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32816. *The Range of the Radon Transform of a compactly supported function.*

We present new necessary and sufficient conditions for a function on $\partial\Omega \times \mathbb{S}^1$ to be in the range of the (non) attenuated Radon transform of a sufficiently smooth function support in the convex set $\overline{\Omega} \subset \mathbb{R}^2$. The approach is based on an explicit Hilbert Transform associated with A-analytic functions in the sense of Bukhgeim. (Received January 28, 2014)