

INSTRUCTION MANUAL

VHF MARINE TRANSCEIVER

IC-M10A

IC-M10E

This document is for the IC-M10A and IC-M10E transceivers. It is not for the IC-M10 transceiver. The IC-M10 transceiver is a different model and is not covered by this document.



icom inc.



IMPORTANT

READ ALL INSTRUCTIONS carefully and completely before using the transceiver.

SAVE THIS INSTRUCTION MANUAL. — This instruction manual contains important safety and operating instructions for the IC-2R4QAE.

VERSION NOTES

This manual describes operating procedures for both the U.S.A. and U.K. versions of the IC-2R4QAE. Note that while basic operation is identical for both of these versions, there are some model differences (see table below). Read these differences in detail when following the instructions in this manual.

DIFFERENCE	U.S.A.	U.K.
SCNR	Priority channel	Priority only
WEATHER CHANNELS	1 to 16	None
CALL CHANNEL	Programmable	CH 27A (fixed)
CALL SWITCH LABEL		

CAUTIONS

NEVER allow children to operate the transceiver.

KEEP the transceiver at least 1 m away from the ship's navigational compass.

NEVER charge battery packs except in the methods described in this manual.

AVOID exposing the transceiver to direct sunlight for long periods of time.

AVOID operating the transceiver in areas with temperatures below -20°C or above $+60^{\circ}\text{C}$.

BE CAREFUL! If immersed in fresh or saltwater, permanent damage may result.

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■ Operating rules

• PROHIBITIONS

- (1) Food or drink and regulations pertaining to alcohol are kept on up-to-date copy handy. Safety and distress calls take priority over all others.
- (2) You must remain seated at all times when you are not operating on another channel.
- (3) Faxes or translated distress calls are prohibited unless dire.

• PENALTY

- (1) Intentional interference but not intended for you (unless clearly not used in any way).
- (2) Intentional or profane language is prohibited.

• RADIO LICENSES

(A) SHIP STATION LICENSE

When your vessel is equipped with a VHF FM transceiver, you must have a current radio station license before using the transceiver. It is unlawful to operate a ship station which is not licensed.

Apply through your dealer to the appropriate government agency for a Ship-Stationing License. The license includes the call sign which is your vessel's identification for radio purposes.

(B) OPERATOR'S LICENSE

A Restricted Radiotelephone Operator Permit is the license most often held by small vessel radio operators when a radio is not required for safety purposes. You can usually obtain this permit by mail.

The Restricted Radiotelephone Operator Permit must be carried near the transceiver or be kept with the operator. Only a licensed radio operator may operate a transceiver.

However, non-licensed individuals may talk over a transceiver if a licensed operator starts, supervises, ends the call and makes the necessary log entries.

A current copy of the applicable government rules and regulations is usually required to be on hand.

■ Unpacking and accessory attachment

○ UNPACKING

The following accessories are supplied:

- | | |
|-----------------------------------|---|
| (1) Flexible antenna (FA-850C) | 1 |
| (2) Handstrap | 1 |
| (3) Belt clip | 1 |
| (4) Battery charger* (AC-64) | 1 |
| (5) AC adapter* (SM-2150C) | 1 |
| (6) Station pack or battery case* | 1 |
- *Not supplied with some models.

○ FLEXIBLE ANTENNA

Slide the 2 latches on the antenna base with the two pins on the antenna connector. Then, while pushing the base towards the transceiver, rotate it clockwise to slide this plate.

CAUTION: Transmitting without an antenna may damage the transceiver.



○ BELT CLIP

To attach:

Slide the belt clip into the slot to hook on the back of the transceiver.



To remove:

Push the top of the belt clip towards the transceiver and at the same time, push it downwards and free of the attachment.



○ HANDSTRAP

Slide the handstrap through the slot on the side of the transceiver as illustrated at right. Facilitates carrying.



Battery cautions

WARNING Improperly using battery packs, internal battery packs may cause an explosion.

WARNING To remove the battery pack, do not touch the battery pack terminals with the back of your hand. (See BATTERY WARNING in the Introduction.)

NEVER short terminals of the battery pack. Short circuit may lead into nearby metal objects, and the resulting arcing sparks may cause an explosion.

If your battery pack starts to heat or rapidly swell after using the tool, completely discharge it by leaving the power ON overnight. Then, fully recharged battery pack again. If the battery pack still does not heat or swell after that, a new battery pack must be purchased.

Important safety information from U.S.A. only:

The product that you have purchased contains a rechargeable battery. The battery is rechargeable. At the end of its useful life, under certain conditions that may vary, it may be illegal to dispose of this battery into the household waste stream. Check with your dealer or local waste disposal authority for details. For more information, see the following website: www.epa.gov for recycling options or please contact:



Installing dry cell batteries

When using the tool, use either a battery pack with 2 batteries (4.8V) (BP-1200) or a battery pack with 4 batteries (9.6V) (BP-1700) being the maximum value for battery installation.

1. Open the cover as shown below.



2. Press the 4.8V (BP-1200) or 9.6V (BP-1700) battery pack into the battery compartment.



Battery charging

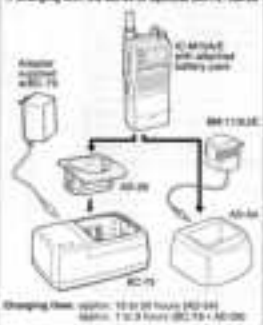
Even in using the transceiver for the first time, the battery pack must be fully charged by operator (the end operator).

CAUTION: To avoid damage to the transceiver, turn it OFF while charging.

- The MH-1000 EXTREME model cannot be charged even when Ni-Cd batteries are installed.
- Recommended temperature range for charging:
 $+5^{\circ}\text{C}$ to $+40^{\circ}\text{C}$ ($+50^{\circ}\text{F}$ to $+100^{\circ}\text{F}$).
- Use specified chargers only.
- BC-79 accepts 10 V, only via optional CP-13 when a cigarette lighter socket is used instead of an AC adapter.
- AD-24 accepts 12V or 24 V via optional CP-13 when a cigarette lighter socket is used instead of an AC adapter. Not if only for charging the MH-11.

- Connect the AC adapter (supplied with the charger) between a standard AC power outlet and the charger (BC-79 or AD-24).
- Insert the transceiver with attached battery pack (or the battery pack only) into the charger.
 - The charge indicator lights.
- When charging is complete, the BC-79's charge release automatically turns OFF.
 - The BC-24 continues charging even when the battery pack is fully charged.

Charging with the BC-79 or optional BC-79 + AD-24



■ Front panel

TRANSFER SWITCH (PUSH)
 (1) To toggle between channels to send a signal channel.
 When (PUSH) is pushed and hold, toggle between 2 S.A. and external band internally (200 channels).

CALL SWITCH (PUSH)
 (2) Call channel (2).
 Toggle between the call channel and a signal channel.

MONITOR SWITCH (PUSH)
 (3) Monitor channel (channel).
 When (PUSH) is pushed, switch the channel channel (20) is selected channel.



TRANSMIT POWER SWITCH (PUSH)
 (4) Selects high or low transmission.

LIGHT SWITCH
 (5) LIGHT (ON/OFF) and (20) (ON/OFF).
 When the button is pushed, lighting (ON and OFF).
 When pushed and hold, activates the lighting automatic and (20) position, when (PUSH) is pushed and hold, activates the light function.

DUAL MONITOR SWITCH
 (6) (ON/OFF) (20) (ON/OFF).
 When pushed and hold, activates the "monitoring" mode.
 When pushed and hold, activates the "monitoring" mode.
 When pushed and hold, activates the "monitoring" mode.
 When pushed and hold, activates the "monitoring" mode.

■ Top and side panels

PTT SWITCH (PTT) (p. 3)

Push and hold to transmit; release to receive.

FUNCTION SWITCH (FUNC) (p. 3)

Push and hold to activate the one-touch functions of other switches.

BATTERY RELEASE BUTTON

To remove the battery pack:
Push and hold the battery release button upwards, then slide the battery pack to the right with the main cover being pin.



To attach the battery pack:
Make the bottom ends of the main cover and the battery pack, and slide the battery pack into cover.



ANTENNA CONNECTOR (p. 3)

Connect the supplied antenna.

EXTERNAL SPEAKER/MICROPHONE JACKS (p. 3)

Connect an optional speaker or microphone.

VOLUME CONTROL (p. 10)

Turn power (ON) and adjust the volume level.

CHANNEL SELECTOR (CHANNEL) (p. 6, 7)

Slide an operating channel during normal operation.

Operating channels: 155 channels and 96 channels can be selected in automatic, 0.5 & various step.

Slide a memory channel while in memory mode.

Slide a custom frequency level when setting FUNC.

Channel selection

○ Channel 18

Channel 18 is the distress channel. It is used for establishing initial contact with another station and for emergency communications. While standing by you are required to monitor channel 18.



○ Regular channels

There are 88 VHF, 50 UHF and 40 HF channels. Except for 18, channels are numbered 1-8, then move to an agreed upon channel for communications.



- Pushing 0 (VHF/UHF) sets the selected a regular channel.
- Pushing the channel number is set the desired channel.
- VHF is 0.1A and UHF channels can be selected a separately.
- While scanning (SCAN), push 18 to toggle the intermediate and 12.5A channel.

12.5A, scanner only. 750K, scanner only.

○ Call channel

The call channel is used to check your most often-used channel for quick recall. In addition, the call channel is monitored during transmit. The default for the call channel is channel 9 (12.5A version) or channel 31A (7.5A version).



- See p. 11 for call channel programming.

○ Memory channels

20 memory channels are used to store often-used frequencies for easy recall and scanning.



- Press the channel number to set the desired memory channel.
- See p. 11 for memory channel programming.

3 BASIC OPERATION

■ Receiving and transmitting

Sub Mode (Secondary mode) can be set by changing the frequency.

- ① Press **[OFF/STANDBY]** to return to the power OFF state or return to standby.
- ② Press the speaker button to start the audio mode. Press the **[OFF/STANDBY]** button to return to standby.
- ③ Press **[RECEIVING]** to enter the receiving mode.
 - When receiving a signal, **[RECEIVING]** starts and enters the audio mode.
 - When **[RECEIVING]** is pressed, the display shows the frequency.
- ④ Press **[RECEIVING]** to enter the audio mode.
 - When the speaker button is pressed, the audio mode starts.
 - When the speaker button is pressed, the display shows the frequency.
- ⑤ Press **[RECEIVING]** to enter the audio mode.
 - When the speaker button is pressed, the audio mode starts.
 - When the speaker button is pressed, the display shows the frequency.

- ⑥ Press **[RECEIVING]** to enter the audio mode.
 - When the speaker button is pressed, the audio mode starts.
 - When the speaker button is pressed, the display shows the frequency.

⑦ Press **[RECEIVING]** to enter the audio mode.

⑧ Press **[RECEIVING]** to enter the audio mode.

RECEIVING To receive the broadcast, a signal is received from the antenna. When receiving, the display shows the frequency. Press **[RECEIVING]** to enter the audio mode. Press **[RECEIVING]** to enter the audio mode. Press **[RECEIVING]** to enter the audio mode.



RECEIVING, TRANSMITTING

RECEIVING	TRANSMITTING	RECEIVING
RECEIVING	TRANSMITTING	RECEIVING
RECEIVING	TRANSMITTING	RECEIVING
RECEIVING	TRANSMITTING	RECEIVING
RECEIVING	TRANSMITTING	RECEIVING
RECEIVING	TRANSMITTING	RECEIVING

■ Adjusting the squelch

The SQUELCH has a squelch level brought there by air control knob for it. In order to receive signals properly, an adjustment for squelch function, the squelch must be adjusted to a suitable level.

As a general rule, the squelch should be adjusted to its threshold point (i.e. the point where audio noise is just muted).

① While pushing [FUNC], rotate the channel selector.

- The two "bars" at the channel selector indicates the current squelch level.
- There are 8 squelch levels to choose from.

• As completely mute (all signals, including tones, are muted).



- It is completely muted (only strong signals can be received).

② Release [FUNC] when the desired squelch level is indicated in the function display.

- The channel indicator disappears.

NOTE: The squelch indicator does not operate when adjusting the squelch during scanning or dual-tune.

■ Lock function

This function electronically locks all keys and switches to prevent accidental frequency changes and function access.

① While pushing [FUNC], push [EXIT/STANDBY/ON].

- "LOCK" appears.

• Only [PTT], [PA] and [SCAN] are functional.



② To cancel the function, repeat step ① above.

- "LOCK" disappears from the function display.

■ Function display backlighting

This is convenient for nighttime operation.

① Push [LIGHT] to turn the function display backlighting ON.

- The backlighting automatically turns OFF after 5 sec. if no other key is pushed or pushed during that time.

- To conserve battery power, use the backlighting only when necessary.

② To turn the function display backlighting OFF before 5 sec. have elapsed, push [LIGHT] again.

■ Memory channels

1 Program

(Group channel 0 is always memory channel)

Define memory channel and
address
1. Channel number (memory
channel)



Define channel and set up
and address space



Define memory channel
and address space



Define channel and set up
and address space



Define memory channel and
address
1. Channel number (memory
channel)



■ Call channel

1 Program

(Group channel 0 is always memory channel)

Define memory channel and
address
1. Channel number (memory
channel)



Define channel and set up
and address space



Define memory channel and
address
1. Channel number (memory
channel)



The call channel is the channel number assigned to
the call channel.

Description

Dualwatch (watch 01-16) and Tri-watch (watch 01-16) are receiving another channel. To watch channels 01-16 and the sub-channel while receiving another channel. Select Dualwatch or Tri-watch in channel using M-T mode (p. 16).

DUALWATCH/TRI-WATCH OPERATION

Dualwatch



• If a signal is received on channel 01, Dualwatch/Tri-watch works on channel 01 with the signal (stoppage).

• If a signal is received on the sub-channel during Tri-watch, Tri-watch/Tri-watch works on the signal (stoppage).

• It is required to be selected channel using Independent watch (watch 01-16) (p. 16).

Operation

- Select the desired receiving channel.
- Push (M-T) to open Dualwatch/Tri-watch.
 - Selects channel during reception. (DATA) comes during in watch.
 - To watch channels available when receiving a signal on the sub-channel.
- To cancel Dualwatch/Tri-watch, push (M-T) again.

EXAMPLE: Receiving a signal on M-T channel 01.



Starting a scan

Set priority scan to normal scan to advance using SET mode (see p. 76).

- ① Make sure channel 19 is the last channel to be selected.
 - Select a regular channel or memory channel (see p. 6).
- ② Push and hold (CH) (HOLD) for 3 seconds.
 - "HOLD" appears and speaker is no longer silent.
 - When a signal is detected, scan proceeds until the signal drops again. CH-19 is not monitored during priority mode.
 - Pressing the channel selector to change the scanning direction.
- ③ To stop the scan, push (SCAN) (SCAN).
 - "SCAN" disappears.
 - Pushing (PR) (PR) or (MEMORY) stops the scan.

Channel lockout

For more efficient scanning, set unwanted channels as lockout channels. Channels set as lockout channels will be skipped during scanning. Channel lockout is designed to require channels and memory channels independently.

- ① Select the channel to be locked out (select a regular channel or a memory channel).
 - Channel 19 is the last channel (CH-19) to be locked out.
- ② While pushing (FLOCK) push (FLOCK) (FLOCK).
 - "FLOCK" appears in the screen display and the channel is locked out.
- ③ To unlock a channel, repeat step ② above.



The channel shown is locked out.

Starting a scan (example: normal scan of regular channels)



■ SET mode programming

SET mode is used to change the function of a selected device. The device name, function, and mode appear next to the SET mode button.

① Turn power OFF.

② When setting START, the power OFF mode button (setting START) and its display appear.

③ When the power is turned ON, the power (ON) button is displayed.

④ When the power is turned ON, the power (ON) button is displayed.

⑤ When the power is turned ON, the power (ON) button is displayed.

⑥ When the power is turned ON, the power (ON) button is displayed.

⑦ When the power is turned ON, the power (ON) button is displayed.

⑧ When the power is turned ON, the power (ON) button is displayed.



■ SET mode items

ITEM NO.	FUNCTION	COMMENT
01	Power OFF	The power is turned OFF.
02	Power ON	The power is turned ON.
03	Power ON	The power is turned ON.
04	Power ON	The power is turned ON.
05	Power ON	The power is turned ON.
06	Power ON	The power is turned ON.
07	Power ON	The power is turned ON.
08	Power ON	The power is turned ON.
09	Power ON	The power is turned ON.
10	Power ON	The power is turned ON.
11	Power ON	The power is turned ON.
12	Power ON	The power is turned ON.
13	Power ON	The power is turned ON.
14	Power ON	The power is turned ON.
15	Power ON	The power is turned ON.
16	Power ON	The power is turned ON.
17	Power ON	The power is turned ON.
18	Power ON	The power is turned ON.
19	Power ON	The power is turned ON.
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21	Power ON	The power is turned ON.
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25	Power ON	The power is turned ON.
26	Power ON	The power is turned ON.
27	Power ON	The power is turned ON.
28	Power ON	The power is turned ON.
29	Power ON	The power is turned ON.
30	Power ON	The power is turned ON.
31	Power ON	The power is turned ON.
32	Power ON	The power is turned ON.
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35	Power ON	The power is turned ON.
36	Power ON	The power is turned ON.
37	Power ON	The power is turned ON.
38	Power ON	The power is turned ON.
39	Power ON	The power is turned ON.
40	Power ON	The power is turned ON.
41	Power ON	The power is turned ON.
42	Power ON	The power is turned ON.
43	Power ON	The power is turned ON.
44	Power ON	The power is turned ON.
45	Power ON	The power is turned ON.
46	Power ON	The power is turned ON.
47	Power ON	The power is turned ON.
48	Power ON	The power is turned ON.
49	Power ON	The power is turned ON.
50	Power ON	The power is turned ON.
51	Power ON	The power is turned ON.
52	Power ON	The power is turned ON.
53	Power ON	The power is turned ON.
54	Power ON	The power is turned ON.
55	Power ON	The power is turned ON.
56	Power ON	The power is turned ON.
57	Power ON	The power is turned ON.
58	Power ON	The power is turned ON.
59	Power ON	The power is turned ON.
60	Power ON	The power is turned ON.
61	Power ON	The power is turned ON.
62	Power ON	The power is turned ON.
63	Power ON	The power is turned ON.
64	Power ON	The power is turned ON.
65	Power ON	The power is turned ON.
66	Power ON	The power is turned ON.
67	Power ON	The power is turned ON.
68	Power ON	The power is turned ON.
69	Power ON	The power is turned ON.
70	Power ON	The power is turned ON.
71	Power ON	The power is turned ON.
72	Power ON	The power is turned ON.
73	Power ON	The power is turned ON.
74	Power ON	The power is turned ON.
75	Power ON	The power is turned ON.
76	Power ON	The power is turned ON.
77	Power ON	The power is turned ON.
78	Power ON	The power is turned ON.
79	Power ON	The power is turned ON.
80	Power ON	The power is turned ON.
81	Power ON	The power is turned ON.
82	Power ON	The power is turned ON.
83	Power ON	The power is turned ON.
84	Power ON	The power is turned ON.
85	Power ON	The power is turned ON.
86	Power ON	The power is turned ON.
87	Power ON	The power is turned ON.
88	Power ON	The power is turned ON.
89	Power ON	The power is turned ON.
90	Power ON	The power is turned ON.
91	Power ON	The power is turned ON.
92	Power ON	The power is turned ON.
93	Power ON	The power is turned ON.
94	Power ON	The power is turned ON.
95	Power ON	The power is turned ON.
96	Power ON	The power is turned ON.
97	Power ON	The power is turned ON.
98	Power ON	The power is turned ON.
99	Power ON	The power is turned ON.
100	Power ON	The power is turned ON.

① When the power is turned ON, the power (ON) button is displayed.

OPTIONAL VOICE SCRAMBLER FUNCTION

8

■ Activating the scrambler

This optional voice scrambler provides private communications. In order to receive or send scrambled transmissions you must first activate the scrambler function. To activate the function an optional LIT 58 must be installed.

1 Push and hold **LIT58** for 2 seconds.

- The indicator with 2 bars and "SCRM" appears in the function display.

2 To turn the scrambler function

- (OFF): repeat step (1).

- The indicator with 2 bars and "SCRM" disappears from the function display.

NOTE: The voice scrambler function **CANNOT** be activated on Channel 16.

■ Programming codes

There are 149 codes available for programming. In order to understand one another, all transceivers in your group must have the same code programmed into the channel you are communicating on.

1 Select the channel you wish to program a code into.

- Channel 16 is always selected.

2 Make sure the scrambler function is (OFF), then push and hold **LIT58** (shown) and **LIT58** appears.

3 While continuing to push **LIT58**, rotate the channel selector to select the desired program code.

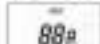
- The first "dot" after rotating **CH16/MS1** shows the currently selected code.

4 Release **LIT58**.

- The scrambler code disappears from the function display but remains in effect until the channel number is entered.

(Example) Programming a code LIT

Push and hold



voice scrambler (OFF)



voice scrambler (OFF)



CH16/MS1



Set desired scramble code

Issue	Priority	Impact	Score
1. The system is slow	High	1. The system is slow	10
2. The system is not secure	High	2. The system is not secure	10
3. The system is not user-friendly	Medium	3. The system is not user-friendly	5
4. The system is not scalable	Medium	4. The system is not scalable	5
5. The system is not reliable	Medium	5. The system is not reliable	5
6. The system is not flexible	Medium	6. The system is not flexible	5
7. The system is not easy to use	Medium	7. The system is not easy to use	5
8. The system is not cost-effective	Medium	8. The system is not cost-effective	5
9. The system is not well-documented	Medium	9. The system is not well-documented	5
10. The system is not well-maintained	Medium	10. The system is not well-maintained	5
11. The system is not well-supported	Medium	11. The system is not well-supported	5
12. The system is not well-integrated	Medium	12. The system is not well-integrated	5
13. The system is not well-communicated	Medium	13. The system is not well-communicated	5
14. The system is not well-monitored	Medium	14. The system is not well-monitored	5
15. The system is not well-evaluated	Medium	15. The system is not well-evaluated	5
16. The system is not well-improved	Medium	16. The system is not well-improved	5
17. The system is not well-optimized	Medium	17. The system is not well-optimized	5
18. The system is not well-tuned	Medium	18. The system is not well-tuned	5
19. The system is not well-configured	Medium	19. The system is not well-configured	5
20. The system is not well-deployed	Medium	20. The system is not well-deployed	5
21. The system is not well-operated	Medium	21. The system is not well-operated	5
22. The system is not well-managed	Medium	22. The system is not well-managed	5
23. The system is not well-governed	Medium	23. The system is not well-governed	5
24. The system is not well-led	Medium	24. The system is not well-led	5
25. The system is not well-coordinated	Medium	25. The system is not well-coordinated	5
26. The system is not well-organized	Medium	26. The system is not well-organized	5
27. The system is not well-structured	Medium	27. The system is not well-structured	5
28. The system is not well-planned	Medium	28. The system is not well-planned	5
29. The system is not well-designed	Medium	29. The system is not well-designed	5
30. The system is not well-developed	Medium	30. The system is not well-developed	5
31. The system is not well-tested	Medium	31. The system is not well-tested	5
32. The system is not well-reviewed	Medium	32. The system is not well-reviewed	5
33. The system is not well-validated	Medium	33. The system is not well-validated	5
34. The system is not well-verified	Medium	34. The system is not well-verified	5
35. The system is not well-confirmed	Medium	35. The system is not well-confirmed	5
36. The system is not well-proven	Medium	36. The system is not well-proven	5
37. The system is not well-demonstrated	Medium	37. The system is not well-demonstrated	5
38. The system is not well-exhibited	Medium	38. The system is not well-exhibited	5
39. The system is not well-presented	Medium	39. The system is not well-presented	5
40. The system is not well-displayed	Medium	40. The system is not well-displayed	5
41. The system is not well-showed	Medium	41. The system is not well-showed	5
42. The system is not well-revealed	Medium	42. The system is not well-revealed	5
43. The system is not well-exposed	Medium	43. The system is not well-exposed	5
44. The system is not well-manifested	Medium	44. The system is not well-manifested	5
45. The system is not well-demonstrated	Medium	45. The system is not well-demonstrated	5
46. The system is not well-exhibited	Medium	46. The system is not well-exhibited	5
47. The system is not well-presented	Medium	47. The system is not well-presented	5
48. The system is not well-displayed	Medium	48. The system is not well-displayed	5
49. The system is not well-showed	Medium	49. The system is not well-showed	5
50. The system is not well-revealed	Medium	50. The system is not well-revealed	5

CHANNEL LIST 10

Channel number	Frequency (MHz)	Power (dBm)
01	144.000	100.000
02	144.010	100.000
03	144.020	100.000
04	144.030	100.000
05	144.040	100.000
06	144.050	100.000
07	144.060	100.000
08	144.070	100.000
09	144.080	100.000
10	144.090	100.000
11	144.100	100.000
12	144.110	100.000
13	144.120	100.000
14	144.130	100.000
15	144.140	100.000
16	144.150	100.000
17	144.160	100.000
18	144.170	100.000
19	144.180	100.000
20	144.190	100.000
21	144.200	100.000
22	144.210	100.000
23	144.220	100.000
24	144.230	100.000
25	144.240	100.000
26	144.250	100.000
27	144.260	100.000
28	144.270	100.000
29	144.280	100.000
30	144.290	100.000
31	144.300	100.000
32	144.310	100.000
33	144.320	100.000
34	144.330	100.000
35	144.340	100.000
36	144.350	100.000
37	144.360	100.000
38	144.370	100.000
39	144.380	100.000
40	144.390	100.000
41	144.400	100.000
42	144.410	100.000
43	144.420	100.000
44	144.430	100.000
45	144.440	100.000
46	144.450	100.000
47	144.460	100.000
48	144.470	100.000
49	144.480	100.000
50	144.490	100.000
51	144.500	100.000
52	144.510	100.000
53	144.520	100.000
54	144.530	100.000
55	144.540	100.000
56	144.550	100.000
57	144.560	100.000
58	144.570	100.000
59	144.580	100.000
60	144.590	100.000
61	144.600	100.000
62	144.610	100.000
63	144.620	100.000
64	144.630	100.000
65	144.640	100.000
66	144.650	100.000
67	144.660	100.000
68	144.670	100.000
69	144.680	100.000
70	144.690	100.000
71	144.700	100.000
72	144.710	100.000
73	144.720	100.000
74	144.730	100.000
75	144.740	100.000
76	144.750	100.000
77	144.760	100.000
78	144.770	100.000
79	144.780	100.000
80	144.790	100.000
81	144.800	100.000
82	144.810	100.000
83	144.820	100.000
84	144.830	100.000
85	144.840	100.000
86	144.850	100.000
87	144.860	100.000
88	144.870	100.000
89	144.880	100.000
90	144.890	100.000
91	144.900	100.000
92	144.910	100.000
93	144.920	100.000
94	144.930	100.000
95	144.940	100.000
96	144.950	100.000
97	144.960	100.000
98	144.970	100.000
99	144.980	100.000
100	144.990	100.000

Channel number	Frequency (MHz)	Power (dBm)
101	145.000	100.000
102	145.010	100.000
103	145.020	100.000
104	145.030	100.000
105	145.040	100.000
106	145.050	100.000
107	145.060	100.000
108	145.070	100.000
109	145.080	100.000
110	145.090	100.000
111	145.100	100.000
112	145.110	100.000
113	145.120	100.000
114	145.130	100.000
115	145.140	100.000
116	145.150	100.000
117	145.160	100.000
118	145.170	100.000
119	145.180	100.000
120	145.190	100.000
121	145.200	100.000
122	145.210	100.000
123	145.220	100.000
124	145.230	100.000
125	145.240	100.000
126	145.250	100.000
127	145.260	100.000
128	145.270	100.000
129	145.280	100.000
130	145.290	100.000
131	145.300	100.000
132	145.310	100.000
133	145.320	100.000
134	145.330	100.000
135	145.340	100.000
136	145.350	100.000
137	145.360	100.000
138	145.370	100.000
139	145.380	100.000
140	145.390	100.000
141	145.400	100.000
142	145.410	100.000
143	145.420	100.000
144	145.430	100.000
145	145.440	100.000
146	145.450	100.000
147	145.460	100.000
148	145.470	100.000
149	145.480	100.000
150	145.490	100.000
151	145.500	100.000
152	145.510	100.000
153	145.520	100.000
154	145.530	100.000
155	145.540	100.000
156	145.550	100.000
157	145.560	100.000
158	145.570	100.000
159	145.580	100.000
160	145.590	100.000
161	145.600	100.000
162	145.610	100.000
163	145.620	100.000
164	145.630	100.000
165	145.640	100.000
166	145.650	100.000
167	145.660	100.000
168	145.670	100.000
169	145.680	100.000
170	145.690	100.000
171	145.700	100.000
172	145.710	100.000
173	145.720	100.000
174	145.730	100.000
175	145.740	100.000
176	145.750	100.000
177	145.760	100.000
178	145.770	100.000
179	145.780	100.000
180	145.790	100.000
181	145.800	100.000
182	145.810	100.000
183	145.820	100.000
184	145.830	100.000
185	145.840	100.000
186	145.850	100.000
187	145.860	100.000
188	145.870	100.000
189	145.880	100.000
190	145.890	100.000
191	145.900	100.000
192	145.910	100.000
193	145.920	100.000
194	145.930	100.000
195	145.940	100.000
196	145.950	100.000
197	145.960	100.000
198	145.970	100.000
199	145.980	100.000
200	145.990	100.000

Channel number	Frequency (MHz)	Power (dBm)
201	146.000	100.000
202	146.010	100.000
203	146.020	100.000
204	146.030	100.000
205	146.040	100.000
206	146.050	100.000
207	146.060	100.000
208	146.070	100.000
209	146.080	100.000
210	146.090	100.000
211	146.100	100.000
212	146.110	100.000
213	146.120	100.000
214	146.130	100.000
215	146.140	100.000
216	146.150	100.000
217	146.160	100.000
218	146.170	100.000
219	146.180	100.000
220	146.190	100.000
221	146.200	100.000
222	146.210	100.000
223	146.220	100.000
224	146.230	100.000
225	146.240	100.000
226	146.250	100.000
227	146.260	100.000
228	146.270	100.000
229	146.280	100.000
230	146.290	100.000
231	146.300	100.000
232	146.310	100.000
233	146.320	100.000
234	146.330	100.000
235	146.340	100.000
236	146.350	100.000
237	146.360	100.000
238	146.370	100.000
239	146.380	100.000
240	146.390	100.000
241	146.400	100.000
242	146.410	100.000
243	146.420	100.000
244	146.430	100.000
245	146.440	100.000
246	146.450	100.000
247	146.460	100.000
248	146.470	100.000
249	146.480	100.000
250	146.490	100.000
251	146.500	100.000
252	146.510	100.000
253	146.520	100.000
254	146.530	100.000
255	146.540	100.000
256	146.550	100.000
257	146.560	100.000
258	146.570	100.000
259	146.580	100.000
260	146.590	100.000
261	146.600	100.000
262	146.610	100.000
263	146.620	100.000
264	146.630	100.000
265	146.640	100.000
266	146.650	100.000
267	146.660	100.000
268	146.670	100.000
269	146.680	100.000
270	146.690	100.000
271	146.700	100.000
272	146.710	100.000
273	146.720	100.000
274	146.730	100.000
275	146.740	100.000
276	146.750	100.000
277	146.760	100.000
278	146.770	100.000
279	146.780	100.000
280	146.790	100.000
281	146.800	100.000
282	146.810	100.000
283	146.820	100.000
284	146.830	100.000
285	146.840	100.000
286	146.850	100.000
287	146.860	100.000
288	146.870	100.000
289	146.880	100.000
290	146.890	100.000
291	146.900	100.000
292	146.910	100.000
293	146.920	100.000
294	146.930	100.000
295	146.940	100.000
296	146.950	100.000
297	146.960	100.000
298	146.970	100.000
299	146.980	100.000
300	146.990	100.000

Channel number		Frequency (MHz)	
100	1000	Transmit	Receive
301		147.000	146.970
	3000	147.000	146.970
302	30	147.010	146.980
303		147.020	146.990
304	30	147.030	147.000
305		147.040	147.010
306	30	147.050	147.020
307		147.060	147.030
308	30	147.070	147.040
309		147.080	147.050
310	30	147.090	147.060
311		147.100	147.070
312	30	147.110	147.080
313		147.120	147.090
314	30	147.130	147.100
	300	147.140	147.110
1000		Frequency (MHz)	
100	1000	Transmit	Receive
315		147.150	147.120
316		147.160	147.130
317		147.170	147.140
318		147.180	147.150
319		147.190	147.160
320		147.200	147.170
321		147.210	147.180
322		147.220	147.190
323		147.230	147.200
324		147.240	147.210
325		147.250	147.220
326		147.260	147.230
327		147.270	147.240
328		147.280	147.250
329		147.290	147.260
330		147.300	147.270

Options

CHARGERS AND CABLES



AD-54 BATTERY CHARGE ADAPTER

Used for regular charging of battery packs. Supplied with some versions. Charging time: 15 to 20 hrs.

BC-7A BATTERY CHARGER - AD-54 CHARGE ADAPTER

Used for rapid charging of battery packs.

Charging time: 1 to 2 hrs.

BM-11 5000 AC ADAPTER

Connects to an AC outlet for use with the AD-54. Supplied with some versions.

CP-11 COAXIAL CABLE CABLE

Connects to a photo or video-type separate light source (17 ft or 30 ft) for use with the AD-54.

The 30 ft cable cannot be charged when using a 17 ft cable.

CP-12 COAXIAL CABLE CABLE

Connects to a photo or video-type separate light source (17 ft or 30 ft) for use with the BC-7A.

BATTERY PACKS

BATTERY PACK	VOLTAGE CAPACITY	OUTPUT POWER	HEIGHT
BP-100A	Battery type: Ni-Cd Capacity: 1000 mAh	0.5 W	58 mm (2.3 in.)
BP-150A	1.2 V/1500 mAh	0.5 W	58 mm (2.3 in.)
BP-100	1.2 V/1000 mAh	0.5 W	58 mm (2.3 in.)
BP-170	1.2 V/1700 mAh	0.5 W	78.2 mm (3.1 in.)

Typical values

OTHERS

• DM-9 speaker-microphone

• DM-40 speaker-microphone

• DM-50 speaker-microphone

• AD-51 headset

• CT-50 video cable and

connectors (video communications, 1.22 cables available)



