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Magnetic field effects on velocity shear-driven ion cyclotron instabilities[1] E. TEJERO, A. EADON, E. THOMAS, Auburn University, W.E. AMATUCCI, Naval Research Laboratory — Flows generated in plasmas due to the presence of mutually perpendicular electric and magnetic fields are of relevance to both the fusion and space plasma communities. In particular, inhomogeneity in the flow can have both stabilizing and destabilizing effects on the plasma depending on the magnitude and scale length of the inhomogeneity. Studies in the ALEXIS device, a 170-cm long, 10.2-cm diameter magnetized plasma column, seek to determine the stability regimes for driven inhomogeneous flows. This poster focuses on the effect of the axial magnetic field strength on the behavior of ion cyclotron waves observed in ALEXIS plasmas containing radially localized dc electric fields. This presentation discusses the clear correlation observed between sheared azimuthal E x B plasma flows and the spatial localization of ion cyclotron instabilities observed in ALEXIS. Further, it is shown that the effect on the oscillations due to varying the magnetic field is consistent with a Doppler-shifted frequency resonating with a harmonic of the ion cyclotron frequency.

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