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We characterize the completely isometric automorphism group of some quotients of F_n^∞ , the noncommutative Hardy algebras introduced by Popescu in 1990.

We use the remarkable result of Davidson and Pitts that the group of completely isometric automorphisms of F_n^∞ is $SU(n, 1)$, the group of biholomorphic maps from the unit ball of C^n into itself. We also use the pseudohyperbolic metric of the unit ball of C^n to simplify some calculations, and we use a version of a Blaschke condition on the unit ball of C^n . The completely isometric automorphism group of the quotient algebra is characterized using the spectrum of the quotient and using theory of biholomorphic maps on the unit ball of C^n .

As a Corollary, we prove that if Γ is a discrete group of $SU(n, 1)$ satisfying the version of the Blaschke condition, then there exists a quotient of F^∞ with Γ as the completely isometric automorphism group, provided Γ is its own stabilizer. (Received September 08, 2010)