Corrigendum to "Probability measures on compact groups which have square-integrable densities"[1] by D.Applebaum[1]

As pointed out in Mathematical Reviews MR2471953(2009m:60014) `http://www.ams.org/mathscinet/pdf/2471953.pdf?pg1=INDI&s1=26650&vfpref=html&r=4`, the proof of Theorem 3.1 contains a gap as the set $B = f^{-1}(-\infty, 0)$ may not contain inner points. However we can argue as follows. By (3.5) in the paper and the two lines which follow we know that $f \in L^2(G, \mathbb{R})$ and we have

$$\int_G g(\sigma) f(\sigma) d\sigma = \int_G g(\sigma) \mu(d\sigma),$$

for all $g \in C(G, \mathbb{R})$. Since G is compact, $f \in L^1(G, \mathbb{R})$. By the Riesz representation theorem $f(\sigma)d\sigma = \mu(d\sigma)$ and by uniqueness of the Jordan decomposition for signed measures, $f \geq 0$ (a.e.).

I am very grateful to Wilfried Hazod for pointing out both the problem and its solution.

Note added after publication of corrigendum:

Also formula (4.7) ((4.2) in the published version) only holds if the series converges, which is certainly true in the Gaussian and stable cases. This is not used anywhere else in the paper.

References

[1] D.Applebaum, Probability measures on compact groups which have square-integrable densities, *Bull. Lond. Math. Sci.* **40** 1038-44 (2008)

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