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Development of a new clock phase shifter for phase measurement at the TPS

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Taiwan Photon Source (TPS) is a 3GeV synchrotron radiation facility located at NSRRC. There are super con-duct radio frequency (RF) cavities to provide energy to ramping or replenish electron beams in the booster ring and storage ring. In order to measure the bunch phase of each bunch relative to the RF clock of the accelerator, a bunch phase detector was developed to support measurement experiments. This detector uses the I/Q modulator method to calculate the phase. It provides same as RF frequency as the ADC clock and three times the RF frequency to calculate the phase difference between the beam and the reference signal. In order to make the operation more conven-ient, a single-board computer is integrated to realize the remote phase adjustment function and is integrated with the control system. This bunch phase detector has provided some experiments for data measurement. This paper describes the efforts to develop the system.

Footnotes

Paper preparation format

Word

Region represented

Asia

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