

EPSON®

**Programming Guide
For
8 Color
EPSON Ink Jet Printer**

Epson Stylus Photo R3000/ PX-5V

(Level I)

All Rights Reserved. This publication may only be used for the purposes of research and development of products and services enhancing, enabling, or facilitating existing and future products and services bearing the EPSON trademark, and for providing support to those engaging or intending to engage in such activities. All other uses are unauthorized. No part of this publication may be reproduced, stored in any retrieval system, or transmitted in any form or by any means without the prior written permission of SEIKO EPSON Corporation for any purpose other than the authorized users. No patent liability is assumed with respect to the use of the information contained within. While every precaution has been taken in the preparation of this information, SEIKO EPSON Corporation and its affiliates assume no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information presented within.

EPSON and EPSON ESC/P are registered trademarks and EPSON ESC/P 2 is a trademark of SEIKO EPSON Corporation.

Copyright ©2011 by SEIKO EPSON Corporation, Nagano, Japan

TABLE OF CONTENTS:

CHAPTER 1 : INTRODUCTION	5
1.1. Features.....	5
CHAPTER 2 : PAPER TYPES AND SIZES MEDIA SPECIFICATION	7
2.1. Paper Sizes for the Epson Stylus Photo R3000/ PX-5V	7
2.2. Paper Size and Orientation	11
2.3. Printable Area	12
2.3.1. Printing Area (Standard)	14
2.3.2. Printing Area (Zero margin / Borderless).....	16
2.4. Paper size of select Roll Paper (Zero Margin).....	17
2.5. Printing Area (CD-R)	17
CHAPTER 3 : PRINTING OPTION	18
3.1. Printing Quality	18
3.2. Recommended Settings for Color and Monochrome Printing.....	19
3.2.1. Recommended Setting Modes for Driver (Color) for Japan	19
3.2.2. Recommended Setting Mode for Driver (Color & Black & ABWP) for Oversea	21
CHAPTER 4 : COMMAND SEQUENCE	23
4.1. Raster Graphics Modes.....	23
4.2. Command Transfer Procedure.....	24
4.2.1. Command transfer sequence for non-compressed and the run-length encoded compression modes	24
4.2.2. Command sequence in the roll paper mode	26
4.3. Limitations of Command Settings	27
CHAPTER 5 : INDIVIDUAL COMMAND SPECIFICATIONS	28
5.1.1. Exit Packet Mode	28
5.1.2. Initialize printer ESC @.....	29
5.1.3. Line feed LF	30
5.1.4. Form feed FF.....	31
5.1.5. Carriage Return CR.....	32
5.1.6. Control paper loading/ejecting ESC EM n.....	33
5.1.7. Set absolute horizontal print position ESC \$ nL nH	34
5.1.8. Set absolute horizontal print position ESC (\$ nL nH m1 m2 m3 m4	35
5.1.9. Set page length in defined unit ESC (C nL nH mL mH	36
5.1.10. Set page length in defined unit (extended) ESC (C nL nH m1 m2 m3 m4	37
5.1.11. Select graphics mode ESC (G nL nH m.....	38
5.1.12. Set unit (Set the number of 1/3600 inch units per programming value) ESC (U nL nH m.....	39
5.1.13. Set unit (extended) ESC (U nL nH P V H mL mH	40
5.1.14. Set absolute vertical print position ESC (V nL nH mL mH.....	41
5.1.15. Set absolute vertical print position (extended) ESC (V nL nH m1 m2 m3 m4	42
5.1.16. Set page format ESC (c nL nH tL tH bL bH.....	43
5.1.17. Set page format (extended) ESC (c nL nH t1 t2 t3 t4 b1 b2 b3 b4	44
5.1.18. Monochrome Mode / Color Mode Selection ESC (K nL nH m n.....	45
5.1.19. Select MicroWeave printing mode ESC (i.....	46
5.1.20. Selects dot size ESC (e nL nH m d	47
5.1.21. Select color ESC (r nL nH m n	48
5.1.22. Set relative vertical print position ESC (v nL nH mL mH.....	49
5.1.23. Set relative vertical print position (extended) ESC (v nL nH m1 m2 m3 m4	50
5.1.24. Print raster graphics ESC . c v h m nL nH d1...dk (c=0,1).....	51
5.1.25. Set paper dimensions ESC (S nL nH w1 w2 w3 w4 l1 l2 l3 l4.....	53
5.1.26. Set the raster image resolution ESC (D nL nH rL rH v h	54
5.1.27. Transfer Raster image ESC i r c b nL nH mL mH d1.....dk	55
5.1.28. Turn unidirectional mode on/off ESC U n	56
5.1.29. Set relative horizontal printing position ESC ¥ nL nH	57
5.1.30. Set relative horizontal print position ESC (/ nL nH n1 n2 m1 m2	58
5.1.31. Set Print method ID ESC (m nL nH n.....	59
5.1.32. Set line feed by n/360 inch ESC + n	61
CHAPTER 6 : REMOTE MODE	62
6.1. Remote Mode Language Description	62
6.1.1. Enter Remote Mode (Remote Mode) ESC (R 08H 00H 00H "REMOTE1"	64
6.1.2. Load Power-On Default NVR into RAM (Remote Mode) "LD" 00H 00H	65
6.1.3. Set printer timer (Remote Mode) "TI" 08H 00H 00H YYYY MM DD hh mm ss	66
6.1.4. Set horizontal print position (Remote Mode) "FP" 03H 00H 00H m1 m2	67
6.1.5. Turn printer state reply on/off (Remote Mode) "ST" 02H 00H 00H m1	68

6.1.6. Job name set “JH” nL nH 00H m1 m2 m3 m4 m5 <job name>.....	69
6.1.7. Start job “JS” nn 00H 00H <job name> m1	70
6.1.8. End job “JE” 01H 00H 00H	70
6.1.9. Select paper media “MI” 04H 00H 00H m1 m2 m3	71
6.1.10. Select Duplex Printing “DP” 02H 00H 00H m1	73
6.1.11. User Setting “US” 03H 00H 00H m1 m2	74
6.1.12. Set mechanism sequence “SN” 01H 00H 00H.....	75
6.1.13. Select paper path “PP” 03H 00H 00H m1 m2.....	76
6.1.14. Turn roll paper mode on/off “EX” 06H 00H 00H 00H 00H 05H m1	77
6.1.15. Terminate Remote Mode (Remote Mode) ESC 00H 00H 00H	78
6.1.16. Save Setting “SV” 00H 00H	79
6.1.17. Set drying time “DR” 04H 00H 00H m1 m2 m3	80
6.1.18. Set Ink type “IK” 02H 00H 00H m1	81
6.1.19. Set paper thickness “PH” 02H 00H 00H m1	82
CHAPTER 7 : STATUS REPLY CODE SPECIFICATION.....	83
7.1. Status code.....	84
7.2. Error code	85
7.3. Self print code.....	85
7.4. Warning code.....	86
7.5. Paper path.....	87
7.6. Paper mismatch error.....	88
7.7. Cleaning time information.....	88
7.8. Replace cartridge information	88
7.9. Ink information	89
7.10. Loading path information	89
7.11. Cancel code	90
7.12. Job name Information.....	90
7.13. Black Ink Information	90
7.14. Cleaning impossible error cartridge information.....	91
CHAPTER 8 : DEVICE ID	92

Tables

Table 1	The Epson Stylus Photo R3000/ PX-5V Printers Feature Summary.....	5
Table 2	Coordinate Systems for a Single Sheet of Paper.....	13
Table 3	Printable Area Dimensions (Zero margin / Borderless)	16
Table 4	Printable Area Dimensions (CD-R)	17
Table 5	Command Sequence for the Conventional command method of graphics data transmission	24
Table 6	Command Sequence for the newer Method of ESC (D command method of graphics data transmission	25
Table 7	Command Sequence for roll paper mode	26

CHAPTER 1 : Introduction

This section of this handbook will provide a technical overview of Epson Stylus Photo R3000/ PX-5V to facilitate driver development.

1.1. Features

The Epson Stylus Photo R3000/ PX-5V produces exhibition quality prints with unprecedented control of professional and fine art photographers. With its innovative ink set, Epson UltraChrome K3™ with Vivid Magenta, this powerful printer offers an astounding color gamut for brilliant reds, blues and purples.

Designed to easily deliver large-format photos worthy of gallery display, the 13-inch Epson Stylus Photo R3000/ PX-5V includes Radiance™ technology, which ensures smooth color transitions, and improved highlight and shadow detail. Its three-level black technology offers exceptional gray balance and outstanding tonal range. And, Advanced Black-and-White Photo Mode ensures precision control for neutral or toned black-and-white prints. Take your creativity further with its versatile media handling capabilities. Print on roll paper, fine art paper or 1.3 mm thick art board. The Epson Stylus Photo R3000/ PX-5V always delivers professional performance with its one-inch wide, permanent print head. And, for more consistent printing, it includes Automatic Nozzle Check technology, plus Epson PreciseColor™. Achieve professional results, with the quality, control and versatility of the Epson Stylus Photo R3000/ PX-5V photo printer.

In Japan, this printer is sold as “PX-5V”.

In Overseas, this printer is sold as “Epson Stylus Photo R3000”.

The Epson Stylus Photo R3000/ PX-5V uses the Cyan, Vivid Magenta, Yellow, Light Cyan, Vivid Light Magenta, Light Black, Light Light Black, and Matte or Photo Black separate ink cartridges.

The Epson Stylus Photo R3000/ PX-5V printer incorporates the following features:

- Epson UltraChrome K3™ with Vivid Magenta pigment inkset
- Advanced magenta pigments - astounding reds, blues and purples
- Advanced Black-and-White Photo Mode
- Fine art, canvas and roll paper printing
- Radiance™ technology for smoother gradations
- Epson PreciseColor™ - no calibration needed
- Highest resolution in 5760x1440dpi
- CD-R and DVD-R tray printing
- Individual Ink Cartridge with large ink volume
- Roll Paper printing
- New Mechanism and Auto PG System
- Zero margin / Borderless printing for Faster Speed
- Fun to use media
- I/F : Two USB 2.0 Hi Speed ports and One PictBridge™

With the Epson Stylus Photo R3000/ PX-5V's bi-directional interfaces and EPSON's Remote Mode bi-directional printer control language, the host computer can obtain useful printer status information.

See *CHAPTER 6* in this Handbook for further information concerning EPSON's Remote Mode printer control language.

Table 1 The Epson Stylus Photo R3000/ PX-5V Printers Feature Summary

Epson Stylus Photo R3000/ PX-5V	
Print Head	Black:180 x 1(MK/PK) LightBlack:180 x 2(LLK, LK) Color: 180 x 5(C, VM, Y, LC, VLM)
Interface (s)	USB 2.0
Printer Language	ESC/P Raster & Remote Mode
Resolution Max (dpi)	* 5760(h) x 1440(v)

Font	No support
Support Code table	No support
Ink Cartridge Type	Photo Black, Matte Black, Gray, Light Gray, Yellow, Vivid Magenta, Vivid Light Magenta, Vivid Cyan, Light Cyan

* - This printing mode is achieved by the printer driver only.

CHAPTER 2 : PAPER TYPES AND SIZES Media Specification

In addition to the standard plain paper and envelope sizes, EPSON provides special paper types in the following sizes:

2.1. Paper Sizes for the Epson Stylus Photo R3000/ PX-5V

Y: quality guarantee, △: guarantee with conditions

Paper Type	Size	Standard				Borderless			
		U.S.A.	Euro	Asia/Pac	Japan	U.S.A.	Euro	Asia/Pac	Japan
普通紙 Plain Paper	A3	Y	Y	Y	Y	-	-	-	△
	US B	Y	-	-	-	-	-	-	-
	B4	Y	Y	Y	Y	-	-	-	△
	Legal	Y	Y	Y	Y	-	-	-	△
	Letter	Y	Y	Y	Y	-	-	-	△
	A4	Y	Y	Y	Y	-	-	-	△
	B5	-	Y	Y	Y	-	-	-	△
	A5	-	Y	Y	Y	-	-	-	△
	Half Letter	Y	-	-	-	-	-	-	-
	A6	Y	Y	Y	Y	-	-	-	△
	Executive	-	-	-	-	-	-	-	-
	User Defined	Y	Y	Y	Y	-	-	-	△
Premium Ink Jet Plain Paper	A4	-	Y	Y	-	-	-	-	-
Premium Bright White Paper	Letter	Y	-	-	-	-	-	-	-
両面上質普通紙<再生紙> Bright White Inkjet Paper	A3	-	-	-	Y	-	-	-	△
写真用紙クリスピア<高光沢> (国内のみ対応) Ultra Premium Glossy Photo Paper (U.S.A.) Ultra Glossy Photo Paper (Euro, Asia)	A3+ / Super A3	Y	Y	Y	Y	Y	Y	Y	Y
	A3	-	-	-	Y	-	-	-	Y
	四切	-	-	-	Y	-	-	-	Y
	Letter	-	-	-	-	-	-	-	-
	A4	-	-	-	Y	-	-	-	Y
	8x10	-	-	-	Y	-	-	-	Y
	2L 5x7inch 13x18cm	-	-	-	Y	-	-	-	Y
	KG 4x6inch 10x15cm	-	-	-	Y	-	-	-	Y
	L (3R)	-	-	-	Y	-	-	-	Y
	A3+ / Super A3	Y	Y	Y	Y	Y	Y	Y	Y
	US B 11x17inch	Y	-	-	-	Y	-	-	-
	A3	Y	Y	Y	Y	Y	Y	Y	Y
写真用紙<光沢> Premium Photo Paper Glossy (U.S.A.) Premium Glossy Photo Paper (Euro, Asia)	11x14	Y	-	-	-	Y	-	-	-
	四切	-	-	-	Y	-	-	-	Y
	Letter	Y	-	-	-	Y	-	-	-
	A4	Y	Y	Y	Y	Y	Y	Y	Y
	8x10	Y	-	-	Y	Y	-	-	Y
	2L 5x7inch 13x18cm	Y	Y	Y	Y	Y	Y	Y	Y
	ハイビジョンサイズ HV wide size 102x181mm	-	Y	-	Y	-	Y	-	Y

Paper Type	Size	Standard				Borderless			
		U.S.A.	Euro	Asia/Pac	Japan	U.S.A.	Euro	Asia/Pac	Japan
写真用紙ロールタイプ<光沢> Premium Photo Paper Glossy (U.S.A.) Premium Glossy Photo Paper (Euro, Asia)	KG 4x6inch 10x15cm	Y	Y	Y	Y	Y	Y	Y	Y
	L (3R)	-	-	-	Y	-	-	-	Y
	カードサイズ Card (54x86mm)	-	-	-	-	-	-	-	-
写真用紙エントリー<光沢> Glossy Photo Paper (Euro/Asia) Photo Paper Glossy (U.S.A.)	329x10000mm	Y	Y	Y	Y	Y	Y	Y	Y
	210x10000mm	-	-	-	-	-	-	-	-
	A3+ / Super A3	Y	-	-	Y	Y	-	-	Y
光沢紙 Photo Paper (EGCP)	A3	-	-	-	Y	-	-	-	Y
	US B (11x17)	Y	-	-	-	Y	-	-	-
	Letter	Y	-	-	-	Y	-	-	-
	A4	Y	Y	Y	Y	Y	Y	Y	Y
	2L 5x7inch 13x18cm	Y	Y	Y	Y	Y	Y	Y	Y
	KG 4x6inch 10x15cm	Y	Y	Y	Y	Y	Y	Y	Y
	L	-	-	-	Y	-	-	-	Y
	All Size	-	-	-	-	-	-	-	-
	A3+ / Super A3	Y	Y	Y	Y	Y	Y	Y	Y
写真用紙<絹目調> Premium Photo Paper Semi-Gloss (U.S.A.) Premium Semigloss Photo Paper (Euro, Asia)	A3	Y	Y	Y	Y	Y	Y	Y	Y
	Letter	Y	-	-	-	Y	-	-	-
	A4	-	Y	Y	Y	-	Y	Y	Y
	2L 5x7inch 13x18cm	-	-	-	Y	-	-	-	Y
	KG 4x6inch 10x15cm	Y	Y	Y	Y	Y	Y	Y	Y
	L	-	-	-	Y	-	-	-	Y
	ハガキ Postcard	-	-	-	Y	-	-	-	Y
	329x10000mm	-	Y	Y	Y	-	Y	Y	Y
	210x10000mm	-	-	-	-	-	-	-	-
Ultla Premium Photo Paper Luster	A3+ / Super A3	Y	-	-	-	Y	-	-	-
	A3	Y	-	-	-	Y	-	-	-
	Letter	Y	-	-	-	Y	-	-	-
	A4	-	-	-	-	-	-	-	-
Ultra Premium Photo Paper Luster Roll	329x10000mm	Y	-	-	-	Y	-	-	-
	210x10000mm	-	-	-	-	-	-	-	-
フォトマット紙 Premium Presentation Paper Matte (U.S.A.) Matte Paper Heavy-weight (Euro, Asia)	A3+ / Super A3	Y	Y	Y	Y	Y	Y	Y	Y
	A3	Y	Y	Y	Y	Y	Y	Y	Y
	11x14	Y	-	-	-	Y	-	-	-
	Letter	Y	-	-	-	Y	-	-	-
	A4	-	Y	Y	Y	-	Y	Y	Y
	8x10	Y	-	-	-	Y	-	-	-
	A3+ / Super A3	Y	Y	Y	Y	Y	Y	Y	Y
フォトマット紙/顔料専用 (Japan)	A3	Y	Y	Y	Y	Y	Y	Y	Y

Paper Type	Size	Standard				Borderless			
		U.S.A.	Euro	Asia/Pac	Japan	U.S.A.	Euro	Asia/Pac	Japan
Ultra Premium Presentation Matte (U.S.A.)	Letter	Y	-	-	-	Y	-	-	-
Enhanced Matte Paper (Euro/Asia)	A4	-	Y	Y	Y	-	Y	Y	Y
Double-sided Matte Paper	Letter	Y	-	-	-	-	-	-	-
	A4	-	Y	Y	-	-	-	-	-
両面マット紙<再生紙>	名刺サイズ	-	-	-	-	-	-	-	-
Double-sided Matte Paper<Recycled paper>	Business card	-	-	-	-	-	-	-	-
スーパーファイン紙	A3+ / Super A3 / B	Y	Y	Y	Y	-	-	-	Y
Presentation Paper Matte (U.S.A.)	A3	Y	Y	Y	Y	-	-	-	Y
Photo Quality Inkjet Paper (France)	US B 11x17	Y	-	-	-	-	-	-	-
	Letter	Y	-	-	-	-	-	-	-
	A4	Y	Y	Y	Y	-	-	-	Y
スーパーファイン紙ロールタイプ	210x20000mm	-	-	-	-	-	-	-	-
Photo Quality Inkjet Paper Roll									
画材用紙/顔料専用	A3+ / Super A3 / B	Y	Y	Y	Y	Y	Y	Y	Y
Watercolor Paper – Radiant White									
Velvet Fine Art Paper	A3+ / Super A3 / B	Y	Y	Y	Y	Y	Y	Y	Y
	Letter U.S.A. local	Y	-	-	-	Y	-	-	-
Ultra Smooth Fine Art Paper	A3+ / Super A3 / B	Y	Y	Y	Y	Y	Y	Y	Y
Scrapbook	12x12 U.S.A. local	△	-	-	-	△	-	-	-
PX プルーフ紙 Proofing Paper	A3+	-	-	-	-	-	-	-	-
スーパーファイン専用ハガキ Postcard (Photo Quality inkjet paper) *4	ハガキ Postcard	-	-	-	Y	-	-	-	Y
往復ハガキ Reply-paid postcard *4	往復ハガキ Reply-paid postcard	-	-	-	Y	-	-	-	Y
ハガキ Postcard *4	ハガキ Postcard	-	-	-	Y	-	-	-	Y
IJ ハガキ Inkjet Postcard *4	ハガキ Postcard	-	-	-	Y	-	-	-	Y
郵政光沢ハガキ Glossy Postcard	ハガキ Postcard	-	-	-	-	-	-	-	-
国内封筒	長形 3 号	-	-	-	-	-	-	-	-
Traditional Japanese Envelopes	長形 4 号	-	-	-	-	-	-	-	-
	洋形 1 号	-	-	-	-	-	-	-	-
	洋形 2 号	-	-	-	-	-	-	-	-
	洋形 3 号	-	-	-	-	-	-	-	-
	洋形 4 号	-	-	-	-	-	-	-	-
	#10	-	-	-	-	-	-	-	-
	#DL	-	-	-	-	-	-	-	-
	#C6	-	-	-	-	-	-	-	-
耐水封筒 Waterproof Envelopes	132x220mm	-	-	-	-	-	-	-	-
アイロンプリントペーパー	Letter	-	-	-	-	-	-	-	-
Iron-On Transfer Paper (U.S.A.)	A4	-	-	-	-	-	-	-	-
Iron-On Cool Peal transfer Paper (Other)									
ミニフォトシール Photo Stickers 16	A6	-	-	-	-	-	-	-	-
	ハガキ Postcard	-	-	-	-	-	-	-	-
Photo Stickers 4	A6	-	-	-	-	-	-	-	-

Paper Type	Size	Standard				Borderless			
		U.S.A.	Euro	Asia/Pac	Japan	U.S.A.	Euro	Asia/Pac	Japan
フォトシール フリーカット	ハガキ Postcard	-	-	-	-	-	-	-	-
スーパーファイン専用ラベルシート Photo Quality Self Adhesive Sheet	A4	Y	Y	Y	Y	-	-	-	-
CD/DVD レーベル CD/DVD *1	φ 12cm	Y	Y	Y	Y	-	-	-	-
	φ 8cm	Y	Y	Y	Y	-	-	-	-
高画質 CD/DVD CD/DVD Premium Surface *1	φ 12cm	Y	Y	Y	Y	-	-	-	-
	φ 8cm	Y	Y	Y	Y	-	-	-	-
光沢 DVD DVD Glossy Surface *2	φ 12cm	-	-	-	-	-	-	-	-
	φ 8cm	-	-	-	-	-	-	-	-
Enhanced Matte Posterboard (Euro) *3	A3+	-	△	-	-	-	-	-	-
Exhibition Fiber Paper (U.S.A) Traditional Photo Paper (Euro)	A3+	△	△	-	-	△	△	-	-
	Letter	△	-	-	-	△	-	-	-
	A4	-	△	-	-	-	△	-	-
Premium Canvas Matte	13" x 20' Roll	△	-	-	-	△	-	-	-
Premium Canvas Satin	13" x 20' Roll	△	-	-	-	△	-	-	-
Premier Art Resistant Canvas	13" x 20'	-	△	-	-	-	△	-	-

*1 : A CD media's Minimum inner diameters is 18mm. (standards:43mm)

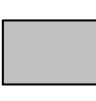
*2 : No support for CD/DVD glossy surface media.

*3 : Enhanced Matte Posterboard is supported by Manual-Front only. This media applies Enhanced Matte Paper's Media ID and LUT.

*4 : Double sided printing is not supported, because of possibility of a dirty mark at reverse side.

* The user definition sizes other than a general plain paper are assumed to be non support (form not guaranteed). : *Postcards support (Japan) : Glossy (Oji Paper, Daio Paper, and Japan paper manufacture) / IJ / Plain paper manufacture)

2.2. Paper Size and Orientation

Paper Type	Dimensions W x L	Orientation	
			
A3+ / US SuperB	329mm x 483mm	Yes	No
A3	297mm x 420mm	Yes	No
US B (Ledger)	279mm x 432mm	Yes	No
B4	257 mm x 364 mm	Yes	No
Legal	8.5in. x 14in.	Yes	No
Letter	8.5in. x 11in.	Yes	No
11x14in	11in x 14 in.	Yes	No
8x10in	8in x 10 in.	Yes	No
Executive	7.25 in. x 10.5 in.	Yes	No
Half Letter	5.5 in. x 8.5 in.	Yes	No
A4	210 mm x 297 mm	Yes	No
A5	148 mm x 210 mm	Yes	No
A6 Index Card / A6	105 mm x 148 mm	Yes	No
B5	182 mm x 257 mm	Yes	No
Index card 5in. x8in.	5 in. x 8 in.	Yes	No
Index card 8in. x10in.	8 in. x 10 in.	Yes	No
2 L 判 / 5inx7in.	127mm x 178 mm	Yes	No
4x6in / KG	102mm x 152 mm	Yes	No
Photo Paper 4 x 6 in./フォトカード	113.6 mm x 164.4 mm*1)	Yes	No
Photo Paper 4x6in No Perforations	101.6 mm x 152.4 mm	Yes	No
L 判 / 3.5inx5in.	89 mm x 127 mm	Yes	No
カードサイズ	86 mm x 55 mm	Yes	No
100x150mm	100 mm x 150 mm	Yes	No
Photo Paper 200x300mm	216 mm x 338 mm *2)	Yes	No
Panoramic Photo Paper	210 mm x 594 mm	Yes	No
ハガキ	100 mm x 148 mm	Yes	No
往復ハガキ	200 mm x 148 mm	Yes	No
Envelope #10	9.5 in. x 4.125 in.	Yes	No
Envelope DL	220 mm x 110 mm	Yes	No
Envelope C6	162 mm x 114 mm	Yes	No
Envelope 132 x 220	220 mm x 132 mm	Yes	No
長形 3 号封筒	120 mm x 235 mm *3)	Yes *4)	No
長形 4 号封筒	90 mm x 205 mm *3)	Yes *4)	No
洋形 1 号封筒	120 mm x 176 mm	Yes	No
洋形 2 号封筒	114 mm x 162 mm	Yes	No
洋形 3 号封筒	98 mm x 148 mm	Yes	No
洋形 4 号封筒	105 mm x 235 mm	Yes	No
User-defined / ユーザ定義 (Borden)	89 to 241.3 mm x 89 to 1117.6 mm (3.5 in. to 9.5 in. x 3.5 in. to 44 in.)	Yes	No

Each of the predetermined sizes is inserted only in the orientation indicated by "Yes" in the above table.

Printing at a rotation of 90° for each of the predetermined sizes must be carried out by the application.

*1): Photo Paper 4in. x 6in. :113.6 mm x 164.4 mm is logical size on printer driver, Real paper-size is 113.6 mm x 175.4 mm.

*2): Photo Paper 200 mm x 300 mm: Top margin non-printable area and Bottom margin non-printable area both length are 14mm.

*3): Dimension indicates body size without flap.

*4): Loading envelope, flap edge first, with printable side up.

2.3. Printable Area

For the purpose of printing, a sheet of paper is divided into two regions: the printable area and the non-printable area. These areas are defined as follows.

The printable area is the region within which the printing position can be set, and is the portion which is surrounded by the left margin position, the right margin position, the top margin position, and the bottom margin position.

The non-printable area is the region in which the printing position cannot be set, except for the right margin position, and is the region on the paper outside the printable area.

The margins, which determine the printable area, are defined as follows.

The left margin determines the non-printable strip appended to the left side of the printable area. The left margin position, which defines the margin boundary, is set upon the X axis. Moreover, the left margin position is considered as being included in the printable area.

The right margin determines the non-printable strip appended to the right side of the printable area. The right margin position, which defines the margin boundary, is set upon the X axis. Moreover, the right margin position is considered as being included in the non-printable area. However, it is possible to set the printing position to the right margin position.

The top margin determines the non-printable strip appended to the upper side of the printable area. The top margin position, which defines the margin boundary, is set upon the Y axis. Moreover, the top margin position is considered as being included in the printable area.

The bottom margin determines the non-printable strip appended to the lower side of the printable area. The bottom margin position, which defines the margin boundary, is set upon the Y axis. Moreover, the bottom margin position is considered as being included in the printable area.

The page management X-Y discrete coordinate system (hereinafter abbreviated as the page management coordinate system) which is used as the reference for setting the position of each of these margins, is the same as the position management coordinate system, except for the definition of the origin.

The position management coordinate system is the coordinate system for management of the printable area which is set within the page management coordinate system.

The position management coordinate system is set for each page separately.

The origin of the page management coordinate system is defined as follows.

The origin upon the X axis is set to the minimum printing position. The minimum printing position is the farthest leftward printing position that can physically be set upon the paper. The minimum printing position depends upon the horizontal position of the paper when it is inserted.

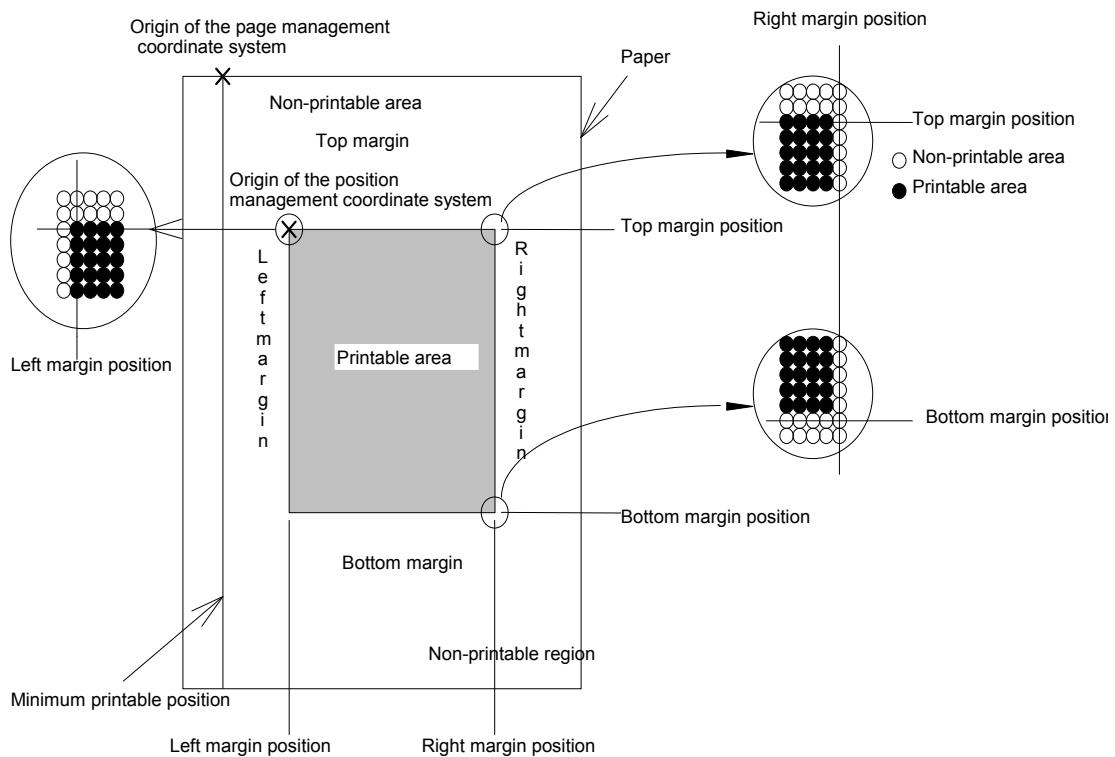
As for the origin upon the Y axis, for the first page directly after paper insertion, the upper edge of the paper is defined as the origin. For the second and subsequent pages, a position advanced by the page length from the origin on the page management coordinate system for the previous page is defined as the origin for the current page. Since in the case of single sheet paper only one page at a time can be inserted, the upper edge of the paper is always taken as the origin.

Here, page and page length are defined as follows.

A page means a unit region in the Y direction which includes within it a single printable area if the paper which is inserted is single sheet paper, only one page can be established upon each sheet. If the paper which is inserted is continuous paper, a plurality of pages can be established upon it.

The page length is the length in the Y direction of the page. If the paper which is inserted is single sheet paper, the length of the printing region in the Y direction from the top margin position to just before the bottom margin position is taken as the page length. If the paper which is inserted is continuous paper, the distance from the top margin position on the present page to the top margin position upon the next page is taken as the page length.

Table 2 Coordinate Systems for a Single Sheet of Paper



2.3.1. Printing Area (Standard)

The printable areas of various paper sizes on the Epson Stylus Photo R3000/ PX-5V printer is defined hereafter. Values are expressed in dot units, where 1 dot = 1/360 inch. As is displayed in the following diagram, printable area can be defined as follows:

A = the width of the unprintable left margin area

A (Centered) = the width of the unprintable left margin area when the printable area is centered

B = the width of the printable area

B (Centered) = the width of the printable area when the printable area is centered

C = the width of the unprintable right margin area

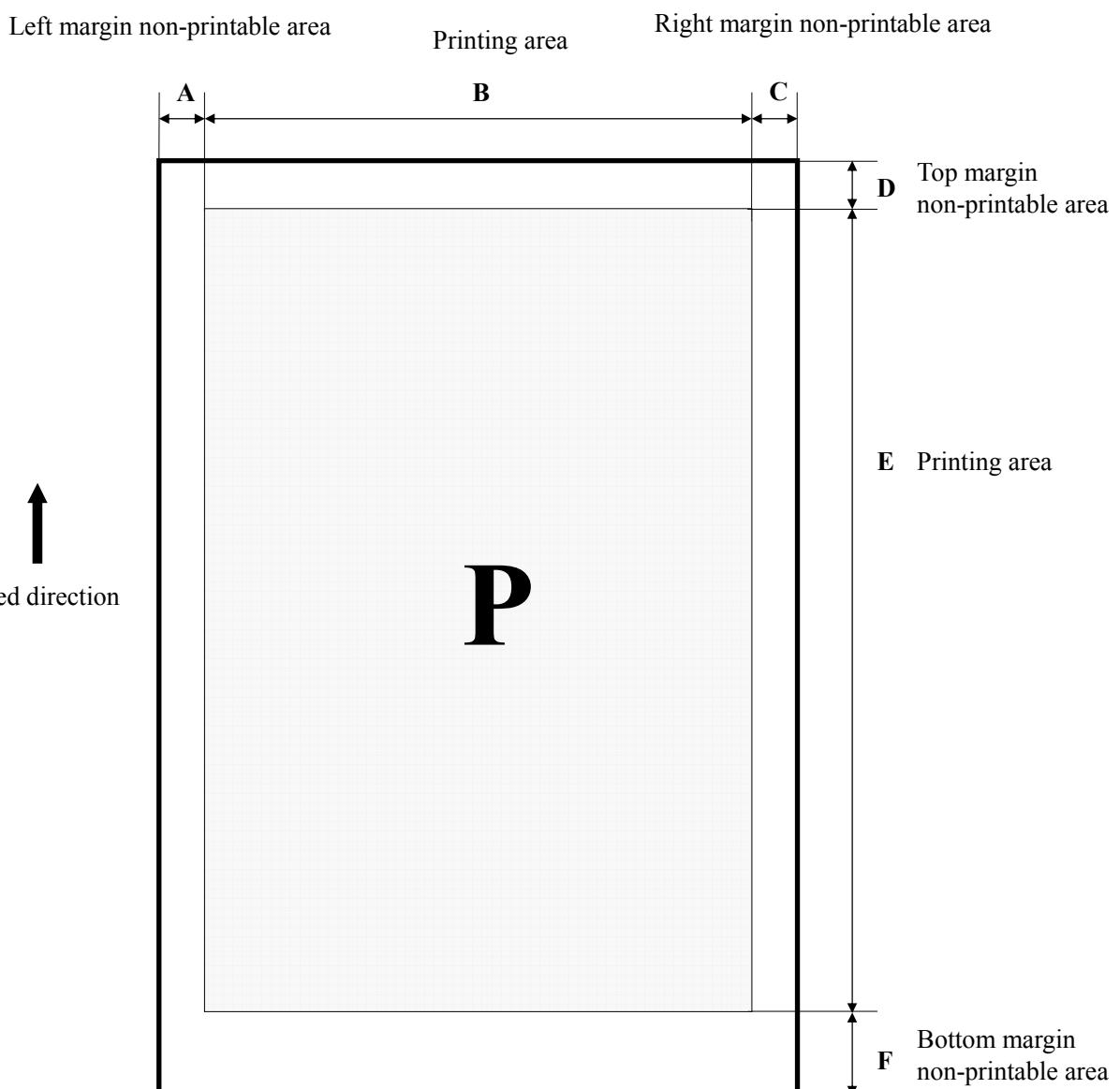
C (Centered) = the width of the unprintable right margin area when the printable area is centered

D = the length of the unprintable top margin area

D (Centered) = the length of the unprintable top margin area when the printable area is centered

E = the length of the printable area

E (Centered) = the length of the printable area when the printable area is centered



Standard Sizes

The printing area is specified by A, B, D, and E.

	A/A(Centered)	B/B(Centered)	D/D(Centered)	E/E(Centered)
Legal	42/42	2976/2976	42/42	4800/4956
Letter	42/42	2976/2976	42/42	3720/3876
A4	42/42	2892/2892	42/42	3969/4125
A5	42/42	2014/2014	42/42	2736/2892
A6	42/42	1404/1404	42/42	1858/2014
B5	42/42	2496/2496	42/42	3403/3559
Executive	42/42	2526/2526	42/42	3540/3696
Half Letter	42/42	1896/1896	42/42	2820/2976
Panoramic Photo Paper	42/42	2892/2892	42/42	8179/8335
2L Size/ 5inx7in.	42/42	1716/1716	42/42	2280/2436
Photo Paper 4x6 in.	42/42	1526/1526	42/42/(NA)	2246/(NA)
Photo Paper 4x6in No Perforations	42/42	1356/1356	42/42	1920/2076
L Size/ 3.5inx5in.	42/42	1176/1176	42/42	1560/1716
Index card 5in.x 8in.	42/42	1716/1716	42/42	2640/2796
Index card 8in.x 10in.	42/42	2796/2796	42/42	3360/3516
Photo Paper 100x150	42/42	1333/1333	42/42	1886/2042
Photo Paper 200x300	42/42	2976/2976	42/(NA)	4395/(NA)
Japanese Postcard	42/42	1333/1333	42/42	1858/2014
Japanese Double Postcard	42/42	2751/2751	42/42	1858/2014
#10 Envelope	42/(N/A)	2976/(N/A)	42/42	1245/1401
DL Envelope	42/(N/A)	2976/(N/A)	42/42	1319/1475
C6 Envelope	42/42	2212/2212	42/42	1376/1532
Envelope132 x 220	42/42	2976/(NA)	42/42	1631/1787
Japanese YOKEI 1	42/42	1617/1617	42/42	2254/2410
Japanese YOKEI 2	42/42	1532/1532	42/42	2056/2212
Japanese YOKEI 3	42/42	1305/1305	42/42	1858/2014
Japanese YOKEI 4	42/42	1404/1404	42/42	3091/3247
Japanese CHOKEI 3	42/42	1617/1617	396/396	3091/3247
Japanese CHOKEI 4	42/42	1192/1192	297/297	2666/2822

User-defined

With a paper type set by the user, a printing area defined by A, B, D, and E of at least the following number of dots is reserved.

	A/A(Centered)	B/B(Centered)	D/D(Centered)	E/E(Centered)
User-defined	42/42	max. 2976 / max. 2976	42/42	max. 15600 / max. 15756

2.3.2. Printing Area (Zero margin / Borderless)

The printable areas of various paper sizes on the Epson Stylus Photo R3000/ PX-5V printer is defined hereafter. Values are expressed in dot units, where 1 dot = 1/360 inch. As is displayed in the following diagram, printable area can be defined as follows:

- A = the width of the left override area
- B' = the width of the printable area
- C = the width of the right override area
- D = the length of the top override area
- E' = the length of the printable area
- F = the length of the bottom override area
- I = the length of the top override area (unprintable area)

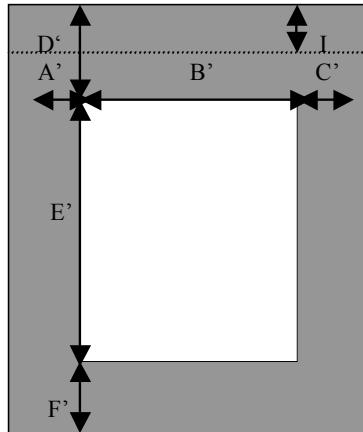


Table 3 Printable Area Dimensions (Zero margin / Borderless)

The printing area is specified by A, B, D, and E.

Paper	Size	A'	B'	C'	D'	E'	F'	I
Cut Paper	A4	0	2976	0	0	4209	0	0
	Letter	0	3060	0	0	3960	0	0
	5x8in.	0	1800	0	0	2880	0	0
	2L Size / 5x7in.	0	1800	0	0	2522	0	0
	Photo Paper 4x6in No Perforations	0	1440	0	0	2160	0	0
	L Size/3.5x5in.	0	1261	0	0	1800	0	0
	100x150mm	0	1417	0	0	2125	0	0
	Japanese Postcard	0	1417	0	0	2098	0	0

- 1) Only Photo Paper, Matte Paper – Heavyweight, and Cards are able to support margin less printing.

2.4. Paper size of select Roll Paper (Zero Margin)

Roll Paper	Support	Enable paper size		
		U.S.A	Euro/Asia	Japan
210mm x 10m	X	-	-	-
329mm x 10m	O	13x11in. 329x483mm	13x11in. 329x483mm	A3 ノビ 329x483mm

2.5. Printing Area (CD-R)

The printable area of CD-R is as below.

The inside of $\Phi 120$ and the outside of $\Phi 21$ is printable area.

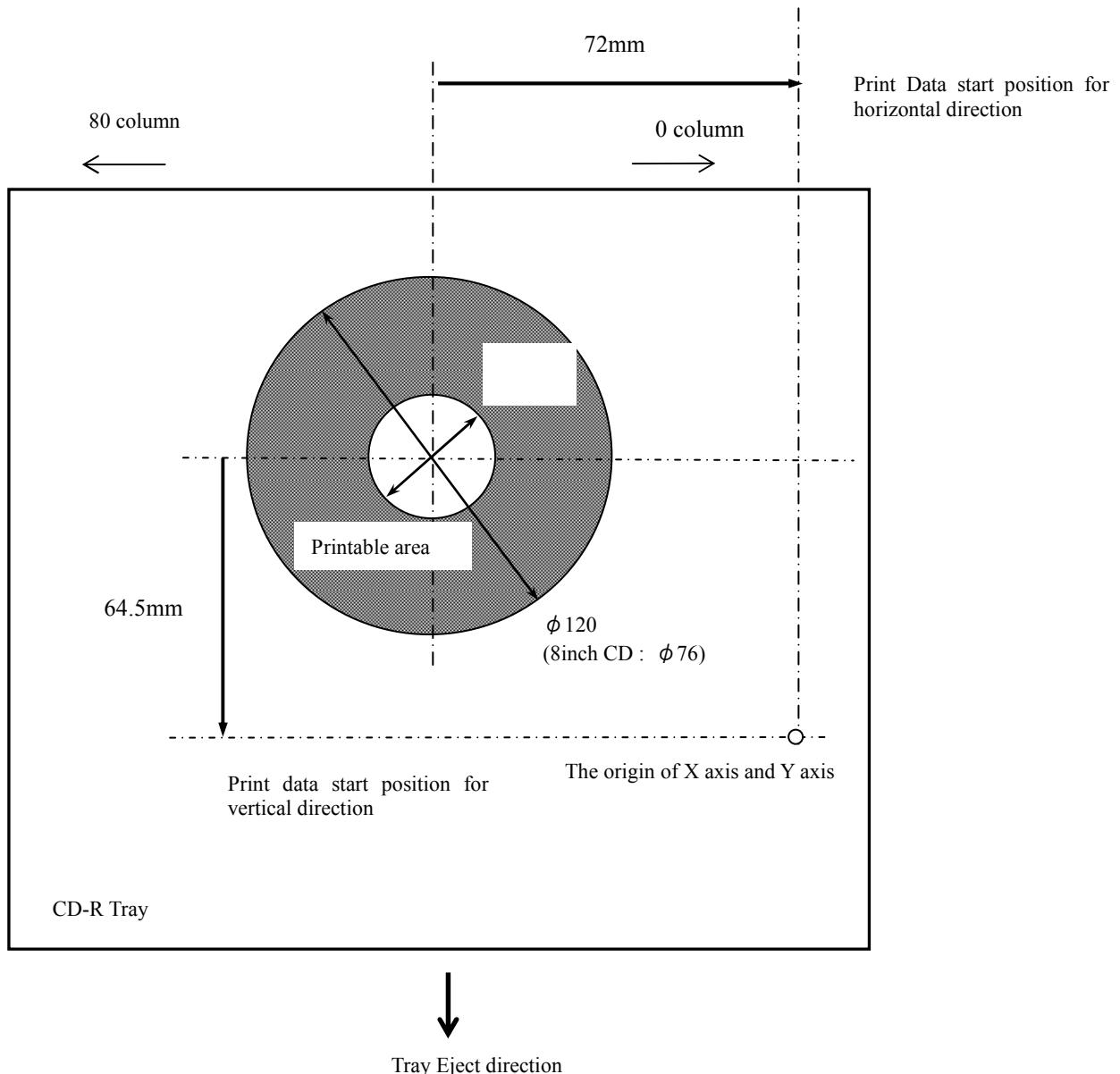
The method of setting the printable are as follows.

(1) The standard of horizontal direction is the 72mm position far from the center of CD-R.

(Center of CD-R is found automatically.)

(2) The standard of vertical direction is the 64.5mm position far from the center of CD-R.

Table 4 Printable Area Dimensions (CD-R)



CHAPTER 3 : Printing Option

3.1. Printing Quality

The Epson Stylus Photo R3000/ PX-5V has the capability of printing at seven different levels of quality.

Print density			Dot size	Raster command density	ESC (D setting horizontal	ESC (D setting vertical	ESC i setting	ESC (e setting
Plain paper	Special Paper	(Horizontal x Vertical)		(H x V)	h / r	v / r	mH*256+mL	n2
Draft/ Economy	-	360dpi x 360dpi	ECO	360dpi x 180dpi 2bit	4/1440	8/1440	Max 180	10H
Draft/ Economy	-	360dpi x 360dpi	ECO	360dpi x 180dpi 2bit	4/1440	8/1440	Max 180	10H
Fine	Fine	720dpi x 720dpi	VSD2	720dpi x 180dpi 2bit	2/1440	8/1440	Max 180	12H
-	Fine	1440dpi x 720dpi	VSD2	720dpi x 180dpi 2bit	2/1440	8/1440	Max 180	12H
-	Photo	1440dpi x 720dpi	VSD2	720dpi x 180dpi 2bit	2/1440	8/1440	Max 180	12H
-	Photo	1440dpi x 1440dpi	VSD3	720dpi x 180dpi 2bit	2/1440	8/1440	Max 180	13H
-	Super Photo	5760dpi x 1440dpi	VSD3	720dpi x 180dpi 2bit	2/1440	8/1440	Max 180	13H
-	Super Photo	5760dpi x 1440dpi	VSD4	720dpi x 180dpi 2bit	2/1440	8/1440	Max 180	14H

3.2. Recommended Settings for Color and Monochrome Printing

Monochrome or Color printing mode depends on the ESC (K command. See the individual command specifications.

3.2.1. Recommended Setting Modes for Driver (Color) for Japan

Color/Black

Media	Preset name	Print Quality	Resolution [dpi]
普通紙	速い	Draft	360 x 360
	& きれい	Super Fine	720 x 720
EPSON 写真用紙クリスピア	超高精細	Super Photo	5760 x 1440
EPSON 写真用紙 EPSON 写真用紙＜絹目調＞ EPSON 写真用紙エントリー	& きれい	Photo	1440 x 720
	高精細	Super Photo	1440 x 1440
	超高精細	Super Photo	5760 x 1440
EPSON フォトマット紙/顔料	& 高精細	Super Photo	1440 x 1440
	超高精細	Super Photo	5760 x 1440
EPSON スーパーファイン紙	きれい	Photo	1440 x 720
郵便ハガキ（インクジェット紙）	きれい	Photo	1440 x 720
CD/DVD レーベル 高画質対応 CD/DVD レーベル	高精細	Super Photo	1440 x 1440
Ultra Smooth Fine Art Paper Velvet Fine Art Paper EPSON 画材用紙/顔料	& 高精細	Super Photo	1440 x 1440
	超高精細	Super Photo	5760 x 1440

& : default

* Black mode = Pure Black + Composite colors

Advanced B&W Photo

Media	Preset name	Print Quality	Resolution [dpi]
普通紙	---	---	---
	---	---	---
EPSON 写真用紙クリスピア	超高精細	Super Photo	5760 x 1440
EPSON 写真用紙 EPSON 写真用紙<絹目調> EPSON 写真用紙エントリー	---	---	---
	& 高精細	Super Photo	1440 x 1440
	超高精細	Super Photo	5760 x 1440
EPSON フォトマット紙/顔料	& 高精細	Super Photo	1440 x 1440
	超高精細	Super Photo	5760 x 1440
EPSON スーパーファイン紙	---	---	---
郵便ハガキ（インクジェット紙）	---	---	---
CD/DVD レーベル 高画質対応 CD/DVD レーベル	---	---	---
Ultra Smooth Fine Art Paper Velvet Fine Art Paper EPSON 画材用紙/顔料	& 高精細	Super Photo	1440 x 1440
	超高精細	Super Photo	5760 x 1440

& : default

3.2.2. Recommended Setting Mode for Driver (Color & Black & ABWP) for Oversea

Color/Black

Media	Preset name	Print Quality	Resolution [dpi]
Plain Paper	Speed & Quality	Draft	360 x 360
Bright White Paper		Fine	720 x 720
Ultra Premium Glossy Photo Paper	---	---	---
Premium Photo Paper Glossy	& Speed Quality Max Quality	Super Fine	1440 x 720
Photo Paper Glossy		Photo	1440 x 1440
Premium Photo Paper Semi-Gloss		Super Photo	5760 x 1440
Ultra Premium Photo Paper Luster			
Ultra Premium Presentation	& Quality Max Quality	Photo	1440 x 1440
Premium Presentation Paper Matte		Super Photo	5760 x 1440
Double-Sided Matte Paper			
Presentation Paper Matte	Quality	Super Fine	1440 x 720
Hagaki	---	---	---
CD/DVD	Quality	Photo	1440 x 1440
CD/DVD premium Surface			
Ultra Smooth Fine Art Paper	& Quality Max Quality	Photo	1440 x 1440
Velvet Fine Art Paper		Super Photo	5760 x 1440
Watercolor Paper – Radiant White			

& : default

* Black mode = Pure Black + Composite colors

Advanced B&W Photo

Media	Preset name	Print Quality	Resolution [dpi]
Plain Paper	---	---	---
Bright White Paper	---	---	---
Ultra Premium Glossy Photo Paper	---	---	---
Premium Photo Paper Glossy	---	---	---
Photo Paper Glossy	& Quality	Photo	1440 x 1440
Premium Photo Paper Semi-Gloss	Max Quality	Super Photo	5760 x 1440
Ultra Premium Photo Paper Luster			
Ultra Premium Presentation	& Quality	Photo	1440 x 1440
Premium Presentation Paper Matte	Max Quality	Super Phtoo	5760 x 1440
Double-Sided Matte Paper			
Presentation Paper Matte	---	---	---
Hagaki	---	---	---
CD/DVD	---	---	---
CD/DVD premium Surface			
Ultra Smooth Fine Art Paper	& Quality	Photo	1440 x 1440
Velvet Fine Art Paper	Max Quality	Super Photo	5760 x 1440
Watercolor Paper – Radiant White			

& : Default

4.1. Raster Graphics Modes

The following three modes are available for raster graphics commands:

- 1) Non-compressed mode - the print data is transferred without being compressed.
Effective for printing data with a low compression ratio, such as photographs.
- 2) Run-length encoded mode - the print data is transmitted after run-length encoding compression.
Effective for printing data such as graphs and figures, in which patterns appear repeatedly.
- 3) TIFF compressed mode - the print data is transferred after TIFF compression.
Effective for printing data such as graphs and figures, in which patterns appear repeatedly.

4.2. Command Transfer Procedure

4.2.1. Command transfer sequence for non-compressed and the run-length encoded compression modes

The following are the basic commands used in non-compressed and run-length encoded modes. The commands are listed in the order as they are sent:

Table 5 Command Sequence for the Conventional command method of graphics data transmission

Transfer cycle	Details of setting	Items set	Commands used	
By document	1. Initialize settings	1.1 Exit Packet Mode Enter remote mode Set Printer Timer Set ink type Job Start Set Job Name Paper Feed Setup Set paper path Set Media information Set double paper print Set user setting Set paper thickness Other Remote Commands (optional) Exit Remote Mode	ESC SOH @EJL... ESC (R TI *** IK JS *** JH SN PP MI DP US PH ESC 00H 00H 00H	
	2. Printing method control	1.2 Initialize printer 1.3 Select graphics mode 1.4 Set unit	ESC @ ESC (G ESC (U	
	3. Set print format (single sheet)	2.1 Turn unidirectional mode on/off 2.2 Select Micro Weave printing mode 2.3 Select Monochrome or Color 2.4 Select Ink Drop Size 3.1 Set page format 3.2 Set paper dimension 3.3 Set print method	ESC U ESC (i ESC (K ESC (e ESC (c or ESC (C ESC (S ESC (m	
By page	By raster	4. Set vertical position 5. Transfer data 6. Form feed 7. Terminate printing	4.1 Set vertical print position 5.1 Select color 5.2 Set horizontal print position 5.3 Print raster graphics: * repeat above for each color 5.4 Print compulsory ** 6.1 Form feed 7.1 Initialize printer 7.2 Enter Remote Mode Load NVR Settings Job End Exit Remote Mode	ESC (V or ESC (v ESC (r ESC(or ESC (\$ ESC . ESC ACK FF ESC @ ESC (R LD JE ESC 00H 00H 00H

* Parameters and data format of non-compressed vs. run-length encoded transmissions will differ with the Print Raster Graphics command.

** In the case of micro weave print mode, ESC ACK command is inserted only when the plural passes are specified with no paper feed.

*** It is necessary to send the TI command before the JS command.

Table 6 Command Sequence for the newer Method of ESC (D command method of graphics data transmission

Transfer cycle	Details of setting	Items set	Commands used
By document	1. Initialize settings	1.1 Exit Packet Mode Enter remote mode Set Printer Timer Set ink type Job Start Set Job Name Paper Feed Setup Set paper path Set Media information Set double paper print Set user setting Set paper thickness Other Remote Commands (optional) Exit Remote Mode	ESC SOH @EJL... ESC (R TI ** IK JS ** JH SN PP MI DP US PH ESC 00H 00H 00H
		1.2 Initialize printer 1.3 Select graphics mode 1.4 Set unit	ESC @ ESC (G ESC (U
	2. Printing method control	2.1 Turn unidirectional mode on/off 2.2 Select Micro Weave printing mode 2.3 Select Monochrome or Color 2.4 Select Ink Drop Size 2.5 Set resolution of Raster mode	ESC U ESC (i ESC (K ESC (e ESC (D
	3. Set print format (single sheet)	3.1 Set page format 3.2 Set paper dimension 3.3 Set print method	ESC (c or ESC (C ESC (S ESC (m
By page	By raster	4. Set vertical position	ESC (V or ESC (v
		5. Transfer data	ESC(/ or ESC (\$ ESC I 5.3 Print compulsory ** ESC ACK
		6. Form feed	FF
		7. Terminate printing	ESC @ ESC (R LD JE Exit Remote Mode ESC 00H 00H 00H

* In the case of micro weave print mode, ESC ACK command is inserted only when the plural passes are specified with no paper feed.

** It is necessary to send the TI command before the JS command.

4.2.2. Command sequence in the roll paper mode

The basic commands used in the roll paper mode, and the order for commands, are shown in the following table.

Table 7 Command Sequence for roll paper mode

- The way of page format setting that uses the ESC (c command.(Top margin 0 setting)

Transfer cycle	Details of setting	Items set	Commands used
By document	1. Initial setting	1.1 Exit Packet Mode Enter Remote Mode Set Printer Timer Set ink type Job Start Set Job Name Paper Feed Setup Set paper path Set media information Set double paper print Set user setting Set paper thickness Set roll paper mode	00H 00H 00H etc. ESC (R TI ** IK JS ** JH SN PP MI DP US PH EX 06H 00H 00H 00H 00H 00H 05H 01H ESC 00H 00H 00H ESC @ ESC (G ESC (U
	2. Printing method control	2.1 Turn unidirectional mode on/off 2.2 Select MicroWeave print mode 2.3 Select dot size 2.4 Set resolution of Raster mode	ESC U ESC (i ESC (e ESC (D
	3. Set print format	3.1 Set page format 3.2 Set Paper dimension 3.3 Set print method	ESC (C or ESC (c ESC (S ESC (m
By page	4. Set vertical position	4.1 Set vertical print position	ESC (v
By raster	5. Transfer data	5.1 Set horizontal print position 5.2 Print raster graphics: repeat above for each color	ESC ¥ or ESC(/ ESC \$ or ESC (\$ ESC i
	6. Terminate printing	6.1 Initialize printer 6.2 Enter Remote Mode Load NVR Settings Job End Exit Remote Mode 6.3 Paper Eject	ESC @ ESC (R LD JE ESC 00H 00H 00H FF

*** Constraint item of the parameter that designates it with ESC(C, ESC(c).
ESC (C 02H 00H <n1> <n2>, ESC (c 04H 00H 00H 00H <m1> <m2> : n1=m1, n2=m2

** It is necessary to send the TI command before the JS command.

4.3. Limitations of Command Settings

- “Exit Packet Mode”, in many circumstances, command MUST be called before any communication or printing can occur on any I/F. This command is described in “Individual Command Specifications”.
- The “Set absolute vertical print position ESC (V” and “Set relative vertical print position ESC (v” commands will set the starting print position of the subsequent data to be printed, including whatever white space may exist within that data. To avoid confusion, it is recommended not to embed large null or white space in the data.
- All null raster data should not be sent to the printer.
- For detailed specifications of the commands which are transmitted, refer to “CHAPTER 5: INDIVIDUAL COMMAND SPECIFICATIONS”.

CHAPTER 5 : INDIVIDUAL COMMAND SPECIFICATIONS

5.1.1. Exit Packet Mode

00H 00H 00H ESC 01H “@EJL” 20H “1284.4” 0AH “@EJL” 20H 20H 20H 20H 20H 0AH Ver 1.00

[Name]	EPSON packet mode exit command (special command)	[Setting]
[Format]	00H,00H,00H,1BH,01H,40H,45H,4AH,4CH,20H,31H,32H,38H,34H,2EH,34H,0AH, 40H,45H4AH,4CH,20H,20H,20H,20H,20H,0AH	
[Range of Definition]	---	
[Function]	<ol style="list-style-type: none">1) If the system is in packet mode, this command must be sent before any other commands can be successfully transferred over either USB or Parallel Port, including the basic ESC @ printer initialization command.2) Packet communication protocol (EPSON packet mode) is cancelled. The command for entering packet mode, and the commands utilized in packet mode, are EPSON proprietary.	
[Initial State]	The initial state of the printer, unused and unopened, new from the EPSON box, may or may not be in packet mode. However, once the printer has received any print job from any other source (especially a Windows OS printer driver) it will most likely be in packet mode. If the printer is in EPSON packet mode; no typical USB and possibly Parallel Port transmissions can be received or recognized.	
[Related Commands]	---	

5.1.2. Initialize printer ESC @

ESC @	Ver 1.00
[Name]	Initialize printer
[Format]	1BH, 40H
[Range of Definition]	-
[Function]	<ul style="list-style-type: none">1) The various settings are returned to their initial values.2) The Y axis origin of the page management coordinate system and the position management coordinate system are set to the current printing position on the Y axis.3) The present printing position on the X axis is set to the origin upon the X axis.4) Text mode printing is selected.
[Initial State]	-
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. The settings for all commands are returned to their initial states.</p> <p>[Setting] Commands that change the effects of this command. None</p> <p>[Operation] Commands whose functionality is affected by this command. None</p> <p>[Operation] Commands that change the effects of this command. None</p>

5.1.3. Line feed LF

LF	Ver. 1.00
[Name]	Line feed
[Format]	0AH
[Range of Definition]	-
[Function]	<ol style="list-style-type: none">1) Advances the current printing position in the positive Y direction by an amount equal to the current line separation amount. Sets the printing position in the X direction to the starting point (the left margin position) on the X axis of the position management coordinate system.2) If this command sets the Y direction printing position into the non-printable area, then the page is ejected, the position management coordinate system is set to the next page, and the printing position is set to the origin of the position management coordinate system for the new page.
[Initial State]	-
[Related Commands]	<p>Related Command [Setting]s that apply an effect. None</p> <p>Related Command [Setting]s that receive an effect. None</p> <p>Related Command [Operation]s that apply an effect. None</p> <p>Related Commands [Operation]s that receive an effect. The amount of advancement per line is set by the ESC + command. The non-printable area is set by the ESC (c command. The amount of advancement per line, the non-printable area, and the left margin position are reset to their initial state by the ESC @ and ESC (G commands.</p>

5.1.4. Form feed FF

FF	Ver 1.00
[Name]	Form feed
[Format]	0CH
[Range of Definition]	-
[Function]	<ol style="list-style-type: none">1) The contents of the print buffer are printed, the current page is ejected, the position management coordinate system is set to the next page, and the printing position is set to the origin of the position management coordinate system for the new page.2) This command is ignored if the printer is out of paper.
[Initial State]	-
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. None</p> <p>[Setting] Commands that change the effects of this command. None</p> <p>[Operation] Commands whose functionality is affected by this command. None</p> <p>[Operation] Commands that change the effects of this command. The page length is set by the ESC (C command. The page length and the left margin position are reset to their initial states by the ESC @ and ESC (G commands.</p>

5.1.5. Carriage Return CR

CR	Ver 1.00
[Name]	Carriage Return
[Format]	0DH
[Range of Definition]	-
[Function]	1) The printing position in the X direction is set to the origin (the left margin) on the X axis of the position management coordinate system.
[Initial State]	-
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. None</p> <p>[Setting] Commands that change the effects of this command. None</p> <p>[Operation] Commands whose functionality is affected by this command. None</p> <p>[Operation] Commands that change the effects of this command. None</p>

5.1.6. Control paper loading/ejecting ESC EM n

ESC EM n	Ver 1.00
[Name]	Control paper loading/ejecting
[Format]	1BH, 19H, n
[Range of Definition]	n=52H ("R")
[Function]	<ol style="list-style-type: none">1) The CSF (cut sheet feeder) receives the following commands, according to the value of n: n=31H select bin 1 for the next paper feeding, and for every paper fed thereafter n=43H cut the specified cut line and return to the loading position (roll paper only) n=52H eject paper2) If n has any value other than the above, this command is ignored.3) The ESC EM "R" will only eject paper fed from the CSF. If the paper being fed was not fed by the CSF, this command is ignored.4) Bin selection settings apply to the next and subsequent paper feedings.5) After the ESC EM "R" command ejects the paper, the printing position in the X direction is set to the origin on the X axis.
[Initial State]	-
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. None</p> <p>[Setting] Commands that change the effects of this command. Bin selection is reset to its initial state by the ESC @ command.</p> <p>[Operation] Commands whose functionality is affected by this command. None</p> <p>[Operation] Commands that change the effects of this command. None</p>

5.1.7. Set absolute horizontal print position ESC \$ nL nH

ESC \$ nL nH	Ver 1.00
[Name]	Set absolute horizontal print position
[Format]	1BH, 24H, nL, nH
[Range of Definition]	$0 \leq nL \leq 255$ $0 \leq nH \leq 127$
[Function]	<p>1) The printing position in the positive X direction is set to:</p> $0 \leq \frac{(256 \times nH + nL) \times 5760}{(\text{absolute horizontal position setting value})} \leq 323.991 \text{ mm}$ <p>OR</p> $0 \leq \frac{(256 \times nH + nL) \times 5760}{(\text{absolute horizontal position setting value})} \leq \frac{73472 \text{ inch}}{5760}$ <p>from the origin (the left margin position) on the X axis of the position management coordinate system.</p> <p>2) If (current left margin position)+((256 x nH + nL) x (absolute horizontal position setting value)) is past the right margin position, then this command is ignored.</p>
[Initial State]	-
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command.</p> <p>None</p> <p>[Setting] Commands that change the effects of this command.</p> <p>None</p> <p>[Operation] Commands whose functionality is affected by this command.</p> <p>None</p> <p>[Operation] Commands that change the effects of this command.</p> <p>The “absolute horizontal position setting value” is set by the ESC (U command).</p> <p>The “absolute horizontal position setting value” is restored to its initial state by the ESC @ and ESC (G commands.</p> <p>The printer settings are restored to their initial state to by the ESC @ command.</p>

5.1.8. Set absolute horizontal print position ESC (\$ nL nH m1 m2 m3 m4

ESC (\$ nL nH m1 m2 m3 m4		Ver 1.00
[Name]	Set absolute horizontal print position	[Operation]
[Format]	1BH, 28H, 24H, nL, nH, m1, m2, m3, m4	
[Range of Definition]	nL=04H, nH=00H 0 <= <u>(m4 * 1000000H + m3 * 10000H + m2 * 100H + m1) * 5760</u> <= <u>323.991mm</u> (absolute horizontal position setting value)	
	OR	
	0 <= <u>(m4 * 1000000H + m3 * 10000H + m2 * 100H + m1) * 5760</u> <= <u>73472 inch</u> (absolute horizontal position setting value)	5760
[Function]	<ol style="list-style-type: none">1) The printing position in the X direction is set to the following positive value from the origin (left margin position) on the X axis of the position management coordinate system: $((m4 \times 256^3 + m3 \times 256^2 + m2 \times 256 + m1) \times \text{absolute horizontal position setting value})$2) If Left margin +$((m4 \times 256^3 + m3 \times 256^2 + m2 \times 256 + m1) \times \text{absolute horizontal position setting value})$ is beyond the right margin position, then this command is ignored.3) This Command is only effective in graphics mode.	
[Initial State]	-	
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. None</p> <p>[Setting] Commands that change the effects of this command. None</p> <p>[Operation] Commands whose functionality is affected by this command. None</p> <p>[Operation] Commands that change the effects of this command.</p>	
	<p>The absolute horizontal position setting units are set by the ESC (U command.)</p> <p>The absolute horizontal position setting units are reset to their initial state by the ESC @ and ESC (G commands.)</p> <p>The absolute horizontal print position is restored to its initial, default setting by the ESC @ command.</p>	

5.1.9. Set page length in defined unit ESC (C nL nH mL mH)

ESC (C nL nH mL mH)	Ver 1.00
[Name]	Set page length in defined unit
[Format]	1BH, 28H, 43H, nL, nH, mL, mH
[Range of Definition]	nL=02H, nH=00H $0 < ((mH \times 256) + mL) \times (\text{page management value}) \leq 1117.6\text{mm}(44 \text{ inches})$
[Function]	<ol style="list-style-type: none">1) The page length is set to $((mH \times 256) + mL) \times (\text{page management value}) * 25.4\text{mm}$.2) If the formula applied values of mH and mL produces a value outside the Range of Definition, this command is ignored.3) The Y axis origin of the page management coordinate systems and position management coordinate systems are set to the current Y direction printing position. The origin on the X axis is not changed at this time.4) The top margin position is set to the origin on the Y axis. The bottom margin position is set to the position positive Y page length from the top margin.
[Initial State]	The page length is set to 558.8mm(22 inches).
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. The top and bottom margin position settings set by the ESC (c commands are cleared.</p> <p>[Setting] Commands that change the effects of this command. The page length, the page management value, and the top and bottom margin positions are reset to their initial states by the ESC @ and ESC (G commands.</p> <p>[Operation] Commands whose functionality is affected by this command. New page processing by the FF command is affected (the amount of movement is changed). New lines generated by the LF command which go outside the printable area are affected. Processing by the ESC (v command is affected. Processing by the ESC (V command is affected.</p> <p>[Operation] Commands that change the effects of this command. The page management value is set by the ESC (U command.</p>

5.1.10. Set page length in defined unit (extended) ESC (C nL nH m1 m2 m3 m4

ESC (C nL nH m1 m2 m3 m4	Ver 2.00
[Name]	Set page length in defined unit(extended)
[Format]	1BH, 28H, 43H, nL, nH, m1, m2, m3, m4
[Range of Definition]	nL=04H, nH=00H $0 \leq (m4 * 1000000H + m3 * 10000H + m2 * 100H + m1) * 1440 / (\text{defined value}) \leq 1FFFFFFF$
[Function]	<ol style="list-style-type: none">1) The page length is set to $((mH \times 256) + mL) \times (\text{page management value}) * 25.4\text{mm}$.2) If the formula applied values of mH and mL produces a value outside the Range of Definition, this command is ignored.3) The Y axis origin of the page management coordinate systems and position management coordinate systems are set to the current Y direction printing position. The origin on the X axis is not changed at this time.4) The top margin position is set to the origin on the Y axis. The bottom margin position is set to the position positive Y page length from the top margin.
[Initial State]	The page length is set to 558.8mm(22 inches).
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. The top and bottom margin position settings set by the ESC (c commands are cleared.</p> <p>[Setting] Commands that change the effects of this command. The page length, the page management value, and the top and bottom margin positions are reset to their initial states by the ESC @ and ESC (G commands.</p> <p>[Operation] Commands whose functionality is affected by this command. New page processing by the FF command is affected (the amount of movement is changed). New lines generated by the LF command which go outside the printable area are affected. Processing by the ESC (v command is affected. Processing by the ESC (V command is affected.</p> <p>[Operation] Commands that change the effects of this command. The page management value is set by the ESC (U command.</p>

5.1.11. Select graphics mode ESC (G nL nH m

ESC (G nL nH m	Ver 1.00																				
[Name]	Select graphics mode																				
[Format]	1BH, 28H, 47H, nL, nH, m																				
[Range of Definition]	nL=01H, nH=00H m=01H or 31H																				
[Function]	<ol style="list-style-type: none">1) Shifts to graphics mode.2) If m has any value other than the above, this command is ignored.3) Printing of lines up to the present line is started, and the printer waits until the printing is completed.4) The various settings are the same as when the power is turned on.5) The page management coordinate system and the position management coordinate system are set by taking the printing position in the Y direction at the time of setting as the origin on the Y axis.6) The printing position in the X direction is set to the origin upon the X axis.7) The microweave printing mode selection command becomes effective.																				
[Initial State]	Is character mode.																				
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. Default character mode selection made by the ESC @ command is changed.</p> <p>[Setting] Commands that change the effects of this command. The graphics mode is cancelled by the ESC @ command.</p> <p>[Operation] Commands whose functionality is affected by this command. In graphics mode, only the following commands are valid:</p> <table><tbody><tr><td>LF</td><td>ESC (C</td></tr><tr><td>FF</td><td>ESC (Y</td></tr><tr><td>CR</td><td>ESC (U</td></tr><tr><td>ESC EM</td><td>ESC (V</td></tr><tr><td>ESC .</td><td>ESC (r</td></tr><tr><td>ESC +</td><td>ESC (v</td></tr><tr><td>ESC @</td><td>ESC Y</td></tr><tr><td>ESC (c</td><td>ESC \$</td></tr><tr><td>ESC (i</td><td>ESC r</td></tr><tr><td>ESC (K</td><td>ESC U</td></tr></tbody></table>	LF	ESC (C	FF	ESC (Y	CR	ESC (U	ESC EM	ESC (V	ESC .	ESC (r	ESC +	ESC (v	ESC @	ESC Y	ESC (c	ESC \$	ESC (i	ESC r	ESC (K	ESC U
LF	ESC (C																				
FF	ESC (Y																				
CR	ESC (U																				
ESC EM	ESC (V																				
ESC .	ESC (r																				
ESC +	ESC (v																				
ESC @	ESC Y																				
ESC (c	ESC \$																				
ESC (i	ESC r																				
ESC (K	ESC U																				
ESC (e	<p>[Operation] Commands that change the effects of this command. None</p>																				

5.1.12. Set unit (Set the number of 1/3600 inch units per programming value) ESC (U nL nH m)

ESC (U nL nH m)	Ver 1.00																								
[Name]	Set unit (Set the number of 1/3600 inch units per programming value)																								
[Format]	1BH, 28H, 55H, nL, nH, m																								
[Range of Definition]	nL=01H, nH=00H m=05H, 0AH, 14H, 1EH, 28H, 32H, 3CH (units 0.0071mm(1/3600 inch)) (=5, 10, 20, 30, 40, 50, 60)																								
[Function]	<p>1) Set the number of 0.0071mm(1/3600 inch) units for each of the following values:</p> <ul style="list-style-type: none"> Relative horizontal position setting value Absolute horizontal position setting value Relative vertical position setting value Absolute vertical position setting value Page management value <p>2) If nL or nH has a value other than the above, then the following (256 x nH + nL) bytes of data are received, and this command terminates.</p> <p>3) If m has a value other than the above, this command is ignored.</p>																								
[Initial State]	<table border="1"> <thead> <tr> <th>VALUE</th><th>m</th><th>units</th><th>length of value</th></tr> </thead> <tbody> <tr> <td>Page management value:</td><td>0AH</td><td>10</td><td>0.071mm(1/360 inch)</td></tr> <tr> <td>Relative horizontal position setting value:</td><td>14H</td><td>20</td><td>0.141mm(1/180 inch)</td></tr> <tr> <td>Absolute horizontal position setting value:</td><td>3CH</td><td>60</td><td>0.423mm(1/60 inch)</td></tr> <tr> <td>Relative vertical position setting value:</td><td>0AH</td><td>10</td><td>0.071mm(1/360 inch)</td></tr> <tr> <td>Absolute vertical position setting value:</td><td>0AH</td><td>10</td><td>0.071mm(1/360 inch)</td></tr> </tbody> </table>	VALUE	m	units	length of value	Page management value:	0AH	10	0.071mm(1/360 inch)	Relative horizontal position setting value:	14H	20	0.141mm(1/180 inch)	Absolute horizontal position setting value:	3CH	60	0.423mm(1/60 inch)	Relative vertical position setting value:	0AH	10	0.071mm(1/360 inch)	Absolute vertical position setting value:	0AH	10	0.071mm(1/360 inch)
VALUE	m	units	length of value																						
Page management value:	0AH	10	0.071mm(1/360 inch)																						
Relative horizontal position setting value:	14H	20	0.141mm(1/180 inch)																						
Absolute horizontal position setting value:	3CH	60	0.423mm(1/60 inch)																						
Relative vertical position setting value:	0AH	10	0.071mm(1/360 inch)																						
Absolute vertical position setting value:	0AH	10	0.071mm(1/360 inch)																						
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command.</p> <ul style="list-style-type: none"> None <p>[Setting] Commands that change the effects of this command.</p> <ul style="list-style-type: none"> None <p>[Operation] Commands whose functionality is affected by this command.</p> <ul style="list-style-type: none"> The units for the relative horizontal position setting value used by the ESC ¥ command are set. The units for the absolute horizontal position setting value used by the ESC \$ command are set. The units for the relative vertical position setting value used by the ESC (v command are set. The units for the absolute vertical position setting value used by the ESC (V command are set. The units for the "unit" unit page length specification value used by the ESC (C command are set. The units for the page format specification value used by the ESC (c command are set. <p>[Operation] Commands that change the effects of this command.</p> <ul style="list-style-type: none"> All values are restored to their initial state to by the ESC @ command. 																								

5.1.13. Set unit (extended) ESC (U nL nH P V H mL mH

ESC (U nL nH P V H mL mH	Ver 2.00										
[Name]	Set unit(extended)										
[Format]	1BH, 28H, 55H, nL, nH, P, V, H, mL mH										
[Range of Definition]	nL=05H, nH=00H P=(mL*256 + mL) = 180, 360, 720, 1440, 2880 V=(mL*256 + mL) = 180, 360, 720, 1440, 2880, 5760 H=(mL*256 + mL) = 180, 360, 720, 1440, 2880, 5760										
[Function]	<ol style="list-style-type: none">1) Set the following standard values in units of b / (mH * 256 + mL) * 25.4mm : The H parameter determines the horizontal position setting units The V parameter determines the vertical position setting units The P parameter determines the page management units2) This Command is only effective in graphics mode.										
[Initial State]	<table><tbody><tr><td>Page management value:</td><td>0.071mm(1/360 inch)</td></tr><tr><td>Relative horizontal position setting value:</td><td>0.141mm(1/180 inch) units</td></tr><tr><td>Absolute horizontal position setting value:</td><td>0.423mm(1/60 inch) units</td></tr><tr><td>Relative vertical position setting value:</td><td>0.071mm(1/360 inch) units</td></tr><tr><td>Absolute vertical position setting value:</td><td>0.071mm(1/360 inch) units</td></tr></tbody></table>	Page management value:	0.071mm(1/360 inch)	Relative horizontal position setting value:	0.141mm(1/180 inch) units	Absolute horizontal position setting value:	0.423mm(1/60 inch) units	Relative vertical position setting value:	0.071mm(1/360 inch) units	Absolute vertical position setting value:	0.071mm(1/360 inch) units
Page management value:	0.071mm(1/360 inch)										
Relative horizontal position setting value:	0.141mm(1/180 inch) units										
Absolute horizontal position setting value:	0.423mm(1/60 inch) units										
Relative vertical position setting value:	0.071mm(1/360 inch) units										
Absolute vertical position setting value:	0.071mm(1/360 inch) units										
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. None</p> <p>[Setting] Commands that change the effects of this command. None</p> <p>[Operation] Commands whose functionality is affected by this command. The relative horizontal position setting value used by the ESC ¥ and ESC(/ commands is set. The absolute horizontal position setting value used by the ESC \$ and ESC(\$ commands is set. The relative vertical position setting value used by the ESC (v command is set. The absolute vertical position setting value used by the ESC (V command is set. The unit page length specification value used by the ESC (C command is set. The page format specification value used by the ESC (c command is set. The paper dimension specification value used by the ESC (S command is set.</p> <p>[Operation] Commands that change the effects of this command. The printer settings are restored to their initial state to by the ESC @ command.</p>										

5.1.14. Set absolute vertical print position ESC (V nL nH mL mH

ESC (V nL nH mL mH	Ver 1.00
[Name]	Set absolute vertical print position
[Format]	1BH, 28H, 56H, nL, nH, mL, mH
[Range of Definition]	nL=02H, nH=00H (Vertical position set) = (mL + mH x 256) x (units set)
[Function]	1) The printing position in the Y direction is set to a position spaced in the positive direction by (256 x mH + mL) x (the set absolute vertical position unit) x 25.4 mm from the origin upon the Y axis of the position management coordinate system. 2) If this command sets the printing position in the Y direction to a non-printable area, then the paper is ejected, the position management coordinate system is set to the next page, and the printing position in the Y direction is reset to the origin on the Y axis of the new position management coordinate system. 3) Settings made in a negative direction are ignored. -
[Initial State]	[Setting] Commands whose settings are affected by this command. None
[Related Commands]	[Setting] Commands that change the effects of this command. None
	[Operation] Commands whose functionality is affected by this command. None
	[Operation] Commands that change the effects of this command. The absolute vertical position unit value is set by the ESC(U commands. The range of unprintable areas are set by the ESC(c, ESC N and ESC O commands. The relative vertical position setting value, the non-printable area and the printing position in the Y direction are reset to their initial states by the ESC @ and ESC (G commands.

5.1.15. Set absolute vertical print position (extended) ESC (V nL nH m1 m2 m3 m4

ESC (V nL nH m1 m2 m3 m4	Ver 2.00
[Name]	Set absolute vertical print position(extended)
[Format]	1BH, 28H, 56H, nL, nH, m1, m2, m3, m4
[Range of Definition]	nL=04H, nH=00H (Vertical position set) = (mL + mH x 256) x (units set) $0 \leq (m4*1000000H + m3*10000H + m2*100H + m1) \times 1440 \leq 1FFFFFFH$ (absolute vertical print position value)
[Function]	<ol style="list-style-type: none">1) The printing position in the Y direction is set to a position spaced in the positive direction by $(m4*256*256*256 + m3*256*256 + m2*256 + m1) \times$ (absolute vertical print position value) from the Y axis of the position management coordinate system.2) If the printing position in the Y direction has been set by this command to a non-printable area, then the paper is ejected, the position management coordinate system is set to the next page, and the printing position in the Y direction is reset to the origin upon the Y axis of the new position management coordinate system.3) Settings made in the negative direction are ignored.
[Initial State]	-
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. None</p> <p>[Setting] Commands that change the effects of this command. None</p> <p>[Operation] Commands whose functionality is affected by this command. None</p> <p>[Operation] Commands that change the effects of this command. The absolute vertical position value is set by the ESC(U commands. The range of unprintable areas are set by the ESC(c, ESC N and ESC O commands. The relative vertical position setting value, the non-printable area and the printing position in the Y direction are reset to their initial states by the ESC(@ and ESC(G commands.</p>

5.1.16. Set page format ESC (c nL nH tL tH bL bH

ESC (c nL nH tL tH bL bH	Ver 1.00
[Name]	Set page format
[Format]	1BH, 28H, 63H, nL, nH, tL, tH, bL, bH
[Range of Definition]	nL=04H, nH =00H $((tH \times 256) + tL) < ((bH \times 256) + bL)$ $((bH \times 256) + bL) \times (\text{page management value}) \leq 1117.6\text{mm (44 inches)}$
[Function]	1) The position management coordinate system origin on the Y axis is set to positive $(256 \times tH + tL) \times (\text{page management value})$ from the origin on the Y axis of the page management coordinate system. The bottom margin is set to $(256 \times bH + bL) \times (\text{page management unit value})$ from the origin of the position management coordinate system along the Y axis. 2) The printing position is shifted in the Y direction to the origin of the position management coordinate system. The origin on the X axis is not changed. 3) If the distance, from the origin of the position management coordinate system along the Y axis to the bottom margin position, is greater than the page length, then this distance is set as the new page length. 4) If the paper which is inserted is cut sheet paper, then the distance from the top margin position to the bottom margin position is set as the page length. The top margin position is set to 8.382mm (0.33 inches). The bottom margin position is set to the page length. The page length is set to 558.8mm (22 inches).
[Initial State]	
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. The set page length is changed by the ESC (C commands.</p> <p>[Setting] Commands that change the effects of this command. The top margin and the bottom margin are set by the ESC commands. The page length and the bottom margin position are returned to their initial states by the ESC @ and the ESC (G commands.</p> <p>[Operation] Commands whose functionality is affected by this command. New page processing by the FF command is affected (the amount of movement is changed). New lines generated by the LF command which go outside the printable area are affected. Processing by the ESC (v command is affected. Processing by the ESC (V command is affected.</p> <p>[Operation] Commands that change the effects of this command. The page management value is set by the ESC (U command.</p>

5.1.17. Set page format (extended) ESC (c nL nH t1 t2 t3 t4 b1 b2 b3 b4

ESC (c nL nH t1 t2 t3 t4 b1 b2 b3 b4	Ver 2.00
[Name]	Set page format(extended)
[Format]	1BH, 28H, 63H, nL, nH, t1, t2, t3, t4, b1, b2, b3, b4
[Range of Definition]	nL=08H, nH =00H 0<=t1,t2,t3,t4,b1,b2,b3,b4<=255 $0 \leq (\text{t4} * 1000000\text{H} + \text{t3} * 1000\text{H} + \text{t2} * 100\text{H} + \text{t1}) * 1440 \leq 1FFFFFFF$ (defined unit) $0 \leq (\text{b4} * 1000000\text{H} + \text{b3} * 1000\text{H} + \text{b2} * 100\text{H} + \text{b1}) * 1440 \leq 1FFFFFFF$ (defined unit) $(\text{t4} * 1000000\text{H} + \text{t3} * 1000\text{H} + \text{t2} * 100\text{H} + \text{t1}) < (\text{b4} * 1000000\text{H} + \text{b3} * 1000\text{H} + \text{b2} * 100\text{H} + \text{b1})$
[Function]	<ol style="list-style-type: none"> 1) The origin on the Y axis of the position management coordinate system is set to: $+ (\text{t4} * 256 * 256 * 256 + \text{t3} * 256 * 256 + \text{t2} * 256 + \text{t1}) \times$ (defined unit) from the origin on the Y axis of the page management coordinate system. The bottom margin is set at a position spaced in the positive direction to: $(\text{b4} * 256 * 256 * 256 + \text{b3} * 256 * 256 + \text{b2} * 256 + \text{b1}) \times$ (defined unit) from the origin on the Y axis of the position management coordinate system. 2) The printing position in the Y direction is shifted to the origin of the position management coordinate system. At this time, the origin on the X axis is not changed. 3) If the distance from the origin on the Y axis of the position management coordinate system to the bottom margin position is greater than the page length, then this distance from the origin on the Y axis to the bottom margin position is set as the new page length. 4) If the paper inserted for printing is cut sheet paper, then the distance from the top margin position to the bottom margin position is set as the page length. 5) This command is only effective in graphics mode. 6) In the case that it received this command immediately after the paper is loaded, it moves to the top margin location that was designated.
[Initial State]	The top margin position is set to 8.382mm(0.33 inches). The bottom margin position is set to the page length. The page length is set to 558.8mm(22 inches).
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. The set page length is changed by the ESC (C command.</p> <p>[Setting] Commands that change the effects of this command. The top margin and the bottom margin are set by the ESC commands. The page length and the bottom margin position are returned to their initial states by the ESC @ and the ESC (G commands.</p> <p>[Operation] Commands whose functionality is affected by this command. New page processing by the FF command is affected (the amount of movement is changed). New lines generated by the LF command which go outside the printable area are affected. Processing by the ESC (v command is affected. Processing by the ESC (V command is affected.</p> <p>[Operation] Commands that change the effects of this command. The page management units are set by the ESC (U command.</p>

5.1.18. Monochrome Mode / Color Mode Selection ESC (K nL nH m n

ESC (K nL nH m n	Ver 1.00
[Name]	Monochrome Mode / Color Mode Selection
[Format]	1BH, 28H, 4BH, nL, nH, m, n
[Range of Definition]	nL=02H, nH=00H m=00H n=00H, 01H, 02H
[Function]	<ol style="list-style-type: none">1) Monochrome mode or color mode is selected. n=00H: Default mode (color mode) n=01H: Monochrome mode n=02H: Color mode2) When monochrome mode is selected, the color selection commands ESC r and ESC (r are ignored. Furthermore, the results of color raster commands which have been dispatched in monochrome mode are unpredictable.3) If n has any value other than the above, this command is ignored.
[Initial State]	Default mode.
[Supplementary Note]	Higher throughput speeds may be obtained for printing monochrome data when monochrome mode is selected rather than color mode. For printing in color, the color mode must be selected.
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. When monochrome mode is selected, color settings mode using the ESC r and ESC (r commands are ignored.</p> <p>[Setting] Commands that change the effects of this command. The default mode is selected by the ESC @ command.</p> <p>[Operation] Commands whose functionality is affected by this command. None.</p> <p>[Operation] Commands that change the effects of this command. None.</p>

5.1.19. Select MicroWeave printing mode ESC (i

ESC (i	Ver 1.00
[Name]	Select MicroWeave printing mode
[Format]	1BH, 28H, 69H, 01H, 00H, n
[Range of Definition]	n=00H, 01H, 30H, 31H
[Function]	1) Selects / deselects the MicroWeave mode. All parameter : deselects
[Initial State]	Non-MicroWeave mode
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. This command changes the non-selected state set by either the ESC (G or ESC @ commands.</p> <p>[Setting] Commands that change the effects of this command. The ESC (G command sets the non-selected state. The ESC @ command sets the non-selected state.</p> <p>[Operation] Commands whose functionality is affected by this command. None</p> <p>[Operation] Commands that change the effects of this command. None</p>

5.1.20. Selects dot size ESC (e nL nH m d

ESC (e nL nH m d	Ver 1.00						
[Name]	Selects dot size						
[Format]	1BH, 28H, 65H, nL, nH, m, d						
[Range of Definition]	nL=02H, nH=00H m=00H, d=00H, 10H, 12H						
[Function]	<ol style="list-style-type: none">1) The dot size is set according to the value of d.2) The d parameter has the following meaning:<table><tr><td>d=00H:</td><td>Default(Variable2 dot)</td></tr><tr><td>d=10H:</td><td>Economy</td></tr><tr><td>d=12H:</td><td>Variable2 dot</td></tr></table>3) Default dot sizes are specific to each printer model.4) Dot control is valid irrespective of printing mode or printing density.5) If the dot size is changed part way through a page, the results are unpredictable.6) If n has any value other than the above, this command is ignored.	d=00H:	Default(Variable2 dot)	d=10H:	Economy	d=12H:	Variable2 dot
d=00H:	Default(Variable2 dot)						
d=10H:	Economy						
d=12H:	Variable2 dot						
[Initial State]	Default						
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. Use of the ESC . command requires this command to be sent as follows: ESC (e 2 0 0 0</p> <p>[Setting] Commands that change the effects of this command. Default dot size is automatically selected by the ESC @ or ESC (G commands.</p> <p>[Operation] Commands whose functionality is affected by this command. None</p> <p>[Operation] Commands that change the effects of this command. None</p>						

5.1.21. Select color ESC (r nL nH m n

ESC (r nL nH m n			Ver 1.00																										
[Name]	Select color		[Setting]																										
[Format]	1BH, 28H, 72H, nL, nH, m, n																												
[Range of Definition]	nL=02H, nH=00H m=00H n=00H, 01H, 02H, 04H, 10H, 11H, 12H, 30H																												
[Function]	1) The print color is selected according to the values of m and n.																												
	<table border="1"><thead><tr><th>m</th><th>n</th><th>Print color</th></tr></thead><tbody><tr><td>00H</td><td>00H</td><td>Black (Matte Black, Photo Black)</td></tr><tr><td>00H</td><td>01H</td><td>Magenta</td></tr><tr><td>00H</td><td>02H</td><td>Cyan</td></tr><tr><td>00H</td><td>04H</td><td>Yellow</td></tr><tr><td>00H</td><td>10H</td><td>Light Black</td></tr><tr><td>00H</td><td>11H</td><td>Light Magenta</td></tr><tr><td>00H</td><td>12H</td><td>Light Cyan</td></tr><tr><td>00H</td><td>30H</td><td>Light Light Black</td></tr></tbody></table>	m	n	Print color	00H	00H	Black (Matte Black, Photo Black)	00H	01H	Magenta	00H	02H	Cyan	00H	04H	Yellow	00H	10H	Light Black	00H	11H	Light Magenta	00H	12H	Light Cyan	00H	30H	Light Light Black	
m	n	Print color																											
00H	00H	Black (Matte Black, Photo Black)																											
00H	01H	Magenta																											
00H	02H	Cyan																											
00H	04H	Yellow																											
00H	10H	Light Black																											
00H	11H	Light Magenta																											
00H	12H	Light Cyan																											
00H	30H	Light Light Black																											
	2) If either m or n has a value other than those above, this command is ignored. 3) This command is only effective in graphics mode. Black is selected.																												
[Initial State]		[Setting] Commands whose settings are affected by this command. None																											
[Related Commands]		[Setting] Commands that change the effects of this command. The ESC @ command selects black.																											
		[Operation] Commands whose functionality is affected by this command. None																											
		[Operation] Commands that change the effects of this command. The ESC (G command puts the printer in graphics mode.																											

5.1.22. Set relative vertical print position ESC (v nL nH mL mH)

ESC (v nL nH mL mH)	Ver 1.00
[Name]	Set relative vertical print position
[Format]	1BH, 28H, 76H, nL, nH, mL, mH
[Range of Definition]	nL=02H, nH=00H (Relative vertical set position) = (mL + mH x 256) x (set units)
[Function]	<ol style="list-style-type: none">1) The printing position in the Y direction is set to positive: (256 x mH + mL) x (relative vertical position setting value) x 25.4mm from the present Y printing position.2) If the position set by this command is higher than the top margin position on the current page, this command is ignored.3) If the Y direction printing position set by this command extends to a non-printable area, then the position management coordinate system is set to the next page; and the printing position in the Y direction is reset to the origin on the Y axis of the new position management coordinate system.
[Initial State]	-
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. None</p> <p>[Setting] Commands that change the effects of this command. None</p> <p>[Operation] Commands whose functionality is affected by this command. None</p> <p>[Operation] Commands that change the effects of this command. The relative vertical position setting value is set by the ESC (U command. The non-printable area is set by the ESC (c command. The relative vertical position setting value, the non-printable area, and the printing position in the Y direction are reset to their initial states by the ESC @ and ESC (G commands.</p>

5.1.23. Set relative vertical print position (extended) ESC (v nL nH m1 m2 m3 m4

ESC (v nL nH m1 m2 m3 m4	Ver 2.00
[Name]	Set relative vertical print position(extended)
[Format]	1BH, 28H, 76H, nL, nH, m1, m2, m3, m4
[Range of Definition]	nL=04H, nH=00H $0 \leq (m4*1000000H + m3*10000H + m2*10H + m1)) \times 1440 \leq 1FFFFFFF$ (relative vertical print position value)
[Function]	<ol style="list-style-type: none">1) The printing position in the Y direction is set to positive: $(m4*256*256*256 + m3*256*256 + m2*256 + m1) \times (\text{relative vertical print position value})$ from the present Y printing position.2) If the position set by this command is higher than the top margin position on the current page, this command is ignored.3) If the Y direction printing position set by this command extends to a non-printable area, then the position management coordinate system is set to the next page; and the printing position in the Y direction is reset to the origin on the Y axis of the new position management coordinate system.-
[Initial State]	-
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. None</p> <p>[Setting] Commands that change the effects of this command. None</p> <p>[Operation] Commands whose functionality is affected by this command. None</p> <p>[Operation] Commands that change the effects of this command. The relative vertical position setting value is set by the ESC (U command. The non-printable area is set by the ESC (c commands. The relative vertical position setting value, the non-printable area, and the printing position in the Y direction are reset to their initial states by the ESC @ and ESC (G commands.</p>

5.1.24. Print raster graphics ESC . c v h m nL nH d1...dk (c=0,1)

ESC . c v h m nL nH d1...dk (c=0,1)

Ver 1.00

[Name]	Print raster graphics	[Operation]
[Format]	1BH, 2EH, c, v, h m, nL, nH, d1...dk	
[Range of Definition]	c=0, 1, 2 (a description of the behaviour of this function when c == 2 is in the next section) v=10 (v/3600 dpi) h=10 (h/3600 dpi) 0 ≤ nL ≤ 255 0 ≤ nH ≤ 127 0 ≤ d ≤ 255 m=1, 8, 24 (color mode)	

[Function]

This function prints raster graphics at c style compression, with y /3600 dpi vertical density, and h /3600 dpi horizontal density, to print out m raster lines, or scan lines, or rows of dots in the vertical direction, covering (nH * 256) + nL total dots, using k subsequent bytes of data.

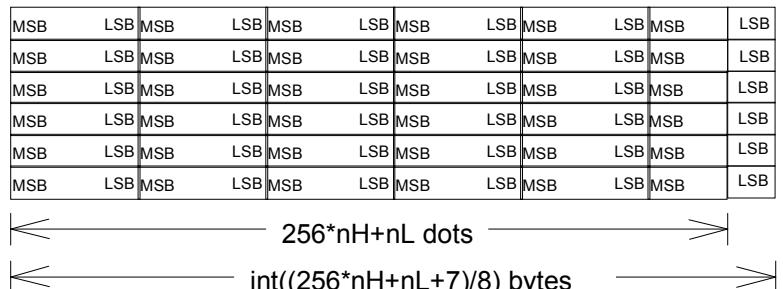
- 1) If c has any value other than those specified above, this command terminates at the instant that c is processed.
If either v or h has any values other than the above, this command is ignored.
- 2) The actual image pattern is generated according to a raster method determined by the following parameters:
 - c: printing mode
 - 00H: full graphics mode (non-compressed mode)
 - 01H: run-length encoded compression mode
 - 02H: TIFF compression mode
 - If TIFF compression mode is used, then m must be equal to 1.
 - Explanation of this function where c = 2 is in the next section
 - v: printing density in the vertical direction v/3600 (dpi)
 - h: printing density in the horizontal direction h/3600 (dpi)
 - m: number of dots (rows) in the vertical direction, number of raster or scan lines
 - nL, nH: number of dots covered in the horizontal direction = ((256 x nH) + nL)
 - k: number of items of data = m x int((nH x 256 + nL + 7)/8) for uncompressed data
= undeterminable amount for compressed data
 - d: data

Full graphics mode (non-compressed mode)

In full graphics mode, all of the data is transferred in raster format.

Raster data that extends beyond the ((256 * nH) + nL) dot area boundary will be automatically clipped or discarded.

The total amount of data sent is k = int((256 x nH + nL + 7)/8) x m bytes.



Run-length encoding compression mode

In run-length encoding compression mode, the data to be printed is always transferred in the format (counter) + (data), where counter represents one byte of information.

If $0 \leq \text{counter} \leq 127$, then the data following the counter is non-compressed data, and the length of the compressed data is $(\text{counter})+1$ bytes.

If $128 \leq \text{counter} \leq 255$, then the data following the counter will be one byte of compressed data, . This single compressed byte of data is thereafter to be repeated $257-(\text{counter})$ times..

- 3) This function also increments the X printing position relative to the current X printing position by the amount: $(256 \times nH + nL) \times h/3600 \times 25.4\text{mm}$.
If this command specifies an X position in the non-printable area (right margin), the right margin position is automatically reset to the X value of the new printing position.
- 4) If image data is designated for a non-printable area, then the image data designated for that area is ignored.

The following parameter combinations are supported by this command:

This printer doesn't have printer microweave mode.

1. Case of microweave mode off

Mode (V x H)	Parameter				ESC(e*3 n2)	Used Nozzle number	Comment
	c	v	h	m			
360x360	0/1/2	10	10	1/8/24	00h	360Nozzles	*1 *2

*1 In these circumstances, it is recommended to set m equal to 1.

*2 Whenever the ESC . command is used, the Normal (ESC (e 2 0 0 0)) size must be selected.

[Initial State]

[Related Commands]

Character mode

[Setting] Commands whose settings are affected by this command.

None

[Setting] Commands that change the effects of this command.

None

[Operation] Commands whose functionality is affected by this command.

None

[Operation] Commands that change the effects of this command.

None

5.1.25. Set paper dimensions ESC (S nL nH w1 w2 w3 w4 l1 l2 l3 l4

Ver 1.00

ESC (S nL nH w1 w2 w3 w4 l1 l2 l3 l4

- [Name] Set paper dimension
[Format] 1BH, 28H, 53H, nL, nH, w1, w2, w3, w4, l1, l2, l3, l4
[Range of Definition]
nL=08, nH=00H
 $0 \leq (w4*1000000H + w3*10000H + w2*100H + w1) * 1440 / (\text{defined unit}) \leq 7FFFFFFFH$
 $0 \leq (l4*1000000H + l3*10000H + l2*100H + l1) * 1440 / (\text{defined unit}) \leq 7FFFFFFFH$
- [Function]
- 1) Set paper length (from top-edge to bottom-edge) and paper width (from left-edge to right-edge) in the defined unit.
 - 2) This command is used to expand the bottom-margin (3mm) of printer.
 - 3) Paper length and width is defined by the following formula:
physical paper length = (l4*1000000H + l3*10000H + l2*100H + l1) * (defined unit)
physical paper width = (w4*1000000H + w3*10000H + w2*100H + w1) * (defined unit)
 - 4) This command can be used only during graphics mode, entered by sending the ESC (G command.
 - 5) This command will work effectively only when the defined paper length is the same as the physical paper length measured by the printer.
 - 6) If some portion of an image extend beyond the bottom edge of the page, then that extended portion of the image is deleted.
Also, if the defined paper length is shorter than the actual paper length, the portion of an image beyond the defined paper length will be deleted.
 - 7) Paper width is ignored by the printer.

[Initial State]

-

[Related Commands]

[Setting] Commands whose settings are affected by this command.

None

[Setting] Commands that change the effects of this command.

The page control setting unit is set by the ESC (U command.

[Operation] Commands whose functionality is affected by this command.

None

[Operation] Commands that change the effects of this command.

The initial state is returned to by the ESC @ command.

The initial state is returned to by the ESC(G command.

5.1.26. Set the raster image resolution ESC (D nL nH rL rH v h

Ver 1.00

ESC (D nL nH rL rH v h

[Name] Set the raster image resolution
[Format] 1BH, 28H, 44H, nL, nH, rL, rH, v,h
[Range of Definition]
nL=04H, nH=00H
0 <= v <= 127
0 <= h <= 127

[Function]

- 1) Sets the raster image resolution (ESC i).
Vertical resolution : $(rH*256 + rL) / v \text{ dpi}$
Horizontal resolution : $(rH*256 + rL) / h \text{ dpi}$
- 2) Available resolutions are : 120, 180, 360, 720dpi
- 3) Following parameters are supported.

This printer doesn't have printer microweave mode.

1. Case of microweave mode off

Mode (V x H)	ESC (D		ESC i	ESC(e	Used Nozzle number	Comment
	v / r	h / r	mH*256+mL	n2		
360x180	4/1440	8/1440	180	10h	180Nozzles	
720x180	2/1440	8/1440	180	12h	180Nozzles	

*1 The parameter (mH*256+mL)=1 is recommended.

*2 This command may be especially useful in circumstances where programmers utilize their own chosen algorithms to improve print quality.

[Initial State]

-

[Related Commands]

[Setting] Commands whose settings are affected by this command.

The Resolution set of Raster image exerts the influence on the processing by the ESC i command .

[Setting] Commands that change the effects of this command.

The Resolution setting of Raster image is returned to the initial states by the ESC @ and the ESC (G commands.

[Operation] Commands whose functionality is affected by this command.

None

[Operation] Commands that change the effects of this command.

None

5.1.27. Transfer Raster image ESC i r c b nL nH mL mH d1.....dk

ESC i r c b nL nH mL mH d1.....dk

Ver 1.00

[Name] Transfer Raster image
[Format] 1BH,69H, r, c, b, nL, nH, mL, mH, d1, d2, ..., dk

[Range of Definition]
r = 00H, 01H, 02H, 04H, 10H, 11H, 12H, 30H
c = 00H, 01H
b = 01H, 02H
 $0000H \leq (nH * 256 + nL) \leq 7FFFH$
 $0001H \leq (mH * 256 + mL) \leq 7FFFH$

[Function]

- 1) Prints dot graphics in raster format.
- 2) Parameters are used as described below:

r : color of ink
00H:Black(Matte Black, Photo Black) 01H:Magenta
02H:Cyan 04H:Yellow
10H:Light Black 11H:Light Magenta
12H:Light Cyan 30H:Light Light Black

c : compression method
00H:non-compressed
01H:Run Length Encoding

b : bit length required for each pixel of image data
01H:1bit/pixel (for Micro, Normal x 1 x 2 dot)
For every 1 bit of data:
0 no dot
1 a normal size dot for the current dpi
will be printed at the pixel location for that one bit.
02H:2bits per pixel (for dot sizes requiring 2 bits to designate the size)

For every 2 bits of data:
00 no dot
01 a small dot
10 a medium size dot
11 a large size dot

will be printed at the pixel location for those 2 bits.

Sample bits of data (for 4 pixels of an image), and the results of that data, are displayed in the upcoming diagram.

nL, nH: Horizontal byte count, according to the following formula:

$$\begin{aligned}nH &= \text{INT}(\text{horizontal byte count} / 256) \\&= \text{INT}(((\text{horizontal dot count}) * (\text{bit length of each pixel}) + 7) / 8) / 256 \\nL &= \text{MOD}(\text{horizontal byte count} / 256) \\&= \text{MOD}(((\text{horizontal dot count}) * (\text{bit length of each pixel}) + 7) / 8) / 256\end{aligned}$$

mL, mH: Vertical dot count (rows of dot graphics), according to the following formula:

$$\begin{aligned}mH &= \text{INT}(\text{vertical dot count} / 256) \\mL &= \text{MOD}(\text{vertical dot count} / 256)\end{aligned}$$

k : Total numbers of data bytes, according to the following formula:

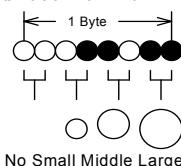
$$k = (nH * 256 + nL) * (mH * 256 + mL)$$

** Sample bits of data for 4 pixels of an image using 2 bits data/pixel:

The size of the dot is designated with a binary number, using 2 bits for every 1 picture element.

No Dot: 00, small dot: 01, medium dot: 10, large dot: 11

Data = 00011011 = 0x1B



[Initial State]

5.1.28. Turn unidirectional mode on/off ESC U n

ESC U n	Ver 2.00
[Name]	Turn unidirectional mode on/off
[Format]	1BH, 55H, n
[Range of Definition]	n=00H, 01H, 02H, 30H, 31H, 32H
[Function]	<p>1) The printing direction is selected according to the value of n in the following manner:</p> <p>n=00H or 30H: selects bi-directional printing n=01H or 31H: selects unidirectional printing (0 to 80 column) n=02H or 32H: selects automatic printing direction control n=03H or 33H: selects unidirectional printing (80 to 0 column)</p> <p>2) If n has any value other than the above, this command is ignored.</p>
[Initial State]	Bi-directional printing
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. ESC @ initialized values may be cancelled by this command.</p> <p>[Setting] Commands that change the effects of this command. ESC @ command will return the printer to its Initial State values.</p> <p>[Operation] Commands whose functionality is affected by this command. None</p> <p>[Operation] Commands that change the effects of this command. None</p>

5.1.29. Set relative horizontal printing position ESC ¥ nL nH

ESC ¥ nL nH	Ver 1.00
[Name]	Set relative horizontal printing position
[Format]	1BH, 5CH, nL, nH
[Range of Definition]	(nL + 256 x nH) x (relative horizontal position setting value) * 25.4mm
[Function]	<ol style="list-style-type: none">1) If bit 6 of nH is 1, then nH will be negative, and the Most Significant Bit (bit 7) is presumed to be 1. Negative values are expressed in two's complement.2) The printing position in the X direction is incremented from the current X position by the following amount $(256 \times nH + nL) \times (\text{relative horizontal position setting value})$The relative horizontal position setting value is set with the ESC (U command). The defined default relative horizontal position setting value is 0.141mm(1/180inch).3) If the position set by this command is within the non-printable area it is ignored. However, it is possible to shift to a position in the right margin area. -
[Initial State]	-
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. None</p> <p>[Setting] Commands that change the effects of this command. None</p> <p>[Operation] Commands whose functionality is affected by this command. None</p> <p>[Operation] Commands that change the effects of this command. The relative horizontal position setting value is set by the ESC (U command). The relative horizontal position setting value is reset to its initial state by the ESC @ or the ESC (G commands.</p>

5.1.30. Set relative horizontal print position ESC (/ nL nH n1 n2 m1 m2)

ESC (/ nL nH n1 n2 m1 m2)	Ver 1.00
[Name]	Set relative horizontal print position
[Format]	1BH, 28H, 2FH, nL, nH, m1,m2,m3,m4
[Range of Definition]	nL=04H, nH=00H $0 \leq ((m4*1000000H)+(m3*10000H)+(m2*100) + m1) \times 5760 \leq 323.991 \text{ mm} = \frac{73472 \text{ inches}}{5760}$ (relative horizontal position setting value)
	If bit 7 of m4 is 1, then m4 will be a negative value.
[Function]	1) If bit 7 of m4 is 1, then m4 will be a negative value. Negative values are expressed in two's complement. 2) The printing position in the X direction is incremented from the current X position by the following amount $(m4 \times 256x256x256+m3 \times 256x256+m2 \times 256+m1) \times (\text{relative horizontal position setting value})$ OR $((m4 \times 256^3)+(m3 \times 256^2) + (m2 \times 256)+m1) \times (\text{relative horizontal position setting value})$ <p>The relative horizontal position setting value is set with the ESC (U command). The defined default value for this command is 0.423mm(1/60inch).</p>
	3) If the position set by this command is within the non-printable area it is ignored. However, it is possible to shift to a position in the right margin area. 4) This command is only effective in graphics mode.
[Initial State]	-
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. None</p> <p>[Setting] Commands that change the effects of this command. None</p> <p>[Operation] Commands whose functionality is affected by this command. None</p> <p>[Operation] Commands that change the effects of this command. The relative horizontal position setting value is set by the ESC (U command). The relative horizontal position setting value is reset to its initial state by the ESC @ or the ESC (G commands.</p>

5.1.31. Set Print method ID ESC (m nL nH n

ESC (m n

Ver 1.00

[Name]	Set Print method ID	[Setting]
[Format]	1BH, 28H, 6DH, nL, nH, n	
[Range of Definition]	nL=01H, nH=00H n (see below)	
[Function]	1) The print mode is selected according to the values of n.	

& : Draft

用紙名称 Paper Type	Print Quality	Resolution H x V [dpi]	n [Hex]		
			~ L/4x6/ ハガキ	~A4/ Letter	~A3/ A3+
EPSON 写真用紙クリスピア Ultra Premium Glossy Photo Paper	& Super Photo	5760 x 1440	A0	A0	A1
EPSON 写真用紙 EPSON Glossy Photo Paper	& Fine	1440 x 720	75	76	77
Premium Photo Paper Glossy	Photo	1440 x 1440	80	80	81
Premium Photo Paper Semi-Gloss	Super Photo	5760 x 1440	A0	A0	A1
Premium Semigloss Photo Paper	& Fine	1440 x 720	75	76	77
Premium Photo Paper Luster	Photo	1440 x 1440	80	80	81
Premium Photo Paper Heavyweight	Super Photo	5760 x 1440	A0	A0	A1
EPSON 写真用紙エントリー Photo Paper Glossy	& Fine	1440 x 720	75	76	77
Glossy Photo Paper	Photo	1440 x 1440	80	80	81
Enhanced Matte Paper	Super Photo	5760 x 1440	A0	A0	A1
EPSON フォトマット紙/顔料 Ultra Premium Presentation Matte	& Photo	1440 x 1440	80	80	81
Matte Paper Heavyweight	Super Photo	5760 x 1440	A0	A0	A1
Double-sided Matte Paper	& Photo	1440 x 1440	80	80	81
Velvet Fine Art Paper	Super Photo	5760 x 1440	A0	A0	A1
Watercolor Paper – Radiant White	& Photo	1440 x 1440	80	80	81
Watercolor Paper – Radiant White	Super Photo	5760 x 1440	A0	A0	A1

用紙名称 Paper Type	Print Quality	Resolution H x V [dpi]	n [Hex]		
			~L/4x6/ ハガキ	~A4/ Letter	~A3/ A3+
EPSON スーパーファイン紙 Presentation Paper Matte Photo Quality Inkjet Paper	& Photo	1440 x 720	73	73	74
EPSON スーパーファイン専用ハガキ *1	& Photo	1440 x 720	73	73	74
普通紙（両面上質普通紙<再生紙>） Plain Paper	Draft/Economy	360 x 360	21 (20 *3)	21 (20 *3)	21 (20 *3)
Premium Inkjet Plain Paper Premium Bright White Paper	& Fine	720 x 720	50	50	50
郵便ハガキ（インクジェット紙） *1	& Fine	1440 x 720	73	73	74
CD/DVD レーベル CD/DVD	& Super Photo	1440 x 1440	82	82	82
高画質対応 CD/DVD レーベル CD/DVD Premium Surface	& Super Photo	1440 x 1440	82	82	82
Premier Art Matte Scrapbook Photo Paper *2	& Photo	1440 x 1440	80	80	81
	Super Photo	5760 x 1440	A0	A0	A1

*1 : Japanese model only.

*2 : U.S.A. model only.

*3 : Black & White mode only.

2) If n have a value other than those above, this command is ignored.

3) This command is only effective in graphics mode.

[Initial State]

[Related Commands]

[Setting] Commands whose settings are affected by this command.

None

[Setting] Commands that change the effects of this command.

The ESC @ command selects black.

[Operation] Commands whose functionality is affected by this command.

None

[Operation] Commands that change the effects of this command.

The ESC (G command puts the printer in graphics mode.

5.1.32. Set line feed by n/360 inch ESC + n

ESC + n	Ver 1.00
[Name]	Set line feed by n/360 inch
[Format]	1BH, 2BH, n
[Range of Definition]	00H <= n <= 7FH
[Function]	1) The line feed is set to n/360 inch.
[Initial State]	The line feed is set to 1/6 inch.
[Related Commands]	<p>[Setting] Commands whose settings are affected by this command. None</p> <p>[Setting] Commands that change the effects of this command. None</p> <p>[Operation] Commands whose functionality is affected by this command. It exert the influence on the line feed operation by LF command. (It does to the line feed operation by n/360 inch.)</p> <p>[Operation] Commands that change the effects of this command. The line feed is reset to its initial state by ESC @, ESC (G command.</p>

CHAPTER 6 : REMOTE MODE

This section of the Programming Note will provide an overview of EPSON's Remote Mode. The following commands are useful for driver development:

Enter Remote Mode	“ESC (R”,
Set Mechanism Sequence	“SN”,
Exit Remote Mode	“ESC NUL”

These Remote Mode commands were used in “CHAPTER 4: COMMAND SEQUENCE” – “4.2 Command Transfer Procedure”. Individual explanations for these commands, and other remote mode commands referenced in this paper, are provided hereafter.

6.1. Remote Mode Language Description

In addition to EPSON's ESC/P and its extension ESC/P2 serial printer languages, most EPSON printers also implement another EPSON serial printer language that is bi-directional. That language is called Remote Mode. It is entered from ESC/P or ESC/P2 mode.

Remote Mode commands should not be sent to the printer in between consecutive ESC/P2 commands.

The primary purposes for EPSON Remote Mode printer control language are to provide the host with the following:

- 1) Current printer status
- 2) Printer identification
- 3) Capability of setting the printers front panel operations remotely (print the nozzle check pattern, clean print heads, set hard ware adjustments for paper size and thickness, save current settings into NVR (non-volatile RAM, print the dot alignment test pattern, etc.)

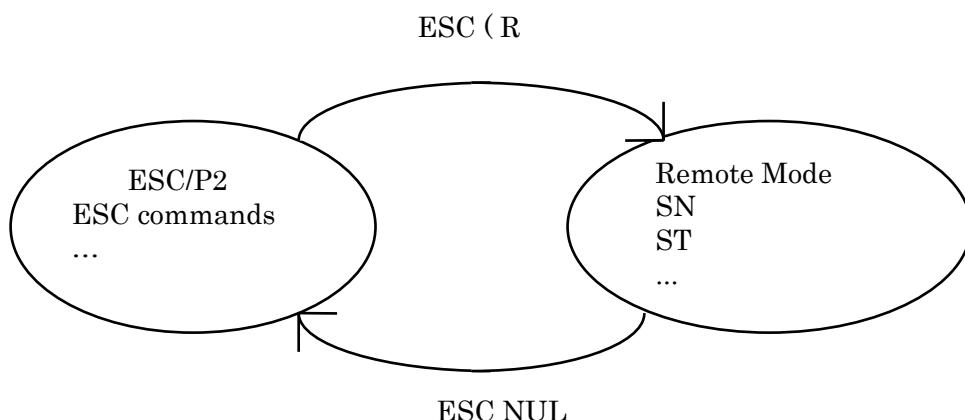
The Remote Mode command architecture is as follows:

Enter Remote Mode (leave ESC/P or ESC/P 2)
- change printer settings (model dependent) via Remote Mode Set commands and/or
- request printer settings (model dependent) via Remote Mode Reply commands

Exit Remote Mode (enter ESC/P or ESC/P 2)

Printer State Reply (printer state is automatically sent to the host if enabled by the Remote Mode command “ST” 02h 00h 00h m1 Turn printer state reply on/off)

The ESC/P2 - Remote Mode command architecture can be represented by the following simplified State Diagram.



All of the Remote Mode commands, except Enter Remote Mode, are available only in Remote Mode.

The Enter Remote Mode and Exit Remote Mode commands begin with the ESC code, (as do many ESC/P2 commands). Excluding these commands, Remote Mode commands generally follow the following format:

“XX” n_L n_H < 256 x n_H + n_L - number of parameter bytes>

The “XX” represents 2 ASCII characters that indicate the Remote Mode command primary function, and n_L + (n_H x 256) indicates the number of subsequent parameters.

If the first parameter following the length count is 00H then the Remote Mode command makes a setting.

Set printer settings: “XX” n_L n_H 00H m1...mx

6.1.1. Enter Remote Mode (Remote Mode) ESC (R 08H 00H 00H "REMOTE1"

ESC "(R" 08H 00H 00H "REMOTE1"

Enter Remote Mode

[Format]

ESC (R 08H 00H 00H "REMOTE1"

[Function]

- * 1) The current emulation mode is terminated
- 2) Print data present in the buffer is sent to the printer to be printed
- 3) The printer enters remote mode.
- * Remote mode continues until the “Exit Remote Mode” command is received.
- * In the remote mode, XX [nL] [nH] [00H] [m1] ... [mx] type control codes are available.
- * This command is only valid in text mode.

6.1.2. Load Power-On Default NVR into RAM (Remote Mode) "LD" 00H 00H

[Format]

"LD" 00H 00H

[Function]

Loads the power-on default from a non-volatile memory into RAM, and begins using these values as the current printer operating system settings.

This command is only available in Remote Mode.

6.1.3. Set printer timer (Remote Mode) "TI" 08H 00H 00H YYYY MM DD hh mm ss

[Format]

"TI" 08H 00H 00H YYYY MM DD hh mm ss

- * Each of the parameters YYH,YYL,MM,DD,hh,mm and ss is a one byte binary format parameter, and their definitions as follows:

Parameter	meaning	Range
YYH	Year (A.D)	0-65535
YYL	(YYL+YYH*256)	
MM	Month	1-12
DD	Day	1-31
hh	hour	0-23
mm	minute	0-59
ss	second	0-59

[Function]

- * If the parameter is out of range, this command is ignored, and the previous setting is maintained.

6.1.4. Set horizontal print position (Remote Mode) “FP” 03H 00H 00H m1 m2

[Format]

“FP” 03H 00H 00H m1 m2:

[Function]

* The parameter “m1”, “m2” are each one byte binary data that indicate the below condition according to the following formula.

* The unit of print start position is 1/360 inch.

$$(\text{print start position}) = ((\text{m2} * 256) + \text{m1})$$

Horizontal Print Start Position	m1	m2
Standard position	00H	00H
Borderless print position (-3.5mm)	A0H	FFH
Borderless print position (-2.5mm)	B0H	FFH

* If the parameter is out of range , this command is ignored, and the previous setting is maintained.

6.1.5. Turn printer state reply on/off (Remote Mode) “ST” 02H 00H 00H m1

[Format]

“ST” 02H 00H 00H m1

[Parameters]

* Parameter m1 is one byte binary parameter, and indicates the setting as follows:

m1	Printer State Reply
10H	Binary state reply Off
11H	Binary state reply On

[Function]

- The default environment status transmission is set. See the paragraph of status transmission for the status transmission.
- This setting depends on interfaces that receive this command. For example, this command is received with the built-in Macintosh serial interface, the status transmission for the built-in Macintosh serial interface is set.
- If the parameter m1 is out of range, or if setting of parameter m1 is not supported by the product, this command is ignored, and the existing setting is maintained.
- This command is only available in Remote Mode.

Auto interface select function

- If the status transmission is ON, the interface transmits the status whether the interface is selected or the interface is deselected by the auto interface select function.

6.1.6. Job name set “JH” nL nH 00H m1 m2 m3 m4 m5 <job name>

[Format]

“JH” nL nH 00H m1 m2 m3 m4 m5 <job name>

nL = (length of <job name>) + 6
nH = 00H

[Parameters]

The parameter “m1” is one byte binary data that indicates job name information kinds.
The parameters “m2”, “m3”, “m4”, “m5” are each one byte binary data that indicates Job ID.
“<job name>” is maximum 32 bytes binary codes that describe a job name.
m1=00h:<job name>=Host name(Max 32byte)
m1=01h:<job name>=Product ID
m1=02h:<job name>=Document name
m1=03h:<job name>=User name

[Function]

Set the job name of the job specified by “JS” command.
This command is available only in Remote.

6.1.7. Start job “JS” nn 00H 00H <job name> m1

6.1.8. End job “JE” 01H 00H 00H

[Format]

“JS” nL nH 00H <job name> m1
“JE” 01H 00H 00H

nL = (length of <job name>) + 2
nH = 00H

[Parameters]

The parameter “m1” is one byte binary data that fixed to zero.

[Function]

Construct a print job, and turn page and line position reply on/off, and set the position reply repeat rate if the position reply is enabled.

If the host uses the cancel job command or it needs the page and line position reply, it must send print data as a print job.

The print job is started with the “JS” command and terminated with the “JE” command. After starting a job with the “JS”, if the “JS” is sent again without the “JE”, the previous print job will be terminated with the second “JS”.

After power-on initialization, the print job is not defined, and position reply is disabled.

This command is available only in Remote.

6.1.9. Select paper media “MI” 04H 00H 00H m1 m2 m3

[Format]

“MI” 04H 00H 00H m1 m2 m3

[Parameters]

The parameter “m1”, “m2” and “m3” are each one byte binary data.

The “m1” is always 01H.

The “m2” describes paper media as shown below.

m2	用紙種類	Paper Type
0	普通紙	Plain Paper
5	フォトマット紙	Matte Paper-Heavyweight
11	写真用紙<光沢>	Premium Glossy Photo Paper
12	写真用紙<絹目調>	Premium Semigloss Photo Paper
13	-----	Ultra Premium Photo Paper Luster
15	フォトマット紙/顔料専用	Archival Matte Paper (U.S.A.) Enhanced Matte Paper (Euro, Asia)
16	画材用紙/顔料専用	Watercolor Paper-Radiant White
18	マットボード紙	Matte board paper
22	-----	Double Sided Matte Paper
25	Velvet Fine Art Paper	Velvet Fine Art Paper
27	郵便ハガキ(再生紙)	-----
28	郵便ハガキ(インクジェット紙)	-----
29	スーパーファイン紙	Photo Quality Ink Jet Paper
32	ハガキ宛名面	-----
38	写真用紙クリスピア<高光沢>	-----
39	Ultra Smooth Fine Art Paper	Ultra Smooth Fine Art Paper
40	スーパーファイン専用はがき	-----
43	写真用紙エントリー<光沢>	Photo Paper Glossy (U.S.A.) Glossy Photo Paper (Euro/Asia)
91	CD/DVD レーベル	CD/DVD
92	CD/DVD レーベル(高画質対応品)	CD/DVD Premium Surface

The “m3” describes paper size as shown below.

m3	Paper Size
0	A4
1	Letter(8 1/2x11 in)
2	Legal(8 1/2x14 in)
3	A5
4	A6
5	B5
7	Half-Letter(5 1/2x8 1/2 in)
10	10x15cm / 4x6in
11	5x8 in
12	六切 203.2x254mm (8x10 in)
15	L size
16	Japanese Postcard
17	Japanese Double Postcard
43	ハイビジョンサイズ 102x181mm
61	A3 ノビ (Super A3/B)
62	A3
63	B4
64	US B(11x17 in)
65	11 x14 in
66	B3
67	A2
68	US C(17x22 in)
69	四切 254x305mm (10x12")
70	12" x 12" (308.4 x 308.4mm)
99	User-defined

[Function]

Set paper type to the temporary default.

The previous setting will be kept if the parameters are out of range.

This command is available only in Remote.

6.1.10. Select Duplex Printing “DP” 02H 00H 00H m1

[Format]

“DP” 02H 00H 00H m1

[Parameters]

The parameter “m1” is one byte binary data that indicates duplex print setting as shown below.

Duplex Printing	m1
Duplex mode off	00H
Duplex mode on	01H
Reserved	02H - FFH

[Function]

m1=01H :

- (1)The printer fixes the I/F that this command is received one .
- (2)The printer switches to the duplex printing mode.
- (3)State Reply is changed.

m1=00H :

- (1)The printer releases the fixed I/F.
- (2)The printer switches to the normal mode.

Select a duplex printing mode to be used for the temporary default.

The previous setting will be kept if the product does not have the character set selected with the parameter “m1”.

This command is available only in Remote.

6.1.11. User Setting “US” 03H 00H 00H m1 m2

[Format]

“US” 03H 00H 00H m1 m2

[Parameters]

The parameter “m1”, “m2” are each one byte binary data that indicates shown as below.

“m1”	Item	“m2”	Setting
00H	Bottom margin setting	00H	0 = Standard
		01H	1 = Max
		02H	2 = Borderless
01H	Platen gap setting	00H	Default
		01H	Scrape Reduction
		02H – 7FH	Reserved
		80H	Platen gap setting to Bi-D adjust PG--
		81H	Platen gap setting to Bi-D adjust PG-
		82H	Platen gap setting to Bi-D adjust PGtpy
		83H – FFH	Reserved
02H	Data cut flag information	00H	Off(No Cut)
		01H	On(Cut)
03H - FFH	Reserved		

[Function]

Select a printer setting shown upper to the temporary default.

The previous setting will be kept if the parameters are out of range.

This command is available only in Remote.

6.1.12. Set mechanism sequence "SN" 01H 00H 00H

[Format]

"SN" 01H 00H 00H

[Parameters]

None

[Function]

- * Changes the mechanical sequence from the default environment to the values specified by the below command. If the below command is not sent, the printer selects the plain paper mechanical sequence.

Item	Command
Paper path	PP command
Duplex Printing	DP command
Color / Monochrome setting	ESC (K command
Set Print method ID	ESC (m command
Paper types	MI command
Platen gap setting	US command
Bottom margin setting	US command
Check paper size	US command

- * This command is only valid in remote mode.

6.1.13. Select paper path “PP” 03H 00H 00H m1 m2

[Format]

“PP” 03H 00H 00H m1 m2

[Parameters]

The parameter “m1” and “m2” are each one byte binary data.

The “m1” describes paper is continuous type or a single sheet in CSF or a manual inserted sheet as shown below.

Paper	m1	m2
ASF	01H	FFH
Board	02H	00H
CD-R	02H	01H
Fine Art	02H	02H
Roll paper	03H	01H

[Function]

Select paper path to be used for the temporary default.

The previous setting will be kept if the parameter “m1” and “m2” exceeds its limit.

This command is available only in Remote.

6.1.14. Turn roll paper mode on/off “EX” 06H 00H 00H 00H 00H 05H m1

[Format]

“EX” 06H 00H 00H 00H 00H 05H m1

[Parameters]

The parameter “m1” is one byte binary data that turns roll paper mode on/off as shown below.

Eject Direction	m1
Roll paper mode off	00H
Roll paper mode on	01H
Reserved	02H – FFH

[Function]

Turn roll paper mode on/off to be used for the temporary default.

If the velvet paper will be setting, the parameter “m1” is “00H”.

The previous setting will be kept if the parameter “m1” is from “02H” to “FFH”.

This command is available only in Remote.

6.1.15. Terminate Remote Mode (Remote Mode) ESC 00H 00H 00H

[Format]

ESC 00H 00H 00H

[Function]

- * Copy the default environment to the current setting.
- * Execute the ESC “@” command in ESC/P2. (Execute software initialisation.)
- * Exit from Remote mode and enter to the selected printer control language.

6.1.16. Save Setting “SV” 00H 00H

[Format]

“SV” 00H 00H

[Function]

- * The default setting is saved to NVRAM as the default setting at power on. The all default settings are not necessarily saved.
- * This command is available only in Remote.

6.1.17. Set drying time “DR” 04H 00H 00H m1 m2 m3

[Format]

“DR” 04H 00H 00H m1 m2 m3

[Parameter]

The parameter “m1”, “m2” and “m3” are each one byte binary data.
The parameter “m1” indicate the item shown as below.

Drying position	m1
A unit of one head scanning	00H
Reserved	02H - FFH

The “m2” and “m3” indicates the drying time according to the following formula.

$$(\text{Drying time}) = ((\text{m3} * 256) + \text{m2})$$

$$0 \leq (\text{Drying time}) \leq 10000[\text{msec}]$$

[Function]

Set drying time to the temporary default.

The position unit is set with “m1”, and pause for the time set with “m2” and “m3”.

When the unit is page, this command indicates the waiting time from receiving “FF” command until process the command. (Does not pause when “FF” command is not received.)

The previous setting will be kept if the parameters are out of range.

This command is available only in Remote.

[Exception]

When roll paper mode is specified, this command is processed after “LD” command is executed (not “FF” command).

6.1.18. Set Ink type “IK” 02H 00H 00H m1

[Format]

“IK” 02H 00H 00H m1

[Parameter]

The parameter “m1” is one byte binary data that indicates ink type as shown below.

Drying position	m1
Select Photo Black	31H
Select Matte Black	51H

[Function]

Set Ink type to the temporary default.

The previous setting will be kept if the parameter is out of range.

This command is available only in Remote.

6.1.19. Set paper thickness “PH” 02H 00H 00H m1

[Format]

“PH” 02H 00H 00H m1

[Parameter]

The parameter “m1” is one byte binary data that indicates paper thickness as shown below.

Paper thickness	m1
Thickness 0.0mm	00H
Thickness 0.1mm	01H
Thickness 0.2mm	02H
Thickness 0.3mm	03H
Thickness 0.4mm	04H
Thickness 0.5mm	05H
Thickness 0.6mm	06H
Thickness 0.7mm	07H
Thickness 0.8mm	08H
Thickness 0.9mm	09H
Thickness 1.0mm	0AH
Thickness 1.1mm	0BH
Thickness 1.2mm	0CH
Thickness 1.3mm	0DH
Thickness 1.4mm	0EH
Thickness 1.5mm	10H
Reserved	11H-FFH

[Function]

Set paper thickness to the temporary default.

The previous setting will be kept if the parameter is out of range.

This command is available only in Remote.

CHAPTER 7 : STATUS REPLY CODE SPECIFICATION

The Epson Stylus Photo R3000/ PX-5V printer can send its current state to the host computer via the parallel interface which is IEEE-1284 nibble mode (reverse channel) compatible, or USB interface. The printer can be set to update the host every few seconds, or when the printer status changes. The Printer Status Reply consists of the string below. Varying parameters of the string reflect the current printer status. By monitoring this information on the host computer, you can provide users with basic yet very practical information that can make it easier for customers to use your software and Epson Stylus Photo R3000/ PX-5V ink jet printers.

Epson Stylus Photo R3000/ PX-5V printer supports new binary state reply format.

Format of reply strings:

@BDC [SP] ST2 [CR] [LF]

Reply count (2byte)

each status information

...

* The field reply order is according order of Header No.

The parameter of total bytes are two byte binary codes that indicate the byte counter from next data to the last data by the little endian.

The structure of each information field is as shown.

Item	Byte	explanation
Header	1	Header No.
Parameter count	1	Parameter byte counter
Parameter	n	Parameter value

The Header is one binary code that is shown the list of next page.

The parameter count is one binary code that indicates the parameter byte counter of each field.

The parameter are binary codes that indicate the information of each field.

The structure of Ink cartridge information field is as shown.

Item	Byte	explanation
Header	1	Header No.
Parameter count	1	Parameter byte counter
Parameter count of each color	1	Parameter byte counter of each color
Parameter	n	Parameter value

The parameter count of each color is one binary code that indicates the parameter byte counter of each color.

7.1. Status code

Structure

Item	Byte(Hex)	Value(Hex)
Header	1	01
Parameter counter	1	01
Parameter	1	<Status code>

The parameter <Status code> is one byte Binary code that indicates status code as follows.

Status	Status code
In the error state	00
In the busy state	02
In the waiting state	03
In the idle state	04
In the cleaning state	07
In the factory shipment state	08
In the shutdown state	0A
In the Black ink switching state	0D

7.2. Error code

Structure

Item	Byte(Hex)	Value(Hex)
Header	1	02
Parameter counter	1	01
Parameter	1	<Error code>

The parameter < Error code > is one byte Binary code that indicates error code as follows.

Error	Error code
Fatal error	00
Other I/F is selected	01
Paper jam	04
Ink out	05
Paper out	06
Paper size or paper type or paper path error	0C
Ink overflow error	10
Wait return from the tear-off position	11
Double Feed Error	12
Cleaning Impossible error	16
Ink Cover Open Error	1A
Ink Color Error	1E
Card loading Error	2A
CD-R Guide Error	2B
Cover Open Error	37
Maintenance Error	41

7.3. Self print code

Structure

Item	Byte	explanation
Header	1	03
Parameter count	1	01
Parameter	1	Self print code

The parameter <self print code> is one bytes Binary code that indicates type of the self printing as shown below.

Self printing	<self print code>
Nozzle test printing	00
Reserved	01 – FF

7.4. Warning code

Structure

Item	Byte(Hex)	Value(Hex)
Header	1	04
Parameter counter	1	Warning kinds
Parameter	n	Occurred all warning code

The parameter <warning code> is one-byte Binary and indicates the warning code as follows,

<warning code> is consisted of the several fields as shown below.

When several warning appears at the same time, reply all the warning codes with the format below.

value [value value].

<warning code> field is recognized in the following warning state. (This field is not recognized in @BDC-ST character string when no warning is received)

For ink low warning, the order depends on the ink cartridge order.

Ink low warning (10H-18H) occurs when the ink quantity is less than defined amount. If the ink quantity is less than the one that can execute head cleaning, cleaning disable warning (51H-59H) occurs with the ink low warning (10H-18H) together.

Warning	Warning code
Ink low (Yellow)	10
Ink low (Light Magenta)	11
Ink low (Light Cyan)	12
Ink low (Magenta)	13
Ink low (Cyan)	14
Ink low (Light Light Black)	15
Ink low (Light Black)	16
Ink low (Photo-Bk)	17
Ink low (Matt-Bk)	18
Maintenance request will be occurred as soon *1	20
Maintenance request will be occurred as soon *2	21
Cleaning disable (Yellow)	51
Cleaning disable (Light Magenta)	52
Cleaning disable (Light Cyan)	53
Cleaning disable (Magenta)	54
Cleaning disable (Cyan)	55
Cleaning disable (Light Light Black)	56
Cleaning disable (Light Black)	57
Cleaning disable (Photo-Bk)	58
Cleaning disable (Matt-Bk)	59

*1:Ink tank near full

*2:Others

7.5. Paper path

Structure

Item	Byte(Hex)	Value(Hex)
Header	1	06
Parameter counter	1	02
Parameter	2	paper path information

The parameter <paper path> is two bytes Binary code that indicate current paper path.

Paper Path	code
Roll paper (Velvet paper)	0301
Cut sheet	01FF
Board	0200
CD-R	0201
Fine Art	0202

7.6. Paper mismatch error

Structure

Item	Byte(Hex)	Value(Hex)
Header	1	07h
Parameter counter	1	03h
Parameter	3	Paper error information

This field is recognized only in the following error state.

In the paper path error, the specified paper path "pppp" (see 7.5) is added after "02".

Paper error type	<paper error code>
Paper path	02pppp

7.7. Cleaning time information

Structure

Item	Byte(Hex)	Value(Hex)
Header	1	0Ch
Parameter counter	1	02h
Parameter	2	Cleaning time information

The parameter < cleaning time information > is two bytes Binary codes that indicate cleaning time or ink filling time.

The unit is second. (This time is total time not passage time or remain time.)

This parameter is added only when status code ST = 07H.

7.8. Replace cartridge information

Structure

Item	Byte(Hex)	Value(Hex)
Header	1	0Eh
Parameter counter	1	02
Parameter	2	Replace cartridge information

The parameter < change cartridge information > is 2 byte Binary code that indicates the information about ink cartridge.
"00h 00h" means that any ink cartridge is changed.

- Bit0 : The 1st data of 0F field
- Bit1 : The 2nd data of 0F field
- Bit2 : The 3rd data of 0F field
- Bit3 : The 4th data of 0F field
- Bit4 : The 5th data of 0F field
- Bit5 : The 6th data of 0F field
- Bit6 : The 7th data of 0F field
- Bit7 : The 8th data of 0F field
- Bit8 : The 9th data of 0F field

If the plural ink cartridges are changed at the same time, the both bits set 1.

7.9. Ink information

Structure

Item	Byte(Hex)	Value(Hex)
Header	1	0Fh
Parameter total counter	1	1Ch
Parameter counter for 1 I/C	1	3
Parameter	3 per 1 I/C	Ink information

The ink information order is Yellow, Magenta, Cyan, Matte Black, Photo Black, Red, Orange, Gloss Optimizer.
Each ink cartridge information is consisted of m1, m2, m3.

Ink information	code
m1	Ink cartridge name 01h: "Photo Black Ink Cartridge" 03h: "Cyan Ink Cartridge" 04h: "Magenta Ink Cartridge" 05h: "Yellow Ink Cartridge" 06h: "Light Cyan Ink Cartridge" 07h: "Light Magenta Ink Cartridge" 0Ah: "Light Black Ink Cartridge" 0Bh: "Matte Black Ink Cartridge" 0Fh: "Light Light Black Ink Cartidge"
m2	Ink color 00H:Matte Black / Photo Black 01H:Cyan 02H:Magenta 03H:Yellow 04H: Light Cyan 05H: Light Magenta 08H: Light Black 0CH: Light Light Black
m3	no cartridge : "n" cartridge in : "i"

7.10. Loading path information

Structure

Item	Byte(Hex)	Value(Hex)
Header	1	10h
Parameter counter	1	9
Parameter	9	010C4E0E4E4E084E4E

7.11. Cancel code

Structure

Item	Byte(Hex)	Value(Hex)
Header	1	13h
Parameter counter	1	01
Parameter	1	Cancel request

The parameter <cancel code> is one byte Binary code that indicates the cancel request.

	Code
Cancel request	
No request	01
The status during received cancel command and initialize the printer	A1
Request	81

7.12. Job name Information

Structure

Item	Byte(Hex)	Value(Hex)
Header	1	19h
Parameter counter	1	n (Max 37)
Parameter	Max 37	Job name information

The parameter <Job name information> is n bytes Binary codes.

It indicates the m1 to m5 parameter and Job name specified by JH command.

If the JH command is not send of printing job, it replies “unknown”.

Item	Byte(Hex)	Value(Hex)
Header	1	19h
Parameter counter	1	0Ch
Parameter	0Ch	0000000000 “unknown”

7.13. Black Ink Information

Structure

Item	Byte(Hex)	Value(Hex)
Header	1	27
Parameter counter	1	01
Parameter	1	Black Ink information

The parameter <Black Ink Information> is 1 byte Binary code that indicates the information about Black ink information.

Photo Black : 31h

Matte Black : 51h

7.14. Cleaning impossible error cartridge information

Structure

Item	Byte(Hex)	Value(Hex)
Header	1	32h
Parameter counter	1	02
Parameter	2	Cleaning impossible error cartridge information

The parameters < Cleaning impossible error cartridge information > is 2 bytes Binary code that indicates the information about cleaning impossible error cartridge information. This field is recognized only in the cleaning impossible error state.

Bit0 : The 1st data of 0F field

Bit1 : The 2nd data of 0F field

Bit2 : The 3rd data of 0F field

Bit3 : The 4th data of 0F field

Bit4 : The 5th data of 0F field

Bit5 : The 6th data of 0F field

Bit6 : The 7th data of 0F field

Bit7 : The 8th data of 0F field

Bit8 : The 9th data of 0F field

CHAPTER 8 : Device ID

The Epson Stylus Photo R3000/ PX-5V printer can send its device ID when it is requested.

For Japan

When IEEE1284.4 is enabled,

```
@EJL<SP>ID<CR><LF>
MFG:EPSON;
CMD:ESCPL2,BDC,D4,D4PX, ESCPR1;
MDL:PX-5V;
CLS:PRINTER;
DES:EPSON<SP>PX-5V
CID:EpsonRGB;
```

When IEEE128.4 is disabled,

```
@EJL<SP>ID<CR><LF>
MFG:EPSON;
CMD:ESCPL2,BDC;
MDL:PX-5V;
CLS:PRINTER;
DES:EPSON<SP>PX-5V;
CID:EpsonRGB;
```

For World

When IEEE1284.4 is enabled,

```
@EJL<SP>ID<CR><LF>
MFG:EPSON;
CMD:ESCPL2,BDC,D4,D4PX,ESCPRI;
MDL:Epson<SP>Stylus<SP>Photo<SP>R3000;
CLS:PRINTER;
DES:EPSON<SP>Epson<SP>Stylus<SP>Photo<SP>R3000;
CID:EpsonRGB;
```

When IEEE1284.4 is disabled,

```
@EJL<SP>ID<CR><LF>
MFG:EPSON;
CMD:ESCPL2,BDC;
MDL:Epson<SP>Stylus<SP>Photo<SR>R3000;
CLS:PRINTER;
DES:EPSON<SP>Epson<SP>Stylus<SP>Photo<SP>R3000;
CID:EpsonRGB;
```