Technical Data Sheet: Antennas Direct DB4E Antenna

Physical Data:
Dimensions: Width = 23 in. \hspace{1cm} Height = 37.5 in. \hspace{1cm} Depth = 7 in.
Weight: TBD
Turning Radius: 11.5 in.

Electrical Data:
Design Pass Band: UHF \hspace{1cm} 470 MHz to 698 MHz \hspace{1cm} Channels 14 – 51
Impedance: 75 ohm
Connector: F-Female

Performance Data:
Peak Gain: 14.3 dBi @ 698 MHz
VSWR: 3.0 Max \hspace{1cm} 470 MHz to 698 MHz

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>Boresight Gain (dBi)</th>
<th>Azimuth – Half Power Beam Width (deg)</th>
<th>Elevation – Half Power Beam Width (deg)</th>
<th>IEEE Rear Hemisphere F/B (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>470</td>
<td>11.68</td>
<td>60</td>
<td>30</td>
<td>15.18</td>
</tr>
<tr>
<td>546</td>
<td>12.59</td>
<td>55.7</td>
<td>24.5</td>
<td>16.79</td>
</tr>
<tr>
<td>622</td>
<td>13.78</td>
<td>47.5</td>
<td>24</td>
<td>17.78</td>
</tr>
<tr>
<td>698</td>
<td>14.36</td>
<td>42.1</td>
<td>21.5</td>
<td>17.05</td>
</tr>
</tbody>
</table>

Notes:
1. Unless stated otherwise, all performance data computed using Remcom, Inc. X-FDTD simulator.
2. Assumptions: PEC, free space, PCB balun included, 75 ohm reference.
3. Gain is specified dBi (isotropic) per IEEE definition. Mismatch losses not included.
4. There are two common meanings for Front-to-Back Ratio (F/B). One specifies ratio as measured 180 degrees opposite boresight. The other, used by IEEE specifies the ratio of boresight gain to maximum gain in rear hemisphere. The IEEE definition is the most conservative. IEEE F/B values shown here are computed based on azimuth and elevation cuts provided in this document.

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Illustration 2: DB4E - Gain versus Azimuth Angle.
Illustration 3: DB4E - Gain versus Elevation Angle.
Illustration 4: DB4E - Boresight Gain versus Frequency.
Illustration 5: DB4E - Computed VSWR versus Frequency. PCB balun included. 75 ohm reference. Measured better, see next plot.
Illustration 6: DB4E - VSWR versus Frequency measured outdoors with HP8510C VNA.