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Maria Carmen Reguera* (mreguera@math.gatech.edu). *On Muckenhoupt-Wheeden Conjecture.*

We present a result on a conjecture by B. Muckenhoupt and R. Wheeden, a weak-type estimate in weighted theory. It is a natural extension of a classical inequality proved by C. Fefferman and E. Stein in early seventies and has been an open problem since then. Let w be a weight, M denote the Maximal Function and T a Calderón-Zygmund operator, the estimate we are referring to is

$$\sup_{t>0} t w \{x \in \mathbb{R} \mid |Tf(x)| > t\} \leq C \int_{\mathbb{R}} |f| Mw(x) dx.$$

We show that there is a weight w , and Haar multiplier T for which the above inequality fails when M is replaced by the Dyadic Maximal Function. This shows that a dyadic version of Muckenhoupt-Wheeden Conjecture is false. This is accomplished by using current techniques in weighted inequalities to show that a particular L^2 consequence of the inequality above does not hold. (Received September 21, 2010)