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Supporting Information

2.5 V Compact Supercapacitors Based on Ultrathin Carbon Nanotube Films for AC Line Filtering

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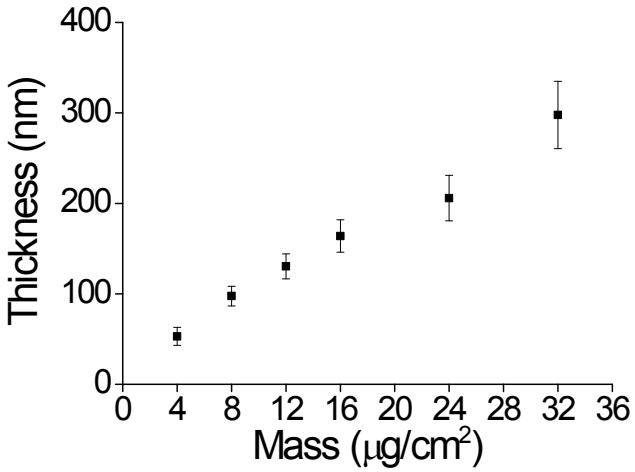

Fig. S1. The relationship between the thickness and mass of CNT films.

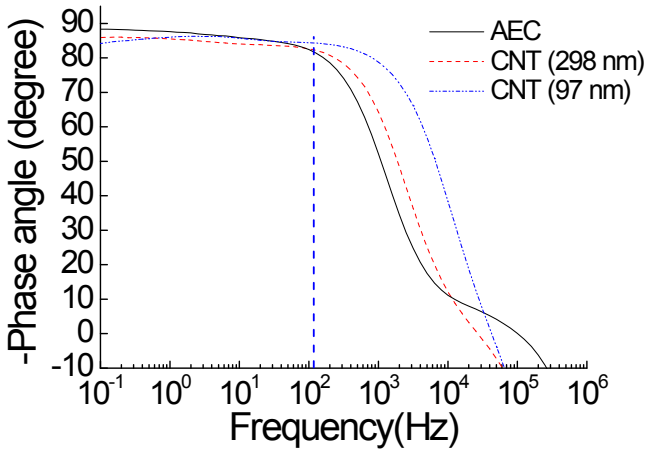

Fig. S2. Bode phase plots of CNT supercapacitors and an AEC. The numbers in parentheses are the thickness of the CNT films.

Equations

$$C_{vol} = \frac{I}{\frac{dv}{dt} \times 2 \times volume\ of single\ electrode\ material}$$

$$E_{vol} = \frac{1}{2 \times 3.6} C_{vol} V^2$$

$$P_{vol} = \frac{E_{vol} \times 3.6}{\Delta t}$$

$$\tau_{RC} = R_{120\ Hz} \times C_{120\ Hz}$$

$$R_{120\ Hz} = Z'_{120\ Hz}$$

$$C_{vol,\ 120\ Hz} = \frac{C_A}{2 \times thickness\ of\ single\ \ electrode\ material}$$

$$C'' = \frac{Z'}{2\pi f \cdot |Z|^2}$$

$$C_{areal} = \frac{-1}{2\pi f S Z''}$$

$$S = area\ of\ an\ electrode$$