Submission for Enforcement Committee—Strategic Compliance

<table>
<thead>
<tr>
<th>Date of meeting</th>
<th>27-October-2016</th>
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<tr>
<td>Meeting number</td>
<td>1617/09</td>
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<td>Staff paper number</td>
<td>EC-SC1617/32</td>
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<td>Dynamics/TRACKIT</td>
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<tr>
<td>Title</td>
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<td>Report</td>
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<td>Hoverboards and Monoboard - State of the Market Scoping Paper</td>
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<td>Recommendation</td>
<td>That the Committee provide direction</td>
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<td>Commissioners provide direction in regard to further pro-active market testing against the performance requirements of the mandatory standard</td>
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<tr>
<td>Project staff</td>
<td>Glenn Probyn (presenting) (x1978)</td>
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<tr>
<td>Responsible SES</td>
<td>Neville Matthew</td>
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<tr>
<td>Branch and Office</td>
<td>Consumer Product Safety</td>
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<tr>
<td>Legal/Economic input</td>
<td>N/A</td>
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<td>This paper contains confidential and privileged material (shaded)</td>
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<td>Conflict of interest</td>
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<td>Attachments</td>
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1. Purpose

1.1. To provide an assessment of the current state of play in the hoverboard/monoboard self-balancing scooter market.

1.2. To establish the scope of work and resources required to assess the state of the market for hoverboards and monobards. Noting that this may involve testing to the Consumer Goods (Self-balancing Scooters) Safety Standard 2016. This proved expensive when a single monobard was tested recently.

1.3. To seek direction as to the comparative priority of this project to other safety work.

1.4. To seek the Committee’s direction on whether to pursue pro-active testing of hoverboards/monobards given the cost of testing to the mandated standards.

2. Background

2.1. Hoverboards have been associated with fires, smoking, overheating and sparking incidents in Australia and overseas.

2.2. Based on Australian and international evidence it appears that hoverboards, or the reasonably foreseeable use of hoverboards, may cause injury due to the risk of fire and overheating while charging.

2.3. The fires and other incidents are most likely caused by hoverboards with one or more of the following characteristics:

2.3.1. they contain substandard lithium batteries

2.3.2. they are designed and manufactured with substandard mechanical protection for the batteries

2.3.3. they are designed and manufactured with substandard electrical circuitry that does not include adequate over-current, over-temperature or over-charging protection for the batteries

2.3.4. they have non-compliant electrical chargers.

3. Policy Objectives

3.1. The Minister imposed an interim ban on the supply of hoverboards that did not meet specified safety standards. The interim ban came into effect on 19 March 2016 and applied to two-wheeled hoverboards supplied in Australia. The interim ban was imposed because two-wheeled hoverboards had been associated with four house fires in Australia since January 2016. Since the interim ban was initially imposed, the ACCC became aware of another two house fires started by two-wheeled hoverboards.

3.2. The interim ban required hoverboards supplied in Australia to comply with the following requirements listed in the table:
<table>
<thead>
<tr>
<th>Requirement</th>
<th>UL Option</th>
<th>IEC (or AS/NZS) Option</th>
</tr>
</thead>
</table>
| Battery     | Section 16 of UL 2272  
- Compliance with this section will in effect require full compliance with the UL 2580 battery standard for batteries used in electric vehicles | Full compliance with the:  
- IEC 62133 battery safety standard for portable applications |
| Battery Control system | Requires compliance with the following sections of UL 2272:  
- Sections 11, 15.1, 15.2, 15.3, 15.4, 15.5, 23, 24, 26 & 27  
- These sections relate to safety controls for the battery system | Requires compliance with section 11  
- Heating and section 19 – Abnormal operation (both as amended by Annex B)  
Appliances powered by rechargeable batteries of either:  
- IEC 60335-1 Household electrical appliances general safety standard  
OR  
- AS/NZS 60335.1 Household electrical appliances general safety standard (which mirrors IEC 60335-1) |

3.3. The interim ban lapsed on 16 July 2016 and a safety standard commenced on 17 July 2016. The regulation impact statement (RIS) considered regulatory and non-regulatory options to reduce the risk of consumer harm from unsafe hoverboards.

3.4. The RIS cost-benefit analysis did not include single-wheeled hoverboards (also known as monoboard). There have been no fire incidents involving single-wheeled hoverboards in Australia and therefore there was insufficient evidence to support regulation of single-wheeled hoverboards. We were aware of one fire involving a single-wheeled hoverboard in the United Kingdom.

3.5. The safety standard is in force for two years. In the longer term, the state and territory electrical safety regimes are expected to be the most appropriate framework to ensure the safety of consumer electronic products, including hoverboards. CPSB continues to engage with electrical regulators about the future regulation of hoverboards and other consumer electrical/electronic products.

4. Compliance Activities

4.1. In March 2016 the ACCC developed and coordinated the joint ACCC- state/territory national surveillance program for hoverboards. State and territory consumer affairs agencies committed to conducting in-store hoverboard inspections and reporting their results.

4.2. When conducting in-store inspections state and territory agencies advised hoverboard suppliers to:

4.2.1. Stop selling hoverboards unless they are sure they meet the safety standards for hoverboard batteries and battery control systems specified in
the ban. The charger for recharging the battery should also meet state and
territory electrical safety requirements; and
4.2.2. Ask the supplier if the product has been or is being tested against those
standards either by the manufacturer or by the supplier.

4.3. The national surveillance program inspected 16 hoverboards resulting in three
hoverboard models being removed from sale.

4.4. The ACCC’s contribution to the national program involved writing to online suppliers
of hoverboards to advise of the existence of the mandatory standard and to request
removal from sale of hoverboards that could not be verified to comply. We also
wrote to twenty five Gumtree.com.au suppliers. Six suppliers responded advising
that their products comply while two withdrew their hoverboards from sale.

5. Product Testing

Hoverboards

5.1. To determine compliance with the then interim ban, the ACCC commissioned testing
of six randomly selected hoverboards against the standards referenced in the
regulation.

5.2. Results of the test program are tabulated below.

5.2.1. NOTE: no enforcement action was considered for the two products identified
as non-compliant as the products were purchased prior to the introduction of
the interim ban.

5.2.2. NOTE: the non-compliant hoverboards identified during testing had been
voluntarily recalled by their respective suppliers before test results were
obtained. The recalls were initiated as a result of ACCC education activities.

<table>
<thead>
<tr>
<th>Product</th>
<th>Standard Test Requirement</th>
<th>Result</th>
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</table>
| Smart Balance Wheel | EC Standard Tests  
Clause 11 Heating test was performed in accordance to clause 3.1.9 and clause 11.7 of Means of  
Compliance for Hover Boards issued by energysafe VICTORIA.  
Heating and battery short-circuited test | Pass   |
| Uglide          | EC Standard Tests  
Clause 11 Heating test was performed in accordance to clause 3.1.9 and clause 11.7 of Means of  
Compliance for Hover Boards issued by energysafe VICTORIA.  
Heating and battery short-circuited test                                         | Pass   |
<table>
<thead>
<tr>
<th>Self-balancing wheel</th>
<th>IEC Standard Tests</th>
<th>Pass</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Clause 11 Heating test was performed in accordance to clause 3.1.9 and clause 11.7 of Means of Compliance for Hover Boards issued by energysafe VICTORIA. Heating and battery short-circuited test</td>
<td></td>
</tr>
<tr>
<td>Skywalker</td>
<td>UL Standard Tests</td>
<td>Pass</td>
</tr>
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<td></td>
<td>Test for compliance with the following tests - Fuses - Short Circuited of Battery Terminal - Temperature Test - Imbalanced Charging Test</td>
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<tr>
<td>Go Skitz Edoard</td>
<td>UL Standard Tests</td>
<td>Failed temperature test</td>
</tr>
<tr>
<td></td>
<td>Test for compliance with the following tests - Fuses - Short Circuited of Battery Terminal - Temperature Test - Imbalanced Charging Test</td>
<td></td>
</tr>
<tr>
<td>Glider</td>
<td>UL Standard Tests</td>
<td>Failed temperature test</td>
</tr>
<tr>
<td></td>
<td>Test for compliance with the following tests - Fuses - Short Circuited of Battery Terminal - Temperature Test - Imbalanced Charging Test</td>
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<td>Clauses 11, 15.1, 26 and 27 of UL2272, dated version January 29, 2016</td>
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5.3. The failure noted for the two hoverboards against the UL temperature test occurred during recharge. The hoverboards exceeded the allowable temperature which may pose a fire hazard.

**Monoboards**

5.4. Monoboards are single-wheeled self-balancing scooters.

5.5. The mandatory standard currently only applies to two-wheeled ride on devices with no steering grips, seats or handlebars which is powered by a lithium-ion battery that is rechargeable via connection to a mains power supply.

5.6. To identify whether monoboards are likely to present similar safety concerns to hoverboards, CPSB commissioned limited testing against the IEC standard.

5.7. The monoboard failed to comply with section 11 (normal use test). The battery overheated after the monoboard was loaded by 120kg and used on a treadmill. This failure represents a fire hazard that may arise when the product is in use.
5.8 Test results and advice provided by SGS lab engineers indicate that monoboard pose the same risks as those associated with hoverboards.

6. Current market supply

6.1 Hoverboards and monoboard are widely available in the online market. Major trading platforms such as eBay, gumtree, Alibaba supply a large range of models that vary in price from approximately $250 up to $1500.

6.2 Prior to the introduction of the regulations, some major retailers such as Harvey Norman were supplying a number of models of hoverboards. However, since the introduction of the regulations, major retailers appear to have removed hoverboards and monoboard from their product lines.

6.3 This has been confirmed in recent physical surveillance activities undertaken by CPSB and state and territory agencies that have identified that major bricks and mortar retailers such as Harvey Norman, Big W, Target, Rebel Sports, and Kmart are currently not stocking hoverboards or monoboard.

6.4 Bricks and mortar supply of hoverboards and monoboard appear limited and predominantly supplied by specialty stores.

7. Product Testing Costs

7.1 Testing against the mandatory standard is costly. The cost of testing is approximately as follows:

7.1.1 Ten individual samples of each product are required for testing. The reason ten samples are required is that testing of a certain number of individual battery cells is necessary to demonstrate compliance with the mandatory standard. Total cost for a low to mid-range model hoverboard at approximately $400 per sample is $4000.

7.1.2 Lithium batteries are classified as 'dangerous goods' for the purposes of air freight. Accordingly, specialised dangerous goods transportation must be arranged. Dangerous goods transportation for ten models of hoverboard costs approximately $4000.

7.1.3 Laboratory testing is conducted in Hong Kong. The price for testing of one model of hoverboard is $20000.

7.1.4 Total expense for purchase, freight and testing one model of hoverboard is approximately $28000.

7.1.5 To test ten samples of hoverboards would cost approximately $280000.

8. Recommendation

9.1 Commissioners provide direction in regard to further pro-active market testing against the performance requirements of the mandatory standard.