

DP-DS620/DP-DS620 (A)

DP-DS820/DP-DS820 (A)

Continuous Panoramic Prints Specification

Rev. 1.1.1_D

Dai Nippon Printing Co., Ltd.

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Revision History Chart		First Edition: Dec 25, 2015			Page 1/1	
Revised Item	Type of Revision	Revision No.	Document No.	Revision Date	Approved	Designer
	• New Release	1.0.0.0	1.00	Dec 25, 2015		
P8	• Added the entirely overlapped printing setting to the continuous panoramic prints settings command	1.0.1.0	1.01	Feb 29, 2016		
P3,5,8,10,12, P13,16,17, P19-23	• DP-DS820/DP-DS820 (A) added	1.1.0.0	1.10	May 31, 2016		
P7 P17 P18 P21 P22 P24	<ul style="list-style-type: none"> • Added media low temperature and high humidity status to the printer status of the panoramic prints start check command • Added the attention of the panoramic prints start check command • Added the note regarding the printing order • Added the explanation in case of rotating the print result • Described the panoramic prints time for DS820 • Added 5.5 About Printing in High-humidity Environments • Changed the Note 	1.1.1.0	1.11_D	Sep 01, 2016		

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Introduction



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You cannot resale/use the DP-DS620 and the DP-DS820 without destination number (A) in the U.S.

This function does not guarantee the print quality for all prints. There may be unsatisfactory results depending on the image or environment used. We will continue to strive to increase the range of compatible images, but when necessary, if the image or environment create unsatisfactory results, please perform the panoramic prints (with space).

Application Scope

This document describes the Continuous Panoramic Prints function for the DP-DS620/DP-DS620 (A) and DP-DS820/DP-DS820 (A).

Compatible OS and Operating Environment

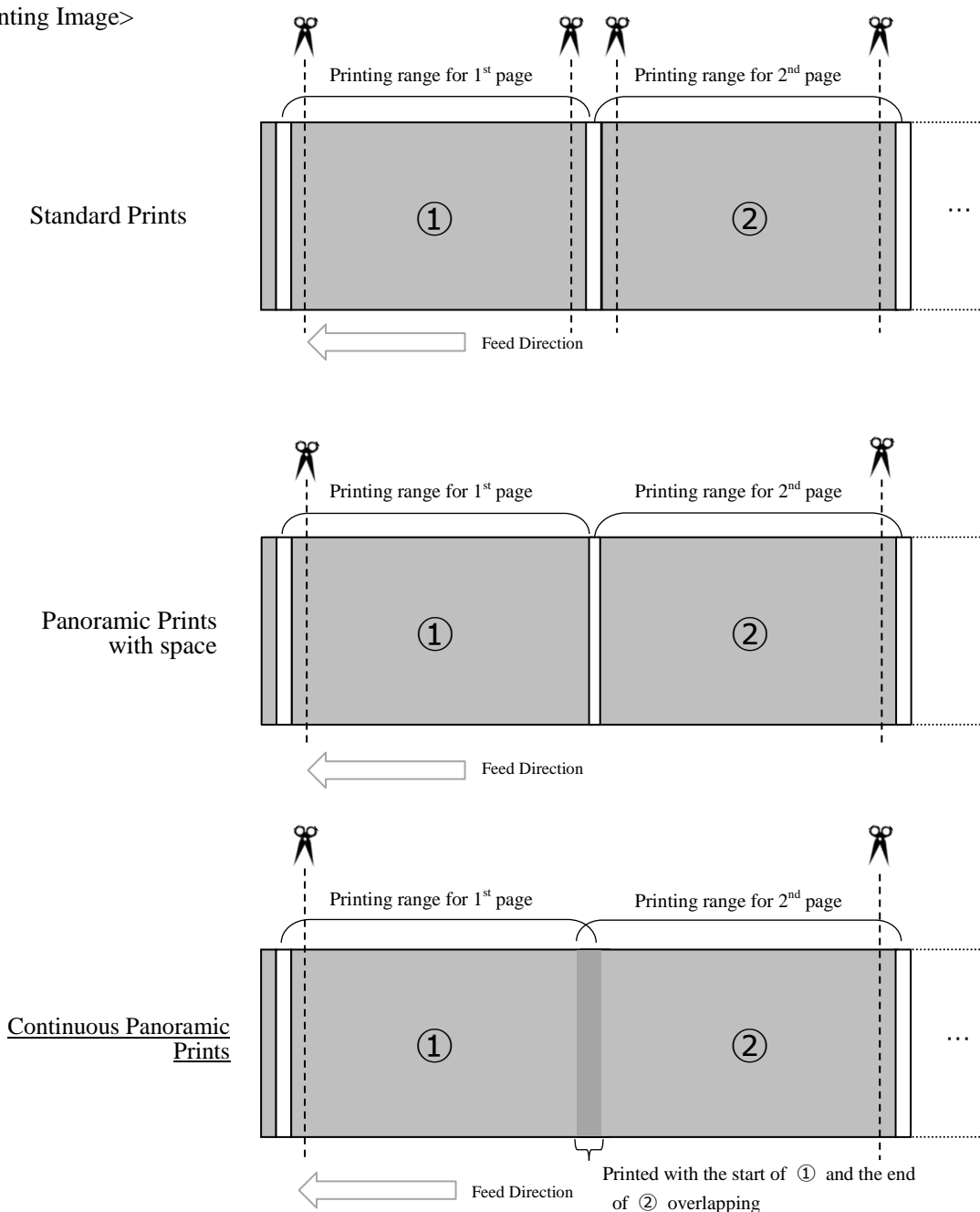
This API can run on Windows XP, Windows Vista, Windows 7, Windows 8, and Windows 10.

1. Function Overview

The Continuous Panoramic Prints Function (hereafter called Continuous Panorama) is a function that prints the first sheet, then prints the second sheet without cutting the paper, with the image overlapping the first printed image(*1) to create one seamless panoramic print.

* 1. Image data of the overlapped printed sections must be processed in order to properly overlap.

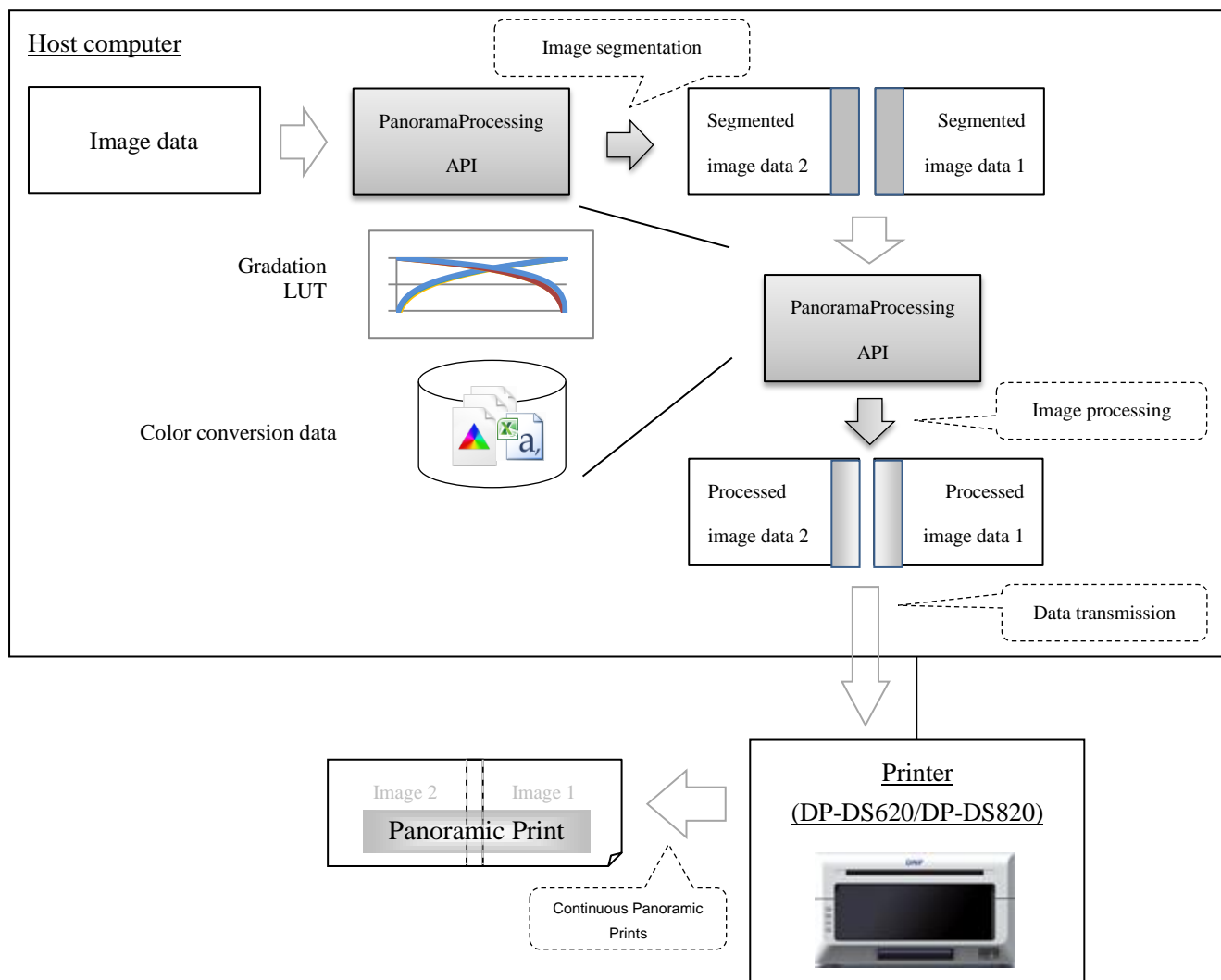
<Printing Image>



2. System Configuration

The system used to print the Continuous Panoramic Prints consists of a host computer, which segments the image, processes the overlap sections, and controls the printing, and a printer (DP-DS620/DP-DS820), which prints the segmented and processed image data continuously.

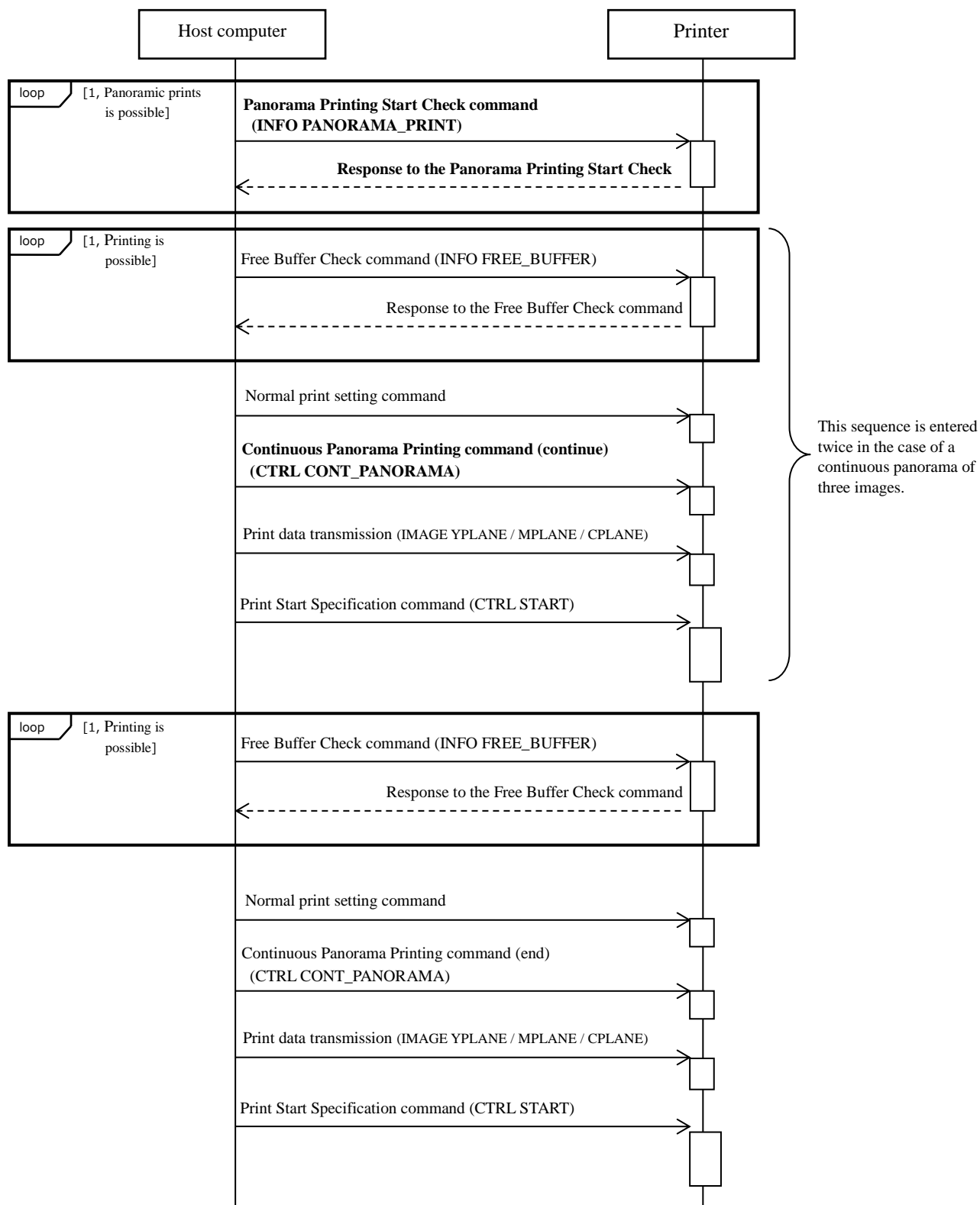
< System configuration and data flow diagram >



3. Host Computer-Printer Interface

3.1. Command Message Sequence

The following shows the command message sequence when performing Continuous Panoramic Prints. (This example shows a case when 2 images are printed continuously.)



3.2. Printer control commands for Continuous Panoramic Prints function

3.2.1. Panoramic Prints Start Check

[Code]	Start (2)	Parameter 1 (6)	Parameter 2 (16)	Parameter 3 (8)	Parameter 4
	<ESC>P	INFO	PANORAMA_PRINT		

[Transmitted data]	Start code	ESC[1Bh] P
	INFO	Requests transmission of printer information
	PANORAMA_PRINT	Checks criteria to start Panoramic Prints

[Function]	This returns data related to starting the panorama printing as a 5-character ASCII code (CR<0Dh> terminus).
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[Return data]	Size (8)	Data
	00000008	nnnnn<CR> <null> <null>
[Sample return data]	00000008	00000<CR> <null> <null>

Data	Status	Printer Status
00000	Panoramic Prints is possible	Idle
xxxx1	Head high temperature	
xxx1x	<Reserved>	
xx2x *2	Media low temperature	
xx1xx *1	High humidity	
x1xxx	<Reserved>	Other than Idle
1xxxx	Panorama printing can't start due to error or currently printing.	

x : Don't care

*1: DP-DS620 (from Ver. 1.40 or later) and DP-DS820 (from Ver. 1.01 or later)

*2: DP-DS620 (from Ver. 1.40 or later) and DP-DS820 (from Ver. 1.03 or later)

[Attention]	<ul style="list-style-type: none"> When the head temperature is high, send the panoramic prints data without waiting for the status to change to show printing is possible. (The same as for normal printing, it will start cooling, and printing will start when the head temperature has dropped.) When the humidity is high, the print quality of the panoramic prints may deteriorate, so we don't recommend printing in high-humidity situations. When the media temperature is low, don't perform the continuous panoramic prints. (It may occur the problem such as a paper jam according to the image.)
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3.2.2. Continuous Panoramic Prints settings

[Code]	Start (2)	Argument 1 (6)	Argument 2 (16)	Argument 3 (8)	Argument 4
	<ESC>P	CNTRL	CONT_PANORAMA	00000008	data

[Transmitted data]	Start code	ESC[1Bh] P
	CNTRL	Printer control command
	CONT_PANORAMA	Specifies Continuous Panorama
	00000008	Argument 4 data length (8-digit decimal ASCII number)
	data	kkkkmmmm : A 8-digit decimal ASCII character string sets the Panoramic Prints parameters.
	kkkk	Continuous Panoramic Prints specification 0000 : Last image of Continuous Panoramic Prints, or normal printing (Continuous Panoramic Prints cancelation) 0001 : Continuous Panoramic Prints has specified.
	mmmm	Overlap width 0000 to 0200 (to be specified in increments of 0.01 in the 0.00 to 2.00 range) [Recommended value] 0200 (2.00in.) 9999 : Entirely overlapped printing (for color sample creation) *1

*1: This setting value is valid for DP-DS620 ver01.32CSC and DP-DS820 ver00.50CSC only.

[Function] This command sets the operation of the continuous panoramic prints.

[Attention] Continuous Panoramic Prints specification is only valid for the first image and second image. If you set this parameter for the third image, the specified parameter will be ignored, and the paper will be cut.

The overlap width for the first image printed with Continuous Panoramic Prints is also applied to the second image and later on, but is disabled if a different value is set for the second or later images. Also, if you set this value to less than the recommended value, the print quality of the overlapped area will deteriorate.

4. Paper Sizes and Image Sizes

< Paper size >

■ DP-DS620

The Continuous Panoramic Print function supports only basic image size of 6x8.

As part of each image is overlapping, the length of the final print is shorter than the total of the 6x8 size multiplied by the number of printed images.

※ Printout length in the feed direction = (8in. x Print Qty.) - ((Print Qty. - 1) x Overlap width)

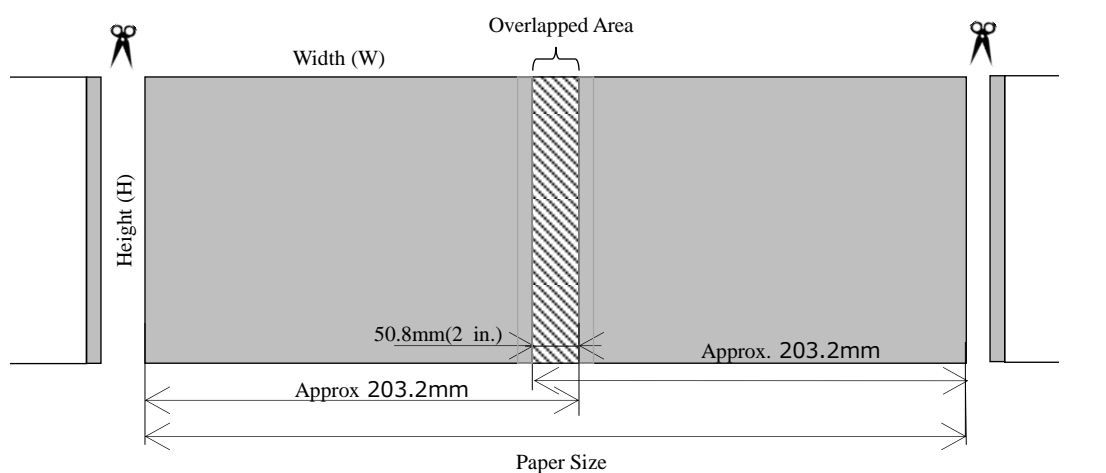
ex) case of 300dpi 6x16(2-image printing), Overlap width 2in.

(8in. x 2 pages) - ((2 pages - 1) x 2in.) = 14in.

ex) case of 300dpi 6x24(3-image printing), Overlap width 2in.

(8in. x 3 pages) - ((3 pages - 1) x 2in.) = 20in.

Overlap width	6x16(2-image printing) Paper length	6x24(3-image printing) Paper length
50.8mm (2in.)	355.6mm(14in.)	508mm(20in.)



■ DP-DS820

The Continuous Panoramic Print function supports basic image size of 8x10, 8x12, and A4.

As part of each image is overlapping, the length of the final print is shorter than the total of the paper length multiplied by the number of printed images.

※ Printout length in the feed direction = (Paper length x Print Qty.) - ((Print Qty. - 1) x Overlap width)

ex) case of 300dpi 8x24(2-image printing), Overlap width 2in.

(12in. x 2 pages) - ((2 pages - 1) x 2in.) = 22in.

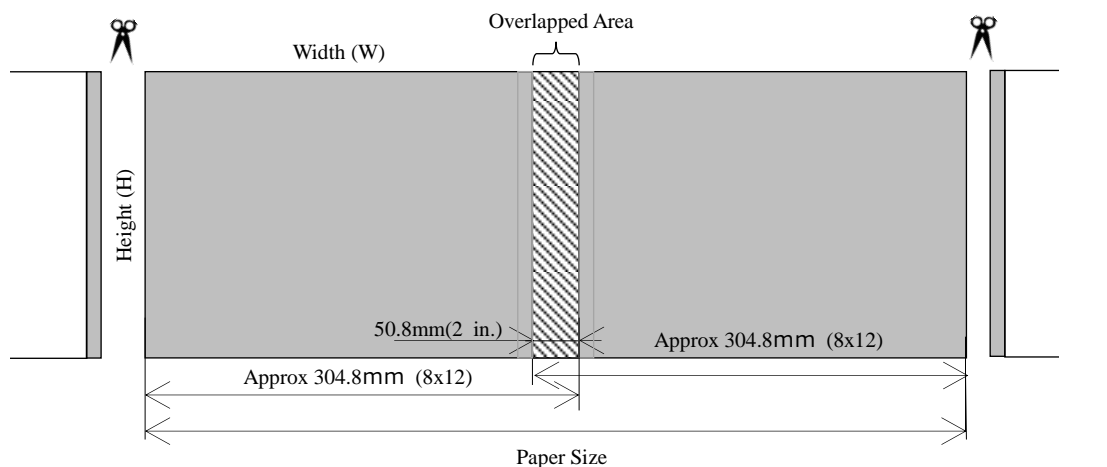
ex) case of 300dpi 8x36(3-image printing), Overlap width 2in.

(12in. x 3 pages) - ((3 pages - 1) x 2in.) = 32in.

Overlap width	8x20 (2-image printing) Paper length	8x30 (3-image printing) Paper length
50.8mm (2in.)	457.2mm (18 in.)	660.4mm (26 in.)

Overlap width	8x24 (2-image printing) Paper length	8x36 (3-image printing) Paper length
50.8mm (2in.)	558.8mm (22 in.)	812.8mm (32 in.)

Overlap width	A4x2 (2-image printing) Paper length	A4x3 (3-image printing) Paper length
50.8mm (2in.)	543.2mm (21.4 in.)	789.4mm (31.1 in.)



< Panoramic image data size >

■ DP-DS620

As part of each image is overlapping, the width of the printed panorama image is narrower than the total of the 6x8 size multiplied by the number of printed images.

※ Panoramic image data width = (8in. × Print Qty.) - ((Print Qty. - 1) × Overlap width) + print margin

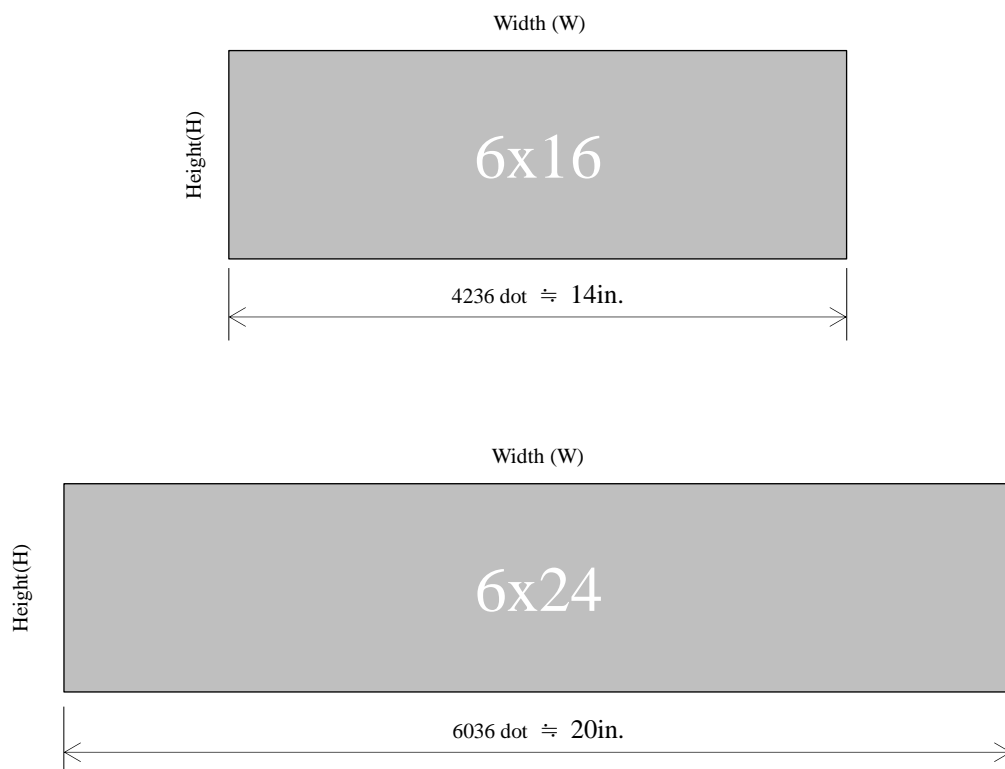
ex) case of 300dpi 6x16(2-image printing), and Overlap width 2in.

$$(2400\text{dot} \times 2 \text{ pages}) - ((2 \text{ pages} - 1) \times 600\text{dot}) + 36\text{dot} = 4236\text{dot}$$

ex) case of 300dpi 6x24(3-image printing), and Overlap width 2in.

$$(2400\text{dot} \times 3 \text{ pages}) - ((3 \text{ pages} - 1) \times 600\text{dot}) + 36\text{dot} = 6036\text{dot}$$

Overlap width [dot]	6x16(2-image printing) panorama data Size H x W [dot]	6x24(3-image printing) panorama data Size H x W [dot]
2in.[600]	1844 x 4236	1844 x 6036



■ DP-DS820

As part of each image is overlapping, the width of the printed panorama image is narrower than the total of the paper length multiplied by the number of printed images.

※ Panoramic image data width = (Paper length × Print Qty.) - ((Print Qty. - 1) × Overlap width) + print margin

ex) case of 300dpi 8x24(2-image printing), and Overlap width 2in.

$$(3600\text{dot} \times 2 \text{ pages}) - ((2 \text{ pages} - 1) \times 600\text{dot}) + 36\text{dot} = 6636\text{dot}$$

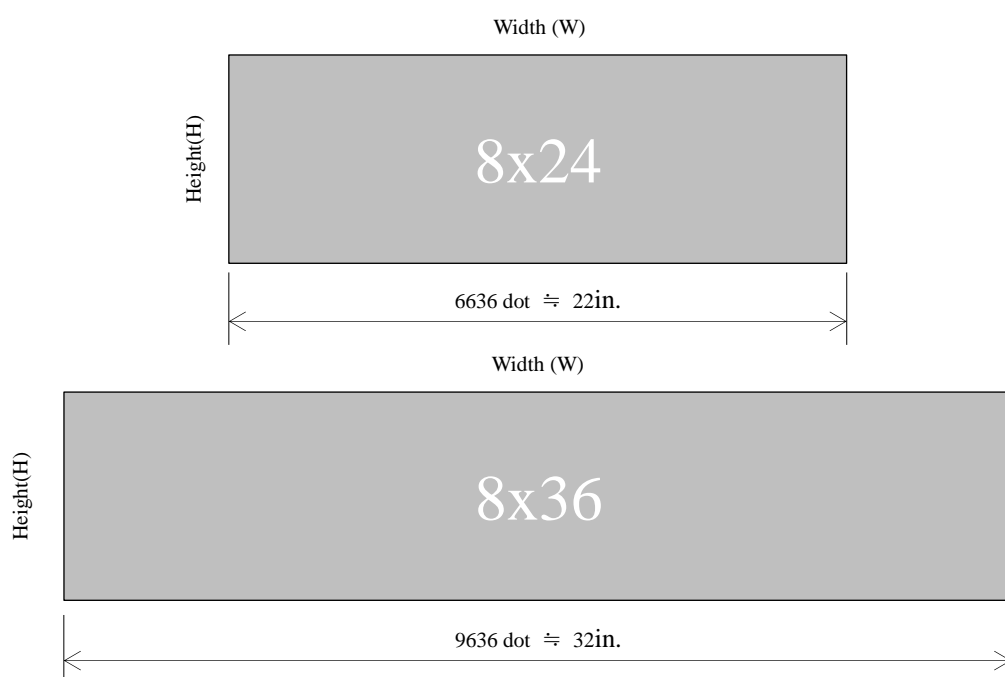
ex) case of 300dpi 8x36(3-image printing), and Overlap width 2in.

$$(3600\text{dot} \times 3 \text{ pages}) - ((3 \text{ pages} - 1) \times 600\text{dot}) + 36\text{dot} = 9636\text{dot}$$

Overlap width [dot]	8x20 (2-image printing) panorama data Size H x W [dot]	8x30 (3-image printing) panorama data Size H x W [dot]
2in.[600]	2448 x 5436	2448 x 7836

Overlap width [dot]	8x24 (2-image printing) panorama data Size H x W [dot]	8x36 (3-image printing) panorama data Size H x W [dot]
2in.[600]	2448 x 6636	1844 x 9636

Overlap width [dot]	A4x2 (2-image printing) panorama data Size H x W [dot]	A4x3 (3-image printing) panorama data Size H x W [dot]
2in.[600]	2528 x 6452	2528 x 9360



< Transmitted image data size >

■ DP-DS620

The size of the images sent to the printer with the Continuous Panoramic Prints function is 6x8.

	300x300dpi	300x600dpi
W x L [dot]	1844 x 2436	1844 x 4872

■ DP-DS820

The size of the images sent to the printer with the Continuous Panoramic Prints function are 8x10, 8x12, and A4.

• 8x10

	300x300dpi	300x600dpi
H x W [dot]	2448 x 3036	2448 x 6072

• 8x12

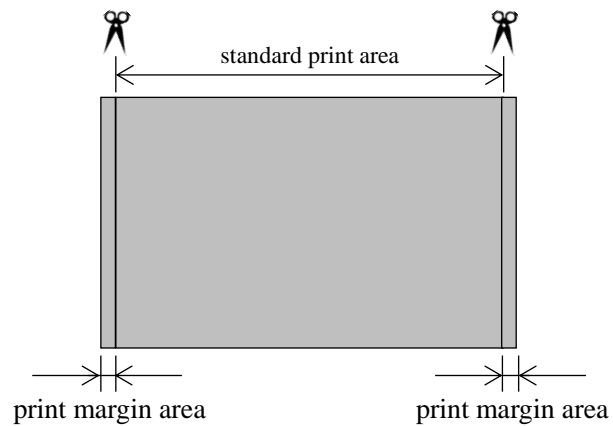
	300x300dpi	300x600dpi
H x W [dot]	2448 x 3636	2448 x 7272

• A4

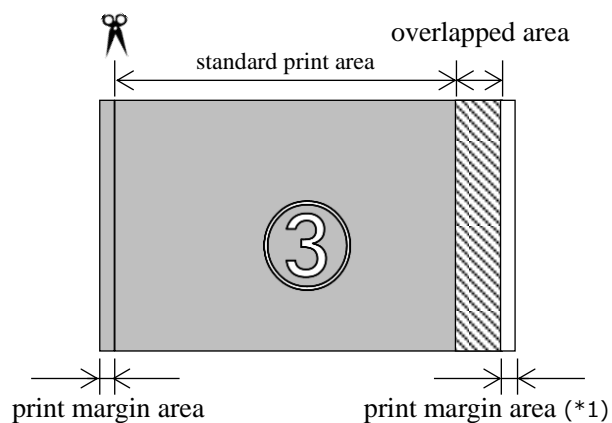
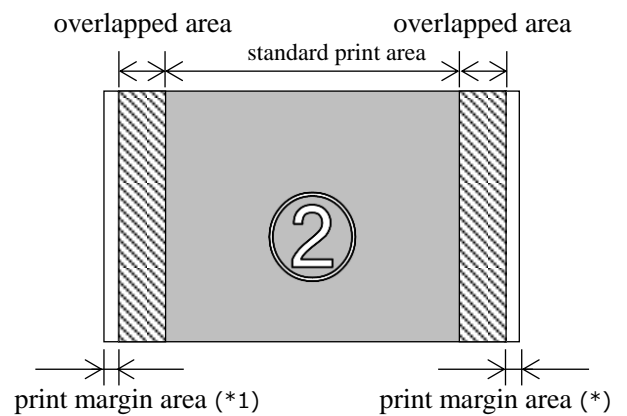
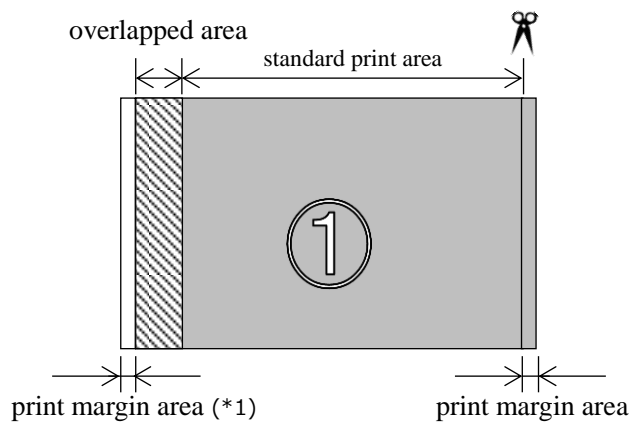
	300x300dpi	300x600dpi
H x W [dot]	2528 x 3544	2528 x 7088

The transmitted image consists of "standard print area", "overlapped area", and "print margin area".

■Standard Prints



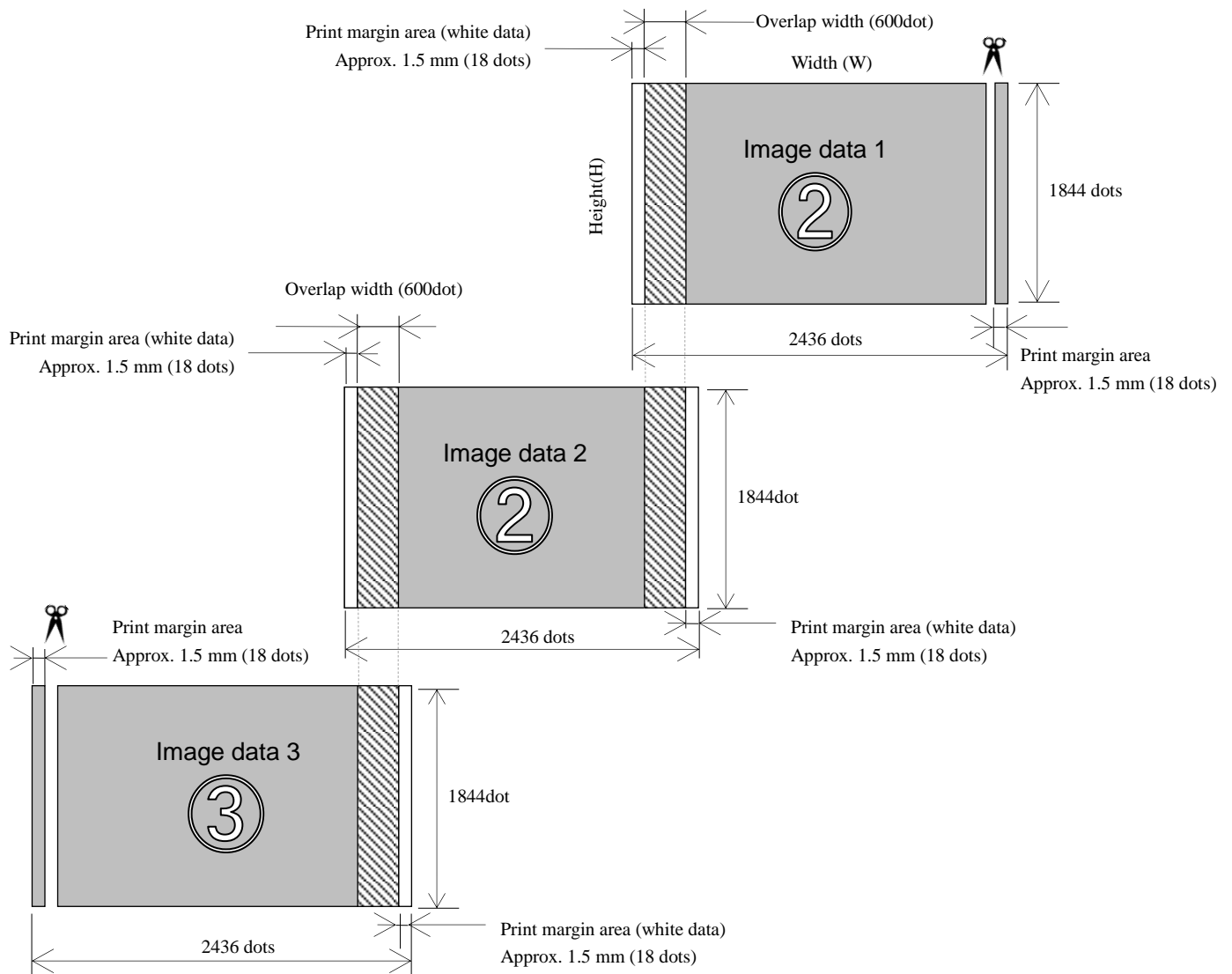
■Continuous Panoramic Prints



Note

*1: This area will be replaced with white data.

< Diagram of transmitted image data size (3 images, 300 dpi) >

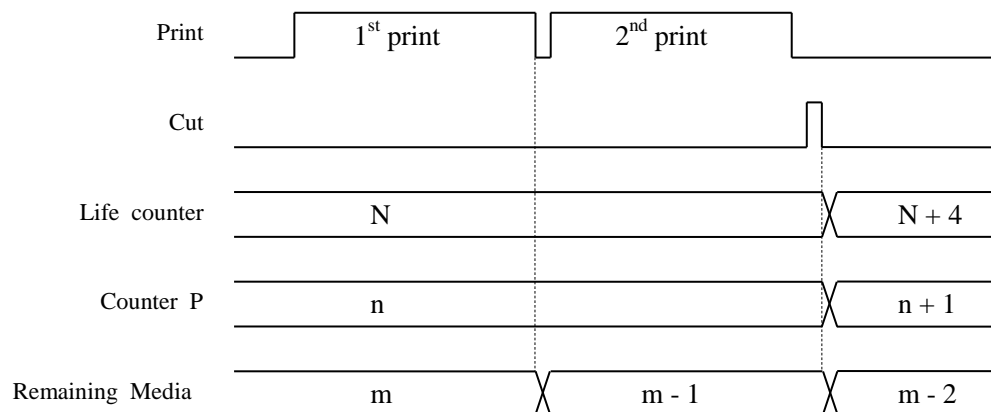


5. Printer Operation during Panoramic Prints

5.1. Life Counter Operation

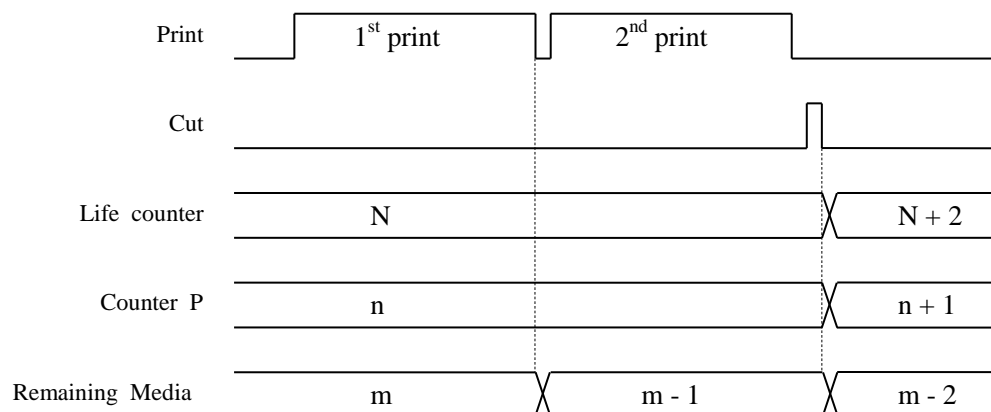
■ DP-DS620

- For Panoramic Prints, the counter increases after printing at the point when the print is cut.
(For 6x16: +4, For 6x24: +6)
- The Counter P counts up +1 after printing at the point when the print is cut.



■ DP-DS820

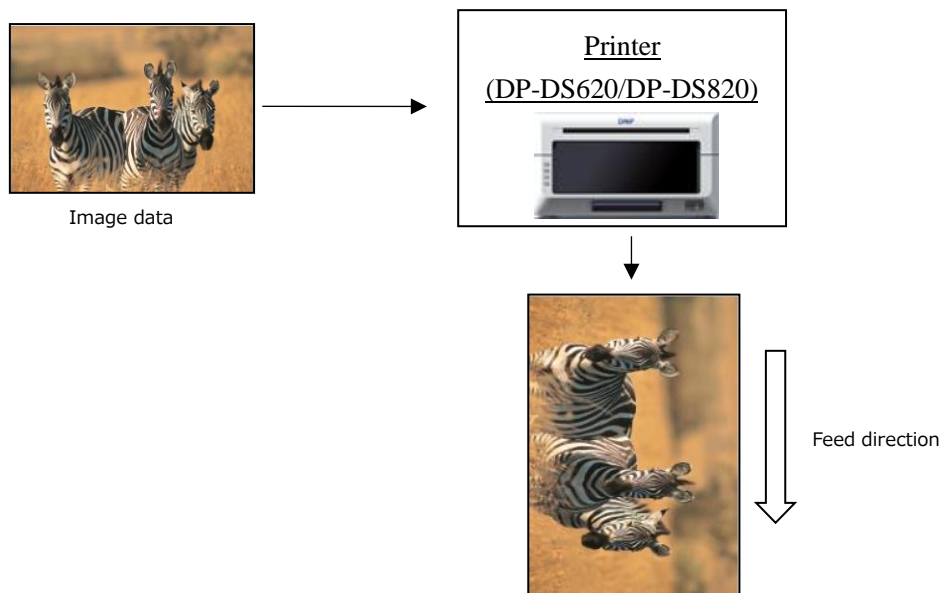
- For Panoramic Prints, the counter increases after printing at the point when the print is cut.
(For 8x20, 8x24, A4x2: +2, For 8x30, 8x32, A4x3: +3)
- The Counter P counts up +1 after printing at the point when the print is cut.



5.2. About the Printer Printing Order

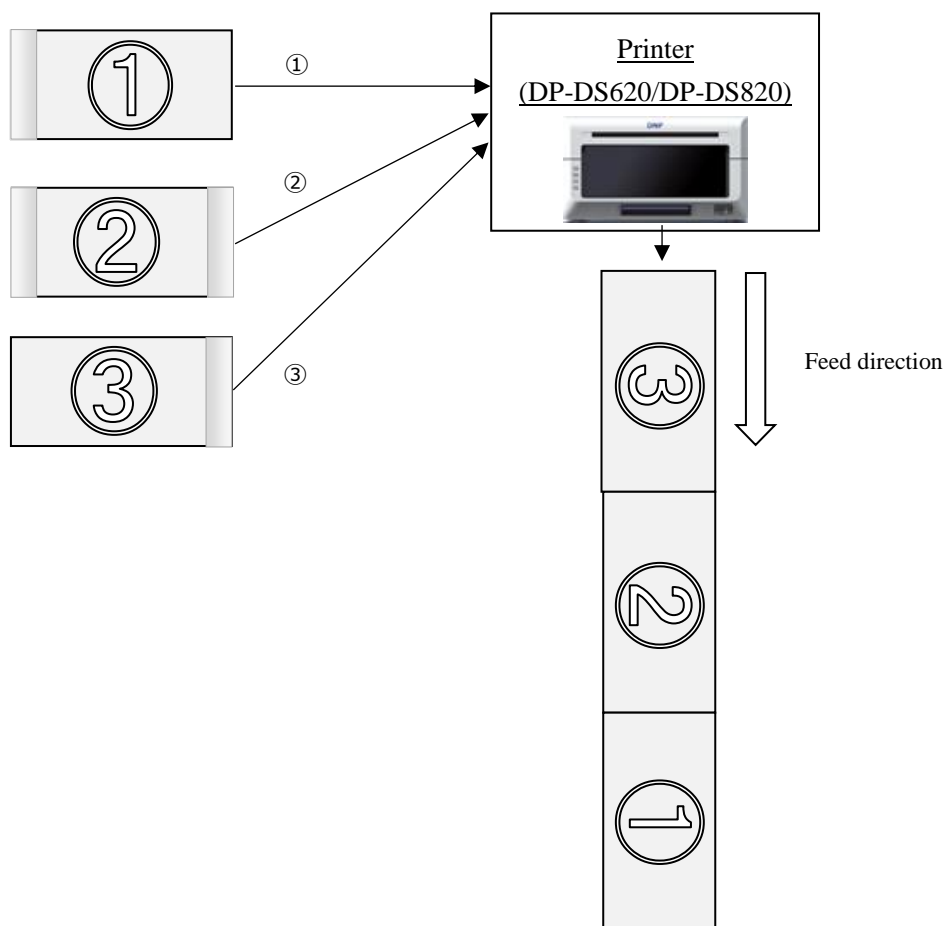
<Feed direction for normal printing>

The feed out direction is as follows when 6x8 image data sets are sent to the DP-DS620 and the DP-DS820 printer.



<Continuous Panorama feed direction>

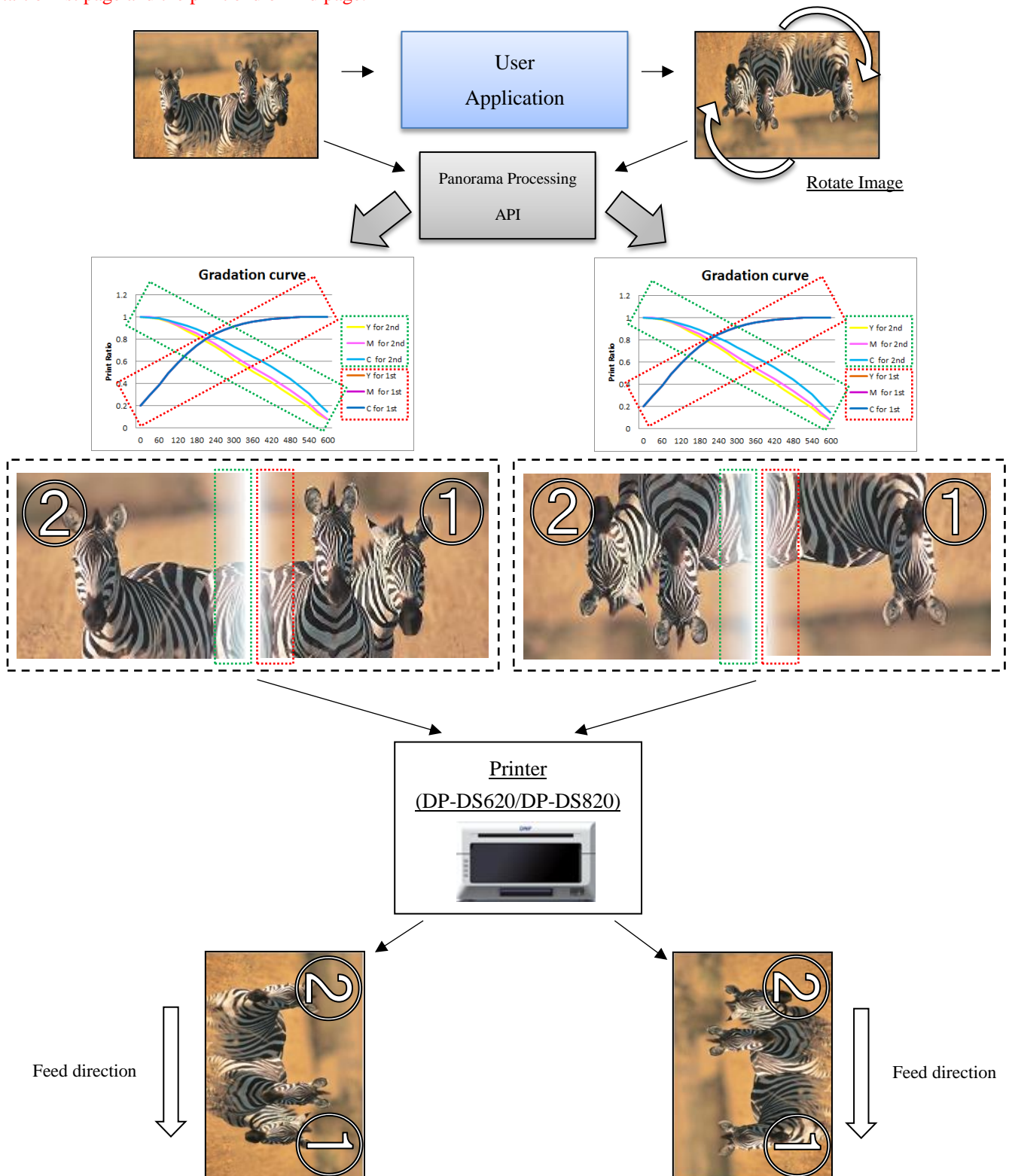
When transmitting the segmented data for the Continuous Panoramic Prints, the images are sent in order from the right end of the original image. **If you send the images in different order, the print result will be not right.**



< In case of rotating the continuous panoramic prints result >

If you want to rotate the continuous panoramic prints result, you have to rotate an image before divided.

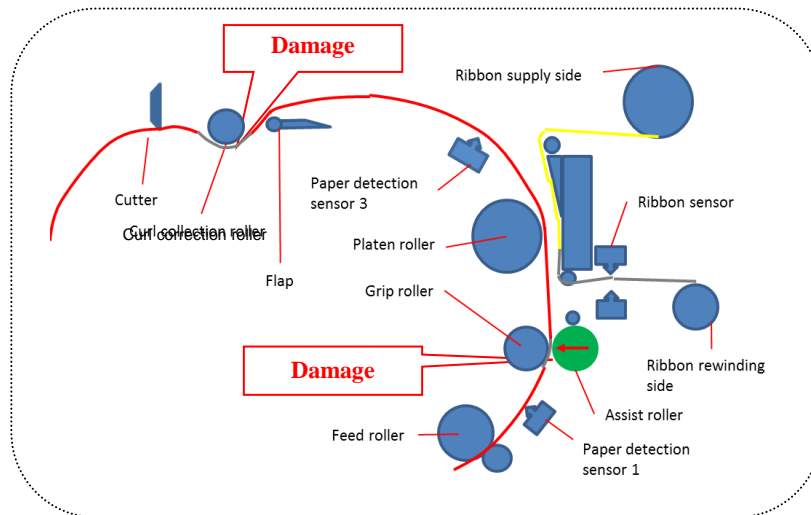
The created images for the continuous panoramic prints are performed a gradation process to the segmented data so that reducing the density change of the overlapped area. If you send the images in different printing order, it will be ineffective. Because the segmented data has been performed a gradation process by the different print ratio for the print start of 1st page and the print end of 2nd page.



5.4. Overheating and Sending Data during Panoramic Prints

When performing Panoramic Prints, if the data for the 2nd or 3rd image is not received in time for continued printing, or if the printer overheats, the printer will stop with the print not completed. In this case, the print may be damaged (an impression left) by the de-curling section or the media grip section.

In addition, during Panoramic Prints, if the next print data is not received for approximately 60 seconds, the print will be cut and the printing stopped, and the printer status will switch to Idle.



5.4.1. Avoiding overheating

a) Securing Time for Cooling

If the head temperature rises during printing, as a measure to prevent the printer from stopping due to overheating, the feed speed from after printing Cyan to the beginning of overcoat printing, and the feed speed immediately after overcoat printing will be slowed in order to increase the time for the head to cool down.

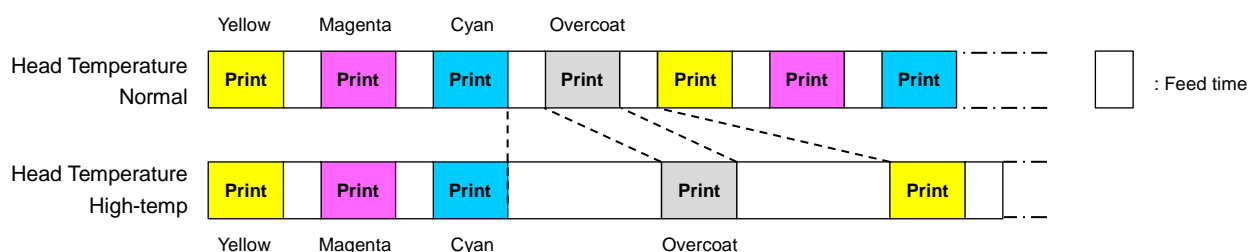
■ DP-DS620

Mode	Print Speed	Feed Speed	
		Head Temperature Normal	Head Temperature High-temp
High-speed (300x300dpi)	High-quality (※1)	17ips	1.2ips or 0.6ips
High-quality (300x600dpi)			

■ DP-DS820

Mode	Print Speed	Feed Speed	
		Head Temperature Normal	Head Temperature High-temp
High-speed (300x300dpi)	High-quality (※1)	1.2ips or 14ips	0.6ips
High-quality (300x600dpi)			

※1: In order to maintain print quality during Continuous Panorama, even if the setting is “High-speed” mode, the printing will use “High-quality” mode.



b) Start Temperature

In order to avoid overheating during Panoramic Prints, the printer will wait until the head temperature is lower than that shown in the chart below before starting printing of the 1st image.

•DP-DS620 / DP-DS820

Head Temperature	
Normal environment (Ext. temp approx. 25°C)	Normal environment (Ext. temp approx. 30°C)
51.2°C	48.1°C

When used in a normal environment (external temperature is approximately 25°C), continuous printing without overheating is possible for a gray (50%) image. However, when operating in a high-temperature environment (external temperature is approximately 30°C), it may take longer for cooling after printing the first image.

Before sending the data, use the GetPanoramaPrintable() API to check that the printer is ready to start Panoramic Prints.

■Printing Time

•DP-DS620

Size of Panorama Print	
6x14in	6x20in
46sec	64sec

※Measurement conditions: gray (50%) images, 25°C±5°C 50%±10%RH

•DP-DS820

Size of Panorama Print					
8x20in	8x30in	8x24in	8x36in	A4x2	A4x3
89sec	129sec	103sec	151sec	102sec	148sec

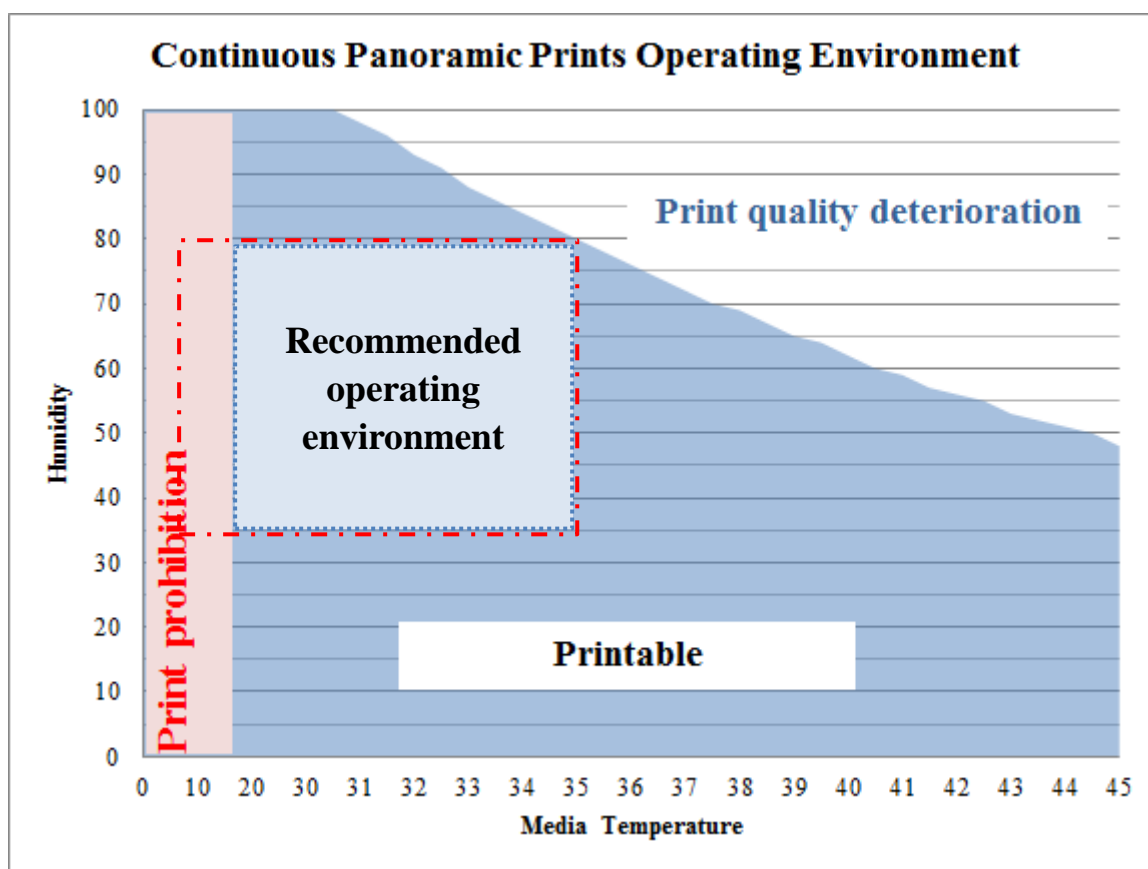
※Measurement conditions: gray (50%) images, 25°C±5°C 50%±10%RH

5.5. About Printing in High-humidity Environments

If continuous panoramic prints is performed in a high-humidity environment, the print quality of the overlapping areas may deteriorate. If the operating environment is a high-humidity environment, the return data for the panoramic prints start check command will show a high-humidity value (xx1xx).

If continuous panoramic prints is performed in a low-temperature environment, it may occur the problem such as a paper jam according to the image. If the operating environment is a low-temperature environment, the return data for the panoramic prints start check command will show a low-temperature value (xxx2x).

When performing the continuous panoramic prints, so after confirming the above, use it under printable conditions as shown below.



 : Product Specification Operating Environment

Temperature 5°C ~ 35°C with natural convection.

Humidity 35 ~ 80% with no condensation

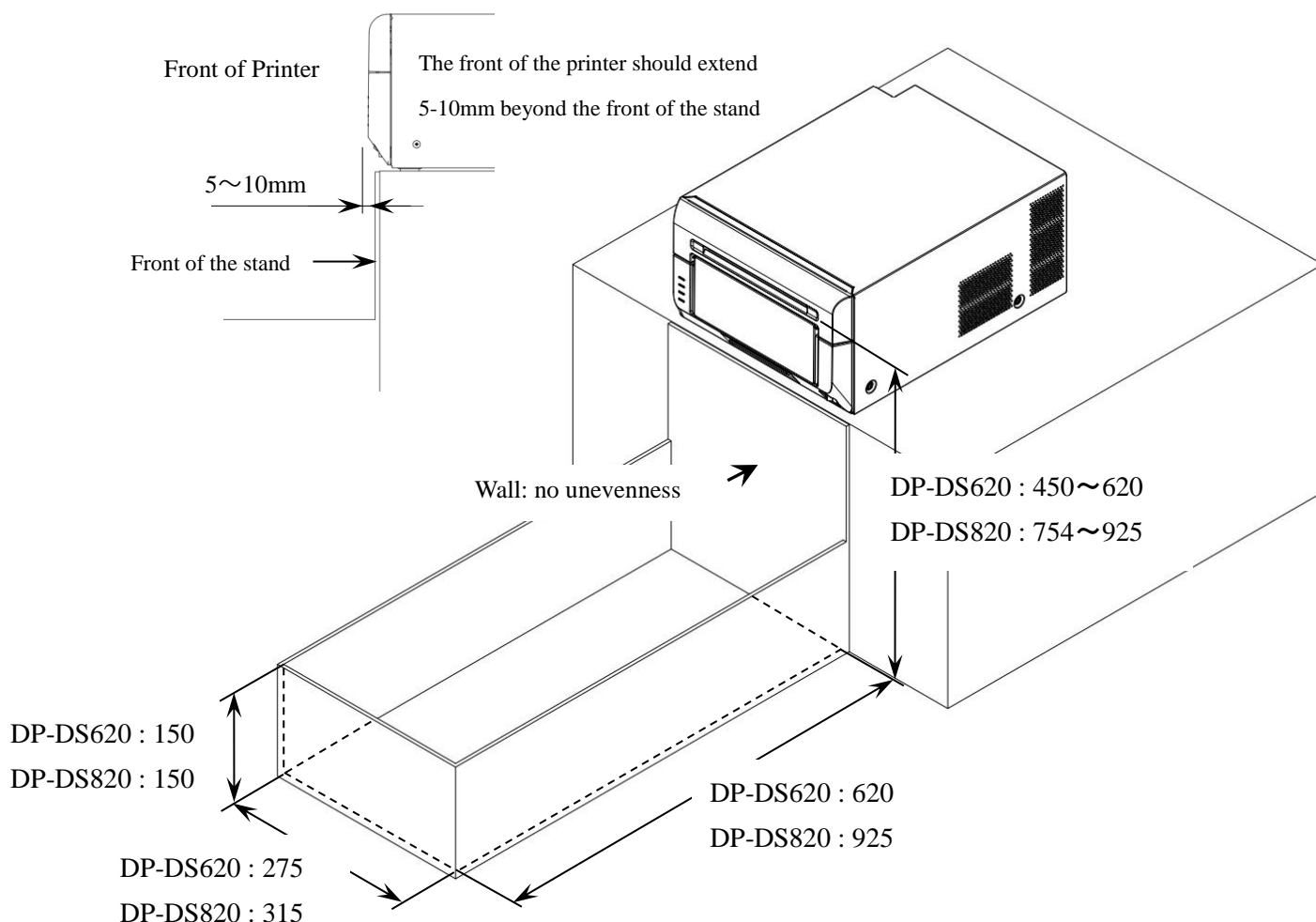
 : Continuous Panoramic Prints Operating Environment

Temperature 15°C ~ 35°C with natural convection.

Humidity 35 ~ 80% with no condensation

6. About the Set-up Location and Space for Panoramic Prints

When performing Panoramic Prints, we recommend space and stand set-up as shown below.



<Notes>

- Set the printer so that the height of the paper output slot is 450-620 mm (DP-DS820:754~925mm) above the floor. If the height of the output slot is less than 450mm(DP-DS820:754mm), register slippage or printing irregularities could be caused when the end of the paper hits the floor. If the height is more than 620mm(DP-DS820:925mm), the end of the print could be bent or scratched when it drops to the floor.
- Put a wall on the front of the stand. be sure there is no unevenness in the wall, and that the front of the printer extends 5-10mm beyond the front of the stand.
- When performing panorama printing, the paper will be fed out from the printer during the printing process. Touching the paper during printing could cause paper-jam, register slippage, or printing irregularities, so please do not touch the paper. (Strong airflow from air-conditioners etc. could have the same effect.)

7. Notes regarding Panoramic Prints

- When the head temperature is high, the printer will wait for the head to cool before starting printing.
- When the humidity is high, the print quality of the panoramic prints may deteriorate, so we don't recommend printing in high-humidity situations.
- When the media temperature is low, don't perform the continuous panoramic prints. (It may occur the problem such as a paper jam according to the image.)
- When carrying out Panoramic Prints, first get the remaining media quantity from the printer and check that there is enough media to complete the Panoramic Prints.
- If ribbon end occurs during Panoramic Prints, the printer will cut the print and stop printing. The printer status will be "Ribbon End".
- During Panoramic Prints, if the next print data is not received, the printer will be Idle until the next data is sent. In this case, be aware that the de-curl section or media grip section could leave impressions on the printed media.
- During Panoramic Prints, if the next print data is not received for approximately 60 seconds, the print will be cut and the printing stopped, and the printer status will switch to Idle.
- For Panoramic Prints, the print re-try function is invalid.
- If the Full Cutter Set-up command, No Cut-scrap command, or 2-inch Cut command are received during Panoramic Prints, the partially printed Panorama Print will be cut, and operation will revert to normal. (This is because the designated operations of these commands are incompatible.)
- If data other than 6x8-size (DP-DS820: 8x10, 8x12, A4) is received during Panoramic Prints, the Panorama Print being printed will be cut, and operation will return to normal.
- Be sure not to handle the media being fed out of the printer during Panoramic Prints.
- A maximum length of 36 inches can be fed out, so be careful in the placement of the printer.