

## The cavity for RF input coupler conditioning at SPring-8

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We have developed a cavity specifically used for the coupler conditioning. For the booster synchrotron, 5-cell cavities are used and maximum 300-kW RF power must be fed through the couplers, whereas for the storage ring single cell cavities are used and the power fed through the coupler is 150 kW at maximum. Each coupler should be conditioned before the installation to the actual machine. We used the prototype 5-cell cavity for acceptance tests when we purchase additional couplers as spare parts. However, a vacuum leak occurred on the 5-cell cavity, in addition, the 5-cell cavity was heavy, large and not easy to handle. We decided to make a new cavity used only for conditioning the couplers. Two couplers were connected face to face, in-between the coupler-conditioning cavity was located. For the conditioning, one of the couplers was connected to the output of a 1-MW klystron, and the other coupler was connected to a dummy load. During the conditioning, RF power passed through the couplers and the cavity, and was absorbed in the dummy load. The coupler-conditioning cavity is small, light and easy to handle. The efficiency of the conditioning work was significantly improved.

**Primary author:** Dr EGO, Hiroyasu (SPring-8/JASRI)

**Co-authors:** Dr SAEKI, Hiroshi (SPring-8/JASRI); Dr YONEHARA, Hiroto (SPring-8/JASRI); Dr SASAKI, Shigeki (SPring-8/JASRI); Dr WATANABE, Takahiro (SPring-8/JASRI); Dr KAWASHIMA, Yoshitaka (BNL); Dr OHASHI, Yuji (SPring-8/JASRI)

**Presenter:** Dr SASAKI, Shigeki (SPring-8/JASRI)

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