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Ten years of operation with the SOLEIL RF systems : experience, upgrades, R&D's

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In the SOLEIL storage ring, two cryomodules provide to the electron beam an accelerating voltage of 3-4 MV and a power of 575 kW at 352 MHz. Each cryomodule contains a pair of "HOM free" superconducting cavities, cooled with liquid Helium at 4.5 K, which is supplied by a single 350 W cryogenic plant. The RF power is provided by four solid state amplifiers (SSA), each delivering up to 180 kW. In the Booster ring one 5-cell copper cavity, powered with a 35 kW SSA, provides an accelerating voltage of about 1 MV at 352 MHz. We report here about the ten-year operational experience with these systems, their main upgrades and more generally about R&D's, carried out at SOLEIL in the SSA field.

Summary

In the SOLEIL storage ring, two cryomodules provide to the electron beam an accelerating voltage of 3-4 MV and a power of 575 kW at 352 MHz. Each cryomodule contains a pair of "HOM free" superconducting cavities, cooled with liquid Helium at 4.5 K, which is supplied by a single 350 W cryogenic plant. The RF power is provided by four solid state amplifiers (SSA), each delivering up to 180 kW. In the Booster ring one 5-cell copper cavity, powered with a 35 kW SSA, provides an accelerating voltage of about 1 MV at 352 MHz. We report here about the ten-year operational experience with these systems, their main upgrades and more generally about R&D's, carried out at SOLEIL in the SSA field.

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