LWHC D*Star Repeaters

One Lincoln Tower—June 19th 2013

Horace Hamby, Lake Washington Ham Club, Secretary, and **Scott Bigger, ICOM**, made a visit to the One Lincoln Tower, DStar repeater site for an inspection, to identify needed maintenance and make a DStar frequency shift. The visit was conducted on Wednesday June 19, at 1:00pm. The DStar repeater is located on the 41st floor, in a radio room with coax from the repeaters passing through electrical room overhead on the 42 floor to the antennas on the roof. Pictures shown below. The purpose of the equipment in the 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 area and greater eastside area.

Summary: Overall the system is functioning; but, the maintenance suggestions described within the report will need addressed. The required frequency shift and system tuning will be planned in the July time period. An access process was put into place where maintenance personnel can access the radio room.

The visit team was met by Jeff Ramsey, OLC General Manager, at One Lincoln Tower concierge where the site visit process was set up. LWHC agreement is managed or tied with Crown Castle; Scott Hanson, 425-202-2774. Jeff said had checked and our insurance is in effect and current. Jeff was very positive and supportive on making sure the site could play its intended role in the event of an emergency.

Chris Shriver, LWHC President, 425-260-8973, was established as LWHC key coordinator. People needing entry will call Chris and he will notify OLC Concierge, 425-453-1541, of the visit and request entry. Horace Hamby is on the permanent entry list. The current club officers are shown on the web site: http://www.lakewashingtonhamclub.org/?page_id=246 . Keys and magnetic passes were issued and Jeff gave us a tour of the equipment at location.

The radio room is located on 41 floor is approximately 8' by 10'. It is adequate room conditions for electrical equipment storage for this given wattage; It is believed the system is on emergency backup power. The Repeaters in the room were: the normal DStar system configuration: VHF DV, UHF DV, 1.2 GHz DV, 1.2 GHz DD and Repeater controller. The DStar set controller is tied to PC Based Server which is tied to the Internet. There is a UHF analog ICOM repeater that was running. There is also a 900 GHz repeater analog repeater running. The DStar UHF and VHF are duplexed to a coax going to a Diamond duel band antenna on the roof, picture below. The server box has two servers running. One is used for the DStar system; it is not known why the other was running. The fans are quite loud and perhaps should be serviced. In case of server failure the system needs to be backed up once a week. LWHC equipment no: 2900, -1, -2, and -3. The radio rack seemed to be secured for earthquakes. The 440 and 900 MHz repeaters needs to be tied down. There is a 900 MHz antenna on the floor.

Coax cables to Antennas on the roof

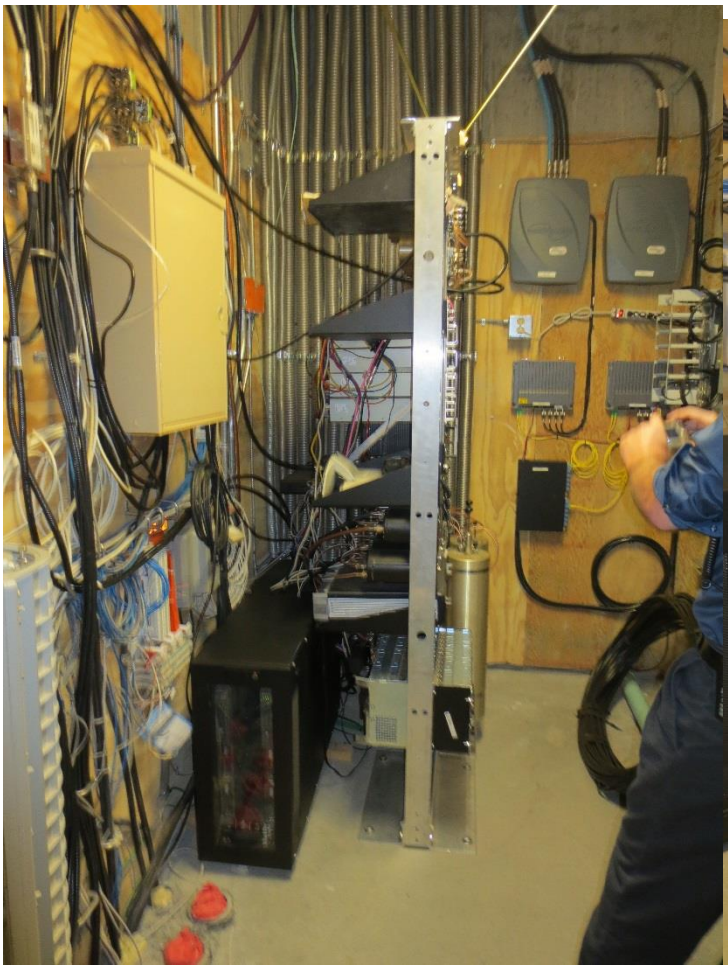
	1.2 GHz	2m/40cm	40 cm analog	900 GHz analog 33 cm	Comment
Lightening arrestor	Yes	Yes	Yes	yes	Check ground and system
SWR	Ok	Ok	Ok	In cellular range	
Length ft	45	45	45 Jumper on line	80	
Water tight	Good	Good	Good	good	
Frequency			444.6 MHz trans 449.6 MHz Rec Ton103.5 K7LWH	902.650 MHz T 927.650 MHz R 114.8 pl AA7UJ	

					The roof top is about 650 ft. above sea-level

The LWHC equipment tags are on just the DStar Repeater system. There are no Service log books on site.

There are 4 coax lines leaving the radio room. 1,2 GHz, 2m/440 MHz, 440 MHz and 900 MHz. Operating data for the ICOM repeaters was taken- report to follow. The

The 2 meter frequency and 70 cm DStar Repeater's frequency needs to be modified and the system inspected. 146.4125 + 1.0 Mhz (The TDS has this reversed, but the Board was polled and the unanimous sense is that these pairs should be high in /low out) 443.0625 + 5.0 Mhz (This should be a minor adjustment of the duplexer, if at all)



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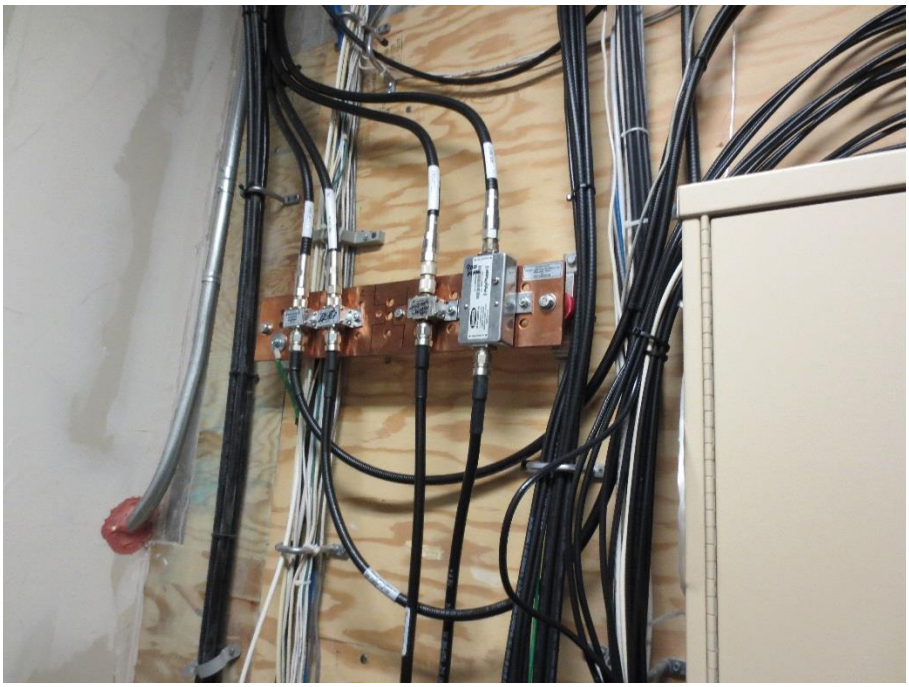

Yagi 900 MHZ Toward Mukilteo

Yagi 440 MHz toward Rose Hill

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included in that visit will be ICOM America Engineer Scott Bigger, ICOM, John Hays, K7VE, WLHC Project Manager and Horace Hamby, N7DRW, LWHC Secretary.

Chris Shriver, LWHC President, 425,260-8973

Horace Hamby N7DRW, LWHC Secretary

Confirm Antenna layout. Foreground both 1.2 GHZ followed by DStar Diamond 2m / 70cm

Right back ground--70 cm dipole

System role for Emergency Service

This Repeater sight has a lot to offer in case of an emergency event. It is on emergency power with access to the internet. It is constructed for earthquakes survival with the building. DStar is located in all the Fire stations in Bellevue and Kirkland. The 1.2 GHz system could be brought into play with contact to Seattle and Eastside area; there is a clear shot from OLT to downtown Seattle. Even without the internet it is an excellent repeater. The 440 MHz analog also could play a role for the Bellevue area. DStar simplex UHF works very effectively in the OLT building and area. With effort this could be the best Emergency site in the area.

Items for follow Up

1. Make the DStar Frequency Change.
2. Get an explanation of the roof Antennas layout, if possible. The antennas are painted dark to make them difficult to be seen from other buildings. The diamond duel band might need to be replaced. It is possible the 440 MHz analog causes interference with the DStar 440 MHZ.
3. Understand each roof antenna and how it is used.
4. Continue to evaluate cables and antenna for coverage.
5. Determine and modify antenna where they can be used without interference. Consider changes in the antenna arrangement for interference free operation and better coverage.
6. Plan for annual work party to service the equipment elements of the system. Check each antenna for being mechanically secure and stable.
7. Determine the function of the 440 MHz 900 MHZ analog repeaters. The 440 MHz cannot accessed for inspection perhaps a password.
8. Understand how the two server system works and how they are used. The server is noisy and might have to be replaced. It is possible the second server backs up the first.
9. Understand the relationship with Crown Castle.
10. The DStar UFH has an issue as far as service access.
11. Locate any Hams in the OLT security or staff.
12. Make the DStar system a program subject for LWHC
13. Make sure LWHC has a process in place to make sure this system, equipment and people, can perform in the event of an emergency.