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**Michelle L Knox\*** ([michelle.knox@mwsu.edu](mailto:michelle.knox@mwsu.edu)), Department of Mathematics, Midwestern State University, 3410 Taft Blvd, Wichita Falls, TX 76308. *Conditional Completeness of  $C(X, \mathbb{R}_\tau)$*

*Where  $\mathbb{R}_\tau$  is a Weak  $P$ -Space.*

Let  $\mathbb{R}_\tau$  denote the real numbers equipped with the topology  $\tau$ . Suppose  $\tau$  is a topology on the real numbers  $\mathbb{R}$  which is finer than the usual topology such that  $\mathbb{R}_\tau$  is a weak  $P$ -space, that is, a space in which countable sets are closed. We are interested in the lattice  $C(X, \mathbb{R}_\tau)$ . Recall that a lattice  $L$  is conditionally ( $\sigma$ )-complete if every (countable) subset of  $L$  which is bounded above has a supremum. A lattice  $L$  is said to have the property (I) if the following holds: for any two countable sets  $\{x_n\}, \{y_m\}$  with  $x_n \leq y_m$  for all natural numbers  $n, m$ , there exists  $h$  in  $L$  such that  $x_n \leq h \leq y_m$  for all  $n$ . We characterize when  $C(X, \mathbb{R}_\tau)$  is conditionally ( $\sigma$ )-complete and when it has the property (I). (Received September 08, 2005)