

论文

五维正交矢量天线导向矢量的秩-1模糊问题研究

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收稿日期 2003-11-28 修回日期 2004-9-3 网络版发布日期 2008-4-10 接受日期

摘要

该文研究共点放置的极化敏感五维正交矢量天线导向矢量中隐含的秩-1模糊问题。论文首先定义了同维数但形式不同的极化-角度相干结构(PACS)之间的两种等价关系,在此基础上分析和讨论了几种典型的五维PACS的秩-1模糊。结果表明,利用五维正交矢量天线可唯一-辨识单个非水平极化信号的角度和极化参数。仿真实验结果验证了文中得出的结论。

关键词 [共点](#) [极化敏感](#) [秩-1模糊](#)

分类号 [TN911.7](#)

Rank-1 Ambiguity of Steering Vector of an Array with Five Co-localized and Orthogonally Oriented Sensors

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Abstract

The rank-1 ambiguity problem involved in the Polarization-Angular Coherence Structure (PACS) of a 5-D co-localized vector antenna whose elements are orthogonally oriented is addressed in this paper. Two kinds of equivalent relations are defined, under which several typical and easy-analyzed 5-D PACSs are studied. It is further shown in the paper that with only one 5-D vector antenna, DOA and polarization of one signal except for the case of horizontally polarized signal could be uniquely identified, as is done by the well-known 6-D ElectroMagnetic (EM) vector sensor. Some representative examples are also given to validate the present analyses.

Key words [Collocation](#) [Polarization](#) [Rank-1 ambiguity](#)

DOI:

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