

## Requirement Specifications of Remote

Model: Philips T32 for Google TV

Brand: Philips

C&D model No. : 135439B0002

FUNAI model No. : URMT26CND002

## 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 - 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 P.9	2. Code Table 5. Function	- BLE option code change - Battery level check method adds - Shut down voltage change
0.7	2021.11.4	P.4 P.5, 7 P.9	2. Code Table 5. Function	- BLE VOD code change - RCU design change - 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

Philips RCU Code Table						
Position	No.	Key name	IR	BLE	USB HID Usage Name	
			RC6 format Mode = 0, Custom=0x00	Parameters (Usage ID)	Consumer Page (0x0C)	Keyboard Page (0x07)
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	<p>HID over GATT Profile</p> <ul style="list-style-type: none"> <li>- HIDS(HID Service)</li> <li>- BAS(Battery Service)</li> <li>- DIS(Device Information Service)</li> </ul> <p>VOICE : support Google Gatt profile for voice over BLE</p> <p>OTA over GATT Profile</p>
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	<p>Google ATV Voice</p> <ul style="list-style-type: none"> <li>- On-air data rate: 64kbps [16kHz/16bit/4:1 ADPCM Compression] and 32kbps [8kHz/16bit/4:1 ADPCM Compression]</li> <li>- Voice timeout: 30sec</li> </ul>
10. Device Bonding	<ul style="list-style-type: none"> <li>- Remote only supports one bonded host</li> <li>- Existing bond severed only after the new bonding is successfully completed</li> <li>- Unpairing from the Host clears bonding cache</li> <li>- Operating Unpairing key function clears bonding cache</li> </ul>
11. Battery Level	<ul style="list-style-type: none"> <li>- Battery Level is sent to TV by NOTIFY.</li> <li>- Format : UINT8, Unit : percent</li> </ul>
12. F/W Version	<ul style="list-style-type: none"> <li>- F/W version is included in DIS of RCU.</li> </ul>

4. RCU Bag & Label

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



5. Function

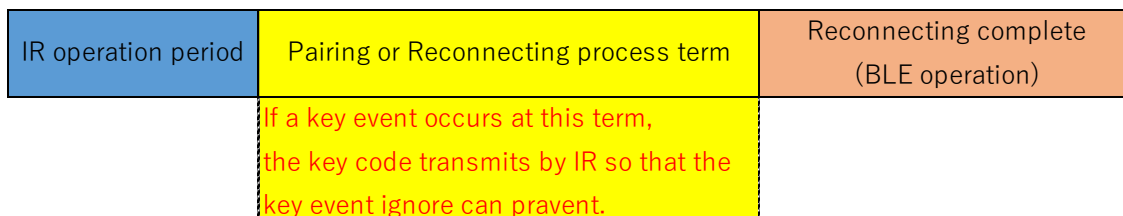
LED Pattern definitions	<p>[Blink] 250ms ON / 250ms OFF</p> <p>[Fast Blink] 150ms ON / 150ms OFF</p>
1. Normal keys click (except MIC)	<p>[LED behavior]</p> <ul style="list-style-type: none"> <li>- LED turns on during pressing the keys</li> </ul>
2. Pairing	<p>[Start]</p> <ol style="list-style-type: none"> <li>① Press any buttons when bonding cache is NULL.</li> <li>② Or Press and hold [HOME] and [BACK] key for 3 seconds</li> </ol> <p>[Pairing timeout] 30sec</p> <p>[LED behavior]</p> <ul style="list-style-type: none"> <li>- LED blink while pairing process</li> <li>- LED fast blink <b>5</b> times when pairing completion</li> </ul>
3. UnPairing	<p>[Start]</p> <ul style="list-style-type: none"> <li>- Press and hold [OPTION] and [VOL-] key for 3 seconds</li> </ul> <p>[LED behavior]</p> <ul style="list-style-type: none"> <li>- LED keep to light up fast blink <b>9</b> times when Unpairing completion</li> </ul> <p>[Operation]</p> <ul style="list-style-type: none"> <li>- Bonding cache clear and sleep 3sec later</li> </ul>
4. Voice search	<p>[Operation]</p> <ul style="list-style-type: none"> <li>- Hold to Talk [Google Assistant ]</li> </ul> <p>[LED behavior]</p> <ul style="list-style-type: none"> <li>- LED turns on after ACK from host when voice search is ready</li> <li>- LED turns off after end of speech is detected from the host, or</li> <li>- LED turns off after 30 seconds of time out</li> </ul>
5. Bug Report	<p>[Operation]</p> <ul style="list-style-type: none"> <li>- Output the key code during pressing and holding [OK] and [BACK]</li> </ul> <p>[Code sending]</p> <ul style="list-style-type: none"> <li>- Send code: Case by IR : 0x83, Case by BLE : Simultaneous transmission</li> </ul>
6. Talk Back (Accessibility shortcut)	<p>[Operation]</p> <ul style="list-style-type: none"> <li>- Output the key code during pressing and holding [DOWN] and [BACK]</li> </ul> <p>[Code sending]</p> <ul style="list-style-type: none"> <li>- Send code: Case by IR 0xDA, Case by BLE : Simultaneous transmission</li> </ul>



<p>7. BLE/IR Switching</p>	<p>[BLE connected status]          - Transmit the code by BLE          [BLE disconnected status]          - Transmit the code by IR          [Note]          - If key events occur the RCU must send the key code(*1)</p>
<p>8. Forced conversion          (BLE to IR or IR to BLE)</p>	<p>[Operation]          - Press and hold [RED] and [BLUE] key for 5 seconds          [When Forced IR]              [Google Assistant] : BLE send              other Buttons : IR send          [LED behavior]          - LED keep to light up fast blink 9 times when converting completion          [BLE recovery]          - Method1: [RED] and [BLUE] key for 5 seconds            Method2: Battery reset            Method3: Unpairing</p>
<p>9. UVLO</p>	<p>If the RCU is in a low power state, it will shut down directly without warning (warning=LED blink).          V_shutdown = 1.9V          V_recovery = 2.3V</p>
<p>10. Battery level check</p>	<ul style="list-style-type: none"> <li>- The voltage is checked once every 8 seconds for 30 seconds after the button is pressed.</li> <li>- If the button is pressed again within 30 seconds, the time is extended by 30 seconds.</li> <li>- For the rest of the time, the voltage is checked once an hour.</li> <li>- The value of remaining voltage is kept at the lowest value.</li> <li>- If the lowest value is updated, it will be sent to the TV side.</li> <li>- Voltage detection is not done while the button is pressed or when IR is transmitted.</li> <li>- The remaining voltage will be initialized under the following conditions.             <ol style="list-style-type: none"> <li>(1) When the battery is removed or inserted (Hardware reset)</li> <li>(2) After pairing.</li> <li>(3) When the status is changed from deep sleep to wake.</li> </ol> </li> </ul>

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

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



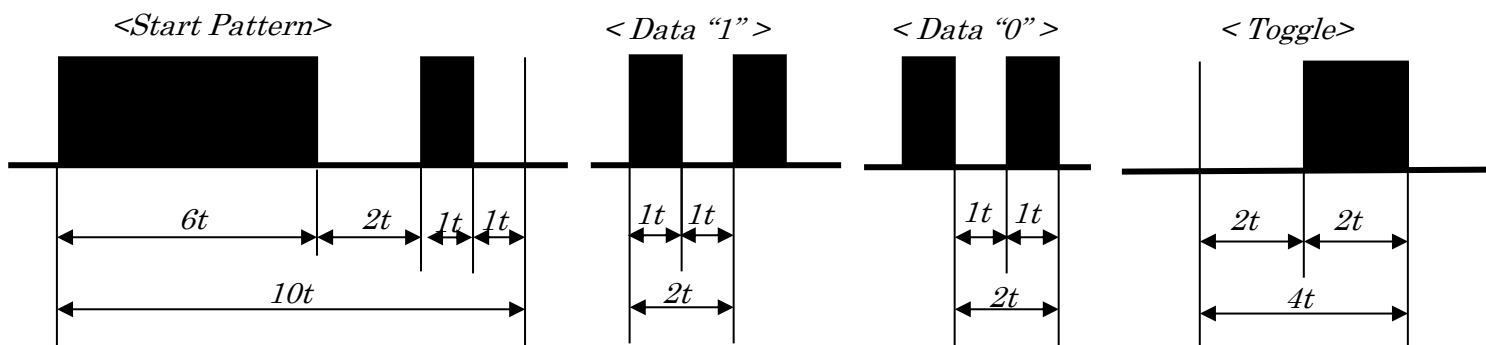
IR Specification

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

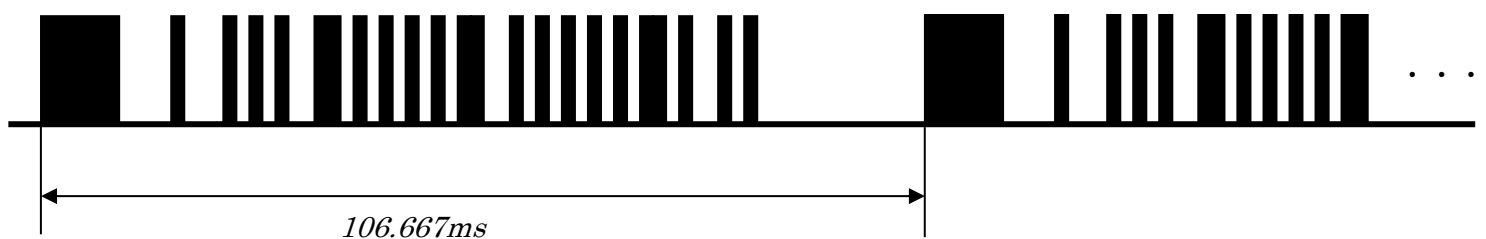
- IR transmission method

- ( 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 chattering are found 3 times, it is considered as one key press.

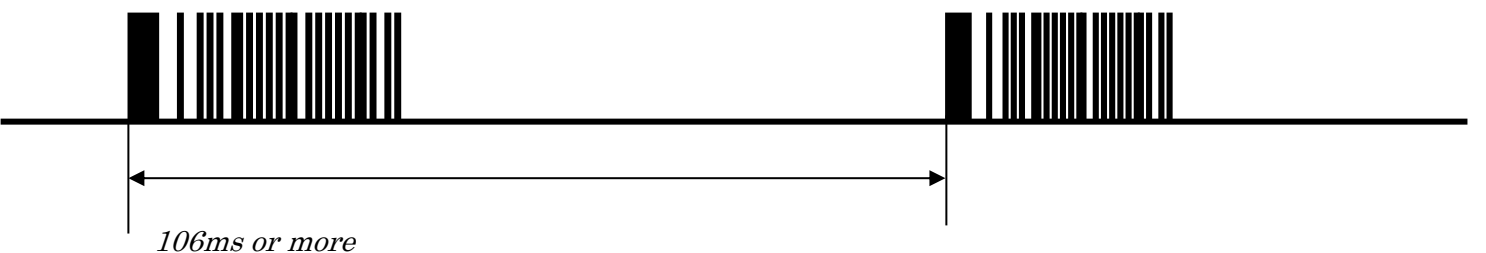
- IR pattern



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



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



$$1t = 444.444\mu s \pm 1\%$$

RECOMMENDED : Frame width tolerance  $\pm 1\%$

#### **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.