

SDSx00

Remote Command Specification

Version 0.01
2018/04/13

| Date | Version | Contents |
|------------|---------|-------------------------------------------------------------------------------|
| 2018/04/13 | 0.01 | Created new basd BCD536HP/BCD436HP Remote Command Specification Version 1.05. |
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| No. | Command | Function | Program Mode Only |
|-----|---------|------------------------------------------|-------------------|
| 1 | MDL | Get Model Info | |
| 2 | VER | Get Firmware Version | |
| 3 | KEY | Push KEY | |
| 4 | QSH | Go to quick search hold mode | |
| 5 | STS | Get Current Status | |
| 6 | JNT | Jump Number tag | |
| 7 | NXT | Next | |
| 8 | PRV | Previous | |
| 9 | FQK | Get/Set Favorites List Quick Keys Status | |
| 10 | SQK | Get/Set System Quick Keys Status | |
| 11 | DQK | Get/Set Department Quick Keys Status | |
| 12 | PSI | Push Scanner Information | |
| 13 | GSI | Get Scanner Information | |
| 14 | GLT | Get xxx list | |
| 15 | HLD | Hold | |
| 16 | AVD | Set Avoid Option | |
| 17 | SVC | Get/Set Service Type Settings | |
| 18 | JPM | Jump Mode | |
| 19 | DTM | Get/Set Date and Time. | |
| 20 | LCR | Get/Set Location and range. | |
| 21 | AST | Analyze Start | |
| 22 | APR | Analyze Pauze/Resume | |
| 23 | URC | User Record Control | |
| 24 | MNU | Menu Mode command | |
| 25 | MSI | Menu Status Info | |
| 26 | MSV | Menu Set Value | |
| 27 | MSB | Menu Structure Back | |

MDL Get Model Info

Controller → Radio
(1) MDL[\r]

Radio → Controller
(1) MDL,[MODEL_NAME][\r]
 [MODEL_NAME] SDS100
 SDS200

VER Get Firmware Version

Controller → Radio
(1) VER[\r]

Radio → Controller
(1) VER,[VERSION][\r]
 [VERSION] Version x.xx.xx

KEY Push KEY

Controller → Radio
(1) KEY,[KEY_CODE],[KEY_MODE][\r]

Radio → Controller
(1) KEY,OK[\r]

See "key code for KEY Command" sheet for KEY_CODE.

QSH Go to quick search hold mode

Controller → Radio
(1) QSH,[FRQ][\r]

Radio → Controller
(1) QSH,OK[\r]

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

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],⋯,[L20_CHAR],[L20_MODE],[RSV],[RSV],[RSV],[RSV],[RSV],[RSV],[RSV],[RSV],[RSV][r]

Note:
STS Command is compatible with old scanner.
PSI is better than STS.
See "Font Data Specification" for not ascii character code.

JNT Jump Number tag

Controller → Radio
(1) JNT,[FL_TAG],[SYS_TAG],[CHAN_TAG][r]

| | | |
|------------|---------------------------|---------|
| [FL_TAG] | Favorites List Number Tag | (0-99) |
| [SYS_TAG] | System Number Tag | (0-99) |
| [CHAN_TAG] | Channel Number Tag | (0-999) |

Radio → Controller
(1) JNT,OK[r]

NXT Next

Controller → Radio
(1) NXT,[tkw],[xxx1],[xxx2],[COUNT][r]

Radio → Controller
(2) NXT,OK\r

| | |
|---------|---------------------------------|
| [tkw] | see sheet "tkd and 1st,2nd opt" |
| [xxx1] | see sheet "tkd and 1st,2nd opt" |
| [xxx2] | see sheet "tkd and 1st,2nd opt" |
| [COUNT] | slide counts (1-8) |

PRV Previous

Controller → Radio

(1) PRV,[tkw],[xxx1],[xxx2],[COUNT][\r]

Radio → Controller

(2) PRV,OK\r

| | |
|---------|---------------------------------|
| [tkw] | see sheet "tkd and 1st,2nd opt" |
| [xxx1] | see sheet "tkd and 1st,2nd opt" |
| [xxx2] | see sheet "tkd and 1st,2nd opt" |
| [COUNT] | slide counts (1-8) |

FQK Get/Set Favorites List Quick Keys Status

Controller → Radio

(1) FQK[\r]
(2) FQK,[S0],[S1],.....[S99][\r]

Radio → Controller

(1) FQK,[S0],[S1],.....[S99][\r]
(2) FQK,OK\r

[Quick Key Status (S0-S99)]
0 : FLQK does not exist
1 : FLQK exists and is disabled
2 : FLQK exists and is enabled

If controller sends 0 (QK does not exist), radiowill ignore 0.

SQK Get/Set System Quick Keys Status

Controller → Radio

(1) SQK,[FAV_QK][\r]
(2) SQK,[FAV_QK],[S0],[S1],.....[S99][\r]

Radio → Controller

(1) SQK,[FAV_QK],[SYS_QK],[S0],[S1],.....[S99][\r]
(2) SQK,OK[\r]

[Quick Key Status (S0-S99)]
0 : SQK does not exist
1 : SQK exists and is disabled
2 : SQK exists and is enabled

If controller sends 0 (QK does not exist), radiowill ignore 0.

DQK Get/Set Department Quick Keys Status

Controller → Radio

- (1) DQK,[FAV_QK],[SYS_QK][\r]
- (2) DQK,[FAV_QK],[SYS_QK],[S0],[S1],.....[S99][\r]

Radio → Controller

- (1) DQK,[FAV_QK],[SYS_QK],[S0],[S1],.....[S99][\r]
- (2) DQK,OK[\r]

[Quick Key Status (S0-S99)]

- 0 : DQK does not exist
- 1 : DQK exists and is disabled
- 2 : DQK exists and is enabled

If controller sends 0 (QK does not exist), radiowill ignore 0.

PSI Push Scanner Information

format will be XML.
See PSI,GSI tab

GSI Get Scanner Information

format will be XML.
See PSI,GSI tab

GLT Get xxx list

GLT is command which PC get xx list form scanner.

See "GLT command" sheet to detail.

HLD Hold

HLD is command to hold system, department, channel.
It can't hold favorites list and site frequency.

Controller → Radio

HLD,[tkw],[xxx1],[xxx2][\r]

- tkw: see sheet "tkd and 1st,2nd opt"
- xxx1 see sheet "tkd and 1st,2nd opt"
- xxx2 see sheet "tkd and 1st,2nd opt"

Radio → Controller
HLD,OK[\r]

AVD Set Avoid Option

AVD is command to avoid or unavoid.
It can't avoid favorites list and site frequency.

Controller → Radio
AVD,[tkw],[xxx1],[xxx2][STATUS][\r]

tkw: see sheet "tkd and 1st,2nd opt"
xxx1 see sheet "tkd and 1st,2nd opt"
xxx2 see sheet "tkd and 1st,2nd opt"

[STATUS 1:Permanent Avoid
2:Temporary Avoid
3:Stop Avoiding

Radio → Controller
AVD,OK[\r]

Note:Please use the GSI or GLT command if you need to get avoid status

SVC Get/Set Service Type Settings

Controller → Radio

(1) SVC[\r]
(2) SVC,[PST1],[PST2],...,[PST37],[CST1],...,[CST10][\r]

Radio → Controller

(1) SVC,[PST1],[PST2],...,[PST37],[CST1],...,[CST10][\r]
(2) SVC,OK[\r]

[PSTx] 0: Off (Not Scan)
1: On (Scan)

JPM Jump Mode

Controller → Radio

(1) JPM,[JUMP_MODE],[INDEX][\r]

[JUMP_MODE] SCN_MODE
 CTM_MODE
 QSH_MODE
 CC_MODE
 WX_MODE
 FTO_MODE
 IREC_MODE
 UREC_MODE
 TDIS_MODE
 CDIS_MODE

[INDEX] SCN_MODE : Chanel Index
 CTM_MODE : Reserve
 QSH_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
 IREC_MODE : Reserve
 UREC_MODE : Folder Name
 TDIS_MODE : Session Name
 CDIS_MODE : Session Name

※When you send the channel index of 0xFFFFFFFF,
 scanner start to scan from top channel

※If temporary clock was set and go to discovery mode, scanner sends NG response.

※If temporary clock was set and go to wx alert mode, scanner sends NG response.

Radio → Controller

(1) JPM,OK[\r]

DTM Get/Set Date and Time.

Controller → Radio

(1) DTM[\r]

(2) DTM,[DayLightSaving],[YYYY],[MM],[DD],[hh],[mm],[ss][\r]

Radio → Controller

(1) DTM,[DayLightSaving],[YYYY],[MM],[DD],[hh],[mm],[ss],[RTC Status][\r]

(2) DTM,OK[\r]

[RTC Status]: 0:RTC NG

1:RTC OK

LCR Get/Set Location and range.

Controller → Radio

- (1) LCR[\r]
- (2) LCR,[LATITUDE],[LONGITUDE],[RANGE][\r]

Radio → Controller

- (1) LCR,[LATITUDE],[LONGITUDE],[RANGE][\r]
- (2) LCR,OK[\r]

LATITUDE and LONGITUDE is degree format.

AST Analyze Start

See Analyze Command Tab

APR Analyze Pauze/Resume

See Analyze Command Tab

URC User Record Control

Controller → Radio

- (1) URC[\r]
- (2) URC,[STATUS][\r]

Radio → Controller

- (1) URC,[STATUS][\r]
- (2) URC,OK[\r]
URC,ERR,[ERROR CODE][\r]

[ERROR CODE] :

- 0001: FILE ACCESS ERROR
- 0002: LOW BATTERY
- 0003: SESSION OVER LIMIT
- 0004: RTC LOST

[STATUS] : 0:Stop, 1:Start

MNU Menu Mode

Controller → Radio

(1) MNU,[MENU_ID],[INDEX][\r]

Radio → Controller

(1) MNU,OK[\r]

| MENU_ID | INDEX | Menu Position |
|-----------------|-------------------|------------------------------|
| TOP | - | Top (Main) Menu |
| MONITOR_LIST | - | Select Lists to Monitor menu |
| SCAN_SYSTEM | Syetem Index | System Menu |
| SCAN_DEPARTMENT | Department Index | Department Menu |
| SCAN_SITE | Site Index | Site Menu |
| SCAN_CHANNEL | Channel Index | Channel Menu |
| SRCH_RANGE | Custom Bank Index | Custom Search Bank Menu |
| SRCH_OPT | - | Search/Close Call Opt menu |
| CC | - | Close Call Menu |
| CC_BAND | - | Clsoe Call Band Menu |
| WX | - | WX Operation Menu |
| FTO_CHANNEL | FTO Channel Index | Tone out Channel Menu |
| SETTINGS | - | Settings Menu |
| BRDCST_SCREEN | - | Broadcast screen Menu |

MSI Menu Status Info

Controller → Radio

(1) MSI[\r]

Radio → Controller

(1) MSI,<XML>,[\r]
<?xml version="1.0" encoding="utf-8"?>[\r]
<MSI Name=" Title " Index="xxxxxx" >[\r]
:
:
</MSI>[\r]

format is XML.

See sheet MSI tab

MSV Menu Set Value

Controller → Radio

(1) MSV,[RSV],[VALUE][\r]

Radio → Controller

(1) MSV,OK[\r]

VALUE select type menu : selected item index
 input type menu : inputted string

Note

Replace comma(,) to tab(\t), if value contain ,(comma).

MSB Menu Structure Back

Controller → Radio

(1) MSB,[RSV],[RET_LEVEL][\r]

Radio → Controller

(1) MSB,OK[\r]

| | | |
|-----------|------------------------|----------------|
| RET_LEVEL | "RETURN_PREVIOUS_MODE" | exit menu mode |
| | "" | 1 level back |

- Favorites List
- System
- Department
- Site
- Conventional frequency
- TGID in ID Scan
- TGID in ID Search
- Site frequency
- Avoiding TGID in ID Search
- Search Avoiding frequency
- Close Call
- WX
- Tone-Out mode
- Search with scan frequency
- CC Hits Channel
- Custom Search Bank
- Custom Search frequency
- Quick Search frequency
- Repeater Find frequency

| | comand | | | | | | | |
|-------------|---------------------|-----|----------------|---------------------------|----------------|---------------------------|---------------|--------------------------------------|
| | GLT | | NXT/PRV | | HLD | | AVD | |
| | 1st | 2nd | 1st | 2nd | 1st | 2nd | 1st | 2nd |
| FL | [none] | | --- | | --- | | --- | |
| SYS | [Parent FL Index] | | Sys Index | [none] | Sys Index | [none] | Sys Index | [none] |
| DEPT | [Parent Sys Index] | | Dept Index | [Parent Sys Index] | Dept Index | [Parent Sys Index] | Dept Index | [none] |
| SITE | [Parent Sys Index] | | Site Index | [none] | Site Index | [none] | Site Index | [none] |
| CFREQ | [Parent Dept Index] | | Chan Index | [none] | Chan Index | [none] | Chan Index | [none] |
| TGID | [Parent Dept Index] | | Chan Index | [none] | Chan Index | [none] | Chan Index | [none] |
| STGID | --- | | TGID | [Site Index] | TGID | [Site Index] | --- | (Use ATGID) |
| SFREQ | [Parent Sit Index] | | --- | | --- | | --- | |
| ATGID | [Parent Sys Index] | | --- | | --- | | TGID | Parent sys index |
| AFREQ | [none] | | --- | | --- | | [Frequency] | [none] |
| CC | --- | | [none] | [none] | [none] | [none] | --- | (Use AFREQ) |
| WX | [none] | | WX Chan Index | [none] | WX Chan Index | [none] | --- | |
| FTO | [none] | | FTO Chan Index | [none] | FTO Chan Index | [none] | --- | |
| SWS_FREQ | --- | | Frequency | [Parent Dept Index] | Frequency | [Parent Dept Index] | --- | (Use AFREQ) |
| CCHIT | [Parent Dept Index] | | CC Chan Index | [none] | CC Chan Index | [none] | CC Chan Index | [none] |
| CS_BANK | [none] | | --- | | --- | | --- | |
| CS_FREQ | --- | | Frequency | Parent Bank index | Frequency | Parent Bank index | --- | (Use AFREQ) |
| QS_FREQ | --- | | Frequency | [none] | Frequency | [none] | --- | (Use AFREQ) |
| RPTR_FREQ | --- | | Frequency | [none] | Frequency | [none] | --- | (You can't avoid Repeater Frequency) |
| IREC_FILE | [none] | | [none] | | File Index | [none] | --- | (You can't avoid) |
| UREC_FOLDER | [none] | | --- | (You can't select folder) | --- | (You can't select folder) | --- | (You can't avoid) |
| UREC_FILE | Folder Index | | File Index | [none] | File Index | [none] | --- | (You can't avoid) |
| TRN_DISCOV | [none] | | --- | | --- | | TGID | [none] |
| CNV_DISCOV | [none] | | --- | | --- | | Frequency | [none] |
| BAND_SCOPE | --- | | Frequency | [none] | Frequency | [none] | --- | |

Target Key Word

[none] means Parameter is none.
 '---' means invarild comand

- Note 1 If you want ot avoid 406.0MHz in Quick Search mode,
 "AVD,AFREQ,4060000,,1%r" is right.
 "AVD,QS_FREQ,4060000,,1%r" is bad comand.
- Note 2 If App sends "HLD","NXT" or "PRV" in Repeater Find mod, the scanner cancels Repeater Find mod and returns to previous mode(Custom Search/Quick Search/ Close Call)
- Note 3 "Unkown" department in ID Search is virtual department. You can hold, next and previous "Unkown" department but can't avoid it.
 "Unkown" department needs parent system index. Another department doesn't need parent system index. Both is OK that you set blank or system index for 2nd parame

GLT is command which PC get xx list form scanner.

Controller → Radio

- | | |
|-----------------------------------|------------------------------------|
| (1) GLT,FL | Favorites List |
| (2) GLT,SYS,[fl_index] | System |
| (3) GLT,DEPT,[system_index] | Department |
| (4) GLT,SITE,[system_index] | Site |
| (5) GLT,CFREQ,[dept_index] | Conventional Frequency |
| (6) GLT,TGID,[dept_index] | TGID |
| (7) GLT,SFREQ,[site_index] | Site Frequency |
| (8) GLT,AFREQ | Search Avoiding Frequencies |
| (9) GLT,ATGID,[system_index] | Search Avoiding TGID |
| (10) GLT,FTO | Fire Tone Out |
| (11) GLT,CS_BANK | Custom Search Bank |
| (12) GLT,UREC | User Record |
| (13) GLT,IREC_FILE | Inner Record File |
| (14) GLT,UREC_FILE,[folder_index] | User Record File |
| (15) GLT,TRN_DISCOV | Trunk Discovery |
| (16) GLT,CNV_DISCOV | Conventional Discovery |

Radio → Controller

- | | | | | | | | | | | | | | | | | | | |
|----------|------------|-------|-------|---------|----------|-----------|------------|------------|-----------|--------------|--------------|-----------|--|--|--|--|--|--|
| (1) GLT | FL | Index | Name | Monitor | Q_Key | N_Tag | | | | | | | | | | | | |
| (2) GLT | SYS | Index | MyId | Name | Avoid | Type | Q_Key | N_Tag | | | | | | | | | | |
| (3) GLT | DEPT | Index | MyId | Name | Avoid | Q_Key | | | | | | | | | | | | |
| (4) GLT | SITE | Index | MyId | Name | Avoid | Q_Key | | | | | | | | | | | | |
| (5) GLT | CFREQ | Index | MyId | Name | Avoid | Freq | Mod | SAS | SAL | SvcType | N_Tag | | | | | | | |
| (6) GLT | TGID | Index | MyId | Name | Avoid | TGID | Audio Type | SvcType | N_Tag | | | | | | | | | |
| (7) GLT | SFREQ | Index | Freq | | | | | | | | | | | | | | | |
| (8) GLT | AFREQ | Freq | Avoid | | | | | | | | | | | | | | | |
| (9) GLT | ATGID | TGID | Avoid | index | Name | DeptName | DeptIndex | | | | | | | | | | | |
| (10) GLT | FTO | Index | Freq | Mod | Name | ToneA | ToneB | | | | | | | | | | | |
| (11) GLT | CS_BANK | Index | Name | Lower | Upper | Mod | Step | | | | | | | | | | | |
| (12) GLT | UREC | Index | Name | | | | | | | | | | | | | | | |
| (13) GLT | IREC_FILE | Index | Name | Time | | | | | | | | | | | | | | |
| (14) GLT | UREC_FILE | Index | Name | Time | | | | | | | | | | | | | | |
| (15) GLT | TRN_DISCOV | Name | Delay | Logging | Duration | CompareDB | SystemName | SystemType | SiteName | TimeOutTimer | AutoStore | | | | | | | |
| (16) GLT | CNV_DISCOV | Name | Lower | Upper | Mod | Step | Delay | Logginig | CompareDB | Duration | TimeOutTimer | AutoStore | | | | | | |

Short word means:
 Q_Key : Quick Key
 N_Tag : Number Tag
 Freq : Frequency
 Mod : Modulation
 SAS : Sub Audio Setting (CTCSS/DCS/P25NAC/Color Code/RAN, Area)

Avoid
 Off
 T-Avoid

※Name = Session Name
 ※Name = Session Name

The Index is kind of handle. PC uses index to Hold and Avoid
MyId is like RRDB ID.

format will be XML.

```
ex
GLT,FL%r
GLT,<XML>%r
<?xml version="1.0" encoding="utf-8"?>%r
<GLT>%r
  <FL Index="0" Name="Favorites List 1" Monitor="On" Q_Key="1" N_Tag="None" />%r
  <FL Index="1" Name="Favorites List 2" Monitor="On" Q_Key="2" N_Tag="2" />%r
  <FL Index="2" Name="Favorites List 3" Monitor="Off" Q_Key="3" N_Tag="999" />%r
</GLT>%r
```

PC/Tablet App need scanner internal information to show.

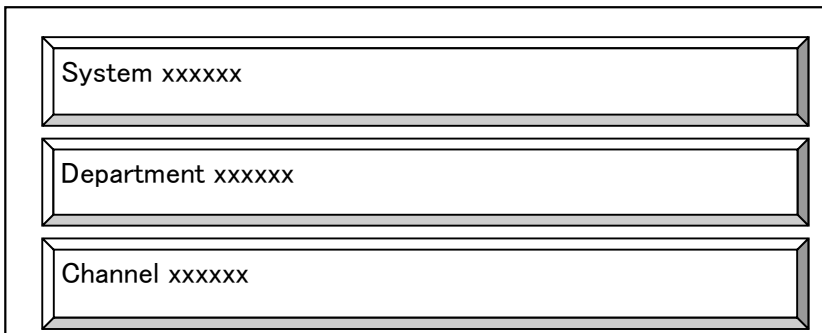
If the scanner recvies GSI command, it will send scanner internal information.
Scanner internal information is like XML.

If the scanner receive PSI command, it outputs information periodically.
User can change interval by parameter.

[Ex .scan mode]

```
<?xml version="1.0" encoding="utf-8"?>
<ScannerInfo Mode="Trunk Scan Hold" V_Screen="trunk_scan">
  <MonitorList Name="Full Database" Index="4294967295" ListType="FullDb" Q_Key="None" N_Tag="None" DB_Counter="3" />
  <System Name="Calcasieu" Index="283" Avoid="Off" SystemType="Conventional" Q_Key="None" N_Tag="None" Hold="On" />
  <Department Name="Calcasieu Parish - Parish Fire & Medical" Index="286" Avoid="Off" Q_Key="None" Hold="Off" />
  <ConvFrequency Name="DeQuincy Fire Department" Index="290" Avoid="Off" Freq=" 154.4150MHz"
    Mod="NFM" N_Tag="None" Hold="On" SvcType="Fire Dispatch" P_Ch="Off" SAS="All" SAD="None" LVL="0" IFX="Off" />
  <AGC A_AGC="Off" D_AGC="Off" />
  <DualWatch PRI="Off" CC="Off" WX="Off" />
  <Property
    VOL="0" SQL="9" Sig="0"
    WiFi="3" Att="Off" Rec="Off"
    KeyLock="Off" P25Status="None"
    Mute="Mute" Backlight="100"

    Rssi="0.377"
  />
  <ViewDescription>
    <InfoArea1 Text="F0:01234-6*789" />
    <InfoArea2 Text="S3:01234-6*----" />
    <PopupScreen Text="Quick Save?%n" />
  </ViewDescription>
</ScannerInfo>
```



see PSI, GSI Elemen
PSI, GSI Attribute
Attribute (ViewDescription)

All mode Elements

ScannerInfo

Property

AGC

DispFormat

ViewDescription (when the radio is viewing override area)

ReplayDescription (when the radio is in REPLAY mode)

ScannerInfo is the root node.

Depend on mode elements

| | Scan mode | | | | Search | | | | Signal | | Temporary | | discovery | | Analyze | | | |
|-----------------------|-------------------|------------|------------------|------------------|---------------|--------------|------------|--------------|----------|----------|-------------------|---------------|------------------------|--------------------|-----------------------|---------------|---------|------------|
| | conventional_scan | trunk_scan | custom_with_scan | cchits_with_scan | custom_search | quick_search | close_call | cc_searching | tone_out | wx_alert | reverse_frequency | repeater_find | discovery_conventional | discovery_trunking | analyze_system_status | rf_power_plot | analyze | band_scope |
| MonitorList | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| System | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Department | ○ | ○ | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Site | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ConvFrequency | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| TGID | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SiteFrequency | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SrchFrequency | - | - | ○ | - | ○ | ○ | ○ | - | - | ○ | ○ | ○ | - | - | - | - | - | - |
| CcHitsChannel | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DualWatch | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | - | - | ○ | ○ | - | - | - | - | - | - |
| SearchRange | - | - | ○ | - | ○ | ○ | - | - | - | - | - | - | - | - | - | - | - | - |
| SearchBanks | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - | - | - | - |
| CC_Bands | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - |
| CC_Counters | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - | - |
| ToneOutChannel | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - | - |
| WxChannel | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - |
| WxMode | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - | - | - | - |
| ConventionalDiscovery | - | - | - | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - | - |
| TrunkingDiscovery | - | - | - | - | - | - | - | - | - | - | - | - | - | ○ | - | - | - | - |
| SystemStatus | - | - | - | - | - | - | - | - | - | - | - | - | - | - | ○ | - | - | - |
| RfPowerPlot | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | ○ | - | - |
| Analyze | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | ○ | - |
| BandScope | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | ○ |
| BandScopeRange | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | ○ |

Elements in ViewDescription

InfoArea1
InfoArea2
OverWrite
PopupScreen
PlainText

Elements in ReplayDescription

File
ReplayMode

ScannerInfo

| Attribute Name | Value |
|----------------|-------|
| Mode | |
| V_Screen | |

- Scan Mode
- Scan Hold
- Tone-Out
- Custom Search
- Custom Search Hold
- Quick Search
- Quick Search Hold
- Service Scan
- Service Scan Hold
- Trunk Scan
- Trunk Scan Hold
- Close Call Only
- Close Call
- Menu tree

Property

| Attribute Name | Value |
|----------------|------------------------------------------------------------|
| F | Off/On |
| VOL | 0-29 or 0-15 |
| SQL | 0-19 or 0-15 |
| Sig | 0-4 |
| WiFi | Off / 0-3 / AP |
| Battery | 0.0-3.3 |
| Att | Off/On/G-Att |
| Rec | Off/On |
| KeyLock | Off/On |
| P25Status | None/Data/P25/DMR/CAP/CON/DT3/XPT /NX9/NX4/ND9/ND4/IDS/NXD |
| Mute | Unmute/Mute |
| A_Led | Off/Blue/Red/Magenta/Green/Cyan/Yellow/White |
| Dir | Up/Down |
| Rssi | 0- |

- plain_text
- conventional_scan
- trunk_scan
- custom_with_scan
- cchits_with_scan
- custom_search
- quick_search
- close_call
- cc_searching
- tone_out
- wx_alert
- discovery_conventional
- discovery_trunking
- reverse_frequency
- repeater_find
- direct_entry
- menu_selection
- menu_input
- analyze_system_status
- analyze

AGC

| Attribute Name | Value |
|----------------|--------|
| A_AGC | Off/On |
| D_AGC | Off/On |

DualWatch

| Attribute Name | Value |
|----------------|------------------|
| PRI | Off/DND/Priority |
| CC | Off/DND/Priority |
| WX | Off/Priority |

MonitorList

| Attribute Name | Value |
|----------------|-----------------------------------------------------|
| Name | ASCII code , Max length 64 |
| Index | 0- |
| ListType | FullDb/FL/SWS |
| Q_Key | 0-99/None |
| N_Tag | 0-99/None |
| DB_Counter | 0-65535, if counter overs 65535, counter will be 0. |

System

| | |
|------------|----------------------------|
| Name | ASCII code , Max length 64 |
| Index | 0- |
| Avoid | Off/T-Avoid/Avoid |
| SystemType | |
| Q_Key | 0-99/None |
| N_Tag | 0-99/None |
| Hold | Off/On |

- Conventional
- Motorola
- EDACS
- LTR
- P25 Trunk
- P25 One Frequency
- MotoTRBO Trunk

Department

| | |
|------|----------------------------|
| Name | ASCII code , Max length 64 |
|------|----------------------------|

Index 0-
 Avoid Off/T-Avoid/Avoid
 Q_Key 0-99/None
 Hold Off/On

DMR One Frequency
 NXDN Trunk
 NXDN One Frequency

Site

Name ASCII code , Max length 64
 Index 0-
 Avoid Off/T-Avoid/Avoid
 Q_Key 0-99/None
 Hold Off/On
 Mod Auto/NFM/FM

ConvFrequency

Name ASCII code , Max length 64
 Index 0-
 Avoid Off/T-Avoid/Avoid
 Freq xxxx.xxxxMHz
 Mod Auto/AM/NFM/FM/WFM/FMB
 N_Tag 0-999/None
 Hold Off/On
 SvcType See Sheet : "Service type"
 P_Ch Off/On
 SAS See Sheet : "Sub Audio"
 SAL Off/On
 SAD See Sheet : "Sub Audio"
 RecSlot Slot 1/2/None
 LVL -3/-2-/-1/0/1/2/3
 IFX Off/On
 TGID TGID xxxx/None
 U_Id UID xxxx/None

TGID

Name ASCII code , Max length 64
 Index 0-
 Avoid Off/T-Avoid/Avoid
 TGID TGID:xxxx
 SetSlot Slot 1/2/Any
 RecSlot Slot 1/2/None
 N_Tag 0-999/None
 Hold Off/On
 SvcType See Sheet : "Service type"
 P_Ch Off/On
 LVL -3/-2-/-1/0/1/2/3

SiteFrequency

Freq xxxx.xxxxMHz
 SAS See Sheet : "Sub Audio"
 SAD See Sheet : "Sub Audio"
 IFX Off/On

SearchBanks

| <u>Attribute Name</u> | <u>Value</u> |
|-----------------------|-----------------------------------------|
| Index | 0-9 |
| BankStatus | xxxxxxxx : 0=Off/ 1=On order=0123456789 |
| Name | ASCII code , Max length 64 |
| BankNo | 0-9 |

CC_Bands

| <u>Attribute Name</u> | <u>Value</u> |
|-----------------------|--------------|
|-----------------------|--------------|

BandStatus xxxxxxx : 0=Off/ 1=On order=0123456

SrchFrequency

| <u>Attribute Name</u> | <u>Value</u> |
|-----------------------|-------------------------|
| Avoid | Off/T-Avoid/Avoid |
| Freq | xxxx.xxxxMHz |
| Mod | Auto/AM/NFM/FM/WFM/FMB |
| Hold | Off/On |
| SAD | See Sheet : "Sub Audio" |
| RecSlot | Slot 1/2/None |
| TGID | TGID xxxx/None |
| U_Id | UID xxxx/None |
| IFX | Off/On |

CcHitsChannel

| <u>Attribute Name</u> | <u>Value</u> |
|-----------------------|----------------------------|
| Name | ASCII code , Max length 64 |
| Index | 0- |
| Avoid | Off/T-Avoid/Avoid |
| CH_No | 0-9 |
| Freq | xxxx.xxxxMHz |
| Mod | Auto/AM/NFM/FM/WFM/FMB |
| Hold | Off/On |
| SAD | See Sheet : "Sub Audio" |
| LVL | -3/-2-/-1/0/1/2/3 |
| IFX | Off/On |

SearchRange

| | |
|-------|------------------------|
| Lower | xxxx.xxxxMHz |
| Upper | xxxx.xxxxMHz |
| Mod | Auto/AM/NFM/FM/WFM/FMB |
| Step | |

ToneOutChannel

| | |
|-------|----------------------------|
| Name | ASCII code , Max length 64 |
| Index | 1- |
| CH_No | 0-31 |
| Freq | xxxx.xxxxMHz |
| Mod | Auto/AM/NFM/FM/WFM/FMB |
| Hold | Off/On |
| LVL | -3/-2-/-1/0/1/2/3 |
| IFX | Off/On |
| ToneA | xxxxHz |
| ToneB | xxxxHz |

WxMode

| | |
|------|--------------------------------------|
| Mode | "Monitor Weather" or "Weather Alert" |
| SAME | "Alert Only" or SAME group name |

WxChannel

| | |
|-------|----------------------------|
| Name | ASCII code , Max length 64 |
| Index | 0- |
| CH_No | 1-7 |
| Freq | xxxx.xxxxMHz |
| Mod | FM |
| Hold | Off/On |
| LVL | -3/-2-/-1/0/1/2/3 |
| IFX | Off/On |

ConventionalDiscovery

| | |
|----------|-------------------------|
| Lower | xxxx.xxxxMHz |
| Upper | xxxx.xxxxMHz |
| Mod | Auto/AM/NFM/FM/WFM/FMB |
| Step | |
| Freq | xxxx.xxxxMHz |
| SAD | See Sheet : "Sub Audio" |
| RecSlot | Slot 1/2/None |
| PastTime | |
| HitCount | |
| TGID | TGID xxxx/None |
| U_Id | UID xxxx/None |
| IFX | Off/On |

TrunkingDiscovery

| | |
|------------|----------------------------|
| SystemName | ASCII code , Max length 64 |
| SiteName | ASCII code , Max length 64 |
| TGID | |
| TgidName | |
| SAD | See Sheet : "Sub Audio" |
| RecSlot | Slot 1/2/None |
| PastTime | |
| HitCount | |
| U_Id | UID xxxx/None |

SystemStatus

| | |
|-------------|---------------------------------------------------------------|
| SystemName | ASCII code , Max length 64 |
| SiteName | ASCII code , Max length 64 |
| Signal | 0-100 |
| Quality | 0-100 |
| Activity | 0-100 |
| SystemID | 0-0x1FFFF |
| SystemSubID | 0-99 |
| SiteID | 0-4095 |
| WacnID | 0-0xFFFF |
| NAC | 0-0xFFF |
| Color | 0-15 |
| RAN | 0-63 |
| Area | 0-1 |
| Att | Off/G-Att |
| Freqs | 0-16 |
| P25Status | None/Data/P25/DMR/CAP/CON/DT3/XPT /NX9/NX4/ND9/ND4/IDS/NXD |

RfPowerPlot

| | |
|------------|-------------------------|
| Frequency | xxxx.xxxxMHz |
| Modulation | Auto/AM/NFM/FM/WFM/FMB |
| SampleRate | 100ms/200ms/400ms/800ms |
| Att | Off/G-Att |
| B01 | 0 - 100 |
| B02 | 0 - 100 |
| B03 | 0 - 100 |
| B04 | 0 - 100 |
| B05 | 0 - 100 |
| B06 | 0 - 100 |
| B07 | 0 - 100 |
| B08 | 0 - 100 |
| B09 | 0 - 100 |
| B10 | 0 - 100 |
| B11 | 0 - 100 |
| B12 | 0 - 100 |
| B13 | 0 - 100 |
| B14 | 0 - 100 |

| | |
|-----|---------|
| B15 | 0 - 100 |
| B16 | 0 - 100 |
| B17 | 0 - 100 |
| B18 | 0 - 100 |
| B19 | 0 - 100 |
| B20 | 0 - 100 |
| B21 | 0 - 100 |
| B22 | 0 - 100 |
| B23 | 0 - 100 |
| B24 | 0 - 100 |
| B25 | 0 - 100 |
| B26 | 0 - 100 |
| B27 | 0 - 100 |
| B28 | 0 - 100 |
| B29 | 0 - 100 |
| B30 | 0 - 100 |
| B31 | 0 - 100 |
| B32 | 0 - 100 |
| B33 | 0 - 100 |
| B34 | 0 - 100 |

Analyze

| | |
|------------|----------------------------|
| Msg1 | ASCII code , Max length 64 |
| Msg2 | ASCII code , Max length 64 |
| SystemName | ASCII code , Max length 64 |
| SiteName | ASCII code , Max length 64 |
| Att | Off/G-Att |

※Used by following mode

- LCN Finder
- Current Activity
- LCN Monitor
- Activity Log

BandScope

| | |
|------|----------------------------------------------------------------------------------------------------------|
| Msg1 | ASCII code , Max length 64 |
| Msg2 | ASCII code , Max length 64 |
| Span | 0.2MHz/0.4MHz/0.6MHz/0.8MHz/1MHz/2MHz/ 4MHz/6MHz/8MHz/10MHz/20MHz/40MHz/ 60MHz/80MHz/100MHz/200MHz |
| Hold | On/Off |
| Att | Off/G-Att |

BandScopeRange

| | |
|-------|-----------------------------------------------------------------------------|
| Lower | xxxx.xxxxMHz |
| Upper | xxxx.xxxxMHz |
| Mod | Auto/AM/NFM/FM/WFM/FMB |
| Step | 5kHz/6.25kHz/7.5kHz/833kHz/10kHz/12.5kHz/ 15kHz/20kHz/25kHz/50kHz/100kHz |

<<Info Area and Override>>

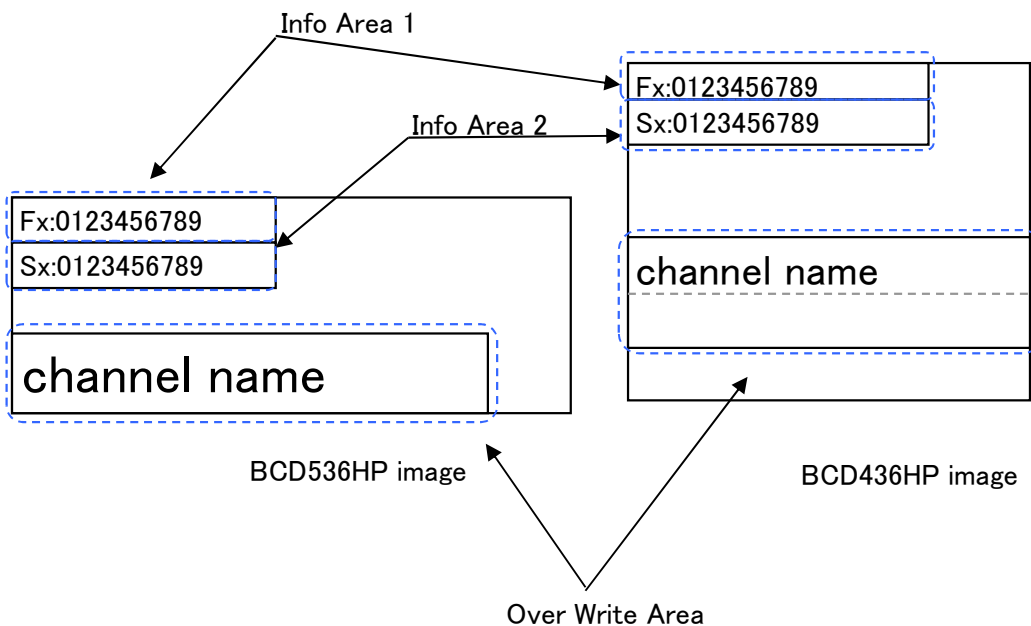
Scanner has special view area on main screen.

Info Area 1 and Info Area 2 are displayed Quick keys status in scan mode or Banks status in custom search mode.

Over Write Area is displayed error message or scanning message on channel name area.

```

<ViewDescription>
  <InfoArea1 Text="F0:01234-6*789" />
  <InfoArea2 Text="S3:01234-6*---" />
  <OverWrite Text="No thing to scan">
</ViewDescription>
  
```



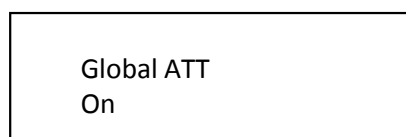
<<Popup Screen>>

Scanner has popup screen. It shows temporary view for 1-2 seconds. The popup screen is shown on main screen.

It is like toaster in Android OS.

```

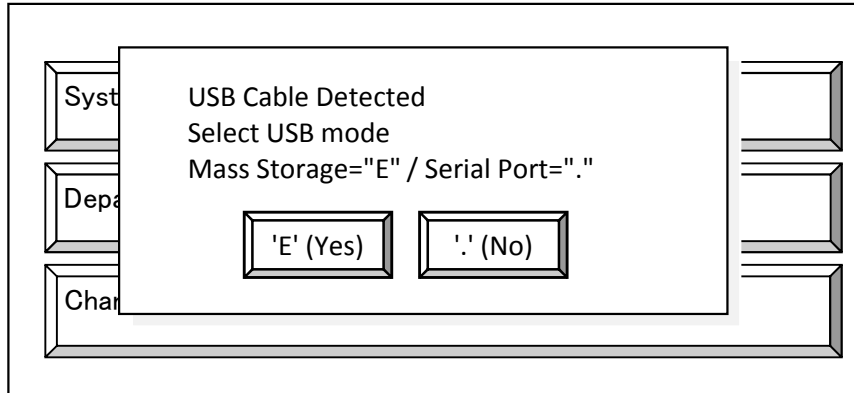
<ViewDescription>
  <PopupScreen Text="Global ATT\nOn" />
</ViewDescription>
  
```



Popup screen has a few buttons.
This popup screen is not cleared automatically.
Scanner waits pressed button by user.

It is like Dialog box.

```
<ViewDescription>  
  <PopupScreen Text="USB Cable Detected&#xD;  
    Select USB mode&#xD;&#xD;Mass Storage="E" / Serial Port=".">  
    <Button Text="&quot;E&quot; (Yes)" KeyCode="E" />  
    <Button Text="&quot;." (No)" KeyCode="." />  
  </PopupScreen>
```



In this case Popup screen has 2 buttons.

If 'E' (Yes) button is pressed, App should send "KEY,E,P".
E is KeyCode.

<<PlainText view>>

Plain Text view is kind of view mode in main screen.

ex.

```
<ViewDescription>  
  <PlainText Text="Copyright 2014" />  
  <PlainText Text="Uniden America Corp." />  
  <PlainText Text="All Rights Reserved." />  
  <PlainText Text="" />  
</ViewDescription>
```

<< ReplayDescription >>

```
<ReplayDescription>  
  <File Index="2" />  
  <ReplayMode Mode="USER_REC" />  
</ReplayDescription>
```

Basic Rule for Response scanner information

MyId

The system, department, site and channel on Full Database have MyId.
The system, department, site and channel copied from full database have MyId.
But system, department, site and channel which user created don't have MyId.

MyId relates RadioReference ID.

ID is shown xxId=xx.

e.x.

CountyId=5
AgencyId=15

ID list

| HPDB ID | description | RRDB ID |
|----------|--------------------------------|---------|
| CountyId | Conventional System (County) | ctid |
| AgencyId | Conventional System (Agency) | aid |
| TrunkId | Trunked System | sid |
| CGroupId | Conventional Department | scid |
| CFreqId | Conventional Frequency | fid |
| SiteId | Trunked Site | siteId |
| TGroupId | Trunked Department | tgCid |
| Tid | Trunked Channel | tgId |

Note :

Search with Scan doesn't have MyId.

Index

The index will be used, when you hold or avoid system, department and channel.
It is decided when data is downloaded to RAM. It is invalid if DB_Counter differs.

Name

ASCII code (20h-7eh)
Max Length 64 characters

AST Analyze Start

■ **Current Activity**

Controller → Radio

AST,CURRENT_ACTIVITY,[Site Index]#r

Radio → Controller

format will be XML.

Data is sent in 200ms interval

C-Ch

| No | LCN | Frequency | SystemID | SiteID | TGID Type |
|----|-----|-----------|----------|--------|-----------|
|----|-----|-----------|----------|--------|-----------|

V-Ch

| No | LCN | Frequency | TGID | Unit ID | MOD | TGID Type |
|----|-----|-----------|------|---------|-----|-----------|
|----|-----|-----------|------|---------|-----|-----------|

Parameter

LCN : LCN(decimal)
 Freq : Frequency
 TGID : Talk Group ID(decimal)
 Unit ID : Unit ID(decimal)
 MOD : Mode
 Analog
 Digital
 Encrypted
 TgidType : Talk Group ID type
 Control Channel
 Encrypted
 Patch
 Unknown
 TGID
 I-CALL
 SystemID : System ID(hex)
 SiteID : Site ID(decimal)

XML example

```
AST,<XML>#r
<?xml version="1.0" encoding="utf-8"?>#r
<AST>#r
  <CurrentActivity LCN="1" Freq="851.0125" SystemID="0001h" SiteID="0" TgidType="Control Channel" />#r
  <CurrentActivity LCN="2" Freq="851.0375" TGID="16" UnitID="32" MOD="Analog" TgidType="TGID" />#r
  <CurrentActivity LCN="3" Freq="851.0625" TGID="64" UnitID="128" MOD="Analog" TgidType="TGID" />#r
  :
  :
  <CurrentActivity LCN="32" Freq="851.6125" TGID="256" UnitID="512" MOD="Analog" Tgidtype="TGID" />#r
</AST>#r
```

※Before sending AST command, please go to Scan Mode to load the hpdb data

■ **LCN Monitor**

Controller → Radio

AST,LCN_MONITOR,[Site Index]#r

Radio → Controller

format will be XML.

Data is sent in 1s interval

| No | LCN | Frequency | Status |
|----|-----|-----------|--------|
|----|-----|-----------|--------|

Parameter

LCN : LCN(decimal)
 Freq : Frequency
 ReceiveStaus : 1 or 0

XML example

```
AST,<XML>#r
<?xml version="1.0" encoding="utf-8"?>#r
<AST>#r
  <LcnMonitor LCN="1" Freq = "851.0125" ReceiveStaus="1" />#r
  <LcnMonitor LCN="2" Freq = "851.0250" ReceiveStaus="0" />#r
  <LcnMonitor LCN="3" Freq = "851.0375" ReceiveStaus="0" />#r
  <LcnMonitor LCN="4" Freq = "851.0500" ReceiveStaus="0" />#r
  <LcnMonitor LCN="5" Freq = "851.0625" ReceiveStaus="0" />#r
  :
  :
  <LcnMonitor LCN="32" Freq = "851.4000" ReceiveStaus="0" />#r
</AST>#r
```

※Before sending AST command, please go to Scan Mode to load the hpdb data

■ **Activity Log**

※If temporary clock was set and go to activity log mode, scanner sends NG response.

Controller → Radio

AST,ACTIVITY_LOG,[Site Index]#r

Radio → Controller

AST,ACTIVITY_LOG,[Time],[Data],[Message],[Description]

Parameter

Time : MM/DD/YYYY hh:mm:ss
 Data : Received raw data (depends on system type)
 Message : Message type (Depends on system type)
 Description1-5 : Message description (depends on system type). Number of description is depends on message type.

[Motorola]

| Data | | |
|--------------------|-----------------|------------------|
| "<cmd>/<prv>/<id>" | | |
| cmd | : command field | 0-1023(decimal) |
| prv | : private bit | 0 or 1 |
| id | : id field | 0-65535(decimal) |

| Message | Description1 | Description2 | Description3 | Description4 | Description5 |
|----------------------------------------------|--------------|--------------|--------------|--------------|--------------|
| System ID | Sid: | | | | |
| Site ID | Site: | | | | |
| Talkgroup Voice Channel Grant | Tid: | Uid: | LCn: | Sts: | Mod: |
| Talkgroup Voice Channel Grant Update | Tid: | | LCn: | Sts: | |
| I-Call Voice Channel Grant Update | Uid: | | LCn: | | |
| Individual Call | Uid: | Uid: | LCn: | | |
| Patch/MultiSelect Voice Channel Grant | Pid: | Uid: | LCn: | Sts: | Mod: |
| Patch/Multiselect Voice Channel Grant Update | Pid: | | LCn: | Sts: | |
| Patch List | Pid: | Mid | | | |
| Patch Cancel | Pid: | | | | |
| Control | | | | | |
| First OSW | | | | | |
| Receive Error | | | | | |

Description

Sid : System ID(hex)
 Site : Site ID(decimal)
 Tid : Talk Group ID(decimal)
 Uid : Unit ID(decimal)
 Pid : Patch ID(decimal)
 Mid : Patch Member ID (decimal)
 Lcn : LCN(decimal)
 Sts : Status bit
 Normal Talkgroup
 All Talkgroup
 Emergency
 Talkgroup Patch
 Emergency Patch
 Emergency Multi-Group
 Multi-Select
 DES Encryption Talkgroup
 DES All Talkgroup
 DES Emergency
 DES Talkgroup Patch
 DES Emergency Patch
 DES Emergency Multi-Group
 Multi-Select DES TG
 Mod : Modulation
 Analog
 Digital

[P25 Standard]

| Data | | |
|-------------------|--------|----------------------------------------------------------|
| "<opcode>/<data>" | | |
| opcode | opcode | 1byte:00-FF(hex) |
| data | TSBK | 12bytes:00000000000000000000-FFFFFFFFFFFFFFFFFFFFFF(hex) |

| Message | Description1 | Description2 | Description3 | Description4 | Description5 |
|--------------------------------------------------|--------------|--------------|--------------|--------------|--------------|
| Group Voice Channel Grant | LCn: | Gad: | Sad: | | |
| Group Voice Channel Grant Explicit | LCnT: | Gad: | Sad: | LCnR: | |
| Group Voice Channel Grant Update | LCn: | Gad: | LCn: | Gad: | |
| Group Voice Channel Grant Update Explicit | LCnT: | LCnR: | Gad: | | |
| Unit To Unit Voice Channel Grant | LCn: | Tad: | Sad: | | |
| Unit To Unit Voice Channel Grant Extended | LCnT: | Tad: | Sad: | LCnR: | |
| Unit To Unit Answer Request | Tad: | Src: | | | |
| Unit To Unit Answer Request Extended | Tad: | Src: | | | |
| Unit To Unit Voice Channel Grant Update | LCn: | Tad: | Sad: | | |
| Unit To Unit Voice Channel Grant Update Extended | LCnT: | Tad: | Sad: | LCnR: | |
| Telephone Voice Channel Grant | | | | | |

| | | | | | |
|----------------------------------------------|-------|-------|-------|-------|-------|
| Telephone Interconnect Answer Request | | | | | |
| Identifier Update for X2TDMA | | | | | |
| Individual Data Channel Grant | | | | | |
| Group Data Channel Grant | | | | | |
| Group Data Channel Announcement | | | | | |
| Group Data Channel Announcement Explicit | | | | | |
| SNDCCP Data Channel Grant | | | | | |
| SNDCCP Data Page Request | | | | | |
| SNDCCP Data Channel Announcement Explicit | | | | | |
| Status Update | | | | | |
| Status Query | | | | | |
| Message Update | | | | | |
| Radio Unit Monitor Command | | | | | |
| Call Alert | | | | | |
| Acknowledge Response FNE | | | | | |
| Queued Response | | | | | |
| Extended Function Command | | | | | |
| Deny Response | | | | | |
| Group Affiliation Response | | | | | |
| Secondary Control Channel Broadcast Explicit | | | | | |
| Group Affiliation Query | | | | | |
| Location Registration Response | | | | | |
| Unit Registration Response | | | | | |
| Unit Registration Command | | | | | |
| Authentication Command | | | | | |
| De-Registration Acknowledge | | | | | |
| Identifier Update for TDMA | Iden: | Type: | Tofs: | Csp: | Bfrq: |
| Identifier Update for VHF/UHF Bands | | | | | |
| Time and Date Announcement | Iden: | Bw: | Tofs: | Csp: | Bfrq: |
| Roaming Address Command | | | | | |
| Roaming Address Update | | | | | |
| System Service Broadcast | | | | | |
| Secondary Control Channel Broadcast | | | | | |
| RFSS Status Broadcast | Sid: | Sub: | Site: | LCn: | |
| RFSS Status Broadcast Extended | Sid: | Sub: | Site: | LCnT: | LCnR: |
| Network Status Broadcast | Wacn: | Sid: | LCn: | | |
| Network Status Broadcast Extended | Wacn: | Sid: | LCnT: | LCnR: | |
| Adjacent Status Broadcast | | | | | |
| Identifier Update for non-VHF/UHF Bands | Iden: | Bw: | Tofs: | Csp: | Bfrq: |
| Protection Parameter Broadcast | | | | | |
| Protection Parameter Update | | | | | |
| Receive Error | | | | | |

Description

Lcn : LCN(decimal)
 LcnT : Transmit channel LCN(decimal)
 LcnR : Receive channel LCN(decimal)
 Gad : Group Address(decimal)
 Sad : Source Address(decimal)
 Tad : Target Address(decimal)
 Src : Source ID(decimal)
 Iden : Identifier(decimal)
 Bw : Band Width(decimal)
 Tofs : Transmit Offset(decimal)
 Csp : Channel Spacing(decimal)
 Bfrq : Base Frequency(decimal)
 Sid : System ID(hex)
 Sub : RF Sub-system ID(decimal)
 Site : Site ID(decimal)
 Wacn : WACN ID(hex)
 Type : Channel Type (decimal)

[EDACS]

| Data | |
|----------|-----------------------------------------|
| "<data>" | |
| data | message data 28bits:0000000-FFFFFF(hex) |

| Message | Description1 | Description2 | Description3 | Description4 | Description5 |
|--------------------------------------|--------------|--------------|--------------|--------------|--------------|
| Site ID | Site: | | LCn: | | |
| Talkgroup Voice Channel Grant | Tid: | Uid: | LCn: | Sts: | |
| Talkgroup Voice Channel Grant Update | Tid: | | LCn: | Sts: | |
| I-Call Voice Channel Grant Update | Uid: | | LCn: | Sts: | |
| Patch Voice Channel Grant | Pid: | Uid: | LCn: | Sts: | |
| Patch Voice Channel Grant Update | Pid: | | LCn: | Sts: | |
| Patch List | Pid: | Mid: | | | |
| First OSW | | | | | |
| Receive Error | | | | | |

Description

Site : Site ID(decimal)
 Tid : Talk Group ID(decimal 1-2047: AFS, decimal 2048-65535: Decimal)
 Uid : Unit ID(decimal)
 Pid : Patch ID(decimal)
 Mid : Patch Member ID (decimal)

Lcn : LCN(decimal)
 Sts : Status bit
 Normal Talkgroup
 Talkgroup Patch
 Emergency
 Emergency Patch
 Digital Talkgroup
 Digital Patch
 Digital Emergency
 Digital Emergency Patch
 I-Call
 Digital I-Call

[LTR]

| Data | | |
|-----------|---------------------------------------|----------------|
| "<data>" | | |
| data | <area_code>/<goto>/<home>/<id>/<free> | |
| area code | Area Code | 0 or 1 |
| goto | Goto Repeater | 0-31(decimal) |
| home | Home Repeater | 0-31(decimal) |
| id | Id Field | 0-255(decimal) |
| free | Free Repeater | 0-31(decimal) |

| Message | Description1 | Description2 | Description3 | Description4 | Description5 |
|--------------------------------------|--------------|--------------|--------------|--------------|--------------|
| Repeater Idle | Tid: | Rpt: | Goto: | Free: | |
| Talkgroup Voice Channel Grant Update | Tid: | Rpt: | Goto: | Free: | |
| Turn-off Code | Tid: | Rpt: | Goto: | Free: | |

Tid : Talk Group ID (Area-Home-Id)
 Rpt : Transmitting Repeater
 Goto : Goto Repeater
 Free : Free Repeater

[DMR/MotoTRBO]

| Data | | |
|-----------------------------------------------------|--------------------------------|----------------------------------------------------|
| "<opcode>/<fid>/<id>/<ch>/<slot>/<prv>/<emergency>" | | |
| opcode | Full/Short Link Control Opcode | 00-3F (Hex) |
| | Control Signal Block Opcode | 00-3F (Hex) |
| fid | Feature ID | 00(DMR), 06(Connect Plus), 10(Capacity Plus) (Hex) |
| id | TGID | 0-16777215 (Decimal) |
| ch | LCN | 0-4095 (Decimal) |
| slot | TDMA Slot | 1 or 2 or 15(None) (Decimal) |
| prv | Privacy | 0 or 1 |
| emergency | Emergency | 0 or 1 |

| Message | Description1 | Description2 | Description3 | Description4 | Description5 |
|-----------------------------------------|--------------|--------------|--------------|--------------|--------------|
| Talkgroup Voice Channel Grant | Tid: | Uid: | Color Code: | Lcn: | Slot: |
| Talkgroup Voice Channel Link Control | Tid: | Uid: | Color Code: | Lcn: | Slot: |
| Unit to Unit Voice Channel Grant | Uid Src: | Uid Dst: | Color Code: | Lcn: | Slot: |
| Unit to Unit Voice Channel Link Control | Uid Src: | Uid Dst: | Color Code: | Lcn: | Slot: |
| Broadcast Talkgroup Voice Channel Grant | Tid: | Uid: | Color Code: | Lcn: | Slot: |
| Capacity Plus Voice Channel Grant | Tid: | Uid: | Color Code: | Lcn: | Slot: |
| Capacity Plus Update | Sid: | Site: | Color Code: | Lcn: | Slot: |
| Capacity Plus Site ID | Sid: | Site: | Color Code: | Lcn: | Slot: |
| Linked Capacity Plus Site ID | Sid: | Site: | Color Code: | Lcn: | Slot: |
| Connect Plus Voice Channel Grant | Tid: | Uid: | Color Code: | Lcn: | Slot: |
| Connect Plus Update | | | | | |
| Connect Plus Network ID | Sid: | Site: | Color Code: | Lcn: | Slot: |
| DMR Network ID | Sid: | Site: | Color Code: | Lcn: | Slot: |
| Idle | | | | | |

Description

Sid : Network ID (Hex)
 Site : Site ID (Decimal)
 Tid : Talk Group ID (Decimal)
 Uid : Unit ID (Decimal)
 Uid Src : Source Unit ID (Decimal)
 Uid Dst : Destination Unit ID (Decimal)
 Color Code : Color Code (Decimal)
 Lcn : LCN (Decimal)
 Slot : TDMA Slot (Decimal)

※Before sending AST command, please go to Scan Mode to load the hpdb data

[NXDN]

| Data | | |
|-----------------------------------------------------|--------------|------------------------------------------|
| "<call type>/<home ch>/<id>/<ch>/<prv>/<emergency>" | | |
| call type | Call Type | 0-7 (Decimal) |
| home ch | Home Channel | 0-31 (IDAS only, Decimal) |
| id | TGID | NEXEDGE: 0-65535, IDAS: 0-2047 (Decimal) |
| ch | LCN | 0-1023 (Decimal) |

