

Test board for WA-TX-03S, WA-RX-03S  
**WA-TBT-03S and WA-TBR-03S**



**Operation guide**

Version 1.0 (May 2017)

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**GENERAL DESCRIPTION & FEATURES****General description**

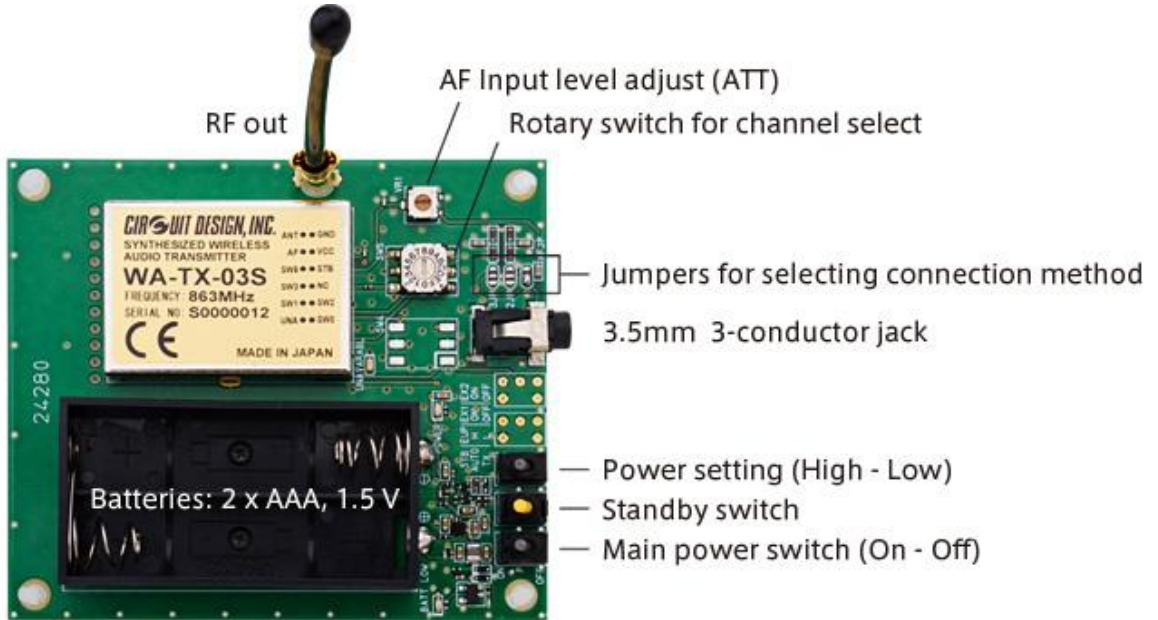
This test board is developed to allow you to evaluate the performance of WA-TX-03-R and WA-RX-03-R or WA-TX-03S and WA-RX-03S without any additional components. The board consists of a DC/DC converter, LEDs, a battery case and a module. WA-TBT-03S and WA-TBR-03S do not include modules WA-TX-03-R and WA-RX-03-R or WA-TX-03S and WA-RX-03S. Please make sure to order them if needed.

**Features**

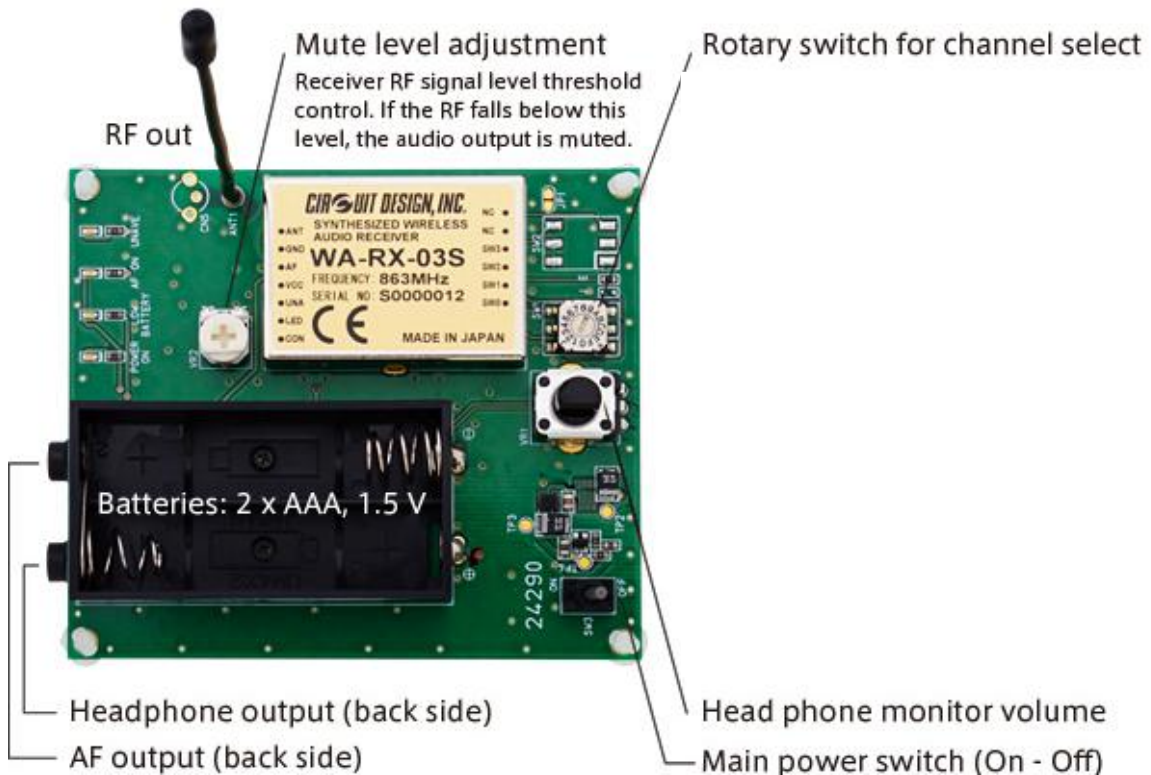
- Mounted battery holder
- Rotary switch for frequency selection
- Audio input level adjust (TX)
- Volume control (RX)
- Microphone/audio input (3.5mm socket)
- Audio / headphone output (3.5mm socket)
- Audio cut off
- RF Power selection (WA-TX-03S only)
- Standby switch (Yellow)

**TEST BOARD LAYOUT**

**WA-TBT-03S**



**WA-TBR-03S**

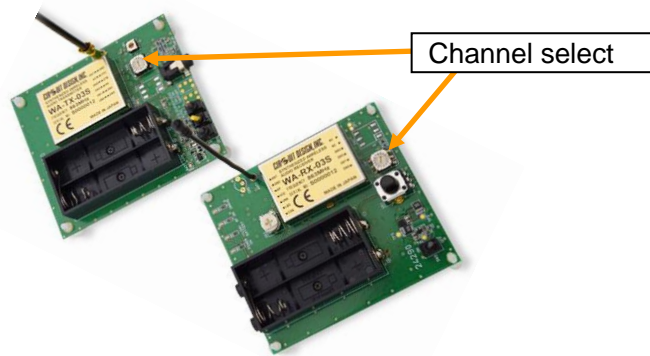


**POWER SUPPLY**

WA-TBT-03S, 2 x AAA size, 1.5v  
 WA-TBR-03S, 2 x AAA size, 1.5v

**FREQUENCY SELECTION**

Select the frequency channel by using the rotary switches. Ensure they are the same on both the WA-TBT-03S and WA-TBR-03S boards.



Channel (Rotary switch)	Frequency (MHz)
0	Not available
1	863.125
2	863.250
3	863.375
4	863.500
5	863.625
6	863.750
7	863.875
8	864.000
9	864.125
A	864.250
B	864.375
C	864.500
D	864.625
E	864.750
F	864.875

**Attention:**

If there are more than 2 transmitters and 2 receivers operating in the same area, one must be careful of *third-order intermodulation interference*. To avoid this, it is recommended to plan your channel usage by using our calculation tool.

Details of the calculation tool and explanation of *third-order intermodulation interference* can be found at: <http://www.cdt21.com/resources/siry06.asp>

**OTHER SETTINGS**

**RF power select (EUP)**  
Select RF power level.

H – High (10 mW)  
L – Low (5 mW)

**WA-TX-03S only.**  
The switch has no effect when using WA-TX-03-R

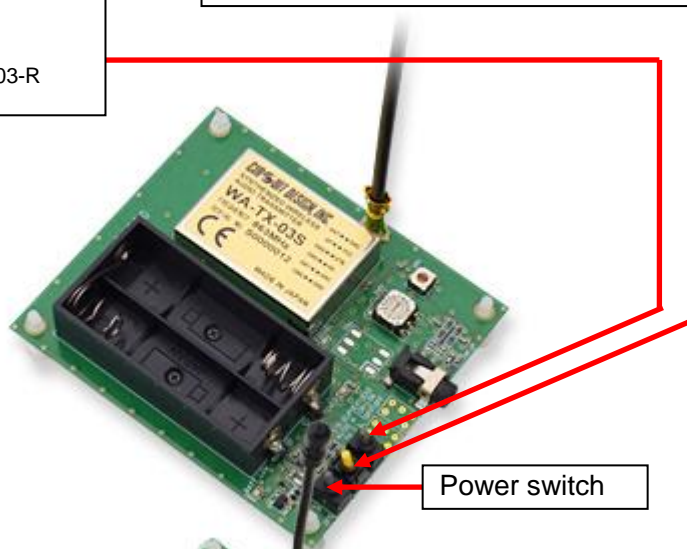
**Standby Switch (STB / yellow)**

Standby disables RF emission and puts the module into standby.

**TX:** Module does not go into standby during power shut off.

**AUTO:** During power OFF, the module enters standby initially allowing a more controlled power down cycle. This avoids audio spikes heard at the receiver.

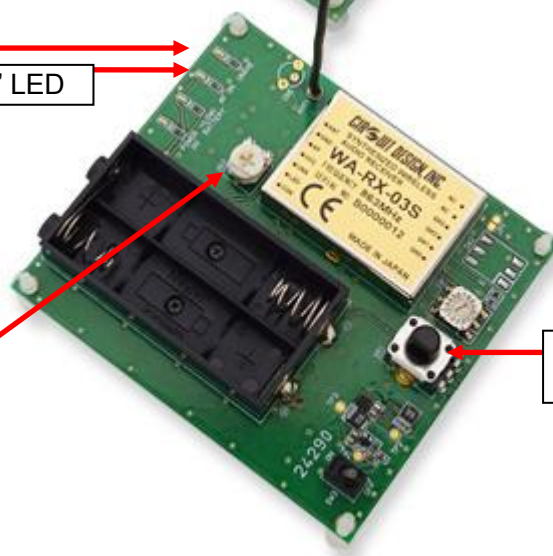
**CENTER POS.:** No function



Power switch

Ch. not available LED

"AF ON" LED



Rotate to adjust audio output

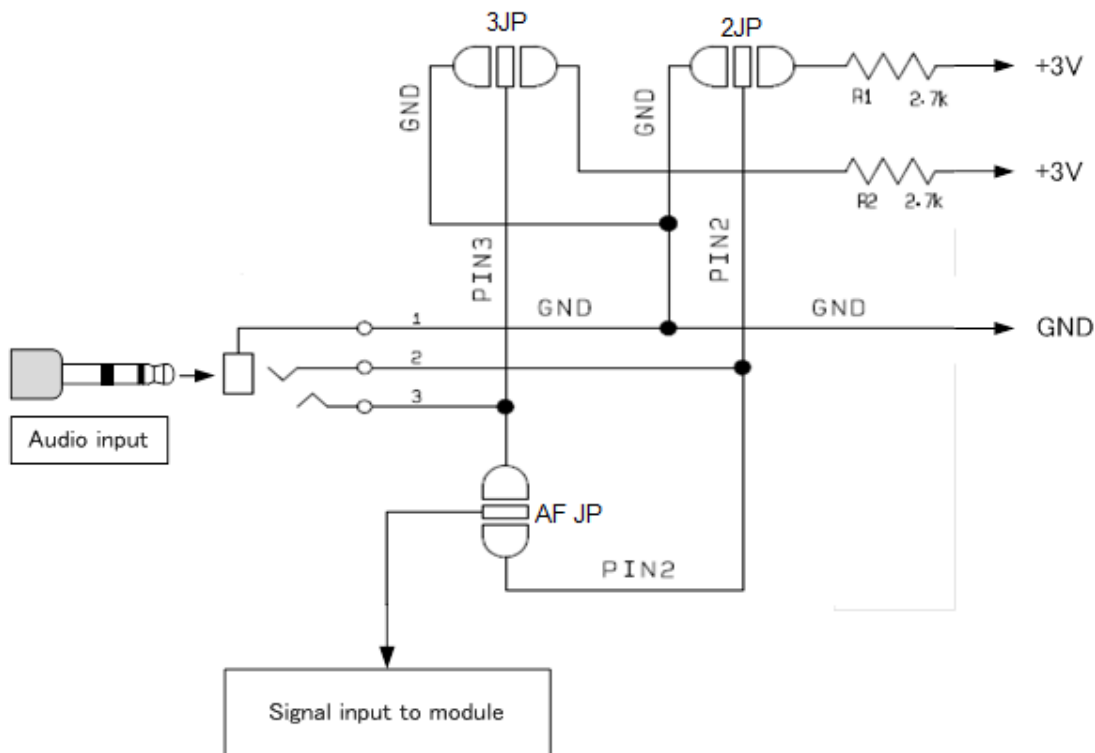
**Mute level adjustment**  
This is the received RF signal level threshold control. If the RF falls below this level, the audio output is muted. The "AF ON" LED will go out when the audio is muted.

**CONNECTING THE MIC**

You may use a 2 or 3-line condenser microphone or dynamic microphone. You must use 3.5mm mono plug only.

A condenser microphone requires a power supply (phantom supply) to drive it. The WA-TBT-03S board is able to supply this phantom power via the connector.

There are various microphone types available on the market, so please consult the microphone datasheets and if necessary add solder to the three jumper locations as shown below. These jumpers are labeled on the WA-TBT-03S board as 3JP, 2JP and AF JP.

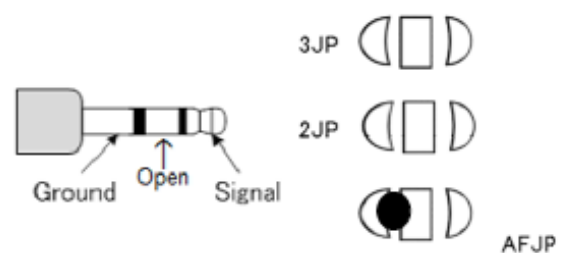
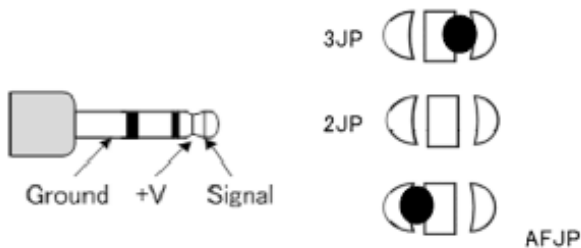


**Two / Three wire condenser microphone**

**Apply solder to 3JP and AF JP**

**Dynamic microphone or audio signal**

**Apply solder to AF JP as shown below**



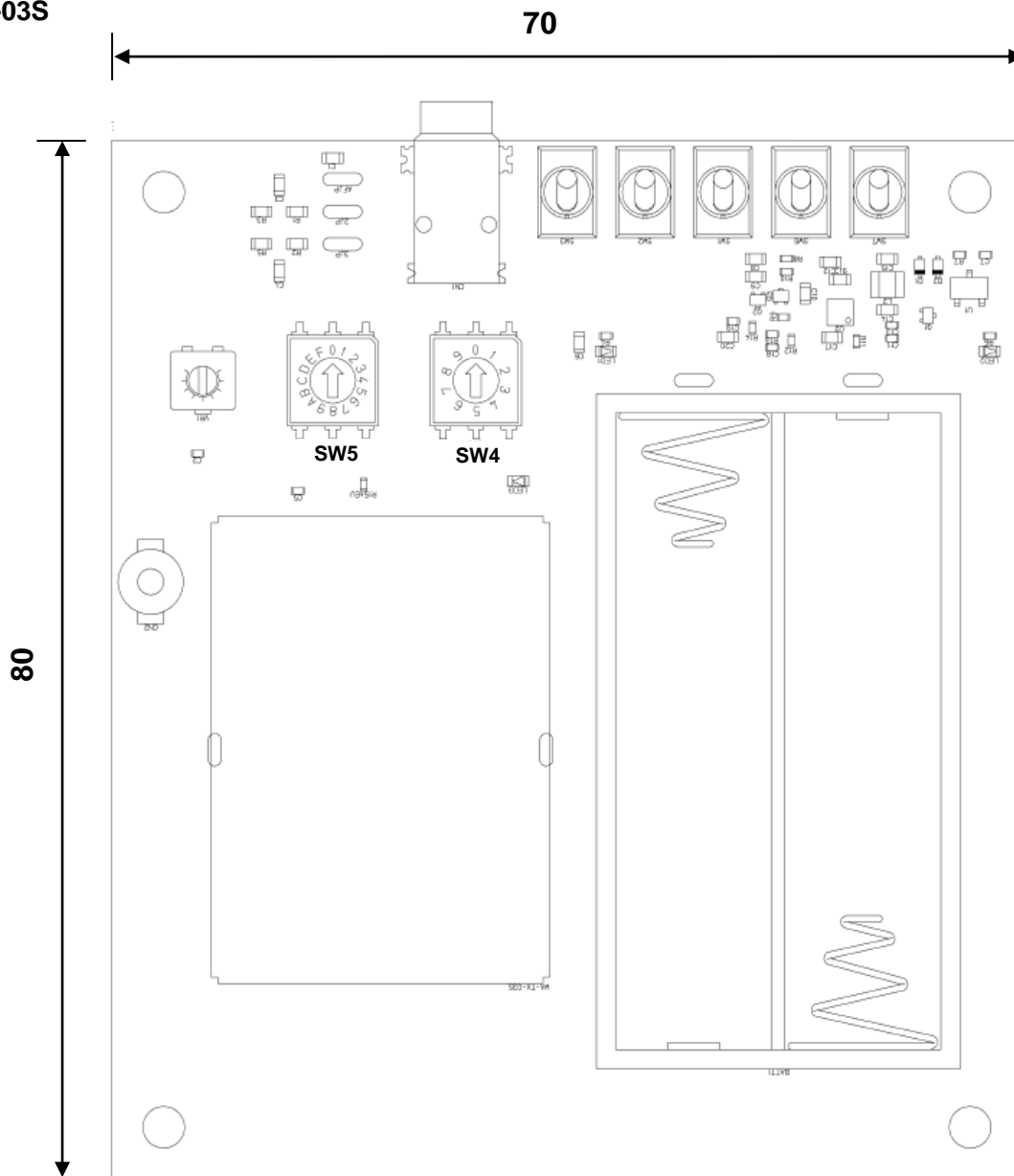
Default setting

**Caution notice****Adjacent channel interference**

In some cases, audio maybe heard on the channels immediately either side of the used channel. This is due to a strong level of RF being received and spilling onto the adjacent channel.

**DIMENSIONS**

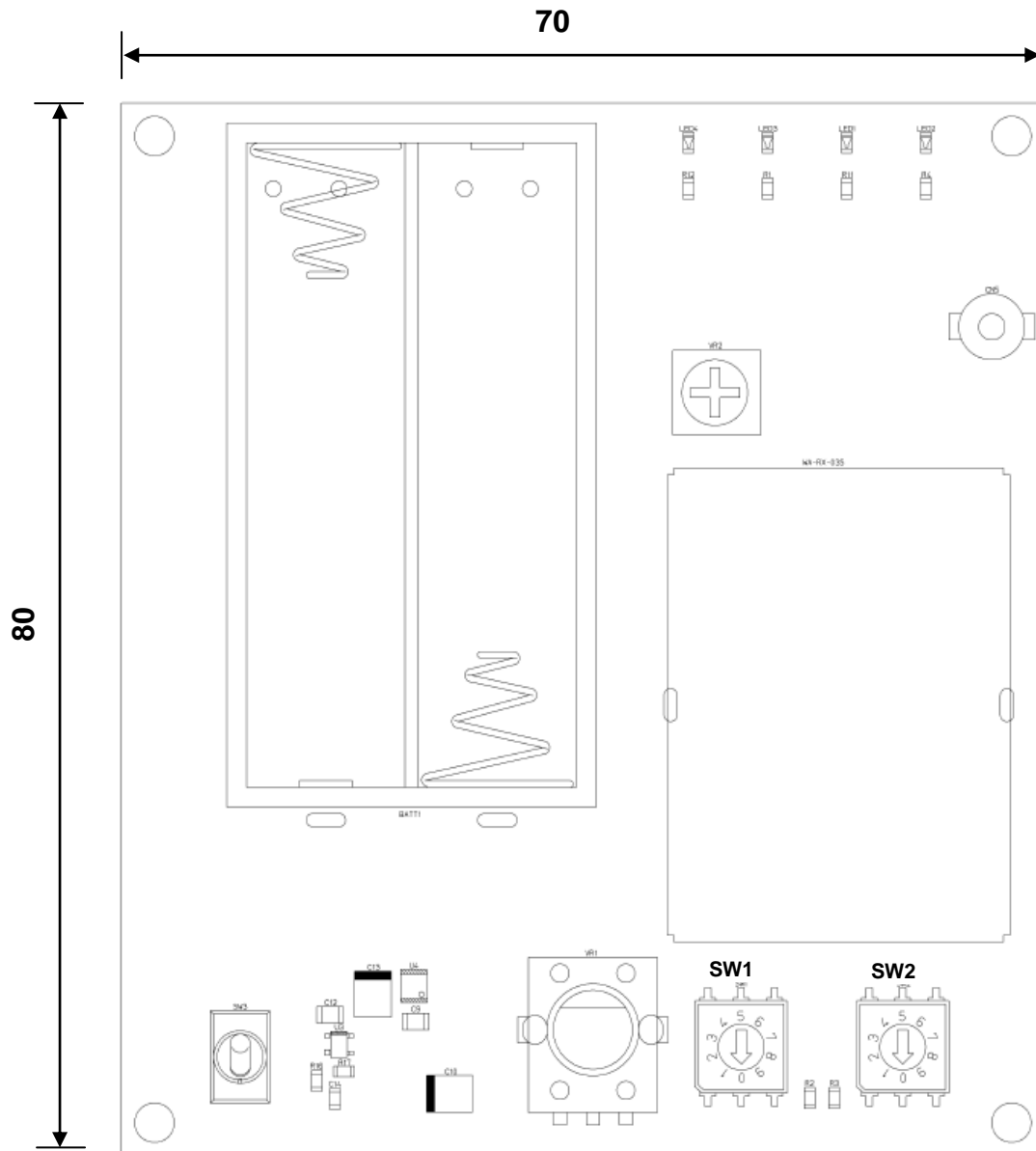
WA-TBT-03S



<b>863 MHz</b>	<b>EU</b>	<b>SW5 only</b>
<b>808 MHz</b>	<b>JP</b>	<b>SW5 &amp; SW4</b>

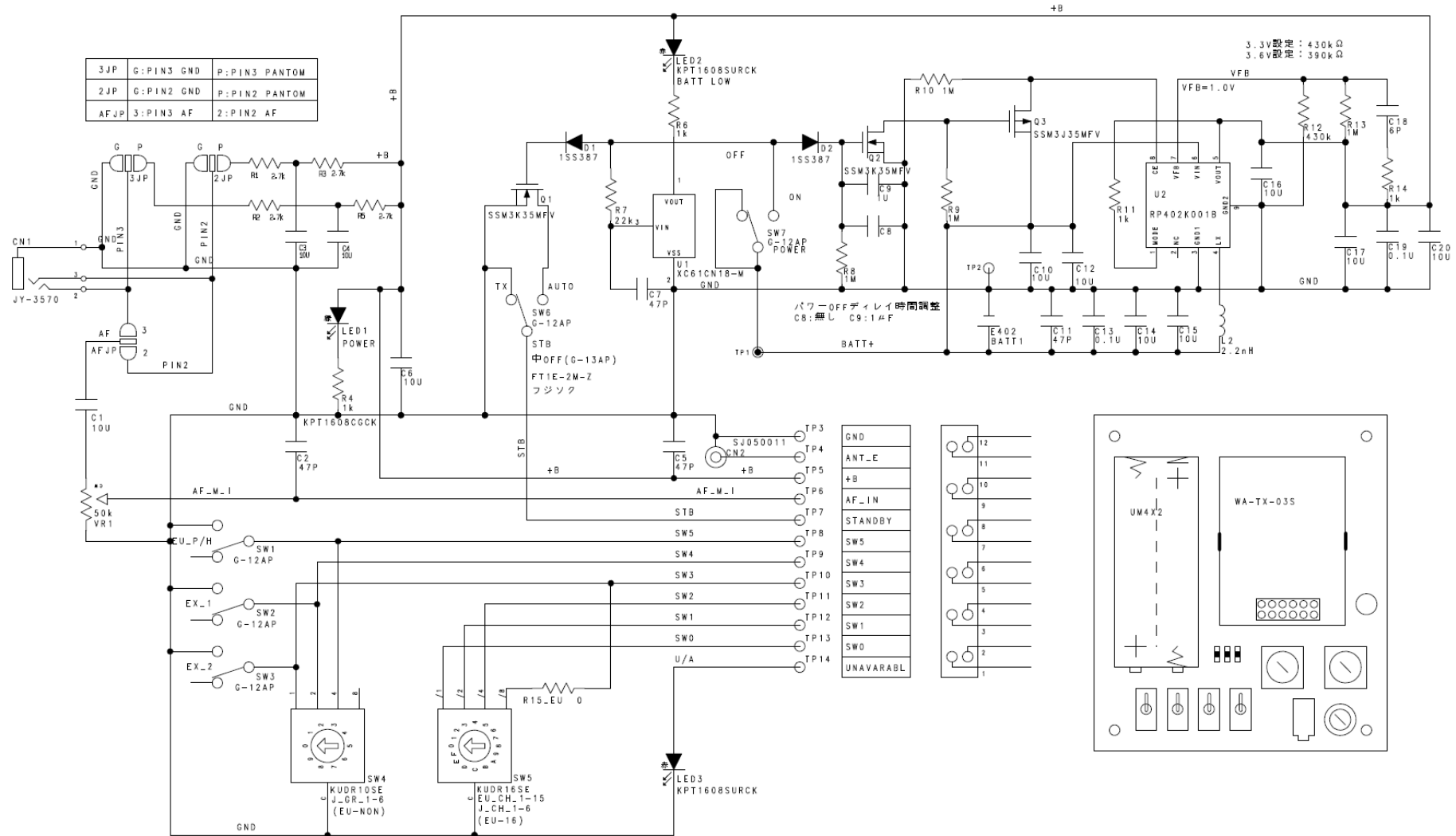


WA-TBR-03S

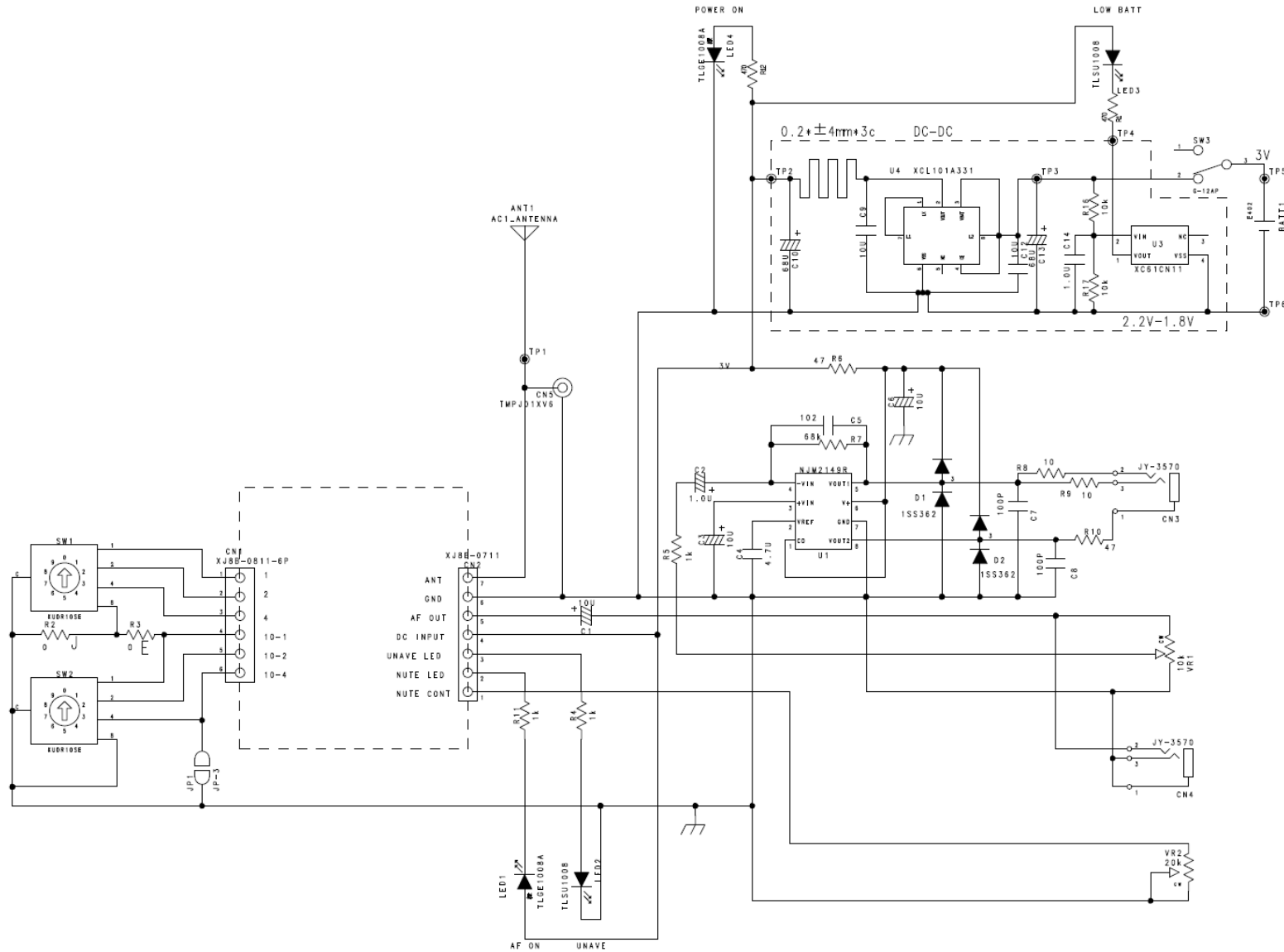


<b>863 MHz</b>	<b>EU</b>	<b>SW1 only</b>
<b>808 MHz</b>	<b>JP</b>	<b>SW1 &amp; SW2</b>

## WA-TBT-03S



## WA-TBR-03S



## Cautions

- As the product communicates using electronic radio waves, there are cases where transmission will be temporarily cut off due to the surrounding environment and method of usage. The manufacturer is exempt from all responsibility relating to resulting harm to personnel or equipment and other secondary damage.
- Do not use the equipment within the vicinity of devices that may malfunction as a result of electronic radio waves from the product.
- The manufacturer is exempt from all responsibility relating to secondary damage resulting from the operation, performance and reliability of equipment connected to the product.
- Communication performance will be affected by the surrounding environment, so communication tests should be carried out before actual use.
- Ensure that the power supply for the product is within the specified rating. Short circuits and reverse connections may result in overheating and damage and must be avoided at all costs.
- Ensure that the power supply has been switched off before attempting any wiring work.
- The case is connected to the GND terminal of the internal circuit, so do not make contact between the '+' side of the power supply terminal and the case.
- When batteries are used as the power source, avoid short circuits, recharging, dismantling, and pressure. Failure to observe this caution may result in the outbreak of fire, overheating and damage to the equipment. Remove the batteries when the equipment is not to be used for a long period of time. Failure to observe this caution may result in battery leaks and damage to the equipment.
- Do not use this product in vehicles with the windows closed, in locations where it is subject to direct sunlight, or in locations with extremely high humidity.
- The product is neither waterproof nor splash proof. Ensure that it is not splashed with soot or water. Do not use the equipment if water or other foreign matter has entered the case.
- Do not drop the product or otherwise subject it to strong shocks.
- Do not subject the equipment to condensation (including moving it from cold locations to locations with a significant increase in temperature.)
- Do not use the equipment in locations where it is likely to be affected by acid, alkalis, organic agents or corrosive gas.
- The GND for the product will also affect communication performance. If possible, ensure that the case GND and the circuit GND are connected to a large GND pattern.

## Warnings

- Do not take apart or modify the equipment.
- Do not remove the product label (the label attached to the upper surface of the product.) Using a product from which the label has been removed is prohibited.

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**Customers are advised to consult with Circuit Design sales representatives before ordering.**

**Circuit Design, Inc. believes the furnished information is accurate and reliable. However, Circuit Design, Inc. reserves the right to make changes to this product without notice.**

**REVISION HISTORY**

<b>Version</b>	<b>Date</b>	<b>Description</b>	<b>Remark</b>
1.0	May 2017	The first issue	