

Motivated by the Extremal Vanishing Horizon (EVH) black holes, their near horizon geometry and the EVH/CFT proposal, we construct and classify solutions with (local) $SO(2, 2)$ symmetry to four and five dimensional Einstein-Maxwell-Dilaton (EMD) theory with positive, zero or negative cosmological constant Λ , the EMD- Λ theory, and also $U(1)^4$ gauged supergravity in four dimensions and $U(1)^3$ gauged supergravity in five dimensions. In four dimensions the geometries are warped product of AdS_3 with an interval or a circle. In five dimensions the geometries are of the form of warped product of AdS_3 and a 2d surface Σ_2 . For the Einstein-Maxwell- Λ theory we prove that Σ_2 should have a $U(1)$ isometry, a rigidity theorem in this class of solutions. We also construct all d dimensional Einstein vacuum solutions with $SO(2, 2) \times U(1)^{d-4}$ isometry.