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Rev. B

RF-300H-MP
WIDEBAND HF/VHF MANPACK
OPERATIONS

Student Guide

HARRIS® TECHNOLOGY TO CONNECT, INFORM AND PROTECT™

RF-300H-MP WIDEBAND HF/VHF MANPACK RADIO OPERATIONS

System Version: 1.1.0

Publication Number: 10515-0512-4500 Rev. B

RF-300H-MP
OPERATIONS

TABLE OF CONTENTS

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SAFETY GUIDELINES

1

Safety

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Objectives

- Discuss Evacuation procedures and routes.
- Discuss Battery handling, installation, disposal, charging, and safety.
- Discuss radiation hazards.
- Discuss Antenna Safety.
- Discuss proper Grounding procedures.
- Discuss First Aid for Electrical Shock.

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Safety

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Lithium-Ion Batteries

- Recharging Batteries
  - **WARNING** – do not attempt to recharge a disposable battery.

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Safety

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Lithium-Ion Battery Safety

- Inspect each battery prior to use for any signs of leakage or other abnormal conditions:
  - Cracks in the case
  - Date Code and last inspection date noted on battery
  - Bulges
  - Signs of overheating, scorching, melting
  - Burnt electrical smells
  - Leakage of anything
- Do not use a battery showing damage, leakage, or emitting any odor.

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Safety

- Do not short circuit, incinerate, or mutilate any batteries.
- Dispose of partially and fully discharged batteries in accordance with your directives.
  - Improper disposal of hazardous waste is prohibited by law.
- Do not activate Complete Discharge Device (CDD) of a damaged Lithium battery as this could release toxic material that can cause personal injury.
- Only use like batteries. Do not mix and match different battery types, such as Lithium-Ion and disposable batteries.
- If the battery becomes hot, a hissing sound is heard, or venting occurs:
  - Move personnel and equipment to a well ventilated area.
  - Immediately contact local Fire Department and Hazmat clean up.

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Safety

Radiation Hazards

- Radio Frequency (RF) burns can occur when you come in contact with or are too close to the antenna system when a transmitter is keyed.
- You can receive an RF burn from as far as 2 inches away from the antenna when the radio is transmitting.
- Most modern radios are capable of automatic transmission (without being keyed by the operator), depending on the radio's mode of operation.
- In the classroom, all nets should be programmed for the lowest power setting and all radios should be standing straight up to protect the operator from RF burns.

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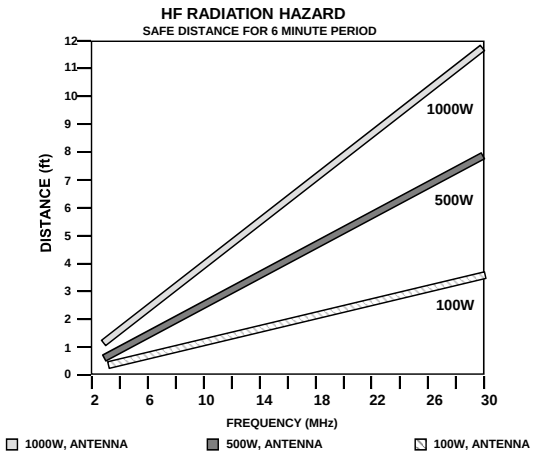
Safety



7

Safety

Antenna Safety

- Siting is not only important for communication but also for safety.
- Always check the area for power lines that your antenna could come into contact with. Never erect an antenna any closer to a power line than twice the antenna length.
- To avoid power lines, antennas on moving vehicles should always be tied down.
- Always mark guy wires, the ground stake and the area around the antenna to keep personnel and vehicles from running into your antenna.
- Ensure the ground wire for tactical mobile radio sets is attached IAW the appropriate Technical Documentation.

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Safety

- Only allow team members in assembly area.
- Proper safety gear should be worn:
  - Helmet
  - Safety Goggles
  - Leather Gloves
- **CAUTION:** When throwing weight on Halyard Rope Assembly, do not have team members in area where weight will land as the weight can cause injury or death to personnel.

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Safety

GROUNDING

- A good electrical ground is needed for two reasons:
  - as a safety ground to protect the operator and his equipment.
  - as an RF counterpoise needed by some antennas to function properly.
- Ensure the ground rod is free from oil or corrosion.
- Drive the ground rod into the ground and attach the ground cable to both the ground rod and the ground connection on the radio.
- Inspect the ground strap for corrosion. A clamp or nut and bolt should be used to make a good mechanical and electrical connection at the ground rod.

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Safety

- The end of the ground strap and the radio ground connection should both be cleaned before connection is made.
- If a ground rod is not available, water pipe, concrete reinforcing rod, metal fence post (protective paint coating must be removed), or any length of metal can be used. If a water system uses metal pipe, a good ground can be established by clamping the ground strap to a water pipe. Underground pipes, tanks, and metal building foundations will also work.
- **WARNING:** NEVER USE ANY PIPING OR UNDERGROUND TANKS THAT CONTAIN FLAMMABLE MATERIALS (NATURAL GAS, GASOLINE, ETC.)!!

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Safety

- Water should be added periodically to keep the area damp.
  - A drip can also be made by punching a small hole in a can.
  - The can is hung over the ground rod and is filled with water.
- The resulting slow drip of water will keep the area around the ground rod damp.

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Safety

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First Aid for Electrical Shock

Follow these five steps when encountering an individual experiencing electrical shock:

- Do not try to grab or pull the individual from the equipment.
- Turn off electrical power.
- If you cannot turn off power, pull, push or lift the person by using a wooden pole or some other insulated object.
- Send for help as soon as possible.
- After the injured person is free of contact with the source of electrical shock, move them a short distance away and immediately start artificial respiration, if required.

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Safety

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HERO, HERF, HERP

- **While operating the radio, make sure guidelines specified in NAVSEA OP 3565 are followed:**
  - Hazard of Electromagnetic Radiation to Ordnance (HERO)
  - Hazard of Electromagnetic Radiation to Fuel (HERF)
  - Hazard of Electromagnetic Radiation to Personnel (HERP)

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Notes:

MODULE 1

IDENTIFY FEATURES AND CAPABILITIES

Lesson 1

LO-01 SH-01

Identify Features and Capabilities

TLO A:
Identify Features and Capabilities

Action:

- Identify features and capabilities of the RF-300H-MP.

Condition:

- In a classroom environment, given all components of the radio, classroom instruction, and technical manual 10515-0512-4200.

Standard:

- The standard is met when the student has identified the features and capabilities of the radio IAW technical manual 10515-0512-4200.

Identify Features and Capabilities

Features

- 1.5 MHz to 59.9999 MHz continuous frequency coverage.
- Supports following Modulation types; Upper and Lower Sideband, Amplitude Modulation Equivalent (AME), Continuous Wave (CW), and Frequency Modulation (FM) from 1.5 MHz to 59.9999 MHz.
- Cipher Text (CT), Plain Text (PT), and Coalition Compatible (CC), modes.
- Supports the following Vocoders; Mixed-Excitation Linear Predictive (MELP), Linear Predictive Coding (LPC), Clear Voice.
- Up to 99 programmable system presets per channel (numbered 01 – 99) containing user-specified frequencies and operating parameters
- Built-In Test (BIT) for operational test, battery tests, memory tests, and high-band testing.
- Internal micro GPS Receiver Application Module Selective Availability Anti-Spoofing Module (MICROGRAM SAASM) unit for precise position and time tracking. Commercial GPS also supported.

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Identify Features and Capabilities

Features

- Internal HUB to maintain programmed information when the main battery is removed.
- Advanced Narrowband Digital Voice Terminal (ANDVT), Advanced Encryption Standard (AES), Citadel II ASCII for exportable algorithms, Tactical Secure Voice Cryptographic Interoperability Specification (TSVCIS), KG-84A/C embedded encryption modes.
- Simple Network Management Protocol (SNMP) interface support with CPA programming and Wireless Messaging Terminal (WMT) Radio/Modem control. SNMP used to monitor network-attached devices for conditions that warrant administrative attention such as when reporting radios join or leave the wireless network. This capability is configured using CPA. SNMP exposes management data in the form of variables on the managed systems, which describe the system configuration. SNMP v3 is supported with RF-300H CPA.

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Identify Features and Capabilities

Features

- Single-channel, half-duplex, tactical, High Frequency (HF) transceiver providing secure voice and data transmission to traffic.
- Support for the following Modem waveforms; MIL-STD-188-110A (base serial tone), MIL-STD-188- 110B, Appendix C, MIL-STD-188-110C, XDL (combined High-throughput Data Link (HDL) Low-latency Data Link (LDL) protocols, and ANDVT-HF.
- Type-1, National Security Agency (NSA) certified, secure voice and data communications.
- Support for optional Harris Remote Keypad Display Unit (RKDU).
- Capable of Over The Air Rekey (OTAR), KG-84 AK OTAR
- Support for Falcon II HF Power Amplifiers, External Couplers, Pre/post selectors. Simple Key Loader (SKL) AN/PYQ-10 fill device.
- Support for WMT 6760W/6760W-HF, CPA, Tactical Chat RF-6551H.

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Identify Features and Capabilities

Supported Waveforms

- HF Waveform
  - Fixed Frequency (FF) - Supported from 1.5 MHz to 59.9999 MHz while using the applicable type of modulation for the given frequency range.
  - 2G Automatic Link Establishment (ALE) - Automatic Message Display (AMD) is sent as part of handshake link in the clear Link Protection is a configurable option.
  - 3G ALE - STANAG 4538 Fast Link Set-Up (FLSU). Adaptive Wideband (modem performance in accordance with MIL-STD-188-110C Appendix D). Last Ditch Voice (LDV) transmission or reception of messages over-the-air in a 3G voice link. Mode of operation supports storage and retains up to 10 LDV messages.

    NOTE - LDV playback (view, play and/or delete) available in FIX, ALE, and 3G Modes.

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Identify Features and Capabilities

Accessories Included

- OE-505 Whip Antenna Kit (10372-0240-02)
- Base Whip Adapter Assembly (10372-1260-01)
- Dipole Adapter Assembly (10372-1270-01)
- Antenna Bag (CW-503/PRC-25)
- Battery Box (12043-4800-01)
- GPS Antenna (12006-4240-01) used on 0N839880-1 Radio
- GPS Antenna (12006-0017-02) used on 0N839880-2 Radio
- Modified H-250/U Handset (10075-1399)
- Ground Stake Kit (10303-1008-01)
- Universal Serial Bus (USB) Programming/Data Cable Assembly (12043-2850-A006)
- Tactical Chat software application (RF-6551H)
- Wireless Message Terminal (WMT) Application (RF-6760W-HF)

Identify Features and Capabilities

Self-Test

Built-In-Test (BIT) capability:

- BIT is run on hardware modules during power up
- Operator initiated BIT on all hardware modules (under Options menu)
- Transmission or reception of Bit Error Rate Test (BERT) patterns on the narrowband portion of the radio.
- Software (SW) validation that runs the entire red and black file systems through the Crypto. This verifies that the software has not been changed since it was first installed
- Keypad test that allows the user to verify front panel keypad operation
- Memory Test that validates integrity of the radio's volatile memory
- Liquid Crystal Display (LCD) test to check display segments

Identify Features and Capabilities

Fixed Frequency Operation

- Type-1 Crypto Modes supported:
  - KG-84 Mode 1 (Redundant) and Mode 3 (Non-Redundant)
  - ANDVT-HF (KY-99A), Data 300 - 2400 bps, Voice 2400 bps
  - ANDVT-BD (KY-100), Data 75 to 12800 bps, Voice 600, 2400 bps
  - TSV, Data and Voice using Serial 110A/B and MELP
- Type-3 Crypto Modes supported: Citadel and AES
- FIX Mode using WBHF: WBHF is selectable as a modem type, however, it does not engage the Adaptive Wideband process. Bandwidth will not automatically adapt to channel conditions, since spectral sensing is not performed in WB FIX. WB can be selected for data, and all legacy voice modes are available for use (such as CLR, Mixed- Excitation (ME), and DV).

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Identify Features and Capabilities

ALE Operation

- ALE Addresses and Linking - ALE permits HF stations to call and link on the best HF channel. Each radio in a network is assigned one or more unique addresses. Each address can be up to 15 alphanumeric characters. When not transmitting or linked, the radio constantly scans through its assigned frequencies listening for calls.
- Each address is assigned to a group of channels called a Channel Group. Addresses consist of:
  - Self Address: This is a radio's address.
  - Individual Address: These are self addresses of other radios and are used for individual calls
  - Net Address - These are addresses assigned to a group of radios and are used for net calls.
  - All (Not Programmed), Any (Not Programmed) or Other Addresses from a call or Link Quality Analysis (LQA) sound
  - Group Call: Allows you to call more than one individual address

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Identify Features and Capabilities

ALE Operation

- LQA Operations - Channel scores are used by the radio to determine the best channels to use when placing automatic calls. These channel scores, based on link quality information, develop over time due to LQA Exchanges/Sounds, call successes and observed traffic. A call may not link on the best channel if propagation conditions have changed since the last LQA. In order to link on the best channel, periodic LQAs should be performed throughout the day.

- Net LQA - In net exchange LQAs, the receiving units transmit response messages in time slotted order. This may be a lengthy process for large nets. The response messages contain the scores measured by the net members during reception of the initial call message. The net LQA initiator measures signal quality during reception of the slotted responses and updates each member's score accordingly. No scores are sent in the acknowledgment message portion of a net LQA.

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Identify Features and Capabilities

ALE Operation

- ALE Link Protection - ALE Level 1 linking protection is provided to prevent undesired disruption of ALE links. Linking protection scrambles ALE handshake signaling with the specified link protection key (14 character hexadecimal key) so that only a receiving station with the same link protection key can successfully interpret the signal.

  The default setting is off where linking protection is disabled. All stations using linking protection must share a common Time Of Day (TOD) reference. A Universal Time Coordinated (UTC) reference is recommended which can be acquired using Global Positioning System (GPS) or manually entered by the operator.

  When using Level 1 link protection, failure to properly configure the link protection key and TOD will result in a failure to link. Stations with linking protection enabled will also be unable t interoperate with stations configured with linking protection disabled.

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Identify Features and Capabilities

ALE Operation

- Type-1 Crypto Modes supported:
  - KG-84 Mode 1 (Redundant) and Mode 3 (Non-Redundant)
  - ANDVT-HF (KY-99A), Data 300 - 2400 bps, Voice 2400 bps
  - ANDVT-BD (KY-100), Data 75 to 12800 bps, Voice 600, 2400 bps
  - TSV, Data and Voice using Serial 110A/B and MELP
- Type-3 Crypto Modes supported: Citadel and AES

Identify Features and Capabilities

3G Operation

- Last Ditch Voice (LDV) feature - allows the radio to deliver digital voice across a channel that normally would not support digital voice error free
- Uses Wide Band High Frequency (WBHF) for higher data throughputs
- Requires TOD server time sync broadcast or GPS.
- 3G Synchronization **-** The current synchronization state is displayed at the far right above SYNC. The front panel shows AUTO sync when the internal GPS receiver obtains current GPS time from the GPS satellites. If the radio's GPS antenna is disconnected or the radio ceases to receive the GPS time signals, the radio continues to show AUTO sync with the Synchronization (SYNC) meter bar gradually getting smaller as the SYNC quality fades.
- Auto Tune **-** is performed whenever the radio is powered up in 3G radio mode or whenever 3G radio mode is exited and re-entered.
- Auto Sync Request - is performed on any TOD outstation radio whenever its SYNC quality goes to 0% (SYNC METER is empty).

Identify Features and Capabilities

3G Operation

- Broadcast Sync - is used to transmit the current time reference from the TOD server to the outstations in the 3G net so the RF-300H-MP radios in the net can become synchronized.
- High Capacity Media Access Control (HCMAC) and Fast Link Set Up (FLSU) protocols
- Voice Call Break-In: While a data transfer is occurring between radios in 3G mode, the data transfer can be preempted to allow a voice call. The exception is if the radio is keyed with a serial modem (such as SER, MIL110B, or WBHF), it cannot be interrupted.
- Type-1 Crypto Modes supported:
  - KG-84 Mode 1 (Redundant) and Mode 3 (Non-Redundant)
  - ANDVT-HF (KY-99A), Data 300 - 2400 bps, Voice 2400 bps
  - ANDVT-BD (KY-100), Data 75 to 12800 bps, Voice 600, 2400 bps
- Type-3 Crypto Modes supported: Citadel and AES

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Identify Features and Capabilities

COMSEC Over The Air Rekeying (OTAR)

- Requires an OTAR Fill (TEK and KEK) to be loaded into the transmit radio using the Simple Key Loader (SKL) (PYQ-10) or AN/CYZ-10 DTD in KYX-15 mode.
- OTAR Receive Mode - Used for radios that will receive keying data from a Net Control Station (NCS) or other radio. Must be in CT.
- OTAR Transmit Mode - Used for radios that will send keying data to other radios. Must be in CT.
- To receive a TEK using Automatic Key (AK), both the receiving radio and the fill device attached to the transmitting radio must have the same Key Encryption Key (KEK).
- For AK, the KEK must be loaded into the radio by an external fill device.

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Identify Features and Capabilities

PT Override

- The RF-300H-MP supports receiving Plain Text (**PT**) voice while operating in Cipher Text mode (**CT**). This is known as “PT Override”. The two types of PT override are Analog and Digital.
- Analog PT override allows the operator to monitor the channel and/or receive clear voice, (the radio must have squelch turned off for this).
- Digital PT override will allow the reception of digital voice with any of the supported vocoders (for example, MELP). Digital PT override is supported for the KG-84 encryption mode only.
- When receiving PT voice while in CT, the radio will alert the operator to the presence of this unencrypted voice traffic. The Human-Machine Interface (HMI) will flash “PT RX” on the top line of the display. Periodic alert tones (known as PT beeps) will be heard in addition to the plain text voice.

NOTE: For lower voice rates, transmissions of less than 10 seconds may not be long enough to cause PT override to engage and allow voice to be received.

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Identify Features and Capabilities

[7/OPT] >HF OPTIONS: FIX, ALE, and 3G

- VSWR
- Retune
- LQA - Exchange/Sound (2G ALE/3G only)
- Global (Squelch Level, FM Squelch Type, BFO, Rx Noise Blanking, Route Modem Data To)
- LDV
- *ALE - Must be in ALE preset (Scores, TX Message, Rx Message)
- *3G - Must be in 3G preset (Scores, TOD, TOD Role, Schedule, Linked, Unsync)

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Identify Features and Capabilities

[8/PGM] >HF CONFIG: FIX, ALE, and 3G

- Global (Squelch Level, Squelch Type, FM Deviation, CW Offset, Rx Noise Blanking, Compression, Route Modem To)
- Channel (Edit Channel, Rx/Tx Frequency, Modulation, AGC Speed, IF Bandwidth, RX Only, Limit Max TX Power, Mx TX Power, Max Bandwidth)
- Modem (Modem Preset, Preset Name, Modem Type, Bandwidth, Data Rate, Interleave, Mode, Data Bits, Stop Bits, Parity, Preamble, Constraint Length, Enable)
- *Mode ALE - Must be in ALE preset (Channel Group, Address, Config, LQA)
- *Mode 3G - Must be in 3G preset (Assign Keys Type-1 and Type-3, LDV, Schedule 3G Broadcast Sync)

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MODULE 2

IDENTIFY OPERATOR CONTROLS, INDICATORS, AND CONNECTORS

Lesson 2

LO-02 SH-02

Identify Operator Controls, Indicators, and Connectors of the RF-300H-MP

TLO B:

Identify Operator Controls, Indicators, and Connectors of the RF-300H-MP

Action:

- Identify operator controls, indicators, and connectors pertaining to the RF-300H-MP.

Condition:

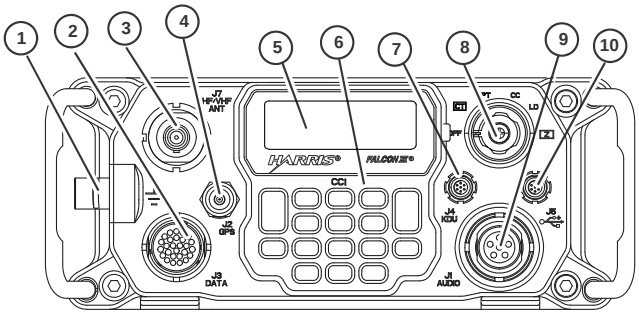
- In a classroom environment, given all components of the radio, classroom instruction, and technical manual 10515-0512-4200.

Standard:

- The standard is met when the student has identified the operator controls, indicators, and connectors of the radio IAW the technical manual 10515-0512-4200.

Controls, Indicators, Connectors

RF-300H-MP



FRONT VIEW

Controls, Indicators, Connectors

No.	Item	Function
1	Ground Post	Provides a grounding point for connecting an RF ground reference to the RF-300H-MP.
2	J3 DATA	Provides a connection for Data Terminal Equipment (DTE) data and auxiliary audio.
3	J7 HF/VHF ANT	Provides a 50-ohm antenna port for either a BNC connector or a whip antenna.
4	J2 GPS	Provides a connection for the remote Global Positioning System (GPS) antenna.
5	LCD Display	Displays operational and programming screens.
6	Keypad	Provides user access to operating and programming functions.
7	J4 KDU	Provides connection for external Keypad Display Unit (KDU).
8	Function Switch	
	[OFF]	Turns radio off. A pull-to-turn action is required to enter or leave this position.
	[CT]	Requires a pull-to-turn action. Places the radio in the Cipher Text encryption mode (digital voice or data).
	[PT]	Places the radio in Plain Text non-encrypted mode (clear voice, digital voice or data).
	[CC]	Places the radio in Coalition Compatible encryption mode.

Controls, Indicators, Connectors

No.	Item	Function
8	**[LD]**	Places the radio off-line for security or file installation. In Fill Mode, the radio is able to load encryption keys. In Install Mode, the radio is able to load firmware and mission plans.
	[Z]	Requires a pull-to-turn action. This zeroizes all programmed variables, including encryption variables. Mission plans will either be deactivated or erased, depending on radio settings.
9	J1 AUDIO	Provides a connection for an audio handset which uses a six-pin connector.
10	J5 USB	Provides connection for Universal Serial Bus (USB).

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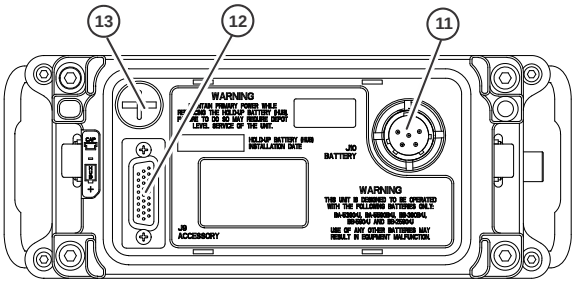
Controls, Indicators, Connectors

RF-300H-MP



REAR VIEW (BATTERY REMOVED)

No.	Item	Function
11	J10 BATTERY	Battery connector.
12	J9 ACCESSORY	Provides connection for an external power amplifier (requires 12097-1700-02 Adapter Assembly)
13	HUB	Provides access to the Hold-Up Battery (HUB).

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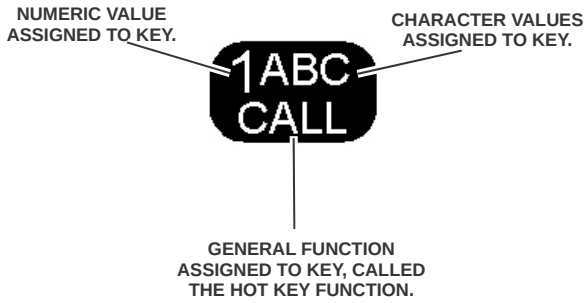
Controls, Indicators, Connectors

Radio Keypad Controls



Controls, Indicators, Connectors

Radio Keypad Controls

Control/Indicator		Function
[NEXT]	0	Switches the display to alternate screens for additional information.
[CALL]	1 ABC CALL	Initiates a 2G or 3G ALE call (Best, Automatic, Manual, or Sync Request call. Dependent on radio mode selected.
[LT]	2 DEF LT	Provides access to display backlight control menu.
[MODE]	3 GHI MODE	Used for Over The Air Rekey (OTAR) Receive and OTAR Transmit. Radio must be in CT.
[SQL]	4 JKL SQL	Toggles programmed squelch on or off for the type of channel modulation currently used.
[ZERO]	5 MNO ZERO	Provides access to Zeroize menus.
[UP ARROW]	6 PQR ▲	Scrolls through selections.
[OPT]	7 STU OPT	Provides access to Option menus.

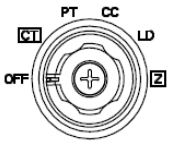
Controls, Indicators, Connectors

Radio Keypad Controls

Control/Indicator		Function
[PGM]	8 VWX PGM	Provides access to Programming menus.
[DOWN ARROW]	9 YZ?	Scrolls through selections.
Right Arrow	▶	Moves cursor left/right through menu fields.
[ENT]	ENT	Selects scroll field choices or locks-in entry field data.
Left Arrow	◀	Move cursor left/right through menu fields.
[CLR]	CLR	Returns a field to its previous value or activates previous screen. Terminates link in ALE and 3G modes. Also starts/stops scanning in ALE and FIX.
[VOL +/-]	+ VOL -	Increases/Decreases volume (Not lockable).
[PRE +/-]	+ PRE -	Scrolls through system presets.

Controls, Indicators, Connectors

Radio Keypad Controls



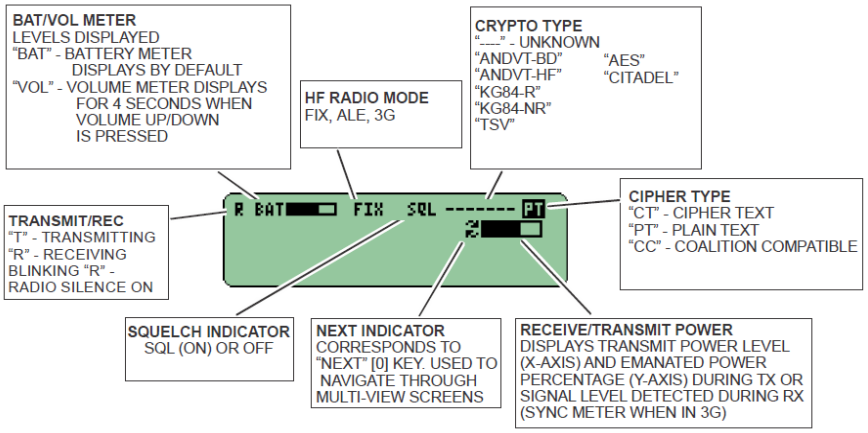
Function/Cipher Switch

[OFF] - Turns the radio Off.
[CT] - Pull-to-turn action required. Turns on the crypto for normal radio operation (Cipher Text).
[PT] - Turns off the crypto for normal radio operation (Plain Text).
[CC] – Turns on the crypto for Coalition Compatible radio operation.
[LD] - Load Mode:
• Crypto keys can be loaded from a fill device
• Software installed/uninstalled
• Type-1 Initialization
[Z] - Zeroize
• **Pull-to-turn** action required
• Used for emergency zeroize of the radio
• Erases all Type-1 encryption keys
• Radio will still operate in Plain Text mode

Controls, Indicators, Connectors

HARRIS®

Basic Status Screen Features



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Controls, Indicators, Connectors

HARRIS®

System Preset Screens

System Preset Selection R BAT FIX SQL ------- PT 01*HF 2 OFF CLR ------ 001 DATA VOICE KEY CHAN	Shows the system preset that is currently enabled. Scroll through the complete list of system presets by pressing **[PRE +/-]** up or down. To select a new preset, press **[ENT]** while viewing that preset, or simply wait two seconds and the system preset will change automatically. Also can press **[Left Arrow]** or **[Right Arrow]** until the system preset number is highlighted, and then use the number buttons to type in the desired system preset number. Press **[ENT]** to make the change.
System Preset Changing R BAT HF SQL ------- PT CHANGING PRESET 21-2G-ALE ... WAIT ...	Displayed whenever a new system preset is being activated. This includes switching the cipher switch out of **[LD]**. The operator will see this screen until the system preset change has completed.
System Preset Change Failed R BAT FIX SQL ------- CT * CT NOT AVAILABLE * CRYPTO NOT PRESENT MOVE SWITCH OUT OF CT	Displays when the system preset change was unsuccessful. Prompts user to move cipher switch position or select another system preset. Also displays if the radio is not Type-1 Initialized or if the software is not validated.

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MODULE 3

OPERATE THE RF-300H-MP

Lesson 3

LO-03 SH-03

Operate the RF-300H-MP

TLO C:

Operate the RF-300H-MP

Action:

- Operate the RF-300H-MP.

Condition:

- In a classroom environment, given all components of the radio, classroom instruction, and technical manual 10515-0512-4200.

Standard:

- The standard is met when the student has operated the radio IAW the technical manual 10515-0512-4200.

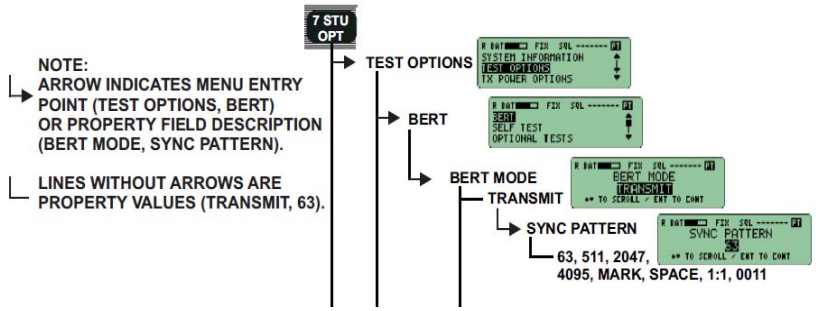
TLO C:
Operate the RF-300H-MP

- **ELO A: Perform Power Up Procedures**
- **ELO B: Load Mission Plan**
- **ELO C: Perform Activate/Deactivate Mission Plan**

Publication Number: 10515-0512-4500-03 Rev. B

Menu Navigation

- Menu trees use arrows to indicate a top line display entry point.



Publication Number: 10515-0512-4500-03 Rev. B

Operation

HARRIS®

Front Panel Operating Conventions

The following list describes general operating conventions for the front panel screens.

- A highlighted item indicates that item is currently selected.
- Selecting a menu item may display a sub-menu related to the item, or it may display the first screen in a series of screens for configuring settings related to the item.
- After configuring an item under a given menu (or sub-menu), use **[ENT]** to step to the next configuration screen until the end of the tree is reached.
- Use **[CLR]** to cancel the configuration of an item under a given menu (or sub-menu), and return to the previous screen.
- Use **[Next]** to switch between multiple views of an HF waveform's top Level screen views.
- Blank spaces in a text string are entered by pressing **[0]** twice.
- While navigating through program menus and screens, the top line is reserved for indicating the current location within the program menus. The bottom line can display status messages on the HF waveform screens, or it can be used for navigational information for configuration screens.

Operation

HARRIS®

Power On Self Test

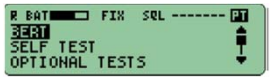
POST Failed 	Indicates that some component inside the radio failed while the radio was initializing during power-up. • To run the Self Tests, press **[OPT] > SYSTEM** and scroll down to select **TEST OPTIONS.**
HUB Warnings  (HUB LOW Warning)  (HUB Capacity has Expired)	• Another example of a pop up screen is the Hold-Up Battery (HUB) monitor. The HUB must be replaced at least every 365 days. • HUB warnings will display if the battery life is within 15 days of the 365-day expiration. • Once the HUB capacity expires, it should be replaced as soon as possible. Removing the main battery while the HUB is depleted will result in a loss of Type-1 initialization and COMSEC Fill data.

Operation

HARRIS®

Test Options

- The Test Options menu allows the user to run Built-In Test (BIT) functions, perform other internal radio system checks, and report specific problems when found.

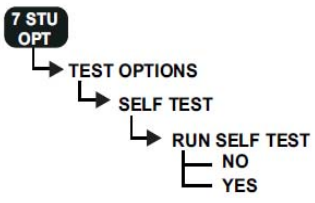
Test Options Menu	
	Select **[OPT] > TEST OPTIONS** to access the radio's internal test functions. Choose the type of test to be performed. • **BERT** - Use this to transmit or receive Bit Error Rate Test (BERT) patterns on the narrowband portion of the radio. • **SELF TEST** - Runs BIT for all hardware modules. • **LCD TEST** - Use this to verify the Liquid Crystal Display (LCD) segments. • **SW VALIDATION** - Runs the entire red and black file systems through the Crypto to verify that the software has not been changed since it was first installed. • **KEYPAD TEST** - Use this to verify front panel keypad operation.

Operation

HARRIS®

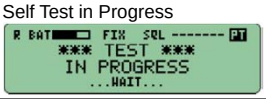
Self Test

- When a Self Test is performed, general system BIT functionality is checked. If any faults were encountered, they are displayed for the user at the end of system testing.



Operation

Self Test

Run Self Test 	• Select **[OPT] > TEST OPTIONS** and select **SELF TEST** and press **[ENT]**. • Select **YES** to RUN SELF TEST and press **[ENT]**.
Self Test in Progress 	• Test progress screens (displayed while test is running).
Self Test Passed 	• Observe screen indicating that the test has passed and press **[ENT]** to return to the main Test Options menu.
Self Test Failed  	• Observe screen indicating that the test has failed. A specific module is shown along with a fault code. Press **[Next]** to see more text information of the current fault. • Observe this screen that provides additional text information of the fault that occurred. Press **[Next]** to return to the screen above. Press **[Up Arrow]** or **[Down Arrow]** to display the next or previous fault.

Operation

Panic Zeroize of the Radio

- Panic Zeroize function is used to immediately erase all COMSEC data from the radio. Turn the cipher switch to the **[Z]** position using a pull-to-turn action.
- Alarm Occurred screen is displayed after a zeroize operation has been initiated, and prompts the user to power cycle the radio.
- If the zeroize operation fails for some reason, the Zeroize Failed screen will be displayed. It is possible that some of the radio or crypto configuration has been erased.
- Crypto Alert screen notifies the operator the radio is being zeroized due to an alarm.

Operation – Network Options

Send a Ping:

1. Select **[7/OPT] > NETWORK OPTIONS** and press **[ENT]**.
2. Select **SEND PING** and press **[ENT]**.
3. Select **IP ADDRESS** (or **HOST NAME**) at the **PING BY** screen and press **[ENT]**.
4. Input the IP Address to send ping to and press **[ENT]**.
5. Observe PING IN PROGRESS.
6. Observe ping response as NO RESPONSE or as SUCCESS XXX MSEC where XXX = the number of milliseconds to respond along with the IP address.
7. Select **[ENT]** to return to NETWORK OPTIONS menu.

NOTE: The RF-300H-MP currently only supports ping of its attached network. It does not support over the air pings (i.e. to another radio) nor will it support ping to a network outside its own subnet.

ELO A:

Perform Power Up Procedures

Action:

- Perform power-up procedures on the RF-300H-MP.

Condition:

- In a classroom environment, given all components of the RF-300H-MP, classroom instruction, and technical manual 10515-0512-4200.

Standard:

- The standard is met when the student has powered-up the RF-300H-MP IAW the technical manual 10515-0512-4200.

Operation

Power On Radio

1. Rotate the cipher switch to **[CT], [PT]** or **[CC].** This initializes the RF-300H-MP software and performs a Power-On Self-Test (POST).
2. Observe when the radio is first turned on, the “HARRIS” logo screen is displayed, followed by the “FALCON III” screen.
3. Observe the Initializing Screen is displayed next, which shows the radio’s operating software version. This screen will remain on the display until the radio has completed powering up. All key presses are disabled during this process.

ELO B:
Load Mission Plan

Action:

Load mission plan into the RF-300H-MP.

Condition:

In a classroom environment, given all components of the radio, SKL, keys, classroom instruction, and technical manual 10515-0512-4200.

Standard:

The standard is met when the student has successfully loaded a mission plan into the radio.

Operation

Load Mission Plan

1. Connect field programming cable (12043-2850-A006) between PC and Radio.
2. Verify that a new external drive appears in the file browser.
3. Navigate to the folder that contains the Mission Plan file.
4. Place Mission Plan file from the storage folder to the new drive created when the field programming cable was connected.
5. Place the mode switch in the Load **[LD]** position.
6. Select **SYSTEM > INSTALL** and press **[ENT]**.
7. Observe **ENTERING INSTALL MODE** is displayed while the Install application is loading.
8. Select **INSTALL** and press **[ENT]** when the install application menu is displayed.
9. Select **YES** at **INSTALL ALL PACKAGES** and press **[ENT]**.
10. Observe INSTALL SUCCESSFUL and press **[ENT]**.

ELO C:
Perform Activate/Deactivate Mission Plan

Action:

- Perform Activate/Deactivate Mission Plan on the RF-300H-MP.

Condition:

- In a classroom environment, given all components of the radio, classroom instruction, and technical manual 10515-0512-4200.

Standard:

- The standard is met when the student has successfully activated and deactivated a mission plan IAW the technical manual 10515-0512-4200.

Operation

HARRIS®

Perform an Activate Mission Plan for the Radio

1. Select **[7/OPT]** to display the main Option menu on the radio.
2. Select **MISSION PLAN**, and press **[ENT]**.
3. Select **ACTIVATE MISSION PLAN** and press **[ENT]**.
4. Select the Mission Plan file and press **[ENT]**.

5. Select **YES** in the **Active Plan** screen and press **[ENT]**.
6. Observe that a Mission Plan is being activated. A progress bar will appear along with the plan name, followed by PLAN COMPLETE <plan name>.
7. Navigate to the current Main screen of the radio by pressing **[ENT]**.
8. Observe the radio is configured according to the contents of the mission plan.

Operation

HARRIS®

Perform a Deactivate Mission Plan for the Radio

1. Select **[ZERO]**.
2. Select **SYSTEM**.
3. Select **DEACTIVATE MISSION PLAN** using the up/down arrow keys and press **[ENT]**.
4. Select **YES** at **DEACTIVATE PLAN** to clear the current Mission plan and return the R/T to default presets.
5. Wait as the clear process completes. Either a CLEAR PLAN SUCCESSFUL or a CLEAR PLAN FAILED will display.
6. Press **[ENT]** to return to the top level screen.
7. Select **[7/OPT]** to exit the options menu.

Notes:

MODULE 4

IDENTIFY RADIO PROGRAMMING SETTINGS

Lesson 04

LO-04 SH-04

Identify Radio Programming Settings

Publication Number: 10515-0512-4500-04 Rev. B

TLO D:

Identify Radio Programming Settings

Action:

- Identify Radio Programming Settings.

Condition:

- In a classroom environment, given all components of the radio, classroom instruction, and technical manual 10515-0512-4200.

Standard:

- The standard is met when the student has identified radio programming settings IAW the technical manual 10515-0512-4200.

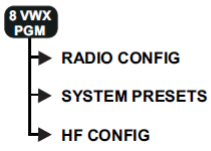
Publication Number: 10515-0512-4500-04 Rev. B

TLO D:
Identify Radio Programming Settings

- **ELO A: Change Maintenance Password**
- **ELO B: Perform Reset HUB Capacity**

Radio Programming Menu

- When in programming **([8/PGM]),** the radio will automatically time out and return to normal operation after approximately five minutes if there are no key presses.
- The program menu is only accessible when the cipher switch is in **[CT], [PT],** or **[CC].** The menu is not accessible in **[LD]**.

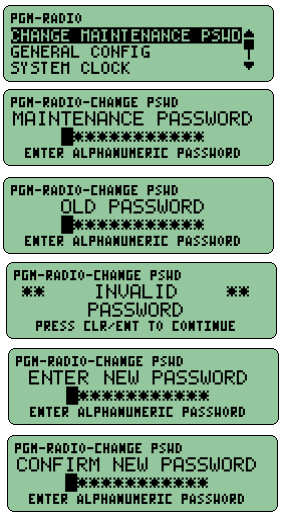


Radio Programming

HARRIS®

CHANGE MAINTENANCE PSWD

- A password is required in the radio to enter Terminal Mode, change the password, perform radio frequency standard maintenance, install/uninstall software, do a Hold-Up Battery (HUB) reset, reset factory defaults, lockout waveforms, software verification, or do a selective zeroize.
- The default password is H2445830. The user will be prompted to change the default password to a custom user password for security purposes.



Radio Programming

HARRIS®

CHANGE MAINTENANCE PSWD

- The INVALID PASSWORD Info announcement appears if the password format is not acceptable. The password:
  - Cannot have spaces
  - Must be 10-12 characters
  - Must contain at least two numbers (0 to 9) and two letters (A to Z).
  - May not have more than two consecutive repeating characters (AA or 11 is OK, AAA or 111 is not).
  - May not have more than two consecutive sequential characters (AB , BA, 12, or 21 are OK, ABC, CBA, 123 or 321 are not).
  - Password may not be the same as the current password.

Radio Programming

HARRIS®

CHANGE MAINTENANCE PSWD

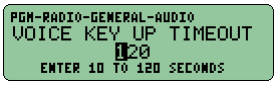
- If a new password has been entered and forgotten:
  - Radio must be reset to default.
  - This will require the radio to be Type-1 Initialized.
  - This procedure will only done by a qualified technician.
- **After three incorrect password attempts, you must cycle power on the radio to continue.**

Radio Programming

HARRIS®

AUDIO CONFIG

- **Audio Sidetone**
  - Handset – operator will hear own voice in the handset earpiece while transmitting.
  - Fixed LVL + Handset – operator will hear own voice in both the handset and fixed level audio sources.
  - None – Operator will not hear own voice in the handset earpiece while transmitting.
- **Voice Key Up Timeout**
  - Enabled – Radio will automatically unkey after specified period of time. (Time adjustable from 10 to 120 seconds).
  - Disabled – Radio will not automatically unkey.
- **Fixed Level TX Gain**
  - 0 DB – Audio is not adjusted.
  - +10 DB – Audio adjusted 10 decibels louder.



Radio Programming

HARRIS®

AUTOSAVE CONFIG

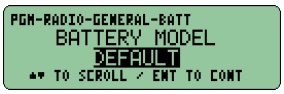
- **Preset Autosave**
  - On, screen overrides are permanent changes.
  - Off, screen overrides are temporary changes.

Radio Programming

HARRIS®

BATTERY CONFIG

- **Battery Model**
  - DEFAULT
  - EXTERNAL SOURCE
  - BA-5590 (PRIMARY)
  - BA-5390 (PRIMARY)
  - BB-2590 (RECHARGE)
  - BB-590 (RECHARGE)
  - BB-390 (RECHARGE)



- BA-5590 (3 A fuse in battery) operates up to 2.23 A before cutting back power 1 dB.
- Other batteries operate up to 2.1 A before cutting back.
- In SATCOM high power, radios draw more than 2.1 A.
- DEFAULT – voltage read during boot and battery meter assumes BB-2590 if >27 V or BB-590 if <27 V.

Radio Programming

HARRIS®

CITADEL CONFIGURATION

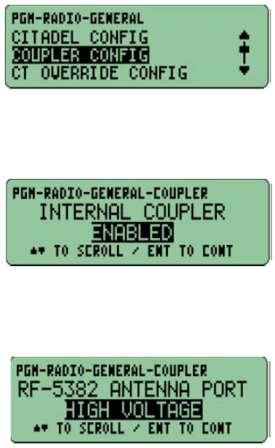
- Use the Citadel Configuration screen to configure Automatic Key Selection (AKS) options for keys and crypto type.
- View AKS options of Key and Crypto Type (Default setting) Keys Only, or Disabled.
- View the Kernel ID information.
- View/Select Key Type (Citadel or AES)
- View/Enter Key Name
- View Key Update

Radio Programming

HARRIS®

COUPLER CONFIGURATION

- Use the Coupler Configuration screen to configure the internal antenna coupler.
- Internal Coupler (Enabled, Bypassed)
- RF-5382 Antenna Port (High Voltage, 50 Ohm



Radio Programming

CT OVERRIDE

- **CT Override**
  - ENABLE or DISABLE
  - If ENABLED, a radio with the cipher switch in PT can be switched by software to CT operation by changing the preset only (cipher switch can be left in PT). The front panel display will indicate the current configured traffic mode (CT or PT).
  - If the cipher switch is in CT, then only CT is supported.

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Radio Programming

DATA PORT CONFIG

- GENERAL HW CONFIG
  - RS232 or USB (set Data Port's hardware interface). RS232 routes data to the J3 or J6 connector.
  - **POLARITY** use up or down arrows
    - **Normal**
    - **Inverted** – Supports inverted data polarity on TX and RX.
    - **RX Inverted** - Supports inverted data polarity on receive only.
    - **TX Inverted** - Supports inverted data polarity on transmit only.
- SYNC CONFIG
  - **TX CLOCK SOURCE** displayed use up or down arrows
    - Internal on CTS
    - Recovered
    - External
    - Internal
  - **EDGE**
    - Rising
    - Falling
- ASYNC CONFIG press **[ENT].**
  - DATA RATE (se to 1200, 2400, 4800, or 9600)
    - CHARACTER LENGTH, 8 (read only)
    - PARITY, NONE (read only)
    - STOP BITS, 1 (read only)
  - FLOW CONTROL (set to NONE or HW)

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Radio Programming

HARRIS®

EXTERNAL DEVICE

PREPOST
- Post Selector (ENABLED/DISABLED)
- Pre Selector (ENABLED/DISABLED)
- PrePost RX Filters (ENABLE/DISABLED DURING SCAN)
- Scan Rate (NORMAL, FORCE SLOW SCAN)
- Antenna Port (SINGLE RX/TX, SEPARATE RX/TX)

ANTENNA
- High Q (PRESENT/NOT PRESENT)

UPGRADE REMOTE KDU
- Not Connected
- Upgrade Remote KDU (YES/NO)

Radio Programming

HARRIS®

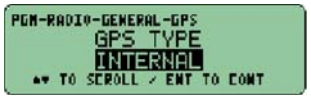
EXTERNAL KEYLINE

- When radio is placed in an external Power Amplifier (PA) after programming, the configuration programmed here is ignored.
- While in an external PA, the user is not allowed to change the external keyline setting.
- **External Keyline**
  - DISABLED
  - ENABLED

Radio Programming

GPS CONFIG

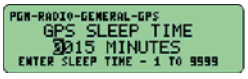
- Choose **GPS TYPE**:
  - **DISABLED**
  - **INTERNAL**
  - **PLGR/DAGR**



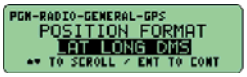
Radio Programming

GPS SLEEP CYCLE

GPS Sleep Cycle is a power-saving feature used to conserve battery power. The Sleep Cycle sets the length of time that the GPS module is powered off before powering on to acquire new GPS data from the satellites. Range of setting is 0001 to 9999 minutes. Default is 15 minutes.



- POSITION FORMAT
  - **MGRS NEW** (based on 8 ellipsoids) **LAT LONG**
  - **UTM /UPS –** Universal Transverse Mercator
  - **LAT LONG DM** (Latitude/Longitude Degrees/Minutes)
  - **LAT LONG DMS** (Latitude/Longitude Degrees/Minutes/Seconds)
  - **MGRS OLD** (based on 3 ellipsoids)



- LINEAR UNITS
  - **METRIC** (Kilometers per hour)
  - **STATUTE** (Miles per hour)
  - **NAUTICAL** (Knots)

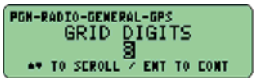
Radio Programming

HARRIS®

ELEVATION BASIS

- ELEVATION BASIS
  - MEAN SEA LEVEL
  - DATUM BASED
- ANGULAR UNITS
  - DEGREES TRUE, STRECK MAGNETIC, STRECK TRUE, MIL MAGNETIC, MIL TRUE, DEGREES MAGNETIC

If MGRS Old, MGRS New or UTM/UPS was selected, enter the number of Grid Digits to be displayed (2,4,6,8,10,12,14)



To choose the GPS map datum type for the radio's operating location, first select the COMMON group which contains choices of WGD, WGS, USER1, USER2.

Radio Programming

HARRIS®

NETWORK CONFIG

- **IPV4 CONFIG**
  - RED Internet Control Message Protocol (ICMP) CONFIG
  - Enable or Disable Message Processing
  - Enable or Disable Red Ping Reply
- **RED ETHERNET CONFIG**
  - Global RED ETH PORT displayed for USB (to use the J5 connector).
  - Observe the PREFER PORT SETTING screen is displayed
  - Select port setting choices of GLOBAL or PRESET

Radio Programming

HARRIS®

PORT CONFIG

Sets up the parameters for the ASCII PORT.

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Radio Programming

HARRIS®

PORT CONFIG

Sets up the parameters for the RED USB PORT.

Publication Number: 10515-0512-4500-04 Rev. B 22

Radio Programming

HARRIS®

SYSTEM CLOCK

- **Current Time**
  Displays the current configured time setting. If internal GPS is enabled, the GPS Time will be displayed.

- **Current Date**
  Displays the current configured date setting. If internal GPS is enabled, the GPS date will be displayed.

- **UTC Offset**
  User-defined based on location and SOP
  + or – Hours and Minutes

Radio Programming

HARRIS®

SYSTEM CLOCK CONFIG

- **Date Format**
  MM-DD-Y
  DD-MM-YY
  ZULU
  YY-MM-DD

- **Time Format**
  LOCAL 12-HOUR
  LOCAL 24-HOUR

- **Leap Seconds**
  - GPS Leap Seconds is the difference between real time and GPS satellite time as determined by the GPS Consortium. The current setting is 17. Leap Seconds do not change every year.

Radio Programming

HARRIS®

MAINTENANCE

- **Reset HUB Capacity**
  - The indicator will be reset to one year. Reset should only be performed when a new HUB battery is installed.
  - Requires password
- **Reset Factory Defaults**
  - Restores radio to factory defaults
  - Requires password
  - DOES NOT reset password
- **Erase Plans on Zeroize**
  - YES or NO

Publication Number: 10515-0512-4500-04 Rev. B

HARRIS®

ELO A:
Change Maintenance Password

Action:

Change Maintenance Password.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, and 10515-0512-4200.

Standard:

The standard is met when the student has successfully changed a maintenance password IAW the 10515-0512-4200.

Publication Number: 10515-0512-4500-04 Rev. B

Change Maintenance Password

1. Select **[PGM] > SYSTEM > RADIO CONFIG > CHANGE MAINTENANCE PSWD** to enter the current maintenance password.
2. If not already entered, enter the current maintenance password. If current maintenance password was previously entered, enter OLD PASSWORD (the current maintenance password). Press **[CLR]** on the first character to return to the RADIO Configuration (CONFIG) Menu Screen.
3. Press **[ENT]** to validate the entered password and either display the Invalid Password or the Enter New Password screen.
4. Press **[ENT]** to continue at INVALID PASSWORD screen. If a wrong password is entered, try again.
5. Enter a new password. Enter a password that follows the rules detailed below and press **[ENT]** to continue.
6. Re-enter the new password to confirm and press **[ENT]** to continue.
7. A status screen will display that the user password was successfully changed and press **[ENT]** or **[CLR]** to return to the main menu.

ELO B:
Perform Reset HUB Capacity

Action:

Perform Reset HUB Capacity.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, and 10515-0512-4200.

Standard:

The standard is met when the student has successfully performed a reset HUB capacity IAW the 10515-0512-4200.

Radio Programming

Perform Reset HUB Capacity

1. Select **[PGM] > SYSTEM > RADIO CONFIG > MAINTENANCE > RESET HUB CAPACITY** and press **[ENT]** to continue.
2. Enter the maintenance password to perform this function.
3. Confirm that the HUB capacity should be reset.
4. Select **YES** to reset the HUB Capacity days remaining.

Publication Number: 10515-0512-4500-04 Rev. B

Notes:

MODULE 5

LOAD COMSEC IN THE RADIO

Lesson 5

LO-5 SH-5

Load COMSEC in the Radio

Publication Number: 10515-0512-4500-05 Rev. B

TLO E:
Load COMSEC in the Radio

Action:

Load (Fill) COMSEC in the radio.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, and technical manual 10515-0512-4200.

Standard:

The standard is met when the student can load COMSEC and verify keys in the radio IAW the technical manual 10515-0512-4200.

Publication Number: 10515-0512-4500-05 Rev. B

TLO E:
Load COMSEC in the Radio

- **ELO A: Load COMSEC**
- **ELO B: Load GPS Keys**
- **ELO C: Verify COMSEC Keys**

COMSEC

Warning: Fill Devices and the R/T

- Do not connect ANY Fill Device to Audio J1 connector until the radio function switch is placed in the **LD** position. Attaching the Fill Device prematurely may cause the R/T to key and transmit.
- Upon finishing procedures in **LD** switch position, disconnect the Fill Device from the connector before returning back to CT, PT or CC.

COMSEC

COMSEC Level Classifications

- ***Type 1***
  Restricted to the US Government, Military, and Intelligence agencies. Suitable for highly (up to Top Secret) classified information, the customer must have a NSA COMSEC Account to obtain.
- **Type 3**
  Restricted to US and Canadian companies and citizens. Used in some LMRs to protect sensitive but unclassified information in non-tactical operations.

COMSEC

NSA FILL Interfaces, Data Standard (DS-xxx)

DS-101

- Newer Interface used by FILL User Application Software (UAS)
  - Called a smart interface – able to transfer TAG Information
- J1 – Fill is at this port when function switch is in LD
- FILL UAS will indicate set to this interface with D101 in upper right corner of DTD display.
- Used to load AES Crypto.
- Will State: “Initiate at Fill Device”

DS-102

- Interface type of the Common Fill Device (CFD) Family
  - KYK-13, KYX-15, KOI-18 and MX-18290
- J1 – Fill is at this port when function switch is in LD
- RBECS DTD Software uses this interface.
- Will state: “Press Enter to Initiate”

COMSEC

HARRIS®

Simple Key Loader (SKL) AN/PYQ-10 (C)

- The Simple Key Loader is a replacement for the Data Transfer Device (DTD) previously fielded to the U.S. Military and other Department Of Defense (DOD) components.
- It provides all the functions of the DTD along with new features that make management of Communications Security (COMSEC) key, Electronic Protection (EP) data, and Signal Operating Instructions (SOI) quicker and easier for the user on the battlefield to use.
- Contact your Tier 2 Manager on how to use.
- The SKL supports fill interfaces DS-101 and DS-102.
- The RF-300H-MP supports fill interfaces DS-101 and DS-102.

Publication Number: 10515-0512-4500-05 Rev. B

COMSEC

HARRIS®

ANDVT (Advanced Narrowband Digital Voice Terminal) Encryption: ANDVTHF (KY-99A), ANDVTBD (KY-100)

- Type-1 encryption supports Data and Voice
- Selectable data rates of 300, 600, 1200, or 2400 bps.
- Voice Digitalization algorithm is LPC-10 or MELP AT 2400 bps.
- Radio can store up to 25 ANDVT Traffic Encryption Keys (TEKs)
- Does not support OTAR operations.

Publication Number: 10515-0512-4500-05 Rev. B

COMSEC

HARRIS®

KG-84 Encryption

- Type-1 encryption supports Data and Voice
- AM or FM
- Does not support OTAR operations.
- Has 25 KG-84 key storage positions available per HF waveform.
- Supports data rates up to 56 k
- Selectable Modes:
  - Mode 1 (Redundant)
  - Mode 3 (Non-Redundant)

Publication Number: 10515-0512-4500-05 Rev. B

COMSEC

HARRIS®

AES (Advanced Encryption Standard) Encryption: AESCTR1

- Type-3 AES crypto mode supports 16K voice and data communications and provides variable key length encryption including support of 128-bit and 256-bit keys
- 25 key positions
- Does not support OTAR or SCAN operations.
- Supports CTR (MINERR)

Publication Number: 10515-0512-4500-05 Rev. B

COMSEC

HARRIS®

CITADEL Encryption: CITCTR1

- Type-3 Citadel crypto mode supports 16K voice and data communications and provides variable key length encryption including support of 128-bit and 256-bit key
- Harris proprietary Citadel® mode - Citadel II ASCII for exportable algorithms
- 25 key positions
- Does not support OTAR or SCAN operations.
- Supports CTR (MINERR)

Publication Number: 10515-0512-4500-05 Rev. B

COMSEC

HARRIS®

Tactical Secure Voice (TSV) Encryption

- Type 1 Encryption supports Data and Voice – FIX and ALE modes only
- Supports 5 kHz or 25 kHz channel width voice and data
- Does not support OTAR operations.
- Does not support SCAN operations

Publication Number: 10515-0512-4500-05 Rev. B

COMSEC HARRIS®

FIX Data/Voice Compatibility Type-1/Type-3 Crypto

NOTE: CC denotes Coalition Compatible encryption.

Fixed Frequency Data Compatibility (Type-1/Type-3)

Data Mode	Data Rate (bps)	CC	ANDVT-HF	ANDVT-BD	KG-84	TSV
Serial 110A/B	75-12800	X	-	X	X	X
ANDVT-HF	300-2400		X	-	-	-
WBHF 110C	75-120000	X	-	-	X	-

Fixed Frequency Voice Compatibility (Type-1/Type-3)

Voice Mode	Data Rate (bps)	CC	ANDVT-HF	ANDVT-BD	KG-84	TSV
MELP 600	600	X	-	X	X	X
LPC (DV) 600	600	X	-	X	X	-
MELP 1200	1200	X	-	X	X	-
MELP 2400	2400	X	-	X	X	X
LPC (DV) 2400	2400	X	X	X	X	-

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COMSEC HARRIS®

FIX Data/Voice Compatibility PT/Type-3 Crypto

Fixed Frequency Voice/Data Compatibility (PT and Type-3)

Encryption	USB	LSB	AME	CW	FM	Data Mode	Voice Mode	Frequency Range (MHz)
PT	x	x	x	x	-	OFF	CLR	1.5 -29.9999
	x	x	-	-	-	Serial 110A/B	DV6(1) ME6(2), ME12(4) DV24(3), ME24(5)	1.5 -29.9999
	x	x	-	-	-	NONE	CLR	1.5 -29.9999
	x	-	-	-	-	Wideband High Frequency (WBHF)	CLR, DV6, ME6, ME12, DV24, ME24	1.5 -29.9999
	-	-	-	-	x	NONE	CLR	20 -59.9999
Citadel/ Advanced Encryption Standard (AES)	x	x	-	-	-	Serial 110A/B	DV6, ME6, ME12, DV24, ME24	1.5 -29.9999
	x	-	-	-	-	WBHF	NONE	1.5 -29.9999

(1) Digital Voice 600 bps (DV6) using Linear Predictive Coding (LPC).
(2) Mixed Excitation Linear Prediction (MELP) 600 bps (ME6).
(3) Digital Voice 2400 bps (DV24).
(4) MELP 1200 bps (ME12).
(5) MELP 2400 bps (ME24).

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COMSEC

HARRIS®

ALE Data/Voice Compatibility Type-1/Type3 Crypto

NOTE: CC denotes Coalition Compatible encryption.

ALE Data Compatibility (Type-1/Type-3)

Data Mode	Data Rate (bps)	CC	ANDVT-HF	ANDVT-BD	KG-84	TSV
Serial 110A/B	75-12800	X	-	X	X	X
ANDVT-HF	300-2400		X	-	-	-

ALE Voice Compatibility (Type-1/Type-3)

Voice Mode	Data Rate (bps)	CC	ANDVT-HF	ANDVT-BD	KG-84	TSV
MELP 600	600	X	-	X	X	X
LPC (DV) 600	600	X	-	X	X	-
MELP 1200	1200	X	-	X	X	-
MELP 2400	2400	X	-	X	X	X
LPC (DV) 2400	2400	X	X	X	X	-

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COMSEC

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ALE Data/Voice Compatibility Type-3/PT Crypto

ALE Voice/Data Compatibility (PT and Type-3)

Encryption	USB	LSB	AME	Data Mode	Voice Mode	Frequency Range (MHz)
PT	x	x	x	OFF	CLR	1.5 -29.9999
	x	x	-	Serial 110A/B	DV6(1) ME6(2), DV24(3) ME12(4), ME24(5)	1.5 -29.9999
	x	x	-	NONE	CLR	1.5 -29.9999
Citadel/AES	x	x	-	Serial 110A/B	DV6, ME6, ME12, DV24, ME24	1.5 -29.9999

(1) Digital Voice 600 bps (DV6) using Linear Predictive Coding (LPC).
(2) Mixed Excitation Linear Prediction (MELP) 600 bps (ME6).
(3) Digital Voice 2400 bps (DV24).
(4) MELP 1200 bps (ME12).
(5) MELP 2400 bps (ME24).

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COMSEC

HARRIS®

3G Data/Voice Compatibility Type-1/Type-3 Crypto

NOTE: CC denotes Coalition Compatible encryption.
ANDVT-HF and TSV are not supported in 3G.

3G Data Compatibility (Type-1/Type-3)

Data Mode	Data Rate (bps)	CC	ANDVT-HF	ANDVT-BD	KG-84
Serial 110A/B	75-12800	X	-	X	X
XDL	75-12800	X	-	X	X
Adaptive WB	75-120000	X	-	-	X

3G Voice Compatibility (Type-1/Type-3)

Voice Mode	Data Rate (bps)	CC	ANDVT-HF	ANDVT-BD	KG-84
MELP 600	600	X	-	X	X
LPC (DV) 600	600	X	-	X	X
MELP 1200	1200	X	-	X	X
MELP 2400	2400	X	-	X	X
LPC (DV) 2400	2400	X	-	X	X
LDV	75-12800	X	-	X	X

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COMSEC

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3G Data/Voice Compatibility Type-3/PT Crypto

3G Voice/Data Compatibility

Encryption	USB	Data Mode	Voice Mode	Frequency Range (MHz)
PT	x	Not Applicable (N/A	DV6(1) ME6(2) DV24(3) ME12(4), ME24(5)	1.5 -29.9999
	x	N/A	CLR	1.5 -29.9999
	x	Serial 110A/B, Variable Data Link (XDL), Wideband HF (WBHF)	N/A	1.5 -29.9999
Citadel/AES	x	N/A	DV6, ME6, DV24, ME12, ME24	1.5 -29.9999
	x	Serial 110A/B, XDL, WBHF	N/A	1.5 -29.9999

1) Digital Voice 600 bps (DV6) using Linear Predictive Coding (LPC).
(2) Mixed Excitation Linear Prediction (MELP) 600 bps (ME6).
(3) Digital Voice 2400 bps (DV24).
(4) MELP 1200 bps (ME12).
(5) MELP 2400 bps (ME24).

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COMSEC

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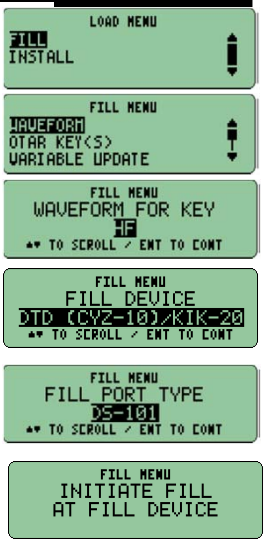
Crypto Fill Mode

1. In **[LD]**, select **FILL**.
2. Select **WAVEFORM**.
3. Select **HF**.
4. Select **CYZ-10** or **SKL** at Fill Device.
5. Select **DS-101** at Fill Port Type.
6. Initiate fill at device using DS101.
7. Press **[ENT]** to Initiate Fill. Fill in Progress displays.



COMSEC

HARRIS®

Crypto Fill Mode

8. Observe that a screen will indicate BAD FILL if not key not filled properly.
9. Select **KG84**, **ANDVT**, or **TSV**.
10. Select **Key Type** of KEK or TEK.
11. If TEK selected, enter key number from 01-25.
12. Observe Fill is Completing.
13. User will be prompted to load another key.

COMSEC

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COMSEC Menu Details

CLASSIFICATION: Select what classification the key is (DS-102 Only):

- SECRET
- TOP SECRET
- RESTRICTED
- UNCLASSIFIED
- CONFIDENTIAL

NOTE: DS-101 devices pass the key with the classification tagged to it.
A radio loaded with COMSEC data takes on the same classification as its encryption keys.

Do not attempt to mix SECRET and TOP SECRET keys/fills or *FILL STORE FAILURE* will be displayed.

Example: If you load a TOP SECRET KEY, the radio will not let you load a SECRET KEY.
Example: If you load a SECRET KEY, the radio WILL let you load an UNCLASS or CONFIDENTIAL KEY.

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COMSEC

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Communications Security Encryption

- Voice and network traffic encryption using:
  - Up to 25 Unique TEKs
  - Up to 25 Unique AES based TSKs
- Type-1 IP security for IP data
  - TSK
  - AES TRANSEC

Security Type:	COMSEC	TRANSEC
Key Type:	TEK	TSK
AES Type:	AES-256	AES-128
Security Classification:	Unclass	Unclass

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COMSEC

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Loading Type-3 Keys

- Loading Digital Encryption Standard (DES) Sovereign (SOV), Citadel, and AES keys in the radio does not require a COMSEC fill device. The keys that are generated by CPA can be loaded into the radio's Universal Serial Bus (USB) drive directly or transferred as a Key File (*.key.tek) from a PC. The radio holds up to 25 keys; numbering for each storage set.
  - Connect the PC USB port to the radio J5 connector using a 12043-2730-A006 USB Cable for transferring SOV keys from CPA or as a Key File (*.key.tek) from a PC.
  - Place the cipher switch in the Load **[LD]** position.
  - Select **FILL**, and press **[ENT]**.
  - Select **WAVEFORM**, and press **[ENT]**.
  - Select **HF**, and press **[ENT]**.
  - Select **USB**, and press **[ENT]**.
  - Select available RED USB types of **FLASH DRIVE (HOST)** or **PC (MASS STORAGE).** If Flash drive is selected, a USB cable Adapter list will follow.
  - The radio will display a list of key files transferred to the radio from CPA. Select the proper key file (*.key.tek) from the list and press **[ENT]**.

COMSEC

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If fill "BAD FILL" appears:

- Check FILL Device type and FILL Device protocol.
- Check Fill cable connections before repeating process.
- Ensure O Ring in fill cable is secure.
- Clean cable connections.
- Attempt to reload radio.

COMSEC

Reviewing Key Information

To review key information, press [**7/OPT**] key and select **VIEW KEY INFO** menu item.

Select **WAVEFORM** [**HF**] to identify the group of keys to view (TEK, TSK, KEK).

Select the key type. Scroll up or down to view key information. NO KEYS LOADED displays if no keys are found.

You can also view ECU KEK data loaded into the radio if ECU KEK is found.

DSS PUBLIC KEY will also be displayed if loaded.

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COMSEC

Zeroize Function

A radio loaded with COMSEC data takes on the same classification as its encryption keys.

1. Select **[5/ZERO]**.
2. Choose from the following options:
   - ZEROIZE ALL
   - DEACTIVATE MISSION PLAN
   - SELECTIVE ZEROIZE
   - ERASE MISSION PLAN
3. If SELECTIVE ZEROIZE was selected, choose from these options:
   - ZEROIZE WAVEFORM
   - ZEROIZE GPS
   - ZEROIZE ECU KEK

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COMSEC

Load GPS COMSEC Fill Data

- GPS keys that are Portable Lightweight GPS Receiver (PLGR)/Defense Advanced GPS Receiver (DAGR) compatible can also be used with the radio's internal GRAM SAASM device. GPS keys provide increased device accuracy, but the GPS will still function at a limited level without them.
- When GPS keys are not loaded, the message "NO CV KEYS LOADED" will appear on the radio screen at startup.
- Two of the following GPS keys are required.
  - Black Key Algorithm Update Parameter (BKAUPD) - and
  - Black Group Unique Variable (BGUV) - or
  - Black Crypto Variable Monthly (BCVm)
- Keys should be loaded separately, with the BKAUPD key first and the BGUV/BCVm key second.
- Verify **[8/PGM] > RADIO CONFIG > GENERAL CONFIG > GPS CONFIG > GPS TYPE** is set to INTERNAL before performing GPS key fill.

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ELO A:
Load COMSEC

Action:

Load COMSEC into RF-300H-MP.

Condition:

In a classroom environment, given all components of the radio, SKL, keys, classroom instruction, and TM 10515-0512-4200.

Standard:

The standard is met when the student has successfully loaded COMSEC into the radio.

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Load COMSEC

CAUTION

Do not connect COMSEC fill devices to radio J1 Audio/Fill connector until after the radio is placed in the **[LD]** position. After finishing electronic fill loading, disconnect the fill device before switching from the **[LD]** position. Failure to do so may cause the radio to transmit in certain modes.

Load keys Using DS-101 (AN/PYQ-10)

1. Place the mode switch in the Load **[LD]** position.
2. Select **FILL** and press **[ENT]**. The radio will be offline and the fill port is now set to interface with COMSEC fill devices.
3. Select **WAVEFORM** and press **[ENT]**.
4. Select **HF** as WAVEFORM FOR KEY and press **[ENT]**.
5. Select **SKL (PYQ-10)** from FILL DEVICE screen and press **[ENT]**.
6. Observe the radio displays **INITIATE FILL AT FILL DEVICE.**
7. Connect fill device to J1 AUDIO/Fill connector.

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Load COMSEC

Load keys Using DS-101 (AN/PYQ-10)

8. Operate FILL program to initiate loading of required key.
9. Ensure FILL program is set to **DS-101** protocol.
10. Select **XMIT** and select **ISSUE**.
11. Select the correct key with the appropriate short title segment and edition for TSK. Do not send multiple keys. Press **[ENTR]**.
12. Press **SEND**.
13. Select **SEND TO: DIRECT**. Press **[ENTR]**.
14. At **CONNECT TO STATION**, select **SEND**, or press **[ENTR]** if highlighted.
15. After **TRANSFER COMPLETE** appears on the fill device.
16. Observe that the radio will prompt for key or display BAD FILL (press **[CLR]** to cancel out and press **[CLR]** again to cancel the FILL FAILED screen).

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Load COMSEC

Load keys Using DS-101 (AN/PYQ-10)

17. Select the desired **CRYPTO MODE** then press **[ENT]**.
18. Select the **KEY TYPE**, then select the key compartment position number (01 - 25) then press **[ENT]**. If a KEK is selected to be loaded, no key position is shown as only one can be loaded at a time.
19. Observe the classification level is temporarily displayed (DS-101 includes this additional tagging and no input is required).
20. Select **YES** and press **[ENT]** at the prompt **LOAD ANOTHER KEY?** to load more data repeating until all TEKs/KEKs are loaded into the R/T before selecting NO.
21. Disconnect fill device from the J1 AUDIO/Fill connector.
22. Perform a log out of the SKL following screen prompts to close session.
23. Move the mode switch from **[LD]** to **[CT]**.
24. Select **[7/OPT] > VIEW KEY INFO** and press **[ENT]**.

ELO B:
Load GPS Keys

Action:

- Load GPS keys in the RF-300H-MP.

Condition:

- In a classroom environment, given all components of the radio, classroom instruction, GPS keys, and technical manual 10515-0512-4200.

Standard:

- The standard is met when the student has loaded GPS keys in the radio IAW the technical manual 10515-0512-4200.

COMSEC

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Load GPS Keys

1. Move function switch on radio to **[LD]**.
2. Select **FILL** > **GPS**.
3. **Select DTD (CYZ-10)/KIK-20, KYK-13**, or **KOI-18** from FILL DEVICE screen, and press **[ENT].**
4. For DTD (CYZ-10)/KIK-20, use **FILL PORT TYPE** to select DS-101.
5. Observe the radio displays **INITIATE FILL AT FILL DEVICE** (DS-101).
6. Connect fill device to J1 AUDIO/Fill connector.
7. For AN/CZY-10 DTD:
8. Use DTD FILL program to initiate loading of required key.
9. With DTD FILL program set to D101 (DS-101), select **ISSUE** as transmit mode in the DTD loading process (FILL results in a BAD KEY LOAD).
10. Select **XMIT** on the DTD.
11. Select **ISSUE**.
12. Use **PUP** and **PDN** until GPS key is displayed. Do not send multiple keys. Press **[ENTR].**

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COMSEC

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Load GPS Keys

13. Press **SEND**.
14. Select **SEND TO: DIRECT**. Press **[ENTR]**.
15. At **CONNECT TO STATION**, select **SEND**, or press **[ENTR]** if highlighted.
16. Observe when at fill devices other than AN/CYZ-10, prepare to transmit key information and initiate the fill. Do not send multiple keys.
17. Observe the radio screen displays LOAD ANOTHER KEY?, select YES to enter more fill data.
18. Disconnect fill device from the J1 AUDIO/Fill connector when finished. Follow screen prompts to close session and log out.
19. Move function switch from **[LD]** to **[CT]**.
20. Verify key loading by going to **[7/OPT] > GPS OPTIONS > GPS KEY INFO**.

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Verify COMSEC Keys

ELO C:
Verify COMSEC Keys

Action:

- Verify COMSEC keys are loaded correctly for the RF-300H-MP.

Condition:

- In a classroom environment, given all components of the RF-300H-MP, classroom instruction, and technical manual 10515-0512-4200.

Standard:

- The standard is met when the student has verified all COMSEC keys have been correctly loaded in the RF-300H-MP radio IAW the technical manual 10515-0512-4200.

Verify COMSEC Keys

Verify COMSEC Keys for the Radio

1. Place the radio in CT.
2. Select **[7/OPT]** > **VIEW KEY INFO**.
3. Select a HF WAVEFORM, ECU KEK, DSS PUBLIC KEY to view.
4. Select the COMSEC encryption key TEK number (TEK01 - TEK25) to be viewed.
5. Verify the selected COMSEC key is loaded and the short title screen is shown.
6. Select next TEK by pressing the **[Up/Down Arrow]** buttons.
7. Select **[CLR]** to return to the SELECT TYPE screen.
8. Select **[7/OPT]** to exit the options menu.

MODULE 6

OPERATE RF-300H-MP IN FIXED FREQUENCY MODE

Lesson 6

LO-06 SH-06

Operate RF-300H-MP in FIXED FREQUENCY Mode

Publication Number: 10515-0512-4500-06 Rev. B

TLO F:
Operate RF-300H-MP in FIXED FREQUENCY Mode

Action:

Operate RF-300H-MP in FIXED FREQUENCY Mode.

Condition:

In a classroom environment, given all components of the radio set, classroom instruction, and technical manual 10515-0512-4200.

Standard:

The standard is met when the student has operated radio in FIXED FREQUENCY Mode IAW technical manual 10515-0512-4200.

Publication Number: 10515-0512-4500-06 Rev. B

TLO F:
Operate RF-300H-MP in FIX FREQUENCY Mode

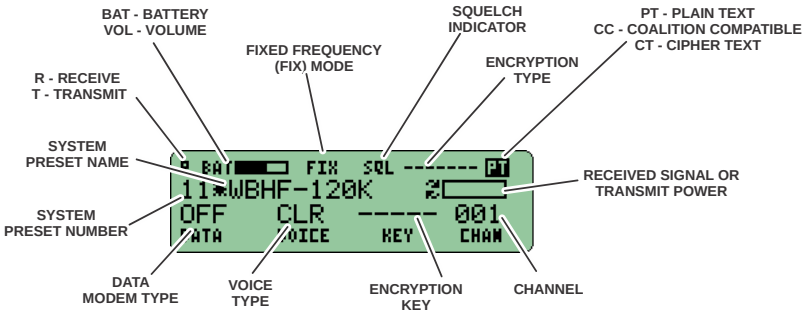
- **ELO A: Perform CT, PT, or CC FIX Operation**
- **ELO B: Perform FIX Operation Using WBHF**

Publication Number: 10515-0512-4500-06 Rev. B

FIX Mode Characteristics

Fixed Frequency Preset - Main Screen

- Correct encryption type (**CT, PT,** or **CC**), **DATA** (Modem Preset), **VOICE**, **KEY (CT** only), and squelch (**SQL**) if desired, are displayed.
- **T** appears when transmitting, **R** appears when receiving or ready to receive.
- Bar graph indicating transmit power level or receive signal strength is displayed.
- **BAT** appears with battery level, unless volume is being adjusted.

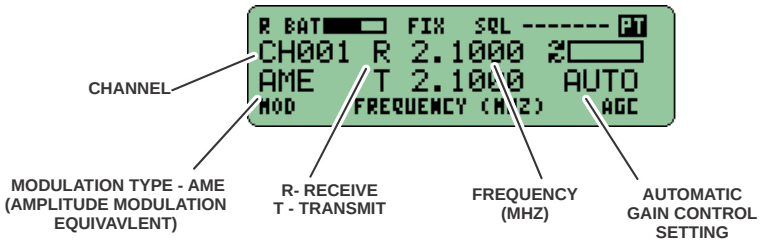


Publication Number: 10515-0512-4500-06 Rev. B

FIX Mode Characteristics

Fixed Frequency Preset - Channel Screen

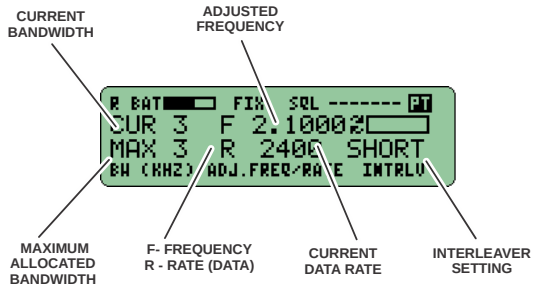
- **R (Receive) Frequency MHz -** When the preset type is FIX, this field can be edited and the value entered here is copied to the TX frequency.
- **T (Transmit) Frequency MHz -** When the preset type is FIX, this field can be edited and the value entered here can be left the same as the RX frequency or changed to another value.
- **CHXXX (Channel) Number -** When the preset type is FIX, this field is editable with valid values of 001 to 200.
- **Mod (Modulation)** – Displays the Modulation type being used.



FIX Mode Characteristics

Fixed Frequency Preset - Modem Screen

- **F (Frequency) -** When the preset type is FIX, this field displays the adjusted frequency.
- **R (Rate) -** When the preset type is FIX, this field displays the current data rate.
- **CUR (Current) Bandwidth kHz -** Displays the current bandwidth value being used.
- **MAX (Maximum) Bandwidth kHz -** Displays the maximum allocated bandwidth value being used.
- **SHORT -** Displays the current Interleave **(INTRLV)** depth setting. Dependent on modem type.



FIX Mode Characteristics

Large Font Screen

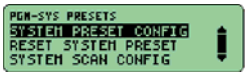
- Last main screen of each mode.
- Use **[Next]** to advance through available screens.

FIXED FREQUENCY Preset

Preset Programming

To create a new FIX preset from the radio front panel:

1. Select **[8/PGM] > SYSTEM PRESETS** to start.



2. Select **SYSTEM PRESET CONFIG** to configure a FIX Preset and press **[ENT]** to continue.

3. (Optional) Select **RESET SYSTEM PRESET** to reconfigure a system preset to previous programmed parameters.

4. Select a text description and press **[ENT]** to continue. Any alphanumeric entry may be added for description.

5. Select **HF** for Preset Waveform (default selection) that will be associated with the selected system preset and press **[ENT]** to continue.

FIXED FREQUENCY Preset

6. Observe the Preset configuration menu screen displays the following menu options:
   - **GENERAL CONFIG**
   - **COMSEC**
   - **VOICE CONFIG**
7. Select **GENERAL CONFIG** and press **[ENT]** to continue.

FIXED FREQUENCY Preset

Preset Programming

8. Enter a Preset Name (or accept the default name HF) and press **[ENT]** to continue.
   - Type name, using left or right arrow key to enter new alphanumeric name.

9. Scroll and select **FIX** as the MODE to be used for the preset and press **[ENT]** to continue.

10. Enter a value from 1 - 200 on the EDIT CHANNEL screen and press **[ENT]** to continue.

FIXED FREQUENCY Preset

Preset Programming

11. Scroll to select the MODEM PRESET type. Choices are OFF, ANDVT, SERIAL, 110B, WB120, XDL, MDM1 - MDM50.
12. Press **[ENT]** to continue.
13. Select the COMSEC menu option and press **[ENT]** to continue.
14. Select the TYPE-1 CRYPTO MODE. Choices are NONE, KG-84 REDUNTANT, KG-84 NONREDUNDANT, ANDVT-BD, ANDVT-HF, TSV.
15. Press **[ENT]** to continue.
16. Select the TYPE-1 CRYPTO KEY (TEK01 - TEK25) and press **[ENT]** to continue.

FIXED FREQUENCY Preset

Preset Programming

17. Select the TYPE-3 CRYPTO MODE. Choices are NONE, AES, CITADEL.
18. Press **[ENT]** to continue.
19. Select the TYPE-3 CRYPTO KEY (SOV01 - SOV99) and press **[ENT]** to continue.
20. Select the VOICE CONFIG menu option and press **[ENT]** to continue.
20. Select the PT VOICE MODE and press **[ENT]** to continue. Choice are CLR, NONE, LDV (3G only), DV6, DV24, ME24, ME12, ME6 Select the CT VOICE MODE.
21. Select the CT VOICE MODE and press **[ENT]** to continue. Choice are NONE, LDV (3G only), DV6, DV24, ME24, ME12, ME6.

FIXED FREQUENCY Preset

HF Configuration Programming

There are additional screens involved in programming a radio system preset, which are defined by the HF Waveform. At this point, these programming screens related to selecting, editing, or creating a Preset can be accessed.

1. Select **[8/PGM] > HF CONFIG** and press **[ENT]** to access the HF configuration screens.
2. Select from HF configuration options of:
   - GLOBAL
   - CHANNEL
   - MODEM
   - MODE
   - LDV
   - SCHEDULE
3. Select **GLOBAL** from HF CONFIG main menu and press **[ENT]** to continue.

FIXED FREQUENCY Preset

HF Configuration Programming

4. View the Squelch Level screen and scroll to select options of MED, LOW, and HIGH. Applies to analog voice only, not relevant to AVS or digital voice.
5. Press **[ENT]** to continue.
6. View the FM Squelch Type screen and scroll to select options of TONE or NOISE.
7. Press **[ENT]** to continue.
8. View the FM Deviation screen and scroll to select options of 8.0 KHZ, 6.5 KHZ, or 5.0 KHZ. 8 kHz is the standard tactical deviation.
9. Press **[ENT]** to continue.
10. View the Continuous Wave (CW) Offset screen and scroll to select options of 1000 HZ or 0 HZ.
11. Press **[ENT]** to continue.

FIXED FREQUENCY Preset

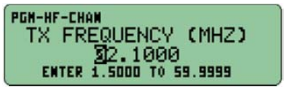
HF Configuration Programming

12. View the RX Noise Blanking screen and scroll to select options of OFF or ON.
13. Press **[ENT]** to continue.
14. View the Compression screen and scroll to select options of ON or OFF.
15. Press **[ENT]** to continue.
16. View the Route Modem Data To settings and select from DTE PORT, FILE, or RDP.
17. Press **[ENT]** to continue and return to the HF CONFIG main menu.
18. Select **CHANNEL** from HF CONFIG main menu and press **[ENT]** to access the Channel configuration screens.
19. Observe the EDIT CHANNEL screen displays. Enter a value between 1 - 200 and press **[ENT]** to continue.

FIXED FREQUENCY Preset

HF Configuration Programming

20. Observe the RX FREQUENCY screen displays. Enter a frequency between 1.5000 - 59.9999 MHZ and press **[ENT]** to continue.
21. Observe the TX FREQUENCY screen displays. Enter a frequency between 1.5000 - 59.9999 MHZ and press **[ENT]** to continue.
22. Observe the MODULATION screen displays. Select modulation choices of: USB, LSB, AME, CW, or FM and press **[ENT]** to continue.
23. Observe the AGC SPEED screen displays. Scroll and select choices for Automatic Gain Control (AGC) of MED, AUTO, FAST, DATA,SLOW or OFF and press **[ENT]** to continue.
24. Observe the IF BANDWIDTH screen displays. Scroll and select IF bandwidth choices of 0.35, 0.5 1.0, 1.5, 2.0, 2.4, 2.7. 3.0, and 4.0 kHz and press **[ENT]** to continue.



FIXED FREQUENCY Preset

HARRIS®

HF Configuration Programming

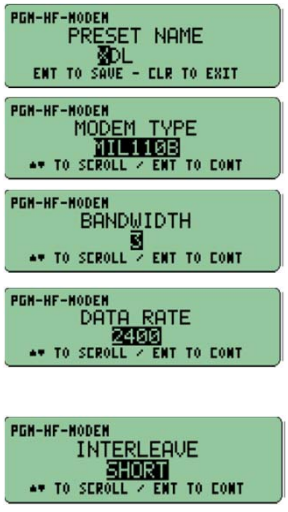
25. Observe the RX ONLY screen displays. Scroll to select YES or NO and press **[ENT]** to continue.
26. Observe the LIMIT MAX TX POWER screen displays. Scroll to select NO or YES and press **[ENT]** to continue.
27. If YES was selected, the MAX TX POWER (WATTS) screen will display. Enter a power value of 0 to 1000 watts and press **[ENT]** to continue.
28. Observe the MAX BANDWIDTH screen displays. Select value of 3, 6, 9, 12, 15, 18, 21, or 24 kHz and press **[ENT]** to continue.
29. Select **MODEM** from HF CONFIG main menu and press **[ENT]** to access the HF Modem configuration screens.
30. Observe the MODEM PRESET screen displays. Choose the appropriate Modem Preset option; OFF, ANDVT, SERIAL, 110B, WB120, XDL, MDM1-MDM50 and press **[ENT]** to continue.

FIXED FREQUENCY Preset

HARRIS®

HF Configuration Programming

31. Observe the PRESET NAME screen displays. Accept the default preset name or enter a new name and press **[ENT]** to continue.
32. Observe the MODEM TYPE screen displays. Select from Modem Type options of MIL110B, WBHF, XDL, SERIAL, ANDVT and press **[ENT]** to continue.
33. Selecting WBHF modem type will display an additional screen for Bandwidth. Select choices of 3, 6, 9, 12, 15, 18, 21, 24 and press **[ENT]** to continue.
34. Observe the DATA RATE screen displays. Select from data rate choices of 75, 150, 300, 600, 1200, 2400, 3200, 4800, 6400, 8000, 9600, 12.8K, 14.4K, 16K, 19.2K, 24K, 25.6K, 28.8K, 32K, 36K, 38.4K, 48K, 51.2K, 64K, 76.8K, 96K, 120K and press **[ENT]** to continue.
35. Observe the INTERLEAVE screen displays. Select Interleave choices of SHORT, LONG, ZERO, USHRT, MED and press **[ENT]** to continue.



FIXED FREQUENCY Preset

HARRIS®

HF Configuration Programming

36. Observe the MODE screen displays. Select from Mode choices of SYNC or ASYNC and press **[ENT]** to continue.
37. Observe the DATA BITS screen displays. Select from Data Bits choices of 8, 7, 6, or 5 and press **[ENT]** to continue.
38. Observe the STOP BITS screen displays. Select from Stop Bits choices of 1, 1.5, or 2 and press **[ENT]** to continue.
39. Observe the PARITY screen displays. Select from Parity choices of NONE, MARK, SPACE, EVEN, or ODD and press **[ENT]** to continue.
40. Observe the PREAMBLE screen displays (only when WBHF Modem type is selected). Select from Preamble choices of SHORT, LONG, ULTRASHORT and press **[ENT]** to continue.

FIXED FREQUENCY Preset

HARRIS®

HF Configuration Programming

41. Observe the CONSTRAINT screen displays (only when WBHF Modem type is selected). Select from Constraint Length choices of 7 or 9 and press **[ENT]** to continue.
42. Observe the ENABLE screen displays.
43. Select NO or YES to enable.
44. Press **[ENT]** to continue and return to the HF CONFIG main menu.

ELO A:
Perform CT, PT, or CC FIX Operation

Action:

Perform CT, PT, or CC FIXED FREQUENCY operation.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, and technical manual (10515-0512-4200).

Standard:

The standard is met when the student has performed CT, PT, or CC FIXED FREQUENCY operation IAW technical manual (10515-0512-4200).

FIXED FREQUENCY

CT, PT, or CC FIX Operation

1. Make sure that the radio has been set up and ready to operate.
2. Turn function switch (pull-to-turn) from OFF to **[CT]**, **[PT]**, or **[CC]**.
3. Select the desired FIX preset by pressing **[PRE +/-]**.
4. Adjust **[VOL +/-]** for adequate listening level.
5. Begin radio operations.
   - Press **[PTT]** and confirm voice communications.
   - Press **[Next]** to monitor status of the selected system preset.
   - Access menus under **[7/OPT]** and **[8/PGM]** to make minor operation changes.

ELO B:
Perform FIX Operation Using WBHF

Action:

Perform FIX operation using WBHF in the RF-300H-MP.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, and technical manual (10515-0512-4200).

Standard:

The standard is met when the student has performed FIX operation using WBHF in the radio IAW technical manual (10515-0512-4200).

Perform FIX Operation Using WBHF

In FIX operation, WBHF is selectable as a modem type, however, it does not engage the Adaptive Wideband process. If two radios are to connect using WBHF in FIX Mode, they both must be configured for the following wideband parameters.

1. Select **[8/PGM]** > **HF CONFIG > MODEM > MODEM PRESET > PRESET NAME > MODEM TYPE** and then select **WBHF**.
2. Select **BANDWIDTH** setting. Choose the highest bandwidth allowed for this channel based on current frequency allocation. Choices are 3, 6, 9, 12, 15, 18, 21, or 24 kHz.
3. Select **DATA RATE** setting. Choose from 2400, 1200, 600, 120K, 96K, 76.8K, 64K, 51.2K, 38.4K, 25.6K, 12.8K, 9600, or 4800.
4. Select **INTERLEAVE**. Choose from SHORT, MED, USHRT, and LONG. The user should determine the optimal interleave length for the channel conditions and to obtain the best throughput.
5. Select **MODE** setting of SYNC or ASYNC.

FIXED FREQUENCY

HARRIS®

Perform FIX Operation Using WBHF

6. Select **DATA BITS**. Choices are 8, 7, 6, or 5.
7. Select **STOP BITS**. Choices are 1, 1.5, or 2.
8. Select **PARITY**. Choices are NONE, ODD, EVEN, SPACE, and MARK.
9. Select **PREAMBLE**. Choices are LONG, SHORT, and ULTRASHORT.
10. Select **CONSTRAINT LENGTH**. Select the Forward Error Correction (FEC) length as either 7 or 9.The 7 setting is same as used in MIL-STD-110B. A setting of 9 allows better performance.
11. Select **ENABLE.**
12. Select **YES**.

Publication Number: 10515-0512-4500-06 Rev. B

Notes:

MODULE 7

OPERATE RF-300H-MP IN ALE MODE

Lesson 7

LO-07 SH-07

Operate RF-300H-MP in ALE Mode

Publication Number: 10515-0512-4500-07 Rev. B

TLO G:
Operate RF-300H-MP in ALE Mode

Action:

Operate RF-300H-MP in ALE Mode.

Condition:

In a classroom environment, given all components of the radio set, classroom instruction, and technical manual 10515-0512-4200.

Standard:

The standard is met when the student has operated radio in ALE Mode IAW technical manual 10515-0512-4200.

Publication Number: 10515-0512-4500-07 Rev. B

TLO G:
Operate RF-300H-MP in ALE Mode

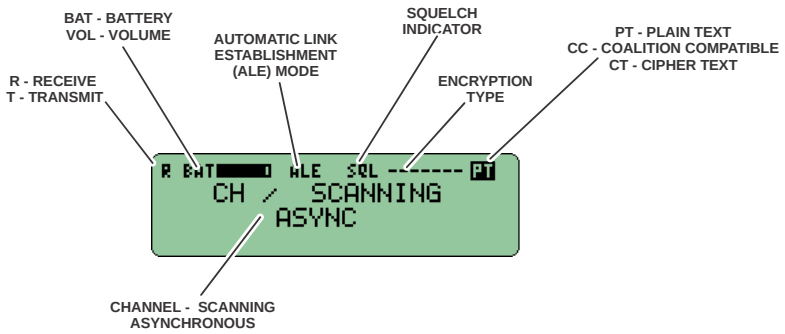
- **ELO A: Perform CT, PT, or CC ALE Operation**
- **ELO B: Place ALE Individual Call**
- **ELO C: Transmit Preprogrammed AMD Message**

Publication Number: 10515-0512-4500-07 Rev. B

ALE Mode Characteristics

ALE Preset - Scanning Screen

- Correct encryption type (**CT, PT,** or **CC**), **DATA** (Modem Preset), **VOICE**, **KEY (CT** only), and squelch (**SQL**) if desired, are displayed.
- **Channel / SCANNING** rate **(ASYNC, 2 or 5)** displayed**.**
- **R** ready to receive, **T** ready to transmit.
- **BAT** appears with battery level, unless volume is being adjusted.

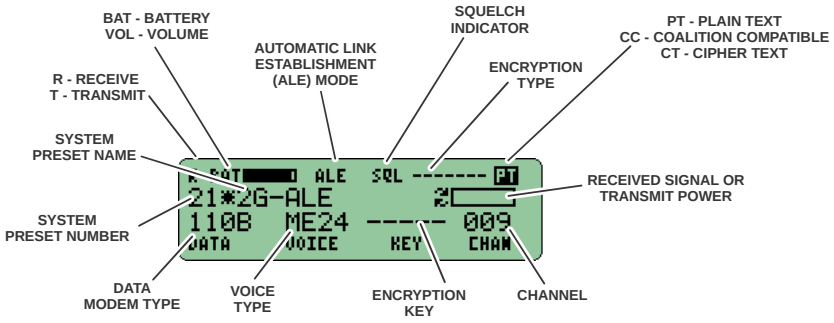


Publication Number: 10515-0512-4500-07 Rev. B

ALE Mode Characteristics

ALE Preset - Main Screen

- **R (Receive) –** Receive Indicator.
- **T (Transmit) -** Transmit Indicator.
- **DATA (110B)** – Displays the Modem type being used.
- **VOICE (ME24) -** Voice Configuration Mode type.
- **CHAN (Channel Number) –** Channel number in use.

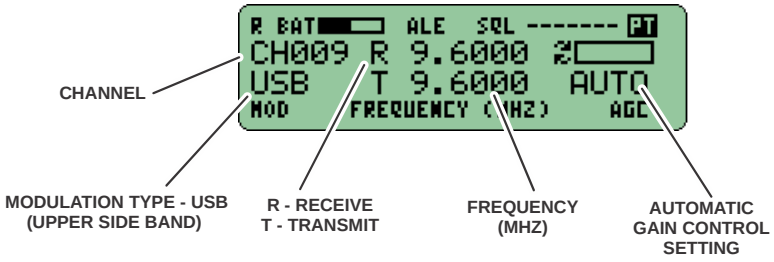


Publication Number: 10515-0512-4500-07 Rev. B

ALE Mode Characteristics

ALE Preset – Channel Screen

- **CH009 (Channel) –** Channel is in use.
- **R (Receive) –** Receive Frequency MHz.
- **T (Transmit) –** Transmit Frequency MHz.
- **AGC (Automatic Gain Control) –** Displays AGC speed setting.
- **MOD (Modulation) USB -** Displays the Modulation type being used - Upper Sideband (USB).



Publication Number: 10515-0512-4500-07 Rev. B

ALE Mode Characteristics

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Large Font Screen

- Last main screen of each mode.
- Use **[Next]** to advance through available screens.

ALE Preset

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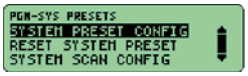
Preset Programming

To create a new ALE preset from the radio front panel:

1. Select **[8/PGM] > SYSTEM PRESETS** to start.



2. Select **SYSTEM PRESET CONFIG** to configure an ALE Preset and press **[ENT]** to continue.

3. (Optional) Select **RESET SYSTEM PRESET** to reconfigure a system preset to previous programmed parameters.

4. Select a text description and press **[ENT]** to continue. Any alphanumeric entry may be added for description.

5. Select **HF** for Preset Waveform (default selection) that will be associated with the selected system preset and press **[ENT]** to continue.

ALE Preset

6. Observe the Preset configuration menu screen displays the following menu options:
   - **GENERAL CONFIG**
   - **COMSEC**
   - **VOICE CONFIG**
7. Select **GENERAL CONFIG** and press **[ENT]** to continue.

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ALE Preset

Preset Programming

8. Enter a Preset Name (or accept the default name HF) and press **[ENT]** to continue.
   - Type name, using left or right arrow key to enter new alphanumeric name.
9. Scroll and select **ALE** as the MODE to be used for the preset and press **[ENT]** to continue.
10. Enter a value from 1 - 200 on the EDIT CHANNEL screen and press **[ENT]** to continue.

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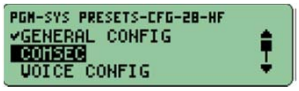
ALE Preset

Preset Programming

11. Scroll to select the MODEM PRESET type. Choices are OFF, ANDVT, SERIAL, 110B, WB120, XDL, MDM1 - MDM50.
12. Press **[ENT]** to continue.
13. Select the COMSEC menu option and press **[ENT]** to continue.
14. Select the TYPE-1 CRYPTO MODE. Choices are NONE, KG-84 REDUNTANT, KG-84 NONREDUNDANT, ANDVT-BD, ANDVT-HF, TSV.
15. Press **[ENT]** to continue.
16. Select the TYPE-1 CRYPTO KEY (TEK01 - TEK25) and press **[ENT]** to continue.



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ALE Preset

Preset Programming

17. Select the TYPE-3 CRYPTO MODE. Choices are NONE, AES, CITADEL.
18. Press **[ENT]** to continue.
19. Select the TYPE-3 CRYPTO KEY (SOV01 - SOV99) and press **[ENT]** to continue.
20. Select the VOICE CONFIG menu option and press **[ENT]** to continue.
20. Select the PT VOICE MODE and press **[ENT]** to continue. Choice are CLR, NONE, LDV (3G only), DV6, DV24, ME24, ME12, ME6 Select the CT VOICE MODE.
21. Select the CT VOICE MODE and press **[ENT]** to continue. Choice are NONE, LDV (3G only), DV6, DV24, ME24, ME12, ME6.

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ALE Preset

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HF Configuration Programming

There are additional screens involved in programming a radio system preset, which are defined by the HF Waveform. At this point, these programming screens related to selecting, editing, or creating a Preset can be accessed.

1. Select [**8/PGM] > HF CONFIG** and press **[ENT]** to access the HF configuration screens.
2. Select from HF configuration options of:
   - GLOBAL
   - CHANNEL
   - MODEM
   - MODE
   - LDV
   - SCHEDULE
3. Select **GLOBAL** from HF CONFIG main menu and press **[ENT]** to continue.

ALE Preset

HARRIS®

HF Configuration Programming

4. View the Squelch Level screen and scroll to select options of MED, LOW, and HIGH. Applies to analog voice only, not relevant to AVS or digital voice.
5. Press **[ENT]** to continue.
6. View the FM Squelch Type screen and scroll to select options of TONE or NOISE.
7. Press **[ENT]** to continue.
8. View the FM Deviation screen and scroll to select options of 8.0 KHZ, 6.5 KHZ, or 5.0 KHZ. 8 kHz is the standard tactical deviation.
9. Press **[ENT]** to continue.
10. View the Continuous Wave (CW) Offset screen and scroll to select options of 1000 HZ or 0 HZ
11. Press **[ENT]** to continue

ALE Preset

HARRIS®

HF Configuration Programming

12. View the RX Noise Blanking screen and scroll to select options of OFF or ON.
13. Press **[ENT]** to continue.
14. View the Compression screen and scroll to select options of ON or OFF.
15. Press **[ENT]** to continue.
16. View the Route Modem Data To settings and select from DTE PORT, FILE, or RDP
17. Press **[ENT]** to continue and return to the HF CONFIG main menu.
18. Select **CHANNEL** from HF CONFIG main menu and press **[ENT]** to access the Channel configuration screens.
19. Observe the EDIT CHANNEL screen displays. Enter a value between 1 - 200 and press **[ENT]** to continue.

ALE Preset

HARRIS®

HF Configuration Programming

20. Observe the RX FREQUENCY screen displays. Enter a frequency between 1.5000 - 59.9999 MHZ and press **[ENT]** to continue.
21. Observe the TX FREQUENCY screen displays. Enter a frequency between 1.5000 - 59.9999 MHZ and press **[ENT]** to continue.
22. Observe the MODULATION screen displays. Select modulation choices of: USB, LSB, AME, CW, or FM and press **[ENT]** to continue.
23. Observe the AGC SPEED screen displays. Scroll and select choices for Automatic Gain Control (AGC) of MED, AUTO, FAST, DATA,SLOW or OFF and press **[ENT]** to continue.
24. Observe the IF BANDWIDTH screen displays. Scroll and select IF bandwidth choices of 0.35, 0.5 1.0, 1.5, 2.0, 2.4, 2.7. 3.0, and 4.0 kHz and press **[ENT]** to continue.

ALE Preset

HARRIS®

HF Configuration Programming

25. Observe the RX ONLY screen displays. Scroll to select YES or NO and press **[ENT]** to continue.
26. Observe the LIMIT MAX TX POWER screen displays. Scroll to select NO or YES and press **[ENT]** to continue.
27. If YES was selected, the MAX TX POWER (WATTS) screen will display. Enter a power value of 0 to 1000 watts and press **[ENT]** to continue.
28. Observe the MAX BANDWIDTH screen displays. Select value of 3, 6, 9, 12, 15, 18, 21, or 24 kHz and press **[ENT]** to continue.
29. Select **MODEM** from HF CONFIG main menu and press **[ENT]** to access the HF Modem configuration screens.
30. Observe the MODEM PRESET screen displays. Choose the appropriate Modem Preset option; OFF, ANDVT, SERIAL, 110B, WB120, XDL, MDM1-MDM50 and press **[ENT]** to continue.

ALE Preset

HARRIS®

HF Configuration Programming

31. Observe the PRESET NAME screen displays. Accept the default preset name or enter a new name and press **[ENT]** to continue.
32. Observe the MODEM TYPE screen displays. Select from Modem Type options of MIL110B, WBHF, XDL, SERIAL, ANDVT and press **[ENT]** to continue.
33. Selecting WBHF modem type will display an additional screen for Bandwidth. Select choices of 3, 6, 9, 12, 15, 18, 21, 24 and press **[ENT]** to continue.
34. Observe the DATA RATE screen displays. Select from data rate choices of 75, 150, 300, 600, 1200, 2400, 3200, 4800, 6400, 8000, 9600, 12.8K, 14.4K, 16K, 19.2K, 24K, 25.6K, 28.8K, 32K, 36K, 38.4K, 48K, 51.2K, 64K, 76.8K, 96K, 120K and press **[ENT]** to continue.
35. Observe the INTERLEAVE screen displays. Select Interleave choices of SHORT, LONG, ZERO, USHRT, MED and press **[ENT]** to continue.

ALE Preset

HARRIS®

HF Configuration Programming

36. Observe the MODE screen displays. Select from Mode choices of SYNC or ASYNC and press **[ENT]** to continue.
37. Observe the DATA BITS screen displays. Select from Data Bits choices of 8, 7, 6, or 5 and press **[ENT]** to continue.
38. Observe the STOP BITS screen displays. Select from Stop Bits choices of 1, 1.5, or 2 and press **[ENT]** to continue.
39. Observe the PARITY screen displays. Select from Parity choices of NONE, MARK, SPACE, EVEN, or ODD and press **[ENT]** to continue.
40. Observe the PREAMBLE screen displays (only when WBHF Modem type is selected). Select from Preamble choices of SHORT, LONG, ULTRASHORT and press **[ENT]** to continue.

ALE Preset

HARRIS®

HF Configuration Programming

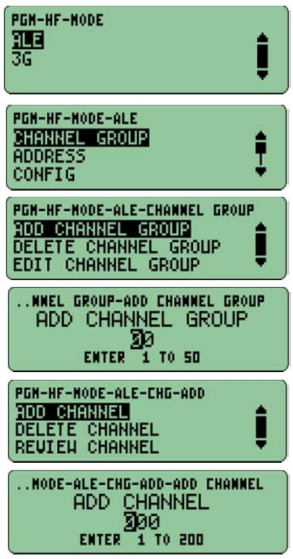
41. Observe the CONSTRAINT screen displays (only when WBHF Modem type is selected). Select from Constraint Length choices of 7 or 9 and press **[ENT]** to continue.
42. Observe the ENABLE screen displays.
43. Select NO or YES to enable.
44. Press **[ENT]** to continue and return to the HF CONFIG main menu.

ALE Preset

HARRIS®

HF Configuration Programming - ALE

1. Select **MODE** at the HF CONFIG main menu and press **[ENT]** to continue.
2. Observe the HF mode options screen displays. Select **ALE** and press **[ENT]** to continue.
3. Observe the ALE mode menu screen displays. Select CHANNEL GROUP and press **[ENT]** to continue.
4. Observe the ALE Channel group menu screen displays. Select ADD CHANNEL GROUP and press **[ENT]** to continue.
5. Observe the Add Channel Group screen displays. Enter a channel group number from 1 - 50 and press **[ENT]** to continue.
6. Observe the Channel menu screen displays. Select ADD CHANNEL and press **[ENT]** to continue.
7. Observe the Add Channel screen displays. Enter a channel number from 1 - 200 and press **[ENT]** to continue.



ALE Preset

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HF Configuration Programming - ALE

8. Press **[CLR]** twice to return to the ALE Mode menu.
9. Select ADDRESS and press **[ENT]** to continue.
10. Observe the ADDRESS TYPE screen displays. Select address type choices of SELF, INDIVIDUAL, or NET and press **[ENT]** to continue.
11. Observe the ALE Address menu screen displays. Select ADD ADDRESS and press **[ENT]** to continue.
12. Observe the ADD ADDRESS screen displays. Enter a valid address and press **[ENT]** to continue.
13. Observe the CHANNEL GROUP screen displays. Enter a Channel Group number from 1 - 50 and press **[ENT]** to continue.
14. If INDIVIDUAL or NET are selected as Address Type, a screen for Associate Self Address will display.
15. Scroll to select available associate self choice and press **[ENT]** to continue.

ALE Preset

HARRIS®

HF Configuration Programming - ALE

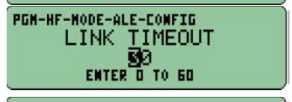
16. Observe when NET is selected as Address Type, the Add Net Member menu screen displays.
17. Press **[ENT]** to continue.
18. Scroll to select ADD NET MEMBER choice and press **[ENT]** to continue.
19. Observe that you are returned to the Net Member menu screen where you can add, delete or view net members.
20. Press **[CLR]** repeatedly to return to the ALE Mode menu.
21. Select CONFIG and press **[ENT]** to continue.
22. Observe the MAX SCAN CHANNELS screen displays. Enter a maximum scan channels value from 1 - 100 and press **[ENT]** to continue.

ALE Preset

HARRIS®

HF Configuration Programming- ALE

23. Observe the LISTEN BEFORE TX screen displays. Select OFF or ON and press **[ENT]** to continue. The default setting is Off.
24. Observe the KEY TO CALL screen displays. Select OFF or ON and press **[ENT]** to continue. The default is Off.
25. Observe the MAX TUNE TIME screen displays. Enter a maximum tune time value between 1-60 seconds and press **[ENT]** to continue. The default is 15 seconds.
26. Observe the LINK TIMEOUT ENABLE screen displays. Select ON or OFF and press **[ENT]** to continue. The default setting is On.
27. Observe the LINK TIMEOUT duration screen displays. Enter a link timeout value between 0-60 seconds and press **[ENT]** to continue. The default is 30 seconds.
28. Observe the LINK TO ANY CALL screen displays. Select ON or OFF and press **[ENT]** to continue. The default setting is On.

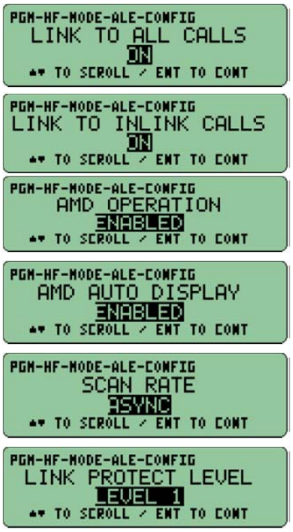


ALE Preset

HARRIS®

HF Configuration Programming - ALE

29. Observe the LINK TO ALL CALLS screen displays. Select ON or OFF and press **[ENT]** to continue.
30. Observe the LINK TO INLINKCALLS screen displays. Select ON or OFF and press **[ENT]** to continue.
31. Observe the AMD OPERATION screen displays for Automatic Message Display. Select ENABLED or DISABLED and press **[ENT]** to continue.
32. Observe the AMD AUTO DISPLAY screen displays. Select ENABLED or DISABLED and press **[ENT]**.
33. Observe the SCAN RATE screen displays. Select Scan Rate choices of ASYNC, 2, or 5 and press **[ENT]**.
34. Observe the LINK PROTECT LEVEL screen displays. Select LEVEL 1 or OFF and press **[ENT]** to continue.
35. Observe the LINK PROTECT KEY screen displays (only if LEVEL 1 is selected). Enter a link protect key alphanumeric value.
36. Press **[ENT]** and then press **[CLR]** to continue and return to the HF mode menu.



ALE Preset

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HF Configuration Programming - ALE

37. Select LQA from the ALE mode menu and press **[ENT]** to access the Link Quality Analysis configuration screens for programming a scheduled LQA. Observe the LQA TYPE screen displays.
38. Select EXCHANGE and press **[ENT]** to continue.
39. Observe the LQA EXCHANGE menu screen displays. Select ADD LQA EXCHANGE and press **[ENT]**.
40. Scroll and select address choices of SD1 or SD2 and press **[ENT]** to continue.
41. Observe the OFFSET TIME screen displays. Enter a 24 hour LQA Exchange Offset Time value and press **[ENT]**.
42. Observe the REPEAT INTERVAL screen displays. Enter a 24 hour LQA Exchange Repeat Interval Time value and press **[ENT]** to return to the LQA Type screen.
43. Select SOUND at the LQA Type screen and press **[ENT]** to continue.

ALE Preset

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HF Configuration Programming - ALE

44. Select ADD LQA SOUND and press **[ENT]** to continue.

45. Observe the ADD SOUND USING screen displays. Scroll and select address choice of SD3 and press **[ENT]** to continue.

46. Enter a 24 hour LQA Sound Offset Time and Repeat Interval Time value (as done previously for Exchange) and press **[ENT]** to continue.
47. Press **[CLR]** repeatedly to return to the HF Mode ALE menu.
48. Select AMD from the ALE mode menu and press **[ENT]** to access the Automatic Message Display configuration screens. Observe the AMD Message menu screen displays.

49. Select AMD TX MSG and press **[ENT]** to continue.

ALE Preset

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HF Configuration Programming - ALE

50. Observe the AMD TX MESSAGE screen displays.

51. Select message number (i.e. 01, 02, 03 etc.) and press **[ENT]**.
52. View message and observe BACK, EDIT and DELETE options. Use the Left or Right arrow keys to select the **EDIT** option and press **[ENT]** to continue.

53. Scroll to view entire TX Message and press **[ENT]** to continue. Press **[ENT]** to Save/Cancel.

54. Observe the SAVED EDITED MESSAGE screen displays. Select YES or NO and press **[ENT]** to continue.

55. Use the Left or Right arrow keys to select the **DELETE** option and press **[ENT]** to continue.

56. Observe the DELETE MESSAGE screen displays.

57. Select YES or NO and press **[ENT]** to continue or press **[CLR]** several times to return to the AMD main screen.

ALE Preset

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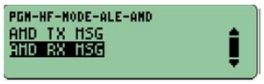
HF Configuration Programming - ALE

58. Select AMD RX Message press **[ENT]** to continue.



59. Use the Left or Right arrow keys to select the **MARK ALL READ** or **DELETE ALL** option and press **[ENT]** to continue.

60. Press **[CLR]** to return to the AMD main screen.

ALE Preset

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HF Configuration Programming - ALE

61. Select LDV at the HF CONFIG main menu and press **[ENT**] to continue.
62. Observe the LDV VOICE screen displays.
63. Select choices of MELP 600 or LPC 600 and press **[ENT]** to continue.
64. Observe the MODEM TX TYPE screen displays. Select choices of ARQ or SERIAL and press **[ENT]** to continue.
65. Observe the ARQ TRAFFIC TYPE screen displays (ARQ only).
66. Select choices of LDL128, LDL64, and LDL32 and press **[ENT]** to continue.
67. Observe the DATA RATE screen displays (SERIAL only). Select choices of 75, 150, and 300 and press **[ENT]** to continue.
68. Observe the INTERLEAVE screen displays (SERIAL only). Select choices of SHORT or LONG and press **[ENT]** to continue and return to the HF CONFIG main menu.

ELO A:
Perform CT, PT, or CC ALE Operation

Action:

Perform CT, PT, or CC ALE operation.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, and technical manual (10515-0512-4200).

Standard:

The standard is met when the student has performed CT, PT, or CC ALE operation IAW technical manual (10515-0512-4200).

Publication Number: 10515-0512-4500-07 Rev. B

CT, PT, or CC ALE Operation

1. Make sure that the radio has been set up and ready to operate.
2. Turn function switch (pull-to-turn) from OFF to **[CT]**, **[PT]**, or **[CC]**.
3. Select the desired ALE preset by pressing **[PRE +/-]**.
4. Adjust **[VOL +/-]** for adequate listening level.
5. Begin radio operations.
   - Press **[PTT]** and confirm voice communications.
   - Press **[Next]** to monitor status of the selected system preset.
   - Access menus under **[7/OPT]** and **[8/PGM]** to make minor operation changes.

Publication Number: 10515-0512-4500-07 Rev. B

ELO B:
Place ALE Individual Call

Action:

Place an ALE Individual Call in the RF-300H-MP.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, and technical manual (10515-0512-4200).

Standard:

The standard is met when the student has placed an ALE Individual Call on the radio IAW technical manual (10515-0512-4200).

Place ALE Individual Call

An individual call is used to establish communications (connection) between two stations. An individual call may be placed to any programmed individual address.

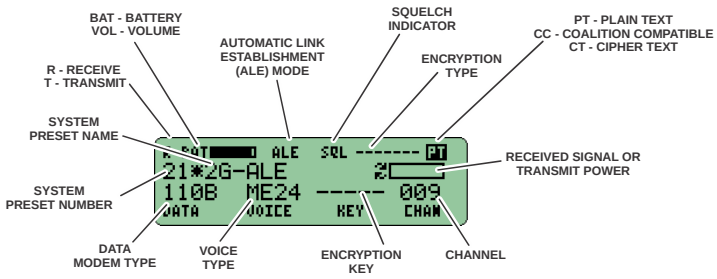
1. Select **[CALL]** to display **CALL TYPE** of **AUTOMATIC** or **MANUAL.**
2. Select AUTOMATIC and press **[ENT].**

   AUTOMATIC allows the radio to attempt the call on all channels in the channel group according to LQA scores or from the highest frequency to lowest frequency if no LQA score data exists.

   If **MANUAL** is selected, you must select the channel to be used. The ALE call will be attempted on this channel, and if the called station is not reachable, the call ends.
3. Select INDIVIDUAL and press **[ENT]**.
4. Select ▼ or ▲to select the individual address and press **[ENT]**.

Place ALE Individual Call

5. Observe that when an ALE link is established, several short beeps occur as the screen shown below appears. The programmed system preset for the self address can then be used.



ELO C:

Transmit Preprogrammed AMD Message

Action:

Transmit Preprogrammed AMD Message on the RF-300H-MP.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, and technical manual (10515-0512-4200).

Standard:

The standard is met when the student has transmitted a preprogrammed AMD message on the radio IAW technical manual (10515-0512-4200).

ALE

Transmit Preprogrammed AMD Message

Automatic Message Display (AMD) messages use a maximum of 90 characters and are not encrypted.

1. Select **[7/OPT] > HF OPTIONS > ALE > TX_MSG > TX MESSAGE TO SEND**.
2. Select ▼ or ▲ to scroll through the preprogrammed Automatic Message Display (AMD) messages and press **[ENT].**
3. Observe that NO TX MESSAGES is displayed If a message was not programmed.
4. Select **YES** and press **[ENT]** for SEND TX MESSAGE?.
5. Select either **AUTOMATIC** or **MANUAL** and press **[ENT]** for CALL TYPE.
6. If AUTOMATIC is selected, the radio uses the LQA scores to automatically determine which channel to use when transmitting the AMD message. If MANUAL is selected, you can specify which channel to use when transmitting the AMD message.
7. For ADDRESS TYPE: **Select INDIVIDUAL, OTHER, NET, GROUP, ALL** or **ANY**, and press **[ENT].**

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ALE

Transmit Preprogrammed AMD Message

8. Press **[0] (NEXT)** instead of **[ENT]** to enter Individual Addresses that are not preprogrammed**.**
9. Select▼ or ▲ to scroll through the programmed individual addresses and press **[ENT]**. The AMD message will then be transmitted to that individual address.

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Notes:

MODULE 8

OPERATE RF-300H-MP IN 3G MODE

Lesson 8

LO-08 SH-08

Operate RF-300H-MP in 3G Mode

Publication Number: 10515-0512-4500-08 Rev. B

TLO H:
Operate RF-300H-MP in 3G Mode

Action:

Operate RF-300H-MP in 3G Mode.

Condition:

In a classroom environment, given all components of the radio set, classroom instruction, and technical manual 10515-0512-4200.

Standard:

The standard is met when the student has operated radio in 3G Mode IAW technical manual 10515-0512-4200.

Publication Number: 10515-0512-4500-08 Rev. B

TLO H:
Operate RF-300H-MP in 3G Mode

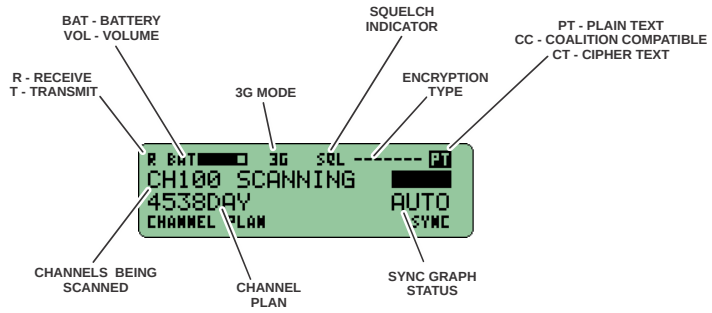
- **ELO A: Perform CT, PT, or CC 3G Operation**
- **ELO B: Place a 3G Net Call**
- **ELO C: Assign COMSEC Key for a 3G Net**
- **ELO D: Send an LDV Message**

Publication Number: 10515-0512-4500-08 Rev. B

3G Mode Characteristics

3G Preset - Scanning Screen

- Correct encryption type (**CT, PT,** or **CC**), **DATA** (Modem Preset), **VOICE**, **KEY (CT** only), and squelch (**SQL**) if desired, are displayed.
- **Channel(s) SCANNING** displayed.
- **Channel Plan** name displayed.
- **SYNC TOD** status / bar graph displayed – **AUTO, MAN or None.** Bar indicates time remaining before radio is no longer in sync.

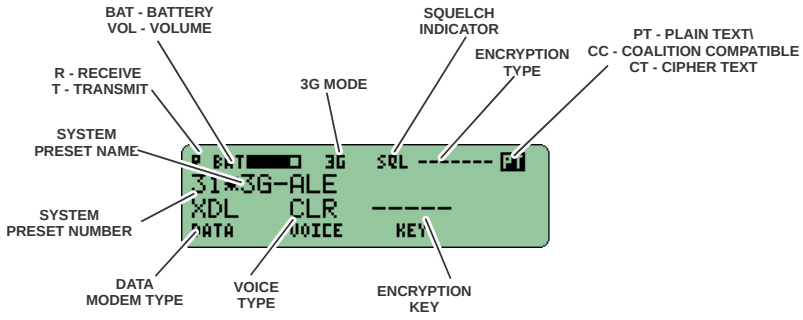


Publication Number: 10515-0512-4500-08 Rev. B

3G Mode Characteristics

3G Preset - Main Screen

- **R (Receive) –** Receive Indicator.
- **T (Transmit) -** Transmit Indicator.
- **DATA (XDL)** – Displays the Modem type being used.
- **VOICE (CLR) -** Voice Configuration Mode type.
- **KEY –** Encryption key in use. Blank (------) indicates no encryption key.



3G Mode Characteristics

Large Font Screen

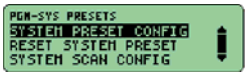
- Last main screen of each mode.
- Use **[Next]** to advance through available screens.

3G Preset

Preset Programming

To create a new 3G preset from the radio front panel:

1. Select **[8/PGM] > SYSTEM PRESETS** to start.



2. Select **SYSTEM PRESET CONFIG** to configure an ALE Preset and press **[ENT]** to continue.

3. (Optional) Select **RESET SYSTEM PRESET** to reconfigure a system preset to previous programmed parameters.

4. Select a text description and press **[ENT]** to continue. Any alphanumeric entry may be added for description.

5. Select **HF** for Preset Waveform (default selection) that will be associated with the selected system preset and press **[ENT]** to continue.

3G Preset

6. Observe the Preset configuration menu screen displays the following menu options:
   - **GENERAL CONFIG**
   - **COMSEC**
   - **VOICE CONFIG**

7. Select **GENERAL CONFIG** and press **[ENT]** to continue.

3G Preset

Preset Programming

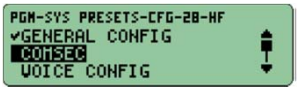
8. Enter a Preset Name (or accept the default name HF) and press **[ENT]** to continue.
   – Type name, using left or right arrow key to enter new alphanumeric name.

9. Scroll and select **3G** as the MODE to be used for the preset and press **[ENT]** to continue.
10. Enter a value from 1 - 200 on the EDIT CHANNEL screen and press **[ENT]** to continue.

3G Preset

Preset Programming

11. Scroll to select the MODEM PRESET type. Choices are OFF, ANDVT, SERIAL, 110B, WB120, XDL, MDM1 - MDM50.
12. Press **[ENT]** to continue.
13. Select the COMSEC menu option and press **[ENT]** to continue.
14. Select the TYPE-1 CRYPTO MODE. Choices are NONE, KG-84 REDUNTANT, KG-84 NONREDUNDANT, ANDVT-BD, ANDVT-HF, TSV.
15. Press **[ENT]** to continue.
16. Select the TYPE-1 CRYPTO KEY (TEK01 - TEK25) and press **[ENT]** to continue.



3G Preset

HARRIS®

Preset Programming

17. Select the TYPE-3 CRYPTO MODE. Choices are NONE, AES, CITADEL.
18. Press **[ENT]** to continue.
19. Select the TYPE-3 CRYPTO KEY (SOV01 - SOV99) and press **[ENT]** to continue.
20. Select the VOICE CONFIG menu option and press **[ENT]** to continue.
20. Select the PT VOICE MODE and press **[ENT]** to continue. Choice are CLR, NONE, LDV (3G only), DV6, DV24, ME24, ME12, ME6 Select the CT VOICE MODE.
21. Select the CT VOICE MODE and press **[ENT]** to continue. Choice are NONE, LDV (3G only), DV6, DV24, ME24, ME12, ME6.

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3G Preset

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HF Configuration Programming

There are additional screens involved in programming a radio system preset, which are defined by the HF Waveform. At this point, these programming screens related to selecting, editing, or creating a Preset can be accessed.

1. Select [**8/PGM] > HF CONFIG** and press **[ENT]** to access the HF configuration screens.
2. Select from HF configuration options of:
   - GLOBAL
   - CHANNEL
   - MODEM
   - MODE
   - LDV
   - SCHEDULE
3. Select **GLOBAL** from HF CONFIG main menu and press **[ENT]** to continue.

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3G Preset

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HF Configuration Programming

4. View the Squelch Level screen and scroll to select options of MED, LOW, and HIGH. Applies to analog voice only, not relevant to AVS or digital voice.
5. Press **[ENT]** to continue.
6. View the FM Squelch Type screen and scroll to select options of TONE or NOISE.
7. Press **[ENT]** to continue.
8. View the FM Deviation screen and scroll to select options of 8.0 KHZ, 6.5 KHZ, or 5.0 KHZ. 8 kHz is the standard tactical deviation.
9. Press **[ENT]** to continue.
10. View the Continuous Wave (CW) Offset screen and scroll to select options of 1000 HZ or 0 HZ
11. Press **[ENT]** to continue

3G Preset

HARRIS®

HF Configuration Programming

12. View the RX Noise Blanking screen and scroll to select options of OFF or ON.
13. Press **[ENT]** to continue.
14. View the Compression screen and scroll to select options of ON or OFF.
15. Press **[ENT]** to continue.
16. View the Route Modem Data To settings and select from DTE PORT, FILE, or RDP
17. Press **[ENT]** to continue and return to the HF CONFIG main menu.
18. Select **CHANNEL** from HF CONFIG main menu and press **[ENT]** to access the Channel configuration screens.
19. Observe the EDIT CHANNEL screen displays. Enter a value between 1 - 200 and press **[ENT]** to continue.

3G Preset

HARRIS®

HF Configuration Programming

20. Observe the RX FREQUENCY screen displays. Enter a frequency between 1.5000 - 59.9999 MHZ and press **[ENT]** to continue.
21. Observe the TX FREQUENCY screen displays. Enter a frequency between 1.5000 - 59.9999 MHZ and press **[ENT]** to continue.
22. Observe the MODULATION screen displays. Select modulation choices of: USB, LSB, AME, CW, or FM and press **[ENT]** to continue.
23. Observe the AGC SPEED screen displays. Scroll and select choices for Automatic Gain Control (AGC) of MED, AUTO, FAST, DATA,SLOW or OFF and press **[ENT]** to continue.
24. Observe the IF BANDWIDTH screen displays. Scroll and select IF bandwidth choices of 0.35, 0.5 1.0, 1.5, 2.0, 2.4, 2.7. 3.0, and 4.0 kHz and press **[ENT]** to continue.

3G Preset

HARRIS®

HF Configuration Programming

25. Observe the RX ONLY screen displays. Scroll to select YES or NO and press **[ENT]** to continue.
26. Observe the LIMIT MAX TX POWER screen displays. Scroll to select NO or YES and press **[ENT]** to continue.
27. If YES was selected, the MAX TX POWER (WATTS) screen will display. Enter a power value of 0 to 1000 watts and press **[ENT]** to continue.
28. Observe the MAX BANDWIDTH screen displays. Select value of 3, 6, 9, 12, 15, 18, 21, or 24 kHz and press **[ENT]** to continue.
29. Select **MODEM** from HF CONFIG main menu and press **[ENT]** to access the HF Modem configuration screens.
30. Observe the MODEM PRESET screen displays. Choose the appropriate Modem Preset option; OFF, ANDVT, SERIAL, 110B, WB120, XDL, MDM1-MDM50 and press **[ENT]** to continue.

3G Preset

HARRIS®

HF Configuration Programming

31. Observe the PRESET NAME screen displays. Accept the default preset name or enter a new name and press **[ENT]** to continue.
32. Observe the MODEM TYPE screen displays. Select from Modem Type options of MIL110B, WBHF, XDL, SERIAL, ANDVT and press **[ENT]** to continue.
33. Selecting WBHF modem type will display an additional screen for Bandwidth. Select choices of 3, 6, 9, 12, 15, 18, 21, 24 and press **[ENT]** to continue.
34. Observe the DATA RATE screen displays. Select from data rate choices of 75, 150, 300, 600, 1200, 2400, 3200, 4800, 6400, 8000, 9600, 12.8K, 14.4K, 16K, 19.2K, 24K, 25.6K, 28.8K, 32K, 36K, 38.4K, 48K, 51.2K, 64K, 76.8K, 96K, 120K and press **[ENT]** to continue.
35. Observe the INTERLEAVE screen displays. Select Interleave choices of SHORT, LONG, ZERO, USHRT, MED and press **[ENT]** to continue.

3G Preset

HARRIS®

HF Configuration Programming

36. Observe the MODE screen displays. Select from Mode choices of SYNC or ASYNC and press **[ENT]** to continue.
37. Observe the DATA BITS screen displays. Select from Data Bits choices of 8, 7, 6, or 5 and press **[ENT]** to continue.
38. Observe the STOP BITS screen displays. Select from Stop Bits choices of 1, 1.5, or 2 and press **[ENT]** to continue.
39. Observe the PARITY screen displays. Select from Parity choices of NONE, MARK, SPACE, EVEN, or ODD and press **[ENT]** to continue.
40. Observe the PREAMBLE screen displays (only when WBHF Modem type is selected). Select from Preamble choices of SHORT, LONG, ULTRASHORT and press **[ENT]** to continue.

3G Preset

HARRIS®

HF Configuration Programming

41. Observe the CONSTRAINT screen displays (only when WBHF Modem type is selected). Select from Constraint Length choices of 7 or 9 and press **[ENT]** to continue.
42. Observe the ENABLE screen displays.
43. Select NO or YES to enable.
44. Press **[ENT]** to continue and return to the HF CONFIG main menu.

3G Preset

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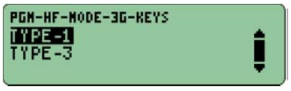
HF Configuration Programming - 3G

1. Select **MODE** at the HF CONFIG main menu and press **[ENT]** to continue.
2. Observe the HF mode options screen displays. Select **3G** and press **[ENT]** to continue.
3. Observe the 3G mode menu screen displays. Select ASSIGN KEYS and press **[ENT]** to continue.
4. Select TYPE-1 and press **[ENT]** to continue..
5. Observe the NET Screen displays. Select the applicable network choice from the list for the Type-1 Keys and press **[ENT]** to continue.
6. Observe the Current Type-1 Key screen displays.
7. Press **[ENT]** to continue.
8. Observe the Type-1 Crypto Mode screen displays. Select from choices of KG-84-R, KG-84-NR, ANDVT-BD, or NONE and press **[ENT]** to continue.



3G Preset

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HF Configuration Programming - 3G

9. Observe the Type-1 Crypto Key screen displays. Press **[ENT]** to continue and return to the 3G Mode Menu.
10. Select ASSIGN KEYS and press **[ENT]** to continue.
11. Select TYPE-3 and press **[ENT]** to continue.
12. Observe the NET Screen displays. Select the applicable network choice from the list for the Type-3 Keys and press **[ENT]** to continue.
13. Observe the Current Type-3 Key screen displays and press **[ENT]** to continue.
14. Observe the Type-3 Crypto Mode screen displays. Select from choices of AES, CITADEL, or NONE and press **[ENT]** to continue.
15. Observe the Type-3 Crypto Key screen displays. Press **[ENT]** to continue and return to the 3G Mode Menu.
16. Press **[CLR]** to return to the HF CONFIG main menu.

3G Preset

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HF Configuration Programming - 3G

17. Select LDV from the HF CONFIG main menu and press **[ENT]** to continue.
18. Observe the LDV VOICE screen displays. Select choices of MELP 600 or LPC 600 and press **[ENT]**.
19. Observe the MODEM TX TYPE screen displays. Select choices of ARQ or SERIAL and press **[ENT]** to continue.
20. Observe the ARQ TRAFFIC TYPE screen displays (ARQ only). Select choices of LDL128, LDL64, and LDL32 and press **[ENT]** to continue.
21. Observe the DATA RATE screen displays (SERIAL only). Select choices of 75, 150, and 300 and press **[ENT]** to continue.
22. Observe the INTERLEAVE screen displays (SERIAL only). Select choices of SHORT or LONG and press **[ENT]** to continue and return to the HF CONFIG main menu.

3G Preset

HF Configuration Programming - 3G

23. Select SCHEDULE from the HF CONFIG menu and press **[ENT].**
24. Observe the 3G BROADCAST SYNC screen displays.
25. Press **[ENT]** to continue.
26. Observe the HF Schedule Sync screen displays choices of ADD, EDIT, and DELETE.
27. Select ADD and press **[ENT]** to continue.
28. Observe START TIME screen and press **[ENT]** to continue.
29. Observe REPEAT INTERVAL screen and press **[ENT]** to continue.
30. Press **[CLR]** repeatedly to exit programming.

Publication Number: 10515-0512-4500-08 Rev. B

ELO A:
Perform CT, PT, or CC 3G Operation

Action:

Perform CT, PT, or CC 3G operation.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, and technical manual (10515-0512-4200).

Standard:

The standard is met when the student has performed CT, PT, or CC 3G operation IAW technical manual (10515-0512-4200).

Publication Number: 10515-0512-4500-08 Rev. B

3G

CT, PT, or CC 3G Operation

1. Make sure that the radio has been set up and ready to operate.
2. Turn function switch (pull-to-turn) from OFF to **[CT]**, **[PT]**, or **[CC]**.
3. Select the desired 3G preset by pressing **[PRE +/-]**.
4. Adjust **[VOL +/-]** for adequate listening level.
5. Begin radio operations.
   - Press **[PTT]** and confirm voice communications.
   - Press **[Next]** to monitor status of the selected system preset.
   - Access menus under **[7/OPT]** and **[8/PGM]** to make minor operation changes.

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ELO B:
Place a 3G Net Call

Action:

Place a 3G Net Call in the RF-300H-MP.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, and technical manual (10515-0512-4200).

Standard:

The standard is met when the student has placed a 3G Net Call on the radio IAW technical manual (10515-0512-4200).

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3G

Place 3G Net Call

A 3G Net Call calls the members of a 3G net. When a net member radio receives the call, it transmits a response in its own time slot following transmission of the call. This permits the operator of the calling radio to determine which net member radios were successfully included in the link.

1. Select **[CALL]**.
2. Select call type:

AUTOMATIC - Selects the channels on which call attempts are placed with the goal of minimizing linking time. An AUTOMATIC call might select a second-best channel that will not have as much delay over the best channel that is later in the scan rotation. If the first call attempt fails, the second call attempt is placed on another channel with the same goal of minimizing linking time. Generally, an AUTOMATIC call is the most efficient way to make a connection.

MANUAL - Establishes a link with one or more other radios on a specified channel (could take longer to link than an AUTOMATIC call). The radio will attempt the call three times before it is considered to fail.

3G

Place 3G Net Call

BEST - Always places the first call attempt on the channel with the best observed quality. This could take longer to link than an AUTOMATIC call, as there may be a substantial wait for this channel to arrive in the channel scan rotation. If the first call attempt fails, the second call attempt uses the channel with the second best observed quality, and so on. AUTOMATIC and BEST will attempt to call all channels once before it is considered to fail.

5. Press **[ENT]**.
6. Select address type **NET** and press **[ENT]**.
7. Select the net name you wish to call and press **[ENT].**

If the call type is MANUAL, you are prompted for the channel number to place the call on.

Calling and receiving status are displayed. When a response to the call is received from another net member, RESPONSE FROM and the name of the responding station will be displayed on the bottom line of the display.

When 3G link setup is successful, a tone is heard in the handsets of transmitting and receiving radios.

ELO C:
Assign COMSEC Key for a 3G Net

Action:

Assign COMSEC Key for a 3G Net on the RF-300H-MP.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, and technical manual (10515-0512-4200).

Standard:

The standard is met when the student has assigned a COMSEC key for a 3G Net on the radio IAW technical manual (10515-0512-4200).

3G

Assign COMSEC Key for a 3G Net

A crypto mode and encryption key can be assigned to each programmed 3G net. This crypto mode and key are asserted each time a link is established to that 3G net. Operation in 3G radio mode requires each station to be a member of at least one 3G net. When a 3G point-to-point link is established, the 3G crypto mode and key used is the one assigned to the 3G net for which both stations are a member.

NOTE - If the radio cannot activate any Communications Security (COMSEC) key while operating in CT cipher mode, a KEY NOT SELECTED error is reported and the radio is unable to pass digital voice or data traffic.

1. Select **[PGM] > HF CONFIG> MODE > 3G > ASSIGN KEYS > TYPE-1** and press **[ENT].** If no 3G nets have been programmed, a warning message is displayed and you are not allowed to proceed.
2. Select ▼ or ▲ to scroll through the current programmed 3G nets until the desired net is displayed and press **[ENT]**. The menu displays the encryption key information currently associated to the selected 3G net.
3. Select **KG-84-R**, **KG-84-NR** or **ANDVT-BD** for Type-1 and press **[ENT].** Scroll through the keys currently loaded into the radio.

3G

Assign COMSEC Key for a 3G Net

4. Observe that if no encryption keys for the crypto mode are loaded into the radio, dashes (-----) are displayed. If the [ENT] key is pressed, the warning message NO KEYS AVAILABLE is displayed.
5. Press **[ENT]** to assign the crypto mode and encryption key name to the 3G net.
6. Select **[8/PGM] > HF CONFIG> MODE > 3G > ASSIGN KEYS > TYPE-3** and press **[ENT]**. **NOTE** - If no 3G nets have been programmed, a warning message is displayed and you are not allowed to proceed.
7. Select ▼ or ▲ to scroll through the current programmed 3G nets until the desired net is displayed and press **[ENT]**. The menu displays the encryption key information currently associated to the selected 3G net.
8. Select **CITADEL** or **AES** for Type-3 and press **[ENT]**. Scroll through the keys currently loaded into the radio.
9. Press **[ENT]** to assign the crypto mode and encryption key name to the 3G net.

Publication Number: 10515-0512-4500-08 Rev. B

ELO D:
Send an LDV Message

Action:

Send an LDV Message on the RF-300H-MP.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, and technical manual (10515-0512-4200).

Standard:

The standard is met when the student has sent an LDV Message on the radio IAW technical manual (10515-0512-4200).

Publication Number: 10515-0512-4500-08 Rev. B

3G

HARRIS®

Send an LDV Message

Last Ditch Voice (LDV) allows the radio to deliver digital voice across a channel that normally would not support digital voice error free. Transmission of LDV messages over-the-air can only be done in a 3G voice link.

1. Establish a 3G link.
2. Select **VOICE** field from the 3G preset screen
3. Select **LDV**.
4. Perform a key operation of the handset and talk. A warning tone will be heard in the handset before the maximum time of 1 minute, 50 seconds is up.
5. Perform an unkey operation and the message is automatically sent, but may have a delay due to channel conditions.

Publication Number: 10515-0512-4500-08 Rev. B

Notes:

MODULE 9

SETUP/CONFIGURE RF-300H-MP FOR ADAPTIVE WIDEBAND OPERATION

Lesson 9

LO-09 SH-09

Set Up/Configure RF-300H-MP for Adaptive Wideband Operation

Publication Number: 10515-0512-4500-09 Rev. -

TLO I:

Set Up/Configure RF-300H-MP for Adaptive Wideband

Action:

- Set Up/Configure RF-300H-MP for Adaptive Wideband Operation.

Condition:

- In a classroom environment, given all components of the radio set, classroom instruction, and technical manual 10515-0512-4200.

Standard:

- The standard is met when the student has set up and configured radio for Adaptive Wideband operation IAW technical manual 10515-0512-4200.

Publication Number: 10515-0512-4500-09 Rev. -

Adaptive Wideband

- Operable in 3G radio mode.
- Data Rate adaptive using S5066, resident in Wireless Message Terminal (WMT).
- Interoperable with Falcon II S4538 in narrowband.
- HF data on bandwidths from 3 kHz to 24 kHz per MILSTD-188-110C, allowing data rates up to 120,000 bps.
- High speed HF E-mail using WMT.
- Selection of bandwidth and data rate, and adjustment of data rate once the link is established are automatic, requiring no operator intervention.
- Improved data throughput under fair-to-excellent channel conditions, and higher reliability under poor conditions.
- WB data includes PT, CT, and CC encryption

Publication Number: 10515-0512-4500-09 Rev. -

Adaptive Wideband

Adaptive Wideband Operation

- Adaptive Wideband is a feature that uses a data-specific 3G link created by the RF-6760 WMT application.
- While in 3G mode, the radio will be able to link in 3G Wideband (WB) data.
- Channel selection is made by the radio. 3G Score, in combination with WB spectrum sensing information, is used to select the best channel for WB data.
- Channel selection for WB call attempts is based on spectrum occupancy, available SNR, estimated bandwidth, and the WMT's estimate of the amount of data to be transferred.

Publication Number: 10515-0512-4500-09 Rev. -

Adaptive Wideband

Adaptive Wideband Operation

- Automated data rate, bandwidth, and interleaver selections are accomplished using handshakes.
- Data rate adjustments are made by the WMT as transmission progresses. WMT will support WB synchronous data transfer to the radio over DTE. Actual bandwidths, data rate and interleaver will be shown in the radio display.
- The radio performs spectrum sensing to determine channel characteristics and to adapt to available bandwidth.
- Once the bandwidth and offset have been determined, they will be used for the duration of the 3G link. When a new link is established, the process is repeated.

Publication Number: 10515-0512-4500-09 Rev. - 5

Adaptive Wideband

Adaptive Wideband System Setup

- **Items Required**
  - RF-300H-MP radios with version 1.0 or higher firmware installed.
  - PC with at least one free USB host port.
  - RF-6760W Wireless Messaging Terminal (WMT) software version 2.0 or higher.
  - USB Programming Cable (12043-2850-A006).

Publication Number: 10515-0512-4500-09 Rev. - 6

Adaptive Wideband

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Send / Receive a WMT Message

- Verify the following requirements are met when sending and receiving a WMT message.
  - Both radios are programmed by CPA with valid 3G fill, and include WB channels. Refer to CPA Online Help for complete CPA usage.
  - Both radios have established Manual or Auto 3G sync.
  - Both radios are connected to PCs running WMT with valid configuration.
  - Both WMTs are on-line and idle.
  - Both radios are scanning 4538 FLSU.

Publication Number: 10515-0512-4500-09 Rev. - 7

Adaptive Wideband

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WMT Operation Sequence

1. WMT A initiates an LQA exchange if one has not been performed within the time frame specified in the station properties dialog box in the WMT.
2. Operator A composes and sends a new message from WMT A.
3. Radio A initiates 3G 4538 FLSU call to Radio B, WB Data traffic type.
4. Radios A and B establish a 3G link.
5. Radios A and B perform a WB handshake.
6. 5066 data transfer proceeds to completion.
7. WMT B makes received message available to Operator B.
8. WMT A terminates link once 5066 physical link drops.
9. Radios A and B return to scan.
   - Both WMTs at idle.
   - Received message is available at WMT B.

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Adaptive Wideband

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Configuring Adaptive Wideband

- **IMPORTANT!** FCC regulations and local considerations may restrict bandwidth availability to less than 24 kHz. Consult your communications manager before configuring wideband channels.
- 3G/Adaptive Wideband programming is performed with the CPA. Thus, front panel Adaptive WB displays are limited mostly to status messages, however, there is also a limited set of configuration screens accessible in the radio programming menu.
- To configure Adaptive WB parameters, select an appropriate 3G channel that has already been configured using CPA. Optional settings may be adjusted directly from the radio front panel.
  - Select **[PGM] > HF CONFIG > CHANNEL > MAX BANDWIDTH (KHZ).**
  - Select the highest bandwidth allowed for this channel based on frequency allocations. Choices are 3, 6, 9, 12, 15, 18, 21, or 24 kHz.

Adaptive Wideband

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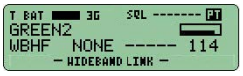
Adaptive WB Calling Sequence

- When an Adaptive Wideband link is established, most of the action takes place in 3G calling screens.

Adaptive WB Calling Sequence

1. Establishing 3G link	
2. Doing Wideband Handshake	
3. Beginning Data Transfer	

Adaptive Wideband

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Adaptive Wideband Status Screens

- The first two screens are based on the status screens available during a 3G link. The first screen is "Preset View", and the second is "Channel View". Note that the frequency displayed on the Channel View (14.0000 MHz) is the **programmed** frequency (also known as Radio Display Frequency) of the link channel. This is not affected by bandwidth negotiation.
- The **negotiated** bandwidth parameters are displayed in the third status screen. Note in this example that the adjusted (negotiated) frequency (13.9925 MHz) is different than the programmed frequency. Also, the maximum (**MAX**) bandwidth programmed for the channel is 24 kHz, but after interference detection, the current (**CUR**) usable bandwidth is now 21 kHz.

Publication Number: 10515-0512-4500-09 Rev. -

Adaptive Wideband

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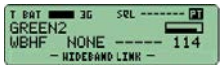
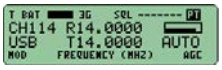
Adaptive Wideband Status Screens

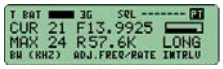
Preset View



Channel View



Negotiated Channel View



Returns to Preset View

Publication Number: 10515-0512-4500-09 Rev. -

Adaptive Wideband

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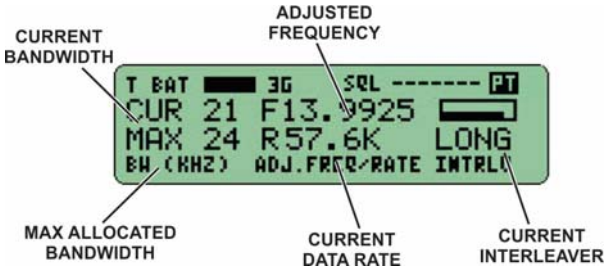
Adaptive Wideband Display Fields



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TLO I:
Set Up/Configure RF-300H-MP for Adaptive Wideband

- **ELO A: Perform Adaptive Wideband system setup**
- **ELO B: Configure Adaptive Wideband for operation**

ELO A:
Perform Adaptive Wideband System Setup

- **Action:**
  - Perform Adaptive Wideband system setup.

Condition:

- In a classroom environment, given all components of the radio, classroom instruction, and technical manual (10515-0512-4200).

Standard:

- The standard is met when the student has performed Adaptive Wideband system setup in IAW technical manual (10515-0512-4200).

Adaptive Wideband

Perform Adaptive Wideband System Setup

Ensure that WMT (version 2.0 or higher) is installed on the PC.

1. Connect the radio USB (J5) to the PC using the USB programming cable.
2. Perform a power up of the radio and direct Windows to find the USB driver automatically.
3. Install the Harris radio connection and test the connection.
4. Launch WMT. Configure WMT network and local station.
5. Observe that WMT is ready to operate with the radio.

ELO B:

Configure Adaptive Wideband for Operation

- **Action:**
  - Configure Adaptive Wideband for operation.

Condition:

- In a classroom environment, given all components of the radio, classroom instruction, and technical manual (10515-0512-4200).

Standard:

- The standard is met when the student has configured Adaptive Wideband for operation in IAW technical manual (10515-0512-4200).

Adaptive Wideband

Configure Adaptive Wideband for Operation

1. Select an appropriate 3G channel that has already been configured using CPA. Optional settings may be adjusted directly from the radio front panel**.**
2. Select **[PGM] > HF CONFIG > CHANNEL > MAX BANDWIDTH (KHZ)**. Select the highest bandwidth allowed for this channel based on frequency allocations. Choices are 3, 6, 9, 12, 15, 18, 21, or 24 kHz.
3. Establish an Adaptive Wideband link.
4. Observe Adaptive Wideband Calling sequence - Establishing 3G Link, Negotiating Wideband Handshake, Data Transfer.
5. Observe Adaptive Wideband Status screens - Preset View, Channel View, Negotiated Channel View.

Notes:

MODULE 10

OPERATE OVER THE AIR REKEYING (OTAR)

Lesson 10

LO-10 SH-10

Operate Over The Air Rekeying (OTAR)

Publication Number: 10515-0512-4500-10 Rev. B

TLO J:
Operate OTAR

Action:

Operate OTAR in the RF-300H-MP.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, and technical manual 10515-0512-4200.

Standard:

The standard is met when the student has successfully operated OTAR IAW Technical Manual 10515-0512-4200.

Publication Number: 10515-0512-4500-10 Rev. B

TLO J:
Operate OTAR

- **ELO A: Load OTAR TEK/KEK**
- **ELO B: Perform OTAR Receive**
- **ELO C: Perform OTAR Transmit**

Publication Number: 10515-0512-4500-10 Rev. B

OTAR

OVER THE AIR REKEY (OTAR)

- Over The Air Rekey (OTAR) allows COMSEC variables to be transmitted and received by any net member radio. Radio must be in CT.
- The RF-300H-MP currently supports Receive Automatic Rekey (RX AK) (KG84-1 or KG84-3 encryption type)
- AK rekeying operations require the receiving radio be loaded with the same Key Encryption Key (KEK) used to send the rekey from the NCD or DTD.
- To receive a Traffic Encryption Key (TEK) using AK, both the receiving radio and the fill device attached to the transmitting radio must have the same KEK. For AK, the KEK must be loaded into the radio by an external fill device.

Publication Number: 10515-0512-4500-10 Rev. B

OTAR

- The radio that will be used to transmit a Automatic Key (AK) OTAR will first need to have both a TEK and KEK uploaded to the radio using the KYX-15 Net Control Device (NCD) or AN/CYZ-10 DTD in KYX-15 mode.
- The radio has a special holding memory where the TEK and KEK to be transmitted will be held until the Net Control Station (NCS) is ready to send it. This is not the same as loading this key as a normal COMSEC fill. This uploading process can only be done with a NCD using its AK transmit process. Attempts to transfer a TEK and KEK using the load process will not work.
- This holding memory is completely temporary and will discard the TEK and KEK if the radio is turned off before it is sent. This procedure is only to upload the TEK/KEK to a holding memory by way of a AK transmit process from the NCD.
- You must have a NCD type device and know how to use its AK process.

Publication Number: 10515-0512-4500-10 Rev. B

ELO A:
Load OTAR TEK/KEK

Action:

- Load OTAR TEK/KEK in an RF-300H-MP.

Condition:

- In a classroom environment, given all components of the radio, classroom instruction, and technical manual 10515-0512-4200.

Standard:

- The standard is met when the student has loaded an OTAR TEK/KEK in the RF-300H-MP IAW the technical manual 10515-0512-4200.

Publication Number: 10515-0512-4500-10 Rev. B

OTAR

Load OTAR TEK/KEK

1. Place the function switch in [**LD**].
2. Select **FILL** and press **[ENT]** to continue.
3. Select **OTAR KEY<S>** to load OTAR key information from a fill device and press **[ENT]**.
4. Observe the prompt INITIATE FILL AT FILL DEVICE is displayed.
5. Start the fill procedure at the fill device.
6. Select COMSEC Fill classification of loaded key.
7. Observe Fill In Progress screen displays.
8. Wait for fill to complete.

Publication Number: 10515-0512-4500-10 Rev. B

OTAR

Load OTAR TEK/KEK

8. Observe the number of TEKs and KEKs loaded from the OTAR fill.
9. Select **[CLR]** or **[ENT]** to continue.
10. Observe OTAR fill procedure completed successfully. If unsuccessful, error notifications will be displayed.
11. Disconnect the NCD and turn it off.
12. Switch the radio to CT.

Do not turn off radio or it will lose the TEK/KEK being held in OTAR memory.

Publication Number: 10515-0512-4500-10 Rev. B

ELO B:
Perform OTAR Receive

Action:

- Perform OTAR Receive on a RF-300H-MP.

Condition:

- In a classroom environment, given all components of the radio, classroom instruction, and technical manual 10515-0512-4200.

Standard:

- The standard is met when the student has performed OTAR Receive from the RF-300H-MP IAW the technical manual 10515-0512-4200.

OTAR

OTAR Receive Mode

1. Place the radio in **[CT]**.
2. Select **[MODE] > OTAR RECEIVE**.
3. Wait while the radio is waiting for the OTAR reception.

   NOTE - You can still transmit and receive using the radio. If desired, press **[CLR]** to abort the OTAR reception and display the OTAR RX Aborted screen.

4. Observe the KEY RECEIVED screen is displayed and press **[ENT]** to continue.
5. Observe the CRYPTO MODE screen is displayed (defaults to KG84) and press **[ENT]** to continue.

OTAR

OTAR Receive Mode

6. Enter a TEK Key Number (01 to 25) for storing the loaded key information and press **[ENT]** to store continue.
7. Wait while the fill completes and the received OTAR key is assigned to the selected Crypto key location.
8. Once the store is complete, the KEY STORE SUCCESSFUL screen will be displayed if no errors were encountered.
9. Observe the KEK Count was updated during the last AK OTAR operation. The new KEK Count will be displayed on this screen.
10. Press **[ENT]** or **[CLR]** to return to the Mode Menu.

Publication Number: 10515-0512-4500-10 Rev. B 11

ELO C:
Perform OTAR Transmit

Action:

- Perform OTAR Transmit on a RF-300H-MP.

Condition:

- In a classroom environment, given all components of the radio, classroom instruction, and technical manual 10515-0512-4200.

Standard:

- The standard is met when the student has performed OTAR transmit on the RF-300H-MP IAW the technical manual 10515-0512-4200.

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OTAR

OTAR Transmit Mode

1. Place the radio in [**CT**].
2. Select **[MODE] > OTAR TRANSMIT**.
3. Select **YES** at TRANSMIT OTAR AK screen and press **[ENT]** to continue.

4. Observe the OTAR AK TRANSMITTING screen is displayed.
5. Wait while the OTAR fill set is being transmitted by the radio.
6. Observe radio displays OTAR AK TRANSMIT SUCCESSFUL screen when complete.

Publication Number: 10515-0512-4500-10 Rev. B

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Notes:

MODULE 11

PERFORM MAINTENANCE ON THE RF-300H-MP

Lesson 11

LO-11 SH-11

Perform Maintenance on the RF-300H-MP

Publication Number: 10515-0512-4500-11 Rev. B

TLO K:
Perform Maintenance on the RF-300H-MP

Action:

Perform Maintenance on the RF-300H-MP.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, and technical manual 10515-0512-4200.

Standard:

The standard is met when the student has performed maintenance on the radio IAW with technical manual 10515-0512-4200.

Publication Number: 10515-0512-4500-11 Rev. B

Maintenance on RF-300H-MP

Preventive Maintenance Overview

- Preventive maintenance is the systematic, scheduled care and inspection of equipment to prevent equipment failure and to reduce downtime.
- Preventive maintenance also consists of keeping the equipment clean, dry, and dust-free. Use a soft brush, a moist sponge, and a cloth.

Publication Number: 10515-0512-4500-11 Rev. B

TLO K:
Perform Maintenance on the RF-300H-MP

- **ELO A: Perform Preventive Maintenance on RF-300H-MP.**
- **ELO B: Perform Corrective Maintenance on RF-300H-MP.**

Publication Number: 10515-0512-4500-11 Rev. B

ELO A:
Perform Preventive Maintenance on the RF-300H-MP

Action:

Perform Preventive Maintenance on RF-300H-MP.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, and technical manual (10515-0512-4200).

Standard:

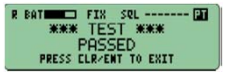
The standard is met when the student can perform Preventive Maintenance on the radio IAW technical manual (10515-0512-4200).

Maintenance on RF-300H-MP

Daily Preventive Maintenance

Perform Self Test (run test in PT).

1. Select **[7/OPT] > TEST OPTIONS** and select **SELF TEST**.
2. Press **[ENT]**.
3. Select **YES** to RUN SELF TEST and press **[ENT]**.
4. Observe Test In Progress screen.
5. Observe Test Passed screen displays.



If Test Fails, a screen displays with the specific module shown along with a fault code that can be referenced for troubleshooting.

Select **[Next]** to see more text information of the current fault. There may be multiple faults displayed.

Maintenance on RF-300H-MP

Weekly Preventive Maintenance

1. Check antenna for breaks or strains.
2. Check antenna cable for loose or damaged connection.
3. Repair or replace antenna and or cable as necessary.
4. Inspect radio equipment connectors for dirt, corrosion or damage.
5. Ensure protective caps are in place if connectors are not in use.
6. Check H-250 handset and clean connectors.
7. Check connection of H-250 handset to J1 on radio.
8. Check that battery box is securely attached and that pressure vent is clear.
9. Check that any interconnecting cables for RF-300H-MP are secure.

Publication Number: 10515-0512-4500-11 Rev. B

ELO B:
Perform Corrective Maintenance on the RF-300H-MP

Action:

Perform Corrective Maintenance on RF-300H-MP.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, and technical manual (10515-0512-4200).

Standard:

The standard is met when the student has performed corrective maintenance on the RF-300H-MP IAW technical manual (10515-0512-4200).

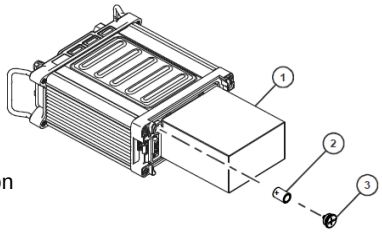
Publication Number: 10515-0512-4500-11 Rev. B

Maintenance on RF-300H-MP

Corrective Maintenance

1. Ensure main battery is fully charged. Re-charge or replace as necessary.
2. Clean battery after exposure to fresh/salt water. Thoroughly dry with soft clean cloth to prevent corrosion.
3. In the event corrosion does occur, clean the battery connectors and terminals using a Nylon Mesh Abrasive Pad (3M Scotchbrite 7447 or Equivalent).
4. Rinse battery box with clean, fresh water and thoroughly dry with a clean cloth.
5. Replace Memory Hold-Up Battery (HUB). The HUB should be replaced every 12 months or prior to deployment.
6. After replacing the HUB, reset HUB: select **[8/PGM] > RADIO CONFIG > MAINTENANCE > RESET HUB CAPACITY**.

1. LEAVE BATTERY ATTACHED
2. USE B41-0010-004 (SAFT LS 14250C)
3. USE COIN OR FLAT-TIP SCREWDRIVER TO REMOVE/REPLACE COVER



Publication Number: 10515-0512-4500-11 Rev. B

Notes:

MODULE 12

OPERATE CPA FOR RF-300H-MP

Lesson 12

LO-12 SH-12

Configure CPA for RF-300H-MP

Publication Number: 10515-0512-4500-12 Rev. B

TLO L:
Configure CPA for RF-300H-MP

Action:

Configure CPA for RF-300H-MP.

Condition:

In a classroom environment, given all components of the radio, CPA, classroom instruction, technical manual 10515-0512-4200, and CPA Online Help.

Standard:

The standard is met when the student has configured CPA for the radio IAW with technical manual 10515-0512-4200 and CPA Online Help.

Publication Number: 10515-0512-4500-12 Rev. B

TLO L:
Configure CPA for RF-300H-MP

- **ELO A:** Install CPA for RF-300H-MP.
- **ELO B**: Construct a CPA mission plan for RF-300H-MP.
- **ELO C:** Program the RF-300H-MP with a CPA mission plan**.**

ELO A:
Install CPA for RF-300H-MP

Action:

Install CPA for RF-300H-MP.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, technical manual (10515-0512-4200), and CPA Online Help.

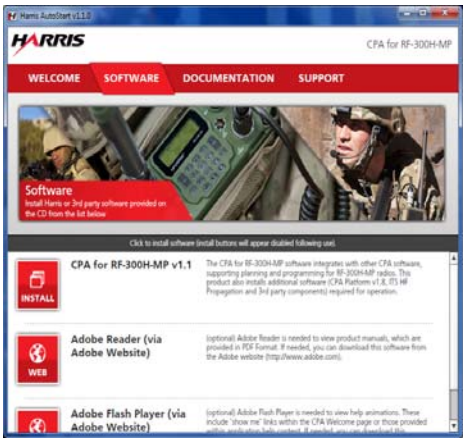
Standard:

The standard is met when the student has installed CPA for radio IAW technical manual (10515-0512-4200), and CPA Online Help.

CPA for RF-300H-MP

Install CPA

1. Obtain the **CPA for RF-300H-MP** program. This can be downloaded from the Harris website or obtained on CD-ROM.
2. Insert the program file into your PC and observe the Install screen.
3. Select the **Software** tab.
4. Select the **Install** button for CPA for RF-300H-MP.
5. Follow all installation prompts.



NOTE: If Key Generation is selected, CPA can be used to generate Type-3 encryption keys. CPA does not generate Type-1 keys.

CPA for RF-300H-MP

CPA Overview

1. Open CPA by double-clicking the desktop icon. 

Select **File > Open** to open a plan file or **File > New** for new plan.
2. In the Properties area of CPA, under Plan Information, enter the Description, Author, and Organization as required.
3. If communications are to be encrypted, click the Key Manager button  and configure as required:
   – Passphrase, Keys, Import Keypack, Key Rings, CAM
4. In the Toolbar area of CPA, click the Channels button 

to configure the Channel Table and the required Channel Groups.
5. If Data Communications is required, set up Modem Presets. In the CPA Toolbar, click the Modem Presets button. 

6. Ensure that at least one Modem Preset is created for each Data Network Type that will be created for the Plan.
7. In the toolbar area of CPA, use the Create Topology 

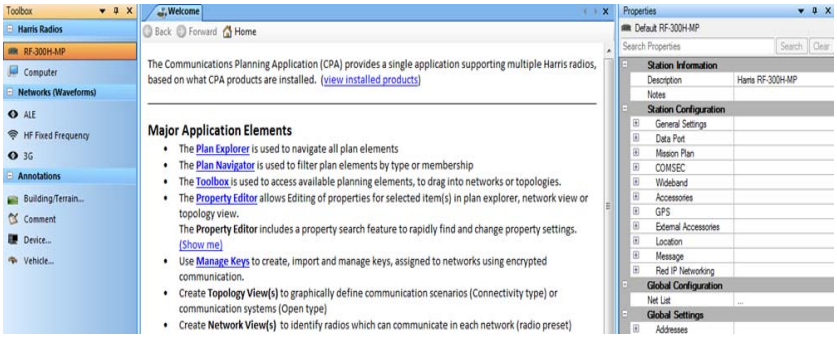
and/or Create Network 

buttons to create the required Topologies and Networks.

CPA for RF-300H-MP

CPA Overview

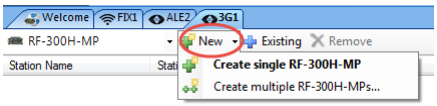
8. To change station property defaults provided by the application, select **RF-300H-MP** under Harris Radios in the Toolbox, then set up the required **Station Configuration** settings for the template radio in the Properties area.



CPA for RF-300H-MP

CPA Overview

9. Place required RF-300H-MP radios in each Topology/Network as required by selecting the **New** pull down button at the top of the CPA workspace, and choosing to create either a single or multiple RF-300H-MP radios as required (see below example with FIX, ALE, and 3G networks already created). **Existing** button can be selected if stations had been previously been created.



10. When plan configuration is completed, click the Validate Plan button in the Toolbar area of CPA to check plan settings.
11. When the new CPA Plan has passed validation, in the Menu Bar area of CPA, click **File > Save** (or **Save As**) to save the plan. CPA for RF-300H-MP communications plans are saved in the *.hcpa file format.

ELO B:
Construct a CPA Mission Plan for RF-300H-MP

Action:

Construct a CPA mission plan for RF-300H-MP.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, and CPA Online Help.

Standard:

The standard is met when the student has constructed a CPA mission plan for radio IAW CPA Online Help.

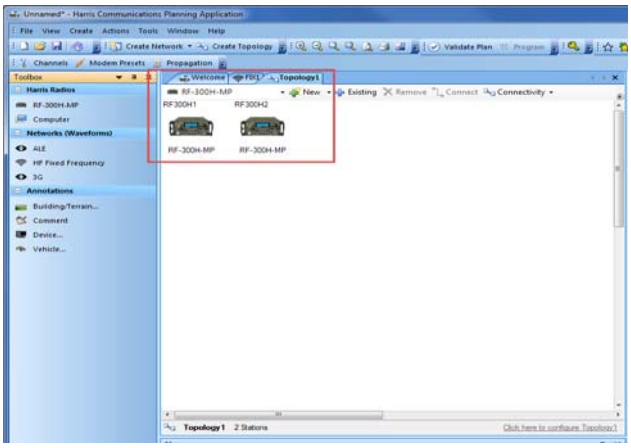
CPA for RF-300H-MP

- **CPA Mission Plans**
  - Mission Plan is a file consisting of a group of radio parameters or settings that are specific to a user's needs
  - Mission plan can be created for an entire radio network, and sync parameters such as IP addresses to avoid collisions.
  - Mission Plan is created by configuring parameters in CPA, or sometimes from the radio front panel.
  - 3G requires configuration by CPA.
  - Working sample plans are provided with CPA as a good starting point for creating a custom mission plan.
  - CPA instructions are included in the CPA Online Help system.
  - Mission Plan files are loaded into the radio via USB connection. Files are installed using the INSTALL menu in LD.

CPA for RF-300H-MP

Construct CPA Plan

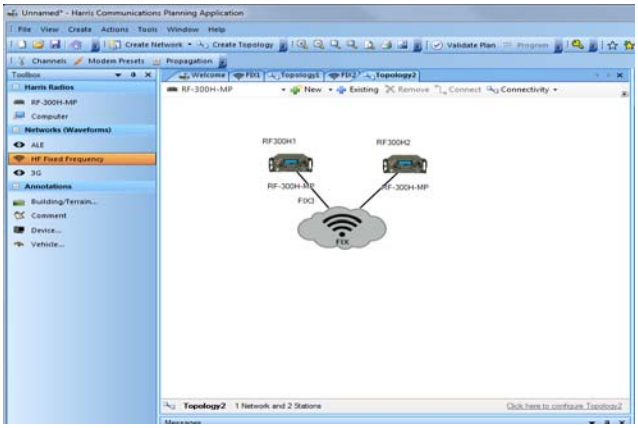
1. Create a Topology.
2. Add multiple RF-300H-MP's (example shown is with two radios).



CPA for RF-300H-MP

Construct CPA Plan

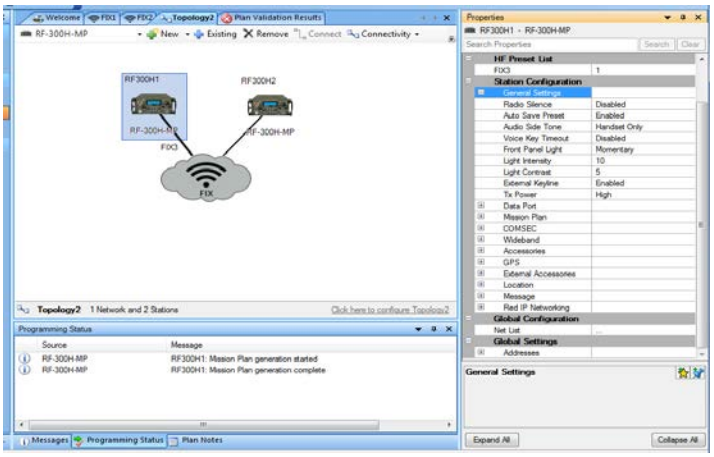
3. Add a network. Example uses FIX (HF Fixed Frequency).
4. Connect all radios to this network.



CPA for RF-300H-MP

Construct CPA Plan

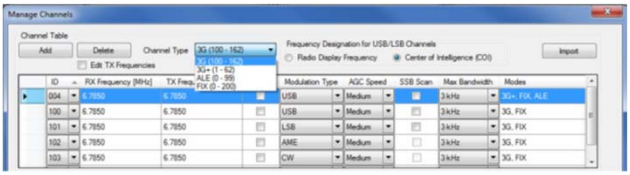
5. Select radios and configure all applicable station settings.



CPA for RF-300H-MP

Construct CPA Plan

6. Assign at least one Channel to the FIX Network.
7. Select **Tools > HF Channels**, or select the **Channels** icon in the HF Toolbar.
8. Observe the Manage Channels dialog displays.



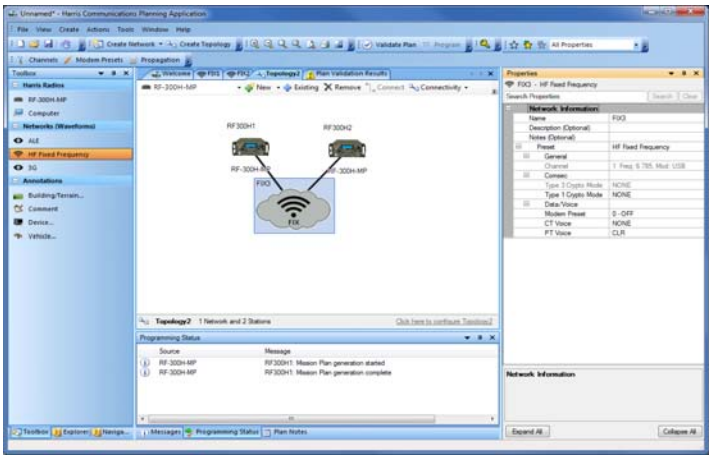
9. Select the Channel Type drop-down to make the required selections FIX (0-200).
10. Configure the channel settings as required.

CPA for RF-300H-MP

HARRIS®

Construct CPA Plan

11. Select the FIX net and configure all applicable network settings.



CPA for RF-300H-MP

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Construct CPA Plan

12. Verify all radio settings are correct on BOTH radios.
13. Add any other radios or nets as required.
14. Save the mission plan file.

ELO C:
Program the RF-300H-MP with a CPA Mission Plan

Action:

Program the RF-300H-MP with a CPA Mission Plan.

Condition:

In a classroom environment, given all components of the radio, classroom instruction, and CPA Online Help.

Standard:

The standard is met when the student has programmed the radio with a CPA Mission Plan IAW CPA Online Help.

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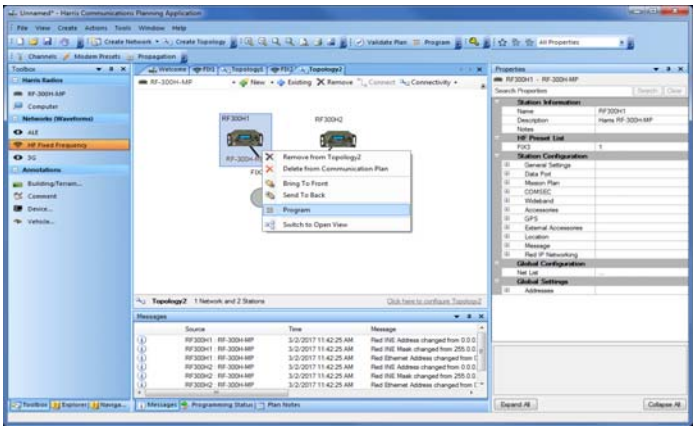
Program a Mission Plan

1. Highlight the radios to be programmed.
2. Select right mouse click, then **Program**. Ensure to correct any plan errors.



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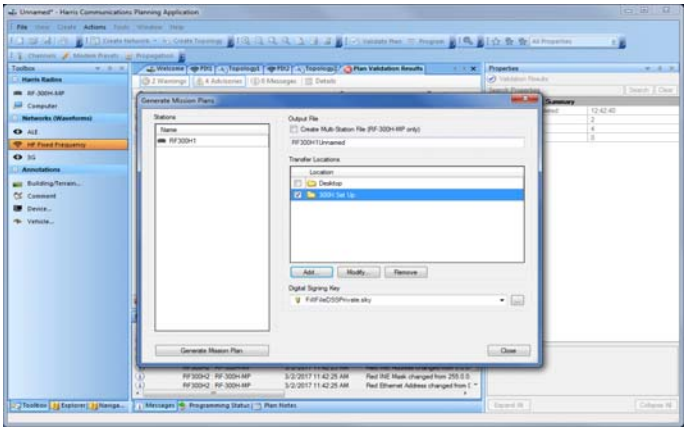
CPA for RF-300H-MP

Program a Mission Plan

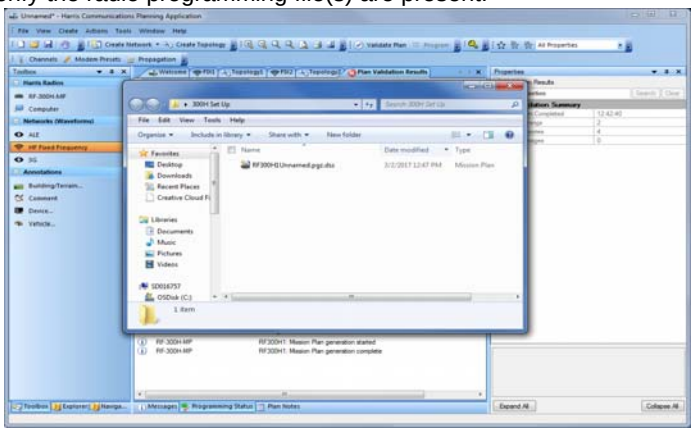
3. Select folder where mission plan files are to be saved (Desktop is default).
4. Select **Generate Mission Plan** button at the bottom left side of the pane.



CPA for RF-300H-MP

Program a Mission Plan

5. Navigate to the folder where you generated your (*.pgz.dss) plan file(s).
6. Verify the radio programming file(s) are present.



CPA for RF-300H-MP

Program a Mission Plan

7. Transfer mission plan files to the RF-300H-MP radio.
   a) Connect the radio to the PC using Universal Serial Bus (USB) Programming Cable Assembly (12043-2850-A006).
   b) Power on the radio and allow time to fully boot.
   c) Load the Mission Plan file(s) (*.pgz.dss) from the PC to the new Red drive created when the USB programming cable was connected.
   d) Place the radio function switch to **[LD]** position.
   e) Select **INSTALL** and press **[ENT].**
   f) Select **YES** and press **[ENT]** at the prompt **INSTALL ALL PACKAGES**.
   g) Observe INSTALL SUCCESSFUL displays and press **[CLR]**.
   h) Place radio function switch to **[PT]** position.

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CPA for RF-300H-MP

Program a Mission Plan

8. Activate Mission Plan.
   a) Select **[7/OPT] > MISSION PLAN** and press **[ENT]**.
   b) Select **ACTIVATE MISSION PLAN** and press **[ENT]**.
   c) Navigate to the required Mission Plan file at the radio's MISSION PLAN FILE menu and press **[ENT].** If the mission plan file is a Multi-Station Fill File (.MSFF), scroll to the proper station name and press **[ENT]** again.
   d) Select **YES** and press **[ENT]** at the radio's ACTIVATE PLAN menu.
   e) Wait while the mission plan activates. PLAN IN PROGRESS <plan name> will appear, followed by PLAN COMPLETE <plan name>.
   f) Press **[ENT]** to return to the current Main screen of the radio. The radio is now configured according to the contents of the Mission Plan.

NOTE - The Mission Plan Editor utility can perform two actions on a Mission Plan file; **Convert to Fill File** and **Add to MSFF**. Right-click on the Mission Plan file icon to access the Mission Plan Editor.

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Notes:

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