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**High Current Regimes in RFX-mod** MARCO VALISA, T. BOLZONELLA, P. INNOCENTE, L. MARRELLI, S. MARTINI, S. ORTOLANI, R. PACCAGNELLA, M.E. PUIATTI, M. SPOLAORE, P. ZANCA, Consorzio RFX — RFX-mod has explored for the first time the confinement properties of the RFP configuration at plasma currents up to 1.5 MA. Such an accomplishment has been possible for the successful feedback control of the magnetic boundary, whereby an extensive mesh of individually controlled saddle coils have kept below 1 cm the maximum radial excursion of the last magnetic surface resulting from the overlapping of the many m=0 and m=1 MHD modes. Operation at high current has significantly expanded the database for scaling studies. Increasing current the ohmic input power is to be increased, the toroidal loop voltage does not drop significantly and the plasma wall interaction increases in intensity. On the other hand, in stationary regimes, poloidal beta does not decrease with current and is 15% around $n/n_G$=0.5. In the high current regimes the probability to obtain Quasi Single Helicity states increases and the plasma volume inside the associated transport barrier increases. Both transient and stationary performance records for RFX have been obtained.

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