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We may set $g = D_1^*Kf$. Using the same notation as in the preceding theorem we have

$$\begin{aligned} (f, D_2^*D_2Kf)_2 &= \lim_{R \rightarrow \infty} (f, D_2^*D_2Kf)_{D(R), 2} \\ &= \lim_{R \rightarrow \infty} \left((D_2f, D_2Kf)_{D(R), 3} + (f, \sigma(D_2^*, d|x|)D_2Kf)_{S(R), 2} \right) \\ &= \lim_{R \rightarrow \infty} (f, \sigma(D_2^*, d|x|)D_2Kf)_{S(R), 2} \quad (\text{since } D_2f = 0). \end{aligned}$$

The same argument as in Theorem 6 proves that the limit is zero. This proves the theorem.

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