POS Scanner Criteria
To make the transition to accepting 2D barcodes at point-of-sale (POS), scanner software will need to be updated:

1. To process trade items that may have multiple barcodes encoded with GS1 data structures/syntaxes and identification keys, for example a GS1 DataMatrix and an EAN-13 can be on the same trade item and will have the same GTIN.

2. To identify GS1 DataMatrix barcodes encoded with GS1 element string syntax, Data Matrix and QR Code encoded with GS1 Digital Link URI syntax.

3. To convert GS1 Digital Link URI to GS1 element string syntax.

4. GS1 Composite barcodes, GS1 DotCode and GS1 QR Code are out of scope.
POS Scanner Criteria (Yes/No)

1. Can recognise, decode and deliver information from all compliant retail 2D barcodes detailed in the latest GS1 General Specifications edition (i.e., EAN/UPC and GS1 DataBar retail family barcodes, GS1 DataMatrix, Data Matrix with GS1 Digital Link URI syntax & QR Codes with GS1 Digital Link URI syntax) and can be configured to ignore any non-GS1 data carriers?

2. Able recognise and decode reversed reflectance (a.k.a. inverse video) and normal reflectance for GS1 DataMatrix, Data Matrix and QR Codes?

![Normal reflectance (Black on White)](image1)

Normal reflectance (Black on White)

![Reverse reflectance (White on Black)](image2)

Reverse reflectance (White on Black)
3. After initially capturing the first GTIN from either a linear or 2D barcode, irrespective of the presence of multiple GS1-compliant retail barcodes on-pack, the scanner can promptly process and transmit the GTIN with a single audible (e.g., beep) or visual signal, and awaits subsequent product scans? Also known as Mode 1.

- **Mode 1 Example:**
  - If the QR Code encoded with https://dalgiardino.com/01/09506000134352/10/ABC?17=231231 is decoded first, then the scanner signals the GTIN has been decoded and transmits 010906000134352
  - If the EAN-13 is decoded first, the scanner signals the GTIN has been decoded and transmits 9506000134352
POS Scanner Criteria (Yes/No)

4. Are the results for a single product with GS1-compliant retail 2D barcodes transmitted in less than 300 milliseconds for high-speed bioptic scanners, and under 500 milliseconds for presentation and an activated handheld device (add examples), from the moment the GS1-compliant barcode enters the scanner's field of view? Mode 1 Example:
5. Can be configured to prioritise the GS1 compliant retail 2D barcodes decode first with a single audible (e.g., beep) or visual signal and transmit GTIN + any additional data (e.g., lot/batch, expiry date, ...) in a common format (GS1 element string syntax) and, if one cannot be found, transmit data from the linear barcode? Also known as Mode 2.

- **Mode 2 Example:**
  - QR Code encoded data https://dalgiardino.com/01/09506000134352/10/ABC?17=231231
  - EAN-13 encode data 9506000134352

Independent of direction of travel the scanner transmits:
010950600013435210ABC^17231231

In this example, the "^" replaces the unprintable hex 1D (Group Separator) character.
POS Scanner Criteria (Yes/No)

6. Can the scanner be configured to identify, decode, and transmit all GS1 compliant general retail barcodes (linear or 2D) on a product, while generating an 8-digit label identification to associate multiple barcodes with the same trade item? Upon capturing the first GTIN from either a linear or 2D barcode, the scanner promptly provides a single audible (e.g., beep) or visual signal. The scanner will generate an 8-digit label identification in a common format head of the barcodes Plain & GS1 element string syntax. Also known as Mode 3.

- Mode 3 example

```
12345678~010950600013435210ABC^17231231
12345678~9506000134352
```

In this example, the “^” replaces the unprintable hex 1D (Group Separator) character and the “~” is not transmitted but shows the end of the label identification.

- QR Code encoded data https://dalgiardino.com/01/09506000134352/10/ABC?17=231231
- EAN-13 encode data 9506000134352
7. Scanner is configurable by the retailer to transmit their desired data (GTIN or GTIN + additional data) from one or all the GS1 compliant retail barcodes?