

WD8IJJ REPEATER ANTENNA INSTALLATION

The 147.66/06 (WD8IJJ) repeater antenna has finally been installed. The new location for the repeater and antenna is the WTOV (Channel 9) broadcast tower which is on the top of Altamont Hill, just south of Steubenville, Ohio, and along the Ohio River (it's actually midway between the south end of Steubenville and the north end of Mingo Junction, Ohio, but it is technically within the Steubenville city limits).

The local Amateur Radio community is extremely grateful and deeply indebted to both John Dunlap, K8RRQ, for his efforts in obtaining the site, and WTOV Channel 9 for permitting us to utilize their 900 foot broadcast tower and graciously providing the labor, free of charge, to install the antenna and hardline on their tower. I would also be remiss if I didn't mention the continual dedication of Monte Pettengill, WD8IJJ, who is the owner and chief technician for the 147.66/06 (and previously the 146.34/94) repeater(s). Both John, K8RRQ, and Monte, WD8IJJ, have been the driving force behind keeping both repeaters on the air in our local area for many years. Having maintained the .94 machine myself for many years from 1978 until the mid-nineties, I know the amount of work and frustration that maintaining a repeater can entail. I should also mention that John and Monte maintain a UHF machine on 443.775 MHz.

Likewise, a note of thanks goes out to all of the local amateurs and the Steubenville-Weirton Amateur Radio Club (SWARC) who contributed the nearly \$4,000.00 needed to purchase the new antenna and hardline feeder. The generosity of the local Amateur Radio community has resulted in a first class repeater installation with coverage that is second to none. Such coverage is extremely difficult to obtain with the hilly terrain of our local area. We are also all grateful for everyone's patience in waiting for this project to be completed. We began collecting funds for this project in late fall of 2010, with original completion slated for May of 2011. Unfortunately, technical delays with WTOV's primary project of replacing their current transmitting antenna (to improve coverage) caused our antenna/feedline installation (which was piggybacked on that project) to be delayed as well. Approximately one year after we initially announced this project, it is finally complete.

The local Amateur Radio community can also look forward to the return of the 146.34/94 repeater in the near future. Les Shields, K8LES, the Hancock County, WV, EC, is currently working on securing a new site for that repeater. Stay "tuned" for further information regarding that machine.

The technical information that follows is for those who like to know such details. The bottom line that most folks would be interested to know is that the 147.66/06 repeater antenna is now located very close to 1600 feet above sea level, an increase of about 300 feet over its former Toronto tower location and at least the same height over the temporary location we most recently utilized on Sunset Boulevard in Steubenville. Plus, the location along the Ohio River provides great coverage for Most Hams in all locations within an approximate 40-50 mile radius of the repeater.

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The following is a detailed technical description of the antenna and site:

Antenna: Comm-Spec (Decibel Products) DB-224E 4 bay folded dipole omni-directional commercial unit

Feed line: 600' of 7/8" Andrews Heliac hard line, 480' vertical run up tower to antenna,
and 120' horizontal run from tower to far end of equipment building where repeater and
duplexer are located

Site location: WTOV-DT Channels 9.1/9.2 broadcast tower, south end of Steubenville, Ohio,
on Altamont Hill

Site coordinates: 40° 20' 33" North Latitude, 80° 37' 14" West Longitude

Site elevation (at base of tower): 1096 feet (334 meters) above mean sea level (AMSL)

Elevation of repeater antenna: 501' above ground, or **1597' AMSL** (to center of antenna array)

Antenna height above average terrain (HAAT): 557' AMSL

Current repeater power output: 25 watts NBFM

Antenna gain: 8.1 db

Feedline loss: 0.417 db/100 ft. X 6 (600 ft.) = 2.5 db loss

Antenna ERP: 8.1 db (antenna gain) - 2.5 db (feedline loss) = 5.6 db gain for 25 watts feed = 91 watts ERP

Antenna cost for DB-224E: Approximately \$450.00

Hardline cost for 7/8" Heliac: Approximately \$3300.00

Total project cost: \$3,766.29, of which local Hams donated \$3,072.00 and SWARC provided \$694.29
from its treasury

Compiled by G. M. Day, N8GD, 11/29/2011