Abstract. The C^*-algebra of a locally compact groupoid was introduced by Jean Renault in [2]. The construction extends the case of a group: the space of continuous functions with compact support on groupoid is made into a $*$-algebra and endowed with the smallest C^*-norm making its representations continuous. For this $*$-algebra the multiplication is convolution. For defining the convolution on a locally compact groupoid, one needs an analogue of Haar measure on locally compact groups. This analogue is a system of measures, called Haar system. Unlike the case of locally compact group, Haar system on groupoid need not exists, and if it does, it will not usually be unique. A well-known result (Theorem 2.8 [1]) states that the C^*-algebras associate with two different Haar systems on a locally compact second countable groupoid are strongly Morita equivalent. In the case of a transitive groupoid the C^*-algebras associated with two Haar systems are $*$-isomorphic (Theorem 3.1 [1]). It is not known if this is true in general.

We shall associate to a locally compact groupoid a C^*-algebra which is independent of the Haar system up to a $*$-isomorphism. We shall prove that for locally transitive groupoids and for totally intransitive groupoids (group bundles) this new C^*-algebra coincide with the usual C^*-algebra defined by Renault. Also, for principal proper groupoids, we shall prove that this C^*-algebra contains the usual C^*-algebra.

References

[1] P. Muhly, J. Renault and D. Williams, *Equivalence and isomorphism for groupoid C*-algebras*, J. Operator Theory **17**(1987), 3-22.

[2] J. Renault, *A groupoid approach to C^*- algebras*, Lecture Notes in Math., Springer-Verlag, **793**, 1980.