

Converting Azimuth, Polar and Polarization Angles Between Different Definitions of Spherical Coordinate Systems

Background and problem: The spherical coordinate system is an appropriate way to define the direction of the wave vector and the polarization of plane waves for field calculation. The main problem is that different authors and different manufacturers of field computation software use different definitions of the spherical coordinate system. That makes it difficult to compare calculation or simulation results between different authors or programs. Numerous examples of different definitions can be found in the literature. Example field computation programs are the Numerical Electromagnetic Code (NEC) or CONCEPT.

Task: The main objective is to write a program or function for the conversion between different spherical coordinate systems. The preferred language is MATLAB or Maple.

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