GS1

Product Image Specification Standard

establishes rules for the storage of digital images associated to products and provides details on all aspects of digital imaging storage.

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Log of Changes

Release	Date of Change	Changed By	Summary of Change
2006 06 29	2006 29 June	D. Buckley	Converted 'VICS Product Image Specification' into GS1-GSMP template format
2006 07 11	2006 11 July	R. Laur	Updated information for CR submission to GSMP
1	2006 08 December	GDSN/GSMP Imaging Specification Work Group	See analysis documentation.
2	2007 11 January	GDSN/GSMP Imaging Specification Work Group	See comment resolution document from GSMP Public Review
2.1	2007 07 February	GDSN/GSMP Imaging Specification Work Group	Errata to fix examples.
2.2	2007 13 February	GDSN BRG	Clarification of examples 4-2, 4-3, 4-4

2.3	2008 26 February	D.Clark	Clarification to planogram naming structure 2.1.5
2.4	2013 08 30	GDSN/GSMP Imaging Specification Work Group	WR # 12-046; 12-244; 12-253; 12-254; 12-255; 12-256; 12-257; 12-258; 12-259; 12-310; 12-312; 12-313; 12-322; 13-018; 13-040; 13-105
2.5	2014 03 11	Errata	Corrections to wording and examples added
2.6	2014 10 01	GDSN/GSMP Imaging Specification Work Group	WR #14-076; 14-023; 14-038; 14-055; 14-099 ☐ OK
2.7	2015 03 02	GDSN/GSMP Imaging Specification Work Group	WR # 15-004 rendered images
2.8	Sept 2015	D.Buckley & D.Clark	Applied new GS1 branding prior to publication and WR # 14-071 (Metadata added); 14-184 (style sheet to identify facing level below each); 14-200 & 14-201 (GDTI Based Naming added); 15-154 (descriptions added to the image capture types for still shot single & multiple GTIN)
3.0	Jun 2017	D.Buckley & D.Clark	Document re-design based on WR 16-219
3.1	Nov 2017	D.Clark	WR 17-083: Add new Section 2.5.5 Sample (Prototype) Image type I and WR17-196 Update for Product Label Images
3.2	Jul 2018	D.Clark	WR 18-054 updates to Section 3.2 and 18-088: updates to Section 2.2 & 2.8 for images saved with transparent backgrounds.

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Table of Contents

1 Introduction

This GS1 standard establishes rules for the storage of digital images associated to products. The product identification number used is the Global Trade Item Number (GTIN) and this document provides details on all aspects of digital imaging storage. This document does not specify how the images should be delivered via electronic commerce. Image delivery is out of scope.

These rules are based upon the guidelines that were originally developed in July 2005 by Voluntary Interindustry Commerce Solutions Association (VICS), *http://www.vics.org*, so there would be consistency in the use of digital images for trade facilitation.

It is important to note that digital assets (e.g. images) are only one part of what is needed. Data, both meta and associated, are essential for the timely and accurate usage of the assets. Additional information on minimum data requirements are outlined in the TIIG (Trade Item Integration Guideline).

1.1 Determining the front face

All product images are important, so too the exchange of information between trading partners. To ensure what is identified meets what is expected, an agreed upon identification structure is required. The first step is the determination of the front face of an item.

1.1.1 Default front face

The front facing of the products is determined by the GDSN Package Measurement Rules (*Section 4.2 Determining the Default Front of an Item*). All other facings are taken in relation to the front face and are identified with a numerical extension identifying that face. Merchandisable facings are automatically captured as the numerical extension allows multiple images (and facings) for the same GTIN.

2 Marketing image types

The information below discusses the identification of, technical file components and naming practices of marketing images. For image capture recommendations please refer to Appendix A4 Photography Basics.

Differentiating Photographic Images from Rendered Images

The differentiation of images as to their being photographic or rendered in nature is somewhat subjective and while it can be reasonably argued that a photographic image once digitally stored and retouched ceases to be photographic; striking a balance between the two becomes necessary when identical product images exist in a single system as both photographic and rendered particularly when the associative nomenclature within the existing guidance calls for both files to be identically named. When this occurs there must be a definitive process in order to determine the difference between the two when both are expected to exist simultaneously in the same environment.

2.1 Photographic images

Photographic image: the result of the electronic or chemical capture of a likeness of a physical object with the use of a camera.

Photographic images may become digitised, stored in a digital format or can be immediately stored in a digital format directly from within the camera itself. Where photographic images were retouched physically even colourised, these process can take place with a photographic image within specialised software. While these images may reside and may have been altered in a digital environment they were at one time a physical capture of object and light as captured by a camera with a photographer and should be considered 'photographic images'.
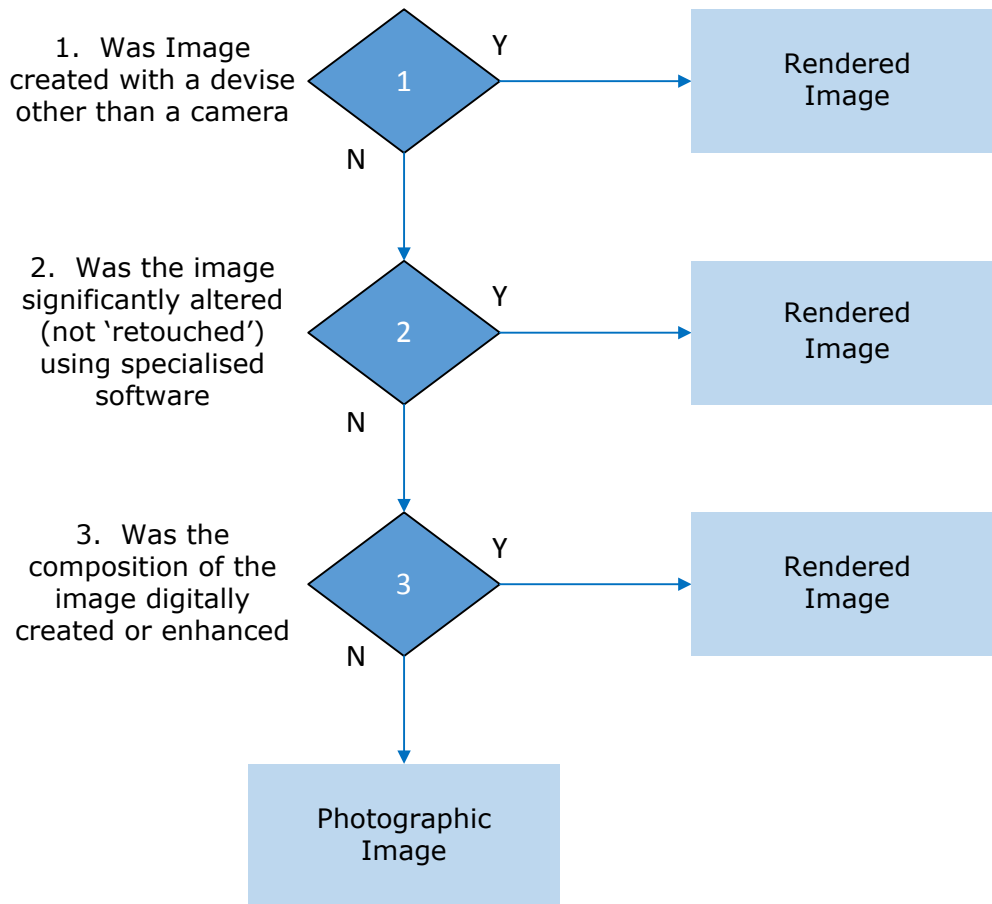
2.2 Rendered images

Rendered image: the result of the creation of a digital likeness of a physical object with the use of a computer and software.

Rendered images often do not begin with a photographic device. While rendered images do have the traits necessary to be physically transferred to paper or film, they often reside forever within a digital environment, viewed only by way of a projection device such as a monitor, phone or projector. Where photographic images were once retouched physically, similar processes for rendered images take place almost entirely within specialised software. While a rendered image may contain (data) once contained by a 'photograph' once the image is digitised, edited, scaled, coloured, lit and posed within a digital composition, it becomes a rendered image, which is not to say that a photograph retouched with specialised software does not remain photographic, that distinction is left to the brand owner.

2.3 Differentiation of images

While arguments can certainly be made as to the nature of images, be they photographic or rendered; given the preceding paragraphs and considering that even rendered images may contain information (data) once contained by a 'photograph'; discernment or differentiation between photographic and rendered images is at the discretion of the brand owner, in other words, identifying an image as being photographic or rendered when one or the other exists is optional. Differentiation between photographic and rendered images becomes recommended, though not required, when they both exist in the same file system when the file system is the brand owners or shared between Trading Partners.

2.4 Image Differentiation Decision Tree

1. Was Image created with a devise other than a camera

Diamond 1 — Y → Rendered Image

N ↓

2. Was the image significantly altered (not 'retouched') using specialised software

Diamond 2 — Y → Rendered Image

N ↓

3. Was the composition of the image digitally created or enhanced

Diamond 3 — Y → Rendered Image

N ↓

Photographic Image

2.5 Image types

Section	Image type
2.5.1	Product Image (web)
	Product Image with Supporting Elements (web)
	Product Image (High Resolution)
	Product Image with Supporting Elements (High Resolution)
2.5.2.1	Product Image 360*
2.5.3	Detail Image
2.5.4	Montage Image
2.5.5	Sample (Prototype)/Mock-up Image
2.5.6.1	Full Flat
2.5.6.2	Nutritional Label
2.5.6.3	Barcode
2.5.6.4	Ingredients
2.5.6.5	Nutritional/Ingredients combined
2.5.6.6	QR Code

2.5.1 Marketing image specifications: Product image with and without supporting elements

It is understood that there will be instances where photography, other than "product" photography will be needed. Also, situations may arise where product shots are needed at a size or resolution that exceeds the above-mentioned standards. In these cases, it will be up to the customer to either originate the photography themselves, or work out arrangements with the vendor to supply said photography on an "as needed" basis. ALL supplied photography should conform to the guidelines listed below.

✓ **Note**: Marketing Images applies to both digital images captured through use of a digital camera or other digital imaging devices as well as rendered images.

✓ **Note**: Rendered images are computer generated images which can be comprised of graphic renderings and/or digital images to create a lifelike product semblance.

There are two basic types of marketing images:

Product Image (Single GTIN): which is an image of a product on a white background, with no other elements in the frame.

Product Image with Supporting Elements in Image: which is an image of a product on a white background, with additional elements that are not including when selling the product. The additional elements are to strengthen the product, not to create a 'Beauty shot' also referred to as a staged shot. It should incorporate additional items which enhance the product, (e.g. a glass of wine and stem of grapes with a bottle of wine (GTIN); fresh vegetables surrounding a bottled sauce (GTIN); a cooked and plated version of the product being sold in the same frame as the item, etc.)

It is recognised that due to the many potential combinations of format, resolution and size in end user applications, it is not possible to enumerate all possibilities in a standard. It is the understanding that the specifications recommended for advertising images are of sufficiently high quality that they will provide a source image that can be repurposed by the end user for their own specific applications. This includes different print media formats and items as well as Ecommerce (electronic) images.

2.5.2 360 imaging vs. 3D interactive imaging vs. 3D modelling

Although these terms can often be misapplied here is a general definition of these digital entities:

- 360 degree imaging is product photography on a single axis – the product rotates on a single axis while the camera takes pictures at specified degree intervals. The images taken of a product can be associated together in a viewer; to allow for an interactive image to be created that can be rotated by the user to replicate a sense of a physical product in a digital setting.

- 3-D product interactive photography is 360* product photography on more than one axis. When the images are edited, formatted, and associated to the viewer, the consumer can rotate the product along the sides and the top – this is a 3D interactive image.

- 3D modelling (also known as a 3D rendered model) is a process whereby a digital framework is created and then graphic layers are applied or created to 'build' a virtual object which, through software, can be rotated in any direction, to allow for an interactive object to be created that can be manipulated by the user.

2.5.2.1 Product image 360*

360 degree imaging is product photography on a single axis – the product rotates on a single axis while the camera takes pictures at specified degree intervals. (Also see *section 5.1 360* Meta data*) All images should be captured with the same plunge angle to ensure a smooth 360 result.
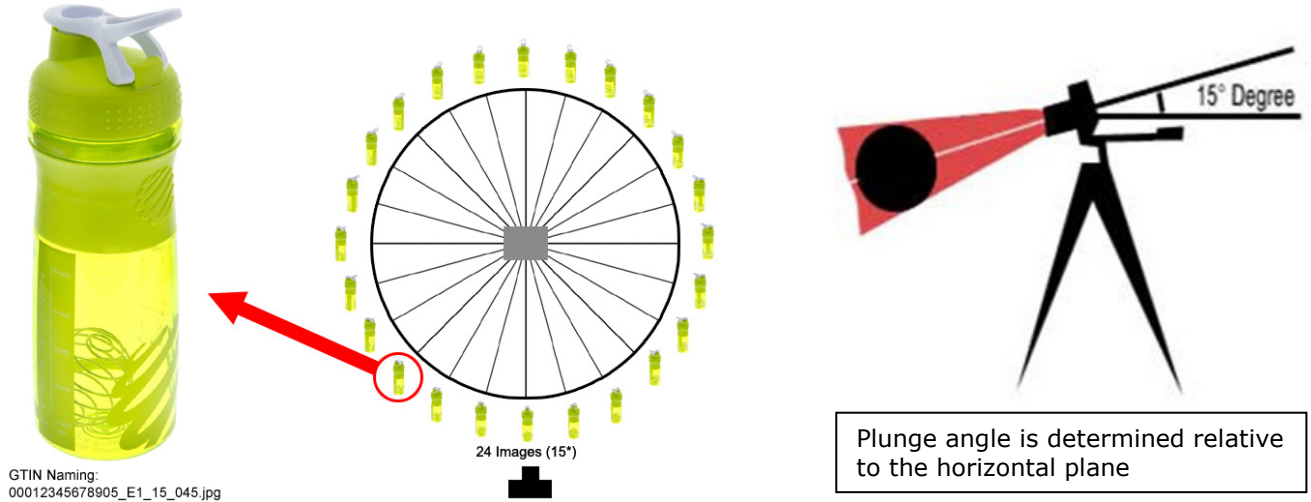
GTIN Naming:
00012345678905_E1_15_045.jpg

24 Images (15*)

15° Degree

Plunge angle is determined relative to the horizontal plane

2.5.2.2 Number of images

Minimum of 24 images (Maximum 360)

Note: Larger items would benefit from an increased number of images to ensure a fluidity of motion. Industry applications should be considered for total image count.

2.5.2.3 Direction of rotation

The direction of rotation for image capture should be Clockwise.

Direction is determined from observing the sequence of images of the item from a centre top vantage point, looking down upon the object.

2.5.2.4 Image sequence (Arc position)

The image sequence should be identified in the image name, or associated data, and should follow the stitching sequence used to complete the 360* pattern or mapping.
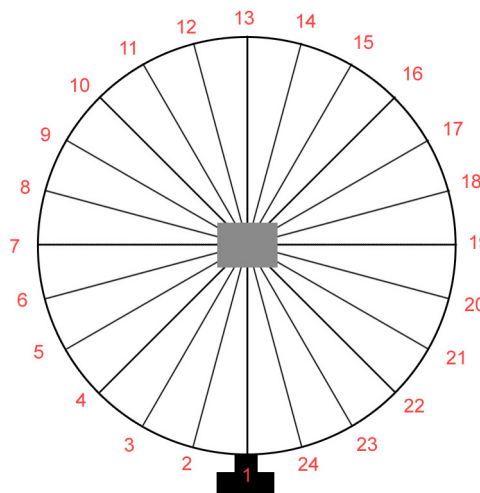
| Image Sequence	Arc position value	Image Sequence	Arc position value	Image Sequence	Arc position value
1	0*	9	120*	17	240*
2	15*	10	135*	18	255*
3	30*	11	150*	19	270*
4	45*	12	165*	20	285*
5	60*	13	180*	21	300*
6	75*	14	195*	22	315*
7	90*	15	210*	23	330*
8	105*	16	225*	24	345*

2.5.3 Detail image

A detail image is a photo, line art or other graphic representation of a specific product characteristic. It is used to highlight a specific detail or characteristic of an item See examples:

Montage of marketing image and detail image

Detail image
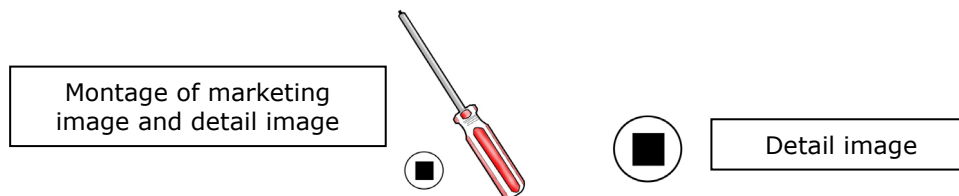
2.5.4 Montage image

A Montage is the physical over layering of distinct images to create a final digital image.

This process allows for a composite to be created with the future possibility of reconstruction without having to return to studio for correction, should an element be added or removed.

Still shot single GTIN marketing image

Montage of marketing images
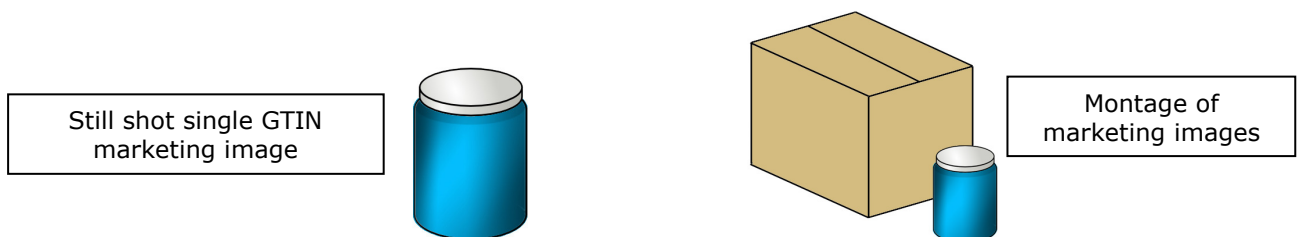
2.5.5 Sample (Prototype)/Mock-up Image

The Sample (Prototype)/Mock-up Image is generally created whether the product is ready for ordering or is still in production (pre-production) stage.
It can be a sketch (line art drawing) an image or a computer-generated rendering. The drawing should only depict the style and be free of dimensions and other technical details.
The image is intended exclusively for internal use and communication between business partners (b2b) and is used to conceptualize the product for the ordering process.

Note: Due to the nature of the image, only GDTI naming may be employed for this image type.

2.5.6   Product Packaging/Label Information (flat, barcode, nutrition facts panel and ingredient list)

Packaging or label images are important for EDI applications to enable the consumer to validate information they would normally access from a physical product.

2.5.6.1 Full Flat

A Full Flat is the term used for the final print layout of a product's packaging. It is generally the print layout for any and all information that will appear on the final product.

File naming example: 00012345678905_L1.tiff

2.5.6.2 Nutritional Label

The Nutritional Label is a portion of the full flat layout, specifically identifying the regulated information related to a product's nutritional composition. Given the nature of the content, this image type only applies to consumable food products.

File naming example: 00012345678905_L2.tiff

2.5.6.3 Barcode

The Barcode image is used for any symbol applied to the product for the purposes of trade. Multiple instances may exist if the product is traded in industries with different machine readable applications (e.g. retail & regulated healthcare) in such cases more than one image may be required, and should be differentiated with the serialisation tag in GTIN based naming.

File naming example: 00012345678905_L3.tiff

2.5.6.4 Ingredients

The Ingredients image is a list of ingredients printed on the packaging. It may be separated by language in multiple areas on the product, and should be identified with the language expressed in the metadata associated and the appropriate position for GTIN based naming.

File naming example: 00012345678905_L4.tiff

2.5.6.5 Nutritional/Ingredients combined

Where regulations permit the combination of nutritional and ingredients, the Nutritional/Ingredients Combined image type will be used.

The language expressed should be identified in the metadata associated and the appropriate position for GTIN based naming.

File naming example: 00012345678905_L5.tiff

2.5.6.6 Marketing Content Code (QR Code)

The Marketing Content Code image is used for any consumer facing code applied to the product. (e.g,. A GS1 QR Code supporting a url)

Where marketing applications employ different links embedded in the codes, more than one image may be required, and should be differentiated with the serialisation tag in GTIN based naming.

File naming example: 00012345678905_L6.tiff

2.6   Image size/Format

Image type	Size range (pixels)	Resolution	Format	Colour mode	Clipping path
Product Image (web)	900x900 – 2400x2400	300 ppi	LZW Compressed TIFF	RGB	Required
Product Image with Supporting Elements (web)	900x900 – 2400x2400	300 ppi	LZW Compressed TIFF	RGB	Required
Product Image (High Resolution)	2401x2401 – 4800x4800	300 ppi	LZW Compressed TIFF	RGB	Required
Product Image with Supporting Elements (High Resolution)	2401x2401 – 4800x4800	300 ppi	LZW Compressed TIFF	RGB	Required
Product Image 360*	400x400 (minimum)	150 ppi	JPG/PNG	RGB	Optional
Detail Image	300x300 - 4200-4200	300 ppi	Any JPG/PNG/GIF recommended	RGB	Required
Montage Image	900x900 – 2400x2400	300 ppi	LZW Compressed TIFF	RGB	Required
Montage Image (High resolution)	2401x2401 – 4800x4800	300 ppi	LZW Compressed TIFF	RGB	Required
Sample (Prototype)/Mock-up Image	n/a (file size 500kb or less)	72 ppi	JPEG (no compression)	RGB	Optional
Product Packaging/Label Information (Flat; Barcode; Nutritional Fact Panel; Ingredients)	600x600 - unlimited	300 ppi	LZW Compressed TIFF	RGB	Optional

Note: Image size to be a 1:1 square aspect ratio (i.e. 900 pixels X 900 pixels)

Note: The ICC profile or exact colour space must be known and defined. The preference for storage of the source file is RGB 8 bit per channel.

2.7   Product background

Where product images have a clipping path applied all backgrounds must be knocked out to white (RGB 255/255/255).

2.8   Clipping paths

For the purpose of batch image repurposing the active clipping path must be named "Path 1." Default flatness setting should be 1-device pixels.

3 File naming

3.1 GDTI based file naming

All application rules based on GS1 identification keys apply to this naming convention.

- ■ the first 13 digits are the GDTI
- ■ (optional) the next 1-17 alpha numeric characters are the serial component

Note: GDTI is the recommended naming convention for all document types which are transmitted via link (e.g. URL). There should not be any values prescribed to any specific character in the GDTI.
For more information on GDTI please refer to Section 4.8 of the GS1 General Specifications

3.1.1 Supporting data

Where the GDTI is used for image identification, it is required that associated data and/or meta data (see *section 5 Meta Data*) be available for proper processing of these images in a database.

3.2 GTIN based file naming

A significant portion of the Marketing image standard covers the naming conventions to identify the views represented by each image. There could be multiple languages on a product leading to exceptionally long file names. There could also be more than one marketing view available for a product. The same product in Country A with bilingual packaging will not have the same GTIN as the version sold in Country B which has another set of languages. The languages on the packaging will be unique to the specific product GTIN. When all merchandisable views contain all languages present on packaging, there is no need for a language indicator (Example default in-package, primary merchandisable view). Only when alternate views exist unique language facings require a unique language indicator (Alternate side of same product with alternate language view - in this case the English view would add the "_en" to the file name).

This leads to the other key aspect of identification. When faced with multiple merchandisable faces, which is the primary. To resolve this, refer to the existing standards for determining the front face found in the GDSN Package Measurement Rules (see the following excerpt).

Note: Prior to any measurement capture, the Default Front of the trade item must be determined. For the purposes of this standard, the Default Front is the side with the largest surface area that is used by the manufacturer to "sell" the product to the consumer, in other words, the side with markings such as the product name.

Character position	Value	Description	Image Type (16th Position)							
			A	B	C	D	E	F	M	L
1-14	(N14)	Product GTIN	x	x	x	x	x	x	x	x
15	_	(underscore)	x	x	x	x	x	x	x	x
16	A	*A - Product Image (Web)*	x							
	B	*B - Product Image with Supporting Elements (web)*		x						
	C	*C - Product Image (High Resolution)*			x					
	D	*D - Product Image with Supporting Elements (High Resolution)*				x				
	E	*E - Product Image 360**					x			
	F	*F - Detail Image*						x		
	M	*M - Montage Image*							x	
	L	*L - Product Packaging/Label Information*								x

17 Only one may be used	0	0 - Not applicable	x	x	x	x				
	1	1 - Front	x	x	x	x				
	2	2 - Left	x	x	x	x				
	3	3 - Top	x	x	x	x				
	7	7 - Back	x	x	x	x				
	8	8 - Right	x	x	x	x				
	9	9 - Bottom	x	x	x	x				
	_	(underscore)						x	x	
	(N1)	Facing Type (based on planogram designation)					x			
	1	Full Flat (can only be used with 'L')								x
	2	Nutritional Label (can only be used with 'L')								x
	3	Barcode (can only be used with 'L')								x
	4	Ingredients (can only be used with 'L')								x
	5	Nutritional/Ingredients combined (can only be used with 'L')								x
	6	Marketing Content (QR Code) (can only be used with 'L')								x
18 Only one may be used	C	C - Centre	x	x	x	x				
	L	L - Left	x	x	x	x				
	R	R - Right	x	x	x	x				
	N	N - No plunge angle	x	x	x	x				
	_	(underscore)					x			O
	(N3)	Sequence Number (3 character numeric)						x	x	
18+	(a2) or (a2-A2)	Language Indicator (2 character alpha):ISO639 format - Example syntax for populating a country variation of a Language Code attribute: aa or optionally aa-AA where aa = ISO 639-1 code list, must be lower case where AA =ISO 3166-1 Country Code, 2 Alpha character representation, must be upper case to be used only if multiple faces of dissimilar languages occur								O
	S(N2)	Serialisation/Sequence Number (3 character alphanumeric): lowercase 's' followed by 2 numeric digits for Sequence number will be added at the end of file name with the following format: xxxx_sNN (underscore, lowercase "s" and then 2 numeric mandatory)								O
19 Only one may be used	1	(1) In packaging	x	x	x	x				
	0	(0)Out of packaging (i.e., the product as it first arrives "out of packaging" not how it appears after it has been processed or prepared)	x	x	x	x				
	A	(A) Case – A shot of the product in its case as it would appear to the operator upon delivery.	x	x	x	x				
	B	(B) Innerpack – A shot of the product as it would appear inside its packaging inside the case.	x	x	x	x				

C	(C) Raw/uncooked – A shot of a product that has not been cooked or processed or that needs to be cooked or further prepared before it is considered edible.	x	x	x	x				
D	(D) Prepared - A shot of a product that has been taken from a raw or uncooked state to a cooked state according to the appropriate method of preparation (e.g., baked, fried, grilled or boiled).	x	x	x	x				
E	(E) Plated - Prepared food arranged simply on a serving plate, dish or bowl for better visibility. May include an additional step, such as garnishing, icing, seasoning or other enhancement		x		x				
F	(F) Styled - Carefully and artfully arranged for an attractive visual presentation, and designed to suggest the taste, aroma and appeal of the actual dish. May include complementary items (e.g., an entrée and sides) to present the impression of a complete meal. May also include an additional step, such as garnishing, icing, seasoning or other enhancement. May be presented with different backgrounds and at different angles.		x		x				
G	(G) Staged - A shot of a product that has been arranged for display in such a way as to provide clear visibility. The product may be propped up if necessary for optimum viewing, but it should not be held or used in any way by a person.		x		x				
H	(H) Held - A shot of a product that has been held out for display by one hand or a pair of hands. When relevant, proper grip should be demonstrated. Apart from the hands and forearms, no part of the person holding the item should be visible.		x		x				
J	(J) Worn - A shot of a product, such as a protective item or article of clothing, which is worn by a person. The complete product should be visible inside the frame, but the individual wearing it should be cropped out as much as possible.		x		x				
K	(K) Used - A shot of a product as it is meant to be used in its appropriate environment. Small utensils may be held in a hand or hands and used for their intended purpose.		x		x				
L	(L) Family - A shot of a number of related products (e.g., matched sets, place settings) arranged together in a single picture.		x		x				

| Position	Code	Description	1	2	3	4	5	6	7	8
	M	(M) Open Case - *A shot of a case, flaps open, that shows how the product(s) would look when an operator receives the product and opens the case.*		x		x				
*19-20	(N2)	Plunge Angle					x			
20	_	(underscore) optional separator	x	x	x	x				
21 +	(a2) or (a2-A2)	Language Indicator (2 character alpha):ISO639 format - Example syntax for populating a country variation of a Language Code attribute: aa or optionally aa-AA where aa = ISO 639-1 code list, must be lower case where AA =ISO 3166-1 Country Code, 2 Alpha character representation, must be upper case to be used only if multiple faces of dissimilar languages occur	O	O	O	O				
	(N4)	Image end date/promotional (4 character numeric) MMYY that image is valid until (i.e. If good until 1216 (Dec 2016) then to be removed after 01 January 2017.)	O	O	O	O				
	s(N2)	Serialisation/Sequence Number (3 character alphanumeric): lowercase 's' followed by 2 numeric digits for Sequence number will be added at the end of file name with the following format: xxxx_sNN (underscore, lowercase "s" and then 2 numeric mandatory)	O	O	O	O				
	R	Rendered image	O	O	O	O				
22-24	(N2)	*Arc position*					x			
25	_	(underscore) optional separator						O		
26-28	s(N2)	Serialisation/Sequence Number (3 character alphanumeric): lowercase 's' followed by 2 numeric digits for Sequence number will be added at the end of file name with the following format: xxxx_sNN (underscore, lowercase "s" and then 2 numeric mandatory)						O		

Example:

00012345678905_A1C1_1215_s01.jpg

| GTIN	0012345678905	00012345678905
Image type	Product image (Web)	A
Facing	Front	1
Angle	Centre	C
State	In package	1
Image End Date	Dec 2015	1215
Sequence Number	01	s01

Examples

Examples: Please note that (GTIN) in the examples represents the 14 digit product GTIN

Example default in-package, primary merchandisable view all angles

Brand	**Brand**	**Brand** (No Plunge)	**Brand**
(GTIN)_A1L1	(GTIN)_A1C1	(GTIN)_A1N1	(GTIN)_A1R1
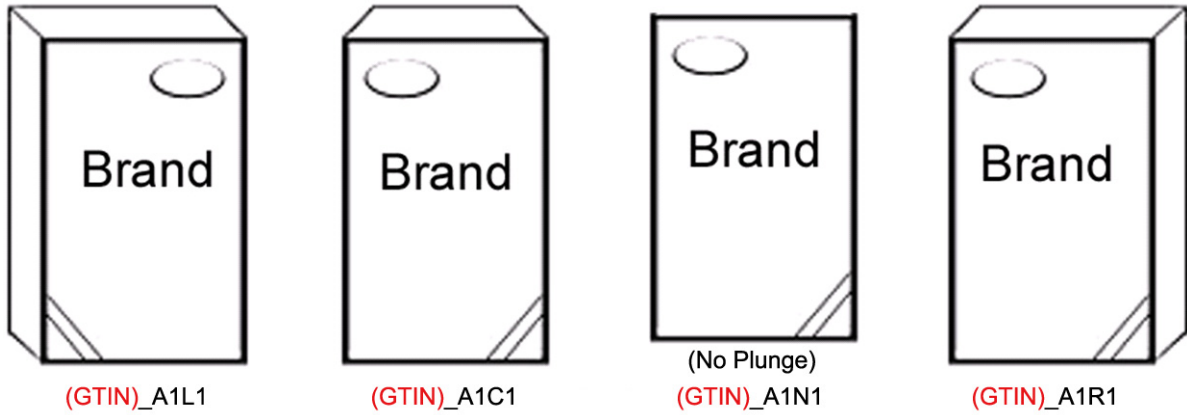
Product with alternate Marketable faces
*Note tallest vertical face is designated as face '1'

Brand	**Brand**
(GTIN)_A1C1	(GTIN)_A7C1
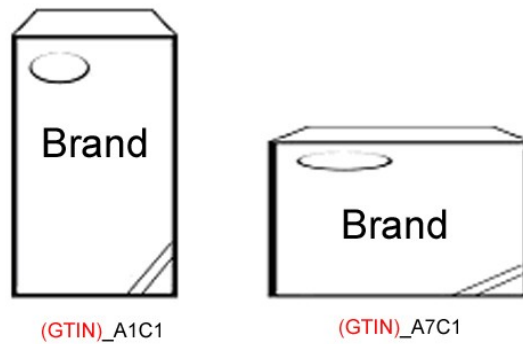
Same product with multiple marketable faces containing dissimilar languages

Brand	**Marque**
(GTIN)_A1L1_en	(GTIN)_A1L1_fr
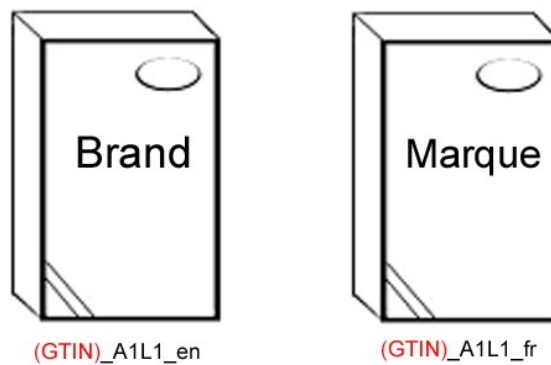
Promotional end date for time specific packaging

(GTIN)_A1L1   (GTIN)_A1L1_0109
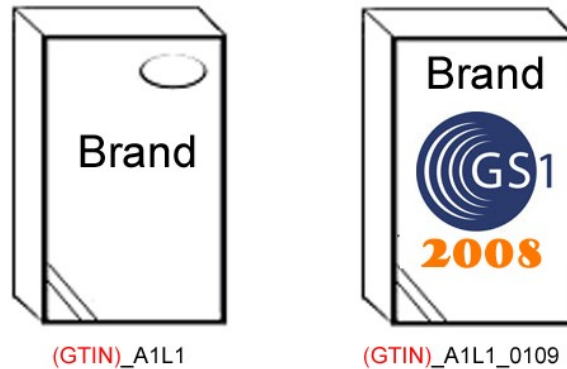
3.2.1   Supporting data

Where the GTIN is used for image identification, it is required that associated data and/or meta data (see *section 5 Meta Data*) be available for proper processing of these images in a database.

4   Planogram image and data field specifications

4.1   File format

File formats must be as follows in the following resolution range: 72 ppi – 150ppi

- Targa 16-32 bit (If 32 then alpha must be I/O), no compression
- JPEG, level of compression to be at 10 or above
- PNG (must be alpha channel compatible and have a transparent background)

✓   **Note**: JPEG images are not alpha channel compatible with all imaging software.

4.2   Views

All products that are produced in a package should be represented with up to 6 views of the In-Package consumer pack, with 3 views as a minimum straight-on front, straight-on top, and straight-on left side views. Items that are not produced in a package, such as hammers, must be represented with the same above 3 views. An additional straight-on front view of an inner pack should be available when appropriate.

4.3   Backgrounds and cropping

Images for contour products must appear with a transparent background. Images for contour and non- contour products must also be cropped to products' edge. No props or additional products are allowed within the primary image areas.

- Boxes type products are cropped to the edge and represented on a white background
- Hard corner boxes, were the cropped image leaves no background for close cropping alpha channel identification, shall be saved without a transparent layer level.
- Rounded or odd shaped type products should be contoured and represented with a transparent background
- Rounded or odd shaped type products can also be cropped to the products edge and represented on a white background.

4.4 Image size

Minimum image size for all marketable face planogram images shall be 20kB minimum (50kB for Targa images)

4.5 File name construction
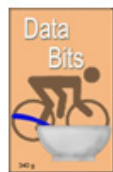
4.5.1 GTIN based naming

First 14 characters are the GTIN of the product (required). After the first period, the planogram view indicator will be present (required). GTINs with multiple graphic layouts that do not conflict with the GTIN allocation rules should be identified with 'A' for Alternative.
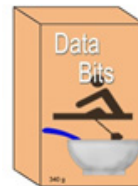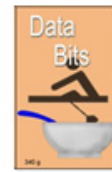
Examples:
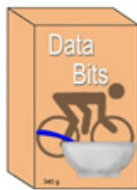
07541230123457.1   07541230123457A.1
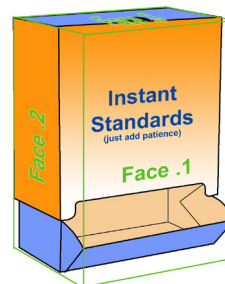
Note: If the GTIN is unique to a display or tray the image will be named using the display/tray GTIN as well as the inner product GTIN followed by its appropriate identifier ('T' for tray , 'D' for display, and 'A" for alternate)

07541230123457T.1   07541230123457D.1

Note: For peg hole flat products: If the product side 2,3,8 and 9 are less than 1/2cm and have no viewable marketing information images may be omitted.

Valid image views are:

- straight on, front shot
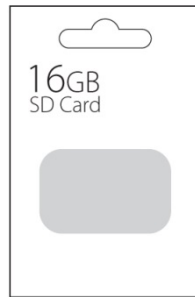- straight on, left view
- straight on, top view
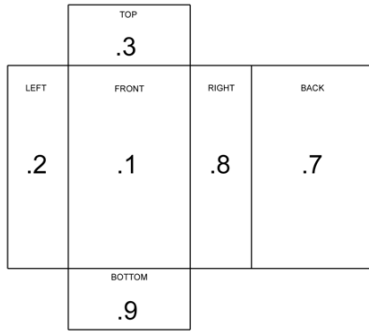
Optional image views:

- straight on, back shot
- straight on, right view
- straight on, bottom view

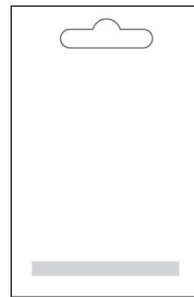**The standard image naming indicators are:**

- (GTIN) **.1** front face

- ■ (GTIN) **.2** left of front
- ■ (GTIN) **.3** top
- ■ (GTIN) **.7** back
- ■ (GTIN) **.8** right of front
- ■ (GTIN) **.9** bottom

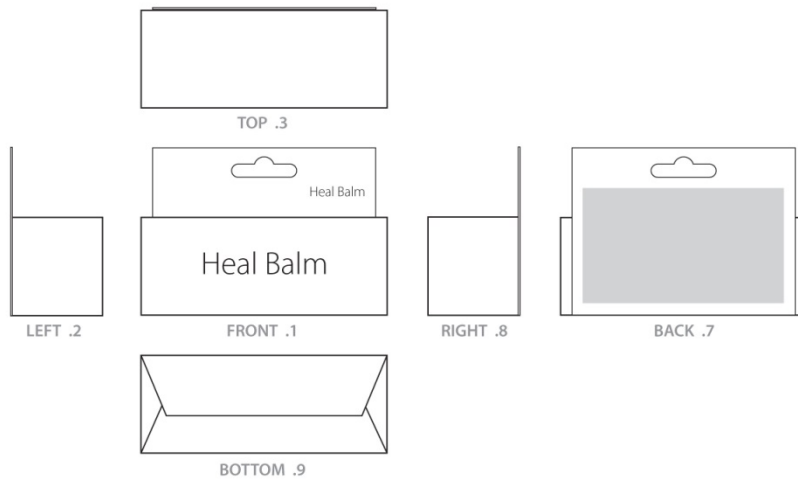See Images below for visual reference
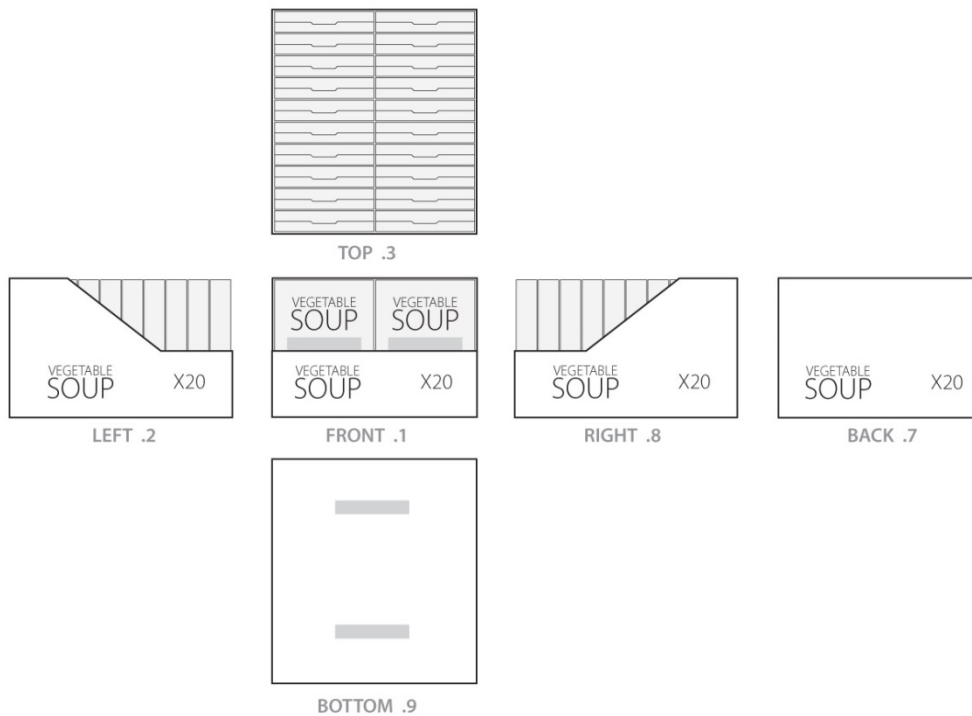
4.5.2 Alternate language

Should there be alternate language facing on the packaging, there should be note of this in the data accompanying the images.

4.5.3 Consumer display (not identified with GTIN)

Should the product be sold in a displayer/tray that does not bear its own unique GTIN, then the tray images should be captured using the unit GTIN appended with a "T" This will allow space management users to select either the unit or the tray when creating their planogram.

Examples:

- Unit: 00012345678905.1
- Tray: 00012345678905T.1

4.5.4 GDTI based naming

All application rules based on GS1 identification keys apply to this naming convention:

- the first 13 digits are the GDTI
- (optional) the next 1-17 alpha numeric characters are the serial component

✅ **Note**: Naming Planogram images with GDTI should be communicated and agreed upon by trade partners due to software application issues.

5 Meta Data

There are two designations for data: Associated and Meta-data.

- Associated data is data referenced through the use of a GS1 identification key, held in a separate data system
  (e.g., GDTI identified in GDSN, and all the fields associated to the GDTI are located in that row of data)

- Meta-data is data embedded in the structure of the digital file (e.g., 'saved on'; 'modified on' dates; created by; etc…)

The list below is the suggested meta-data attributes to ensure proper association to extended data pool attributes, as well as to ensure validation without needing to refer to an outside data source.

Metadata Attribute	Definition	M/O/D
GDTI	A GS1 GDTI, a unique document identifier for the digital asset. This may or may not be the same value as the filename.	Mandatory
Brand Name	The Brand Name of the product in the image	Mandatory
Product Name	The name of the product.	Mandatory
Valid From Date	Earliest date from when the image can be used or may be shown.	Mandatory
GTIN	Global Trade Item Number	Mandatory
Legal Owner Contact Information	Contact information for the legal owner	Optional
Filename	The filename of the digital asset. GDTI is preferred.	Dependent
File/Nature Type	Explanation of the type of image shot taken.	Optional
Facing Indicator	Value to denote which way the product is facing within the image.	Optional
Angle Indicator	Angle at which the image was taken when compared to the front face of the product.	Optional
Create Date		Mandatory
Description		Optional
Product URL	URL link to additional information. I.e. Detail page of the digital file.	Optional
Legal Owner	Owner of the digital file	Optional
Copyright		Optional
Expiration Date	After this time, the image is not be shown	Optional
Rights of Use	No Entry of the right to use means an unrestricted right to use the product image.	Optional
Special Rights	Special rights should be defined as free text	Optional
Article Variant		Optional
Packaging Type	** NEEDS DEFINITION **	Optional
Number of the image	e.g. "001V" for the front view of the promotional-optimised product image.	Optional
Version Number	A version number is assigned for each product image, starting with value 1	Optional
Indication Clipping Path Present		Optional
Clipping Path Name		Optional

GEO Coordinates	(Longitude, Latitude, Height)	Optional
Camera Data		Optional
Product Supplier	The Name of the product's supplier/manufacturer.	Optional
Product Net Content	Net Content of the product in text	Optional
Image Quality Assurance Date	The date when the image was verified to meet GS1 global standard.	Optional
Colour Mode		Mandatory
Max Avail Height		Optional
Max Avail Width		Optional
In/Out of Packaging	Code to describe the placement of the product and its associated packaging.	Optional

5.1   360* Image meta-data

Meta data refers to those key image attributes which enable image Users to understand the properties of 360 images. It is recommended that meta-data be physically encoded within each image. This enables trading partners to identify and reference essential image information (carried by the image itself) when access to master image data details is not available.

5.1.1   Image file name

Definition:

■   Unique file name based on the GS1 GDTI naming convention or GTIN based structure

5.1.2   Image description

Definition:

■   Free-form text describing the image and how it relates to other images

5.1.3   Direction of capture rotation

Definition:

■   The direction of travel following the rotation of an analogue clock in normal operation. (Clock-wise)

5.1.4   Image sequence/Arc position

Definition: the logical identification of a series of images captured for a specific purpose with a defined start and end with the goal of simulating movement.

For the 360* image type, it is recommended that the image numbering should be relative to the degree of rotation. This value will be derived from the first image as 0* and continue in a clockwise fashion.

(i.e., 24 images: image 1: 0; image 2: 15; image 3 : 30; etc…)

This naming structure allows for the addition of images to a maximum of one image per degree of rotation.

Image Sequence	Arc position value	Image Sequence	Arc position value	Image Sequence	Arc position value
1	0*	9	120*	17	240*
2	15*	10	135*	18	255*
3	30*	11	150*	19	270*
4	45*	12	165*	20	285*
5	60*	13	180*	21	300*
6	75*	14	195*	22	315*
7	90*	15	210*	23	330*
8	105*	16	225*	24	345*

A.1   GS1 Glossary of terms and definitions

The following glossary was updated for this publication of this document. Please refer to the _GS1 Glossary_ for the latest version.

Term	Definition
Check digit	A final digit calculated from the other digits of some GS1 identification keys. This digit is used to check that the data has been correctly composed. (See GS1 check digit calculation.)
Global Document Type Identifier (GDTI)	The GS1 identification key used to identify a document type. The key comprises a GS1 Company Prefix, document type, check digit, and optional serial number.
Global Standards Management Process	GS1 created the Global Standards Management Process (GSMP) to support standards development activity for the GS1 system. The GSMP uses a global consensus process to develop supply chain standards that are based on business needs and user-input.
Global Trade Item Number (GTIN)	The GS1 identification key used to identify trade items. The key comprises a GS1 Company Prefix, an item reference and check digit.
GS1 check digit calculation	An algorithm used by the GS1 system for the calculation of a check digit to verify accuracy of data. (e.g., modulo 10 check digit, price check digit).
GS1 Company Prefix	A unique string of four to twelve digits used to issue GS1 identification keys. The first digits are a valid GS1 Prefix and the length must be at least one longer than the length of the GS1 Prefix. The GS1 Company Prefix is issued by a GS1 Member Organisation. As the GS1 Company Prefix varies in length, the issuance of a GS1 Company Prefix excludes all longer strings that start with the same digits from being issued as GS1 Company Prefixes.

A.2   GS1 abbreviations

Abbreviation	Term
AI	Application Identifier
AIDC	Automatic Identification and Data Capture
GDSN	Global Data Synchronisation Network
GDTI	Global Document Type Identifier
GS1 Key	GS1 identification key
GSMP	Global Standards Management Process
GTIN	Global Trade Item Number

A.3   Photography basics

Decisions as to whether products should be photographed in the package, out of package, or both, should be made based on the presentation of the product in a live sale scenario (i.e. box of cereal on a shelf vs. a lawnmower on display). If there are doubts as to which format is most appropriate both should be taken and appropriately identified. This decision should be communicated to the manufacturer. The image should be cropped close to the object.

Recommendations for quality image capture and processing:

- No colour casts. Colour should be as rich, vibrant and eye-catching as possible. Colour should be balanced over-all and not "blown-out" in highlights. Flesh tones and grass should be realistic and life- like.

- Reflections should also be realistic.

- Shadows should be realistic and neutral.

- Retouching should be as seamless and undetectable as possible and be convincing at a minimum of 200% magnification (i.e. removal of expiration/best before dates.

- Colour should be matched to product PMS colours (list to be provided by designer). If PMS colour is not available or if colour is proprietary, users must either match as closely as possible to colour swatches or the actual RGB breakdown must be provided.

- The image should be photographed with large depth of field so that the whole product is sharp.

- The Image should not be over sharpened in the (digital) image processing

- The lighting of product should be uniform when the image is taken.

A.3.1   Product views

All products should have a maximum of 3 separate views when warranted per marketable face – a front view taken at 15 degrees top from centre is preferred for 3D images, however some products may require a steeper or shallower angle to display effectively.
**For 2D images (images of products with negligible depth properties) a 0 degree plunge angle is permitted.
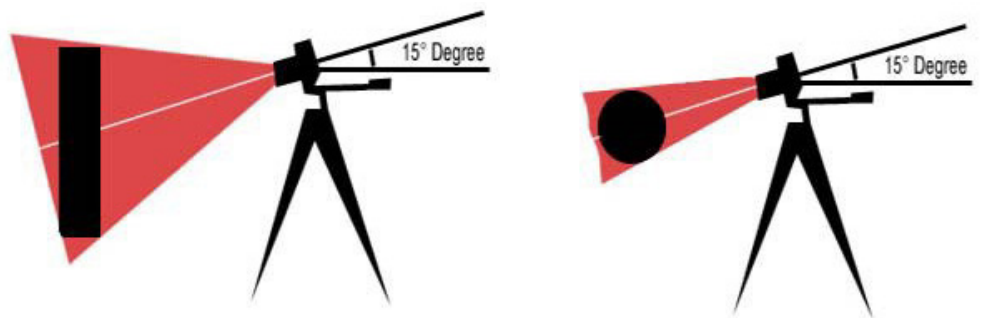
No alpha channels or layers, guides or rulers. No bubbles, fingerprints or Newton rings from scans. No transfer functions or postscript colour management. No signatures, "finger printing" or visible watermarks. No compression artefacts. No interpolation ("resizing up"). No scanning from printed pages. No evidence of dust or scratches. No manufactured shadows. Moiré Patterns should be minimised.

A.3.2   End usage formats

It is recognised that due to the many potential combinations of format, resolution and size in end user applications, it is not possible to enumerate all possibilities in a standard. It is the understanding that the specifications recommended for advertising images are of sufficiently high quality that they will provide a source image that can be repurposed by the end user for their own specific applications. This includes different print media formats and items as well as Ecommerce (electronic) images.

A.4   Meta data list

Metadata Attribute	Definition	M/O/D	GS1 Web Vocabulary Name	GS1 Web Vocabulary Definition
GDTI	A GS1 GDTI, a unique document identifier for the digital asset. This may or may not be the same value as the filename.	Mandatory	gs1:gdti	TO BE PROPOSE
Brand Name	The Brand Name of the product in the image	Mandatory	gs1:brandName	The brand name of the product that appears on the consumer package.
Product Name	The name of the product.	Mandatory	gs1:productName	Consumer friendly short description of the product suitable for compact presentation.
Valid From Date	Earliest date from when the image can be used or may be shown.	Mandatory	gs1:referencedFileEffectiveStartDateTime	The date upon which the target of this external link begins to be effective for use.
GTIN	Global Trade Item Number	Mandatory	gs1:gtin	The GS1 identification key used to identify trade items. The key comprises a GS1 Company Prefix followed by an Item Reference Number and a check digit.
Angle Indicator	Angle at which the image was taken when compared to the front face of the product.	Optional	gs1:referencedFileImageAngle	PROPOSED Web Vocabulary attribute
Article Variant		Optional	gs1:productionVariantDescription	Free text assigned by the manufacturer to describe the production variant. Examples are: package series X, package series Y.
Camera Data		Optional		
Clipping Path Name		Optional		PROPOSED: gs1:referencedFileImageClippingPathName
Colour Mode		Mandatory		
Copyright		Optional		
Create Date		Mandatory		

Metadata Attribute	Definition	M/O/D	GS1 Web Vocabulary Name	GS1 Web Vocabulary Definition
Description		Optional	gs1:productDescription	An understandable and useable description of a trade item using brand and other descriptors. This attribute is filled with as little abbreviation as possible while keeping to a reasonable length. Free form text field, this data element is repeatable for each language used and must be associated with a valid ISO language code. Field length is 178 characters. This should be a meaningful description of the trade item with full spelling to facilitate message processing. Retailers can use this description as the base to fully understand the brand, flavour, scent etc. of the specific GTIN in order to accurately create a product description as needed for their internal systems. Examples: GS1 Brand Base Invisible Solid Deodorant AP Stick Spring Breeze GS1 Brand Laundry Detergent Liquid Compact Regular Instant Stain 1 GS1 Brand Hair Colour Liquid Light to Medium Blonde.
Expiration Date	After this time, the image is not be shown	Optional	gs1:referencedFileEffectiveEndDateTime	The date upon which the target of this external link ceases to be effective for use.
Facing Indicator	Value to denote which way the product is facing within the image.	Optional	gs1:referencedFileFacingIndicatorType	PROPOSED Web Vocabulary attribute.
File/Nature Type	Explanation of the type of image shot taken.	Optional	gs1:referencedFileImageNatureType	PROPOSED Web Vocabulary attribute
Filename	The filename of the digital asset. GDTI is preferred.	Dependent		
GEO Coordinates	(Longitude,Latitude,Height)	Optional	gs1:latitude / gs1:longitude	PROPOSED: gs1altitude
Image Quality Assurance Date	The date when the image was verified to meet GS1 global standard.	Optional		PROPOSED: gs1:referencedFileImageQualityAssuranceDate
Indication Clipping Path Present		Optional		PROPOSED: gs1:referencedFileHasImageClippingPath
Legal Owner	Owner of the digital file	Optional	gs1:legalOwner	PROPOSED: expects a value of gs1:Organisation (which can relate to a gs1:PostalAddress and a gs1:ContactPoint)

Metadata Attribute	Definition	M/O/D	GS1 Web Vocabulary Name	GS1 Web Vocabulary Definition
Legal Owner Contact Information	Contact information for the legal owner	Optional	gs1:contactPoint	Relates a gs1:Organisation to a gs1:ContactPoint class That specifies contact information (e.g. email, fax, telephone) and a gs1:contactType or gs1:responsibility (free-form text string, which could be 'legal owner of image' Recommendation: Create additional web vocabulary to align to this requirement - gs1:legalOwner expects a value of gs1:Organisation (which can relate to a gs1:PostalAddress and a gs1:ContactPoint)
Max Avail Height		Optional		
Max Avail Width		Optional		
Number of the image	e.g. "001V" for the front view of the promotional-optimised product image.	Optional		PROPOSED: gs1:referencedFileImageNumber
Packaging Type	The dominant means used to transport, store, handle or display the product as defined by the data source	Optional	gs1:hasPackaging	Datatype = Packaging
Product Net Content	Net Content of the product in text	Optional	gs1:netContent	Datatype = gs1:QuantitativeValue
Product Supplier	The Name of the product's supplier/manufacturer.	Optional	gs1:manufacturer	Datatype: Organisation
Product URL	URL link to additional information. I.e. Detail page of the digital file.	Optional		
Rights of Use	No Entry of the right to use means an unrestricted right to use the product image.	Optional		
Special Rights	Special rights should be defined as free text	Optional		
Version Number	A version number is assigned for each product image, starting with value 1	Optional		PROPOSED: gs1:referencedFileImageVersion

Metadata Attribute	Definition	M/O/D	GS1 Web Vocabulary Name	GS1 Web Vocabulary Definition
In/Out of Packaging	Code to describe the placement of the product and its associated packaging.	Optional	gs1:referencedFileType	Suggest to define additional instances of gs1:ReferencedFileTypeCode in addition to existing values such as: gs1:ReferencedFileTypeCode-PRODUCT_LABEL_IMAGE gs1:ReferencedFileTypeCode-OUT_OF_PACKAGE_IMAGE gs1:ReferencedFileTypeCode-LOGO