

# County of Lake RFP #21-01

Law Enforcement Radios with Encryption

Proposal by Cathy Conley of Vision Communications, San Leandro, CA

# County of Lake RFP #21-01

## Law Enforcement Radios with Encryption

Vision Communications is proud to offer our services to Lake County for RFP #21-01. Enclosed find our proposal to meet the needs of your First Responder Sheriff's Department. All items in the RFP have been addressed and additional services have been included at no charge to the County.

We have addressed the overall goal of the Sheriff's Department by supplying new P25 equipment with AES High Level Encryption to meet today's increased security demands as dictated by the Department of Justice and CLETS.

Vision Communications has elected to utilize new EF Johnson Public Safety equipment rather than affect the safety of First Responders by providing outdated and used equipment of unknown provenance. We felt this was in the best interests of Lake County's users and the best use of its financial resources.



## Company Profile

For over 25 years Vision Communications has been a major supplier of Land Mobile Radio Communications to government and business users within California. With Corporate offices in Long Beach, CA, we have five (5) offices including San Leandro, CA, where we will be supporting Lake County. We are a registered Small Business with the State of California and a Woman Owned Business. We provide sales, engineering and services to Napa County, Santa Cruz County, San Joaquin County, Alameda County and Marin County. Additional customers include Calpine – Geysers and numerous Cities and municipal agencies.

## Executive Summary

Vision Communications proposes replacing Lake County's aging Motorola Public Safety subscribers with all new EF Johnson radios while meeting all of the requirements of the Scope of Work. All of the EF Johnson radios will carry a three (3) year warranty and we provide a credit for your existing Motorola radios. We have included all programming software and providing training to up to 10 Lake County personnel on EF Johnson radios and software. We would be happy to provide demonstration radios for Lake County to aid in your decision.

Our recommended mobile radios are the VM7000 series, see included specification sheet. This is the radio used by California Highway Patrol and on the EBRCSA P25 network. The VM7000's all include Multi-Key AES-256 encryption, Analog Conventional, APCO P25 and ADP encryption. All VM7000's include a high power external speaker and all but the Handheld Head Radio Mobile Radios include a palm microphone. All VM7000's have a three (3) year warranty. They will be programmed, tested, tuned, aligned to factory specifications and will be delivered within 45 days from the awarded bid.

Our recommended portable radios are the VP5000 series, see included specification sheet. The VP5000's all include Multi-Key AES-256 encryption, Analog Conventional, APCO P25 and ADP encryption. A credit will be provided up front for the return of 75 APX4000 radios with accessories within 90 days of the delivery of the VP5000's. All VP5000's have a three (3) year warranty and will be delivered within 45 days from the awarded bid.

Vision Communications is providing a VK5000S Keyloader as well as all associated cables. In addition, we have included all programming software and cables for the VM7000 mobile and VP5000 portable radios. All components will be delivered within 45 of awarded bid. Training of EF Johnson products will be scheduled at the County's convenience.

# CUSTOMER QUOTE

## SALES QUOTE

22021701

COMPANY: **County of Lake**  
 ATTENTION: **Sheriff's Dept. - Stephen Carter**  
 ADDRESS: **255 N. Forbes St.**  
 CITY: **Lakeport, CA 95453**  
 PHONE: **(707)262-4218**  
[mbs@co.lake.ca.us](mailto:mbs@co.lake.ca.us)

SHIP TO:  
 COMPANY:  
 ATTENTION: DEPT:  
 ADDRESS:  
 CITY: STATE:  
 PHONE: FAX:

QTY	EQUIPMENT DESCRIPTION	UNIT COST	EXTENDED COST
13	2.1.1 - VM7000 Single Deck, Single Remote, VHF, 50 Watts, 1024 Ch., Handheld Controller Analog Conventional, APCO P25, Multi-Key AES-256 and ADP Encryption, Mounting Brackets, External Speaker, Ignition Sense Cable, Voice Recording, <b>Three (3) Year Warranty</b>	\$2,435.32	\$31,659.16
17	2.1.2 - VM7000 Single Deck, Single Remote, VHF, 50 Watts, 1024 Ch., 05 Head Dash Mount Analog Conventional, APCO P25, Multi-Key AES-256 and ADP Encryption, Mounting Brackets, Palm Microphone, External Speaker, Ignition Sense Cable, Voice Recording, <b>Three (3) Year Warranty</b>	\$2,251.00	\$38,267.00
60	2.1.3 - VM7000 Single Deck, Single Remote, 110 Watts, 1024 Ch. 05 Head Remote Mount Analog Conventional, APCO P25, Multi-Key AES-256 and ADP Encryption, Mounting Brackets, Palm Microphone, External Speaker, Ignition Sense Cable, Voice Recording, <b>Three (3) Year Warranty</b>	\$2,572.12	\$154,327.20
77	2.1.8 - Palm Microphones - Included with Radios	\$0.00	\$0.00
90	2.1.9 - External Speakers - Included with Radios	\$0.00	\$0.00
75	2.2 - EF Johnson VP5320 Portable, VHF, 1024 Channels, 5 watts, Standard Keypad, Display, Analog Conventional, APCO P25 Enabled, AES 256 Encryption, Multi-Key DES-OFB, Voice Recording with Antenna, 2600 mAh Li-ion Battery and Belt Clip, <b>Three (3) Year Warranty</b>	\$1,475.00	\$110,625.00
75	2.2 - VP5320 Single bay chargers - KSC-32 (6-slot Charger is also available)	\$59.20	\$4,440.00
75	2.2 - Credit for returning all APX-4000 with all accessories. To be returned within 90 days of VP5230 delivery.	-\$400.00	(\$30,000.00)
1	2.3.1 - VIKING RADIO SECURITY DEVICE - MASTER	\$175.00	\$175.00
1	2.3.2/3 - VK5000 VOICE AND AUTH KEY CABLE	\$450.00	\$450.00
1	2.3.1 - VK5000S SONIM KEYLOADER KIT	\$1,750.00	\$1,750.00
1	PROGRAMMING CABLE, USB, VM-T RM AND VM-H	\$22.00	\$22.00
1	ARMADA SOFTWARE SUBSCRIPTION, 5 - YEARS, VIKING	\$450.00	\$450.00
1	PROGRAMMING CABLE, USB, VP-T	\$140.00	\$140.00
<b>Service</b>			
1	Radio Programming, Testing, Tuning and Aligning for 90 mobile radios and 75 portable radios. Radios are tuned at the factory. Training for up to 10 Lake County personnel on EF Johnson software, hardware and programming.	\$27,225.00	\$27,225.00

<b>SPECIAL INSTRUCTIONS:</b>		<b>SUBTOTAL</b>	<b>\$312,305.36</b>
ALL ORDERS ARE SUBJECT TO 25% RESTOCKING FEE IF CANCELLED OR RETURNED.	TAX RATE	8.75%	\$27,326.72
QUOTE IS VALID FOR 30 DAYS	SHIPPING	\$	175.00
	SERVICE	\$	27,225.00
	<b>TOTAL DUE</b>	<b>\$</b>	<b>367,032.08</b>

NOTE: This quote is intended only for the use of the person/s to whom it is addressed and may contain information that is privileged, confidential, and protected from disclosure under applicable law. If the reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited.

COMPLETED BY	CONTACT INFORMATION	DATE	SIGNATURE	PO #
Cathy Conley	OFFICE: (510) 864-7900 MOBILE: (510)703-3411 cconley@2viscom.com	2/17/2021		

THANK YOU FOR CHOOSING VISION COMMUNICATIONS, CO.

VISION COMMUNICATIONS CO  
 1770 Neptune Dr. San Leandro, CA 94577  
 PHONE (510) 346-0300 FAX (510) 346-8474

# KENWOOD



P25 Mission Critical

## VP5000

VHF - UHF (High & Low) - 700/800 MHz  
P25 Phase 1 & 2 - Viking16

At just under 5.5 inches tall (140 mm), these small KENWOOD Viking portable radios are packed with advanced features for today's public safety agencies.

### Features

- Mixed protocol operation (P25 Phase 1 & 2 Trunking, P25 Conventional, Viking16, FM Analog)
- Mixed protocol zones (each channel in a zone can be from a different system)
- 1024 channels
- 1 Watt audio output for high noise environments
- Voice annunciation & custom announcement creation
- Fully ruggedized - IP67 & MIL-STD-810 C/D/E/F/G
- Full key models (w/numeric keypad) & standard key models (w/o numeric keypad)
- Built-In GPS receiver/antenna for enhanced awareness<sup>1</sup>
- MDC-1200 & GE-Star signaling
- P25 Authentication
- Bluetooth\*
- Man Down
- Instant Recording Replay (IRR)
- Voice Recording
- Text Messaging
- Radio Cloning
- Bluetooth Low Energy
- Encryption
  - ARC4™ software encryption; compatible w/Motorola ADP™
  - DES-OFB
  - AES-256 (FIPS 140-2) Single and Multi-Key
  - Over-the-Air-Rekeying (OTAR)
  - VK5000 or Motorola KVL3000/KVL4000 Keyloader



### User Selectable Color Themes

- Multi-line text
- Multiple visual indicators including battery health & signal strength
- Day & night user selectable display options (8 themes available)



### Compatible With P25 Systems

- ATLAS® P25 Phase 1 and Phase 2 System
- Motorola Astro® 25 - P25 Phase 1 & Phase 2
- Harris VIDA® - P25 Phase 1 & Phase 2
- Airbus (formerly Cassidian) VESTA™ Radio - P25 Phase 1 & Phase 2

### Accessories

Complete line of accessories including microphones, speakers & antennas.  
Download the accessory catalog at  
[www.efjohnson.com/products/accessories](http://www.efjohnson.com/products/accessories).

We combine P25 design expertise with recognized quality & reliability along with advanced technology to make KENWOOD Viking radios simple to use & maintain.



#### Perpetual Software Licensing

Adds greater value to your radios by extending the life of the software into your next hardware platform — you own the software option forever, and your licenses are simple to manage with our cloud-based tool — Vsoft™.



#### Armada® Fleet Management

Update radios in a group rather than one at a time. One template programs both portables & mobiles. Supports either direct computer connection or Over-the-Air Programming (OTAP). Elite battery management enables wireless tracking of battery fleet.



#### TrueVoice™ Noise Cancellation

Software-based noise cancellation automatically filters out noise source frequencies and eliminates the need for extra configuration. Works in analog or digital mode and with any accessory.

# VP5230/5330/5430 Portable Specifications

General		VP5230	VP5330	VP5430
Frequency Range		136-174 MHz (FCC ID K44431400)	Type 1: 450-520 MHz (FCC ID K44431500) Type 2: 380-470 MHz (FCC ID K44431501)	RX: 763-776, 851-870 MHz TX: 763-776, 793-806, 806-825, 851-870 MHz (FCC ID ALH442000)
Max. Channels Per Radio		1024		
Number of Zones		255		
Max. Channels Per Zone		255		
Channel Spacing	Analog	12.5/15/20/25*/30* kHz	12.5/25* kHz	12.5/25 kHz
	Digital	12.5 kHz	12.5 kHz	12.5 kHz
Power Supply		7.5 V DC $\pm$ 20%		
Operating Temperature		-22 °F to +140 °F (-30 °C to +60 °C)		
Frequency Stability		$\pm$ 1.5 ppm	$\pm$ 1.5 ppm	$\pm$ 1.5 ppm
Dimensions (W x H x D) Projections Not Included	KNB-L2 (2,600 mAh)	2.28 x 5.47 x 1.56 in. (58.0 x 138.9 x 39.5 mm)		
	KNB-L3 (3,400 mAh)	2.28 x 5.47 x 1.77 in. (58.0 x 138.9 x 44.9 mm)		
Weight with Battery	KNB-L2 (2,600 mAh)	14.3 oz (406 g)		
	KNB-L3 (3,400 mAh)	15.8 oz (449 g)		
Receiver		VP5230	VP5330	VP5430
Sensitivity	P25 Digital (5% BER)	-119 dBm (0.025 $\mu$ V)		
	Analog (12 dB SINAD)	-119 dBm (0.025 $\mu$ V)		
Selectivity	P25 Digital	60 dB		
	Analog @ 12.5 kHz	65 dB		
	Analog @ 25 kHz	73 dB		
Intermodulation		73 dB		75 dB
Spurious Rejection		80 dB	75 dB	
Audio Distortion		3%		
Audio Output Power		500 mW/8 $\Omega$ (3% Distortion)/1,000 mW/8 $\Omega$ (5% Distortion)		
Transmitter		VP5230	VP5330	VP5430
RF Output Power		1W/6W	1W/5W	1W/3W
Spurious Emission		-70 dB		
FM Hum & Noise	Analog @ 12.5 kHz	40 dB		
	Analog @ 25 kHz	45 dB		
Audio Distortion		2%		
Emission Designator		16K0F3E, 11K0F3E, 8K10F1E, 8K10F1D, 8K10F1W		16K0F3E, 14K0F3E, 11K0F3E, 8K10F1E, 8K10F1D, 8K10F1W

Mil Standard	810G
Low Pressure	500.5/ I, II
High Temperature	501.5/ I, II
Low Temperature	502.5/ I, II
Temp. Shock	503.5/ I
Solar Radiation	505.5/ I
Rain	506.5/ I, III
Humidity	507.5/ II
Salt Fog	509.5
Dust	510.5/ I
Vibration	514.6/ I
Immersion	512.5/ I
Shock	516.6/ I, IV

Encryption Options	
Supported Encryption	AES, DES-OFB, ARC4
Encryption Key/ Radio	126 Common Key Reference (CKR), 126 Physical Identifier (PID), Compatible w/ Motorola Key Variable Loader
Encryption Frame Re-sync Interval	P25 CAI 360 MSEC
Encryption Keying	External Key Loader, OTAR
Mode	OFB-Output Feedback
Encryption Type	Digital
Key Erasure	Keyboard Command
Standards	FIPS 46-3, FIPS 81, FIPS 140-2, FIPS 197

### Hazardous Location Certification

Certification Lab	CSA Group
Standard Applied	ANSI/TIA 4950-A-2014, UL913 6th Edition & ANSI/ISA-12.12.01-2011
Classification Rating	Intrinsically Safe: Classes I, II, III, Division 1, Groups D, E, F, G Non-incendive: Class I, Division 2, Groups A, B, C, D
Approved Battery	KNB-LS7
Approved Speaker Micro-phones	KMC-54WDM, KMC-70M

### International Protection Standard

Dust & Water	IP54, IP55
Immersion	IP67**/68***

\*Refer to the Viking VP5000 operating manual for detailed requirements & conditions for proper GPS operation.

\*\* 25/30 kHz in VHF/UHF Bands (except T-Band) are not included in the models sold in the USA or US territories.

\*\*\* IP67/68 - Must have the Speaker Mic Universal Connector or Universal Connector Protector connected.

\*\*\*\* IP68=1m/2H Specifications shown are typical and subject to change without notice Please check the website for the latest version. V0703.19  
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**EF Johnson Technologies, Inc.**

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## VM7000

Low Band - High Power<sup>2</sup> - VHF (with High Power option)

U-F-Low - UHF - High<sup>2</sup> - 700/800 MHz

Analog - P25 Phase 1 & 2 - Viking16

With the VM7000 All-Band Multi-Deck Mobile, you can simultaneously receive and display up to four bands so you never miss a call. The "select" and "unselect" speakers give you the option for audio control similar to a dispatch console. KENWOOD Viking® is the industry's only mobile platform providing TrueVoice™ noise cancellation.

### Features

- Mixed protocol operation (P25 Phase 1 & 2 Trunking, P25 Conventional, Viking16, FM Analog)
- 1024 channels (2048 and 4096 options)
- Mixed protocol zones
- P25 Authentication (Link Layer Authentication)
- P25 IP packet data
- P25 GPS data (built in GPS)
- MDC-1200 & GE-Star signaling
- P25 Conventional vote scan
- Single or Dual Remote Mount configuration
- External speaker
- Over-the-Internet-Programming (OTIP)
- Encryption
  - ARC4™ software encryption; compatible with Motorola ADP™
  - DES-OFB
  - AES-256 (FIPS 140-2) Single and Multi-Key
  - Over-the-Air-Rekeying (OTAR)
  - VK5000 or Motorola KVL3000/KVL4000 Keyloaders
- WiFi
- Instant Recording Replay (IRR)
- Voice Recording
- Text Messaging
- Bluetooth Low Energy
- Custom Transmit Power Levels

*Refer to the Viking VM7000 operating manual for detailed requirements & conditions for proper GPS operation.*

### Accessories

Complete line of accessories including microphones, speakers & antennas. Download the accessory catalog at [www.efjohnson.com/products/accessories](http://www.efjohnson.com/products/accessories).



### Enhanced Control Head

- Larger display - 2.75" (36 x 60 mm)
- Resolution of 400 x 240 pixels
- Viewing angle of 140°
- Multi-color LCD + TX/RX (green/red) LEDs
- D-Pad & more PF keys, dedicated emergency key & channel/volume control knobs
- Replaceable A/B/C button labels
- User selectable themes (8 themes available)
- Day & night display options



Day - High Contrast



Night - High Contrast

- The VM7000 can also use the KCH-21RV Handheld Control Head (HHCH)



### Compatible With P25 Systems<sup>2</sup>

- ATLAS® P25 Phase 1 and Phase 2 System
- Motorola Astro® 25 - P25 Phase 1 & Phase 2
- L3Harris VIDA® - P25 Phase 1 & Phase 2
- Airbus (formerly Cassidian) VESTA™ Radio - P25 Phase 1 & Phase 2

We combine P25 design expertise with recognized quality & reliability along with advanced technology to make KENWOOD Viking radios simple to use & maintain.



#### Perpetual Software Licensing

Adds greater value to your radios by extending the life of the software into your next hardware platform — you own the software option forever, and your licenses are simple to manage with our cloud-based tool — Vault™.



#### Armada® Fleet Management

Locate your radios in a group rather than one at a time. One template programs both portables & mobiles. Supports either a direct computer connection, Over-the-Air Programming (OTAP), or Over-the-Internet Programming (OTIP).



#### TrueVoice™ Noise Cancellation

Software-based noise cancellation automatically filters out noise source frequencies and eliminates the need for extra configuration. Works in analog or digital modes and with any accessory.

# VM7000 Mobile Specifications

General		Low Band (110W) <sup>2</sup>	VHF (110W)	VHF	UHF	700/800 MHz
Frequency Range		39-50 MHz	136-174 MHz	136-174 MHz	Type 1: 450-520 MHz Type 2: 380-470 MHz	RX: 762-776, 851-870 MHz TX: 762-776, 792-806, 806-825, 851-870 MHz
Max. Channels Per Radio		1024 (2048 and 4096 options)				
Number of Zones		255				
Max. Channels Per Zone		255				
Channel Spacing	Analog	20 kHz	12.5/15/20/25*/30* kHz		12.5/25* kHz	12.5/25 kHz
	Digital	Not applicable	12.5 kHz			
Power Supply		13.4 V DC ±15 %		13.6 V DC ±15 %		
Current Drain	Standby	1.3 A		1.2 A		
	RX	3.3 A		3.0 A		
	TX	28 A		14 A		
Operating Temperature		-22 °F to +140 °F (-30 °C to +60 °C)				
Frequency Stability		±1.0 ppm		±1.5 ppm		
Dimensions (W x H x D) RF Deck + Front Head Unit (not including KCH-20RV)		7.01 x 2.56 x 13.84 in. (178 x 65 x 351.6 mm)		6.73 x 1.89 x 7.24 in. (171 x 48 x 184 mm)		6.73 x 1.89 x 8.03 in. (171 x 48 x 204 mm)
Weight - RF Deck + Front Head Unit (not including KCH-20RV)		12.1 lbs (5.5 kg)		3.31 lbs (1.5 kg)		3.75 lbs (1.7 kg)
Receiver		VM7630H	VM7730H	VM7730	VM7830	VM7930
Sensitivity	P25 Digital (5% BER)	Not applicable	-119 dBm (0.25 µV)			
	Analog (12 dB SINAD)	-119 dBm (0.25 µV)				
Selectivity	P25 Digital	Not applicable	60 dB			
	Analog @ 12.5 kHz	Not applicable	60 dB			
	Analog @ 20/25 kHz	85 dB @ 20 kHz	75 dB @ 25 kHz			
Intermodulation		80 dB				
Spurious Rejection		90 dB	85 dB			87 dB
Audio Distortion		3%			2%	
Audio Output Power		12 W/4 Ω (External Audio Output)			4 W/4 Ω (Remote Control Head: 3 W/4 Ω)	
Transmitter		VM7630H	VM7730H	VM7730	VM7830	VM7930
RF Power Output Power		25W-110W		5W/50W	5W/45W - (Type 1: 450-485 MHz) 5W/40W - (Type 1: 485-520 MHz) 5W/40W - (Type 2: 380-470 MHz)	2W/30W (700 MHz) 2W/35W (800 MHz)
Spurious Emission		-80 dB		-73 dB	-75 dB	-80 dB
FM Hum & Noise	Analog @ 12.5 kHz	Not applicable	45 dB			40 dB
	Analog @ 20/25 kHz	55 dB @ 20 kHz	50 dB @ 25 kHz			45 dB
Audio Distortion		2%				
Emission Designator		16K0F3E	16K0F3E, 11K0F3E, 8K10F1E, 8K10F1D, 8K10F1W			16K0F3E, 14K0F3E, 11K0F3E, 8K10F1E, 8K10F1D, 8K10F1W

Mil Standard	810C	810D	810E	810F	810G
Low Pressure	500.1/ I	500.2/ I, II	500.3/ I, II	500.4/ I, II	500.5/ I, II
High Temperature	501.1/ I, II	501.2/ I, II	501.3/ I, II	501.4/ I, II	501.5/ I, II
Low Temperature	502.1/ I	502.2/ I, II	502.3/ I, II	502.4/ I, II	502.5/ I, II
Temp. Shock	503.1/ I	503.2/ I	503.3/ I	503.4/ I, II	503.5/ I
Solar Radiation	505.1/ I	505.2/ I	505.3/ I	505.4/ I	505.5/ I
Rain	506.1/ I, II	506.2/ I, II	506.3/ I, II	506.4/ I, III	506.5/ I, III

Mil Standard	810C	810D	810E	810F	810G
Humidity	507.1/ I, II	507.2/ II, III	507.3/ II, III	507.4	507.5/ II
Salt Fog	509.1/ I	509.2/ I	509.3/ I	509.4	509.5
Dust	510.1/ I	510.2/ I	510.3/ I	510.4/ I, III	510.5/ I
Vibration	514.2/ VIII, X	514.3/ I	514.4/ I	514.5/ I	514.6/ I
Shock	516.2/ I, V	516.3/ I, V	516.4/ I, V	516.5/ I, V	516.6/ I, V

## International Protection Standard<sup>\*\*\*</sup>

Dust & Water IP54, IP55<sup>\*\*</sup>

<sup>\*\*</sup>IP54: RF Deck + Front Head Unit of the mobile radio; IP55: Remote Control Head for the mobile radio.

<sup>\*\*\*</sup>All interfaces must be fully sealed with appropriate covers unless they are connected to a genuine accessory.

\*25/30 kHz in VHF/UHF Bands are not included in the models sold in the USA or US territories. Analog measurements made per TIA 603 and specifications shown are typical.

<sup>2</sup>Low Band High Power is analog 20 kHz mode only, multi-deck configuration only.

All specifications are subject to change without notice. Please check the website for the latest version.  
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Encryption Options	
Supported Encryption	AES, DES-OFB, ARC4 (VM7630H: Not applicable)
Encryption Key/Radio	126 Common Key Reference (CKR), 126 Physical Identifier (PID), Compatible w/ Motorola Key Variable Loader
Encryption Frame Re-sync Interval	P25 CAI 360 MSEC
Encryption Keying	External Key Loader, OTAR
Mode	OFB-Output Feedback
Encryption Type	Digital
Key Erasure	Keyboard Command
Standards	FIPS 46-3, FIPS 81, FIPS 140-2, FIPS 197

**EF Johnson Technologies, Inc.**

a JVCKENWOOD Company

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