Design of a 94 GHz Accelerating Structure, W. BRUNS, H. HENKE, R. MERTE, TU-BERLIN - Recently accelerating structures at 120 GHz have been proposed. The choice of frequency was due to the availability of gyrotron power sources and the structure depth achievable by deep X-ray lithography (LIGA). In the meantime progress allows for a somewhat lower frequency of 94 GHz where gyrotrons and medium power klystrons are available. The paper presents the design of an accelerating structure which is planar double-sided and suited for fabrication with LIGA. Since the structure is foreseen for high gradient operation, a side-coupled standing-wave muffin-tin was chosen in order to guarantee a flat temperature profile while still having reasonable mode separation. Endcells and input power coupler are matched numerically by means of a new code Gdfidl. The main RF parameters are determined also numerically as well as temperature distributions. Measurements with scaled-up models are presented. Finally, first ideas for the full engineering of the structure are given.