



INSTRUCTION MANUAL

UHF CB TRANSCEIVER
IC-455



Thank you for choosing this Icom product. This product was designed and built with Icom's state of the art technology and craftsmanship. With proper care, this product should provide you with years of trouble-free operation.

■ Important

READ ALL INSTRUCTIONS carefully and completely before using the transceiver.

SAVE THIS INSTRUCTION MANUAL— This instruction manual contains important operating instructions for the IC-455.

This instruction manual includes some functions that are usable only when they are preset by your dealer. Ask your dealer for details.

■ Features

- Output power of 5 W (High) and 1 W (Low)
- A maximum of 256 channels
- A wide RX frequency range (400.0000 ~ 520.0000 MHz)
- Scanning a maximum of 80 Tag channels in approximately 1 second.
- The Noise Reduction and Equalizer functions that can make the audio easy to hear. (p. 29)
- The Auto Volume function that can automatically adjust the volume level of the received audio, depending on your operating environment. (pp. 24, 29)
- The Scrambler function (pp. 24, 29)
- Selectable backlight colour of the function display (p. 30)
- A built-in DC to DC converter provides 12 V and 24 V automatic switching.
- The HM-244 supplied microphone with 2 W of loud audio

■ Explicit definitions

WORD	DEFINITION
⚠ DANGER!	Personal death, serious injury or an explosion may occur.
⚠ WARNING!	Personal injury, fire hazard or electric shock may occur.
CAUTION	Equipment damage may occur.
NOTE	If disregarded, inconvenience only. No risk of personal injury, fire or electric shock.

Icom is not responsible for the destruction, damage to, or performance of any Icom or non-Icom equipment, if the malfunction is because of:

- Force majeure, including, but not limited to, fires, earthquakes, storms, floods, lightning, other natural disasters, disturbances, riots, war, or radioactive contamination.
- The use of Icom transceivers with any equipment that is not manufactured or approved by Icom.

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■ Operational notes

- i. The use of the citizen band radio service is licenced in Australia by the ACMA Radiocommunications (Citizens Band Radio Stations) Class Licence and in New Zealand by the Ministry of Economic Development (MED) General User Radio Licence for Citizen Band Radio and operation is subject to conditions contained within these licences.
- ii. Always listen on a channel (or observe the channel busy indicator) to ensure it is not already being used before transmitting.
- iii. In Australia, channel 11 is the customary calling channel for establishing communication. Channel 40 is the customary road vehicle channel.
- iv. In Australia, except in an emergency, a CB transmitter shall not be operated on UHF emergency channels 5 and 35.
- v. No voice transmissions are permitted on data channels 22 and 23 (voice operation is inhibited on these channels).
- vi. Channels 61, 62, and 63 are for possible future use and shall not be activated until approved by the ACMA CBRS Class Licence in Australia or the MED GURL in New Zealand. No voice transmissions are permitted on these channels (voice operation is inhibited on these channels).
- vii. The user of this UHF CB communications device shall not transmit Selcall tones for longer than 3 seconds during any 60 second period.
- viii. UHF CB repeaters extend the operational range of your radio. Repeaters operate utilising two channels (repeater input/repeater output). It is important to avoid operation on locally used repeater input channels (in the channel range of 31 to 38 and 71 to 78) or locally used repeater output channels (in the channel range of 1 to 8 and 41 to 48), unless long distance communication via the repeater is specifically required. See the section on repeater operation for more information.
- ix. Please be aware that the UHF CB network may experience possible operational issues during the changeover to narrowband. This transceiver operates on 12.5 kHz channel spacing. During the changeover period from 25 kHz to 12.5 kHz spacing, there may be some loss of quality when 12.5 kHz (narrowband, 2.5 kHz deviation) transmissions are received on 25 kHz (wide band, 5.0 kHz deviation) equipment, and vice-versa. There may also be interference due to older equipment being operated on channels adjacent to new narrowband channels, as the channel setting on these may cause some 'overlap'. A list of currently authorised channels can be found on the ACMA website (Australia) and on the MED website in New Zealand.

■ Precautions

⚠ **DANGER HIGH RF VOLTAGE! NEVER** touch an antenna or antenna connector while transmitting. This could cause an electrical shock or burn.

⚠ **DANGER! NEVER** operate the transceiver near unshielded electrical blasting caps or in an explosive atmosphere. This could cause an explosion and death.

⚠ **DANGER! NEVER** place the transceiver where air bag deployment may be obstructed during mobile operations.

⚠ **WARNING! NEVER** operate the transceiver during a lightning storm. It may result in an electric shock, cause a fire or damage the transceiver. Always disconnect the power source and antenna before a storm.

⚠ **WARNING! NEVER** connect the transceiver to an AC outlet. This may pose a fire hazard and/or result in an electric shock.

⚠ **WARNING! NEVER** hold the transceiver so that the antenna is very close to, or touching exposed parts of the body, especially the face or eyes, while transmitting.

⚠ **WARNING! NEVER** operate or touch the transceiver and microphone with wet hands. This could cause an electric shock or damage the transceiver and microphone.

⚠ **WARNING! NEVER** connect the transceiver to a power source of more than 27.6 V DC, such as a 36 V battery. This could damage the transceiver.

⚠ **WARNING! NEVER** cut the DC power cable between the DC plug and fuse holder. If an incorrect connection is made after cutting, the transceiver may be damaged.

⚠ **WARNING! NEVER** let metal, wire, or other objects contact the transceiver inside or make incorrect contact with connectors on the rear panel. This could cause an electric shock or damage the transceiver.

⚠ **WARNING! NEVER** operate the equipment if you notice an abnormal odour, sound, or smoke. Immediately turn OFF the power and/or remove the DC power cable. Contact your Icom dealer or distributor for advice.

⚠ **WARNING! NEVER** place the transceiver where the vehicle's normal operation may be hindered or where it could cause bodily injury.

⚠ **WARNING! NEVER** put the transceiver in an unstable place where the transceiver may suddenly move or fall. This could cause an injury or damage the transceiver.

CAUTION: DO NOT reverse the DC power cable polarity. This could damage the transceiver.

CAUTION: DO NOT expose the transceiver and microphone to rain, snow or any liquids. They could damage the transceiver and microphone.

CAUTION: DO NOT operate the transceiver without running the vehicle's engine. The vehicle's battery will quickly run out when the transceiver is used while the vehicle's engine is OFF.

CAUTION: DO NOT install or place the transceiver in a place without adequate ventilation or block any cooling vents on the bottom of the transceiver. Heat dissipation may be reduced and damage the transceiver.

CAUTION: DO NOT use harsh solvents such as Benzine or alcohol when cleaning. This could damage the equipment surfaces. If the surface becomes dusty or dirty, wipe it clean with a soft, dry cloth.

CAUTION: DO NOT start the vehicle engine when the transceiver's power is ON. Ignition voltage spikes can damage the transceiver.

CAUTION: DO NOT change the internal settings of the equipment. This may reduce equipment performance and/or cause extensive and expensive damage to the equipment. The equipment warranty does not cover any problems caused by unauthorised internal adjustments.

CAUTION: DO NOT use the non-specified microphone. Other microphones have different pin assignments and may damage the transceiver.

CAUTION: Confirm that all connectors and jacks are dry and clean before attachment. Exposing them to dust or water will result in serious damage to the transceiver.

NOTE: DO NOT use or leave the transceiver in areas with temperatures below -10°C or above $+60^{\circ}\text{C}$, or in areas subject to direct sunlight, such as the dashboard.

DO NOT push PTT unless you actually intend to transmit.

DO NOT place the transceiver where hot or cold air blows directly onto it, during mobile operation.

KEEP the transceiver away from heavy rain and never immerse it in water. The transceiver meets IP54* requirements for dust-protection and splash resistance. However, once the transceiver has been dropped, dust-protection and splash resistance cannot be guaranteed due to the fact that the transceiver may be cracked or the waterproof seal damaged, and so on.

* Except for the rear panel, and only when the supplied microphone is attached.

NEVER place the transceiver in an insecure place to avoid inadvertent use by unauthorised persons.

BE CAREFUL! DO NOT block the air vent on the bottom panel of the transceiver. This transceiver has an air vent to meet the IP54 requirements.

BE CAREFUL! The transceiver may become hot after continuously transmitting for long periods of time.

MAKE SURE to turn OFF the transceiver power before connecting any supplied/ optional equipment.



This device complies with Standard Australia Specification No. AS/NZS 4365-2011.

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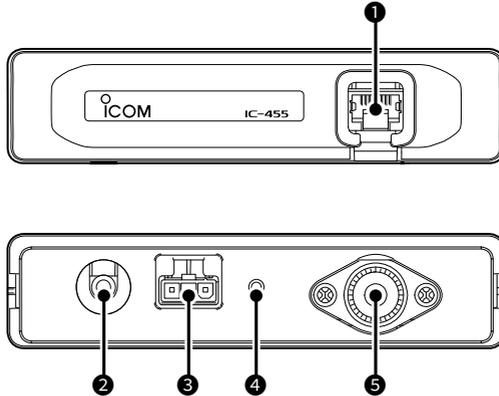
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■ Main unit

◇ Front and rear panels

1

NOTE: See page 32 for the Connections.



① MICROPHONE CONNECTOR

Connects to the supplied microphone or the optional programming cable.

② EXTERNAL SPEAKER JACK

Connects to a 4 Ω external speaker.

③ DC POWER CONNECTOR

Connects to a 12 or 24 V DC power source.

④ GROUND TERMINAL

Connects to a vehicle's ground to prevent electrical shocks and interference from other equipment occurring.

⑤ ANTENNA CONNECTOR

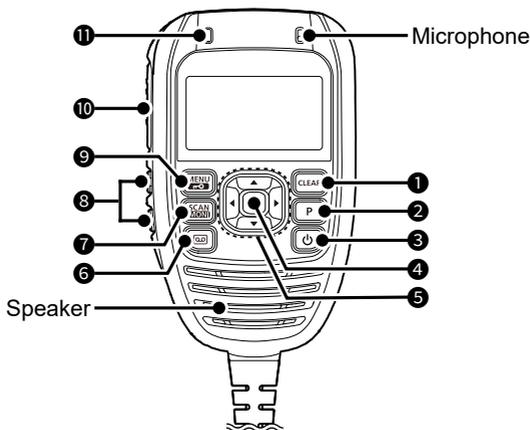
Connects to an antenna with a PL-259 connector.

1 PANEL DESCRIPTION

Microphone

◇ Front panel

- ① You can disable or change the function assigned to any key except [PTT], [+]/[-], and [⏻] using the optional CS-455 programming software. (p. 25)



① CLEAR KEY [CLEAR]

Push to cancel a setting, or to return to the previous screen.

② PROGRAMMABLE KEY [P]

Push or hold down to activate the function that is assigned using the programming software.

③ POWER KEY [⏻]

Hold down for 2 seconds to turn the transceiver ON or OFF. (p. 4)

④ ENTER KEY [ENT]

- Push to select an item or setting in the menu.
- Push to select the Priority CH in the standby mode.
- Hold down for 2 seconds to set or clear the selected channel as a Priority channel. (p. 7)

⑤ UP/DOWN/LEFT/RIGHT KEYS

[▲]/[▼]/[◀]/[▶]

- Push [▲]/[▼] to select an operating channel, menu setting, and so on.
- Push [◀]/[▶] to select an item or setting, or to return to the previous screen in the menu.

⑥ REC DATA/REC PAUSE KEY [⏸]

(p. 8)

- Push to display the “Rec Data” menu.
- Hold down for 2 seconds to start or stop recording.

⑦ SCAN/MONI KEY [SCAN]/[MONI]

- Push to start or stop the scan. (p. 10)
- Hold down for 2 seconds to turn the Monitor function ON or OFF. (p. 8)

⑧ VOLUME CONTROL KEYS [+]/[-]

Push to adjust the audio volume level.

⑨ MENU LOCK KEY [MENU]/[⏻]

- Push to display the menu screen.
- Hold down for 2 seconds to turn the Lock function ON or OFF. (p. 8)

⑩ PTT SWITCH [PTT]

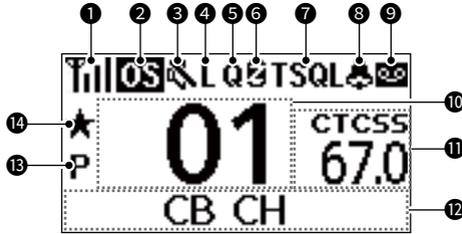
Hold down to transmit, release to receive.

⑪ TX/RX INDICATOR

Lights or blinks, depending on your operating state.

Green: Receiving (The squelch is open.)
Red: Transmitting

◇ Function display



1 SIGNAL STRENGTH ICON

Displays the relative receive signal strength level.

- ① "V" blinks when the ATS function is turned ON. (p. 22)

2 SCAN ICON

Displayed when a scan mode is selected.

- OS**: Open Scan (p. 12)
- GS**: Group Scan (p. 13)
- PS**: Priority Scan (p. 13)
- DS**: Dynamic Group Scan (p. 14)
- RS**: Repeater Scan (p. 15)

3 INTERNAL SPEAKER MUTE ICON

Displayed when the audio volume level is set to 0 (Mute mode). (p. 5)

4 LOW POWER ICON (p. 7)

Displayed when the low output power is selected.

5 QUIET ICON (p. 21)

Displayed when the Quiet function is turned ON. (Selcall mute is activated.)

6 SCRAMBLER ICON (pp. 24, 29)

Displayed when the Scrambler function is turned ON.

7 TONE ICON (p. 16)

- Displays "T" while the Subaudible tone encoder is used.
- Displays "SQL" while the Subaudible tone encoder is used on a receive channel.
- Displays "TSQL" while the Tone Squelch function is turned ON.

8 BELL ICON

- Displayed when the Pocket Beep function is turned ON. (p. 17)
- Blinks when the specified Selcall or Smart Ring call is received. (pp. 20, 22)

9 VOICE RECORDER ICON (p. 8)

Displayed when there is a recorded message.

10 CHANNEL READOUT

Displays the selected operating channel number.

11 CTCSS/DTCS READOUT

- Displays the CTCSS tone frequency or DTCS code. (pp. 14, 16)
- Displayed when the Tone Squelch function or the Pocket Beep function is turned ON. (pp. 16, 17)

12 NAME DISPLAY

Displays the operating channel name and channel type.

13 PRIORITY CHANNEL ICON (p. 7)

Displayed when the Priority channel is set.

14 TAG CHANNEL ICON (p. 11)

Displayed when a Tag channel is selected.

■ Turning ON the transceiver

1. Hold down [⏻] for 2 seconds to turn ON the transceiver.
2. If the transceiver is programmed with a start-up password, enter the password.

TIP:

- Push [▲] and [▼] to select a number.
- Push [◀] and [▶] to select a digit to enter.

Password:
0000

3. Push [ENT] to enter the operating screen.
 - ① If an incorrect password is entered, you cannot open the operating screen. Enter the correct password again in step 2.

■ Selecting a channel

- Push [▲] or [▼] to select a channel.
 - When CB channel 1 is selected, two beeps sound.
 - The channel name is displayed.
 - ① Holding down [▲] or [▼] continuously changes a channel until CB channel 1 is selected.

OS
★ 01
CB CH

◇ Selecting a zone

You can select a zone only when two or more zones are set.

[MENU] > Zone

1. Push [MENU].
 - The "Menu" screen is displayed.
2. Push [▲] or [▼] to select "Zone," and then push [▶] or [ENT].
 - The "Zone" screen is displayed.
3. Push [▲] or [▼] to select a zone, and then push [ENT] to set it.
 - ① Push [CLEAR] to return to the previous screen.

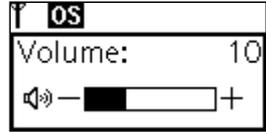
NOTE:

- "CB-05," "RPT-05," and "CB-35" channels are for only emergency use.
- No voice transmissions are permitted on "CB-22" and "CB-23" (voice operation is inhibited on these channels).
- "CB-61," "CB-62," and "CB-63" are for possible future use and shall not be activated until approved by the ACMA CBRS Class Licence in Australia or the MED GURL in New Zealand. No voice transmissions are permitted on these channels (voice operation is inhibited on these channels).

Zone 2/2
Icom 1
✓ Icom 2

■ Adjusting the volume level

- Push [+] or [-] to set the audio volume level to between 0 and 32.
 - “” is displayed when the audio level is set to 0 (Mute mode).



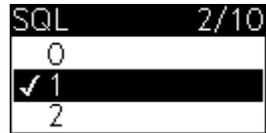
■ Adjusting the squelch level

Squelch enables the audio to be heard only while receiving a signal that is stronger than the set level. A higher level blocks weak signals, so that you can receive only stronger signals. A lower level enables you to hear weak signals.

1. Open the “SQL” screen.

[MENU] > SQL

2. Push [▲] or [▼] to set the squelch level to between 0 and 9, and then push [ENT] to set it.
 - ① Push [CLEAR] to return to the previous screen.



■ Backlight function

The transceiver has backlight modes for night-time or low-light operations.

1. Open the “Backlight” screen.

[MENU] > Settings > Backlight

2. Push [▲] or [▼] to select a display backlight mode, and then push [ENT] to set it.
 - ① Push [CLEAR] to return to the previous screen.
 - Off: The backlight is continuously OFF.
 - Auto: The backlight turns ON for 5 seconds when:
 - Any key except [PTT] is pushed.
 - A Selcall signal is transmitted or received.
 - Auto2: The backlight turns ON for 5 seconds when:
 - Any key except [PTT] is pushed.
 - A Selcall signal is transmitted or received.
 - The display is changed.
 - On: The backlight is continuously ON.



TIP: You can change the backlight colour of the function display to indicate the state that the transceiver is in. (p. 30)

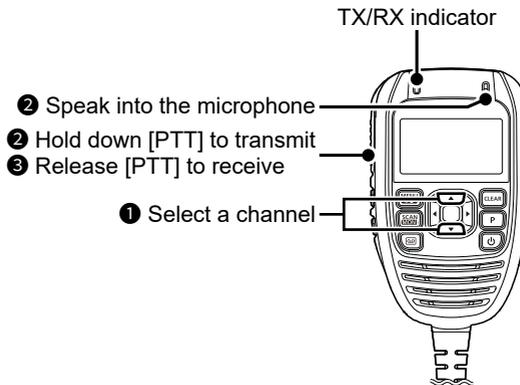
2 BASIC OPERATIONS

■ Receiving and transmitting

CAUTION: DO NOT transmit without an antenna.

NOTE: Turn OFF the Tone Squelch or Pocket Beep function. (pp. 16, 17) If “TSQL” is displayed, you can only receive calls from others with the same tone squelch code. ([MENU] > **Tone SQL**)

1. Push [▲] or [▼] to select the channel to call on. (p. 4)
 - The TX/RX indicator lights green, and audio is heard from the speaker while receiving a signal.
2. Hold down [PTT] and speak into the microphone at your normal voice level.
 - The TX/RX indicator lights red while transmitting.
 - ① See page 28 for the PTT Hold function.
3. Release [PTT] to receive.



TIP: To maximize the readability of your transmitted signal, pause for a second after pushing [PTT]. Hold the microphone 5 to 10 cm from your mouth, and then speak at your normal voice level.

NOTE:

- The transceiver has several inhibit functions that restrict transmissions under the following conditions:
 - The channel is busy, or an unmatched CTCSS/DTCS is received, depending on the transmission lockout function setting.
 - The selected channel is a “receive only” channel.
- After continuously transmitting, a time-out timer will be activated. The transceiver stops transmitting and automatically receives.
 - ① The time-out timer setting may differ, depending on the presetting.

◇ **Setting the output power level**

1. Push [▲] or [▼] to select a channel.
2. Open the “RF Power” screen.
 - [MENU] > RF Power
3. Push [▲] or [▼] to select “High” or “Low,” and then push [ENT] to set it.
 - “L” is displayed on the operating screen when low power is selected.
 - ① The transceiver automatically returns to the operating screen.



■ **Priority channel**

You can quickly recall the Priority channel by pushing [ENT] on the operating screen. It is also automatically monitored during a Group Scan or Priority Scan. You can set only one channel as the Priority, and “P” is displayed when it is set.

◇ **Setting the Priority channel**

1. Select a channel. (p. 4)
2. Hold down [ENT] for 2 seconds to set the selected channel as the Priority channel.
 - “P” is displayed on the operating screen.



The selected channel is set to the Priority channel.

◇ **Clearing the Priority channel**

- Hold down [ENT] for 2 seconds to clear it as the Priority channel.
 - “P” disappears.



The Priority channel is cleared.

2 BASIC OPERATIONS

■ Monitor function

The Monitor function temporarily cancels the Squelch function to check for weak signals.

- Hold down [MONI] for 2 seconds to turn the Monitor function ON or OFF.
 - The TX/RX indicator blinks green while the function is turned ON.



■ Lock function

The Lock function electronically locks all keys except for [PTT], [+], [-], [M-O], and [MONI]. This function enables you to prevent accidentally changing the channel or accessing the functions.

- Hold down [M-O] for 2 seconds to turn the Lock function ON or OFF.

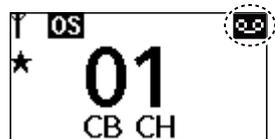


■ Voice Recorder function

The transceiver has a Voice Recorder function for recording messages, and saves up to 10 recorded messages in the "Rec Data" menu. The oldest message is automatically deleted when a new message is recorded. (p. 28)

◇ Recording a message

1. Hold down [RECORD] for 2 seconds to standby for recording when "||" is displayed.
 - The recording starts when a signal is received.
 - "●" blinks while recording.
 - [RECORD] is displayed on the operating screen when there is a recorded message.
2. Hold down for 2 seconds [RECORD] again to stop recording.
 - "||" is displayed while recording is paused.

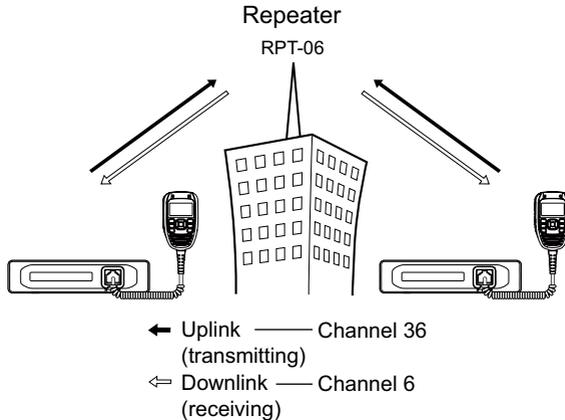


◇ Playing the recorded message

1. Push [RECALL] to display the "Rec Data" menu.
 - The latest recording is automatically played.
2. Push [▲] or [▼] to select the message.
3. Push [▶] or [ENT] to play the message.
 - ① Push [CLEAR] to stop playing the message.

■ Repeater operation

Repeaters extend the operational range of the transceiver by retransmitting the received signals. They are usually located on the top of a building or a mountain, as the elevation increases their effectiveness, allowing the user to transmit and receive over greater distances. During a standard operation or in the Simplex mode, transceivers transmit and receive on the same frequency. When operating in the Duplex mode (example: accessing a repeater), the transceiver will transmit and receive different frequencies. It automatically does this when one of the repeater channels is selected.



◇ Accessing a repeater

A repeater amplifies received signals, and retransmits them on a different frequency, allowing you to communicate over greater distances with improved reliability. To use a repeater, a repeater channel must be selected (Repeater channel 1 to 8, and 41 to 48). You can search the accessible repeater in your local area using the Repeater Scan function. (p. 15)

1. Select a repeater channel. (p. 4)
2. Hold down [PTT] and speak into the microphone at your normal voice level.
 - The TX/RX indicator lights red.
3. Release [PTT] to receive.

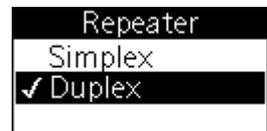


NOTE: Repeater channel 5 is for only emergency use.

◇ Selecting the operating mode

① The channels that you can select the operating mode may differ, depending on the presetting.

1. Select a repeater channel.
2. Open the “Repeater” screen.
[MENU] > Repeater
3. Push [▲] or [▼] to select an operating mode, and then push [ENT] to set it.
 - ① Push [CLEAR] to return to the previous screen.

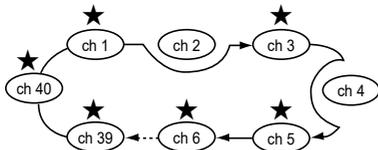


■ Scan types

The transceiver has 5 scan types, a Tag function and 4 Resume options, for scanning versatility. The transceiver can scan a maximum of 80 Tag channels in approximately 1 second.

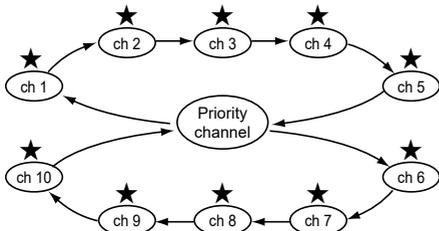
Open Scan

Repeatedly scans all Tag channels in sequence.



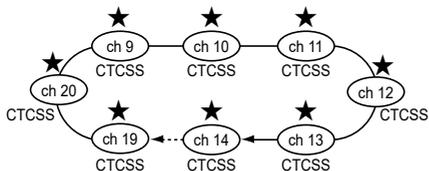
Group or Priority Scan

Repeatedly checks a designated Priority channel after scanning 5 Tag channels.



Dynamic Group Scan

Repeatedly scans all Tag channels with the CTCSS tone frequency or DTCS code in sequence.

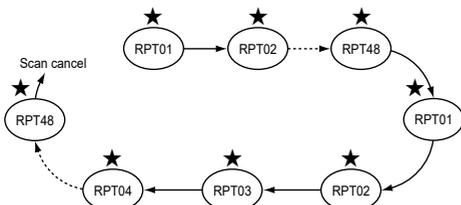


① When the CTCSS tone frequency is set to the Tag channel in the "Dynamic Group." (p. 14)

Repeater Scan

Scans all Repeater channels ("RPT01" to "RPT08" and "RPT41" to "RPT48") in sequence. If there are no busy channels after scanning channels "RPT01" to "RPT08" and "RPT41" to "RPT48," the scan begins from "RPT01" again, and then the transceiver transmits a signal to search for a repeater while scanning.

① "RPT-05" is not included because it is for only emergency use.



■ Scanning preparation

The transceiver scans all Tag channels when a scan other than the Dynamic Group Scan is activated. In the Dynamic Group Scan, the transceiver scans only Tag channels in the zone that you select. (p. 4)

When the transceiver finds a busy channel, it can be set to pause or to resume after a pause. (Except for the Dynamic Group Scan and Repeater Scan).

① See pages 12 and 27 for the details on the Scan Resume function.

◇ Selecting the scan mode

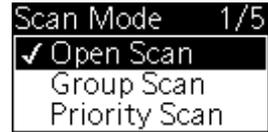
1. Open the "Scan Mode" screen.

[MENU] > Scan > **Scan Mode**

2. Push [▲] or [▼] to select a scan mode, and then push [ENT] to set it.

- "OS (Open Scan)," "GS (Group Scan)," "PS (Priority Scan)," "DS (Dynamic Group Scan)," or "RS (Repeater Scan)" is displayed on the operating screen.

① Push [CLEAR] to return to the previous screen.



Select a scan mode



When Open Scan is selected.

◇ Setting a Tag channel

Tag channels are independently set for Open, Group, Priority, and Dynamic Group scans. All channels may be preset as Tag channels for scans other than the Dynamic Group Scan. For the Dynamic Group Scan, CB channels 9 to 20 in the Zone 1 are preset as Tag channels by default.

① Before setting the Tag channels, you must select a scan mode.

1. Open the "Tag" screen.

[MENU] > Scan > **Tag**

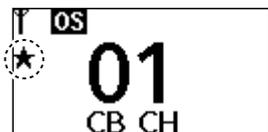
2. Push [▲] or [▼] to select a channel.
3. Select "On" or "Off" to set it as a Tag channel, and then push [ENT] to set it.

- "★" is displayed on the operating screen.

① Push [CLEAR] to return to the previous screen.

Example:

When CB channel 1 is set as a tag channel for Open Scan.



4 SCAN

■ Scanning preparation

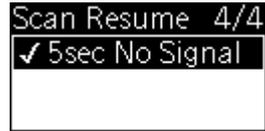
◇ Scan Resume function

1. Open the "Scan Resume" screen.

[MENU] > Settings > **Scan Resume**

2. Push [▲] or [▼] to select a Scan Resume option, and then push [ENT] to set it.
 - 5sec: Scan pauses for 5 seconds when a signal is detected, and then resumes.
 - 10sec: Scan pauses for 10 seconds when a signal is detected, and then resumes.
 - 15sec: Scan pauses for 15 seconds when a signal is detected, and then resumes.
 - 5sec No Signal: Scan pauses until the signal disappears, and then resumes after 5 seconds.

① Push [CLEAR] to return to the previous screen.



■ Open Scan

The Open Scan automatically searches for transmitted signals and enables you to locate new stations for communication or listening.

IMPORTANT: The Open Scan can transmit on a start channel or busy channel.

1. Select "Open Scan" in the "Scan Mode" menu. (p. 11)
 - "OS" is displayed on the operating screen.



2. Push [SCAN] to start the Open Scan.
 - "OS" blinks.



Scan start channel

3. When receiving a signal, the scan pauses and resumes, according to the selected Scan Resume function. (pp. 12, 27)
4. Push [SCAN] to stop the scan.

■ Group Scan and Priority Scan

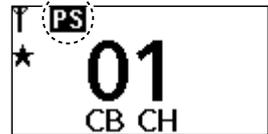
The Group and Priority scans repeatedly look for a signal on the Priority channel while scanning the specified channels. You can use these scan modes when waiting for a call on the Priority channel or several specified channels.

The Group and Priority scans are performed differently when transmitting. The Group Scan can transmit on the Priority channel or on a busy channel, and the Priority Scan can transmit only on the Priority channel.

1. Select "Group Scan" or "Priority Scan" in the "Scan Mode" menu. (p. 11)
 - "GS" is displayed on the operating screen when a Group Scan is selected.
 - "PS" is displayed on the operating screen when a Priority Scan is selected.



Group Scan is selected.



Priority Scan is selected.

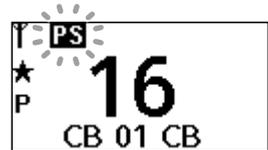
2. Set the Priority channel, if necessary. (p. 7)
 - ① If the Priority channel is not set, the scan start channel is monitored during a Priority Scan.
3. Push [SCAN] to start the scan.
 - "GS" blinks when a Group Scan is selected.
 - "PS" blinks when a Priority Scan is selected.

Group Scan



Scan start channel

Priority Scan



Scan start channel

4. When receiving a signal, the scan pauses and resumes, according to the selected Scan Resume function. (pp. 12, 27)
5. Push [SCAN] to stop the scan.

4 SCAN

■ Dynamic Group Scan

The Dynamic Group Scan can instantly detect a signal that a group member transmitted by scanning the Tag channels in the Dynamic Group Scan.

The transceiver transmits on the last channel that a group member used. If the transceiver detects a signal on the channel with no code, or a code that is different from the code set in the transceiver, the transceiver searches for another channel that is not being used, and start communicating.

Therefore, all group members can continuously communicate without interference from other signals.

NOTE:

- “CB-05,” “RPT-05,” and “CB-35” are for only emergency use. Therefore, these channels cannot be scanned.
- The transceiver must scan using this scan mode to detect a signal and start communicating on the channel.
- The transceiver scans only Tag channels in the zone that you select. (p. 4)
- CB channels 9 to 20 in the Zone 1 are preset as Tag channels for this scan mode by default.

1. Select “Dyn Grp Scan (Dynamic Group Scan)” in the “Scan Mode” menu. (p. 11)

- “DS” is displayed on the operating screen.

2. Open the “Dynamic Group” screen.

[MENU] > Scan > **Dynamic Group**

3. Select “CTCSS” or “DTCS,” and then push [▶] or [ENT].

4. Push [▲] or [▼] to set a CTCSS tone frequency or DTCS code, and then push [ENT] to set it.

- ① See page 16 for the details on the CTCSS/DTCSS.

5. Push [SCAN] to start the scan.

- “DS” blinks.

6. When a signal with the same CTCSS tone frequency or DTCS code is received, the scan stops.

7. Push [SCAN] to stop the scan.



Scan start channel

■ Repeater Scan

The Repeater Scan is used not only to search for a signal on the repeater channels, but also to access a repeater by automatically transmitting in sequence. The Repeater Scan detects repeaters that can be accessed in the area, even if the repeater is not used.

NOTE: The Repeater Scan detects signals only on repeater channels 1 to 8 and 41 to 48. Therefore, you might not be able to access the repeater, even though the Repeater Scan is stopped, because the scan will stop if any activity is detected. (The scan is cancelled while receiving a signal, such as stations communicating in the Simplex operation on a repeater output channel.)

① “RPT-05” is not included because it is for only emergency use.

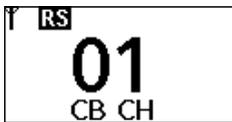
1. Select “Repeater Scan” in the “Scan Mode” menu.
 - (p. 11)
 - “RS” is displayed on the operating screen.
2. Push [SCAN] to start the Repeater Scan.
 - “RS” blinks.
 - ① See “Example” for details.
3. When a signal is received on a repeater channel, the scan stops.
 - During the second cycle scanning, 3 high beeps sound when a signal is received, and 3 low beeps sound when no signal is received.
4. Push [SCAN] to stop the scan.
 - While transmitting, the Repeater Scan cannot be cancelled.



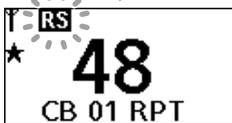
Scan start channel

Example:

The first cycle scanning



Scan



Scan start channel

Searches for signals on the repeater output channels.

The second cycle scanning



Automatically accesses the repeater. (0.5 seconds)
 • The TX/RX indicator lights red.



Wait for a signal from the repeater. (0.5 seconds)



When no reply signal is received, automatically accesses the next repeater.
 • The TX/RX indicator lights red.

Scan



Scan is automatically cancelled.

NOTE: CB channels 5 and 35 are for only emergency use. The Tone Squelch or Pocket Beep function is not selectable on these channels.

■ Tone Squelch

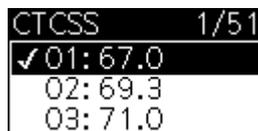
The transceiver is equipped with 51 CTCSS tone frequencies and 104 DTCS codes. The CTCSS/DTCS operation enables you to communicate in the silent standby mode because you will only receive calls from group members using the same CTCSS tone frequency or DTCS code.

◇ Setting CTCSS tone frequency or DTCS code

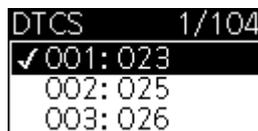
1. Open the "CTCSS/DTCS" screen.
 - [MENU] > Settings > **CTCSS/DTCS**
2. Select "CTCSS" or "DTCS," and then push [▶] or [ENT].
3. Push [▲] or [▼] to set a CTCSS tone frequency or DTCS code, and then push [ENT] to set it.
 - When the Tone Squelch or Pocket Beep function is turned ON, the selected CTCSS tone frequency or DTCS code is displayed on the operating screen.
 - ① Push [CLEAR] to return to the previous screen.

NOTE:

- The selectable CTCSS tone frequencies and DTCS codes are listed on the next page.
- The transceiver has 51 tone frequencies so their spacing is narrow, compared to units having 38 tones. Therefore, some tone frequencies may receive interference from adjacent tone frequencies.
- If the transceiver receives a signal with no code or a code that is different from the code set in the transceiver, the TX/RX indicator lights green, but the received signal is not output from the speaker.

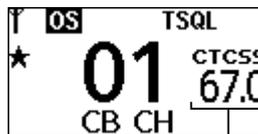


The "CTCSS" screen



The "DTCS" screen

CTCSS tone frequency



CTCSS tone frequency

DTCS code



DTCS code

Selectable CTCSS tone frequency list (Hz):

No.	Freq.								
01	67.0	12	94.8	23	136.5	34	177.3	45	218.1
02	69.3	13	97.4	24	141.3	35	179.9	46	225.7
03	71.0	14	100.0	25	146.2	36	183.5	47	229.1
04	71.9	15	103.5	26	151.4	37	186.2	48	233.6
05	74.4	16	107.2	27	156.7	38	189.9	49	241.8
06	77.0	17	110.9	28	159.8	39	192.8	50	250.3
07	79.7	18	114.8	29	162.2	40	196.6	51	254.1
08	82.5	19	118.8	30	165.5	41	199.5		
09	85.4	20	123.0	31	167.9	42	203.5		
10	88.5	21	127.3	32	171.3	43	206.5		
11	91.5	22	131.8	33	173.8	44	210.7		

Selectable DTCS code list:

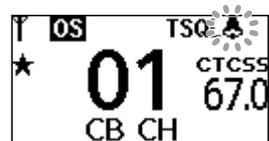
No.	Code								
01	023	22	131	43	251	64	371	85	532
02	025	23	132	44	252	65	411	86	546
03	026	24	134	45	255	66	412	87	565
04	031	25	143	46	261	67	413	88	606
05	032	26	145	47	263	68	423	89	612
06	036	27	152	48	265	69	431	90	624
07	043	28	155	49	266	70	432	91	627
08	047	29	156	50	271	71	445	92	631
09	051	30	162	51	274	72	446	93	632
10	053	31	165	52	306	73	452	94	654
11	054	32	172	53	311	74	454	95	662
12	065	33	174	54	315	75	455	96	664
13	071	34	205	55	325	76	462	97	703
14	072	35	212	56	331	77	464	98	712
15	073	36	223	57	332	78	465	99	723
16	074	37	225	58	343	79	466	100	731
17	114	38	226	59	346	80	503	101	732
18	115	39	243	60	351	81	506	102	734
19	116	40	244	61	356	82	516	103	743
20	122	41	245	62	364	83	523	104	754
21	125	42	246	63	365	84	526		

■ Pocket Beep

The Pocket Beep function uses the CTCSS (subaudible) tone and the DTCS code for calling, and you can use it as a “common pager” to inform you that someone has called while you were away from the transceiver.

◇ Waiting for a call from a specific station

1. Select a channel other than CB channels 5 and 35.
2. Open the “Tone SQL” screen.
 - [MENU] > **Tone SQL**
3. Push [▲] or [▼] to select “Pocket Beep,” and then push [ENT] to set it.
 - “TSQL 📡” is displayed on the operating screen.
4. When the received signal includes a matching tone or code, the transceiver sounds a beep every 10 seconds, and “📡” blinks.
5. Push [PTT] to answer or push any key to stop the function.
 - The Tone Squelch function is automatically selected.



6

SELCALL (Selective Calling)

In addition to the Tone Squelch function for silent standby, you can use the Selcall (Selective Calling) function. For the Tone Squelch function (Group mode), there are 51 tone or 104 code options when making a call. The Selcall has 100,000 options when using 5 tone.

Other options in the Selcall are for calling another unit or Group operation on the same channel, as well as station code and name information, status messages, the answer back function and auto scan start. These, and many more, can be set using the optional CS-455 programming software.

NOTE:

- CB channels 5 and 35 are for only emergency use, and the Selcall function cannot be used on these channels.
- A Selcall transmission is restricted to a total of 3 seconds per minute.

■ Calling

◇ TX code channel selection

TX code is a Selcall code that you can transmit. A maximum of 32 TX code channels can be entered into the transceiver using the optional CS-455 programming software.

TIP: A TX code channel name can be assigned to all the 32 TX code channels using the CS-455 programming software. The TX code channel name allows you to select the channel easier or to find the channel user.

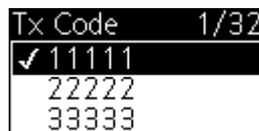
◇ Selecting a TX code channel

1. Select a CB channel other than channels 5 and 35.
2. Open the "Tx Code" screen.

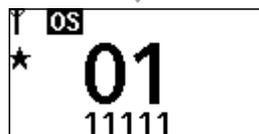
[MENU] > Selcall > Tx Code

① If the channel name is entered, the channel name is displayed instead of the TX code.

3. Push [▲] or [▼] to select a TX code channel, and then push [ENT] to set it.
 - The selected TX code is displayed.



Select a TX code channel



TX code

4. Push [PTT] to transmit on the selected TX code channel.
 - The TX/RX indicator lights red while transmitting.

◇ Editing the TX code

You can change the TX code contents within the allowed digits. The Group call function enables you to edit a special 'Group code' of the Selcall ID code.

1. Select a CB channel other than channels 5 and 35.
2. Open the "Code List" screen from the "Edit Code" item.

[MENU] > Selcall > **Edit Code**

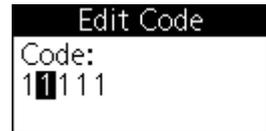
- The "Code List" screen is displayed.

3. Push [▲] or [▼] to select a code to edit a TX code.
4. Edit the TX code.

TIP:

- Push [▲] and [▼] to select a number.
- Push [◀] and [▶] to select a digit to edit.

The editable digit is selected.



6

5. Repeat steps 4 to edit other digits.
6. Push [ENT] to set it.
 - The edited code is displayed on the "Code List" screen.

NOTE: The TX code's editable digits can only be set, or changed using the CS-455 programming software.

TIP: You can also transmit on the selected channel's TX code by selecting "Transmit" in the "Selcall" item.

[MENU] > Selcall > **Transmit**

6 SELCALL (Selective Calling)

■ Receiving

◇ Receiving an individual call

1. When receiving an RX code (default setting):
 - Beeps sound and “🔔” blinks.
 - The channel name is displayed.
 - ① The channel number is displayed when the channel name is not entered.
 - The Selcall mute is released if the Quiet mode is activated. (p. 21)
2. While holding down [PTT], speak into the microphone at your normal voice level.



NOTE:

- If the ID decode function “ID Dec” is turned ON, the received ID code is displayed instead of the channel name, and is memorised into the transceiver. This function can be turned ON using the CS-455 programming software.
- RX code displays the Receiving Selcall code. A maximum of 8 individual call channels can be entered into the transceiver using the CS-455 programming software.
- You can set the transceiver’s mode when receiving an individual call using the CS-455 programming software.

◇ Recalling a memorised received ID code

1. Open the “History” screen.
 - [MENU] > Selcall > **History**
2. Push [▲] or [▼] to select a received ID code, and then push [ENT] to set it.
3. Push [PTT] to transmit the code on the selected channel.

◇ Receiving a Group call

1. When receiving a Group call (default setting):
 - Beeps sound and “🔔” blinks.
 - “GROUP” is displayed.
 - The Selcall mute is released if the Quiet mode is activated. (p. 21)
2. While holding down [PTT], speak into the microphone at your normal voice level.



NOTE: You can set the transceiver’s mode when receiving a Group call using the CS-455 programming software.

■ Quiet mode

When the Quiet mode is turned ON, the Selcall Mute function is activated and allows silent operation until receiving a Selcall.

1. Open the “Quiet Mode” screen.

[MENU] > **Quiet Mode**

2. Select “On,” and then push [ENT] to turn ON the Quiet mode.
 - “Q” is displayed on the operating screen.



6

To monitor the channel:

- Hold down [MONI] for 2 seconds to release the mute (audio is heard).
 - The TX/RX indicator blinks green when the Monitor function is activated.



To enable Selcall mute:

- While the TX/RX indicator blinks green, hold down [MONI] for 2 seconds to mute the channel.
 - The TX/RX indicator stops blinking.

NOTE: The Unmute mode may automatically return to the Mute mode after a specified period of time, depending on the presetting.



■ Stun

If the transceiver is in the Stun mode, it will request a password when you turn ON the transceiver. This password is the same as the Power ON function password. Once the correct password has been entered, the transceiver will not prompt you to enter it again.

Programming and transceiver operations are disabled after a Kill ID is received. By activating the Program Write mode, you can use the transceiver again. (The internal data cannot be accessed using the Program Read mode.)

■ Smart Ring and ATS (Automatic Transponder System)

These functions have an answer back feature and confirmation function for when a call has reached the called station, even if the user is temporarily away from the transceiver. Smart Ring is a manual confirmation, and ATS is automatic.

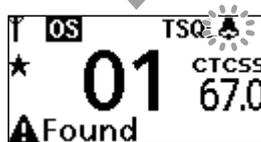
◇ Smart Ring

Set the same CTCSS tone frequency to all Group transceivers, and then turn ON the Tone Squelch function. (p. 16)

1. Open the "Transponder" screen.

[MENU] > **Transponder**

2. Select "Smart Ring," and then push [ENT] to transmit a Smart Ring call.
 - The TX/RX indicator lights red.
 - When a group member answers the call, "🔔" blinks, and "Found" is displayed, and then the TX/RX indicator lights green and turns OFF.
 - If no answer is received, the transceiver will sound short faint beep tones, and "Not Found" is displayed.



3. Push [PTT] to answer and stop the blinking.

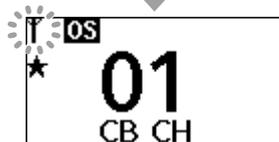
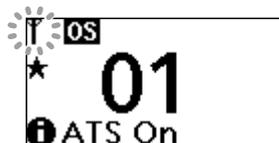
NOTE: This function is usable only if the called station has the same CTCSS tone frequency and operates on the same channel. A called station automatically sends an answer back signal without any presetting. All the IC-455s are set to the same operating channel within the communication area, and send an answer back call.

◇ ATS

1. Open the "ATS" screen.

[MENU] > Transponder > **ATS**

2. Select "On," and then push [ENT] to turn ON the ATS function.
 - When a receive channel is selected, an error beep sounds.
 - The transceiver starts to send searching signals every 60 seconds.
 - The TX/RX indicator lights red and "▽" blinks.
 - When the transceiver receives an answer back signal, "▽" is displayed ON until the next search starts.
 - If no reply is received, "▽" blinks until the next search starts.
3. Select "Off" to turn OFF the ATS function.



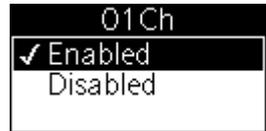
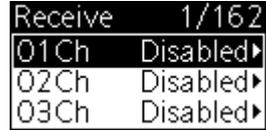
■ RX frequency (For receive channels)

The receive channel frequencies can be set to between 400 and 520 MHz.

◇ RX channel setting

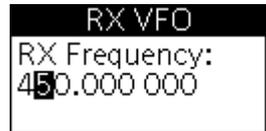
The receive channels are set to “Disabled,” and are not displayed on the screen as the default setting. You need to set the receive channels to “Enabled” to set the receive frequencies.

1. While holding down [SCAN] and [-], hold down [⏻] to turn ON the transceiver.
 - The “Receive” screen is displayed.
2. Push [▲] or [▼] to select a receive channel.
3. Select “Enabled,” and then push [ENT].
4. Hold down [⏻] to turn OFF the transceiver, and then turn ON the transceiver again for the operating mode.



◇ RX frequency setting

1. Push [▲] or [▼] to select a receive channel that you want to edit.
2. Open the “RX VFO” screen.
 - [MENU] > **RX VFO**
3. Edit a receive frequency.
 - ① You can enter between 400 and 520 MHz. (12.5 kHz steps)
4. Repeat step 3 to edit the receive frequency.
5. Push [ENT] to set it.
 - Two beeps sound.
 - ① Push [CLEAR] to return to the previous screen.



TIP:

- Push [▲] and [▼] to select a number.
- Push [◀] and [▶] to select a digit to edit.

7 OTHER FUNCTIONS

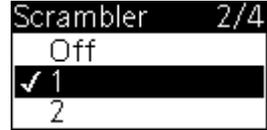
■ Scrambler function

The Scrambler function supports encrypting the communication data. You can select a subcarrier using this function.

1. Open the “Scrambler” screen.

[MENU] > Settings > **Scrambler**

2. Push [▲] or [▼] to select a subcarrier between 1 and 3 to turn ON the function, and then push [ENT] to set it.
 - “” is displayed on the operating screen.
- ① Push [CLEAR] to return to the previous screen.



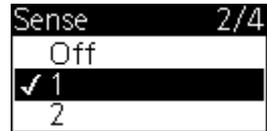
■ Auto Volume function

The Auto Volume function automatically adjusts the volume level of the received audio, depending on your operating environment. You can select a sensitivity and a wide or narrow volume level adjustment range of the received audio.

1. Open the “Sense” screen.

[MENU] > Settings > Auto Volume > **Sense**

2. Push [▲] or [▼] to select a sensitivity between 1 and 3 to turn ON the function, and then push [ENT] to set it.
 - ① Higher values make this function more sensitive to the received audio.
- ① Push [CLEAR] to return to the previous screen.
3. Open the “Level” screen.



[MENU] > Settings > Auto Volume > **Level**

4. Push [▲] or [▼] to select a volume level adjustment range between 1 and 3, and then push [ENT] to set it.
 - ① Higher values change the audio level over a wider range from lower to higher.
- ① Push [CLEAR] to return to the previous screen.

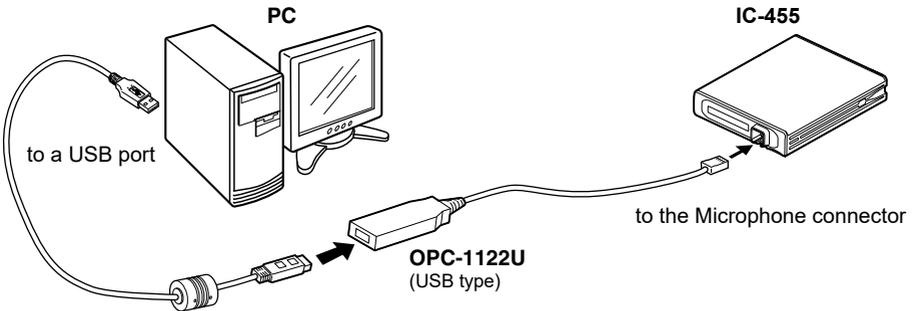


■ Data programming

Data programming enables you to transfer the data quickly and easily from a PC to your transceiver using the optional CS-455 programming software.

Data programming can be done to or from a PC, using the CS-455 programming software and the optional OPC-1122U (USB type) programming cable.

① Refer to the CS-455 programming software's Help file for details.



7

■ All Reset

The function display may occasionally display erroneous information. This may be caused externally by static electricity or by other factors. If this problem occurs, turn OFF the transceiver, and then after a few seconds, turn ON the transceiver again. If the problem persists, perform the following procedure.

① You can also reset in the Set mode. See page 29 for details.

IMPORTANT: Resetting the transceiver sets all values to their defaults.

- While holding down [MENU], [-], and [CLEAR], hold down [⏻] for 2 seconds to turn ON the transceiver power.
 - The CPU is reset.
 - "All Reset" is displayed on the function display.



NOTE: Resetting the transceiver takes approximately 16 seconds.

■ Set mode

You can change various common settings for the transceiver or individual settings for the operating channel in the Set mode. Essentially, you can customise the transceiver to suit your preference and operating style.

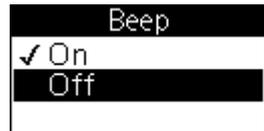
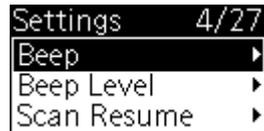
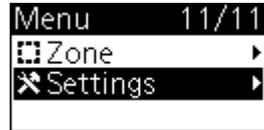
The functions you can use may differ, depending on the presetting set with the optional CS-455 programming software.

◇ Using the Set mode

Follow the procedures described below to select a Set menu item.

Example: Setting the beep to “Off.”

1. Push [MENU].
 - The “Menu” screen is displayed.
2. Push [▲] or [▼] to select “Settings,” and then push [ENT].
 - The “Settings” screen is displayed.
 - ① Holding down [▲] or [▼] sequentially scrolls up or down through the “Settings” screen.
3. Push [▲] or [▼] to select “Beep,” and then push [ENT].
 - The “Beep” screen is displayed.
4. Push [▲] or [▼] to select “Off,” and then push [ENT].
 - “Off” is set.
 - ① Push [CLEAR] to return to the previous screen.



◇ Set mode items

Items	Reference
CTCSS/DTCS	p. 27
Mic Gain	
Roger Beep	
Beep	
Beep Level	
Scan Resume	
Scan Restart	
Lockout	
Power Timer	
Internal SP	
Voice Guidance	
Signal Indication	
PTT Hold	
Contrast	

Items	Reference
Backlight	p. 28
Brightness	
Voice Recorder	
Clear Rec Data	p. 29
Noise Reduction	
Reset	
Mic Hanger	pp. 24, 29
Scrambler	
Auto Volume	p. 29
Equalizer	
Color	p. 30
Ignition Sense	
Voice Changer	

■ Set mode items description

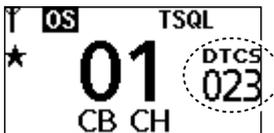
CTCSS/DTCS

You can select a CTCSS tone frequency or DTCS code.

- ① The selected CTCSS tone frequency or DTCS code is displayed on the operating screen when the Tone Squelch or Pocket Beep function is turned ON.



CTCSS tone frequency mode



DTCS code mode

Mic Gain

You can set the microphone gain level to between 1 (Minimum) and 5 (Maximum).

Roger Beep

You can select whether or not to transmit a beep to indicate that the transmission is completed.

On: Transmits a beep to indicate that the transmission is completed.

Off: The function is OFF.

Beep

You can select whether or not to sound a beep when a key is pushed or held down.

On: Sounds a beep when a key is pushed or held down.

Off: No beep sounds for silent operation.

Beep Level

You can set the beep output level to between 1 (Low) and 3 (High).

Scan Resume

You can select the Scan Resume option.

- ① When the signal disappears, the scan resumes after the set period of time.
 ① Except for the Dynamic Group Scan and Repeater Scan.

5sec/10sec/15sec: Scan pauses for 5, 10, or 15 seconds when a signal is detected, and then resumes.

5sec No Signal: Scan pauses until the signal disappears, and then resumes after 5 seconds.

Scan Restart

You can use the Scan Restart function to start the scan after transmitting during a scan after 10 seconds.

- ① Except for the Dynamic Group Scan and Repeater Scan.

On: The scan restarts after the Scan Restart timer period ends.

Off: The scan is cancelled.

Lockout

You can select the transmission Lockout (temporary inhibits transmission) function.

Off: No restriction for receiving a signal.

Busy: Transmission is inhibited while receiving a signal.

Repeater: You can transmit only while receiving a matched CTCSS tone or receiving no signal.

Power Timer

You can set the period of time to turn OFF the transceiver to between 0.5 and 4.0 hours (in 0.5 hour steps), or Off.

The transceiver is automatically turned OFF when this period of time has passed with no key operation.

8 SET MODE

■ Set mode items description

Internal SP

You can select the internal speaker (HM-244) option.

On: The audio from the internal speaker is heard even when an external speaker is connected.

Auto: Normally, the audio is heard from the internal speaker. When an external speaker is connected to the transceiver, the audio comes from the external speaker instead of the internal speaker.

① “” is displayed on the operating screen.

Voice Guidance

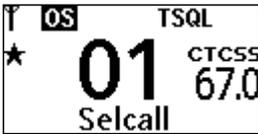
You can set the Voice Guidance function to between 1 (Low) and 3 (High), or Off. The transceiver announces the channel type and channel number when the transceiver is turned ON, or when you change the channel with [▲] or [▼].

Signal Indication

You can select whether or not to change the transceiver's display when a Selcall code or Roger Beep is transmitted.

On: “Roger Beep” is displayed while transmitting a Roger Beep, and “Selcall” is displayed while transmitting a Selcall code.

Off: The display is not changed.



Displayed when a Selcall code is transmitted.

PTT Hold

The PTT Hold function enables you to communicate without holding down the [PTT] button while speaking.

On: Push [PTT] to transmit and push again to receive.

Off: Hold down [PTT] to transmit and release to receive.

Contrast

You can set the display contrast level to between 0 (Minimum) and 7 (Maximum).

Backlight

You can change the backlight modes for night-time and low-light operations.

Off: The backlight is continuously OFF.

Auto: The backlight turns ON for 5 seconds when:

- Any key except [PTT] is pushed.
- A Selcall signal is transmitted or received.

Auto2: The backlight turns ON for 5 seconds when:

- Any key except [PTT] is pushed.
- A Selcall signal is transmitted or received.
- The display is changed.

On: The backlight is continuously ON.

Brightness

You can set the backlight brightness level to between 0 (Minimum) and 7 (Maximum).

Voice Recorder

You can select whether or not to record a message.

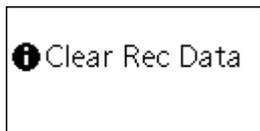
On: The transceiver is ready to record a message.

① To pause recording, or to enter a stand-by state, hold down [M] for the preset Hold timer period.

Off: The function is OFF.

Clear Rec Data

You can clear the recorded audio by selecting "Yes."



This message blinks while clearing the recorded data.

Noise Reduction

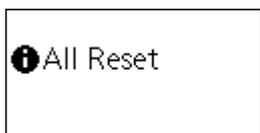
You can select whether or not to eliminate the microphone input noise or suppress the speaker's received audio noise to make the audio easy to hear. Select 1 (Low), 2, 3 (High), or Off.

① Higher values eliminate the audio noise more, but the audio quality is reduced.

- **Mic**
Setting for a microphone.
- **SP**
Setting for a speaker.

Reset

You can reset the transceiver's settings to the factory defaults by selecting "Yes."



This message blinks while resetting to the factory defaults.

Mic Hanger

You can select whether or not to activate the AF Mute and the Volume Control functions.

On: Activates the AF Mute and the Volume Control functions.

Off: Does not activate the AF Mute and the Volume Control functions.

Scrambler

Turns the Scrambler function ON or OFF. You can also select a subcarrier using this function. Select 1, 2, 3, or Off.

① "3" is displayed on the operating screen when the function is ON.

Auto Volume

The Auto Volume function automatically adjusts the volume level of the received audio, depending on your operating environment.

● Sense

Turns the Auto Volume function ON or OFF. Select 1 (Low), 2, 3 (High), or Off.
① Higher values make this function more sensitive to the received audio.

● Level

You can select a wide or narrow volume level adjustment range of the received audio. Select 1 (Low), 2, or 3 (High).
① Higher values change the audio level over a wider range from lower to higher.
① You must set to "1," "2," or "3" in the "Sense" to turn ON the Auto Volume function.

Equalizer

You can select the frequency response of the microphone or of the speaker to make the audio easy to hear.

Off: The function is OFF.

- 1: Emphasizes the low range frequencies.
- 2: Emphasizes the low range and high range frequencies.
- 3: Emphasizes the high range frequencies.

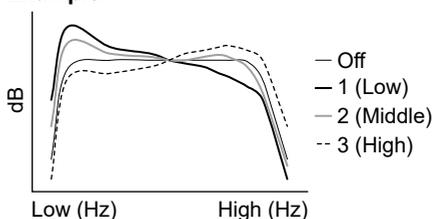
● Mic

Setting for a microphone.

● SP

Setting for a speaker.

Example:



8 SET MODE

■ Set mode items description

Color

You can individually select the backlight colour of the function display to indicate the transceiver is in the states listed below. Select White, Lime Green, Violet, Red, Light Blue, Amber, or Green.

- **TX**
While transmitting.
- **Pocket Beep**
 - Waiting**
While waiting for a call from a specific station.
 - Received**
While receiving a call including a matching tone or code.
- **Scan**
While scanning.
- **CB ch**
While a Citizen Band (CB) channel is selected on the operating screen.
- **RPT ch**
While a CB repeater channel is selected on the operating screen.
- **RCV ch**
While a receive-only channel is selected on the operating screen.

Ignition Sense

Turn the Ignition Sense function ON or OFF.

① You must connect the ignition line to use this function. (p. 33)

On: Automatically turns the transceiver and the Ignition Sense function ON or OFF.

Off: The function is OFF.

Voice Changer

You can select whether or not to lower or raise the voice pitch that is input from the microphone to make the audio easy to hear.

-3: Lowers the voice pitch a stage lower than "-2."

-2: Lowers the voice pitch a stage lower than "-1."

-1: Lowers the voice pitch a stage lower.
Off: The function is OFF.

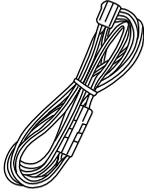
+1: Raises the voice pitch a stage higher.

+2: Raises the voice pitch a stage higher than "+1."

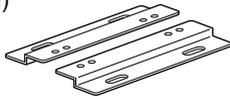
+3: Raises the voice pitch a stage higher than "+2."

■ Supplied accessories

DC power cable
(approximately 3 m)



Mounting brackets



Fuse (FGB 5 A)



For the mounting brackets

Self-tapping screws
(5 × 20 mm)



Screws
(5 × 12 mm)



Screws
(3 × 6 mm)



Nuts (M5)



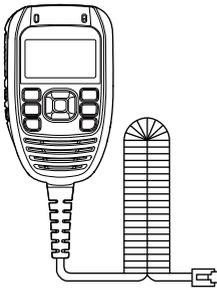
Spring washers (M5)



Flat washers (M5)



Microphone (HM-244)



Microphone hanger set



Microphone hanger cable



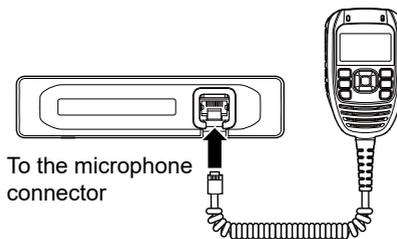
8

9

■ Connecting the microphone

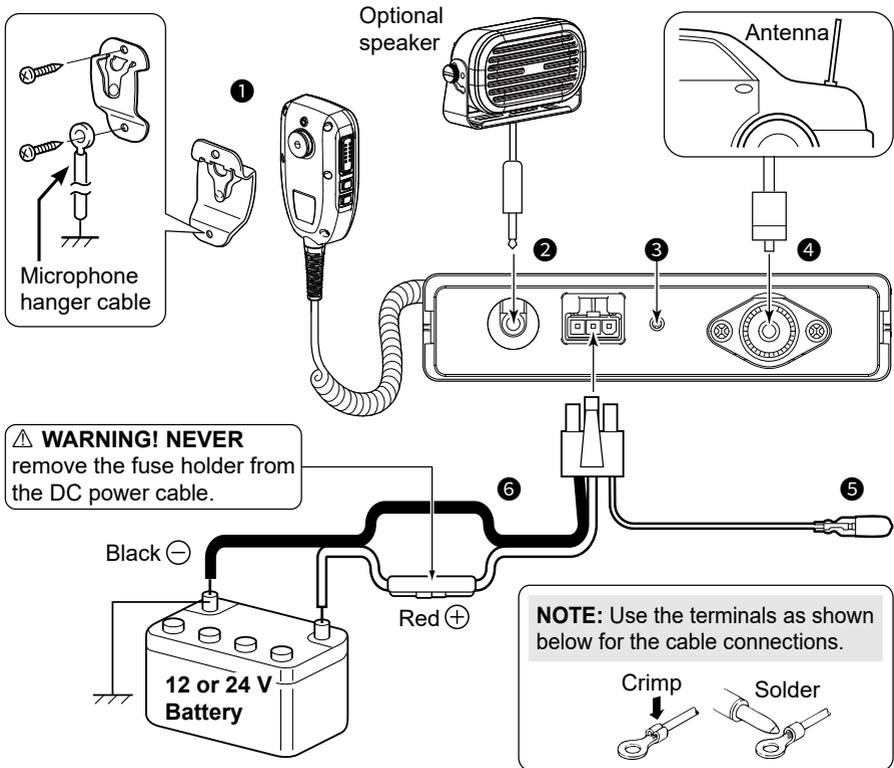
Connects to the supplied microphone as illustrated below.

- ① The optional extension cable is designed to not easily come out of the transceiver. Be careful when you remove it. (p. 38)



9 CONNECTIONS AND INSTALLATION

■ Connections



1 MICROPHONE HANGER

Connects to the supplied microphone hanger to a vehicle's ground to use the Mic Hanger function. (p. 29)

2 EXTERNAL SPEAKER JACK

Connects to a 4 Ω external speaker.
① The audio output power is typically 5 W.

3 GROUND TERMINAL

Connects to a vehicle's ground to prevent electrical shocks and interference from other equipment occurring.
Use a screw (3 × 12 mm: not supplied).

4 ANTENNA CONNECTOR

Connects to an antenna with a PL-259 connector.
A key element in the performance of any communication system is the antenna. Ask your dealer about antennas and the best place to mount them.

CAUTION: DO NOT transmit without an antenna.

5 IGNITION LEAD

Connects to an ignition line.

To turn the transceiver ON or OFF when you turn the car key or push the ignition switch, connect the transceiver's ignition lead to where the 12 V or 24 V is output from the ACC terminal, and 0 V on the OFF/LOCK terminal.

① You must turn ON the Ignition Sense function. (p. 30)

NOTE:

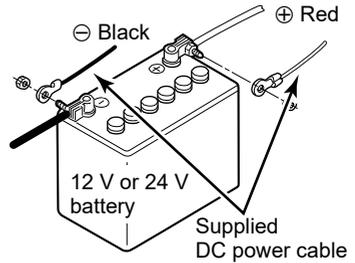
- **DO NOT** put pressure on this lead.
- When you do not need to connect this line, be sure to keep the lead cap on for safety.

6 POWER RECEPTACLE

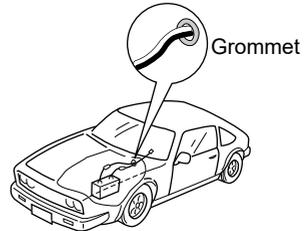
Connecting to a DC power source:

Connects to a 12 V or 24 V DC power source with the supplied DC power cable.

Red (+), Black (-)



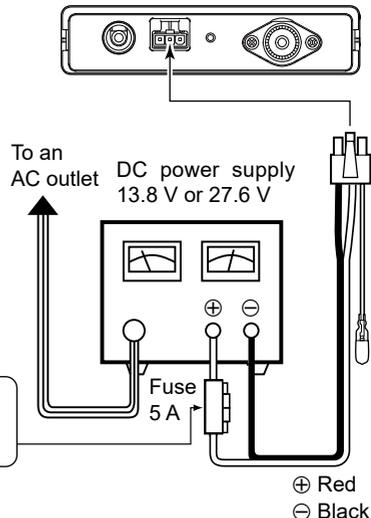
NOTE: DO NOT use the cigarette lighter socket as a power source when operating in a vehicle. The plug may cause voltage drops, and ignition noise may be superimposed onto the transmit or receive audio. Install a rubber grommet before passing the DC power cable through a metal plate to prevent a short circuit.



Connecting to a DC power supply:

Connects to a 13.8 V or 27.6 V DC power supply with at least 3 A capacity with the supplied DC power cable. Red (+), Black (-)

Make sure the ground terminal of the DC power supply is grounded.



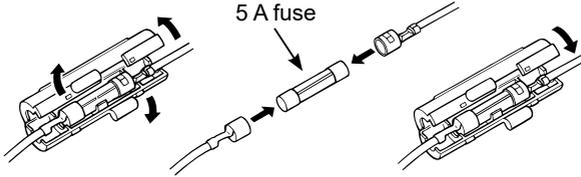
⚠ WARNING! NEVER remove the fuse holder from the DC power cable.

⊕ Red
⊖ Black

9 CONNECTIONS AND INSTALLATION

■ Fuse replacement

If the fuse blows or the transceiver stops functioning, find the source of the problem, repair it, and replace the damaged fuse with a new one of the proper rating. (FGB 5 A)



■ Installation

◇ Main unit

Select a location that can support the weight of the transceiver and does not interfere with driving. Contact your car dealer or Icom dealer for advice for installing in a vehicle.

⚠ **DANGER! NEVER** place the transceiver where air bag deployment may be obstructed during mobile operations.

⚠ **WARNING! NEVER** place the transceiver where the vehicle's normal operation may be hindered or where it could cause bodily injury.

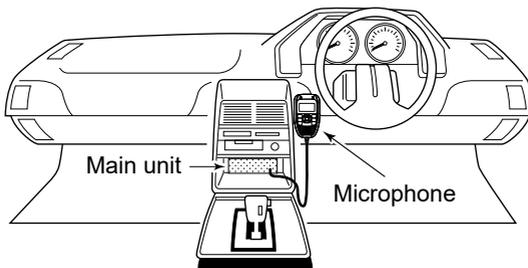
CAUTION: DO NOT install or place the transceiver in a place without adequate ventilation or block any cooling vents on the bottom of the transceiver. Heat dissipation may be reduced and damage the transceiver.

DO NOT place the transceiver where hot or cold air blows directly onto it, during mobile operation.

NOTE: DO NOT use or leave the transceiver in areas with temperatures below -10°C or above $+60^{\circ}\text{C}$, or in areas subject to direct sunlight, such as the dashboard.

Installation example:

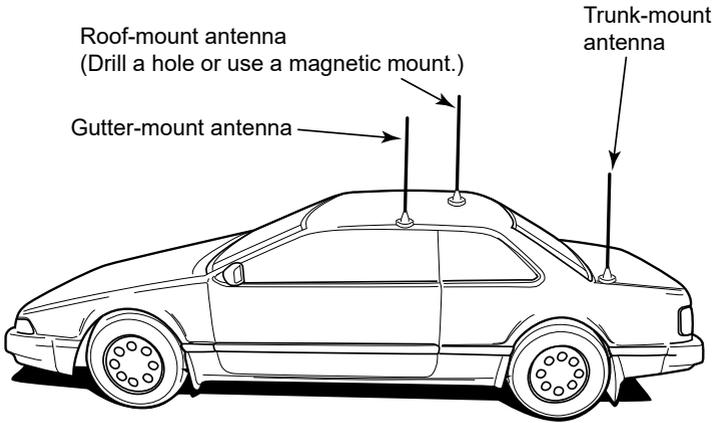
The transceiver is installed on the centre console.



◇ **Antenna**

To obtain the transceiver's maximum performance, select a high-quality antenna and mount it in a good location. A non-radial antenna should be used when using a magnetic mount.

Installation example:



Antenna connector:

Use the antenna with a PL-259 connector.

NOTE: There are many publications concerning proper antennas and their installation. Check with your local dealer for more information and recommendations.

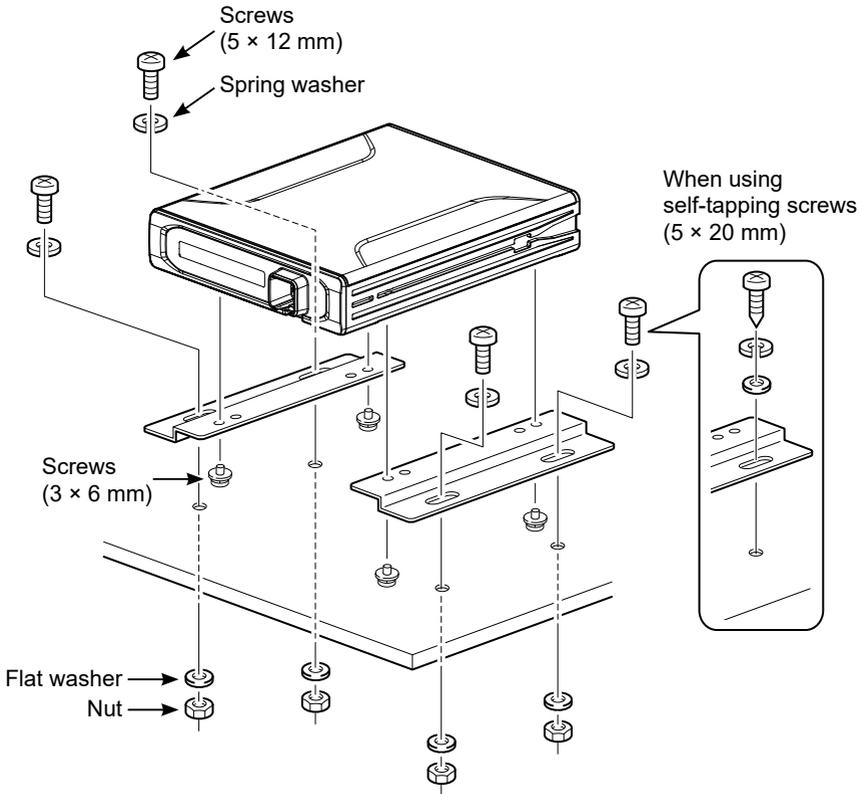
■ Mounting the transceiver

◇ Using the supplied mounting brackets

You can mount the transceiver on a flat surface using the mounting brackets supplied with your transceiver.

1. Drill 4 holes on a flat surface where you want to install the mounting brackets.
 - ① When using the supplied nuts: approximately 5.5 ~ 6 mm (d)
 - When using the supplied self-tapping screws: approximately 2 ~ 3 mm (d)
2. Attach the mounting brackets to the transceiver using the supplied screws (3 × 6 mm).
3. Mount the mounting brackets with the transceiver securely on the flat surface using the supplied screws, nuts, and washers.

Mounting example:



SPECIFICATIONS AND OPTIONS 10

■ Specifications

① All stated specifications are subject to change without notice or obligation.

General		
Frequency coverage	CB	476.4250 ~ 477.4125 MHz
	RX	400.0000 ~ 520.0000 MHz (RX only)
Number of channels	Maximum 256ch/8 banks	
Mode	8K50F3E	
Antenna impedance	50 Ω nominal	
Input impedance (Microphone)	600 Ω	
Output impedance (Audio)	4 Ω	
Intermediate frequency	1st: 49.95 MHz, 2nd: 450 kHz	
Operating temperature range	-10°C ~ +60°C	
Power supply voltage	13.8 or 27.6 V DC nominal (Negative ground)	
Current drain with HM-244 (approximate)	DC 13.8 V	RX stand-by 500 mA RX Maximum audio 1500 mA TX (5 W) 3000 mA
	DC 27.6 V	RX stand-by 300 mA RX Maximum audio 1000 mA TX (5 W) 1500 mA
Dimensions (approximate) (projections not included)	125 (W) × 28.6 (H) × 159.5 (D) mm	
Weight (approximate)	535 g (with HM-244)	

Transmitter	
Output power	5 W/1 W (selectable)
Modulation system	Frequency modulation
Maximum frequency deviation	±2.5 kHz
Frequency error	±2.5 ppm
Spurious emissions	Less than -30 dBm
Adjacent channel power	Less than -16 dBm
Audio frequency response	+2 dB ~ -8 dB of 6 dB octave from 300 Hz ~ 2550 Hz
Audio harmonic distortion	1% typical (60% deviation)
Residual modulation	40 dB typical
Limiting characteristic of modulator	70 ~ 100% of maximum deviation

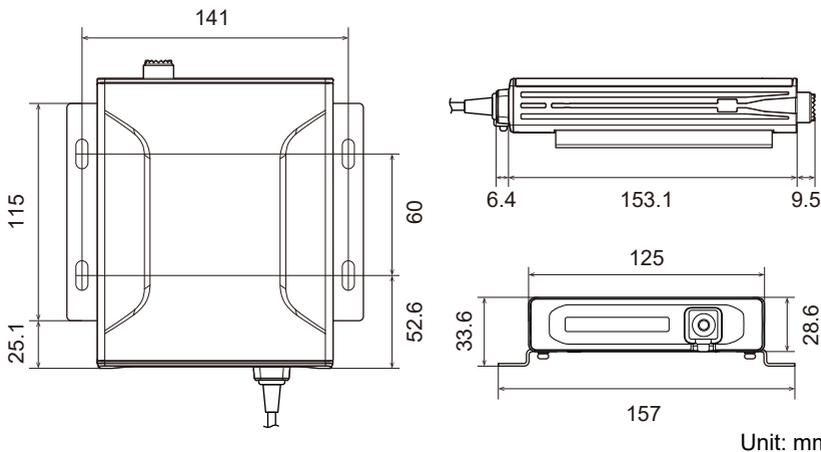
Receiver	CB	RX
	(476.4250 ~ 477.4125 MHz)	(400.0000 ~ 520.0000 MHz) (Except CB (476.4250 ~ 477.4125 MHz))
Sensitivity (12 dB SINAD)	0.22 μV typical	0.25 μV typical
Audio output power	5 W maximum at 10% distortion with a 4 Ω load	-
Adjacent channel selectivity	68 dB typical	-
Spurious response rejection ratio	80 dB typical	-
Intermodulation rejection ratio	72 dB typical	-

10 SPECIFICATIONS AND OPTIONS

■ Specifications

Receiver	CB	RX
	(476.4250 ~ 477.4125 MHz)	(400.0000 ~ 520.0000 MHz) (Except CB (476.4250 ~ 477.4125 MHz))
Hum and noise	48 dB typical	45 dB typical
Squelch sensitivity (Threshold)	0.2 μ V typical	–
Conducted spurious radiation	Less than -57 dBm (9 kHz ~ 1.0 GHz) Less than -47 dBm (1.0 GHz ~ 4.0 GHz)	
Audio frequency response	+2 dB ~ -8 dB of 6 dB octave from 300 Hz ~ 2550 Hz (at a 1 kHz reference level)	

◇ Dimensions



■ Options

◇ Microphone

- **HM-244** HAND MICROPHONE
Wired remote control microphone with key backlight.
- **OPC-2355** EXTENSION CABLE
Microphone extension cable.
Length: 2.5 m

◇ Speaker

- **SP-35** EXTERNAL SPEAKER
Compact and easy to install.
Input impedance: 4 Ω
Rated input: 5 W
Maximum input: 7 W

◇ Others

- **CS-455** PROGRAMMING SOFTWARE
+**OPC-1122U** PROGRAMMING CABLE
Provides quick and easy entry for items such as Set mode contents, zone types, and so on. Ask your dealer for details.

The following points are designed to help you correct problems that are not equipment malfunctions. If you cannot locate the cause of a problem, or solve it through these points, contact your nearest Icom Dealer or Service Center.

The transceiver does not turn ON.

- The power connector has a poor contact.
→ Check the connector pins.
- A bad connection to the power supply.
→ Check the connection between the transceiver and the power supply. (p. 32)
- The fuse is blown.
→ Repair the problem, and then replace the fuse. (p. 34)

Little or no sound comes from the speaker.

- The volume level is set too low or 0 (Mute mode).
→ Adjust the volume level. (p. 5)
- The squelch level is set too high.
→ Adjust the squelch level. (p. 5)
- A selective call or squelch function is activated, such as Tone Squelch or Pocket Beep function.
→ Turn OFF the appropriate function. (pp. 16, 17)

Sensitivity is low, and only strong signals can be heard.

- The antenna feedline or the antenna connector has poor contact or is shorted.
→ Check and replace the feedline or solder the antenna connector again if necessary. (p. 35)

No beep sounds.

- The Beep function is OFF.
→ Turn ON the Beep function. (p. 27)
① You can also set the beep output level. (p. 27)

No contact possible with another station.

- The other station is using the Tone Squelch function.
→ Turn ON the Tone Squelch function. (p. 16)

The operating channel cannot be changed.

- The Lock function is activated.
→ Hold down [M-O] for 2 seconds to turn OFF the Lock function. (p. 8)
- The Priority Scan is paused on the watching frequency.
→ Push to stop the scan. (p. 13)

Scan does not start.

- The squelch is open.
→ Adjust the squelch level. (p. 5)
- The Priority Scan is activated.
→ Stop the scan. (p. 13)
- More than 2 Tag channels are not set.
→ Set the Tag channels. (p. 11)

Transmission continues even when the PTT is released.

- The PTT Hold function is activated.
→ Turn OFF the PTT Hold function. (p. 28)

Erroneous information is displayed on the function display.

- The CPU is malfunctioning.
→ Reset the CPU. (p. 25)

12 UHF CB CHANNEL LIST

Channel Number	Frequency (MHz)
1* ¹	476.4250
2* ¹	476.4500
3* ¹	476.4750
4* ¹	476.5000
5* ^{1,2}	476.5250
6* ¹	476.5500
7* ¹	476.5750
8* ¹	476.6000
9	476.6250
10	476.6500
11* ³	476.6750
12	476.7000
13	476.7250
14	476.7500
15	476.7750
16	476.8000
17	476.8250
18	476.8500
19	476.8750
20	476.9000
21	476.9250
22* ⁴	476.9500
23* ⁴	476.9750
24	477.0000
25	477.0250
26	477.0500
27	477.0750
28	477.1000
29	477.1250
30	477.1500
31* ⁵	477.1750
32* ⁵	477.2000
33* ⁵	477.2250
34* ⁵	477.2500
35* ^{2,5}	477.2750

Channel Number	Frequency (MHz)
36* ⁵	477.3000
37* ⁵	477.3250
38* ⁵	477.3500
39	477.3750
40* ⁶	477.4000
41* ¹	476.4375
42* ¹	476.4625
43* ¹	476.4875
44* ¹	476.5125
45* ¹	476.5375
46* ¹	476.5625
47* ¹	476.5875
48* ¹	476.6125
49	476.6375
50	476.6625
51	476.6875
52	476.7125
53	476.7375
54	476.7625
55	476.7875
56	476.8125
57	476.8375
58	476.8625
59	476.8875
60	476.9125
61* ⁷	–
62* ⁷	–
63* ⁷	–
64	477.0125
65	477.0375
66	477.0625
67	477.0875
68	477.1125
69	477.1375
70	477.1625

Channel Number	Frequency (MHz)
71* ⁵	477.1875
72* ⁵	477.2125
73* ⁵	477.2375
74* ⁵	477.2625
75* ⁵	477.2875
76* ⁵	477.3125
77* ⁵	477.3375
78* ⁵	477.3625
79	477.3875
80	477.4125

*¹ Repeater output channels.

*² For only emergency use.

*³ Customary calling channel.

*⁴ No voice transmissions are permitted (voice operation is inhibited).

*⁵ Repeater input channels.

*⁶ Customary road vehicle channel.

*⁷ For possible future use and shall not be activated until approved by the ACMA CBRS Class Licence in Australia or the MED GURL in New Zealand. No voice transmissions are permitted (voice operation is inhibited).

- A**
- Accessories 31
 - ATS 22
 - Auto Volume
 - Set mode 29
 - Setting 24
- B**
- Backlight
 - Set mode 28
 - Setting 5
 - Beep 27
 - Beep level 27
 - Brightness 28
- C**
- Channel
 - Selecting 4
 - Clear Rec Data 29
 - Color (Colour) 30
 - Connections 32
 - Contrast 28
 - CTCSS/DTCS
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Count on us!

