

**Figure 4.** *Top:* Convergence study of the kinematic dynamo growth time  $\tau_1$  (*blue*) and the dynamo completion time  $t_{\text{sat}}$  (*green*) defined as  $t_{\text{n1}} + \tau_2$ . *Bottom:* Convergence study of the best-fit model parameter  $E_{\text{sat}}$  expressed as the ratio of magnetic to kinetic energy  $E_M/E_K$ . The converged value of the volume-averaged  $E_M/E_K \approx 0.6$ . Nevertheless, at intermediate wavelengths  $E_M(k)/E_K(k) \approx 4$ . As shown in Figure 2, the largest scales remain kinetically dominated. This indicates the suppression of coherent magnetic structure formation near the integral scale of turbulence.