



U.S. Department
of Transportation

Pipeline and Hazardous Materials
Safety Administration

JAN 16 2009

1200 New Jersey Ave., SE
Washington, DC 20590

Mr. Martin Peter
Elpro Services, Inc.
Langaaulistrasse 62
9470 Buchs Switzerland

Ref. No.: 08-0305

Dear Mr. Peter:

This is in response to your letter dated December 11, 2008 concerning the applicability of the Hazardous Material Regulations (HMR; 49 CFR Parts 171-180) to small lithium metal batteries contained in equipment. Specifically, you request a letter confirming your conclusions that these devices meet the requirements of § 172.102(c), Special Provision (SP) 188.

In your letter, you described temperature monitoring devices that incorporate small, primary lithium batteries and provided information on each type of battery including lithium content and compliance with applicable regulatory standards. You indicated the devices are used to monitor temperature-sensitive products, many of which are pharmaceuticals. You described a typical device as containing one battery embedded into a monitoring device and sealed in a solid case. Each production lot of temperature monitoring devices is subjected to a drop test in all directions from a height of 1 meter onto a solid concrete floor. A temperature monitoring device may be attached to a pallet or package, placed inside a package, or built into a packaging.

You indicated there is some confusion as to whether temperature monitoring devices are acceptable for transportation on aircraft by the HMR. Lithium cells and batteries contained in equipment that meet the requirements of SP 188 are not subject to any other requirements of the HMR by any mode of transportation, including aircraft. A person who offers for transportation small lithium cells or batteries contained in equipment under SP 188 must ensure that the cells or batteries comply with each of the requirements of SP 188.

The requirements in SP 188 of the HMR applicable to small lithium cells and batteries contained in equipment are as follows:

(1) The lithium content is limited to 1 gram per cell or 2 grams per battery; (2) the equipment must contain no more than 5 kg (11 lbs) of batteries and contain no more than the maximum number of batteries necessary to power the piece of equipment; (3) effective October 1, 2009, each cell or battery must be of a type proven to meet the

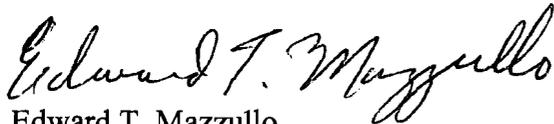
requirements of each test in the UN Manual of Tests and Criteria; and (4) the batteries and equipment containing the batteries must be packaged in a manner which precludes sparks or the evolution of a dangerous quantity of heat.

Under § 173.22 of the HMR, it is the shipper's responsibility to properly class a hazardous material. Such determinations are not required to be verified by this Office. However, based on the information included with your letter, it is the opinion of this Office that your product contains a single lithium metal battery containing less than 1.0 gram of lithium and the device is unlikely to generate sparks or a dangerous quantity of heat.

You should also note the Federal Aviation Administration may require evidence that this device will not cause interference with the navigation or communication system of the aircraft on which it is to be used. The documents attached are for your future reference regarding how the FAA handles devices/ batteries aboard aircraft.

I trust this satisfies your inquiry. If we can be of further assistance, please contact us.

Sincerely,



Edward T. Mazzullo
Director, Office of Hazardous Materials Standards
Pipeline and Hazardous Materials Safety Administration

Leary
 § 172.102 SP 188
 § 173.185
 Special Provisions / Lithium Batteries
 08-0305

Drakeford, Carolyn <PHMSA>

From: Mazzullo, Ed <PHMSA>
Sent: Thursday, December 11, 2008 4:08 PM
To: Drakeford, Carolyn <PHMSA>
Cc: Betts, Charles <PHMSA>; Gorsky, Susan <PHMSA>; Kelley, Shane <PHMSA>
Subject: FW: Request for Assessment: Lithium Batteries in Temperature Monitoring Devices
Attachments: 081211 Letter to DOT.pdf; CE-Deklaration Libero.pdf; Minamoto Material safety specifications_MSDS-ER_battery.pdf; Tadiran Battery specification_pdc06engSL-761.pdf; Team LIBERO technical specs.pdf; Technical Note Tadiran.pdf

From: Martin Peter [mailto:martin.peter@elpro.com]
Sent: Thursday, December 11, 2008 5:22 AM
To: Mazzullo, Ed <PHMSA>
Cc: Sylvain Riendeau; Kaspar Frick
Subject: Request for Assessment: Lithium Batteries in Temperature Monitoring Devices

Dear Mr. Mazzullo,

This week I have been forwarded a letter (email) from you to Mr. Henry Ames at Sensitech where you assess the compliance of Sensitech's temperature monitoring devices with the relevant regulations. Similar to Sensitech, Elpro is a company developing, producing and marketing temperature monitoring devices globally for the pharmaceutical industry. The current discussion around the interpretation of the regulation by airlines in regards to transportation of pallets containing temperature loggers powered by lithium batteries is causing major discussions amongst the pharmaceutical industry - especially in the USA but increasingly also in Europe and Asia.

Attached to this mail you find a letter summarizing our request and position as well as the relevant attachments to support our position.

Please do not hesitate to call me in case you have questions or comments.

Kind Regards,
 Martin Peter

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 Libero PDF-Logger: <http://www.pdf-datalogger.com>
 Online-Monitoring: <http://www.elprolog.com/elpro-demo>

12/11/2008



U.S. Department of Transportation
 Edward T. Mazullo
 Director, Office of Hazardous Materials Standards
 Pipeline and Hazardous Materials Safety Administration
 Washington, DC 20590

Request for Assessment of Elpro's Temperature Monitoring Devices in regards to compliance with HMR; 49 CFR Parts 171 - 180 and the Special Provisions (SP) 188 of § 172.102(c)(1).

Similar to Sensitech, which you recently issued your assessment of their temperature monitoring devices in regards to above mentioned provisions, Elpro is manufacturing and marketing temperature monitoring devices internationally used for Cold Chain Monitoring of pharmaceuticals transported via air-cargo (and other means of transportation):

Product Name	Manufacturer, type & amount of Lithium per battery	Function of product (for details see attached "Team LIBERO technical specs")
Libero Ti1	Minamoto, Li-SOCl2, 0.78g	Temperature monitoring, internal sensor
Libero Ti1-S	Minamoto, Li-SOCl2, 0.78g	Temperature monitoring, internal sensor
Libero Ti1-L	Tardian, Size AA, 0.55g	Temperature monitoring, internal sensor
Libero Ti1-D	Tardian, Size AA, 0.55g	Temperature monitoring, internal sensor
Libero Te1-N	Tardian, Size AA, 0.55g	Temperature monitoring, external sensor
Libero Te1-P	Tardian, Size AA, 0.55g	Temperature monitoring, external sensor
Libero THi1	Tardian, Size AA, 0.55g	Temperature & humidity monitoring, internal sensors

Each device contains one battery only. All above mentioned batteries are primary lithium batteries and they comply with the standards SP 188 and UN Manual of Tests and Criteria as:

- Both battery types used contain <1g of Lithium (see attachments "Minamoto Material safety specifications_MSDS-ER_battery" and "Tadiran Battery specification_pdc06engSL-761")
- The battery types chosen are non-classified according to UN (see attachments "Technical Note Tadiran" and "Minamoto Material safety specifications_MSDS-ER_battery")
- The battery is embedded into a monitoring device and sealed in a solid case. The case is fulfilling CE standard (Certificate number 30.001.A.01/07, see attachment "CE-Deklaration Libero")
- Additionally each production lot is tested with a drop test in all directions from 1m height to concrete floor
- The devices are shipped together with pharmaceutical cargo, typically one device per pallet/box

We would appreciate if you could confirm that our monitoring devices are, similar to Sensitech's, not subject to the HMR and can be transported without restrictions on cargo and passenger flights. We have numerous customers from the pharmaceutical and biotech industry in the USA and in Europe that need our devices on a daily basis to transport drugs in development or final products for patients in the entire world.

If you have questions, please do not hesitate to contact us at our headquarters in Switzerland or our US subsidiary (contact details below).

Kind Regards,



Martin Peter

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 9470 Buchs
 Switzerland
 +41 (0)81 750 03 11
 Contact Person headquarter: Martin Peter

Elpro Services Inc.
 210 Mill Creek Road
 P.O. Box 727
 USA-Marietta, OH 45750
 +1 (0)740 568-9900
 Contact Person USA: Sylvain Riendeau

Material Safety Data Sheet
(form according to EEC Directive 93/112/EC)

1. Identification of the product and supplier

Identification of the product: Lithium, Thionyl Chloride (Li-SOCl₂)
non-rechargeable batteries

2. Composition and information about the ingredients

Active materials

	Weight grams
Lithium (Li)	0.78
Carbon black (C)	0.62
Thionyl chloride (SOCl ₂)	5.9
Lithium aluminum tetrachloride (LiAlCl ₄)	0.77

Passive materials

		Weight grams
Base Metal	Steel	8.3
Others	Plastic	0.7
	Glass fiber	0.4

3. Hazards identification

The lithium-thionyl chloride batteries are not hazardous when used according to the recommendations of the manufacturer.

But if the design of the circuit doesn't forecast all the necessary cares to prevent the inversion of polarity in the assembly of the battery or the battery bt packs, there is the risk of dangers due to the explosion of the battery.

Define with care the assembling process to assure that accidental short circuit don't happen.

Do not expose the batteries to temperatures above 100°C.

If the battery lose its integrity and sealing, due to break or damages (mechanical, thermal or electrical), leakage, explosion or fire may follow.
In this case there is the risk of release of chemical materials as defined in the paragraph 2 (active materials) of this safety sheet.
Here below are shown the nature of special risks and the advices of caution.

Nature of special risks

- R14/15 (reacts with water and yields flammable gases)
- R21 (harmful in contact with skin)
- R22 (harmful if swallowed)
- R35 (causes severe burns)
- R41 (risk of serious damage to the eye)
- R42/43 (may cause sensitisation by inhalation and skin contact)

Safety advices

- S2 (keep out of reach from children)
- S8 (keep away from moisture)
- S22 (do not breathe dust)
- S24 (avoid contact with skin)
- S26 (in case of contact with eyes, rinse immediately with plenty of water and seek medical attention)
- S36 (wear suitable protective clothing)
- S37 (wear suitable gloves)
- S43 (in case of fire use extinguisher type D. DO NOT USE WATER)
- S45 (in case of incident or indisposition seek medical attention)

4. First aid measures

Only in case of contact with internal components of the battery:

- Skin contact: flush with plenty of water
- Eye contact: flush with plenty of water (eyelids held open)
- Inhalation: breath fresh air and give oxygen or artificial respiration by specialist people
- Ingestion: drink much water and consult a doctor

5. Fire-fighting measures

- Extinguishing media: extinguishers type D, Lith-X, DO NOT USE WATER in case of battery leakage
- Special hazards: irritating vapour
- Special protective equipment: wear protective clothing, use self-contained breathing apparatus with filtered cartridge type ABEK

6. Accidental release measures

In case of break of a battery, all the people must go away from the place where the incident happened and come back only after the dissolution of the irritating gas.

Broken batteries or battery packs must be covered with sodium carbonate (Na_2CO_3) or dry sand, place them in approved container and dispose in accordance with local regulation.

For the eventual handling use gloves in Viton®.

7. Handling and storage

- 7.1 Handling:
- Do not recharge
 - Do not use different types and brands of batteries or with different state charge
 - Avoid short circuit
 - Use desk of work electrically insulated
 - Avoid to work over wet surface
 - Use plastic calibre to valuate the dimensions of a Lithium battery or to insulate the metallic surface of the battery
 - Do not have rings on the fingers; otherwise wear insulating gloves.
 - Do not cut in the same time both the terminals of a battery: it could be a short circuit trough the shears
 - Keep the batteries in non-conductive trays (i.e. plastic, wood or carton)
 - Do not solder directly on the battery
 - Do not disassemble the batteries, do not throw them in the fire, do not hole, do not overheat or plunge into water
- 7.2 Storage:
- Store the Lithium cells in a cool, dry and ventilated area far from fires and heating sources.
 - It is recommended the use of a non-combustible structure, keep adequate clearance between walls and batteries.
 - The maximum temperature suggested for the storage is $+30^\circ\text{C}$
 - Higher temperatures are allow but cause an increase in the self discharge of the battery and speed up the process of passivation
 - in any case, never go over 100°C , as the batteries can break and cause a leakage
 - Arrange adequate protections to avoid possible hurts to the batteries
 - Keep the batteries in their original packages till when they are used
 - Do not expose the batteries directly to the sun light
 - Do not put an higher number of cartons one on another (respect what indicated)
 - If in the same place are storage batteries with a total capacity $> 50,000\text{ Ah}$, it is suggested to install an alarm for smoke and gas

8. Exposure controls/personal protection

If the battery is integral, storage and handle with care, there is any dangers.
It is suggested to handle the batteries in a ventilated place, to don' t smoke, eat or drink during the assembling.

9. Physical and chemical properties

Appearance: The battery ER34615M is a metal cylinders with diameter 34,2mm and height 61,5 mm, fitted with an external plastic sleeve.

10. Stability and reactivity

10.1 Conditions to avoid:

Do not expose at temperature higher than 100° C.
Avoid short circuit, crush, exposition to heat sources.
Do not disassemble the batteries or the battery packs, do not throw them in the fire, do not perforate them, do not overheat or wet them.

10.2 Material to avoid:

Water, oxidizing agents, alkalis.

11. Toxicological information

The rupture of a lithium-thionyl chloride batteries can developed the following substances:

- Hydrogen (H₂), lithium Oxide (Li₂O) and lithium Hydroxide (LiOH) in case of reaction of lithium metal with water
- Chlorine (Cl₂), sulfur dioxide (SO₂) and disulfur dichloride (S₂Cl₂) if the thionyl chloride go above 140,5° C
- Hydrochloric acid (HCl) and sulfur dioxide (SO₂) in case of reaction of thionyl chloride with water
- Hydrochloric acid (HCl), lithium oxide (Li₂O), lithium hydroxide (LiOH) and aluminium hydroxide (Al(OH)₃) in case of reaction of lithium tetrachloroaluminate with water.

12. Ecological information

When properly used or disposed, the lithium-thionyl chloride batteries do not present environmental hazard.

13. Disposal consideration

For the disposal apply to specialized organisation.

14. Transport information

Restriction for the transport: class 9 in accordance to the United Nation regulation.

International convention

Road transport: not hazardous in accordance to ADR

Rail transport: not hazardous in accordance to RID

Sea transport: not hazardous in accordance to IMDG

Air transport: not hazardous in accordance to ICAO

Note: the batteries which contain few than 0,5g of metal lithium are not restricted for transport.

15. Regulation information

The transport of lithium batteries is regulated by ONU as described in the "Recommendations of the Transport of Dangerous Goods ref.ST/SG/AC.10/1-Ed.-11-2000".

Depending on their lithium metal content (quantity higher than 0,5g), the batteries may or may not be assigned to the transport restrictions, following the rules defined in the ONU document "Recommendations of the Transport of Dangerous Goods".

16. Other information

The lithium-thionyl chloride batteries or battery packs must be handle by specialize people.

They must be kept out of reach from children.

They must be used following the Technical Specifications, without exceed the values defined.

Do not assemble by one self a serial of batteries, but request the finished battery to the supplier, who will provide for install protection components (diodes, etc..)

The information contained in this sheet are based on the present knowledge and the conditions of use.

For every use not in conformity to the safety sheet or for the use in combination with any other material or in any other process the user is the responsible.

The responsible of the products

Keyword:
 Lithium Xtra

Model: SL-761

Performance Data (Typical values for batteries stored at 25°C for one year) **Size** ½AA

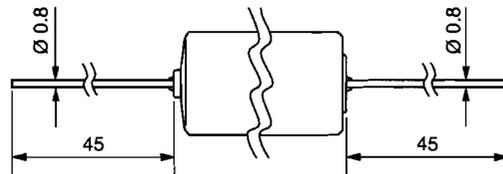
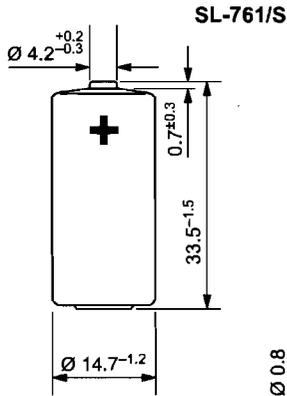
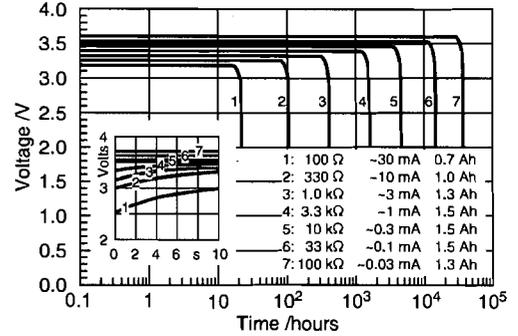
System	Li/SOCl ₂
Nominal voltage	3.6 V
Nominal capacity	1.5 Ah
Nominal current	1 mA
Max. continuous discharge current	30 mA
Pulse current capability	90 mA
Anode surface area	9 cm ²
Lithium content	0.5 g
Weight	12 g
Volume	5.7 cm ³
Temperature range	-55...+85°C

WARNING:
 Fire, explosion, and severe burn hazard. Do not recharge, disassemble, heat above 100°C, incinerate, or expose contents to water.

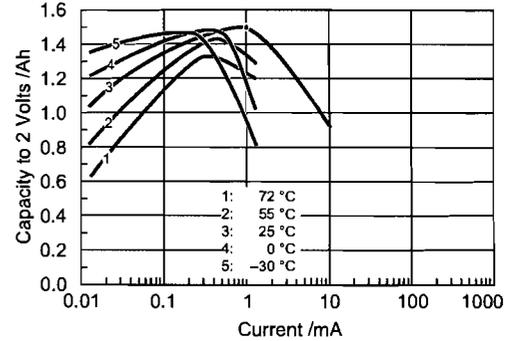
UL recognition under file MH 12827

See also our website under Products/Safety

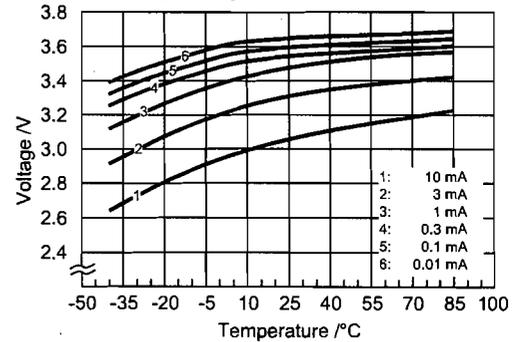
Typical Discharge Curves at +25°C



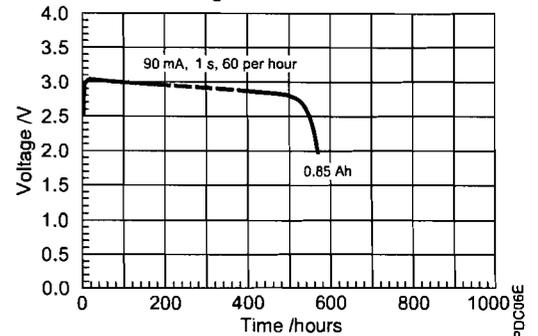
Available Capacity



Operating Voltage



Pulse Discharge Characteristics at +25°C



Available Terminations

SL-761/S	Standard
SL-761/T	Tags
SL-761/P	Pins
SL-761/PR	Pins Radial
SL-761/PT	Polarized Tags

Catalogue No.

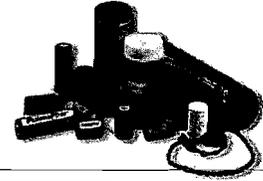
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Any values given here are for information purposes only. They also depend on actual conditions of use and are not warranties of future performance. Subject to change.



Team LIBERO - Technical Specifications

Team LIBERO	Ti1	Ti1-S	Ti1-L	Ti1-D	Te1-N	Te1-P	THi1
Picture							
Type	Mobile Temperature / Temperature & Humidity Data Loggers						
Part number	4510	4511	4512	4513	4514	4515	4516
Application area	Supply chain temperature monitoring		Standard temperature monitoring, DT1 successor	Temperature monitoring for dry ice shipments	Temperature monitoring for dry ice shipments	Liquid Nitrogen and cooling cabinets temperature monitoring	Supply chain temperature & humidity monitoring
Record options	Multiple use	Single use	Multiple use	Single use	Multiple use		
Record mode	Start/stop mode or Loop mode	Start/stop mode only	Start/stop mode or Loop mode	Start/stop mode only	Start/stop mode or Loop mode		
Probe type	Internal NTC probe				LIBERO NTC probe with connector, cable length 50 cm 3094-LL005: 90.- or 3 m 3094-LL03: 130.-	LIBERO PT100 probe with connector, cable length 50 cm 3163-LL005: 180.-	Combined internal probe T/rH
Measurement range	-35..70 °C	-35..70 °C	-35..70 °C	-80..70 °C	-80..85 °C	-200..200 °C	-35..70 °C 0..100 %rH
Accuracy	-10°..25°C +/-0.2° 25°..70°C +/-0.5° -10°..-35°C +/-0.5°			-10°..25°C +/-0.2° 25°..70°C +/-0.5° -10°..-35°C +/-0.5° -35°..-80°C +/-1.8°		-10°..25°C +/-0.2° 25°..200°C +/-1.0° -10°..-200°C +/-1.0° 0°..25°C +/-0.5° 25°..70°C +/-1.0° 0°..-35°C +/-1.0° 10%..90% rH +/- 2% 0%..10% rH +/- 3% 90%..100% rH +/- 3%	
Resolution	1/10°						
Memory capacity	16'000 measuring data points						8'000 each
Programmable measurement interval and display renewal	1 minute or more, programmable						



TECHNICAL NOTICE

Number One Choice in Lithium

LTN 2005G

Date: Feb/16/03

Guidelines for shipping Lithium Batteries

1. Scope

This document is about the new UN regulations for transportation of lithium cells and batteries as detailed in the Model Regulations on the Transport of Dangerous Goods Ref ST/SG/AC.10-1 Revision 12-2001 (UN 3090). The regulations also cover the IATA, ICAO, and ARD requirements.

Transportation in the USA is subject to CFR49, which does not yet include the new UN regulations. The change to the new UN regulations in the USA is expected on the third quarter of 2003. Therefore, shippers in the USA can stay now with the current transportation regulations, except when transporting out of the USA. In this case, shippers have to comply with the new UN regulations.

The following guidelines impart an immediate, basic working knowledge for shipping Tadiran Lithium Batteries and Cells safely and legally. This information should be viewed only as a guide to existing regulations and not a regulation in and of itself.

2. Shipping Methods

The shipping method is determined by the amount of lithium in a cell or a battery. The shipping regulations define two groups.

- Non-Restricted
- Class 9

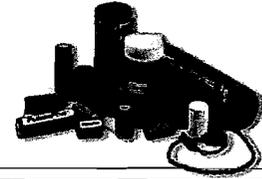
2.1 Non-Restricted

UN 3090 defined as non-restricted, all cells that have less than one gram of lithium and all batteries that have less than two grams of lithium. Provided that each cell and each battery passed successfully the tests per UN specification; (Recommendation on the Transport of Dangerous Goods, Manual of Test and Criteria, paragraph 38.3).

A list of Tadiran products with the amount of lithium in each product is presented in Appendix # 1.

Shipping of non-restricted articles requires the cells and the batteries to be separated in such a way to prevent short circuit, and they must be packed in strong packaging, except when installed in equipment.

Except when installed in equipment, or for packages that contain more than 24 lithium cells or 12 lithium batteries they should comply with the following addition requirements:



TECHNICAL NOTICE

Number One Choice in Lithium

2.1.1 Each package must be marked indicating that it contains lithium batteries and that special procedures should be followed in the event that the package is damaged. See Appendix # 2.

2.1.2 Each shipment must be accompanied with a document indicating that the packages contain lithium batteries and that special procedures should be followed in the event a package is damaged. See Appendix # 3

2.1.3 Each package is capable of withstanding a 1.2 meter drop test in any orientation without damage to cells or batteries contained therein, without shifting of the contents so as to allow battery to battery (cell to cell) contact and without release of contents.

2.1.6 Except in the case of lithium batteries packed in equipment, packages may not exceed 30Kg gross mass in all transportation modes air, sea and ground.

2.2 Class 9

Class 9 (Restricted), are all cells that have more than one gram of lithium and all batteries that have more than two grams of lithium, provided that each cell and each battery passed successfully the tests per UN specification: (Recommendation on the Transport of Dangerous Goods, Manual of Test and Criteria, paragraph 38.3).

A list of Tadiran products with the amount of lithium in each product is presented in Appendix # 1.

Following are the requirements for shipping of Class 9 articles.

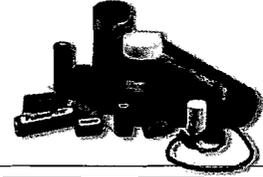
2.2.1 The maximum gross weight per a single package that carry Class 9 (Restricted) articles is detailed below.

Modes of Transportation	Gross Weight in Kg
Passenger Airplane	5
Cargo Airplane	35
Sea	Over 35
Ground	Over 35

2.2.2 The completion of RESTRICTED ARTICLES CERTIFICATION from (Shippers Declaration for Dangerous Goods Form) in according with detailed instructions of 8.1.A IATA manual. This document must be carefully typewritten with no mistake, abbreviation or corrections, and can only be signed by legally certified person.

2.2.3 Enclosing an International Airway Bill.

2.2.4 Enclosing three copies of commercial invoice.



TECHNICAL NOTICE

Number One Choice in Lithium

2.2.5 Proper packaging: The outer packaging must be Group II package such as fiberboard box (specified number is 4G) with proper UN specs marks on the carton (sturdy shipping cartons meeting UN Performance specification testing).

2.2.6 Labels:

- Class 9 label
- "Cargo Aircraft Only" label when shipped by cargo aircraft.
- Label stating company name, address
- The following statement, must appear on the carton:

Lithium Batteries
UN NBR 3090 CLASS 9
Pkg. Inst. 903 II
S.T.C
Gross weight in -----Kg
PACK NO.-----OF-----

Note: For shipment to USA/CANADA a 24hour phone number available to call in event of an emergency, must be included in the shipping documents.

4. Over pack

Over pack: An enclosure used to provide protection or convenience in handling of a package or to consolidate two or more packages. The package being over packed must be eligible to be transported by itself, and properly prepared for shipment with proper marking and labeling. The marking and labeling on each of the packages being over packed must be reproduced on the outside of the over pack unless visible from outside of the over pack.

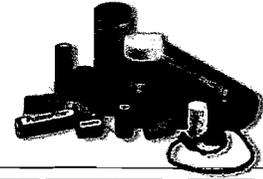
Package: The end result of the packaging process, which includes all the hazardous content, and all of the packaging properly closed and prepared for proper marking and labeling.

5. Training

USA employees involved in packaging or shipment of Class 9 batteries must complete a CFR 49 certified hazardous material shipping training course. The certification should be renewed every three years. In face of the new revision, it is strongly recommended that the employees also complete the IATA training course



P.O. BOX 1
KIRYAT EKRON
ISRAEL 70500
TEL: (972-8) 9444503
FAX: (972-8) 9413079



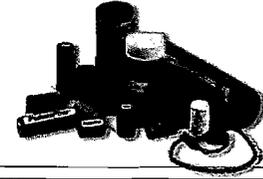
See us on the web: www.tadiranbat.com

TECHNICAL NOTICE

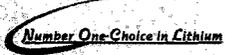
Number One Choice in Lithium

6. Violations of shipping regulation rules

Violation of the US DOT HMR (Hazardous Material Regulation) is subject to a fine of up to \$27,500. Multiple fines may be imposed for a single shipment for each type of violation (e.g., packaging, testing, labeling etc.)



TECHNICAL NOTICE

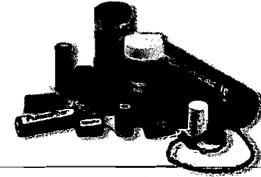


Appendix # 1, Quantity of lithium metal in Tadiran cells and Batteries

NON RESTRICTED GENERIC P/N	CLASS 9 GENERIC P/N	MAXIMUM NET WEIGHT OF LITHIUM (gr.)	SIZE
TL-2100		0.55	AA
TL-2134		0.3	1/10 D
TL-2135		0.5	1/6 D
TL-2150		0.3	1/2AA
TL-2155		0.4	2/3AA
TL-2186		0.13	BEL
	TL2200	2.5	C
	TL2300	5.0	D
TL-4908		0.5	0.9AA
TL-4902		0.35	1/2AA
TL-4903		0.7	AA
TL-4934		0.3	1/10D
TL-4955		0.5	2/3AA
	TL4920		
	TL4930		
TL-5101		0.3	1/2AA
TL-5104		0.55	AA
TL-5134		0.3	1/10 D
TL-5135		0.5	1/6 D
TL-5151		0.25	1/2AA
TL-5155		0.4	2/3AA
TL-5186		0.13	BEL
TL-5242		0.55	1xAA
TL-5276		0.3	1x 1/2AA
TL-5293		1.1	2xAA
TL-5315			
TL-5902		0.35	1/2AA
TL-5903		0.7	AA
	TL5920,4920	2.5	C
TL-5955		0.5	2/3AA
	TL-5137	11	DD
	TL5930,4930	5.0	D
	TL5937	11	DD
	TL-5940	5.5	D
	TL6526	1.5	C-HT
	TL-6537	7.3	DD-HT
HLC1520 (3.7v)		0.02	1/2AA
HLC1520 (3.9V)		0.04	1/2AA
HLC1550 (3.7V)		0.07	AA
HLC1550 (3.9V)		0.13	AA



P.O. BOX 1
KIRYAT EKRON
ISRAEL 70500
TEL: (972-8) 9444503
FAX: (972-8) 9413079



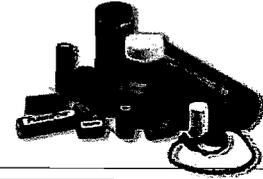
See us on the web: www.tadiranbat.com

TECHNICAL NOTICE

Number One Choice in Lithium

Appendix# 2, label for package with non-restricted cells or batteries

		CAUTION !
		Lithium Batteries inside
	IF DAMAGED	Flammable if damaged
		Handle with care
		if package is damaged,
		batteries must be quarantined,
		inspected and repacked.
		For emergency information, call:
		1-800-424-9300



TECHNICAL NOTICE

Number One Choice in Lithium

Appendix # 3, example of shipping document for non-hazardous cargo

Shipper's Certification for Non-Hazardous Cargo

AWB No.	Airport of Dep.	Airport of Dest.	Invoice No.
---------	-----------------	------------------	-------------

This is to certify that the articles/substances of this shipment are properly described by name, that they are not listed in the current edition of IATA Dangerous Goods Regulations (DGR), Alphabetical List of Dangerous Goods, nor do they correspond to any of the hazard classes appearing in the DGR, Section 3, classification of Dangerous Goods and that they are known to be not dangerous, i.e. not restricted. Furthermore the Shipper confirms that the goods are in proper condition for transportation on passenger carrying aircraft.

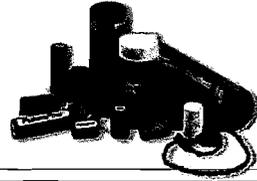
Marks and Number of Packages	Proper Description of Goods (Trade Names not Permitted) Specify each article separately	Net quantity per package

Name and Address of Shipper	
	Signature

To be completed in duplicate:

Distribution: One copy to accompany the AWB
 " " to be filed at airport of departure (with AWB-copy)

Form.3254 Version 1993



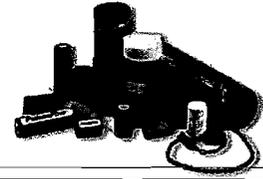
TECHNICAL NOTICE

Number One Choice in Lithium

Appendix # 4, shipper declaration for Dangerous Goods, (Class 9)

SHIPPER'S DECLARATION FOR DANGEROUS GOODS

Shipper 1		Air Waybill No. 3 Page of Pages Shipper's Reference Number (optional)					
Consignee 2							
Two completed and signed copies of this Declaration must be handed to the operator.		WARNING: Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder or an IATA cargo agent.					
TRANSPORT DETAILS 4 This shipment is within the limitations prescribed for: (delete non-applicable) <input type="checkbox"/> PASSENGER AND CARGO AIRCRAFT <input type="checkbox"/> CARGO AIRCRAFT ONLY		Airport of Departure: Airport of Destination: Shipment type: delete non-applicable 5 <input type="checkbox"/> NON-RADIOACTIVE <input type="checkbox"/> RADIOACTIVE					
NATURE AND QUANTITY OF DANGEROUS GOODS Dangerous Goods Identification							
Proper Shipping Name	Class or Division	UN or ID No.	Packing Group	Subsidiary Risk	Quantity and type of packing	Packing Int.	Authorization
6	7	8	9		10	11	
Additional Handling Information: 12 13							
I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.					Name/Title of Signatory 14 Place and Date Signature (see warning above)		



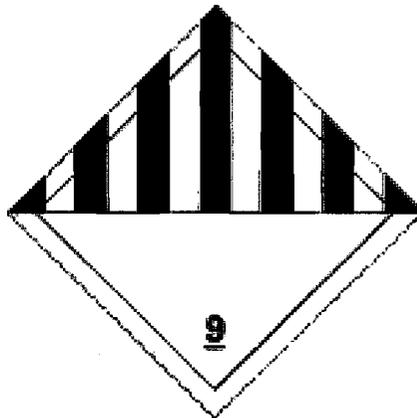
TECHNICAL NOTICE

Number One Choice in Lithium

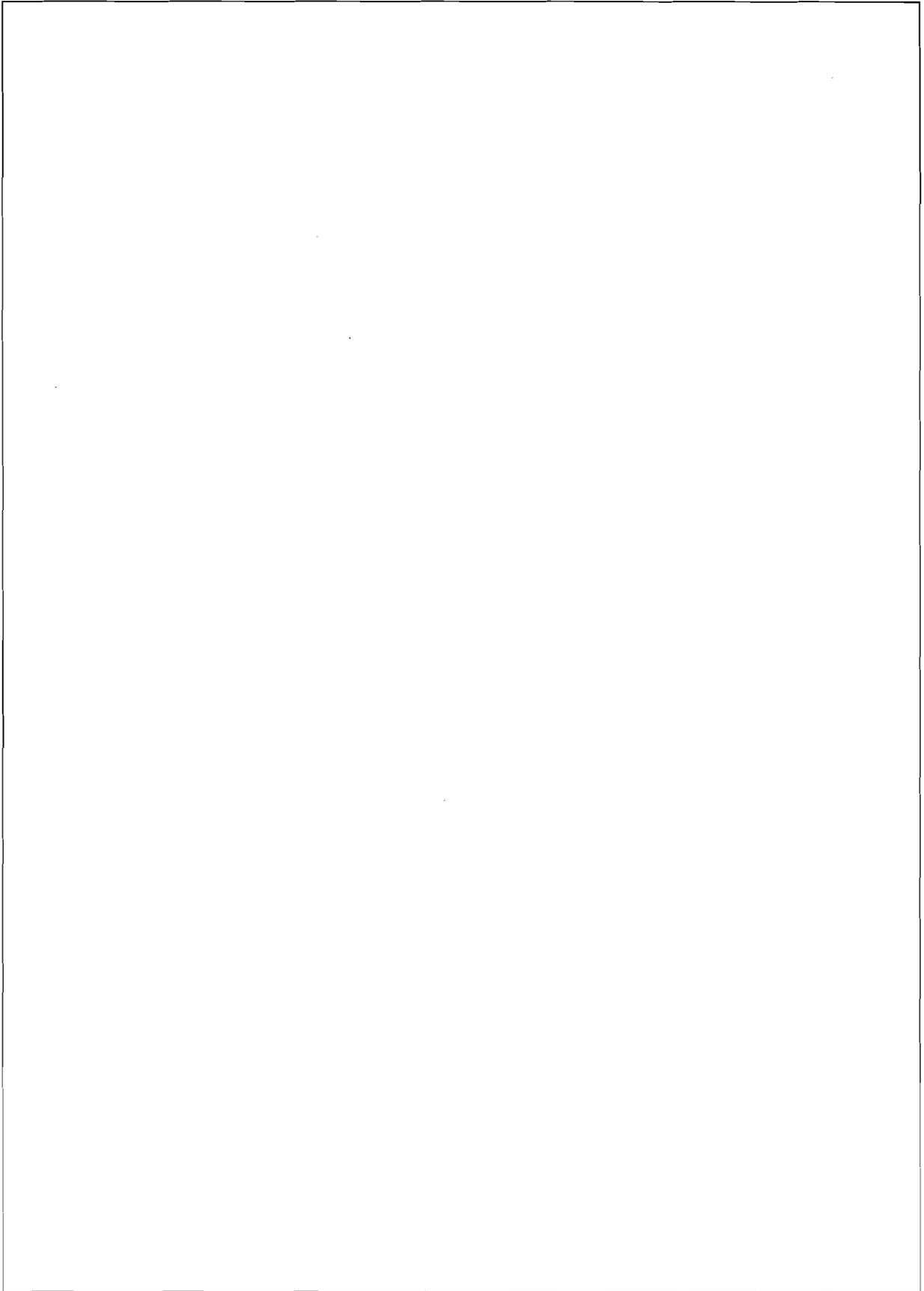
Appendix # 5 label for package with Class 9 (restricted) cells or batteries



Note: The above label will be used when goods have to be shipped with Cargo Airplanes only.



Lithium Batteries
UN NBR 3090 CLASS 9
Pkg. Inst. 903 II
S.T.C
Gross weight in -----Kg
PACK NO.-----OF-----





Advisory Circular

Subject: Use of Portable Electronic Devices Aboard Aircraft

Date: 8/25/06

AC No: 91-21.1B

Initiated by: AFS-350

1. PURPOSE. This advisory circular (AC) provides aircraft operators with information and guidance for assistance in compliance to Title 14 of the Code of Federal Regulations (14 CFR) part 91, section 91.21. Section 91.21 was established because of the potential for portable electronic devices (PED) to interfere with aircraft communications and navigation equipment. It prohibits the operation of PEDs aboard U.S.-registered civil aircraft while operating under instrument flight rules (IFR). This rule permits use of specified PEDs and other devices that the operator of the aircraft has determined will not interfere with the safe operation of that aircraft. The recommendations contained herein are one means, but not the only means, of complying with section 91.21 requirements, pertaining to the operation of PEDs.

2. CANCELLATION. AC 91-21.1A, Use of Portable Electronic Devices Aboard Aircraft, dated October 2, 2000, is canceled.

3. RELATED 14 CFR SECTIONS. Section 91.21, 121.306, 125.204, and 135.144.

4. BACKGROUND.

a. Section 91.21 (formerly section 91.19) was initially established in May 1961 to prohibit the operation of high-frequency omnidirectional range was being used for navigation purposes. The Federal Aviation Administration (FAA) subsequently determined that other PEDs could be potentially hazardous to aircraft communication and navigation equipment, if operated aboard aircraft. Amendment 91-35 amended the scope of former section 91.19 to prohibit the use of additional PEDs aboard certain U.S. civil aircraft. Section 91.21, as adopted, was drafted to require the air carrier or commercial operator to determine whether a particular PED will cause interference when operated aboard its aircraft.

b. RTCA Special Committee 156 accomplished a study of the potential for interference from PEDs and released Document No. RTCA/DO-199, volumes 1 and 2, entitled "Potential Interference to Aircraft Electronic Equipment from Devices Carried Aboard." RTCA Special Committee 177 did a further study of these devices and released Document No. RTCA/DO-233, entitled "Portable Electronic Devices Carried on Board Aircraft." The finding and conclusions from these two studies helped the FAA establish the current policy which allows the use of non-transmitting PEDS during non-critical phases of flight. In March 2003, the FAA requested that RTCA form a special committee to evaluate and develop guidance related to assess the impact and risks related to the use of

intentionally radiating PEDs (transmitting PEDs, or T-PEDs) that passengers may bring onto civil aircraft. These include mobile telephones, computers with wireless network capabilities, and other wireless-enabled devices such as Personal Digital Assistants (PDA). On October 19, 2004, RTCA released Document No. DO-294, prepared by Special Committee 202, titled "Guidance on Allowing Transmitting Portable Electronic Devices (T-PEDS) on Aircraft" (to obtain RTCA documents see paragraph 8b).

c. Other activities in this area were done by the *Consumer Electronics Association* when in October, 2004; they issued a standard practice to help manage the use of wireless devices on board aircraft that would greatly enhance the flightcrew and the flying public's ability to comply with airline policies for portable electronic devices.

5. DISCUSSION.

a. The related 14 CFR sections in paragraph 3 allow for the operation of PEDs that the operator of the aircraft has determined will not interfere with the navigation or communication system of that aircraft. In addition to the originally addressed non-transmitting PEDs, this revised AC also recognizes and provides guidance on the potential use of T-PEDS. It should be noted that the responsibility for permitting passenger use of a particular PED technology lies solely with the operator. RTCA/DO-233, current edition, provides government agencies and aircraft operators with recommendations for acceptable use of certain non-transmitting PEDs onboard aircraft. The current edition of RTCA/DO-294 identifies a process for airlines to make a determination of acceptable use of T-PEDs. The determination of an interfering effect caused by a particular device on the navigation and communication system of the aircraft on which it is to be used or operated must, in case of an aircraft operated by the holder of an air carrier certificate or other operating certificate, be made by that operator (i.e., certificate holder). In all other cases, a determination must be made by the operator and/or by the pilot-in-command (PIC). In some cases, the determination may be based on operational tests conducted by the operator without the need for sophisticated testing equipment.

b. When safely at cruise altitude, the pilot could allow the devices to be operated. If interference is experienced, the types of devices causing interference could be isolated, along with the applicable conditions recorded. The device responsible for the interference should then be turned off. If all operators collect this type of data with specific information, a large enough database could be generated to identify specific devices causing interference. The operator may want to obtain the services of a person or facility capable of determining non-interference to the aircraft's navigation, communication, or other electronic system. Personnel specifically designated by the air carrier or commercial operator for this purpose may make this determination using the process described in RTCA/DO-294. For other aircraft, the language of the rule expressly permits the determination to be made by the Pilot in Command or operators of the aircraft. Thus, in the case of rental aircraft, the renter-pilot, lessee, or owner-operator could make the determination.

6. RECOMMENDED PROCEDURES FOR THE OPERATION OF PEDs ABOARD

AIRCRAFT. If an operator allows the use of PEDs aboard its aircraft, procedures should be established and spelled out clearly to control their use during passenger-carrying operations. The procedures, when used in conjunction with an operator's program, should provide the following:

a. Methods to inform passengers of permissible times, conditions, and limitations when various PEDs may be used. This may be accomplished through the departure briefing, passenger

information cards, captain's announcement, and other methods deemed appropriate by the operator. For air carrier operations conducted under 14 CFR part 121 or part 135, the limitations, as a minimum, should state that use of all such devices (except certain inaccessible medical electronic devices, for example, heart pacemakers) are prohibited during any phase of operation when their use could interfere with the communication or navigation equipment on board the aircraft or the ability of the flightcrew to give necessary instructions in the event of an emergency.

b. Procedures to terminate the operation of PEDs suspected of causing interference with aircraft systems.

c. Procedures for reporting instances of suspected or confirmed interferences by a PED to a local FAA Flight Standards District Office or the FSDO that has certificate management responsibility for the air carrier.

d. Cockpit to cabin coordination and cockpit flightcrew monitoring procedures.

e. Procedures for determining non-interference acceptability of those PEDs to be operated aboard its aircraft. Acceptable PEDs should be clearly spelled out in oral departure briefings and by written material provided to each passenger to avoid passenger confusion. The operator of the aircraft must make the determination of the effects of a particular PED on the navigation and communication systems of the aircraft on which it is to be operated. The operation of a PED is prohibited, unless the device is specifically listed in section 91.21(b)(1) through (4). However, even if the device is an exception from the general prohibition on the use of PEDs, an operator may prohibit use of that PED. The use of all other PEDs is prohibited by regulation, unless pursuant to section 91.21(b)(5). The operator is responsible for making the final determination that the operation of that device will not interfere with the communication or navigation system of the aircraft on which it is to be operated.

f. Prohibiting the operation of any PEDs during the takeoff and landing phases of flight. It must be recognized that the potential for personal injury to passengers is a paramount consideration, as well as is the possibility of missing significant safety announcements during important phases of flight. This prohibition is in addition to lessening the possible interference that may arise during sterile cockpit operations (below 10,000 feet).

7. CELLULAR & ONBOARD TELEPHONE SYSTEMS.

a. T-PEDs have considerations in addition to those listed in paragraph 6. These include cellular telephones, citizens band radios, remote control devices, computers with wireless network capabilities, and other wireless-enabled devices such as PDAs, etc. The Federal Communications Commission (FCC) currently prohibits the use of cell phones while airborne. Its primary concern is that a cell phone, used while airborne, would have a much greater transmitting range than a land mobile unit. Their use could result in unwanted interference to transmissions at other cell locations since the system uses the same frequency several times within a market or given operating area. Since a cell phone is capable of operating on various cellular frequencies, unwanted interference may also affect cellular systems in adjacent markets or operating areas.

b. The FAA supports this airborne restriction for other reasons of potential interference to aircraft systems and equipment. Currently, the FAA does not prohibit the use of certain cell phones in aircraft while on the ground. An example might be their use at the gate or during an extended wait on the ground while awaiting a gate, when specifically authorized by the operator. A cell phone will not be authorized for use while the aircraft is being taxied for departure after leaving the gate. The unit will be turned off and properly stowed to prepare the aircraft for takeoff as per the operator's procedures. Whatever procedures an operator elects to adopt should be clearly spelled out in oral briefings prior to departure or by written material provided to each passenger.

c. Onboard telephone systems that are type accepted by the FCC as air-to-ground equipment, which have been permanently installed in the aircraft, may be permitted for use while airborne or during ground operations, provided their use does not interfere with the duties of the flightcrew or cause potential harm to the passengers. Such airborne telephone systems are installed and tested in accordance with the appropriate certification and airworthiness standards.

8. MEDICAL-PORTABLE ELECTRONIC DEVICES.

a. Medical-Portable Electronic Devices (M-PED), such as automated external defibrillators (AED), airborne patient medical telemonitoring (APMT) equipment, portable oxygen concentrators authorized by Special Federal Aviation Regulations 106, etc., should be designed and tested in accordance with section 21, Category M, of RTCA/DO-160, current edition. M-PEDs that test within the emission levels contained in this document, in all modes of operation (i.e., standby, monitor, and/or transient operating conditions, as appropriate), may be used onboard the aircraft without any further testing by the operator. Equipment tested and found to exceed the section 21, Category M, emission levels are required to be evaluated in the operator's M-PED selected model aircraft for electromagnetic interference (EMI) and radio frequency interference (RFI). All navigation, communication, engine, and flight control systems will be operating in the selected aircraft during the evaluation.

b. The ground EMI/RFI evaluation should be conducted with the M-PED equipment operating, and at the various locations in the cabin where M-PED usage is expected (galley, passenger aisles, etc.). If M-PED equipment can be operated at any location in the cabin, then the worst-case locations (proximity to cable bundles, flight controls, electronic and electrical bays, antennas, etc.) should be considered. Air carriers planning to equip their aircraft with M-PEDs will provide evidence to the principal avionics inspector that the M-PED equipment meets the current edition of RTCA/DO-160E section 21, Category M, emission levels, or the operator must conduct the ground EMI/RFI evaluation as described above. Operators will incorporate procedures into their maintenance program to determine the M-PEDs serviceability based on the equipment manufacturers' recommendations, to include procedures for marking the date of the equipment's last inspection. Operators will establish operational procedures that require crewmembers to inform the PIC when the M-PED is removed from its storage for emergency use.

NOTE: For those M-PEDs using Lithium Sulfur Dioxide batteries (LiSO₂) as a power source, the batteries must be approved under Technical Standard Order C-97 and labeled accordingly. RTCA/DO-227, Minimum Operational Performance Standards for Lithium Batteries is available at:

**RTCA, Inc.
1828 L Street, NW Suite 805,
Washington, DC 20036
Tel: 202-833-9339, Fax: 202-833-9434
<http://www.rtca.org>.**

ORIGINAL SIGNED BY

Carol Giles for
James J. Ballough
Director, Flight Standards Service



U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
National Policy

ORDER
8150.4

Effective Date:
08/29/07

SUBJ: Certification of Cargo Containers With Self-Contained Temperature Control Systems (Active ULDs)

1. Purpose of this Order. This order will show you how to approve cargo containers that have a self-contained temperature control system for the container contents. We call cargo containers “unit load devices,” or ULDs. Cargo containers with self-contained temperature control systems are called active ULDs.

2. Audience. Federal Aviation Agency (FAA) aircraft certification office (ACO) staffs.

3. Where Can I find this Order. You can find this order in the FAA Directive Management System at MyFAA employees website: https://employees.faa.gov/tools_resources/orders_notices/ or on the Regulatory and Guidance Library (RGL) website: <http://rgl.faa.gov>.

4. Deviations. Follow this order when approving active ULDs. If you want to deviate from this order, you must coordinate with the Aircraft Engineering Division (AIR-100). We must approve the deviation. Substantiate, document, and get concurrence from your manager to deviate before submitting it to AIR-100.

5. Requirements.

a. Active ULDs must fully meet all the requirements in the latest revision of FAA technical standard order (TSO)-C90, *Cargo Pallets, Nets, and Containers*. If you're approving a TSO application for an active ULD, you must also use current FAA policy on non-TSO function(s) integrated with a TSO article to evaluate the active ULD temperature control system. Require applicants to perform a system safety assessment referring to practices in SAE ARP 4761 and furnish to the FAA a Functional Hazard Assessment (FHA) and Failure Modes and Effects Analysis (FMEA) for the active ULD (including temperature control system) according to the latest revision of advisory circular (AC) 25.1309-1, *System Design and Analysis*.

b. Data that we accept under current policy (on non-TSO functions) must address all the aspects listed in appendix 1 of this order. Identify more aspects as appropriate, based on the specific design and limitations of the active ULD. You may accept foreign applications, if there is an applicable bilateral agreement with provisions for accepting all of the following:

- (1) Appliance approvals (TSO),
- (2) Non-TSO functions, and
- (3) Transport category aircraft design data.

Check the applicable bilateral to verify specific provision language and limitations to determine if a foreign application can be accepted.

c. Current non-TSO functions policy gives you a means for collecting data supporting the additional functions within a TSO article. When approving the TSO article (the basic ULD only), you evaluate and accept the data collected for the non-TSO function (the environmental control system). *Accepting* the data means that we consider it valid. *Approving* the data for showing compliance to the applicable requirements is done during the installation. Generally for ULDs, the applicable installation requirements are operational regulations. In this case, we approve active ULDs under Title 14 of the Code of Federal Regulations (14 CFR) § 21.305(d). The requirements in this order define a "...manner acceptable to the administrator".

d. We don't usually require an installation approval under a type certificate or supplemental type certificate (TC or STC), because ULDs are generally not part of the aircraft type design. However, if a ULD is defined in the aircraft type design, then instead of using 14 CFR § 21.305(d), we evaluate the data validated under the non-TSO functions policy for installation approval under the TC/STC process.

e. Inform applicants that air carriers wanting to use active ULDs approved to 14 CFR § 21.305(d) must consult with their FAA Certificate Management Office (CMO) on operational requirements specific to their organization.

f. Inform applicants that air carriers who offer, accept, or carry the ULD in transportation must also comply with all applicable requirements of the US Department of Transportation (DOT) Hazardous Materials Regulations, 49 CFR, parts 100-185.

g. Since active ULDs are generally not addressed in the aircraft design and certification, and there is currently no TSO that addresses all the safety aspects of active ULDs in transport category aircraft, we must apply careful scrutiny during the initial approval of the active ULD.

6. Background.

a. Historically, airlines have carried cargo in ULDs, which were containers or pallet-and-net combinations. Over the last year, ULD manufacturers have asked us to approve cargo containers that include a self-contained temperature control system for the contents--an active ULD. Active ULD temperature control systems can heat, cool, (or both) the containers to maintain a specific temperature. The temperature control systems are battery-powered, so active ULDs do not interface with any aircraft systems for power. The goal for ULD manufacturers is for airlines to use active ULDs just as they currently use ULDs without temperature control systems.

b. In general, we approve ULDs to TSO-C90, which prescribes performance standards for structural interface with the aircraft and flammability characteristics. TSO-C90 cites the Aerospace Industries Association of America's National Aerospace Standard (NAS) 3610, *Cargo Unit Load Devices—Specification For*, yet TSO-C90 (and NAS3610) lack performance standards for the temperature control systems in active ULDs, or for that system's interaction with critical aircraft systems. TSO-C90c and NAS3610 are not sufficient to fully address all certification requirements of active ULDs.

c. ULD design is generally not included in the aircraft's approved type design. ULD use is controlled by aircraft weight and balance manuals. Those manuals typically allow ULDs meeting the requirements of TSO-C90/NAS3610 but don't cover, or restrict, using active ULDs. We have been certifying transport aircraft based on the assumption that ULDs *without* temperature control systems will be carried in the cargo compartment as inert containers.

7. Distribution. Distribute this order to the division level in the Aircraft Certification Service and Flight Standards Service in Washington headquarters; to the branch level in the Aircraft Certification directorates and regional Flight Standards Service; to all aircraft certification and flight standards district offices.

8. Suggestions for Improvement. If you find any deficiencies, need clarification, or want to suggest improvements to this directive, send a copy of FAA Form 1320-19, Directive Feedback Information (written or electronically) to the Aircraft Certification Service, Planning and Financial Resources Management Branch, AIR-530, Attention: Directives Management Officer. You may also send a copy to the Aircraft Engineering Division, AIR-100, Attention: Comments to Order 8150.4. If you urgently need an interpretation, contact the Technical Programs and Continued Airworthiness Branch, AIR-120, at (202 267-9557. Always use FAA Form 1320-19 to follow up each verbal conversation.

9. Records Management. Refer to Orders 0000.1, FAA Standard Subject Classification System; 1350.14, Records Management; and 1350.15, Records, Organization, Transfer, and Destruction Standards; or your office Records Management Officer or Directives Management Officer for guidance regarding retention or disposition of records.

David W. Hempe
Manager, Aircraft Engineering Division
Aircraft Certification Service

Appendix 1. Aspects to Address

ACOs must require applicants to address the following aspects when they seek certification of active ULDs. We require ACOs to coordinate with the Transport Airplane Directorate standards staff on developing and approving specific methods of compliance (MOC) for lithium batteries and substantiating the effect of the active ULD on aircraft fire detection/suppression systems. We encourage ACOs to coordinate with the Transport Airplane Directorate standards staff on developing and approving specific MOC to the other requirements in this appendix.

- FHA and FMEA submitted by applicant per latest revision of AC 25.1309-1.
- Electromagnetic interference (EMI) (see latest revision of RTCA, Inc. document RTCA/DO-160, *Environmental Conditions and Test Procedures for Airborne Equipment*,. Section 21 Cat H is required – no aircraft testing necessary.
- How the applicant will address Hazmat (For example, lithium batteries, refrigerant, etc.).
- Aircraft fire detection/suppression system: Evaluate the effect of airflow changes produced by the active ULD on the aircraft fire detection/suppression system performance and system integrity – including multiple ULDs, in multiple configurations, on multiple aircraft. Both normal dispatch and master minimum equipment list (MMEL) dispatch conditions must be addressed. ACOs **must** coordinate specific requirements and methods of compliance with the Transport Airplane Directorate.
- Affect on smoke containment (penetration) characteristics: Evaluate the effect of airflow changes produced by the active ULD on smoke containment characteristics of the cargo compartment – including multiple ULDs, in multiple configurations, on multiple aircraft.
- Behavior of the ULD in a cargo compartment fire --for example:
 - Explosion potential.
 - Potential for significant contribution to the fire.
 - Potential for release of toxic or flammable gasses.
- Battery safety:
 - Evaluate the safety of all battery types under the environmental and load conditions that the ULD will be exposed. Address dead short testing, corrosive chemical containment, flammability, vibration testing, thermal runaway, taxi-flight-landing loads, grounding and bonding , and any other conditions identified in the FMEA.
 - For lead acid or Nickel Cadmium batteries see latest revision of RTCA/DO-293 *Minimum Operational Performance Standards for Nickel-Cadmium and Lead Acid Batteries*.

Appendix 1. Aspects to Address

- ACOs **must** coordinate specific requirements and methods of compliance with the Transport Airplane Directorate for battery types not covered by RTCA /DO-293.
- Lithium batteries require additional substantiation, including, but not limited to, Hazmat and United Nations testing requirements. ACOs **must** coordinate specific requirements and methods of compliance with the Transport Airplane Directorate.
- Address the requirements for batteries in 14 CFR § 25.1353
- Decompression testing (6,000 to 45,000 ft in 1 second). See International Air Transport Association (IATA) *ULD Technical Manual* 19th edition, May 2004).
- Software (dependent on hazard)--see latest revision of RTCA/DO-178, *Software Considerations in Airborne Systems and Equipment Certification*.
- Environmental conditions, including, but not limited to, vibration, temperature, humidity, altitude, shock, salt spray, and fluids susceptibility. See latest revision of RTCA/DO-160.
- Other issues identified in applicant's FMEA analysis. **NOTE:** ULD tracking systems that include a transmission device must be coordinated with the Transport Airplane Directorate standards staff.
- Operating instructions for both the ULD and the temperature control system.
- Instructions for continued airworthiness (ICA) (includes ICA for temperature control system).
- Marking requirements
 - Placard for TSO and 14 CFR § 21.305(d) approval (see appendix 2), or mark as required under TC/STC process if applicable.
 - Safety information required for proper use, operation and limitations.
- ULDs approved under 14 CFR § 21.305(d) in conjunction with TSO-C90c approval must have a quality system that meets 14 CFR § 21.143 for both TSO and Non-TSO aspects:
 - For TSOA: MIDO must review and approve the production and quality control system.
 - For LODA: Applicable bilateral agreement must provide for oversight of applicant's design control and production/quality control of the non-TSO functions.

Appendix 2. Additional Marking on Containers

ACOs ensure that manufacturers adhere to the following marking requirements:

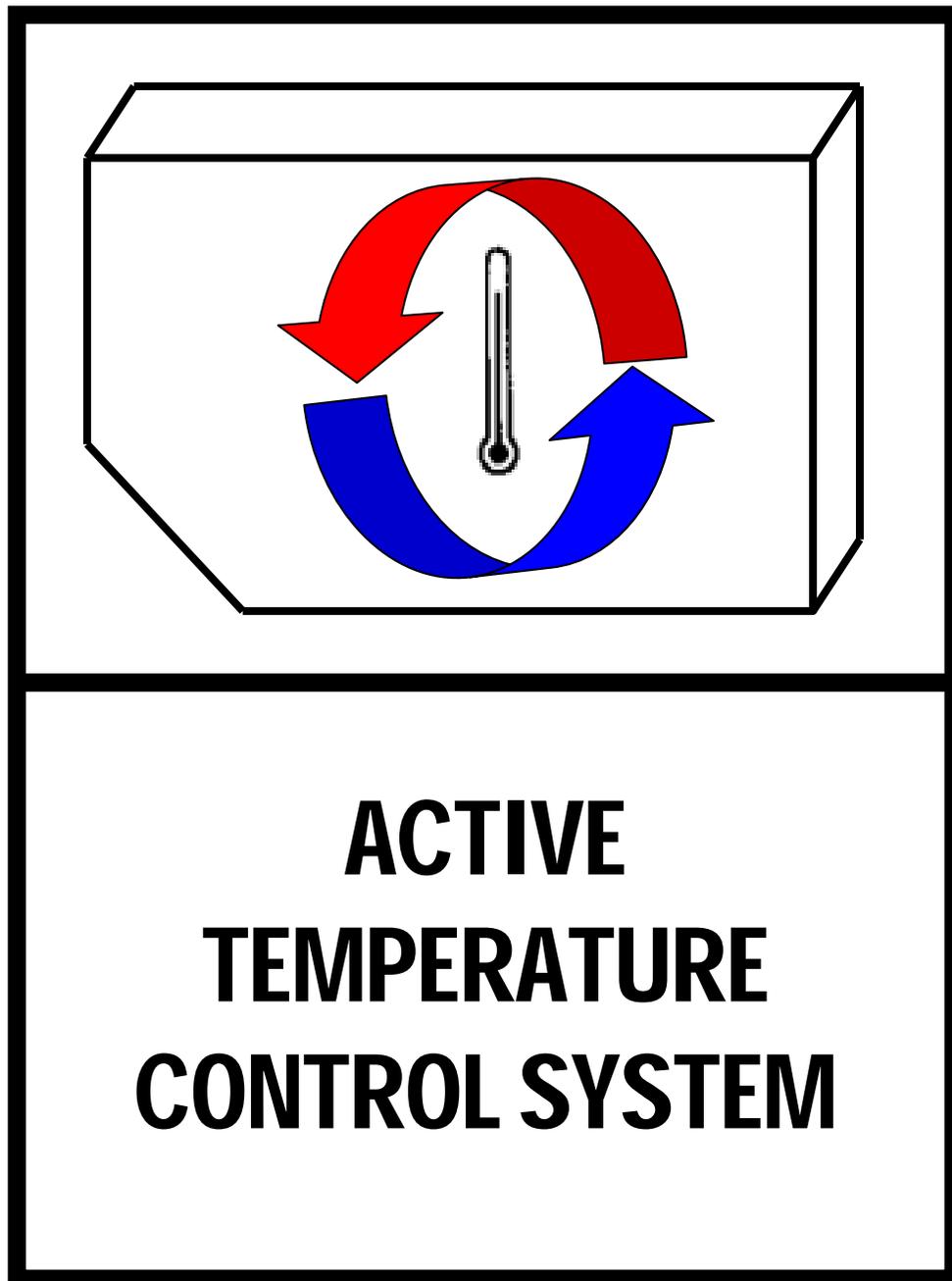
a. Attach a label next to the TSO label, or as a completely separate section of the TSO label, with the following additional information:

- (1) Name of manufacturer
- (2) “FAA Approved 14 CFR§21.305(d)” or, “ FAA Approved TC/STC “*insert TC/STC number*””
- (3) FAA-approved data (such as the master drawing list) used to substantiate the additional equipment
- (4) Instructions for continued airworthiness (ICA) required: list FAA-approved ICA document(s)
- (5) Any additional limitations or information needed by user to safely transport ULD

b. Affix the marking shown in appendix 3, on the upper part of each vertical face (four locations) of the ULD:

- Marking is approximately 5 inches wide and 7 inches long
- Upper arrow in the figure is colored red and the lower arrow is blue
- Text must be black and approximately 0.5 inches high

Appendix 3. Required Marking Label



Appendix 4. Sample Directive Feedback Information, FAA Form 1320-19



U.S. Department
of Transportation
**Federal Aviation
Administration**

Directive Feedback Information

Please submit any written comments or recommendations for improving this directive, or suggest new items or subjects to be added to it. Also, if you find an error, please tell us about it.

Subject: Order

To: Directive Management Officer, AIR-530

(Please check all appropriate line items)

An error (procedural or typographical) has been noted in paragraph _____ on page _____.

Recommend paragraph _____ on page _____ be changed as follows:
(attach separate sheet if necessary)

In a future change to this directive, please include coverage on the following subject
(briefly describe what you want added):

Other comments:

I would like to discuss the above. Please contact me.

Submitted by: _____ Date: _____

FTS Telephone Number: _____ Routing Symbol: _____