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# VRX1000

# Ordering Guide



Revision 7.4

May 2024

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# Important Notes

1. **Custom Filtering:** Only the frequency plans shown in this ordering guide are available as standard configurations. For custom filtering, please contact a [Sales Solution Specialist](#) for assistance.
2. **Frequencies Required:** VRX1000 frequencies must be specified when placing an order. If an in-band filter is ordered it is custom tuned and cannot be re-tuned in the field.
3. **Delivery Time:** Standard VRX1000 delivery time is 22-24 weeks after receipt of a purchase order and a valid frequency plan. Frequency information must be accurate and in accordance with the frequency plan requirements described in this document in order to avoid delays.
4. **Control Heads:** The APX™ Mobile radio can operate with up to two control heads while interfaced to a VRX1000.
5. **MSU Transmit Power:** In all In-Band configurations, the MSU Transmit power must not exceed 50 Watts on DVRS Enabled MSU Modes due to the in-band filters' power rating. The in-band filters connected to the MSU have typical insertion loss of 1.5dB
6. **Subscriber Options:** APX™ Mobile Radios operating as the host mobile for the VRX1000 require subscriber option **GA00631** for operation. APX™ Portable Radios operating through a VRX1000, utilizing the P25 Enhanced feature set require subscriber option **QA00631**.

# Mobile Radio Type

## Compatible Mobile Radios

Please refer to the [Compatibility Charts](#) under the Firmware section for complete information.

## When Pairing with an APX™ 8500 Mobile Radio

1. **Interface Kits:** Depending on the isolation available between the APX™ 8500 mobile and VRX1000 antennas, an interface kit may be required. Download the [Interface Kit Selection tool](#) under the Ordering Guide header to determine which (if any) kit and installation drawing is required.

**NOTE:** For quoting purposes, the **No Kit** option may be selected but note that there is an additional cost if an interface kit is determined to be required later.

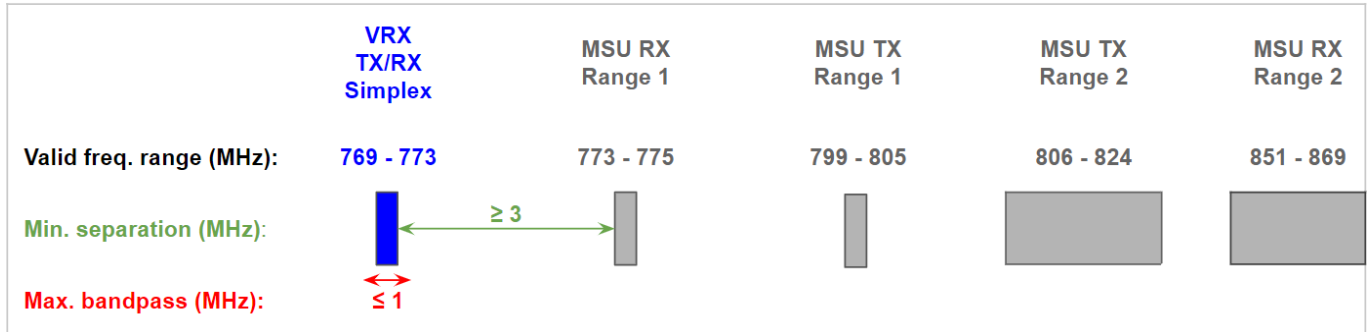
2. **Required Y Cable:** One of the following Y cables are required:

- Without SmartConnect- GA01515 (or KT000247A01 as standalone accessory)
  - splits the J2 into J2 and J600(DB25)
- With SmartConnect- GA01779 (or KT000247A04 as standalone accessory)
  - allows RS232 and USB line to be used concurrently

# How to Interpret a Frequency Plan Diagram

Below is an example of a frequency plan with the set of rules that must be met for it to be a valid selection. For this example, additional color coding was added for clarity.

## 700/800MHz Frequency Plan Example



- Ensure the VRX1000 and System/Mobile frequencies are within the **Valid frequency range (MHz)**
  - **VRX Tx/Rx 769-773**
  - **MSU Rx Range 1 773-775**      **MSU Tx Range 1 799-805**
  - **MSU Tx Range 2 806-824**      **MSU Rx Range 2 851-869**
- Ensure the **Minimum separation (MHz)** frequency requirements are met
  - at least **3MHz** between the highest VRX Tx/Rx frequency and lowest MSU Rx Range 1 frequency
- Ensure the **Maximum bandpass (MHz)** is not exceeded
  - difference between the highest - lowest VRX Tx/Rx frequencies must be less than or equal to **1MHz**

# Preparing a Quote Without Customer Frequencies

If preparing a quote before customer frequencies are known, please use the following:

Frequency Band (MHz)	Operation Mode	Frequency Plan	Lowest VRX1000 Transmit	Highest VRX1000 Transmit	System (Mobile Radio) Frequencies
700/800	In-Band	A1	770	771	Leave Blank
	Cross-Band	A			
VHF	In-Band	A1	136	136.1	Leave Blank
	Cross-Band	A			
UHF	In-Band	A1	380	380.1	Leave Blank
	Cross-Band	A			

**NOTE:** This will allow the quoting process to continue but the order cannot be placed until the correct frequency plan and exact frequencies have been entered.

OR

Use the “**For Quoting Purposes**” field and set it to “**Yes**”.

<p>When “<b>Yes</b>” is selected, no Frequency Plan, or VRX1000/Mobile frequencies need to be entered to create a quote.</p>	<p>To finalize the quote before moving to an order, select “<b>No</b>”, and fill in the frequency information.</p>
<p>Frequency Information</p> <p>For Quoting Purposes <input type="radio"/> No <input checked="" type="radio"/> Yes</p> <p>When 'For Quoting Purposes' is set to Yes, frequency information is not required. In order for the</p> <hr/> <p>Services</p> <p>Service Type <input type="radio"/> Standard <input checked="" type="radio"/> Essential</p>	<p>Frequency Information</p> <p>For Quoting Purposes <input checked="" type="radio"/> No <input type="radio"/> Yes</p> <p>When 'For Quoting Purposes' is set to Yes, frequency information is not required. In order for</p> <p>Frequency Plan <input type="text" value="A1"/></p> <p>Please refer to the Ordering Guide for details on each Frequency Plan, located here: <a href="#">Click Here</a> If frequencies do not align with any of the available Frequency Plans, please contact a Sales So</p> <hr/> <p>VRX1000 Frequencies</p> <p>Lowest VRX1000 Transmit <input type="text" value=""/></p> <p>Highest VRX1000 Transmit <input type="text" value=""/></p> <p><b>Please enter a value</b></p>

# Selecting a Frequency Plan

## Standard Frequency Plans

When the customer frequencies are known, follow the specified frequency requirements in the set of standard frequency plan diagrams to select the correct plan.

## Custom Frequency Plans

When customer frequencies cannot meet all of the requirements of a standard frequency plan, this is a custom request. Please contact a [Sales Solution Specialist](#) to determine if a custom frequency plan is viable. If viable, a per unit custom charge is applicable.

## Standard Frequency Plans

Frequency Band	Frequency Plan
700/800MHz	In-Band Plan A1
	In-Band Plan A2
	In-Band Plan B1
	In-Band Plan B2
	Cross-Band Plan A
VHF	In-Band Plan A1
	In-Band Plan A2
	In-Band Plan B1
	In-Band Plan B2
	Cross-Band Plan A
UHF	In-Band Plan A1
	In-Band Plan A2
	In-Band Plan B1
	In-Band Plan B2
	Cross-Band Plan A

# 700/800MHz Frequency Plans

**NOTE:** For In-Band Plans A1, A2, B1, and B2, if 700MHz or 800MHz band is not in use in the System, enter placeholder frequency values that satisfy the plan and add an internal note to the quote indicating this.



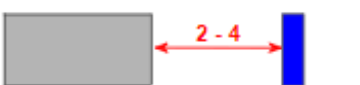




<b>VRX 700/800MHz IN-BAND PLAN A1</b>	<b>VRX TX/RX Simplex</b>	<b>MSU RX Range 1</b>	<b>MSU TX Range 1</b>	<b>MSU TX Range 2</b>	<b>MSU RX Range 2</b>
Valid freq. range (MHz):	769 - 773	773 - 775	799 - 805	806 - 824	851 - 869
Min. separation (MHz):					
Max. bandpass (MHz):	$\leq 1$				
<b>VRX 700/800MHz IN-BAND PLAN A2</b>	<b>MSU RX Range 1</b>	<b>VRX TX/RX Simplex</b>	<b>MSU TX Range 1</b>	<b>MSU TX Range 2</b>	<b>MSU RX Range 2</b>
Valid freq. range (MHz):	769 - 773	773 - 775	799 - 805	806 - 824	851 - 869
Min. separation (MHz):					
Max. bandpass (MHz):		$\leq 1$			
<b>VRX 700/800MHz IN-BAND PLAN B1</b>	<b>MSU RX Range 1</b>	<b>MSU TX Range 1</b>	<b>MSU TX Range 2</b>	<b>MSU RX Range 2</b>	<b>VRX TX/RX Simplex</b>
Valid freq. range (MHz):	769 - 775	799 - 805	806 - 824	851 - 857	851 - 860
Min. separation (MHz):					
Max. bandpass (MHz):					$\leq 1$
<b>VRX 700/800MHz IN-BAND PLAN B2</b>	<b>MSU RX Range 1</b>	<b>MSU TX Range 1</b>	<b>MSU TX Range 2</b>	<b>MSU RX Range 2</b>	<b>VRX TX/RX Simplex</b>
Valid freq. range (MHz):	769 - 775	799 - 805	806 - 824	851 - 866	860 - 869
Min. separation (MHz):					
Max. bandpass (MHz):					$\leq 1$
<b>VRX 700/800MHz CROSS BAND PLAN A</b>		<b>MSU TX/RX</b>	<b>MSU TX/RX</b>	<b>VRX TX/RX Simplex</b>	
Valid freq. range (MHz):		VHF	UHF	769 - 775 OR 851 - 869	



# VHF 136-174MHz Frequency Plans

<b>VRX VHF IN-BAND PLAN A1</b>	<b>VRX TX/RX Simplex</b>	<b>MSU TX/RX</b>
Valid freq. range (MHz):	136 - 174	136 - 174
Separation (MHz):		
Max. bandpass (MHz):	$\leq 0.3$	$\leq 6$
<b>VRX VHF IN-BAND PLAN A2</b>	<b>VRX TX/RX Simplex</b>	<b>MSU TX/RX</b>
Valid freq. range (MHz):	136 - 174	136 - 174
Min. separation (MHz):		
Max. bandpass (MHz):	$\leq 0.3$	$\leq 12$
<b>VRX VHF IN-BAND PLAN B1</b>	<b>MSU TX/RX</b>	<b>VRX TX/RX Simplex</b>
Valid freq. range (MHz):	136 - 174	136 - 174
Separation (MHz):		
Max. bandpass (MHz):	$\leq 6$	$\leq 0.3$
<b>VRX VHF IN-BAND PLAN B2</b>	<b>MSU TX/RX</b>	<b>VRX TX/RX Simplex</b>
Valid freq. range (MHz):	136 - 174	136 - 174
Min. separation (MHz):		
Max. bandpass (MHz):	$\leq 12$	$\leq 0.3$
<b>VRX VHF CROSS BAND PLAN A</b>	<b>VRX TX/RX Simplex</b>	<b>MSU TX/RX</b>
Valid freq. range (MHz):	136 - 174 	UHF 

# UHF Frequency Plans

<b>VRX UHF IN-BAND PLAN A1</b>		<b>VRX TX/RX Simplex</b>	<b>MSU TX/RX</b>
<b>Valid freq. range (MHz):</b>		<b>380 - 512</b>	<b>380 - 512</b>
<b>Separation (MHz):</b>			
<b>Max. bandpass (MHz):</b>		$\leq 0.3$	$\leq 6$
<b>VRX UHF IN-BAND PLAN A2</b>		<b>VRX TX/RX Simplex</b>	<b>MSU TX/RX</b>
<b>Valid freq. range (MHz):</b>		<b>380 - 512</b>	<b>380 - 512</b>
<b>Min. separation (MHz):</b>			
<b>Max. bandpass (MHz):</b>		$\leq 0.3$	$\leq 12$
<b>VRX UHF IN-BAND PLAN B1</b>		<b>MSU TX/RX</b>	<b>VRX TX/RX Simplex</b>
<b>Valid freq. range (MHz):</b>		<b>380 - 512</b>	<b>380 - 512</b>
<b>Separation (MHz):</b>			
<b>Max. bandpass (MHz):</b>		$\leq 6$	$\leq 0.3$
<b>VRX UHF IN-BAND PLAN B2</b>		<b>MSU TX/RX</b>	<b>VRX TX/RX Simplex</b>
<b>Valid freq. range (MHz):</b>		<b>380 - 512</b>	<b>380 - 512</b>
<b>Min. separation (MHz):</b>			
<b>Max. bandpass (MHz):</b>		$\leq 12$	$\leq 0.3$
<b>VRX UHF CROSS BAND PLAN A</b>	<b>MSU TX/RX</b>	<b>VRX TX/RX Simplex</b>	<b>MSU TX/RX</b>
<b>Valid freq. range (MHz):</b>	<b>VHF</b>	<b>380 - 512</b>	<b>700/800</b>
			

# Main Models: Dropship to New Part Numbers Mapping

The table below shows the mapping between the old dropship part numbers and the new model and option numbers. To compare a new quote to an older quote with dropship part numbers, each dropship number will map to the following:

- Main Model
  - Tier 2 or Tier 3 (if applicable)
  - In-Band Option (if applicable)
  - Custom Frequency Plan (if applicable) TT06580AA->QA09537AA
- APX Mobile Radio

Compatible Mobile Radio	Dropship #	Mobile Radio (CPQ)	Option #
APX™2500/4500/5500/6500	TT05715AA	Single Band	QA09576AA
APX™7500	TT05716AA	Dual Band (APX 7500)	QA09577AA
APX™8500	TT06279AA	All Band (APX 8500)	QA09578AA

Main Model Description	Option Description	Dropship #	New Model/Option #
<b>VHF Cross-Band Analog (Tier 1)</b>		TT2792A	M87KSS9AW1AN
	P25 Operation & P25 Encryption (Tier 2)	TT05951AA	QA09634AA
	P25 Enhanced Trunking Features (Tier 3)	TT05953AA	QA09635AA
	VHF Frequency Plan A (In-Band Filter Kit)	TT05945AA	QA09289AA
	VHF Frequency Plan B (In-Band Filter Kit)	TT05946AA	QA09289AA
<b>UHF Cross-Band Analog (Tier 1)</b>		TT2793A	M87PSS9PW1AN
	P25 Operation & P25 Encryption (Tier 2)	TT05951AA	QA09634AA
	P25 Enhanced Trunking Features (Tier 3)	TT05953AA	QA09635AA
	UHF Frequency Plan A (In-Band Filter Kit)	TT05947AA	QA09289AA
	UHF Frequency Plan B (In-Band Filter Kit)	TT05948AA	QA09289AA
<b>700/800MHz Cross-Band Analog (Tier 1)</b>		TT2794A	M87USS9PW1AN
	P25 Operation & P25 Encryption (Tier 2)	TT05951AA	QA09634AA
	P25 Enhanced Trunking Features (Tier 3)	TT05953AA	QA09635AA
	700/800MHz Frequency Plan A (In-Band Filter Kit)	TT05949AA	QA09590AA
	700/800MHz Frequency Plan B (In-Band Filter Kit)	TT05950AA	QA09590AA

# Standalone Accessories

## Functional Tiers and Feature Licenses

**NOTES:** All serial numbers must be provided at the time of order. Add a document containing the full list of serial numbers for each license being ordered to the quote. **Quote page->Order Info tab-> Additional Document #1**  
 Feature license(s) are not transferable between units and if lost, must be re-purchased.

Name	Description	Option # (Old Dropship#)
Tier 2: P25 Digital Conventional Operation and Encryption	<p>Enables the transparent pass through of P25 encryption between the P25 infrastructure, system subscriber units, the mobile radio, portable radios on the VRX1000 channel.</p> <p><b>Required:</b></p> <ul style="list-style-type: none"> <li>● Tier 1: Analog Operation</li> <li>● APX MSU is on a P25 FDMA or P25 conventional channel</li> </ul>	HKVN4988A (DDN1960A)
Tier 3: P25 Enhanced Trunking Operation	<p>Allows the use of "DVRs Enabled" portable radios and provides the associated trunking features through the VRX1000.</p> <p>P25 OTAR is supported via the VRX1000 on P25 Trunked FNE; P25 OTAR is NOT supported on P25 Conventional FNE.</p> <p><b>Prerequisite for:</b></p> <ul style="list-style-type: none"> <li>● End to end digital operation on TDMA talkgroups</li> <li>● FDMA Conventional Operation</li> <li>● FDMA or TDMA Trunking</li> </ul> <p><b>Required:</b></p> <ul style="list-style-type: none"> <li>● Tier 2: P25 Digital Conventional Operation and Encryption</li> <li>● PSU Option QA00631</li> </ul>	HKVN4989A (DDN1962A)
Authentication	<p>Portable Link Layer authentication through the VRX1000 prevents unauthorized portables accessing the radio network (per unit)</p> <p><b>Required:</b></p> <ul style="list-style-type: none"> <li>● Tier 3: P25 Enhanced Trunking Operation</li> <li>● VRX1000 software release 1.51 or greater</li> <li>● Mobile and portable to be running compatible firmware version (R20.02.00)</li> </ul>	HKVN4990A (DDN3116A)

RM-OTAP	<p>Enables the operator to perform firmware and configuration updates on each VRX1000 unit using Motorola Radio Management via the Mobile Radio.</p> <p><b>Required:</b></p> <ul style="list-style-type: none"> <li>• VRX1000 software release 1.60 or greater</li> <li>• Mobile to be running compatible firmware version (R21.01.00 or greater)</li> </ul>	HKVN4977A (DDN3119A)
PSU Conventional Scan (Bulk Order)	<p>Enables an enhanced PSU to support conventional scan while the VRX1000 is configured as its system type.</p> <p><b>Required:</b></p> <ul style="list-style-type: none"> <li>• Tier 3: P25 Enhanced Trunking Operation</li> <li>• PSU Option DVRS Enabled PSU QA00631</li> <li>• PSU Option DVRS PSU Conventional Scan HA00677</li> <li>• VRX1000 software release 1.61 or greater</li> <li>• Mobile and portable to be running compatible firmware version (R21.20.00 or greater)</li> </ul> <p><b>Note:</b> To qualify for bulk order, all serial numbers must be provided at the time of order. This license will only be applicable to the serial numbers provided. Should the customer fail to provide the serial numbers for all units at the time of order, the customer must place a new order when the remaining serial numbers are available.</p>	HKVN4978A (DDN3174A)
SmartConnect In-Vehicle Range Extension	<p>Enables a “DVRS enabled” PSU to maintain voice and emergency services when SmartConnect MSU is connected via broadband (LTE, SAT, Wi-Fi) (per unit)</p> <p><b>Required:</b></p> <ul style="list-style-type: none"> <li>• SmartConnect GA01630</li> <li>• DVRS MSU GA00631</li> <li>• Y CABLE GA01779</li> <li>• VRX1000 software release 1.24 or greater</li> <li>• Mobile and portable to be running compatible firmware version (R23.00.00 or greater)</li> </ul>	HKVN4979A (DDN3229A)
GPS Driven Deactivation	<p>Enables a VRX1000 to be deactivated by a pre-configured GPS based (Speed &amp; Distance) threshold to decide when to deactivate the primary VRX1000. (Per Unit)</p> <p><b>Required:</b></p> <ul style="list-style-type: none"> <li>• VRX1000 compatibility software release 1.27 or greater</li> <li>• Mobile to be running compatible firmware version (R24.00.00 or greater)</li> <li>• Mobile GPS Activation GA00229</li> </ul>	HKVN4980A (DDN3262A)

## Cables

Name	Description	Option # (Old Dropship#)
Programming Cable	<b>Details:</b> USB to mini USB, 10ft (PN AK672M_2-3-GR-R)	VKN0003A (DDN1968A)
VRX to MSU Control Cable <span style="color: blue;">SPARE</span>	Connects the VRX1000 to the MSU <b>Details:</b> DB25 to DB25, 3ft (PN 7W087X07-01 is equivalent 1W087B01-01)	3ft: VKN0004A 5ft: VKN0005A 10ft: VKN0006A 15ft: VKN0007A 20ft: VKN0008A 25ft: VKN0009A (DDN1969A)
VRX to MSU Y Control Cable (AUX) <span style="color: blue;">SPARE</span>	Connects the VRX1000 to the MSU and provides access to the VRX1000 AUX pins (DB15) <b>Details:</b> DB25 to DB25 & DB15 (PN 7W087X08-01 is equivalent to 1W087B05-01)	3ft: VKN0011A 5ft: VKN0012A 10ft: VKN0013A 15ft: VKN0014A 20ft: VKN0015A 25ft: VKN0016A (DDN1970A)
RF Switch Cable <span style="color: blue;">SPARE</span>	For use with Relay Kit (VLN0003A) <b>Details:</b> 1ft (PN 7W083X09-01)	VKN0028A (DDN9032A)
VRX to MSU Y Control Cable (Siren) <span style="color: blue;">SPARE</span>	Connects the VRX1000 to the MSU and provides connection for Motorola Siren <b>Details:</b> DB25 to DB25 & DB25, 3ft (PN 7W087X09-01)	VKN0018A (DDN2053A)
In-Band Notch Filter Cable <span style="color: blue;">SPARE</span>	Connects the VRX1000 to VRX1000 In-Band filter OR Connects non-APX™ 8500 Mobile Radio to Mobile Radio In-Band filter <b>Details:</b> Mini UHF (m) to mini UHF (m), 20" (PN 7W087X11-01) (includes 2 cables)	VKN0002A (DDN1967A)
In-Band Notch Filter Cable for APX8500 <span style="color: blue;">SPARE</span>	Connects APX™ 8500 Mobile Radio to Mobile Radio In-Band filter <b>Details:</b> QMA RA (m) to mini UHF (m), 20" (PN 7W900X94-01)	VKN0024A (DDN2719A)
DC Power Cable <span style="color: blue;">SPARE</span>	<b>Details:</b> M12 Circular connector, 18ft (PN 7W087X20-01)	VKN0001A (DDN1966A)

## Installation/Mounting Kits

Name	Description	Option # (Old Dropship#)
VRX1000 Mounting Kit SPARE		VBN0001A (DDN1963A)
VRX1000 In-Band Filter Mounting Bracket Kit	For use with stacked mount in-band filters	VBN0002A (DDN1965A)
VRX1000 Installation Kit SPARE	Includes Bracket, Mini UHF Connector, Fuse Kit, Power Cable	VBN0003A (DDN2751A)

## Antennas

Name	Description	Option # (Old Dropship#)
<b>VEHICLE ROOF/TRUNK MOUNT ANTENNAS- UNITY GAIN (0dBd)</b>		
VHF Unity Gain Antenna	136 – 144MHz	HAD4006A
VHF Unity Gain Antenna	144 – 150.8MHz	HAD4007A
VHF Unity Gain Antenna	150.8 – 162MHz	HAD4008A
VHF Unity Gain Antenna	162 – 174MHz	HAD4009A
UHF Unity Gain Antenna	380 – 433MHz	HAE6012A
UHF Unity Gain Antenna	450 – 470MHz	HAE4003A
UHF Unity Gain Antenna	470 - 512MHz	HAE4004A
700/800MHz Unity Gain Antenna	764 – 870MHz	HAF4016A
<b>MAG MOUNT ANTENNAS- UNITY GAIN (0dBd)</b>		
VHF Unity Gain Mag Mount Antenna	For use with APX™ 8500 mobile radio <b>Freq Range:</b> 136 – 174MHz	VAD0001A (DDN9014A)
VHF Unity Gain Mag Mount Antenna	For use with non-APX™ 8500 mobile radios and VRX1000 <b>Freq Range:</b> 136 – 174MHz	VAD0002A (DDN9014A)
UHF Unity Gain Mag Mount Antenna	For use with APX™ 8500 mobile radio <b>Freq Range:</b> 380 – 520MHz	VAE0001A (DDN9015A)
UHF Unity Gain Mag Mount Antenna	For use with non-APX™ 8500 mobile radios and VRX1000 <b>Freq Range:</b> 380 – 520MHz	VAE0002A (DDN9015A)
700/800MHz Unity Gain Mag Mount Antenna	For use with APX™ 8500 mobile radio <b>Freq Range:</b> 764 – 869MHz	VAF0001A (DDN9016A)
700/800MHz Unity Gain Mag Mount Antenna	For use with non-APX™ 8500 mobile radios and VRX1000 <b>Freq Range:</b> 764 – 869MHz	VAF0002A (DDN9016A)



## In-Band Filter Kits

**NOTE:** Additional frequency information is required when submitting an order for an In-band Filter Kit. Refer to section **When Additional Information Is Required for a Standalone Accessory** for more information

Name	Description	Option # (Old Dropship#)
Relay Kit	Filter Bypass kit provides access to full MSU frequency band when VRX1000 disabled. Optional for use with all inband VRX1000.	VLN0003A (DDN2808A)
7/800MHz In-Band Filter Kit	For use with frequency plan in-band A1	VFE0004A (DDN2077A)
7/800MHz In-Band Filter Kit	For use with frequency plan in-band A1 and APX™ 8500	VFE0005A (DDN2077A)
7/800MHz In-Band Filter Kit	For use with frequency plan in-band A2	VFF0007A (DDN2078A)
7/800MHz In-Band Filter Kit	For use with frequency plan in-band A2 and APX™ 8500	VFF0008A (DDN2078A)
7/800MHz In-Band Filter Kit	For use with frequency plan in-band B1	VFF0002A (DDN2078A)
7/800MHz In-Band Filter Kit	For use with frequency plan in-band B1 and APX™ 8500	VFF0005A (DDN2078A)
7/800MHz In-Band Filter Kit	For use with frequency plan in-band B2	VFF0009A (DDN2077A)
7/800MHz In-Band Filter Kit	For use with frequency plan in-band B2 and APX™ 8500	VFF0010A (DDN2077A)
VHF In-Band Filter Kit	For use with any frequency plan	VFD0021A (DDN2073A/DDN2074A)
VHF In-Band Filter Kit	For use with any frequency plan and APX™ 8500	VFD0022A (DDN2073A/DDN2074A)
UHF In-Band Filter Kit	For use with any frequency plan	VFE0016A (DDN2075A/DDN2076A)
UHF In-Band Filter Kit	For use with any frequency plan and APX™ 8500	VFE0017A (DDN2073A/DDN2074A)
CUSTOM In-Band Filter Kit	For use with any custom frequency plan	VFN0016A
CUSTOM In-Band Filter Kit	For use with any custom frequency plan and APX™ 8500	VFN0017A

## APX™8500 Interface Kits

Use the Interface Kit Selection tool [available here for download](#) under Ordering Guide header to determine which (if any) kit and installation drawing are required.

Name	Description	Standalone Accessory Part # / Internal Option # (Old Dropship#) <i>Internal Option # generated by kit selection tool</i>
Single Triplexer Kit		H1919
Single Triplexer w Relay Kit	For use with VHF Cross-Band	VFN0009A / QA09484AA (DDN2658A)
Single Triplexer w Relay Kit	For use with UHF Cross-Band	VFN0010A / QA09485AA (DDN2658A)
Single Triplexer w Relay Kit	For use with 700/800MHz Cross-Band	VFN0011A / QA09486AA (DDN2658A)
Dual Triplexer Kit	For use with Cross-Band	VFN0008A / QA09447AA (DDN2657A)
Dual Triplexer Kit	For use with In-Band	VFN0007A / QA09448AA (DDN2657A)
Dual Triplexer w Relay Kit	For use with VHF Cross-Band	VFN0012A / QA09489AA (DDN2659A)
Dual Triplexer w Relay Kit	For use with UHF Cross-Band	VFN0013A / QA09490AA (DDN2659A)
Dual Triplexer w Relay Kit	For use with 700/800MHz Cross-Band	VFN0014A / QA09491AA (DDN2659A)
Relay Kit	For use with Cross-Band	VLN0004A / QA09586AA (DDN2808A)
Relay Kit	For use with In-Band	VLN0002A / QA09587AA (DDN2808A)

## Training

Name	Description	Option # (Old Dropship#)
Basic Training (1 Day)	<p>Includes soft copy of training materials. Customized training available subject to content and price negotiation.</p> <p><b>Training the Trainer/End User</b> Provides a general overview of Mobile Repeater solutions with respect to the agency's particular use case. Best practices highlighted for common deployment scenarios. Participants will receive hands-on training for practical operation and control.</p> <p><b>Requirements:</b> a minimum of 1 VRX1000 to be tested and in use on the system.</p> <p><b>OR</b></p> <p><b>Technical and Programming Training</b> Provides radio technicians an in-depth understanding on how the VRX1000 is integrated into the everyday operation of the agency. Focuses on code plug compatibility, Futurecom Repeater Configurator (FRC) software functionality and programming for optimal end user experience.</p> <p><b>Requirements:</b> a minimum of two fully functioning Portable radios (PSUs) programmed to the current system and at least one functional DVRS setup. DVRS setup includes a VRX1000 and a mobile radio (MSU) set.</p> <p><b>Requirement:</b> Contact <a href="mailto:debra.oster@motorolasolutions.com">debra.oster@motorolasolutions.com</a> or <a href="mailto:maria.tabladillo@motorolasolutions.com">maria.tabladillo@motorolasolutions.com</a> from the Worldwide Education organization to coordinate a training session. Please note that the lead time is ~180 days.</p>	PSV01S04246A (DDN3699A)
Extended Training	<p>1 additional day of on-site and/or virtual training</p> <p><b>Requirements:</b> Basic Training</p>	PSV01S04247A (DDN3700A)

## Warranties & Services

**NOTE:** Warranties can be ordered as standalone up to 90 days after product purchase through after the fact purchase process.

Name	Description	Option #
Essential Services	3/5/7 year duration	LSV01S04106A
Essential Services with Accidental Damage	3/5/7 year duration	LSV01S04109A
Installation Services		LSV01Q03645A
Programming Services		LSV01Q03648A
Professional Services	Deployment Optimization	LSV01Q03650A

# When Additional Information Is Required for a Standalone Accessory: In-Band Filter Kits

**Step 1.** Search for the Standalone Item from the Product Selection page or from the Quote page

**Step 2.** Select the item and enter a quantity. A reminder appears below the item when additional information is required.

## Example Screenshot

### Selected Items

Below is a list of items ready to be added to your Quote. Changes can be made to the Selected Items table by either changing quantities or checking the Remove checkbox, followed by clicking the "Update" button.

Qty	Selected Item	Description	List Price	Data Requirement	Extended Price	Remove
1	VFE0005A	VRX1000 IN-BAND FILTER KIT 700/800MHZ PLAN A APX8500	\$3,712.00	Non-frequency	\$3,712.00	<input type="checkbox"/>

*Attention: 1 or more accessories requires additional information to complete the quote. Go to the Required Order Information tab and complete the required fields if the information is available. If not, this information will be required at the time of order.*

**Step 3.** At the top left of the page, there is a tab for REQUIRED ORDER INFORMATION where the additional information (frequencies) must be entered. The valid range and format for each value is indicated in the Help text provided for each.

**NOTE 1:** The frequency values are currently not presented in the intended order and an update will be coming in the near future. Please read each frequency description carefully and enter the corresponding frequency using the applicable frequency plan diagram as a reference.

**NOTE 2:** There is a delay of approx 20 seconds after entering each value. This is a known issue and the team is working to address this as quickly as possible.

**NOTE 3:** When selecting multiple standalone accessories to add to a quote, select all items before filling in the Required Order Information. The Text Values will not line up with the correct Item numbers if items are added after values are entered.

## Example Screenshot

ITEM SELECTION **REQUIRED ORDER INFORMATION** DEV

### Non-Frequency Data

Item	Description	Required Info.	Number Value	Help
1	VFE0005A VRX1000 IN-BAND FILTER KIT 700/800MHZ PLAN A APX8500	VHF Highest Mobile Radio Receive Frequency	<input type="text"/>	Enter a valid Float. Enter a value equal to or greater than 136. Enter a value equal to or less than 174. Entered value must be atleast 1 digits. Entered value must not be more than 10 digits.
2	VFE0005A VRX1000 IN-BAND FILTER KIT 700/800MHZ PLAN A APX8500	700MHz Highest Mobile Radio Transmit (Range 1) Frequency	<input type="text"/>	Enter a valid Float. Enter a value equal to or greater than 799. Enter a value equal to or less than 805. Entered value must be atleast 3 digits. Entered value must not be more than 10 digits.
3	VFE0005A VRX1000 IN-BAND FILTER KIT 700/800MHZ PLAN A APX8500	UHF Lowest Mobile Radio Transmit Frequency	<input type="text"/>	Enter a valid Float. Enter a value equal to or greater than 380. Enter a value equal to or less than 512. Entered value must be atleast 1 digits. Entered value must not be more than 10 digits.

**Strategy for Filling in the Frequency Data for In-Band Filter Kits**

**Step 1:** Determine if frequency information is required

- If creating a quote, frequency information is not required
- If moving a quote to an order, frequency information is required

**Step 2:** Collect customer frequencies and identify the Frequency Plan

**Step 3:** Collect the customer frequency information as per the Frequency Data table below using these guidelines:

- fill in required frequency values based on the VRX1000 frequency band
- for non-APX8500 mobile radios, enter 0 for all cross-band mobile frequency values
- for APX8500 mobile radios, additional cross-band frequency information may be required
  - must be provided for any bands that will be in use when the VRX1000 is enabled
  - enter 0 when not required
    - If a band is not enabled in the mobile or
    - If VRX1000 will not be in use with mobile cross-band frequencies

Frequency Type	Lowest Frequency	Highest Frequency
VRX1000 Transmit	required	required (can be the same as lowest if only 1 frequency will be used)
700 Mobile Transmit (Range 1)	required for 7/800MHz In-band	required for 7/800MHz In-band
700 Mobile Receive (Range 1)	required for 7/800MHz In-band	required for 7/800MHz In-band
800 Mobile Transmit (Range 2)	required for 7/800MHz In-band	required for 7/800MHz In-band
800 Mobile Receive (Range 2)	required for 7/800MHz In-band	required for 7/800MHz In-band
VHF Mobile Transmit	required for VHF In-band	required for VHF In-band
VHF Mobile Receive	required for VHF In-band	required for VHF In-band
UHF Mobile Transmit	required for UHF In-band	required for UHF In-band
UHF Mobile Receive	required for UHF In-band	required for UHF In-band

**Step 4:** Enter the values into the Required Order Information tab

**Step 5:** When the VRX1000 will be paired with APX8500 mobile radio, use the Interface Kit Selection tool to determine if an interface kit is required and add to order if applicable.