

# Transportation of Lithium Batteries - 2017

## Training Presentation

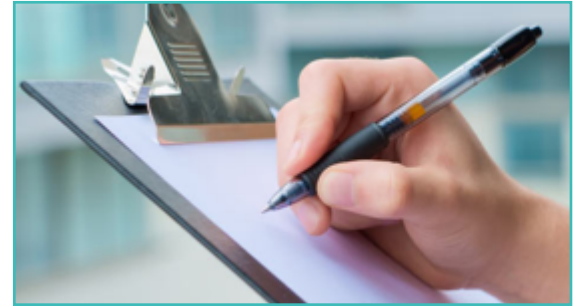
Paul Quickert  
Services Sustainability Manager  
Effective January 1, 2017

Technical Services, Global Service Logistics and Operations (GSLO) – Global Service Delivery Excellence (GSDE)

# Transportation of Lithium Batteries - 2017

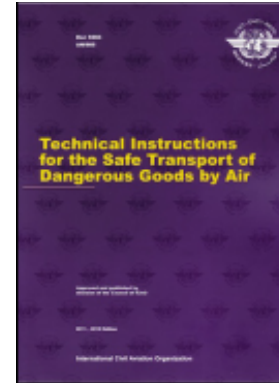
## Agenda:

- Regulatory Overview
- Training requirements
- Dangerous Goods Classification and Labeling
- Lithium Battery Safety Issues and Packaging
- Cisco Products that use Lithium Batteries
- Classification, Identification and Links to Files
- Mode Specific Limitations, Marking, Labeling and Documentation for Packing Instructions 965, 966, 967, 968, 969 and 970
- Example of Shipping Document
- Ground Transportation
- Example of Material Safety Data Sheet (MSDS)



# Dangerous Goods Regulations

- ★ United Nations Standards are the basis for Dangerous Goods Classification by all modes of transportation
  - The UN International Civil Aviation Organization, Technical Instructions (TI's) cover air transport
- ★ The International Air Transport Association (IATA), Dangerous Goods Regulations, 58<sup>th</sup> Edition-2017 – Developed by carriers as a more user friendly version of the TI's, and are used as the day to day working document by shippers, forwarders and carriers
  - The International Maritime Dangerous Goods (IMDG) Code covers transport by ocean freight
  - The UN Standards are adopted as law and enforced by each country
    - In the US, the Department of Transportation regulates Dangerous Goods (Hazardous Materials) for all modes of transportation



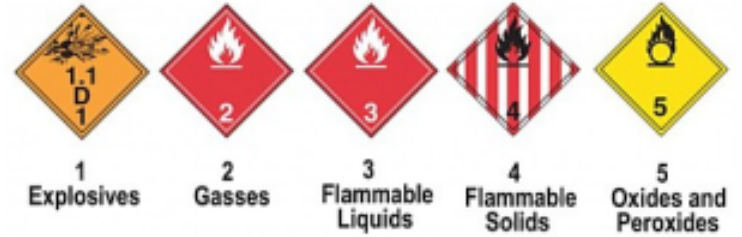
# Dangerous Goods Training

- ★ Training is not optional – It is required for each individual with responsibility for the preparation and shipment of Lithium Batteries (Dangerous Goods)
  - Training must cover each of the duties for which the individual is responsible
  - Training must remain current based on changes in the requirements
  - At a minimum, training must be repeated every 24 months



# Dangerous Goods Labels – Air Transport

- ★ Lithium (Li) and Lithium Batteries are regulated as Dangerous Goods
  - Lithium – Class 4, Flammable Solid, Dangerous When Wet
  - Lithium Batteries – Class 9, Miscellaneous Dangerous Goods



# Current Lithium Battery Labels – Cisco Part Numbers



PN 47-22218-01



PN 47-101435-01



PN 47-101436-02

# Lithium Battery Labeling

- Lithium Batteries contain small quantities of lithium and are “excepted” from certain requirements
  - Lithium Metal (button cell) Batteries are also referred to as primary (non-rechargeable) batteries
  - Lithium Ion Batteries are rechargeable batteries
- ★ For Services, the number of Lithium Batteries per package and the number of packages per consignment are strictly controlled

Authorized  
through 2018

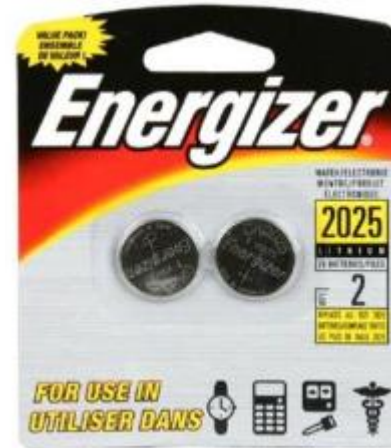


Effective now



# Lithium Battery Safety Concerns

- Recent air transport incidents have heightened safety concerns over defective and improperly packaged Lithium Batteries shipped as cargo
- The Lithium Ion and Lithium Metal batteries used by Cisco are safe in normal use and may be transported safely when properly packaged
- ★ All batteries shipped by Cisco are installed in equipment or are individually packaged to prevent short circuit





# Lithium Batteries and Battery Packs

- Lithium Ion Batteries are found in:
  - Wireless Handsets for IP Phones
  - RAID Controllers (battery back-up)
  - Cisco Wireless Access Point products (LAN/WAN)
- Lithium Metal (button cell) Batteries are found in:
  - PC boards



# Lithium Battery Classification

- **Lithium Ion Batteries**
  - **UN 3480, ICAO/IATA Packing Instruction 965, Section II**
    - > 30% State of Charge, Forbidden on all Aircraft – Surface Transport Only
    - 2 batteries per box, and for surface transport, no limit on packages per consignment
    - </= 30% State of Charge. Forbidden on Passenger Aircraft
    - 2 batteries per box, one package per consignment, must be offered separately from other cargo
  - **Lithium Ion Batteries packed with equipment**
    - **UN 3481, ICAO/IATA Packing Instruction 966, Section II**
      - No State of Charge limitation, 2 batteries per box, no limit on packages per consignment
  - **Lithium Ion Batteries contained in equipment**
    - **UN 3481, ICAO/IATA Packing Instruction 967, Section II**
      - No State of Charge limitation, 2 batteries per box, no limit on packages per consignment
- **Lithium Metal Batteries**
  - **UN 3090, ICAO/IATA Packing Instruction 968, Section II**
    - Forbidden on Passenger Aircraft
      - 2 batteries per box, one package per consignment, must be offered separately from other cargo
- **Lithium Metal Batteries packed with equipment**
  - UN 3091, ICAO/IATA Packing Instruction 969, Section II
  - No State of Charge limitation, 2 batteries per box, no limit on packages per consignment
- **Lithium Metal Batteries contained in equipment**
  - UN 3091, ICAO/IATA Packing Instruction 970, Section II
  - No State of Charge limitation, 2 batteries per box, no limit on packages per consignment

# Services PID List of Batteries

Doc No: EDCS-10790655		Services Battery Master List								
Last Rev.: 21-June-2017										
Procedure Owner: Paul Quickert										
Next Review Date: Nov-2017										
Battery Shipping PID	Product Description	Authorized for shipment by air	UN Code	Packing Instruction (see below)	Battery Configuration	Battery Chemistry	Battery Energy Density WHr	Battery Recha		
14	AIR-1520-BATT-6AH=	1520 Series Battery Backup - NOT SUPPORTED	Forbidden	UN 3480	PI 965 Section II	Standalone/loose	Lithium-ion (Li-ion)	86.58	Rechargeable	
15	B440-BASE-M2	UCS B440 M2 Blade Server w/o CPU; memory; HDD; mezz	State of Change > 30%	UN 3481	State of Change > 30%	PI 967 Section II	Contained in equipment	Lithium-ion (Li-ion)	4.995	Rechargeable
16	B440-BASE-M2D	UCS B440 M2 Blade Server w/o CPU; memory; HDD; mezz	Yes	UN 3481	PI 967 Section II	Contained in equipment	Lithium-ion (Li-ion)	4.995	Rechargeable	
20	CCS-BAT-RAID-710=	Content Security Raid Battery for x70 Model	Forbidden	UN 3480	PI 965 Section II	Standalone/loose	Lithium-ion (Li-ion)	8.88	Rechargeable	
21	CDE3-HBA-G2MR-BBU=	BTR-0023L-LSI00264; LSI 9261 Gen2/2108 M-RAID BBU (	State of Change > 30%	UN 3481	State of Change > 30%	PI 967 Section II	Contained in equipment	Lithium-ion (Li-ion)	5.55	Rechargeable
22	CGR-BATT-4AH=	4 AH Battery Backup for CGR1200	Yes	UN 3481	PI 967 Section II	Contained in equipment	Lithium-ion (Li-ion)	9.80025	Rechargeable	
29	CPAR-RAID-9266	MegaRAID 9266-8i + battery backup for C240 and C220	Yes	UN 3481	PI 967 Section II	Contained in equipment	Lithium-ion (Li-ion)	4.995	Rechargeable	
30	CP-BATT-7921G-EXT=	Cisco 7921G Battery; Extended - NOT SUPPORTED	Forbidden	UN 3480	PI 965 Section II	Standalone/loose	Lithium-ion (Li-ion)	3.441	Rechargeable	
31	CP-BATT-7921G-STD=	Cisco 7921G Battery; Standard - NOT SUPPORTED	Forbidden	UN 3480	PI 965 Section II	Standalone/loose	Lithium-ion (Li-ion)	5.88	Rechargeable	
32	CP-BATT-7925G-EXT=	Cisco 7925G Battery; Extended - NOT SUPPORTED	Yes	UN 3480	PI 965 Section II	Standalone/loose	Lithium-ion (Li-ion)	2.6825	Rechargeable	
33	CP-BATT-7925G-STD=	Cisco 7925G Battery; Standard - NOT SUPPORTED	Forbidden	UN 3480	PI 965 Section II	Standalone/loose	Lithium-ion (Li-ion)	4.62	Rechargeable	
34	C880-BAT-CR2032=	Cisco C880 M4 Battery CR2032 Spare - NOT SUPPORTED	Yes	UN 3090	PI 968 Section II	Standalone/loose	Lithium Metal	N/A	Non-Rechargeable	
35	C880-BAT-CR2450=	Cisco C880 M4 Battery CR2450 Spare - NOT SUPPORTED	Yes	UN 3090	PI 968 Section II	Standalone/loose	Lithium Metal	N/A	Non-Rechargeable	
36	CP-8821-K9=	Cisco Wireless IP Phone 8821 World mode Device ONLY - NO BATTERY	NOT RESTRICTED	N/A	N/A	N/A	N/A	N/A	N/A	
37	CP-8831-MIC-BATT=	Spare Batteries for Wireless Satellite Microphones - NOT SUPPORTED	Yes	UN 3480	PI 965 Section II	Contained in equipment	Lithium-ion (Li-ion)	3.48	Rechargeable	
38	CP-8831-MIC-WRLS=	Wireless Microphone Kit for Cisco IP Conference Phone 8831	Yes	UN 3481	PI 967 Section II	Contained in equipment	Lithium-ion (Li-ion)	3.48	Rechargeable	
39	CP-BATT-8821=	Cisco 8821 Battery, Extended - NOT SUPPORTED	Yes	UN 3480	PI 965 Section II	Contained in equipment	Lithium-ion (Li-ion)	8.70	Rechargeable	
40	CP-MIC-WRLS-S-AP=	Spare 8831 Wireless Microphone	Yes	UN 3481	PI 967 Section II	Contained in equipment	Lithium-ion (Li-ion)	3.48	Rechargeable	
41	CP-MIC-WRLS-S-EU=	Spare 8831 Wireless Microphone	Yes	UN 3481	PI 967 Section II	Contained in equipment	Lithium-ion (Li-ion)	3.48	Rechargeable	
42	CP-MIC-WRLS-S-JP=	Spare 8831 Wireless Microphone	Yes	UN 3481	PI 967 Section II	Contained in equipment	Lithium-ion (Li-ion)	3.48	Rechargeable	
43	CP-MIC-WRLS-S-US=	Spare 8831 Wireless Microphone	Yes	UN 3481	PI 967 Section II	Contained in equipment	Lithium-ion (Li-ion)	3.48	Rechargeable	

★ The Services Battery Master List should be used as the primary reference to determine the shipping requirements for each PID

# CICE system generated documentation

POWERED BY  
**IntegrationPoint**

CISCO

Cisco US EXPORT (1123029) Welcome, Scott Wrench!

EXPORT CISCO HELP

## EXPORT MANAGEMENT

New Save Validate Save as Template Reload Void Preview Documentation Process Shipment Evaluate AES Exemptions Finalize Exit

Current Shipment: FROM: U12 - TO: EC1 - ORDER: 153193078 - CARRIER: UPS-SCS (UNPRI)

System Messages Header Parties Details Equipment Fees Documentation Notes Spreadsheets File Transmissions

Send E-mail Upload Document

Successfully completed request (PRINT\_DRAFT)

Documentation Archive E-Mail Logs

<input type="checkbox"/>	Document	Electronic Signature	Format	Note	Status
<input type="checkbox"/>	Commercial Invoice		DOC	Generated by system. (Draft)	DRAFT 2017-07-13 12:29 swrench_UPSTEST
<input type="checkbox"/>	Packing List		DOC	Generated by system. (Draft)	DRAFT 2017-07-13 12:29 swrench_UPSTEST
<input type="checkbox"/>	Shipper's Letter Of Instruction		DOC	Generated by system. (Draft)	DRAFT 2017-07-13 12:29 swrench_UPSTEST
<input type="checkbox"/>	Shippers Export Document		DOC	Generated by system. (Draft)	DRAFT 2017-07-13 12:29 swrench_UPSTEST
<input type="checkbox"/>	PI970			Generated by system. (Draft)	DRAFT 2017-07-13 12:29 swrench_UPSTEST

PI970 ←

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- Battery documentation is now available to be printed from CICE
  - The document is generated by the system based on PID

# Lithium Ion Batteries – Uninstalled, spares

- **Lithium Ion Batteries**
  - **UN 3480, ICAO/IATA Packing Instruction 965, Section II**
    - **$\leq 30\%$  State of Charge. Forbidden on Passenger Aircraft**
    - **2 batteries per box, one package per consignment, must be offered separately from other cargo**

FedEx **Section II** – Not accepted per IATA operator variation FX-05A; must be offered as Section IA or IB.

# Lithium Ion Batteries – Packing Instruction 965

(PID's for batteries with less than or equal to 30% State of Charge, shipping uninstalled – apart from the product they power)

Dangerous Goods Classification				
UN ID Number	Proper Shipping Name	Hazard Class	Packing Group	Packing Instruction
<b>UN3480</b>	Lithium Ion Batteries	9	II	PI965, Section II
<b>Batteries less than or equal to 30% State of Charge (SoC)</b>				

Quantity Limitation		
Transport Method	Per Package	Boxes per Consignment
Truck	2	No Limit
Air - Cargo Aircraft Only	2	1
Ocean - Special Provision 188	2	No Limit
Shipment Lead-Times		
Transport Method	Days	Weeks
Truck	5-7	-
Air - Cargo Aircraft Only	2-4 (limited availability)	-
Ocean	-	5-8 (may be longer)

# Packing Instruction 965 – Marking, Labeling and Documentation

## Marking

### Lithium Ion Batteries, UN3480

- Forbidden for transport aboard Passenger Carrying Aircraft
- Special Provision 188

## Labeling

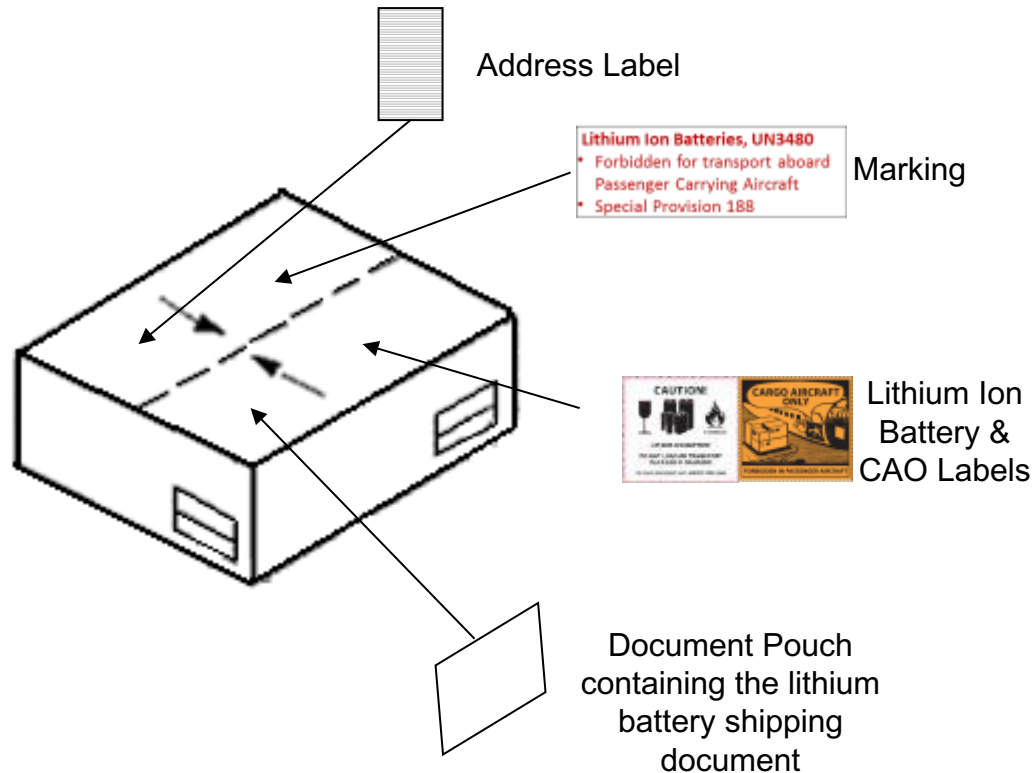


## Document/Statement



Air Waybill: “Lithium ion batteries in compliance with Section II of PI 965, Cargo Aircraft Only”

# PI 965 – Placement of Marking, Labeling and Document



- Place the appropriate battery statement in a document pouch
- ★ Mark by hand or place the marking
- ★ Affix the labels – DO NOT FOLD LABELS OVER EDGE
- If space is available on the box it is preferable to place the marking, labeling and documentation on the same surface of the package, near the address label



# Lithium Ion Batteries – Installed in or shipped with product

- **Lithium Ion Batteries packed with equipment**
  - **UN 3481, ICAO/IATA Packing Instruction 966, Section II)**
    - **No State of Charge limitation, 2 batteries per box, no limit on packages per consignment**
- **Lithium Ion Batteries contained in equipment**
  - **UN 3481, ICAO/IATA Packing Instruction 967, Section II**
    - **No State of Charge limitation, 2 batteries per box, no limit on packages per consignment**
  - Marking, labeling, documentation and air waybill notations are not required by the regulations, but may be required by State/carrier acceptance criteria

# Packing Instruction 966/967 – Marking and Labeling for Truck and Ocean Transport

## Marking

**Lithium Ion Batteries packed with equipment,  
UN3481 (PI 966, Section II)**

▪ **Special Provision 188**

**Lithium Ion Batteries contained in equipment,  
UN3481 (PI 967, Section II)**

**Special Provision 188**

## Document/Statement



Air Waybill: “Lithium ion batteries in compliance with Section II of PI966”



Air Waybill: “Lithium ion batteries in compliance with Section II of PI967”

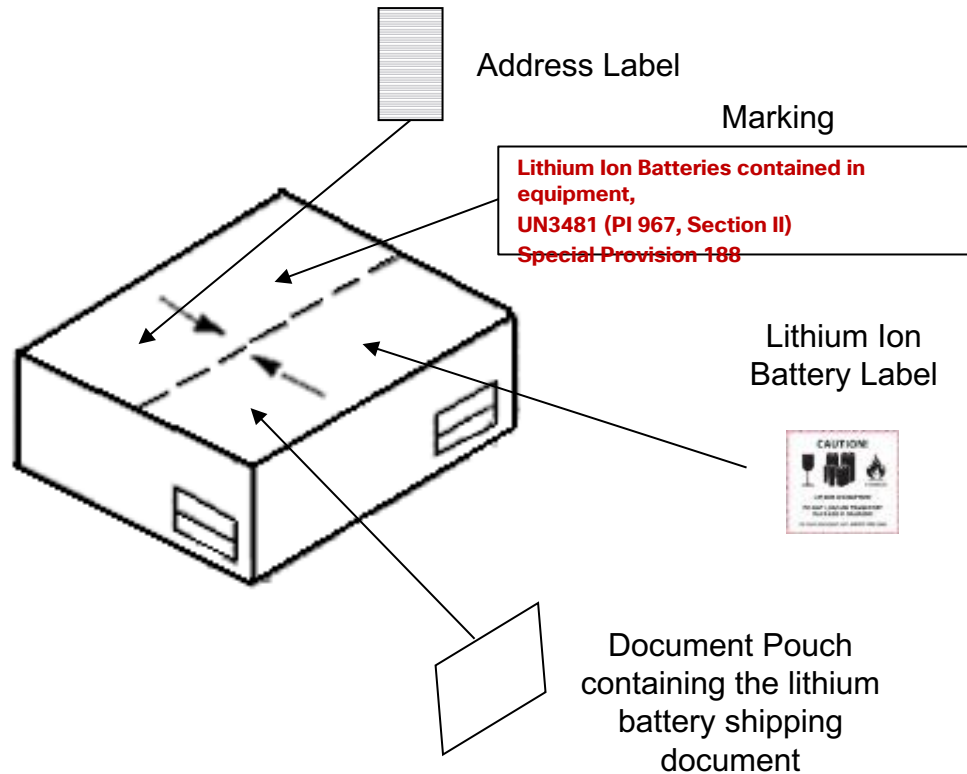
Battery PID's listed on the Master List under UN3481		
Transport Method	Quantity Limitation	
	Per Package	Boxes per Consignment
Truck	2	No Limit
Air	2	No Limit
Ocean - Special Provision 188	2	No Limit

## Labeling



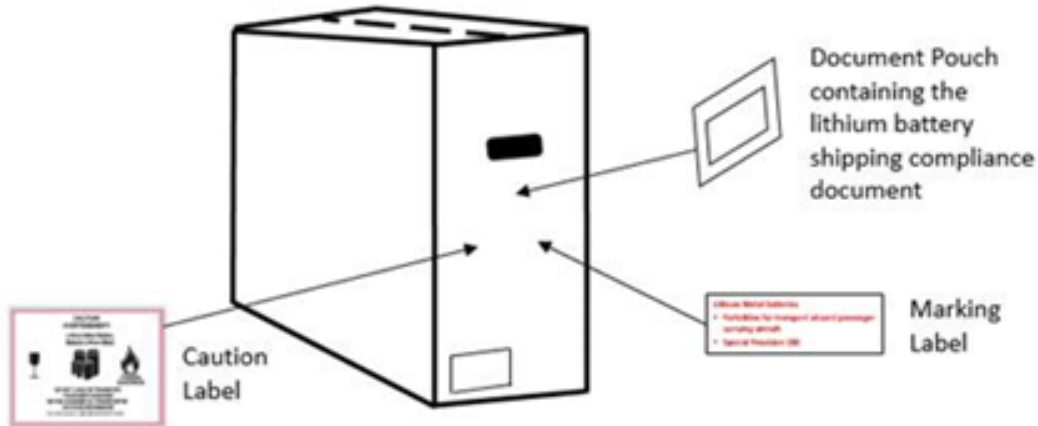
110 mm

# PI 966/967 – Placement of Marking, Labeling and Document



- Place the appropriate battery statement in a document pouch
- ★ Mark by hand or place the marking
- ★ Affix the labels – DO NOT FOLD LABELS OVER EDGE
- If space is available on the box it is preferable to place the marking, labeling and documentation on the same surface of the package, near the address label

# PI 966/967 – Optional Placement of Marking, Labeling and Document



- Place the appropriate battery statement in a document pouch
- ★ Mark by hand or place the marking
- ★ Affix the labels – DO NOT FOLD LABELS OVER EDGE
- If space is available on the box it is preferable to place the marking, labeling and documentation on the same surface of the package, near the address label

# Restrictions on Lithium Metal Batteries

- **Lithium Metal Batteries**
  - **UN 3090, ICAO/IATA Packing Instruction 968, Section II**
    - **Forbidden on Passenger Aircraft**
      - **2 batteries per box, one package per consignment, must be offered separately from other cargo**

FedEx **Section II** – Not accepted per IATA operator variation FX-05A; must be offered as Section IA or IB.

# Packing Instruction 968 – Marking and Labeling for all modes of Transport

## Marking

Transport Method	Quantity Limitation	
	Per Package	Boxes per Consignment
Truck	2	No Limit
Air - Cargo Aircraft Only	2	1
Ocean - Special Provision 188	2	No Limit

**Lithium metal batteries,  
UN3090  
(PI 968, Section II)  
Forbidden for transport  
aboard Passenger Carrying  
Aircraft  
Special Provision 188**

## Labeling



## Document/Statement

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Attention Transportation Partners

**WARNING: LITHIUM BATTERIES THAT HAVE BEEN RECALLED BY THE MANUFACTURER FOR SAFETY REASONS MUST NOT BE SHIPPED BY AIR.** - Some of the lithium batteries contained in this shipment have been recalled by the manufacturer for safety reasons.

**Terminology:**

- Cell - electrochemical unit consisting of an anode and a cathode, capable of generating electrical current
- Battery - assembly of cells
- Module - an assembly of cells
- Pack - an assembly of modules
- Cell or battery - a cell or battery
- Cell or battery - a cell or battery

Quantity Limitation	Cell or Battery
Maximum of 100 watt-hours per battery	Cell or battery - Maximum of 1 gram of lithium metal (per cell) and 2 grams of lithium per battery
Maximum of 200 watt-hours per battery	Cell or battery - Maximum of 1 gram of lithium metal (per cell) and 2 grams of lithium per battery
Maximum of 300 watt-hours per battery	Cell or battery - Maximum of 1 gram of lithium metal (per cell) and 2 grams of lithium per battery
Maximum of 400 watt-hours per battery	Cell or battery - Maximum of 1 gram of lithium metal (per cell) and 2 grams of lithium per battery
Maximum of 500 watt-hours per battery	Cell or battery - Maximum of 1 gram of lithium metal (per cell) and 2 grams of lithium per battery
Maximum of 600 watt-hours per battery	Cell or battery - Maximum of 1 gram of lithium metal (per cell) and 2 grams of lithium per battery
Maximum of 700 watt-hours per battery	Cell or battery - Maximum of 1 gram of lithium metal (per cell) and 2 grams of lithium per battery
Maximum of 800 watt-hours per battery	Cell or battery - Maximum of 1 gram of lithium metal (per cell) and 2 grams of lithium per battery
Maximum of 900 watt-hours per battery	Cell or battery - Maximum of 1 gram of lithium metal (per cell) and 2 grams of lithium per battery
Maximum of 1000 watt-hours per battery	Cell or battery - Maximum of 1 gram of lithium metal (per cell) and 2 grams of lithium per battery

This package must be labeled with the following information:

- UN3090 - Lithium metal battery
- Special Provision 188
- Labeling instructions for lithium metal batteries

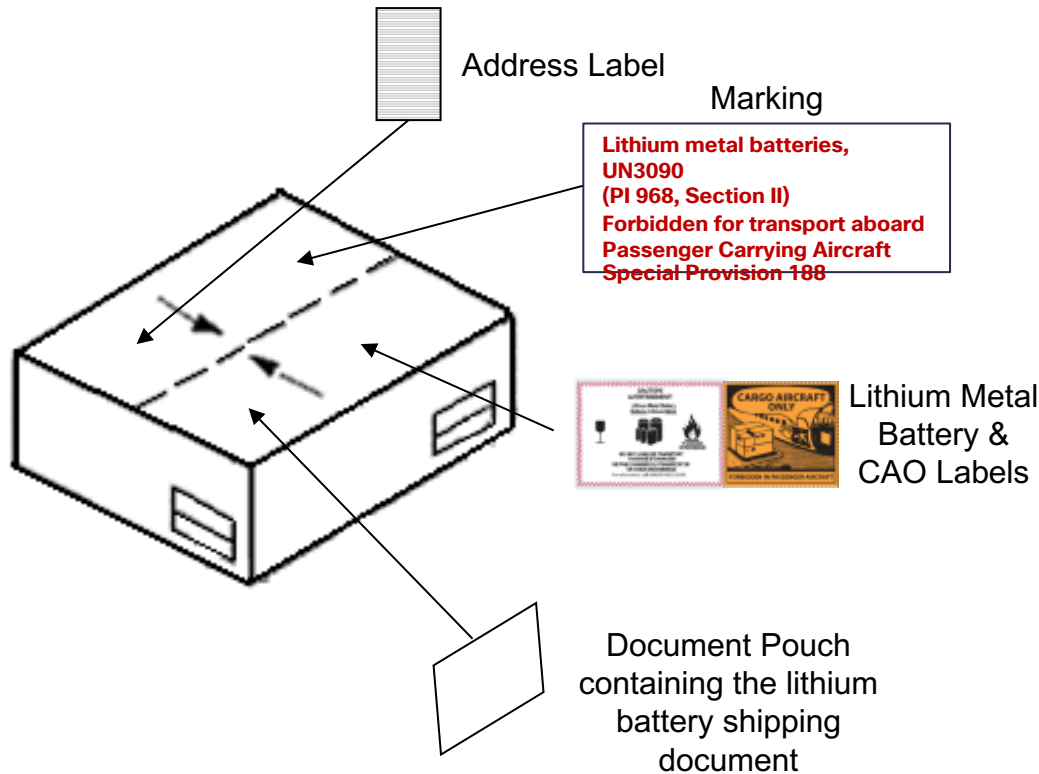
Classifying Information:  
Commodity Code: 8507.10.00  
Harmonized System Code: 8507.10.00  
UN3090 - Lithium metal battery

For information, call (408) 853-0255 (USA)

Electro Systems Inc.  
Corporate Compliance Department  
370 West Tanager Drive  
San Jose, CA 95134, USA  
Tel: USA +1 (408) 853-0255  
Email: [SafetyCompliance@esinc.com](mailto:SafetyCompliance@esinc.com)

Air Waybill: “Lithium metal batteries in compliance with Section II of PI 968, Cargo Aircraft Only”

# PI 968 – Placement of Marking, Labeling and Document



- Place the appropriate battery statement in a document pouch
- ★ Mark by hand or place the marking
- ★ Affix the labels – DO NOT FOLD LABELS OVER EDGE
- If space is available on the box it is preferable to place the marking, labeling and documentation on the same surface of the package, near the address label

# Lithium Metal Batteries – Installed in or shipped with product

- **Lithium Metal Batteries packed with equipment**
    - UN 3091, ICAO/IATA Packing Instruction 969, Section II
  - **Lithium Metal Batteries contained in equipment**
    - UN 3091, ICAO/IATA Packing Instruction 970, Section II
- Marking, labeling, documentation and air waybill notations are not required by the regulations, but may be required by State/carrier acceptance criteria



# Packing Instruction 969 and 970 – Marking and Labeling for all modes of Transport

## Marking

Transport Method	Quantity Limitation	
	Per Package	Boxes per Consignment
Truck	2	No Limit
Air	2	No Limit
Ocean - Special Provision 188	2	No Limit

**Lithium metal batteries packed with equipment, UN3091**

• **Special Provision 188**

**Lithium metal batteries contained in equipment, UN3091**

• **Special Provision 188**

## Labeling



## Document/Statement

### Attention: Transportation Partners

**WARNING: LITHIUM BATTERIES THAT HAVE BEEN RECALLED BY THE MANUFACTURER FOR SAFETY REASONS MUST NOT BE SHIPPED BY AIR.** None of the lithium batteries contained in this shipment have been recalled by the manufacturer for safety reasons.

### Terminology:

- Cell – electrochemical unit consisting of an anode and a cathode capable of generating electrical current
- Electrolyte – substance that carries ions between electrodes
- Lithium metal – metallic lithium
- Li-ion battery – battery with lithium ions
- Li-ion battery pack – battery with lithium ions

Li-ion battery pack (UN3091)	Li-ion battery pack (UN3090)	Li-ion battery pack (UN3090)	Li-ion battery pack (UN3090)
Li-ion battery pack (UN3091) - Cells or batteries with lithium metal content > 2 grams of lithium metal per cell and > 2 grams of lithium per battery.	Li-ion battery pack (UN3090) - Cells or batteries with lithium metal content > 2 grams of lithium metal per cell and > 2 grams of lithium per battery.	Li-ion battery pack (UN3090) - Cells or batteries with lithium metal content > 2 grams of lithium metal per cell and > 2 grams of lithium per battery.	Li-ion battery pack (UN3090) - Cells or batteries with lithium metal content > 2 grams of lithium metal per cell and > 2 grams of lithium per battery.
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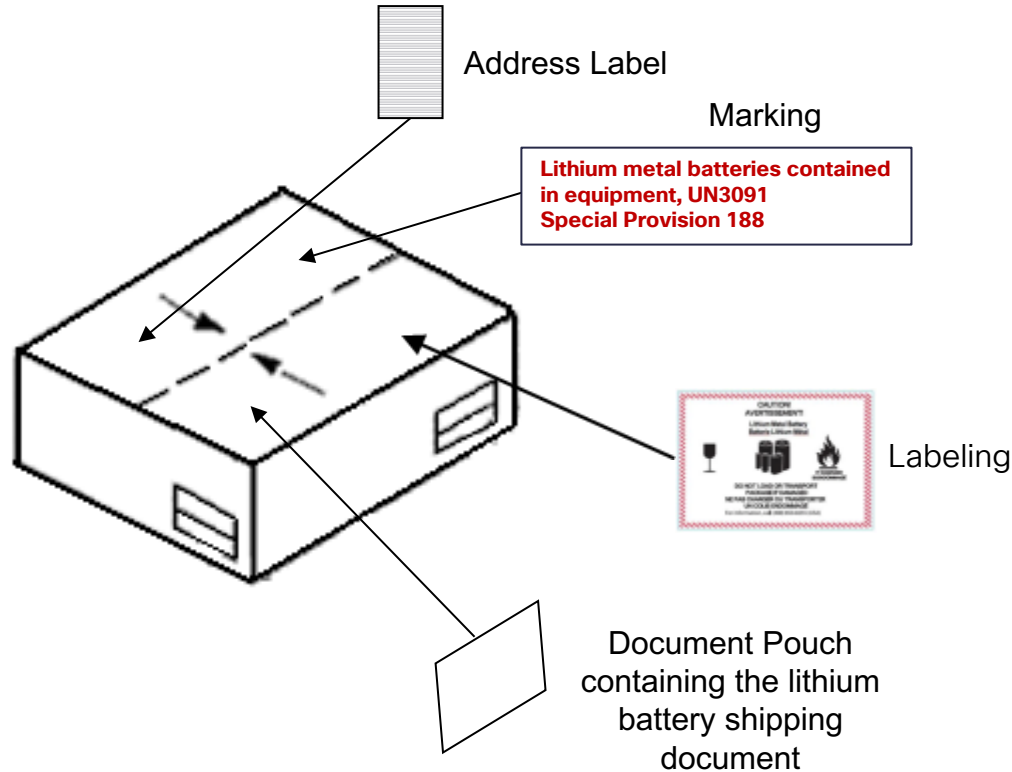
This package must be handled with care. A flammable hazard exists if the package is damaged.  
 • If the package is damaged in transportation, it must not be loaded and the condition of the contents can be verified.  
 The contents contained in this package shall be inspected for damage and no one is to be allowed to handle it if they are not authorized or accept their profits.  
 For more information about the contents contained in this package, call the following telephone number:

Cisco Systems, Inc.  
 Corporate Compliance Department  
 270 Woodside Drive  
 San Jose, CA 95134 USA  
 Tel: USA - (408) 853-0255  
 Email: [8888888888@cs.com](mailto:8888888888@cs.com)



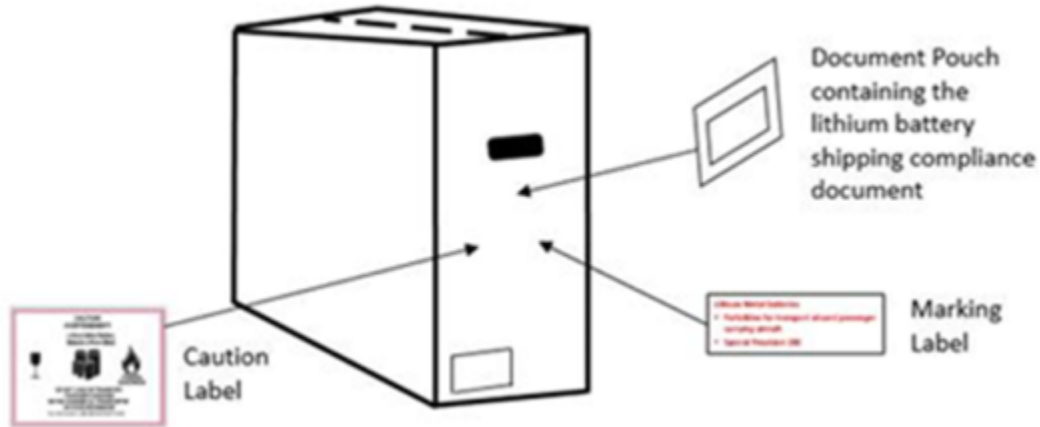
Air Waybill: Per carrier requirements – “Lithium metal batteries in compliance with Section II of PI969 or PI970

# PI969/PI970 – Placement of Marking, Labeling and Document



- Place the appropriate battery statement in a document pouch
- ★ Mark by hand or place the marking
- ★ Affix the labels – DO NOT FOLD LABELS OVER EDGE
- If space is available on the box it is preferable to place the marking, labeling and documentation on the same surface of the package, near the address label

# PI969/PI970 – Optional Placement of Marking, Labeling and Document



- Place the appropriate battery statement in a document pouch
- ★ Mark by hand or place the marking
- ★ Affix the labels – DO NOT FOLD LABELS OVER EDGE
- If space is available on the box it is preferable to place the marking, labeling and documentation on the same surface of the package, near the address label

# Shipping Document

## Terminology:

- Cell – *electrochemical unit, consisting of an anode and a cathode, capable of generating electrical current*
- Battery – *assembly of cells*
- Lithium ion cells/batteries – *rechargeable – includes lithium polymer cells/batteries*
- Lithium metal cells/batteries – *generally non-rechargeable*

This package contains lithium cells or batteries in the following configuration (check applicable): **Lithium Ion - Maximum of**

- **20 Watt-hours per cell; and**
- **100 Watt-hours per battery**
- **Less than or equal to 30% State of Charge**

**Lithium Metal – Maximum of**

- **1 gram of lithium metal per cell; and**
- **2 grams of lithium per battery**

**[X] Cells or batteries only (ICAO/IATA Packing Instruction 965, Section II) – Cells or batteries in a package, without electronic equipment**

**Package Limit:**  
 ≤2.7 Wh = 2.5 kg; or  
 >2.7 Wh but ≤ 20 Wh = 8 cells; or  
 >2.7 Wh but < 100 Wh = 2 batteries

**Cells or batteries only (ICAO/IATA Packing Instruction 968, Section II) – Cells or batteries in a package, without electronic equipment**

**Package Limit:**  
 ≤0.3 g = 2.5 kg; or  
 >0.3 g but ≤ 1 g = 8 cells; or  
 >0.3 g but < 2 g = 2 batteries



**Attention Transportation Partners**

**WARNING: LITHIUM BATTERIES THAT HAVE BEEN RECALLED BY THE MANUFACTURER FOR CERTAIN REASONS MUST NOT BE SHIPPED BY AIR.** – None of the lithium batteries contained in this shipment have been recalled by the manufacturer for safety reasons.

**Terminology:**

- Cell – *electrochemical unit, consisting of an anode and a cathode, capable of generating electrical current*
- Battery – *assembly of cells*
- Lithium ion cells/batteries – *rechargeable – includes lithium polymer cells/batteries*
- Lithium metal cells/batteries – *generally non-rechargeable*

<p><b>THIS PACKAGE CONTAINS WEIGHT LIMS OF</b> batteries in the following configuration (check applicable): <b>Lithium Ion - Maximum of</b></p> <ul style="list-style-type: none"> <li>• <b>20 Watt-hours per cell; and</b></li> <li>• <b>100 Watt-hours per battery</b></li> <li>• <b>Less than or equal to 30% State of Charge</b></li> </ul>	<p><b>Lithium Metal – Maximum of</b></p> <ul style="list-style-type: none"> <li>• <b>1 gram of lithium metal per cell; and</b></li> <li>• <b>2 grams of lithium per battery</b></li> </ul>
<p><b>[X] Cells or batteries only (ICAO/IATA Packing Instruction 965, Section II) – Cells or batteries in a package, without electronic equipment</b></p> <p><b>Package Limit:</b>                  ≤2.7 Wh = 2.5 kg; or                  &gt;2.7 Wh but ≤ 20 Wh = 8 cells; or                  &gt;2.7 Wh but &lt; 100 Wh = 2 batteries</p>	<p><b>[ ] Cells or batteries only (ICAO/IATA Packing Instruction 968, Section II) – Cells or batteries in a package, without electronic equipment</b></p> <p><b>Package Limit:</b>                  ≤0.3 g = 2.5 kg; or                  &gt;0.3 g but ≤ 1 g = 8 cells; or                  &gt;0.3 g but &lt; 2 g = 2 batteries</p>

**This package must be handled with care. A flammability hazard exists if the package is damaged.**

- If this package is damaged in transportation, it must not be opened until the contents can be verified.
- The batteries contained in this package must be inspected for damage and only may be repaired. They are most and protected against short circuits.
- For more information about the batteries contained in this shipment, call the Whisker tagline number.

**Class Systems, Inc.**  
 Corporate Compliance Department  
 170 West Summit Drive  
 San Jose, CA 95128-1028  
 Tel: (415) 441-0428; 800-528-8888  
 Email: [ReturnCompliance@class.com](mailto:ReturnCompliance@class.com)



# Highway and Ocean Transport

- **Transport by Highway or Ocean Freight** – Use the above packaging, marking, labeling and documentation instructions and prepare a waybill or ocean freight manifest, as appropriate.





## MATERIAL SAFETY DATA SHEET

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT IDENTIFICATION / DESCRIPTION**  
UCSC-LBBU02, UCSC-LBBU02=

**OEM MANUFACTURER**  
LSI Logic

### 2. COMPOSITION INFORMATION

#### A. Cisco product identification matrix \*

Battery ID	Cisco P/N	Lithium Weight(g)	Watt Hr	UN Classification	Packing Instruction *
UCSC-LBBU02	74-10370-01	0.45 g	5.6 WHr	UN 3481	PI 967 Section II
UCSC-LBBU02=	74-10370-01	0.45g	5.6 WHr	UN 3480	PI 965 Section II

#### B. OEM Lithium-Ion Battery Matrix

Manufacture	Cell P/N	Cell Type	Capacity	Lithium Weight(g)/Cell	No. of Cell/ battery
Palladium	LS-25343-12	Li-Ion	1800mAh @ 3.7V	0.46 g	1



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#### B. Lithium-Ion Single Cell Matrix

Manufacture	Cell P/N	Cell Type	Capacity	Lithium weight (g)/Cell	Cd/Pb/Hg content
Maxell	3746W30138U	Li-Ion	1800mAh @ 3.7V	0.46g	None

Note: UN classification and Packing Instruction is determined by the specification of the finished battery. Cisco's original factory packaging format and the mode of shipping specified by Cisco per IATA DG regulation 55<sup>th</sup> edition, 2015. This information will supersede other transportation information in the MSDS for battery cell only.

### 3. MSDS FOR CELL

See attached Palladium and Maxell MSDS.

★ A MSDS (Material Safety Data Sheet) is not required by the regulations, but may be demanded by parties who handle, inspect, transport or receive lithium battery shipments. Request copies at:

[batterycompliance@cisco.com](mailto:batterycompliance@cisco.com)



# Certificate of Completion

*Employee Name*

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has

completed

## **Transportation of Lithium Batteries**

December 15, 2017

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Paul Quickert

Services Sustainability Manager

Thank you.

