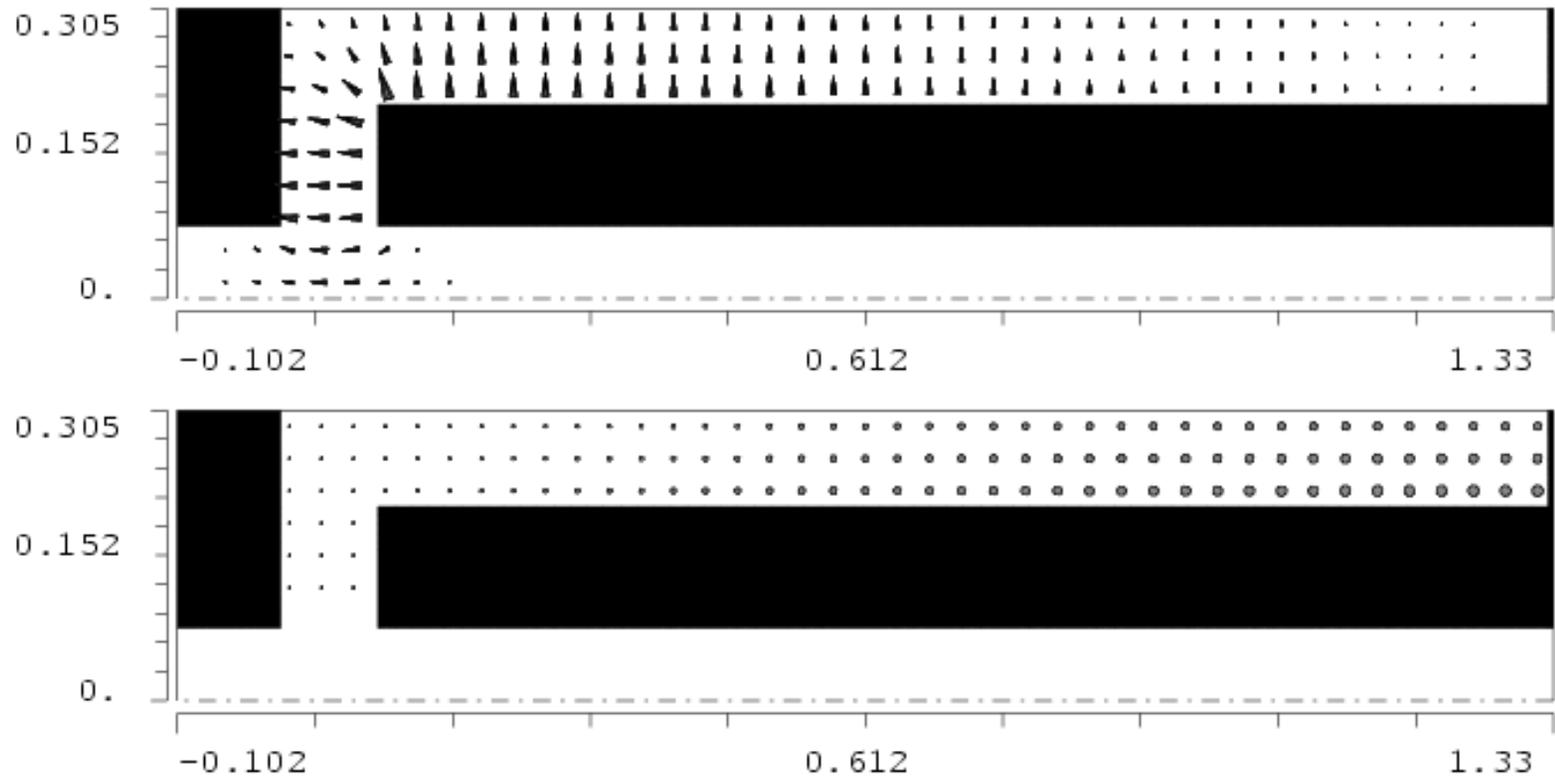


Figure 15.4. Side and end view of proposed low R/Q cavity with amplifier. (D. Wildman)

Cavity Parameters:

Z_0	=	20 Ω
R_{sh}	=	100 k Ω
Q	=	4000
V_{gap}	=	240 kV
P_{wall}	=	288 kW @ 240 kV
R/Q	=	25 Ω



Frequency: ~ 53 MHz

Stainless steel

$$Q = w E / P = 1600 \quad R_{sh} = V^2 / (2P) = 41 \text{ k}\Omega \quad R/Q = 26 \Omega$$

Copper

$$Q = 10400 \quad R_{sh} = 270 \text{ k}\Omega \quad R/Q = 26 \Omega$$

For copper coating on half of the stainless steel cavity

$$Q = 5200 \quad R_{sh} = 136 \text{ k}\Omega \quad R/Q = 26 \Omega$$