

技術資料3

FM送受信機シリーズ

各種ATTENUATOR資料

1. Attenuator 計算式
2. Unbalance B. T Type(50Ω)
3. Unbalance B. T Type(75Ω)
4. Unbalance T Type(50Ω)
5. Unbalance T Type(75Ω)
6. Unbalance π Type(50Ω)
7. Unbalance π Type(75Ω)
8. Balance B. T Type(600Ω)
9. Balance T Type(600Ω)
10. Balance π Type(600Ω)

Ver.1.01 02/09/2004



株式会社 ラフアンドレディ

URL <http://www.randr.co.jp>

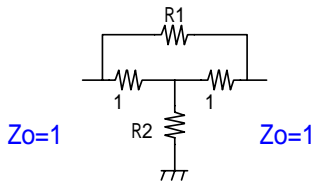
〒 158-0082 東京都世田谷区等々力 6 - 4 0 - 1 0

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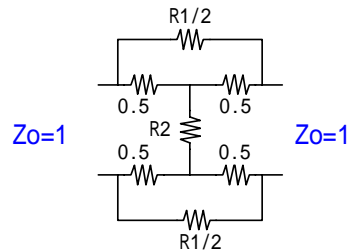
Impedance ($Z_0 = 1$) の時の $ATT(dB)=20\log S$

Unbalance ATT. (不平衡減衰器) Balance ATT. (平衡減衰器)

B . T T y p e



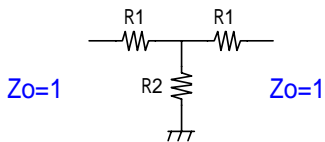
B . T T y p e



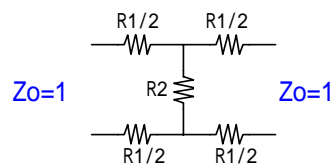
$$R1 = S - 1 \rightarrow R1 = 10^{\frac{(ATT)}{20}} - 1$$

$$R2 = \frac{1}{S - 1} \rightarrow R2 = \frac{1}{10^{\frac{(ATT)}{20}} - 1}$$

T T y p e



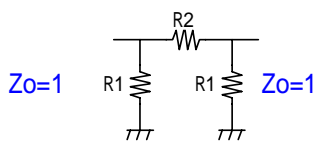
T T y p e



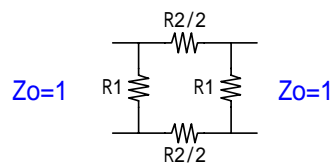
$$R1 = \frac{S - 1}{S + 1} \rightarrow R1 = \frac{10^{\frac{(ATT)}{20}} - 1}{10^{\frac{(ATT)}{20}} + 1}$$

$$R2 = \frac{2S}{S^2 - 1} \rightarrow R2 = \frac{2 \times 10^{\frac{(ATT)}{10}}}{10^{\frac{(ATT)}{10}} - 1}$$

T y p e



T y p e

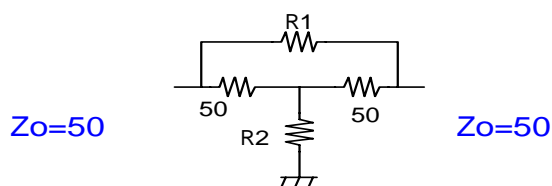


$$R1 = \frac{S + 1}{S - 1} \rightarrow R1 = \frac{10^{\frac{(ATT)}{20}} + 1}{10^{\frac{(ATT)}{20}} - 1}$$

$$R2 = \frac{S^2 - 1}{2S} \rightarrow R2 = \frac{10^{\frac{(ATT)}{10}} - 1}{2 \times 10^{\frac{(ATT)}{20}}}$$

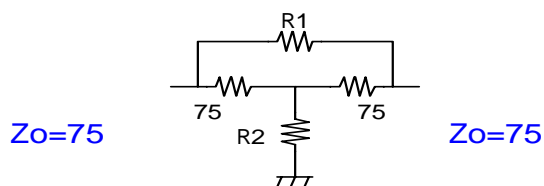
Bridge T Type Attenuator (Unbalance 50)

ATT.	Z0=50		ATT.	Z0=50		ATT.	Z0=50	
	R1()	R2()		R1()	R2()		R1()	R2()
0.1 dB	0.58	4317.99	5.1 dB	39.94	62.59	10.5 dB	117.48	21.28
0.2 dB	1.16	2146.57	5.2 dB	40.99	61.00	11.0 dB	127.41	19.62
0.3 dB	1.76	1422.79	5.3 dB	42.04	59.47	11.5 dB	137.92	18.13
0.4 dB	2.36	1060.93	5.4 dB	43.10	58.00	12.0 dB	149.05	16.77
0.5 dB	2.96	843.83	5.5 dB	44.18	56.58	12.5 dB	160.85	15.54
0.6 dB	3.58	699.11	5.6 dB	45.27	55.22	13.0 dB	173.34	14.42
0.7 dB	4.20	595.76	5.7 dB	46.38	53.91	13.5 dB	186.58	13.40
0.8 dB	4.82	518.25	5.8 dB	47.49	52.64	14.0 dB	200.59	12.46
0.9 dB	5.46	457.98	5.9 dB	48.62	51.42	14.5 dB	215.44	11.60
1.0 dB	6.10	409.77	6.0 dB	49.76	50.24	15.0 dB	231.17	10.81
1.1 dB	6.75	370.34	6.1 dB	50.92	49.10	15.5 dB	247.83	10.09
1.2 dB	7.41	337.49	6.2 dB	52.09	48.00	16.0 dB	265.48	9.42
1.3 dB	8.07	309.70	6.3 dB	53.27	46.93	16.5 dB	284.17	8.80
1.4 dB	8.74	285.88	6.4 dB	54.46	45.90	17.0 dB	303.97	8.22
1.5 dB	9.43	265.25	6.5 dB	55.67	44.90	17.5 dB	324.95	7.69
1.6 dB	10.11	247.20	6.6 dB	56.90	43.94	18.0 dB	347.16	7.20
1.7 dB	10.81	231.28	6.7 dB	58.14	43.00	18.5 dB	370.70	6.74
1.8 dB	11.51	217.14	6.8 dB	59.39	42.10	19.0 dB	395.63	6.32
1.9 dB	12.23	204.49	6.9 dB	60.65	41.22	19.5 dB	422.03	5.92
2.0 dB	12.95	193.11	7.0 dB	61.94	40.36	20.0 dB	450.00	5.56
2.1 dB	13.68	182.81	7.1 dB	63.23	39.54	20.5 dB	479.63	5.21
2.2 dB	14.41	173.46	7.2 dB	64.54	38.73	21.0 dB	511.01	4.89
2.3 dB	15.16	164.93	7.3 dB	65.87	37.95	21.5 dB	544.25	4.59
2.4 dB	15.91	157.11	7.4 dB	67.21	37.20	22.0 dB	579.46	4.31
2.5 dB	16.68	149.92	7.5 dB	68.57	36.46	22.5 dB	616.76	4.05
2.6 dB	17.45	143.28	7.6 dB	69.94	35.74	23.0 dB	656.27	3.81
2.7 dB	18.23	137.14	7.7 dB	71.33	35.05	23.5 dB	698.12	3.58
2.8 dB	19.02	131.45	7.8 dB	72.74	34.37	24.0 dB	742.45	3.37
2.9 dB	19.82	126.15	7.9 dB	74.16	33.71	24.5 dB	789.40	3.17
3.0 dB	20.63	121.20	8.0 dB	75.59	33.07	25.0 dB	839.14	2.98
3.1 dB	21.44	116.58	8.1 dB	77.05	32.45	25.5 dB	891.82	2.80
3.2 dB	22.27	112.25	8.2 dB	78.52	31.84	26.0 dB	947.63	2.64
3.3 dB	23.11	108.18	8.3 dB	80.01	31.25	26.5 dB	1006.74	2.48
3.4 dB	23.96	104.36	8.4 dB	81.51	30.67	27.0 dB	1069.36	2.34
3.5 dB	24.81	100.76	8.5 dB	83.04	30.11	27.5 dB	1135.69	2.20
3.6 dB	25.68	97.36	8.6 dB	84.58	29.56	28.0 dB	1205.94	2.07
3.7 dB	26.55	94.15	8.7 dB	86.14	29.02	28.5 dB	1280.36	1.95
3.8 dB	27.44	91.11	8.8 dB	87.71	28.50	29.0 dB	1359.19	1.84
3.9 dB	28.34	88.22	8.9 dB	89.31	27.99	29.5 dB	1442.69	1.73
4.0 dB	29.24	85.49	9.0 dB	90.92	27.50	30.0 dB	1531.14	1.63
4.1 dB	30.16	82.89	9.1 dB	92.55	27.01	30.5 dB	1624.83	1.54
4.2 dB	31.09	80.41	9.2 dB	94.20	26.54	31.0 dB	1724.07	1.45
4.3 dB	32.03	78.05	9.3 dB	95.87	26.08	31.5 dB	1829.19	1.37
4.4 dB	32.98	75.81	9.4 dB	97.56	25.63	32.0 dB	1940.54	1.29
4.5 dB	33.94	73.66	9.5 dB	99.27	25.18	32.5 dB	2058.48	1.21
4.6 dB	34.91	71.61	9.6 dB	101.00	24.75	33.0 dB	2183.42	1.14
4.7 dB	35.90	69.65	9.7 dB	102.75	24.33	33.5 dB	2315.76	1.08
4.8 dB	36.89	67.77	9.8 dB	104.51	23.92	34.0 dB	2455.94	1.02
4.9 dB	37.90	65.97	9.9 dB	106.30	23.52	34.5 dB	2604.42	0.96
5.0 dB	38.91	64.24	10.0 dB	108.11	23.12	35.0 dB	2761.71	0.91



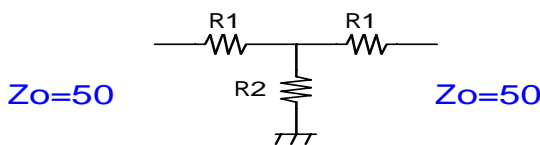
Bridge T Type Attenuator (Unbalance 75)

ATT.	Z0=75		ATT.	Z0=75		ATT.	Z0=75	
	R1()	R2()		R1()	R2()		R1()	R2()
0.1 dB	0.87	6476.99	5.1 dB	59.92	93.88	10.5 dB	176.22	31.92
0.2 dB	1.75	3219.85	5.2 dB	61.48	91.50	11.0 dB	191.11	29.43
0.3 dB	2.64	2134.19	5.3 dB	63.06	89.20	11.5 dB	206.88	27.19
0.4 dB	3.53	1591.39	5.4 dB	64.66	87.00	12.0 dB	223.58	25.16
0.5 dB	4.44	1265.74	5.5 dB	66.27	84.88	12.5 dB	241.27	23.31
0.6 dB	5.36	1048.67	5.6 dB	67.91	82.83	13.0 dB	260.01	21.63
0.7 dB	6.29	893.63	5.7 dB	69.56	80.86	13.5 dB	279.86	20.10
0.8 dB	7.24	777.38	5.8 dB	71.24	78.96	14.0 dB	300.89	18.69
0.9 dB	8.19	686.97	5.9 dB	72.93	77.13	14.5 dB	323.16	17.41
1.0 dB	9.15	614.66	6.0 dB	74.64	75.36	15.0 dB	346.76	16.22
1.1 dB	10.13	555.51	6.1 dB	76.38	73.65	15.5 dB	371.75	15.13
1.2 dB	11.11	506.23	6.2 dB	78.13	72.00	16.0 dB	398.22	14.13
1.3 dB	12.11	464.54	6.3 dB	79.90	70.40	16.5 dB	426.26	13.20
1.4 dB	13.12	428.82	6.4 dB	81.70	68.85	17.0 dB	455.96	12.34
1.5 dB	14.14	397.87	6.5 dB	83.51	67.36	17.5 dB	487.42	11.54
1.6 dB	15.17	370.80	6.6 dB	85.35	65.91	18.0 dB	520.75	10.80
1.7 dB	16.21	346.92	6.7 dB	87.20	64.50	18.5 dB	556.05	10.12
1.8 dB	17.27	325.71	6.8 dB	89.08	63.14	19.0 dB	593.44	9.48
1.9 dB	18.34	306.73	6.9 dB	90.98	61.83	19.5 dB	633.05	8.89
2.0 dB	19.42	289.66	7.0 dB	92.90	60.55	20.0 dB	675.00	8.33
2.1 dB	20.51	274.22	7.1 dB	94.85	59.31	20.5 dB	719.44	7.82
2.2 dB	21.62	260.19	7.2 dB	96.82	58.10	21.0 dB	766.51	7.34
2.3 dB	22.74	247.39	7.3 dB	98.80	56.93	21.5 dB	816.38	6.89
2.4 dB	23.87	235.66	7.4 dB	100.82	55.79	22.0 dB	869.19	6.47
2.5 dB	25.01	224.87	7.5 dB	102.85	54.69	22.5 dB	925.14	6.08
2.6 dB	26.17	214.92	7.6 dB	104.91	53.62	23.0 dB	984.40	5.71
2.7 dB	27.34	205.71	7.7 dB	107.00	52.57	23.5 dB	1047.18	5.37
2.8 dB	28.53	197.17	7.8 dB	109.10	51.56	24.0 dB	1113.67	5.05
2.9 dB	29.73	189.22	7.9 dB	111.23	50.57	24.5 dB	1184.10	4.75
3.0 dB	30.94	181.80	8.0 dB	113.39	49.61	25.0 dB	1258.71	4.47
3.1 dB	32.17	174.87	8.1 dB	115.57	48.67	25.5 dB	1337.74	4.20
3.2 dB	33.41	168.37	8.2 dB	117.78	47.76	26.0 dB	1421.45	3.96
3.3 dB	34.66	162.28	8.3 dB	120.01	46.87	26.5 dB	1510.12	3.72
3.4 dB	35.93	156.54	8.4 dB	122.27	46.00	27.0 dB	1604.04	3.51
3.5 dB	37.22	151.14	8.5 dB	124.55	45.16	27.5 dB	1703.53	3.30
3.6 dB	38.52	146.04	8.6 dB	126.87	44.34	28.0 dB	1808.91	3.11
3.7 dB	39.83	141.22	8.7 dB	129.20	43.54	28.5 dB	1920.54	2.93
3.8 dB	41.16	136.66	8.8 dB	131.57	42.75	29.0 dB	2038.79	2.76
3.9 dB	42.51	132.33	8.9 dB	133.96	41.99	29.5 dB	2164.04	2.60
4.0 dB	43.87	128.23	9.0 dB	136.38	41.25	30.0 dB	2296.71	2.45
4.1 dB	45.24	124.33	9.1 dB	138.83	40.52	30.5 dB	2437.24	2.31
4.2 dB	46.64	120.62	9.2 dB	141.30	39.81	31.0 dB	2586.10	2.18
4.3 dB	48.04	117.08	9.3 dB	143.81	39.11	31.5 dB	2743.78	2.05
4.4 dB	49.47	113.71	9.4 dB	146.34	38.44	32.0 dB	2910.80	1.93
4.5 dB	50.91	110.49	9.5 dB	148.90	37.78	32.5 dB	3087.72	1.82
4.6 dB	52.37	107.41	9.6 dB	151.50	37.13	33.0 dB	3275.13	1.72
4.7 dB	53.84	104.47	9.7 dB	154.12	36.50	33.5 dB	3473.63	1.62
4.8 dB	55.34	101.65	9.8 dB	156.77	35.88	34.0 dB	3683.90	1.53
4.9 dB	56.84	98.95	9.9 dB	159.46	35.28	34.5 dB	3906.63	1.44
5.0 dB	58.37	96.37	10.0 dB	162.17	34.69	35.0 dB	4142.56	1.36



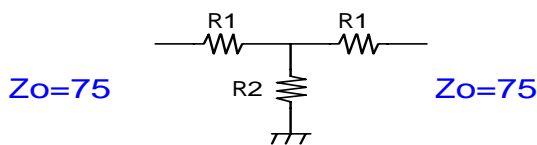
T Type Attenuator (Unbalance 50)

ATT.	Z0=50		ATT.	Z0=50		ATT.	Z0=50	
	R1()	R2()		R1()	R2()		R1()	R2()
0.1 dB	0.29	4342.85	5.1 dB	14.27	80.45	10.5 dB	27.01	32.77
0.2 dB	0.58	2171.28	5.2 dB	14.54	78.73	11.0 dB	28.01	30.62
0.3 dB	0.86	1447.36	5.3 dB	14.80	77.07	11.5 dB	28.98	28.63
0.4 dB	1.15	1085.35	5.4 dB	15.06	75.47	12.0 dB	29.92	26.81
0.5 dB	1.44	868.11	5.5 dB	15.32	73.92	12.5 dB	30.83	25.13
0.6 dB	1.73	723.25	5.6 dB	15.58	72.43	13.0 dB	31.71	23.57
0.7 dB	2.01	619.75	5.7 dB	15.84	70.99	13.5 dB	32.55	22.12
0.8 dB	2.30	542.10	5.8 dB	16.10	69.59	14.0 dB	33.37	20.78
0.9 dB	2.59	481.69	5.9 dB	16.36	68.24	14.5 dB	34.15	19.53
1.0 dB	2.88	433.34	6.0 dB	16.61	66.93	15.0 dB	34.90	18.36
1.1 dB	3.16	393.76	6.1 dB	16.87	65.66	15.5 dB	35.63	17.27
1.2 dB	3.45	360.76	6.2 dB	17.12	64.43	16.0 dB	36.32	16.26
1.3 dB	3.73	332.83	6.3 dB	17.38	63.24	16.5 dB	36.98	15.30
1.4 dB	4.02	308.87	6.4 dB	17.63	62.09	17.0 dB	37.62	14.41
1.5 dB	4.31	288.10	6.5 dB	17.88	60.96	17.5 dB	38.23	13.58
1.6 dB	4.59	269.91	6.6 dB	18.13	59.87	18.0 dB	38.82	12.79
1.7 dB	4.88	253.84	6.7 dB	18.38	58.81	18.5 dB	39.38	12.06
1.8 dB	5.16	239.56	6.8 dB	18.63	57.78	19.0 dB	39.91	11.36
1.9 dB	5.45	226.76	6.9 dB	18.88	56.78	19.5 dB	40.42	10.71
2.0 dB	5.73	215.24	7.0 dB	19.12	55.80	20.0 dB	40.91	10.10
2.1 dB	6.02	204.81	7.1 dB	19.37	54.85	20.5 dB	41.37	9.53
2.2 dB	6.30	195.31	7.2 dB	19.61	53.93	21.0 dB	41.82	8.98
2.3 dB	6.58	186.63	7.3 dB	19.86	53.03	21.5 dB	42.24	8.47
2.4 dB	6.86	178.67	7.4 dB	20.10	52.15	22.0 dB	42.64	7.99
2.5 dB	7.15	171.34	7.5 dB	20.34	51.29	22.5 dB	43.02	7.54
2.6 dB	7.43	164.57	7.6 dB	20.58	50.46	23.0 dB	43.39	7.12
2.7 dB	7.71	158.29	7.7 dB	20.82	49.64	23.5 dB	43.74	6.71
2.8 dB	7.99	152.45	7.8 dB	21.05	48.84	24.0 dB	44.06	6.33
2.9 dB	8.27	147.01	7.9 dB	21.29	48.07	24.5 dB	44.38	5.98
3.0 dB	8.55	141.93	8.0 dB	21.53	47.31	25.0 dB	44.68	5.64
3.1 dB	8.83	137.16	8.1 dB	21.76	46.57	25.5 dB	44.96	5.32
3.2 dB	9.11	132.69	8.2 dB	21.99	45.84	26.0 dB	45.23	5.02
3.3 dB	9.39	128.49	8.3 dB	22.22	45.14	26.5 dB	45.48	4.74
3.4 dB	9.66	124.53	8.4 dB	22.45	44.44	27.0 dB	45.72	4.48
3.5 dB	9.94	120.79	8.5 dB	22.68	43.77	27.5 dB	45.95	4.22
3.6 dB	10.22	117.25	8.6 dB	22.91	43.10	28.0 dB	46.17	3.99
3.7 dB	10.49	113.90	8.7 dB	23.14	42.46	28.5 dB	46.38	3.76
3.8 dB	10.77	110.72	8.8 dB	23.36	41.82	29.0 dB	46.57	3.55
3.9 dB	11.04	107.70	8.9 dB	23.59	41.20	29.5 dB	46.76	3.35
4.0 dB	11.31	104.83	9.0 dB	23.81	40.59	30.0 dB	46.93	3.17
4.1 dB	11.59	102.09	9.1 dB	24.03	40.00	30.5 dB	47.10	2.99
4.2 dB	11.86	99.48	9.2 dB	24.25	39.41	31.0 dB	47.26	2.82
4.3 dB	12.13	96.99	9.3 dB	24.47	38.84	31.5 dB	47.41	2.66
4.4 dB	12.40	94.60	9.4 dB	24.69	38.28	32.0 dB	47.55	2.51
4.5 dB	12.67	92.32	9.5 dB	24.91	37.73	32.5 dB	47.68	2.37
4.6 dB	12.94	90.14	9.6 dB	25.12	37.19	33.0 dB	47.81	2.24
4.7 dB	13.21	88.04	9.7 dB	25.34	36.66	33.5 dB	47.93	2.11
4.8 dB	13.47	86.03	9.8 dB	25.55	36.14	34.0 dB	48.04	2.00
4.9 dB	13.74	84.10	9.9 dB	25.76	35.64	34.5 dB	48.15	1.88
5.0 dB	14.01	82.24	10.0 dB	25.97	35.14	35.0 dB	48.25	1.78



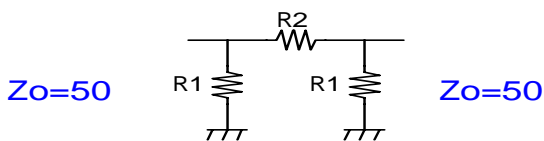
T Type Attenuator (Unbalance 75)

ATT.	Z0=75		ATT.	Z0=75		ATT.	Z0=75	
	R1()	R2()		R1()	R2()		R1()	R2()
0.1 dB	0.43	6514.27	5.1 dB	21.41	120.68	10.5 dB	40.51	49.16
0.2 dB	0.86	3256.92	5.2 dB	21.80	118.10	11.0 dB	42.02	45.92
0.3 dB	1.30	2171.04	5.3 dB	22.20	115.61	11.5 dB	43.48	42.95
0.4 dB	1.73	1628.03	5.4 dB	22.59	113.20	12.0 dB	44.89	40.22
0.5 dB	2.16	1302.16	5.5 dB	22.98	110.88	12.5 dB	46.25	37.69
0.6 dB	2.59	1084.87	5.6 dB	23.37	108.64	13.0 dB	47.56	35.35
0.7 dB	3.02	929.62	5.7 dB	23.76	106.48	13.5 dB	48.83	33.18
0.8 dB	3.45	813.15	5.8 dB	24.15	104.39	14.0 dB	50.05	31.17
0.9 dB	3.88	722.53	5.9 dB	24.54	102.36	14.5 dB	51.22	29.29
1.0 dB	4.31	650.00	6.0 dB	24.92	100.40	15.0 dB	52.35	27.55
1.1 dB	4.74	590.64	6.1 dB	25.30	98.50	15.5 dB	53.44	25.91
1.2 dB	5.17	541.15	6.2 dB	25.69	96.65	16.0 dB	54.48	24.39
1.3 dB	5.60	499.24	6.3 dB	26.07	94.86	16.5 dB	55.48	22.96
1.4 dB	6.03	463.31	6.4 dB	26.45	93.13	17.0 dB	56.43	21.62
1.5 dB	6.46	432.14	6.5 dB	26.82	91.44	17.5 dB	57.35	20.36
1.6 dB	6.89	404.86	6.6 dB	27.20	89.81	18.0 dB	58.23	19.19
1.7 dB	7.32	380.77	6.7 dB	27.57	88.22	18.5 dB	59.07	18.08
1.8 dB	7.74	359.33	6.8 dB	27.95	86.67	19.0 dB	59.87	17.04
1.9 dB	8.17	340.14	6.9 dB	28.32	85.17	19.5 dB	60.63	16.07
2.0 dB	8.60	322.86	7.0 dB	28.69	83.70	20.0 dB	61.36	15.15
2.1 dB	9.02	307.21	7.1 dB	29.05	82.28	20.5 dB	62.06	14.29
2.2 dB	9.45	292.97	7.2 dB	29.42	80.89	21.0 dB	62.73	13.48
2.3 dB	9.87	279.95	7.3 dB	29.78	79.54	21.5 dB	63.36	12.71
2.4 dB	10.30	268.01	7.4 dB	30.15	78.22	22.0 dB	63.96	11.99
2.5 dB	10.72	257.01	7.5 dB	30.51	76.94	22.5 dB	64.54	11.31
2.6 dB	11.14	246.85	7.6 dB	30.87	75.68	23.0 dB	65.08	10.67
2.7 dB	11.56	237.43	7.7 dB	31.22	74.46	23.5 dB	65.60	10.07
2.8 dB	11.98	228.68	7.8 dB	31.58	73.27	24.0 dB	66.10	9.50
2.9 dB	12.41	220.52	7.9 dB	31.94	72.10	24.5 dB	66.57	8.97
3.0 dB	12.82	212.89	8.0 dB	32.29	70.96	25.0 dB	67.01	8.46
3.1 dB	13.24	205.75	8.1 dB	32.64	69.85	25.5 dB	67.44	7.99
3.2 dB	13.66	199.04	8.2 dB	32.99	68.76	26.0 dB	67.84	7.54
3.3 dB	14.08	192.74	8.3 dB	33.34	67.70	26.5 dB	68.22	7.11
3.4 dB	14.49	186.79	8.4 dB	33.68	66.66	27.0 dB	68.59	6.71
3.5 dB	14.91	181.18	8.5 dB	34.02	65.65	27.5 dB	68.93	6.34
3.6 dB	15.32	175.88	8.6 dB	34.37	64.66	28.0 dB	69.26	5.98
3.7 dB	15.74	170.85	8.7 dB	34.71	63.68	28.5 dB	69.57	5.65
3.8 dB	16.15	166.08	8.8 dB	35.05	62.73	29.0 dB	69.86	5.33
3.9 dB	16.56	161.55	8.9 dB	35.38	61.80	29.5 dB	70.14	5.03
4.0 dB	16.97	157.24	9.0 dB	35.72	60.89	30.0 dB	70.40	4.75
4.1 dB	17.38	153.14	9.1 dB	36.05	59.99	30.5 dB	70.65	4.48
4.2 dB	17.79	149.22	9.2 dB	36.38	59.12	31.0 dB	70.89	4.23
4.3 dB	18.19	145.48	9.3 dB	36.71	58.26	31.5 dB	71.11	3.99
4.4 dB	18.60	141.91	9.4 dB	37.04	57.42	32.0 dB	71.32	3.77
4.5 dB	19.00	138.49	9.5 dB	37.36	56.59	32.5 dB	71.53	3.56
4.6 dB	19.41	135.21	9.6 dB	37.69	55.79	33.0 dB	71.72	3.36
4.7 dB	19.81	132.06	9.7 dB	38.01	54.99	33.5 dB	71.90	3.17
4.8 dB	20.21	129.05	9.8 dB	38.33	54.22	34.0 dB	72.07	2.99
4.9 dB	20.61	126.15	9.9 dB	38.65	53.45	34.5 dB	72.23	2.83
5.0 dB	21.01	123.36	10.0 dB	38.96	52.70	35.0 dB	72.38	2.67



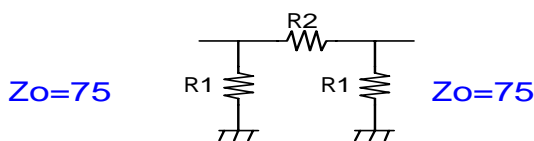
Type Attenuator (Unbalance 50)

ATT.	Z0=50		ATT.	Z0=50		ATT.	Z0=50	
	R1()	R2()		R1()	R2()		R1()	R2()
0.1 dB	8685.99	0.58	5.1 dB	175.18	31.07	10.5 dB	92.56	76.28
0.2 dB	4343.14	1.15	5.2 dB	172.00	31.75	11.0 dB	89.24	81.66
0.3 dB	2895.58	1.73	5.3 dB	168.94	32.44	11.5 dB	86.25	87.31
0.4 dB	2171.86	2.30	5.4 dB	166.00	33.13	12.0 dB	83.54	93.25
0.5 dB	1737.66	2.88	5.5 dB	163.17	33.82	12.5 dB	81.09	99.50
0.6 dB	1448.22	3.46	5.6 dB	160.44	34.52	13.0 dB	78.84	106.07
0.7 dB	1241.51	4.03	5.7 dB	157.81	35.22	13.5 dB	76.80	113.00
0.8 dB	1086.50	4.61	5.8 dB	155.28	35.92	14.0 dB	74.93	120.31
0.9 dB	965.96	5.19	5.9 dB	152.84	36.64	14.5 dB	73.21	128.01
1.0 dB	869.55	5.77	6.0 dB	150.48	37.35	15.0 dB	71.63	136.14
1.1 dB	790.68	6.35	6.1 dB	148.20	38.07	15.5 dB	70.18	144.72
1.2 dB	724.98	6.93	6.2 dB	145.99	38.80	16.0 dB	68.83	153.78
1.3 dB	669.39	7.51	6.3 dB	143.86	39.53	16.5 dB	67.59	163.35
1.4 dB	621.76	8.09	6.4 dB	141.80	40.27	17.0 dB	66.45	173.46
1.5 dB	580.50	8.68	6.5 dB	139.81	41.01	17.5 dB	65.39	184.14
1.6 dB	544.40	9.26	6.6 dB	137.88	41.76	18.0 dB	64.40	195.43
1.7 dB	512.56	9.85	6.7 dB	136.01	42.51	18.5 dB	63.49	207.38
1.8 dB	484.28	10.44	6.8 dB	134.19	43.27	19.0 dB	62.64	220.01
1.9 dB	458.97	11.02	6.9 dB	132.43	44.03	19.5 dB	61.85	233.37
2.0 dB	436.21	11.61	7.0 dB	130.73	44.80	20.0 dB	61.11	247.50
2.1 dB	415.63	12.21	7.1 dB	129.07	45.58	20.5 dB	60.42	262.45
2.2 dB	396.92	12.80	7.2 dB	127.47	46.36	21.0 dB	59.78	278.28
2.3 dB	379.85	13.40	7.3 dB	125.91	47.15	21.5 dB	59.19	295.02
2.4 dB	364.21	13.99	7.4 dB	124.39	47.94	22.0 dB	58.63	312.75
2.5 dB	349.83	14.59	7.5 dB	122.92	48.74	22.5 dB	58.11	331.51
2.6 dB	336.56	15.19	7.6 dB	121.49	49.55	23.0 dB	57.62	351.36
2.7 dB	324.29	15.79	7.7 dB	120.10	50.36	23.5 dB	57.16	372.39
2.8 dB	312.89	16.40	7.8 dB	118.74	51.18	24.0 dB	56.73	394.65
2.9 dB	302.29	17.01	7.9 dB	117.42	52.01	24.5 dB	56.33	418.21
3.0 dB	292.40	17.61	8.0 dB	116.14	52.84	25.0 dB	55.96	443.16
3.1 dB	283.16	18.23	8.1 dB	114.89	53.69	25.5 dB	55.61	469.59
3.2 dB	274.50	18.84	8.2 dB	113.68	54.53	26.0 dB	55.28	497.56
3.3 dB	266.37	19.46	8.3 dB	112.49	55.39	26.5 dB	54.97	527.19
3.4 dB	258.72	20.08	8.4 dB	111.34	56.25	27.0 dB	54.68	558.56
3.5 dB	251.52	20.70	8.5 dB	110.21	57.12	27.5 dB	54.40	591.79
3.6 dB	244.72	21.32	8.6 dB	109.12	58.00	28.0 dB	54.15	626.98
3.7 dB	238.29	21.95	8.7 dB	108.05	58.89	28.5 dB	53.91	664.24
3.8 dB	232.21	22.58	8.8 dB	107.01	59.78	29.0 dB	53.68	703.71
3.9 dB	226.44	23.21	8.9 dB	105.99	60.68	29.5 dB	53.47	745.51
4.0 dB	220.97	23.85	9.0 dB	104.99	61.59	30.0 dB	53.27	789.78
4.1 dB	215.77	24.49	9.1 dB	104.02	62.51	30.5 dB	53.08	836.67
4.2 dB	210.82	25.13	9.2 dB	103.08	63.43	31.0 dB	52.90	886.33
4.3 dB	206.11	25.78	9.3 dB	102.15	64.37	31.5 dB	52.73	938.93
4.4 dB	201.61	26.43	9.4 dB	101.25	65.31	32.0 dB	52.58	994.64
4.5 dB	197.32	27.08	9.5 dB	100.37	66.26	32.5 dB	52.43	1053.65
4.6 dB	193.22	27.73	9.6 dB	99.51	67.22	33.0 dB	52.29	1116.15
4.7 dB	189.29	28.40	9.7 dB	98.66	68.19	33.5 dB	52.16	1182.35
4.8 dB	185.54	29.06	9.8 dB	97.84	69.17	34.0 dB	52.04	1252.47
4.9 dB	181.94	29.73	9.9 dB	97.03	70.15	34.5 dB	51.92	1326.74
5.0 dB	178.49	30.40	10.0 dB	96.25	71.15	35.0 dB	51.81	1405.41



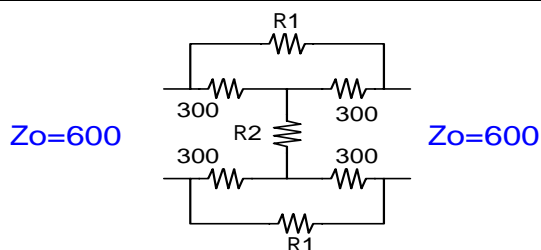
Type Attenuator (Unbalance 75)

ATT.	Z0=75		ATT.	Z0=75		ATT.	Z0=75	
	R1()	R2()		R1()	R2()		R1()	R2()
0.1 dB	13028.98	0.86	5.1 dB	262.77	46.61	10.5 dB	138.84	114.42
0.2 dB	6514.71	1.73	5.2 dB	257.99	47.63	11.0 dB	133.87	122.49
0.3 dB	4343.38	2.59	5.3 dB	253.41	48.66	11.5 dB	129.38	130.96
0.4 dB	3257.78	3.46	5.4 dB	249.00	49.69	12.0 dB	125.32	139.87
0.5 dB	2606.49	4.32	5.5 dB	244.75	50.73	12.5 dB	121.63	149.24
0.6 dB	2172.34	5.18	5.6 dB	240.66	51.77	13.0 dB	118.27	159.11
0.7 dB	1862.27	6.05	5.7 dB	236.72	52.83	13.5 dB	115.20	169.51
0.8 dB	1629.76	6.92	5.8 dB	232.92	53.89	14.0 dB	112.39	180.46
0.9 dB	1448.94	7.79	5.9 dB	229.25	54.95	14.5 dB	109.81	192.02
1.0 dB	1304.32	8.65	6.0 dB	225.71	56.03	15.0 dB	107.44	204.21
1.1 dB	1186.02	9.52	6.1 dB	222.29	57.11	15.5 dB	105.26	217.08
1.2 dB	1087.46	10.39	6.2 dB	218.99	58.20	16.0 dB	103.25	230.67
1.3 dB	1004.09	11.27	6.3 dB	215.79	59.30	16.5 dB	101.39	245.02
1.4 dB	932.64	12.14	6.4 dB	212.70	60.40	17.0 dB	99.67	260.18
1.5 dB	870.75	13.02	6.5 dB	209.71	61.51	17.5 dB	98.08	276.21
1.6 dB	816.60	13.89	6.6 dB	206.81	62.63	18.0 dB	96.60	293.15
1.7 dB	768.85	14.77	6.7 dB	204.01	63.76	18.5 dB	95.23	311.07
1.8 dB	726.41	15.65	6.8 dB	201.29	64.90	19.0 dB	93.96	330.01
1.9 dB	688.46	16.54	6.9 dB	198.65	66.05	19.5 dB	92.77	350.05
2.0 dB	654.32	17.42	7.0 dB	196.09	67.20	20.0 dB	91.67	371.25
2.1 dB	623.44	18.31	7.1 dB	193.61	68.37	20.5 dB	90.64	393.68
2.2 dB	595.38	19.20	7.2 dB	191.20	69.54	21.0 dB	89.68	417.41
2.3 dB	569.78	20.09	7.3 dB	188.86	70.72	21.5 dB	88.78	442.53
2.4 dB	546.32	20.99	7.4 dB	186.59	71.91	22.0 dB	87.94	469.12
2.5 dB	524.75	21.89	7.5 dB	184.38	73.11	22.5 dB	87.16	497.26
2.6 dB	504.85	22.79	7.6 dB	182.23	74.32	23.0 dB	86.43	527.05
2.7 dB	486.43	23.69	7.7 dB	180.14	75.54	23.5 dB	85.74	558.58
2.8 dB	469.34	24.60	7.8 dB	178.11	76.77	24.0 dB	85.10	591.97
2.9 dB	453.44	25.51	7.9 dB	176.14	78.02	24.5 dB	84.50	627.32
3.0 dB	438.60	26.42	8.0 dB	174.21	79.27	25.0 dB	83.94	664.75
3.1 dB	424.74	27.34	8.1 dB	172.34	80.53	25.5 dB	83.41	704.38
3.2 dB	411.75	28.26	8.2 dB	170.52	81.80	26.0 dB	82.91	746.34
3.3 dB	399.55	29.18	8.3 dB	168.74	83.08	26.5 dB	82.45	790.78
3.4 dB	388.08	30.11	8.4 dB	167.01	84.38	27.0 dB	82.01	837.85
3.5 dB	377.28	31.05	8.5 dB	165.32	85.68	27.5 dB	81.60	887.68
3.6 dB	367.08	31.98	8.6 dB	163.68	87.00	28.0 dB	81.22	940.46
3.7 dB	357.44	32.92	8.7 dB	162.07	88.33	28.5 dB	80.86	996.36
3.8 dB	348.32	33.87	8.8 dB	160.51	89.67	29.0 dB	80.52	1055.56
3.9 dB	339.67	34.82	8.9 dB	158.98	91.02	29.5 dB	80.20	1118.26
4.0 dB	331.46	35.77	9.0 dB	157.49	92.38	30.0 dB	79.90	1184.67
4.1 dB	323.66	36.73	9.1 dB	156.04	93.76	30.5 dB	79.62	1255.00
4.2 dB	316.23	37.70	9.2 dB	154.62	95.15	31.0 dB	79.35	1329.49
4.3 dB	309.16	38.66	9.3 dB	153.23	96.55	31.5 dB	79.10	1408.39
4.4 dB	302.42	39.64	9.4 dB	151.88	97.96	32.0 dB	78.86	1491.96
4.5 dB	295.98	40.62	9.5 dB	150.55	99.39	32.5 dB	78.64	1580.47
4.6 dB	289.82	41.60	9.6 dB	149.26	100.83	33.0 dB	78.43	1674.22
4.7 dB	283.94	42.59	9.7 dB	148.00	102.28	33.5 dB	78.24	1773.52
4.8 dB	278.31	43.59	9.8 dB	146.76	103.75	34.0 dB	78.05	1878.70
4.9 dB	272.91	44.59	9.9 dB	145.55	105.23	34.5 dB	77.88	1990.11
5.0 dB	267.73	45.60	10.0 dB	144.37	106.73	35.0 dB	77.72	2108.11



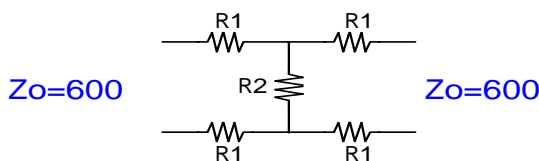
Bridge T Type Attenuator (Balance 600)

ATT.	Z0=600		ATT.	Z0=600		ATT.	Z0=600	
	R1()	R2()		R1()	R2()		R1()	R2()
0.1 dB	3.47	51815.91	5.1 dB	239.66	751.06	10.5 dB	704.90	255.36
0.2 dB	6.99	25758.82	5.2 dB	245.91	731.97	11.0 dB	764.44	235.47
0.3 dB	10.54	17073.51	5.3 dB	252.23	713.63	11.5 dB	827.51	217.52
0.4 dB	14.14	12731.14	5.4 dB	258.63	695.99	12.0 dB	894.32	201.27
0.5 dB	17.78	10125.95	5.5 dB	265.09	679.00	12.5 dB	965.09	186.51
0.6 dB	21.46	8389.34	5.6 dB	271.64	662.65	13.0 dB	1040.05	173.07
0.7 dB	25.18	7149.08	5.7 dB	278.26	646.88	13.5 dB	1119.45	160.79
0.8 dB	28.94	6219.02	5.8 dB	284.95	631.68	14.0 dB	1203.56	149.56
0.9 dB	32.75	5495.77	5.9 dB	291.73	617.02	14.5 dB	1292.65	139.25
1.0 dB	36.61	4917.29	6.0 dB	298.58	602.86	15.0 dB	1387.02	129.77
1.1 dB	40.50	4444.09	6.1 dB	305.51	589.18	15.5 dB	1486.99	121.05
1.2 dB	44.45	4049.85	6.2 dB	312.52	575.96	16.0 dB	1592.87	113.00
1.3 dB	48.43	3716.35	6.3 dB	319.61	563.18	16.5 dB	1705.03	105.57
1.4 dB	52.47	3430.58	6.4 dB	326.79	550.81	17.0 dB	1823.84	98.69
1.5 dB	56.55	3182.99	6.5 dB	334.05	538.85	17.5 dB	1949.68	92.32
1.6 dB	60.68	2966.41	6.6 dB	341.39	527.26	18.0 dB	2082.98	86.41
1.7 dB	64.86	2775.39	6.7 dB	348.82	516.03	18.5 dB	2224.19	80.93
1.8 dB	69.08	2605.65	6.8 dB	356.33	505.15	19.0 dB	2373.75	75.83
1.9 dB	73.35	2453.84	6.9 dB	363.93	494.60	19.5 dB	2532.18	71.08
2.0 dB	77.68	2317.27	7.0 dB	371.62	484.37	20.0 dB	2700.00	66.67
2.1 dB	82.05	2193.76	7.1 dB	379.39	474.44	20.5 dB	2877.76	62.55
2.2 dB	86.47	2081.53	7.2 dB	387.26	464.80	21.0 dB	3066.06	58.71
2.3 dB	90.95	1979.11	7.3 dB	395.22	455.44	21.5 dB	3265.51	55.12
2.4 dB	95.48	1885.27	7.4 dB	403.27	446.35	22.0 dB	3476.78	51.77
2.5 dB	100.06	1798.98	7.5 dB	411.41	437.52	22.5 dB	3700.56	48.64
2.6 dB	104.69	1719.38	7.6 dB	419.65	428.93	23.0 dB	3937.61	45.71
2.7 dB	109.37	1645.72	7.7 dB	427.98	420.58	23.5 dB	4188.71	42.97
2.8 dB	114.12	1577.35	7.8 dB	436.41	412.45	24.0 dB	4454.68	40.41
2.9 dB	118.91	1513.74	7.9 dB	444.94	404.55	24.5 dB	4736.41	38.00
3.0 dB	123.76	1454.41	8.0 dB	453.57	396.86	25.0 dB	5034.84	35.75
3.1 dB	128.67	1398.95	8.1 dB	462.29	389.36	25.5 dB	5350.95	33.64
3.2 dB	133.63	1346.98	8.2 dB	471.12	382.07	26.0 dB	5685.79	31.66
3.3 dB	138.65	1298.20	8.3 dB	480.05	374.96	26.5 dB	6040.47	29.80
3.4 dB	143.73	1252.33	8.4 dB	489.08	368.04	27.0 dB	6416.16	28.05
3.5 dB	148.87	1209.10	8.5 dB	498.22	361.29	27.5 dB	6814.12	26.42
3.6 dB	154.07	1168.31	8.6 dB	507.46	354.71	28.0 dB	7235.66	24.88
3.7 dB	159.33	1129.76	8.7 dB	516.81	348.29	28.5 dB	7682.18	23.43
3.8 dB	164.64	1093.26	8.8 dB	526.27	342.03	29.0 dB	8155.15	22.07
3.9 dB	170.03	1058.67	8.9 dB	535.84	335.92	29.5 dB	8656.15	20.79
4.0 dB	175.47	1025.83	9.0 dB	545.51	329.96	30.0 dB	9186.83	19.59
4.1 dB	180.97	994.62	9.1 dB	555.31	324.15	30.5 dB	9748.96	18.46
4.2 dB	186.54	964.92	9.2 dB	565.21	318.47	31.0 dB	10344.40	17.40
4.3 dB	192.18	936.64	9.3 dB	575.23	312.92	31.5 dB	10975.12	16.40
4.4 dB	197.88	909.66	9.4 dB	585.36	307.50	32.0 dB	11643.22	15.46
4.5 dB	203.64	883.91	9.5 dB	595.61	302.21	32.5 dB	12350.90	14.57
4.6 dB	209.47	859.30	9.6 dB	605.99	297.04	33.0 dB	13100.51	13.74
4.7 dB	215.37	835.76	9.7 dB	616.48	291.98	33.5 dB	13894.54	12.95
4.8 dB	221.34	813.23	9.8 dB	627.09	287.04	34.0 dB	14735.62	12.22
4.9 dB	227.38	791.64	9.9 dB	637.82	282.21	34.5 dB	15626.53	11.52
5.0 dB	233.48	770.93	10.0 dB	648.68	277.49	35.0 dB	16570.24	10.86



T Type Attenuator (Balance 600)

ATT.	Z0=600		ATT.	Z0=600		ATT.	Z0=600	
	R1()	R2()		R1()	R2()		R1()	R2()
0.1 dB	1.73	52114.19	5.1 dB	85.63	965.43	10.5 dB	162.06	393.30
0.2 dB	3.45	26055.37	5.2 dB	87.21	944.76	11.0 dB	168.08	367.39
0.3 dB	5.18	17368.33	5.3 dB	88.79	924.84	11.5 dB	173.91	343.61
0.4 dB	6.91	13024.23	5.4 dB	90.36	905.62	12.0 dB	179.54	321.73
0.5 dB	8.63	10417.31	5.5 dB	91.93	887.07	12.5 dB	184.99	301.52
0.6 dB	10.36	8678.99	5.6 dB	93.49	869.15	13.0 dB	190.25	282.82
0.7 dB	12.08	7437.00	5.7 dB	95.05	851.83	13.5 dB	195.32	265.48
0.8 dB	13.81	6505.22	5.8 dB	96.60	835.08	14.0 dB	200.20	249.36
0.9 dB	15.53	5780.24	5.9 dB	98.14	818.87	14.5 dB	204.90	234.35
1.0 dB	17.25	5200.04	6.0 dB	99.68	803.17	15.0 dB	209.41	220.36
1.1 dB	18.97	4725.12	6.1 dB	101.22	787.96	15.5 dB	213.75	207.30
1.2 dB	20.69	4329.16	6.2 dB	102.74	773.22	16.0 dB	217.92	195.09
1.3 dB	22.41	3993.94	6.3 dB	104.27	758.91	16.5 dB	221.91	183.66
1.4 dB	24.12	3706.45	6.4 dB	105.78	745.03	17.0 dB	225.74	172.96
1.5 dB	25.84	3457.15	6.5 dB	107.29	731.56	17.5 dB	229.40	162.92
1.6 dB	27.55	3238.86	6.6 dB	108.79	718.47	18.0 dB	232.91	153.50
1.7 dB	29.26	3046.12	6.7 dB	110.29	705.74	18.5 dB	236.26	144.66
1.8 dB	30.97	2874.68	6.8 dB	111.78	693.37	19.0 dB	239.47	136.36
1.9 dB	32.68	2721.16	6.9 dB	113.26	681.34	19.5 dB	242.53	128.55
2.0 dB	34.39	2582.88	7.0 dB	114.74	669.63	20.0 dB	245.45	121.21
2.1 dB	36.09	2457.67	7.1 dB	116.21	658.23	20.5 dB	248.24	114.31
2.2 dB	37.79	2343.74	7.2 dB	117.68	647.13	21.0 dB	250.90	107.81
2.3 dB	39.49	2239.62	7.3 dB	119.14	636.31	21.5 dB	253.43	101.69
2.4 dB	41.18	2144.09	7.4 dB	120.59	625.77	22.0 dB	255.85	95.92
2.5 dB	42.88	2056.11	7.5 dB	122.03	615.49	22.5 dB	258.15	90.50
2.6 dB	44.57	1974.81	7.6 dB	123.47	605.46	23.0 dB	260.33	85.38
2.7 dB	46.26	1899.46	7.7 dB	124.90	595.68	23.5 dB	262.41	80.56
2.8 dB	47.94	1829.41	7.8 dB	126.32	586.13	24.0 dB	264.39	76.02
2.9 dB	49.62	1764.12	7.9 dB	127.74	576.81	24.5 dB	266.27	71.73
3.0 dB	51.30	1703.11	8.0 dB	129.15	567.70	25.0 dB	268.06	67.70
3.1 dB	52.97	1645.97	8.1 dB	130.56	558.81	25.5 dB	269.75	63.89
3.2 dB	54.65	1592.34	8.2 dB	131.95	550.12	26.0 dB	271.36	60.29
3.3 dB	56.31	1541.89	8.3 dB	133.34	541.62	26.5 dB	272.89	56.91
3.4 dB	57.98	1494.35	8.4 dB	134.72	533.31	27.0 dB	274.34	53.71
3.5 dB	59.64	1449.46	8.5 dB	136.10	525.19	27.5 dB	275.72	50.69
3.6 dB	61.29	1407.02	8.6 dB	137.47	517.24	28.0 dB	277.03	47.85
3.7 dB	62.95	1366.81	8.7 dB	138.83	509.46	28.5 dB	278.27	45.16
3.8 dB	64.60	1328.66	8.8 dB	140.18	501.85	29.0 dB	279.44	42.63
3.9 dB	66.24	1292.42	8.9 dB	141.53	494.40	29.5 dB	280.55	40.24
4.0 dB	67.88	1257.95	9.0 dB	142.87	487.10	30.0 dB	281.61	37.99
4.1 dB	69.52	1225.10	9.1 dB	144.20	479.95	30.5 dB	282.61	35.86
4.2 dB	71.15	1193.77	9.2 dB	145.52	472.94	31.0 dB	283.55	33.85
4.3 dB	72.78	1163.86	9.3 dB	146.84	466.08	31.5 dB	284.45	31.95
4.4 dB	74.40	1135.26	9.4 dB	148.15	459.35	32.0 dB	285.30	30.16
4.5 dB	76.02	1107.89	9.5 dB	149.45	452.76	32.5 dB	286.10	28.47
4.6 dB	77.63	1081.67	9.6 dB	150.74	446.29	33.0 dB	286.86	26.88
4.7 dB	79.24	1056.52	9.7 dB	152.03	439.95	33.5 dB	287.58	25.37
4.8 dB	80.85	1032.38	9.8 dB	153.31	433.73	34.0 dB	288.26	23.95
4.9 dB	82.45	1009.19	9.9 dB	154.58	427.63	34.5 dB	288.91	22.61
5.0 dB	84.04	986.89	10.0 dB	155.85	421.64	35.0 dB	289.52	21.35



Type Attenuator (Balance 600)

ATT.	Z0=600		ATT.	Z0=600		ATT.	Z0=600	
	R1()	R2()		R1()	R2()		R1()	R2()
0.1 dB	104231.83	3.45	5.1 dB	2102.12	186.44	10.5 dB	1110.71	457.67
0.2 dB	52117.64	6.91	5.2 dB	2063.95	190.52	11.0 dB	1070.93	489.94
0.3 dB	34747.01	10.36	5.3 dB	2027.26	194.63	11.5 dB	1035.04	523.85
0.4 dB	26062.27	13.82	5.4 dB	1991.97	198.76	12.0 dB	1002.54	559.48
0.5 dB	20851.89	17.28	5.5 dB	1958.01	202.91	12.5 dB	973.02	596.97
0.6 dB	17378.69	20.74	5.6 dB	1925.29	207.10	13.0 dB	946.14	636.44
0.7 dB	14898.15	24.20	5.7 dB	1893.77	211.31	13.5 dB	921.59	678.02
0.8 dB	13038.04	27.67	5.8 dB	1863.36	215.55	14.0 dB	899.11	721.85
0.9 dB	11591.55	31.14	5.9 dB	1834.03	219.81	14.5 dB	878.50	768.07
1.0 dB	10434.58	34.62	6.0 dB	1805.71	224.11	15.0 dB	859.55	816.84
1.1 dB	9488.18	38.09	6.1 dB	1778.36	228.44	15.5 dB	842.10	868.31
1.2 dB	8699.70	41.58	6.2 dB	1751.92	232.79	16.0 dB	826.01	922.66
1.3 dB	8032.71	45.07	6.3 dB	1726.36	237.18	16.5 dB	811.14	980.07
1.4 dB	7461.16	48.56	6.4 dB	1701.63	241.60	17.0 dB	797.39	1040.73
1.5 dB	6965.97	52.07	6.5 dB	1677.69	246.05	17.5 dB	784.65	1104.84
1.6 dB	6532.83	55.58	6.6 dB	1654.52	250.53	18.0 dB	772.83	1172.61
1.7 dB	6150.78	59.09	6.7 dB	1632.06	255.05	18.5 dB	761.86	1244.27
1.8 dB	5811.30	62.62	6.8 dB	1610.30	259.60	19.0 dB	751.66	1320.05
1.9 dB	5507.68	66.15	6.9 dB	1589.21	264.19	19.5 dB	742.17	1400.20
2.0 dB	5234.54	69.69	7.0 dB	1568.74	268.81	20.0 dB	733.33	1485.00
2.1 dB	4987.52	73.24	7.1 dB	1548.88	273.46	20.5 dB	725.10	1574.72
2.2 dB	4763.06	76.80	7.2 dB	1529.61	278.15	21.0 dB	717.41	1669.66
2.3 dB	4558.22	80.37	7.3 dB	1510.89	282.88	21.5 dB	710.24	1770.13
2.4 dB	4370.54	83.95	7.4 dB	1492.71	287.65	22.0 dB	703.54	1876.47
2.5 dB	4197.97	87.54	7.5 dB	1475.04	292.45	22.5 dB	697.28	1989.03
2.6 dB	4038.76	91.15	7.6 dB	1457.86	297.29	23.0 dB	691.43	2108.19
2.7 dB	3891.43	94.76	7.7 dB	1441.15	302.18	23.5 dB	685.95	2234.33
2.8 dB	3754.70	98.39	7.8 dB	1424.91	307.10	24.0 dB	680.81	2367.88
2.9 dB	3627.49	102.03	7.9 dB	1409.10	312.06	24.5 dB	676.01	2509.27
3.0 dB	3508.83	105.69	8.0 dB	1393.71	317.07	25.0 dB	671.50	2658.98
3.1 dB	3397.89	109.36	8.1 dB	1378.73	322.11	25.5 dB	667.28	2817.51
3.2 dB	3293.97	113.04	8.2 dB	1364.14	327.20	26.0 dB	663.32	2985.38
3.3 dB	3196.41	116.74	8.3 dB	1349.93	332.34	26.5 dB	659.60	3163.14
3.4 dB	3104.65	120.45	8.4 dB	1336.08	337.51	27.0 dB	656.11	3351.38
3.5 dB	3018.21	124.18	8.5 dB	1322.58	342.73	27.5 dB	652.83	3550.74
3.6 dB	2936.62	127.93	8.6 dB	1309.41	348.00	28.0 dB	649.75	3761.86
3.7 dB	2859.51	131.69	8.7 dB	1296.58	353.31	28.5 dB	646.86	3985.45
3.8 dB	2786.52	135.47	8.8 dB	1284.06	358.67	29.0 dB	644.14	4222.25
3.9 dB	2717.33	139.27	8.9 dB	1271.85	364.08	29.5 dB	641.59	4473.05
4.0 dB	2651.66	143.09	9.0 dB	1259.93	369.54	30.0 dB	639.19	4738.67
4.1 dB	2589.24	146.93	9.1 dB	1248.29	375.04	30.5 dB	636.93	5020.00
4.2 dB	2529.85	150.78	9.2 dB	1236.93	380.59	31.0 dB	634.80	5317.97
4.3 dB	2473.27	154.66	9.3 dB	1225.84	386.20	31.5 dB	632.80	5633.57
4.4 dB	2419.32	158.55	9.4 dB	1215.00	391.85	32.0 dB	630.92	5967.84
4.5 dB	2367.82	162.47	9.5 dB	1204.42	397.56	32.5 dB	629.15	6321.89
4.6 dB	2318.60	166.41	9.6 dB	1194.07	403.32	33.0 dB	627.48	6696.90
4.7 dB	2271.52	170.37	9.7 dB	1183.96	409.14	33.5 dB	625.91	7094.10
4.8 dB	2226.46	174.35	9.8 dB	1174.08	415.01	34.0 dB	624.43	7514.82
4.9 dB	2183.27	178.36	9.9 dB	1164.42	420.93	34.5 dB	623.04	7960.44
5.0 dB	2141.86	182.39	10.0 dB	1154.97	426.91	35.0 dB	621.73	8432.45

