

```
#####  
#  
#           Results of RawTest           #  
#  
#####
```

date, time: 10/28/2007, 11:34:45  
tested file: cm220.dat  
size of file: 10240000 bytes

```
*****  
*  
*           Results of the frequency test           *  
*  
*****
```

test scope: first 10240000 bytes  
relative frequency of bit 1: 0.50094215

block length L = 2: chi^2 = 2.9679, p-value = 0.39660358  
block length L = 3: chi^2 = 18.1635, p-value = 0.01125388  
block length L = 4: chi^2 = 13.2173, p-value = 0.58551634

```
*****  
*  
*           Results of the serial test           *  
*  
*****
```

test scope: first 10000000 bytes  
relative frequency of bit 1: 0.50096410

block length L = 2: chi^2 = 4.1795, p-value = 0.12372024  
block length L = 3: chi^2 = 9.0339, p-value = 0.06025705  
block length L = 4: chi^2 = 14.3744, p-value = 0.07251435

```
*****  
*  
*           Results of the modular monobit test           *  
*  
*****
```

test scope: first 10240000 bytes  
relative frequency of bit 1: 0.50094215

modular monobit test for block length L = 3:  
bit 0: rf = 0.50080742, chi^2 = 1.98267843, p-value = 0.15910852  
bit 1: rf = 0.50096116, chi^2 = 0.03945741, p-value = 0.84254522  
bit 2: rf = 0.50105784, chi^2 = 1.46181455, p-value = 0.22664163

modular monobit test for block length L = 4:  
bit 0: rf = 0.50096196, chi^2 = 0.03215501, p-value = 0.85768787  
bit 1: rf = 0.50099907, chi^2 = 0.26542537, p-value = 0.60641711  
bit 2: rf = 0.50100586, chi^2 = 0.33249582, p-value = 0.56419314  
bit 3: rf = 0.50080171, chi^2 = 1.61578973, p-value = 0.20367985

modular monobit test for block length L = 5:  
bit 0: rf = 0.50088666, chi^2 = 0.20181826, p-value = 0.65325719  
bit 1: rf = 0.50088043, chi^2 = 0.24964089, p-value = 0.61732805  
bit 2: rf = 0.50078888, chi^2 = 1.53958687, p-value = 0.21467931  
bit 3: rf = 0.50106750, chi^2 = 1.02981187, p-value = 0.31020286  
bit 4: rf = 0.50108728, chi^2 = 1.38035960, p-value = 0.24003990

modular monobit test for block length L = 6:

bit 0: rf = 0.50085924, chi^2 = 0.37541832, p-value = 0.54006553  
bit 1: rf = 0.50100763, chi^2 = 0.23415217, p-value = 0.62846200  
bit 2: rf = 0.50117777, chi^2 = 3.03197110, p-value = 0.08163878  
bit 3: rf = 0.50075560, chi^2 = 1.90055584, p-value = 0.16801612  
bit 4: rf = 0.50091469, chi^2 = 0.04119881, p-value = 0.83915465  
bit 5: rf = 0.50093790, chi^2 = 0.00098554, p-value = 0.97495588

modular monobit test for block length L = 7:

bit 0: rf = 0.50079968, chi^2 = 0.95022583, p-value = 0.32966182  
bit 1: rf = 0.50090640, chi^2 = 0.05982239, p-value = 0.80677689  
bit 2: rf = 0.50088060, chi^2 = 0.17736389, p-value = 0.67364853  
bit 3: rf = 0.50094545, chi^2 = 0.00051040, p-value = 0.98197569  
bit 4: rf = 0.50091725, chi^2 = 0.02901487, p-value = 0.86474472  
bit 5: rf = 0.50119702, chi^2 = 3.04069025, p-value = 0.08120138  
bit 6: rf = 0.50094861, chi^2 = 0.00195572, p-value = 0.96472622

modular monobit test for block length L = 8:

bit 0: rf = 0.50110391, chi^2 = 1.07171402, p-value = 0.30055861  
bit 1: rf = 0.50105879, chi^2 = 0.55724090, p-value = 0.45537407  
bit 2: rf = 0.50113516, chi^2 = 1.52580938, p-value = 0.21674247  
bit 3: rf = 0.50073369, chi^2 = 1.77993753, p-value = 0.18215700  
bit 4: rf = 0.50082002, chi^2 = 0.61096424, p-value = 0.43442499  
bit 5: rf = 0.50093936, chi^2 = 0.00032008, p-value = 0.98572608  
bit 6: rf = 0.50087656, chi^2 = 0.17620381, p-value = 0.67465613  
bit 7: rf = 0.50086973, chi^2 = 0.21484750, p-value = 0.64299423

modular monobit test for block length L = 9:

bit 0: rf = 0.50062380, chi^2 = 3.68986857, p-value = 0.05474393  
bit 1: rf = 0.50114467, chi^2 = 1.49321369, p-value = 0.22171851  
bit 2: rf = 0.50106490, chi^2 = 0.54863029, p-value = 0.45887790  
bit 3: rf = 0.50079838, chi^2 = 0.75261358, p-value = 0.38565001  
bit 4: rf = 0.50097855, chi^2 = 0.04824418, p-value = 0.82614719  
bit 5: rf = 0.50108589, chi^2 = 0.75223071, p-value = 0.38577089  
bit 6: rf = 0.50100009, chi^2 = 0.12220385, p-value = 0.72665642  
bit 7: rf = 0.50076025, chi^2 = 1.20464702, p-value = 0.27239486  
bit 8: rf = 0.50102272, chi^2 = 0.23632910, p-value = 0.62687009

modular monobit test for block length L = 10:

bit 0: rf = 0.50093469, chi^2 = 0.00182286, p-value = 0.96594467  
bit 1: rf = 0.50068237, chi^2 = 2.21134067, p-value = 0.13699957  
bit 2: rf = 0.50071362, chi^2 = 1.71131389, p-value = 0.19081499  
bit 3: rf = 0.50098694, chi^2 = 0.06573051, p-value = 0.79765772  
bit 4: rf = 0.50104468, chi^2 = 0.34445045, p-value = 0.55727154  
bit 5: rf = 0.50083862, chi^2 = 0.35120906, p-value = 0.55342950  
bit 6: rf = 0.50107849, chi^2 = 0.60911623, p-value = 0.43512076  
bit 7: rf = 0.50086414, chi^2 = 0.19943860, p-value = 0.65517437  
bit 8: rf = 0.50114807, chi^2 = 1.38947349, p-value = 0.23849403  
bit 9: rf = 0.50112988, chi^2 = 1.15485586, p-value = 0.28253495

```
*****
*
*           Results of the autocorrelation test           *
*
*****
```

test scope: first 10000000 bytes  
relative frequency of bit 1: 0.50096410

bit shift d = 1: chi^2 = 4.17900774, p-value = 0.04092766  
bit shift d = 2: chi^2 = 4.26861973, p-value = 0.03882245  
bit shift d = 3: chi^2 = 1.10789520, p-value = 0.29253994  
bit shift d = 4: chi^2 = 0.84572259, p-value = 0.35776522

```
*****
*
*           Results of the dependency test           *
*
*****
```

test scope: first 10240000 bytes  
relative frequency of bit 1: 0.50094215

dependency test for block length L = 3:

bit place 1 if bit 0 = 0:  
rf = 0.50104876, chi<sup>2</sup> = 0.61975445, p-value = 0.43113855  
bit place 1 if bit 0 = 1:  
rf = 0.50087387, chi<sup>2</sup> = 0.25503748, p-value = 0.61355016  
bit place 2 if bit 1 = 0:  
rf = 0.50129008, chi<sup>2</sup> = 6.59842662, p-value = 0.01020689  
bit place 2 if bit 1 = 1:  
rf = 0.50082652, chi<sup>2</sup> = 0.73156356, p-value = 0.39237685  
bit place 3 if bit 2 = 0:  
rf = 0.50081229, chi<sup>2</sup> = 0.91904689, p-value = 0.33772535  
bit place 3 if bit 2 = 1:  
rf = 0.50080254, chi<sup>2</sup> = 1.06676643, p-value = 0.30167698

dependency test for block length L = 4:

bit place 1 if bit 0 = 0:  
rf = 0.50110055, chi<sup>2</sup> = 1.02578893, p-value = 0.31114978  
bit place 1 if bit 0 = 1:  
rf = 0.50089803, chi<sup>2</sup> = 0.07989536, p-value = 0.77743927  
bit place 2 if bit 1 = 0:  
rf = 0.50115622, chi<sup>2</sup> = 1.87321341, p-value = 0.17110750  
bit place 2 if bit 1 = 1:  
rf = 0.50085605, chi<sup>2</sup> = 0.30423681, p-value = 0.58123843  
bit place 3 if bit 2 = 0:  
rf = 0.50094262, chi<sup>2</sup> = 0.00000896, p-value = 0.99761227  
bit place 3 if bit 2 = 1:  
rf = 0.50066132, chi<sup>2</sup> = 3.23694874, p-value = 0.07199460  
bit place 4 if bit 3 = 0:  
rf = 0.50100214, chi<sup>2</sup> = 0.14718616, p-value = 0.70123900  
bit place 4 if bit 3 = 1:  
rf = 0.50092186, chi<sup>2</sup> = 0.01688814, p-value = 0.89660253

dependency test for block length L = 5:

bit place 1 if bit 0 = 0:  
rf = 0.50093819, chi<sup>2</sup> = 0.00051388, p-value = 0.98191428  
bit place 1 if bit 0 = 1:  
rf = 0.50082294, chi<sup>2</sup> = 0.46648143, p-value = 0.49461034  
bit place 2 if bit 1 = 0:  
rf = 0.50093059, chi<sup>2</sup> = 0.00436897, p-value = 0.94729966  
bit place 2 if bit 1 = 1:  
rf = 0.50064772, chi<sup>2</sup> = 2.84557399, p-value = 0.09162587  
bit place 3 if bit 2 = 0:  
rf = 0.50116835, chi<sup>2</sup> = 1.67393113, p-value = 0.19573282  
bit place 3 if bit 2 = 1:  
rf = 0.50096692, chi<sup>2</sup> = 0.02013406, p-value = 0.88716331  
bit place 4 if bit 3 = 0:  
rf = 0.50110649, chi<sup>2</sup> = 0.88307260, p-value = 0.34736150  
bit place 4 if bit 3 = 1:  
rf = 0.50106809, chi<sup>2</sup> = 0.52086067, p-value = 0.47047477  
bit place 5 if bit 4 = 0:  
rf = 0.50110837, chi<sup>2</sup> = 0.90334492, p-value = 0.34188640  
bit place 5 if bit 4 = 1:  
rf = 0.50066585, chi<sup>2</sup> = 2.50703766, p-value = 0.11333880

dependency test for block length L = 6:

bit place 1 if bit 0 = 0:  
rf = 0.50100999, chi<sup>2</sup> = 0.12544550, p-value = 0.72320185  
bit place 1 if bit 0 = 1:  
rf = 0.50100521, chi<sup>2</sup> = 0.10875751, p-value = 0.74156315  
bit place 2 if bit 1 = 0:  
rf = 0.50122598, chi<sup>2</sup> = 2.19539383, p-value = 0.13842383  
bit place 2 if bit 1 = 1:  
rf = 0.50112983, chi<sup>2</sup> = 0.96375398, p-value = 0.32624287  
bit place 3 if bit 2 = 0:  
rf = 0.50070045, chi<sup>2</sup> = 1.59143472, p-value = 0.20712127  
bit place 3 if bit 2 = 1:  
rf = 0.50081057, chi<sup>2</sup> = 0.47391682, p-value = 0.49119075  
bit place 4 if bit 3 = 0:  
rf = 0.50108746, chi<sup>2</sup> = 0.57569581, p-value = 0.44800439  
bit place 4 if bit 3 = 1:  
rf = 0.50074251, chi<sup>2</sup> = 1.09004130, p-value = 0.29646206  
bit place 5 if bit 4 = 0:  
rf = 0.50135416, chi<sup>2</sup> = 4.62693032, p-value = 0.03147383  
bit place 5 if bit 4 = 1:

rf = 0.50052324,  $\chi^2$  = 4.80079496, p-value = 0.02844661  
bit place 6 if bit 5 = 0:  
rf = 0.50092415,  $\chi^2$  = 0.00883579, p-value = 0.92511003  
bit place 6 if bit 5 = 1:  
rf = 0.50079451,  $\chi^2$  = 0.59637882, p-value = 0.43996302

dependency test for block length L = 7:

bit place 1 if bit 0 = 0:  
rf = 0.50081589,  $\chi^2$  = 0.37251946, p-value = 0.54163414  
bit place 1 if bit 0 = 1:  
rf = 0.50099654,  $\chi^2$  = 0.06934544, p-value = 0.79229221  
bit place 2 if bit 1 = 0:  
rf = 0.50094191,  $\chi^2$  = 0.00000141, p-value = 0.99905272  
bit place 2 if bit 1 = 1:  
rf = 0.50081960,  $\chi^2$  = 0.35218567, p-value = 0.55287848  
bit place 3 if bit 2 = 0:  
rf = 0.50101830,  $\chi^2$  = 0.13547502, p-value = 0.71282155  
bit place 3 if bit 2 = 1:  
rf = 0.50087295,  $\chi^2$  = 0.11228257, p-value = 0.73756028  
bit place 4 if bit 3 = 0:  
rf = 0.50118854,  $\chi^2$  = 1.41821276, p-value = 0.23369780  
bit place 4 if bit 3 = 1:  
rf = 0.50064708,  $\chi^2$  = 2.04172648, p-value = 0.15303587  
bit place 5 if bit 4 = 0:  
rf = 0.50121809,  $\chi^2$  = 1.77892647, p-value = 0.18228120  
bit place 5 if bit 4 = 1:  
rf = 0.50117610,  $\chi^2$  = 1.28341956, p-value = 0.25726419  
bit place 6 if bit 5 = 0:  
rf = 0.50112438,  $\chi^2$  = 0.77541929, p-value = 0.37854576  
bit place 6 if bit 5 = 1:  
rf = 0.50077360,  $\chi^2$  = 0.66653930, p-value = 0.41426077  
bit place 7 if bit 6 = 0:  
rf = 0.50104575,  $\chi^2$  = 0.25071442, p-value = 0.61657248  
bit place 7 if bit 6 = 1:  
rf = 0.50055445,  $\chi^2$  = 3.52478118, p-value = 0.06045781

dependency test for block length L = 8:

bit place 1 if bit 0 = 0:  
rf = 0.50114814,  $\chi^2$  = 0.86708663, p-value = 0.35176312  
bit place 1 if bit 0 = 1:  
rf = 0.50096973,  $\chi^2$  = 0.01561624, p-value = 0.90055131  
bit place 2 if bit 1 = 0:  
rf = 0.50134347,  $\chi^2$  = 3.29147348, p-value = 0.06964050  
bit place 2 if bit 1 = 1:  
rf = 0.50092782,  $\chi^2$  = 0.00421463, p-value = 0.94823757  
bit place 3 if bit 2 = 0:  
rf = 0.50071070,  $\chi^2$  = 1.09465740, p-value = 0.29544158  
bit place 3 if bit 2 = 1:  
rf = 0.50075668,  $\chi^2$  = 0.70609853, p-value = 0.40074205  
bit place 4 if bit 3 = 0:  
rf = 0.50080509,  $\chi^2$  = 0.38418001, p-value = 0.53537461  
bit place 4 if bit 3 = 1:  
rf = 0.50083501,  $\chi^2$  = 0.23546028, p-value = 0.62750434  
bit place 5 if bit 4 = 0:  
rf = 0.50105290,  $\chi^2$  = 0.25077851, p-value = 0.61652743  
bit place 5 if bit 4 = 1:  
rf = 0.50082628,  $\chi^2$  = 0.27541012, p-value = 0.59972549  
bit place 6 if bit 5 = 0:  
rf = 0.50096901,  $\chi^2$  = 0.01474481, p-value = 0.90335186  
bit place 6 if bit 5 = 1:  
rf = 0.50078437,  $\chi^2$  = 0.51082959, p-value = 0.47477995  
bit place 7 if bit 6 = 0:  
rf = 0.50117452,  $\chi^2$  = 1.10389140, p-value = 0.29341369  
bit place 7 if bit 6 = 1:  
rf = 0.50056590,  $\chi^2$  = 2.90429876, p-value = 0.08834367  
bit place 8 if bit 7 = 0:  
rf = 0.50119935,  $\chi^2$  = 1.35244801, p-value = 0.24485061  
bit place 8 if bit 7 = 1:  
rf = 0.50100869,  $\chi^2$  = 0.09084551, p-value = 0.76310500

dependency test for block length L = 9:

bit place 1 if bit 0 = 0:  
rf = 0.50120330,  $\chi^2$  = 1.23993706, p-value = 0.26548318  
bit place 1 if bit 0 = 1:  
rf = 0.50108629,  $\chi^2$  = 0.37869803, p-value = 0.53830086

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bit place 2 if bit 1 = 0:
rf = 0.50140232, chi^2 = 3.84607437, p-value = 0.04986257
bit place 2 if bit 1 = 1:
rf = 0.50072914, chi^2 = 0.82788547, p-value = 0.36288468
bit place 3 if bit 2 = 0:
rf = 0.50066312, chi^2 = 1.41436172, p-value = 0.23433367
bit place 3 if bit 2 = 1:
rf = 0.50093317, chi^2 = 0.00147183, p-value = 0.96939715
bit place 4 if bit 3 = 0:
rf = 0.50104438, chi^2 = 0.18994875, p-value = 0.66295928
bit place 4 if bit 3 = 1:
rf = 0.50091282, chi^2 = 0.01568133, p-value = 0.90034532
bit place 5 if bit 4 = 0:
rf = 0.50114856, chi^2 = 0.77409036, p-value = 0.37895463
bit place 5 if bit 4 = 1:
rf = 0.50102357, chi^2 = 0.12091739, p-value = 0.72804163
bit place 6 if bit 5 = 0:
rf = 0.50107262, chi^2 = 0.30919731, p-value = 0.57817317
bit place 6 if bit 5 = 1:
rf = 0.50092798, chi^2 = 0.00366503, p-value = 0.95172595
bit place 7 if bit 6 = 0:
rf = 0.50089839, chi^2 = 0.03478994, p-value = 0.85203650
bit place 7 if bit 6 = 1:
rf = 0.50062278, chi^2 = 1.86055877, p-value = 0.17256032
bit place 8 if bit 7 = 0:
rf = 0.50131949, chi^2 = 2.58806371, p-value = 0.10767189
bit place 8 if bit 7 = 1:
rf = 0.50072696, chi^2 = 0.84429075, p-value = 0.35817249
bit place 9 if bit 8 = 0:
rf = 0.50070137, chi^2 = 1.05322242, p-value = 0.30476610
bit place 9 if bit 8 = 1:
rf = 0.50054644, chi^2 = 2.85640894, p-value = 0.09101047

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dependency test for block length L = 10:

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bit place 1 if bit 0 = 0:
rf = 0.50076633, chi^2 = 0.50556006, p-value = 0.47706722
bit place 1 if bit 0 = 1:
rf = 0.50059886, chi^2 = 1.93449228, p-value = 0.16426780
bit place 2 if bit 1 = 0:
rf = 0.50073183, chi^2 = 0.72373056, p-value = 0.39492294
bit place 2 if bit 1 = 1:
rf = 0.50069558, chi^2 = 0.99743265, p-value = 0.31793253
bit place 3 if bit 2 = 0:
rf = 0.50130252, chi^2 = 2.12467566, p-value = 0.14494346
bit place 3 if bit 2 = 1:
rf = 0.50067214, chi^2 = 1.19623084, p-value = 0.27407632
bit place 4 if bit 3 = 0:
rf = 0.50119193, chi^2 = 1.02016026, p-value = 0.31248100
bit place 4 if bit 3 = 1:
rf = 0.50089813, chi^2 = 0.03181265, p-value = 0.85843947
bit place 5 if bit 4 = 0:
rf = 0.50088845, chi^2 = 0.04714376, p-value = 0.82811005
bit place 5 if bit 4 = 1:
rf = 0.50078912, chi^2 = 0.38447721, p-value = 0.53521680
bit place 6 if bit 5 = 0:
rf = 0.50111014, chi^2 = 0.46158054, p-value = 0.49688623
bit place 6 if bit 5 = 1:
rf = 0.50104707, chi^2 = 0.18066521, p-value = 0.67080219
bit place 7 if bit 6 = 0:
rf = 0.50112963, chi^2 = 0.57465688, p-value = 0.44841431
bit place 7 if bit 6 = 1:
rf = 0.50059990, chi^2 = 1.92327116, p-value = 0.16549650
bit place 8 if bit 7 = 0:
rf = 0.50103401, chi^2 = 0.13802296, p-value = 0.71025443
bit place 8 if bit 7 = 1:
rf = 0.50126161, chi^2 = 1.67498764, p-value = 0.19559181
bit place 9 if bit 8 = 0:
rf = 0.50102102, chi^2 = 0.10168339, p-value = 0.74981878
bit place 9 if bit 8 = 1:
rf = 0.50123812, chi^2 = 1.43854196, p-value = 0.23037543
bit place 10 if bit 9 = 0:
rf = 0.50132844, chi^2 = 2.43931066, p-value = 0.11832822
bit place 10 if bit 9 = 1:
rf = 0.50054260, chi^2 = 2.62151212, p-value = 0.10542393

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