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Beam excitation methods for round beams at ALBA

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ALBA is undergoing a lattice upgrade to transform its current storage ring into a 4th generation light source, reducing emittance to the $200\text{pm}\cdot\text{rad}$ level. Under these conditions, the Touschek lifetime becomes a significant operational limitation. To address this, various methods to increase the beam coupling, thereby enhancing the Touschek lifetime, are being investigated. This report summarizes the tests conducted at ALBA aimed to increase the vertical emittance and reach up round beam conditions. The tests involve different AC beam excitation methods: vertical dipolar excitation using either white noise or the synchro-betatron sideband ($Q_v + Q_s$), and skew quadrupole excitation at the tunes difference ($Q_x - Q_y$).

Footnotes

Funding Agency

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Yes

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