Model Name:	B016
Prepared For:	E-matic
Address:	3435 Ocean Park Blvd # 107 PMB # 444, Santa Monica CA 90405, Los Angeles CA 90405, United States

change history

Date	Revised version	Modify Chapter	Modify Description	Author
20180525	V1.0		Create	huangwei

Directory

Remote control test conditions and parameters

1, hardware requirements

Ordinal	Description Project	Technical Specifications	Notes
1	Number of keys	15 Key	
2	Key size	150*39*19mm	
3	Button Free Height	≤2mm	
4	The height of the button	≥0.5mm	
5	Key force	160g±30gf	
6	Shell Plastic Material	ABS Raw material (tasteless, not mixed back), thickness ≥2.0mm	
7	Shell Color	Plastic color, Black	
8	Silk screen	Anti-acid and alcohol-resistant	
9	PCB Board Material	Epoxy fiberglass substrates (FR -4)	

10	PCB Cabling line width and spacing	Line width ≥7mil, spacing ≥10mil	
11	Surface Coating Treatment	See the remote control "appearance and process requirements" in detail	
		Surface should be flat and firm, not allowed to have scratches, spot defects, flow hanging, peeling and breakage	
12	Board Production requirements	All printed circuit boards should be anti-corrosion	
		No flying lines allowed	
		Solder joints full, no virtual welding, off welding, Lianxi	
13	Key requirements	Key adhesive edge structure should be added "waterproof wall", in order to achieve the key assembly, the finger buckle can not be out of the plastic shell button hole, key surface positioning through the hole using silicone rubber bag plastic design, so that the entire silicone button surface has no holes to	

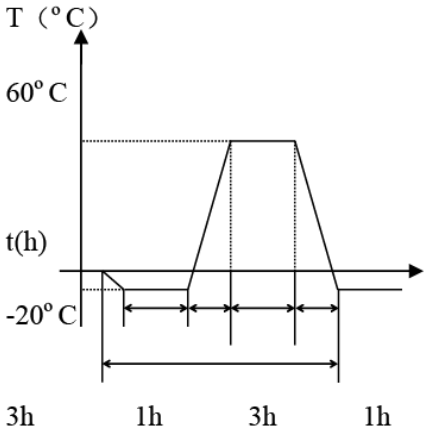
		ensure long time to use the board clean, silicone button to be hard	
14	Conductive adhesive Material	Must use silicone material (nopowder) and no pungent odor	
15	Metal Dome	Remote control all keys to use the metal Dome button, and life must be ≥100 million times, continuous press test number ≥50 million times, can restore to the original load	

2, product specifications

Ordinal	Project	Specification parameter	Notes
1	Operating temperature	0~50 ℃	
2	Humidity	≤95%	
3	Atmospheric pressure	86~ 106Kpa	
4	Ambient illumination	Natural light or fluorescent lamp200 ±50LX	
5	Board material	FR -4	

6	Shell material	ABS	
7	Sample Color	Reference Customer Requirements Specifications	
8	Battery specification	AAA 1.5*2	
9	Infrared wavelength	950±50nm	
10	IR Carrier Frequency	38.0±0.3KHz	
11	Bluetooth carrier Frequency	2.400GHz~2.4835GHz	
12	Average working current	≤20mA	
13	Average static current	≤5uA	
14	Operating voltage Range	2.2~3.6V	

15	Remote distance	L≥12M	
16	Button Free Height	≤3mm	
17	The height after the key action	≥0.5mm	
18	Key force	120~ 180gf	
19	Key Load Life	≥50 million times	
20	Free Drop test	From the 80cm height, six sides are freely dropped at no less than 3cm Atsugi floors, three loops.	Customer special requirements, according to customer standards
21	Electrostatic environment test	±8KV	

22	High Temperature Storage test	60℃	
23	Low Temperature storage test	-20℃	
24	Constant damp heat test	40℃ relative humidity90±2%	
25	Temperature Cycle Change Test		
26	Acceptance criteria Mil-std-105e-level (II) AQL	Heavy defects (A Class) aql=0.65 Light defect (C Class) aql=1.5	

27	Remote control transport and storage conditions	In transit should avoid the direct attack of rain or snow or strong impact. Remote control should be stored at ambient temperature-20℃~+60℃, relative humidity is not greater than 80%, with no strong magnetic field, corrosive substances and other harmful gases in the warehouse, storage period of one year. After the product has been reassessed for more than one year, it can be brought into the market.	

3, specification requirements

Ordinal	Project	Description	Notes
1	Use battery	Alkaline Environmental Protection Battery	
2	Supply voltage	2.2-3.6v	
3	Current description	≤5μa@ hibernate power ≤3ma@ standby power	

		≤20ma@ emission power consumption (general key) ≤25ma@ recording feature (voice function)	
4	Audio output	Mono,16K sampling rate,16bit Precision Audio output	
5	Transmission Distance (Bluetooth)	≥12m(no shelter around)	
6	Bluetooth protocol (Bluetooth)	Bluetooth4.2 protocol and above	
7	Signal requirements (Bluetooth)	Meet the communication transmission distance requirements, while complying with the Bluetooth BQB Certification Requirements	
8	Voice requirements (Bluetooth)	The speech software recognition rate ≥90%(sentence), has the interference case: the speech recognition rate ≥	

		85%(needs to confirm and the settop box and the software normal state)	
9	Connection response (Bluetooth)	≤200ms, this refers to the speed at which the connection is restored, the time interval at which the test begins broadcasting to the connected	
10	Other universal Bluetooth Device impact	HOST -side adapter driver, or affect the original Bluetooth universal device support, such as Bluetooth headset / Audio (HSP/HFP,A2DP , etc.), Bluetooth keyboard, Bluetooth mouse, game handles and so on.	
11	Audio Transmission Requirements	No abnormal audio transmission, no obvious interference, loss of data, intercept, etc.	
12	Microphone Sensitivity	Sensitivity -42±3dB	
13	Microphone Signal-to-noise ratio	cannot be less than 58dB	

Remote Control Effect Chart

Remote control physical function requirements description

1. Button function description

No.	Key		Features
1		POWER	Perform sleep/wake on the box
2		apps	Application List
3		UP	Move focus/volume up +
4		DOWN	Move focus/volume down-
5		LEFT	Move focus to / left / rewind / switch to previous channel
6		RIGHT	Move focus / fast forward / switch to the next channel
7		ENTER	Enter the command indicated by the currently selected focus/pause/execute button
8		BACK	Return to the previous or previous page
9		HOME	Return to the system level home page on any interface
10		VOICE	(Bluetooth pairing works only after it is connected)
11		VOL+	Increase the volume (global applies, this button has only one operation)
12		VOL-	Decrease the volume (global applies, this button has only one operation)
13		YouTube	
14		NETFLIX	
15		Google play	

2. remote Control key value

System code: 0x08F7 code format: NEC

Key code:

	Usage Page	Usage ID	I R CODE
Power	0x0C	0x0030	0x0A
Back	0x0C	0x0224	0x1C
Home	0x0C	0x0223	0x0C
Voice search	0x0C	0x0221	0x74
enter （select ）	0x0C	0x0041	0x1F
Up	0x0C	0x0042	0x00
Down	0x0C	0x0043	0x01
Left	0x0C	0x0044	0x03
Right	0x0C	0x0045	0x02
Voice+	0x0C	0x00E9	0x58
Voice-	0x0C	0x00EA	0x5D
APPS	0x0C	0x01A2	0x66
	0x0C	0x0007	0x4D
	0x0C	0x0008	0x4E
	0x0C	0x0009	0x4F

Remote control instructions

1. Special requirements for remote control

1) When Bluetooth is connected, the remote control sends the Bluetooth key value; if Bluetooth is not connected, the infrared key value is sent.

2) Indicator light: red, each time the button is pressed, the indicator light flashes

Low voltage reminder: When the battery is low, the indicator light flashes quickly. As long as it is still operating, it will keep shining. When it is no longer operated by the remote control, it will flash 5 times or flash 3 seconds, then stop and go out.

3) Support Bluetooth remote control online upgrade, and trigger upgrade through HOST.

4) Pairing method:

a) Press and hold th e "OK" + "VOL-" button for 3 seconds at the same time, the indicator light flashes, and the pairing success indicator light is on for 3 seconds and then off.

b) If the pairing is not successful, if you still press the OK+VOL button, the pairing broadcast will be sent all the time so that the user can pair.

c) Press the OK+VOL - button once to match successfully. Do not clear the pairing and then pair again. After a key pairing is successful, the pairing broadcast can no longer be sent until the next time th e button is pressed.

Connection interval ＜12ms

5) Remote control distance ： ⩾10m
6) Bluetooth device name： RemoteB016

2, remote control other requirements

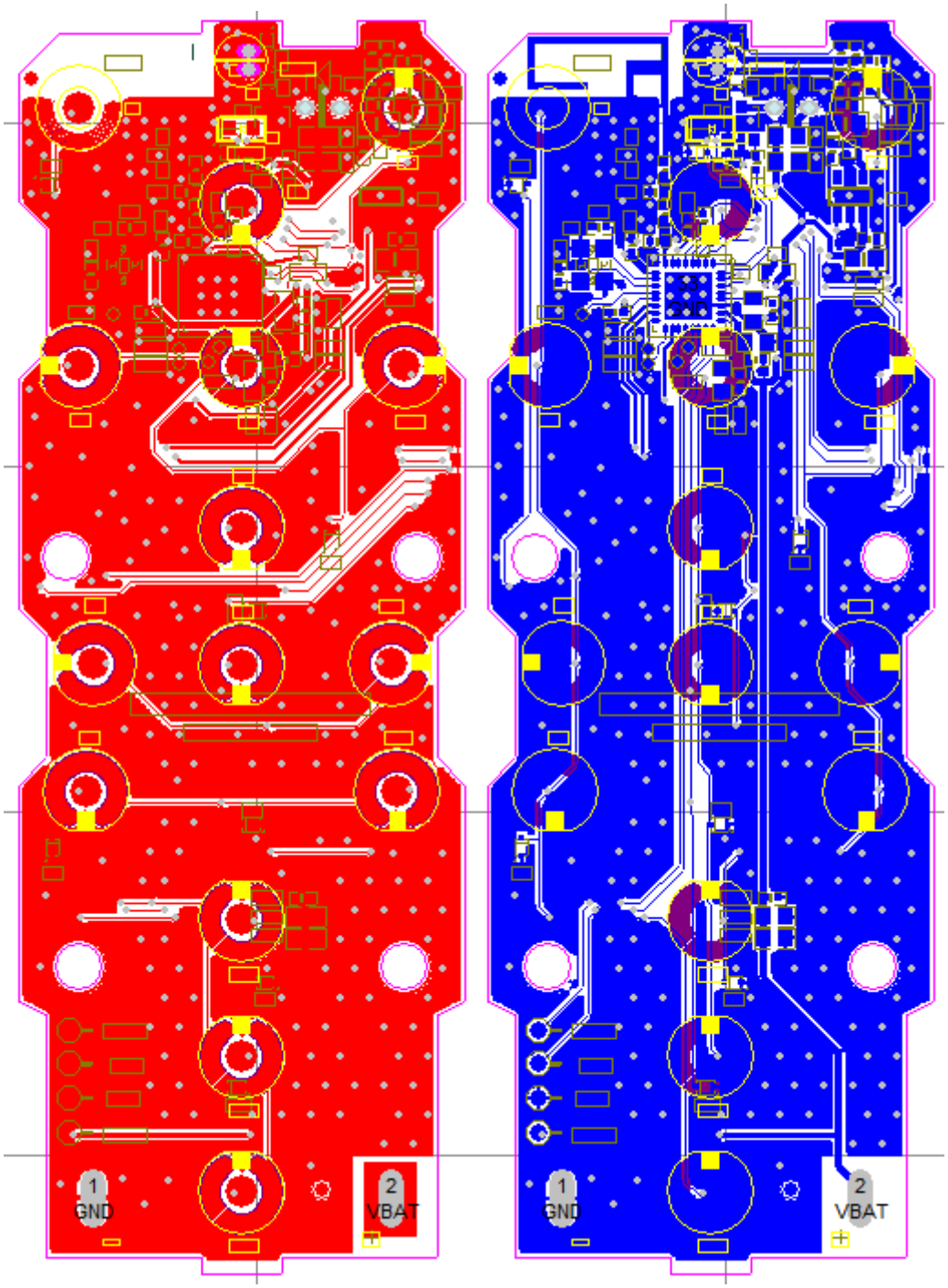
1) Matching function requirements: There must be no problem of scanning the Bluetooth device or not matching (including pressing the pairing button continuously for a short time), please verify 50 times to ensure no problem;
2) Reconnection function requirements: There must be no problems with the connection failure, including the power failure of the box, the remote control power failure, and the static connection for 2 hours. Please verify 50 times to ensure no problem;
3) Anti - interference function requirements: There must be no problem that affects the throughput of the host WIFI. Please ensure that the WIFI throughput of the host is normal when the remote controller is connected.
4) Performance requirements: Requires support ⩽10m, there must be no problems with voice calls, loss, and button presses, lost codes or keys on the remote control;
5) Power consumption requirements: The remote control can be used for at least 6 months.

Voice: 16Khz voice sample with 16 - bit sampling, press the voice button (color button) to start recording. The remote controller stops recording after receiving the stop recordi ng command from the voice engine. Voice timeout 30s protection, forced to exit recording.

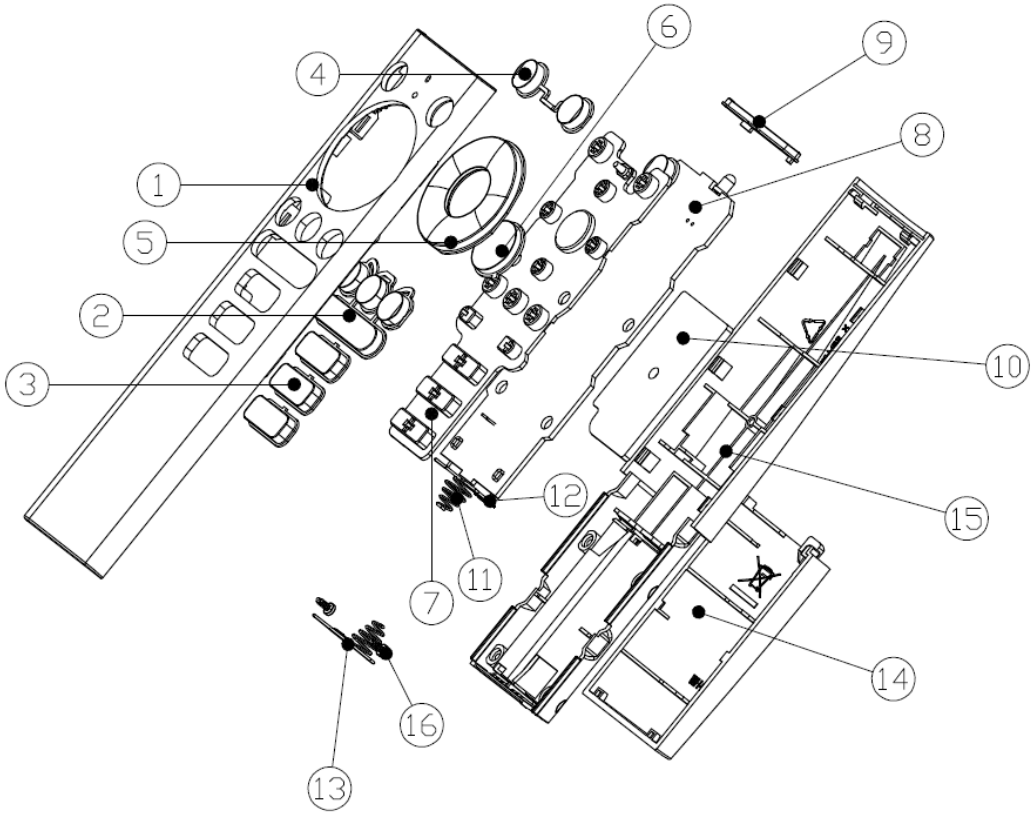
The box software can control the MIC to be turned on and off.

Support remote control MIC and other MIC (such as the recording button on the phone apk) alternate, switch voice input.

Remote control PCB image file



Remote control structure



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.
Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
NOTE: 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.
The device has been evaluated to meet general RF exposure requirement. The device can be u sed in portable exposure condition without restriction