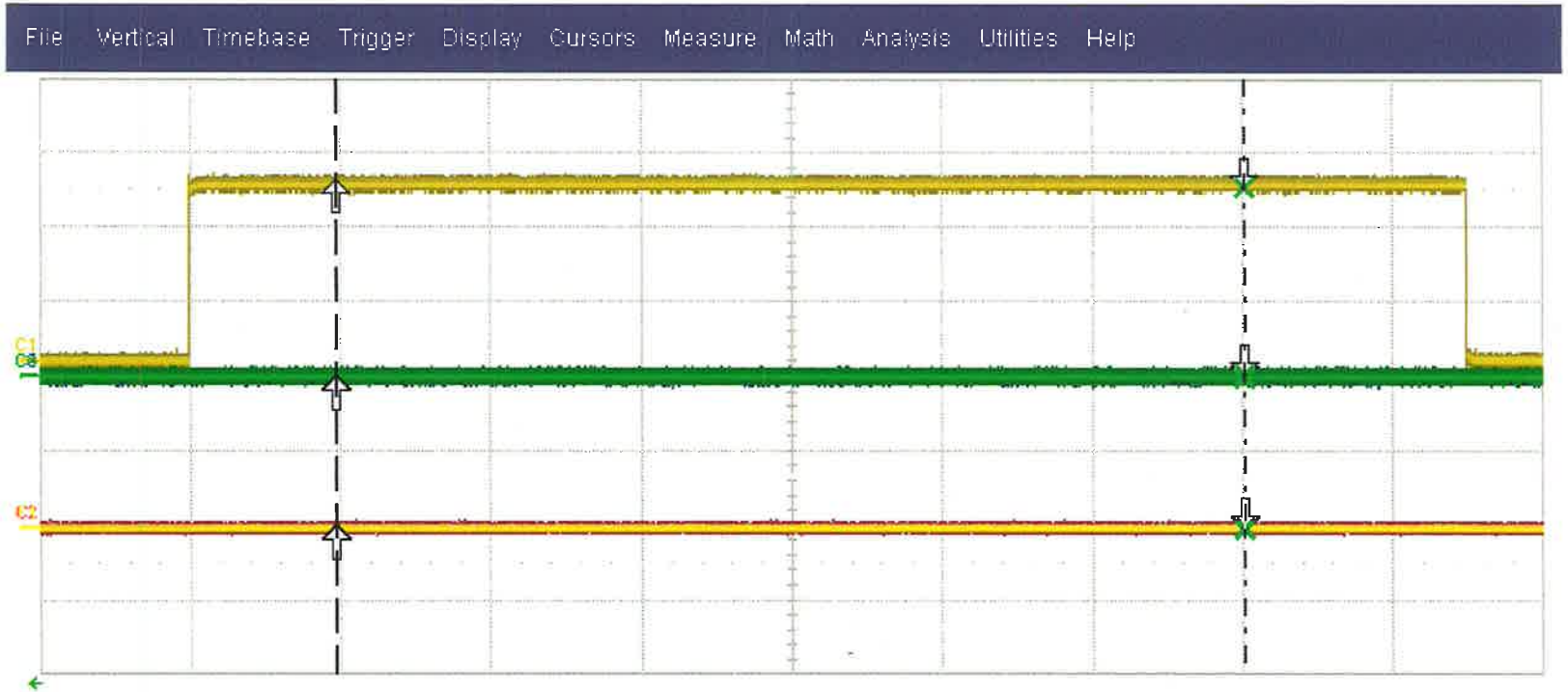


Measure	P1:mean(C4)	P2:rms(C4)	P3:pkpk(C3)	P4:pkpk(C4)	P5:ampl(C2)	P6:- - -	P7:- - -	P8:- - -
value			512 mV	512 mV				
mean			495.98 mV	511.98034 mV				
min			448 mV	512 mV				
max			512 mV	512 mV				
sdev			27.71 mV	0 V				
num			4	4				
status			✔	✔				

C1 DC1M
2.00 V/div
420 mV ofst
↓ 4.764 V
↑ 4.738 V
Δy -26 mV

C2 BwL DC1M
100 V/div
-202.0 V ofst
↓ 400 mV
↑ -4.7 V
Δy -5.1 V

C3 DC1M
2.00 V/div
0 mV offset
↓ -26 mV
↑ -64 mV
Δy -38 mV

C4 DC1M
2.00 V/div
0 mV offset
↓ -38 mV
↑ 0 mV
Δy 38 mV

F1 <C2>
100 V/div
200 µs/div
5 #
↓ -870 mV
↑ -2.15 V
Δy -1.28 V

Tbase -1.784 ms
200 µs/div
1.00 MS 500 MS/s

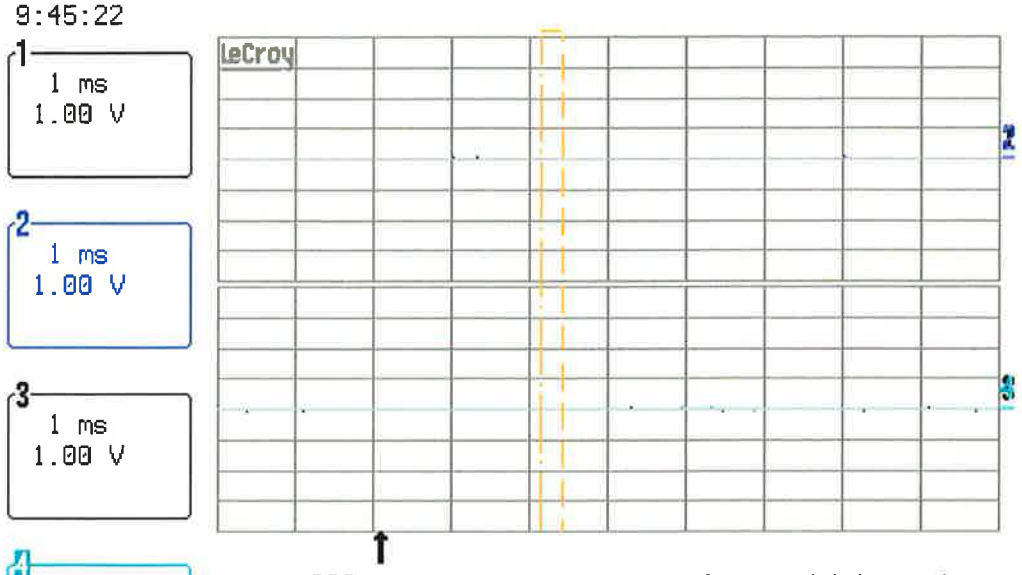
Trigger Ext/10 DC
Normal 0.00 V
Edge Positive

X1= 2.385806 ms ΔX= -1.206874 ms
X2= 1.178932 ms 1/ΔX= -828.587 Hz

TELEDYNE LECROY

11/18/2016 9:44:13 AM

18-Nov-16
9:45:22



323 sweeps:	average	low	high	sigma
rms(1)	19mV	18	21	0
rms(2)	21mV	20	22	0
rms(3)	21mV	20	22	0
rms(4)	21mV	20	22	0
phase(1,3)	- - -	- - -	- - -	- - -

1 ms

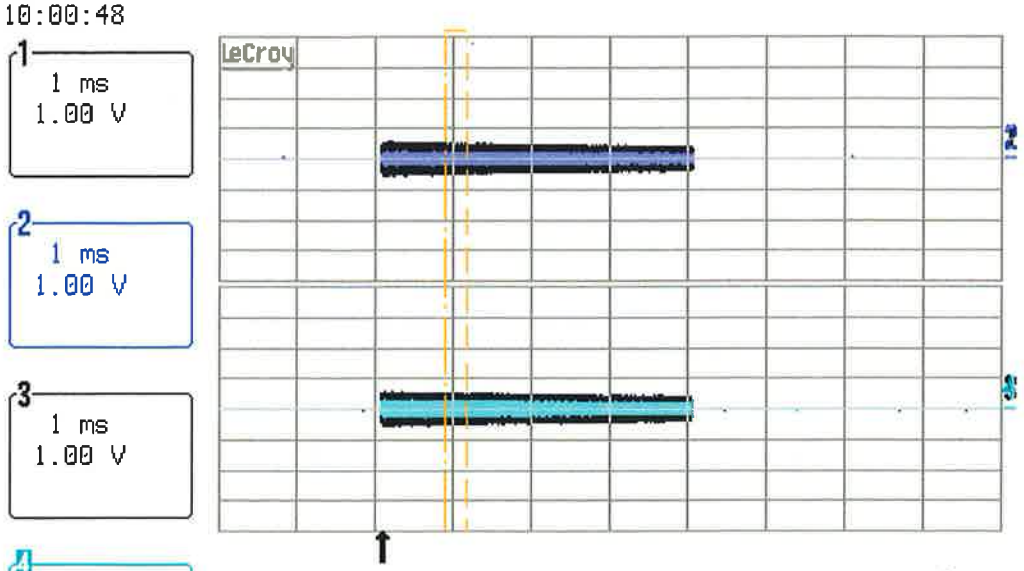
1 1 V AC
2 1 V AC
3 1 V AC
4 1 V AC

Ext10 DC 0.05 V 1MΩ

10 MS/s

NORMAL

18-Nov-16
10:00:48



	21 sweeps:	average	low	high	sigma
rms(1)		357mV	343	380	11
rms(2)		150mV	144	159	5
rms(3)		363mV	349	386	11
rms(4)		180mV	172	192	6
phase(1,3)		30.78 °	-330.02	257.50	87.77

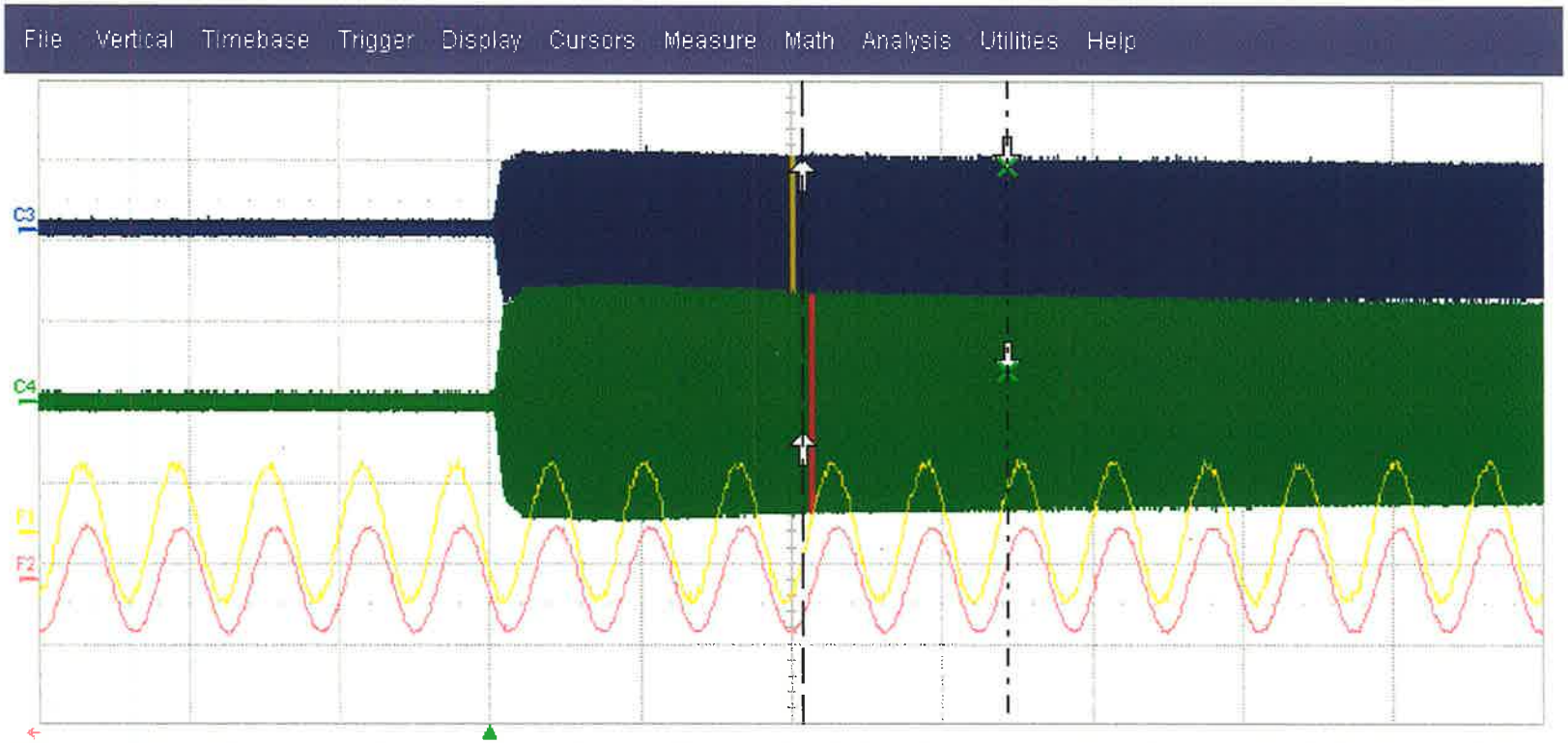
1 ms

1 1 V AC
2 1 V AC
3 1 V AC
4 1 V AC

Ext10 DC 0.05 V 1MΩ

10 MS/s

NORMAL



Measure	P1:mean(C4)	P2:phase(C4...	P3:pkpk(C3)	P4:pkpk(C4)	P5:ampl(C2)	P6:- - -	P7:- - -	P8:- - -
value		80.86737867 °	2.05 V	2.94 V				
mean		85.329 °	1.99623 V	2.88974 V				
min		-139.403607 °	1.92 V	2.78 V				
max		107.2182748 °	2.11 V	3.01 V				
sdev		2.619 °	55.48 mV	68.04 mV				
num		145.077e+3	13	13				
status		⚠	✔	✔				

C3 DC50
1.00 V/div
2.140 V ofst
791 mV
862 mV

C4 DC50
1.00 V/div
0 mV offset
402 mV
-391 mV

F1 zoom(C3)
1.00 V/div
200 ns/div

F2 zoom(C4)
2.00 V/div
200 ns/div

Timebase -400 µs
200 µs/div
1.00 MS 500 MS/s

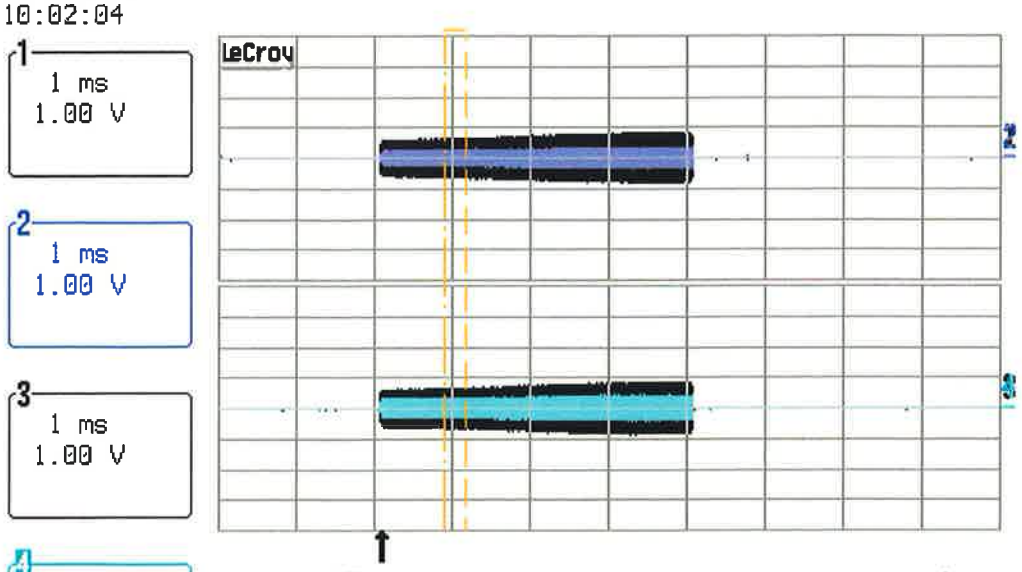
Trigger Ext/10 DC
Normal 0.00 V
Edge Positive

X1= 686.032 µs ΔX= -271.640 µs
X2= 414.392 µs 1/ΔX= -3.68134 kHz

TELEDYNE LECROY

11/18/2016 10:00:52 AM

18-Nov-16
10:02:04



17 sweeps:	average	low	high	sigma
rms(1)	550mV	466	579	35
rms(2)	228mV	193	240	15
rms(3)	560mV	474	591	36
rms(4)	277mV	238	291	17
phase(1,3)	-85 °	-93	137	13

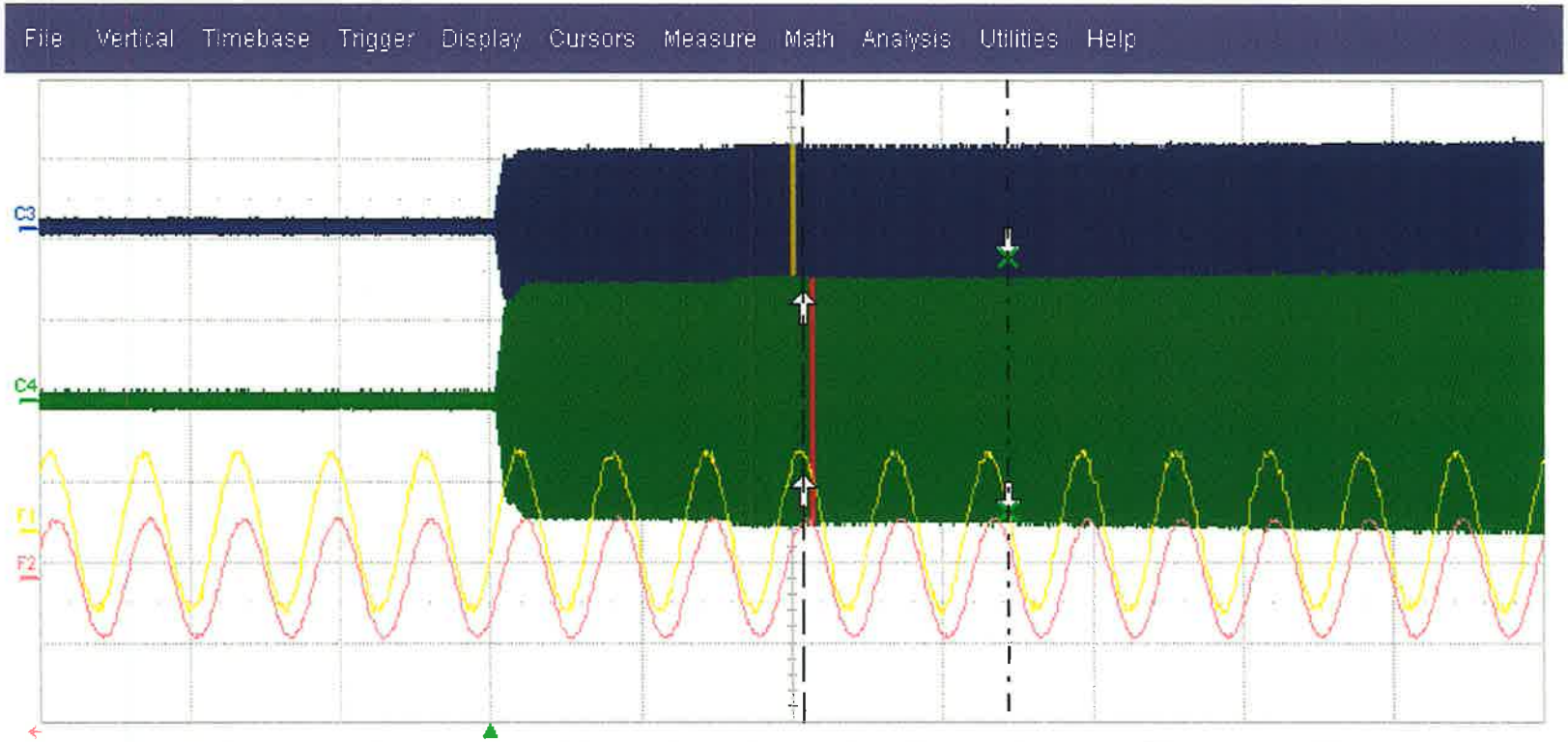
1 ms

1	1	V	AC
2	1	V	AC
3	1	V	AC
4	1	V	AC

Ext10 DC 0.05 V 1MΩ

10 MS/s

NORMAL



Measure	P1:mean(C4)	P2:phase(C4...	P3:pkpk(C3)	P4:pkpk(C4)	P5:ampl(C2)	P6:- - -	P7:- - -	P8:- - -
value		83.31066554 °	2.24 V	3.30 V				
mean		85.415 °	2.5359 V	3.7519 V				
min		-133.821597 °	2.24 V	3.30 V				
max		107.5372719 °	2.78 V	4.16 V				
sdev		2.173 °	205.4 mV	319.5 mV				
num		44.617e+3	4	4				
status		⚠	✔	✔				

C3 DC50
1.00 V/div
2.140 V ofst
-362 mV
-791 mV

C4 DC50
1.00 V/div
0 mV offset
-1.362 V
-938 mV

F1 zoom(C3)
1.00 V/div
200 ns/div

F2 zoom(C4)
2.00 V/div
200 ns/div

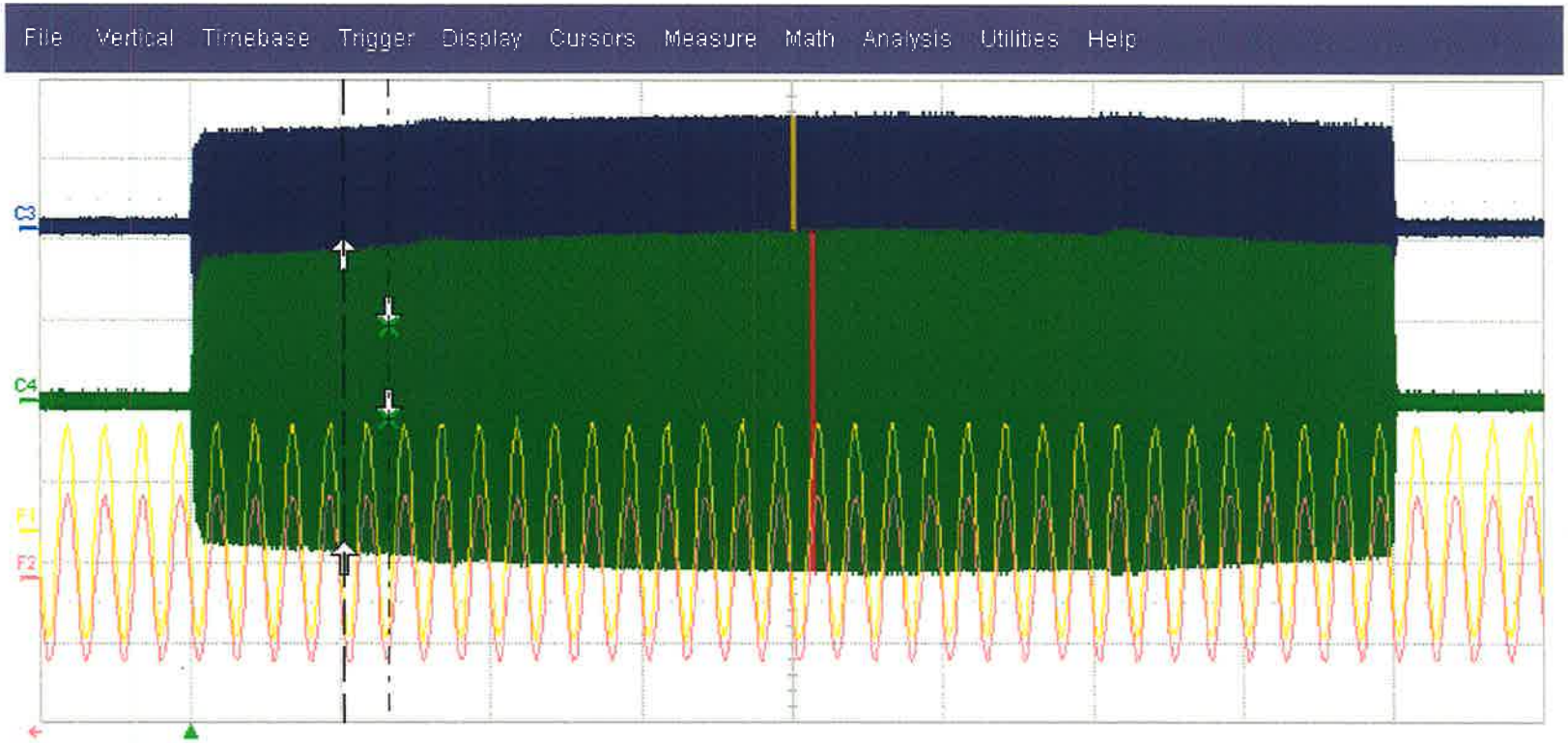
Timebase -400 µs
200 µs/div
1.00 MS 500 MS/s

Trigger Ext/10 DC
Normal 0.00 V
Edge Positive

X1= 686.032 µs ΔX= -271.640 µs
X2= 414.392 µs 1/ΔX= -3.68134 kHz

11/18/2016 10:02:08 AM

TELEDYNE LECROY



Measure	P1:mean(C4)	P2:phase(C4...	P3:pkpk(C3)	P4:pkpk(C4)	P5:ampl(C2)	P6:- - -	P7:- - -	P8:- - -
value		49.58041880 °	2.88 V	4.35 V				
mean		85.733 °	2.89589 V	4.36783 V				
min		-156.404229 °	2.88 V	4.35 V				
max		104.6640393 °	2.91 V	4.38 V				
sdev		2.248 °	16.00 mV	16.00 mV				
num		64.113e+3	2	2				
status		⚠	✔	✔				

C3 DC50
1.00 V/div
2.140 V ofst
-1.201 V
-125 mV

C4 DC50
1.00 V/div
0 mV offset
-210 mV
-1.768 V

F1 zoom(C3)
1.00 V/div
500 ns/div

F2 zoom(C4)
2.00 V/div
500 ns/div

Tbase -2.00 ms
500 µs/div
1.00 MS 200 MS/s

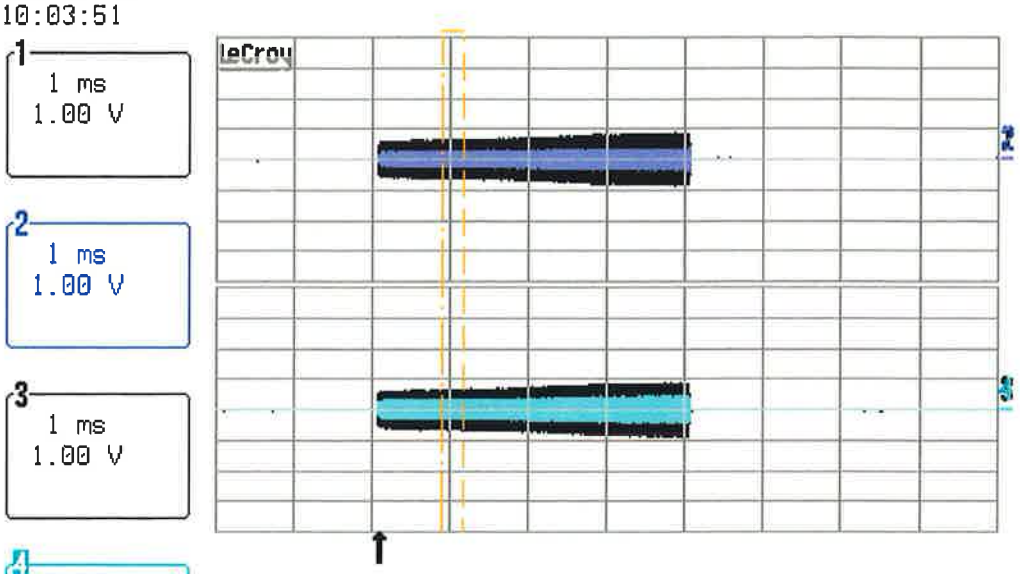
Trigger Ext/10 DC
Normal 0.00 V
Edge Positive

X1= 661.450 µs ΔX= -149.435 µs
X2= 512.015 µs 1/ΔX= -6.6919 kHz

TELEDYNE LECROY

11/18/2016 10:03:48 AM

18-Nov-16
10:03:51



10 sweeps:	average	low	high	sigma
rms(1)	530mV	454	607	56
rms(2)	221mV	189	252	23
rms(3)	540mV	464	617	57
rms(4)	267mV	232	303	27
phase(1,3)	-85 °	-96	139	14

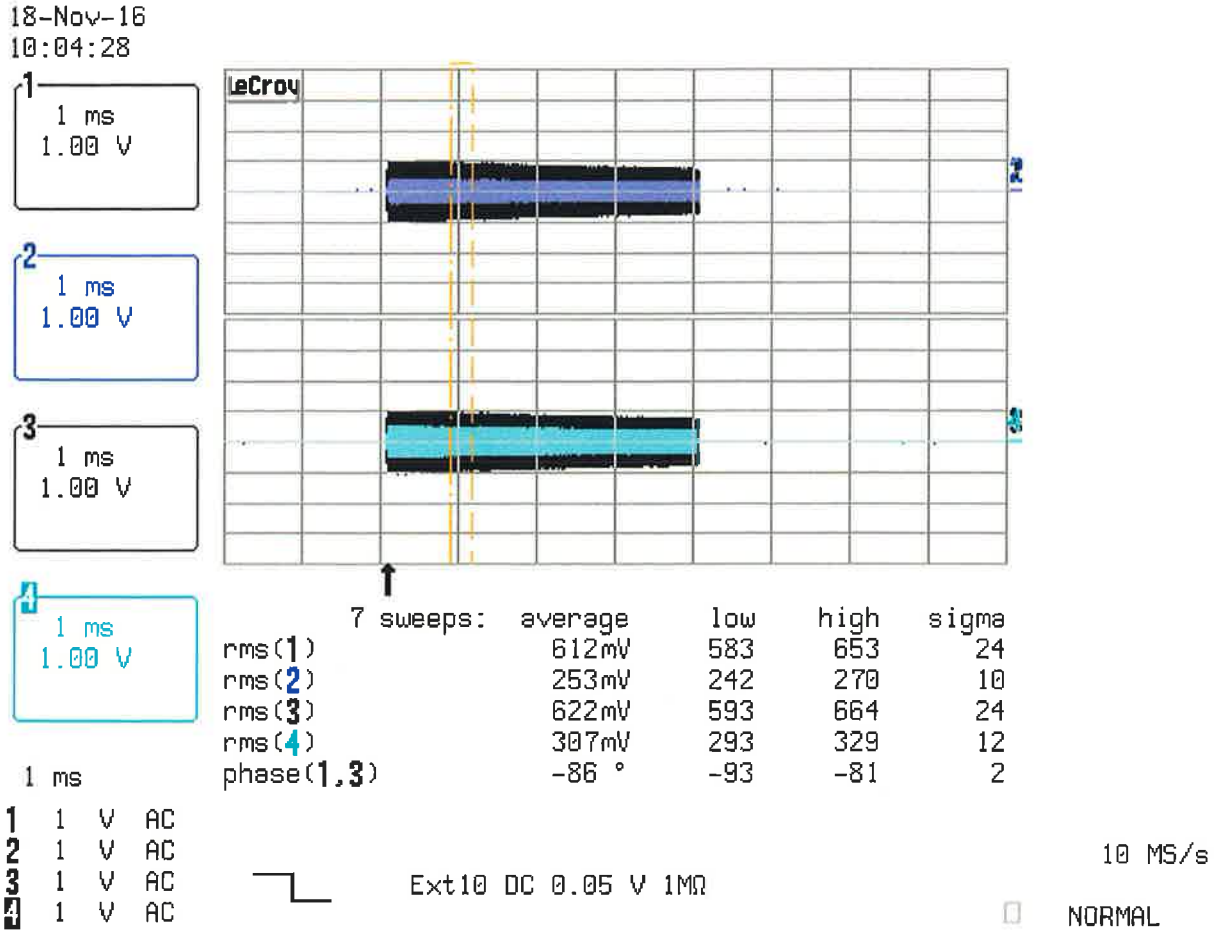
1 ms

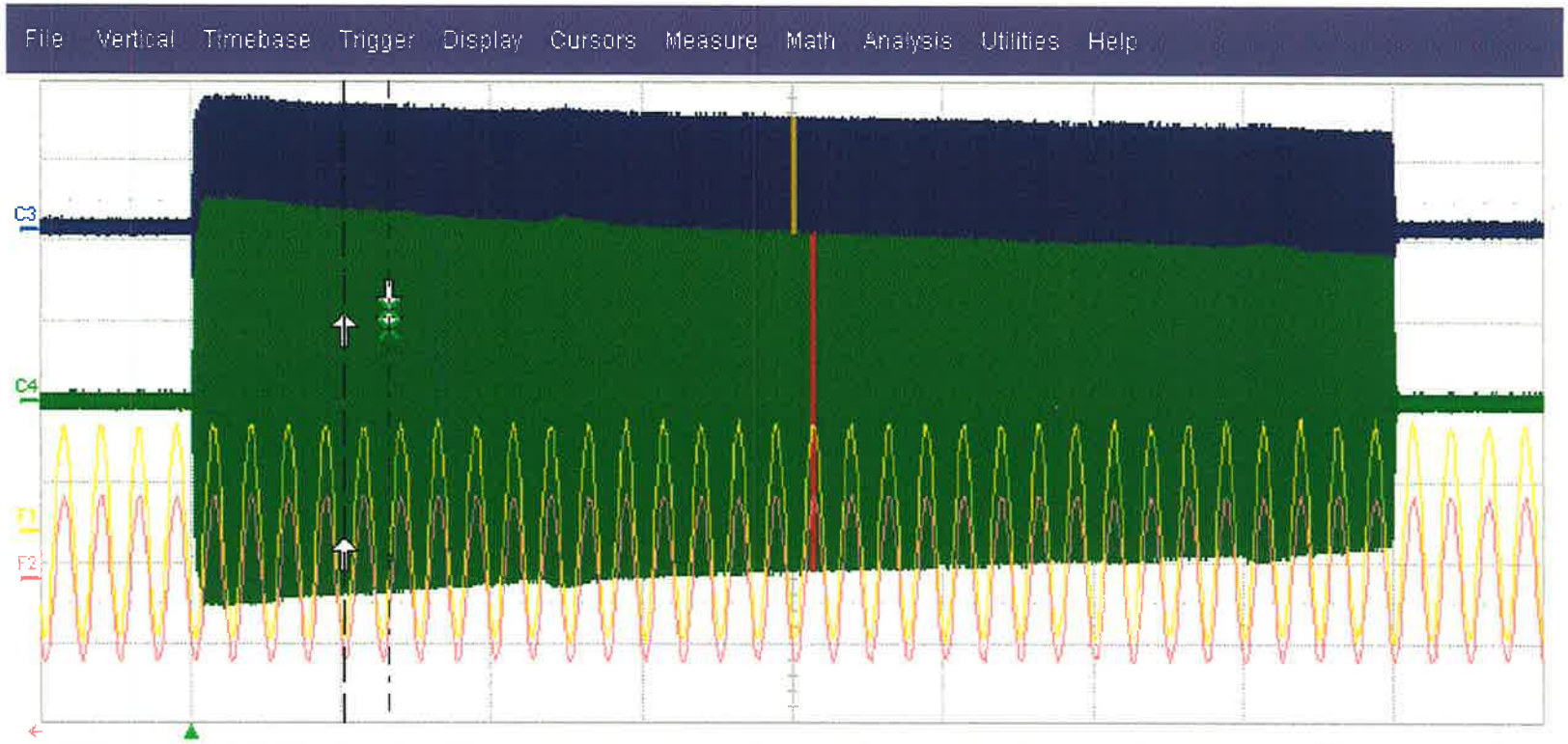
1	1	V	AC
2	1	V	AC
3	1	V	AC
4	1	V	AC

Ext10 DC 0.05 V 1MΩ

10 MS/s

NORMAL


18-Nov-16
10:04:28
LeCroy
1 ms
1.00 V
2
1 ms
1.00 V
3
1 ms
1.00 V
4
1 ms
1.00 V
7 sweeps: average low high sigma
rms(1) 612mV 583 653 24
rms(2) 253mV 242 270 10
rms(3) 622mV 593 664 24
rms(4) 307mV 293 329 12
phase(1,3) -86 ° -93 -81 2
1 ms
1 1 V AC
2 1 V AC
3 1 V AC
4 1 V AC
Ext10 DC 0.05 V 1MΩ
10 MS/s
NORMAL



Measure	P1:mean(C4)	P2:phase(C4...	P3:pkpk(C3)	P4:pkpk(C4)	P5:ampl(C2)	P6:- - -	P7:- - -	P8:- - -
value		44.56421950 °	3.36 V	5.09 V				
mean		85.625 °	3.0079 V	4.5038 V				
min		44.56421950 °	2.75 V	4.10 V				
max		105.9304250 °	3.36 V	5.09 V				
sdev		1.889 °	227.4 mV	367.9 mV				
num		128.203e+3	4	4				
status			⚠	✔				

C3 DC50
1.00 V/div
2.140 V ofst
↓ -1.224 V
↑ -1.068 V

C4 DC50
1.00 V/div
0 mV offset
↓ 1.138 V
↑ -1.706 V

F1 zoom(C3)
1.00 V/div
500 ns/div
↓ ---
↑ ---

F2 zoom(C4)
2.00 V/div
500 ns/div
↓ ---
↑ ---

Tbase -2.00 ms
500 µs/div
1.00 MS 200 MS/s

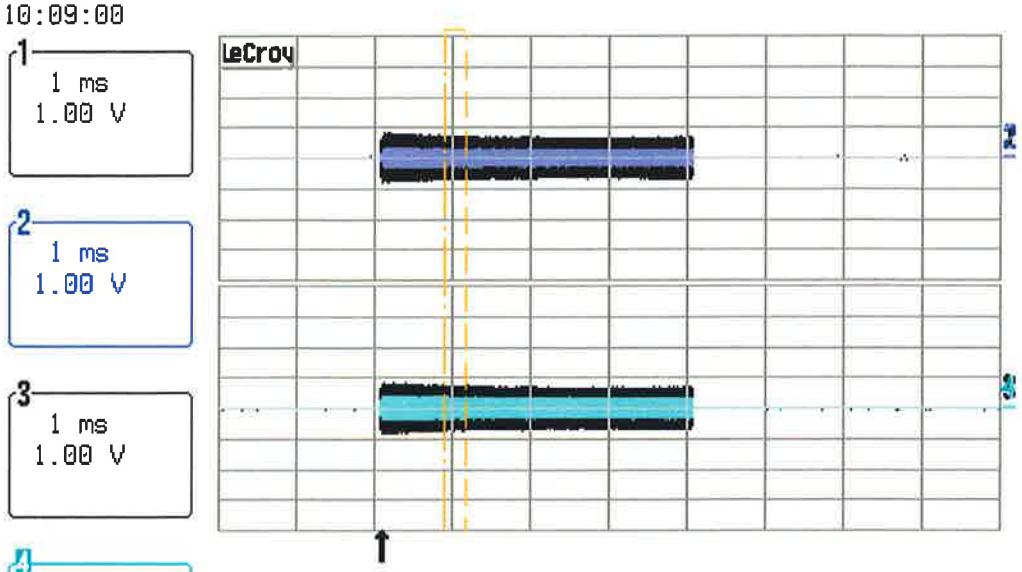
Trigger Ext/10 DC
Normal 0.00 V
Edge Positive

X1= 661.450 µs ΔX= -149.435 µs
X2= 512.015 µs 1/ΔX= -6.6919 kHz

TELEDYNE LECROY

11/18/2016 10:04:31 AM

18-Nov-16
10:09:00



	6 sweeps:	average	low	high	sigma
rms(1)		500mV	494	505	4
rms(2)		209mV	207	211	2
rms(3)		509mV	505	515	4
rms(4)		253mV	251	256	2
phase(1,3)		-86 °	-93	-80	2

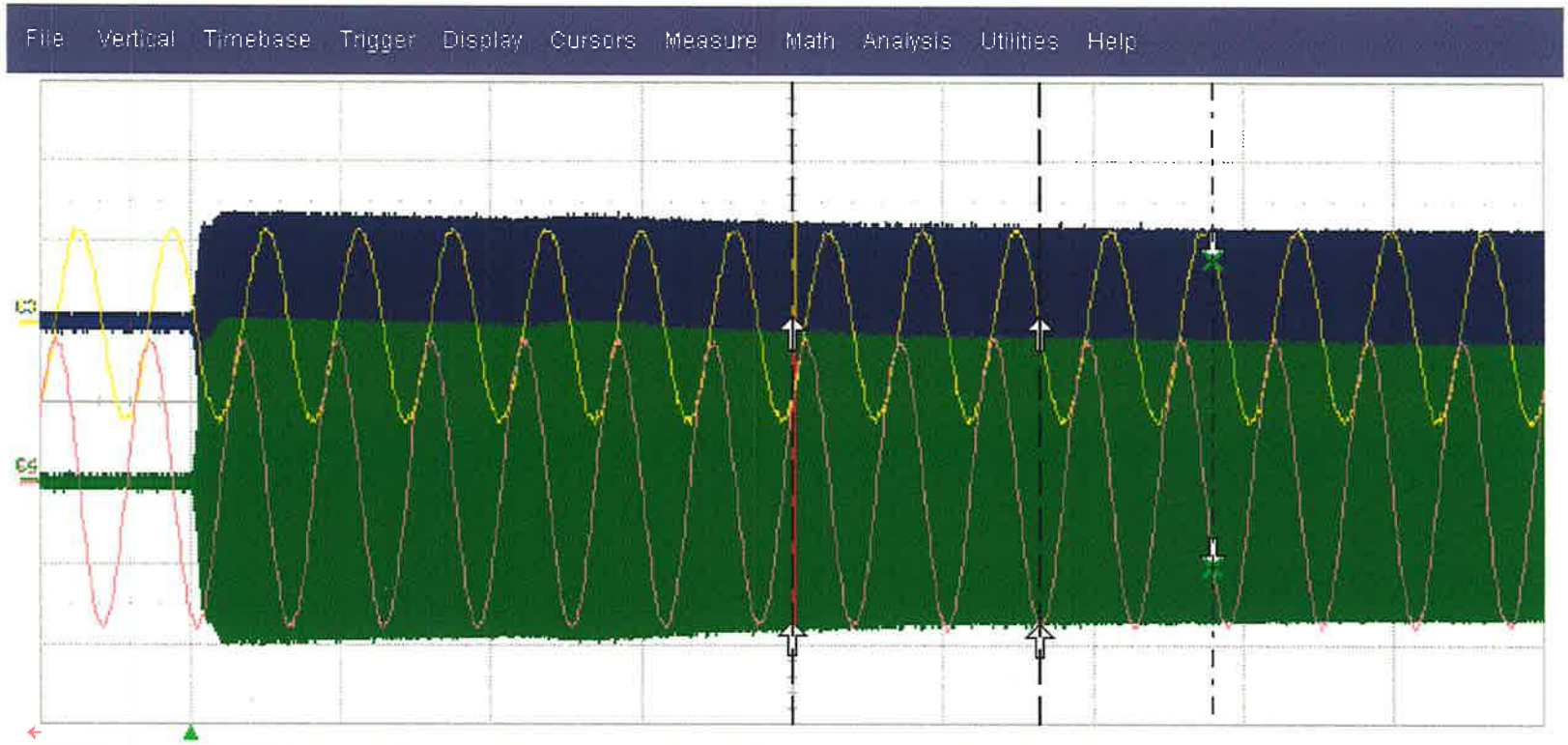
1 ms

1	1	V	AC
2	1	V	AC
3	1	V	AC
4	1	V	AC

Ext10 DC 0.05 V 1MΩ

10 MS/s

NORMAL



Measure	P1:mean(C4)	P2:phase(C4...	P3:pkpk(C3)	P4:pkpk(C4)	P5:ampl(C2)	P6:- - -	P7:- - -	P8:- - -
value		89.53837658 °	2.78 V	4.06 V				
mean		85.223 °	2.72523 V	3.97318 V				
min		-135.280788 °	2.59 V	3.84 V				
max		101.8704361 °	2.78 V	4.06 V				
sdev		2.031 °	65.10 mV	72.54 mV				
num		86.281e+3	6	6				
status			✔	✔				

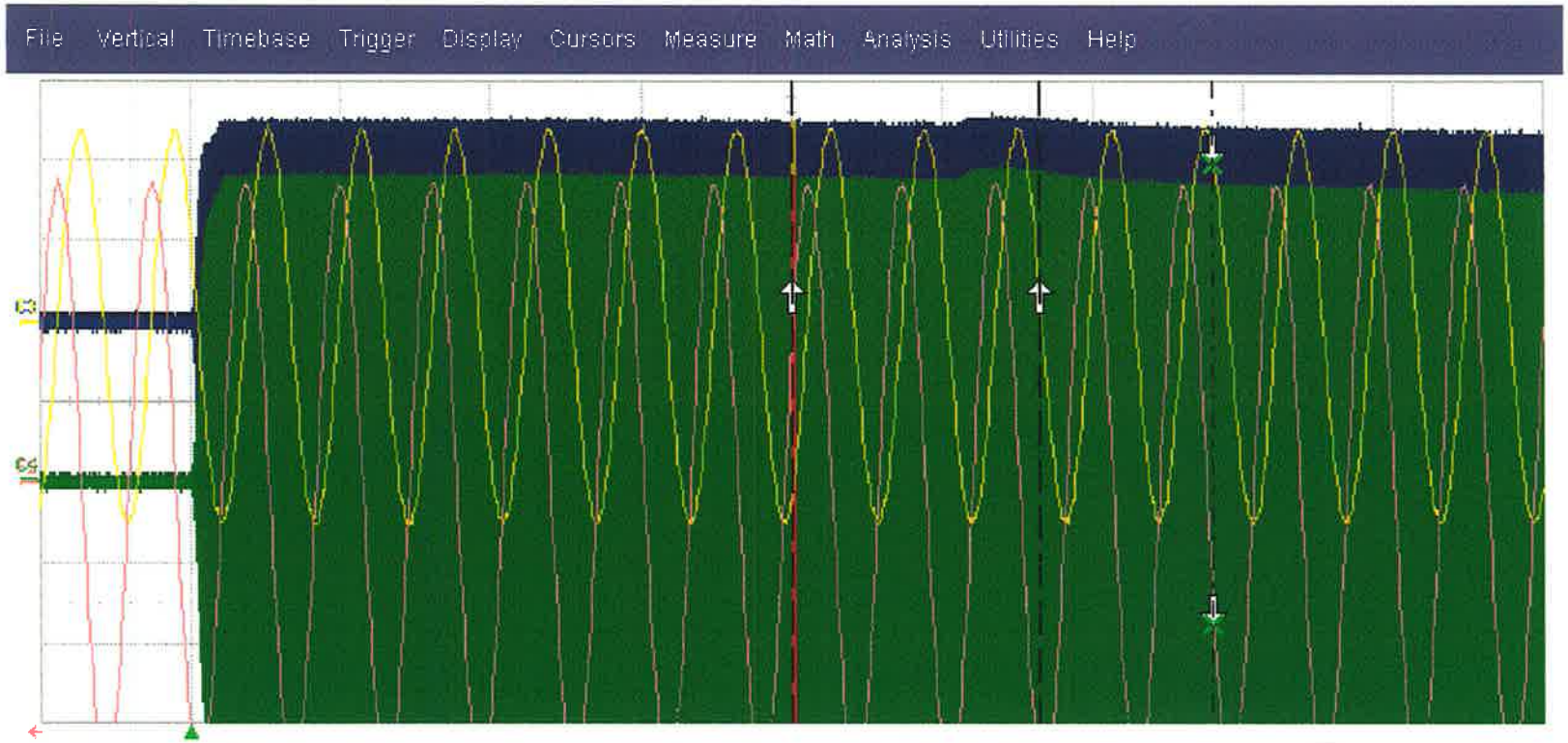
C3	C4	F1 zoom(C3)	F2 zoom(C4)
1.00 V/div	1.00 V/div	1.00 V/div	1.00 V/div
980 mV ofst	-980 mV ofst	200 ns/div	200 ns/div
↓ 818 mV	↓ -1.062 V	↓ ---	↓ ---
↑ 82 mV	↑ -1.757 V	↑ 82 mV	↑ -1.757 V

Timebase -800 µs	Trigger Ext/10 DC
200 µs/div	Normal 0.00 V
1.00 MS 500 MS/s	Edge Positive

X1= 1.358694 ms ΔX= -558.366 µs
X2= 800.328 µs 1/ΔX= -1.790940 kHz

TELEDYNE LECROY

11/18/2016 10:09:05 AM



Measure	P1:mean(C4)	P2:phase(C4...	P3:pkpk(C3)	P4:pkpk(C4)	P5:ampl(C2)	P6:- - -	P7:- - -	P8:- - -
value		79.01454407 °	5.22 V	> 7.04 V				
mean		79.3419 °	5.22 V	> 7.04 V				
min		54.55797178 °	5.22 V	> 7.04 V				
max		84.06109518 °	5.22 V	> 7.04 V				
sdev		971.8 m°	---	---				
num		14.380e+3	1	1				
status				⇓				

C3	C4	F1 zoom(C3)	F2 zoom(C4)
1.00 V/div	1.00 V/div	1.00 V/div	1.00 V/div
980 mV ofst	-980 mV ofst	200 ns/div	200 ns/div
↓ 1.981 V	↓ -1.788 V	↓ ---	↓ ---
↑ 518 mV	↑ ---	↑ 518 mV	↑ ---

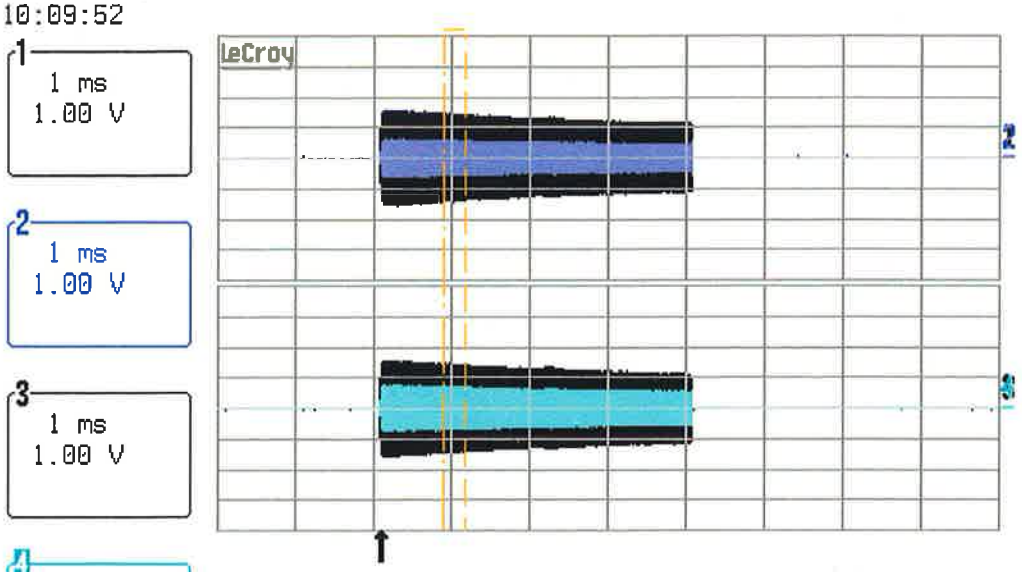
Timebase -800 µs	Trigger Ext/10 DC
200 µs/div	Normal 0.00 V
1.00 MS 500 MS/s	Edge Positive

X1= 1.358694 ms ΔX= -558.366 µs
X2= 800.328 µs 1/ΔX= -1.790940 kHz

TELEDYNE LECROY

Processing ... 11/18/2016 10:09:50 AM

18-Nov-16.
10:09:52



9 sweeps:	average	low	high	sigma
rms(1)	1.078 V	1.008	1.134	0.044
rms(2)	441mV	414	461	17
rms(3)	1.084 V	1.016	1.138	0.043
rms(4)	530mV	497	555	21
phase(1,3)	-85 °	-90	-82	2

1 ms

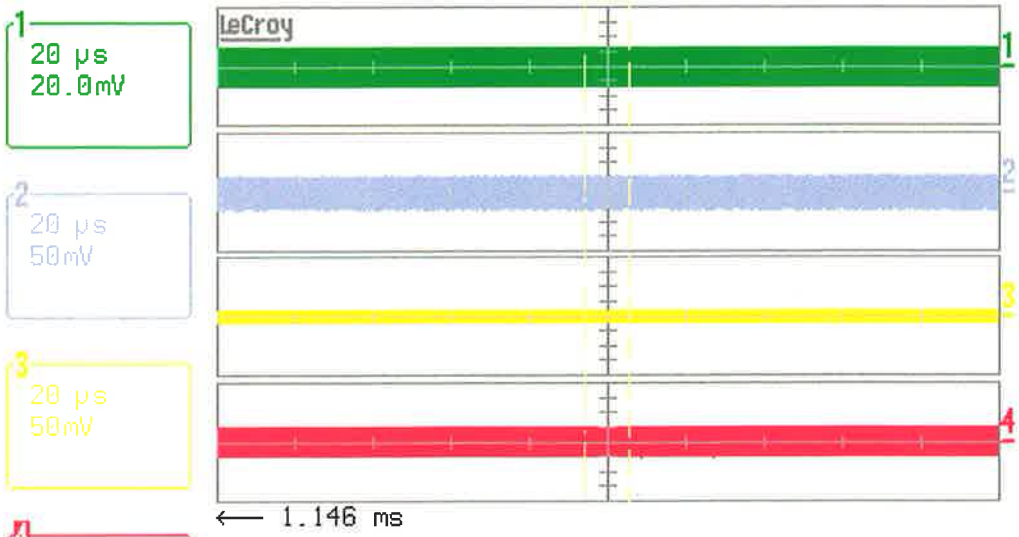
1	1	V	AC
2	1	V	AC
3	1	V	AC
4	1	V	AC

Ext10 DC 0.05 V 1MΩ

10 MS/s

NORMAL

18-Nov-16
10:12:28



⟵ 1.146 ms

4 sweeps:	average	low	high	sigma
pkpk(1)	54.5mV	53.7	55.0	0.6
pkpk(2)	117.2mV	115.6	120.3	2.2
pkpk(3)	47.7mV	45.3	50.0	2.0
pkpk(4)	213mV	209	216	4
phase(2,1)	51.1 °	48.9	53.4	0.9

20 µs

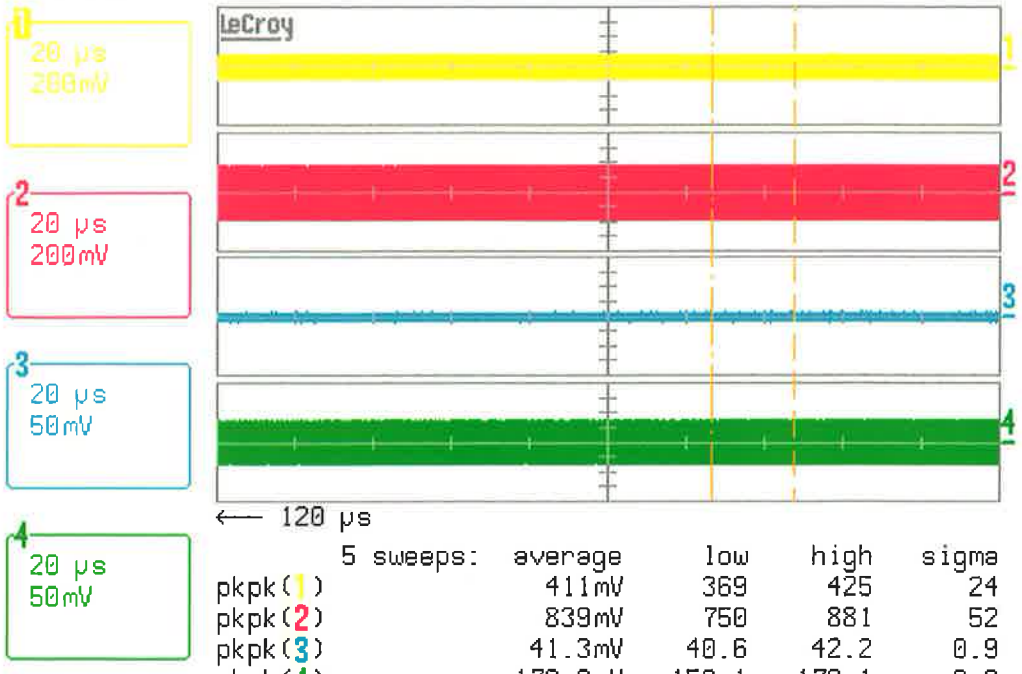
1 20 mV 50Ω
2 50 mV 50Ω
3 50 mV 50Ω
4 .1 V 50Ω

Ext10 DC 0.15 V 1MΩ

200 MS/s

NORMAL

18-Nov-16
10:12:32



	5 sweeps:	average	low	high	sigma
pkpk(1)		411mV	369	425	24
pkpk(2)		839mV	750	881	52
pkpk(3)		41.3mV	40.6	42.2	0.9
pkpk(4)		170.0mV	153.1	178.1	9.8
phase(1,2)		16.9 °	14.3	19.7	1.0

20 µs

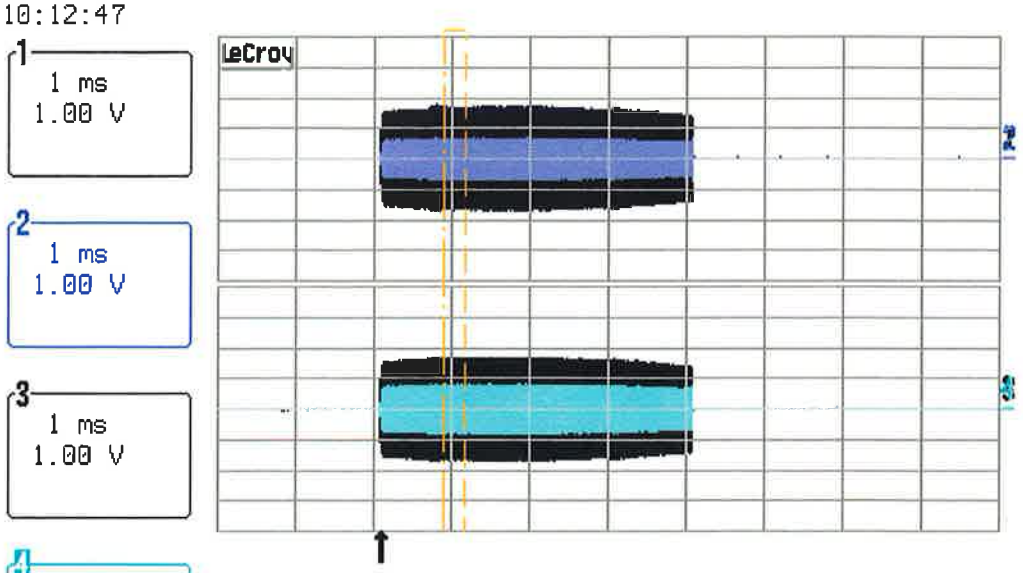
1 .2 V DC
2 .2 V DC
3 50 mV 50Ω
4 50 mV 50Ω

Ext10 DC 0.3 V 1MΩ

200 MS/s

NORMAL

18-Nov-16
10:12:47



5 sweeps:	average	low	high	sigma
rms(1)	1.160 V	1.131	1.182	0.019
rms(2)	470mV	460	478	7
rms(3)	1.159 V	1.132	1.179	0.018
rms(4)	559mV	546	569	9
phase(1,3)	-85 °	-90	-82	2

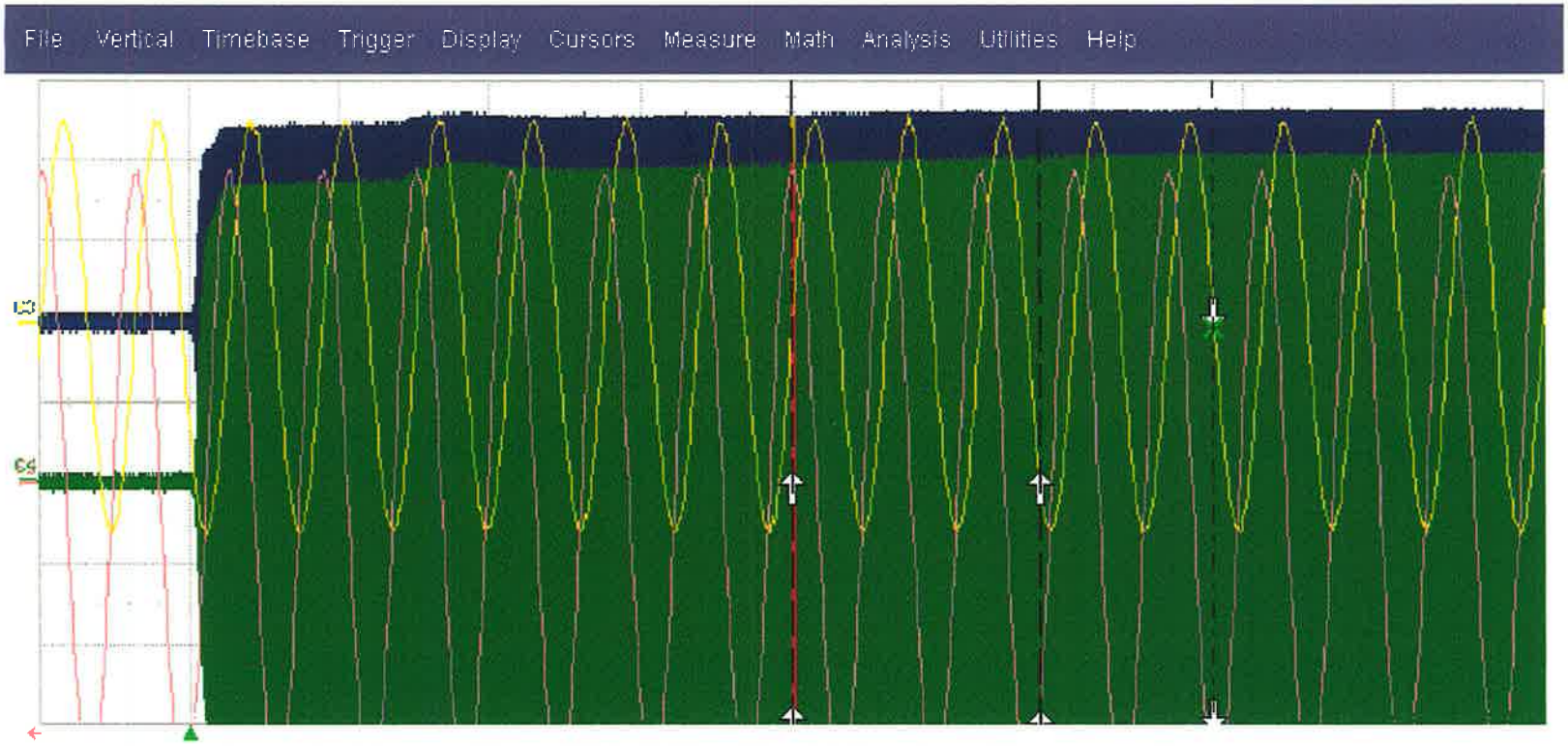
1 ms

1	1	V	AC
2	1	V	AC
3	1	V	AC
4	1	V	AC

Ext10 DC 0.05 V 1MΩ

10 MS/s

NORMAL



Measure	P1:mean(C4)	P2:phase(C4...	P3:pkpk(C3)	P4:pkpk(C4)	P5:ampl(C2)	P6:- - -	P7:- - -	P8:- - -
value		77.41794683 °	5.41 V	> 7.23 V				
mean		77.281 °	5.42912 V	> 7.22106 V				
min		44.51138679 °	5.38 V	> 7.17 V				
max		80.98304399 °	5.50 V	> 7.26 V				
sdev		1.119 °	54.39 mV	> 39.91 mV				
num		43.060e+3	3	3				
status		⚠	✔	⇓				

C3 DC50
1.00 V/div
980 mV ofst
-45 mV
-1.855 V

C4 DC50
1.00 V/div
-980 mV ofst

-2.823 V

F1 zoom(C3)
1.00 V/div
200 ns/div

-1.855 V

F2 zoom(C4)
1.00 V/div
200 ns/div

-2.823 V

Timebase -800 µs
200 µs/div
1.00 MS 500 MS/s

Trigger Ext/10 DC
Normal 0.00 V
Edge Positive

X1= 1.358694 ms ΔX= -558.366 µs
X2= 800.328 µs 1/ΔX= -1.790940 kHz

TELEDYNE LECROY

11/18/2016 10:12:48 AM