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A METHOD FOR DETERMINING THE ABSOLUTE TOTAL ELECTRON CONTENT USING
UNMODULATED COHERENT MULTIFREQUENCY SIGNALS

Abstract

A new theoretical method for determining the absolute total electron content (TEC) from phase differences of unmodulated coherent multifrequency signals is derived. Calculation of the values of the phase ambiguity and resolution in terms of TEC values is presented. A combination of the carrier frequencies of coherent signals that enables determination of the absolute TEC of the Earth's ionosphere with the use of simple receiving facilities is substantiated. This method makes it possible to measure TEC along a trace of sounding multifrequency radiosignal using only instantaneous phase data.