The $r \to \infty$ limit of the metric of the Einstein-Maxwell-dilaton (EMD) theory has the most general form with $\theta = d^2\beta/(\alpha + (d-1)\beta)$ and $z = 1 + \theta/d + 8(d(d-\theta)+\theta)^2/(d^2(d-\theta)\alpha^2)$. To this theory we add a bulk-scalar ψ with action

$$S_\psi = -\int \mathrm{d}^{d+2}x \sqrt{-g}\left(\frac{1}{2}(\partial\psi)^2 + \frac{B(\Phi)}{2}\psi^2\right).$$

with $B(\Phi) \sim e^{-\beta\Phi}$ required to obtain a primary operator. Finally we couple a random-field to the boundary operator $\mathcal{O}_\psi$ dual to ψ:

$$\mathcal{S}_{\mathrm{rf}} = \int d\tau d^d\mathbf{x}\, h(\mathbf{x})\mathcal{O}(\mathbf{x},\tau),$$

where $h(\mathbf{x})$ is a time-independent Gaussian-random variable:

$$\mathbb{E}[h(\mathbf{x})] = 0, \quad \mathbb{E}[h(\mathbf{x})h(\mathbf{x}')] = h_0^2\delta(\mathbf{x}-\mathbf{x}').$$

Then we obtain the resistivity $\rho(T) \sim h_0^2\, T^{(d-z+\eta)/z}$ where $\dim[\mathcal{O}_\psi] = (d+z-2+\eta)/2$.