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Generation of Lower Hybrid Waves in an Oxygen Dominated Plasma¹ MANISH MITHAIWALA, NRL Plasma Physics Division, LEONID RUDAKOV, Icarus Research Inc., GURUDAS GANGULI, NRL Plasma Physics Division — A previous work considered the generation of ULF waves in the inner Magnetosphere due to a heavy ion ring distribution such as Lithium, Cesium or Barium [Ganguli et al., 2007]. We extend this analysis by considering the generation of Lower-hybrid waves in an Oxygen dominated plasma at $R \sim 500$ km due to a Barium ion ring distribution. In this situation it is possible to generate ion-Bernstein modes or Lower-hybrid waves. We demonstrate the criteria in which Lower-hybrid waves are produced. The growth rate is found to be strongly dependent on the ion thermal velocity. For a broad range of parameters the growth rate $\gamma > \Omega_{Ba}$ so that the Barium ions are considered to be unmagnetized which simplifies the analysis. The analysis is compared with space experiments done several decades ago. Ganguli, G., L. Rudakov, M. Mithaiwala, and K. Papadopoulos (2007), Generation and evolution of intense ion cyclotron turbulence by artificial plasma cloud in the magnetosphere, *J. Geophys. Res.*, 112, A06231, doi:10.1029/2006JA012162.

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