



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	<p>ZPnn / ZP (nn = 00 ~ 99 : ID) Default: 00</p> <p>Response: AOR AR-DV1 VER. XXXX READY</p> <p>Result code: 10 --- AR-DV1 VER. XXXX READY</p> <p style="padding-left: 40px;">20 --- Turned on successfully (AR-DV1)</p> <p style="padding-left: 40px;">40 --- Command format error</p> <p style="padding-left: 40px;">50 --- Parameter out of range</p> <p>Note: The Power supply must be connected.</p>
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POWER OFF, DISCONNECT

QP	Power off	<p>QPnn /QP (nn = 00 ~ 99 : ID) Default: 00</p> <p>Response: AOR AR-DV1 GOTO SHUTDOWN</p> <p>Result code: 10 --- Power off completed</p> <p style="padding-left: 40px;">20 --- Power off processing (AR-DV1 GOTO SHUTDOWN)</p> <p style="padding-left: 40px;">40 --- Command format error</p> <p style="padding-left: 40px;">50 --- Parameter out of range</p> <p>Note: The Power supply must be connected.</p>
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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	<p>CNnn (nn: 00 (response only), 01 ~52, 99 (search))</p> <p>default:99</p> <p>When tone search is activated, response will be CN99nn.</p> <p>If tone is detected, nn = 01 ~ 52</p> <p>If no tone is detected, nn = 00</p>
<p>Result code: 20 --- Read successfully</p> <p>40 --- Command format error</p> <p>50 --- Parameter out of range</p> <p>Note: This command may be used for each VFO, bank, and channel.</p>	

DCS ON/OFF

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

DCS CODE

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

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
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	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 RFfff.ffff nn: 00 ~ 39 Offset number (default: Offset number 01 ~ 19 is the same as number 20) fff.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 RFfff.ffff	
Result code: 20 --- Read successfully	
30 --- Invalid offset frequency	
40 --- Command format error	
50 --- Parameter out of range	

MONITOR OFFSET

OX	<p>OXn n: 0, 1 (default: 0)</p> <p>n:0 Monitor, Offset OFF</p> <p>n:1 Monitor, Offset ON</p> <p>Note: When an offset receive is available, offset frequency will be received.</p> <p>When an offset receive is not possible, squelch will open and receive the current frequency.</p>
To read: OX<CR>	
Response: OXn	
<p>Result code: 20 --- Read successfully</p> <p>40 --- Command format error</p> <p>50 --- Parameter out of range</p> <p>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.</p>	

PRIORITY RECEIVE ON/OFF

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

PRIORITY RECEIVE CHANNEL

PP	<p>PPbbcc bb: bank (default: 00)</p> <p>cc: channel (default: 00)</p>
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

<p>TR</p>	<p>TR1 TYe RPm RMrrr.... TSttt... TEttt... WEx... AGvv</p>	<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>		

<p>Response: LTnn</p> <p>Result code: 10 --- Auto output</p> <p>20 --- Read successfully</p> <p>40 --- Command format error</p> <p>50 --- Parameter out of range</p> <p>Remarks: The data format of this command is same as LM command. However, the result code is different.</p> <p>LC and RT commands have priority.</p>
--

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 style="padding-left: 20px;">RX VFx RFffff.ffff STsss.ss MDdan LMkkkc</p> <p>VFO Search Mode</p> <p style="padding-left: 20px;">RX VS RFffff.ffff STsss.ss MDdan LMkkkc</p> <p>Program Search Mode</p> <p style="padding-left: 20px;">RX SRbb RFffff.ffff STsss.ss MDdan LMkkkc TTtt.....</p> <p>Memory Read Mode</p> <p style="padding-left: 20px;">RX MRbbcc RFffff.ffff STsss.ss MDdan LMkkkc TTtt...</p> <p>Memory Scan Mode</p> <p style="padding-left: 20px;">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 style="padding-left: 20px;">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 style="padding-left: 20px;">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 extension nnnnnnnnn: 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 (extension:WAV)	
SD DIR fffffff.eee nnnnnnnnn yyyy/mm/dd HH:MM:SS (extension: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 style="padding-left: 40px;">SD REC CARDBUSY --- Card busy</p> <p style="padding-left: 40px;">SD REC NOCARD --- SD card not found</p> <p style="padding-left: 40px;">SD REC CARDFULL--- Card has no vacant space.</p> <p style="padding-left: 40px;">? ---- other errors</p>	
<p>Result code: 20 --- Read successfully</p> <p style="padding-left: 40px;">30 --- Card not found, can't access card</p> <p style="padding-left: 40px;">40 --- Command format error</p> <p style="padding-left: 40px;">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 style="padding-left: 40px;">File name: Alphabet (upper case) and numbers can be used.</p> <p style="padding-left: 40px;">When “/” is used as a file name, AR-DV1 will stop playback.</p> <p>Response: SD PLY CARDBUSY --- Card busy</p> <p style="padding-left: 40px;">SD PLY NOCARD --- SD card not found</p> <p style="padding-left: 40px;">SD PLY NOFILE --- Specified file cannot be found</p> <p style="padding-left: 40px;">? ---- other errors</p>	
<p>Result code: 20 --- Read successfully</p> <p style="padding-left: 40px;">30 --- Card not found, can't access card</p> <p style="padding-left: 40px;">40 --- Command format error</p> <p style="padding-left: 40px;">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 MMR fff.... fff.... : original file name There is no need to specify the file extension.
<p>Response: SD MMR CARDBUSY --- Card busy</p> <p>SD MMR NOCARD --- SD card not found</p> <p>SD MMR NOFILE --- File does not exist</p> <p>? ---- other errors</p> <p>Result code: 20 --- Restore completed</p> <p>30 --- Card not found, can't access card</p> <p>40 --- Command format error</p> <p>50 --- Parameter out of range, file does not exist</p>	

5-9 VFO

VFO

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

VFO SEARCH

VS	VS
<p>Detail: Activate VFO search</p> <p>Result code: 20 --- Function completed</p> <p>40 --- Command format error</p>	

VFO SEARCH SETTING

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

VFO INFORMATION

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

5-10 SEARCH

SEARCH BANK SETTING

SE	SEbb SLffff.ffff SUffff.ffff STggg.gg SHhhh.hh MDdan PTa TTtt....
<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 nnnnnnnnn: 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	SLfff.ffff	fff.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	SUfff.ffff	fff.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	<p>PW, PWffff.ffff, PWbb, PWbbffff.ffff</p> <p style="text-align: center;">ffff.ffff: pass frequency (in MHz)</p> <p style="text-align: center;">bb.....: search bank</p>
<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 style="padding-left: 40px;">30 --- Designated pass frequency cannot be set in the selected receive mode.</p> <p style="padding-left: 80px;">Reached the maximum number of pass channels</p> <p style="padding-left: 40px;">40 --- Command format error</p> <p style="padding-left: 40px;">50 --- Parameter out of range</p>	

LIST PASS FREQUENCIES

PR	<p>PR (VFO search), PRbb (search bank)</p>
<p>Response: PRnnffff.ffff, PRnn - - - : VFO search</p> <p style="padding-left: 40px;">PRbbnnffff.ffff, PRbbnn --- : Search bank</p> <p>Parameters: bb: search bank</p> <p style="padding-left: 40px;">nn: 00 ~ 49 (consecutive pass frequency numbers)</p> <p style="padding-left: 40px;">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 style="padding-left: 40px;">When bb is specified, a list of pass frequencies of the specified bank will be displayed.</p> <p style="padding-left: 40px;">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 style="padding-left: 40px;">21 --- Read partial list (to be continued)</p> <p style="padding-left: 40px;">40 --- Command format error</p> <p style="padding-left: 40px;">50 --- Parameter out of range</p>	

DELETE PASS FREQUENCIES

PD	PD, PDbb, PDbbnn
<p>Parameters: bb: search bank nn: consecutive pass frequency numbers</p> <p>Details: PD---Delete all pass frequencies of VFO search PDbb --- Delete all pass frequencies of the designated search bank. If bb is specified as %%, delete all pass frequencies of all banks PDbbnn --- Delete specified pass frequency</p>	
<p>Result code: 20 --- Deleted successfully 30 --- Designated pass frequency does not exist 40 --- Command format error 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 cc: memory channel p: pass channel ffff.ffff: receive frequency ggg.gg: frequency step (in kHz) hhh.hh: step adjust frequency (in kHz) mn: receive mode a: write protect 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 40 --- Command format error 50 --- Parameter out of range</p>	

READ MEMORY CHANNEL

MA	MAbb, MAbbcc
<p>Parameters: bb: memory bank cc: memory channel</p> <p>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 - - -</p>	
<p>Result code: 20 --- Read completed 21 --- Reading (to be continued) 40 --- Command format error 50 --- Parameter out of range</p>	

READ MEMORY

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

MEMORY SCAN

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

SET MEMORY BANK

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

SCAN GROUP

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

PASS CHANNEL

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

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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