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Patrick B Eberlein* (pbe@email.unc.edu), Department of Mathematics, CB # 3250,
University of North Carolina, Chapel Hill, NC 27599. *Two-step nilpotent Lie groups with
prescribed Ricci tensor.*

Abstract Fix a pair of positive integers (p,q) . We obtain a lower bound in terms of p,q for the dimension of the space of isometry classes of metric 2-step nilpotent Lie algebras $\{\mathfrak{N}, \langle, \rangle\}$ of type (p,q) with a fixed Ricci tensor. We also consider two special types of Ricci tensors : optimal and geodesic flow invariant, where the first is an example of the second. We show that if $(p,q) \neq (2,2k+1)$ or its dual $(D-2,2k+1)$, where $D = (1/2)(2k+1)(2k)$, then a generic 2-step nilpotent Lie algebra \mathfrak{N} of type (p,q) admits an inner product \langle, \rangle whose Ricci tensor is optimal. This result has also been obtained by Y. Nikolaevsky. (Received September 04, 2014)