DGP/29-WP/34
3/9/25

منظمة الطيران المدني الدولي

ورقة عمل

فريق خبراء البضائع الخطرة

الاجتماع الثلاثون

مونتريال، ٦ إلى ٢٠٢٥/١٠/١٠

البند رقم ٤: إدارة مخاطر السلامة الناجمة عن نقل بطاريات الليثيوم جواً (المرجع: بطاقة الأعمال رقم DGP.003.04)

حمل الركاب وأعضاء طاقم الطائرة للشواحن المتنقلة والأجهزة الإلكترونية العاملة ببطاريات الليثيوم

(ورقة عمل مقدَّمة من أ. جيليت)

الموجز

تناقش هذه الورقة التوصيات والقيود المفروضة على نقل الشواحن المتنقلة، والتي وضعتها الدول والهيئات التشريعية الإقليمية واتحاد النقل الجوي الدولي (أياتا) والمشغلون الجوّيون للتصدي لمخاطر السلامة الناجمة عن حمل الركاب وأطقم الطائرة للشواحن المتنقلة.

الإجراءات المعروضة على فريق خبراء البضائع الخطرة: يُدعى الفريق إلى القيام بما يلي:

أ) النظر في تعديل "التعليمات الفنية" على النحو المبين في المرفق (أ) بهذه الورقة، لإدراجها في طبعة ٢٠٢٥–٢٠٢٦ من "التعليمات الفنية" بهدف معالجة الأثر من حيث السلامة؛

ب) النظر في التدابير المقترحة لمعالجة مسألة بيع الشواحن المتنقلة التي تتجاوز سعتها ١٠٠ واط في منافذ البيع الواقعة داخل منطقة التحركات المراقبة بالمطارات؛

ج) النظر في إنشاء فرقة عمل لإعداد مواد موحّدة للترويج لسلامة الركاب من حيث نقل البطاريات، بما في ذلك الشواحن المتنقلة والأجهزة الإلكترونية المحمولة، لكي تستخدمها الدول في النشرات الصحفية وحملات التوعية على شبكات التواصل الاجتماعي.

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-

* لم يُترجم سوى موجز ورقة العمل.

WG/25 report). Whilst 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:

c) 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

d) 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

e) 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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APPENDIX A

PROPOSED CHANGES TO THE TECHNICAL INSTRUCTIONS

Part 1

GENERAL

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Chapter 2

LIMITATION OF DANGEROUS GOODS ON AIRCRAFT

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2.2 EXCEPTIONS FOR DANGEROUS GOODS OF THE OPERATOR

2.2.1 The provisions of these Instructions do not apply to the following:

a) articles and substances which would otherwise be classified as dangerous goods but which are required to be aboard the aircraft in accordance with the pertinent airworthiness requirements and operating regulations or that are authorized by the State of the Operator to meet special requirements;

b) aerosols, alcoholic beverages, perfumes, colognes, liquefied gas lighters and portable electronic devices containing lithium metal or lithium ion cells or batteries provided that the batteries meet the provisions of Table 8-1, Item 1) carried aboard an aircraft by the operator for use or sale on the aircraft during the flight or series of flights, but excluding non-refillable gas lighters and those lighters liable to leak when exposed to reduced pressure;

c) dry ice intended for use in food and beverage service aboard the aircraft;

d) alcohol-based hand sanitizers and cleaning products carried aboard an aircraft by the operator for use on the aircraft during the flight or series of flights for the purposes of passenger and crew hygiene;

e) electronic devices, such as electronic flight bags, personal entertainment devices, and credit card readers, containing lithium metal or lithium ion cells or batteries and spare lithium batteries for such devices carried aboard an aircraft by the operator for use on the aircraft during the flight or series of flights~~, provided that the batteries meet the provisions of Table 8-1, Item 1)~~. Electronic devices must meet the requirements of Table 8-1, Item 1). Spare lithium batteries must ~~be individually protected so as to prevent short circuits when not in use~~ meet the provisions of Table 8-1, Item 1) but may be charged using inseat/inflight power if operationally necessary. Conditions for the carriage and use of these electronic devices and for the carriage of spare batteries must be provided in the operations manual and/or other appropriate manuals as will enable flight crew, cabin crew and other employees to carry out the functions for which they are responsible.

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Part 8

PROVISIONS CONCERNING PASSENGERS AND CREW

Chapter 1

PROVISIONS FOR DANGEROUS GOODS CARRIED BY PASSENGERS AND CREW

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Dangerous Goods	*Location*		*Approval of the operator(s) is required*	*Restrictions*
	Checked baggage	*Carry-on baggage*		
Batteries				
1) Lithium batteries (including portable electronic devices)	Yes (except for g) and h))	Yes	(see c) ~~and~~, d, e) and g))	a) each battery must be of a type which meets the requirements of each test in the UN *Manual of Tests and Criteria*, Part III, subsection 38.3; b) each battery must not exceed the following: — for lithium metal batteries, a lithium content of 2 g; or — for lithium ion batteries, a Watt-hour rating of 100 Wh; c) each battery may exceed 100 Wh but not exceed 160 Wh Watt-hour rating for lithium ion with the approval of the operator; d) each battery may exceed 2 g but not exceed 8 g lithium content for lithium metal for portable medical electronic devices with the approval of the operator; e) for portable electronic devices containing batteries: — measures must be taken to prevent unintentional activation and to protect the devices from damage; — the devices should be kept away from flammable or oxidizing items such as perfumes and oxygen required for medical use; — the devices should be carried as carry-on baggage~~;~~ ~~however,~~ and not be used to charge or power other devices during taxi, take-off and landing. If used to charge or power portable electronic devices at other times, the devices must be kept in view to enable monitoring by the passenger — if carried as checked baggage, the devices must be completely switched off (not in sleep or hibernation mode) if the batteries exceed: — for lithium metal batteries, a lithium content of 0.3 g per device; or — for lithium ion batteries, a Watt-hour rating of 2.7 Wh per device; — unless approved by the operator, no more than fifteen portable electronic devices containing batteries may be carried per person.

Dangerous Goods	*Location*		*Approval of the operator(s) is required*	*Restrictions*
	Checked baggage	*Carry-on baggage*		
				f) batteries and heating elements must be isolated in portable electronic devices capable of generating extreme heat, which could cause a fire if activated, by removal of the heating element, battery or other components; g) spare batteries, including power banks: — must be carried as carry-on baggage; and — must be individually protected so as to prevent short circuits (by placement in original retail packaging or by otherwise insulating terminals, e.g. by taping over exposed terminals or placing each battery in a separate plastic bag or protective pouch); — should not be placed in the overhead storage locker; — must not be charged using inseat/inflight power; — should not be used to charge or power other devices during taxi, take-off and landing. If used at other times the battery and device must be kept in view to enable monitoring by the passenger; — should be placed in carry-on baggage under the seat in front, or placed in another designated stowage location other than the overhead storage locker, such as the seat back pocket when not in use; — should be kept away from flammable or oxidizing items such as perfumes and oxygen required for medical use; — no more than two spare batteries meeting the requirements of c) or d) may be carried per person; and — unless approved by the operator, no more than twenty spare batteries may be carried per person. h) baggage equipped with a lithium battery(ies) exceeding: — for lithium metal batteries, a lithium content of 0.3 g; or — for lithium ion batteries, a Watt-hour rating of 2.7 Wh must be carried as carry-on baggage unless the battery(ies) is removed from the baggage, in which case the battery(ies) must be carried in accordance with g)~~;~~ ~~i) no more than two spare batteries meeting the requirements of c) or d) may be carried per person~~.
. . .				

Dangerous Goods	*Location*		*Approval of the operator(s) is required*	*Restrictions*
	Checked baggage	*Carry-on baggage*		
3) Battery-powered portable electronic smoking devices (e.g. e-cigarettes, ecigs, ecigars, epipes, personal vaporizers, electronic nicotine delivery systems)	No	Yes	No	a) if powered by lithium batteries, each battery must comply with restrictions of 1) a), b) and g); b) the devices and/or batteries must not be recharged on board the aircraft; ~~and~~ c) measures must be taken to prevent unintentional activation of the heating element while on board the aircraft ~~.~~ ; d) should not be placed in the overhead storage locker; e) should be placed in carry on baggage under the seat in front, or placed in another designated stowage location other than the overhead storage locker, such as the seat back pocket; and d) the devices should be kept away from flammable or oxidizing items such as perfumes and oxygen required for medical use.
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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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