There are various forms that represent the high wavenumber portion of the turbulent kinetic energy spectrum. Most are at least semi-empirical. One that does a particularly good job of reproducing observed spectra, is the form of Panchev and Kesich (1969).

$$E(k) = b\left(a\left(k/k_s\right)^{-5/3} + 1.2a^{3/2}\left(k/k_s\right)^{-1}\right)\exp\left[-1.5a\left(k/k_s\right)^{4/3} - 1.2a^{3/2}\left(k/k_s\right)^2\right]$$

$a=1.6$

$b=(\varepsilon^5)^{1/4}$

$k$ is wavenumber with units [radian/m]

$k_s$ is the Kolmogoroff wavenumber

$E(k)$ has units [(m/s)$^2$/radian/m)]

1. Plot dimensional energy and dissipation spectra for $\varepsilon = 10^{-12}, 10^{-8}, 10^{-4}$ m$^2$s$^{-3}$. These should be log-log plots.

2. Integrate the dissipation spectrum to show that the integral asymptotes to $\varepsilon$.

3. Nondimensionalize your spectra and plot. I hope they collapse.