The High Frequency Focusing in the 70 MeV Race Track Microtron with Rectangular Accelerating Structure, V.N. MELEKHIN, IPP RAS; A.I. KAREV, PI RAS; V.I. SHVEDUNOV, INP MSU; N.P. SOBENIN, MEPhI, Moscow, Russia; W.P. TROWER, VIRGINIA TECH, BLACKSBURG, USA - The simplest design of a mobile 70 MeV race-track microtron was investigated. The use of extended vertical holes in the narrow rectangular structure which is bypassed by the electrons at the first orbit gives possibility for horizontal high frequency focusing, thereat vertical focusing is provided by the nonuniform guiding magnetic field generated by the rare-earth permanent magnet. The electrodynamic parameters of the rectangular biperiodic structure were measured at the low level of RF power.