Abstract

The Dalitz decays $\eta \to e^+e^-\gamma$ and $\omega \to \pi^0 e^+e^-$ have been measured in the $\gamma p \to \eta p$ and $\gamma p \to \omega p$ reactions, respectively, with the A2 tagged-photon facility at the Mainz Microtron. The value obtained for the slope parameter of the electromagnetic transition form factor of η, $\Lambda\eta^{-2}=(1.97\pm0.11\text{tot})\text{GeV}^{-2}$, is in good agreement with previous measurements of the $\eta \to e^+e^-\gamma$ and $\eta \to \mu^+\mu^-\gamma$ decays. The uncertainty obtained in the value of $\Lambda\eta^{-2}$ is lower than in previous results based on the $\eta \to e^+e^-\gamma$ decay. The value obtained for the ω slope parameter, $\Lambda\omega\pi^{0-2}=(1.99\pm0.21\text{tot})\text{GeV}^{-2}$, is somewhat lower than previous measurements based on $\omega \to \pi^0\mu^+\mu^-$, but the results for the ω transition form factor are in better agreement with theoretical calculations, compared to earlier experiments.