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March 14, 2019

FINGER PRINTER SENSOR WITH LIQUID PROOF SOLUTION

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Recommended Citation

INC, HP, "FINGER PRINTER SENSOR WITH LIQUID PROOF SOLUTION", Technical Disclosure Commons, (March 14, 2019)

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Finger Printer Sensor with liquid proof solution

Plastic keyboard deck burnt was nearby finger printer reader (FPR) area from shipment failure capture and the root cause is liquid (sport drink/cola) leak into FPR board to cause electric short and its high temperature burnt plastic keyboard deck.

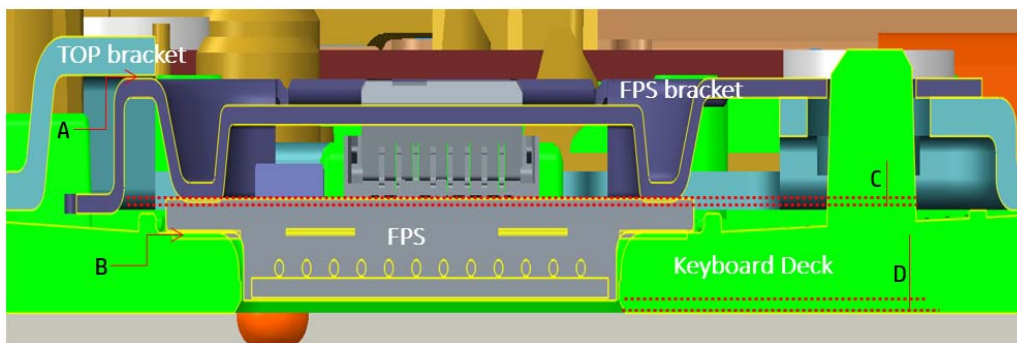
As above symptom, finger printer sensor (FPS) with liquid proof function was investigated to solve and protect on further platforms. Add the test conditions and criteria into HP SVTP (System Validation Test Plan) document for further platforms qualify.



Plastic keyboard deck burnt photo

- **Design tolerance stack-up (for FPS) recommend:**

Below stack-up is to let designers know the related design tolerance to avoid varied design tolerance and reduce the developing schedule.



Item	Description	Tolerance
A	Gap between TOP bracket and FPS bracket	0.05mm
B	Gap between FPS module and keyboard deck inner	0.03mm
C	Pre load from FPS bracket to FPS module	-0.05mm
D	FPS step	0.20mm

• **New add test criteria request for further platforms**

That new-add test references to keyboard liquid proof test criteria and be serious qualification than user behavior.

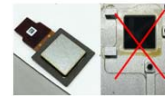


10cc
water/Coffee/Soda



Rest up to 24hrs

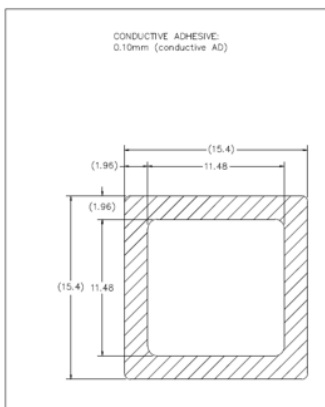
- To check FPS function normally
- Tear down Top Cover inner any liquid



• **0.1mm conductive adhesive implement (recommend)**

0.1mm conductive adhesive stick between FPS and keyboard deck inner (location “B”) and tightly pressed by FPS bracket; follow above way to pour each Soda, Coffee and Water 10cc for different units to test and stay for 24 hours.

FPS with 0.1mm conductive tape	10cc water test after 24Hours	10cc coffee test after 24Hours	10cc Soda test after 24Hours
Test Result	<ul style="list-style-type: none"> - Function normally - No liquid leak to keyboard deck inner 	<ul style="list-style-type: none"> - Function normally - No liquid leak to keyboard deck inner 	<ul style="list-style-type: none"> - Function normally - No liquid leak to keyboard deck inner



0.1mm conductive adhesive drawing

- **Advantage**

- 1) Liquid proof on FPS
- 2) No any burnt symptom for plastic keyboard deck
- 3) No ESD concern
- 4) No cost impacts

Disclosed by Kun-Hung Lin, Allen Chen and Edward Chen, HP Inc.