San Juan Diversity Radio

Annual Inspection – October 2023

This report comprises 5 different radio hops. One hop between Bellingham and Mt. Constitution, and 4 between Mt. Constitution and Friday Harbor.

Indications of a properly operating link:

No Alarms

RSL within ± 3 dB of calculated

Eb/No ≥ 19 dB

Signal to Noise Ratio (SNR) ≥ 24 db

Equalizer Stress typically 30, but < 150

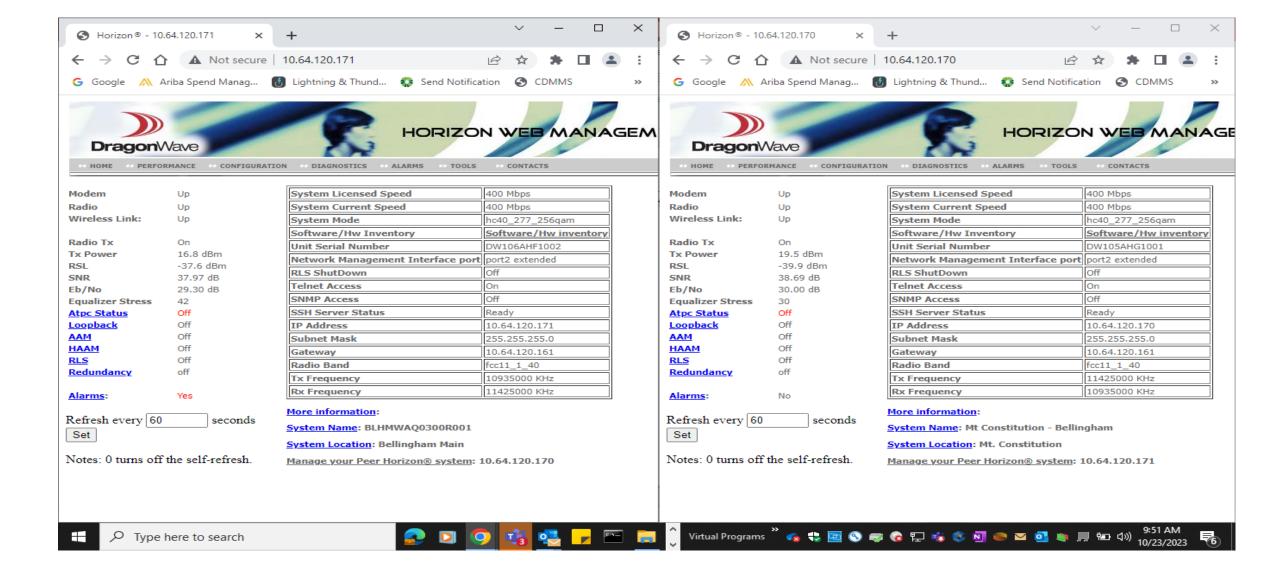
Each radio indicates a properly operating link, despite the ATPC Alarm indication. That alarm indicates that the Automatic Transmit Power Control circuit is off, which is the normal operating condition for microwave radio systems operating within CTL.

There is also an Alarm indication on the .171 radio, which is located in Bellingham. This alarm is a Port 2 Open alarm, which indicates that the Management cable is disconnected. This is due to the Bellingham radio not being connected to the local CO-LAN. Management is done via

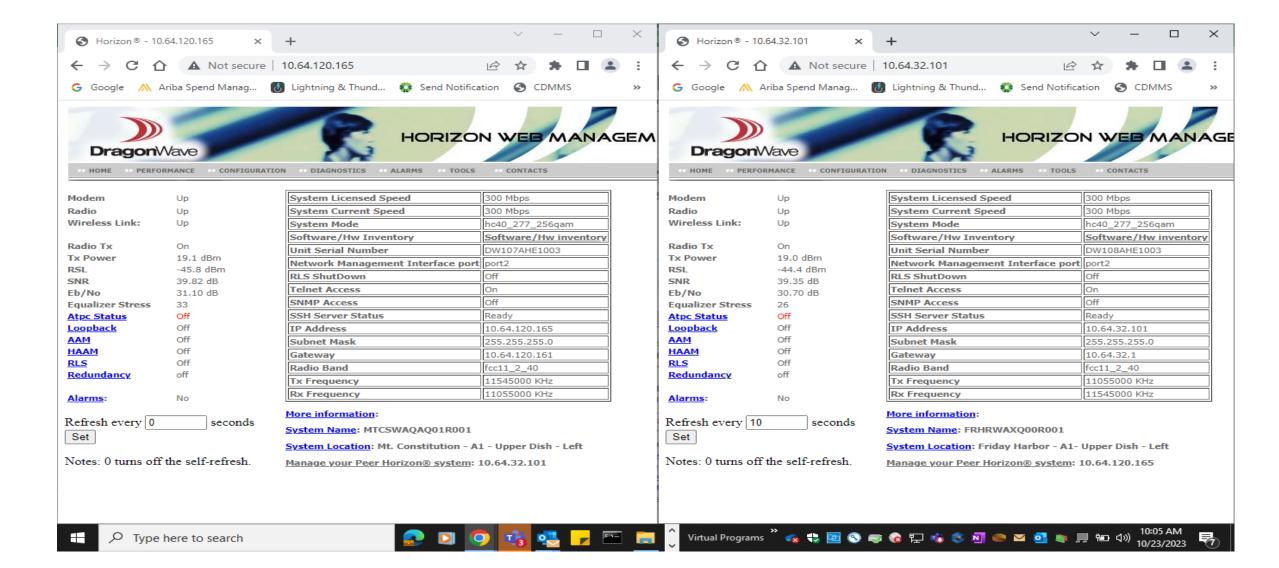
the Mt. Constitution LAN, with data transmitted via the radio link.

Currently, the Bellingham radio system has a throughput of approximately 144 Mbps. All other radio systems are not currently carrying traffic.

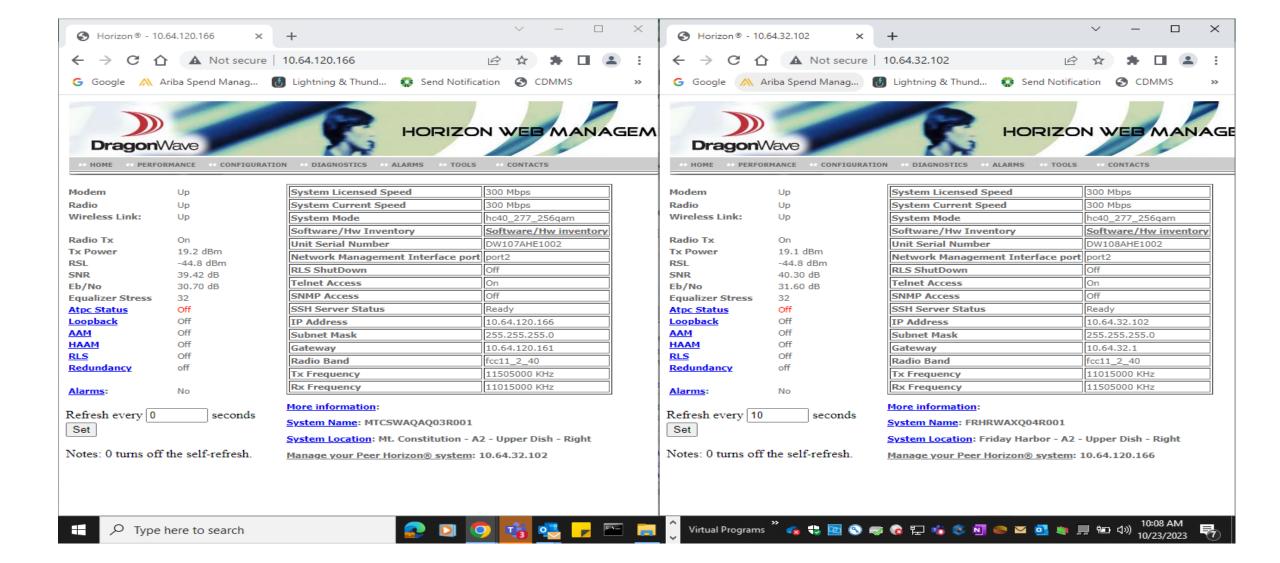
Bellingham to Mount Constitution



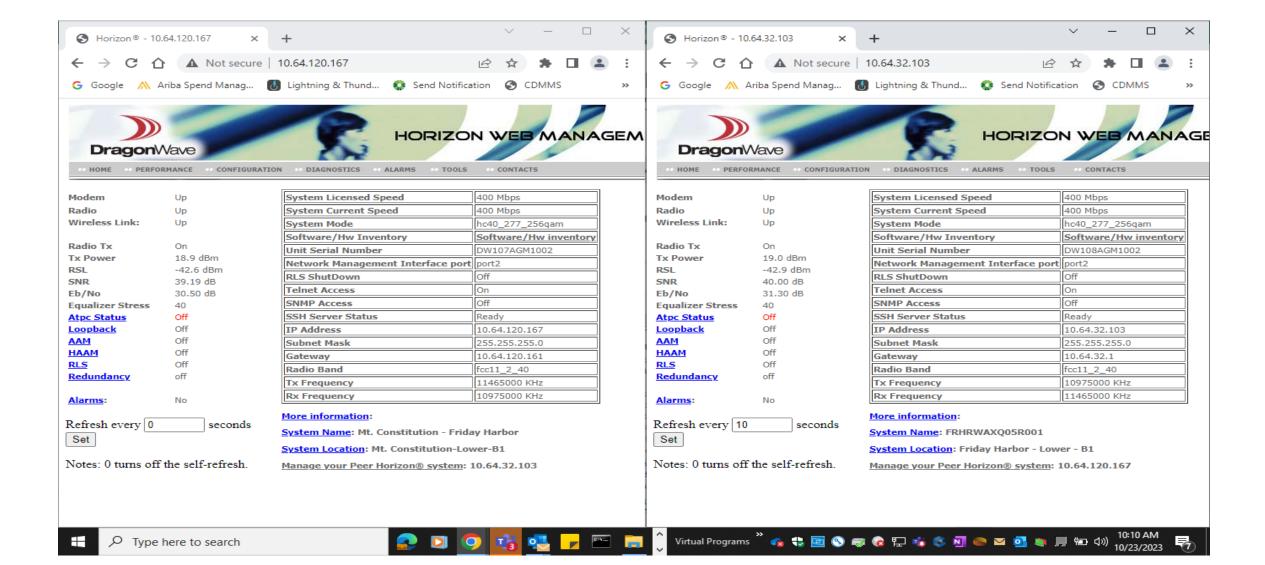
Mount Constitution to Friday Harbor – Radio 1



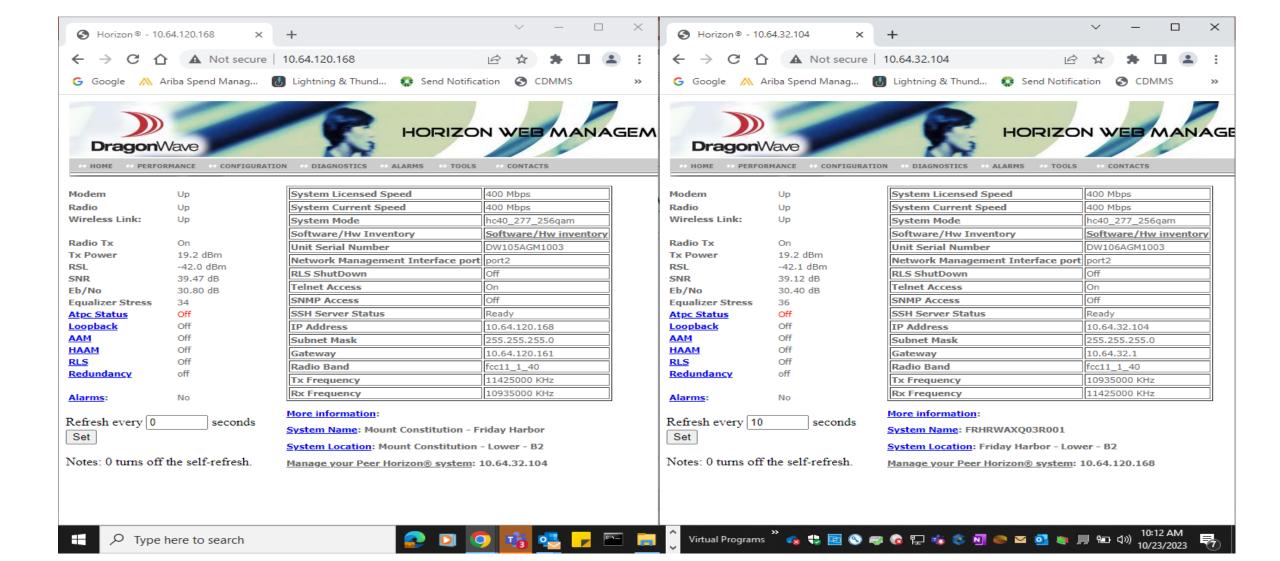
Mount Constitution to Friday Harbor Radio 2



Mount Constitution to Friday Harbor Radio 3



Mount Constitution to Friday Harbor Radio 4



ANTENNA AND TOWER ROUTINE INSPECTION

SITE NAME - Mt. Constitution

SITE LOCATION - Orcas Island

SITE CLLI - MTCSWAQA

DATE - 10/26/2023

INSPECTED BY – Root/Harris

Antenna and Tower Routine Inspection

1. Tower - Structure

	Inspect	OK	Dev.	NA
	Nuts and bolts for tightness.	_x_		
	Guy wire for proper tension			_x_
	Guy wire condition – Fraying, broken, etc			_X_
	Condition of concrete footings. (Cracking, settling & etc.)			_x_
	Paint - Fading, peeling, etc.	_x_		_x_
	Ladders & steps - safe and secure	_x_		
	Safety climbing device - safe and secure	_x_		
	Grounding and lightning protection - satisfactory	_x_		
	Structural units – damaged or missing	_x_		
	Tower lighting - operating correctly			_X_
2.	Antenna & Waveguide			
	Waveguide - properly supported		_x_	
	Flex waveguide - good condition			_x_
	Connector Heads - sealed properly	_x_		
	Flex waveguide jumpers – correctly placed			_x_
	Antenna nut and bolts – tight and secure	_x_		
	Antenna mount – tight and secure	_x_		
	Azimuth and stiff arms – tight and secure	_x_		
	Antenna covers – good condition	_X_		
	Waveguide hatch – sealed and grounded	_x_		

Note: If any Deviations are found explain in detail in notes section.

Antenna and Tower routine inspection

3. Air Pressure

	Inspect	OK	DEV.	NA
	Dehydrator Manifold – installed properly			_x_
	Pressure – correct for antenna and system			_x_
	Waveguide system – tight – no air leaks			_X_
	Pressure alarm switches – installed and functioning			_x_
	Horn antennas – water traps and proper pressure			_x_
1.	Environment			
	Path obstructions - Trees, shrubs, weeds and buildings.	_X_		
	Security - Gates, fences and doors secure.	_x_		
	General appearance – Weeds, Trash & etc.	_X_		

5. Deviations notes, exceptions and recommendations

Explain in detail:

Item 2: Found 5 transmission line supports either bent or damaged. Replaced during the inspection.

ANTENNA AND TOWER ROUTINE INSPECTION

 $\boldsymbol{SITE\ NAME-Friday\ Harbor}$

SITE LOCATION – San Juan Island

SITE CLLI - FRHRWAAW

DATE - 10/26/2023

INSPECTED BY – Root/Harris

Antenna and Tower Routine Inspection

6. Tower - Structure

	Inspect	OK	Dev.	NA
	Nuts and bolts for tightness.	_x_		
	Guy wire for proper tension			_x_
	Guy wire condition - Fraying, broken, etc			_X_
	Condition of concrete footings. (Cracking, settling & etc.)	_X_		
	Paint - Fading, peeling, etc.	_x_		
	Ladders & steps - safe and secure	_x_		
	Safety climbing device - safe and secure	_x_		
	Grounding and lightning protection - satisfactory	_x_		
	Structural units – damaged or missing	_X_		
	Tower lighting - operating correctly			_x_
7.	Antenna & Waveguide			
	Waveguide - properly supported	_x_		
	Flex waveguide - good condition			_x_
	Connector Heads - sealed properly	_x_		
	Flex waveguide jumpers – correctly placed			_x_
	Antenna nut and bolts – tight and secure	_x_		
	Antenna mount – tight and secure	_x_		
	Azimuth and stiff arms – tight and secure	_x_		
	Antenna covers – good condition	_x_		
	Waveguide hatch – sealed and grounded	_X_		

Note: If any Deviations are found explain in detail in notes section.

Antenna and Tower routine inspection

8. Air Pressure

	Inspect	OK	DEV.	NA
	Dehydrator Manifold – installed properly			_x_
	Pressure – correct for antenna and system			_x_
	Waveguide system – tight – no air leaks			_x_
	Pressure alarm switches – installed and functioning			_x_
	Horn antennas – water traps and proper pressure			_x_
9.	Environment			
	Path obstructions - Trees, shrubs, weeds and buildings.	_x_		
	Security - Gates, fences and doors secure.	_x_		
	General appearance – Weeds, Trash & etc.	_x_		
10.	Deviations notes, exceptions and recommendations			
	Explain in detail:			

ANTENNA AND TOWER ROUTINE INSPECTION

SITE NAME – Bellingham C.O.

SITE LOCATION – Bellingham, WA.

SITE CLLI – BHLMWA01

DATE – 10/27/2023

INSPECTED BY – Root/Harris

Antenna and Tower Routine Inspection

11. Tower - Structure

	Inspect	OK	Dev.	NA
	Nuts and bolts for tightness.	_X_		
	Guy wire for proper tension			_x_
	Guy wire condition – Fraying, broken, etc			_x_
	Condition of concrete footings. (Cracking, settling & etc.)	_X_		
	Paint - Fading, peeling, etc.	_x_		
	Ladders & steps - safe and secure	_x_		
	Safety climbing device - safe and secure			_X_
	Grounding and lightning protection - satisfactory	_X_		
	Structural units – damaged or missing	_x_		
	Tower lighting - operating correctly			_x_
12.	Antenna & Waveguide			
	Waveguide - properly supported	_x_		
	Flex waveguide - good condition	_x_		
	Connector Heads - sealed properly	_x_		
	Flex waveguide jumpers – correctly placed	_x_		
	Antenna nut and bolts – tight and secure	_x_		
	Antenna mount – tight and secure	_x_		
	Azimuth and stiff arms – tight and secure	_x_		
	Antenna covers – good condition	_x_		
	Waveguide hatch – sealed and grounded	_x_		

Note: If any Deviations are found explain in detail in notes section.

Antenna and Tower routine inspection

13. Air Pressure

	Inspect	OK	DEV.	NA
	Dehydrator Manifold – installed properly	_X_		
	Pressure – correct for antenna and system	_x_		
	Waveguide system – tight – no air leaks	_X_		
	Pressure alarm switches – installed and functioning	_X_		
	Horn antennas – water traps and proper pressure			_x_
14.	Environment			
	Path obstructions - Trees, shrubs, weeds and buildings.	_x_		
	Security - Gates, fences and doors secure.	_X_		
	General appearance – Weeds, Trash & etc.	_X_		
15.	Deviations notes, exceptions and recommendations			
	Explain in detail:			