

Voltage Variable Equalizer, 50Ω

VAEQ-2150R+

Typical Performance Data @ V+=5V

Frequency (MHz)	Insertion Loss (dB)		Input Return Loss (dB)		Output Return Loss (dB)		Deviation from Linear (dB)		Insertion Phase (deg)	
	Vcontrol		Vcontrol		Vcontrol		Vcontrol		Vcontrol	
	0V	3.2V	0V	3.2V	0V	3.2V	0V	3.2V	0V	3.2V
900	13.21	12.22	14.87	17.46	17.22	17.69	-	-	-97.85	-108.77
920	13.08	12.14	14.80	17.35	17.09	17.55	-	-	-100.72	-111.52
940	12.95	12.04	14.69	17.19	17.01	17.47	-	-	-103.69	-114.41
950	12.89	12.00	14.66	17.13	16.99	17.46	51.62	26.34	-105.11	-115.76
970	12.72	11.87	14.58	17.03	16.93	17.40	19.47	9.73	-108.05	-118.54
990	12.62	11.80	14.51	16.91	16.68	17.15	10.29	3.06	-111.05	-121.44
1010	12.51	11.72	14.39	16.75	16.62	17.07	5.27	-1.20	-114.11	-124.43
1030	12.39	11.63	14.31	16.63	16.56	17.02	1.77	-4.57	-117.03	-127.24
1050	12.27	11.54	14.24	16.53	16.52	16.98	-1.06	-7.52	-119.97	-130.10
1070	12.08	11.40	14.18	16.43	16.51	16.98	-3.55	-10.27	-122.86	-132.77
1090	12.01	11.34	14.03	16.23	16.13	16.58	-5.81	-12.83	-126.29	-136.11
1110	11.91	11.26	13.97	16.13	16.09	16.54	-8.03	-15.40	-129.21	-138.94
1130	11.78	11.18	13.93	16.08	16.03	16.47	-10.18	-17.88	-132.13	-141.76
1150	11.66	11.07	13.75	15.83	15.94	16.39	-12.25	-20.32	-135.40	-144.89
1170	11.55	11.00	13.70	15.76	16.04	16.49	-14.33	-22.75	-138.29	-147.69
1190	11.41	10.87	13.63	15.66	15.60	16.04	-16.41	-25.17	-141.60	-150.79
1210	11.26	10.75	13.54	15.55	15.55	16.00	-18.59	-27.63	-144.76	-153.80
1230	11.20	10.71	13.42	15.37	15.49	15.93	-20.67	-30.04	-147.88	-156.87
1270	10.98	10.55	13.35	15.25	15.55	16.00	-25.03	-34.92	-153.69	-162.47
1300	10.81	10.39	13.12	14.96	15.08	15.51	-28.24	-38.53	-159.10	-167.62
1325	10.70	10.31	13.05	14.84	15.05	15.48	-30.95	-41.46	-162.81	-171.20
1350	10.50	10.14	12.91	14.66	14.98	15.42	-33.92	-44.69	-166.78	-174.98
1375	10.43	10.09	12.75	14.45	14.98	15.41	-36.65	-47.61	-170.68	-178.79
1400	10.22	9.91	12.66	14.31	14.76	15.20	-39.66	-50.80	-174.83	177.35
1425	10.10	9.81	12.47	14.08	14.55	14.98	-42.58	-53.86	-179.00	173.29
1450	10.02	9.75	12.35	13.91	14.50	14.92	-45.71	-57.10	176.88	169.28
1475	9.90	9.66	12.31	13.84	14.57	15.00	-48.61	-60.12	173.37	165.90
1500	9.70	9.47	12.09	13.57	14.82	15.27	-51.90	-63.48	168.98	161.79
1525	9.61	9.40	11.98	13.41	14.13	14.55	-54.87	-66.49	164.78	157.68
1550	9.44	9.25	11.93	13.35	14.09	14.52	-58.20	-69.86	160.85	153.93
1575	9.38	9.20	11.71	13.07	14.02	14.44	-61.37	-73.01	156.54	149.73
1600	9.22	9.08	11.68	13.02	14.18	14.62	-64.71	-76.38	152.72	146.13
1625	9.05	8.90	11.49	12.78	13.83	14.25	-67.82	-79.48	148.10	141.69
1650	8.98	8.85	11.37	12.62	13.66	14.07	-71.50	-83.06	143.86	137.57
1675	8.83	8.73	11.36	12.58	13.68	14.10	-74.67	-86.23	140.15	134.03
1700	8.70	8.61	11.10	12.28	13.49	13.90	-78.11	-89.58	135.24	129.30
1725	8.63	8.55	11.01	12.15	13.58	13.99	-81.69	-93.04	131.50	125.70
1750	8.36	8.30	11.01	12.13	13.40	13.82	-85.20	-96.52	127.24	121.69
1775	8.32	8.26	10.74	11.80	13.09	13.48	-88.70	-99.85	122.35	116.91
1800	8.26	8.22	10.63	11.66	13.11	13.50	-92.42	-103.50	118.11	112.80
1825	8.06	8.04	10.59	11.59	13.46	13.88	-95.77	-106.74	114.46	109.40
1850	7.92	7.89	10.35	11.30	12.84	13.23	-99.58	-110.41	109.19	104.30
1900	7.69	7.70	10.12	11.00	12.73	13.11	-106.50	-117.11	100.72	96.17
1950	7.47	7.49	9.87	10.67	12.52	12.88	-114.11	-124.43	92.01	87.80
2000	7.13	7.16	9.53	10.24	12.41	12.76	-121.36	-131.43	82.56	78.79
2050	6.98	7.03	9.15	9.77	11.99	12.30	-129.21	-138.94	72.83	69.40
2100	6.58	6.64	8.98	9.52	12.06	12.37	-136.89	-146.33	63.66	60.71
2150	6.54	6.60	8.45	8.88	11.62	11.87	-144.76	-153.80	53.61	50.99
2200	6.23	6.29	8.12	8.46	11.98	12.21	-	-	44.11	41.95
2250	6.09	6.13	7.57	7.82	11.19	11.37	-	-	32.54	30.72
2300	5.82	5.85	7.17	7.34	11.14	11.28	-	-	21.36	19.93
2350	5.71	5.72	6.76	6.85	11.35	11.45	-	-	10.98	9.88



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Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuits' applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet are subject to Mini-Circuits' standard limited warranty and terms and conditions (collectively, "Standard Terms"). Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at: www.minicircuits.com/MCIS/Store/terms.jsp

Voltage Variable Equalizer, 50Ω

VAEQ-2150R+

Typical Performance Data @ V+=5V

Frequency (MHz)	Insertion Loss (dB) Vcontrol		Input Return Loss (dB) Vcontrol		Output Return Loss (dB) Vcontrol		Deviation from Linear (dB) Vcontrol		Insertion Phase (deg) Vcontrol		Frequency (MHz)	Input IP3 (dBm) Vcontrol 5V
	4.3V	5V	4.3V	5V	4.3V	5V	4.3V	5V	4.3V	5V		
	900	7.18	5.84	19.85	17.27	20.38	18.82	-	-	-134.91		
920	7.18	5.84	19.94	17.33	20.40	18.85	-	-	-137.94	-141.72	950	54.03
940	7.17	5.84	20.10	17.45	20.42	18.87	-	-	-140.99	-144.84	1000	53.98
950	7.17	5.84	20.12	17.47	20.43	18.87	4.55	3.03	-142.51	-146.41	1100	53.80
970	7.16	5.85	20.18	17.49	20.99	19.30	-1.85	-2.95	-145.36	-149.32	1150	54.38
990	7.14	5.83	20.35	17.62	20.65	19.07	-5.84	-6.76	-148.52	-152.54	1200	54.95
1010	7.14	5.83	20.49	17.74	20.64	19.07	-9.32	-10.20	-151.64	-155.71	1300	54.82
1030	7.14	5.84	20.59	17.81	20.65	19.08	-12.60	-13.49	-154.65	-158.82	1400	55.08
1050	7.14	5.85	20.67	17.88	20.69	19.12	-15.77	-16.70	-157.70	-161.94	1450	54.67
1070	7.12	5.85	20.90	18.03	20.98	19.30	-18.90	-19.89	-160.47	-164.79	1500	54.26
1090	7.10	5.83	20.98	18.12	21.02	19.44	-21.96	-23.00	-163.80	-168.12	1600	54.91
1110	7.10	5.84	21.06	18.19	20.92	19.37	-25.02	-26.11	-166.84	-171.25	1650	54.50
1130	7.11	5.85	21.17	18.27	20.88	19.33	-28.08	-29.24	-169.88	-174.38	1700	54.08
1150	7.08	5.84	21.43	18.49	20.93	19.39	-31.13	-32.36	-172.98	-177.52	1800	53.81
1170	7.11	5.87	21.42	18.50	20.92	19.34	-34.17	-35.46	-176.03	179.32	1850	54.58
1190	7.05	5.83	21.56	18.59	21.48	19.92	-37.18	-38.56	-178.93	176.42	1900	55.35
1210	7.03	5.82	22.00	18.93	21.24	19.70	-40.22	-41.65	177.98	173.25	2000	54.76
1230	7.05	5.84	21.88	18.91	21.14	19.66	-43.24	-44.74	174.77	169.98	2050	54.21
1270	7.08	5.89	21.97	19.00	21.01	19.49	-49.30	-50.95	168.82	163.82	2100	53.65
1300	7.01	5.83	22.34	19.36	21.65	20.20	-53.83	-55.59	164.07	159.09	2150	53.22
1325	7.03	5.86	22.36	19.44	21.29	19.90	-57.43	-59.28	160.26	155.16	2200	53.02
1350	7.00	5.85	22.81	19.84	21.32	19.90	-61.36	-63.29	156.52	151.34	2300	52.80
1375	7.03	5.89	22.53	19.79	21.10	19.74	-64.96	-66.99	152.52	147.23		
1400	6.97	5.86	22.68	19.93	22.12	20.71	-68.87	-71.00	148.94	143.62		
1425	6.95	5.84	23.00	20.41	21.51	20.26	-72.50	-74.71	144.92	139.53		
1450	6.99	5.89	22.79	20.43	21.24	20.06	-76.41	-78.71	140.75	135.24		
1475	7.02	5.94	22.80	20.51	21.11	19.89	-80.02	-82.42	137.24	131.59		
1500	6.98	5.93	22.89	20.82	22.33	20.79	-83.96	-86.45	133.58	127.91		
1525	6.95	5.89	22.89	21.11	21.55	20.58	-87.55	-90.13	129.41	123.69		
1550	6.94	5.91	23.25	21.61	21.37	20.39	-91.45	-94.13	125.76	119.92		
1575	6.97	5.94	22.66	21.53	21.12	20.23	-95.09	-97.86	121.55	115.62		
1600	7.00	6.00	22.58	21.54	21.37	20.32	-98.99	-101.85	117.97	111.88		
1625	6.90	5.92	22.72	22.28	21.58	20.86	-102.57	-105.53	114.07	108.04		
1650	6.95	5.97	22.22	22.12	21.04	20.47	-106.54	-109.57	109.82	103.64		
1675	6.96	6.01	22.26	22.36	21.02	20.40	-110.15	-113.29	106.41	100.09		
1700	6.93	6.00	21.71	22.50	20.91	20.50	-113.99	-117.24	102.03	95.68		
1725	6.99	6.08	21.25	22.20	20.72	20.28	-117.71	-121.01	98.40	91.92		
1750	6.88	6.01	21.55	23.02	21.32	21.11	-121.60	-125.01	95.04	88.51		
1775	6.91	6.04	20.62	22.48	20.53	20.59	-125.24	-128.72	90.37	83.77		
1800	7.00	6.15	20.05	21.99	20.11	20.11	-129.16	-132.73	86.32	79.53		
1825	6.99	6.19	19.95	22.17	20.68	20.43	-132.77	-136.44	83.39	76.47		
1850	6.90	6.11	19.24	21.77	20.38	20.93	-136.72	-140.47	78.75	71.88		
1900	6.96	6.23	18.29	20.95	19.75	20.30	-144.02	-147.96	71.31	64.13		
1950	7.03	6.36	17.24	19.87	19.28	20.24	-151.64	-155.71	63.78	56.43		
2000	6.94	6.39	16.11	18.64	19.37	20.74	-159.15	-163.44	56.26	48.83		
2050	7.05	6.58	14.74	16.93	18.02	19.53	-166.84	-171.25	48.09	40.37		
2100	6.94	6.63	13.87	15.84	18.31	20.35	-174.56	-179.15	41.53	33.82		
2150	7.15	6.98	12.26	13.77	16.81	18.80	177.98	173.25	33.60	25.84		
2200	7.06	7.10	11.10	12.26	16.92	19.14	-	-	27.65	20.42		
2250	7.02	7.25	9.55	10.25	15.37	17.75	-	-	19.38	13.19		
2300	6.71	7.05	8.32	8.66	14.75	17.13	-	-	12.24	8.04		
2350	6.46	6.78	7.24	7.32	14.22	16.35	-	-	5.75	3.53		



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Voltage Variable Equalizer, 50Ω

VAEQ-2150R+

Typical Performance Data @ V+=3V

Frequency (MHz)	Insertion Loss (dB) Vcontrol		Input Return Loss (dB) Vcontrol		Output Return Loss (dB) Vcontrol		Deviation from Linear (dB) Vcontrol		Insertion Phase (deg) Vcontrol	
	0V	2.1V	0V	2.1V	0V	2.1V	0V	2.1V	0V	2.1V
	900	13.15	12.27	13.11	14.47	16.01	13.11	-	-	-98.68
920	13.03	12.18	13.06	14.41	15.90	13.05	-	-	-101.52	-110.50
940	12.89	12.08	12.98	14.32	15.85	13.03	-	-	-104.47	-113.37
950	12.84	12.04	12.96	14.29	15.84	13.03	51.20	30.95	-105.88	-114.75
970	12.67	11.91	12.90	14.22	15.72	12.99	18.75	11.08	-108.82	-117.46
990	12.57	11.84	12.86	14.16	15.59	12.89	9.58	3.84	-111.76	-120.41
1010	12.46	11.75	12.77	14.04	15.53	12.87	4.53	-0.64	-114.81	-123.33
1030	12.34	11.66	12.72	13.98	15.49	12.86	0.98	-4.14	-117.71	-126.18
1050	12.23	11.57	12.67	13.91	15.47	12.86	-1.90	-7.16	-120.64	-128.99
1070	12.04	11.43	12.63	13.87	15.47	12.89	-4.45	-9.94	-123.46	-131.63
1090	11.97	11.36	12.51	13.72	15.14	12.65	-6.76	-12.51	-126.90	-134.97
1110	11.87	11.28	12.47	13.67	15.11	12.65	-9.02	-15.09	-129.81	-137.84
1130	11.75	11.19	12.45	13.64	15.06	12.64	-11.21	-17.56	-132.71	-140.62
1150	11.62	11.08	12.31	13.48	14.99	12.61	-13.32	-20.00	-135.96	-143.75
1170	11.52	11.01	12.28	13.43	15.10	12.70	-15.43	-22.40	-138.83	-146.53
1190	11.37	10.87	12.23	13.37	14.70	12.43	-17.53	-24.81	-142.09	-149.62
1210	11.23	10.75	12.17	13.29	14.67	12.42	-19.71	-27.22	-145.22	-152.57
1230	11.17	10.70	12.07	13.18	14.62	12.40	-21.82	-29.63	-148.35	-155.70
1270	10.95	10.54	12.04	13.12	14.70	12.51	-26.19	-34.44	-154.12	-161.29
1300	10.77	10.36	11.86	12.90	14.27	12.20	-29.43	-37.99	-159.50	-166.43
1325	10.66	10.28	11.81	12.84	14.26	12.22	-32.13	-40.92	-163.20	-169.99
1350	10.47	10.11	11.71	12.73	14.21	12.21	-35.10	-44.10	-167.13	-173.75
1375	10.40	10.06	11.58	12.57	14.23	12.25	-37.84	-46.99	-171.03	-177.58
1400	10.19	9.86	11.52	12.49	14.00	12.11	-40.85	-50.19	-175.14	178.57
1425	10.07	9.75	11.37	12.32	13.84	12.00	-43.74	-53.18	-179.28	174.54
1450	9.99	9.69	11.28	12.20	13.81	11.99	-46.87	-56.40	176.59	170.48
1475	9.87	9.60	11.27	12.18	13.89	12.09	-49.75	-59.41	173.10	167.09
1500	9.66	9.40	11.08	11.96	14.09	12.32	-53.02	-62.70	168.74	163.03
1525	9.58	9.32	11.00	11.86	13.49	11.82	-56.00	-65.74	164.55	158.87
1550	9.41	9.17	10.98	11.83	13.47	11.84	-59.29	-69.05	160.65	155.14
1575	9.34	9.11	10.79	11.61	13.42	11.83	-62.44	-72.19	156.33	150.89
1600	9.18	8.98	10.79	11.60	13.58	12.01	-65.77	-75.56	152.53	147.27
1625	9.01	8.79	10.63	11.41	13.25	11.75	-68.87	-78.60	147.93	142.85
1650	8.93	8.73	10.53	11.30	13.11	11.66	-72.51	-82.19	143.69	138.68
1675	8.78	8.60	10.54	11.30	13.16	11.74	-75.67	-85.34	140.02	135.15
1700	8.65	8.47	10.32	11.05	12.97	11.61	-79.07	-88.63	135.08	130.35
1725	8.58	8.42	10.25	10.96	13.06	11.73	-82.63	-92.14	131.33	126.68
1750	8.32	8.15	10.27	10.98	12.92	11.63	-86.12	-95.56	127.12	122.73
1775	8.27	8.10	10.04	10.71	12.63	11.40	-89.58	-98.87	122.21	117.86
1800	8.21	8.06	9.96	10.61	12.67	11.49	-93.28	-102.51	117.96	113.68
1825	7.99	7.87	9.95	10.58	13.03	11.87	-96.61	-105.72	114.36	110.32
1850	7.87	7.72	9.74	10.35	12.42	11.32	-100.39	-109.41	109.03	105.08
1900	7.63	7.51	9.57	10.13	12.43	11.40	-107.26	-116.06	100.69	96.95
1950	7.43	7.31	9.36	9.89	12.16	11.25	-114.81	-123.33	91.85	88.36
2000	7.06	6.95	9.08	9.56	12.02	11.20	-122.01	-130.34	82.26	79.11
2050	6.92	6.81	8.77	9.19	11.70	10.99	-129.81	-137.84	72.59	69.58
2100	6.51	6.41	8.66	9.04	11.80	11.14	-137.44	-145.19	63.40	60.76
2150	6.48	6.38	8.19	8.51	11.40	10.86	-145.22	-152.57	53.30	50.78
2200	6.18	6.08	7.93	8.20	11.86	11.37	-	-	43.92	41.67
2250	6.04	5.93	7.44	7.65	11.05	10.67	-	-	32.19	30.13
2300	5.77	5.65	7.10	7.25	11.02	10.71	-	-	21.00	19.17
2350	5.67	5.55	6.73	6.83	11.27	11.05	-	-	10.69	9.04



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Voltage Variable Equalizer, 50Ω

VAEQ-2150R+

Typical Performance Data @ $V_+ = 3V$

Frequency (MHz)	Insertion Loss (dB)		Input Return Loss (dB)		Output Return Loss (dB)		Deviation from Linear (dB)		Insertion Phase (deg)		Frequency (MHz)	Input IP3 (dBm) Vcontrol 5V
	Vcontrol		Vcontrol		Vcontrol		Vcontrol		Vcontrol			
	3V	5V	3V	5V	3V	5V	3V	5V	3V	5V		
900	6.29	2.28	26.56	20.74	18.24	20.63	-	-	-138.71	-146.28	900	54.98
920	6.29	2.29	26.33	20.64	18.14	20.49	-	-	-141.79	-149.54	950	53.16
940	6.30	2.30	26.09	20.48	18.11	20.47	-	-	-144.88	-152.82	1000	51.67
950	6.31	2.31	25.92	20.38	18.11	20.45	5.01	2.55	-146.43	-154.48	1100	49.78
970	6.33	2.36	25.70	20.31	18.09	20.62	-2.00	-3.63	-149.32	-157.62	1150	49.76
990	6.32	2.33	25.61	20.31	17.88	20.20	-6.12	-7.48	-152.49	-160.90	1200	49.73
1010	6.32	2.34	25.27	20.10	17.86	20.18	-9.72	-11.01	-155.64	-164.21	1300	50.67
1030	6.34	2.36	25.02	19.95	17.84	20.13	-13.10	-14.44	-158.71	-167.50	1400	51.49
1050	6.35	2.38	24.79	19.80	17.83	20.11	-16.39	-17.80	-161.82	-170.84	1450	51.48
1070	6.37	2.43	24.87	19.82	17.95	20.38	-19.62	-21.14	-164.60	-173.97	1500	51.46
1090	6.34	2.40	24.38	19.66	17.52	19.86	-22.78	-24.41	-167.87	-177.18	1600	51.91
1110	6.36	2.42	24.18	19.52	17.51	19.78	-25.95	-27.70	-170.96	-179.48	1650	52.93
1130	6.38	2.44	24.09	19.46	17.49	19.71	-29.11	-31.00	-174.07	-176.08	1700	53.94
1150	6.37	2.45	23.75	19.23	17.46	19.74	-32.25	-34.28	-177.11	-172.91	1800	55.24
1170	6.41	2.49	23.47	19.03	17.61	19.89	-35.39	-37.55	-179.72	-169.41	1850	55.86
1190	6.38	2.49	23.48	19.28	17.16	19.52	-38.51	-40.81	-176.96	-166.60	1900	56.47
1210	6.38	2.51	23.52	19.23	17.21	19.55	-41.64	-44.07	-173.88	-163.23	2000	55.24
1230	6.40	2.51	22.95	18.85	17.13	19.41	-44.75	-47.34	-170.63	-159.82	2050	54.56
1270	6.47	2.59	22.65	18.63	17.31	19.52	-50.98	-53.87	-164.55	-153.03	2100	53.88
1300	6.42	2.58	22.30	18.59	16.82	19.24	-55.65	-58.75	-159.98	-148.49	2150	53.88
1325	6.45	2.61	22.01	18.35	16.84	19.14	-59.36	-62.65	-156.13	-144.24	2200	51.31
1350	6.45	2.65	21.90	18.30	16.91	19.34	-63.40	-66.88	-152.48	-140.22	2300	48.86
1375	6.49	2.68	21.27	17.82	16.94	19.27	-67.13	-70.80	-148.39	-135.82		
1400	6.47	2.72	21.26	18.13	16.73	19.41	-71.15	-75.03	-145.00	-132.20		
1425	6.45	2.71	20.87	17.75	16.58	19.13	-74.87	-78.93	-141.04	-128.02		
1450	6.50	2.75	20.41	17.35	16.54	18.96	-78.88	-83.14	-136.80	-123.38		
1475	6.57	2.84	20.29	17.27	16.71	19.10	-82.60	-87.07	-133.26	-119.26		
1500	6.56	2.91	19.95	17.19	17.10	20.17	-86.63	-91.29	-129.81	-115.58		
1525	6.52	2.84	19.67	16.99	16.28	18.92	-90.33	-95.19	-125.71	-111.35		
1550	6.53	2.91	19.64	16.98	16.38	19.09	-94.33	-99.41	-122.13	-107.27		
1575	6.57	2.94	19.00	16.43	16.31	18.94	-98.06	-103.32	-117.89	-102.73		
1600	6.64	3.06	18.94	16.52	16.62	19.46	-102.07	-107.56	-114.39	-98.58		
1625	6.53	3.01	18.64	16.36	16.22	19.25	-105.76	-111.49	-110.73	-94.99		
1650	6.59	3.06	18.24	16.02	16.04	18.87	-109.77	-115.67	-106.47	-90.19		
1675	6.63	3.16	18.22	16.09	16.18	19.11	-113.49	-119.61	-103.16	-86.29		
1700	6.59	3.15	17.64	15.60	15.97	18.97	-117.44	-123.86	-98.89	-81.89		
1725	6.68	3.27	17.34	15.39	16.14	19.11	-121.19	-127.71	-95.29	-77.59		
1750	6.58	3.28	17.44	15.69	15.99	19.45	-125.19	-131.96	-92.24	-74.39		
1775	6.59	3.27	16.73	14.98	15.58	18.72	-128.86	-135.87	-87.58	-69.39		
1800	6.69	3.41	16.39	14.70	15.67	18.66	-132.85	-140.06	-83.53	-64.56		
1825	6.71	3.57	16.30	14.82	16.30	19.90	-136.55	-144.00	-80.84	-61.29		
1850	6.60	3.47	15.78	14.38	15.39	18.88	-140.55	-148.22	-76.37	-56.79		
1900	6.66	3.68	15.12	13.82	15.39	18.96	-147.98	-156.16	-69.14	-48.39		
1950	6.73	3.93	14.45	13.37	15.14	18.81	-155.64	-164.21	-61.81	-39.74		
2000	6.61	4.05	13.64	12.70	14.96	19.17	-163.31	-172.49	-54.65	-31.91		
2050	6.68	4.36	12.64	11.66	14.44	18.43	-170.96	-179.48	-46.54	-22.43		
2100	6.52	4.65	12.07	11.23	14.45	19.30	-178.74	-171.14	-40.31	-15.56		
2150	6.68	5.22	10.85	9.91	13.83	18.38	173.88	163.23	32.17	6.01		
2200	6.52	5.81	10.02	9.07	14.15	19.58	-	-	26.10	0.65		
2250	6.38	6.31	8.81	7.56	12.93	17.74	-	-	17.30	-6.69		
2300	6.05	6.54	7.88	6.50	12.57	16.57	-	-	9.49	-9.04		
2350	5.83	6.55	7.05	5.76	12.55	15.62	-	-	2.24	-10.04		



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