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**Power Balance on a High-Density Field Reversed Configuration** RICHARD RENNEKE, LANL/Purdue, TOM INTRATOR, LANL, CHAN CHOI, Purdue, GLEN WURDEN, SCOTT HSU, LANL, THEODORE GRABOWSKI, ED RUDEN, AFRL/Kirtland, WILLIAM WAGANAAR, LANL, FRX-L TEAM — An analysis of global power balance has been performed recently on the Field Reversed Experiment with Liner (FRX-L) for a high density ($> 5\times 10^{22}$ m$^{-3}$) Field Reversed Configuration (FRC) for the first time. Total radiated power was compared to the total power losses estimated from the power balance zero-dimensional model proposed by Rej and Tuszewski (Phys. Fluids **27**, p. 1514, 1984). The percentage of radiative losses versus total loss is an order of magnitude lower than previous lower density FRC experiments. An explanation for the beneficial effect of density is provided by an empirical scaling drawn from the tokamak database. This scaling shows that $Z_{\rm eff}$ has an inverse- squared dependence on density. Assuming that radiated power is due primarily to impurities in the edge plasma, this explanation is sufficient.

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