That Stupid Voice Keyer:

The Thing I Just Can't Get Right!

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Agenda

- My struggle
- Why?
- How?
- My idea!

My Relationship With The DVK

The Why: My Inspiration For This Talk

- Every single voice keyer setup I've used has had compromises, some worse than others!
  - Latency
  - Bad UI
  - Expensive
  - RFI Problems
  - Hard to re-record "on the fly"
- Nothing is worse than finding out that you're splattering your F1 message!

The Options

- Each option has tradeoffs.
- Let's take a look at some of the more popular methods.
  - Using computer as DVK - microphone passes through computer
  - Using computer, separate from TX microphone
  - "External" DVK like MFJ-434B
  - "Internal" DVK, Icom
  - "Internal" DVK, Elecraft K3
  - "Internal" or "External" DVK+CWF's new project
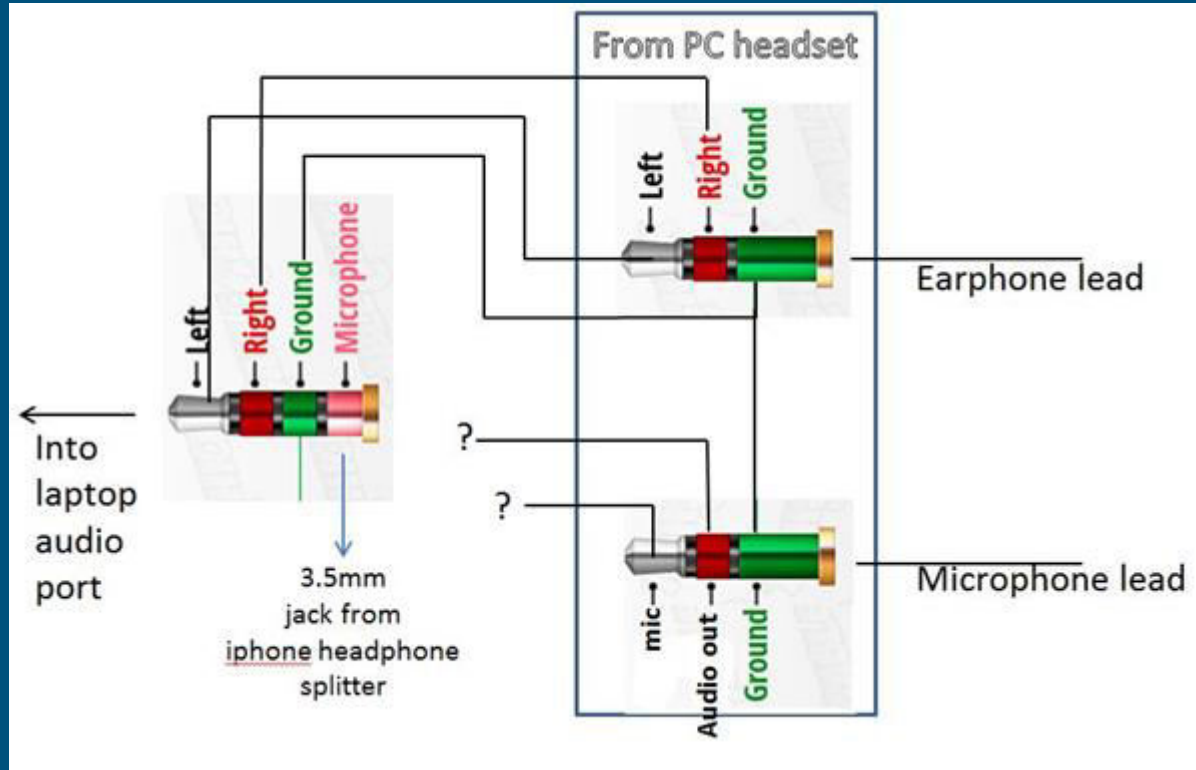
Computer DVK+Mic Pass Through

- Pros:
  - Easy integration with loggers and easy keyboard shortcuts.
  - Easy to record new messages "on the fly" ("7040 7040 K1IR 7040 K1IR")
- Cons:
  - Easy to introduce RFI
  - Sometimes passthrough latency (can't listen to yourself talk)
  - Sometimes need an additional sound card.
  - Hard to have 2 different CQs on F1, one for each radio.

Computer DVK

- Pros:
  - Easy integration with loggers and easy keyboard shortcuts.
  - Somewhat lesser RFI, no echo issue.
- Cons:
  - Easy to introduce RFI
  - Sometimes need an additional sound card.
  - Hard to record new messages "on the fly" without additional mic.

The TRRS Problem

"External" DVK like MFJ-434B

- Pros:
  - Clean audio (no computer to complicate matters)
  - Easy to record new messages "on the fly" ("7040 7040 K1IR 7040 K1IR")
  - Allows for different messages for each radio.
  - Works when computer decides to crash.
- Cons:
  - Hard to connect to computer
  - Unergonomic for serious contesting
  - Requires another "box"
  - Need one for each radio
  - Limited to 5 messages of fixed length.

"Internal" DVK, Icom

(7300, 781, 7610, 7700,7600, 7800, 7851 +)

- Pros:
  - Clean audio - internal to radio.
  - Easy to record new messages "on the fly" ("7040 7040 K1IR 7040 K1IR")
  - Allows for different messages for each radio.
  - Works when computer decides to crash.
  - Auto CQ repeat inside radio if needed (not all that handy for SO2R).
- Cons:
  - Limited to 4 (8) messages.
  - No Icom sanctioned method to connect to computer.

"Internal" DVK, Elecraft K3

- Pros:
  - Clean audio - internal to radio.
  - Easy to record new messages "on the fly" ("7040 7040 K1IR 7040 K1IR")
  - Allows for different messages for each radio.
  - Works when computer decides to crash.
  - Can be connect to computer, albeit a tad funky for SO2R.
- Cons:
  - Need extra K3 module, one for each radio.
  - Limited to 4 messages of fixed length.

I Decided I Wanted A New Option!

"Dang Marty! It works!"

New Option: The idea

- Icom "Internal" DVK and MFJ "External" DVKs work well, but they are cumbersome to operate with a computer.
    - Ooooh! Both offer ways to remotely trigger DVK.
        - 434-Grounds pins
        - Icom - Ground through right resistor
    - I want something that would be easy to interface to a logger
        - DTMF
        - RS232

Omega Keyer Is Born

- First used during CQ WW SSB at K1LZ. Built in my basement at 3am before the contest. Used Arduino, relays, a lot of tape, and some luck.

Take Two: More Flexibility

- Uses Adafruit Trinket Pro - small Arduino clone.
- Now can drive MFJ keyers and Icom radios.
- Solid state, no more relays
- Can be controlled two ways.
  - DTMF
  - RS-232
- Future expansion to allow keyboard emulation supported
- Had a few PCBs made. Have one here in a very beta form. Considering making a run of these and distributing as a kit.

"Internal" or "External" + Omega Keyer

- Pros:
  - Clean audio - internal to radio or external to box.
  - Easy to record new messages "on the fly" ("7040 7040 K1IR 7040 K1IR")
  - Allows for different messages for each radio.
  - Works when computer decides to crash.
  - Cheap
- Cons:
  - Integration with loggers isn't "textbook" yet.

Where We Are Today

- A 79% functioning PCB.
- More testing needed.
- Getting closer.
- I'm not an EE, I don't play one on TV - so not "perfect".

Questions? I'm outta here!

- Kick butt in ARRL!
  - Look for 4X/KC1CWF (or will that get me DQ'ed?)
- Ciao!