国 际 民 用 航 空 组 织

DGP/30-WP/34*
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工 作 文 件

危险物品专家组（DGP）

第三十次会议

2025 年 **10** 月 **6** 日至 **10** 日，蒙特利尔

议程项目 **4**：管理航空载运储能装置带来的安全风险（编号：工作卡 **DGP.003.05**）

旅客和机组成员携带的
充电宝和锂电池供电的电子装置

（由 E. Gillett 提交）

摘要

本文件探讨了各国、地区规则制定者、国际航空运输协会 (IATA) 以及航空运营人为应对旅客和机组成员携带充电宝所产生安全风险而制定的充电宝运输建议和限制。

危险物品专家组的行动：请危险物品专家组：

a) 考虑到安全影响，审议修订本工作文件附录 A 所示的《技术细则》，以便将其纳入《技术细则》2025-2026 年版；

b) 审议拟议的各种措施，以应对超过 100 瓦时充电宝在空侧零售店的销售问题；和

c) 审议成立一个工作队，以编制关于携带电池（包括充电宝和便携式电子装置）的标准化旅客安全宣传材料，供各国在新闻稿和社交媒体宣传活动中使用。

1. INTRODUCTION

1.1 In recent years the frequency and severity of cabin fire incidents involving power banks and other lithium battery powered devices has established their carriage as a critical safety risk. The severity of this risk was clearly demonstrated by the Air Busan Flight 391 accident on 28 January 2025 in which a fire in an overhead compartment, believed to have been ignited by a short circuit within a lithium-ion power bank, resulted in twenty-seven injuries and destruction of the aircraft (see paragraph 4.4.7 of the DGP-WG/25 report). Whilst

* 仅提供了摘要和附录的翻译。

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the investigation into this accident is ongoing, based on data from UL Standards & Engagement's Thermal Runaway Incident Program (TRIP), social and business media, etc., similar events can be assumed to occur on a daily basis. TRIP data shows that e-cigarettes are the leading cause in thermal runaway incidents on aircraft, responsible for 35% of all incidents in 2023, followed by power banks. The Dangerous Goods Panel needs to proactively review the provisions for passengers and crew in response to the prevailing risk of smoke, fire, toxic off-gassing, or explosion.

1.2 Some States, regional rule makers, the International Air Transport Association (IATA) and some air operators have introduced varying recommendations and restrictions since the Air Busan Flight 391 accident. Whilst the desire to act is understood, these measures may introduce unintended consequences. Conversely, minimizing the regulatory gap between the Technical Instructions and the measures implemented by operators is desirable, providing that the measures address all types of operation and may be achieved globally. Harmonization would leave fewer variances, easing interline operations and facilitating passenger understanding. This in turn should help ensure compliance and facilitate safe transport. Furthermore, mandatory ICAO requirements should be reflected in national regulations, making them more enforceable by operators and States.

1.3 The measures introduced by some sectors of the industry generally focus on prohibiting the carriage of power banks, limiting the number carried per passenger, avoiding charging, segregation from flammable and oxidizing items and improving their accessibility to crew. A table of these measures is provided in Appendix B to this paper and includes the perceived pros, cons and conclusions of the presenter.

1.4 Notwithstanding the provisions for dangerous goods carried by passengers and crew, operators need to manage the associated risks within their safety management system implemented in accordance with Annex 19. Amendments to Annex 18 propose to require the operator to ensure that measures are in place to mitigate against the risk of passengers and crew carrying dangerous goods on board an aircraft which they are not permitted to carry. This should be interpreted to include the carriage of spare batteries, including power banks. Consideration should be given to establishing guidance on the conduct of a risk assessment on the carriage of power banks and portable electronic devices by passengers and crew to include consideration of matters such as:

a) distribution, protection and charging of spare batteries and portable electronic devices intended for operational use during flight;

b) aircraft features (seat-back stowages, in seat power supplies etc.);

c) diversion time;

d) crew personal protective and emergency response equipment;

e) effectiveness of training at preparing crew for a real emergency, effectiveness of information provided to passengers, etc., and

f) passenger non-compliance.

1.5 At some international airports, retail outlets located after security near to boarding gates have been noticed prominently offering for sale power banks with power ratings from 100Wh to 160Wh (requiring operator approval) and others exceeding 160Wh (prohibited from carriage by a passenger or crew member). The sale of these items airside likely breaches processes for gaining operator approval and worse, is contrary to ICAO regulations and national regulations limiting power rating. This demonstrates a need to ICAO, States and Operators to monitor airports and foster safe practices for the sale of goods airside.

2. ACTION BY THE DGP

2.1 The DGP is invited to:

a) consider amending the Technical Instructions as shown in Appendix A to this working paper for incorporation in the 2025-2026 Edition of the Technical Instructions given the safety impact;

b) discuss measures to address the sale of power banks exceeding 100Wh at airside retail outlets such as an ICAO safety Bulletin urging States to:

1) direct airport operators to stop such activity and include clauses to forbid the sale of items not permitted for carriage by air within the contracts for retail premises control through the sales outlet contract; and/or

2) request that air operators check what is being sold at the airports they operate through and raise any non-compliances through airport user consultation committees; and

c) consider establishing a taskforce for the generation of standardized passenger safety promotion materials concerning the carriage of batteries including power banks and portable electronic devices, for States to use within press releases and social media campaigns.

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附录A

对《技术细则》的拟议修改

第1部分

概论

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第2章

对航空器上危险物品的限制

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2.2 运营人的危险物品例外条款

2.2.1 本细则的规定不适用于如下情况：

a) 已分类为危险物品，但按照有关适航要求、操作规定或运营人所属国家规定应遵守的特殊要求而装载于航空器内的物品或物质；

b) 运营人带上飞机供一次或一系列飞行期间在机上使用或出售的气溶胶、酒精饮料、香水、花露水、液化气打火机和内含锂金属或锂离子电池芯或电池的便携式电子装置，但电池必须符合表8-1项目1) 的规定，但不包括一次性气体打火机和减压条件下易漏气的打火机；

c) 在航空器上，用于冷冻食品和饮料的干冰；

d) 运营人在航空器上载运的供一次或一系列飞行期间为旅客和机组的卫生之目的而在航空器上使用的含酒精的消毒搓手液和含酒精的清洁产品；

e) 运营人带上飞机供一次或一系列飞行期间在机上使用的电子装置，例如电子飞行包、个人娱乐装置、信用卡读卡器，内含锂金属或锂离子电池芯或电池及其备用锂电池~~，但电池必须符合表8-1，条目1) 的规定~~。电子装置必须符合表8-1，条目1) 的要求。备用锂电池必须~~单个做好保护，防止在未使用时发生短路现象~~符合表8-1，条目1) 的规定，但如果运行需要，可以使用座椅/机上电源充电。运行手册和/或其他有关手册必须列明关于这些电子装置的运载和使用条件，以及备用电池的运载条件，以便于飞行机组、客舱机组和其他员工履行其负责的职能。

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第8部分

有关旅客和机组成员的规定

第1章

旅客和机组成员携带危险物品的规定

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危险物品	位置		需经运营人批准	限制
	交运行李	随身行李		
电池				
1) 锂电池（包括便携式电子装置）	是（g)和h)除外）	是	（见c)和、d、e)和g)）	a) 每一电池所属类型必须符合联合国《试验和标准手册》第III部分第38.3小节规定的每项试验的要求； b) 每一电池不得超过以下限制： — 对于锂金属电池，锂含量不超过2克；或 — 对于锂离子电池，瓦时额定值不得超过100Wh； c) 经运营人批准，每一锂离子电池的瓦时额定值可超过100Wh但不超过160Wh； d) 经运营人批准，便携式医疗电子装置每一锂金属电池的锂含量可超过2克但不超过8克； e) 装有电池的便携式电子装置： — 必须采取措施防止意外启动并保护装置不受损坏； — 装置应远离香水和医用所需氧气等易燃或氧化物品; — 装置应作为随身行李携带；但是，并且不得在滑行、起飞和着陆期间用于为其他装置充电或供电。如果在其他时间用于为便携式电子装置充电或供电，则必须将这些装置保持在旅客视线范围内以便旅客能够进行监测 — 如果作为托运行李交运，装置必须完全关闭（不在睡眠或休眠模式），倘若电池超过： — 对于锂金属电池，每个装置锂含量0.3克；或 — 对于锂离子电池，每个装置瓦时额定值2.7 Wh；

危险物品	位置		需经运营人批准	限制
	交运行李	随身行李		— 除非经运营人批准，否则每人不得携带十五个以上含电池的便携式电子装置。 f) 在能够产生极高热量的便携式电子装置中，电池和加热元件必须隔离，电子装置如因取出加热元件、电池或其他部件而启动，可能会引起火灾； g) 备用电池（包括充电宝）， — 必须作为随身行李携带；和 — 必须单个做好保护以防短路（放入原零售包装或以其他方式将电极绝缘，如在暴露的电极上贴胶带，或将每个电池放入单独的塑料袋或保护盒当中）； — 不得放置在头顶储物柜中； — 不得使用座椅/机上电源充电； — 不得在滑行、起飞和着陆期间用于为其他装置充电或供电。如果在其他时间使用，电池和装置必须保持在旅客视线范围内以便旅客能够进行监测； — 不使用时，应放置在前排座椅下方的随身行李中，或放置在头顶储物柜以外的其他指定存放位置，例如座椅靠背口袋中； — 应远离香水和医用所需氧气等易燃或氧化物品； — 每人不得携带两个以上符合 c) 或 d) 要求的备用电池；和 — 除非经运营人批准，否则每人不得携带二十个以上备用电池。 h) 行李中配备的锂电池若超过： — 对于锂金属电池，锂含量0.3克；或 — 对于锂离子电池，瓦时额定值2.7 Wh 则必须作为手提行李载运，除非将电池从行李上拆卸下来，该情况下拆卸的电池必须按照 g) 段的要求载运； ~~i) 每人不得携带两个以上符合c）或d）的要求的备用电池。~~
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危险物品	位置		需经运营人批准	限制
	交运行李	随身行李		
3) 电池供电的便携式电子吸烟装置（例如电子香烟、电子烟、电子雪茄、电子烟斗、个人喷雾器、电子尼古丁输送系统）	否	是	否	a) 如果以锂电池供电，则每个电池必须符合1) a)、b)和g）的限制；和 b) 不得在航空器上给装置和/或电池充电；~~和~~ c) 必须采取措施防止加热元件在航空器上意外启动~~。~~； d) 不得放置在头顶储物柜中； e) 应放置在前排座椅下方的随身行李中，或放置在头顶储物柜以外的其他指定存放位置，例如座椅靠背口袋中；和 f) 装置应远离香水和医用所需氧气等易燃或氧化物品。

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APPENDIX B

MEASURES TAKEN TO MITIGATE RISKS ASSOCIATED WITH THE CARRIAGE OF E-CIGARETTES AND POWER BANKS BY PASSENGERS AND CREW MEMBERS: PROS, CONS AND ACTION PROPOSED

No.	Measure	Pros	Cons	Consider Adoption?
1	Complete ban on the carriage of spare batteries, including power banks and electronic smoking devices.	If the prohibition is complied with, the risk from power banks specifically is no longer present.	If passengers are prohibited from bringing power banks with them in the cabin, they might pack them in checked baggage through ignorance or recklessness, presenting a higher risk. Spare batteries including power banks may be necessary for carriage by passengers on medical grounds. Baggage screening processes and policies are not typically capable or set up for detecting and rejecting batteries or electronic smoking devices in checked (or carry on) baggage, as the measures are established for the purpose of aviation security rather than safety. Whilst passenger awareness campaigns, information provided during reservation and check-in etc. can aid passenger awareness, they do not guarantee compliance.	No

No.	Measure	Pros	Cons	Consider Adoption?
2	State of Charge should/must not exceed 30%	Cells and batteries at a reduced state of charge are less prone to thermal runaway, cell to cell propagation, and pose a lesser risk of extreme heat and generation of flammable or toxic gases as compared to cells and batteries at higher states of charge.	Passengers may want to use the power bank to charge other devices (including medical devices) whilst onboard or immediately after landing. A reduced SoC may not meet this objective.	No
3	Spare batteries, including power banks and electronic smoking devices should/must not be placed in cabin baggage loaded in the overhead storage locker	Accessibility aids passenger monitoring and crew emergency response.	Does not address stowage in main deck baggage compartments where the baggage containing the battery would be equally inaccessible. As worded, a passenger may place the spare batteries loosely into the overhead storage locker.	Yes. Recommendation (should) with amendment
4	Spare batteries, including power banks and electronic smoking devices should/must be placed in cabin baggage under the seat in front, or other designated storage location, such as the seat back pocket.	Removal from baggage may improve air circulation reducing heat build-up that could initiate thermal runaway. Potentially allows an event to be noticed earlier. May ease cabin crew emergency response.	If implemented together with a ban on use during flight, passengers fearing cabin crew intervention might deliberately charge devices within baggage placed in the overhead locker. Impractical on aircraft and helicopters that do not have suitable accessible stowages.	Yes. Recommendation (should)
5	Spare batteries, including power banks should/must not be charged using inseat/inflight power during taxi, take-off and landing.	Reduces the risk during critical stages of flight when cabin crew are seated and less able to respond.	Risk remains during the cruise.	No

No.	Measure	Pros	Cons	Consider Adoption?
6	Spare batteries, including power banks should/must not be charged using inseat/inflight power during all phases of flight.	Reduces the risk throughout the flight.	Operators may need to recharge PEDs for operational use during flight.	Yes. Mandatory requirement (must) but with consequential amendment to 1;2.2.1 e) so the prohibition on charging does not apply to operators
7	Spare batteries, including power banks should/must not be used to charge or power other portable electronic devices during taxi, take-off and landing.	Reduces the risk during critical stages of flight when cabin crew are seated and less able to respond.	Risk remains during the cruise. Does not address portable electronic devices capable of charging other devices even when switched off. Examples include laptop computers, portable speakers, smartphones and tablets and portable projectors.	Yes. Recommendation (should) with additional proposal to prohibit charging by any battery or device during taxi, take-off and landing.

No.	Measure	Pros	Cons	Consider Adoption?
8	Spare batteries, including power banks should/must not be used to charge or power other portable electronic devices during all phases of flight.	Reduces the risk throughout the flight.	Passengers may need to charge or power other portable electronic devices during flight for medical need or convenience. Operators may need to recharge PEDs intended for operational use during flight. Passengers fearing cabin crew intervention might deliberately charge devices within baggage placed in the overhead locker. Passengers that are unable to use batteries, including power banks during all phases of flight might mistakenly place them in checked baggage. Does not address portable electronic devices capable of charging other devices even when switched off (examples cited previously).	No
9	Limitations on the number of Spare batteries, including power banks.	Fewer spare batteries, including power banks onboard an aircraft reduces the risk exposure based on an assumed statistical probability of any single one causing an incident. Establishing quantity limits for lithium batteries and portable electronic devices in the Technical Instructions would often read across to national regulations, making carriage in excessive numbers punishable.		Yes. Apply existing IATA restrictions as limits unless approved by the operator.

No.	Measure	Pros	Cons	Consider Adoption?
10	Segregation from flammable or oxidizing items that are permitted in passenger baggage such as perfumes and medical oxygen.	Flammables and oxidizers may exacerbate a fire.		Yes. Recommendation (should)

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