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Let $S(K)$ denote the Schur subgroup of the Brauer group $B(K)$ of an abelian extension K of the rationals Q; $S(K)$ is generated by those classes having a representative appearing as a simple component of the group algebra over K of some finite group, In previous papers [same J. **42** (1976), no. 1, 261–277; ibid. **44** (1977), 271–282] the author studied the relationship between $S(K)$ and a larger subgroup $U(K)$ of $B(K)$. $U(K)$, the group of algebras with uniformly distributed invariants, is defined to be the subgroup of $B(K)$ generated by those classes $[A]$ such that (1) if A has index m then K contains a primitive mth root of unity β and (2) if P is a prime of K and $\alpha \in \mathrm{Gal}(K/Q)$ with $\alpha(\beta) = \beta^b$ then $\mathrm{inv}_P A = b(\mathrm{inv}_{\alpha(P)} A) \bmod 1$. The present paper continues the author's investigations. Generators of $U(K)$ are explicitly determined for K a real quadratic extension of Q. Conditions are given for $[U(K): S(K)]$ to be infinite when K is real. It is also shown that if n is odd and divisible by at least two primes then $S(K) = S(Q) \otimes K$ for K the maximal real subfield of $Q(\beta)$, β a primitive nth root of unity, if and only if there is a prime congruent to $3 \bmod 4$ dividing n. The proofs of these results are interesting applications of the machinery of class field theory. *B. Fein*