John Massman* (massman@rose-hulman.edu), Rose-Hulman Institute of Technology, 5500 Wabash Ave CM 4043, Terre Haute, IN 47803. 4-Dimensional Non-Associative Division Algebras.

The classification of $n$-dimensional non-associative division algebras over a finite field $\mathbb{F}_q$ is a classic problem, whose interest has been rekindled by its application to coding for cell phone transmissions. The classification is known for only a limited number of cases. The most general known result is when $n$ is prime and $q$ is sufficiently large. We extend the classification to the case when $n = 4$ and $q$ is sufficiently large. (Received September 15, 2008)