

美格信
U 984C
蓝牙指令集
MegaSig
U 984C
Bluetooth CMD

蓝牙指令集-中文.....	1
Bluetooth CMD-EN.....	9

从此文件发布日期起，在此发表的是当前或者拟定的信息。由于我们会不断对产品进行改进和增加特征此出版物中的信息如有变动恕不另行通知。

From the date of this document's release, the information published here is current or proposed. As we will continuously improve and add features to our products, the information in this publication is subject to change without further notice.

串口通讯参数

串口通讯参数	
波特率	921600 (U 984C 默认该采样率)
数据位	8
奇偶性	None
停止位	1.0
流控制	None
终止符号	\n

串口指令

(注：下表中 ‘\r\n’ 代表回车换行，Hex 为 0D0A，备注有“记忆”两字代表指令设置一次便可一直有效（升级固件后设置将会重置）。)

名称	发送	反馈	备注
U984C 模式设置(记忆)	>MODE_SET=1\r\n >MODE_SET=2\r\n >MODE_SET=4\r\n	OK	1代表WDM输入模式 (需要解锁高通驱动) 2代表Shuttle模式 4代表模拟输入模式 (默认为 shuttle)
读取固件属性	>SYS_INFO_GET=?\r\n	>SYS_INFO_GET=MegaSig U984C FirmwareV3.1.1-09	内容包括型号和固件版本

BT连接

名称	发送	反馈	备注
通过蓝牙地址码连接被测物	>CONN=28371317B0E4\r\n	Waiting Connect Waiting Connect DEVICE=1C52166B436E NAME= QCY-QY19 APT X A2DP	连接成功后，默认打开 A2DP，打通 Speaker 的 通路
打开 A2DP	>OPEN A2DP\r\n	OK PAIREDA2DP	自动关闭 HFP，打通 Speaker 的通路
打开 HFP	>OPEN HFP\r\n	OK PAIREDHFP mSBC 16k or CVSD 8k or APT X Voice 32K	1) 自动关闭 A2DP，打通 麦克风的通路； 2) mSBC 代表产品支持 宽带； 3) CVSD 代表产品仅支持 窄带 4) APTX Voice 代表产品 仅支持高通独有 32k 采样 率
断开连接 Disconnect	>DISC\r\n	OK IDLE	需断开已有蓝牙连接，才 能进行下一次连接

名称	发送	反馈	备注
重置连接板 Reset	>RST\r\n	OK IDLE	
搜索蓝牙地址 Search	>SEARCH=5\r\n	DEVICE=1C52166B436E RSSI=-76 NAME=QCY-QY19 CLASS=240414	搜索到周围的蓝牙地址为“1C52166B436E”、RSSI 强度值、耳机名称、耳机 COD 类型
停止搜索	>SEARCH STOP\r\n	OK	一旦开启搜索，需发送停止搜索指令
查询当前状态	>STATUS\r\n	IDLE Or PAIREDA2DP Or PAIREDHFP	
开始读取 RSSI	>START RSSI UPLOAD\r\n	RSSI=-73	返回 RSSI 值
停止读取 RSSI	>STOP RSSI UPLOAD\r\n	OK	
设置默认音量(后两位是音量大小，最大为 15)(记忆)	>A2DP_DEFAULT_VOL=15\r\n	OK	设置默认音量后，需要发送 Reset 指令，或者对设备进行断电重启
设置搜索时的 COD (记忆)	>COD_SET=000400\r\n	OK	改变COD 的值，将对蓝牙设备搜索范围进行限定，不建议修改
获取已设置的 COD	>COD_GET=?\r\n	>COD_GET=000400	
自动搜索并连接	>NO_MAC_CON\r\n	Waiting Connect Waiting Connect DEVICE=1C52166B436E NAME= QCY-QY19 APT X A2DP	不需要通过地址码进行连接，当同时开启的耳机数量较多时，容易误连，建议使用屏蔽箱
通过蓝牙地址码连接被测物，并开始SPP协议连接	>SPP_CONN=00025B00A5A5\r\n	REMOTE_CHANNEL [1 2] CONN_CHANNEL[1] >SPP_PENDING >SPP_CONNECT	地址码要大写
查询当前dongle记忆保存的SPP端口号	>SPP_CH_GET=?\r\n	>SPP_CH_GET=2\r\n	代表当前 Remote Channel 为 2，以该端口号发起 SPP 连接

名称	发送	反馈	备注
SPP 连接之前设置 SPP Remote Channel (记忆)	>SPP_CH_SET=4\r\n or >SPP_CH_SET=-1\r\n	OK	1) 设置dongle 的SPP 通道, 范围为 0-99; 设置后自动记忆保存, 下次使用同一个 Channel 号可不用重复设置; 2) 可设置端口号为-1, 表示连接获取耳机 SPP 的第一个通道。
通过SPP向被测物发送信息	>SPP_SEND=发送数据		可不需加“>SPP_SEND=”直接发送数据透传
获取被测物通过SPP发送的信息		>SPP_RECV=上报数据	接收的过程是被动的, 需要实时监测串口内的数据; 如使用 U984C, 其回复内容为透传无 “>SPP_RECV=”
自定义设置 SPP UUID	>SPP_CH_SET=5,CH,UUID	OK or ERROR	1) CH需为两位数, -1代表跟随耳机通道, 05代表连接5号通道; 2) UUID需为32位数, 譬如可设置为标准的 0000110100001000800000805F9B34FB; 设置后不记忆保存, DISC后恢复默认, 即需每次SPP连接前设置; 3) dongle新版本支持自定义16个字节的UUID和SPP通道设置 4) 举例: 发 >SPP_CH_SET=-5,-1,0000110100001000800000805F9B34FB代表设置标准UUID且SPP通道跟着耳机;
连接后设置 Speaker 音量	>SET_VOL=10\r\n	OK	音量需为两位数字 00-15
获取已连接的蓝牙产品名称和地址	>GET_CONN_INFO\r\n	DEVICE=1C52166B436E NAME= QCY-QY19	蓝牙连接成功后, 该指令才有效
获取连接编码	>GET A2DP\r\n	APT X A2DP	蓝牙连接成功后, 该指令才有效

名称	发送	反馈	备注
重置A2DP音频，获取A2DP编码采样率	>A2DP_AUDIO_RESET\r\n	SUSPEND_OK RESUME_OK SAMPLE_RATE=48000	蓝牙连接成功后，该指令才有效
设置音频流的打开或者关闭	>AUDIO_SET=0\r\n	AUDIO_SUSPEND	0:断开所有音频流 1:打开所有音频流 2:断开A2DP音频流 3:打开A2DP音频流 4:重启A2DP音频流 5:断开HFP音频流 6:打开HFP音频流 7:重启HFP音频流 8:模拟手机按下暂停键
获取 Link Key	>GET_CUR_LINK_KEY\r\n	LINK_KEY=567023c1a4b958373dfd291b9371b861	蓝牙连接成功后，该指令才有效；
发送 HFP AT 指令	>AT_CMD=AT+NTC=?\r\n	AT+NTC=1,180	蓝牙连接成功后，该指令才有效；
获取已使用或关闭的连接协议	>PROFILE_GET=X\r\n	A2DP ENABLED/DISABLED Or HFP ENABLED/DISABLED Or AVRCP ENABLED/DISABLED	X 可为 0-2，分别代表 A2DP/HFP/AVRCP 协议的状态
启用或者关闭需连接的协议（记忆）	>PROFILE_SET=X&S\r\n	DISABLE/ENABLE A2DP Or DISABLE/ENABLE HFP Or DISABLE/ENABLE AVRCP	X 可为 0-2，分别代表 A2DP/HFP/AVRCP 协议； S 可为 0 或者 1，分别代表关闭或者启用
发送 AVRCP 命令	>AVRCP_CMD_SET=DATA	AVRCP_SUCCESS	1) 发送 AVRCPASSTHROUGH 指令给产品； 2) DATA 需为十六进制命令，且不能多于12个字节；
获取更新的电量值	>BATT\r\n	BAT=7 Or POWER=68	1) 获取更新的电量值；正常情况，电量在第一次连接成功后上报； 2) BAT是大致电量，有9格，例如”7”代表大概80%的电量。POWER则是具体电量；

名称	发送	反馈	备注
设置蓝牙连接 PIN 码	>SET_PIN=1234\r\n	SET_4PIN	连接需要pin码可以用此指令设置，最高支持到16位pin码 注意：此指令没有记忆保存，每次连接之前都需设置
获取连接的 PIN 码	>GET_PIN=?\r\n	PIN=1234	获取设置的pin码
模拟手机来电	>MAKE CALL\r\n	OK	
模拟手机接听	>ANSWER CALL\r\n	OK	
模拟手机挂断	>CANCEL CALL\r\n	OK	
设置HFP窄带模式(U984C)(记忆)	>mSBC_ENABLED=x\r\n	OK	1) 每一次连接蓝牙之前需 2) 发送这条指令；断开蓝牙连接后该指令继续，默认宽带优先，除非设备不支持 x可以为1,2,3 1代表CVSD，走8k采样率 2代表mSBC，走16k采样率（默认） 3代表 APTX Voice，高通特有，走32k采样率 注： x=0是CVSD， x=1是mSBC， x=2是APTX Voice， 在U 984C版本1.1.3-4版本之后生效
设置 avrcp 版本号（记忆）	>AVRCP_VER_SET=0\r\n	>SET_VER=1.6\r\n	0:1.6 1:1.5 2:1.4 3:1.3
获取 avrcp 版本号	>AVRCP_VER_GET=?\r\n	>AVRCP_VER_GET=1.6\r\n	
设置波特率(记忆)	>BAUD_RATE_SET=3\r\n	OK	0:115200 1:230400 2:460800 3:921600 4:1382400 5:2000000
获取波特率	>BAUD_RATE_GET=?\r\n	>BAUD_RATE_GET=921600\r\n	

名称	发送	反馈	备注
设置音质 (记忆)	>SET_CODEC_INFO=1&1\r\n	AAC_ENBALE=1\r\n	0:SBC 1:AAC 2:APTX 3:APTX Adaptive 4:APTX HD 5:LDAC 6:LHDC 后缀分别是0（关闭）和1（开启） 例如 >SET_CODEC_INFO=5&1就代表打开LDAC编码 7:SBC 8:AAC 9:APTX 10:APTX Adaptive 11:APTX HD 12:LDAC 13:LHDC 后缀则是对应采样率， 例如 >SET_CODEC_INFO=8&2，2是16进制数，对应二进制为0010，48k对应最后一个数字0，代表不启用，44.1k对应第三位1，代表启用，这样就可以开启AAC的44.1k采样率 注意：APTX和APTX HD只支持48k和44.1k APTX Adaptive支持96k和48k和44.1k 14:SBC 的声道设置（原理同上） 当设置成>SET_CODEC_INFO=14&F\r\n Joint Stereo: 1 Stereo: 1 Dual Channel: 1 Mono: 1 15:音质先后顺序 >SET_CODEC_INFO=15&7&6&5&4&3&2&1\r\n SBC\AAC\APTX\APTX Adaptive\APTXHD\LDAC\LHDC is 7\6\5\4\3\2\1

名称	发送	反馈	备注
设置LDAC的码率	>LDAC_BITRATE=0\r\n	LDAC HQ(990kbps)	范围为0到2,0对应990kbps, 1对应660kbps, 2对应330kbps。默认码率为330kbps。
设置LHDC码率	>LHDC_BITRATE=0\r\n	LHDC HIGH(900kbps)	范围为0到2,0对应900kbps, 1对应500kbps, 2对应400kbps。默认码率为400kbps。

BLE协议连接

名称	发送	反馈	备注
搜取BLE地址	>BLE_SEARCH\r\n	BLE DEVICE=648FDB5D9419 RSSI=-59 NAME=Xiaomi Buds 5	搜索ble地址
停止搜索BLE地址	>BLE_SEARCH_STOP\r\n	OK	停止搜索ble地址
设置搜索的rssi	>BLE_SEARCH_RSSI=-60\r\n	OK	设置搜索rssi
BLE设备连接	>BLE_CONN=0_E59314A64EA8\r\n	BLE Connecting... Connected:E59314A64EA8 MTU = 124	连接地址，下划线前 0: Public地址 1: Random地址
断开BLE设备	>BLE_DISC\r\n	BLE Disconnect	断开BLE地址
设置MTU长度	>BLE_SET_MTU=512\r\n	OK	设置MTU值，在设备连接之前设置才能生效。
设置PHY的长度	>BLE_SET_PHY=0x03,0x03,0x4,0x4\r\n	PHY Tx:1 Rx:2	参数解释 1: TX min 2: TX max 3: RX min 4: RX max 参数设置 MIN ((uint8_t) 0x00) 125K ((uint8_t) 0x01) 500K ((uint8_t) 0x02) 1M ((uint8_t) 0x03) 2M ((uint8_t) 0x04) QHS ((uint8_t) 0x05) MAX ((uint8_t) 0xff)

获取PHY 的长度	>BLE_GET_PHY\r\n	PHY Tx:1 Rx:2	
打开 Notify	>BLE_ENABLE_NOTIFY =10\r\n	OK	打开具体特征下的notify 功能，对应的数值就是 handle的值，不过需要加 一
读取特征 信息	>BLE_READ_CHAR=14\r\n	Value_Size:0 Value:	读取具体特征值的信息， 前提是特征信息得是 “READ”
向特征值 写入 request	>BLE_WRITE_REQ=3_CT XXAT^MODE?\r\n	Received_Size:20 Data:TCXXAT^MODE=FACT ORY	
向特征值 写入 command	>BLE_WRITE_CMD=3_C TXXAT^MODE?\r\n	Received_Size:20 Data:TCXXAT^MODE=FACT ORY	打开notify之后，大概率 需要这个特征写入
获取连接 之后的 RSSI	>BLE_GET_RSSI=?\r\n	RSSI:-68	
开始BLE 广播 (服务端)	>BLE_ADV_START\r\n	OK	开始BLE广播,也可以发送 指令 >BLE_ADV_START= 0x20,0x150\r\n 后面两个参数对应延迟 关系对应 $150 \div 0.625 = 240\text{ms}$ (广播名称为MEGASIG U984C)
停止BLE 广播（服 务端）	>BLE_ADV_STOP\r\n	OK	
向服务对 端设备发 送数据	>BLE_ADV_WRITE=11\r\n	OK	对端设备得打开notify才 能接收成功。然后其他特 征值都有对应处理

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Serial Communication Parameters

Serial communication parameters	
Baud Rate	921600 (U984C default to this sampling rate)
Data Bits	8
Parity	None
Stop Bits	1.0
Flow Control	None
Termination Char	\n

Serial Port Commands

(Note: ‘\s’ means blank, equals to 0x20, ‘\r\n’ means return and line break, equals to 0x0D0A. The word “Memory” means that the command will be valid once it has been set (the setting will be reset after upgrading the firmware))

Item	Send	Receive	Notice
U 984C Mode Setting (memory)	>MODE_SET=1\r\n >MODE_SET=2\r\n >MODE_SET=4\r\n	OK	1 for USB input mode (Need to unlock Qualcomm drivers) 2 for Shuttle mode 4 for analogue input mode (defaults to shuttle)
Read hardware attributes	>SYS_INFO_GET=?\r\n	>SYS_INFO_GET=MegaSig U984C FirmwareV3.1.1-09	The content includes the model number and firmware version

BT Connection

Item	Send	Receive	Notice
Connect to the device under test via Bluetooth address code	>CONN=28371317B0E4\r\n	Waiting Connect Waiting Connect DEVICE=1C52166B436E NAME=QCY-QY19	After successful connection, A2DP is turned on by default, establishing a connection to the Speaker
Open A2DP	>OPEN A2DP\r\n	OK PAIREDA2DP	Close HFP mode, the channel of the Speaker will be opened.
Open HFP	>OPEN HFP\r\n	OK PAIREDHFP mSBC 16k or CVSD 8k or APT-X Voice 32K	1) Close A2DP mode, the channel of the Mic will be opened 2) mSBC represent the DUT support wideband speech 3) CVSD represent the DUT only support narrowband speech

Item	Send	Receive	Notice
Disconnect	>DISC\r\n	OK IDLE	Need to disconnect the existing Bluetooth connection before making the next connection
Reset the dongle	>RST\r\n	OK IDLE	
Search BT address	>SEARCH=5\r\n	DEVICE=1C5266B436E RSSI=-76 NAME=QCYQY19 CLASS=240414	The surrounding Bluetooth addresses found are "1C52166B436E", along with RSSI strength values, headphone names, and headphone COD types
Stop Search	>SEARCH STOP\r\n	OK	Once the search is initiated, a command to stop the search needs to be sent
Query current status	>STATUS\r\n	IDLE Or PAIREDA2DP Or PAIREDHFP	
Start to get RSSI	>START RSSI UPLOAD\r\n	RSSI=-73	Return RSSI value
Stop to get RSSI	>STOP RSSI UPLOAD\r\n	OK	
Set default volume (vol should be two digits, and the maximum value is 15) (memory)	>A2DP_DEFAULT_VOL=15\r\n	OK	After setting the default volume, the device needs to be powered off and restarted or send the Reset command
Set the COD during the search (memory)	>COD_SET=000400\r\n	OK	Changing the value of COD will limit the search range of bluetooth device, and it is not recommended to modify.
Get the COD	>COD_GET=?\r\n	>COD_GET=000400	
Automaticaly search and connect	>NO_MAC_CON\r\n	Waiting Connect Waiting Connect DEVICE=1C52166B436E NAME=QCY-QY19 APTX A2DP	Recommend to use shielding box to avoid connecting other DUT by mistake

Item	Send	Receive	Notice
Connect to the device under test via its Bluetooth address code and initiate a SPP protocol connection	>SPP_CONN=00025B00A5A5\r\n	REMOTE_CHANNEL [1 2] CONN_CHANNEL[1] >SPP_PENDING >SPP_CONNECT	The address code should be written in uppercase letters
Query the SPP port number currently stored in the dongle's memory	>SPP_CH_GET=?\r\n	>SPP_CH_GET=2\r\n	It represents that the current Remote Channel is 2, and an SPP connection is initiated with this port number
Setting up SPP before SPP connection Remote Channel (memory)	>SPP_CH_SET=4\r\n or >SPP_CH_SET=-1\r\n	OK	1) Set the SPP channel of dongle, the range is 0-99; after setting, it will be saved in memory automatically, so that the same channel number can be used next time without repeating the setting; 2) The port number can be set to -1, which means connecting to the first channel to get the SPP of the headset.
Send information to the object via SPP	>SPP_SEND=DATA		Can directly send data through transparent transmission without adding ">SPP_SEND="
Gets the information sent by the measured object through SPP		>SPP_RECV=DATA	The receiving process is passive and requires real-time monitoring of data in the serial port; If use U984C,">SPP_RECV ="will be ignored,and the DATA can be received directly

Item	Send	Receive	Notice
Customize: Set SPP UUID	>SPP_CH_SET=5,CH, UUID	OK or ERROR	1) CH needs to be a two-digit number, where -1 indicates to follow the headphone channel, and 05 indicates to connect to channel 5; 2) The UUID must be 32 bits long, and can be set to a standard value such as 0000110100001000800000805F9B34FB. Once set, it is not saved and reverts to the default after DISC, meaning it needs to be set each time before SPP connection. The new version of the dongle supports customizing a 16-byte UUID and SPP channel settings Example: The string >SPP_CH_SET=-5,-1,0000110100001000800000805F9B34FB represents setting the standard UUID and the SPP channel to follow the headset;
Set Speaker volume after connection	>SET_VOL=10\r\n	OK	Volume should be two digits (00-15)
Get the name and address of the connected Bluetooth product	>GET_CONN_INFO\r\n	DEVICE=1C52166B436E NAME= QCY-QY19	This cmd will work after the successful BT connection
Get the connected codec	>GET A2DP\r\n	APT X A2DP	This cmd will work after the successful BT connection
Reset A2DP audio and get A2DP codec sample rate	>A2DP_AUDIO_RESET\r\n	SUSPEND_OK RESUME_OK SAMPLE_RATE=48000	This cmd will work after the successful BT connection
Set the audio stream on or off	>AUDIO_SET=0\r\n	AUDIO_SUSPEND	0:Disconnect all audio streams 1:Open all audio streams 2:Disconnect A2DP audio streams 3:Open A2DP audio streaming

Item	Send	Receive	Notice
			4:Restart A2DP audio streaming 5:Disconnect HFP audio flow 6:Open HFP audio stream 7:Restart HFP audio streaming 8:Simulate mobile phone pressing pause button
Get the BT Link Key	>GET_CUR_LINK_KEY\r\n	LINK_KEY=567023c1a4b958373dfd291b9371b861	This cmd will work after the successful BT connection
Send the HFP AT Cmd	>AT_CMD=AT+NTC=?	AT+NTC=1,180	This cmd will work after the successful BT connection
Get the enabled or disabled profile	>PROFILE_GET=X\r\n	A2DP ENABLED/DISABLED Or HFP ENABLED/DISABLED Or AVRCP ENABLED/DISABLED	X can be 0-2,represent A2DP/HFP/AVRCP profile status
Set the enabled or disabled profile (memory)	>PROFILE_SET=X&S\r\n	DISABLE/ENABLE A2DP Or DISABLE/ENABLE HFP Or DISABLE/ENABLE AVRCP	X can be 0-2,represent A2DP/HFP/AVRCP profile; S can be 0 or 1, represent the disable or enable function
Send the AVRCP Command	>AVRCP_CMD_SET=D ATA	AVRCP_SUCCESS	1) Send the AVRCP PASSTHROUGH command to DUT; 2) DATA should be hex command and less than 12 bytes;
Get updated battery	>BATT	BAT=7 Or POWER=68	1) Normally,the battery can be get from first successful connection if DUT support; 2) BAT is the approximate power level, there are 9 frames, for example, “7” means about 80% of the power level, POWER is the specific power level;
Setting the Connection PIN	>SET_PIN=1234\r\n	SET_4PIN	Connections need pin code can be set with this command, the highest support to 16-bit pin code Note: This command has no memory, you need to set it before each connection.

Item	Send	Receive	Notice
Get the PIN code for the connection	>GET_PIN=?\r\n	PIN=1234	Get the set pin code
Simulate a mobile phone call	>MAKE CALL\r\n	OK	
Simulate mobile phone answering	>ANSWER CALL\r\n	OK	
Simulate mobile phone hang-up	>CANCEL CALL\r\n	OK	
Set HFP narrowband mode (U984C) (memory)	>mSBC_ENABLED=X\r\n	OK	1) This command must be send before connect the DUT every time. 2) After disconnect the DUT, this command will be invalid, and the wideband speech is preferred. unless DUT no support X can be 1,2,3. 1 for CVSD, going to 8k sample rate 2 for mSBC, go to 16k sample rate (default) 3 for APTX Voice, Qualcomm specific, 32k sample rate. Note: x=0 represents CVSD, x=1 represents mSBC, x=2 represents APTX Voice. It takes effect after the U984C version 1.1.3-4
Setting the avrcp version number (memory)	>AVRCP_VER_SET=0\r\n	>SET_VER=1.6\r\n	0:1.6 1:1.5 2:1.4 3:1.3
Get avrcp version number	>AVRCP_VER_GET=?\r\n	>AVRCP_VER_GET=1.6\r\n	

Item	Send	Receive	Notice
Setting the baud rate (memory)	>BAUD_RATE_SET=3\r\n	OK	0:115200 1:230400 2:460800 3:921600 4:1382400 5:2000000
Get baud rate	>BAUD_RATE_GET=?\r\n	>BAUD_RATE_GET=921600\r\n	
Setting the audio encoding (memory)	>SET_CODEC_INFO=1&1\r\n	AAC_ENBALE=1\r\n	0:SBC 1:AAC 2:APTX 3:APTX Adaptive 4:APTX HD 5:LDAC 6:LHDC The suffixes are 0 (off) and 1 (on) respectively For example, >SET_CODEC_INFO=5&1 means to turn on LDAC encoding 7:SBC 8:AAC 9:APTX 10:APTX Adaptive 11:APTX HD 12:LDAC 13:LHDC The suffix is the corresponding sampling rate, for example >SET_CODEC_INFO=8&2, 2 is a hexadecimal number, corresponding to binary 0010, 48k corresponds to the last digit 0, which means not enabled, and 44.1k corresponds to the third digit 1, which means enabled, so you can turn on the aac's 44.1k sampling rate. Note: APTX and APTX HD only support 48k and 44.1k. APTX Adaptive supports

Item	Send	Receive	Notice
			96k and 48k and 44.1k. 14: Channel setting for SBC (same principle as above) When set to >SET_CODEC_INFO=14 &F\r\n Joint Stereo: 1 Stereo: 1 Dual Channel: 1 Mono: 1 15: Audio Sequence >SET_CODEC_INFO=15 &7&6&5&4&3&2&1\r\n SBC\AAC\APTX\APTX Adaptive\APTXHD\LDAC \LHDC is 7\6\5\4\3\2\1
Setting the LDAC bit rate	>LDAC_BITRATE=0\r\n	LDAC HQ(990kbps)	The range is 0 to 2. 0 corresponds to 990kbps, 1 corresponds to 660kbps, 2 corresponds to 330kbps. The default code rate is 330kbps.
Setting the LHDC bit rate	>LHDC_BITRATE=0\r\n	LHDC HIGH(900kbps)	The range is 0 to 2. 0 corresponds to 900kbps, 1 corresponds to 500kbps, 2 corresponds to 400kbps. The default code rate is 400kbps.

BLE Protocol Connection

Item	Send	Receive	Notice
Search for BLE address	>BLE_SEARCH\r\n	BLE DEVICE=648FDB5D9419 RSSI=-59 NAME=Xiaomi Buds 5	Search for BLE address
Stop searching for BLE addresses	>BLE_SEARCH_STOP\r\n	OK	Stop searching for BLE addresses
Setting the rssi for searching	>BLE_SEARCH_RSSI=-60\r\n	OK	Set search RSSI
BLE device connectivity	>BLE_CONN=0_E59314A64EA8\r\n	BLE Connecting... Connected:E59314A64EA8 MTU = 124	Connection address, before underscore 0: Public address 1: Random address

Item	Send	Receive	Notice
Disconnect the BLE device	>BLE_DISC\r\n	BLE Disconnect	Disconnect BLE address
Set MTU length	>BLE_SET_MTU=512\r\n	OK	Set the MTU value and set it before the device is connected for it to take effect.
Set the length of the PHY	>BLE_SET_PHY=0x03,0x03,0x4,0x4\r\n	PHY Tx:1 Rx:2	Parameter explanation 1: TX min 2: TX max 3: RX min 4: RX max Parameter setting MIN ((uint8_t) 0x00) 125K ((uint8_t) 0x01) 500K ((uint8_t) 0x02) 1M ((uint8_t) 0x03) 2M ((uint8_t) 0x04) QHS ((uint8_t) 0x05) MAX ((uint8_t) 0xff)* /
Get the length of the PHY	>BLE_GET_PHY\r\n	PHY Tx:1 Rx:2	
Open Notify	>BLE_ENABLE_NOTIFY=10\r\n	OK	Open the notify function under the specific feature, the corresponding value is the value of handle, but you need to add one
Read characteristic information	>BLE_READ_CHAR=14\r\n	Value_Size:0 Value:	Read information about a specific feature value, provided that the feature information is "READ"
Write characteristic information (request)	>BLE_WRITE_REQ=3_CTXXAT^MODE?\r\n	Received_Size:20 Data:TCXXAT^MODE=FACTORY	
Write characteristic information (command)	>BLE_WRITE_CMD=3_CTXXAT^MODE?\r\n	Received_Size:20 Data:TCXXAT^MODE=FACTORY	
Getting RSSI after connection	>BLE_GET_RSSI=?\r\n	RSSI:-68	
Start ble broadcast (server-side)	>BLE_ADV_START\r\n	OK	To start the BLE broadcast, you can also send the command >BLE_ADV_START=

Item	Send	Receive	Notice
			0x20,0x150\r\n The last two parameters correspond to the delay. The relationship corresponds to $150 \div 0.625 = 240\text{ms}$ (broadcast name is MEGASIG U984C)
Stop ble broadcast (server-side)	>BLE_ADV_STOP\r\n	OK	
Send data to the service peer device	>BLE_ADV_WRITE=11\r\n	OK	The device on the other end has to turn on notify in order to receive it successfully. Then all the other features are handled accordingly

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