The conformational motion of cyclohexene rings in six octahydrocarbazole N-derivatives was studied by EPR spectroscopy. The six octahydrocarbazole N-derivatives (tert-butyl, tolyl, 1-naphtyl, phenyl, cyclohexyl, adamantyl) were prepared by Paal-Knorr syntheses from primary amine and 2,2'-diketodicyclohexyle. The cation radicals were generated in situ by the potential controlled electrolysis in dichloromethane (0.1 M TBAPF$_6$). The EPR spectra were recorded at whole liquid range of CH$_2$Cl$_2$. The HFS of the spectra shows line-width alternation (Figure 1). All three types of HFS were registered: frozen, coalescent, and time-averaged. This phenomenon can be interpreted in terms of nonsynchronized cyclohexene rings movement using the four-jump model [1], describing the exchange between four populated sites. The series of spectra has been simulated by application of this model. Comparison of the experimental and computer simulated spectra at various temperatures yields the rate constant and thermodynamic parameters for the process. The mean lifetime of conformers spans the interval $10^{-10}$ to $10^{-7}$s. The energy barrier amounts about 30 kJ/mol. The dynamics of the conforma-

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**Figure 1a.** EPR spectra of 9-adamantyl octahydrocarbazole (9-AOHC) radical cation in dichloromethane at 303 K.
The potential energy surface (AMPAC 2.1 - AM1) for conformational change of one cyclohexene ring in 9-H-octahydrocarbazole radical cation was calculated by AM1 [2] (AMPAC 2.1). According the calculation the saddle points are 10.9 kJ/mol above the minima and the planar structure lies still 2.5 kJ/mol higher. The conformation of the molecule switches between the chair-chair C\(_s\) and the chair-chair C\(_2\) geometry by movement of either cyclohexene ring, the boat conformation of the ring being the transition state.