Yaesu Fusion / C4FM Update

David Ranch
KI6ZHD
BayCon 2018
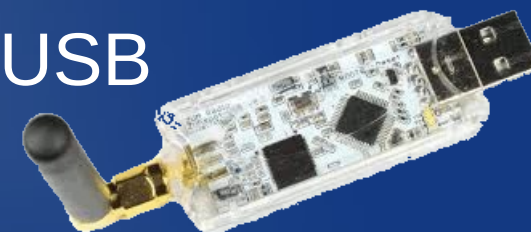2/8/2020 v1

New Hardware since BayCon 2018

- FT3DR – 2m/70cm dual band HT with APRS with color display

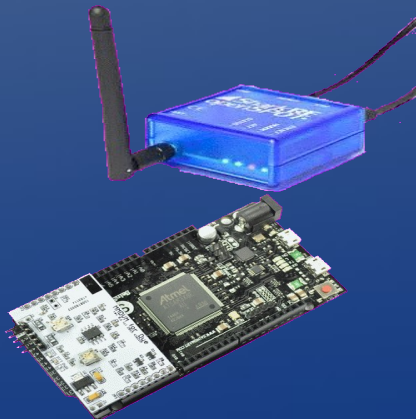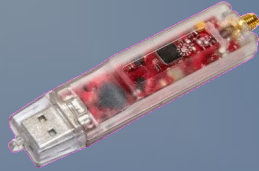- FTM-7250DR – 2m/70cm dual band / single VFO mobile radio (no APRS)

- ZumSpot OLED & ZumSpot USB

- OpenSpot v2 and now v3

Removed Hardware since BayCon 2018

- DV4Mini – RF "soundcard" (didn't all that work well), support removed from Brandmeister network

- Yaesu FT-1 radio (EOLed)

- DR1 repeater (EOLed)

- OpenSpot v1 (EOLed)

- DV-Mega (EOLed)

New YSF News and Features

- PDN
  - Allows some Yaesu radios to act as hotspots for digital ONLY QSOs
  - You either need
    - Another radio for QSOs (like any other hotspot)
    - use the "wired / tethered" radio connected to Windows machine
  - No room support (that requires an HRI200)
  Allows more secure remote ON-AIR management
  - Still requires a Windows computer to run Wires-X

C4FM Hardware Recap

A Quick Refresh:
What is Yaesu System Fusion / C4FM?

System Fusion is Yaesu's answer to the digital radio market vs. Dstar (Icom/Kenwood) and DMR (Motorola, Hytera, Tetra, etc)

C4FM : Continuous Four Level Frequency Modulation – A type of 4FSK / FDMA

- This is the *same* mode used in P25 Phase1 used by emergency responders but the higher layer data framing isn't compatible

- C4FM envelope uses 12.5Khz BW (~narrow FM)
- Uses DVSI AMBE2+ chip also used in DMR & P25 but *newer* codec than D*star – all are patent encumbered

Digital Voice @ BayNet <u>Tomorrow #2</u>

- Baynet is setting up a BrandMeister / XLX gateway for cross-digital-mode bridging using DV-Swtich

  – Lots of innovation is happening here
  – Offering an interoperability bridge on a repeater would be unique to other C4FM systems in the Bay Area making other systems like DMR, Dstar, C4FM, P25, and even IRLP / Echolink / AllStar reachable!
  – We could choose to keep our WiresX controller running to bridge into WiresX rooms like "Americas Link", etc

Thank you!

Any Questions?

Digital Voice @ BayNet <u>Tomorrow</u>?

- Does BayNet have a preference of YSF over Dstar / DMR or even Analog FM?
  – No, this is just what we have today and we don't have enough repeater pairs to do everything

- Are we upgrading any of the hardware on the YSF side?
  – We are sticking with the DR1X for now
  – If we want more power (20w), we'll add an amp
  – IMRS is really for private digital linking
  – DP-ID is for private calling which isn't how BayNet operates.. :-)

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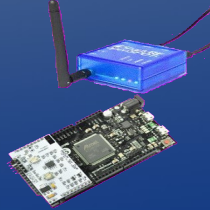- FTM-7250DR – 2m/70cm dual band / single VFO mobile radio (no APRS)

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- MH-85A11U Camera Mic

P25 Phase2 uses CQPSK instead of C4FM

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