

OKANOGAN COUNTY COMMISSIONERS'

RESOLUTION 207 - 2022

A resolution declaring Racom Corp. as sole source dealer of the required specialized radio equipment needed to augment to existing hardware and services

WHEREAS, RCW 36.32.270 and RCW 39.04.280 allow Counties to waive competitive bidding requirements for purchases which are limited to a single source of supply; and

WHEREAS, Okanogan County desires to install an L3Harris P25 phase 2 trunked site at Pitcher Mountain; and

WHEREAS, Okanogan County has an existing agreement with WSDOT for use of the WSDOT radio and microwave communications network. Okanogan County, with WSDOT permission, desires to augment WSDOT's L3Harris P25 phase2 radio network by installing radio hardware and services at Pitcher Mountain using Racom as the vendor. Racom is the Washington State authorized dealer; and

WHEREAS, WSDOT requires that any work done on their L3Harris network be performed by an L3Harris Authorized Dealer or preferably an L3Harris Regional Service Center of Excellence; and

WHEREAS, Racom is the only authorized L3Harris dealer in Washington State that is authorized to provide services to the WSDOT radio network; and

WHEREAS, based on the Sole Source Justification form, Attachment "A", signed by the county's Chief Civil Deputy, the situation as stated on the form does constitute a Sole Source Procurement.

BE IT THEREFORE RESOLVED, the Board of Okanogan County Commissioners hereby waives the competitive bidding and negotiation process for procuring the following purchase:

Okanogan County Radio System and Console Upgrades as detailed in Attachment "B"

DATED at Okanogan, Washington this 27 day of December 2022.



ATTEST:


Laleña Johns, Clerk of the Board

**BOARD OF COUNTY COMMISSIONERS
OKANOGAN, WASHINGTON**


Andy Hoyer, Chairman

ABSENT
Chris Branch, Member


Jim DeTro, Member



Okanogan County, Washington

SOLE SOURCE JUSTIFICATION FORM

"Sole source" means only one vendor possesses the ability to meet the requirement of the solicitation. Sole source purchases are normally not allowed. The use of sole source purchases shall be limited to instances where necessary for operational compatibility, technical performance needs, or upon a clearly unique and cost effective feature requirement.

1. Describe the item or service.

Okanogan County wishes to install an L3Harris P25 phase 2 trunked site at Pitcher Mtn. Equipment and services quoted at \$346,594 + sales tax.

2. The item is a sole source because:

- ☐ sole provider of a licensed or patented good or service
- ☒ sole provider of items that are compatible with existing equipment, inventory, systems, programs or services.
- ☐ sole provider of factory-authorized warranty service
- ☒ sole provider of goods or services that will meet the specialized needs of the County or perform the intended function (detail below or in an attachment)
- ☐ the vendor/distributor is a holder of a used item that would represent Good value and is advantageous to the County (attach information on market price survey, availability, etc.)

3. What necessary features does this vendor provide which are not available from other vendors? Be specific.

Okanogan County has an existing agreement with WSDOT for use of the WSDOT radio and microwave communications network. Okanogan County, with WSDOT permission, desires to augment WSDOT's L3Harris P25 phase2 radio network by installing radio hardware and services at Pitcher Mtn using Racom as the vendor. Racom is the Washington State authorized L3Harris dealer.

WSDOT requires that any work done on their L3Harris network be performed by an L3Harris Authorized Dealer or preferably an L3Harris Regional Service Center of Excellence.

Racom is the only authorized L3Harris dealer in Washington State that is authorized to provide services to the WSDOT radio network.

4. What steps were taken to verify that these features are not available elsewhere?

☐ other brands/manufacturers were examined (list phone numbers and names, and explain why these were not suitable):

☐ other vendors were contacted (list phone numbers and names, and explain why these were not suitable):

☒ other (please explain):

Confirmed that Racom was the original installer of WSDOT P25 Phase 2 radio network and WSDOT requires an authorized L3Harris dealer to design and install additions to the WSDOT system. The WSDOT state wide project is still open and active as it has not yet been closed.

Department: Okanogan County Sheriff's Office - Dispatch

Department Contact: Mike Worden Phone: 509-422-7204

Requested Vendor: Racom, Corporation

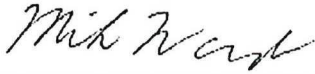
Vendor's Address: 526 S. Locust Ln Moses Lake, WA Vender Contact: Ron Bender

Phone: 509-765-7773

Cost Estimate:

My department's recommendation for sole source is based upon an objective review of the good/service being required and appears to be in the best interest of the County. I know of no conflict of interest on my part or personal involvement in any way with this request. No gratuities, favor, or compromising action have taken place. Neither has my personal familiarity with particular brands, types of equipment, materials or firms been a deciding influence on my request to sole source this purchase when there are other known suppliers to exist.

Note: This form does not declare a Sole Source. It only documents a department's request that a sole source be declared.



12/20/2022

Signature of Department Head or Designee

Date

THIS SECTION TO BE COMPLETED AND SIGNED BY PROSECUTING ATTORNEY'S OFFICE, CIVIL DIVISION

The situation as stated on this form (please check all that apply):

☒ does constitute a Sole Source Procurement.

☐ does not constitute a Sole Source Procurement.

☐ insufficient information for the Prosecutor's Office to form an opinion. (Please state in what way the information is insufficient.)



12-20-22

Prosecuting Attorney, Civil Division

Date



OKANOGAN COUNTY RADIO SYSTEM AND CONSOLE UPGRADE

Rev A 12/16/2022

Okanogan County Radio System and Console Upgrade – Phase 1

RACOM is pleased to propose the beginning of a migration for Okanogan County agencies onto a new 700/800 MHz radio system to integrate onto the Washington State DOT (WSDOT) statewide 700/800 MHz P25 Phase 2 radio system. This proposal includes:

1. A new 700 or 800 MHz 4-channel P25 Phase 2 radio site at Pitcher Hill connected to the WSDOT core network
2. Avtec console upgrade and interface to the WSDOT L3Harris VIDA core network
3. An alternate proposal for L3Harris Symphony dispatch consoles, including conventional radio, paging, and interoperability connections
4. Combining VHF radio systems at the Pitcher Hill site along with uninstalling and removing legacy VHF antenna system components
5. A new -48 VDC plant for the Pitcher Hill site
6. Special radio pricing

1. Pitcher Hill 700 or 800 MHz 4-channel P25 Phase 2 radio site

RACOM is proposing the latest radio site technology from L3Harris based on the Two47 base station repeaters. Key equipment proposed includes:

- 4 Two47 700 or 800 MHz base station repeaters
- Frequency reference
- VIDA Edge Site Manager
- Optional Mobile Data interface
- Cisco C1111 Router and C1000 switch
- 4 channel transmit combiner
- 8 channel receiver multicoupler
- Receiver Tower Top Amplifier
- 2 SINCLAIR SC499-HWBLDF, D08-NUF (12' OMNI) antennas mounted on new 72" SINCLAIR model SMK-345-A7 side arm (Rx antenna mounted at 48', Tx mounted at 25').
- Licenses for the WSDOT VIDA Connect Core Pair to add a P25 site and 6 talk paths.

The C1111 router will connect to WSDOT microwave for backhaul to the Connect Core pair for the WSDOT North Central Region. The cores are physically located in Wenatchee and Okanogan. The cores allow radio users from any radio sites or dispatch consoles on the network to communicate with each other within the county or across the state.

Two47 Base Station Overview



The newest portion of the L3Harris VIDA platform responsible for P25 communications is known as the Two47 Base Station. It is the successor in many MASTR products, including the MASTR-V. The Two47 is the next-generation Station from L3Harris, designed to take your communications and remote management capabilities to the next level. It is the most compact P25 trunking platform available today, integrating up to eight 100-watt stations into a single rack or cabinet. For Okanogan County, this compact design will fit all the channels into a single rack, saving space at all tower locations.

The L3Harris Two47 Base Station features an IP-based architecture engineered to scale with each organization's critical communication needs as they change over time. Access tomorrow's technology today with a base station that seamlessly integrates with your existing systems, while giving you the flexibility to build the system that's right for you. Communicate with any P25 device. Manage and update your system from anywhere. Compact units with customizable layouts will save you space, energy, and money. With hardware that is rugged, resilient, and protected around the clock, you'll never second-guess your connection.

Open standards design for flexible, best-in-breed features:

KEY BENEFITS

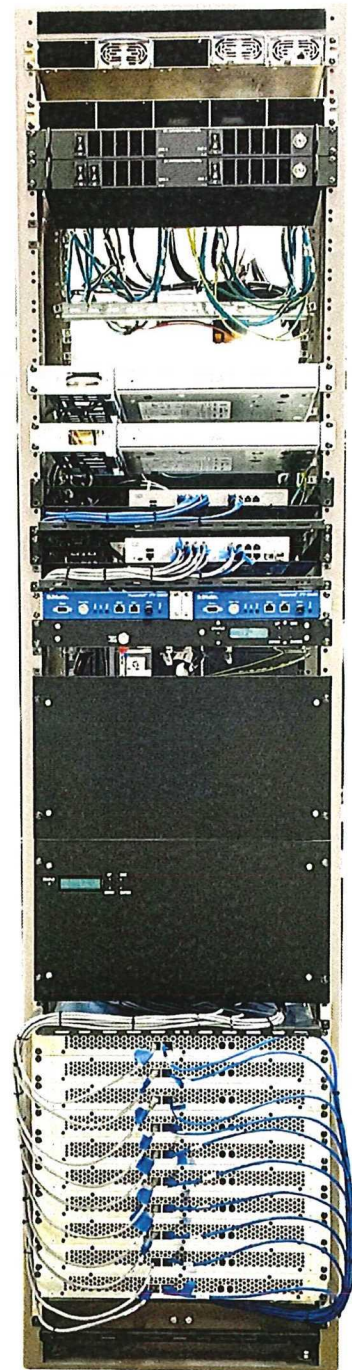
- Software-defined and cloud enabled for effortless, management and updates
- Easily upgradeable to evolve with your operation
- Multiple points of redundancy for relentlessly reliable communication with dispatch
- Universal standards and components (P25, ARM processors) provide a scalable platform to build on
- Compact, modular layout
- Built to the most stringent cybersecurity standards

SECURITY YOU CAN COUNT ON

There's nothing more important to us than keeping your network safe. We provide built-in redundancy and cybersecurity to keep your systems stable and protected. And with regular updates and remediations, we can keep your system secure.

The Rack Up shown is a complete 10-channel P25 Trunked sites with everything but the DC power plant. All configured with redundancy, including the Two47 with dual power inputs and dual NICs.

The station at the bottom of the rack does not have the Black finished front installed, as shown above.



Project Services

RACOM is providing complete project services to plan, design, stage, configure, install, test, and commission the project. This includes project management, system engineering and installation technician tasks. This first stage will have more planning and design activity than future sites as there are some initial details to work through that will be leveraged on future sites.

2. Avtec Console Upgrade

RACOM has provided a quote to upgrade the Avtec console system and interface it to the WSDOT L3Harris VIDA network. Included in the quote are upgrades for:

- Supplementary VPGate P25 endpoint license, Supports up to 30 each redundant P25
- Redundant VPGate Software License for a maximum of 80 endpoints; up to 40 may be "B"
 - Assumes VPGate HW has been refreshed running Windows Server 2019
- Tier 1 Scout Enterprise Console with Software or Hardware Audio package to Tier 2.
- Licenses for ISSI with 20 talkpaths and 6 CSSI connections to allow the Avtec consoles to interface with the WSDOT P25 Phase 2 radio system. The ISSI communicates to the Premier Core pair, which are physically located in Parkland (near Tacoma) and Wenatchee.

The P25 standard ISSI gateway is an interface to connect with other P25 trunk systems, or consoles with the CSSI license, where a native connection is not possible. Our ISSI interface ensures that regardless of the manufacturer of infrastructure, you will be able to communicate with all parties of interest utilizing the P25 standards.

Standard ISSI Gateway Features supported by the L3Harris ISSI	
Group calls (unconfirmed, encrypted)	Group Tracking
Site Adjacency (allows for inter-system roaming)	Phase 2 Vocoder Operation
Emergency Calls	Highly Secure Operation (IA Controls)
Fixed Group Mapping	Fault & Performance Traps at the NM
Automatic (Forced) Group Registration	Real-time & Historical Call Activity
Send Caller ID in Group Calls	Device Manager Support
Foreign User Registration Support	ISSI Supplementary Data - Group Emergency Cancellation
Granting Requested Resources	Group calls (confirmed)
Home User Roaming	Support multiple audio streams for Pre-empt and other cases
Roaming Management	Console SSI (CSSI) Voice Services
Unit Tracking	Capability Polling
Group Affiliation	

The ISSI/CSSI interface is a P25 standard. Not all features of the Avtec consoles or the L3Harris VIDA network are supported across the ISSI/CSSI interface. The Advanced Radio Features of the Avtec consoles are shown below:

Scout defines advanced radios as those with features beyond basic "push-to-talk, release-to-listen." The advanced radio features can be found in some legacy technology in addition to cutting edge technology such as DMR and P25. The advanced radio set of unique functions that Scout supports includes the following:

- Group call
- Private call
- Call alert
- Emergency call display
- Emergency state clear
- Progress tones
- Clear call
- Unit check
- Unit monitor
- Unit stun
- Unit kill
- Unit revive

Of these advanced features, the L3Harris CSSI does not support

- Private call
- Unit check
- Unit monitor
- Unit stun
- Unit kill
- Unit revive

The last 3 items are available from the Unified Administration Server (UAS) from the WSDOT core network, but would not be available at the console. Note the L3Harris efficient patch / simulselect using system assigned group ID's (SAID's) is not in the CSSI standard and is therefore not available from the Avtec console either. This means that patches and simulselects would consume a talk path for each talk group in the patch or simulselect, which would consume significant channel capacity.

A lower cost alternative to the CSSI interface would be to connect the Avtec consoles to 700/800 MHz system using radio gateways. This would have the same limitations as the CSSI interface but the trade-off is it would take up RF capacity for every call sent or received from dispatch on the 700/800 system at whatever RF site has a solid signal at the dispatch center, likely the Pitcher Hill site.

3. Alternate L3Harris Symphony Consoles

As an alternative to the Avtec console upgrade, RACOM has quoted Symphony Consoles from L3Harris. The Symphony Consoles would not have the limitations of the Avtec Consoles regarding the trunking features such as patch, simulselect, and private call.

RACOM has quoted:

- 4 L3Harris Symphony Consoles to replace the 4 Avtec Hardware Media Workstations
- 2 L3Harris VIP Console licenses to replace the 2 Avtec Software Media Workstations
- Cisco C1111 router and C1000 switch
- These consoles would connect to the WSDOT VIDA Connect Core pair.
- 8 DFSI interfaces
- 7 analog interfaces

Advantages of the Symphony Console include:

- Private call
- Efficient patch and simulselect
- In-band GPS display on emergency from properly equipped subscriber units

We believe Symphony replicates other critical features of the Avtec console, such as paging. RACOM has quoted each Symphony Console with the Foundation software bundle and additional features including:

- the Symphony Dispatch Platform hardware
- local Symphony full screen operation and local baton
- 5 patch activation, 10 patch definitions
- 9 Simulselect definition
- 2 speaker licenses
- 5 user setup
- 8 workspace tabs
- Conventional controls
- Paging and advanced paging
- Remote aux I/O
- Marker tone
- Call alert
- 12 FlexPaths
- SIP, 4 extensions, 8 calls
- Dynamic cross-mute
- Embedded web browser
- 22" monitor
- Mouse, keyboard, footswitch, desk mick, headset
- Bundle includes Microsoft Windows 10 Enterprise LTSB operating system for Symphony Dispatch Platform

Paging from Symphony Console

Symphony can alert or page users in multiple ways. On the L3Harris VIDA network, when you setup the talk group, you tell it what type of vocoder the talk group uses, which could be Phase 1, Phase 2, Analog, etc. If you're going to send it out a Pathway+ or UAC interoperability gateway for analog paging, you are best suited to set the talk group to analog and let the transcoder do its work if it needs to go to sites as well to get the best fidelity.

Unication P25 pagers can work in two modes.

- A) They alert on any call on a group, in this case you have 1 talk group defined for every pager cap code basically. When a group call is received on that group, the pager alerts with an internal programmable alert sequence, buffers the incoming audio and plays it after the alert sequence.
- B) They can also still be setup to do a two-tone decode on the group. The issue here is P25 vocoder fidelity and selecting tones that will pass and alert reliably. The AMBE vocoder has the ability to send special codes in the voice stream to represent audio tones, dtmf tones, etc and have the far end device regenerate the tone locally, but I don't believe the Symphony utilizes that function, as far as I can tell it's generating and encoding the tones like the voice.

As far as just paging trunked radios, L3Harris radios will not do a two tone decode so you are not really paging them, just making an announcement by sending alert tones.

As an example, Johnson County, Iowa, is using method B without issue. They are actually simultaneously going over VHF analog and an 800 MHz P25 trunked talkgroup. The users have the Unication G5 pager which will receive either. The way the P25 vocoder works, it takes a range of audio frequencies and sends it as a specific tone. In the Unication pager, you set the A and B tones as ranges from a pulldown list in the software. There is a table that lists off which tones work well over P25. In short, it CAN work just like old-school analog tone and voice over P25 trunked. L3Harris radios will only decode two-tone in conventional analog, not P25 trunked.

SYMPHONY DISPATCH



SYMPHONY™ POWERFUL. RELIABLE. CUSTOMIZABLE

The Symphony Dispatch Console combines the Symphony Dispatch Platform with advanced application software to support 24-hour mission-critical operations. A unique hardware design supports the reliability needed for emergency responses. Advanced digital audio technology delivers high capacity and secure end-to-end communications.

Symphony simplifies complex dispatch center operations through a logical user interface. Dispatchers arrange their most utilized functions in a customized interface to maximize productivity.

Multiple screen configurations can be created for specific scenarios ranging from crisis situations to shift changes.

Patented Baton™ technology allows agencies to integrate their CAD application to display 95% of Symphony's functionality using only 10% of their screen. An embedded web browser for VIDA® apps enables dispatchers to access servers to disable lost or stolen radios or view real-time radio traffic across the system.

Symphony's innovative hardware design allows a simple, flexible mechanical configuration for mounting in a rack, under a desk, as a desktop unit or for mobile installations.

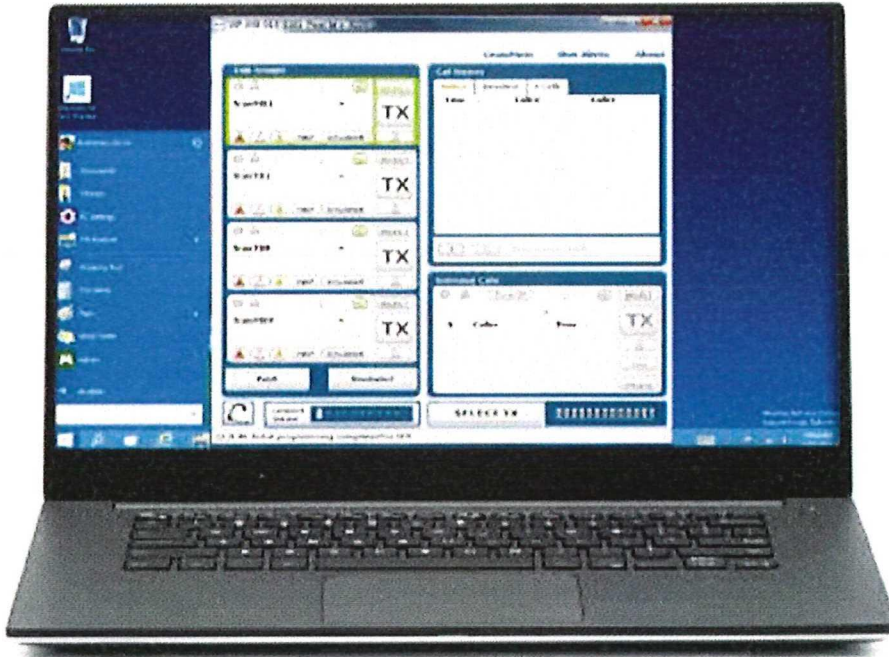
A CLEAR VIEW OF THE FULL OPERATIONAL PICTURE

KEY BENEFITS

- ✓ Capable of combining over 1,000 communication modules at a single dispatch solution
- ✓ Industry-leading capacity for active call, patch and simulelect calls and integrated telephony support.
- ✓ Integrated Instant Recall Recorder for up to 24 hours of call history.
- ✓ Supports trunked and conventional operations



VIP Software Console



The VIP Console is a software-based console that can work on a standard PC that has access to the IP network of the radio system. This will often be done through a VPN to allow remote access for emergency back-up use.

Standard Features Include:

- 4 Programmable Talkgroup Modules
- Caller ID or Alias
- Group and Individual Calls
- Emergency Calls
- 1 Active Patch
- 1 Active Simulselect
- Call History and Integrated Call Playback
- Support for Multiple Vocoder including AMBE, IMBE, and ADPCM

4. Combining VHF radio systems at Pitcher Hill site

Please see the attached proposal from dB Spectra on the VHF 4-channel RF Distribution System.



SPD2692B VHF
RFDS for Okanogan

Below is a summary of what is provided.

The SPD2692B-1 Site RF Distribution System for Pitcher Mtn includes:

- * Special Combiner/Filter using dual-stage isolators, 5" and 8" cavities, with DIN output connector.
- * Provision for Simplex channel using transmit/receive RF relay
- * Special Receive Filter using 5-inch cavities and milled window filter
- * Channelized Receive Multicoupler DSRMC-3-4ADN, for -48 VDC site power
- * 45 RU two-post rack (color black) with ground bar

In addition, RACOM has provided services to uninstall and remove legacy VHF antenna system components which will be decommissioned through this combining task.

5. Upgraded -48 VDC plant at Pitcher Hill site

RACOM received a request from ADCOMM to provide a load study, design and field services as required to enhance the WSDOT -48VDC plant to support the equipment being added as well as the FD3 and WSP station equipment. As options, please quote services and materials as required to migrate both the FD3 (100W TB9400) and WSP stations onto the enhanced WSDOT -48VDC plant including any modifications as required to convert the WSP station (100W Quantar) from its current 110VAC primary with 24VDC backup power. These options should also include services to uninstall and remove the associated legacy battery systems.

RACOM received the input below from Trevor Brandt at WSDOT 11/14/22 on the DC plant at Pitcher Hill: The current system is an Alpha CXCI+ controller with 4 650W 120 Vac rectifier modules and a single string of Marathon 90Ah batteries. Currently the loading is around 26A (50 percent of maximum capacity). This system will require an upgrade for any additional loading.

RACOM entered the new and existing equipment power load into our site power calculator and got the summary load below:

Pitcher	DC Power Quote Summary								
Harris P25 Trunked	Voltage	Total 48 VDC Plant Current	Battery Recharge Time-Hours	Battery Run Time-Hours	Battery Amp Hours	Battery Re-charge Current	Rectifier Size-Load Amps	Number of 60 Amp Rectifier Modules N=	# of N+1 rectifier modules
Dwg. Pkg. Rev	48V	138.5	12	1	139	13	151.2	3	4
0									
Date:									
11/9/22									
		Provide N+1 CONVERTERS & INVERTERS							
		Amps Out							
		10.0	48VDC to 12VDC Converter						
		0.0	48VDC to 24VDC Converter						
		5.0	48 VDC to 120V AC Inverter						
		Qty	Wattage						
		1	500	48 VDC to 120 VAC Inverter for Test Equip.					

Additional Notes: Quote using two battery strings and include battery disconnects.

Harris prefers using two battery strings where the combined runtime equals the total runtime required. Should one string fail, the other can provide at least half the runtime. Realize it's a little more expensive, however it eliminates a single point of failure.

This load goes beyond what can be readily upgraded for the existing DC plant, so we got a new quote from Newmar.

The -48 VDC plant includes:

- Newmar Commander II+ Power System
- 4 Rectifiers 3000 W
- 12 VDC DC Converter
- 18 Breakers
- DC-AC Inverter
- 8x 48V 100 AH Battery arranged in 2 strings
- 2 Battery Trays

Eliminating the conventional channels, eliminating the WSDOT microwave, and factoring a 50% duty cycle for the 13 Harris trunking working channels, requires 60 Amps. This includes 25% growth factor. Ignoring growth factor requires 49 Amps. For the 2 x 100 AH battery strings in the design, the 60 Amp load would last 3.3 hours and the 49 Amp load would last 4.1 hours. Note the 50% duty cycle on the working channels would be an average of 3 concurrent conversations for the entire run time.

6. Special Radio Pricing

RACOM has worked with L3Harris to offer a 2022 year-end incentive toward the purchase of radios. The baseline price provided for the radios is equivalent to the NASPO and Sourcewell discounts of 26% off L3Harris products, while discounts on other vendor products not on NASPO or Sourcewell vary depending on the vendor.

In addition to the 26% discount, RACOM is offering a one-line discount on the L3Harris radios. Purchase at least 100 L3Harris terminals, take additional 20% off the sum total price of the terminals. This offer is good for purchase commitments through 12/31/2022.

Note, L3Harris has committed to enhancing their radio software in 2023 to allow trunking to conventional scanning and back.

Also provided is pricing on Tait radios at 2022 NASPO pricing, which is valid through 12/31/2022.



201 West State Street
Marshalltown, IA 50158
800-722-6643
Fax 641-752-0674
www.racom.net

Proposal Prepared for: Okanogan County
Address _____
City _____
State & Zip Code WA _____
County _____
Phone/FAX _____
Contact Name _____
Contact E-mail _____

Rev A 12/16/22

Add Site and Avtec Console to WSDOT

Customer Buy

ITEM	QTY	PART NO.	DESCRIPTION	UNIT	EXTENDED
1			Vida Core Licenses		
	1	NS-SG2N	LICENSE,P25 SITE	\$ 7,400.00	\$ 7,400.00
	8	NS-SG2P	LICENSE,P25 SITE TALKPATH	\$ 740.00	\$ 5,920.00
2			4 Channel Site - Two47 Stations		
	1	Site Control	Site Controllers, Networking and Interface Equipment, P25T Two47	\$ 47,689.22	\$ 47,689.22
	1	Antenna System	4 Channel Combiner, 8 Channel Multicoupler and Antenna System	\$ 30,897.10	\$ 30,897.10
	4	Base Stations	Two47 100W Base Station	\$ 31,150.30	\$ 124,601.20
3			DC Plant for Pitcher Site		
	1		Newmar 4 x 3000W 48V rectifiers, 2 battery strings of 4 ea 100 AH ea, 12V conv, AC Inv, brkrs	\$ 25,477.23	\$ 25,477.23
4			Services		
	1	Project Services	Project Management, Engineering and Design, System Configuration and Setup	\$ 64,680.00	\$ 64,680.00
	1	Site Services	Installation, Tower Work and Testing	\$ 39,930.00	\$ 39,930.00
			Total System Price		\$ 346,594.75
5			ISSI/CSSI Interface for Avtec Consoles		
	1	NM-SG9F	LICENSE,ISSI EXTERNAL SYS CONN,PREMIER	\$ 29,600.00	\$ 29,600.00
	20	NM-SG9E	LICENSE,ISSI GATEWAY TALKPATH	\$ 1,850.00	\$ 37,000.00
	6	NM-SG1V	LICENSE, CSSI 3RD PARTY CONSOLE (1-10)	\$ 7,400.00	\$ 44,400.00
6			Avtec Upgrade		
	1	A-SFW-VPG-P25-30-SK	Upgrade Supplementary VPGate P25 endpoint license, Supports up to 30 each redundant P25	\$ 9,982.00	\$ 9,982.00
	1	A-SFW-VPG-L2-FTR-SK	Upgrade Redundant VPGate Software License for a maximum of 80 endpoints; up to 40 may be "B"	\$ 39,926.00	\$ 39,926.00
	6	A-SFW-SCOUT-UPG-T2	Upgrades Tier 1 Scout Enterprise Console with Software or Hardware Audio package to Tier 2.	\$ 5,350.00	\$ 32,100.00
	1	A-DSSVCSLTPRM	Avtec Services	\$ 10,468.57	\$ 10,468.57
			<i>Assumes VPGate HW has been refreshed running Windows Server 2019 - Trade In Existing Licenses</i>		
			Total ISSI/CSSI/Avtec Price		\$ 203,476.57
7			Option to Purchase Symphony Consoles Instead of Avtec Upgrade		
	1	Symphony	Add 4 Symphony Consoles and 2 VIP software consoles <i>including install</i>	\$ 210,755.36	\$ 210,755.36
	1	Interop	Add 8 Analog and 8 DFSI Connections to VIDA Connect Core	\$ 80,071.72	\$ 80,071.72
	1	Discount	RACOM split the price difference between Symphony and Avtec	\$ (43,675.25)	\$ (43,675.25)
			Price to Add Symphony Consoles Instead of Upgrade Avtec Consoles		\$ 247,151.83
8			Options		
	1	SAMD8N	SITE MOBILE DATA, VIDA EDGE	\$ 7,104.00	\$ 7,104.00
	1	Logging Interface	IP Logging Recorder Interface to WSDOT Core - 20 talkpaths	\$ 16,354.00	\$ 16,354.00
	1	NexLog740DX	Eventide NexLog 740 DX Logging Recorder Budgetary Price to be Refined	\$ 92,000.00	\$ 92,000.00

Terms of Purchase:

RACOM's standard terms and conditions of sale apply Per contract.
Payment terms are on pre-approved account or payment with order.
This quote is valid and open for acceptance through 12/31/2022.
Taxes or other local fees are not included or part of this quote if required.
Shipping cost may be added as applicable.
This quote is for equipment and only services listed above are being provided.



201 West State Street
Marshalltown, IA 50158
800-722-6643
Fax 641-752-0674
www.racom.net

Proposal Prepared for: Okanogan County

Address _____
City _____
State & Zip Code WA _____
County _____
Phone/FAX _____
Contact Name _____
Contact E-mail _____

12/16/2022

L3Harris Terminal Pricing

Customer Buy

ITEM	QTY	PART NO.	DESCRIPTION	UNIT	EXTENDED
1			Portable Radios		
			All portables include P25 Phase 2, Single Key AES/DES, 3100 mHA Battery, Charger, Belt Clip, Antenna, GPS (Except XL-45P), Bluetooth, 4 Year Warranty		
	0	XL-200P	PORTABLE, Multiband, VHF, 7/800 MHz, Full Keypad	\$ 5,254.02	\$ -
	0	XL-185P	PORTABLE, Single Band 7/800 MHz, Full Keypad	\$ 3,500.23	\$ -
	0	XL-200P	PORTABLE, Fire radio Multiband, VHF, 7/800 MHz, Full Keypad with Extreme Mic, C1D1, Green, Extreme Speaker Mic, Advanced Safety features	\$ 6,515.72	\$ -
	0	XL-200P	PORTABLE, Fire radio Multiband, VHF, 7/800 MHz, Full Keypad with Extreme Mic, C1D1, Green, C1D1/C1D2 Speaker Mic	\$ 5,996.98	\$ -
	0	XL-95P	PORTABLE, Mid Tier, Single Band 7/800 MHz, Full Keypad	\$ 2,874.91	\$ -
	0	XL-45P	PORTABLE, Value Tier, Single Band 7/800 MHz, Full Keypad	\$ 2,060.93	\$ -
2			Portable Options		
	0	XL-PKG8F	FEATURE, 256-AES, 64-DES ENCRYPTION (Except for XL-45P)	\$ 555.00	\$ -
	0	XL-PL8N	FEATURE, IN-BAND GPS	\$ 222.00	\$ -
	0	XL-AE4B	SPEAKER MICROPHONE, EMER BUTTON	\$ 166.50	\$ -
	0	XL-PA3V	BATTERY, LI-ION, 3100 MAH	\$ 111.00	\$ -
	0	XL-PA4K	BATTERY, LI-ION, 4800 MAH, HI Capacity	\$ 129.50	\$ -
	0	XL-PA5C	BATTERY, LI-ION, 3100 MAH, UL, C1D1	\$ 148.00	\$ -
	0	XL-CH6F	CHARGER, DESKTOP, 2-BAY, LI-BAT, XL-185P	\$ 181.30	\$ -
	0	12082-3230-01	Clip, D-Swivel	\$ 11.10	\$ -
	0	XL-HC4A	Belt Loop, Leather, Premium	\$ 44.40	\$ -
	0	XL-CJ3A	CABLE, USB, PROGRAMMING	\$ 125.80	\$ -
	0	RE-XL002	DEVICE MGMT ANNUAL SUBSCRIPTION	\$ 60.00	\$ -
	0	Services	Radio Programming	\$ 50.00	\$ -
	0	SS-SW1D	RPM/RPM2 W/MAST DONGLE & ANNUAL UPDATES	\$ 1,095.00	\$ -
	0	SS-SW1M	RPM/RPM2 W/DIST DONGLE & ANNUAL UPDATES	\$ 1,095.00	\$ -
	0	TQS3416	Software, Key Manager	\$ 2,125.00	\$ -
3			Mobile Radios		
			All mobiles include P25 Phase 2, Single Key AES/DES, Mobile Antenna, Coax, Microphone, External Speaker, Mounting Kit, 4 Year Warranty		
	0	XL-200M	MOBILE, Multiband, VHF, 7/800 MHz,	\$ 7,172.09	\$ -
	0	XL-185M	MOBILE, Single Band, 7/800 MHz	\$ 6,276.70	\$ -
	0	XL-185M	Desktop, Single Band, 7/800 MHz, Power Supply, Yagi Antenna	\$ 7,656.21	\$ -
	0	XG-75M	MOBILE, Mid Tier, Single Band 7/800 MHz, Dash Mount	\$ 4,017.85	\$ -
	0	XG-25M	MOBILE, Value Tier, Single Band 7/800 MHz, Dash Mount	\$ 2,879.32	\$ -
4			Mobile Options		
	0	XZ-PKG8F	FEATURE, 256-AES, 64-DES ENCRYPTION	\$ 555.00	\$ -
	0	XT-MC6B	MICROPHONE, XL-MOBILE, KEYPAD	\$ 240.50	\$ -
	0	XZ-PL8N	FEATURE, IN-BAND GPS	\$ 222.00	\$ -
	0	XZ-AN5F	ANTENNA, GPS, ROOF MOUNT	\$ 114.70	\$ -
	0	RE-XL002	DEVICE MGMT ANNUAL SUBSCRIPTION	\$ 60.00	\$ -
	0	Services	Radio Programming	\$ 50.00	\$ -
	0	Services	Mobile Installation and removal	\$ 755.00	\$ -
	0	Services	Desktop Installation	\$ 1,700.00	\$ -
5			Additional Discount		
	0		Purchase at least 100 L3Harris terminals, take additional 20% off the sum total price of the terminals. This offer is good for purchase commitments through 12/31/2022.	\$ -	\$ -
			Total Terminals Price		\$ -

Terms of Purchase:

RACOM's standard terms and conditions of sale apply Per contract.
Payment terms are on pre-approved account or payment with order.
This quote is valid and open for acceptance through 12/31/2022.
Taxes or other local fees are not included or part of this quote if required.
Shipping cost may be added as applicable.
This quote is for equipment and only services listed above are being provided.



201 West State Street
Marshalltown, IA 50158
800-722-6643
Fax 641-752-0674
www.racom.net

Proposal Prepared for: Okanogan County

Address _____
City _____
State & Zip Code WA _____
County _____
Phone/FAX _____
Contact Name _____
Contact E-mail _____

12/16/2022

Tait Terminal Pricing

Customer Buy

ITEM	QTY	PART NO.	DESCRIPTION	UNIT	EXTENDED
1			Portable Radios		
			All portables include P25 Phase 2, 3300 mHA Battery, Charger, Belt Clip, Antenna, 3 Year Warranty		
	0	TP9800	PORTABLE, Multiband, VHF, 7/800 MHz, Full Keypad	\$ 3,282.00	\$ -
	0	TP9600	PORTABLE, Single Band 7/800 MHz, Full Keypad	\$ 2,422.00	\$ -
2			Portable Options		
	0	TPAS153	DES/AES Encryption Combo	\$ 613.46	\$ -
	0	TPAS155	Location Services	\$ 201.28	\$ -
	0	T03-00045-NDAA	TP3/TP9 SpkMic TSM3e IP67 F-bttn-org 3.5	\$ 99.16	\$ -
	0	TPAS075	OTAP	\$ 40.70	\$ -
	0	Services	Radio Programming	\$ 50.00	\$ -
	0	T02-00031-0002	P25 Terminals Programming & Calibration Kit (includes cable for Portable and Mobile)	\$ 361.12	\$ -
3			Mobile Radios		
			All mobiles include P25 Phase 2, Mobile Antenna, Coax, Microphone, External Speaker, Mounting Kit, 3 Year Warranty		
	0	TM9400	MOBILE, Single Band, 7/800 MHz, Dash Mount	\$ 2,446.00	\$ -
	0	TM9400	MOBILE, Single Band, 7/800 MHz, Remote Mount	\$ 2,648.00	\$ -
4			Mobile Options		
	0	TU2000M400-T	Kit Tait Unified Vehicle NACell x3Ant	\$ 596.44	\$ -
	0	TMAS153	DES/AES Encryption Combo	\$ 613.46	\$ -
	0	TMAS155	Location Services	\$ 201.28	\$ -
	0	T02-00025-1003	TM GPS Ant/Rx TW5342 Thru-hole mount Grey with 5m cbl	\$ 251.60	\$ -
	0	TMAS075	OTAP	\$ 40.70	\$ -
	0	Services	Radio Programming	\$ 50.00	\$ -
	0	Services	Mobile Installation and removal	\$ 755.00	\$ -
	0	Services	Desktop Installation	\$ 1,700.00	\$ -
			Total Terminals Price		\$ -

Terms of Purchase:

RACOM's standard terms and conditions of sale apply Per contract.
Payment terms are on pre-approved account or payment with order.
This quote is valid and open for acceptance through 12/31/2022.
Taxes or other local fees are not included or part of this quote if required.
Shipping cost may be added as applicable.
This quote is for equipment and only services listed above are being provided.

Additional Symphony description:

SYMPHONY CONSOLE

RACOM is proud to offer L3Harris' Symphony Console

With its award winning, innovative design, Symphony enables dispatchers to perform key functions in less time. Less clicks means fewer steps are needed to achieve the same outcome. Symphony was designed from the ground up to meet the unique needs of today's dispatch center. Symphony adapts to new and changing workflows, making dispatch operations more effective and efficient. The intuitive graphical interface streamlines training, makes modification simpler, and most importantly, puts dispatchers in expert control of their communications system.

Console Features List

The L3Harris Symphony Console uses state-of-the-art Internet Protocol (IP) technology to connect directly from the dispatch position to the proposed P25 Phase 2 trunked network, providing fast and efficient connections and distributed fault tolerance, while offering an extensive portfolio of robust features.



INSTANT RECALL RECORDER

The Symphony Dispatch Platform has an Instant Replay feature that allows the dispatcher to replay the last incoming radio, standard telephone, or SIP telephone call on the selected entity. The standard/normal module below highlights the Instant Replay button that is available on each talkgroup module.

Audio from all calls transmitted or received by the console saves for playback. Audio Playback enables this functionality and is accessible through history dialogs.



PATCH & SIMULSELECT


A patch ties talkgroups and/or conventional channels together as a common communication entity. Symphony supports 16 pre-defined patches per console and up to 16 active patches at one time per operator position. Symphony supports up to eight simultaneously active patches per console position. The dispatcher can create, activate when needed, and deactivate each patch. Each patch can consist of up to 15 patchable entities. All radio units on groups/channels within the patch communicate with each other across group/channel boundaries. If a talkgroup or a conventional channel is currently in an active patch, the dispatcher cannot place it in another patch from the original console or from any other console in the system.

The console's "simulselect" feature allows simultaneous selection of up to 15 trunked talkgroups, individual trunked radio units, and/or conventional channels. Typically, this feature is used when common broadcasts must be made from the console on two or more groups/units/channels, such as an "all-points bulletin." Also, a dispatcher often uses simulselect when they wish to simultaneously monitor incoming calls on two or more groups/units/channels in the select speaker. Typically, a simulselect is active (that is, in use by the console) only on a temporary basis. However, a simulselect may remain active for long periods of time, if necessary.

As its name implies, all communication modules within an active simulselect are simultaneously selected; therefore, incoming calls on the respective groups/units/channels are heard in the select speaker or headset. Also, a selected transmission from the console simultaneously broadcasts on all groups/units/channels in the active simulselect. The console can activate only one simulselect at one time.

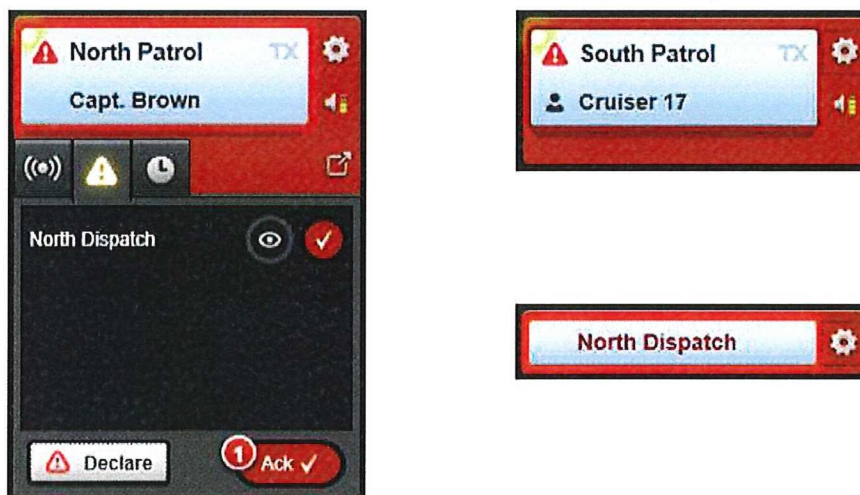
EMERGENCY ALARM

An emergency alarm can initiate by pressing the red emergency button located on the radio. Dispatcher positions programmed for notification of an emergency alarm will be able to clear the alarm but only the subscriber can cancel the emergency alarm.

The Symphony dispatch console indicates an emergency via visual indications and in most cases, audible alarms. The display ID or alias identifies the individual or talkgroup that is experiencing an emergency. The communication module highlights in red and the  icon flashes on the module's smart button.

This figure illustrates how an emergency displays on each size communication module.

Communication Modules in Emergency



Calls on emergency groups have a higher priority throughout the trunked radio system than non-emergency calls. This ensures that these calls are less likely to be queued by the system during busy periods.

HISTORY LOGS

There are multiple sources for call history information. These include:

- The History tab of each Communications Module
- The History Sidebar Panel
- The Extended Call History dialog
- The Select History dialog
- Speaker History

Audio from all calls transmitted or received by the console save for playback and is available from all history dialogs. The playback function is accessible through the history dialogs. The administrator configures the number of displayed calls. The default is 100 entries.

ENCRYPTION

The Key Management Facility is the server that provides Symphony with encryption information including encryption keys and bindings between talkgroups and keys. For the consoles in the radio system, the encryption key stores in the console and all encryption encoding and decoding occurs within the console.

Encryption and decryption occur within the Symphony console.
Packets route through the IP network, resulting in greater security and the elimination of unsecured connections from a separate Digital Voice Unit (DVU).

An encryption button controls the encryption state of the communications module. The three possible states are:

Encryption Button State Icons

Unsupported	
Unencrypted	
Encrypted	

When a radio user talks in encrypted mode, AES encrypted voice packets route over the radio system. With an encrypted network sending out encrypted data packets, we ensure end-to-end encryption by encoding and decoding encrypted data packets only at end points, such as the radio or the console.

Call Director (Option)

The Symphony can manage multiple audio sources in a single headset using the Call Director interface button. Telephone audio from 9-1-1 dispatch phone systems or business phone systems can connect to the Symphony via four-wire POTS lines with an off-hook indication. This connection allows the dispatcher to select the audio source for their headset to manage 9-1-1 and administration phone calls while dispatching the radio system.

Console Phone Features (Option)

Symphony will integrate with SIP 2.0 phones and implement one-at-a-time PTT behavior between radio and telephone. The console integrates with Cisco Call version 9.X with 6 digit (internal) and 10-digit external dialing plans. The following phone basics available at the console include:

- Mute
- Transfer
- Hold
- Conference, 3-way calling

From the console screen, dispatchers will be able to view the caller ID of the incoming telephone call.

CONFIGURATION BACKUP

L3Harris incorporates Active Directory (AD) into the VIDA infrastructure. AD allows display configurations and an alias database to store locally or on a centrally located server. Active Directory backs up on Unitrends. Unitrends is an easy-to-use data protection solution option, with the ability to grow as needed. Unitrends servers (one located at each Core) provide automatic/continuous backup of critical databases (radio, talkgroups and infrastructure) at on and off-site locations. All Unitrends backup and recovery operations are centrally monitorable and manageable from the centralized Rapid Recovery Console.

BACKUP CONTROL STATION FEATURE

The Backup Radio feature enables the dispatcher to connect the console to a control station radio in the event the network connection goes down. The PTT and audio signals from the desk microphone, headset, speakers, and footswitch sum and route to the backup control station. The three-position backup radio switch (Auto, Disable, or Manual) located on the front of the Symphony Dispatch Platform enables or disables the backup radio mode.

Auto mode – The Backup Radio can activate from the console whether the network switch connection is lost or not. When the dispatcher presses the backup radio module button, the backup radio connected to the Symphony hardware enables regardless of the connection state. When the dispatcher disables the Backup Radio by pressing the module button again, the backup radio disables.

Manual mode – The Backup Radio is in a “Bypass Only” state and remains enabled and activated until the mode changes.

Disable mode – The Backup Radio remains disabled, even if the dispatcher presses the Backup Radio module button.

The Status Bar displays information about whether Symphony is currently in backup radio or console mode.

As a new feature, the dispatcher will also be able to change the pre-programmed channels/talkgroups on the backup radio directly from the Symphony console’s user interface. There is no need to touch the radio control head itself.

SIGNALING CAPABILITIES

PAGING

The Symphony console supports single sequence paging, stacked paging, “One Touch” paging, and composite paging.

Paging Sequence – A sequence of tones sent to a single group, conventional channel, or unit. The sequence only sets off a select set of pagers such as a fire station or a collection of volunteer firefighters.

Paging Stack – A collection of related paging sequences issued together from a single paging module.

“One Touch” Paging – Allows the operator to send a page or stacked page, open a simulselect, and send the optional alert with one touch of the paging module.

Composite Paging – Provides the ability to build a complex page on the fly using existing page sequences and stacks. The composite page can also include an alert and automatic simulselect at the end. Auto selecting all the paged entities allows the dispatcher to effortlessly speak to everyone involved in the incident once paged.

ALERTING

Alert controls allow a dispatcher to choose the type of alert tone from a drop-down list and transmit the tone to the module entity. Typically, dispatchers use alert tones during emergency operations to signal radio units of various pre-defined emergency conditions, with voice transmissions following. When a tone transmits from the console, it simultaneously plays in a speaker at the console. To prevent voice interference, all console microphone audio mutes during transmissions.

Three distinctive alert tones available from the console include:

Alert Tone (A) – A steady medium-frequency tone (1000 Hz) that sounds while the dispatcher presses the respective button.

Warble Tone (W) – A repeating sequence of a medium-frequency tone followed by a higher frequency tone that sounds while the dispatcher presses the respective button.

Pulse Tone (P) – Medium-frequency tone (1000 Hz) that turns on and off repeatedly while the dispatcher presses the respective button.

In addition to the paging and alerting tones, the Symphony can also transmit two customizable tones for a total of five separate distinctive tones.

Each operator can select a distinctive ring tone that signifies when they are receiving an inbound call alert or private call.

AUXILIARY INPUT / OUTPUT CONNECTIONS

Auxiliary input and output connections are made using the Auxiliary I/O Connector, which is located on the Symphony Dispatch Platform's rear panel. The connector has six opto-coupler auxiliary input lines (bottom row) and five output lines (top row) that can be used for interfacing with two-state external devices.

The VIDA system can be setup with talkgroups and user IDs that are not assigned to radio users. These IDs can be used for the sole purposes of dispatch training. A training dispatch profile can be setup that only has the users and group IDs identified for training. This will allow a dispatcher to perform live training while not impacting system users.

INTEROPERABILITY

Calls originating outside the [Customer]'s system, from the Interoperability Gateways or ISSI, are available on the console. Each Interoperability Gateway or ISSI talkpath can program into a communications module just like a talkgroup, radio unit, or conventional channel.

CONSOLE SUB-SYSTEM INTERFACE CSSI CAPABILITIES (OPTION)

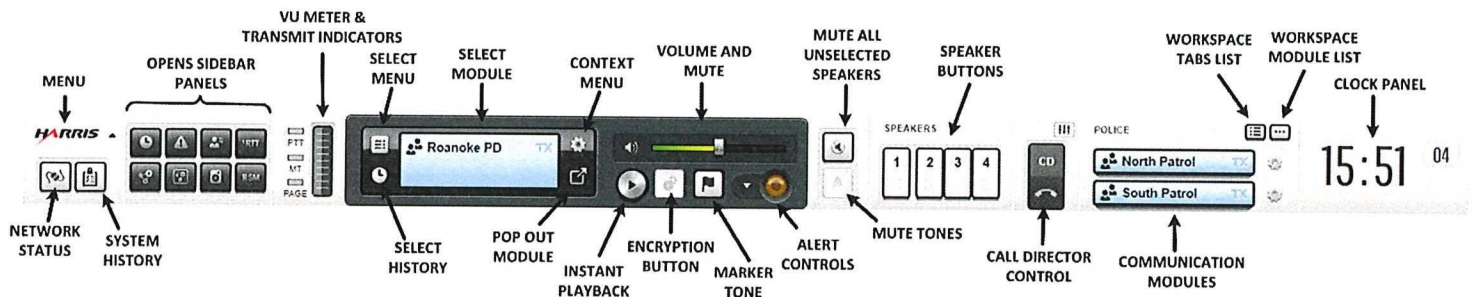
CSSI allows the integration of third-party P25 CSSI-compliant dispatch consoles in a P25 system. L3Harris implemented the Console Subsystem Interface (CSSI) as part of the ISSI. The CSSI allows for P25 CSSI-compliant consoles from other manufacturers to be attached to the L3Harris infrastructure. As with all its products, L3Harris continually adds features and capabilities. This CSSI has currently been integrated and tested with third-party console vendors.

Symphony Baton Option

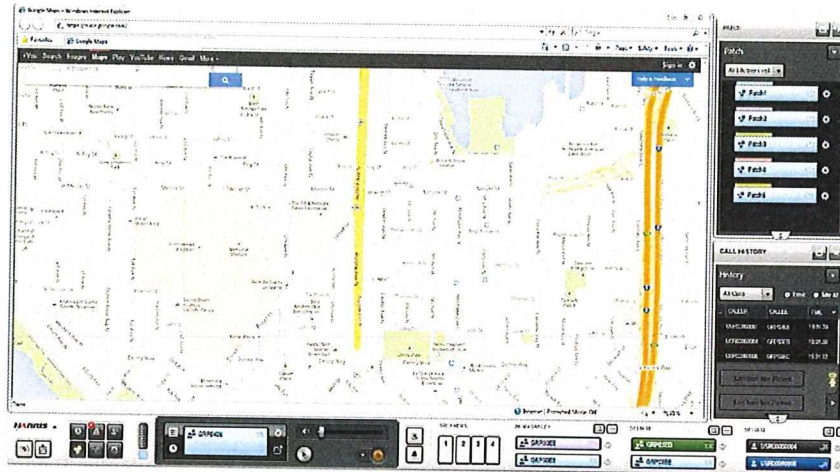
A differentiating feature of the Symphony software is the patented Baton™, which simplifies workflow by putting the features dispatchers use the most where they need them. The Baton provides a heads-up display of radio system status and controls to the dispatcher directly on their main CAD interface using the same mouse and keyboard. Up to 95% of the functionality of the full Symphony application presents in 10% of the screen real estate to the user, reducing the number of monitors, mice, and keyboards required at each dispatcher's workstation.

The Baton can contain a number of controls such as speaker buttons, clock panel, and workspace controls containing two communication modules each, as customized by the administrator.

- ✓ Design your console
- ✓ Place favorite features where you want them
- ✓ Place the console anywhere on the screen
- ✓ Use your existing monitor, keyboard, and mouse
- ✓ Stay focused, save time, save lives



Symphony Console Baton Feature (With other software running)



SYMPHONY AND DISPATCH CONSOLE OPTIONS

This table lists the options available for the Symphony console system.

Symphony Console Optional Features (Not included in Proposal)	
Feature	Description
Conventional Controls	Supports multiple base station control functions on the Base Station Control Tab. These controls are used to send standard remote-control tones to conventional stations.
Marker Tone for Conventional Systems	Supports an audio tone that is sent over a conventional RF channel after a period of inactivity on that channel and is usually used to indicate an emergency or special condition on that channel.
Request to Talk (RTT)	Supports a short control message known as a Request-to-Talk (RTT) message or RTT. RTT messages have a unique code that indicates the type of service required such as "Need tow truck" or "License plate check".
Call Alert, Send-Only	Supports the sending of a message to a user's radio to alert that dispatch is trying to reach him/her. The radio rings or sounds a distinctive tone to get the user's attention.
Discreet Listening	When licensed and enabled (checked), the dispatcher can listen to VIDA I-Call conversations between two other units. This is a receive-only feature.
Basic SIP Telephone (4/8-Lines)	SIP Telephony are feature-licensed options, this feature is only available if the console is equipped with this software license. There are two types of Licenses available for purchase. 4 SIP Lines – Allows for up to 4 SIP lines and up to 8 Simultaneous Calls. 8 SIP Lines – Allows for up to 8 SIP lines and up to 16 Simultaneous Calls.