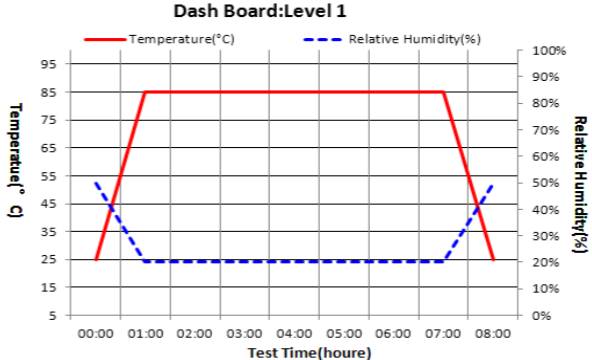
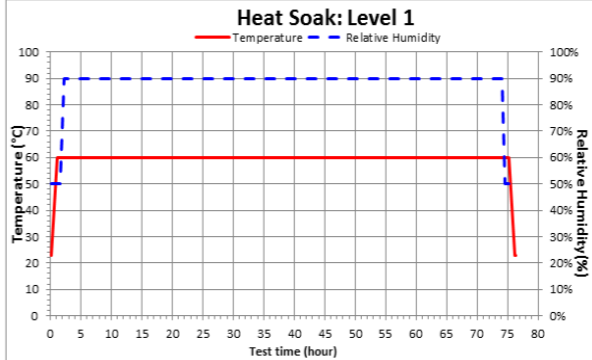
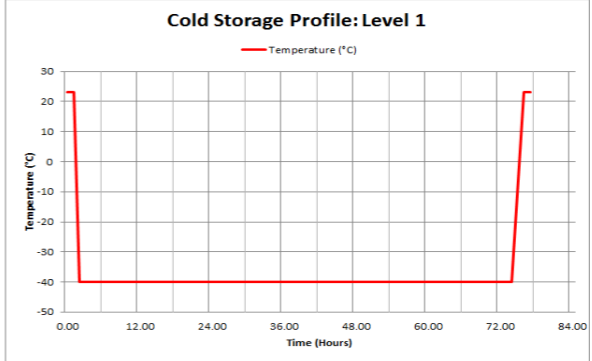
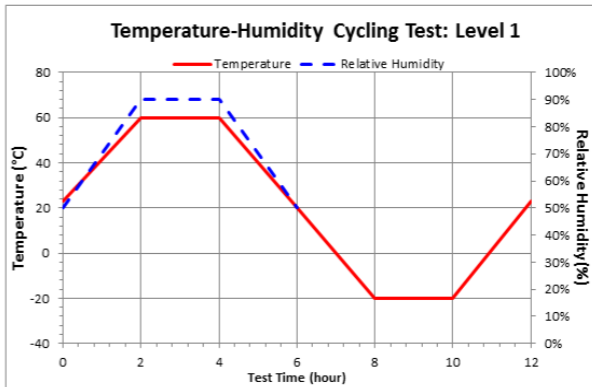
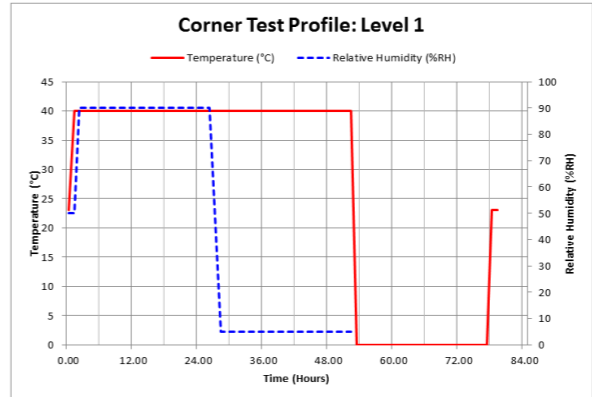
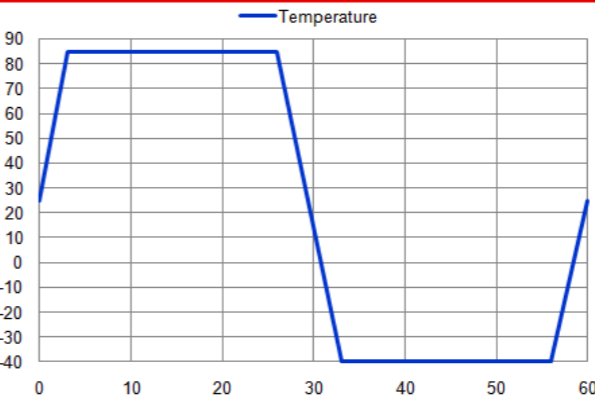
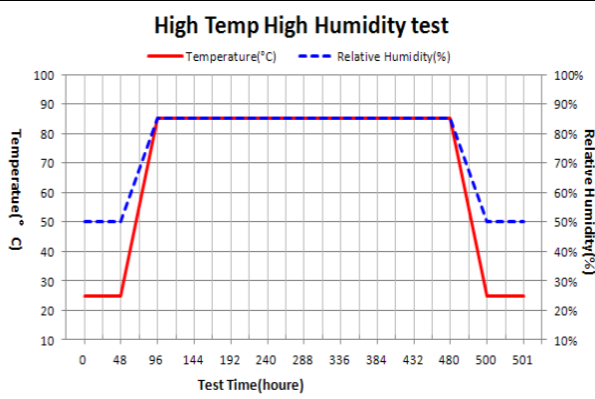
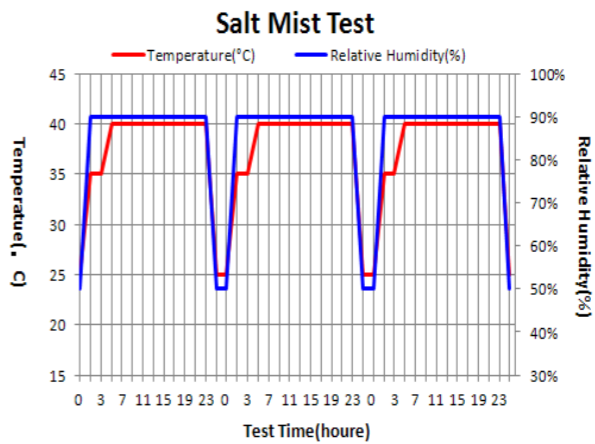



## DRT Lab 環境測試參考資料 (一)

No	測試項目	English Condition Explanation	中文條件說明	測試曲線	對應測試設備	參考法規
1	Dash Board Test 儀錶盤測試	Unit in idle mode. Ramp up from 25°C to 85°C/20%RH in 1 hour, stay at 85°C/20%RH for 6 hours, ramp down from 85°C/20%RH to 25°C in 1 hour.	測試樣品設置為深度睡眠模式(白屏狀態)。 1.將溫度櫃從當前溫度設置到：25°C,50%RH； 2.設置1小時從25°C,50%RH升溫到85°C,20%RH； 3.設置6小時在85°C,20%RH維持貯藏； 4.設置1小時從85°C,20%RH,降溫到25°C,50%RH。取出測試樣品檢查，出現異常拍照記錄。 (注意：測試樣品為非開機狀態)		KSON-KTHD -210TBS  庆声 (KSON) 普通溫濕度櫃	IEC60068-2
2	Heat Soak Test 熱浸測試	Test Levels: Level 0: 45°C/90%RH, 72 hours Level 1: 60°C/90%RH, 72 hours Level 2: 70°C/90%RH, 72 hours Chamber must not condense.	測試等級：(舉例說明) Heat Soak(level 1)；60°C/90%RH, 72 hours 熱浸測試 (條件一) 1.將溫度櫃從當前溫度設置到：25°C,50%RH； 2.設置1小時從25°C,50%RH升溫到：60°C,90%RH； 3.設置在60°C,90%RH條件下：維持貯藏72H； 4.設置1小時從60°C,90%RH,降溫到25°C,50%RH。取出測試樣品檢查，出現異常拍照記錄； (注意：測試樣品為非開機狀態，溫度櫃內不能有凝露)		( EC-85MHPM -W-C-4 )  日立普通溫濕度櫃	IEC60068-2
3	Cold Storage Test 低溫貯藏	Test Levels: Level 0: -20°C, 72 hours (for display) Level 1: -40°C, 72 hours Level 2: -40°C, 96 hours Level 3: -40°C, 168 hours	測試等級：(舉例說明) Cold Storage(level 1)；-40°C, 72 hours 低溫貯藏測試 (條件一) 1.將溫度櫃從當前溫度設置到：25°C,50%RH； 2.設置1小時從25°C,50%RH降溫到：-40°C； 3.設置在-40°C條件下：維持貯藏72H； 4.設置1小時從-40°C,升溫到25°C,50%RH,取出測試樣品檢查，出現異常拍照記錄。 (注意：測試樣品為非開機狀態)		( EC-85MHPM -W-C-4 )  日立普通溫濕度櫃	IEC60068-2-1
4	Non-Operational Temperature and Humidity Cycling Test 測試樣品非開機狀態 溫濕度循環測試	Test levels: • Level 0: HT/HH=45 °C/90%RH, LT=-10°C (UNC RH), 6/14/42 cycles • Level 1: HT/HH=60 °C/90%RH, LT=-20°C (UNC RH), 6/14/42 cycles • Level 2: HT/HH=70 °C/90%RH, LT=-40°C (UNC RH), 6/14/42 cycles Test time: • 12 hours every cycle: 3 days for 6 cycles, 7 days for 14 cycles, 21 days for 42 cycles	測試等級：(舉例說明) • Level 1: HT/HH=60 °C/90%RH, LT=-20°C (UNC RH), 6/14/42 cycles (注意：測試樣品為非開機狀態) 1.將溫度櫃從當前溫度設置到：25°C,50%RH； 2.設置2小時從25°C,50%RH升溫到60°C,90%RH；維持2小時貯藏； 3.設置2小時從60°C,90%RH降溫到25°C,50%RH； 4.設置2小時從25°C,50%RH降溫到-20°C。維持2小時貯藏； 5.設置2小時從-20°C,升溫到25°C,50%RH； 6.根據測試需求，重複步驟2~5步循環(合計12小時)，常為6/14/42個循環。取出測試樣品檢查，出現異常拍照記錄。		( EC-85MHPM -W-C-4 )  日立普通溫濕度櫃	IEC60068-2
5	Operational Temperature and Humidity Test (Corner Testing) 開機狀態三種狀態 貯藏測試	Test levels: (Chamber must not condense.) • Level 0: HT=35 °C, HH=90%; HT=35 °C, no condensing; LT=10 °C; • Level 1: HT=40 °C, HH=90%; HT=40 °C, LH=5%; LT=0 °C (UNC RH); • Level 2: HT=45 °C, HH=90%; HT=45 °C, LH=5%; LT=-5 °C (UNC RH); • Level 3: HT=50 °C, HH=90%; HT=50 °C, LH=5%; LT=-10 °C (UNC RH); Test time: 24 hours per corner Test logical sequence: • Level 0: HT/HH->HT->LT • Level 1: HT/HH->HT/LH->LT (UNC RH) • Level 2: HT/HH->HT/LH->LT (UNC RH) • Level 3: HT/HH->HT/LH->LT (UNC RH) Run diagnostics like stress program, video, page turning, reboot cycling program throughout test.	測試等級：(舉例說明) • Level 1: HT=40 °C, HH=90%; HT=40 °C, LH=5%;LT=0 °C (UNC RH); 1.將溫度櫃從當前溫度設置到：25°C,50%RH； 2.設置2小時從25°C,50%RH升溫到：40°C,90%RH； 3.設置在40°C,90%RH條件下：維持貯藏22H； 4.設置2小時從40°C,90%RH除濕到：40°C,5%RH； 5.設置在40°C,5%RH條件下：維持貯藏22H； 6.設置2小時從40°C,5%RH降溫到：0°C； 7.設置在0°C條件下：維持貯藏22H； 8.設置1小時從0°C升溫到25°C,50%RH,取出測試樣品檢查，出現異常拍照記錄。(注意：在測試過程中運行診斷程式，如：壓力程式，視頻播放，翻頁運行，重複重啟測試等)		( EC-85MHPM -W-C-4 )  日立普通溫濕度櫃	IEC60068-2

6	<p>Non-Operational Thermal Cycling Test</p> <p>非開機狀態 冷熱沖擊測試</p>	<p>Test levels:</p> <ul style="list-style-type: none"> <li>• Level 0 for system: -20 °C (LT) to 45°C (HT)</li> <li>• Level 1 for system: -40 °C (LT) to 60°C (HT)</li> <li>• Level 2 for system: -40 °C (LT) to 85°C (HT)</li> <li>• Level 1 for board or component: -40 °C (LT) to 85°C (HT)</li> </ul> <p>Test time: 23 minutes dwell, 60 minutes/cycle Temperature ramp rate: minimum ramp rate Test cycles: 100, 200 and 300</p>	<p>測試等級：(舉例說明)(注意：測試樣品為非開機狀態)</p> <ul style="list-style-type: none"> <li>• Level 1 for system: -40 °C (LT) to 60°C (HT)</li> </ul> <p>1.將溫度檔程式設定好，開機運行，設備將首先執行預熱預冷過程； 2.檢查側面斜率控制器，設定是否正確，該等級設為14°C/分鐘； 3.預熱預冷結束後，運行過程說明：每一小時為一個測試週期，其中高溫和低溫分別駐留23分鐘，以最小斜率上升或下降，高低溫差100°C，每分鐘上升或下降14°C，約需7分鐘完成溫度變化，每20個週期除霜一次，確保冷凝銅管暢通； 4.根據測試需求，重複100/200/300個測試循環，取出測試樣品檢查，出現異常拍照記錄。</p>		<p>ES-306L-R</p> <p>日立(Hitachi) 冷熱衝擊櫃</p>	<p>IEC60068-2-14</p>
7	<p>High Temp High Humidity test</p> <p>高温高湿测试</p>	<p>85°C/85%RH for 500 hours.</p> <p>This test is more geared toward module level test and should be tested with module level diag to see if module meets spec.</p>	<p>測試等級：(舉例說明)(注意：測試樣品為開機狀態)</p> <ul style="list-style-type: none"> <li>• Level 1 for system: 85°C/85%RH for 500 hours.</li> </ul> <p>1.將溫度櫃從當前溫度設置到：25°C,50%RH； 2.設置1小時從25°C,50%RH升溫到85°C,85%RH； 3.設置500小時在85°C,85%RH維持貯藏； 4.設置1小時從85°C,85%RH,降溫到25°C,50%RH，取出測試樣品檢查，出現異常拍照記錄。</p> <p>这个测试主要针对模组等级测试。 测试时运行模组程序，确认模组是否符合规格。</p>		<p>(EC-85MHPM -W-C-4)</p> <p>日立普通溫濕度櫃</p>	<p>IEC60068-2</p>
8	<p>Salt Mist</p> <p>鹽霧測試</p>	<p>Per IEC 68-2-52, severity (2):</p> <ul style="list-style-type: none"> <li>• Three salt spray periods at the temperature of 35°C, each of 2 hours, with a humidity storage period of 22 hours at the temperature of 40°C and 90% relative humidity after each;</li> <li>• Salt mist solution: 5 % NaCl by weight, pH 6.5 -7.2.</li> <li>• Test setup: The responsible reliability engineer will specify orientation. If no otherwise specified, follow USB port up for half UUTs and USB port down for half UUTs.</li> </ul>	<p>根据IEC 68-2-52, 等级(2)</p> <p>1.放在设定温度为35°C的盐雾箱中，用盐水喷雾2小时，之后拿出放入温湿箱(温度40°C和湿度90%)中22小时，依次做3个循环； 2.盐水浓度：按重量配5%的氯化钠溶液，PH值为6.5-7.2； 3.测试架设：由可靠性工程师负责指定产品放置方向。若无指定，就将一半产品的USB口朝上，一半产品的USB口朝下。</p> <p>測試樣品設置為深度睡眠模式(白屏狀態)。</p>		<p>(EC-85MHPM -W-C-4)</p> <p>日立普通溫濕度櫃</p>	<p>IEC60068-2-11</p>
9	<p>Chemical Test</p> <p>化學品測試</p>	<p>For chemicals refer to the chemical test spreadsheet table. Test areas: all surfaces, logo and letter.</p> <p>Level 1: Apply chemical with Q-tip and perform 168 hours extended soak at room ambient; After 72 hours, remove chemical from half the samples and inspect, then continue the test (instead of remove chemicle from half of samples, this test can be done on 2 samples);</p> <p>Level 2: Apply chemical with Q-tip and perform 168 hours 40°C, 40%RH heat soak for stress test; After 72 hours, remove chemical from half the samples and inspect, then continue the test (instead of remove chemicle from half of samples, this test can be done on 2 samples);</p> <p>Level 3: Apply chemical with Q-tip and perform 168 hours 60°C, 90%RH heat soak for stress test; After 72 hours, remove chemical from half the samples and inspect, then continue the tes (instead of remove chemicle from half of samples, this test can be done on 2 samples).</p> <p>Take photos with (≥) 5X magnification after test.</p>	<p>根据化妆品测试记录表格. 测试区域: 所有的表面, 商标和字母.</p> <p>等级一: 用棉签沾取化妆品涂在测试区域, 室温环境下放置168小时;在72小时的时候,移除一半测试区域的化妆品并检查,然后继续测试,(或者可以在两个样品上进行测试,一个测试168小时,一个测试72小时)</p> <p>等级二: 用棉签沾取化妆品涂在测试区域, 40°C, 40%RH 环境下放置168小时;在72小时的时候,移除一半测试区域的化妆品并检查,然后继续测试,(或者可以在两个样品上进行测试,一个测试168小时,一个测试72小时)</p> <p>等级三: 用棉签沾取化妆品涂在测试区域, 60°C, 90%RH 环境下放置168小时;在72小时的时候,移除一半测试区域的化妆品并检查,然后继续测试,(或者可以在两个样品上进行测试,一个测试168小时,一个测试72小时)</p> <p>测试前后在大于5倍的放大镜下拍照记录。</p>		<p>(EC-85MHPM -W-C-4)</p> <p>日立普通溫濕度櫃</p>	<p>《Ensky化學品使用管理指引》</p>