The Xerafy METAL SKIN Set Up Guide

Printing and Encoding on SATO CL4NX Plus Printer

Contents

About this Guide

Xerafy has developed this User Guide in collaboration with SATO. It presents detailed instructions for printing and encoding Xerafy's Metal Skin RFID labels on SATO's CL4NX Plus printer, the leading On-Site Industrial RFID printer.

The following videos are available to support the step-by-step instructions:

HOW TO Xerafy Mercury Metal Skin - Printing setup for SATO CL4NX Plus

HOW TO Xerafy Platinum Metal Skin - Printing setup for SATO CL4NX Plus

HOW TO Xerafy Titanium Metal Skin - Printing setup for SATO CL4NX Plus

The instructions contained in this User Guide complement the resources made available by SATO here:

SATO RFID configuration guide - **https://www.sato-global.com/rfid/guide.html**

SATO RFID operator manual - **https://www.manual.sato-global.com/printer/clnxplus/main/index.html**

Additional support is available, contact us through our website.

About Xerafy METAL SKIN

Xerafy METAL SKIN series are printable On-Metal RFID labels engineered for Industrial RFID Systems. Their award-winning design ensures the extreme thinness and flexibility required for on-site printing and encoding.

Xerafy METAL SKIN labels have been optimized for RFID systems with the following applications:

Supply Chain Visibility

Warehouse Automation

RTI Management

Logistics and Transportation

Injection Molding

Work-In-Process

IT Assets

Medical Devices

Medical Supply Chain

About Xerafy

Xerafy offers seven series of RAIN RFID UHF passive Tags and Labels and a full range of Custom Design capabilities to power every project.

At Xerafy, we share the vision of the Industrial IoT. With our technology, manufacturers and end-users create smart assets, enabling more efficient business processes and new product capabilities.

1-Before you start

How to recognize the METAL SKIN series labels

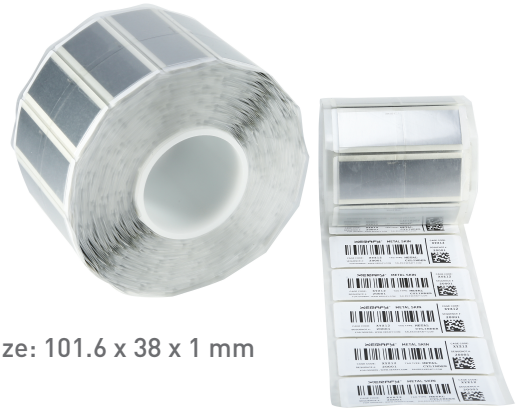
XERAFY MERCURY METAL SKIN

The Ultimate High-Performance Label

The Xerafy Mercury Metal Skin is a best-selling Industrial RFID Label.

Working both Off and On-Metal, it offers a cost-effective RFID tag that is lightweight, flexible, and extremely low profile.

Operating with global RAIN RFID frequencies, it provides the best fit for international supply chains, while its size allows for printing human and computer-readable information such as barcodes and graphics.



Size: 101.6 x 38 x 1 mm

XERAFY PLATINUM METAL SKIN

The Reference For High-Performance Label

The Xerafy Platinum Metal Skin offers a market-leading read-range for Industrial RFID Labels.

Its superior design delivers industry-grade visibility, thanks to its thinnest profile, high-performance adhesive, and printable laminated material.

Size: 58.5 x 19 x 1 mm

XERAFY TITANIUM METAL SKIN

The Cost-Effective High-Performance Label

The Xerafy Titanium Metal Skin is an Industrial RFID Label engineered to track the smallest assets.

Working both On-Metal and Off, its industry-strength adhesive brings a cost-effective RFID tracking solution for a wide range of applications from IT assets to product authentication, high-value items, and medical supplies.

Size: 45 x 5.6 x 1 mm

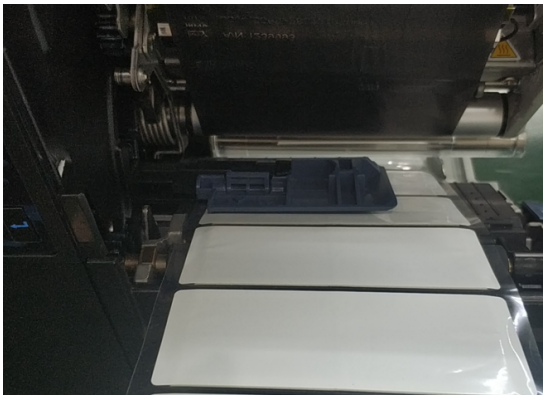
Download Product Guide

Roll/Label Orientation

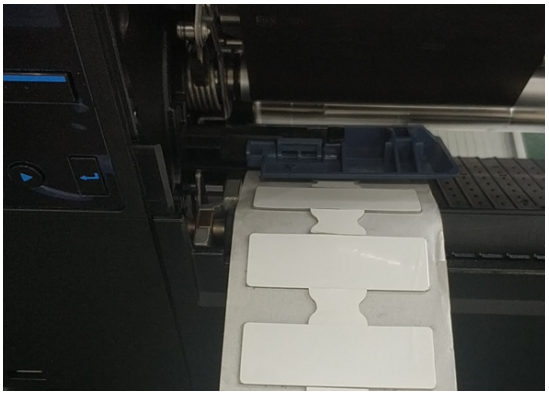
Xerafy Metal Skin Label tags are supplied on the roll with the media facing out and the antenna facing up. This is the position the labels should be retained in for successful encoding and printing.

If in any instance you unroll the labels (i.e. to split a large roll into a smaller roll), you must ensure to re-roll them in the correct orientation.

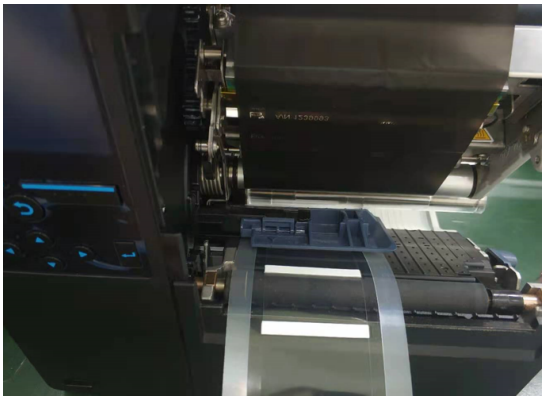
XERAFY MERCURY METAL SKIN



XERAFY PLATINUM METAL SKIN



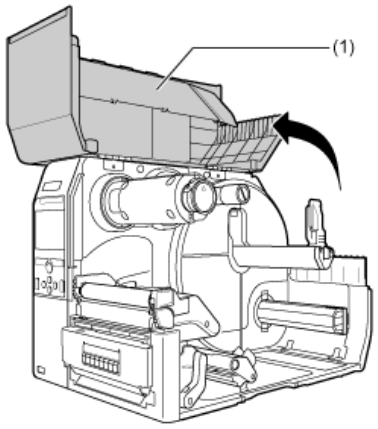
XERAFY TITANIUM METAL SKIN



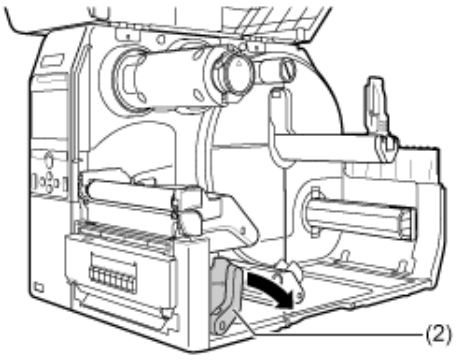
2-How to set up your SATO printer

The following photographs will help you to load label rolls in the printer correctly.

1.Open the top cover (1).

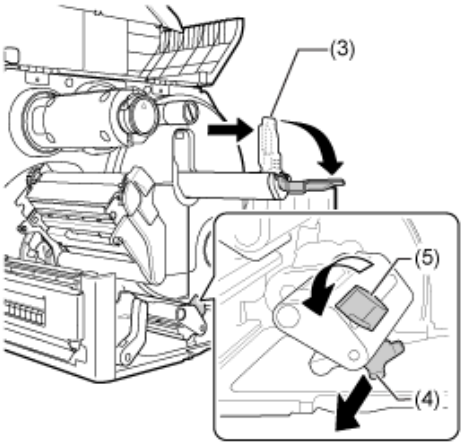


2.Push the head lock lever (2) towards the rear.



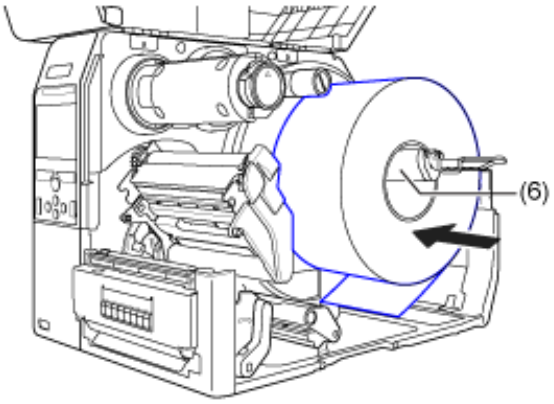
3.Pull the media holder guide (3) and media guide (4) away from the product.

Turn the knob (5) counterclockwise to release the media guide.



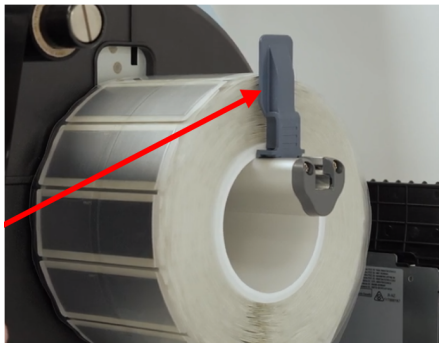
4.Load the media in the media holder (6).

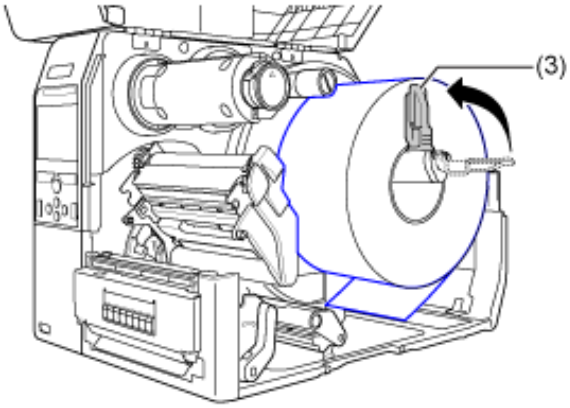
Make sure that the media roll is all the way in towards the inside of the product.



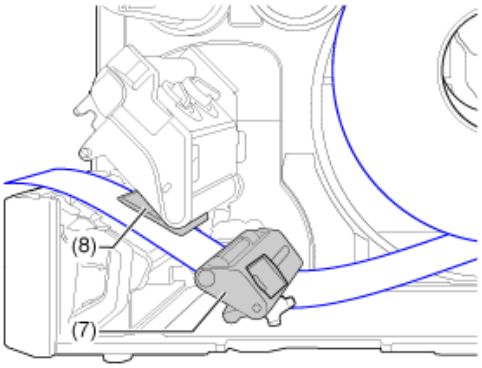
5.Push the media holder guide (3) lightly against the media roll.

media holer guide

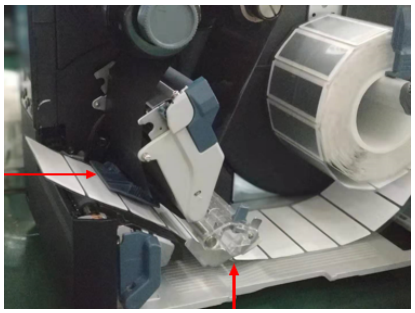




6.Pass the media below the media damper (7) and the media sensor guide (8) while pushing the media to inside of the product.



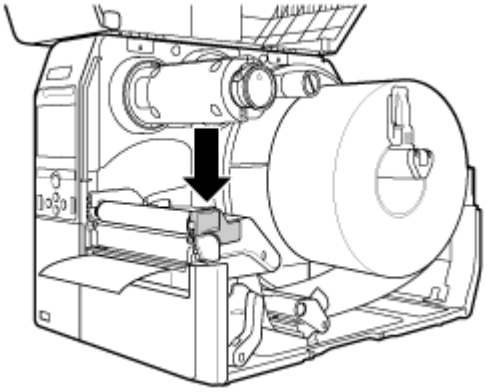
media sensor guide



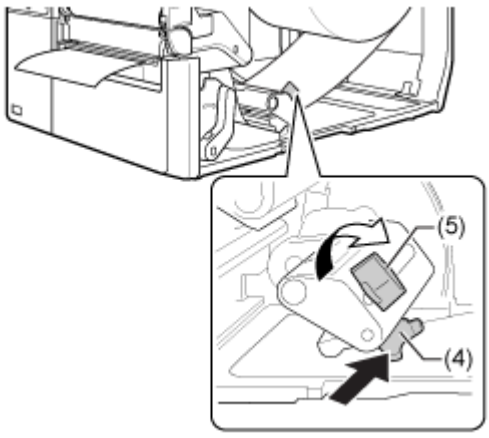
media damper

7.Press the print head down until the head lock lever is locked.

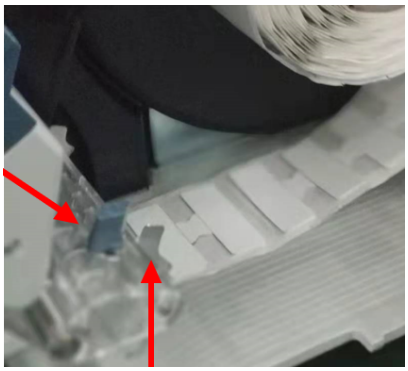
Make sure that the end of the media extends out the front of the product.



8.Press the media guide (4) lightly against the end of the media, and turn the knob (5) to lock the media guide.

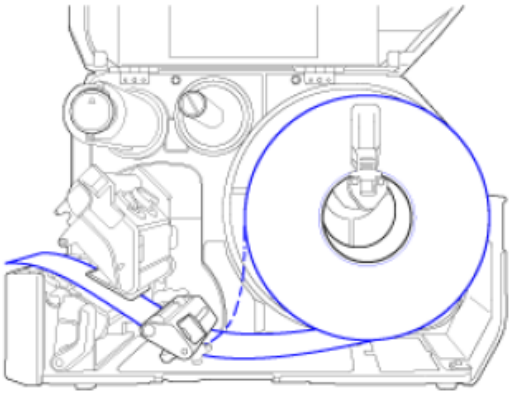


knob



media guide

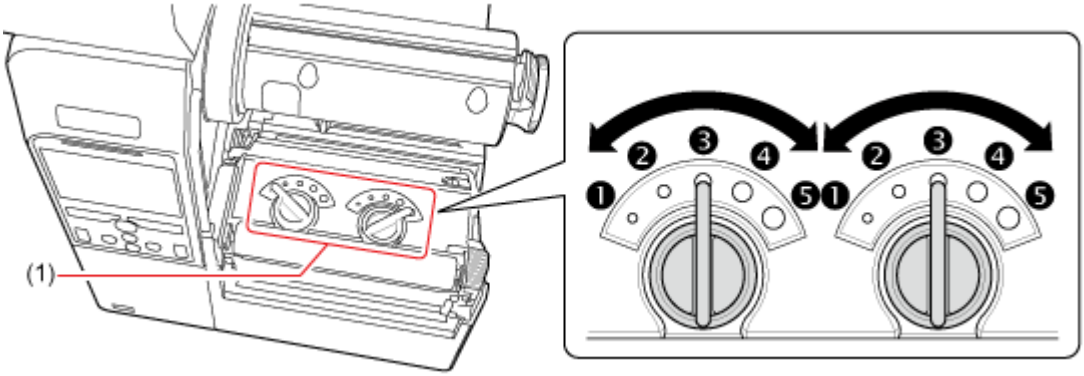
The routing path of the media is as shown on the right figure. When loading the media, make sure that the print side faces up



Face-in media

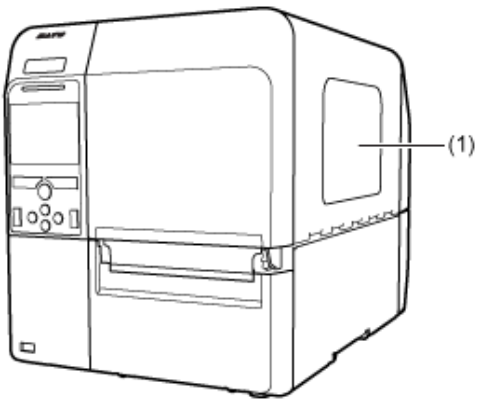
Face-out media

9.Feed the labels under the Print Head



Head pressure dials are located on top of the print head; these should be adjusted so that the print quality is consistent without applying excessive pressure.

10.Close the top cover (1).



3-Which ribbons to use and how to load them

Xerafy has validated ribbon compatibility with:

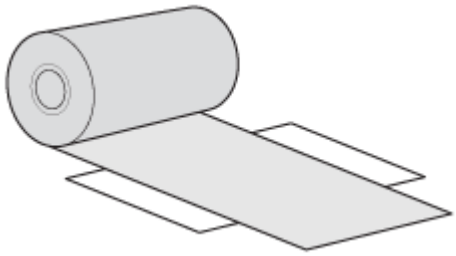
SATO Full resin carbon ribbon Type: SATO R235B

Armor Black Resin Ribbon Type: Armor AXR 7+

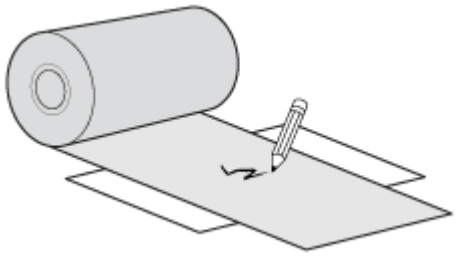
R235B

AXR 7+

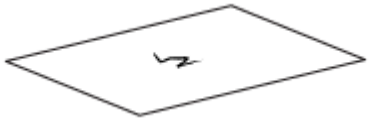
1. Place the outer side of the ribbon onto the media (touching).



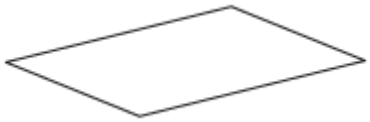
2. Scratch the inner side of the ribbon with your fingernail or a pointed object.



If there is a mark on the media, the ink is coated on the outer side of the ribbon.

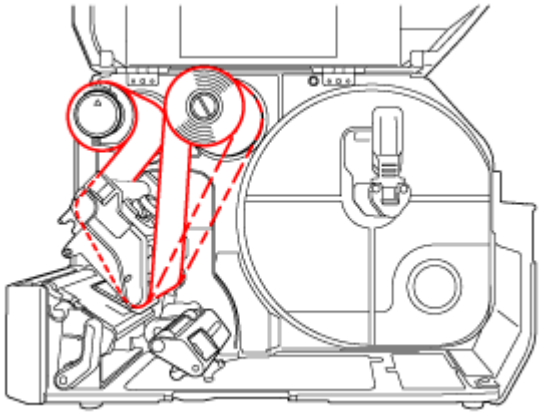


The ink is coated on the outer side. (Face-out ribbon)



The ink is coated on the inner side. (Face-in ribbon)

Loading the Ribbon



The routing path of the media is as shown on the left figure

Face-in media

Face-out media

You can also refer to the sticker located on the inner side of the top cover.

Check for Video

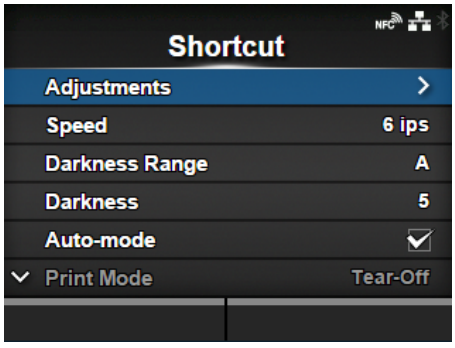
VIDEO

4-Which printer settings to select for Printing and/or Encoding

This section provides specific details and guidelines associated with printing Xerafy labels.

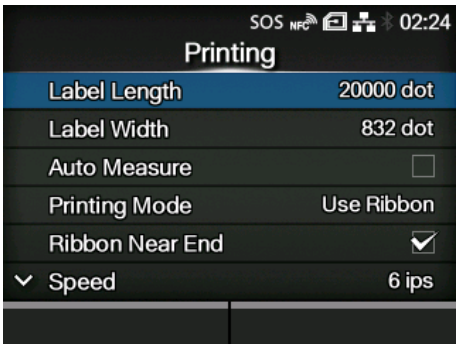
Setup RFID functionality of the printer, using the main control panel.

[Shortcut] Menu



Frequently used settings are listed in the [Shortcut] menu.

[Printing] Menu



The most important settings are available in the [Printing] menu

Printer must be calibrated for each label correctly

Gap sensing: Gap sensing must be used at all times; this will use the leading edge of the frame label to align the print with the commands sent from your software. Calibration of the Gap levels is required each time a different label type is used. This can be found under advanced printer settings, Gap Levels.

Printer Settings

Important Settings

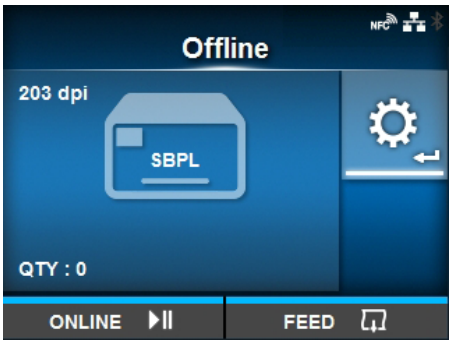
Darkness: Darkness should be adjusted to achieve optimal print quality.

Slowest speed: The slowest print speed that is available should be used to print.

Compound labels: This is typically **2 inches** per second.

Advanced printer adjustments: Pitch and offset should be set to **0mm**.

Print Mode: Print Mode should be set to **continues,** with No Back feed. This is to avoid causing damage to the printer. The thicker metal skin labels can damage the RFID antenna bracket if the off mode is used. This is due to the labels catching on the bracket as they back feed.



Encoding Settings

Printer Antenna

Sato CL4NX Plus offers two antennas for RFID encoding: Standard and Short. Only one antenna can be used for encoding, not both at the same time. For encoding Xerafy labels the Short antenna is recommended.

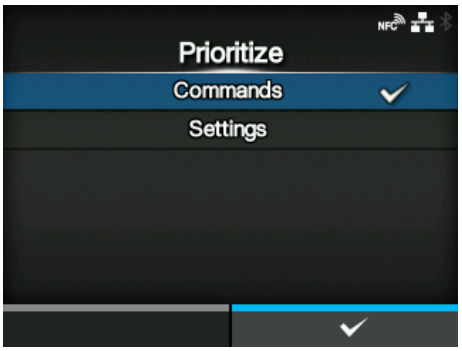
Prioritize

The printer settings can be prioritized to override the command settings and we do recommend you do this to avoid any erroneous settings in the command reaching the printer.

Command settings are those created in the label design software and the default setting on the printer.

On the printer menu screen:

- Printing
- Advanced
- Prioritize
- Settings
- when complete



5-SATO CL4NX RFID UHF Inlay Performance and Placement Guide

The table below provides the optimal settings for all variants of Xerafy Metal Skin Label tags:

To achieve the best performance when encoding, the power should be set to the certified level. This level has been validated to ensure that adjacent labels are not programmed in error*.

*due to the size of the small Titanium Metal SKin Label tags, the sensor in the print head can sometimes detect the information from the tag behind, so it is necessary to change the sensor pitch to read the right tag and print the associated information.

SATO STLE	08.26.19	CL4NX RFID UHF Inlay Performance & Placement Guide						M6eMicro			*n/t = not tested* *n/a = not applicable*		
#	Manufacturer	Inlay name [Chip]	FEED	Region	Position (mm)			Module Power (dBm)		Antenna	Standard antenna position (mm)		
					Xchip	y	Smin	Write	Read	Pitch	Blue	Yellow	Green
1	Xerafy	Mercury [Monza 4E]	 Inlay reference: Leading edge of tag	ETSI	53	-3 - 2	42	24	20	Short			
					n/a	0 - 10	42	24	20	Standard	0 - 2	3 - 7	8 - 10
				FCC	53	-3- 2	42	24	20	Short			
					n/a	0 - 10	42	24	20	Standard	0 - 2	3 - 7	8 - 10
2	Xerafy	Platinum [Monza R6-P]	 Inlay reference: Leading edge of tag	ETSI	19 & 66	5 - 9	22	24	24	Short			
					n/a	---	---	---	---	Standard	n/a	n/a	n/a
				FCC	19 & 66	5 - 9	22	24	24	Short			
					n/a	---	---	---	---	Standard	n/a	n/a	n/a
3	Xerafy	Titanium [Monza 5]	 Inlay reference: Leading edge of tag	ETSI	3	-1 - 10	38	24	24	Short			
					n/a	---	---	---	---	Standard	n/a	n/a	n/a
				FCC	3	-1 - 10	38	24	24	Short			
					n/a	---	---	---	---	Standard	n/a	n/a	n/a

SATO recommends print speeds of 4 IPS or less for best results with RFID.

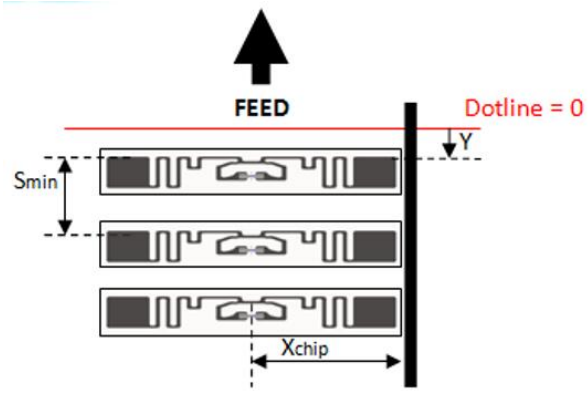
The following recommendations have been tested successfully at SATO.

Results may vary in the actual customer installation due to overall system tolerances.

Validation of functionality in the actual system is therefore recommended.

ETSI Placement and configurations valid for European (ETSI) frequency range,865-868MHZ

FCC Placement and configurations valid for Frequencies that fall within the FCC range,902-928MHZ



Xchip: Printer left media support to center of chip.

Y: Dotline to leading edge of inlay antenna. Dotline= position 0
NOTE:for metal tags; Y=distance from dotline to leading edge of tag. Negative numbers in front of dotline, positive numbers behind dotline.

Smin: Minimum inlay separation.