

## Abstract

The effects of utilizing a third harmonic RF cavity in the lengthening mode have been investigated on quality of the electron beam and the emitted photons in the deflecting RF structures for TPS. For the obtained optimum synchronous and relative harmonic phases and harmonic voltage of 0.7 MV, the equilibrium horizontal and vertical emittances blow up as much as 13% and 97%, respectively. In addition, the intensity of the emitted X-ray pulses with 0.54 ps FWHM reduces by 30%.