-62	-60.9	1.1	2	5.6	19.5
2419.95	16.4	-62	-60.3	1.7	2	4.2	20.1
2420	16.4	-62	-59.7	2.3	2	5.3	20.7
2420.05	16.4	-62	-61.8	0.2	2	6.2	18.6
2420.1	16.4	-62	-60.4	1.6	2	6.6	20
2420.15	16.4	-62	-61.1	0.9	2	6.6	19.3
2420.2	16.4	-62	-60.3	1.7	2	6.2	20.1

2420.25	16.4	-62	-60.6	1.4	2	6.7	19.8
2420.3	16.4	-62	-61.6	0.4	2	4.6	18.8
2420.35	16.4	-62	-60.2	1.8	2	5	20.2
2420.4	16.4	-62	-61	1	2	5.2	19.4
2420.45	16.4	-62	-59.9	2.1	2	5.2	20.5
2420.5	16.4	-62	-60.8	1.2	2	6.5	19.6
Processing Gain(dB)@20th Percentile=11.9							



11Mbps Channel 7 (2442MHz) Processing Gain							
$G_p=(S/N)_o+L_{sys}+(J_r/S_r)$							
Frequency	(S/N) _o	S _r	J _r	J _r /S _r	L _{sys}	FER	G _p
(MHz)	(dB)	(dBm)	(dBm)	(dB)	(dB)	(%)	(dB)
2433.5	16.4	-62	-59.3	2.7	2	5.5	21.1
2433.55	16.4	-62	-60.3	1.7	2	6.8	20.1
2433.6	16.4	-62	-60.5	1.5	2	6.4	19.9
2433.65	16.4	-62	-60	2	2	4.5	20.4
2433.7	16.4	-62	-60.4	1.6	2	6.4	20
2433.75	16.4	-62	-62	0	2	5.7	18.4
2433.8	16.4	-62	-60.3	1.7	2	6.3	20.1
2433.85	16.4	-62	-61.5	0.5	2	6.2	18.9
2433.9	16.4	-62	-61.5	0.5	2	4	18.9
2433.95	16.4	-62	-60.3	1.7	2	4.4	20.1
2434	16.4	-62	-61.2	0.8	2	5.3	19.2
2434.05	16.4	-62	-59.9	2.1	2	6	20.5
2434.1	16.4	-62	-60.2	1.8	2	4.8	20.2
2434.15	16.4	-62	-60.1	1.9	2	7.1	20.3
2434.2	16.4	-62	-60	2	2	6.8	20.4
2434.25	16.4	-62	-60.3	1.7	2	7.6	20.1
2434.3	16.4	-62	-60.2	1.8	2	6.8	20.2
2434.35	16.4	-62	-59.9	2.1	2	6.5	20.5
2434.4	16.4	-62	-60.2	1.8	2	5.9	20.2
2434.45	16.4	-62	-61.3	0.7	2	4.7	19.1
2434.5	16.4	-62	-61.4	0.6	2	4.5	19
2434.55	16.4	-62	-62.4	-0.4	2	5.2	18
2434.6	16.4	-62	-60.9	1.1	2	6	19.5
2434.65	16.4	-62	-60.8	1.2	2	4.3	19.6
2434.7	16.4	-62	-61.8	0.2	2	4.7	18.6
2434.75	16.4	-62	-62.2	-0.2	2	6.4	18.2
2434.8	16.4	-62	-61.1	0.9	2	6.5	19.3
2434.85	16.4	-62	-61.3	0.7	2	6.6	19.1
2434.9	16.4	-62	-62.4	-0.4	2	4.6	18
2434.95	16.4	-62	-61.3	0.7	2	5.2	19.1
2435	16.4	-62	-61	1	2	6.9	19.4
2435.05	16.4	-62	-62.3	-0.3	2	4.9	18.1
2435.1	16.4	-62	-60.8	1.2	2	7.1	19.6

2435.15	16.4	-62	-61.6	0.4	2	5.8	18.8
2435.2	16.4	-62	-61.7	0.3	2	5.7	18.7
2435.25	16.4	-62	-60.8	1.2	2	3.7	19.6
2435.3	16.4	-62	-61	1	2	4.1	19.4
2435.35	16.4	-62	-61.3	0.7	2	7.8	19.1
2435.4	16.4	-62	-62.4	-0.4	2	5.4	18
2435.45	16.4	-62	-61.4	0.6	2	4.9	19
2435.5	16.4	-62	-62	0	2	7.2	18.4
2435.55	16.4	-62	-62.4	-0.4	2	5.3	18
2435.6	16.4	-62	-63.5	-1.5	2	5.8	16.9
2435.65	16.4	-62	-62.3	-0.3	2	5.4	18.1
2435.7	16.4	-62	-63.8	-1.8	2	4.6	16.6
2435.75	16.4	-62	-63.3	-1.3	2	7.1	17.1
2435.8	16.4	-62	-63.1	-1.1	2	7.4	17.3
2435.85	16.4	-62	-62.8	-0.8	2	6.3	17.6
2435.9	16.4	-62	-63.7	-1.7	2	5.6	16.7
2435.95	16.4	-62	-63.7	-1.7	2	6.6	16.7
2436	16.4	-62	-63.6	-1.6	2	4.3	16.8
2436.05	16.4	-62	-64.1	-2.1	2	5.2	16.3
2436.1	16.4	-62	-62.8	-0.8	2	5	17.6
2436.15	16.4	-62	-63.4	-1.4	2	6.3	17
2436.2	16.4	-62	-62.9	-0.9	2	5.1	17.5
2436.25	16.4	-62	-63.5	-1.5	2	7.8	16.9
2436.3	16.4	-62	-63.8	-1.8	2	5.2	16.6
2436.35	16.4	-62	-63.4	-1.4	2	5.2	17
2436.4	16.4	-62	-65.2	-3.2	2	4.4	15.2
2436.45	16.4	-62	-64.1	-2.1	2	6.9	16.3
2436.5	16.4	-62	-64	-2	2	6.9	16.4
2436.55	16.4	-62	-64.7	-2.7	2	7.1	15.7
2436.6	16.4	-62	-65.3	-3.3	2	4.5	15.1
2436.65	16.4	-62	-65	-3	2	7.5	15.4
2436.7	16.4	-62	-65.1	-3.1	2	7.2	15.3
2436.75	16.4	-62	-63.9	-1.9	2	7.6	16.5
2436.8	16.4	-62	-65.9	-3.9	2	4.7	14.5
2436.85	16.4	-62	-65.2	-3.2	2	6	15.2
2436.9	16.4	-62	-64.1	-2.1	2	3.8	16.3
2436.95	16.4	-62	-66.1	-4.1	2	7.1	14.3
2437	16.4	-62	-65.5	-3.5	2	7.2	14.9

2437.05	16.4	-62	-66.2	-4.2	2	4.7	14.2
2437.1	16.4	-62	-65.9	-3.9	2	6.6	14.5
2437.15	16.4	-62	-66.1	-4.1	2	6.3	14.3
2437.2	16.4	-62	-64.7	-2.7	2	7.1	15.7
2437.25	16.4	-62	-65	-3	2	6.6	15.4
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2437.45	16.4	-62	-65.1	-3.1	2	6.3	15.3
2437.5	16.4	-62	-67	-5	2	4.2	13.4
2437.55	16.4	-62	-66.3	-4.3	2	6.6	14.1
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2437.65	16.4	-62	-66.9	-4.9	2	5.7	13.5
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2438	16.4	-62	-66.1	-4.1	2	5.5	14.3
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2438.1	16.4	-62	-66.7	-4.7	2	5.4	13.7
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2441.05	16.4	-62	-67.9	-5.9	2	5.3	12.5
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2441.15	16.4	-62	-69	-7	2	5.1	11.4
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2441.4	16.4	-62	-69	-7	2	5.3	11.4
2441.45	16.4	-62	-68.9	-6.9	2	4.7	11.5
2441.5	16.4	-62	-68.5	-6.5	2	6.4	11.9
2441.55	16.4	-62	-67.7	-5.7	2	5.3	12.7
2441.6	16.4	-62	-68.8	-6.8	2	4.2	11.6
2441.65	16.4	-62	-68.1	-6.1	2	5.9	12.3
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2441.8	16.4	-62	-67.9	-5.9	2	7.1	12.5
2441.85	16.4	-62	-69.7	-7.7	2	6.8	10.7
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2441.95	16.4	-62	-70	-8	2	6	10.4
2442	16.4	-62	-69.2	-7.2	2	6.5	11.2
2442.05	16.4	-62	-69.8	-7.8	2	7.3	10.6
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2442.2	16.4	-62	-69.4	-7.4	2	6.1	11
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2442.35	16.4	-62	-68.8	-6.8	2	4	11.6
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2442.45	16.4	-62	-69.1	-7.1	2	4.4	11.3
2442.5	16.4	-62	-68.7	-6.7	2	5.9	11.7
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2442.65	16.4	-62	-68.9	-6.9	2	7.7	11.5
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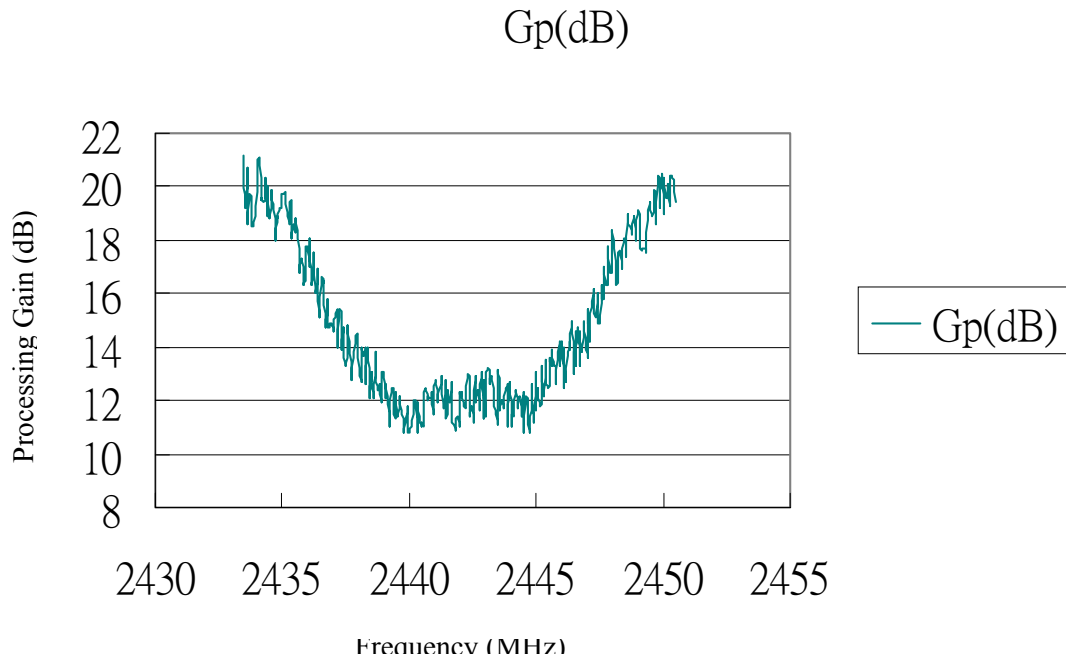
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2442.85	16.4	-62	-68	-6	2	6.2	12.4
2442.9	16.4	-62	-67.2	-5.2	2	5.3	13.2
2442.95	16.4	-62	-69.1	-7.1	2	5	11.3
2443	16.4	-62	-68.7	-6.7	2	5.4	11.7
2443.05	16.4	-62	-67.1	-5.1	2	4	13.3
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2443.15	16.4	-62	-68.6	-6.6	2	5	11.8
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2443.45	16.4	-62	-67.7	-5.7	2	6.7	12.7
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2443.55	16.4	-62	-69	-7	2	5.2	11.4
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2443.8	16.4	-62	-67.7	-5.7	2	3.9	12.7
2443.85	16.4	-62	-68.8	-6.8	2	5	11.6
2443.9	16.4	-62	-68.1	-6.1	2	4.4	12.3
2443.95	16.4	-62	-68.9	-6.9	2	6.9	11.5
2444	16.4	-62	-68.2	-6.2	2	5.3	12.2
2444.05	16.4	-62	-69.3	-7.3	2	6	11.1
2444.1	16.4	-62	-69.4	-7.4	2	4.7	11
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2444.55	16.4	-62	-68.1	-6.1	2	7.4	12.3
2444.6	16.4	-62	-67.8	-5.8	2	5.2	12.6

2444.65	16.4	-62	-67.7	-5.7	2	4.4	12.7
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2444.8	16.4	-62	-68	-6	2	6.9	12.4
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2445.2	16.4	-62	-68.7	-6.7	2	4.3	11.7
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2445.3	16.4	-62	-66.9	-4.9	2	6.9	13.5
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2449.75	16.4	-62	-61.6	0.4	2	7.7	18.8
2449.8	16.4	-62	-61.3	0.7	2	6.4	19.1
2449.85	16.4	-62	-60.3	1.7	2	5.3	20.1
2449.9	16.4	-62	-60.9	1.1	2	6.5	19.5
2449.95	16.4	-62	-61.5	0.5	2	5.1	18.9
2450	16.4	-62	-59.7	2.3	2	5.8	20.7
2450.05	16.4	-62	-60.9	1.1	2	4.5	19.5
2450.1	16.4	-62	-61	1	2	6	19.4
2450.15	16.4	-62	-61.3	0.7	2	3.6	19.1
2450.2	16.4	-62	-61.3	0.7	2	4.3	19.1
2450.25	16.4	-62	-60.1	1.9	2	5.1	20.3
2450.3	16.4	-62	-60.3	1.7	2	7.4	20.1

2450.35	16.4	-62	-60.1	1.9	2	6.1	20.3
2450.4	16.4	-62	-61.5	0.5	2	6	18.9
2450.45	16.4	-62	-60.1	1.9	2	4.4	20.3
2450.5	16.4	-62	-60.4	1.6	2	4.5	20
Processing Gain(dB)@20th Percentile=12							



11Mbps Channel 11 (2462MHz) Processing Gain							
$G_p=(S/N)_o+L_{sys}+(J_r/S_r)$							
Frequency	(S/N)_o	S_r	J_r	J_r/S_r	L_{sys}	FER	G_p
(MHz)	(dB)	(dBm)	(dBm)	(dB)	(dB)	(%)	(dB)
2453.5	16.4	-62	-60.6	1.4	2	7.1	19.8
2453.55	16.4	-62	-60.4	1.6	2	7.1	20
2453.6	16.4	-62	-61.9	0.1	2	5.2	18.5
2453.65	16.4	-62	-62.2	-0.2	2	6.7	18.2
2453.7	16.4	-62	-61.4	0.6	2	5.5	19
2453.75	16.4	-62	-61.6	0.4	2	3.9	18.8
2453.8	16.4	-62	-62.8	-0.8	2	6.9	17.6
2453.85	16.4	-62	-62.4	-0.4	2	5.3	18
2453.9	16.4	-62	-60.9	1.1	2	6.9	19.5
2453.95	16.4	-62	-61.2	0.8	2	6.2	19.2
2454	16.4	-62	-60.8	1.2	2	6.8	19.6
2454.05	16.4	-62	-61.5	0.5	2	5.4	18.9
2454.1	16.4	-62	-61.3	0.7	2	5.2	19.1
2454.15	16.4	-62	-62	0	2	6.9	18.4
2454.2	16.4	-62	-60.4	1.6	2	5.9	20
2454.25	16.4	-62	-61.9	0.1	2	5.7	18.5
2454.3	16.4	-62	-62.4	-0.4	2	4.5	18
2454.35	16.4	-62	-61.1	0.9	2	7.4	19.3
2454.4	16.4	-62	-61.4	0.6	2	5.6	19
2454.45	16.4	-62	-60.8	1.2	2	6.2	19.6
2454.5	16.4	-62	-61.4	0.6	2	6.7	19
2454.55	16.4	-62	-62.2	-0.2	2	5.1	18.2
2454.6	16.4	-62	-62	0	2	5.5	18.4
2454.65	16.4	-62	-62	0	2	6.5	18.4
2454.7	16.4	-62	-62.2	-0.2	2	5.1	18.2
2454.75	16.4	-62	-63.1	-1.1	2	5.6	17.3
2454.8	16.4	-62	-63.2	-1.2	2	5.8	17.2
2454.85	16.4	-62	-61.6	0.4	2	5.1	18.8
2454.9	16.4	-62	-63.1	-1.1	2	4.1	17.3
2454.95	16.4	-62	-61.4	0.6	2	6.8	19
2455	16.4	-62	-62.5	-0.5	2	6.6	17.9
2455.05	16.4	-62	-62.6	-0.6	2	5.4	17.8
2455.1	16.4	-62	-61.3	0.7	2	5.9	19.1

2455.15	16.4	-62	-62	0	2	4.7	18.4
2455.2	16.4	-62	-63.1	-1.1	2	5.9	17.3
2455.25	16.4	-62	-61.5	0.5	2	6	18.9
2455.3	16.4	-62	-62.3	-0.3	2	5.6	18.1
2455.35	16.4	-62	-62.8	-0.8	2	6.2	17.6
2455.4	16.4	-62	-62.7	-0.7	2	7.2	17.7
2455.45	16.4	-62	-61.7	0.3	2	4.2	18.7
2455.5	16.4	-62	-61.7	0.3	2	6.4	18.7
2455.55	16.4	-62	-64.1	-2.1	2	5.7	16.3
2455.6	16.4	-62	-64.2	-2.2	2	5.1	16.2
2455.65	16.4	-62	-63	-1	2	6.2	17.4
2455.7	16.4	-62	-64	-2	2	5.8	16.4
2455.75	16.4	-62	-63.7	-1.7	2	5.3	16.7
2455.8	16.4	-62	-64	-2	2	4.5	16.4
2455.85	16.4	-62	-63.2	-1.2	2	4.1	17.2
2455.9	16.4	-62	-64.4	-2.4	2	4.2	16
2455.95	16.4	-62	-64.1	-2.1	2	7.2	16.3
2456	16.4	-62	-63.9	-1.9	2	6	16.5
2456.05	16.4	-62	-64.5	-2.5	2	4.7	15.9
2456.1	16.4	-62	-63.3	-1.3	2	5.8	17.1
2456.15	16.4	-62	-63.1	-1.1	2	4.2	17.3
2456.2	16.4	-62	-64.3	-2.3	2	4.1	16.1
2456.25	16.4	-62	-64.7	-2.7	2	7	15.7
2456.3	16.4	-62	-64.1	-2.1	2	6.5	16.3
2456.35	16.4	-62	-65.5	-3.5	2	3.7	14.9
2456.4	16.4	-62	-65.2	-3.2	2	5.4	15.2
2456.45	16.4	-62	-65.2	-3.2	2	5.4	15.2
2456.5	16.4	-62	-64.3	-2.3	2	5.9	16.1
2456.55	16.4	-62	-64.3	-2.3	2	4.8	16.1
2456.6	16.4	-62	-64.6	-2.6	2	6.4	15.8
2456.65	16.4	-62	-65	-3	2	6.7	15.4
2456.7	16.4	-62	-65.8	-3.8	2	6	14.6
2456.75	16.4	-62	-65.6	-3.6	2	5.8	14.8
2456.8	16.4	-62	-65.1	-3.1	2	6.2	15.3
2456.85	16.4	-62	-66.4	-4.4	2	5.6	14
2456.9	16.4	-62	-66.2	-4.2	2	7.3	14.2
2456.95	16.4	-62	-66.6	-4.6	2	5.2	13.8
2457	16.4	-62	-64.8	-2.8	2	3.9	15.6

2457.05	16.4	-62	-65.7	-3.7	2	6.6	14.7
2457.1	16.4	-62	-66.2	-4.2	2	6.7	14.2
2457.15	16.4	-62	-66.9	-4.9	2	4	13.5
2457.2	16.4	-62	-66.1	-4.1	2	6	14.3
2457.25	16.4	-62	-66.4	-4.4	2	5	14
2457.3	16.4	-62	-67.4	-5.4	2	6.2	13
2457.35	16.4	-62	-66.8	-4.8	2	7.9	13.6
2457.4	16.4	-62	-67.3	-5.3	2	7	13.1
2457.45	16.4	-62	-67.2	-5.2	2	4.8	13.2
2457.5	16.4	-62	-66.8	-4.8	2	4.2	13.6
2457.55	16.4	-62	-66.6	-4.6	2	4.1	13.8
2457.6	16.4	-62	-67.3	-5.3	2	5.3	13.1
2457.65	16.4	-62	-67.5	-5.5	2	4.4	12.9
2457.7	16.4	-62	-66.3	-4.3	2	5.1	14.1
2457.75	16.4	-62	-66.9	-4.9	2	5.5	13.5
2457.8	16.4	-62	-66.4	-4.4	2	7.7	14
2457.85	16.4	-62	-67.7	-5.7	2	6.3	12.7
2457.9	16.4	-62	-67.8	-5.8	2	3.8	12.6
2457.95	16.4	-62	-66.4	-4.4	2	6	14
2458	16.4	-62	-67.6	-5.6	2	5.2	12.8
2458.05	16.4	-62	-67.4	-5.4	2	5.9	13
2458.1	16.4	-62	-68	-6	2	6.9	12.4
2458.15	16.4	-62	-67.5	-5.5	2	6.1	12.9
2458.2	16.4	-62	-67.1	-5.1	2	6.7	13.3
2458.25	16.4	-62	-67.8	-5.8	2	6.1	12.6
2458.3	16.4	-62	-66.8	-4.8	2	6.1	13.6
2458.35	16.4	-62	-67.2	-5.2	2	5	13.2
2458.4	16.4	-62	-66.8	-4.8	2	5.1	13.6
2458.45	16.4	-62	-67.2	-5.2	2	6.8	13.2
2458.5	16.4	-62	-68.8	-6.8	2	5.5	11.6
2458.55	16.4	-62	-67.5	-5.5	2	4.1	12.9
2458.6	16.4	-62	-68.3	-6.3	2	6.8	12.1
2458.65	16.4	-62	-68.8	-6.8	2	5.7	11.6
2458.7	16.4	-62	-67.2	-5.2	2	4.2	13.2
2458.75	16.4	-62	-68.3	-6.3	2	4.4	12.1
2458.8	16.4	-62	-67.9	-5.9	2	7.8	12.5
2458.85	16.4	-62	-68.1	-6.1	2	5.5	12.3
2458.9	16.4	-62	-67.2	-5.2	2	4.3	13.2

2458.95	16.4	-62	-68.6	-6.6	2	6.9	11.8
2459	16.4	-62	-68.6	-6.6	2	4.6	11.8
2459.05	16.4	-62	-67.5	-5.5	2	5.7	12.9
2459.1	16.4	-62	-67.6	-5.6	2	5.8	12.8
2459.15	16.4	-62	-69.3	-7.3	2	6.1	11.1
2459.2	16.4	-62	-69.2	-7.2	2	5.2	11.2
2459.25	16.4	-62	-69.4	-7.4	2	5.1	11
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2459.35	16.4	-62	-68.4	-6.4	2	5.2	12
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2459.45	16.4	-62	-67.8	-5.8	2	5.6	12.6
2459.5	16.4	-62	-69	-7	2	6.1	11.4
2459.55	16.4	-62	-68.5	-6.5	2	4.7	11.9
2459.6	16.4	-62	-68.5	-6.5	2	4.8	11.9
2459.65	16.4	-62	-69.4	-7.4	2	7.2	11
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2459.8	16.4	-62	-68.2	-6.2	2	4.8	12.2
2459.85	16.4	-62	-69.9	-7.9	2	6.9	10.5
2459.9	16.4	-62	-69.7	-7.7	2	6.3	10.7
2459.95	16.4	-62	-68.8	-6.8	2	6.3	11.6
2460	16.4	-62	-69.7	-7.7	2	5	10.7
2460.05	16.4	-62	-69.9	-7.9	2	5.3	10.5
2460.1	16.4	-62	-68.6	-6.6	2	5.7	11.8
2460.15	16.4	-62	-68.8	-6.8	2	6.8	11.6
2460.2	16.4	-62	-68.7	-6.7	2	6.9	11.7
2460.25	16.4	-62	-69.1	-7.1	2	7.6	11.3
2460.3	16.4	-62	-68.6	-6.6	2	5.5	11.8
2460.35	16.4	-62	-68.9	-6.9	2	6.3	11.5
2460.4	16.4	-62	-68.7	-6.7	2	5.3	11.7
2460.45	16.4	-62	-68.4	-6.4	2	5.6	12
2460.5	16.4	-62	-68	-6	2	4.2	12.4
2460.55	16.4	-62	-69.4	-7.4	2	4.1	11
2460.6	16.4	-62	-68.6	-6.6	2	7	11.8
2460.65	16.4	-62	-68.6	-6.6	2	4.6	11.8
2460.7	16.4	-62	-68	-6	2	6.9	12.4
2460.75	16.4	-62	-68.3	-6.3	2	5.5	12.1
2460.8	16.4	-62	-67.9	-5.9	2	3.8	12.5

2460.85	16.4	-62	-68.4	-6.4	2	6.5	12
2460.9	16.4	-62	-69	-7	2	3.9	11.4
2460.95	16.4	-62	-67.6	-5.6	2	6.1	12.8
2461	16.4	-62	-67.8	-5.8	2	5.7	12.6
2461.05	16.4	-62	-67.8	-5.8	2	6.3	12.6
2461.1	16.4	-62	-68.9	-6.9	2	6.3	11.5
2461.15	16.4	-62	-69.3	-7.3	2	5.2	11.1
2461.2	16.4	-62	-67.3	-5.3	2	6.5	13.1
2461.25	16.4	-62	-69.1	-7.1	2	6.5	11.3
2461.3	16.4	-62	-67.6	-5.6	2	7	12.8
2461.35	16.4	-62	-67.6	-5.6	2	6.6	12.8
2461.4	16.4	-62	-67.6	-5.6	2	4.9	12.8
2461.45	16.4	-62	-68.2	-6.2	2	5.4	12.2
2461.5	16.4	-62	-67.5	-5.5	2	4.5	12.9
2461.55	16.4	-62	-68.6	-6.6	2	4.5	11.8
2461.6	16.4	-62	-67.2	-5.2	2	4.2	13.2
2461.65	16.4	-62	-68.6	-6.6	2	6	11.8
2461.7	16.4	-62	-67.2	-5.2	2	7.1	13.2
2461.75	16.4	-62	-67.5	-5.5	2	5.4	12.9
2461.8	16.4	-62	-68.5	-6.5	2	6.5	11.9
2461.85	16.4	-62	-68	-6	2	4.6	12.4
2461.9	16.4	-62	-69	-7	2	6.2	11.4
2461.95	16.4	-62	-68.3	-6.3	2	5.6	12.1
2462	16.4	-62	-69.5	-7.5	2	4.6	10.9
2462.05	16.4	-62	-68.9	-6.9	2	5.6	11.5
2462.1	16.4	-62	-68	-6	2	6.8	12.4
2462.15	16.4	-62	-68.9	-6.9	2	6.6	11.5
2462.2	16.4	-62	-68	-6	2	5.9	12.4
2462.25	16.4	-62	-67.9	-5.9	2	5.9	12.5
2462.3	16.4	-62	-68.6	-6.6	2	7	11.8
2462.35	16.4	-62	-67.5	-5.5	2	6	12.9
2462.4	16.4	-62	-68.8	-6.8	2	7.7	11.6
2462.45	16.4	-62	-67.4	-5.4	2	4	13
2462.5	16.4	-62	-67.9	-5.9	2	5.2	12.5
2462.55	16.4	-62	-67.9	-5.9	2	5.6	12.5
2462.6	16.4	-62	-67.5	-5.5	2	7.1	12.9
2462.65	16.4	-62	-68.7	-6.7	2	6.7	11.7
2462.7	16.4	-62	-67.4	-5.4	2	6	13

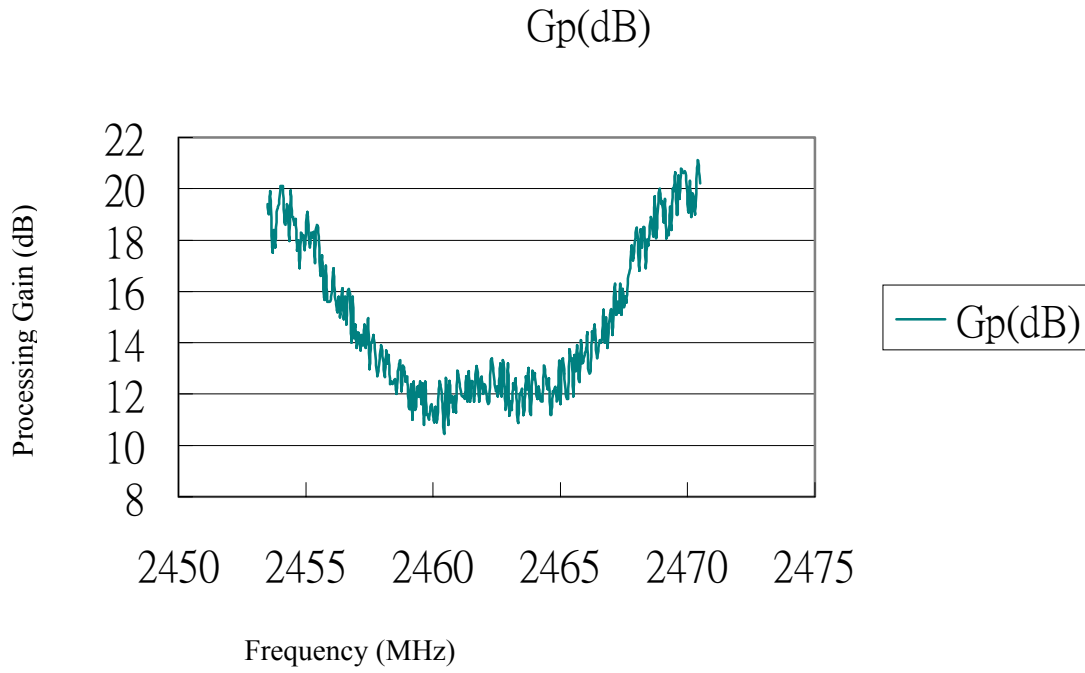
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2462.8	16.4	-62	-68.4	-6.4	2	5.8	12
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2462.9	16.4	-62	-67.6	-5.6	2	7.2	12.8
2462.95	16.4	-62	-68.6	-6.6	2	7.5	11.8
2463	16.4	-62	-68	-6	2	7.2	12.4
2463.05	16.4	-62	-69.2	-7.2	2	6.3	11.2
2463.1	16.4	-62	-67.7	-5.7	2	5.2	12.7
2463.15	16.4	-62	-68.8	-6.8	2	7.1	11.6
2463.2	16.4	-62	-68.6	-6.6	2	4.2	11.8
2463.25	16.4	-62	-68.5	-6.5	2	5.9	11.9
2463.3	16.4	-62	-68.6	-6.6	2	6.4	11.8
2463.35	16.4	-62	-68.2	-6.2	2	6.7	12.2
2463.4	16.4	-62	-69.4	-7.4	2	7.1	11
2463.45	16.4	-62	-68.3	-6.3	2	5.8	12.1
2463.5	16.4	-62	-68.5	-6.5	2	6.4	11.9
2463.55	16.4	-62	-68.7	-6.7	2	7.5	11.7
2463.6	16.4	-62	-68.7	-6.7	2	5.5	11.7
2463.65	16.4	-62	-67.8	-5.8	2	5.5	12.6
2463.7	16.4	-62	-67.8	-5.8	2	5.5	12.6
2463.75	16.4	-62	-67.3	-5.3	2	5.7	13.1
2463.8	16.4	-62	-68.8	-6.8	2	4.6	11.6
2463.85	16.4	-62	-68	-6	2	5.4	12.4
2463.9	16.4	-62	-68.3	-6.3	2	4.7	12.1
2463.95	16.4	-62	-68.8	-6.8	2	4.3	11.6
2464	16.4	-62	-69.1	-7.1	2	4.6	11.3
2464.05	16.4	-62	-67.8	-5.8	2	4.9	12.6
2464.1	16.4	-62	-68.3	-6.3	2	6.4	12.1
2464.15	16.4	-62	-69.3	-7.3	2	5.9	11.1
2464.2	16.4	-62	-68.3	-6.3	2	7.5	12.1
2464.25	16.4	-62	-69	-7	2	6.4	11.4
2464.3	16.4	-62	-68.6	-6.6	2	5.9	11.8
2464.35	16.4	-62	-67.9	-5.9	2	5.1	12.5
2464.4	16.4	-62	-68	-6	2	4.4	12.4
2464.45	16.4	-62	-67.9	-5.9	2	5.9	12.5
2464.5	16.4	-62	-69	-7	2	5.9	11.4
2464.55	16.4	-62	-68.6	-6.6	2	3.8	11.8
2464.6	16.4	-62	-67.5	-5.5	2	7.8	12.9

2464.65	16.4	-62	-69.1	-7.1	2	6.6	11.3
2464.7	16.4	-62	-67.7	-5.7	2	4.8	12.7
2464.75	16.4	-62	-68.8	-6.8	2	4.3	11.6
2464.8	16.4	-62	-68.8	-6.8	2	4.9	11.6
2464.85	16.4	-62	-68.9	-6.9	2	4.1	11.5
2464.9	16.4	-62	-67.2	-5.2	2	4.4	13.2
2464.95	16.4	-62	-67	-5	2	5.8	13.4
2465	16.4	-62	-68	-6	2	6.2	12.4
2465.05	16.4	-62	-67.2	-5.2	2	4.5	13.2
2465.1	16.4	-62	-68	-6	2	6.2	12.4
2465.15	16.4	-62	-68.6	-6.6	2	4.2	11.8
2465.2	16.4	-62	-67.7	-5.7	2	6.2	12.7
2465.25	16.4	-62	-67	-5	2	7.1	13.4
2465.3	16.4	-62	-66.7	-4.7	2	4.4	13.7
2465.35	16.4	-62	-67.8	-5.8	2	5.8	12.6
2465.4	16.4	-62	-68.2	-6.2	2	5.5	12.2
2465.45	16.4	-62	-68.2	-6.2	2	5.4	12.2
2465.5	16.4	-62	-67.9	-5.9	2	5.2	12.5
2465.55	16.4	-62	-68.1	-6.1	2	5.6	12.3
2465.6	16.4	-62	-67.2	-5.2	2	4.9	13.2
2465.65	16.4	-62	-67.7	-5.7	2	6.1	12.7
2465.7	16.4	-62	-68.1	-6.1	2	6	12.3
2465.75	16.4	-62	-66.6	-4.6	2	6.7	13.8
2465.8	16.4	-62	-67.9	-5.9	2	6	12.5
2465.85	16.4	-62	-66.4	-4.4	2	5.9	14
2465.9	16.4	-62	-68	-6	2	6.1	12.4
2465.95	16.4	-62	-67.2	-5.2	2	6.8	13.2
2466	16.4	-62	-66.2	-4.2	2	6	14.2
2466.05	16.4	-62	-67.3	-5.3	2	5.4	13.1
2466.1	16.4	-62	-67.5	-5.5	2	4.3	12.9
2466.15	16.4	-62	-66.9	-4.9	2	4	13.5
2466.2	16.4	-62	-66.8	-4.8	2	4.4	13.6
2466.25	16.4	-62	-67.1	-5.1	2	7.2	13.3
2466.3	16.4	-62	-67.2	-5.2	2	3.9	13.2
2466.35	16.4	-62	-66.1	-4.1	2	6.5	14.3
2466.4	16.4	-62	-66.6	-4.6	2	7.4	13.8
2466.45	16.4	-62	-66.3	-4.3	2	6.6	14.1
2466.5	16.4	-62	-65.5	-3.5	2	5.5	14.9

2466.55	16.4	-62	-66.4	-4.4	2	6.2	14
2466.6	16.4	-62	-66.1	-4.1	2	7.1	14.3
2466.65	16.4	-62	-65.4	-3.4	2	5.8	15
2466.7	16.4	-62	-66.2	-4.2	2	6.2	14.2
2466.75	16.4	-62	-65.3	-3.3	2	7.4	15.1
2466.8	16.4	-62	-66.8	-4.8	2	6	13.6
2466.85	16.4	-62	-65.9	-3.9	2	4.2	14.5
2466.9	16.4	-62	-66.2	-4.2	2	4.2	14.2
2466.95	16.4	-62	-65.4	-3.4	2	6.3	15
2467	16.4	-62	-64.9	-2.9	2	6.1	15.5
2467.05	16.4	-62	-65.3	-3.3	2	4.2	15.1
2467.1	16.4	-62	-65.9	-3.9	2	7	14.5
2467.15	16.4	-62	-64.9	-2.9	2	7.7	15.5
2467.2	16.4	-62	-65.2	-3.2	2	7.1	15.2
2467.25	16.4	-62	-65.4	-3.4	2	6.1	15
2467.3	16.4	-62	-64.1	-2.1	2	7.1	16.3
2467.35	16.4	-62	-65.1	-3.1	2	4.4	15.3
2467.4	16.4	-62	-64	-2	2	4.2	16.4
2467.45	16.4	-62	-64.1	-2.1	2	6.2	16.3
2467.5	16.4	-62	-64.7	-2.7	2	7.1	15.7
2467.55	16.4	-62	-63.2	-1.2	2	3.8	17.2
2467.6	16.4	-62	-63.4	-1.4	2	5.6	17
2467.65	16.4	-62	-64.7	-2.7	2	4.6	15.7
2467.7	16.4	-62	-64	-2	2	4.6	16.4
2467.75	16.4	-62	-63.9	-1.9	2	4.5	16.5
2467.8	16.4	-62	-62.3	-0.3	2	4.7	18.1
2467.85	16.4	-62	-62.3	-0.3	2	5.4	18.1
2467.9	16.4	-62	-62	0	2	6.8	18.4
2467.95	16.4	-62	-63	-1	2	4.4	17.4
2468	16.4	-62	-62.5	-0.5	2	6.5	17.9
2468.05	16.4	-62	-62.6	-0.6	2	6.2	17.8
2468.1	16.4	-62	-62.5	-0.5	2	5.4	17.9
2468.15	16.4	-62	-63.9	-1.9	2	5.7	16.5
2468.2	16.4	-62	-62.7	-0.7	2	5.7	17.7
2468.25	16.4	-62	-62.9	-0.9	2	4	17.5
2468.3	16.4	-62	-61.9	0.1	2	7.1	18.5
2468.35	16.4	-62	-62	0	2	5.2	18.4
2468.4	16.4	-62	-61.6	0.4	2	7	18.8

2468.45	16.4	-62	-62.1	-0.1	2	5	18.3
2468.5	16.4	-62	-62	0	2	6.5	18.4
2468.55	16.4	-62	-61.6	0.4	2	4.1	18.8
2468.6	16.4	-62	-61.5	0.5	2	4.9	18.9
2468.65	16.4	-62	-60.5	1.5	2	6.4	19.9
2468.7	16.4	-62	-61.6	0.4	2	5.2	18.8
2468.75	16.4	-62	-61.3	0.7	2	4.1	19.1
2468.8	16.4	-62	-60.5	1.5	2	4.6	19.9
2468.85	16.4	-62	-61.7	0.3	2	7.2	18.7
2468.9	16.4	-62	-62.1	-0.1	2	4.7	18.3
2468.95	16.4	-62	-60.6	1.4	2	6	19.8
2469	16.4	-62	-60.6	1.4	2	5.6	19.8
2469.05	16.4	-62	-60.7	1.3	2	6	19.7
2469.1	16.4	-62	-62.4	-0.4	2	5.3	18
2469.15	16.4	-62	-60.9	1.1	2	5.4	19.5
2469.2	16.4	-62	-61.6	0.4	2	4.8	18.8
2469.25	16.4	-62	-62.1	-0.1	2	5	18.3
2469.3	16.4	-62	-60.8	1.2	2	7.2	19.6
2469.35	16.4	-62	-60.9	1.1	2	5.7	19.5
2469.4	16.4	-62	-61.4	0.6	2	4.5	19
2469.45	16.4	-62	-61.8	0.2	2	7.6	18.6
2469.5	16.4	-62	-61.6	0.4	2	4	18.8
2469.55	16.4	-62	-60.6	1.4	2	7.3	19.8
2469.6	16.4	-62	-60.6	1.4	2	4.4	19.8
2469.65	16.4	-62	-60.9	1.1	2	5.4	19.5
2469.7	16.4	-62	-60	2	2	6.6	20.4
2469.75	16.4	-62	-60.6	1.4	2	6.6	19.8
2469.8	16.4	-62	-60.1	1.9	2	4.9	20.3
2469.85	16.4	-62	-59.8	2.2	2	5.2	20.6
2469.9	16.4	-62	-60.7	1.3	2	6	19.7
2469.95	16.4	-62	-60.5	1.5	2	7.2	19.9
2470	16.4	-62	-60.8	1.2	2	4.4	19.6
2470.05	16.4	-62	-61.3	0.7	2	4.7	19.1
2470.1	16.4	-62	-59.7	2.3	2	4.7	20.7
2470.15	16.4	-62	-60.8	1.2	2	6.2	19.6
2470.2	16.4	-62	-60.4	1.6	2	6.8	20
2470.25	16.4	-62	-59.6	2.4	2	6.4	20.8
2470.3	16.4	-62	-60.6	1.4	2	4.4	19.8

2470.35	16.4	-62	-60.3	1.7	2	4	20.1
2470.4	16.4	-62	-60.8	1.2	2	7	19.6
2470.45	16.4	-62	-60.8	1.2	2	6.8	19.6
2470.5	16.4	-62	-58.9	3.1	2	6.6	21.5
Processing Gain(dB)@20th Percentile=12							



2Mbps Channel 1 (2412MHz) Processing Gain							
$G_p=(S/N)_o+L_{sys}+(J_r/S_r)$							
Frequency	(S/N)_o	S_r	J_r	J_r/S_r	L_{sys}	FER	G_p
(MHz)	(dB)	(dBm)	(dBm)	(dB)	(dB)	(%)	(dB)
2433.5	13.3	-62	-59.7	2.3	2	7.4	17.6
2433.55	13.3	-62	-61.1	0.9	2	4.9	16.2
2433.6	13.3	-62	-60.7	1.3	2	3.8	16.6
2433.65	13.3	-62	-61	1	2	4.6	16.3
2433.7	13.3	-62	-62.3	-0.3	2	4.1	15
2433.75	13.3	-62	-61.3	0.7	2	4.1	16
2433.8	13.3	-62	-62.3	-0.3	2	4.5	15
2433.85	13.3	-62	-62.6	-0.6	2	7	14.7
2433.9	13.3	-62	-61.7	0.3	2	7	15.6
2433.95	13.3	-62	-61.8	0.2	2	5.3	15.5
2434	13.3	-62	-60.3	1.7	2	6.8	17
2434.05	13.3	-62	-62	0	2	4.4	15.3
2434.1	13.3	-62	-61.5	0.5	2	6.5	15.8
2434.15	13.3	-62	-61.6	0.4	2	6.7	15.7
2434.2	13.3	-62	-61.7	0.3	2	4.9	15.6
2434.25	13.3	-62	-62	0	2	4.4	15.3
2434.3	13.3	-62	-61	1	2	4.7	16.3
2434.35	13.3	-62	-60.4	1.6	2	6.8	16.9
2434.4	13.3	-62	-60.8	1.2	2	4.8	16.5
2434.45	13.3	-62	-61.6	0.4	2	6.4	15.7
2434.5	13.3	-62	-62.3	-0.3	2	5.5	15
2434.55	13.3	-62	-61.5	0.5	2	6.1	15.8
2434.6	13.3	-62	-62.5	-0.5	2	6	14.8
2434.65	13.3	-62	-62	0	2	6.8	15.3
2434.7	13.3	-62	-62.8	-0.8	2	6.2	14.5
2434.75	13.3	-62	-62.4	-0.4	2	4.3	14.9
2434.8	13.3	-62	-62.3	-0.3	2	7.3	15
2434.85	13.3	-62	-61.5	0.5	2	4.6	15.8
2434.9	13.3	-62	-63.2	-1.2	2	4.4	14.1
2434.95	13.3	-62	-61.6	0.4	2	5.5	15.7
2435	13.3	-62	-61.5	0.5	2	7.2	15.8
2435.05	13.3	-62	-61.3	0.7	2	4.9	16

2435.1	13.3	-62	-61.6	0.4	2	6.7	15.7
2435.15	13.3	-62	-61.9	0.1	2	6.9	15.4
2435.2	13.3	-62	-63	-1	2	5.3	14.3
2435.25	13.3	-62	-61.3	0.7	2	6.2	16
2435.3	13.3	-62	-62.5	-0.5	2	6.2	14.8
2435.35	13.3	-62	-61.5	0.5	2	5.7	15.8
2435.4	13.3	-62	-61.9	0.1	2	5.6	15.4
2435.45	13.3	-62	-63.5	-1.5	2	4.8	13.8
2435.5	13.3	-62	-62.4	-0.4	2	4.9	14.9
2435.55	13.3	-62	-63.3	-1.3	2	4.5	14
2435.6	13.3	-62	-62.7	-0.7	2	4.5	14.6
2435.65	13.3	-62	-64.5	-2.5	2	6	12.8
2435.7	13.3	-62	-63	-1	2	4.3	14.3
2435.75	13.3	-62	-64.7	-2.7	2	5.6	12.6
2435.8	13.3	-62	-64.3	-2.3	2	6.5	13
2435.85	13.3	-62	-63	-1	2	3.8	14.3
2435.9	13.3	-62	-62.9	-0.9	2	5.8	14.4
2435.95	13.3	-62	-63	-1	2	4.4	14.3
2436	13.3	-62	-64.2	-2.2	2	5	13.1
2436.05	13.3	-62	-63.6	-1.6	2	4.3	13.7
2436.1	13.3	-62	-63.5	-1.5	2	4.9	13.8
2436.15	13.3	-62	-62.3	-0.3	2	6	15
2436.2	13.3	-62	-61.6	0.4	2	6.8	15.7
2436.25	13.3	-62	-61.6	0.4	2	4.7	15.7
2436.3	13.3	-62	-61.4	0.6	2	6.6	15.9
2436.35	13.3	-62	-59.5	2.5	2	4.4	17.8
2436.4	13.3	-62	-60	2	2	4.5	17.3
2436.45	13.3	-62	-58.9	3.1	2	7	18.4
2436.5	13.3	-62	-59.8	2.2	2	4.2	17.5
2436.55	13.3	-62	-59.3	2.7	2	5.5	18
2436.6	13.3	-62	-60.5	1.5	2	4.3	16.8
2436.65	13.3	-62	-58.4	3.6	2	6.4	18.9
2436.7	13.3	-62	-60.8	1.2	2	5.6	16.5
2436.75	13.3	-62	-62	0	2	4.9	15.3
2436.8	13.3	-62	-61.6	0.4	2	5.6	15.7
2436.85	13.3	-62	-61.8	0.2	2	6.5	15.5
2436.9	13.3	-62	-63	-1	2	6.7	14.3
2436.95	13.3	-62	-63.2	-1.2	2	6.6	14.1

2437	13.3	-62	-63.9	-1.9	2	5.9	13.4
2437.05	13.3	-62	-63.1	-1.1	2	6.3	14.2
2437.1	13.3	-62	-64.9	-2.9	2	6.8	12.4
2437.15	13.3	-62	-63.8	-1.8	2	6.7	13.5
2437.2	13.3	-62	-65	-3	2	5.4	12.3
2437.25	13.3	-62	-65	-3	2	7.8	12.3
2437.3	13.3	-62	-64.6	-2.6	2	7.6	12.7
2437.35	13.3	-62	-64.8	-2.8	2	6.9	12.5
2437.4	13.3	-62	-65	-3	2	4.5	12.3
2437.45	13.3	-62	-63.2	-1.2	2	7.4	14.1
2437.5	13.3	-62	-62.9	-0.9	2	4.6	14.4
2437.55	13.3	-62	-63.7	-1.7	2	5	13.6
2437.6	13.3	-62	-63.7	-1.7	2	6.1	13.6
2437.65	13.3	-62	-63.6	-1.6	2	6.2	13.7
2437.7	13.3	-62	-63.8	-1.8	2	5.5	13.5
2437.75	13.3	-62	-64.1	-2.1	2	6	13.2
2437.8	13.3	-62	-62.7	-0.7	2	6.7	14.6
2437.85	13.3	-62	-63.4	-1.4	2	7.4	13.9
2437.9	13.3	-62	-64.3	-2.3	2	6.7	13
2437.95	13.3	-62	-64.5	-2.5	2	3.7	12.8
2438	13.3	-62	-64.8	-2.8	2	5.6	12.5
2438.05	13.3	-62	-64.6	-2.6	2	6.4	12.7
2438.1	13.3	-62	-64.7	-2.7	2	4.8	12.6
2438.15	13.3	-62	-65	-3	2	6.9	12.3
2438.2	13.3	-62	-65.2	-3.2	2	7.4	12.1
2438.25	13.3	-62	-63.4	-1.4	2	4.3	13.9
2438.3	13.3	-62	-65	-3	2	6.8	12.3
2438.35	13.3	-62	-65	-3	2	5.9	12.3
2438.4	13.3	-62	-63.5	-1.5	2	4.3	13.8
2438.45	13.3	-62	-63.9	-1.9	2	4.8	13.4
2438.5	13.3	-62	-65.1	-3.1	2	5.6	12.2
2438.55	13.3	-62	-64.6	-2.6	2	6.3	12.7
2438.6	13.3	-62	-63.7	-1.7	2	6.4	13.6
2438.65	13.3	-62	-63.7	-1.7	2	4.7	13.6
2438.7	13.3	-62	-63.7	-1.7	2	6.9	13.6
2438.75	13.3	-62	-63.4	-1.4	2	6.8	13.9
2438.8	13.3	-62	-64.3	-2.3	2	4.9	13
2438.85	13.3	-62	-64.3	-2.3	2	6.1	13

2438.9	13.3	-62	-63.8	-1.8	2	6.7	13.5
2438.95	13.3	-62	-65.2	-3.2	2	5.5	12.1
2439	13.3	-62	-64	-2	2	5.7	13.3
2439.05	13.3	-62	-64.1	-2.1	2	6.7	13.2
2439.1	13.3	-62	-64	-2	2	5.6	13.3
2439.15	13.3	-62	-63.5	-1.5	2	5	13.8
2439.2	13.3	-62	-63.8	-1.8	2	6.8	13.5
2439.25	13.3	-62	-65.4	-3.4	2	5.8	11.9
2439.3	13.3	-62	-63.8	-1.8	2	4	13.5
2439.35	13.3	-62	-63.8	-1.8	2	4.6	13.5
2439.4	13.3	-62	-64.1	-2.1	2	4.9	13.2
2439.45	13.3	-62	-63.9	-1.9	2	5.2	13.4
2439.5	13.3	-62	-66	-4	2	3.7	11.3
2439.55	13.3	-62	-63.4	-1.4	2	4.6	13.9
2439.6	13.3	-62	-64.9	-2.9	2	6.7	12.4
2439.65	13.3	-62	-63.6	-1.6	2	5.7	13.7
2439.7	13.3	-62	-64.5	-2.5	2	5.6	12.8
2439.75	13.3	-62	-64.2	-2.2	2	6.9	13.1
2439.8	13.3	-62	-64.1	-2.1	2	4.6	13.2
2439.85	13.3	-62	-65.4	-3.4	2	4.6	11.9
2439.9	13.3	-62	-65.1	-3.1	2	4.2	12.2
2439.95	13.3	-62	-64.9	-2.9	2	5	12.4
2440	13.3	-62	-63.5	-1.5	2	5.9	13.8
2440.05	13.3	-62	-63.8	-1.8	2	5.7	13.5
2440.1	13.3	-62	-64.6	-2.6	2	4.9	12.7
2440.15	13.3	-62	-64.8	-2.8	2	6.7	12.5
2440.2	13.3	-62	-65.8	-3.8	2	4	11.5
2440.25	13.3	-62	-65.6	-3.6	2	6.9	11.7
2440.3	13.3	-62	-64.7	-2.7	2	3.7	12.6
2440.35	13.3	-62	-65	-3	2	5.2	12.3
2440.4	13.3	-62	-65.7	-3.7	2	5.8	11.6
2440.45	13.3	-62	-65	-3	2	4.7	12.3
2440.5	13.3	-62	-65.5	-3.5	2	6.4	11.8
2440.55	13.3	-62	-65.3	-3.3	2	6.3	12
2440.6	13.3	-62	-63.9	-1.9	2	6.5	13.4
2440.65	13.3	-62	-64.5	-2.5	2	6.4	12.8
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2440.75	13.3	-62	-63.7	-1.7	2	4.8	13.6

2440.8	13.3	-62	-64	-2	2	4.4	13.3
2440.85	13.3	-62	-64.8	-2.8	2	4.1	12.5
2440.9	13.3	-62	-66.4	-4.4	2	4	10.9
2440.95	13.3	-62	-64.9	-2.9	2	6.8	12.4
2441	13.3	-62	-64.8	-2.8	2	7.2	12.5
2441.05	13.3	-62	-64.3	-2.3	2	5.9	13
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2441.15	13.3	-62	-64.1	-2.1	2	6.3	13.2
2441.2	13.3	-62	-64.8	-2.8	2	5.4	12.5
2441.25	13.3	-62	-65	-3	2	4.5	12.3
2441.3	13.3	-62	-65.3	-3.3	2	4.2	12
2441.35	13.3	-62	-66.3	-4.3	2	7.5	11
2441.4	13.3	-62	-66.7	-4.7	2	5.4	10.6
2441.45	13.3	-62	-64.7	-2.7	2	5.7	12.6
2441.5	13.3	-62	-66.2	-4.2	2	7.9	11.1
2441.55	13.3	-62	-65.4	-3.4	2	5.6	11.9
2441.6	13.3	-62	-63.1	-1.1	2	6.8	14.2
2441.65	13.3	-62	-63.2	-1.2	2	5.7	14.1
2441.7	13.3	-62	-63.9	-1.9	2	4.4	13.4
2441.75	13.3	-62	-62.5	-0.5	2	3.7	14.8
2441.8	13.3	-62	-61.8	0.2	2	5.4	15.5
2441.85	13.3	-62	-60.4	1.6	2	7.1	16.9
2441.9	13.3	-62	-60.7	1.3	2	5.6	16.6
2441.95	13.3	-62	-60.8	1.2	2	6.7	16.5
2442	13.3	-62	-60.9	1.1	2	7.6	16.4
2442.05	13.3	-62	-60	2	2	7.7	17.3
2442.1	13.3	-62	-60.3	1.7	2	5.8	17
2442.15	13.3	-62	-61.4	0.6	2	6.1	15.9
2442.2	13.3	-62	-61.5	0.5	2	4	15.8
2442.25	13.3	-62	-62.6	-0.6	2	5.6	14.7
2442.3	13.3	-62	-63.4	-1.4	2	6.7	13.9
2442.35	13.3	-62	-63.6	-1.6	2	6.2	13.7
2442.4	13.3	-62	-63.4	-1.4	2	3.6	13.9
2442.45	13.3	-62	-64.2	-2.2	2	4.3	13.1
2442.5	13.3	-62	-65.1	-3.1	2	5.2	12.2
2442.55	13.3	-62	-65.5	-3.5	2	5.9	11.8
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2442.65	13.3	-62	-64.7	-2.7	2	6.7	12.6

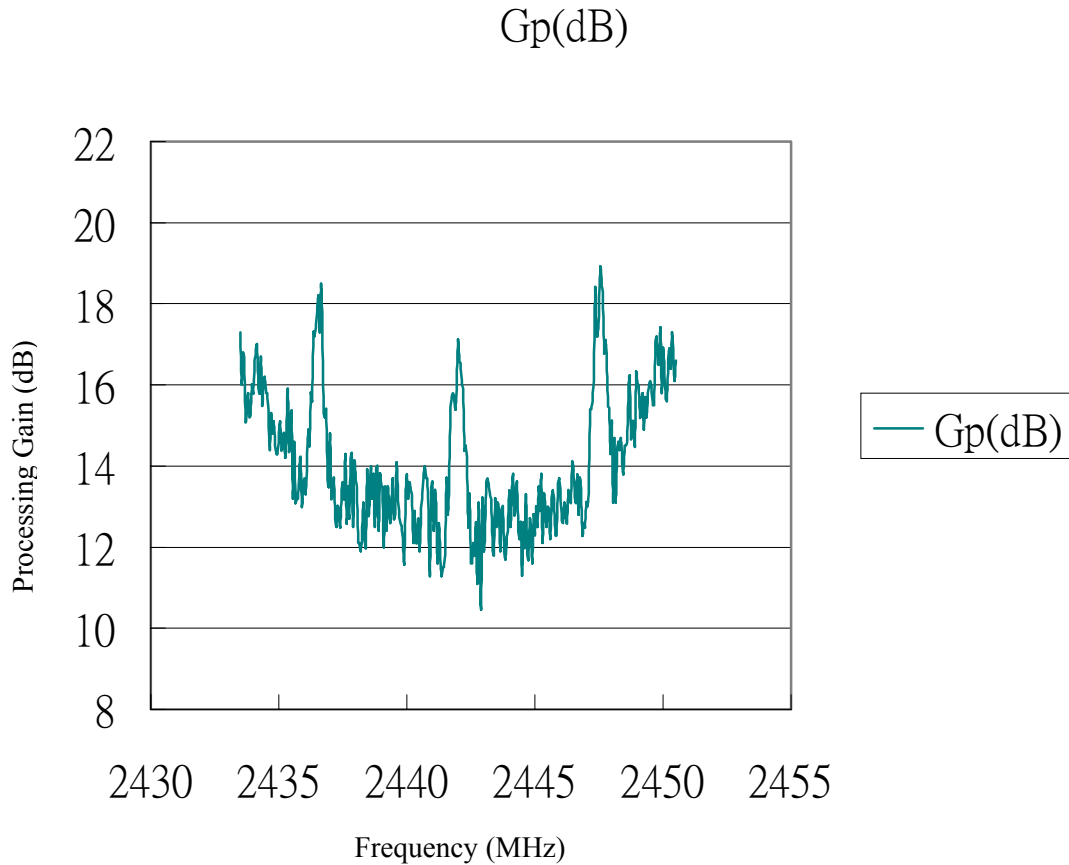
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2442.8	13.3	-62	-64.3	-2.3	2	4.9	13
2442.85	13.3	-62	-66	-4	2	4.6	11.3
2442.9	13.3	-62	-66	-4	2	6.2	11.3
2442.95	13.3	-62	-64.9	-2.9	2	5.9	12.4
2443	13.3	-62	-63.9	-1.9	2	7.1	13.4
2443.05	13.3	-62	-64.8	-2.8	2	5.1	12.5
2443.1	13.3	-62	-63.5	-1.5	2	5.6	13.8
2443.15	13.3	-62	-64.1	-2.1	2	5.1	13.2
2443.2	13.3	-62	-64.2	-2.2	2	4.9	13.1
2443.25	13.3	-62	-64.6	-2.6	2	4.7	12.7
2443.3	13.3	-62	-63.5	-1.5	2	5	13.8
2443.35	13.3	-62	-65.3	-3.3	2	7.7	12
2443.4	13.3	-62	-65	-3	2	4.5	12.3
2443.45	13.3	-62	-64.6	-2.6	2	6.1	12.7
2443.5	13.3	-62	-65.2	-3.2	2	7.4	12.1
2443.55	13.3	-62	-64.5	-2.5	2	5.4	12.8
2443.6	13.3	-62	-64	-2	2	5.3	13.3
2443.65	13.3	-62	-65.8	-3.8	2	6	11.5
2443.7	13.3	-62	-65.3	-3.3	2	4.3	12
2443.75	13.3	-62	-65.5	-3.5	2	5.6	11.8
2443.8	13.3	-62	-64.5	-2.5	2	7	12.8
2443.85	13.3	-62	-65.1	-3.1	2	5.6	12.2
2443.9	13.3	-62	-65.9	-3.9	2	6.2	11.4
2443.95	13.3	-62	-64.5	-2.5	2	5.3	12.8
2444	13.3	-62	-64.3	-2.3	2	4.1	13
2444.05	13.3	-62	-64	-2	2	6.5	13.3
2444.1	13.3	-62	-63.9	-1.9	2	6.6	13.4
2444.15	13.3	-62	-64.8	-2.8	2	6.7	12.5
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2444.4	13.3	-62	-65	-3	2	3.9	12.3
2444.45	13.3	-62	-63.8	-1.8	2	4.9	13.5
2444.5	13.3	-62	-64.2	-2.2	2	5.2	13.1
2444.55	13.3	-62	-65.5	-3.5	2	5.6	11.8

2444.6	13.3	-62	-63.9	-1.9	2	6.9	13.4
2444.65	13.3	-62	-64.7	-2.7	2	6.4	12.6
2444.7	13.3	-62	-65.3	-3.3	2	6.5	12
2444.75	13.3	-62	-65.4	-3.4	2	7.6	11.9
2444.8	13.3	-62	-65.6	-3.6	2	4	11.7
2444.85	13.3	-62	-64.6	-2.6	2	6.5	12.7
2444.9	13.3	-62	-65.8	-3.8	2	4.8	11.5
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2445	13.3	-62	-64.7	-2.7	2	4.5	12.6
2445.05	13.3	-62	-64.6	-2.6	2	5.5	12.7
2445.1	13.3	-62	-64.4	-2.4	2	5.7	12.9
2445.15	13.3	-62	-63.9	-1.9	2	4.3	13.4
2445.2	13.3	-62	-64.1	-2.1	2	4.3	13.2
2445.25	13.3	-62	-64	-2	2	4.4	13.3
2445.3	13.3	-62	-64	-2	2	5.5	13.3
2445.35	13.3	-62	-63.9	-1.9	2	6	13.4
2445.4	13.3	-62	-63.8	-1.8	2	6	13.5
2445.45	13.3	-62	-65.3	-3.3	2	6.7	12
2445.5	13.3	-62	-65.3	-3.3	2	4.6	12
2445.55	13.3	-62	-64.8	-2.8	2	6.3	12.5
2445.6	13.3	-62	-64.6	-2.6	2	6	12.7
2445.65	13.3	-62	-65.2	-3.2	2	5.3	12.1
2445.7	13.3	-62	-64.4	-2.4	2	5.3	12.9
2445.75	13.3	-62	-65.5	-3.5	2	6.4	11.8
2445.8	13.3	-62	-63.9	-1.9	2	6	13.4
2445.85	13.3	-62	-64.8	-2.8	2	4.5	12.5
2445.9	13.3	-62	-64.9	-2.9	2	5	12.4
2445.95	13.3	-62	-65.2	-3.2	2	6.7	12.1
2446	13.3	-62	-63.1	-1.1	2	7.8	14.2
2446.05	13.3	-62	-64.1	-2.1	2	6.2	13.2
2446.1	13.3	-62	-64.8	-2.8	2	6.3	12.5
2446.15	13.3	-62	-63.3	-1.3	2	5.3	14
2446.2	13.3	-62	-64.1	-2.1	2	6.7	13.2
2446.25	13.3	-62	-63.8	-1.8	2	6.8	13.5
2446.3	13.3	-62	-64.3	-2.3	2	6.2	13
2446.35	13.3	-62	-64	-2	2	5.6	13.3
2446.4	13.3	-62	-63.7	-1.7	2	6.5	13.6
2446.45	13.3	-62	-63.1	-1.1	2	4.9	14.2

2446.5	13.3	-62	-64.3	-2.3	2	6.7	13
2446.55	13.3	-62	-62.9	-0.9	2	5.3	14.4
2446.6	13.3	-62	-63.7	-1.7	2	4.4	13.6
2446.65	13.3	-62	-63.3	-1.3	2	5.4	14
2446.7	13.3	-62	-63.7	-1.7	2	6	13.6
2446.75	13.3	-62	-63.9	-1.9	2	6.7	13.4
2446.8	13.3	-62	-65.3	-3.3	2	6.1	12
2446.85	13.3	-62	-64.7	-2.7	2	6.8	12.6
2446.9	13.3	-62	-64.8	-2.8	2	6.6	12.5
2446.95	13.3	-62	-63.5	-1.5	2	6.4	13.8
2447	13.3	-62	-63	-1	2	5.2	14.3
2447.05	13.3	-62	-63.3	-1.3	2	4.1	14
2447.1	13.3	-62	-62.2	-0.2	2	5.6	15.1
2447.15	13.3	-62	-62.3	-0.3	2	7.4	15
2447.2	13.3	-62	-63.1	-1.1	2	7.6	14.2
2447.25	13.3	-62	-60.7	1.3	2	7	16.6
2447.3	13.3	-62	-60.2	1.8	2	7.1	17.1
2447.35	13.3	-62	-59.7	2.3	2	6.1	17.6
2447.4	13.3	-62	-60.2	1.8	2	5.9	17.1
2447.45	13.3	-62	-58.8	3.2	2	4.5	18.5
2447.5	13.3	-62	-58.8	3.2	2	6	18.5
2447.55	13.3	-62	-58.5	3.5	2	6.7	18.8
2447.6	13.3	-62	-60.2	1.8	2	5.6	17.1
2447.65	13.3	-62	-58.3	3.7	2	6.5	19
2447.7	13.3	-62	-60.2	1.8	2	7.8	17.1
2447.75	13.3	-62	-61.4	0.6	2	6	15.9
2447.8	13.3	-62	-62.4	-0.4	2	7	14.9
2447.85	13.3	-62	-62.7	-0.7	2	3.6	14.6
2447.9	13.3	-62	-63.6	-1.6	2	6.4	13.7
2447.95	13.3	-62	-62.4	-0.4	2	6.1	14.9
2448	13.3	-62	-63	-1	2	4.6	14.3
2448.05	13.3	-62	-63.4	-1.4	2	5.5	13.9
2448.1	13.3	-62	-62.8	-0.8	2	5	14.5
2448.15	13.3	-62	-64	-2	2	5.5	13.3
2448.2	13.3	-62	-63.4	-1.4	2	7.2	13.9
2448.25	13.3	-62	-63.5	-1.5	2	7.2	13.8
2448.3	13.3	-62	-63.1	-1.1	2	5.9	14.2
2448.35	13.3	-62	-64.1	-2.1	2	4.5	13.2

2448.4	13.3	-62	-63.7	-1.7	2	7.2	13.6
2448.45	13.3	-62	-61.8	0.2	2	5.7	15.5
2448.5	13.3	-62	-63.3	-1.3	2	3.9	14
2448.55	13.3	-62	-62.1	-0.1	2	5.8	15.2
2448.6	13.3	-62	-61.5	0.5	2	4.4	15.8
2448.65	13.3	-62	-62.7	-0.7	2	6.7	14.6
2448.7	13.3	-62	-62.2	-0.2	2	4.2	15.1
2448.75	13.3	-62	-62.1	-0.1	2	4.9	15.2
2448.8	13.3	-62	-61.1	0.9	2	6.3	16.2
2448.85	13.3	-62	-62.6	-0.6	2	5.6	14.7
2448.9	13.3	-62	-62.1	-0.1	2	7	15.2
2448.95	13.3	-62	-61.8	0.2	2	5.3	15.5
2449	13.3	-62	-61.8	0.2	2	5.2	15.5
2449.05	13.3	-62	-62.7	-0.7	2	6.2	14.6
2449.1	13.3	-62	-61.7	0.3	2	7.2	15.6
2449.15	13.3	-62	-62	0	2	5.2	15.3
2449.2	13.3	-62	-61.9	0.1	2	4.4	15.4
2449.25	13.3	-62	-62.4	-0.4	2	7	14.9
2449.3	13.3	-62	-62.1	-0.1	2	6.5	15.2
2449.35	13.3	-62	-62.8	-0.8	2	5.8	14.5
2449.4	13.3	-62	-61.9	0.1	2	3.8	15.4
2449.45	13.3	-62	-62.1	-0.1	2	4.5	15.2
2449.5	13.3	-62	-61.6	0.4	2	6.4	15.7
2449.55	13.3	-62	-60.4	1.6	2	7	16.9
2449.6	13.3	-62	-61.5	0.5	2	4.5	15.8
2449.65	13.3	-62	-61.3	0.7	2	6	16
2449.7	13.3	-62	-60.8	1.2	2	6	16.5
2449.75	13.3	-62	-61.4	0.6	2	6.2	15.9
2449.8	13.3	-62	-61.2	0.8	2	5.9	16.1
2449.85	13.3	-62	-60.1	1.9	2	4.4	17.2
2449.9	13.3	-62	-59.9	2.1	2	6.9	17.4
2449.95	13.3	-62	-59.9	2.1	2	5.6	17.4
2450	13.3	-62	-61.8	0.2	2	3.8	15.5
2450.05	13.3	-62	-60.7	1.3	2	6.9	16.6
2450.1	13.3	-62	-60.4	1.6	2	5.1	16.9
2450.15	13.3	-62	-62.1	-0.1	2	6.8	15.2
2450.2	13.3	-62	-61.7	0.3	2	4.9	15.6
2450.25	13.3	-62	-61	1	2	5.6	16.3

2450.3	13.3	-62	-62	0	2	4.7	15.3
2450.35	13.3	-62	-60.9	1.1	2	7.6	16.4
2450.4	13.3	-62	-59.7	2.3	2	6.1	17.6
2450.45	13.3	-62	-60.8	1.2	2	3.8	16.5
2450.5	13.3	-62	-59.6	2.4	2	5.5	17.7
Processing Gain(dB)@20th Percentile=12.5							



9. EMI Reduction Method During Compliance Testing

No modification was made during testing.

10. Attachment

Attachment 1: EUT Test Photographs Number of Pages : 3

Attachment 2: EUT Detailed Photographs Number of Pages : 12

Attachment 1 : EUT Test Photographs