This specification is provided to inform vendors of Raytheon Systems Company's minimum packaging requirements. This document is superseded by any special requirements listed on drawings or specifications. Any questions concerning packaging or materials should be directed to the buyer referenced on the purchase order.

A). Packaging and Preservation:

A 1). Packaging of supplies and equipment exclusive of ammunition, explosives, hazardous materials, tape and reel components and Plastic Encapsulated Microcircuits (PEMs):
This vendor shall follow ASTM-3951 (Standard Practice for Commercial Packaging) with the exception of Items A 2). and A 3). that follows:

A 2). See sections D and E of this specification for the packaging and handling and marking of the Plastic Encapsulated Microcircuits (PEM's), Major categories (but not limited to) J-bend and gull-wing leaded packages such as: Plastic Leaded Chip Carriers (PLCC's), Small Outline Integrated Circuits (SOIC's), Plastic Quad Flat Packs (PQFP's), and Thin Small Outline Packages (TSOP's).

A 3). Packaging of Tape and Reel Components
The requirement for tape and reeling of components will be determined by the appearance of Quality Note 84 (QN084) on the purchase requisition. QN084 instructions will provide tape & reel specifications. However, the tape & reeled lot is to be packaged (overpacked) for shipment in accordance with ASTM-3951.

A 4). Packaging of Hazardous Materials:
The vendor will assure that packaging containing or intended to contain designated hazardous materials will be properly tested (performance oriented packaging) and certified as complying with the performance standards of the United Nations and the Department of Transportation:
- International Civil Aviation Organization
- International Air Transport Association (Section 10)
- International Maritime Organization (Volume 1, Annex 1,Sec.8)
- Code of Federal Regulations: Title 49
- Code of Federal Regulations: Title 49

A 5). Static Sensitive devices shall be packaged in compliance with ASTM D 3951 and use only packaging materials that will protect the part from electrostatic damage and corrosion during long-term storage & in-plant handling.
A 6). Plated items such as Nickel, Gold, Silver and Tin shall be handled with cotton gloves, finger cots or vacuum lift devices. Plated items that are ESD sensitive shall be handled with static sensitive finger cot's or treated gloves.

Instructions:

B). **Shipping Containers:**
Containers shall be packed to insure carrier acceptance, safe delivery and adequate storage at buyers location. Containers shall be in accordance with the rules and regulations of carrier applicable to the mode of transportation. Containers shall be domestic and a minimum size to provide a snug fit for the item. Containers shall conform to one of the following specifications (commercial equivalents may be used in place of MIL-Specs referenced):

* ASTM-D5118: boxes, shipping, fiberboard
* ASTM-D5168: boxes, fiber, corr., triple wall
* PPP-B-601: boxes, wood nails and lock corner
* MIL-C-52950: crates, wood open and covered
* PPP-B-591: boxes, fiberboard, wood cleated

**NOTE:** The container selected shall be in accordance with the weight and dimensions established by the specifications of each container for the specific style, type, class, grade, size and variety used.

* Rule 41: Raytheon insists on strict compliance with rail classification Rule 41 as minimum requirements of fiberboard containers (regarding weight and size limitations).

B). 2 **Skid Requirements**

All shipping containers exceeding the gross weight of two hundred and fifty (250#) lbs. shall be provided with skids made from 4"x 4" nominal lumber.

C). 1 **Markings (Ref. A.3)**

Marking shall be in accordance with carrier rules and regulations. Hazardous materials or restrictive items must be properly marked per D.O.T. (Department of Transportation).
C). 1.1. U.N. markings for hazardous materials: exterior shipping packages (shipping cartons) shall be marked with U.N. certification markings indicating the level of performance achieved through testing. For interior packaging such as cans and bottles, a certificate of compliance or actual test reports indicating the level of performance achieved through testing must be provided. (Ref. A 3. above).

C). 1.2. Magnetic and electrostatic sensitive items must be properly marked, labeled or stenciled with proper cautionary information.

C). 2. **Bar Code Requirements:**

Exterior containers shall be marked in accordance with Raytheon bar code shipping label, specification dated October 25, 1993. A copy may be obtained through Purchasing or MQE.

C). 3. **Minimum Carton Marking:**

Minimum carton marking in addition to hazardous materials marking (if applicable) shall be in accordance with MIL-STD-129 and ASTM D3951 Section 5.1.6:

1). Customer part no.(#)
2). Nomenclature
3). Purchase order number
4). Quantity
5). Manufacturer's name
6). Electrical value (when applicable)
7). Date code (when applicable)
8). Labels: antistatic, fragile, magnetic (when applicable)
9). Lot control (when applicable)
10). Serialization (when applicable)
包装信息给供应商

<table>
<thead>
<tr>
<th>序号</th>
<th>标题</th>
<th>工程师</th>
<th>批准</th>
<th>部件或图纸号</th>
<th>日期</th>
<th>版本</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>通用供应商包装</td>
<td>D. A. Verfaillie</td>
<td>D.A. Verfaillie</td>
<td>PIV-6012</td>
<td>19-Jan-00</td>
<td>E</td>
</tr>
</tbody>
</table>

**说明：**

**(C). 4. 包装单：**
- 所有适用信息必须在包装单上列出。
- 包装单必须粘贴在外包装上。
- 多个购买订单或购买订单项目的供应商在包装每个订单和项目时必须单独包装。
- 当将来自不同购买订单的材料包装在一个容器内时，容器必须标明各种购买订单。

**(C). 5. 批号和序列化：**

当批号或序列化要求在购买订单或图纸上指定时，单位、中间和外包装容器必须标记适用的控制号码，符合 MIL-STD-129 的要求。批号或序列号应以适当的标识（例如：Lot A023, Serial Number 15790）。所有容器中物品的序列号应在容器标记中出现。

**(C). 6. 日期代码：**

当日期代码要求在图纸、相关文档、Q注或采购文件中指定时：供应商应在单位、中间和外包装容器上应用四位数字的标识符，表示接受样品的历年第几周。如果适用，可以使用日期密封。

例如：

- 第一批 = 日期代码 = 9750：表示在1997年的第50周。
- 第二批 = 日期代码 = 9803：表示在1998年的第3周。

**注：** 混合日期代码与同一容器中的相同项目不被允许。然而，将两个或更多相同项目的单位包装，标记不同日期代码的中间或外包装容器，只允许在最早的日期代码标记在中间和外包装的情况下。

**注意：** 混合日期代码与同一容器中的相同项目是不允许的。然而，将两个或更多相同项目的单位包装，标记不同日期代码的中间和外包装容器是可接受的，前提是最早日期代码标记在中间和外包装中。
D ). **Packaging Information for Vendors**

Engineer: D. A. Verfaillie
Approved by: D. A. Verfaillie

<table>
<thead>
<tr>
<th>Nomenclature</th>
<th>General Vendor Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part or Drawing No.</td>
<td>PIV-6012</td>
</tr>
<tr>
<td>Date</td>
<td>19-Jan-00</td>
</tr>
<tr>
<td>Revision</td>
<td>E</td>
</tr>
</tbody>
</table>

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**Instructions:**

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**D ). PEM (Plastic Encapsulated Microcircuits) Manufacturer and Distributor's Exposure Time:**

The manufacturer and distributor's exposure time (MET) for (MDSs) Moisture-Sensitive Devices, is the time allowed between final manufacturing bake and packaging. This applies to components as well as carriers. Included in this number, is time allocated to the distributor for breakdown of lots into smaller shipment sizes. Table 1 shows the MET/Floor life of PEMs by MS Level and applicable environment.

**Table 1**

<table>
<thead>
<tr>
<th>Moisture Sensitivity Level</th>
<th>MANUFACTURERS EXPOSURE TIME (FLOOR LIFE)</th>
<th>Manufacturers Exposure ≤°C/%RH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Unlimited</td>
<td>30/85</td>
</tr>
<tr>
<td>2</td>
<td>1 YEAR</td>
<td>30/60</td>
</tr>
<tr>
<td>3</td>
<td>1 WEEK (168 Hours)</td>
<td>30/60</td>
</tr>
<tr>
<td>4</td>
<td>3 DAYS (72 Hours)</td>
<td>30/60</td>
</tr>
<tr>
<td>5</td>
<td>24 or 48 HOURS as specified on manufacturer's label.</td>
<td>30/60</td>
</tr>
<tr>
<td></td>
<td>24 HOURS if nothing specified.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>6 HOURS after mandatory bake.</td>
<td>30/60</td>
</tr>
</tbody>
</table>

Notes: 1. Table I in accordance with IPC-SM-786.

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**D ).1 Packaging of (PEMs) Plastic Encapsulated Microcircuits:**

The vendor shall package the (MSDs) Moisture-Sensitive Devices in moisture-barrier bags and shall include desiccant and a (HIC) humidity indicator card:

1.1 The moisture-barrier bag shall meet the requirements of MIL-B-81705, TYPE I.

1.2 Desiccant shall comply to MIL-D-3464, Class II, and the requirements of Table II.

1.3 The humidity indicator card shall be per MIL-I-8835. FIGURE 1 shows a typical humidity indicator card.
Table I. The number of desiccant units required for a given bag size.

<table>
<thead>
<tr>
<th>Bag size</th>
<th>Molecular Sieve</th>
<th>Silica Gel</th>
<th>Clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 48</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>49 to 120</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>121 to 192</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>193 to 240</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>241 to 340</td>
<td>2</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>341 to 480</td>
<td>3</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>481 to 640</td>
<td>4</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>641 to 936</td>
<td>6</td>
<td>14</td>
<td>8</td>
</tr>
</tbody>
</table>

NOTE: When calculating area, account for both sides of the bag
(e.g. - Bag Area = length x width x 2.)

FIGURE 1.

NOTE: A Humidity Indicator Card (HIC) to be placed inside all MSD moisture-barrier bags.
Nomenclature
General Vendor Packaging
Part or Drawing No. PIV-6012
Date 19-Jan-00
Revision E

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E). Package Marking:

E). 1. Mark on Plastic Encapsulated Microcircuit (PEM) unit packs "DO NOT OPEN UNITL READY TO USE".

E). 2. Each bag shall be marked with the universal moisture sensitive symbol similar to the one shown in Figure 2 and a "caution-Moisture Sensitive Components" label and MS Level designation similar to the one shown in Figure 3. For MS level 5 components, the supplier shall specify weather 24 or 48 hours is applicable for floor life.

Figure 2. The universal moisture sensitive symbol to be placed on all MSD moisture-barrier bags.

Notes: 1.

CAUTION
This bag contains MOISTURE-SENSITIVE DEVICES Level

1. Shelf life in sealed bag: 12 months at <40°C (104°F) and <90% relative humidity (RH).
2. After bag is opened, device that will be subjected to infrared reflow, vapor-phase reflow, or equivalent processing (peak package body temp. is _____ [if blank: 220°C (428°F)]) must be:
   a) mounted within _____ hours/days at factory conditions of [30°C (86°F)/ 60% RH, or
   b) Stored at [20% RH.
3. Devices required baking, before mounting, if:
   a) Humidity Indicator Card is >20% when read at 23°C 6 58°C (73.4°F 6 418°F), or
   b) 2a or 2b are not met.
4. If baking is required, devices may be baked for:
   a) _____ [if blank: 192] 192 hours at 40°C + 58°C (104°F + 418°F)/- 08°C (-32°F) and <5% RH for low temperature device containers, or
   b) _____ [if blank: 24] hours at 125°C 6 58°C (257°F 6 418°F) for high temperature device containers.

Bag Seal Date: ________________________________
(if blank, see bar code label)

Figure 3. The "Caution" label to be placed on all MSD moisture-barrier bags.