DOT-SP 21403  
(SECOND REVISION)  

(FOR RENEWAL, SEE 49 CFR 107.109)

1. **GRANTEE:** (See individual authorization letter)

2. **PURPOSE AND LIMITATIONS:**

   a. This special permit authorizes the transportation in commerce of prototype, low production, and production lithium ion batteries and lithium ion batteries contained in equipment (avionic computers). This special permit provides no relief from the Hazardous Materials Regulations (HMR) or the International Civil Aviation Organization’s Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO TI) other than as specifically stated herein. The most recent revision supersedes all previous revisions.

   b. The safety analyses performed in the development of this special permit only considered the hazards and risks associated with the transportation in commerce.

   c. Unless otherwise stated herein, this special permit consists of the special permit authorization letter issued to the grantee together with this document. Only Northrop Grumman Systems Corporation and the United States Department of Defense may be granted party status to this special permit.

   d. This special permit serves as an “exemption” as defined in 1.3.1.1 of the ICAO TI and as a “Competent Authority Approval” as defined under 49 CFR § 107.1.

3. **REGULATORY SYSTEM AFFECTED:** 49 CFR Parts 106, 107 and 171-180.

4. **REGULATIONS FROM WHICH EXEMPTED:** 49 CFR § 173.185(a)(1) and 2.9.3 a) of the ICAO TI in that the prototype and low production lithium batteries need not be proven to meet the criteria in Part III, sub-section 38.3 of the UN Manual of Tests and Criteria and § 173.185(a)(2) in that the record of satisfactory completion of the tests is not required for the prototype and low production lithium batteries.
5. **BASIS:** This special permit is based on the renewal application of Northrop Grumman Systems Corporation dated October 25, 2023, submitted in accordance with § 107.105 and the public proceeding thereon.

6. **HAZARDOUS MATERIALS (49 CFR 172.101):**

<table>
<thead>
<tr>
<th>Proper Shipping Name</th>
<th>Hazard Class/Division</th>
<th>Identification Number</th>
<th>Packing Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium ion batteries contained in equipment including lithium ion polymer batteries</td>
<td>9</td>
<td>UN3481</td>
<td>N/A</td>
</tr>
<tr>
<td>Lithium ion batteries including lithium ion polymer batteries</td>
<td>9</td>
<td>UN3480</td>
<td>N/A</td>
</tr>
</tbody>
</table>

7. **SAFETY CONTROL MEASURES:**

a. **SAFETY CONTROLS MEASURES:**

   (1) Authorized lithium ion batteries are as follows:

   (i) Production batteries identified as the FTS Battery Assembly (P/N 9300-1170) with a nominal de-rated energy rating of 22.2 Wh in an 8S1P configuration of NCR-B/T12SEB cells and a weight of 1.32 kg (2.91 pounds) each.

   (ii) Prototype and low production batteries identified as the Avionics Battery (P/N 9300-1050) with a nominal energy rating of 83 Wh in an 8S2P configuration of NCR-B/T12SEB cells and a weight of 2.48 kg (5.47 pounds) each. (“Low production” is defined as a production run of not more than 100 batteries annually of a particular type.) Each different battery type must comply with all the conditions of this special permit prior to being offered for transportation.

   (iii) Prototype and low production batteries identified as the NG Space Battery Assembly (P/N 9300-1176) with a nominal energy rating of 44.4 Wh in an 8S1P configuration of NCR-B/T12SEB cells and a weight of 1.32 kg (2.91 pounds) each.
(iv) Batteries contained in equipment (Avionics Computer) with two (2) batteries in each piece of equipment containing a combination of the batteries described in paragraphs 7.a.(1)(i) through (iii) above.

(2) The production batteries, prototype and low production batteries, and the batteries contained in equipment, authorized in paragraph 7.a.(1) must be offered for transportation aboard aircraft at a state of charge not greater than 30%.

(3) The cells must be equipped with a circuit card to monitor voltage, temperature, and resistance for proper charging/discharging.

(4) The battery must be equipped with an effective means of preventing dangerous reverse current flow for cells that are connected in parallel.

(5) Cells and batteries must be protected against short circuiting.

b. TESTING REQUIREMENTS:

(1) All lithium ion cells (Model Number NCR-B/T12SEB) must be of a type that has passed all required tests as specified in the “UN Manual of Tests and Criteria, 6th Revised Edition”.

(2) Prototype and low production batteries identified as the Avionics Battery (P/N 9300-1050) and the NG Space Battery Assembly (P/N 9300-1176) and the production batteries identified as the FTS Battery Assembly (P/N 9300-1070) must have passed the qualification and acceptance testing and the NAVSEA S0310-AQ-SAF-010 testing as described in the Northrop Grumman Systems Corporation’s June 24, 2022, application on file the Office of Hazardous Material Safety.

c. PACKAGING REQUIREMENTS:

(1) Lithium ion batteries:

   (i) Inner Packaging: Each battery must be individually enclosed in an ESD shielded bag and placed into a fiberboard box with cushioning material surrounding the battery. The cushioning material must be non-combustible, and non-conductive.

   (ii) Outer Packaging: The closed fiberboard box must be placed into a plastic bag and zip tied shut and then placed in a UN 4D wooden box lined with a plastic bag and 2 inches of vermiculite placed in the bottom. Vermiculite must be used to fill all void spaces between the two plastic bags and must be continued to be used to fill void spaces to the top of the
wooden box. The bag liner for the outer wooden box must be closed with a zip tie. The outer container must be closed per the closure instructions and must meet the requirements of Packing Group I performance level.

(iii) No more than two batteries packaged in accordance with paragraph 7.c.(1)(i) are allowed per package.

(iv) The net weight of batteries within a package may not exceed 5 kg (11 pounds).

(v) The total energy content within a package may not exceed 164 Wh.

(2) Lithium ion batteries contained in equipment (Avionics Computer):

(i) No more than five (5) pieces of equipment, which are installed on a bulkhead attached to an aluminum skin via brackets, must be placed in an ESD (electrostatic discharge) shielded bag.

(ii) The ESD shielded equipment bag must be placed in a rigid wooden crate meeting the performance requirements of §178.935.

(iii) The equipment must be packaged in such a manner as to prevent accidental operation during transport.

(iv) The net weight of batteries contained in equipment within a package may not exceed 25 kg (55 pounds).

(v) The total energy content within a package may not exceed 820 Wh.

(3) The cells and batteries must be protected against short circuiting.

d. MARKING: Each package must be marked with the special permit number “DOT-SP 21403” in accordance with §172.301(c).

8. SPECIAL PROVISIONS:

a. Under the terms of this special permit, the grantee may only offer hazardous materials (i.e., the grantee is not authorized as a carrier).

b. A person who is not a holder of this special permit, but receives a package covered by this special permit, may reoffer it for transportation provided no modification or change is made to the package and it is offered for transportation in conformance with this special permit, the HMR, and the ICAO TI.
c. A current copy of this special permit must be maintained at each facility where the package is offered or reoffered for transportation.

d. This special permit in no way affects the need to obtain any required authorizations from other agencies of the United States Government or from the competent authorities of the States of origin, transit, over flight, destination, and State of the air operator.

e. The grantee must maintain the following record and upon request make this record available to a DOT representative or an enforcement official. The record to be maintained is as follows:

(1) Date of the shipment; and

(2) Description of the shipment.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle and cargo-only aircraft.

10. MODAL REQUIREMENTS: A current copy of this special permit must be carried aboard each cargo-only aircraft or motor vehicle used to transport packages covered by this special permit. The shipper must furnish a copy of this special permit to the air carrier before or at the time the shipment is tendered.

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this special permit and penalties prescribed by the Federal hazardous materials transportation law, 49 U.S.C. 5101 et seq:

o All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.

o Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.

o Registration required by § 107.601 et seq., when applicable.

Each “Hazmat employee”, as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

No person may use or apply this special permit, including display of its number, when this special permit has expired or is otherwise no longer in effect.
Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) — “The Hazardous Materials Safety and Security Reauthorization Act of 2005” (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term “exemption” to “special permit” and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. **REPORTING REQUIREMENTS:** Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 - Immediate notice of certain hazardous materials incidents, and 171.16 - Detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:

![Signature]

for William Schoonover
Associate Administrator for Hazardous Materials Safety


Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: ae