

# Development of the IDROGEN White Rabbit system for SuperKEKB and future project at KEK

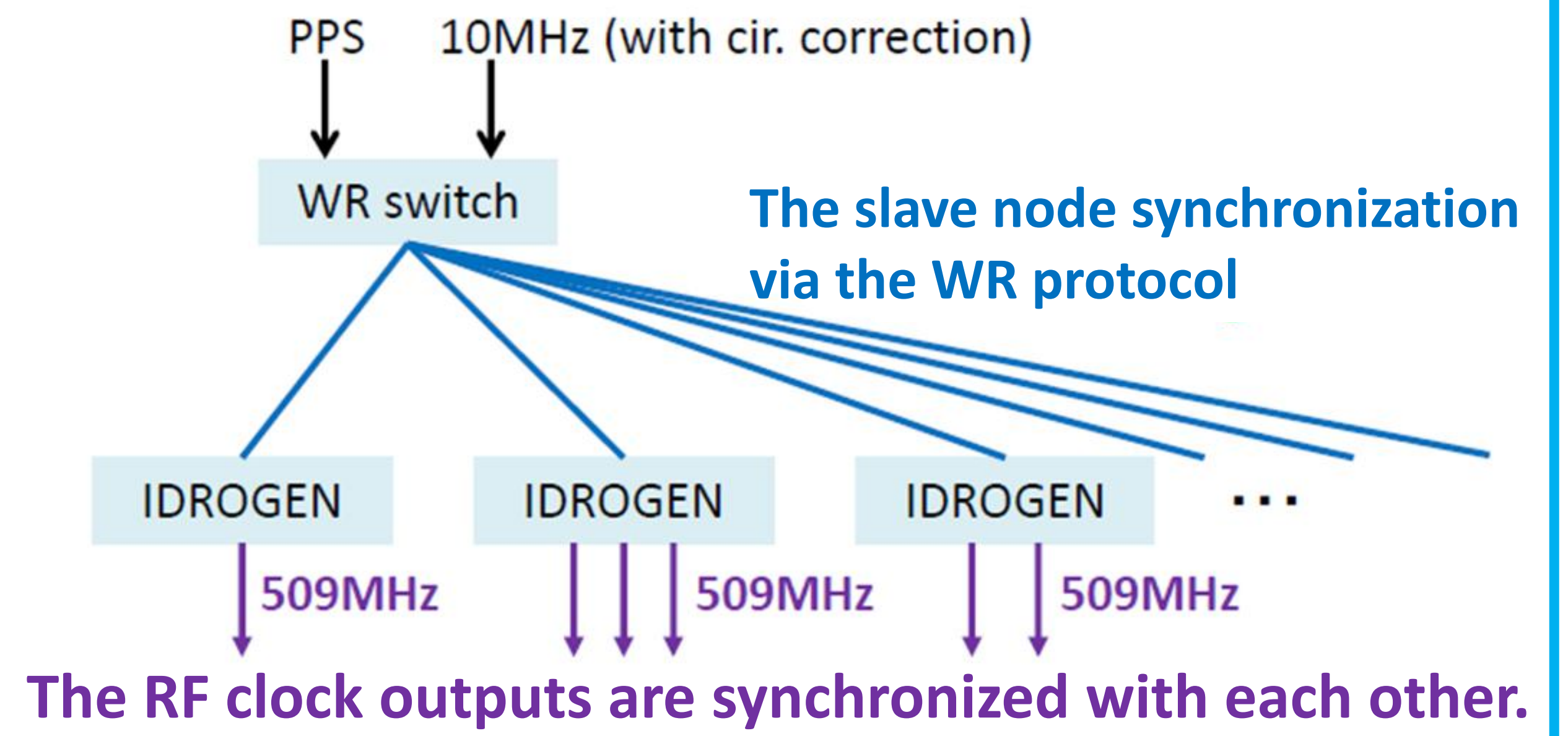
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White Rabbit is a precise clock synchronization system among the distant circuits based on open-hardware.

Several applications in large scientific field

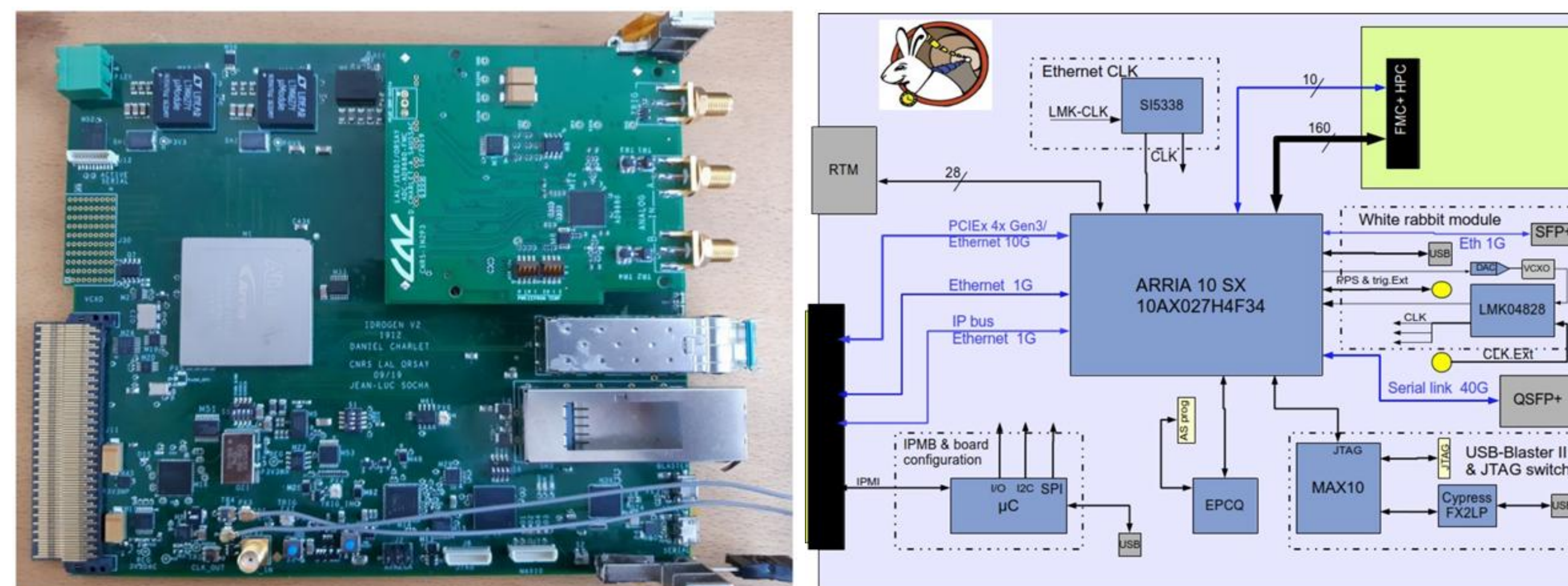
- Accelerator timing system
- DAQ for telescope array

We aim to use it as the RF clock generator for accelerators.

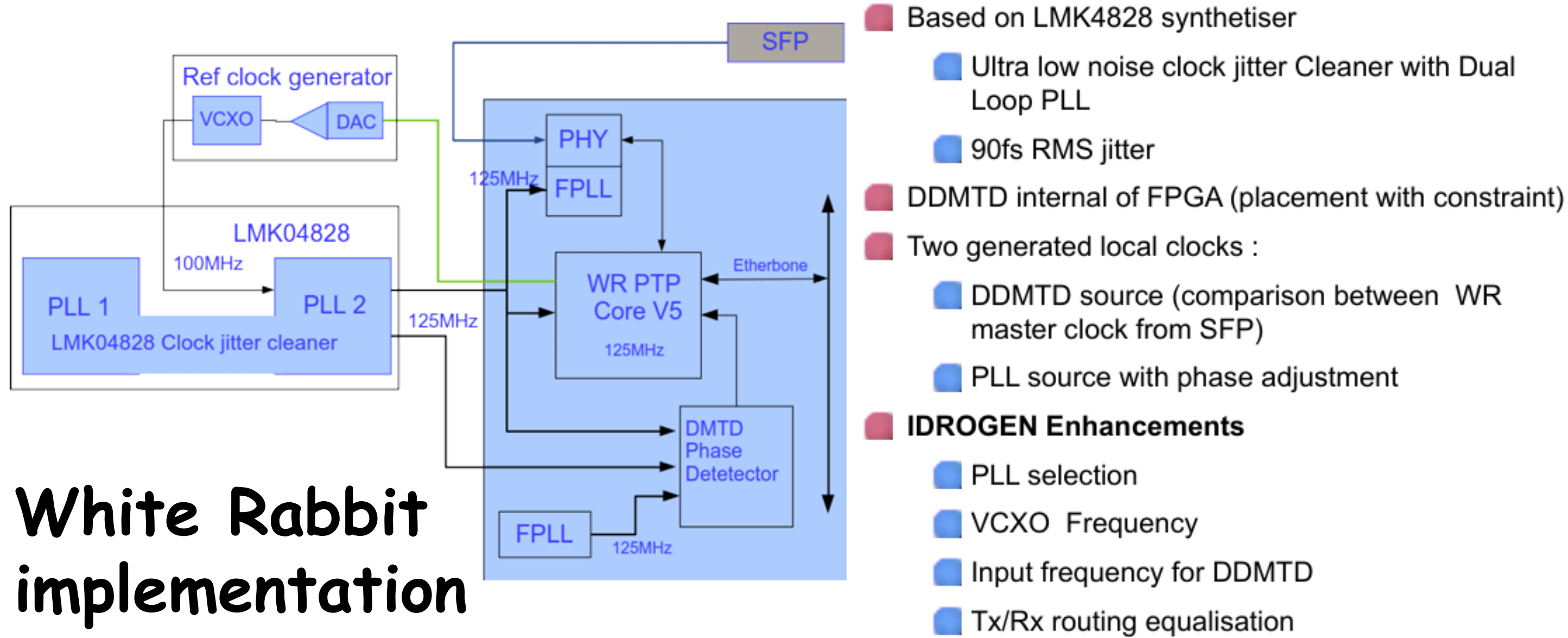


## IDROGEN, developed by IJCLab

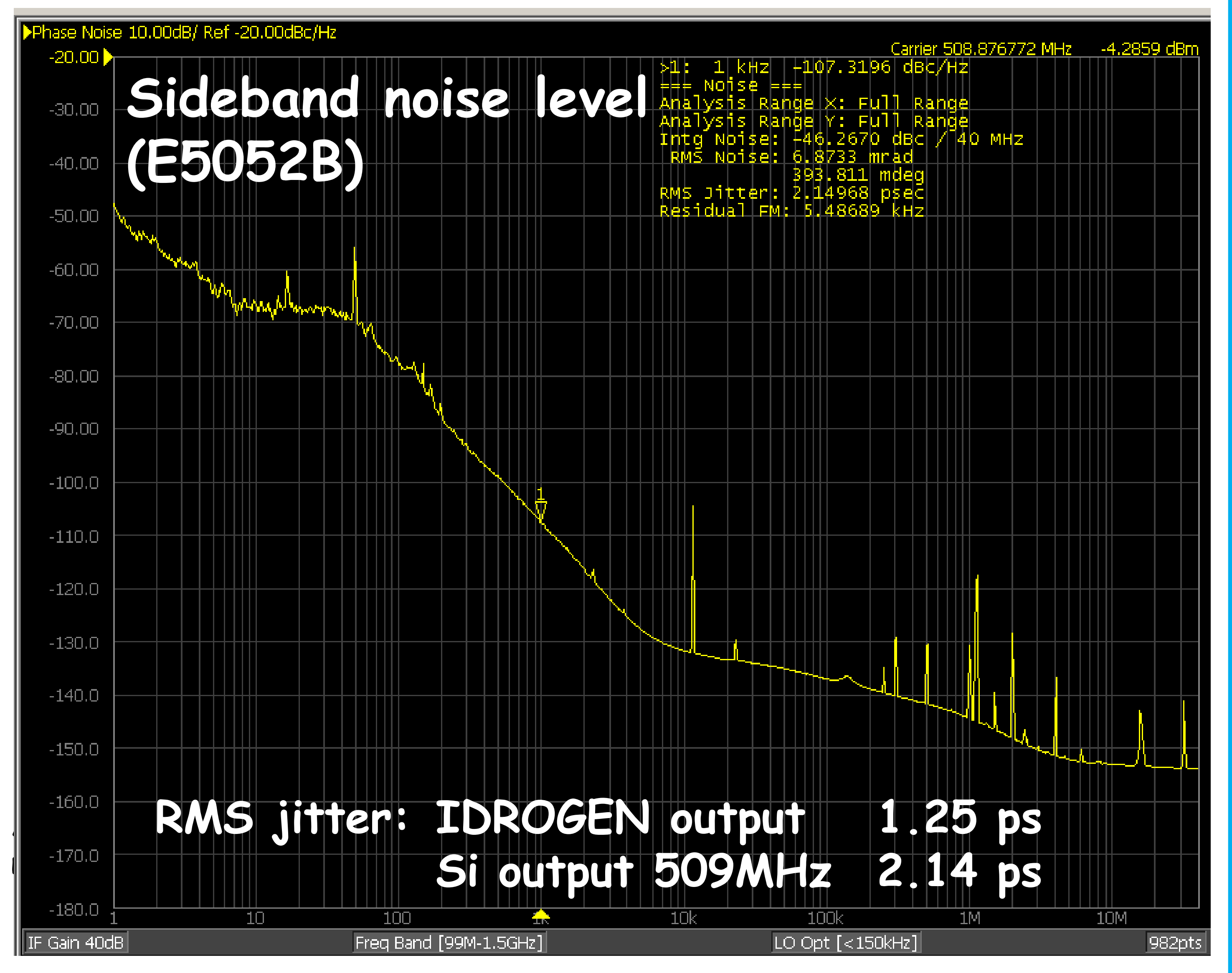
Please visit, [https://indico.ijclab.in2p3.fr/event/11115/attachments/24957/36558/WR-IJCLab\\_2025\\_01\\_30.pdf](https://indico.ijclab.in2p3.fr/event/11115/attachments/24957/36558/WR-IJCLab_2025_01_30.pdf)



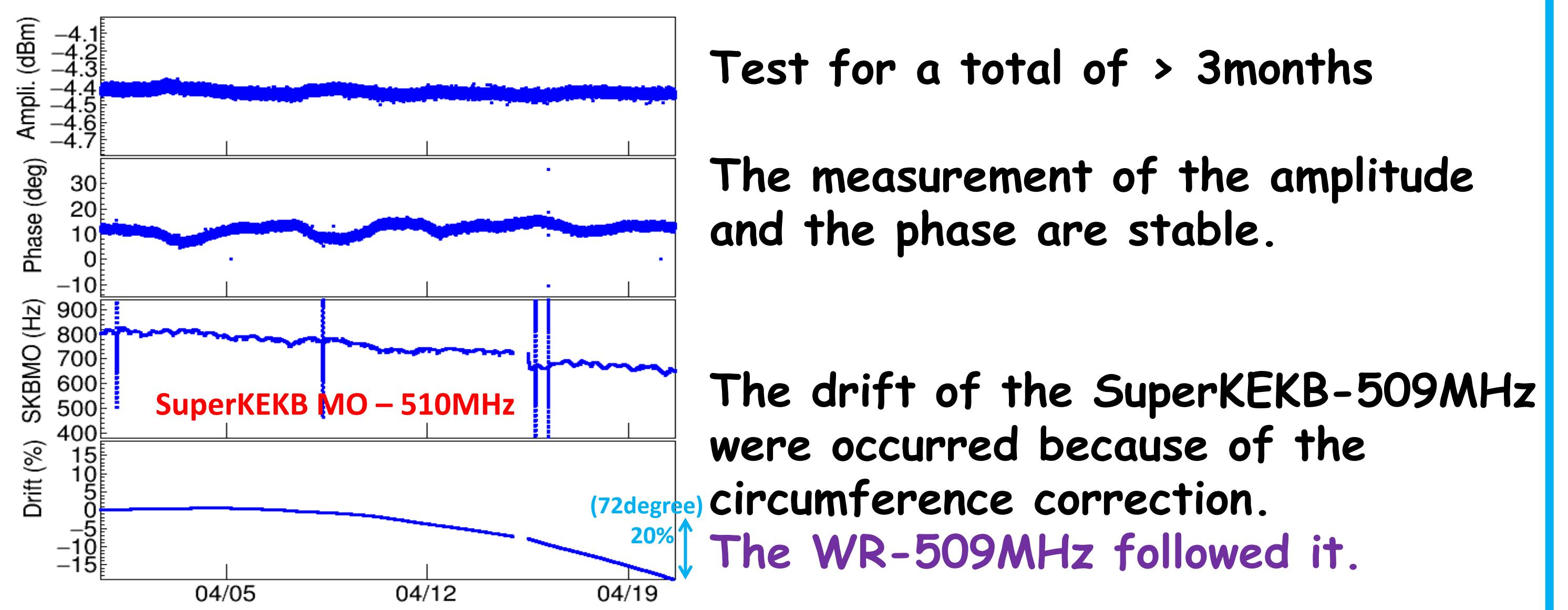
μTCA.4



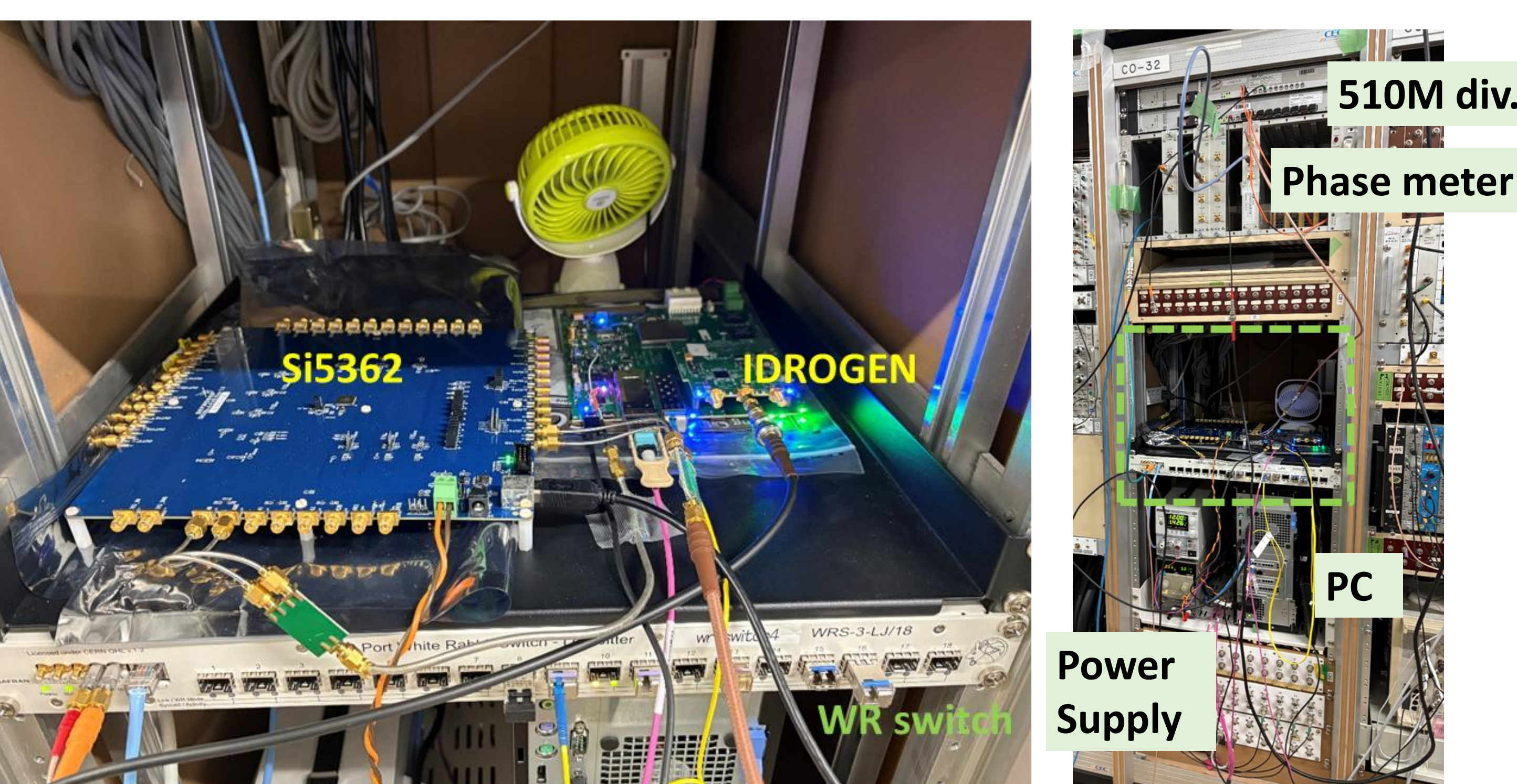
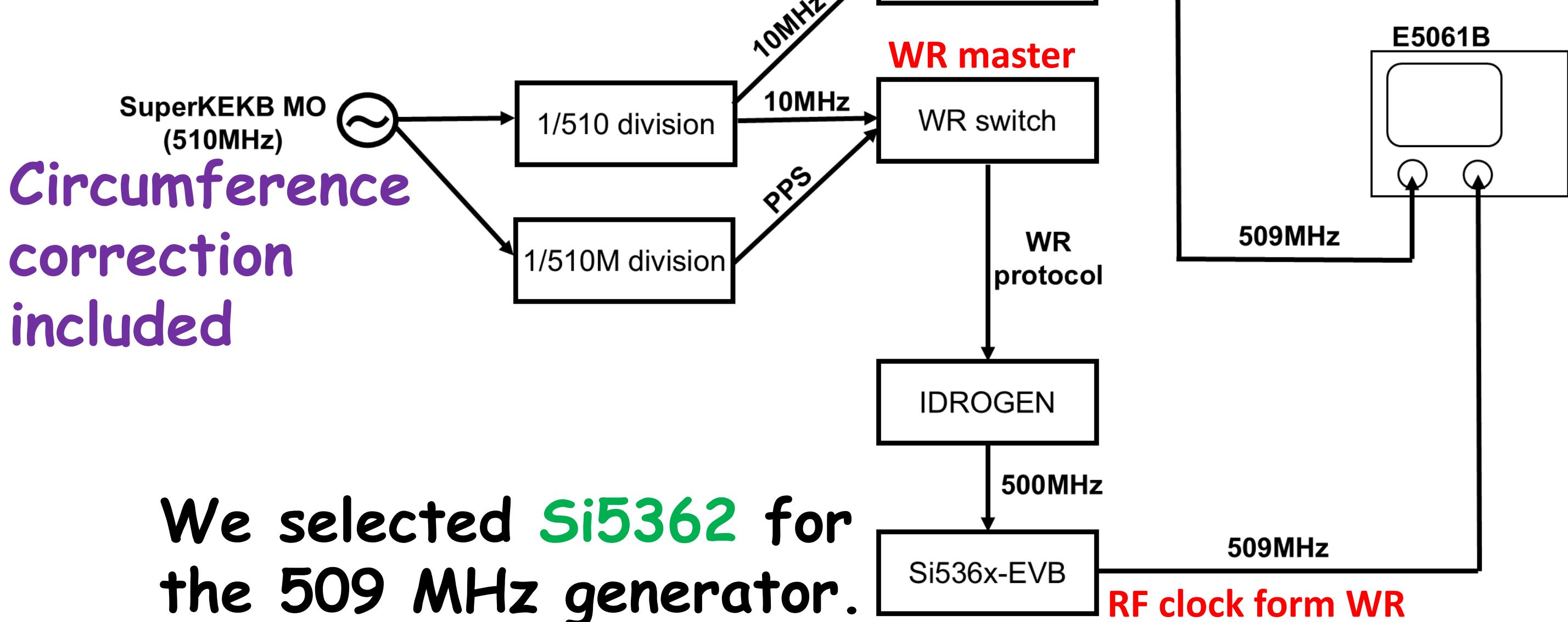
## White Rabbit implementation



## Long-term stability of the relative phase under the drift SuperKEKB-509MHz



## SuperKEKB setup



The phase drifts depending on the temperature and humidity are observed.

The correlation with the temperature is stronger. However, it is stabilized with the air conditioning. The humidity-drift is dominant in this measurement.

