BreakPoint Fin
Mockup Review
BreakPoint Fin
Vision

Safe for Surfers
Safe for Surfboards
High Performance
Sketch Model
Sketch Model

Fin Folding

Locking Mechanism
Risks

High performance stiffness

Mechanism consistency

Multiple fin systems
Risks

- High performance stiffness
- Mechanism consistency
- Multiple fin systems
Mockups

[Images of two mockups]

Blue A

Friday, October 19, 12
Mockups

Breakaway

Folding with Velcro Lock
Measure Force vs. Displacement

Clamp

Fin
Testing

Tested both mockups
Testing

Tested both mockups and a solid acrylic version.
Findings

Force vs Displacement Curves of Fins

Vertical Displacement (mm)

Force (N)

- Acrylic Blank
- Acrylic Break Away
- Acrylic Collapse

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<table>
<thead>
<tr>
<th>Customer Need</th>
<th>Product Attribute</th>
<th>Engineering Spec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surfer unharmed</td>
<td>Max impact force</td>
<td>&lt; 500N</td>
</tr>
<tr>
<td>Surfboard unharmed</td>
<td>Fin breakaway force</td>
<td>&lt; 1kN</td>
</tr>
<tr>
<td>Meets performance needs</td>
<td>Hydrodynamic performance</td>
<td>Length, depth, sweep, flex, foil</td>
</tr>
<tr>
<td>Quickly reset</td>
<td>Reset time</td>
<td>&lt;15s</td>
</tr>
<tr>
<td>Long life</td>
<td>Useable life, Impact events</td>
<td>&gt;1000hr, &gt;50 impact events</td>
</tr>
<tr>
<td>Affordable</td>
<td>Price</td>
<td>&lt;$75</td>
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Next Steps

Refine breakaway model
Develop tethering system
Composite prototype