

7.13. 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[
2)The command is invalid at the time : NG[
3)Framing error : FER[
4)Overrun error : ORER[
4. [
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 7600).
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.		QSC	Set current frequency and get reception status		
6.		CSC	Go to Custom search and get reception status		
7.		PWR	Get RSSI Level		
8.		STS	Get Status		
9.		GLG	Get Reception Status		
10.		JPM	Jump Mode		
11.		MNU	Menu Mode		
12.	System information	MDL	Get Model Info		
13.		VER	Get Firmware Version		
14.	Programming Mode Control	PRG	Enter Program Mode		
15.		EPG	Exit Program Mode		
16.	System Setting	BLT	Get/Set Backlight	○	
17.		BSV	Get/Set Battery Save	○	
18.		CLR	Clear All Memory	○	
19.		KBP	Get/Set Key Beep	○	
20.		OMS	Get/Set Opening Message	○	
21.		PRI	Get/Set Priority Mode	○	
22.		AGV	Get/Set Auto Gain Control	○	
23.		AGS	Get/Set Audio AGC Setting	○	
24.		Scan Settings	SCT	Get System Count	○
25.			SIH	Get System Index Head	○
26.	SIT		Get System Index Tail	○	
27.	QSL		Get/Set System Quick Lockout	○	
28.	QGL		Get/Set Group Quick Lockout	○	
29.	CSY		Create System	○	
30.	DSY		Delete System	○	
31.	CPS		Copy System	○	
32.	SIN		Get/Set System Info	○	
33.	TRN		Get/Set Trunk Info	○	
34.	ABP		Get/Set APC0-P25 Band Plan	○	
35.	TFQ		Get/Set Trunk Frequency Info	○	
36.	AGC		Append Channel Group	○	
37.	AGT		Append TGID Group	○	
38.	DGR		Delete Group	○	
39.	GIN		Get/ Set Group Info	○	
40.	ACC		Append Channel	○	
41.	ACT		Append TGID	○	
42.	DCH	Delete Channel	○		

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43.		CIN	Get/Set Channel Info	○	
44.		TIN	Get/Set TGID Info	○	
45.	Scan Settings (Continuation)	GLI	Get Lockout TGID (for RVW L/O ID)	○	
46.		SLI	Get Search L/O TGID	○	
47.		ULI	Unlock TGID (for RVW L/O ID)	○	
48.		LOI	Lockout ID (TGID)	○	
49.		REV	Get Rev Index	○	
50.		FWD	Get Fwd Index	○	
51.		RMB	Get Remains of Memory Block	○	
52.		MEM	Get Memory Used	○	
53.		Search / Close Call Settings	SCO	Get/Set Search/Close Call Settings	○
54.			BBS	Get/Set Broadcast Screen Band Settings	○
55.	GLF		Get Global Lockout Frequency	○	
56.	ULF		Unlock Global L/O	○	
57.	LOF		Lockout Frequency	○	
58.	CLC		Get/Set Close Call Settings	○	
59.	Service Search Settings	SSP	Get/Set Service Search Settings	○	
60.	Custom Search Settings	CSG	Get/Set Custom Search Group	○	
61.		CSP	Get/Set Custom Search Settings	○	
62.	Weather Settings	WXS	Get/Set Weather Setting	○	
63.		SGP	Get/Set SAME Group Settings	○	
64.	Tone-Out Settings	TON	Get/Set Tone-Out Settings	○	
65.	On-Air Clone Settings	AIR	Get/Set On-Air Clone Settings	○	
66.	LCD Contrast Setting	CNT	Get/Set LCD Contrast Settings	○	
67.	Volume Level Settings	VOL	Get/Set Volume Level Settings		
68.	Squelch Level Settings	SQL	Get/Set Squelch Level Settings		
69.	APCO Data Setting	P25	Get/Set APCO Data Settings		
70.	P25 Waiting Time	PWT	Get/Set P25 Waiting Time	○	
71.	Motorola Custom Band Plan	MCP	Get/Set Motorola Custom Band Plan	○	
72.	Test	WIN	*Get Windows Voltage		
73.		BAV	*Get Battery Voltage		

=====

<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

.(dot) : ./NO/REV

E : E/YES/ATT

> : VFO RIGHT * Set "P" to KEY_MODE.

< : VFO LEFT * Set "P" to KEY_MODE.

^ : VFO PUSH

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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[
← OK[

Ex.2) Press F + SCAN KEY

→ KEY,F,H[: Hold F KEY
← OK[
→ KEY,S,P[: Press SCAN KEY (F + SCAN KEY operation)
← OK[
→ KEY,F,R[: Release F KEY
→ OK[

Ex.3) Press and Hold L/O KEY

→ KEY,L,L[
← OK[

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[

Radio → Controller

① POF,OK[

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][

Radio → Controller

① QSH,OK[

[FRQ] : Frequency (The right frequency)

[STP] : Search Step

(AUTO,500,625,750, ..., 5000,10000)

AUTO : AUTO

500 : 5k

625 : 6.25k

750 : 7.5 k

833 : 8.33k

1000 : 10k

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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 / 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) |||||+--- Band10
 0 means OFF ||||| :
 1 means ON |||||+---- Band 2
 |||||+---- Band 1
 ||||+----- AM*(always 0)
 |||+----- NOAA WX
 ||+----- VHF TV
 |+----- UHF TV
 +----- FM
 +----- Pager

* AM : valid for BR330T(invalid for BCD396T)

[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

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

=====

<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

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- | | | | | +----- Band 1
- | | | | | +----- AM*(always 0)
- | | | | | +----- NOAA WX
- | | | | | +----- VHF TV
- | | | | | +----- UHF TV
- | | | | | +----- FM
- | | | | | +----- Pager

* AM : valid for BR330T(invalid for BCD396T)
(0:OFF / 1:ON)

[REP] : Repeater Find

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.

=====

<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]

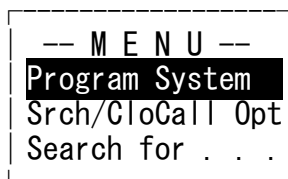
- [DSP_FORM] : Display Form (4 - 8digit:#####)
(each # is 0 or 1)
0 means Small Font
1 means Large Font
- [L1_CHAR] : Line1 Characters 16char (fixed length)
- [L1_MODE] : Line1 Display Mode 16char
- [L2_CHAR] : Line2 Characters 16char (fixed length)
- [L2_MODE] : Line2 Display Mode 16char
- [L3_CHAR] : 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)

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]

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```

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)

```

| HOLD L/O |
| System 1 |
| 851.0125MHz |
| P NFM ATT |
| S1: 5 |
| GRP 2 | WX |
    
```

```

Squelch Status : CLOSE
Mute Status : ON
Battery Low Status : No Alert
Weather Alert Status : No 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]
0,1,0,0[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
			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 setting 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,BCD396T[r]

Returns Model Information.

=====

<COMMAND VER>

Get Firmware Version

Controller → Radio

① VER[r]

Radio → Controller

① VER,VER 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],[AGC_DIGITAL][\r] : Set Auto Gain Control Setting
- Radio → Controller

- ① AGV,[AGC_ANALOG],[AGC_DIGITAL][\r]
- ② AGV,OK[\r]

Get/Set AGC Setting.

[AGC_ANALOG] : AGC Setting for Analog Audio (0:OFF / 1:ON)
[AGC_DIGITAL] : AGC Setting for Digital Audio (0:OFF / 1:ON)

This command is only acceptable in Programming Mode.

<COMMAND SCT>
Get System Count

Controller → Radio

- ① SCT[\r]

Radio → Controller

- ① SCT,###[\r] : ### (0-400)

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 Key 11 - 19, 10
 [PAGE2]: Quick Key 21 - 29, 20
 [PAGE3]: Quick Key 31 - 39, 30
 [PAGE4]: Quick Key 41 - 49, 40
 [PAGE5]: Quick Key 51 - 59, 50
 [PAGE6]: Quick Key 61 - 69, 60
 [PAGE7]: Quick Key 71 - 79, 70
 [PAGE8]: Quick Key 81 - 89, 80
 [PAGE9]: Quick Key 91 - 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

CNV : CONVENTIONAL
 M82S : MOT_800_T2_STD
 M82P : MOT_800_T2_SPL

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M92 : MOT_900_T2
MV2 : MOT_VHF_T2
MU2 : MOT_UHF_T2
M81S : MOT_800_T1_STD
M81P : MOT_800_T1_SPL
MP25 : MOT_P25
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],[APCO],[THRESHOLD][\r]

Radio → Controller

- ① SIN,[SYS_TYPE],[NAME],[QUICK_KEY],[HLD],[LOUT],[DLY],[SKP],[MOD],[ATT],[APCO],[THRESHOLD],[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 (0-99/.(dot) means none)
[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)
[APCO] : APCO Threshold Mode
(AUTO: Auto/MAN: Manual/DFLT: Default)
[THRESHOLD] : APCO Threshold (0-63)
[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 (1-400)

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]
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],[D_END_CODE][\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],[STEP3],[OFFSET3],[D_END_CODE],[TGID_GRP_HEAD],[TGID_GRP_TAIL],[ID_LOUT_GRP_HEAD],[ID_LOUT_GRP_TAIL][\r]
- ② TRN,OK[\r]

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[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)
[D_END_CODE]	: Motorola Digital End Code	(0:Ignore, 1:Yes)
[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 ABP>

Get/Set APCO-P25 Band Plan

Controller → Radio

- ① ABP,[INDEX][\r]
- ② ABP,[INDEX],[BASE_FREQ_0],[SPACING_FREQ_0],[BASE_FREQ_1],[SPACING_FREQ_1], . . . [BASE_FREQ_E],[SPACING_FREQ_E],[BASE_FREQ_F],[SPACING_FREQ_F][\r]

Radio → Controller

- ① ABP,[INDEX],[BASE_FREQ_0],[SPACING_FREQ_0],[BASE_FREQ_1],[SPACING_FREQ_1], . . . [BASE_FREQ_E],[SPACING_FREQ_E],[BASE_FREQ_F],[SPACING_FREQ_F][\r]
- ② ABP,OK[\r]

[INDEX] : System Index
[BASE_FREQ_n] : Base frequency (MHz)
Base_FREQ_n = (base frequency * 10⁶) / 5
(Hexadecimal number)
[SPACING_FREQ_n] : Spacing frequency(kHz)
SPACING_FREQ_n = (spacing frequency *10³)/125
(Hexadecimal number)
*n : Base Plan number(0 –F)

EX.) Base frequency = 851.00625MHz, Spacing frequency = 6.25kHz

[BASE_FREQ_n] = (851.00625*10⁶)/5 = A2510A2(H)

[SPACING_FREQ_n] = (6.25*10³)/125= 32 (H)

Band Plan that has no data returns "0".

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]

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[GRP_INDEX] : Group Index
[GRP_TYPE] : Group Type (C:Channel Group / T:TGID Group)
[NAME] : Name (max.16char)
[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],[AL TL][r]

Radio → Controller

- ① CIN,[NAME],[FRQ],[MOD],[CTCSS/DCS],[TLOCK],[LOUT],[PRI],[ATT],[ALT],[AL TL],[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)
[AL TL]	: 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],[AL TL][r]

Radio → Controller

- ① TIN,[NAME],[TGID],[LOUT],[PRI],[ALT],[AL TL],[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],[APCO],[THRESHOLD],[MAX_STORE][\r]

Radio → Controller

① SCO,[STP],[MOD],[ATT],[DLY],[SKP],[CODE_SRCH],[BSC],[REP],[APCO],[THRESHOLD],[MAX_STORE][\r]

② SCO,OK[\r]

[STP] : Search Step
(AUTO,500,625,750, , 5000,10000)
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 / from 1 to 5)
[SKP] : Data Skip (0:OFF / 1:ON)

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[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* (always 0)
 |||+----- NOAA WX
 ||+----- VHF TV
 |+----- UHF TV
 +----- FM
 +----- Pager
 * AM : valid for BR330T(invalid for BCD396T)

[REP] : Repeater Find (0:OFF / 1:ON)
 [APCO] : APCO Threshold Mode
 (AUTO: Auto/MAN: Manual/DFLT: Default)
 [THRESHOLD] : APCO Threshold (0 – 63)
 [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 (250000-13000000)

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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 (250000-13000000)

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 (250000-13000000)

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

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

[CC_BAND] : Close Call Band (7digit #####)
 (each # is 0 or 1) |||||+ 800MHz+
 0 means OFF |||||+ UHF
 1 means ON |||+-- VHF HIGH2
 ||+--- VHF HIGH1
 |+---- AIR BAND
 |+----- VHF LOW2
 +----- VHF LOW1

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

[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],[APCO],[THRESHOLD][r]

Radio → Controller

- ① CSP,[NAME],[LIMIT_L],[LIMIT_H],[STP],[MOD],[ATT],[DLY],[SKP],[HLD],[LOUT],[C-CH],[APCO],[THRESHOLD][r]
- ② CSP,OK[r]

[SRCH_INDEX] : Index (1-9,0 means 10)

[NAME] : Name (max.16char)

[LIMIT_L] : Lower Limit Frequency (250000-13000000)

[LIMIT_H] : Upper Limit Frequency (250000-13000000)

[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 / 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)

[APCO] : APCO Threshold Mode
 (AUTO: Auto/MAN: Manual/DFLT: Default)

[THRESHOLD] : APCO Threshold (0 – 63)

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)

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[FRQ]	: Channel Frequency	
[MOD]	: Modulation	(AUTO/FM/NFM)
[ATT]	: Attenuation	(0:OFF / 1:ON)
[DLY]	: Delay Time	(0:OFF / 1-5 / 30 / IFN: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	
	00000 means 0.0Hz	
[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 P25>

Get/Set APCO Data Settings

=====

Controller → Radio

- ① P25[\r]
- ② P25,[THRESHOLD][\r]

Radio → Controller

- ① P25,[APCO],[THRESHOLD],[ERR_RATE][\r]
- ② P25,OK[\r] : When [APCO] is "MAN".
P25,NG[\r] : When [APCO] is not "MAN".

[APCO] : APCO Threshold Mode
(AUTO: Auto/MAN: Manual/DFLT: Default/NONE: None)

[THRESHOLD] : APCO Threshold (0 – 63)

[ERR_RATE] : Error Rate (from 0 to 99)

=====

<COMMAND WIN>

*Get Window Voltage

=====

Controller → Radio

- ① WIN[\r]

Radio → Controller

- ② 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)

$$\text{Battery Level[V]} = (3.2[\text{V}] * #### * 2) / 1023$$

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

<COMMAND PWT>
Setup of P25 Waiting Time

- Controller → Radio
 - ① PWT [\r]
 - ② PWT,[TIME][\r]
 - Radio → Controller
 - ① PWT,[TIME][\r]
 - ② PWT,OK[\r]
- [TIME] : P25 Wait Time (0,100,200,300,400,500,600,700,800,900,1000)

Setting for P25 Waiting Time.
This command is only acceptable in Programming Mode.

<COMMAND AGS>
Get/Set AGC Settings

- Controller → Radio
 - ① AGS[\r]
 - ② AGS,[A_Res_Time][A_Ref_Gain][A_Range][D_Res_Time][D_Ref_Gain][D_Range][\r]
 - Radio → Controller
 - ① AGS,[A_Res_Time][A_Ref_Gain][A_Range][D_Res_Time][D_Ref_Gain][D_Range][\r]
 - ② AGS,OK[\r]
- [A_Res_Time] : Analog Response Time (-4/-3/-2/-1/0/1/2/3/4/5/6)
 [A_Ref_Gain] : Analog Reference Gain (-5/-4/-3/-2/-1/0/1/2/3/4/5)
 [A_Range] : Analog Dynamic Range (0 - 15)
 [D_Res_Time] : Analog Response Time (-8/-7/-6/-5/-4/-3/-2/-1/0/1/2/3/4/5/6/7/8)
 [D_Ref_Gain] : Analog Reference Gain (-5/-4/-3/-2/-1/0/1/2/3/4/5)
 [D_Range] : Analog Dynamic Range (0 - 6) (Reserved)

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

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[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.

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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

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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		