

# EXPERIENCES BUILDING THE W6PQL 220 AND 1.2GHZ SSPAS

OR: HOW I LEARNED TO STOP WORRYING AND JUST  
BUILT THE DARN THING



# THE JOURNEY

- BAREFOOT IN THE PARK
- ANOTHER BRICK IN THE WALL
- TIME TO GO FOR THE NUCLEAR OPTION



# W6PQL VHF AND UP AMPS & MODULES

- SSPA MODULES

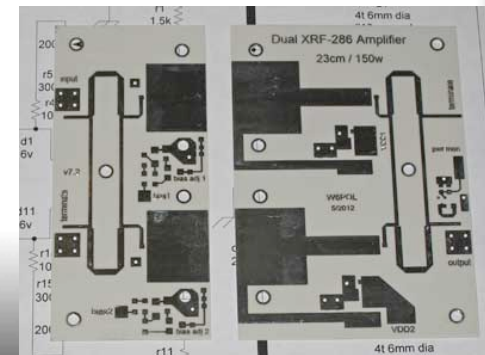
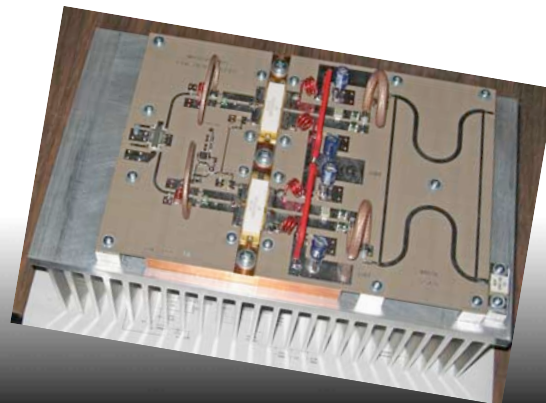
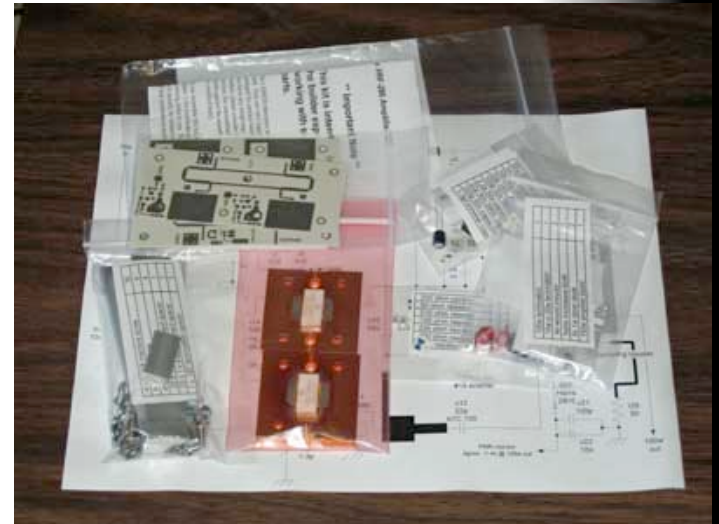
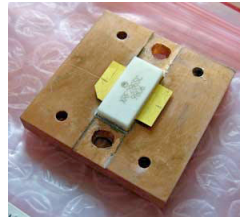
- 1KW TO LEGAL LIMIT

- 6M, 2M, 220, 432

- 903, 1296, 2304

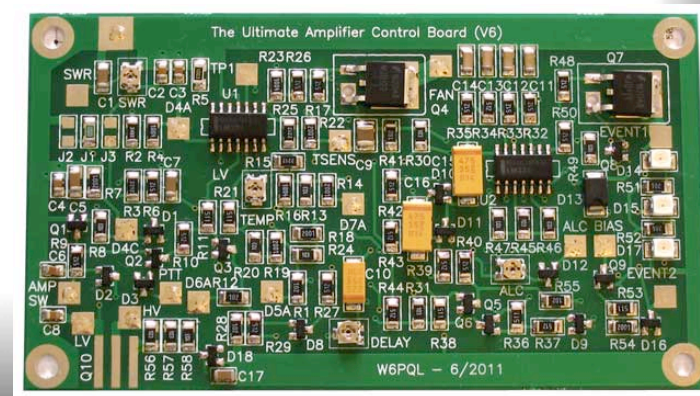
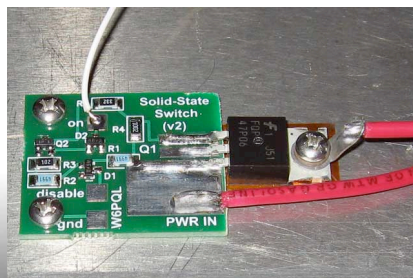
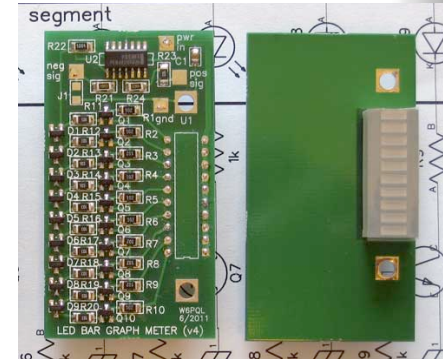
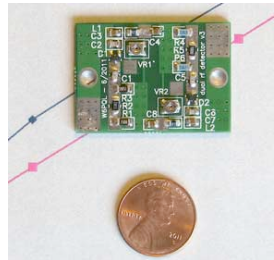
- ASSEMBLED, MODULES, KITS & BOARDS

- DEVICES



# W6PQL VHF AND UP AMPS & MODULES

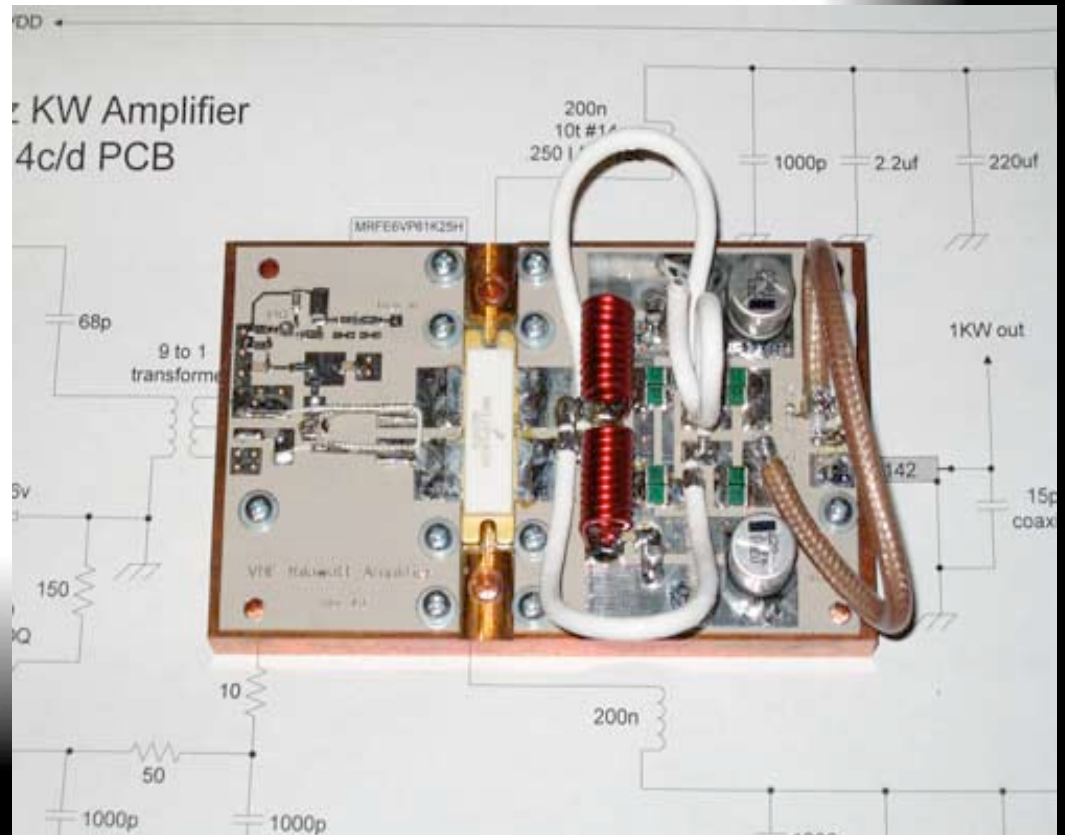
- SUPPORT COMPONENTS
  - CONTROLLER
  - FET SWITCHES
  - COUPLERS, DETECTORS & FILTERS
  - DISPLAYS





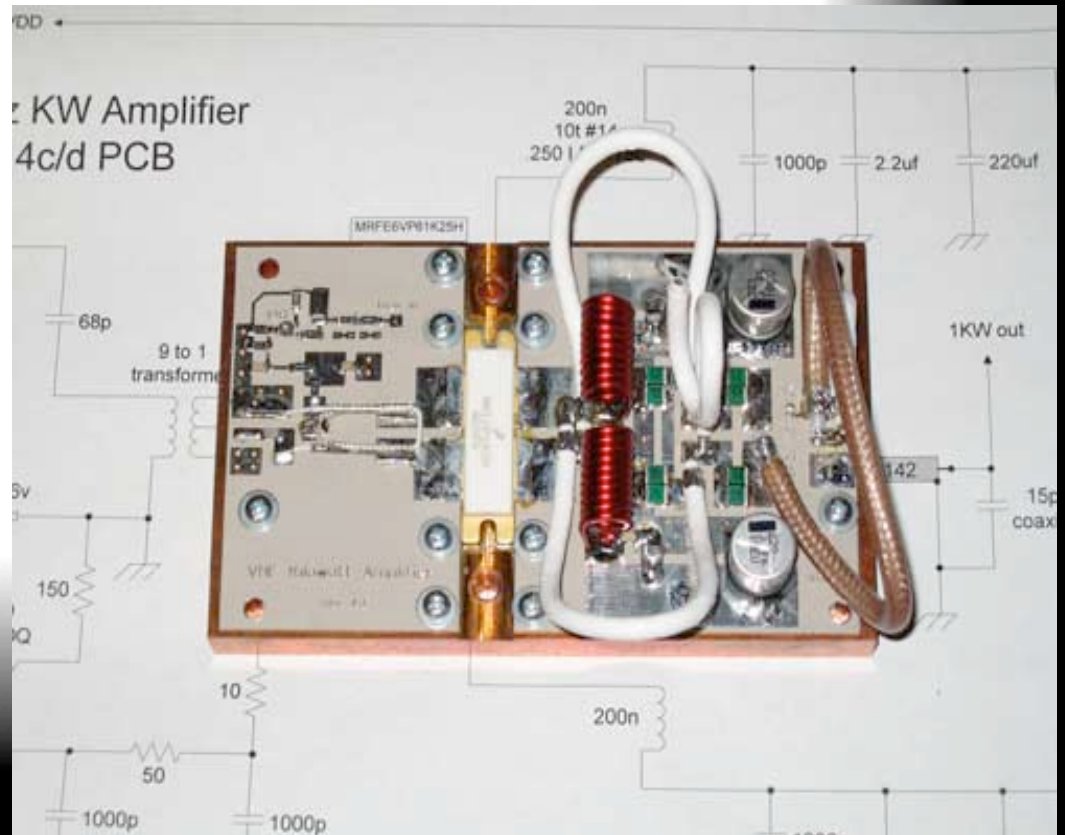
# BUILDING THE SSPA PALLETS

- BUILD INPUT BOARD
  - EXTRA PADS IN BIAS AREA ARE HANDY
  - RESISTOR CHANGES DEPENDING ON DEVICE CHOSEN
- BUILD THE OUTPUT BOARD
  - FOLLOW ORDER!
  - NO TIE FOR VDD
  - TRANSFORMERS & BALUNS ARE EASIER THAN YOU THINK
  - YOU WILL NEED A HEFTY SOLDERING IRON
- TEST FIT TO HEAT SINK
  - SOME ADJUSTMENT MAY BE REQUIRED
- INSTALL DEVICE AND TEST
- TIME TO COMPLETE: 2-3 HOURS



# TESTING THE SSPA PALLETS

- BEFORE YOU POWER UP - INSTALL CURRENT LIMIT AND CLEAN UP THE WORKBENCH!
- INSTRUMENT EVERYTHING
  - VOLTS & AMPS ON VDD AND BIAS
  - FWD/REV POWER ON IN AND OUT
  - USE A SOLID DUMMY LOAD
    - ANTENNA ISN'T AS BAD AS YOU THINK BELOW 432!
    - 100W LOAD IN COLD WATER
  - SET BIAS
  - CHANGE CURRENT LIMIT TO HIGH POWER
  - FINAL TEST
  - SET IT ASIDE



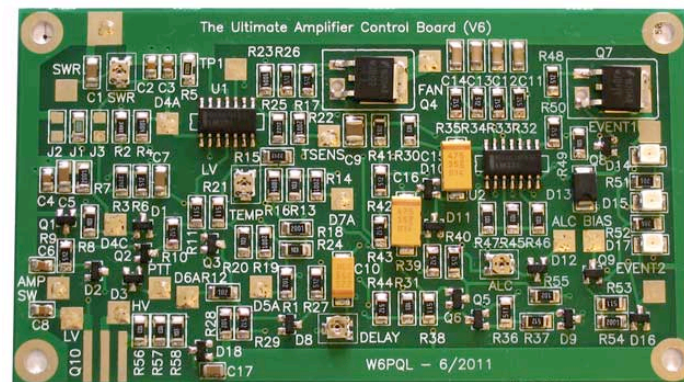
# TIME FOR THE BORING WORK

OR: THE REMAINING 90% OF THE WORK

- ENCLOSURE
  - DESK OR RACK MOUNT?
  - AIR OR LIQUID COOLED?
- SUPPORT CIRCUITRY
  - CONTROLLER, SWITCHES, FILTERS, RELAYS, METERING
- POWER SUPPLIES
  - SELF CONTAINED OR SHARED?
- CABLING

# AMP CONTROLLER

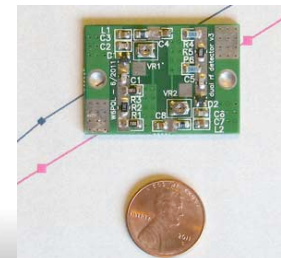
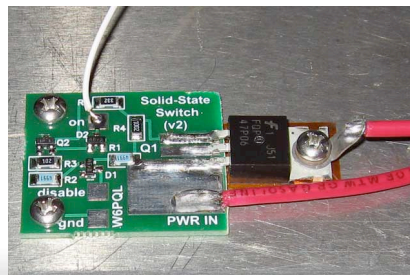
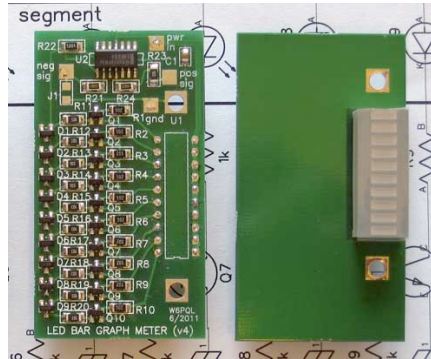
- BUILD OR BUY A CONTROLLER?
- REQUIREMENTS
  - SEQUENCER FOR RELAYS, BIAS, ALC/RF HOLDOFF
  - HIGH SWR LOCKOUT
  - COOLING CONTROL
  - BLINKY LIGHTS (INDICATORS)
- BONUS
  - HIGH TEMP LOCKOUT
  - TEMPERATURE BASED FAN CONTROL
  - 12V POWER OUTPUT (12V-50V IN)
- TIME TO COMPLETE: 2-3 HOURS





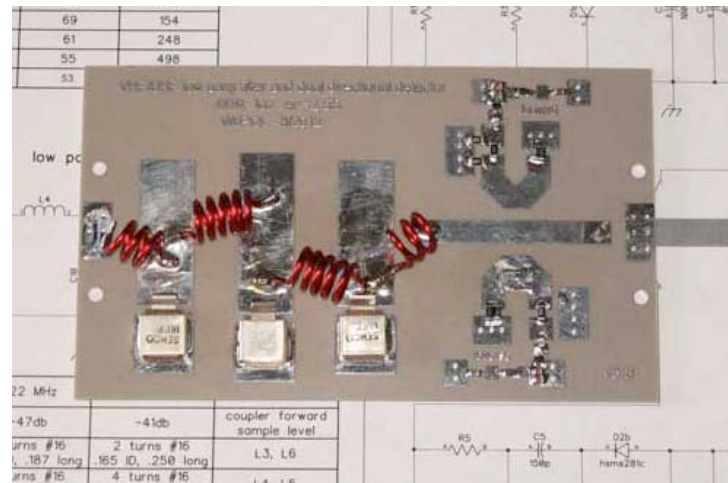
# ADDITIONAL SUPPORT

- RF METERING
- VDD METERING
- INPUT DIRECTIONAL COUPLER (ALC)
- FET SWITCH FOR VDD
- 26VDC POWER REGULATOR
- TIME TO COMPLETE: 1-2HOURS

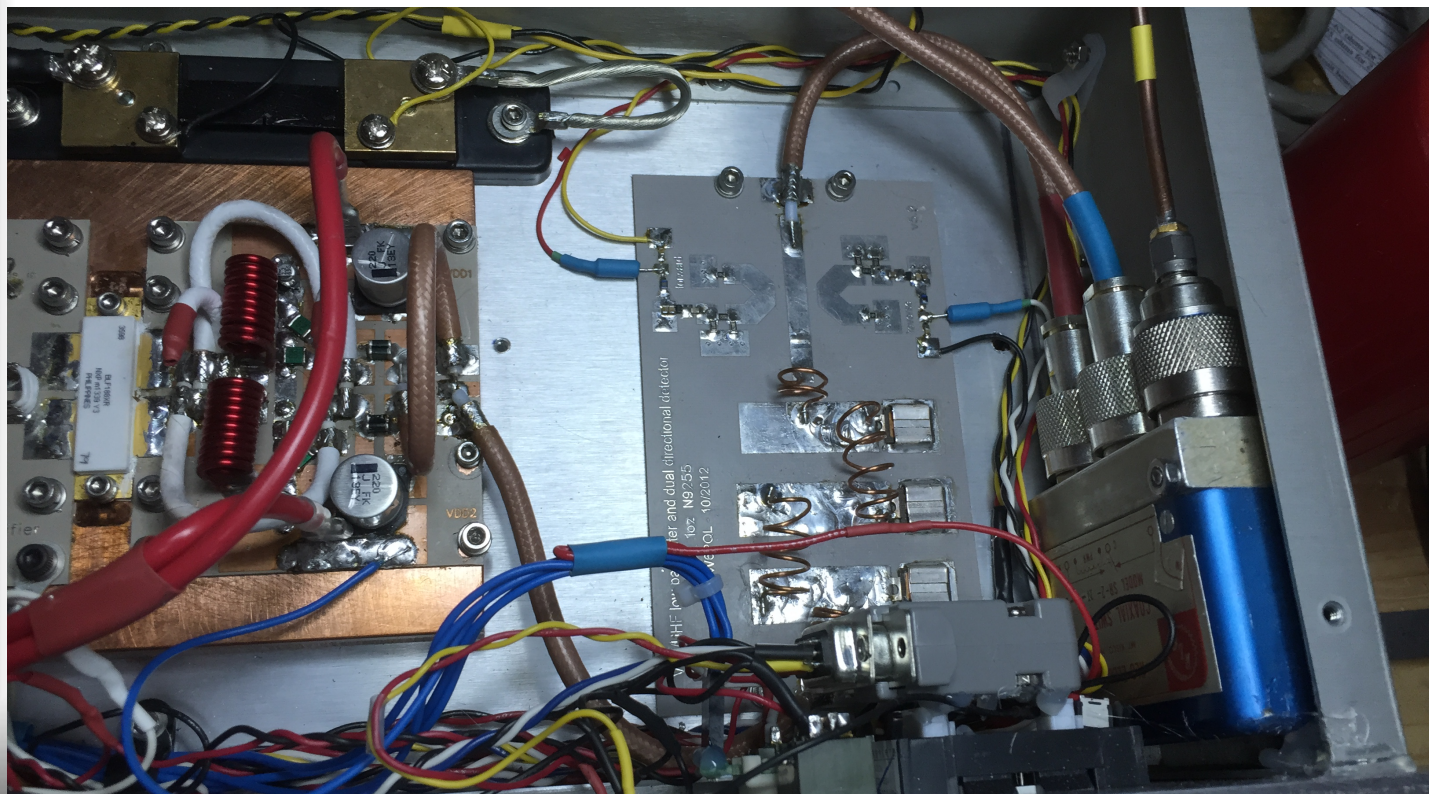


# FILTER / COUPLER

- KIT OR ASSEMBLED?
- TRUST OR TUNE?
- PQL BOARD 6-432
- 1296
  - BUILD THE FILTER
  - USE COMMERCIAL COUPLER AND W6PQL DETECTOR
- TIME TO COMPLETE (INCLUDING TUNING): 2 HOURS



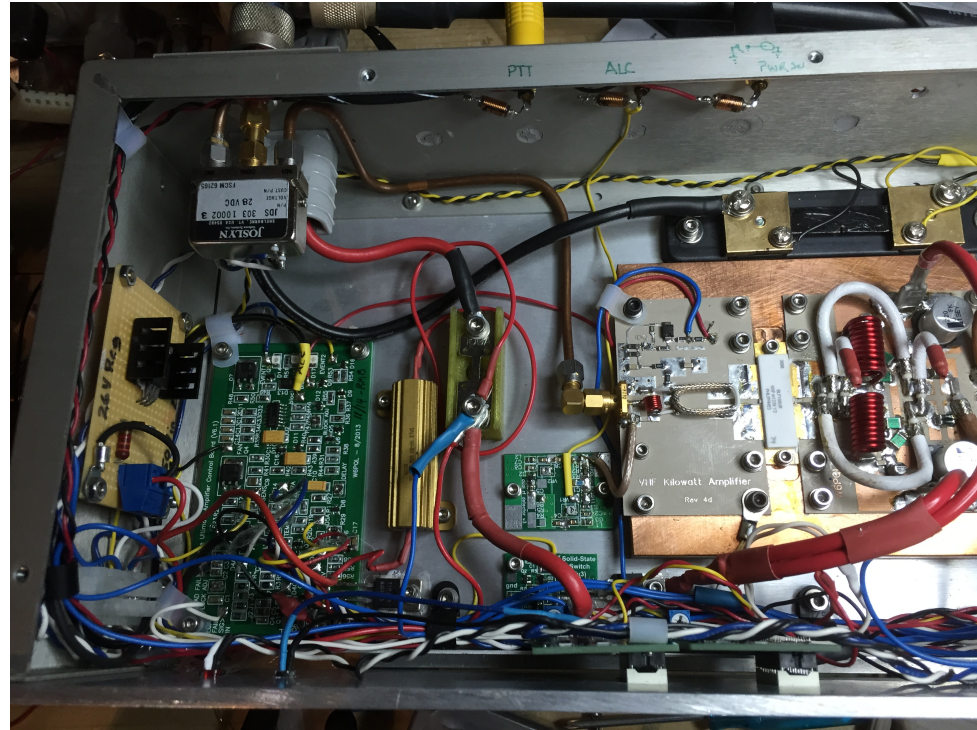
# ENCLOSURE (LAYOUT)





# ENCLOSURE

- BUILD, BUY, RECYCLE?
- RACK OR DESKTOP?
- POWER SUPPLY OR NOT?
- COOLING PLAN
- TIME TO COMPLETE:
  - ASSEMBLY
  - CABLING
  - CUSTOMIZATION
  - ~10 HOURS





ALL THE OTHER THINGS YOU'LL END UP ORDERING...



# ALL THE OTHER THINGS YOU'LL END UP ORDERING...

- SWITCHES
- CONNECTORS
- CABLE
- HARDWARE

