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Property (T) and strong property (T) for C^ -algebras*

We study two (T) -type properties for unital C^* -algebras, namely, the property (T) as introduced by Bekka and a slightly stronger version of it, called the strong property (T) . Similar to a result of Bekka, if Γ is a discrete group, then $C^*(\Gamma)$ have strong property (T) if and only if Γ have property (T) . We will give some interesting equivalent formulations as well as some permanence properties for both property (T) and strong property (T) . We will also relate them to some (T) -type properties of the unitary groups of the C^* -algebras.