FCC ID: MXF-WL280
731 Confirmation Number: TC99061
TCB: TIMCO

Question 1:

Of course we have done the testing for processing gain by ourselves. One year ago, I had discussed the method of processing gain test with the chip set provider (both Intersil and Lucent). So, I am very much familiar with their testing, and the method I follow for this testing is the same with theirs.

But it is very interesting that the performance of signal to noise ratio for the product of my customer is always better than that of the chip set provider. I guess my customer use better filters on baseband and RF band which makes better S/N. So, we have to use higher Jamming power to keep the same BER. That's why the processing gain performance of my customer is always better than that of chip set provider.

Our way to treat this testing for the test report is that we test the most sensitive frequency range (carrier frequency +/- 5MHz). If the performance is better than that provided by the chip set provider, then we think the S/N performance of our customer is better than that of the chip set provider. In such case, we will print the test result of the chip set provider on the test report because our test result won't be worse than theirs.

The following table is part of the test result we have done in the most sensitive frequency range. As you can see, the jamming signal power has to be higher to keep the same BER, which makes the processing gain higher than that of chip set provider by 0.2~0.9dB.

Processing Gain Test Results Done by ADT

11Mbps CHANNEL 1 Processing Gain					
Gp = (S/N)。+ Mj + Lsys					
Freq.	**Gp**	**(S/N)。**	**Mj = J/S**	**Lsys**	**Jamming power**
(GHz)	**(dB)**	**(dB)**	**(dB)**	**(dB)**	**(dBm)**
2.4095	11.6	16.4	-6.8	2	-46.8
2.41	11.4	16.4	-7.0	2	-47.0
2.4105	11.5	16.4	-6.9	2	-46.9
2.411	12.3	16.4	-6.1	2	-46.1
2.4115	11.8	16.4	-6.6	2	-46.6
2.412	11.1	16.4	-7.3	2	-47.3
2.4125	12.4	16.4	-6.0	2	-46.0
2.413	12.1	16.4	-6.3	2	-46.3
2.4135	11.8	16.4	-6.6	2	-46.6
2.414	11.7	16.4	-6.7	2	-46.7
2.4145	12.3	16.4	-6.1	2	-46.1

Question 2:

Bit rate 1, 2, 5.5, 11Mbps
Chip/Symbol are 11, 11, 8, 8 respectively
Symbol/Bit are 1, 0.5, 0.25, 0.125
Chip/Bit are 11, 5.5, 2, 2

Although Chip/Symbol are lower than 10 in higher bit rates, but CCK coding used in 5.5 and 11 Mbps bit rate provide 2.2dB coding gain which make the processing gain higher than 10dB.

Question 3:

The duty cycle of the product under test is 100% which makes the peak power measured result very close average power measured one (peak is of course higher, HP application note 64).
In our measurement (with Maximum Hold Function of Spectrum Analyzer), when the RB of the spectrum analyzer is set to 3MHz, it means the 3dB bandwidth of the RB filter is 3 MHz. The reading is the total power passing the RB filter. So, when you plus reading on fc with that on fc+3MHz, then the overlap area shown on last page is recalculated, but this re-calculation is a compensation for the 3dB drop of the RB filter. In our measurement, we summarized the 5 neighboring readings with center reading on peak power frequency. This summation covers the power in totally 15MHz bandwidth which is wider than 6dB bandwidth. And also this summation covers 4 overlapping areas which means the compensation on the 3dB drop point will make the measured power very close the real power.
Of course, the power outside this 15MHz band is not considered in our measurement, which is the only difference between peak power meter and our measurement. But outside this 15MHz band, the power is small compare to the center frequency power which have very very limited influence on the total power measured.

The following Tables show the comparison as you request. Please be informed, this is a new measurement, the deviation with that shown in test report is within 1dB.
The Gain of the monopole antenna used in this product is 0dBi which is measured in our Fully Anechoic Chamber.

Channel 1			
	Summation of the 5 readings	EIRP	Peak Power Meter
Power	13.7dBm	14.1dBm	14.1dBm

Channel 6			
	Summation of the 5 readings	EIRP	Peak Power Meter
Power	13.6dBm	13.9dBm	13.9dBm

Channel 11			
	Summation of the 5 readings	EIRP	Peak Power Meter
Power	13.5dBm	14.1dBm	14.1dBm

Question 4:

Since this device is easy to be re-located, and the warning statement for keeping at least 20 cm separation distance between antenna and the body of the user or nearby person has been printed in users manual. So, this product is allowed to follow TCB RF exposure procedures for separation distance longer than 5cm (EIRP lower than 100mW is allowed to be granted by TCB). Obviously, the EIRP of my product is lower than 100mW.