

LWHC D*Star Repeaters

One Lincoln Tower—July 23th 2013

Horace Hamby, Lake Washington Ham Club, Secretary, and Scott Bigger and Mark Webber, ICOM, made a visit to the One Lincoln Tower, LWHC DStar repeater site for continued inspection, to identify needed maintenance issues and make a DStar frequency shift. The visit was conducted on Tuesday July 21, at 10:00 am to 4:00 pm. The DStar repeater is located on the 41st floor, in a electrical room with coax from the repeaters passing through electrical room overhead on the 42 floor to the antennas on the roof. The purpose of the equipment in the (electrical) radio room on the 41st floor is to provide the site and local community RF communication for normal uses and training and use for emergency needs in the immediate Bellevue area and greater eastside area.

Summary: The new Port Frequencies are as of 7/23/2013:

- **2 meter frequency to 146.4125 + 1.0 Mhz ---K7LWH..C Port**
- **70cm frequency to 443.0625 + 5.0 Mhz ---K7LWH..B Port**
- **Port C – 2m- is back to normal operation**
- **Port C – 70 cm has issues and will have to be repaired.**
- **The 70 cm analog is ICOM 4000 version 13 capable of Echo Link**

Overall the system is functioning; but, a frequent site maintenance schedule needs be established to address potential issues impacting overall reliability of the site to address its mission.

ACCESS PROCESS for One Lincoln Tower electrical room and roof—

1. Our account is managed by: Crown Castle; Scott Hanson, 425-202-277. The manage agreement, check our insurance and etc. OLT General Manager is Jeff Ramsey, One Lincoln Tower General Manager.
2. Chris Shriver, LWHC President, 425-260-8973, was established as LWHC coordinator. People needing entry will call Chris and he will notify OLTC Concierge, 425-453-1541, of the visit and request entry.
3. Chris is to e-mail the OLTC the time and people would like to visit.
4. The OLT Concierge will sign the visitors in and provide keys. Need elevator magnetic pass, key to roof and key to electrical room. The rest room is on the 3rd floor.

The current LWHC club officers are shown on the web site: http://www.lakewashingtonhamclub.org/?page_id=246 .

Visit Activity:

1. There is a key board and monitor available; it was not used. The passwords need to be made available in the log. The log book was started but needs to be used with records of each visit.
2. The 70 cm analog is an ICOM 4000 vers 13. The machine appears to be in good condition and most likely would support an Echo Link. ICOM supplied an Echo unit with a similar unit at the 2013 Scout Jamboree. It would require a computer and card with this unit. A quote will be requested from ICOM. The 70 cm Analog is a ICOM 4000 version 13 was supplied by ICOM with the DStar equipment.
3. The 2m DStar Duplexer system was way out of balance limiting the ability of the 2m system. The large control knobs stem locks were loose and the stems moved. The Duplexer were pulled apart, cleaned of corrosion and tuned to the new T/R frequency. An Aeroflex IFR 2975 scope with spectrum analyzer mode was used. Plotting db vs Hz nulls over the tuned radio frequency range of transmit and receive as the scope made its sweeps. It is best to use non-conducting tools to adjust. The Duplexers were tuned separately and then as a band following cleaning and inspection. They were opened and inspected for any “whiskers.” Consider adding a protective cover to protect the tuning knobs.

4. The same process was applied with the 70 cm duplexers. All the duplexer units tuned to the new frequencies.
5. Port B, RP 4000V was taken to ICOM shop to be accessed. It was modified where it could be moved to the new frequency but is still not repaired. Also it was found to be low as far as output power. It will need to be scheduled in the shop for repairs. The shop is two months behind. It was put back on line with 9 watt output.
6. The VHF, Port C, is transmitting approximately 14 watts and the UHF, Port B, is transmitting approximately 10 watts.
7. For more power on each an amplifier will have to be considered.
8. It was noted that the room was on the warm side and air was not circulating. The equipment had a fine dust covering the cases. At least it is dry. There is one spare coax to the roof; most likely one of the small yagi's

Next Steps

1. Arrange for repairs or loaner for Port B.
2. Set out a plan for the 70 cm analog machine; consider echo link; establish a frequency.
3. Set out a plan for the 900 Mhz machine.
4. Schedule a six month repeating general maintenance Visit.
 - a. Vacuum equipment
 - b. Service the server
 - c. Review the software for the site and train several operators
 - d. Collect performance data on the repeaters
 - e. Tie wrap the wires and cables
 - f. Service the antennas
 - g. Establish a log and maintain in the room
 - h. Look for ways to improve the performance