IC-7851

Firmware information— Ver. 1.10

Thank you for using the Icom Download Service.
The Version 1.10 firmware update will provide the following additional functions or changes to your transceiver.
The first time you update, thoroughly read the Section 17 (UPDATING THE FIRMWARE) of the IC-7851's instruction manual.

IMPORTANT!
Make a backup file of the transceiver's settings, such as stored memory channels, filter settings, to the SD card or USB flash drive before updating the firmware.
The CPU will be automatically reset when the firmware update is performed, the transceiver's memory contents will be cleared and ALL settings will be returned to their default settings.
See Section 10 '■ Saving the setting data onto an SD card or USB flash drive' in the IC-7851 instruction manual, for details.

■ Additions and changes

➥ Adds new feature in the Scope set mode.
  • Waterfall Marker Auto-hide (See below)
➥ Adds the SAVE Form item in the Save set mode. (See below)
➥ Adds new feature in the Others set mode.
  • MAIN/SUB Tracking [MAIN] SW (p. 2)
➥ Adds some CI-V commands. (p. 3)

■ Additional feature in the Scope set mode

The Waterfall Marker Auto-hide item is added to the Scope set mode.
Select the Waterfall Marker Auto-hide function ON or OFF.
 • OFF: The marker in the Waterfall zone stays ON.
 • ON: The marker in the Waterfall zone is hidden
          2 seconds after you have stopped it in place.

Added

■ Additional features in the Save set mode

The SAVE Form item is added to the Save set mode.
To save settings and memory contents for backup or copying to another IC-7851, you must save the data in the firmware version format that matches the target IC-7851.
Select "Now Ver" for the current version, or "Old Ver (1.00–1.01)" for the previous version.
Selects the file saving format between "Now Ver" and "Old Ver (1.00–1.01)." (default: Now Ver)

 • Now Ver: Saves the file in the current
                            firmware version format.
 • Old Ver (1.00–1.01): Saves the file in the firmware
                            version 1.00 to 1.01 format.

Added

NOTE:
• You cannot write the setting file that is saved in the current version format to an older firmware version transceiver.
• If the settings are saved in an older version format, the items added in later version are not saved.

■ Additional features in the Others set mode

The MAIN/SUB Tracking [MAIN] SW item is added to the Others set mode.
Assigns the Main/Sub band tracking function to the [MAIN] key.

- OFF: The [MAIN] key does not act as the Tracking function key.
- ON: Hold down the [MAIN] key for 1 second to turn the function ON or OFF.
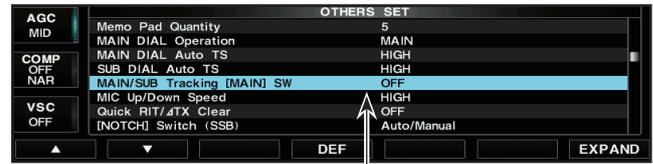
Added

◇ Main/Sub band Tracking function

When you hold down [MAIN] for 1 second to turn ON the Main/Sub band tracking function, the Sub band frequency and mode are equalized to the Main band settings. If you set the Main and Sub bands to the different antennas, you can hear which antenna has better reception. Rotating [MAIN DIAL] changes the Main and Sub frequencies in the same tuning steps at the same time. The direct frequency entry in the Main band also changes the both frequencies together. But rotating [SUB DIAL] changes only the Sub frequency. So, you can change the tracking separation between the Main and Sub band frequencies.
Rotating [MAIN DIAL] changes both frequencies, keeping the amount of the frequency separation.

The Tracking function will be canceled when:
- Starting a scan
- The Sub band frequency is changed by pushing a band key, [V/M] key, direct frequency entry, and so on.

◇ Operation

① Select the "MAIN/SUB Tracking [MAIN] SW" item in the Others set screen.

   SET [F-7] ↘ OTHERS [F-5] ↘ *MAIN/SUB Tracking [MAIN] SW*

② Rotate [MAIN DIAL] to select "ON."
   - The Tracking ON function is assigned to only the [MAIN] key.
③ Push [EXIT/SET] several times.
   - Exits the Set screen.
④ Select a desired operating frequency or mode.
⑤ Hold down [MAIN] for 1 second to turn ON the Main/Sub band tracking function.
   - "MAIN" or "SUB" blinks blue.
   - The Sub band frequency is equalized to the Main band frequency.
   - If you want to turn OFF the function, hold down [MAIN] or [SUB] for 1 second.

• **Others set screen**

[MAIN]

■ Additional CI-V commands

The following commands are added to the command table.

Cmd.	Sub Cmd.	Data	Description
16†	5E	00	Main/Sub band tracking function OFF
		01	Main/Sub band tracking function ON
1A†	05	0313 00 or 01	Read the CI-V command link setting with [REMOTE] for USB port 00=Link to [REMOTE], 01=Unlink from [REMOTE]
		0314 00 or 01	MAIN/SUB band Tracking function is enable or disabled 00=MAIN/SUB Tracking function is disabled. 01=Assigns the function to the [MAIN] key
		0315 00 or 01	Send/read the Waterfall Marker Auto-hide set (00=OFF, 01=ON)
1C†	04	00	Send/read command to disable to output the antenna controller status (frequency and so on) from [REMOTE]
		01	Send/read command to enable to output the antenna controller status (frequency and so on) from [REMOTE]
27	00	see to the right	Read the Scope waveform data *Only when "Scope ON/OFF status" (Command: 27 10) and "Scope data output" (Command: 27 20) are set to "ON," outputs the waveform data to the controller.
	10	00 or 01	Send/read the Scope ON/OFF status (00=Scope OFF, 01=Scope ON)
	11	00 or 01	Send/read the Scope data output (00=Output OFF, 01=Output ON) *Only when "CI-V USB Port" is set to "Unlink from [REMOTE]" and "CI-V USB Baud Rate" is set to 115200 (bps), "Output ON" is selectable.
	12	00 or 01	Send/read the Main or Sub scope setting (00=Main scope, 01=Sub scope)
	13	00 or 01	Send/read the Single/Dual scope setting (00=Single scope, 01=Dual scope)
	14	see p. 4	Send/read the Scope Center mode or Fixed mode setting
	15	see p. 4	Send/read the span setting in the Center mode Scope
	16	see p. 4	Send/read the Edge number setting in the Fixed mode Scope
	17	see p. 4	Send/read the Scope hold function ON or OFF
	18	see p. 4	Send/read the Scope Attenuator setting
	19	see p. 4	Send/read the Scope Reference level setting
	1A	see p. 4	Send/read the Sweep speed setting
	1B	00 or 01	Send/read the Scope indication during TX in the Center mode (00=OFF, 01=ON)
	1C	00 to 02	Send/read scope center frequency setting in the Center mode (00=Filter center, 01=Carrier point center, 02=Carrier point center (Abs. Freq.))
	1D	see p. 4	Send/read the Scope VBW setting
	1E	see p. 5	Send/read the Scope Fixed edge frequencies

† Send/read data

• **Scope waveform data**
Command : 27 00
Outputs the waveform data to the controller
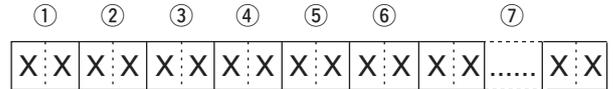
① Main or Sub scope data
• 00=Main scope, 01=Sub scope
② Order of division data (Current)
③ Division number (01 or 15)
When data is sent to the controller through the LAN port, all data is sent together. However, when the data is sent through the USB port, the data is divided by 15 and sent in sequential order.

	Division number	Data length	
LAN	1	704	
USB	15	1st data	15
		2nd or later data	53
		15th data	42

The 1st data sends only the wave information (① ~ ⑥) without the waveform data (⑦).
The 2nd or later data sends the minimum wave information (① ~ ③) with waveform data (⑦).

④ Center or Fixed mode data
• 00 = Center mode scope, 01 = Fixed mode scope

⑤ Waveform information
The waveform information is different between Center mode and fixed mode.
• In the Center mode: Center frequency and span are sent
Center frequency
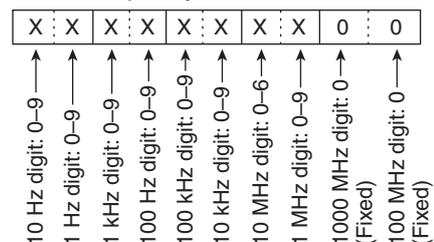
See page 4 for Scope span settings.
• In the Fixed mode: Lower edge and higher edge frequencies are sent
See page 5 for Scope Fixed edge frequency settings ③ ~ ⑫.

⑥ Out of range information
• 00 = In range, 01 = Out of range
If the scope data is out of range, the waveform data (⑦) is omitted.

⑦ Waveform data
The transceiver outputs the drawn waveform data. The data range or data length of the waveform data is judged by the controller. (The data range is basically the same as the display size of the scope on the controller.)

Data range	0 ~ 136
Data length	689

■ Additional CI-V commands (Continued)

• **Center/Fixed mode settings**
Command: 27 14

X X X X

00=Center mode
01=Fixed mode

00=Main scope
01=Sub scope
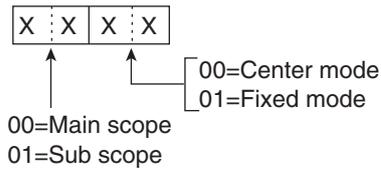
• **Scope span settings**
Command : 27 15

①

X X 0 0 X X X X 0 0 0 0

00=Main scope
01=Sub scope

1 kHz digit: 0, 2, 5
100 Hz digit: 0, 5
100 kHz digit: 0, 1, 2, 5
10 kHz digit: 0, 1, 2, 5
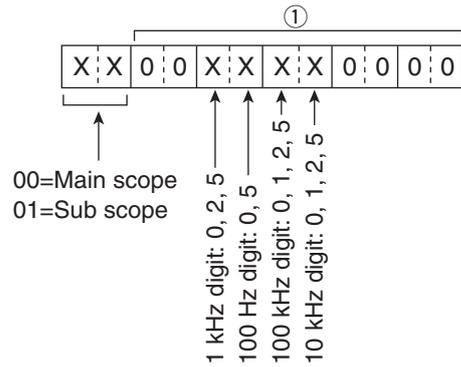
① Selectable Span

Span (Hz)	
2500	2.5 k
5000	5 k
10000	10 k
25000	25 k
50000	50 k
100000	100 k
250000	250 k
500000	500 k

• **Scope Edge number settings**
Command: 27 16

X X X X

01=Edge 1
02=Edge 2
03=Edge 3

00=Main scope
01=Sub scope
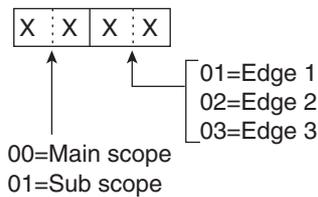
• **Scope Hold settings**
Command: 27 17

X X X X

00=Hold OFF
01=Hold ON

00=Main scope
01=Sub scope
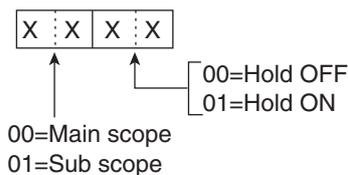
• **Scope Attenuator settings**
Command : 27 18

X X X X

00=ATT OFF
10=10 dB
20=20 dB
30=30 dB

00=Main scope
01=Sub scope
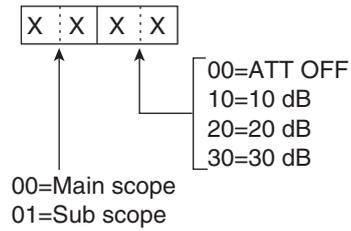
• **Scope Reference level settings**
Command : 27 19
Common settings for the Main and Sub scopes

00=Main scope
01=Sub scope

X X X X X 0 X X

00= + (plus)
01= − (minus)

10 dB digit: 0, 1, 2
1 dB digit: 0—9
0.1 dB digit: 0, 5
0.01 dB digit: 0 (Fixed)
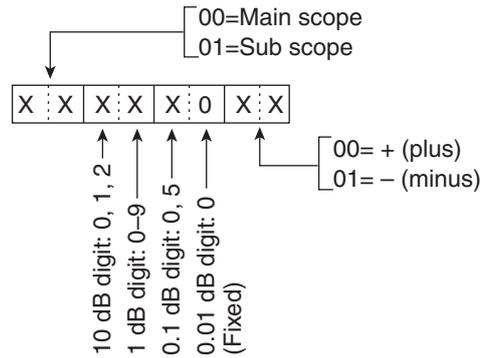
• Adjustable range: −20.0 dB ~ +20.0 dB in 0.5 dB steps

• **Scope Sweep speed settings**
Command : 27 1A

X X X X

00=FAST
01=MID
02=SLOW

00=Main scope
01=Sub scope
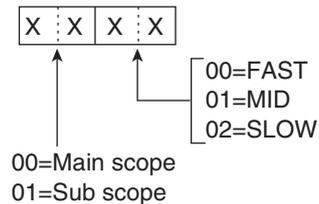
• **Scope VBW (Video Band Width) settings**
Command : 27 1D
Common settings for the Main and Sub scopes

00=Main scope
01=Sub scope

X X X X

00=Narrow
01=Wide
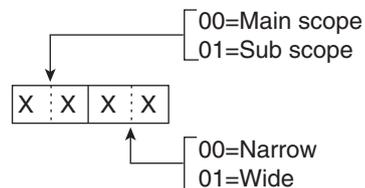
• **Scope Fixed edge frequencies settings**
Command : 27 1E

■ Additional CI-V commands (Continued)

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

X X 0 X X X X X X X X 0 0 X X X X X X X X 0 0

| | |
Frequency range
Edge number: 01–03

Lower edge
10 Hz digit: 0–9
1 Hz digit: 0–9
1 kHz digit: 0–9
100 Hz digit: 0–9
100 kHz digit: 0–9
10 kHz digit: 0–9
10 MHz digit: 0–6
1 MHz digit: 0–9
1000 MHz digit: 0 (fixed)
100 MHz digit: 0 (fixed)

Higher edge
10 Hz digit: 0–9
1 Hz digit: 0–9
1 kHz digit: 0–9
100 Hz digit: 0–9
100 kHz digit: 0–9
10 kHz digit: 0–9
10 MHz digit: 0–6
1 MHz digit: 0–9
1000 MHz digit: 0 (fixed)
100 MHz digit: 0 (fixed)

• Entry of 100 Hz or smaller digits are ignored.

① Selectable Frequency ranges

Data	Frequency range	Data	Frequency range
01	0.03 – 1.60 MHz	07	15.00 – 20.00 MHz
02	1.60 – 2.00 MHz	08	20.00 – 22.00 MHz
03	2.00 – 6.00 MHz	09	22.00 – 26.00 MHz
04	6.00 – 8.00 MHz	10	26.00 – 30.00 MHz
05	8.00 – 11.00 MHz	11	30.00 – 45.00 MHz
06	11.00 – 15.00 MHz	12	45.00 – 60.00 MHz

② Selectable Edge number: 01 = 1, 02 = 2, 03 = 3