COMMANDS MANUAL

GAM command

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UNLESS OTHERWISE SPECIFIED, THE INFORMATION GIVEN IN THIS MANUAL ARE REFERRED TO ALL MODELS IN PRODUCTION AT THE ISSUE DATE OF THIS DOCUMENT.

GENERAL INSTRUCTIONS

CUSTOM S.p.A. declines all responsibility for accidents or damage to persons or property occurring as a result of tampering, structural or functional modifications, unsuitable or incorrect installations, environments not in keeping with the equipment's protection degree or with the required temperature and humidity conditions, failure to carry out maintenance and periodical inspections and poor repair work.

GENERAL SAFETY INFORMATION

Your attention is drawn to the following actions that could compromise the characteristics of the product:

- Read and retain the instructions which follow.
- Follow all indications and instructions given on the device.
- Make sure that the surface on which the device rests is stable. If it is not, the device could fall, seriously damaging it.
- Make sure that the device rests on a hard (non-padded) surface and that there is sufficient ventilation.
- Do not fix indissolubly the device or its accessories such as power supplies unless specifically provided in this manual.
- When positioning the device, make sure cables do not get damaged.
- [Only OEM equipment] The equipment must be installed in a kiosk or system that provides mechanical, electrical and fire protection.
- The mains power supply must comply with the rules in force in the Country where you intend to install the equipment.
- Make sure that there is an easily-accessible outlet with a capacity of no less than 10A closely to where the device is to be installed.
- Make sure the power cable provided with the appliance, or that you intend to use is suitable with the wall socket available in the system.
- Make sure the electrical system that supplies power to the device is equipped with a ground wire and is protected by a differential switch.
- Before any type of work is done on the machine, disconnect the power supply.
- Use the type of electrical power supply indicated on the device label.
- These devices are intended to be powered by a separately certified power module having an SELV, non-energy hazardous output. (IEC60950-1 second edition).
- [Only POS equipment] The energy to the equipment must be provided by power supply approved by CUSTOM S.p.A.
- Take care the operating temperature range of equipment and its ancillary components.
- Do not block the ventilation openings.
- Do not insert objects inside the device as this could cause short-circuiting or damage components that could jeopardize printer functioning.
- Do not carry out repairs on the device yourself, except for the normal maintenance operations given in the user manual.
- The equipment must be accessible on these components only to trained, authorized personnel.
- Periodically perform scheduled maintenance on the device to avoid dirt build-up that could compromise the correct, safe operation of the unit.
- Do not touch the head heating line with bare hands or metal objects. Do not perform any operation inside the printer immediately after printing because the head and motor tend to become very hot.
- Use consumables approved by CUSTOM S.p.A.

THE CE MARK AFFIXED TO THE PRODUCT CERTIFY THAT THE PRODUCT SATISFIES THE BASIC SAFETY REQUIREMENTS.

The device is in conformity with the essential Electromagnetic Compatibility and Electric Safety requirements laid down in Directives 2014/30/EU and 2014/35/EU inasmuch as it was designed in conformity with the provisions laid down in the following Standards:

- EN 55032 *(Electromagnetic compatibility of multimedia equipment - Emission Requirements)*
- EN EN55024/EN55035 *(Electromagnetic compatibility of multimedia equipment - Immunity requirements)*
- EN IEC/EN62368-1 *(Audio/video, information and communication technology equipment)*

The device is in conformity with the essential requirements laid down in Directives 2014/53/EU about devices equipped with intentional radiators. The Declaration of Conformity and other available certifications can be downloaded from the site www.custom4u.it.



GUIDELINES FOR THE DISPOSAL OF THE PRODUCT

The crossed-out rubbish bin logo means that used electrical and electronic products shall NOT be mixed with unsorted municipal waste. For more detailed information about recycling of this product, refer to the instructions of your country for the disposal of these products.

- Do not dispose of this equipment as miscellaneous solid municipal waste, but arrange to have it collected separately.
- The re-use or correct recycling of the electronic and electrical equipment (EEE) is important in order to protect the environment and the wellbeing of humans.
- In accordance with European Directive WEEE 2012/19/EU, special collection points are available to which to deliver waste electrical and electronic equipment and the equipment can also be handed over to a distributor at the moment of purchasing a new equivalent type.
- The public administration and producers of electrical and electronic equipment are involved in facilitating the processes of the re-use and recovery of waste electrical and electronic equipment through the organisation of collection activities and the use of appropriate planning arrangements.
- Unauthorised disposal of waste electrical and electronic equipment is punishable by law with the appropriate penalties.
- For the waste sorting of the packaging materials, please check the local waste disposal laws.



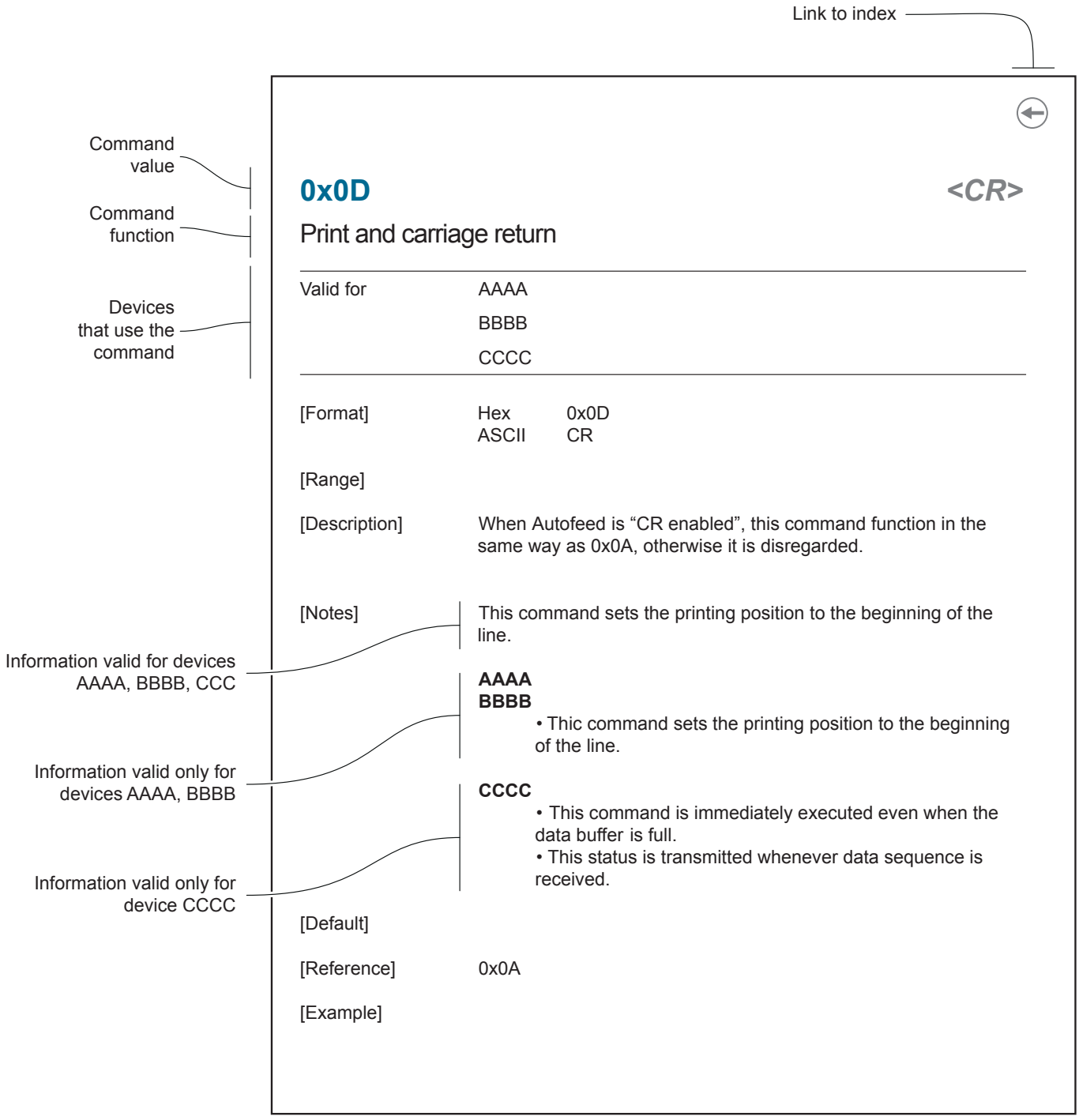
The format used for this manual improves use of natural resources reducing the quantity of necessary paper to print this copy.

INTRODUCTION 

CUSTOM/POS EMULATION 

INTRODUCTION

Each command reported in this manual is described as shown in the following picture. In the first heading field is reported the hexadecimal command value and the ASCII command value. In the second heading field reported the command function. In the third heading field are listed the devices on which it is possible to use the command (for example, device AAAA).



The fields shown in the scheme of the previous figure have the following meaning:

[Format]	ASCII, hexadecimal and decimal command value.
[Range]	Limits of the values the command and its variables can take
[Description]	Description of command function
[Notes]	Additional information about command use and settings .
[Default]	Default value of the command and its variables.
[Reference]	Pertaining commands related to described command.
[Example]	Example of using the command

Listed below are the meanings of some of symbols that may be found in the command description:

0x	indicates the representation of the command hexadecimal value (for example 0x40 means HEX 40).
n, m, t, x, y	are optional parameters that can have different values.

1.2 USE OF GAM COMMANDS

GAM commands (Graphics Advanced Mode) have been created to speed up the use of Custom printer graphics, where the image that is to be printed has parts that are fairly repetitive and to print an entire graphic page upon completion of transfer.

The commands can be divided into 5 main categories:

CATEGORY	DESCRIPTION
SIZE / RESOLUTION	Commands that inform the printer about the size (expressed in points) of the length of the sheet and about the print resolution (expressed in dpi) both horizontally and vertically.
POSITIONING	Commands that position the printer at the point from which it will commence entering the bytes that are transmitted to it by the PC. They can be "X/Y absolute" position (referring to the top left corner of the sheet) or they may be "X/Y relative" positioning (referring to their actual position).
DATA COMPRESSION / DECOMPRESSION	Commands that either activate or deactivate the reception of compressed data, i.e. bytes that are repetitive in nature and can therefore be transmitted as multiples of bytes (it is possible to send “04 0F”, that is 0F multiplied by 4, in place of 0F 0F 0F 0F).
DATA TRANSMISSION	Commands that enable the printer to receive the graphic data to be printed.
TEXT SETTINGS	Commands that permit to set the text content of the graphic data.
PRINT	Commands that communicate to the printer to print everything content of the graphic page.

CUSTOM/POS EMULATION

COMMANDS LISTED IN ALPHANUMERIC ORDER

0x1B 0x26 0x6C n1 0x50 . . . . . <ESC &> 18

0x1B 0x26 0x6C n1 0x52 . . . . . <ESC &> 19

0x1B 0x2A 0X62 n1 0x4D . . . . . <ESC * b> 26

0x1B 0x2A 0X62 n1 0x57 . . . . . <ESC * b> 27

0x1B 0x2A 0x6F n 0x51 . . . . . <ESC *> 30

0x1B 0x2A 0X70 0x2B n1 0x58 . . . . . <ESC * p> 22

0x1B 0x2A 0X70 0x2B n1 0x59 . . . . . <ESC * p> 23

0x1B 0x2A 0X70 0x2D n1 0x58 . . . . . <ESC * p> 24

0x1B 0x2A 0X70 0x2D n1 0x59 . . . . . <ESC * p> 25

0x1B 0x2A 0X70 n1 0x58 . . . . . <ESC * p> 20

0x1B 0x2A 0X70 n1 0x59 . . . . . <ESC * p> 21

0x1B 0x2A 0x72 0x42 . . . . . <ESC *> 29

0x1B 0x2A 0X74 . . . . . <ESC * t> 17

COMMANDS LISTED BY FUNCTION

SIZE / RESOLUTION COMMANDS

0x1B 0x2A 0X74 . . . . . <ESC * t> 13
Set print resolution, both vertical and horizontal

0x1B 0x26 0x6C n1 0x50 . . . . . <ESC &> 14
Set the page length

0x1B 0x26 0x6C n1 0x52 . . . . . <ESC &> 15
Set the maximum page length

POSITIONING COMMANDS

0x1B 0x2A 0X70 n1 0x58 . . . . . <ESC * p> 16
Set absolute positioning on the X axis

0x1B 0x2A 0X70 n1 0x59 . . . . . <ESC * p> 17
Set absolute positioning on the Y axis

0x1B 0x2A 0X70 0x2B n1 0x58 . . . . . <ESC * p> 18
Set relative positive positioning on the X axis

0x1B 0x2A 0X70 0x2B n1 0x59 . . . . . <ESC * p> 19
Set relative positive positioning on the Y axis

0x1B 0x2A 0X70 0x2D n1 0x58 . . . . . <ESC * p> 20
Set relative negative positioning on the X axis

0x1B 0x2A 0X70 0x2D n1 0x59 . . . . . <ESC * p> 21
Set relative negative positioning on the Y axis

DATA COMPRESSION / DECOMPRESSION COMMANDS

0x1B 0x2A 0X62 n1 0x4D . . . . . <ESC * b> 22
Activate/Deactivate compression of data

DATA TRANSMISSION COMMANDS

0x1B 0x2A 0X62 n1 0x57 . . . . . <ESC * b> 23
Receive graphics data

PRINT COMMANDS

0x1B 0x2A 0x72 0x42 . . . . . <ESC *> 25
Print the graphic page

0x1B 0x2A 0x6F n 0x51 . . . . . <ESC *> 26
Set print quality

SIZE / RESOLUTION COMMANDS

0x1B 0x2A 0X74

*<ESC * t>*

Set print resolution, both vertical and horizontal

[Format]	Hex	1B	2A	74	n1	52
	ASCII	ESC	*	t	n1	R

[Range] n1 is a string
n1 = 51, 102, 204

[Description] Sets print resolution, both vertical and horizontal at 51, 102 or 204 dots/inch (dpi).

[Notes]

[Default]

[Reference]

[Example] To set the resolution at 204 dpi, the command sequence is the following:
0x1B 0x2A 0x74 0x32 0x30 0x34 0x52

0x1B 0x26 0x6C n1 0x50

<ESC &>

Set the page length

[Format]	Hex	1B	26	6C	n1	50
	ASCII	ESC	&	|	n1	P

[Range] n1 is a string
0 ≤ n1 ≤ 65535

[Description] Sets the length of the page expressed in points. The resolution used for the length is 204 dpi.

[Notes]

[Default]

[Reference] 0x1B 0x26 0x6C n1 0x52

[Example] To set a page length of 896 dot (112 mm) , the command sequence is the following:
0x1B 0x26 0x6C 0x38 0x39 0x36 0x50

0x1B 0x26 0x6C n1 0x52

Set the maximum page length

[Format]	Hex	1B	26	6C	n1	52
	ASCII	ESC	&	|	n1	R

[Range] n1 is a string
0 ≤ n1 ≤ 65535

[Description] Sets the maximum length of the page expressed in points. The resolution used for the length is 204 dpi.
The command prints only the part of the document not empty.

[Notes]

[Default]

[Reference] 0x1B 0x26 0x6C n1 0x50

[Example] To set a page length of 896 dot (112 mm) , the command sequence is the following:
0x1B 0x26 0x6C 0x38 0x39 0x36 0x50

0x1B 0x2A 0X70 n1 0x58 *<ESC * p>*

Set absolute positioning on the X axis

Format]	Hex	1B	2A	70	n1	58
	ASCII	ESC	*	p	n1	X

[Range] n1 is a string
0 ≤ n1 ≤ [actual print width × 8]

[Description] Sets the absolute positioning on the X axis (along the horizontal direction of the sheet) respect to the left hand margin of the sheet.

[Notes] The resolution remains at 204 dpi.

[Default]

[Reference]

[Example] To start printing from X = 20, the command sequence is the following
0x1B 0x2A 0x70 0x32 0x30 0x58

0x1B 0x2A 0X70 n1 0x59 *<ESC * p>*

Set absolute positioning on the Y axis

[Format]	Hex	1B	2A	70	n1	59
	ASCII	ESC	*	p	n1	Y

[Range] n1 is a string
0 ≤ n1 ≤ [actual print width × 8]

[Description] Sets the absolute positioning on the Y axis (along the vertical direction of the sheet) respect to the top margin of the sheet.

[Notes] The resolution remains at 204 dpi.

[Default]

[Reference]

[Example] To start printing from Y = 20, the command sequence is the following:
0x1B 0x2A 0x70 0x32 0x30 0x59

0x1B 0x2A 0X70 0x2B n1 0x58 <ESC * p>

Set relative positive positioning on the X axis

[Format]	Hex	1B	2A	70	2B	n1	58
	ASCII	ESC	*	p	+	n1	X

[Range] n1 is a string
0 ≤ n1 ≤ [(actual print width × 8) - current print position]

[Description] Sets the relative positive positioning on the X axis (along the horizontal direction of the sheet) respect the actual position of the printout.

[Notes] The resolution remains at 204 dpi.

[Default]

[Reference]

[Example] To move towards the right of the actual position on the X axis by 50 dot, the command sequence is the following:
0x1B 0x2A 0x70 0x2B 0x35 0x30 0x58

0x1B 0x2A 0X70 0x2B n1 0x59 *<ESC * p>*

Set relative positive positioning on the Y axis

[Format]	Hex	1B	2A	70	2B	n1	59
	ASCII	ESC	*	p	+	n1	Y

[Range] n1 is a string
0 ≤ n1 ≤ [(actual print width × 8) - actual print position]

[Description] Set the relative positive positioning on the Y axis (along the vertical direction of the sheet) respect the actual position of the printout.

[Notes] The resolution remains at 204 dpi.

[Default]

[Reference]

[Example] To move downwards by 50 dot from the current position on the Y axis, the command sequence is the following:
0x1B 0x2A 0x70 0x2B 0x35 0x30 0x59

0x1B 0x2A 0X70 0x2D n1 0x58 <ESC * p>

Set relative negative positioning on the X axis

[Format]	Hex	1B	2A	70	2D	n1	58
	ASCII	ESC	*	p	-	n1	X

[Range] n1 is a string
0 ≤ n1 ≤ [actual print position]

[Description] Set the relative negative positioning on the X axis (along the horizontal direction of the sheet) respect the actual position of the printout.

[Notes] The resolution remains at 204 dpi.

[Default]

[Reference]

[Example] To move to the left of the actual position on the X axis by 40 dot, the command sequence is the following:
0x1B 0x2A 0x70 0x2D 0x34 0x30 0x58

0x1B 0x2A 0X70 0x2D n1 0x59 *<ESC * p>*

Set relative negative positioning on the Y axis

[Format]	Hex	1B	2A	70	2D	n1	59
	ASCII	ESC	*	p	-	n1	Y

[Range] n1 is a string
0 ≤ n1 ≤ [actual print position]

[Description] Set the relative negative positioning on the Y axis (along the vertical direction of the sheet) respect the actual position of the printout.

[Notes] The resolution remains at 204 dpi.

[Default]

[Reference]

[Example] To move upwards by 40 dot to the left of the actual position on the Y axis, the command sequence is the following:
0x1B 0x2A 0x70 0x2D 0x34 0x30 0x59

DATA COMPRESSION / DECOMPRESSION COMMANDS

0x1B 0x2A 0X62 n1 0x4D

*<ESC * b>*

Activate/Deactivate compression of data

[Format]

Hex	1B	2A	62	n1	4D
ASCII	ESC	*	b	n1	M

[Range] 0x48 ≤ n1 ≤ 0x50

[Description] On the basis of n1 value, the command activates or deactivates the data compression mode that concerns the data content in the 0x1B 0x2A 0x62 n1 0x57 command.

n1	FUNCTION
0x48	Deactivates data compression
0x49	Activates RLE data compression
0x50	Activates FE-RLE data compression

[Notes]

[Default] n1 = 0x48

[Reference] 0x1B 0x2A 0X62 n1 0x57

[Example] To activate the RLE data compression, the command sequence is the following: 0x1B 0x2A 0x62 0x31 0x4D

0x1B 0x2A 0X62 n1 0x57 *<ESC * b>*

Receive graphics data

[Format]

Hex	1B	2A	62	n1	57
ASCII	ESC	*	b	n1	W

[Range] n1 is a string
0 ≤ n1 ≤ 65535

[Description] Receives the graphics data.

[Notes] This command receives data either in compressed mode or not, depending on how it was previously set by the 0x1B 0x2A 0X62 n1 0x4D command:

• RLE compression:
The value n1, does not determine the number of bytes that are sent, but the number of bytes that will position themselves on the graphic. Therefore, it is the total number of uncompressed bytes.
Compression works in the following way:
• If the byte has a value that is less than 0xC0 (or 192 decimal), these bytes are not compressed.
• If the byte has a value that is equal or greater than 0xC0 (or 192 decimal) the 6 least significant bytes represent the subsequent byte's multiplication factor, that can assume any value.
The bytes are arranged horizontally on the graphics pages starting at the point at which the pointer is located, the "external" bytes will be ignored.

• FE-RLE compression:
The value of n1 determine the total number of compressed bytes.
Compression works in the following way:
• If 2 consecutives bytes are equal, the third byte is multiplication factor that can assume any value.
The bytes are arranged horizontally on the graphics pages starting at the point at which the pointer is located, the "external" bytes will be ignored.

[Default]

[Reference] 0x1B 0x2A 0X62 n1 0x4D

[Example] The commands sequences to add, as a graphic, the following bytes sequence
0xE0 0xE0 0xE0 0xE0 0xE0 0x20 0x65 0x65 0xC9 0x88 0x88 are:

Not compressed mode:
0x1B 0x2A 0x62 0x31 0x32 0x57 0xE0 0xE0 0xE0 0xE0 0xE0 0xE0 0x20 0x65 0x65 0xC9 0x88 0x88

RLE compression:
0x1B 0x2A 0x62 0x31 0x32 0x57 0xC6 0xE0 0x20 0xC2 0x65 0xC1 0xC9 0xC2 0x88

where:

[0x1B 0x2A 0x62]	identify the command
[0x31 0x32]	identify that there are 12 bytes of graphics to be inserted
[0x57]	is the W character that identifies that currently 12 bytes of compressed data are pending
[0xC6 0xE0]	0xC6 is greater than 0xC0, the 2 most significant bits of byte 0xC6 are each set to 1, therefore it is compressed: the byte 0xE0 will be taken 6 times
[0x20]	this character is not compressed because 0x20 < 0xC0
[0xC2 0x65]	0xC2 is greater than 0xC0, the 2 most significant bits of byte 0xC2 are each set to 1, therefore it is compressed: the byte 0x65 will be taken 2 times
[0xC1 0xC9]	0xC1 is greater than 0xC0, the 2 most significant bit of byte 0xC1 are each set to 1, therefore it is compressed: the byte 0xC9 will be taken 1 time
[0xC2 0x88]	0xC2 is greater than 0xC0, the 2 most significant bits of byte 0xC2 are each set to 1, therefore it is compressed: the byte 0x88 will be taken 2 times

FE-RLE compression:
0x1B 0x2A 0x62 0x31 0x31 0x57 0xE0 0xE0 0x06 0x20 0x65 0x65 0x02 0xC9 0x88 0x88 0x02

where:

[0x1B 0x2A 0x62]	identify the command
[0x31 0x31]	identify that there are 11 bytes of graphics to be inserted
[0x57]	is the W character that identifies that currently 11 bytes of compressed data are pending
[0xE0 0xE0 0xC6]	0xE0 is repeated 2 times, followed by 06 byte, therefore it is compressed: the byte 0xE0 will be taken 6 times
[0x20]	this character is not compressed because it appears once
[0x65 0x65 0x02]	0x65 is repeated 2 times, followed by 02 byte, therefore it is compressed: the byte 0x65 will be taken 2 times
[0xC9]	this character is not compressed because it appears once
[0x88 0x88 0x02]	0x88 is repeated 2 times, followed by 0x02 byte, therefore it is compressed: the byte 0x88 will be taken 2 times

0x1B 0x2A 0x72 0x42 <ESC *>

Print the graphic page

[Format]	Hex	1B	2A	72	42
	ASCII	ESC	*	r	B

[Range]

[Description] Prints the entire contents of the graphics page.

[Notes] Where the page length supplied to the printed is greater than that of the graphics memory, and a positioning is undertaken which is beyond the print memory zone, the printer will print a page that is equivalent to the memory available.

[Default]

[Reference]

[Example]

0x1B 0x2A 0x6F n 0x51

<ESC *>

Set print quality

[Format]

Hex	1B	2A	6F	n	51
ASCII	ESC	*	o	n	Q

[Range] 0x30 ≤ n ≤ 0x32

[Description] Sets print quality, based on the following values of n:

n	FUNCTION
0x30	High quality
0x31	Normal
0x32	High speed

[Notes]

[Default] n = 0x32

[Reference]

[Example]

Code : 0577200M000091 Rev. 2.00

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