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^{11}B NMR Study of HoB_4 MOOHEE LEE, KI-HYEOK KANG, JUNG-HOON KIM, Konkuk University, J.Y. KIM, B.K. CHO, Gwangju Institute of Science and Technology — ^{11}B NMR measurements were performed on a single crystal of HoB_4 to investigate disorder induced effects on the $4f$ spin structures and dynamics. The ^{11}B NMR spectrum, shift, linewidth, $1/T_1$, and $1/T_2$, were measured down to 3.5 K at 8 T perpendicular to the c -axis. Above $T_N = 5.7$ K, the ^{11}B NMR linewidth is very large and the shift is also large and negative. In addition, both depend on temperature strongly and increase at lower temperature, which is similar to the susceptibility. This fact confirms that the hyperfine field at the boron site originates from the $4f$ spins of Ho. Below T_N , the ^{11}B NMR spectrum shows a single broad shape with an extremely large linewidth. This behavior is an unexpected result compared with usual NMR spectra in an ordered state for a single crystal specimen, where the single broad peak splits into several narrow peaks below T_N , because of the different local magnetic fields at the each boron sites in the AF state. Considering frustration and disorder effects on the NMR data, we conclude that this behavior originates from the magnetic frustration and quadrupole moment disorder effects on the NMR *static* data. Above T_N , the both rates are very large and then increase toward T_N . Below T_N , the both rates decrease tremendously.

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