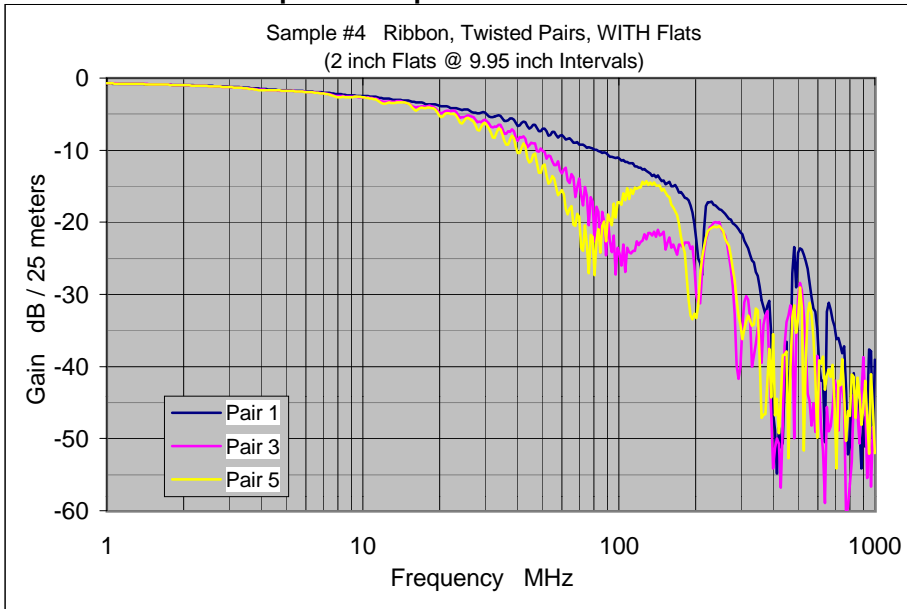
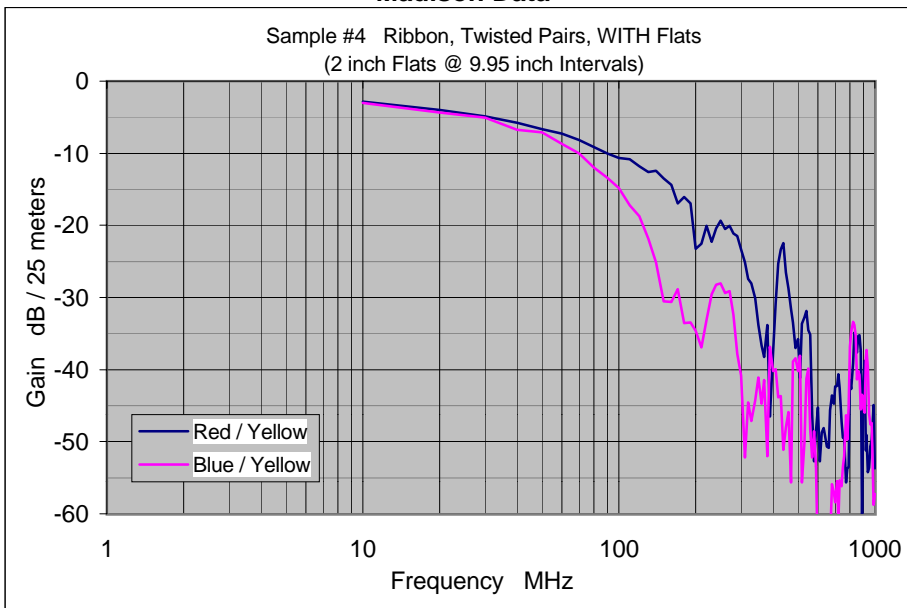


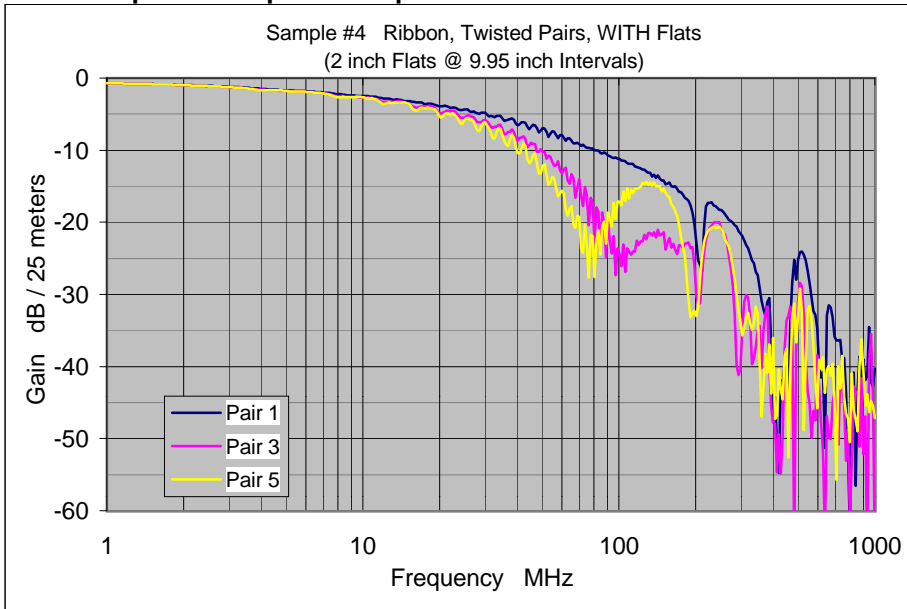
### Spectra-Strip Data - Normalized



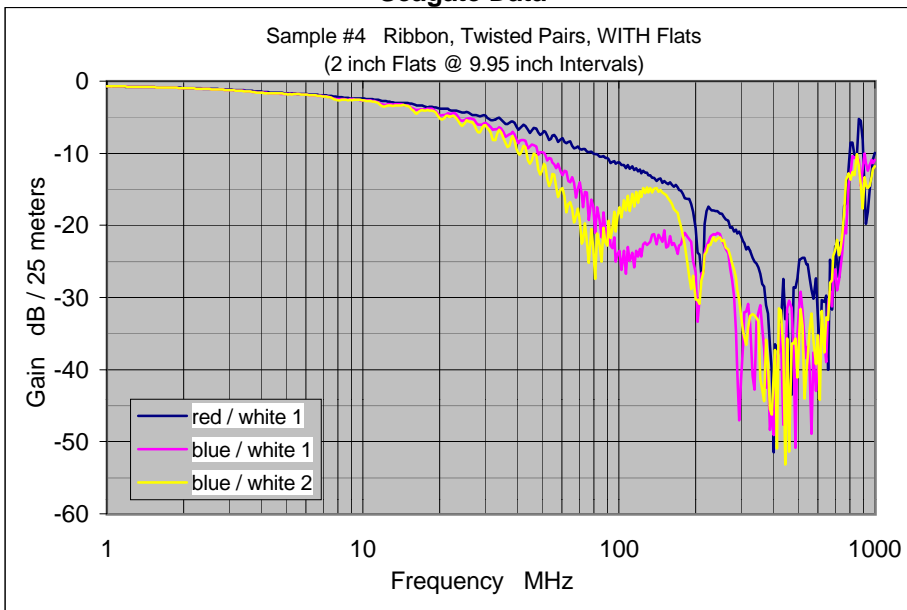
### Madison Data



### Spectra-Strip Data - 2 port Calibration then Normalized

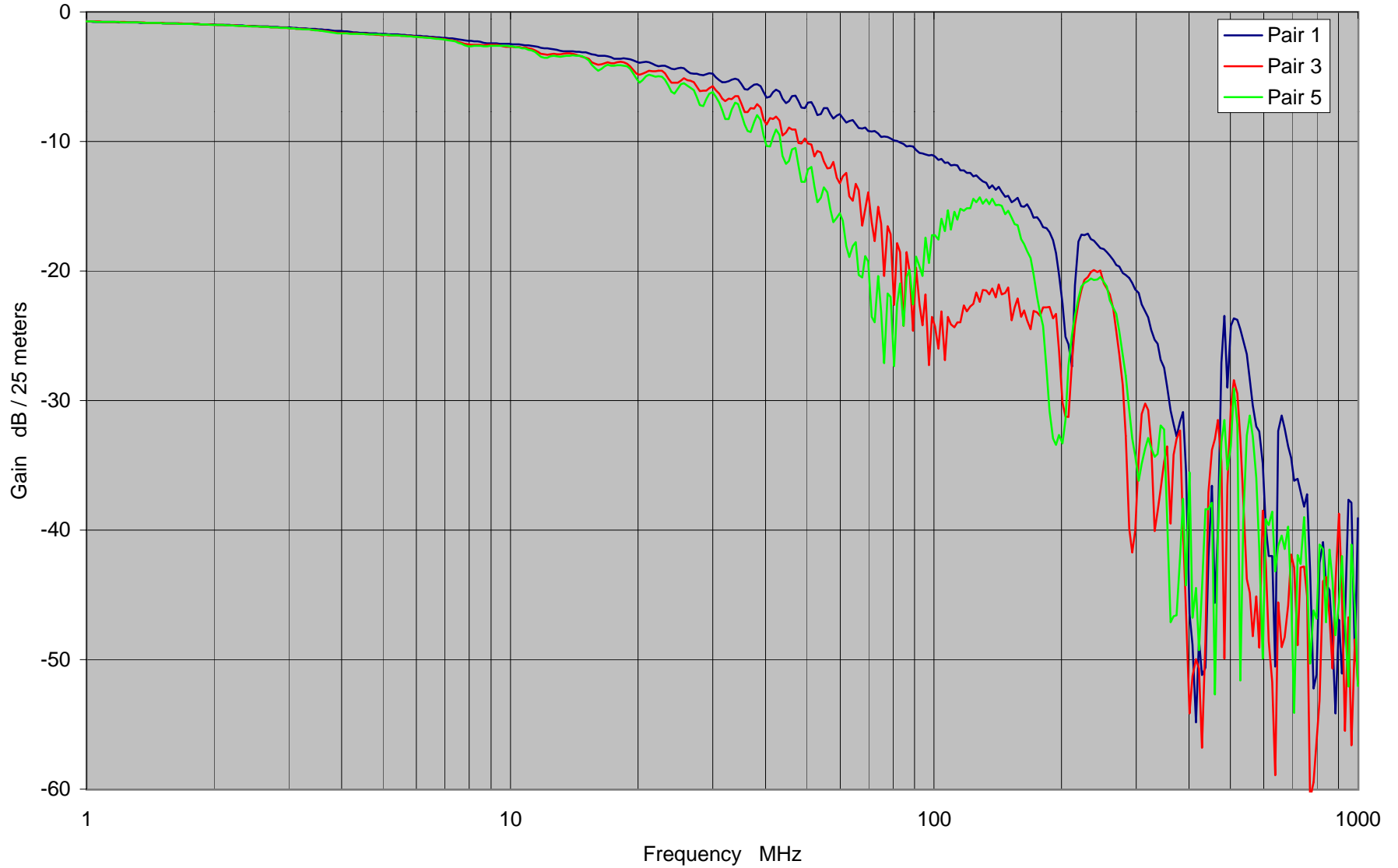


### Seagate Data



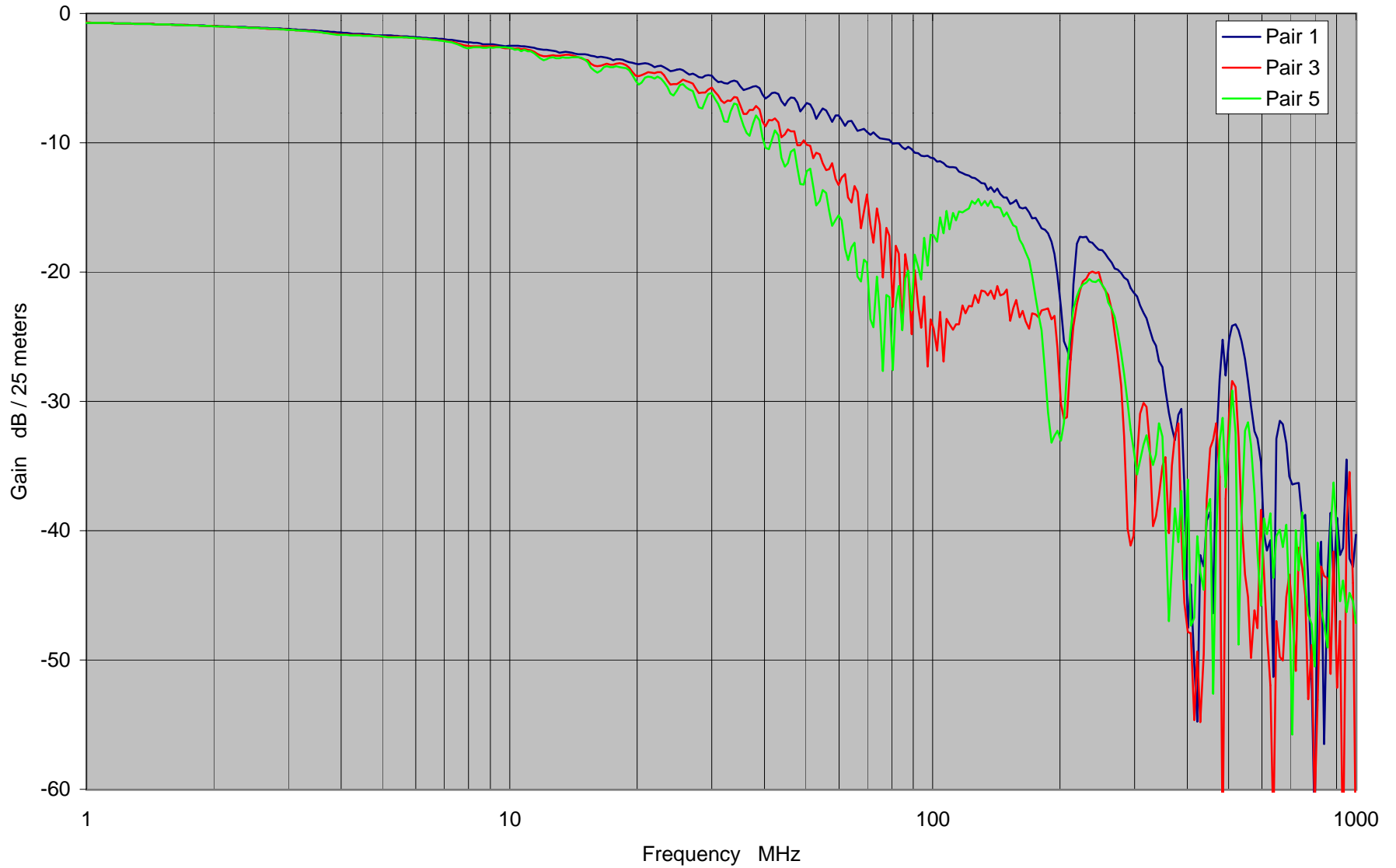
"ATTENUATION"  
Normalized Only

Sample #4 Ribbon, Twisted Pairs, WITH Flats (2 inch Flats @ 9.95 inch Intervals)



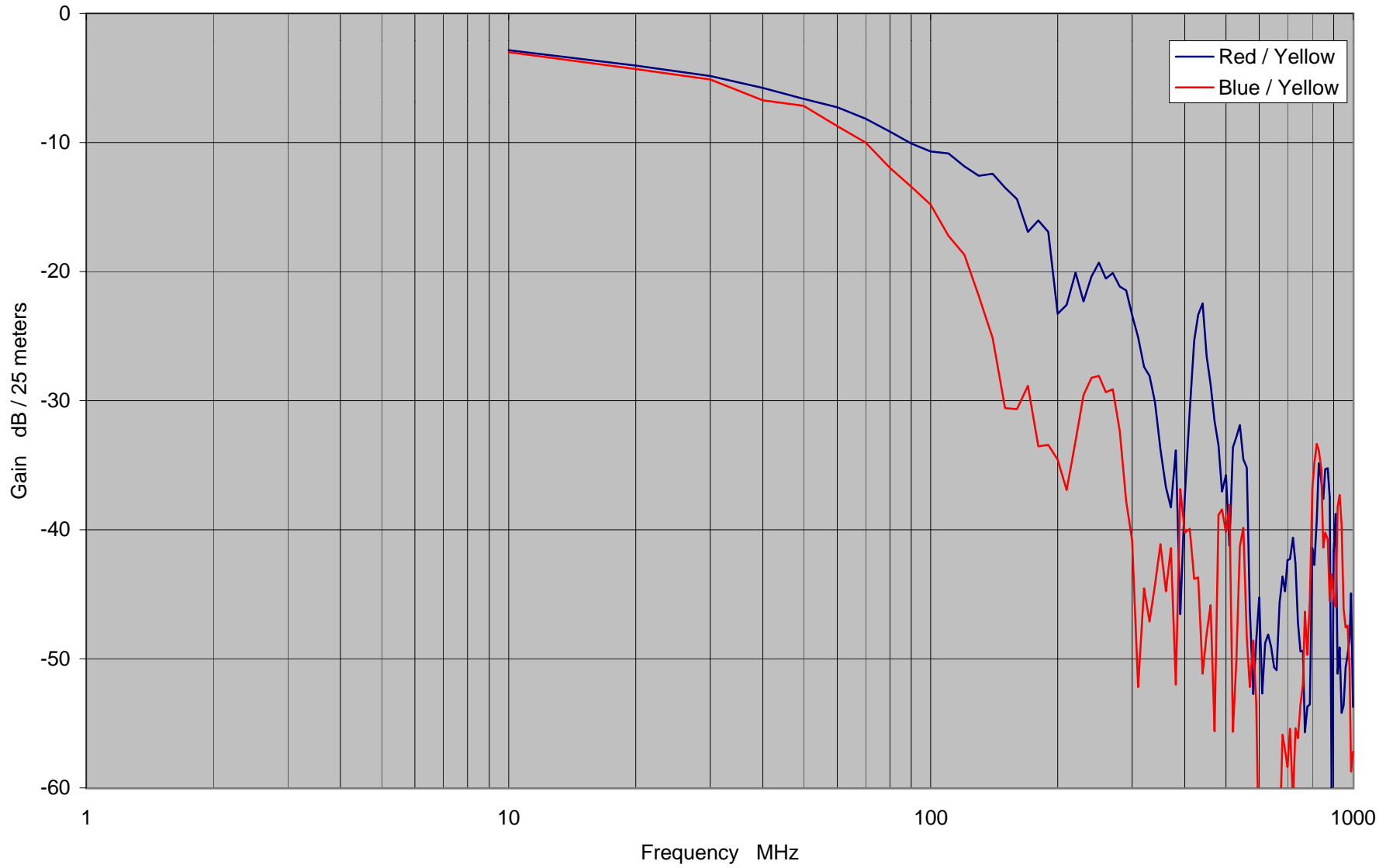
"ATTENUATION"  
2 Port Calibration

Sample #4 Ribbon, Twisted Pairs, WITH Flats (2 inch Flats @ 9.95 inch Intervals)



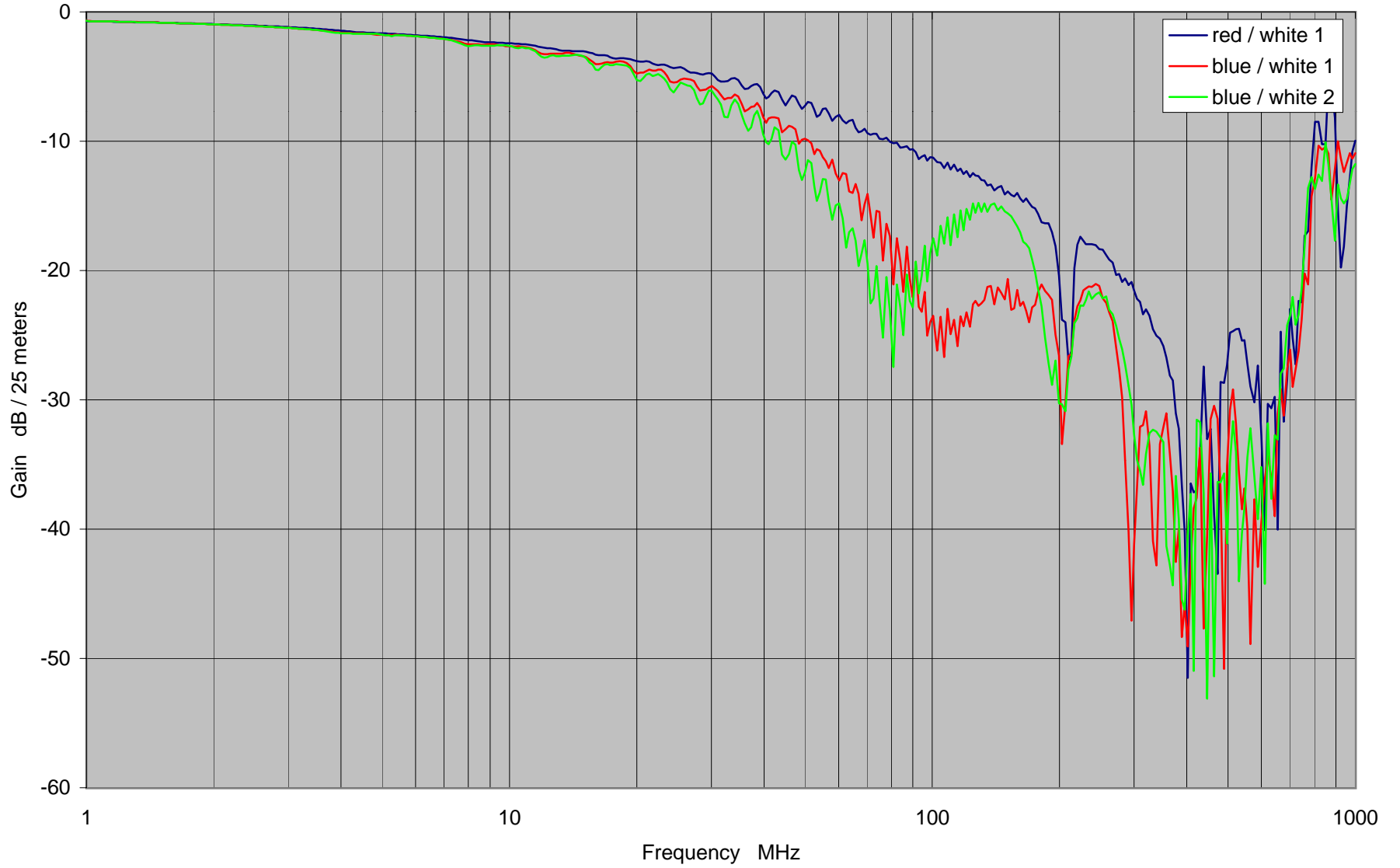
"ATTENUATION"

Sample #4 Ribbon, Twisted Pairs, WITH Flats (2 inch Flats @ 9.95 inch Intervals)



"ATTENUATION"

Sample #4 Ribbon, Twisted Pairs, WITH Flats (2 inch Flats @ 9.95 inch Intervals)



SAVED BY:  
TITLE:  
COMMENTS:  
DATE: 2/12/01  
TIME: 8:17 AM

Freq MHz	Pair 1	Pair 3	Pair 5
1.00	-0.74	-0.73	-0.73
1.02	-0.75	-0.73	-0.74
1.04	-0.75	-0.73	-0.75
1.05	-0.76	-0.74	-0.75
1.07	-0.76	-0.75	-0.75
1.09	-0.77	-0.75	-0.76
1.11	-0.77	-0.76	-0.76
1.13	-0.77	-0.76	-0.77
1.15	-0.78	-0.77	-0.78
1.17	-0.79	-0.77	-0.78
1.19	-0.79	-0.78	-0.79
1.21	-0.80	-0.78	-0.79
1.23	-0.80	-0.79	-0.80
1.25	-0.81	-0.79	-0.80
1.27	-0.81	-0.80	-0.81
1.30	-0.82	-0.80	-0.81
1.32	-0.82	-0.81	-0.82
1.34	-0.83	-0.82	-0.83
1.36	-0.83	-0.82	-0.83
1.39	-0.84	-0.83	-0.84
1.41	-0.85	-0.83	-0.84
1.44	-0.85	-0.84	-0.85
1.46	-0.86	-0.85	-0.86
1.49	-0.86	-0.85	-0.86
1.51	-0.87	-0.86	-0.87
1.54	-0.88	-0.87	-0.88
1.57	-0.88	-0.88	-0.88
1.59	-0.89	-0.88	-0.89
1.62	-0.90	-0.89	-0.90
1.65	-0.90	-0.90	-0.91
1.68	-0.91	-0.90	-0.92
1.71	-0.92	-0.91	-0.92
1.74	-0.92	-0.92	-0.93
1.77	-0.93	-0.93	-0.94
1.80	-0.94	-0.93	-0.95
1.83	-0.94	-0.94	-0.96
1.86	-0.95	-0.95	-0.96
1.89	-0.96	-0.96	-0.97
1.93	-0.96	-0.97	-0.98
1.96	-0.97	-0.98	-0.99
2.00	-0.98	-0.99	-1.00
2.03	-0.99	-1.00	-1.00
2.07	-0.99	-1.00	-1.01

2.10	-1.00	-1.01	-1.02
2.14	-1.01	-1.02	-1.03
2.18	-1.02	-1.03	-1.04
2.21	-1.03	-1.04	-1.05
2.25	-1.04	-1.05	-1.06
2.29	-1.04	-1.06	-1.07
2.33	-1.05	-1.07	-1.08
2.37	-1.06	-1.08	-1.09
2.41	-1.07	-1.09	-1.10
2.45	-1.08	-1.11	-1.11
2.50	-1.09	-1.12	-1.12
2.54	-1.10	-1.13	-1.13
2.59	-1.11	-1.14	-1.14
2.63	-1.12	-1.15	-1.16
2.68	-1.13	-1.17	-1.17
2.72	-1.14	-1.18	-1.18
2.77	-1.15	-1.19	-1.19
2.82	-1.16	-1.21	-1.21
2.87	-1.18	-1.22	-1.22
2.92	-1.18	-1.23	-1.24
2.97	-1.20	-1.25	-1.25
3.02	-1.21	-1.26	-1.26
3.07	-1.22	-1.28	-1.28
3.13	-1.24	-1.29	-1.29
3.18	-1.25	-1.31	-1.31
3.24	-1.26	-1.33	-1.33
3.29	-1.28	-1.34	-1.35
3.35	-1.29	-1.36	-1.37
3.41	-1.31	-1.38	-1.39
3.47	-1.32	-1.40	-1.41
3.53	-1.34	-1.42	-1.43
3.59	-1.36	-1.45	-1.47
3.65	-1.38	-1.48	-1.50
3.72	-1.40	-1.51	-1.54
3.78	-1.42	-1.54	-1.58
3.85	-1.44	-1.58	-1.62
3.91	-1.46	-1.60	-1.65
3.98	-1.48	-1.61	-1.65
4.05	-1.50	-1.62	-1.66
4.12	-1.52	-1.63	-1.67
4.19	-1.54	-1.65	-1.68
4.27	-1.57	-1.66	-1.70
4.34	-1.59	-1.67	-1.71
4.42	-1.61	-1.67	-1.71
4.49	-1.62	-1.68	-1.71
4.57	-1.63	-1.69	-1.72
4.65	-1.65	-1.72	-1.73
4.73	-1.66	-1.75	-1.73
4.81	-1.67	-1.77	-1.73
4.90	-1.68	-1.79	-1.75
4.98	-1.69	-1.80	-1.76



5.07	-1.70	-1.78	-1.78
5.16	-1.72	-1.81	-1.79
5.25	-1.72	-1.80	-1.81
5.34	-1.74	-1.82	-1.81
5.43	-1.75	-1.81	-1.82
5.53	-1.77	-1.84	-1.85
5.62	-1.78	-1.84	-1.86
5.72	-1.80	-1.86	-1.87
5.82	-1.81	-1.88	-1.89
5.92	-1.83	-1.90	-1.91
6.03	-1.84	-1.91	-1.93
6.13	-1.86	-1.93	-1.95
6.24	-1.88	-1.95	-1.97
6.35	-1.89	-1.97	-1.99
6.46	-1.91	-2.00	-2.02
6.57	-1.93	-2.02	-2.04
6.68	-1.94	-2.04	-2.06
6.80	-1.96	-2.06	-2.09
6.92	-1.98	-2.09	-2.11
7.04	-2.00	-2.12	-2.14
7.16	-2.02	-2.15	-2.18
7.29	-2.05	-2.19	-2.23
7.41	-2.08	-2.24	-2.29
7.54	-2.11	-2.31	-2.37
7.67	-2.15	-2.39	-2.48
7.81	-2.19	-2.47	-2.59
7.94	-2.22	-2.51	-2.66
8.08	-2.24	-2.53	-2.66
8.22	-2.25	-2.53	-2.63
8.37	-2.28	-2.52	-2.61
8.51	-2.32	-2.54	-2.63
8.66	-2.37	-2.56	-2.66
8.81	-2.41	-2.55	-2.65
8.96	-2.43	-2.54	-2.63
9.12	-2.43	-2.53	-2.62
9.28	-2.44	-2.55	-2.62
9.44	-2.46	-2.59	-2.62
9.61	-2.47	-2.64	-2.61
9.77	-2.47	-2.69	-2.61
9.94	-2.47	-2.68	-2.65
10.12	-2.50	-2.68	-2.66
10.29	-2.51	-2.72	-2.72
10.47	-2.52	-2.68	-2.71
10.65	-2.54	-2.76	-2.81
10.84	-2.56	-2.73	-2.80
11.03	-2.59	-2.82	-2.93
11.22	-2.61	-2.85	-2.96
11.42	-2.65	-2.95	-3.09
11.61	-2.71	-3.09	-3.26
11.82	-2.77	-3.23	-3.45
12.02	-2.81	-3.29	-3.56

12.23	-2.82	-3.29	-3.53
12.45	-2.84	-3.26	-3.44
12.66	-2.87	-3.24	-3.39
12.88	-2.94	-3.27	-3.43
13.11	-3.01	-3.28	-3.47
13.34	-3.05	-3.24	-3.43
13.57	-3.05	-3.21	-3.38
13.80	-3.05	-3.20	-3.37
14.04	-3.05	-3.24	-3.36
14.29	-3.07	-3.30	-3.38
14.54	-3.09	-3.38	-3.39
14.79	-3.12	-3.46	-3.43
15.05	-3.13	-3.56	-3.57
15.31	-3.17	-3.62	-3.74
15.58	-3.27	-3.87	-4.08
15.85	-3.32	-4.01	-4.36
16.12	-3.39	-4.06	-4.55
16.41	-3.37	-4.03	-4.37
16.69	-3.38	-3.97	-4.21
16.98	-3.41	-3.90	-4.09
17.28	-3.50	-3.95	-4.15
17.58	-3.60	-3.96	-4.17
17.89	-3.63	-3.88	-4.12
18.20	-3.61	-3.84	-4.12
18.51	-3.59	-3.87	-4.13
18.84	-3.62	-3.99	-4.21
19.16	-3.67	-4.17	-4.38
19.50	-3.74	-4.47	-4.72
19.84	-3.85	-4.78	-5.16
20.18	-3.92	-4.86	-5.45
20.54	-3.88	-4.75	-5.28
20.89	-3.86	-4.65	-4.95
21.26	-3.88	-4.53	-4.85
21.63	-4.00	-4.56	-4.92
22.00	-4.13	-4.59	-5.01
22.39	-4.19	-4.54	-4.96
22.78	-4.15	-4.54	-5.00
23.17	-4.17	-4.74	-5.24
23.58	-4.26	-5.15	-5.67
23.99	-4.37	-5.48	-6.17
24.41	-4.40	-5.46	-6.30
24.83	-4.36	-5.46	-5.93
25.26	-4.32	-5.30	-5.58
25.70	-4.36	-5.13	-5.50
26.15	-4.56	-5.25	-5.69
26.61	-4.74	-5.32	-5.84
27.07	-4.78	-5.42	-6.05
27.54	-4.78	-5.77	-6.58
28.02	-4.85	-6.13	-7.20
28.51	-4.89	-6.08	-7.28
29.01	-4.80	-6.09	-6.75

29.51	-4.72	-5.88	-6.30
30.03	-4.78	-5.74	-6.19
30.55	-5.03	-6.02	-6.55
31.08	-5.29	-6.31	-7.00
31.62	-5.43	-6.70	-7.58
32.17	-5.40	-6.87	-8.28
32.73	-5.36	-6.71	-8.27
33.30	-5.22	-6.75	-7.54
33.88	-5.14	-6.48	-7.01
34.47	-5.22	-6.50	-7.12
35.08	-5.56	-7.05	-7.84
35.69	-5.95	-7.75	-8.68
36.31	-5.99	-7.72	-9.20
36.94	-5.81	-7.41	-9.27
37.58	-5.61	-7.44	-8.48
38.24	-5.56	-7.13	-7.95
38.90	-5.74	-7.39	-8.36
39.58	-6.19	-8.30	-9.55
40.27	-6.62	-8.69	-10.35
40.97	-6.54	-8.20	-10.40
41.69	-6.17	-8.27	-9.67
42.41	-6.00	-8.10	-9.08
43.15	-6.16	-8.40	-9.50
43.90	-6.68	-9.55	-11.11
44.67	-7.05	-9.31	-11.75
45.45	-6.88	-8.93	-11.50
46.24	-6.50	-9.09	-10.62
47.04	-6.47	-9.08	-10.51
47.86	-6.89	-10.13	-11.84
48.70	-7.38	-10.17	-13.12
49.54	-7.41	-9.77	-13.11
50.41	-7.00	-10.16	-12.13
51.29	-6.97	-10.21	-11.97
52.18	-7.38	-11.17	-13.46
53.09	-7.95	-10.73	-14.69
54.01	-7.87	-10.86	-14.34
54.95	-7.42	-11.55	-13.55
55.91	-7.43	-12.08	-13.91
56.89	-7.88	-12.04	-15.22
57.88	-8.23	-11.57	-16.25
58.88	-8.00	-12.79	-15.89
59.91	-7.87	-13.22	-15.55
60.95	-8.20	-12.68	-16.10
62.02	-8.53	-12.42	-18.09
63.10	-8.43	-14.22	-18.92
64.19	-8.34	-14.59	-18.07
65.31	-8.65	-13.27	-17.77
66.45	-8.95	-13.79	-20.32
67.61	-8.99	-16.49	-20.52
68.79	-8.91	-15.21	-18.84
69.98	-9.19	-13.94	-19.28

71.20	-9.23	-16.24	-23.54
72.44	-9.20	-17.69	-23.95
73.71	-9.39	-15.06	-20.37
74.99	-9.65	-16.34	-23.14
76.30	-9.63	-20.39	-27.12
77.62	-9.67	-16.55	-21.71
78.98	-9.78	-17.14	-22.00
80.35	-9.92	-22.62	-27.35
81.75	-9.97	-17.86	-22.56
83.18	-10.09	-18.53	-20.96
84.63	-10.20	-24.23	-24.22
86.10	-10.39	-18.53	-20.47
87.60	-10.33	-20.00	-19.92
89.12	-10.39	-24.62	-22.59
90.68	-10.67	-19.74	-18.87
92.26	-10.88	-22.59	-19.65
93.86	-10.91	-24.18	-20.38
95.50	-11.00	-21.79	-17.42
97.16	-11.06	-27.25	-19.39
98.86	-11.04	-23.53	-17.22
100.58	-11.16	-24.28	-17.21
102.33	-11.42	-25.99	-17.57
104.11	-11.36	-23.12	-15.96
105.93	-11.64	-26.88	-16.94
107.77	-11.63	-23.52	-15.31
109.65	-11.83	-24.12	-16.81
111.56	-11.83	-24.33	-15.41
113.50	-11.84	-23.96	-16.02
115.48	-12.23	-23.96	-15.21
117.49	-12.23	-22.67	-15.36
119.54	-12.43	-23.13	-15.16
121.62	-12.43	-22.73	-15.14
123.74	-12.70	-22.56	-14.41
125.89	-12.63	-21.65	-14.69
128.09	-12.89	-22.37	-14.29
130.32	-13.07	-21.47	-14.80
132.59	-13.21	-21.51	-14.47
134.90	-13.62	-21.80	-14.84
137.25	-13.38	-21.33	-14.43
139.64	-13.73	-22.04	-14.92
142.07	-13.50	-21.02	-14.90
144.54	-13.90	-21.82	-14.95
147.06	-14.28	-21.70	-15.62
149.62	-14.18	-21.28	-15.33
152.23	-14.69	-23.80	-15.88
154.88	-14.53	-22.81	-16.37
157.58	-14.34	-22.12	-16.48
160.32	-15.02	-23.54	-17.53
163.12	-15.03	-23.04	-17.90
165.96	-14.86	-23.81	-18.46
168.85	-15.31	-24.50	-19.02

171.79	-15.89	-23.09	-20.27
174.78	-15.84	-23.21	-21.99
177.83	-16.17	-23.47	-23.22
180.93	-16.60	-22.79	-24.25
184.08	-16.69	-22.81	-27.61
187.28	-16.99	-22.77	-30.82
190.55	-17.63	-23.66	-32.92
193.86	-18.63	-23.33	-33.42
197.24	-20.25	-26.11	-32.64
200.68	-22.50	-30.16	-33.32
204.17	-25.06	-31.24	-31.51
207.73	-25.64	-31.28	-27.29
211.35	-27.37	-27.07	-24.92
215.03	-21.11	-24.17	-23.41
218.78	-17.75	-22.45	-22.12
222.59	-17.19	-21.45	-21.21
226.46	-17.22	-20.70	-20.91
230.41	-17.12	-20.47	-20.77
234.42	-17.53	-20.07	-20.57
238.51	-17.64	-19.93	-20.68
242.66	-17.97	-20.09	-20.67
246.89	-18.21	-19.95	-20.46
251.19	-18.30	-20.95	-20.84
255.56	-18.55	-21.36	-21.19
260.02	-18.79	-21.81	-22.28
264.54	-19.14	-22.91	-22.84
269.15	-19.54	-24.64	-23.29
273.84	-19.65	-26.43	-24.66
278.61	-20.14	-28.82	-26.49
283.46	-20.32	-32.74	-28.08
288.40	-20.56	-39.88	-30.74
293.43	-20.92	-41.72	-32.94
298.54	-21.42	-40.03	-34.27
303.74	-21.70	-34.35	-36.19
309.03	-22.57	-31.06	-34.89
314.41	-23.10	-30.24	-33.70
319.89	-23.59	-30.71	-32.89
325.46	-24.54	-33.27	-33.64
331.13	-25.29	-40.07	-34.34
336.90	-25.60	-38.54	-34.13
342.77	-26.85	-36.85	-31.92
348.74	-27.45	-34.74	-32.22
354.81	-28.94	-33.52	-38.99
360.99	-30.76	-39.50	-47.13
367.28	-31.80	-34.19	-46.67
373.68	-32.79	-32.95	-46.57
380.19	-31.61	-32.30	-42.11
386.81	-30.89	-39.98	-37.57
393.55	-35.47	-46.30	-44.26
400.40	-46.48	-54.15	-35.53
407.38	-48.86	-51.26	-46.78

414.48	-54.86	-49.96	-44.44
421.70	-48.47	-50.69	-49.28
429.04	-51.21	-56.80	-44.55
436.51	-50.60	-48.38	-38.39
444.12	-42.09	-37.07	-38.37
451.86	-36.58	-33.82	-37.87
459.73	-45.61	-32.95	-52.69
467.73	-39.93	-31.48	-40.43
475.88	-27.09	-34.74	-33.23
484.17	-23.45	-49.93	-31.50
492.61	-28.99	-36.56	-35.35
501.19	-24.24	-30.51	-33.48
509.92	-23.65	-28.42	-29.06
518.80	-23.78	-29.44	-31.84
527.84	-24.50	-32.92	-51.63
537.03	-25.37	-37.75	-39.20
546.39	-26.43	-43.76	-32.69
555.90	-28.37	-44.84	-31.15
565.59	-30.40	-48.20	-32.77
575.44	-31.99	-45.13	-35.97
585.46	-32.40	-49.08	-41.47
595.66	-34.83	-38.49	-49.92
606.04	-39.64	-42.44	-39.14
616.59	-41.98	-48.59	-39.61
627.33	-41.99	-51.74	-38.57
638.26	-50.53	-58.92	-43.19
649.38	-32.36	-45.58	-41.25
660.69	-31.17	-49.03	-40.41
672.20	-32.16	-48.25	-41.45
683.91	-33.53	-45.83	-39.74
695.82	-34.42	-41.90	-45.03
707.94	-36.19	-42.89	-54.10
720.28	-36.03	-48.88	-41.94
732.82	-37.04	-42.89	-42.63
745.59	-38.20	-42.79	-38.99
758.58	-37.23	-45.13	-43.84
771.79	-43.11	-60.79	-50.30
785.23	-52.22	-59.47	-46.18
798.91	-51.17	-56.30	-46.84
812.83	-42.54	-53.16	-41.11
826.99	-40.92	-43.98	-41.46
841.39	-44.13	-43.63	-47.13
856.05	-44.64	-46.69	-41.52
870.96	-48.42	-50.67	-43.93
886.13	-54.14	-44.08	-48.10
901.57	-46.93	-38.71	-45.58
917.27	-51.09	-44.76	-41.98
933.25	-46.80	-55.49	-47.07
949.51	-37.67	-46.73	-52.07
966.05	-37.90	-56.63	-41.11
982.88	-50.06	-48.41	-46.04

1000.00

-39.09

-51.84

-52.05

SAVED BY:  
TITLE:  
COMMENTS:  
DATE: 2/12/01  
TIME: 8:17 AM

Freq MHz	Pair 1	Pair 3	Pair 5
1.00	-0.71	-0.71	-0.72
1.02	-0.72	-0.71	-0.72
1.04	-0.72	-0.72	-0.73
1.05	-0.73	-0.72	-0.73
1.07	-0.73	-0.73	-0.73
1.09	-0.73	-0.73	-0.74
1.11	-0.74	-0.74	-0.74
1.13	-0.75	-0.74	-0.75
1.15	-0.75	-0.75	-0.75
1.17	-0.76	-0.75	-0.76
1.19	-0.76	-0.75	-0.77
1.21	-0.77	-0.77	-0.77
1.23	-0.77	-0.77	-0.78
1.25	-0.78	-0.78	-0.78
1.27	-0.79	-0.78	-0.79
1.30	-0.79	-0.79	-0.79
1.32	-0.80	-0.79	-0.80
1.34	-0.80	-0.80	-0.81
1.36	-0.81	-0.81	-0.81
1.39	-0.81	-0.81	-0.82
1.41	-0.82	-0.82	-0.82
1.44	-0.82	-0.83	-0.83
1.46	-0.83	-0.83	-0.84
1.49	-0.84	-0.84	-0.84
1.51	-0.84	-0.85	-0.85
1.54	-0.85	-0.85	-0.86
1.57	-0.86	-0.86	-0.86
1.59	-0.86	-0.87	-0.87
1.62	-0.87	-0.88	-0.88
1.65	-0.88	-0.88	-0.89
1.68	-0.89	-0.89	-0.90
1.71	-0.89	-0.90	-0.90
1.74	-0.90	-0.91	-0.91
1.77	-0.91	-0.92	-0.92
1.80	-0.92	-0.92	-0.93
1.83	-0.92	-0.94	-0.94
1.86	-0.93	-0.94	-0.95
1.89	-0.94	-0.95	-0.96
1.93	-0.95	-0.96	-0.96
1.96	-0.96	-0.97	-0.97
2.00	-0.97	-0.98	-0.98
2.03	-0.98	-0.99	-0.99
2.07	-0.99	-1.00	-1.00



2.10	-0.99	-1.01	-1.01
2.14	-1.00	-1.02	-1.03
2.18	-1.01	-1.03	-1.03
2.21	-1.02	-1.04	-1.04
2.25	-1.03	-1.05	-1.06
2.29	-1.03	-1.06	-1.06
2.33	-1.05	-1.07	-1.07
2.37	-1.05	-1.09	-1.09
2.41	-1.06	-1.10	-1.10
2.45	-1.08	-1.11	-1.11
2.50	-1.08	-1.12	-1.12
2.54	-1.10	-1.13	-1.13
2.59	-1.11	-1.15	-1.15
2.63	-1.12	-1.16	-1.16
2.68	-1.13	-1.17	-1.17
2.72	-1.14	-1.19	-1.18
2.77	-1.15	-1.20	-1.20
2.82	-1.16	-1.21	-1.21
2.87	-1.17	-1.22	-1.23
2.92	-1.19	-1.24	-1.24
2.97	-1.20	-1.25	-1.25
3.02	-1.21	-1.27	-1.27
3.07	-1.22	-1.28	-1.28
3.13	-1.24	-1.30	-1.30
3.18	-1.25	-1.32	-1.32
3.24	-1.27	-1.33	-1.33
3.29	-1.28	-1.35	-1.35
3.35	-1.29	-1.36	-1.37
3.41	-1.31	-1.38	-1.39
3.47	-1.32	-1.40	-1.41
3.53	-1.34	-1.43	-1.44
3.59	-1.36	-1.45	-1.47
3.65	-1.38	-1.48	-1.51
3.72	-1.40	-1.51	-1.55
3.78	-1.42	-1.55	-1.59
3.85	-1.44	-1.58	-1.63
3.91	-1.46	-1.60	-1.65
3.98	-1.47	-1.61	-1.66
4.05	-1.49	-1.62	-1.66
4.12	-1.51	-1.63	-1.66
4.19	-1.53	-1.65	-1.68
4.27	-1.56	-1.66	-1.69
4.34	-1.57	-1.67	-1.70
4.42	-1.57	-1.67	-1.71
4.49	-1.58	-1.67	-1.72
4.57	-1.60	-1.68	-1.72
4.65	-1.63	-1.71	-1.72
4.73	-1.66	-1.74	-1.72
4.81	-1.68	-1.76	-1.73
4.90	-1.69	-1.77	-1.73
4.98	-1.69	-1.79	-1.76

5.07	-1.69	-1.78	-1.80
5.16	-1.70	-1.80	-1.84
5.25	-1.71	-1.80	-1.85
5.34	-1.72	-1.80	-1.83
5.43	-1.74	-1.82	-1.84
5.53	-1.75	-1.82	-1.83
5.62	-1.76	-1.84	-1.85
5.72	-1.78	-1.85	-1.86
5.82	-1.80	-1.87	-1.88
5.92	-1.82	-1.89	-1.89
6.03	-1.83	-1.91	-1.91
6.13	-1.85	-1.93	-1.94
6.24	-1.87	-1.95	-1.96
6.35	-1.88	-1.98	-1.98
6.46	-1.91	-2.00	-2.00
6.57	-1.92	-2.02	-2.02
6.68	-1.94	-2.05	-2.05
6.80	-1.96	-2.07	-2.08
6.92	-1.98	-2.09	-2.11
7.04	-2.00	-2.12	-2.14
7.16	-2.02	-2.16	-2.18
7.29	-2.05	-2.20	-2.23
7.41	-2.08	-2.25	-2.29
7.54	-2.11	-2.31	-2.38
7.67	-2.14	-2.40	-2.49
7.81	-2.18	-2.48	-2.61
7.94	-2.21	-2.52	-2.68
8.08	-2.23	-2.53	-2.67
8.22	-2.26	-2.53	-2.63
8.37	-2.28	-2.53	-2.60
8.51	-2.33	-2.55	-2.63
8.66	-2.38	-2.56	-2.65
8.81	-2.38	-2.55	-2.64
8.96	-2.37	-2.53	-2.63
9.12	-2.38	-2.53	-2.64
9.28	-2.41	-2.55	-2.63
9.44	-2.46	-2.59	-2.61
9.61	-2.51	-2.64	-2.60
9.77	-2.53	-2.68	-2.60
9.94	-2.51	-2.68	-2.64
10.12	-2.50	-2.67	-2.68
10.29	-2.50	-2.73	-2.80
10.47	-2.51	-2.68	-2.75
10.65	-2.53	-2.76	-2.91
10.84	-2.56	-2.74	-2.79
11.03	-2.58	-2.82	-2.93
11.22	-2.62	-2.86	-2.93
11.42	-2.65	-2.96	-3.06
11.61	-2.71	-3.11	-3.25
11.82	-2.77	-3.25	-3.47
12.02	-2.80	-3.30	-3.60

12.23	-2.82	-3.30	-3.56
12.45	-2.84	-3.26	-3.44
12.66	-2.87	-3.24	-3.39
12.88	-2.94	-3.27	-3.44
13.11	-3.02	-3.28	-3.46
13.34	-3.00	-3.24	-3.40
13.57	-2.97	-3.21	-3.41
13.80	-2.99	-3.20	-3.42
14.04	-3.04	-3.23	-3.38
14.29	-3.12	-3.30	-3.37
14.54	-3.17	-3.37	-3.39
14.79	-3.16	-3.46	-3.43
15.05	-3.15	-3.56	-3.58
15.31	-3.18	-3.63	-3.76
15.58	-3.26	-3.88	-4.17
15.85	-3.33	-4.04	-4.43
16.12	-3.37	-4.07	-4.57
16.41	-3.36	-4.05	-4.41
16.69	-3.37	-3.97	-4.17
16.98	-3.41	-3.90	-4.08
17.28	-3.51	-3.95	-4.16
17.58	-3.62	-3.95	-4.15
17.89	-3.56	-3.88	-4.08
18.20	-3.52	-3.84	-4.14
18.51	-3.57	-3.87	-4.18
18.84	-3.68	-3.99	-4.22
19.16	-3.76	-4.19	-4.38
19.50	-3.80	-4.50	-4.73
19.84	-3.87	-4.80	-5.19
20.18	-3.91	-4.86	-5.51
20.54	-3.87	-4.78	-5.34
20.89	-3.85	-4.66	-4.96
21.26	-3.89	-4.55	-4.90
21.63	-4.01	-4.56	-4.93
22.00	-4.15	-4.60	-5.02
22.39	-4.09	-4.54	-4.88
22.78	-4.06	-4.56	-5.03
23.17	-4.17	-4.76	-5.31
23.58	-4.33	-5.18	-5.71
23.99	-4.45	-5.51	-6.19
24.41	-4.43	-5.48	-6.35
24.83	-4.34	-5.47	-5.95
25.26	-4.32	-5.30	-5.55
25.70	-4.37	-5.13	-5.47
26.15	-4.58	-5.24	-5.73
26.61	-4.72	-5.32	-5.87
27.07	-4.64	-5.43	-6.00
27.54	-4.75	-5.81	-6.66
28.02	-4.91	-6.16	-7.28
28.51	-4.95	-6.10	-7.36
29.01	-4.81	-6.11	-6.77

29.51	-4.75	-5.88	-6.24
30.03	-4.80	-5.75	-6.15
30.55	-5.07	-6.02	-6.58
31.08	-5.29	-6.33	-7.02
31.62	-5.27	-6.74	-7.57
32.17	-5.37	-6.91	-8.34
32.73	-5.42	-6.74	-8.39
33.30	-5.26	-6.76	-7.57
33.88	-5.19	-6.48	-6.95
34.47	-5.26	-6.51	-7.05
35.08	-5.63	-7.08	-7.87
35.69	-5.91	-7.79	-8.71
36.31	-5.85	-7.75	-9.25
36.94	-5.79	-7.45	-9.44
37.58	-5.64	-7.46	-8.48
38.24	-5.63	-7.14	-7.88
38.90	-5.75	-7.41	-8.27
39.58	-6.28	-8.34	-9.58
40.27	-6.56	-8.72	-10.40
40.97	-6.37	-8.24	-10.49
41.69	-6.14	-8.28	-9.76
42.41	-6.11	-8.10	-9.06
43.15	-6.22	-8.42	-9.41
43.90	-6.76	-9.58	-11.16
44.67	-7.12	-9.33	-11.84
45.45	-6.72	-8.96	-11.57
46.24	-6.50	-9.11	-10.68
47.04	-6.55	-9.11	-10.49
47.86	-6.90	-10.19	-11.94
48.70	-7.58	-10.19	-13.21
49.54	-7.24	-9.81	-13.23
50.41	-6.91	-10.17	-12.17
51.29	-7.02	-10.24	-12.00
52.18	-7.44	-11.19	-13.37
53.09	-8.16	-10.78	-14.86
54.01	-7.70	-10.89	-14.50
54.95	-7.34	-11.59	-13.65
55.91	-7.49	-12.13	-13.90
56.89	-7.91	-12.05	-15.28
57.88	-8.39	-11.58	-16.43
58.88	-7.89	-12.82	-15.98
59.91	-7.88	-13.26	-15.60
60.95	-8.25	-12.70	-16.02
62.02	-8.69	-12.42	-18.21
63.10	-8.33	-14.23	-19.09
64.19	-8.32	-14.63	-18.10
65.31	-8.68	-13.33	-17.72
66.45	-9.06	-13.83	-20.35
67.61	-9.02	-16.60	-20.74
68.79	-8.94	-15.32	-19.04
69.98	-9.16	-13.98	-19.26

71.20	-9.39	-16.36	-23.67
72.44	-9.19	-17.74	-24.27
73.71	-9.47	-15.09	-20.33
74.99	-9.65	-16.35	-23.33
76.30	-9.70	-20.43	-27.66
77.62	-9.74	-16.58	-21.75
78.98	-9.76	-17.20	-21.91
80.35	-10.06	-22.69	-27.57
81.75	-10.06	-17.94	-22.44
83.18	-10.05	-18.58	-21.09
84.63	-10.36	-24.39	-24.49
86.10	-10.50	-18.62	-20.52
87.60	-10.31	-20.13	-19.90
89.12	-10.49	-24.82	-22.95
90.68	-10.77	-19.84	-18.65
92.26	-10.79	-22.66	-19.62
93.86	-11.01	-24.29	-20.58
95.50	-11.06	-21.88	-17.33
97.16	-10.99	-27.31	-19.51
98.86	-11.17	-23.64	-17.11
100.58	-11.19	-24.40	-17.14
102.33	-11.44	-26.07	-17.64
104.11	-11.42	-23.08	-15.75
105.93	-11.57	-26.93	-17.02
107.77	-11.79	-23.63	-15.26
109.65	-11.87	-24.03	-16.70
111.56	-11.88	-24.46	-15.44
113.50	-11.92	-24.03	-15.99
115.48	-12.23	-24.05	-15.31
117.49	-12.35	-22.57	-15.37
119.54	-12.46	-23.20	-15.24
121.62	-12.55	-22.60	-15.06
123.74	-12.69	-22.65	-14.52
125.89	-12.71	-21.76	-14.72
128.09	-12.92	-22.40	-14.34
130.32	-13.12	-21.44	-14.85
132.59	-13.16	-21.49	-14.50
134.90	-13.65	-21.82	-14.88
137.25	-13.41	-21.43	-14.48
139.64	-13.82	-22.07	-14.99
142.07	-13.52	-21.07	-14.97
144.54	-13.97	-21.83	-15.04
147.06	-14.22	-21.70	-15.68
149.62	-14.24	-21.36	-15.39
152.23	-14.73	-23.78	-15.90
154.88	-14.61	-22.79	-16.37
157.58	-14.44	-22.15	-16.51
160.32	-15.00	-23.51	-17.49
163.12	-15.06	-22.98	-17.88
165.96	-15.02	-23.81	-18.45
168.85	-15.40	-24.40	-19.09

171.79	-15.83	-23.19	-20.29
174.78	-15.82	-23.27	-21.98
177.83	-16.18	-23.49	-23.30
180.93	-16.62	-22.95	-24.49
184.08	-16.73	-22.87	-27.72
187.28	-17.00	-22.80	-30.87
190.55	-17.64	-23.65	-33.18
193.86	-18.62	-23.39	-32.67
197.24	-20.25	-25.90	-32.27
200.68	-22.72	-30.20	-33.03
204.17	-25.33	-31.33	-31.65
207.73	-25.90	-31.23	-27.63
211.35	-26.81	-26.92	-24.64
215.03	-20.96	-24.21	-22.79
218.78	-17.82	-22.46	-21.87
222.59	-17.28	-21.47	-21.26
226.46	-17.31	-20.73	-20.97
230.41	-17.25	-20.49	-20.81
234.42	-17.65	-20.09	-20.55
238.51	-17.74	-19.98	-20.73
242.66	-18.06	-20.09	-20.76
246.89	-18.27	-20.01	-20.57
251.19	-18.30	-20.98	-20.99
255.56	-18.59	-21.43	-21.34
260.02	-18.91	-21.79	-22.35
264.54	-19.26	-22.93	-22.87
269.15	-19.73	-24.68	-23.48
273.84	-19.80	-26.40	-24.60
278.61	-20.06	-28.78	-26.27
283.46	-20.42	-32.75	-27.90
288.40	-20.61	-39.83	-30.12
293.43	-21.22	-41.15	-32.18
298.54	-21.59	-40.38	-33.71
303.74	-21.90	-34.34	-35.65
309.03	-22.57	-30.97	-34.57
314.41	-23.14	-30.12	-33.33
319.89	-23.59	-30.43	-32.60
325.46	-24.38	-33.11	-33.89
331.13	-25.27	-39.67	-34.92
336.90	-25.67	-38.88	-34.11
342.77	-26.88	-37.32	-31.70
348.74	-27.33	-34.99	-32.73
354.81	-29.11	-34.32	-39.39
360.99	-30.90	-40.21	-46.98
367.28	-32.05	-34.96	-42.67
373.68	-33.00	-32.66	-38.28
380.19	-31.02	-31.68	-40.89
386.81	-30.57	-39.93	-36.91
393.55	-36.48	-45.58	-43.77
400.40	-47.54	-47.84	-36.04
407.38	-44.17	-47.91	-47.34

414.48	-50.34	-54.67	-46.74
421.70	-54.76	-49.37	-40.42
429.04	-41.88	-54.81	-43.20
436.51	-42.76	-49.56	-44.57
444.12	-39.22	-37.53	-38.49
451.86	-38.53	-33.62	-37.56
459.73	-46.37	-32.96	-52.61
467.73	-33.56	-31.70	-40.58
475.88	-28.25	-35.84	-33.06
484.17	-25.25	-65.01	-31.25
492.61	-28.00	-37.54	-36.65
501.19	-25.17	-30.97	-32.96
509.92	-24.13	-28.44	-29.17
518.80	-24.03	-28.87	-32.43
527.84	-24.49	-32.87	-48.81
537.03	-25.33	-38.96	-39.02
546.39	-26.73	-43.40	-32.26
555.90	-28.42	-45.11	-31.60
565.59	-30.34	-49.86	-33.38
575.44	-32.31	-46.14	-37.12
585.46	-32.88	-47.52	-41.78
595.66	-34.70	-38.39	-45.83
606.04	-40.19	-43.10	-39.03
616.59	-41.54	-47.93	-40.27
627.33	-40.74	-51.96	-38.66
638.26	-51.30	-63.38	-43.67
649.38	-32.90	-47.00	-40.44
660.69	-31.50	-49.76	-39.91
672.20	-31.75	-50.05	-41.29
683.91	-33.23	-45.12	-39.55
695.82	-35.82	-43.39	-45.04
707.94	-36.43	-46.16	-55.78
720.28	-36.36	-50.85	-39.97
732.82	-36.29	-41.32	-43.06
745.59	-39.13	-42.87	-38.56
758.58	-38.75	-44.96	-44.32
771.79	-43.78	-53.06	-46.52
785.23	-51.45	-48.85	-47.24
798.91	-62.97	-61.19	-50.51
812.83	-44.10	-53.09	-40.92
826.99	-40.85	-42.77	-46.09
841.39	-56.50	-43.51	-47.26
856.05	-43.22	-43.70	-49.02
870.96	-38.60	-51.08	-39.83
886.13	-43.92	-41.61	-36.26
901.57	-39.00	-52.16	-40.44
917.27	-41.88	-47.00	-45.48
933.25	-41.35	-66.21	-43.86
949.51	-34.49	-39.49	-46.29
966.05	-42.13	-35.46	-44.82
982.88	-42.80	-44.03	-45.47

1000.00    -40.32    -65.84    -47.14



## FLAT HITACHI Cable (ATTN in dB)

	ed / Yellowue / Yellow	
10	-2.84	-3
20	-4.02	-4.31
30	-4.85	-5.1
40	-5.78	-6.72
50	-6.62	-7.14
60	-7.26	-8.74
70	-8.14	-9.99
80	-9.14	-11.97
90	-10.07	-13.43
100	-10.68	-14.8
110	-10.86	-17.24
120	-11.84	-18.71
130	-12.57	-21.87
140	-12.43	-25.14
150	-13.51	-30.56
160	-14.37	-30.64
170	-16.93	-28.84
180	-16.05	-33.53
190	-16.94	-33.42
200	-23.25	-34.59
210	-22.58	-36.94
220	-20.07	-33.13
230	-22.3	-29.59
240	-20.4	-28.23
250	-19.32	-28.08
260	-20.52	-29.34
270	-20.1	-29.12
280	-21.14	-32.36
290	-21.48	-37.81
300	-23.38	-40.86
310	-25.09	-52.19
320	-27.4	-44.55
330	-28.08	-47.11
340	-30.12	-44.28
350	-33.78	-41.13
360	-36.68	-44.77
370	-38.25	-41.44
380	-33.84	-52
390	-46.55	-36.86
400	-37.51	-40.22
410	-30.81	-39.93
420	-25.33	-43.82
430	-23.34	-43.69
440	-22.46	-51.14
450	-26.52	-48.06
460	-28.72	-45.86
470	-31.59	-55.63
480	-33.48	-38.85

490	-37.02	-38.41
500	-35.77	-40.19
510	-41.22	-38.07
520	-33.62	-55.64
530	-32.79	-50.08
540	-31.88	-41.27
550	-34.55	-39.86
560	-35.18	-48.37
570	-46.15	-52.2
580	-52.73	-48.57
590	-48.56	-53.44
600	-45.24	-67.11
610	-52.69	-61.22
620	-48.75	-73.39
630	-48.11	-61.7
640	-49.07	-62.38
650	-50.65	-63.33
660	-50.87	-61.3
670	-45.65	-64.07
680	-43.62	-55.89
690	-44.76	-57.06
700	-42.36	-58.38
710	-42.25	-55.44
720	-40.61	-60.97
730	-42.62	-55.38
740	-47.18	-56.14
750	-49.43	-53.56
760	-49.4	-51.99
770	-55.68	-46.35
780	-53.71	-49.68
790	-53.52	-45.38
800	-41.42	-36.85
810	-42.73	-34.83
820	-39.18	-33.35
830	-34.84	-33.84
840	-36.19	-35.25
850	-37.63	-41.4
860	-35.31	-40.23
870	-35.24	-40.74
880	-37.49	-45.53
890	-61.34	-43.47
900	-41.64	-45.3
910	-38.75	-45.96
920	-51.17	-38.22
930	-49.12	-37.29
940	-54.2	-39.64
950	-53.62	-46.13
960	-50.7	-47.56
970	-49.71	-47.41
980	-48.48	-50.75
990	-44.93	-58.72

1000

-53.72

-57.21

HP4396A REV3.01  
DATE: Feb 7 2002

CHANNEL: 1  
MEASURE TYPE: S21  
FORMAT TYPE: LOG MAG  
NUMBER of POINTS: 401  
SWEEP TIME: 27 s  
SWEEP TYPE: LOG FREQ  
SOURCE POWER: 0 dBm  
IF BANDWIDTH: 30 Hz

Frequency	red / white 1	blue / white 1	blue / white 2
1.00	-0.72	-0.71	-0.71
1.02	-0.72	-0.71	-0.72
1.04	-0.72	-0.71	-0.72
1.06	-0.73	-0.72	-0.72
1.08	-0.74	-0.73	-0.73
1.10	-0.74	-0.73	-0.74
1.12	-0.74	-0.74	-0.74
1.14	-0.75	-0.74	-0.74
1.16	-0.75	-0.74	-0.75
1.18	-0.76	-0.75	-0.75
1.20	-0.76	-0.75	-0.76
1.22	-0.77	-0.76	-0.77
1.24	-0.77	-0.77	-0.77
1.26	-0.78	-0.77	-0.77
1.28	-0.78	-0.78	-0.78
1.30	-0.79	-0.78	-0.79
1.32	-0.79	-0.79	-0.79
1.34	-0.80	-0.79	-0.80
1.37	-0.80	-0.80	-0.80
1.39	-0.81	-0.80	-0.81
1.42	-0.82	-0.81	-0.82
1.45	-0.82	-0.82	-0.82
1.47	-0.82	-0.82	-0.83
1.50	-0.83	-0.83	-0.83
1.53	-0.84	-0.84	-0.84
1.55	-0.85	-0.84	-0.85
1.58	-0.85	-0.85	-0.85
1.61	-0.86	-0.86	-0.86
1.63	-0.86	-0.87	-0.87
1.66	-0.87	-0.87	-0.87
1.69	-0.87	-0.88	-0.88
1.71	-0.88	-0.89	-0.89
1.74	-0.89	-0.89	-0.89
1.77	-0.89	-0.90	-0.90
1.80	-0.90	-0.91	-0.91
1.83	-0.91	-0.92	-0.92

1.87	-0.91	-0.93	-0.93
1.91	-0.92	-0.94	-0.94
1.94	-0.93	-0.94	-0.95
1.98	-0.94	-0.95	-0.96
2.01	-0.94	-0.96	-0.96
2.05	-0.95	-0.97	-0.97
2.08	-0.96	-0.98	-0.98
2.12	-0.97	-0.99	-0.99
2.15	-0.98	-1.00	-1.00
2.19	-0.99	-1.01	-1.01
2.22	-0.99	-1.02	-1.02
2.26	-1.00	-1.03	-1.03
2.30	-1.01	-1.04	-1.04
2.33	-1.02	-1.05	-1.05
2.37	-1.02	-1.06	-1.06
2.42	-1.04	-1.07	-1.07
2.47	-1.04	-1.09	-1.09
2.51	-1.06	-1.10	-1.10
2.56	-1.07	-1.11	-1.11
2.61	-1.08	-1.13	-1.13
2.65	-1.09	-1.14	-1.14
2.70	-1.10	-1.15	-1.15
2.75	-1.11	-1.17	-1.17
2.80	-1.12	-1.18	-1.18
2.84	-1.13	-1.19	-1.19
2.89	-1.14	-1.21	-1.20
2.94	-1.16	-1.22	-1.22
2.98	-1.17	-1.23	-1.23
3.03	-1.18	-1.25	-1.25
3.08	-1.19	-1.26	-1.26
3.13	-1.20	-1.27	-1.28
3.18	-1.22	-1.29	-1.29
3.24	-1.23	-1.31	-1.31
3.31	-1.25	-1.33	-1.33
3.37	-1.27	-1.35	-1.35
3.43	-1.28	-1.37	-1.38
3.50	-1.30	-1.39	-1.40
3.56	-1.32	-1.41	-1.43
3.62	-1.34	-1.44	-1.46
3.69	-1.36	-1.47	-1.50
3.75	-1.38	-1.51	-1.54
3.81	-1.40	-1.54	-1.58
3.88	-1.42	-1.56	-1.61
3.94	-1.44	-1.58	-1.63
4.00	-1.46	-1.60	-1.64
4.07	-1.47	-1.61	-1.64
4.13	-1.49	-1.62	-1.64
4.19	-1.51	-1.63	-1.66
4.27	-1.53	-1.64	-1.67
4.35	-1.56	-1.65	-1.68
4.43	-1.58	-1.65	-1.69

4.52	-1.59	-1.66	-1.70
4.60	-1.61	-1.68	-1.71
4.69	-1.62	-1.70	-1.71
4.77	-1.63	-1.73	-1.70
4.85	-1.64	-1.75	-1.71
4.94	-1.65	-1.76	-1.74
5.02	-1.66	-1.76	-1.76
5.11	-1.67	-1.79	-1.82
5.19	-1.68	-1.77	-1.79
5.27	-1.69	-1.81	-1.89
5.36	-1.70	-1.78	-1.81
5.44	-1.71	-1.79	-1.82
5.53	-1.74	-1.80	-1.80
5.62	-1.74	-1.82	-1.81
5.74	-1.76	-1.84	-1.83
5.85	-1.78	-1.86	-1.86
5.96	-1.79	-1.88	-1.87
6.07	-1.81	-1.90	-1.90
6.18	-1.83	-1.92	-1.92
6.29	-1.84	-1.94	-1.94
6.41	-1.86	-1.97	-1.96
6.52	-1.88	-1.98	-1.98
6.63	-1.89	-2.01	-2.01
6.74	-1.91	-2.03	-2.04
6.85	-1.93	-2.05	-2.06
6.97	-1.95	-2.08	-2.09
7.08	-1.96	-2.11	-2.12
7.19	-1.98	-2.14	-2.15
7.30	-2.01	-2.17	-2.20
7.41	-2.03	-2.21	-2.25
7.54	-2.06	-2.27	-2.33
7.69	-2.11	-2.36	-2.45
7.84	-2.15	-2.45	-2.58
7.99	-2.19	-2.50	-2.64
8.14	-2.21	-2.51	-2.62
8.29	-2.23	-2.50	-2.58
8.44	-2.27	-2.51	-2.58
8.59	-2.31	-2.53	-2.62
8.74	-2.35	-2.54	-2.62
8.89	-2.36	-2.52	-2.60
9.04	-2.36	-2.51	-2.62
9.19	-2.36	-2.52	-2.61
9.34	-2.37	-2.53	-2.58
9.49	-2.38	-2.57	-2.58
9.64	-2.39	-2.60	-2.58
9.79	-2.40	-2.64	-2.58
9.94	-2.41	-2.66	-2.63
10.12	-2.43	-2.64	-2.64
10.32	-2.45	-2.67	-2.75
10.51	-2.46	-2.66	-2.79
10.71	-2.49	-2.68	-2.74

10.91	-2.50	-2.73	-2.82
11.11	-2.54	-2.76	-2.81
11.31	-2.57	-2.84	-2.91
11.51	-2.62	-2.95	-3.05
11.71	-2.67	-3.10	-3.25
11.91	-2.74	-3.23	-3.45
12.11	-2.77	-3.27	-3.54
12.31	-2.79	-3.26	-3.48
12.51	-2.80	-3.24	-3.38
12.71	-2.83	-3.21	-3.35
12.91	-2.89	-3.23	-3.41
13.11	-2.95	-3.24	-3.43
13.34	-3.01	-3.21	-3.37
13.60	-3.02	-3.17	-3.38
13.87	-3.01	-3.17	-3.37
14.13	-3.02	-3.21	-3.34
14.40	-3.04	-3.30	-3.32
14.66	-3.04	-3.38	-3.34
14.93	-3.05	-3.41	-3.43
15.19	-3.09	-3.48	-3.57
15.46	-3.14	-3.70	-3.93
15.72	-3.21	-3.83	-4.09
15.99	-3.30	-4.02	-4.47
16.25	-3.35	-4.02	-4.50
16.52	-3.35	-4.00	-4.28
16.78	-3.36	-3.94	-4.08
17.05	-3.40	-3.89	-4.04
17.31	-3.48	-3.92	-4.11
17.58	-3.57	-3.93	-4.11
17.89	-3.61	-3.86	-4.03
18.24	-3.58	-3.80	-4.08
18.60	-3.56	-3.83	-4.10
18.95	-3.60	-3.96	-4.16
19.31	-3.65	-4.19	-4.35
19.66	-3.74	-4.55	-4.75
20.02	-3.82	-4.78	-5.26
20.38	-3.86	-4.70	-5.35
20.73	-3.84	-4.71	-5.13
21.09	-3.80	-4.57	-4.83
21.44	-3.86	-4.47	-4.77
21.80	-3.98	-4.53	-4.95
22.15	-4.09	-4.53	-4.90
22.51	-4.11	-4.48	-4.81
22.87	-4.08	-4.48	-4.96
23.22	-4.09	-4.63	-5.17
23.58	-4.17	-4.96	-5.46
23.99	-4.28	-5.38	-5.96
24.46	-4.36	-5.47	-6.22
24.93	-4.31	-5.42	-5.85
25.41	-4.28	-5.22	-5.45
25.88	-4.37	-5.15	-5.56

26.35	-4.57	-5.19	-5.71
26.83	-4.71	-5.23	-5.72
27.30	-4.69	-5.36	-6.02
27.77	-4.72	-5.77	-6.69
28.24	-4.82	-6.08	-7.14
28.72	-4.86	-6.02	-7.08
29.19	-4.77	-6.00	-6.53
29.66	-4.72	-5.85	-6.09
30.14	-4.78	-5.74	-6.11
30.61	-5.02	-5.90	-6.45
31.08	-5.26	-6.12	-6.77
31.62	-5.38	-6.43	-7.16
32.25	-5.38	-6.76	-8.12
32.88	-5.34	-6.65	-8.15
33.51	-5.16	-6.65	-7.25
34.14	-5.10	-6.38	-6.77
34.77	-5.29	-6.54	-7.12
35.40	-5.70	-7.12	-7.97
36.03	-5.98	-7.70	-8.62
36.65	-5.91	-7.52	-9.18
37.28	-5.73	-7.35	-8.93
37.91	-5.60	-7.30	-8.00
38.54	-5.58	-7.05	-7.65
39.17	-5.80	-7.38	-8.29
39.80	-6.30	-8.11	-9.44
40.43	-6.70	-8.59	-10.07
41.06	-6.56	-8.21	-10.24
41.69	-6.28	-8.15	-9.80
42.41	-6.08	-8.14	-8.93
43.26	-6.18	-8.24	-9.15
44.10	-6.78	-9.32	-11.02
44.94	-7.22	-9.09	-11.42
45.79	-6.80	-8.80	-11.02
46.63	-6.48	-8.88	-10.05
47.47	-6.58	-9.07	-10.27
48.32	-7.10	-10.20	-12.23
49.16	-7.50	-9.90	-13.00
50.01	-7.26	-9.81	-12.44
50.85	-6.95	-9.93	-11.47
51.69	-7.03	-10.16	-11.68
52.54	-7.57	-11.01	-13.51
53.38	-8.13	-10.62	-14.60
54.22	-7.96	-10.73	-13.94
55.07	-7.52	-11.24	-12.91
55.91	-7.46	-11.55	-12.97
56.89	-7.85	-12.09	-14.67
58.01	-8.43	-11.44	-16.06
59.13	-8.11	-12.50	-14.97
60.25	-7.94	-13.04	-14.81
61.37	-8.40	-12.45	-15.96
62.49	-8.63	-12.54	-18.21



63.61	-8.43	-13.87	-17.03
64.73	-8.35	-13.98	-16.74
65.86	-8.95	-13.32	-17.69
66.98	-9.32	-14.10	-19.65
68.10	-9.22	-16.13	-18.71
69.22	-9.03	-14.88	-17.64
70.34	-9.39	-14.06	-19.47
71.46	-9.52	-15.69	-22.53
72.58	-9.43	-17.47	-22.16
73.71	-9.42	-15.37	-19.67
74.99	-9.81	-15.45	-22.31
76.48	-9.83	-19.23	-25.21
77.97	-9.72	-16.38	-20.51
79.46	-10.04	-17.36	-23.12
80.96	-10.15	-21.07	-27.44
82.45	-10.10	-17.50	-21.08
83.94	-10.51	-19.32	-22.84
85.43	-10.46	-21.64	-25.01
86.92	-10.40	-18.15	-20.29
88.41	-10.67	-20.66	-22.34
89.91	-10.63	-22.06	-22.83
91.40	-10.85	-19.46	-19.31
92.89	-11.38	-22.81	-21.78
94.38	-11.19	-23.20	-20.39
95.87	-11.06	-21.64	-18.08
97.36	-11.48	-25.04	-20.84
98.86	-11.24	-23.99	-18.64
100.58	-11.27	-23.48	-17.50
102.58	-11.62	-26.20	-18.86
104.58	-11.64	-23.56	-16.55
106.58	-12.06	-26.70	-17.92
108.58	-11.65	-22.95	-15.89
110.58	-12.20	-24.93	-18.04
112.58	-11.82	-23.81	-15.66
114.58	-12.30	-25.86	-17.42
116.58	-12.10	-23.55	-15.33
118.58	-12.52	-24.31	-16.89
120.58	-12.29	-23.25	-15.23
122.58	-12.79	-24.36	-16.09
124.58	-12.46	-22.60	-14.82
126.58	-12.67	-22.34	-15.54
128.59	-12.70	-22.75	-14.76
130.59	-13.01	-22.52	-15.45
132.59	-13.05	-22.28	-14.83
134.90	-13.40	-21.26	-15.46
137.56	-13.36	-21.17	-14.93
140.21	-13.81	-22.61	-14.80
142.87	-13.56	-21.31	-15.35
145.53	-13.48	-21.71	-15.06
148.19	-14.13	-22.24	-15.44
150.85	-13.88	-20.66	-15.59

153.51	-14.14	-23.03	-15.82
156.17	-14.27	-22.92	-16.21
158.83	-14.01	-21.51	-16.56
161.49	-14.41	-22.72	-17.03
164.15	-14.69	-22.41	-17.76
166.81	-14.42	-23.11	-17.98
169.47	-14.78	-23.99	-18.27
172.12	-15.06	-22.85	-19.15
174.78	-15.18	-22.65	-20.11
177.83	-15.60	-21.65	-21.43
181.37	-16.26	-21.06	-22.76
184.90	-16.33	-21.59	-25.19
188.44	-16.35	-21.89	-27.14
191.98	-17.06	-22.27	-28.85
195.51	-18.12	-24.96	-26.97
199.05	-20.39	-26.57	-30.26
202.59	-23.81	-33.41	-30.35
206.13	-24.01	-30.25	-30.88
209.66	-26.94	-26.63	-27.64
213.20	-26.25	-26.46	-26.65
216.74	-19.80	-23.85	-24.09
220.27	-18.01	-22.77	-23.69
223.81	-17.37	-22.31	-22.71
227.35	-17.71	-21.54	-22.74
230.89	-17.97	-21.38	-22.31
234.42	-17.96	-21.21	-21.63
238.51	-17.98	-21.29	-22.21
243.25	-18.03	-21.03	-21.84
247.99	-18.33	-21.17	-21.68
252.74	-18.37	-22.14	-22.17
257.48	-18.79	-22.51	-22.01
262.23	-19.16	-23.25	-23.05
266.97	-19.37	-23.91	-23.37
271.72	-20.35	-25.98	-24.27
276.46	-20.27	-27.64	-25.29
281.20	-20.88	-29.80	-26.07
285.95	-20.62	-34.71	-27.28
290.69	-21.10	-40.24	-28.92
295.44	-20.89	-47.07	-30.39
300.18	-21.52	-41.26	-32.66
304.92	-22.19	-36.73	-34.65
309.67	-22.44	-32.08	-35.46
314.41	-23.38	-31.97	-36.56
319.89	-23.01	-30.89	-34.18
326.20	-23.50	-33.55	-32.59
332.50	-24.53	-40.92	-32.29
338.81	-25.05	-42.81	-32.45
345.11	-25.26	-33.40	-32.83
351.42	-25.83	-32.13	-33.25
357.72	-26.73	-31.04	-41.29
364.03	-28.11	-34.21	-42.76

370.34	-28.52	-37.08	-44.34
376.64	-31.05	-42.54	-35.89
382.95	-32.24	-39.97	-39.25
389.25	-36.54	-48.35	-45.44
395.56	-40.28	-45.81	-46.24
401.86	-51.52	-49.07	-40.43
408.17	-36.46	-42.72	-37.26
414.48	-37.16	-38.38	-50.95
421.70	-37.00	-37.58	-31.55
430.08	-34.13	-33.70	-31.74
438.47	-27.41	-47.70	-37.25
446.86	-33.03	-40.48	-53.13
455.25	-32.24	-31.50	-35.70
463.64	-38.92	-30.45	-51.39
472.02	-43.46	-31.45	-36.36
480.41	-28.60	-36.96	-36.37
488.80	-28.69	-50.82	-35.69
497.19	-27.31	-35.12	-41.13
505.58	-24.80	-30.76	-34.86
513.96	-24.69	-29.21	-31.63
522.35	-24.54	-31.86	-34.03
530.74	-24.51	-35.65	-44.03
539.13	-25.42	-38.45	-40.29
547.52	-25.40	-36.86	-38.34
555.90	-27.24	-39.97	-34.44
565.59	-28.94	-48.87	-32.18
576.84	-30.21	-37.67	-35.95
588.09	-27.36	-42.92	-39.23
599.34	-32.73	-39.47	-35.20
610.59	-40.06	-36.19	-44.23
621.84	-30.31	-34.35	-31.82
633.09	-30.64	-36.01	-37.67
644.34	-29.77	-39.00	-32.74
655.59	-40.04	-31.07	-33.08
666.84	-24.75	-29.14	-27.94
678.09	-31.68	-31.24	-27.58
689.34	-28.44	-27.61	-24.25
700.59	-22.94	-26.13	-23.47
711.84	-25.24	-29.00	-22.03
723.09	-27.27	-27.63	-24.18
734.34	-22.36	-26.22	-23.42
745.59	-22.47	-23.85	-21.41
758.58	-17.30	-20.22	-18.12
773.67	-16.97	-21.09	-13.63
788.76	-11.99	-14.25	-12.78
803.84	-8.51	-12.86	-13.69
818.93	-8.51	-10.36	-12.59
834.02	-10.22	-10.67	-13.07
849.11	-10.21	-10.44	-10.09
864.20	-5.20	-10.96	-11.81
879.29	-5.54	-14.53	-14.46

894.38	-8.20	-12.13	-17.70
909.47	-15.25	-9.99	-13.35
924.56	-19.78	-11.34	-14.41
939.64	-18.13	-12.38	-14.81
954.73	-15.01	-11.66	-14.45
969.82	-12.81	-10.91	-13.24
984.91	-10.81	-11.36	-12.15
1000.00	-9.98	-10.92	-11.78