



AR-DV1

SDR Digital Voice Receiver

COMMAND LIST

AOR, LTD.

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1 PC CONTROL

1-1 USB INTERFACE

The USB (micro B) connector is designed to connect directly to the USB port of a PC. Make sure that the USB cable that you are using is not a “charging only” cable, as this type does not allow data transfer. All functions of the AR-DV1 can be PC controlled with Hyperterminal software, by using our COMMAND LIST. A USB driver needs first to be installed on the PC.

1-2 USB DRIVER

Once the receiver is connected to the PC, Windows should automatically download and install the necessary USB driver from Internet (providing of course that the PC is connected to Internet).

Note: If Windows is not detecting the connection, the USB cable you are using is probably only a “charging” cable, which does not allow data transfer. Please use the proper kind of cable.

Should the operating system fail to automatically install the driver, you may download it manually from:

<http://www.silabs.com/products/mcu/Pages/USBtoUARTBridgeVCPDrivers.aspx>

Download and install the driver version corresponding to your operating system, as described on that page.

Following are the specifications for the communication protocol:

Communication speed (selectable by SB command): 115,200 bps (default), 57,600 bps,

38,400 bps, 19,200 bps, 9,600 bps

Data: 8 bit

Stop bit: 1

Parity: None

Flow control: None

Echo: Off

Return Code: (PC->AR-DV1): <CR>(0x0d) <LF> ignore

Return Code: (AR-DV1->PC): <CR><LF>(0x0d, 0x0a)

2 REMOTE CONTROL STATUS

Connect the AR-DV1 to a PC and turn power on to the AR-DV1.

When any data is sent from a PC to the AR-DV1, then AR-DV1 will respond to the command and go into remote control mode. While in the remote control mode, front panel keys, knobs, and main dial will be disabled, except for the [MHz] key.

To exit from the control command mode, press the [MHz] or send the EX command.

The KEYLOCK function will also be disabled while in the remote control mode.

While Timer Recording is activated, TX, TR, and ZP commands are rejected.

When the AR-DV1 is switched off, only the ZP command (power on command) is accepted.

3 COMMAND FORMAT

<command><CR>

<command><parameter><CR>

<command><parameter 1><SP><parameter 2><SP><parameter 3><CR>

Each command is completed with a <CR>(0x0d).

There is no space between <command> and <parameter>.

Note: SP -- Space

Each command consists of two upper case letters (header) along with operations as required.

All commands use ASCII code which **MUST BE IN UPPER CASE** (except for the up arrow and down arrow keys.)

4 RESPONSE FORMAT

Although there is no local echo, a specified response should come back from the AR-DV1 after

confirming the correct command. If an invalid command is sent to AR-DV1, [? <CR><LF> (0x3f, 0x0d, 0x0a)] will be returned as an unrecognized command.

NORMAL RESPONSE

<SP><CR><LF> (0x20, 0x0d, 0x0a) to a valid command (without parameter).

<value><SP><CR><LF> to a valid command (with one parameter.)

<value 1><SP><value 2><SP>...<CR><LF> to a valid command (with two parameters)

RESPONSE BY RESULT CODES

Two digits number will be added to the head of the response.

Example 1: Acquire noise squelch level (NQ command)

Command NQ -> Response 20NQ35<SP><CR><LF> (Normal response: NQ35<SP><CR><LF>)

Example 2: Set Audio gain (AG command) to 10

Command AG10 -> Response 20<SP><CR><LF> (Normal response: <SP><CR><LF>)

RESULT CODES

The result codes are used to display the response to the command by a 2 digit number. By using the result codes, it's easier to identify the response as valid, invalid, or continuous status.

First digit: Valid or invalid

- 1 --- Valid command from AR-DV1 (Automatically sent from the AR-DV1)
- 2 --- Valid response from PC (Acknowledgment to PC command)
- 3 --- Invalid command (Not executable)
- 4 --- Invalid command (Command error, invalid parameter)
- 5 --- Invalid command (Invalid parameter – out of range)
- 6 --- Invalid command (Unknown command)

Second digit: Response status

- 0 --- Last column or single column
- 1 --- Continuous column

5 COMMAND LIST

5-1 Summary in alphabetical order

| Command | R/W | Function | Page | Command | R/W | Function | Page |
|-----------|-----|--------------------------|------|---------------|-----|---------------------------|------|
| AC | R/W | AGC | 14 | PR | R | List pass frequencies | 39 |
| AG | R/W | Audio gain | 6 | PR | R | Set pass frequencies | 39 |
| AS | R/W | Auto store | 38 | PT | R/W | Write protect | 24 |
| BK | R/W | Bank link | 38 | PW | W | Set pass frequencies | 39 |
| BP | R/W | Beep | 22 | QP | W | Power off, disconnect | 6 |
| CI | R/W | Tone squelch on/off | 11 | RE | R/W | Result code | 26 |
| CN | R/W | Tone squelch frequency | 12 | RF | R/W | Receive frequency | 7 |
| DC | R/W | DCR encryption code | 13 | RG | R/W | Manual gain | 14 |
| DI | R/W | DCS on/off | 12 | RN | R/W | Serial number | 28 |
| DJ | R/W | Digital data output | 13 | RS | W | Reset AR-DV1 | 29 |
| DK | R | Acquire digital data | 13 | RT | R/W | Receiver status output | 26 |
| DL | R/W | Delay time | 19 | RX | R | Receiver status | 27 |
| DS | R/W | DCS code | 12 | SB | R/W | Communication speed | 28 |
| DT | R/W | System clock | 20 | SC | R/W | Voice descrambler freq. | 18 |
| EX | W | End remote control | 10 | SD DIR | R | File directory | 30 |
| FD | R | Acquire scope data (H) | 43 | SD INF | R | Card information | 31 |
| FR | R/W | Free time | 19 | SD MMR | W | File restore | 34 |
| GL | R | Acquire scope data (N) | 43 | SD MMW | W | File backup | 33 |
| IF | R/W | IF bandwidth | 15 | SD PLY | W | Playback | 32 |
| KL | R/W | Key backlight color | 23 | SD PST | R | Record/playback status | 31 |
| LB | R/W | LCD backlight | 22 | SD REC | W | Recording | 32 |
| LC | R/W | Frequency data output | 24 | SD RSQ | R/W | Squelch skip | 33 |
| LD | R/W | LCD dimmer | 22 | SE | W | Search bank setting | 36 |
| LM | R | S-meter reading | 25 | SG | R/W | Search group | 38 |
| LN | R/W | LCD contrast | 23 | SH | R/W | Frequency step adjust | 8 |
| LQ | R/W | Level squelch | 11 | SI | R/W | Voice descrambl. on/off | 18 |
| LS | R/W | Auto notch | 15 | SL | R/W | Search bank low limit | 37 |
| LT | R/W | S-meter data output | 25 | SP | R/W | Sleep timer | 20 |
| MA | R | Read memory channel | 41 | SQ | R/W | Select squelch | 10 |
| MB | W | Delete memory bank | 43 | SR | R | Read search bank | 36 |
| MD | R | Decoding mode | 8 | SS | W | Exec. program search | 37 |
| MG | R/W | Scan group | 42 | ST | R/W | Frequency step | 7 |
| MM | W | Last ch. memory regis. | 29 | SU | R/W | Search bank upper limit | 37 |
| MP | R/W | Pass channel | 42 | SX | W | Delete search bank | 37 |
| MQ | W | Delete memory channel | 43 | TI | R/W | Priority receive interval | 18 |
| MR | W | Read memory | 41 | TR | R/W | Recording timer | 21 |
| MS | W | Memory scan | 41 | VE | R/W | VFO search setting | 35 |
| MW | R/W | Set memory bank | 42 | VF | W | VFO | 34 |
| MX | W | Set memory channel | 42 | VI | R | VFO Information | 35 |
| NQ | R/W | Noise squelch | 10 | VQ | R/W | Voice squelch | 11 |
| NR | R/W | Noise reduction | 15 | VR | R | Firmware version | 28 |
| OF | R/W | Offset receive | 16 | VS | W | VFO search | 34 |
| OL | R/W | Offset frequency | 16 | WI | R | AR-DV1 model | 28 |
| OX | R/W | Monitor offset | 17 | ZI | R/W | Receiver ID | 24 |
| PD | W | Delete pass frequencies | 40 | ZK | W | Move to next F/B/CH | 10 |
| PO | R/W | Priority receive on/off | 17 | ZJ | W | Move to prev. F/B/CH | 9 |
| PP | R/W | Priority receive channel | 17 | ZP | W | Power on, connect | 6 |

COMMAND DETAILS

5-2 BASIC CONTROL

POWER ON, CONNECT

| | | |
|-----------|----------|---|
| ZP | Power on | ZPnn / ZP (nn = 00 ~ 99 : ID) Default: 00 Response: AOR AR-DV1 VER. XXXX READY Result code: 10 --- AR-DV1 VER. XXXX READY 20 --- Turned on successfully (AR-DV1) 40 --- Command format error 50 --- Parameter out of range Note: The Power supply must be connected. |
|-----------|----------|---|

POWER OFF, DISCONNECT

| | | |
|-----------|-----------|---|
| QP | Power off | QPnn / QP (nn = 00 ~ 99 : ID) Default: 00 Response: AOR AR-DV1 GOTO SHUTDOWN Result code: 10 --- Power off completed 20 --- Power off processing (AR-DV1 GOTO SHUTDOWN) 40 --- Command format error 50 --- Parameter out of range Note: The Power supply must be connected. |
|-----------|-----------|---|

AUDIO GAIN

| | |
|---|---------------------------------------|
| AG | AGnn (nn: 00 ~ 99) Default: 00 |
| To read: AG<CR> | |
| Response: AGnn Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range | |

RECEIVE FREQUENCY

| | |
|--|---|
| RF | RFnnnn.nnnnn (nn: in MHz, Range: 0.1 ~ 1300.0) |
| To read: RF<CR> | |
| Response: RFnnnn.nnnnn (in MHz) | |
| Result code: 20 --- Set successfully | |
| 30 --- Entered an invalid frequency for the current receive mode | |
| 40 --- Command format error | |
| 50 --- Parameter out of range | |
| <p>Note: In VFO mode, setting frequency becomes the receive frequency.</p> <p>In VFO search, if the set frequency is within a range of VFO-A and VFO-B, it will become the receive frequency and continues searching. If the set frequency is out of range of VFO-A and VFO-B, a result code (30) will be returned from the AR-DV1.</p> <p>In program search, if the set frequency is within a range of the search bank, it will become the receive frequency and continues searching. If the set frequency is out of range of the search bank, a result code (30) will be returned from the AR-DV1.</p> | |

FREQUENCY STEP

| | |
|--|--|
| ST | STnnn.nn nnn.nn (in kHz) : 0.01, 0.05, 01, 05, 1.0, 2.0, 5.0, 6.25, 7.50, 8.33, 9.0, 10.0, 12.5, 15.0, 20.0, 25.0, 30.0, 50.0, 100.0, 500.0 (default: 010.00) |
| To read: ST<CR> | |
| Response: STnnn.nn | |
| Result code: 20 --- Read successfully | |
| 30 --- Invalid setting | |
| 40 --- Command format error | |
| 50 --- Parameter out of range | |
| <p>Note: In VFO mode or VFO search mode, the frequency step will be changed immediately.</p> <p>In program search mode, executing this command will work until another bank is selected by using the SS command or another receive mode is selected.</p> <p>In memory read mode, it will remain until another channel is selected or another receive mode is selected. This command will not work in the memory read and scan modes.</p> | |

FREQUENCY STEP ADJUST

| | |
|---|---|
| SH | SHnnn.nn: nnn.nn: (in kHz) :0.05, 0.25, 0.5, 1, 2.5, 3.12, 3.75, 4.16, 4.5, 5.0, 6.25, 10.0, 12.5, 15.0, 25.0, 50.0, 250.0 (default: 000.00) |
| To read: SH<CR> | |
| Response: SHnnn.nn | |
| Result code: 20 --- Read successfully | |
| 30 --- Invalid setting | |
| 40 --- Command format error | |
| 50 --- Parameter out of range | |
| <p>Note: In VFO mode or VFO search mode, the frequency step will be changed immediately.</p> <p>In program search mode, executing this command will work until another bank is selected by using the SS command or another receive mode is selected.</p> <p>In memory read mode, this command will be effective until another channel is selected or another receive mode is selected.</p> <p>This command will not work in the memory scan mode.</p> | |

DECODING MODE

| | |
|------------------------------------|--------------------------------------|
| MD | Mddan / MDda (default: MD001) |
| To read: MD<CR> | |
| Response: MDdan | |
| Parameters: d: Digital decode mode | |
| 0: Digital signal not decoded | |
| 1: D-STAR | |
| 2: YAESU | |
| 3: ALINCO | |
| 4: D-CR/NXDN | |
| 5: P-25 (APCO25) | |
| 6: dPMR | |
| 7: DMR | |
| a: Digital mode setting | |
| 0: Digital auto decode mode | |

1: D-STAR

2: YAESU

3: ALINCO

4: D-CR/NXDN

5: P-25 (APCO25)

6: dPMR

7: DMR

F: Digital decode OFF

n: Analog receive mode

0:FM

1:AM

2:SAH

3: SAL

4:USB

5:LSB

6: CW

Note: “n” parameter may be omitted and the analog receive mode is set to NFM.

When “n” is set other than 0, the digital decode mode is set to OFF and “a” parameter is automatically forced to “F”.

Result code: 20 --- Read successfully

40 --- Command format error

50 --- Parameter out of range

Note: In VFO mode or VFO search mode, the frequency step will be changed immediately.

In program search mode, executing this command will work until another bank is selected by using the SS command or another receive mode is selected. In memory read mode, this command will be effective until another channel is selected or another receive mode is selected.

This command will not work in the memory scan mode.

MOVE TO PREVIOUS FREQUENCY, BANK, CHANNEL

| | |
|--|-------------------------------|
| ZJ | ZJ (immediate command) |
| Result code: 20 --- Read successfully | |
| 40 --- Command format error | |

MOVE TO NEXT FREQUENCY, BANK, CHANNEL

| | |
|---|-------------------------------|
| ZK | ZK (immediate command) |
| Result code: 20 --- Read successfully 40 --- Command format error | |

END REMOTE CONTROL

| | |
|--|--|
| EX | EXnn, EX (nn: Receiver's ID. If omitted, nn=00) |
| Result code: 20 --- Disconnected successfully 40 --- Command format error 50 --- Parameter out of range | |

5-3 SQUELCH CONTROL

SELECT SQUELCH

| | |
|--|---|
| SQ | SQn (n: 0 ~ 2 default: 0) 0: Auto 1: Noise squelch 2: Level squelch |
| Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range | |

NOISE SQUELCH

| | |
|--|---|
| NQ | NQnn (nn: 00 ~ 99 default: 00) 00: Squelch fully opened 99: Squelch fully closed |
| Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range | |

LEVEL SQUELCH

| | |
|--|---|
| LQ | LQnn (nn: 00 ~ 99 default: 00) 00: Squelch fully opened 99: Squelch fully closed |
| Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range | |

VOICE SQUELCH

| | |
|---|---|
| VQ | VQn VTppp VLr n: 0, 1 0: Function Off (default) 1: Function On ppp: 000 ~ 255 (default: 020) Delay time in 0.1 second incremental r: 0 ~ 7 Squelch level (default: 4) |
| Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range Note: Function ON/OFF can be set independently in each VFO, bank, or channel. Delay time and squelch level are applied for the entire operation. | |

TONE SQUELCH ON/OFF

| | |
|---|---|
| CI | CI n (n: 0, 1 default: 0) 0: Tone squelch OFF 1: Tone squelch ON |
| Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range Note: This command may be used for each VFO, bank, and channel. | |

TONE SQUELCH FREQUENCY

| | |
|---|--|
| CN | CNnn (nn: 00 (response only), 01 ~52, 99 (search)) default:99 When tone search is activated, response will be CN99nn. If tone is detected, nn = 01 ~ 52 If no tone is detected, nn = 00 |
| Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range Note: This command may be used for each VFO, bank, and channel. | |

DCS ON/OFF

| | |
|---|--|
| DI | DIn (n: 0, 1 default: 0) 0: DCS OFF 1: DCS ON |
| Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range Note: This command may be used for each VFO, bank, and channel. | |

DCS CODE

| | |
|---|--|
| DS | DSnnn (nnn: 000 (response only), 017 ~754, 999) 999 is code search. Default:999 When code search is activated, response will be DS999nnn. If code is detected, nnn = 017 ~ 754 No code is detected, nnn = 000 |
| Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range Note: This command may be used for each VFO, bank, and channel. | |

5-4 DIGITAL DECODING

DIGITAL CR, SIMPLE ENCRYPTION CODE DECODING

| | |
|--|---|
| DC | DCnnnnn (nnnnn: 00000 ~32767) default:00000 |
| Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range Note: Used for non-licensed low power communication system, in Japan only. | |

DIGITAL DATA OUTPUT

| | |
|--|---|
| DJ | DJn (n: 0, 1) n:0 Data output OFF (default) n:1 Data output ON When activated, the digital data will be displayed on the LCD or output from remote connector. |
| Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range | |

ACQUIRE DIGITAL DATA

| | |
|---|---|
| DK | DKyyy Acquire the latest message. |
| Result code: 20 --- Read successfully 40 --- Command format error Note: When DJ command is set to 1, data will always be output, regardless of this command. | |

5-5 RECEIVER OPTIONS

These options are available for each VFO, bank, and channel settings except the OL command (offset frequency setting). The OL command is applied for entire receiver's settings.

AGC (AUTOMATIC GAIN CONTROL)

| | |
|---|---|
| AC | ACn (n: 0 ~ 3) (default: 0) n=0 AGC Fast n=1 AGC Medium n=2 AGC Slow n=3 MANUAL GAIN |
| To read: AC<CR> | |
| Response: ACn | |
| Result code: 20 --- Read successfully 30 --- Detector mode is selected other than Analog AM modes (AM, SSB, CW) 40 --- Command format error 50 --- Parameter out of range | |
| Note: This command works only in Analog AM modes (AM, SSB, CW). An error code will be sent in all other modes. | |

MANUAL GAIN

| | |
|--|---|
| RG | RGnnn (nnn: 000 ~ 110) nnn=000 Gain minimum nnn=110 Gain maximum (default:099) |
| To read: RG<CR> | |
| Response: RGnnn | |
| Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range | |
| Note: The manual gain setting is valid only when AGC is selected MANUAL GAIN (AC3). However, the parameter setting or readout is available regardless of AGC setting. | |

IF BANDWIDTH

| | |
|--|---|
| IF | IFn FM: n = 0->200KHz, 1->100KHz, 2->30KHz, 3->15KHz, 4->6KHz (default: 3 FM) AM: n = 0->15KHz, 1->8KHz, 2->5.5KHz, 3->3.8KHz SAH, SAL n=0->5.5KHz, 1->3.8KHz USB LSB n=0->2.6KHz, 1->1.8KHz CW n=0->500Hz, 1->200Hz |
| To read: IF<CR> | |
| Response: IFn, IFnn Result code: 20 --- Read successfully 30 --- Invalid decode mode 40 --- Command format error 50 --- Parameter out of range | |

AUTO NOTCH

| | |
|--|---|
| LS | LSn n: 0 ~ 3 n: 0 OFF (default) n: 1 Depth Low n: 2 Depth Medium n: 3 Depth High |
| To read: LS<CR> | |
| Response: LSn Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range | |

NOISE REDUCTION

| | |
|-----------|--|
| NR | NRn n: 0 ~ 3 n: 0 OFF (default) n: 1 Reduction Low n: 2 Reduction Medium |
|-----------|--|

| | |
|--|--------------------|
| | n:3 Reduction High |
| To read: NR<CR> | |
| Response: NRn | |
| Result code: 20 --- Read successfully | |
| 40 --- Command format error | |
| 50 --- Parameter out of range | |

OFFSET RECEIVE

| | |
|--|---|
| OF | OFsnn nn: 00 ~ 39 (default: 00) s: +/- Offset direction Note: The “s” parameter may be omitted when nn = 00. |
| To read: OF<CR> | |
| Response: OFnns | |
| Result code: 20 --- Read successfully | |
| 40 --- Command format error | |
| 50 --- Parameter out of range | |

OFFSET FREQUENCY

| | |
|--|---|
| OL | OLnn RFffff.ffff nn: 00 ~ 39 Offset number (default: Offset number 01 ~ 19 is the same as number 20) ffff.ffff : Offset frequency (in MHz) Note: Offset number 20 ~ 39: Factory preprogrammed (cannot be changed) 01 ~ 19: User programmable 00: Offset frequency is set to 0 Hz. |
| To read: OLnn<CR> | |
| Response: OLnn RFffff.ffff | |
| Result code: 20 --- Read successfully | |
| 30 --- Invalid offset frequency | |
| 40 --- Command format error | |
| 50 --- Parameter out of range | |

MONITOR OFFSET

| | |
|---|--|
| OX | OXn n: 0, 1 (default: 0) n:0 Monitor, Offset OFF n:1 Monitor, Offset ON Note: When an offset receive is available, offset frequency will be received. When an offset receive is not possible, squelch will open and receive the current frequency. |
| To read: OX<CR> | |
| Response: OXn Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range Note: This setting won't be saved onto the last channel memory. Once the power switch is turned off, the OX will be set to OX0. | |

PRIORITY RECEIVE ON/OFF

| | |
|--|------------------------------------|
| PO | POn n: 0, 1 (default: 0) |
| To read: PO<CR> | |
| Response: POn Result code: 20 --- Read successfully 30 --- Priority channel not registered 40 --- Command format error 50 --- Parameter out of range | |

PRIORITY RECEIVE CHANNEL

| | |
|------------------------|---|
| PP | PPbbcc bb: bank (default: 00) cc: channel (default: 00) |
| To read: PP<CR> | |

Response: PPbbcc

Result code: 20 --- Read successfully

40 --- Command format error

50 --- Parameter out of range

Note: Priority channel can be set even when the designated channel is not registered.

PRIORITY RECEIVE INTERVAL

| | |
|--|--|
| TI | TImm mm: 01 ~ 99 in seconds (default: 05) |
| To read: TI<CR> | |
| Response: TImm | |
| Result code: 20 --- Read successfully | |
| 40 --- Command format error | |
| 50 --- Parameter out of range | |

VOICE DESCRAMBLER FREQUENCY (*Not available for the US consumer version.*)

| | | |
|---|--------------|---|
| SC | SCnnn | (nnn: 200 ~ 700) in 10Hz incremental, default: 200. |
| To read: SC<CR> | | |
| Response: SCnnn | | |
| Result code: 20 --- Read successfully | | |
| 30 --- Invalid parameter (Parameter should be set as FM within 15kHz bandwidth) | | |
| 40 --- Command format error | | |
| 50 --- Parameter out of range | | |

VOICE DESCRAMBLER ON/OFF (*Not available for the US consumer version.*)

| | | |
|------------------------|------------|---|
| SI | Sin | (n: 0, 1) (default: 0) n:0 OFF n:1 ON |
| To read: SI<CR> | | |

Response: SIn

Result code: 20 --- Read successfully

30 --- Invalid parameter(parameter should be set as FM within 15KHz bandwidth)

40 --- Command format error

50 --- Parameter out of range

DELAY TIME

| | | |
|--|--------------|---|
| DL | DLnnn | (nnn: 000 ~ 099) in 0.1 sec. incremental Default: 020. If nnn=100, the delay time is set as unlimited. |
| To read: DL<CR> | | |
| Response: DLnnn | | |
| Result code: 20 --- Read successfully | | |
| 30 --- Wrong receive mode selected (Parameter cannot be set) | | |
| 40 --- Command format error | | |
| 50 --- Parameter out of range | | |

FREE TIME (FOR SCAN/SEARCH)

| | | |
|--|-------------|--|
| FR | FRnn | (nn: 00 ~ 60) in seconds. Default: 00. n:00 OFF |
| To read: FR<CR> | | |
| Response: FRnn | | |
| Result code: 20 --- Read successfully | | |
| 30 --- Wrong receive mode selected (Parameter cannot be set) | | |
| 40 --- Command format error | | |
| 50 --- Parameter out of range | | |

5-6 CLOCK, ALARM, RECORDING TIMER

SYSTEM CLOCK

| | | |
|--|---------------------|---|
| DT | DTyymmddhhMM | (yy: 13 ~ 99) Year's last 2 digits. mm: 01 ~ 12, month dd: 01 ~ 31, day hh: 00 ~ 23, hour MM:00 ~ 59, minute (default: 1301010000) |
| To read: DT<CR> | | |
| Response: DTyymmddhhMM | | |
| Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range | | |
| Note: When the 2013 of year parameter is detected, AR-DV1 will recognize the system clock has not been set. | | |

SLEEP TIMER

| | | |
|--|------------|--|
| SP | SPn | (n: 0 ~ 5) n: 0 Timer off (default) n: 1 15 minutes n: 2 30 minutes n: 3 60 minutes n: 4 90 minutes n: 5 120 minutes |
| To read: SP<CR> | | |
| Response: SPn | | |
| Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range | | |

RECORDING TIMER

| | | |
|---|--|---|
| TR | TR1 TYe RPm RMrrr.... TS tt... TE tt... WEx... AGvv | <p>E = 0... Not activate 1...Activate Alarm, 2... Activate timer recording</p> <p>M = 0... One time, 1=weekly</p> <p>Rrr = Receive mode</p> <p>VFx = Specify VFO mode. X is for one of A, B and Z.</p> <p>VS = Specify VFO Search</p> <p>SSbb = Specify Programming Search. bb specifies search bank.</p> <p>MRbbcc = Specify memory channel. bb specifies memory bank. cc specifies memory channel.</p> <p>MSbb = Specify memory channel. bb specifies Memory bank.</p> <p>tt... = Time start or time end. One time specifies as MMDDhhmm. Weekly time specifies as hhmm in 24 hour display.</p> <p>X... = Specify Day.</p> <p>1=Sunday, 2 =Monday, 4= Tuesday, 8=Wednesday, 16=Thursday, 32= Friday, 64= Saturday</p> <p>vv=00 to 99 for alarm volume</p> |
| <p>Remarks: When “m” is set to 0 or 1, “WE” does not need to be specified.</p> <p>TY, RM, TS, TE, WE may be omitted at the same time regardless of “m” parameter.</p> <p>Timer will quit when TRnXE0 command is executed (i.e. e=0). However, PC must connect to AR-DV1 using ZP command prior to use the timer.</p> <p>If the start time and end time are the same, timer will not work.</p> <p>Default: TRn XE0 TY0 RMVFA TS01010000 TE01010000</p> <p>To read: TR<CR></p> | | |
| <p>Result code: 20 --- Read successfully</p> <p>40 --- Command format error</p> <p>50 --- Parameter out of range</p> <p>Start time is set behind end time. Time was set behind the system clock.</p> | | |

5-7 RECEIVER CONFIGURATION

BEEP

| | | |
|--|------------|---|
| BP | BPn | (n: 0 ~ 7) Default: 2 N: 0 Minimum (OFF) n: 7 Maximum |
| To read: BP<CR> | | |
| Response: BPn | | |
| Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range | | |

LCD BACKLIGHT

| | | |
|--|------------|--|
| LB | LBn | (n: 0 ~ 2) n: 0 OFF n: 1 Continuous (default) n: 2 Auto |
| To read: LB<CR> | | |
| Response: LBn | | |
| Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range | | |

LCD DIMMER

| | | |
|------------------------|------------|--|
| LD | LDn | (n: 0, 1) n: 0 NORMAL (default) n: 1 DIM |
| To read: LD<CR> | | |

Response: LDn

Result code: 20 --- Read successfully

40 --- Command format error

50 --- Parameter out of range

KEY BACKLIGHT COLOR

| | | |
|--|------------|--|
| KL | KLn | (n: 0 ~7) Default: 0 n: 0 OFF n: 1 BLUE n: 2 RED n: 3 MAGENDA n: 4 GREEN n: 5 CYAN n: 6 YELLOW n: 7 ORANGE |
| To read: KL<CR> | | |
| Response: KLn | | |
| Result code: 20 --- Read successfully | | |
| 40 --- Command format error | | |
| 50 --- Parameter out of range | | |

LCD CONTRAST

| | | |
|--|-------------|---|
| LN | LNnn | (n: 00 ~ 63) Default: 25 n:00 LIGHTEST (minimum) n:63 DARKEST (maximum) |
| To read: LN<CR> | | |
| Response: LNnn | | |
| Result code: 20 --- Read successfully | | |
| 40 --- Command format error | | |
| 50 --- Parameter out of range | | |

WRITE PROTECT

| | | |
|---|------------|---|
| PT | PTa | (n: 0, 1) Default: 0 n:0 OFF n:1 ON |
| To read: PT<CR> | | |
| Response: PTa Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range Remarks: When executed by itself, the last channel memory will not work. MM command will also become invalid. When executed with MW, MX, SE commands, then memory bank, memory channel and search bank will be write protected. | | |

RECEIVER ID

| | | |
|---|-------------|--------------------------|
| ZI | ZInn | (n: 00 ~ 99) Default: 09 |
| To read: ZI<CR> | | |
| Response: ZInn Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range | | |

FREQUENCY DATA OUTPUT

| | | |
|------------------------|------------|---|
| LC | LCn | (n: 0, 1) Default: 0 n:0 OFF n:1 ON |
| To read: LC<CR> | | |

Response: LCn

Result code: 20 --- Read successfully

40 --- Command format error

50 --- Parameter out of range

Remarks: Output data are the same as RX command.

Data output will be made at one of the following timings:

1. While any types of squelch (noise squelch, level squelch, tone squelch, DCS, reverse tone squelch) opens and the frequency changed.
2. While the frequency is not changed, squelch opened.
3. Receive mode changed.
4. SS command is received in program search mode.
5. MS command is received in memory scan mode.

The data output by executing this command has priority over LT or RT commands.

S-METER READING

| | | |
|---|---------------|---|
| LM | LMkkkc | kkk: S meter reading c: Squelch status c = 0: Squelch closes 1: Noise squelch or level squelch opens 2: Tone, DCS or reverse squelch opens 3: Detecting digital mode |
| To read: LM<CR> | | |
| Response: LMkkc | | |
| Result code: 20 --- Read successfully 40 --- Command format error | | |

S-METER DATA AUTO OUTPUT

| | | |
|------------------------|-------------|---|
| LT | LTnn | (nn: 00 ~ 95) in 5 incremental (500mS) nn:00 OFF (default) |
| To read: LT<CR> | | |

Response: LTnn

Result code: 10 --- Auto output

20 --- Read successfully

40 --- Command format error

50 --- Parameter out of range

Remarks: The data format of this command is same as LM command. However, the result code is different.

LC and RT commands have priority.

RESULT CODE

| | | |
|--|------------|---|
| RE | REn | (n: 0, 1) n:0 Result code not added (default) n:1 Result code added |
| To read: RE<CR> | | |
| Response: REn Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range | | |

RECEIVER STATUS AUTO OUTPUT

| | | |
|---|-------------|---|
| RT | RTnn | (nn: 00 ~ 95) in 5 incremental (500mS) nn:00 OFF (default) |
| To read: RT<CR> | | |
| Response: RTnn Result code: 10 --- Auto output 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range Remarks: Data format of this command is same as RX command. However, the result code is different. LC command has a priority. This command has a priority over LT command. | | |

RECEIVER STATUS

| RX | RX |
|--|----|
| <p>To read: RX<CR></p> <p>Status data includes:</p> <ol style="list-style-type: none"> 1. Head command and its parameter (While alarm function, sleep timer, record timer, or SD card record/playback are activated) 2. Receive mode (VFO, VFO search, program search, memory read, memory scan) 3. Receive frequency 4. Frequency step 5. Detector mode 6. S-meter value <p>While in program search mode, memory read mode, memory scan mode, bank number, channel number and name tag will be added. Below is the data format for each receive mode:</p> <p>VFO Mode</p> <p>RX VFx RFffff.ffff STsss.ss MDdan LMkkkc</p> <p>VFO Search Mode</p> <p>RX VS RFffff.ffff STsss.ss MDdan LMkkkc</p> <p>Program Search Mode</p> <p>RX SRbb RFffff.ffff STsss.ss MDdan LMkkkc TTtt.....</p> <p>Memory Read Mode</p> <p>RX MRbbcc RFffff.ffff STsss.ss MDdan LMkkkc TTtt...</p> <p>Memory Scan Mode</p> <p>RX MSbbcc RFffff.ffff STsss.ss MDdan LMkkkc TTtt...</p> <p>While alarm function is activated, RX<SP>followed by AL<SP> will be added. For example, in VFO mode and alarm function is activated, the data format will be:</p> <p>RX AL VFx RFffff.ffff STsss.ss MDdan LMkkkc</p> <p>If beep is selected, then it will be RX AL BPx.</p> <p>While sleep timer is activated, then it will be RX<SP>followed by SPn</p> <p>While recording timer is activated, then it will be TRn<SP> will be added.</p> <p>While recording timer is activated in memory read mode, then it will be</p> <p>RX Try MRbbcc MPp RFffff.ffff STsss.ss MDdan LMkkkc TTtt...</p> <p>While in SD card record/playback mode, it will be RX<SP> followed by SD PSTn<SP>.</p> | |
| <p>Result code: 20 --- Read successfully 40 --- Command format error</p> | |

COMMUNICATION SPEED

| | | |
|--|------------|---|
| SB | SBn | (n: 0 ~ 4) n:0 115200 bps (default) n:1 57600 bps n:2 38400 bps n:3 19200 bps n:4 9600 bps |
| To read: SB<CR> | | |
| Response: SBn | | |
| Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range | | |

AR-DV1 MODEL VARIATION

| | |
|---|-----------|
| WI | WI |
| To read: WI<CR> | |
| Response: No header added | |
| Result code: 20 --- Read successfully 40 --- Command format error | |

AR-DV1 SERIAL NUMBER

| | |
|--|-----------|
| RN | RN |
| To read: RN<CR> | |
| Response: RN0952zzzz | |
| Result code: 20 --- Read successfully | |

AR-DV1 FIRMWARE VERSION

| | |
|-----------|--|
| VR | VRyymmss yy: year (last 2 digits) mm: month |
|-----------|--|

| | |
|--|-----------------------|
| | s... : version number |
| To read: VR<CR> | |
| Response: VRyymms | |
| Result code: 20 --- Read successfully | |
| 40 --- Command format error | |

LAST CHANNEL MEMORY REGISTRATION

| | |
|---|-----------|
| MM | MM |
| Write only command | |
| Result code: 20 --- Registration completed | |
| 21 --- Command received. Start registration. | |
| 30 --- Write protect enabled | |
| 50 --- Format error | |

RESET AR-DV1

| | |
|--|---|
| RS | RSn, RS2% n: 0,1 n:0 --- System Reset n:1 --- Full Reset |
| Perform reset | |
| Result code: 20 --- Command executed successfully | |
| 40 --- Command format error | |
| 50 --- Parameter out of range | |

5-8 SD CARD MANAGEMENT

FILE DIRECTORY

| SD DIR | SD DIR |
|--|--------|
| To read: SD DIR<CR> Details: Acquire the file list of the SD card. Output in one line per file. (Example): One audio file has been stored in a 32GB SD card SD DIR 06201413.wav 00:05:13.5 2015/06/30 14:13:25 SD DIR nnnFILE(S) (nnn: number of files) No file has been stored SD DIR 000FILE(S) Response: Fffffff: file name eee: file extention nnnnnnnnnn: file size (byte) yyyy/mm/dd HH:MM:SS --- year/month/date hour (in 24 h format):minute:second hh:nn:ss.s --- Recorded time SD DIR fffffff.WAV hh:nn:ss.s yyyy/mm/dd HH:MM:SS (extention:WAV) SD DIR fffffff.eee nnnnnnnnnn yyyy/mm/dd HH:MM:SS (extention:other than WAV) SD DIR CARDBUSY --- Card busy SD DIR NOCARD --- SD card not found SD DIR FAT12 ----- Card format FAT12 and can't be used ? ---- other errors | |
| Result code: 20 --- Read successfully 21 --- File list output in progress 30 --- Card not found 40 --- Command format error | |

CARD INFORMATION

| SD INF | SD INF |
|--|--------|
| To read: SD INF<CR> Details: Display card size, available memory size (Example): SD INF FREE: 967872KB (7.8H) TOTAL: 30517578KB Response: SD INF CARDBUSY --- Card busy SD INF NOCARD --- SD card not found SD INF FAT12 ----- Card format FAT12 and can't be used ? ---- other errors | |
| Result code: 20 --- Read successfully 30 --- Card not found 40 --- Command format error | |

RECORD / PLAYBACK STATUS

| SD PST | SD PST |
|---|--------|
| To read: SD PST<CR> Response: SD PST0 --- Card existed and no access SD PST1 --- Recording SD PST2 --- Playing back SD PST3 --- Processing except for recording and playing back SD PST4 --- SD card not found, can't be used, or any other errors. | |
| Result code: 20 --- Read successfully 30 --- Card not found, can't access card 40 --- Command format error | |

RECORDING

| SD REC | SD REC |
|--|--------|
| <p>Details: Start recording with the designated file name automatically. When “/” is used as a file name, recording will stop.</p> <p>In case no response is returned, recording has started or ended.</p> <p>Response: SD PST0 --- No access</p> <p>SD REC CARDBUSY --- Card busy</p> <p>SD REC NOCARD --- SD card not found</p> <p>SD REC CARDFULL--- Card has no vacant space.</p> <p>? ---- other errors</p> | |
| <p>Result code: 20 --- Read successfully</p> <p>30 --- Card not found, can't access card</p> <p>40 --- Command format error</p> <p>50 --- Parameter out of range, designated file does not exist.</p> | |

PLAYBACK

| SD PLY | SD PLYfff.... | fff.... : file name |
|---|---------------|---------------------|
| <p>Details: Start recording with the designated file name.</p> <p>File name: Alphabet (upper case) and numbers can be used.</p> <p>When “/” is used as a file name, AR-DV1 will stop playback.</p> <p>Response: SD PLY CARDBUSY --- Card busy</p> <p>SD PLY NOCARD --- SD card not found</p> <p>SD PLY NOFILE --- Specified file cannot be found</p> <p>? ---- other errors</p> | | |
| <p>Result code: 20 --- Read successfully</p> <p>30 --- Card not found, can't access card</p> <p>40 --- Command format error</p> <p>50 --- Parameter out of range, designated file does not exist.</p> | | |

SQUELCH SKIP

| | |
|--|--|
| SD RSQ | SD RSQn n 0, 1 n:0 --- No skip n:1 --- Skip (default) |
| <p>Response: SD RSQn</p> <p>Result code: 20 --- Read successfully 40 --- Command format error 50 --- Parameter out of range</p> | |

FILE BACKUP

| | |
|---|--|
| SD MMW | SD MMWfff.... fff.... : SRCHBK (Search Bank) SRCHGRP (Search Group) MEMCH (Memory Channel) SCANGRP (Scan Group) SYSYEM (All) |
| <p>In case of no response is returned, it is started or ended recording.</p> <p>Response: SD MMW CARDBUSY --- Card busy SD MMW NOCARD --- SD card not found SD MMW CARDFULL --- Card full ? ---- other errors</p> <p>Result code: 20 --- Backup completed 30 --- Card not found, can't access card 40 --- Command format error 50 --- Parameter out of range</p> | |

FILE RESTORE

| | |
|---|--|
| SD MMR | SD MMRfff.... fff.... : original file name There is no need to specify the file extension. |
| Response: SD MMR CARDBUSY --- Card busy SD MMR NOCARD --- SD card not found SD MMR NOFILE --- File does not exist ? ---- other errors Result code: 20 --- Restore completed 30 --- Card not found, can't access card 40 --- Command format error 50 --- Parameter out of range, file does not exist | |

5-9 VFO

VFO

| | |
|--|--|
| VF | VFt RFffff.ffff STggg.gg SHhhh.hh MDdan t: A, B, Z A: VFO-A B: VFO-B C: VFO-Z |
| Details: Start receive with the designated VFO, frequency, decode mode. RF, ST, SH, MD can be omitted. In this case, previous settings will be applied. | |
| Result code: 20 --- Settings completed 40 --- Command format error | |

VFO SEARCH

| | |
|---|-----------|
| VS | VS |
| Detail: Activate VFO search Result code: 20 --- Function completed 40 --- Command format error | |

VFO SEARCH SETTING

| | |
|---|--|
| VE | VE DLmm FRpp ASn mm: Delay time 01 ~ 99 (in 0.1 seconds increments) (default: 20) pp: Free time 00 ~ 60 (in 1 second increments) (default: 00) n: 0,1 --- Auto store 0: OFF (default) 1: ON |
| Result code: 20 --- Settings completed 40 --- Command format error 50 --- Parameter out of range | |

VFO INFORMATION

| | |
|---|--|
| VI | VE DLmm FRpp ASn mm: Delay time 01 ~ 99 (in 0.1 seconds increments) (default: 20) pp: Free time 00 ~ 60 (in 1 second increments) (default: 00) n: 0,1 --- Auto store 0: OFF (default) 1: ON |
| Details: Read setting information on each VFO - A,B, Z VI VFA RFffff.ffff STggg.gg SHhh.hh MDdan VI VFB RFffff.ffff STggg.gg SHhh.hh MDdan VI VFZ RFffff.ffff STggg.gg SHhh.hh MDdan | |
| Result code: 20 --- Read completed 21 --- Reading proceeded 40 --- Parameter error 50 --- Parameter out of range | |

5-10 SEARCH

SEARCH BANK SETTING

| SE | SEbb SLffff.ffff SUffff.ffff STggg.gg SHhhh.hh MDdan PTa TTttt.... |
|--|--|
| <p>Parameters: bb --- bank</p> <p>ffff.ffff --- Upper limit, Lower limit frequency (in MHz)</p> <p>ggg.gg ---- Frequency step (in kHz)</p> <p>hhh.hh ---- Step adjust frequency (in kHz)</p> <p>mn ----- Detector mode</p> <p>a ----- Write protect</p> <p>ttt ----- Bank name tag</p> <p>PaPaTo read: SD DIR<CR></p> <p>Response:</p> <p>Fffffff: file name eee: file extention nnnnnnnnnn: file size (byte)</p> <p>yyyy/mm/dd HH:MM:SS --- year/month/date hour (in 24 h format):minute:second</p> <p>hh:nn:ss.s --- Recorded time</p> <p>Details: ST, SH, MD, PT, TT may be omitted.</p> <p>In this case, ST, SH, MD parameters will be used with previous values, PT will be set to OFF, and for TT a blank will be assigned automatically.</p> | |
| <p>Result code: 20 --- Set completed</p> <p>40 --- Command format error</p> <p>50 --- Parameter out of range, invalid parameter</p> | |

READ SEARCH BANK

| SR | SRbb | bb: Bank |
|--|------|----------|
| <p>Result code: 20 --- Read completed</p> <p>30 --- Bank unregistered</p> <p>40 --- Command format error</p> <p>50 --- Parameter out of range</p> | | |

EXECUTE PROGRAM SEARCH

| | |
|--|----------------------|
| SS | SSbb bb: Bank |
| Result code: 20 --- Executed properly 30 --- Bank unregistered 40 --- Command format error 50 --- Parameter out of range | |

DELETE SEARCH BANK

| | |
|---|----------------------|
| SX | SXbb bb: Bank |
| Result code: 20 --- Deleted successfully 30 --- Bank unregistered 40 --- Command format error 50 --- Parameter out of range | |

SEARCH BANK LOWER LIMIT FREQUENCY

| | |
|--|--|
| SL | SLffff.ffff ffff.ffff: low limit frequency (in MHz) |
| Result code: 20 --- Setting/Reading completed 40 --- Command format error 50 --- Parameter out of range, set frequency is higher than the upper limit frequency | |
| Remarks: This command is effective until SS command is sent, receive mode changed, or power turned off. To change the lower limit frequency permanently, use this command along with the SE command. | |

SEARCH BANK UPPER LIMIT FREQUENCY

| | |
|---|--|
| SU | SUffff.ffff ffff.ffff: low limit frequency (in MHz) |
| Result code: 20 --- Setting/Reading completed 40 --- Command format error 50 --- Parameter out of range, set frequency is lower than the lower limit frequency | |
| Remarks This command is effective until SS command is sent, receive mode changed, or power turned off. To change the lower limit frequency permanently, use this command along with the SE command. | |

SEARCH GROUP

| | |
|--|--|
| SG | SGgg DLmm FRpp ASn BKbbb... gg: group number mm: delay time, 01 ~ 99 (in 0.1 seconds increments) (default: 20) pp: free time, 00 ~ 60 (in 1 second increments) (default: 00) n: auto store, 0: OFF (default), 1: ON bbb: bank link |
| Result code: 20 --- Setting / Reading completed 40 --- Command format error 50 --- Parameter out of range | |

AUTO STORE

| | |
|--|---|
| AS | ASn n: 0, 1 0: Auto store OFF (default) 1: Auto store ON |
| Result code: 20 --- Setting / Reading completed 30 --- Searching (other than VFO search or program search) 40 --- Command format error 50 --- Parameter out of range | |
| Remarks: This command may be used alone. | |

BANK LINK

| | |
|---|---|
| BK | BKbbb... bbb: bank list (2 digits must be specified with each bank) bb = 99 All bank links are disabled. |
| Result code: 20 --- Setting / Reading completed 30 --- Searching (other than program search) 40 --- Command format error 50 --- Parameter out of range, set frequency is higher than upper limit frequency. | |
| Remarks: This command may be used alone. | |

SET PASS FREQUENCIES

| | |
|---|---|
| PW | PW, PWffff.ffff, PWbb, PWbbffff.ffff ffff.ffff: pass frequency (in MHz) bb.....: search bank |
| <p>Remarks: While in VFO search or program search and stopping on a busy channel, executing this command sets the receive frequency as a pass frequency. While in VFO search or program search and executing PWffff.ffff sets the receive frequency as a pass frequency. While in program search and stopping on busy channel, executing PWbb sets the receive frequency as a pass frequency in the designated bank.</p> <p>Using %% parameter instead of bb will apply all search banks.</p> <p>Executing PWbbffff.ffff sets the designated frequency as a pass frequency in the designated bank.</p> <p>Using %% parameter instead of bb will apply all search banks.</p> | |
| <p>Result code: 20 --- Setting completed</p> <p>30 --- Designated pass frequency cannot be set in the selected receive mode.</p> <p>Reached the maximum number of pass channels</p> <p>40 --- Command format error</p> <p>50 --- Parameter out of range</p> | |

LIST PASS FREQUENCIES

| | |
|---|--|
| PR | PR (VFO search), PRbb (search bank) |
| <p>Response: PRnnffff.ffff, PRnn - - - : VFO search</p> <p>PRbbnnffff.ffff, PRbbnn --- : Search bank</p> <p>Parameters: bb: search bank</p> <p>nn: 00 ~ 49 (consecutive pass frequency numbers)</p> <p>ffff.ffff: pass frequency</p> <p>Details: When bb is not specified, a list of pass frequencies (for VFO search) will be displayed.</p> <p>When bb is specified, a list of pass frequencies of the specified bank will be displayed.</p> <p>When a total number of pass frequencies are less than 50, "---" will appear for the rest of pass frequencies.</p> | |
| <p>Result code: 20 --- Read list completely</p> <p>21 --- Read partial list (to be continued)</p> <p>40 --- Command format error</p> <p>50 --- Parameter out of range</p> | |

DELETE PASS FREQUENCIES

| PD | PD, PDbb, PDbbnn |
|---|------------------|
| <p>Parameters: bb: search bank</p> <p>nn: consecutive pass frequency numbers</p> <p>Details: PD---Delete all pass frequencies of VFO search</p> <p>PDbb --- Delete all pass frequencies of the designated search bank. If bb is specified as %%, delete all pass frequencies of all banks</p> <p>PDbbnn --- Delete specified pass frequency</p> | |
| <p>Result code: 20 --- Deleted successfully</p> <p>30 --- Designated pass frequency does not exist</p> <p>40 --- Command format error</p> <p>50 --- Parameter out of range</p> | |

5-11 MEMORY CHANNEL

SET MEMORY CHANNEL

| MX | MXbbcc MPp RFffff.ffff STggg.gg SHhhh.hh MDdan PTa TTttt... |
|--|---|
| <p>Parameters: bb: memory bank</p> <p>cc: memory channel</p> <p>p: pass channel</p> <p>ffff.ffff: receive frequency</p> <p>ggg.gg: frequency step (in kHz)</p> <p>hhh.hh: step adjust frequency (in kHz)</p> <p>mn: receive mode</p> <p>a: write protect</p> <p>t: memory tag</p> <p>Details: MP, ST, SH, MD, PT, TT may be omitted. In this case, the parameters of RF, ST, SH, MD used are from previous settings. MP and PT will be set to 0.</p> | |
| <p>Result code: 20 --- Set completed</p> <p>40 --- Command format error</p> <p>50 --- Parameter out of range</p> | |

READ MEMORY CHANNEL

| MA | MAbb, MAbbcc |
|---|---------------------|
| Parameters: bb: memory bank cc: memory channel Details: MAbb --- Read all memory channels of the designated memory bank MAbbcc --- Read designated memory channel of the designated memory bank If the channel is not registered, the output will be MAbbcc - - - | |
| Result code: 20 --- Read completed 21 --- Reading (to be continued) 40 --- Command format error 50 --- Parameter out of range | |

READ MEMORY

| MR | MRbbcc |
|---|---------------|
| Parameters: bb: memory bank cc: memory channel p: pass channel Details: Receive frequency with the designated memory bank and channel. | |
| Result code: 20 --- Read completed 30 --- Designated channel not registered 40 --- Command format error 50 --- Parameter out of range | |

MEMORY SCAN

| MS | MSbb |
|--|-------------|
| Parameters: bb: memory bank | |
| Result code: 20 --- Scan started 30 --- No memory channel found in the designated bank 40 --- Command format error 50 --- Parameter out of range | |

SET MEMORY BANK

| MW | MWbb MCmm PTa TTt |
|--|-------------------|
| Parameters: bb: memory bank mm: assigned number of channel (default: 50) a: protect (default: 0) t: memory tag (12 characters maximum) (default: none) Result code: 20 --- Set completed 30 ---- No specified bank is registered 40 --- Command format error 50 --- Parameter out of range | |

SCAN GROUP

| MG | MGgg DLmm FRpp BKbbb... |
|---|-------------------------|
| Parameters: gg: group number, 00 ~ 19 mm: delay time (default: 20) pp: free time bbb: bank link (default: none) DL, FR, BK commands may be executed by itself Result code: 20 --- Set completed, 40 --- Command format error, 50 --- Parameter out of range | |

PASS CHANNEL

| MP | MPp, MPbb |
|---|-----------|
| Parameters: p: pass channel p: 0, 1 0 --- release (default), 1 --- set pass channel bb: bank number, release all pass channels on the designated bank MPp --- effective only in memory mode MPbb --- effective in any modes other than memory mode Result code: 20 --- Set completed 30 --- Unable to access, pass channel not existed in the designated bank 40 --- Command format error 50 --- Parameter out of range | |

DELETE MEMORY BANK

| | |
|--|-------------|
| MB | MBbb |
| Parameters: bb: memory bank Pass channels will also be deleted | |
| Result code: 20 --- Bank deleted 30 --- Designated bank not registered 40 --- Command format error 50 --- Parameter out of range | |

DELETE MEMORY CHANNEL

| | |
|--|---------------|
| MQ | MQbbcc |
| Parameters: bb: memory bank, cc: memory channel | |
| Result code: 20 --- Delete completed 30 --- Designated memory channel not registered 40 --- Command format error 50 --- Parameter out of range | |

5-12 FREQUENCY SCOPE

ACQUIRE FREQUENCY SCOPE DATA (HIGH SPEED)

| | |
|--|--|
| FD | FDddd... ddd: same data value with S-meter data |
| Result code: 20 --- Read data successfully 30 --- Not in scope mode 40 --- Command format error | |

ACQUIRE FREQUENCY SCOPE DATA (NORMAL SPEED)

| | |
|---|---|
| GL | Output data format: Ffff.ffffLkkc (per line), / --- last line |
| Result code: 20 --- Read data successfully (Last line) 21 --- Data reading (continued) 30 --- Not in scope mode 40 --- Command format error | |

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