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Accession number:12711768
Title:Atmospheric attenuation of 400 GHz radiation due to water vapor
Authors:Weber, M.J. (1); Yang, B.B. (1); Kulie, M.S. (2); Bennartz, R. (2); Booske, J.H. (1)
Author affiliation:(1) Dept. of Electr. & Comput. Eng., Univ. of Wisconsin-Madison, Madison, WI, United States; (2) Dept. of Atmos. & Oceanic Sci., Univ. of Wisconsin-Madison, Madison, WI, United States
Source title:IEEE Transactions on Terahertz Science and Technology
Abbreviated source title:IEEE Trans. Terahz. Sci. Technol. (USA)
Volume:2
Issue:3
Publication date:May 2012
Pages:355-60
Language:English
ISSN:2156-342X
CODEN:ITTSBX
Document type:Journal article (JA)
Publisher:IEEE
Country of publication:USA
Material Identity Number:GR96-2012-003
Abstract:We present an experimental study of electromagnetic losses resulting from atmospheric attenuation due to water vapor on 400 GHz radiation. A hermetically sealed, high quality factor quasi-optical resonator system permits the precise control of the atmospheric water vapor content, and allows for measurement of electromagnetic losses. The empirically determined losses are compared with predictions by various different electromagnetic attenuation models. Close agreement is demonstrated with four of the models, while another differs by more than an order of magnitude at higher values of water content.
Number of references:28
Inspec controlled terms:atmospheric electromagnetic wave propagation - atmospheric humidity - hermetic seals - optical losses - optical resonators - submillimetre wave propagation - terahertz waves
Uncontrolled terms:water vapor - hermetically sealing - quasioptical resonator system - atmospheric water vapor content - electromagnetic losses - electromagnetic attenuation models - magnitude order - quality factor - GHz radiation
Inspec classification codes:A9260V Electromagnetic wave propagation and interactions in the lower atmosphere - A9260J Water in the atmosphere (humidity, clouds, evaporation, precipitation)
Treatment:Theoretical or Mathematical (THR)
Discipline:Physics (A)
DOI:10.1109/TTHZ.2012.2189909
Database:Inspec
IPC Code:F16J15/00