Real rank zero for purely infinite corona algebras

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Theorem. If $B$ is a nonunital simple separable C*-algebra with strict comparison, almost divisibility, stable rank one and quasicontinuous scale, then the corona algebra $M(B)/B$ has real rank zero.

The above generalizes various results in the literature, with connections to generalizations of the classical Weyl–von Neumann theorems, extension theory and other phenomena. The above utilizes the following (earlier) result:

Theorem. Let $B$ be a nonunital simple separable C*-algebra with strict comparison, almost divisibility and stable rank one. Then the following are equivalent:

1. $B$ has quasicontinuous scale
2. $M(B)$ has strict comparison
3. $M(B)/B$ is purely infinite
4. $M(B)/I_{\min}$ is purely infinite
5. $M(B)$ has finitely many ideals
6. $I_{\min} = I_{\text{fin}}$

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