Rhein Tech Laboratories, Inc.
360 Herndon Parkway
Suite 1400
Herndon, VA20170
http://www.rheintech.com

Client: Harris Corporation
Model: XL-185P 7/8/900 MHz
ID's: OWDTR-0143-E/3636B-0143
Standards: FCC Part 24, 90, 101/IC RSS-119
Report #: 2016219TNF

Appendix O: Manual

Please refer to the following pages.

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Client: Harris Corporation
Model: XL-185P 7/8/900 MHz
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Report #: 2016219TNF

XL-200P and XL-185P

Multiband Portable Radios

HARRIS® TECHNOLOGY TO CONNECT, INFORM AND PROTECT™

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MANUAL REVISION HISTORY

</div>

REV.	DATE	REASON FOR CHANGE
-	Sep/15	Initial release.
A	Sep/15	Added Section 3.
B	Nov/15	Added CE information.
C	Jan/16	Updated Declaration of Conformity. Added EU regulatory approval information (standards) and EU RF exposure information.
D	Jul/16	Updated Table 1-1 and Tableau 2-1. Updated for XLP R2A. Added note to Section 4.3.1 regarding charging the battery before first use. Updated Appendix A. Updated Section 4.3.3.
E	Jan/17	Updated Sections 1.2, 4.1, 4.6, 5.8, 5.12, 10, included XLP R3A features, and added Sections 4.3.4, 5.35, and 5.6.
F	Feb/17	Updated to add XLP R4A features. Added XL-185.

<div align="center">

NOTICE!

</div>

~~AT~~	~~CZ~~	~~FI~~	~~GR~~	~~IT~~	~~LU~~	~~PL~~	~~SI~~	~~UK~~	~~DK~~
~~BE~~	~~DK~~	~~FR~~	~~HU~~	~~LV~~	~~MT~~	~~PT~~	~~ES~~	~~IS~~	~~LI~~
~~CY~~	~~EE~~	~~DE~~	~~IE~~	~~LT~~	~~NL~~	~~SK~~	~~SE~~	~~NO~~	~~RO~~
~~BG~~									

CE1588 ①

This device is a RF transceiver intended for land mobile radio applications. The device may have use restrictions, which require that the national authority be contacted for any system licensing requirements, frequency use, allowable power level, etc.

R&TTE Declaration of Conformity (DoC)
Unique identification of this DoC: 2014119TCF

We,   Harris Corporation, Communications Systems Division
221 Jefferson Ridge Parkway
Lynchburg, VA 24501
Phone 434-455-6600
declare under our sole responsibility that the product:

product name: XL-200P

trade name: Harris ®

type or model: XL-PFM1M, XL-PFM1Y, XL-PFM1B, XL-PFM1G, XL-PPM1Y, XL-PPM1B, XL-PPM1G, XL-PPM1M

relevant supplementary information: Land Mobile radio for public safety, utilities and transit

to which this declaration relates is in conformity with the essential requirements and other relevant requirements of the R&TTE Directive (1999/5/EC).
The product is in conformity with the following standards and/or other normative documents:

HEALTH & SAFETY (Art. 3(1)(a)): EN 60950-1: 2006 + A11:2009 + A12:2011 + A1:2010 + A2:2013; European Council Directive 89/391/EEC; EN 62311:2008

EMC (Art. 3(1)(b)): EN 301 489-1 V1.9.2, EN 301 489-5 V1.3.1, EN 301 489-17 V2.2.1

SPECTRUM (Art. 3(2)): EN 300 086-2 V1.3.1, EN 300 113-2 V1.5.1, EN 300 328 V1.8.1, EN 301 893 V1.7.1, EN 300 440-2 V1.4.1

OTHER (incl. Art. 3(3) and voluntary specs): N/A

Limitation of validity (if any): N/A

Supplementary information:
Notified body involved: American Certification Body (NB#1588)
                               6731 Whittier Avenue, Suite C110
                               McLean Virginia 22101, USA
                               Telephone: 703-847-4700

Technical file held by: Harris Wireless Ltd., RF Communications Division
                               270 Wharfedale Road
                               Winnersh, Wokingham, Berkshire, United Kingdom
                               RG41 5TP

Place and date of issue (of this DoC): December 4, 2015

Signed by or for the manufacturer:

William H Pertner

Name (in print): William H. Pertner
Title: Regulatory Manager

R&TTE Declaration of Conformity (DoC)
Unique identification of this DoC: 2015217TCF

We, Harris Corporation, Communications Systems Division
221 Jefferson Ridge Parkway
Lynchburg, VA 24501
Phone 434-455-6600

declare under our sole responsibility that the product:

product name: XL-200P Non-Rebanded

trade name: Harris ®

type or model: XL-PFM2M, XL-PFM2Y, XL-PFM2B, XL-PFM2G, XL-PPM2Y, XL-PPM2B, XL-PPM2G, XL-PPM2M

relevant supplementary information: Land Mobile radio for public safety, utilities and transit

to which this declaration relates is in conformity with the essential requirements and other relevant requirements of the R&TTE Directive (1999/5/EC).
The product is in conformity with the following standards and/or other normative documents:

HEALTH & SAFETY (Art. 3(1)(a)): EN 60950-1: 2006 + A11:2009 + A12:2011 + A1:2010 + A2:2013; EN 62311:2008

EMC (Art. 3(1)(b)): EN 301 489-1 V1.9.2, EN 301 489-3 V1.6.1; EN 301 489-5 V1.3.1, EN 301 489-17 V2.2.1

SPECTRUM (Art. 3(2)): EN 300 086-2 V1.3.1, EN 300 113-2 V1.5.1, EN 300 328 V1.9.1, EN 300 440-2 V1.4.1

OTHER (incl. Art. 3(3) and voluntary specs): N/A

Limitation of validity (if any): N/A

Supplementary information:
Notified body involved: American Certification Body (NB#1588)
6731 Whittier Avenue, Suite C110
McLean Virginia 22101, USA
Telephone: 703-847-4700

Technical file held by: Harris Wireless Ltd., RF Communications Division
270 Wharfedale Road
Winnersh, Wokingham, Berkshire, United Kingdom
RG41 5TP

Place and date of issue (of this DoC): March 02, 2016

Signed by or for the manufacturer:

William H. Pertner

Name (in print): William H. Pertner
Title: Regulatory Manager

HARRIS

DECLARATION OF CONFORMITY

Česky [Czech]	*Harris Corporation* tímto prohlašuje, že tento *XL-200P* je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
Dansk [Danish]	Undertegnede Harris Corporation erklærer herved, at følgende udstyr XL-200P overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Deutsch [German]	Hiermit erklärt *Harris Corporation,* dass sich das Gerät XL-200P in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
Eesti [Estonian]	Käesolevaga kinnitab *Harris Corporation* seadme *XL-200P* vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
English	Hereby, *Harris Corporation*, declares that this *XL-200P* is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Español [Spanish]	Por medio de la presente *Harris Corporation* declara que el *XL-200P* cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ *Harris Corporation* ΔΗΛΩΝΕΙ ΟΤΙ *XL-200P* ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
Français [French]	Par la présente Harris Corporation déclare que l'appareil XL-200P est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
Italiano [Italian]	Con la presente Harris Corporation dichiara che questo XL-200P è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian]	Ar šo *Harris Corporation* deklarē, *XG 25P UHF-L(378-470 MHz), 7/800 (764-870MHz)* atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]	Šiuo *Harris Corporation* deklaruoja, kad šis *XL-200P* atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Nederlands [Dutch]	Hierbij verklaart Harris Corporation dat het toestel XL-200P in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
Malti [Maltese]	Hawnhekk, *Harris Corporation*, jiddikjara li dan *XL-200P* jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
Magyar [Hungarian]	Alulírott, Harris Corporation nyilatkozom, hogy a XL-200P megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EC irányelv egyéb elõírásainak.
Polski [Polish]	Niniejszym *Harris Corporation* oświadcza, że *XL-200P* jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
Português [Portuguese]	Harris Corporation declara que este XL-200P está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Slovensko [Slovenian]	*Harris Corporation* izjavlja, da je ta *XL-200P* v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]	*Harris Corporation* týmto vyhlasuje, že *XL-200P* spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Suomi [Finnish]	Harris Corporation vakuuttaa täten että XL-200P tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Svenska [Swedish]	Härmed intygar Harris Corporation att denna XL-200P står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
Íslenska [Icelandic]	Hér með lýsir Harris Corporation yfir því að XL-200P er í samræmi við grunnkröfur og aðrar kröfur, sem gerðar eru í tilskipun 1999/5/EC.
Norsk [Norwegian]	Harris Corporation erklærer herved at utstyret XL-200P er i samsvar med de grunnleggende krav og øvrige relevante krav i direktiv 1999/5/EF.

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1. REGULATORY AND SAFETY INFORMATION

1.1 SAFETY CONVENTIONS

The following conventions are used throughout this manual to alert the user to general safety precautions that must be observed during all phases of operation, service, and repair of this product. Failure to comply with these precautions or with specific warning elsewhere in this manual violates safety standards of design, manufacture, and intended use of the product. Harris assumes no liability for the customer's failure to comply with these standards.

⚠ WARNING	**The WARNING symbol calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury. Do not proceed beyond a WARNING symbol until the conditions identified are fully understood or met.**
⚠ CAUTION	The **CAUTION** symbol calls attention to an operating procedure, practice, or the like, which, if not performed correctly or adhered to, could result in damage to the equipment or severely degrade the equipment performance.
ⓘ NOTE	The **NOTE** symbol calls attention to supplemental information, which may improve system performance or clarify a process or procedure.

1.2 SAFETY TRAINING INFORMATION

⚠ WARNING	**The Harris XL-200P/XL-185P portable radio generates RF electromagnetic energy during transmit mode. This radio is designed for and classified as "Occupational Use Only," meaning it must be used only during the course of employment by individuals aware of the hazards and the ways to minimize such hazards. This radio is NOT intended for use by the "General Population" in an uncontrolled environment.**

The XL-200P/XL-185P portable radio has been tested and complies with the FCC RF exposure limits for "Occupational Use Only." In addition, this Harris radio complies with the following Standards and Guidelines with regard to RF energy and electromagnetic energy levels and evaluation of such levels for exposure to humans:

- FCC KDB Publication 447498 General RF Exposure Guidance

- American National Standards Institute (C95.1 – 1992), IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

- American National Standards Institute (C95.3 – 1992), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields – RF and Microwave.

- IC Standard RSS-102. Radiofrequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands).

- European Council Directive 89/391/EEC.

1.2.1 RF Exposure Guidelines

⚠️ **CAUTION**

To ensure that exposure to RF electromagnetic energy is within the EU/AU/FCC/IC allowable limits for occupational use, always adhere to the following guidelines:

- DO NOT operate the radio without a proper antenna attached, as this may damage the radio and may also cause the FCC RF exposure limits to be exceeded. A proper antenna is the antenna supplied with this radio by Harris or an antenna specifically authorized by Harris for use with this radio. (Refer to Table 4-1.)

- DO NOT transmit for more than 50% of total radio use time ("50% duty cycle"). Transmitting more than 50% of the time can cause FCC RF exposure compliance requirements to be exceeded. The radio is transmitting when the "TX" indicator appears in the display. The radio will transmit by pressing the "PTT" (Push-To-Talk) button.

- ALWAYS transmit using low power when possible. In addition to conserving battery charge, low power can reduce RF exposure.

- ALWAYS use Harris authorized accessories (antennas, batteries, belt clips, speaker/mics, etc.). Use of unauthorized accessories may cause the FCC Occupational/Controlled Exposure RF compliance requirements to be exceeded. (Refer to Table 1-1.)

- As noted in Table 1-1, ALWAYS keep the housing of the transmitter *AT LEAST* 0.47 inches (1.2 cm) from the body and at least 0.98 in (2.5 cm) from the face when transmitting to ensure EU/AU/FCC/IC RF exposure compliance requirements are not exceeded. However, to provide the best sound quality to the recipients of your transmission, Harris recommends you hold the microphone at least 2 in (5 cm) from mouth, and slightly off to one side.

- Refer to Standard EN 62311:2008.

Table 1-1: RF Exposure Compliance Testing Distances[1]

RADIO FREQUENCY	TESTED DISTANCES (worst case scenario)	
	Body[2]	Face
VHF (136 - 174 MHz)	0.47 in (1.2 cm)	0.98 in (2.5 cm)
UHF (378 - 522 MHz)	0.47 in (1.2 cm)	0.98 in (2.5 cm)
700/800 MHz (768 - 776 MHz) (798 - 806 MHz) (806 - 824 MHz) (851 - 870 MHz)	0.47 in (1.2 cm)	0.98 in (2.5 cm)
900 MHz (935-944 MHz) (896-902 MHz)	0.47 in (1.2 cm)	0.98 in (2.5 cm)
2400 MHz	0.47 in (1.2 cm)	0.98 in (2.5 cm)

[1] Minimum safe operating distances for the radio are based on the Harmonized Standards and SAR evaluation.

[2] This is worst case based on the thinnest body mount accessory (belt clip).

RADIO FREQUENCY	TESTED DISTANCES *(worst case scenario)*	
	Body[2]	**Face**
(2412 - 2472 MHz)		
5 GHz (5.18 - 5.825 GHz)	0.47 in (1.2 cm)	0.98 in (2.5 cm)

Table 1-2: Worst Case Reported SAR Level

	LMR STANDALONE	SIMULTANEOUS LMR AND LTE
Head	1.88 W/kg	2.25 W/kg
Body-worn	5.63 W/kg	5.93 W/kg
FCC SAR Limit	8.0 W/kg	8.0 W/kg

NOTE

SAR Evaluation: 1g averaged, 50% PTT Duty Factor, Occupational/Controlled Exposure.

This device contains multiple transmitters that may operate simultaneously, see Table 1-3 Simultaneous Transmission Scenarios for the capable transmit configurations.

Table 1-3: Simultaneous Transmission Scenarios

NO.	CAPABLE TRANSMIT CONFIGURATION	HEAD	BODY-WORN ACCESSORY
1	LTE B13/14/4 + VHF	YES	YES
2	LTE B13/14/4 + UHF	YES	YES
3	LTE B4 + 700 MHz	YES	YES
4	LTE B13/14/4 + 800 MHz	YES	YES
5	LTE B13/14/4 + Bluetooth	YES	YES
6	LTE B13/14/4 + 2.4 GHz WLAN	YES	YES
7	LTE B13/14/4 + 5 GHz WLAN	YES	YES
8	LTE B13/14/4 + VHF + Bluetooth	YES	YES
9	LTE B13/14/4 + UHF + Bluetooth	YES	YES
10	LTE B4 + 700 MHz + Bluetooth	YES	YES
11	LTE B13/14/4 + 800 MHz + Bluetooth	YES	YES
12	LTE B13/14/4 + VHF + WLAN	YES	YES
13	LTE B13/14/4 + UHF + WLAN	YES	YES
14	LTE B4 + 700 MHz + WLAN	YES	YES
15	LTE B13/14/4 + 800 MHz + WLAN	YES	YES
16	LTE B13/14/4 + 900 MHz (XL-185P Only)	YES	YES
17	LTE B13/14/4 + 800 MHz + Bluetooth	YES	YES
18	LTE B13/14/4 + 800 MHz + WLAN	YES	YES

	LTE B13/14 + 700 MHz combination is not supported by this device.
NOTE	

The information in this section provides the information needed to make the user aware of RF exposure, and what to do to assure that this radio operates within the FCC RF exposure limits.

1.2.2 Electromagnetic Interference/Compatibility

During transmissions, this Harris radio generates RF energy that can possibly cause interference with other devices or systems. To avoid such interference, turn off the radio in areas where signs are posted to do so. DO NOT operate the transmitter in areas that are sensitive to electromagnetic radiation such as hospitals, aircraft, and blasting sites.

1.3 REGULATORY APPROVALS

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

1.3.1 Part 15

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and

2. This device must accept any interference received, including interference that may cause undesired operation.

1.3.2 Industry Canada

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

1.4 OPERATING TIPS

Antenna location and condition are important when operating a portable radio. Operating the radio in low-lying areas or terrain, under power lines or bridges, inside of a vehicle, or in a metal framed building can severely reduce the range of the unit. Mountains can also reduce the range of the unit.

In areas where transmission or reception is poor, some improvement may be obtained by ensuring that the antenna is vertical. Moving a few yards in another direction or moving to a higher elevation may also improve communications. Vehicular operation can be aided with the use of an externally mounted antenna.

Battery condition is another important factor in the trouble free operation of a portable radio. Always properly charge the battery.

1.4.1 Efficient Radio Operation

Keep the antenna in a vertical position when receiving or transmitting a message.

> ⚠️ **WARNING**
>
> **Do NOT hold onto the antenna when the radio is powered on!**

1.4.2 Antenna Care and Replacement

> ⚠️ **WARNING**
>
> **Do not use the portable radio with a damaged or missing antenna. A minor burn may result if a damaged antenna comes into contact with the skin. Replace a damaged antenna immediately. Operating a portable radio with the antenna missing could cause personal injury, damage the radio, and may violate FCC regulations.**

> ⚠️ **CAUTION**
>
> Use only the supplied or approved antenna. Unauthorized antennas, modifications, or attachments could cause damage to the radio unit and may violate FCC regulations. (Refer to Table 4-1.)

1.4.3 Electronic Devices

> ⚠️ **CAUTION**
>
> RF energy from portable radios may affect some electronic equipment. Most modern electronic equipment in cars, hospitals, homes, etc. is shielded from RF energy. However, in areas in which you are instructed to turn off two-way radio equipment, always observe the rules. If in doubt, turn it off!

1.4.4 Aircraft

> ⚠️ **WARNING**
>
> - **Always turn off a portable radio before boarding any aircraft!**
> - **Use it on the ground only with crew permission.**
> - **DO NOT use while in-flight!!**

1.4.5 Electric Blasting Caps

> ⚠️ **WARNING**
>
> **To prevent accidental detonation of electric blasting caps, DO NOT use two-way radios within 1000 feet of blasting operations. Always obey the "Turn Off Two-Way Radios" signs posted where electric blasting caps are being used (OSHA Standard: 1926.900).**

1.4.6 Potentially Explosive Atmospheres

⚠️ **WARNING**

Areas with potentially explosive atmospheres are often, but not always, clearly marked. These may be fueling areas, such as gas stations, fuel or chemical transfer or storage facilities, and areas where the air contains chemicals or particles, such as grain, dust, or metal powders.

Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death.

Turn off two-way radios when in any area with a potentially explosive atmosphere. It is rare, but not impossible that a radio or its accessories could generate sparks.

2. RENSEIGNEMENTS SUR LA RÉGLEMENTATION ET SÉCURITÉ

2.1 CONVENTIONS SUR LES SYMBOLES DE SÉCURITÉ

Les conventions suivantes sont utilisées dans le présent manuel pour avertir l'utilisateur des précautions générales de sécurité qui doivent être observées pendant toutes les phases d'opération, d'entretien et de réparation de ce produit. Le non-respect de ces précautions ou d'avertissements précisés ailleurs enfreint les normes de sécurité de la conception, de la fabrication et de l'utilisation prévue du produit. Harris n'assume aucune responsabilité pour le non-respect de ces normes par le client.

⚠️ **MISE EN GARDE**	**Le symbole MISE EN GARDE attire l'attention sur une procédure ou une pratique qui, si elle n'est pas correctement effectuée ou observée, pourrait entraîner une blessure personnelle. Ne pas poursuivre au-delà d'un symbole de MISE EN GARDE avant que les conditions identifiées soient complètement comprises ou satisfaites.**
⚠️ **AVERTISSEMENT**	Le symbole **AVERTISSEMENT** attire l'attention sur une procédure ou une pratique opérationnelle qui, si elle n'est pas correctement effectuée ou observée, pourrait entraîner un bris d'équipement ou une importante baisse de rendement de l'équipement.
ℹ️ **REMARQUE**	Le symbole **REMARQUE** attire l'attention sur des renseignements supplémentaires qui peuvent améliorer le rendement du système ou clarifier un processus ou une procédure.

2.2 RENSEIGNEMENTS SUR LA FORMATION SUR LA SÉCURITÉ

⚠️ **MISE EN GARDE**	**La radio portative Harris XL-200P/XL-185P produit de l'énergie électromagnétique des RF lorsqu'en mode de transmission. Cette radio est conçue et classée pour une « Utilisation professionnelle seulement », ce qui signifie qu'elle ne doit être utilisée que dans le cadre d'un emploi par des individus conscients des risques et des moyens de limiter ceux-ci. Cette radio N'EST PAS conçue pour une utilisation par la « Population générale » dans un environnement non contrôlé.**

La radio portative XL-200P/XL-185P a été testée et est conforme aux limites d'exposition aux RF de la FCC pour une « Utilisation professionnelle seulement ». De plus, cette radio Harris est conforme aux normes et directives suivantes quant à l'énergie des RF et aux niveaux d'énergie électromagnétique, ainsi qu'à l'évaluation de ces niveaux pour l'exposition aux humains:

- FCC KDB 447498

- American National Standards Institute (C95.1 – 1992), norme de l'IEEE sur les niveaux sécuritaires d'exposition humaine aux champs électromagnétiques des radiofréquences, 3 kHz à 300 GHz.

- American National Standards Institute (C95.3 – 1992), pratique recommandée par l'IEEE pour la mesure des champs électromagnétiques potentiellement dangereux – RF et micro-ondes.

2.2.1   Directives sur l'exposition aux RF

AVERTISSEMENT

Pour s'assurer que l'exposition à l'énergie électromagnétique des RF se situe dans les limites acceptables de la FCC pour l'utilisation professionnelle, respectez toujours les directives suivantes :

- N'utilisez PAS la radio sans qu'une antenne appropriée y soit connectée, car ceci peut endommager la radio et également causer un dépassement des limites d'exposition aux RF de la FCC. Une antenne appropriée est celle fournie par Harris avec cette radio, ou une antenne spécifiquement autorisée par Harris pour être utilisée avec cette radio. (Reportez-vous à Tableau 2-1.)

- Ne transmettez PAS pendant plus de 50 % de la durée d'utilisation totale de la radio (« cycle de service de 50 % »). La transmission pendant plus de 50 % du temps peut causer un dépassement des exigences de conformité de la FCC en matière d'exposition aux RF. La radio transmet lorsque l'indicateur « TX » apparaît sur l'affichage. La radio transmet lorsqu'on appuie sur le bouton « PTT » (bouton de microphone).

- Transmettez TOUJOURS en basse puissance lorsque possible. En plus de préserver la charge de la pile, une faible puissance réduit l'exposition aux RF.

- Utilisez TOUJOURS des accessoires autorisés Harris (antennes, piles, pinces de ceinture, haut-parleurs/micros, etc.). L'utilisation d'accessoires non autorisés peut entraîner un dépassement des exigences de conformité pour une exposition aux RF professionnelle ou contrôlée de la FCC. (Reportez-vous à Table 4-1.)

- Tel qu'indiqué dans Tableau 2-1, conservez TOUJOURS l'appareil et son antenne à *AU MOINS* 1,2 cm du corps, et à au moins 2,5 cm du visage pendant la transmission, pour vous assurer de ne pas dépasser les exigences de conformité de la FCC en matière d'exposition aux RF. Cependant, pour offrir la meilleure qualité sonore aux auditeurs de votre transmission, Harris recommande de tenir le microphone à au moins 5 cm (2 po) de votre bouche et légèrement déplacé sur un côté.

Tableau 2-1 : Distances de test de conformité des expositions aux RF

RADIOFRÉQUENCES	DISTANCES TESTÉES *(pire des scénarios)*	
	Corps[3]	**Visage**
VHF (136 - 174 MHz)	1,2 cm	2,5 cm
UHF (378 - 522 MHz)	1,2 cm	2,5 cm
700/800 MHz (768 - 776 MHz) (798 - 806 MHz) (806 - 824 MHz) (851 - 870 MHz)	1,2 cm	2,5 cm
900 MHz (935-944 MHz) (896-902 MHz)	1,2 cm	2,5 cm
2400 MHz	1,2 cm	2,5 cm

---

[3] Ce est le pire des cas basée sur le corps plus mince monter accessoire (clip ceinture).

RADIOFRÉQUENCES	DISTANCES TESTÉES *(pire des scénarios)*	
(2412 - 2472 MHz)		
5 GHz (5.18 - 5.825 GHz)	1,2 cm	2,5 cm

Dans cette section figurent les renseignements nécessaires pour sensibiliser l'utilisateur à l'exposition aux RF et sur ce qu'il faut faire pour s'assurer que cette radio fonctionne dans les limites d'exposition aux RF de la FCC.

2.2.2   Interférence/Compatibilité Électromagnétique

Pendant les transmissions, cette radio Harris produit de l'énergie des RF qui peut causer de l'interférence avec d'autres appareils ou systèmes. Pour éviter de telles interférences, fermez la radio dans les zones où il est indiqué de le faire. N'utilisez PAS le transmetteur dans des zones sensibles aux radiations électromagnétiques, comme les hôpitaux, les avions et les sites de détonation.

2.3   INTERFÉRENCE DES RADIOFRÉQUENCES

2.3.1   Partie 15 de la FCC

Cet appareil est conforme à la Partie 15 de la réglementation de la FCC. Le fonctionnement est soumis aux deux conditions suivantes :

1. Cet appareil ne doit pas causer une interférence nuisible; et
2. Cet appareil doit accepter toute interférence reçue, y compris une interférence qui peut causer un fonctionnement non souhaité.

2.3.2   Industrie Canada

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

2.4   CONSEILS D'UTILISATION

L'emplacement et l'état de l'antenne sont importants pour l'utilisation d'une radio portative. L'utilisation de la radio dans des zones de faible élévation, sous des lignes électriques ou des ponts, à l'intérieur d'un véhicule ou dans un immeuble à ossature métallique, peut réduire la portée de l'appareil de manière considérable. Les montagnes peuvent également réduire la portée de l'unité.

Dans les zones où la transmission ou la réception est insatisfaisante, certaines améliorations peuvent être obtenues en s'assurant que l'antenne est verticale. Se déplacer de quelques mètres dans une autre direction ou à un emplacement plus élevé peut également améliorer les communications. L'utilisation d'une antenne fixée à l'extérieur peut faciliter le fonctionnement dans un véhicule.

L'état de la pile est un autre facteur important d'une utilisation sans tracas d'une radio portative. Chargez toujours correctement la pile.

2.4.1   Utilisation Efficace de la Radio

Gardez l'antenne dans une position verticale pendant la réception ou la transmission d'un message.

Ne tenez PAS l'antenne lorsque la radio est allumée!

MISE EN GARDE

2.4.1.1 Entretien Et Remplacement De L'antenne

N'utilisez pas la radio portative si son antenne est endommagée ou absente. Une brûlure légère peut se produire au contact d'une antenne endommagée avec la peau. Remplacez immédiatement une antenne endommagée. L'utilisation d'une radio portative alors que l'antenne est absente peut causer des blessures, endommager la radio et pourrait enfreindre la réglementation de la FCC.

MISE EN GARDE

Utilisez seulement l'antenne fournie ou une antenne approuvée. Des antennes non autorisées, des modifications ou des ajouts à une antenne peuvent endommager la radio et enfreindre la réglementation de la FCC. (Reportez-vous à Table 4-1.)

AVERTISSEMENT

2.4.1.2 Appareils Électroniques

L'énergie des RF provenant de radios portatives peut affecter certains appareils électroniques. La majorité de l'équipement électronique moderne dans les voitures, les hôpitaux, les maisons, etc. est blindé contre l'énergie des RF. Cependant, dans les zones où l'on vous demande de fermer l'équipement de radio bidirectionnelle, respectez toujours les règles. En cas de doute, éteignez-le!

AVERTISSEMENT

2.4.1.3 Avion

- **Éteignez toujours une radio portative avant d'embarquer à bord d'un avion!**
- **Ne l'utilisez au sol qu'avec la permission de l'équipage.**
- **NE l'utilisez PAS durant le vol!**

MISE EN GARDE

2.4.1.4 Détonateurs Électriques

Pour prévenir la détonation accidentelle des détonateurs électriques, n'utilisez PAS de radios bidirectionnelles à moins de 305 m (1 000 pi) des opérations de détonation. Respectez toujours les indications « Éteindre les radios bidirectionnelles » situées là où des détonateurs électriques sont utilisés. (Norme OSHA : 1926.900)

MISE EN GARDE

2.4.1.5 Atmosphère Potentiellement Explosive

MISE EN GARDE

Les zones ayant une atmosphère potentiellement explosive sont souvent, mais pas toujours, identifiées clairement comme telles. Il peut s'agir de zones d'alimentation en carburant, comme les postes d'essence, les installations de stockage ou de transfert de carburant ou de produits chimiques, ainsi que les zones dont l'air contient des produits chimiques ou des particules, comme des grains, de la poussière ou des poudres métalliques.

Des étincelles dans de telles zones peuvent provoquer une explosion ou un incendie, causant ainsi des blessures ou même la mort.

Éteignez les radios bidirectionnelles dans toute zone ayant une atmosphère potentiellement explosive. Il est rare, mais pas impossible qu'une radio ou ses accessoires produisent des étincelles.

3. HAZARDOUS LOCATIONS

Radios ordered with the Class 1, Division 2 option are suitable for use in Class 1, Division 2, Groups A, B, C, and D or non-hazardous (unclassified) locations only.

Les radios commandées avec l'option Classe 1, Division 2 sont adéquates pour utilisation en Classe 1, Division 2, Groupes A, B, C et D, ou en lieux non-hasardeux (non-classifiés) seulement

! WARNING	**EXPLOSION HAZARD – REPLACE BATTERY PACK ONLY IN AN AREA KNOWN TO BE NON-HAZARDOUS, AND ONLY WITH HARRIS PART NO. 14035-4010-01.** **AVERTISSEMENT – RISQUE D'EXPLOSION – LES BATTERIES DOIVENT ÊTRE REMPLACÉES DANS UNE ZONE RECONNUE NON-HASARDEUSE SEULEMENT, ET SEULEMENT AVEC UNE BATTERIE HARRIS PORTANT LE NUMÉRO DE PIÈCE 14035-4010-01.**
! WARNING	**EXPLOSION HAZARD – Substitution of any component may impair suitability for Class I, Division 2.** **AVERTISSEMENT – RISQUE D'EXPLOSION – Une substitution de toute composante pourrait compromettre la convenance pour la Classe I, Division 2.**
! WARNING	**EXPLOSION HAZARD – Do not exceed maximum battery charging current of 5.250 A or maximum charging voltage of 12.0 V DC at any time.**
! WARNING	**CAUTION - The battery used in this device may present a risk of fire or explosion when heated above 100°C (212°F) or incinerated. Replace battery with Harris Part No. 14035-4010-01 only. Use of another battery may present a risk of fire or explosion.**

Battery replacement instructions: Remove battery by 1) depressing battery latches then 2) remove battery from radio chassis. Install replacement battery by inserting battery in radio chassis opening and depressing battery into chassis until both battery latches are engaged. Dispose of used battery promptly. Keep away from children. Do not disassemble and do not dispose of in fire.

! WARNING	**EXPLOSION HAZARD – In addition to any simple single-ended coil antenna, only the following Harris accessories may be used with this radio:**

PART NUMBER	DESCRIPTION
12082-0600-01	SPEAKER MICROPHONE
12082-0600-02	Speaker Microphone, Emergency Button
12082-0650-01	Microphone,Palm,2 Wire, Black
12082-0650-02	Microphone,Palm,2 Wire, Beige
12082-0650-03	Microphone,Mini-Lapel,3 Wire, Black
12082-0650-04	Microphone,Mini-Lapel,3 Wire, Beige
12082-0650-05	EARPHONE KIT,BLACK,XG-100P
12082-0650-06	EARPHONE KIT,BEIGE,XG-100P
12082-0650-07	Headset, In-Ear, Boom Mic, In-Line PTT
12082-0650-08	Headset, Lightweight, Over-the-Head, Single Ear, In-Line PTT

PART NUMBER	DESCRIPTION
12082-0650-09	Headset, Lightweight, Behind-the-Head, Dual Ear, In-Line PTT
12082-0650-10	Headset, Lightweight, Behind-the-Head, Dual Ear, Pigtail PTT
12082-0650-13	Headset, Heavy Duty, Behind-the-Head, w/PTT
12082-0650-14	Headset, Heavy Duty, Over-the-Head, w/PTT
12082-0650-15	Headset, Behind-the-Head, Boom Mic, Earpiece, w/PTT
12082-0650-16	Headset, Tactical, Boom Mic, Earpiece, w/PTT
12082-0650-17	Skull Mic, w/Body PTT and Earcup
12082-0650-18	Throat Mic, W/Acoustic Tube & Body PTT
12082-0650-19	Throat Mic, w/Acoustic Tube, Body and Ring PTT
LS103239V1	Earphone, Lapel Microphone, 2.5mm
LS103239V2	Earphone, Lapel Microphone, 2.5mm, RT Angle
12150-1000-01	Speaker Mic, Premium, Fire (FSM), Noise Cancelling

4. INTRODUCTION

4.1 DESCRIPTION

The XL-200P and XL-185P provide the advanced connectivity that first responders require while addressing evolving voice and data communications. They support VHF, UHF, and 700/800 MHz, allowing voice and data communications across agencies using multiple frequencies and systems. The XL-200P and XL-185P meet MIL-STD-810G for durability and is certified to more stringent MIL-STD parameters for contamination by fluids and explosive atmospheres. The XL-200P and XL-185P support P25 Trunking, P25 Conventional, Enhanced Digital Access Communications System (EDACS), analog conventional, and BeOn® over a Wi-Fi® or LTE network.

NOTE	EDACS operation is not supported in UHF or VHF.

NOTE	Refer to Feature Manual 14221-7200-6130 for details on configuring and using BeOn on the XL Series radios.

Radio features include:

- Extremely Rugged – exceeds the standards of other radios on the market.

- Multiband Operation – supports any combination of VHF, UHF, and 700/800 MHz frequencies. Also allows different bands to be enabled for selected users.

- Single-key DES Encryption – provides basic secure communications without having to buy the complete encryption option.

- Instant Recall of Received Audio – allows user to replay the last transmission received to avoid unnecessary repetition.

- Active Noise Cancellation – with three internal microphones to transmit intelligible audio from users in loud environments.

- Built-in GPS – for location reporting and rapid response for emergencies.

- Integrated Bluetooth® – for wireless interface to selected accessories.

- Wi-Fi Connectivity – permits simple and easy radio software and personality updates.

- Wi-Fi Access Point – XL-200P radios that include the LTE option can be configured via RPM2 to act as a Wi-Fi access point and/or router, providing access to broadband data for Wi-Fi devices. Refer to RPM2's online help when configuring the XL-200P for these functions.

- Covert Mode – allows users to quickly configure the radio for operation in a covert environment.

- Fully Programmable Keypad – each key can be programmed to a variety of functions.

- 4-position switch – provides added configuration flexibility.

- Unique User Interface – tools specially designed by first responders make radio operation simple and intuitive. An easy-to-read multi-color front display and a monochromatic top display with optional colored backlighting enhance communications for improved user safety.

For optional accessories, refer to Table 4-1. Additional accessories may have been added since publication of this manual; contact Harris for more information.

4.2 STORAGE GUIDELINES

Store your XL-200P and batteries in a clean, cool (not exceeding 86 °F [+30 °C]), dry, and ventilated storage area.

4.3 BASIC SETUP

4.3.1 <u>Assemble the Radio</u>

⚠ **WARNING**	**Only use a Harris charger approved for the battery chemistry. Injury could occur from improper charger use.**
⚠ **CAUTION**	Do not over-tighten the antenna as damage could result.
🛈 **NOTE**	Please charge battery fully before first use. Due to government regulations, batteries ship in a discharged state and may require up to two (2) minutes in a charger for successful initialization. During initialization, the charger will not show any charge indication. After this initialization period, charging will resume normally.

1. Make sure batteries are charged per the manual supplied with the charger.

2. To attach optional belt clip, remove the existing tab from the back of the radio above the battery compartment. Slide the belt clip into the groove.

3. Lift clip, if installed, and slide top of battery into top of battery compartment at the rear of the radio.

4. Press down on bottom side of battery until it snaps into place.
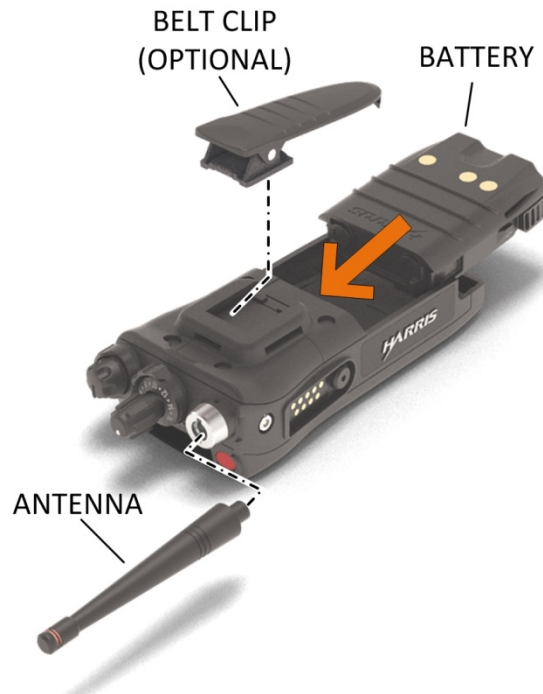
Figure 4-1: Radio Assembly

4.3.2   Removing the Battery

To remove, press and hold the two tabs at the bottom of the battery and then pull battery up and out of the radio.

Figure 4-2: Remove the Battery

4.3.3   Removing the Optional Belt Clip or D-Post

Remove the battery before removing the belt clip or D-Post. To remove the belt clip, pry up on the metal spring towards the top of the battery compartment (see Figure 4-3) using a flat head screwdriver and slide the belt clip or D-Post out of the groove in the back of the radio.

Pry up on the metal spring here to release the belt clip or D-Post.

Do **NOT** attempt to pry here! This is part of the speaker port.
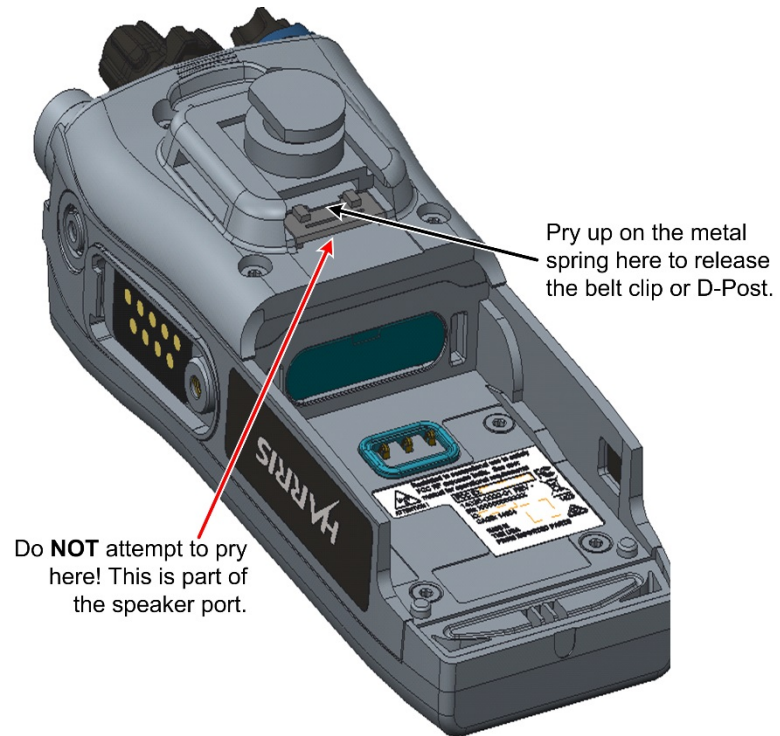
Figure 4-3: Remove Belt Clip

4.3.4 Install the SIM Card

Figure 4-4 shows how to install the SIM card in the LTE version of XL-200P.

Figure 4-4: SIM Card Installation

4.4   UNIVERSAL DEVICE CONNECTOR

The Universal Device Connector (UDC) provides connections for external accessories such as a headset, a speaker-microphone, audio test box, audio test cables, and programming cables. The UDC is located on the right side of the radio, opposite the PTT Button. The UDC facilitates programming and testing the radio. The UDC pins perform different functions depending on the accessory attached to the UDC.

Figure 4-5: Universal Device Connector

4.5   CLEANING

Keep the exterior of the radio, battery, antenna, and radio accessories clean.

Periodically clean using the following procedures:

1. To remove dust and dirt, clean using damp clean cloth (warm water and mild detergent soap).

2. Follow by wiping with damp (warm water) clean cloth. Wipe dry with clean cloth.

3. Remove the battery and wipe the battery and radio contacts using a soft dry cloth to remove dirt or grease. This will ensure efficient power transfer from the battery to the radio.

4. Remove any accessories and clean the UDC contacts using a clean dry cloth. When the UDC is not in use, cover the connector with the protective dust cap to prevent the build-up of dust or water particles.

5. If the radio is used in a harsh environment (such as driving rain, salt fog, etc.), it may be necessary to periodically dry and clean the battery and radio contacts with a soft dry cloth or soft-bristle non-metallic brush.

For more rigorous cleaning, use the following procedure:

⚠ CAUTION	Do not use chemical cleaners, spray, or petroleum-based products. They may damage the radio housing. We recommend using Chemtronics® Electro-Wash® PR (ES-1603) or equivalent.

1. Apply the cleaning solution to a clean damp cloth and clean the radio.

🛈 NOTE	Do not spray cleaning solution directly on radio. To clean the radio in the speaker and microphone areas, carefully wipe these areas but prevent the cleaning solution from entering the speaker or microphone openings.

2. Wipe off the radio with clean damp cloth using mild warm soapy water.

3. Follow up by wiping off the radio with clean damp cloth using warm water only.

4. Wipe dry with clean cloth.

4.6   OPTIONS AND ACCESSORIES

Only use Harris approved accessories. Refer to Harris' Product and Services catalog for the complete list of options and accessories available. Contact Harris for requirements not contained in this list:

⚠️ CAUTION	Always use the correct options and accessories (battery, antenna, speaker/mic, etc.) for the radio. Immersion rated options must be used with an immersion rated radio. Refer to Table 4-1.

Table 4-1: Options and Accessories

DESCRIPTION	PART NUMBER	OPTION NUMBER
ANTENNAS		
Antenna, Full Spectrum	14035-4000-01	XL-NC5Z
Antenna, Whip Wideband 378-520 MHz, 762-870 MHz	14035-4420-01	XL-NC8E
Antenna, Whip, 1/4 Wave, 762-870 MHz,	14035-4440-02	XL-NC8F
Antenna, Whip, 1/2 Wave, 762-870 MHz	14035-4440-01	XL-NC8D
Antenna, Whip, 1/4 Wave, 762-944 MHz	14035-4450-02	XL-NC9F
Antenna, Whip, 1/2 Wave, 762-944 MHz	14035-4450-01	XL-NC9D
Antenna, 896-941 MHz	KRE1011223/02	MAEX-NNC1Z
BATTERIES/CHARGERS		
Battery, Lithium, Standard Capacity	14035-4010-01	XL-PA3V
Battery, Li-Ion, 3100 mAH	14035-4010-04	
Battery, Li-Ion, 3100 mAH, UL	14035-4010-05	
Charger, Single Bay	14035-1800-01	XL-CH4X
Charger, Multi Bay	14035-1800-02	XL-CH5A
Charger, Vehicular	14035-4100-01	XL-CH4W
AUDIO ACCESSORIES		
Speaker Microphone	12082-0600-01	XL-AE9N
Speaker Microphone, Emergency Button	12082-0600-02	XL-AE4B
Speaker Microphone, Wireless, Bluetooth	12082-0681-01	XL-AE6K
Speaker Microphone, Premium, Fire, Noise Cancelling	12150-1000-01	XL-AE1T
Speaker Microphone, Premium, Fire, Noise Cancelling, High Visibility Yellow	12150-1000-05	XL-AE1X
Microphone, Palm, 2-Wire, Black	12082-0650-01	XL-AE6G
Microphone, Palm, 2-Wire, Beige	12082-0650-02	XL-AE6M
Microphone, Mini-Lapel, 3-Wire, Black	12082-0650-03	XL-AE6H
Microphone, Mini-Lapel, 3-Wire, Beige	12082-0650-04	XL-AE6N
Earphone Kit, Black	12082-0650-05	
Earphone Kit, Beige	12082-0650-06	
Headset, In-Ear, Boom Mic, In-Line PTT	12082-0650-07	XL-AE2A
Headset, Light Weight, Over-the-Head, Single Ear, In-Line PTT	12082-0650-08	XL-AE2B
Headset, Light Weight, Behind-the-Head, Dual Ear, In-Line PTT	12082-0650-09	XL-AE2C
Headset, Light Weight, Behind-the-Head, Dual Ear, Pig Tail PTT	12082-0650-10	XL-AE2D
Headset, Light Weight, Behind-the-Head, Dual In-Ear, In-Line PTT	12082-0650-11	XL-AE2E
Headset, Light Weight, Behind-the-Head, Dual In-Ear, Pig Tail PTT	12082-0650-12	XL-AE2F
Headset, Heavy Duty, Behind-the-Head, w/PTT	12082-0650-13	XL-AE1P
Headset, Heavy Duty, Over-the-Head, w/PTT	12082-0650-14	XL-AE1R
Headset, BTH Boom Mic, Earpiece, w/PTT	12082-0650-15	XL-AE2G
Headset, Tactical, Boom Mic, Earpiece, w/PTT	12082-0650-16	XL-AE1H
Skull Mic, w/Body PTT, Earcup	12082-0650-17	XL-AE1L
Throat Mic, w/Acoustic Tube, Body PTT	12082-0650-18	XL-AE1M
Throat Mic, w/Acoustic Tube, body and Ring PTT	12082-0650-19	XL-AE1N

DESCRIPTION	PART NUMBER	OPTION NUMBER
Bluetooth, Covert, Earpiece/MIC/PTT, Radios	12082-0684-01	XL-AE1S
Earphone, Lapel Microphone	LS103239V1	XL-AE3Z
Earphone, Speaker Mic, Right Angle, 2.5 MM	LS103239V2	XL-AE1K
MISCELLANEOUS ACCESSORIES		
Cable, Data Interface	12082-0445-A1	XL-CJ4A
Cable, MATQ-03424, Test	12082-0435-A1	
Cable, USB, Key Loading/Programming	12082-0410-A1	XL-CJ3A
Cable, KVL, Key Loading	12082-0400-A1	XL-CJ3B
Adapter, 6-Pin Hirose	14002-0197-01	XL-CJ4B
Holster, Leather, Radio, Premium	14035-4200-01	
Holster, Leather W/Rings, Radio, Premium	14035-4200-02	
Holster, Nylon, Black, Radio, Premium	14035-4200-03	
Holster, Ring, Leather, Radio, Premium	14035-4200-04	
Case, Leather, Premium, Belt Loop, D-swivel	14035-4201-01	XL-HC4K
Case, Leather, Premium, Shoulder Strap	14035-4201-02	XL-HC4L
Case, Leather, Premium, Shoulder Strap	14035-4202-01	
Holster, Leather W/Rings, Radio, Standard	14035-4202-02	
Holster, Nylon, Black, Radio, Standard	14035-4202-03	
Holster, Ring, Leather, Radio, Standard	14035-4202-04	
Belt Loop, Leather, Premium	14002-0218-01	XL-HC4A
D-Swivel	12082-3230-01	
Strap, Shoulder	CC103333V1	
Metal Belt Clip	12082-1290-01	XL-HC3L
Case, Leather, Premium, Shoulder Strap	14035-4201-02	XL-HC4L
Belt Loop, Leather	KRY1011609/1	
Holster, Leather, Premium	14036-4000-01	
Holster, Leather W/Rings, Premium	14036-4000-02	
Side Connector Cover	12082-1398-01	XL-ZN7V

4.7   RELATED PUBLICATIONS

The following publications contain additional information about the XL-200P portable radio, and related products:

MANUAL NUMBER	DESCRIPTION
14221-1800-2010	XL-200P Portable Radio Product Safety Manual
14221-1800-1000	XL-200P Portable Radio Quick Guide
14221-1800-2000	XL-200P Portable Radio Operator's Manual
14221-1800-8000	XL-200P Portable Radio Software Release Notes
MM1000019423	Key Manager and Key Admin Overview and Operation Manual
MM1000019424	Key Manager and Key Loader Overview and Operation Manual
14221-1600-2090	Single-Bay Desktop Charger Operator Manual
14221-1600-2110	VC4000 Vehicular Charger Operator Manual
14221-7200-6110	Voice Annunciation Feature Manual
14221-2100-3000	Advanced Access Control and Radio Personality Manager Overview Manual
14221-1100-8170	Radio Personality Manager 2 (RPM2) Software Release Notes
14221-7200-6130	BeOn Configuration and Use Feature Manual

The product safety manual and the quick guide are included with the radio equipment package when the radio ships from the factory. All publications listed above are available at www.pspc.harris.com via an Information Center login and Tech Link.

5. BASIC OPERATION

5.1 XL-200P CONTROLS

Figure 5-1: XL-200P Controls

ℹ️ **NOTE**	Table 5-1 describes the default functions of buttons, knobs, and controls. Most can be programmed for different functions; see Section 7.4 for more information.

Table 5-1: XL-200P Controls, Indicators, and Connectors

CONTROL/INDICATOR	FUNCTION
Group/Channel Knob	Selects groups/channels.
Power/Volume Knob	Turn clockwise to power on radio and increase volume of audio heard from speaker. Minimum volume levels may be programmed into the radio to prevent missed calls due to a low volume setting.
A/B (Ø/O) Switch	User-programmable switch (see Section 7.4.2).

CONTROL/INDICATOR	FUNCTION
Microphone (Secondary)	When noise cancellation is enabled, the secondary and primary microphones are used together to form a dual microphone system. Noise cancellation improves the quality of transmitted voice. When noise cancellation is disabled, only the primary microphone is used. See Section 5.17 for detailed information on using noise cancellation.
A/B/C/D Switch	User-programmable switch (see Section 7.4.3). By default, selects one of four channel banks (see Section 5.12).
User-Programmable Buttons	Used to select a commonly used function as an alternative to navigating menus. This is configured via programming using Radio Personality Manager 2 (RPM2). See Section 7.4.1 for the options that can be programmed to these buttons.
Push-To-Talk (PTT) Button	Press to transmit. Make sure Push-To-Talk (PTT) is enabled (Section 6.5).
Battery	Battery - Refer to Section 4.3 for battery connection and removal.
Antenna Connector	Antenna connector.
Emergency Button	Used to place radio in emergency mode (see Section 5.32). This button can be disabled via programming using RPM2. In addition, this button can be used in conjunction with a User-Programmable Button to clear emergencies if configured to do so.
Indicator Light Emitting Diode (LED)	Indicates radio status: • Red = actively transmitting. • Green = actively receiving. • Orange = actively transmitting encrypted.
Top Display	Shows summary of radio operation, including channel/talkgroup (which can be color coded), as well as a variety of programmable icons. Display orientation can be configured for viewing from the front or rear of the radio. (Section 6.6).
Speaker	Radio speaker which can be muted (Section 6.5). Adjust volume using the Power/Volume knob.
Microphone (Primary)	When noise cancellation is enabled, the primary and secondary microphones are used together to form a dual microphone system. Noise cancellation improves the quality of transmitted voice. When noise cancellation is disabled, only the primary microphone is used. See Section 5.8 for detailed information on using noise cancellation.
Front Display	Front display shows complete status and radio menus.
User-Programmable Soft Keys	User-programmable dynamic keys that have their current function labeled on the radio display directly above each button. See Section 7.4.1 for the options that can be programmed to these buttons.
Menu/Select Button	From the Main Display, press this button to access the menu. Also selects highlighted menu items.

CONTROL/INDICATOR	FUNCTION
Navigation Buttons	Navigates menu items. In addition: Press ◀ while on the idle display to access Channel Information (see Section 6.4). Press ▼ while on the idle display to display the functions assigned to programmable buttons (see Section 7.4). Press ▲ to display Missed Call info. Press ▶ to end or reject an I-Call.
Keypad	By default, used to enter text or numbers. Can be programmed for various functions (see Section 7.4).

5.2 SOFT DTMF KEYPAD

The partial keypad model of the XL-200P supports a "soft" DTMF keypad. This allows the radio user to utilize a graphical DTMF keypad in place of a physical DTMF keypad.

On screens that require keypad entry, press the **KEYPAD** softkey to display the keypad. Use ◀ , ▶ , ▲ , and ▼ to navigate, press the Menu/Select button to select highlighted digit, and then press the **ENTER** softkey.

For example, when placing an Individual Call to a numeric address, the soft DTMF keypad can be used to enter the address as shown:

Figure 5-2: Using the Soft DTMF Keypad

5.3 BEFORE FIRST USE

Make sure XL-200P has:

- Fully charged battery
- Antenna attached
- Personality and radio programmed using RPM2
- Encryption keys loaded if using encrypted channels
- Personality activated

5.4   POWER ON AND SET VOLUME

The power switch and volume control are the same knob on top of the radio (see Figure 5-1). Turn the Power/Volume Knob clockwise to power on XL-200P and increase the volume.

NOTE	A minimum volume level can be programmed into the radio to prevent missed calls due to a low volume setting.

NOTE	The radio can be programmed to require the entry of a PIN in order to operate the radio. Check with your System Administrator if you forget your PIN. As the PIN is entered, an asterisk is displayed for each digit; the actual value is not displayed.

5.5   RADIO DISPLAYS

5.5.1   Top Display

The top display (Figure 5-3) shows a summary of status, such as channel number/bank, channel short name, battery, scanning, and emergency mode. The display can be configured for viewing from the front or rear of the radio (see Section 6.6). The channel short name is programmed using RPM2.
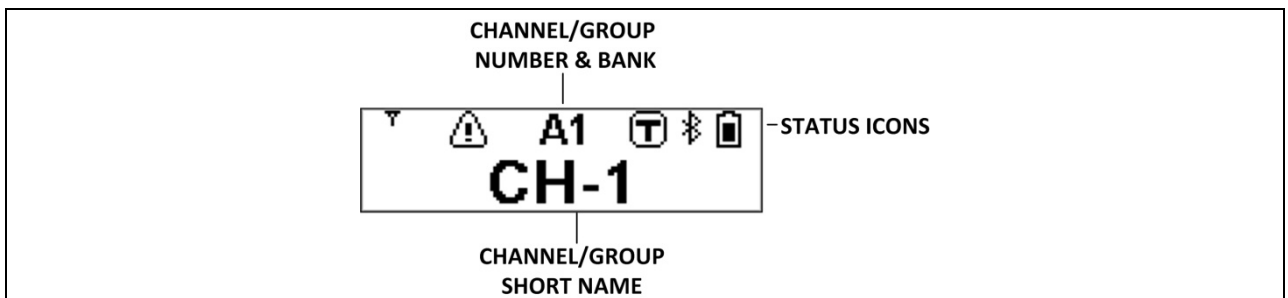
Figure 5-3: Top Display

5.5.2 Front Display

Figure 5-4 shows a sample front display while on the idle screen. The idle screen appears after power up or after exiting from the menus.

Figure 5-4: Sample Idle Front Display

 NOTE The XL-200P can be programmed to display the User ID on the System line of the display.

Table 5-2 describes some of the icons that may be displayed by the XL-200P. The radio menu also contains an icon glossary in the Utility Menu (see Section 5.8). Icons and their location can be customized using RPM2.

Table 5-2: Radio Icons

ICON	DESCRIPTION	ICON	DESCRIPTION	ICON	DESCRIPTION
	(Blue) Trunked Signal Strength		Bluetooth Enabled		Monitor On
	(Red) TX Power		(Blue) Bluetooth Connected		VDOC
	(Green) Receive Signal Strength		Encryption Enabled		Receiving Data
	(No Color) Channel Idle		Global Encryption		Transmitting Data
	(Orange) Transmitting Encrypted		OTAR Disabled		Alert(s) Present
	Battery Fully Charged		OTAR Registered		Vote Scanning
	Battery Level 100% Capacity		OTAR Registering		Scanning Enabled
	Battery Level 75% Capacity		OTAR Rekeying		Emergency

ICON	DESCRIPTION	ICON	DESCRIPTION	ICON	DESCRIPTION
	Battery Level 50% Capacity		Transmit Power Level High		RX Mail
	Battery Level 25% Capacity		Transmit Power Level Low		Noise Cancellation Enabled
	Battery Level 5% Capacity (Low Battery Audio Indicator)		RX Only		Fire Speaker Mic Attached
	Battery Level Battery Exhausted (RX-Only State)		Speaker Muted		Nuisance Channel
	Battery Charging		TX Disabled		Conventional Site Unregistered
	Talkaround Enabled		Tones Disabled		Conventional Site Registered
	Failsoft		PTT Disabled		Type 99 Enabled
	LTE – Registered Foreign Network		LTE – Denied or Unknown Registration Status		GPS Tracking
	LTE – Registered Home		LTE – No Signal		Wi-Fi Clients Connected

5.6   MANDOWN

If enabled via radio programming, the following conditions can be configured to trigger a Mandown condition:

- MOTION - Mandown is declared with lack of motion.

- TILT - Mandown is declared when the radio is tilted.

- BOTH - Mandown is declared by radio tilting and lack of motion.

This can be useful if, for example, a radio user is in danger and has not moved for a certain amount of time. If the user's movement falls below the configured level, then a tone begins playing. An Emergency is declared on the channel/group based on the radio's Emergency configuration.

5.7   STATUS MESSSAGES

The radio may display various radio Status Messages during operation. These messages are described in Table 5-3.

Table 5-3: Status Messages

MESSAGE	DESCRIPTION
PTT DENIED	P25 Trunked and EDACS - The radio or talkgroup is not authorized to operate on the selected system and/or talkgroup.
CALL QUEUED	P25 Trunked and EDACS - The system has placed the call in a request queue.
SYSTEM BUSY	P25 Trunked and EDACS - The system is busy, no channels are currently available, the queue is full, or an individual call is being attempted to a radio that is currently transmitting.
SCANNING	The radio is scanning.
TX EMERGENCY	An emergency call is being transmitted.
RX EMERGENCY	An emergency call is being received. The radio displays the unit name or unit ID.
WIDE AREA SCAN	P25 Trunked and EDACS - The radio has entered the Wide Area Scan mode to search for a new system.
INVALID TALKGROUP	P25 Trunked and EDACS - The current talkgroup is not valid for the current system. This could happen if the site denies registration due to an unrecognized talkgroup ID.
INVALID UNIT	P25 Trunked and EDACS - The current unit is not valid for the current system.
REGISTERING	P25 Trunked only - Displayed when the radio is performing a registration/affiliation on a P25 trunking site.
CTRL CHANNEL SCAN	P25 Trunked and EDACS - The control channel is lost and the radio has entered the Control Channel Scan mode to search for the control channel (usually out of range indication).
BAND SCANNING	P25 Trunked and EDACS - Only displayed if the system is configured for "EnhancedCC" mode of operation. When the radio cannot find a Control Channel in either the trunked frequency set or the list of discovered adjacencies, the radio is able to perform a full spectrum frequency scan to find a new Control Channel.
MISSED CALL	P25 Modes and EDACS - Another user has tried to call or page this radio. The user can view who the caller was by pressing the ▲ key.
OTAR REKEY COMPLETE	OTAR Rekey operation completed successfully.

5.8   PREDEFINED MENU LAYOUTS

Depending on radio programming, some menu options described in this manual may not be available. The XL-200P supports three predefined menu layouts: Full, Custom, and Restricted. Table 5-4 details what is available in each layout:

NOTE

The Custom predefined menu layout allows the administrator to customize the list of menu items that are available to the radio user. Table 5-4 lists the default settings.

Table 5-4: Predefined Menu Layouts

MENU	FULL	CUSTOM (Default Settings)	RESTRICTED
Call Menu	✓	✓	✓
Exit Emergency	✓	✓	✓
Talkaround	✓	✓	✓
Individual Call	✓	✓	✓
Change Talkgroup	✓	✓	✓
Call Alert/Page	✓	✓	✓
Channel Guard	✓	✓	✓
Audio Playback	✓	✓	
Tone Encode	✓	✓	✓
T99	✓	✓	✓
Audio Settings	✓		
Display Settings	✓	✓	✓
GPS Settings	✓		
Clock Settings	✓	✓	
Bluetooth Settings	✓	✓	
Scan Menu	✓	✓	✓
Enable/Disable Scan	✓	✓	✓
View Scan List	✓	✓	
Edit Zone Scan List	✓		
View Custom Channels	✓	✓	
Edit Custom Scan List	✓		
Custom Scan	✓	✓	
Site Roam	✓	✓	
Security Menu	✓	✓	✓
Encryption Enable	✓	✓	✓
Zeroize	✓		
Global CKR Enable	✓		
GCKR Key Select	✓		
Active Key Set	✓	✓	✓
Key List	✓	✓	
OTAR Enable	✓	✓	
OTAR Rekey	✓	✓	✓

MENU	FULL	CUSTOM (Default Settings)	RESTRICTED
Message Menu	✓	✓	✓
Radio Status	✓	✓	
Radio Message	✓	✓	
Textlink Messages	✓	✓	
Textlink Forms	✓	✓	
Textlink Mailbox	✓	✓	
Faults	✓	✓	✓
Program Menu	✓	✓	
Activate Plan	✓	✓	
Activate Profile	✓	✓	
Maintenance Menu	✓	✓	✓
Radio Info	✓	✓	
Battery	✓	✓	
TCXO Tuning	✓		
P25 Tests	✓		
RSSI Display	✓	✓	✓
Phase II Display	✓	✓	
Feature Info	✓	✓	
WiFi Access Point	✓	✓	✓
Change Language	✓		
Change PIN	✓	✓	✓
Icon Glossary	✓	✓	✓
Install GPP Software *x*	✓	✓	✓
Zone	✓	✓	

5.9 MENU

Press the Menu/Select button while on the idle display to access the menu. Press the ◀ or ▶ buttons to navigate the top-level menus, and press the ▲ or ▼ buttons to navigate the sub-menus. Refer to Figure 5-1 for button location. While in a menu, press the Menu/Select button to choose, activate, or toggle the selected item; similar to an enter key. Table 5-5 provides a high-level overview of the menu layout. Menu options on your radio may vary depending on available features and radio programming.

Table 5-5: Menu Navigation

TOP-LEVEL MENUS	SUB-MENUS	DESCRIPTION
CALL	EXIT EMERGENCY	Exits emergency. See Section 5.32 for more information.
	TALKAROUND MODE	Enable/disable talk-around. See Section 5.23 for more information.
	TYPE 99 TOGGLE	Enable/disable T99. See Section 5.24 for more information.
	TONE ENCODE	Analog conventional only - Transmits a programmed tone sequence on the current radio system and channel. See Section 6.19 for more information.
	INDIVIDUAL CALL	Allows you to select an individual for an individual call. See Section 5.15 for more information.
	CHANGE TLKGRP	Change the selected talkgroup. See Section 5.14.
	CALL ALERT	Select a group for Call Alert transmission. See Section 5.25.
	CHANNEL GUARD	Select the Transmit and/or Receive Channel Guard tone. See Section 5.22.
	AUDIO PLAYBACK	Replays the last recorded call. See Section 5.27 for more information.

TOP-LEVEL MENUS	SUB-MENUS	DESCRIPTION
SCAN	START SCAN/STOP SCAN	Start or stop scan operation. See Sections 5.28 and 5.29.
	SCAN LISTS	View/Edit available scan lists. See Section 6.14.
	ASSIGNED CUSTOM LIST	Create, View, and Edit Custom Scan Lists. See Section 6.14.6.
	SITE ROAMING	Enable/Disable Wide Area System Scan. See Section 6.14.7.
SECURITY	ZEROIZE KEYS	Removes all encryption keys from the radio. See Section 6.20.2.
	ENCRYPTION	Enable/Disable encryption. See Section 5.20.
	GLOBAL ENCRYPTION	Enable/Disable Global Encryption. See Section 6.20.4.
	GLOBAL KEY	Select the Global Key. Only available if Global Encryption is Enabled. See Section 6.20.4.
	ACTIVE KEYSET	Select the Active Keyset. See Section 6.20.5.
	KEY LIST	View available key lists. See Section 6.20.6.
	OTAR	Enable/disable Over-the-Air Rekeying (OTAR). See Section 6.20.7.
	OTAR REKEY	Request that the KMF updates the keys in the radio. See Section 6.20.7.
MESSAGES	RADIO STATUS	Used to send a particular status condition to the site without making a voice call. See Section 6.15.
	RADIO MESSAGE	Used to send a particular message to the site without making a voice call. See Section 6.16.
	TEXTLINK MESSAGES	Allows the user to send a Radio TextLink message. See Section 6.17.
	TEXTLINK FORMS	Allows the user to send a Radio TextLink form. See Section 6.17.
	TEXTLINK MAILBOX	Contains received Radio TextLink messages. See Section 6.17.
	FAULTS/ALERTS	Displays radio faults and alerts. See Section 6.18.
UTILITY	AUDIO SETTINGS:	
	• SPEAKER (MUTE/UNMUTE)	Mute or unmute the speaker audio.
	• NOISE CANCELLATION	Enable or disable Noise Cancellation. See Section 5.17.
	• PTT	Enable or disable Push-To-Talk (PTT). Disable PTT to prevent accidental keying, such as when radio is in the holster or you are getting into a car.
	• TONES	Enable or disable radio side tones.
	• KEYPAD TONES	Enable or disable tones that sound when the radio's keypad buttons are pressed.
	DISPLAY SETTINGS:	
	• COLOR SCHEME	Press the Menu/Select button to toggle the front and top display's COLOR SCHEME for optimum visibility in day or night conditions (NORMAL or INVERTED).
	• FRONT BACKLIGHT	Press the Menu/Select button to toggle the front display backlighting between ON/OFF/MOMENTARY/MOMENTARY (OFF).
	• FRONT BRIGHTNESS	Press ◀ or ▶ to dim or brighten the display.
	• FRONT TIMEOUT	When the FRONT BACKLIGHT setting is MOMENTARY, this value specifies how long the radio needs to be inactive before the front display's backlight turns off. Press ◀ or ▶ to change the time in 0.5 second increments.
	• FRONT DISPLAY OFF	Turns the front display off completely. Press the Menu/Select button to turn the front display back on.
	• TOP BACKLIGHT	Press the Menu/Select button to toggle the top display backlighting ON/OFF/MOMENTARY.
	• TOP BRIGHTNESS	Press ◀ or ▶ to dim or brighten the display.
	• TOP TIMEOUT	When the TOP BACKLIGHT setting is MOMENTARY, this value specifies how long the radio needs to be inactive before the top display's backlight turns off. Press ◀ or ▶ to change the time in 0.5 second increments.
	• TOP ORIENTATION	Set orientation of top display to be viewed from radio: FRONT, BACK, or AUTO. When AUTO is selected, the radio changes the top display to be viewed from the back if an external microphone or speaker is attached. Otherwise, the display can be viewed from the front.
	• INDICATOR LED	Press the Menu/Select button to toggle the indicator LED ON or OFF.

TOP-LEVEL MENUS	SUB-MENUS	DESCRIPTION
	BLUETOOTH: • ENABLED (YES/NO) • PAIRING MGMT	 Enable/disable Bluetooth. See Section 6.10 for more information. Pair Bluetooth devices with the radio. See Section 6.10 for more information.
	CLOCK SETTINGS: • TIME FORMAT • TIME ZONE	 Select 12 or 24 hour time display format. Set time zone relative to Universal Time Coordinated (UTC).
	GPS SETTINGS: • GPS (ENABLED/DISABLED) • POSITION INFO • ANGULAR UNITS • LINEAR UNITS • POSITION FORMAT	 Enable/disable GPS. Displays GPS, Latitude, Longitude, and Altitude information. From this menu, click **NEXT** to access SA INFO (see Section 6.2). Set unit of measurement of displayed angular units: CARDINAL, DEGREES, or MILS. Set unit of measurement of displayed linear units: STATUTE, METRIC, or NAUTICAL. Set format of displayed position information: Latitude/Longitude Degrees Minutes Seconds (LAT/LONG DMS), LAT/LONG DM, Military Grid Reference System (MGRS), or Universal Transverse Mercator (UTM).
UTILITY (Continued)	PROGRAM: • ACTIVATE PLAN • PROFILES	 View/Activate a personality. See Section 6.1. Change current profile. See Section 5.16.
	MAINTENANCE: • BATTERY INFO • RADIO INFO • TESTS • PH2 LC DISPLAY • DISPLAY RSSI • TCXO TUNING • FEATURE INFO	 When a smart battery is attached, displays detailed battery status information. When a regular battery is attached, displays battery voltage. Displays radio information, i.e., ESN, software revisions, and firmware revisions. Allows service personnel to run radio tests. For field service use only. When enabled, RSSI is displayed on the RSSI screen and in the bottom of the idle display. -130 dBm is displayed when there is no received signal. For field service personnel only. Improper adjustment will result in loss of communications. Displays what features are enabled on your radio.
	WIFI ACCESS POINT: • POWER • CLIENT COUNT	 Power Wi-Fi On/Off. When the radio is configured as a Wi-Fi access point, displays the number of connected clients.
	LTE: • PLMN (MCC/MNC): • Signal Strength: • Registration Status: • NGLM: • IMEI: • IMSI:	 Displays the Public Land Mobile Network (Mobile Country Code/Mobile Network Code). Displays the LTE signal strength. Indicates whether or not you are registered (connected) to the LTE network. Displays the Next Generation LTE Module's software revision. Displays the International Mobile Equipment Identity. The IMEI is used to identify devices on a network. Displays the International Mobile Subscriber Identity. The IMSI is used to identify the user of a cellular network and is a unique identification associated with all cellular networks.
	ICON GLOSSARY	Defines icons displayed by the radio.
	INSTALL GPP SOFTWARE:	Select a GPP package to install.
	CHANGE LANGUAGE	Press the Menu/Select button to toggle between available languages.
	CHANGE PIN	Allows you to change your PIN.
ZONE		View or change zones/systems (see Sections 5.11 and 6.3.1).

5.10 ALERT TONES

The XL-200P provides audible Alert Tones or "beeps" to indicate various operating conditions. Some of the most common tones are described in Table 5-6.

Table 5-6: Alert Tones

TONE	DESCRIPTION	SOUND/DURATION
Ready To Talk Tone Unencrypted (Analog FM or P25 digital)	After a PTT is pressed, this is an audible indication (tone) for you to begin speaking into the microphone.	1000 Hz tone for 25 ms
Ready to Talk Tone Encrypted P25 digital	After a PTT is pressed, this is an audible indication (tone) for you to begin speaking into the microphone.	1200 Hz tone for 25 ms
PTT Denied	PTT not possible. Momentary tone is present: • Receive only • Key not found • PTT button disabled • Emergency button disabled • Emergency not supported for current channel • Clear transmit denied • Trunking Channel unavailable	544 Hz tone for 75 ms
Maximum transmit duration expires	Maximum transmit duration is exceeded.	5 beeps of 2400 Hz tone and then a 544 Hz tone for as long as PTT is pressed
Low Battery Alarm	Alarm sounds upon initial detection of low battery and every 30 seconds thereafter. Tone stops upon detection of a battery charging state.	Sequence of tones: • 937 Hz tone for 50 ms • Silence for 60 ms • 1300 Hz tone for 50 ms
Emergency Call Received	Radio is receiving an emergency call or priority call.	600 Hz tone for 250 ms and 1800 Hz tone for 250 ms
Out of Range	Radio fails to find a local control channel.	Programmable via RPM2: • Disabled (no tone) • Slow (tone every 15s) • Medium (tone every 10s) • Fast (tone every 5s) • Tones is 544 Hz tone for 75 ms

5.11 SELECT ZONE/SYSTEM

A System is a group of channels or talkgroups that share a common set of parameters as programmed using RPM2. For example, a Trunking system defines the parameters needed to communicate on a particular infrastructure by agency or geographical region, such as WACN, System ID, Talkgroups, etc. A conventional system defines the channel set used and any specific signaling attributes (See RPM2 for more information on System attributes). Systems are designated by the XX icon in the Zone/System menu.

A Zone is an OPTIONAL *container* that can hold channels or talkgroups from a variety of systems (see Section 6.3.2). In other words, each member of a Zone belongs to an underlying system. (See RPM2 for

more information on Zone attributes). Zones are always listed first in the Zone/System menu and are designated by the ⚡ icon. A button on the radio can be programmed to scroll through available zones/systems (see Section 7.4).

<u>Or</u>

To select a zone/system via the menu:

1. Press the Menu/Select button to access the menus.

2. Use ◀ or ▶ to display the **ZONE** menu. The currently selected zone/system will be highlighted. A personality can have up to 512 systems and up to 50 Zones, independent of banks or channels.

3. Use ▲ or ▼ to highlight the desired zone/system. The ▲ and ▼ buttons may be held to scroll repetitively, and the menu will wrap to allow quick access to a particular zone/system,

4. Press the **VIEW ZONE** soft key to view channels in the zone/system, or Select the desired zone/system using the Menu/Select button.
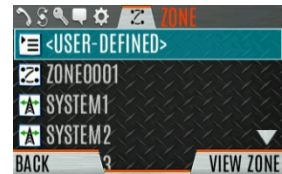
5.12 SELECT GROUP/CHANNEL AND BANK

The XL-200P can be programmed with 1,250 talkgroups or 1000 channels per personality. Use the Group/Channel knob to select groups/channels 1 - 16. Use the A/B/C/D switch to set the bank. The selected bank is indicated on the display.

- Bank A: Channel A1 - A16 (1-16)

- Bank B: Channel B1 - B16 (17-32)

- Bank C: Channel C1 - C16 (33-48)

- Bank D: Channel D1 - D16 (49-64)

If your system has more than 64 groups/channels, a button on the radio can be programmed for the SEL CHAN/GRP option. This allows you to select a "super bank," providing access to groups/channels beyond the first 64.

Note that ZONES have a limit of 64 entries per zone and cannot be "superbanked."

Direct Channel Entry

A button on the radio can be programmed for Direct Channel Entry, which allows the user to enter the talkgroup/channel number directly from the keypad.

The radio can be programmed for one of the following Direct Channel Entry options:

- When a Zone is selected on the radio, Direct Channel Entry performs a lookup using the currently selected system's group list

    Or

- When a Zone is selected on the radio, Direct Channel Entry performs a lookup using the currently selected Zone's system/group list.

5.13 LOCK/UNLOCK KEYPAD

There are two levels of keypad lock available. Keypad lock and Radio lock. Keypad lock only locks the navigation keys (except for use in unlock), programmable softkeys, and DTMF keypad. Radio lock disables all physical keys and knobs except:

- The 4-position switch

- PTT

- Emergency Button

- Any User Programmable Button (UPB) programmed for Monitor/Clear. (This is required to allow Monitor/Clear to function for 2-button emergency clear.)

The A/B switch, ABCD switch, or a button on the radio can be programmed to lock the keypad/radio. If the keypad was locked via a switch, moving the switch to another position will unlock the keypad. If locked via a button, the navigation keys must be used to enter the unlock sequence of Left, Right, Up Down.

| NOTE | See Section 7.4 for the various options that can be programmed to the radio buttons and switches. |

5.14 GROUP CALLS

5.14.1   Transmit a Group Call

A talkgroup is a group of radios that you want to have private conversations with. These groups can be divided into areas such as state, region, county, or large special events. A group call can only be made on digital channels.

Turn the Channel/Group knob to select the desired group (see Figure 5-1). Press PTT to transmit.

Or

A button on the radio can be programmed for DIRECT CHANNEL ENTRY to allow the user to enter the talkgroup/channel number. Press PTT to transmit.

Or

To transmit a group call:

1. In P25 Conventional, the talkgroup for the selected channel may be overridden as follows: Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **CALL** menu.

3. Press ▲ or ▼ to highlight **CHANGE TLKGRP** and press the Menu/Select button.

4. Press ▲ or ▼ to highlight and the desired talkgroup and press the Menu/Select button. After selecting the new talkgroup, the radio returns to the main screen.

5. Press PTT to transmit.
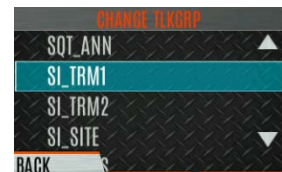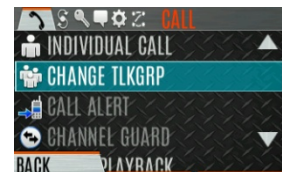
5.14.2   Receive a Group Call

Receiving a group call:

When receiving a group call, the status area of the idle display toggles between the Unit Name and the Group Name of the transmitting radio. Note that if either of those names is not programmed the corresponding ID number is displayed.

5.15 INDIVIDUAL CALLS

An individual call is used to make a call to one radio as opposed to a group of radios. An individual call can only be made on a digital channel.

5.15.1   Transmit an Individual Call

To transmit an individual call:

1. Press Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **CALL** menu**.**

3. Press ▲ or ▼ to highlight **INDIVIDUAL CALL** and press the Menu/Select button.

4. Use ▲ or ▼ to highlight the unit to call and press the Menu/Select button, or select **KEYPAD** to enter the Unit ID.

5. Press PTT to make the call. When transmitting an Individual Call, the radio displays the called radio's name or Unit ID. If the radio is programmed for Acknowledged Individual Call, the radio displays "CALL QUEUED" until the callee answers or rejects the call.

6. After the callee answers, press PTT to respond.

7. Press ▶ to end the call.
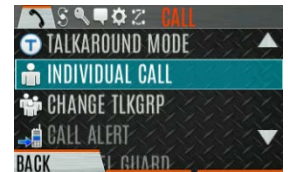
How long the radio remains in Individual Call mode with no activity is programmable.

5.15.2   Receiving an Individual Call

Receiving an individual call:

1. When receiving an Individual Call, the radio displays the calling radio's name or Unit ID. The radio will also display "Press → to END."

2. Press PTT to respond or ▶ to END/REJECT the call. How long the radio remains in the Individual Call mode with no activity is programmable.

3. The radio rings and indicates a missed call if you do not respond. The ring sounds until you press PTT, view the missed call menu (▲), change channel/group/system, or power cycle the radio.

4. On the missed call screen, press the **DISMISS** soft key to clear the entry.
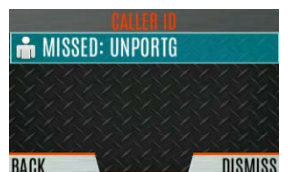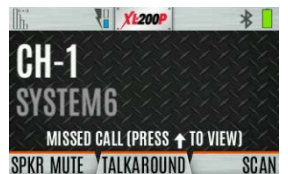
5.16 PROFILES

The XL-200P supports User Profiles. A User Profile is a grouping of preset configurations that allow the user to change radio operation based on current activity/scenario. For example, the radio can be programmed profiles named Noisy, Fire, etc., and the radio user can switch profiles on the radio depending on the environment they are entering. User Profile selection persists across system/group changes and power cycles. Up to 10 profiles can be programmed to the XL200P. When you activate a new personality, the selected Profile changes to None.

A "Covert" Profile is installed on the XL-200P by default. This profile cannot be modified or deleted. The following attributes apply when the Covert profile is active:

- The speaker is enabled.

- All tones are disabled.

- Keypad tones are disabled.

- Voice Annunciation is disabled.

- The front display backlight is disabled

- The top backlight is turned off.

- The indicator LED is disabled.

- All other attributes remain at their current value.

To change the currently selected Profile:

1. Press the Menu/Select button to access the menu.

2. Press ◀ or ▶ until the **UTILITY** menu is displayed**.**

3. Press ▲ or ▼ to highlight **PROGRAM** and press the Menu/Select button.

4. Press ◀ or ▶ until the **PROFILES** menu is displayed.

5. Press ▲ or ▼ to select the desired Profile and press the Menu/Select button.
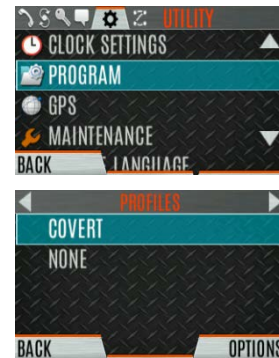
A profile change persists across system/channel changes, and power cycles.

ⓘ **NOTE**	A button on the radio keypad can be used to toggle profiles. See Section 7.4.1.

5.17 NOISE CANCELLATION

The XL-200P features Harris' proprietary noise suppression capability to provide clear and crisp voice quality in high-noise environments. This can be used in any mode, including analog and digital communications.

The XL-200P has three microphones; two located at the top of the radio (primary) and one on the bottom (secondary). When noise cancellation is enabled, voice is picked up by the upper left microphone, and noise is picked up from the bottom microphone.

In the case where noise cancellation is enabled and a speaker microphone is attached to the XL-200P, talk into the speaker microphone. In this mode, XL-200P top left microphone is used to pick up the surrounding noise, and the other microphones are unused. See Section 5.17.4 for more information. If the bottom (secondary) microphone is blocked, the XL-200P operates as though noise cancellation is turned off.

5.17.1   Enable Noise Cancellation

To enable Noise Cancellation:

1. Press the Menu/Select button to access the menu.

2. Press ◀ or ▶ until the **UTILITY** menu is displayed.

3. Press ▲ or ▼ to highlight **AUDIO SETTINGS** and press the Menu/Select button.

4. Press ▲ or ▼ to highlight **NOISE CANCELLATION**. Toggle Noise Cancellation **ENABLED/DISABLED** using the Menu/Select button.
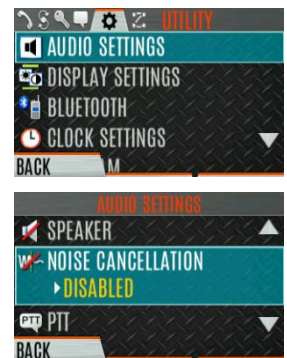
Refer to Section 6.5 for more information on the Audio Settings menu.

5.17.2   Using Noise Cancellation

When using the noise cancellation feature, observe the following:

*   Verify **NOISE CANCELLATION** is enabled (see Section 5.17.1).

*   Talk within two (2) inches of the primary microphone (see Figure 5-5).

*   Ensure the primary and secondary microphones are not covered. See Section 5.17.4 for more information on the primary and secondary microphones.

*   Speak clearly, loudly, and with authority.

*   In very noisy environments, it is o.k. to yell into the radio. The radio can handle loud input levels.
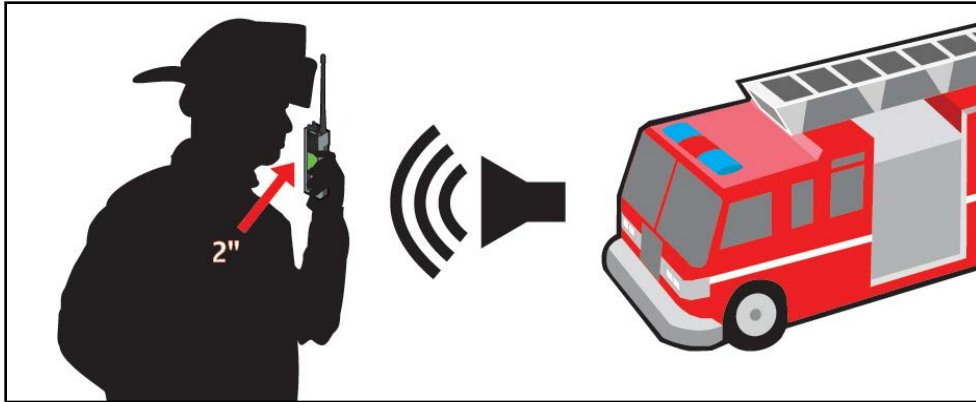
Figure 5-5: Using Noise Cancellation

5.17.3   The Effect of Distance from the Microphone

Unlike a normal microphone system, noise cancellation makes the level of your voice diminish quickly as you move away from the radio. In essence, the radio starts to see your voice as surrounding noise. Whereas, you may be comfortable speaking up to a foot away under normal operation, noise cancellation requires that you hold the radio close.

5.17.4   Primary versus Secondary Microphone

5.17.4.1   Without a Speaker Microphone Attached

The primary microphone is located on top of the radio and the secondary is on the bottom of the radio (refer to Figure 5-1 for microphone locations).

5.17.4.2   With a Speaker Microphone Attached

When a speaker microphone is attached, the radio electronically switches over to use the radio's top left microphone as secondary. The microphone on the attached speaker microphone becomes primary.

5.17.5   When using an SCBA Mask

When using an SCBA mask, the primary microphone can be held directly against the voice port. If the SCBA has a voice amplifier, the same rule applies. Ensure that the secondary microphone is uncovered. If possible, point the secondary microphone toward the noise source.

5.18 PTT OPTIONS

The radio can be programmed via RPM2 with one of the following PTT options:

- Radio and Accessory - In this mode, when the radio is PTT'd the audio source will correspond with the PTT source.

  ➢ If the source of PTT is radio, the audio is routed via the radio microphone.

  ➢ If the source of PTT is an external microphone accessory, the audio is routed via the external microphone accessory.

- Accessory Only - Any PTT input will have the audio routed through the external microphone accessory.

> **NOTE**
> The Bluetooth Speaker Mic is unaffected by this setting. PTTing the Bluetooth Speaker Mic always results in audio being routed via the Bluetooth Speaker Mic.

5.19 VOICE ANNUNCIATION

When enabled via programming, Voice Annunciation provides audible feedback for various radio operations. The radio can be programmed to play an audio message for any or all of the following. This message can be a pre-recorded (canned) message or a user-recorded message.

- Zone changes

- Channel changes

- System changes

- Encryption On/Off

- Noise Cancellation On/Off

- Scan On/Off

- Talkaround On/Off

- Monitor Mode On/Off

- 2 or 4 Position switch change

For more information on configuring the radio for Voice Annunciation, refer to the Voice Annunciation Feature manual 14221-7200-6110.

5.20 ENABLE/DISABLE ENCRYPTION

A switch or a button on the radio can be programmed to enable/disable encryption.

> **NOTE**
> See Section 7.4 for the various options that can be programmed to the radio buttons and switches.

Or

Turn encryption on or off via the Security Menu:

1. Press the Menu/Select button to access the menus.

2. Use the ◀ or ▶ button to highlight and select the **SECURITY** menu.

3. Use the ▲ or ▼ button to highlight **ENCRYPTION**. Toggle encryption enabled/disabled using the Menu/Select button. This option is grayed out if any switch is programmed for encryption, or if Encryption Mode in the radio's personality is programmed "Forced On."

- If a channel is programmed to be encrypted, an optional key icon appears on the main display when encryption is enabled. The system must also be programmed for encryption.

- When encryption is enabled and you use any channel not configured for encryption, the radio allows PTT. The signal is transmitted unencrypted.

- Systems configured for Global Encryption (enabled in the Security menu) can display an optional Global Encryption icon in addition to or instead of a key icon (Section 6.20.3).

5.21 TRANSMIT ENABLE/DISABLE

When transmit is disabled, all forms of transmission from the radio are disabled, including Bluetooth. This is designed for use in explosive atmospheres.

If enabled via programming, use the A/B switch to enable or disable transmit.

> **NOTE**
>
> See Section 7.4 for the various options that can be programmed to the radio buttons and switches.

5.22 CHANNEL GUARD (ANALOG CONVENTIONAL ONLY)

Channel Guard is Harris's trademark for CTCSS (tone squelch) and CDCSS (digital tone squelch).

> **NOTE**
>
> The Channel Guard menu is only accessible if the System is setup for CG SEL in the radio's personality.

To select the Channel Guard tone:

1. Press Menu/Select button to access the main menu.

2. Use ◄ or ► to display the **CALL** menu**.**

3. Use ▲ or ▼ to highlight **CHANNEL GUARD** and press the Menu/Select button.

4. Use ▲ or ▼ to highlight **RECEIVE GUARD** or **TRANSMIT GUARD** and press the Menu/Select button.

5. Use ▲ or ▼ to highlight the desired option from the list and select using the Menu/Select button.

6. The Channel Guard frequency is displayed on the main display.
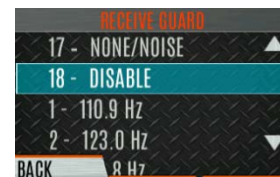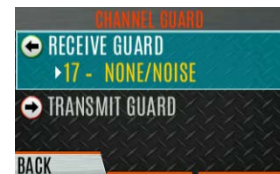
The Channel Info screen and Channel Edit screen will change depending on this selection. See Sections 6.4 and 7.2 for more information.

A button on the radio can be programmed for Channel Guard Override (see Section 7.4).

5.23 USE TALKAROUND TO BYPASS REPEATER (ANALOG AND P25 CONVENTIONAL ONLY)

You can bypass the repeater system to communicate directly with other radios on your current channel's receive frequency. This is useful if you are out of range of a repeater or if a repeater is busy. You will need to be in range of the other radio.

To enable talkaround:

1. Press Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **CALL** menu**.**

3. Press ▲ or ▼ to highlight **TALKAROUND MODE**.

4. Press the Menu/Select button to toggle **TALKAROUND MODE** to **ENABLED**.

5. The optional Talkaround icon appears. Calls are now made on the receive frequency until you disable talkaround mode via the **CALL** menu. Power cycling the radio does not disable talkaround.

<u>*Or*</u>
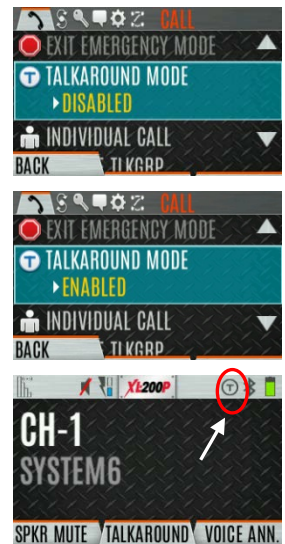
A button or switch can be programmed to toggle talkaround enable/disabled. See Section 7.4 for the various options that can be programmed to the radio buttons and switches.

If the Talk-Around Indication feature is enabled using RPM2, the radio will play a unique grant tone when a call is placed on a simplex channel or when Talk-Around has been enabled on a duplex channel. This feature applies to both Analog and P25 Conventional systems. It optionally allows the radio to also play the same tone when it receives a call while operating in simplex or Talk-Around. *If configured, the radio plays the tone at the selected volume level.*

The tone will not play on systems configured with MDC.

Talk-Around Indication can be specified for each individual Analog and P25 Conventional system configured in personality. The following options can be selected, and apply only when the radio is on a simplex channel or when Talk-Around has been enabled by the user:

- Disabled: (This is the default option.) When this option is selected, the radio plays the standard grant tone when a call is placed. The radio does not play a tone when a call is received.

- Transmit Only: When this option is selected, the radio plays a different "Talk-Around" grant tone when a call is placed. The radio does not play a tone when a call is received.

- Transmit & Receive: When this option is selected, the radio plays a different "Talk-Around" grant tone when a call is placed, and at the beginning of a received call.

> **NOTE**
>
> In the radio personality, the "Alert Tone" parameter needs to be enabled for each channel on the Conventional Frequency Set. The "Ready To Talk Tone" parameter must also be enabled for the Talk Around Indication tone to be played when the radio is keyed.

5.24 TYPE 99 OPERATION

Type 99 is Harris' name for in-band, two-tone sequential signaling. It is a conventional signaling protocol used to control the muting and unmuting of a radio. This signaling is commonly used for selective calling of individual units or groups of units in a conventional system.

In Type 99 tone systems, calls are not heard until the radio detects the proper two-tone sequence. This, in conjunction with squelch, prevents the user from hearing noise or undesired conversations. When the radio detects the second tone, it sounds the appropriate Type 99 alert tone. After the second tone stops, the receiver audio path is opened in order for the user to receive messages.

5.24.1 Enable/Disable Type 99

To enable Type 99:

1. Press Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **CALL** menu.

3. Press ▲ or ▼ to highlight **T99 TOGGLE**.
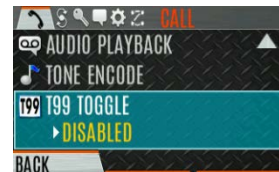
4. Press the Menu/Select button to change **T99 TOGGLE** between **ENABLED** and **DISABLED**. **T99** is displayed in the top of the radio display when Type 99 is enabled.

Or

A button or switch can be programmed to enable/disable Type 99 (see Section 7.4).

5.24.2 Disable After PTT

If this option is programmed using RPM2, Type 99 is disabled after the radio user activates the PTT. This allows the radio user to monitor traffic on the channel (after a PTT action) without pressing the monitor button.

Can be used in conjunction with the "Auto Reset" option (see Section 5.24.3) to disable Type 99 after a PTT and automatically reset, or enable, Type 99 after 30 seconds.

5.24.3 Auto Reset

If this option is programmed using RPM2, Type 99 is automatically reset, or turned back on, after 30 seconds. Can be used in conjunction with the "Disable After PTT" option (see Section 5.24.2) to disable Type 99 after a PTT and automatically reset, or enable, Type 99 after 30 seconds.

5.25 CALL ALERT (PAGE)

5.25.1   Send Alert

To send an alert:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **CALL** menu.

3. Press ▲ or ▼ to highlight **CALL ALERT** and press the Menu/Select button.

4. Press ▲ or ▼ to highlight the desired unit from the list and press the Menu/Select button, or select **KEYPAD** to enter the Unit ID.

5. Press **PTT** to send the page.
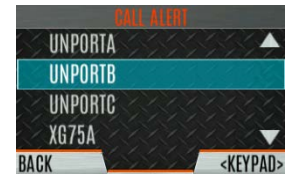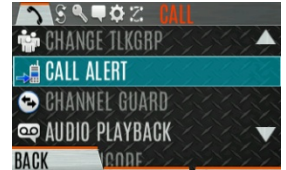
5.25.2   Receive Alert

1. When receiving a Call Alert, the radio displays the calling radio's name or Unit ID.

2. The radio rings and indicates a missed call. The ring sounds continuously until you press PTT, press the CLR MISSED softkey, change group/system, or power cycle the radio.

5.26 DTMF

The XL-200P supports the transmission of DTMF tones corresponding to the numbers/characters on the keypad. To overdial numbers/characters, press and hold the PTT button, and then press the corresponding keys one at a time on the keypad. Valid keys for DTMF tones are: 1, 2, 3, 4, 5, 6, 7, 8, 9, *, 0, and #.

> **NOTE**
> For conventional or P25 Conventional systems, DTMF tones only play if the current system is programmed for DTMF (part of general System configuration). DTMF tones are always enabled for P25 Trunking systems.

5.27   AUDIO PLAYBACK

The Audio Playback feature allows the user to playback a previously received call. Recordings are stored in the radio's RAM and are not persistent across power cycles. The radio stores the last five (5) recorded calls up to 1 minute each.

A button on the radio can be programmed to replay the last recorded call. To playback the last received call from a button:

1. Press the button programmed for audio playback. The last call received before the button was pressed is played each time the button is pressed.

2. Additional incoming calls will be recorded in the background, but pressing the button continues to replay the captured call until reset.

3. To reset the feature and allow a new call to be captured, press and hold the button until you hear a 2-tone chirp. At this point the button can be used to capture an new incoming call.

You can also playback one of the last five calls received via the menu.

To playback a previously received call from the menu:

1. Press the Menu/Select button.

2. Press ◀ or ▶ to display the **CALL** menu.

3. Press ▲ or ▼ to highlight **AUDIO PLAYBACK** and press the Menu/Select button.

4. Select the desired call from the list (the most recent call is at the top of the list) and press the select button. The selected call will be played.

    *   If a button is also programmed for Audio Playback, pressing the button replays the call that selected in the menu. The feature must be reset as above in order to use the button to capture a new call.

    *   If a button is not programmed for Audio Playback, then you must navigate back to the menu to play the call again.
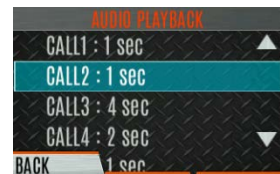
> **NOTE**
>
> Any incoming call that occurs during playback preempts the playback.

5.28 START SCAN

This procedure assumes that the scan list has been added and the radio is not in active scan. Refer to Section 6.13 for scan setup or Section 5.29 for stopping scan. Refer to Section 6.14.1.1, Section 6.14.1.2, and Section 6.14.1.3 for home and priority channel descriptions.

To start scan:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **SCAN** menu.

3. Press ▲ or ▼ to highlight **START SCAN** and press the Menu/Select button. **START SCAN** text changes to **STOP SCAN**.

4. Press the **BACK** soft key to exit the scan menu.

5. The scan icon is displayed on the idle display when scanning is enabled.
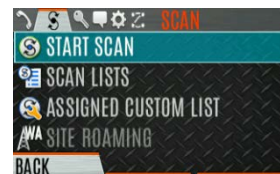
Or

To start scan:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **SCAN** menu.

3. Press ▲ or ▼ to highlight **SCAN LISTS** and press the Menu/Select button.

4. Press ▲ or ▼ to highlight the desired **SCAN LIST** and press the **START SCAN** soft key.

Or
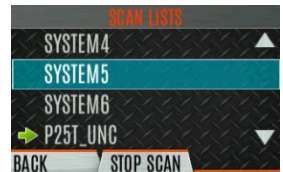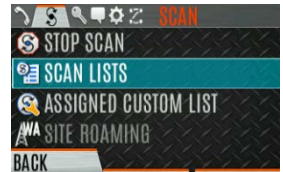
A switch or button on the radio can be programmed to start/stop scan.

> **NOTE**
>
> If a switch is programmed for start/stop scan, the menu for starting and stopping scan is disabled.

> **NOTE**
>
> See Section 7.4 for the various options that can be programmed to the radio buttons and switches.

5.29 STOP SCAN

To stop scan:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **SCAN** menu.

3. Press ▲ or ▼ to highlight **STOP SCAN** and press the Menu/Select button.

4. Press the **BACK** soft key to exit the scan menu.
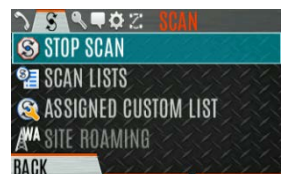
Or

To stop scan:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **SCAN** menu.

3. Press ▲ or ▼ to highlight **SCAN LISTS** and press the Menu/Select button.

4. Press the **STOP SCAN** soft key.

Or
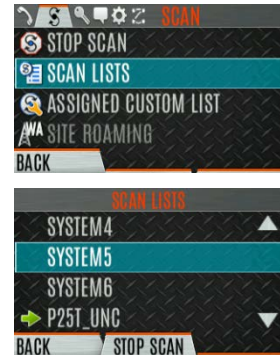
A switch or button on the radio can be programmed to start/stop scan.

NOTE	If a switch or button is programmed for start/stop scan, the menu for starting and stopping scan are disabled.

NOTE	See Section 7.4 for the various options that can be programmed to the radio buttons and switches.

5.30 MONITOR AND SQUELCH TYPES (CONVENTIONAL ONLY)

The monitor function allows you to temporarily turn off selected squelch to monitor for traffic that may not normally break squelch. The type of squelch used depends on an analog or digital channel. A button or switch on the radio can be programmed to start or stop Monitor (see Section 7.4 for the various options that can be programmed to the radio buttons and switches.).

For analog channels, there is:

• Noise squelch - any received signal breaks squelch.

• Continuous Tone Coded Squelch (CTCSS) - squelch is selective based on tone code.

• Continuous Digital Coded Squelch (CDCSS) - squelch is selective based on digital code.

For digital channels, there is:

• Monitor squelch - any received digital signal breaks squelch.

• Normal squelch - Received Network Access Code (NAC) must be correct to break squelch.

• Selective squelch - Received NAC and talkgroup Identification (ID) or unit ID must be correct to break squelch.

NOTE	During encrypted operations, the radio only unmutes when receiving with the same key.

5.31 NUISANCE DELETE

A channel can temporarily be deleted from the scan list. The selected channel, priority 1, and priority 2 channels cannot be nuisance deleted.

A button or switch on the radio can be programmed for nuisance delete (see Section 7.4 for the various options that can be programmed to the radio buttons and switches).

> **NOTE**
>
> Nuisance delete can only be performed on the active scan list.

To perform nuisance delete from the menu:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **SCAN** menu.

3. Press ▲ or ▼ to highlight **SCAN LISTS** and press the Menu/Select button.

4. Press ▲ or ▼ to highlight the scan list and press the Menu/Select button. When scanning is started, ⇨ indicates the active scan list; when scanning is stopped, 📇 indicates the active scan list.

5. Press ▲ or ▼ to highlight the desired channel.

6. Press the **OPTIONS** soft key.

7. Press ▲ or ▼ to highlight **NUISANCE** and press the Menu/Select button.

8. The ⊗ icon appears next to the channel and it will not be scanned.

9. Highlight the channel, press the **OPTIONS** soft key, and select **ADD BACK** to add channel back to scan list. If you do not add the channel back to the list, the channel will return to the scan list when you cycle radio power or activate a personality.

10. Press the **BACK** soft key to exit the channel list.

11. Press the **BACK** soft key to exit the scan list display.

5.32 CONVENTIONAL FAILSOFT (EDACS ONLY)

In the unlikely event of an EDACS system failure, communications can take place in Conventional Failsoft mode. The radio is automatically directed to a communications channel set up for this purpose. An increase in activity on the channel during Conventional Failsoft operation may be noticed, so be careful not to transmit until the channel is clear.

Operation during Conventional Failsoft is the same as operation on a conventional system, except that it is not possible to select a communications channel, or use emergency and special call. When trunking is restored, the radio automatically returns to normal operation.

> **NOTE**
>
> Emergency and special calls are not operational during Conventional Failsoft.

5.33 EMERGENCY OPERATION

The XL-200P can be programmed to enable emergency mode. Unit name displays on dispatcher console if an emergency signal is received from another XL-200P on a digital channel.

5.33.1 Declaring an Emergency Call

To declare an emergency:

1. Press and hold the emergency button on the radio or the speaker microphone. The length of time you need to hold the button is configured using RPM2.

2. The emergency icon is displayed on the idle display.

- For digital channels, the radio transmits the talkgroup or radio ID to the dispatch console and receiving radio.

- The radio can be programmed to have a dedicated emergency channel, which can be activated from analog or digital channels.

- The radio can also be programmed to send an Emergency Alarm in addition to or in place of the emergency call (P25 modes).

   The radio goes through transmit and receive cycles if so configured. Speak into the microphone while the radio is transmitting or press PTT to talk.

3. To exit emergency, power cycle the radio or select **EXIT EMERGENCY** from the CALL menu.

   If enabled via programming, you can clear an emergency by pressing the button programmed for the Monitor/Clear function and then the emergency button.
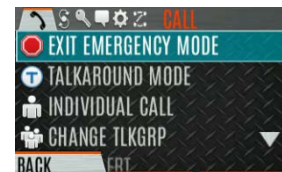
5.33.2 Receiving an Emergency Call

When receiving an Emergency Call, an alert beep sounds (if tones are enabled) and an emergency indication is displayed. The unit ID and/or unit name of the unit in emergency is displayed. While the emergency display is active, press PTT to respond to the emergency caller.

5.33.3   Stealth Emergency

The radio can be programmed with the following emergency behavior:

- No audio indications when declaring an emergency.
  Or

- No visual indications when declaring an emergency.
  Or

- No audio *and* no visual indications when declaring an emergency.

During stealth mode, the radio will not receive any type of call. Once the user presses the PTT button, the radio display and audio return to normal.

5.34   MDC-1200 (ANALOG CONVENTIONAL ONLY)

MDC-1200 is a legacy in-band signaling protocol that provides the radio with the ability to transmit and receive a unique PTT ID. This PTT ID can be decoded by receiving radios and displayed as a hexadecimal number or an alias string. In addition, MDC-1200 provides radios with the ability to transmit emergency status to a console. Refer to the MDC-1200 Feature Manual, 14221-7200-6000, for complete instructions on configuring and using this feature.

5.34.1   Normal PTT Operation

If MDC signaling on PTT press is enabled using RPM2, the radio transmits an MDC PTT ID message when PTT is pressed. If the Sidetone option is enabled using RPM2, the radio plays a Ready-to-Talk (RTT) tone after the MDC pre-signaling has been transmitted.

If MDC signaling on PTT release is enabled (using RPM2), the radio transmits post-call MDC signaling when PTT is released.

- IF STE is enabled (using RPM2), the MDC post-call signaling is transmitted after STE is sent on PTT release only.

- MDC post-call signaling is also sent when there is a radio unkey due to Carrier Control Timeout (CCT). Normal CCT alert tones occur prior to unkey.

5.34.2   MDC PTT ID Receive Handling

When the radio receives an MDC PTT ID, it searches the MDC ID Alias List for an alias associated with the ID. If one is found, it displays the alias. If none is found, the radio displays the ID in hexadecimal.

5.34.3   Emergency Declaration

Emergency declaration is accomplished by the radio generating an MDC Emergency PTT message. An Emergency is considered acknowledged when the radio receives an "Ack To Emergency" PTT message with an ID which matches its own ID. If Emergency Audio is enabled and the PTT Sidetone option is enabled, the radio plays the Ready-to-Talk tone after the MDC Emergency PTT signaling is transmitted.

- If an MDC Alert on ACK is enabled, the radio plays an ACK tone when the MDC emergency is acknowledged.

- If audio tones are enabled, the radio plays an ACK tone if the emergency is not acknowledged within the programmed number of retries.

5.35 BEON OPERATION

The BeOn solution is a Voice over IP (VoIP) based, Push-to-Talk (PTT) communications system operating over public or private wireless networks. The solution extends traditional Land Mobile Radio (LMR) services onto the broadband capable third generation (3G) and 4G/LTE cellular networks. This includes the ability to provide highly integrated interoperability services between BeOn users on the cellular network and users of traditional LMR networks. Harris' VIDA® IP core network switching technology is the foundation for the BeOn application infrastructure. As a result, the application and product suite provide many advanced features not found in competing technologies, and provide internetworking of those services between public and private communications networks.

ⓘ **NOTE**	The XL-200P supports BeOn operation on Wi-Fi or LTE.

It may be necessary to consult one or more of the following when configuring and using BeOn:

- BeOn Configuration and Use Feature Manual: 14221-7200-6130
- BeOn LAS/LAP Installation and Configuration Manual: 14221-710-3010
- Unified Administration System User's Manual: MM24374
- RPM2 online help

6. ADVANCED OPERATIONS

6.1 VIEW/CHANGE PERSONALITIES

Personalities contain radio programming information such as frequencies, channels, stations, and talk groups. Up to 10 different personalities can be stored in the radio, but only one can be activated at a time.

6.1.1   View Personalities

To view a personality:

1. At main display, press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **UTILITY** menu.

3. Press ▲ or ▼ to highlight **PROGRAM** and press the Menu/Select button. An arrow indicates the currently active personality.

4. Press the **OPTIONS** soft key.

5. Select **VIEW PLAN INFO** to view.

6. The radio displays the plan's filename. Personality information appears if the field was filled out using RPM2.
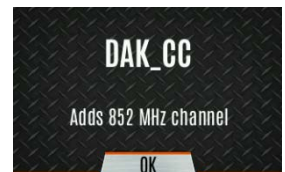
6.1.2   Change Active Personality

To change the active personality:

1. At main display, press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **UTILITY** menu.

3. Press ▲ or ▼ to highlight **PROGRAM** and press the Menu/Select button.

4. Press ▲ or ▼ to highlight the desired personality and press the Menu/Select button. ➡ indicates the currently active personality.

5. Press the **YES** soft key to confirm personality activation. If the personality has a power-up PIN, you are prompted to enter the PIN before activation continues.

6. The **IN PROGRESS** screen is displayed while plan activation is in progress.

7. If personality is activated, the radio displays **PLAN COMPLETE** followed by the name of the personality. Press the **OK** soft key.

   - You cannot activate a personality when the radio is transmitting an emergency.

   - A **FAILED** message may be displayed for errors such as invalid syntax in the fill or some other invalid parameter.

6.2 SITUATIONAL AWARENESS (SA) – P25 CONVENTIONAL ONLY

Situational Awareness is a feature in which the XL-200P receives SA position from other units configured to send the SA packets. The SA display shows the positions of the other radios (units) relative to the XL-200P. To make use of SA, all radios need to have a uniquely programmed Unit ID.

To display Situational Awareness Info:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **UTILITY** menu.

3. Press ▲ or ▼ to select **GPS** and press the Menu/Select button.

4. Press ▲ or ▼ to select **POSITION INFO** and press the Menu/Select button.

5. Press the **NEXT** soft key.

6. Press ◀ or ▶ to view the location of each unit. The color of each unit indicates its status as follows. Only one status can be shown at a time and are listed in priority order:
   - Grey – Unselected, no status
   - Red – Unselected, In Emergency
   - Orange – Unselected, Low Battery
   - Blue - Unselected, Scanning
   - Green – Selected, no status
   - Green/Red – Selected, In Emergency
   - Green/Orange – Selected, Low Battery
   - Green/Blue - Selected, Scanning

7. GPS of this radio is shown by the center dot as follows:
   - Green – Tracking
   - Orange – Last known position
   - Red – Searching

8. Press ▲ or ▼ to zoom the display distance of current unit.

9. Press the **OPTIONS** soft key**.** From here, select **UNIT INFO** to display details about the selected unit, select **REFRESH** to update information, or select **EXIT**.

6.3 USER-DEFINED ZONES/SYSTEMS

6.3.1 Command Tactical Zone

A Command Tactical Zone is defined at the radio.

NOTE

A Command Tactical Zone is reset when a Personality is activated.

To create a Command Tactical Zone:
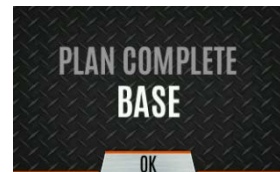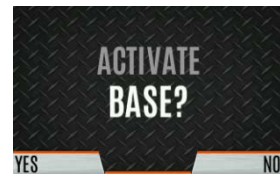
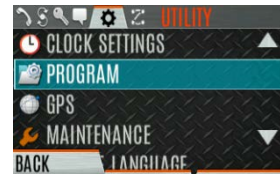1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **ZONE** menu.

3. Press ▲ or ▼ to highlight <**USER-DEFINED**> and press the **VIEW ZONE** soft key.

4. Press the **OPTIONS** soft key.

5. Press ▲ or ▼ to select **EDIT ZONE** to create a zone, or **RENAME ZONE** to rename the Command Tactical Zone (up to 16 characters are allowed).

6. Press ◀ or ▶ to scroll through existing systems. Press ▲ or ▼ to highlight desired channel/group.

7. Press the Menu/Select button to add or remove channel/group.

8. After adding all desired channels/groups, press the **BACK** soft key.

9. Activate the Command Tactical Zone by selecting the **SET ACTIVE** soft key on the **USER DEFINED** screen, or by pressing the Menu/Select button when <**USER DEFINED**> is highlighted on the Zone menu.

10. After a creating a Command Tactical Zone, select **OPTIONS** to edit the Command Tactical Zone, delete channels/groups, clear the zone, and rename the zone.
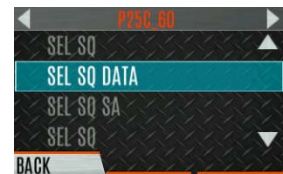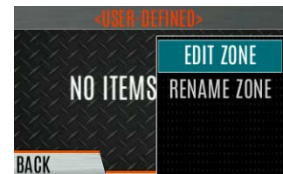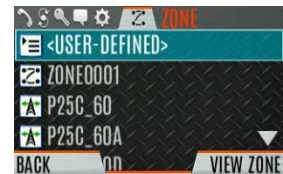
6.3.2 Mixed System Zone

Mixed System Zones are defined using RPM2 and cannot be edited on the radio. If a Mixed System Zone is not configured using RPM2, it will not appear on the radio. Up to 50 Mixed System Zones can be defined. You can view details about each channel/group. A user programmable button can be defined to scroll through just the mixed system zones.

To view Mixed System Zones:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **ZONE** menu.

3. Press ▲ or ▼ to highlight **the desired zone (Note: Zones are indicated by the ⚏ icon)** and select **VIEW ZONE** to view the groups/channels in the zone list.
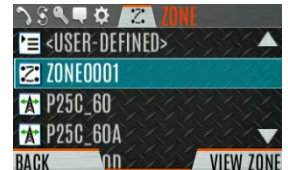
6.4 CH INFO MENU

The Channel Information (CH INFO) menu displays information about the currently selected channel. The information displayed varies between conventional and trunked systems.

To display channel information:

1. Press ◀ while on the idle display.

2. Press ▲ or ▼ to scroll through the programmed channel settings.

CONVENTIONAL OR P25 CHANNELS ONLY:

3. Press the **EDIT** soft key.

4. Enter the password. You may now select and change the values of the displayed channel parameters. The password remains active until power cycle. Refer to Section 7.2 for more information.

6.5   AUDIO SETTINGS

Set audio settings such as speaker mute, noise cancellation, PTT, and tones.

To set audio settings:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **UTILITY** menu.

3. Press ▲ or ▼ highlight **AUDIO SETTINGS** and press the Menu/Select button.

4. Press ▲ or ▼ to scroll through available audio settings. Press the Select/Menu button to change settings as desired:

    •   **SPEAKER** - Mute or Unmute the speaker audio.

    •   **NOISE CANCELLATION** - Enable or disable noise cancellation. Noise cancellation reduces background noise during transmit.

    •   **PTT** - Enable or disable Push-To-Talk (PTT). Disable PTT to prevent accidental keying, such as when the radio is in a holster or you are getting into a car.

    •   **TONES** - Enable or disable alert tones (see Table 5-6).

    •   **KEYPAD TONES** - Enable or disable keypad tones. When enabled, the radio plays a tone when a button on the keypad is pressed.

5. Press the **BACK** soft key to exit menu.
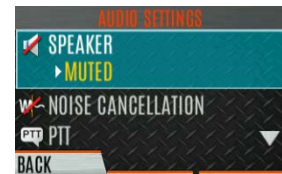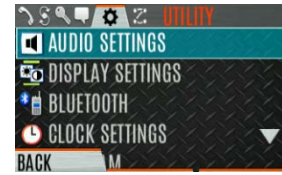
6.6   DISPLAY SETTINGS

To change display settings:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the UTILITY Menu.

3. Press ▲ or ▼ to highlight DISPLAY SETTINGS and press the Menu/Select button.
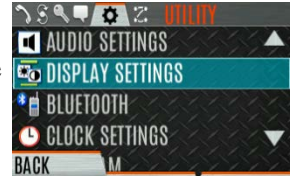
4. Press ▲ or ▼ and the Select/Menu button to change settings as desired:

   - COLOR SCHEME - Change the color scheme of the top and front displays for optimum viewing in day/night conditions.

   - FRONT BACKLIGHT - Turn front display backlight on, off, momentary, or momentary (off). Momentary (off) is similar to momentary, but the backlight turns off completely and only comes on when the center navigation button is pressed.

   - FRONT BRIGHTNESS - Set brightness level of front display. A level of 0 has same effect as turning off backlight.

   - FRONT TIMEOUT - Specify how long the radio needs to be inactive before the front display's backlight turns off.

   - TOP BACKLIGHT - Specify how long the top display's backlight will remain lit: MOMENTARY, ON, or OFF.

   - TOP BRIGHTNESS - Set the brightness level of the top display. A level of 0 turns off top display and indicator (TX/RX) LED.

   - TOP TIMEOUT - Specify how long the radio needs to be inactive before the top display's backlight turns off.

   - TOP ORIENTATION - Set orientation of top display to be viewed from radio: FRONT, BACK, or AUTO.
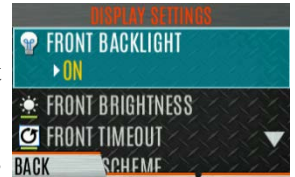
   When AUTO is selected, the XL-200P changes top display to be viewed from back if an external microphone or speaker is attached. Otherwise, the display can be viewed from the front.

   - INDICATOR LED - Toggle the indicator LED ON/OFF.

5. Press the BACK soft key to exit the menu.

6.7 GPS SETTINGS

> **NOTE**
>
> The **GPS SETTINGS** menu item only appears if enabled using RPM2 and the feature is installed.

To access GPS settings:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **UTILITY** menu.

3. Press ▲ or ▼ to highlight **GPS SETTINGS** and press the Menu/Select button.

4. Use ▲ or ▼ and the Select/Menu button to change settings as desired:

    - **GPS** - Enable or disable internal GPS.

    - **POSITION INFO** - See Section 6.8.

    - **LINEAR UNITS** - Set unit of measurement of displayed linear units: **STATUTE**, **METRIC**, or **NAUTICAL**.

    - **ANGULAR UNITS** - Set unit of measurement of displayed angular units: **CARDINAL**, **DEGREES**, or **MILS**.

    - **POSITION FORMAT**- Set format of displayed position information: Latitude/Longitude Degrees Minutes Seconds (**LAT/LONG DMS**), **LAT/LONG DM**, Military Grid Reference System (**MGRS**), or Universal Transverse Mercator (**UTM**).

        4. Press the **BACK** soft key to exit the menu.
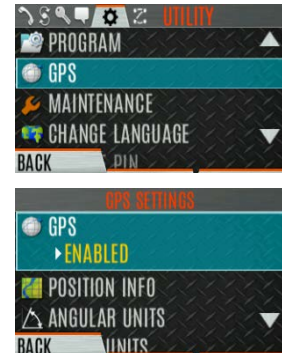
6.8 POSITION INFO

The Position Info screen displays the radio user's location information. GPS must be enabled in the GPS Settings (see Section 6.7).

To display position info:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **UTILITY** menu.

3. Press ▲ or ▼ to highlight **POSITION INFO** and press the Menu/Select button.

4. Press ▲ or ▼ to scroll through available location information.

6.9   WI-FI

The XL-200P supports programming via Wi-Fi. Refer to Appendix A for information on configuring Wi-Fi.

To enable Wi-Fi programming mode on the radio:

1.   Ensure the radio is powered off.

2.   Press and hold the bottom side button and PTT button (see Figure 4-1).

Figure 6-1: Enabling Wi-Fi

3.   Power on the radio.

4.   The **WIFI INSTALL ACTIVE** screen is displayed (Figure 6-2).   The radio displays **DISCONNECTED** if not connected to a wireless network, or **CONNECTED** if connected to a wireless network.

Figure 6-2: Wi-Fi Install Active

6.10 BLUETOOTH

> **NOTE**
>
> The **BLUETOOTH** menu item only appears if enabled using RPM2 and if the feature is installed.

6.10.1 Enable Bluetooth

To enable Bluetooth:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **UTILITY** menu.

3. Press ▲ or ▼ to highlight **BLUETOOTH** and press the Menu/Select button.

4. Press ▲ or ▼ to highlight **ENABLED** and press the Menu/Select button to toggle **YES/NO**.
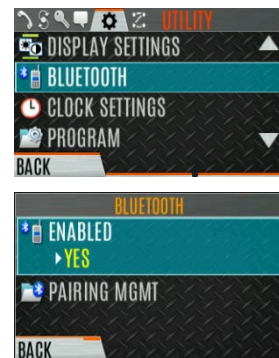
6.10.2   Pair Devices

To pair devices:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **UTILITY** menu.

3. Press ▲ or ▼ to highlight **BLUETOOTH** and press the Menu/Select button.

4. Press ▲ or ▼ to highlight **PAIRING MGMT** and press the Menu/Select button**.**

5. Make sure device being paired is powered on and has discovery mode enabled in order to pair with the XL-200P.

   If no devices are found and Bluetooth is enabled, only the **ADD NEW** soft key is available. If devices are paired, the **OPTIONS** soft key appears.

6. Press the **ADD NEW** soft key to select a device to pair.

7. A list of available Bluetooth devices appears.

8. Press the **REFRESH** soft key to refresh the device list if the desired device does not appear.

9. Press ▲ or ▼ highlight the desired device and press the **PAIR** softkey.

10. Pairing progress is displayed.

    - For Bluetooth 2.0 devices, a pin code screen appears.

      Enter the pin code and select **OK**.

    - For Bluetooth 2.1 devices, a PASSKEY accept/deny screen appears.

      Select **ACCEPT**.

      Accept the passkey on the Bluetooth 2.1 device as well.

11. A **PAIRING COMPLETE** message appears when pairing is complete. Select **OK**. The paired device is then displayed in the **PAIRED DEVICES** list.
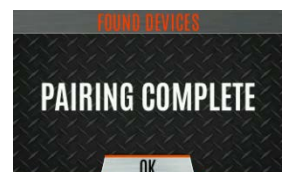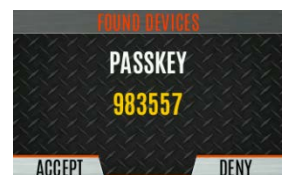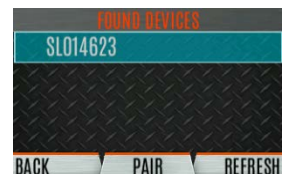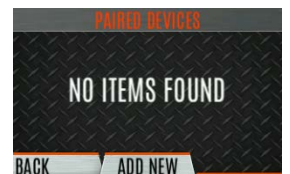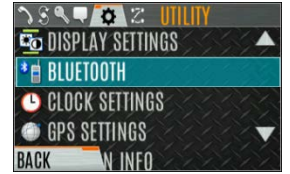
6.11 CLOCK SETTINGS

To view/change clock settings:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **UTILITY** menu.

3. Press ▲ or ▼ to highlight **CLOCK SETTINGS** and press the Menu/Select button.

4. Use ▲ or ▼ and Menu/Select button to change settings as desired:

   - **TIME FORMAT**- Set 12 or 24 hour time display format.

   - **TIME ZONE** - Set time zone relative to Universal Time Coordinated (UTC).

5. Press the **BACK** soft key to exit.

6.12 BATTERY INFO

To display battery information:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **UTILITY** menu.

3. Press ▲ or ▼ to highlight **MAINTENANCE** and press the Menu/Select button.

4. Press ▲ or ▼ to highlight **BATTERY INFO** and press the Menu/Select button.

5. Battery information is displayed (state, voltage, capacity, and chemistry).

6.13 SELECT LANGUAGE

To change the language displayed by the XL-200P:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **UTILITY** menu.

3. Press ▲ or ▼ to highlight **CHANGE LANGUAGE** and press the Menu/Select button.

4. Press ▲ or ▼ to highlight the desired language and press the Menu/Select button.

6.14 SET UP SCAN

These procedures are used to set up the scan list, home channels, and priority channels.

To access the scan lists:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **SCAN** menu.

3. Press ▲ or ▼ to highlight **SCAN LISTS** and press the Menu/Select button. Refer to the following sections.
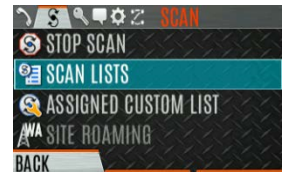
> **NOTE**
>
> When using Preemptive Priority Scan, the frequencies in the list need to be unique.

6.14.1 Default, Priority 1, and Priority 2 Channels

6.14.1.1 Default Channel

This is the currently selected channel and is the channel you transmit on by default when you press PTT while the radio is actively scanning and is not responding to a just received call. Responding to a call the radio just received while scanning is called hang time. If hang time is set to 0 using RPM2, the radio always transmits on the default channel in scan.

6.14.1.2 Priority 1 Channel

This channel will be scanned more often than other channels in the list and will be scanned in between every other channel in the scan list. An example scan sequence would be P1 (priority 1), C2, P1, C3, P1, C4, etc. In addition, the priority channel will be scanned even while actively receiving on a non-priority channel. For example, if the radio is actively receiving on C3 and activity is detected on P1, the radio will drop C3 and switch to P1.

6.14.1.3 Priority 2 Channel

This channel will also be scanned more often than others. An example scan sequence would be P1, C2, P1, C3, P1, C4, P2, C5, P1, C6, P1, C7, P1, C8, P2, C9 etc. In addition, this channel will be scanned even while actively receiving on a non-priority channel. For example, if the radio is actively receiving on C3 and activity is detected on P2, the radio will drop C3 and switch to P2. Additionally, activity on P1 can also preempt P2, but P2 cannot preempt P1.

6.14.2   Trunked/Conventional Scanning

Trunked/conventional scanning adds the ability to scan multiple conventional and P25 conventional channels while still maintaining trunked radio operation. In essence, the radio is able to scan a conventional scan list while still receiving a trunked control channel and receiving trunked calls. Selection of which conventional scan list is associated with a given trunked system is done using RPM2 and cannot be changed on the radio. However, a user with access to the necessary menu layout (see Section 5.8) is allowed to edit the scan list members (both trunked groups and conventional channels on the selected Conventional Priority System). As the number of conventional channels being scanned increases, the time between scanning each channel increases (roughly 250 milliseconds per channel), with the consequent increase in the number of calls that will late-enter. In order to avoid missing calls, it is recommended to keep the number of conventional channels being scanned to eight (8) or fewer.

NOTE	The trunking site must have roaming set to Enhanced CC.

6.14.3   Vote Scan (Analog and P25 Conventional Only)

If vote scan is enabled via RPM2, the radio automatically selects the strongest signal ensuring that the best audio quality is delivered to the user. If vote scan is enabled, the radio is always scanning. You cannot stop scanning, start normal scanning, or monitor the channel. The scanning icon on the idle screen indicates that the radio is vote scanning versus, regular scanning.

NOTE	If Talkaround is enabled, Vote Scan is disabled until Talkaround is disabled again.

6.14.4   Edit Scan List

Depending on the scan list options selected via RPM2, you may be able to add or remove channels/groups from the scan list.

To edit the scan list:

1. Press the Menu/Select button.

2. Press ◀ or ▶ to display the **SCAN** menu.

3. Press ▲ or ▼ to select **SCAN LISTS**.

4. Press ▲ or ▼ to highlight the scan list and press the Menu/Select button.

5. Press ▲ or ▼ to highlight channel/group.

6. Select **OPTIONS**.

7. Press ▲ or ▼ to select ADD CHAN/DELETE CHAN, SET PRI1, SET PRI2, REMOVE PRI, or NUISANCE/ADD BACK.

   When a channel is not grayed out in the list, **DELETE CHAN** appears. When a channel/group is grayed out (not in list), **ADD CHAN** appears.

8. Press the Menu/Select button to toggle selection.
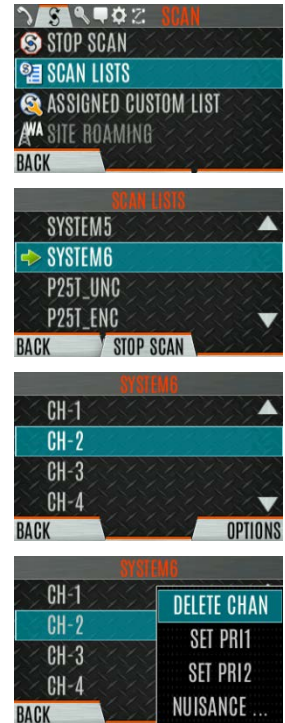
6.14.5   Set or Remove Priority 1 and Priority 2 Channels

Priority channels are scanned more often than non-priority channels. Note that P1 and P2 can only be set if configured as "Keypad" and the scan list is not set to "Fixed" using RPM2.

To set or remove priority 1 and priority 2 channels:

1. Press the Menu/Select button.

2. Press ◀ or ▶ to display the SCAN menu.

3. Press ▲ or ▼ to highlight SCAN LISTS and press the Menu/Select button.

4. Press ▲ or ▼ to highlight channel/group.

5. Select OPTIONS.

6. Press ▲ or ▼ to highlight SET PRI1 or SET PRI2 and press the Menu/Select button. A Priority 1 channel appears with a P1 and a Priority 2 channel appears with a P2.

7. Select REMOVE PRI to remove priority.
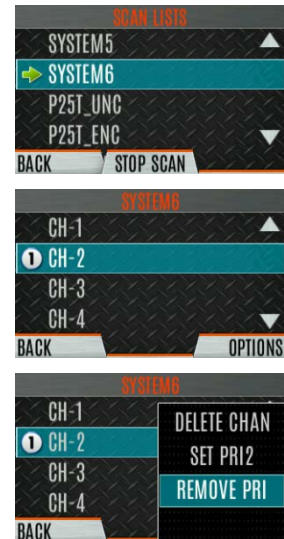
6.14.6   Custom Scan Lists

The Mixed Zone Scan (MZS) feature gives the user the capability to scan based on a custom scan list that is assigned at the system level. The Custom Scan (CS) list can contain System and Channel/Group configurations across P25 Trunked, P25 Conventional, and Analog Systems. When a Custom Scan List is assigned to a P25T system, the radio can scan P25T, P25C and Analog systems. When assigned to a P25C or Analog system, the radio only scans conventional channels. MZS also gives the user the capability to scan beyond the selected system group set.

*   P25T Scan

    When a custom scan list is assigned to a P25T system, the user has the ability to scan P25T, P25C, and Analog groups/channels. All P25T systems must have the same WACN, System ID, and Unit ID to be added to the custom scan list. If P25C and/or analog channels are added to the custom scan list, the radio will scan them using the Trunked/Conventional scan feature described in section 6.14.2, and will override any other conventional scan list that may have been programmed using RPM2.

*   P25C and Analog Scan

    When a custom scan lists is assigned to a P25C or Analog System, the user has the ability to scan P25C and Analog channels. P25T systems are ignored.

Custom scan list can be created using RPM or at the radio. The radio supports up to 10 Custom Scan lists, with up to 100 channels/groups in each.

6.14.6.1 Create Custom Scan List

To create a custom scan list at the radio:

1. Press the Menu/Select button.

2. Press ◀ or ▶ to display the **SCAN** menu.

3. Press ▲ or ▼ to highlight **ASSIGNED CUSTOM LIST** and press the Menu/Select button.

4. Press the **OPTIONS** softkey.

5. Select **ADD SCAN LIST**.

6. Press ▲ or ▼ to highlight the newly added scan list and press the **VIEW/EDIT** soft key.

7. Press ◀ or ▶ to display the desired system.

8. Press ▲ or ▼ to highlight the desired group/channel and press the **OPTIONS** softkey. From here, you can add/delete channels from the scan list, and set/remove Priority 1 and Priority 2 channels.
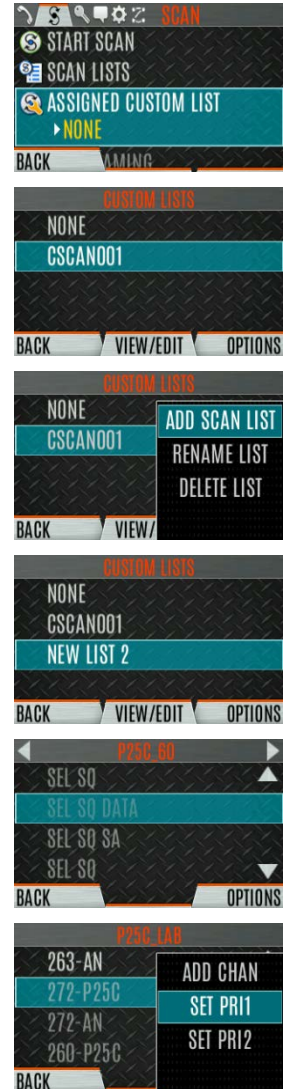
> **NOTE**
> When a custom scan list is selected, that list is scanned any time scanning is enabled for any Trunked, conventional, or P25 Conventional system. To scan only the channels assigned to a particular system, custom scanning must be turned off.

6.14.7   Wide Area System Scan (P25 Trunked and EDACS)

Wide Area System Scan (WASCAN) causes the radio to roam across mobile systems when the currently selected system's control channel is lost. The radio will scan the control channels of other systems.

To enable/disable Wide Area System Scan:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **SCAN** menu.

3. Press ▲ or ▼ to highlight **SITE ROAMING** and press the Menu/Select button to toggle Wide Area System Scan **ENABLED/DISABLED**.

4. Select **BACK** to exit the scan menu.

6.15 RADIO STATUS

The status feature is used to send a particular status condition to the site without making a voice call. There can be up to 10 status conditions programmed into the radio. For each status defined, there is an ID and an alphanumeric name. The ID is sent to the site and the alphanumeric name appears on the radio display when the ID corresponds with the information programmed at the site.

NOTE

A button on the radio can be programmed to send a radio status (see Section 7.4).

To send a radio status:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **MESSAGES** menu.

3. Press ▲ or ▼ to highlight **RADIO STATUS** and press the Menu/Select button.

4. Use ▲ or ▼ and the Menu/Select button to highlight and select desired status.

6.16 RADIO MESSAGE

The message feature is used to send a particular message to the site without making a voice call. There can be up to 10 messages programmed into the radio. For each message defined, there is an ID and an alphanumeric name. The ID is sent to the site and the alphanumeric name appears on the radio display when the ID corresponds with the information programmed at the site.

NOTE

A button on the radio can be programmed to send a radio message (see Section 7.4).

To send a radio message:

1. Press the Menu/Select button to access the main menu.

2. Press ◄ or ▶ to display the **MESSAGES** menu.

3. Press ▲ or ▼ to highlight **RADIO MESSAGE** and press the Menu/Select button.

4. Use ▲ or ▼ and the Menu/Select button to highlight and select the desired message.

6.17 RADIO TEXTLINK

Radio TextLink provides short text messaging functionality for radios. Due to the difficulty of entering text messages on a radio, predefined "canned" messages and predefined replies can be stored in the radio. To facilitate sending messages where information must be provided at send time, text message forms can also be stored in the radio. A form can contain up to four (4) text prompts, for which the operator enters alphanumeric values before sending the message.

6.17.1 Radio TextLink Messages

To send a canned Radio TextLink message:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **MESSAGES** menu.

3. Press ▲ or ▼ to highlight **TEXTLINK MESSAGES** and press the Menu/Select button.

4. Press ◀ or ▶ to display the desired message.
   - Press the Menu/Select button to send the message.
   - Select **CHG CALLEE** to change the destination for the message.
   - Select **TOD QUERY** to get the time of day.

6.17.2 Radio TextLink Forms

Form messages are displayed and stored in the radio as a message in which each field to be filled is indicated by a question mark (?) followed by one or more asterisks(*). The number of asterisks indicates the maximum number of alphanumeric characters allowed for that field.

To send a Radio TextLink form:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **MESSAGES** menu.

3. Press ▲ or ▼ to highlight **TEXTLINK FORMS** and press the Menu/Select button.

4. Press ◀ or ▶ to display the desired message and press the Menu/Select button.

5. Enter text into blank field(s) (up to eight alphanumeric characters) and press the **NEXT** soft key.

6. Select **SEND** to send the message. Select **CHG CALLEE** to change the destination for the message. Select **TOD QUERY** to get the time of day.
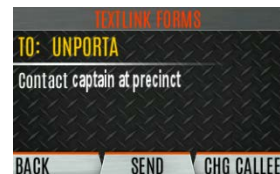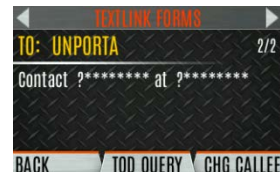
6.17.3   View Received Messages

When the ✉ icon appears on the idle display, there are Radio TextLink messages waiting to be read.

To view received Radio TextLink messages:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **MESSAGES** menu.

3. Press ▲ or ▼ to highlight **TEXTLINK MAILBOX** and press the Menu/Select button. From the mailbox, select **OPTIONS** to delete messages, view details of messages, and reply to messages.

6.18 FAULTS/ALERTS

🛈 is displayed on the idle display when there is a fault.

To view and clear faults/alerts:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **MESSAGES** menu.

3. Press ▲ or ▼ to highlight **FAULTS/ALERTS** and press the Menu/Select button.

4. Fault messages are displayed. Press ▲ or ▼ to highlight the desired fault. Press the **OPTIONS** soft key delete faults. Press the **DETAILS** soft key to view details for the highlighted fault.
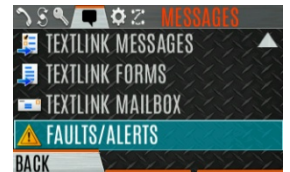
    Possible faults include:
    - **BATTERY FAULT**- Replace battery.
    - **EEPROM FAULT** - Contact Harris.
    - **RF FAULT -** Contact Harris.
    - **OVERCURRENT** - Check antenna and antenna connection. Try replacing antenna.
    - **INVALID SYSTEM -** Feature not installed.
    - **CHANNEL FAULT -** Channel frequency programmed is not valid for this radio.

5. If you view but do not delete the fault, the alert icon goes away on the idle display.

NOTE   Contact Harris for assistance with diagnosing a fault.

6.19 TONE ENCODE

Tone Encode is a generic tone encoding scheme for call identification when transmitting on a conventional system. It supports generic user-definable tone encode (up to 15 tones), Type 99 (up to 2 tones) and 5/1 Tone (up to 5 tones) encoding formats.

Tone encoding schemes are used to transmit calls to one or more target radios that have been programmed with the correct tone decode sequence. When the receiving radio detects its tone decode sequence, it unmutes on the call.

To select a Tone Encode option:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **CALL** menu.

3. Press ▲ or ▼ to highlight **TONE ENCODE** and press the Menu/Select button.

4. Select the desired Tone Encode option from the list.
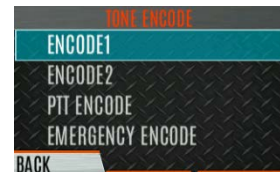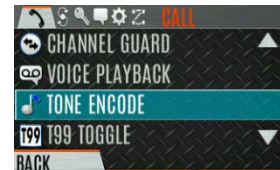
6.20 ENCRYPTION

6.20.1 Create and Load Keys

Refer to the following documentation for advanced programming and setup instructions:

- Harris OTAR Overview Manual - MM-008069-001

- Network Key Manager Installation and Configuration Manual - MM-008070-001

- Harris UAS Key Management Application Manual - MM-008068-001

- Harris Key Manager Key Admin Overview and Operation Manual - MM1000019423

- Harris Key Manager Key Loader Overview and Operation Manual - MM1000019424

- Motorola® KVL 3000 Plus Key Variable Loader (KVL) User's Guide

- Motorola KVL 4000 Key Variable Loader (KVL) User's Guide

6.20.2   Zeroize Keys from Radio

It may be necessary to remove keys because of compromise or expiration.

To zeroize keys from the radio:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **SECURITY** menu.

3. Press ▲ or ▼ highlight **ZEROIZE KEYS** and press the Menu/Select button.

4. Press the **YES** softkey to remove the keys.   This will also remove the keysets.

6.20.3   Protected Keys

The Protected Keys feature transfers P25 Voice Keys, from Harris Key Loader to the radio, that have been wrapped (AES) or encrypted (DES) with Key Protection Keys (KPKs). KPKs are nothing more than unprotected Key Encryption Keys (KEKs). The KPKs need to be loaded into the radio before the Protected Keys are loaded. Once loaded into the radio, the KPKs are used to unwrap (AES) or decrypt (DES) the Protected Keys.

6.20.4   Global Encryption

Global Encryption can be enabled when encryption keys are loaded on the radio and the selected Zone/System is encrypted. When Global Encryption is enabled on the radio, a Global Key is used for all encrypted transmissions until:

- Global Encryption is disabled.

- A new personality is activated.

- The active keyset is changed.

- The system is changed.

Global Encryption behavior is available on all channels that support encrypted communications.

To enable Global Encryption and/or change Global Encryption Key::

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **SECURITY** menu.

3. Press ▲ or ▼ to highlight **GLOBAL ENCRYPTION.** Press the Menu/Select button.

4. Press ▲ or ▼ to highlight the desired Global Key and press the Menu/Select button to enable Global Encryption.

5. To change the selected global key, press ▲ or ▼ to highlight **GLOBAL KEY** on the **SECURITY** menu. Press the Menu/Select key.

6. Press ▲ or ▼ to highlight the global key and press the Menu/Select button.

7. RPM2 allows Key Numbers to be given Key Names.

8. The optional global key icon 🌐 is displayed on the main display.

6.20.5   Select Keyset

To select a keyset:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **SECURITY** menu.

3. Press ▲ or ▼ to select **ACTIVE KEYSET.** Press the Menu/Select button to toggle to the inactive keyset.

6.20.6   View Key List

To view the key list:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **SECURITY** menu.

3. Press ▲ or ▼ to select **KEY LIST** and press the Menu/Select button.

4. The available key lists are displayed.
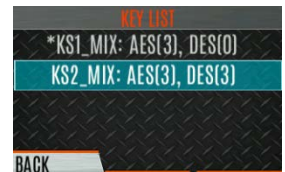
6.20.7   OTAR Configuration

OTAR is the over-the-air-rekeying from a KMF and must be enabled for the digital only channel using RPM2. For OTAR operation, the appropriate KEKs must be loaded into the radio using the Harris Key Loader or a KVL device.

The KMF Configuration must include the RSI of the KMF and the appropriate Message Number Period.

To enable OTAR and request rekey:

1. Press the Menu/Select button to access the main menu.

2. Press ◀ or ▶ to display the **SECURITY** menu.

3. Press ▲ or ▼ to highlight **OTAR** and press the Menu/Select button to toggle **ENABLED**/**DISABLED**.

4. Press ▲ or ▼ to select **OTAR REKEY** and press the Menu/Select button to request that the KMF updates the keys in the radio.

    Note: OTAR REKEY is only enabled if the radio has successfully registered for data operations.

7. PROGRAMMING

This section provides information on front panel programming. Programming can also be accomplished by creating a plan using a computer with RPM2 installed.

7.1 PROGRAMMING VIA RPM2

Radio Personality Manager (RPM2) is used for the bulk of programming the XL-200P. With RPM2, you can fully program the XL-200P using cable 12082-0410-A1.

⚠️ **CAUTION**	Removing power during radio programming, or programming the radio with low battery power could corrupt installation of firmware.

ℹ️ **NOTE**	Ensure that the radio is turned off before connecting the programming cable. After the cable is connected, then power on the radio.

7.2 EDIT CHANNEL (ANALOG AND P25 CONVENTIONAL ONLY)

Channels can be edited from the Channel Information (CH INFO) menu display. Most of the displayed channel parameters can be modified here. Channel edits persist across a power cycle. Loading a personality clears any channel edits. Available parameters vary depending on whether the channel is a P25 or analog channel.

To edit a channel:

1. From the main display, press ◄ to access the **CH INFO** screen.

2. Press ▲ or ▼ to scroll through the programmed channel settings.

3. Press the **EDIT** soft key.

   CAUTION: Only authorized users should attempt channel editing.

4. Enter the password programmed via RPM2. You do not have to re-enter the password until you power cycle the radio.

5. Press the **ENTER** soft key.
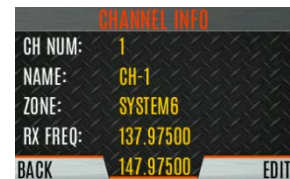
6. Highlight and select the parameter to edit. For P25 channels, modify remaining channel settings:

   - **CHANNEL NAME** - Up to 16 alphanumeric characters are allowed.

   - **RX FREQUENCY** - Receive frequency. Note that if the new frequency is invalid, the display reverts to the old frequency (Table 7-1).

   - **TX FREQUENCY** - Transmit frequency.

   - **TX POWER** - Transmit power. Toggle between LOW and HIGH.

- **TALKGROUP** – Select a talkgroup for the channel. Talkgroup name cannot be set here.

- **RX NAC** - Network Access Code (NAC) radio uses for Normal squelch in receive.

- **TX NAC** - NAC radio transmits to break Normal squelch on receiving radio.

- **P25 SQUELCH** - Select type the radio uses in receive. Select NORMAL, SELECTIVE, or MONITOR.

- **RX CHAN GUARD** – Squelch type radio uses in receive. Select Noise, CTCSS, or CDCSS. For a digital channel, the RX CHAN GUARD is used to receive from a Conventional analog channel that is on the same frequency and uses the selected Channel Guard.

  - ➢ **RX CODE** - Code radio looks to unmute the speaker on the receiving radio when CDCSS squelch is used in conventional mode.

  - ➢ **RX TONE** - Tone radio looks to unmute the speaker on the receiving radio when CTCSS squelch is used in conventional mode.

7. For analog channel, modify remaining channel settings:

- **CHANNEL NAME** - Up to 16 alphanumeric characters are allowed.

- **TX FREQUENCY** - Transmit frequency.

- **TX POWER** - Transmit power. Toggle between HIGH and LOW.

- **RX CHAN GUARD** - Squelch type radio uses in receive. Select Noise, CTCSS, or CDCSS.

  - ➢ **RX TONE** - Tone radio uses to break selective squelch on receiving radio. This is available when RX squelch is set to CTCSS.

  - ➢ **RX CODE** - Code radio uses to break selective squelch on receiving radio. This is available when RX squelch is set to CDCSS.

> **NOTE** **RX CHAN GUARD** is not available on this screen if it was enabled from the CALL menu as per Section 5.22.

- **TX CHAN GUARD** - Squelch type radio uses in transmit. Select None, CTCSS, or CDCSS.

  - ➢ TX TONE - Tone sent by transmitting radio to allow receiving radio to unmute when CTCSS squelch is used in conventional mode.

  - ➢ TX CODE - Code sent by transmitting radio to allow receiving radio to unmute when CDCSS squelch is used in conventional mode.

> **NOTE** **TX CHAN GUARD** is not available on this screen if it was enabled from the CALL menu as per Section 5.22.

8. An asterisk is displayed in front of the CHANNEL label on the main display when a channel has been edited. The asterisk is NOT shown for TX Power or Talkgroup changes.

> **NOTE** When the only item edited is the TX or RX CHAN GUARD values, and then CHAN GUARD edit is Disabled, the asterisk goes away and the channel is no longer considered edited. This is the only editable item for which this is true.

Table 7-1: Valid Frequencies

FREQUENCY RANGE		FREQUENCY RESOLUTION
International	**US**	
136 - 174 MHz	136 - 174 MHz	2500, 5000, or 6250 Hz
378 - 522 MHz	378-522 MHz	2500, 5000, or 6250 Hz
763 - 776 MHz	768 - 776 MHz	6250 kHz
793 - 806 MHz	798 - 806 MHz	6250 kHz
806 - 825 MHz	806 -8 16 MHz	6250 kHz
851 - 870 MHz	851 - 861 MHz	6250 kHz

7.3 OTAP

The XL-200P supports Over-the-Air-Programming (OTAP) via ProFile Manager. RPM2 creates, modifies and stores personality information while ProFile Manager delivers the personality over the network to the desired radios. ProFile Manager also contains the ability to read personality information over-the-air and save the files, so that RPM2 can modify the information if necessary.

You can interrupt the programming process, if necessary, by depressing the Push-to-Talk (PTT) button or declaring an emergency. Once a radio personality update is successfully completed, the radio automatically resets itself, switches to the new personality, and returns to normal operation. For more information on using ProFile Manager, refer to software release notes AE/LZT 123 3263/1.

7.4 PROGRAMMABLE BUTTONS AND SWITCHES

7.4.1 Programmable Buttons

Press ▼ while on the main display to view the functions assigned to the programmable buttons. The programmable buttons are programmed using RPM2. A delay of 0 to 10 seconds can be defined using RPM2 for the programmable buttons. Table 7-2 lists and describes the functions that can be programmed to the buttons:

Table 7-2: Programmable Button Options

FUNCTION	DESCRIPTION
No Operation	
Monitor Toggle	Toggles Monitor On/Off.
Monitor/Clear	Temporarily turn off selected squelch to monitor for traffic that may not normally break squelch. Also, press this button followed by the emergency button to clear an emergency.
Audio Playback	Accesses the AUDIO PLAYBACK menu. See Section 5.27.
Lock Keypad	Locks the DTMF keypad, programmable function keys and navigation keys.
Nuisance Delete	Performs a Nuisance Delete. See Section 5.31 for more information.
System Up	Scrolls up through the list of available systems, stopping at the top of the list.
System Down	Scrolls down through the list of available systems, stopping when the end of the list is reached.
System Up Wrap	Scrolls up through the list of available systems, wrapping to the end when the beginning of the list is reached.
System Down Wrap	Scrolls down through the list of available systems, wrapping to the top when the bottom of the list is reached.

FUNCTION	DESCRIPTION
Zone Up	Scrolls up through the list of available mixed system zones, stopping at the top of the list. If no mixed system zones are defined, or there is only one, the user will hear a deny tone when the button is pressed.
Zone Down	Scrolls down through the list of available mixed system zones, stopping when the end of the list is reached. If no mixed system zones are defined, or there is only one, the user will hear a deny tone when the button is pressed.
Zone Up Wrap	Scrolls up through the list of available mixed system zones, wrapping to the end when the beginning of the list is reached. If no mixed system zones are defined, or there is only one, the user will hear a deny tone when the button is pressed.
Zone Down Wrap	Scrolls down through the list of available mixed system zones, wrapping to the top when the bottom of the list is reached. If no mixed system zones are defined, or there is only one, the user will hear a deny tone when the button is pressed.
Channel/Group Bank Select	Select the channel/group bank. If your system has more than 64 channels, this allows you to select a channel group with channels 65 to 127, 128 to 191, etc.
Drop Call	Drop or terminate any group call that the radio receives.
Send Status	Sends a preconfigured status. See Section 6.15 for more information.
Send Message	Sends a preconfigured message. See Section 6.16 for more information.
TX Power High/Low	Toggle TX Power between LOW and HIGH.
Scan Enable	Enable/disable scan.
Secure Enable Toggle	Toggles Encryption Mode On/Off. See Sections 5.20 and 6.20 for information on Encryption.
Home	Goes to home channel.
Adjust Squelch	Allows the user to adjust the analog squelch level.
Front Backlight	Toggles front display's backlight On/Off/Momentary.
Top Orient	Toggles Top Display Front/Back.
Top Backlight	Toggles the top display's backlight On/Off/Momentary.
Flashlight Mode	Press and hold to turn on the front and top display backlights. Release the button to turn off both displays.
Speaker Mute Toggle	Toggles Speaker Muted/Unmuted.
Talkaround	Toggles Talkaround On/Off. See Section 5.23.
Voice Announce	Enable/disable Voice Annunciation. See Section 5.19
Channel Guard Override	Allow user to pick a different Channel Guard setting for the current channel.
Individual Call	Initiate an Individual Call.
OTAR Rekey	Initiate an OTAR rekey. See Section 6.20.7.
GPS SA Info	Display GPS Situational Awareness (SA) screen.
Site Roaming	Enable/disable Site roaming. Site Roaming allows the radio to roam to another site.
Profile Toggle	Toggles between the currently active profile (if one has been selected) and no profile.
Numeric Channel Entry	Allows number channel entry.

7.4.2   Programmable A/B (Ø/O) Switch

The programmable A/B switch can be programmed for multiple functions, including:

Table 7-3: Programmable Ø/O Switch Options

FUNCTION	DESCRIPTION
Clear/Secure	Enable/disable encryption.
Scan	Turn scan operation on/off.
Talkaround	Enable/disable talkaround.
Keypad Lock/Unlock	Locks/unlocks the keypad.
TX Enable/Disable	Enables/Disables transmit.

7.4.3   Programmable A/B/C/D Switch

Sections 7.4.3.1 and 7.4.3.2 describe the various functions that can be programmed to the A/B/C/D switch.

7.4.3.1   Single-Instance Features

Single-instance features can only be assigned to one switch position at a time. If one of these features is programmed to the A/B/C/D switch, other means of accessing that feature are disabled (i.e., two-position switch, programmable buttons, call menu, etc.).

Table 7-4: Single-Instance Features

FUNCTION	DESCRIPTION
No Function	No function programmed to switch.
Talkaround	See Section 5.23.
Scan	Enables scanning.
TX Power High	Sets transmission power level to High. • Changing to a Tx Power High position overrides the current personality or user setting for TX Power. • Changing from a Tx Power High position restores the personality-configured Tx Power Level.
TX Power Low	Sets transmission power level to Low. • Changing to a Tx Power Low position overrides the current personality or user setting for TX Power. • Changing **from** a Tx Power Low position restores the personality-configured Tx Power Level.
Keypad Lock	Locks DTMF, programmable, and navigation soft keys.
Radio Lock	When set, prevents the radio software from responding to the following physical inputs on the radio: • Volume Knob Change (power off is **not** prevented) • 2-Position Switch • Channel Knob • Side User-Programmable Buttons and Keypad (DTMF, programmable, and navigation/soft keys) NOTE: Exception is the emergency button and if any key is programmed for Monitor/Clear, it can be used with the emergency button to clear emergency, if so programmed.

FUNCTION	DESCRIPTION
Channel Bank	Selects channels 1-16 in position A; 17-32 in position B; 33-48 in position C; and 49-64 in position D. If Channel Bank is selected for any single position, all 4 positions (A, B, C, and D) will be set to Channel Bank.

7.4.3.2   Indexed Features

These features can be assigned to any number of positions as long as each index value selected for it is unique across multiple assignments of the same feature; for example, you cannot assign a Zone with a particular index (e.g., "ZONE A") to both positions A and B.

Table 7-5: Indexed Features

FUNCTION	DESCRIPTION

Zone Selection	Sets to the Zone index value.
	• When setting the A/B/C/D switch to an indexed zone assigned position, the radio sets, but does not "hold," that zone. This has the resulting effects:
	  ➢ This sets the channel knob to be zone-based system/channel selection just like selecting a zone from the main "Zone" menu or ramping up/down using the side user-programmable buttons.
	  ➢ If a user then changes to a different system or zone via another method (menu, button, etc.), it will override the Zone selection switch setting accordingly and not require it to remain in the zone where the switch assignment is set.
	• When changing away from a Zone assigned position, no actions/changes will be taken by the radio.

System Selection	Sets to the System index value.
	• When setting the A/B/C/D switch to an indexed System assigned position, the radio sets, but does not "hold," that System. This has the resulting effects:
	  ➢ This sets the channel knob to be system-based channel selection, just like selecting a system from the main "Zone" menu or ramping up/down using the side user-programmable buttons.
	  ➢ If a user then changes to a different system or zone via another method (menu, button, etc.), it will override the System selection switch setting accordingly and not require it to remain in the system where the switch assignment is set.
	• When changing away from a System assigned position, no actions/changes will be taken by the radio.

7.5   PROGRAMMABLE ICONS

7.5.1   Top display

The top display has space for up to seven configurable icons, which can be programmed to display any of the following:

- Blank
- Signal Strength
- Battery Status
- Bluetooth enabled
- Encryption enabled
- Scan/Vote Scan enabled
- Talkaround enabled

- Emergency mode active

The radio can be programmed to change the color of the top display backlight relative to the currently selected channel/group. The backlight remains the color programmed for the currently selected channel/group except during an emergency, in which case the color changes to orange.

7.5.2 Front display

The front display has space for up to 10 configurable icons, which can be programmed to display any of the following:

- Blank

- Signal Strength

- Battery Status

- Bluetooth enabled

- Encryption enabled

- Global Encryption

- Talkaround enabled

- TX Disabled

- Tones Disabled

- PTT Disabled

- Speaker Muted

- Monitor

- OTAR Status (Disabled, Registering, Registered, Rekeying)

- TX Power level (Low/High/RX Only)

- GPS Status

- VDOC

- Failsoft

- Data Status (TX/RX)

- Alert(s)

- RX Mail

- Noise Cancellation Enabled

- Type 99 Enabled

- Conventional Site Status (Unregistered/Registered)

8. REFERENCE

8.1 MARINE FREQUENCIES

Refer to Table 8-1: Marine Frequencies for a list of maritime frequencies per United States Coast Guard (USCG), National Oceanic and Atmospheric Administration (NOAA), and Canadian Department Fisheries and Oceans, August 2009:

- United States (US)
- International (Intl)
- Canada (CA)

Table 8-1: Marine Frequencies

CHANNEL			FREQUENCY		CHANNEL USAGE
US	INTL	CA	SHIP (MHZ)	SHORE (MHZ)	
	1	1	T: 156.05 R: 160.65	T: 160.65 R: 156.05	International: Public Correspondence, Port Operations
1a			T/R: 156.05	T/R: 156.05	US: Port Operations and Commercial, Vessel Traffic Service (VTS). New Orleans/Lower Mississippi area.
	2	2	T: 156.10 R: 160.70	T: 160.70 R: 156.10	International: Public Correspondence, Port Operations
	3	3	T: 156.15 R: 160.75	T: 160.75 R: 156.15	International: Public Correspondence, Port Operations
	4		T: 156.20 R: 160.80	T: 160.80 R: 156.20	International: Public Correspondence, Port Operations
		4a	T/R: 156.20	T/R: 156.20	Canada: Department Fisheries Ocean (DFO)/Canadian Coast Guard only in British Columbia coast area. Commercial fishing in east coast area
	5		T: 156.25 R: 160.85	T: 160.85 R: 156.25	International: Public Correspondence, Port Operations
5a		5a	T/R: 156.25	T/R: 156.25	US: Port Operations or VTS in Houston, New Orleans and Seattle areas.
6	6	6	T/R: 156.30	T/R: 156.30	US: Intership Safety International: Intership Canada: May be used for search and rescue communications between ships and aircraft.
	7		T: 156.35 R: 160.95	T: 160.95 R: 156.35	International: Public Correspondence, Port Operations
7a		7a	T/R: 156.35	T/R: 156.35	US: Commercial
8	8	8	T/R: 156.40	T/R: 156.40	US: Commercial (Intership only) International: Intership Canada: Also assigned for intership in the Lake Winnipeg area.
9	9	9	T/R: 156.45	T/R: 156.45	US: Boater Calling. Commercial and Non-Commercial. International: Intership, Port Operations Canada: Commercial - British Columbia coast area. May be used to communicate with aircraft and helicopters in predominantly maritime support operations.

CHANNEL			FREQUENCY		CHANNEL USAGE
US	INTL	CA	SHIP (MHZ)	SHORE (MHZ)	
10	10	10	T/R: 156.50	T/R: 156.50	US: Commercial International: Intership, Port Operations Canada: Commercial - British Columbia coast area. May also be used for communications with aircraft engaged in coordinated search and rescue and antipollution operations.
11	11	11	T/R: 156.55	T/R: 156.55	US: Commercial. VTS in selected areas. International: Port Operations Canada: VTS - British Columbia coast area. Also used for pilotage purposes.
12	12	12	T/R: 156.60	T/R: 156.60	US: Port Operations. VTS in selected areas. International: Port Operations Canada: VTS - British Columbia coast area. Also used for pilotage purposes.
13	13	13	T/R: 156.65	T/R: 156.65	US: Intership Navigation Safety (Bridge-to-bridge). Ships >20m length maintain a listening watch on this channel in US waters. International: Intership, Port Operations Canada: VTS - British Columbia coast area. Also used for pilotage purposes.
14	14	14	T/R: 156.70	T/R: 156.70	US: Port Operations. VTS in selected areas. International: Port Operations Canada: VTS - British Columbia coast area. Also used for pilotage purposes.
15	15	15	T/R: 156.75	T/R: 156.75	US: Environmental (Receive only). Used by Class C Emergency Position-Indicating Radio Beacons (EPIRBs). International: Intership, Port Operations Canada: Port operations and Ship Movement - British Columbia coast area. All operations limited to 1-watt maximum power. May also be used for on-board communications.
16	16	16	T/R: 156.80	T/R: 156.80	US: International Distress, Safety and Calling. Ships required to carry radio, US Coast Guard (USCG), and most coast stations maintain a listening watch on this channel. International: International Distress, Safety and Calling Canada: International Distress, Safety and Calling
17	17	17	T/R: 156.85	T/R: 156.85	US: State Control International: Intership, Port Operations Canada: Port operations and Ship Movement - British Columbia coast area. All operations limited to 1 watt maximum power. May also be used for on-board communications.
	18		T: 156.90 R: 161.50	T: 161.50 R: 156.90	International: Public Correspondence, Port Operations
18a		18a	T/R: 156.90	T/R: 156.90	US: Commercial Canada: Towing - British Columbia coast area.
	19		T: 156.95 R: 161.55*	T: 161.55* R: 156.95	International: Public Correspondence, Port Operations
19a		19a	T/R: 156.95	T/R: 156.95	US: Commercial Canada: DFO/Canadian Coast Guard. Pacific Pilots - British Columbia coast area.
20	20	20	T: 157.00 R: 161.60	T: 161.60 R: 157.00	US: Port Operations (Duplex) International: Public Correspondence, Port Operations Canada: Port operations only with 1 watt maximum power.

CHANNEL			FREQUENCY		CHANNEL USAGE
US	INTL	CA	SHIP (MHZ)	SHORE (MHZ)	
20a			T/R: 157.00	T/R: 157.00	US: Port Operations
	21		T: 157.05 R: 161.65*	T: 161.65* R: 157.05	International: Public Correspondence, Port Operations
21a		21a	T/R: 157.05	T/R: 157.05	US: US Coast Guard only Canada: DFO/Canadian Coast Guard only.
		21b	- -	T/R: 161.65	
	22		T: 157.10 R: 161.70	T: 161.70 R: 157.10	International: Public Correspondence, Port Operations
22a		22a	T/R: 157.10	T/R: 157.10	US: Coast Guard Liaison and Maritime Safety Information Broadcasts. Broadcasts announced on channel 16. Canada: For communications between Canadian Coast Guard and non-Canadian Coast Guard stations only.
	23	23	T: 157.15 R: 161.75	T: 161.75 R: 157.15	International: Public Correspondence, Port Operations
23a			T/R: 157.15	T/R: 157.15	US: US Coast Guard only
		23b	- -	T/R: 161.75	Canada: Continuous Marine Broadcast (CMB) service.
24	24	24	T: 157.20 R: 161.80	T: 161.80 R: 157.20	US: Public Correspondence (Marine Operator) International: Public Correspondence, Port Operations
25	25	25	T: 157.25 R: 161.85	T: 161.85 R: 157.25	US: Public Correspondence (Marine Operator) International: Public Correspondence, Port Operations Canada: Also assigned for operations in the Lake Winnipeg area.
		25b		T/R: 161.85	
26	26	26	T: 157.30 R: 161.90	T: 161.90 R: 157.30	US: Public Correspondence (Marine Operator) International: Public Correspondence, Port Operations
27	27	27	T: 157.35 R: 161.95	T: 161.95 R: 157.35	US: Public Correspondence (Marine Operator) International: Public Correspondence, Port Operations
28	28	28	T: 157.40 R: 162.00	T: 162.00 R: 157.40	US: Public Correspondence (Marine Operator) International: Public Correspondence, Port Operations
		28b	- -	T/R: 162.00	Canada: Continuous Marine Broadcast (CMB) service.
	60	60	T: 156.025 R: 160.625	T: 160.625 R: 156.025	International: Public Correspondence, Port Operations
	61		T: 156.075 R: 160.675	T: 160.675 R: 156.075	International: Public Correspondence, Port Operations
61a		61a	T/R: 156.075	T/R: 156.075	Canada: DFO/Canadian Coast Guard only in British Columbia coast area.
	62		T: 156.125 R: 160.725	T: 160.725 R: 156.125	International: Public Correspondence, Port Operations
		62a	T/R: 156.125	T/R: 156.125	Canada: DFO/Canadian Coast Guard only in British Columbia coast area.

CHANNEL			FREQUENCY		CHANNEL USAGE
US	INTL	CA	SHIP (MHZ)	SHORE (MHZ)	
	63		T: 156.175 R: 160.775	T: 160.775 R: 156.175	International: Public Correspondence, Port Operations
63a		63a	T/R: 156.175	T/R: 156.175	US: Port Operations and Commercial, VTS. New Orleans/Lower Mississippi area. Canada: Tow Boats - British Columbia coast area.
	64	64	T: 156.225 R: 160.825	T: 160.825 R: 156.225	International: Public Correspondence, Port Operations
64a		64a	T/R: 156.225	T/R: 156.225	Canada: Commercial fishing only.
	65		T: 156.275 R: 160.875	T: 160.875 R: 156.225	International: Public Correspondence, Port Operations
65a		65a	T/R: 156.275	T/R: 156.275	US: Port Operations Canada: Search and rescue and antipollution operations on the Great Lakes. Towing on the Pacific Coast. Port operations only in the St. Lawrence River areas with 1 watt maximum power. Intership in inland Manitoba, Saskatchewan, and Alberta areas.
	66		T: 156.325 R: 160.925	T: 160.925 R: 156.325	International: Public Correspondence, Port Operations
66a		66a	T/R: 156.325	T/R: 156.325	US: Port Operations Canada: Port operations only in the St. Lawrence River/Great Lakes areas with 1 watt maximum power. 1 watt marina channel - British Columbia coast area.
67	67	67	T/R: 156.375	T/R: 156.375	US: Commercial. Used for Bridge-to-bridge communications in lower Miss. River. Intership only. International: Intership, Port Operations Canada: May also be used for communications with aircraft engaged in coordinated search and rescue and antipollution operations. Commercial fishing only in east coast and inland Manitoba, Saskatchewan, and Alberta areas. Pleasure craft - British Columbia coast area.
68	68	68	T/R: 156.425	T/R: 156.425	US: Non-Commercial International: Port Operations Canada: For marinas, yacht clubs and pleasure craft.
69	69	69	T/R: 156.475	T/R: 156.475	US: Non-Commercial International: Intership, Port Operations Canada: Commercial fishing only - east coast area. Pleasure craft - British Columbia coast area.
70	70	70	T/R: 156.525	T/R: 156.525	US: Digital Selective Calling (voice communications not allowed) International: Digital selective calling for distress, safety and calling Canada: Digital selective calling for distress, safety and calling
71	71	71	T/R: 156.575	T/R: 156.575	US: Non-Commercial International: Port Operations Canada: Ship Movement - British Columbia coast area. Marinas and yacht clubs - east coast and on Lake Winnipeg.
72	72	72	T/R: 156.625	T/R: 156.625	US: Non-Commercial (Intership only) International: Intership Canada: May be used to communicate with aircraft and helicopters in predominantly maritime support operations. Pleasure craft - British Columbia coast area

CHANNEL			FREQUENCY		CHANNEL USAGE
US	INTL	CA	SHIP (MHZ)	SHORE (MHZ)	
73	73	73	T/R: 156.675	T/R: 156.675	US: Port Operations International: Intership, Port Operations Canada: May also be used for communications with aircraft engaged in coordinated search and rescue and antipollution operations. Commercial fishing only in east coast and inland Manitoba, Saskatchewan, and Alberta areas.
74	74	74	T/R: 156.725	T/R: 156.725	US: Port Operations International: Port Operations Canada: VTS and Ship Movement British Columbia coast area.
75	75	75	T/R: 156.775	T/R: 156.775	International: Port Operations Canada: Simplex port operation, ship movement and navigation related communication only. 1 watt maximum.
76	76	76	T/R: 156.825	T/R: 156.825	International: Port Operations Canada: Simplex port operation, ship movement and navigation related communication only. 1 watt maximum.
77	77	77	T/R: 156.875	T/R: 156.875	US: Port Operations (Intership only) International: Intership Canada: Pilotage - British Columbia coast area; 25 watts. Port operations only in the St. Lawrence River/Great Lakes areas with 1 watt maximum power.
	78		T: 156.925 R: 161.525	T: 161.525 R: 156.925	International: Public Correspondence, Port Operations
78a		78a	T/R: 156.925	T/R: 156.925	US: Non-Commercial Canada: Fishing Industry - British Columbia coast area.
	79		T: 156.975 R: 161.575	T: 161.575 R: 156.975	International: Public Correspondence, Port Operations
79a		79a	T/R: 156.975	T/R: 156.975	US: Commercial. Non-Commercial in Great Lakes only Canada: Fishing Industry - British Columbia coast area.
	80		T: 157.025 R: 161.625	T: 161.625 R: 157.025	International: Public Correspondence, Port Operations
80a		80a	T/R: 157.025	T/R: 157.025	US: Commercial. Non-Commercial in Great Lakes only Canada: Fishing Industry - British Columbia coast area.
	81		T: 157.075 R: 161.675	T: 161.675 R: 157.075	International: Public Correspondence, Port Operations
81a		81a	T/R: 157.075	T/R: 157.075	US: US Government only - Environmental protection operations Canada: DFO/Canadian Coast Guard use only.
	82		T: 157.125 R: 161.725	T: 161.725 R: 157.125	International: Public Correspondence, Port Operations
82a		82a	T/R: 157.125	T/R: 157.125	US: US. Government only Canada: DFO/Canadian Coast Guard use only.
	83		T: 157.175 R: 161.775	T: 161.775 R: 157.175	International: Public Correspondence, Port Operations
83a		83a	T/R: 157.175	T/R: 157.175	US: US Coast Guard only Canada: DFO/Canadian Coast Guard and other Government agencies.
		83b	- -	T/R: 161.775	

CHANNEL			FREQUENCY		CHANNEL USAGE
US	INTL	CA	SHIP (MHZ)	SHORE (MHZ)	
84	84	84	T: 157.225 R: 161.825	T: 161.825 R: 157.225	US: Public Correspondence (Marine Operator) International: Public Correspondence, Port Operations
85	85	85	T: 157.275 R: 161.875	T: 161.875 R: 157.275	US: Public Correspondence (Marine Operator) International: Public Correspondence, Port Operations
86	86	86	T: 157.325 R: 161.925	T: 161.925 R: 157.325	US: Public Correspondence (Marine Operator) International: Public Correspondence, Port Operations
87	87	87	T: 157.375 R: 161.975	T: 161.975 R: 157.375	US: Automatic Identification System duplex repeater International: Port Operations Canada: Port operation and ship movement - east coast area. Pleasure craft - British Columbia coast area.
87a			T/R: 157.375	T/R: 157.375	US: Public Correspondence (Marine Operator)
		87b	T/R: 161.975	T/R: 161.975	Canada: Automatic Ship Identification and Surveillance System.
	88	88	T: 157.425 R: 162.025	T: 162.025 R: 157.425	US: Commercial, Intership only. International: Port Operations Canada: Port operation and ship movement - British Columbia coast area.
88a			T/R: 157.425	T/R: 157.425	US: Commercial, Intership only. Canada: Automatic Ship Identification and Surveillance System.
		88b	T/R: 162.025	T/R: 162.025	
WX1		WX1		R: 162.55	
WX2		WX2		R: 162.4	
WX3		WX3		R: 162.475	
WX4				R: 162.425	
WX5				R: 162.45	
WX6				R: 162.5	
WX7				R: 162.525	

8.2   NARROWBANDING

The FCC has mandated that all public safety radios manufactured after January 1, 2013 comply with narrowbanding restrictions. Radios manufactured after the above date will comply with these restrictions. Existing radio personalities that contain frequencies that violate these FCC rules will cause an invalid channel error indication on the radio display. The user will need to change the radio personality to comply with the new rules. Note that there are multiple exceptions to the narrowbanding mandate, including the Marine Frequencies listed in Section 8.1.

9. GLOSSARY

-A-

AES	Advanced Encryption Standard
AES-256	Advanced Encryption Standard, 256-bit
AMBE+2	Advanced Multi-Band Excitation implementation 2
ANSI	American National Standards Institute
ASCII	American Standard Code for Information Interchange

-B-

-C-

C	Celsius
CA	Canada
CDCSS	Continuous Digital Coded Squelch System
CH INFO	Channel Information
CKR	Common Key References
CMB	Continuous Marine Broadcast
CTCSS	Continuous Tone Coded Squelch System

-D-

DES	Digital Encryption Standard
DES-OFB	Digital Encryption Standard Output Feedback
DFO	Department Fisheries Ocean
DMS	Degrees Minutes Seconds

-E-

EPIRB	Emergency Position-Indicating Radio Beacons

-F-

F	Fahrenheit
FCC	Federal Communications Commission
FM	Frequency Modulation

-G-

GHz	Giga (10^9) Hertz
GEOTRANS	Geographic Translator
GPS	Global Positioning System

-H-

Hz	Hertz
HKL	Harris Key Loader

-I-

ID	Identification
IEEE	Institute of Electrical & Electronics Engineers
INTL	International

-J-

-K-

KEK	Key Encryption Key
kHz	kilo (10^3) Hertz
KID	Key Identification
KMF	Key Management Facility
KMS	Key Management System
KS	Key Set
KVL	Key Variable Loader (Motorola KVL Device)

-L-

LAT/LONG DMS	Latitude/Longitude Degrees Minutes Seconds
LED	Light Emitting Diode
Li-ION	Lithium-ION

-M-

MHz	Megahertz
mm	Millimeter
MR	Mobile Radio
ms	milli (10^{-3}) seconds

-N-

NAC	Network Access Code
Ni-MH	Nickel Metal Hydride
NOAA	National Oceanic and Atmospheric Administration

-O-

OET	Office of Engineering and Technology
OTAR	Over The Air Rekey

-P-

P25	Project 25
POS	Position
PRI	Priority (Channel)
PTT	Push-to-Talk

-Q-

-R-

RF	Radio Frequency
RPM2	Radio Personality Manager 2
RSI	Radio Set Identifier
RSM	Remote Speaker Microphone
RX	Receive

-S-

SA	Situational Awareness
SMA	Subminiature version A

-T-

TIA	Telecommunications Industry Association
TX	Transmit

-U-

UHF	Ultra High Frequency
UKEK	Unique Key Encryption Key
US	United States
USCG	United States Coast Guard
UTC	Universal Time Coordinated
UTM	Universal Transverse Mercator

-V-

VDC	Volts, Direct Current
VHF	Very High Frequency
VIDA	Voice Interoperability Data Access
VTS	Vessel Traffic Service

-W-

WEEE	Waste from Electric and Electronic Equipment

-X-

-Y-

-Z-

10. BASIC TROUBLESHOOTING

When upgrading from XLP R1A/C to R1D/E, the radio displays ⚠. XLP R1D installs an image that is capable of installing future software releases and is required prior to upgrading to R2. **Do not power cycle when this screen is displayed on the radio or R1D will have to be reinstalled prior to upgrading to R2**.

When installing XLP R2A and later, if the upgrade is interrupted by a power cycle, the radio displays 🔴. This indicates a partial install occurred and a reinstall is required. The radio should be connected via USB and the software should be installed again.

For radios with XLP R3A and later, if 🔶 is displayed, the radio has lost its factory information and needs to be returned for updating.

10.1 ERROR MESSAGES

This section provides a list of error messages, as well as possible causes and solutions.

Table 10-1: Displayed Error Messages, Reasons, and Resolutions

SCREEN/ MENU	DISPLAYED ERROR MESSAGE	REASON	RESOLUTION
Top-Level Screen	**INVALID KEYSTORE ZEROIZE NEEDED**	Corrupt key database or incorrect database configuration.	Zeroize database.
Bluetooth Pairing Screen	**PAIRING FAILED**	Bluetooth pairing failed.	Ensure device is discoverable and attempt to re-pair the device.
Channel Edit Screen	**EDIT FAILED**	Unable to modify P25 Channel.	Power cycle and try again--contact Harris if problem persists.
	INVALID RX FREQUENCY	Entered Rx frequency is invalid.	Ensure frequency follows band spacing rules.
	INVALID TX FREQUENCY	Entered Tx frequency is invalid.	Ensure frequency follows band spacing rules.
Install Operations	**INSTALL FAILED**	Error during install process.	Transfer file again and reattempt install. Contact Harris if problem persists.
		Extraction of compressed file failed.	Transfer file again and reattempt install. Contact Harris if problem persists.
		Removal of existing SW failed.	Attempt install again and contact Harris if problem persists.
Mission Plan In Progress Screen		Mission plan activation failed.	Use RPM2 to ensure plan validity. Contact Harris if failures persist.
Security Menu	**ZEROIZE FAILED**	Radio could not zeroize.	Radio problem—power cycle and contact Harris if problem persists.
	NO KEYS TO ZEROIZE	Key database empty.	Nothing to zeroize.
Utilities Menu	**INCORRECT PASSWORD**	Maintenance password invalid.	Enter valid maintenance password.
Channel Info Screen	**INCORRECT PASSWORD**	Channel edit password invalid.	Enter valid channel edit password.

10.2 OTAR ERRORS/INFORMATION

<u>**WORKAROUNDS:**</u>

1. Zeroize.

2. Load proper KEK from the Harris Key Loader or Motorola KVL.

<u>**IF RADIO INDICATES:**</u>

1. INVALID KEYSTORE ZEROIZE NEEDED - This occurs if the radio's keys were loaded by the Harris Key Loader followed by an attempt to load UKEKs with the Key Loader or keys with the Motorola KVL.

   - Fix by performing workaround 1, followed by 2.

2. NO UKEK – Displayed during a zeroize performed from the radio or a zeroize initiated from the KMF.

   - Fix by performing workaround 2.

3. Zeroize Complete – KMF has zeroized the radio.

   - Fix by performing workaround 2.

4. Disabled OTAR Icon (red slash) – OTAR is disabled while in scan, talkaround, emergency, and monitor.

   - Fix by disabling these features. Icon will be corrected (no red slash).

5. Gray OTAR Icon (no red slash) – OTAR has not registered with tower (Conventional or Trunked system).

   - Fix by verifying proper frequencies.

   - If the radio is turned to the OTAR channel out of range of a conventional tower, and then comes in range after 3 minutes, fix by issuing an OTAR. Rekey, leaving and re-enter the OTAR channel.

6. Green OTAR Icon – OTAR is registered, all is well.

   - If update fails, verify you are in range of the tower and the KEK is correct.

7. Blue OTAR Icon – OTAR is attempting to rekey.

   - If rekey fails, verify you are in range of the tower and the KEK is correct.

11. TECHNICAL ASSISTANCE

The Technical Assistance Center's (TAC) resources are available to help with overall system operation, maintenance, upgrades and product support. TAC is the point of contact when answers are needed to technical questions.

Product specialists, with detailed knowledge of product operation, maintenance and repair provide technical support via a toll-free (in North America) telephone number. Support is also available through mail, fax and e-mail.

For more information about technical assistance services, contact your sales representative, or contact the Technical Assistance Center directly:

North America:	1-800-528-7711
International:	1-434-385-2400
Fax:	1-434-455-6712
E-mail:	PSPC_tac@harris.com

12. WARRANTY

Please register this product within 10 days of purchase. Registration validates the warranty coverage, and enables Harris to contact you in case of any safety notifications issued for this product.

Registration can be made on-line at the Customer Care center webpage:

https://www.harris.com//solution/pspc-customer-service

While on the webpage, please review the applicable battery and/or product warranty literature.

APPENDIX A   WI-FI PROGRAMMING

⚠️ **CAUTION**	Due to numerous issues with discovering and programming radios connected to Enterprise Wireless networks, it is **strongly** suggested that a single Access Point Wireless network be used for programming radios with RPM2. See Section A.7 for more information.

ℹ️ **NOTE**	These instructions assume the user has a basic familiarity with Wireless (Wi-Fi) networks, their configuration, and how to connect devices. If you are unfamiliar with the terms and/or procedures mentioned in these instructions, please contact your IT department for help before attempting to configure Wi-Fi programming.

ℹ️ **NOTE**	For XL-200P radios to be discoverable on the Wi-Fi network, your wireless router must be configured to allow Multicast (mDNS). This varies by router manufacturer; refer to your router's documentation for specific settings needed to enable Multicast (mDNS).

A.1   OVERVIEW

Perform the following to program an XL-200P over Wi-Fi. For first time setup, see Section A.8.1.

1. Configure the Access Point (Section A.2).

2. Configure the personality (Section A.3).

3. Configure the RPM2 application (Section A.4).

4. Put the radio in Wi-Fi Programming Mode (Section A.5).

5. Discovery and programming in the RPM2 application (Section A.6).

6. Support for Enterprise Wireless Networks (Section A.7).

7. Helpful Hints (Section A.8).

A.2 CONFIGURE THE ACCESS POINT

- Setup an Access Point (wireless router) as follows. The **bold** values provided below are the default values in the personality.

  ➤ Wireless Networking Name (SSID): **harrisradios**

  ➤ Shared Key (Network Password): **password**

  ➤ Wireless Authentication/Security Mode (Encryption Type): **WPA**

  WPA and **WPA2-PSK** are the available Encryption Types in the RPM2 application

- Ensure that the Access Point has Multicast (mDNS) enabled. See the second note at the top of Appendix A for more information. The following are examples of how to allow Multicast (mDNS) message to be relayed and not filtered out on two different routers.

  ➤ In the Buffalo Router (AC 1750), it is located in **Advanced settings → Wireless → Multicast Control**. Check the Enable checkbox beside "Snooping."

  ➤ In the Linksys router (WRT54GS), it is located under the Security tab. Uncheck "Filter Multicast" to prevent the Multicast (mDNS) messages from being filtered out.

A.3 CONFIGURE THE PERSONALITY

For a radio to be programmed over Wi-Fi, the active personality on the radio must be configured for connecting with the values that were set in Section A.2. The following steps detail how to configure an existing XL-200P personality.

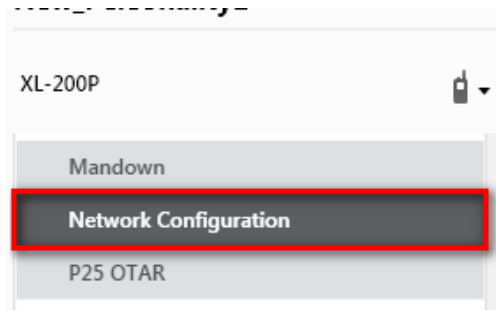1. In the personality, navigate to **Options → Network Configuration**.

Figure A-1: Options → Network Configuration

2. Under the Wi-Fi Configuration section, set the **Encryption Type**, **Network (SSID)**, and **Network Password**.

Figure A-2: Wi-Fi Configuration

3. Under Network Service Configuration, the default values can remain the same. If the wireless network is managed by another department, please coordinate with them to get it setup correctly.

The **Network Discovery Configuration** ➔ **Service Name** is a Unique name used by RPM2 and radios to communicate with each other. There is more information about this in Section A.8.2.
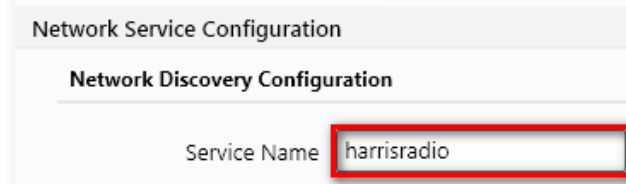

Figure A-3: Service Name

4.   After the personality is configured and saved, write it to the radio over USB and then activate it.

A.4   CONFIGURE THE RPM2 APPLICATION

To ensure that RPM2 can discover radios over Wi-Fi, ensure that the **Enable Wi-Fi** checkbox is checked on the RPM2 Preferences screen as shown in Figure A-4. This checkbox is unchecked by default.
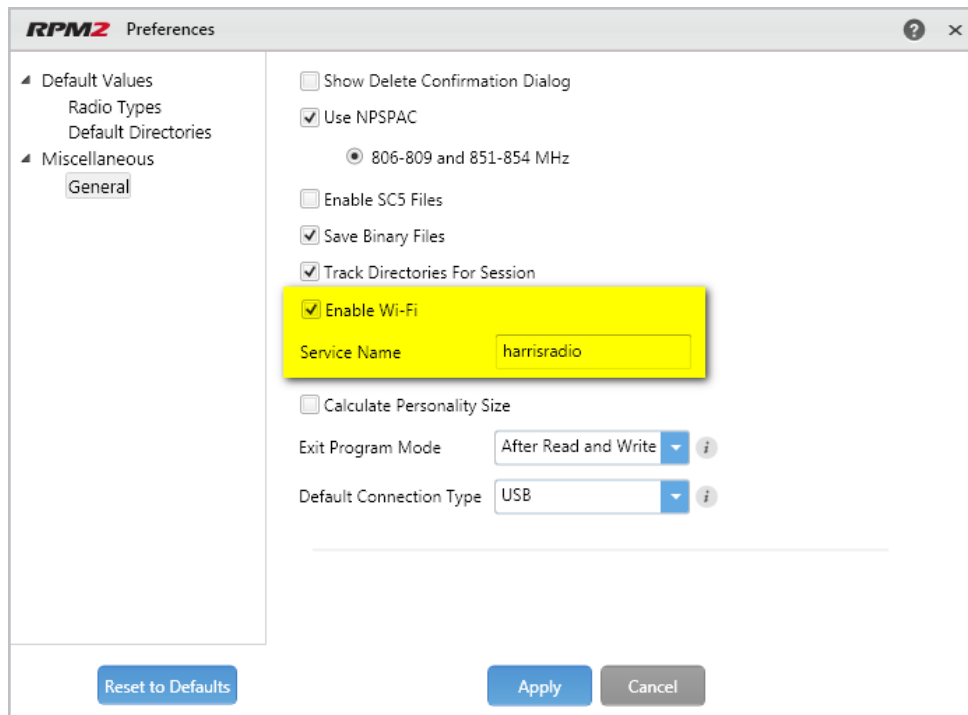

Figure A-4: Enable Wi-Fi in RPM2

Also as shown in Figure A-4, the **Service Name** must be updated to reference the value in the active personalities for the radios you need to discover. See #3 in Section A.3 and Section A.8.2 for more information.

For default operation using the network as described in Section A.2, no other configuration of the radio or RPM2 is required.

A.5   PUT THE RADIO IN WI-FI PROGRAMMING MODE

To put the radio in Wi-Fi programming mode:

1. Turn the radio off and remove the USB cable (optional).

2. Press and hold the bottom side and PTT buttons.

3. Power on the radio while continuing to hold the buttons.

4. Release the buttons when the WIFI INSTALL ACTIVE screen appears on the radio.

5. Initially, the radio displays DISCONNECTED. When the IP address is displayed, the radio is available to be programmed.

Figure A-5: Enable Wi-Fi Programming Mode on XL-200P

A.6   DISCOVERY AND PROGRAMMING IN THE RPM2 APPLICATION

1. Start RPM2.

2. Disconnect the radio from the programming cable.

3. Select the Radio tab (Figure A-6) and click the Wi-Fi connection button as shown in Figure A-6.
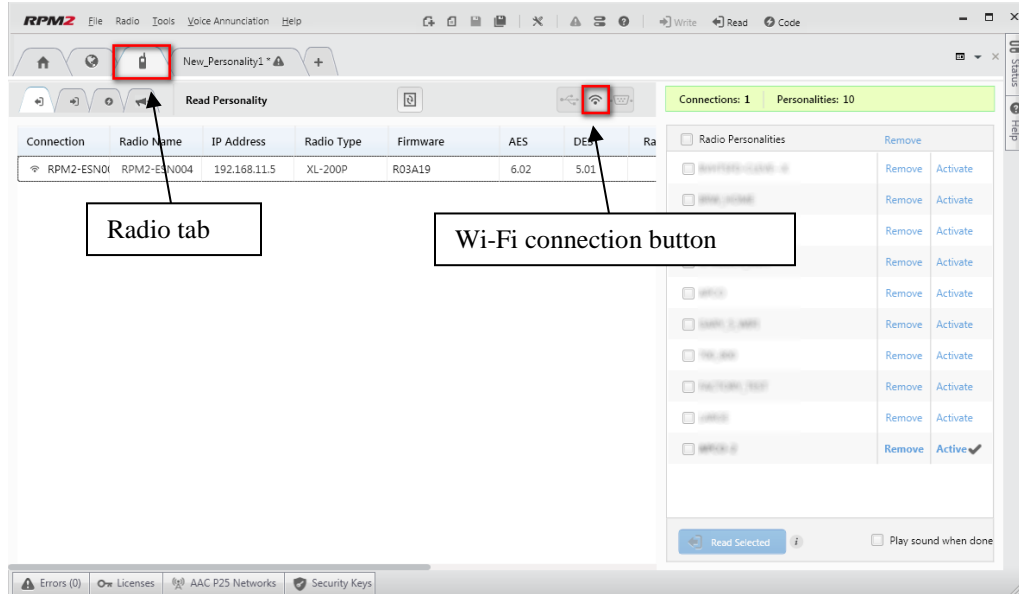
Figure A-6: RPM2 Radio Tab: Wi-Fi

4. When the **Wi-Fi** connection button is pressed, a "Discovering Wi-Fi Radios" message is displayed for several seconds and the radios connected to that access point with that **Service Name** populate the connection list.

(i) NOTE	To connect over Wi-Fi, the currently active personality MUST have the correct Wi-Fi parameters. Therefore, care must be taken that all personalities on a given radio have the correct Wi-Fi parameters for the desired network. Otherwise, activation of another personality on the radio will result in the inability to establish a Wi-Fi connection.

5. Select a radio or radios and perform the desired action. Only Read Personality, Write Personality, and Load Code are supported over Wi-Fi for the XL-200P. See the table below for the supported combinations.

Table 12-1: Wi-Fi Feature Support

	SINGLE RADIO	MULTIPLE RADIOS (UP TO 16)
Read Single Personality	Yes	No
Read Multiple Personalities	Yes	No
Write Single Personality	Yes	Yes
Write Multiple Personalities	No	No
Load Single Code File	Yes	Yes
Load Multiple Code Files	Yes	Yes
Voice Annunciation	No	No
Feature Data	No	No
Radio Name	Yes	No
Install Splash Screen	Yes	Yes

6. In the Status Panel, all Wi-Fi related actions will have the prefix of "WIFI."

To help in displaying the radios, the "Connection" and "IP Address" columns are sortable.

> **NOTE**
> If the Access Point is not configured to the default values from Section A.2 and the active personality in the radio is removed, the radio loses connection to the Access Point and must be connected over USB to write/activate a personality to reconnect to the Access Point.

A.7 RPM2 WI-FI SUPPORT FOR ENTERPRISE NETWORKS.

Enterprise Networks have certain limitations when it comes to Discovering/Programming Radios in RPM2. There is a 4500 second (75 minute) caching affect inherent to implementation with the Cisco® Wi-Fi solution that utilizes the Access Point (AP)/Wireless LAN Controller (WLC) components. Radios remain 'seen' in RPM2 even after the radio leaves Wi-Fi or is turned off. It is cached in RPM2 for the 4500 second time period. This issue has only been observed with the Cisco AP and WLC solution, however other enterprise wireless solutions may observe this caching affect. Operation with a lower tiered Wi-Fi router that does not operate with a WLC will likely not observe this behavior.

Please see Release Notes for Media Kit SK-019007-001 version R7A06 for more information.

A.8 HELPFUL HINTS

A.8.1 Initial Setup and Configuration

Since radio discovery is dependent on whether or not Multicast (mDNS) messages are being received by RPM2, it is best to keep things as simple as possible. Here are the suggested steps if this is being setup and configured for the first time.

1. Configure the Access Point with the default personality values provided in Section A.2.

2. Create a basic personality with a single system, set and channel, write it to the radio and activate it over USB.

3. Complete Sections A.4 through A.6.

If the radio was not discovered in RPM2 but an IP address is displayed on the radio screen as seen in Figure A-5, this may mean that the Multicast (mDNS) messages are not making it through the Access Point. Consult the Access Point's manual and make sure that those messages are not being filtered out.

A.8.2 Grouping Radios by Service Name

One benefit of using a unique **Service Name** is that it allows the user to create logical groupings of radios in order to reduce the number of radios discovered in RPM2 and help reduce the overhead of keeping track of which radios have been configured.

For example, if there are 100 radios in Wi-Fi programming mode (see Section A.5) with the same **Service Name**, all 100 radios are displayed in the Radio tab after discovery has been completed. This makes it difficult to select and program multiple radios simultaneously. However, if the **Service Name** in the active personality on 16 of the radios are set to something unique like "fire1" and the RPM2 application **Service Name** (see Section A.4) is also updated to "fire1," only those radios with a **Service Name** of "fire1" are discovered and displayed in the Radio tab.

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About Harris Corporation

Harris Corporation is a leading technology innovator that creates mission-critical solutions that connect, inform and protect the world. The company's advanced technology provides information and insight to customers operating in demanding environments from ocean to orbit and everywhere in between. Harris has approximately $8 billion in annual revenue and supports customers in 125 countries through four customer-focused business segments: Communication Systems, Space and Intelligence Systems, Electronic Systems, and Critical Networks.

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