Ham 57 – Budget Radio
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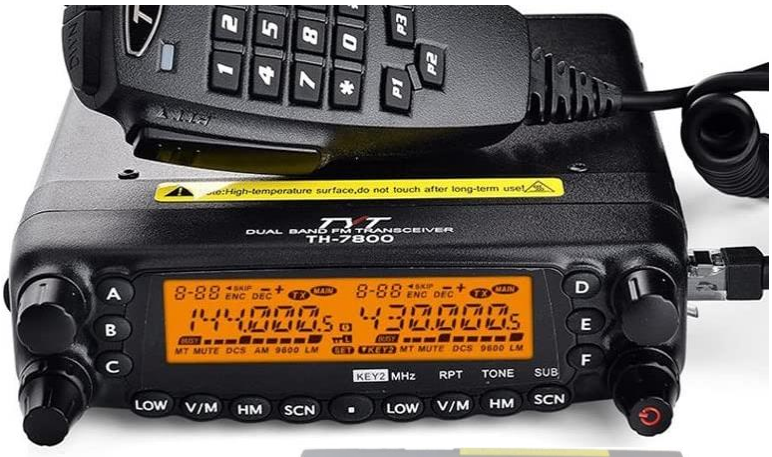
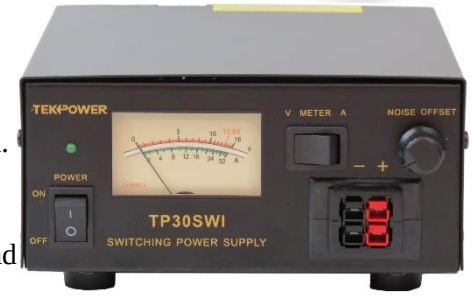


1. We have several articles on radios from first radios comparison, handi-talkie, and high-performance recommended systems. A new radio is available that is sure to appeal to many, a decent budget radio. When talking budget, there are always trade-offs in preferences, operations, cosmetics, and ruggedness. Based on observation so far, there appears little trade-off in on-the-air performance.
2. In true fashion of our Old West heritage, one of the intrepid engineers, Russ, made a stagecoach run south, across the wide, picturesque Lake Eufaula; through the verdant, sparsely-inhabited Kiamichi Mountains; around old Circus Town; across the mighty Red River venturing into the regions beyond at Main Trading Company (mtcradio.com) in Paris, TX. He set-by provisions for himself and the Colonel: new radios and power supplies.



3. Why is this special? They purchased new equipment for testing and evaluation. The verdict: You Win!
4. Before we discuss the equipment, we will cut to the chase. The 50-Watt, dual band, TYT TH-7800 radio is $159 and change. MTC has a special: if you spend $100, they price the TekPower TP30SWI power supply for $77. With coax about $25, you have an excellent performing station. Even not on sale, this is an inexpensive system.
5. Lt. Col Dan (K5CAY) gives his analysis of the radio. “In addition to the TekPower30 I purchased the TYT TH-7800 radio. It is a multi-band, and I plan to use it for VHF/UHF operation. I tested it on the Simplex net last night and effectively received good comments on the transmission. The plus on this unit is that it is capable of cross band repeater operation. Programing through Chirp was Ok once I figured Chirp out. Dr. Marc took care of that. The price was right for the pair at $160 and the amp was $77 (on sale). I like the radio even though the display could be crisper. I looked at the website and it says sale ends soon.”
6. The engineer, Russ (N5IRU), gives his analysis of the power supply. “So far, I am pleased with this little TekPower. I can hear the cooling fan but it isn’t any louder than my Anytone VHF/UHF radio. I have not noticed any RFI but it does have a noise offset for adjusting the switching noise off frequency. It has a volt/amp meter but you can only view volts or amps, not both simultaneously. It has PowerPole connections on the front panel for quick connections.”
7. What about the rest of a budget station? Remember we are trying to get the best signal to and from the air waves.
   a. *Antenna*: You can build the coat-hangar, quarter-wave vertical with 4-radial counterpoise for about $10. This is a decent performer where terrain and noise are co-operative. If you have noise or are talking through dirt, in time, you will want to improve your antenna. Using a single 5/8” nut, remove the solder to SO-239 connector, replace with an NMO to SO-239 and add a not-line-of-sight (NLOS) antenna to the counterpoise. Cost about $120. Always put the antenna as high as possible, within a cone of protection.
   b. *Coax*: Squeeze all the signal you can by reducing loss and dissimilar metal noise. For less than 25 or so feet, RG-8X is acceptable. For longer lengths use RG-213/U.
   c. *Ground:* Bond the coax to a common-point ground connection or bar. Connect all metal surfaces to the bar. Bond the bar to the earth. The cost for grounding connections is relatively low. Although not obvious to RF power, grounding is crucial. It provides personnel safety, equipment protection, and stray noise reduction.
8. The next two items depend on need.
   a. *Lightning protection:* We already noted ground the coax to the single-point ground bar. Period. If inside the attic, a lightning protector is less of an issue. Still when budget allows, install a PolyPhaser IS-50UX-C0 ($75) for diverting transients to ground for protection and signal improvement. Properly protected stations safely operate in inclement weather without unplugging.
   b. *Ferrite beads:* If noise is not an issue, these may be unnecessary. Type-31 beads are your friend. They oppose noise. Put 3-5 on coax near the antenna for atmospheric noise. Put ferrite on every power wire for man-made noise. Reducing noise increases apparent signal on both receive and transmit.
9. Installation is as easy as it gets. Someone will help you, but not do it all for you. Serious. That is ham radio.

10. Life is good. Enjoy!