



frequency inHz	0% carbon black			1% carbon black			2% carbon black			3% carbon black			5% carbon black			Cell4																	
	Z <sub>in</sub>	Z <sub>re</sub>	Z  <sub>in</sub>	Z <sub>in</sub>	Z <sub>re</sub>	Z  <sub>in</sub>	Z <sub>in</sub>	Z <sub>re</sub>	Z  <sub>in</sub>	Z <sub>in</sub>	Z <sub>re</sub>	Z  <sub>in</sub>	Z <sub>in</sub>	Z <sub>re</sub>	Z  <sub>in</sub>	Z <sub>in</sub>	Z <sub>re</sub>	Z  <sub>in</sub>															
1000.00	7.09	0.03	7.08	11.37	0.26	11.31	16.12	-0.74	16.13	44.22	-1.92	44.28	3.88	0.05	3.89	10.29	0.30	10.29	3.66	-0.16	3.66	17.20	0.37	17.21	1.61	0.23	1.61	16.92	3.37	16.93	20.64	0.43	20.64
754.000	7.24	-0.11	7.24	11.49	-0.01	11.45	16.46	-1.03	16.49	45.00	-2.47	45.07	3.88	-0.07	3.88	10.30	0.14	10.30	3.75	-0.24	3.74	17.27	0.22	17.27	1.62	0.13	1.62	17.17	3.23	17.17	20.68	0.28	20.68
595.000	7.23	-0.13	7.23	11.57	-0.03	11.57	16.54	-1.20	16.58	45.22	-2.81	45.31	3.88	-0.17	3.88	10.34	0.15	10.34	3.74	-0.16	3.74	17.30	0.14	17.30	1.62	0.04	1.62	17.30	3.26	17.30	20.68	0.38	20.68
4230.00	7.25	-0.27	7.26	11.57	-0.18	11.57	16.80	-1.63	16.87	46.52	-3.43	46.65	3.88	-0.21	3.89	10.35	-0.02	10.35	3.81	-0.15	3.81	17.32	0.12	17.32	1.62	0.08	1.62	17.34	3.27	17.34	20.68	0.11	20.68
3230.00	7.38	-0.37	7.39	11.61	-0.32	11.61	17.14	-1.92	17.25	48.00	-4.38	48.58	3.88	-0.25	3.89	10.36	-0.04	10.36	3.88	-0.28	3.87	17.33	-0.04	17.33	1.62	0.00	1.62	17.33	3.00	17.33	20.68	-0.02	20.68
24420.00	7.46	-0.48	7.47	11.65	-0.42	11.65	17.46	-2.14	17.61	47.30	-4.33	47.50	4.04	-0.31	4.05	10.33	-0.16	10.33	3.90	-0.31	3.91	17.32	-0.11	17.32	1.62	0.03	1.62	17.31	3.03	17.31	21.56	0.08	21.56
18420.00	7.55	-0.55	7.56	11.62	-0.49	11.73	17.83	-2.47	18.00	47.91	-4.87	48.78	4.09	-0.38	4.11	10.30	-0.24	10.30	3.95	-0.35	3.97	17.39	-0.20	17.39	1.62	0.06	1.62	17.36	3.03	17.36	21.68	-0.11	21.68
13900.00	7.65	-0.65	7.66	11.62	-0.61	11.64	18.32	-2.78	18.53	49.13	-5.55	49.44	4.17	-0.44	4.20	10.24	-0.32	10.24	3.99	-0.39	4.01	17.41	-0.19	17.41	1.62	0.13	1.62	17.41	3.03	17.41	21.92	-0.12	21.92
10400.00	7.76	-0.74	7.79	11.66	-0.69	11.66	18.74	-3.12	18.99	49.93	-6.05	50.30	4.25	-0.52	4.23	10.23	-0.34	10.23	4.06	-0.44	4.08	17.46	-0.30	17.46	1.62	0.19	1.62	17.42	3.03	17.42	22.00	-0.27	22.00
7900.00	7.88	-0.86	7.93	11.68	-0.80	11.68	19.24	-3.47	19.55	51.00	-6.80	51.46	4.33	-0.59	4.37	10.21	-0.43	10.21	4.06	-0.49	4.10	17.51	-0.34	17.51	1.62	0.27	1.62	17.42	3.03	17.42	22.39	-0.31	22.39
5904.00	8.03	-0.98	8.08	12.14	-0.92	12.11	19.65	-3.84	20.22	52.08	-7.51	52.61	4.42	-0.68	4.48	10.17	-0.49	10.17	4.29	-0.55	4.24	17.59	-0.40	17.59	1.62	0.36	1.62	17.41	3.03	17.41	22.39	-0.35	22.39
4488.00	8.19	-1.11	8.26	12.28	-1.05	12.33	20.48	-4.24	20.91	53.55	-8.23	54.78	4.53	-0.78	4.60	10.16	-0.57	10.16	4.29	-0.62	4.33	17.65	-0.47	17.65	1.62	0.45	1.62	17.28	3.03	17.28	22.51	-0.41	22.51
3388.00	8.36	-1.25	8.45	12.45	-1.18	12.50	21.14	-4.72	21.66	55.00	-9.07	56.74	4.66	-0.88	4.74	10.15	-0.67	10.15	4.29	-0.70	4.33	17.71	-0.53	17.71	1.62	0.55	1.62	17.36	3.03	17.36	22.70	-0.48	22.70
2500.00	8.59	-1.39	8.70	12.64	-1.31	12.71	21.88	-5.24	22.50	56.63	-9.97	57.90	4.82	-0.99	4.92	10.15	-0.73	10.15	4.29	-0.79	4.58	17.87	-0.60	17.87	1.62	0.63	1.62	17.48	3.03	17.48	23.26	-0.53	23.26
1910.00	8.76	-1.56	8.90	12.87	-1.49	12.87	22.46	-5.88	23.21	58.07	-11.09	59.12	4.96	-1.12	5.09	10.16	-0.82	10.16	4.29	-0.88	4.72	17.86	-0.69	17.87	1.62	0.70	1.62	17.50	3.03	17.50	23.30	-0.61	23.30
1450.00	8.92	-1.76	9.09	12.88	-1.71	13.00	23.05	-6.75	24.02	59.60	-12.42	60.88	5.10	-1.25	5.25	10.16	-0.92	10.16	4.29	-0.98	4.95	17.95	-0.76	17.97	1.62	0.77	1.62	17.56	3.03	17.56	23.39	-0.65	23.39
1090.00	9.06	-2.04	9.28	12.99	-2.05	13.15	23.63	-7.96	24.90	61.20	-14.13	62.90	5.22	-1.42	5.41	10.16	-1.05	10.16	4.29	-1.05	4.87	18.06	-0.85	18.08	1.62	0.91	1.62	17.64	3.03	17.64	23.52	-0.73	23.52
828.00	9.18	-2.43	9.49	13.08	-2.51	13.22	24.41	-9.59	25.22	63.16	-16.42	65.26	5.30	-1.65	5.58	10.16	-1.24	10.16	4.29	-1.24	4.96	18.12	-0.98	18.17	1.62	1.00	1.62	17.71	3.03	17.71	23.59	-0.89	23.59
625.00	9.28	-2.97	9.75	13.15	-3.13	13.52	25.33	-11.72	27.91	65.36	-18.15	68.11	5.41	-1.98	5.76	10.17	-1.49	10.17	4.29	-1.49	5.29	18.22	-1.14	18.26	1.62	1.14	1.62	17.82	3.03	17.82	23.68	-1.04	23.68
471.50	9.39	-3.72	10.10	13.24	-4.00	13.63	26.56	-14.42	30.22	67.57	-22.44	71.57	5.49	-2.44	6.16	10.17	-1.82	10.17	4.29	-1.82	5.04	18.22	-1.37	18.26	1.62	1.34	1.62	17.82	3.03	17.82	23.77	-1.27	23.77
385.60	9.51	-4.71	10.61	13.33	-5.14	14.28	28.15	-17.75	33.31	71.12	-26.40	76.88	5.56	-3.07	6.35	10.17	-2.28	10.17	4.29	-2.28	4.53	18.30	-1.68	18.42	1.62	1.52	1.62	17.87	3.03	17.87	23.79	-1.58	23.84
288.30	9.64	-6.05	11.38	13.46	-6.85	15.01	30.35	-21.62	37.41	74.85	-31.05	81.04	5.65	-3.91	6.67	10.19	-3.06	10.19	4.29	-3.06	3.97	18.40	-2.09	18.52	1.62	1.78	1.62	17.92	3.03	17.92	23.85	-1.99	23.93
202.40	9.80	-7.80	12.52	13.62	-8.64	16.13	33.26	-26.60	42.58	79.31	-36.49	87.30	5.75	-5.04	7.64	10.18	-4.37	10.18	4.29	-4.37	3.32	18.46	-2.65	18.64	1.62	1.98	1.62	17.98	3.03	17.98	24.00	-2.55	24.03
152.60	9.99	-10.14	14.23	13.82	-11.27	17.63	36.36	-32.17	49.02	84.61	-42.77	94.81	5.87	-6.53	8.78	10.19	-6.45	10.19	4.29	-6.45	3.15	18.53	-3.41	18.64	1.62	2.19	1.62	18.03	3.03	18.03	24.20	-3.28	24.23
115.10	10.25	-13.18	16.70	14.10	-14.72	20.36	41.53	-39.55	56.67	90.77	-50.11	103.70	6.03	-8.49	10.41	10.41	-8.49	10.41	4.29	-8.49	2.73	18.53	-4.43	18.64	1.62	2.49	1.62	18.11	3.03	18.11	24.40	-4.25	24.47
86.85	10.62	-17.19	20.21	14.50	-19.21	24.07	47.32	-45.74	65.61	98.27	-58.47	114.40	6.26	-11.06	12.71	10.16	-10.90	10.16	4.29	-10.90	2.34	18.73	-5.69	18.78	1.62	2.73	1.62	18.23	3.03	18.23	24.50	-5.00	24.56
65.51	11.07	-22.46	25.04	15.01	-25.11	29.25	54.00	-53.91	75.35	106.60	-68.34	126.60	6.54	-14.45	15.66	10.14	-14.34	10.14	4.29	-14.34	1.91	18.66	-7.43	18.66	1.62	3.17	1.62	18.37	3.03	18.37	24.68	-5.76	24.75
48.00	11.76	-30.15	32.31	15.81	-33.75	37.21	62.54	-64.34	85.73	117.20	-81.15	142.60	6.97	-19.40	20.62	10.14	-19.03	10.14	4.29	-19.03	1.32	18.66	-10.85	18.66	1.62	3.59	1.62	18.59	3.03	18.59	24.81	-6.84	24.83
37.28	12.52	-38.35	40.35	16.71	-42.90	46.04	70.61	-74.08	92.30	127.00	-93.47	157.70	7.44	-24.67	25.77	10.16	-24.20	10.16	4.29	-24.20	0.88	18.66	-15.26	18.66	1.62	4.00	1.62	18.78	3.03	18.78	25.00	-8.27	25.00
28.12	13.67	-50.06	51.90	17.95	-55.38	58.75	80.44	-86.66	118.20	139.60	-109.69	177.50	8.15	-32.5	33.77	10.16	-31.54	10.16	4.29	-31.54	0.62	18.66	-18.56	18.66	1.62	4.46	1.62	18.88	3.03	18.88	25.16	-10.03	25.16
21.21	15.24	-65.45	67.20	19.71	-73.15	75.76	91.55	-101.60	136.70	153.80	-128.70	200.50	9.07	-42.08	43.05	10.16	-41.08	10.16	4.29	-41.08	0.30	18.66	-22.89	18.66	1.62	4.72	1.62	19.07	3.03	19.07	25.30	-12.07	25.30
16.00	17.33	-85.13	86.88	21.93	-85.30	87.75	104.00	-119.60	156.50	169.40	-150.80	226.80	10.31	-54.87	55.63	10.16	-53.32	10.16	4.29	-53.32	0.26	18.66	-26.37	18.66	1.62	5.01	1.62	19.37	3.03	19.37	25.49	-14.75	25.49
12.07	20.33	-110.80	112.70	25.19	-104.00	106.60	118.10	-141.20	184.10	197.20	-177.80	256.20	12.16	-71.41	72.44	10.16	-69.66	10.16	4.29	-69.66	0.23	18.66	-30.42	18.66	1.62	5.43	1.62	19.64	3.03	19.64	25.70	-17.35	25.70
9.10	24.49	-144.80	146.90	30.24	-151.80	154.60	133.20	-167.30	213.90	206.70	-210.90	295.30	14.34	-93.66	94.76	10.16	-90.28	10.16	4.29	-90.28	0.19	18.66	-34.92	18.66	1.62	5.85	1.62	19.91	3.03	19.91	26.00	-20.00	26.00
6.67	29.85	-188.40	190.80	36.17	-209.80	212.90	150.50	-200.30	250.50	227.50	-251.00	338.80	17.36	-121.60	123.00	10.16	-118.00	10.16	4.29	-118.00	0.14	18.66	-40.42	18.66	1.62	6.26	1.62	20.18	3.03	20.18	26.20	-23.00	26.20
5.18	37.14	-243.20	246.00	44.72	-271.90	275.50	170.40	-241.40	295.40	251.20	-304.50	394.80	22.16	-158.60	160.40	10.16	-152.00	10.16	4.29	-152.00	0.10	18.66	-46.34	18.66	1.62	6.67	1.62	20.40	3.03	20.40	26.40	-25.00	26.40

frequency in Hz	0% carbon black						1% carbon black						2% carbon black						3% carbon black					
	Cell1			Cell2			Cell1			Cell2			Cell1			Cell2			Cell1			Cell2		
	Z' in $\Omega$	Z'' in $\Omega$	Z  in $\Omega$	Z' in $\Omega$	Z'' in $\Omega$	Z  in $\Omega$	Z' in $\Omega$	Z'' in $\Omega$	Z  in $\Omega$	Z' in $\Omega$	Z'' in $\Omega$	Z  in $\Omega$	Z' in $\Omega$	Z'' in $\Omega$	Z  in $\Omega$	Z' in $\Omega$	Z'' in $\Omega$	Z  in $\Omega$	Z' in $\Omega$	Z'' in $\Omega$	Z  in $\Omega$	Z' in $\Omega$	Z'' in $\Omega$	Z  in $\Omega$
100000.00	55.20	-6.50	55.59	246.50	-12.38	246.80	36.73	-2.67	36.82	64.18	-3.01	64.25	54.19	-3.69	54.31	40.70	-2.57	40.78	75.20	-5.45	75.39	42.59	-3.45	42.73
75430.00	56.43	-7.88	56.97	252.70	-13.31	253.00	37.09	-3.71	37.28	64.62	-3.10	64.70	54.99	-4.06	55.14	41.37	-3.30	41.50	76.74	-6.77	77.04	43.13	-3.71	43.29
56900.00	57.60	-9.35	58.35	255.00	-13.82	255.40	37.80	-4.05	38.01	64.79	-3.73	64.90	55.51	-4.93	55.73	41.63	-3.83	41.80	77.58	-8.06	78.00	43.59	-4.14	43.78
42920.00	59.31	-10.34	60.20	255.80	-16.23	256.30	38.60	-4.87	38.90	65.31	-4.87	65.49	56.36	-5.57	56.63	42.39	-4.54	42.63	79.00	-8.96	79.51	44.44	-5.06	44.73
32370.00	61.17	-12.51	62.44	258.80	-16.53	259.30	39.33	-5.54	39.71	66.37	-5.57	66.60	57.58	-6.61	57.96	43.38	-5.34	43.71	80.55	-10.40	81.22	45.56	-6.13	45.97
24420.00	63.49	-14.61	65.15	261.70	-17.46	262.20	40.19	-6.41	40.70	67.33	-6.56	67.65	58.56	-7.51	59.04	44.18	-6.36	44.64	82.52	-12.20	83.42	46.41	-6.92	46.92
18420.00	65.52	-16.83	67.65	265.70	-19.21	266.30	41.25	-7.35	41.90	68.31	-7.60	68.73	59.88	-8.46	60.48	45.39	-7.13	45.94	84.20	-13.07	85.21	47.44	-7.95	48.11
13900.00	68.48	-19.15	71.10	267.90	-20.74	268.70	42.50	-8.41	43.33	69.68	-8.77	70.23	61.35	-9.54	62.09	46.36	-8.34	47.10	86.45	-14.45	87.65	48.63	-9.01	49.46
10480.00	71.84	-21.74	75.05	272.50	-23.18	273.50	43.97	-9.52	44.99	71.10	-9.89	71.79	62.94	-10.62	63.83	47.80	-9.31	48.70	89.04	-16.47	90.55	50.16	-10.60	51.27
7906.00	75.38	-24.67	79.31	276.00	-25.67	277.20	45.52	-10.76	46.77	72.61	-11.23	73.47	64.74	-12.04	65.85	49.28	-10.53	50.39	92.02	-18.06	93.77	51.82	-12.11	53.22
5964.00	79.55	-27.65	84.22	280.50	-27.48	281.80	47.29	-12.16	48.83	74.51	-12.64	75.57	66.57	-13.48	67.93	50.94	-11.96	52.33	95.02	-19.95	97.09	53.85	-13.81	55.59
4498.00	84.18	-30.86	89.66	285.10	-30.32	286.70	49.27	-13.70	51.14	76.64	-14.30	77.96	68.71	-15.12	70.35	53.04	-13.44	54.72	98.40	-22.10	100.90	55.99	-15.77	58.17
3393.00	89.01	-34.54	95.47	289.40	-33.23	291.30	51.45	-15.41	53.71	78.86	-16.15	80.50	71.14	-17.00	73.14	55.18	-15.18	57.23	102.10	-24.56	105.00	58.58	-17.83	61.23
2560.00	94.48	-38.61	102.10	294.90	-36.46	297.10	54.15	-17.34	56.86	81.70	-18.14	83.69	74.22	-19.11	76.64	57.81	-17.06	60.28	106.50	-27.20	109.90	61.78	-20.27	65.02
1931.00	99.73	-43.55	108.80	300.50	-40.74	303.20	56.79	-19.44	60.02	86.98	-20.38	89.33	77.24	-21.54	80.19	60.60	-19.22	63.58	110.90	-30.33	114.90	65.08	-22.90	68.99
1456.00	105.30	-49.57	116.40	307.40	-43.60	310.50	59.50	-21.82	63.37	89.82	-22.79	92.66	80.57	-24.14	84.11	63.58	-21.41	67.09	115.80	-33.60	120.50	68.75	-25.70	73.40
1099.00	111.30	-57.46	125.30	314.40	-50.05	318.30	62.31	-24.68	67.02	92.78	-25.93	96.34	84.21	-27.18	88.49	66.69	-24.14	70.92	121.10	-37.55	126.80	72.82	-28.93	78.36
828.60	118.40	-67.54	136.30	321.20	-56.46	326.10	65.18	-28.49	71.13	95.63	-29.87	100.20	88.10	-30.87	93.35	69.79	-27.35	74.96	126.90	-42.16	133.80	77.23	-32.66	83.85
625.10	126.90	-80.02	150.00	329.40	-63.94	335.50	68.39	-33.36	76.09	98.69	-35.02	104.70	92.39	-35.05	98.82	73.02	-31.35	79.47	133.40	-47.36	141.50	82.11	-36.84	90.00
471.50	137.50	-95.19	167.20	338.10	-73.65	346.00	71.58	-39.73	81.86	102.20	-41.77	110.40	97.01	-40.46	105.10	76.57	-36.65	84.88	140.50	-53.49	150.30	87.40	-42.02	96.97
355.60	150.60	-113.10	188.40	347.90	-85.49	358.30	75.49	-48.02	89.47	106.50	-50.46	117.80	102.20	-47.12	112.60	80.52	-43.41	91.48	148.40	-60.72	160.40	93.26	-48.26	105.00
268.30	166.60	-134.00	213.80	359.40	-99.71	373.00	80.52	-58.48	99.52	111.80	-61.50	127.60	108.30	-55.31	121.60	85.40	-52.08	100.00	157.20	-69.31	171.80	100.00	-55.85	114.50
202.40	185.90	-158.10	244.10	372.70	-116.80	390.60	86.95	-71.35	112.50	118.60	-75.08	140.40	115.40	-65.26	132.60	91.42	-62.86	110.90	167.30	-79.46	185.20	107.90	-64.87	125.90
152.60	200.10	-185.00	270.40	390.20	-137.60	411.90	95.06	-87.12	123.20	127.30	-91.05	156.90	124.10	-77.26	146.20	99.07	-76.10	124.90	170.90	-91.51	200.90	117.30	-75.54	139.50
115.10	234.50	-217.00	319.50	406.70	-162.10	437.80	105.90	-106.00	143.80	138.30	-111.60	177.80	134.60	-91.63	162.80	108.90	-91.77	142.40	192.20	-105.70	219.30	128.50	-87.84	155.60
86.85	268.30	-254.60	368.80	428.80	-190.90	469.40	119.50	-128.40	175.40	151.70	-134.80	203.00	147.20	-108.30	182.80	121.90	-110.50	164.10	207.30	-121.60	240.30	141.60	-102.00	174.50
65.51	303.40	-297.90	425.20	454.70	-225.70	507.70	135.80	-155.40	206.30	168.60	-163.20	234.70	161.90	-127.80	206.30	136.20	-132.70	190.10	225.10	-140.90	265.50	156.80	-116.40	196.50
48.00	351.00	-355.00	499.20	488.80	-271.30	559.10	157.50	-190.20	246.90	191.70	-200.90	277.70	181.90	-153.80	238.10	156.10	-160.80	224.10	248.20	-165.60	298.30	175.50	-138.80	223.70
37.28	395.60	-409.10	569.10	522.00	-314.90	609.60	179.80	-224.40	287.50	214.00	-236.50	318.90	201.40	-178.10	268.90	176.10	-187.70	257.40	271.60	-190.60	331.80	193.70	-158.50	250.30
28.12	453.90	-477.90	659.20	564.80	-371.50	676.00	210.30	-268.80	341.30	246.30	-286.00	377.50	227.10	-209.40	308.90	202.90	-222.80	301.30	299.30	-220.50	371.70	216.90	-183.90	284.40
21.21	522.90	-558.80	765.30	615.60	-438.90	756.10	246.50	-322.50	405.90	283.70	-343.20	445.30	258.60	-241.90	354.10	235.60	-263.60	353.50	332.60	-255.20	419.20	244.10	-214.40	324.90
16.00	602.50	-651.80	887.70	675.50	-516.60	850.40	290.40	-385.20	482.40	330.80	-410.10	526.90	293.10	-287.00	410.20	273.30	-311.00	414.00	370.60	-295.80	474.20	274.80	-247.60	369.90
12.07	695.00	-760.20	1030.00	744.90	-608.40	961.80	344.20	-457.10	572.20	386.40	-488.60	622.90	338.20	-339.10	479.00	317.80	-364.90	483.90	414.10	-342.90	537.70	310.70	-288.20	423.80
9.10	801.60	-885.60	1195.00	825.30	-718.10	1094.00	408.90	-542.00	678.90	454.50	-580.30	737.10	388.10	-394.50	553.40	369.50	-428.30	565.70	466.60	-397.00	612.60	351.00	-335.70	485.70
6.87	919.00	-1034.00	1383.00	915.60	-845.50	1246.00	483.70	-640.30	802.50	534.60	-686.80	870.30	446.80	-458.20	640.00	429.10	-501.40	660.00	525.20	-458.90	696.10	398.90	-391.40	558.90
5.18	1056.00	-1211.00	1607.00	1019.00	-1001.00	1428.00	571.20	-753.60	945.60	624.70	-812.50	1025.00	513.90	-533.10	740.50	499.70	-586.60	770.80	594.00	-528.80	795.30	454.00	-456.70	643.90
3.91	1209.00	-1426.00	1869.00	1137.00	-1190.00	1646.00	673.40	-886.60	1113.00	736.40	-958.30	1209.00	591.40	-616.70	854.50	580.90	-686.00	898.30	672.90	-610.60	908.70	518.60	-532.80	743.60
2.95	1386.00	-1670.00	2170.00	1266.00	-1423.00	1905.00	794.50	-1042.00	1310.00	858.90	-1132.00	1421.00	676.50	-713.60	983.30	673.80	-806.70	1051.00	766.20	-706.20	1042.00	589.90	-622.50	857.60
2.22	1572.00	-1975.00	2524.00	1423.00	-1701.00	2217.00	921.10	-1229.00	1536.00	996.00	-1337.00	1667.00	772.80	-827.00	1132.00	771.90	-943.20	1219.00	861.70	-809.40	1182.00	676.50	-725.80	932.20
1.68	1798.00	-2354.00	2962.00	1609.00	-2057.00	2612.00	1077.00	-1460.00	1814.00	1160.00	-1590.00	1968.00	874.00	-962.70	1300.00	889.90	-1118.00	1429.00	974.10	-938.30	1352.00	769.90	-848.50	1146.00
1.27	2053.00	-2833.00	3498.00	1833.00	-2513.00	3111.00	1252.00	-1725.00	2131.00	1348.00	-1896.00	2327.00	984.90	-1134.00	1502.00	1032.00	-1325.00	1680.00	1099.00	-1084.00	1544.00	875.00	-996.30	1326.00
0.95	2345.00	-3403.00	4132.00	2105.00	-3049.00	3705.00	1460.00	-2079.00	2540.00	1562.00	-2253.00	2741.00	1121.00	-1344.00	1751.00	1189.00	-1586.00	1982.00	1230.00	-1273.00	1771.00	1005.00	-1180.00	1550.00
0.72	2692.00	-4159.00	4954.00	2494.00	-3719.00	4478.00	1697.00	-2479.00	3005.00	1867.00	-2738.00	3314.00	1272.00	-1621.00	2061.00	1371.00	-1873.00	2321.00	1376.00	-1488.00	2027.00	1143.00	-1415.00	1819.00
0.54	3039.00	-5140.00	5971.00	2934.00	-4588.00	5447.00	2047.00	-2978.00	3614.00	2152.00	-3340.00	397												

frequency in Hz	0% carbon black						1% carbon black						2% carbon black						3% carbon black											
	Cell 1			Cell 2			Cell 1			Cell 2			Cell 3			Cell 1			Cell 2			Cell 3			Cell 1			Cell 2		
	Z'in Ω	Z''in Ω	Z in Ω	Z'in Ω	Z''in Ω	Z in Ω	Z'in Ω	Z''in Ω	Z in Ω	Z'in Ω	Z''in Ω	Z in Ω	Z'in Ω	Z''in Ω	Z in Ω	Z'in Ω	Z''in Ω	Z in Ω	Z'in Ω	Z''in Ω	Z in Ω	Z'in Ω	Z''in Ω	Z in Ω	Z'in Ω	Z''in Ω	Z in Ω	Z'in Ω	Z''in Ω	Z in Ω
10000.00	45.95	-3.71	46.10	61.58	-4.28	61.73	51.02	-5.46	51.31	53.89	-6.23	54.25	60.86	-5.72	61.13	44.05	-2.80	44.14	37.11	-2.36	37.18	41.08	-2.11	41.14	52.15	-2.72	52.22	51.33	-3.23	51.43
75430.00	46.68	-4.62	46.91	62.59	-5.14	62.80	51.80	-6.39	52.19	54.76	-6.95	55.20	62.00	-6.79	62.37	44.55	-3.57	44.70	37.53	-3.28	37.67	42.01	-2.55	42.08	52.50	-3.55	52.62	51.64	-3.79	51.78
56900.00	47.49	-5.40	47.79	63.11	-5.63	63.36	53.15	-7.60	53.69	55.73	-7.79	56.27	63.31	-7.21	63.72	45.06	-4.23	45.25	38.31	-3.24	38.45	42.45	-3.34	42.58	53.36	-3.91	53.52	52.65	-4.52	52.84
42920.00	48.77	-6.37	49.18	64.13	-7.32	64.55	54.33	-8.99	55.06	57.26	-9.61	58.06	64.49	-9.39	65.17	45.94	-5.15	46.22	39.09	-3.95	39.28	42.72	-3.94	42.90	53.61	-4.71	53.82	52.87	-5.29	53.13
32370.00	49.49	-7.48	50.05	65.51	-8.82	65.97	55.81	-9.99	56.70	58.81	-10.62	59.76	66.21	-10.66	67.06	46.66	-5.65	47.00	39.79	-4.67	40.06	43.53	-4.51	43.77	54.51	-5.39	54.77	54.11	-5.94	54.44
24420.00	50.74	-8.96	51.53	66.69	-9.08	67.50	57.41	-11.33	58.51	61.05	-11.95	62.21	67.76	-11.92	68.82	48.02	-6.70	48.49	40.40	-5.15	40.73	44.23	-5.33	44.55	55.52	-6.33	55.88	54.96	-7.43	55.48
18420.00	52.12	-9.95	53.06	68.19	-10.31	68.97	59.26	-12.83	60.63	63.24	-13.49	64.66	70.04	-14.32	71.49	48.83	-7.51	49.40	41.36	-6.18	41.82	45.02	-6.26	45.46	56.63	-7.14	57.08	56.27	-8.34	56.88
13900.00	53.76	-11.53	54.98	70.16	-11.54	71.10	61.60	-14.36	63.25	65.52	-14.62	67.13	72.77	-16.61	74.64	50.03	-8.54	50.76	42.28	-7.04	42.87	46.24	-6.67	46.75	58.05	-7.85	58.58	57.69	-9.41	58.45
10480.00	55.66	-13.05	57.17	71.88	-13.39	73.12	63.85	-16.27	65.89	68.25	-16.05	70.11	75.59	-18.85	77.91	51.38	-9.70	52.29	43.42	-8.01	44.15	47.32	-8.13	48.01	59.19	-9.02	59.87	59.31	-10.64	60.25
7906.00	57.87	-14.73	59.71	74.10	-15.09	75.62	66.60	-18.32	69.07	71.13	-17.64	73.12	78.98	-21.02	81.73	52.89	-11.06	54.03	44.63	-9.13	45.55	48.69	-9.29	49.57	60.79	-10.05	61.62	61.22	-12.01	62.33
5964.00	60.33	-16.59	62.57	76.63	-16.95	78.48	69.65	-20.95	72.61	74.19	-19.08	76.60	82.81	-23.32	86.03	54.74	-12.51	56.15	46.16	-10.33	47.31	50.17	-10.50	51.26	62.52	-11.32	63.54	63.51	-13.41	64.91
4498.00	63.00	-18.48	65.65	79.44	-18.89	81.68	73.01	-23.07	76.57	77.51	-20.73	80.24	87.05	-25.68	90.76	56.78	-14.19	58.53	47.82	-11.67	49.23	51.87	-11.79	53.19	64.37	-12.53	65.58	65.92	-14.85	67.57
3393.00	65.80	-20.72	68.98	82.38	-21.10	85.03	76.80	-25.81	81.02	80.89	-22.65	84.01	91.49	-28.21	95.74	59.03	-16.05	61.17	49.62	-13.18	51.34	53.80	-13.21	55.39	66.53	-13.92	67.97	68.59	-16.22	70.48
2560.00	68.95	-23.30	72.76	85.71	-23.57	88.90	81.26	-28.93	86.25	84.84	-24.75	88.38	96.66	-30.96	101.50	61.73	-18.13	64.34	51.70	-14.82	53.79	55.98	-14.84	57.92	69.05	-15.41	70.75	71.61	-17.72	73.77
1931.00	72.03	-26.55	76.77	88.76	-26.70	92.69	85.72	-32.35	91.62	88.78	-27.21	92.95	101.80	-33.92	107.30	64.43	-20.46	67.60	53.67	-16.81	56.24	57.97	-16.64	60.32	71.45	-16.99	73.45	74.50	-19.30	76.98
1456.00	75.32	-30.54	81.27	91.94	-30.50	96.67	90.44	-36.15	97.40	92.88	-29.99	97.60	107.00	-37.37	113.40	67.27	-23.19	71.15	55.61	-19.24	58.95	59.93	-18.86	62.82	73.84	-18.76	76.19	77.34	-20.95	80.13
1099.00	79.04	-35.73	86.74	95.54	-35.55	101.90	95.51	-40.92	103.90	97.21	-33.41	102.80	112.80	-41.34	120.10	70.32	-26.58	75.17	57.67	-22.47	61.89	61.94	-21.33	65.71	76.20	-21.08	79.06	80.18	-23.20	83.47
828.00	83.34	-42.26	93.44	99.66	-42.14	108.20	101.00	-46.92	111.40	101.90	-37.62	108.60	118.90	-46.26	127.60	73.74	-30.80	79.91	59.93	-26.73	65.82	64.07	-24.14	68.32	78.83	-24.14	82.26	82.99	-26.17	87.02
625.10	88.57	-50.32	101.90	104.80	-50.20	116.20	107.10	-54.23	120.20	107.10	-42.64	115.20	125.60	-52.15	136.00	77.57	-36.80	85.52	62.82	-32.22	70.42	66.60	-31.16	73.53	81.26	-32.14	85.99	86.03	-30.07	91.13
471.50	94.99	-60.09	112.40	111.20	-59.96	126.30	114.80	-64.25	131.10	112.70	-48.83	122.80	133.10	-59.12	145.60	82.04	-42.48	92.38	66.03	-39.19	76.78	69.65	-37.95	73.32	84.23	-33.24	90.55	89.42	-35.07	96.05
355.60	102.90	-71.74	125.50	118.10	-71.66	139.00	123.80	-76.97	144.20	118.90	-56.50	131.60	141.40	-67.58	156.70	87.44	-50.42	100.90	70.37	-47.90	85.13	73.64	-46.48	87.08	87.75	-39.94	96.41	93.31	-41.50	102.10
268.30	112.60	-85.58	141.40	126.90	-85.41	154.60	134.70	-86.48	160.10	125.90	-65.69	142.10	150.70	-77.71	169.50	93.93	-59.92	111.40	75.97	-59.48	95.87	78.75	-57.04	97.24	92.20	-48.26	104.10	98.10	-49.62	110.00
202.40	124.40	-101.70	160.70	140.50	-101.30	173.20	147.70	-100.80	178.80	134.00	-71.45	154.80	161.20	-88.87	194.60	101.80	-71.22	124.20	83.17	-71.19	109.50	85.32	-69.83	110.30	97.75	-58.55	113.90	104.00	-59.60	119.80
152.60	138.40	-120.50	183.50	151.30	-118.80	195.10	163.00	-117.20	200.90	113.50	-81.65	170.10	173.20	-101.70	202.40	111.20	-84.65	138.60	92.19	-86.33	126.30	93.61	-85.33	126.80	101.80	-81.05	126.70	111.90	-71.84	132.40
115.10	154.80	-142.50	210.40	170.30	-141.50	221.40	180.70	-135.50	225.80	154.90	-109.30	189.50	187.10	-122.60	223.70	122.30	-100.50	158.30	103.30	-104.20	146.70	104.40	-103.60	147.10	113.60	-86.00	142.50	120.20	-86.47	148.10
86.85	174.10	-167.40	241.50	186.60	-166.50	251.60	200.60	-155.50	253.90	168.50	-129.90	212.70	203.40	-143.40	248.80	135.90	-119.30	180.80	117.20	-125.20	171.50	118.10	-125.30	172.20	124.90	-103.50	162.20	131.70	-103.70	167.60
65.51	196.70	-197.80	278.90	210.20	-197.40	288.30	223.60	-179.50	286.80	185.10	-155.30	241.60	222.80	-168.00	273.70	151.20	-141.20	206.90	133.60	-150.10	201.00	134.40	-151.10	202.20	138.30	-124.40	186.00	145.00	-124.20	190.90
48.00	226.00	-237.90	328.20	239.20	-239.10	338.20	252.30	-210.70	328.70	208.00	-188.90	281.00	249.00	-202.70	321.10	172.10	-170.80	242.50	155.10	-182.20	239.30	155.60	-184.30	241.30	155.60	-151.60	217.20	162.50	-151.10	221.90
37.28	255.20	-277.70	377.20	266.60	-279.70	386.50	279.90	-241.40	369.60	229.10	-221.60	318.70	274.60	-236.30	362.30	182.00	-189.30	276.60	176.70	-219.50	277.20	178.00	-216.60	280.30	172.80	-178.00	248.10	179.90	-177.20	252.50
28.12	291.20	-328.50	459.00	303.30	-332.70	450.20	313.00	-300.10	420.00	260.80	-264.30	371.30	307.30	-278.30	414.60	217.70	-237.00	321.90	206.20	-254.00	327.20	206.00	-260.50	332.10	195.40	-213.00	289.10	203.10	-211.60	293.30
21.21	333.90	-369.80	513.30	347.30	-366.10	526.80	352.20	-326.50	480.20	296.60	-314.80	432.50	345.70	-328.40	476.80	251.40	-281.40	377.40	240.20	-303.40	387.00	242.00	-308.80	392.30	222.30	-255.00	336.30	230.70	-253.60	342.80
16.00	384.60	-463.00	601.90	400.40	-471.90	616.90	396.20	-382.20	550.50	340.00	-373.80	505.30	391.90	-386.60	550.50	290.00	-333.90	442.20	282.60	-360.50	458.10	283.80	-366.20	464.90	258.60	-366.10	399.40	284.90	-362.30	402.00
12.07	444.10	-549.10	706.20	451.60	-560.30	725.90	449.50	-446.40	633.50	392.10	-442.90	591.60	446.80	-455.20	637.80	395.10	-395.70	516.60	331.00	-427.30	540.50	333.70	-437.40	550.20	296.50	-366.90	471.30	306.30	-361.00	473.40
9.10	514.00	-65																												

frequency in Hz	0% carbon black						1% carbon black						2% carbon black						3% carbon black					
	Cell1			Cell2			Cell1			Cell2			Cell1			Cell2			Cell1			Cell2		
	Z'in Ω	Z''in Ω	Z in Ω	Z'in Ω	Z''in Ω	Z in Ω	Z'in Ω	Z''in Ω	Z in Ω	Z'in Ω	Z''in Ω	Z in Ω	Z'in Ω	Z''in Ω	Z in Ω	Z'in Ω	Z''in Ω	Z in Ω	Z'in Ω	Z''in Ω	Z in Ω	Z'in Ω	Z''in Ω	Z in Ω
10000.00	62.03	-6.18	62.33	56.03	-5.84	56.34	39.14	-5.14	39.48	45.31	-5.42	46.22	69.87	-2.67	69.92	52.95	-3.54	53.07	54.02	-6.37	54.47	49.35	-3.73	49.49
75430.00	63.97	-7.52	64.41	57.47	-7.28	57.93	40.03	-6.22	40.51	46.37	-6.52	46.82	69.99	-3.29	70.07	54.08	-4.74	54.29	55.54	-8.57	56.20	49.91	-4.18	50.09
56900.00	64.96	-8.55	65.52	58.47	-8.25	59.05	41.02	-7.34	41.67	47.79	-7.77	48.42	70.48	-4.25	70.60	54.39	-5.66	54.68	57.52	-9.10	58.23	50.37	-5.08	50.62
42320.00	66.30	-10.50	67.13	59.53	-9.94	60.35	42.60	-8.75	43.49	49.29	-9.26	50.15	70.79	-4.43	70.93	56.20	-6.49	56.57	58.51	-9.93	59.34	51.58	-6.02	51.93
32370.00	67.65	-12.10	68.72	60.57	-11.73	61.69	44.37	-10.43	45.58	50.88	-10.41	51.93	72.05	-5.68	72.27	56.92	-7.72	57.44	61.24	-11.74	62.35	52.65	-7.55	53.18
24420.00	69.34	-13.81	70.70	62.56	-13.97	64.10	45.88	-12.15	47.46	52.68	-12.07	54.05	73.05	-6.59	73.35	58.28	-8.31	58.87	63.32	-12.49	64.54	53.56	-8.57	54.24
18420.00	71.76	-16.00	73.53	65.05	-16.55	67.12	47.82	-13.79	49.77	54.86	-13.74	56.55	73.95	-8.01	74.39	59.85	-9.71	60.64	65.59	-13.28	66.92	55.26	-10.15	56.18
13900.00	74.78	-18.41	77.02	67.66	-19.01	70.28	50.28	-15.72	52.68	57.03	-15.50	59.10	75.59	-9.23	76.15	61.47	-10.74	62.40	68.01	-14.16	69.47	57.14	-11.64	58.31
10480.00	77.84	-20.82	80.57	70.50	-22.01	73.85	52.71	-17.89	55.66	59.79	-17.60	62.32	76.82	-10.60	77.55	63.16	-12.25	64.34	70.26	-15.16	71.88	59.03	-13.24	60.49
7906.00	81.35	-23.81	84.77	74.05	-25.69	78.38	55.76	-20.05	59.26	62.87	-19.85	65.93	78.47	-12.06	79.39	65.20	-13.72	66.63	72.82	-16.33	74.63	61.35	-14.92	63.14
5964.00	85.47	-26.65	89.53	78.40	-29.25	83.68	59.08	-22.48	63.21	66.15	-22.03	69.72	80.47	-13.80	81.64	67.55	-15.32	69.27	75.56	-17.73	77.61	64.06	-16.64	66.19
4498.00	90.08	-29.71	94.85	83.30	-33.33	89.71	62.84	-25.09	67.66	69.93	-24.50	74.10	82.68	-15.74	84.17	70.20	-17.10	72.25	78.47	-19.27	80.80	66.96	-18.45	69.45
3393.00	94.97	-33.06	100.60	88.92	-37.66	96.57	66.78	-28.09	72.45	73.88	-27.23	78.74	85.19	-17.83	87.04	73.04	-19.02	75.47	81.49	-21.09	84.17	70.29	-20.36	73.18
2560.00	100.40	-36.67	106.90	95.35	-42.34	104.30	70.99	-31.43	77.64	78.31	-30.13	83.90	88.19	-20.11	90.46	76.50	-21.01	79.33	85.20	-23.14	88.28	73.88	-22.26	77.16
19310.00	105.90	-40.95	113.60	102.00	-47.58	112.50	75.07	-35.65	83.11	82.49	-33.62	89.08	89.93	-22.65	92.74	79.78	-23.21	83.09	88.72	-25.49	92.31	77.47	-24.40	81.22
1456.00	111.40	-45.93	120.50	109.30	-53.40	121.70	79.32	-40.73	89.17	86.51	-37.71	94.37	92.81	-25.60	96.27	83.08	-25.57	86.92	92.46	-28.16	96.66	81.01	-26.73	85.31
1099.00	117.50	-52.27	128.60	117.20	-60.40	131.80	83.98	-47.61	96.54	90.99	-43.50	100.90	95.80	-29.46	100.20	86.46	-28.64	91.08	96.42	-31.51	101.40	84.83	-29.77	89.90
828.60	124.30	-60.40	138.20	125.80	-68.72	143.30	89.21	-56.53	105.60	95.53	-51.00	108.30	98.66	-34.44	104.50	89.78	-32.67	95.54	100.60	-35.79	106.80	88.72	-33.60	94.87
625.10	132.20	-70.45	149.80	135.40	-78.87	156.70	95.62	-67.75	117.20	101.10	-60.67	117.90	102.00	-41.09	109.90	93.44	-37.87	100.80	105.30	-40.39	113.00	93.00	-38.42	100.60
471.50	141.50	-82.60	163.90	146.30	-90.99	172.30	103.80	-81.78	132.20	107.90	-73.03	130.30	105.90	-49.72	117.00	97.59	-44.71	107.30	110.60	-47.48	120.30	97.68	-44.50	107.30
355.80	152.80	-97.25	181.10	158.80	-105.40	190.60	114.40	-98.74	151.10	116.60	-88.31	146.30	110.90	-60.85	126.50	102.60	-53.47	115.70	116.80	-55.40	123.20	103.10	-52.14	115.60
268.30	166.40	-114.60	202.00	173.70	-122.80	212.70	127.80	-118.70	174.50	127.50	-106.70	166.30	117.40	-74.74	139.20	108.80	-64.35	126.40	124.00	-65.07	140.10	109.50	-61.59	125.60
202.40	182.70	-134.80	227.00	190.70	-143.10	238.40	144.50	-141.90	202.50	141.30	-128.70	191.20	126.00	-91.73	155.80	116.70	-77.62	140.10	132.60	-76.57	153.10	117.10	-73.15	138.10
152.60	201.20	-157.60	255.60	209.70	-168.50	267.70	165.00	-168.80	236.00	158.60	-154.50	221.40	137.10	-112.30	177.10	128.40	-93.62	157.30	142.80	-90.31	169.00	126.40	-87.25	153.50
115.10	223.90	-184.60	290.20	232.50	-194.20	303.00	188.90	-198.50	274.00	178.70	-184.20	256.60	151.00	-136.50	203.60	138.70	-112.60	178.60	154.80	-106.60	187.90	137.60	-104.10	172.50
86.85	251.60	-215.70	331.40	259.90	-227.90	345.60	218.80	-233.60	320.10	204.80	-219.80	300.40	168.30	-164.40	235.30	153.40	-134.00	203.70	168.60	-125.30	210.00	151.00	-123.60	195.10
65.51	282.30	-252.30	378.60	290.00	-267.40	394.40	251.90	-273.20	371.60	234.70	-261.20	351.10	189.60	-198.10	274.20	171.40	-160.10	234.50	185.00	-148.30	237.10	167.50	-147.40	223.10
48.00	321.90	-299.20	439.50	329.20	-320.70	459.60	293.80	-325.50	438.50	274.90	-315.70	418.20	218.70	-243.30	327.10	195.50	-194.20	275.50	206.70	-178.90	273.40	189.90	-178.70	260.80
37.28	358.30	-343.60	496.40	366.50	-372.30	522.50	332.50	-375.30	501.40	312.40	-367.20	482.10	247.30	-286.70	378.60	218.90	-226.60	315.10	227.60	-208.70	308.80	211.40	-208.30	296.80
28.12	403.40	-402.10	569.60	414.10	-441.00	605.00	381.70	-441.10	583.30	362.00	-434.00	565.20	285.20	-343.20	446.20	250.00	-268.60	366.90	256.50	-249.10	357.60	239.20	-248.50	344.90
21.21	455.30	-471.70	655.60	470.60	-522.80	703.40	439.40	-521.10	681.60	420.50	-512.10	662.60	330.80	-410.80	527.50	287.00	-319.10	429.20	289.40	-295.00	413.30	274.90	-293.00	401.80
16.00	514.10	-556.60	757.70	539.50	-620.30	822.20	506.90	-616.50	798.10	490.00	-605.60	779.00	387.10	-490.40	624.80	330.90	-378.50	502.80	329.10	-350.50	480.80	315.20	-346.30	468.30
12.07	581.50	-658.40	878.40	619.20	-735.80	961.70	584.60	-730.90	936.00	568.20	-713.00	911.70	455.80	-583.40	740.30	361.30	-448.00	568.30	376.10	-415.00	560.10	362.60	-408.30	546.00
9.10	661.20	-783.90	1026.00	716.10	-873.80	1130.00	676.30	-868.40	1101.00	661.20	-844.90	1073.00	538.40	-692.10	876.90	442.20	-529.30	689.70	432.80	-491.30	654.80	419.40	-482.00	638.90
6.87	751.10	-936.60	1201.00	824.80	-1040.00	1327.00	779.50	-1035.00	1296.00	766.60	-1001.00	1261.00	637.00	-818.70	1037.00	512.50	-626.20	809.20	499.80	-580.80	766.20	487.30	-569.50	749.60
5.18	853.00	-1125.00	1412.00	951.90	-1235.00	1559.00	907.10	-1236.00	1533.00	884.80	-1193.00	1486.00	757.30	-963.80	1226.00	595.10	-736.20	946.60	579.20	-686.40	898.20	564.10	-670.20	876.00
3.91	980.50	-1355.00	1673.00	1098.00	-1473.00	1837.00	1049.00	-1480.00	1814.00	1025.00	-1426.00	1756.00	897.80	-1128.00	1442.00	694.00	-873.40	1116.00	670.10	-812.10	1053.00	657.10	-787.00	1025.00
2.95	1123.00	-1634.00	1986.00	1260.00	-1758.00	2163.00	1217.00	-1766.00	2145.00	1184.00	-1697.00	2069.00	1060.00	-1323.00	1695.00	803.10	-1036.00	1310.00	772.80	-956.60	1230.00	755.70	-927.40	1196.00
2.22	1311.00	-1979.00	2373.00	1468.00	-2114.00	2573.00	1408.00	-2131.00	2555.00	1381.00	-2045.00	2468.00	1242.00	-1536.00	1976.00	926.80	-1220.00	1532.00	897.50	-1128.00	1441.00	876.60	-1090.00	1399.00
1.68	1533.00	-2406.00	2853.00	1700.00	-2542.00	3058.00	1663.00	-2590.00	3078.00	1617.00	-2468.00	2951.00	1449.00	-1783.00	2297.00	1071.00	-1452.00	1805.00	1031.00	-1339.00	1690.00	1007.00	-1288.00	1635.00
1.27	1779.00	-2947.00	3442.00	1977.00	-3123.00	3696.00	1948.00	-3173.00	3723.00	1891.00	-2985.00	3534.00	1679.00	-2090.00	2681.00	1238.00	-1740.00	2136.00	1192.00	-1602.00	1997.00	1157.00	-1537.00	1924.00
0.95	2148.00	-3556.00	4154.00	2335.00	-3789.00	4451.00	2307.00	-3824.00	4466.00	2222.00	-3661.00	4283.00	1969.00	-2468.00	3157.00	1431.00	-2071.00	2517.00	1386.00	-1894.00	2347.00	1343.00	-1823.00	2265.00
0.72	2575.00	-4362.00	5065.00	2755.00	-4568.00	5335.00	2762.00	-4693.00	5445.00	2667.00	-4426.00	5167.00	2254.00	-2937.00	3702.00	1685.00	-2497.00	3012.00	1603.00	-2291.00	2799.00	1548.00	-2205.00	2694.00
0.54	3037.00	-5358.00	6159.00	3336.00	-5554.00	6479.00	3283.00	-5779.00	6646.00	3232.00	-5425.00	6315.00	2585.00	-3487.00	4329.00	1960.00	-3092.00	36						