Distribution of the traces of Frobenius on elliptic curves over function fields

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Abstract. Given a non-constant elliptic curve E defined over a one variable function field K over a finite field and S/C its minimal regular model. We investigate the number of points of C where the fiber is smooth and ordinary having a prescribed trace of Frobenius. We discuss the maximality of the bound obtained for this number in the case of some examples of universal elliptic curves over certain modular curves.