



**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**

**EXTENSION OF THE CONCEPT OF “EXCLUSIVE USE” TO AIRCRAFT CONTAINERS  
(ULDs)**

(Presented by P. Tatin)

**SUMMARY**

This working paper proposes to amend the definition for “exclusive use” in the case of air transport of radioactive material to allow the use of “aircraft containers” (a category of ULD, e.g. AKE, AKN or AKH containers), with inner volume more than 3 m<sup>3</sup>, to delineate the cargo space of an aircraft to which the definition of “exclusive use” may apply as an alternative to the full aircraft or to a large freight container.

Action by the DGP-WG:

- consider the proposed amendment contained in Appendix B which supports the use of a “large aircraft container” to delineate the cargo space of an aircraft to which the definition of “exclusive use” may apply as an alternative to the complete aircraft or to a large freight container;
- provide its position on the amendment to IAEA SSR-6 (Rev. 1) contained in Appendix A before it can be accepted and considered by IAEA TRANSSC for the next revision of SSR-6 (Rev.1); and
- consider whether the amendment, if agreed, should be included in a corrigendum to the 2023-2024 Edition of the Technical Instructions.

## 1. INTRODUCTION

1.1 The International Atomic Energy Agency (IAEA) Transport Safety Standards Committee (TRANSSC) decided, during its 43<sup>rd</sup> meeting (TRANSSC-43) held in November 2021, to initiate the review of the 2018 edition of the IAEA Transport Regulations: *Regulations for the Safe Transport of Radioactive Material: 2018 Edition* (IAEA Safety Standards Series No. SSR-6 (Rev. 1)), on which are based the current *Technical Instructions for the Safe Transport of Dangerous Goods by Air (Doc 9284)* for transport of radioactive material.

1.2 On 5 November 2021, IAEA Member States were invited to submit proposals for change and identify problems for review, as appropriate, and to transmit them to the TRANSSC Secretariat not later than 18 March 2022.

1.3 A set of proposals were submitted by France (proposals N° F-16 to F-18) and also by the World Nuclear Transport Institute (WNTI) (proposals WNTI N° 09 a) to c)) to extend the definition of “exclusive use” to the use of “aircraft containers” (a category of unit load devices (ULDs)) as an alternative to the use of a complete aircraft (conveyance) or of a large freight container.

1.4 During TRANSSC-44 held from 13 to 17 June 2022 at the IAEA in Vienna, a review of the proposed amendments to SSR-6 (Rev.1) was initiated. It was agreed that this proposed amendment, which relates exclusively to the air mode of transport, should be the subject of the DGP opinion before being adopted by IAEA.

1.5 The identified issue is the following: Under the present definitions for “exclusive use”, “large freight container” and “unit load device (ULD)” in the Technical Instructions, an aircraft container (which is a ULD — see definition for “unit load device” in 1;1.3.1 of the Technical Instructions) with an internal volume of more than 3 m<sup>3</sup> cannot be considered as a large freight container for the purpose of carrying radioactive material by air. This implies that, when “exclusive use shipment” is required, only the complete aircraft or a freight container as defined for Class 7 can be declared under “exclusive use” (the term freight container as defined for Class 7 signifies a multimodal freight container, in most cases an ISO freight container). However, standard ISO freight containers, due to their large size, can only be carried in a very limited number of aircraft designs.

1.6 Therefore, this renders “exclusive use” shipment by air very expensive, most of the time without any valid safety reasons (e.g. shipment of excepted fissile material under 417 (e) of SSR-6 (Rev.1) — 2;7.2.3.5.1 e) of Technical Instructions, or the shipment of an IP-2 package loaded with LSA-III material or with LSA-II liquid).

1.7 This proposal will allow the use of a “large aircraft container” to delineate the cargo space of an aircraft to which the definition of “exclusive use” may apply as an alternative to the full aircraft or to a large freight container.

1.8 The proposal requires modification of the definition of “exclusive use” in the IAEA SSR-6 (Rev.1) as shown in Appendix A.

1.9 In the Technical Instructions, the definition of “exclusive use” given in 1;3.1 could then be modified as shown in Appendix B.

- 1.10 A definition is proposed for “aircraft container” to:
- a) clearly identify what is an aircraft container (a ULD whose use is/shall be limited to air transport);
  - b) specify that it cannot be used either as a packaging or as an overpack; and
  - c) make a clear distinction with “freight container” as a ULD is not submitted to the same requirements for labelling and placarding as required for “freight containers used for radioactive material” (aircraft containers are only submitted to an identification TAG as specified in Part 7;2.8 of the Technical Instructions).

See Appendix A (definition as proposed for SSR-6 (Rev. 1) and Appendix B (definition as proposed for the Technical Instructions).

1.11 In the Technical Instructions, the definition of aircraft container could be introduced in 1;3.1 or in 2;7.1.3.

1.12 To ensure that the hazard information is appropriately communicated, and the information required in 7;2.8.2 c) of the Technical Instructions is provided, it is proposed to add a new paragraph 579A in the IAEA SSR-6 (Rev.1). See Appendix A.

1.13 In the Technical Instructions, the requirements in 7;2.8.2 c) could then be modified as shown in Appendix B.

1.14 Situations for which “exclusive use” shipment is required in case of air transport are listed in Appendix C.

## 2. ACTION BY THE DGP-WG

- 2.1 The DGP is invited to:
- a) support the proposal to allow the use of a “large aircraft container” to delineate the cargo space of an aircraft to which the definition of “exclusive use” may apply as an alternative to the complete aircraft or to a large freight container;
  - b) if supported:
    - 1) inform the IAEA secretary of its position, including the notification of any amendment deemed necessary to the definitions and requirements that are proposed to be added or modified in the IAEA SSR-6 (Rev.1) related to this proposal, in view of facilitating understanding and transcription of these texts into the Technical Instructions; and
    - 2) consider whether the amendment, if agreed, should be included in a corrigendum to the 2023-2024 Edition of the Technical Instructions.

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## APPENDIX A

### PROPOSED AMENDMENT TO SSR-6 (REV. 1)

#### Section II

#### DEFINITIONS

The following definitions shall apply for the purposes of these Regulations:

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##### 1. *Aircraft*

Cargo *aircraft* shall mean any *aircraft*, other than a passenger *aircraft*, that carries goods or property.

Passenger *aircraft* shall mean an *aircraft* that carries any person other than a crew member, a *carrier's* employee in an official capacity, an authorized representative of an appropriate national authority, or a person accompanying a *consignment* or other cargo.

203A. *Aircraft container shall mean an enclosed and rigid unit load device (ULD), that is an air transport equipment of a permanent character, strong enough to be suitable for repeated use; specially designed to facilitate the transport by air of goods by aircraft without intermediate reloading, and to be secured in aircrafts. A large aircraft container shall mean an aircraft container that has an internal volume of more than 3 m<sup>3</sup>. An aircraft container cannot be used as a packaging, an overpack or a freight container.*

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##### 2. *Exclusive use*

221. *Exclusive use* shall mean the sole use, by a single *consignor*, of a conveyance or of a large freight container, or of a large aircraft container, in respect of which all initial, intermediate and final loading and unloading and *shipment* are carried out in accordance with the directions of the *consignor* or *consignee*, where so required by these Regulations.

## REQUIREMENTS AND CONTROLS FOR TRANSPORT

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### TRANSPORT AND STORAGE IN TRANSIT

#### **Segregation during transport and storage in transit**

577. *Type B(M) packages and consignments under exclusive use shall not be transported on passenger aircraft.*

578. *Vented Type B(M) packages, packages that require external cooling by an ancillary cooling system, packages subject to operational controls during transport and packages containing liquid pyrophoric materials shall not be transported by air.*

579. *Packages or overpacks having a surface dose rate greater than 2 mSv/h shall not be transported by air except by special arrangement.*

579A. When exclusive use is applied to a large aircraft container (ULD), as permitted by para. 221, this large aircraft container shall bear the mark "Class 7, EXCLUSIVE USE" on its identification tag.

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## APPENDIX B

### PROPOSED AMENDMENT TO PART 1 OF THE TECHNICAL INSTRUCTIONS

#### Part 1

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#### Chapter 3

#### GENERAL INFORMATION

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##### 3.1 DEFINITIONS

3.1.1 The following is a list of definitions of commonly used terms in these Instructions. Definitions of terms which have their usual dictionary meanings or are used in the common technical sense are not included. Definitions of additional terms used solely in conjunction with radioactive material are contained in 2;7.1.3.

***Aerosol or aerosol dispenser.*** An article consisting of a non-refillable receptacle meeting the requirements of 6;5.4, made of metal, glass or plastics and containing a gas, compressed, liquefied or dissolved under pressure, with or without a liquid, paste or powder, and fitted with a release device allowing the contents to be ejected as solid or liquid particles in suspension in a gas, as a foam, paste or powder or in a liquid state or in a gaseous state.

***Aircraft container.*** An enclosed and rigid unit load device (ULD) that is an air transport equipment of a permanent character, strong enough to be suitable for repeated use; specially designed to facilitate the transport by air of goods by aircraft without intermediate reloading, and to be secured in aircrafts. For the transport of radioactive material, a large aircraft container shall mean an aircraft container that has an internal volume of more than 3 m<sup>3</sup>. An aircraft container cannot be used as a packaging, an overpack or a freight container.

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***Exclusive use.*** For the transport of radioactive material, the sole use, by a single shipper, of an aircraft or of a large freight container, or of a large aircraft container, in respect of which all initial, intermediate and final loading and unloading and shipment are carried out in accordance with the directions of the shipper or consignee, where so required by these Instructions.

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## Part 7

# OPERATOR'S RESPONSIBILITIES

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## Chapter 2

### STORAGE AND LOADING

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#### 2.8 IDENTIFICATION OF UNIT LOAD DEVICES CONTAINING DANGEROUS GOODS

2.8.1 Each unit load device containing dangerous goods which require a class hazard label must display an identification tag on its exterior indicating that dangerous goods are contained within the unit load device, unless those hazard class labels are themselves visible.

2.8.2 The identification tag must:

- a) have a border of prominent red hatchings on both sides and be visible at all times;
- b) have minimum dimensions of 148 mm × 210 mm; and
- c) be legibly marked with the primary and subsidiary hazard class(es) or division(s) numbers of such dangerous goods. For the transport of radioactive material, when exclusive use is applied to a large aircraft container (ULD), as permitted by the definition of exclusive use in 1;3.1, this large aircraft container shall bear the mark "Class 7, EXCLUSIVE USE" on its identification tag.

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APPENDIX C

LIST OF SITUATIONS FOR WHICH EXCLUSIVE USE IS REQUIRED

#	Description (as listed in Annex III of SSR-6 (Rev.1))	IAEA SSR-6 (Rev.1)	ICAO Technical Instructions
(a)	Unpackaged <i>LSA-I material</i> , <i>SCO-I</i> and <i>SCO-III</i>	para. 520	<b>Air transport not concerned:</b> See 2;7.2.3.2 c) ( <i>SCO-III</i> forbidden) and 4;9.2.4 (unpackaged <i>LSA-I</i> and <i>SCO-I</i> forbidden)
(b)	Liquid <i>LSA-I material</i> in a <i>Type IP-1 package</i>	para. 521 and Table 5	See 4;9.2.5 and Table 4-2
(c)	Gaseous and/or liquid <i>LSA-II material</i> in a <i>Type IP-2 package</i>	para. 521 and Table 5	See 4;9.2.5 and Table 4-2
(d)	<i>LSA-III material</i> in a <i>Type IP-2 package</i>	para. 521 and Table 5	See 4;9.2.5 and Table 4-2
(e)	<i>Packages</i> or <i>overpacks</i> having an individual <i>TI</i> greater than 10 or a <i>CSI</i> greater than 50, <i>conveyances</i> or <i>large freight containers</i> having a <i>CSI</i> greater than 50	paras 526 and 567	See 4;9.1.10 and 7;2.9.3.3 d) and Table 7-7
(f)	<i>Packages</i> or <i>overpacks</i> having the maximum <i>dose rate</i> at any point on the external surfaces that exceed 2 mSv/h	para. 527	See 5;1.2.3.1.4 c) and 7;2.9.5.3: special arrangement required
(g)	Loaded <i>conveyance</i> or <i>large freight containers</i> with a total sum of <i>TI</i> exceeding the values given in Table 10	para. 566(a)	See 7;2.9.3.3 a) and Table 7-6
(h)	Loaded <i>conveyances</i> or <i>large freight containers</i> with a total sum of <i>CSI</i> exceeding the values given in Table 11 for “not under <i>exclusive use</i> ”	para. 569	See 7;2.9.3.3 d) and Table 7-7
(i)	<i>Type B(U)</i> , <i>Type B(M)</i> or <i>Type C package</i> whose temperature of accessible surfaces exceeds 50°C when subject to an ambient temperature of 38°C in the absence of insolation	para. 654	<b>Air transport not concerned:</b> See 6;7.2.1 (temperature of accessible surfaces of packages in excess of 50°C when subject to an ambient temperature of 38°C in the absence of insolation, are not allowed)
(j)	Up to 45 g of <i>fissile nuclides</i> on a <i>conveyance</i> , either packaged or unpackaged, in accordance with the provisions of paras 417(e) and 520(d)	paras 417(e) and 520(d)	See 7;2.9.4.3 c) and 4;9.2.4 (unpackaged fissile material forbidden)
(k)	<i>Packages</i> containing <i>fissile material</i> classified as non-fissile or fissile-excepted under para. 417(a)(i) or (iii) of the 2009 Edition of these Regulations	para. 822	<b>Transport by air not concerned:</b> This transitional provision has not been taken into account in the current ICAO-TI