

Valor Wildcats TI Report

We deconstructed a Kenwood UBZ-AL14 FM radio transceiver (walkie-talkie).



We believed there were going to be a lot of integrated circuits that would be easy to find and research, and would be fairly simple and not overwhelming.

To give us access to the internal circuitry, we took off the battery case to expose the screws. Then we unscrewed each of the screws and separated the case.



We identified 9 different types of components. This included:

- 5 integrated circuits (ICs)
- 23 small resistors
- 2 switches
- 4 crystals- they help set a precise frequency
- 9 inductors and one variable inductor

- 2 small capacitors and 1 large one
- A transmitter source
- Microphone
- Speaker

We were most interested in the Integrated circuits, since they play an important role in the device. We were able to identify the markings on each IC and find datasheets on the Internet. The integrated circuits we found were:

- KS57P0504 Samsung Arrangeable Microcontroller
- A TB31202FN PLL Frequency synthesizer. It generates the transmit frequency.
- NJM324 single-supply quad operational amplifier. It amplifies the microphone.
- DBL 5018 Low power narrow band FM IF. this probably receives the radio frequencies.
- NJM386 Low voltage audio power amplifier. We believe it drives the audio.

We learned that there are many more components in a simple device than you would expect, especially resistors, inductors, and capacitors. We also learned that there is a much larger variety of components, like resistors, inductors, microchips, capacitors, crystals, et cetera.

What surprised us most was the variety in size, from tiny little resistors to huge microchips and transceivers.