

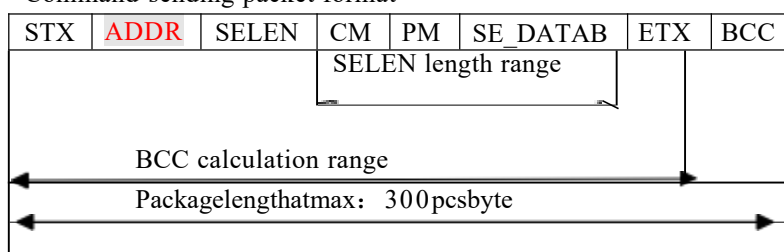
K720/K730/k750 Communication Protocol

I. Communication Data Format

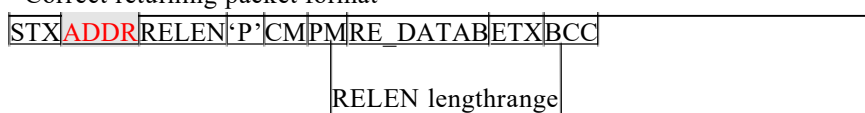
Communication Method	asynchronous communication, halfduplex
Initial bit	1bit
Data bit	8bits
Check bit	None
Stop bit	1bit
Preset baud rate	9600bps

II.Data packet format

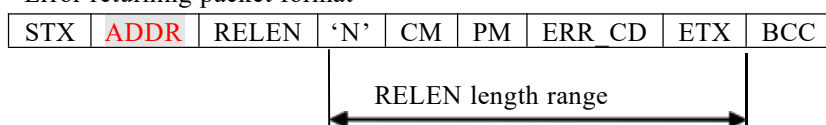
Command-sending packet format



Correct returning packet format



Error returning packet format



Note:

[1]CM, Commandcode

[2]PM, CommandParameter

[3]SE_DATAB, Sendingdatabag

[4]RE_DATAB, Returningdatabag。

[5]ERR_CD, Errorcode

[6]BCC, Xorchecksum. Calculatingmethod: Xoroperationeverydatafromstx(IncludeSTX) to ETX (IncludeETX)

[7]'P', =0x50。MeansthatCommandoperationsucceed

[8]'N', =0x4E。Meansthatcommandoperationfail

[9]SELEN , Lengthof thesendingdatapacket. Twobytes. Consistsof

sendingbaglengthhighbit[SELEN_H]andsendingbaglengthlowbit[SELEN_L].SELENlength=[SELEN_H]×256 + [SELEN_L]

[10]RELEN, Length ofthe returning data packet. Two bytes. Consistsofreturning

baglengthhighbit[RELEN_H]andreturningbaglengthlowbit[RELEN_L].RELENlength=[RELEN_H]×256 + [RELEN_L]

[11]STX, Blockbeginsymbol. Preset: 0X02

[12]ETX, Blockendsymbol。Preset: 0x03

[13]ADDR, Multiplemachinecommunicationaddress,lengthistwobyte.Highbitat front(ADDH), lowbitatback (ADDL)

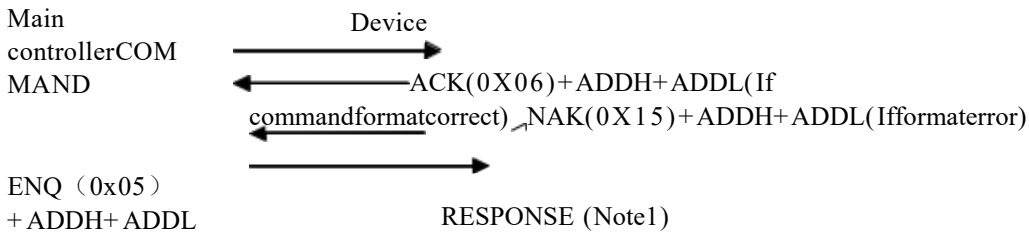
Note: whenCardreader/writer receivescommandbagfromhostmachine,if character intervaltime ofcommand bag is over 15MS, it will take it as overtime and void.

ADDRsetbyDIPswitch, addressasbelows:

DIP Switch				Hex	ADDH	ADDL
4	3	2	1			
ON	ON	ON	ON	00	30	30
ON	ON	ON	OFF	01	30	31
ON	ON	OFF	ON	02	30	32
ON	ON	OFF	OFF	03	30	33
ON	OFF	ON	ON	04	30	34
ON	OFF	ON	OFF	05	30	35
ON	OFF	OFF	ON	06	30	36
ON	OFF	OFF	OFF	07	30	37
OFF	OFF	OFF	ON	08	30	38
OFF	OFF	ON	OFF	09	30	39
OFF	OFF	ON	ON	0A	31	30
OFF	ON	OFF	OFF	0B	31	31
OFF	ON	OFF	ON	0C	31	32
OFF	ON	ON	OFF	0D	31	33
OFF	ON	ON	ON	0E	31	34
OFF	OFF	OFF	OFF	0F	31	35

Note: whenCardreader/writer receivescommandbagfromhostmachine,if character intervaltime ofcommand bag is over 50MS, it will take it as overtime and void.

Communication Procedure :



Note1: Ifhost machinesendingcommandis belong to"Commandlist2", the devicedoesnotreturn response. Thehostmachinethroughsendingcheckcommand "RF"(0X520X46)or"AP"(0X410X50)to get the results ofperformance

Note:

[1]COMMAND: commandpacket

[2] RESPONSE: responsepacket

[3]ACK: Controlcharacter , lengthisonebyte,activeresponse, value=0x06

[4]NAK: Controlcharacter , lengthisonebyte, negativeresponse,value=0x15

[5]ENQ: Controlcharacter , lengthisonebyte,executecommandrequest,

value=0x05[6]EOT: Controlcharacter , lengthisonebyte,cancelcommand, value=0x04

Note:

[1]When machine use multiple-communication, the PC host can controll6setequipment throughoneserial port.

[2]When machine use multiple-communication, the address ofeach machine must be set to unique.

二：Commandlist 1

Command serial	Command name	Comman dcode(C M)	Comm and PM (PM)	Command function
1	ContactlesscardS50 o peration	0x3B	0x30	Searchcard
			0x31	Read serial number
			0x32	Check password
			0x33	Readcard
			0x34	Writecard
			0x35	Value operation initial
			0x36	Increment operation
			0x37	Devalue operation
			0x38	Closedown
			0x39	Read EEPROM
			0x3a	Write EEPROM
			0x3b	Lead in password from EEPROM
2	ContactlesscardS70 o peration	0x3C	0x30	Searchcard
			0x31	Read serial number
			0x32	Check password
			0x33	Readcard
			0x34	Writecard
			0x35	Value operation initial
			0x36	Increment operation
			0x37	Devalue operation
			0x38	Closedown
			0x39	Read EEPROM
			0x3a	Write EEPROM
			0x3b	Lead in password from EEPROM
3	ContactlessULcardo peration	0x3D	0x30	Searchcard
			0x31	Read serial number
			0x32	Readcard
			0x33	Writecard
			0x34	Closedown

4	ContactlessCPUcard operation (ISO14443 TYPEA)	0x47	0x30	Activate card
			0x31	Restore response request
			0x32	PPS request
			0x33	Send APDU command
			0x34	DESELECT request
			0x35	Halt command
6	15693Card	0x48	0x30	Content request
			0x31	Readcard
			0x32	Writecard
			0x33	Choose
			0x34	Read systeminfo
			0x35	Read securestates
			0x36	Write DSFID
			0x37	WriteAFI
			0x3a	Lock block
			0x3b	LockAFI
			0x3c	Lock DSFID
			0x30	Content request

Commandlist 2

Command name	Code
Dispense card to front holding position	“DC”(0X44 0X43)
Check	“RF”(0X52 0X46)
Check	“AP”(0X41 0X50)
Recycle card	“CP”(0X43 0X50)
Collect card to card hopper	“DB”(0X44 0X42)
Reset	“RS”(0X52 0X53)
Get version	“GV”(0X47 0X56)
Buffer enable	“BE”(0X42 0X45)
Buffer disable	“BD”(0X42 0X44)
Set baud rate	“CS2”(0X43 0X53 0X32) 4800
	“CS3”(0X43 0X53 0X33) 9600
	“CS4”(0X43 0X53 0X34) 19200
	“CS5”(0X43 0X53 0X34) 38400
Dispense card at sensor 2 position	“FC6”(0X46 0X43 0X36)
Get version	“GV”(0X47 0X56)
Dispense card at read card position	“FC7”(0X46 0X43 0X37)
Dispense card at hold card position	“FC4”(0X46 0X43 0X34)
Dispense card out of card mouth	“FC0”(0X46 0X43 0X30)
Enter card to read position from front-side	“FC8”(0X46 0X43 0X38)
Read barcode data	“RD”(0X52 0X44)

LED Control function(Optional item)				
CM	PM	SE DATAB	Note	
“L”	“P”	0x00	Always light on	
		0x01	1 time/Sec	
		0x02	2 times/sec	
		0x03	3 times/sec	
		0x04	4 times/sec	
		0x05	5 times/sec	
		0x06	6 times/sec	
		0x07	7 times/sec	
		0x08	8 times/sec	
		0x09	9 times/sec	
		0x0A	10 times/sec	
		0x0B	11 times/sec	
		0X0C	12 times/sec	
		0X0D	13 times/sec	
		0X0E	14 times/sec	
		0X0F	15 times/sec	
		0X82	1 times/sec	
		0X83	1 time/3sec	
		0X84	1 time/4sec	
		0X85	1 time/5sec	
		0X86	1 time/6	
		0X87	1 time/7sec	
		0X88	1 time/8sec	
		0X89	1 time/9sec	
		0X8A	1 time/10sec	
		0X8B	1 time/11 sec	
		0X8C	1 time/12sec	
		0X8D	1 time/13sec	
		0X8E	1 time/14sec	
		0X8F	1 time/15sec	
“L”	“F”		LED closed	

Send “AP” or “RF” command will be below states

Hexadecimal	Binary	States
0x38 0x300x300x30	1000 000000000000	Recycling box full
0x34 0x300x300x30	0100 00000000 0000	Could not implement command
0x31 0x300x300x30	0001 00000000 0000	Cardhopper pre-full, See below note1
0x30 0x380x300x30	00001000 00000000	Sending card
0x30 0x340x300x30	0000 01000000 0000	Collecting card
0x30 0x320x300x30	0000 00100000 0000	Error of issuing card
0x30 0x310x300x30	0000 00010000 0000	Error of recycling card
0x30 0x300x380x30	0000 000010000000	Cardhopper full (only used for K750)
0x30 0x300x340x30	0000 00000100 0000	Card overlap
0x30 0x300x320x30	0000 00000010 0000	Card jam
0x30 0x300x310x30	0000 00000001 0000	Card pre-empty
0x30 0x300x300x38	0000 000000001000	Card empty
0x30 0x300x300x34	0000 00000000 0100	Card at sensor 3 position
0x30 0x300x300x32	0000 00000000 0010	Card at sensor 2 position
0x30 0x300x300x31	0000 00000000 0001	Card at sensor 1 position

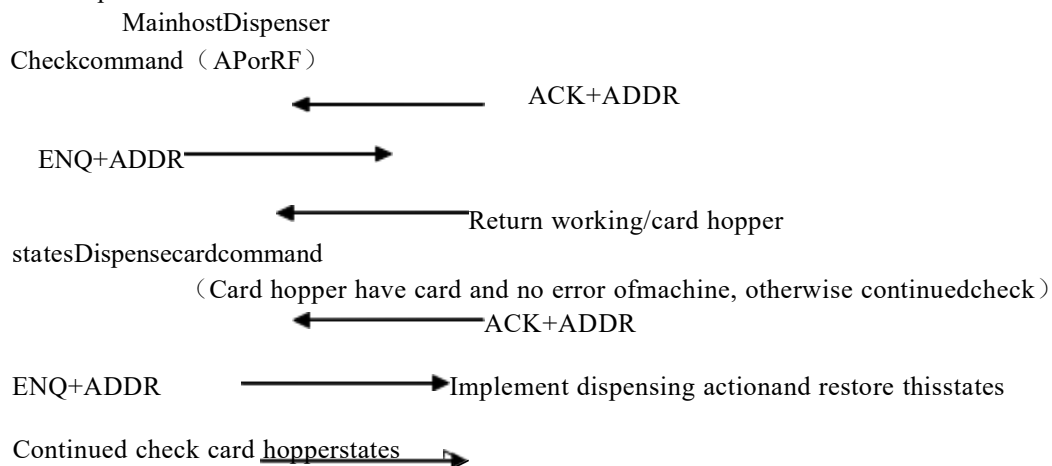
Note1:

K750 and K730 without card pre-dispensing function

三： Commanddetailedmanual

Control and set command of machine

Dispense card process:



Note: (1) Check machine states before dispensing card, No error then can start implement dispensing command.

(2) Do not implement another command before a command process does not finished. (3) Two check states must interval 200ms;

1. Check states ("AP")

1.1 Host send

0x02	ADD H	ADD L	0x00	0x02	"A"	"P"	0x03	BCC
------	----------	----------	------	------	-----	-----	------	-----

Return:

0x02	ADDH	ADDL	0X00	0X06	"S"	"F"	Machine states (4byte s)	0x03	BCC
------	------	------	------	------	-----	-----	--------------------------------	------	-----

1.2 Check states ("RF")

Host send:

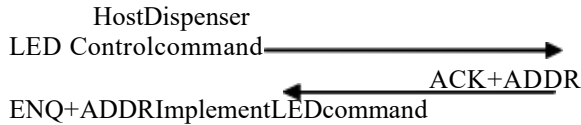
0x02	A D D H	A D D L	0x00	0x02	"R"	"F"	0x03	BCC
------	------------------	------------------	------	------	-----	-----	------	-----

Return

0x02	ADDH	ADDL	0X00	0X05	“S”	“F”	Machine states (3 bytes)	0x03	BCC
------	------	------	------	------	-----	-----	--------------------------	------	-----

Command list 2 and LED command operation manual:

Communication process:



Hostsend:

0x02	A D D H	A D D L	0x0 0	0x02(2 bytes command) 0x03(3 bytes command)	Thefirstbyt eof command	Thesecondb yteofcomm and	Thethird byteofcomm and	0x03	BCC
------	------------------	------------------	----------	--	-------------------------------	--------------------------------	-------------------------------	------	-----

Note: (1)Command list 2 and LED control command decidethe thirdbytecommand

Contactless card operation command

Note: Allbelowcommandsarebringaddress, nomarkedmeanseliding, send/returnresponseall must bring address .

1、S50 cardcommand

1. 1、Search card

0x02	ADDH	ADDL	0x00	0x02	0x3B	0x30	0X03	BCC
------	------	------	------	------	------	------	------	-----

Returnsuccessfully:

0x02	ADDH	ADDL	0X00	0X03	0x50	0x3B	0x30	0x03	BCC
------	------	------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	ADD H	ADD L	0X00	0X04	0x4E	0x3 B	0x30	ERR_C D	0X03	BCC
------	----------	----------	------	------	------	----------	------	------------	------	-----

Note: Theaddress (ADDH、 ADDL) ofbelowcommandsbeenelided, whenyousend/returncommand must add address(ADDH.ADDL), the format seeabove"search card"command

1. 2、Readcardserialno

0x02	0x00	0x02	0x3B	0x31	0X03	BCC
------	------	------	------	------	------	-----

Returnsuccessfull:

0x02	RELE_N H L	RELE N L	0x50	0x3 B	0x31	Cardserial no	0x03	BCC
------	---------------	-------------	------	----------	------	------------------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3B	0x31	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

1. 3、Checkpassword

0x02	0X00	0X0A	0x3B	0x32	Block address	PSW type	6 bytesPSW	0X03	BCC
------	------	------	------	------	---------------	----------	------------	------	-----

Note:

PSWtype:=0X30,checkKEYA:=0X31,checkKEYB

Password(PSW): Length is 6 bytes sector password

Returnsuccessfull:

0x02	0x00	0x03	0x50	0x3B	0x32	0x03	BCC
------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3B	0x32	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

1. 4、Read data

0x02	0x00	0x03	0x3B	0x33	BlockAddr	0X03	BCC
------	------	------	------	------	-----------	------	-----

Return successfull

0x02	0x00	0x13	0x50	0x3B	0x33	16 bytesdatablock	0x03	BCC
------	------	------	------	------	------	-------------------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3B	0x33	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

1. 5、Write data

0x02	0x00	0x13	0x3B	0x34	Block Addr	16bytesdatablock	0X03	BCC
------	------	------	------	------	------------	------------------	------	-----

Returnsuccessfull:

0x02	0x00	0x03	0x50	0x3B	0x34	0x03	BCC
------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3B	0x34	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

1. 6、Value initialoperation

0x02	0x00	0x13	0x3B	0x35	Block Addr	16bytesdatablock	0X03	BCC
------	------	------	------	------	------------	------------------	------	-----

Returnsuccessfull:

0x02	0x00	0x03	0x50	0x3B	0x35	0x03	BCC
------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3B	0x35	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

Note: Initialized value format as below

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Value				/Value				Value				Ad	/Ad	Ad	/Ad
												r	r	r	r

Value: Needtoinitialize 4 bytevalue, lowbyteatfront, highbyteatbehind./Value:Negate the 4 byte value which need to initialize

Adr:Need to initialize value's block address

Adr=sectornumberX 4+blocknumber(S50card0-15sector, S70cardthe0-31 sector block value operation address calculation)

Adr= (sectornumber - 32) X 16 + 128+ blocknumber (S70cardthe32 -39 sectorblockvalueoperationaddresscalculation)

/Adr: Negatetheblockaddresswhichyouneedtoinitializevalue

Noted: !For each sector last block, please do not operate their value.

E.g: Makethefivesectorblockinitializationvalue 0 to10, writedatato16 bytesectorblockis:
 “0x0A,0x00,0x00,0x00,0xF5,0xFF,0xFF,0xFF,0x0A,0x00,0x00,0x00,0x14,0xEB,0x14,
 0xEB”
 Fors70card,makethe39sectorblockinitializationvalue0to 10,writedatato 16byte sector block is:
 “0x0A,0x00,0x00,0x00,0xF5,0xFF,0xFF,0xFF,0x0A,0x00,0x00,0x00,0xF0,0x0F,0XF0,
 0x0F”

1. 7、Incrementoperation

0x02	0x00	0x07	0x3B	0x36	Block Addr	4bytesincrementdata	0X03	BCC
------	------	------	------	------	---------------	---------------------	------	-----

Note: Increment data, low byte atfront, high byteat behind

Returnsuccessfull:

0x02	0x00	0x03	0x50	0x3B	0x36	0x03	BCC
------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3B	0x36	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

4 bytehexdataisappointedsector,appointedblockvalueneedtoincreasevalue.(lowbyteatfront,high byte at behind)

Ifneedtoincrease 0x10, send 4 bytehexdatais: “ 0x10,0x00, 0x00,0x00”

1. 8、Decrementoperation

0x02	0x00	0x07	0x3B	0x37	Block Addr	4bytesdecrement data	0X03	BCC
------	------	------	------	------	---------------	-------------------------	------	-----

Note: Devalue data, low byte atfront,high byteat behind.

Returnsuccessfull:

0x02	0x00	0x03	0x50	0x3B	0x37	0x03	BCC
------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3B	0x37	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

4bytehexDataisappointedsectorandappointedblockvalueneedtoincreasevalue.(lowbyteatfront, high byte at behind)

Ifneedtodecrease 0x10, send 4 bytehexdatais: “ 0x10,0x00,0x00,0x00 ”

1. 9、Readeprom

0x02	0x00	0x03	0x3B	0x38	MSB	LSB	LEN	0X03	BCC
------	------	------	------	------	-----	-----	-----	------	-----

Returnsuccessfull:

0x02	0x00	0x13	0x50	0x3B	0x38	Data	0x03	BCC
------	------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3B	0x38	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

Parameternot:

MSB: EEPROMAddress, high8 bits

LSB: EEPROMAddress, low 8 bits

LEN: Readlength

1. 10、Write eeprom

0x02	0x00	0x03	0x3B	0x39	MSB	LSB	LEN	DATA	0X03	BCC
------	------	------	------	------	-----	-----	-----	------	------	-----

Returnsuccessfull:

0x02	0x00	0x13	0x50	0x3B	0x39	0x03	BCC
------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3B	0x39	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

Parameternote:

MSB: EEPROMAddress, high8 bits

LSB: EEPROMAddress, low 8 bits

LEN: Writedatalength

DATA: Writedata

1. 11、ImportpasswordfromEEPROM

0x02	0x00	0x03	0x3B	0x3a	MSB	LSB	0X03	BCC
------	------	------	------	------	-----	-----	------	-----

Returnsuccessful:

0x02	0x00	0x13	0x50	0x3B	0x3a	0x03	BCC
------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3B	0x3a	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

Parameternote:

MSB: EEPROMAddress, high8 bits

LSB: EEPROMAddress,low8 bits

2、S70 cardcommand

2. 1、Searchcard

0x02	0x00	0x02	0x3C	0x30	0X03	BCC
------	------	------	------	------	------	-----

Returnsuccessful:

0x02	0X00	0X03	0x50	0x3C	0x30	0x03	BCC
------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3C	0x30	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

2. 2、Readserialnumber

0x02	0x00	0x02	0x3C	0x31	0X03	BCC
------	------	------	------	------	------	-----

Returnsuccessful:

0x02	0X00	0X07	0x50	0x3C	0x31	4 bytescardserial	0x03	BCC
------	------	------	------	------	------	-------------------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3C	0x31	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

2. 3、Checkpassword

0x02	0x00	0x0A	0x3C	0x32	Block Addr	PSW type	6 bytes PSW	0X03	BCC
------	------	------	------	------	---------------	-------------	-------------------	------	-----

Returnsuccessful:

0x02	0x00	0x03	0x50	0x3C	0x32	0x03	BCC
------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3C	0x32	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

2. 4、Readdata

0x02	0x00	0x03	0x3C	0x33	Block Addr	0X03	BCC
------	------	------	------	------	---------------	------	-----

Returnsuccessful:

0x02	0x00	0x13	0x50	0x3C	0x33	16bytes data	0x03	BCC
------	------	------	------	------	------	--------------	------	-----

						block		
--	--	--	--	--	--	-------	--	--

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3C	0x33	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

2. 5、Writedata

0x02	0x00	0x13	0x3C	0x34	Block Addr	16bytesdatablock	0X03	BCC
------	------	------	------	------	------------	------------------	------	-----

Returnsuccessful:

0x02	0x00	0x03	0x50	0x3C	0x34	0x03	BCC
------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3C	0x34	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

2. 6、Valueinitializeoperation

0x02	0x00	0x13	0x3C	0x35	Block Addr	16bytesdatablock	0X03	BCC
------	------	------	------	------	------------	------------------	------	-----

Returnsuccessful:

0x02	0x00	0x03	0x50	0x3C	0x35	0x03	BCC
------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3C	0x35	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

Initialized value format as below

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Value				/Value				Value				Ad	/Ad	Ad	/Ad
												r	r	r	r

“0x0A,0x00,0x00,0x00,0xF5,0xFF,0xFF,0xFF,0x0A,0x00,0x00,0x00,0xF0,0x0F,0XF0, 0x0F”

Value: Needtoinitialize 4 bytevalue, lowbyteatfront,

highbyteatbehind./Value:Negate the 4 byte value which need to initialize

Adr:Need to initialize value's block address

Adr=sectornumberX 4+blocknumber(S50card0-15sector, S70cardthe0-31 sector
block value operation address calculation)

Adr= (sectornumber – 32) X 16 + 128+ blocknumber (S70cardthe32-39
sectorblockvalueoperationaddresscalculation)

/Adr: Negatetheblockaddresswhichyouneedtoinitializevalue

Noted: !For each sector last block, please do not operate their value.

E.g: Makethefivesectorblockinitializationvalue 0 to10, writedatato16 bytesectorblockis:

“0x0A,0x00,0x00,0x00,0xF50xFF,0xFF,0xFF,0x0A,0x00,0x00,0x00,0x14,0xEB,0x14,
0xEB”

Fors70card,makethe39sectorblockinitializationvalue0to 10,writedatato 16byte sector block is:

“0x0A,0x00,0x00,0x00,0xF5,0xFF,0xFF,0xFF,0x0A,0x00,0x00,0x00,0xF0,0x0F,0XF0,
0x0F”

2. 7、Incrementoperation

0x02	0x00	0x07	0x3C	0x36	Block Addr	4 bytes increment data	0X03	BCC
------	------	------	------	------	------------	------------------------	------	-----

Note: Increment data, low byte atfront, high byteat behind

Returnsuccessful:

0x02	0x00	0x03	0x50	0x3C	0x36	0x03	BCC
------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3C	0x36	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

2. 8、Decrementoperation

0x02	0x00	0x07	0x3C	0x37	Block Addr	4bytesdecrementdata	0X03	BCC
------	------	------	------	------	------------	---------------------	------	-----

Note: Devalue data, low byte atfront,high byteat behind.

Returnsuccessful:

0x02	0x00	0x03	0x50	0x3C	0x37	0x03	BCC
------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3C	0x37	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

2. 9、Readeeprom

0x02	0x00	0x03	0x3c	0x38	MSB	LSB	LEN	0X03	BCC
------	------	------	------	------	-----	-----	-----	------	-----

Returnsuccessful:

0x02	0x00	0x13	0x50	0x3c	0x38	data	0x03	BCC
------	------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3c	0x38	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

Parameternote:

MSB: EEPROMAddress, high8 bits

LSB: EEPROMAddress,low8 bits

LEN: Readlength

2. 10、Writeeprom

0x02	0x00	0x03	0x3c	0x39	MSB	LSB	LEN	DATA	0X03	BCC
------	------	------	------	------	-----	-----	-----	------	------	-----

Returnsuccessful:

0x02	0x00	0x13	0x50	0x3c	0x39	0x03	BCC
------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3c	0x39	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

Parameternote:

MSB: EEPROMAddress, high8 bits

LSB: EEPROMAddress,low8 bits

LEN: Writedatalength

DATA: Writedata

2. 11、ImportpasswordfromEEPROM

0x02	0x00	0x03	0x3c	0x3a	MSB	LSB	0X03	BCC
------	------	------	------	------	-----	-----	------	-----

Returnsuccessful:

0x02	0x00	0x13	0x50	0x3c	0x3a	0x03	BCC
------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3c	0x3a	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

Parameternote:

MSB: EEPROMAddress, high8 bits

LSB: EEPROMAddress, low 8 bits

3、ULcardcommand

3. 1、Searchcard

0x02	0x00	0x02	0x3D	0x30	0X03	BCC
------	------	------	------	------	------	-----

Returnsuccessful:

0x02	0x00	0x03	0x50	0x3D	0x30	0x03	BCC
------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3D	0x30	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

3. 2、Readserialnumber

0x02	0x00	0x02	0x3D	0x31	0X03	BCC
------	------	------	------	------	------	-----

Returnsuccessful:

0x02	0x00	0x0a	0x50	0x3D	0x31	7 bytesserialno	0x03	BCC
------	------	------	------	------	------	-----------------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3D	0x31	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

3. 3、Readoperation

0x02	0x00	0x03	0x3D	0x32	Block Addr	0X03	BCC
------	------	------	------	------	------------	------	-----

Returnsuccessful:

0x02	0x00	0x13	0x50	0x3D	0x32	16 bytesdata	0x03	BCC
------	------	------	------	------	------	--------------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3D	0x32	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

3. 4、Writeoperation

0x02	0x00	0x13	0x3D	0x33	Block Addr	16 bytesdata	0X03	BCC
------	------	------	------	------	------------	--------------	------	-----

Returnsuccessful:

0x02	0x00	0x03	0x50	0x3D	0x33	0x03	BCC
------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3D	0x33	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

Note: block address0-1only read could not bewrite,blockaddress2-3withspecialmeaning,please donotwriteinit.

3. 5、Closedown

0x02	0x00	0x07	0x3D	0x34	0X03	BCC
------	------	------	------	------	------	-----

Returnsuccessful:

0x02	0x00	0x03	0x50	0x3D	0x34	0x03	BCC
------	------	------	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x3D	0x34	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

4、TYPEAcontactlesssmartcardcommand

4.1、Activatecard

0x02	0x00	0x03	0x47	0x30	0X03	BCC
------	------	------	------	------	------	-----

Returnsuccessful:

0x02	LH	LL	0x50	0x47	0x30	UID	0x03	BCC
------	----	----	------	------	------	-----	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x47	0x30	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

Parameternote:

[1]LH, packagelengthhigh8 bits. LL, packagelengthlow8 bits

4.2、Readresetresponse

0x02	0x00	0x03	0x47	0x31	0X03	BCC
------	------	------	------	------	------	-----

Returnsuccessfull:

0x02	LH	LL	0x50	0x47	0x31	ATS	0x03	BCC
------	----	----	------	------	------	-----	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x47	0x31	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

4.3、PPSrequest

0x02	0x00	0x03	0x47	0x32	PPS0	PPS1	0X03	BCC
------	------	------	------	------	------	------	------	-----

Returnsuccessfull:

0x02	LH	LL	0x50	0x47	0x32	0x03	BCC
------	----	----	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x47	0x32	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

4.4、Protocoltransmission

0x02	SH	SL	0x47	0x33	CH	CAPDU	0X03	BCC
------	----	----	------	------	----	-------	------	-----

Returnsuccessfull:

0x02	LH	LL	0x50	0x47	0x33	CH	RAPDU	0x03	BCC
------	----	----	------	------	------	----	-------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x47	0x33	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

Parameternote:

[1]CH: Linkicon,=0x30 nolink, =0x31 withlink。

[2]CAPDU: PCDcommandpackage

[3]RAPDU: PICCreturnpackage

[4]SH,sendpackagelengthhigh8 bits; SL, sendpackagelengthlow8 bits

4.5、DESELECT

0x02	0x00	0x03	0x47	0x34	0X03	BCC
------	------	------	------	------	------	-----

Returnsuccessfull:

0x02	LH	LL	0x50	0x47	0x34	0x03	BCC
------	----	----	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x47	0x34	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

4.6、HALT

0x02	0x00	0x03	0x47	0x35	0X03	BCC
------	------	------	------	------	------	-----

Returnsuccessfull:

0x02	LH	LL	0x50	0x47	0x35	0x03	BCC
------	----	----	------	------	------	------	-----

Returnwithfailure:

0x02	0X00	0X04	0x4E	0x47	0x35	ERR_CD	0X03	BCC
------	------	------	------	------	------	--------	------	-----

5. 15693 cardcommand

5. 1 Contentrequest

0x02	0x00	0x02	0x48	0x30	0x03	BCC
------	------	------	------	------	------	-----

Returnsuccessfull:

0x02	0x00	0x0B	0x50	0x48	0x30	UID	0x03	BCC
------	------	------	------	------	------	-----	------	-----

Returnwithfailure1 :

0x02	0x00	0x04	0x4E	0X48	0X30	ERR_CD	0x03	BCC
------	------	------	------	------	------	--------	------	-----

Returnwithfailure2 :

0x02	0x00	0x05	0x4E	0X48	0X30	2 bytes15693errorcode	0x03	BCC
------	------	------	------	------	------	--------------------------	------	-----

Referto15693 《Responseerrordefinition》

5. 2 Readcard

Read without UID

0x02	0x00	0x05	0x48	0x31	0x02	FirstBlockA ddr	BlockQty	0x03	BCC
------	------	------	------	------	------	--------------------	----------	------	-----

Read with UID

0x02	0x00	0x0D	0x48	0x31	0x22	UID	First Block Addr	Block Qty	0x03	BCC
------	------	------	------	------	------	-----	------------------------	--------------	------	-----

Returnsuccessfull:

0x02	RELEN_H	RELEN_L	0x50	0x48	0x31	Readdata	Readdatal ength	0x03	BCC
------	---------	---------	------	------	------	----------	--------------------	------	-----

Returnwithfailure1 :

0x02	0x00	0x04	0x4E	0X48	0X31	ERR_CD	0x03	BCC
------	------	------	------	------	------	--------	------	-----

Returnwithfailure2 :

0x02	0x00	0x05	0x4E	0X48	0X31	2 bytes15693errorcode	0x03	BCC
------	------	------	------	------	------	--------------------------	------	-----

Referto15693 《Responseerrordefinition》

5. 3 WriteCard

Write with UID

0x02	RELEN_H	RELEN_L	0x48	0x32	0x02	First Block Addr	Block data	data	0x03	BCC
------	---------	---------	------	------	------	------------------------	---------------	------	------	-----

Write without UID

0x02	RELEN_H	RELEN_L	0x48	0x32	0x22	UID	First Block Addr	Block Qty	data	0x03	BCC
------	---------	---------	------	------	------	-----	------------------------	-----------	------	------	-----

Returnsuccessfull:

0x02	0x00	0x04	0x50	0x48	0x32	Success writtenblockq ty	0x03	BCC
------	------	------	------	------	------	--------------------------------	------	-----

Returnwithfailure1 :

0x02	0x00	0x04	0x4E	0X48	0x32	ERR_CD	0x03	BCC
------	------	------	------	------	------	--------	------	-----

Returnwithfailure2 :

0x02	0x00	0x05	0x4E	0X48	0x32	2 bytes15693error code	0x03	BCC
------	------	------	------	------	------	---------------------------	------	-----

Referto15693 《Responseerrordefinition》

5.4 Choosecard

0x02	0x00	0x0B	0x48	0x33	0x22	UID	0x03	BCC
------	------	------	------	------	------	-----	------	-----

Returnsuccessful:

0x02	0x00	0x04	0x50	0x48	0x33	0x00	0x03	BCC
------	------	------	------	------	------	------	------	-----

Returnwithfailure1:

0x02	0x00	0x04	0x4E	0X48	0x33	ERR_CD	0x03	BCC
------	------	------	------	------	------	--------	------	-----

Returnwithfailure2:

0x02	0x00	0x05	0x4E	0X48	0x33	2 bytes15693errorcode	0x03	BCC
------	------	------	------	------	------	--------------------------	------	-----

Referto15693 《Responseerrordefinition》

5. 5 Readsysteminfo: 02 00 0B 48 34 22 91 89 2F 5D 00 01 04 E0 03 DB

Without UID

0x02	0x00	0x03	0x48	0x34	0x02	0x03	BCC
------	------	------	------	------	------	------	-----

With UID

0x02	0x00	0x0B	0x48	0x34	0x22	UID	0x03	BCC
------	------	------	------	------	------	-----	------	-----

Returnsuccessful: 02 0012 50 48 34 000F91892F5D000104E004041B030103A6

0x02	RELEN_H	RELEN_L	0x50	0x48	0x34	Returndata						EXT	BCC
						Ico n	Info Icon	UID	DSFID	AFI	Inf o file d		

Returnwithfailure1:

0x02	0x00	0x04	0x4E	0X48	0x34	ERR_CD	0x03	BCC
------	------	------	------	------	------	--------	------	-----

Returnwithfailure2:

0x02	0x00	0x05	0x4E	0X48	0x34	2 bytes15693errorcode	0x03	BCC
------	------	------	------	------	------	--------------------------	------	-----

Referto15693 《Responseerrordefinition》

5. 6 Readsecuritystates:

Without UID

0x02	0x00	0x05	0x48	0x35	0x02	FirstBlockA ddr	BlockQty	0x03	BCC
------	------	------	------	------	------	--------------------	----------	------	-----

With UID

0x02	0x00	0x0D	0x48	0x35	0x22	UID	FirstBlock Addr	Block Qty	0x03	BCC
------	------	------	------	------	------	-----	--------------------	-----------	------	-----

Returnsuccessful:

0x02	RELEN_H	RELEN_L	0x50	0x48	0x35	Return data	Return BlockQty	EXT	BCC
------	---------	---------	------	------	------	----------------	--------------------	-----	-----

Returnwithfailure1:

0x02	0x00	0x04	0x4E	0X48	0x35	ERR_CD	0x03	BCC
------	------	------	------	------	------	--------	------	-----

Returnwithfailure2:

0x02	0x00	0x05	0x4E	0X48	0x35	2 bytes15693errorcode	0x03	BCC
------	------	------	------	------	------	--------------------------	------	-----

Referto15693 《Responseerrordefinition》

5. 7 WriteDSFI: 02 00 0C 48 36 22 91 89 2F 5D 00 01 04 E0 04 03 DA

With UID

0x02	0x00	0x0c	0x48	0x36	0x22	UID	Data (1 byte)	0x03	BCC
------	------	------	------	------	------	-----	---------------	------	-----

Return successful:

0x02	0x00	0x04	0x50	0x48	0x36	0x00	0x03	BCC
------	------	------	------	------	------	------	------	-----

Return with failure 1:

0x02	0x00	0x04	0x4E	0X48	0x36	ERR_CD	0x03	BCC
------	------	------	------	------	------	--------	------	-----

Return with failure 2:

0x02	0x00	0x05	0x4E	0X48	0x36	2 bytes 15693 error code	0x03	BCC
------	------	------	------	------	------	--------------------------	------	-----

Refer to 15693 《Response error definition》

5. 8 WriteAFI:

With UID

0x02	0x00	0x0c	0x48	0x37	0x22	UID	Data(1 byte)	0x03	BCC
------	------	------	------	------	------	-----	--------------	------	-----

Return successful:

0x02	0x00	0x04	0x50	0x48	0x37	0x00	0x03	BCC
------	------	------	------	------	------	------	------	-----

Return with failure 1:

0x02	0x00	0x04	0x4E	0X48	0x37	ERR_CD	0x03	BCC
------	------	------	------	------	------	--------	------	-----

Return with failure 2:

0x02	0x00	0x05	0x4E	0X48	0x37	2 bytes 15693 error code	0x03	BCC
------	------	------	------	------	------	--------------------------	------	-----

Refer to 15693 《Response error definition》

5. 9 Lockblock:

0x02	0x00	0x0c	0x48	0x3a	0x22	UID	BlockAddr	0x03	BCC
------	------	------	------	------	------	-----	-----------	------	-----

Return successful:

0x02	0x00	0x04	0x50	0x48	0x3a	0x00	0x03	BCC
------	------	------	------	------	------	------	------	-----

Return with failure 1:

0x02	0x00	0x04	0x4E	0X48	0x3a	ERR_CD	0x03	BCC
------	------	------	------	------	------	--------	------	-----

Return with failure 2:

0x02	0x00	0x05	0x4E	0X48	0x3a	2 bytes 15693 error code	0x03	BCC
------	------	------	------	------	------	--------------------------	------	-----

Refer to 15693 《Response error definition》

5. 10 LockAFI:

0x02	0x00	0x0b	0x48	0x3b	0x22	UID	0x03	BCC
------	------	------	------	------	------	-----	------	-----

Return successful:

0x02	0x00	0x04	0x50	0x48	0x3b	0x00	0x03	BCC
------	------	------	------	------	------	------	------	-----

Return with failure 1:

0x02	0x00	0x04	0x4E	0X48	0x3b	ERR_CD	0x03	BCC
------	------	------	------	------	------	--------	------	-----

Return with failure 2:

0x02	0x00	0x05	0x4E	0X48	0x3b	2 bytes15693errorcode	0x03	BCC
------	------	------	------	------	------	--------------------------	------	-----

Referto15693 《Responseerrordefinition》

5. 11 LockDSFID:

0x02	0x00	0x0b	0x48	0x3c	0x22	UID	0x03	BCC
------	------	------	------	------	------	-----	------	-----

Returnsuccessful:

0x02	0x00	0x04	0x50	0x48	0x3c	0x00	0x03	BCC
------	------	------	------	------	------	------	------	-----

Returnwithfailure1 :

0x02	0x00	0x04	0x4E	0X48	0x3c	ERR_CD	0x03	BCC
------	------	------	------	------	------	--------	------	-----

Returnwithfailure2 :

0x02	0x00	0x05	0x4E	0X48	0x3c	2 bytes15693errorcode	0x03	BCC
------	------	------	------	------	------	--------------------------	------	-----

Referto15693 《Responseerrordefinition》

Error code	Meaning
Command error code	
0x00	Undefinedcommand (sentnon-existentcommand)
0x01	Command parameter error
0x02	Command dataerror
0x03	Command could not be executed
0x04	Command execution fails
Card operation errorcode-RFcard	
0x41	Search cardfailure
0x42	Read serial numberfailure
0x43	Check password error
0x44	Choose carderror
0x45	Read datafailure
0x46	Write datafailure
0x49	Increment failure
0x4a	Devalue failure