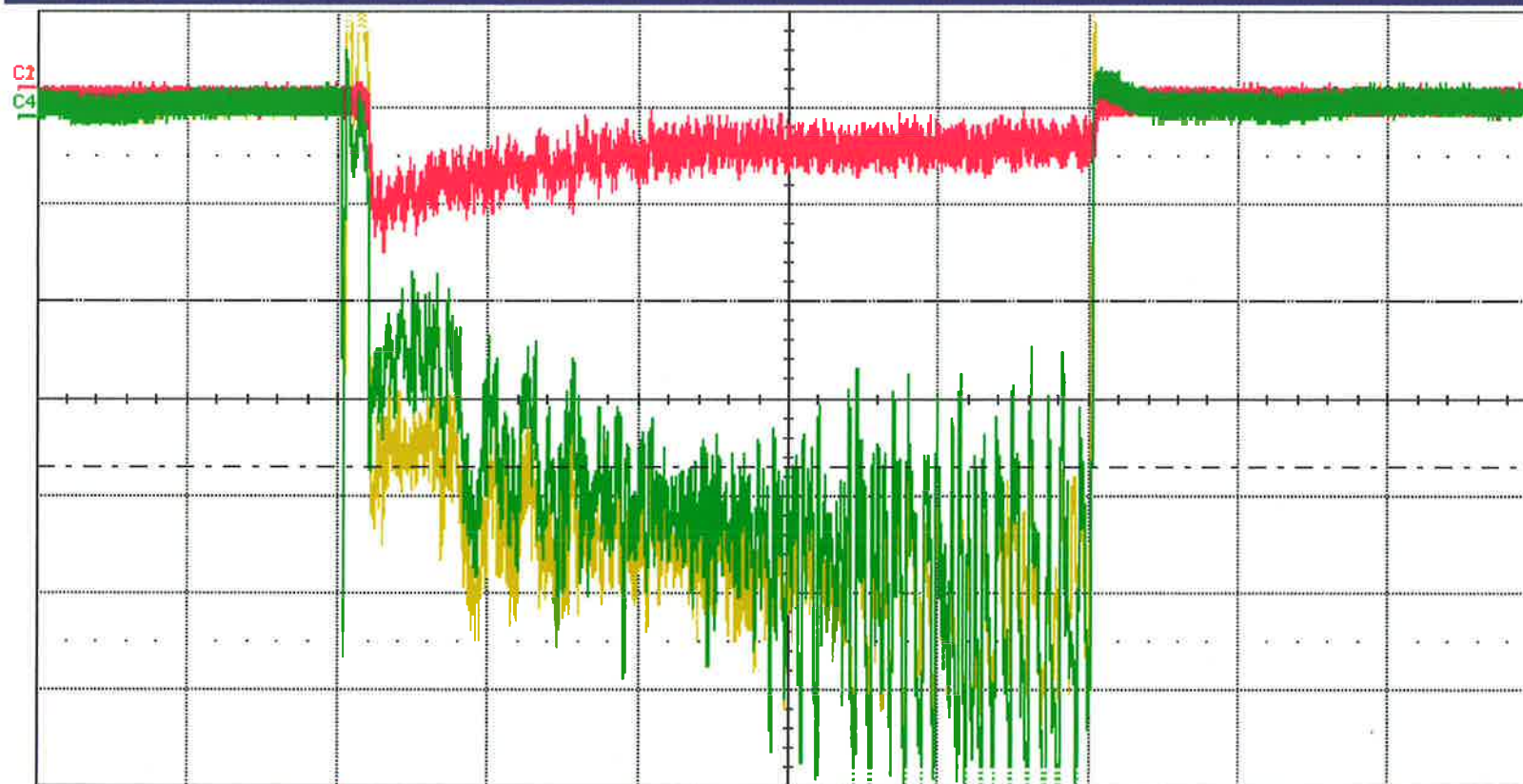


$H\beta(Bg)$

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help



Measure
value
status

P1:mean(Z1)
-100.66 mV ✓

P2:mean(Z4)
-89.41 mV ✓

P3:mean(C1)
-97.33 mV ✓

P4:mean(C4)
-83.47 mV ✓

P5:phase(C1,C4)
-29.8296972711 °

P6:---

C1	DCIM	C2	DCIM	C4	DCIM
20.0 mV/div	2.00 V/div	20.0 mV/div	2.00 V/div	20.0 mV/div	2.00 V/div
64.00 mV ofst	6.400 V offset	64.00 mV ofst	6.400 V offset	64.00 mV ofst	6.400 V offset
---- -78.0 mV	----- -7.80 V	---- -78.0 mV	----- -7.80 V	---- -78.0 mV	----- -7.80 V
----- -44.0 mV	----- -4.40 V	----- -44.0 mV	----- -4.40 V	----- -44.0 mV	----- -4.40 V
Δy 34.0 mV	Δy 3.40 V	Δy 34.0 mV	Δy 3.40 V	Δy 34.0 mV	Δy 3.40 V

Timebase	-3.00 ms	Trigger	EM10 DC
	1.00 ms/div	Normal	200 mV
1.00 MS	100 MS/s	Edge	Negative

LeCroy

2/5/2020 2:52:56 PM

5-Feb-20
14:52:59

1
1 ms
0.50 V

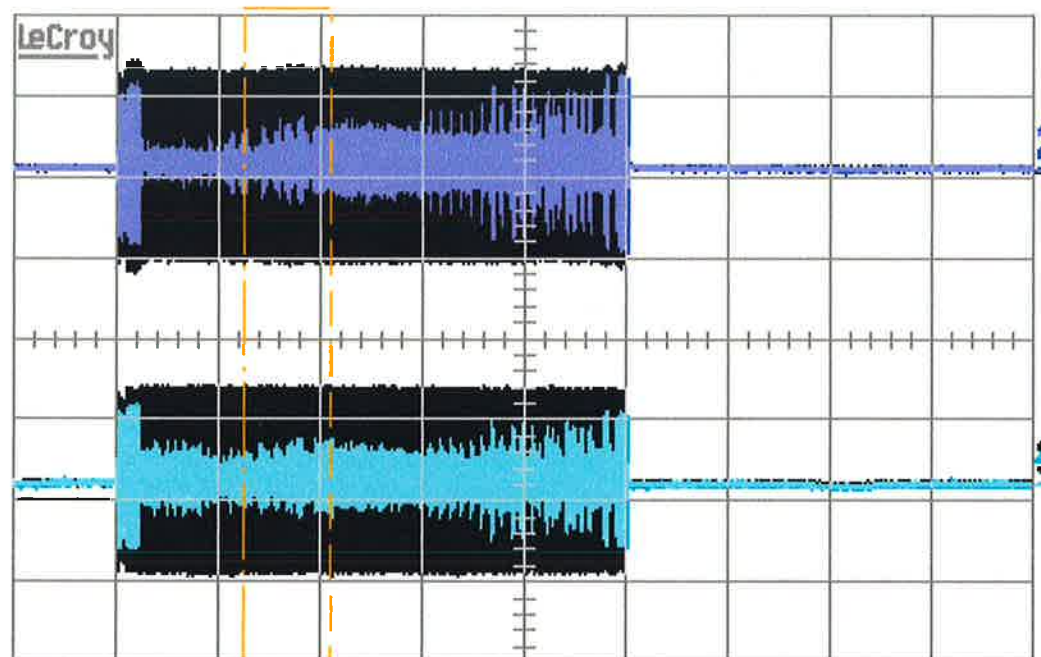
2
1 ms
200 mV

3
1 ms
0.50 V

4
1 ms
200 mV

1 ms

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



195 sweeps: average low high sigma
rms(1) 420.1mV 416.0 426.0 1.7
rms(2) 42.5mV 38.2 48.6 1.5
rms(3) 397.7mV 395.6 400.4 1.1
rms(4) 45.8mV 40.7 61.1 2.0
phase(1,3) -5 ° -145 111 88

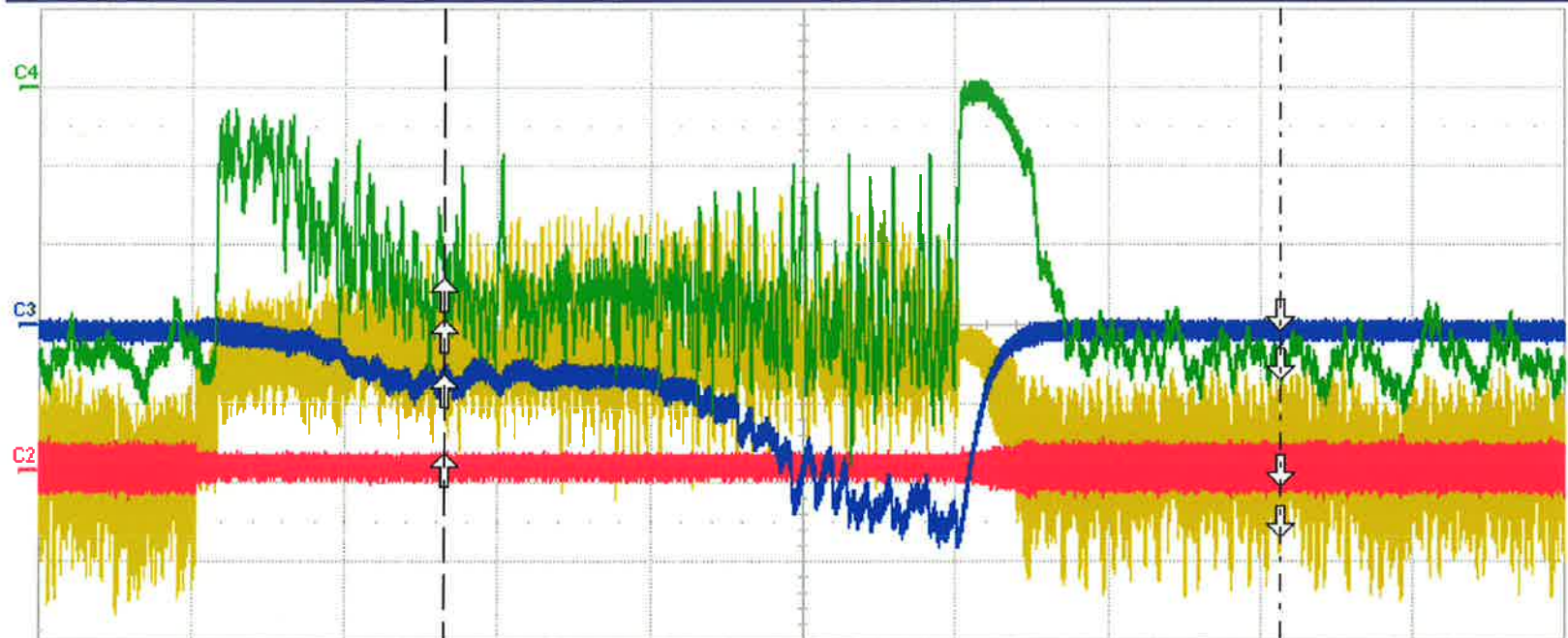


Ext10 DC 0.15 V 50Ω

10 MS/s

☐ NORMAL

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help



Measure	P1:mean(C1)	P2:pkpk(C2)	P3:pkpk(C3)	P4:mean(C3)	P5:mean(C4)	P6:---
value	-65.4 mV	438 mV	197 mV	-92.6 mV	-265.0 V	
mean	-70.415 mV	431.1 mV	250.37 mV	-175.033 mV	-283.218 V	
min	-89.9 mV	375 mV	113 mV	-225.0 mV	-297.2 V	
max	-52.9 mV	531 mV	303 mV	-83.6 mV	-250.9 V	
sdev	5.289 mV	20.5 mV	24.79 mV	24.025 mV	6.254 V	
num	5.529e+3	5.529e+3	5.529e+3	5.529e+3	5.529e+3	
status	✓	✓	✓	✓	✓	

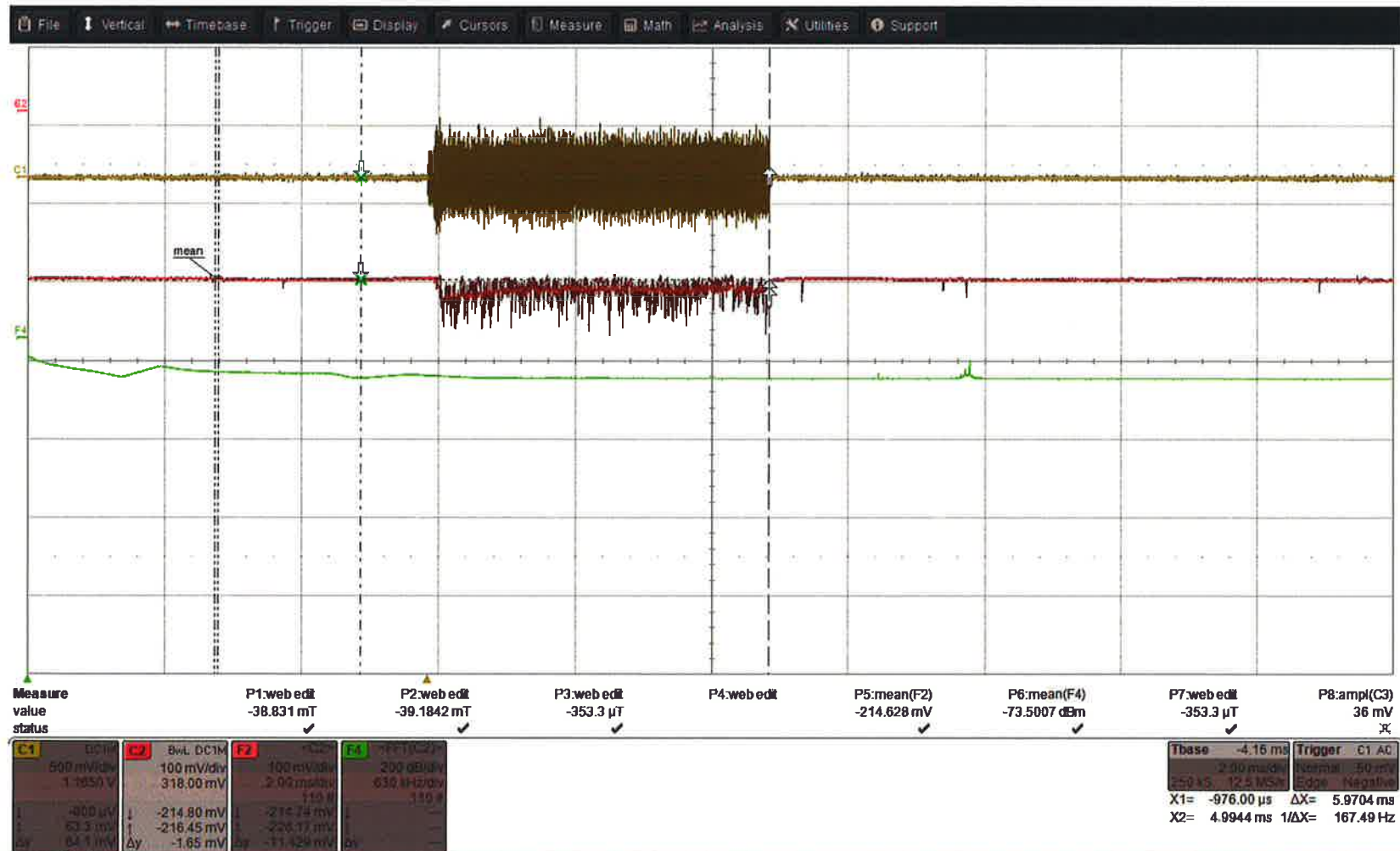
C1	C2	C3	C4
DCIM	DCIM	DCIM	DCIM
200 mV/div	1.00 V/div	100 mV/div	100 V/div
0.0 mV offset	-1.840 V offset	0.0 mV offset	299.0 V offset
↓ -534.6 mV	↓ -184 mV	↓ -6.3 mV	↓ -367.4 V
↑ 6.6 mV	↑ 181 mV	↑ -65.5 mV	↑ -242.8 V
Δy 541.3 mV	Δy 365 mV	Δy -59.2 mV	Δy 124.5 V

Timebase	-4.00 ms	Trigger	Ext/10 DC
1.00 ms/div	1.00 ms/div	Normal	200 mV
1.00 MS	100 MS/s	Edge	Negative

X1= 7.13021 ms ΔX= -5.48404 ms
X2= 1.64617 ms 1/ΔX= -182.3473 Hz

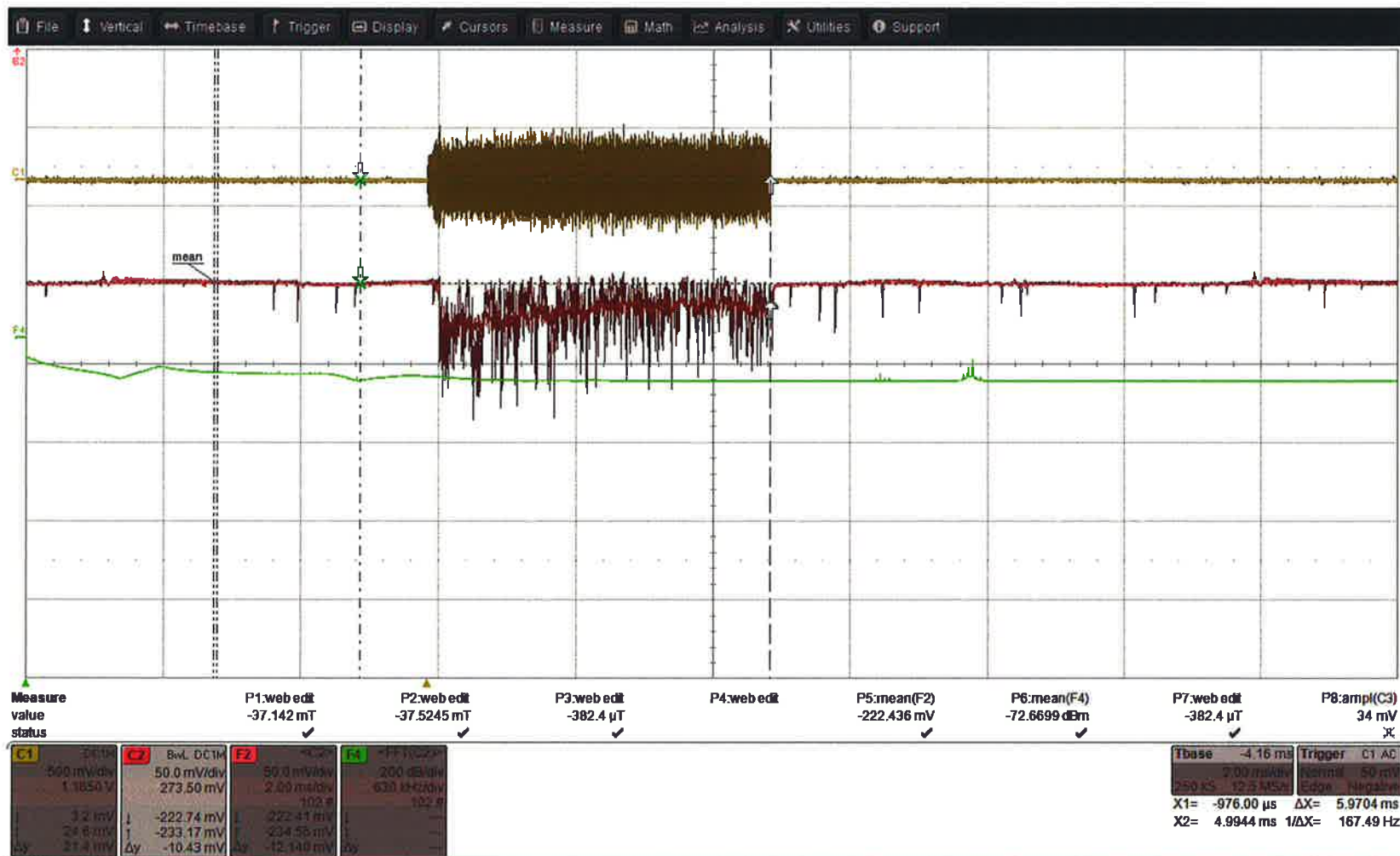
LeCroy

2/5/2020 2:55:17 PM



TELEDYNE LECROY

2/5/2020 2:56:28 PM



5-Feb-20
15:05:09

1
1 ms
0.50 V

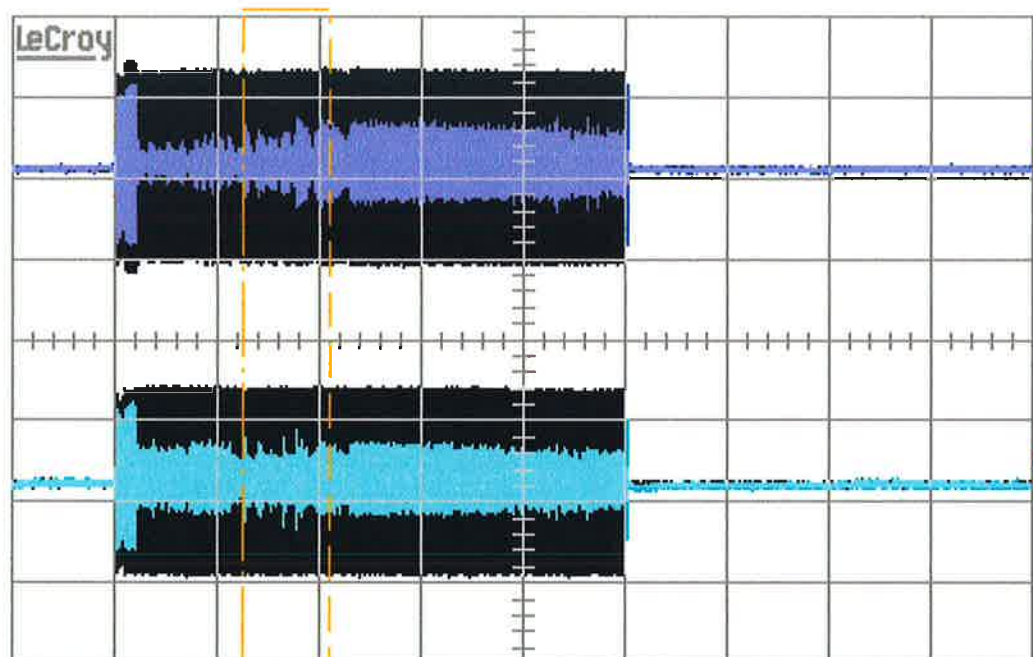
2
1 ms
200 mV

3
1 ms
0.50 V

4
1 ms
200 mV

1 ms

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



14 sweeps: average low high sigma

rms(1)	418.5mV	415.4	421.6	1.8
rms(2)	38.9mV	35.7	41.8	1.8
rms(3)	398.5mV	396.0	400.7	1.4
rms(4)	44.0mV	41.9	46.2	1.3
phase(1,3)	-2 °	-145	109	88

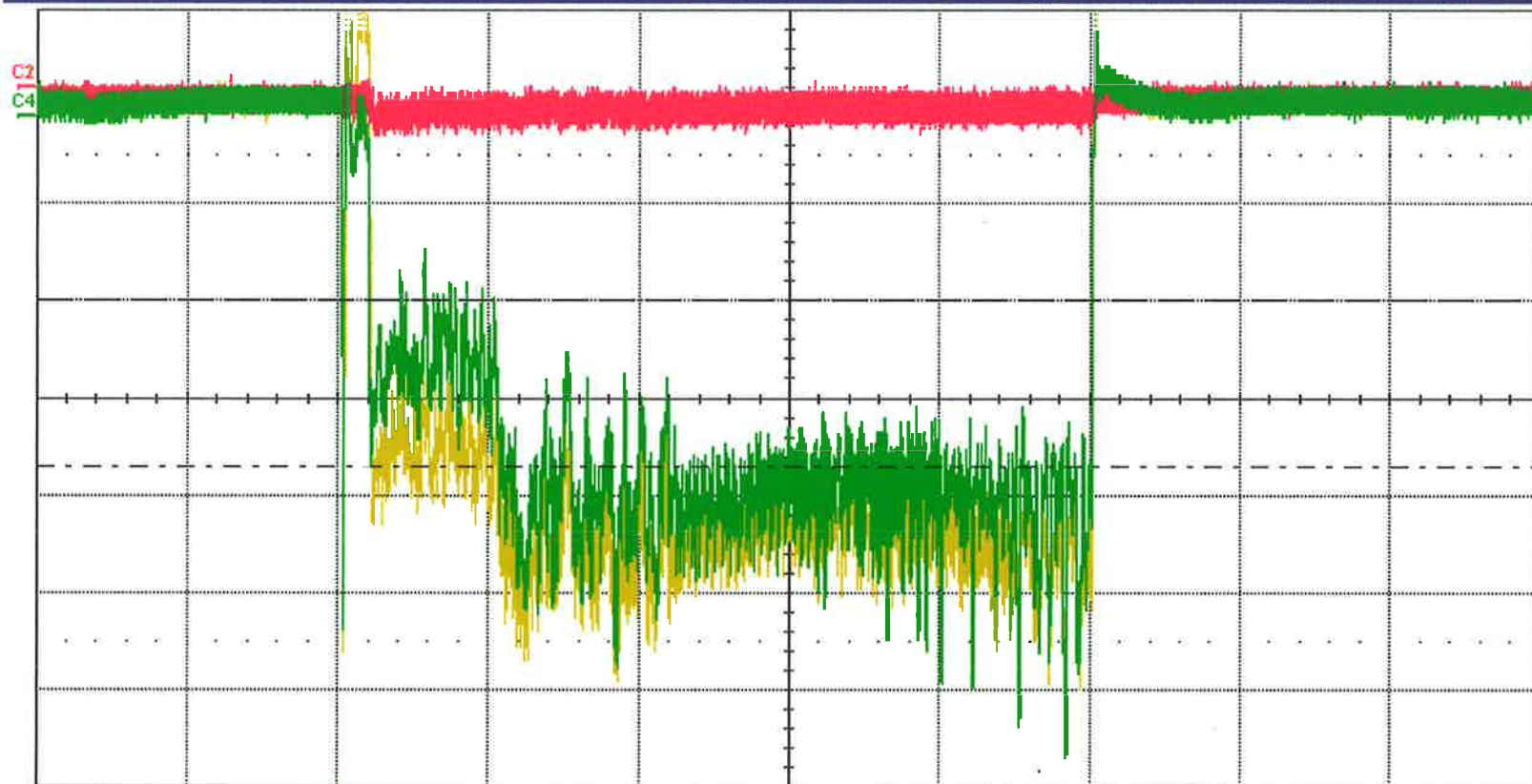


Ext10 DC 0.15 V 50Ω

10 MS/s

☐ NORMAL

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help



Measure

value

status

P1:mean(Z1)

-89.48 mV

P2:mean(Z4)

-77.32 mV

P3:mean(C1)

-92.78 mV

P4:mean(C4)

-79.34 mV

P5:phase(C1,C4)

-34.4001525844 °

P6:---

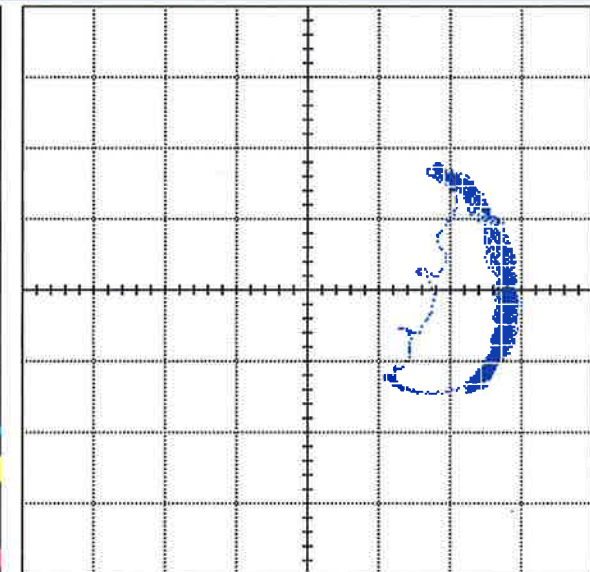
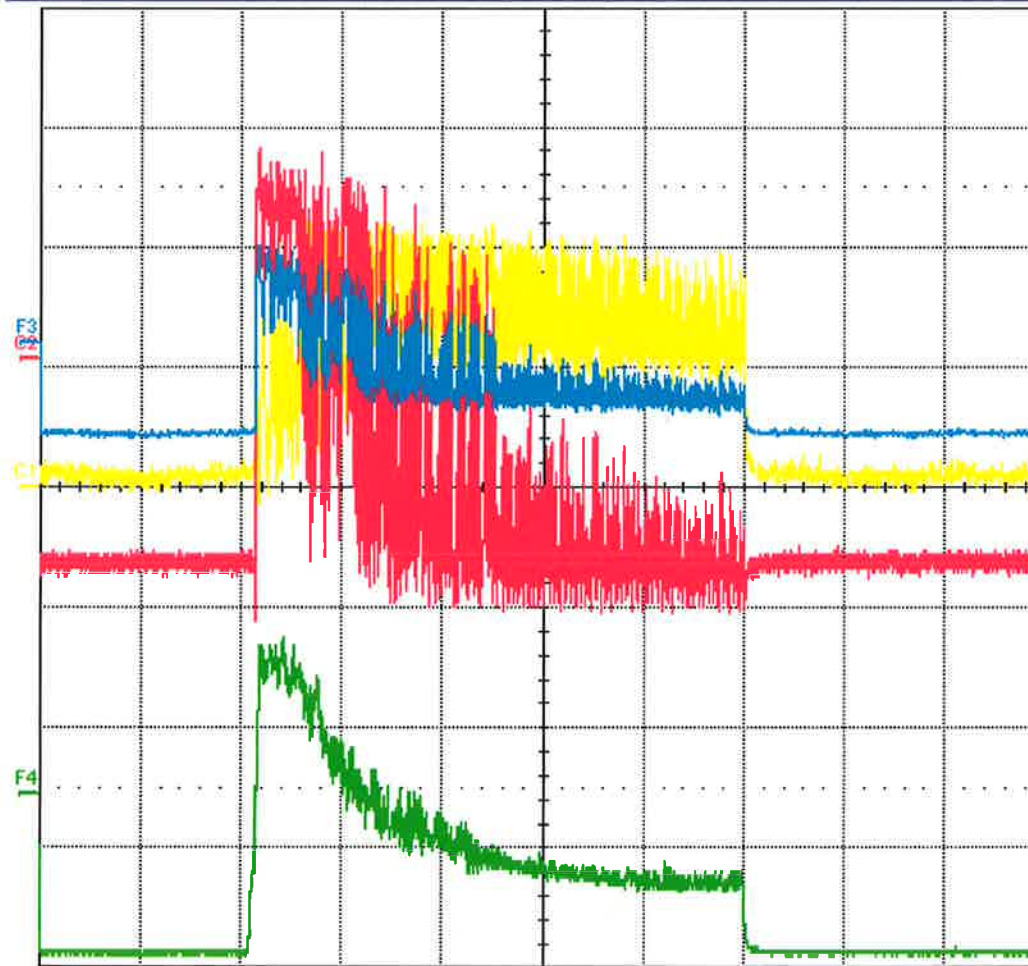
C1	DCIM	C2	DCIM	C3	DCIM
20.0 mV/div	2.00 V/div	20.0 mV/div	2.00 V/div	20.0 mV/div	2.00 V/div
64.00 mV ofst	6.400 V offset	64.00 mV ofst	6.400 V offset	64.00 mV ofst	6.400 V offset
---- -78.0 mV	----- -7.80 V	---- -78.0 mV	----- -7.80 V	---- -78.0 mV	----- -7.80 V
----- -44.0 mV	----- -4.40 V	----- -44.0 mV	----- -4.40 V	----- -44.0 mV	----- -4.40 V
Δy 34.0 mV	Δy 3.40 V	Δy 34.0 mV	Δy 3.40 V	Δy 34.0 mV	Δy 3.40 V

Timebase	-3.00 ms	Trigger	EM10 DC
1.00 MS	100 MS/s	Normal	200 mV
		Edge	Negative

LeCroy

2/5/2020 3:05:13 PM

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help

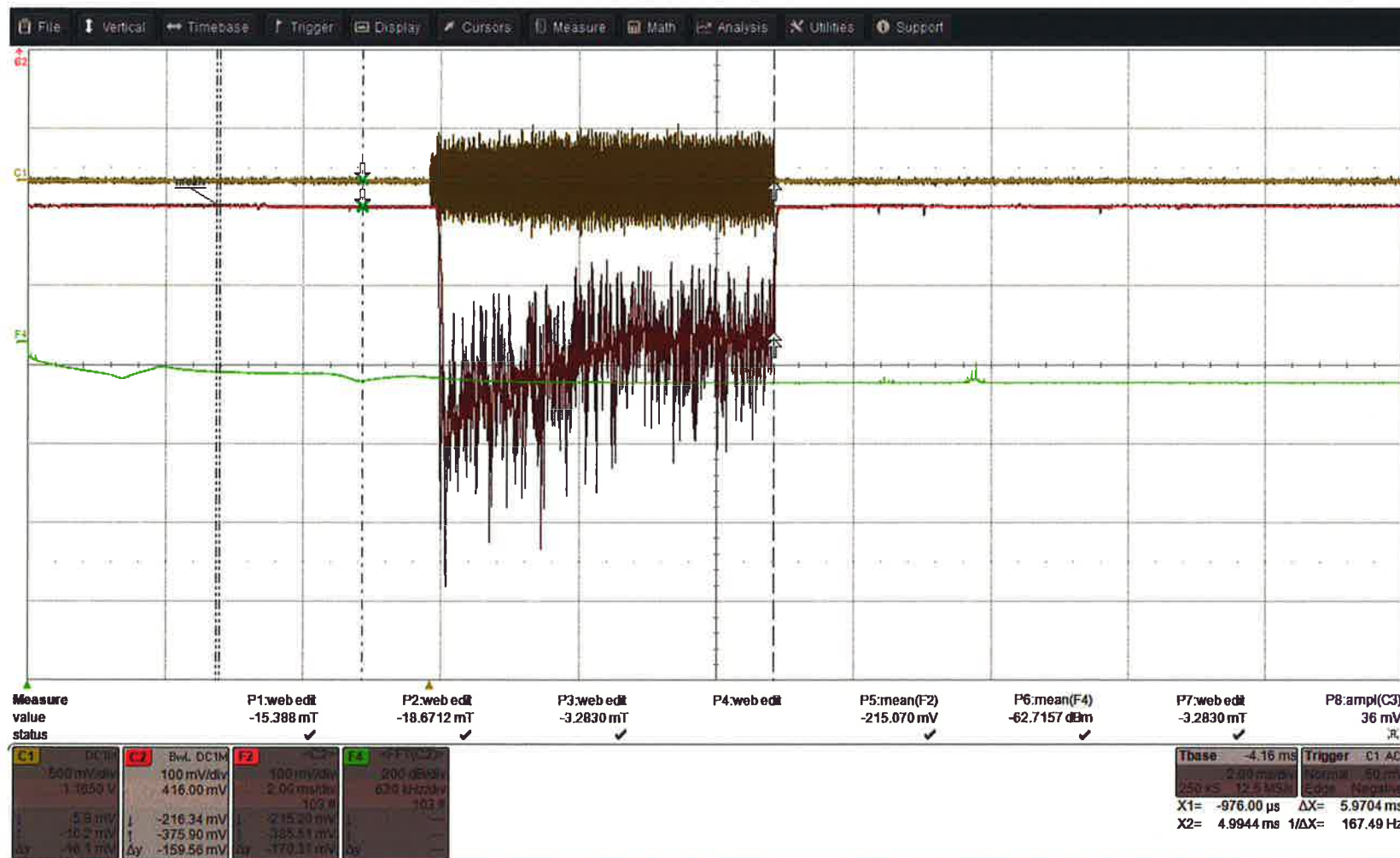


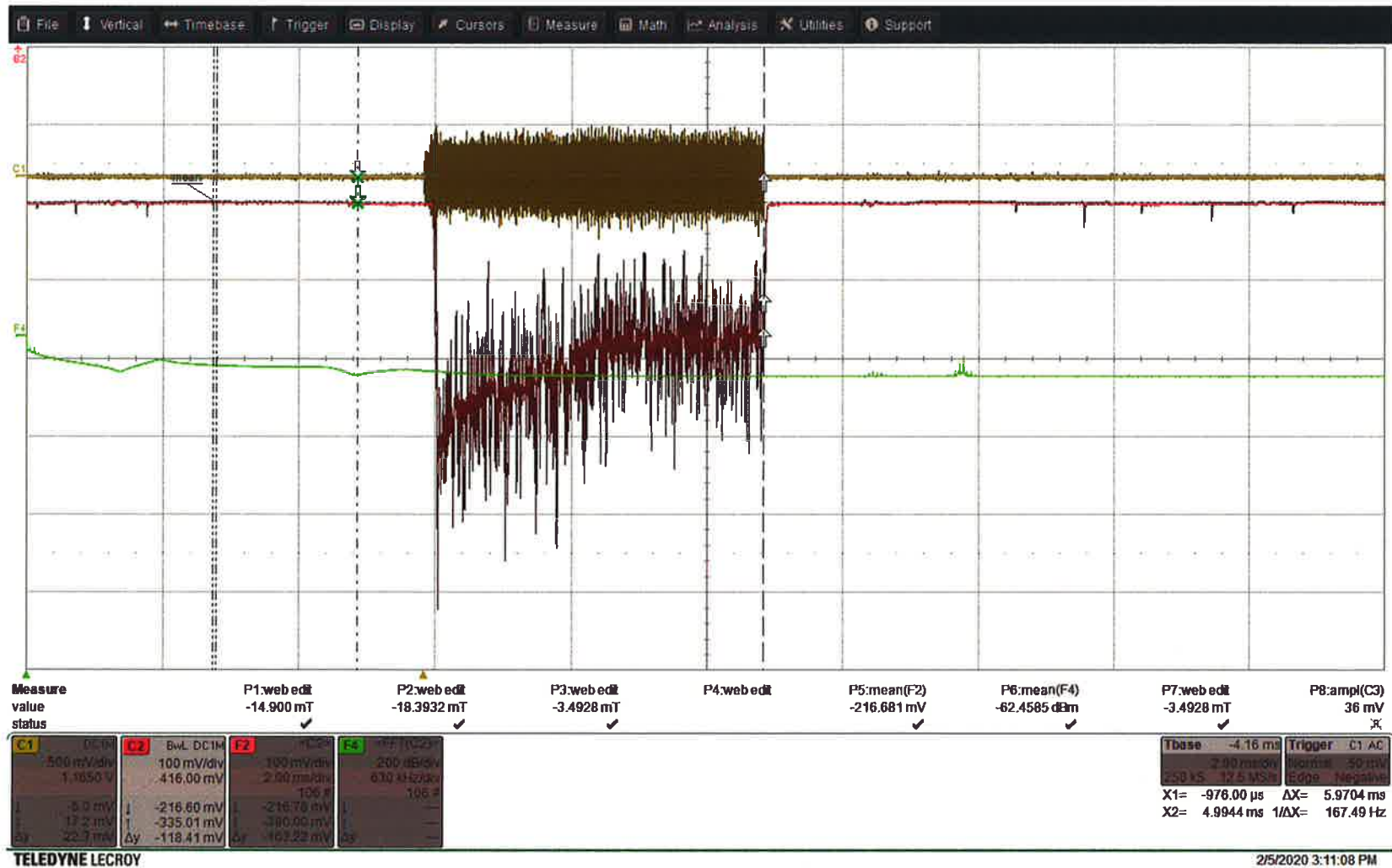
C1	FLT DC1M	C2	DC1M	F3	script(C1,C2)	F4	<F3>	XY	X F1 Y F2
200 mV/div	200 mV/div	200 mV/div	200 mV/div	2.00/div	1.00/div	1.00/div	1.00/div	200 mV/div	200 mV/div
0.0 mV ofst	212.0 mV	1.00 ms/div	1.00 ms/div	17 #	17 #	17 #	17 #	17 #	17 #

Tbase	-3.04 ms	Trigger	C4 DC
1.00 ms/div	Normal	200 mV	
10.0 kS	1.0 MS/s	Edge	Negative

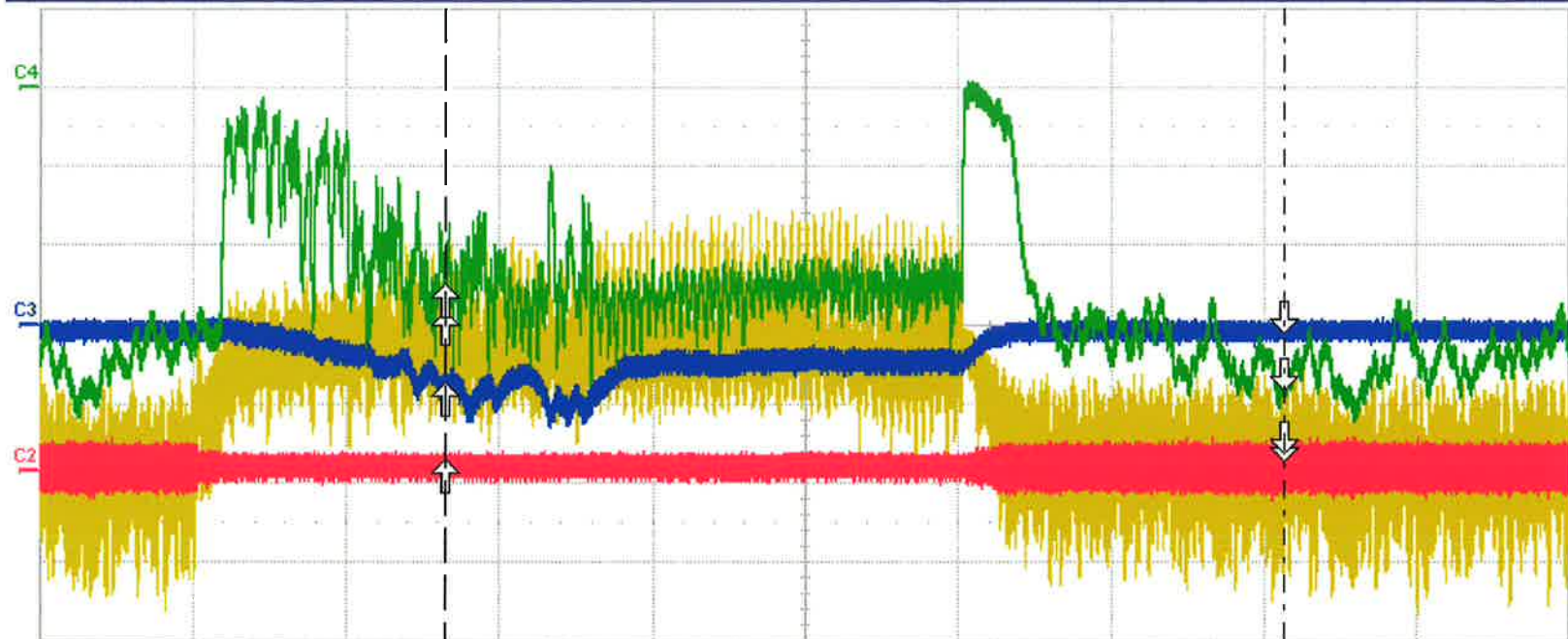
LeCroy

2/5/2020 3:05:27 PM





File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help



Measure

	P1:mean(C1)	P2:pkpk(C2)	P3:pkpk(C3)	P4:mean(C3)	P5:mean(C4)	P6:---
value	-49.0 mV	406 mV	100 mV	-63.1 mV	-261.2 V	
mean	-68.323 mV	431.4 mV	226.48 mV	-157.966 mV	-279.636 V	
min	-89.9 mV	375 mV	50 mV	-225.0 mV	-297.2 V	
max	-31.3 mV	531 mV	303 mV	-51.0 mV	-215.4 V	
sdev	7.869 mV	20.3 mV	60.27 mV	45.378 mV	10.353 V	
num	6.563e+3	6.563e+3	6.563e+3	6.563e+3	6.563e+3	
status	✓	✓	✓	✓	✓	

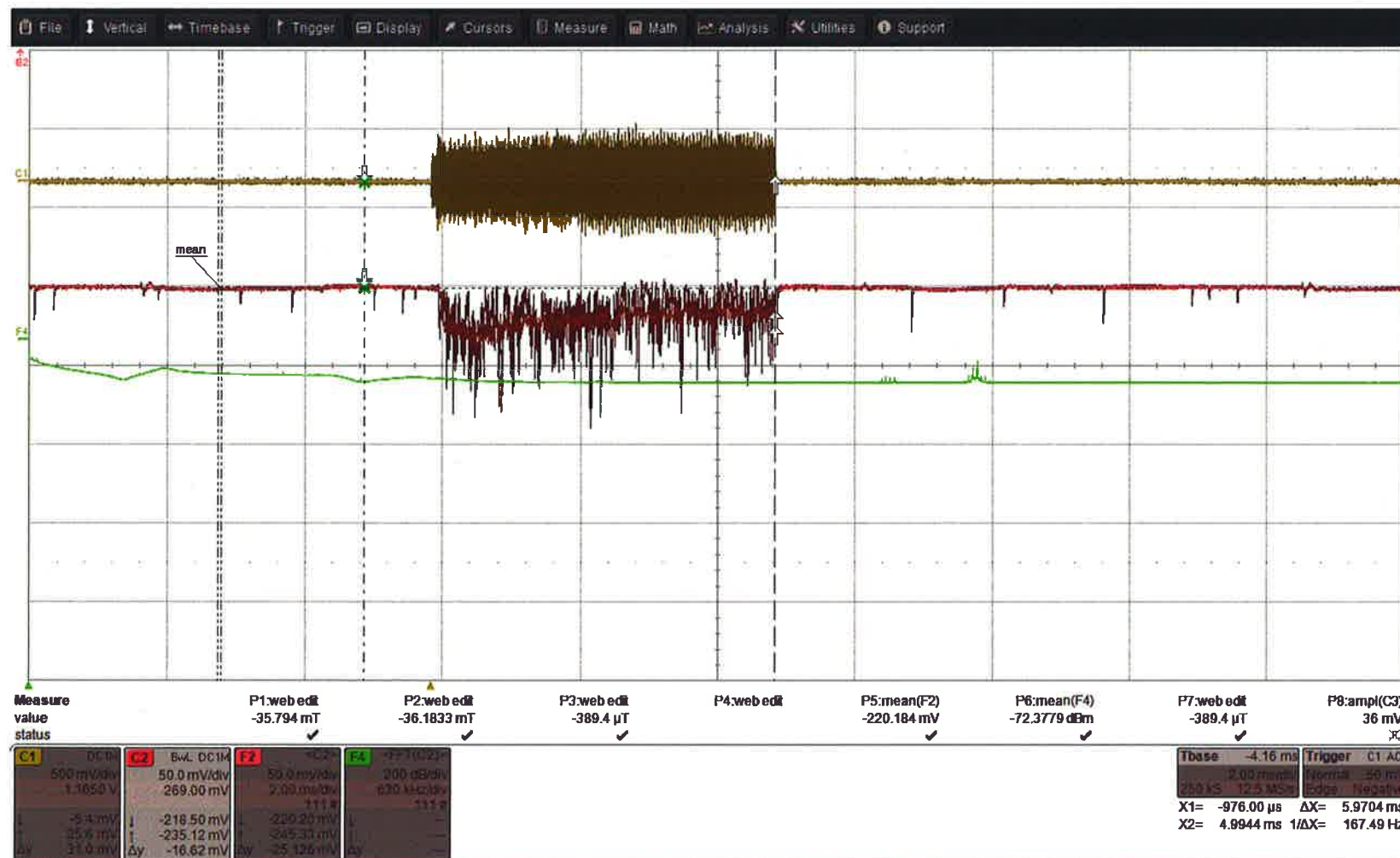
C1	C2	C3	C4
DCIM	DCIM	DCIM	DCIM
200 mV/div	1.00 V/div	100 mV/div	100 V/div
0.0 mV offset	-1.840 V offset	0.0 mV offset	299.0 V offset
↓ -338.5 mV	↓ 232 mV	↓ -9.4 mV	↓ -378.8 V
↑ 27.1 mV	↑ 104 mV	↑ -75.3 mV	↑ -250.2 V
Δy 365.6 mV	Δy -128 mV	Δy -65.9 mV	Δy 128.6 V

Timebase	-4.00 ms	Trigger	Ext/10 DC
1.00 MS	1.00 ms/div	Normal	200 mV
	100 MS/s	Edge	Negative

X1= 7.13021 ms ΔX= -5.48404 ms
X2= 1.64617 ms 1/ΔX= -182.3473 Hz

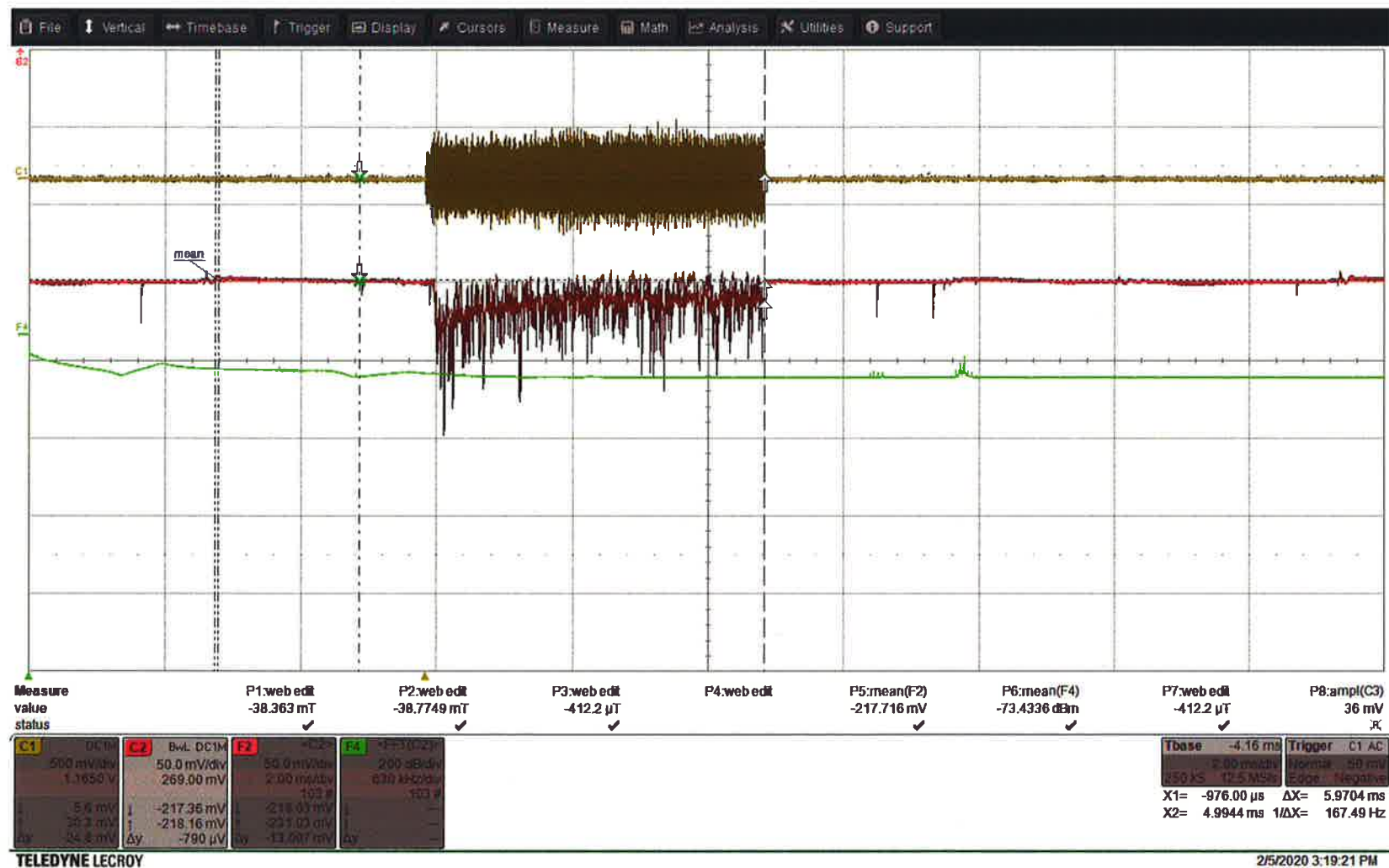
LeCroy

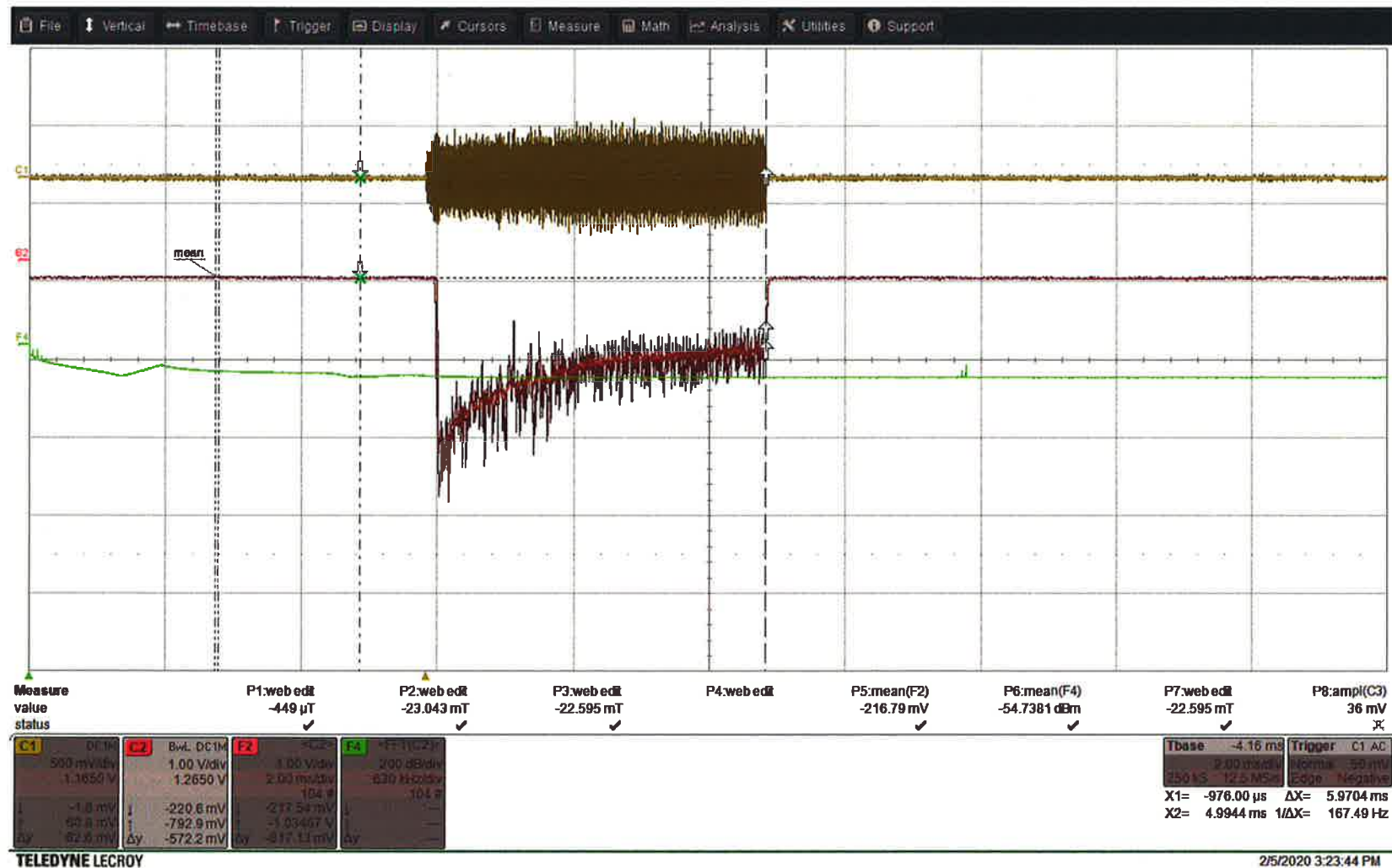
2/5/2020 3:13:05 PM



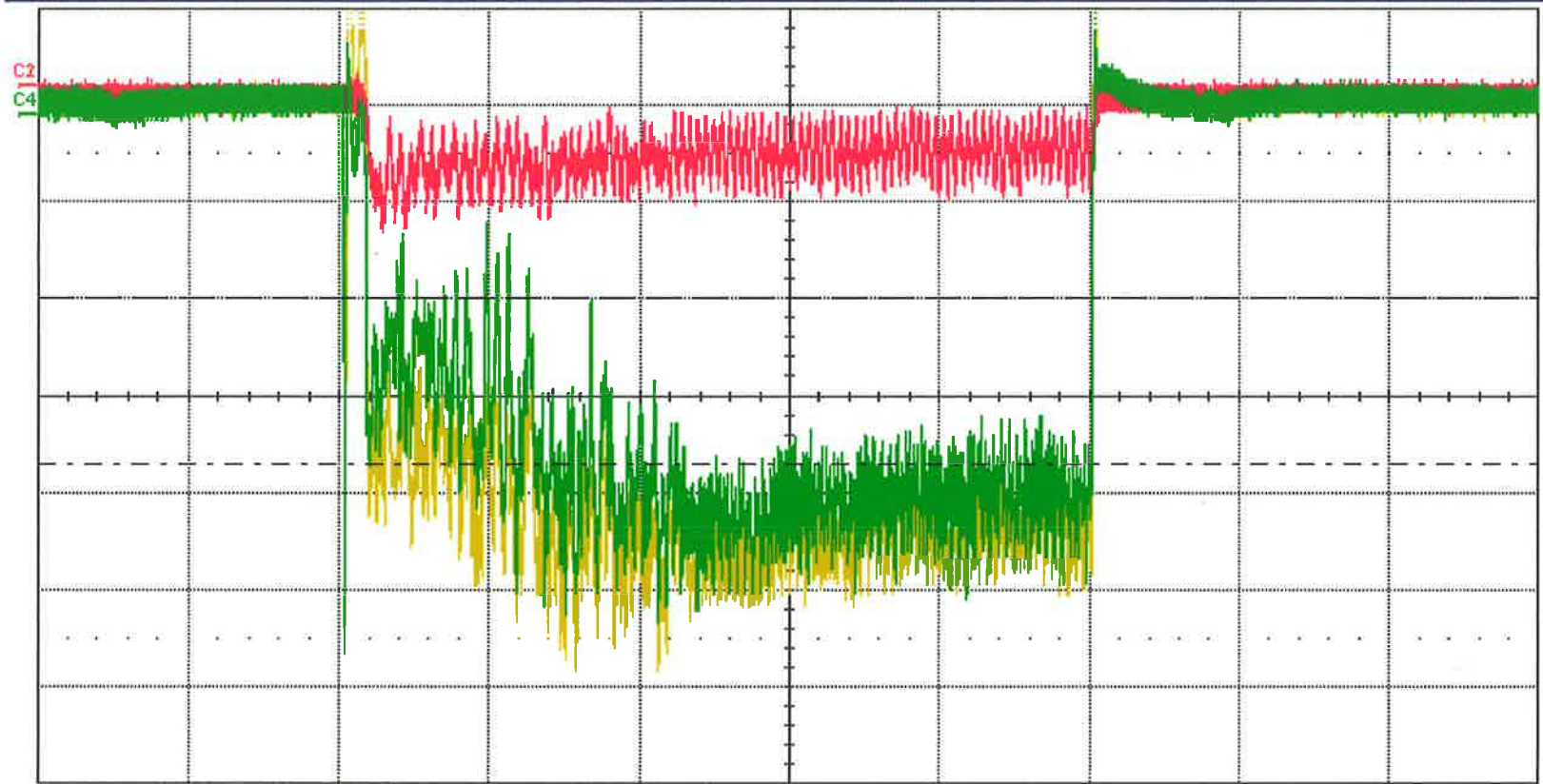
TELEDYNE LECROY

2/5/2020 3:15:38 PM





File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help



Measure
value
status

P1:mean(Z1)
-93.05 mV ✓

P2:mean(Z4)
-80.59 mV ✓

P3:mean(C1)
-97.36 mV ✓

P4:mean(C4)
-82.69 mV ✓

P5:phase(C1,C4)
-10.3866128102 °

P6:---

C1	C2	C4
DCIM	DCIM	DCIM
20.0 mV/div	2.00 V/div	20.0 mV/div
64.00 mV ofst	6.400 V offset	58.00 mV ofst
---- -78.0 mV	---- -7.80 V	---- -72.0 mV
---- -44.0 mV	---- -4.40 V	---- -36.0 mV
Δy 34.0 mV	Δy 3.40 V	Δy 34.0 mV

Timebase	-3.00 ms	Trigger	Ext/10 DC
	1.00 ms/div	Normal	200 mV
1.00 MS	100 MS/s	Edge	Negative

LeCroy

2/5/2020 3:33:34 PM

5-Feb-20
15:33:36

1
1 ms
0.50 V

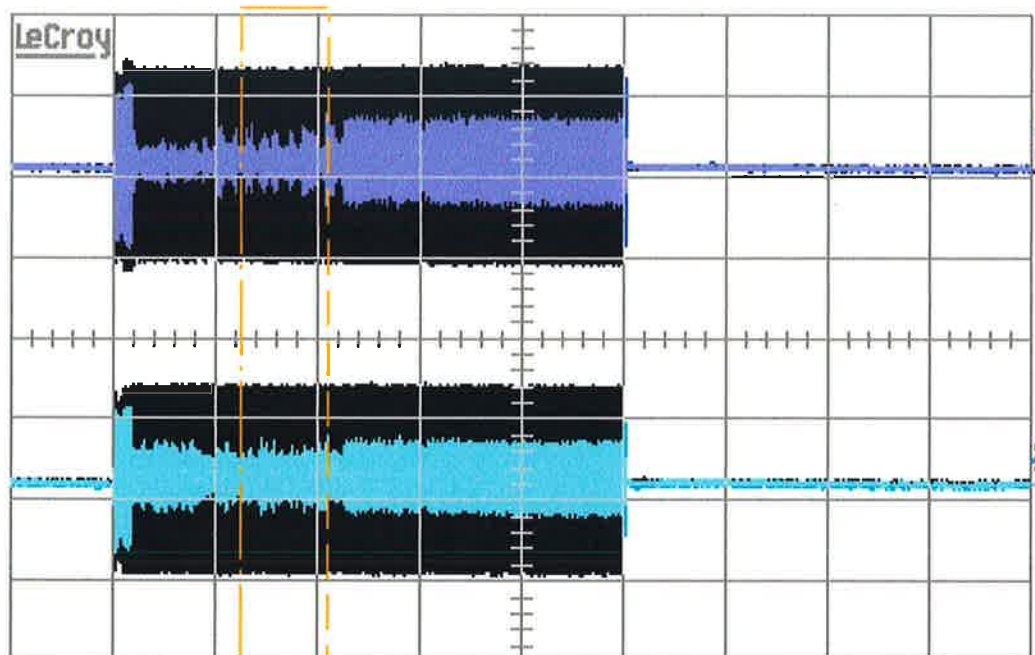
2
1 ms
200 mV

3
1 ms
0.50 V

4
1 ms
200 mV

1 ms

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



1667 sweeps:

	average	low	high	sigma
rms(1)	417.3mV	411.9	429.1	2.1
rms(2)	36.5mV	27.1	50.8	2.7
rms(3)	398.7mV	395.9	402.4	1.3
rms(4)	42.8mV	35.6	66.0	3.2
phase(1,3)	-3 °	-145	133	88

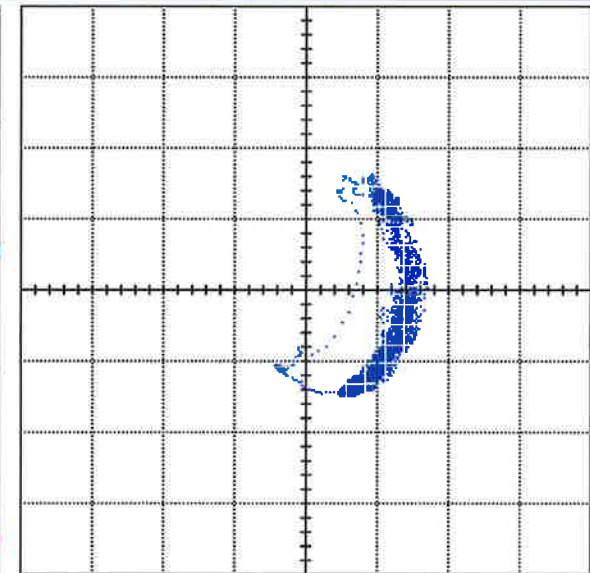
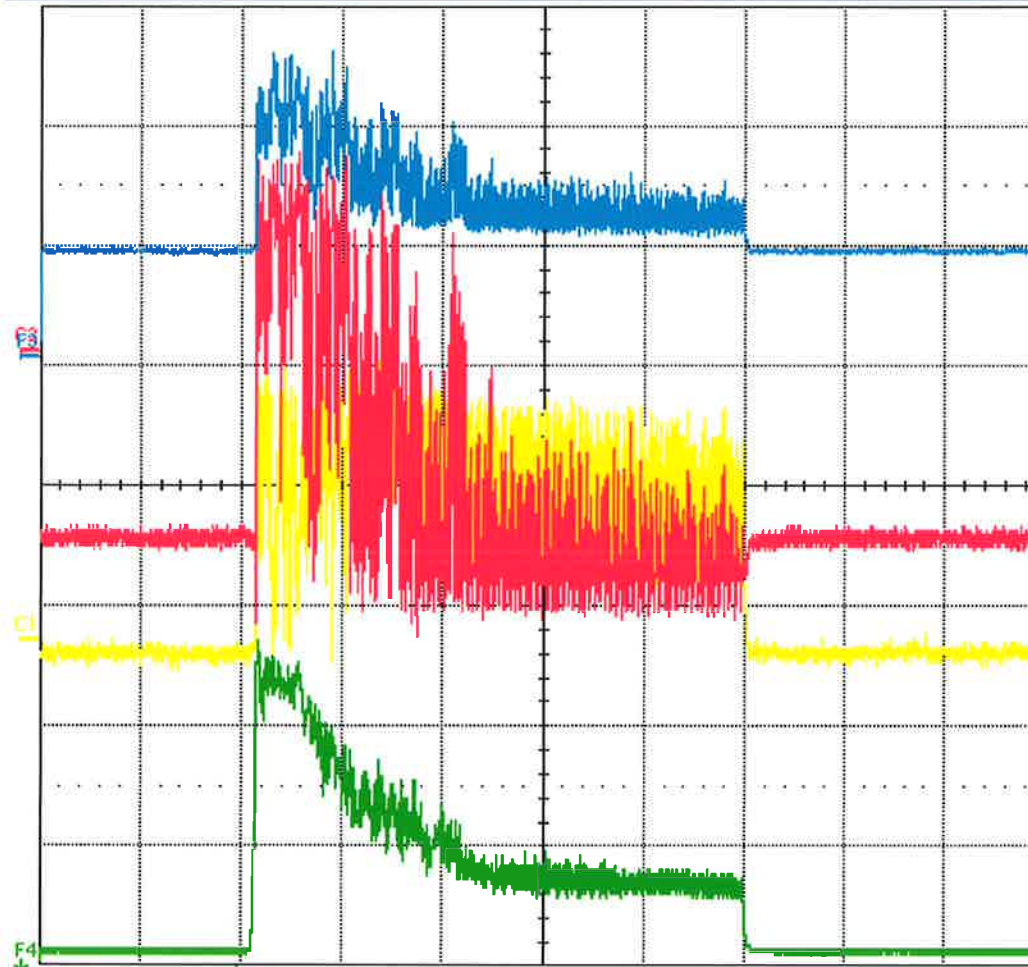


Ext10 DC 0.15 V 50Ω

10 MS/s

☐ NORMAL

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help



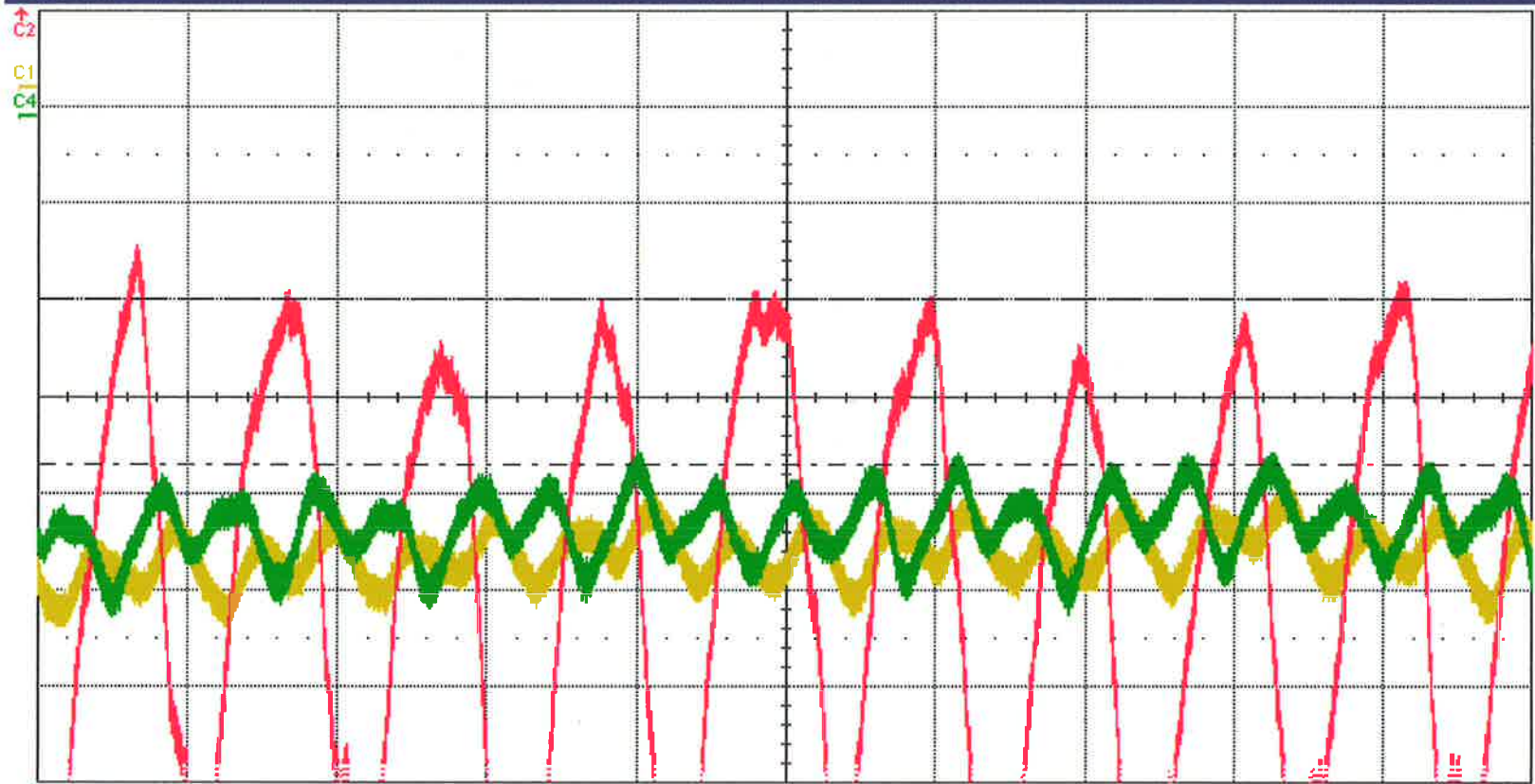
C1	FLT DC1M	C2	DC1M	F3	script(C1,C2)	F4	<F3>	XY	XF1 YF2
200 mV/div		200 mV/div		2.00/div		1.00/div		200 mV/div	
-256.0 mV		224.0 mV		1.00 ms/div		1.00 ms/div		200 mV/div	
						16 #		16 #	

Tbase	-3.04 ms	Trigger	C4 DC
1.00 ms/div		Normal	200 mV
10.0 kS	1.0 MS/s	Edge	Negative

LeCroy

2/5/2020 3:33:51 PM

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help



Measure
value
status

P1:mean(Z1)
-101.70 mV ✓

P2:mean(Z4)
-83.86 mV ✓

P3:mean(C1)
-95.79 mV ✓

P4:mean(C4)
-85.00 mV ✓

P5:phase(C1,C4)

P6:---

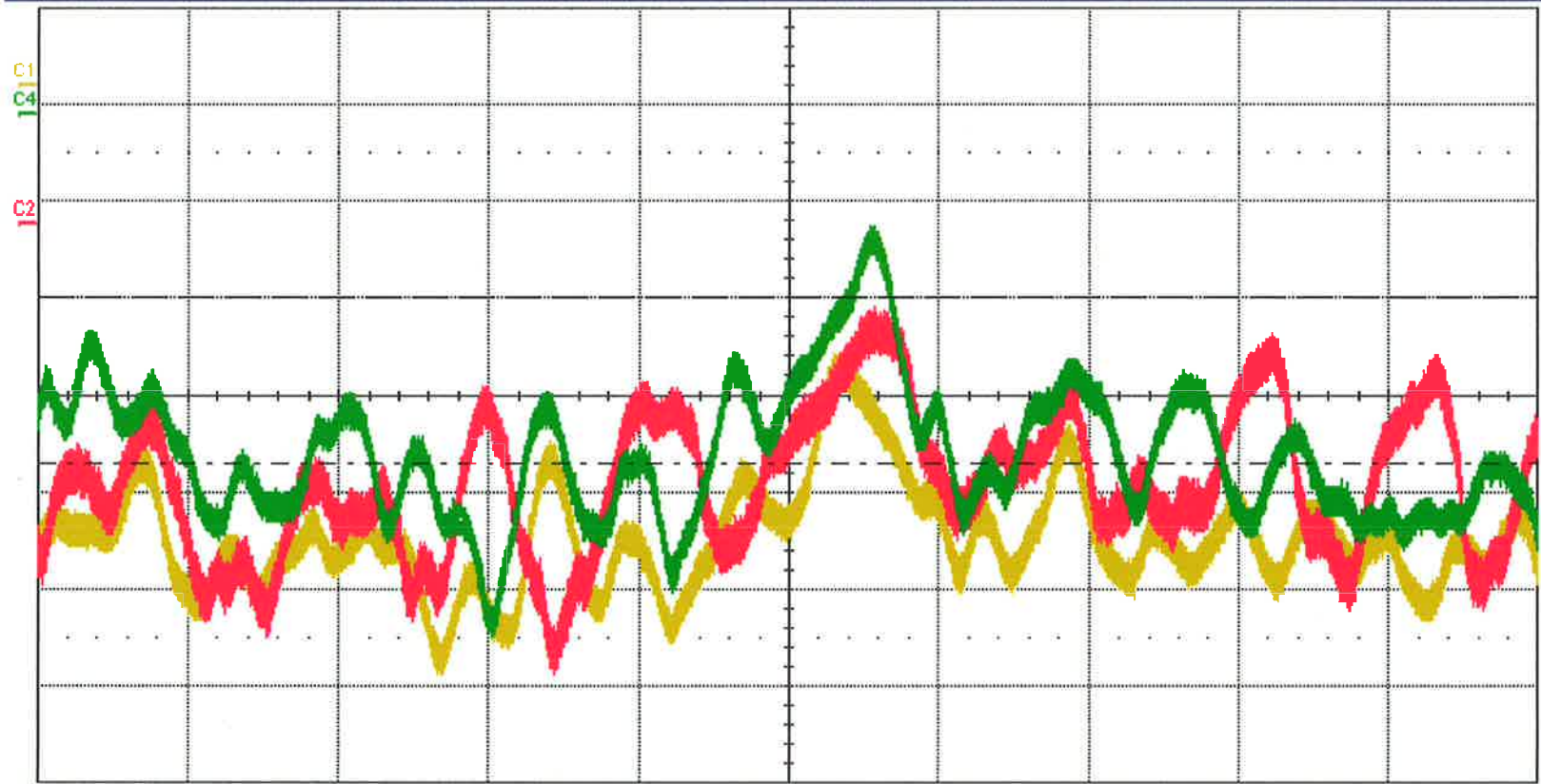
C1	C2	C4
DCIM	DCIM	DCIM
20.0 mV/div	200 mV/div	20.0 mV/div
64.00 mV ofst	880.0 mV ofst	58.00 mV ofst
---- -78.0 mV	---- -1.020 V	---- -72.0 mV
----- -44.0 mV	----- -680 mV	----- -38.0 mV
Δy 34.0 mV	Δy 340 mV	Δy 34.0 mV

tbase	-3.000 ms	Trigger	Ext/10 D.C
	50.0 μs/div	Normal	200 mV
500 kS	1.0 GS/s	Edge	Negative

LeCroy

2/5/2020 3:37:02 PM

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help



Measure
value
status

P1:mean(Z1)
-89.93 mV

P2:mean(Z4)
-62.10 mV

P3:mean(C1)
-95.72 mV

P4:mean(C4)
-72.53 mV

P5:phase(C1,C4)

P6:---

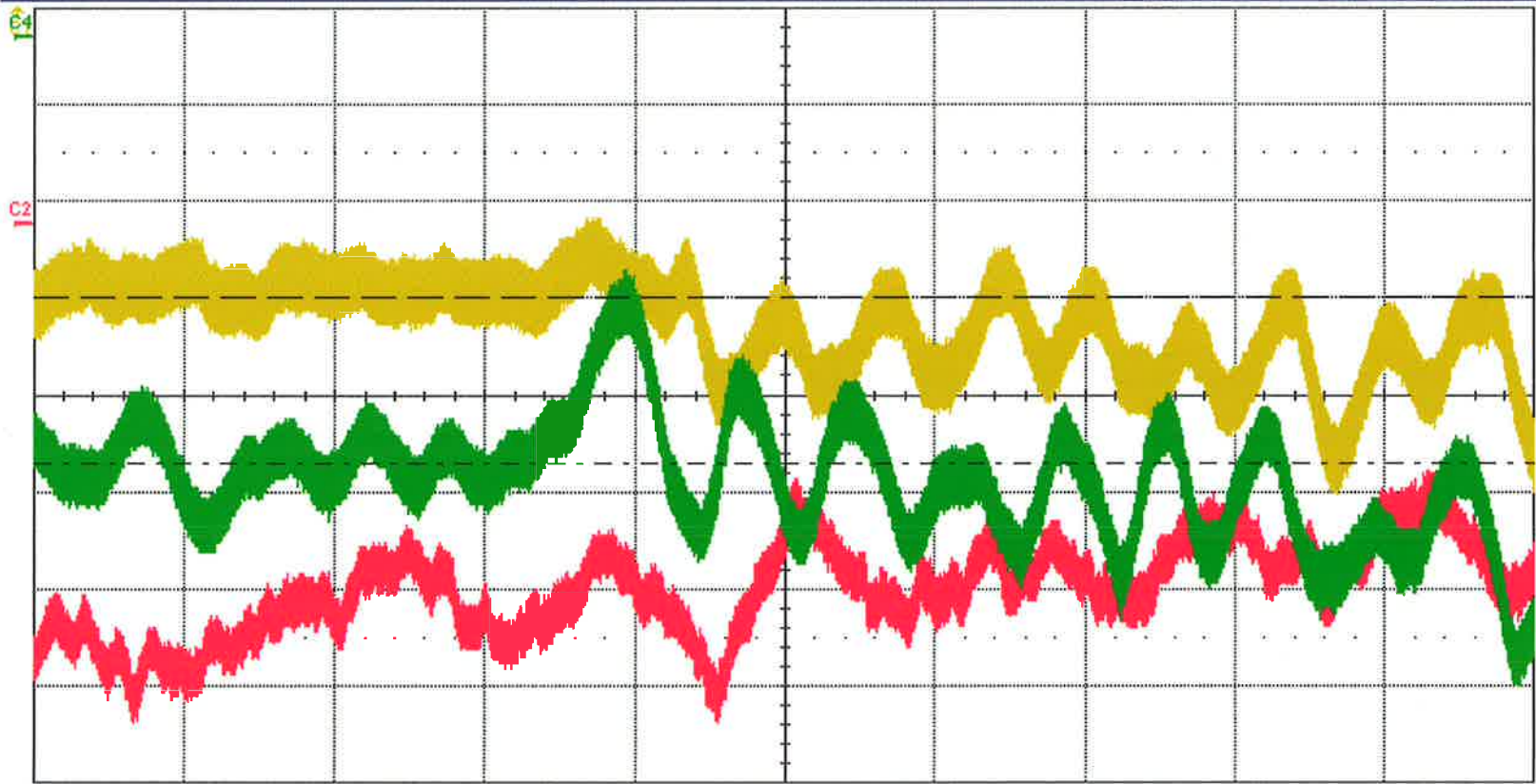
C1	C2	C4
DCIM	DCIM	DCIM
20.0 mV/div	500 mV/div	20.0 mV/div
64.00 mV ofst	800 mV offset	58.00 mV ofst
---- -78.0 mV	---- -1.236 V	---- -72.0 mV
---- -44.0 mV	---- -380 mV	---- -38.0 mV
Δy 34.0 mV	Δy 850 mV	Δy 34.0 mV

Tbase	-1.499 ms	Trigger	Ext/10 DC
	50.0 μs/div	Stop	200 mV
500 kS	1.0 GS/s	Edge	Negative

LeCroy

2/5/2020 3:37:55 PM

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help



Measure
value
status

P1:mean(Z1)
-60.08 mV ✓

P2:mean(Z4)
-22.69 mV ✓

P3:mean(C1)
-60.69 mV ✓

P4:mean(C4)
-20.90 mV ✓

P5:phase(C1,C4)
-91.85986729320 ° ✓

P6:---

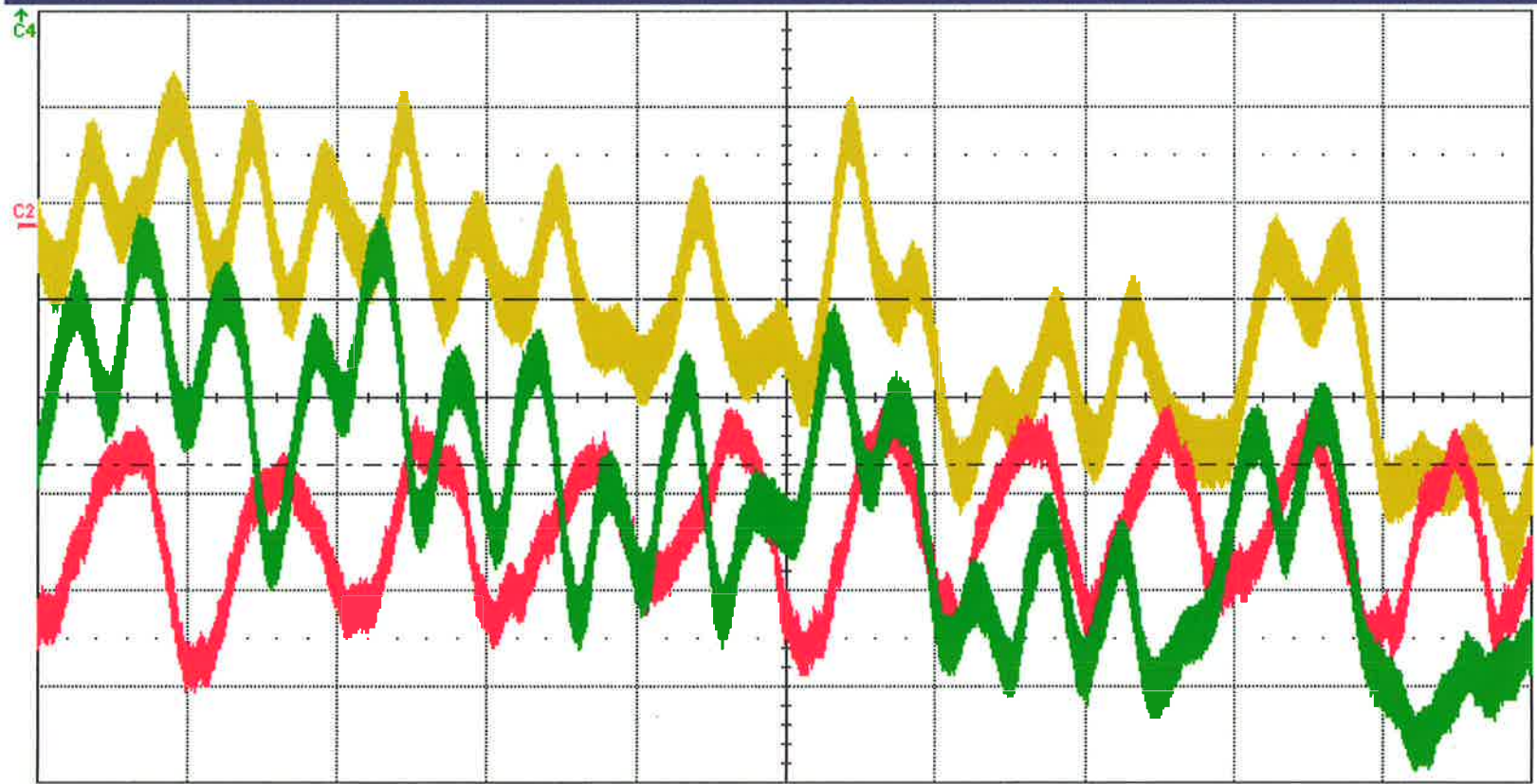
C1	C2	C4
DCIM	DCIM	DCIM
5.00 mV/div	500 mV/div	5.00 mV/div
64.00 mV ofst	880 mV offset	18.50 mV ofst
---- -67.50 mV	---- -1.230 V	---- -22.00 mV
----- -59.00 mV	----- -380 mV	----- -13.50 mV
Δy 8.50 mV	Δy 850 mV	Δy 8.50 mV

Timebase	-720 μs	Trigger	Ext/10 DC
	50.0 μs/div	Stop	200 mV
500 kS	1.0 GS/s	Edge	Negative

LeCroy

2/5/2020 3:39:43 PM

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help



Measure
value
status

P1:mean(Z1)
-78.46 mV ✓

P2:mean(Z4)
-44.83 mV ✓

P3:mean(C1)
-77.29 mV ✓

P4:mean(C4)
-44.22 mV ✓

P5:phase(C1,C4)

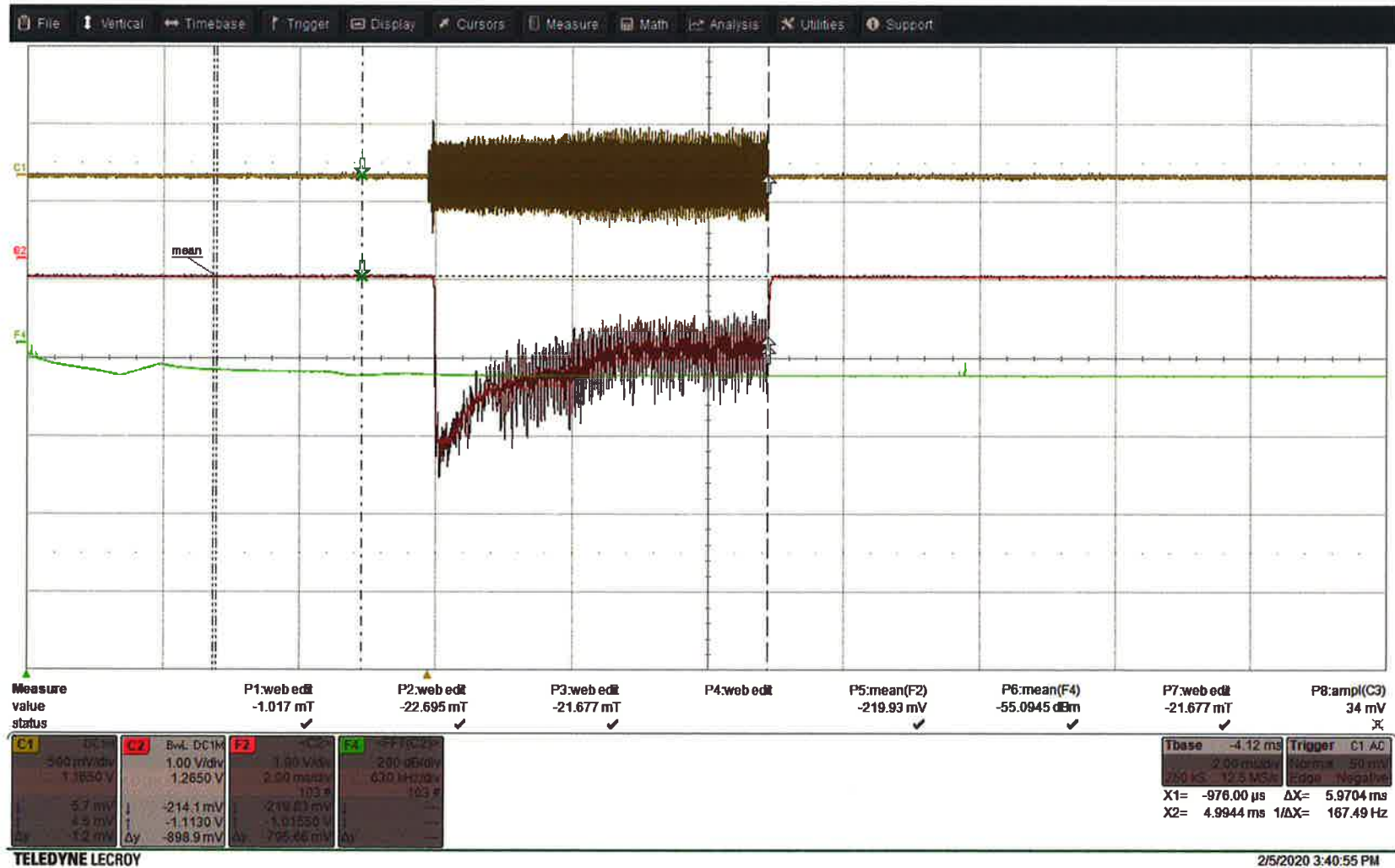
P6:---

C1	DCIM	C2	DCIM	C4	DCIM
5.00 mV/div	500 mV/div	5.00 mV/div	500 mV/div	5.00 mV/div	500 mV/div
81.50 mV ofst	880 mV offset	81.50 mV ofst	880 mV offset	36.50 mV ofst	36.50 mV ofst
----	-85.00 mV	----	-1.230 V	----	-42.00 mV
-----	-76.50 mV	-----	-380 mV	-----	-33.50 mV
Δy	8.50 mV	Δy	850 mV	Δy	8.50 mV

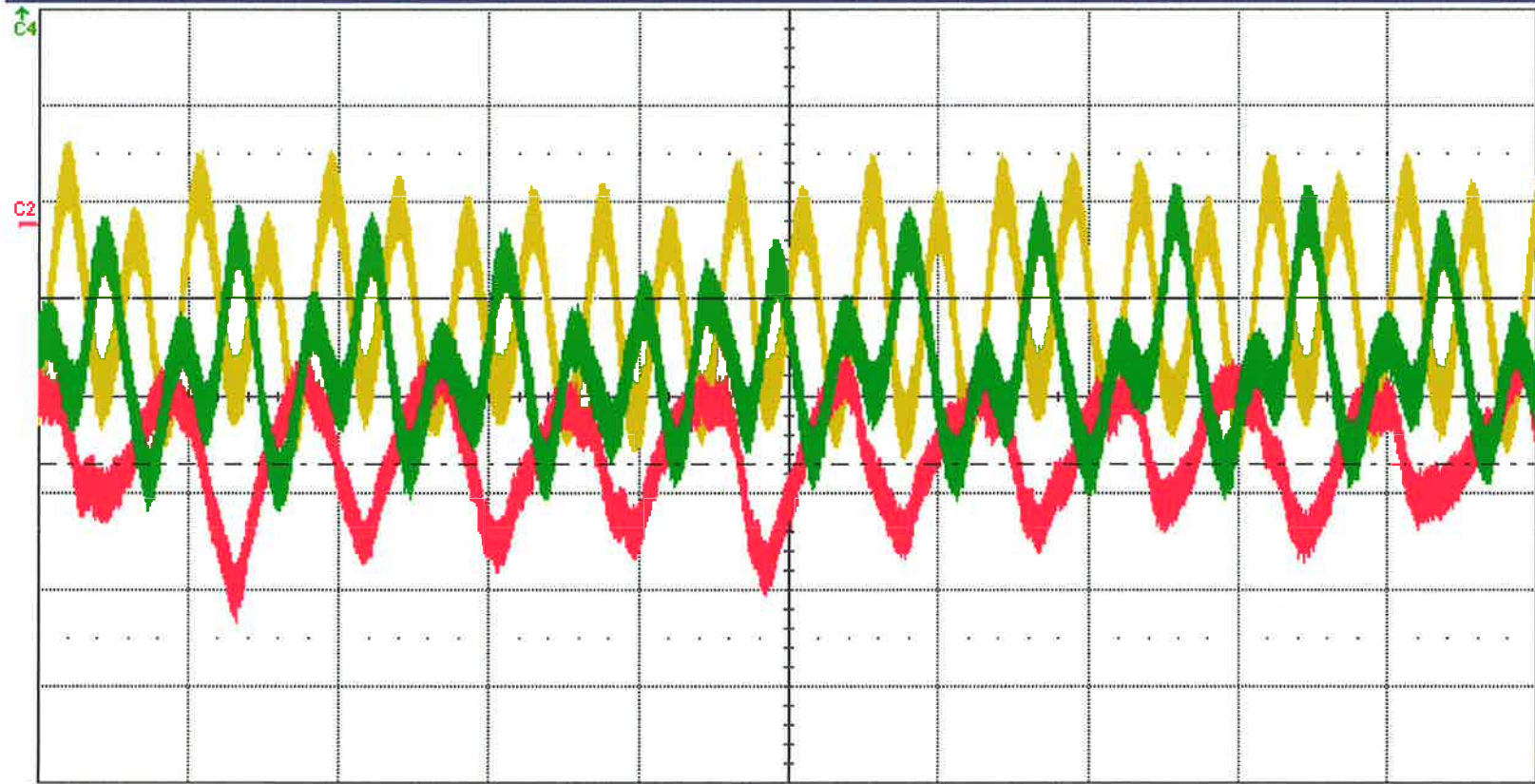
Tbase	-1.730 ms	Trigger	EM/10 DC
	50.0 μs/div	Stop	200 mV
500 kS	1.0 GS/s	Edge	Negative

LeCroy

2/5/2020 3:40:48 PM



File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help



Measure
value
status

P1:mean(Z1)
-79.08 mV

P2:mean(Z4)
-46.19 mV

P3:mean(C1)
-77.34 mV

P4:mean(C4)
-50.24 mV

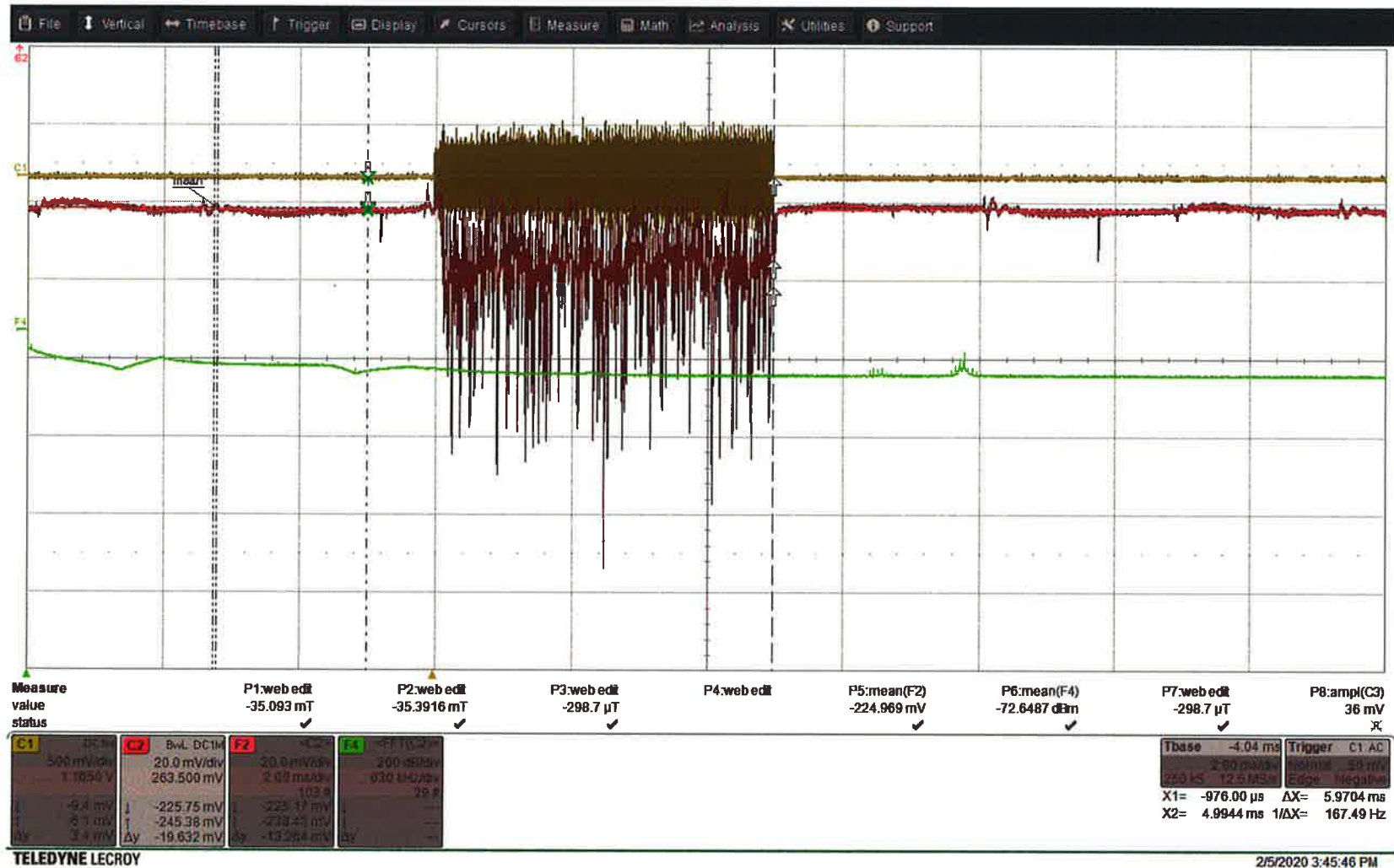
P5:phase(C1,C4)
149.85204714984 °

P6:---

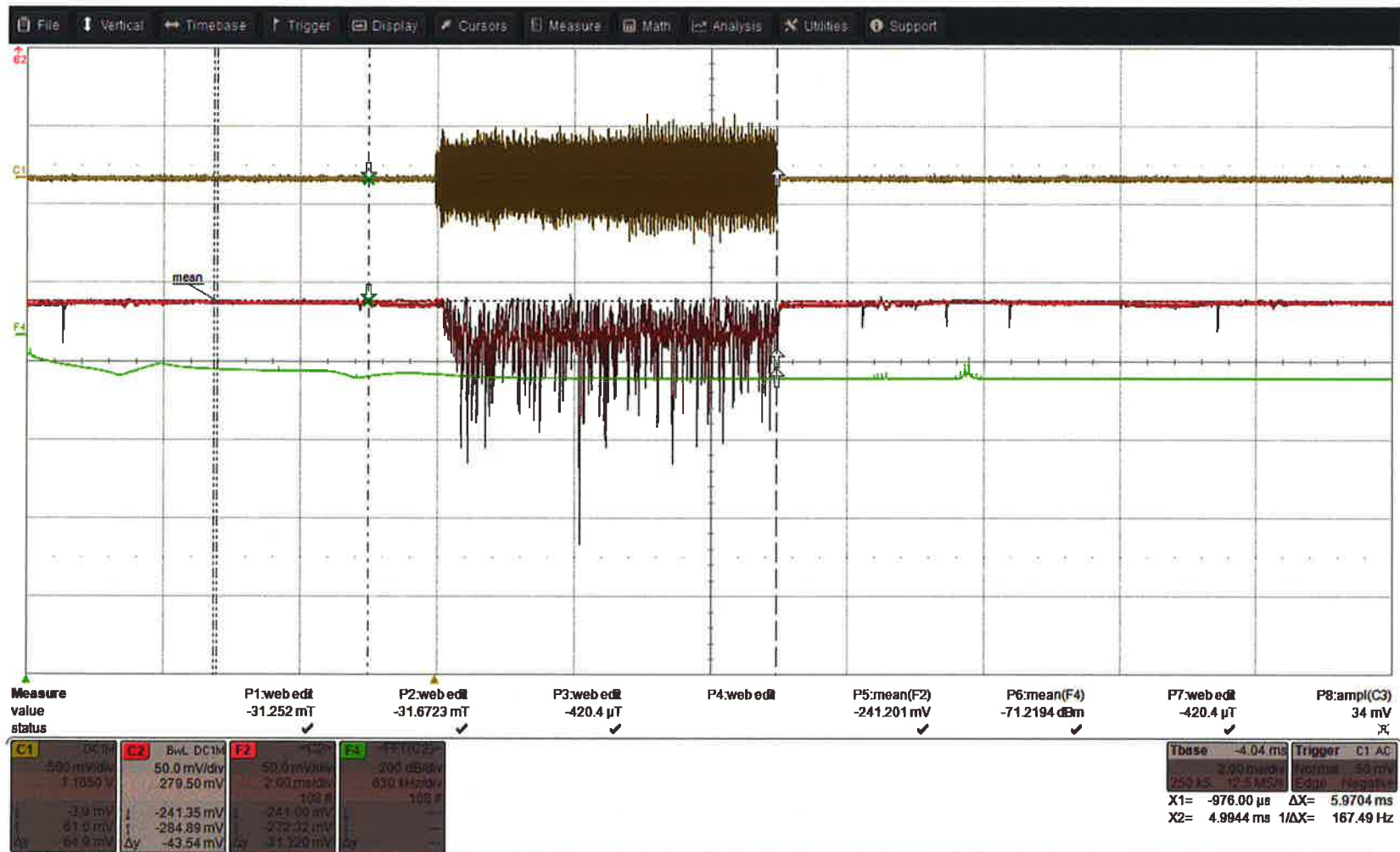
C1	DCIM	C2	DCIM	C4	DCIM
5.00 mV/div	500 mV/div	5.00 mV/div	500 mV/div	5.00 mV/div	500 mV/div
81.50 mV ofst	880 mV offset	81.50 mV ofst	880 mV offset	81.50 mV ofst	880 mV offset
---- -85.00 mV	---- -1.230 V	---- -85.00 mV	---- -1.230 V	---- -85.00 mV	---- -1.230 V
----- -76.50 mV	----- -360 mV	----- -76.50 mV	----- -360 mV	----- -76.50 mV	----- -360 mV
Δy 8.50 mV	Δy 850 mV	Δy 8.50 mV	Δy 850 mV	Δy 8.50 mV	Δy 850 mV

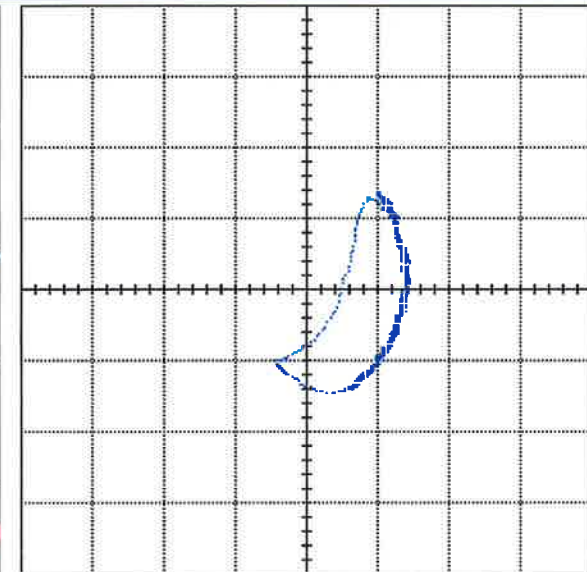
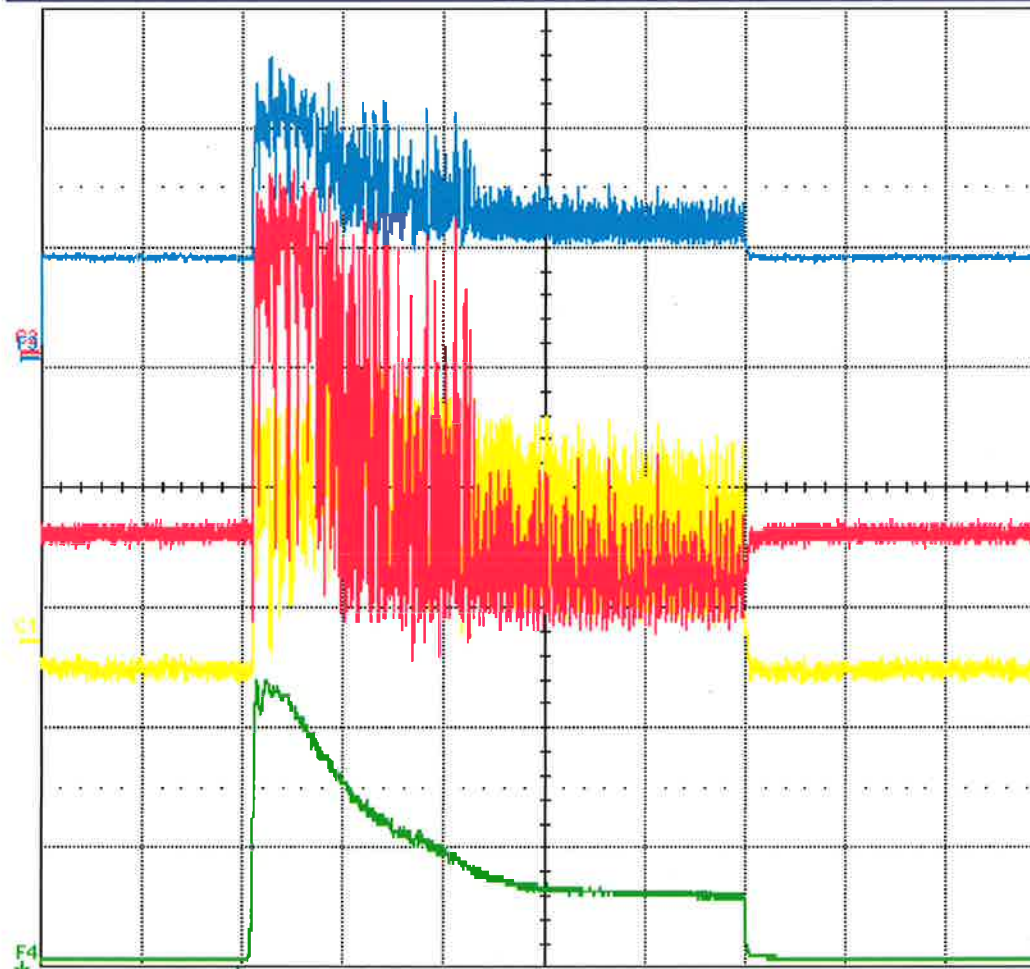
Tbase	-3.330 ms	Trigger	Ext/10 DC
	50.0 μs/div	Stop	200 mV
500 kS	1.0 GS/s	Edge	Negative

Hardcopy Complete



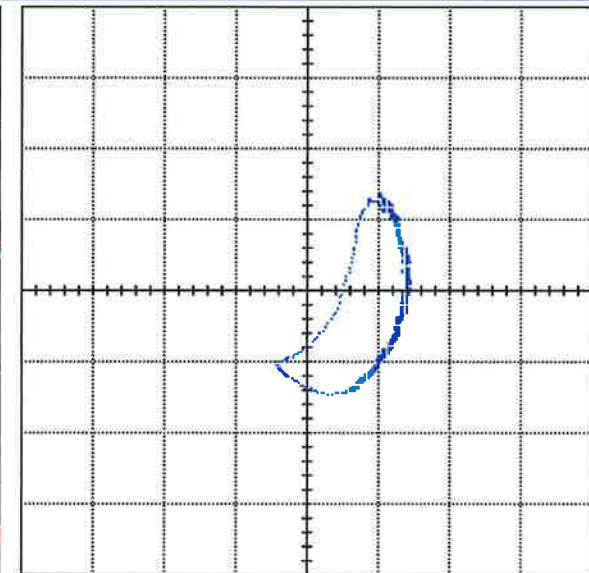
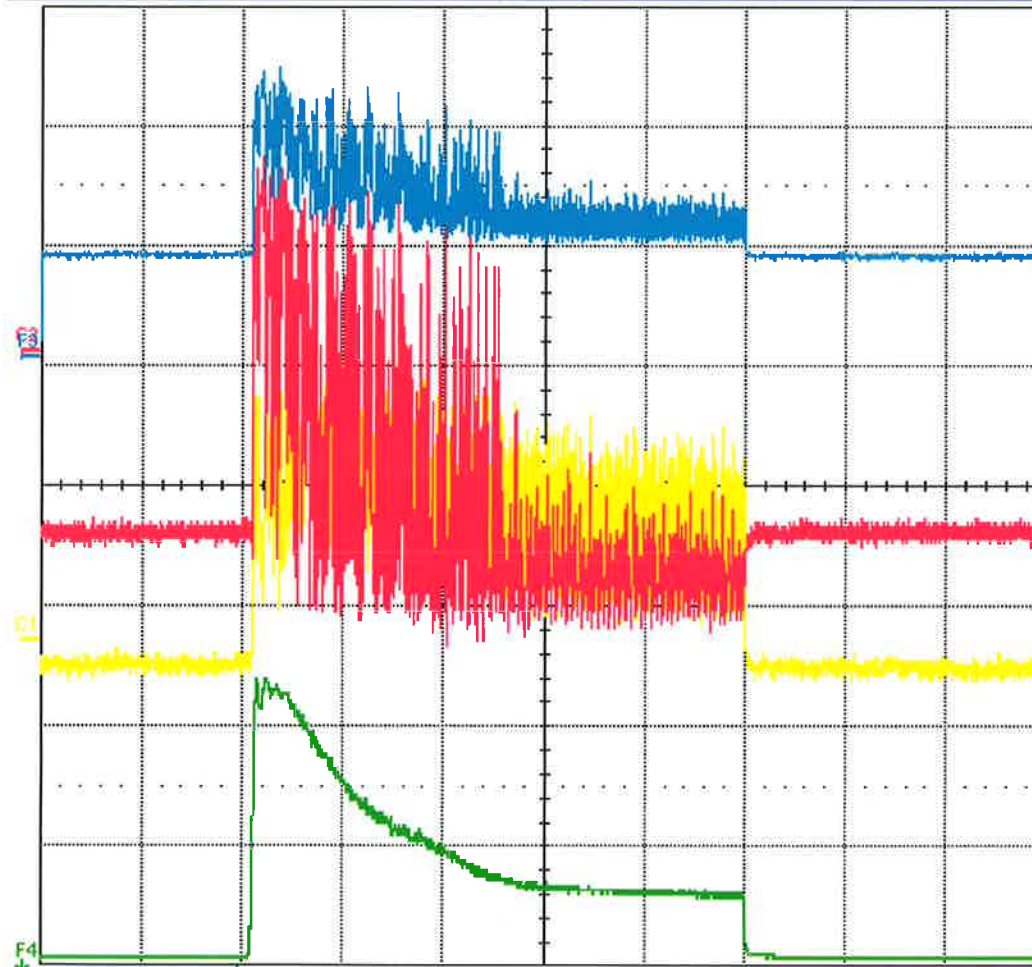
2/5/2020 3:45:46 PM





C1	FLT DC1M	C2	DC1M	F3	script(C1,C2)	F4	<F3>	XY	X F1 Y F2
200 mV/div	200 mV/div	200 mV/div	2.00/div	1.00/div	1.00/div	1.00/div	200 mV/div	200 mV/div	200 mV/div
-256.0 mV	224.0 mV	1.00 ms/div	467 #	467 #	467 #	467 #			

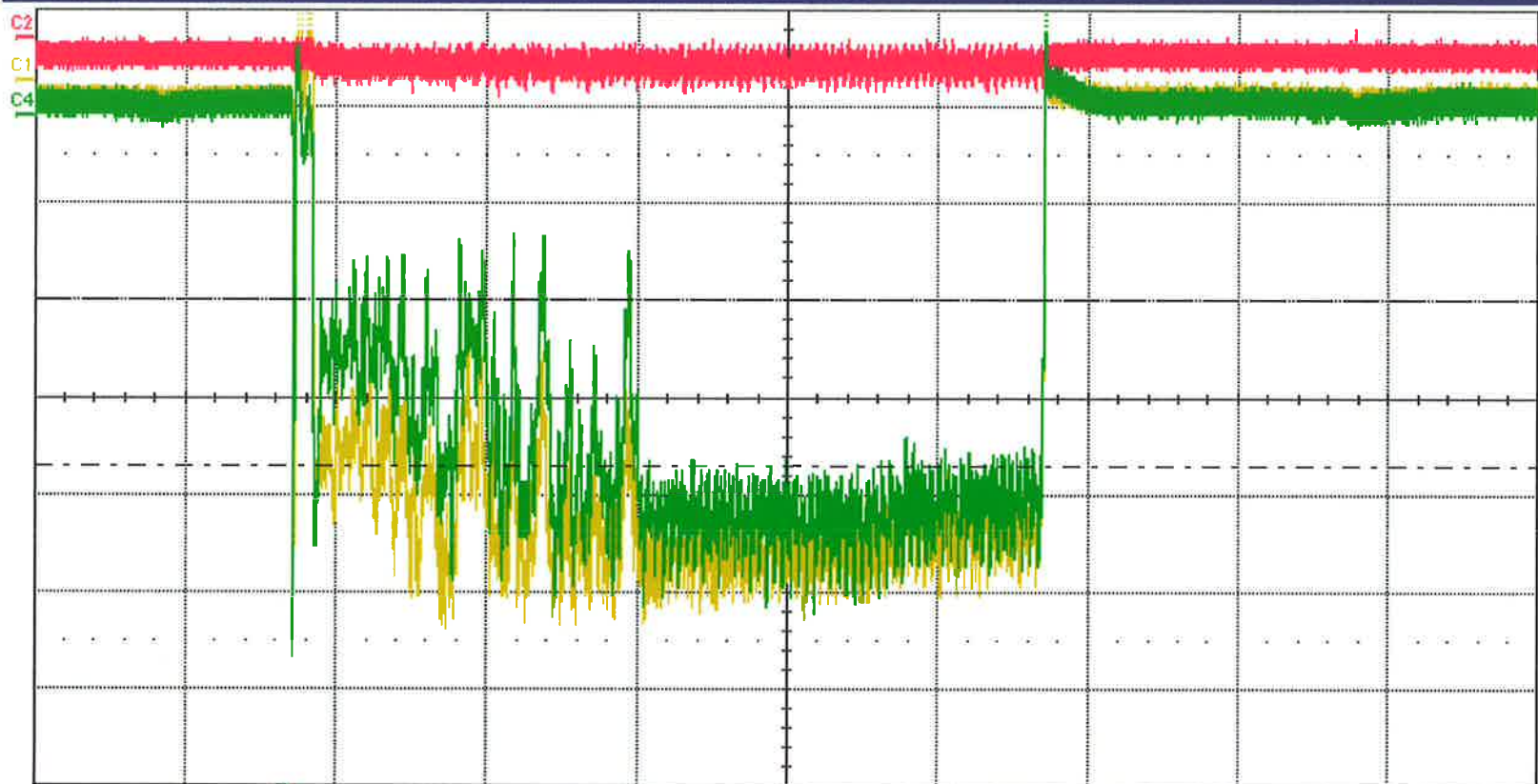
Tbase	-3.04 ms	Trigger	C4 DC
1.00 ms/div	Normal	200 mV	
10.0 kS	1.0 MS/s	Edge	Negative



C1	FLT DC1M	C2	DC1M	F3	script(C1,C2)	F4	<F3>	XY	X F1 Y F2
200 mV/div		200 mV/div		2.00/div		1.00/div		200 mV/div	
-256.0 mV		224.0 mV		1.00 ms/div		1.00 ms/div		200 mV/div	
						480 #		480 #	

Tbase	-3.04 ms	Trigger	C4 DC
1.00 ms/div		Normal	200 mV
10.0 kS	1.0 MS/s	Edge	Negative

File Vertical Timebase Trigger Display Cursors Measure Math Analysis Utilities Help



Measure
value
status

P1:mean(Z1)
-96.02 mV

P2:mean(Z4)
-83.11 mV

P3:mean(C1)
-97.10 mV

P4:mean(C4)
-82.98 mV

P5:phase(C1,C4)
-108.7621291238 °

P6:---

C1	DCIM	C2	DCIM	C4	DCIM
20.0 mV/div	2.00 V/div	20.0 mV/div	2.00 V/div	20.0 mV/div	2.00 V/div
65.00 mV ofst	7.400 V offset	65.00 mV ofst	7.400 V offset	65.00 mV ofst	7.400 V offset
---- -79.0 mV	---- -8.80 V	---- -79.0 mV	---- -8.80 V	---- -79.0 mV	---- -8.80 V
----- -45.0 mV	----- -5.40 V	----- -45.0 mV	----- -5.40 V	----- -45.0 mV	----- -5.40 V
Δy 34.0 mV	Δy 3.40 V	Δy 34.0 mV	Δy 3.40 V	Δy 34.0 mV	Δy 3.40 V

Timebase	-3.32 ms	Trigger	Ext/10 DC
1.00 MS	100 MS/s	Normal	200 mV
		Edge	Negative

LeCroy

2/5/2020 3:53:04 PM

5-Feb-20
15:52:59

1
1 ms
0.50 V

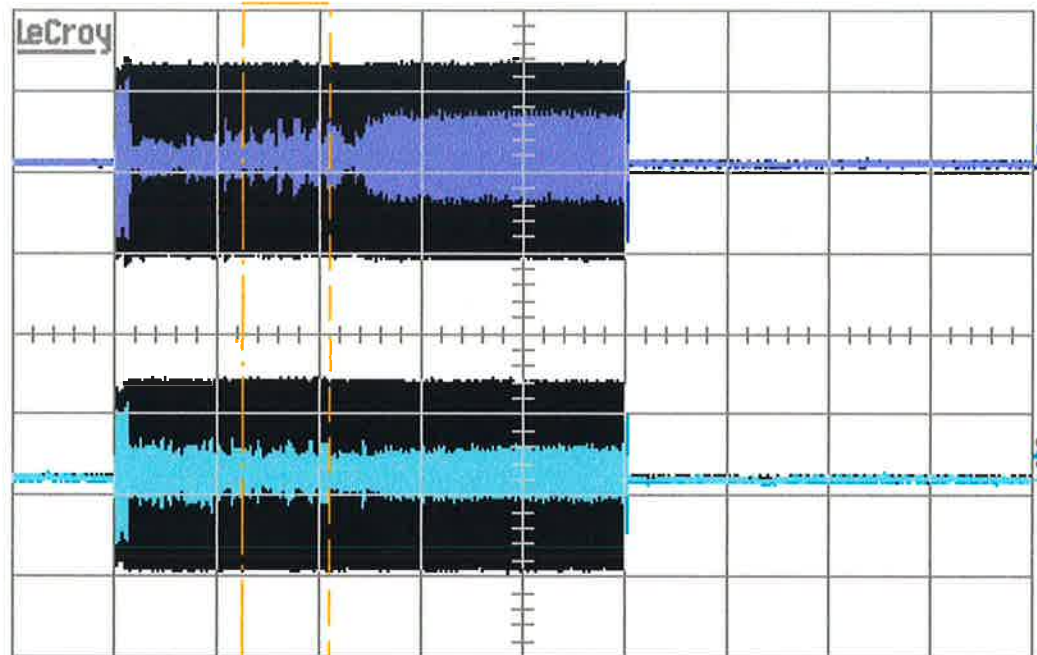
2
1 ms
200 mV

3
1 ms
0.50 V

4
1 ms
200 mV

1 ms

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



2794 sweeps:

	average	low	high	sigma
rms(1)	417.6mV	411.9	431.2	2.3
rms(2)	34.5mV	19.6	53.6	5.1
rms(3)	400.9mV	395.9	411.1	3.4
rms(4)	40.7mV	26.6	66.0	5.2
phase(1,3)	-3 °	-146	133	88



Ext10 DC 0.15 V 50Ω

10 MS/s

☐ NORMAL