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Results from extended range SRF cavity tuners tests for LCLS-II-HE

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The LCLS-II HE superconducting linac can produce multi-energy beams by supporting multiple undulator lines simultaneously. This could be achieved by using the cavity SRF tuner in the off-frequency detune mode. This off-frequency operation method was tested in 8 cryomodules at Fermilab at 2 K. In all the tests the tuners successfully achieved a frequency shift of -565 ± 80 kHz from the 1.3 GHz value. This study discusses the cavity frequency during each stage of assembly from the cryomodule string to when they are finally tested at 2 K. Monitoring the cavity frequency from this initial stage contributed in reaching this large frequency shift. The specific procedures of tuner setting during assembly will be presented.

Footnotes

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Primary author: CONTRERAS-MARTINEZ, Crispin (Fermi National Accelerator Laboratory)

Co-authors: CRAVATTA, Andrew (Fermi National Accelerator Laboratory); HARTSELL, Brian (Fermi National Accelerator Laboratory); ROMANOV, Gennady (Fermi National Accelerator Laboratory); KALUZNY, Joshua (Fermi National Accelerator Laboratory); POSEN, Sam (Fermi National Accelerator Laboratory); KHABIBOULLINE, Timergali (Fermi National Accelerator Laboratory); ARKAN, Tug (Fermi National Accelerator Laboratory); PIS-CHALNIKOV, Yuriy (Fermi National Accelerator Laboratory)

Presenter: CONTRERAS-MARTINEZ, Crispin (Fermi National Accelerator Laboratory)

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