

Discussion on "Design of a Power Coupler for the AAA Spoke Resonators" by Frank Krawczyk

The discussion mainly focused on the port size issue. Krawczyk answered on the proposed scenario of having to transmit a maximum of 35 kW. He would prefer to go to a smaller coupler port to mitigate some of the problems introduced by the large port size of the present design. Tajima added that for cleaning and processing the large port size is still desirable and that the main problems might be resolved if the RF-joint is moved further away from the cavity instead. Rusnak added a proposal to maintain the coupler as is and neck down the port size close to the cavity, e.g. by a taper. Tapers have been shown in some cases to add to the likelihood of multipacting. This could be avoided if the taper is in a fully warm or cold region. This would keep condensed water vapor away from its surface. Water vapor is the main source of increased secondary emission in coupler lines.

In a final point Krawczyk detailed the frequency change due to the coupler position. Changing the coupler from 13 to 20 mA operation changes the cavity frequency by 200 kHz. This can easily be compensated by the slow tuner. A change to 100 mA requires a 1 MHz change, which uses 50% of the tuning margin allowed from mechanical considerations.