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Multifrequency EPR/ENDOR/optical study of ytterbium centers in stoichiometric lithium niobate[1] VALENTIN GRACHEV, Montana State University, VIKTOR BRATUS, Institute of Semiconductor Physics, Kiev, Ukraine, EDWARD KOKANYAN, Institute of Physical Researches, Ashtarak, Armenia, GALINA MALOVICHKO, Montana State University — The tremendous narrowing of lines of Electron Paramagnetic Resonance (EPR) in nearly stoichiometric lithium niobate samples, when compared to those in congruent samples, allowed us to distinguish nine non-equivalent centers, as well as line splitting caused by the hyperfine interaction of ytterbium electrons with the nuclear spins of ^{171}Yb and ^{173}Yb. Three Yb^{3+} centers have axial C_3 symmetry; all others have the lowest C_1 symmetry due to the presence of intrinsic defects and/or charge compensation defects in the near neighborhood of Yb^{3+}. Our study of Electron Nuclear Double Resonance (ENDOR) gave direct evidence that Yb^{3+} in the main axial center substitutes for Li^+ and has no other defects in its surrounding (distant charge compensation mechanism). Possible models for low-symmetry centers are proposed. The obtained numerous characteristics of **g**-tensors and hyperfine tensors can be used as cornerstones for model calculations of Yb^{3+} centers in lithium niobate.

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