

PRODUCT SPECIFICATION FOR beatBOX BI

1 General

This document describes a Bluetooth speaker beatBOX BI with ISSC V4.1 chipset.

The unit consists of Bluetooth chipset, memory, battery, speaker, microphone and other components. beatBOX BI can be paired and connected with mobile phone and other Bluetooth devices.

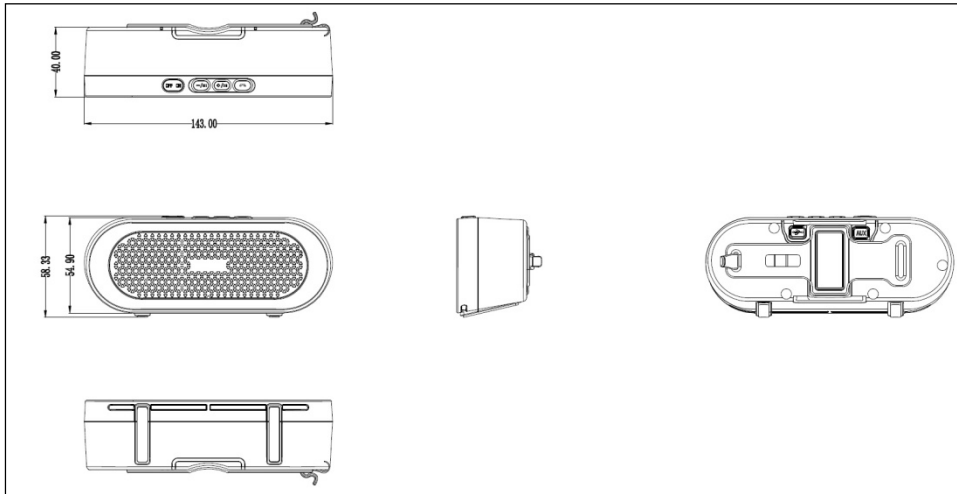
2 AESTHETICS

The color of the unit is: Black/Green, Black/Orange, Black/Pink, Black/Blue

2.1 Version:



2.2 Graphics with dimension:

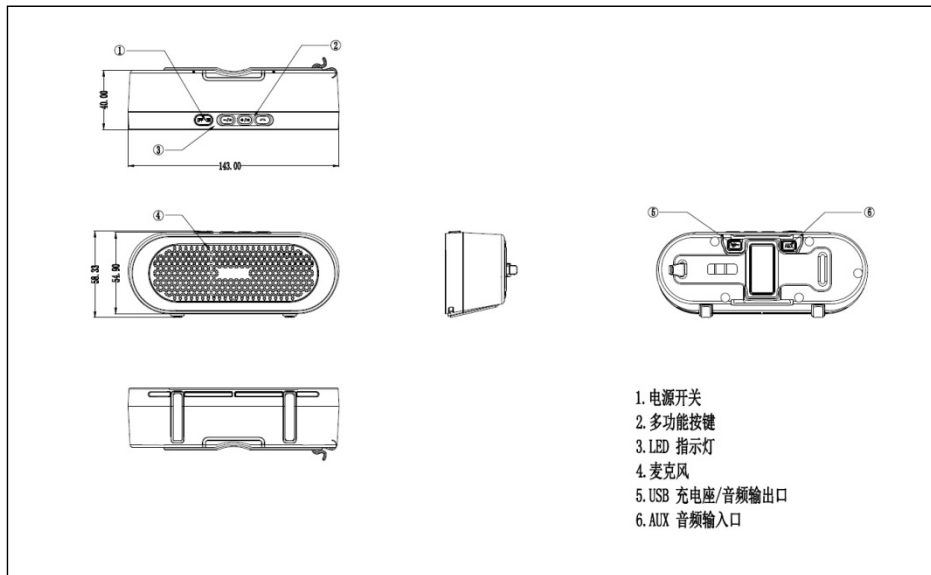


3 Product overview

3.1 Product data

- Outer dimensions 143 X 54.9 X 40mm
- Weight 328g

3.2 Button and LED overview



1. On/Off switch
2. MFB: Multifunctional button

3. LED light
4. Microphone
5. Charging contact (microUSB) & AUX Line-out
6. AUX Line-in

3.3 Charging

When the battery voltage is lower than 3.3V, the LED indicator light will flash in red.

The red indicator light turns on during charging; The blue indicator light turns on when charging completed.

Charging time: Approximately 4 hour.

4 Performance parameter

4.1 Electronics performance

4.1.1 Battery

- Type: Lithium polymer battery 803040
- Voltage: 3.7V (under normal condition)
- Lifetime: >300 times
- Capacity: 1000mAh
- Talk time: up to 100 hours
- Music playback time: up to 5 hours when volume maximum (up to 20 hours when volume moderate at 1KHz audio signal)
- Standby time: up to 500 hours

4.1.2 Speaker

- Size: Φ 40mm
- Sensitivity: 85db \pm 3db SPL/1KHz (0dB SPL=20 μ Pa)

- Average power consumption: 3W+3W
- Max. power consumption: 3.5W+3.5W
- RMS: 2800mW
- Acoustic max. voltage: 10V(When maximum sound pressure)
- Impedance: 4Ω ±15%
- Frequency response: 200HZ-18KHZ
- Distortion: less than 5%

4.1.3 Microphone

- Dimension: D4.0mm ± 0.2mm X 1.5mm ± 0.2mm
- Sensitivity: -42db±3db@2V 2.2K
- Frequency response: 200HZ-18000HZ

4.1.4 Current consumption

<u>BSport Power Consumption</u>	
Status	Average current
Turning off	<17uA
Standby	<15mA
Music playing	<100-1100mA
Phone talk	<40mA

4.2 RF performance

It complies to Bluetooth Class II. The maximum output is less than 2.5mW (4dBm)

4.2.1 RF transmit performance

- The Bluetooth headset complies to the Bluetooth V4.1 RF performance.
- RF transmit power: -6~4dBm
- Sensitivity (defined as the BER when receiving data ≤0.1 %) ≤ -90 dBm @VDD=1.8V, f=2.441 GHz, room temperature.

4.2.2 Transmit range

- Operating distance: up to 10 meters in open area
- BER is less than 0.1%

4.2.3 EIRP (Effective Isotropic Radiated Power)

- Antenna gain < 10dBi: $\leq 100\text{Mw}$ or $\leq 20\text{dBm}$

4.2.4 Frequency range: 2.4000~2.4835GHz

Note: 4.2.3-4.2.4 are the information for reference only

4.3 Environmental adaptation

4.3.1 Working and storage environment

- 1) Normal working temperature: - 10°C to + 55°C, work normally

Normal working humidity: 15%-85%

Atmospheric pressure: 86kPa-106kPa

- 2) Storage temperature: - 20°C to + 60°C, no damages to the components found.

Storage humidity: 15%-90%

Atmospheric pressure: 86kPa-106kPa

4.3.2 Environmental adaptation test

Item	Criteria	
Drop test	Height	1.5 meters, wood block
	Times	Total 4 times
Thermal shock test	Temperature	-20°C \leftrightarrow +65°C
	Duration	45mins one cycle
	Thermal shock times	27 cycles
Vibration	Vibration frequency	30Hz
	Amplitude	1.5mm
	Duration	3 axes directions last for 20mins/direction
Temperature	Temperature	-20°C \leftrightarrow +65°C

cycling	Duration	45mins one cycle
	Cycling times	51 cycles
Humidity	Humidity condition	Humidity (90±3) %, (60±2) °C
	Duration	96hrs
Mechanical parts matching test	DC port	Plug and unplug 20 times/min, 1500 times
	MFB	12000 times
	Earhook	60 times/min, 10000 times
ESD	Contact discharging	±4KV
	Air discharging	±8 KV
Temperature extreme	Temperature condition	-20°C – +65°C
	Duration	1 hour each extreme
Salt spray test	Test condition	35°C closed environment, 5%NaCL liquor
	PH	6.5-7.2
	Duration	16hrs

5 Product mechanical overview

5.1 Mechanical product overview

5.1.1 Exploded view

ISSUE	ECD	DESCRIPTION	REVISOR	DATE
1		First release	hain	04/02/2013

24	430-2411-000	缓冲垫	1
23	416-1740-010	螺丝	4
22	430-2410-000	耳机	1
21	430-2413-000	护套	1
20	610-2010-000	螺丝	6
19	430-2412-000	垫圈	1
18	430-2271-000	AUX充电座	1
17	430-2270-000	USB充电座	1
16	430-2270-000	外壳	6
15	430-2410-010	外壳	2
14	401-2410-000	下盖	1
13	430-2220-000	防水圈	6
12	430-0000-010	硅胶	2
11	430-2410-000	耳机壳	1
10	430-2410-000	耳机壳	1
9		电池	1
8	400-2270-010	耳机	1
7	210-1170-010	喇叭	1
6		喇叭	1
5	430-2410-000	耳机壳	1
4	400-2410-000	上盖	1
3	430-2411-000	上盖防水圈	1
2	430-2410-000	上盖防水圈	1
1	430-2410-000	上盖防水圈	1

料号	料名	数量	单位
430-2411-000	缓冲垫	1	个
416-1740-010	螺丝	4	颗
430-2410-000	耳机	1	副
430-2413-000	护套	1	个
610-2010-000	螺丝	6	颗
430-2412-000	垫圈	1	个
430-2271-000	AUX充电座	1	个
430-2270-000	USB充电座	1	个
430-2270-000	外壳	6	个
430-2410-010	外壳	2	个
401-2410-000	下盖	1	个
430-2220-000	防水圈	6	个
430-0000-010	硅胶	2	个
430-2410-000	耳机壳	1	个
430-2410-000	耳机壳	1	个
	电池	1	个
400-2270-010	耳机	1	副
210-1170-010	喇叭	1	个
	喇叭	1	个
430-2410-000	耳机壳	1	个
400-2410-000	上盖	1	个
430-2411-000	上盖防水圈	1	个
430-2410-000	上盖防水圈	1	个

5.1.2 Keys

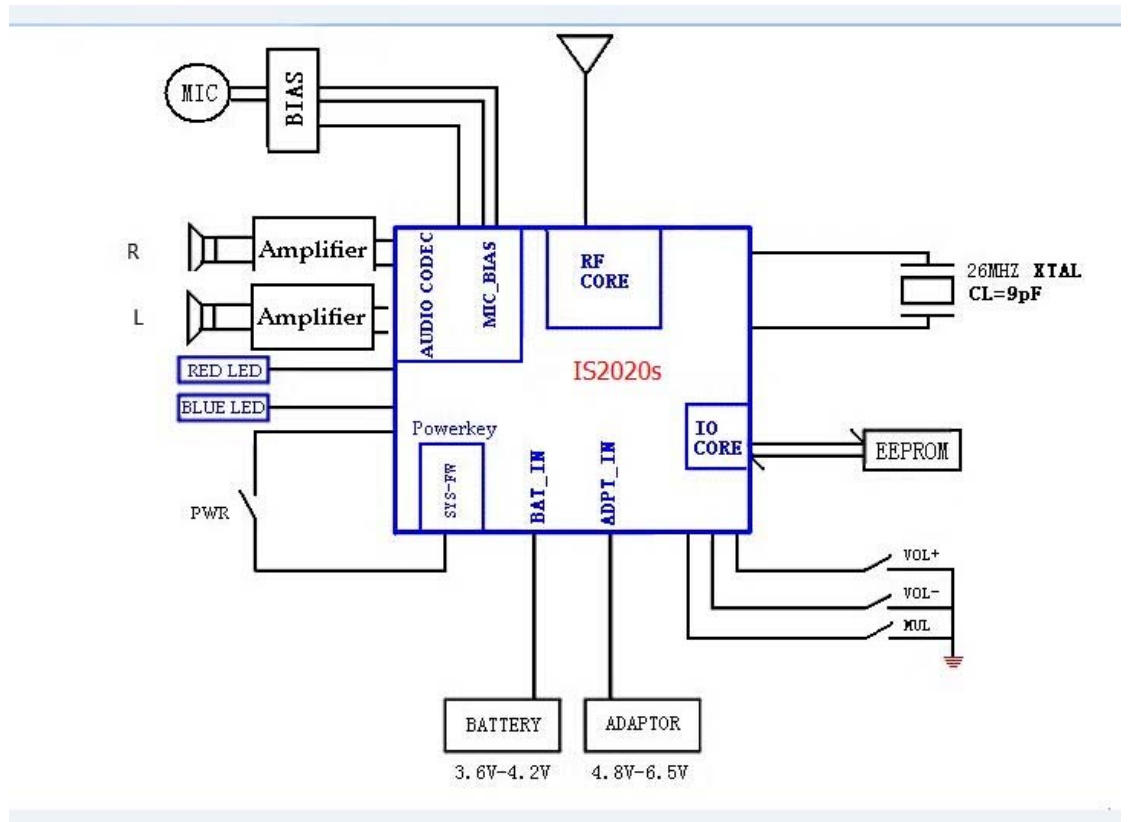
- On resistance 100M Ohm
- Off resistance 100M Ohm
- Max pressure force 3N
- Life time 30000 times
- Etc.

5.1.3 Connectors

Micro USB charge connector



5.1.4 Block diagram



5.1.5 Printed Circuit Board

- Type 4 Layer
- Material FR4
- Etc.

5.1.6 Upgrade of software / Flash in field

Not applicable

6 Bluetooth

- BT specification 4.1
- BT profiles HFP /HSP/A2DP/AVRCP
- Range up to 10 meter
- Chipset ISSC IS2020
- Class 2
- Multi-point support Yes
- Voice prompt Yes (4-language: English, Spanish, French, Chinese)
- Voice recognition No
- Battery meter on iPhone Yes
- NFC Optional
- Etc.

7 Demands on phone

7.1 Mechanical Demands

Not applicable

7.2 Hardware Demands

Mobile phone must support Bluetooth HSP profile.

7.3 Software Demands

Phone should support audio gate side of Mono HSP and HFP