

HP Battery Powered Licensed Products Requirements

*** Battery Supplier	*** 電池供應商資格
Priority Confirm the battery supplier is ISO (9001 and 14001) certified by providing the battery supplier's ISO certificates.	Priority 確認電池供應商已通過 ISO (9001 與 14001) 認證，並提供電池供應商的 ISO 證書。
1 Battery Construction Cell insulators shall be of a non-hygroscopic material, plastic. Heat-shrink is acceptable, and care should be taken to maintain good mechanical integrity of the cell insulation where it comes into contact with cell straps or cell-cell conductors. Cells terminal shall be spot-welded to PCM. Soldering is only permitted on PCM using flex PCB. There shall be a minimum of 1 mm creepage/clearance space between the positive and negative terminals of the battery pack and between any non-insulated conductive (positive) lead/tab and the battery cases (negative) including PCM. There shall be a barrier between the PCM and battery cells, e.g. Kapton tape, conformal coating, etc. PCM B+/B- traces (current carrying) branches of multi-cell parallel configurations shall be symmetrical with similar cross-sections and matching trace impedances. Battery Pack Connection shall employ "UL Recognized" wiring. All Serviceable batteries shall employ "UL Recognized" connector. Soldered connection is NOT acceptable for service replaceable batteries. 1.6.1 Soldered connection to mainboard is allowed for non-serviceable batteries ONLY! 1.6.2 The battery pack polymeric parts shall be constructed of UL "Recognized" plastic. 1.7 External parts shall be flame rated of 94V-0, 75° C or better. 1.7.1 Internal polymeric parts shall be flame rated of 94V-2, 75° C or better. 1.7.2 User replaceable battery pack shall incorporate structural reinforcement to protect the internal parts from foreseeable misuse.	1 電池結構 電芯絕緣層應採用非吸濕性材料，例如塑膠。熱縮管可接受，但需注意在電芯絕緣層與電芯連接片或電芯間導體接觸處保持良好的機械強度。 電芯端子應以點焊方式連接至 PCM。僅允許在柔性 PCB 上進行焊接。 電池包的正負端子之間，以及任何未絕緣的導電（正極）引線/端片與電池外殼（負極，包括 PCM）之間，必須保持至少 1 mm 的爬電距離/電氣間隙。 PCM 與電池電芯之間必須設置隔離層，例如 Kapton 膠帶、三防漆等。 PCM B+/B- 導線（承載電流）在多電芯並聯配置中，必須保持對稱，具有相似的截面和匹配的線路阻抗。 電池包連接必須使用「UL 認證」的線材。 1.6.1 所有可維修更換的電池必須使用「UL 認證」的連接器。可維修更換電池不允許使用焊接連接。 1.6.2 僅在不可維修更換的電池中，允許焊接連接至主板。 1.7 電池包的聚合物部件必須採用 UL「認證」塑膠製造。 1.7.1 外部部件必須具備 94V-0、75° C 或更高等級的阻燃性能。 1.7.2 內部聚合物部件必須具備 94V-2、75° C 或更高等級的阻燃性能。 1.8 使用者可更換的電池包必須具備結構加固設計，以保護內部零件免受可預見的誤用。
2 Battery Protection The battery cell shall be protected by an overcurrent protective device that is a UL "Recognized" component suitably rated for the voltages and current involved. Multi-cell packs of parallel configuration shall have a separate protection for each cell. The battery temperature shall be monitored internally by use of a thermistor or any other temperature-monitoring device. The battery pack thermal protection. The battery pack rated >1.9 Wh, >500 mAh shall be provided with a thermal protection. This function could be achieved by multi components or hybrid device (TCO) with thermal cut-off threshold < 80° C, no more energy in or out once temperature exceeds the threshold level. This function cannot be performed by PTC device. A battery with a single or multi-cell pack rated ≤1.9 Wh, ≤500 mAh shall be provided at least with PTC or other similar limiting device. A battery system comprised of a single cell rated ≤300 mAh, ≤1.1 Wh without a thermal protective device typically used in wear on devices e.g. headsets shall be provided with the system / battery thermal analysis. The thermal evaluation based on UL1642 datasheet (tests) and an external surfaces temperature testing shall validate that such device does not pose any risk of burn or fire hazard when battery cell is being shorted circuit. The PCM circuitry shall comprise the following protections 2.4.1 Over Voltage Protection (OVP) 2.4.2 Under Voltage Protection (UVP) 2.4.3 Charge Over Current Protection (COCp) 2.4.4 Discharge Over Current Protection (DOCp) 2.4.5 Short Circuit Protection (SCP) Recovery from a deep discharge shall be managed to ensure no risk of cell damage or thermal runaway.	2 電池保護 電池電芯必須由過電流保護裝置保護，該裝置需為 UL「認證」元件，並適當額定於相關電壓與電流。並聯配置的多電芯電池包必須為每個電芯提供獨立保護。 電池溫度必須透過熱敏電阻或其他溫度監測裝置在內部進行監控。 電池包的熱保護。 額定 >1.9 Wh、>500 mAh 的電池包必須具備熱保護。此功能可由多個元件或混合裝置（TCO）實現，熱切斷閾值需 < 80° C，一旦溫度超過閾值，能量不得再進出。此功能不可由 PTC 裝置執行。 2.3.2 額定 ≤1.9 Wh、≤500 mAh 的單電芯或多電芯電池包至少必須配備 PTC 或其他類似限制裝置。 由單電芯組成且額定 ≤300 mAh、≤1.1 Wh 的電池系統，若無熱保護裝置，通常用於穿戴式設備（如耳機），必須提供系統/電池熱分析。基於 UL1642 數據表（測試）及外部表面溫度測試的熱評估必須驗證該設備在電池電芯短路時不會造成灼傷或火災風險。 2.4 PCM 電路必須包含以下保護功能 2.4.1 過電壓保護 (OVP) 2.4.2 欠電壓保護 (UVP) 2.4.3 充電過電流保護 (COCp) 2.4.4 放電過電流保護 (DOCp) 2.4.5 短路保護 (SCP) 深度放電後的恢復必須妥善管理，以確保不會有電芯損壞或熱失控的風險。
3 Regulatory Requirements Licensee is responsible to comply with HP Regulatory Requirements and obtain the necessary test reports, certifications, declarations, documentation, etc. for intended countries as part of the final HP qualification per HP Regulatory Plan prior to First Customer Ship (FCS). 3.1 Requirements and Approvals • All safety test reports must be provided from a Certified Body (CB) test lab meeting requirements of each country per Country List. • The battery pack and battery cell must have the safety reports to the latest officially accepted version of applicable standards from CB, and NRTL, and target country agency. 3.2 Core Regulatory Requirements – Standards (Digital Cameras category) • UL 1642 (Cell) • UL 2054 (Battery Pack, UL 2054 refers to UL 1642 testing required for cells) • IEC 62133 • UN Transportation Testing (UN/DOT 38.3) for Lithium Batteries NOTE: HP does require testing to the U/L standards UL 1642 & UL 2054 for the all battery products, even if they are not planned to be sold in the US. The safety concerns of batteries require this extra testing to minimize brand risk. 3.3 Component Requirements 3.3.1 Battery Cells Lithium battery cells shall be UL Recognized Component Lithium Batteries according to UL 1642. 3.3.2 Label The battery pack shall be labeled with the manufacturer's name and type of battery (NiMH, Li-Ion, etc.), rating, etc. per applicable standards. The following warning shall be placed on the battery. ⚠ Warning: To reduce risk of fire or burns, do not disassemble, crush, puncture, short external contacts, or dispose of in fire or water. 3.4 Environmental Compliance All components of the battery Cell & Pack shall meet the requirements listed in the HP General Specification for the Environment; current version listed at the website below:	3 安規要求 Licensee 有責任遵守 HP 法規要求，並在首次出貨 (FCS) 前，依據 HP 法規計劃，取得目標銷售國所需的測試報告、認證、聲明、文件等，以完成 HP 最終資格審核。 3.1 要求與承諾 • 所有安全測試報告必須由符合各國要求的認證機構 (CB) 測試實驗室提供。 • 電池包與電池電芯必須具備 CB、NRTL 及目標國家主管機關所接受的最新版本適用標準的安全報告。 3.2 核心安規要求 -- 標準(數位相機類) • UL 1642 (電芯) • UL 2054 (電池包，UL 2054 涉及電芯所需的 UL 1642 測試) • IEC 62133 • 鋰電池的 UN 運輸測試 (UN/DOT 38.3) 注意: HP 要求所有電池產品必須符合 U/L 標準 UL 1642 與 UL 2054 測試，即使該產品並未計劃在美國銷售。由於電池的安全性問題，此額外測試是必要的，以降低品牌風險。 3.3 元件要求 3.3.1 電池電芯 鋰電池電芯必須依據 UL 1642，為 UL 認證的鋰電池元件。 3.3.2 標籤 電池包必須依據適用標準標示製造商名稱、電池類型 (NiMH、Li-Ion 等)、額定值等。電池上必須印有以下警告： ⚠ 警告：為降低火災或灼傷風險，請勿拆解、壓碎、刺穿、短路外部接點，或丟棄於火中或水中。 3.4 環保 電池電芯與電池包的所有元件必須符合 HP《環境通用規範》中的要求；最新版本可於以下網站查閱。
4 Design assignment Test and tear down will be conducted by the Licensee on behalf of HP. Supplier shall provide the samples and documentation required for this evaluation. • Provide detailed battery self-assessment per this BDR. • Provide the following documents, battery spec, cell spec, battery BOM (bill of material), battery schematic, battery critical components datasheets, UL 1642 datasheet (test results). • Five battery samples, two system samples. Note: Test samples will not be returned. • Complete internal testing of the product, battery, and charger (if included) including accelerated life testing, vibration & drop testing, battery short circuit testing, extended charging time, and environmental limits testing. This is to confirm the reliabilities provided to customers for the product including number of charging cycles before reaching 80% battery capacity.	4 設計驗證 測試與拆解將由 Licensee 代表 HP 負責執行。 供應商必須提供本次評估所需的樣品與文件。 • 按照本 BDR 提供詳細的電池自我評估報告。 • 提供以下文件：電池規格書、電芯規格書、電池 BOM（物料清單）、電池電路圖、電池關鍵零件數據表、UL 1642 數據表（測試結果）。 • 五個電池樣品、兩個系統樣品。 注意：用於驗收測試的樣品不會退回。 • 完成產品、電池及充電器（如包含）的內部測試，包括加速壽命測試、振動與跌落測試、電池短路測試、延長充電時間測試，以及環境極限測試。此舉是為了確認提供給客戶的產品可靠度，包括在電池容量降至 80% 前可進行的充電循環次數。