# Power amplifiers for the PSB Transverse Damper

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output power</td>
<td>800 W</td>
</tr>
<tr>
<td>Output load impedance</td>
<td>50 Ω</td>
</tr>
<tr>
<td>Small signal bandwidth</td>
<td>0.01 – 30 MHz</td>
</tr>
<tr>
<td>100 MHz upper frequency appreciated</td>
<td></td>
</tr>
<tr>
<td>Power bandwidth</td>
<td>0.1 – 30 MHz</td>
</tr>
<tr>
<td>Gain</td>
<td>54 dB</td>
</tr>
<tr>
<td>Number of required units</td>
<td>20</td>
</tr>
</tbody>
</table>

**Difficult part**: 4 decades!
Basic power prototype building block

Small signal bandwidth: 0.002 – 120 MHz
Nominal output power: 200 W
Gain: 28 dB
2nd harmonic distortion (200 W; 0.02 – 30 MHz): < -25 dBc
3rd harmonic distortion (200 W; 0.02 – 30 MHz): < -15 dBc
**Configuration**

- **800W in a 3U box**
  - Four 200 W modules combined
  - Wide band splitter / combiner from a previous design
  - External power supply
  - Water cooling

- Standard Driver module
Schedule and cost

800 W

- Full scale prototype built and tested : August 2016
- Design finalization : September 2016
- Parts procurement and assembly of 20 units : February 2017
- Testing : May 2017

Drivers

- Joint production with PSB Finemet project units ready by end 2016

- Total estimated cost : 160 kCHF