2D BARCODE STANDARD FOR LENSES (OPTICAL PRODUCT CODE/COUNTRY OF ORIGIN)

VOLUNTARY GUIDELINES FOR OPTICAL LENSES

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Developed by:
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Country of Origin for Lenses Task Force

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This voluntary program provides the format and placing of a scanable two dimensional Data Matrix barcode, containing a minimum of Optical Product Code (OPC), Country of Origin (CoO), and Country of Processing. Participation by manufacturers, distributors, retailers, and wholesalers can dramatically reduce costs, delays in shipping, and confusion as to the correct product identification and what the CoO might be. The Vision Council and its members support use of this certification program.

There may be practices, standards, and/or regulatory requirements applicable to your operations that exceed the recommendations in this document. You are solely responsible for determining if such practices, standards, or requirements exist and whether they apply to your activities, and for complying with those that are applicable. Such practices, standards, and requirements can change over time.

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1. SCOPE

The scope of the committee's work is to write a voluntary standard for members that identifies a location and a method for lens packaging such that machine readable Optical Product Code identifier, Country of Origin (made in), and Country of Processing (additional transformation); information can be placed. Determination as to the bar code type(s) and country code utilized shall also be within the scope of this task group.

The committee will also investigate if other tracking information can be incorporated into this scanner code. We believe this will increase accuracy and reduce overall costs of moving lenses from one country to another and create a standardized format identifying the OPC, CoO, and Country of Processing for optical lenses.

2. NORMATIVE REFERENCES

The following normative references contain additional terms and guidelines that are applicable to this standard. Wherever possible, the terms and guidelines presented in this standard have been written in accordance to these references:

Optical Product Code Reference Guide, Optical Product Code Council, The Vision Council

ISO 3166-1, *Codes for representations of countries and their subdivisions*, International Standards Organization

ISO/IEC 16022, *Information Technology-Automatic identification and data capture techniques-Data Matrix barcode symbology specification*, International Standards Organization

Introduction to GS1 DataMatrix, GS1 DataMatrix Guide, GS1 DataMatrix ECC200, GS1 Global Office, **www.gs1.org**

3. DEFINITIONS

Country of Origin (CoO): For this voluntary standard, "country of origin" will be determined by the manufacture as "Made In" vs. "Processed In." The origin of the substrate will designate the "Made In" country. North American Customs - The Country of Origin could be the origin of the substrate where the lens blank was cast or molded or where substantial transformation may occur. The manufacture will always designate the Country of Origin by using the applicable legal guidelines that relates to their products.

Examples – Made In China or Substrate Made In Thailand

Country of Processing: For this voluntary standard, "country of processing" will be determined by the manufacturer as "Processed In" vs. "Made In." Additional transformation of the product happens in the declared Processed In country. This occurs when a process is applied by a facility to a lens blank, which is different from where the lens blank is cast/molded.

Example – Substrate Made In Thailand, Processed In Philippines

Lens Product Label: This is a label that is applied to either a sleeve (Finished Single Vision Product) or a box (Semi-Finished Product). The product label will have data and information about the product that is inside the package.

ISO Country Code: For this voluntary standard, the use of ISO Standard 3166-1 will use a three-digit numeric code. This code is a global standardized code, which will correspond to the country the product was "Made In". If no country is applicable, use three-digit code 999 for no country of reference.

Barcode Format: For this voluntary standard, the Data Matrix ISO version ECC 200 is used to contain the data structures required by this specification. A more detailed technical specification can be found in the International Standard ISO/IEC 16022.

Human Readable Country Code: A human readable "Made In" printed verbiage identifying the country for the substrate in which the lens blank was cast or molded. This will be used when the 2D barcode cannot be scanned or if 2D equipment is not available. For North American Customs a printed "Made In" or "Substrate Made In" will always have to be printed on the label/package.

Example – Made In Japan

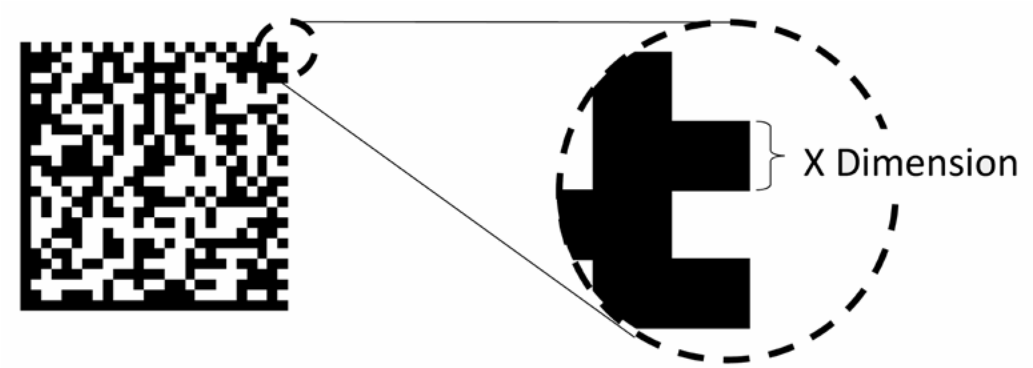
Encoding Acronyms: AI *Application Identifier*, **<GS>** *Group Separator – ASCII decimal code 29*, **GTIN** *Global Trade Item Number*, **FNC1** *Function 1 Symbol Character – ASCII decimal code 232*.

Application Identifiers: The two- and three-digit codes that identify subsequent field, as chosen to be compatible with the GS1 standards.

240..... Additional Item Identification
422 .....Country of Origin (Made in, Substrate Made In)
424 .....Country of Processing (Processed In)
01 .....Global Trade Item Number (GTIN)
90 .....Information Mutually Agreed Between Trading Partners
91-99 .....Company Internal Information

4. REQUIREMENTS FOR DATA MATRIX BARCODE

- The product and country barcode will be a barcode type ECC 200 Data Matrix as defined in ISO/IEC 16022
  - X Dimension: No less than 0.010 inches, with recommendation of minimum five times the printer dot resolution. The X dimension should always be an even multiple of the printer resolution such that dots are produced with equal size in horizontal and vertical dimensions.
  - For improved scanning speed, white space recommendation is three times the X dimension on all sides of the code.
  - Orientation of Barcode: No rotation with respect to printing direction.



- The barcode would contain a minimum 28 characters with the following sequence of encoding:
  - FNC1 (code 232 ASCII)
  - Three character identifier “240” to indicate secondary identifier
  - Ten digits of Optical Product Code, including the check digit (see Optical Product Code Reference Guide for further details)
  - FNC1 (code 232 ASCII)
  - Three character identifier “422” to indicate country of origin
  - Three digit country of origin (per ISO Standard 3166-1)
  - FNC1 (code 232 ASCII)
  - Three character identifier “424” to indicate country of processing
  - Three digit country of processing (per ISO Standard 3166-1)

	AI1	OPC Code 10-digit		AI2	Origin		AI3	Processed in
FNC1	240	9999232045	FNC1	422	840	FNC1	424	999

- Additional data to be shared with the customer or within the member organization must only be placed following these 28 encoded characters.
- The Data Matrix barcode for lenses is designed to allow for GS1 compliance. By including additional fields according to the GS1 Data Matrix specification, the member company can produce encoded data to conform with GS1 Data Matrix (see GS1 General Specifications).
- A human readable OPC is required on the lens package on all faces of the label.
- A human readable country code will still be needed for companies that are not using scanable technology.
  - **Made in Japan**
- Example – Made In Japan

5. PLACEMENT OF DATA MATRIX BARCODE

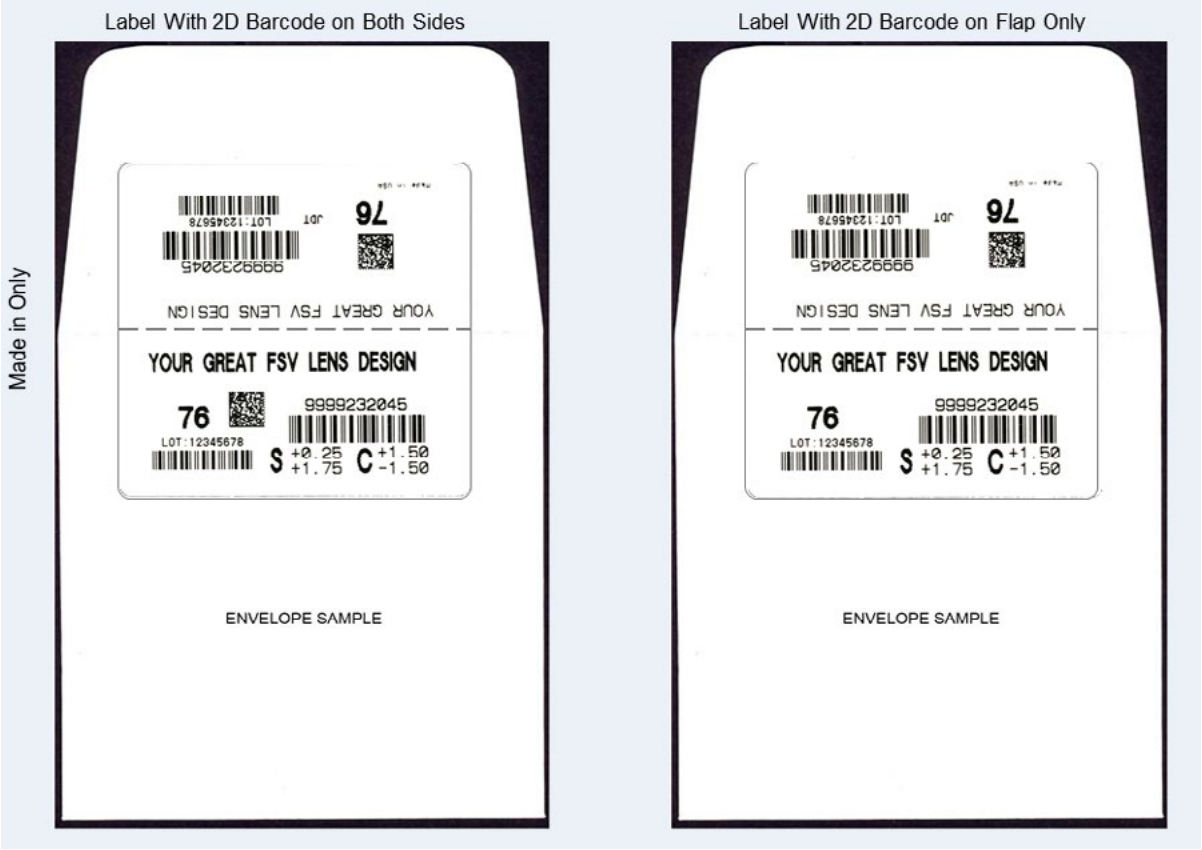
- Finished Single Vision Lens Envelope Packaging
  - The Data Matrix barcode should be on the flap of the envelope.
  - Preferred location is both sides of the envelope.
- Semi-Finished Lens Box Packaging
  - The Data Matrix barcode needs to be located on the same label side as the OPC barcode. Minimum requirement is to have the Data Matrix either on the top of the box or on the "face" of the box. The "face" can refer to either the front or the rear of the box, depending on the individual manufacture's box design/layout. Ideal design would be to have the Data Matrix barcode on the top and "face" of the box. This way, a lens box can be read from the top while in a carton or sleeve or while it is lying down flat.
- **Visual Examples of 2D Barcode** (26X26 Data Matrix ECC 200 - GS1 FNC1)

5. 1 PLACEMENT OF 2D BARCODE FSV LENS ENVELOPE PACKAGING

- Finished Single Vision Lens Envelope Packaging
  - OPC and 2D barcode is preferred to be in similar location for ease of machine scanning or RF Gun scanning
  - Preferred location for 2D is on the flap part of the label area. This will ensure ease of scanning both barcodes and reduce confusion.

Finished Single Vision Envelope Label

(TO SCALE 1:1)



Label With 2D Barcode on Both Sides

Label With 2D Barcode on Flap Only

5. 2 PLACEMENT OF 2D BARCODE SEMI-FINISHED PACKAGING

Placement of 2D Barcode Semi-Finished Blanks Box Packaging

Semi-Finished Blanks Box Packaging

OPC and 2D barcode is preferred to be in similar location for ease of machine scanning or RF Gun scanning

For cartons of lenses not individually labeled follow the Semi-Finished Blanks Box recommendations.

5. 3 2D BARCODE SAMPLE SIZE COMPARISONS

28 Characters Total
(Usable data – 16 characters)
10 - OPC
3 – Made in
3 – Processed in
18X18 smallest size for
28 Characters

Any size 2D barcode can be used with smaller amounts of data for uniformity

	AI1	OPC Code 10-digit		AI2	Origin		AI3	Pros in
FNC1	240	9999232045	FNC1	422	840	FNC1	424	999

All Labels to Scale 1":1"

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65 Characters Total
(Usable data – 48characters)
10 - OPC
3 – Made in
3 – Processed in
20 – Co. Int. Info. #1
11 – Co. Int. Info. #2
26X26 smallest size for
67 Characters

	AI1	OPC Code 10-digit		AI2	Origin		AI3	Pros in
FNC1	240	9999232045	FNC1	422	840	FNC1	424	999

	AI4	Company Internal Information		AI5	Company Internal Info
FNC1	91	1234567890ABCDEFGHIJ0	FNC1	99	1234567890a

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94 Characters Total
(Usable data – 76 characters)
10 - OPC
3 – Made in
3 – Processed in
30 – Co. Int. Info. #1
30 – Co. Int. Info. #2
32X32 smallest size for
96 Characters

	AI1	OPC Code 10-digit		AI2	Origin		AI3	Pros in
FNC1	240	9999232045	FNC1	422	840	FNC1	424	999

	AI4	Company Internal Information
FNC1	91	1234567890ABCDEFGHIJ0987654321

	AI5	Company Internal Information
FNC1	99	1234567890abcdefghij0987654321