

# Adjusting USB Radio Audio Levels

From "AllStarLink Wiki"

This how-to describes how to properly set audio levels with a URI interfaced to a radio when using `chan_usbradio`.

## Required Equipment

Communications service monitor, or deviation meter and FM signal generator.

## Preliminary Checks

Modify the config files for the type of radios you have (repeater or half-duplex) and the type of carrier detection you want to do.

Make sure your radio is connected to the USB interface and turned on before proceeding.

## Procedure

From the Asterisk CLI, (to get into the Asterisk CLI, type asterisk -r from a root shell) set the receiver noise baseline (with no signal on the receiver frequency) as follows:

```
radio tune rxnoise
```

Set the receive audio input level by supplying an FM signal at 1KHz with 3KHz of deviation (with no CTCSS) on the receiver's frequency. then once the signal is present, type:

```
radio tune rxvoice
```

Set the CTCSS tone level by supplying a CTCSS tone at 600Hz deviation your desired frequency (with no other modulation), and type:

```
radio tune rxtone
```

Save the receiver levels by typing:

```
radio tune save
```

Set the CTCSS tone level to zero by typing:

```
radio tune txtone 0
```

To set the transmit audio level, monitor the transmitter with a deviation meter and start with the setting of 500 (which is the midpoint) by typing:

```
radio tune txvoice 500
```

This will cause the transmitter to be keyed, and a brief tone be sent so that you can measure the transmit audio level with your deviation meter or service monitor. The last parameter is an audio level setting with a range of 000 to 999. Set the number to that which gives you 3KHz of deviation. Repeat the radio tune txvoice command using different numbers (successive approximation) until you get the desired 3 KHz of deviation.

Set the TX CTCSS tone level by typing the following:

```
radio tune txtone 500
```

This will cause the transmitter to be keyed, and a brief CTCSS tone be sent so that you can measure the TX CTCSS level with your deviation meter or service monitor. The last parameter is a TXCTCSS level setting with a range of 000 to 999. Set the number to that which gives you 0.6 KHz of deviation. Repeat the radio tune command using different numbers until you get the desired 0.6 KHz of deviation.

Save the settings by typing:

```
radio tune save
```

You may now test the setup to see if the audio levels are acceptable.

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