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Coupling to the Electron Bernstein Wave With Waveguide Antennas¹ R.I. PINSKER, General Atomics, M.D. CARTER, ORNL, C.B. FOREST, P. CHATTOPADHYAY, U. Wisconsin — The electron Bernstein wave (EBW) is of interest for both diagnostic applications and for heating and current drive in low field devices such as present spherical torus experiments and the reversed-field pinch. In these devices electron cyclotron harmonic layers are not accessible from outside the discharge with conventional X- or O-modes. We have extended a waveguide coupling code that was originally written² for problems in the lower hybrid range of frequencies so that it is applicable to this problem. The surface admittance computed by this code is found to be in good agreement with that calculated with the GLOSI code,³ which explicitly treats the lowest-order BW. The results of these codes are compared with recent measurements of S-band waveguide coupling and edge plasma parameters from the MST device at U. Wisconsin-Madison.

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²R.I. Pinsker, et al., Nucl. Fusion **26** (1986) 941.

³C.Y. Wang, et al., Phys. Plasmas **2** (1995) 2760.

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