## PCR1000 Command List

<table>
<thead>
<tr>
<th>Command</th>
<th>Function Description</th>
<th>Read/Write</th>
</tr>
</thead>
<tbody>
<tr>
<td>GO 2</td>
<td>Transfers command status; result from processing the last (previous) command</td>
<td>R</td>
</tr>
<tr>
<td>G1 2</td>
<td>Sets transmission rate</td>
<td>W</td>
</tr>
<tr>
<td>G2 2</td>
<td>Checks communication protocol</td>
<td>R</td>
</tr>
<tr>
<td>G3 2</td>
<td>Sets communication mode</td>
<td>W</td>
</tr>
<tr>
<td>GD 2</td>
<td>Checks optional devices</td>
<td>R</td>
</tr>
<tr>
<td>GE 2</td>
<td>Checks destination country</td>
<td>R</td>
</tr>
<tr>
<td>HO 2</td>
<td>Transfers message</td>
<td>W</td>
</tr>
<tr>
<td>HI 2</td>
<td>Controls power supply</td>
<td>R/W</td>
</tr>
<tr>
<td>H8 2</td>
<td>Instructs how to scan</td>
<td>W</td>
</tr>
<tr>
<td>H9 2</td>
<td>Notifies scanning status</td>
<td>R</td>
</tr>
<tr>
<td>I1 2</td>
<td>Checks status for busy</td>
<td>R</td>
</tr>
<tr>
<td>I2 2</td>
<td>Notifies S meter level</td>
<td>R</td>
</tr>
<tr>
<td>I3 2</td>
<td>Notifies center meter level</td>
<td>R</td>
</tr>
<tr>
<td>I4 2</td>
<td>Notifies DTMF decode</td>
<td>R</td>
</tr>
<tr>
<td>J40 2</td>
<td>Sets volume level</td>
<td>W</td>
</tr>
<tr>
<td>J41 2</td>
<td>Sets squelch level</td>
<td>W</td>
</tr>
<tr>
<td>J42 2</td>
<td>Sets IF-SHIFT</td>
<td>W</td>
</tr>
<tr>
<td>J43 2</td>
<td>Sets AGC</td>
<td>W</td>
</tr>
<tr>
<td>J44 2</td>
<td>Sets noise blanker</td>
<td>W</td>
</tr>
<tr>
<td>J45 2</td>
<td>Sets RF Attenuator</td>
<td>W</td>
</tr>
<tr>
<td>J46 2</td>
<td>Sets BFO shift</td>
<td>W</td>
</tr>
<tr>
<td>J47 2</td>
<td>Sets VSC</td>
<td>W</td>
</tr>
<tr>
<td>J48 2</td>
<td>Sets CTSS</td>
<td>W</td>
</tr>
<tr>
<td>J49 2</td>
<td>Sets DSP devices</td>
<td>W</td>
</tr>
<tr>
<td>J50 2</td>
<td>Turns DSP ON or OFF</td>
<td>W</td>
</tr>
<tr>
<td>J51 2</td>
<td>Sets DSP noise reducer</td>
<td>W</td>
</tr>
<tr>
<td>J52 2</td>
<td>Sets DSP auto notch filter</td>
<td>W</td>
</tr>
<tr>
<td>KO 16</td>
<td>Sets frequency, mode, and filter</td>
<td>W</td>
</tr>
<tr>
<td>ME000 16</td>
<td>Sets bandscope operation</td>
<td>W</td>
</tr>
<tr>
<td>NE1x0 32</td>
<td>Fetches waveform data from bandscope buffer ($ = 0 - F)</td>
<td>R</td>
</tr>
<tr>
<td>LE200 2</td>
<td>Outputs LC72706 control command</td>
<td>W</td>
</tr>
<tr>
<td>OE300 48</td>
<td>Outputs LC72706 received data</td>
<td>R</td>
</tr>
</tbody>
</table>

This IC-PCR1000 protocol communication command list is provided AS IS, with any guaranties of any kind. If your IC-PCR1000 is broken in experimentation based on this document, sorry but you have to contact your ICOM dealer …

Provided by: Coyote
Command G0

[System]
Transfers command status

Controller >> Receiver

G0 ? <CR><LF>
(1) (2) (5)

Receiver >> Controller

G0 00 <CR><LF>
(3) (4) (5)

(1) Command
(2) Inquiry
(3) Response command
(4) Processing result; 00 = OK, 01 = NG
(5) EOM (not require in fast transfer mode)

Description

Inquiry from controller in fast transfer mode (G0 ? command)
In response to this command, the Receiver returns to the controller OK (00) or NG (01)
resulting form processing of the last command message.
If the command is processed successfully, 00 is returned. If not, 01 is returned.
This command allows the controller to obtain the result from processing the last command.

Auto transfer in interactive mode
In interactive mode, the Receiver always returns to the controller OK (00) or NG (01)
resulting form processing of the last command message.
If the command is processed successfully, 00 is returned. If not, 01 is returned.
Command G1

[System]
Sets transmission rate

Controller >> Receiver

G1 03 <CR><LF>
  (1) (2) (5)

Receiver >> Controller

G0 00 <CR><LF>
  (3) (4) (5)

(1) Command
(2) Transmission rate

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>1200 bps</td>
</tr>
<tr>
<td>01</td>
<td>2400 bps</td>
</tr>
<tr>
<td>02</td>
<td>4800 bps</td>
</tr>
<tr>
<td>03</td>
<td>9600 bps</td>
</tr>
<tr>
<td>04</td>
<td>19200 bps</td>
</tr>
<tr>
<td>05</td>
<td>38400 bps</td>
</tr>
<tr>
<td>Other</td>
<td>38400 bps</td>
</tr>
</tbody>
</table>

(3) Response command
(4) Processing result; 00 = OK, 01 = NG
(5) EOM (not required in fast transfer mode)

Description
This command is used to change the baud rate.

Note
If this command is processed successfully, the response message would be transmitted at the changed baud rate. But transients could prevent normal output of the response message. Alter changing the baud rate of the Receiver, change the baud rate of the controller too and then use the GO ? command or the like to check if the connection status is OK.
Command G2

[System]
Checks communication protocol

Controller >> Receiver

\[ G2 \ ? \ <CR><LF> \]
(1) (2) (5)

Receiver >> Controller

\[ G2\ 10\ <CR><LF> \]
(3) (4) (5)

(1) Command
(2) Inquiry
(3) Response command
(4) Returned value: 10
(5) EOM (not required in fast transfer mode)

Description
This command returns a value indicating the current communication protocol version. This value will be useful to check for protocol compatibility in future. The IC-PCR1000 receiver returns a value of 10.

Command G3

[System]
Sets communication mode

Controller >> Receiver

\[ G3\ 01\ <CR><LF> \]
(1) (2) (5)

Receiver >> Controller (response message)

\[ G0\ 00\ <CR><LF> \]
(3) (4) (5)

(1) Command
(2) Communication mode

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Diagnostic mode</td>
</tr>
<tr>
<td>01</td>
<td>Fast transfer mode</td>
</tr>
<tr>
<td>Other</td>
<td>Invalid (reserved)</td>
</tr>
</tbody>
</table>

(3) Response command
(4) Returned value: 00
(5) EOM (not required in fast transfer mode)

Description
This command is used to switch between interactive mode and fast transfer mode.
Command GD

[System]
Checks optional devices

Controller >> Receiver

**GD ? <CR><LF>**
(1)  (2)  (5)

Receiver >> Controller

**GD 01 <CR><LF>**
(3)  (4)  (5)

(1) Command
(2) Inquiry
(3) Response command
(4) Status of installed devices, represented in two hex digits

<table>
<thead>
<tr>
<th>Bit 0</th>
<th>1= UT-106 (DSP unit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bit 4</td>
<td>1= UT-107 (DARC unit)</td>
</tr>
<tr>
<td>Other</td>
<td>Fixed to 0</td>
</tr>
</tbody>
</table>

(5) EOM (not required in fast transfer mode)

Description
This command is used to check the status of installed devices.

Command GE

[System]
Checks destination country

Controller >> Receiver

**GE ? <CR><LF>**
(1)  (2)  (5)

Receiver >> Controller

**GE 01 <CR><LF>**
(3)  (4)  (5)

(1) Command
(2) Inquiry
(3) Response command
(4) Destination country of product

<table>
<thead>
<tr>
<th>08</th>
<th>JPN</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>USA</td>
</tr>
<tr>
<td>OA</td>
<td>EUR/AUS/CAN</td>
</tr>
<tr>
<td>OB</td>
<td>FGA</td>
</tr>
<tr>
<td>OC</td>
<td>DEN</td>
</tr>
<tr>
<td>Other</td>
<td>(Reserved)</td>
</tr>
</tbody>
</table>

(5) EOM (not required in fast transfer mode)

Description
This command is used to check the destination country of the product.
Command H0

[Operation notification]
Transfers message/software reset

Controller >> Receiver

**H0 00 <CR><LF>**

(1) (2) (5)

Receiver >> Controller (response message)

**G0 00 <CR><LF>**

(3) (4) (5)

(1) Command
(2) Message

Message to PCR1000

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Reset</td>
</tr>
<tr>
<td>Other</td>
<td>(Reserved)</td>
</tr>
</tbody>
</table>

(3) Response command
(4) (Reserved) Returned value: always 00
(5) EOM (not required in fast transfer mode)

Description

This command provides software reset to the Receiver.

Note

This command is used for 1-byte message transfer (reserved for future use). The IC-PCR1000 receiver accept this command for software reset only.
Command H1

[Operation notification]
Controls power supply

a) Controlling the power supply:

Controller >> Receiver

\textbf{H1 01} <CR><LF>
(1) (2) (5)

Receiver >> Controller (response message)

\textbf{G0 00} <CR><LF>
(3) (4) (5)

(1) Command
(2) Power supply ON/OFF

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Linear power OFF</td>
</tr>
<tr>
<td>Other</td>
<td>Linear power ON</td>
</tr>
</tbody>
</table>

(3) Response command
(4) (Reserved) Returned value: always 00
(5) EOM (not required in fast transfer mode)

b) Checking the current power status:

Controller >> Receiver

\textbf{H1 ?} <CR><LF>
(1) (6) (5)

Receiver >> Controller (response message)

\textbf{H1 01} <CR><LF>
(7) (8) (5)

(6) Command
(7) Response command (in response to H1 ?)
(8) Current power status

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Linear power OFF</td>
</tr>
<tr>
<td>01</td>
<td>Linear power ON</td>
</tr>
</tbody>
</table>

Description
This command turns the linear power ON of OFF, or check the current power status.

Note
The IC-PCR1000 receiver notifies the H000 status every second when the linear power is OFF.
Command H8

[Function notification]
Instructs how to scan

Controller >> Receiver

**H8 85 <CR><LF>**
(1) (2) (5)

Receiver >> Controller

**G0 00 <CR><LF>**
(3) (4) (5)

(1) Command
(2) Scan instruction, represented in two hex 8 bits each

<table>
<thead>
<tr>
<th>Bit 7</th>
<th>Specifies the type of squelch of scanning:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 = Level sense check</td>
</tr>
<tr>
<td></td>
<td>0 = Edge sense</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bit 6</th>
<th>Specifies the tune from receipt of this command to notification of the scan status.</th>
</tr>
</thead>
<tbody>
<tr>
<td>.</td>
<td>This waiting time is represented in [7-bit value X 2] ms.</td>
</tr>
<tr>
<td>.</td>
<td>If 0 is specified, scanning is canceled</td>
</tr>
<tr>
<td>Bit 0</td>
<td></td>
</tr>
</tbody>
</table>

(3) Response command
(4) Returned value: 00
(5) EOM (not required in fast transfer mode)

Description
This command instructs how to scan and cancels scanning. It works in fast transfer mode, and is meaningless in effect in interactive mode.
Command H9

[Function notification]
Notifies scan status

Controller >> Receiver

H9 ? <CR><LF>
(1) (2) (5)

Receiver >> Controller

H9 10 <CR><LF>
(3) (4) (5)

(1) Command
(2) Inquiry
(3) Response command
(4) Current scan status

<table>
<thead>
<tr>
<th>Code</th>
<th>Scan Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Not in scan status</td>
</tr>
<tr>
<td>01</td>
<td>Ready to move to the next frequency</td>
</tr>
<tr>
<td>02</td>
<td>Waiting for squelch alter frequency is set</td>
</tr>
<tr>
<td>03</td>
<td>Reviewing squelch</td>
</tr>
<tr>
<td>04</td>
<td>Evaluating tone squelch</td>
</tr>
<tr>
<td>05</td>
<td>Evaluating VSC</td>
</tr>
<tr>
<td>10</td>
<td>Halt due to busy</td>
</tr>
</tbody>
</table>

(5) EOM (not required in fast transfer mode)

Description
This command is used in fast transfer mode only, and is meaningless in effect in interactive mode. It instructs how to scan and cancels scanning.
Command I0

[Status notification]
Checks status for busy

Controller >> Receiver

**I0 ? <CR><LF>**
(1)(2)                 (5)

Receiver >> Controller

**I0 01 <CR><LF>**
(3)  (4)              (5)

(1) Command
(2) Inquiry
(3) Response command
(4) Busy status, represented in two hex digits

<table>
<thead>
<tr>
<th>Bit</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1 = Busy</td>
</tr>
<tr>
<td>1</td>
<td>1 = AF open (CTCSS open)</td>
</tr>
<tr>
<td>2</td>
<td>1 = VSC open</td>
</tr>
<tr>
<td>7</td>
<td>1 = RX error (note ready to receive)</td>
</tr>
<tr>
<td>Other</td>
<td>Fixed to 0</td>
</tr>
</tbody>
</table>

(5) EOM (not required in fast transfer mode)

Description
This command checks if the Receiver is busy.

Note
In fast transfer mode, the Receiver issues this command immediately when it detects a change in its status. Therefore no inquiry is required in fast transfer mode.
Command I1

[Status notification]
Notifies S meter level

Controller >> Receiver

I1 ? <CR><LF>
(1) (2) (5)

Receiver >> Controller

I0 90 <CR><LF>
(3) (4) (5)

(1) Command
(2) Inquiry
(3) Response command
(4) Current S meter reading (in 256 stages), represented in two hex digits

<table>
<thead>
<tr>
<th>Hex</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>SO</td>
</tr>
<tr>
<td>30</td>
<td>S3</td>
</tr>
<tr>
<td>50</td>
<td>S5</td>
</tr>
<tr>
<td>70</td>
<td>S7</td>
</tr>
<tr>
<td>90</td>
<td>S9</td>
</tr>
<tr>
<td>B0</td>
<td>S9 + 20</td>
</tr>
<tr>
<td>D0</td>
<td>S9 + 40</td>
</tr>
<tr>
<td>F0</td>
<td>S9 + 60</td>
</tr>
</tbody>
</table>

(5) EOM (not required in fast transfer mode)

Description
This command checks the current S meter reading.

Note
In fast transfer mode, the Receiver issues this command immediately when it detects a change in its status. Therefore no inquiry is required in fast transfer mode.
Command I2

(Status notification)
Notifies center meter level

Controller >> Receiver

**I2 ? <CR><LF>**

(1) (2) (5)

Receiver >> Controller

**I2 FF <CR><LF>**

(3) (4) (5)

(1) Command
(2) Inquiry
(3) Response command
(4) Current center meter reading (in 256 stages), represented in two hex digits

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Left arrow (high frequency)</td>
</tr>
<tr>
<td>80</td>
<td>Center</td>
</tr>
<tr>
<td>FF</td>
<td>Right arrow (low frequency)</td>
</tr>
</tbody>
</table>

(5) EOM (not required in fast transfer mode)

Description
This command checks the current center meter reading.

Note
In fast transfer mode, the Receiver issues this command immediately when it detects a change in its status. Therefore no inquiry is required in fast transfer mode.
Command I3

[Status notification] 
Notifies DTMF decode

Controller >> Receiver

I3 ? <CR><LF>
(1)(2) (5)

Receiver >> Controller

I3 1F <CR><LF>
(3) (4) (5)

(1) Command
(2) Inquiry
(3) Response command
(4) Current S meter reading (in 256 stages), represented in two hex digits

<table>
<thead>
<tr>
<th></th>
<th>received</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>&quot;0&quot;</td>
</tr>
<tr>
<td>11</td>
<td>&quot;1&quot;</td>
</tr>
<tr>
<td>12</td>
<td>&quot;2&quot;</td>
</tr>
<tr>
<td>13</td>
<td>&quot;3&quot;</td>
</tr>
<tr>
<td>14</td>
<td>&quot;4&quot;</td>
</tr>
<tr>
<td>15</td>
<td>&quot;5&quot;</td>
</tr>
<tr>
<td>16</td>
<td>&quot;6&quot;</td>
</tr>
<tr>
<td>17</td>
<td>&quot;7&quot;</td>
</tr>
<tr>
<td>18</td>
<td>&quot;8&quot;</td>
</tr>
<tr>
<td>19</td>
<td>&quot;9&quot;</td>
</tr>
<tr>
<td>1A</td>
<td>&quot;A&quot;</td>
</tr>
<tr>
<td>1B</td>
<td>&quot;B&quot;</td>
</tr>
<tr>
<td>1C</td>
<td>&quot;C&quot;</td>
</tr>
<tr>
<td>1D</td>
<td>&quot;D&quot;</td>
</tr>
<tr>
<td>1E</td>
<td>&quot;E&quot;</td>
</tr>
<tr>
<td>1F</td>
<td>&quot;F&quot;</td>
</tr>
<tr>
<td>Other</td>
<td>Nothing received</td>
</tr>
</tbody>
</table>

(5) EOM (not required in fast transfer mode)

Description
This command checks the current S meter reading.

Note
In fast transfer mode, the Receiver issues this command immediately when it detects a change in its status. Therefore no inquiry is required in fast transfer mode.
**Command J40**

*Function setting*
Sets volume level

Controller >> Receiver

```
J40 5F <CR><LF>
```

(1) (2) (5)

Receiver >> Controller

```
G0 00 <CR><LF>
```

(3) (4) (5)

(1) Command
(2) Volume level (in 256 stages; 00 means mute and FF max. volume)
(3) Response command
(4) Returned value: 00
(5) EOM (not required in fast transfer mode)

**Description**

This command is used to set the volume level.

**Command J41**

*Function setting*
Sets squelch level

Controller >> Receiver

```
J41 FF <CR><LF>
```

(1) (2) (5)

Receiver >> Controller (response message)

```
G0 00 <CR><LF>
```

(3) (4) (5)

(1) Command
(2) Volume level (in 256 stages; 00 means mute and FF max. volume)
(3) Response command
(4) Returned value: 00
(5) EOM (not required in fast transfer mode)

**Description**

This command is used to set the squelch level.

**Note**

Squelch level and squelch operation at Receiver

<table>
<thead>
<tr>
<th>Setting</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Tone squelch clear and squelch open</td>
</tr>
<tr>
<td>01-3F</td>
<td>Squelch open</td>
</tr>
<tr>
<td>40-7F</td>
<td>Noise squelch</td>
</tr>
<tr>
<td>80-FF</td>
<td>Noise squelch + S meter squelch</td>
</tr>
</tbody>
</table>

Comparative S level = (squelch setting - 128) X 2
Command J43

[Function setting]
Sets IF-SHIFT

Controller >> Receiver

\[
\text{J41 FF <CR><LF>}
\]

(1) (2) (5)

Receiver >> Controller (response message)

\[
\text{G0 00 <CR><LF>}
\]

(3) (4) (5)

(1) Command
(2) IF-SHIFT position (in 256 stages, 80 = center)
(3) Response command
(4) Returned value: 00
(5) EOM (not required in fast transfer mode)

Description
This command is used to set the IF-SHIFT position.

Note
IF-SHIFT setting and Receiver operation

<table>
<thead>
<tr>
<th>Setting</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>Center (0 Hz)</td>
</tr>
<tr>
<td>&lt;80</td>
<td>Minus shift (in 10 Hz steps)</td>
</tr>
<tr>
<td>&gt;80</td>
<td>Plus shift (in 10 Hz steps)</td>
</tr>
</tbody>
</table>

Command J45

[Function setting]
Sets AGC

Controller >> Receiver

\[
\text{J45 01 <CR><LF>}
\]

(1) (2) (5)

Receiver >> Controller (response message)

\[
\text{G0 00 <CR><LF>}
\]

(3) (4) (5)

(1) Command
(2) AGC setting (00 = OFF, Other = ON)
(3) Response command
(4) Returned value: 00
(5) EOM (not required in fast transfer mode)

Description
This command is used to set the AGC.
Command J46

[Function setting]
Sets noise blanker

Controller >> Receiver

\[
\text{J46 01 <CR><LF>}
\]
\[
\begin{array}{ccc}
(1) & (2) & (5) \\
\end{array}
\]

Receiver >> Controller (response message)

\[
\text{G0 00 <CR><LF>}
\]
\[
\begin{array}{ccc}
(3) & (4) & (5) \\
\end{array}
\]

(1) Command
(2) Noise blanker setting (00 = OFF, Other = ON)
(3) Response command
(4) Returned value: 00
(5) EOM (not required in fast transfer mode)

Description
This command is used to set the noise blanker.

Command J47

[Function setting]
Sets attenuator

Controller >> Receiver

\[
\text{J47 01 <CR><LF>}
\]
\[
\begin{array}{ccc}
(1) & (2) & (5) \\
\end{array}
\]

Receiver >> Controller (response message)

\[
\text{G0 00 <CR><LF>}
\]
\[
\begin{array}{ccc}
(3) & (4) & (5) \\
\end{array}
\]

(1) Command
(2) Attenuator setting (00 = OFF, Other = ON)
(3) Response command
(4) Returned value: 00
(5) EOM (not required in fast transfer mode)

Description
This command is used to set the FR attenuator.
Command J4A

[Function setting]
Sets BFO shift

Controller >> Receiver

\[
\text{J4A} \ 80 \ <\text{CR}><\text{LF}>
\]

(1) (2) (5)

Receiver >> Controller (response message)

\[
\text{G0} \ 00 \ <\text{CR}><\text{LF}>
\]

(3) (4) (5)

(1) Command
(2) BFO shift setting (in 256 stages, 80 = center)
(3) Response command
(4) Returned value: 00
(5) EOM (not required in fast transfer mode)

Description
This command is used to set the BFO shift of SSB and CW.

Note
BFO setting and Receiver operation

<table>
<thead>
<tr>
<th>Setting</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>Center (0 Hz)</td>
</tr>
<tr>
<td>&lt;80</td>
<td>Minus shift (in 10 Hz steps)</td>
</tr>
<tr>
<td>&gt;80</td>
<td>Plus shift (in 10 Hz steps)</td>
</tr>
</tbody>
</table>

Command J50

[Function setting]
Sets VSC

Controller >> Receiver

\[
\text{J50} \ 01 \ <\text{CR}><\text{LF}>
\]

(1) (2) (5)

Receiver >> Controller (response message)

\[
\text{G0} \ 00 \ <\text{CR}><\text{LF}>
\]

(3) (4) (5)

(1) Command
(2) VSC setting (00 = OFF, Other = ON)
(3) Response command
(4) Returned value: 00
(5) EOM (not required in fast transfer mode)

Description
This command is used to set the VSC.
**Command J51**

*Function setting*

Sets CTCSS

Controller >> Receiver

```
J51 0A <CR><LF>
```

Receiver >> Controller (response message)

```
G0 00 <CR><LF>
```

1. Command
2. CTCSS setting (00 = OFF, 01H - 33H: CTCSS setting numbers)
3. Response command
4. Returned value: 00
5. EOM (not required in fast transfer mode)

**Description**

CTCSS setting and Receiver operation

<table>
<thead>
<tr>
<th>CTCSS Setting</th>
<th>Receiver Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>OFF 10 107.2 Hz</td>
</tr>
<tr>
<td>01</td>
<td>67.0 Hz 11 110.9 Hz</td>
</tr>
<tr>
<td>02</td>
<td>69.3 Hz 12 114.8 Hz</td>
</tr>
<tr>
<td>03</td>
<td>71.0 Hz 13 118.8 Hz</td>
</tr>
<tr>
<td>04</td>
<td>71.9 Hz 14 123.0 Hz</td>
</tr>
<tr>
<td>05</td>
<td>74.4 Hz 15 127.3 Hz</td>
</tr>
<tr>
<td>06</td>
<td>77.0 Hz 16 131.8 Hz</td>
</tr>
<tr>
<td>07</td>
<td>79.7 Hz 17 136.5 Hz</td>
</tr>
<tr>
<td>08</td>
<td>82.5 Hz 18 141.3 Hz</td>
</tr>
<tr>
<td>09</td>
<td>85.4 Hz 19 146.2 Hz</td>
</tr>
<tr>
<td>OA</td>
<td>88.5 Hz 1A 151.4 Hz</td>
</tr>
<tr>
<td>OB</td>
<td>91.5 Hz 1B 156.7 Hz</td>
</tr>
<tr>
<td>OC</td>
<td>94.8 Hz 1C 159.8 Hz</td>
</tr>
<tr>
<td>OD</td>
<td>97.4 Hz 1D 162.2 Hz</td>
</tr>
<tr>
<td>OE</td>
<td>100.0 Hz 1E 165.5 Hz</td>
</tr>
<tr>
<td>OF</td>
<td>103.5 Hz 1F 167.9 Hz</td>
</tr>
</tbody>
</table>
Command J80

[Function setting]
Sets DSP devices

Controller >> Receiver

```
J80 01 <CR><LF>
```

(1) (2) (5)

Receiver >> Controller (response message)

```
G0 00 <CR><LF>
```

(3) (4) (5)

(1) Command
(2) DSP-ID setting (01 = UT-106, Other = OFF)
(3) Response command
(4) Returned value: 00
(5) EOM (not required in fast transfer mode)

Description
This command is used to set the installation status of DSP (UT-106). The DSP-ID field is used to define IDs of compatible DSP devices. This command is always used to set information regarding DSP devices.

Note
When DSP-ID is OFF, the Receiver finds that no DSP devices are installed.

Command J81

[Function setting]
Turns DSP ON or OFF

Controller >> Receiver

```
J81 01 <CR><LF>
```

(1) (2) (5)

Receiver >> Controller (response message)

```
G0 00 <CR><LF>
```

(3) (4) (5)

(1) Command
(2) DSP ON/OFF setting (00 = OFF, 01 = ON)
(3) Response command
(4) Returned value: 00
(5) EOM (not required in fast transfer mode)

Description
This command is used to turn DSP ON or OFF. If no DSP-ID is defined in the DSP-ID field of command J80, the UT-106 DSP unit is not recognized even if installed.
Command J82

[Function setting]
Sets DSP noise reducer

Controller >> Receiver

**J82 04** <CR><LF>
(1) (2) (5)

Receiver >> Controller (response message)

**G0 00** <CR><LF>
(3) (4) (5)

(1) Command
(2) DSP noise reducer setting (00 = OFF, 01H - 10H = level)
(3) Response command
(4) Returned value: 00
(5) EOM (not required in fast transfer mode)

Description
This command is used to turn the DSP noise reducer ON or OFF and set its level. If no DSP-ID is defined in the DSP-ID field of command J80, the UT-106 DSP unit is not recognized even if installed.

Command J83

[Function setting]
Sets DSP auto notch

Controller >> Receiver

**J82 04** <CR><LF>
(1) (2) (5)

Receiver >> Controller (response message)

**G0 00** <CR><LF>
(3) (4) (5)

(1) Command
(2) Auto notch ON/OFF setting (00 = OFF, Other = ON)
(3) Response command
(4) Returned value: 00
(5) EOM (not required in fast transfer mode)

Description
This command is used to turn the DSP noise reducer ON or OFF. If no DSP-ID is defined in the DSP-ID field of command J80, the UT-106 DSP unit is not recognized even if installed.
Command KO

[Function setting]
Sets frequency, mode and filter

Controller >> Receiver

K0 0145000000 05 02 00 <CR><LF>
(1) (2) (3) (4) (5) (8)

Receiver >> Controller

G0 00 <CR><LF>
(6) (7) (8)

(1) Command
(2) Frequency setting (in 10-digit BCD; Min. 1 Hz; 145.0 MHz for the above example)
(3) Mode setting

<table>
<thead>
<tr>
<th>Mode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>LSB</td>
</tr>
<tr>
<td>01</td>
<td>USB</td>
</tr>
<tr>
<td>02</td>
<td>AM</td>
</tr>
<tr>
<td>03</td>
<td>CW</td>
</tr>
<tr>
<td>04</td>
<td>(Reserved)</td>
</tr>
<tr>
<td>05</td>
<td>FM</td>
</tr>
<tr>
<td>06</td>
<td>WFM</td>
</tr>
</tbody>
</table>

(4) Filter setting (bandwidth)

<table>
<thead>
<tr>
<th>Filter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>2.8 kHz</td>
</tr>
<tr>
<td>01</td>
<td>6 kHz</td>
</tr>
<tr>
<td>02</td>
<td>15 kHz</td>
</tr>
<tr>
<td>03</td>
<td>50 kHz</td>
</tr>
<tr>
<td>04</td>
<td>230 kHz</td>
</tr>
</tbody>
</table>

(5) Specified value: 00 (reserved)
(6) Response command
(7) Returned value: 01 when setting is invalid, 00 when setting are valid
(8) EOM (not required in fast transfer mode)

Description
This command is used to set the frequency, mode and filter (bandwidth).
Reception inhibit frequencies are not acceptable.
Command ME000

[Function setting]
Sets bandscope operation

Controller >> Receiver

ME000 01 AO 05 00 00001000 <CR><LF>
(1) (2) (3) (4) (5) (6) (9)

Receiver >> Controller

G0 00 <CR><LF>
(7) (8) (9)

(1) Command
(2) ID (specified value: O1; specifying other values causes the succeeding data to be ignored)
(3) Sweep width (No. of steps; max. 254. Subtract -1 from an odd number)
(4) Sweep rate per step (x 1 ms, max. 255 ms. 0 ms cannot be specified)
(5) Sweep operation (00 = stop, O1 = start, other = reserved)
(6) Frequency changed per step (0 Hz - 99999999 Hz)
(7) Response command
(8) Returned value: 00
(9) EOM (not required in fast transfer mode)

Description
This command is used to set the bandscope operation. There are no limits in step frequency. But the range outside the receiving frequency (6) 1 MHz is not subject to sweeping. The Receiver sweeping bandwidth in practical use ranges from the receiving frequency + 200 kHz to - 200 kHz, due to its linear characteristics.

Note
The bandscope does not work with SSB/CW.
To stop (zero) Scope Lo, use the following command:
ME000 01000000000000000 <CR><LF>
Command NE1x0

[Bandscope]
Fetches waveform data from bandscope buffer

Controller >> Receiver

**NE100 ? <CR><LF>**

(1) (2) (5)

Receiver >> Controller

**NE100 00 00 .---.-00 00 <CR><LF>**

(3) (4) (5)

(1) Command

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NE100</td>
<td>Waveform data at points -128 thru -113</td>
</tr>
<tr>
<td>NE110</td>
<td>Waveform data at points -112 thru -97</td>
</tr>
<tr>
<td>NE120</td>
<td>Waveform data at points -96 thru -81</td>
</tr>
<tr>
<td>NE130</td>
<td>Waveform data at points -80 thru -65</td>
</tr>
<tr>
<td>NE140</td>
<td>Waveform data at points -64 thru -49</td>
</tr>
<tr>
<td>NE150</td>
<td>Waveform data at points -48 thru -33</td>
</tr>
<tr>
<td>NE160</td>
<td>Waveform data at points -32 thru -17</td>
</tr>
<tr>
<td>NE170</td>
<td>Waveform data at points -16 thru -1</td>
</tr>
<tr>
<td>NE180</td>
<td>Waveform data at points 0 thru +15</td>
</tr>
<tr>
<td>NE190</td>
<td>Waveform data at points +16 thru +31</td>
</tr>
<tr>
<td>NE1A0</td>
<td>Waveform data at points +32 thru +47</td>
</tr>
<tr>
<td>NE1B0</td>
<td>Waveform data at points +48 thru +63</td>
</tr>
<tr>
<td>NE1C0</td>
<td>Waveform data at points +64 thru +79</td>
</tr>
<tr>
<td>NE1D0</td>
<td>Waveform data at points +80 thru +95</td>
</tr>
<tr>
<td>NE1E0</td>
<td>Waveform data at points +96 thru +111</td>
</tr>
<tr>
<td>NE1F0</td>
<td>Waveform data at points +112 thru +127</td>
</tr>
</tbody>
</table>

(2) Inquiry

(3) Response command (according to data sampling point)

(4) Waveform data at each sampling point (in 256 stages) X 16 (points)

(5) EOM (not required in fast transfer mode)

Description
This command obtains waveform data sampled at specified 16 points on the bandscope, by making direct reference to the bandscope buffer.

Note
In fast transfer mode, inquiry is not required because changed waveform data is automatically fetched from the bandscope buffer in sequence.