Corrigendum
On the class groups of pure function fields *)

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In §2.1 of our former paper [1], we have given the following proposition as Lemma 1 :

Lemma 1. *Let K be a function field of one variable over a finite field k, E a finite separable geometric extension of K and C_E the divisor class group of degree 0 of E. For any natural number a and any prime number p, we put*

$R_{p^a}(C_E) :=$ *the p^a-rank of the finite abelian group C_E,*

$\rho_{p^a}(E/K) :=$ *the number of prime divisors of K for which each of the ramification indices in E is divisible by p^a,*

$\omega_{p^a}(E/K) :=$ *the largest integer n such that $(p^a)^n$ divides the degree of E over K.*

Then we have

$$R_{p^a}(C_E) \geq \rho_{p^a}(E/K) - 1 - \omega_{p^a}(E/K).$$

As for the proof of this lemma, we have stated only that the case $a = 1$ had been proved by Madan [3, Theorem 2] and the general case can be proved similarly (without giving any further details). We have to report here that we could not confirm this last statement (neither could we find a counter-example to this Lemma), but we can save the situation in replacing this Lemma by the following Lemma 1′.

Lemma 1′. *The notations k, K, E, $R_{p^a}(C_E)$ and $\rho_{p^a}(E/K)$ being as above and $\bar{k}$ signifying the algebraic closure of k, let us assume that $E\bar{k}/K\bar{k}$ is cyclic. Then we have*

$$R_{p^a}(C_E) \geq \rho_{p^a}(E/K) - 2.$$

This Lemma 1′ can be proved by slight modifications of the arguments in [3], as we have mentioned in [2, Remark 3], and can be used wherever we have used Lemma 1 in [1].

References

[1] H. Ichimura: On the class groups of pure function fields. Proc. Japan Acad., **64A**, 170–173 (1988).
[2] H. Ichimura: On the class numbers of the maximal real subfields of cyclotomic function fields. Finite Fields and Their Appl., **4**, 167–174 (1998).
[3] M. Madan: Class number and ramification in fields of algebraic functions. Arch. Math., **19**, 121–124 (1968).

*) Originally published as [1] in References.