

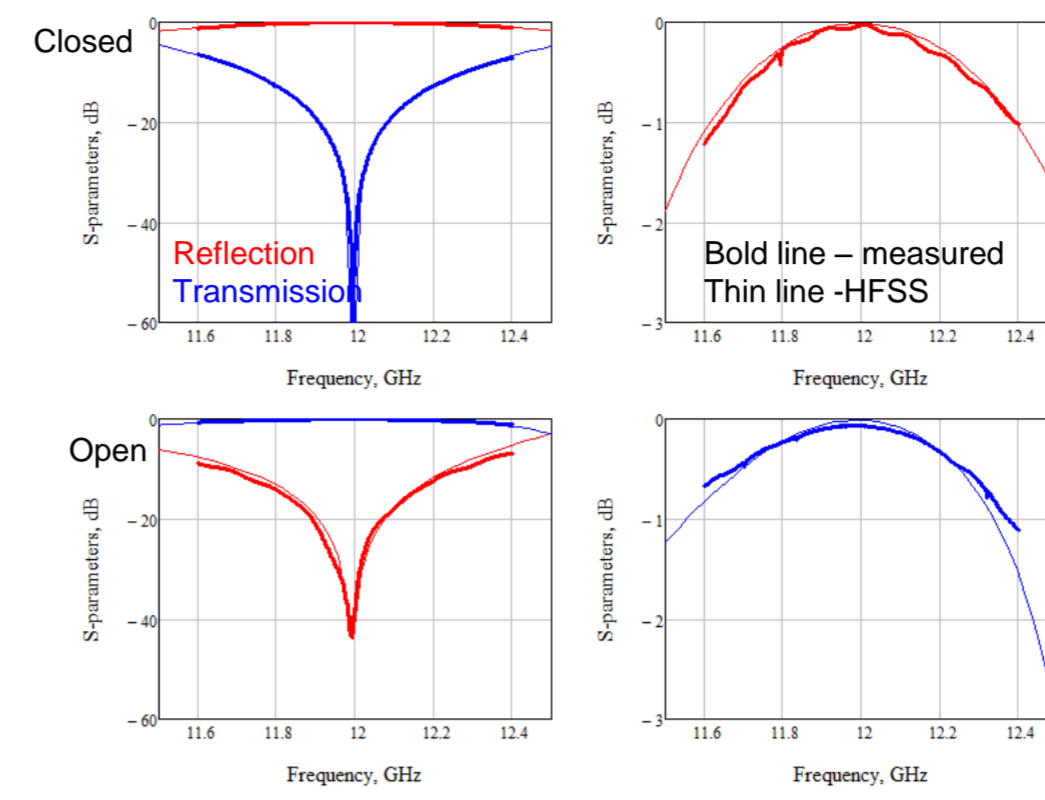
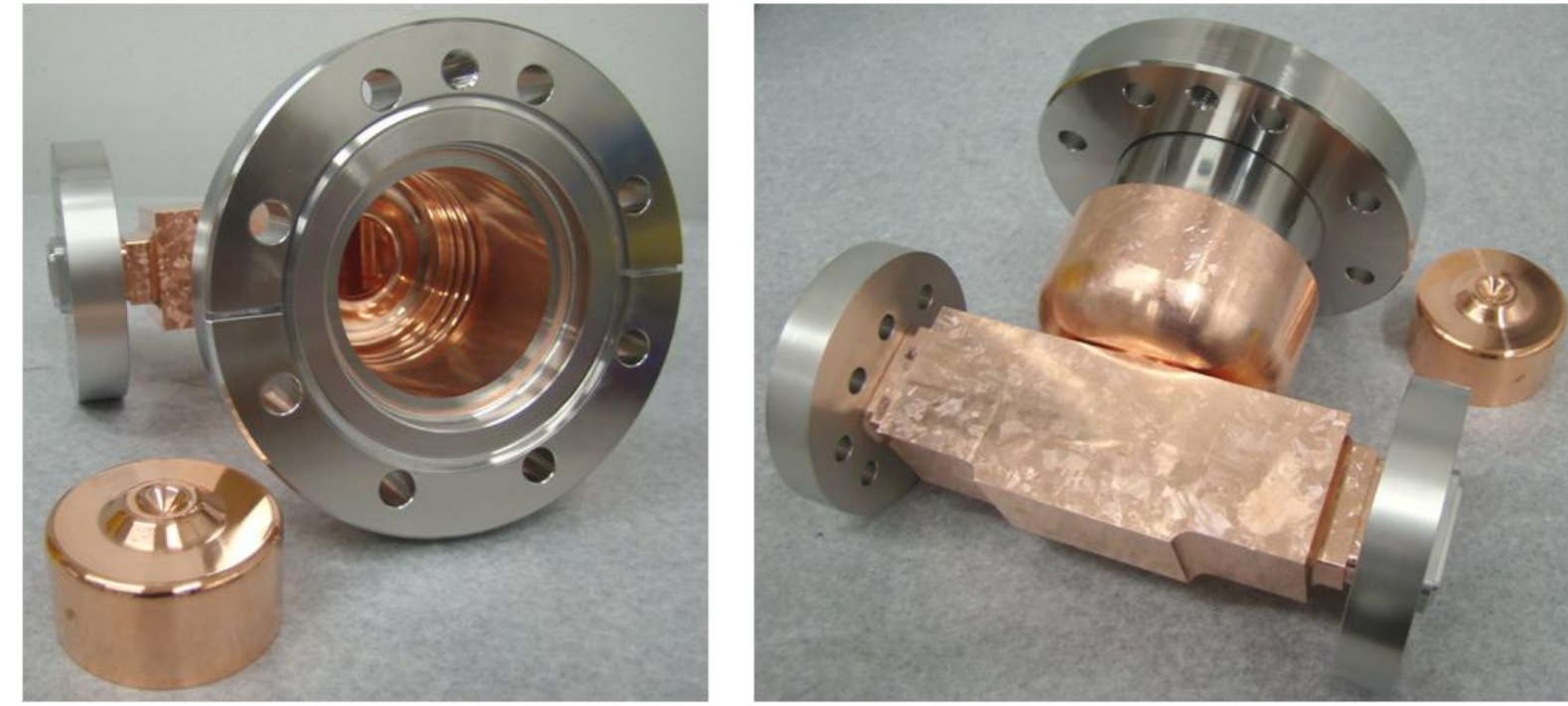
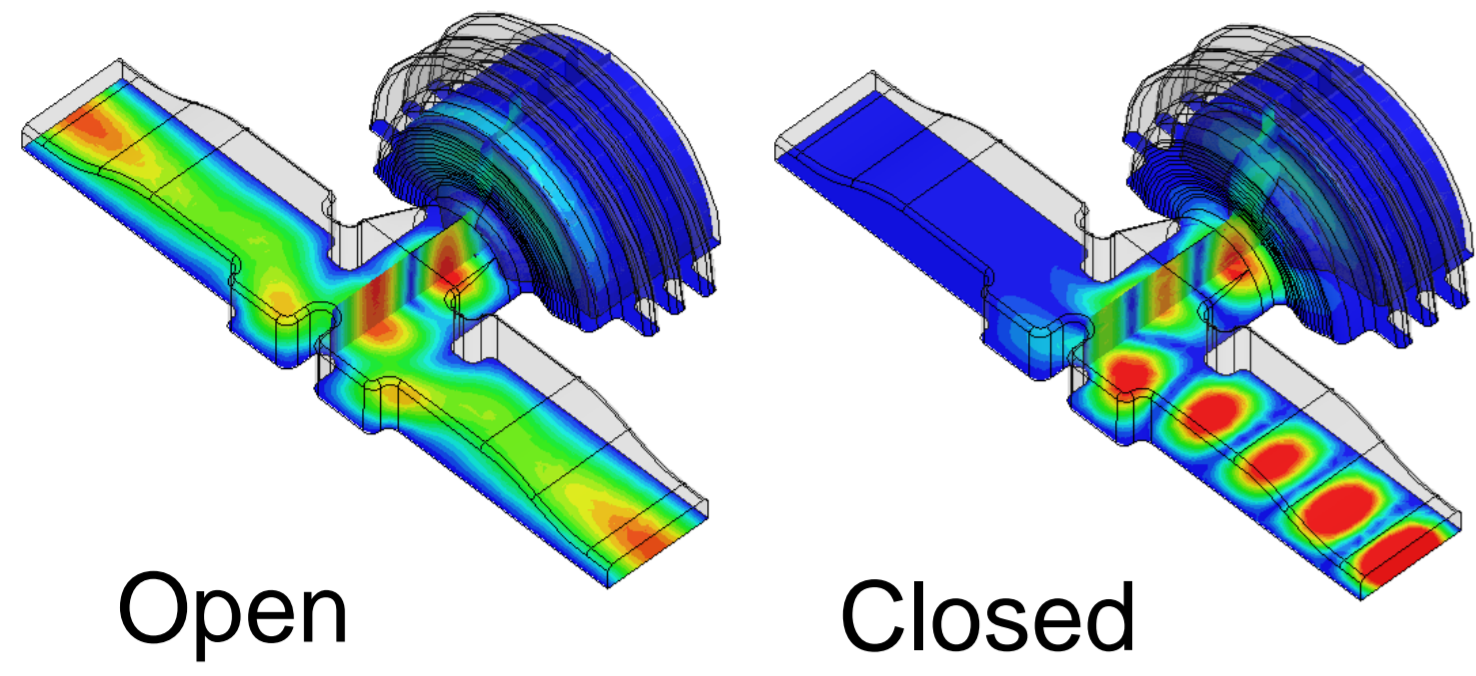
General purpose X-band High RF power components developed within CLIC collaboration.

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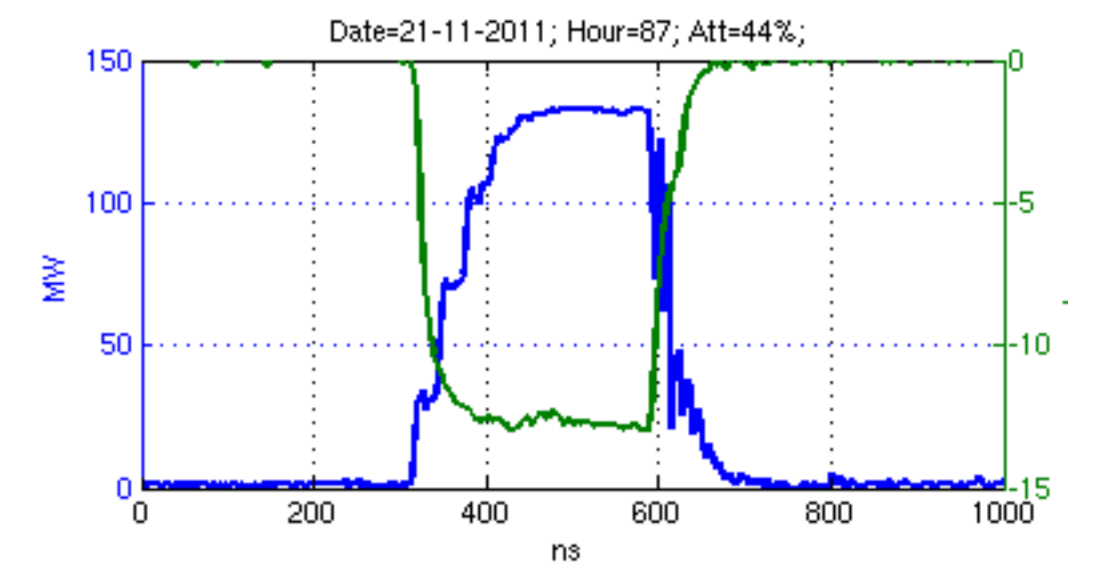


To operate the future high RF power test stands at CERN and potentially in the other Labs, a big number of specialised waveguide RF components will be needed. We have launched the dedicated campaign to develop compact (broadband), simple in RF design (inexpensive) components. The "shopping" list of such devices is presented.

Variable RF reflector

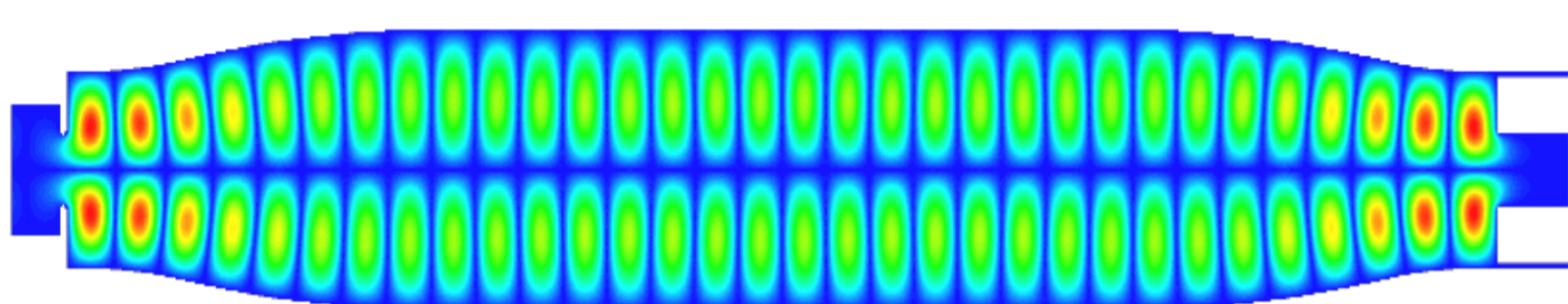


Two prototypes have been fabricated. Tested in TBTS up to 150 MW x 200 ns.

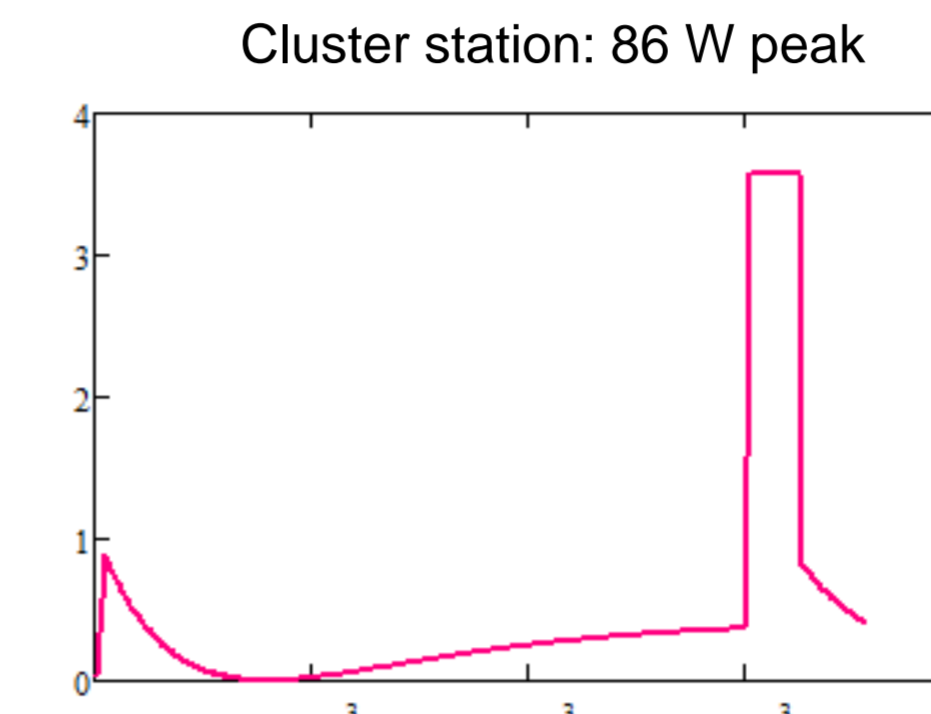
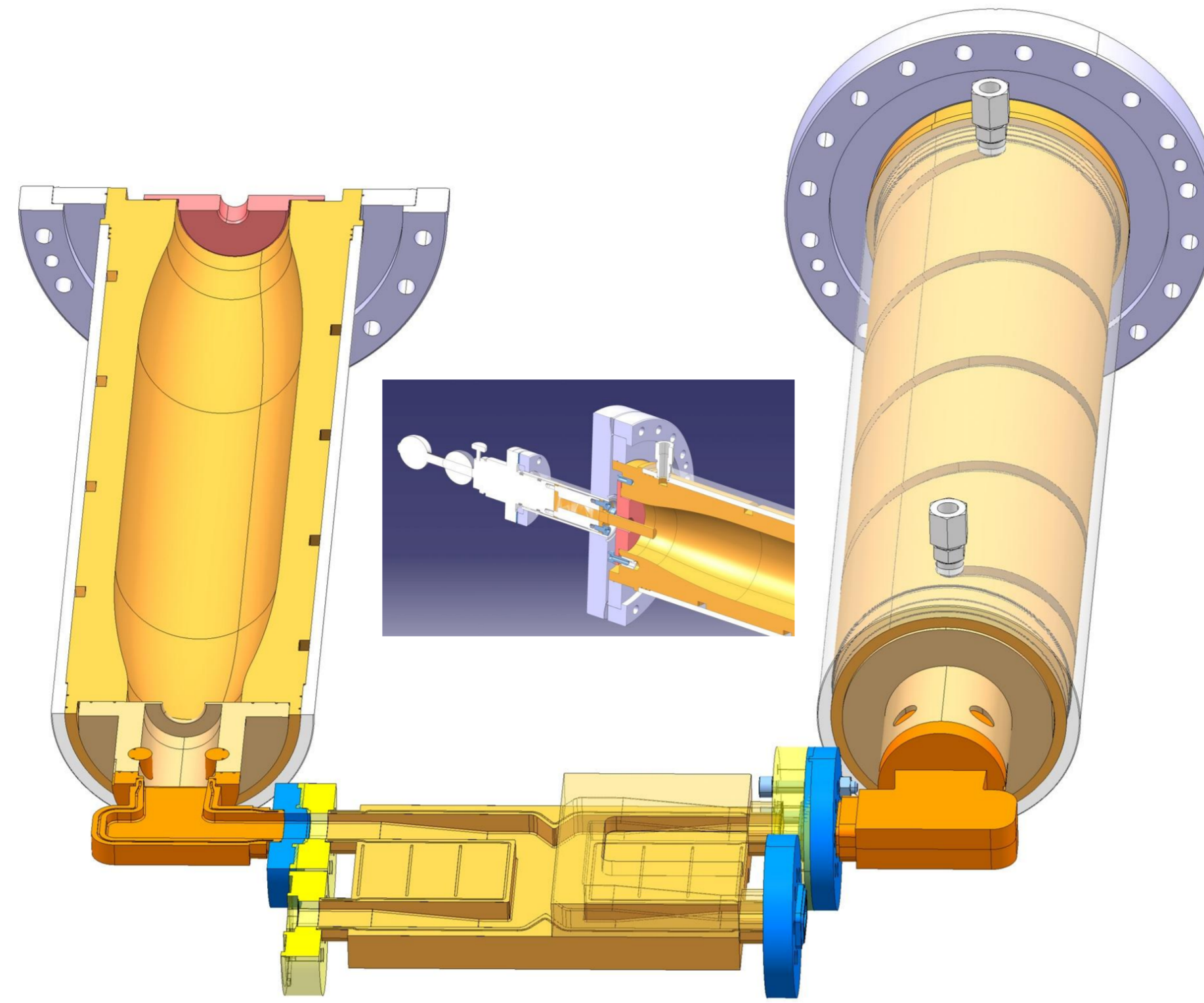


SLED RF pulse compressor

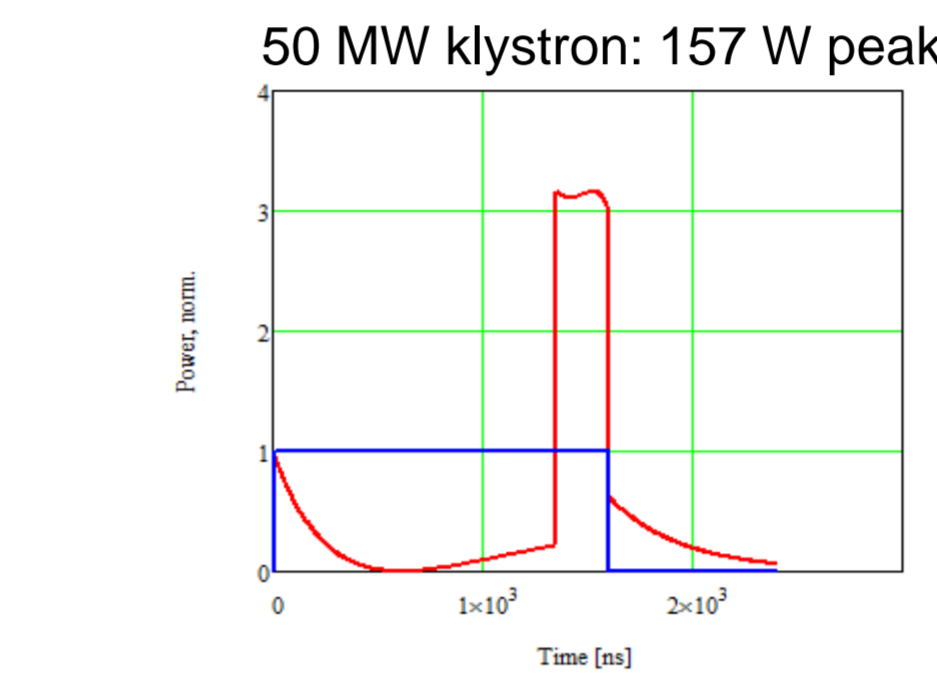
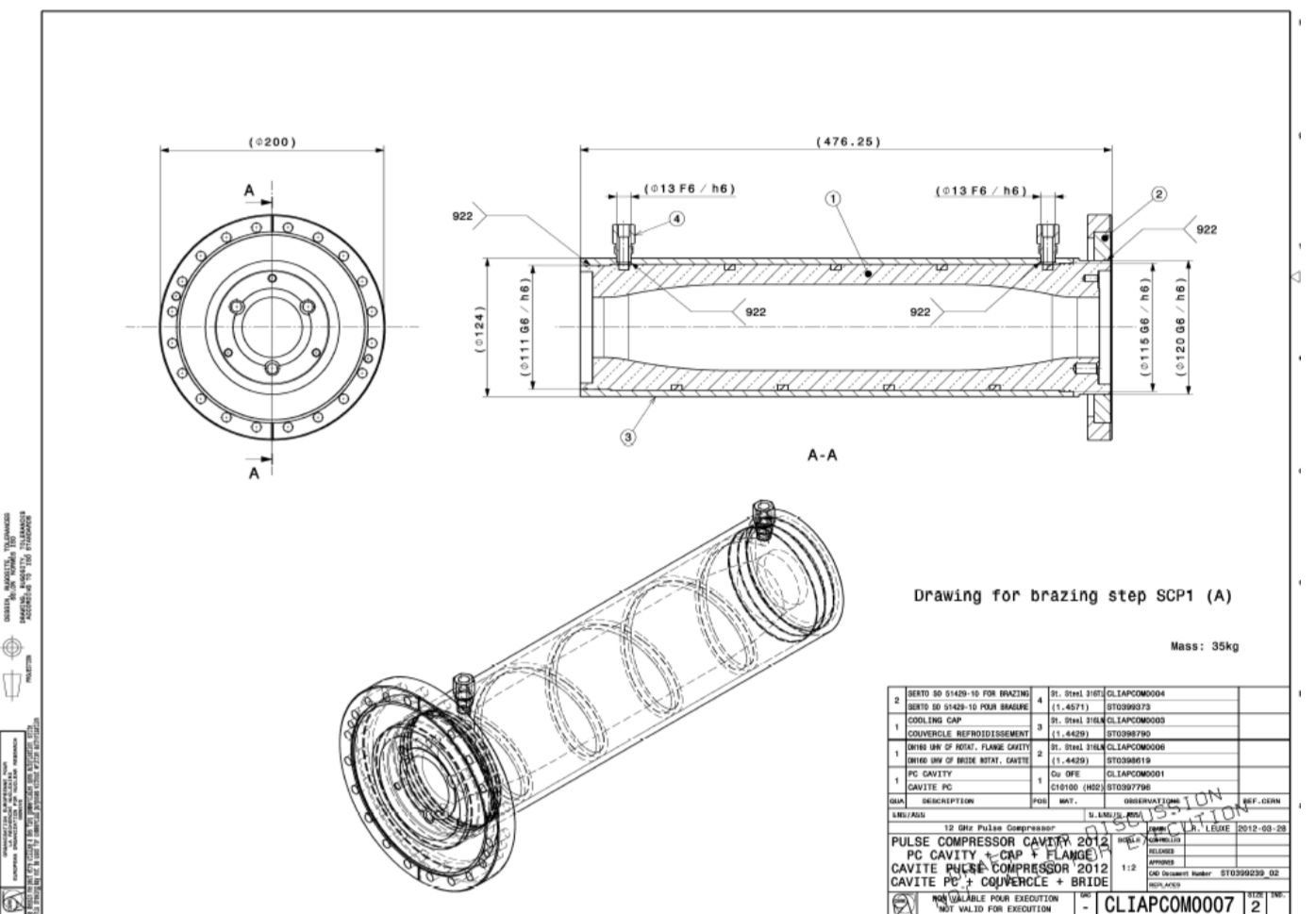
Q_0 : 180000 at 12 GHz. Cavity length: 444mm



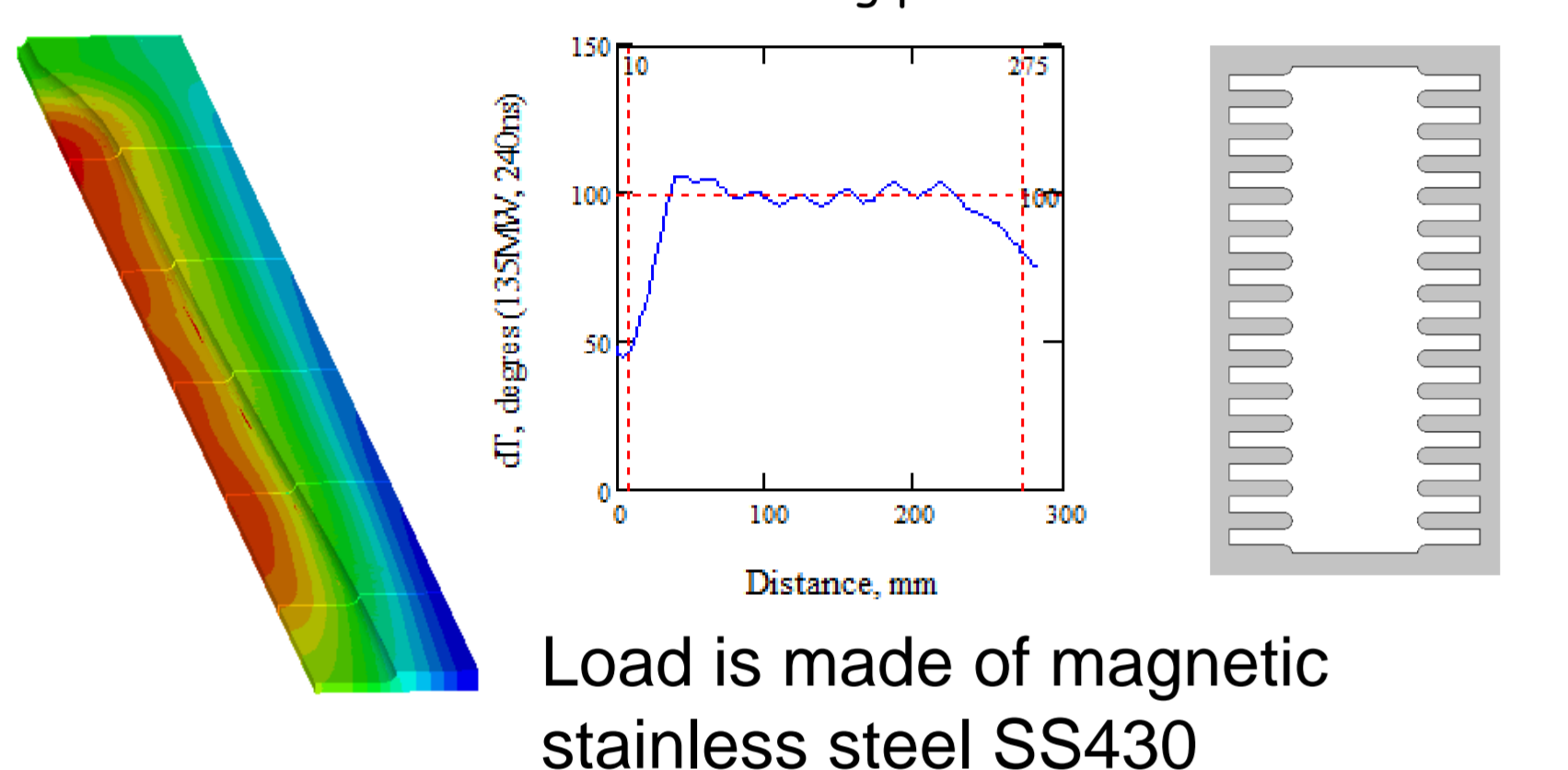
The frequency tuning will be done with re-machining of the pistons faces. Final tuning with cooling water temperature regulation. Cavities equipped with detuning pistons



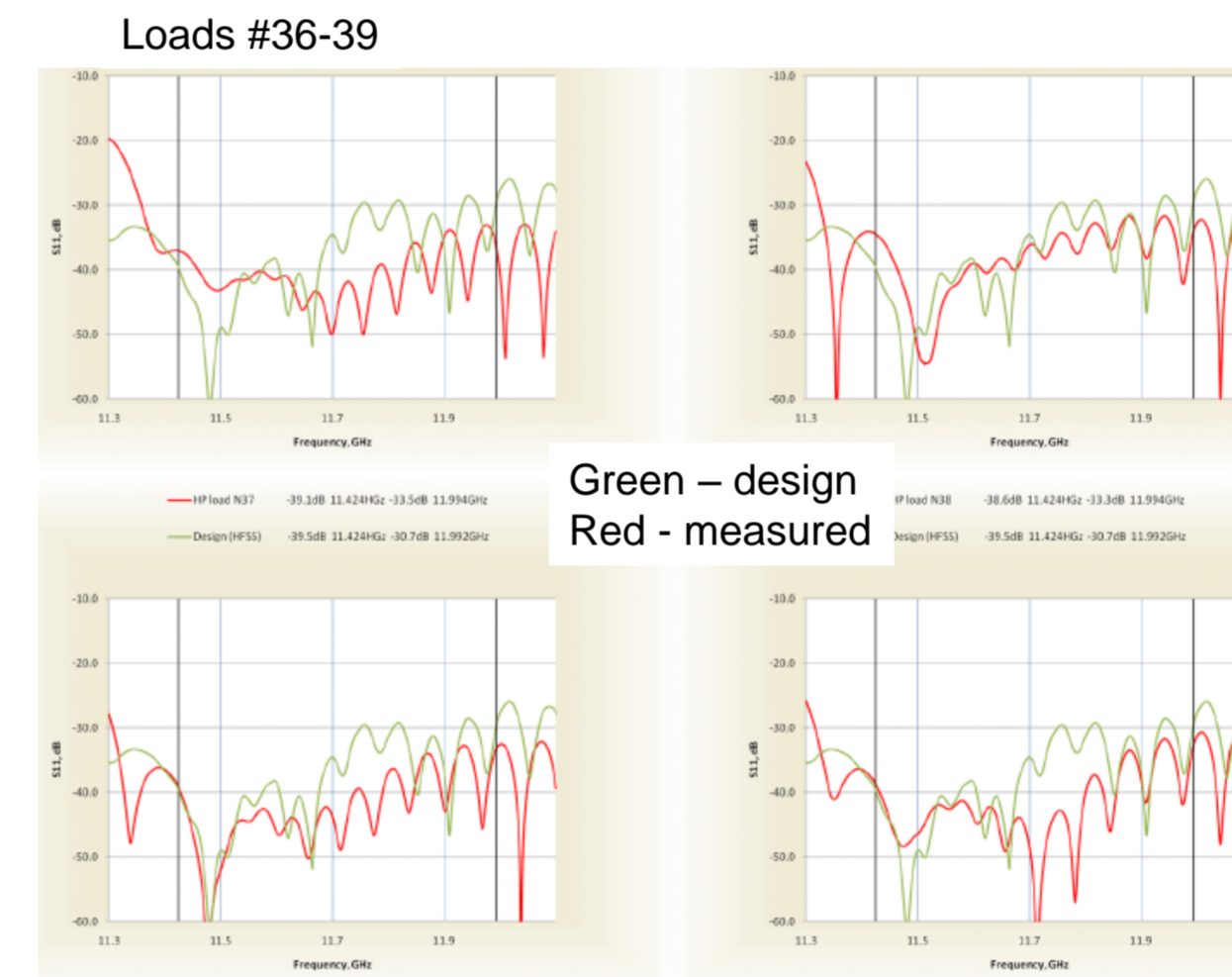
Two cavities are in production. The first PC prototype to be ready in July 2012.



Broadband dry RF load

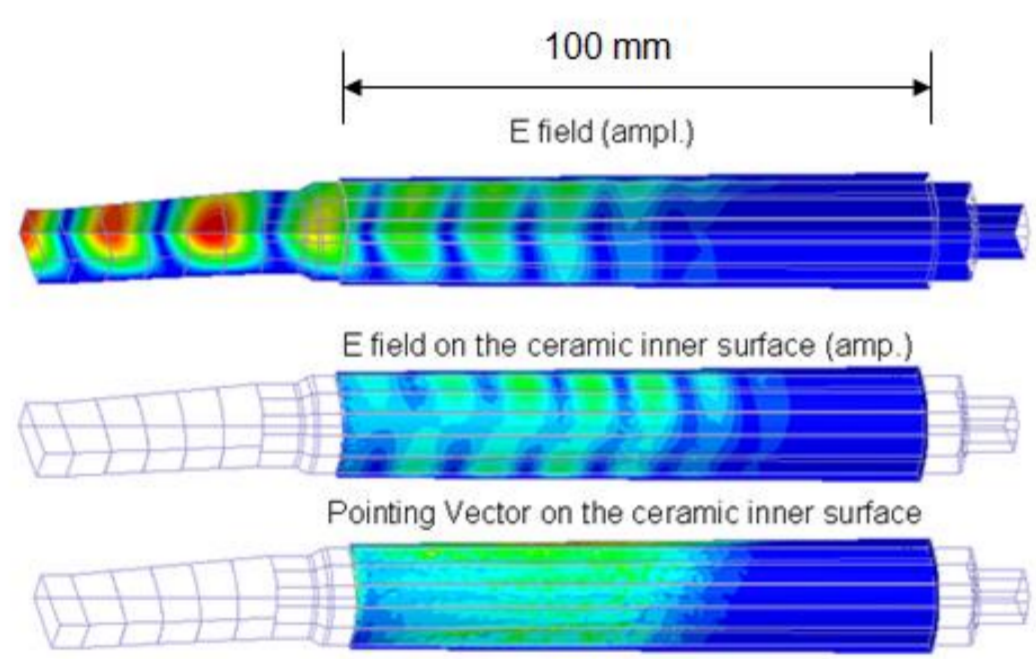


Load is made of magnetic stainless steel SS430

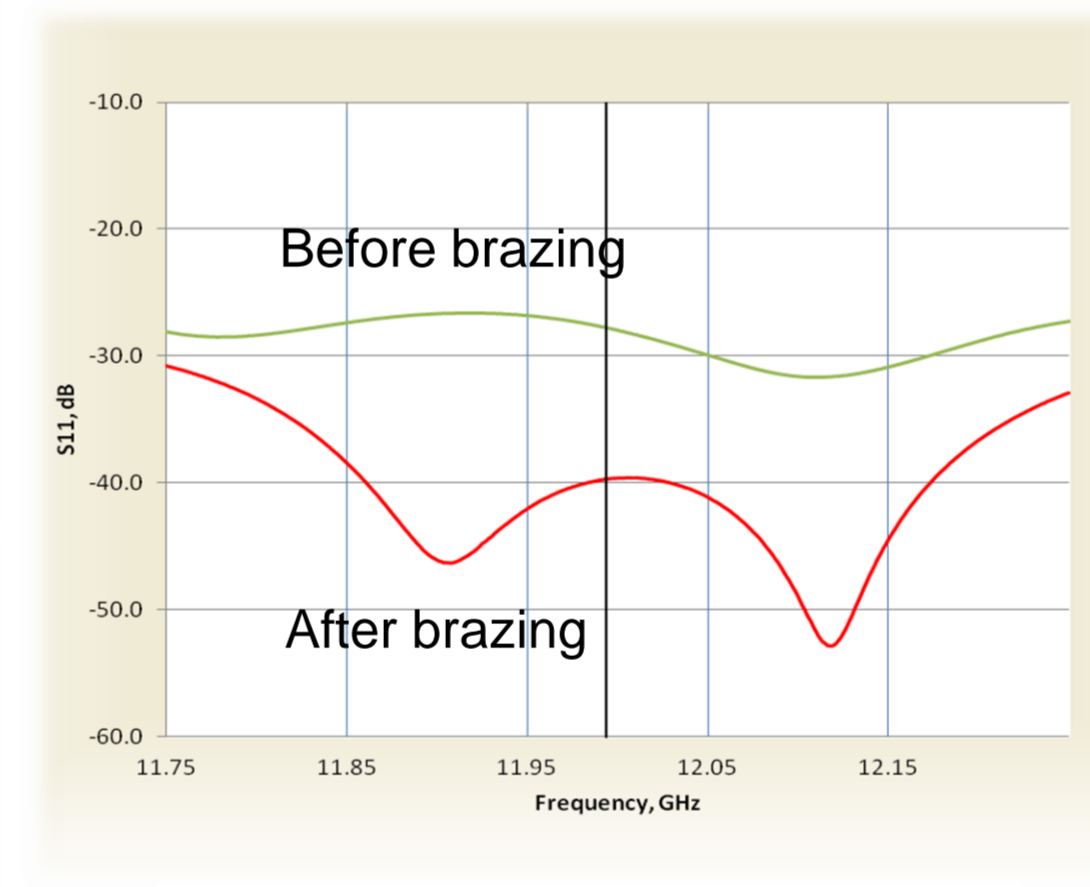
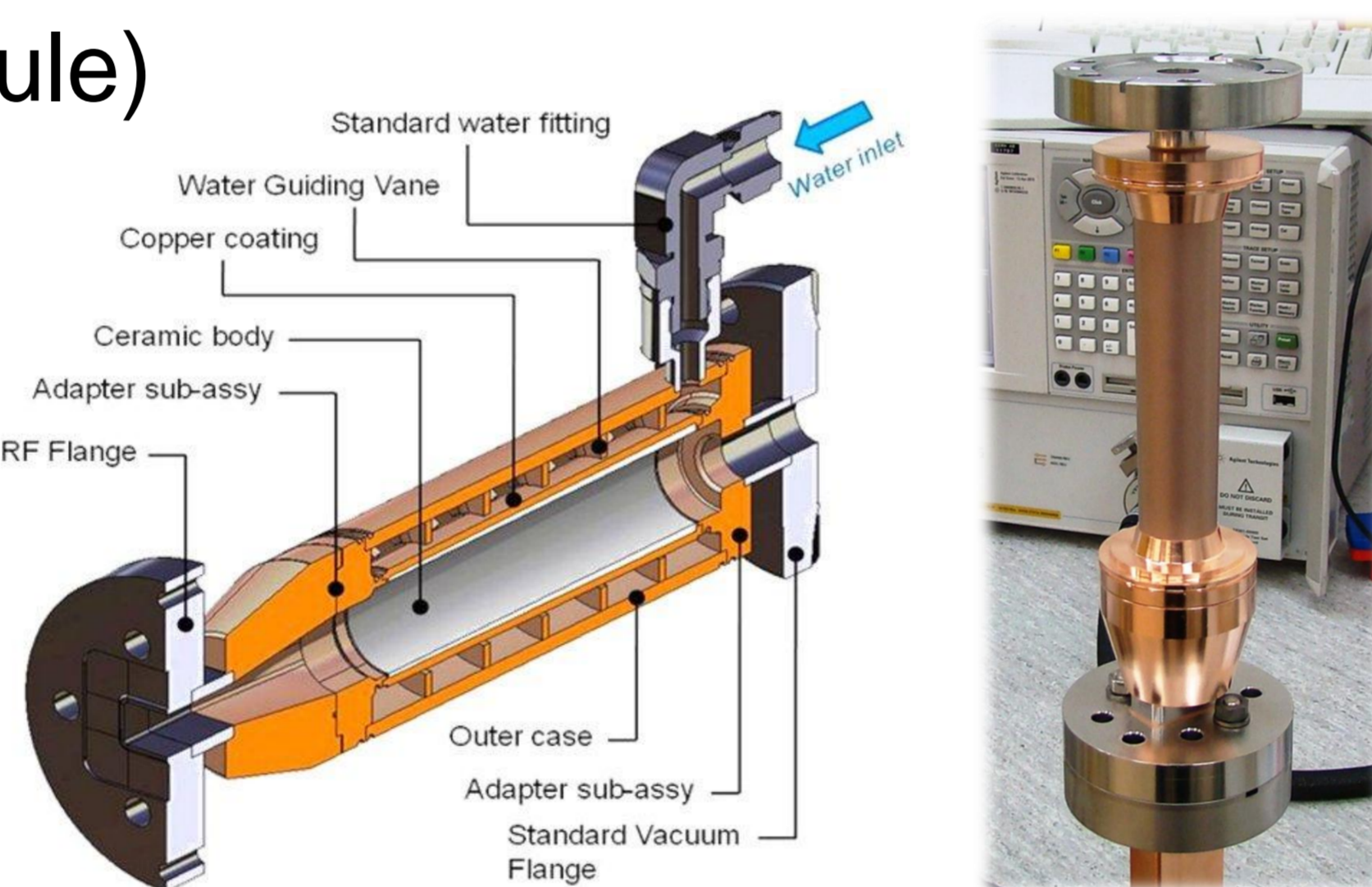


About 50 loads have been fabricated. The loads were tested up to 60MWx400ns (KEK) and 25MWx1600ns (SLAC). Currently loads are in operation at CERN, SLAC, KEK, PSI and Trieste.

Compact dry RF load (CLIC module)

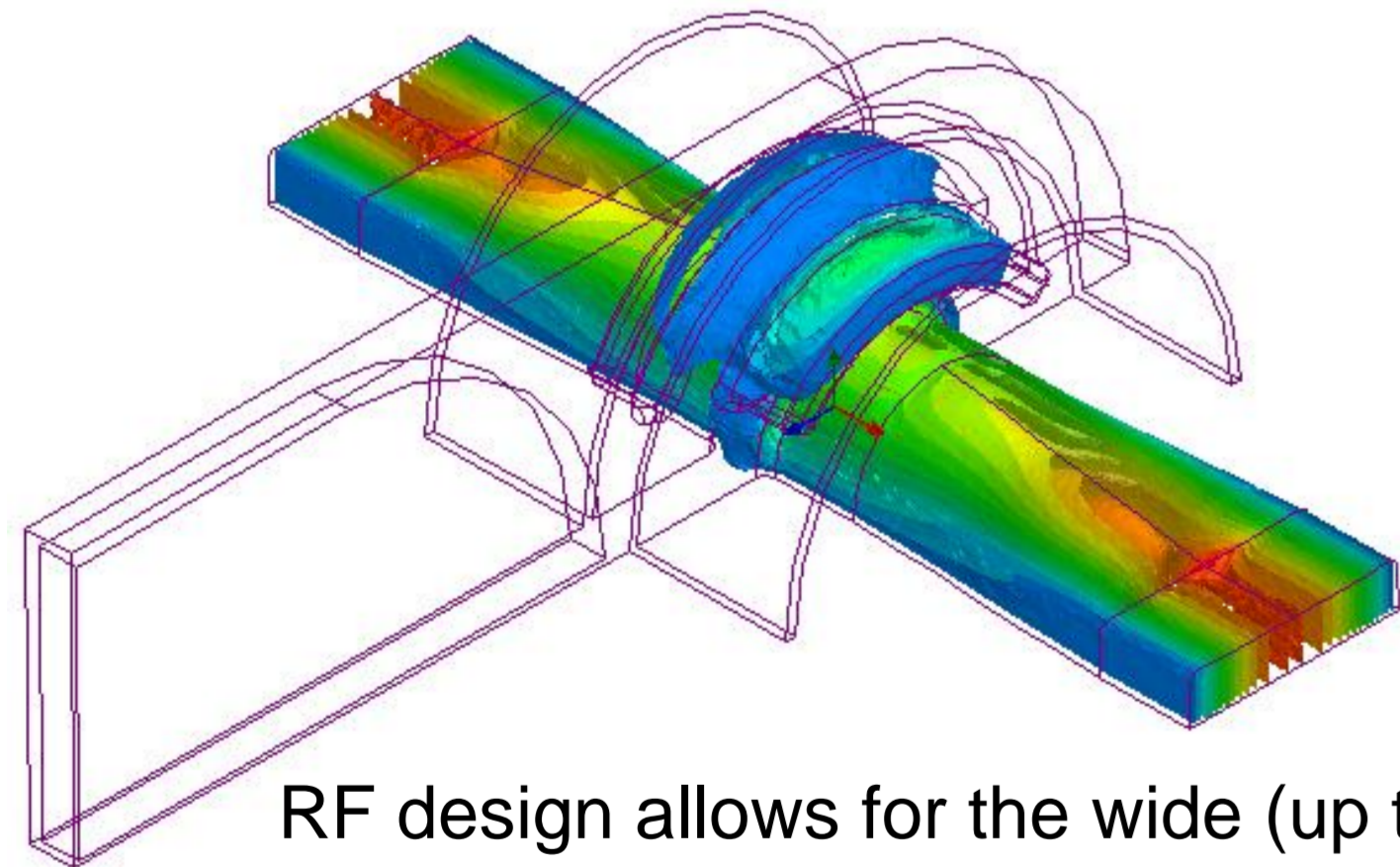


RF power is absorbed in a SiC thin wall cylinder. At 15 MW, E field on ceramic surface < 7MV/m.



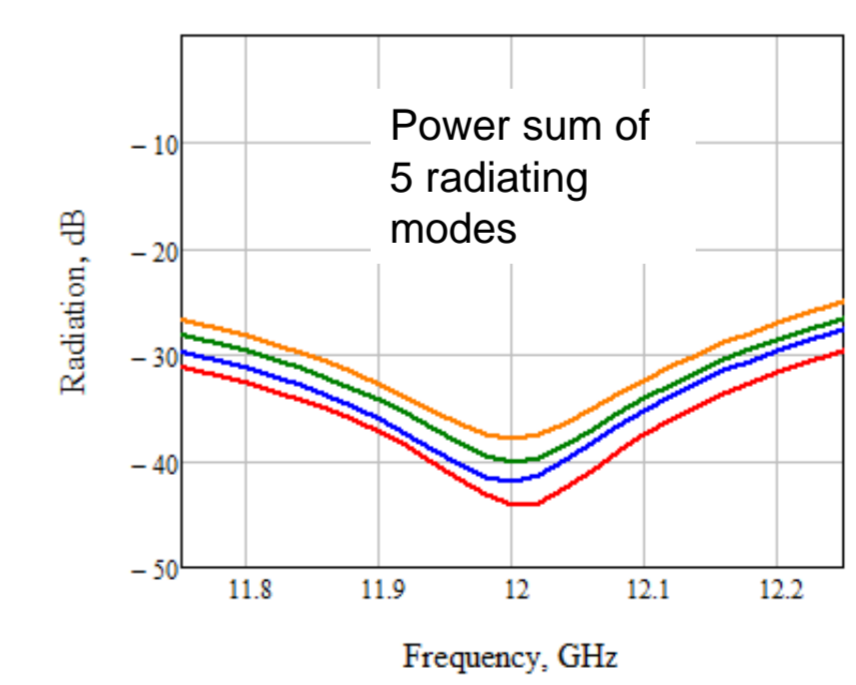
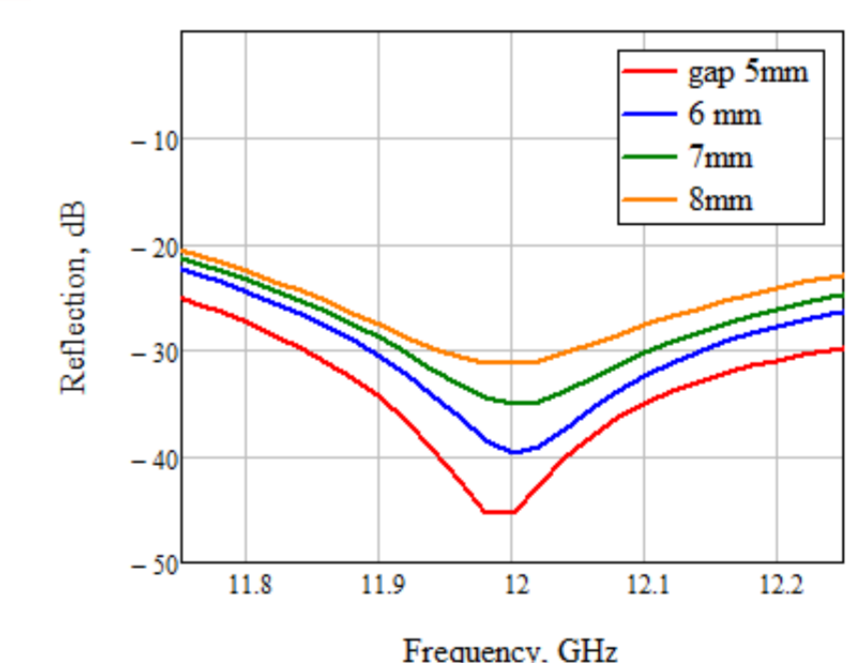
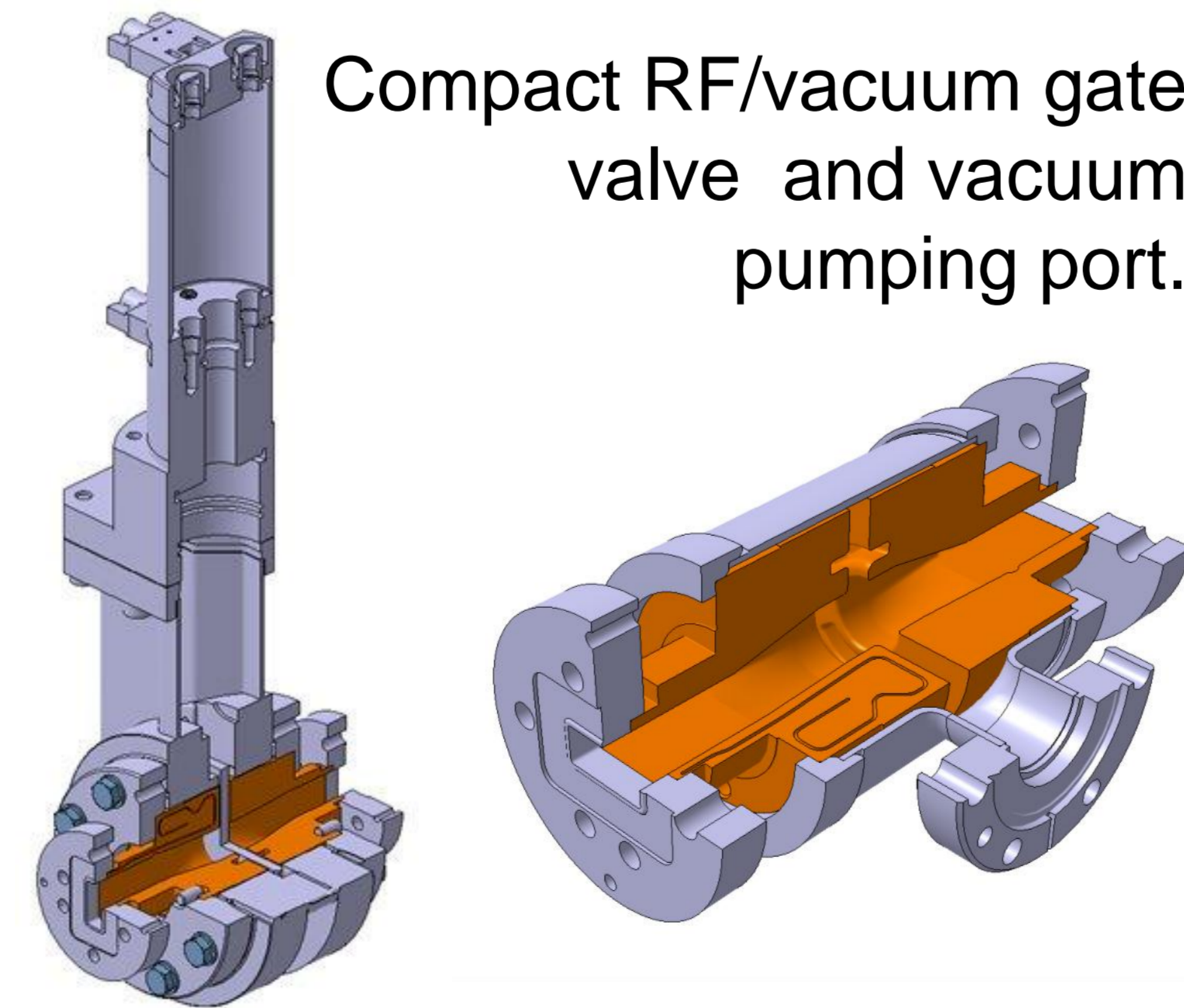
The first low power prototype showed good RF performance (reflection < -40 dB). The SiC to copper bonding technology development (electro-galvanic and brazing) is in progress. The first full high RF power prototype to be ready early 2013. The load is expected to operate at a medium (<20 MW) peak RF power level.

Doubled-choke WG joint



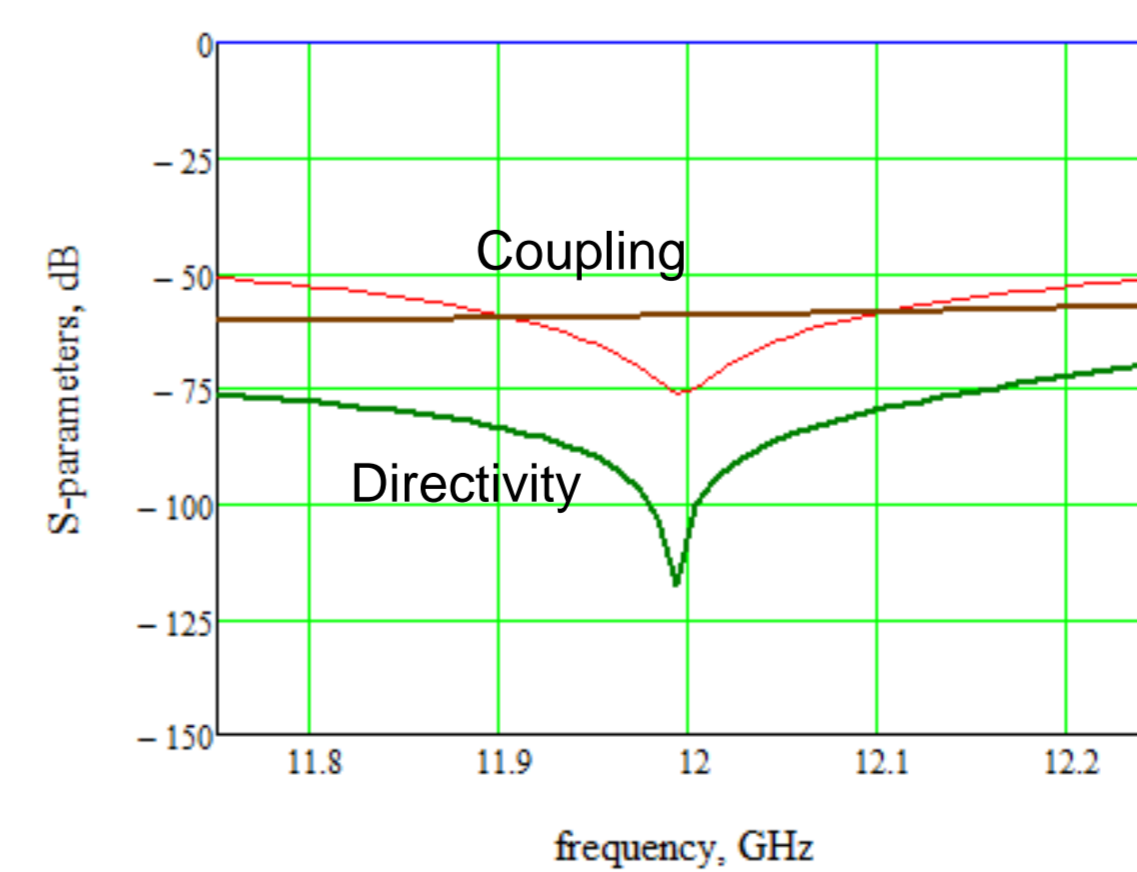
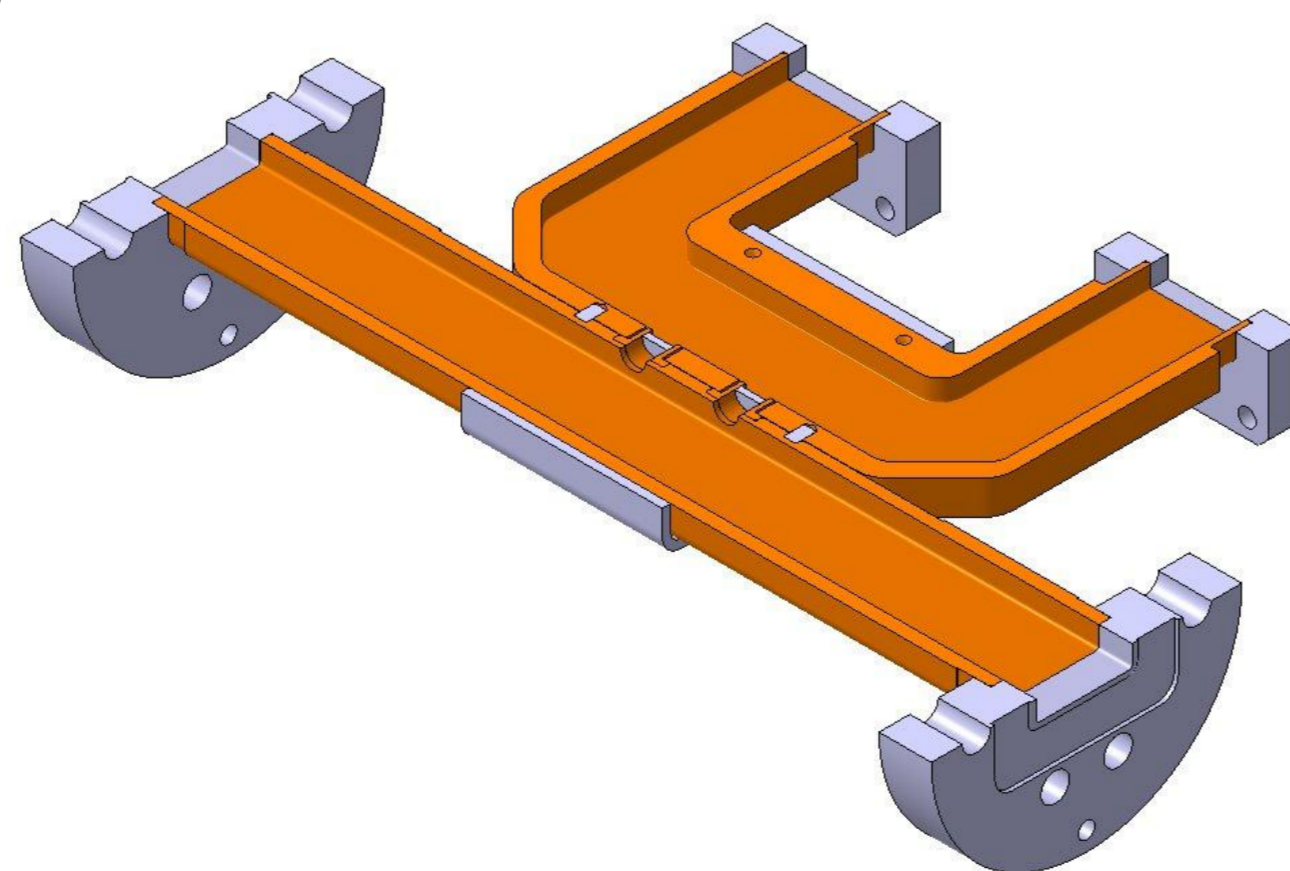
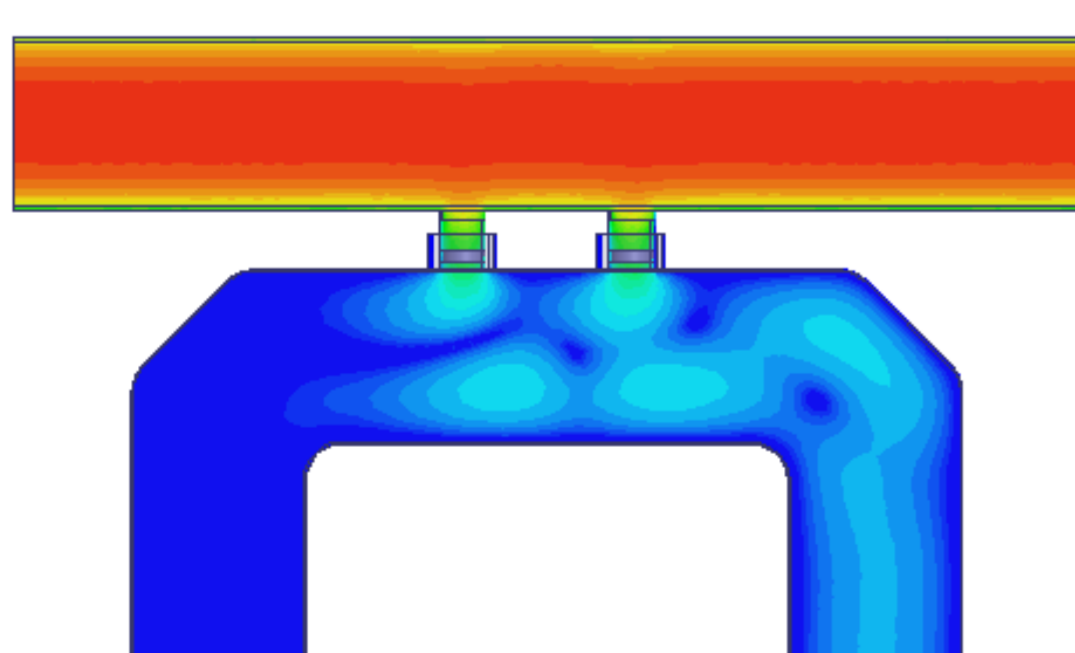
RF design allows for the wide (up to 0.32λ) slot opening. With reduced (0.75 of those in WR90) surface electric field.

Compact RF/vacuum gate valve and vacuum pumping port.

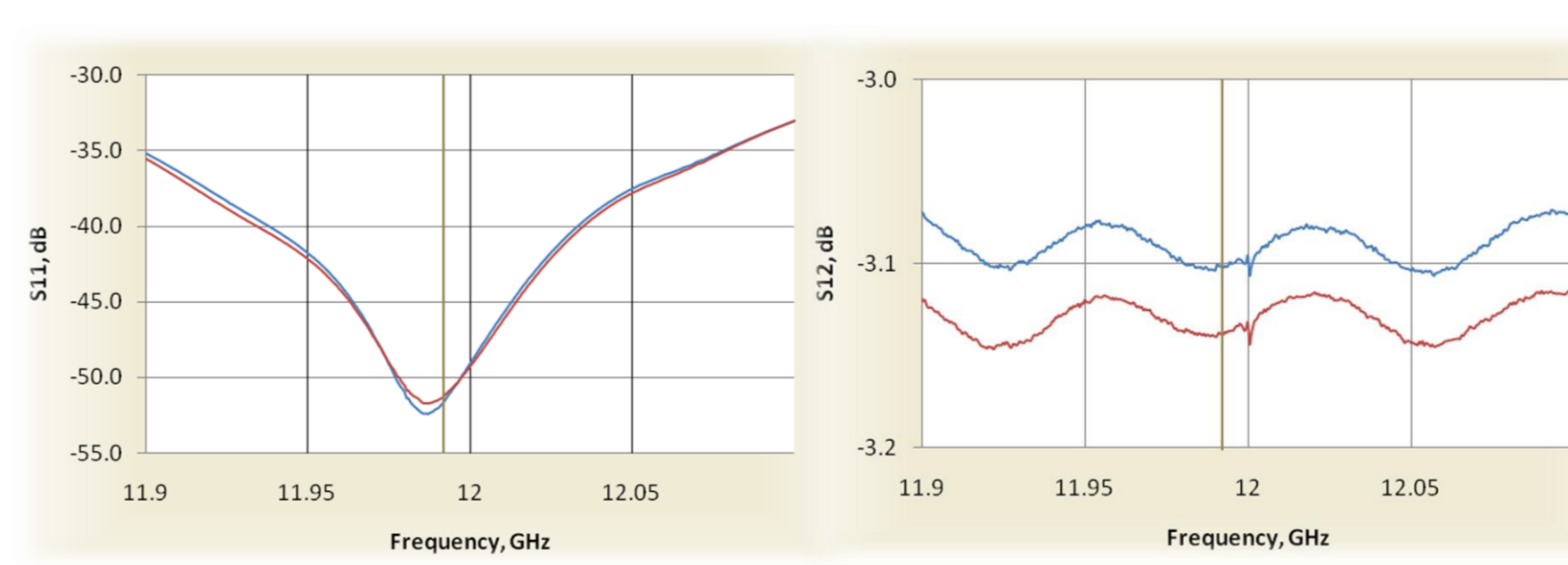
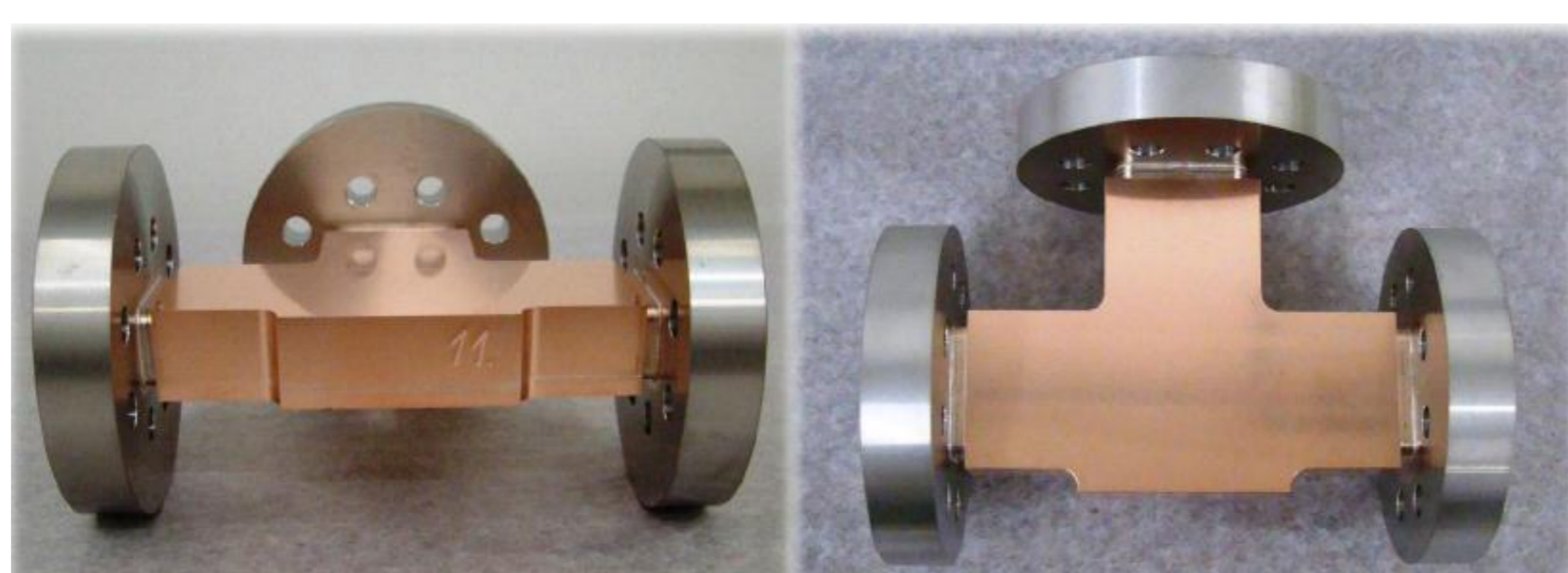
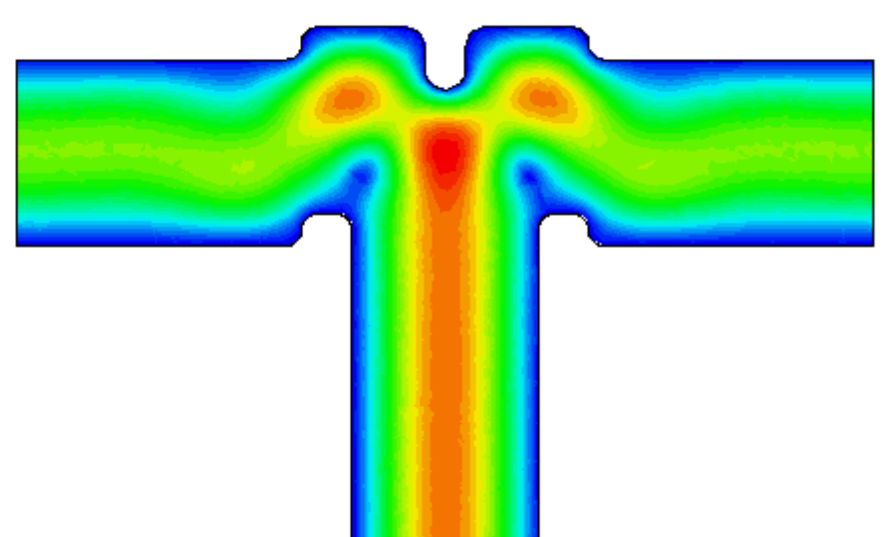


The fabrication of medium series (20-30 units of each type) have been launched. The first prototypes to be ready in autumn 2012.

"Simple" -60 dB directional coupler



3 dB H-plane splitter



About 20 splitters have been fabricated. The splitters were tested up to 150MWx250ns (SLAC) and 200MWx200ns (CERN).