

# Label Printer

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LPAPI Interface Description

Android Version

V2.1

**DothanTech**

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## Catalogue

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## Document modification record

Number	Version	Modification content	Modifier	Modification date
1	V0.1	Document establishment	YangLingmei	27rd Apr.2017
2	V0.2	startJob function, remove the DPI parameter	YangLingmei	15rd May.2017
3	V0.3	Update synchronously according to the actual code	HuDianxing	12rd Aug.2017
4	V1.0	Update synchronously according to the latest interface	HuDianxing	10rd Oct.2017
5	V1.1	Document detection and optimization	YangLingmei	11rd Nov.2017
6	V1.2	Add LPAPI.Callback function related documents	HuDianxing	30rd Nov.2017
7	V1.3	Add setDrawParam function	YangLingmei	20rd Mar.2018
8	V1.4	Add hardwareFlags and other attributes in PrinterInfo	YangLingmei	22rd Oct.2018
9	V1.5	Add documents related to print parameters	HuDianxing	30rd Mar.2019
10	V1.6	Modify document format	YangLingmei	1rd Apr.2019
11	V1.7	Add horizontal and vertical offsets to the PrintParamName print parameters	YangLingmei	9rd Sep.2019
12	V1.8	ANTI_COLOR parameter, indicate whether to print in reverse color	YangLingmei	11rd Oct.2019
13	V1.9	Add isPrinterSupported parameter to judge whether supported printers	YangLingmei	27rd Nov.2019
14	V2.0	Add ANTI_COLOR and FONT_WRAP parameter to setDrawParam function	YangLingmei	24rd Apr.2020
15	V2.1	Add relevant document of USB connection print	YangLingmei	22rd Jan.2021

## 1. LPAPI Interface Description

The LPAPI interface method description document is a description of the interface method proposed for label drawing, convenient for users to call the interface in the secondary development, shorten the development cycle and speed up the development progress.

The LPAPI interface provides an easy-to-use method for callers to complete label drawing. This interface provides a variety of methods for drawing objects such as text, one-dimensional bar codes, two-dimensional codes, pictures, and various graphics. At the same time, it can also perform the rotation of the drawing object and the rotation of the drawing page. The caller can also call the method to obtain the finished label picture for label preview, which makes the operation of label drawing easier.

## 2. Simple introduction to use LPAPI interface

The basic calling process of the LPAPI interface as follows:

### Code

```
// Get the LPAPI object
LPAPI api = LPAPI.Factory.createInstance();
// Connect to the first printer paired
api.openPrinter(null);
// Start drawing task, pass in parameters (page width, page height)
api.startJob(40, 30, 0);
// Start the drawing of a page, draw a text string
api.drawText(content, 4, 5, 40, 30, 4);
// Finish drawing task and submit for printing
api.commitJob();
```

### 3. Create LPAPI object

A Factory object factory class (public static class Factory) exists in LPAPI interface for creating LPAPI objects. The methods for creating objects as follows:

Function	Create LPAPI Objects	
Method	<b>public static LPAPI createInstance(Callback callback)</b>	
Parameter	<b>callback</b>	Related callback functions in the printing process, please refer to: <a href="#">LPAPI.Callback</a> ;
Return Value	LPAPI Object	
Instructions	Each call of this method creates a new LPAPI object.	

### 4. Introduction to LPAPI.Callback methods

[ProgressInfo](#) status prompt information:

ProgressInfo	Numerical value	Description
<b>ProgressInfo.AdapterEnabling</b>	0	Turning on the Bluetooth adapter; addInfo is Boolean data, indicating whether it is related to this object;
<b>ProgressInfo.AdapterEnabled</b>	1	The Bluetooth adapter has been turned on; addInfo is Boolean data, indicating whether it is related to this object;
<b>ProgressInfo.AdapterDisabled</b>	2	The Bluetooth adapter is not turned on; addInfo is Boolean data, indicating whether it is related to this object;
<b>ProgressInfo. DeviceBonding</b>	3	The printer pairing operation is in progress; addInfo is PrinterAddress type data, indicating the target printer;
<b>ProgressInfo. DeviceBonded</b>	4	The printer has been paired successfully; addInfo is PrinterAddress type data, indicating the target printer;
<b>ProgressInfo.DeviceUnbonded</b>	5	The printer has been bound and cancelled;



		addilInfo is PrinterAddress type data, which represents the target printer;
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PrinterState printer connection status:

PrinterState	Numerical value	Description
PrinterState.Connecting	0	Connecting to the printer;
PrinterState.Connected	1	The printer is connected;
PrinterState.Connected2	2	When the printer is connected, connect the printer again to test whether the connection is valid? If it is valid, the status message will be sent out;
PrinterState. Printing	3	Printing...;
PrinterState. Working	4	Work other than printing...;
PrinterState.Disconnected	5	The printer is disconnected;

PrintProgress current print progress process status:

PrintProgress	Numerical value	Description
PrintProgress.Connected	0	A connection with the printer has been established, and addilInfo is PrinterAddress type data, indicating the target brand;
PrintProgress.StartCopy	1	The printer has started, and addilInfo is an integer data, indicating the page copy order to start printing, starting from 1;
PrintProgress.DataEnded	2	The printer data has been transmitted, and addilInfo is an integer type data, indicating the page copy order to start printing, starting from 1;
PrintProgress.Success	3	When the printing is completed successfully, addilInfo is an integer data, indicating the number of pages successfully printed;
PrintProgress. Failed	4	If printing fails, addilInfo is PrintFailReason type data, indicating the reason for printing failure;

#### 4.1 onProgressInfo(Callback function when the status of the Bluetooth device changes)

Function	<b>This callback function will be called when the status of the Bluetooth device changes.</b>	
Method	<b>void onProgressInfo(ProgressInfo info, Object addInfo);</b>	
Parameter	info	Bluetooth device or printer pairing status;
Parameter	addInfo	Additional information when the status of the Bluetooth device changes, please refer to: <a href="#">ProgressInfo</a> ;
Return Value	<a href="#">none</a>	
Instructions	none	
Attentions		

#### 4.2 onStateChanged(Callback function when the printer status changes)

Function	<b>When the printer status changes, the callback function will be called.</b>	
Method	<b>void onStateChanged(PrinterAddress address, PrinterState state);</b>	
Parameter	address	Target printer object;
Parameter	state	Current printer status, specific refer to: <a href="#">PrinterState</a> ;
Return Value	<a href="#">none</a>	
Instructions	none	
Attentions		

#### 4.3 onPrintProgress(Callback function when the printing progress process changes)

Function	<b>When the printing progress process changes, the callback</b>
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	<b>function will be called.</b>	
<b>Method</b>	<b>void onPrintProgress(PrinterAddress address, Object printData, PrinterProgress progress, Object addInfo);</b>	
<b>Parameter</b>	address	The Bluetooth address object of the target printer;
<b>Parameter</b>	printData	Printed data object; Bitmap object or IATeSCPOS object;
<b>Parameter</b>	progress	The current printing progress process;
<b>Parameter</b>	addInfo	For additional information about the printing progress process, please refer to: <a href="#">PrintProgress</a> ;
<b>Return Value</b>	<a href="#">none</a>	
<b>Instructions</b>	none	
<b>Attentions</b>		

#### 4.4 onPrinterDiscovery(Callback function when onPrinterDiscovery scans to the printer via NFC)

<b>Function</b>	<b>When the phone scans to the printer via NFC, this callback function will be called.</b>	
<b>Method</b>	<b>void onPrinterDiscovery(PrinterAddress address, PrinterInfo info);</b>	
<b>Parameter</b>	address	Target printer object; for the searched printer, its type is DiscoveredPrinter, which contains more search-related information; the printer information scanned by NFC, its type is PrinterAddress.
<b>Parameter</b>	info	The printer information in NFC is null for non-NFC scanning (device search);
<b>Return Value</b>	<a href="#">none</a>	
<b>Instructions</b>	none	
<b>Attentions</b>		

## 5. Related methods to connect the printer

### 5.1 isPrinterSupported(Is it a supported printer to return the specified Bluetooth device)

Function	Is it a supported printer to return the specified Bluetooth device.	
Method	public static boolean isPrinterSupported(BluetoothDevice printer);	
Parameter	printer	Bluetooth device;
Return Value	<a href="#">true: indicates the supported printers;</a> <a href="#">false: indicates that the printer is not supported;</a>	
Instructions	none	
Attentions		

### 5.2 isPrinterSupported(Is it a supported printer to return the specified Bluetooth device)

Function	Is it a supported printer to return the specified Bluetooth device.	
Method	public static boolean isPrinterSupported(String printer);	
Parameter	printer	Bluetooth device name;
Return Value	<a href="#">true: indicates the supported printers;</a> <a href="#">false: indicates that the printer is not supported;</a>	
Instructions	none	
Attentions		

### 5.3 isPrinterSupported(Is it a supported printer to return the specified Bluetooth device)

Function	Is it a supported printer to return the specified Bluetooth
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	<b>device.</b>	
<b>Method</b>	<b>public static boolean isPrinterSupported(BluetoothDevice printer, String modelName);</b>	
<b>Parameter</b>	printer	Bluetooth device;
<b>Parameter</b>	modelName	Printer model name. It can be a list of multiple printer model names, separated by English semicolons; the model name starts with an English minus sign, which means that the model is excluded; a null or empty string means there is no restriction on the printer model.
<b>Return Value</b>	<u>true: indicates the supported printers;</u> <u>false: indicates that the printer is not supported;</u>	
<b>Instructions</b>	none	
<b>Attentions</b>		

#### 5.4 isPrinterSupported(Is it a supported printer to return the specified Bluetooth device)

<b>Function</b>	<b>Is it a supported printer to return the specified Bluetooth device.</b>	
<b>Method</b>	<b>public static boolean isPrinterSupported(String printer, String modelName);</b>	
<b>Parameter</b>	printer	Bluetooth device;
<b>Parameter</b>	modelName	Printer model name. It can be a list of multiple printer model names, separated by English semicolons; the model name starts with an English minus sign, which means that the model is excluded; a null or empty string means there is no restriction on the printer model.
<b>Return Value</b>	<u>true: indicates the supported printers;</u> <u>false: indicates that the printer is not supported;</u>	
<b>Instructions</b>	none	
<b>Attentions</b>		

#### 5.5 getFirstPrinter(Get the first printer object of the specified model name in the pairing list)

<b>Function</b>	<b>Get the first printer object of the specified model name in</b>
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	<b>the pairing list.</b>	
<b>Method</b>	<b>public static PrinterAddress getFirstPrinter(String modelName);</b>	
<b>Parameter</b>	modelName	Printer model name. It can be a list of multiple printer model names, separated by English semicolons; the model name starts with an English minus sign, which means that the model is excluded; a null or empty string means there is no restriction on the printer model.
<b>Return Value</b>	<u>If there is no printer of the corresponding model in the pairing list, return null, otherwise the first printer object will be returned.</u>	
<b>Instructions</b>		
<b>Attentions</b>	Before use, make sure that Bluetooth is turned on, and the corresponding printer has been paired and turned on.	

## 5.6 getAllPrinters(Get all printer objects of the specified model name in the pairing list)

<b>Function</b>	<b>Get all printer objects of the specified model name in the pairing list.</b>	
<b>Method</b>	<b>public static List&lt;PrinterAddress&gt; getAllPrinters(String modelName);</b>	
<b>Parameter</b>	modelName	Printer model name. It can be a list of multiple printer model names, separated by English semicolons; the model name starts with an English minus sign, which means that the model is excluded; a null or empty string means there is no restriction on the printer model.
<b>Return Value</b>	<u>Return all printers of the specified model.</u>	
<b>Instructions</b>	Multiple printer models require users to perform string separation operations based on the English semicolon ";"	
<b>Attentions</b>		

## 5.7 openPrinter(Open the printer with the specified name or model asynchronously)

<b>Function</b>	<b>Open the printer with the specified name or model asynchronously.</b>	
<b>Method</b>	<b>public boolean openPrinter(String modelName);</b>	
<b>Parameter</b>	modelName	The name of the printer. It can be a list of multiple printer model names, separated by English semicolons, and the model names

	support regular expressions; The model name starts with an English minus sign, which means that the model is excluded; A null or empty string means there is no restriction on the printer model;
<b>Return Value</b>	<a href="#">true or false</a>
<b>Instructions</b>	If the specified printer name is null or an empty string, open the first printer installed; If the specified printer is not found, it returns false.
<b>Attentions</b>	Before starting the print task, you must call this method, or a method in the same series.

## 5.8 openPrinter(Open the specified Bluetooth device asynchronously)

<b>Function</b>	<b>Open the specified Bluetooth device asynchronously.</b>	
<b>Method</b>	<b>public boolean openPrinter(BluetoothDevice device);</b>	
<b>Parameter</b>	device	Bluetooth devices supported by the interface, Bluetooth devices not provided by the manufacturer are invalid devices;
<b>Return Value</b>	<a href="#">true or false; true indicates that the target printer is a printer supported by the interface, otherwise it is false;</a>	
<b>Instructions</b>	Connect the printer.	
<b>Attentions</b>	Before starting a print task, you must call this method or a method in the same series.	

## 5.9 openPrinterByAddress(Open the specified printer object asynchronously)

<b>Function</b>	<b>Open the specified printer object asynchronously.</b>	
<b>Method</b>	<b>public boolean openPrinterByAddress(PrinterAddress address);</b>	
<b>Parameter</b>	address	The target printer object.
<b>Return Value</b>	<a href="#">true or false</a>	
<b>Instructions</b>	If the specified printer is not found, it returns failure.	
<b>Attentions</b>		

### 5.10 openPrinterSync(Synchronously open the printer with specified name or model)

Function	<b>Synchronously open the printer with specified name or model.</b>	
Method	<b>public boolean openPrinterSync(String modelName);</b>	
Parameter	modelName	<p>The printer name. It can be a list of multiple printer model names, separated by English semicolons, and the model names support regular expressions;</p> <p>The model name starts with an English minus sign, which means that the model is excluded;</p> <p>A null or empty string means there is no restriction on the printer model;</p>
Return Value	<a href="#">true or false</a>	
Instructions	<p>If the specified printer name is null or an empty string, the first printer installed will be opened;</p> <p>If the specified printer is not found, it returns failure.</p>	
Attentions	<b>Make sure that the printer has been turned on and the pairing operation has been performed.</b>	

### 5.11 openPrinterByAddressSync(Open the printer of the specified object synchronously)

Function	<b>Open the printer of the specified object synchronously.</b>	
Method	<b>public boolean openPrinterByAddressSync(PrinterAddress address);</b>	
Parameter	address	User-specified parameters of PrinterAddress type;
Return Value	<a href="#">true or false</a>	
Instructions	If the specified printer is not found, it returns false.	
Attentions		

### 5.12 getPrinterName(Get the name of the connected printer)

Function	<b>Get the name of the connected printer.</b>	
Method	<b>public String getPrinterName();</b>	



Parameter	none
Return Value	<a href="#">If the printer is connected, the corresponding printer name will be returned, otherwise an empty string will be returned.</a>
Instructions	
Attentions	

### 5.13 getPrinterInfo(Get details of connected printers)

Function	<b>Get details of connected printers.</b>
Method	<b>public PrinterInfo getPrinterInfo();</b>
Parameter	none
Return Value	<a href="#">Examples of current printer-related information.</a>
Instructions	<p>Common attributes in PrinterInfo are:</p> <p>deviceType: DEVICE_TYPE_xxx, thermal printer/thermal transfer printer, etc.</p> <p>deviceName: device name, including model and serial number</p> <p>deviceVersion: hardware version number</p> <p>softwareVersion: software version number</p> <p>deviceAddress: MAC address</p> <p>deviceAddrType: BLE/SPP/WiFi etc.</p> <p>deviceDPI: printing accuracy, DPI</p> <p>deviceWidth: print width, mm</p> <p>hardwareFlags: hardware flags, use this value to match different firmware upgrade packages</p> <p>softwareFlags: software flags</p>
Attentions	<b>Make sure that the printer is successfully turned on (connected).</b>

### 5.14 getPrinterState(Get printer connection status)

Function	<b>Get printer connection status.</b>
Method	<b>public PrinterState getPrinterState();</b>
Parameter	none
Return Value	<a href="#">The connection status of the current printer, the specific type can refer to the enumerated type: PrinterState</a>
Instructions	
Attentions	

### 5.15 isPrinterOpened(Judge whether the current printer is opened and connected successfully)

Function	<b>Judge whether the current printer is opened and connected successfully.</b>
Method	<b>public boolean isPrinterOpened();</b>
Parameter	none
Return Value	<a href="#">true</a> : indicates that the printer has been successfully connected and can print; <a href="#">false</a> : indicates that the printer is not connected, and the printer needs to be connected before printing;
Instructions	
Attentions	

### 5.16 cancel(Cancel print job)

Function	<b>Cancel print job.</b>
Method	<b>public void cancel();</b>
Parameter	none
Return Value	<a href="#">none</a>
Instructions	Cancel the current printing operation, used to execute the cancel operation after submitting the printing task;
Attentions	

### 5.17 closePrinter(Disconnect the currently connected printer)

Function	<b>Disconnect the connected printer.</b>
Method	<b>public void closePrinter();</b>
Parameter	none
Return Value	<a href="#">none</a>
Instructions	After printing is completed, you can use this function to disconnect the current

	printer;
Attentions	Try to avoid calling this function before printing is completed, otherwise the printing task may be terminated;

### 5.18 reopenPrinter(Open the last connected printer asynchronously)

Function	<b>Open the last connected printer asynchronously.</b>
Method	<b>public boolean reopenPrinter();</b>
Parameter	none
Return Value	<a href="#">true or false</a>
Instructions	Reconnect the last connected printer.
Attentions	Return true only means that the operation is submitted, and does not mean that the connection is successful. The specific connection result will be notified through the callback function.

### 5.19 reopenPrinterSync(Open the last connected printer synchronously)

Function	<b>Open the last connected printer synchronously.</b>
Method	<b>public boolean reopenPrinterSync();</b>
Parameter	none
Return Value	<a href="#">true or false</a>
Instructions	Reconnect the last connected printer.
Attentions	

### 5.20 printBitmap(Print Bitmap)

Function	Print Bitmap.	
Method	public boolean printBitmap(Bitmap bitmap, Bundle printParam);	
Parameter	bitmap	The image to be printed;
	printParam	Printing parameters, if it is null, the default printing parameters will be used for printing;

	Parameter type can refer to: <a href="#">PrintParamName</a> ;
<b>Return Value</b>	<a href="#">true or false</a>
<b>Instructions</b>	
<b>Attentions</b>	<ol style="list-style-type: none"> <li>1、 The background color of the bitmap object cannot be a transparent color, it is recommended to set it to a white background color;</li> <li>2、 Return true only means that the operation has been submitted, and does not mean that the printing is successful. The specific printing result will be notified through the callback function.</li> </ol>

## 5.21 waitPrinterState(Wait for printer status)

<b>Function</b>	<b>Wait for printer status.</b>	
<b>Method</b>	<b>public boolean waitPrinterState(printerState state, int millis);</b>	
<b>Parameter</b>	state	Desired printing status;
	millis	Wait for timeout in milliseconds, less than 0 means keeping waiting;
<b>Return Value</b>	<a href="#">true: After the specified time, the printer connection status is the given connection status;</a> <a href="#">false: After the specified time, the printer connection status is inconsistent with the given connection status;</a>	
<b>Instructions</b>	This method is usually used to determine whether the printer is successfully connected after connecting to the printer in an asynchronous manner. Because the printer connection is time-consuming, the connection may not be successful immediately after initiating the printer connection request. At this time, this function is needed to determine the printer connection state;	
<b>Attentions</b>		

[PrintParamName](#) print parameter name:

<b>PrintParamName</b>	<b>Numerical value</b>	<b>Description</b>
<b>PRINT_DARKNESS</b>	"PRINT_DENSITY"	Used to set the print density, the value refers to <a href="#">PrintParamValue</a> ;
<b>PRINT_SPEED</b>	"PRINT_SPEED"	Used to set the printing speed, the value refers to <a href="#">PrintParamValue</a> ;
<b>PRINT_DIRECTION</b>	"PRINT_DIRECTION"	Used to set the printing direction, the value is 0, 90, 180, 270;
<b>PRINT_COPIES</b>	"PRINT_COPIES"	Used to set the number of print copies, the value is any valid integer;
<b>GAP_TYPE</b>	"GAP_TYPE"	Used to set the paper type, the value refers

		to <a href="#">PrintParamValue</a> ;
<b>GAP_LENGTH_01MM</b>	"GAP_LENGTH_01MM"	Used to set the length of the paper interval, the unit is 0.01 mm
<b>HORIZONTAL_OFFSET_01MM</b>	"HORIZONTAL_OFFSET_01MM"	Used to set the horizontal offset, the unit is mm;
<b>HORIZONTAL_OFFSET_PX</b>	"HORIZONTAL_OFFSET_PX"	Used to set the horizontal offset, unit pixel;
<b>VERTICAL_OFFSET_01MM</b>	"VERTICAL_OFFSET_01MM"	Used to set the vertical offset, the unit is mm;
<b>VERTICAL_OFFSET_PX</b>	"VERTICAL_OFFSET_PX"	Used to set the vertical offset, unit pixel;
<b>ANTI_COLOR</b>	"ANTI_COLOR"	Used to indicate whether it is "inverted color printing";

[PrintParamValue](#) print parameter reference value:

<b>PrintParamValue</b>	<b>Numerical value</b>	<b>Description</b>
<b>MIN_PRINT_DARKNESS</b>	0	The reference value of print density, the range is (0-14): 0 means the minimum printing density, 14 indicates the maximum printing density, 5 means the default printing density;
<b>DEFAULT_PRINT_DARKNESS</b>	5	
<b>MAX_PRINT_DARKNESS</b>	14	
<b>MIN_PRINT_SPEED</b>	0	Printing speed reference value, the range is (0-4): 0 means the minimum printing speed, 2 means the default printing speed, 4 indicates the maximum printing speed;
<b>DEFAULT_PRINT_SPEED</b>	2	
<b>MAX_PRINT_SPEED</b>	4	
<b>GAP_NONE</b>	0	Paper type: the default paper type, set with the printer
<b>GAP_HOLE</b>	1	Paper type: use label paper with positioning holes for positioning
<b>GAP_GAP</b>	2	Paper Type: Use gap paper for printing
<b>GAP_BLACK</b>	3	Paper type: use black label paper for printing;

## 6. Related methods of USB connection printer

The USB connection method requires connecting the mobile phone and the printer device through the OTG data cable. Only when the application is opened in the foreground, the USB connection will prompt to access the device, and it will not prompt when entering the background. When the USB connection is successful, it will automatically disconnect the printer device currently connected via Bluetooth, and automatically identify and obtain the printer device connected via USB. You can also connect the specified printer object by calling [connect \(PrinterAddress.USB\)](#); automatically reset after USB disconnection. Connect to the last printer device connected via Bluetooth.

### 6.1 hasUsbPrinter(Returns whether there is currently a USB printer device connected to the phone)

Function	Returns whether there is currently a USB printer device connected to the phone.
Method	public static boolean hasUsbPrinter();
Parameter	none
Return Value	<a href="#">true: indicates the supported printers;</a> <a href="#">false: indicates the unsupported printers;</a>
Instructions	none
Attentions	

## 6.2 hasUsbPrinter(Return and check whether there is a printer device connected to the phone via USB)

Function	<b>Start the drawing job.</b>	
Method	<b>public static boolean hasUsbPrinter(String prefixName);</b>	
Parameter	prefixName	The prefix name of printer type,such as: DP23, DT60, DP30 Label Printer.
Return Value	<a href="#">true: indicates the supported printers;</a> <a href="#">false: indicates the unsupported printers;</a>	
Instructions	none	
Attentions		

## 6.3 getUsbPrinter(Get the currently available USB connected printers)

Function	<b>Return and check whether there is a printer device connected to the phone via USB.</b>	
Method	<b>public static PrinterAddress getUsbPrinter();</b>	
Parameter	none	
Return Value	<a href="#">Get the currently available USB connected printers,return the null indicates that no printer is connected to the phone via USB.</a>	
Instructions	none	
Attentions		

## 6.4 getUsbPrinter(Get the currently available USB connected printers)

Function	<b>Start the drawing job.</b>	
Method	<b>public static PrinterAddress getUsbPrinter(String prefixName);</b>	
Parameter	prefixName	The prefix name of printer type,such as: DP23, DT60, DP30 Label Printer.
Return Value	<a href="#">Get the currently available USB connected printers,return the null indicates that no printer is connected to the phone via USB.</a>	

Instructions	none
Attentions	

## 7. Method description of printing tasks and pages

### 7.1 startJob(Start the drawing job)

Function	<b>Start the drawing job.</b>	
Method	<b>public boolean startJob(double width, double height, int orientation);</b>	
Parameter	width	Label width (based on the drawing view, without considering of label rotation. Unit mm).
	height	Label height (based on the drawing view, without considering of label rotation. Unit mm).
	orientation	Clockwise rotation angle of the label page of drawing job, 0/90/180/270, the default is 0.
Return Value	<a href="#">true or false</a>	
Instructions	This method needs to be invoked while starting a drawing job.	
Attentions	When starting a drawing job, all of the previous jobs/data will be discarded.	

### 7.2 abortJob(Cancel the drawing job)

Function	<b>Cancel the drawing job.</b>	
Method	<b>public void abortJob();</b>	
Parameter	none	
Return Value	<a href="#">none</a>	
Instructions	Cancel the drawing task, used to cancel all of drawing operations before submission.	
Attentions	All of the current jobs/data will be discarded, but the parameter settings will be retained.	

### 7.3 commitJob(Submit param to print)

Function	<b>Submit param to print.</b>	
Method	<b>public boolean commitJob();</b>	
Parameter	<a href="#">none</a>	
Return Value	<a href="#">true or false</a>	



Instructions	Submit the printing job to do the real printing.
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## 7.4 commitJobWithParam(Submit param to print)

Function	<b>Submit param to print.</b>	
Method	<b>public boolean commitJobWithParam(Bundle printParam);</b>	
Parameter	printParam	Set the print parameters in Bundle format. For the parameter types, please refer to: <a href="#">PrintParamName</a> ;
Return Value	<a href="#">true or false</a>	
Instructions	Submit the print job and set the print parameters.	

## 7.5 startPage(Start to draw a page)

Function	<b>Start to draw a page.</b>	
Method	<b>public boolean startPage();</b>	
Parameter	none	
Return Value	<a href="#">true or false</a>	
Instructions	Start a print page.	

## 7.6 endPage(End the drawing of a page)

Function	<b>End the drawing of a page.</b>	
Method	<b>public void endPage();</b>	
Parameter	none	
Return Value	<a href="#">none</a>	
Instructions	End a print page.	

## 7.7 endJob(End the drawing job)

Function	<b>End the drawing job.</b>	
Method	<b>public void endJob();</b>	
Parameter	none	

<b>Return Value</b>	none
<b>Instructions</b>	End a drawing job.

## 8. Setting or obtaining the parameters of print content

[ItemAlignment](#) types of drawing barcode:

ItemAlignment	Numerical value	Description
<b>ItemAlignment.LEFT</b>	0	Left alignment
<b>ItemAlignment.CENTER</b>	1	Horizontally Centered /Vertically centered
<b>ItemAlignment.RIGHT</b>	2	Right alignment
<b>ItemAlignment.TOP</b>	0	Top alignment
<b>ItemAlignment.MIDDLE</b>	1	Vertically centered/Horizontally Centere
<b>ItemAlignment.BOTTOM</b>	2	Bottom alignment
<b>ItemAlignment.SAMEASITEM</b>	3	The alignment of the object's sub-elements is the same as the alignment of the object, currently used in the horizontal alignment of the 1D barcode text

[PenAlignment](#) types of drawn font:

PenAlignment	Numerical value	Description
<b>PenAlignment. CENTER</b>	0	The drawn line is centered on the specified position
<b>PenAlignment. INSET</b>	1	The drawn line is inside of the specified position

[DrawParamName](#) draw related param name:

DrawParamName	Description
<b>DrawParamName.FONT_NAME</b>	The name of the font file, the name of the font file stored in the assets directory of the project; The <a href="#">FONT_NAME</a> value is String type. Such as: HeiTi.ttf. please note that it is the name of the font file, not the name of the font necessarily. the .ttf suffix will be added automatically If the parameter value does not specify a suffix;
<b>DrawParamName.QRCODE_VERSION</b>	Code version number of QRCode (1~40); The <a href="#">QRCODE_VERSION</a> value is the Integer type. For specific meaning, please refer to QRCode coding specification. When the version number is not

	specified, it indicates that the appropriate one is adopted automatically according to the encoding content;
<b>DrawParamName.ERROR_CORRECTION</b>	Error correction level of QRCode (0~3); The <a href="#">ERROR_CORRECTION</a> value is the Integer type. The default is 0. For label printing, it is recommended to use level 0, setting the black dots as large as possible, so that the QR code is easier to scan and recognize;
<b>DrawParamName.CHARACTER_SET</b>	String encoding type of QRCode; The <a href="#">CHARACTER_SET</a> value is String type. The default is UTF-8;
<b>DrawParamName.MARGIN</b>	Margin of barcode; The <a href="#">MARGIN</a> value is Integer type. The margin value defined in the QRCode encoding specification is 0/2/4. The default is 0, that is, no blank-leaving;
<b>DrawParamName.ANTI_COLOR</b>	Whether the text is ANTI_COLOR; The <a href="#">ANTI_COLOR</a> value is Boolean type. The default is false, that is, not ANTI_COLOR;
<b>DrawParamName.FONT_WRAP</b>	Whether the text wraps; The <a href="#">FONT_WRAP</a> value is Boolean type. The default is true, that is, the text will wrap automatically;

## 8.1 setDrawParam(Set the related draw param)

<b>Function</b>	<b>Set the related draw param.</b>	
<b>Method</b>	<b>public void setDrawParam(String name, Object value);</b>	
<b>Parameter</b>	name	Param name, Defined in the static string variable of the DrawParamName interface. please refer to: <a href="#">DrawParamName</a>
	value	Value, Refer to different param names for specific meanings. Please refer to: <a href="#">DrawParamName</a>
<b>Return Value</b>	none	

## 8.2 setItemOrientation(Set the clockwise rotation angle of the subsequent drawing content)

<b>Function</b>	<b>Set the clockwise rotation angle of the subsequent drawing</b>
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	<b>content.</b>	
<b>Method</b>	<b>public void setItemOrientation(int orientation);</b>	
<b>Parameter</b>	orientation	Clockwise rotation angle of subsequent drawing content, 0/90/180/270, the default is 0.
<b>Return Value</b>	none	

### 8.3 getItemOrientation(Get the clockwise rotation angle of the subsequent drawing content)

<b>Function</b>	<b>get the clockwise rotation angle of the subsequent drawing content.</b>	
<b>Method</b>	<b>public int getItemOrientation();</b>	
<b>Parameter</b>	none	
<b>Return Value</b>	Clockwise rotation angle of the current drawn content, 0/90/180/270	

### 8.4 setItemHorizontalAlignment(Set Item Horizontal Alignment)

<b>Function</b>	<b>set Item Horizontal Alignment.</b>	
<b>Method</b>	<b>public void setItemHorizontalAlignment(int alignment);</b>	
<b>Parameter</b>	alignment	The horizontal alignment of subsequent drawing actions( <a href="#">ItemAlignment</a> ), the default is <a href="#">ItemAlignment.LEFT</a> .
<b>Return Value</b>	none	
<b>Instructions</b>	The horizontal direction is based on the horizontal drawing direction of the subsequently drawn content, which follows the clockwise rotation angle of the drawn content.	

### 8.5 getItemHorizontalAlignment(Get the vertical alignment of the current drawing action)

<b>Function</b>	<b>Get the vertical alignment of the current drawing action.</b>	
<b>Method</b>	<b>public int getItemHorizontalAlignment();</b>	

<b>Parameter</b>	none
<b>Return Value</b>	<a href="#">The horizontal alignment of the current drawing action(ItemAlignment)</a>
<b>Instructions</b>	The horizontal direction is based on the horizontal drawing direction of the subsequently drawn content, which follows the clockwise rotation angle of the drawn content.

## 8.6 setItemVerticalAlignment(Set the vertical alignment of subsequent drawing actions)

<b>Function</b>	<b>Set the vertical alignment of subsequent drawing actions.</b>	
<b>Method</b>	<b>public void setItemVerticalAlignment(int alignment);</b>	
<b>Parameter</b>	alignment	The vertical alignment of subsequent drawing actions ( <a href="#">ItemAlignment</a> ) , the default is <a href="#">ItemAlignment.TOP</a> .
<b>Return Value</b>	none	
<b>Instructions</b>	The vertical direction is based on the vertical drawing direction of the subsequently drawn content, which follows the clockwise rotation angle of the drawn content.	

## 8.7 getItemVerticalAlignment(Get the vertical alignment of the current drawing action)

<b>Function</b>	<b>Get the vertical alignment of the current drawing action.</b>	
<b>Method</b>	<b>public int getItemVerticalAlignment();</b>	
<b>Parameter</b>	none	
<b>Return Value</b>	<a href="#">The vertical alignment of the current drawing action (ItemAlignment)</a>	
<b>Instructions</b>	The vertical direction is based on the vertical drawing direction of the subsequently drawn content, which follows the clockwise rotation angle of the drawn content.	

## 8.8 setItemPenAlignment(Set Item Pen Alignment)

<b>Function</b>	<b>Set Item Pen Alignment.</b>	
<b>Method</b>	<b>public void setItemPenAlignment(int penAlignment);</b>	
<b>Parameter</b>	penAlignment	Item pen alignment ( <a href="#">PenAlignment</a> ) , the numerical value is one of the following two: <a href="#">PenAlignment.CENTER</a> : the drawn line is centered on the specified position; <a href="#">PenAlignment.INSET</a> : the drawn line is inside of the specified

		position.
<b>Return Value</b>	none	

## 8.9 getItemPenAlignment(Get the Item Pen Alignment)

<b>Function</b>	<b>Get the Item Pen Alignment.</b>
<b>Method</b>	<b>public int getItemPenAlignment();</b>
<b>Parameter</b>	none
<b>Return Value</b>	Item pen alignment ( <a href="#">PenAlignment</a> ) , the numerical value is one of the following two : <a href="#">PenAlignment.CENTER</a> : the drawn line is centered on the specified position; <a href="#">PenAlignment.INSET</a> : the drawn line is inside the specified position.

## 9. Description of drawing method of text string

[FontStyle](#) styles of drawn font:

<b>FontStyle</b>	<b>Numerical value</b>	<b>Description</b>
<b>FontStyle.REGULAR</b>	0	Normal
<b>FontStyle.BOLD</b>	1	Bold
<b>FontStyle.ITALIC</b>	2	Italic
<b>FontStyle.BOLDITALIC</b>	3	Bold italic
<b>FontStyle.UNDERLINE</b>	4	Underline
<b>FontStyle.STRIKEOUT</b>	8	Strikethrough

### 9.1 Uniform font used when drawing text

For Android system, there is a huge difference between the default fonts of different brands mobile. therefore, for systems which require a higher consistency of the printed labels, it is necessary to unify the fonts used when drawing text. The font of the unified text can be carried out by the following two methods:

- For the case of using one font in the entire label, you can put the font file which will be used in the assets directory of the Android APP project directly,

and modify the file name to FONT.ttf. The interface function that draws the text will use this font. When the font file is not found, the text drawing function will use the system default font;

- For the case of using multiple fonts in the entire label, you can put multiple font files that need to be used in the assets directory of the Android APP project (for font files with Chinese names, it is recommended to change the file name to English, because some Android system does not support the Chinese language named files in the assets directory very well), and specify the font file by invoking [setDrawParam\(IAtBitmap.DrawParamName.FONT NAME, "xxx" \)](#) to draw them before drawing the text.

## 9.2 drawText(Drawing a text string)

Function	Drawing a text string.	
Method	<b>public boolean drawText(String text, double x, double y, double width, double height, double fontHeight);</b>	
Parameter	text	The text string needs to be drawn.
	x	The horizontal position of the upper left corner of the drawn textbox (unit: mm).
	y	The vertical position of the upper left corner of the drawn textbox (unit: mm).
	width	The horizontal width of the drawn textbox (unit:mm). If the width is 0, the left, center, and right alignment with x as the base point will be performed according to the display width of the drawn text and the current alignment method. The default is 0.
	height	The vertical height of the drawn textbox (unit:mm). If the height is 0, it will align the top, middle and bottom with y as the base point according to the current alignment and the display height of the drawn text. The default is 0.

	fontHeight	Font size(unit:mm).
<b>Return Value</b>	true or false	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a text string.</li> <li>The upper left corner vertical position, horizontal width, and vertical height of the drawing are based on the vertical directions of the current drawing page.</li> <li>fontHeight is in millimeters as unit. The conversion formula for font size and millimeter is that: <math>\text{Font size} = \text{mm} * 72 / 25.4</math> For example: Size 9 is 3.175 mm, size 12 is 4.233 mm</li> <li>Refer to the <a href="#">setDrawParam</a> function to set the parameters which related to the text font.</li> </ul>	

### 9.3 drawTextRegular(Drawing a text string)

<b>Function</b>	<b>Drawing a text string.</b>	
<b>Method</b>	<b>public boolean drawTextRegular(String text, double x, double y, double width, double height, double fontHeight, int fontStyle, float lineSpace);</b>	
<b>Parameter</b>	text	The text string needs to be drawn.
	x	The horizontal position of the upper left corner of the drawn textbox (unit: mm).
	y	The vertical position of the upper left corner of the drawn textbox (unit: mm).
	width	The horizontal width of the drawn textbox (unit:mm). If the width is 0, the left, center, and right alignment with x as the base point will be performed according to the display width of the drawn text and the current alignment method. The default is 0.
	height	The vertical height of the drawn textbox (unit:mm). If the height is 0, it will align the top, middle and bottom with y as the base point according to the current alignment and the display height of the drawn text. The default is 0.
	fontHeight	Font size(unit:mm).
	fontStyle	The font style under the initial state, normal, bold, italic, bold italic, underscore, strikethrough( <a href="#">FontStyle</a> ).The default is normal font.
	lineSpace	Line spacing, the default is 0, 1 means double the line spacing of the current font.
<b>Return Value</b>	true or false	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a text string.</li> </ul>	



	<ul style="list-style-type: none"> <li>The upper left corner vertical position, horizontal width, and vertical height of the drawing are based on the vertical directions of the current drawing page.</li> <li>fontHeight is in millimeters as unit. The conversion formula for font size and millimeter is that: <math>\text{Font size} = \text{mm} * 72 / 25.4</math> For example: Size 9 is 3.175 mm, size 12 is 4.233 mm</li> <li>This method will set the font style of the drawn text according to the font style setting symbol which contained in the string data.</li> <li>Refer to the <a href="#">setDrawParam</a> function to set the parameters which related to the text font.</li> </ul>
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## 9.4 drawRichText(Need to draw text string with font style setting symbol)

Function	Need to draw text string with font style setting symbol.	
Method	<b>public boolean drawRichText(String text, double x, double y, double width, double height, double fontHeight, int fontStyle);</b>	
Parameter	text	Need to draw text string with font style setting symbol.
	x	The horizontal position of the upper left corner of the drawn textbox (unit: mm).
	y	The vertical position of the upper left corner of the drawn textbox (unit: mm).
	width	The horizontal width of the drawn textbox (unit:mm). If the width is 0, the left, center, and right alignment with x as the base point will be performed according to the display width of the drawn text and the current alignment method.
	height	The vertical height of the drawn textbox (unit:mm). If the height is 0, it will align the top, middle and bottom with y as the base point according to the current alignment and the display height of the drawn text.
	fontHeight	Font size(unit:mm).
	fontStyle	The font style under the initial state, normal, bold, italic, bold italic, underscore, strikethrough( <a href="#">FontStyle</a> ).
Return Value	true or false	
Instructions	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a text string.</li> <li>The upper left corner vertical position, horizontal width, and vertical height of the drawing are based on the vertical directions of the current drawing page.</li> <li>fontHeight is in millimeters as unit. The conversion formula for font size and millimeter is that: <math>\text{Font size} = \text{mm} * 72 / 25.4</math></li> </ul>	

	<p>For example: Size 9 is 3.175 mm, size 12 is 4.233 mm</p> <ul style="list-style-type: none"> <li>This method will set the font style of the drawn text according to the font style setting symbol which contained in the string data.</li> <li>Refer to the <a href="#">setDrawParam</a> function to set the parameters which related to the text font.</li> </ul>
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## 9.5 drawTextWithIndent(Draw a text string with indentation function)

<b>Function</b>	<b>Draw a text string with indentation function.</b>	
<b>Method</b>	<b>public boolean drawTextWithIndent(String text, double x, double y, double width, double height, double fontHeight, int fontStyle, float lineSpace);</b>	
<b>Parameter</b>	text	Need to draw text string with font style setting symbol.
	x	The horizontal position of the upper left corner of the drawn textbox (unit: mm).
	y	The vertical position of the upper left corner of the drawn textbox (unit: mm).
	width	The horizontal width of the drawn textbox (unit:mm). If the width is 0, the left, center, and right alignment with x as the base point will be performed according to the display width of the drawn text and the current alignment method.
	height	The vertical height of the drawn textbox (unit:mm). If the height is 0, it will align the top, middle and bottom with y as the base point according to the current alignment and the display height of the drawn text.
	fontHeight	Font size(unit:mm).
	fontStyle	The font style under the initial state, normal, bold, italic, bold italic, underscore, strikethrough( <a href="#">FontStyle</a> ).
	lineSpace	Line spacing, the default is 0, 1 means double the line spacing of the current font.
<b>Return Value</b>	true or false	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a text string.</li> <li>The upper left corner vertical position, horizontal width, and vertical height of the drawing are based on the vertical directions of the current drawing page.</li> <li>fontHeight is in millimeters as unit. The conversion formula for font size and millimeter is that: <math>\text{Font size} = \text{mm} * 72 / 25.4</math> For example: Size 9 is 3.175 mm, size 12 is 4.233 mm</li> <li>This method will set the font style of the drawn text according to the font style setting symbol which contained in the string data.</li> </ul>	

	<ul style="list-style-type: none"> <li>Refer to the <a href="#">setDrawParam</a> function to set the parameters which related to the text font.</li> </ul>
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## 9.6 drawTextWithScale(Draw a text string with indentation function)

<b>Function</b>	<b>Draw a text string with indentation function.</b>	
<b>Method</b>	<b>public boolean drawTextWithScale(String text, double x, double y, double width, double height, double fontHeight, int fontStyle, float lineSpace, boolean autoIndent);</b>	
<b>Parameter</b>	text	Need to draw text string with font style setting symbol.
	x	The horizontal position of the upper left corner of the drawn textbox (unit: mm).
	y	The vertical position of the upper left corner of the drawn textbox (unit: mm).
	width	The horizontal width of the drawn textbox (unit:mm). If the width is 0, the left, center, and right alignment with x as the base point will be performed according to the display width of the drawn text and the current alignment method.
	height	The vertical height of the drawn textbox (unit:mm). If the height is 0, it will align the top, middle and bottom with y as the base point according to the current alignment and the display height of the drawn text.
	fontHeight	Font size(unit:mm).
	fontStyle	The font style under the initial state, normal, bold, italic, bold italic, underscore, strikethrough( <a href="#">FontStyle</a> ).
	lineSpace	Line spacing, the default is 0, 1 means double the line spacing of the current font.
	autoIndent	true: When a colon (":") is detected in the string, the parts before and after the colon are aligned respectively.
<b>Return Value</b>	<b>true or false</b>	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a text string.</li> <li>The upper left corner vertical position, horizontal width, and vertical height of the drawing are based on the vertical directions of the current drawing page.</li> <li>fontHeight is in millimeters as unit. The conversion formula for font size and millimeter is that: <math>\text{Font size} = \text{mm} * 72 / 25.4</math> For example: Size 9 is 3.175 mm, size 12 is 4.233 mm</li> <li>This method will set the font style of the drawn text according to the font style setting symbol which contained in the string data.</li> </ul>	

	<ul style="list-style-type: none"> <li>Refer to the <a href="#">setDrawParam</a> function to set the parameters which related to the text font.</li> </ul>
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## 9.7 measureFontHeight(Measure the height of the text string)

<b>Function</b>	<b>Measure the height of the text string.</b>	
<b>Method</b>	<b>public double measureFontHeight(String text, double x, double y, double width, double height, double fontHeight, float lineSpace);</b>	
<b>Parameter</b>	text	Need to draw text string with font style setting symbol
	x	The horizontal position of the upper left corner of the drawn textbox (unit: mm).
	y	The vertical position of the upper left corner of the drawn textbox (unit: mm).
	width	The horizontal width of the drawn textbox (unit:mm). If the width is 0, the left, center, and right alignment with x as the base point will be performed according to the display width of the drawn text and the current alignment method.
	height	The vertical height of the drawn textbox (unit:mm). If the height is 0, it will align the top, middle and bottom with y as the base point according to the current alignment and the display height of the drawn text.
	fontHeight	Font size(unit:mm).
	lineSpace	Line spacing, the default is 0, 1 means double the line spacing of the current font.
<b>Return Value</b>	<b>The height of the text string (unit: mm).</b>	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a text string..</li> <li>The upper left corner vertical position, horizontal width, and vertical height of the drawing are based on the vertical directions of the current drawing page.</li> <li><a href="#">fontHeight</a> is in millimeters as unit. The conversion formula for font size and millimeter is that: Font size = mm * 72 / 25.4 For example: Size 9 is 3.175 mm, size 12 is 4.233 mm</li> </ul>	

## 10. Description of drawing method of barcode

[BarcodeType](#) types of drawing barcode:

BarcodeType	Numerical value	Description
BarcodeType.UPC_A	20	
BarcodeType.UPC_E	21	

<b>BarcodeType.EAN13</b>	22	
<b>BarcodeType.EAN8</b>	23	
<b>BarcodeType.CODE39</b>	24	
<b>BarcodeType.ITF25</b>	25	
<b>BarcodeType.CODABAR</b>	26	
<b>BarcodeType.CODE93</b>	27	
<b>BarcodeType.CODE128</b>	28	
<b>BarcodeType.ISBN</b>	29	
<b>BarcodeType.ECODE39</b>	30	
<b>BarcodeType.AUTO</b>	60	

## 10.1 draw1Dbarcode(Draw 1D barcode)

<b>Function</b>	<b>Draw 1D barcode.</b>	
<b>Method</b>	<b>public boolean draw1DBarcode(String text, int type, double x, double y, double width, double height, double textHeight);</b>	
<b>Parameter</b>	text	The content of the 1D barcode needs to be drawn.
	type	One-dimensional barcode encoding type ( <a href="#">BarcodeType</a> ), the default is AUTO.
	x	The horizontal position of the upper left corner of the drawn 1D barcode.
	y	The vertical position of the upper left corner of the drawn 1Dbarcode (unit: mm).
	width	The overall display width of a 1D barcode.
	height	Display height of 1D barcode (including the readable text).
	textHeight	The height of the readable text (unit:mm), 3 mm is recommended.
<b>Return Value</b>	<b>true or false</b>	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a 1D barcode.</li> <li>The upper left corner vertical position, width, and height of the drawing are based on the vertical directions of the current drawing page.</li> </ul>	

## 10.2 draw2DQRCode(Draw QR code)

<b>Function</b>	<b>Draw QR code.</b>	
<b>Method</b>	<b>public boolean draw2DQRCode(String text, double x, double y, double width);</b>	
<b>Parameter</b>	text	The content of QR code needs to be drawn.
	x	The horizontal position of the upper left corner of the drawn QR code (unit: mm).

	y	The vertical position of the upper left corner of the drawn QR code (unit: mm).
	width	The horizontal width of the drawn QR code (unit mm).
<b>Return Value</b>	true or false	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a QR code.</li> <li>The upper left corner vertical position, width, and height of the drawing are based on the vertical directions of the current drawing page.</li> <li>Refer to the <a href="#">setDrawParam</a> function to set the parameters which related to the QRCode drawing.</li> </ul>	

### 10.3 draw2DPdf417(Draw PDF417 QR code)

<b>Function</b>	<b>Draw PDF417 QR code.</b>	
<b>Method</b>	<b>public boolean draw2DPdf417(String text, double x, double y, double width, double height);</b>	
<b>Parameter</b>	text	The content of the Pdf417 QR code needs to be drawn.
	x	The horizontal position of the upper left corner of the drawn Pdf417 QR code (unit: mm).
	y	The vertical position of the upper left corner of the drawn Pdf417 QR code (unit: mm).
	width	The horizontal width of the drawn Pdf417 QR code (unit mm).
	height	The vertical width of the drawn Pdf417 QR code (unit mm).
<b>Return Value</b>	true or false	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a QR code df417.</li> <li>The upper left corner vertical position, horizontal width, and vertical height of the drawing are based on the vertical directions of the current drawing page.</li> </ul>	

## 11. Description of drawing method of vector graphics

### 11.1 drawRectangle(Draw a rectangular box with the specified line width)

<b>Function</b>	<b>Draw a rectangular box with the specified line width.</b>	
<b>Method</b>	<b>public boolean drawRectangle(double x, double y, double width, double height, double lineWidth);</b>	
<b>Parameter</b>	x	The horizontal position (in mm) of the upper left corner of the drawn

		rectangular frame.
	y	The vertical position (in mm) of the upper left corner of the drawn rectangular frame.
	width	The horizontal width of the drawn rectangle frame (unit mm).
	height	The vertical width of the drawn rectangle frame (unit mm).
	lineWidth	The line width of the rectangular box (unit: mm). The line width of the rectangular frame extends to the inside of itself.
<b>Return Value</b>	true or false	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a rectangular frame.</li> <li>The upper left corner vertical position, horizontal width, and vertical height of the drawing are based on the vertical directions of the current drawing page.</li> </ul>	

## 11.2 fillRectangle(Draw a rectangular box with the specified line width)

<b>Function</b>	<b>Draw a rectangular box with the specified line width.</b>	
<b>Method</b>	<b>public boolean fillRectangle(double x, double y, double width, double height);</b>	
<b>Parameter</b>	x	The horizontal position (in mm) of the upper left corner of the drawn filled rectangular frame.
	y	The vertical position (in mm) of the upper left corner of the drawn filled rectangular frame.
	width	The horizontal width of the drawn filled rectangle frame (unit mm).
	height	The vertical width of the drawn filled rectangle frame (unit mm).
<b>Return Value</b>	true or false	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a rectangular frame.</li> <li>The upper left corner vertical position, horizontal width, and vertical height of the drawing are based on the vertical directions of the current drawing page.</li> </ul>	

## 11.3 drawRoundRectangle(Draw a rounded rectangular frame with the specified line width)

<b>Function</b>	<b>Draw a rounded rectangular frame with the specified line width.</b>
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Method	<b>public boolean drawRoundRectangle(double x, double y, double width, double height, double cornerWidth, double cornerHeight, double lineWidth);</b>	
Parameter	x	The horizontal position of the upper left corner of the drawn rounded rectangular box (unit: mm).
	y	The vertical position of the upper left corner of the drawn rounded rectangular frame (unit: mm).
	width	The horizontal width of the drawn rounded rectangle frame (unit mm).
	height	The vertical height of the drawn rounded rectangle frame (unit mm).
	cornerWidth	Fillet width (unit mm).
	cornerHeight	Fillet height (unit: mm), the default is the same as fillet width.
	lineWidth	The line width of the rounded rectangle frame (unit: mm). The line width of the rounded rectangular frame extends to the inside of the rounded rectangular frame.
Return Value	true or false	
Instructions	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw Rounded rectangular frame.</li> <li>The upper left corner vertical position, horizontal width, and vertical height of the drawing are based on the vertical directions of the current drawing page.</li> </ul>	

## 11.4 fillRoundRectangle(Draw a filled rounded rectangular frame with the specified line width)

Function	<b>Draw a filled rounded rectangular frame with the specified line width.</b>	
Method	<b>public boolean fillRoundRectangle(double x, double y, double width, double height, double cornerWidth, double cornerHeight);</b>	
Parameter	x	The horizontal position of the upper left corner of the drawn filled rounded rectangular frame. (unit mm).
	y	The vertical position of the upper left corner of the drawn filled rounded rectangular frame. (unit mm).
	width	The horizontal width of the drawn filled rounded rectangular frame. (unit mm).
	height	The vertical width of the drawn filled rounded rectangular frame. (unit mm).
	cornerWidth	Fillet width (unit mm).
	cornerHeight	Fillet height (unit: mm), the default is the same as fillet width.
Return Value	true or false	



<b>Instructions</b>	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw Rounded rectangular frame.</li> <li>The upper left corner vertical position, horizontal width, and vertical height of the drawing are based on the vertical directions of the current drawing page.</li> </ul>
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## 11.5 drawEllipse(Draw a circle / ellipse with the specified line width)

<b>Function</b>	<b>Draw a circle / ellipse with the specified line width.</b>	
<b>Method</b>	<b>public boolean drawEllipse(double x, double y, double width, double height, double lineWidth);</b>	
<b>Parameter</b>	x	The horizontal position of the upper left corner of the drawn ellipse (unit: mm).
	y	The vertical position of the upper left corner of the drawn ellipse (unit: mm).
	width	The horizontal width of the drawn ellipse (unit: mm).
	height	The vertical width of the drawn ellipse (unit: mm).the default is the same as width, it means to draw a circle.
	lineWidth	The line width of the ellipse(unit: mm).The line width of the ellipse extends to the inside of the ellipse(unit: mm).
<b>Return Value</b>	true or false	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a ellipse/circle.</li> <li>The upper left corner vertical position, horizontal width, and vertical height of the drawing are based on the vertical directions of the current drawing page.</li> <li>When the width and height are equal, it means to draw a circle.</li> </ul>	

## 11.6 fillEllipse(Draw a filled circle/ellipse with the specified line width)

<b>Function</b>	<b>Draw a filled circle/ellipse with the specified line width.</b>	
<b>Method</b>	<b>public boolean fillEllipse(double x, double y, double width, double height);</b>	
<b>Parameter</b>	x	The horizontal position of the upper left corner of the drawn filled ellipse (unit: mm).
	y	The vertical position of the upper left corner of the drawn filled ellipse (unit: mm).
	width	The horizontal width of the drawn filled ellipse.(unit: mm).

	height	The vertical height of the drawn filled ellipse, the default is the same as width, that is drawing a circle(unit: mm).
<b>Return Value</b>	true or false	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>● If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a ellipse/circle.</li> <li>● The upper left corner vertical position, horizontal width, and vertical height of the drawing are based on the vertical directions of the current drawing page.</li> <li>● When the width and height are equal, the circle will be printed.</li> </ul>	

## 11.7 drawCircle(Draw a filled circle with the specified position as the center)

<b>Function</b>	<b>Draw a filled circle with the specified position as the center.</b>	
<b>Method</b>	<b>public boolean drawCircle(double x, double y, double radius, double lineWidth);</b>	
<b>Parameter</b>	x	The x-axis center position of the drawn circle (unit: mm).
	y	The y-axis center position of the drawn circle (unit: mm).
	radius	The radius of the drawn circle (unit: mm).
	lineWidth	The line width of the circle (unit:mm). The line width of the circle extends to the inside of the circle.
<b>Return Value</b>	true or false	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>● If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a circle.</li> <li>● The upper left corner vertical position, horizontal width, and vertical height of the drawing are based on the vertical directions of the current drawing page.</li> </ul>	

## 11.8 fillCircle(Draw a filled circle with the specified position as the center)

<b>Function</b>	<b>Draw a filled circle with the specified position as the center.</b>	
<b>Method</b>	<b>public boolean fillCircle(double x, double y, double radius);</b>	
<b>Parameter</b>	x	The x-axis center point position of the drawn filled circle (unit: mm).
	y	The y-axis center point position of the drawn filled circle (unit: mm).
	radius	The radius of the drawn filled circle (unit: mm).
<b>Return Value</b>	true or false	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>● If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a circle.</li> </ul>	

	<ul style="list-style-type: none"> <li>The upper left corner vertical position, horizontal width, and vertical height of the drawing are based on the vertical directions of the current drawing page.</li> </ul>
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## 11.9 drawLine(Draw a line (straight line/slash line))

<b>Function</b>	<b>Draw a line (straight line/slash line).</b>	
<b>Method</b>	<b>public boolean drawLine(double x1, double y1, double x2, double y2, double lineWidth);</b>	
<b>Parameter</b>	x1	The horizontal position of the starting point of the line (unit: mm).
	y1	The vertical position of the starting point of the line (unit: mm).
	x2	The horizontal position of the end of the line (unit: mm).
	y2	The vertical position of the end of the line (unit: mm).
	lineWidth	Line width(unit: mm). The line width extends below the line.
<b>Return Value</b>	true or false	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw line (straight line/slash line).</li> <li>The vertical position of the drawing is based on the vertical direction of the current drawing page.</li> </ul>	

## 11.10 drawDashLine(Draw a dot-dash line)

<b>Function</b>	<b>Draw a dot-dash line.</b>	
<b>Method</b>	<b>public boolean drawDashLine(double x1, double y1, double x2, double y2, double lineWidth, double[] dashLen, int dashCount);</b> <b>public boolean drawDashLine2(double x1, double y1, double x2, double y2, double lineWidth, double dashLen1, double dashLen2);</b> <b>public boolean drawDashLine4(double x1, double y1, double x2, double y2, double lineWidth, double dashLen1, double dashLen2, double dashLen3, double dashLen4);</b>	
<b>Parameter</b>	x1	The horizontal position of the starting point of the line (unit: mm)
	y1	The vertical position of the starting point of the line (unit: mm).
	x2	The horizontal position of the end of the line (unit: mm).
	y2	The vertical position of the end of the line (unit: mm).
	lineWidth	Line width(unit: mm). The line width extends below the line.
	dashLen1	The length of the first segment of the dot-dash line (unit: mm).
	dashLen2	The length of the second segment of the dot-dash line (unit: mm).
	dashLen3	The length of the third segment of the dot-dash line (unit: mm).
	dashLen4	The length of the fourth segment of the dot-dash line (unit: mm).
	dashLen	Array of line segments length of dot-dash line (unit: mm).
	dashCount	The number of elements in the dot-dash line segment length array.

<b>Return Value</b>	<a href="#">true or false</a>
<b>Instructions</b>	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a dot-dash line.</li> <li>The vertical position of the drawing is based on the vertical direction of the current drawing page.</li> </ul>

## 12. Description of drawing method of image

### 12.1 drawImage(Draw a image of the specified file)

<b>Function</b>	<b>Draw a image of the specified file</b>	
<b>Method</b>	<b>public boolean drawImage(String imageFile, double x, double y, double width, double height);</b>	
<b>Parameter</b>	imageFile	Image file.
	x	The horizontal position of the printed object (unit: mm).
	y	The vertical position of the printed object (unit: mm).
	width	The width of the printed object(unit: mm). If width is 0, the width of the loaded bitmap is used. The default value is 0.
	height	The height of the printed object(unit: mm). If height is 0, the height of the loaded bitmap is used. The default value is 0.
<b>Return Value</b>	<a href="#">true or false</a>	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a image.</li> <li>The upper left corner vertical position, horizontal width, and vertical height of the drawing are based on the vertical directions of the current drawing page.</li> </ul>	

### 12.2 drawImageWithActualSize(Draw image with actual size)

<b>Function</b>	<b>Draw image with actual size.</b>	
<b>Method</b>	<b>public boolean drawImageWithActualSize(String imageFile, double x, double y);</b>	
<b>Parameter</b>	imageFile	Image file.
	x	The horizontal position of the printed object (unit: mm).
	y	The vertical position of the printed object (unit: mm).
<b>Return Value</b>	<a href="#">true or false</a>	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a image.</li> <li>The upper left corner vertical position, horizontal width, and vertical height of the drawing are based on the vertical directions of the current drawing page.</li> </ul>	

## 12.3 drawImageWithThreshold(Draw a image of the gray-scale threshold)

<b>Function</b>	<b>Draw a image of the gray-scale threshold.</b>	
<b>Method</b>	<b>public boolean drawImageWithThreshold(String imageFile, double x, double y, double width, double height, int threshold);</b>	
<b>Parameter</b>	imageFile	Image file.
	x	The horizontal position of the printed object (unit: mm).
	y	The vertical position of the printed object (unit: mm).
	width	The width of the printed object (unit: mm), if the width is 0, using the loaded bitmap width, the default is 0.
	height	The height of the printed object (unit: mm), if the width is 0, using the loaded bitmap height, the default is 0.
	threshold	the gray-scale threshold of the drawn bitmap.256 indicate to draw gray-scale image;257 indicate to draw primary color image;0~255 indicate to draw monochrome image,the point of the original image color> gray threshold will be considered as white, <= will be considered as black, the default is 192.
<b>Return Value</b>	true or false	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw a image.</li> <li>The upper left corner horizontal position, horizontal width, and vertical height of the drawing are based on the horizontal and vertical directions of the current drawing page.</li> </ul>	

## 12.4 drawBitmap(Draw a bitmap)

<b>Function</b>	<b>Draw a bitmap.</b>	
<b>Method</b>	<b>public boolean drawBitmap(Bitmap bitmap, double x, double y, double width, double height);</b>	
<b>Parameter</b>	bitmap	Bitmap object to be drawn.
	x	The upper left corner horizontal position of the drawn bitmap(unit mm).
	y	The upper left corner vertical position of the drawn bitmap(unit mm).
	width	The horizontal width of the drawn bitmap (unit: mm). if the width is 0, using the loaded bitmap width, the default is 0.
	height	The vertical width of the drawn bitmap (unit: mm). if the height is 0, using the loaded bitmap height, the default is 0.
<b>Return Value</b>	true or false	

<b>Instructions</b>	<ul style="list-style-type: none"> <li>• If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw the bitmap.</li> <li>• The upper left corner horizontal position, horizontal width, and vertical height of the drawing are based on the horizontal and vertical directions of the current drawing page.</li> <li>• Be scaled to the specified width and height while drawing bitmap.</li> </ul>
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## 12.5 drawBitmapWithActualSize(Draw a bitmap object with actual size of the location map)

<b>Function</b>	<b>Draw a bitmap object with actual size of the location map.</b>	
<b>Method</b>	<b>public boolean drawBitmapWithActualSize(Bitmap bitmap, double x, double y);</b>	
<b>Parameter</b>	bitmap	Bitmap object to be drawn.
	x	The upper left corner horizontal position of the drawn bitmap(unit mm).
	y	The upper left corner vertical position of the drawn bitmap(unit mm).
<b>Return Value</b>	true or false	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>• If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw the bitmap.</li> <li>• The upper left corner horizontal position, horizontal width, and vertical height of the drawing are based on the horizontal and vertical directions of the current drawing page.</li> <li>• Be scaled to the specified width and height while drawing bitmap.</li> </ul>	

## 12.6 drawBitmapWithThreshold(Draw a bitmap object with the gray-scale threshold)

<b>Function</b>	<b>Draw a bitmap object with the gray-scale threshold.</b>	
<b>Method</b>	<b>public boolean drawBitmapWithThreshold(Bitmap bitmap, double x, double y, double width, double height, int threshold);</b>	
<b>Parameter</b>	bitmap	Bitmap object to be drawn.
	x	The upper left corner horizontal position of the drawn bitmap(unit mm).
	y	The upper left corner vertical position of the drawn bitmap(unit mm).
	width	The horizontal width of the drawn bitmap (unit: mm). if the width is 0, using the loaded bitmap width, the default is 0.
	height	The vertical width of the drawn bitmap (unit: mm). if the height is 0, using the loaded bitmap height, the default is 0.

	threshold	the gray-scale threshold of the drawn bitmap.256 indicate to draw gray-scale image;257 indicate to draw primary color image:0~255 indicate to draw monochrome image,the point of the original image color> gray threshold will be considered as white, <= will be considered as black, the default is 192.
<b>Return Value</b>	true or false	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>• If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw the bitmap.</li> <li>• The upper left corner horizontal position, horizontal width, and vertical height of the drawing are based on the horizontal and vertical directions of the current drawing page.</li> <li>• Be scaled to the specified width and height while drawing bitmap.</li> </ul>	

## 12.7 drawBitmapStream(Draw the bitmap object corresponding to the input stream)

<b>Function</b>	<b>Draw the bitmap object corresponding to the input stream.</b>	
<b>Method</b>	<b>public boolean drawBitmapStream(InputStream is, double x, double y, double width, double height);</b>	
<b>Parameter</b>	is	The input stream object corresponding to the bitmap object to be drawn.
	x	The upper left corner horizontal position of the drawn bitmap(unit mm).
	y	The upper left corner vertical position of the drawn bitmap(unit mm).
	width	The horizontal width of the drawn bitmap (unit: mm). if the width is 0, using the loaded bitmap width, the default is 0.
	height	The vertical width of the drawn bitmap (unit: mm). if the height is 0, using the loaded bitmap height, the default is 0.
<b>Return Value</b>	true or false	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>• If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw the bitmap.</li> <li>• The upper left corner horizontal position, horizontal width, and vertical height of the drawing are based on the horizontal and vertical directions of the current drawing page.</li> <li>• Be scaled to the specified width and height while drawing bitmap.</li> </ul>	

## 12.8 drawBitmapStreamWithActualSize(Draw the bitmap object corresponding to the input stream)

<b>Function</b>	<b>Draw the bitmap object corresponding to the input stream.</b>	
<b>Method</b>	<b>public boolean drawBitmapStreamWithActualSize(InputStream is, double x, double y);</b>	
<b>Parameter</b>	is	The input stream object corresponding to the bitmap object to be drawn.
	x	The upper left corner horizontal position of the drawn bitmap.
	y	The upper left corner vertical position of the drawn bitmap(unit mm).
<b>Return Value</b>	true or false	
<b>Instructions</b>	<ul style="list-style-type: none"> <li>If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw the bitmap.</li> <li>The upper left corner horizontal position, horizontal width, and vertical height of the drawing are based on the horizontal and vertical directions of the current drawing page.</li> <li>Be scaled to the specified width and height while drawing bitmap.</li> </ul>	

## 12.9 drawBitmapStreamWithThreshold(Draw the bitmap object corresponding to the input stream)

<b>Function</b>	<b>Draw the bitmap object corresponding to the input stream.</b>	
<b>Method</b>	<b>public boolean drawBitmapStreamWithThreshold(InputStream is, double x, double y, double width, double height, int threshold);</b>	
<b>Parameter</b>	is	The input stream object corresponding to the bitmap object to be drawn.
	x	The upper left corner horizontal position of the drawn bitmap(unit mm).
	y	The upper left corner vertical position of the drawn bitmap(unit mm).
	width	The horizontal width of the drawn bitmap (unit: mm). if the width is 0, using the loaded bitmap width, the default is 0.
	height	The vertical width of the drawn bitmap (unit: mm). if the height is 0, using the loaded bitmap height, the default is 0.
	threshold	the gray-scale threshold of the drawn bitmap.256 indicate to draw gray-scale image;257 indicate to draw primary color image;0~255 indicate to draw monochrome image,the point of the original image color> gray threshold will be considered as white, <= will be considered as black, the default is 192.



<b>Return Value</b>	true or false
<b>Instructions</b>	<ul style="list-style-type: none"><li>• If you invoke this method directly without invoking <a href="#">startPage</a> before, this method will invoke <a href="#">startPage</a> automatically to start drawing a page, and then draw the bitmap.</li><li>• the upper left corner horizontal position, horizontal width, and vertical height of the drawing are based on the horizontal and vertical directions of the current drawing page.</li><li>• Be scaled to the specified width and height while drawing bitmap.</li></ul>