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The Constants of Cowling and Haagerup

We give a simpler proof of the main theorem of M. Cowling and U. Haagerup ["Completely bounded multipliers of the Fourier algebra of a simple Lie group of real rank one", *Invent. Math.* 96 (1989) 507–549], which reads as follows. Let G be a connected real Lie group of real rank 1 with finite centre. If G is locally isomorphic to $SO_0(1, n)$ or $SU(1, n)$, then $\Lambda_G = 1$. If G is locally isomorphic to $Sp(1, n)$, then $\Lambda_G = 2n - 1$, while if G is the exceptional rank one group $F_{4(-20)}$, then $\Lambda_G = 21$.

Keywords: Fourier algebra, weak amenability, Gelfand pair, hypergroup.

MSC: 43A30, 22D25, 43A62, 43A90, 43A22