

N1BUG Repeaters

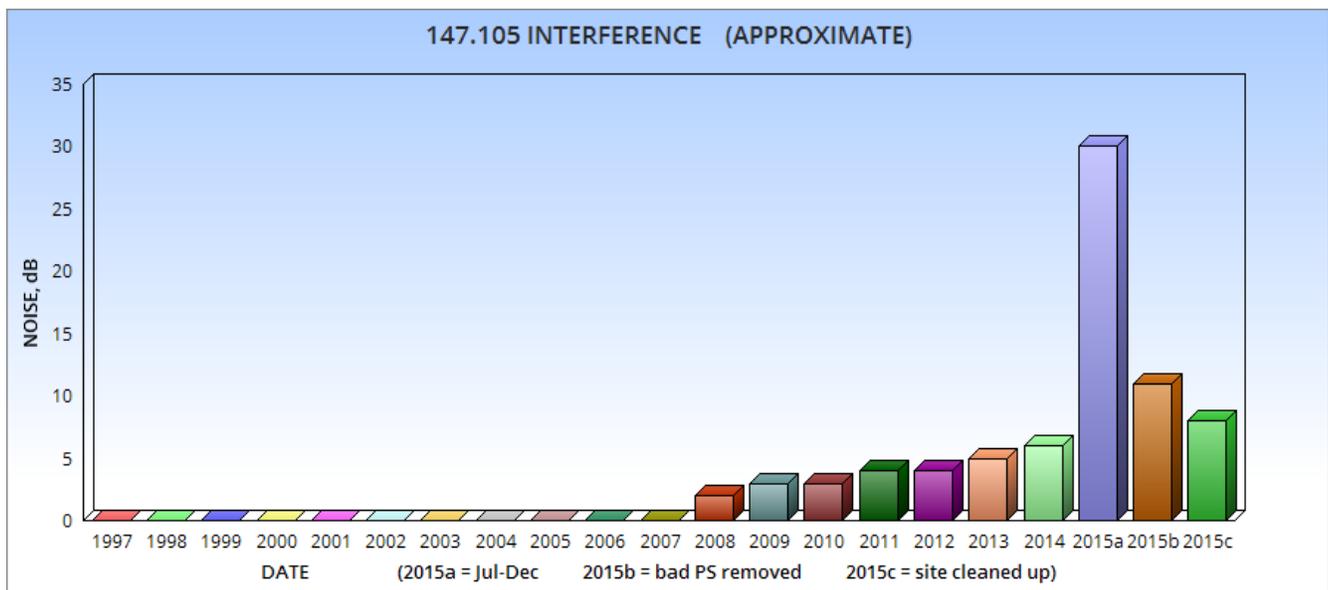
2015 Annual Review

147.105

The 147.105 repeater was completely overhauled and serviced in August. This was the first significant service since the frequency change many years ago. Everything was found to be within specifications except the receiver intermediate frequency stages. That section had never been serviced or adjusted for lack of proper test equipment. During the overhaul a complete receiver alignment was performed. Audio quality improved noticeably. The duplexer was re-tuned, taking advantage of the new service monitor. This resulted in a better impedance match for the transmitter, allowing for removal of an outboard matching unit and several associated coax cables. Voice ID capability was added.

In July the 147.105 repeater began to intermittently experience a new interference problem. The interference became constant in September. After several unsuccessful attempts to identify the problem, it was finally traced to a power supply for one of the security cameras on December 23rd. The camera was removed from service, resulting in a large (20 dB) interference reduction. Subsequently, site cleanup and removal of metal wastes left behind during the 2012 tower project reduced overall VHF interference by another two to three dB.

At the end of 2015, after the above measures were completed, 147.105 receive performance is about two to three dB worse than one year ago, and eight to ten dB worse than the 2007 reference level. There had been no noise or interference from 1997 until 2007 when expansion of other communications systems on the hill began.



The chart does **not** include the crackling noise we sometimes get on windy days in winter. That is a separate and far more enigmatic issue. The large interference spike in September-December 2015 notwithstanding, the chart shows slowly rising site noise floor with the proliferation of other equipment and services nearby. Little can be done to combat this other than relocating the repeater or adding a receiver at a remote, quiet location.

444.950

This new repeater had been experiencing intermodulation interference from a commercial system since its installation in late 2014. This problem took a turn for the worse in September, finally forcing shutdown of the UHF repeater in October when it started getting severe interference from the co-located 147.105 repeater. The problem was traced to a coaxial connector on December 23rd. The 444.950 repeater was placed back in service on December 25th, following relocation of its antenna in an effort to minimize future problems. Previously the VHF and UHF antennas were too close, resulting in unacceptably high coupling from one to the other. On that date Echolink commenced full time, open operation on the UHF repeater.

SUMMARY

This was a most unfortunate year. Problems arose at a time when health concerns made work at the site all but impossible for nearly three months. While the rising site noise floor is disappointing, the repeaters are in a stable condition and otherwise working well entering calendar year 2016.

N1BUG Repeater Resources:

Web site: <http://repeater.n1bug.com>

Facebook Group: N1BUG Repeaters