

Tube	Gm	Pa(max)	Pg2(max)	B+	Vp	Vg2	Rk	Ip	Pa	Ig2	Pg2	RI	5% THD Vo	10V THD	Gain
<i>Triode mode, CCS load - note Ip is the CCS current and includes the sum of "real" plate current and screen current</i>															
12HG7 small RCA	32	10	1	400	175	Triode	50	35	5.1	6	1.05	CCS	121	0.04	43
12HG7 large RCA	32	10	1	400	227	Triode	50	35	6.6	6	1.36	CCS	103	0.11	50
12GN7/12HG7A GE	36	11.5	1.5	400	205	Triode	100	35	5.7	7	1.44	CCS	118	0.05	39
11HM7 GE	30	7	1	400	200	Triode	100	35	6.0	5	1.00	CCS	124	0.05	42
12HL7 RCA	21	10	1	400	149	Triode	100	35	4.2	7	1.04	CCS	88	0.08	29
6688 RCA	16.5	3	0.9	400	120	Triode	50	18	1.6	4.5	0.54	CCS	61	0.17	43
6197 RCA	11	7.5	2.5	400	219	Triode	150	35	6.2	6.5	1.42	CCS	121	0.12	24
6CL6 Sylvania	11	7.5	1.7	400	192	Triode	150	35	5.5	6.5	1.25	CCS	94	0.22	19
6EJ7/EF184 RCA (Amperex)	15	2.5	0.9	300	148	Triode	220	18	1.9	5.5	0.81	CCS	76	0.09	61
8077/7054 RCA	11.5	5	1	400	184	Triode	100	35	5.3	6	1.10	CCS	117	0.18	28
12BY7A/12BV7/12DQ7 GE	12	6.5	1.2	400	197	Triode	100	35	5.7	6	1.18	CCS	92	0.08	28
D3A (Telefunken)	35	4.2	1	400	167	Triode	52	26	3.2	6.7	1.12	CCS	94	0.04	70
CV4045 (RK)	13	12	2.5	400	147	Triode	52	50	6.6	5.3	0.78	CCS	55	0.07	27
SV83 (Svetlana)	15	12	1.5	400	175	Triode	220	50	7.5	7.4	1.30	CCS	86	0.13	23
6CW5/EL86 RCA	11	14	2.1	400	142	Triode	220	50	6.4	5	0.71	CCS	??	0.49	7.4
6686/E81L Amperex	11	4.5	1.2	400	210	Triode	100	26	4.1	6.3	1.32	CCS	95	0.18	48
7788/E810F RCA (Amperex)	50	5	1	400	166	Triode	100	26	3.8	3.3	0.55	CCS	103	0.13	47
6JC6 Sylvania	15	2.5	0.6	400	170	Triode	100	18	2.3	4.3	0.73	CCS	85	0.15	60
PL802	40	6	2.5	400	207	Triode	52	35	6.1	5.6	1.16	CCS	119	0.05	69
6HF8 Amperex (pentode sect.)	12.5	5	1.1	400	170	Triode	150	26	3.4	5.9	1.00	CCS	91	0.21	22
6EB8 Sylvania (pentode sect.)	12.5	5	1.1	400	222	Triode	100	26	4.8	4.6	1.02	CCS	119	0.17	30
8608 Amperex	45	10	1.5	400	158	Triode	100	50	7.2	4.7	0.74	CCS	102	0.03	29
8233 GE (E55L)	45	10	1.5	400	162	Triode	100	50	7.3	4.9	0.79	CCS	97	0.08	28
6AG7 RCA	11	9	1.5	400	197	Triode	150	35	5.6	6.4	1.26	CCS	58	0.14	21
6EH5 Sylvania	14.6	5.5	2	400	187	Triode	330	35	5.5	5.6	1.05	CCS	??	0.15	11

2.7% THD @ 45V RMS

1% THD @ 68V RMS

Tube	Gm	Pa(max)	Pg2(max)	B+	Vp	Vg2	Rk	Ip	Pa	Ig2	Pg2	RI	5% THD Vo	10V THD	Gain
<i>Triode mode</i>															
12HG7 small RCA	32	10	1	400	207	Triode	52	40.8	8.4	7.5	1.55	4000	102	0.22	23
12HG7 large RCA	32	10	1	400	198	Triode	52	41.7	8.3	8.8	1.74	4000	84	0.17	24
12GN7/12HG7A GE	36	11.5	1.5	400	178	Triode	52	45.5	8.1	10	1.78	4000	78	0.32	22
11HM7 GE	30	7	1	400	183	Triode	52	46.3	8.5	8	1.46	4000	83	0.19	24
12HL7 RCA	21	10	1	400	104	Triode	52	30.0	3.1	7	0.73	8000	46	0.17	22
6688 RCA	16.5	3	0.9	300	128	Triode	52	17.5	2.2	4	0.51	8000	56	0.45	29
6197 RCA	11	7.5	2.5	400	288	Triode	100	8.0	2.3	6	1.73	8000	59	0.35	16
6CL6 Sylvania	11	7.5	1.7	400	136	Triode	100	27.0	3.7	6	0.82	8000	44	0.61	14
6EJ7/EF184 RCA (Amperex)	15	2.5	0.9	300	164	Triode	220	8.3	1.4	3	0.49	12000	81	0.33	24
8077/7054 RCA	11.5	5	1	400	155	Triode	100	25.6	4.0	5	0.78	8000	69	0.39	18
12BY7A/12BV7/12DQ7 GE	12	6.5	1.2	400	168	Triode	100	24.0	4.0	5	0.84	8000	62	0.25	17
D3A (Telefunken)	35	4.2	1	400	168	Triode	52	22.4	3.8	6.6	1.11	8000	84	0.16	42
CV4045 (RK)	13	12	2.5	400	196	Triode	52	44.4	8.7	6.6	1.29	4000	38	0.29	14
SV83 (Svetlana)	15	12	1.5	400	189	Triode	220	44.8	8.5	8	1.51	4000	71	0.32	13
6CW5/EL86 RCA	11	14	2.1	400	170	Triode	220	52.5	8.9	5	0.85	4000	??	0.74	5
6686/E81L Amperex	11	4.5	1.2	400	191	Triode	100	20.4	3.9	5.7	1.09	8000	69	0.19	20
7788/E810F RCA (Amperex)	50	5	1	400	165	Triode	100	26.0	4.3	3.4	0.56	8000	90	0.32	28
6JC6 Sylvania	15	2.5	0.6	400	147	Triode	100	13.1	1.9	3.8	0.56	15000	62	0.29	37
PL802	40	6	2.5	400	176	Triode	52	23.3	4.1	4.7	0.83	8000	85	0.26	41
6HF8 Amperex (pentode sect.)	12.5	5	1.1	400	166	Triode	220	23.5	3.9	5.8	0.96	8000	??	0.42	12
6EB8 Sylvania (pentode sect.)	12.5	5	1.1	400	214	Triode	220	19.8	4.2	3.5	0.75	8000	??	0.45	12
8608 Amperex	45	10	1.5	400	134	Triode	52	60.0	8.0	6.5	0.87	4000	69	0.04	19
8233 GE (E55L)	45	10	1.5	400	138	Triode	52	58.8	8.1	6.7	0.92	4000	58	0.1	19
6AG7 RCA	11	9	1.5	400	187	Triode	220	22.0	4.1	4.6	0.86	8000	??	0.35	11
6EH5 Sylvania	14.6	5.5	2	400	163	Triode	330	24.7	4.0	4.9	0.80	8000	??	0.32	7

2% THD @ 27V RMS

3% THD @ 71V RMS

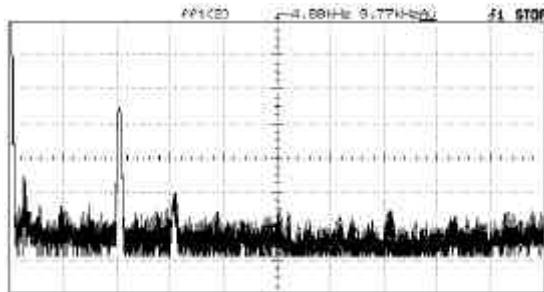
2.4% THD @ 78V RMS

2.5% THD @ 68V RMS

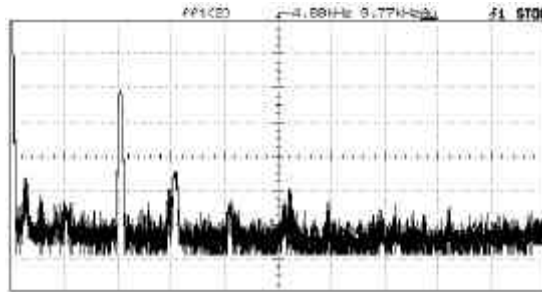
A=10.3 with bypass, THD = 1.43% @ 41V RMS

Tube	Gm	Pa(max)	Pg2(max)	B+	Vp	Vg2	Rk	Ip	Pa	Ig2	Pg2	RI	5% THD Vo	10V THD	Gain
Pentode mode															
12HG7 small RCA	32	10	1	400	275	150	50	31.3	8.6	4	0.60	4000	85	0.29	39
12HG7 large RCA	32	10	1	400	260	150	50	35.0	9.1	5	0.75	4000	93	0.13	37
12GN7/12HG7A GE	36	11.5	1.5	400	238	150	50	40.5	9.6	5	0.75	4000	104	0.08	40
11HM7 GE	30	7	1	400	245	150	50	38.8	9.5	5	0.75	4000	101	0.09	40
12HL7 RCA	21	10	1	400	207	75	50	24.1	5.0	4	0.30	8000	116	0.08	61
6688 RCA	16.5	3	0.9	300	130	150	50	21.3	2.8	5	0.75	8000	70	0.07	54
6197 RCA	11	7.5	2.5	400	288	150	100	14.0	4.0	5	0.75	8000	64	0.25	18
6CL6 Sylvania	11	7.5	1.7	400	166	150	100	29.3	4.9	7	1.05	8000	80	0.06	29
6EJ7/EF184 RCA (Amperex)	15	2.5	0.9	300	164	150	220	11.3	1.9	3	0.45	12000	58	0.34	27
8077/7054 RCA	11.5	5	1	400	180	150	100	27.5	5.0	5	0.75	8000	111	0.03	35
12BY7A/12BV7/12DQ7 GE	12	6.5	1.2	400	168	150	100	29.0	4.9	5	0.75	8000	109	0.23	32
D3A (Telefunken)	35	4.2	1	300	143	150	52	19.6	2.8	6	0.90	8000	78	0.15	69
CV4045 (RK)	13	12	2.5	400	253	150	52	36.8	9.3	3.8	0.57	4000	63	0.48	24
SV83 (Svetlana)	15	12	1.5	400	254	150	220	36.5	9.3	5.5	0.83	4000	89	0.42	24
6CW5/EL86 RCA	11	14	2.1	400	200	150	220	50.0	10.0	4.2	0.63	4000	??	0.14	9.2
6686/E81L Amperex	11	4.5	1.2	400	270	150	100	16.3	4.4	4.3	0.65	8000	78	0.44	33
7788/E810F RCA (Amperex)	50	5	1	400	206	150	100	24.3	5.0	3	0.45	8000	114	0.32	52
6JC6 Sylvania	15	2.5	0.6	350	156	150	100	12.9	2.0	3.8	0.57	15000	92	0.27	65
PL802	40	6	2.5	300	185	150	26	28.8	5.3	5.6	0.84	4000	82	0.11	61
6HF8 Amperex (pentode sect.)	12.5	5	1.1	400	170	150	100	28.8	4.9	7.1	1.07	8000	109	0.04	33
6EB8 Sylvania (pentode sect.)	12.5	5	1.1	400	200	150	100	25.0	5.0	4.2	0.63	8000	125	0.04	35
8608 Amperex	45	10	1.5	400	252	75	52	37.0	9.3	2.8	0.21	4000	95	0.23	46
8608 Amperex	45	10	1.5	400	235	150	100	41.3	9.7	2.7	0.41	4000	116	0.63	28
8233 GE (E55L)	45	10	1.5	400	252	75	52	37.0	9.3	2.8	0.21	4000	94	0.17	45
8233 GE (E55L)	45	10	1.5	400	238	150	100	40.5	9.6	4.1	0.62	4000	116	0.08	27
6AG7 RCA	11	9	1.5	400	221	150	150	22.4	4.9	4.4	0.66	8000	102	0.32	23
6EH5 Sylvania	14.6	5.5	2	400	194	75	100	25.8	5.0	4	0.30	8000	119	0.11	30
1% THD @ 55V RMS															
Tube	Gm	Pa(max)	Pg2(max)	B+	Vp	Vg2	Rk	Ip	Pa	Ig2	Pg2	RI	5% THD Vo	10V THD	Gain
Comparisons															
6C45p-e	45	7.8	NA	400	166	NA	200	11.7	1.9	NA	NA	20000	116	0.28	23
6C45p-e (cathode bypassed)	45	7.8	NA	400	166	NA	200	11.7	1.9	NA	NA	20000	107	0.36	34
6C45p-e	45	7.8	NA	400	167	NA	100	23.3	3.9	NA	NA	10000	113	0.26	25
6C45p-e (cathode bypassed)	45	7.8	NA	400	167	NA	100	23.3	3.9	NA	NA	10000	109	0.39	35
6C45p-e	45	7.8	NA	400	200	NA	52	50.0	10.0	NA	NA	4000	112	0.29	23
6C45p-e	45	7.8	NA	400	200	NA	52	50.0	10.0	NA	NA	4000	103	0.41	34
6C45p-e CCS	45	7.8	NA	400	194	NA	100	35.0	6.8	NA	NA	CCS	119	0.07	41
6C45p-e CCS	45	7.8	NA	400	156	NA	220	10.0	1.6	NA	NA	CCS	126	0.12	35
6C45p-e CCS	45	7.8	NA	400	194	NA	52	45.0	8.7	NA	NA	CCS	131	0.07	40
6SN7 cascade (Reichert)				400									70	1.6	110

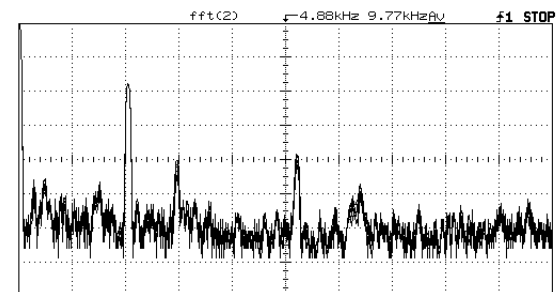
On the following plots, 0Hz is the leftmost border, 1kHz per division. The 1kHz fundamental is notched out. Plots are not all to the same scale so are useful only to compare relative levels of the harmonics.



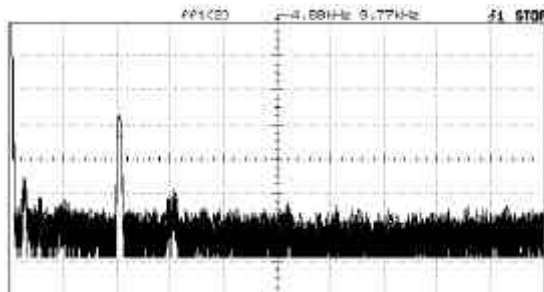
12hg7 small RCA triode 10V RMS



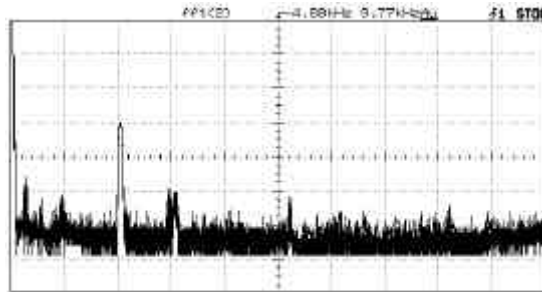
12hg7 small RCA pentode 10V RMS



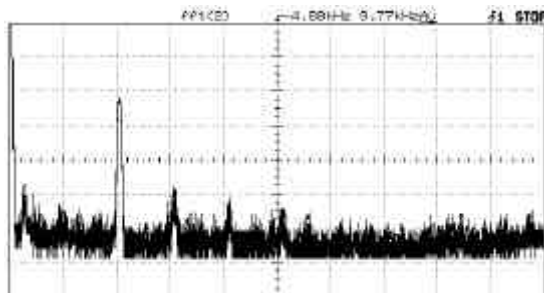
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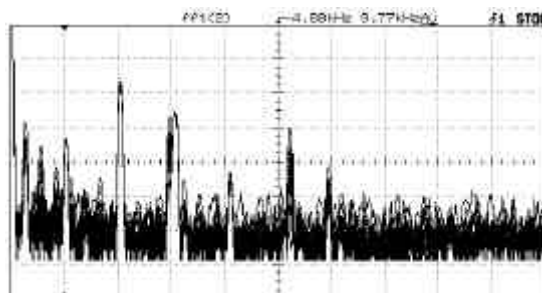
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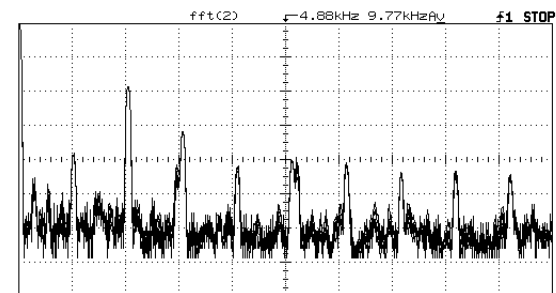
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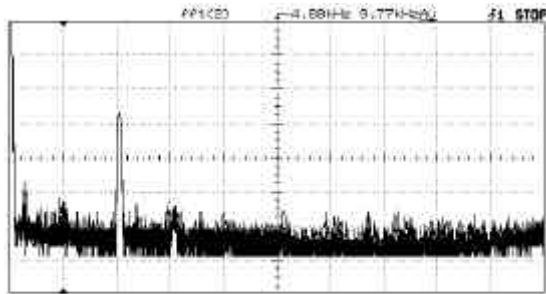
12SN7A GE triode 10V RMS



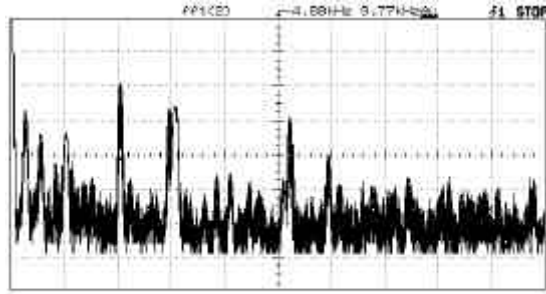
12gn7a GE pentode 10V RMS



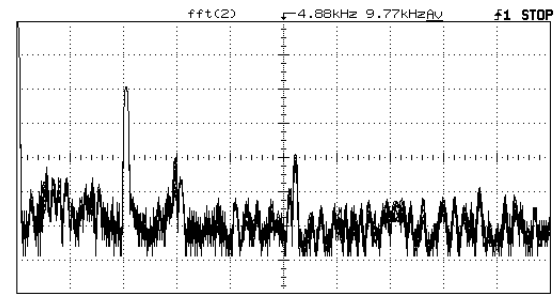
12GN7 GE Triode CCS 10V RMS



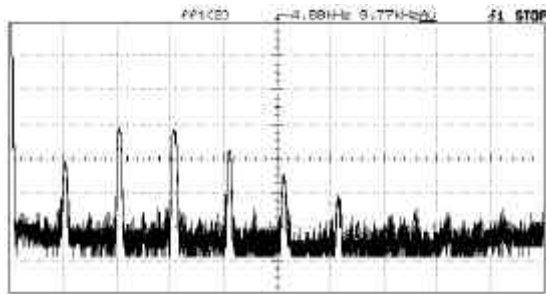
11bm7 GE triode 10V RMS



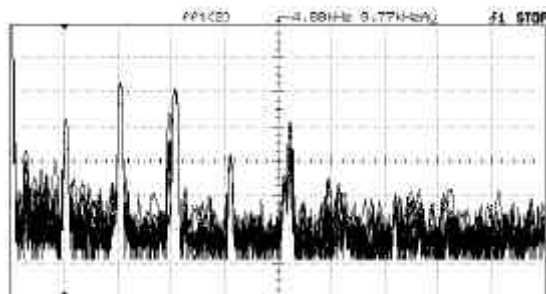
11bm7 pentode 10V RMS



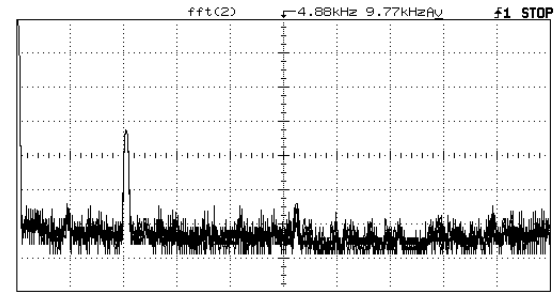
11HM7 GE triode CCS 10V RMS



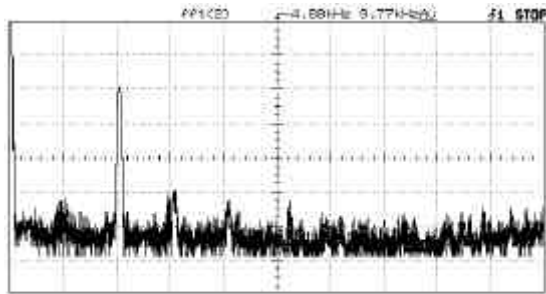
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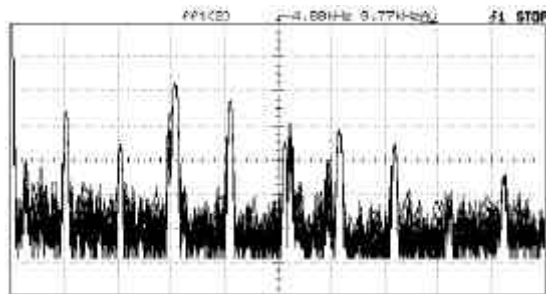
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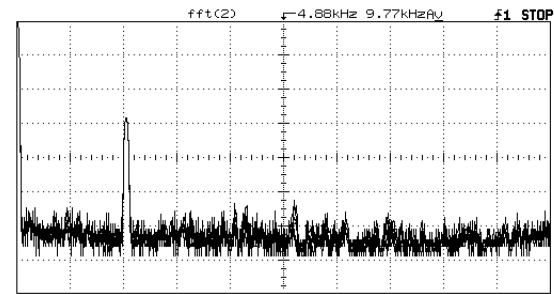
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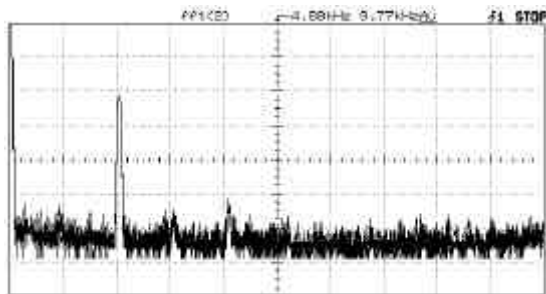
6688 RCA triode 10V RMS



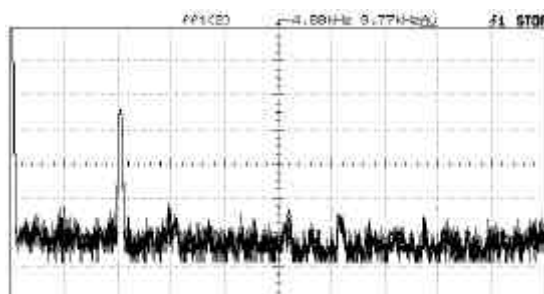
6688 RCA pentode 10V RMS



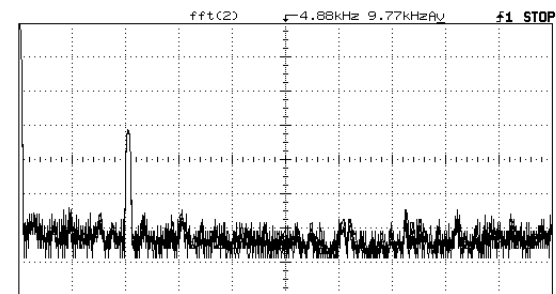
6688 RCA Triode CCS 10V RMS



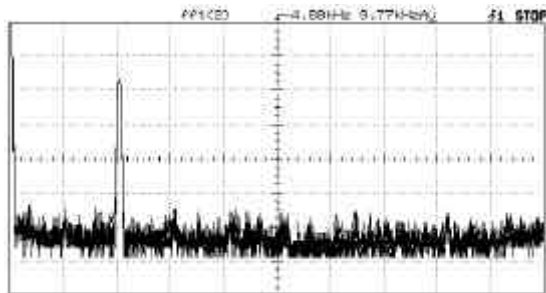
6197 RCA triode 10V RMS



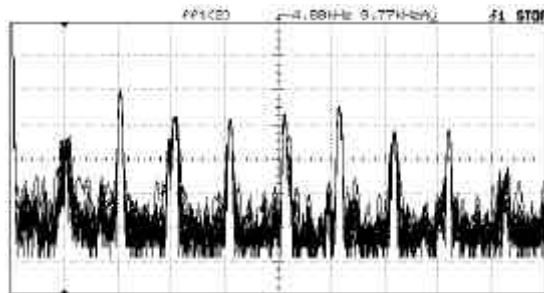
6197 RCA pentode 10V RMS



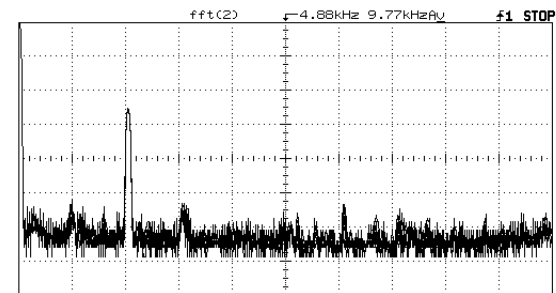
6197 RCA Triode CCS 10V RMS



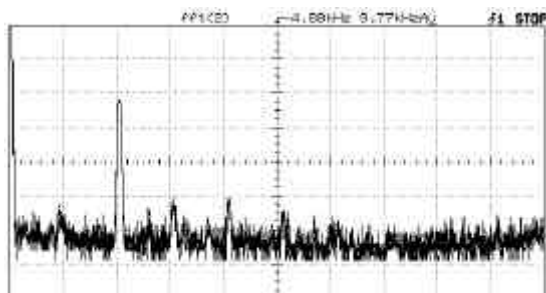
6CL6 Sylvania triode 10V RMS



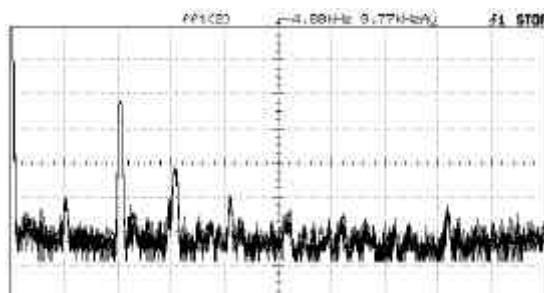
6CL6 Sylvania pentode 10V RMS



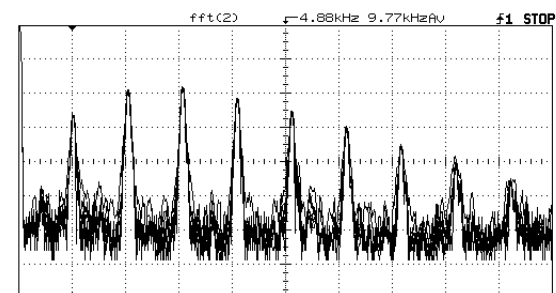
6CL6 Sylvania Triode CCS 10V RMS



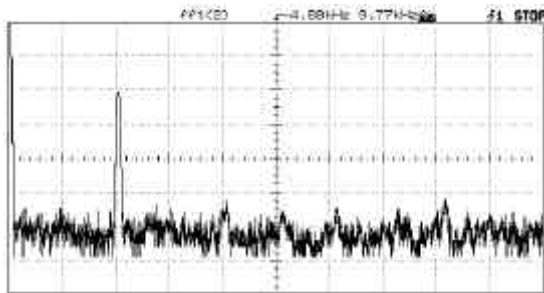
6EJ7 RCA triode 10V RMS



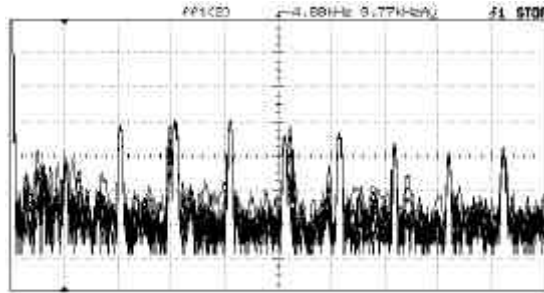
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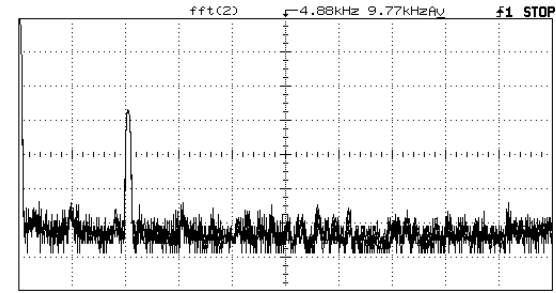
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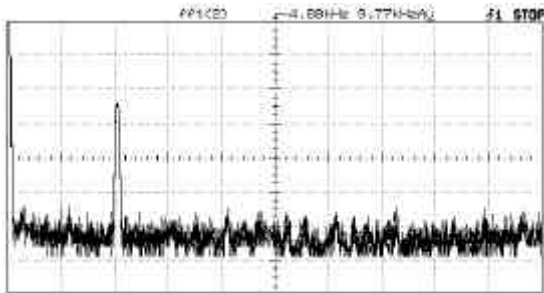
8077 RCA Triode 10V RMS



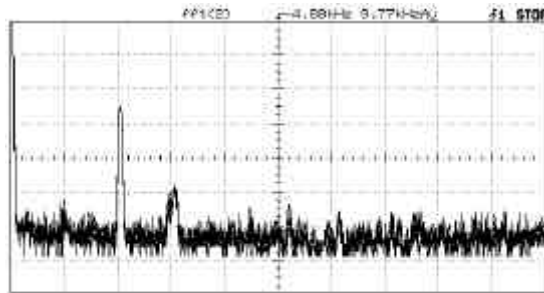
8077 RCA pentode 10V RMS



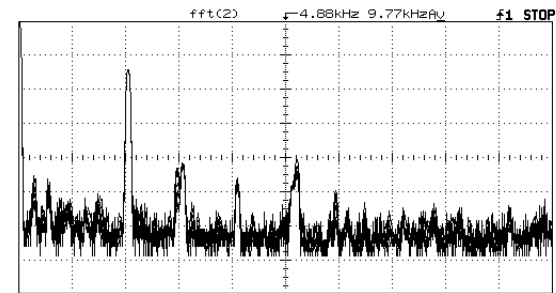
8077/7054 Triode CCS 10V RMS



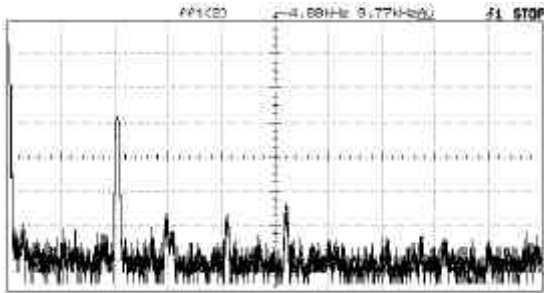
12BY7 GE triode 10V RMS



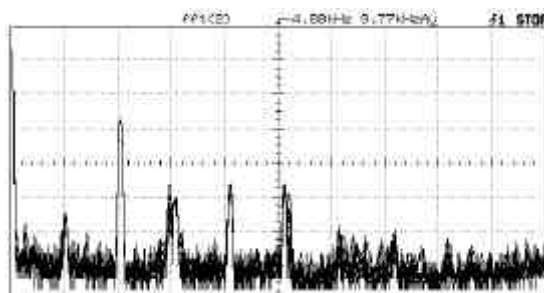
12BY7 GE pentode 10V RMS



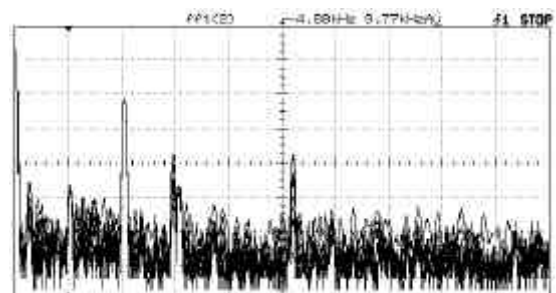
12BY7 GE Triode CCS 10V RMS



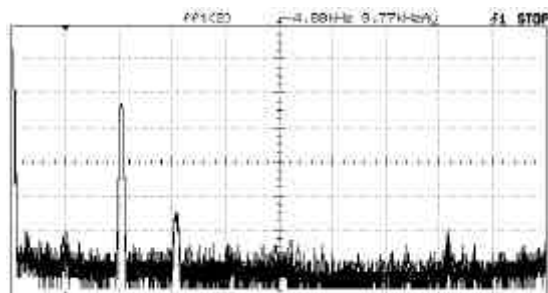
D3A Telefunken Triode 10V RMS



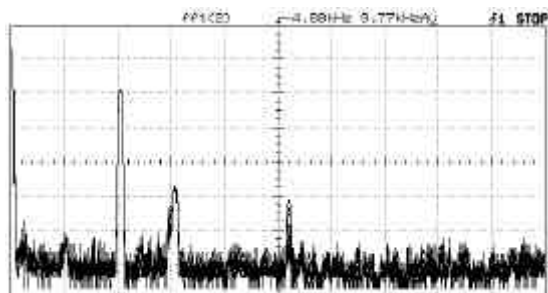
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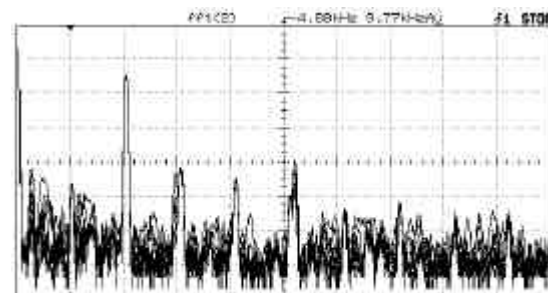
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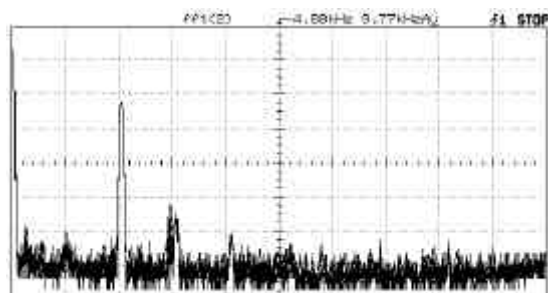
CV4045 Triode 10V RMS



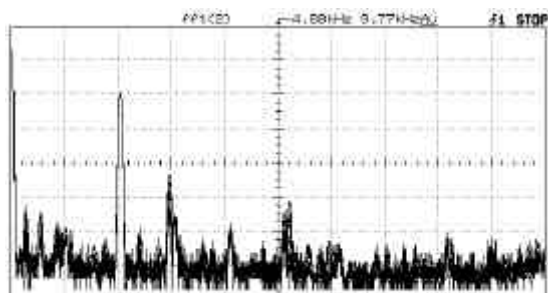
CV4045 Pentode 10V RMS



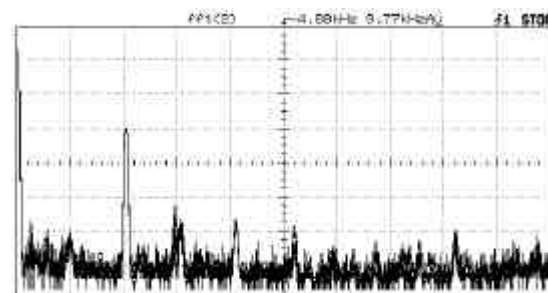
CV4045 Triode CCS 10V RMS



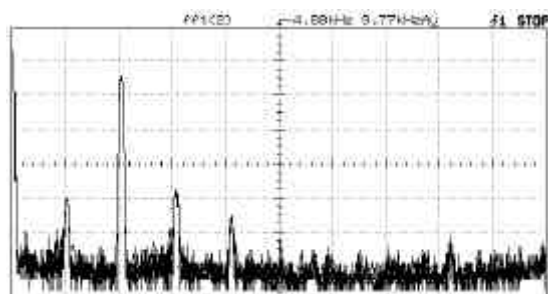
SV83 Triode 10V RMS



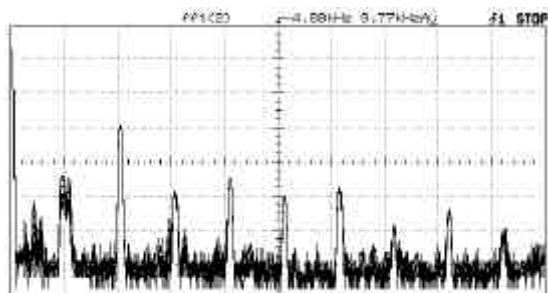
SV83 Pentode 10V RMS



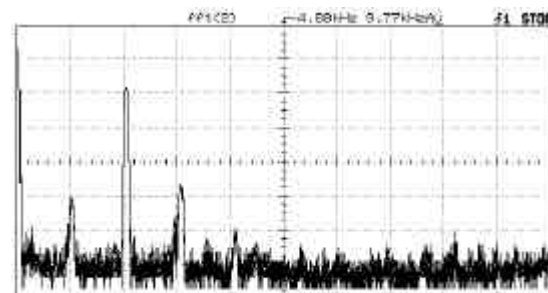
SV83 Triode CCS 10V RMS



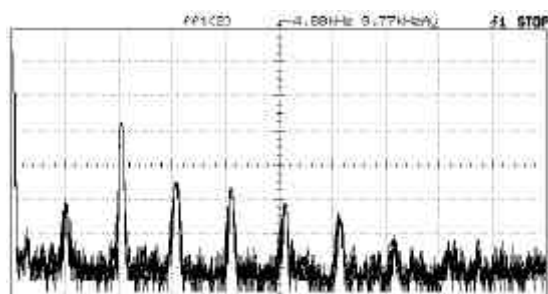
6CW5/EL86 RCA Triode 10V RMS



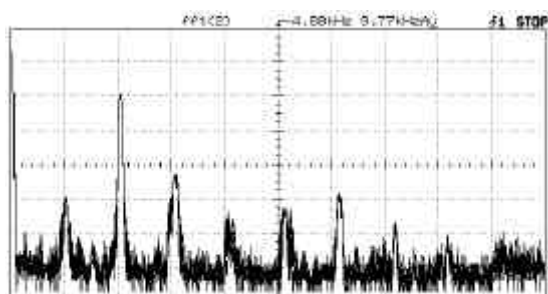
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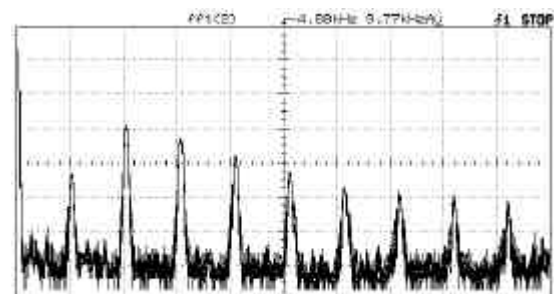
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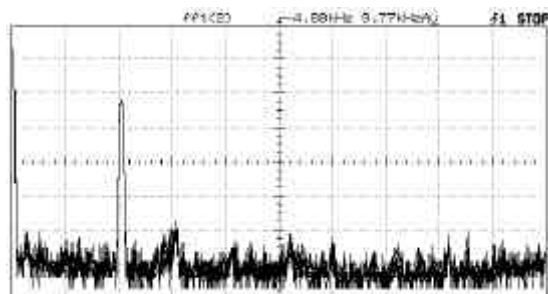
668/E81L Amperex Triode 10V RMS



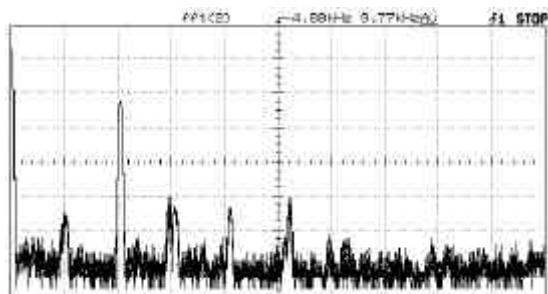
668/E81L Amperex Pentode 10V RMS



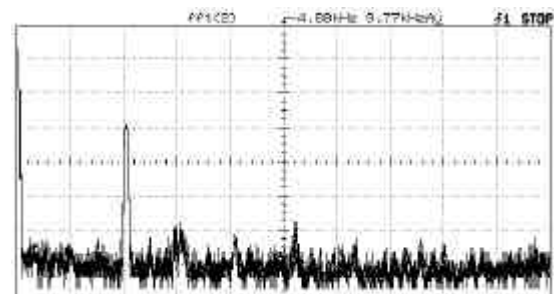
668/E81L Amperex Triode CCS 10V RMS



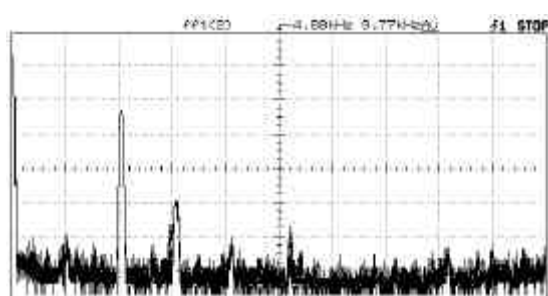
778/E810F RCA (Amperex) Triode 10V RMS



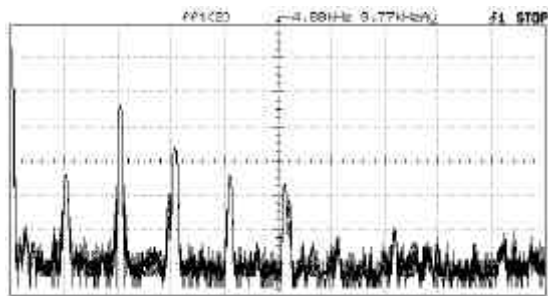
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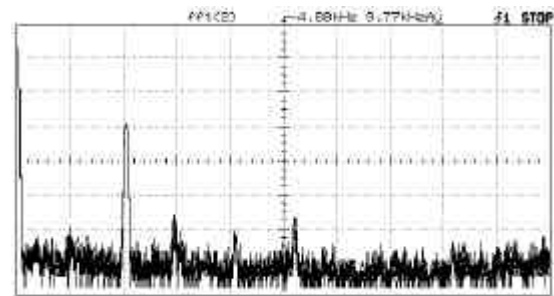
778/E810F RCA (Amperex) Triode CCS 10V RMS



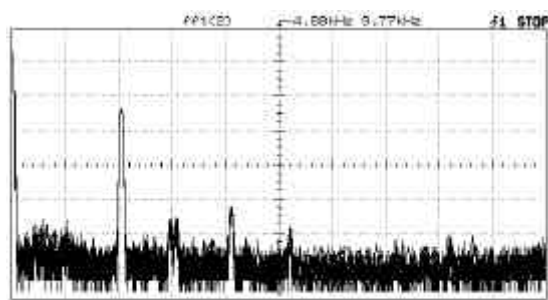
6JCS Triode 10V RMS



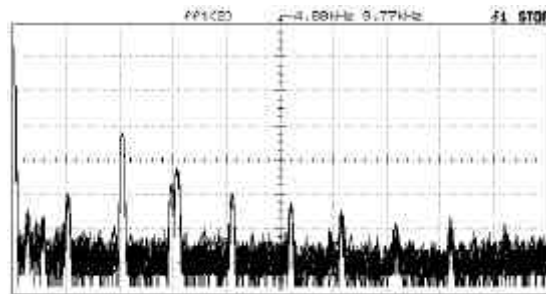
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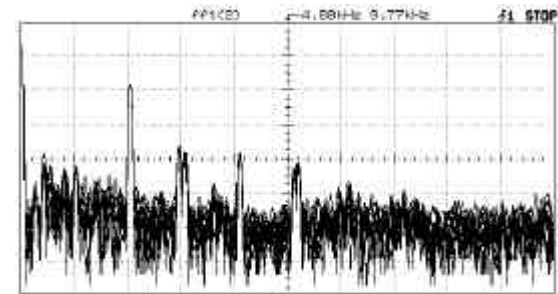
6JCS Triode CCS 10V RMS



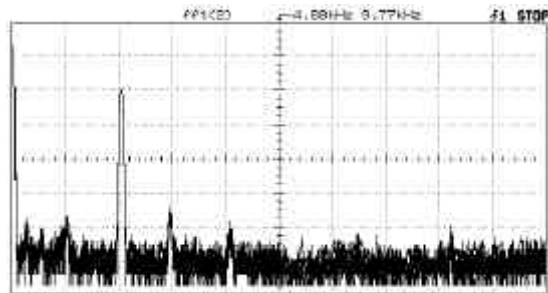
PL802 Triode 110V RMS



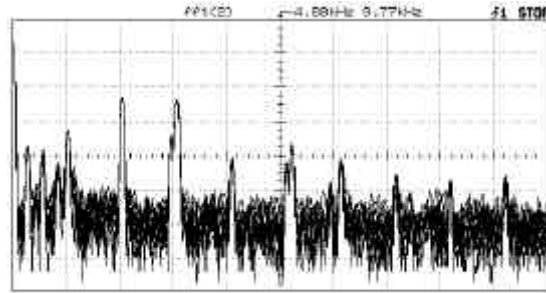
PL802 Pentode 18V RMS



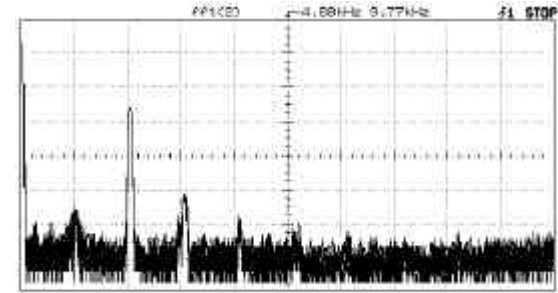
PL802 Triode CCS 18V RMS



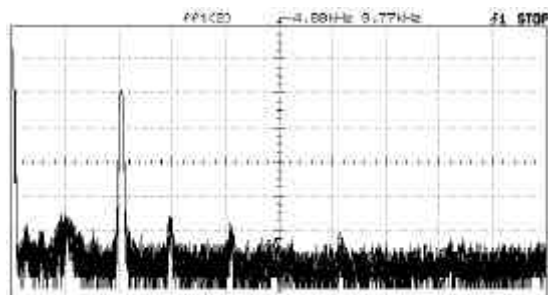
6H8 Triode 18V RMS



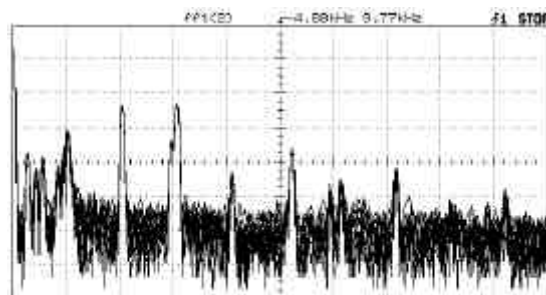
6H8 Pentode 110V RMS



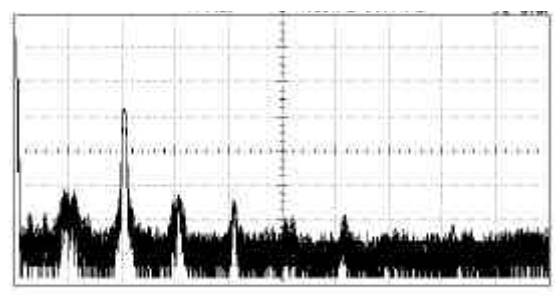
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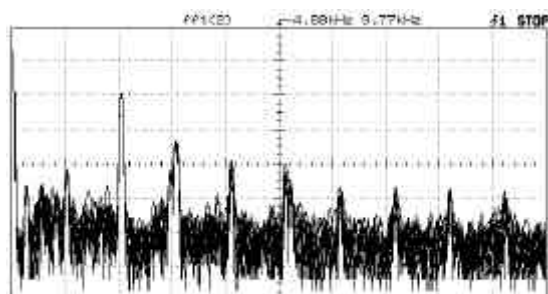
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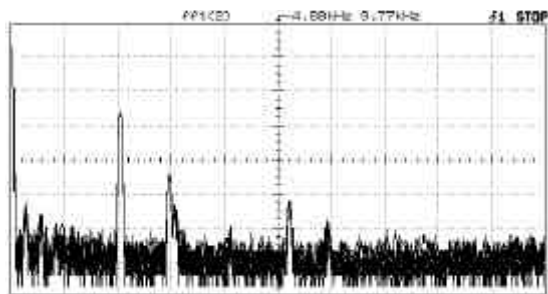
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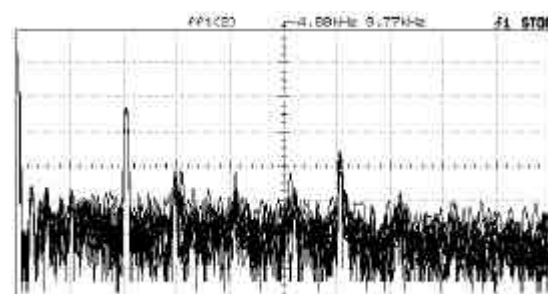
6EB8 Triode CCS 180V RMS



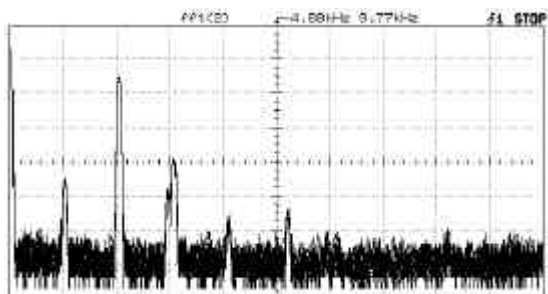
8500 Triode 10V RMS



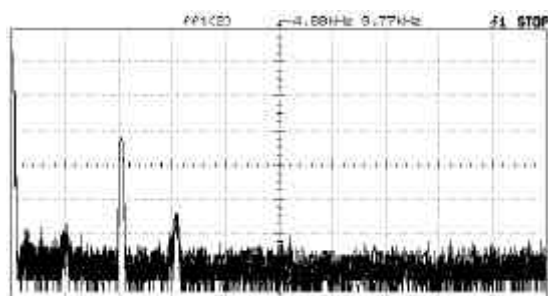
8500 Pentode (G2=75V) 10V RMS



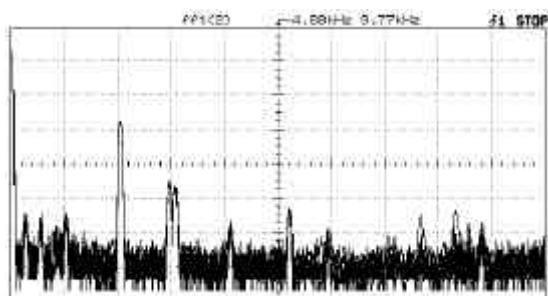
8500 Triode CCS 10V RMS



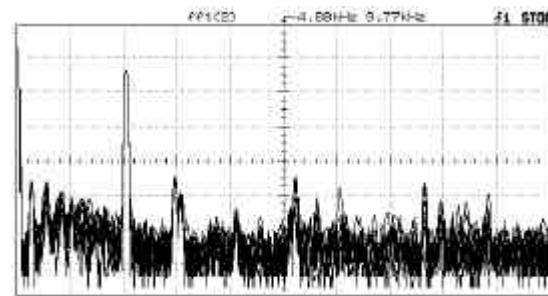
8500 Pentode (G2=150V) 10V RMS



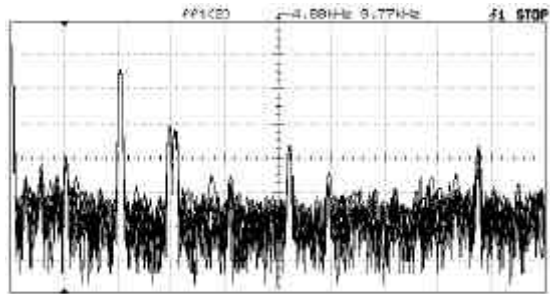
8233/E55L Triode 10V RMS



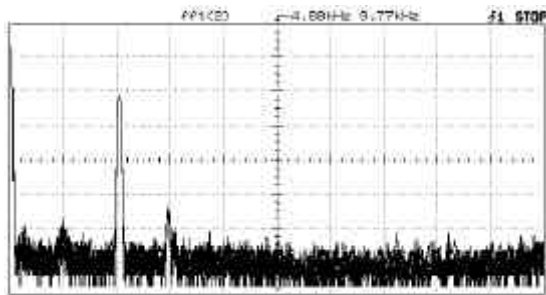
8233/E55L Pentode (G2=75V) 10V RMS



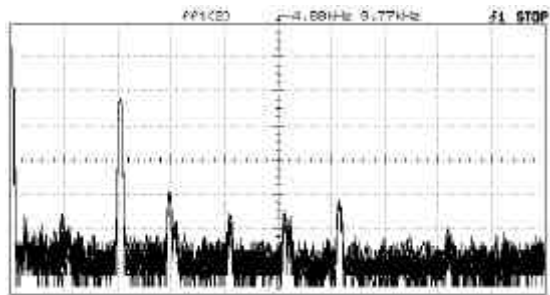
8233/E55L Triode CCS 10V RMS



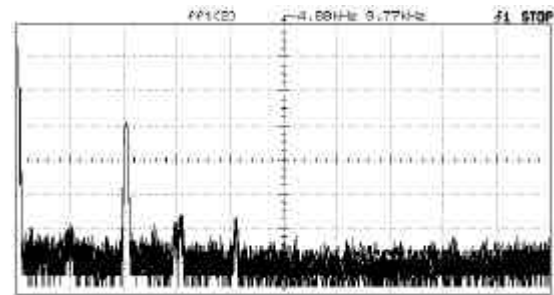
6E33/E55L (G2=150V) Pentode 10V RMS



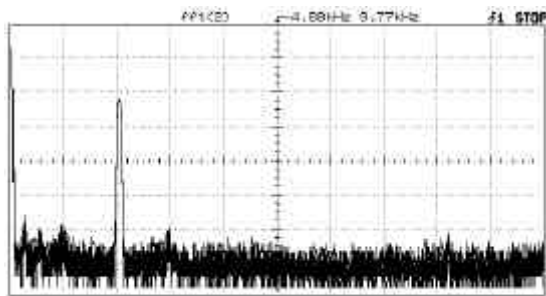
6AG7 Triode 10V RMS



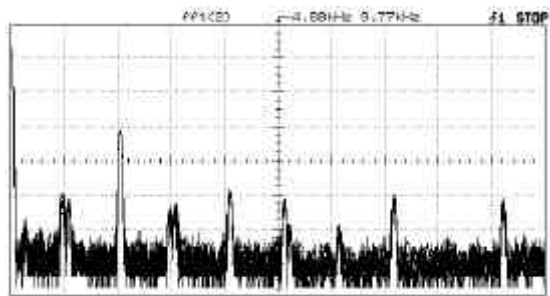
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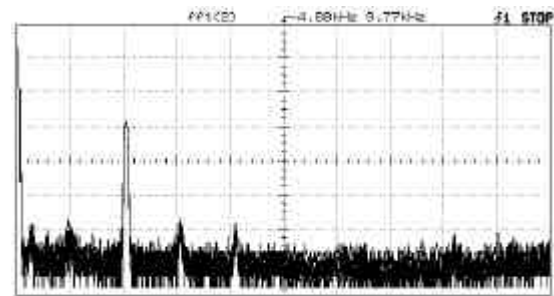
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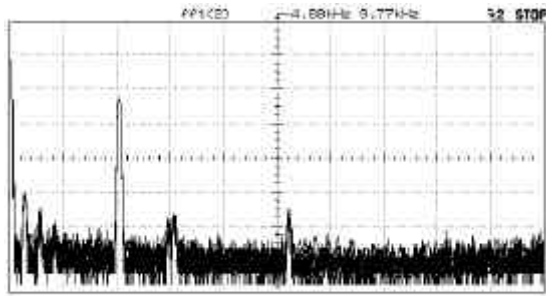
6EH5 Triode 10V RMS



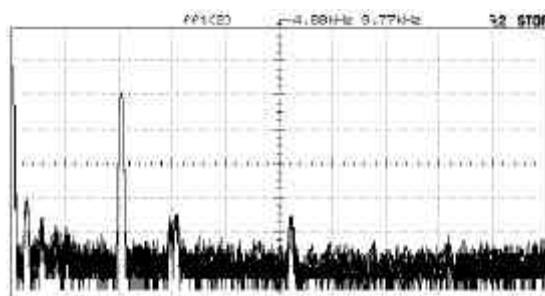
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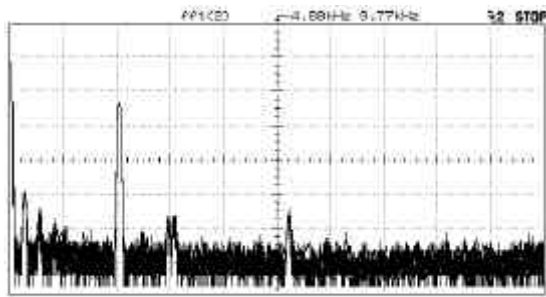
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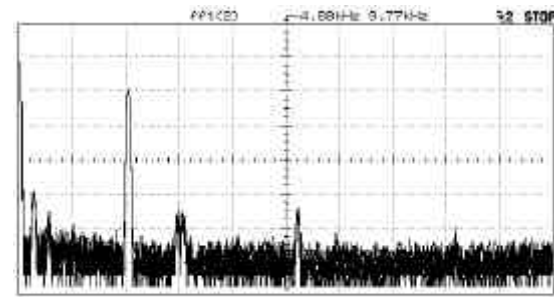
6C45p 165V 11.7mA 10V RMS out no bypass



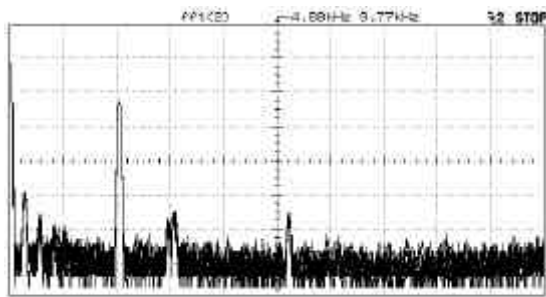
6C45p 165V 11.7mA 10V RMS bypass



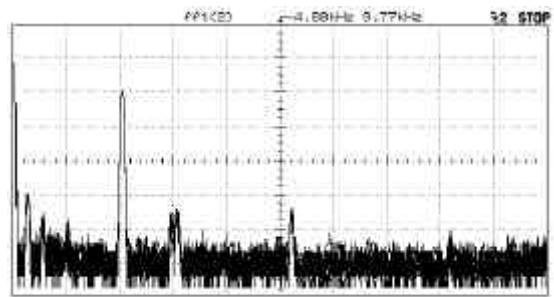
6C45p 167V 23.3mA 10V RMS no bypass



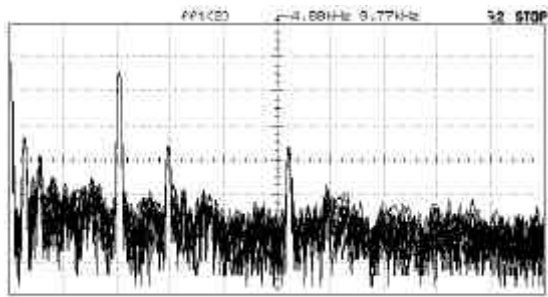
6C45p 167V 23.3mA 10V RMS bypass



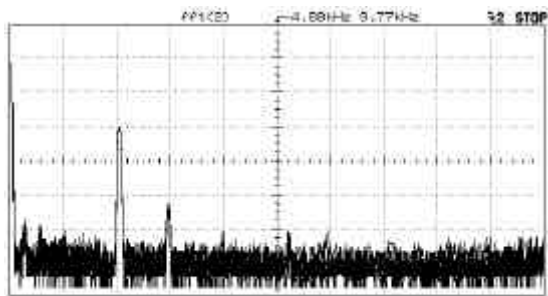
6C45p 200V 50mA 10V RMS no bypass



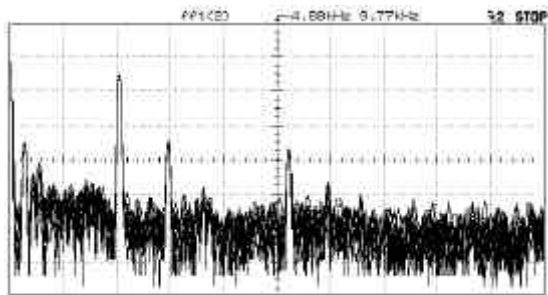
6C45p 200V 50mA 10V RMS bypass



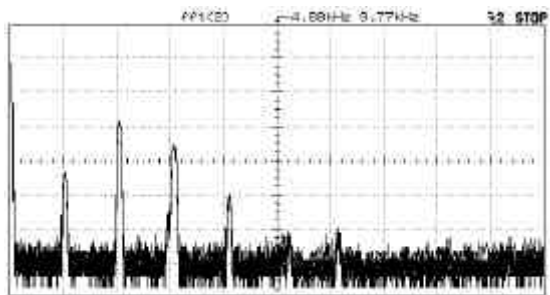
EC45p 200V 35mA CCS 10V RMS



EC45p 150V 10mA CCS 10V RMS



6V45p 130V 45mA CCS 10V RMS



6SN7 cascade (Feldberg) 18V RMS