




BP5: PTW Design and Protective Equipment

Reference: BP5 015	Title of Project:	Piaggio MP3
Version: 1	Website:	http://www.mp3.piaggio.com/index_eng.html
Brief Description of Project:	<div style="display: flex; align-items: flex-start;">  <div style="flex-grow: 1;"> <p>The MP3 is a 3-wheeled scooter from Piaggio. Steering is through 2 front wheels with power delivery from the single rear wheel.</p> <p>Due to a third more contact area with the road, the MP3 appears to offer increased grip and reduced stopping distances. A figure of 24% reduction in wet surface braking is claimed.</p> <p>Steering is achieved through a tilting mechanism which allows up to 40 degrees of lean.</p> <p>The MP3 is now produced in 3 engine sizes (125, 250 and 500) with a prototype hybrid powered version due to go on sale.</p> </div> </div>	
Monitoring Data:	<p>No collision based monitoring data is available. Performance testing indicates improved stability, especially on variable surfaces, reduced braking distances (especially in the wet) and more secure steering over known highway hazards. Piaggio claim significant improvements over two wheeled reference vehicles, especially over uneven surfaces and obstacles such as tram-lines.</p> <p>Performance in collision tests and in particular any influence on rider exit path and impact location would be useful for a definitive assessment.</p>	

<p>Results:</p>	<p>Manufacturer's claims supported by road-tests indicate improved braking, steering and stability in many urban situations. Piaggio claim an 18% reduction in stopping distance on a paved surface and a 38% improvement on cobbled surface.</p> <p>Piaggios' tests show much less sensitivity to worn and uneven surfaces and obstacles such as train/tram-lines.</p> <table border="1"> <thead> <tr> <th>Valori RMS Delta Ft Superfici sconnesse (Newton)</th> <th>mp3</th> <th>RV</th> <th>Var. fra i veicoli.</th> </tr> </thead> <tbody> <tr> <td><i>Pavé pesante</i></td> <td>764</td> <td>936</td> <td>-18%</td> </tr> <tr> <td><i>Acciottolato leggero</i></td> <td>919</td> <td>1496</td> <td>-38,6%</td> </tr> <tr> <td><i>Variazione al cambio di fondo (sensibilità)</i></td> <td>+20%</td> <td>+59%</td> <td>33%</td> </tr> </tbody> </table> <p><i>Tabella 1- Riepilogo Valori RMS nel passaggio su superfici sconnesse</i></p>	Valori RMS Delta Ft Superfici sconnesse (Newton)	mp3	RV	Var. fra i veicoli.	<i>Pavé pesante</i>	764	936	-18%	<i>Acciottolato leggero</i>	919	1496	-38,6%	<i>Variazione al cambio di fondo (sensibilità)</i>	+20%	+59%	33%
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<p>Key Effective Conclusions:</p>	<p>The MP3 offers a counter measure to PTW collisions involving loss of control, especially on poor surfaces and in wet or icy conditions.</p> <p>There would appear to be improved collision avoidance in the common types of multi-vehicle PTW collisions such as other vehicles failing to give way at junctions.</p> <p>The cost of the MP3 when compared to conventional scooters may be a significant disincentive for riders seeking low cost travel.</p>																
<p>Projects for Comparison:</p>	<p>BMW C1 (this motorcycle is currently out of production).</p>																
<p>Justification:</p>	<p>The improved braking and stability over poor surfaces provide potential for the MP3 to contribute to the eSUM WP3, BP5 objective of reducing the number and severity of urban PTW collisions.</p>																