7.14. REMOTE COMMAND

【 Remote Communication Format 】

BPS rate	: 9600/19200/38400/57600/115200 bps
Start/Stop bit	: 1 bit, 1 bit
Data Length	: 8 bit
Parity Check	: None
Code	: ASCII
Flow Control	: None
Return Code	: Carriage Return only

【 FORMAT OF THIS DOCUMENT 】

<COMMAND NAME>
Summary explanation of the function of the command

Controller → Radio
Command format
Radio → Controller
Response format

NOTE

1. Any command is required to wait a response from the scanner, then, next command will be acceptable.

2. All memory access commands are acceptable in only Program Mode. Use PRG command to enter Program Mode, and EPG command to exit.

3. Error message isn't described in this document, but the scanner returns error message to the controller as follows.
   1)Command format error / Value error : ERR[\r]
   2)The command is invalid at the time : NG[\r]
   3)Framing error : FER[\r]
   4)Overrun error : ORER[\r]

4. [\r] means "to hit the Enter key" or "to send the Return code".

5. Several commands or responses with long format are described like multi-line because of the page width but their formats are only single line, actually.

6. In set command, only "," parameters are not changed.

7. The set command is aborted if any format error is detected.

8. [INDEX] or [xxx_INDEX] is the index of internal memory chain. Dynamic Memory Allocation Structure always uses it as a handle to access data and to trace forward/reverse or up/down index. The range of the index is from 1 to maximum memory block (about 3750).

9. [FRQ], [BASEx] and [LIMIT_x] are frequency format. It is showed by 8digit number without decimal point. The order of the digits is from 1 GHz digit to 100 Hz digit.
   ex. 08510125 means 851.0125MHz

10. [TGID] shows TGID format. The formats depend on Trunked System Type.
See another Appendix to get further information.

11. [NAME] shows each custom name. If user set only space character, the name will return to default name.

Remote Command List

No.	Category	Command	Function	Program Mode Only
1.	Remote Control	GID	Get Current Talkgroup ID Status	
2.		KEY	Push KEY	
3.		POF	Power OFF	
4.		QSH	Go to quick search hold mode	
5.		STS	Get Status	
6.		GLG	Get Reception Status	
7.		JPM	Jump Mode	
8.		MNU	Menu Mode	
9.	System information	MDL	Get Model Info	
10.		VER	Get Firmware Version	
11.	Programming Mode	PRG	Enter Program Mode	
12.	Control	EPG	Exit Program Mode	
13.	System Setting	BLT	Get/Set Backlight	O
14.		BSV	Get/Set Battery Save	O
15.		CLR	Clear All Memory	O
16.		KBP	Get/Set Key Beep	O
17.		OMS	Get/Set Opening Message	O
18.		PRI	Get/Set Priority Mode	O
19.		AGV	Get/Set Auto Gain Control	O
20.		BAR	Get/Set Bar Antenna	O
21.	Scan Settings	SCT	Get System Count	O
22.		SIH	Get System Index Head	O
23.		SIT	Get System Index Tail	O
24.		QSL	Get/Set System Quick Lockout	O
25.		QGL	Get/Set Group Quick Lockout	O
26.		CSY	Create System	O
27.		DSY	Delete System	O
28.		CPS	Copy System	O
29.		SIN	Get/Set System Info	O
30.		TRN	Get/Set Trunk Info	O
31.		TFQ	Get/Set Trunk Frequency Info	O
32.		AGC	Append Channel Group	O
33.		AGT	Append TGID Group	O
34.		DGR	Delete Group	O
35.		GIN	Get/ Set Group Info	O
36.		ACC	Append Channel	O
37.		ACT	Append TGID	O
38.		DCH	Delete Channel	O

	Category	Command	Function	Program Mode Only
39.	Scan Settings	CIN	Get/Set Channel Info	O
40.		TIN	Get/Set TGID Info	O
41.	Scan Settings (Continuation)	GLI	Get Lockout TGID(for RVW L/O ID)	O
42.		SLI	Get Search L/O TGID	O
43.		ULI	Unlock TGID (for RVW L/O ID)	O
44.		LOI	Lockout ID (TGID)	O
45.		REV	Get Rev Index	O
46.		FWD	Get Fwd Index	O
47.		RMB	Get Remains of Memory Block	O
48.		MEM	Get Memory Used	O
49.	Search / Close Call Settings	SCO	Get/Set Search/Close Call Settings	O
50.		BBS	Get/Set Broadcast Screen Band Settings	O
51.		GLF	Get Global Lockout Frequency	O
52.		ULF	Unlock Global L/O	O
53.		LOF	Lockout Frequency	O
54.		CLC	Get/Set Close Call Settings	O
55.	Service Search Settings	SSP	Get/Set Service Search Settings	O
56.	Custom Search Settings	CSG	Get/Set Custom Search Group	O
57.		CSP	Get/Set Custom Search Settings	O
58.	Weather Settings	WXS	Get/Set Weather Setting	O
59.		SGP	Get/Set SAME Group Settings	O
60.	Tone-Out Settings	TON	Get/Set Tone-Out Settings	O
61.	On-Air Clone Settings	AIR	Get/Set On-Air Clone Settings	O
62.	LCD Contrast Setting	CNT	Get/Set LCD Contrast Settings	O
63.	Volume Level Settings	VOL	Get/Set Volume Level Settings	
64.	Squelch Level Settings	SQL	Get/Set Squelch Level Settings	
65.	Test	WIN	*Get Windows Voltage	
66.		BAV	*Get Battery Voltage	
67.	Motorola Custom Band Plan	MCP	Get/Set Motorola Custom Band Plan	
68.	Audio AGC Setting	AGS	Get/Set Audio AGC Setting	
69.	Set Current Frequency	QSC	Set current frequency and get reception status	
70.	Goto Custom Search and Tune Frequency	CSC	Go to Custom search and get reception status	
71.	Get RSSI Level	PWR	Get RSSI Level	

==========

<COMMAND GID>

Get Current Talkgroup ID Status

==========

Controller → Radio

① GID[\r]

Radio → Controller

① GID,[SYS_TYPE],[TGID],[ID_SRCH_MODE],[NAME1],[NAME2],[NAME3][\r]

[SYS_TYPE] : System Type
[TGID] : TGID
[ID_SRCH_MODE]
0:ID:SCAN mode
1:ID:SEARCH mode
[NAME1] : SYSTEM NAME (Alpha Tag)
[NAME2] : GROUP NAME (Alpha Tag)
[NAME3] : TGID NAME (Alpha Tag)

FUNCTION

This command returns TGID currently displayed on LCD.
If you get the TGID once, the scanner returns ,,,,,[\r] until next reception.

NOTE

This command returns ,,,,,[\r], when TGID is not displayed.

==========

<COMMAND KEY>

Push KEY

==========

Controller → Radio

① KEY,[KEY_CODE],[KEY_MODE][\r]

Radio → Controller

① KEY,OK[\r]

[KEY_CODE]

M	: MENU	
F	: F	
H	: HOLD	
S	: SCAN/SEARCH	
L	: L/O	
1	: 1/PRI	
2	: 2/WX	
3	: 3	
4	: 4	
5	: 5	
6	: 6	
7	: 7/RCL	
8	: 8	
9	: 9	
0	: 0/CAR	
.(dot)	: ./NO/REV	
E	: E/YES/ATT	
>	: VFO RIGHT	* Set "P" to KEY_MODE.
<	: VFO LEFT	* Set "P" to KEY_MODE.

^ : VFO PUSH
P : POWER/LIGHT/LOCK

[KEY_MODE] P : Press (One Push)
L : Long Press (Press and Hold a few second)
H : Hold (Press and Hold until Release receive)
R : Release (Cancel Hold state)

Ex.1) Press MENU KEY
→ KEY,M,P[\r]
← OK[\r]
Ex.2) Press F + SCAN KEY
→ KEY,F,H[\r] : Hold F KEY
← OK[\r]
→ KEY,S,P[\r] : Press SCAN KEY (F + SCAN KEY operation)
← OK[\r]
→ KEY,F,R[\r] : Release F KEY
→ OK[\r]
Ex.3) Press and Hold L/O KEY
→ KEY,L,L[\r]
← OK[\r]

The scanner is not turned off by this command.
The status of KEY HOLD does time-out in 10 seconds after having received the command of KEY HOLD when there is not communication.(For example, “KEY,F,H”.)

==========

<COMMAND POF>
Power OFF
==========
Controller → Radio
① POF[\r]
Radio → Controller
① POF,OK[\r]

Turns off the scanner.
After this command, the scanner doesn't accept any command.

==========

<COMMAND QSH>
Go to quick search hold mode
==========
Controller → Radio
① QSH,[FRQ],[STP],[MOD],[ATT],[DLY],[SKP],[CODE_SRCH],[BSC],[REP][\r]
Radio → Controller
① QSH,OK[\r]

[FRQ] : Frequency (The right frequency)
[STP] : Search Step
(AUTO,500,625,750, ... , 5000,10000)

AUTO	: AUTO	1250	: 12.5k
500	: 5k	1500	: 15k
625	: 6.25k	2000	: 20k
750	: 7.5 k	2500	: 25k

833 : 8.33k 5000 : 50k
900 : 9k 10000 : 100k
1000 : 10k

[MOD] : Modulation (AUTO/AM/FM/NFM/WFM)
[ATT] : Attenuation (0:OFF / 1:ON)
[DLY] : Delay Time (0:OFF / from 1 to 5)
[SKP] : Data Skip (0:OFF / 1:ON)
[CODE_SRCH] : CTCSS/DCS Search (0:OFF / 1:ON)
[BSC] : Broadcast Screen
(16digit: ########・・#)
(each # is 0 or 1)
0 means OFF
1 means ON

```
||||||||+----Band10
|||||||          :
|||||||+---- Band 2
||||||+----- Band 1
|||||+------ AM
||||+------- NOAA WX
|||+-------- VHF TV
||+--------- UHF TV
|+---------- FM
+----------- Pager
```

[REP] : Repeater Find (0:OFF / 1:ON)

② QSH,NG[\r]

This command is invalid when the scanner is in Menu Mode, during Direct Entry operation, during Quick Save operation.

FUNCTION
SS specifies arbitrary frequency and changes to Quick Search Hold (VFO) mode.
Parameter, such as STP, changes the contents of Srch/CloCall option.

==========

<COMMAND STS>
Get Current Status

==========

Controller → Radio
① STS[\r]
Radio → Controller
① STS,[DSP_FORM],[L1_CHAR],[L1_MODE],[L2_CHAR],[L2_MODE],[L3_CHAR],[L3_MODE],[L4_CHAR],[L4_MODE],・・・・,[L8_CHAR],[L8_MODE],[SQL],[MUT],[BAT],[WAT][\r]

[DSP_FORM] : Display Form (4 - 8dight:########)
(each # is 0 or 1)
0 means Small Font
1 means Large Font
[L1_CHAR] : Line1 Characters 16char (fixed length)
[L1_MODE] : Line1 Display Mode 16char
[L2_CHAR] : Line2 Characters 16char (fixed length)
[L2_MODE] : Line2 Display Mode 16char
[L3_CHAR] : Line3 Characters 16char (fixed length)
[L3_MODE] : Line3 Display Mode 16char
[L4_CHAR] : Line4 Characters 16char (fixed length)
[L4_MODE] : Line4 Display Mode 16char
:
:
[L8_CHAR] : Line8 Characters 16char (fixed length)
[L8_MODE] : Line8 Display Mode 16char

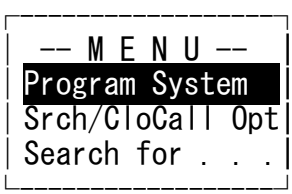
[SQL] : Squelch Status (0:CLOSE / 1:OPEN)
[MUT] : Mute Status (0:OFF / 1:ON)
[BAT] : Battery Low Status (0:No Alert / 1:Alert)
[WAT] : Weather Alert Status (0:No Alert / 1: Alert)
$$$: Alert SAME CODE (SAME EVENT CODE)

NOTE:

Display Mode for Line1 – Line8
(space) : NORMAL CHAR, * : REVERSE CHAR
_ (Under bar) : Underline
If all 16chars are normal, only "," is sent.

The number of [Lx_CHAR] and [Lx_MODE] depend on Display Form.

Ex. 1)

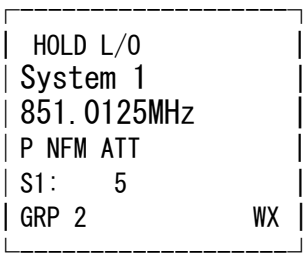


Squelch Status : OPEN
Mute Status : OFF
Battery Low Status : No Alert
Weather Alert Status : No Alert

→ STS[\r]
← 1111,
-- M E N U -- , ← [L1_CHAR]
_____, ← [L1_MODE]
Program System , ← [L2_CHAR]
**********, ← [L2_MODE]
Srch/CloCall Opt, ← [L3_CHAR]
, ← [L3_MODE]
Search for. . . , ← [L4_CHAR]
, ← [L4_MODE]
1,0,0,0,[\r]

Returns current scanner status.

Ex. 2)



Squelch Status : CLOSE
Mute Status : ON
Battery Low Status : No Alert
Weather Alert Status : Alert

→ STS[\r]
← 011000,
HOLD L/O , ← [L1_CHAR]
, ← [L1_MODE]
SYSTEM 1 , ← [L2_CHAR]
, ← [L2_MODE]
851.0125MHz , ← [L3_CHAR]
, ← [L3_MODE]
P NFM ATT , ← [L4_CHAR]
, ← [L4_MODE]
S1: 5 , ← [L5_CHAR]
, ← [L5_MODE]
GRP 2 WX, ← [L6_CHAR]
, ← [L6_MODE]

0,1,0,1,[\r]

Returns current scanner status.

==========

<COMMAND GLG>

Get Reception Status

==========

Controller → Radio

① GLG[\r]

Radio → Controller

① GLG,[FRQ/TGID],[MOD],[ATT],[CTCSS/DCS],[NAME1],[NAME2],[NAME3],[SQL],[MUT][\r]

GLG,,,,,,,,,[\r]

[FRQ/TGID]	: Frequency or TGID	
[MOD]	: Modulation	(AM/FM/NFM/WFM)
[ATT]	: Attenuation	(0:OFF / 1:ON)
[CTCSS/DCS]	: CTCSS/DCS Status	(0-231: See CTCSS/DCS Code List)
[NAME1]	: System or Search Name	
[NAME2]	: Group Name	
[NAME3]	: Channel Name	
[SQL]	: Squelch Status	(0:CLOSE / 1:OPEN)
[MUT]	: Mute Status	(0:OFF / 1:ON)

Get reception status.

The Scanner returns GLG,,,,,,,,,[\r] until it detects a frequency or a TGID.

==========

<COMMAND JPM>

Jump Mode

==========

Controller → Radio

① JPM,[JUMP_MODE],[INDEX][\r]

Radio → Controller

① JPM,OK[\r]

[JUMP_MODE]	:	SCN_MODE	Scan mode
		SVC_MODE	Service Search mode
		CTM_MODE	Custom Search mode
		CC_MODE	Close Call Only mode
		WX_MODE	WX SCAN mode
		FTO_MODE	Ton-Out mode
[INDEX]	:	SCN_MODE	Channel Index
		SVC_MODE	PublicSafety
			News
			HAM
			Marine
			Railroad
			Air
			CB
			FRS/GMR
			Racing
			TV
			FM
			AM
			Special
		CTM_MODE	RESERVE
		CC_MODE	RESERVE
		WX_MODE	NORMAL
			A_ONLY

	SAME_1
	SAME_2
	SAME_3
	SAME_4
	SAME_5
	ALL_FIPS
FTO_MODE	RESERVE

Note) Scanner returns NG in the state that the mode switch cannot be done.

==========

<COMMAND MNU>

Menu Mode

==========

Controller → Radio

① MNU,[MENU_INDEX][\r]

Radio → Controller

① MNU,OK[\r]

[MENU_INDEX]:

SVC_MENU	: Service Search Select Menu
WX_MENU	: WX Select Menu
CCBAND_MENU	: Close Call Band Filter Menu
SCR_OPT_MENU	: Broadcast Screen Band Menu
GL_LIST_MENU	: Search Global Lockout List Review Menu
SETTING_MENU	: Setting Menu

Note) Scanner returns NG in the state that the mode switch cannot be done.

==========

<COMMAND MDL>

Get Model Info

==========

Controller → Radio

① MDL[\r]

Radio → Controller

① MDL,BR330T[\r]

Returns Model Information.

==========

<COMMAND VER>

Get Firmware Version

==========

Controller → Radio

① VER[\r]

Radio → Controller

① VER,Version 1.00.00[\r]

Returns Firmware Version.

==========

<COMMAND PRG>

Enter Program Mode

==========

Controller → Radio

① PRG[\r]

Radio → Controller

① PRG,OK[\r]

② PRG,NG[\r]

This command is invalid when the scanner is in Menu Mode, during Direct Entry

operation, during Quick Save operation.

The scanner goes to Program Mode.
The scanner displays "Remote Mode" on first line
and "Keypad Lock" on second line in Program Mode.
And POWER key and Function key are valid in Program Mode.

==========

<COMMAND EPG>
Exit Program Mode

==========

Controller → Radio
① EPG[\r]
Radio → Controller
① EPG,OK[\r]

The scanner exits from Program Mode.
Then the scanner goes to Scan Hold Mode.

==========

<COMMAND BLT>
Get/Set Backlight

==========

Controller → Radio
① BLT[\r] : Get Backlight Setting
② BLT,##[\r] : Set Backlight Setting
Radio → Controller
① BLT,##[\r]
② BLT,OK[\r]

means Backlight Setting
IF : INFINITE
10 : 10sec
30 : 30sec
KY : KEYPRESS
SQ : SQUELCH

Get/Set Backlight Setting.
This command is only acceptable in Programming Mode.

==========

<COMMAND BSV>
Get/Set Battery Save

==========

Controller → Radio
① BSV[\r] : Get Battery Save Setting
② BSV,#[\r] : Set Battery Save Setting
Radio → Controller
① BSV,#[\r]
② BSV,OK[\r]

means Battery Save Setting
(0:OFF / 1:ON)

Get/Set Battery Save Setting.
This command is only acceptable in Programming Mode.

==========

<COMMAND CLR>
Clear All Memory
==========
Controller → Radio
① CLR[\r]
Radio → Controller
① CLR,OK[\r]

All the memories are set for initial setting.
This command is only acceptable in Programming Mode.

Note) It takes dozens of seconds.
Only PC Control (Baud Rate) does not become an initial-setting value.

==========

<COMMAND KBP>
Get/Set Key Beep
==========
Controller → Radio
① KBP[\r] : Get Key Beep Setting
② KBP,[LEVEL][\r] : Set Key Beep Setting
Radio → Controller
① KBP,[LEVEL][\r]
② KBP,OK[\r]

Get/Set Key Beep Setting.
[LEVEL] : Beep Level (0:Auto / 1-15 /99:OFF)

This command is only acceptable in Programming Mode.

==========

<COMMAND OMS>
Get/Set Opening Message
==========
Controller → Radio
① OMS[\r]
② OMS,[L1_CHAR],[L2_CHAR],[L3_CHAR],[L4_CHAR][\r]
Radio → Controller
① OMS,[L1_CHAR],[L2_CHAR],[L3_CHAR],[L4_CHAR][\r]
② OMS,OK[\r]

Get/Set Opening Message.
[L1_CHAR] : Line1 Characters (max.16char)
[L2_CHAR] : Line2 Characters (max.16char)
[L3_CHAR] : Line3 Characters (max.16char)
[L4_CHAR] : Line4 Characters (max.16char)

If only space code is set in character area,
the message returns default message.

This command is only acceptable in Programming Mode.

==========

<COMMAND PRI>
Get/Set Priority Mode

==========

Controller → Radio
① PRI[\r] : Get Priority Mode Setting
② PRI,#[\r] : Set Priority Mode Setting
Radio → Controller
① PRI,#[\r]
② PRI,OK[\r]

means Priority Setting
(0:OFF / 1:ON / 2:PLUS ON)

Get/Set Priority Mode.
This command is only acceptable in Programming Mode.

==========

<COMMAND AGV>
Get/Set Auto Gain Control

==========

Controller → Radio
① AGV[\r] : Get Auto Gain Control Setting
② AGV,[AGC_ANALOG],[RSV][\r] : Set Auto Gain Control Setting
Radio → Controller
① AGV,[AGC_ANALOG],[RSV][\r]
② AGV,OK[\r]

Get/Set AGC Setting.
[AGC_ANALOG] : AGC Setting for Analog Audio (0:OFF / 1:ON)
[RSV] : Reserve Parameter
*This is always “0”.
This command is only acceptable in Programming Mode.

==========

<COMMAND BAR>
Get/Set Bar Antenna

==========

Controller → Radio
① BAR [\r] : Get Bar Antenna Setting
② BAR,#[\r] : Set Bar Antenna Setting
Radio → Controller
① BAR,#[\r]
② BAR,OK[\r]

means Bar Antenna Setting
(0:OFF / 1:ON)

Get/Set Bar Antenna Setting.
This command is only acceptable in Programming Mode.

==========

<COMMAND SCT>
Get System Count

==========

Controller → Radio
① SCT[\r]
Radio → Controller
① SCT,###[\r] : ### (0-200)

Returns the number of stored System.
This command is only acceptable in Programming Mode.

==========

<COMMAND SIH>
Get System Index Head

==========

Controller → Radio
① SIH[\r]
Radio → Controller
① SIH,[SYS_INDEX][\r]

Returns the first index of stored system list.
This command is only acceptable in Programming Mode.

==========

<COMMAND SIT>
Get System Index Tail

==========

Controller → Radio
① SIT[\r]
Radio → Controller
① SIT,[SYS_INDEX][\r]

Returns the last index of stored system list.
This command is only acceptable in Programming Mode.

==========

<COMMAND QSL>
Get/Set System Quick Lockout

==========

Controller → Radio
① QSL[\r]
② QSL,[PAGE0],[PAGE1],[PAGE2],[PAGE3],[PAGE4],[PAGE5],[PAGE6],[PAGE7],[PAGE8],
[PAGE9][\r]
Radio → Controller
① QSL,[PAGE0],[PAGE1],[PAGE2],[PAGE3],[PAGE4],[PAGE5],[PAGE6],[PAGE7],[PAGE8],
[PAGE9][\r]
② QSL,OK[\r]

Returns the System Quick Key status.
[PAGE0] – [PAGE9] : ########## (each # is 0 - 2)
0 means - : Quick Key don't assign
1 means ON : Quick Key active
2 means * : Quick Key that turn off
The Order of Quick Key is as same as LCD Icon.

[PAGE0] : Quick Key 1 - 9, 0
[PAGE1] : Quick Key11 - 19,10
[PAGE2] : Quick Key21 - 29,20
[PAGE3] : Quick Key31 - 39,30
[PAGE4] : Quick Key41 - 49,40
[PAGE5] : Quick Key51 - 59,50
[PAGE6] : Quick Key61 - 69,60
[PAGE7] : Quick Key71 - 79,70
[PAGE8] : Quick Key81 - 89,80
[PAGE9] : Quick Key91 - 99,90

This command is only acceptable in Programming Mode.
It cannot turn on/off the Quick Key that has no System.

==========

<COMMAND QGL>
Get/Set Group Quick Lockout

==========

Controller → Radio
① QGL,[SYS_INDEX][\r]
② QGL,[SYS_INDEX], ##########[\r]
Radio → Controller
① QGL,##########[\r]
② QGL,OK[\r]

Returns Group Quick Key status of current System.
: ########## (each # is 0 - 2)
0 means - : Quick Key don't assign
1 means ON : Quick Key active
2 means * : Quick Key that turn off
The Order of Quick Key is as same as LCD Icon.

This command is only acceptable in Programming Mode.
It cannot turn on/off the Quick Key that has no Group.

==========

<COMMAND CSY>
Create System

==========

Controller → Radio
① CSY,[SYS_TYPE][\r]
Radio → Controller
① CSY,[SYS_INDEX][\r]

[SYS_TYPE] : System Type
RACE : Racing
CNV : CONVENTIONAL
M82S : MOT_800_T2_STD
M82P : MOT_800_T2_SPL
M92 : MOT_900_T2
MV2 : MOT_VHF_T2
MU2 : MOT_UHF_T2
M81S : MOT_800_T1_STD
M81P : MOT_800_T1_SPL
EDN : EDACS_NARROW
EDW : EDACS_WIDE

EDS : EDACS_SCAT
LTR : LTR
M82C : MOT_800_T2_CUS
M81C : MOT_800_T1_CUS

[SYS_INDEX] : The Index if Created System

Creates a system and returns created system index.
The index is a handle to get/set system information.
Returns -1 if the scanner failed to create because of no resource.
This command is only acceptable in Programming Mode.

==========

<COMMAND DSY>
Delete System

==========

Controller → Radio
① DSY,[SYS_INDEX][\r]
Radio → Controller
① DSY,OK[\r]

[SYS_INDEX] : System Index

This command deletes a System.
This command is only acceptable in Programming Mode.

==========

<COMMAND CPS>
Copy System

==========

Controller → Radio
① CPS,[SYS_INDEX1],[NAME][\r]
Radio → Controller
① CPS,[SYS_INDEX2][\r]

[SYS_INDEX1] : The Index of Source System
[NAME] : The Name of Copied System
[SYS_INDEX2] : The Index of Copied System

Copies a system.
Returns -1 instead of SYS_INDEX2 if the scanner failed to copy
because of no resource.
This command is only acceptable in Programming Mode.

==========

<COMMAND SIN>
Get/Set System Info

==========

Controller → Radio
① SIN,[INDEX][\r]
② SIN,[INDEX],[NAME],[QUICK_KEY],[HLD],[LOUT],[DLY],[SKP],[MOD],[ATT],[RSV],
[RSV][\r]
Radio → Controller
① SIN,[SYS_TYPE],[NAME],[QUICK_KEY],[HLD],[LOUT],[DLY],[SKP],[MOD],[ATT],[RSV],
[RSV],[REV_INDEX],[FWD_INDEX],[CHN_GRP_HEAD],[CHN_GRP_TAIL],[SEQ_NO][\r]
② SIN,OK[\r]

[INDEX] : System Index
[SYS_TYPE] : System Type
[NAME] : Name (max.16char)
[QUICK_KEY] : Quick Key (1-99/.(dot) means none)
*In Racing System, “.” is always sent.
[HLD] : System Hold Time (0-255)
[LOUT] : Lockout (0:Unlocked / 1:Lockout)
[DLY] : Delay Time (0:OFF / from 1 to 5)
[SKP] : Data Skip (0:OFF / 1:ON)
[MOD] : Modulation (for Trunking System Only)
(AUTO/FM/NFM)
[ATT] : Attenuation (for Trunking System Only)
(0:OFF/1:ON)
[RSV] : Reserve Parameter
*This is always only “,”.
[REV_INDEX] : Reverse System Index of the Scan Setting
[FWD_INDEX] : Forward System Index of the Scan Setting
[CHN_GRP_HEAD] : Channel Group Index Head of the System
[CHN_GRP_TAIL] : Channel Group Index Tail of the System
[SEQ_NO] : System Sequence Number (1-200)

Get/Set System Information.

The scanner returns only "," to punctuate for parameters which are not appropriate the system type.
In set command, the scanner neglects the parameters that are not appropriate the system type.
In set command, only "," parameters are not changed.
The set command is aborted if any format error is detected.
This command is only acceptable in Programming Mode.

==========

<COMMAND TRN>
Get/Set Trunk Info

==========

Controller → Radio
① TRN,[INDEX][\r]
② TRN,[INDEX],[ID_SEARCH],[S_BIT],[END_CODE],[AFS],[I-CALL],[C-CH],[EMG],[EMGL],
[FMAP],[CTM_FMAP],[BASE1],[STEP1],[OFFSET1],[BASE2],[STEP2],[OFFSET2],[BASE3],
[STEP3],[OFFSET3],[RSV][\r]

Radio → Controller
① TRN,[ID_SEARCH],[S_BIT],[END_CODE],[AFS],[I-CALL],[C-CH],[EMG],[EMGL],[FMAP],
[CTM_FMAP],[BASE1],[STEP1],[OFFSET1],[BASE2],[STEP2],[OFFSET2],[BASE3],[STEP
3],[OFFSET3],[RSV],[TGID_GRP_HEAD],[TGID_GRP_TAIL],[ID_LOUT_GRP_HEAD],
[ID_LOUT_GRP_TAIL][\r]
② TRN,OK[\r]

[INDEX] : System Index
[ID_SEARCH] : ID Search/Scan (0:ID Scan mode / 1: Search Mode)
[S_BIT] : Motorola Status Bit (0:Ignore, 1:Yes)
[END_CODE] : Motorola End Code (0:Ignore, 1:Yes)
[AFS] : EDACS Format (0:Decimal / 1:AFS)
[I-CALL] : I-CALL (0:OFF / 1:ON)

[C-CH] : Control Channel Only (0:OFF / 1:ON)
[EMG] : Emergency Alert (0:Ignore / 1-9:Alert)
[EMGL] : Emergency Alert Level (0:OFF / 1 - 15)
[FMAP] : Fleet Map (0-16, 0-15:Preset, 16:Custom)
[CTM_FMAP] : Custom Fleet Map Setting (######## : # is 0-E)
means Size Code of each BLOCK (from 0 to 7)
0 : Size Code 0
1 : Size Code 1
2 : Size Code 2
3 : Size Code 3
4 : Size Code 4
5 : Size Code 5
6 : Size Code 6
7 : Size Code 7
8 : Size Code 8
9 : Size Code 9
A : Size Code 10
B : Size Code 11
C : Size Code 12
D : Size Code 13
E : Size Code 14
[BASE1] : Base Frequency1
[STEP1] : Step1
[OFFSET1] : Offset1
[BASE2] : Base Frequency2
[STEP2] : Step2
[OFFSET2] : Offset2
[BASE3] : Base Frequency3
[STEP3] : Step3 (for MOT UHF/VHF System only)
[OFFSET3] : Offset3 (for MOT UHF/VHF System only)
[RSV] : Reserve Parameter
* This is always only “,”.
[TGID_GRP_HEAD] : TGID Index Head of the System
[TGID_GRP_TAIL] : TGID Index Tail of the System
[ID_LOUT_GRP_HEAD] : L/O TGID Group Index Head of the System
[ID_LOUT_GRP_TAIL] : L/O TGID Group Index Tail of the System

Get/Sets Trunked System Information.
The scanner returns only "," to punctuate for parameters which are not appropriate the system type.
In set command, the scanner neglects the parameters that are not appropriate the system.
In set command, only "," parameters are not changed.
The set command is aborted if any format error is detected.
This command is only acceptable in Programming Mode.

==========

<COMMAND TFQ>
Get/Set Trunk Frequency Info

==========

Controller → Radio
① TFQ,[CHN_INDEX][\r]
② TFQ,[CHN_INDEX],[FRQ],[LCN],[LOUT][\r]
Radio → Controller
① TFQ,[FRQ],[LCN],[LOUT],[REV_INDEX],[FWD_INDEX],[SYS_INDEX],[GRP_INDEX][\r]

② TFQ,OK[\r]

[CHN_INDEX] : Channel Index
[FRQ] : Frequency for Trunked System
[LCN] : LCN
[LOUT] : Lockout (0:Unlocked / 1:Lockout)
[REV_INDEX] : Reverse Frequency Index of the System Frequency Group
[FWD_INDEX] : Forward Frequency Index of the System Frequency Group
[SYS_INDEX] : System Index of the Frequency
[GRP_INDEX] : Index of the System Frequency Group

In set command, only "," parameters are not changed.
The set command is aborted if any format error is detected.
This command is only acceptable in Programming Mode.
For Motorola or EDACS SCAT System, [LCN] is ignored.

==========

<COMMAND AGC>
Append Channel Group

==========

Controller → Radio
① AGC,[SYS_INDEX][\r]
Radio → Controller
① AGC,[GRP_INDEX][\r]

[SYS_INDEX] : System Index
[GRP_INDEX] : appended Channel Group Index

Append Channel Group to the system.
Returns -1 if the scanner failed to create because of no resource.
This command is only acceptable in Programming Mode.

==========

<COMMAND AGT>
Append TGID Group

==========

Controller → Radio
① AGT,[SYS_INDEX][\r]
Radio → Controller
① AGT,[GRP_INDEX][\r]

[SYS_INDEX] : System Index
[GRP_INDEX] : appended TGID Group Index

Append TGID Group to the system.
Returns -1 if the scanner failed to create because of no resource.
This command is only acceptable in Programming Mode.

==========

<COMMAND DGR>
Delete Group

==========

Controller → Radio
① DGR,[GRP_INDEX][\r]
Radio → Controller

① DGR,OK[\r]

[GRP_INDEX] : Group Index

This command deletes a Channel Group or TGID Group.
This command is only acceptable in Programming Mode.

==========

<COMMAND GIN>
Get/Set Group Info

==========

Controller → Radio
① GIN,[GRP_INDEX][\r]
② GIN,[GRP_INDEX],[NAME],[QUICK_KEY],[LOUT][\r]
Radio → Controller
① GIN,[GRP_TYPE],[NAME],[QUICK_KEY],[LOUT],[REV_INDEX],[FWD_INDEX],[SYS_INDEX],
[CHN_HEAD],[CHN_TAIL],[SEQ_NO][\r]
② GIN,OK[\r]

[GRP_INDEX] : Group Index
[GRP_TYPE] : Group Type (C:Channel Group / T:TGID Group)
[NAME] : Name (max.16char)
: For Racing Group, this parameter should meet the
following format:"[Car#](3 digits)[Blank] [Driver Name]
*If Car# is less than 3 digits, put it from left to right.
The rest space must fill with Blank.
[QUICK_KEY] : Quick Key (1-9,0: means 10, .(dot): means none)
[LOUT] : Lockout (0:Unlocked / 1:Lockout)
[REV_INDEX] : Reverse Group Index of the System
[FWD_INDEX] : Forward Group Index of the System
[SYS_INDEX] : System Index
[CHN_HEAD] : Channel Index Head of the Group List
[CHN_TAIL] : Channel Index Tail of the Group List
[SEQ_NO] : Group Sequence Number of the System

Get/Set Group Information.
In set command, only "," parameters are not changed.
The set command is aborted if any format error is detected.
This command is only acceptable in Programming Mode.

==========

<COMMAND ACC>
Append Channel

==========

Controller → Radio
① ACC,[GRP_INDEX][\r]
Radio → Controller
① ACC,[CHN_INDEX][\r]

[GRP_INDEX] : Channel Group Index
[CHN_INDEX] : appended Channel Index

Append Channel to the group.
Returns -1 if the scanner failed to create because of no resource.

This command is only acceptable in Programming Mode.

==========

<COMMAND ACT>

Append TGID

==========

Controller → Radio

① ACT,[GRP_INDEX][\r]

Radio → Controller

① ACT,[INDEX][\r]

[GRP_INDEX] : TGID Group Index

[TGID_INDEX] : appended TGID Index

Append Channel to the group.
Returns -1 if the scanner failed to create because of no resource.
This command is only acceptable in Programming Mode.

==========

<COMMAND DCH>

Delete Channel

==========

Controller → Radio

① DCH,[INDEX][\r]

Radio → Controller

① DCH,OK[\r]

[INDEX] : Channel Index, TGID Index
or Frequency Index of Trunked System

This command deletes a Channel and TGID.
This command is also valid for deleting a frequency
for a Trunked System.
This command is only acceptable in Programming Mode.

==========

<COMMAND CIN>

Get/Set Channel Info

==========

Controller → Radio

① CIN,[INDEX][\r]

② CIN,[INDEX],[NAME],[FRQ],[MOD],[CTCSS/DCS],[TLOCK],
[LOUT],[PRI],[ATT],[ALT],[ALTL][\r]

Radio → Controller

① CIN,[NAME],[FRQ],[MOD],[CTCSS/DCS],[TLOCK],[LOUT],[PRI],[ATT],[ALT],[ALTL],
[REV_INDEX],[FWD_INDEX],[SYS_INDEX],[GRP_INDEX][\r]

② CIN,OK[\r]

[INDEX] : Channel Index
[NAME] : Name (max.16char)
[FRQ] : Channel Frequency
[MOD] : Modulation (AUTO/AM/FM/NFM/WFM)
[ATT] : Attenuation (0:OFF / 1:ON)
[CTCSS/DCS] : CTCSS/DCS Mode (0-231: See CTCSS/DCS Code List)
[TLOCK] : CTCSS/DCS Tone Lockout (0:OFF / 1:ON)

[LOUT] : Lockout (0:Unlocked / 1:Lockout)
[PRI] : Priority (0:OFF / 1:ON)
[ALT] : Alert Tone (0:OFF / 1-9:Tone No)
[ALTL] : Alert Tone Level (0:AUTO/ 1-15)
[REV_INDEX] : Reverse Channel Index of the Channel Group
[FWD_INDEX] : Forward Channel Index of the Channel Group
[SYS_INDEX] : System Index of the Channel
[GRP_INDEX] : Group Index of the Channel

Get/Set Channel Information.
In set command, only "," parameters are not changed.
The set command is aborted if any format error is detected.
This command is only acceptable in Programming Mode.

==========

<COMMAND TIN>
Get/Set TGID Info

==========

Controller → Radio
① TIN,[INDEX][\r]
② TIN,[INDEX],[NAME],[TGID],[LOUT],[PRI],[ALT],[ALTL][\r]
Radio → Controller
① TIN,[NAME],[TGID],[LOUT],[PRI],[ALT],[ALTL],[REV_INDEX],[FWD_INDEX],
[SYS_INDEX],[GRP_INDEX][\r]
② TIN,OK[\r]

[INDEX] : TGID Index
[NAME] : Name (max.16char)
[TGID] : TGID
[LOUT] : Lockout (0:Unlocked / 1:Lockout)
[PRI] : Priority (0:OFF / 1:ON)
[ALT] : Alert Tone (0:OFF / 1-9:Tone No)
[ALTL] : Alert Tone Level (0:AUTO/ 1-15)
[REV_INDEX] : Reverse TGID Index of the TGID Group
[FWD_INDEX] : Forward TGID Index of the TGID Group
[SYS_INDEX] : System Index of the TGID
[GRP_INDEX] : Group Index of the TGID

Get/Set TGID Information.
In set command, only "," parameters are not changed.
The set command is aborted if any format error is detected.
This command is only acceptable in Programming Mode.

==========

<COMMAND GLI>
Get Lockout TGID (for Rvw L/O ID)

==========

Controller → Radio
① GLI,[SYS_INDEX][\r]
Radio → Controller

① GLI,[TGID][\r]
GLI,-1[\r] : No more lockout TGID

This command is used to get L/O TGID list of a system.
You should call this command again and again to get all L/O TGID until the scanner returns -1 .
-1 means that no more L/O TGID exists.
This command is only acceptable in Programming Mode.

==========

<COMMAND SLI>
Get Search L/O TGID

==========

Controller → Radio
① SLI,[SYS_INDEX][\r]
Radio → Controller
① SLI,[TGID][\r]
SLI,-1[\r] : No more lockout TGID

This command is used to get Search L/O TGID list of the system.
Search L/O TGID is the L/O TGID which doesn't belong to any group in the system as a TGID.
Compared with GLI command, this command doesn't return any L/O TGID which is belong to one of group in the system.
You should call this command again and again to get all L/O TGID until the scanner returns -1 .
-1 means that no more L/O TGID exists.
This command is only acceptable in Programming Mode.

==========

<COMMAND ULI>
Unlock TGID (for Rvw L/O ID)

==========

Controller → Radio
① ULI,[SYS_INDEX],[TGID][\r]
Radio → Controller
① ULI,OK[\r]

This command unlocks a L/O TGID in a system.
The TGID is deleted from L/O list.
This command is only acceptable in Programming Mode.

==========

<COMMAND LOI>
Lockout ID (TGID)

==========

Controller → Radio
① LOI,[SYS_INDEX],[TGID][\r]
Radio → Controller

① LOI,OK[\r]

This command locks out a TGID for the system.
The TGID is added to L/O list.
This command is only acceptable in Programming Mode.

==========

<COMMAND REV>
Get Rev Index

==========

Controller → Radio
① REV,[INDEX][\r]
Radio → Controller
① REV,[INDEX][\r]

Returns reverse(backward) index of the index in the memory chain.
Returns -1 if no more index exists.
This command is only acceptable in Programming Mode.

==========

<COMMAND FWD>
Get Fwd Index

==========

Controller → Radio
① FWD,[INDEX][\r]
Radio → Controller
① FWD,[INDEX][\r]

Returns forward index of the index in the memory chain.
Returns -1 if no more index exists.
This command is only acceptable in Programming Mode.

==========

<COMMAND RMB>
Get Remains of Memory Block

==========

Controller → Radio
① RMB[\r]
Radio → Controller
① RMB,####[\r]

Returns the number of idle(free) memory block.
: #### (0-9999)
This command is only acceptable in Programming Mode.

==========

<COMMAND MEM>
Get Memory Used

==========

Controller → Radio
① MEM[\r]
Radio → Controller

① MEM,###[\r]

Returns % memory used.
: ### (0-100)
This command is only acceptable in Programming Mode.

==========

<COMMAND SCO>
Get/Set Search/Close Call Settings

==========

Controller → Radio
① SCO[\r]
② SCO,[STP],[MOD],[ATT],[DLY],[SKP],[CODE_SRCH],[BSC],[REP],[RSV],
[RSV],[MAX_STORE][\r]
Radio → Controller
① SCO,[STP],[MOD],[ATT],[DLY],[SKP],[CODE_SRCH],[BSC],[REP],[RSV],
[RSV],[MAX_STORE][\r]
② SCO,OK[\r]

[STP] : Search Step
(AUTO,500,625,750, ... , 5000,10000)

AUTO	: AUTO	1250	: 12.5k
500	: 5k	1500	: 15k
625	: 6.25k	2000	: 20k
750	: 7.5 k	2500	: 25k
833	: 8.33k	5000	: 50k
900	: 9k	10000	: 100k
1000	: 10k		

[MOD] : Modulation (AUTO/AM/FM/NFM/WFM)
[ATT] : Attenuation (0:OFF / 1:ON)
[DLY] : Delay Time (0:OFF / from 1 to 5)
[SKP] : Data Skip (0:OFF / 1:ON)
[CODE_SRCH] : CTCSS/DCS Search (0:OFF / 1:ON)
[BSC] : Broadcast Screen
(16digit: ########・・#)
(each # is 0 or 1)
0 means OFF
1 means ON

```
|||||||+--- Band10
|||||||      :
|||||||+---- Band 2
||||||+----- Band 1
|||||+------ AM
||||+------- NOAA WX
|||+-------- VHF TV
||+--------- UHF TV
|+---------- FM
+----------- Pager
```

[REP] : Repeater Find (0:OFF / 1:ON)
[RSV] : Reserve Parameter
*This is always only “,”.
[MAX_STORE] : Max Auto Store (1-256)

Get/Set Search/Close Call Settings.
In set command, only "," parameters are not changed.
The set command is aborted if any format error is detected.
This command is only acceptable in Programming Mode.

==========

<COMMAND BBS>

Get/Set Broadcast Screen Band Settings

==========

Controller → Radio

① BBS,[INDEX][\r]

② BBS,[INDEX],[LIMIT_L],[LIMIT_H][\r]

Radio → Controller

① BBS,[LIMIT_L],[LIMIT_H][\r]

② BBS,OK[\r]

[SCR_INDEX] : Index (1-9,0 means 10)
[LIMIT_L] : Lower Limit Frequency (00000000 –99999999)
[LIMIT_H] : Upper Limit Frequency (00000000 –99999999)

Get/Set Broadcast Screen Band Settings.
This command is Only acceptable in Programming Mode.

==========

<COMMAND GLF>

Get Global Lockout Freq

==========

Controller → Radio

① GLF[\r]

Radio → Controller

① GLF,[FRQ][\r]
GLF,-1[\r]

[FRQ] : Lockout Frequency (1000-13000000)

This command is used to get Global L/O frequency list.
You should call this command again and again to get all-global
L/O frequency until the scanner returns -1 .
-1 means that no more L/O frequency exists.
This command is only acceptable in Programming Mode.

==========

<COMMAND ULF>

Unlock Global L/O

==========

Controller → Radio

① ULF,[FRQ][\r]

Radio → Controller

① ULF,OK[\r]

[FRQ] : Lockout Frequency (1000-13000000)

This command unlocks a L/O frequency.
The frequency is deleted from L/O list.
This command is only acceptable in Programming Mode.

==========

<COMMAND LOF
Lock Out Frequency

==========

Controller → Radio
① LOF,[FRQ][\r]
Radio → Controller
① LOF,OK[\r]

[FRQ] : Frequency (1000-13000000)

This command locks out a frequency.
The frequency is added to L/O list.
This command is only acceptable in Programming Mode.

==========

<COMMAND CLC>
Get/Set Close Call Settings

==========

Controller → Radio
① CLC[\r]
② CLC,[CC_MODE],[CC_OVERRIDE],[ALTM],[ALTB],[ALTL],[ALTP],[CC_BAND][\r]
Radio → Controller
① CLC,[CC_MODE],[CC_OVERRIDE],[ALTM],[ALTB],[ALTL],[ALTP],[CC_BAND][\r]
② CLC,OK[\r]

[CC_MODE] : Mode (0:OFF / 1:CC Pri / 2:CC DND)
[CC_OVERRIDE] : Override (1:ON / 0:OFF)
[ALTM] : Alert Mode (N:NONE / B:BEEP / L:LIGHT/ A:BEEP+LIGHT)
[ALTB] : Alert Beep (0:OFF / 1-9:Tone No)
[ALTL] : Alert Tone Level (0:AUTO/ 1-15)
[ALTP] : Close Call Pause

3	: 3 sec	30	: 30 sec
5	: 5 sec	45	: 45 sec
10	: 10 sec	60	: 60 sec
15	: 15 sec	INF	: Infinite

[CC_BAND] : Close Call Band (7digit #######)
(each # is 0 or 1)
0 means OFF
1 means ON

||||||+ 800MHz+
|||||+- UHF 2
||||+-- UHF 1
|||+--- VHF HIGH
||+---- AIR BAND
|+----- VHF
+------ Reserve (always 0)

Get/Set Close Call Settings.
In set command, only "," parameters are not changed.
The set command is aborted if any format error is detected.
This command is only acceptable in Programming Mode.

==========

<COMMAND SSP>
Get/Set Service Search Settings

==========

Controller → Radio
① SSP,[SRCH_INDEX][\r]

② SSP,[SRCH_INDEX],[DLY],[ATT],[HLD],[LOUT][\r]

Radio → Controller

① SSP,[SRCH_INDEX],[DLY],[ATT],[HLD],[LOUT][\r]

② SSP,OK[\r]

[SRCH_INDEX] : Index

1 : Public Safety	8 : FRS/GMRS
2 : News	9 : Racing
3 : HAM Radio	10 : TV Broadcast
4 : Marine	11 : FM Broadcast
5 : Railroad	12 : Special
6 : Air	13 : AM Broadcast
7 : CB Radio	

[DLY] : Delay Time (0:OFF / from 1 to 5)

[ATT] : Attenuation (0:OFF/1:ON)

[HLD] : System Hold Time (for Search with Scan) (0-255)

[LOUT] : Lockout (for Search with Scan) (0:Unlocked / 1:Lockout)

The set command is aborted if any format error is detected.
This command is only acceptable in Programming Mode.

==========

<COMMAND CSG>

Get/Set Custom Search Group

==========

Controller → Radio

① CSG[\r]

② CSG,##########[\r] : Status of Each Search Range

Radio → Controller

① CSG,##########[\r]

② CSG,OK[\r]

: ########## (each # is 0 or 1)
0 : valid
1 : invalid
The Order of Range is as same as LCD Icon.

Get/Set current status of the custom search range.
This command is only acceptable in Programming Mode.

==========

<COMMAND CSP>

Get/Set Custom Search Settings

==========

Controller → Radio

① CSP,[SRCH_INDEX][\r]

② CSP,[SRCH_INDEX],[NAME],[LIMIT_L],[LIMIT_H],[STP],[MOD],[ATT],[DLY],[SKP],[HLD],[LOUT],[C_CH],[RSV],[RSV][\r]

Radio → Controller

① CSP,[NAME],[LIMIT_L],[LIMIT_H],[STP],[MOD],[ATT],[DLY],[SKP],[HLD],[LOUT],[C_CH],[RSV],[RSV][\r]

② CSP,OK[\r]

[SRCH_INDEX] : Index (1-9,0 means 10)
[NAME] : Name (max.16char)
[LIMIT_L] : Lower Limit Frequency (1000-13000000)
[LIMIT_H] : Upper Limit Frequency (1000-13000000)
[STP] : Search Step

AUTO	: AUTO	1250	: 12.5k
500	: 5k	1500	: 15k
625	: 6.25k	2000	: 20k
750	: 7.5 k	2500	: 25k
833	: 8.33k	5000	: 50k
900	: 9k	10000	: 100k
1000	: 10k		

[MOD] : Modulation (AUTO/AM/FM/NFM/WFM)
[ATT] : Attenuation (0:OFF / 1:ON)
[DLY] : Delay Time (0:OFF / from 1 to 5)
[SKP] : Data Skip (0:OFF / 1:ON)
[HLD] : System Hold Time (0-255)
[LOUT] : Lockout (0:Unlocked / 1:Lockout)
[C_CH] : Control Channel Only (0:OFF / 1:ON)
[RSV] : Reserve Parameter
*This is always only “,”.

Get/Set Custom Search Settings.
In set command, only "," parameters are not changed.
The set command is aborted if any format error is detected.
This command is only acceptable in Programming Mode.

==========

<COMMAND WXS>
Get/Set Weather Settings

==========

Controller → Radio
① WXS[\r]
② WXS,[DLY],[ATT],[ALT_PRI][\r]
Radio → Controller
① WXS, [DLY],[ATT],[ALT_PRI][\r]
② WXS,OK[\r]

[DLY] : Delay Time (0:OFF / from 1 to 5)
[ATT] : Attenuation (0:OFF / 1:ON)
[ALT_PRI] : Weather Alert Priority (0:OFF / 1:ON)
Get/Set Weather Priority Settings.
This command is only acceptable in Programming Mode.

==========

<COMMAND SGP>
Get/Set SAME Group Settings

==========

Controller → Radio
① SGP,[SAME_INDEX][\r]
② SGP,[SAME_INDEX],[NAME],[FIPS1],[FIPS2],[FIPS3],[FIPS4],[FIPS5],[FIPS6],
[FIPS7],[FIPS8][\r]
Radio → Controller
① SGP,[NAME],[FIPS1],[FIPS2],[FIPS3],[FIPS4],[FIPS5],[FIPS6],[FIPS7],[FIPS8][\r]
② SGP,OK[\r]

[SAME_INDEX] : SAME Index (1-5)
[NAME] : SAME Group Name (max.16char)
[FIPS1-8] : FIPS Code (6digit:000000-999999, or -------- means none)

Get/Set SAME Group Settings.
In set command, only "," parameters are not changed.
The set command is aborted if any format error is detected.
This command is only acceptable in Programming Mode.

==========

<COMMAND TON>
Get/Set Tone-Out Settings

==========

Controller → Radio
① TON[INDEX][\r]
② TON,[INDEX],[NAME],[FRQ],[MOD],[ATT],[DLY],[ALT],[ALTL],[TONE_A],[RSV],
[TONE_B],[RSV],[RSV][\r]

Radio → Controller
① TON,[INDEX],[NAME],[FRQ],[MOD],[ATT],[DLY],[ALT],[ALTL],[TONE_A],[RSV],
[TONE_B],[RSV],[RSV][\r]
② TON,OK[\r]

[INDEX] : Index (1-9,0 means 10)
[NAME] : Name (max.16char)
[FRQ] : Channel Frequency
[MOD] : Modulation (AUTO/FM/NFM)
[ATT] : Attenuation (0:OFF / 1:ON)
[DLY] : Delay Time (0:OFF / 1-5 / 30 / INF:Infinite)
[ALT] : Alert Tone (0:OFF/1-9:Tone No.)
[ALTL] : Alert Tone Level (0:AUTO/1-15)
[TONE_A] : Tone A Frequency
ex.) 10000 means 1000.0Hz
[RSV] : Reserve parameter
*This is always only “,”.
[TONE_B] : Tone B Frequency

Get/Set Tone-Out Settings
This command is only acceptable in Programming Mode.

==========

<COMMAND AIR>
Get/Set On-Air Clone Settings

==========

Controller → Radio
① AIR[\r]
② AIR,[FRQ],[MOD][\r]

Radio → Controller
① AIR,[FRQ],[MOD][\r]
② AIR,OK[\r]

[FRQ] : Frequency
[MOD] : Modulation (AUTO/FM/NFM)

Get/Set On-Air Clone Settings

This command is only acceptable in Programming Mode.

==========

<COMMAND CNT>

Get/Set LCD Contrast Settings

==========

Controller → Radio

① CNT[\r]

Radio → Controller

① CNT,[CONTRAST][\r]

[CONTRAST] : LCD Contrast (1-15)

Get/Set LCD Contrast Settings

This command is only acceptable in Programming Mode.

==========

<COMMAND VOL>

Get/Set Volume Level Settings

==========

Controller → Radio

① VOL[\r]

② VOL,[LEVEL][\r]

Radio → Controller

① VOL,[LEVEL][\r]

② VOL,OK[\r]

[LEVEL] : Volume Level (0:OFF / 1-15)

==========

<COMMAND SQL>

Get/Set Squelch Level Settings

==========

Controller → Radio

① SQL[\r]

② SQL,[LEVEL][\r]

Radio → Controller

① SQL,[LEVEL][\r]

② SQL,OK[\r]

[LEVEL] : Squelch Level (0:OPEN / 1-14 / 15:CLOSE)

==========

<COMMAND WIN>

*Get Window Voltage

==========

Controller → Radio

① WIN[\r]

Radio → Controller

① WIN,###,[FRQ][\r] : A/D Value (0-255)

Returns current window voltage and its frequency.

The order of the frequency digits is from 1 GHz digit to 100 Hz digit.

This command is for test mode.

==========

<COMMAND BAV>
*Get Battery Voltage

==========

Controller → Radio
① BAV[\r]
Radio → Controller
① BAV,####[\r] : A/D Value (0-1023)

Battery Level[V] = (3.2[V] * #### * 2)/1023

Returns current battery voltage.
This command is for test mode.

==========

<COMMAND MCP>
Get/Set Motorola Custom Band Plan

==========

Controller → Radio
① MCP,[INDEX][\r]
② MCP,[INDEX],[LOWER1],[UPPER1],[STEP1],[OFFSET1],[LOWER2],[UPPER2],[STEP2],
[OFFSET2],[LOWER3],[UPPER3],[STEP3],[OFFSET3],[LOWER4],[UPPER4],[STEP4],
[OFFSET4],[LOWER5],[UPPER5],[STEP5],[OFFSET5],[LOWER6],[UPPER6],[STEP6],
[OFFSET6][\r]
Radio → Controller
① MCP,[LOWER1],[UPPER1],[STEP1],[OFFSET1],[LOWER2],[UPPER2],[STEP2],
[OFFSET2],[LOWER3],[UPPER3],[STEP3],[OFFSET3],[LOWER4],[UPPER4],[STEP4],
[OFFSET4],[LOWER5],[UPPER5],[STEP5],[OFFSET5],[LOWER6],[UPPER6],[STEP6],
[OFFSET6][\r]
② MCP, OK[\r]

[INDEX] : System Index
[LOWER n] : Lower Frequency n
[UPPER n] : Upper Frequency n
[STEP n] : Step n

"500": 5.0k	“625": 6.25k	"1000": 10.0k
"1250": 12.5k	"1500": 15.0k	"1875": 18.75k
"2000": 20.0k	“2500": 25.0k	"3000": 30.0k
"3125": 31.25k	"3500": 35.0k	"3750": 37.5k
"4000": 40.0k	"4375": 43.75k	"4500": 45.0k
"5000": 50.0k	"5500": 55.0k	“5625": 56.25k
"6000": 60.0k	"6250": 62.5k	"6500": 65.0k
"6875": 68.75k	"7000": 70.0k	"7500": 75.0k
"8000": 80.0k	“8125": 81.25k	"8500": 85.0k
“8750": 87.5k	"9000": 90.0k	“9375": 93.75k
"9500": 95.0k	"10000": 100.0k	

[OFFSETn] Offset n (-1023 to 1023)

Get/Sets Band Plan Setting for MOT 800MHz Custom system.

In set command, if only "," parameters are send the Band Plan setting of the system will not changed.
The set command is aborted if any format error is detected.
When the system protect bit is ON, all the parameters will be send as a reserve parameter in the Radio -> Controller command.
This command is only acceptable in Programming Mode.

==========

<COMMAND AGS>
Get/Set AGC Settings

==========

Controller → Radio

① AGS[\r]
② AGS,[Res_Time][Ref_Gain][Range][RSV][RSV][RSV][\r]

Radio → Controller

① AGS,[Res_Time][Ref_Gain][Range][RSV][RSV][RSV][\r]
② AGS,OK[\r]

[Res_Time]	: Response Time (-4/-3/-2/-1/0/1/2/3/4/5/6)
[Ref_Gain]	: Reference Gain (-5/-4/-3/-2/-1/0/1/2/3/4/5)
[Range]	: Dynamic Range (0 - 15)
[RSV]	: Reserve Parameter * This is always only “,”.

Get/Set AGC Settings.
This command is only acceptable in Programming Mode.

==

<COMMAND QSC>

Set current frequency and get reception status

==

Controller → Radio

① QSC,[FRQ],[STP],[MOD],[ATT],[DLY],[SKP],[CODE_SRCH],[BSC],[REP][\r]

Radio → Controller

① QSC,[RSSI],[FRQ],[SQL][\r] or QSC,NG[\r]

```
[FRQ]          : Frequency (The right frequency)
[STP]          : Search Step
                    AUTO   : AUTO        500    : 5k
                    625    : 6.25k       750    : 7.5k
                    833    : 8.33k       1000   : 10k
                    1250   : 12.5k       1500   : 15k
                    2000   : 20k         2500   : 25k
                    5000   : 50k         10000  : 100k
[MOD]          : Modulation           (AUTO/AM/FM/NFM/WFM)
[ATT]          : Attenuation          (0:OFF / 1:ON)
[DLY]          : Delay Time           (0:OFF / 1 - 5)
[SKP]          : Data Skip            (0:OFF / 1:ON)
[CODE_SRCH]    : CTCSS/DCS Search     (0:OFF / 1:ON)
[BSC]          : Broadcast Screen  (16digit:  ########・・#)
                    (each # is 0 or 1)        ||||||||・・+- Band10
                    0 means OFF               ||||||||          :
                    1 means ON                |||||||+---- Band 2
                                              ||||||+----- Band 1
                                              |||||+------ AM
                                              ||||+------- NOAA WX
                                              |||+-------- VHF TV
                                              ||+--------- UHF TV
                                              |+---------- FM
                                              +----------- Pager
                          * AM : valid for BR330T(invalid for BCD396T)
[REP]          : Repeater Find        (0:OFF / 1:ON)
```

This command is invalid when the scanner is in Menu Mode, during Direct Entry operation, during Quick Save operation.

FUNCTION

UASD specifies arbitrary frequency and changes to Quick Search Hold (VFO) mode.
Parameter, such as STP, changes the contents of Srch/CloCall option.

==========

<COMMAND CSC>

Go to Custom search and get reception status

==========

Controller → Radio

① CSC,ON[\r]

② CSC,OFF[\r]

Radio → Controller

① CSC,[RSSI],[FRQ],[SQL][\r]
CSC,[RSSI],[FRQ],[SQL][\r]
CSC,[RSSI],[FRQ],[SQL][\r]
....
....
....
CSC,[RSSI],[FRQ],[SQL][\r]

② CSC,OK[\r]

[RSSI]	: RSSI A/D Value	(0-1023)
[FRQ]	: Current Frequency	
[SQL]	: Squelch Status	(0:CLOSE / 1:OPEN)

This command outputs custom search status of each frequency sequentially.
Use CSC,OFF command to stop the output.

This command is invalid when the scanner is in Menu Mode, during Direct Entry operation, during Quick Save operation.

==========

<COMMAND PWR>

*Get RSSI Level

==========

Controller → Radio

① PWR[\r]

Radio → Controller

① PWR,[RSSI],[FRQ][\r]

[RSSI]	: RSSI A/D Value (0-1023)
[FRQ]	: Current Frequency

Returns current RSSI level and its frequency.
The order of the frequency digits is from 1 GHz digit to 100 Hz digit.

CTCSS/DCS CODE LIST

NONE / SEARCH

MODE	CODE	MODE	CODE
NONE	0	**SEARCH**	127

CTCSS

MODE	CODE	MODE	CODE	MODE	CODE
CTCSS 67.0Hz	64	CTCSS 118.8Hz	81	CTCSS 183.5Hz	98
CTCSS 69.3Hz	65	CTCSS 123.0Hz	82	CTCSS 186.2Hz	99
CTCSS 71.9Hz	66	CTCSS 127.3Hz	83	CTCSS 189.9Hz	100
CTCSS 74.4Hz	67	CTCSS 131.8Hz	84	CTCSS 192.8Hz	101
CTCSS 77.0Hz	68	CTCSS 136.5Hz	85	CTCSS 196.6Hz	102
CTCSS 79.7Hz	69	CTCSS 141.3Hz	86	CTCSS 199.5Hz	103
CTCSS 82.5Hz	70	CTCSS 146.2Hz	87	CTCSS 203.5Hz	104
CTCSS 85.4Hz	71	CTCSS 151.4Hz	88	CTCSS 206.5Hz	105
CTCSS 88.5Hz	72	CTCSS 156.7Hz	89	CTCSS 210.7Hz	106
CTCSS 91.5Hz	73	CTCSS 159.8Hz	90	CTCSS 218.1Hz	107
CTCSS 94.8Hz	74	CTCSS 162.2Hz	91	CTCSS 225.7Hz	108
CTCSS 97.4Hz	75	CTCSS 165.5Hz	92	CTCSS 229.1Hz	109
CTCSS 100.0Hz	76	CTCSS 167.9Hz	93	CTCSS 233.6Hz	110
CTCSS 103.5Hz	77	CTCSS 171.3Hz	94	CTCSS 241.8Hz	111
CTCSS 107.2Hz	78	CTCSS 173.8Hz	95	CTCSS 250.3Hz	112
CTCSS 110.9Hz	79	CTCSS 177.3Hz	96	CTCSS 254.1Hz	113
CTCSS 114.8Hz	80	CTCSS 179.9Hz	97		

DCS

MODE	CODE	MODE	CODE	MODE	CODE
DCS 023	128	DCS 223	163	DCS 445	198
DCS 025	129	DCS 225	164	DCS 446	199
DCS 026	130	DCS 226	165	DCS 452	200
DCS 031	131	DCS 243	166	DCS 454	201
DCS 032	132	DCS 244	167	DCS 455	202
DCS 036	133	DCS 245	168	DCS 462	203
DCS 043	134	DCS 246	169	DCS 464	204
DCS 047	135	DCS 251	170	DCS 465	205
DCS 051	136	DCS 252	171	DCS 466	206
DCS 053	137	DCS 255	172	DCS 503	207
DCS 054	138	DCS 261	173	DCS 506	208
DCS 065	139	DCS 263	174	DCS 516	209
DCS 071	140	DCS 265	175	DCS 523	210
DCS 072	141	DCS 266	176	DCS 526	211
DCS 073	142	DCS 271	177	DCS 532	212
DCS 074	143	DCS 274	178	DCS 546	213
DCS 114	144	DCS 306	179	DCS 565	214
DCS 115	145	DCS 311	180	DCS 606	215
DCS 116	146	DCS 315	181	DCS 612	216
DCS 122	147	DCS 325	182	DCS 624	217

DCS 125	148	DCS 331	183	DCS 627	218
DCS 131	149	DCS 332	184	DCS 631	219
DCS 132	150	DCS 343	185	DCS 632	220
DCS 134	151	DCS 346	186	DCS 654	221
DCS 143	152	DCS 351	187	DCS 662	222
DCS 145	153	DCS 356	188	DCS 664	223
DCS 152	154	DCS 364	189	DCS 703	224
DCS 155	155	DCS 365	190	DCS 712	225
DCS 156	156	DCS 371	191	DCS 723	226
DCS 162	157	DCS 411	192	DCS 731	227
DCS 165	158	DCS 412	193	DCS 732	228
DCS 172	159	DCS 413	194	DCS 734	229
DCS 174	160	DCS 423	195	DCS 743	230
DCS 205	161	DCS 431	196	DCS 754	231
DCS 212	162	DCS 432	197		

7.15. FONT DATA

Character pattern of 8 x 16 dot

This character pattern is Large Font.
*In this document, characters of these areas are described as normal characters.
*The user cannot enter characters in a dotted line.

Chr	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
FONT																				
CODE	0x41	0x42	0x43	0x44	0x45	0x46	0x47	0x48	0x49	0x4A	0x4B	0x4C	0x4D	0x4E	0x4F	0x50	0x51	0x52	0x53	0x54

Chr	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j	k	l	m	n
FONT																				
CODE	0x55	0x56	0x57	0x58	0x59	0x5A	0x61	0x62	0x63	0x64	0x65	0x66	0x67	0x68	0x69	0x6A	0x6B	0x6C	0x6D	0x6E

Chr	o	p	q	r	s	t	u	v	w	x	y	z	1	2	3	4	5	6	7	8
FONT																				
CODE	0x6F	0x70	0x71	0x72	0x73	0x74	0x75	0x76	0x77	0x78	0x79	0x7A	0x31	0x32	0x33	0x34	0x35	0x36	0x37	0x38

Chr	9	0	!	@	#	$	%	&	*	(	)	-	/	<	>	.	?	(Space)
FONT																		
CODE	0x39	0x30	0x21	0x40	0x23	0x24	0x25	0x26	0x2A	0x28	0x29	0x2D	0x2F	0x3C	0x3E	0x2E	0x3F	0x20

Chr	+	,	:	=	“	_	↑	↓	(full-dot)	→	←
FONT											
CODE	0x2B	0x2C	0x3A	0x3D	0x22	0x5F	0x81	0x82	0x80	0xC4,0xC5	0xC6,0xC7

Character pattern of 8 x 8 dot

This character pattern is Small Font.

Chr	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
FONT																			
CODE	0x41	0x42	0x43	0x44	0x45	0x46	0x47	0x48	0x49	0x4A	0x4B	0x4C	0x4D	0x4E	0x4F	0x50	0x51	0x52	0x53

Chr	T	U	V	W	X	Y	Z	z	1	2	3	4	5	6	7	8	9	0	!
FONT																			
CODE	0x54	0x55	0x56	0x57	0x58	0x59	0x5A	0x7A	0x31	0x32	0x33	0x34	0x35	0x36	0x37	0x38	0x39	0x30	0x21

Chr	@	#	$	%	&	*	(	)	-	/	<	>	.	?	(Space)	:	=
FONT																	
CODE	0x40	0x23	0x24	0x25	0x26	0x2A	0x28	0x29	0x2D	0x2F	0x3C	0x3E	0x2E	0x3F	0x20	0x3A	0x3D

Chr	(full-dot)	Battery	Key Lock	Function	Pri ch	HOLD	Data Skip	L/O
FONT								
CODE	0x80	0x83-0x84	0x85-0x86	0x8B	0x8C	0x8D-0x90	0x91-0x94	0x95-0x97

Chr	AM	FM	NFM	WFM	PRI	ATT	Signal Level 1	Signal Level 2
FONT								
CODE	0x98-0x9A	0x9B,0x9C, 0x9A	0x9D,0x9E, 0x9C,0x9A	0x9F,0xA0, 0x9C, 0x9A	0xA1,0xA2	0xA3-0xA4	0xA6,0x20	0xA7,0x20

Chr	Signal Level 3	Signal Level 4	Signal Level 5	Active Indicator1	Active Indicator2	Active Indicator3	Active Indicator4	Bar 1	Bar 2	Bar3
FONT										
CODE	0xA8,0xA9	0xAA,0xAB	0xAC,0xAD	0xAE	0xAF	0xB0	0xB4	0xB1	0xB2	0xB3

Chr	Close Call Pri		Close Call DND	
FONT				
CODE	0x87,0x88	0x89,0x8A	0xB5,0xB6	0xB7,0xB8