A032-ET Experimental Test on Changchun SLR

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Status in CCSLR

➢ Two interval counters in CCSLR
  HP5370B
  SR620

➢ the former to be used routinely
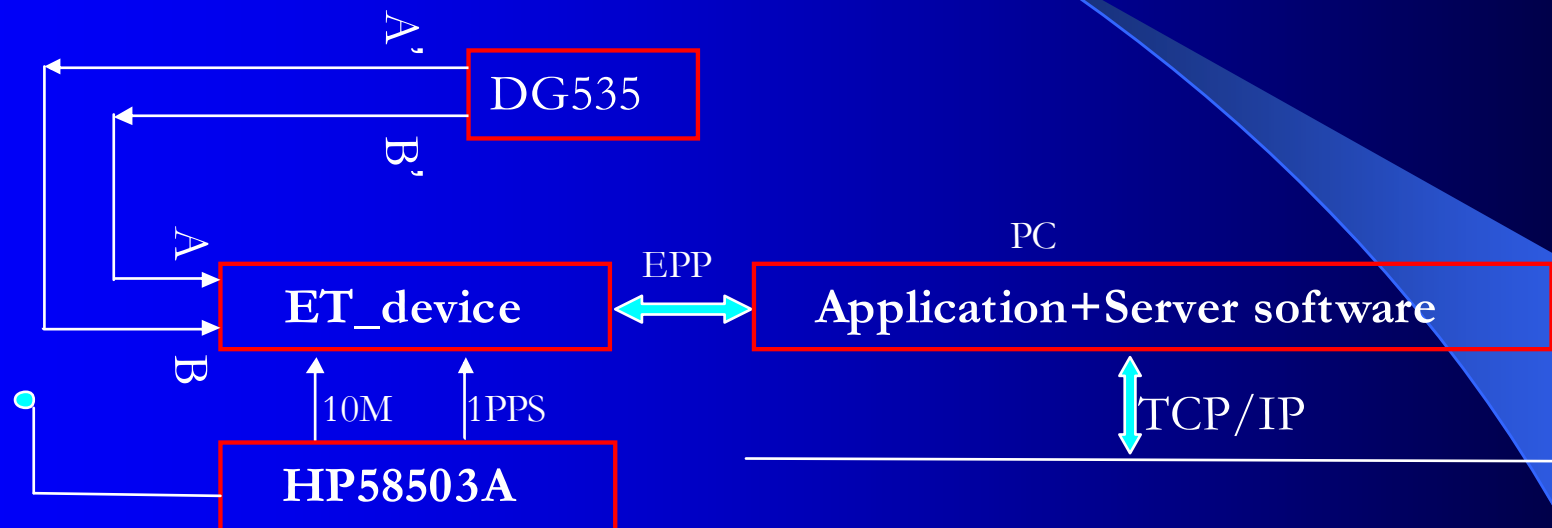   the latter as a standby

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Status in CCSLR

➢ Single shot resolution less than 2cm

➢ Passes more than 4000 every year

➢ The laser firing frequency:

8Hz (low orbit satellites)

4 or 5Hz (high orbit satellites)

➢ The purpose we use A032-ET is to increase the firing frequency for all satellite to 10Hz, and even higher.

A032-ET Experimental Test

➢ Simulation Measurement Test

➢ Range Gate Measurement

➢ Actual Observation

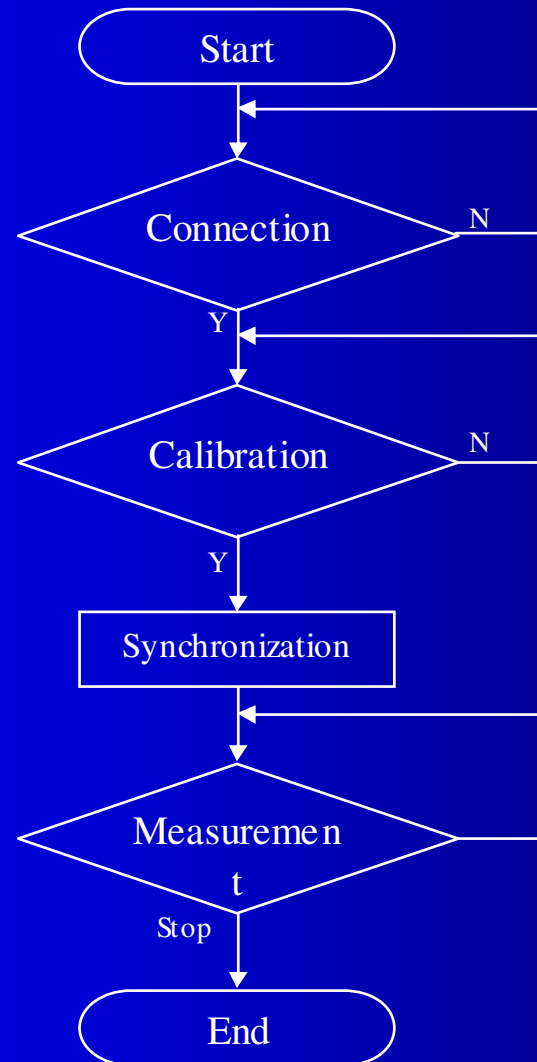# A032-ET Experimental Test

➤ Hardware connection diagram:

DG535 generated two NIM signals for A032-ET two inputs, and we set the rate to 10Hz, for the final purpose is increasing system rate of CCSLR to 10 Hz or higher.

The interval sent by DG535 was static and the trigger is interior.

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➢ Software flow chart:

Simulation Measurement Test

The main function written in VC++ language was compiled as Dynamic Link Library (DLL). The data received by A032-ET was transferred into control software written in VB for calculating the time interval.

The array transferred into VB included time-tags that the events happened in input A,B. It is possible to match the start and stop pulse with range gate prediction.
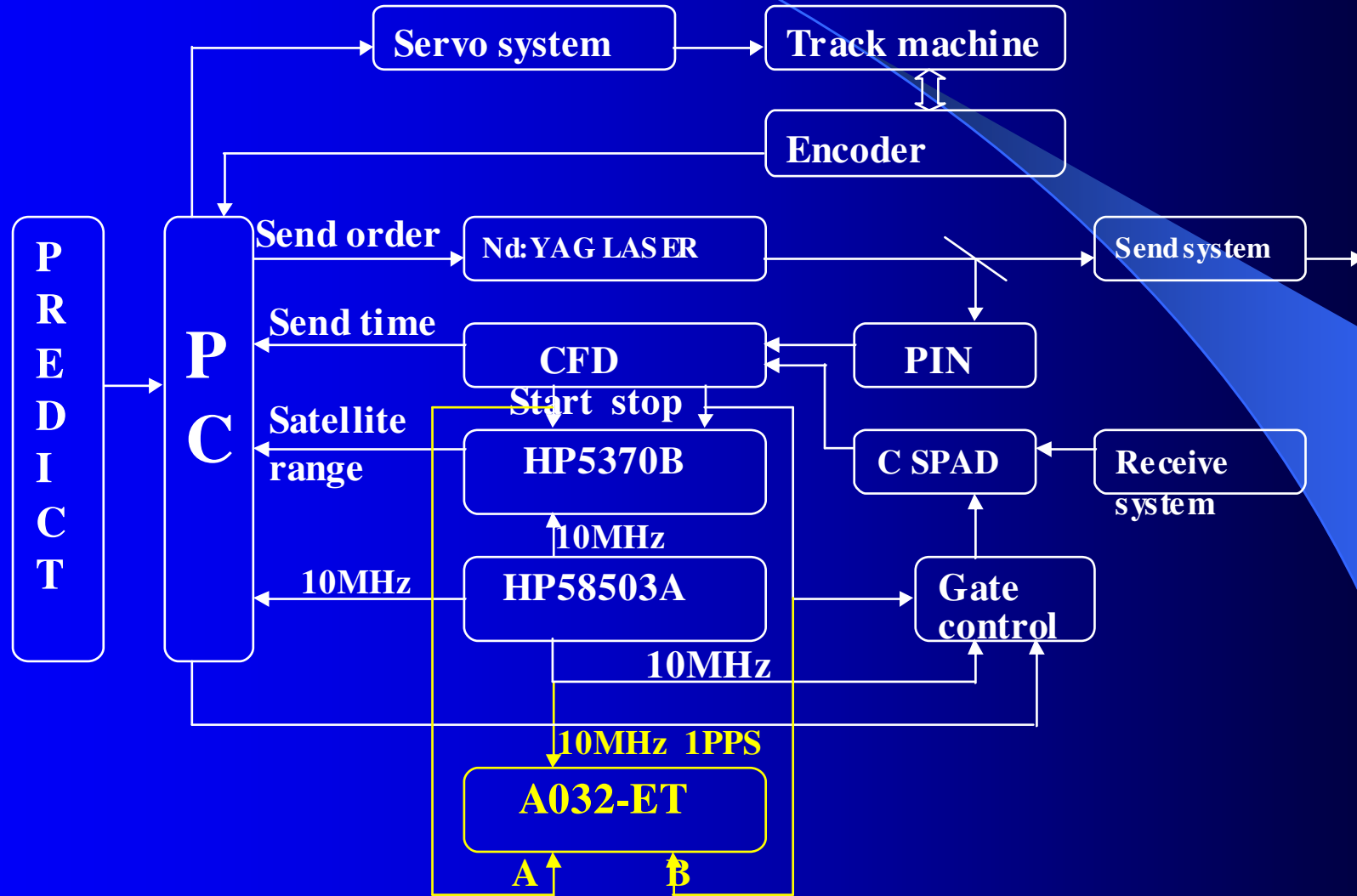
Range Gate Measurement

Range gate was measured with A032-ET to find out the matching was right or wrong. In this experiment, the start pulse is generated by DG535 which is triggered by laser firing, and output of the range gate is used as the stop pulse.
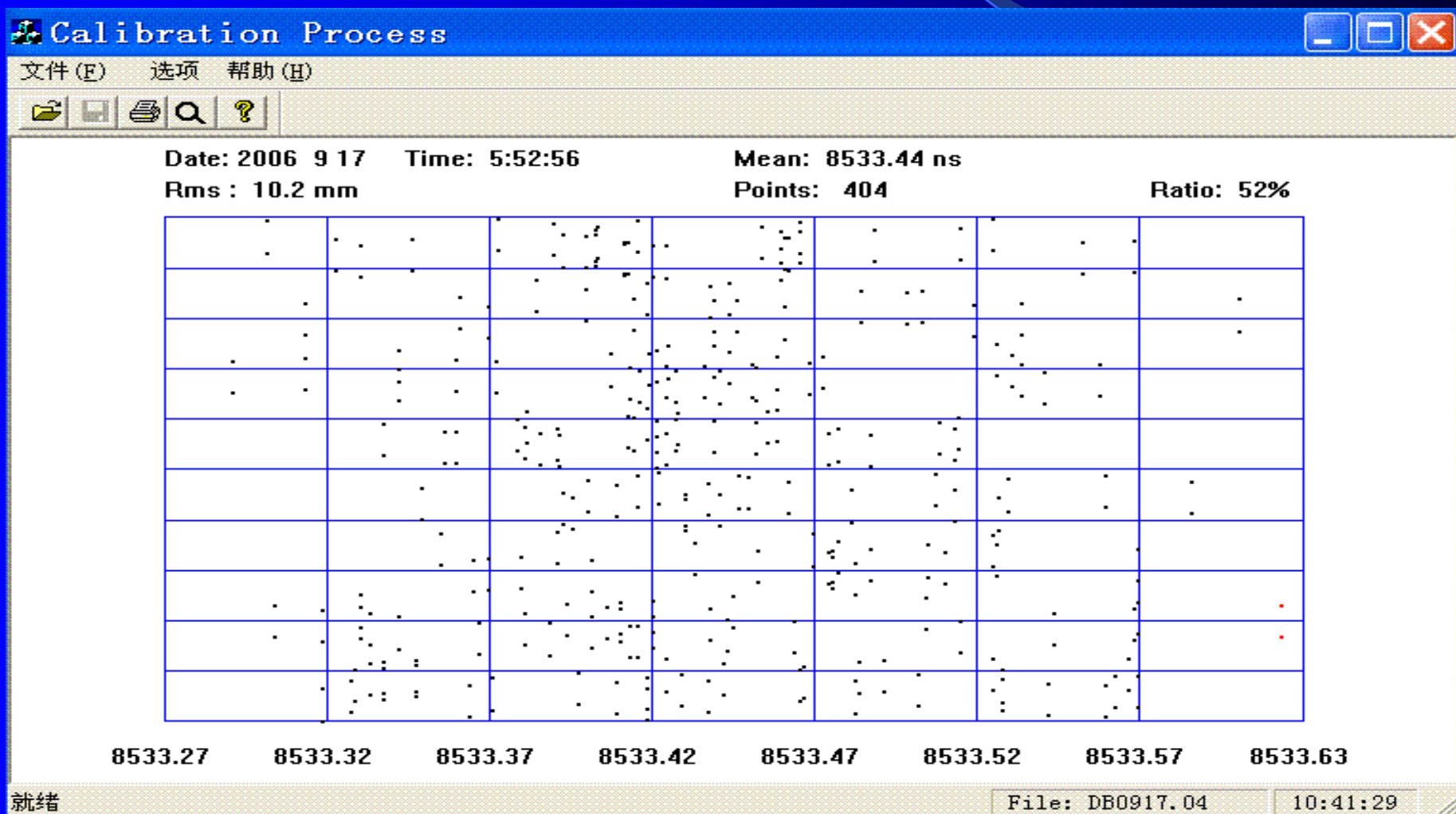
Actual Observation

The hardware connection is below:

Actual Observation

We used A032-ET instead of HP5370B in the system to measure target and the result was below:

Summary

The A032-ET works normally and it can be used in Changchun SLR system to replace HP5370B as a picosecond timer now, and for kHz laser system.

Thank you !