

Abstract Submitted
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Scattering of High Frequency Electromagnetic Waves in the Presence of Low Frequency Density Irregularities JAMES LUNDBERG, Air Force Research Laboratory, Wright Patterson AFB, OH 45433, USA/Riverside Research, TONY KIM, VLADIMIR SOTNIKOV, Air Force Research Laboratory, Wright Patterson AFB, OH 45433, USA, EVGENY MISHIN, Air Force Research Laboratory, Kirtland AFB, NM 87117, DAVID ROSS, Voss Scientific Inc, Albuquerque, NM 87107, THOMAS MEHLHORN, Naval Research Laboratory, Washington, DC 20375 — Presence of plasma can strongly influence propagation properties of electromagnetic signals used for surveillance and communication. In particular, we are interested in mechanisms of generation of low frequency plasma turbulence in the ionosphere and inside a plasma sheath of reentry and hypersonic vehicles and in similar applications. We will discuss generation of low frequency density irregularities due to the presence of plasma flows with velocity shear and interchange instability. Next, influence of excited wave turbulence on scattering of high frequency electromagnetic waves used for communication purposes will be presented. Finally, scattering cross-sections due to interaction of high frequency EM waves with density irregularities produced by different types of low frequency plasma turbulence will be discussed.

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