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A Characterization of $C_k(X)$ for X Normal and Realcompact

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We present some internal conditions on a locally m -convex Φ -algebra A stated in terms of rder and/or closed ideals of A . It turns out that a locally m -convex Φ -algebra satisfies these conditions if and only if it is l -isomorphic and homeomorphic to the locally m -convex Φ -algebra $C_k(X)$ for some realcompact normal space X . Here $C_k(X)$ is the set of all real-valued continuous functions on X endowed with the topology of compact convergence. One of the mentioned internal conditions can be replaced by the requirement that A be a barreled space. We also prove that any Fréchet uniformly closed Φ -algebra satisfies the internal conditions in question.