

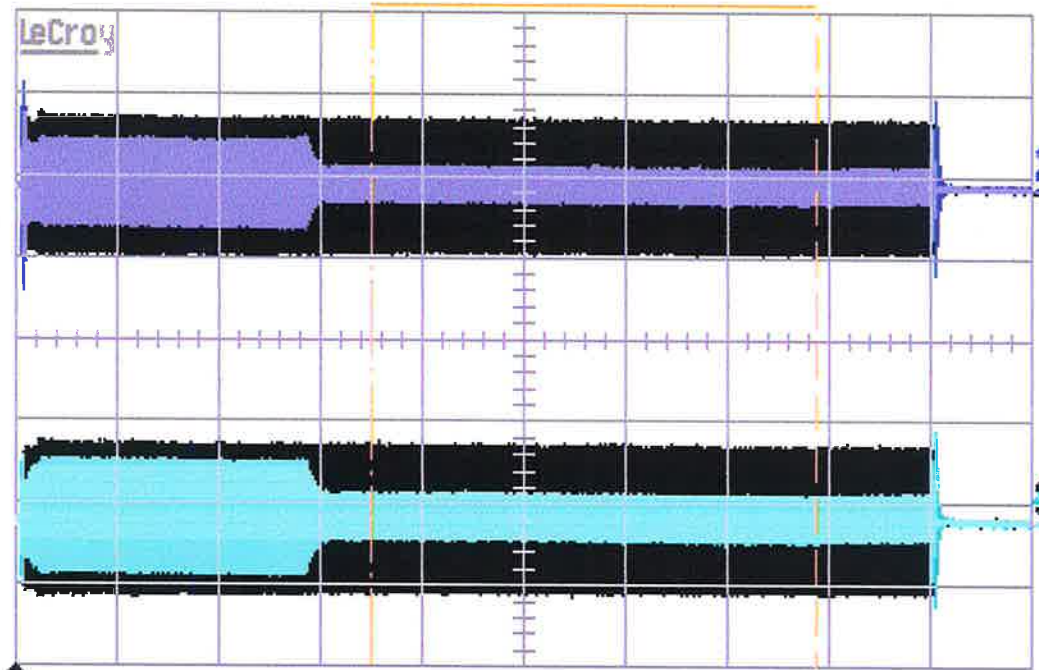
29-Nov-22
11:42:37

1
.5 ms
0.50 V

3
.5 ms
0.50 V

2
.5 ms
200mV

4
.5 ms
200mV



37 sweeps: average low high sigma
rms(1) 287.3mV 283.7 291.4 2.7
rms(2) 30.0mV 29.4 30.6 0.3
rms(3) 308.3mV 305.0 312.2 2.5
rms(4) 35.7mV 35.2 36.0 0.2
phase(1,3) 87.0 ° 81.2 92.0 1.5

.5 ms

1 .5 V AC
2 .2 V AC
3 .5 V AC
4 .2 V AC



Ext10 DC 0.50 V 50Ω

20 MS/s

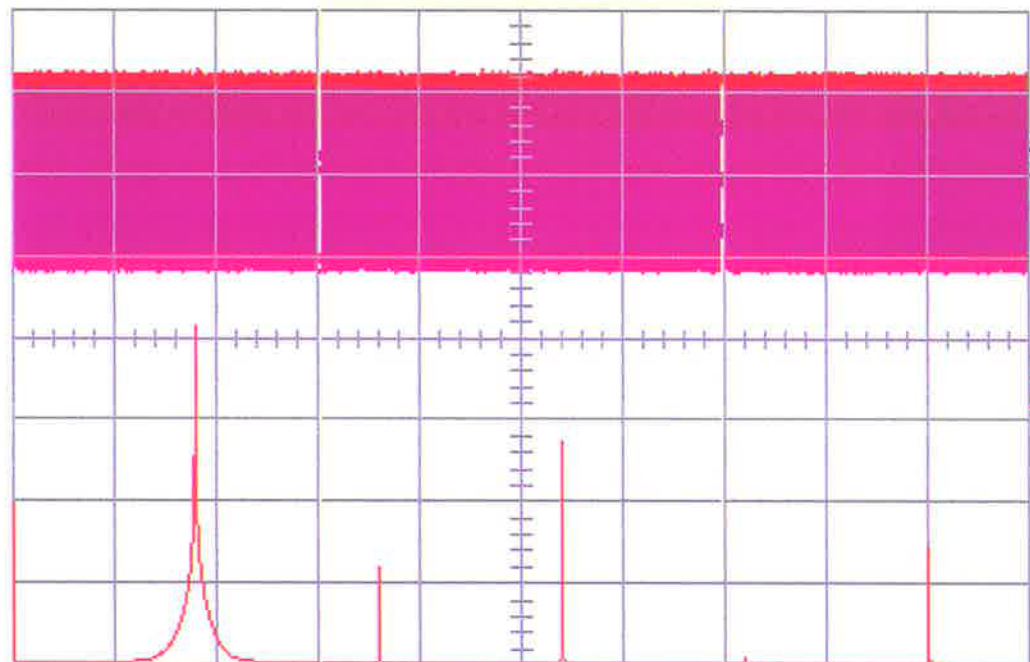
☐ NORMAL

29-Nov-22
11:06:33

3
.1 ms
2.00 V

4
.1 ms
2.00 V

3: Average(A)
1 MHz
=15.0 dBm==



← 1.73 ms

	1041 sweeps:	average	low	high	sigma
phase(4,3)		91.2 °	81.1	99.6	2.2
pkpk(3)		5.00 V	4.94	5.13	0.04
rms(2)		30.1mV	29.6	30.4	0.1
rms(4)		1.318 V	1.306	1.330	0.005
rms(3)		1.562 V	1.545	1.575	0.006

.1 ms

1	1	V	DC
2	.1	V	DC
3	2	V	DC
4	2	V	DC



Ext10 DC 0.15 V 50Ω

CHANNEL 4

Trace
OFF ☒ On

Coupling

ZOOM

FIND

Gain
Fixed ☒
variable

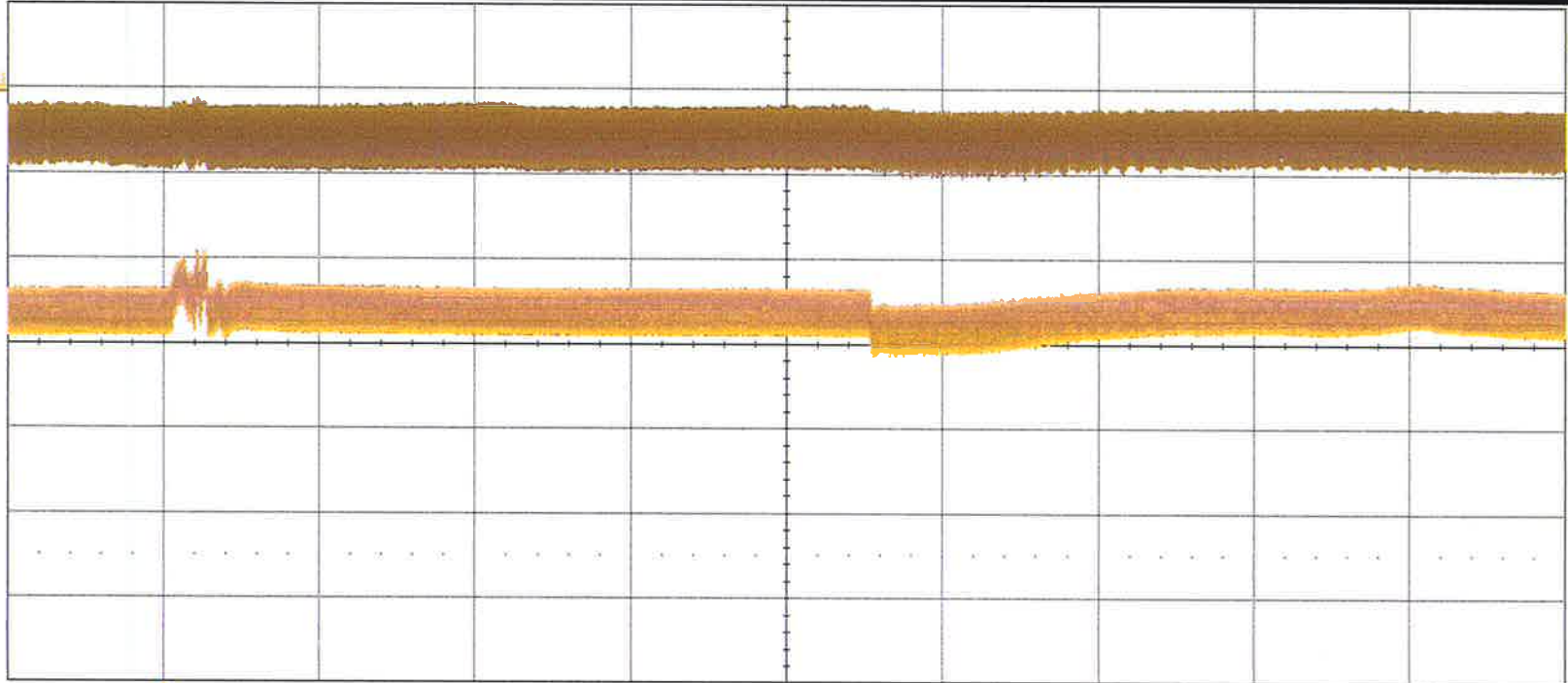
Offsets in
Volts
Divisions

Grids
Single ☒ Dual
Quad Octal

100 MS/s

DISPLAY ☐ NORMAL

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Support



Measure	P1:ampl(C1)	P2:ampl(C2)	P3:rms(C1)	P4:rms(C2)	P5:max(F1)	P6:min(F1)	P7:---	P8:---
value	593.1 mV	934.6 mV	576.7 mV	338.3 mV	-382.9 mV	-627.6 mV		
mean	612.11 mV	932.187 mV	576.490 mV	337.371 mV	-382.9 mV	-627.6 mV		
min	576.2 mV	918.3 mV	571.4 mV	334.7 mV	-382.9 mV	-627.6 mV		
max	1.0180 V	941.7 mV	581.1 mV	339.4 mV	-382.9 mV	-627.6 mV		
sdev	74.36 mV	4.506 mV	2.128 mV	1.158 mV	---	---		
num	141	141	141	141	1	1		
status	✓	✓	✓	✓	✓	✓		

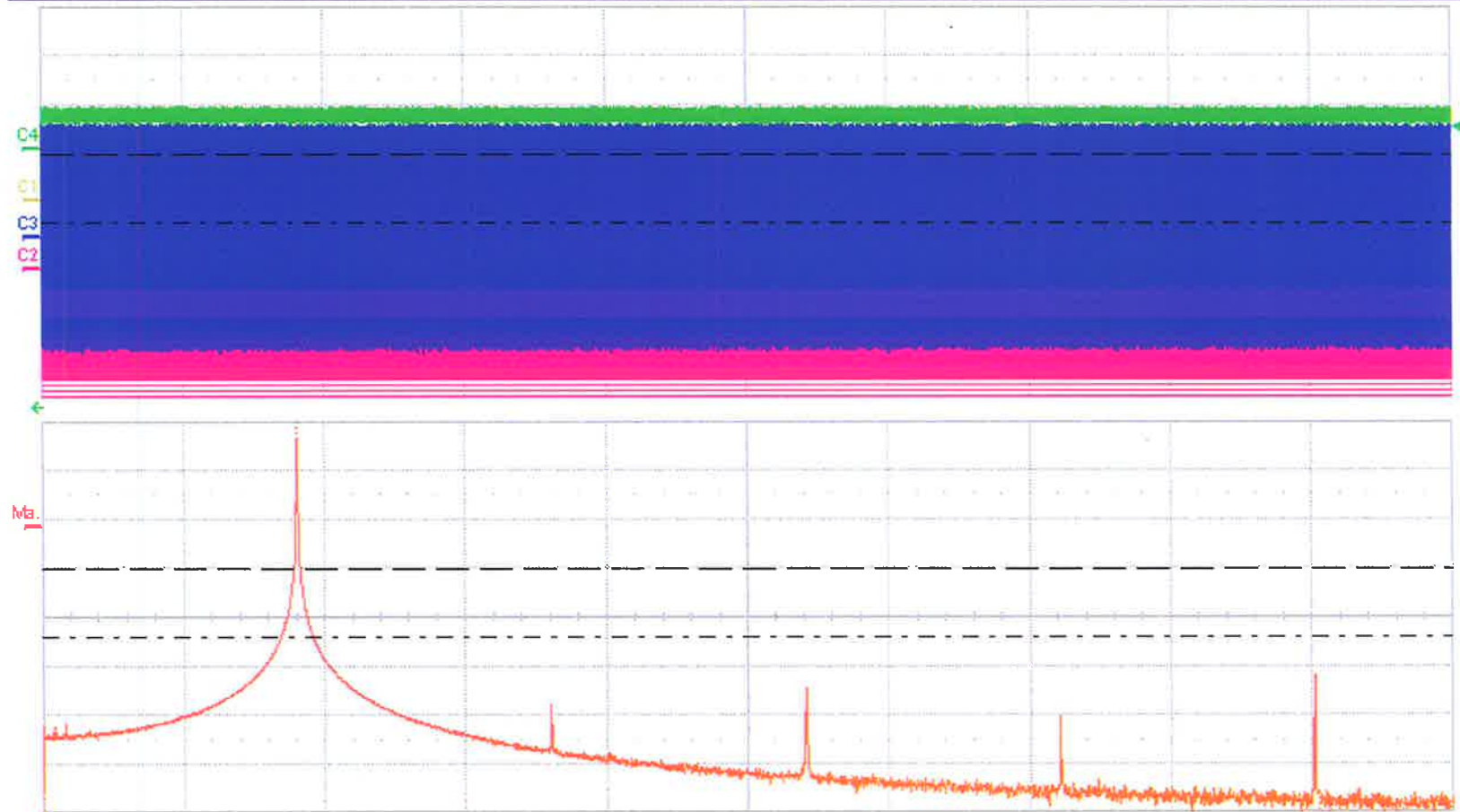
C1 DCM 1.00 V/div 2.9450 V
F1 <C1> 200 mV/div 1.00 ms/div 141 #

Tbase -4.00 ms Trigger C4 DC
1.00 ms/div Norm 800 mV
500 kS 50 MS/s Edge Negative

Print Now

11/29/2022 11:14:35 AM

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help



C1	C2	C3	C4	Math
DC1M	DC1M	DC1M	DC1M	<FFT(C3)>
10.0 V/div	2.00 V/div	2.00 V/div	2.00 V/div	10.0 dB/div
200 mV offset	-2.700 V ofst	-1.400 V ofst	2.200 V offset	1.00 MHz/div
----	----	----	----	----
-4.4 V	1.86 V	560 mV	-3.04 V	11 #
9.7 V	4.68 V	3.38 V	-220 mV	-22.6 dBm
Δy 14.1 V	Δy 2.82 V	Δy 2.82 V	Δy 2.82 V	-8.5 dBm
				Δy 14.1 dB

Tbase	-2.000 ms	Trigger	C4 DC
500 kS	50.0 μs/div	Normal	880 mV
	1.0 GS/s	Edge	Negative

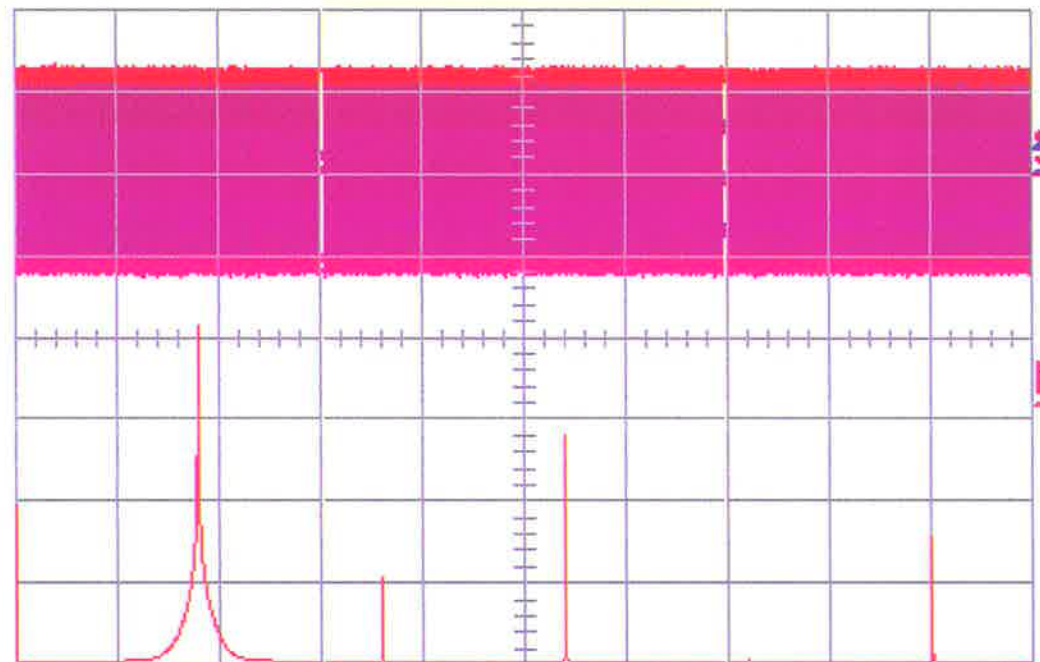
LeCroy

11/29/2022 11:14:42 AM

29-Nov-22
11:14:50

3
.1 ms
2.00 V

1
.1 ms
2.00 V
B: Average(A)
1 MHz
=15.0 dBm==



← 1.73 ms

	146 sweeps:	average	low	high	sigma
phase(4 , 3)		92.2 °	83.1	99.9	2.4
pkpk(3)		5.19 V	5.13	5.25	0.02
rms(2)		30.3mV	30.1	30.4	0.1
rms(4)		1.337 V	1.332	1.343	0.002
rms(3)		1.608 V	1.603	1.613	0.003

.1 ms

1 1 V DC
2 .1 V DC
3 2 V DC
4 2 V DC



Ext10 DC 0.15 V 50Ω

CHANNEL **4**

Trace
OFF **On**

Coupling

ZOOM

FIND

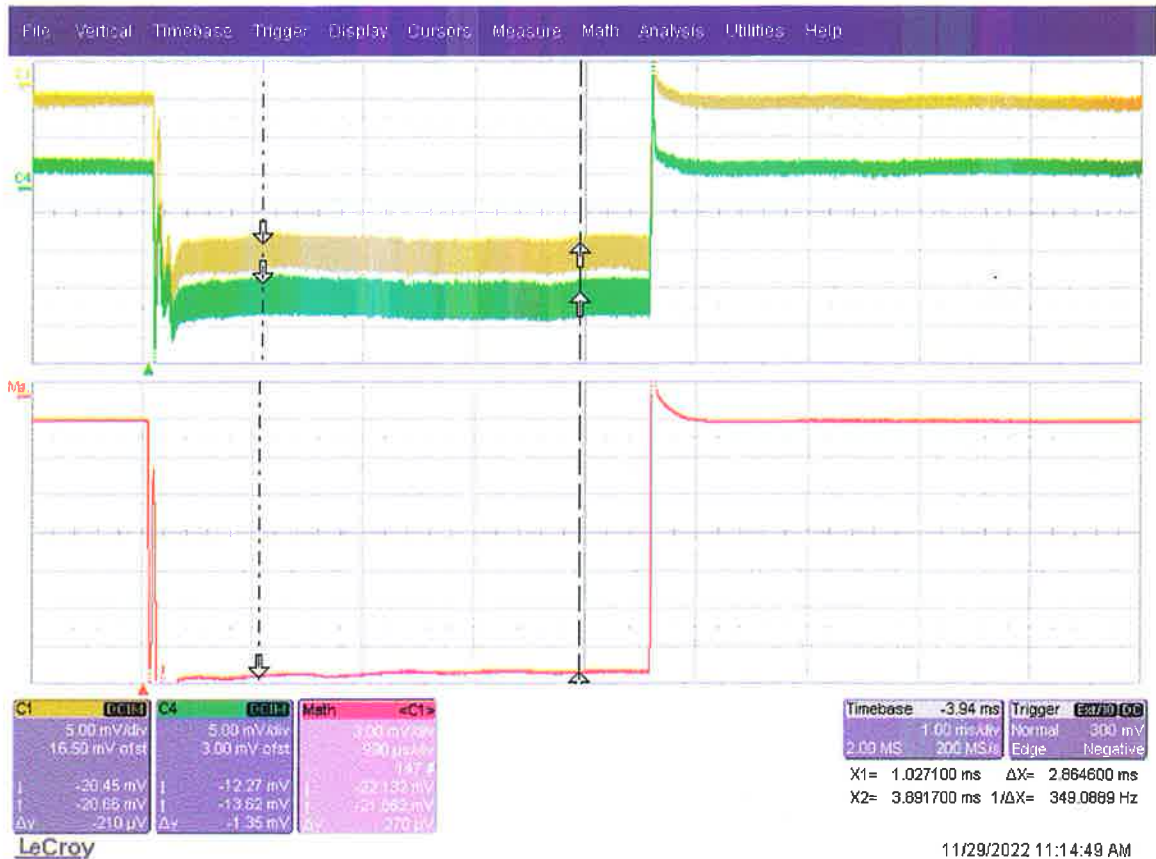
Gain
Fixed
variable

Offsets in
Volts
Divisions

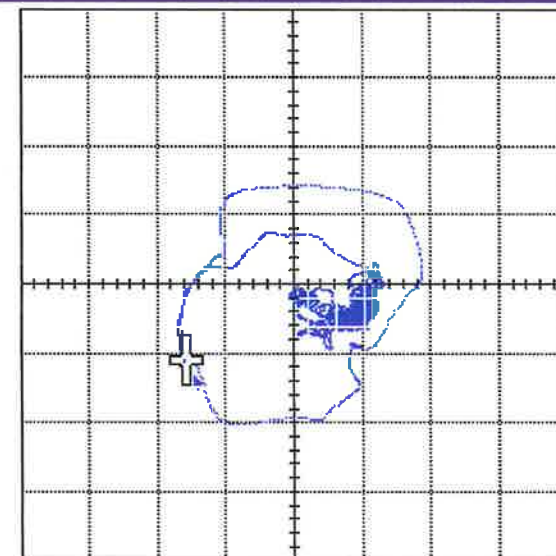
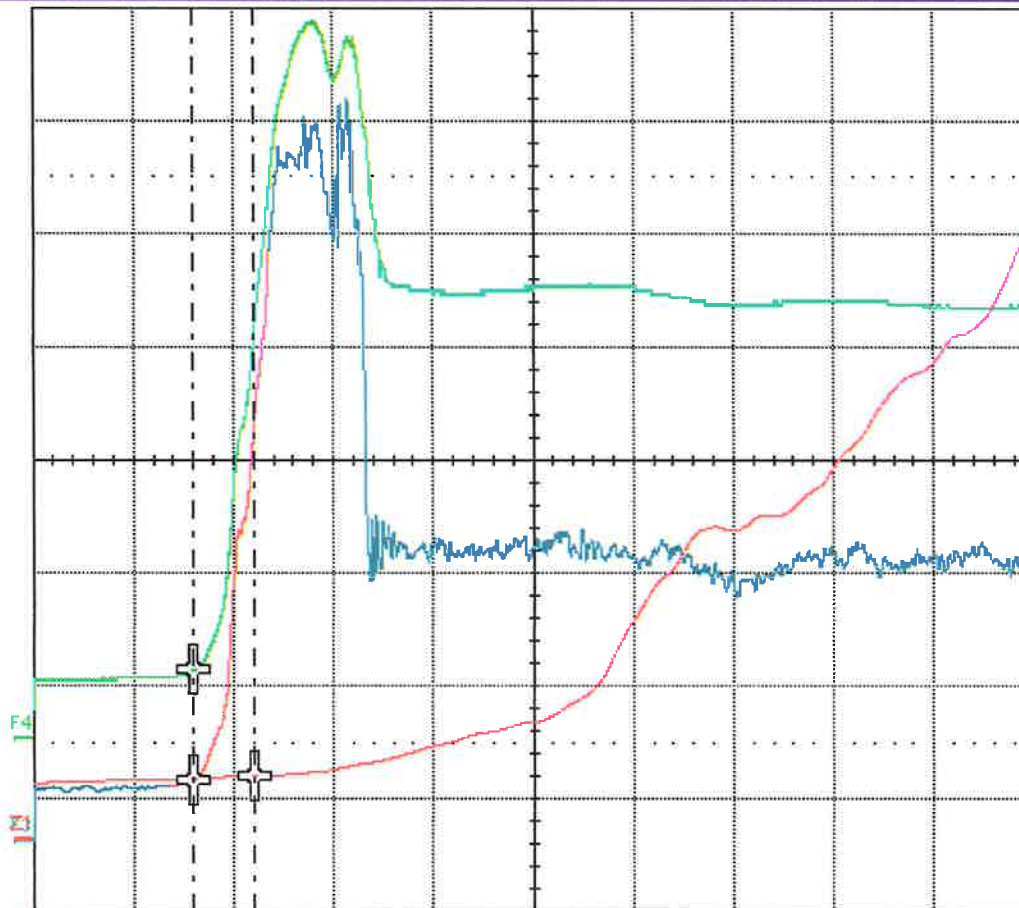
Grids
Single Dual
Quad Octal

100 MS/s

DISPLAY ☐ NORMAL



11/29/2022 11:14:49 AM



$\Delta Y/\Delta X = 688e-3$ $\Delta Y \cdot \Delta X = 69.3 \text{ mV}^2$
 -3.3 dB Angle = -145.5°
 Radius = 385 mV

F3 script(C3,C2)	F4 <F3>	XY X:C2 Y:C3	Z1 zoom(F3)
2.00/div	2.00/div	200 mV/div	2.00/div
100 μ s/div	100 μ s/div	200 mV/div	10.0 μ s/div
	144 #		
✚ 1.0988	✚ 1.207910	✚x -343.5 mV	✚ 1.0988
		✚y -188.5 mV	

Timebase -502 μ s	Trigger Ext/10 DC
100 μ s/div	Normal 130 mV
10.0 kS 10 MS/s	Edge Negative
X1= 161.1 μ s	

29-Nov-22

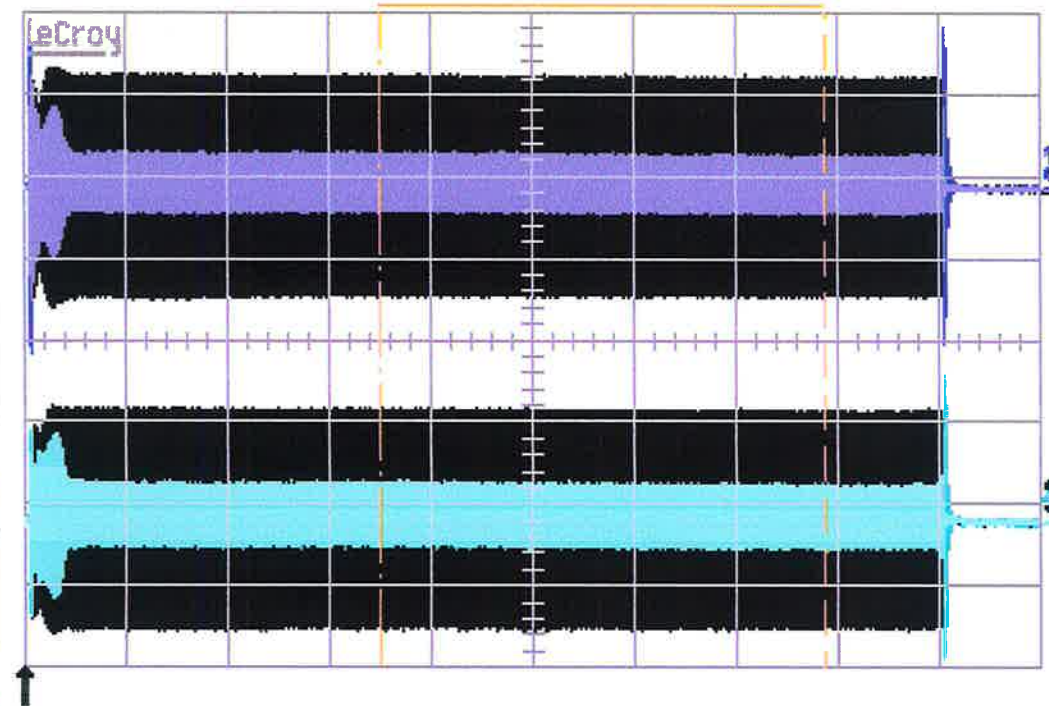
11:14:51

1
.5 ms
0.50 V

3
.5 ms
0.50 V

2
.5 ms
200mV

4
.5 ms
200mV



146 sweeps:

	average	low	high	sigma
rms(1)	468.7mV	466.4	470.4	1.1
rms(2)	49.6mV	49.2	50.0	0.2
rms(3)	460.7mV	458.6	462.0	0.9
rms(4)	49.4mV	48.9	49.8	0.2
phase(1,3)	79.2 °	75.6	82.4	1.0

.5 ms

1 .5 V AC
2 .2 V AC
3 .5 V AC
4 .2 V AC

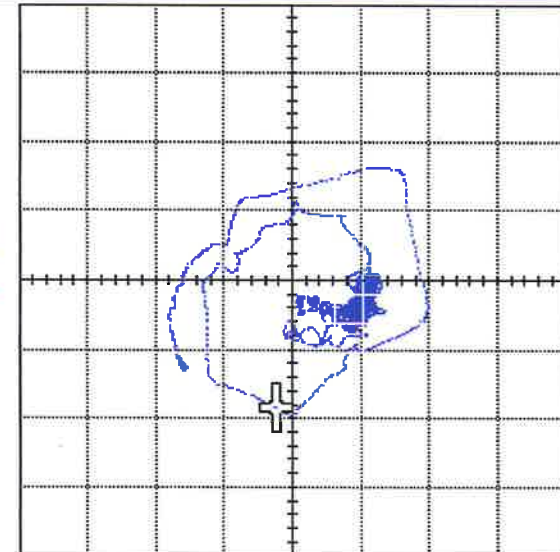
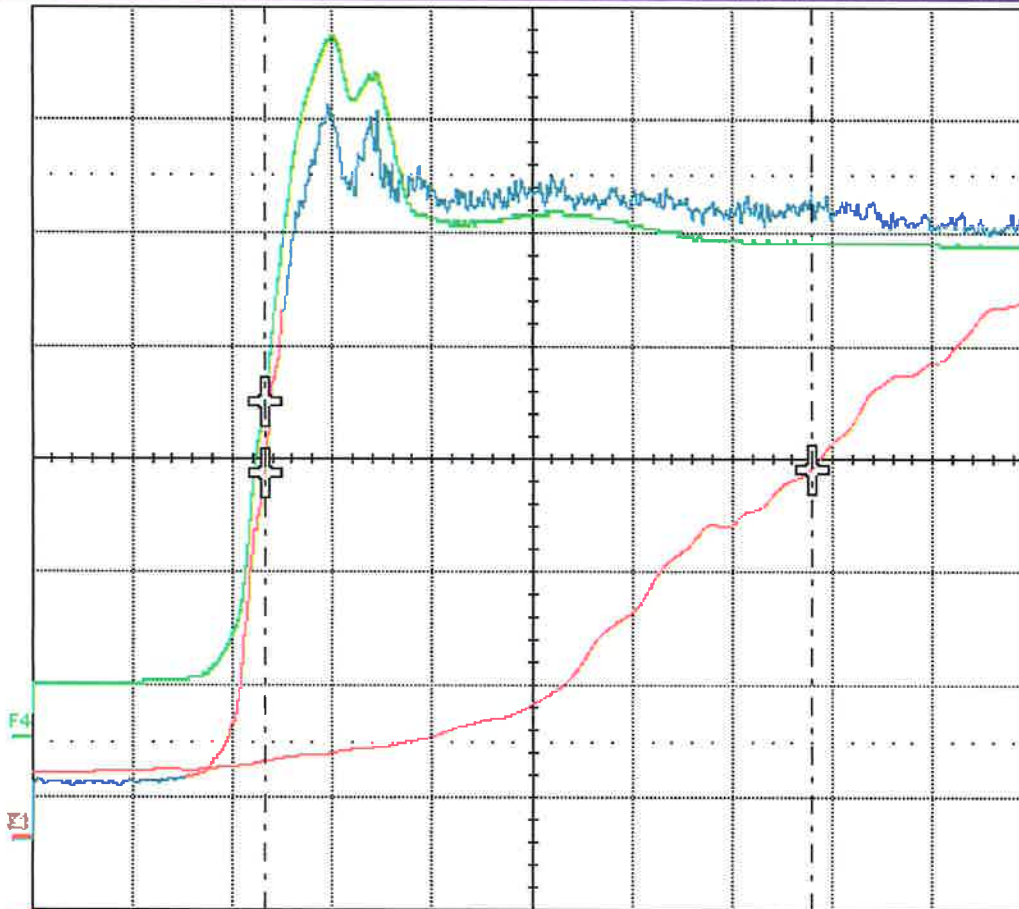


Ext10 DC 0.50 V 50Ω

20 MS/s

☐ NORMAL

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help



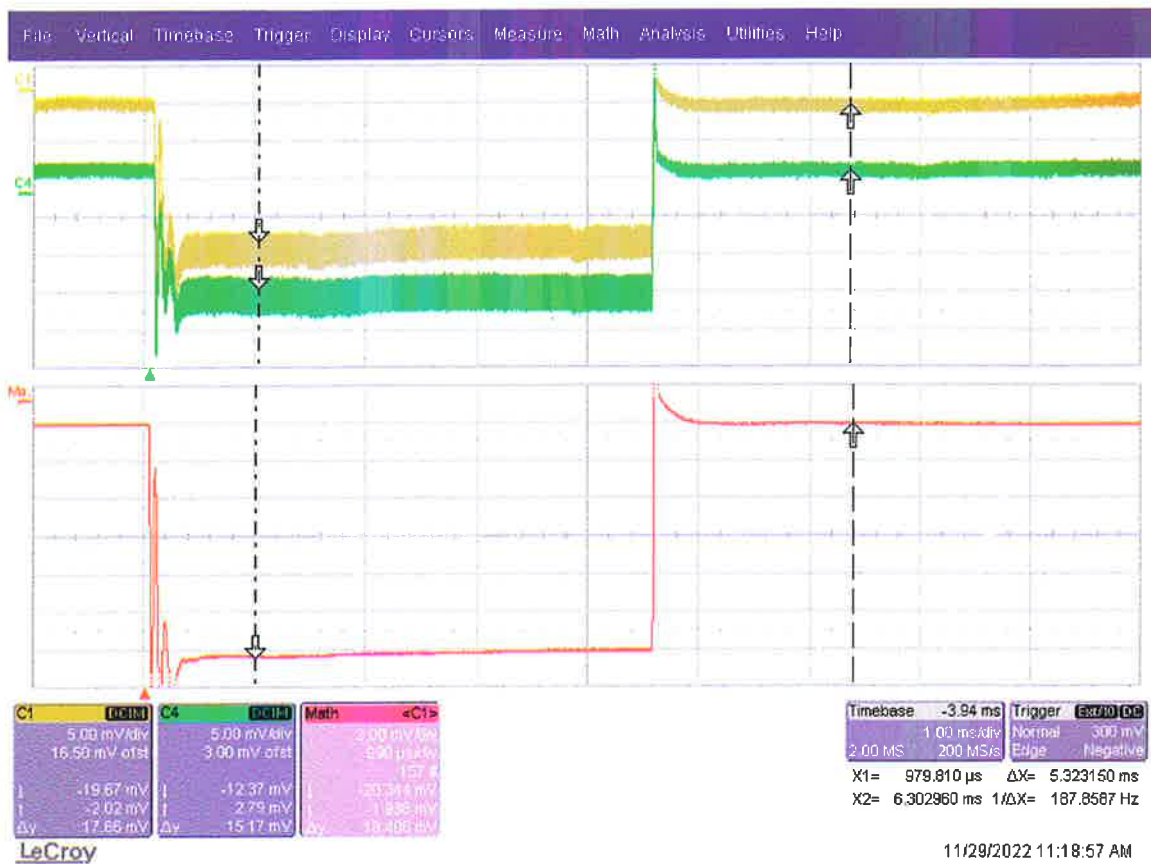
$\Delta Y/\Delta X = 7.6$
 $\Delta Y^* \Delta X = 17.8 \text{ mV}^2$
 17.6 dB
 $\text{Angle} = -97.5^\circ$
 $\text{Radius} = 371 \text{ mV}$

F3 script(C3,C2)	F4 <F3>	XY X:C2 Y:C3	Z1 zoom(F3)
2.00/div	2.00/div	200 mV/div	2.00/div
100 $\mu\text{s}/\text{div}$	100 $\mu\text{s}/\text{div}$	200 mV/div	10.0 $\mu\text{s}/\text{div}$
	156 #		
\uparrow 6.5233	\uparrow 5.942343	\uparrow -72.4 mV	\uparrow 6.5233
		\uparrow -338.8 mV	

Timebase -502 μs	Trigger Ext/10 DC
100 $\mu\text{s}/\text{div}$	Normal 130 mV
10.0 kS	Edge Negative
X1= 234.2 μs	

LeCroy

11/29/2022 11:18:49 AM



11/29/2022 11:18:57 AM

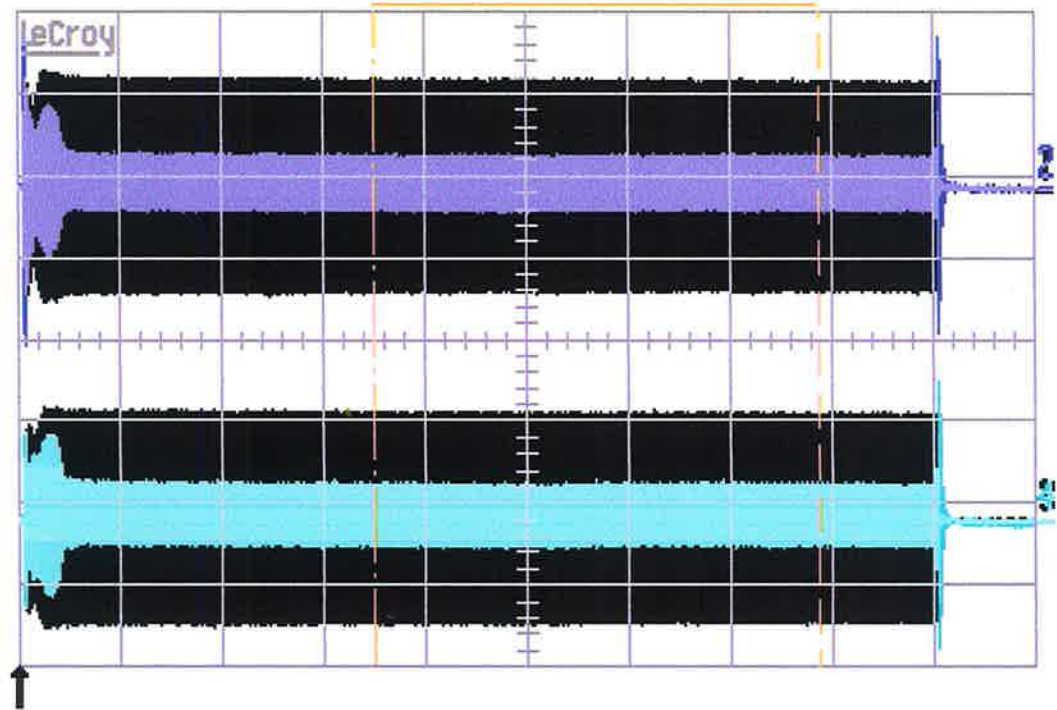
29-Nov-22
11:19:06

1
.5 ms
0.50 V

3
.5 ms
0.50 V

2
.5 ms
200mV

4
.5 ms
200mV



	161 sweeps:	average	low	high	sigma
rms(1)		451.7mV	448.4	453.9	1.7
rms(2)		47.8mV	47.3	48.3	0.2
rms(3)		445.2mV	442.5	447.0	1.3
rms(4)		48.2mV	47.8	48.6	0.2
phase(1,3)		79.8 °	76.0	83.7	1.0

- .5 ms
- 1 .5 V AC
 - 2 .2 V AC
 - 3 .5 V AC
 - 4 .2 V AC



Ext10 DC 0.50 V 50Ω

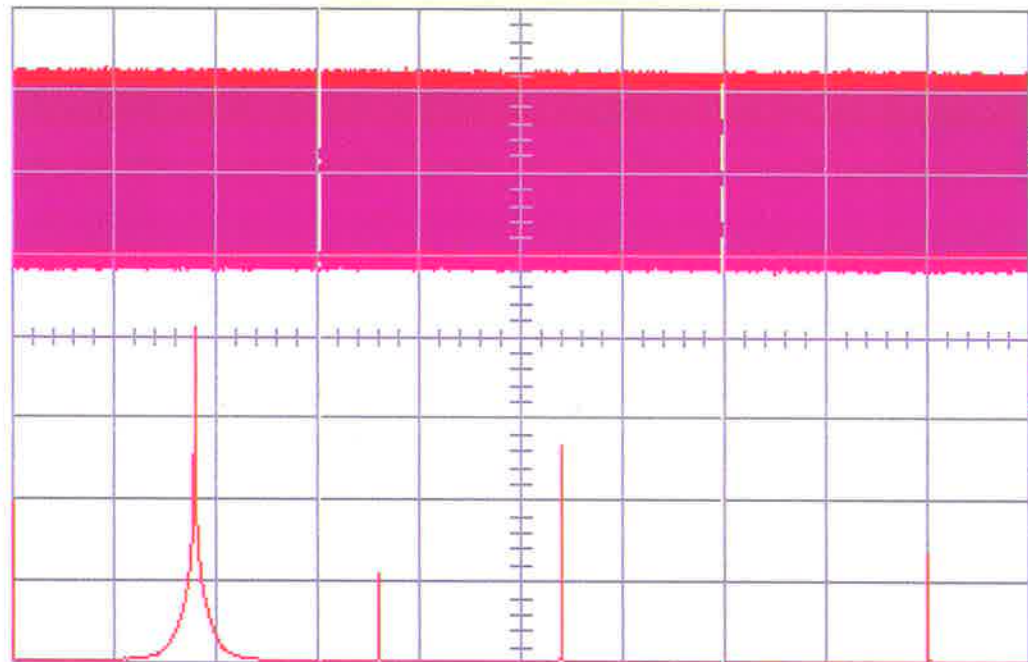
20 MS/s

☐ NORMAL

29-Nov-22
11:19:12

3
.1 ms
2.00 V

1
.1 ms
2.00 V
B: Average(A)
1 MHz
=15.0 dBm==



← 1.73 ms

	162 sweeps:	average	low	high	sigma
phase(4,3)		92.4 °	83.5	101.0	2.2
pkpk(3)		5.02 V	4.94	5.13	0.05
rms(2)		29.4mV	29.2	29.7	0.1
rms(4)		1.296 V	1.287	1.304	0.004
rms(3)		1.566 V	1.555	1.577	0.005

.1 ms

1 1 V DC
2 .1 V DC
3 2 V DC
4 2 V DC



Ext10 DC 0.15 V 50Ω

CHANNEL 4

Trace
OFF On

Coupling

ZOOM

FIND

Gain
Fixed
variable

Offsets in
Volts
Divisions

Grids
Single Dual
Quad Octal

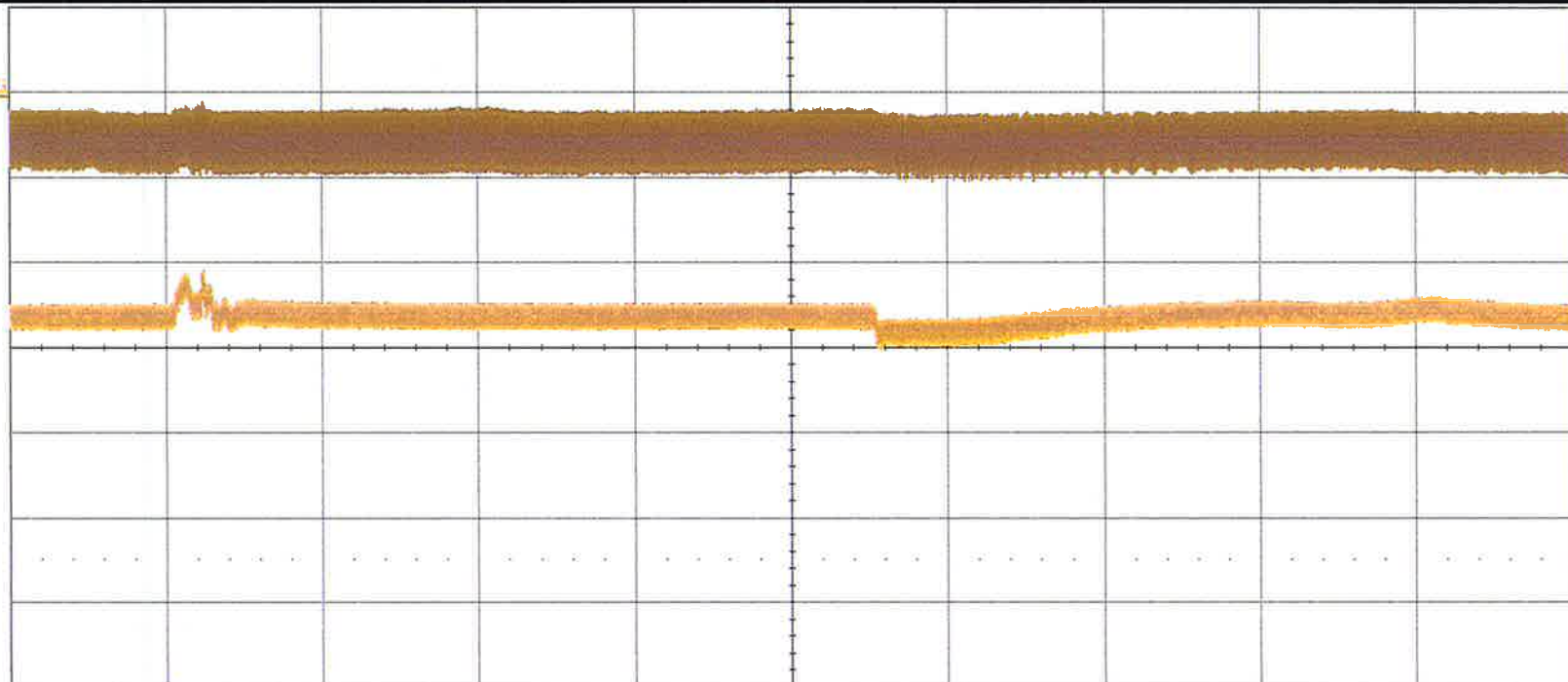
100 MS/s

DISPLAY ☐ NORMAL



11/29/2022 11:19:22 AM

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Support



Measure	P1:amp(C1)	P2:amp(C2)	P3:ms(C1)	P4:ms(C2)	P5:max(F1)	P6:min(F1)	P7:---	P8:---
value	597.0 mV	929.2 mV	579.7 mV	339.2 mV	-415.9 mV	-602.7 mV		
mean	612.25 mV	932.611 mV	578.597 mV	338.1554 mV	-415.9 mV	-602.7 mV		
min	584.2 mV	916.5 mV	573.0 mV	335.8 mV	-415.9 mV	-602.7 mV		
max	1.0240 V	944.4 mV	582.4 mV	339.7 mV	-415.9 mV	-602.7 mV		
sdev	61.42 mV	5.714 mV	2.144 mV	984.4 μ V	—	—		
num	171	171	171	171	1	1		
status	✓	✓	✓	✓	✓	✓		

C1	DCIM	F1	<C1>
1.00 V/div		200 mV/div	
2.9450 V		1.00 ms/div	
		171 #	

Tbase	-4.00 ms	Trigger	C4 DC
1.00 ms/div		Norm	800 mV
500 kS	50 MS/s	Edge	Negative

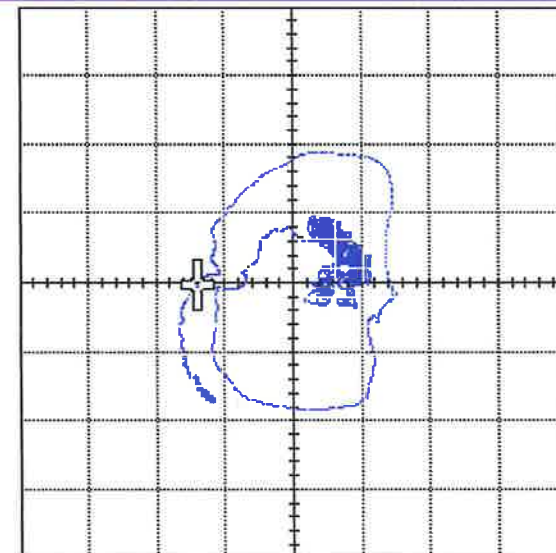
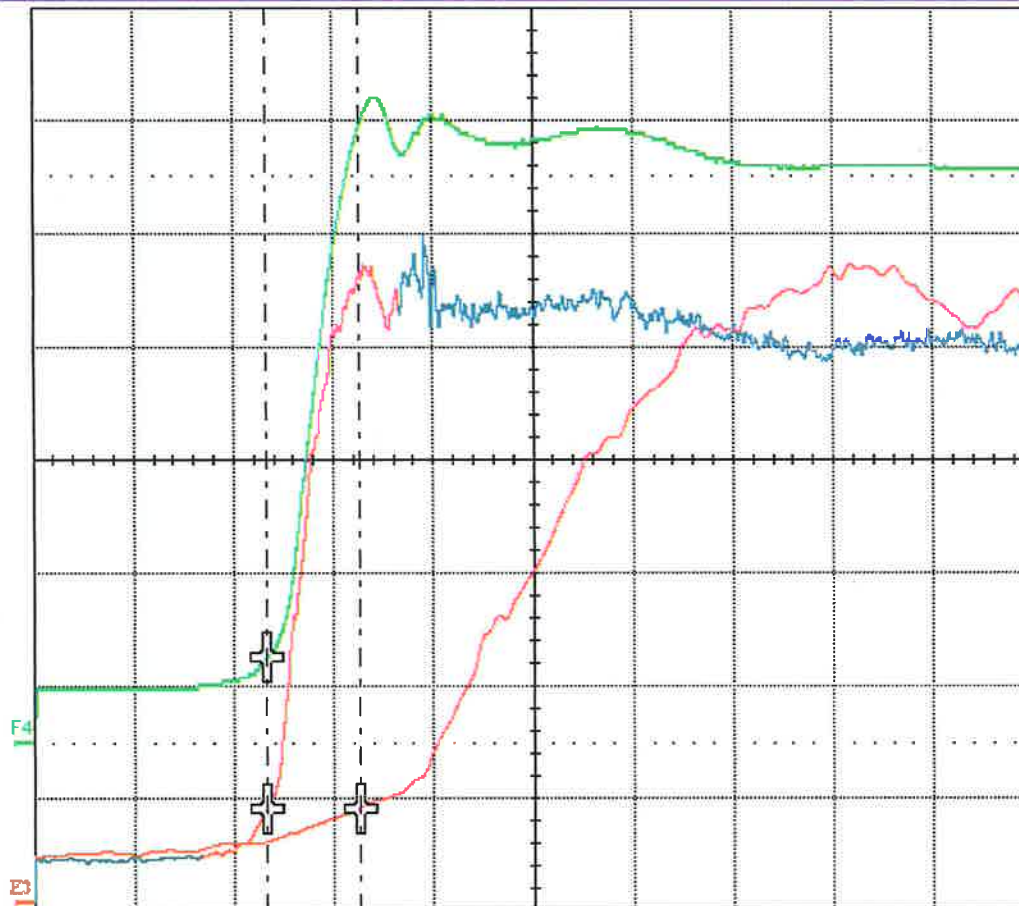
Print Now

11/29/2022 11:19:25 AM

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help

Zoom

Undo



$\Delta Y/\Delta X = 18e-3$
 $\Delta Y^* \Delta X = 1.4 \text{ mV}^2$
 -35.0 dB
 $\text{Angle} = -179.0^\circ$
 $\text{Radius} = 277 \text{ mV}$

F3 script(C3,C2)	F4 <F3>	XY X:C2 Y:C3	Z1 zoom(F3)
2.00/div	2.00/div	200 mV/div	2.00/div
100 $\mu\text{s}/\text{div}$	100 $\mu\text{s}/\text{div}$	200 mV/div	20.0 $\mu\text{s}/\text{div}$
	74 #		
\uparrow 1.6832	\uparrow 1.520816	\uparrow -303.3 mV	\uparrow 1.6832
		\uparrow 25.2 mV	

Timebase -502 μs	Trigger Ext/10 D.C.
100 $\mu\text{s}/\text{div}$	Normal 130 mV
10.0 kS	10 MS/s
	Edge Negative
X1= 234.2 μs	

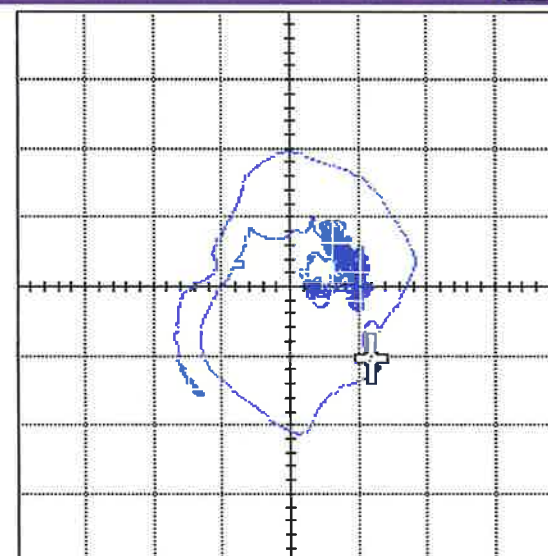
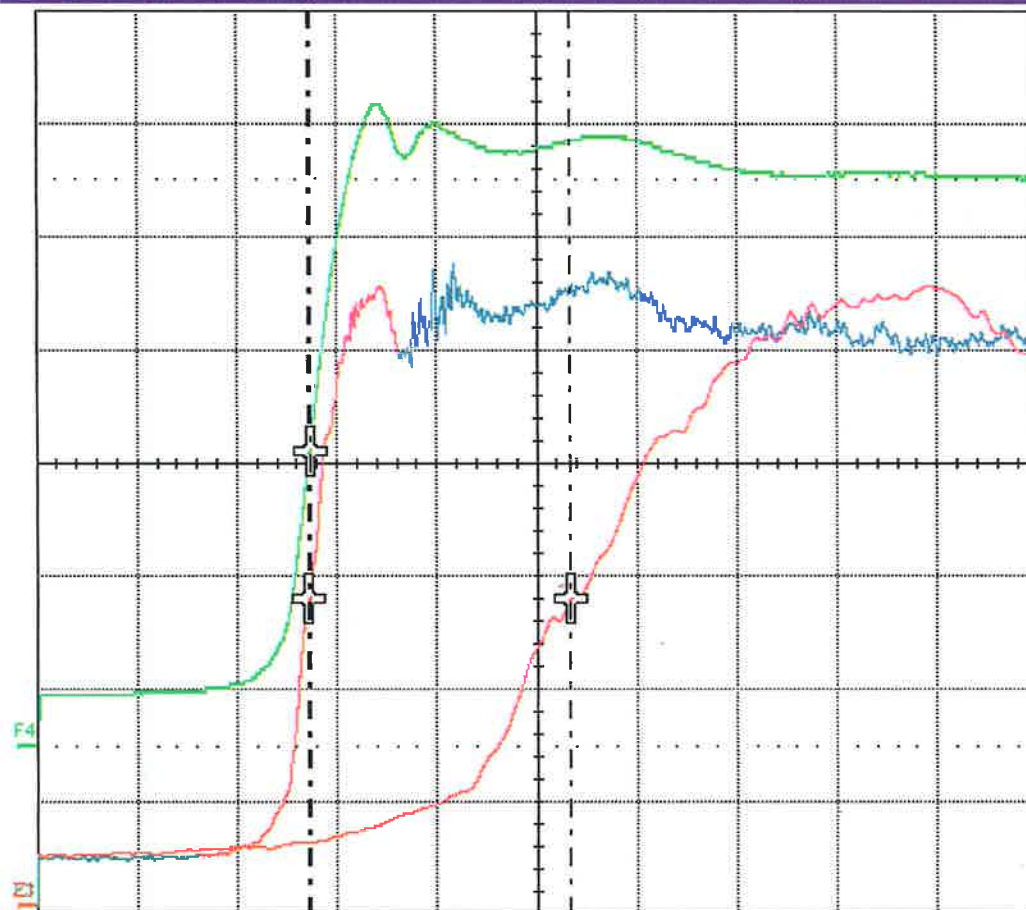
LeCroy

11/29/2022 11:23:43 AM

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help

Zoom

Undo



$\Delta Y/\Delta X = -891.9e-3$ $\Delta Y \cdot \Delta X = -49.8 \text{ mV}^2$
 -994 mdB Angle = -41.7°
 Radius = 317 mV

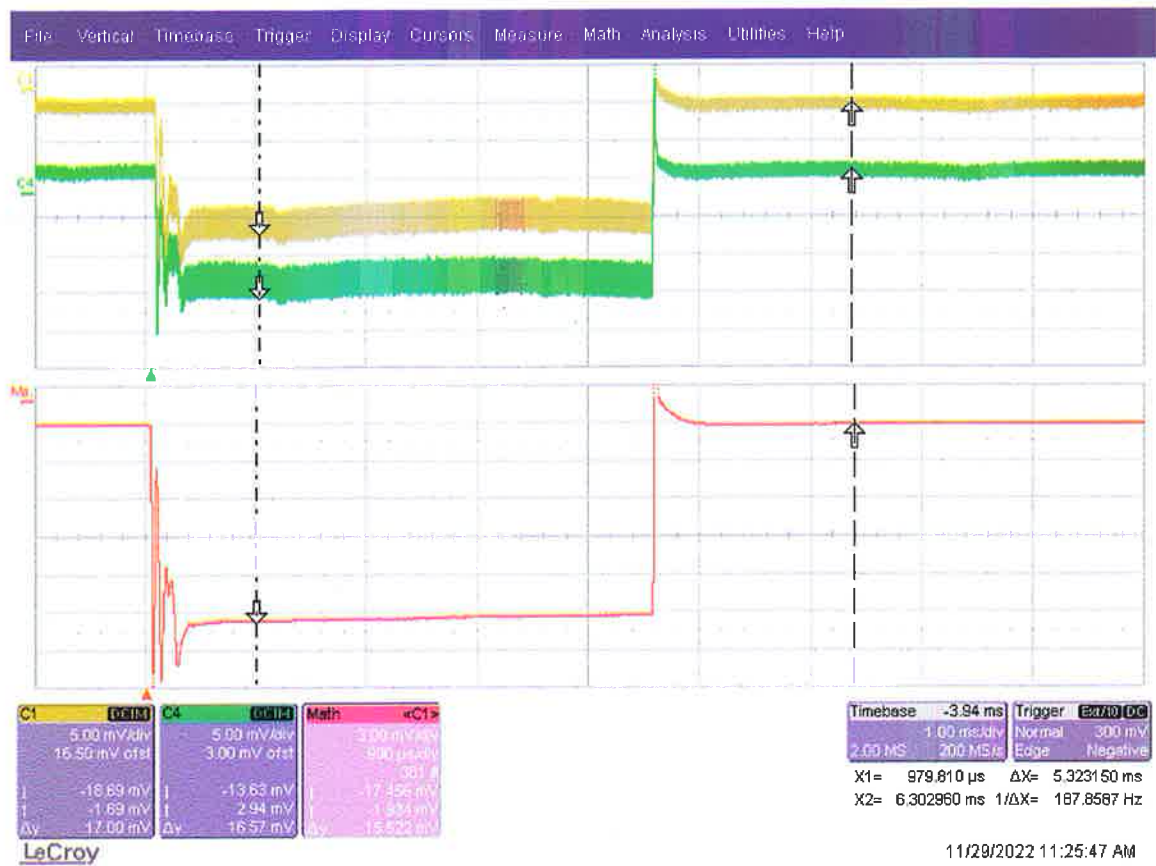
F3 script(C3,C2)	F4 <F3>	XY X: C2 Y: C3	Z1 zoom(F3)
2.00/div	2.00/div	200 mV/div	2.00/div
100 $\mu\text{s}/\text{div}$	100 $\mu\text{s}/\text{div}$	200 mV/div	20.0 $\mu\text{s}/\text{div}$
	184 #		
\uparrow 5.4517	\uparrow 5.223349	\uparrow x 209.8 mV	\uparrow 5.4517
		\uparrow y -180.1 mV	

Timebase -502 μs	Trigger Ext/10 DC
100 $\mu\text{s}/\text{div}$	Normal 130 mV
10.0 kS 10 MS/s	Edge Negative
X1= 273.5 μs	

LeCroy

11/29/2022 11:25:35 AM

$\tau_f \sim 24 \mu\text{s}$



11/29/2022 11:25:47 AM

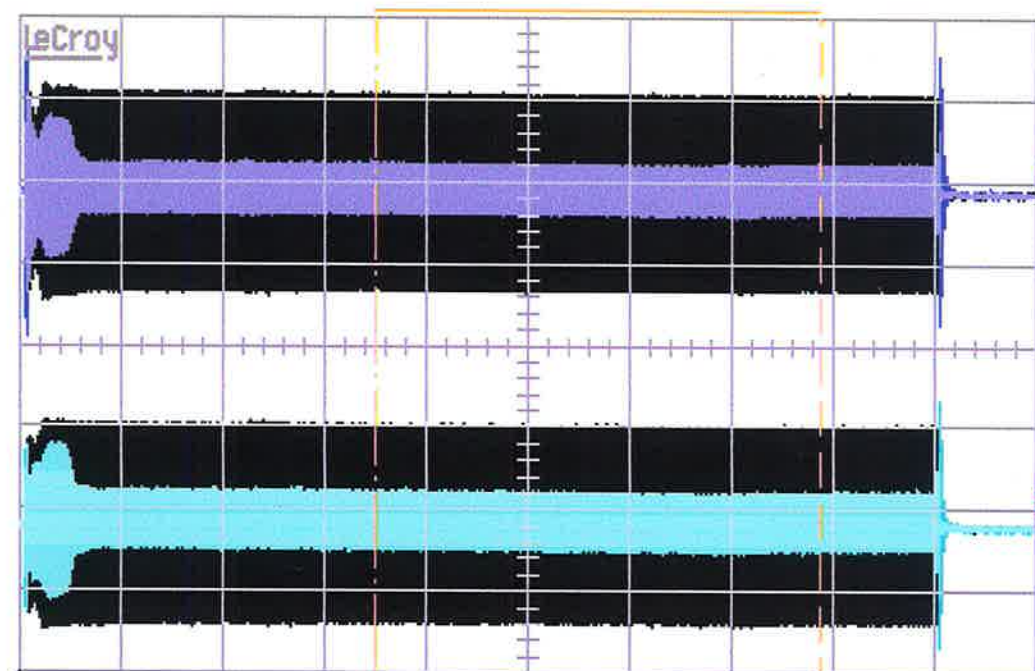
29-Nov-22
11:25:53

1
.5 ms
0.50 V

3
.5 ms
0.50 V

2
.5 ms
200mV

4
.5 ms
200mV



360 sweeps: average low high sigma
rms(1) 419.8mV 414.7 423.8 2.8
rms(2) 44.5mV 43.8 45.2 0.3
rms(3) 418.3mV 414.2 421.5 2.3
rms(4) 45.6mV 45.0 46.1 0.2
phase(1,3) 81.1 ° 77.2 85.8 1.1

.5 ms

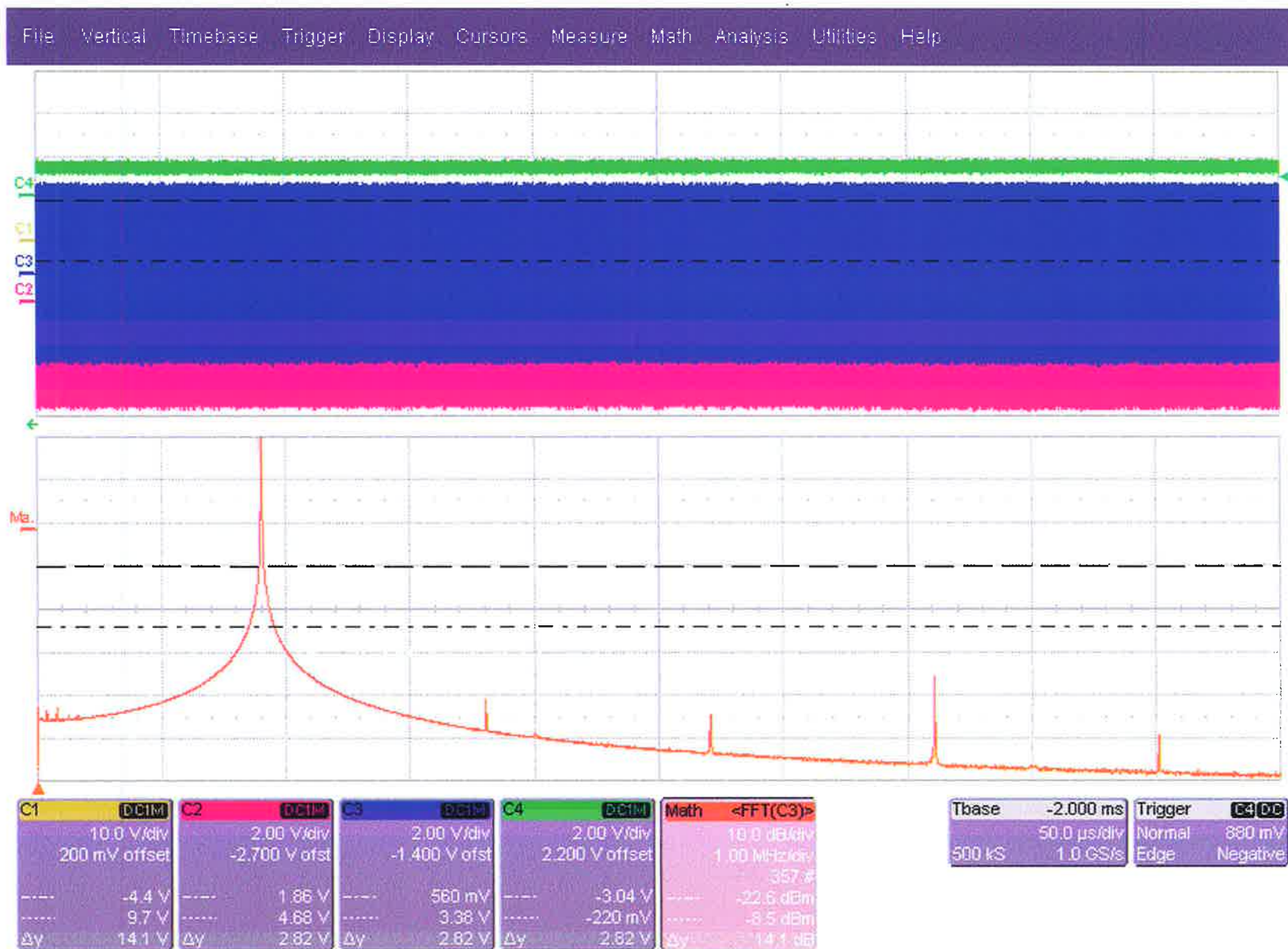
1 .5 V AC
2 .2 V AC
3 .5 V AC
4 .2 V AC



Ext10 DC 0.50 V 50Ω

20 MS/s

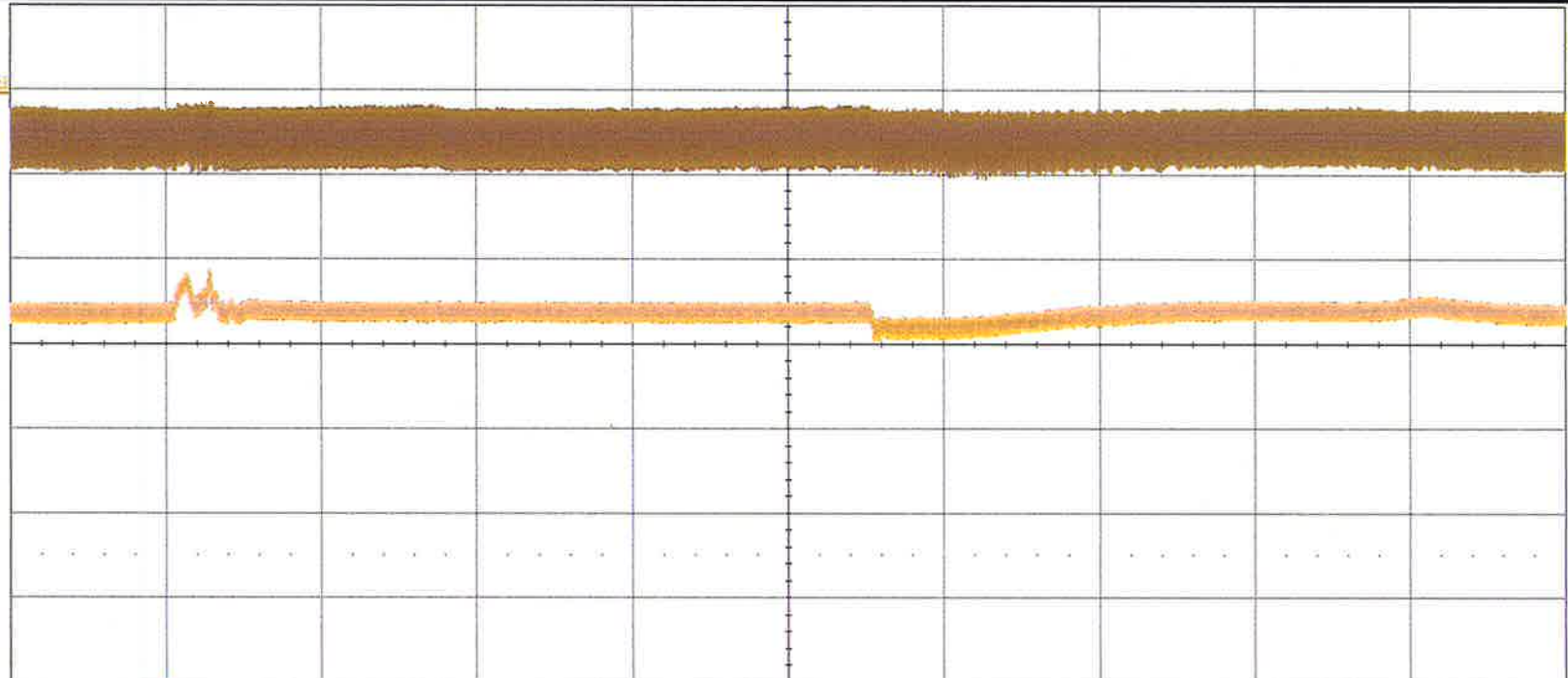
☐ NORMAL



LeCroy

11/29/2022 11:26:02 AM

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Support



Measure	P1:ampl(C1)	P2:ampl(C2)	P3:rms(C1)	P4:rms(C2)	P5:max(F1)	P6:min(F1)	P7:---	P8:---
value	596.6 mV	926.2 mV	576.9 mV	336.9 mV	-427.2 mV	-593.0 mV		
mean	612.10 mV	926.17 mV	578.046 mV	337.789 mV	-427.2 mV	-593.0 mV		
min	583.7 mV	864.7 mV	572.3 mV	335.3 mV	-427.2 mV	-593.0 mV		
max	1.0360 V	944.2 mV	583.7 mV	340.1 mV	-427.2 mV	-593.0 mV		
sdev	58.15 mV	10.75 mV	2.322 mV	1.236 mV	---	---		
num	358	358	358	358	1	1		
status	✓	✓	✓	✓	✓	✓		

C1 DC1+
1.00 V/div
2.9450 V

F1 <C1>
200 mV/div
1.00 ms/div
358 #

Tbase -4.00 ms
1.00 ms/div
500 kS

Trigger C4 DC
Norm 800 mV
Edge Negative

Print Now

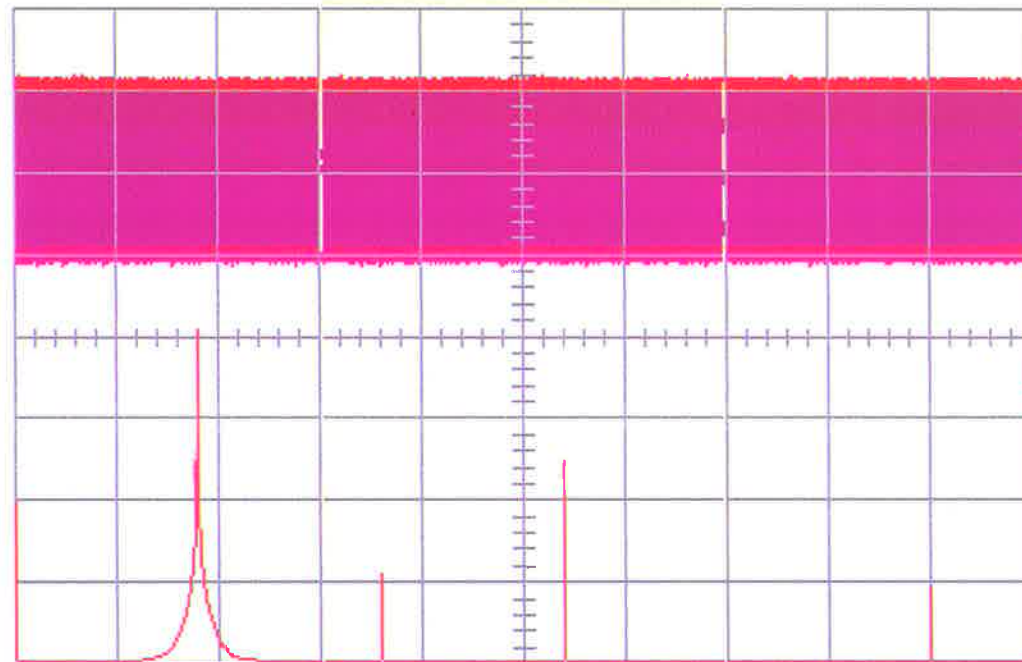
11/29/2022 11:26:03 AM

29-Nov-22

11:25:58

3
 .1 ms
 2.00 V

4
 .1 ms
 2.00 V
3: Average(**A**)
 1 MHz
 =15.0 dBm===



← 1.73 ms

	358 sweeps:	average	low	high	sigma
phase(4 , 3)		92.3 °	84.2	99.8	2.0
pkpk(3)		4.69 V	4.63	4.81	0.03
rms(2)		27.8mV	27.5	28.1	0.2
rms(4)		1.222 V	1.209	1.235	0.007
rms(3)		1.478 V	1.461	1.494	0.008

.1 ms

1 1 V DC
2 .1 V DC
3 2 V DC
4 2 V DC



Ext10 DC 0.15 V 50Ω

CHANNEL **4**

Trace
 OFF **On**

Coupling

ZOOM

FIND

Gain
 Fixed
 variable

Offsets in
 Volts
 Divisions

Grids
 Single Dual
 Quad Octal

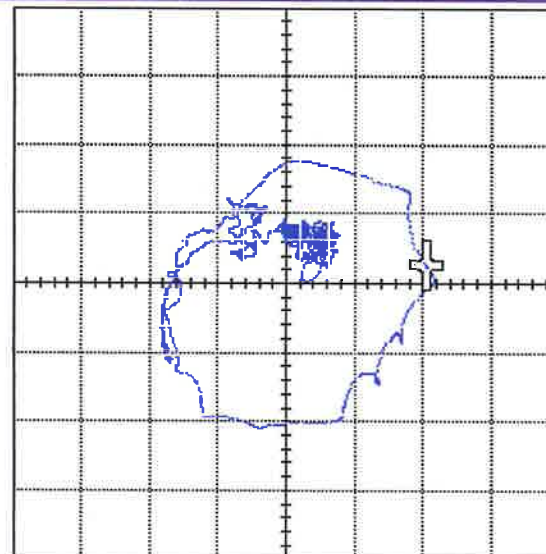
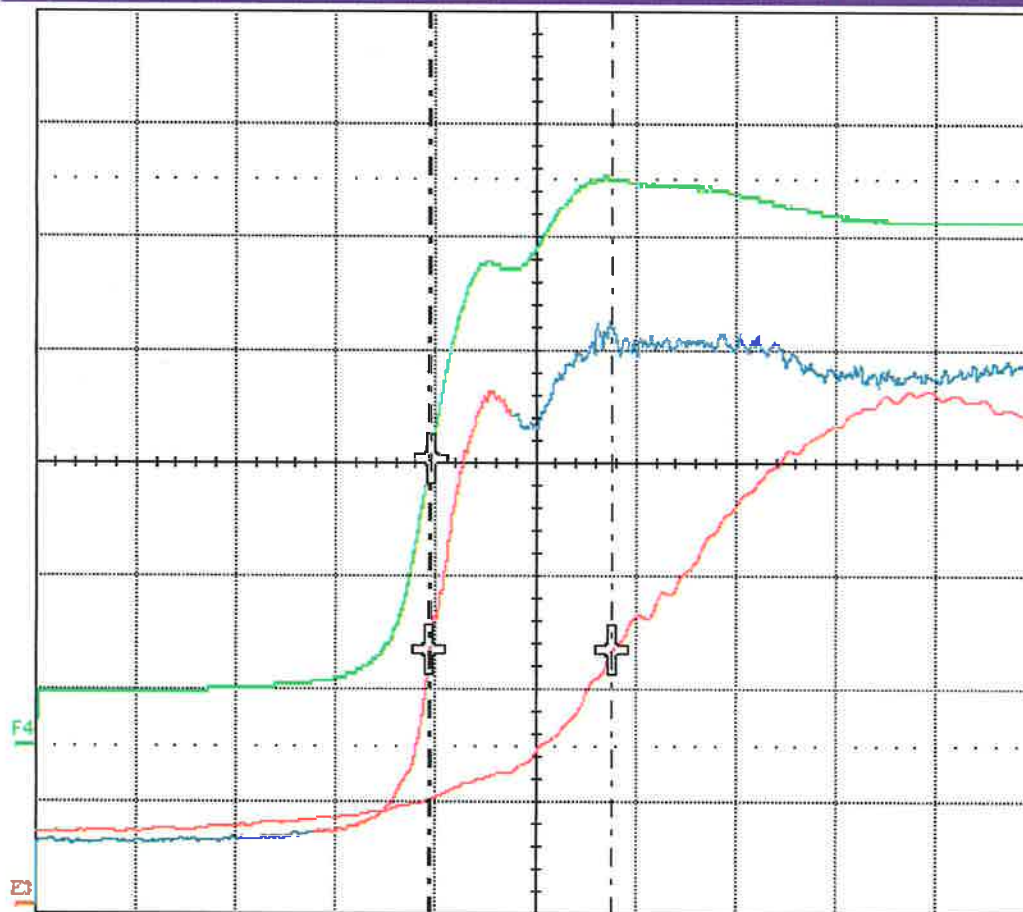
100 MS/s

☐ NORMAL

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help

Zoom

Undo



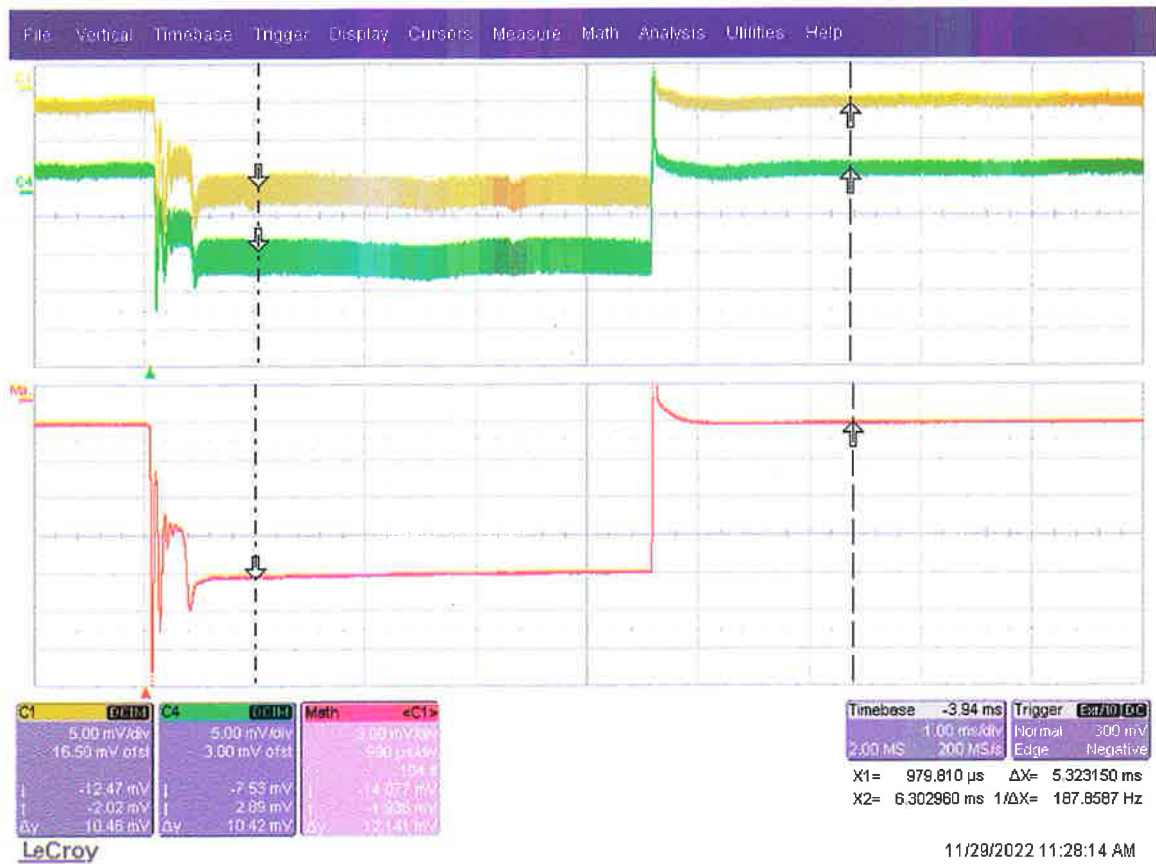
$\Delta Y/\Delta X = 132e-3$ $\Delta Y \cdot \Delta X = 22.4 \text{ mV}^2$
 -17.6 dB Angle = 7.5°
 Radius = 415 mV

F3 script(C3,C2)	F4 <F3>	XY X:C2 Y:C3	Z1 zoom(F3)
2.00/div	2.00/div	200 mV/div	2.00/div
100 μs/div	100 μs/div	200 mV/div	20.0 μs/div
	105 #		
✚ 4.5324	✚ 5.080125	✚x 387.3 mV	✚ 4.5324
		✚y 82.3 mV	

Timebase -502 μs Trigger Ext/10 DC
 100 μs/div Normal 130 mV
 10.0 kS 10 MS/s Edge Negative
 X1= 395.8 μs

LeCroy

11/29/2022 11:28:09 AM



11/29/2022 11:28:14 AM

29-Nov-22

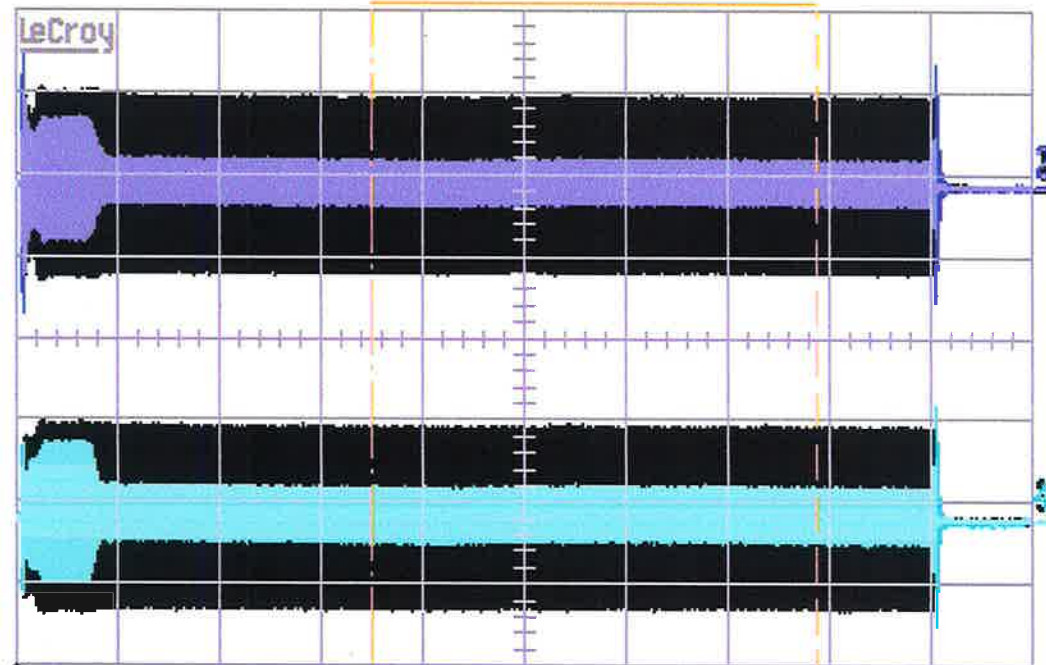
11:28:21

1
.5 ms
0.50 V

3
.5 ms
0.50 V

2
.5 ms
200mV

4
.5 ms
200mV



104 sweeps:

	average	low	high	sigma
rms(1)	375.3mV	370.6	380.1	3.4
rms(2)	40.3mV	39.7	41.0	0.3
rms(3)	381.8mV	377.8	385.9	2.9
rms(4)	42.6mV	42.1	43.0	0.2
phase(1,3)	83.0 °	78.9	87.0	1.2

.5 ms

1 .5 V AC

2 .2 V AC

3 .5 V AC

4 .2 V AC



Ext10 DC 0.50 V 50Ω

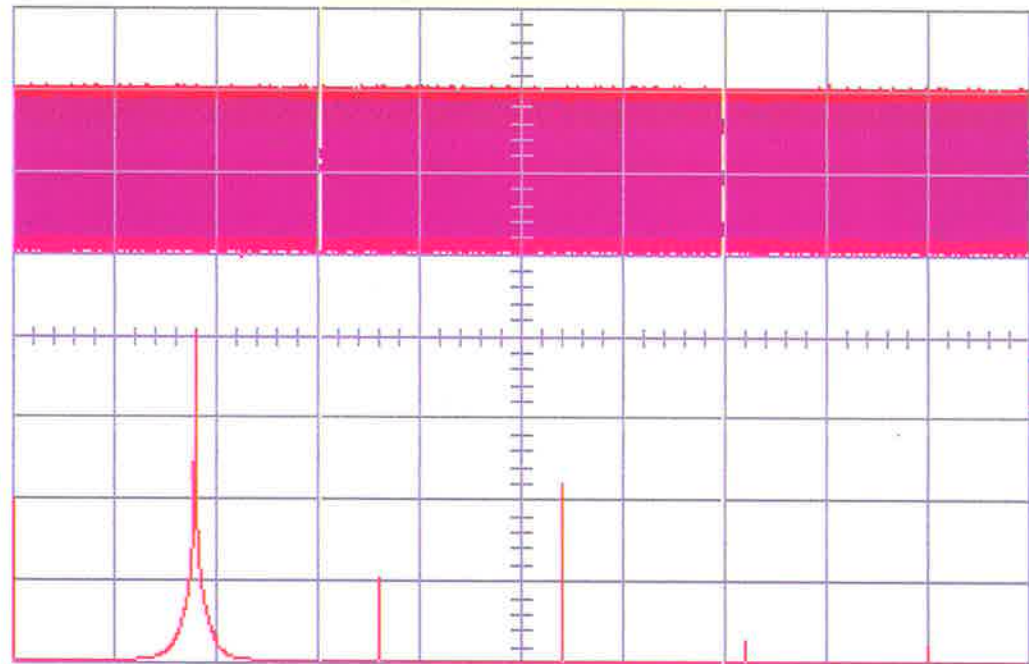
20 MS/s

☐ NORMAL

29-Nov-22
11:28:28

3
.1 ms
2.00 V

1
.1 ms
2.00 V
3: Average(A)
1 MHz
=15.0 dBm==



← 1.73 ms

	107 sweeps:	average	low	high	sigma
phase(4,3)		91.3 °	82.5	98.5	1.9
pkpk(3)		4.25 V	4.19	4.38	0.05
rms(2)		25.5mV	25.3	25.8	0.2
rms(4)		1.119 V	1.107	1.132	0.008
rms(3)		1.341 V	1.324	1.360	0.011

.1 ms

1	1	V	DC
2	.1	V	DC
3	2	V	DC
4	2	V	DC



Ext10 DC 0.15 V 50Ω

CHANNEL 4

Trace
OFF On

Coupling

ZOOM

FIND

Gain
Fixed
variable

Offsets in
Volts
Divisions

Grids
Single Dual
Quad Octal

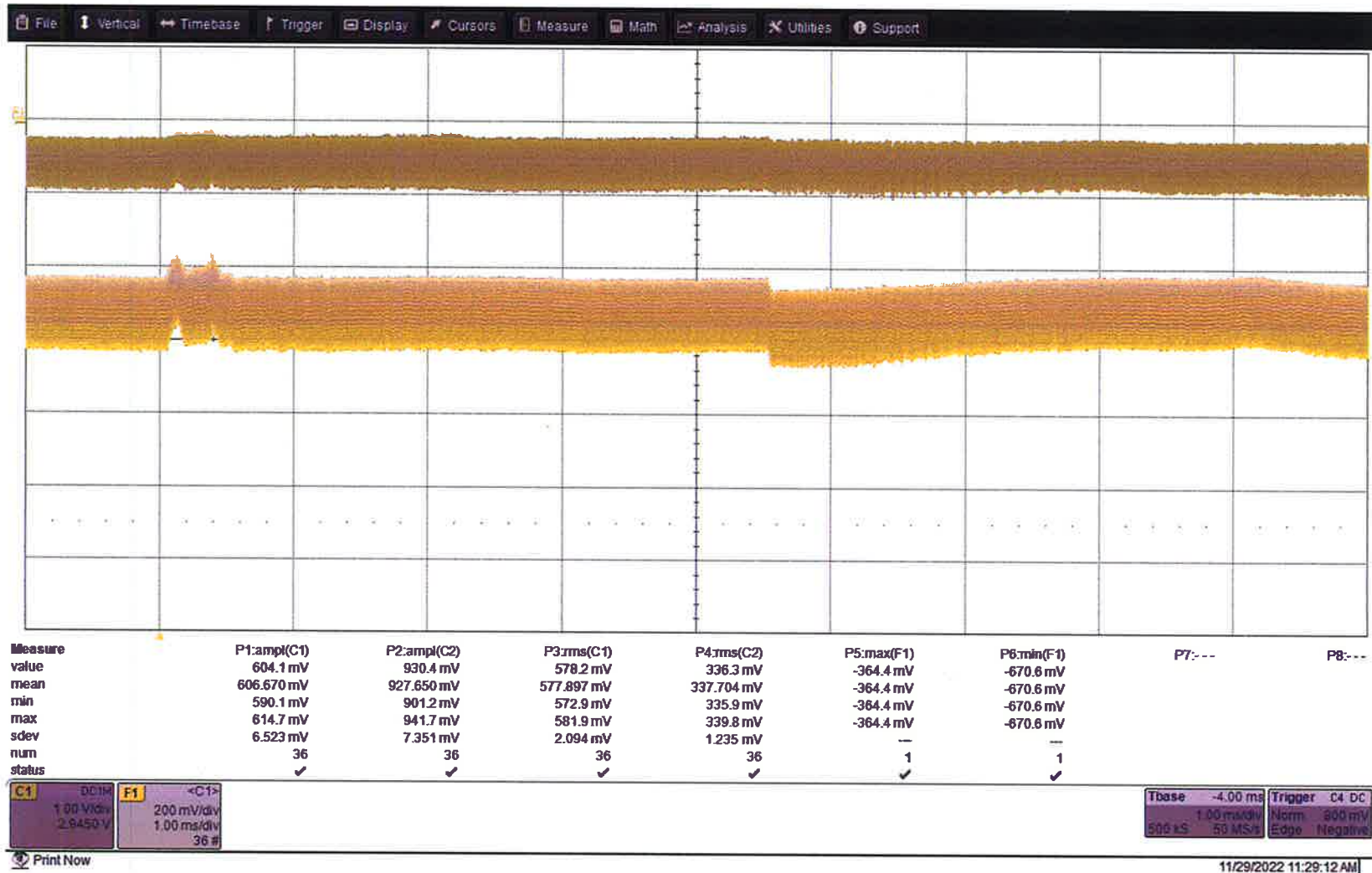
100 MS/s

DISPLAY ☐ . NORMAL



LeCroy

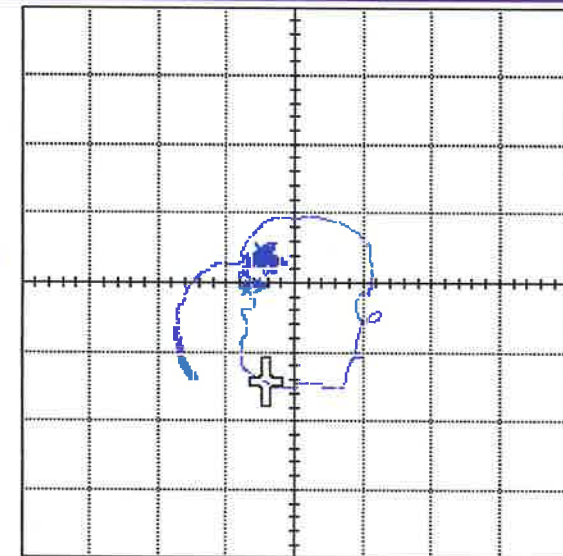
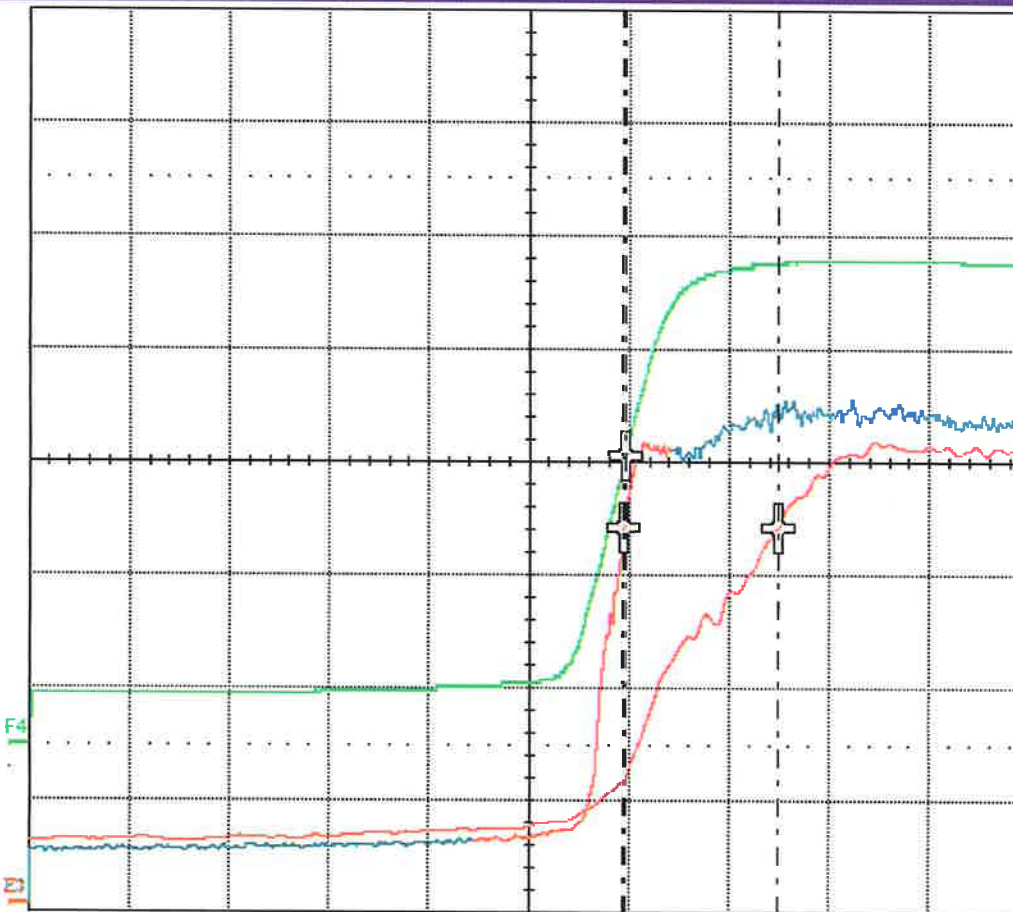
11/29/2022 11:29:10 AM



File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help

Zoom

Undo



$\Delta Y/\Delta X = 3.55$ $\Delta Y^* \Delta X = 23.2 \text{ mV}^2$
 11.0 dB Angle = -105.7 °
 Radius = 299 mV

F3 script(C3,C2)	F4 <F3>	XY XC2Y.C3	Z1 zoom(F3)
2.00/div	2.00/div	200 mV/div	2.00/div
100 μ s/div	100 μ s/div	200 mV/div	20.0 μ s/div
	147 #		
✚ 6.7040	✚ 5.118663	✚x -106.2 mV	✚ 6.7040
		✚y -257.7 mV	

Timebase -502 μ s	Trigger Err/10/DC
100 μ s/div	Normal 130 mV
10.0 kS	Edge Negative
X1= 597.5 μ s	

LeCroy

11/29/2022 11:32:45 AM

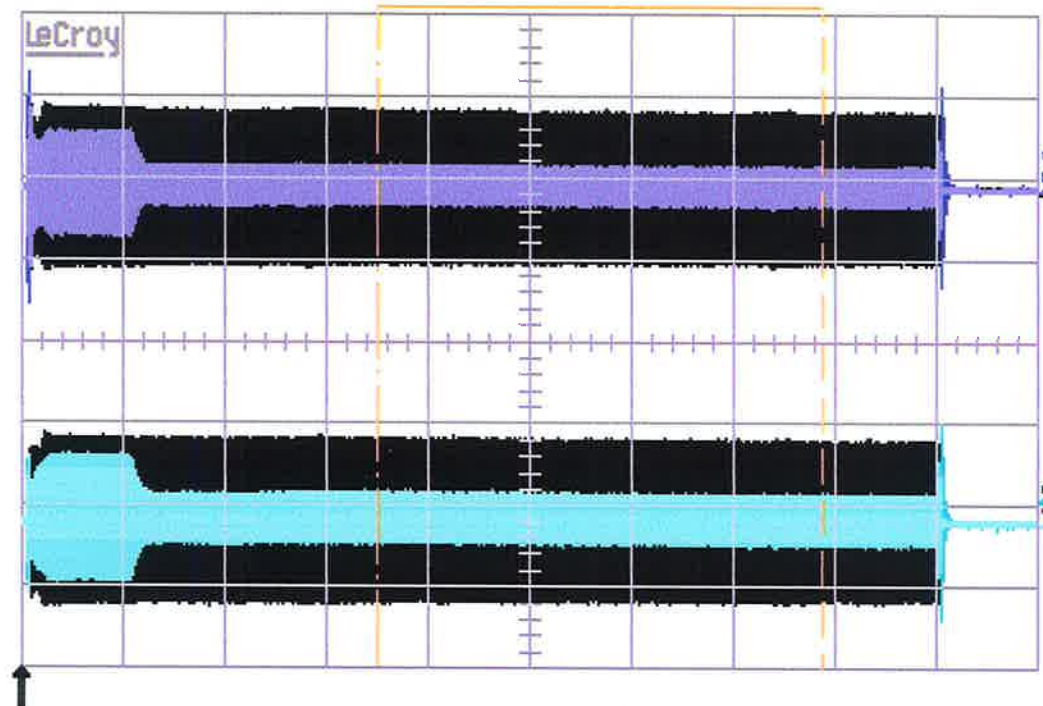
29-Nov-22
11:33:01

1
.5 ms
0.50 V

3
.5 ms
0.50 V

2
.5 ms
200mV

4
.5 ms
200mV



152 sweeps:

	average	low	high	sigma
rms(1)	320.9mV	315.9	326.3	3.4
rms(2)	34.3mV	33.4	35.1	0.4
rms(3)	336.5mV	332.5	341.2	2.9
rms(4)	39.1mV	38.6	39.5	0.2
phase(1,3)	85.6 °	79.6	90.9	1.3

.5 ms

1 .5 V AC
2 .2 V AC
3 .5 V AC
4 .2 V AC

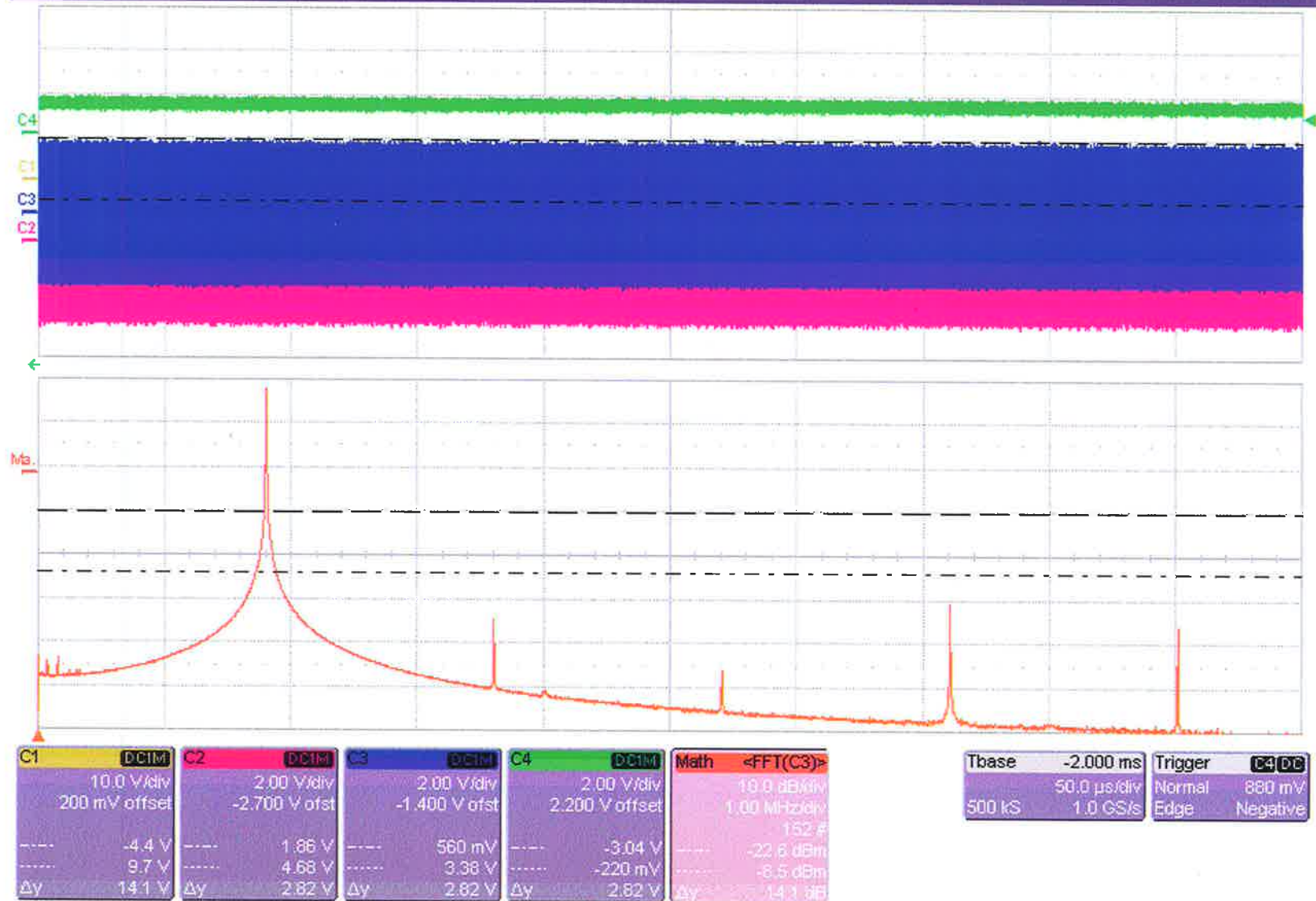


Ext10 DC 0.50 V 50Ω

20 MS/s

☐ NORMAL

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help



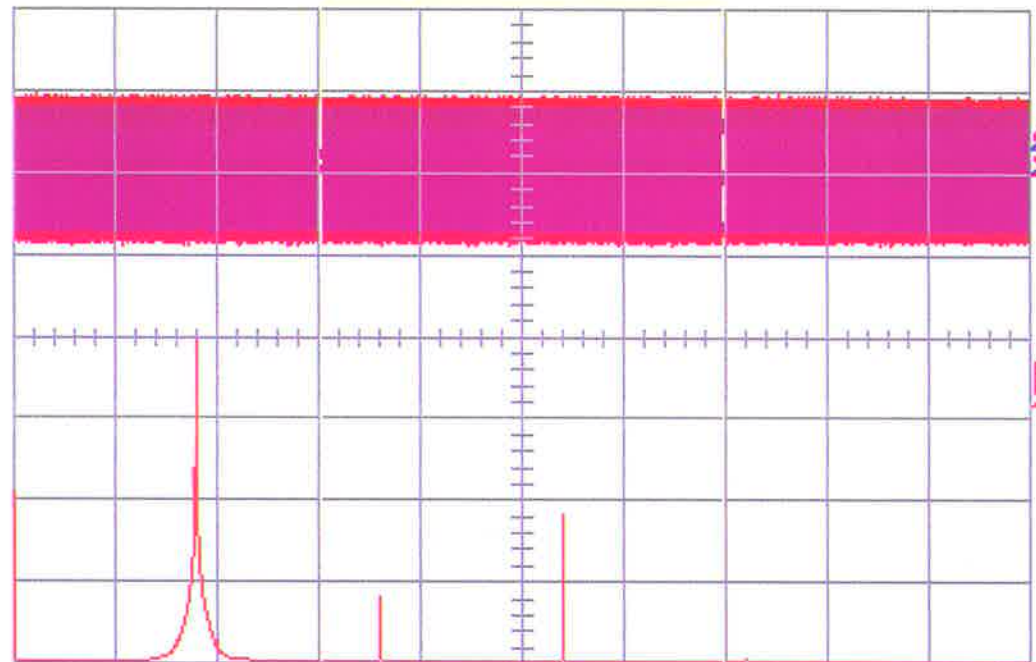
LeCroy

11/29/2022 11:33:10 AM

29-Nov-22
11:33:05

3
.1 ms
2.00 V

4
.1 ms
2.00 V
B: Average(A)
1 MHz
=15.0 dBm==



← 1.73 ms

	152 sweeps:	average	low	high	sigma
phase(4 , 3)		89.1 °	81.5	97.0	2.1
pkpk(3)		3.69 V	3.56	3.81	0.05
rms(2)		22.8mV	22.5	23.3	0.2
rms(4)		0.999 V	0.985	1.019	0.010
rms(3)		1.169 V	1.149	1.196	0.014

.1 ms

1 1 V DC
2 .1 V DC
3 2 V DC
4 2 V DC



Ext10 DC 0.15 V 50Ω

CHANNEL **4**

Trace
OFF **On**

Coupling

ZOOM

FIND

Gain
Fixed
variable

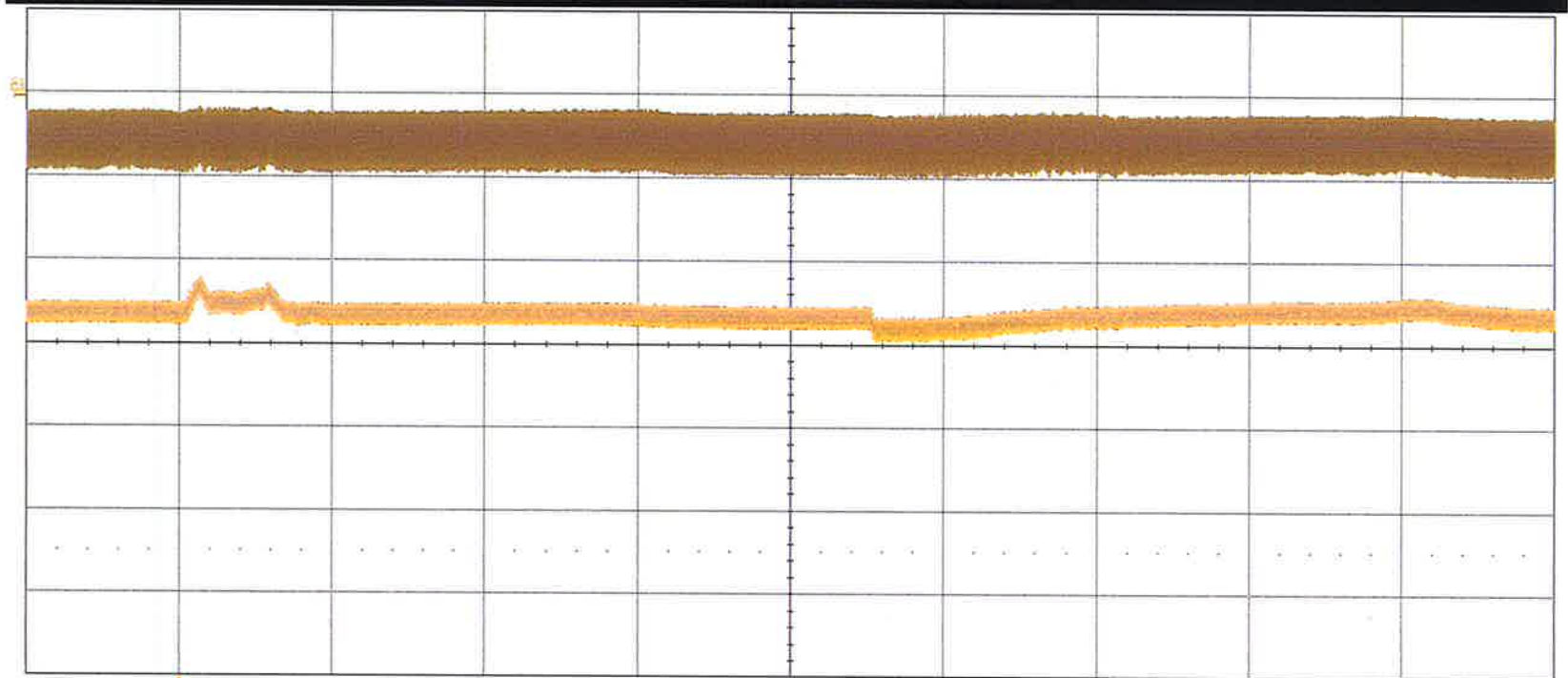
Offsets in
Volts
Divisions

Grids
Single Dual
Quad Octal

100 MS/s

☐ NORMAL

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Support



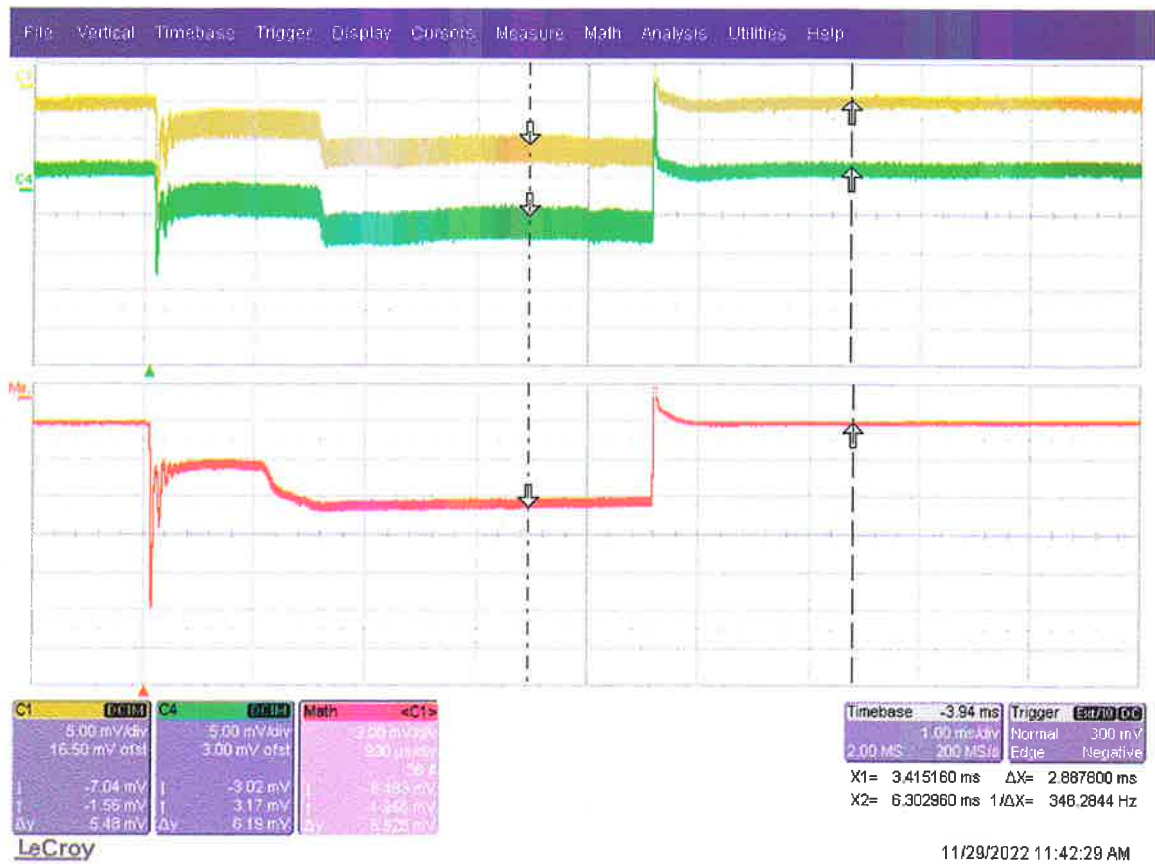
Measure	P1:ampl(C1)	P2:ampl(C2)	P3:rms(C1)	P4:rms(C2)	P5:max(F1)	P6:min(F1)	P7:---	P8:---
value	614.6 mV	932.0 mV	576.1 mV	337.8 mV	-442.9 mV	-596.6 mV		
mean	613.003 mV	936.815 mV	579.766 mV	339.649 mV	-442.9 mV	-596.6 mV		
min	597.0 mV	921.4 mV	575.2 mV	336.4 mV	-442.9 mV	-596.6 mV		
max	622.6 mV	952.7 mV	585.2 mV	341.7 mV	-442.9 mV	-596.6 mV		
sdev	5.445 mV	6.187 mV	2.473 mV	1.500 mV	---	---		
num	155	155	155	155	1	1		
status	✓	✓	✓	✓	✓	✓		

C1 DC 1.00 V/div 2.9450 V
F1 200 mV/div 1.00 ms/div 155 #

Tbase -4.00 ms Trigger C4 DC
1.00 ms/div Norm. 800 mV
500 μ S 50 MSs Edge Negative

Print Now

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11/29/2022 11:42:29 AM