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Continuous images of Lindelöf p -groups, σ -compact groups, and related results

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Abstract: It is shown that there exists a σ -compact topological group which cannot be represented as a continuous image of a Lindelöf p -group, see Example 2.8. This result is based on an inequality for the cardinality of continuous images of Lindelöf p -groups (Theorem 2.1). A closely related result is Corollary 4.4: if a space Y is a continuous image of a Lindelöf p -group, then there exists a covering γ of Y by dyadic compacta such that $|\gamma| \leq 2^\omega$. We also show that if a homogeneous compact space Y is a continuous image of a cdc -group G , then Y is a dyadic compactum (Corollary 3.11).

Keywords: Lindelöf p -group; homogeneous space; Lindelöf Σ -space; dyadic compactum; countable tightness; σ -compact; cdc -group; p -space

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