

Albuquerque Duke City Hamfest and Convention



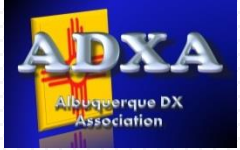
"It's a HamFiesta!"



High Frequency University
the Senior Year 4.0

4-HF Stations

A pdf of this presentation will be posted on www.dukecityhamfest.org
shortly after the Hamfest is over.



W5UR

RADIO COMMUNICATIONS



ARRL The national association for
AMATEUR RADIO®
www.arrl.org

SKILL • SERVICE • DISCOVERY



HF Stations

- Common Problems and Fixes
- Radio Frequency Interference (RFI)
- Troubleshooting
- Automation
- Safety

Common Problems & Fixes

- My Radio No Longer Receives
- Power Into Dummy Load/Antenna?
- Noise Increase with Antenna?
- Bypass T/R Switching
- It's Serious Now

Notice the Process

- First Define/Narrow the Problem
Just RX or Both TX & RX?
- Get Closer to the Cause
- Go As Far as You Are Able
- Test Equipment/Use is Key

No Transmit

- One or Multiple Modes?
- No SSB Audio; RF OK
- Check Mic Gain
- Check Mic Cord
- Substitute Mic/Cord

No Transmit Mic Audio

- Most Failures are Operator Error
- Second Most are Connectors
- Third Are Faulty Accessories
- Fourth Are Radio Components

On-Line Help

- Groups.io Lists by Manufacturer
- Radio Model
- Modulation Method
- Where You Grew Up
- Seek Help but Caveat Emptor!

Asking for Help

- Accurate, Logical Descriptions
- Explain What You Have Done
- Explain Test Equipment Status
- Respond Quickly to Help
- Thank All, Even if not Helpful
- Report Back with Success or Failure

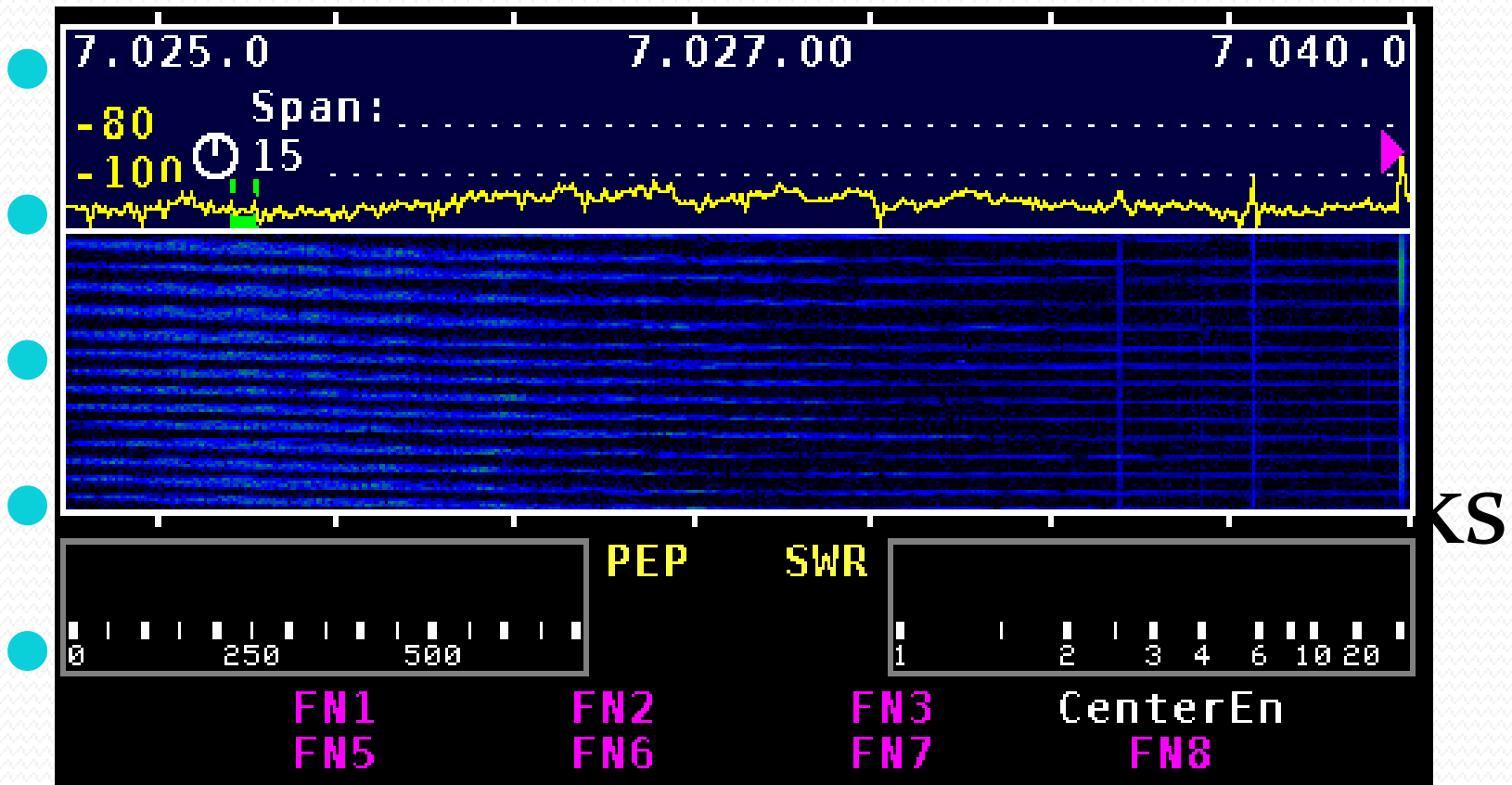
RFI

- Receiver Noise
- Transmitter Distortion
- Strange, Fleeting Failures
- Household Anomalies
- To or From Neighbors

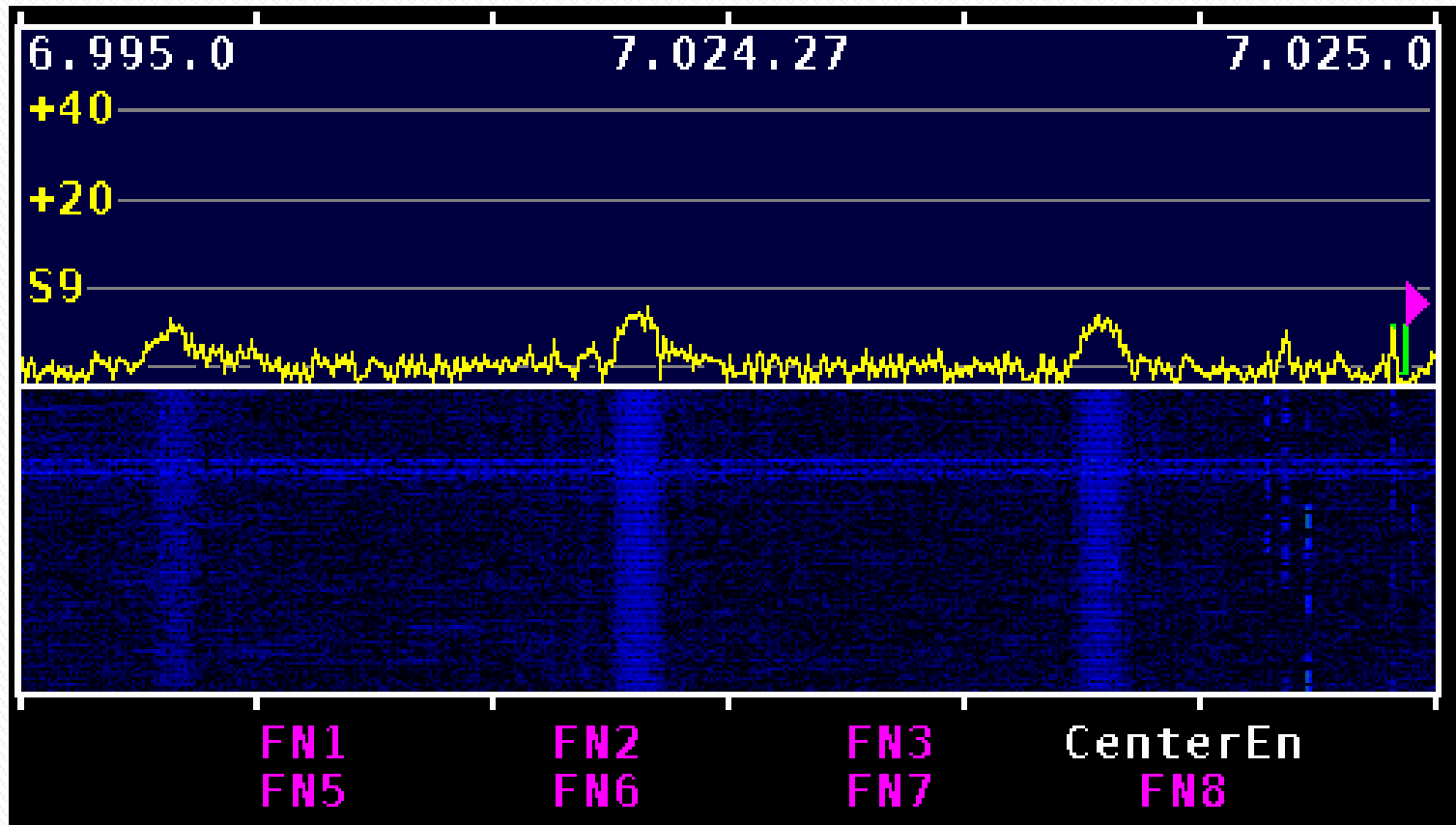
Receiver Noise

- Identify Type and Source
- Begin at Home
- Preferably, Fix the Source
- Occasionally RX Mitigation Works
- Take Up POTA/SOTA

Receiver Noise



Receiver Noise



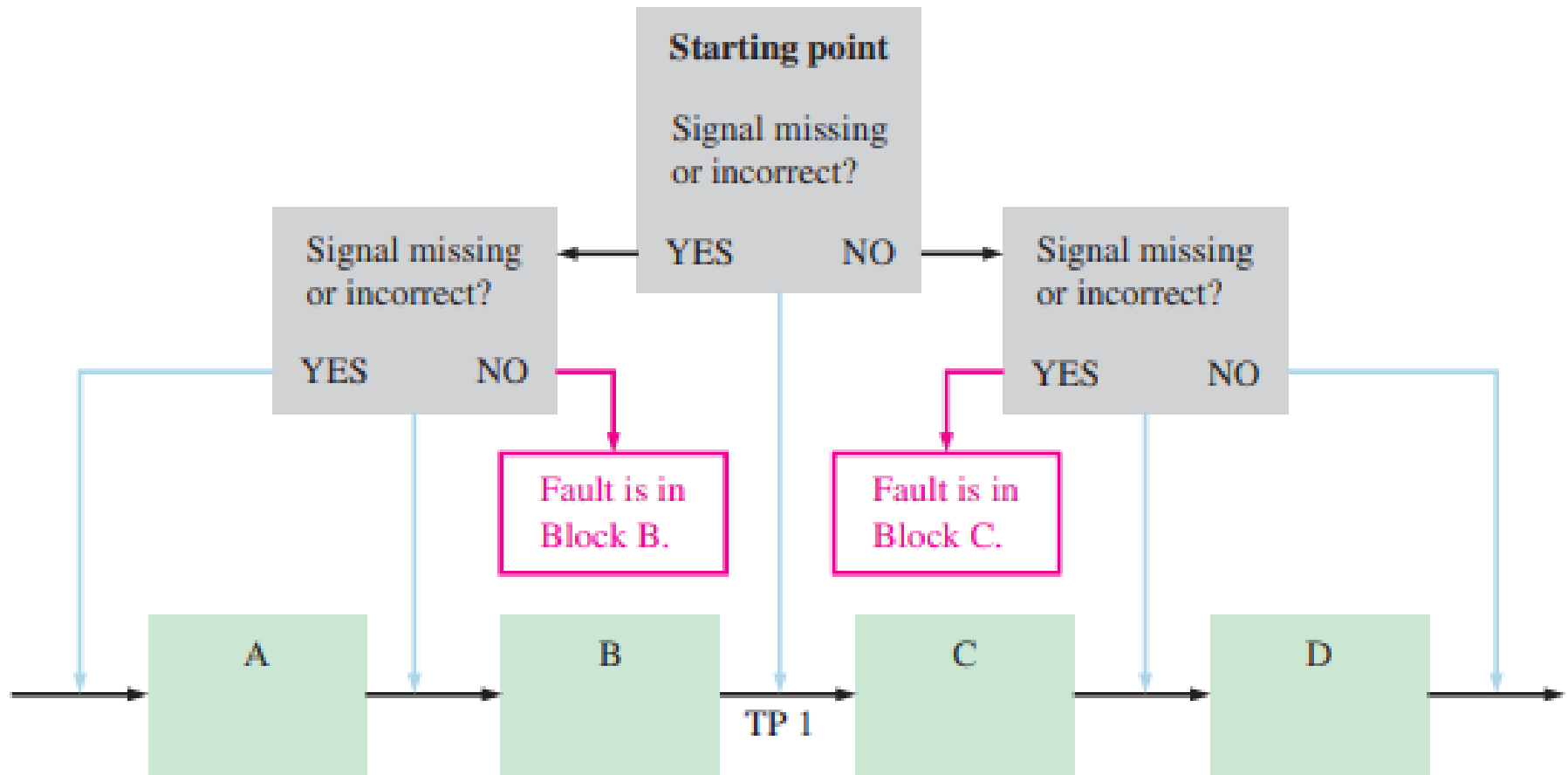
RFI Help

- Contesting.com RFI Reflector
- K9YC.com Lots of Advice
- ARRL Laboratory
- Use Same Troubleshooting Ideas

Troubleshooting

- See Previous Advice
- Maintain a Logical Approach
- Avoid the Shotgun Attitude
You're Wasting Time and Energy
- Use Half-Split Method

Half-Split Method



Think of Data or Spock

Troubleshooting

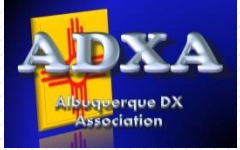
- Experience Helps
- But Not as Much as Logic
- NEVER Make Changes You Don't Document!
- Did You Back-Up Settings First?

Automation

- It's 2024 Gang!
- Eliminate Manual Choices
- Do More with One Click
- Read and Learn
- Often Manuals are Terrible!

Automation

- Find a Great Reflector/List
- Weed Out Crazyies
- Find Your Solutions
- Simplify As Much as Possible
- Explore Node Red



KS5Z Example

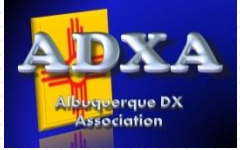
- Moved from ALS-600/LDG-1000 to KPA1500
- One Click on New Band/Enter Frequency
- Changes Amplifier & Rig
- Selects Appropriate Antenna(s)
- Pointed in Desired Direction
- Tuner Already “Trained” No Wait
- Now Work that Multiplier!

Macros

- Combination of Commands
- Into a Single Click or Button Push
- Again, Saves/Time Prevents Errors
- Reduces Wasted Repetition
- Allows for More/Better Operating

Macros

- Many Loggers Have the Capability
- DXLab Suite is a Prime Example
- N1MM+ Contest Logger Another
- Learn a New Macro Weekly
- Write Down Repetitive Tasks



K9CT Example

W5UR

- Green Heron Everywhere, N1MM Logger, and PstRotatorAZ Software Control
- Server Computer for GHE
- StackMatch at Tower Base for Switching Interconnected to GHE Module
- GHE Modules for 160m Array, HiZ 8, 4 Square, StackMatches
- USB Hubs to Integrate Rotators and GH Base
- SteppIR SDA 100's –Server viaUSB-SerialConverters

K9CT Example



K9CT Example



K9CT Example



Safety

- Never View Field Day Pictures!
- Hard Hats?
- Gloves?
- Safety Glasses?
- Safety Officer?



Safety

- Hams Are Cavelier About Safety
- Hams Die Because of Attitudes
- Our Stations Can Be Dangerous
- STOP—Think Through the Task
- Ask: “What Could Go Wrong?”

Safety

- High Voltage (120 VAC)
- High Current 12 VDC 30 A
Remove Rings/Jewelry
- Soldering Fumes/Splatter
- Sharp/Rotating Tools

Safety Outside

- Newton's Law 32 ft/sec^2
- Acceleration Can Kill or Maim
- Wear the Damn Hard Hat!
- Avoid Drop/Fall Zones
- Manage the Risks Carefully

2023 Top OSHA Violations

- 1. Fall Protection – General Requirements (1926.501) 7,721
- 3. Ladders (1926.1053) 2,978
- 6. Lockout/Tagout (1910.147) 2,554
- 7. Respiratory Protection (1910.134) 2,481
- 8. Fall Protection – Training Requirements (1926.503) 2,112
- 9. Personal Protective and Life Saving Equipment – Eye and Face Protection (1926.102) 2,074

References

- <http://lists.contesting.com/mailman/listinfo/rfi>
- <http://audiosystemsgroup.com/Ferrites-Ham.pdf>
- <https://www.arrl.org/arrl-lab>
- <https://www.k9ct.us/contest-antennas/layout>
- Radio Today Guide to the ICOM IC-7610