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ON LOCALLY BOUNDED SPACES AND THEIR PRODUCTS*

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Abstract. In this paper we present a new characterization of locally bounded topological vector spaces, which generalize earlier characterizations of Aoki [1] and Rolewicz [13]. Further we shall prove that Topological vector space is Φ -paranormable (class introduced by S. Kasahara in 1973) if and only if it is a product of locally bounded spaces.

1. INTRODUCTION

Locally bounded spaces are very important in the theory of topological vector spaces. For example all normed linear spaces are locally bounded. Many characterizations of this class of metrizable spaces exist as metric linear space is locally bounded if and only if it is p -normable, or metric linear space is locally bounded if and only

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