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On the nature of the electromagnetic fluctuations in the dissipation/dispersion range of solar wind turbulence C. SALEM, D. SUNDKVIST, S.D. BALE, C. CHASTON, Space Sciences Laboratory, University of California, Berkeley — We present a study of the nature of the electromagnetic fluctuations in the dissipation/dispersion range of solar wind turbulence, typically up to a few Hz. It has been shown that wavemodes in this range of frequencies become dispersive and are consistent with Kinetic Alfven Waves (KAW). However, strongly Doppler-shifted KAW in the solar wind can show similar properties as slightly doppler-shifted proton whister waves in the s/c frame. We explore here the possibility of distinguishing between both wavemodes. We analyze several low-beta ambient solar wind intervals, using both electric and magnetic field data from Cluster. This analysis is performed in the s/c frame along with theoretical estimates based on the effect of Doppler shift on KAW and compressional proton whistler waves. The dispersive properties of KAW and whistler waves, as well as the E/B ratio, are determined both analytically and numerically in the plasma and the s/c frame. Those estimates are then directly compared to the data in the s/c frame. We propose this technique as an efficient diagnostics for wave-mode identification in the dissipation/dispersion range of solar wind turbulence.

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