Power balance and scaling of the radiated power in the divertor and main plasma of Alcator C-Mod
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Measurements have been made of the radiation in the main plasma and divertor of Alcator C-Mod using bolometer arrays. It is found that the power radiated from the main plasma is $P_{\text{rad,main}} / P_{\text{Ohmic}} \sim 0.3 - 0.4$ over the range $0.2 \leq \bar{n}_e \leq 2.5 \times 10^{20}$ m$^{-3}$. There is significant radiated power coming from the divertor region; $P_{\text{rad,divertor}} / P_{\text{Ohmic}} \sim 0.4$. The radiated power in the main plasma and divertor scales linearly with density. When divertor detachment occurs, the power flow to the divertor plates in the region near the strike points is suddenly reduced, the fraction of the input power radiated from the main plasma and divertor increases, and the radiation in the divertor region is spatially rearranged.