APPENDIX-II

A2. OFDM GAUSSIAN NOISE PERFORMANCE PREDICTION

The performance of any OFDM system using phase shift keying is given in the Table A1&Table A2.

<table>
<thead>
<tr>
<th>SNR (dB)</th>
<th>RMS Phase Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>63.63</td>
</tr>
<tr>
<td>2</td>
<td>44.85</td>
</tr>
<tr>
<td>4</td>
<td>34.25</td>
</tr>
<tr>
<td>6</td>
<td>26.65</td>
</tr>
<tr>
<td>8</td>
<td>20.92</td>
</tr>
<tr>
<td>10</td>
<td>16.5</td>
</tr>
<tr>
<td>12</td>
<td>13.05</td>
</tr>
<tr>
<td>14</td>
<td>10.34</td>
</tr>
<tr>
<td>16</td>
<td>8.198</td>
</tr>
<tr>
<td>18</td>
<td>6.505</td>
</tr>
<tr>
<td>20</td>
<td>5.164</td>
</tr>
<tr>
<td>22</td>
<td>4.1</td>
</tr>
<tr>
<td>24</td>
<td>3.256</td>
</tr>
<tr>
<td>26</td>
<td>2.586</td>
</tr>
<tr>
<td>28</td>
<td>2.054</td>
</tr>
<tr>
<td>30</td>
<td>1.631</td>
</tr>
<tr>
<td>32</td>
<td>1.296</td>
</tr>
<tr>
<td>34</td>
<td>1.029</td>
</tr>
<tr>
<td>36</td>
<td>0.8175</td>
</tr>
<tr>
<td>38</td>
<td>0.6494</td>
</tr>
<tr>
<td>40</td>
<td>0.5158</td>
</tr>
<tr>
<td>42</td>
<td>0.4097</td>
</tr>
<tr>
<td>44</td>
<td>0.3254</td>
</tr>
<tr>
<td>46</td>
<td>0.2585</td>
</tr>
<tr>
<td>48</td>
<td>0.2053</td>
</tr>
<tr>
<td>50</td>
<td>0.1631</td>
</tr>
</tbody>
</table>

Table A1 Expected Phase Error on a OFDM carrier at difference SNR levels
<table>
<thead>
<tr>
<th>$Z$ (number of standard deviations)</th>
<th>BER</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>0.2</td>
<td>0.841481</td>
</tr>
<tr>
<td>0.4</td>
<td>0.689157</td>
</tr>
<tr>
<td>0.6</td>
<td>0.548506</td>
</tr>
<tr>
<td>0.8</td>
<td>0.423711</td>
</tr>
<tr>
<td>1</td>
<td>0.317311</td>
</tr>
<tr>
<td>1.2</td>
<td>0.230139</td>
</tr>
<tr>
<td>1.4</td>
<td>0.161513</td>
</tr>
<tr>
<td>1.6</td>
<td>0.109599</td>
</tr>
<tr>
<td>1.8</td>
<td>0.071861</td>
</tr>
<tr>
<td>2</td>
<td>0.0455</td>
</tr>
<tr>
<td>2.2</td>
<td>0.027807</td>
</tr>
<tr>
<td>2.4</td>
<td>0.016395</td>
</tr>
<tr>
<td>2.6</td>
<td>0.009322</td>
</tr>
<tr>
<td>2.8</td>
<td>0.00511</td>
</tr>
<tr>
<td>3</td>
<td>0.0027</td>
</tr>
<tr>
<td>3.2</td>
<td>0.001374</td>
</tr>
<tr>
<td>3.4</td>
<td>0.000674</td>
</tr>
<tr>
<td>3.6</td>
<td>0.000318</td>
</tr>
<tr>
<td>3.8</td>
<td>0.000145</td>
</tr>
<tr>
<td>4</td>
<td>6.34E-05</td>
</tr>
<tr>
<td>4.2</td>
<td>2.67E-05</td>
</tr>
<tr>
<td>4.4</td>
<td>1.08E-05</td>
</tr>
<tr>
<td>4.6</td>
<td>4.23E-06</td>
</tr>
<tr>
<td>4.8</td>
<td>1.59E-06</td>
</tr>
<tr>
<td>5</td>
<td>5.74E-07</td>
</tr>
</tbody>
</table>

Table A2 Expected Bit Error Rate for various noise levels. $Z$ is the ratio of the maximum allowable phase angle / RMS phase error.