# Requirement Specifications of Remote

Model: Philips T32  for Google TV

Brand: Philips

C&D model No.：135439B0002

FUNAI model No.：URMT26CND002

Version : 0.7  2021/11/4
FUNAI ELECTRIC CO., LTD.

Record of revision

| REV. NO | DATE | PAGE | PART NAME | SPECIFICATION |
|---|---|---|---|---|
| 0.1 | 2021.7.27 | - | - | First Edition |
| 0.2 | 2021.7.28 | P.9 | 5. Function | - Forced conversion recovery method modify<br>- Added prevent ignore key event |
| 0.3 | 2021.08.03 | P.8 | 5. Function | - Google Assistant operation method redefine |
| 0.4 | 2021.08.16 | P.1 | - | - Funai model No fixed (URMT26CND002) |
| 0.5 | 2021.09.03 | P.4, 5 | 2. Code Table | - Key layout and code update |
| 0.6 | 2021.10.5 | P.4<br>P.9 | 2. Code Table<br>5. Function | - BLE option code change<br>- Battery level check method adds<br>- Shut down voltage change |
| 0.7 | 2021.11.4 | P.4<br>P.5, 7<br>P.9 | 2. Code Table<br><br>5. Function | - BLE VOD code change<br>- RCU design change<br>- Battery detection supplementary explanation |
| | | | | |

1. Specifications

| ITEM | IR/BLE Remote Control for FUNAI TV (OS : Google TV) |
|---|---|
| Destination | USA / Canada |
| Operating Environment | 0~45℃, 5~80%RH |
| Storage Environment | -20~60℃, 90%RH |
| Certification | FCC/IC Certification |
| | Bluetooth SIG certification |
| Device | Telink TLSR8275 |
| Number of Keys | 26 Keys (including Mic. Key) |
| IR LED | x1pcs |
| LED indicator | Orange x1pcs |
| Microphone | x1pcs (Meet Google ATV requirements of Microphone) |
| Key type | Use Metal Dome for the specified buttons |
| Battery | R03/AAA x2pcs |
| Google's requirements | Meet Google's requirements as a remote control for Google TV |
| Green support | RoHS, REACH, FUNAI Green Procurements Standards |

2. Code Table

| Position | No. | Key name | IR RC6 format Mode = 0, Custom=0x00 | BLE Parameters (Usage ID) | USB HID Usage Name Consumer Page (0x0C) | Keyboard Page (0x07) |
|---|---|---|---|---|---|---|
| | | | | Philips RCU Code Table | | |
| Front | 1 | Power | 0x0C | 0x0030 | Power | |
| | 2 | GUIDE | 0xCC | 0x008D | Media Select Program Guide | |
| | 3 | HOME | 0x54 | 0x0223 | AC Home | |
| | 4 | OPTION | 0x40 | 0x0040 | Menu | |
| | 5 | UP | 0x58 | 0x0042 | Menu Up | |
| | 6 | LEFT | 0x5A | 0x0044 | Menu Left | |
| | 7 | OK | 0x5C | 0x0041 | Menu Pick | |
| | 8 | RIGHT | 0x5B | 0x0045 | Menu Right | |
| | 9 | DOWN | 0x59 | 0x0043 | Menu Down | |
| | 10 | BACK | 0x41 | 0x0224 | AC Back | |
| | 11 | Google Assistant | 0xB6 | 0x0221 | AC Search | |
| | 12 | DASHBOARD | 0xD1 | 0x009F | Reserved | |
| | 13 | VOL+ | 0x10 | 0x0080 | | Keyboard Vol Up |
| | 14 | INPUT | 0x38 | 0x01BB | Reserved | |
| | 15 | CH+ | 0x20 | 0x009C | Channel Increment | |
| | 16 | VOL- | 0x11 | 0x0081 | | Keyboard Vol Down |
| | 17 | MUTE | 0x0D | 0x00E2 | Mute | |
| | 18 | CH- | 0x21 | 0x009D | Channel Decrement | |
| | 19 | RED | 0x6D | 0x0069 | Reserved | |
| | 20 | GREEN | 0x6E | 0x006A | Reserved | |
| | 21 | YELLOW | 0x6F | 0x006C | Reserved | |
| | 22 | BLUE | 0x70 | 0x006B | Reserved | |
| | 23 | NETFLIX | 0x76 | 0x0100 | Request for MTK | |
| | 24 | YouTube | 0x79 | 0x0101 | Request for MTK | |
| | 25 | discovery+ | 0xB5 | 0x0102 | Request for MTK | |
| | 26 | tubi | 0xB4 | 0x0103 | Request for MTK | |
| Combination & Long press | A01 | [OK + BACK] For Bug Report | 0x83 | Simultaneous transmission | | |
| | A02 | [DOWN + BACK] For Talk Back | 0xDA | Simultaneous transmission | | |
| | A03 | [OPTION + VOL-] Unpairing | | | | |
| | B01 | release Key | | 0x0000 | Unassigned | Reserved |

3. RF Protocol

| 1. Device | Telink TLSR8275 |
|---|---|
| 2. Bluetooth version | Bluetooth LE 4.2 |
| 3. GATT-Based Specifications | HID over GATT Profile<br>- HIDS(HID Service)<br>- BAS(Battery Service)<br>- DIS(Device Information Service)<br>VOICE : support Google Gatt profile for voice over BLE<br>OTA over GATT Profile |
| 4. Device Name | Philips TV Voice RC_8 |
| 5. Product ID | 0x08 |
| 6. Vender ID | 0x0211 |
| 7. GAP Appearance Value | 0x0180 : Generic Remote Control |
| 8. BD Address | Assigned by C&D (C&D's OUI) |
| 9. Audio feature | Google ATV Voice<br>- On-air data rate: 64kbps [16kHz/16bit/4:1 ADPCM Compression]<br>and   32kbps [8kHz/16bit/4:1 ADPCM Compression]<br>- Voice timeout: 30sec |
| 10. Device Bonding | - Remote only supports one bonded host<br>- Existing bond severed only after the new bonding is successfully completed<br>- Unpairing from the Host clears bonding cache<br>- Operating Unpairing key function clears bonding cache |
| 11. Battery Level | - Battery Level is sent to TV by NOTIFY.<br>- Format : UINT8,  Unit : percent |
| 12. F/W Version | - F/W version is included in DIS of RCU. |

4. RCU Bag & Label

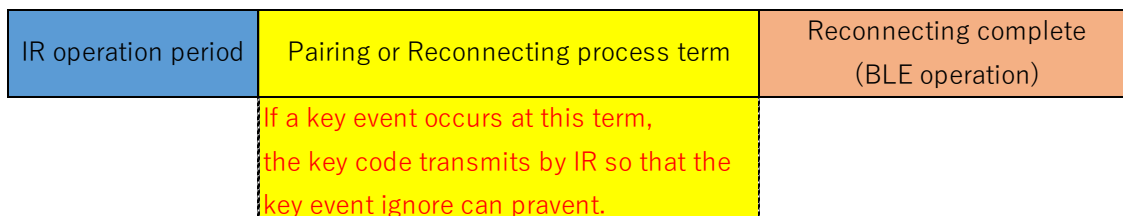| Bag | Please bag RCU separately. <br> We will use this bag for mass production of TV. |
|---|---|
| QR Label | Please put a QR code label on the bag. <br> Contents: <br>   1. Funai part No. <br>   2. C&D part  No. <br>   3. Assembly date <br>   4. Serial No. |

5.  Function

| LED Pattern definitions | [Blink]<br><br>  250ms ON / 250ms OFF<br><br>[Fast Blink]<br><br>  150ms ON / 150ms OFF |
|---|---|
| 1.  Normal keys click<br>    (except MIC) | [LED behavior]<br><br>-  LED turns on during pressing the keys |
| 2.  Pairing | [Start]<br><br>①  Press any buttons when bonding cache is NULL.<br><br>②  Or Press and hold [HOME] and [BACK] key for 3 seconds<br><br>[Pairing timeout]<br><br>    30sec<br><br> [LED behavior]<br><br>-  LED blink while pairing process<br><br>-  LED fast blink **5** times when pairing completion |
| 3.  UnPairing | [Start]<br><br>-  Press and hold [OPTION] and [VOL-] key for 3 seconds<br><br>[LED behavior]<br><br>-  LED keep to light up fast blink **9** times when Unpairing completion<br><br>[Operation]<br><br>-  Bonding cache clear and sleep 3sec later |
| 4.  Voice search | [Operation]<br><br>-  Hold to Talk [Google Assistant ]<br><br>[LED behavior]<br><br>-  LED turns on after ACK from host when voice search is ready<br><br>-  LED turns off after end of speech is detected from the host, or<br><br>-  LED turns off after 30 seconds of time out |
| 5.  Bug Report | [Operation]<br><br>-  Output the key code during pressing and holding [OK] and [BACK]<br><br>[Code sending]<br><br>-  Send code: Case by IR : 0x83,<br><br>                 Case by BLE : Simultaneous transmission |
| 6.  Talk Back<br>    (Accessibility shortcut) | [Operation]<br><br>-  Output the key code during pressing and holding [DOWN] and [BACK]<br><br>[Code sending]<br><br>-  Send code: Case by IR 0xDA,<br><br>                 Case by BLE : Simultaneous transmission |

| 7. BLE/IR Switching | [BLE connected status]<br>- Transmit the code by BLE<br>[BLE disconnected status]<br>- Transmit the code by IR<br>[Note]<br>- If key events occur the RCU must send the key code(*1) |
|---|---|
| 8. Forced conversion<br>(BLE to IR or IR to BLE) | [Operation]<br>- Press and hold [RED] and [BLUE] key for 5 seconds<br>[When Forced IR]<br>[Google Assistant] : BLE send<br>other Buttons : IR send<br>[LED behavior]<br>- LED keep to light up fast blink **9** times when converting completion<br>[BLE recovery]<br>- Method1: [RED] and [BLUE] key for 5 seconds<br>Method2: Battery reset<br>Method3: Unpairing |
| 9. UVLO | If the RCU is in a low power state, it will shut down directly without warning (warning=LED blink).<br>V_shutdown = 1.9V<br>V_recovery = 2.3V |
| 10. Battery level check | - The voltage is checked once every 8 seconds for 30 seconds after the button is pressed.<br>- If the button is pressed again within 30 seconds, the time is extended by 30 seconds.<br>- For the rest of the time, the voltage is checked once an hour.<br>- The value of remaining voltage is kept at the lowest value.<br>- If the lowest value is updated, it will be sent to the TV side.<br>- Voltage detection is not done while the button is pressed or when IR is transmitted.<br>- The remaining voltage will be initialized under the following conditions.<br>(1) When the battery is removed or inserted (Hardware reset)<br>(2) After pairing.<br>(3) When the status is changed from deep sleep to wake. |

(*1)Prevent key ignore during the pairing or reconnect process.

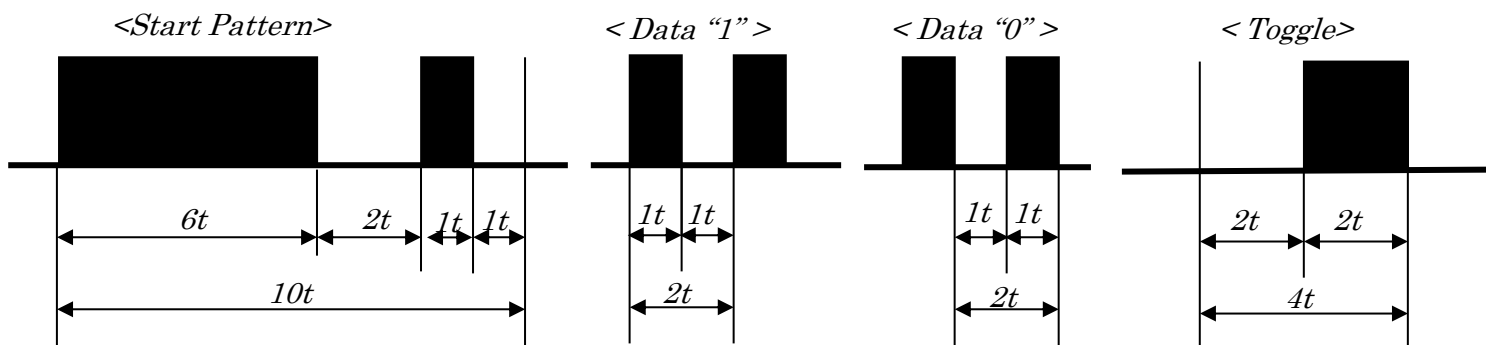( If key events occur the RCU must send the key code )

| IR operation period | Pairing or Reconnecting process term | Reconnecting complete<br>(BLE operation) |
|---|---|---|
| | If a key event occurs at this term, the key code transmits by IR so that the key event ignore can pravent. | |

IR Specification

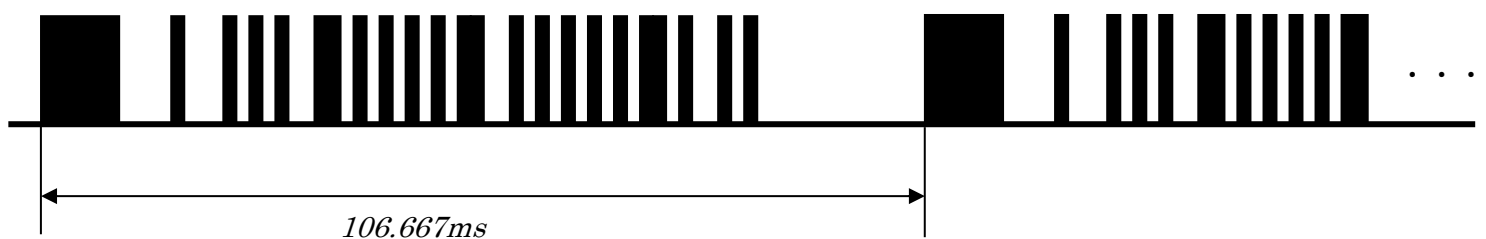| Peak Wavelength | TYP 940nm |
|---|---|
| Format | RC6 format: In addition to specification of "RC6 mode 0",　the followings should also be satisfied. |
| Carrier Frequency | 36kHz ±0.36kHz |
| Duty | 33% |

- IR transmission method
(ⅰ). When a key is pressed one time, code is transmitted at least one time.
(ⅱ). While a key is kept pressing, the key code is transmitted repeatedly.
(ⅲ). When more than one key are pressed at one time, codes are not transmitted.
(ⅳ-1). If another key is pressed while a key is kept pressing, transmission of code is stopped at this time.
(ⅳ-2). After then, **if one of the keys is released, key code of the key which is kept pressing is transmitted.**
(ⅴ). While a key is kept pressing, the key code is transmitted every 106.667ms.
When the second key (different from the first key) is pressed after the first key is released,
**The second key code is transmitted after an interval of 150ms or more.**
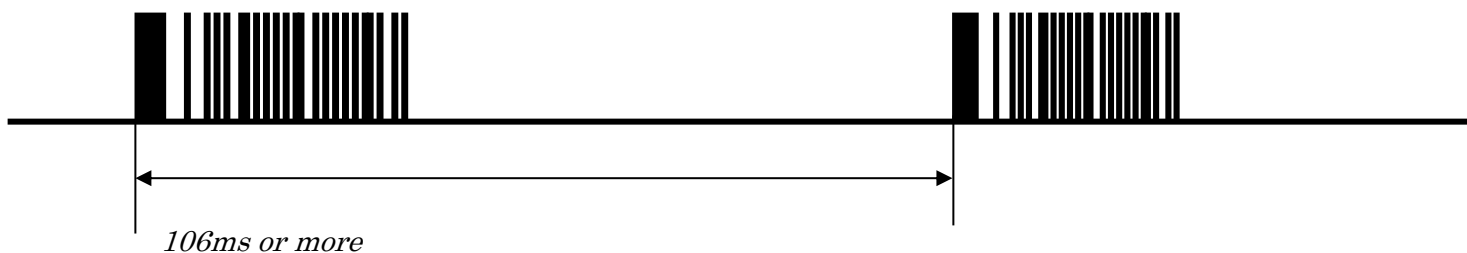(ⅵ). When the same chatterings are found 3 times, it is considered as one key press.

- IR pattern



*<Start Pattern>*　　*< Data "1" >*　　*< Data "0" >*　　*< Toggle>*

- IR pattern 2 <Period when the key is pressed continuously>



*106.667ms*

- IR pattern 3 <Single key pressing which second key code is different from first key code>



*106ms or more*

$1t = 444.444us ±1\%$

RECOMMENDED : Frame width tolerance ±1%

**FCC Statement：**

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.

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 correct the interference by one or more of the following measures:

- **Reorient the receiving antenna.**

- **Increase the separation between the equipment and receiver.**

- **Connect the equipment into and outlet on a circuit different from that to which the receiver is connected.**

- **Consult the dealer or an experienced radio/TV technician for help.**

Changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

**IC STATEMENT**

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.
Cet appareil contient des émetteurs / récepteurs exemptés de licence conformes aux RSS (RSS)
d'Innovation, Sciences et Développement économique Canada. Le fonctionnement est soumis aux
deux conditions suivantes :
(1) Cet appareil ne doit pas causer d'interférences.
(2) Cet appareil doit accepter toutes les interférences, y compris celles susceptibles de
provoquer un fonctionnement indésirable de l'appareil.