

DIDI 6c33c

SONY VFET DIFFERENTIAL IN
TRIODE 6C33C DIFFERENTIAL OUT
PURE CLASS A – CONSTANT CURRENT
WIDEBAND TRANSFORMER COUPLED
ASYMMETRIC BALANCED SINGLE ENDED
AUTOBIAS AMPLIFIER
MONOBLOCK

AGUSTINSEIJASLAB.COM

TEST REPORT

FREQUENCY RESPONSE (POWER BAND -3 DB)

THD (FULL POWER)

IMD (FULL POWER)

PHASE SHIFT (FULL POWER)

GAIN (FULL BANDWIDTH)

OUTPUT NOISE (22HZ TO 22KHZ)

(400HZ TO 22KHZ)

TEST INSTRUMENTS:

AUDIO PRECISION SYSTEM ONE &/OR SYSTEM ONE PLUS

STANFORD RESEARCH SR 770 FFT ANALYZER

LECROY WAVERUNNER 500 MHZ/10GS DSO

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0 dBr=6.740 V

10.00dBr

Ap

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AMPL A

0 dBr

-10.00dBr

20.000 Hz

LOG FREQUENCY

120.00kHz

SETTINGS(UN-WTD

<10 Hz - >300 kHz

GEN:SINE

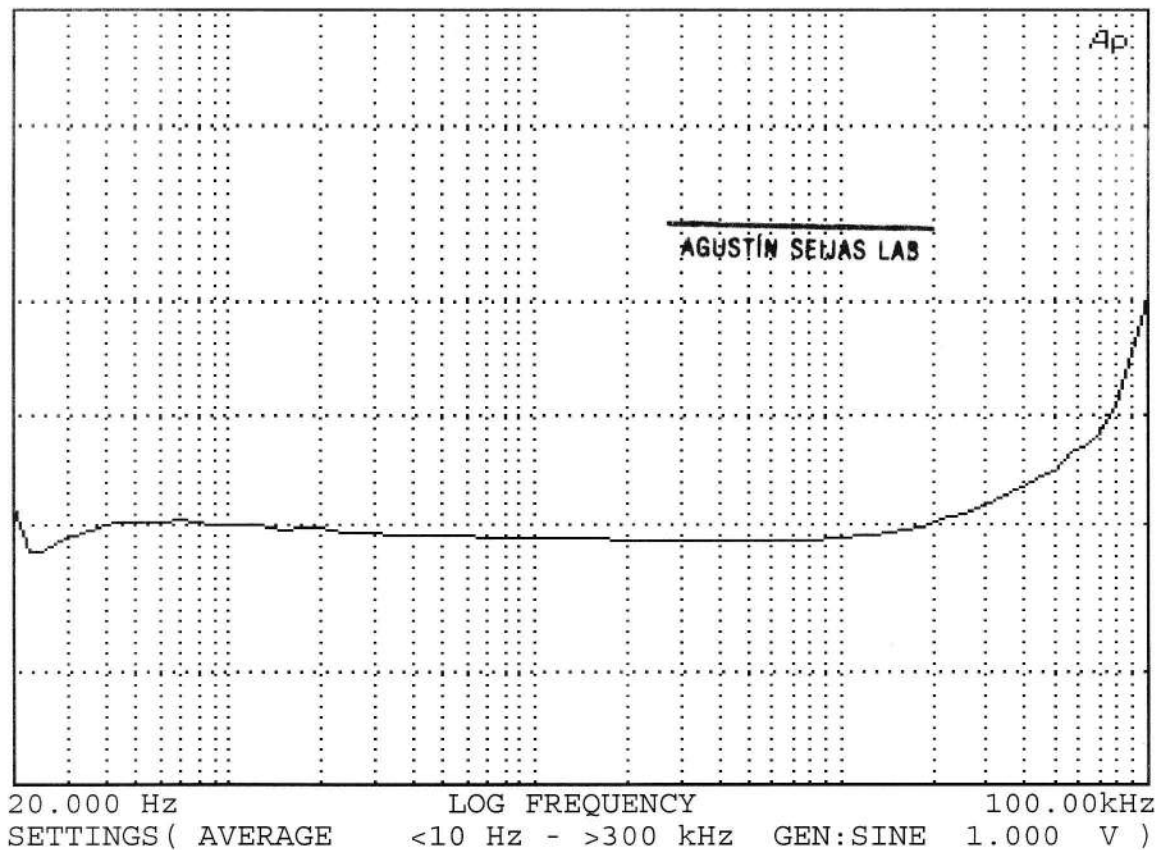
1.000 V)

GEN FREQ	AMPL	A	GEN FREQ	AMPL	A	GEN FREQ	AMPL	A	Ap
20.00 Hz	0.16 dBr		407.9 Hz	0.00 dBr		8.322 kHz	-0.02 dBr		
22.45 Hz	0.08 dBr		458.1 Hz	0.00 dBr		9.346 kHz	-0.02 dBr		
25.22 Hz	0.05 dBr		514.5 Hz	0.00 dBr		10.495kHz	-0.02 dBr		
28.32 Hz	0.03 dBr		577.7 Hz	0.00 dBr		11.786kHz	-0.02 dBr		
31.80 Hz	0.02 dBr		648.8 Hz	0.00 dBr		13.235kHz	-0.02 dBr		
35.71 Hz	0.01 dBr		728.6 Hz	0.00 dBr		14.863kHz	-0.03 dBr		
40.10 Hz	0.01 dBr		818.2 Hz	0.00 dBr		16.691kHz	-0.03 dBr		
45.04 Hz	0.00 dBr		918.8 Hz	0.00 dBr		18.743kHz	-0.03 dBr		
50.58 Hz	0.00 dBr		1.031 kHz	0.00 dBr		21.048kHz	-0.03 dBr		
56.80 Hz	0.00 dBr		1.158 kHz	0.00 dBr		23.637kHz	-0.03 dBr		
63.78 Hz	0.00 dBr		1.301 kHz	0.00 dBr		26.544kHz	-0.03 dBr		
71.63 Hz	0.00 dBr		1.461 kHz	0.00 dBr		29.808kHz	-0.02 dBr		
80.43 Hz	0.00 dBr		1.640 kHz	0.00 dBr		33.474kHz	-0.02 dBr		
90.33 Hz	0.00 dBr		1.842 kHz	0.00 dBr		37.590kHz	-0.01 dBr		
101.4 Hz	0.00 dBr		2.069 kHz	0.00 dBr		42.213kHz	0.00 dBr		
113.9 Hz	0.00 dBr		2.323 kHz	0.00 dBr		47.404kHz	0.01 dBr		
127.9 Hz	0.00 dBr		2.609 kHz	0.00 dBr		53.234kHz	0.02 dBr		
143.6 Hz	0.00 dBr		2.930 kHz	0.00 dBr		59.780kHz	0.04 dBr		
161.3 Hz	0.00 dBr		3.290 kHz	0.00 dBr		67.132kHz	0.06 dBr		
181.1 Hz	0.00 dBr		3.695 kHz	0.00 dBr		75.387kHz	0.08 dBr		
203.4 Hz	0.00 dBr		4.150 kHz	0.00 dBr		84.658kHz	0.10 dBr		
228.4 Hz	0.00 dBr		4.660 kHz	0.00 dBr		95.069kHz	0.11 dBr		
256.5 Hz	0.00 dBr		5.233 kHz	0.00 dBr		106.76kHz	0.07 dBr		
288.0 Hz	0.00 dBr		5.877 kHz	-0.01 dBr		120.00kHz	-0.11 dBr		
323.5 Hz	0.00 dBr		6.599 kHz	-0.01 dBr					
363.3 Hz	0.00 dBr		7.411 kHz	-0.01 dBr					

10.00 %

LOG
THD+N A

0.100 %

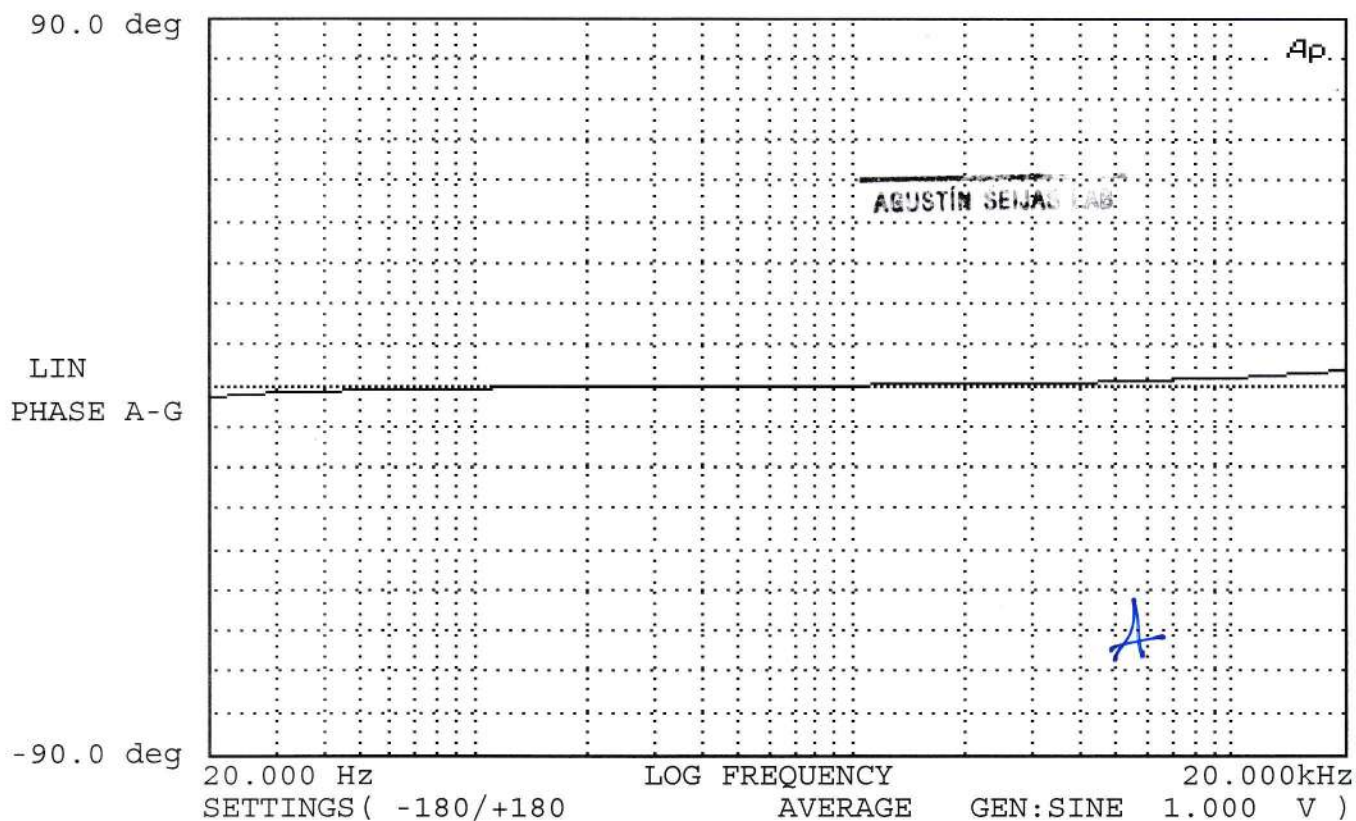


GEN FREQ	THD+N	A	GEN FREQ	THD+N	A	GEN FREQ	THD+N	A	Ap
20.00 Hz	0.558 %		382.9 Hz	0.470 %		7.330 kHz	0.452 %		
22.40 Hz	0.419 %		428.9 Hz	0.468 %		8.212 kHz	0.454 %		
25.09 Hz	0.424 %		480.5 Hz	0.465 %		9.199 kHz	0.457 %		
28.11 Hz	0.449 %		538.2 Hz	0.465 %		10.305kHz	0.460 %		
31.49 Hz	0.471 %		603.0 Hz	0.464 %		11.544kHz	0.464 %		
35.28 Hz	0.487 %		675.5 Hz	0.461 %		12.933kHz	0.469 %		
39.52 Hz	0.500 %		756.7 Hz	0.460 %		14.488kHz	0.475 %		
44.27 Hz	0.506 %		847.7 Hz	0.459 %		16.230kHz	0.483 %		
49.60 Hz	0.511 %		949.6 Hz	0.458 %		18.181kHz	0.492 %		
55.56 Hz	0.511 %		1.063 kHz	0.459 %		20.367kHz	0.504 %		
62.24 Hz	0.511 %		1.191 kHz	0.459 %		22.816kHz	0.522 %		
69.73 Hz	0.513 %		1.335 kHz	0.458 %		25.559kHz	0.538 %		
78.11 Hz	0.505 %		1.495 kHz	0.457 %		28.633kHz	0.559 %		
87.51 Hz	0.503 %		1.675 kHz	0.456 %		32.076kHz	0.584 %		
98.03 Hz	0.500 %		1.876 kHz	0.456 %		35.932kHz	0.611 %		
109.8 Hz	0.498 %		2.102 kHz	0.455 %		40.253kHz	0.640 %		
123.0 Hz	0.498 %		2.355 kHz	0.453 %		45.093kHz	0.673 %		
137.8 Hz	0.488 %		2.638 kHz	0.452 %		50.515kHz	0.705 %		
154.3 Hz	0.487 %		2.955 kHz	0.451 %		56.588kHz	0.782 %		
172.9 Hz	0.491 %		3.311 kHz	0.450 %		63.392kHz	0.825 %		
193.7 Hz	0.489 %		3.709 kHz	0.450 %		71.015kHz	0.889 %		
217.0 Hz	0.480 %		4.155 kHz	0.450 %		79.553kHz	1.06 %		
243.1 Hz	0.479 %		4.654 kHz	0.450 %		89.118kHz	1.46 %		
272.3 Hz	0.474 %		5.214 kHz	0.451 %		100.00kHz	2.07 %		
305.1 Hz	0.474 %		5.841 kHz	0.451 %					
341.8 Hz	0.470 %		6.543 kHz	0.452 %					

IMD A LEVEL A
1.72 % 5.566 V

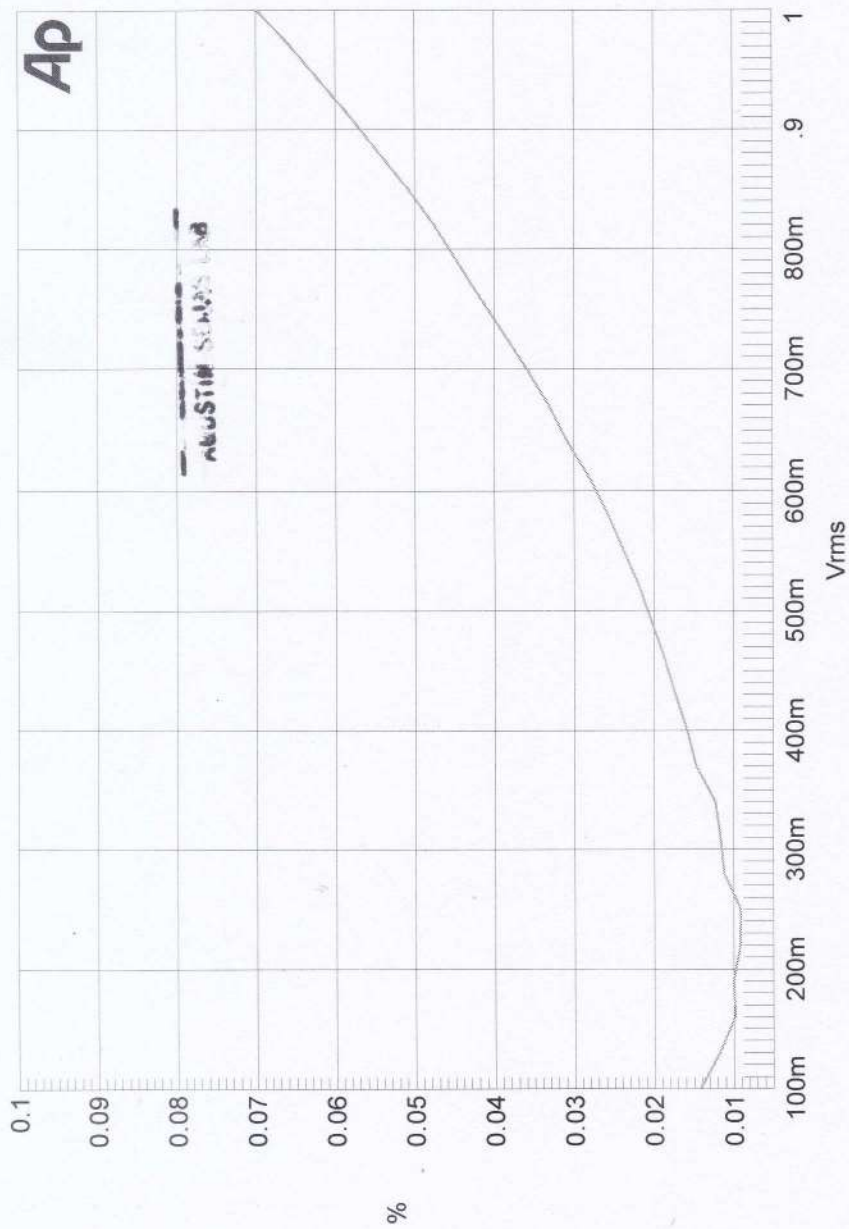
GEN:IMD 1.000 V 70Hz/8kHz

Ap



GEN FREQ	PHASE	A-G	GEN FREQ	PHASE	A-G	GEN FREQ	PHASE	A-G	Ap
20.00 Hz	-2.8	deg	250.0 Hz	-0.1	deg	3.150 kHz	0.5	deg	
25.00 Hz	-2.1	deg	315.0 Hz	-0.1	deg	4.000 kHz	0.7	deg	
31.50 Hz	-1.6	deg	400.0 Hz	0.0	deg	5.000 kHz	0.9	deg	
40.00 Hz	-1.2	deg	500.0 Hz	0.0	deg	6.300 kHz	1.2	deg	
50.00 Hz	-1.0	deg	630.0 Hz	0.0	deg	8.000 kHz	1.5	deg	
63.00 Hz	-0.8	deg	800.0 Hz	0.0	deg	10.000kHz	1.8	deg	
80.00 Hz	-0.6	deg	1.000 kHz	0.1	deg	12.500kHz	2.2	deg	
100.0 Hz	-0.5	deg	1.250 kHz	0.1	deg	16.000kHz	2.8	deg	
125.0 Hz	-0.4	deg	1.600 kHz	0.2	deg	20.000kHz	3.5	deg	
160.0 Hz	-0.3	deg	2.000 kHz	0.3	deg				
200.0 Hz	-0.3	deg	2.500 kHz	0.4	deg				

RATIO A/G	FREQ	GA	GEN:SINE	1.000 V	1.009 kHz	Ap
16.92dB	1.0056kHz					
NOISE A			UN-WTD	22 Hz - 22 kHz		Ap
118.9 uV			GEN:SINE	1.000 V	1.009 kHz	
NOISE A			UN-WTD	400 Hz - 22 kHz		Ap
19.78 uV			GEN:SINE	1.000 V	1.009 kHz	
NOISE A			UN-WTD	400 Hz - 30 kHz		Ap
19.98 uV			GEN:SINE	1.000 V	1.009 kHz	
NOISE A			UN-WTD	400 Hz - 80 kHz		Ap
20.63 uV			GEN:SINE	1.000 V	1.009 kHz	

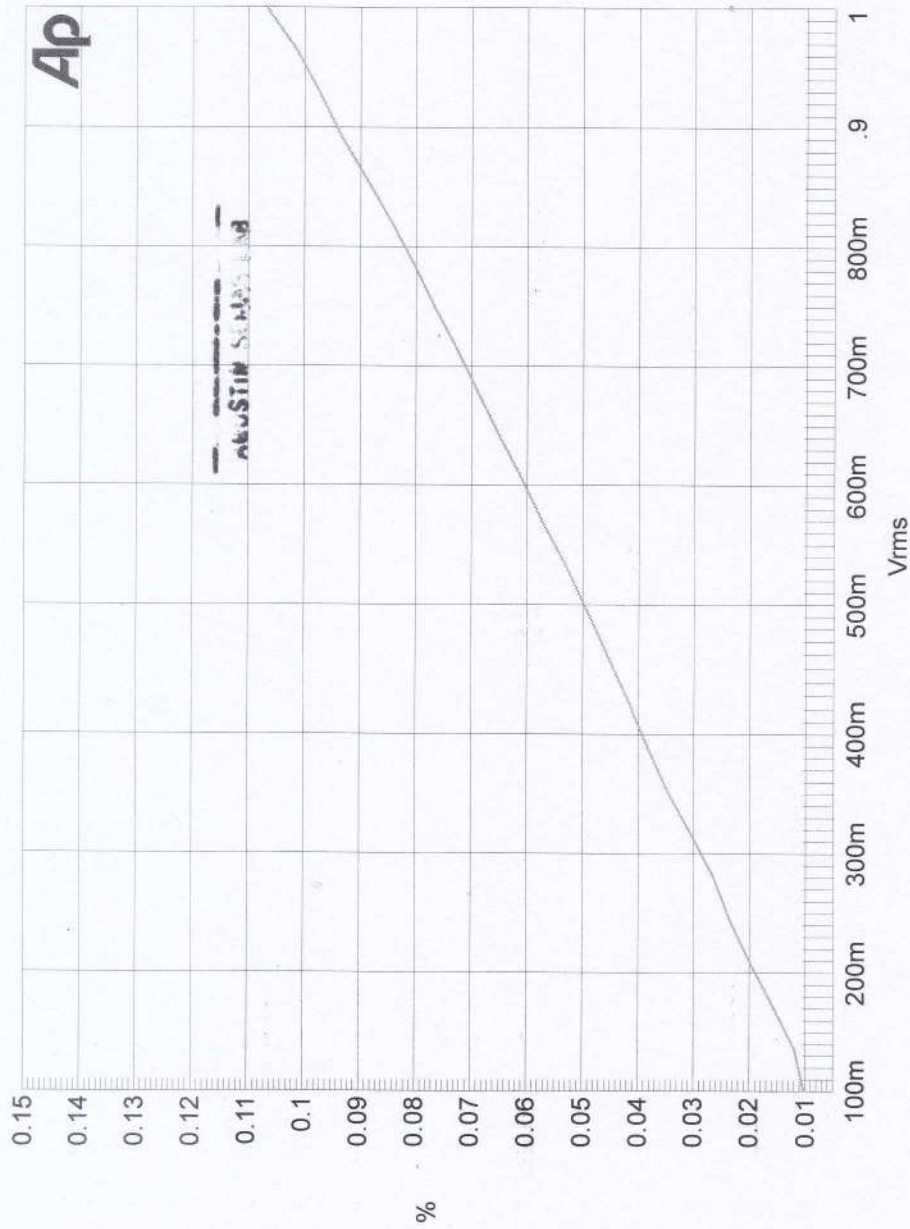


Sweep	Trace	Color	Line Style	Thick	Data	Axis	Comment
1	1	Cyan	Solid	7	Anlr.DIM	Left	
Requires IMD option. The Analog Analyzer Function meter is set to DIM. The DIM intermod analyzer measures the spectrum between 750 Hz and 2.4 kHz - includes 5th and 6th order IM products of the sine-and-square wave.							

Audio Precision

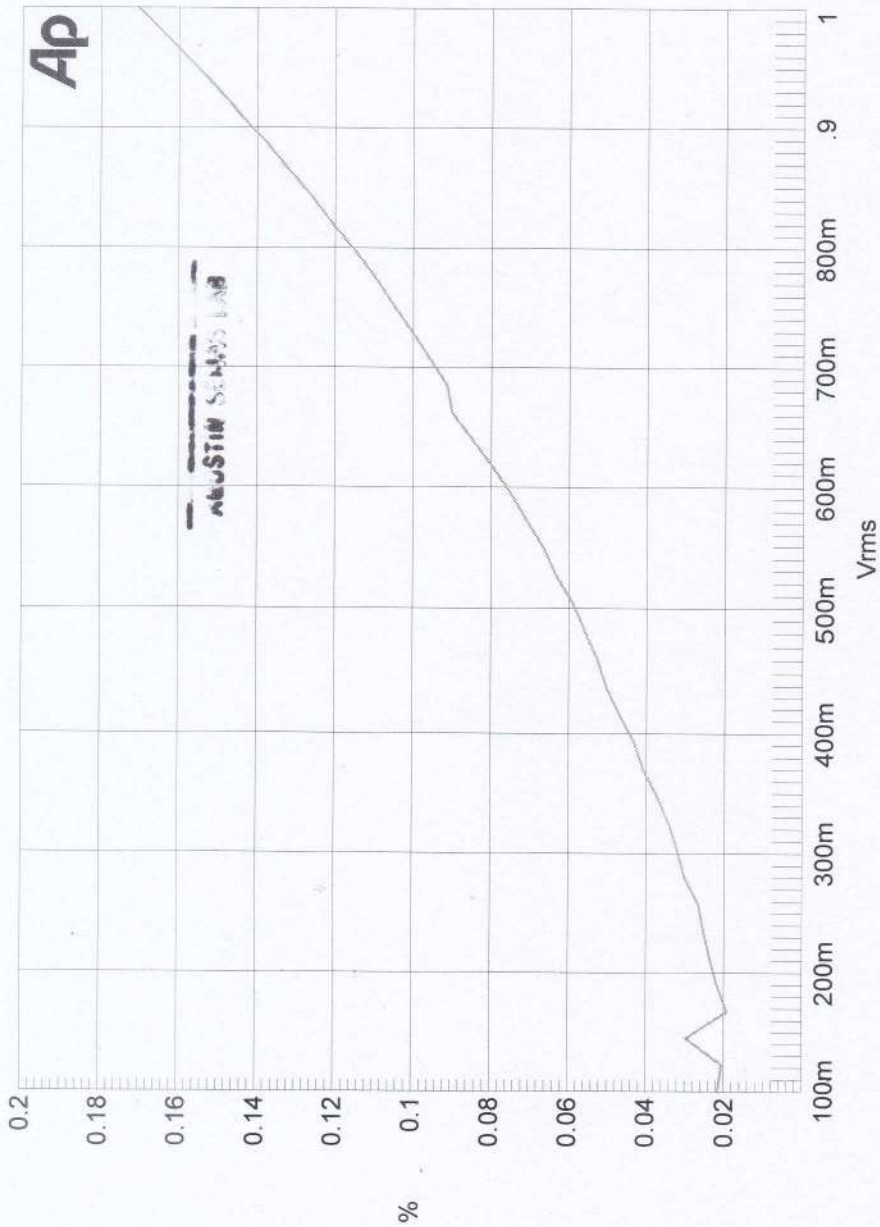
CCIF IMD vs AMPLITUDE

05/25/26 18:41:30



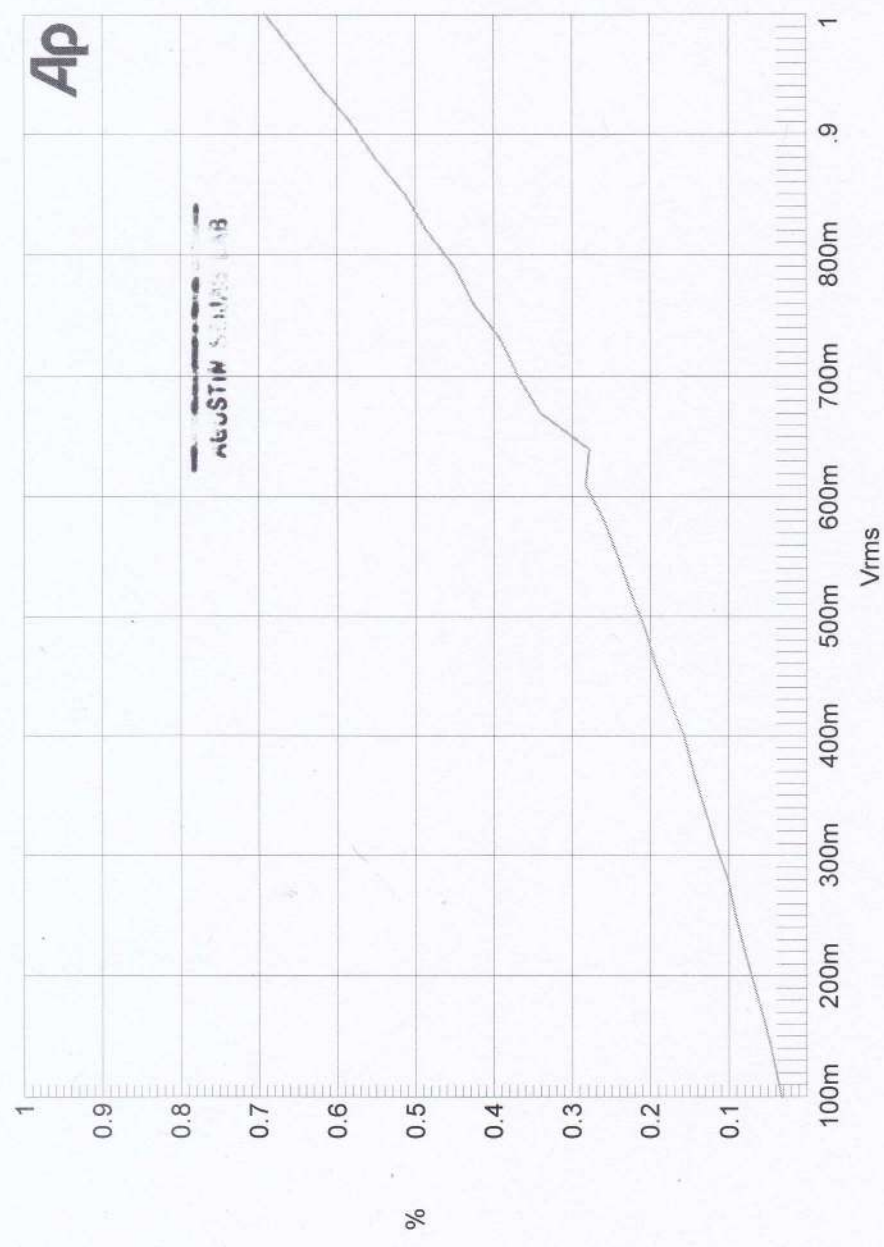
Sweep	Trace	Color	Line Style	Thick	Data	Axis	Comment
1	1	Cyan	Solid	7	Anlr.CCIF	Left	

IMD option required. The Analog Analyzer Function meter is set to CCIF. The Sys One CCIF IM analyzer measures only the amplitude of the difference product (f2 - f1) 1 kLs in this mode



Sweep	Trace	Color	Line Style	Thick	Data	Axis	Comment
1	1	Cyan	Solid	7	Anlr.THd+N Ratio	Left	

For Stereo check the Stereo box at the bottom of the Sweep panel. Measures consecutively. The flat line is the noise floor of the DUT. Increasing slope on the right is distortion, an abrupt increase is clipping.



Sweep	Trace	Color	Line Style	Thick	Data	Axis	Comment
1	1	Cyan	Solid	7	Anlr.SMPTE	Left	
Measures the total amplitude of the demodulated distortion-created sidebands around the high-frequency signal. The result is a ratio of distortion to signal. Noise is dominant as a percentage of signal at low							

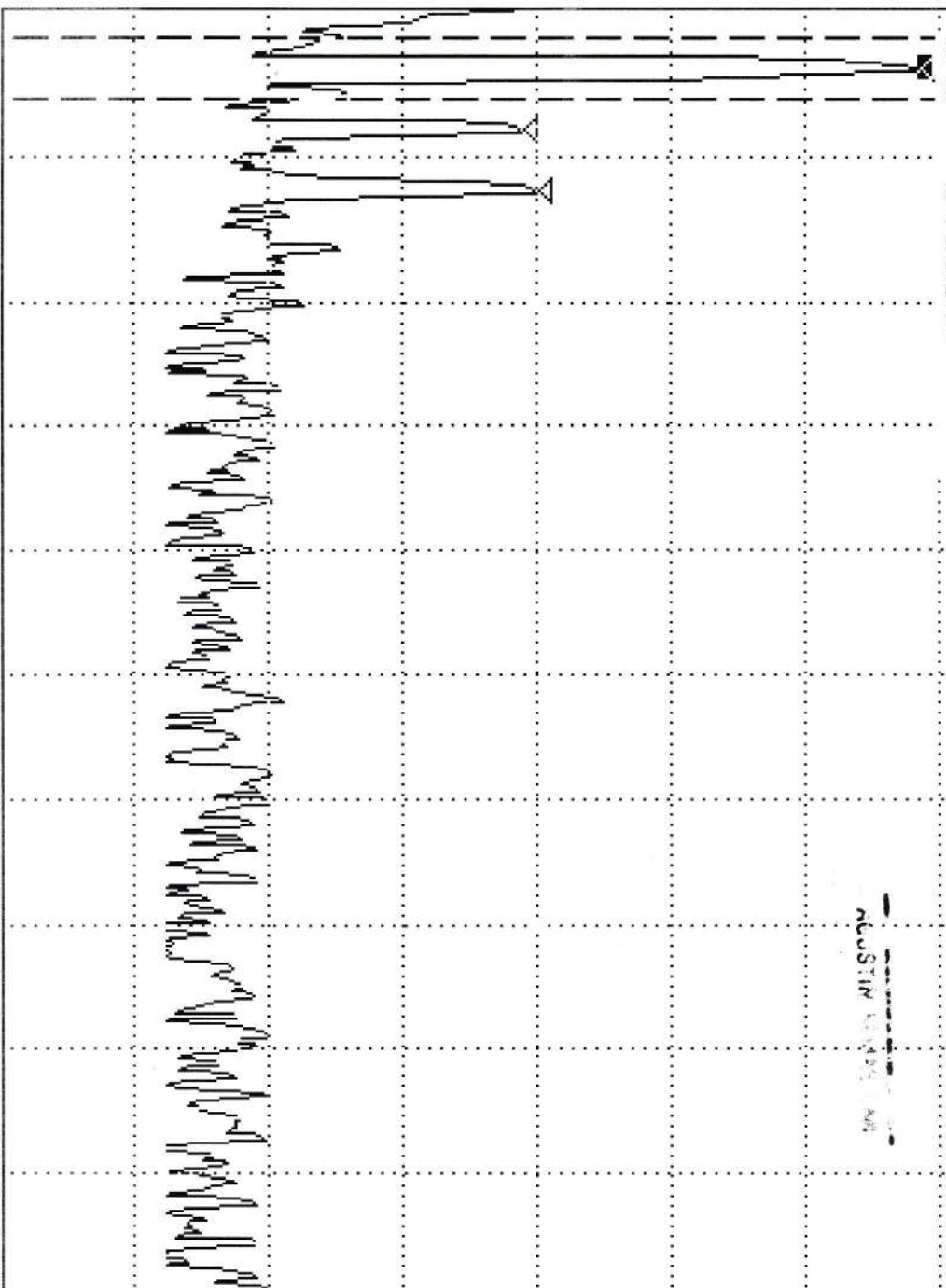
1.00000 kHz

$V = 6.906 \text{ Vrms}$

LogMag Spec 0

Harm. = 0.01253 Vrms

THD = 0.1814%



0.0 kHz

12.5000 kHz

25.0000 kHz

Top = 1000 Vrms 20 dB/div Wndo: BMH

File= Live

PLIN

22 dBV

No Avg.

Span

Linewidth

Acq. Time

Full

Span:

Start Freq.

Center Freq.

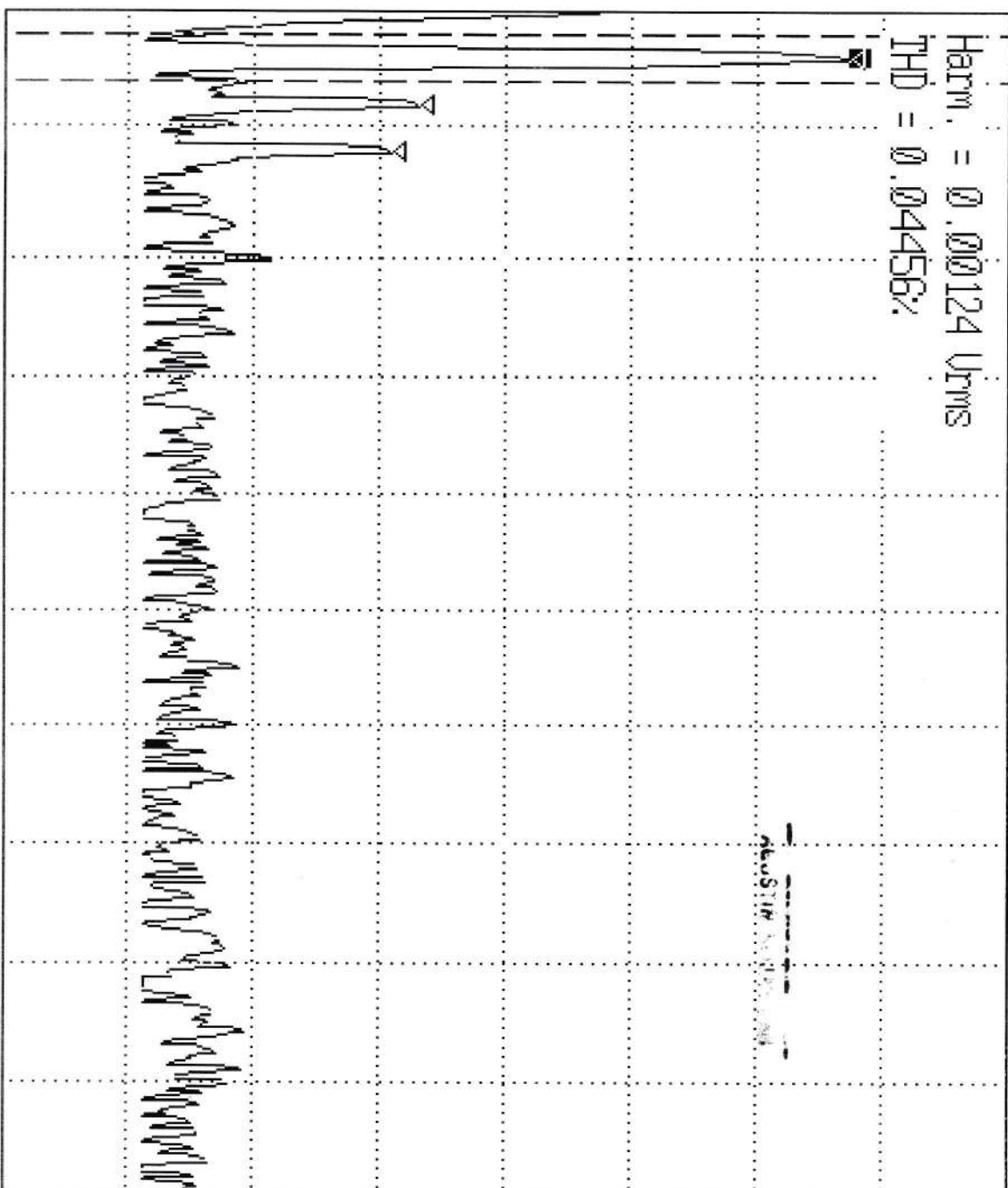
1.00000 kHz

 $\gamma = 2.781$ μrms

LogMag Spec 0

Harm. = 0.00124 μrms

THD = 0.04456%



0.0 kHz

12.5000 kHz

25.0000 kHz

Top = 50.1187 μrms 20 dB/div Wndo: BMH

File= Live

PLN

14 dBu

No Avg.

Span:



Full

Acq. Time

16.00 ms

Linewidth

62.5 Hz

25 kHz

Span

Start Freq.

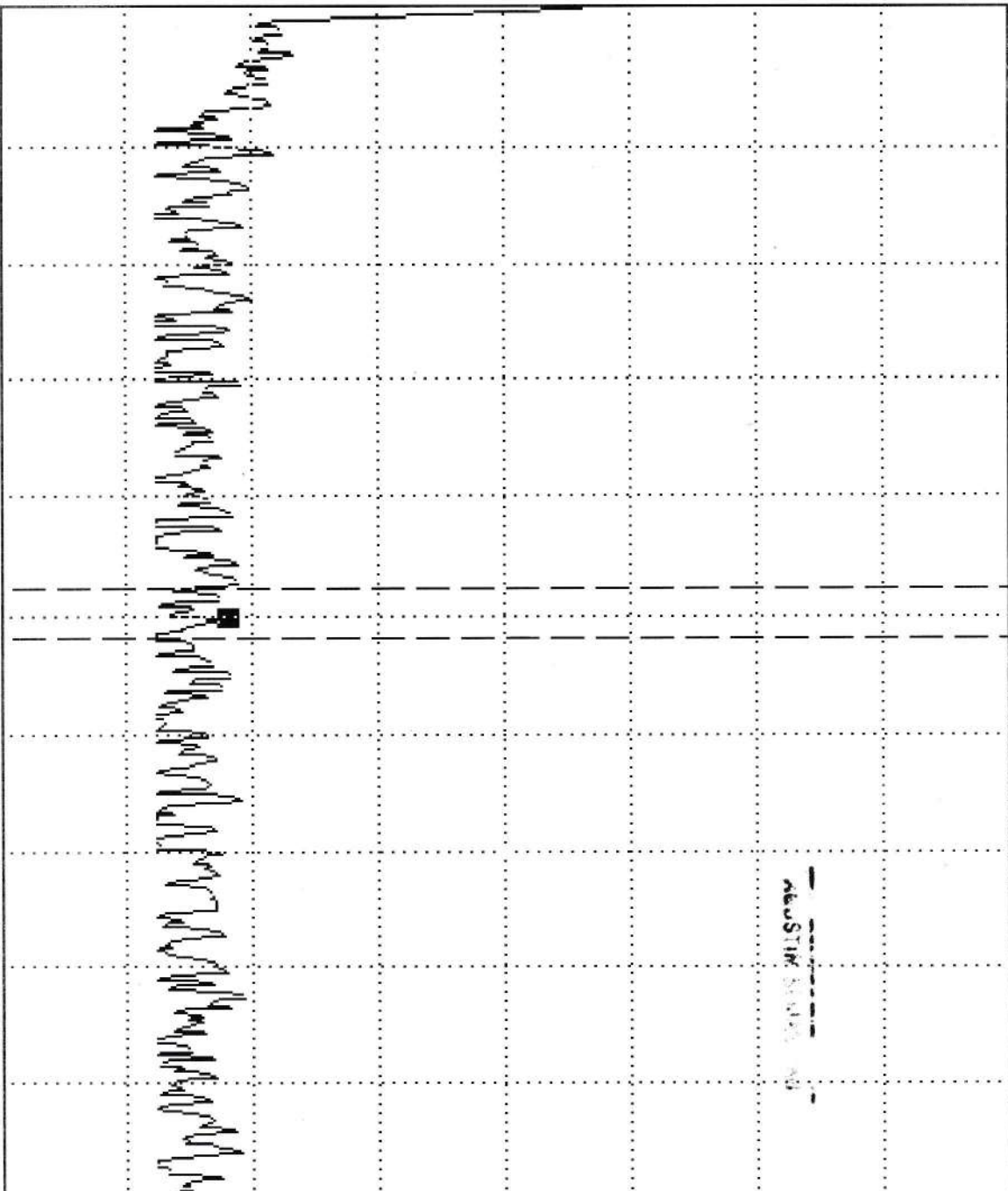
0.0 kHz

Center Freq.

12.5000 kHz

12.5625 kHz μ = 54.76 μ rms

LogMag Spec 0



0.0 kHz 12.50000 kHz 25.00000 kHz

Top = 100 μ rms 20 dB/div Wndo: BMH

File= Live

PLIN 22 dBu No Avg.

Span

25 kHz

Linewidth

62.5 Hz

Acq. Time

16.00 ms

Full

Span:

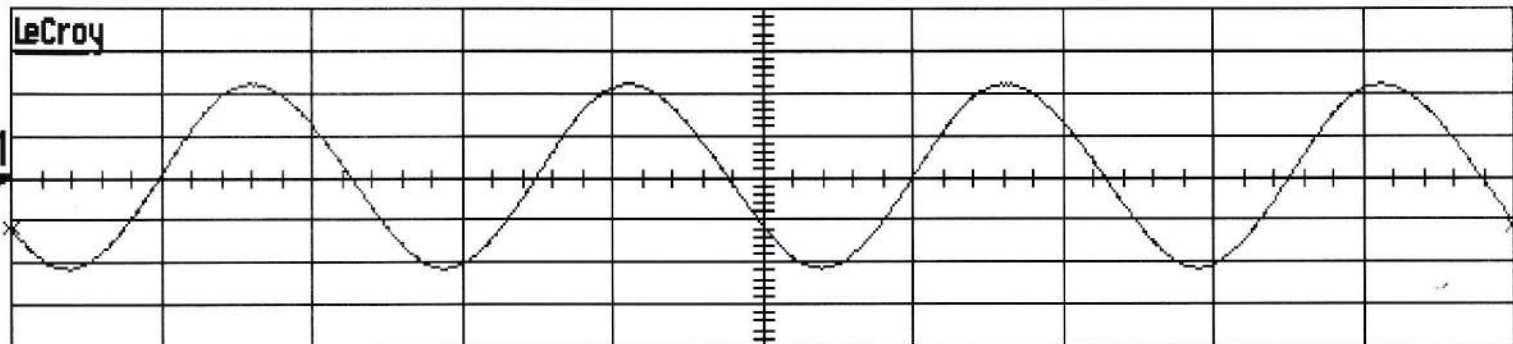


Start Freq.

0.0 kHz

Center Freq.

12.50000 kHz

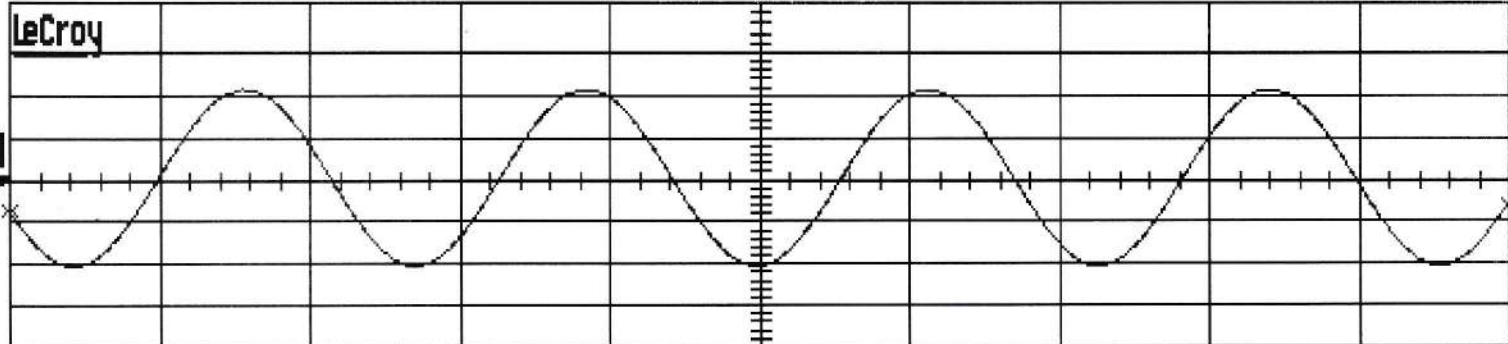


1 2 μs 2.00 V

pkpk(1)	8.75 V	Freq(1)	199.495 kHz
sdev(1)	3.028 V	period(1)	5.0127 μs
rms(1)	3.028 V	width(1)	2.5271 μs
cmean(1) $\int$	-9mV	rise(1)	1.4139 μs
csdev(1) $\int$	3.027 V	Fall(1)	1.5133 μs
crms(1) $\int$	3.027 V	r20-80%(1)	996.2 ns
top(1)	4.23 V	F80-20%(1)	1.0687 μs
base(1)	-4.31 V	over+(1)	1.39 %
ampl(1)	8.54 V	over-(1)	1.04 %
mean(1)	-3mV	xamn(1)	-1.24288 μs
minimum(1)	-4.40 V	xamx(1)	1.23160 μs
maximum(1)	4.35 V	delay(1)	-2.6 ns
area(1)	-57.250 nVs	cycles(1)	3

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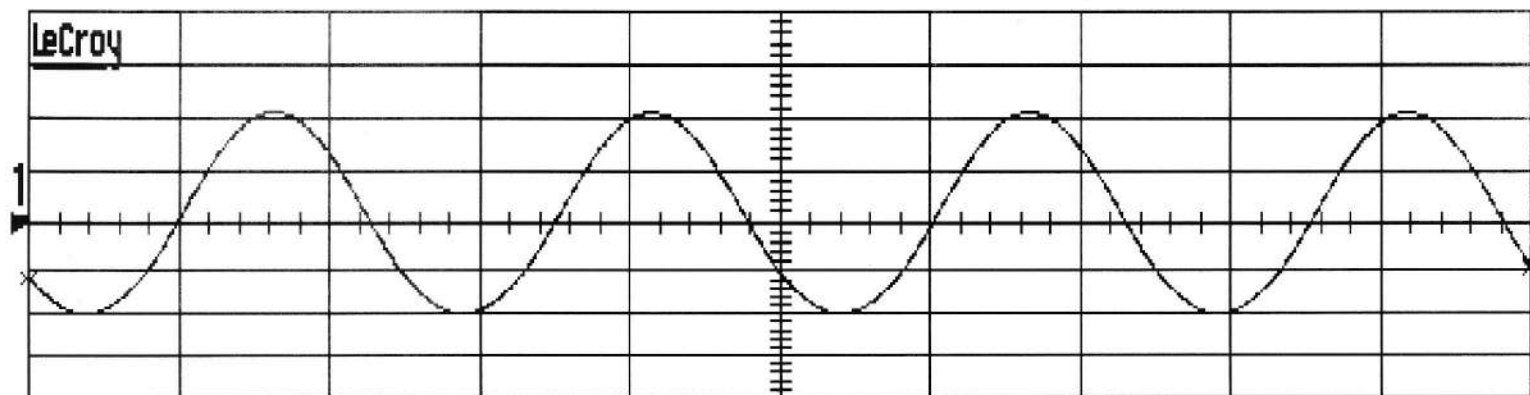
1 5 μ s 2.00 V

pkpk(1)	8.50 V	Freq(1)	87.8272 kHz
sdev(1)	2.963 V	period(1)	11.3860 μ s
rms(1)	2.977 V	width(1)	5.7054 μ s
cmean(1) $\checkmark$	-7mV	rise(1)	3.2430 μ s
csdev(1) $\checkmark$	2.942 V	Fall(1)	3.2182 μ s
crms(1) $\checkmark$	2.942 V	r20-80%(1)	2.2474 μ s
top(1)	4.07 V	F80-20%(1)	2.2369 μ s
base(1)	-4.08 V	over+(1)	1.91 %
ampl(1)	8.14 V	over-(1)	2.45 %
mean(1)	-291mV	xamn(1)	-2.89548 μ s
minimum(1)	-4.28 V	xamx(1)	2.85218 μ s
maximum(1)	4.22 V	delay(1)	1.0 ns
area(1)	-14.5370 μ Vs	cycles(1)	3

AUGUST 1985

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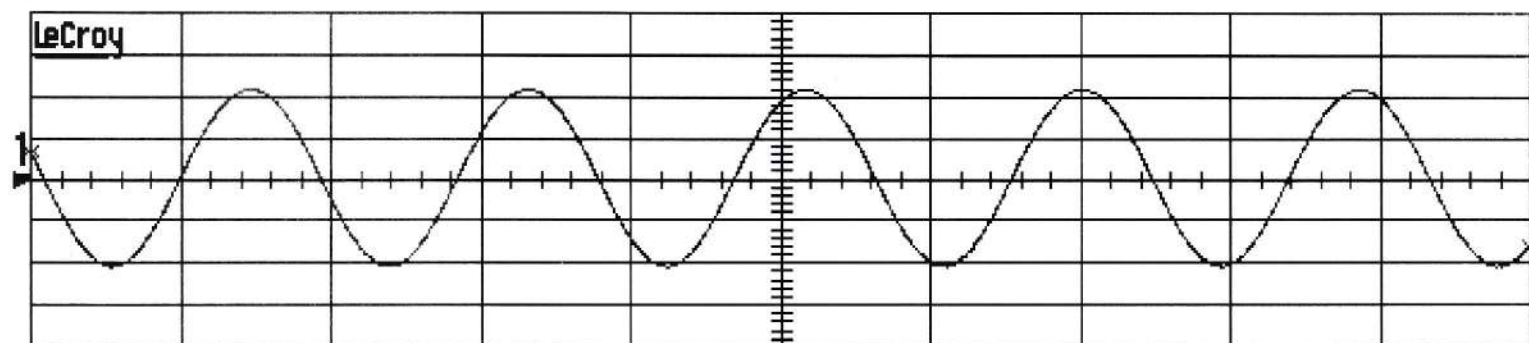
20 ms 2.00 V

pkpk(1)	8.31 V	Freq(1)	19.88 Hz
sdev(1)	2.890 V	period(1)	50.2905 ms
rms(1)	2.890 V	width(1)	25.1998 ms
cmean(1) 	-4mV	rise(1)	14.5270 ms
csdev(1) 	2.886 V	Fall(1)	14.4663 ms
crms(1) 	2.886 V	r20-80%(1)	9.9614 ms
top(1)	4.04 V	F80-20%(1)	9.9301 ms
base(1)	-4.03 V	over+(1)	1.55 %
ampl(1)	8.07 V	over-(1)	1.51 %
mean(1)	9mV	xamn(1)	-12.2610 ms
minimum(1)	-4.15 V	xamx(1)	12.6529 ms
maximum(1)	4.16 V	delay(1)	186.8 μ s
area(1)	1.76775 mVs	cycles(1)	3

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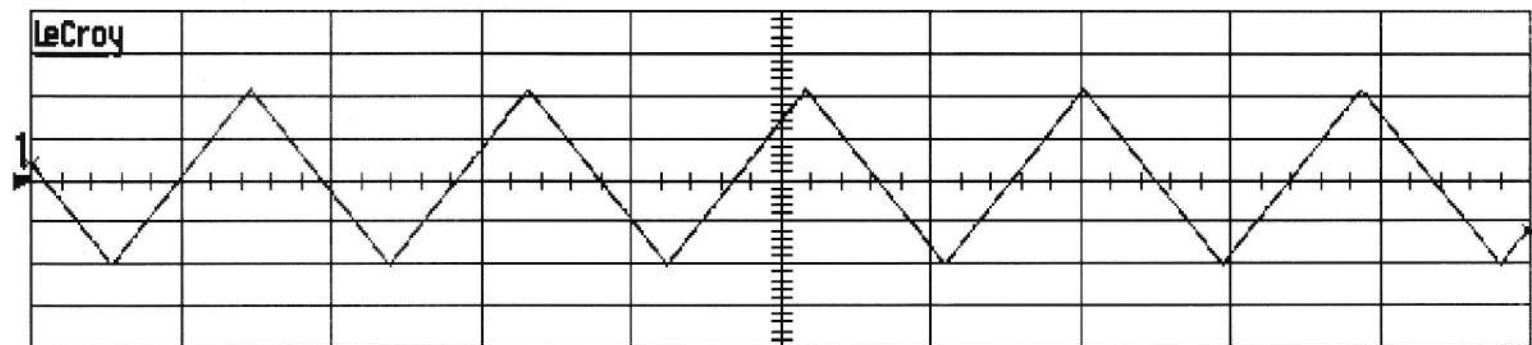
50 ms 2.00 V

pkpk(1)	8.63 V	Freq(1)	10.82 Hz
sdev(1)	3.004 V	period(1)	92.4538 ms
rms(1)	3.011 V	width(1)	46.2712 ms
cmean(1)	-6mV	rise(1)	26.1399 ms
csdev(1)	3.001 V	Fall(1)	26.1099 ms
crms(1)	3.001 V	r20-80%(1)	18.0113 ms
top(1)	4.16 V	F80-20%(1)	17.8843 ms
base(1)	-4.19 V	over+(1)	1.49 %
ampl(1)	8.35 V	over-(1)	1.79 %
mean(1)	-207mV	xamn(1)	-22.4919 ms
minimum(1)	-4.34 V	xamx(1)	23.5255 ms
maximum(1)	4.29 V	delay(1)	196.1 μ s
area(1)	-103.711 mVs	cycles(1)	4

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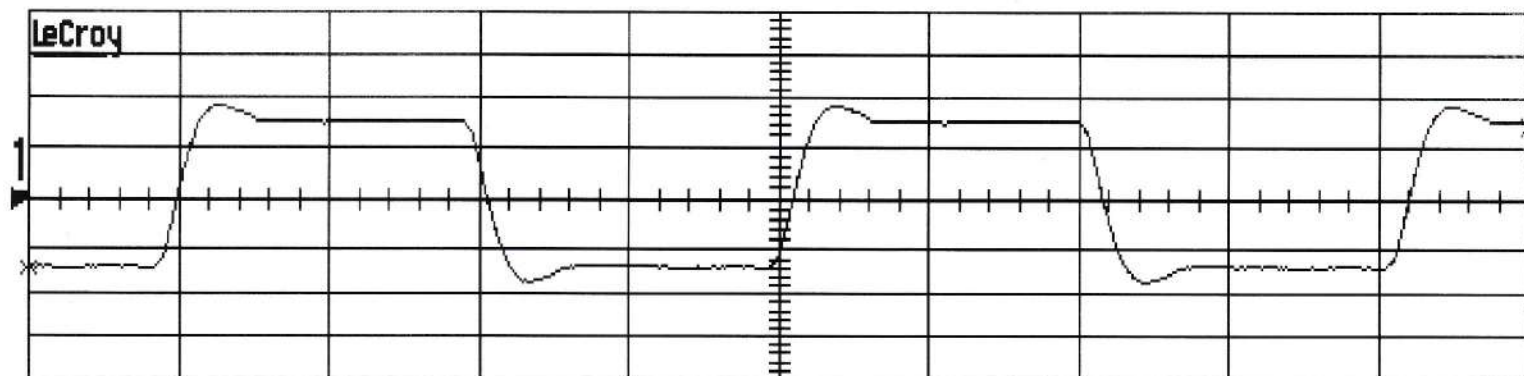
1 .5 ms 2.00 V

pkpk(1)	8.44 V	Freq(1)	1.07974 kHz
sdev(1)	2.398 V	period(1)	926.150 μ s
rms(1)	2.403 V	width(1)	463.053 μ s
cmean(1) $\checkmark$	-1mV	rise(1)	371.925 μ s
csdev(1) $\checkmark$	2.391 V	Fall(1)	373.020 μ s
crms(1) $\checkmark$	2.391 V	r20-80%(1)	275.620 μ s
top(1) $\times$	4.22 V	F80-20%(1)	275.760 μ s
base(1) $\times$	-4.21 V	over+(1)	0.00 %
ampl(1) $\times$	8.44 V	over-(1)	0.00 %
mean(1)	-157mV	xamn(1)	-227.168 μ s
minimum(1)	-4.21 V	xamx(1)	236.337 μ s
maximum(1)	4.22 V	delay(1)	3.321 μ s
area(1)	-784.169 μ Vs	cycles(1)	4

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LeCroy

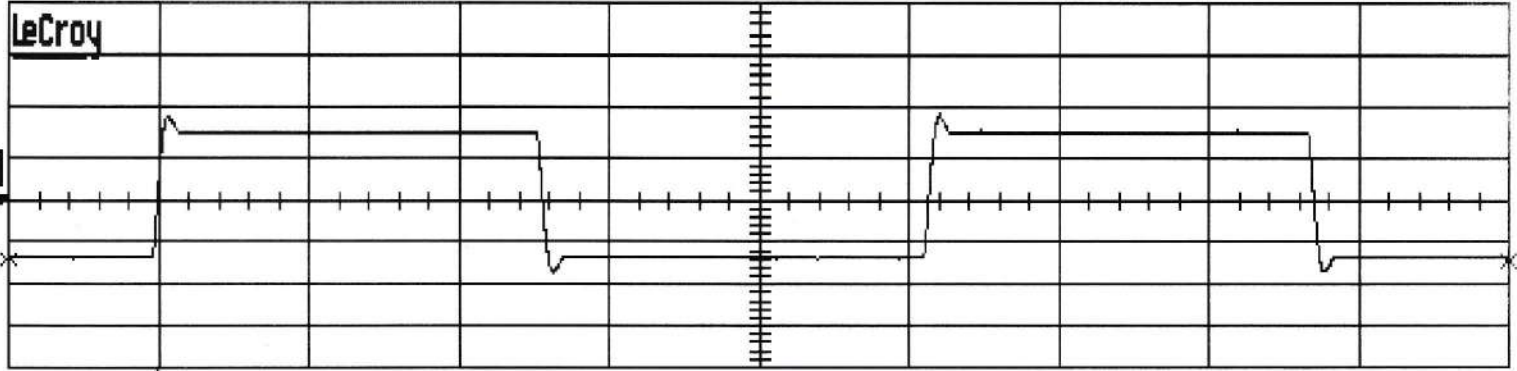


5 μs 2.00 V

pkpk(1)	7.13 V	Freq(1)	48.6997 kHz
sdev(1)	2.791 V	period(1)	20.5340 μs
rms(1)	2.792 V	width(1)	10.2943 μs
cmean(1) 	-8mV	rise(1)	969.2 ns
csdev(1) 	2.792 V	Fall(1)	1.0429 μs
crms(1) 	2.792 V	r20-80%(1)	703.1 ns
top(1)	2.81 V	F80-20%(1)	757.4 ns
base(1)	-2.84 V	over+(1)	12.90 %
ampl(1)	5.65 V	over-(1)	13.28 %
mean(1)	-56mV	xamn(1)	11.9195 μs
minimum(1)	-3.59 V	xamx(1)	1.58721 μs
maximum(1)	3.54 V	delay(1)	-1.8 ns
area(1)	-2.82238 μVs	cycles(1)	2

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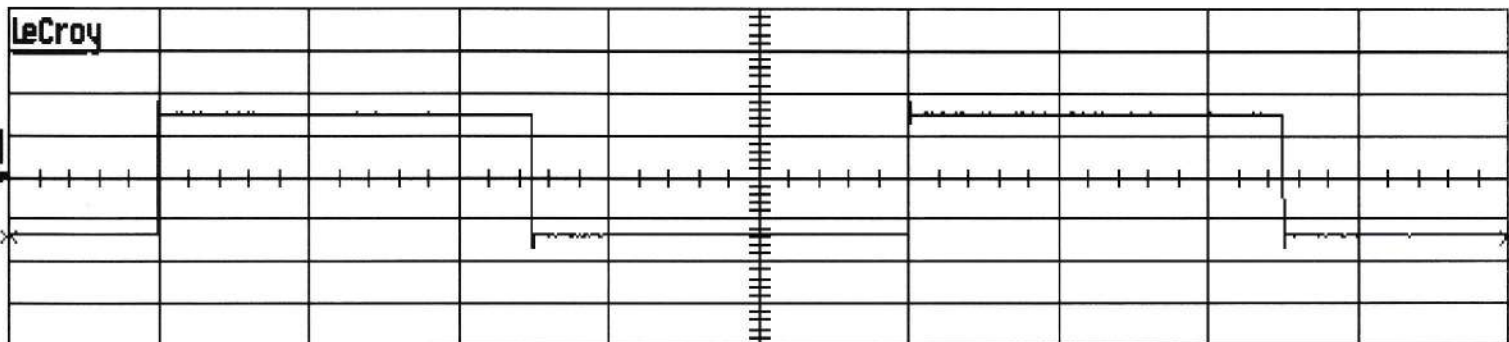


20 μs 2.00 V

pkpk(1)	7.19 V	Freq(1)	9.7229 kHz
sdev(1)	2.831 V	period(1)	102.850 μs
rms(1)	2.832 V	width(1)	51.3010 μs
cmean(1)	-5mV	rise(1)	978.6 ns
csdev(1)	2.833 V	Fall(1)	1.0396 μs
crms(1)	2.833 V	r20-80%(1)	710.2 ns
top(1)	2.85 V	F80-20%(1)	754.2 ns
base(1)	-2.84 V	over+(1)	13.18 %
ampl(1)	5.69 V	over-(1)	13.18 %
mean(1)	76mV	xamn(1)	52.9711 μs
minimum(1)	-3.59 V	xamx(1)	1.60294 μs
maximum(1)	3.60 V	delay(1)	-5.4 ns
area(1)	15.1017 μVs	cycles(1)	1

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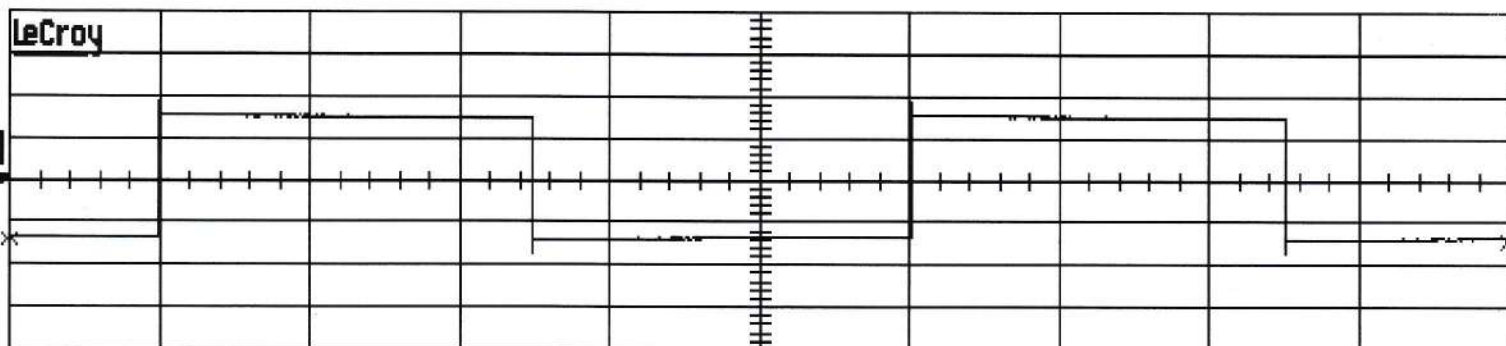
AUTO



pkpk(1)	7.06 V	Freq(1)	997.42 Hz
sdev(1)	2.856 V	period(1)	1.00259 ms
rms(1)	2.856 V	width(1)	499.521 μ s
cmean(1)	2mV	rise(1)	997 ns
csdev(1)	2.856 V	Fall(1)	1.050 μ s
crms(1)	2.856 V	r20-80%(1)	705 ns
top(1)	2.87 V	F80-20%(1)	768 ns
base(1)	-2.84 V	over+(1)	11.60 %
ampl(1)	5.71 V	over-(1)	12.03 %
mean(1)	9mV	xamn(1)	501.140 μ s
minimum(1)	-3.53 V	xamx(1)	1.5966 μ s
maximum(1)	3.54 V	delay(1)	1 ns
area(1)	18.3662 μ Vs	cycles(1)	1

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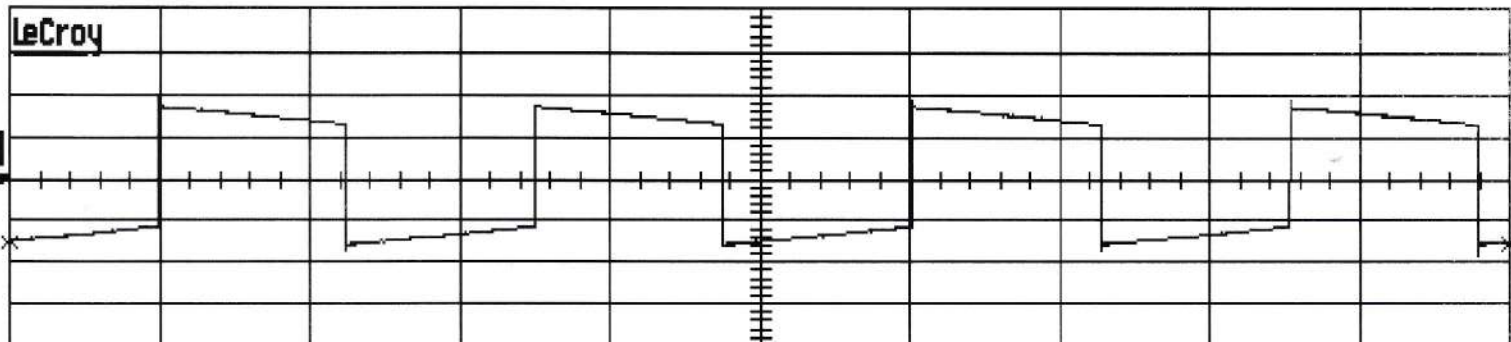


2 ms 2.00 V

pkpk(1)	7.19 V	Freq(1)	99.63 Hz
sdev(1)	2.860 V	period(1)	10.0368 ms
rms(1)	2.860 V	width(1)	4.99915 ms
cmean(1)	-2mV	rise(1)	0.98 μ s
csdev(1)	2.859 V	Fall(1)	1.07 μ s
crms(1)	2.859 V	r20-80%(1)	0.71 μ s
top(1)	2.86 V	F80-20%(1)	0.75 μ s
base(1)	-2.85 V	over+(1)	12.95 %
ampl(1)	5.71 V	over-(1)	13.00 %
mean(1)	8mV	xamn(1)	5.00083 ms
minimum(1)	-3.59 V	xamx(1)	1.830 μ s
maximum(1)	3.60 V	delay(1)	0.00 μ s
area(1)	165.412 μ Vs	cycles(1)	1

ALCUSTAR 5000 Series

□ AUTO



1 20 ms 2.00 V

pkpk(1)	7.63 V	Freq(1)	19.88 Hz
sdev(1)	2.879 V	period(1)	50.2925 ms
rms(1)	2.879 V	width(1)	25.0481 ms
cmean(1)	0mV	rise(1)	2.4 μ s
csdev(1)	2.881 V	Fall(1)	2.4 μ s
crms(1)	2.881 V	r20-80%(1)	1.7 μ s
top(1)	2.88 V	F80-20%(1)	1.6 μ s
base(1)	-2.85 V	over+(1)	15.86 %
ampl(1)	5.73 V	over-(1)	17.15 %
mean(1)	19mV	xamn(1)	25.0501 ms
minimum(1)	-3.84 V	xamx(1)	2.03 μ s
maximum(1)	3.79 V	delay(1)	0.0 μ s
area(1)	3.71537 mVs	cycles(1)	3

GUARANTEE:

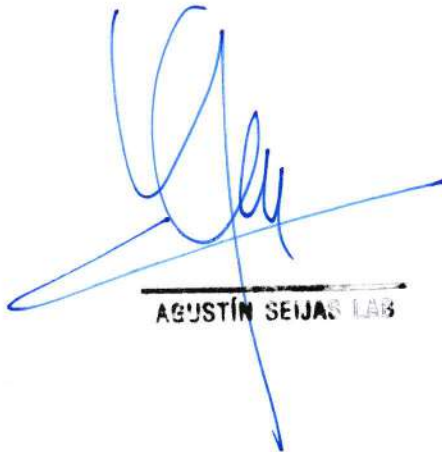
THIS EQUIPMENT IS GUARANTEED AGAINST ANY DEFECT
IN MATERIAL OR WORKMANSHIP FOR A PERIOD OF FIVE
(5) YEARS FROM DATE OF PURCHASE.

ELECTRON TUBES: 90 DAYS OF GUARANTEE.

SPARE PARTS AVAILABILITY: TEN (10) YEARS.

NUMBER: DZ (6C33C)

DATE:


AGUSTÍN SEIJAS LAB

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