

## FM MW SW Wireless Radio Receiver DIY Kit

### Parameters:

- 1>.Product name:FM MW SW Wireless Radio Receiver DIY Kit
- 2>.Model:KCX\_RADIO
- 3>.Work Voltage:DC 3.7V
- 4>.Work Current:<500mA
- 5>.Standby current: <20uA
- 6>.Display Backlight:Amber
- 7>.FM Frequency Range:87MHz-108MHz(Accuracy 0.1MHz)
- 8>.MW Frequency Range:522KHz-1620KHz(Accuracy 9KHz)
- 9>.SW Frequency Range:4.75MHz-21.85MHz(Accuracy 0.5MHz)
- 10>.FM Noise limiting sensitivity:30dB =< 8dBu
- 11>.MW Noise limiting sensitivity:26dB =< 60dBu
- 12>.SW Noise limiting sensitivity:26dB =< 32dB
- 13>.FM SNR:98MHz >= 50dB
- 14>.MW SNR:1000KHz >= 40dB
- 15>.Output power(Speaker):4ohm 5W
- 16>.Output power(Headset):100mW\*2
- 17>.Maximum output distortion:<10%
- 19>.Work Temperature:-20℃~85℃
- 20>.Work Humidity:0%~95%RH
- 21>.Size(Installed):108\*65\*30mm

### Component listing:

NO.	Component Name	Parameter	QTY
1	KCX_RADIO Audio Receiver	58*49*10mm	1
2	4ohm 5W Speaker	D40mm	1
3	Polymer Lithium Battery	3.7V/1000mAh	1
4	White Button Cap	4*7mm	10
5	White Cable Tie	2.7*80mm	2
6	White Cable Tie	2.7*200mm	2
7	Antenna Connect Wire	M2mm L50mm	1
8	Telescopic Antenna	7.5~30cm	1
9	Magnetic Rod Antenna	4*7*50mm	1
10	Acrylic Front Board	108*65mm	1
11	Acrylic Back Board	108*65mm	1
12	Acrylic Left-Side Board	64*25mm	1
13	Acrylic Right-Side Board	64*25mm	1
14	Acrylic TOP Board	108*30mm	1
15	Acrylic Button Board	108*30mm	1
16	Acrylic Speaker-Socket-Thick Board	50*42mm	1
17	Acrylic Speaker-Cover-Thin Board	50*42mm	1
18	Acrylic Battery Bracket Board	58*53mm	1
19	Copper Pillar	M3*7mm	1
20	Copper Pillar Screw	M2*4+3mm	4
21	Copper Pillar	M2*11mm	8
22	Copper Pillar	M2*25mm	4
23	Screw	M3*5mm	2
24	Screw	M2*12mm	4
25	Screw	M2*5mm	20

## FM/MW/SW Features:

### 1>.FM: Frequency Modulation Broadcast.

- 1.1>.Radio wave signal: the amplitude remains unchanged and its frequency is adjusted.
- 1.2>.Advantage:Listening to FM radio is characterized by low interference, clean sound, stereo (dual channel) programs can be received, and a wide audio range;
- 1.3>.Disadvantages: because the FM frequency band mainly propagates through a straight line and reflected by ground objects, the signal transmitted through the radio station has short propagation distance and small coverage, and generally can only listen to the FM programs of the local station.

### 2>.MW: Medium Wave.

- 2.1>.Medium waves can be transmitted through sky waves and ground waves. But sky waves are very unstable. In the process of sky wave propagation, path attenuation, time delay, atmospheric noise, multipath effect, ionospheric fading and other factors will cause signal weakening and distortion and affect the effect of communication.
- 2.2>.Advantage:MW can receive far away wireless broadcasting, mono.
- 2.3>.Disadvantages:Noise, strong directionality, weak anti-interference ability and average sound quality. Due to the influence of the ionosphere, there is basically no signal during the day.

### 3>.SW: Shortwave.

- 3.1>.The propagation of short wave mainly depends on sky wave. It can be transmitted to a long distance with the help of sky wave with very small power.
- 3.2>.Advantage:With long distance and wide coverage, you can hear international radio programs.
- 3.3>.Disadvantages:The signal drift is unstable, with high noise, mono and poor sound quality. Basically no signal is received during the day.

## Function and Operate:

### 1>.Power Switch(POWER)

- 1.1>.Press 'POWER' button and then keep display 'ON' on screen within 2 second. Then display receiver frequency and frequency unit.
- 1.2>.Adjust other receiver frequency by other buttons.
- 1.3>.Press 'POWER' button again and then keep display 'OFF' on screen within 2 second. Then turn OFF and enter into clock state standby(just display clock)

### 2>.Adjust Volume(VOL+/VOL-)

- 2.1>.Each time press 'Vol+' button when playing radio, the sound increases by one level. Continuous increase by keep press.
- 2.2>.Each time press 'Vol-' button when playing radio, the sound decreases by one level. Continuous decrease by keep press.
- 2.3>.The adjustable range of volume level is 00-31.

### 3>.Adjust Frequency(FRE-/FRE+)

- 3.1>.Press 'FRE+' button to increase receiver frequency to search station when listing station.
- 3.2>.Press 'FRE-' button to decrease receiver frequency to search station when listing station.
- 3.3>.Continuous adjust receiver frequency to search station by keep press more than 1 second.
- 3.4>.It will stop to search station and then play radio if receive the next station.
- 3.5>.User can repeat the above operation if need to change the radio program again.

### 4>.Sleep Switch: Automatic Shutdown(LOCK\_SLEEP)

- 4.1>.LCD screen displays the sleep shutdown time and the Sleep Icon flashes when press 'LOCK\_SLEEP' button at first time.
- 4.2>.It means the radio automatic shutdown after 90 minute if display '90'.
- 4.3>.Sleep Icon indicates that the radio is in sleep timing.
- 4.4>.Automatic shutdown time also flash and it can also be reset time by press 'LOCK\_SLEEP' button. The optional option is '90-60-45-30-15-10-OFF'.
- 4.5>.It means to cancel the sleep timing function(automatic shutdown) if select 'OFF'.

4.6>.It can turn off the sleep timing function in advance and automatically return to the clock state for standby when press 'POWER' button during sleep timing.

4.7>.Users can query the remaining time of sleep timing playback when press press 'LOCK\_SLEEP' button during receiving station. Press again to change parameter for sleep timing.

4.8>.It is a lock parameters function by keep press 'LOCK\_SLEEP' button more than 2 second after display Lock Symbol.

4.9>.The lock symbol will flashing and all parameters and buttons function locked in locked state.All buttons are not available and can not change parameters.

4.10>.Keep press 'LOCK\_SLEEP' button more than 2 second after the Lock Symbol disappears if need to unlock.All buttons are available.

#### **5>.Set Time(TIME)**

5.1>.AM '12:00' is displayed by default after power ON.

5.2>.TIME just can be set in the clock display interface.

5.3>.Keep press 'Time' button more than 2 second to enter into set 12H or 24H hour system. Then press 'FRE+' and 'FRE-' buttons switch 12 or 24.

5.4>.The system will automatically exit the current setting when the system does not any operate within 5 seconds.

5.5>.Set Hour: Press 'Time' button again and then press 'FRE+' and 'FRE-' buttons to set value for current hour.

5.6>.Set Minute: Press 'Time' button again and then press 'FRE+' and 'FRE-' buttons to set value for current minute.

5.7>.Save and Exit: Press 'Time' button again to save parameters and exit set status.

5.8>.It will display AM or PM for 12-hour system. It is a 24-hour system if there is no AM or PM symbol.

#### **6>.Set Timing Startup Time(ALARM)**

6.1>.The Timing Startup Time setting just can be set in the clock display interface.

6.2>.Set Timing Startup Time Hour: Keep press 'ALARM' button more than 2 second to set hour. Then press 'FRE+' and 'FRE-' buttons set value for current hour. Note: Screen will display symbol 'AL'.

6.3>.Set Timing Startup Time Minute: Press 'ALARM' button again to set minute. Then press 'FRE+' and 'FRE-' buttons set value for current minute.

6.4>.Save and Exit: Press 'ALARM' button again to save parameters and exit set status.

6.5>.The system will automatically exit the current setting when the system does not any operate within 5 seconds.

6.6>.The radio playback function is automatically turned ON if the Timing Startup Time is same to the real time clock. Then automatically turned OFF after 30 minute. Note: The buttons cannot be operated during this 30 minute.Otherwise, exit.

#### **7>.ON/OFF Timing Startup Time(AL\_ON/OFF)**

7.1>.The ON/OFF Timing Startup Time just can be set in the clock display interface.

7.2>.Keep press 'AL\_ON/OFF' button more than 2 second to switch ON or OFF.

7.3>.Alarm Symbol display on screen if turn ON Alarm Timing Startup Time.

7.4>.Alarm Symbol disappears from screen if turn OFF Alarm Timing Startup Time.

#### **8>.Select Band(AM/FM)**

Press 'AM/FM' button when play radio to switch FM, AM, SW in turns.

#### **9>.Scan Storage Stations**

9.1>.Keep press 'Time' button more than 2 second to enter into Scan Storage Stations at play radio status.

9.2>.The frequency of the current radio station will increase rapidly. In the process of increasing, if the frequency of the radio station with a program is encountered, it will be automatically stored in the memory chip.

9.3>.If P01 is displayed on the screen, it means that the first radio frequency is stored, and if P02 is displayed means that the second radio frequency is stored and so no.

9.4>.When the number of stored stations is equal to or the station frequency increases to 60 the highest (high-end), the scanning and storage state ends immediately, and the radio returns to the stored program station or to the lowest (low-end) frequency state.

**10>.Storage Playing Radio Stations**

- 10.1>.This operate just can be available during playing status.
- 10.2>.This operate just can be available after store stations.
- 10.3>.Keep press 'ALARM' button to select the stored stations decrementally
- 10.4>.Keep press 'AL\_ON/OFF' button to select the stored stations incrementally.
- 10.5>.Store Current Station: Keep press 'ALARM' or 'AL\_ON/OFF' button until 'PRE' is displayed. Quickly press the 'ALARM' or 'AL\_ON/OFF' button to Store Current Station during the symbol 'PRE' flashing.

**11>.ON/OFF Stereo**

- 11.1>.Keep press 'AM/FM' button more than 2 second to turn ON or OFF stereo audio when playing FM radio stations.
- 11.2>.It needs insert headphones from AUX socket.
- 11.3>.It is not available for MW and SW frequency.
- 11.4>.It will return to mono mode if re-power ON at FM.

**12>.Charge and Indicator**

- 12.1>.Battery needs to be charged when the single battery indicator displays the last grid.
- 12.2>.Charging: The battery icon flashes repeatedly.
- 12.3>.Charged: The battery icon display all grids.
- 12.4>.The battery charging time is about 3-4 hours.

**13>.Antenna**

- 13.1>.FM and SW needs telescopic antenna.
- 13.2>.MW needs Magnetic Rod Antenna.

**Note:**

- 1>.The radio receiver should be as far away as possible from the WIFI signal (router) avoid signal interference.
- 2>.It is not recommended to play music when recharging to avoid damaging the battery.
- 3>.Please read use manual and description before use.

**Installation Steps(Please be patient):**

- 1>.Step 1: Tear off the protective film on the acrylic surface.
- 2>.Step 2: Cut about 1mm around gap on Acrylic Battery Bracket Board, which are convenient for subsequent installation of copper column. Note: Scrape with a knife or cut carefully with pliers BUT do not damage the acrylic plate.
- 3>.Step 3: Fix 1pcs 4\*7\*50mm Magnetic Rod Antenna on Acrylic Battery Bracket Board by 2pcs 2.7\*80mm White Cable Tie.
- 4>.Step 4: Fix 1pcs 3.7V/1000mAh Polymer Lithium Battery on Acrylic Battery Bracket Board by 2pcs 2.7\*200mm White Cable Tie.
- 5>.Step 5: Fix 4pcs M2\*11mm Copper Pillar on KCX\_RADIO Audio Receiver by 4pcs M2\*4+3mm Copper Pillar Screw.
- 6>.Step 6: Fix KCX\_RADIO Audio Receiver on Acrylic Battery Bracket Board by 4pcs M2\*5mm Screw with 1pcs Antenna Connect Wire. Note: the smaller terminal place on Acrylic and then fix screw.
- 7>.Step 7: Fix 4pcs M2\*25mm Copper Pillar on Acrylic Front Board by 4pcs M2\*5mm Screw. Tips: It is not recommended to fix the screws too tightly, so it is convenient to install the rear components.
- 8>.Step 8: Place 10pcs 4\*7mm White Button Cap on Acrylic Front Board.
- 9>.Step 9: Fix 7.5~30cm FM Telescopic Antenna to the bigger terminal of Antenna Connect Wire by 1pcs M3\*7mm Copper Pillar and 1pcs M3\*5mm Screw.
- 10>.Step 10: Fix FM Telescopic Antenna assembly on Acrylic Speaker-Socket-Thick Board by 1pcs M3\*5mm Screw.

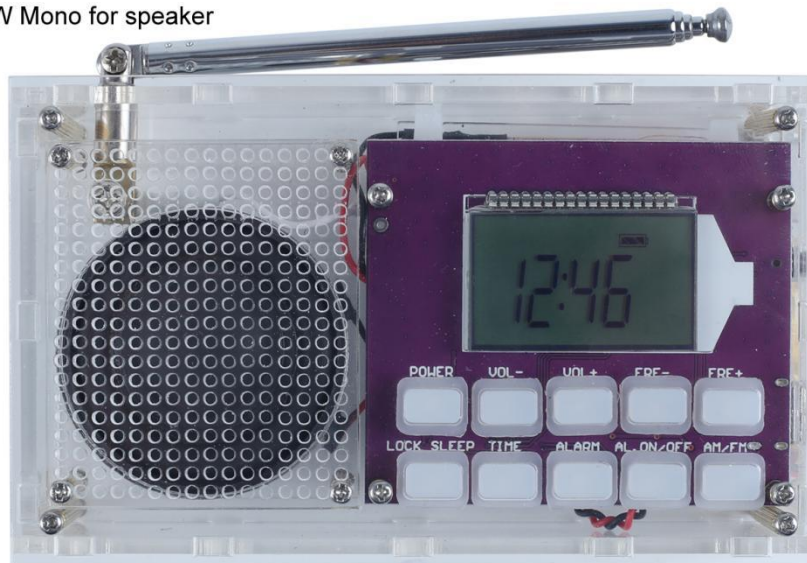
- 11>.Step 11: Fix KCX\_RADIO Audio Receiver on Acrylic Battery Bracket Board by 4pcs M2\*5mm Screw.
- 12>.Step 12: Install Acrylic TOP Board. Note: antenna mounting hole.
- 13>.Step 13: Fix 4pcs M2\*11mm Copper Pillar on Acrylic Speaker-Socket-Thick Board by 4pcs M2\*12mm Screw. Note: It is not recommended to fix the screws too tightly, so it is convenient to install the rear components.
- 14>.Step 14: Insert 1pcs 4ohm 5W Speaker to KCX\_RADIO Audio Receiver.
- 15>.Step 15: Install Acrylic Button Board.
- 16>.Step 16: Install Acrylic Left-Side Board.
- 17>.Step 17: Install Acrylic Right-Side Board.
- 18>.Step 18: Fix 1pcs Acrylic Speaker-Cover-Thin Board, which is used to fix speaker.
- 19>.Step 19: Install 1pcs M2\*5mm Screw to location Acrylic Back Board at first. Tips: It is not recommended to fix the screws too tightly, now.
- 20>.Step 20: Install and fix all screws after aligning the acrylic mounting hole.

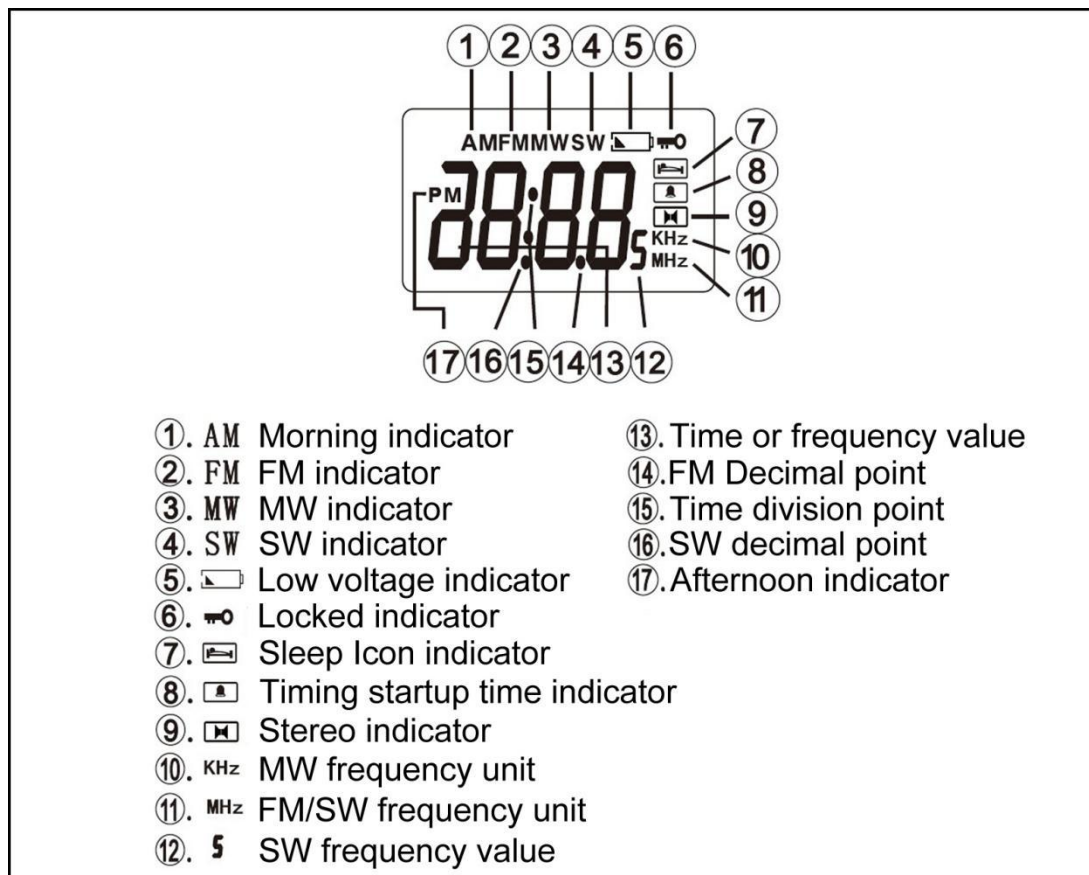
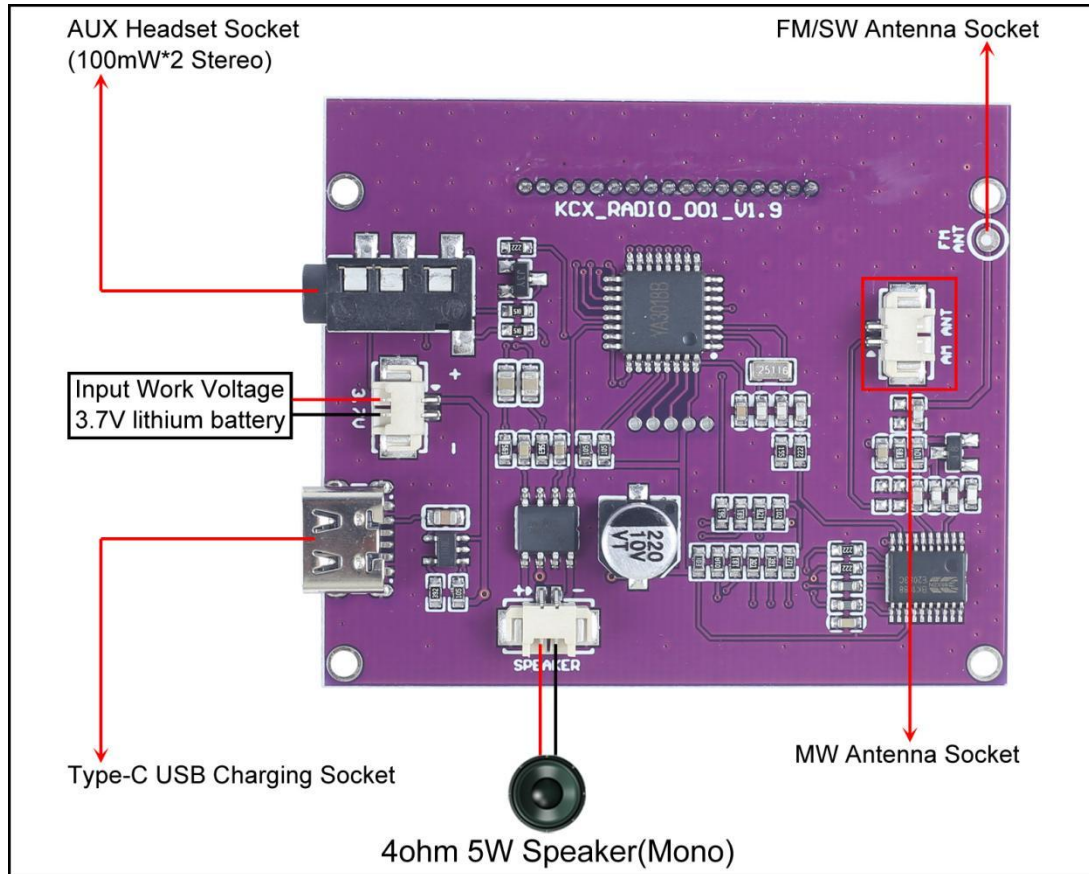
- ✓FM MW SW Radio Receiver
- ✓High sensitivity
- ✓Lithium battery powered
- ✓Lithium battery charging
- ✓Timing Startup Time
- ✓Timed shutdown
- ✓Scan storage stations
- ✓Speaker/Headset output
- ✓100mW\*2 Stereo for headset
- ✓5W Mono for speaker

FM : 87MHz-108MHz

MW : 522KHz-1620KHz

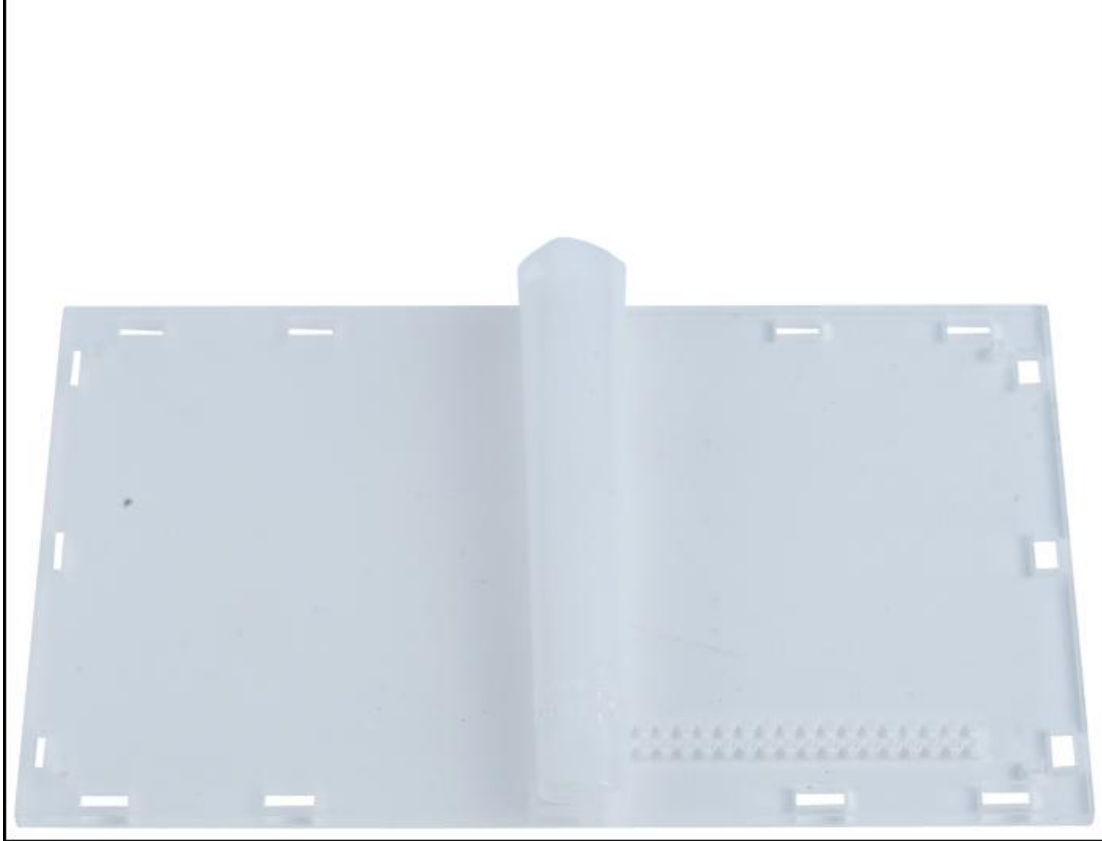
SW : 4.75MHz-21.85MHz



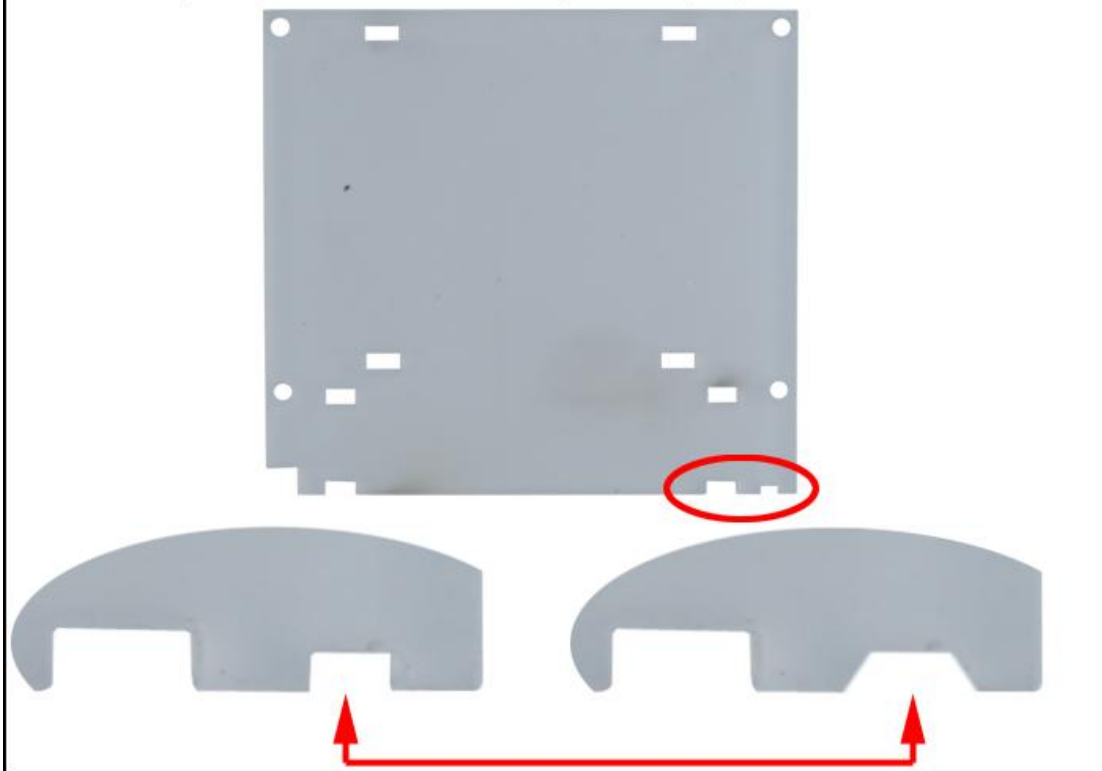




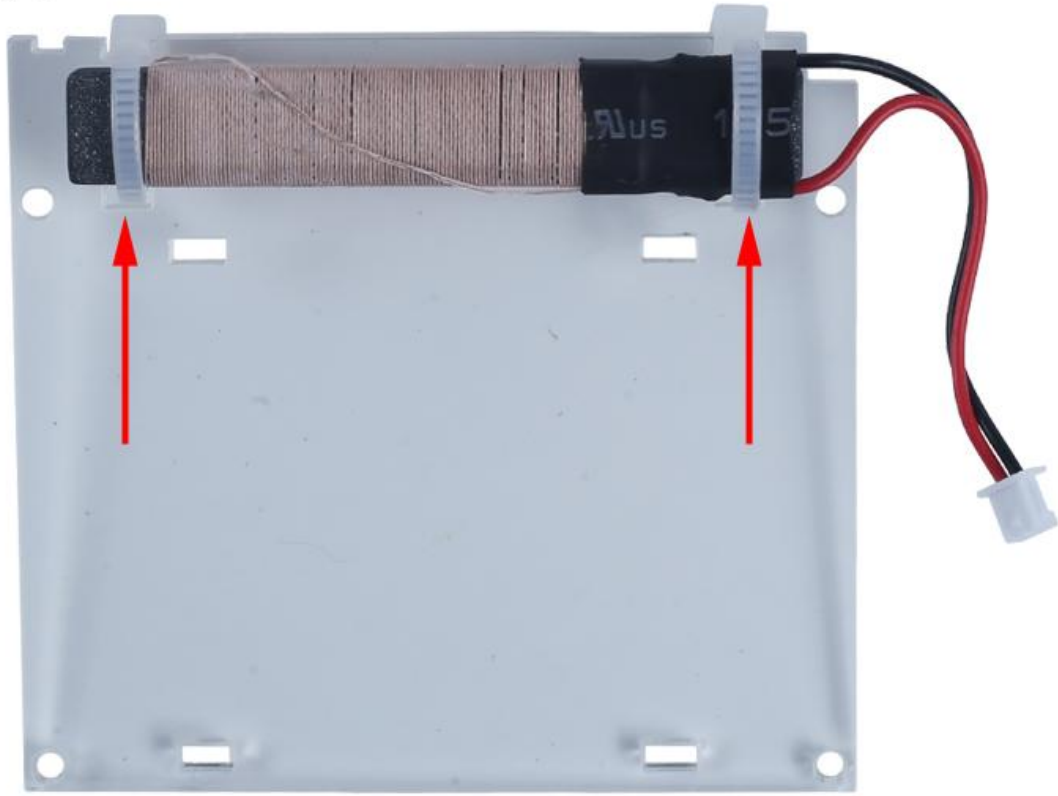
Step 1: Tear off the protective film on the acrylic surface.



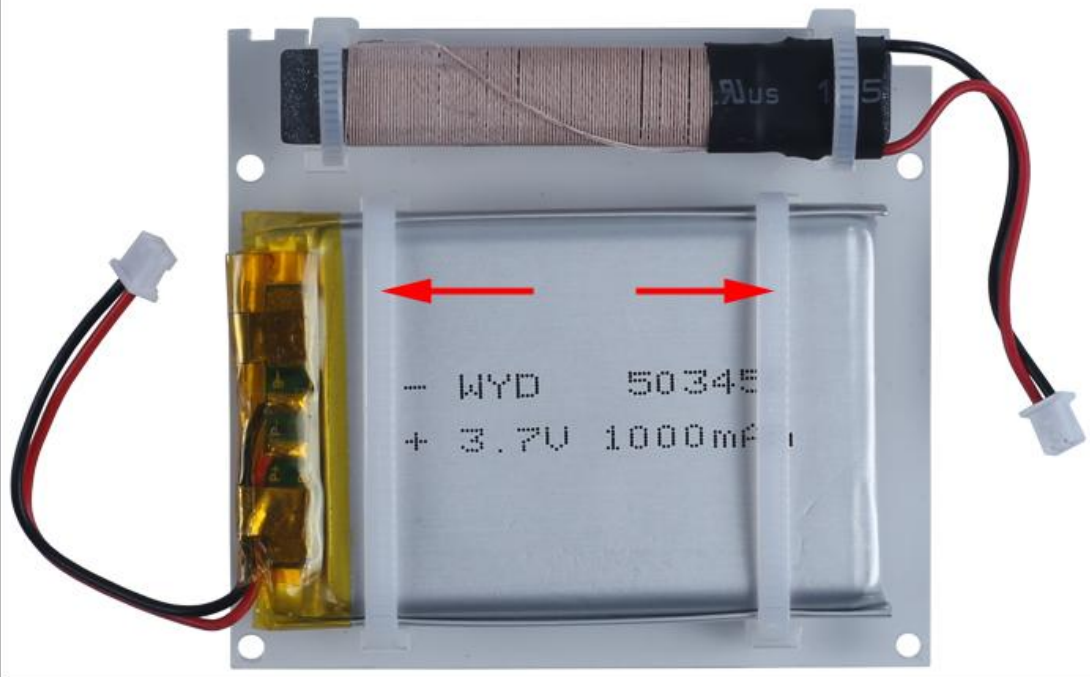
Step 2: Cut about 1mm around gap on Acrylic Battery Bracket Board, which are convenient for subsequent installation of copper column. Note: Scrape with a knife or cut carefully with pliers BUT do not damage the acrylic plate.



Step 3: Fix 1pcs 4\*7\*50mm Magnetic Rod Antenna on Acrylic Battery Bracket Board by 2pcs 2.7\*80mm White Cable Tie.

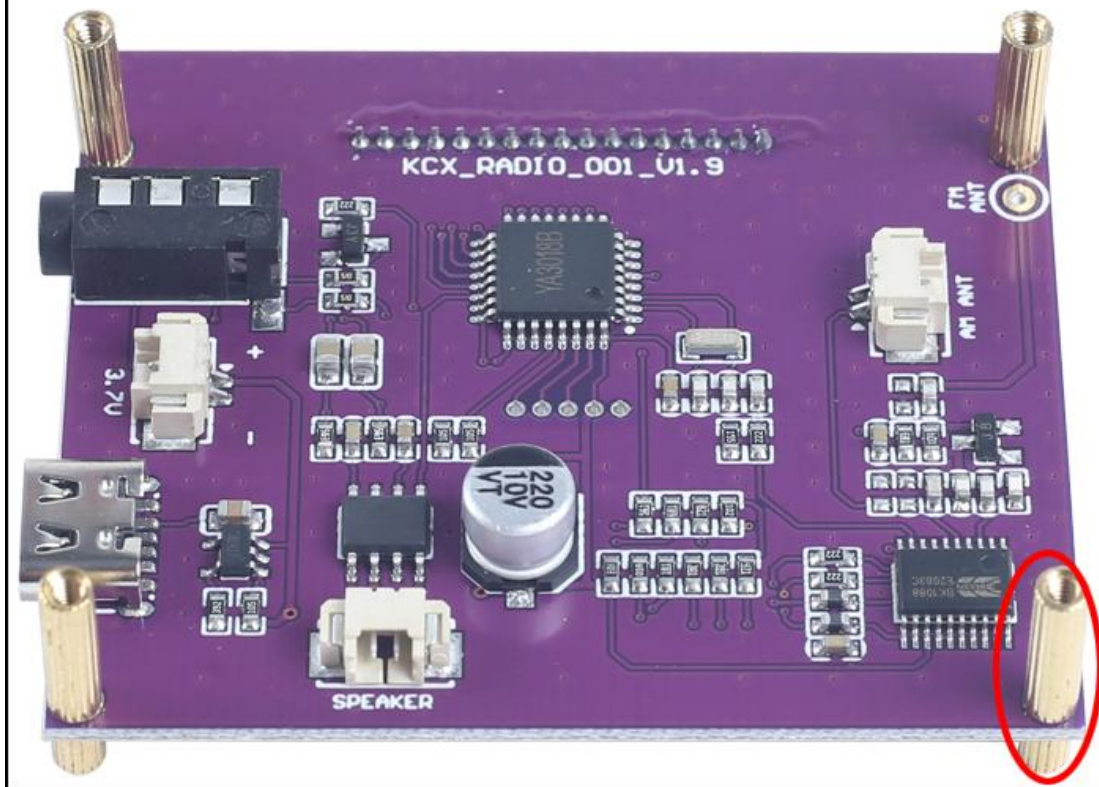


Step 4: Fix 1pcs 3.7V/1000mAh Polymer Lithium Battery on Acrylic Battery Bracket Board by 2pcs 2.7\*200mm White Cable Tie.



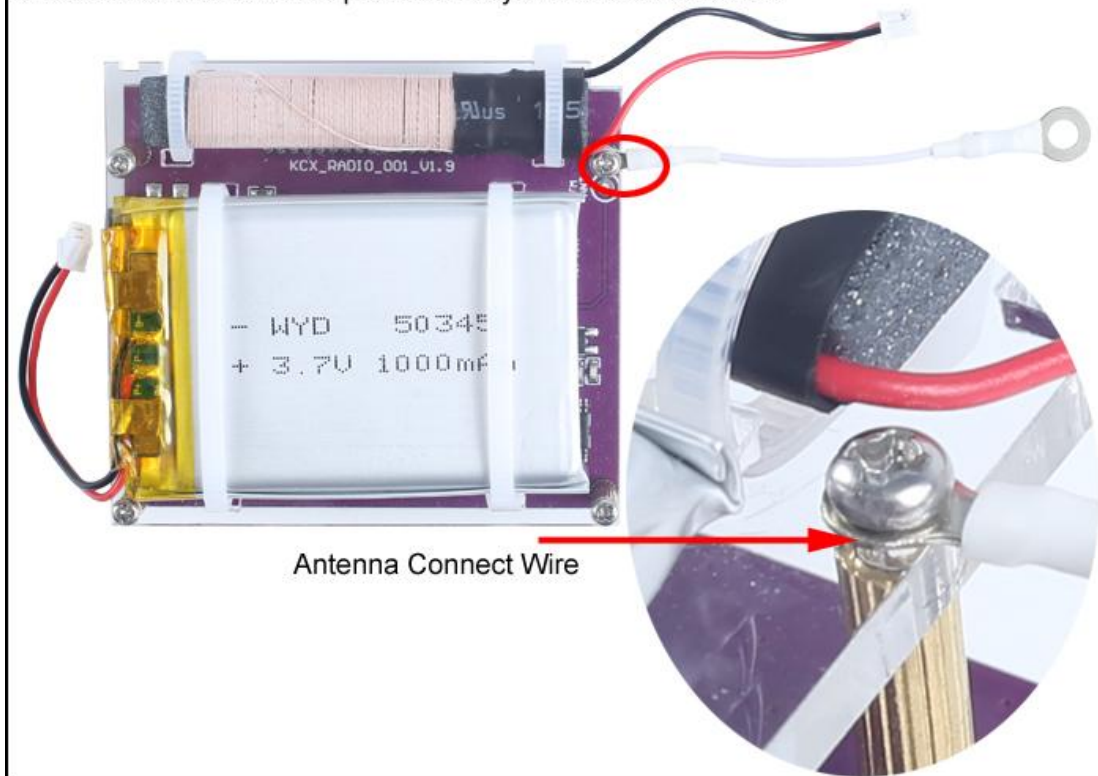


Step 5: Fix 4pcs M2\*11mm Copper Pillar on KCX\_RADIO Audio Receiver by 4pcs M2\*4+3mm Copper Pillar Screw.

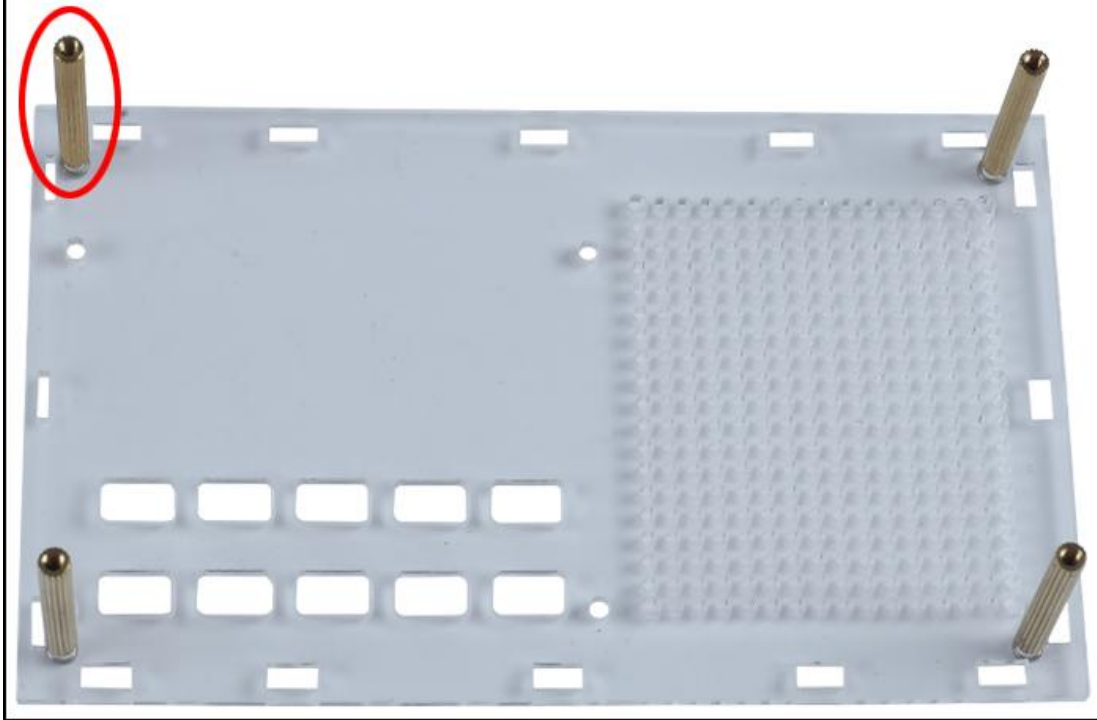


Step 6: Fix KCX\_RADIO Audio Receiver on Acrylic Battery Bracket Board by 4pcs M2\*5mm Screw with 1pcs Antenna Connect Wire.

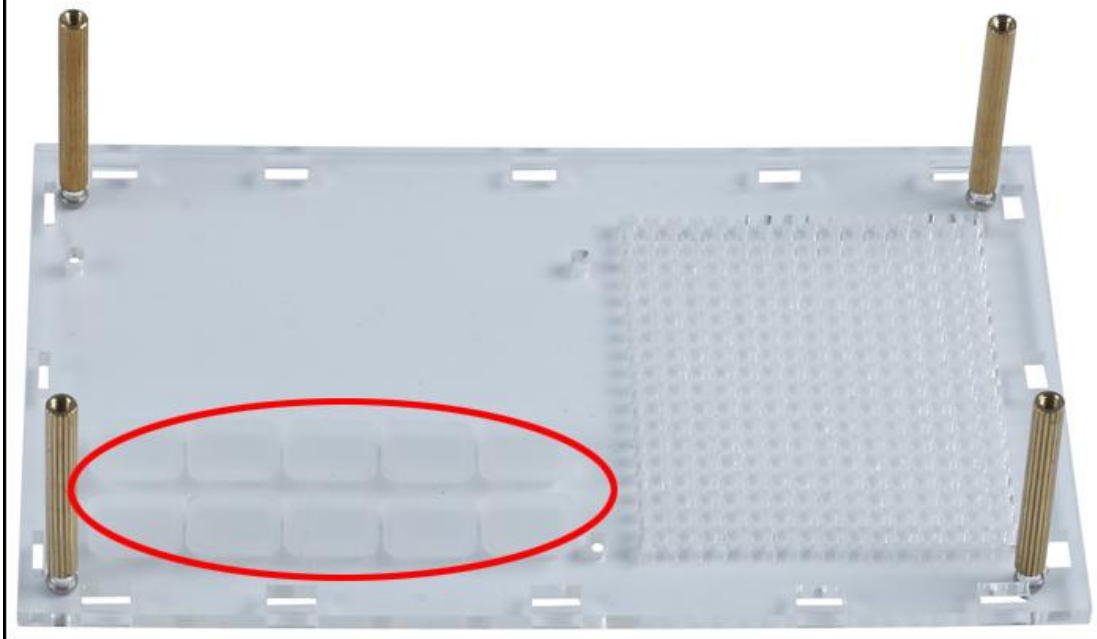
Note: the smaller terminal place on Acrylic and then fix screw.



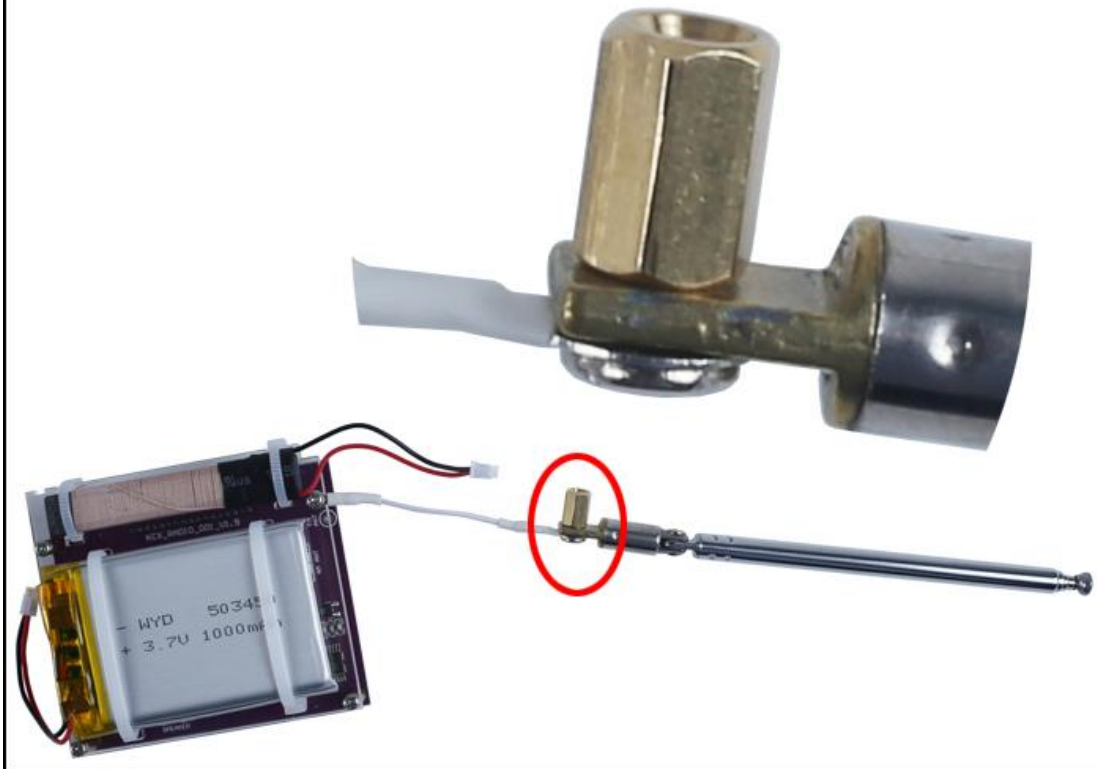
Step 7: Fix 4pcs M2\*25mm Copper Pillar on Acrylic Front Board by 4pcs M2\*5mm Screw. **Tips:** It is not recommended to fix the screws too tightly, so it is convenient to install the rear components.



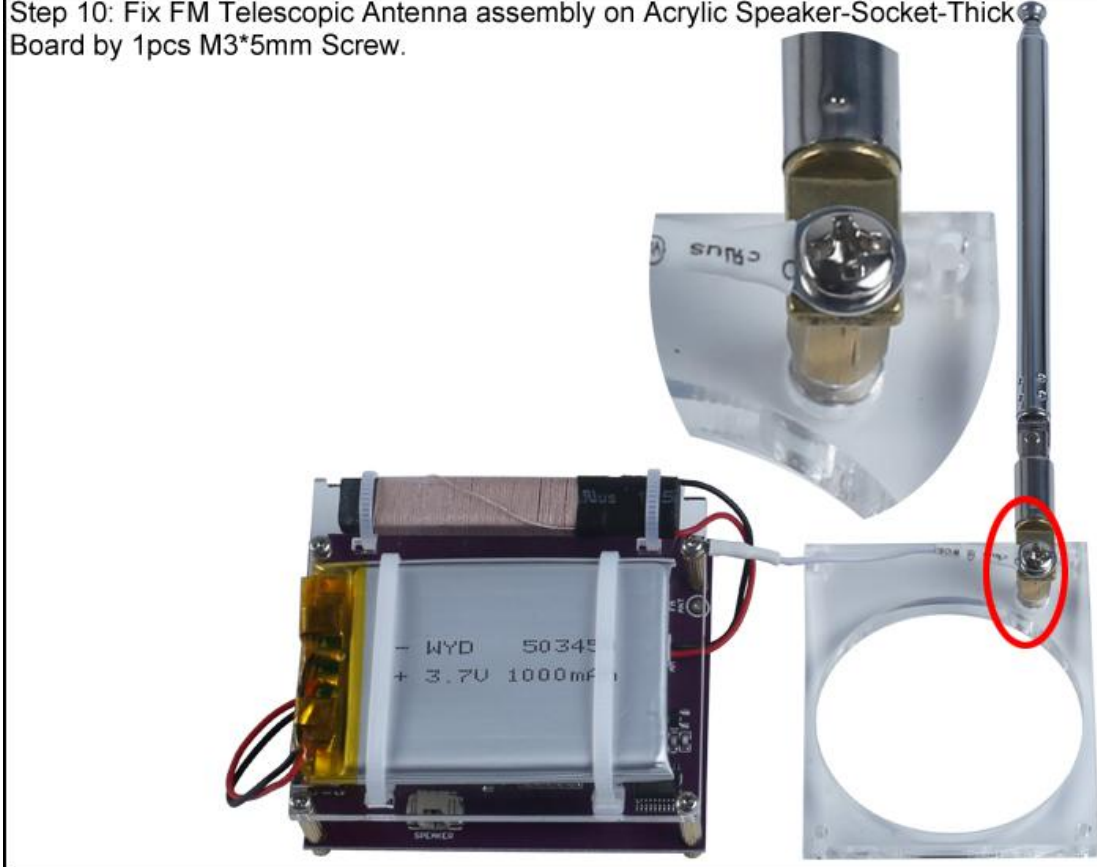
Step 8: Place 10pcs 4\*7mm White Button Cap on Acrylic Front Board.



Step 9: Fix 7.5~30cm FM Telescopic Antenna to the bigger terminal of Antenna Connect Wire by 1pcs M3\*7mm Copper Pillar and 1pcs M3\*5mm Screw.

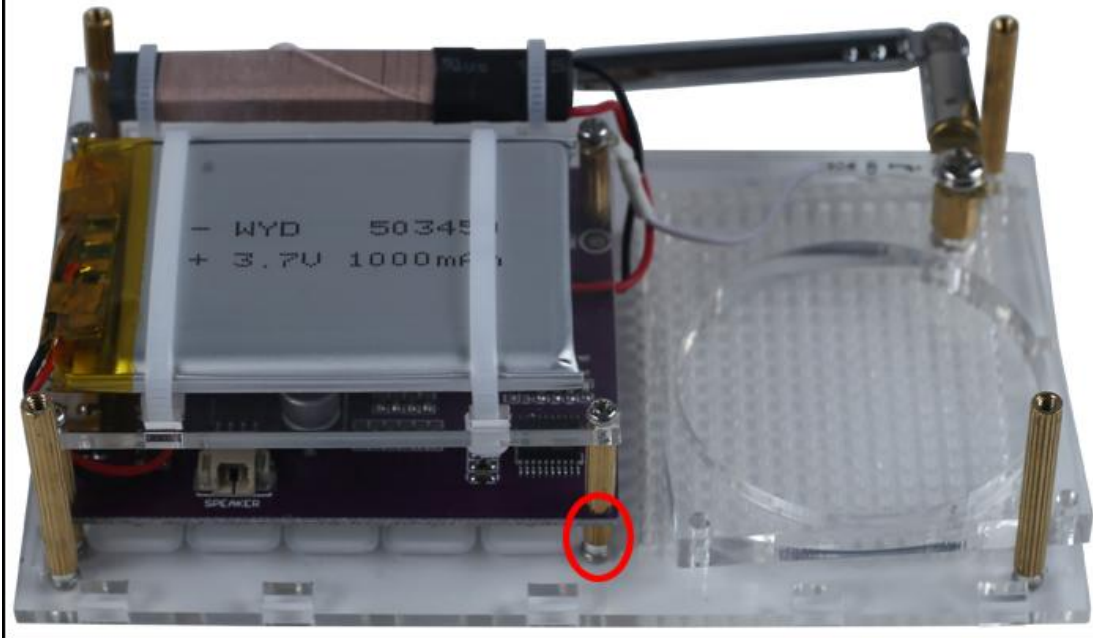


Step 10: Fix FM Telescopic Antenna assembly on Acrylic Speaker-Socket-Thick Board by 1pcs M3\*5mm Screw.

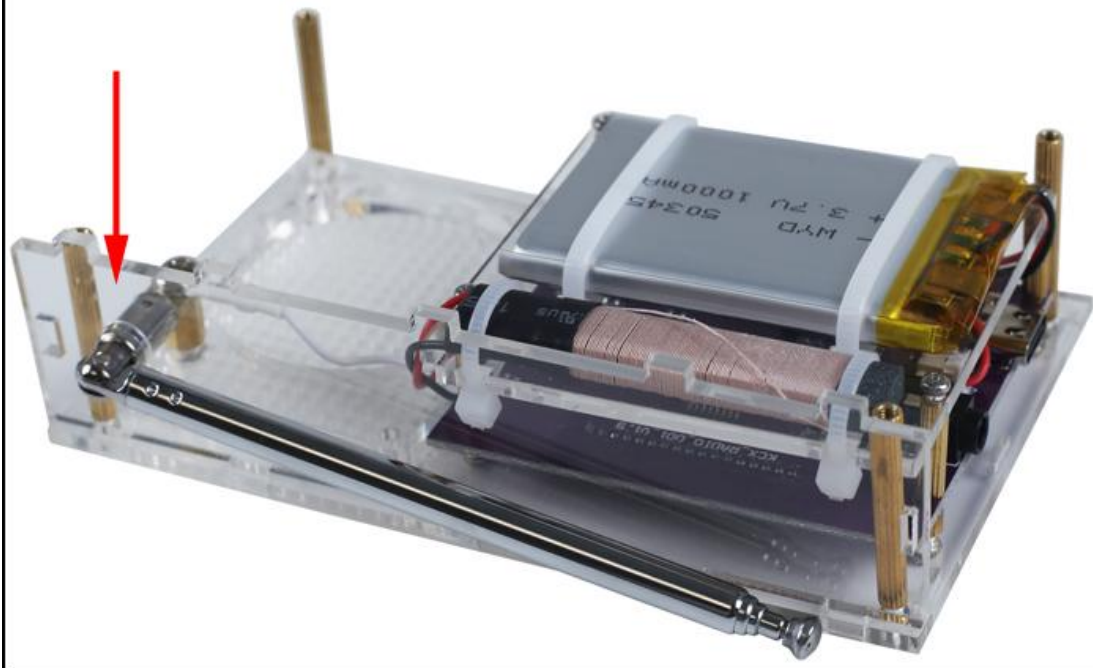




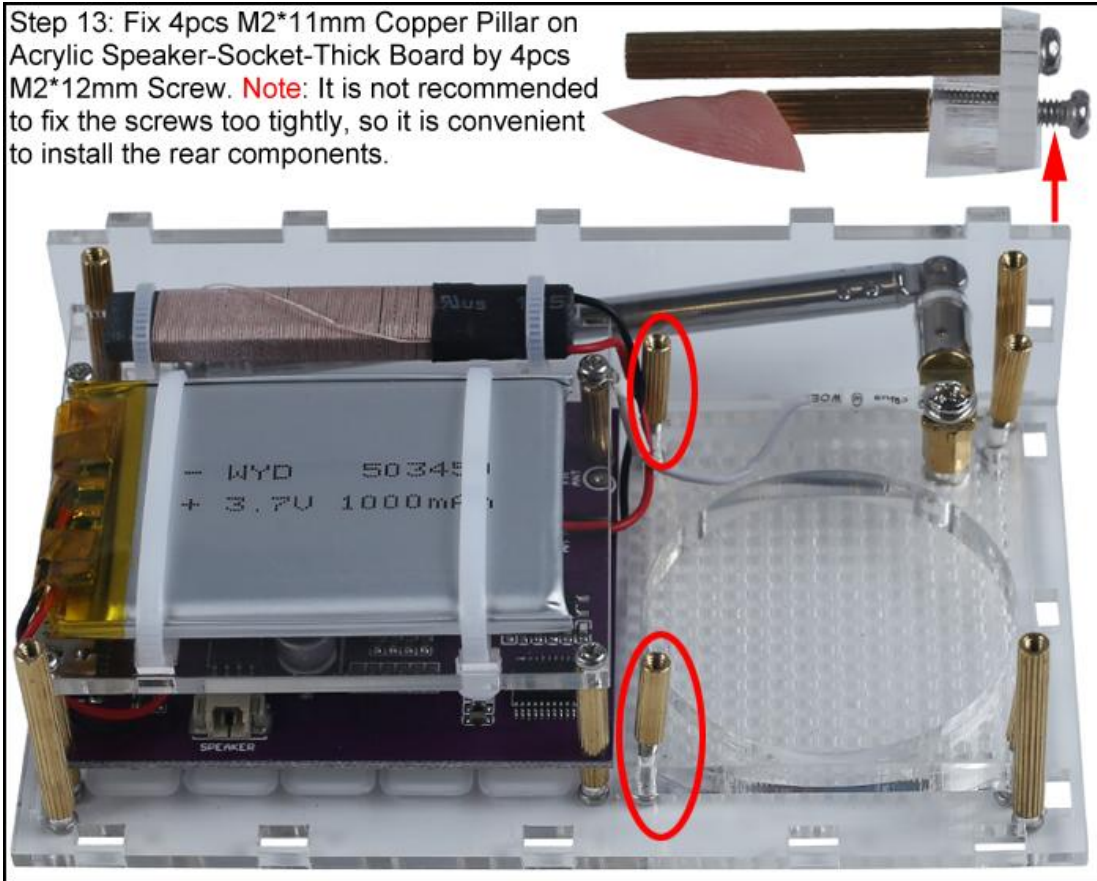
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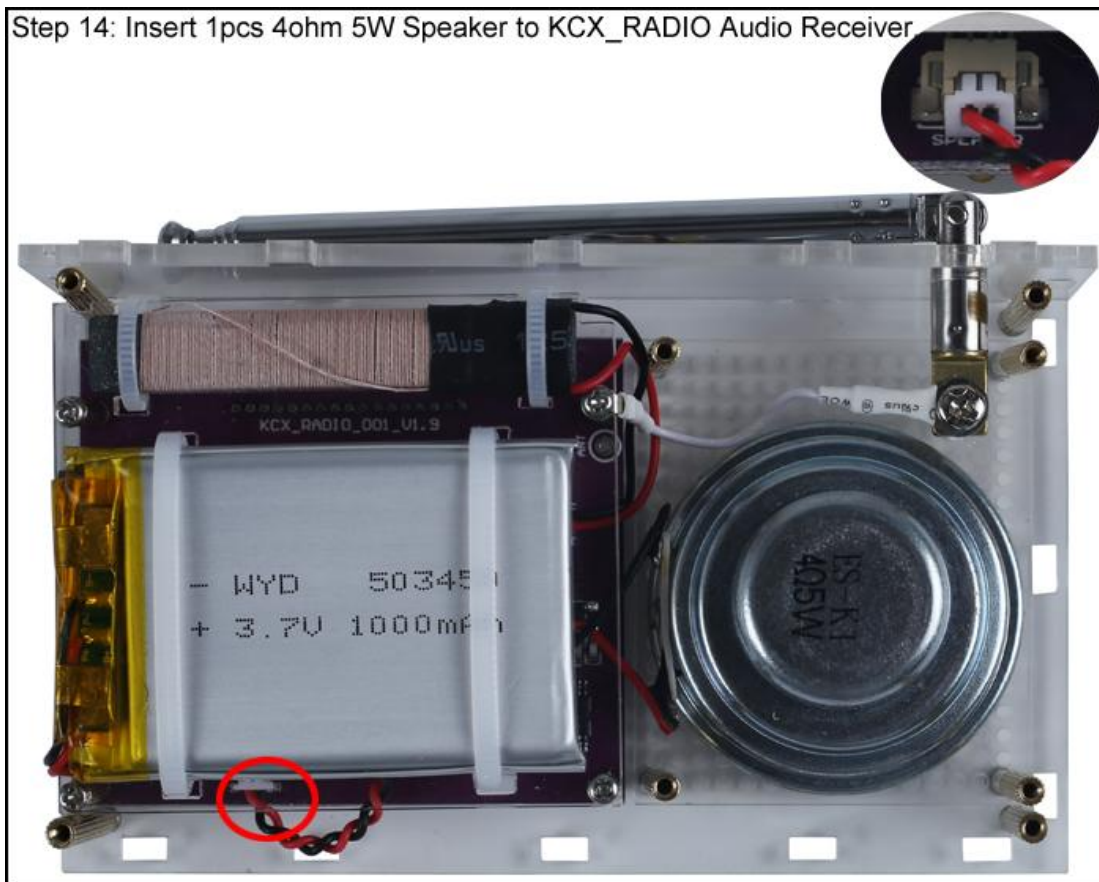
Step 12: Install Acrylic TOP Board. Note: antenna mounting hole.



Step 13: Fix 4pcs M2\*11mm Copper Pillar on Acrylic Speaker-Socket-Thick Board by 4pcs M2\*12mm Screw. **Note:** It is not recommended to fix the screws too tightly, so it is convenient to install the rear components.



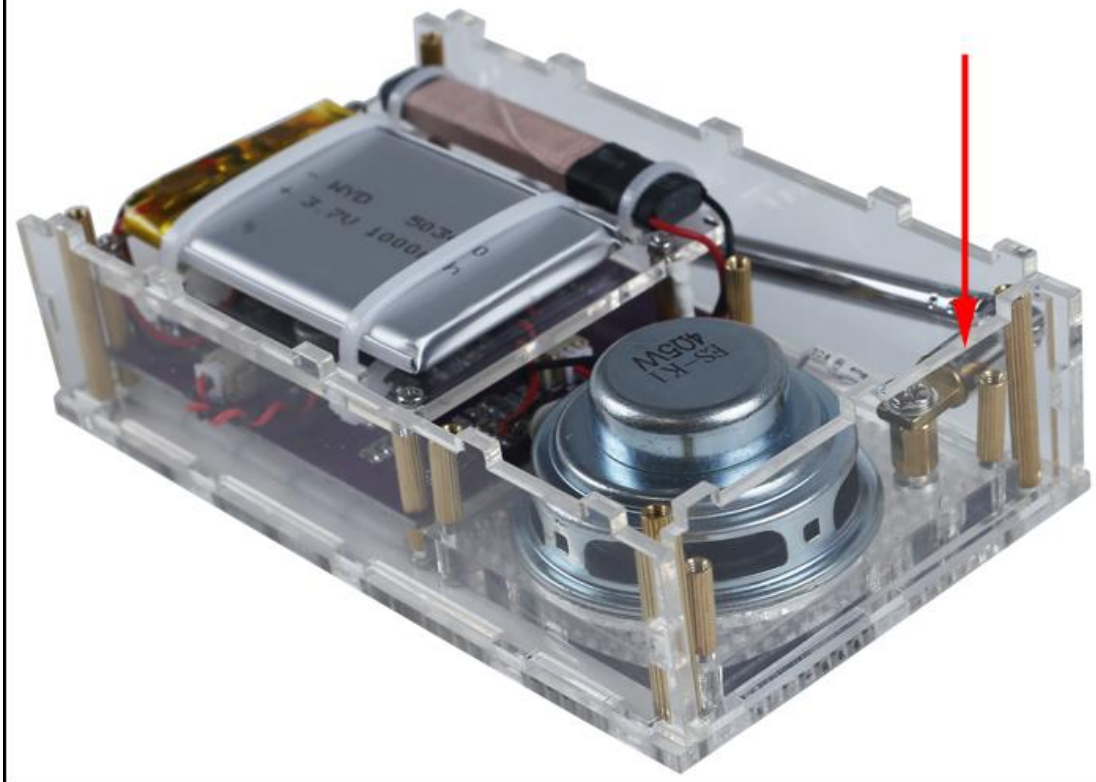
Step 14: Insert 1pcs 4ohm 5W Speaker to KCX\_RADIO Audio Receiver



Step 15: Install Acrylic Button Board.

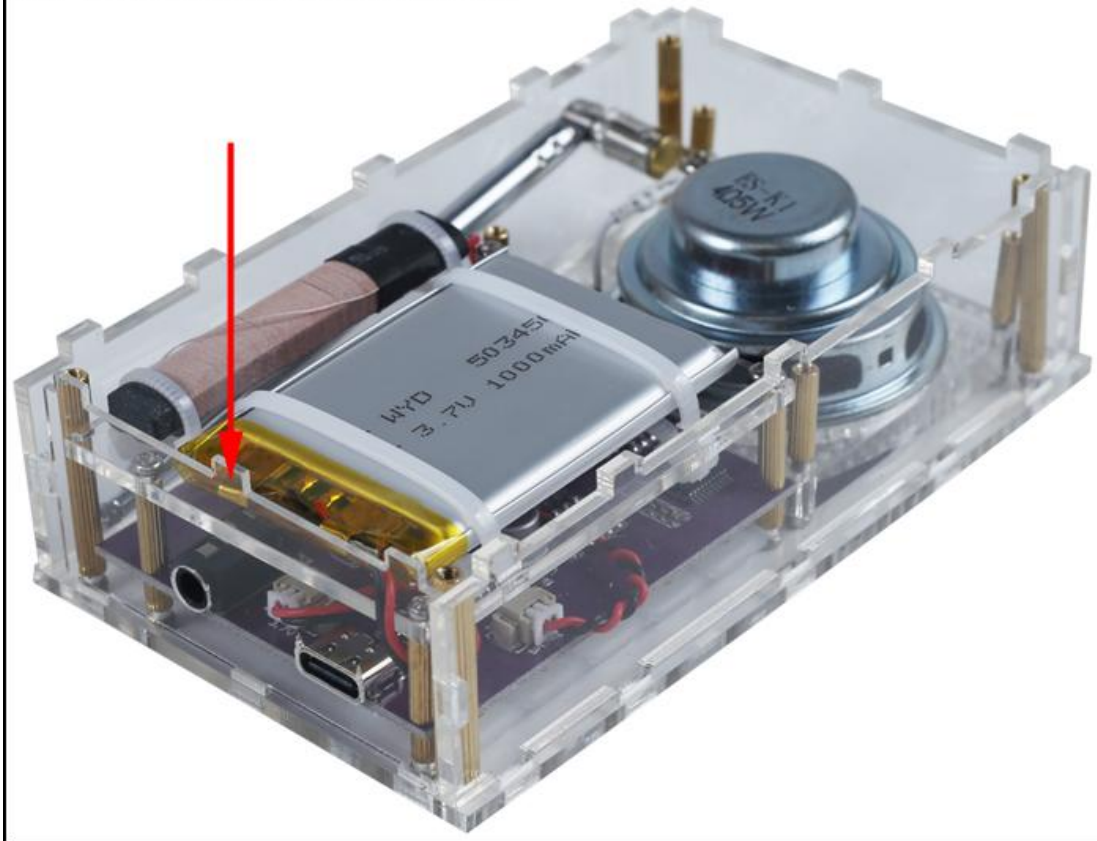


Step 16: Install Acrylic Left-Side Board.

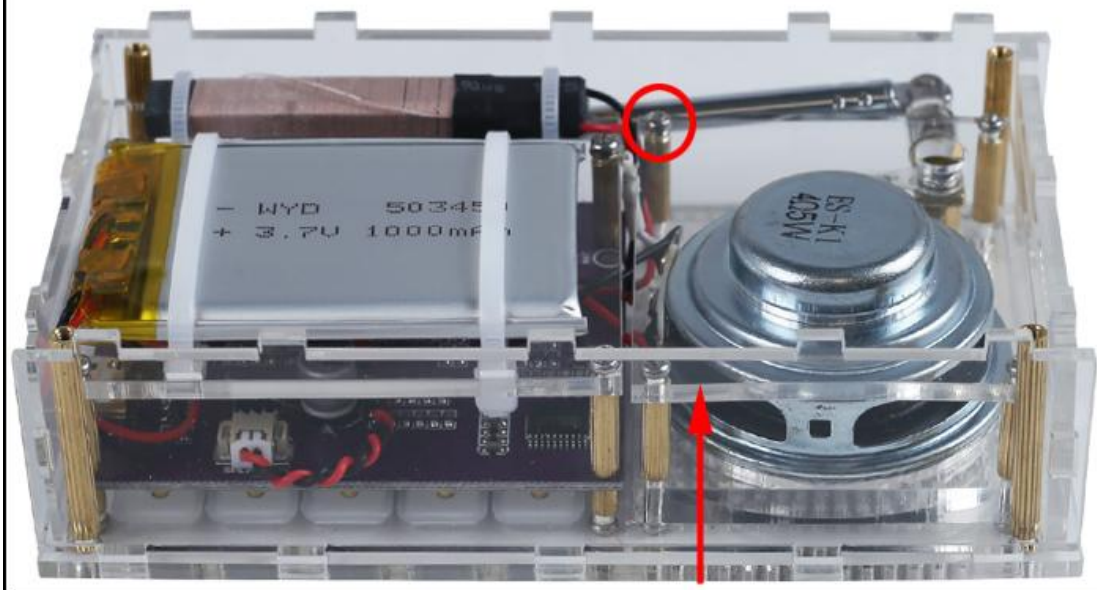




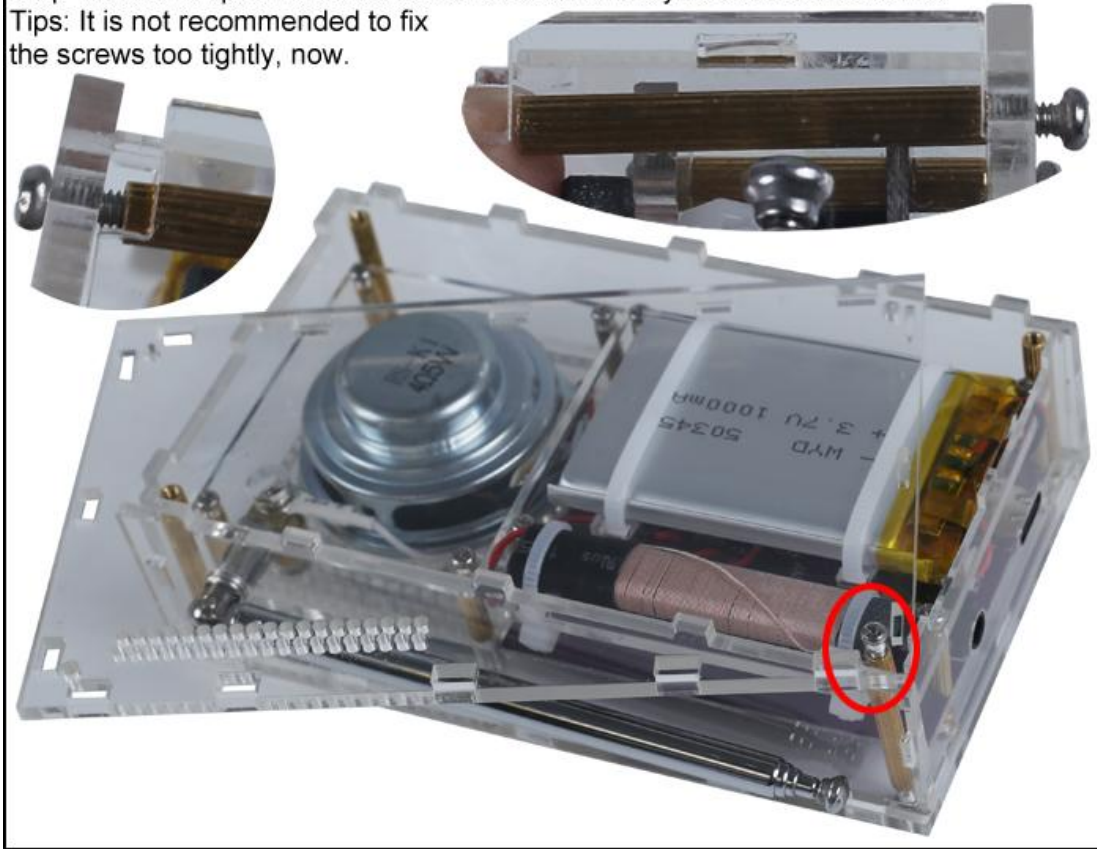
Step 17: Install Acrylic Right-Side Board.



Step 18: Fix 1pcs Acrylic Speaker-Cover-Thin Board, which is used to fix speaker.



Step 19: Install 1pcs M2\*5mm Screw to location Acrylic Back Board at first.  
Tips: It is not recommended to fix the screws too tightly, now.



Step 20: Install and fix all screws after aligning the acrylic mounting hole.

