

50 Ω 用 π 型アッテネータの好都合な抵抗値

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Rev.1.04 : Feb. 8, 2010

Zo= 50										Comment
	Ra	Rs	E(Rs)	Ra'	Err_Rs	Z	Γ	S22	S21	
-1.0dB	5.1	982.94	1000.0	5.01	-1.71%	50.08	0.08%	-31.03	-0.877	
	5.6	895.65	910.0	5.51	-1.58%	50.08	0.08%	-31.01	-0.963	
	6.2	809.54	820.0	6.12	-1.28%	50.07	0.07%	-31.54	-1.067	
	6.8	738.68	750.0	6.70	-1.51%	50.09	0.09%	-30.45	-1.169	
	7.5	670.40	680.0	7.39	-1.41%	50.09	0.09%	-30.37	-1.289	
	8.2	613.83	620.0	8.12	-1.00%	50.07	0.07%	-31.56	-1.411	
	9.1	553.96	560.0	9.00	-1.08%	50.08	0.08%	-30.83	-1.564	
	10.0	504.95	510.0	9.90	-0.99%	50.08	0.08%	-30.86	-1.717	
	11.0	459.98	470.0	10.76	-2.13%	50.19	0.19%	-27.19	-1.876	
-2.2dB	12.0	422.58	430.0	11.79	-1.72%	50.17	0.17%	-27.80	-2.047	
	13.0	391.01	390.0	13.03	0.26%	49.97	-0.03%	-35.78	-2.237	
	15.0	340.67	330.0	15.51	3.23%	49.63	-0.37%	-24.35	-2.609	
-3.0dB	16.0	320.31	330.0	15.51	-2.94%	50.35	0.35%	-24.52	-2.694	
	18.0	286.50	300.0	17.14	-4.50%	50.59	0.59%	-22.29	-2.995	very popular
	20.0	259.63	270.0	19.18	-3.84%	50.55	0.54%	-22.65	-3.323	
-4.0dB	22.0	237.79	240.0	21.78	-0.92%	50.14	0.14%	-28.59	-3.691	
	24.0	219.71	220.0	23.97	-0.13%	50.02	0.02%	-36.82	-4.021	
	27.0	197.82	200.0	26.67	-1.09%	50.19	0.19%	-27.28	-4.464	
-4.9dB	30.0	180.52	180.0	30.10	0.29%	49.95	-0.05%	-32.81	-4.948	
	33.0	166.53	160.0	34.63	4.08%	49.22	-0.78%	-21.06	-5.488	
	36.0	155.02	150.0	37.50	3.34%	49.33	-0.68%	-21.70	-5.904	
-6.0dB	37.5	150.00	150.0	37.50	0.00%	50.00	0.00%	$-\infty$	-6.021	1/2, 37.5 Ω =75 Ω /2
-6.1dB	39.0	145.40	150.0	37.50	-3.07%	50.66	0.66%	-21.82	-6.136	very popular
	43.0	134.82	130.0	45.14	3.71%	49.18	-0.83%	-20.84	-6.884	
	47.0	126.19	130.0	45.14	-2.93%	50.70	0.69%	-21.59	-7.180	
-7.6dB	49.9	120.88	121.0	49.83	-0.10%	50.02	0.02%	-36.25	-7.640	E96
-7.8dB	51.0	119.04	120.0	50.42	-0.80%	50.20	0.20%	-27.07	-7.749	
	56.0	111.67	110.0	57.29	1.52%	49.61	-0.39%	-24.11	-8.430	
	62.0	104.56	100.0	66.67	4.56%	48.81	-1.21%	-19.18	-9.233	E96
-9.9dB	68.0	98.83	100.0	66.67	-1.17%	50.33	0.33%	-24.81	-9.629	
	69.8	97.32	97.6	69.46	-0.29%	50.08	0.08%	-30.92	-9.851	E96
	75.0	93.43	91.0	78.71	2.67%	49.23	-0.77%	-21.12	-10.501	
-14.0dB	82.0	89.05	91.0	78.71	-2.14%	50.66	0.65%	-21.85	-10.926	
	91.0	84.52	82.0	97.06	3.08%	49.05	-0.96%	-20.18	-11.971	
	100.0	80.90	82.0	97.06	-1.34%	50.44	0.44%	-23.58	-12.467	
-16.3dB	110.0	77.65	75.0	120.00	3.53%	48.84	-1.18%	-19.29	-13.483	
	120.0	75.00	75.0	120.00	0.00%	50.00	0.00%	$-\infty$	-13.979	1/5
	130.0	72.80	75.0	120.00	-2.93%	51.06	1.05%	-19.78	-14.449	
-24.8dB	150.0	69.37	68.0	160.08	2.02%	49.27	-0.74%	-21.31	-15.921	
	160.0	68.01	68.0	160.08	0.01%	49.99	-0.01%	-42.77	-16.329	
	180.0	65.78	68.0	160.08	-3.26%	51.30	1.28%	-18.93	-17.093	
-24.8dB	200.0	64.04	62.0	230.65	3.29%	48.73	-1.29%	-18.91	-18.416	
	220.0	62.64	62.0	230.65	1.03%	49.59	-0.41%	-23.82	-19.071	
	240.0	61.49	62.0	230.65	-0.82%	50.34	0.34%	-24.70	-19.680	
-24.8dB	270.0	60.11	62.0	230.65	-3.05%	51.31	1.30%	-18.88	-20.520	
	300.0	59.02	62.0	230.65	-4.80%	52.14	2.09%	-16.80	-21.286	
	330.0	58.15	56.0	440.25	3.83%	48.40	-1.63%	-17.88	-22.745	
-24.8dB	360.0	57.42	56.0	440.25	2.54%	48.91	-1.10%	-19.58	-23.400	
	390.0	56.82	56.0	440.25	1.46%	49.36	-0.64%	-21.92	-24.009	
	430.0	56.15	56.0	440.25	0.27%	49.88	-0.12%	-29.20	-24.761	
-24.8dB	470.0	55.60	56.0	440.25	-0.71%	50.32	0.32%	-24.92	-25.452	
	510.0	55.14	56.0	440.25	-1.53%	50.71	0.70%	-21.54	-26.092	

50Ω用T型アッテネータの好都合な抵抗値

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Rev.1.05 : Mar. 8, 2010

Zo= 50

	Ra	Rs	E(Rs)	Ra'	Err_Rs	Z	Γ	S22	S21	Comment
	3.0	415.17	430.0	2.90	-3.45%	50.18	0.18%	-27.35	-1.026	
	3.3	377.14	390.0	3.19	-3.30%	50.19	0.19%	-27.19	-1.129	
	3.6	345.42	360.0	3.46	-4.05%	50.25	0.25%	-25.97	-1.228	
	3.9	318.56	330.0	3.77	-3.47%	50.23	0.23%	-26.35	-1.334	
	4.3	288.55	300.0	4.14	-3.82%	50.28	0.28%	-25.57	-1.469	
	4.7	263.61	270.0	4.59	-2.37%	50.19	0.18%	-27.33	-1.618	
-2.0dB	5.1	242.55	240.0	5.15	1.06%	49.91	-0.09%	-30.55	-1.788	
	5.6	220.41	220.0	5.61	0.19%	49.98	-0.02%	-37.74	-1.956	
	6.2	198.51	200.0	6.16	-0.74%	50.07	0.07%	-31.43	-2.157	
	6.8	180.42	180.0	6.82	0.24%	49.98	-0.02%	-36.14	-2.380	
	7.5	162.92	160.0	7.63	1.82%	49.80	-0.20%	-26.96	-2.649	
	8.5	142.81	150.0	8.11	-4.79%	50.59	0.58%	-22.34	-2.911	
	9.1	132.81	130.0	9.28	2.16%	49.73	-0.27%	-25.66	-3.231	
-3.5dB	10.0	120.00	120.0	10.00	0.00%	50.00	0.00%	-∞	-3.522	4/9
	11.0	108.14	110.0	10.83	-1.69%	50.24	0.24%	-26.21	-3.853	
	12.0	98.17	100.0	11.80	-1.83%	50.27	0.27%	-25.67	-4.214	
	13.0	89.65	91.0	12.83	-1.48%	50.23	0.23%	-26.44	-4.589	
	15.0	75.83	75.0	15.14	1.11%	49.82	-0.18%	-27.47	-5.406	
	16.0	70.13	68.0	16.40	3.13%	49.49	-0.51%	-22.92	-5.848	
	18.0	60.44	62.0	17.65	-2.51%	50.43	0.43%	-23.68	-6.468	
	20.0	52.50	51.0	20.42	2.94%	49.50	-0.50%	-23.02	-7.461	
-7.4dB	20.0	52.50	52.5	20.00	0.00%	50.00	0.00%	-∞	-7.360	9/49, 52.5=105/2,E96
	22.0	45.82	47.0	21.62	-2.51%	50.44	0.44%	-23.61	-8.107	
	24.0	40.08	39.0	24.41	2.78%	49.54	-0.46%	-23.35	-9.200	
-10.5dB	27.0	32.80	33.0	26.91	-0.62%	50.10	0.10%	-30.00	-10.466	
	30.0	26.67	27.0	29.82	-1.23%	50.19	0.19%	-27.29	-11.977	
	33.0	21.38	22.0	32.63	-2.82%	50.39	0.39%	-24.10	-13.609	
	36.0	16.72	16.0	36.50	4.51%	49.49	-0.51%	-22.90	-16.045	
	39.0	12.55	13.0	38.66	-3.45%	50.34	0.34%	-24.66	-17.923	E96
-22.5dB	43.0	7.57	7.5	43.06	0.93%	49.94	-0.06%	-32.24	-22.537	
-30.5dB	47.0	3.10	3.0	47.09	3.19%	49.91	-0.09%	-30.45	-30.450	

75Ω用π型アッテネータの好都合な抵抗値

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Rev.1.04 : Feb. 8, 2010

Zo= 75										Comment
	Ra	Rs	E(Rs)	Ra'	Err_Rs	Z	Γ	S22	S21	
-0.9dB	7.5	1503.74	1500.0	7.52	0.25%	74.98	-0.01%	-39.47	-0.868	
	8.2	1376.04	1300.0	8.68	5.85%	74.57	-0.29%	-25.43	-0.975	
	9.1	1240.80	1200.0	9.41	3.40%	74.73	-0.18%	-27.37	-1.069	
	10.0	1129.98	1100.0	10.28	2.73%	74.76	-0.16%	-27.97	-1.170	
	11.0	1028.20	1000.0	11.31	2.82%	74.73	-0.18%	-27.46	-1.287	
	12.0	943.46	910.0	12.45	3.68%	74.62	-0.25%	-25.99	-1.409	
	13.0	871.84	910.0	12.45	-4.19%	75.47	0.31%	-25.10	-1.467	
-1.7dB	15.0	757.43	750.0	15.15	0.99%	74.88	-0.08%	-30.87	-1.734	
	16.0	711.04	680.0	16.75	4.56%	74.41	-0.40%	-24.02	-1.881	
-2.1dB	18.0	633.87	620.0	18.41	2.24%	74.68	-0.21%	-26.69	-2.088	
	20.0	572.33	560.0	20.46	2.20%	74.66	-0.23%	-26.41	-2.315	
	22.0	522.14	510.0	22.55	2.38%	74.60	-0.27%	-25.75	-2.542	
	24.0	480.46	470.0	24.56	2.23%	74.60	-0.27%	-25.76	-2.764	
-3.1dB	27.0	429.76	430.0	26.98	-0.06%	75.01	0.01%	-41.30	-3.062	very popular
-3.4dB	30.0	389.44	390.0	29.95	-0.14%	75.03	0.02%	-36.98	-3.385	
	33.0	356.68	360.0	32.67	-0.92%	75.21	0.14%	-28.59	-3.691	
-4.0dB	36.0	329.57	330.0	35.95	-0.13%	75.03	0.02%	-36.82	-4.021	
	37.5	317.71	330.0	35.95	-3.73%	75.92	0.61%	-22.13	-4.103	
	39.0	306.80	300.0	40.00	2.27%	74.44	-0.38%	-24.23	-4.383	
-4.4dB	40.0	300.00	300.0	40.00	0.00%	75.00	0.00%	-∞	-4.437	
	43.0	281.60	270.0	45.15	4.30%	73.87	-0.76%	-21.20	-4.840	
	47.0	260.92	270.0	45.15	-3.36%	75.96	0.64%	-21.97	-5.054	
	51.0	243.67	240.0	51.95	1.53%	74.55	-0.30%	-25.22	-5.567	
-6.1dB	56.0	225.80	220.0	57.86	2.64%	74.19	-0.54%	-22.64	-6.073	very popular
	62.0	208.44	200.0	65.45	4.22%	73.64	-0.92%	-20.37	-6.675	
	68.0	194.38	200.0	65.45	-2.81%	75.99	0.65%	-21.85	-6.974	
-28.4dB	75.0	181.07	180.0	75.63	0.59%	74.79	-0.14%	-28.43	-7.677	
	82.0	170.24	180.0	75.63	-5.42%	77.12	1.40%	-18.55	-8.007	
	91.0	159.00	160.0	90.11	-0.62%	75.25	0.17%	-27.79	-8.873	
-9.5dB	100.0	150.00	150.0	100.00	0.00%	75.00	0.00%	-∞	-9.542	1/9
	110.0	141.91	150.0	100.00	-5.39%	77.42	1.59%	-17.99	-9.966	
	120.0	135.32	130.0	129.71	4.09%	73.20	-1.21%	-19.17	-11.044	
-11.4dB	130.0	129.86	130.0	129.71	-0.11%	75.05	0.03%	-34.64	-11.439	
	150.0	121.35	120.0	153.85	1.13%	74.45	-0.37%	-24.36	-12.600	
	160.0	117.99	120.0	153.85	-1.68%	75.85	0.56%	-22.50	-12.951	
	180.0	112.50	110.0	191.12	2.27%	73.84	-0.78%	-21.07	-14.110	
	200.0	108.23	110.0	191.12	-1.61%	75.88	0.58%	-22.36	-14.733	
	220.0	104.81	100.0	257.14	4.81%	72.44	-1.74%	-17.61	-15.906	
	240.0	102.01	100.0	257.14	2.01%	73.88	-0.75%	-21.24	-16.456	
	270.0	98.67	100.0	257.14	-1.33%	75.78	0.52%	-22.87	-17.222	
	300.0	96.06	100.0	257.14	-3.94%	77.42	1.59%	-17.99	-17.925	
	330.0	93.96	91.0	385.45	3.25%	73.08	-1.30%	-18.87	-19.224	
-20.4dB	360.0	92.24	91.0	385.45	1.36%	74.17	-0.55%	-22.56	-19.834	
	390.0	90.80	91.0	385.45	-0.22%	75.14	0.09%	-30.32	-20.404	
	430.0	89.21	91.0	385.45	-1.96%	76.27	0.84%	-20.77	-21.110	
	470.0	87.92	91.0	385.45	-3.39%	77.25	1.48%	-18.31	-21.763	
	510.0	86.84	91.0	385.45	-4.58%	78.10	2.03%	-16.93	-22.371	
	560.0	85.71	82.0	839.40	4.53%	72.13	-1.95%	-17.10	-23.863	
	620.0	84.62	82.0	839.40	3.19%	72.93	-1.40%	-18.54	-24.643	
	680.0	83.73	82.0	839.40	2.11%	73.61	-0.94%	-20.28	-25.359	
-26.8dB	750.0	82.87	82.0	839.40	1.07%	74.28	-0.48%	-23.18	-26.126	
	820.0	82.17	82.0	839.40	0.21%	74.86	-0.10%	-30.16	-26.830	

75Ω用T型アッテネータの好都合な抵抗値

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Rev.1.04 : Feb. 8, 2010

Zo= 75

	Ra	Rs	E(Rs)	Ra'	Err_Rs	Z	Γ	S22	S21	Comment
	4.7	596.05	620.0	4.52	-3.86%	75.32	0.21%	-26.70	-1.069	
	5.1	548.92	560.0	5.00	-1.98%	75.18	0.12%	-29.30	-1.171	
	5.6	499.43	510.0	5.49	-2.07%	75.20	0.13%	-28.75	-1.286	
	6.2	450.53	470.0	5.95	-4.14%	75.44	0.29%	-25.36	-1.410	
	6.8	410.20	430.0	6.49	-4.60%	75.53	0.35%	-24.57	-1.543	
	7.5	371.25	390.0	7.15	-4.81%	75.60	0.40%	-24.03	-1.701	
	8.2	338.89	330.0	8.42	2.69%	74.65	-0.24%	-26.28	-1.932	
	9.1	304.52	300.0	9.23	1.51%	74.79	-0.14%	-28.45	-2.134	
	10.0	276.25	270.0	10.22	2.31%	74.65	-0.24%	-26.28	-2.357	
	11.0	250.18	240.0	11.45	4.24%	74.31	-0.46%	-23.37	-2.620	
	12.0	228.38	220.0	12.43	3.81%	74.35	-0.44%	-23.58	-2.856	
	13.0	209.85	200.0	13.60	4.92%	74.11	-0.60%	-22.25	-3.116	
-3.5dB	15.0	180.00	180.0	15.00	0.00%	75.00	0.00%	-∞	-3.522	4/9
	16.0	167.78	160.0	16.71	4.86%	74.01	-0.67%	-21.77	-3.853	very popular
	18.0	147.25	150.0	17.71	-1.83%	75.41	0.27%	-25.67	-4.214	
-4.8dB	20.0	130.63	130.0	20.08	0.48%	74.89	-0.07%	-31.30	-4.758	
	22.0	116.84	120.0	21.51	-2.63%	75.64	0.43%	-23.71	-5.183	
	24.0	105.19	100.0	25.00	5.19%	73.75	-0.84%	-20.75	-5.904	
-6.0dB	25.0	100.00	100.0	25.00	0.00%	75.00	0.00%	-∞	-6.021	1/2, 25Ω=75Ω/3
-6.5dB	27.0	90.67	91.0	26.92	-0.37%	75.09	0.06%	-32.07	-6.536	
	30.0	78.75	75.0	31.07	5.00%	73.75	-0.84%	-20.76	-7.532	
	33.0	68.73	68.0	33.24	1.07%	74.73	-0.18%	-27.40	-8.244	
	36.0	60.13	56.0	37.60	7.37%	73.22	-1.20%	-19.21	-9.387	
	39.0	52.62	51.0	39.70	3.17%	74.24	-0.51%	-22.91	-10.154	
	43.0	43.91	43.0	43.45	2.11%	74.52	-0.32%	-24.89	-11.439	
	47.0	36.34	36.0	47.19	0.95%	74.80	-0.14%	-28.69	-12.835	
	51.0	29.65	30.0	50.78	-1.18%	75.23	0.15%	-28.14	-14.333	
	56.0	22.22	22.0	56.16	1.01%	74.84	-0.11%	-29.62	-16.836	
-16.8dB	56.0	22.22	22.1	56.09	0.56%	74.91	-0.06%	-32.21	-16.806	E96
	62.0	14.36	15.0	61.49	-4.25%	75.52	0.35%	-24.62	-20.145	
-26.1dB	68.0	7.36	7.5	67.87	-1.86%	75.13	0.08%	-30.75	-26.057	