



DTV-9006M

Digital Video Broadcast Receiver with Diversity Solution

Instruction Manual



Product developed & manufactured by

UNIFY ENGINEERING PTE LTD

21 Kaki Bukit View, Kaki Bukit Tech Park II, Singapore 415957
Tel : 67831111 Fax : 67429388
Website : www.unify-engrg.com

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Specifications

Operating Power	DC 12V ~ DC 30V
Power Consumption	Max 8.5 W
Gross Weight	Approx. 1.5Kg
Dimension	166mm(W) x 45mm(H) x 220mm(D)
Frequency Range	VHF 174MHz to 230MHz (CH05 to CH12) UHF 470MHz to 862MHz (CH21 to CH69)
Demodulation	COFDM 2K and 8K carrier modes and all COFDM modulation types (QPSK, 16-QAM and 64-QAM), code rates and guard interval defined by the DVB-T standards.
Bandwidth	6 MHz; 7 MHz; 8 MHz
Basic System	MPEG-2 transport stream ISO/IEC 13818-1 compliance.
EPG	Electronic Program Guide Available.
Information	Now & Next Information Available.
Teletext	Enabled English Teletext.
Software Upgraded	Through RS-232 Port.
Operating Temperature	-10°C to +70°C

Input	Connector	Sensitivity	Impedance
RF	2 x F-Type, Female IEC 169-24	16dB μ V~85dB μ V	75 ohm
Output	Connector		Impedance
Audio (Left/Right)	1 x RCA Jacks		Over 10k ohm
Video	2 x RCA Jacks(Standard) 3 x RCA Jacks(Optional)		75ohm, unbalanced, sync negative, white peak, PAL or NTSC.

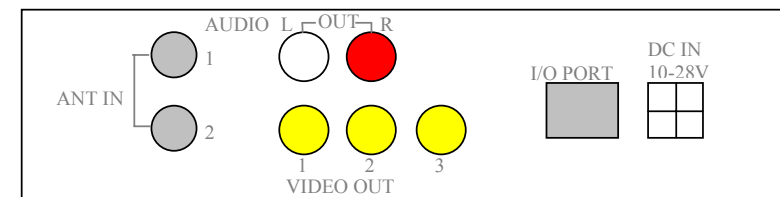
Connecting the Set Top Box

There are several jacks on the back panel of the set top box. Connect them up accordingly and the system will be ready for use.

Note: For System Version TM2.1 or later, when there is totally no channel under both TV and radio mode, the system will perform autoscans for TV Mobile channel at 602MHz.

Jack	Connection
ANT IN (1, 2)	Connect the antenna of the system to this jack. If there is only 1 antenna available, use either jack.
AUDIO OUT (L, R)	Connect the stereo speakers of the system to these jacks. Take note of the L/R outputs.
VIDEO OUT (1, 2, 3)	Connect the display panels to these jacks. If there is only 1 display panel available, use either jack.
I/O PORT	This is a RJ45 jack. If the model purchased comes with a stand alone IR Sensor, connect the sensor to this jack.
DC IN (10 – 28V)	Connect the DC supply to this jack to power up the set top box. For DC Supply, connect the red cable to the ignition line of the vehicle, yellow cable to battery positive terminal and the black to ground.

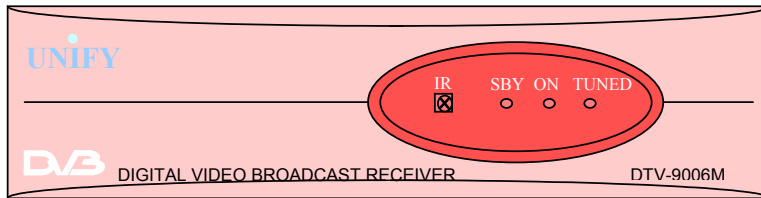
Jacks found on the back panel of the set top box.



Back panel of set top box.

Front Panel

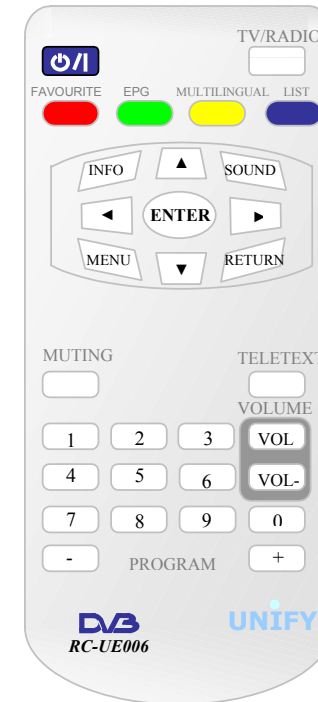
The layout of the front panel is as shown in the picture below. Situated on the front panel are 3 LED indicators and the IR sensor. Their operation are listed in the table that follows.


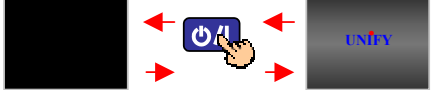


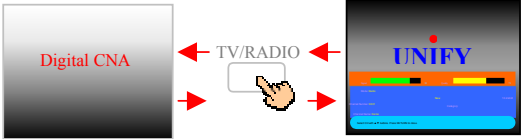
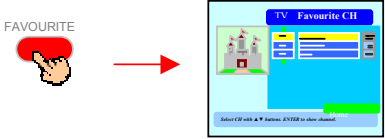
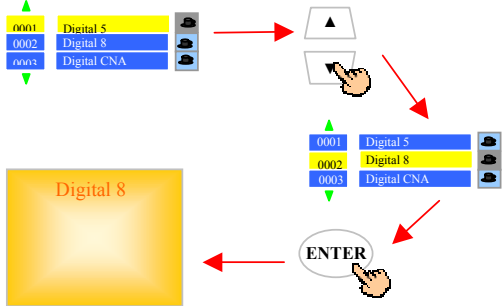
LED / Sensor	Operations
SBY	Standby indicator. Lighted when in standby mode.
ON	Power on indicator. Lighted when power is on.
TUNED	Tuned indicator. Lighted when receiver has locked onto an available channel.
IR	Infra red sensor for sensing remote control commands.

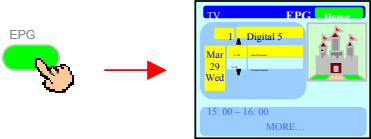
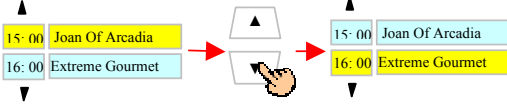
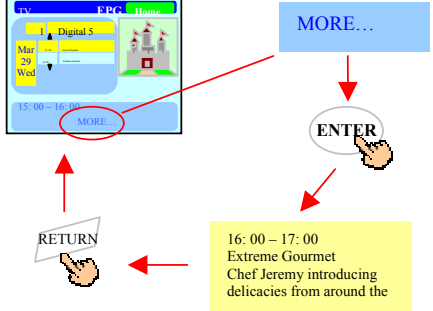
Remote Control

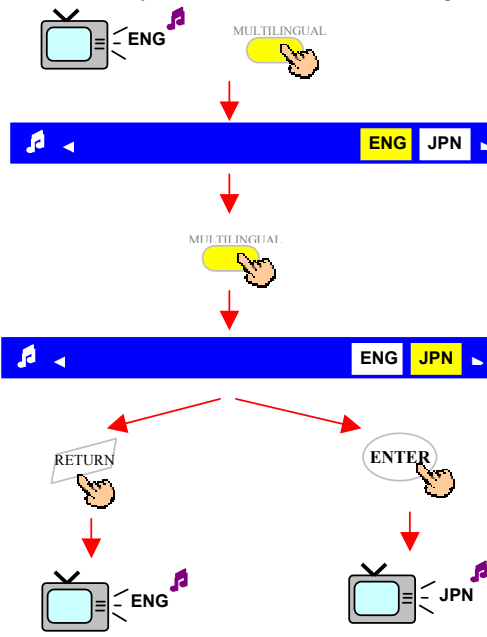
All the commands and operations of the set top box are execute via the remote control. The functions of the remote control buttons are listed in the table as follows.

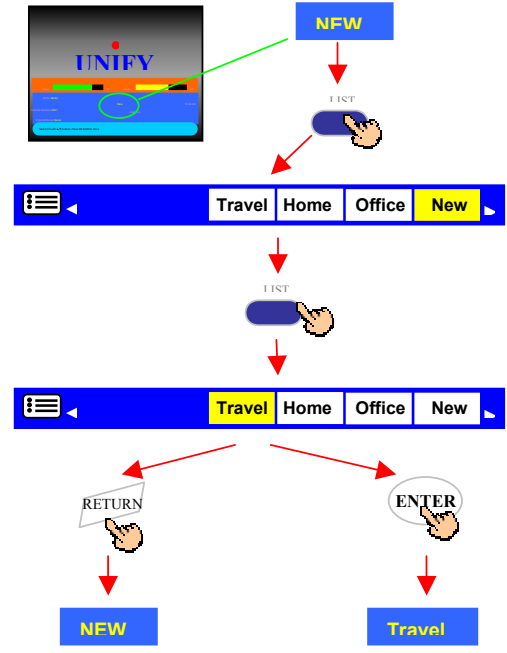
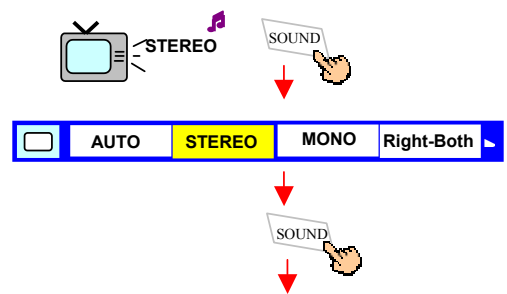


Button	Functions
ON/OFF	<ul style="list-style-type: none"> This is the blue button at the top left corner of the remote control with the  sign. Press this button to toggle between on and standby mode. 

Button	Functions
TV/RADIO	<ul style="list-style-type: none"> Press this button to toggle between TV and radio mode. 
FAVOURITE	<ul style="list-style-type: none"> Press this button to view Favourite Channel list.  <ul style="list-style-type: none"> Favourite Channels can be set under Channel Edit sub menu. Use ▲▼ buttons for scrolling the Favourite Channel List and press ENTER to view the selected programme or press RETURN to exit Favourite Channel Listing.  <ul style="list-style-type: none"> This button also double up as 'Delete' in editing environment. For example, when in Channel Edit mode, press and hold to delete a channel in the service list. In Teletext, this is the hot button to call page 100.

Button	Functions
EPG	<ul style="list-style-type: none"> Press this button to view EPG page.  <ul style="list-style-type: none"> Use ▲▼ buttons for scrolling the EPG page.  <ul style="list-style-type: none"> In EPG, when there is 'MORE...' appearing in the event description, pressing ENTER button will call out the extended event description. After reading the extended event description, press RETURN to close it and return to normal EPG page. To exit EPG page, press RETURN or EPG button again.  <ul style="list-style-type: none"> This button also double up as 'Insert' in editing environment. For example, while in Auto Channel Scan, press and hold to insert a new service list. In Teletext, this is the hot button to recall previous page viewed.

Button	Functions
MULTILINGUAL	<ul style="list-style-type: none"> Press this button to switch between different audio languages (if local broadcasters support this function) and then press ENTER to confirm entry or RETURN to cancel change.  <ul style="list-style-type: none"> This button is also use for activating / deactivating moving mode in Channel Edit. In Teletext, this the hot button to recall previous 2 pages viewed.
LIST	<ul style="list-style-type: none"> Press this button repeatedly to switch between different service lists. Then press ENTER to confirm change or RETURN to cancel change. Different service lists can be created in the Auto Channel Scan sub menu. In Teletext, use this button to activate transparent mode.

Button	Functions
LIST (cont?)	
INFO	<ul style="list-style-type: none"> No Function.
SOUND	<ul style="list-style-type: none"> Press this button to select sound mode (Auto, Stereo, mono etc). Then press ENTER to confirm choice or RETURN to cancel choice. 

Button	Functions
SOUND (Cont')	
MENU	<ul style="list-style-type: none"> Press this button to enter or exit Menu mode.
RETURN	<ul style="list-style-type: none"> Press this button to exit present function and return to parent menu or to TV/Radio mode.
▲	<ul style="list-style-type: none"> Use this button for scrolling up and increment functions. For example, switching to the next channel of the same service list or for scrolling up the Favourite Channel list. It can be use to replace '+' button but not vice versa.
▼	<ul style="list-style-type: none"> Use this button for scrolling down and decrement functions. For example, switching to the channel in front in the same service list or for scrolling down the EPG list.

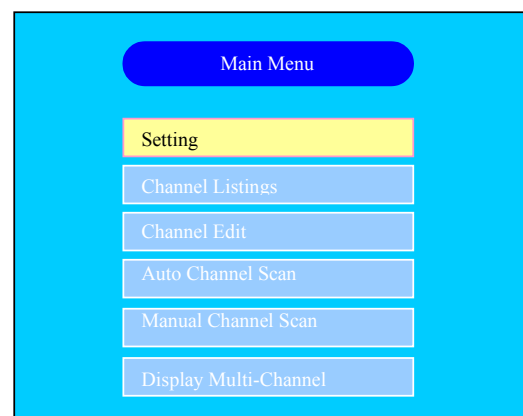
Button	Functions
▼ (Cont')	<ul style="list-style-type: none"> It can be use to replace '- ' button but not vice versa.
▶	<ul style="list-style-type: none"> Use this button for scrolling right. Use this button to scroll the list of choices on the right side of pages in Setting, Auto Channel Scan and Manual Scan sub menus. This button can also double up as the Vol + button for tuning up the volumn.
◀	<ul style="list-style-type: none"> Use this button for scrolling left. Use this button to scroll the list of choices on the right side of pages in Setting, Auto Channel Scan and Manual Scan sub menus. This button can also double up as the Vol - button for tuning down the volumn.
ENTER	<ul style="list-style-type: none"> Press this button to confirm an entry or selection. In TV/Radio mode, pressing this button shows the channel listings. <ul style="list-style-type: none"> In EPG, pressing this button when there is 'MORE...' appearing in the event description will call out the extended event description.

Button	Functions
MUTING	<ul style="list-style-type: none"> Press this button to mute or unmute sound.
TELETEXT	<ul style="list-style-type: none"> Use this button to toggle between TV/Radio mode and teletext.
VOL+	<ul style="list-style-type: none"> Press this button to increase the sound volumn. Can be used to deactivate muting function.
VOL-	<ul style="list-style-type: none"> Press this button to reduce the sound volumn. Can be used to deactivate muting function.
‘+’	<ul style="list-style-type: none"> Use this button for increment entries like going to next channel of the same service list, to next page of teletext etc. Its function is the similar to ▲ button except it does not scroll up.
‘-’	<ul style="list-style-type: none"> Use this button for decrement entries like going one channel down the same service list, going one page in front of present teletext page etc. Its function is the similar to ▼ button except it does not scroll down.
0-9	<ul style="list-style-type: none"> Use these buttons for numeric entries. Eg, for entering frequency for manual scan, teletext page number, programme number etc.

Main Menu

The system setting of the set top box was done via the **Main Menu**. The setting was categorised into several sub menus for friendlier usage. These sub menus were **Setting, Channel Listings, Channel Edit, Auto Channel Scan, Manual Channel Scan** and **Display Multi-Channel**.

To enter **Main Menu**, press the **MENU** button on the remote control. The **Main Menu** page was shown similar to as in Pic.1.



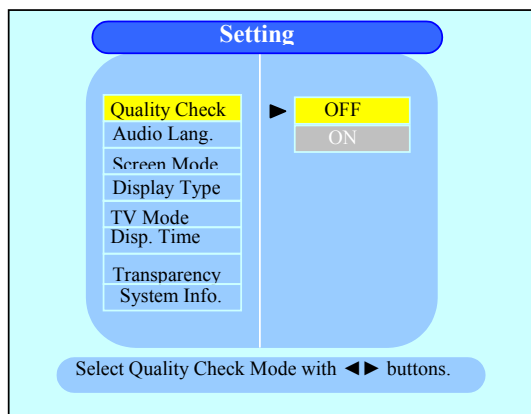
Pic. 1 **Main Menu** page was shown after pressing **MENU** button.

On the **Main Menu** there were 6 sub menus namely **Setting, Channel Listings, Channel Edit, Auto Channel Scan, Manual Channel Scan** and **Display Multi-Channel**.

- To enter these sub menus, scroll to them using the ▲▼ buttons then press the **ENTER** button.
- To return to **Main Menu** page from the sub menus pages, press **RETURN** button.
- To return to TV/Radio mode from **Main Menu** page, press **RETURN**.

Setting

On the **Main Menu**, scroll to **Setting** then press the **ENTER** button. The **Setting** page was shown similar to as in Pic.2.



Pic 2. Setting page was shown after pressing **ENTER** button.

The functions found under **Setting** page are for setting the display set presentation. The **Setting** page was basically divided into 2 columns. The left column listed the various functions like **Quality Check**, **Audio lang.** etc. These functions can be scrolled with **▲▼** buttons. The right column listed the choices of each function to the left. These choices can be chose by scrolling them with the **◀▶** buttons. At the bottom of the page was the operating instruction. Table 1 summarised the various functions.

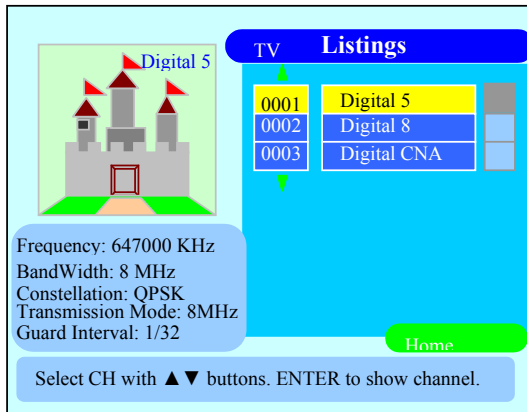
To return to **Main Menu** page, press **RETURN**.

Table 1 Setting functions.

Item	Function	Choice
Quality Check	Selects the status of Quality Check function. If ON, audio and video will freeze under weak signal condition.	<ul style="list-style-type: none"> • OFF • ON
Audio Lang.	Selects the preferred audio language. Status may be over written with MULTILINGUAL button while watching programme.	<ul style="list-style-type: none"> • English • Indonesia • French • Spanish • Italian
Screen Mode	Selects the screen mode depending on the display system used.	<ul style="list-style-type: none"> • 4x3 • 16x9
Display Type	Selects the display type.	<ul style="list-style-type: none"> • Full Screen • Auto
TV Mode	Selects the TV mode according to the area's standard.	<ul style="list-style-type: none"> • Auto • PAL • NTSC
Display Time	Selects the OSD display duration. If 'Unlimited', the OSD display would always be shown unless 'RETURN' was pressed. If 'Hide', all OSDs, including error messages, would not be displayed at all less when initially returning from other functions.	<ul style="list-style-type: none"> • 2 Sec • 5 Sec • 8 Sec • Unlimited • Hide
Transparency	Selects the transparency level of OSD. Higher the level, higher the transparency.	<ul style="list-style-type: none"> • 0 • 1 • 2
System Info.	Displays the system version.	(System version)

Channel Listings

On the **Main Menu**, scroll to **Channel Listings** then press the **ENTER** button. The **Channel Listings** page was shown similar to as in Pic.3.



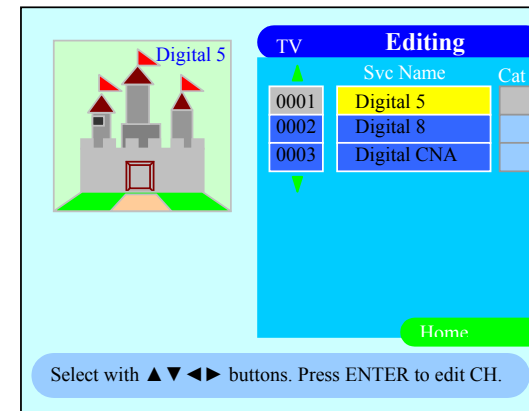
Pic. 3 **Channel Listings** page was shown after pressing **ENTER** button.

The **Channel Listings** are for previewing of channels list under a service list, viewing the technical data of the selected channels and having quick access to the channels. The top of the page shows the Listings header and TV/Radio mode indication. On the right of the page is a list of channels available on that service list. The service list name (Home, Office, Travel etc) was shown in the green box on the last line of this list. On the left is a small window display previewing the highlighted programme if signal is available. Below the small window display is a table of technical data of that channel. At the bottom of the page was the operating instruction.

- The list of channels can be scrolled with ▲▼ buttons; the small display and technical data table would change accordingly.
- To watch the selected programme, pressing **ENTER** button would return to TV/Radio mode showing that channel.
- Else, pressing **RETURN** button would return to **Main Menu** page.

Channel Edit

On the **Main Menu**, scroll to **Channel Edit** then press the **ENTER** button. The **Channel Edit** page was shown as in Pic.4.



Pic. 4 **Channel Edit** page was shown after pressing **ENTER** button.

The layout of **Channel Edit** page is similar to **Channel Listings** page except there is no table of technical data. **Channel Edit** page allows the changing of various channel status like channel name, categorising favourite channels etc.

Editing Channel Name

- To edit the channel name, scroll to the channel with ▲▼◀▶ buttons and press **ENTER**.
- Then use ▲▼◀▶ buttons to edit the channel name.
- Then press **ENTER** again to confirm the editing.

Categorise Favourite Channel

- To categorise Favourite Channels, scroll to the **Cat** column of the channel to be categorised.
- Then press **ENTER** repeatedly for an icon of your choice to represent that category.
- There are a total of 6 icons available.

Deleting Channels

- To delete a channel from the list, scroll to that channel and press the red **FAVOURITE** button.
- Then follow the deleting instruction in the red box that appears.
- Press **ENTER** button (Yes) for deleting the selected channel.
- Press **RETURN** button (No) for cancelling the deleting request.
- Press the blue **LIST** button (All CH) for deleting the entire list.

Note: For System Version TM2.1 or later, when there is totally no channel under both TV and radio mode, the system will perform autoscan for TV Mobile channel at 602MHz.

Rearranging Channels

- To rearrange the positions of the channels on the list, scroll to the channel that is to be shifted.
- Then press the yellow **MULTILINGUAL** button.
- Then use **▲▼** buttons to switch positions with the next immediate channel on the list.
- After shifting to the desired position, press the **MULTILINGUAL** button to deactivate moving mode.

Switching Between Service List

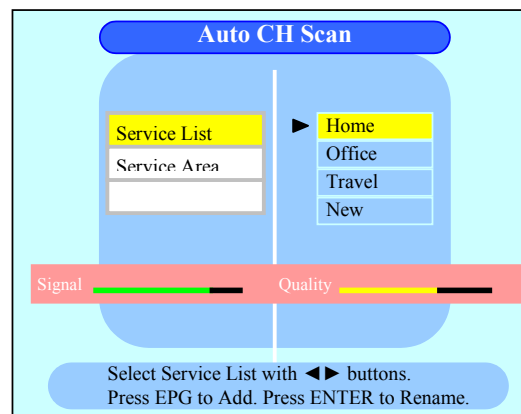
- To switch between service lists, eg, from **Home** to **Office**, press the blue **LIST** button repeatedly till the service name in the green box at the bottom of the list shows the desired service list.

Exiting Channel Edit

- To exit from **Channel Edit**, press **RETURN** button to go to **Main Menu** page or press **MENU** button to go to TV/Radio mode showing the highlighted programme.

Auto Channel Scan

On the **Main Menu**, scroll to **Auto Channel Scan** then press the **ENTER** button. The **Auto Channel Scan** page was shown as in Pic.5.



Pic. 5 **Auto Channel Scan** page was shown after pressing **ENTER** button.

The left side of the page shows the service types (**Service List**, **Service Area** and **Scan CH**) to be set before performing auto channel scan and the right side shows the choices available of each service type. Towards the bottom of page is the operating instruction.

Service List

- To choose the **Service List**, first scroll to highlight **Service List** with **▲▼** buttons.
- Then use **◀▶** buttons to scroll for the preferred list (**Home**, **Office**, **Travel**).
- To add new service list, while **Service List** on the left is highlighted, press and hold the green **EPG** button till the **NEW** list appears on the right column.
- To add more service list, repeat the above procedure.
- To edit the name of the **service** list, scroll to it and press **ENTER** button, then edit with **▲▼◀▶** buttons. After editing, press **ENTER** button to confirm the edit.

- Note the name of the first 3 services (**Home, Office, Travel**) cannot be edited.
- To delete a service list, scroll to that service list, eg. **NEW**, then press and hold the red **FAVOURITE** button. Then follow the instructions in the red box that appears; press **ENTER** (Yes) to execute delete and **RETURN** (No) to cancel the delete request.
- Note: The first 3 service lists cannot be deleted.

Service Area

- To choose the service area, scroll to **Service Area** with ▲▼ buttons, then scroll with ◀▶ buttons to choose a desired area.

Scan CH

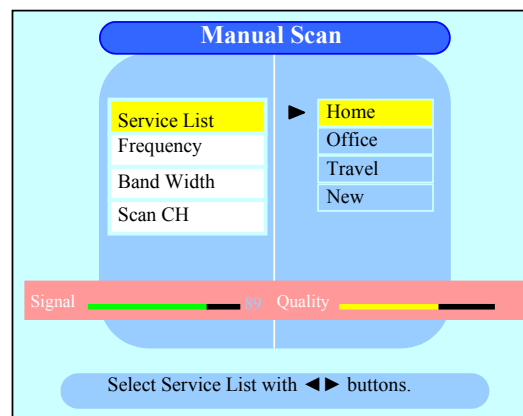
- To choose the scan mode, scroll to highlight **Scan CH** with ▲▼ buttons, then select the suitable scan mode (**Spectrum** or **Network**) with ◀▶ buttons. Press **ENTER** to start scanning.

Exiting Auto Channel Scan

- To exit Auto Channel Scan and return to **Main Menu**, press the **RETURN** button.
- Alternatively, press **MENU** button to go to TV/Radio mode.

Manual Channel Scan

On the **Main Menu**, scroll to **Manual Channel Scan** then press the **ENTER** button. The **Manual Scan** page was shown as in Pic.6.



Pic. 6 **Manual Scan** page was shown after pressing **ENTER** button.

The layout and operation of the **Manual Scan** page is similar to that of **Auto Channel Scan**. The service types and parameters on the left of the page have to be set by selecting from the choices on the right before scanning for channels.

Service List

- To choose the service list to be scanned, scroll to **Service List** on the left of the page with ▲▼ buttons.
- Then scroll to the desired service list with ◀▶ buttons.

Frequency

- To set the frequency to be scanned, scroll to **Frequency** on the left of the page with ▲▼ buttons.
- Then key in the desired frequency with number buttons and press **ENTER** button to confirm the entry.
- Alternatively, press **ENTER** then set the frequency with ▲▼◀▶ buttons and press **ENTER** button again to confirm entry.

Band Width

- To set the bandwidth for scanning, scroll to **Band Width** on the left with ▲▼ buttons.
- Then select a suitable entry on the right with ◀▶ buttons.

Scan CH

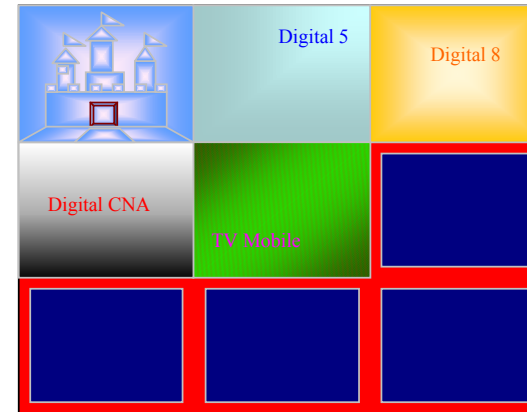
- To start scanning the channels, after setting the above mentioned parameters and service list, scroll to **Scan CH** on the left of page with ▲▼ buttons.
- Then select a suitable mode (**Spectrum** or **Network**) on the right of the page with ◀▶ buttons and press **ENTER** to start scanning.

Exiting Manual Channel Scan

- To return to **Main Menu**, press **RETURN**.
- To go to TV/Radio mode, press **MENU**.

Display Multi-Channel

On the **Main Menu**, scroll to **Display Multi-Channel** then press the **ENTER** button. The **Multi-Channel** page was shown as in Pic.7.



Pic. 7 **Multi-Channel** page was shown after pressing **ENTER** button.

The **Multi-Channel** function displays frames of pictures in sequence for all the channels available in the service list selected in the Channel Edit function. It is capable of displaying up to 9 frames in a single display.

To exit **Multi-Channel**, press **RETURN** to go back to **Main Menu**.

Recommendatory Installation of UHF Antenna

- ◆ Do not install the antenna near any metallic and radio-interferential material.
- ◆ Be cautious about bend and damage of the antenna cable while installation.
- ◆ Install the antenna cable downward if possible.
- ◆ Do not bore any hole through the antenna.
- ◆ Place the two antennas as far apart as possible, preferably one at the front and one at the rear of the car.

