

VERTICAL TEST SYSTEM AND T-MAPPING/X-RAY-MAPPING AT KEK-STF

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Abstract

New vertical test system was constructed at KEK-STF in 2008. Pilot test for system check including surface treatment process (Electro-Polishing) was successful using AES#001 cavity, which was on loan from FNAL, because the gradient was increased from 15.7 MV/m to 21.8 MV/m. After that, vertical test for MHI cavities is routinely done, which goal is to achieve above 35 MV/m. New cavity diagnostic system was recently completed for vertical testing of 9-cell L-band superconducting cavities, which is composed of T-mapping and X-ray-mapping. The present system is based on 352 carbon resistors for T-mapping, and 82 PIN photo diodes for detecting emission of X-rays. While most of the sensors are attached to the cavity exterior in a pre-determined regular pattern, some sensors can be strategically placed at non-regular positions so as to watch the areas which are considered “suspicious” as per the surface inspection done prior to vertical testing (pinpoint attachment). Although the T-mapping system identified perfectly the heating location in every vertical test, there was no correlation between the heating location and the suspicious spot.

**CONTRIBUTION NOT
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