PRELIMINARY MAIN.NET BPL TESTING AT THE CHELAN PUD'S PESHASTIN, WA TEST SITE ON OCT.1. 2004

Introduction: **The purpose of the subject test was to get a preliminary measure of potential BPL interference to the HF Ham Bands. The Chelan County PUD had invited "Main.Net" to demonstrate its BPL System as a solution for providing wideband digital service in the more remote areas of the County. The PUD and Main.Net had installed the system with 13 repeaters along portions of School, River View and Lynn Streets in Peshastin, WA. At the time of the tests no users were connected to the system; the system was up and idling sending handshaking messages only. The PUD plans to have the Service Providers sign up several users in the test area at a later date and continue the tests.**

Test Procedure: **Rich Cole (K7PZT), Al Hagen (W7HDD), Jim Shultz (W7JBP), and Gary Nelson (WA2BRB) conducted the on-site tests while the PUD and Main. Net controlled the System from the PUD's Operations Office in Wenatchee, WA. The tests were conducted using a mobile Ham radio system consisting of an ALINCO DX 70 Transceiver fed by a tunable ScrewDriver antenna. Noise measurements were made with the BPL System "on" and then with the system "off". Afterwards it was turned back on to make additional tests in and around the area. For the stationary tests, the mobile system was situated 10 Meters away from the power line as viewed in "plan view". After these stationary tests the vehicle was driven around the area where the BPL system had been installed to provide service to potential customers.**

Results: **The attached matrix depicts the results of the stationary measurements. Strong impulse noise was measured on the 80, 40, and 20 Meter Ham Bands. Moderate impulse noise was measured on the 30 Meter Ham Band; the ScrewDriver antenna could not be tuned properly on this Band so the noise level was lower. Weaker impulse noise was measured on 17 and 15 Meters; it was about at the same level as the atmospheric/cosmic noise level. There was no evidence of the impulsive noise on the 12, 10, or 6 Meter Bands. The impulse noise was not found on the 160 Meter Band either, but here again the ScrewDriver antenna could not be tuned to this band.**

After the stationary tests, the mobile Ham system was driven around the area where the BPL System was active and could support service to customers. The BPL impulse noise was evident over the entire area. Driving away from the active area, the BPL impulse noise fell off within about 3 blocks to the point it was no longer heard.

Conclusions: **The Main.Net BPL system does cause objectionable impulsive noise on several of the HF Ham Bands for Ham stations located near the service area. Acceptable Ham operation would not be possible on the 80, 40, 30, and 20 Meter Ham Bands.**

It is expected that the subject impulse noise will be much worse when dozens of users are served in the area. The noise will likely be of a more continuous impulsive nature and be stronger such that it will cause interference to Hams trying to operate at a greater distance from the BPL active area.