



CB300-D USER GUIDE



MOTOROLA SOLUTIONS

CONTENTS

RF Safety & FCC Compliance	4
Product Safety	5-6
FCC Licensing Information	7
Electromagnetic Interference Compliance.....	8
Industry Canada Compliance	9
Declaration of Conformity	10
Warranty Coverage & Exclusions	11-12
Computer Software Copyrights.....	13
Documentation Copyrights.....	14
Battery Installation.....	15-16
Faceplate Removal	17
Bolt Lock Installation.....	18
Mounting.....	19-20
Controls Interface.....	21
LCD Display	22-23
Device & LCD Wakeup.....	24
Scrolling Menu.....	25
Selecting a Channel	26
Message Recording	27-28

Message Playback	29
Volume Adjusting	30
LCD Contrast	31
Software Version	32
Setting Profile ID	33-34
Call Cycles.....	35
Cycle Delay.....	36
Channel Ready Delay	37
Set LED Pattern	38
Set Defaults	39
Notes.....	40-41

RF SAFETY & FCC COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
- Observe a minimum safe distance of 20 cm from the device to the operator.



Federal Communications Commission
445 12th Street, SW
Washington, DC 20554
1-888-225-5322 (1-888-CALL FCC)
Voice: toll free 1-888-835-5322 (1-888-TELL
FCC) TTY: toll free

PRODUCT SAFETY

The CB300-D requires care in mounting and servicing. Observing the following precautions will ensure the proper function and safety of the unit.

CAUTION!

- Do not screw through the device to mount to a surface.
- Keep the Callbox away from water, high moisture, and high temperatures.
- This equipment contains potentially hazardous voltages.
- Do not attempt to disassemble the unit.
- Except for the batteries, this unit contains absolutely no user serviceable components and all service should be completed only by qualified service personnel.
- Do not dispose of batteries in fire. The batteries may explode.
- Do not open or mutilate the batteries, they contain dangerous electrolytes.
- Operating this unit in any capacity other than its intended purpose may result in system failure and possible injury and voids any and all warranty.

ACOUSTIC SAFETY

Exposure to loud noises from any source for extended periods of time may temporarily or permanently affect your hearing. The louder the radio's volume, the less time is required before your hearing can be affected. Hearing damage from loud noises is sometimes undetectable at first and can have a cumulative effect.

To protect your hearing :

- Use the lowest volume necessary to do your job.
- Increase the volume only if you are in noisy surroundings.
- When using the radio, do not place the radio's speaker directly against your ear.
- If you experience hearing discomfort, ringing in your ears, or speeches that are muffled, you should stop listening to your radio, and have your hearing checked by your doctor.

FCC LICENSING INFORMATION

This Digital Callbox is operating in the license-free 900 MHz ISM Band (902 – 928 MHz) and are subject to the Rules and Regulations of the Federal Communications Commission (FCC).

NOTICE TO USERS (FCC AND INDUSTRY CANADA)

This device complies with Part 15 of the FCC Rules and Industry Canada's license-exempt RSS's per the following conditions.

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.
- (3) Changes or modifications not expressly approved by Motorola may void the user's authority to operate this equipment.

To comply with FCC/IC requirements, transmitter adjustments should be made only by or under the supervision of a person certified as technically qualified to perform transmitter maintenance and repairs. Replacement of any transmitter component (crystal, semiconductor, etc.) not authorized by the FCC/IC equipment authorization for this radio could violate FCC/IC rules.

NOTE: Use of this radio outside the country where it was intended to be distributed is subject to government regulations and may be prohibited.

ELECTROMAGNETIC INTERFERENCE (EMI) COMPLIANCE

NOTE: Nearly every electronic device is susceptible to electromagnetic interference (EMI) if inadequately shielded, designed, or otherwise configured for electromagnetic compatibility. This device complies with part 15 of the FCC Rules. Operation is subject to the following conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation of the device.
- (3) Changes or modifications made to this device, not expressly approved by Motorola, could void the authority of the user to operate this equipment.

INDUSTRY CANADA (IC) STATEMENT (CANADA)

IC WARNING

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

IC RF EXPOSURE STATEMENT

This device meets the IC requirements for RF exposure in public or uncontrolled environments.

DÉCLARATION DE CANADA D'INDUSTRIE (IC) (CANADA)

AVERTISSEMENT D'IC

Cet appareil est conforme avec Industrie Canada RSS standard exempts de licence (s). Son utilisation est soumise à Les deux conditions suivantes: 1. cet appareil ne peut pas provoquer d'interférences et 2. cet appareil doit accepter Toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement du dispositif.

DÉCLARATION D'EXPOSITION D'IC RF

Cet appareil est conforme aux conditions de la IC en matière de RF dans des environnements publics ou incontrôlée.

DECLARATION OF CONFORMITY

Per FCC CFR 47 Part 2 Section 2.1077(a)



Responsible Party

Name: Motorola Solutions, Inc.

Address: 1303 East Algonquin Road,
Schaumburg IL 60196-1078, U.S.A.

Phone Number: 1-800-927-2744

Hereby declares that the product:

Model Name: CB300-D

conforms to the following regulations:

FCC Part 15, subpart B, section 15.107(a),
15.107(d), and section 15.109(a).

WARRANTY COVERAGE

MOTOROLA SOLUTIONS LIMITED
WARRANTY FOR THE UNITED STATES AND
CANADA

WHAT DOES THIS WARRANTY COVER?

Subject to the exclusions on the following page, Motorola Solutions, Inc. warrants its CB300-D Call Boxes to be free from defects in materials and workmanship under normal consumer usage for the period(s) outlined below. This limited warranty is a consumer's exclusive remedy, and applies as follows to new Motorola Products, Accessories and Software purchased by consumers in the United States, which are accompanied by this written warranty.

PRODUCTS COVERED
CB300-D CALL BOX

COVERAGE LENGTH
TWO (2) YEARS FROM THE DATE OF PURCHASE

WARRANTY EXCLUSIONS

NORMAL WEAR AND TEAR. Periodic maintenance, repair and replacement of parts due to normal wear and tear are excluded from coverage.

ABUSE & MISUSE. Defects or damage that result from: (a) improper operation, storage, misuse or abuse, accident or neglect, such as physical damage (cracks, scratches, etc.) to the surface of the product resulting from misuse; (b) contact with liquid, water, rain, extreme humidity or heavy perspiration, sand, dirt or the like, extreme heat, or food; (c) use of the Products or Accessories for commercial purposes or subjecting the Product or Accessory to abnormal usage or conditions; or (d) other acts which are not the fault of Motorola Solutions, are excluded from coverage.

USE OF NON-MOTOROLA SOLUTIONS PRODUCTS & ACCESSORIES.

Defects or damage that result from the use of Non-Motorola Solutions branded or certified Products, Accessories, Software or other peripheral equipment are excluded from coverage.

UNAUTHORIZED SERVICE OR MODIFICATION.

Defects or damages resulting from service, testing, adjustment, installation, maintenance, alteration, or modification in any way by someone other than Motorola Solutions, or its authorized service centers, are excluded from coverage.

ALTERED PRODUCTS. Products or Accessories with (a) serial numbers or date tags that have been removed, altered or obliterated; (b) broken seals or that show evidence of tampering; (c) mismatched board serial numbers; or (d) nonconforming or non Motorola Solutions housings, or parts, are excluded from coverage.

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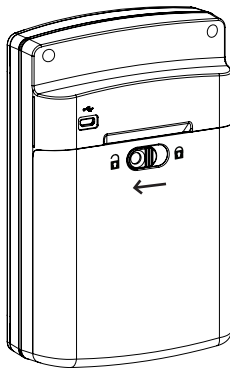
DISCLAIMER

The information in this document is carefully examined, and is believed to be entirely reliable. However, no responsibility is assumed for inaccuracies. Furthermore, Motorola Solutions reserves the right to make changes to any products herein to improve readability, function, or design. Motorola Solutions does not assume any liability arising out of the applications or use of any product or circuit described herein; nor does it cover any license under its patent rights, nor the rights of others.

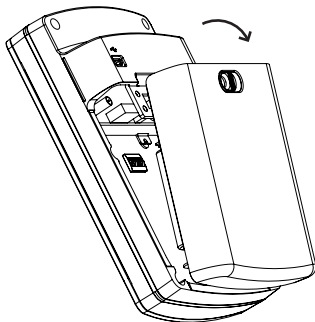
BATTERY INSTALLATION

To install three D batteries, begin by sliding the battery sled latch to the **OPEN** position.

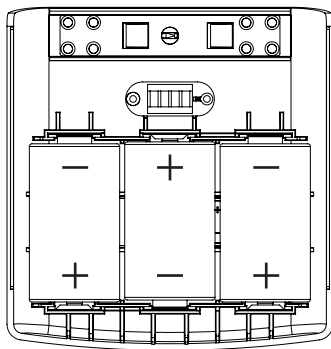
(If a BOLT LOCK has been installed, remove it in order to slide the latch.)



Remove the battery sled to reveal the battery housing.



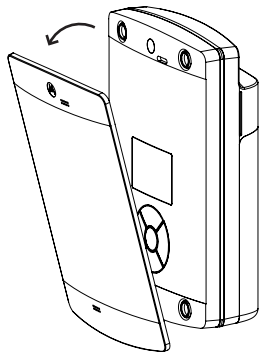
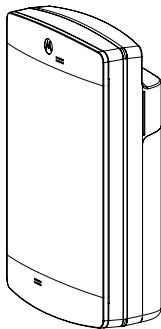
Install the three D batteries in the configuration illustrated to the right. Replace the battery sled, and slide the battery sled latch to the **CLOSED** position.



FACEPLATE REMOVAL

Remove the faceplate to access the controls interface and change the graphic insert.

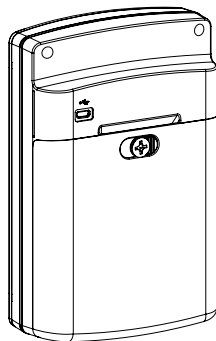
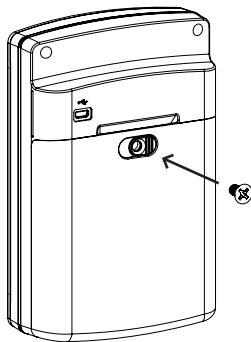
The faceplate is secured at four connection points. Firmly grasp the faceplate and pull to disengage the connections.



NOTE: *The faceplate acts as the Call Button for the device. When the faceplate is removed, the Call Button is inactive. Refer to page 20 for additional Controls Interface details.*

BOLT LOCK INSTALLATION

To install a security **BOLT LOCK**, use a $\frac{1}{4}$ -20 bolt. Screw the bolt into the area indicated to the right.



3M™ DUAL LOCK™ ADHESIVE STRIPS

Ensure both the back of the callbox and the area of the surface that is being attached to is clean, flat, and dry.

Peel off one side of the DualLock's release backing and firmly adhere to the left side of the unit. Repeat this with the other DualLock to the right side of the callbox.

Once both strips of DualLock are attached to the callbox, peel off the white release backing and carefully align the unit to be level on the surface you intend to place it.

Once the callbox appears aligned, firmly press it to the wall in one motion.

NOTE: *The callbox can be removed by applying firm pressure around the exterior edge of the unit.*

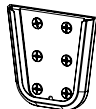
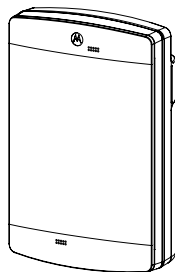
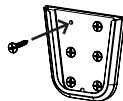
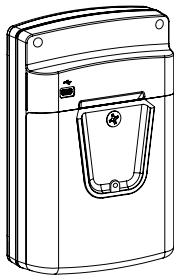


MOUNTING CLIP

Remove the **BOLT LOCK**, align the positive half of the mounting clip with the screw hole, reinsert the **BOLT LOCK**, and screw until tight.

Mount the negative half of the mounting clip in a desired area using six fasteners appropriate for the wall material and thickness.

Slide the device, with the positive half of the mounting clip facing the wall, into the negative half until the unit clicks into place.



CONTROLS INTERFACE

The **CONTROLS INTERFACE** is comprised of five buttons and an LCD Display.



Escape



Up

ENTER

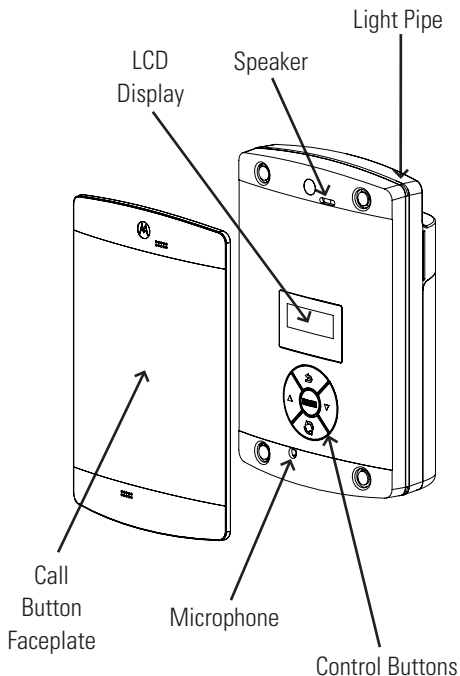
Enter



Down



Wake Up



LCD DISPLAY

The CB300-D is equipped with a 2-line by 16 character LCD display. Various system information will be shown on the display depending on the current mode of operation (normal status screen, play/record message, channel selection, etc.).

INITIAL POWER-UP LCD SCREEN

The CB300-D will power-up in a mode to communicate with the PC (for configuration information and message recording).

LCD DISPLAY CONT.

STATUS LCD SCREEN

If there are no active recordings, or database changes, the normal status screen will be shown on the LCD display. These screens will toggle continuously:

VER: cb300d2.10
DLR: OK

This status screen will show the software version and the DLR Modem module status (OK/FAIL).

CHAN No: 1
PROF ID: 0000

This status screen will show the current setting for the Channel setting and the DLR Profile ID (the Channel and Profile ID must match on the receiving radio).

LCD POWER

To conserve battery power, the LCD display power is controlled by the CB300-D software. Upon system wake-up, the LCD will remain in a power-down state. Pressing any LCD menu control button will power-up the LCD. The LCD will remain in a power-up state until the next sleep cycle.

Upon wakeup, the LCD is always disabled to conserve battery power. Press any LCD menu control button to power-up the LCD display.

DEVICE WAKEUP

The following buttons will “wake-up” the device:

-  *ESC Button*
-  *Wake Up Button*
-  *Call Button*

LCD WAKEUP

The following buttons will “wake-up” the LCD:

-  *ESC Button*

When the  or Call Button is pressed, the LCD is still disabled until any LCD Control Button is pressed.

To program new messages, it is recommended to use the  button to wake-up the CB300-D system to prevent an outgoing broadcast over the radio system. The CB300-D system will support up to 6 messages of 10 seconds each. The system expects the following message order:

Message 1: Local Message (Message played back on local speaker)

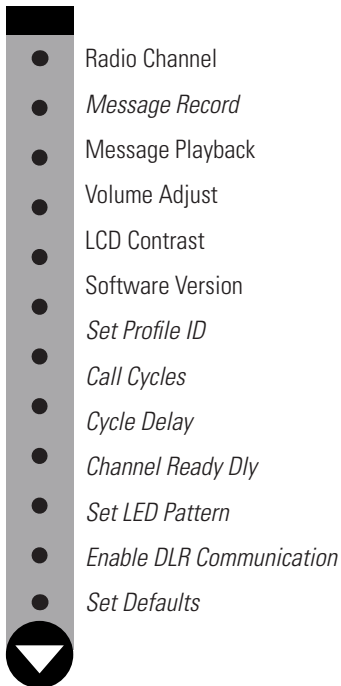
Message 2: Radio Message (Broadcast when the Call Button is pressed)

Message 3: “Low Battery” radio broadcast message.

SCROLLING MENU

There are several menu selections available in the CB300-D Interface. Press the ▲ or ▼ buttons to scroll through the various menus, and press the **ENTER** button to select the menu item. The ↶ button will typically back up one menu level, or may exit to the status menu (depending of the function active when the ↶ button is pressed). The ↷ button will exit a menu without making any changes.

NOTE: *Italicized menu selections are hidden by default. To activate Hidden Menus, use the ▲ or ▼ buttons to scroll to **SOFTWARE VERSION**. Press **ENTER** to view the software version, and then press ▲ within six seconds. The Hidden Menus are now activated.*



SELECTING A CHANNEL

The radio channel is used for all RF broadcasts by the CB300-D. The CB300-D and the radio receiver frequencies must match or the broadcast will not be received. The channel selection numbers correspond to the channel selection of 900 MHz digital radios by Motorola.

NOTE: The DLR modem must detect a DLR receiver or the unit will not transmit.

Radio Channel?

Old: 1

New: 1

*"Old" refers to the current selected channel.
In this example, the number "1" refers to
Channel 1 of the 900 MHz digital radio.*

Old: 1

****Chan Updated**

Press the ▲ or ▼ button until the Radio Channel? menu is shown. Press the **ENTER** button to begin the next step.

Press the ▲ or ▼ arrow buttons to select a new channel. The line "New" will display the new channel selection.

Press-and-Hold the ▲ or ▼ button for faster increments.

Press **ENTER** to select the new channel, or ↩ to exit without any changes.

After pressing **ENTER**, the new channel is selected.

MESSAGE RECORDING

Msg Record?

Press the ▲ or ▼ button until the Msg Record? menu is shown. Press the **ENTER** button to begin the next step.

Select Message?
Local Message

Press the ▲ or ▼ button until the desired message is shown on the display.

Hold ENTER Btn
To Record Msg

When ready, Press-and-Hold the **ENTER** button to begin recording. All sounds picked up by the microphone will become part of the message. Make sure you are in a quiet environment.

Recording will continue while the **ENTER** button is held down. A counter will increment to display the elapsed time of the message (10 seconds maximum message length).

NOTE: See page 23 for the default list and functions of recorded messages.

MESSAGE RECORDING CONT.

-MSG LEN >10sec
Local Message

**Auto Playback
Local Message

-Playback Act-
Local Message

NOTE: If the recording is longer than 10 seconds, the following message is shown. If this message is shown, release the **ENTER** button, shorten the message and record again.

When the **ENTER** button is released, recording will end and the new message will begin auto playback on the local speaker.

After playback is complete, the system will loop back to the "Select Message" menu to allow recording of additional messages. Press  to exit the recording menu.

MESSAGE PLAYBACK

Refer to the steps listed below to playback a local message using the local speaker.

NOTE: No radio broadcast will occur during message playback, only the local speaker will become active).

Msg Playback?

Press the ▲ or ▼ button until the Msg Playback? menu is shown. Press the **ENTER** button to begin the next step.

Select Message?
Local Message

Press the ▲ or ▼ button until the desired message number is shown on the display.

-Playback Act-
Local Message

Press the **ENTER** button to begin playback of the selected message to the local speaker. When the playback is finished, the system will loop back to the "Select Playback Message" menu to allow playback of additional messages. Press ↻ to exit.

VOLUME ADJUSTING

Refer to the steps listed below adjust the volume for the RF Broadcast volume and the local speaker volume.

Volume Adjust?

Press the ▲ or ▼ button until the Volume Adjust? menu is shown. Press the **ENTER** button to begin the next step.

Radio Volume?

-Radio Volume-
Vol (1-63): 8

Speaker Volume?

-Speaker Volume-
Vol (1-63): 45

Use the ▲ or ▼ buttons to increase/decrease the volume setting. The volume settings take place immediately. Press **↵** to exit.

LCD CONTRAST

Refer to the steps listed below to adjust the contrast on the LCD display. The LCD contrast is set for a system with fresh batteries. As the batteries discharge over time, the LCD display may need the contrast changed to improve the appearance of characters on the display.

LCD Contrast?

Press the ▲ or ▼ button until the LCD Contrast? menu is shown. Press the **ENTER** button to begin the next step.

-LCD Contrast-
(0-15): 0

Use the ▲ or ▼ buttons to increase/decrease the LCD contrast. The contrast setting will take place immediately with each press of the ▲ or ▼ button. Press **↩** to exit.

SOFTWARE VERSION

There are several CB300-D software versions in service. Many of the software versions are dependent upon a specific hardware version for compatibility. The table shown below will list the CB300-D software version compatibility.

SOFTWARE VERSIONS	CPU	PCB VER	VISUAL BASIC VERSION
cb300d2.10	PIC18F66K22	A180421	(cb300d_v101)

CAUTION: *Software versions are paired to a specific PCB hardware version and CPU number. Loading an incompatible software version into the CB300-D hardware can cause unstable operation of the CB300-D system.*

SETTING PROFILE ID

The profile ID is typically set to create a private communications channel between the DLR modem and the receiving radio. The default profile ID is set = 0000, and can be changed to any number from 0000-9999. Both the DLR modem and the receiving radio must have identical profile ID's and set for the same channel to receive the radio broadcast.

EXAMPLE: Write a new Profile ID = 3692

Set Profile ID?

DIG: *
New: 0002

Press the ▲ or ▼ button until the Set Profile ID? menu is shown. Press the **ENTER** button to begin the next step.

The Profile ID is changed one digit at a time (starting with digit ONE). Use the ▲ or ▼ arrow button to change the digit, and press **ENTER** to save the value and select the next digit. Press ↵ to exit without any changes.

NOTE: An asterisk "*" will appear above the digit enabled for modification.

SETTING PROFILE ID CONT.

DIG: *
New: 0092

DIG: *
New: 0692

DIG: *
New: 3692

DIGIT: THOUSAND
****ID Updated**

Change the TEN's Digit. Use the ▲ or ▼ button to change the digit, and press **ENTER** to save the value and select the next digit. Press ↵ to exit without any changes.

Change the HUNDRED's Digit. Use the ▲ or ▼ button to change the digit, and press **ENTER** to save the value and select the next digit. Press ↵ to exit without any changes.

Change the THOUSAND's Digit. Use the ▲ or ▼ button to change the digit, and press **ENTER** to save the value and select the next digit. Press ↵ to exit without any changes.

The new Profile ID is saved and will update the DLR modem with the new value.

CALL CYCLES

The total Call Cycles refer to the repeating RF broadcasts that will occur when the call button (or aux) button is activated. The system will automatically clear an active call when the Total Call Cycle value is reached. System Default: 2 cycles

Call Cycles?

Old: 2 cycles
New: 2 cycles

Press the ▲ or ▼ button until the Call Cycles? menu is shown. Press the **ENTER** button to begin the next step.

Use the ▲ or ▼ buttons to increase/decrease the Call Cycle selection. The range is 1-30 cycles.

Press-and-Hold the ▲ or ▼ button for faster increments.

Press **ENTER** to select the new Call Cycle, or ↵ to exit without any changes.

NOTE: *Special Menus must be enabled to view this selection.*

CYCLE DELAY

The Cycle Delay refers to the delay (in seconds) between repeating RF broadcasts that occur when the call button (or aux) button is active. System Default: 45 seconds

Cycle Delay?

Old: 45 seconds

New: 45 seconds

Press the ▲ or ▼ button until the Cycle Delay? menu is shown. Press the **ENTER** button to begin the next step.

Use the ▲ or ▼ buttons to increase/decrease the Cycle Delay selection. The range is 10-180 seconds.

Press-and-Hold the ▲ or ▼ button for faster increments.

Press **ENTER** to select the new Cycle Delay, or ↺ to exit without any changes.

NOTE: *Hidden Menus must be enabled to view this selection.*

CHANNEL READY DELAY

The Motorola digital radio system will not broadcast while the radio channel is in use by others, or if a mating digital receiver is not found (with an identical Channel No and Profile ID). The DLR modem module will provide a “ready to transmit” signal if a mating digital radio is found, and if the channel is not busy. To conserve battery power, the RF Module is powered down until needed for a radio broadcast. After RF Module power-up, the system will verify the radio channel is clear and a mating digital radio is available before message broadcast will occur. If a mating receiver is not detected or a busy channel is detected, the system will attempt re-connection based Chan Ready Delay value (configured using the LCD menu, “Chan Ready Delay?” shown below).

Chan Ready Dly?

Old = 20 Sec

New = 20 Sec

Press the ▲ or ▼ button until the Chan Ready Dly? menu is shown. Press the **ENTER** button to begin the next step.

Use the ▲ or ▼ buttons to cycle through the Chan Ready Delay selections (8-120 seconds). Press **ENTER** to select the new value, or ↩ to exit without any changes. Default is 20-seconds.

In the example above, the Channel Ready Delay is set = 20 Seconds. If the Channel Ready signal is not received, the system will re-try for a “Ready” channel every 4-seconds until a “Ready” channel is detected, or until the 20-second Channel Ready Delay timer expires.

SET LED PATTERN

The CB300-D will support two LED patterns: All ON or Logo Only. The “All ON” selection is not recommended due to the battery powered application. (To preserve battery life, the “All On” selection is not recommended.)

Set LED Patt?

Old: Logo Only
New: Logo Only

Press the ▲ or ▼ button until the Set LED Patt? menu is shown. Press the **ENTER** button to begin the next step.

Use the ▲ or ▼ Color selection (All On, Logo Only). Press **ENTER** to select the new value or ↵ to exit without any changes.

AVAILABLE PATTERN SELECTIONS

All On: All 4-LED's will turn ON when the Call is active.

Logo Only: The front Logo LED will turn ON with the Call is active. All other LED's will remain OFF. This pattern is the most energy efficient for battery power.

SET DEFAULTS

This menu selection will reset the system to factory default values.

Set Defaults?

Are You Sure?

ENTER=Y ESC=N

Press the ▲ or ▼ button until the Set Defaults? menu is shown. Press the **ENTER** button to begin the next step.

Press the **ENTER** button to set all values to the factory default settings or any other button to exit without any changes.

SYSTEM DEFAULT SETTINGS

Channel: 1

ISD Volume: 1

LED Pattern: 2 (Logo Only)

RF Broadcast Volume: 30

Local Speaker Volume: 10

Total Call Cycles: 2

Call Cycle Delay: 45 (45-seconds)

Channel Ready Delay: 20 (20-seconds)

DLR Modem Profile ID: 0000

NOTE: Setting factory defaults will modify several system values that can prevent RF broadcast connections to external radios. Verify the external radio setting are correct on the CB300-D after setting the default values.



CB300-D Manual
Printed in USA
08272018D