Bluetooth moduleHY5066(BK3266)User Manual

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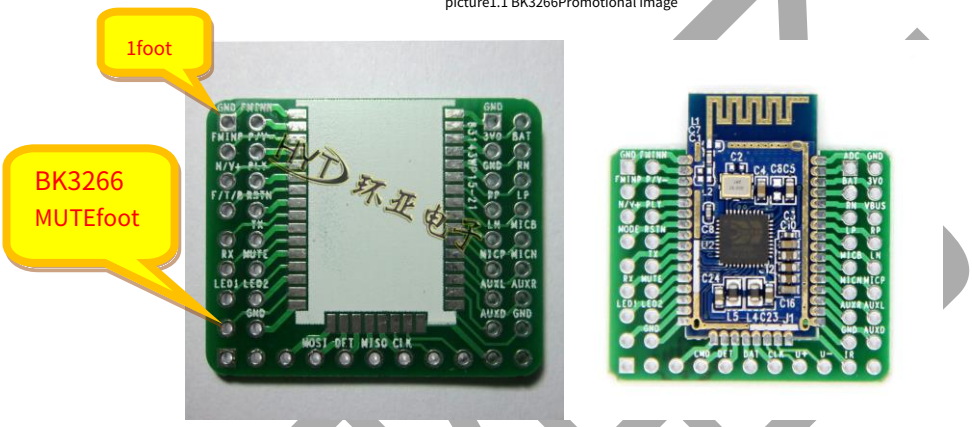
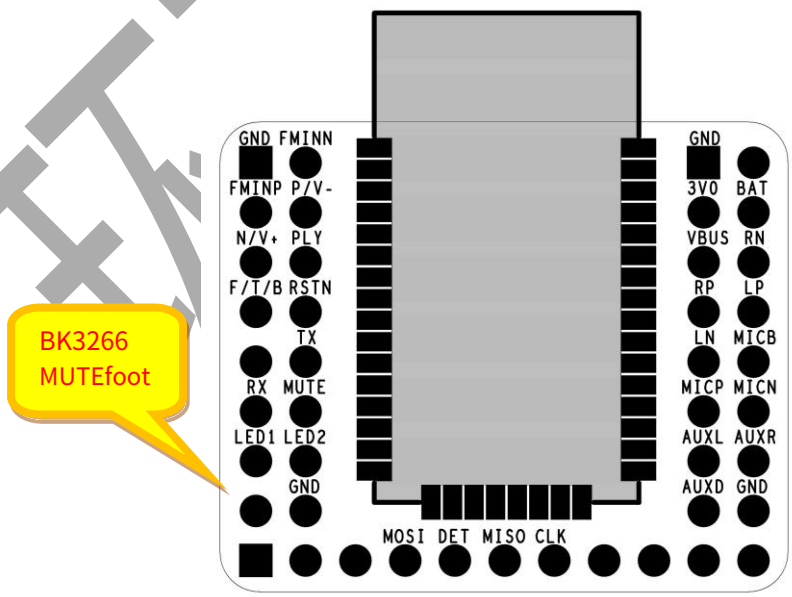
1. BK3266

picture1.1 BK3266Promotional image



picture1.2 BK3266Adapter Plate (2.4x3.1cm)



picture1.3 BK3266Pin Definition

1.1Module Introduction

This module adopts the main controlBeken(Broadcom)BK3266The chip provides the module with high-quality sound quality and compatibility, and the overall performance is superior. The Bluetooth module adopts a driver-free method. Customers only need to connect the module to the application product to quickly realize the wireless transmission of music and enjoy the fun of wireless music. It also supports buttons andATSerial port command control. Support intelligent Chinese/English/neutral voice prompts; integratedSD/TFPlay, supportMP3/WMA/WAVMusic format: SupportUDisc playback, supportLINE-IN,supportSPP Data transmission, supportBLEData transmission (closed by default,ATcommand can be turned on). Can be stored6After the module is powered on, it will automatically connect to the last paired device.6If two paired devices are turned on at the same time, the last paired device will be automatically connected.

supportATModify the Bluetooth name.31characters, seeATInstruction description. SupportATModify the Bluetooth pairing password.15characters, seeATInstruction description. SupportSPP/BLEData transmission runs in the background in any mode and data transmission continues.

The number with "*" istwenty threeYear8moon31Features that will be supported later

23.8.31Update Notes:

1.PP/CALL:Double click to switchEQ, long press8SClear the pairing list without releasing itEQrecovernormal

2.MODE:Double-click the switch pairing password, long press3SBe sure to release the switch prompt sound

3.All serial port commands support no end character "/r/n" Send, and add serial port commands

1.2Application Areas

This module is mainly used for short-distance music transmission, and can be conveniently connected with laptops, mobile phones,PDAIt can be connected to Bluetooth devices of digital products to realize wireless transmission of music.

1)Stereo Bluetooth speakers;

2)Stereo Bluetooth headset;

3)Bluetooth calling;

4)Bluetooth control and multimedia devices.

1.3**Basic Features**

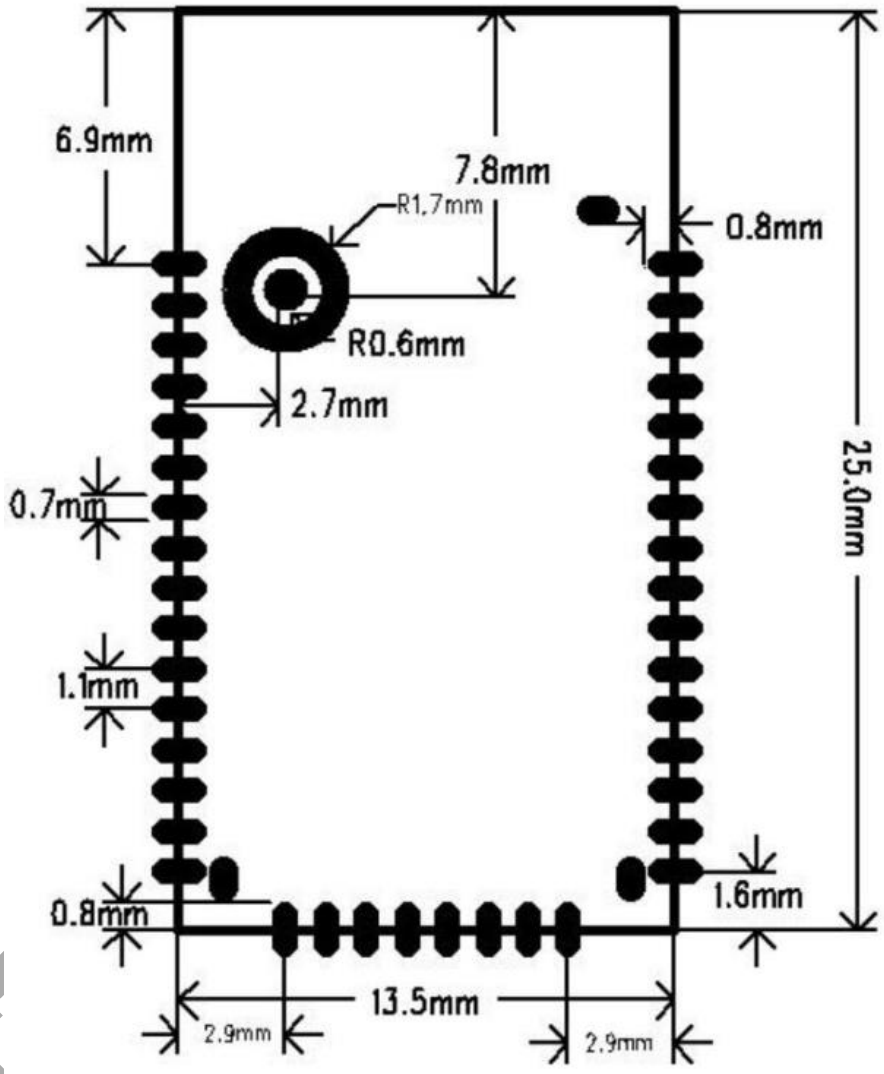
1) Bluetooth v5.2 + EDR;
2) A2DP v1.2;
3) AVRCP v1.5;
4) HFP v1.7;
5) AVDTP v1.2;
6) AVCTP v1.4;

1.4**Performance parameters**

model	HY5066(BK3266)
Bluetooth Specifications	Bluetooth V5.2
Supply voltage	DC3.3-4.2V
Support Bluetooth protocol	HFPV1.7,A2DPV1.2,AVRCPv1.5,AVCTPV1.2,AVDTPV1.2
Working current	≤20mA
Standby current	<500uA
Temperature range	-40°C ~ +80°C
Wireless transmission range	＞10rice
Transmission power	Class2,4dbm
Sensitivity	- 81dBm<0.1%BER
Frequency range	2.402GHz~2.480GHz
External interface	Serial Port (TTLlevel), andPCConnections require level conversion, such asCH340G,USBchangeTTL
Audio Performance	SBCdecoding
Audio signal-to-noise ratio	≥75dB
Module size	25x13.5x2mm
Adapter plate size	24x29mm

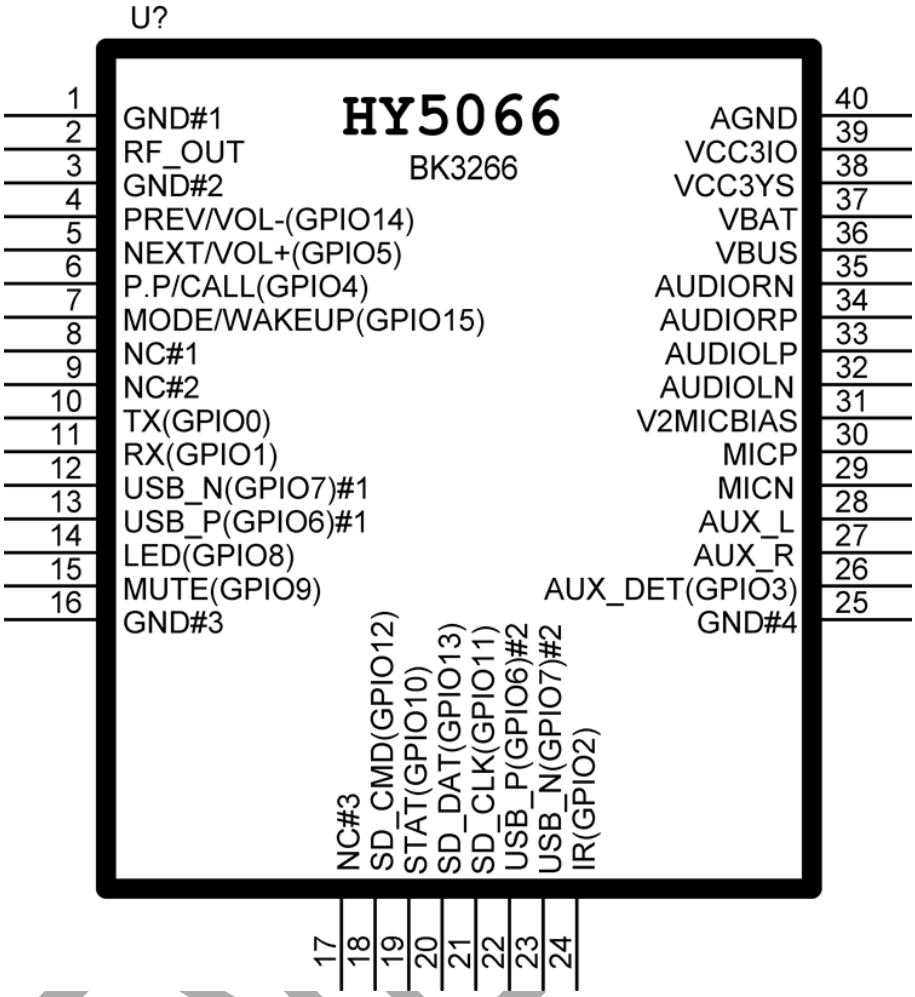
1.5**Module size**

Pad size:1.6x0.8mm



picture1.4 BK3266Dimensions

1.6**IOdefinition**



picture1.5 BK3266Pin Definition

IOserial number	IOname	IOdescribe
1	GND	Power Ground
2	RF	Not used
3	GND	Power Ground
4	PREV/VOL-(GPIO14)	Click to go to the previous song/long press to go to the volume down
5	NEXT/VOL+(GPIO5)	Click next song/long press volume up
6	PP/CALL(GPIO4)	Play/pause/answer/hang up/re-pair * Double click to switchEQ/Long press8SClear pairing list
7	MODE/WAKEUP(GPIO15)	BT/TF/Uplate/AUXMode switching (customizable as soft on/off) * Double-click to switch pairing password/long press3SreleaseSwitch tone
8	NC	Empty feet
9	NC	Empty feet
10	TX(GPIO0)	Serial PortTX（TTLLevel3.3V）
11	RX(GPIO1)	Serial PortRX（TTLLevel3.3V）
12	USB_DN (GPIO7)	USBjust
13	USB_DP(GPIO6)	USBburden
14	LED (GPIO8)	Status indicator
15	MUTE(GPIO9)	Control amplifier enable pin High sound output3.3V, no sound output low0V
16	GND	Power Ground
17	NC	Empty feet
18	SPI_CMD(GPIO12)	SD/TFofSPIinterface
19	STAT(GPIO10)	Bluetooth connection successfully outputs low level Bluetooth disconnects and outputs high level
20	SPI_SDO (GPIO13)	SD/TFofSPIinterface
twenty one	SPI_CLK(GPIO11)	SD/TFofSPIClock line simultaneousTFOpen insertion detection
twenty two	USB_DP(GPIO6)	USBjust
twenty three	USB_DN (GPIO7)	USBburden
twenty four	IR(GPIO2)	Infrared remote control driveIO
25	GND	Power Ground
26	AUX_DET(GPIO3)	AUXInsertion detection (Default high level, low level is effective)
27	AUX_R	AUXRight channel input
28	AUX_L	AUXLeft channel input
29	MICN	MICInput negative terminal
30	MICIP	MICInput positive terminal
31	VMIC	MICBias voltage
32	AUDIOLN	Audio left channel differential output negative terminal
33	AUDIOLP	Audio left channel differential output positive terminal
34	AUDIORP	Audio right channel differential output positive terminal
35	AUDIORN	Audio right channel differential output negative terminal
36	VBUS	Not used
37	VBAT	Power Input (3.3V~4.2V)
38	VCC3YS	3VOutput,SD/TFpower supply
39	VDD3IO	3VOutput, power supply interface （“MODE”No voltage output after key shutdown）
40	AGND	When single-ended audio output is used, It must be connected to the ground of the power amplifier separately to remove noise.

		When differential audio output is used, it can be left floating.

1.7**Precautions**

1.During the module application process, please pay attention to avoid the influence of interference sources such as power amplifiers and boost circuits on the module, and avoid the module power supply circuit forming a series circuit with the high-power circuit unit, so as to improve the whole machine.SNR.

2.Regarding the use environment of wireless Bluetooth, wireless signals including Bluetooth applications are greatly affected by the surrounding environment. For example, obstacles such as trees and metals will absorb wireless signals to a certain extent, so in actual applications, the data transmission distance is affected to a certain extent.

3.Since the Bluetooth module must be matched with the existing system and placed in the casing, and the metal casing has a shielding effect on the wireless radio frequency signal, it is recommended not to install it in a metal casing.

4. PCBLayout: The antenna part of the Bluetooth module isPCBAntenna: As metal will weaken the function of the antenna, when laying out the module, it is strictly forbidden to lay the ground or run wires under the module antenna. It is better if it can be hollowed out.

1.8**ATinstruction**

1.8.1**Serial port configuration**

1.Baud rate9600;
2. 8bit data bit;
3.No parity bit;
4.One stop bit.

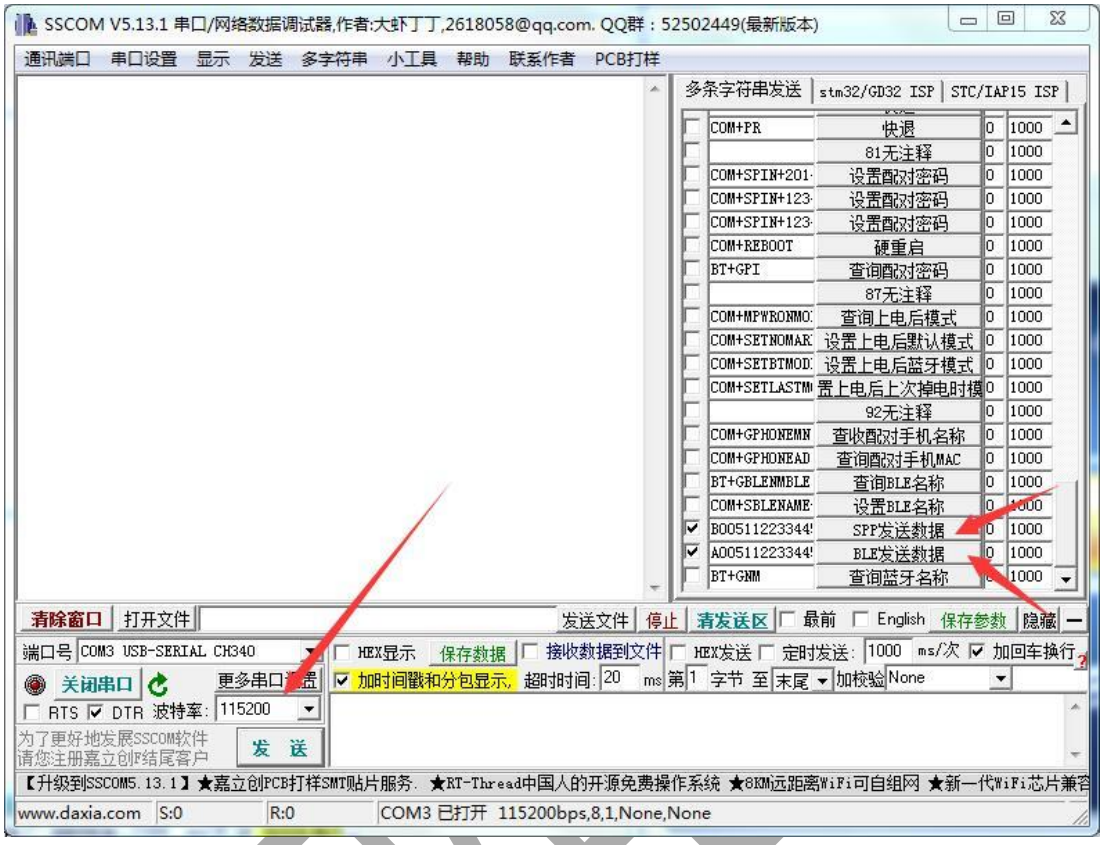
1.8.2**Instruction Format**

Control instruction format:COM+<CMD>[<param>] Data feedback format:IND>[<param>]\n Description: Control instructions are the control commands given by the host to Bluetooth.COM+" Start followed by <CMD>Control command, if the command has parameters, then continue to transmit after the command<param>parameter.

Data feedback is the Bluetooth feeding back various status and data information to the host.IND>It is a feedback instruction. If it needs to have parameters, it is followed by <IND>Continue to transfer afterparam>parameter.

1.8.3**Serial Port Demo**

As shown1.6As shown:



picture1.6Serial port open

1.8.4**Control instruction table**

Serial port commands	Parameter Description	Instruction function description	Example
+ SNAME+	Example: COM+SNAME+BTBLUE BTBLUEThe modified name	Modify Bluetooth name	COM+SNAME+XXXX XXXX:most31Characters correct:OK\n mistake:ERR\n Effective immediately
+ SBLENAME+	Example: COM+SBLENAME+BTBLE BTBLEThe modified name	ReviseBLE Bluetooth Name	COM+SBLENAME+XXX X XXXX:most15Characters correct:OK\n mistake:ERR\n Effective immediately
+ SPIN+	Example: COM+SPIN+12345678 12345678This is the modified password	Modify Bluetooth Pairing password	COM+SPIN+XXXX XXXX:maximum16Characters correct:OK\n mistake:ERR\n Effective immediately
TONExx	xx: "ON" Turn on the reminder sound xx: "OFFTurn off the reminder sound and support power-off saving The default prompt sound is on	Tone settings	COM+TONEON Turn on the reminder sound COM+TONEOFF Turn off the beep Effective immediately
MTONE		Query reminder tone settings	COM+MTONE Open:TOMEON\n closure:TOMEOFF\n
GOBACKxx	xx: "ON" Enable backlink xx: "OFFClose the connection Support power-off saving Power-on reconnection is enabled by default	Power-on reconnection settings	COM+GOBACKON Enable power-on reconnection COM+GOBACKOFF Disable power-on reconnect Effective immediately
MGOBACK		Query the connection settings	COM+MGOBACK Open:GOBACKON\n closure:GOBACKOFF\n
CALLxx	xx: "ON" Enable call function xx: "OFFDisable call function and save after power off The call function is enabled by default	Call function settings	COM+CALLON Enable call function COM+GOBACKOFF Turn off calling function Power off and restart to take effect
MCALL		Query call settings	COM+MCALL Open:CALLON\n closure:CALLOFF\n
MP3AUTOPLYxx	Uplate/TFMode: xx: "ON" Turn on Autoplay xx: "OFFTurn off automatic playback and support power-off saving Autoplay is enabled by default	Autoplay settings	COM+MP3AUTOPLYON Turn on Autoplay COM+MP3AUTOPLYOFF Turn off Autoplay Effective immediately
MP3AUTOPLY		Query Automatic Playback Settings	COM+MP3AUTOPLY Open:MP3AUTOPLYON\n closure: MP3AUTOPLYOFF\n

MEQ		QueryEQ	NORMAL\n BOOST\n TREBLE\n POP\n ROCK\n CLASSIC\n JAZZ\n DANCE\n R&P\n
SETEQxx	xx:NORMAL BOOST TREBLE POP ROCK CLASSIC JAZZ DANCE R&P Support power-off saving default"NORMAL”	EQset up	COM+SETEQNORMAL correct:OK\n mistake:ERR\n Effective immediately
OT	Example: 0015: Total15Songs 0001: Currently playing1Songs 0328: Playing time3point28Second	Start Printing Song information	COM+GN correct: MUSIC:001500010328\n mistake:ERR\n
CT	Printing song information is disabled by default	Turn off printing Song information	COM+CT correct:OK\n mistake:ERR\n
GN	xxxxxxxx: Song title, maximum8 characters, exceeding8characters, Use "~1” replace	Get Current Song name	COM+GN correct:xxxxxxxx\n mistake:ERR\n
PR		Enter pairing	BT+PR
AC		Connect the last paired device Preparation	BT+AC
DC		Disconnect	BT+DC
CA		Answering a call	BT+CA
CJ		Reject a call	BT+CJ
CE		Hang up the phone	BT+CE
CR		Last number redial	BT+CR
PP		Music Play/Pause	COM+PP
PA		Music playback	COM+PA
PU		Music Pause	COM+PU
PN		Next song	COM+PN
PV		Previous song	COM+PV
VP		Volume up	COM+VP
VD		Volume Down	COM+VD
SETTSxx	xx:(00-16) Serial port settings Support power-off saving	Set the volume of the reminder tone	COM+SETTSxx correct:OK\n mistake:ERR\n
MTS	x:(0-16)	Query the volume of the reminder tone	COM+MTS correct:TSx\n mistake:ERR\n
Vxx	xx:(00-16)	set upA2DPvolume	COM+Vxx

	Button, serial port settings Support power-off saving		correct:COM_Vxx\n mistake:ERR\n
GV	xx:(00-16)	Query whenA2DPsound quantity	COM+GV correct:COM_Vxx\n mistake:ERR\n
PWDS		Soft shutdown	COM+PWDS
PWOS		Soft boot	COM+PWOS
REBOOT	This restart is equivalent to a power-off restart	Restart	COM+REBOOT
MC		Switch to next job model	COM+MC
MBT		Bluetooth Mode	COM+MBT
MSD		TFmodel (if valid)	COM+MSD
MAX		AUXmodel (if valid)	COM+MAX
MUD		UDisk Mode (if valid)	COM+MUD
IQ		Query the current mode and state	COM+IQ
SMA	Default playback modeSMA	Loop all (TF/UDisk mold)	COM+SMA correct:COM_SMA\n mistake:ERR\n
SMO		Single song loop play (TF/UDisk mold)	COM+SMO correct:COM_SMO\n mistake:ERR\n
SMNO		Single song does not loop (TF/UDisk mold)	COM+SMNO correct:COM_SMNO\n mistake:ERR\n
SMR		Shuffle (TF/UDisk mold)	COM+SMR correct:COM_SMR\n mistake:ERR\n
GSM		Query currentMP3 Play Mode (TF/UDisk mold)	COM+GSM Full loop:COM_SMA\n Single loop:COM_SMO\n Single song does not loop: COM_SMNO\n Shuffle:COM_SMR\n
SMPxxxx	xxxx:(0001-9999) （“0001”Representative1head)	Select song to play (TF/UDisk mold)	COM+SMP0040
MRMP3	x:(1-9999)	Query the currently playing MP3Song number (TFMode)	COM+MRMP3 correct:music_mun=x\n mistake:ERR\n
MMMP3	x:(1-9999)	Query the current mode MP3Number of songs (TF/UDisk Mode Down)	COM+MMMP3 correct:MMMPx\n mistake:ERR\n
MRUSB	x:(1-9999)	Query the currently playing UDisc song number (UDisk mode)	COM+MRUSB correct:music_mun=x\n mistake:ERR\n
SETxxxx	SETNOMALMODE: Set up Default mode after power on	Set the default after power on model	COM+SETNOMALMODE COM+SETBTMODE

	SETBTMODE: Set after power on Bluetooth Mode SETLASTMODE: Set power on Mode after last power failure		COM+SETLASTMODE
BR	To set the baud rate: BR9600/BR115200 default9600	Setting the baud rate	COM+BR9600 COM+BR115200 Restart after setting to take effect
The following are23.8.31Added instructions later			
MPINST		Query password status	COM+MPINST
PINON	Effective immediately	Pairing code on	COM+PINON
PINOFF	Effective immediately	Pairing Password Off	COM+PINOFF
MDACST		QueryDACstate	COM+MDACST
DACDIFFER	REBOOTRestart to take effect	DACDifferential output	COM+DACDIFFER
DACSINGLE	REBOOTRestart to take effect	DACSingle-ended output	COM+DACSINGLE
MCHANST		Query channel status	COM+MCHANST
STEREO	REBOOTRestart to take effect	Stereo Output	COM+STERRO
MONO	REBOOTRestart to take effect	Mono output	COM+MONO
MMICST		QueryMICstate	COM+MMICST
MICDIFFER	REBOOTRestart to take effect	MICDifferential output	COM+MICDIFFER
MICSINGLE	REBOOTRestart to take effect	MICSingle-ended output	COM+MICSINGLE

1.8.5**Query/Feedback Instructions**

Serial port commands	describe	Example	Bluetooth return information
GAD	Query Bluetooth address site	BT+GAD	AD_191919191919\n
GNM	Query Bluetooth name Character	BT+GNM	NA_HY5066\n
GPI	Query Bluetooth password code	BT+GPI	PN_1234\n
GBLEMBLE	QueryBLEname say	BT+GBLENMBLE	BLENA_HY5066BLE\n
GPHONEAD	Query mobile phone location site	COM+GPHONEAD	PHONEAD:191919191919\n
MPWRONMODE	Query the power-on mode Mode	COM+MPWRONMODE	NOMALMODE\n BTMODE\n LASTMODE\n
The following is the status of Bluetooth actively sending out			
Serial port commands	describe	describe	Bluetooth return information
EER	mistake		EER\n
OK	Control command recognition Don't finish		OK\n
COM_SMA	Loop all (TF/UDisk mode)		COM_SMA\n
COM_SMO	Single song loop play (TF/UDisk mode)		COM_SMO\n
COM_SMNO	Single song does not loop (TF/UDisk mode)		COM_SMNO\n
COM_SMR	Shuffle (TF/UDisk mode)		COM_SMR\n
COM_Vxx	Current volumexxclass		COM_Vxx\n xxRepresents the volume level
MP3	Each switchMP3Song, automatically returns the song number		music_mun=1\n
USB	Each switchUPlay songs and automatically return to the song number		music_mun=1\n
IRx	(TF/UDisk mode) Each time you press a number key on the infrared remote control, it will automatically return to the default setting. Key-value		IRx\n xRepresents numeric keys
MUSICPLYFINISH	(TF/UIn disc mode) after playing a song, Motion spit out		MUSICPLYFINISH\n
SY_PO		Bluetooth on	SY_PO\n
SY_PF		Bluetooth off	SY_PF\n
BT_AC		The current mode is Bluetooth. In the return	BT_AC\n
BT_WP		The current mode is Bluetooth. In pairing state	BT_WP\n
BT_WC		The current mode is Bluetooth. Waiting for connection	BT_WC\n
BT_CN		The current mode is Bluetooth. connect	BT_CN\n
BT_PA		The current mode is Bluetooth. Playing	BT_PA\n
BT_IC		The current mode is Bluetooth. Incoming calls	BT_IC\n
BT_OC		The current mode is Bluetooth. Outgoing call	BT_OC\n

BT_EC		The current mode is Bluetooth. On a call	BT_EC\n
SD_PA		CurrentlySDCard mode,SD Card is playing status	SD_PA\n
SD_PU		CurrentlySDCard mode,SD Card is suspended	SD_PU\n
UD_PA		CurrentlyUDisk mode,UPanzheng In playback state	UD_PA\n
UD_PU		CurrentlyUDisk mode,UDisk In suspended state	UD_PU\n
AX_PA		CurrentlyAUXmodel,AUX Playing status	AX_PA\n
AX_PU		CurrentlyAUXmodel,AUX Paused	AX_PU\n

1.8.6**SPP&BLEDigital Transmission Introduction**

AndroidSPPGood data transmission compatibility,iOSOnly compatibleBLEDigital Transmission			
SPPData Format	describe	Example	Bluetooth return information
B005XXXXXXX Both the module and the mobile phone must Must haveB005head	Hex Send Module and mobile phone formats Same, both16Base	B005393837363534	none
BLEData Format	describe	Example	Bluetooth return information
A005XXXXXXX Both the module and the mobile phone must Must haveA005head	Hex Send Module and mobile phone formats Same, both16Base	A005313233343536	none
BLEOpen and close Default off	closure:BLEOFF Open:BLEON	COM+BLEOFF COM+BLEON	BLEOFF\n BLEON\n
BLEStatus Query	MBLE	COM+MBLE	BLEOFF\n BLEON\n

1.8.7**Serial Port Demo**

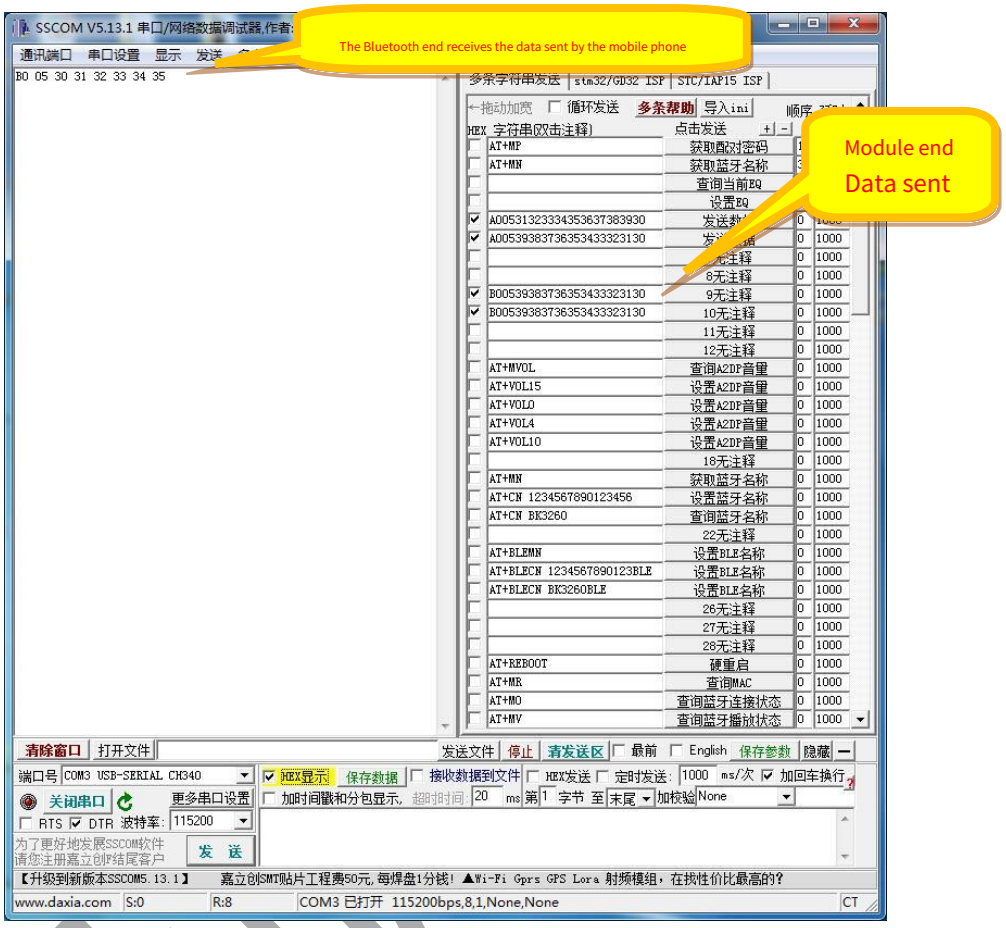
When the serial port connection is successful, the module will return "SY_PO\n", after the Bluetooth connection is successful, it returns "BT_CN\n", as shown in the figure1.6As shown:

picture1.7Serial port open

SPPData transmission, install the software on your Android phone, run the software, click Connect, and a connection will appearHY5066DM(bringKEY is a password version), as shown in the figure1.8As shown:

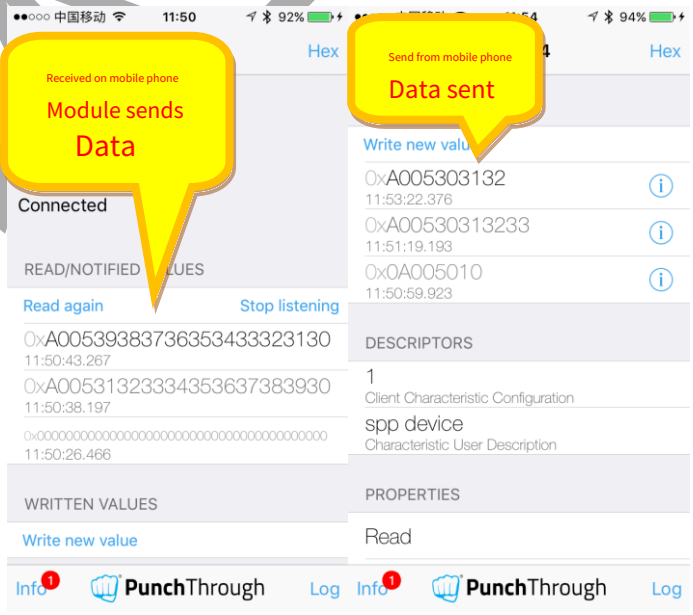
picture1.8cell phoneAPP

existSSCOMSend according to the instruction formatSPPData, as shown in the figure1.9As shown. On mobile phoneAPPThe corresponding data is received in1.5shown.



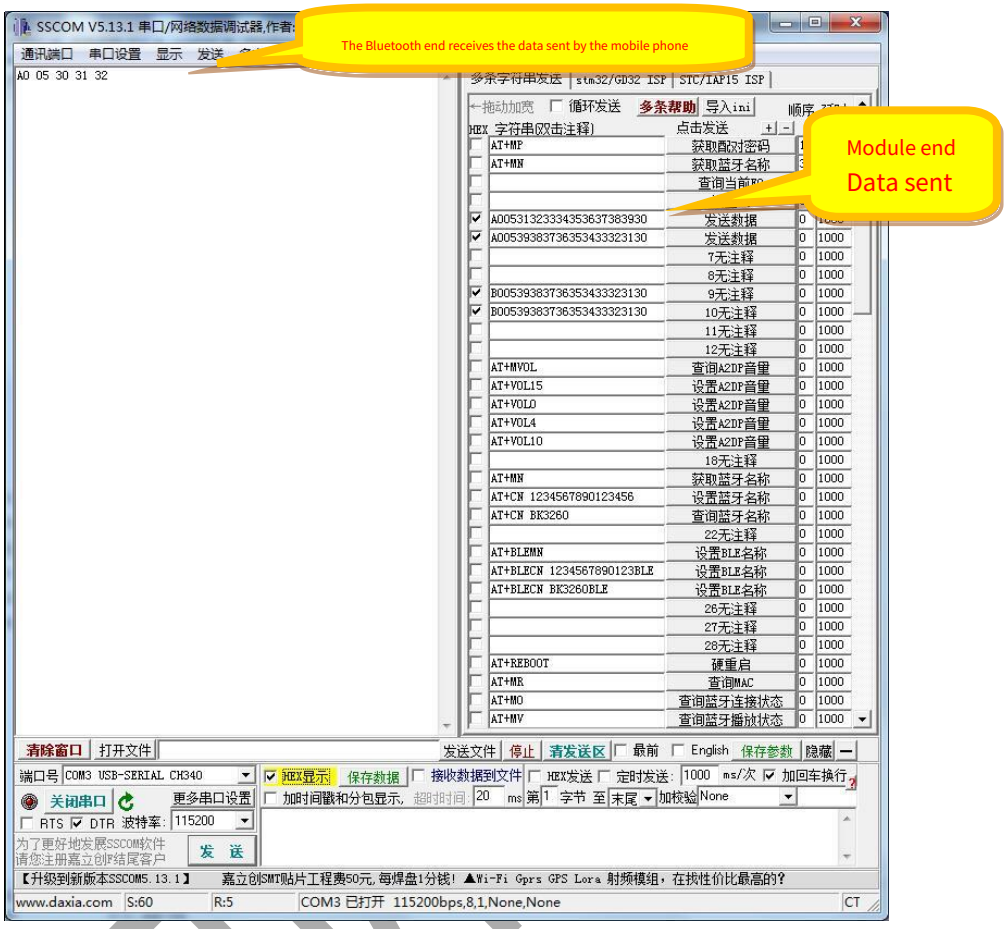
picture1.9Serial PortSPPSending and receiving data

BLEData transmission, iPhoneAPP（lightblue) is sent according to the instruction formatBLEData, as shown in the figure1.10As shown.SSCOMThe corresponding data is received in1.8shown.



picture1.10cell phoneAPPSending and receiving data

existSSCOMSend according to the instruction formatBLEData, as shown in the figure1.8As shown. On mobile phoneAPPThe corresponding data is received in1.7shown.



picture1.11Serial PortSPPSending and receiving data