Radial graphs of constant curvature and prescribed boundary

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Abstract In this paper we are concerned with the problem of finding hypersurfaces of constant curvature and prescribed boundary in the Euclidean space, without assuming the convexity of the prescribed solution and using the theory of fully nonlinear elliptic equations. If the given data admits a suitable radial graph as a subsolution, then we prove that there exists a radial graph with constant curvature and realizing the prescribed boundary. As an application, it is proved that if $\Omega \subset \mathbb{S}^n$ is a mean convex domain whose closure is contained in an open hemisphere of $\mathbb{S}^n$ then, for $0 < R < n(n-1)$, there exists a radial graph of constant scalar curvature R and boundary $\partial\Omega$.