Abstract Submitted for the MAR14 Meeting of The American Physical Society

Photoluminescence study of Be acceptors in GaInNAs epilayers¹ Y. TSAI, B. BARMAN, T. SCRACE, A. PETROU, SUNY Buffalo, M. FUKUDA, I.R. SELLERS, University of Oklahoma, M. LEROUX, M.A. KHALFIOUI, CRHEA-CNRS, France — We have studied the photoluminescence (PL) spectra from MBE grown GaInNAs epilayers doped p-type with Beryllium acceptors. The measurements were carried out in the 5 K - 70 K temperature range and in magnetic fields (B) up to 7 tesla. The PL spectra contain two features at T = 5 K: The exciton at 1093 meV [2] and a second broader feature at 1058 meV. The intensity of this feature decreases with increasing temperature and disappears completely by 70K while the excitonic feature persists. The emission at 1058meV is identified as the conduction band to Beryllium acceptor transition. If we take into account the binding energy of the exciton [3] we get a value of 23 meV for the Beryllium acceptor binding energy. The acceptor related transition was studied as a function of magnetic field; the energy of this transition has a linear dependence on B with a slope of 055 meV/T. [2] Y.Tsai et al, Appl Phys Lett 103, 012104(2013) [3] K.Kashima et al., Jpn. J. Appl. Phys. 50, 06GH09(2011)

¹Research supported by Amethyst Research In. through the State of Oklahoma, ONAP program

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Date submitted: 14 Nov 2013

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