

Delivery: Changhong	Date:2021-11-30	Number: ANR.PA-CH.02.B-BBT
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Specification for Bluetooth and Infrared Remote Controller

Demander entry	Name of Demander Part	Infrared remote controller		
	Part code of the buyer			
	Approval of demander			
	Receive	Review	Approval	

Supplier entry	Part model of supplier	YDX 137D-T121		
	Supplier	Yi Dongxing (Shenzhen)Technology Co., Ltd.		
	Supplier approval			
	A businessman	Engineering audit	Quality review	Approval
	Cheng bimei	Hu yonghua	Wang xi jun	He jiazhen

忆东兴(深圳)科技有限公司
 技术开发部
 业务专用章

Remarks	

Product specification

Name: remote control

One、Usage: This product uses infrared ray to transmit signals and wireless remote controller to operate

Two、Scope of application: This specification is applicable to the infrared remote controller of Yidongxing Company.

Numbering	Projects	Content	Decision criteria
1、 Appearance structure	1.1 Appearance Color	See Annex "Appearance Drawing"	Reference sample
	1.2 Plastic Material	ABS/HIPS	
	1.3 Material of Circuit Board	T1.2mm/94HB	
	1.4 Appearance	The following items are visually confirmed ① Scratch, stain, split and deform ② Print graphics and text ③ Mingban bonding ④ Shell fit ⑤ Surface	1. No such phenomenon 2. Clear, even and tidy 3. No floating, bulging, hua marks 4. No warping, deformation or cracks 5. Uniform materials and consistent colors
2、 mechanical properties	2.1 Key Force	130 g±20g (push button vertically)	The medium and small scale shall be taken as the basis for determination.
	2.2 key stroke	0.8mm ±0.3mm	
	2.3 Key Height	① The front height h is not pressed by the key.	① H < 1.5 mm
		② Height H1 when key press works	② H1 >0.7 mm
	2.4 key reset	Apply a force of 10N to the left and right ends of the 1/4 position of the key plane and the left, right, front and rear sides of the key respectively for 2 minutes	The key should be fully reset and function normally.
	2.5 Load Life of Keys	Press the key ≥200,000 times with a pressing frequency of 3-5 times/second, and the number of times that the key is not in place is less than or equal to 0.5%	The key function is normal and meets the requirements of 4.1-4.7.
2.6 plug life of power supply cover plate	Plug and unplug the power supply cover plate at a frequency of 2-3 times/minute for not less than 100 times	No abnormality	
3、 Use specifications	3.1 service temperature	0°C-40°C	Batteries with the same temperature range must be used.
	3.2 storage temperature	-10°C ~ +55°C	It is not necessary to remove the battery for a long time.
	3.3 battery specifications	Manganese or alkali dry cell number 7 ×2	Battery conforming to national standard

Product specification

4、 Electrical parameters	4.1 power consumption	Below 100mW		
	4.2 Static Current	Below 50uA (at DC3.0V)		
	4.3 Operating Current	Below 24mA (at DC3.0V)		
	4.4 Operating Voltage	Power supply voltage DC 3V (-20% +10%)	2.4V-3.3V	
	4.5 carrier frequency	38KHZ± 1KHZ Power supply voltage DC3V		
	4.6 Experimental Environment	Ambient temperature : 25± 2°C ; ambient humidity : 70± 2%		
	4.7 Function Code Value	See Annex "Internal Code Table"		
	4.8 launch distance	The power supply voltage \geq DC3V receiver is our standard decoder	See distance and angle accessories	
	4.9 remote control transmitting distance and angle			
	4.9.1 The receiving device of the equipment is located horizontally or vertically on the optical axis of the remote controller		<ol style="list-style-type: none"> 1. room temperature: 25°C Normal humidity: 65%RH 2. When measuring, the battery voltage is more than 1.5V*2 3. The receiving device is our standard decoder 	
4.9.2 The receiving device of the equipment is taken as the reference, and the horizontal deflection angle (left and right) reaches the distance (fixed by the remote controller)		<ol style="list-style-type: none"> 1. room temperature: 25°C Normal humidity: 65%RH 2. When measuring, the battery voltage is more than 1.5V*2 3. The receiving device is our standard decoder 		
4.9.3 The receiving device of the equipment is taken as the reference, and the vertical deflection angle (left and right) reaches the distance (fixed by the remote controller)		<ol style="list-style-type: none"> 1. room temperature: 25°C Normal humidity: 65%RH 2. When measuring, the battery voltage is more than 1.5V*2 3. The receiving device is our standard decoder 		

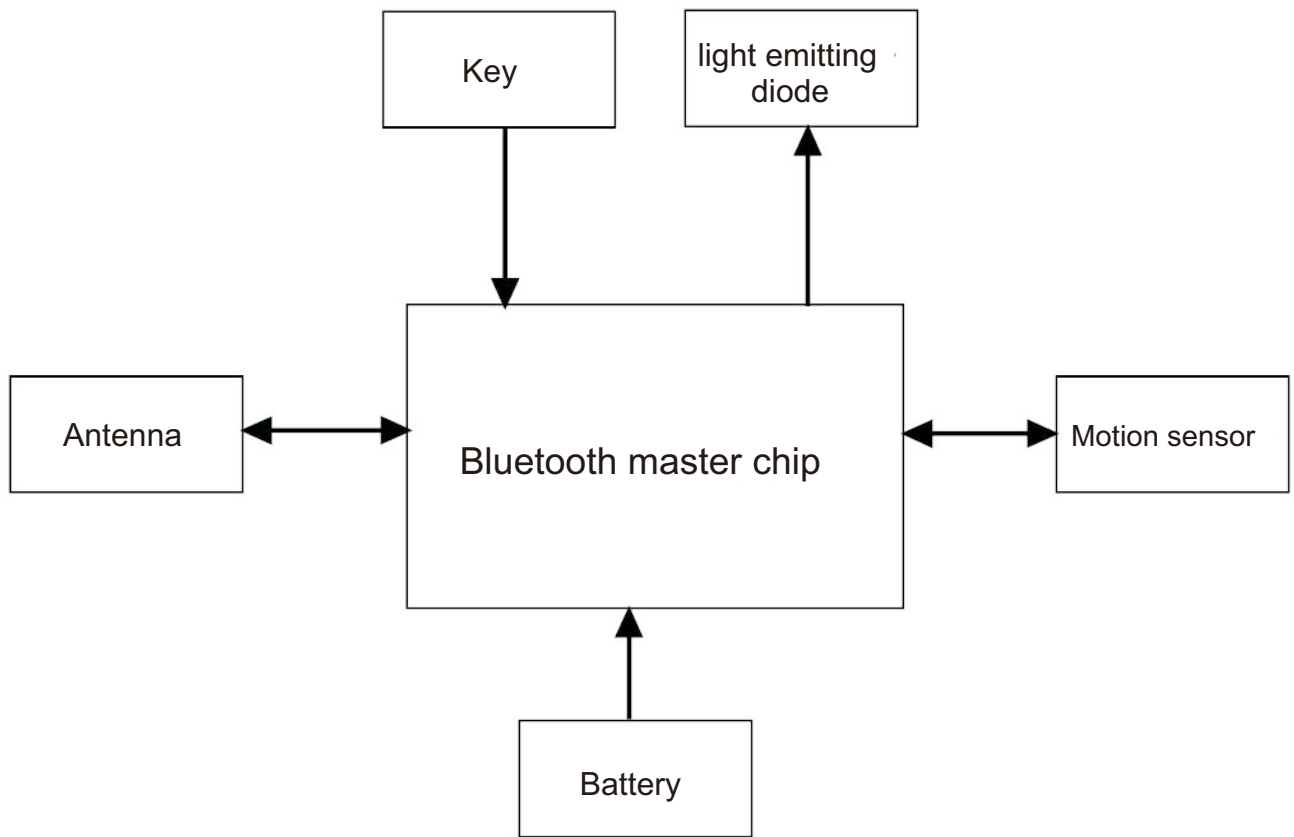
Product specification

	Projects	test condition	Decision criteria
5. Weather resistance	5-1 High Temperature Storage	Without packaging or batteries, the remote controller is placed in a test chamber with room temperature. The temperature in the test chamber is sealed at $55\pm 3^{\circ}\text{C}$ for 96HR hours. After being placed at room temperature for 2 hours, test whether each function is normal (if condensation or water drops exist on the high-temperature Shiyuan Lake remote controller, the test shall be conducted after it disappears)	<p>The following specifications must be met: A meets 2.1 specifications B meets 2.2 specifications. C meets 2.3 specifications D meets 4 specifications</p> <p>Note: this test refers to GB/T</p> <p>14960-2017 standard</p>
	5-2 Low Temperature Storage	The remote controller shall be placed in a test chamber with room temperature without packaging or battery (in order to prevent condensation, the remote controller shall be sealed with plastic film and tested, and moisture absorbent may be placed in the sealing sleeve if necessary). The temperature in the test chamber is $-20 \pm 3^{\circ}\text{C}$, and 96RH is sealed. After 2RH at normal temperature, test whether each function is normal.	
	5-3 Constant Temperature and Humidity	Place the remote controller in an RH box with a relative humidity of 90-95% and a temperature of $40\pm 3^{\circ}\text{C}$ for 96HR hours, then take it out and place it in a normal temperature and humidity environment for 2 hours, and then test whether each function is normal (if the remote controller is dew or water drops after a high temperature test, it should be tested after it disappears)	
	5-4 Drop Test	Under the condition that the remote controller is equipped with batteries, it is free to fall from 80cm height onto a thick wooden board not less than 3cm without packaging. The falling surface of the remote controller shall be parallel to the impact surface, and each surface shall fall once. Note: 1 is the emitting surface, 2 is the front surface, 3 is the bottom surface and 4/5/6 is the side surface	
	5-5 Vibration Test	A horizontal vibration: frequency 10-20-10Hz displacement 0.15mm, axis frequency sweep 5 cycles B vertical vibration: frequency 30-50-30Hz displacement 0.75mm, axis frequency sweep 5 cycles	

Product specification

Electrical specifications

6.1 System block diagram



6.2 Specification description

Specification name	Parameter description
Working voltage	2.2~3.6V
Transmit Power (Open Loop)	> -10dbm
Transmit Power (Closed Loop)	< 4dbm
Data transmission protocol	Supports BLE5.0, actually uses BLE4.2.
modulating frequency	2.402GHz ~ 2.483GHz
Frequency offset	± 35KHz
Sleep current	< 100uA
Key operating current	< 20 mA
Effective working current	< 10m
Voice distance	More than 95% recognition rate > 6m

Bluetooth voice instructions

Pairing and unmatching

At the same time, press and hold the "+" of the remote control for 3 seconds, the remote control clears the pairing information, sends the pairing broadcast, and the red light flashes at 2Hz.。

The pairing distance is 20 cm to 50 cm. If the pairing is successful, the red light of the remote control will stay on for 3 seconds; if the pairing fails after 30 seconds, the red light will go out.

Device name: 'CRBTAG01' 。

In the factory test, after the test, the test software will issue a command to clear the pairing information of the remote control.

2.2 connection

Keep the remote control connected with the TV for at least 2 hours at 4m without disconnection; keep the remote control connected with the TV for at least 1 hour at 6m without disconnection

When there is pairing information and Bluetooth connection is disconnected, press any key to send the corresponding infrared code, and send back connected broadcast for 5 seconds (power key and pairing combination key do not send back connected broadcast). If the back connection is successful or failed, the indicator light does not indicate. If there is pairing information, the remote control will power on and send back connection broadcast for 5 seconds. If the back connection succeeds or fails, the indicator will not indicate.

2.3 Sleep and wake up

When there is no data interaction, the remote control remains connected and enters the sleep state, and the remote control does not actively enter the disconnected state.

Press any key to wake up the remote control. If the remote control is still connected, the Bluetooth code value of the corresponding key will be sent; if the remote control is disconnected, the remote control will be in the back connection state.

2.4 OTA

When the TV starts up, check the remote control upgrade file. If there is an upgrade file, the remote control will be OTA upgraded, and the LED light will flash. At this time, the remote control cannot be used, and any key does not respond. After the upgrade is successful, the LED light stops flashing. At this time, the remote control can be used normally. If the upgrade fails, it will be detected and upgraded again when the next power on. After the OTA fails, the LED light stops flashing and the remote control returns to the old version for normal operation.

2.5 Voice

Bluetooth connection status, click "voice", after receiving the command from the host, the red light of the remote control will be on, start recording, and the user will speak to the microphone. After 7 seconds or receiving the command from the host, the red light of the remote control will be off and the recording will stop.

2.6 Low voltage prompt

When the battery power is lower than 2.4V, each time the user presses the key, the red light flashes for 3 seconds at 1Hz.

2.7 Single carrier test

Press and hold "volume -" to power on, the remote control will enter the single carrier mode, send the single carrier with the frequency of 2440mhz and the power of the chip's maximum power, release "volume -" and exit the single carrier mode.

Indicator Status

Infrared mode	Key	Button does not light up
Bluetooth mode	Key	Button does not light up
Pair	Pair	Red flashing for 30 seconds, frequency 2Hz (D=0.5)
	Pairing successful	Red light lasts for 3 seconds
	Pairing failed	Red light off
Voice mode	Voice input	Start recording, red light on Stop recording, red light off
Low voltage state	Key	Press any key, red light flashes for 3 seconds, frequency 1Hz (D=0.5)

Product specifications

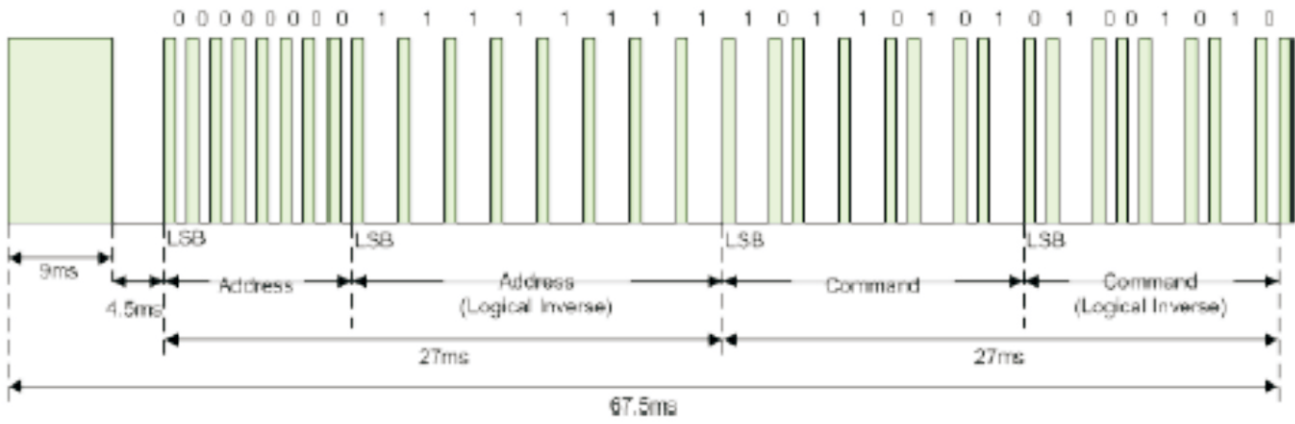
6.3 Electrical test

6 Bluetooth electrical parameters

NO	project		
		Test conditions	Requirement
1	Cut off voltage test	Power supply voltage: 0-3.6v adjustable, gradually lower the voltage, and press the button to send the code until the code is wrong or not, at this time, measure the power supply voltage	The power supply voltage measured when the remote controller just sends the code or the code is wrong. Meet the requirements of corresponding models, standard: $\leq 2.0V$
2	RF transmit power test (Bluetooth)	The power supply voltage of the remote controller is $3.0V \pm 0.05$ of the rated working voltage. Remove the antenna of the remote controller, weld the coaxial line of 50ohm at the antenna position, and continuously transmit the single carrier signal. It is to measure the transmission power with a frequency meter	Average power $\leq 8\text{dbm}$
3	RF frequency offset test (Bluetooth)	The power supply voltage of the remote controller is $3.0V \pm 0.05v$ of the rated working voltage. The coaxial line of 50ohm is welded at the antenna position, and the single carrier signal is continuously transmitted. The frequency deviation is measured by the spectrometer	Within $\pm 35\text{kHz}$
4	Remote control distance test	The power supply voltage of the remote control is $3.0V \pm 0.05v$ of the rated working voltage. Test the RF service distance of the remote control on the TV (including keys, air mice and voice)	Normal operation within 10m
5	Electronic static	Air discharge ($\pm 12KV$)	DUT works normally

Code format and waveform

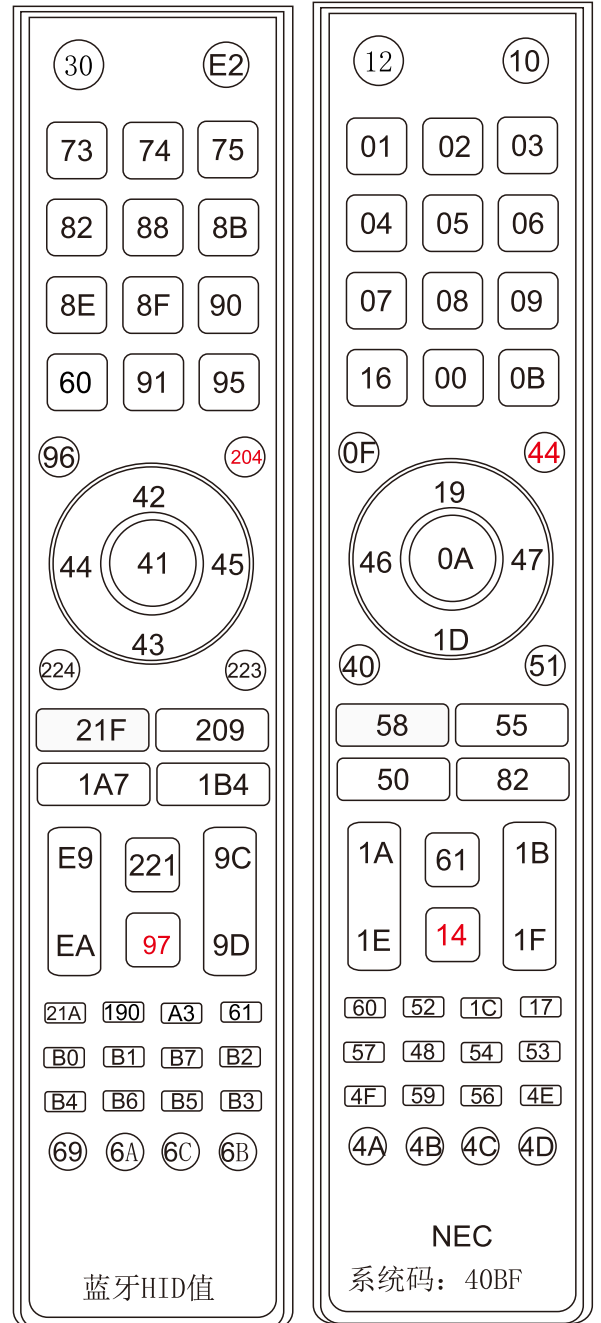
This remote control NEC general format, code 40BF
The following waveforms are for reference only



Product specifications

Product Name: remote control (appearance / code value chart)

All materials are RoHS compliant



In infrared mode: OK + back can send 0 × sixty-two
In Bluetooth mode :OK + back can send the specified value 0 × sixty-two



★★★matters needing attention★★★

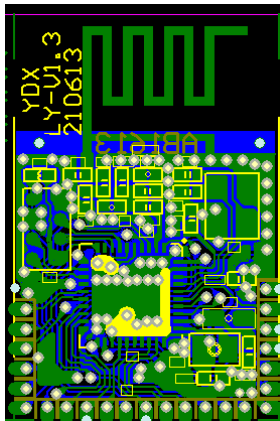
1. After recognition, all colors, fonts and characters shall be subject to the recognized samples.
2. Single packaging mode of remote control: remote control + PE plastic bag

Specification

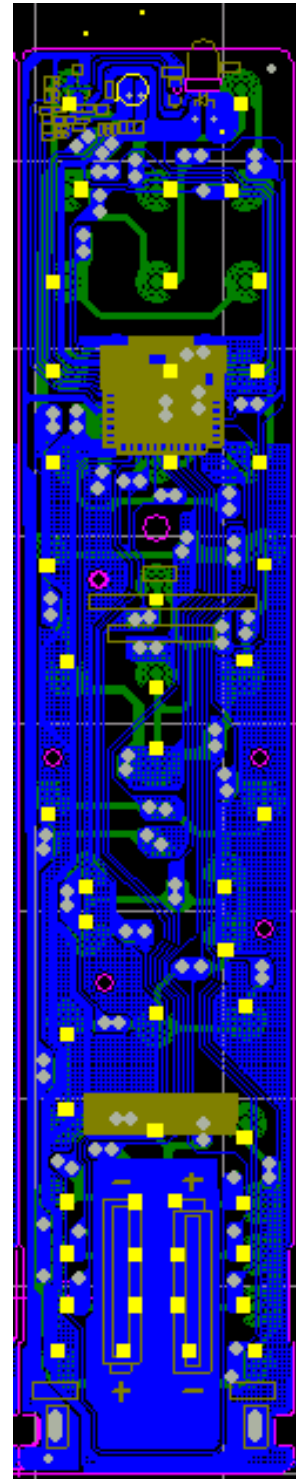
Product Name: PCB assembly

All materials are RoHS compliant

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Bluetooth module

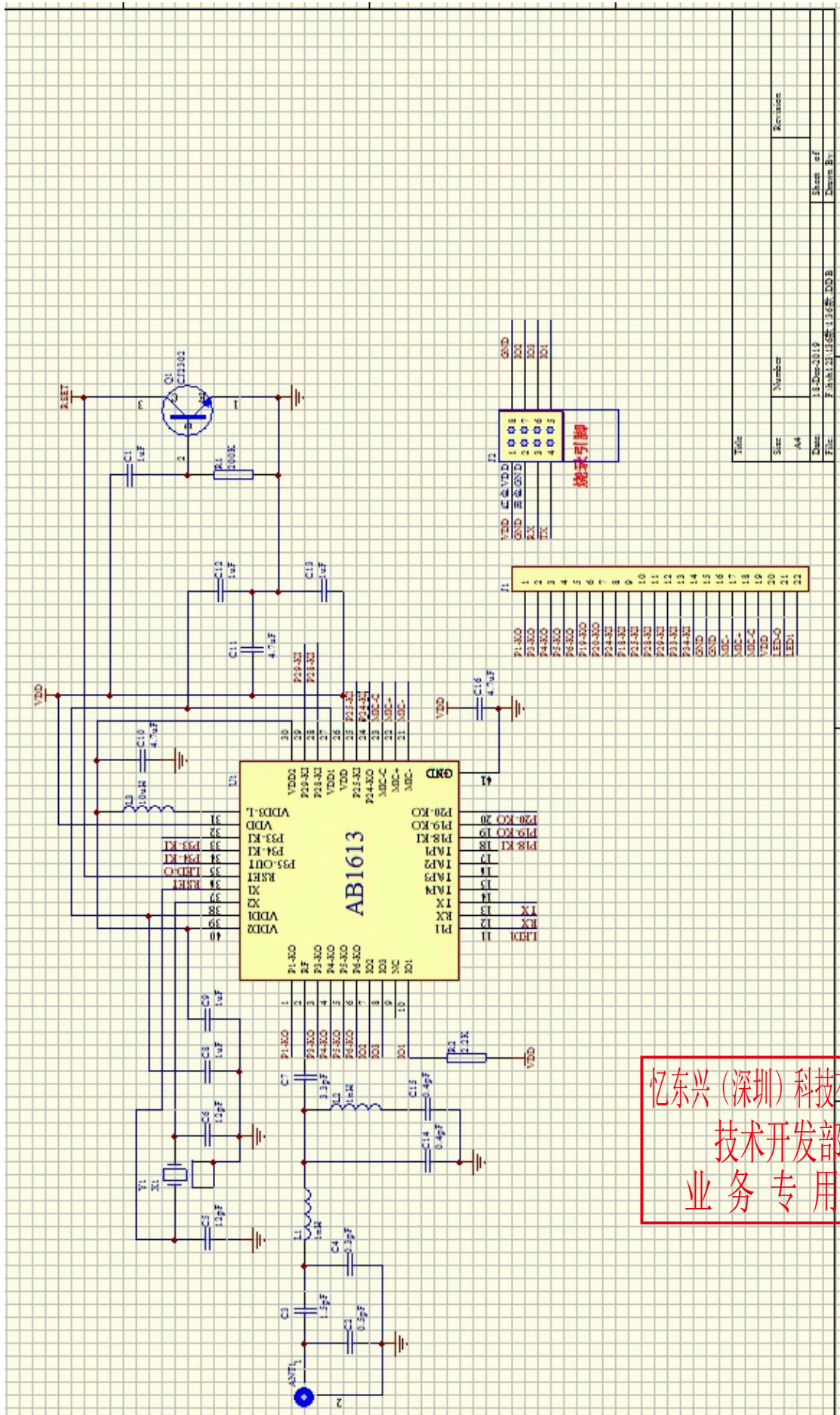


a main board



产品规格书 Specification

品名: 原理图
Name: Schematic diagram



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Product specifications

Product Name: material list

All materials are RoHS compliant

Serial number	Item name	Specification and model	Item description	position	Company	Consumption
1	PCB	YDX-137-LY-V3.9	Thickness 1.2mm 94HB		PCS	1
2	Emitter LED	LIRH40B303ZF	φ4mm	D1	PCS	1
3	Face shell	137-GK16			PCS	1
4	Conductive adhesive	137D-GD121	Conductive rubber button		PCS	1
5	Shrapnel(+)	137# (+)			PCS	1
6	Shrapnel(-)	137# (-)			PCS	1
7	Spring(±)	137# (±)	20.5mm 8.9MM		PCS	1
8	Pot slices	YDX-137D-LY	Stretch 130g		PCS	1
9	Plastic bag	7.5*28.5 CM	PE plastic bag		PCS	1
10	Bottom shell	137			PCS	1
11	Lens	41.5*10.5*1.3MM	Clear polished black		PCS	1
12	Microphone Assembly	Patch head	EM-4015-P Φ 4.0 × 1.5 (H)		PCS	1
13	Module board	YDX-LY-V1.3	0.8mm(FR1)		PCS	1
	IC	TLSR1613			PCS	1

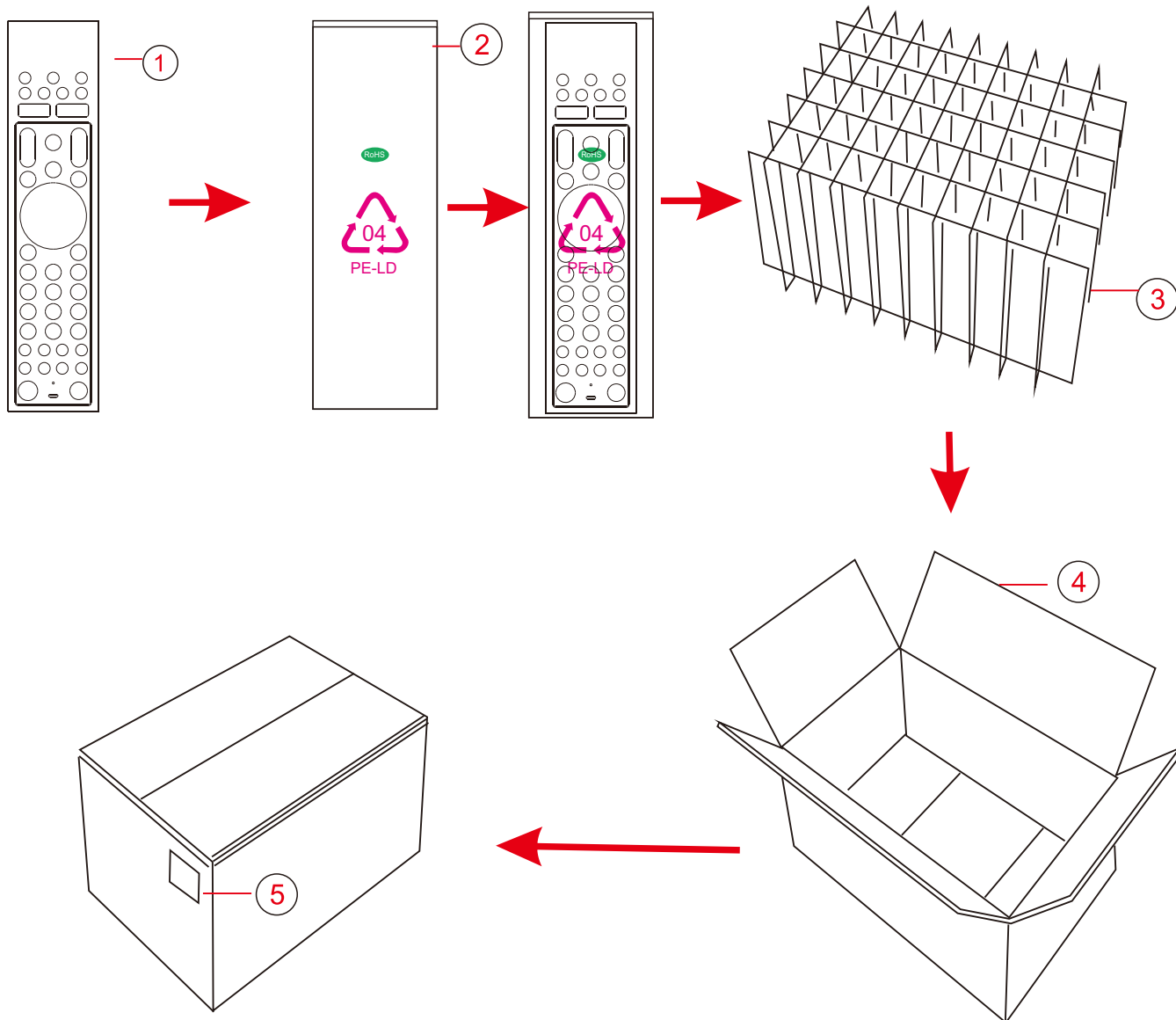
Important remarks:



ROHS

Packing method:

(1) Packing method:



(2) Capacity of each box: 150pcs / box

(3) Outer box size: 65x37x24 cm