

1、产品规格 Product specifications

序号 Serial number	项目 Project	规格参数 Specifications	备注 Remarks
1	工作温度 Operating temperature	0~50℃	
2	相对湿度 Relative humidity	≤95%	
3	大气压力 Atmospheric pressure	86~106Kpa	
4	环境照度 Environmental illumination	自然光或荧光灯 200±50LX Natural light or fluorescent light 200±50LX	
5	主控 MCU Master MCU	TL8271	
6	电路板材质 Circuit board material	FR-4 碳浆过孔板	
7	外壳材料 Shell material	ABS	
8	样品颜色 Sample color	参考客户需求规格 Refer to customer requirements specifications	
9	电池规格 Battery specifications	AAA 1.5*2	
10	红外波长 Infrared wavelength	950±50nm	红外 Infrared
11	红外载波频率 Infrared carrier frequency	38.0±0.5KHz	红外 Infrared
12	蓝牙载波频率 Bluetooth carrier frequency	2.400GHz~2.4835GHz	蓝牙 Bluetooth
13	平均工作电流 Average working current	≤25mA	
14	平均静态电流 Average quiescent current	≤10 μ A	红外
15	工作电压范围 Operating voltage range	2.2~3.6V	
16	遥控距离 Remote control distance	L≥10M(红外) L≥10M (infrared)	红外 Infrared
17	按键自由高度 Free height of keys	≤3mm	
18	按键作用后高度 Height after key press	≥0.5mm	
19	按键作用力 Button force	200gf±20gf	
20	按键负荷寿命 Button load life	≥50 万次 ≥500,000 times	
21	自由跌落试验 Free drop test	从 80cm 高度，六面依次自由跌落在不小于 3cm 厚木地板，三个循环。	

		From the height of 80cm, the six sides will fall freely on the wooden floor not less than 3cm thick in three cycles.	
22	静电环境试验 Electrostatic environment test	$\pm 8\text{KV}$	
23	高温储存试验 High temperature storage test	60°C	
24	低温储存试验 Low temperature storage test	-20°C	
25	恒定湿热试验 Constant humidity test	40°C 相对湿度 $90\pm 2\%$ 40°C relative humidity $90\pm 2\%$	
26	温度循环变化试验 Temperature cycle change test		
27	验收标准 MIL-STD-105E-LEVEL(II) AQL Acceptance standard MIL-STD-105E-LEVEL(II) AQL	重缺陷 (A类) AQL=0.65 轻缺陷 (C类) AQL=1.5 Serious defects (Class A) AQL=0.65 Minor defects (Class C) AQL=1.5	
28	遥控器运输及储存条件 Remote control transportation and storage conditions	运输途中应避免雨雪直接侵袭或者强烈冲击。 遥控器应储存在环境温度$-20^{\circ}\text{C}\sim +60^{\circ}\text{C}$，相对湿度不大于 80%，周围没有强磁场、腐蚀物质和其它有害气体的库房中，储存期为一年。超过一年的产品经重新评估合格后，方可流入市场。 Avoid direct rain or snow or strong impact during transportation. The remote control should be stored in a warehouse where the ambient temperature is $-20^{\circ}\text{C}\sim +60^{\circ}\text{C}$, the relative humidity is not more than 80%, and there is no strong magnetic field, corrosive substances and other harmful gases around. The storage period is one year. Products older than one year may enter the market only after being re-evaluated and qualified.	

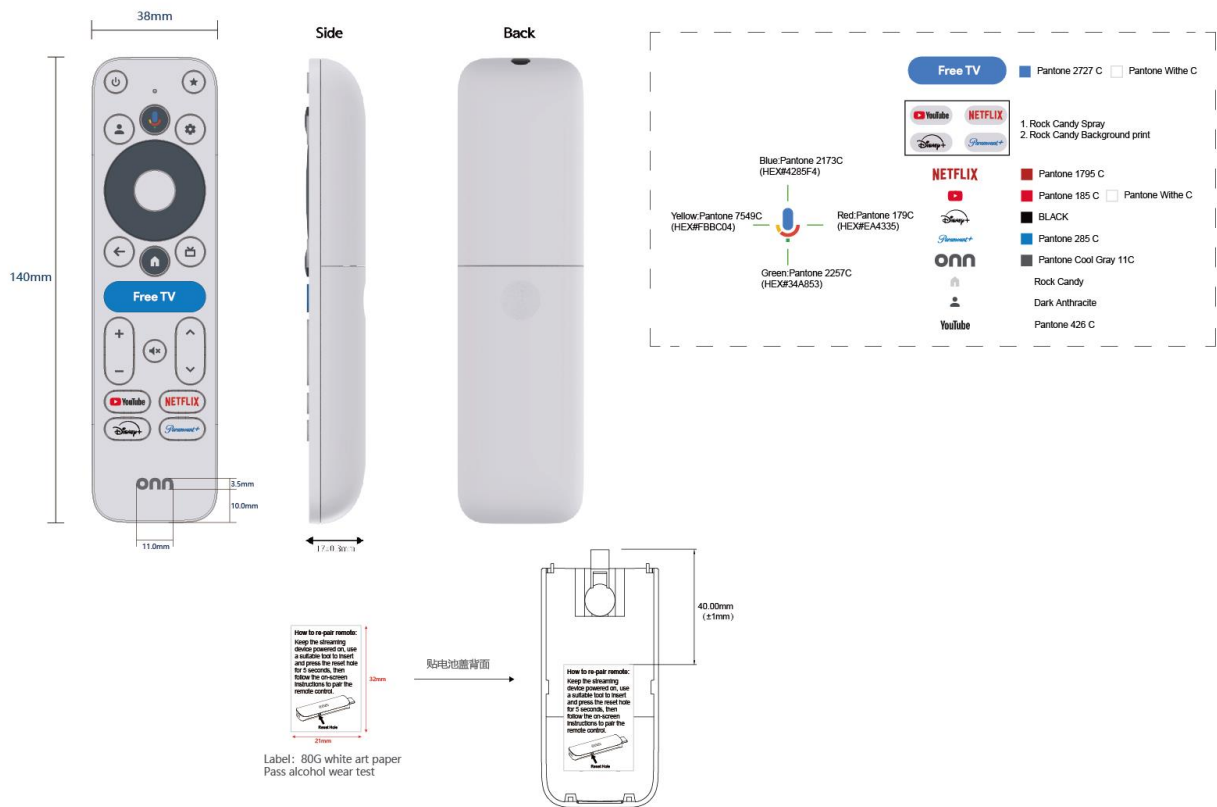
3、规格要求 Specification requirements

序号 Serial number	项目 Project	描述 Description	备注 Remarks
1	使用电池 Use battery	碱性环保电池 Alkaline environmental protection battery	
2	供电电压 Supply voltage	2.2-3.6V	

3	红外电流描述（平均） Infrared current description (average)	$\leq 10 \mu A$ @待机电流（无操作） $\leq 20mA$ @发射功耗（短按） $\leq 20mA$ @发射功耗（长按） $\leq 10\mu A$ @ standby current (no operation) $\leq 20mA$ @ transmit power consumption (short press) $\leq 20mA$ @ transmit power consumption (long press)	红外 IR
4	红外电流描述（最大） Infrared current description (max)	$\leq 10 \mu A$ @待机电流（无操作） $\leq 45mA$ @发射功耗（短按） $\leq 30mA$ @发射功耗（长按） $\leq 10\mu A$ @ standby current (no operation) $\leq 45mA$ @ transmit power consumption (short press) $\leq 30mA$ @ transmit power consumption (long press)	红外 IR
5	蓝牙电流描述（平均） Bluetooth current description (average)	$\leq 0.1mA$ @待机功耗（连上蓝牙无操作） $\leq 3mA$ @发射功耗（短按） $\leq 3mA$ @发射功耗（长按） $\leq 10mA$ @录音功能（语音功能） $\leq 0.1mA$ @ standby power consumption (no operation with Bluetooth) $\leq 3mA$ @ transmit power consumption (short press) $\leq 3mA$ @ transmit power consumption (long press) $\leq 10mA$ @ recording function (voice function)	蓝牙 Bluetooth
6	蓝牙电流描述（最大） Bluetooth current description (max)	$\leq 2mA$ @待机功耗（连上蓝牙无操作） $\leq 5mA$ @发射功耗（短按） $\leq 5mA$ @发射功耗（长按） $\leq 10mA$ @录音功能（语音功能） $\leq 3mA$ @ standby power consumption (no operation with Bluetooth) $\leq 5mA$ @ transmit power consumption (short press) $\leq 5mA$ @ transmit power consumption (long press) $\leq 10mA$ @ recording function (voice function)	蓝牙 Bluetooth
7	音频输出 Audio output	单声道、16K 采样率、16bit 精度音频输出 Mono, 16K sampling rate, 16bit precision audio output	蓝牙 Bluetooth
8	传输距离 Transmission distance	$\geq 12m$ （周围无遮挡物） $\geq 12m$ (no obstructions around)	蓝牙 Bluetooth
9	蓝牙协议 Bluetooth protocol	蓝牙 5.0 协议 Bluetooth 4.2 protocol	蓝牙 Bluetooth
10	信号要求 Signal requirements	满足通信传输距离要求，同时符合蓝牙 BQB 认证要求 Meet the requirements of communication transmission distance and meet the requirements of Bluetooth BQB certification	蓝牙 Bluetooth
11	语音要求 Voice requirements	语音软件识别率 $\geq 90\%$ （句），有干扰情况下：语音识别率 $\geq 85\%$ （句）（需要确认和机顶盒和软件正常状态） Speech software recognition rate $\geq 90\%$ (sentence), in the case of interference: voice recognition rate $\geq 85\%$ (sentence) (requires confirmation and normal state of the set-top box and software)	蓝牙 Bluetooth

12	连接响应 Connection response	≤200ms, 这里是指恢复连接速度, 通过遥控器端测试开始广播到被连接上的时间间隔 ≤200ms, here refers to the time interval from the time when the connection speed is restored and the broadcast is started to be connected through the remote control test	蓝牙 Bluetooth
13	其他通用蓝牙设备影响 Impact of other general Bluetooth devices	HOST 端适配的驱动, 要不影响原有的蓝牙通用设备支持, 如蓝牙耳机/音响 (HSP/HFP,A2DP 等), 蓝牙键盘, 蓝牙鼠标, 游戏手柄等。 The driver adapted to the HOST end will not affect the original Bluetooth universal device support, such as Bluetooth headset/audio (HSP/HFP, A2DP, etc.), Bluetooth keyboard, Bluetooth mouse, game controller, etc.	蓝牙 Bluetooth
14	音频传输要求 Audio transmission requirements	音频传输无异常, 无明显干扰、丢数据、截幅等现象 There is no abnormal audio transmission, no obvious interference, loss of data, clipping, etc.	蓝牙 Bluetooth
15	麦克风灵敏度 Microphone sensitivity	灵敏度-42±3dB Sensitivity -42±3dB	蓝牙 Bluetooth
16	麦克风信噪比 Microphone signal to noise ratio	不能低于 58dB Not less than 58dB	蓝牙 Bluetooth

二、遥控器效果图 Remote control renderings



三、遥控器功能需求描述 Description of remote control function requirements

1、遥控器键值 Remote control key value

系统码: System code:	0X8877
码格式: Code format:	NEC

No.	Funtion	IR	Usage Page	Usage ID
1	Power	0X21	0X0C	0X0030
2	Magic	0X69	0X0C	0X0186
3	User Profile	0X59	0X0C	0X019C
4	Assistant	0X46	0X0C	0X0221
5	Dashboard	0X10	0X0C	0X009F
6	UP	0X15	0X0C	0X0042
7	Down	0X16	0X0C	0X0043
8	Left	0X17	0X0C	0X0044
9	Right	0X18	0X0C	0X0045
10	OK	0X19	0X0C	0X0041
11	Back	0X48	0X0C	0X0224
12	Home	0X47	0X0C	0X0223
13	TV Guide	0X32	0X0C	0X008D
14	FreeTV	0x70	0x0C	0x0187
15	Volume +	0X23	0X07	0X0080
16	Volume -	0X24	0X07	0X0081
17	Mute	0X25	0X0C	0X00E2
18	Program ^	0X33	0X0C	0X009C
19	Program v	0X34	0X0C	0X009D
20	Youtube	0X64	0X0C	0X0077
21	Netflix	0X63	0X0C	0X0078
22	Prime video	0X67	0X0C	0X0079
23	Disney	0X68	0X0C	0X007A

2、遥控器操作说明 Remote control instructions

1. 遥控器基本要求 Basic requirements for remote control

- a).蓝牙设备名: Onn-Remote
a).Device Name: Onn-Remote

b). Vender ID: 0x0525 Product ID: 0x0001

2. 配对

- a).如果用户按下遥控器上的[HOME]+[BACK]键超过 4 秒，遥控器将进入配对模式。

- b).按住按键时，绿色 led 一直亮着。
- c).之后，绿色 led 开始闪烁，表示遥控器已进入配对模式。
- d).如果配对成功，绿色 led 停止闪烁，遥控器开始在蓝牙模式下工作。
- e).如果 2 分钟（重新配对）或 10 分钟（配对）未成功配对，绿色 led 将停止闪烁，红色 led 将闪烁 4 次。遥控器停止配对并返回到之前的状态。
- f).如果引脚或按键丢失，遥控器在断开连接后以配对模式发送 2 分钟或 10 分钟的非直接广告数据。
- g).如果遥控器中没有配对信息并且电池已插入，则遥控器会自动进入配对模式。
- a).If user presses the [HOME] + [BACK] keys on the Remote Control for more than 4 secs, the Remote Control enters pairing mode.
- b).The green led stays on while pressing and holding the keys.
- c).After that, the green led starts blinking to indicate that the Remote Control has entered pairing mode.
- d).If pairing is successfully made, the green led stop blinking and the Remote Control starts working in Bluetooth.
- e).If pairing is not successfully made for 2mins(re-pairing) or 10mins(pairing), the green led stop blinking and the red led blinks 4times. The Remote Control stops pairing and goes back to the previous state.
- f).If pin or key missing, the Remote Control send the un-direct advertising data for 2mins or 10mins in pairing mode after disconnect.
- g). If there is no pairing information in the remote control and the battery is inserted, the Remote Control automatically enters the pairing mode.

3.广播包 Scan Response Data

- a).遥控器应选择一个非常激进的广告间隔，旨在获得最佳的重新连接体验。
- b).建议广告间隔为 20ms。
- c).如果未建立连接，则此间隔可能会在 30 秒后降级。
- d).当用户按[POWER]键或[NETFLIX]键唤醒机顶盒时，遥控器会发送非直接广告。
 - Byte 1~3 : 0xFF, 0xFF, 0xFF
 - Byte 4~10 : 0x41 0x6D 0x6C 0x6F 0x67 0x69 0x63 ("Amlogic")
 - Byte 11 : Key ID (0x01: for Power Key, 0x02: for Netflix Key)
 - Byte 12~17 : STB BT Address
 - Byte 18 : Key Press Counter
- e).非直接广告数据的附加数据

为了兼容性，将发送自定义格式和 Google 格式。

Item	Data	Detail
Appearance	0x80, 0x01	Generic Remote Control
UUID	0x12, 0x18, 0x0F, 0x18	Human Interface Device Battery
Complete local name	Onn-Remote	Device Name

- a).The Remote Control shall choose a very aggressive advertising interval, aimed at the best possible reconnection experience.
- b).An advertisement interval of 20ms is recommended.
- c).This interval may be downgraded after 30s if no connection has been established.
- d).When user press the [POWER] key or [NETFLIX] key to wake up the STB, the Remote Control sends un-direct advertising.
 - Byte 1~3 : 0xFF, 0xFF, 0xFF

- Byte 4~10 : 0x41 0x6D 0x6C 0x6F 0x67 0x69 0x63 ("Amlogic")
- Byte 11 : Key ID (0x01: for Power Key, 0x02: for Netflix Key)
- Byte 12~17 : STB BT Address
- Byte 18 : Key Press Counter

For Compatibility, both of the customized format and Google format are sent.

e).Additional Data of Un-direct advertising Data

Item	Data	Detail
Appearance	0x80, 0x01	Generic Remote Control
UUID	0x12, 0x18, 0x0F, 0x18	Human Interface Device Battery
Complete local name	Onn-Remote	Device Name

扫描响应数据

Item	Data	Detail
Complete local name	Onn-Remote	Device Name

4.解除配对模式 Un-Pairing mode

- a).从 STB 取消配对会清除远程控制绑定缓存。
- b).删除设备绑定缓存（手动方法-可选）：插入电池时按住[BACK]键。
- a).Un-pairing from the STB clears Remote Control bonding cache.
- b).Remove Device bonding cache (manual approach - Optional): Press and hold [BACK] key while inserting batteris.

5.连接参数 Connection Parameter

- a).连接间隔时间：10ms
- b).连接从属延迟：99（1 秒）
- c).连接监控超时：4 秒
- a).Connection Interval Time: 10ms
- b).Connection Slave Latency: 99 (1s)
- c).Connection Supervision Time Out: 4s

6.重新连接 Reconnection

- a).当与机顶盒意外断开连接时，遥控器应自动尝试重新连接到机顶盒。
- b).建议遥控器在断开连接后的前 30-60 秒内使用激进的广告间隔（例如 20 毫秒）。如果 30~60 秒后未重新建立连接，遥控器可能会切换到更适合电池的广告间隔。如果没有检测到用户插入（例如按钮按下），遥控器可能会在 2 分钟后停止尝试连接。
- c).如果遥控器未连接，用户通过按下遥控器上的按钮启动遥控器唤醒和连接，遥控器应缓存按钮按下事件，并在成功建立连接后将其转发给 STB。
- d).如果按钮事件被缓存并一直保持到建立连接，则任何进一步的按键都可能被丢弃，直到缓存的事件成功传递给 STB。
- a).Upon an unexpected disconnect from the STB, the Remote Control shall automatically attempt to reconnect to the STB.
- b).It is recommended that the Remote Control uses an aggressive advertising interval (ex. 20ms) for the first 30-60secs after being disconnected. The Remote Control may then switch to a more battery friendly advertising interval if the connection was not re-established after 30~60secs. The Remote Control may stop attempting to connect after a 2mins interval if no user intraction (ex. Button press) has been detected.

c).If the Remote Control is not connected and the user initiates the Remote Control wake-up and connection by pressing a button on the Remote Control, the Remote Control shall cache the button press event and forward it to the STB after successfully establishing a connection.

d).If a button event is cached and being held until the connection is established, any further key presses may be discarded until the cached event is successfully passed to the STB.

7. ATV 语音服务 ATV Voice service

Type	Short-form	UUID	Properties
ATV Voice Service	ATVV_SERVICE_UUID	AB5E0001-5A21-4F05-BC7D-AF01F617B664	
Write Characteristic	ATVV_CHAR_TX	AB5E0002-5A21-4F05-BC7D-AF01F617B664	Write
Read Characteristic	ATVV_CHAR_RX	AB5E0003-5A21-4F05-BC7D-AF01F617B664	Notify
Control Characteristic	ATVV_CHAR_CTL	AB5E0004-5A21-4F05-BC7D-AF01F617B664	Notify

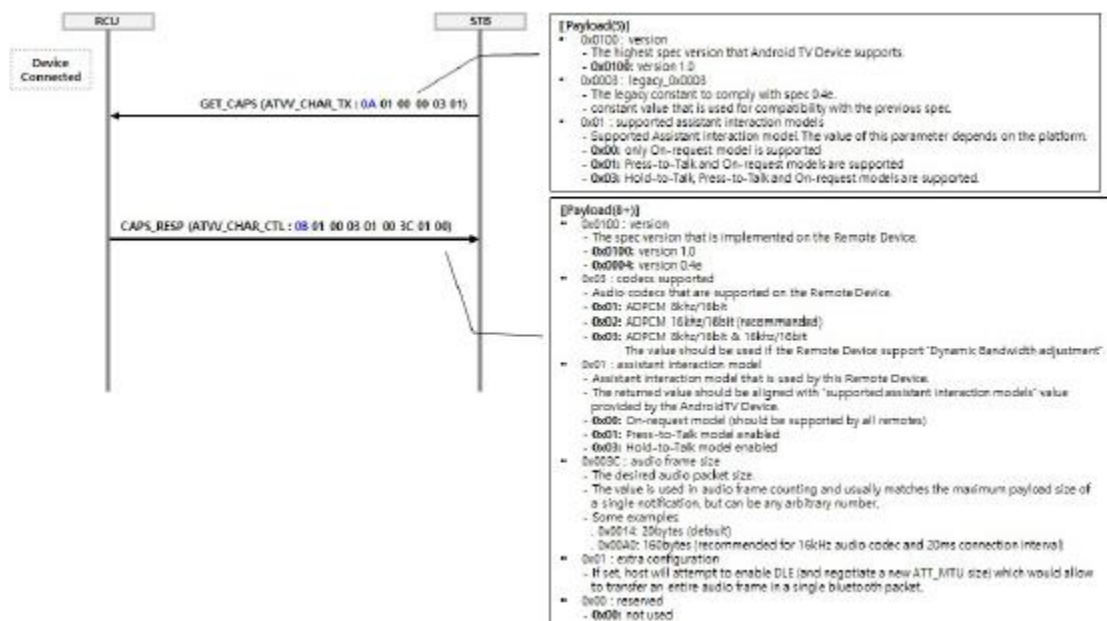
8. ATV 语音初始化（功能）ATV voice initialization (function)

a).在远程控制设备配对并连接后，STB 将向其发送命令以获取远程控制的功能。

b).此命令将通过 ATVV_CHAR_TX 特性发送。

c).然后，遥控器应使用 ATVV_CHAR_CTL 通知以其功能进行响应。

d).流程图

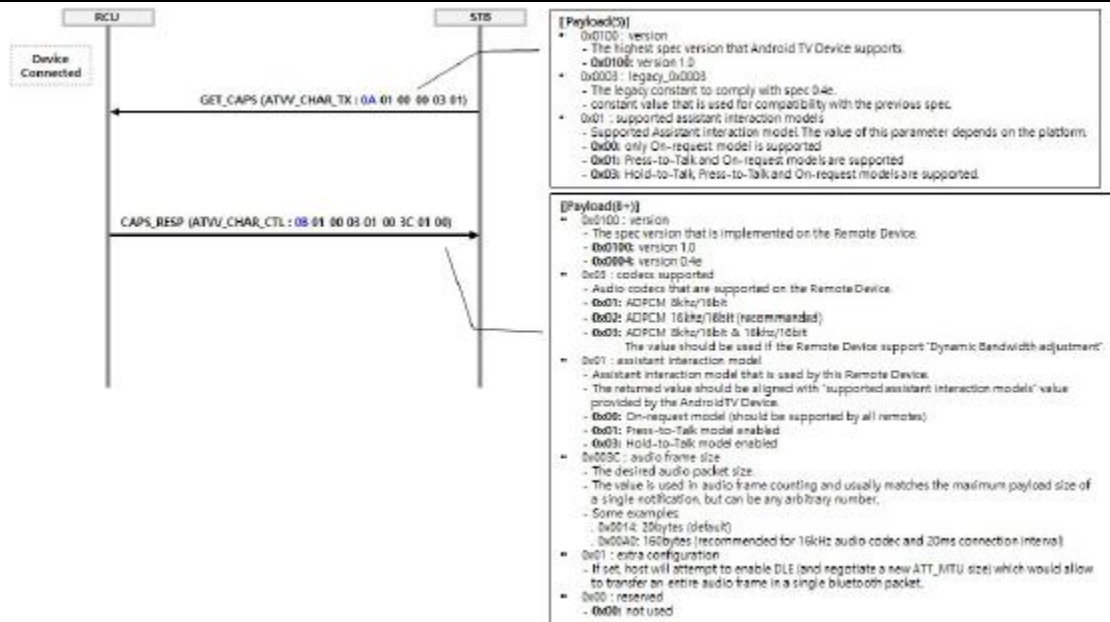


a).After the Remote Control device is paired and connected, the STB will send it a command to get capabilities of the Remote Control.

b).This command will be sent via the ATVV_CHAR_TX characteristic.

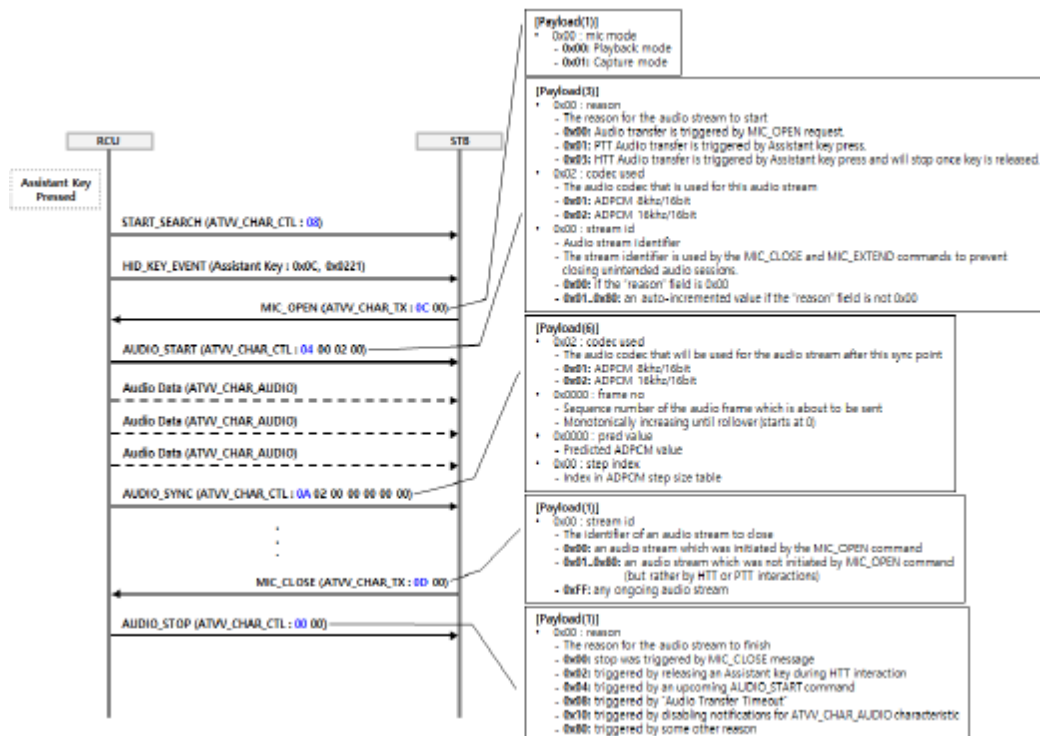
c).The Remote Control should then respond back with its capabilities using ATVV_CHAR_CTL notification.

d).Flow chart



9. 遥控器发起的语音搜索（按需，旧版）Voice Search initiated by the Remote Control (On-request, legacy)

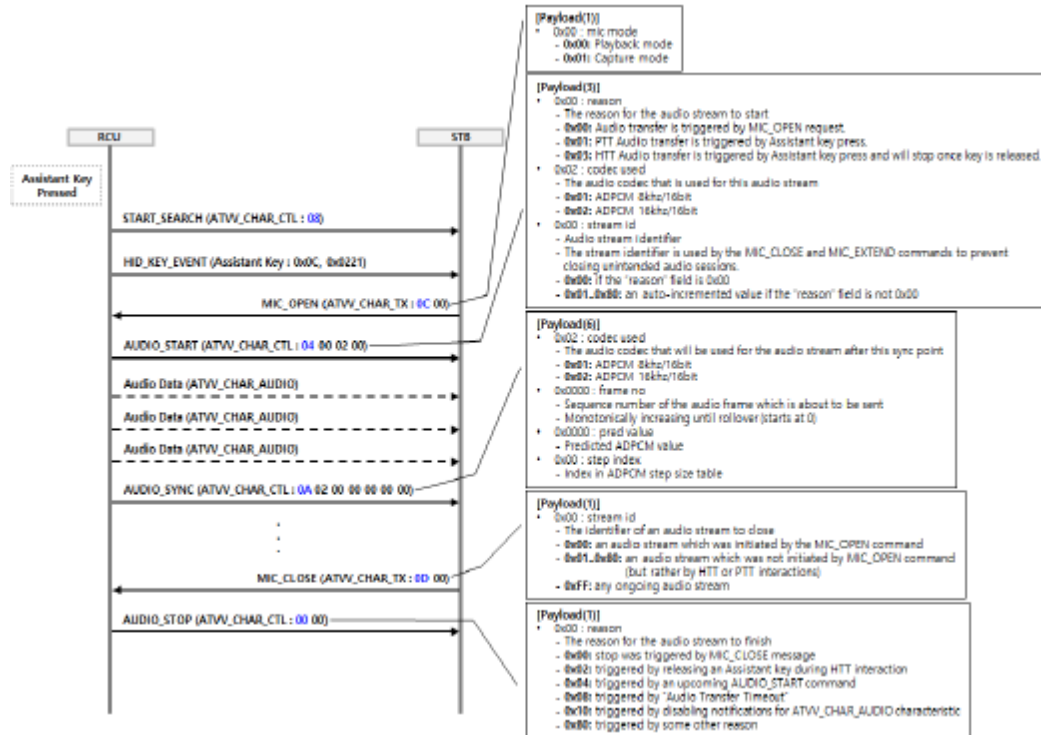
- 对于语音功能，建议距离接收器 10 米以内。
- 嘴和麦克风之间的距离应在 5 到 30 厘米之间。
- 如果按下[ASSISTANT]键，遥控器将首先向 STB 发送 START_SEARCH 命令，然后发送 HID_key_EVENT 命令，STB 将向遥控器发回 MIC_OPEN 命令。
- 绿色 led 亮起，遥控器发送 AUDIO_START 命令并传输语音数据，超时时间为 15 秒。
- 在超时时间或遥控器从 STB 接收到 MIC_CLOSE 命令后，遥控器向 STB 发送 AUDIO_STOP 命令，绿色 led 熄灭。
- 流程图。



注意：所有远程控制都必须支持“按需”助手交互模型，默认情况下，在 GET_CAPS、CAPS_RESP 消息交换协商任何其他交互模型之前，应使用该模型。

- For Voice function, it is recommended to be within 10meters from the receiver.
- Distance between mouth and microphone should be between 5 to 30cm.

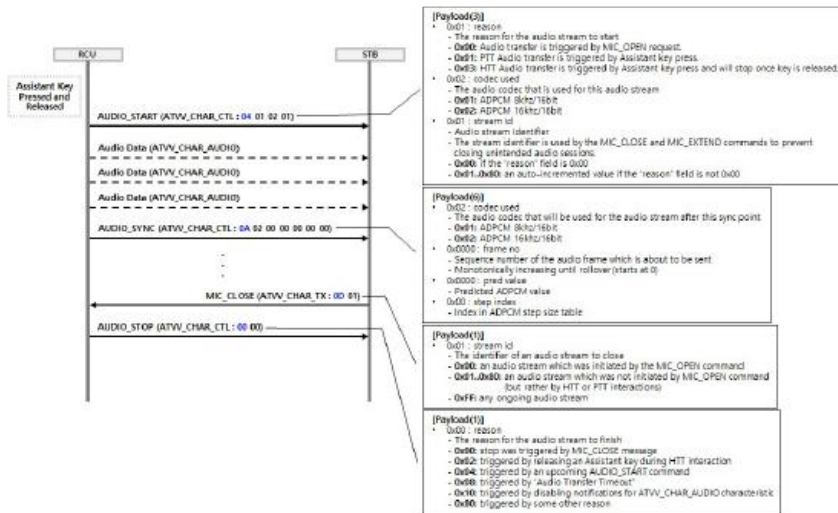
- c).If [ASSISTANT] key is pressed, the Remote Control sends the START_SEARCH command first followed by the HID_KEY_EVENT to the STB and the STB sends back the MIC_OPEN command to the Remote Control.
- d).The green led turns on, the Remote Control sends the AUDIO_START command and transmits the voice data for 15secs timeout duration.
- e).After timeout duration or the Remote Control receives the MIC_CLOSE command from the STB, the Remote Control sends the AUDIO_STOP command to the STB and the green led goes off.
- f).Flow chart.



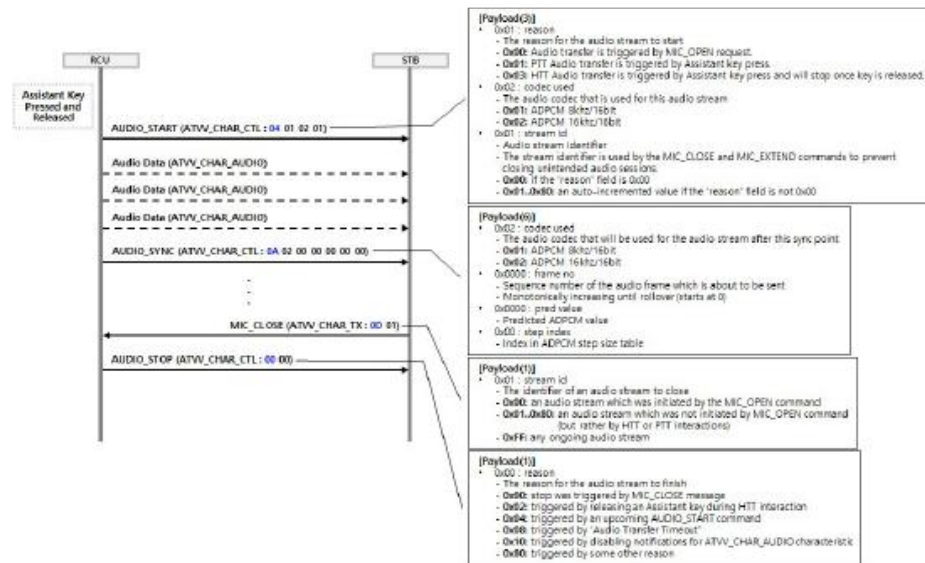
Note: The "On-request" assistant interaction model must be supported by all Remote Control and it should be used by default before any other interaction model is negotiated by GET_CAPS , CAPS_RESP messages exchange.

10. 遥控器发起的语音搜索（PTT，按键通话）Voice search initiated by the remote control (PTT, push-to-talk)

- a).对于语音功能，建议距离接收器 10 米以内。
- b).嘴和麦克风之间的距离应在 5 到 30 厘米之间。
- c).如果按下并松开[ASSISTANT]键，绿色 led 将开始闪烁。
- d).遥控器发送 AUDIO_START 命令，并在 15 秒的超时时间内传输语音数据。
- e).在超时时间或遥控器从 STB 接收到 MIC_CLOSE 命令后，遥控器向 STB 发送 AUDIO_STOP 命令，绿色 led 熄灭。
- f).流程图。

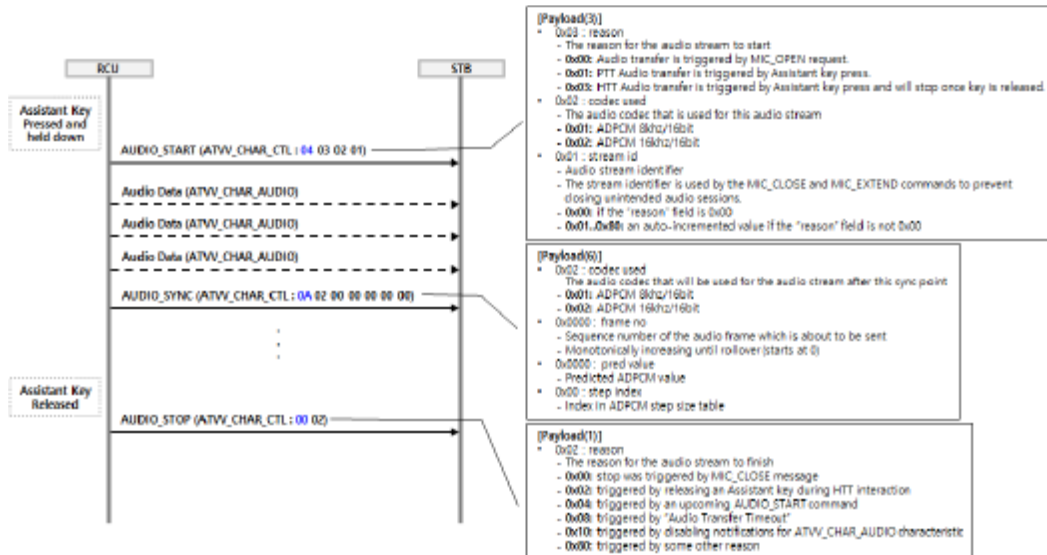


- For Voice function, it is recommended to be within 10meters from the receiver.
- Distance between mouth and microphone should be between 5 to 30cm.
- If [ASSISTANT] key is pressed and released, the green led starts blinking.
- The Remote Control sends the AUDIO_START command and transmits the voice data for 15secs timeout duration.
- After timeout duration or the Remote Control receives the MIC_CLOSE command from the STB, the Remote Control sends the AUDIO_STOP command to the STB and the green led goes off.
- Flow chart.

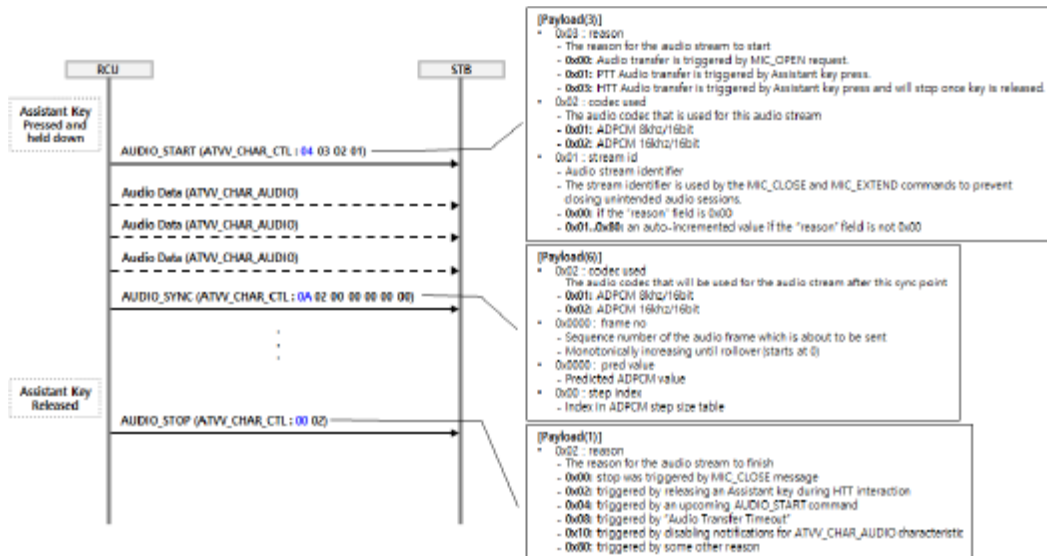


11. 遥控器发起语音搜索 (HTT, 保持通话) The remote control initiates a voice search (HTT, keep the call)

- 对于语音功能, 建议距离接收器 10 米以内。
- 嘴和麦克风之间的距离应在 5 到 30 厘米之间。
- 如果按住[ASSISTANT]键, 绿色 led 将亮起
- 遥控器发送 AUDIO_START 命令并传输语音数据。
- 如果松开[ASSISTANT]键, 遥控器将向 STB 发送 AUDIO_STOP 命令, 绿色 led 熄灭。
- 流程图。

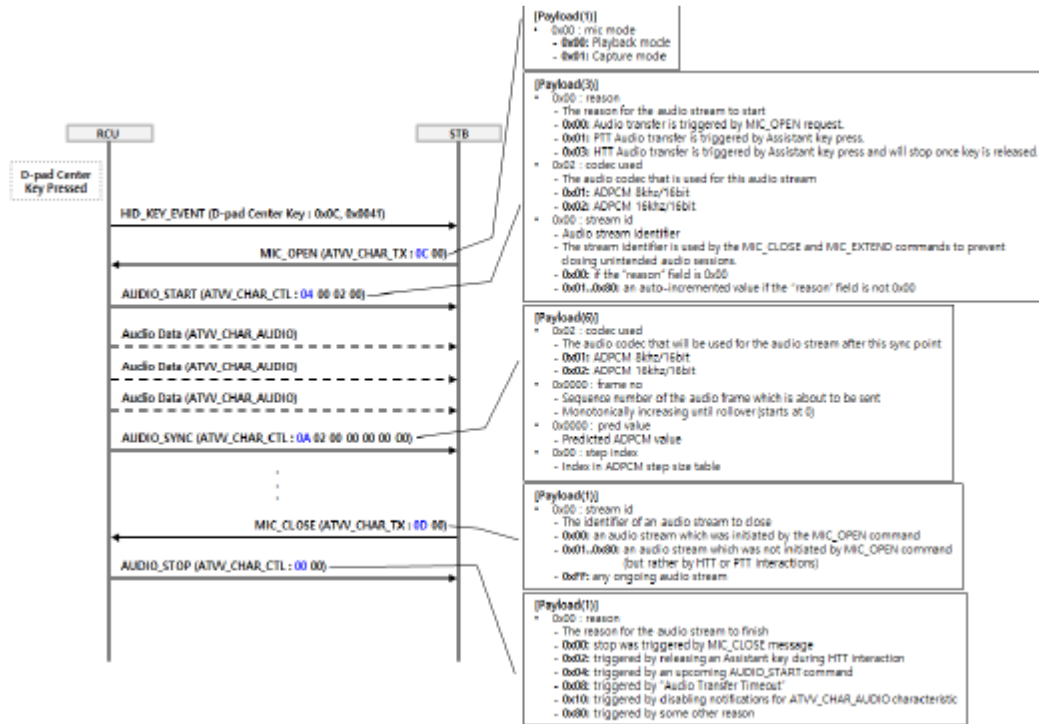


- For Voice function, it is recommended to be within 10meters from the receiver.
- Distance between mouth and microphone should be between 5 to 30cm.
- If [ASSISTANT] key is pressed and held down, the green led turns on
- The Remote Control sends the AUDIO_START command and transmits the voice data.
- If [ASSISTANT] key is released, the Remote Control sends the AUDIO_STOP command to the STB and the green led goes off.
- Flow chart.

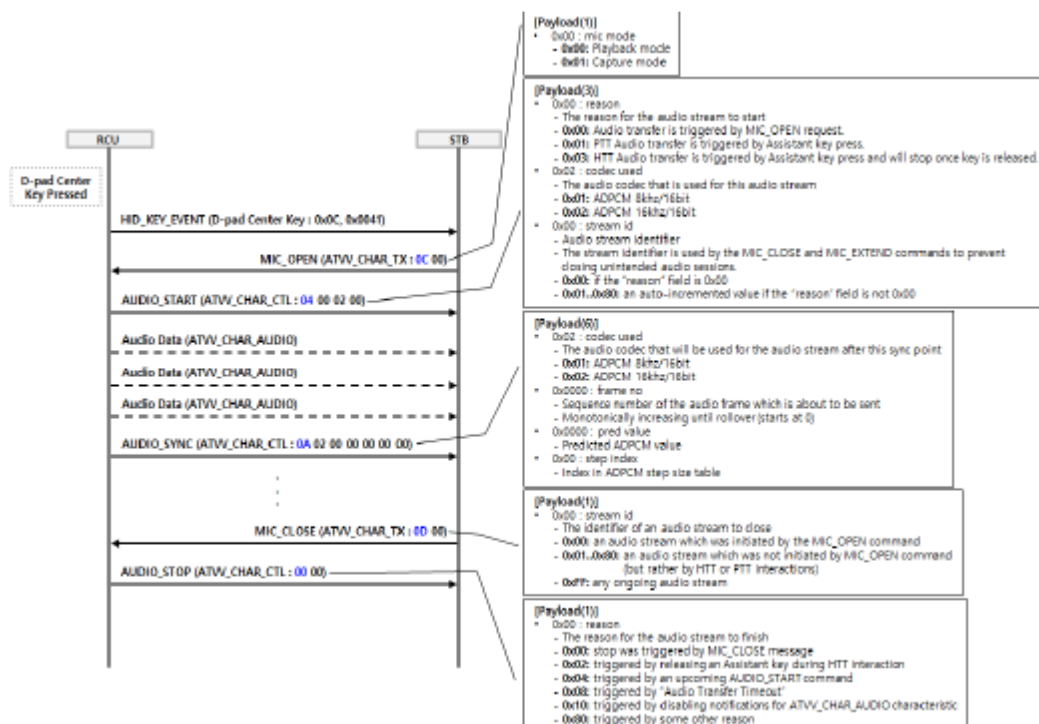


12. 启动器启动的语音搜索 Voice search initiated by the launcher

- 对于语音功能，建议距离接收器 10 米以内。
- 嘴和麦克风之间的距离应在 5 到 30 厘米之间。
- 用户使用导航和[D-PAD CENTER]键在启动器上选择并验证语音搜索。
- 遥控器向机顶盒发送 HID_KEY_EVENT，机顶盒向遥控器发回 MIC_OPEN 命令。
- 绿色 led 亮起，遥控器发送 AUDIO_START 命令并传输语音数据，超时时间为 15 秒。
- 在超时时间或遥控器从 STB 接收到 MIC_CLOSE 命令后，遥控器向 STB 发送 AUDIO_STOP 命令，绿色 led 熄灭。
- 流程图



- For Voice function, it is recommended to be within 10meters from the receiver.
- Distance between mouth and microphone should be between 5 to 30cm.
- User selects and validates the voice search on the launcher by using navigation and [D-PAD CENTER] keys.
- The Remote Control sends the HID_KEY_EVENT to the STB and the STB sends back the MIC_OPEN command to the Remote Control.
- The green led turns on, the Remote Control sends the AUDIO_START command and transmits the voice data for 15secs timeout duration.
- After timeout duration or the Remote Control receives the MIC_CLOSE command from the STB, the Remote Control sends the AUDIO_STOP command to the STB and the green led goes off.
- Flow chart



13. 沙发模式 Couch mode

a).如果连续按下一个或多个按键超过 30 秒，遥控器将停止传输，以保护电池放电。

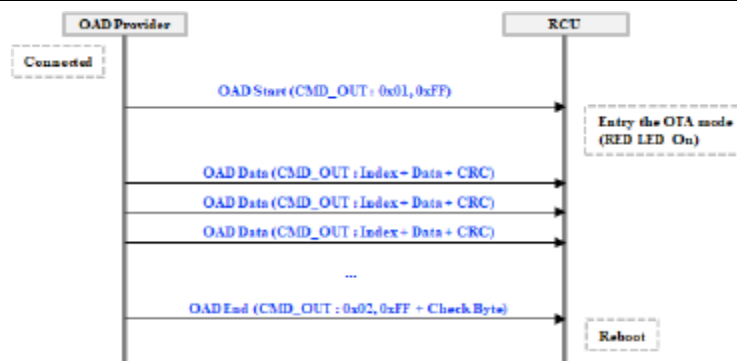
a).If a key or multiple keys are pressed continuously for more than 30s, the Remote Control stops transmission in order to protect the battery discharge.

14.OAD 模式 OAD mode

a).OAD 根据 Telink 规范进行。

b).OAD 服务

Type	Short-form	UUID	Properties
OAD Service	OAD_SERVICE_UUID	00010203-0405-0607-0809-0A0B0C0D1912	
Write Characteristic	OAD_CMD_OUT	00010203-0405-0607-0809-0A0B0C0D2B12	Write



注 1: OAD 数据=索引 (2byte) + 数据 (16byte) + CRC (2byte)

注 2: Check Byte 是最后一个索引，也是最后一个指数的倒数。

例如) 最后一个索引=0x09D7→校验字节=0xD7 0x09 0x28 0xF6

d). OAD 时间 < 30 秒

e). 更新应该能够完成，而用户不必重复配对过程

f). 支持固件升级的最低电池电量：30%

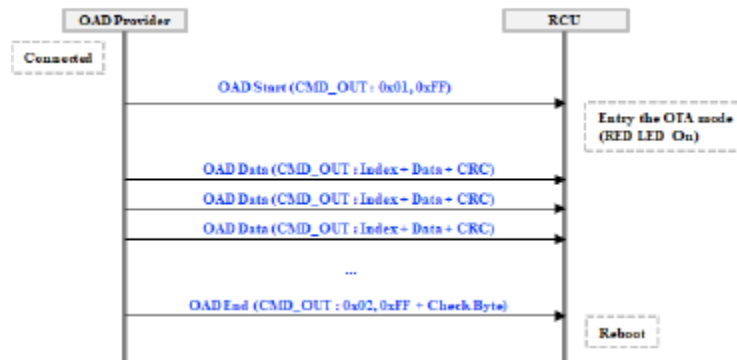
g). 必须能够以低至 30% 的电池容量支持 DFU 的成功更新

h). 即使 OTA 发生故障，遥控器仍应正常工作。

a). OAD proceeds according to the Telink specification.

b). OAD service

Type	Short-form	UUID	Properties
OAD Service	OAD_SERVICE_UUID	00010203-0405-0607-0809-0A0B0C0D1912	
Write Characteristic	OAD_CMD_OUT	00010203-0405-0607-0809-0A0B0C0D2B12	Write



Note1 : OAD Data = Index(2byte) + Data(16byte) + CRC(2byte)

Note2 : Check Byte is last index and inverse of last index.

Ex) last index = 0x09D7 → Check Byte = 0xD7 0x09 0x28 0xF6

d). OAD time < 30secs

e). Update should be able to complete without user having to repeat the pairing process

f). Minimal Battery level to support firmware upgrade: 30%

g). Must be able to support successful DFU update with as little as 30% battery capacity

h). Even if the OTA fails, the Remote Control should still operate normally.

14. Bug Report

a). 按下[D-PAD CENTER]+[BACK]键超过 1 秒，以获取 STB 错误报告。

b). 在 IR 模式下，发送的代码数据为 0x96。

a). Press the [D-PAD CENTER] + [BACK] keys for over 1sec to get the STB bug report.

b). In IR mode, the sent code data is 0x96.

15. 恢复出厂设置 Factory Reset mode

a). 按下[D-PAD CENTER]+[MUTE]键超过 4 秒。

b). 绿色 led 闪烁 2 次，确认正在删除现有的配对表 ir 设置值。

c). 出厂重置完成后，绿色 led 熄灭，遥控器以 ir 模式运行。

a). Press the [D-PAD CENTER] + [MUTE] keys for longer than 4secs.

b). The green led blinks 2times to confirm that it is deleting the existing pairing table, ir setting value.

c). When the factory reset is completed, the green led goes off and the Remote Control operate as ir.

16. 辅助功能快捷方式 Accessibility Shortcut

a). 按下[D-PAD DOWN]+[BACK]键超过 1 秒，以启用或禁用机顶盒上的“辅助功能快捷方式”功能。

b). 在 RF 模式下，发送的代码数据是[D-PAD DOWN]和[BACK]按下事件。

a). Press the [D-PAD DOWN] + [BACK] keys for longer than 1sec to enable or disable the “Accessibility Shortcut” function on the STB.

b). In RF mode, the sent codes data are [D-PAD DOWN] and [BACK] press event.

17. 红外服务 IR service

Type	Short-form	UUID	Properties
IR Service	IR_SERVICE	D343BFC0-5A21-4F05-BC7D-AF01F617B664	
Control Characteristic	IR_PROG_CONTROL	D343BFC1-5A21-4F05-BC7D-AF01F617B664	Write
Key Code Characteristic	IR_KEY_ID	D343BFC2-5A21-4F05-	Write

		BC7D-AF01F617B664	
IR Code Characteristic	IR_CODE	D343BFC3-5A21-4F05-BC7D-AF01F617B664	Write
IR Suppress Characteristic	IR_SUPPRESS	D343BFC4-5A21-4F05-BC7D-AF01F617B664	Write
Key Down Characteristic	IR_KEY_EVENT	D343BFC5-5A21-4F05-BC7D-AF01F617B664	Notify

18. 特征和命令 Characteristics and Commands

- a).IR_PROG_CONTROL 特性用于启动 (0x01) 和完成 (0x00) 更新过程。
- b).IR_KEY_ID 特性指定当前编程的遥控钥匙。(安卓密钥: 2 字节)
- c).IR_CODE 特性用于发送 IR 代码。(红外代码片段: 可变长度有效载荷)
- d).IR_SUPPRESS 特性用于在 IR 和 BLE HID 模式之间切换。(Android 密钥列表: 每个项目 2 字节)
- e).IR_KEY_EVENT 特性用于通知 KEY_UP (0x01, 密钥代码: 2 字节) 和 KEY_DOWN (0x00, 密钥代码, 2 字节) 事件。

- a).The IR_PROG_CONTROL characteristic is used to START(0x01) and FINISH(0x00) the update process.
- b).The IR_KEY_ID characteristic specifies the Remote Control KEY that is currently programmed. (Android keycode: 2bytes)
- c).The IR_CODE characteristic is used to send IR codes. (IR Code fragment: variable length payload)
- d).The IR_SUPPRESS characteristic is used to switch between IR and BLE HID modes.(list of Android keycodes: 2bytes per item)
- e).The IR_KEY_EVENT characteristic is used to notify about KEY_UP(0x01, Key Code: 2bytes) and KEY_DOWN(0x00, Key Code: 2bytes) events.

19. IR 编程操作顺序 IR Programming Operation Sequence

- a).ATV 将 0x01 写入 IR_PROG_CONTROL 以启动 IR 编程会话。这将使之前启动的任何会话无效。
- b).对于 ATV 想要编程的每个按键:

1).ATV 将相应的密钥 ID 写入 IR_key_ID。

密钥 ID 为 2 个字节。按键由 Android 按键代码标识, 并且始终按按键代码升序编写。

遥控器应忽略它不支持的任何按键代码。

2).ATV 将相应的 IR 代码写入 IR_code。

IR 代码可能会被拆分为多个连续的写入。有效载荷应按到达顺序连接。

产生的字节序列应按照 IR 代码格式进行解释。

- c).ATV 将 0x00 写入 IR_PROG_CONTROL 以完成 IR 编程会话。

成功的响应保证指定的钥匙已成功编程。

注意: 未指定的按键应在 BLE HID 模式下运行。

除非配置为临时 BLE HID 模式, 否则指定按键应在 IR 模式下运行。

- a).ATV writes 0x01 to IR_PROG_CONTROL to START an IR programming session. This invalidates any previously started session.

- b).For each key that ATV wants to program:

1).ATV writes the corresponding key ID to IR_KEY_ID.

The key ID is 2 bytes. Keys are identified by Android key codes and are always written in ascending key code order.

The remote should ignore any key codes that it does not support.

2).ATV writes the corresponding IR code to IR_CODE .

The IR code might be split into multiple consecutive writes. Payloads shall be concatenated in the order of arrival.

The resulting byte sequence shall be interpreted according to IR Code Format .

c). ATV writes 0x00 to IR_PROG_CONTROL to FINISH the IR programming session.

A successful response guarantees that specified keys have been successfully programmed.

Note: Not specified keys shall operate in the BLE HID mode.

Specified keys shall operate in IR mode, unless configured in temporary BLE HID mode.

20. 临时 BLE HID 模式 Temporary BLE HID mode

a).通过写入 IR_SUPPRESS 特性, IR 编程按键可以暂时切换回 BLE HID 模式。

b).有效载荷应被解释为一个 2 字节的 Android 密钥代码列表,用于标识应在 BLE HID 模式下运行的密钥。

c).所有其他红外编程按键应在红外模式下操作。

d).此配置保持有效,直到再次成功写入 IR_SUPPRESS 或断开连接。

a).IR programmed keys can be temporarily switched back to BLE HID mode by writing the IR_SUPPRESS characteristic.

b).The payload shall be interpreted as a list of 2 bytes Android key codes which identify the keys that should operate in BLE HID mode.

c).All other IR programmed keys shall operate in IR mode.

d).This configuration remains valid until another successful write to IR_SUPPRESS or a disconnection.

21. 关键事件通知 Key Event Notifications

a).可以订阅 IR_KEY_EVENT 特性以获取有关 KEY_DOWN 和 KEY_UP 事件的通知。

b).仅应发送 IR 模式下的按键通知。

a).The IR_KEY_EVENT characteristic can be subscribed for notifications about KEY_DOWN and KEY_UP events.

b).Notifications shall be sent only for keys in IR mode.

FCC Statement

This equipment has been tested and found to comply with the limits for 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 on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

RF Exposure Information

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

ISED Statement

English: This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

The digital apparatus complies with Canadian CAN ICES-3 (B)/NMB-3(B).

French: Cet appareil contient des émetteurs/récepteurs exempts de licence qui sont conformes aux RSS exemptés de licence d'Innovation, Sciences et Développement économique Canada.

L'exploitation est soumise aux deux conditions suivantes :

- (1) Cet appareil ne doit pas provoquer d'interférences.
- (2) Cet appareil doit accepter toute interférence, y compris les interférences

susceptibles de provoquer un fonctionnement indésirable de l'appareil.

l'appareil numérique du ciem conforme canadien peut - 3 (b) / nmb - 3 (b).

This device meets the exemption from the routine evaluation limits in section 6.3 of RSS 102 and compliance with RSS 102 RF exposure, users can obtain Canadian information on RF exposure and compliance.

cet appareil est conforme à l'exemption des limites d'évaluation courante dans la section 6.3 du cnr - 102 et conformité avec rss 102 de l'exposition aux rf, les utilisateurs peuvent obtenir des données canadiennes sur l'exposition aux champs rf et la conformité.

This equipment complies with Canada radiation exposure limits set forth for an uncontrolled environment.

Cet équipement est conforme aux limites d'exposition aux rayonnements du Canada établies pour un environnement non contrôlé.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

L'appareil a été évalué pour répondre aux exigences générales d'exposition aux radiofréquences. L'appareil peut être utilisé en condition d'exposition portable sans restriction.

This equipment should be installed and operated with minimum distance 0mm between the radiator & your body.

Cet équipement doit être installé et utilisé à une distance minimale de 0mm entre le radiateur et votre corps.