

Chronos Quality Control Report

Item	Value
Product Mode	Venus Lite 8
Product SN	0x0132026032200001
Hardware Version	Rev 1.3
Firmware Version	V4
Software Version	V1.1.0
Test Time	2026-04-15 12:31:02
Operator	QC
Location	Hangzhou China

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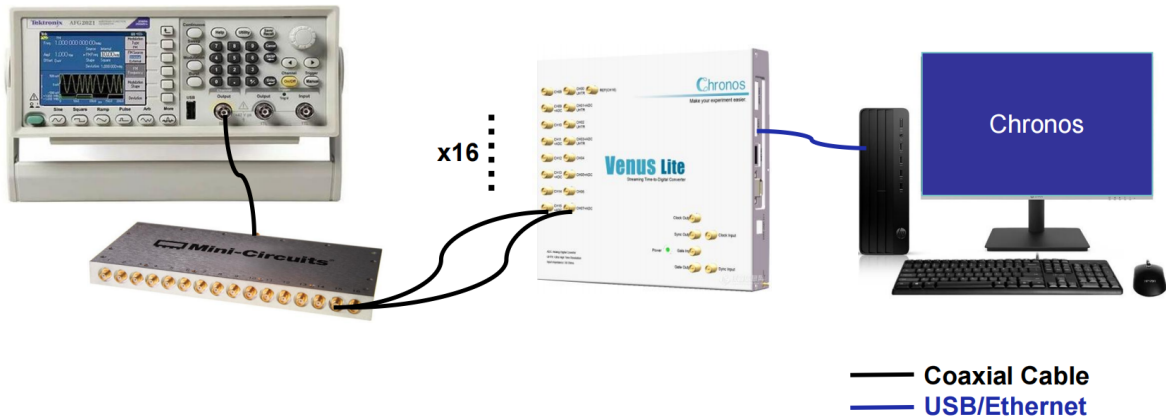
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1. Test Platform Description

- The signal generator outputs a periodic positive pulse signal with an amplitude of 5 V, a rise time of 3 ns, a pulse width of approximately 100 ns, and a repetition frequency of 1 MHz. This signal is split into 16 channels via a 1:16 passive power divider and fed into the 16 measurement channels of the Venus Lite.
- The Venus Lite is connected to the test computer via USB, Gigabit Ethernet, and 10 Gigabit Ethernet, and dedicated host software is used for data acquisition and analysis.



2. Device Self-check Test

Channel number: 8 + 1 Ref Channel

Test Result: **PASS**

Detected devices

Type	Name
Gigabit Ethernet	Network - 以太网 (10.0.0.5)
USB 3.0	USB 3.0 - FTDI SuperSpeed-FIFO Bridge
10 Gigabit Ethernet	Network - 以太网 3 (10.0.0.6)

2.1 Channel Default Configuration

Channel	DAC(mV)	Termination(Ohm)	Hysteresis(mV)	Inter Delay(ps)	Dead Time(ns)	A/D Integration Points	Edge Type
0	200	50	30	0	2	N/A	Rising Edge
1	200	50	30	0	2	20	Rising Edge
2	200	50	30	0	2	N/A	Rising Edge
3	200	50	30	0	2	20	Rising Edge
4	200	50	30	0	2	N/A	Rising Edge
5	200	50	30	0	2	20	Rising Edge
6	200	50	30	0	2	N/A	Rising Edge
7	200	50	30	0	2	20	Rising Edge
8	N/A	N/A	N/A	0	2	N/A	Rising Edge

2.2 Global Default Configuration

Item	Value
TDC Clock Source	Internal Clock
Test Mode	RAW
Data Mode	Global Coins
Coins Time Window	10000*LSB (LSB = 0.975)

3. Channel CPS(Counts Per Second) Test

3.1 General Channel CPS(Counts Per Second) Test

Single CPS(Counts Per Second) Test Result: **PASS**

Coins CPS(Counts Per Second) Test Result: **PASS**

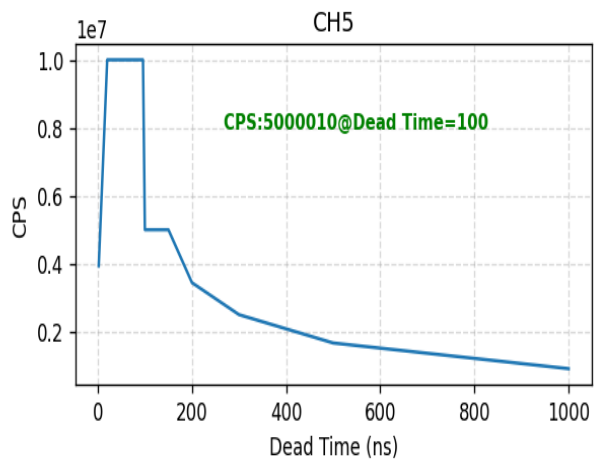
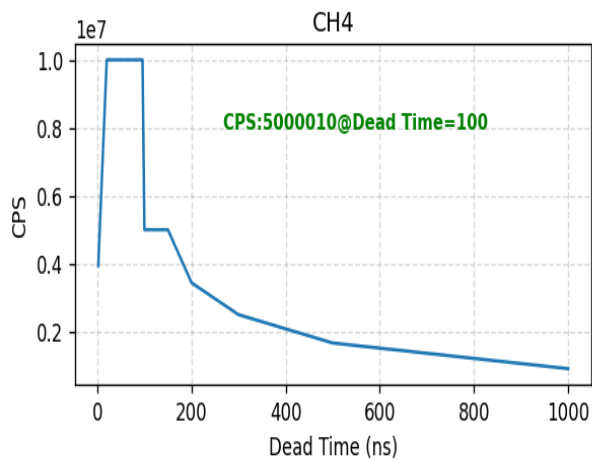
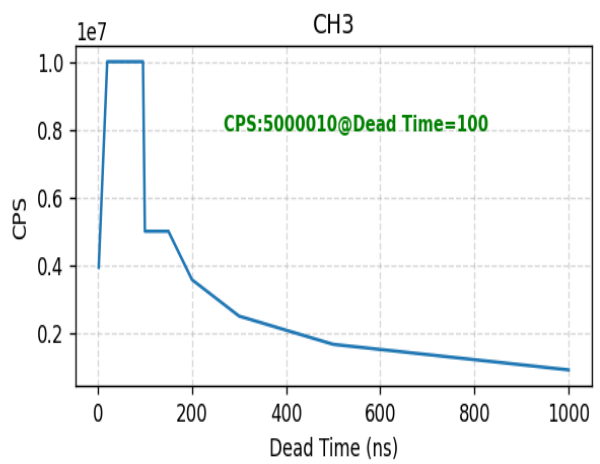
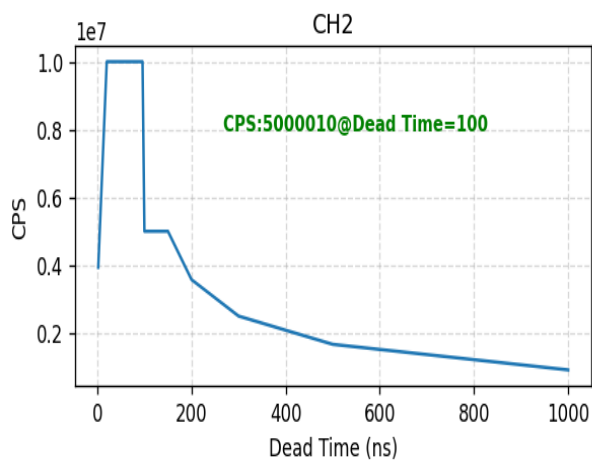
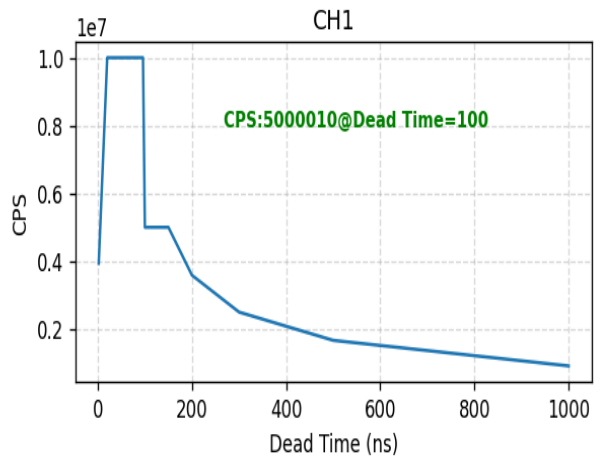
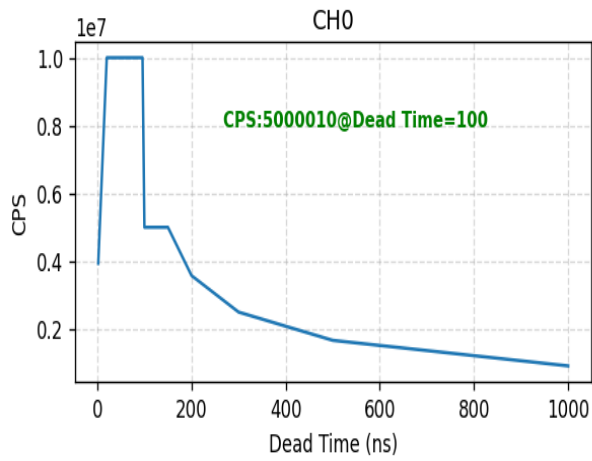
Channel Single CPS(Counts Per Second) Test Results

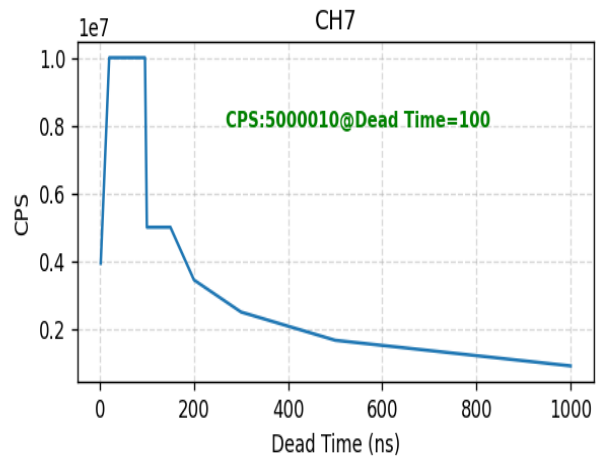
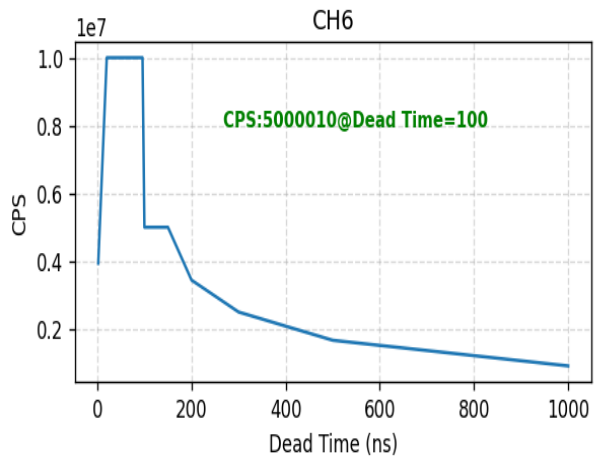
Channel	1s	2s	3s	4s	5s	Test Result
0	999999	1000000	1000000	1000000	1000000	PASS
1	999999	1000000	1000000	1000000	1000000	PASS
2	999999	1000000	1000000	1000000	1000000	PASS
3	1000000	1000000	1000000	1000000	1000000	PASS
4	1000000	1000000	1000000	1000000	1000000	PASS
5	1000000	1000000	1000000	1000000	1000000	PASS
6	1000000	1000000	1000000	1000000	1000000	PASS
7	1000000	1000000	1000000	1000000	1000000	PASS

Channel Coins CPS(Counts Per Second) Test Results

Channel	1s	2s	3s	4s	5s	Test Result
0	7000014	7000014	7000014	7000014	7000014	PASS
1	7000014	7000014	7000014	7000014	7000014	PASS
2	7000014	7000014	7000014	7000014	7000014	PASS
3	7000014	7000014	7000014	7000014	7000014	PASS
4	7000014	7000014	7000014	7000014	7000014	PASS
5	7000014	7000014	7000014	7000014	7000014	PASS
6	7000014	7000014	7000014	7000014	7000014	PASS
7	7000014	7000014	7000014	7000014	7000014	PASS

3.2 Channel Single CPS(Counts Per Second) Test with Dead Time





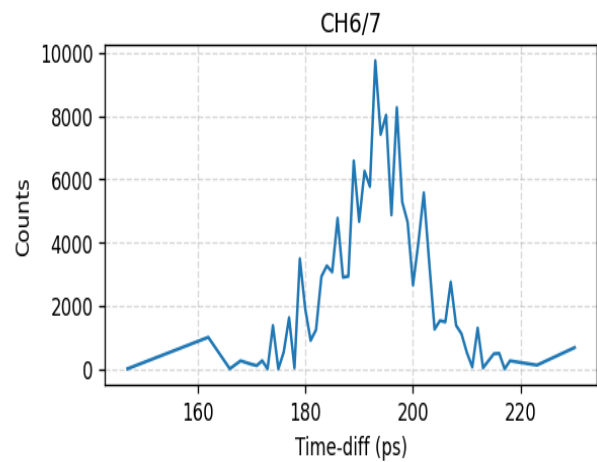
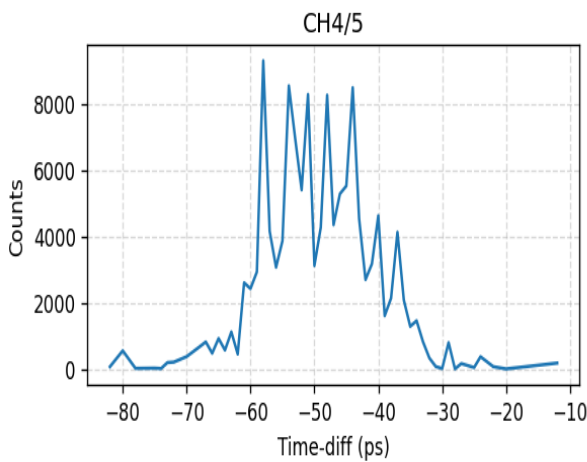
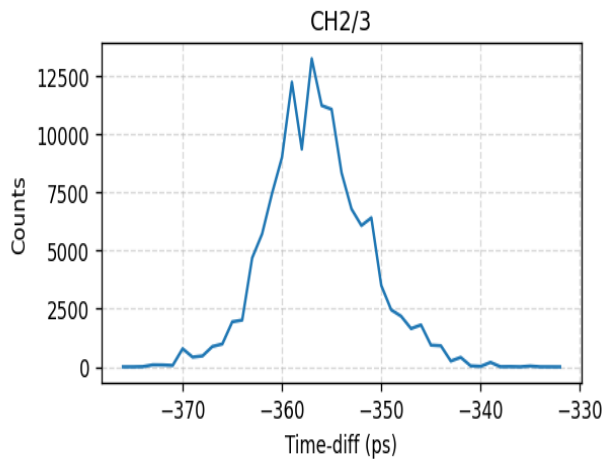
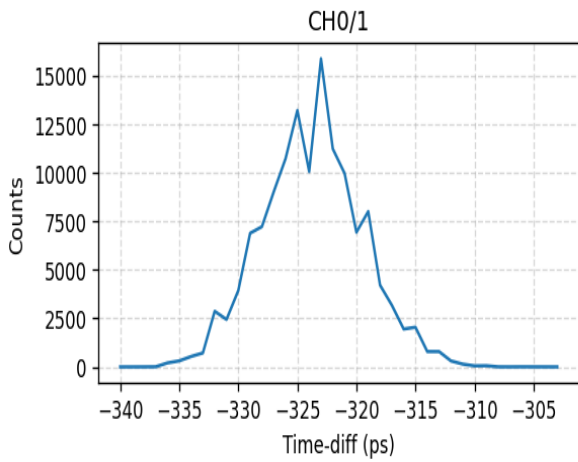
4. Channel Performance Test

4.1 CRT Performance Test(Internal Trigger)

4.1.1 CRT Performance Test(Internal Trigger, Rising Edge)

Test Result: **PASS**

Channel Group	CRT(RMS, ps)	Mean(ps)	Result
CH0/1	4.16	-323.79	PASS
CH2/3	4.47	-356.82	PASS
CH4/5	8.42	-49.63	PASS
CH6/7	7.43	193.81	PASS



4.1.2 CRT Performance Test(Internal Trigger, Rising Edge, Inter Delay)

Test Result: **PASS**

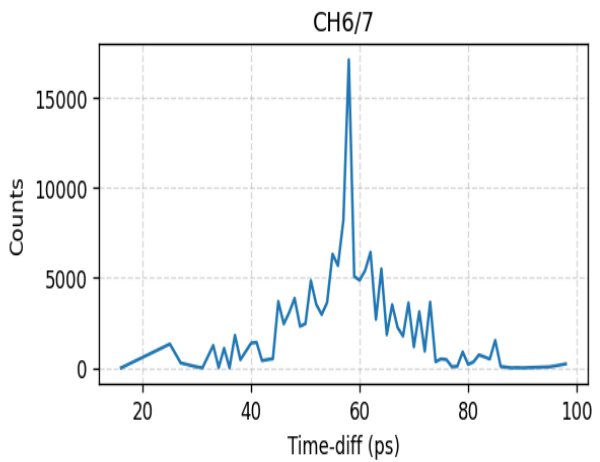
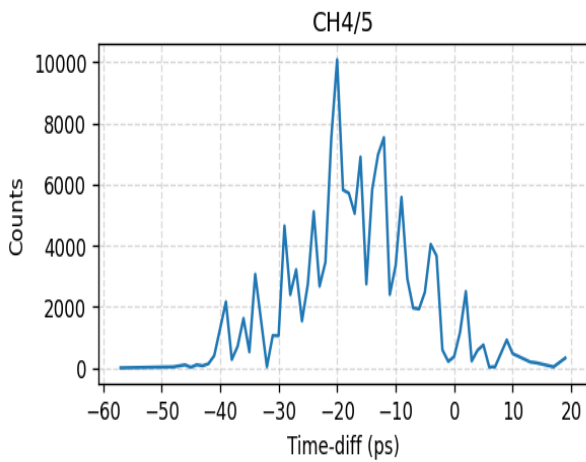
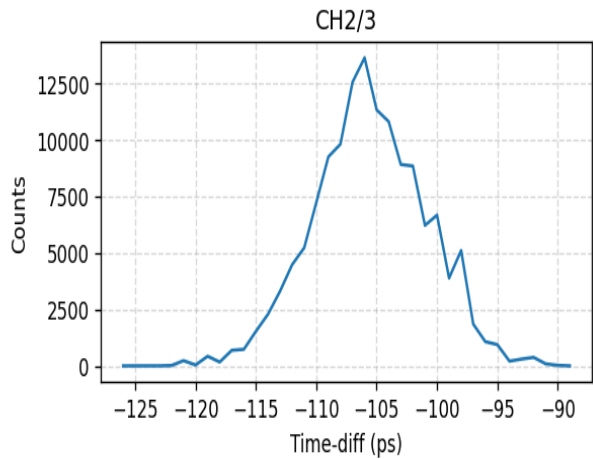
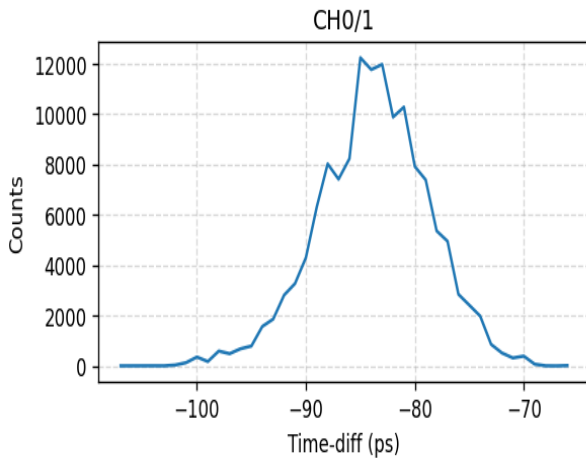
Channel Group	CRT(RMS, ps)	Inter Delay(ps)	Mean(ps)	Result
CH0/1	4.16	323	-0.87	PASS

Channel Group	CRT(RMS, ps)	Inter Delay(ps)	Mean(ps)	Result
CH2/3	4.52	356	-1.00	PASS
CH4/5	8.53	49	-0.35	PASS
CH6/7	7.33	193	0.90	PASS

4.1.3 CRT Performance Test(Internal Trigger, Falling Edge)

Test Result: **PASS**

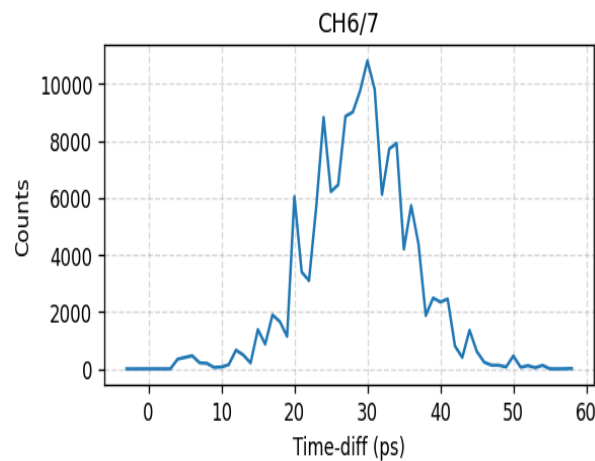
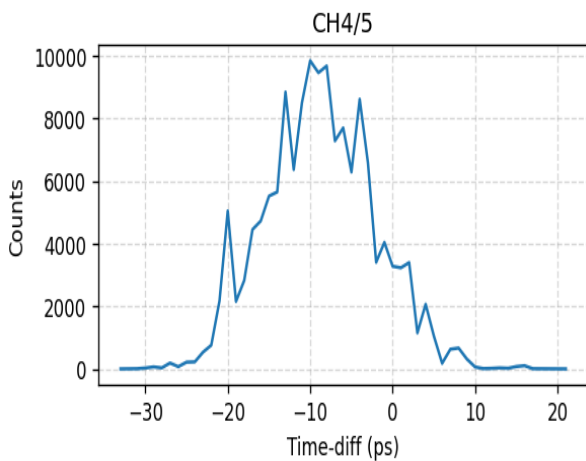
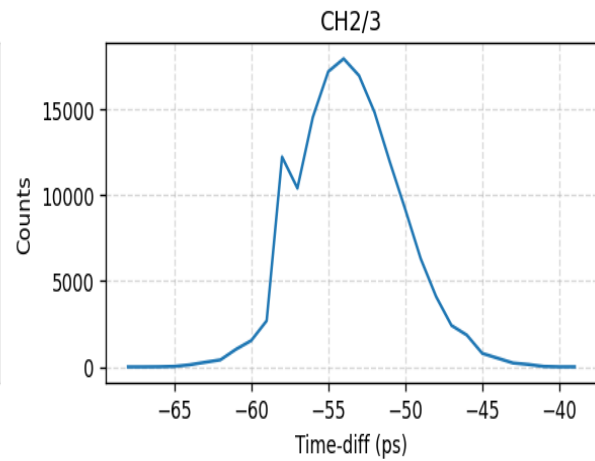
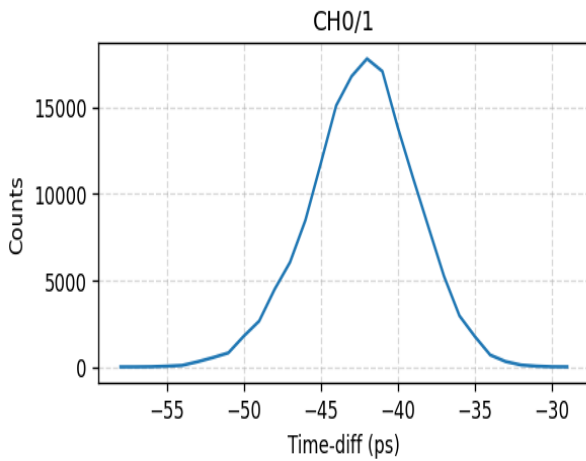
Channel Group	CRT(RMS, ps)	Mean(ps)	Result
CH0/1	4.83	-83.56	PASS
CH2/3	4.59	-105.60	PASS
CH4/5	9.00	-16.83	PASS
CH6/7	7.32	57.85	PASS



4.1.4 CRT Performance Test(Internal Trigger, Positive-Middle Edge)

Test Result: **PASS**

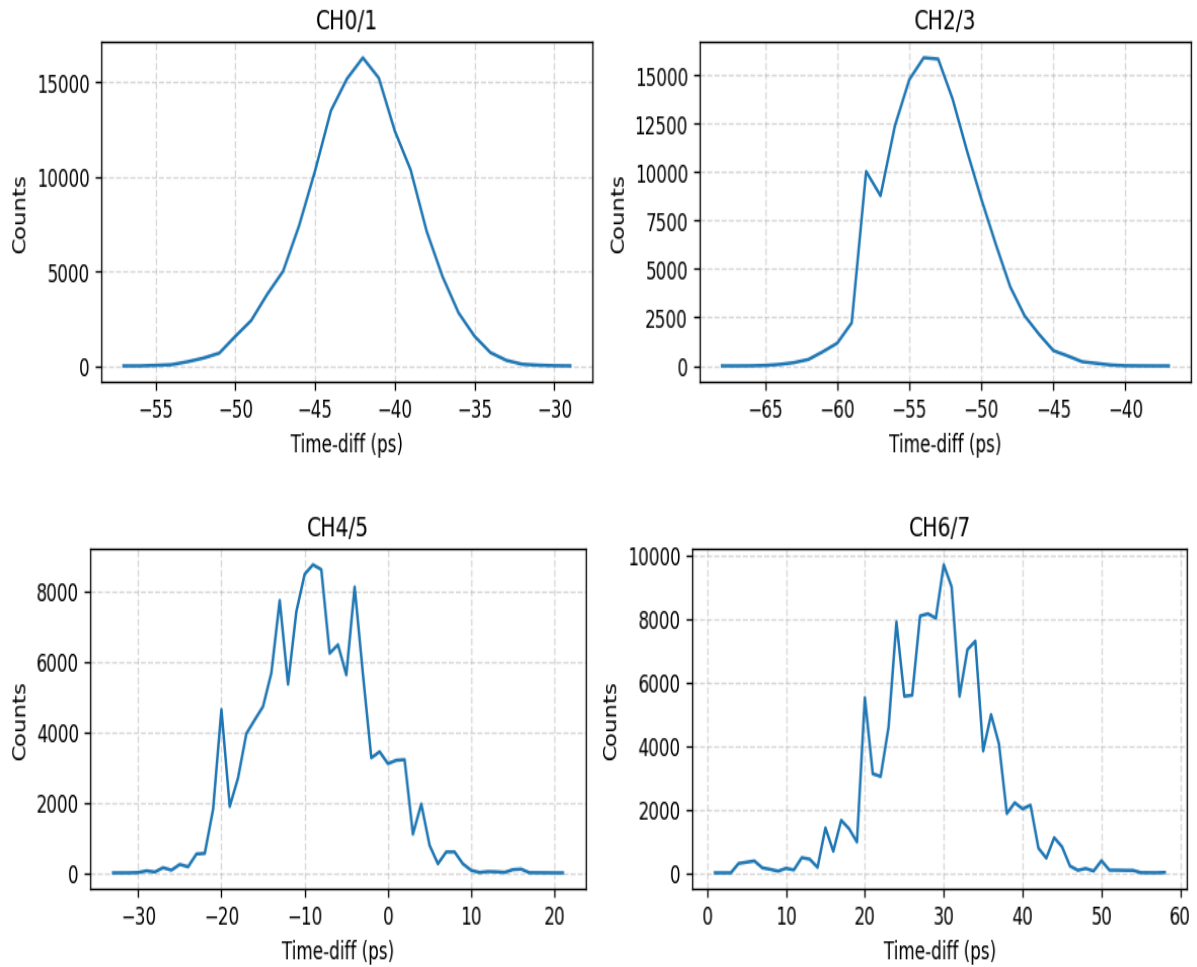
Channel Group	CRT(RMS, ps)	Mean(ps)	Result
CH0/1	3.34	-42.17	PASS
CH2/3	3.29	-53.85	PASS
CH4/5	6.65	-8.94	PASS
CH6/7	6.22	29.09	PASS



4.1.5 CRT Performance Test(Internal Trigger, Negative-Middle Edge)

Test Result: **PASS**

Channel Group	CRT(RMS, ps)	Mean(ps)	Result
CH0/1	3.30	-42.11	PASS
CH2/3	3.31	-53.63	PASS
CH4/5	6.78	-8.90	PASS
CH6/7	6.26	29.17	PASS

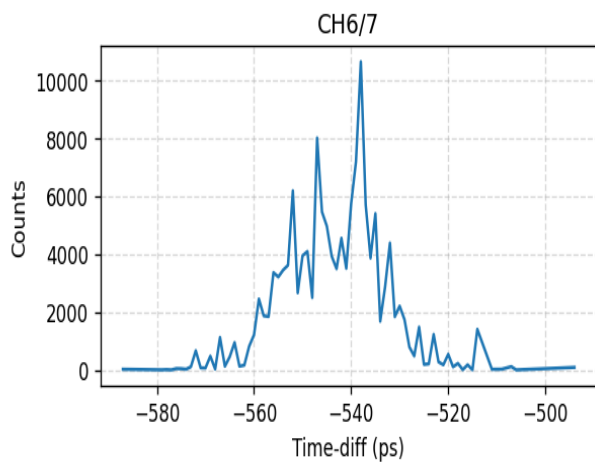
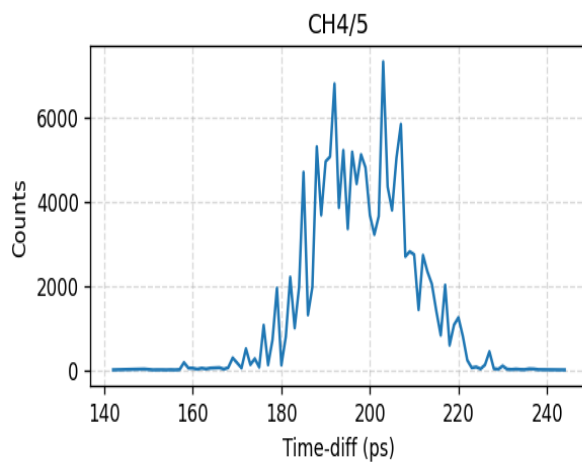
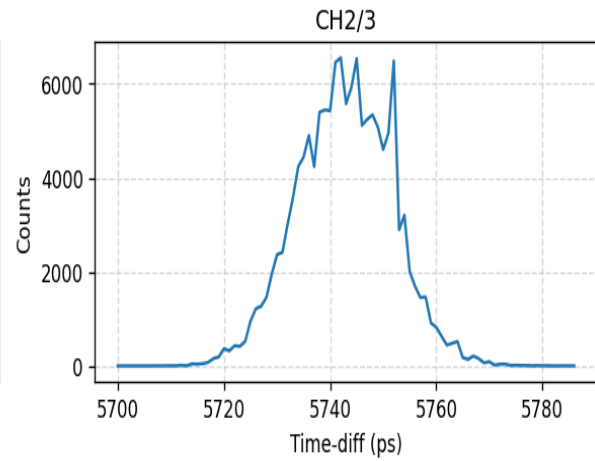
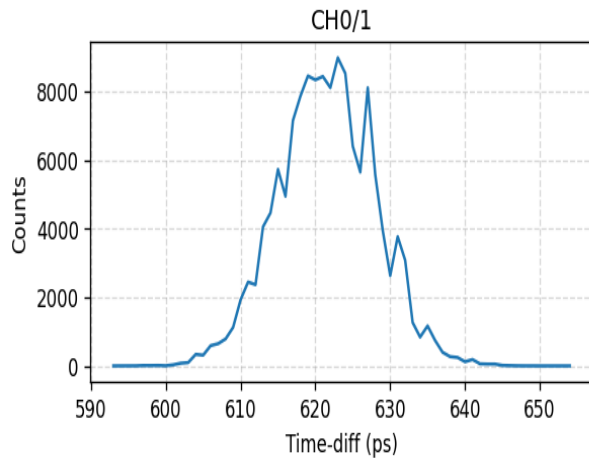


4.2 CRT Performance Test(External Trigger)

4.2.1 CRT Performance Test(External Trigger, Rising Edge)

Test Result: **PASS**

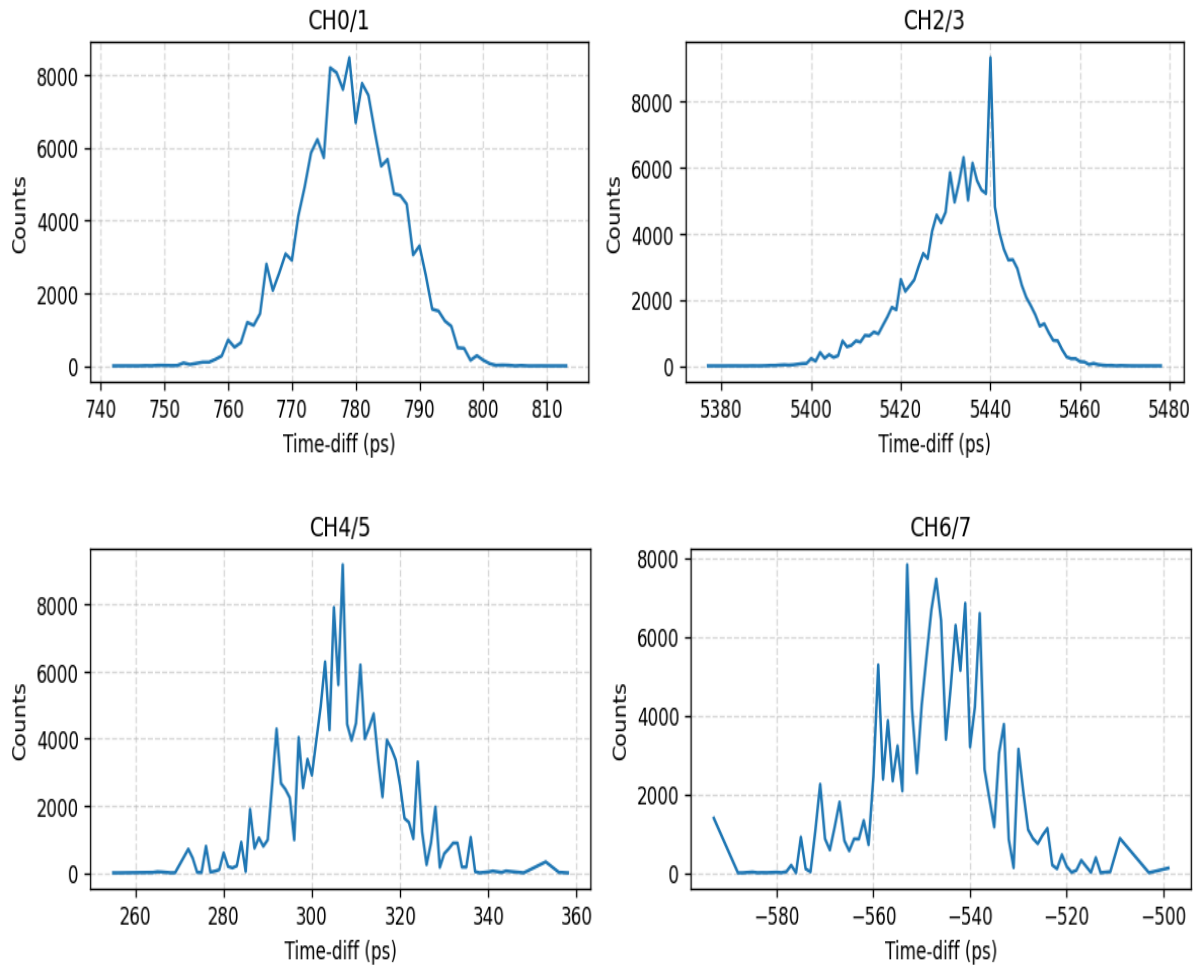
Channel Group	CRT(RMS, ps)	Mean(ps)	Result
CH0/1	6.47	621.51	PASS
CH2/3	9.08	5743.04	PASS
CH4/5	11.07	198.02	PASS
CH6/7	9.92	-543.00	PASS



4.2.2 CRT Performance Test(External Trigger, Falling Edge)

Test Result: **PASS**

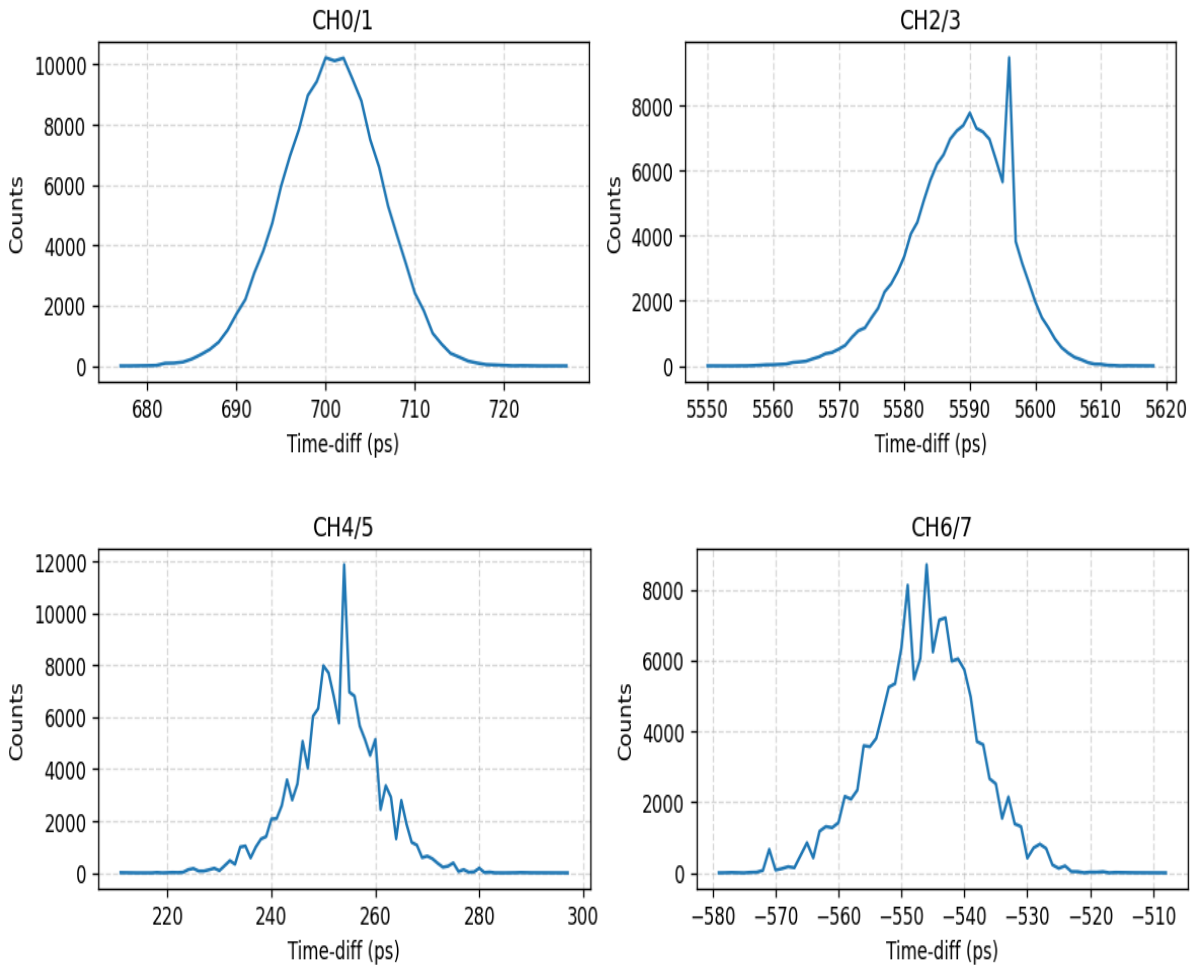
Channel Group	CRT(RMS, ps)	Mean(ps)	Result
CH0/1	7.65	779.07	PASS
CH2/3	9.90	5434.80	PASS
CH4/5	10.52	307.11	PASS
CH6/7	10.27	-546.27	PASS



4.2.3 CRT Performance Test(External Trigger, Positive-Middle Edge)

Test Result: **PASS**

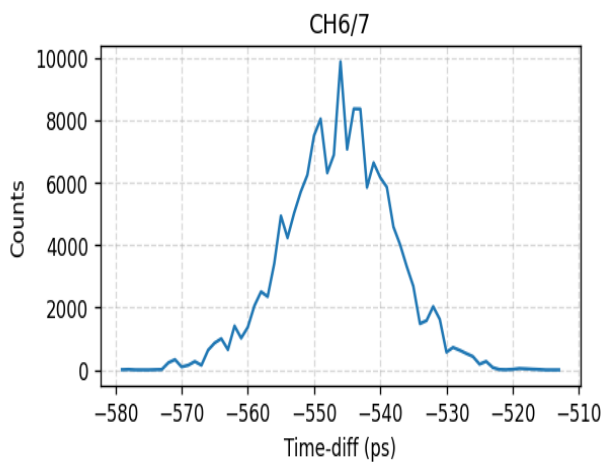
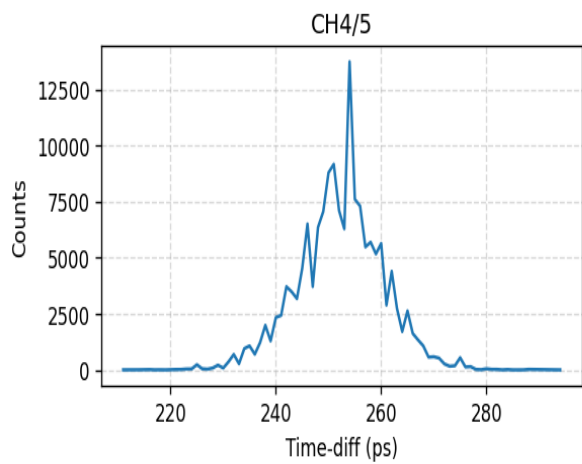
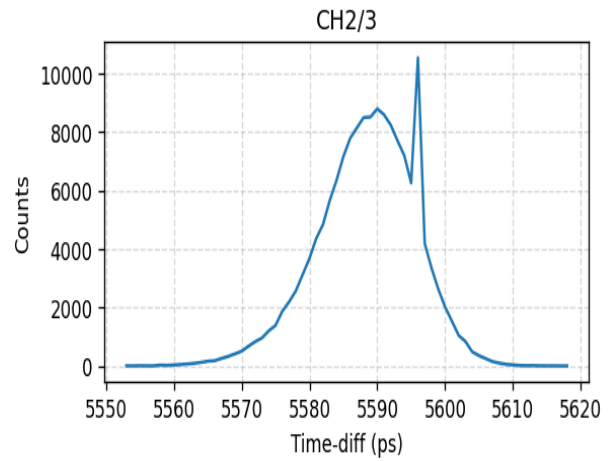
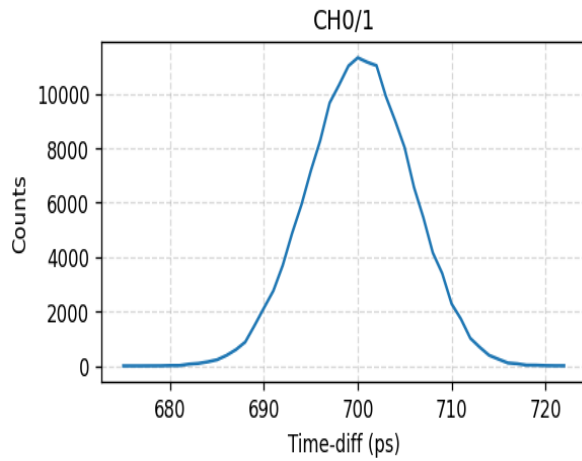
Channel Group	CRT(RMS, ps)	Mean(ps)	Result
CH0/1	5.52	700.77	PASS
CH2/3	7.30	5589.37	PASS
CH4/5	7.20	252.74	PASS
CH6/7	7.82	-546.03	PASS



4.2.4 CRT Performance Test(External Trigger, Negative-Middle Edge)

Test Result: **PASS**

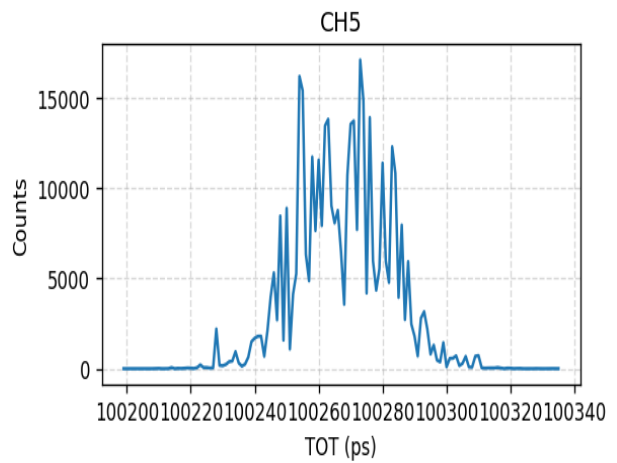
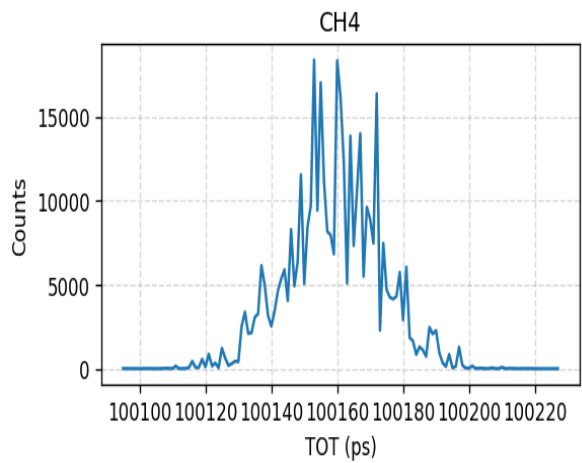
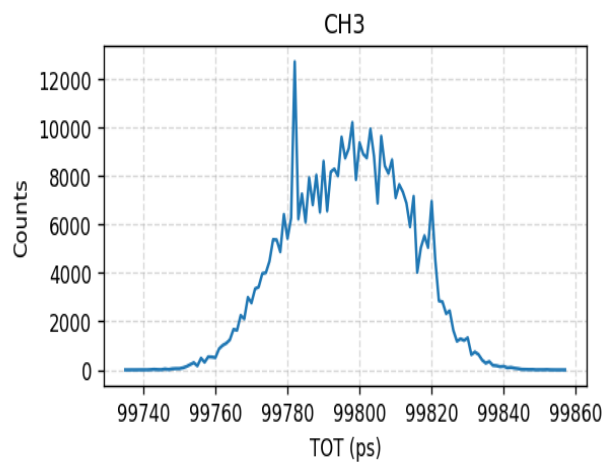
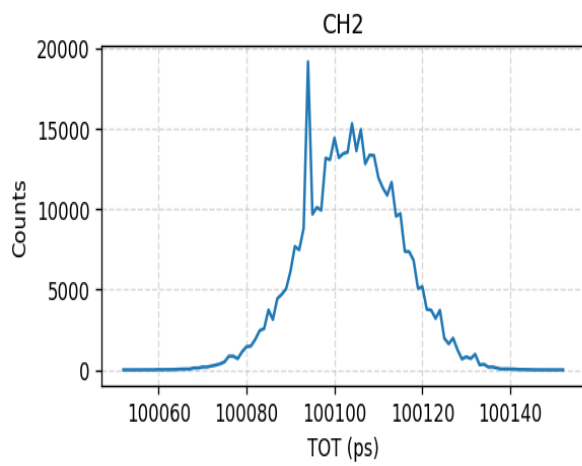
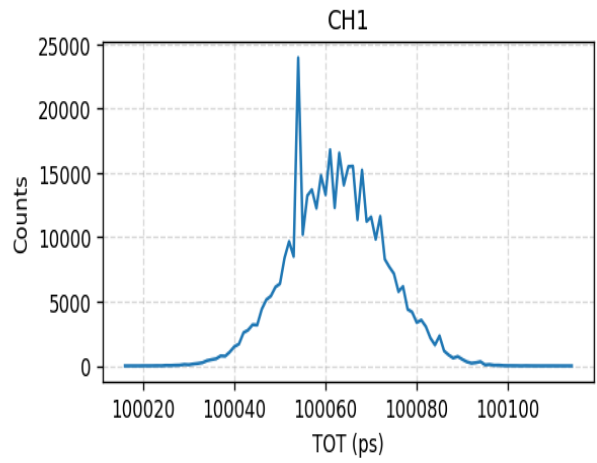
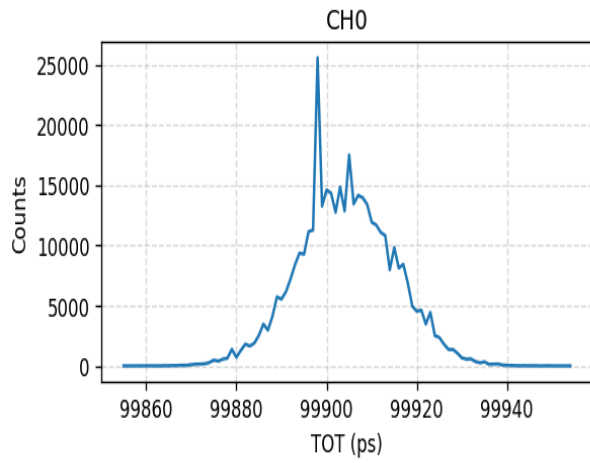
Channel Group	CRT(RMS, ps)	Mean(ps)	Result
CH0/1	5.51	700.26	PASS
CH2/3	6.97	5589.38	PASS
CH4/5	7.27	252.57	PASS
CH6/7	7.70	-545.99	PASS

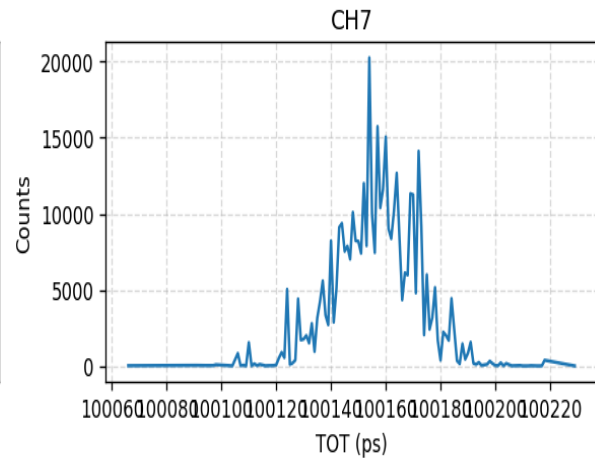
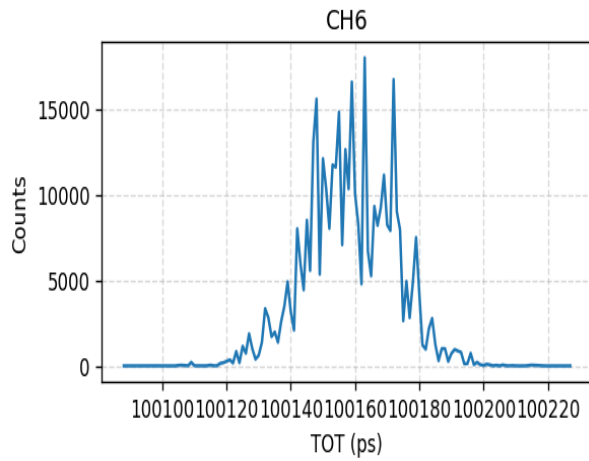


4.3 TOT Performance Test(External Trigger)

Test Result: **PASS**

Channel	TOT(RMS, ps)	Mean(ns)	Result
CH0	10.45	99.90	PASS
CH1	10.45	100.06	PASS
CH2	11.15	100.10	PASS
CH3	17.67	99.80	PASS
CH4	13.47	100.16	PASS
CH5	14.77	100.27	PASS
CH6	13.99	100.16	PASS
CH7	13.97	100.16	PASS

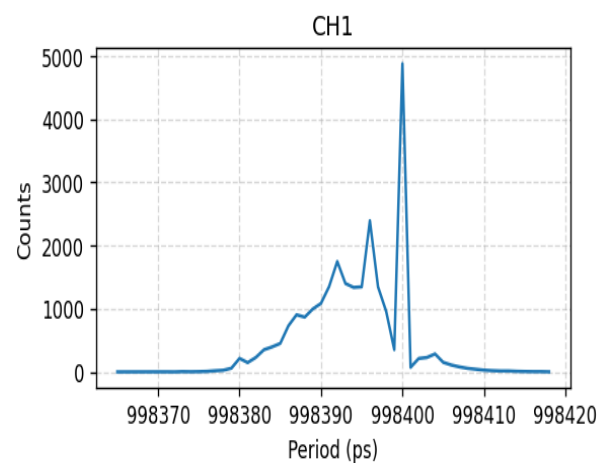
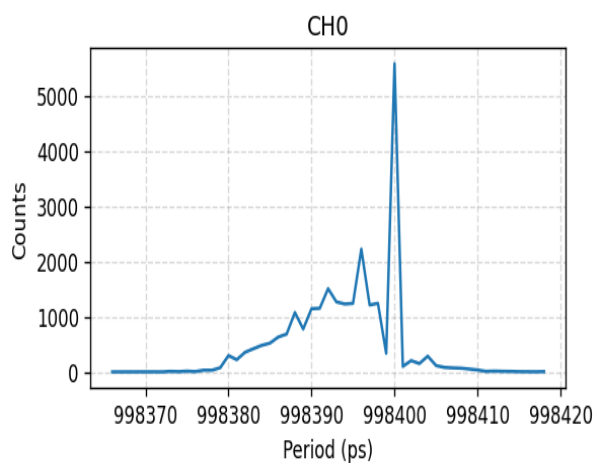


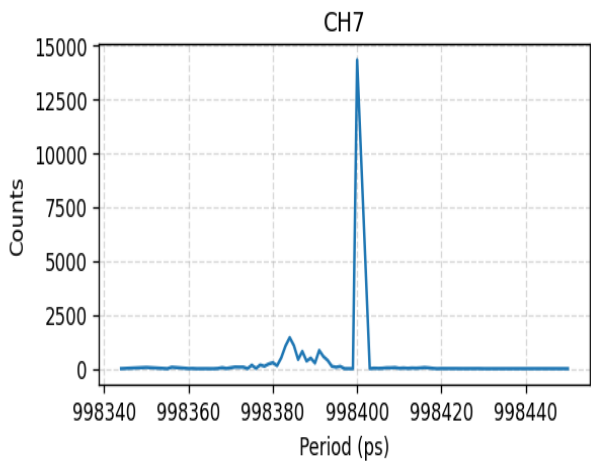
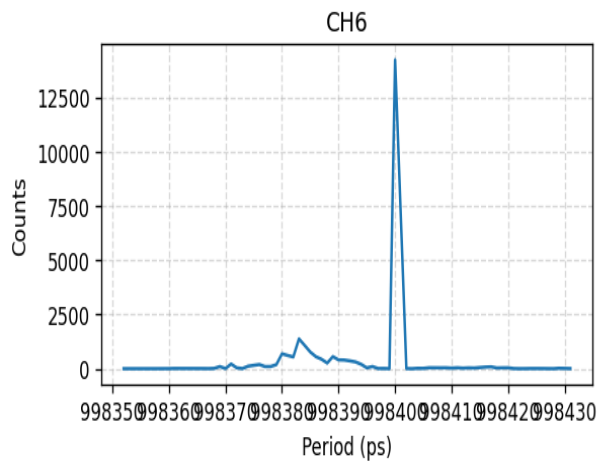
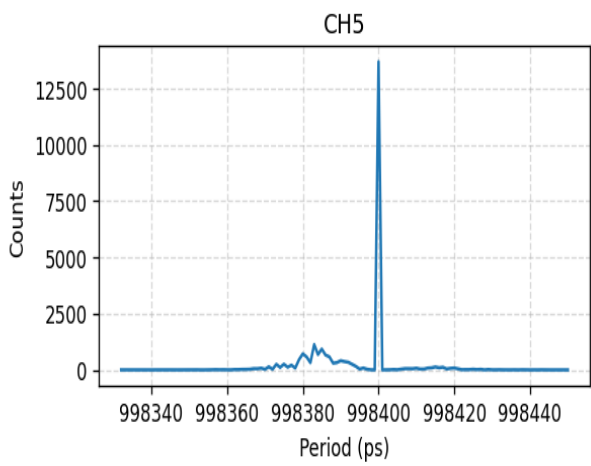
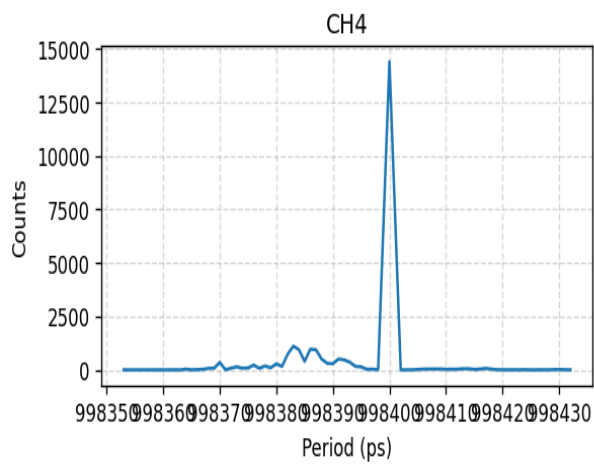
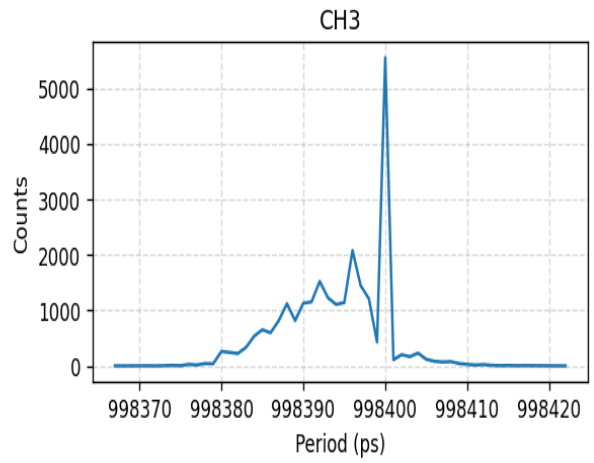
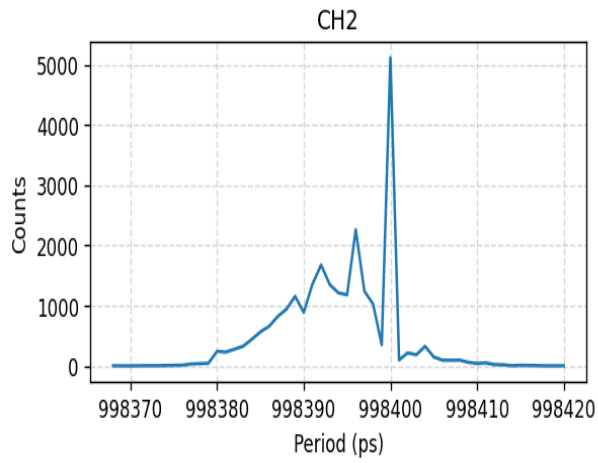


4.4 Period Performance Test(External Trigger)

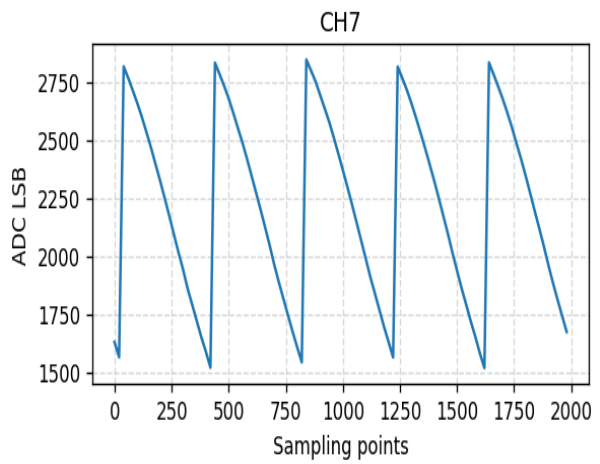
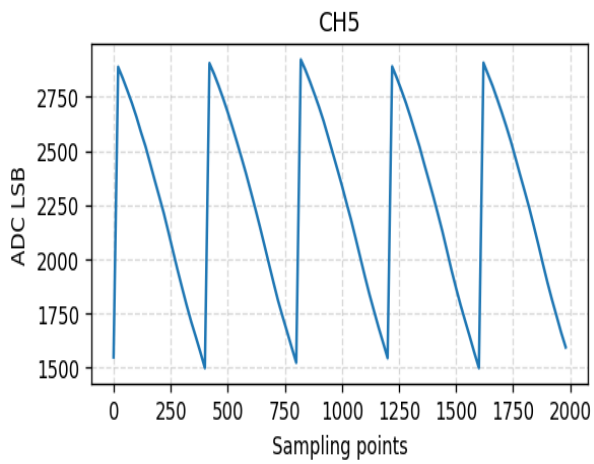
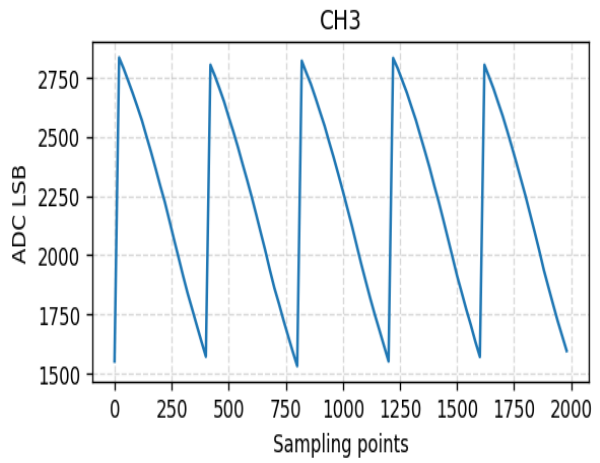
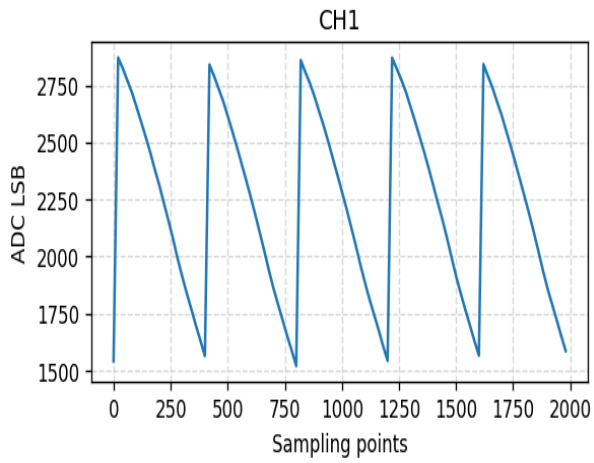
Test Result: **PASS**

Channel	Period(RMS, ps)	Mean(ns)	Result
CH0	6.04	998.40	PASS
CH1	5.90	998.39	PASS
CH2	6.17	998.39	PASS
CH3	6.16	998.40	PASS
CH4	0.77	998.40	PASS
CH5	0.20	998.40	PASS
CH6	0.44	998.40	PASS
CH7	0.46	998.40	PASS

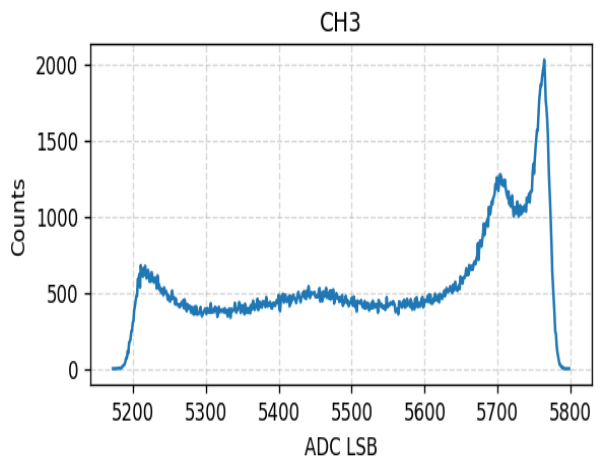
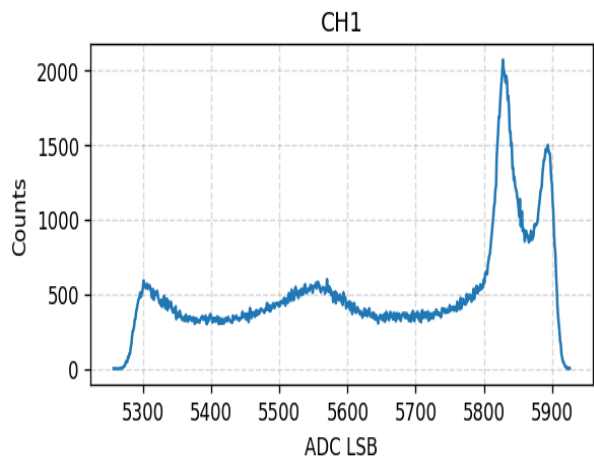


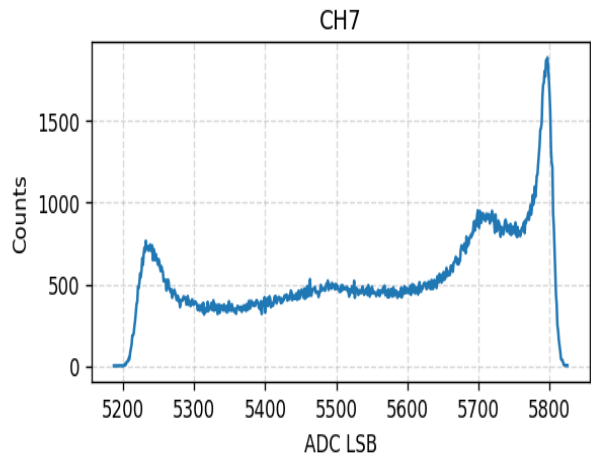
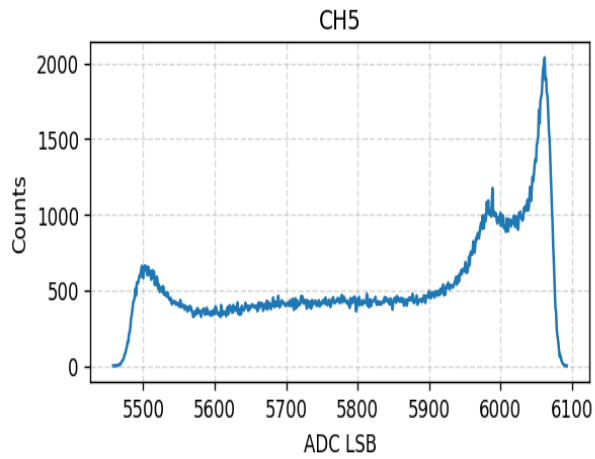


4.5 A/D Test(External Trigger)



4.6 Energy Spectrum Test(External Trigger)

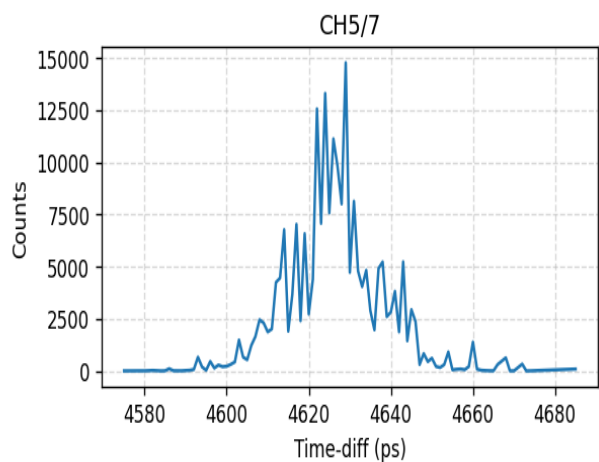
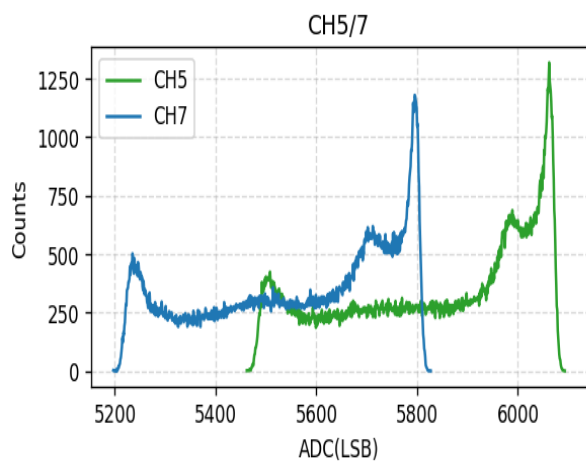
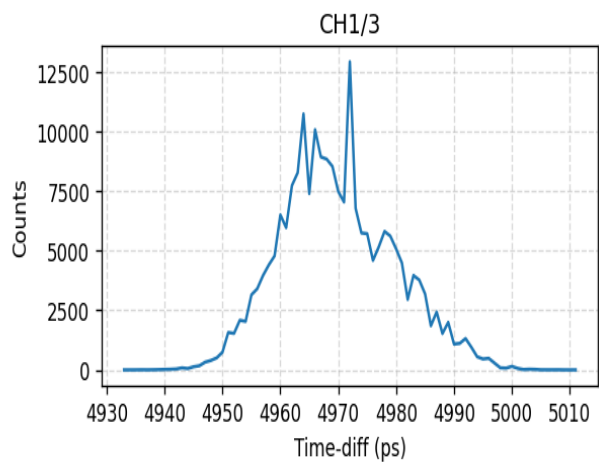
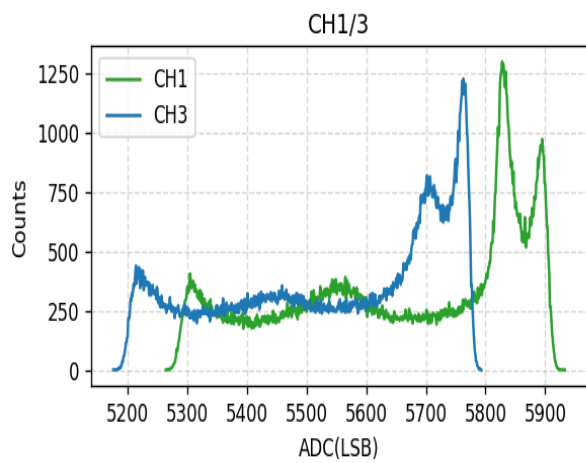




4.7 Coincidence Energy Spectrum Performance Test(External Trigger)

Test Result: **PASS**

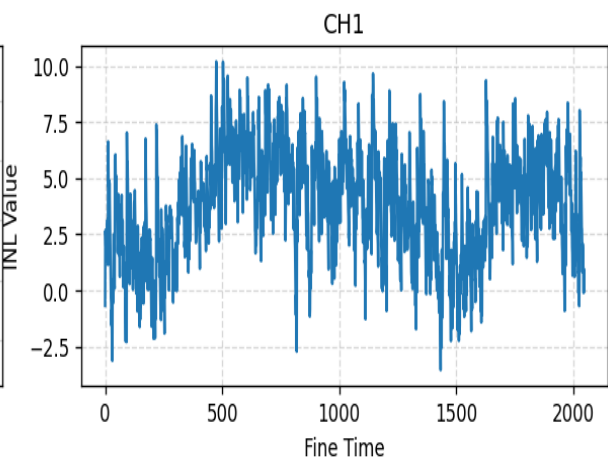
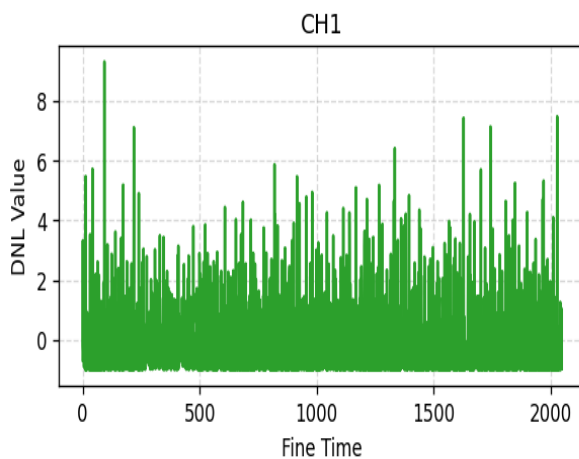
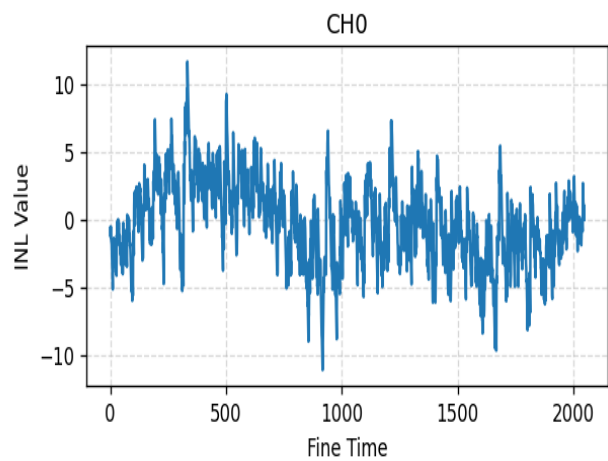
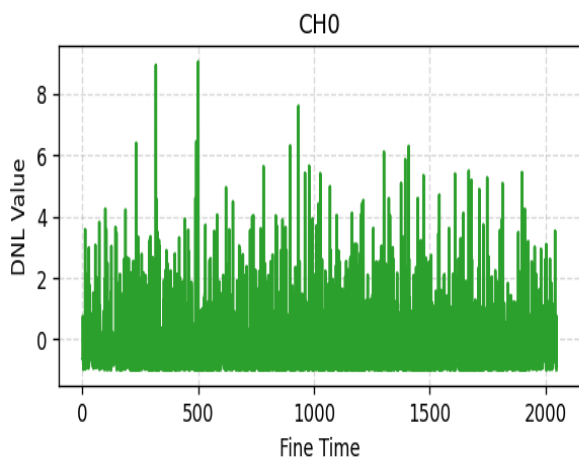
Channel Group	CRT(RMS, ps)	Result
CH1/3	9.76	PASS
CH5/7	9.48	PASS

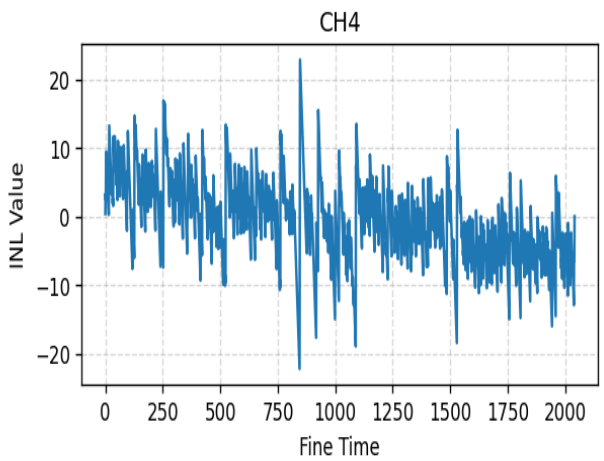
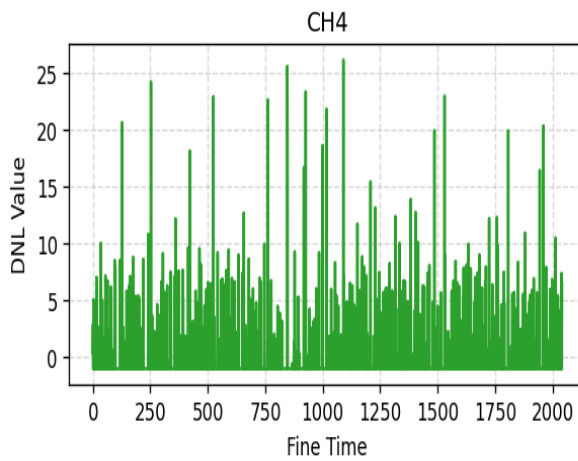
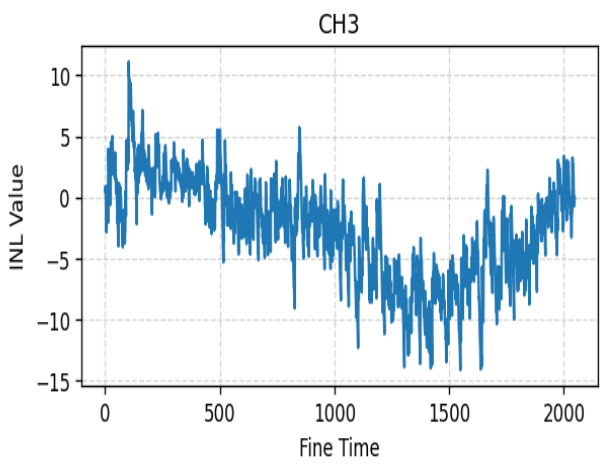
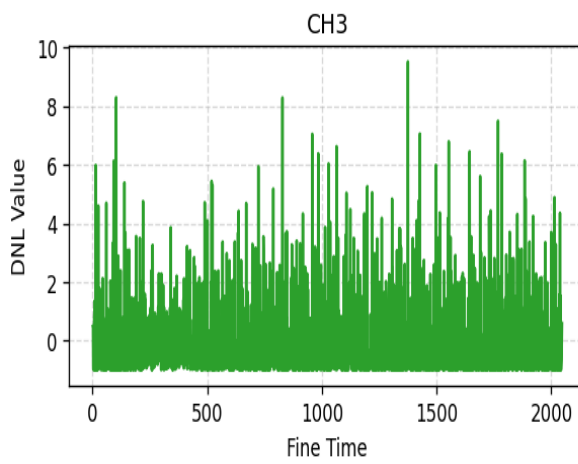
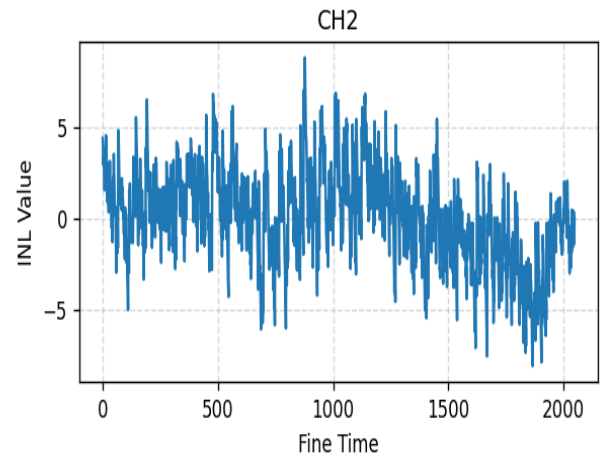
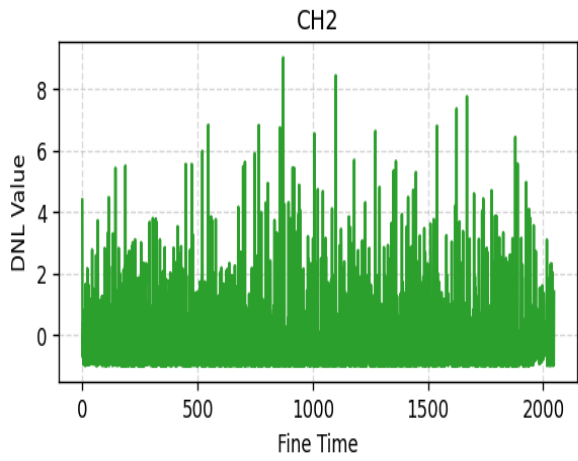


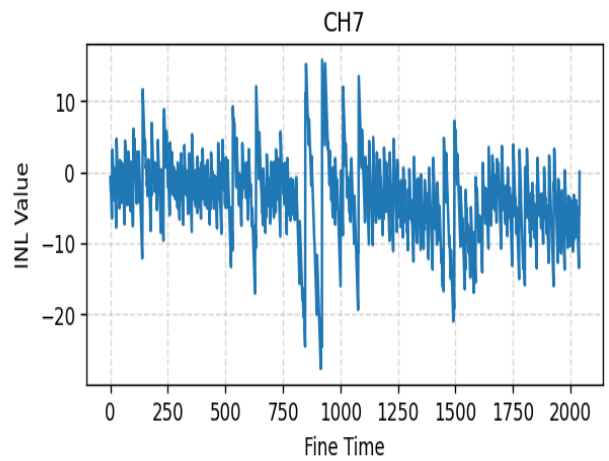
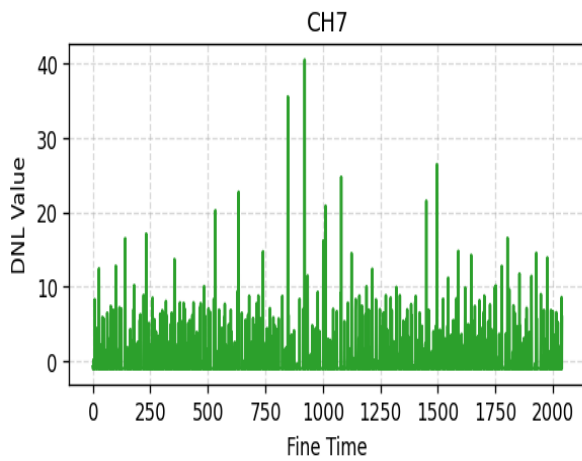
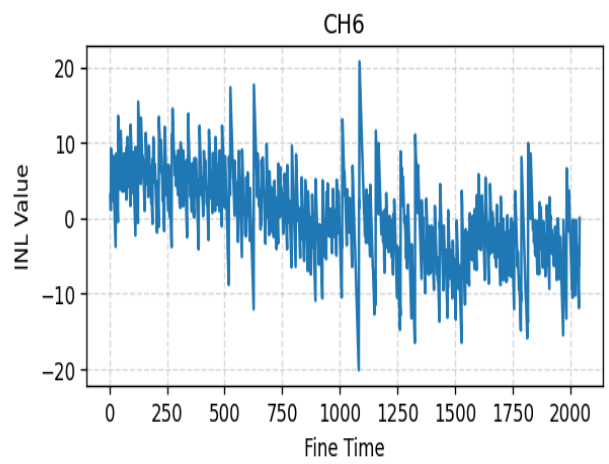
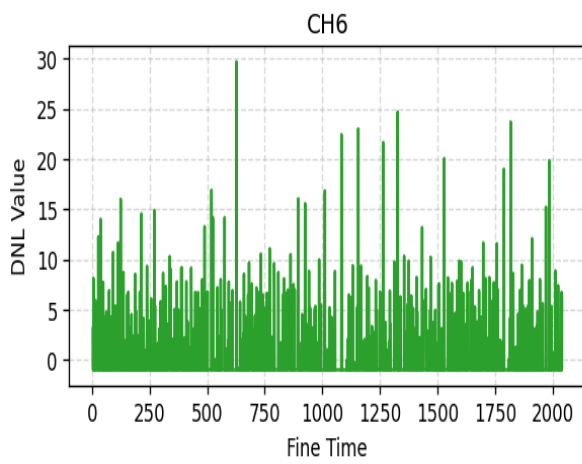
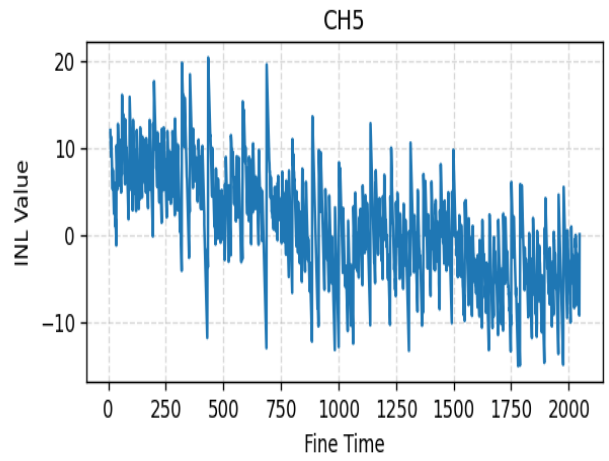
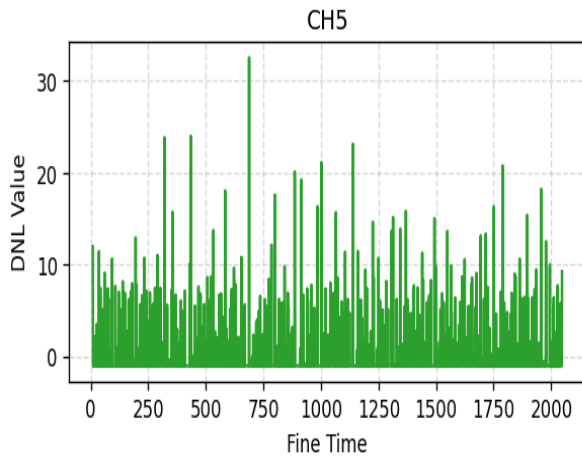
4.8 TDC Nonlinearity Performance Test(External Trigger)

Test Result: **PASS**

Channel	DNL(LSB)	INL(LSB)	Result
CH0	-1.00~9.04	-11.12~11.67	PASS
CH1	-1.00~9.30	-3.53~10.18	PASS
CH2	-1.00~9.01	-8.10~8.80	PASS
CH3	-1.00~9.52	-14.11~11.11	PASS
CH4	-1.00~26.20	-22.18~22.82	PASS
CH5	-1.00~32.55	-15.08~20.32	PASS
CH6	-1.00~29.68	-20.08~20.74	PASS
CH7	-1.00~40.49	-27.72~15.82	PASS







5. 1G Network Interface Test

Connect Status: **SUCCESS**

5.1 1G Network Self-check Test

Test Result: **PASS**

5.2 1G Network Basic Test

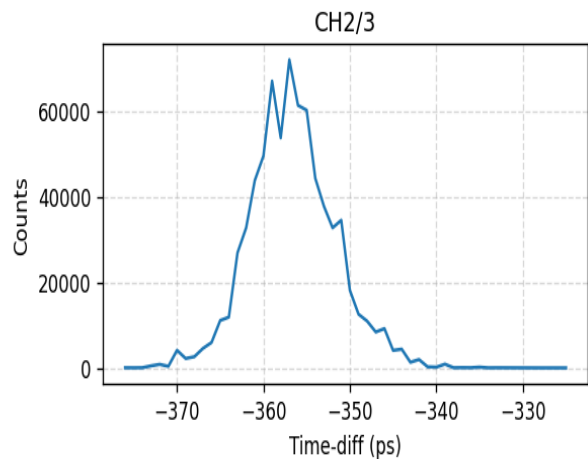
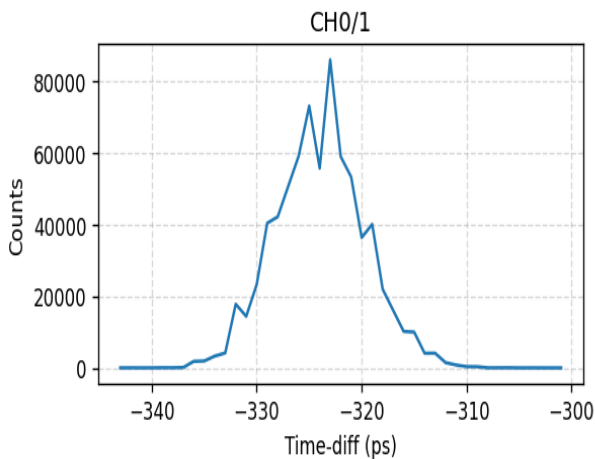
Test Result: **PASS**

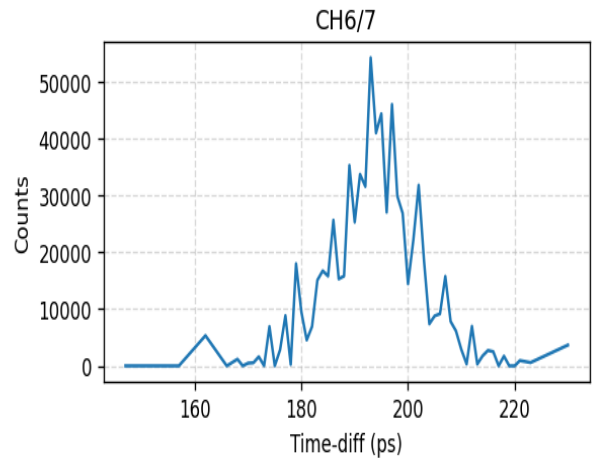
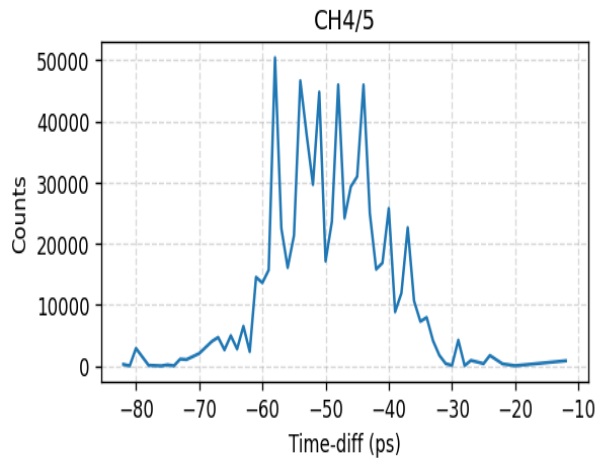
Test Item	Result
Change Board Id	PASS
Change 1G IP	PASS
Change 1G Netport	PASS
Change 10G IP	PASS
Change 10G Netport	PASS
TDC Resetrn	PASS
System Resetrn	PASS

5.3 1G Network CRT Performance Test(Internal Trigger)

Test Result: **PASS**

Channel Group	CRT(RMS, ps)	Mean(ps)	Result
CH0/1	4.18	-324.00	PASS
CH2/3	4.45	-356.95	PASS
CH4/5	8.41	-49.58	PASS
CH6/7	7.34	194.04	PASS





6. 10G Network Interface Test

Connect Status: **SUCCESS**

6.1 10G Network Self-check Test

Test Result: **PASS**

6.2 10G Network Basic Test

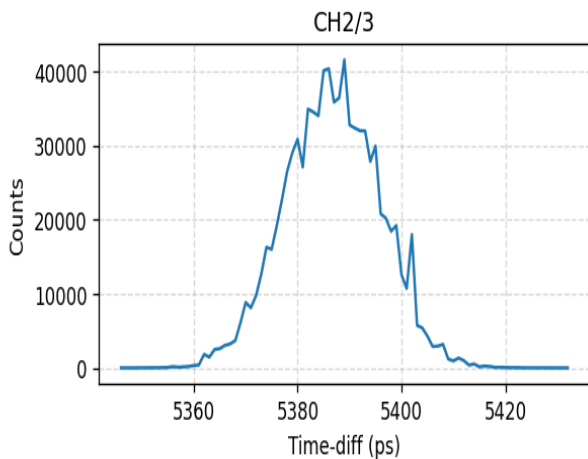
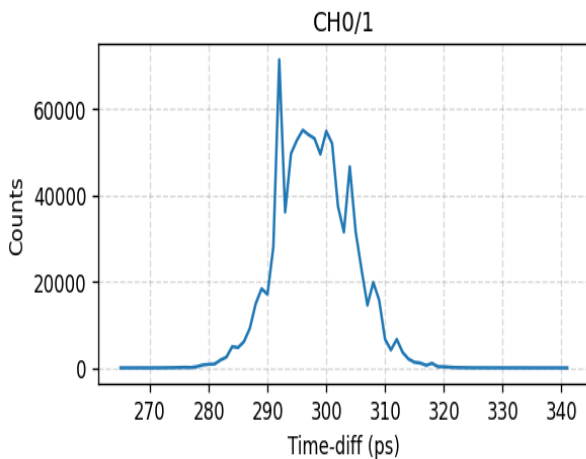
Test Result: **PASS**

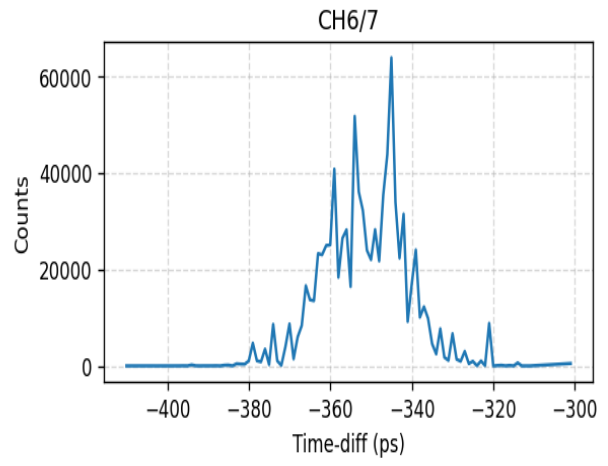
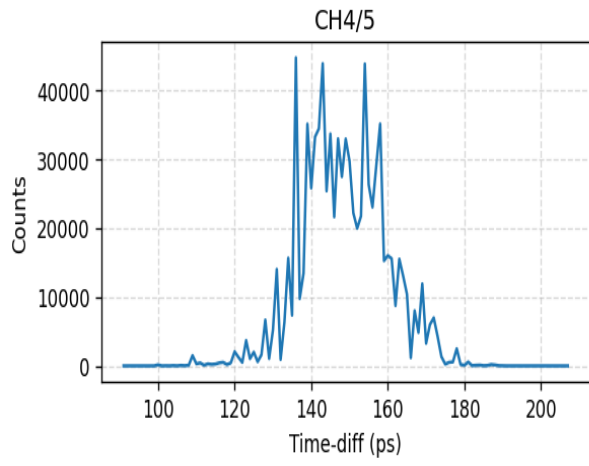
Test Item	Result
Change Board Id	PASS
Change 1G IP	PASS
Change 1G Netport	PASS
Change 10G IP	PASS
Change 10G Netport	PASS
TDC Resetrn	PASS
System Resetrn	PASS

6.3 10G Network CRT Performance Test(External Trigger)

Test Result: **PASS**

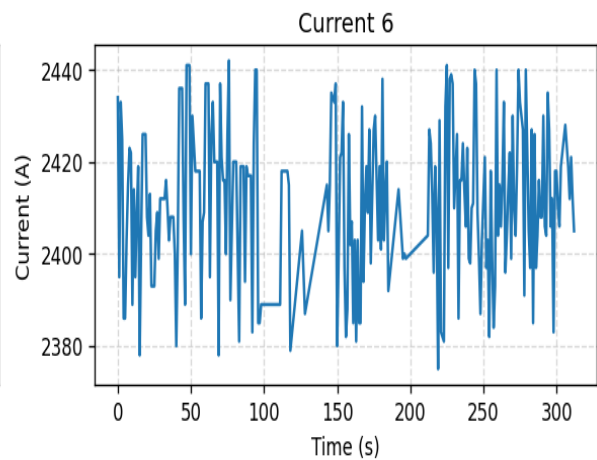
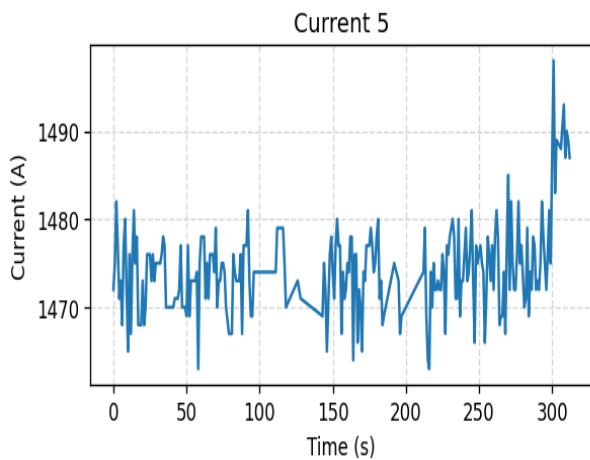
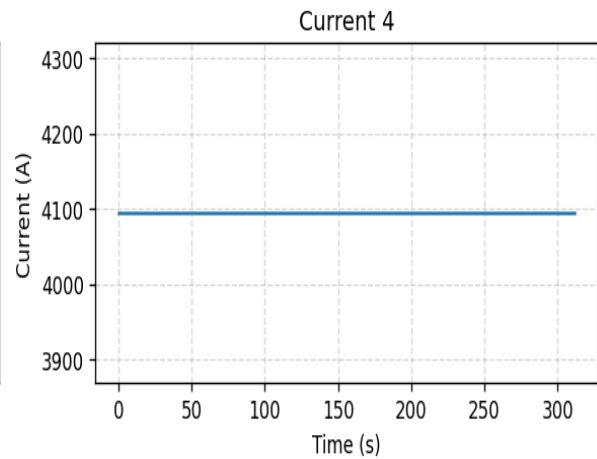
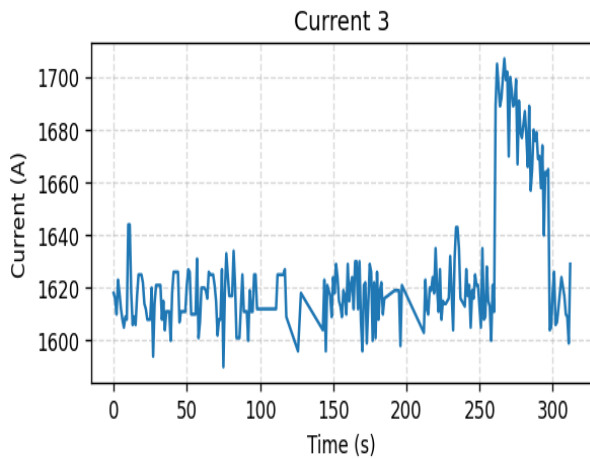
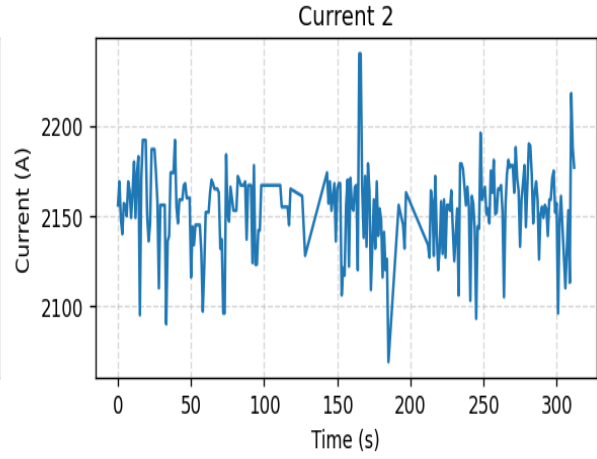
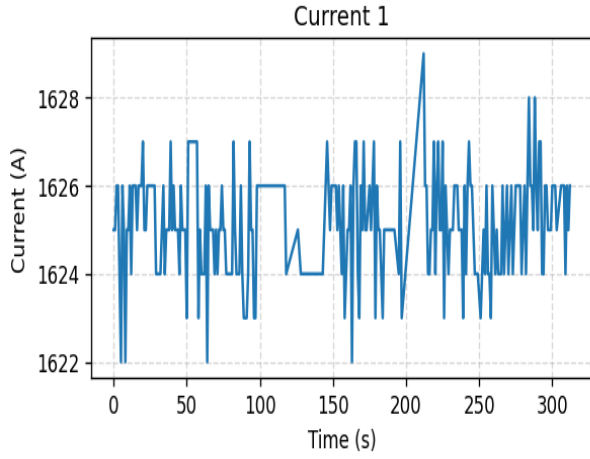
Channel Group	CRT(RMS, ps)	Mean(ps)	Result
CH0/1	6.29	297.67	PASS
CH2/3	9.32	5386.78	PASS
CH4/5	10.93	147.96	PASS
CH6/7	10.12	-350.98	PASS

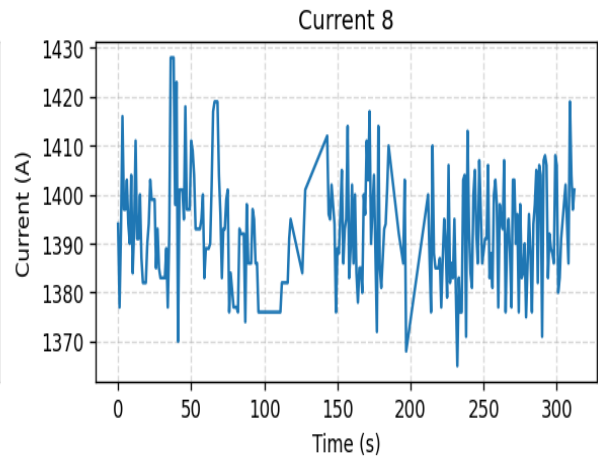
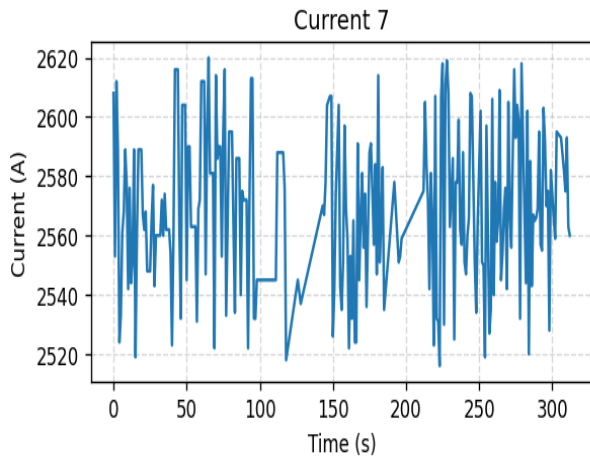




7. Device Status Monitoring Result

7.1 Channel Current Monitoring (A)





7.2 FPGA Temperature Monitoring (°C)

Fan Speed: **2538**(RPM)

