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Auroral Kilometric Radiation from a nonstationary thin plasma cavity

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Results obtained using a waveguide model of the AKR generation in thin plasma cavities are presented. It has been shown that extraordinary X mode waves excited due to the electron cyclotron maser instability cannot be radiated outwards from a cavity when a stationary model is used. Taking into account the low frequency plasma motion we propose a nonstationary waveguide model of the AKR generation, and show that there can exist localized regions of instability from which X mode waves, growing in time, can be radiated outwards. It has been found that waves propagating quasi-tangentially to the source frontiers have the maximum growth rate and escape outward most efficiently, that is in accordance with experimental observations.