



TRIP

By UL Standards & Engagement

Thermal Runaway Incident Program

Pan American - Regional Aviation Safety Team
Regional Aviation Safety Group – Pan America

18 August 2026 – São Paulo, Brasil



Three organizations.
One shared mission.
**Working for a safer
world.**



**Research
Institutes**



**Standards &
Engagement**



Solutions

TRIP

A voluntary, secure, Lithium battery incident surveillance system.

- Replaces an informal incident capture and reporting process administered by airline Dangerous Goods managers
- Capture incident data and aggregate information from multiple sources
- Maintain data in a more granular and consistent manner
- Provide participant airline-specific and anonymized industry data views based on user permissions
- ***Provided at no cost to participants***

mytripportal.org

Goals

1

Provide the most accurate & timely accounting of Lithium battery incidents to better understand the scale & complexity of this safety issue.

2

Develop knowledge, raise awareness and increase transparency into Lithium battery safety issues.

3

Provide research and data to air carriers in support of their risk assessments and safety management programs.

4

Inform research, standards development, and consumer education.

- Increase airline procurement of containment products conforming to UL 5800
- Passenger awareness: reduce LiBat devices in checked baggage
- Cargo research

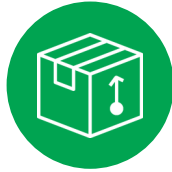
Scope of Surveillance

TRIP captures and trends Lithium battery incidents, including “near-miss” incidents within the air carrier envelope (not limited to the aircraft)



Passenger Operations

- Carry-on
- On person
- Checked bags
- Curb $\leftrightarrow$ Curb

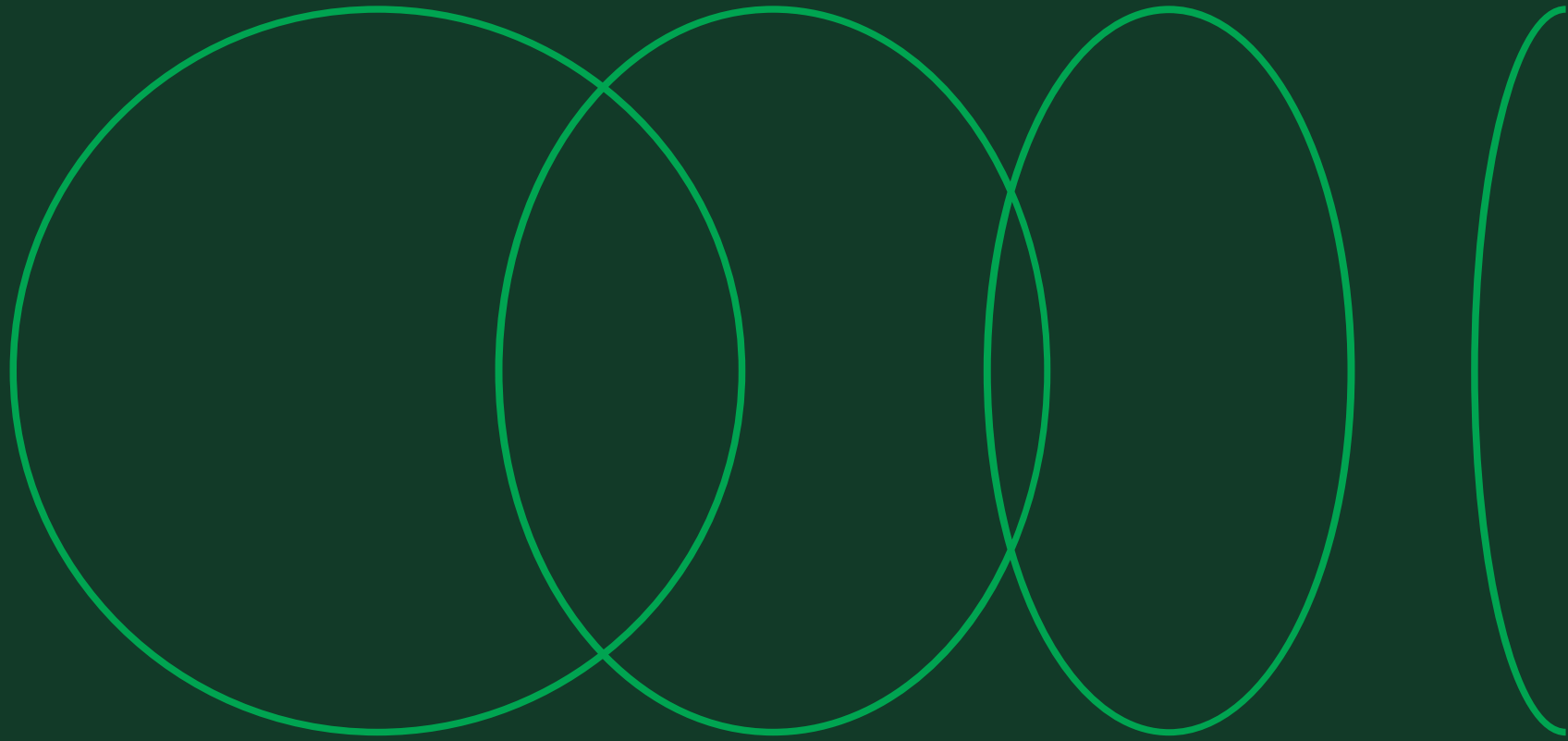


Cargo Operations

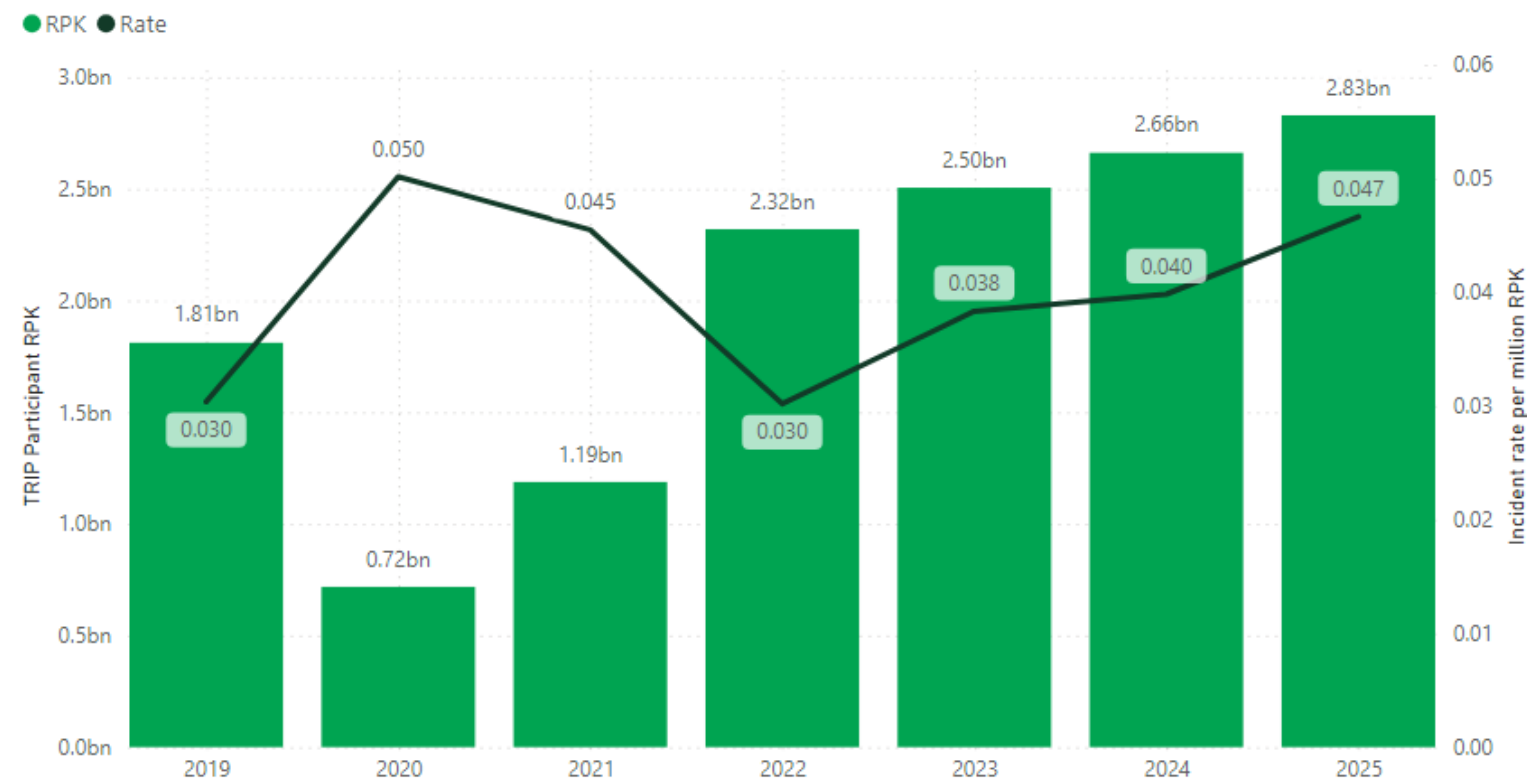
- Declared cargo
- Undeclared cargo
- Dock $\leftrightarrow$ Dock



Global Data



Thermal incident rate: Passenger operations, 2019-2025



Sources: ULSE TRIP database, through 2026-06-30
IATA Monthly Air Traffic Statistics, accessed 2026-08-01

Thermal incidents are defined as:
Incidents involving “fire, violent rupture, explosion, or a dangerous evolution of heat.”

Incident Rate

$$= \frac{\text{Passenger Incident Count}}{\text{Revenue Passenger Kilometers}}$$

for TRIP participating airlines.

57% increase

in incident rate between 2019 and 2025.

Thermal incident rates: Cargo operations, 2019-2025



Sources: ULSE TRIP database, through 2026-06-30
IATA Monthly Air Traffic Statistics, accessed 2026-08-01

Thermal incidents are defined as:
Incidents involving “fire, violent rupture, explosion, or a dangerous evolution of heat.”

Incident Rate

$$= \frac{\text{Cargo Incident Count}}{\text{Cargo Ton Kilometers}}$$

for TRIP participating airlines.

Stable

incident rate between 2019 and 2025.

Thermal incidents, by type: Passenger and cargo, 2025-2026



2025

149 thermal incidents

- 90% passenger-related
- 14 cargo incidents
- 2 crew-related incidents

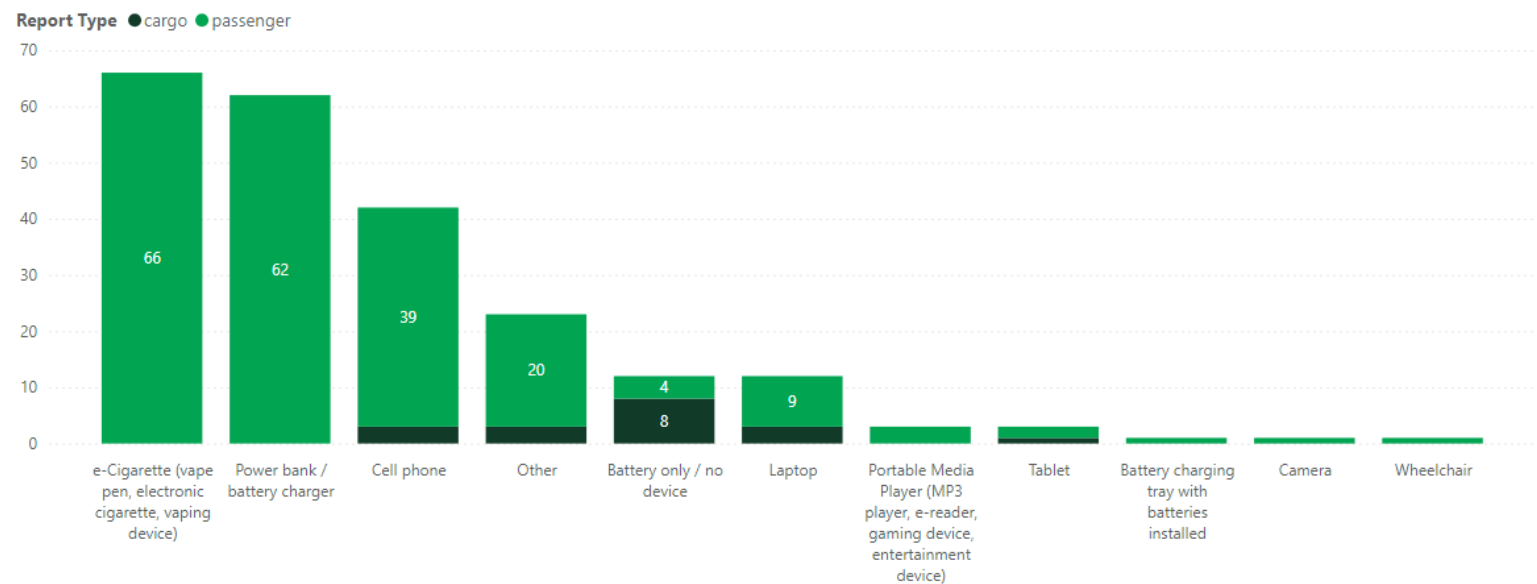
2026

77 thermal incidents (1H2026)

- 4 cargo incidents
- 2 checked baggage incidents

Sources: ULSE TRIP database, through 2026-06-30

Thermal incidents, by device: Passenger and cargo, 2025-2026



Sources: ULSE TRIP database, through 2026-06-30

42% increase

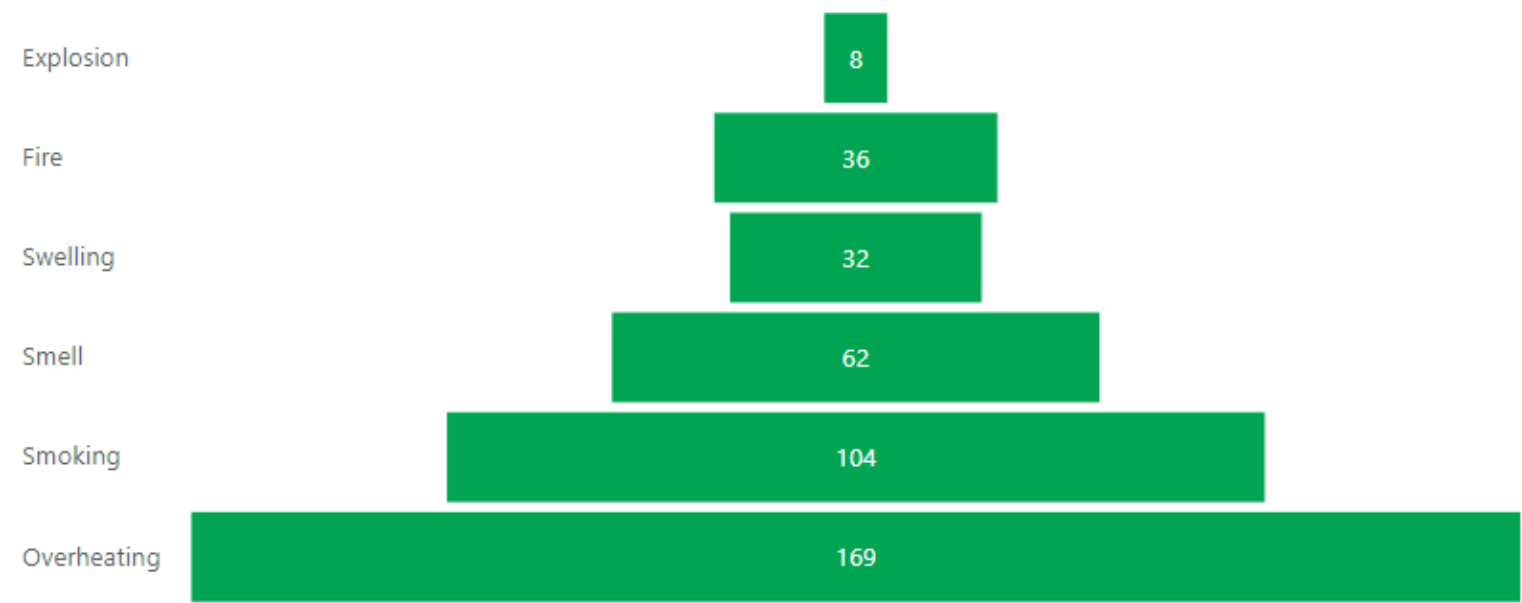
in portable charger incidents
between 2024 and 2025.

Vaping devices continue to be a significant contributor to incident counts.

“Other” category includes a wide variety of devices, including: fans, air pumps, and a video doorbell (cargo incident).

Time frame:
January 1, 2025 – June 30, 2026

Thermal incidents, incident characteristics: Passenger and cargo, 2025-2026



Severity ranking:

Most Severe - 24

Explosion, Fire, or Injury

Less Severe - 42

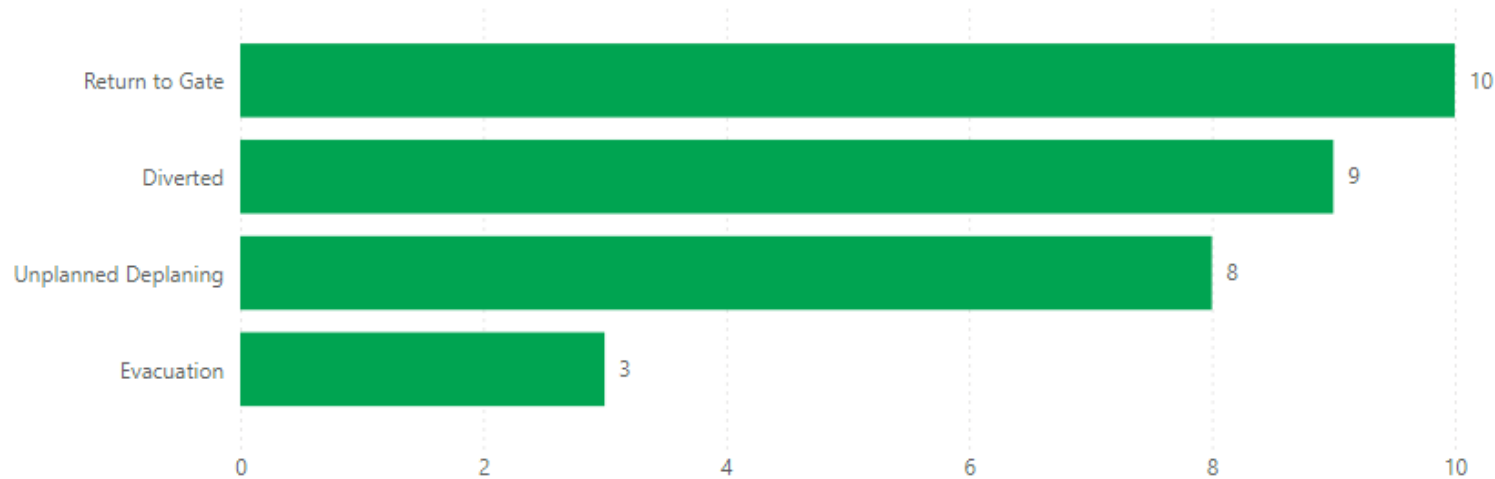
Smoke and/or Heat without Fire

Least Severe - 61

Heat only

Sources: ULSE TRIP database, through 2026-06-30

Thermal incidents, operational disruptions: Passenger, 2025-2026



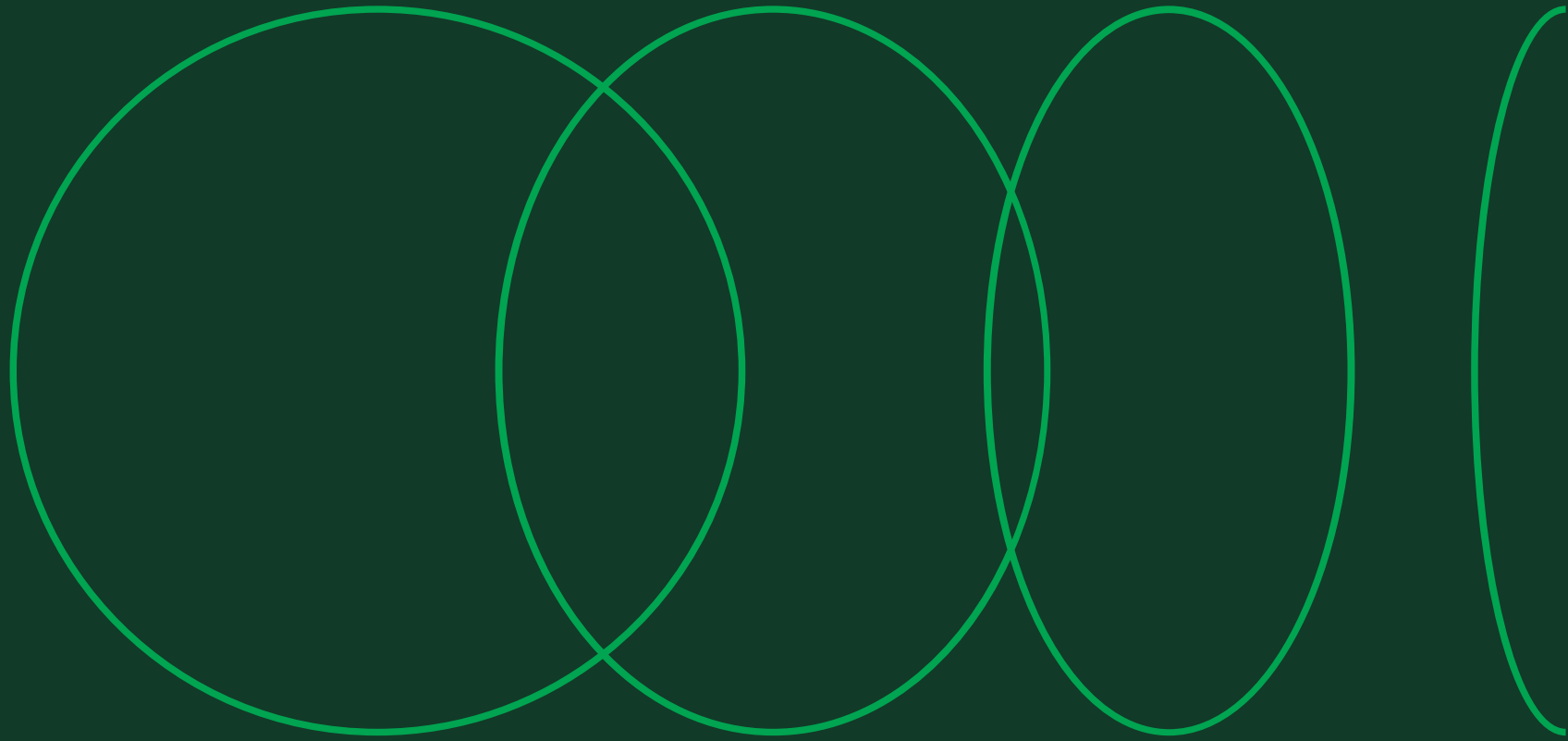
Sources: ULSE TRIP database, through 2026-06-30

12%

of incidents in 2025 resulted in a significant customer disruption.

Method: keyword search in incident narrative for: “diverted”, “diversion”, “return to gate”, “returned to gate”, “rtg”, “evacuation”, “evacuated”, “deplaning”, or “exited”.

Latin America Data



PASSENGER AWARENESS SURVEY – LATIN AMERICA

79.5%

People concerned
about lithium battery
risks on aircraft

(+7.5% to global average)

48.5%

People packing
lithium battery
powered devices in
checked baggage

(+9.3 to global average)

29.6%

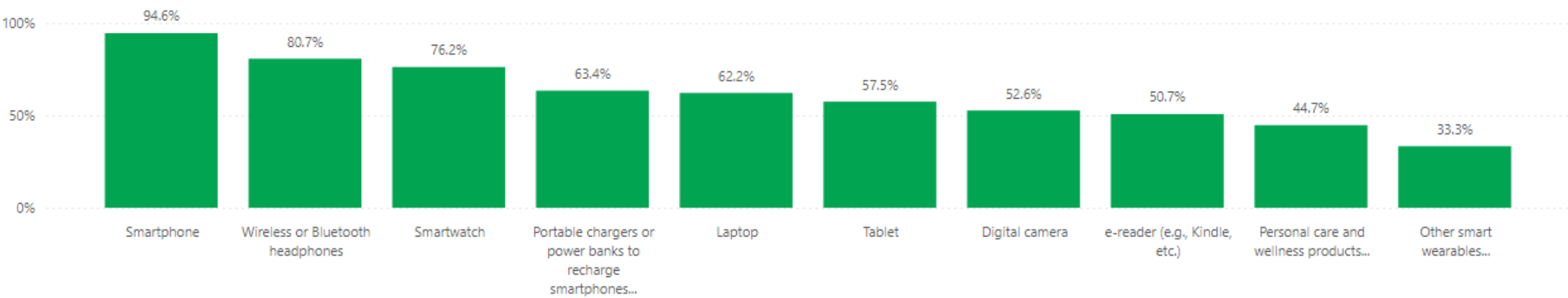
People are unable to
recall any safety
messaging related to
batteries

(-2.2% to global average)

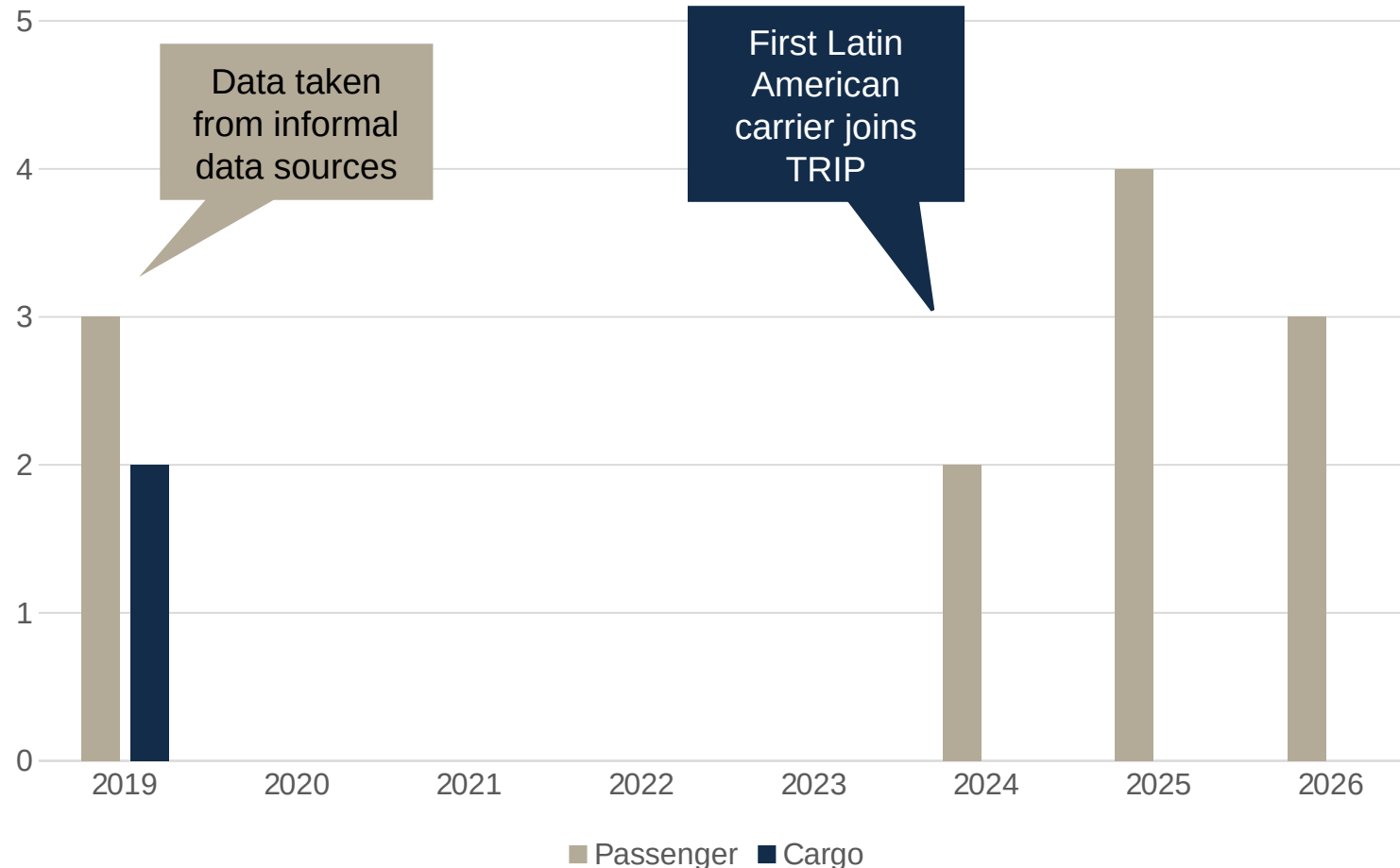
Device ownership

How many devices do you typically bring when traveling on an airplane?	
1 to 3	42.2%
4	16.4%
5 or more	40.4%

Most Common Rechargeable Devices Brought on Planes



Thermal incidents, Latin America

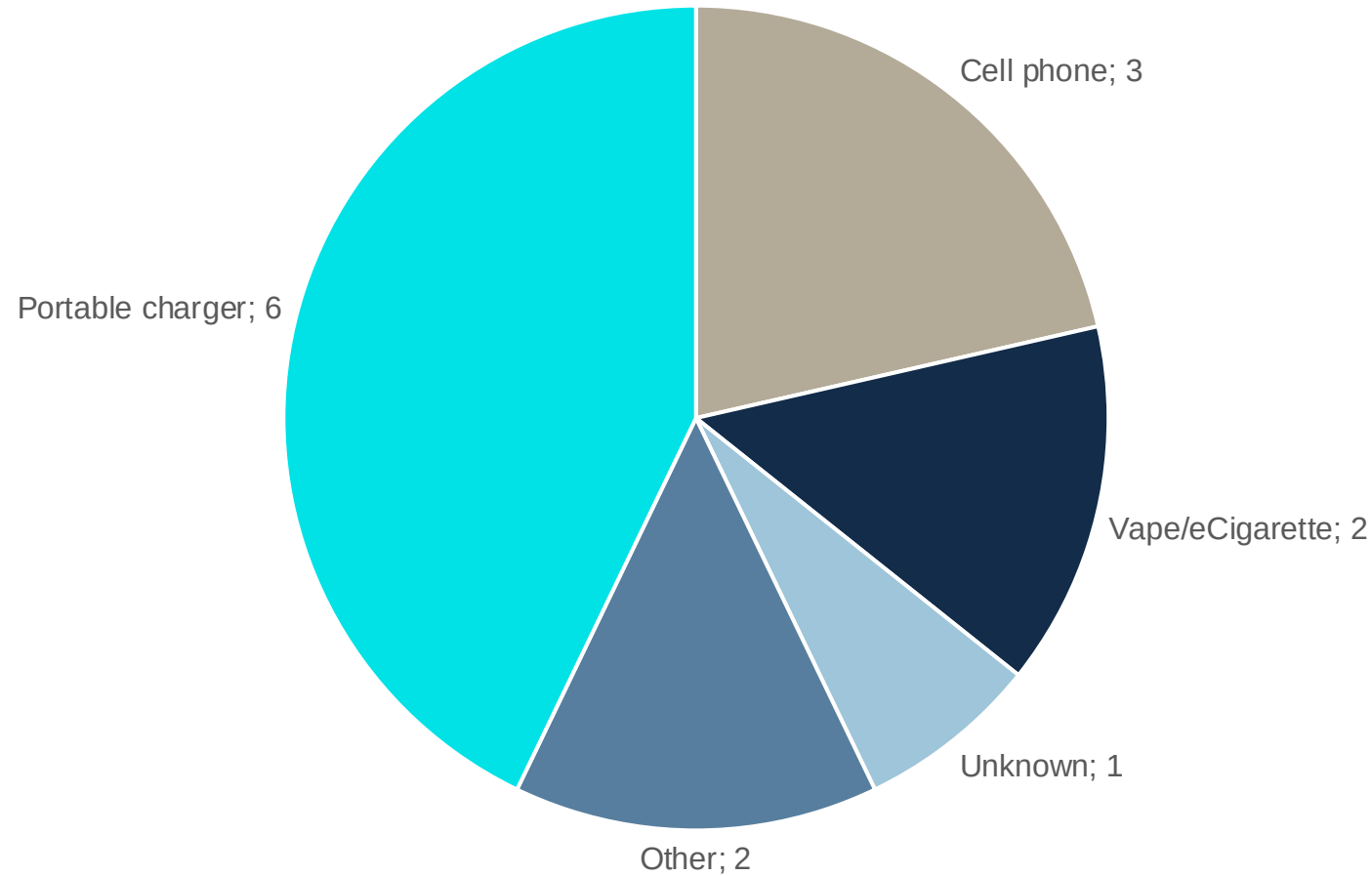


14 incidents

from four Latin American carriers

- 10 incidents occurred on the plane
 - Parked (1), taxiing (2), takeoff (1), cruise (3), and descent (2). 1 unknown
 - No injuries reported
- 2 reports of damage to the airplane
- 2 Most Severe, 2 Less Severe, 4 Least Severe, 2 Other
- Other locations include Ramp, Baggage Loading, and Cargo Facility

Thermal incidents, Latin America, By device type



Portable chargers

Are the most significant contributor in this limited data set.

In 2025, portable chargers were the most common globally.

Conclusions

- Power banks remain a recurring hazard, especially overheating, swelling, smoke generation, and thermal runaway events.
- Crew response procedures appear effective, with frequent use of fire containment products, water cooling, device isolation, and monitoring.
- Several events resulted in operational disruptions, including returns to the gate, passenger deplaning, and emergency response procedures.
- The incidents generally involved consumer lithium-ion powered devices rather than cargo battery shipments.



2025 DATA REVIEW

Lithium-Ion Battery Incidents in Aviation



TRIP Summit Miami

- October 20-22, Miami Airport Convention Center
- The summit will convene about 100 TRIP members, regulators, researchers, and myriad safety stakeholders across passenger and cargo operations
- Facilitates information exchange, identifies prospective paths of research, data analysis, and collaboration
- No summit attendance fee. All meals provided. (attendees pay for travel and hotel)
- Real-time Spanish translation



Thank you

ULSE.org



For additional information, contact

- David Wroth, david.s.wroth@ul.org
- Elise May, elise.may@ul.org

Participants | Passenger

TRIP is designed *with* the industry *for* the industry



Participants | Cargo

TRIP is designed *with* the industry *for* the industry



Participants | Safety Stakeholders

TRIP is designed *with* the industry *for* the industry

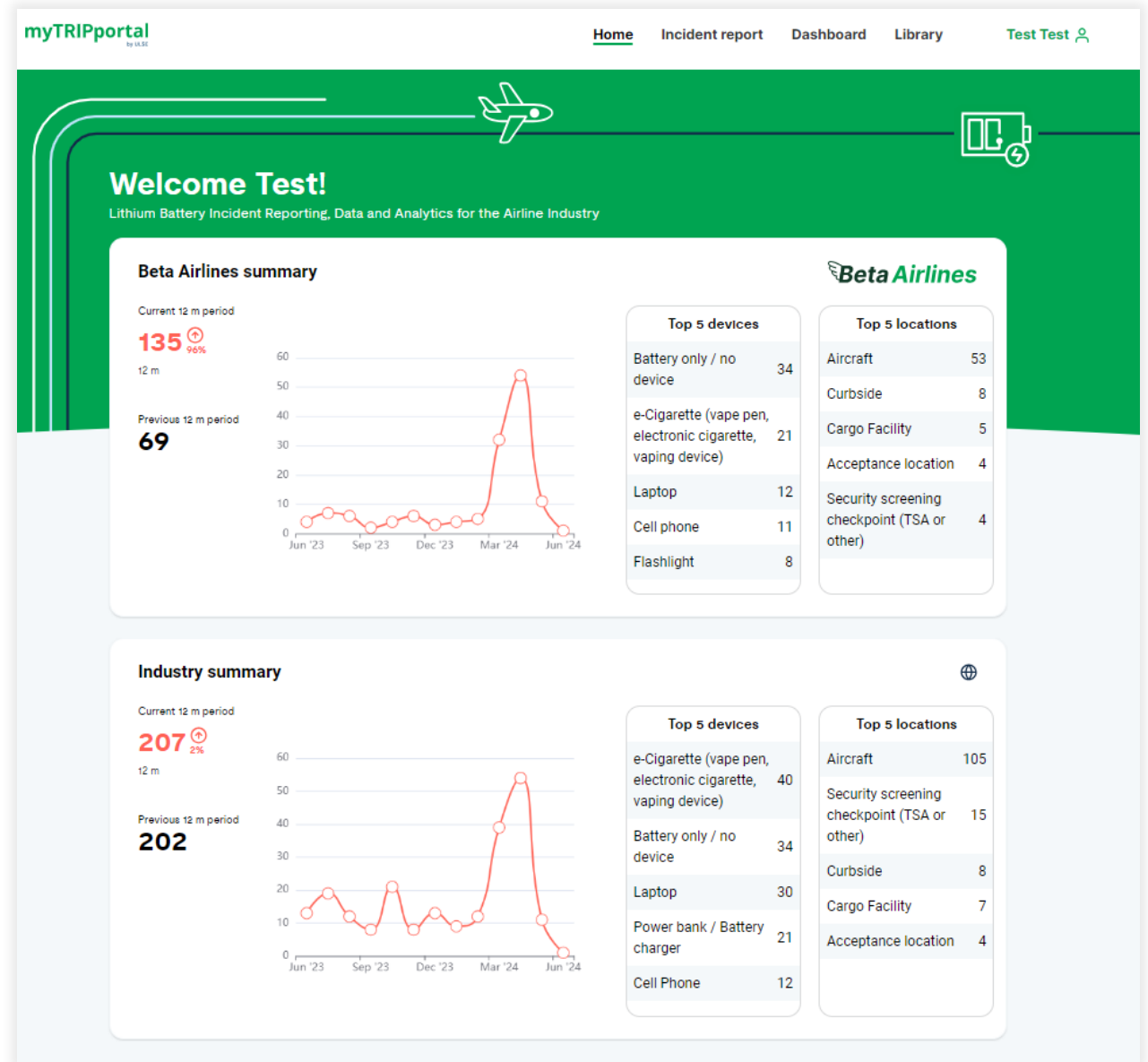


ICAO



myTRIPportal.org

- Secure portal for voluntary reporting
- Summary of industry data
- Details of your airlines data, as submitted
- Ability to download
 - Full data for your airline
 - Incident summaries
- Tiered security model for different types of users:
 - Full access to enter, edit, delete incidents
 - Limited access to enter and view incidents
 - View-only access
- Library of reference materials



Data Protection & Use

- UL Standards & Engagement commits to keeping individual airline data confidential. Our database has security roles that allow for full access, read-only access and public data (summary) only access.
- When data is shared with persons or organizations outside of the participating airline, it is anonymized and/or aggregated. The process of anonymization and aggregation removes the information that would enable an external party to identify the airline involved.
- Examples of groups with who we share data: ICAO, US Aviation Safety Team, CAST, and safety conferences like FAA InfoShare, DGELG and others.



Data Collection

- Background details*
 - ✓ Date, Carrier, Flight #, Origin Station, Flight Destination, City of Occurrence
- Movement type*
 - ✓ Passenger: Checked baggage, Carryon bag/on person
 - ✓ Cargo
- Location of incident*
 - ✓ Specific to movement type
 - ✓ If on aircraft, includes specific location and phase of flight
- Event preceding incident*
- Device type*
- Device activity status*
- Device Brand and Model
- Incident narrative*
- Battery installation status*
- Injury and injury detail (if applicable)
- Images / documentation upload

Incident report: passenger / crew

Beta Airlines

✓

FLIGHT

BATTERY AND DEVICE

INCIDENT DETAILS

Passenger/crew

Cargo

Incident date*

06/03/2024

Flight date*

06/03/2024

Air carrier / certificate holder*

Beta Airlines

Location of occurrence*

Inflight

Origin station*

ORD

Flight number*

3122

Destination*

SFO

✕ CANCEL

NEXT >

Incident report: passenger / crew

Beta Airlines

✓

✓

✓

FLIGHT

BATTERY AND DEVICE

INCIDENT DETAILS

Describe in detail the incident narrative*

Pilot received a smoke in the baggage compartment indication and diverted to PHX. On unloading checked baggage, a passenger's bag smelled of smoke and showed signs of charring and soot.

185/10000

Event(s) preceding incident *

Unknown

Click all that applies to this incident

Explosion

Fire

Smoke

Heat

Smell

Swelling

Thermal runaway

Incident report: passenger / crew

Beta Airlines

✓

✓

FLIGHT

BATTERY AND DEVICE

INCIDENT DETAILS

Baggage usage/type*

Checked

Device activity status*

Stored (in bag, backpack, ...)

Device type*

e-Cigarette (vape pen, elec...

Battery type*

Lithium-ion battery

Location of incident (checked)*

Aircraft

Phase of flight (checked)*

Cruise

Was battery installed?*

Yes

Device brand

Specify The Device Brand

Device model

Specify The Device Model

Passenger Education Campaign

- **Objective:** Reduce the number of passengers packing rechargeable products in checked luggage and issue a call to action to keep devices at arm's reach
- **Audiences:** Leisure travelers, family travelers, and business travelers
- **Timing:**
 - **Pilot | Winter holiday season 2025:** Advanced messaging through airport security bins at DCA, digital media, online ads, and industry toolkit
 - **Summer and Winter Holidays 2026:** Expanding efforts into other cities that see high passenger traffic



What's worse than a super snooper?
Your laptop smoking in the overhead compartment.



Help stop in-flight smoke and fires.
Keep rechargeable devices nearby.

Ad placements in Orlando, Charlotte, and D.C.

