



# IBM Global Labeling Guide

## Volume 10 – IBM Standard Product Asset Tag

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PN 46D2241	EC L80800J 30 Jan. 2012					
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## Table of Contents

	Page
<b>1 Introduction</b> .....	3
1.1 Abstract .....	<a href="#">3</a>
1.2 Scope .....	3
1.3 Objectives .....	3
1.4 Application .....	3
<b>2 Related Documents</b> .....	4
2.1 Related IBM Documents .....	4
2.2 Related External Documents .....	4
<b>3 Compliance</b> .....	4
<b>4 Requirements</b> .....	5
4.1 The Asset Tag .....	5
4.2 Data Elements .....	5
4.3 Data Structure .....	6
4.4 Syntax Rules for Encoding .....	6
4.5 Machine Readable Symbol .....	8
4.6 Human Readable Text .....	8
4.7 Layout .....	8
4.8 Printing (Quality, Technology, Ribbon,...) .....	9
4.9 Label Stock (Size, Quality, ...) .....	9
4.10 Label Placement and Location .....	9
A. Appendix A : Examples of Asset Tags .....	10
B. Appendix B : ZPL Commands for Zebra Printers .....	11
C. Appendix C : Revision History .....	12

PN 46D2241	EC L80800J 30 Jan. 2012					
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	<b>IBM Labeling Specification</b> <b>Standard Product Asset Tag</b>	Version No. 1.0 Jan 30, 2012
		Page 3 of 12

# **1 Introduction**

## **1.1 Abstract**

There is an increasing demand from customers to be able to easily track and trace IT equipment they are using within their locations. This requires IT equipment manufacturers/suppliers to mark the equipment in a way so that it can be uniquely identified.

This specification defines the details of the IBM ‘Standard Product Asset Tag’.

A ‘Product Asset Tag’ is a label that carries the essential data elements for identification of the item it is attached to. This information is presented in human readable as well as machine readable format and must be applied to the product so that the information is easily accessible in a customer viewable location.

## **1.2 Scope**

This engineering specification applies to all ‘finished’ products that are identified by a distinct machine type model, and which are serialized and recorded in PEW.

It also applies to ‘MES’ that are serialized and which constitute a separate, physical item that does not get mounted into another (higher level) product.

Exempt from the requirements of this spec are finished products and MES for which the ‘Product Asset Tag’ is customized according to special customer requirements.

It also does not apply to remanufactured products, ‘FFBM’ products, ‘Options’ and FRUs (Field Replaceable Units) or CRUs (Customer Replaceable Units).

## **1.3 Objectives**

The information presented on the ‘Product Asset Tag’ shall meet the requirements of a broad range of customers and be suited to support their various processes. Among them are tracking and tracing as well as inventory control. The relevant asset data needs to be presented in human readable as well as in a machine readable format to enable AIDC (Automatic Identification and Data Capture) which ensures efficient and error free data handling. The encoding of the data elements should be such that each element can be separately parsed into backend systems.

For compatibility reasons, and to avoid proprietary solutions, the information and its presentation shall be compliant to ISO/IEC standards for unique identification and automatic data capture.

This specification also targets to harmonize the rules for asset tagging across the IBM brands.

## **1.4 Application**

This engineering specification applies to all IBM branded products that are in scope as per section 1.2.

PN 46D2241	EC L80800J 30 Jan. 2012					
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## **2 Related Documents**

### ***2.1 Related IBM Documents***

- C-S 1-1121-010 – Product Definitions and Serial Numbering
- C-S 1-1121-015 – Automatic Identification (AI) for Packaging, Distribution and Manufacturing
- Engineering Specification PN 42C9474 – Standard Product Information Label for Xcellerator and HVEC
- PN 44V4664 – Certification Label / Serial Number Label Stock
- PN 51J2553 – Label – 15mm Square Bezel SN

### ***2.2 Related External Documents***

- ISO/IEC 16022 – Data Matrix
- ISO/IEC 15434 – Syntax for high-capacity ADC media

## **3 Compliance**

Compliance to this engineering specification is required for all products and all brands. This includes legacy products as well as new products.

If there is a business need for deviation from the requirements of this specification, it must be formally requested and approved by brand executive.

PN 46D2241	EC L80800J 30 Jan. 2012					
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## 4 Requirements

The following sections define the requirements for the IBM Asset Tag that must be followed.

### 4.1 The Asset Tag

The Asset Tag is also known as 'Chin Label', and it is either part of the certification label set as defined by specification 42C9474, or printed separately off a role as per specification 51J2553.

The Asset Tag consists of 2 parts: the first part is the human readable data. The second part is a 2D symbol that encodes the human readable data.

### 4.2 Data Elements

The table below shows the data elements that are required for the Asset Tag.

Data Element	Title (as shown on tag)	Format N = numeric AN = alpha numeric	Data Identifier	Description	Example
Machine Type - Model	MT	4N & 3AN	31P	Machine type is IBM's standard method to identify a product family. The Model is a variation of a machine type. This element is required.	2342EC1
Serial Number	SN	7AN	S	All assets that require asset tagging will have a serial number that uniquely identifies the product, when matched with the machine type model or the product ID. The serial number must be included on the Asset Tag	99A6612
Enterprise Identifier (Supplier)	EID	6N	3V	The EID is a unique code assigned to IBM by an independent organization. For this purpose, the company identifier assigned by GS1-US is required to be used globally for IBM branded products. The number shown in the example column is the correct EID value	000435
Product ID	PID	7AN	1P	A Product ID identifies a fixed configuration of a machine type. This element is required in addition to machine type model if a Product ID is assigned	X031YSA

Table 1: Data elements used with Asset Tags

PN 46D2241	EC L80800J 30 Jan. 2012					
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### 4.3 Data Structure

The following is to be used to determine the sequence of the elements, human readable as well as encoded:

1. Machine-Type Model
2. Serial Number
3. Enterprise Identifier
4. Product ID (if assigned)

The data identifiers for each of the elements to be encoded in the 2D symbol are defined in table 1 (see section 4.2).

### 4.4 Syntax Rules for Encoding

For encoding of the data elements of table 1 in the 2D symbol, the syntax rules as defined in C-S 1-1121-015 (refer to section 19.2, Table 5) shall be used. It follows the requirements of ISO/IEC 15434.

The syntax contains a "Message Header" followed by the "Format Header" for identifying the embedded data structure (06 indicates the use of DIs).

The separators to be used with the DI structure are low value, non-human readable ASCII characters which will be displayed as e.g. "RS" "GS". A group separator ("GS") is placed between single data elements that are preceded by a relevant DI. After the concatenated data elements, "Format Trailer" ("RS") and "End of Message" "EOT" characters will terminate the message.

The message header, format header, format trailer and message trailer can be created by using 'Macro 06' (codeword 237). For Zebra printers, the ZPL command for this macro is '\_7e6'. This character sequence is the first data that is put into the symbol. It needs to be immediately followed by the first data element to be encoded. Subsequent data elements then need to be separated by the hex value of the data element separator <sup>G</sup><sub>S</sub>. There is no need to put any terminator character at the end of the last element, because the macro 06 automatically includes the standard characters to terminate the encoded message.

The full standard syntax is illustrated in the table below:

Segment	Data Value	Description	Format
1	[ ]>	Compliance Indicator ((left bracket, right parenthesis, and greater than).	ASCII
2	<sup>R</sup> <sub>S</sub>	Format Trailer character	non-printable special character, hex value
3	06	Format header	ASCII
4	<sup>G</sup> <sub>S</sub>	Data Element Separator	non-printable special character, hex value

PN 46D2241	EC L80800J 30 Jan. 2012					
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**IBM Labeling Specification  
Standard Product Asset Tag**

Version No. 1.0  
Jan 30, 2012

Page 7 of 12

Segment	Data Value	Description	Format
5	31P	Data Identifier for Machine-Type Model	ASCII
6	XXXXYYY	Machine-Type Model, where XXXX equals the machine type and YYY equals the model	ASCII
7	$G_S$	Data Element Separator	non-printable special character, hex value
8	S	Data Identifier for the Serial Number of the Machine-Type Model and Product ID	ASCII
9	AAAAAAA	Serial Number of the Machine-Type Model or Product ID, where AAAAAAA equals the value of the serial number	ASCII
10	$G_S$	Data Element Separator	non-printable special character, hex value
11	3V	Data Identifier for the Enterprise Identifier.	ASCII
12	000435	IBM's Enterprise Identifier used for all asset tags on IBM branded product	ASCII
13	$G_S$	Data Element Separator	non-printable special character, hex value
14	1P	Data Identifier for Product ID	ASCII
15	ZZZZZZZ	Product ID, where ZZZZZZZ equals the value of the Product ID	ASCII
16	$R_S$	Format Trailer character	ASCII
17	$E_{OT}$	Message Trailer, indicates the "End of Transaction"	non-printable special character, hex value

**Table 2:** Data segments, sequence and values encoded in a 2D symbol of the Asset Tag

Below is an example of the entire string of the 2D symbol which would be read by the scanner:

**$J>^R_s06^G_s31P79463AV^G_sS99A6612^G_s3V000435^G_s1PX031YSA^R_sE_{OT}$**

In this example '79463AV' is the MTM, '99A6612' is the serial number, '000435' is the EID and 'X031YSA' is the product ID.

Note: the leading zeros of the EID are part of the element and must not be omitted.

PN 46D2241	EC L80800J 30 Jan. 2012					
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### 4.5 Machine Readable Symbol

The symbology required for the Asset Tag to be Data Matrix ECC200.

The module size (X-dimension) shall be 0.25 mm (= 10 mil, or 3 dots of a 300 dpi print head).

The format of the symbol shall be square.

### 4.6 Human Readable Text

The human readable text to be Arial or Helvetica normal font at a size of 27x24 dots using a 300 dpi print head (equals 5.5 pt).

### 4.7 Layout

There are 2 basic layouts: an optimized non-PID version (figure 1) and a PID-version (figure 2).

The *optimized non-PID* version should be used for all products that do not have a PID assigned.

The *PID version* must be used for all products that do have a PID. Products that are normally assigned a PID that do not have a PID should use the non-PID version for these instances. If for technical reasons it is not feasible, then use the PID version and leave the PID blank.

All text elements to be centered on the label.

The human readable text line headers MT, SN, EID or PID to be followed by a colon and no space after.

7-digit Machine type and model to be printed with no dashes, but a space between the type and the model.

Example: **MT:7844 590**

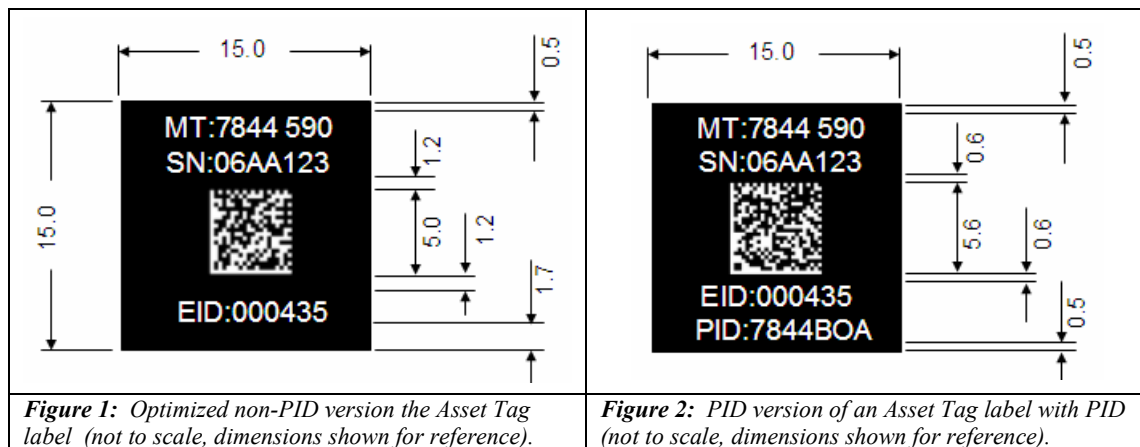
2 lines of text (MT and SN) are to be printed above the 2D symbol, and 2 lines (or 1 line, if PID is missing) to be printed below the symbol.

A minimum gap of **0.5mm** must be maintained between the label edges and the text (top and bottom).

2D symbol to be positioned so that it appears centered vertically and horizontally. The space around the Symbol to be minimum **0.5 mm**.

Below figures 1 and 2 show examples of Asset Tag labels with and without PID.

**Note:** dimensions in mm, shown for reference only.



PN 46D2241	EC L80800J 30 Jan. 2012					
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## 4.8 Printing

*Thermal transfer* printing must be used for Asset Tags.

The printing of the Asset Tag to be white lettering on black background.

Printing to be done with black label stock and white ribbon.

‘Inverse’ printing using white label stock and black ribbon can also be used if black label stock is not available due to inventory or printer constraints.

The print ribbon must be resin or wax/resin thermal transfer ribbon DNP R510W (white ribbon), or DNP R510 (black ribbon) when white label stock is used.

Recommended printers are Zebra printers. IBM will provide ZPL code that can be used on Zebra printers or Zebra compatible printers (see Annex B of this specification).

The minimum print quality of the 2D symbol must be ‘Grade C’.

The print quality of the human readable characters of the Asset Tag must be such that letters don’t fade out, bleed and are legible.

## 4.9 Label Stock

The label stock must be 3M 7874 polyester with 3M 7744 adhesive or IBM Industrial Design approved equivalent. Label top surface to be suitable for use with a resin or wax/resin thermal transfer ribbon as specified in section 4.8.

## 4.10 Label Placement and Location

The Asset Tag label shall be placed at the location on the product as determined by product development.

In absence of such a predetermined location, it shall be placed on an even surface of the machine that is facing out and thus is readily visible to an operator. It shall not cover ‘functional areas’ like buttons, ventilation slots etc.

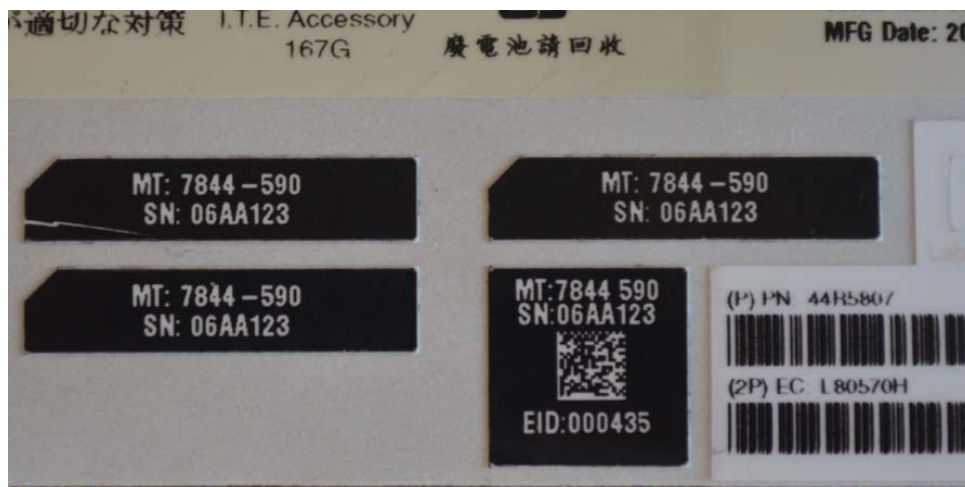
PN 46D2241	EC L80800J 30 Jan. 2012					
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## Appendix A: Examples

a) Picture of a PID version of the Asset Tag. This example shows the Asset Tag as part of the ‘Certification’ label.



b) Picture of a non-PID version of the Asset Tag. This example shows the Asset Tag as part of the ‘Certification’ label.



PN 46D2241	EC L80800J 30 Jan. 2012					
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## **Appendix B: ZPL Code**

This section provides the ZPL (Zebra Programming Language) code to create and print an Asset Tag on a Zebra printer or other printer that is able to handle ZPL code.  
This also applies to existing printer code that uses ZPL.

For implementation the new 2D Datamatrix barcode on the 15x15 Machine Identifier label (Chin label, residing on the System Certification Label multi-part stock), the following code should be used:

### ***1) Non-SEO versions (product is identified by machine-type model) :***

```

^FO696,481^FB172,2,-5,C,0^A0B,27,24^CI13^FR^FD^FN17^FS
^FO744,528^BxB,3,200,,^FR^FH^FD^FN18^FS
^FO812,481^FB172,2,-5,C,0^A0B,27,24^CI13^FR^FD^FN19^FS

^FN17^FDMT:{MATP,var,L} {MMDL,3,L}\&SN:{MSPI,var,L} {MCSN,5,R}^FS
^FN18^FD_7E631P{MATP,var,L} {MMDL,3,L}_1DS{MSPI,var,L} {MCSN,5,R}_1D3V{EID,var,L}^FS
^FN19^FDEID:{EID,var,L}^FS

```

### ***2) SEO/Fixed Config version (product is identified by Product ID):***

```

^FO686,481^FB172,2,-5,C,0^A0B,27,24^CI13^FR^FD^FN27^FS
^FO731,528^BxB,3,200,,^FR^FH^FD^FN28^FS
^FO802,481^FB172,2,-5,C,0^A0B,27,24^CI13^FR^FD^FN29^FS

^FN27^FDMT:{MATP,var,L} {MMDL,3,L}\&SN:{MSPI,var,L} {MCSN,5,R}^FS
^FN28^FD_7E631P{MATP,var,L} {MMDL,3,L}_1DS{MSPI,var,L} {MCSN,5,R}_1D3V{EID,var,L}_1D1P{SEON,var,L}^FS
^FN29^FDEID:{EID,var,L}\&PID:{SEON,var,L}^FS

```

### ***Definition of the variables:***

MATP = Machine Type variable  
MODEL = Machine Model variable  
SEON = SEO/Variant/Fixed Configuration identifier variable  
MSPI = Machine Serial Plant Indicator variable (first 2 characters of IBM machine serial)  
MCSN = Machine Serial Number variable

**Note:** the variables don't need to be named like this. It just shows what is used by some programs

PN 46D2241	EC L80800J 30 Jan. 2012					
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## Appendix C: Revision History

Date	EC Level	Changes
2012-01-30	L80800J	Initially created as a new volume of the GLG.

PN 46D2241	EC L80800J 30 Jan. 2012					
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