



WORKING PAPER

**DANGEROUS GOODS PANEL (DGP)
WORKING GROUP MEETING (DGP-WG/22)**

Montréal, 21 to 25 November 2022

- Agenda Item 1: Harmonizing ICAO dangerous goods provisions with UN Recommendations on the Transport of Dangerous Goods (REC-A-DGS-2025)**
1.2: Develop proposals, if necessary, for amendments to the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284) for incorporation in the 2025-2026 Edition

EXCEPTION FOR LITHIUM BATTERY POWERED DATA LOGGERS / CARGO TRACKING DEVICES

(Presented by D. Brennan)

SUMMARY

This working paper seeks discussions to consider the draft exception for lithium battery data loggers and cargo trackers that was initially proposed at DGP/27 in 2019.

Action by the DGP-WG is in paragraph 2.

1. INTRODUCTION

1.1 The UN Subcommittee adopted changes into the 21st revised Edition of the *UN Model Regulations* that included an exception from the Regulations for dangerous goods (e.g. lithium batteries, fuel cell cartridges) in equipment such as data loggers and cargo tracking devices inside or attached to packages, overpacks or containers when these devices are in use or intended for use in transport.

1.2 The exception developed by the UN Subcommittee was considered at DGP-WG/19 and the DGP-WG developed revised text that limited the exception to data loggers and cargo tracking devices powered by lithium cells and batteries (see paragraph 3.1.2.3.1 b) of the DGP-WG/19 report).

1.3 The draft exception was further considered by the panel at DGP/27 and additional specifications were added that limited the number of devices in or attached to a package or overpack to the number required to track or collect data for the specific consignment (see paragraph 1.2.1.3 of the DGP/27 Report).

1.4 While there were still concerns expressed by some panel members that the provisions developed did not provide an adequate safety margin, the additional exception was recommended for inclusion into the general exceptions from the Technical Instructions in Part 1;1.1.5.

1.5 However, when the proposed amendments to the Technical Instructions recommended from DGP/27 were considered by the Air Navigation Commission (ANC) the ANC did not agree to adopt the exception pending further work by the DGP and the Flight Operations Panel Safe Carriage of Goods Specific Working Group (FLTOSP-SCG-SWG) to be undertaken in 2020.

1.6 Due to the restrictions on travel and face-to-face meetings caused by the pandemic there has been no further work on the exception for lithium battery powered data loggers and cargo tracking devices. Additionally, the SCG-SWG has not been tasked with doing any work on exceptions for data loggers / cargo trackers.

1.7 The purpose of this working paper is to re-start discussion on development of provisions that would except data loggers and cargo trackers powered by lithium cells or batteries inside or attached to packages, overpacks or unit load devices (ULDs) when the devices are in use or intended for use. The text that was developed and recommended by DGP/27 is included in the appendix to this working paper.

1.8 Without this exception, shippers of products such as pharmaceuticals and valuable shipments that have data loggers or cargo trackers inside or attached to the cargo are forced to apply the lithium battery mark to every piece that contains or has a device attached and to then add the lithium battery compliance statement to the air waybill even though there may be just one device in each package. This is really a mis-application of the hazard communication.

1.9 The primary issue of concern by the ANC was that the devices could contain lithium cells or batteries as permitted by Section II of Packing Instructions 967 and 970. The size of the lithium cells and batteries, particularly for lithium ion at 20 Wh for cells and 100 Wh, was seen as excessive.

2. ACTION BY THE DGP-WG

2.1 The DGP-WG is invited to review the provisions as developed at DGP/27, particularly the lithium metal content and Watt-hour rating for the cells and batteries, to develop an exception for lithium battery powered data loggers that can be agreed for inclusion in the Technical Instructions.

2.2 The DGP-WG is also invited to consider guidance to address the potential for interference with aircraft systems. As an indication, this guidance could propose that:

- a) The device manufacturers be required to certify that:
 - 1) the devices meet the radio frequency radiated emissions limits in RTCA DO-160, Environmental Conditions and Test Procedures for Airborne Equipment, Section 21, Category H; or
 - 2) the device uses low-powered wireless with a maximum of 100mW EIRP (equivalent isotropic radiated power). Bluetooth meets this limit.
- b) Operators can approve the use of certified devices where the aircraft manufacturer has advised that the aircraft are designed and certified as being portable electronic

equipment (PED) tolerant. Where the aircraft is not PED tolerant, the operator would be required to test the aircraft in accordance with RTCA DO-307A, Aircraft Design and Certification for Portable Electronic Device (PED) Tolerance, as an acceptable method for demonstrating aircraft tolerance to intentional transmissions and spurious emissions from PEDs.

APPENDIX

PROPOSED AMENDMENT TO PART 1 OF THE TECHNICAL INSTRUCTIONS

Part 1

GENERAL

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Chapter 1

SCOPE AND APPLICABILITY

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1.1.5 General exceptions

1.1.5.1 Except for 7;4.2, these Instructions do not apply to dangerous goods carried by an aircraft where the dangerous goods are:

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h) contained within items of excess baggage being sent as cargo provided that:

- 1) the excess baggage has been consigned as cargo by or on behalf of a passenger;
- 2) the dangerous goods may only be those that are permitted by and in accordance with 8;1.1.2 to be carried in checked baggage;
- 3) the excess baggage is marked with the words "Excess baggage consigned as cargo".

i) data loggers and cargo tracking devices with installed lithium batteries, attached to or placed in packages, overpacks or unit load devices are not subject to any provisions of these Instructions provided the following conditions are met:

- 1) the data loggers / cargo tracking devices must be in use or intended for use during transport;
- 2) each cell or battery must meet the provisions of Part 2;9.3 a), e), f) (if applicable) and g);
- 3) for a lithium ion cell, the Watt-hour rating must not be more than 20 Wh;
- 4) for a lithium ion battery, the Watt-hour rating must not be more than 100 Wh;
- 5) for a lithium metal cell, the lithium content must not be more than 1 g;
- 6) for a lithium metal battery, the aggregate lithium content must not be more than 2 g;
- 7) the number of data loggers / cargo tracking devices in or on any package or overpack must be no more than the number required to track or to collect data for the specific consignment;
- 8) the data loggers / cargo tracking devices must be capable of withstanding the shocks and loadings normally encountered during transport;
- 9) the devices must not be capable of generating a dangerous evolution of heat;
- 10) the devices must meet defined standards for electromagnetic radiation to ensure that the operation of the device does not interfere with aircraft systems.

Note.— This exception does not apply where the data loggers or cargo tracking devices are offered for transport as a consignment in accordance with Packing Instruction 967 or 970.

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