Cryomodule Tests in STF Phase-1 at KEK

(KEK, Japan)

Purpose of Cryomodule Test
To check the performance as a total superconducting cavity system, and to find out the improvement points for the future project.

SUMMARY
Two noble progress were made in this cryomodule test containing four Tesla-like cavities:
- A stable pulse operation at 32 MV/m was achieved in one of four cavities with no degradation from the vertical test results.
- Successful compensation of Lorentz force detuning at 31 MV/m was demonstrated by pre-detuning and a piezo tuner.

High Field Performance (1)
Stable Pulse Operation at 32 MV/m in C628 Cavity

High Field Performance (2)
Comparison of Ecc max between V.T and C.T

High Field Performance (3)
X-rays Radiation Level vs. Ecc

Lorentz Force Detuning (1)
Observation of Lorentz-detuning frequency

Lorentz Force Detuning (2)
Comparison of Required Piezo Stroke

Lorentz Force Detuning (3)
Compensation of Lorentz-detuning by Piezo Tuner

Dynamic Loss Measurement (1)
Four-cavity operation with vector-sum control

Dynamic Loss Measurement (2)
Dynamic RF Loss Meas. in on/off Resonance

Dynamic Loss Measurement (3)
Go Values by Dynamic RF Loss Measurements

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[Image 1277x1834 to 1918x2268]
[Image 1946x1829 to 2604x2274]
[Image 2632x1834 to 3296x2279]
[Image 619x32 to 1158x352]
[Image 58x2226 to 205x2319]
[Image 1033x2224 to 1204x2319]