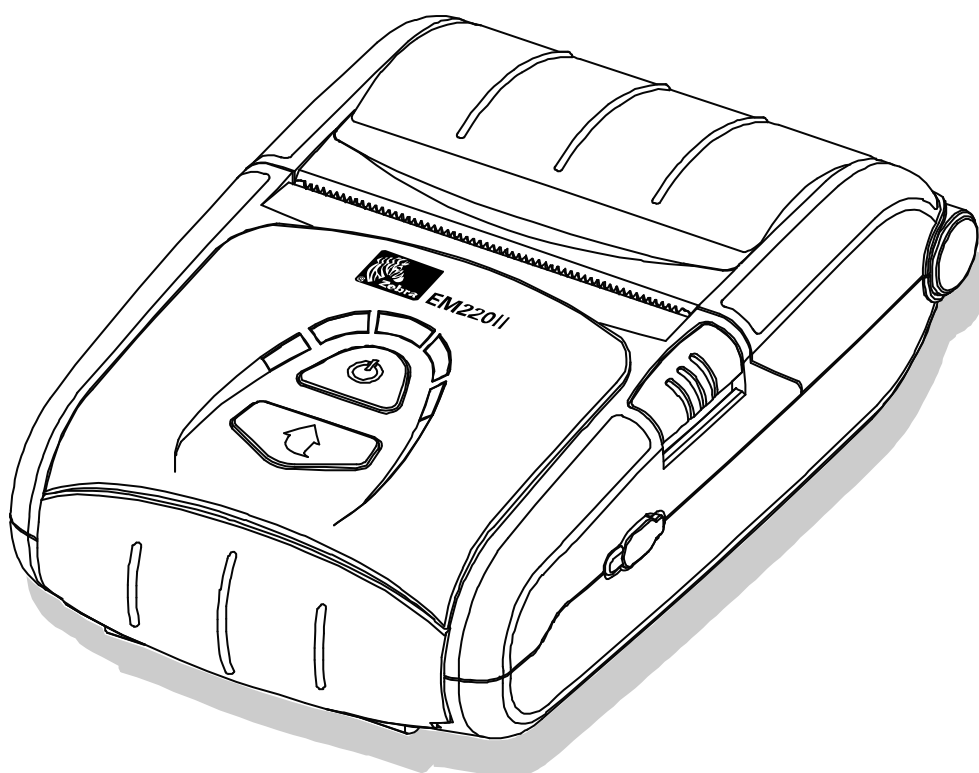




# EM220II

## OPOS Driver Application Develop Guide



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NOTE: This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet or circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: Exposure to Radio Frequency radiation. To conform to FCC RF exposure requirements this device shall be used in accordance with the operating conditions and instructions listed in this manual.

NOTE: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to insure compliance.

Changes or modifications to this unit not expressly approved by Zebra Technologies Corporation could void the user's authority to operate this equipment.

**Canadian Compliance Statement**

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

“IC:” before the equipment certification number signifies that the Industry Canada technical specifications were met. It does not guarantee that the certified product will operate to the user’s satisfaction.

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## 1. Manual Information

This is a manual about how to set and configure device and to develop applications to use ZEBRA EM220II printer with OPOS driver.

Before use the printer, set and configure printer by using EM220II OPOS Setup Utility.

Throughout this manual, “OLE for Retail POS” is called “OPOS”.

Throughout this manual, “Unified for Retail POS” is called “UPOS”.

## 2. Development environment

### 2-1 Communication Configuration

1) Communication Configuration for serial interface.

You will set communication configuration in EM220II OPOS Setup Utility.

Printer Model	Baudrate	Printer Type	etc
EM220II	9600/19200/38400/57600/115200	Mono Thermal	203dpi

\* Check the default communication setting. For more details refer to the user manual included in the printer package.

### 3. Property / Method

#### 3-1 Printer Type

Property value will be determined by the printer type, as shown in the below table.

#### 3-2 Property Range / Default Value

##### 3-2-1 Capability property setting value

Capability Name	1 Color Thermal : EM220II
CapCompareFirmwareVersion	FALSE
CapPowerReporting	TRUE
CapStatisticsReporting	FALSE
CapUpdateFirmware	FALSE
CapUpdateStatistics	FALSE
CapTransaction	TRUE
CapCoverSensor	TRUE
CapConcurrentRecSlp	FALSE
CapConcurrentJrnSlp	FALSE
CapConcurrentJrnRec	FALSE
CapCharacterSet	TRUE
CapRecUnderline	TRUE
CapRecPageMode	FALSE
CapCuncurrentPageMode	FALSE
CapRecStamp	FALSE
CapRecRotate180	TRUE
CapRecRight90	FALSE
CapRecPapercut	FALSE
CapRecNearEndSensor	FALSE
CapRecMarkFeed	FALSE
CapRecLeft90	FALSE
CapRecItalic	FALSE
CapRecEmptySensor	TRUE
CapRecDwideDhigh	TRUE
CapRecDwide	TRUE
CapRecDhigh	TRUE
CapRecColor	FALSE
CapRecCartridgeSensor	FALSE
CapRecBold	TRUE
CapRecBitmap	TRUE
CapRecBarCode	TRUE
CapRec2Color	FALSE
CapRecPresent	TRUE

**3-2-2 Property default value / Range**

Property	Range or Value
RecLineCharsList	"32,42"
RecBitmapList	0,L90,R90,180
CharacterSetList	"437,1(Katakana),850,860,863,865,1252,866,852,858,862,864,23(Thai42),1253,1254,1257,27(Farsi),1251,737,775,31(Thai14),32(Hebrew_old),1255,34(Thai11),35(Thai18),36(Cyrillic),857,928,39(Thai16),1256"
RecLineHeight	24
RecLineWidth	384
RecLinePaperCut	5
RecLineSpacing	0~127(Default :16)

**3-2-3 POSPrinter Method**

Method	Value
ChangePrintSide	X
MarkFeed	X
PrintNormal	O
PrintTwoNormal	X
PrintImmediate	O
PrintBarCode	O
PrintBitmap	O
CutPaper	O
ValidateData	O
TransactionPrint	O
SetLogo	O
SetBitmap	O
RotatePrint	O
EndRemoval	X
BeginRemoval	X
EndInsertion	X
BeginInsertion	X
clearPrintArea	O
pageModePrint	X

O: Supported    X: Not supported



**3-2-4 POSPrinter Escape Sequences**

Escape Sequence	Value
#P	0~100
#fP	0~100
#sP	X
sL	X
#B	O
tL	O
bL	O
#lF	0~9999
#uF Base Pitch [inch]	O
#rF Maximum[inch]	X
#fT	O
bC	O
#uC	O
iC	X
#rC	X
RvC	O
#sC	X
#fC	X
TbC	X
TpC	X
1C	O
2C	O
3C	O
4C	O
#hC	O
#vC	O
cA	O
rA	O
N	O

O: Supported    X: Not supported

**3-2-5 Color bitmap printing support**

EM220II OPOS Driver supports following image formats;

- GIF, JPG, BMP Image Format.

The image will be converted into monochrome.

## 4. Extended Functions

This section is to explain DirectIO method. This method will operate properly only with EM220II printer.

### 4-1 DirectIO Method

Parameter	Explanation	Type
Command	Output format	Long
PData	Number of output data / Value defined by command	Long
PString	Output Data	String

#### OPOS DirectIO Command

Command	Description
DISP_DI_OUTPUT	Output defined pString data
DISP_DI_INTERNATIONAL_CHAR	International character set define
PTR_DI_EM220II_MSR_READ	Read the MSR data
PTR_DI_EM220II_MSR_READ_TRACK1	Get the Track 1 information from MSR data
PTR_DI_EM220II_MSR_READ_TRACK2	Get the Track 2 information from MSR data
PTR_DI_EM220II_MSR_READ_TRACK3	Get the Track 3 information from MSR data
PTR_DI_EM220II_MSR_READ_CLEAR	Clear the MSR data
PTR_DI_EM220II_MSR_READ_ENCRYPTION	Read the MSR encryption data

#### PTR\_DI\_OUTPUT

Argument	Command	PTR_DI_OUTPUT
	PData	Null
	PString	Output data
Description	Sends data without any process after checking printer status. "PString" is not affected by "BinaryConversion"	
Return	Result Code	ResultCodeExtended
	OPOS_SUCCESS	0
	OPOS_E_CLOSED	0
	OPOS_E_CLAIMED	0
	OPOS_E_NOTCLAIMED	0
	OPOS_E_DISABLED	0
	OPOS_E_BUSY	0
	OPOS_E_ILLEGAL	0
	OPOS_E_OFFLINE	0
	OPOS_E_FAILURE	0

**PTR\_DI\_INTERNATIONAL\_CHAR**

Argument	Command	PTR_DI_INTERNATIONAL_CHAR
	PData	One of the commands: PRN_DI_CHAR_USA PRN_DI_CHAR_FRANCE PRN_DI_CHAR_GERMANY PRN_DI_CHAR_UK PRN_DI_CHAR_DENMARK1 PRN_DI_CHAR_SWEDEN PRN_DI_CHAR_ITALY PRN_DI_CHAR_SPAIN1 PRN_DI_CHAR_NORWAY PRN_DI_CHAR_DENMARK2
	PString	Printing position
Description	Sets International character set. If CharSet property value is changed, International character set will be reset.	
Return	Result Code	ResultCodeExtended
	OPOS_SUCCESS	0
	OPOS_E_CLOSED	0
	OPOS_E_CLAIMED	0
	OPOS_E_NOTCLAIMED	0
	OPOS_E_DISABLED	0
	OPOS_E_BUSY	0
	OPOS_E_ILLEGAL	0
	OPOS_E_OFFLINE	0
	OPOS_E_FAILURE	0

**PTR\_DI\_EM220II\_MSR\_READ**

Argument	Command	PTR_DI_EM220II_MSR_READ
	PData	Null
	PString	Null
Description	Read the MSR data.	
Return	Result Code	ResultCodeExtended
	OPOS_SUCCESS	0
	OPOS_E_ILLEGAL	0

**PTR\_DI\_EM220II\_MSR\_READ\_TRACK**

Argument	Command	PTR_DI_EM220II_MSR_READ_TRACK1 PTR_DI_EM220II_MSR_READ_TRACK2 PTR_DI_EM220II_MSR_READ_TRACK3
	PData	Null
	PString	Appropriate Track information
Description	Get the Track information from MSR data.	
Return	Result Code	ResultCodeExtended
	OPOS_SUCCESS	0
	OPOS_E_ILLEGAL	0

**PTR\_DI\_EM220II\_MSR\_READ\_CLEAR**

<b>Argument</b>	Command	PTR_DI_EM220II_MSR_READ_CLEAR
	PData	Null
	PString	Null
<b>Description</b>	Clear the MSR data.	
<b>Return</b>	Result Code	ResultCodeExtended
	OPOS_SUCCESS	0
	OPOS_E_ILLEGAL	0

**PTR\_DI\_EM220II\_MSR\_READ\_ENCRYPTION**

<b>Argument</b>	Command	PTR_DI_EM220II_MSR_READ_ENCRYPTION
	PData	Null
	PString	Null
<b>Description</b>	Read the MSR encryption data.	
<b>Return</b>	Result Code	ResultCodeExtended
	OPOS_SUCCESS	0
	OPOS_E_ILLEGAL	0

**4-2 DirectIOEvent Event**

Not used.

## 5. Error Information

This section is to explain returned error information when use POSPrinter methods. For more details, please refer to the UPOS specifications.

### 5-1 ResultCode List

#### ClaimDevice

Method	Result Code	ResultCodeExtended
ClaimDevice	OPOS_E_ILLEGAL	OPOS_EPTR_UNRECOVERABLE
		OPOS_EPTR_MECHANICAL
		OPOS_EPTR_CUTTER
		OPOS_EPTR_OVERHEAT
		OPOS_EPTR_REC_EMPTY
		OPOS_EPTR_JRN_EMPTY

#### CheckHealth

Method	Result Code	ResultCodeExtended
CheckHealth	OPOS_SUCCESS	0
	OPOS_E_CLOSED	0
	OPOS_E_CLAIMED	0
	OPOS_E_DISABLED	0
	OPOS_E_ILLEGAL	0
	OPOS_E_OFFLINE	0
	OPOS_E_OFFLINE	0
	OPOS_E_FAILURE	OPOS_EPTR_UNRECOVERABLE
		OPOS_EPTR_CUTTER
		OPOS_EPTR_MECHANICAL
		OPOS_EPTR_OVERHEAT

#### ClearOutput

Argument	Argument	Argument
ClearOutput	OPOS_SUCCESS	0
	OPOS_E_CLOSED	0
	OPOS_E_CLAIMED	0
	OPOS_E_NOTCLAIMED	0

## DirectIO

Method	Result Code	ResultCodeExtended
DirectIO	OPOS_SUCCESS	0
	OPOS_E_CLOSED	0
	OPOS_E_CLAIMED	0
	OPOS_E_NOTCLAIMED	0
	OPOS_E_DISABLED	0
	OPOS_E_ILLEGAL	0
	OPOS_E_OFFLINE	0
	OPOS_E_FAILURE	OPOS_EPTR_COVER_OPEN
		OPOS_EPTR_UNRECOVERABLE
		OPOS_EPTR_CUTTER
		OPOS_EPTR_MECHANICAL
	OPOS_E_EXTENDED	OPOS_EPTR_OVERHEAT
		OPOS_EPTR_COVER_OPEN
		OPOS_EPTR_JRN_EMPTY
		OPOS_EPTR_REC_EMPTY

## PrintNormal

Method	Result Code	ResultCodeExtended
PrintNormal	OPOS_SUCCESS	0
	OPOS_E_CLOSED	0
	OPOS_E_CLAIMED	0
	OPOS_E_NOTCLAIMED	0
	OPOS_E_DISABLED	0
	OPOS_E_ILLEGAL	0
	OPOS_E_OFFLINE	0
	OPOS_E_FAILURE	OPOS_EPTR_UNRECOVERABLE
		OPOS_EPTR_CUTTER
		OPOS_EPTR_MECHANICAL
		OPOS_EPTR_OVERHEAT
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN
		OPOS_EPTR_JRN_EMPTY
		OPOS_EPTR_REC_EMPTY

## PrintImmediate

Method	Result Code	ResultCodeExtended
PrintImmediate	OPOS_SUCCESS	0
	OPOS_E_CLOSED	0
	OPOS_E_CLAIMED	0
	OPOS_E_NOTCLAIMED	0
	OPOS_E_DISABLED	0
	OPOS_E_ILLEGAL	0
	OPOS_E_OFFLINE	0
	OPOS_E_FAILURE	OPOS_EPTR_UNRECOVERABLE
		OPOS_EPTR_CUTTER
		OPOS_EPTR_MECHANICAL
		OPOS_EPTR_OVERHEAT
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN
		OPOS_EPTR_JRN_EMPTY
		OPOS_EPTR_REC_EMPTY

## CutPaper

Method	Result Code	ResultCodeExtended
CutPaper	OPOS_SUCCESS	0
	OPOS_E_CLOSED	0
	OPOS_E_CLAIMED	0
	OPOS_E_NOTCLAIMED	0
	OPOS_E_DISABLED	0
	OPOS_E_ILLEGAL	0
	OPOS_E_OFFLINE	0
	OPOS_E_FAILURE	OPOS_EPTR_UNRECOVERABLE
		OPOS_EPTR_CUTTER
		OPOS_EPTR_MECHANICAL
		OPOS_EPTR_OVERHEAT
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN
		OPOS_EPTR_JRN_EMPTY
		OPOS_EPTR_REC_EMPTY

## RotatePrint

Method	Result Code	ResultCodeExtended
RotatePrint	OPOS_SUCCESS	0
	OPOS_E_CLOSED	0
	OPOS_E_CLAIMED	0
	OPOS_E_NOTCLAIMED	0
	OPOS_E_DISABLED	0
	OPOS_E_ILLEGAL	0
	OPOS_E_OFFLINE	0
	OPOS_E_FAILURE	OPOS_EPTR_UNRECOVERABLE
		OPOS_EPTR_CUTTER
		OPOS_EPTR_MECHANICAL
		OPOS_EPTR_OVERHEAT
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN
		OPOS_EPTR_JRN_EMPTY
		OPOS_EPTR_REC_EMPTY

## PrintBitmap

Method Name	Result Code	ResultCodeExtended
PrintBitmap	OPOS_SUCCESS	0
	OPOS_E_CLOSED	0
	OPOS_E_CLAIMED	0
	OPOS_E_NOTCLAIMED	0
	OPOS_E_DISABLED	0
	OPOS_E_ILLEGAL	0
	OPOS_E_OFFLINE	0
	OPOS_E_FAILURE	OPOS_EPTR_UNRECOVERABLE
		OPOS_EPTR_CUTTER
		OPOS_EPTR_MECHANICAL
		OPOS_EPTR_OVERHEAT
	OPOS_E_NOEXIST	0
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN
		OPOS_EPTR_JRN_EMPTY
		OPOS_EPTR_REC_EMPTY
		OPOS_EPTR_SLP_EMPTY
		OPOS_EPTR_TOOBIG
		OPOS_EPTR_BADFORMAT

## SetBitmap

Method	Result Code	ResultCodeExtended
SetBitmap	OPOS_SUCCESS	0
	OPOS_E_CLOSED	0
	OPOS_E_CLAIMED	0
	OPOS_E_NOTCLAIMED	0
	OPOS_E_DISABLED	0
	OPOS_E_ILLEGAL	0
	OPOS_E_OFFLINE	0
	OPOS_E_FAILURE	OPOS_EPTR_UNRECOVERABLE
		OPOS_EPTR_CUTTER
		OPOS_EPTR_MECHANICAL
		OPOS_EPTR_OVERHEAT
	OPOS_E_NOEXIST	0
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN
		OPOS_EPTR_JRN_EMPTY
		OPOS_EPTR_REC_EMPTY
		OPOS_EPTR_SLP_EMPTY
		OPOS_EPTR_TOOBIG
		OPOS_EPTR_BADFORMAT

## SetLogo

Method	Result Code	ResultCodeExtended
SetLogo	OPOS_SUCCESS	0
	OPOS_E_CLOSED	0
	OPOS_E_CLAIMED	0
	OPOS_E_NOTCLAIMED	0
	OPOS_E_DISABLED	0
	OPOS_E_ILLEGAL	0

## TransactionPrint

Method	Result Code	ResultCodeExtended
TransactionPrint	OPOS_SUCCESS	0
	OPOS_E_CLOSED	0
	OPOS_E_CLAIMED	0
	OPOS_E_NOTCLAIMED	0
	OPOS_E_DISABLED	0
	OPOS_E_ILLEGAL	0
	OPOS_E_OFFLINE	0
	OPOS_E_FAILURE	OPOS_EPTR_UNRECOVERABLE
		OPOS_EPTR_CUTTER
		OPOS_EPTR_MECHANICAL
		OPOS_EPTR_OVERHEAT
	OPOS_E_NOEXIST	0
	OPOS_E_EXTENDED	OPOS_EPTR_COVER_OPEN
		OPOS_EPTR_JRN_EMPTY
		OPOS_EPTR_REC_EMPTY
		OPOS_EPTR_SLP_EMPTY





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