

## 2 MBit spreading gain analysis

Speedcom Wireless International Corp.

Model #: NCBSLTM

Date: 1 Nov. 2000

Job #: 484U0

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Measurement file output name is:

2mbit.cnd

Input command file name is:

INPUT.CMD

Input CW correction level:

6 dB

Lowcount is:

1000 messages

Highcount is:

50000 messages

Rx level DUT is: -55 dBm

Note: 2 Mbit, 5 dB SIR tested for (15 dB SNR - 10.4 - 0 impl. losses).

Takes not into account allowed useage of 2 dB SIR implementation losses margin.

Attention: Input the red cells for correct spreadsheet calculations!

total errors  
percentage  
OK?

| Number of received data errors as a function of frequency and interference level |     |      |     |      |    |      |    |      |    |      |    |      |    |      |    |      |    |       |
|----------------------------------------------------------------------------------|-----|------|-----|------|----|------|----|------|----|------|----|------|----|------|----|------|----|-------|
| Not measured combinations listed as "-1"                                         |     |      |     |      |    |      |    |      |    |      |    |      |    |      |    |      |    |       |
| Uncorrected Interference level dialed at CW generator                            |     |      |     |      |    |      |    |      |    |      |    |      |    |      |    |      |    |       |
| True CW interference level at receiver input (dBm)                               |     |      |     |      |    |      |    |      |    |      |    |      |    |      |    |      |    |       |
| J/S ratio (dB)                                                                   | -11 | #PDA | -10 | #PDA | -9 | #PDA | -8 | #PDA | -7 | #PDA | -6 | #PDA | -5 | #PDA | -4 | #PDA | -3 | #PDA  |
| Frequency (Hz)                                                                   |     |      |     |      |    |      |    |      |    |      |    |      |    |      |    |      |    |       |
| 2409000000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409050000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409100000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409150000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409200000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409250000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409300000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409350000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409400000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409450000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409500000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409550000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409600000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409650000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409700000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409750000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409800000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409850000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409900000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2409950000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2410000000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2410050000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2410100000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2410150000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2410200000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2410250000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2410300000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2410350000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2410400000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |
| 2410450000                                                                       | 0   | 1000 | 0   | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 1000 | 0  | 50000 |



Measurement file output name is: 1mbit.cnd  
Input command file name is: INPUT.CMD  
Input CW correction level: 6 dB  
Lowcount is: 1000 messages  
Highcount is: 50000 messages  
Rx level DUT is: -55 dBm

1 MBit spreading gain analysis  
Note: 1 Mbit, 5 dB SIR tested for (13 dB SNR - 10.4 + 2 impl. losses).  
Takes into account allowed usage of 2 dB SIR margin.  
Attention: Input the red cells for correct spreadsheet calculations!

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| Number of received data errors as a function of frequency and interference level<br>Not measured combinations listed as "-1" |     |       |     |       |     |       |     |      |     |      |     |      |     |      |     |      |     |            | RxD Errors<br>detected<br>full test<br>range | PDA<br>missing<br>full test<br>range | RxD Errors<br>detected<br>up to CW<br>=< -60 dBm<br>(J/S = -3.2 dB) |     |      |     |      |     |      |     |      |
|------------------------------------------------------------------------------------------------------------------------------|-----|-------|-----|-------|-----|-------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------------|----------------------------------------------|--------------------------------------|---------------------------------------------------------------------|-----|------|-----|------|-----|------|-----|------|
| Uncorrected Interference level dialed at CW generator                                                                        |     |       | H   |       | I   |       | J   |      | K   |      | L   |      | M   |      | N   |      | O   |            |                                              |                                      |                                                                     | P   |      | Q   |      | R   |      | S   |      |
| True CW interference level at receiver input (dBm)                                                                           |     |       | -60 |       | -59 |       | -58 |      | -57 |      | -56 |      | -55 |      | -54 |      | -53 |            |                                              |                                      |                                                                     | -52 |      | -51 |      | -50 |      | -49 |      |
| J/S ratio (dB)                                                                                                               | -11 | #PDA  | -10 | #PDA  | -9  | #PDA  | -8  | #PDA | -7  | #PDA | -6  | #PDA | -5  | #PDA | -4  | #PDA | -3  | #PDA       |                                              |                                      |                                                                     | -2  | #PDA | -1  | #PDA | 0   | #PDA | 1   | #PDA |
| Frequency (Hz)                                                                                                               |     |       |     |       |     |       |     |      |     |      |     |      |     |      |     |      |     |            |                                              |                                      |                                                                     |     |      |     |      |     |      |     |      |
| 240900000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 50000      | OK, 0 RxD errors                             | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 240905000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 50000      | OK, 0 RxD errors                             | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 240910000                                                                                                                    | 8   | 49999 | -1  | -1    | -1  | -1    | -1  | -1   | -1  | -1   | -1  | -1   | -1  | -1   | -1  | -1   | -1  | -1         | RxD errors                                   | PDA errors                           | 1                                                                   |     |      |     |      |     |      |     |      |
| 240915000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 1   | 50000      | RxD errors                                   | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 240920000                                                                                                                    | 5   | 50000 | -1  | -1    | -1  | -1    | -1  | -1   | -1  | -1   | -1  | -1   | -1  | -1   | -1  | -1   | -1  | -1         | RxD errors                                   | PDA errors                           | 1                                                                   |     |      |     |      |     |      |     |      |
| 240925000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 2   | 50000      | RxD errors                                   | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 240930000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 50000      | OK, 0 RxD errors                             | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 240935000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 50000      | OK, 0 RxD errors                             | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 240940000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 50000      | OK, 0 RxD errors                             | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 240945000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 1   | 50000      | RxD errors                                   | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 240950000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 3   | 50000      | RxD errors                                   | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 240955000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 2   | 50000      | RxD errors                                   | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 240960000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 1   | 50000      | RxD errors                                   | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 240965000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 50000      | OK, 0 RxD errors                             | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 240970000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 2   | 49999      | RxD errors                                   | PDA errors                           | 0                                                                   |     |      |     |      |     |      |     |      |
| 240975000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 50000      | OK, 0 RxD errors                             | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 240980000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 50000      | OK, 0 RxD errors                             | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 240985000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 50000      | OK, 0 RxD errors                             | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 240990000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 50000      | OK, 0 RxD errors                             | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 240995000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 50000      | OK, 0 RxD errors                             | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 241000000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 1   | 50000      | RxD errors                                   | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 241005000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 50000      | OK, 0 RxD errors                             | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 241010000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 50000      | OK, 0 RxD errors                             | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 241015000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 1   | 50000      | RxD errors                                   | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 241020000                                                                                                                    | 0   | 1000  | 6   | 50000 | 1   | 50000 | -1  | -1   | -1  | -1   | -1  | -1   | -1  | -1   | -1  | -1   | -1  | RxD errors | PDA errors                                   | 1                                    |                                                                     |     |      |     |      |     |      |     |      |
| 241025000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 50000      | OK, 0 RxD errors                             | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 241030000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 1   | 50000      | RxD errors                                   | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 241035000                                                                                                                    | 3   | 50000 | -1  | -1    | -1  | -1    | -1  | -1   | -1  | -1   | -1  | -1   | -1  | -1   | -1  | -1   | -1  | RxD errors | PDA errors                                   | 1                                    |                                                                     |     |      |     |      |     |      |     |      |
| 241040000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 50000      | OK, 0 RxD errors                             | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 241045000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 50000      | OK, 0 RxD errors                             | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |
| 241050000                                                                                                                    | 0   | 1000  | 0   | 1000  | 0   | 1000  | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 1000 | 0   | 50000      | OK, 0 RxD errors                             | OK, No PDA errors                    | 0                                                                   |     |      |     |      |     |      |     |      |