Orthogonal Frequency Division Multiplexing with Diversity for Future Wireless Systems

Description: The book examines several aspects of Orthogonal Frequency Division Multiplexing (OFDM) employing linear diversity techniques such as inter-carrier interference, bit error rate, peak to average power and inter-block interference. It should be a useful reference for readers interested in modern wireless communication systems.

Contents:

List of Figures
List of Tables
Contributing Authors
Foreword
Foreword—The OFDM Saga . .
Preface
Acknowledgements
1 The Effects of Spatial Diversity on the Synchronization of MIMOOFDM Systems 1
1.1 Introduction . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 2
1.1.1 Orthogonal frequency division multiplexing transmission . . . . . . 2
1.1.2 Synchronization . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 3
1.1.3 Diversity . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 4
1.2 Sensitivity of MIMO-OFDM receivers to synchronization errors . . . . . . 6
1.3 Spatial diversity for the synchronization of MIMO-OFDM systems . . . . . . 13
1.3.1 Timing and carrier frequency synchronization algorithms . . . . . . 14
1.3.2 Performance analysis . . . . . . . . . . . . . . . . . . . . . . . . . . . . 18
1.3.3 Simulation results . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 21
1.4 Maximum likelihood symbol timing estimation for MIMO-OFDM systems 25
1.4.1 Signal model . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 25
1.4.2 Symbol timing estimation with known training data . . . . . . . . . . 28
1.4.3 Non-data aided symbol timing estimation . . . . . . . . . . . . . . . . . . 30
1.5 Blind OFDM carrier synchronization with receiver diversity . . . . . . . . 34
1.6 Conclusions . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 41
References 42
2 Timing and Iterative IBI and ICI Cancellation 45
2.1 System description . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 47
2.2 ICI and IBI due to delay spread of channels . . . . . . . . . . . . . . . . . 50
2.2.1 Impact of starting time of integral window . . . . . . . . . . . . . . . . 50
2.2.2 Impact of delay spread of wireless channels . . . . . . . . . . . . . . . 52
2.3 Timing . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 56
2.3.1 Dynamic timing . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 56
2.3.2 Static timing . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 56
2.3.3 Discussion and simulation results . . . . . . . . . . . . . . . . . . . . . . 61
2.4 Iterative IBI and ICI cancellation . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 67
2.4.1 Algorithm development . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 67
2.4.2 Simulation results . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 74
2.5 How about substituting cyclic prefix by zero-padding guard intervals? . . 77
2.5.1 Wrapping for DFT-based signal detection . . . . . . . . . . . . . . . . . . . . . . . . . 80
Fax Order Form
To place an order via fax simply print this form, fill in the information below and fax the completed form to 646-607-1907 (from USA) or +353-1-481-1716 (from Rest of World). If you have any questions please visit [http://www.researchandmarkets.com/contact/](http://www.researchandmarkets.com/contact/)

Order Information
Please verify that the product information is correct.

<table>
<thead>
<tr>
<th>Product Name:</th>
<th>Orthogonal Frequency Division Multiplexing with Diversity for Future Wireless Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Web Address:</td>
<td><a href="http://www.researchandmarkets.com/reports/2317211/">http://www.researchandmarkets.com/reports/2317211/</a></td>
</tr>
<tr>
<td>Office Code:</td>
<td>SC231YPK</td>
</tr>
</tbody>
</table>

Product Format
Please select the product format and quantity you require:

<table>
<thead>
<tr>
<th>Quantity</th>
<th></th>
<th>USD 49</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-Book (PDF)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single User:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Contact Information
Please enter all the information below in **BLOCK CAPITALS**

<table>
<thead>
<tr>
<th>Title:</th>
<th>Mr</th>
<th>Mrs</th>
<th>Dr</th>
<th>Miss</th>
<th>Ms</th>
<th>Prof</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>First Name:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Email Address:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job Title:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organisation:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>City:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postal / Zip Code:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Country:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone Number:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fax Number:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Please refrain from using free email accounts when ordering (e.g. Yahoo, Hotmail, AOL)
Payment Information

Please indicate the payment method you would like to use by selecting the appropriate box.

☐ Pay by credit card: You will receive an email with a link to a secure webpage to enter your credit card details.

☐ Pay by check: Please post the check, accompanied by this form, to:

Research and Markets,
Guinness Center,
Taylors Lane,
Dublin 8,
Ireland.

☐ Pay by wire transfer: Please transfer funds to:

Account number 833 130 83
Sort code 98-53-30
Swift code ULSBIE2D
IBAN number IE78ULSB98533083313083
Bank Address Ulster Bank,
27-35 Main Street,
Blackrock,
Co. Dublin,
Ireland.

If you have a Marketing Code please enter it below:

Marketing Code: _______________________

Please note that by ordering from Research and Markets you are agreeing to our Terms and Conditions at http://www.researchandmarkets.com/info/terms.asp

Please fax this form to:
(646) 607-1907 or (646) 964-6609 - From USA
+353-1-481-1716 or +353-1-653-1571 - From Rest of World