

論文 / 著書情報
Article / Book Information

題目(和文)	
Title(English)	Directional Radio Channel Modeling by Using Spherical Vector Waves
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出典(和文)	学位:博士(工学), 学位授与機関:東京工業大学, 報告番号:甲第9984号, 授与年月日:2015年9月25日, 学位の種別:課程博士, 審査員:高田 潤一,山下 幸彦,秋田 大輔,青柳 貴洋,阪口 啓
Citation(English)	Degree:, Conferring organization: Tokyo Institute of Technology, Report number:甲第9984号, Conferred date:2015/9/25, Degree Type:Course doctor, Examiner:,,,,,
学位種別(和文)	博士論文
Category(English)	Doctoral Thesis
種別(和文)	要約
Type(English)	Outline

Thesis Outline

--- Directional Radio Channel Modeling by Using Spherical Vector Waves

1 Introduction

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1.2 Radio Channel Measurement

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1.2.2 Channel Measurement Techniques

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1.3 Radio Channel Modeling

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1.4 Antenna De-embedding and Radio Channel Reproducing

1.4.1 Antenna De-embedding

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1.5 Outline and Contribution of Thesis

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3.1.1 Representation in Plane Wave Domain

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This thesis focuses on the radio channel modeling by using spherical vector waves, including the modeling of antennas at link ends and the modeling of propagation channel. The title is called “Directional Radio Channel”, because we focus on the narrowband properties of radio channel.

The main novelties of this thesis are:

1. The radiation pattern reconstruction for deviated antenna (or array elements) in spherical measurement by using spherical vector waves and resampling between coordinates;
2. The antenna de-embedding of radio propagation channel with truncated spherical vector wave modes using the dedicated spherical array;
3. The statistical investigation and stochastic model of propagation channel in spherical vector wave domain;
4. The demonstration of the advantage of spherical vector wave channel modeling over plane wave channel modeling in the propagation environment containing diffuse scattering;
5. The preliminary channel measurement with a semi-automatic spherical mold.