Title: On the distribution mod 1 of $\alpha \sigma(n)$

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The sequence $x_n = F(n) + \alpha \sigma(n) \pmod{1}$ is investigated, where $\sigma(n) =$ sum of divisors of $n$, $F$ is an additive arithmetical function. In an earlier paper De Koninck and the author proved that $x_n \pmod{1}$ is uniformly distributed if the approximation type of $\alpha$ is finite, and formulated the conjecture that it holds for every irrational $\alpha$. In this paper it is proved that the conjecture is not true in general, and it is true if $\alpha \in K^*$. $K^*$ is defined as follows. Let $M_x = \prod p^{r_p}$, $p$ runs over the primes and $r_p$ is the integer part of the number stated in the right hand side of (2.7). Let $K = K_x$ be the set of those irrational $\alpha$, for which $\min_{H|M_x} \|H\alpha\| x > 1$ holds for every large $x$, $K^* = \{ \alpha \mid j\alpha \in K \}$ for every $j = 1, 2, \ldots$.

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