

## THOUGHTS AND EXPLANATION OF QUIRKS ON THE N8GD ECHOPRODUCER SYSTEM

The EchoLink/EchoProducer system, that I (N8GD) operate, transmits as a repeater/link through the 147.06+ WD8IJ repeater. Since the beginning of 2013, features have been added to that system and expanded and even reduced, at times, during a period of experimentation and testing. The time has come that I need to explain various features and quirks about the system since I have heard comments about it on the air, although I have not received any direct communications, other than casual comments at meetings or in person, regarding repeater users' likes or dislikes about the system.

First of all, I want to remind everyone that, technically, Monte Pettengill, WD8IJ, is the 147.06+ repeater's owner, not SWARC. SWARC and some of its members, as well as non-members, have provided financial support for the repeater in the past (and will continue to do so in the future), and that support is always remembered in Monte's (and my) operation of the repeater and any changes made to it. Since I have committed to help Monte with maintaining that repeater, I am heavily involved in its operation, including the operation of the EchoLink node that transmits through it, with Monte's full permission and blessing to do so.

With all of the above out of the way, let me explain some of the quirks of the N8GD EchoLink system, and specifically the EchoProducer program that runs on top of it.

In implementing the EchoProducer system, I had two primary services that I wanted to make available. First of all, I wanted to provide weather information and weather alerts to the local Amateur Radio community, knowing that many of you are involved in emergency communications (as I am), or travel to and from work (or elsewhere) and have a need to know about weather and severe weather in particular. Second, I wanted to utilize the repeater to disseminate information about SWARC, its meetings, various nets, repeater activity, training and testing, social functions, or other items of interest to the local Amateur Radio community. EchoProducer allows me to accomplish all of this, and more. While much of this same information is available on the "swarc\_members" and "ovhams" Yahoo Groups, many repeater users and club members are not big Internet or E-Mail users, and providing information via an RF path assures a wider distribution of that information. We are, after all, radio operators!

I have heard several people make comments about the system, either on the air, or at club meetings. Those comments have come from only a handful of people, so they are not numerous by any means. I have NOT received any FORMAL complaints about the system from anyone, either via E-Mail, telephone, or in person. The only feedback I have ever heard was casual in nature, or "off the cuff" comments.

The comment I hear most is that the system is "too chatty." I have made every effort to minimize the length of the voice announcements transmitted by the system while still providing information that is useful to listeners (I reduced the weather conditions and forecasts transmission intervals considerably from my original implementation). Not everyone likes all of the information that is transmitted, or even the intervals at which it is done. Beacon announcements are made every 30 minutes whenever the repeater is not in use (or during "dead air" time), and I have tried to keep each announcement's length

less than 15 seconds or so (excluding weather related items, which occur much less frequently). The 30 minute interval was chosen to make sure that mobile users, who may only be on the road for short periods of time, would most likely hear an announcement and receive at least one snippet of information during their drive, but still not interfere with any conversations they may engage in during that time. Increasing that interval would make it likely that users would not hear ANY announcements. I find it interesting that people complain about announcements being made at 15 to 30 minute intervals, when the 147.06+ repeater controller itself has been making meeting, net, and bulletin announcements every 20 minutes since the beginning of the last quarter of 2012, and I never heard any comments about those announcements or their interval being intrusive. My belief is that if the repeater is not in use for active QSOs, we should utilize it for other, non-interfering uses to get important information out. I know some folks want their radios to be silent except whenever QSOs are ongoing, but since I have 3 VHF/UHF radios and a scanner running in my shack all day long, I hear all kinds of activity going on other repeaters, and a lot of it is not necessarily live QSOs. I don't consider a 10-15 second announcement every 30 minutes whenever there is NO ongoing QSO to be intrusive, but that's just MY opinion.

The other comment I hear is that the EchoLink/EchoProducer system talks over (or doubles with) users' transmissions. It is true that it did at first, especially the beacon announcements and weather transmissions. I have resolved that problem by making various audio input adjustments to the system and increasing the amount of dead air time necessary on the repeater before any EchoLink/EchoProducer voice transmissions occur. The CW IDs (N8GD) are another issue, and are set to transmit every ten minutes only during breaks between users' transmissions, but if a break does not occur after approximately 11 minutes, the CW ID will occur over top of any current user's transmission regardless. It is an FCC requirement for all stations to ID every ten minutes. The EchoLink/EchoProducer system does this as well. It seems like it IDs every ten minutes no matter what, and it pretty much does, due to a quirk in the software that only looks at received signals for counting down the ID interval timer and NOT the transmit activity of the system. You must also remember that the system transmits announcements every 30 minutes, though, sometimes less when weather alerts occur or if users bring up DTMF activated transmissions, so it will ID pretty much every ten minutes anyway because of its transmitter operating quite often as well as hearing the 147.06+ repeater's ID, too (again, counting as activity for the ID interval timer). I am going to try to minimize the CW ID and other interference (or doubling) in the near future with a newer radio running at a much lower power output than the present 5 watts. Only the weakest or most distant stations will encounter CW ID interference then.

Most of the problems with "talk over" are a result of the way the system is implemented. The entire EchoLink/EchoProducer system is physically located at my QTH in Wintersville, Ohio, and its only connection the 147.06+ repeater is via a 2 meter FM transceiver acting as a repeater/link. This makes maintaining the system easier than going to the WTOV-9 station when something goes wrong. Because the system does not have a direct connection to the repeater's tone operated squelch circuit, the only means it has of detecting signals is via a VOX system built into the software, which does a pretty good job. CW ID talkovers would still occur even if the system could detect the signal physically, since it has to enforce the ten minute ID requirement, within reason. The biggest reason that such "doubling"

occurs is because the system, just like human operators, manages to key up at the same time as a user does, with neither realizing that they are transmitting simultaneously. This happens quite often with live users engaged in QSOs, especially when a roundtable of more than 2 operators is present, but the EchoLink/EchoProducer system probably intrudes less so than those live operators.

I personally know about all of the issues mentioned above because I typically listen to the repeater (and other repeaters) around 14 hours each and every day. If I notice or hear about a problem, I usually jump in and resolve it almost instantly.

There are some other issues with the system, mostly revolving around weather alerts, but I am confident I can resolve them or at least make them less intrusive or annoying in the future.

Because I did not write the EchoLink/EchoProducer software, I have to work within the confines of what I can do with making tweaks and configuration changes to it. All of the 147.06+ repeater users need to accept the fact that the system is not perfect, but that it does provide valuable information, which some of you will appreciate, and others will find a nuisance. Since I cannot please everyone, and since the system utilizes "dead air" time when the repeater is not being actively used, I sincerely believe that the benefits outweigh the inconveniences of its implementation. If any of you disagree with my thinking, I'd love to hear from you personally. I would also like to hear from those of you who feel that what I am trying to accomplish is worthwhile. And I would especially like to hear reasoned, constructive comments regarding how I could make things better or even implement other features.

As always, I actively seek information to place in the beacon announcement system that would be of interest to the local Amateur Radio community, considering that over-the-air information is another means of keeping everyone informed. New information will keep the existing announcements from getting old, stale, and repetitious.

Finally, I would like to personally thank everyone who uses the 147.06+ repeater for putting up with my experimentation. I don't think I have driven anyone away from the repeater because of the EchoLink/EchoProducer implementation, and I know have heard some operators say that they like some of the features. My enjoyment of Amateur Radio comes from dealing with the technical side of things, so even though you may not hear me on the air often, I always listen and am heavily involved in the "nuts and bolts" of the repeater and the hobby in general. I personally believe we have one of the best groups of active Hams in our local area, who have varied interests in the hobby and discuss those interests, sometimes at length, on the air. The existing younger Hams as well as the new Hams coming on line are also to be commended for their interest in learning from everyone else and often bringing new ideas and energy into our hobby. I look forward to the enjoyment of interacting with each and every one of you as long as I am able to continue to be an active participant in this great hobby.

73,  
Greg - N8GD

### UPDATE:

As I mentioned in my previous post, I wanted to reduce the power output of the EchoLink/EchoProducer to minimize the chances for interference to other stations, especially during sending of the CW ID, which is problematic with the current software.

Today (Saturday) I installed a "newer" radio (actually its older but it's in better condition), an Azden PCS-4000 vs. the beat up old Azden PCS-5000. I got the 4000 at the Mansfield Hamfest for a good price, but unfortunately it didn't have a tone encoder in it, like the 5000 has built-in. Believing that the 4000 was PL capable, but unfortunately not, I had to procure and install a tone encoder board (so much for the "good deal" on the radio!).

After getting everything setup and making some other mods to the radio to ensure that it would stay in low power mode, I set the low power output to around 300 milliwatts. After putting it on the air, I heard noticeable hiss on the signal, an indication that the power was too low. I boosted the power up to around 1.5 watts, listening for the loss of hiss by ear. I drove away from my QTH to listen to the signal through the repeater without having the transmitted interfere with my reception. I still heard hiss, so I finally set the output to 3 watts, slightly less than the 5 watts I was running on the previous radio.

I doubt that this 40% power reduction will make a difference, but I did my best to try putting a low level signal into the repeater in hopes that most users could override it. I feed that 3 watt output into a 5 element 2M beam at 25 feet pointed directly at the WTOV-9 tower. It appears that those who hear the short CW ID over top of other signals during QSOs will have to continue to deal with it. My apologies that this trick didn't work, but I did try!

## UPDATE #2:

As of the end of April, 2013, I have reduced the announcements' interval from 15 minutes to 30 minutes. This was done to further placate those repeater users who felt that the repeater was "too chatty" and due to feedback (in the form of my listening to the repeater and its users) realizing that many folks don't listen to the announcements or don't care what is said in them or don't comprehend them. I have therefore set the system to make announcements on the hour and half intervals. I have also attempted to reduce the length of each announcement to be as short as possible, with little additional or unnecessary verbiage.

In addition, I have discontinued the "Repeaterisms" that were being broadcast at the 30 minute mark of each even hour. I felt they had run their course and that the novelty had worn off.

So, for those of you who wanted less from the system, you will now have 30 minutes of silence unless the system is kerchunked or the repeater itself IDs or plays a daily announcement regarding nets or QSTs.

The weather alert/warning function has been revamped to be more accurate, less intrusive, and produce fewer or no false alerts. Weather alerts/warnings, when active, will occur at approximately 30 minute intervals and stop once the alert is cancelled by the NWS.

Hopefully, the above changes will be appreciated by all users.

73,

Greg Day - N8GD