BCD436HP(UB376Z)
BCD536HP(UB375Z)
Remote Command Specification

Version 1.03
2015/10/29
Kazuo Inaba

UB375Z Menu Tree Specification

Date	Version	Author	Contents
2015/03/09	1.00	Kazuo Inaba	
2015/03/18	1.01	Tatsuya Fukada	・Added description to JPM command. ・Added description to DTM command. ・Added description to URC command. ・Added description to AST command （ACTIVITY LOG）.
2015/07/15	1.02	Kazuo Inaba	・Added description MNU ・Added description MSI ・Added description MSV ・Added description MSB ・Added sheet MSI. It is detail of MSI response.
2015/10/29	1.03	Eiji Shinsho	・Changed description TGID format of EDACS for Activity Log in "Analize Command" sheet

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	Analize Start	
22	APR	Analize 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]   BCD536HP
                                      BCD436HP

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],[BK_COLOR],[BK_DIMMER][\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   Analize Start

        See Analize Command Tab

APR   Analize Pauze/Resume

        See Analize 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

BFH   Band Scope Frequency Hold

Controller → Radio
        BFH,[Frequency][/r]

Radio → Controller
        BFH,OK[\r]

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	Syetm 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_PREVOUS_MODE"   exit menu mode
                              ""   1 level back

GLT is command which PC get xx list form scanner.

Controller → Radio

(1)	GLT,FL	**F**avorites **L**ist
(2)	GLT,SYS,[fl_index]	**Sys**tem
(3)	GLT,DEPT,[system_index]	**Dep**artment
(4)	GLT,SITE,[system_index]	Site
(5)	GLT,CFREQ,[dept_index]	**C**onventional **Freq**uency
(6)	GLT,TGID,[dept_index]	**TGID**
(7)	GLT,SFREQ,[site_index]	**Si**te **Freq**uency
(8)	GLT,AFREQ	Search **A**voding **Freq**uencies
(9)	GLT,ATGID,[system_index]	Search **A**voiding **TGID**
(10)	GLT,FTO	**Fi**re **T**one **O**ut
(11)	GLT,CS_BANK	**C**ustom **S**earch **Bank**
(12)	GLT,UREC	**U**ser **Rec**ord
(13)	GLT,IREC_FILE	**I**nner **Rec**ord **Fi**le
(14)	GLT,UREC_FILE,[folder_index]	**U**ser **Rec**ord **Fi**le
(15)	GLT,TRN_DISCOV	**Tr**unk **Discov**ery
(16)	GLT,CNV_DISCOV	**C**on**v**entional **Discov**ery

Radio → Controller

(1)	GLT	FL	Index	Name	Monitor	Q_Key	N_Tag					
(2)	GLT	SYS		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					※Name = Folder Name			
(13)	GLT	IREC_FILE	Index	Name	Time				※Name = File Name			
(14)	GLT	UREC_FILE	Index	Name	Time				※Name = File Name			
(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

(15) ※Name = Session Name
(16) ※Name = Session Name

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

Short word means:
 Q_Key : Quick Key
 N_Tag : Number Tag
 Freq : Frequency
 Mod : Modulation
 SAS : Sub Audio Setting
 (CTCSS/DCS/P25NAC)
 SAL : Sub Audio Lockout (Tone L/O)Lower

Avoid
 Off
 T-Avoid

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
```

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

Target Key Word

	GLT 1st	GLT 2nd	NXT/PRV 1st	NXT/PRV 2nd	HLD 1st	HLD 2nd	AVD 1st	AVD 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]	---	

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

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 command.

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

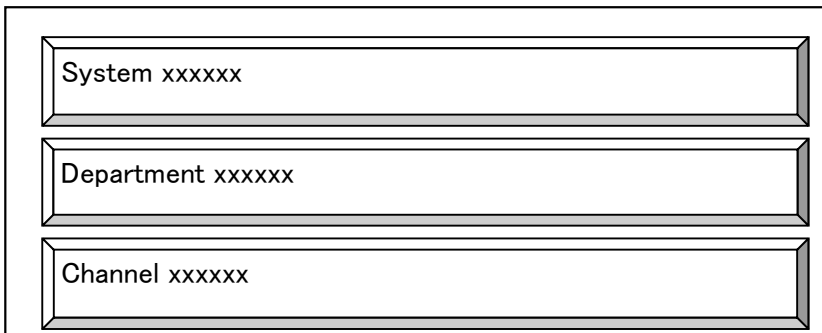PC/Tablet App need scanner internal information to show.

If the scanner recvies GSI command, it will send scanner internal information.
Scaner 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 &amp; 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>
```

System xxxxxx
Department xxxxxx
Channel xxxxxx

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

All mode Elements

ScannerInfo
Property
AGC
DispFormat
ViewDescription   (when the radio is wiewing 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	O	O	O	O	–	–	–	–	–	–	–	–	–	–	–	–	–	–
System	O	O	O	O	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Department	O	O	O	O	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Site	–	O	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
ConvFrequency	O	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
TGID	–	O	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
SiteFrequency	–	O		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
SrchFrequency	–	–	O	–	O	O	O	–	–	O	O	O	–	–	–	–	–	–
CcHitsChannel	–	–	–	O	–	–	–	–	–	–	–	–	–	–	–	–	–	–
DualWatch	O	O	O	O	O	O	O	O	–	–	O	O	–	–	–	–	–	–
SearchRange	–	–	O	–	O	O	–	–	–	–	–	–	–	–	–	–	–	–
SearchBanks	–	–	–	–	O	–	–	–	–	–	–	–	–	–	–	–	–	–
CC_Bands	–	–	–	–	–	–	–	O	–	–	–	–	–	–	–	–	–	–
CC_Counters	–	–	–	–	–	–	–	O	–	–	–	–	–	–	–	–	–	–
ToneOutChannel	–	–	–	–	–	–	–	–	O	–	–	–	–	–	–	–	–	–
WxChannel	–	–	–	–	–	–	–	–	–	O	–	–	–	–	–	–	–	–
WxMode	–	–	–	–	–	–	–	–	–	O	–	–	–	–	–	–	–	–
ConventionalDiscovery	–	–	–	–	–	–	–	–	–	–	–	–	O	–	–	–	–	–
TrunkingDiscovery	–	–	–	–	–	–	–	–	–	–	–	–	–	O	–	–	–	–
SystemStatus	–	–	–	–	–	–	–	–	–	–	–	–	–	–	O	–	–	–
RfPowerPlot	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	O	–	–
Analyze	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	O	–
BandScope	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	O
BandScopeRange	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	O

Elements in ViewDescription

InfoArea1
InfoArea2
OverWrite
PopupScreen
PlainText

Elements in ReplayDescription

File
ReplayMode

ScannerInfo

Attribute Name	Value
Mode	
V_Screen	

Mode →
- 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
Mute	Unmute/Mute
A_Led	Off/Blue/Red/Magenta/Green/Cyan/Yellow/White
Dir	Up/Down
Rssi	0-

V_Screen →
- 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
- rf_power_plot
- 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

SystemType →
- Conventional
- Motorola
- EDACS
- LTR
- P25 Trunk
- P25 One Frequency

Department

Name	ASCII code , Max length 64
Index	0-

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

     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 : "CTCSS,DCS,P25NAC"
              SAL            Off/On
              SAD            See Sheet : "CTCSS,DCS,P25NAC"
              LVL            -3/-2-/-1/0/1/2/3
              IFX            Off/On


     TGID
              Name           ASCII code , Max length 64
              Index          0-
              Avoid          Off/T-Avoid/Avoid
              TGID           TGID:xxxx
              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
              IFX            Off/On

     SearchBanks
```

Attribute Name	Value
Index	0-9
BankStatus	xxxxxxxxxx : 0=Off/ 1=On order=0123456789
Name	ASCII code , Max length 64
BankNo	0-9

```
     CC_Bands
```

Attribute Name	Value
BandStatus	xxxxxxx : 0=Off/ 1=On order=0123456

```
     SrchFrequency
```

Attribute Name	Value
Avoid	Off/T-Avoid/Avoid
Freq	xxxx.xxxxMHz
Mod	Auto/AM/NFM/FM/WFM/FMB

```
          Hold              Off/On
          SAD               See Sheet : "CTCSS,DCS,P25NAC"
          IFX               Off/On


   CcHitsChannel
          Attribute Name  Value
          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 : "CTCSS,DCS,P25NAC"
          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
          PastTime
          HitCount
          Freq              xxxx.xxxxMHz
          SAD               See Sheet : "CTCSS,DCS,P25NAC"
          IFX               Off/On


   TrunkingDiscovery
```

	SystemName	ASCII code , Max length 64
	SiteName	ASCII code , Max length 64
	PastTime	
	HitCount	
	TGID	
	TgidName	

SystemStatus

SystemName	ASCII code , Max length 64
SiteName	ASCII code , Max length 64
Signal	0-100
Quality	0-100
Activity	0-100
SystemID	0-0xFFFF
SystemSubID	0-99
SiteID	0-99
WacnID	0-0xFFFFF
NAC	0-0xFFF
Att	Off/G-Att

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 diplayed Quick keys status in scan mode or Banks status in custum 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>
```

Info Area 1

Info Area 2

Fx:0123456789

Sx:0123456789

Fx:0123456789

Sx:0123456789

channel name

channel name

BCD536HP image

BCD436HP image

Over Write Area

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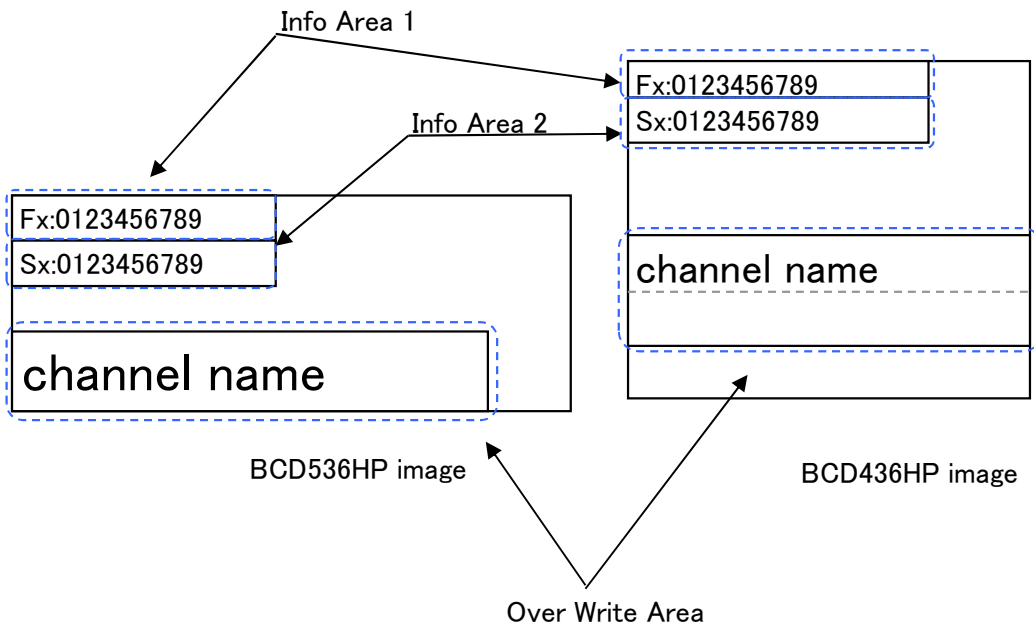
Scanner has popup screen. It shows temporary view for 1-2 seconds.
The popup screen is shown on main screen.

It is like toaster in Android OS.

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

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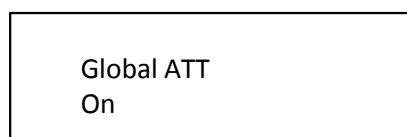
Popup screen has a few buttons.
This popup screen is not cleared automatically.
Scanner waits pressed button by user.

It is like Dialog box.

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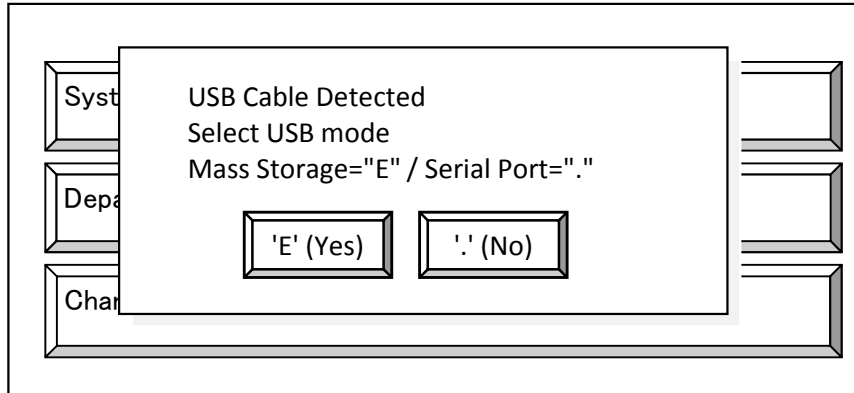

In this case Popup screen has 2 buttons.

If 'E' (Yes) button is pressed, App shoud 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 form 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 Frequncy	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   Analize 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" Tgidype="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

"<opecode>/<data>"

opecode	opecode	1byte:00-FF(hex)
data	TSBK	12bytes:000000000000000000000000-FFFFFFFFFFFFFFFFFFFFFFFF(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:			

Message					
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					
SNDCP Data Channel Grant					
SNDCP Data Page Request					
SNDCP 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-FFFFFFF(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					