Checklist

GS1 Sunrise 2027 and QR codes

Inline-printed QR codes powered by GS1 Digital Link

This checklist supports brand owners, manufacturers, co-packers, and packaging operations preparing for GS1 Sunrise 2027, focusing on the implementation of QR codes powered by GS1 Digital Link for retail point-of-sale (PoS) scanning.

GS1 Sunrise 2027 basics

GS1 Sunrise 2027 is an industry initiative led by GS1 to enable retail PoS systems to scan and process 2D barcodes by 2027. It is not a regulatory mandate.

QR codes powered by GS1 Digital Link

As the primary 2D barcode format for retail PoS, **QR codes** enable both checkout scanning and, where applicable, consumer access to web-based information. GS1 Digital Link can also be carried in **DataMatrix** symbols. But while DataMatrix codes are permitted under GS1 standards, they are less commonly used for retail PoS and consumer engagement.

Learn more

- ✓ **GS1 Sunrise 2027 overview (GS1 US):** *https://www.gs1us.org/industries-and-insights/by-topic/sunrise-2027*
- ✓ **GS1 US Sunrise 2027 one-pager (PDF):** *https://documents.gs1us.org/adobe/assets/deliver/urn:aaid:aem:24e150cc-390c-482b-b7d2-0bc277adcfb8/GS1-US-Sunrise-2027-One-Pager.pdf*
- ✓ **GS1 Digital Link standard:** *https://www.gs1.org/standards/gs1-digital-link*
- ✓ **GS1 General specifications** (authoritative reference): *https://ref.gs1.org/standards/genspecs/*

► Applicability and scope for GS1 Sunrise 2027

- ☐ Identify which products are sold into retail environments where PoS systems are expected to scan 2D barcodes by 2027.
- ☐ Define the scope of products, packaging formats, and markets included in your GS1 Sunrise 2027 transition.
- ☐ Align packaging, IT, quality, marketing, and operations teams on Sunrise objectives, timelines, and ownership.
- ☐ Establish an approach for running QR codes powered by GS1 Digital Link alongside existing EAN/UPC barcodes during the transition period.

► QR code data structure and GS1 Application Identifiers

- ☐ Define the required GS1 Application Identifiers (AIs) and data attributes for each product and packaging format.
- ☐ Apply GS1 Digital Link syntax and AI ordering rules as defined by GS1 standards.
- ☐ Include the Global Trade Item Number (GTIN) where required for retail PoS scanning.
- ☐ Ensure variable data values (such as lot/batch, serial number, or expiration date) align with approved product records.
- ☐ Use GS1-defined structures and rules as the reference for code configuration, rather than custom or proprietary formats.

See the GS1 Application Identifiers:
https://ref.gs1.org/ai/

GS1 Sunrise 2027 and QR codes

QR code printing method and execution (inline printing)

- [ ] Generate QR codes using GS1-defined data inputs supplied from approved upstream systems.
- [ ] Select print technology based on substrate, production speed, environment, and required QR code resolution: thermal transfer overprinting (TTO), laser marking, thermal inkjet (TIJ), or continuous inkjet (CIJ).
- [ ] Print QR codes and monitor print output during production and address data or print quality issues before product release.
- [ ] Confirm printed codes remain durable and legible through handling and distribution.

QR code dimensions and application context

- [ ] Define QR code dimensions based on application context, not a single universal size.
- [ ] Account for scanner type, scan distance, substrate, print area, and PoS performance expectations.

See the GS1 General Specifications:
https://ref.gs1.org/standards/genspecs/

QR code quality requirements for point-of-sale

- [ ] Design and print QR codes to meet GS1 minimum quality requirements for retail PoS use.
- [ ] Apply ISO/IEC 15415 standards in grading the QR code symbol quality.
- [ ] Meet the required quality threshold based on application context as defined in the GS1 General Specifications.

See ISO/IEC 15415:
https://www.iso.org/standard/76876.html

QR code verification

- [ ] Verify QR codes using appropriate offline or inline verifier devices.
- [ ] Grade symbol quality in accordance with ISO/IEC 15415 and GS1 General Specifications.
- [ ] Confirm that both the encoded data values and GS1 Digital Link format are correct as part of the verification process.
- [ ] Retain verification results to support troubleshooting, audits, or downstream inquiries.

See GS1 Barcode Syntax Resource to check formats:
https://www.gs1.org/standards/gs1-barcodes/gs1-barcode-syntax-resource

How Videojet can help

Videojet can support GS1 Sunrise 2027 readiness by assisting with inline QR code execution aligned to GS1 standards. Support may include evaluation of printing technologies, substrate testing, and confirmation that printed QR codes meet GS1 and ISO verification requirements.

Videojet teams can assist with equipment configuration, job setup, and checks that support correct GS1 Digital Link data structures, consistent print quality, and reliable point-of-sale scanning performance.

This checklist reflects a Videojet interpretation of GS1 Sunrise 2027 guidance and related GS1 standards and is provided as general guidance only. GS1 Sunrise 2027 is an industry initiative, not a regulatory mandate, and implementation approaches may vary by organization and use case. Businesses preparing for GS1 Sunrise 2027 are responsible for understanding applicable GS1 specifications and retailer requirements and should refer to GS1 standards and conduct their own review to determine how the initiative applies to their operations.

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