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Technical Issues on RF power coupler for QWR and HWR cavity in RISP (10' + 8')

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Abstract

RF power couplers for QWR and HWR cavity are under the mass production in RISP. We will present the technical issues which occurred during the preparation and test of the RF power couplers. The contamination of the coupler is occurred after the ultra-sonic cleaning (USC) with the DI-water. The USC procedure of the coupler is modified as replacing the DI-water to the ethanol. The material for metallization of ceramic window, which is AgCu alloy (Ag-50% Cu-50%), could be oxidized by the DI-water. And the surface of the outer conductor is contaminated after the USC procedure. Substitute the ethanol for the DI-water, the contamination of ceramic window is not observed after the USC procedure. Also, the decay time measured from the RF power coupler has non-linearity when the RF power switched off. This non-linearity of decay time is only observed in horizontal test. The non-linearity of decay time makes the decay time longer than the linear decay time, and the loaded Q is also increased. The linear part of the decay time, which is a few hundreds of micro-second after the RF power switched off, is used for calculation of the loaded Q.

Provocative topics:

The high pressure rinse procedure is necessary for clean room preparation of RF power coupler?

The reason of the non-linearity in the measured decay time

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