

DC5

OPERATIONS MANUAL



SECTION ONE

LICENSE INFORMATION

It is the responsibility of the user of this radio to ensure that all appropriate licenses have been obtained prior to operation of the radio.

The FCC Rules and Regulations Part 80 document contains information on the licensing and operation of VHF radios in the United States. Different applications have different licensing requirements; however in general, if your boat already has a licensed fixed mount VHF radio, no additional license may be required.

A FCC form 506 application for ship radiotelephone license is included with this manual. Any additional applications or documents may be obtained by writing:

Superintendent of Documents
Government Printing Office Washington, D. C. 20402

For licensing information in Canada:

Department of Communication
300 Slater Street
Ottawa, Ontario
K1A 0C8
Attn: DOS-PP

SECTION TWO

BEFORE BEGINNING

HOW VHF RADIOS WORK

The Humminbird DC5s hand-held radio is a VHF transceiver. This means that the radio has the capability to both transmit signals as well as receive them, and operates in the VHF (very high frequency) spectrum.

The marine band is a group of VHF frequencies between approximately 156 MHz and 163 MHz. This band is divided into a number of discrete channels, which are numbered and further categorized by use.

Within the marine band, 10 channels are designated for continuous weather broadcasts. These channels are grouped into a "Weather Band" and designated "receive only" channels. You cannot transmit on a weather channel.

The remaining frequencies are assigned for various purposes and given a channel number. There are basically two different channel numbering and frequency assignment schedules currently in use, which creates two different bands of frequencies: the USA band and the International band. These two bands share the same frequencies but assign channel numbers slightly differently, and allocate these channels for different uses.

A list of USA, International, and Weather bands including channel numbers, frequencies, and descriptions of use is included in Section 6 of this manual.

AVAILABLE ACCESSORIES

Humminbird offers accessories that compliment and expand the capability of your hand-held radio. These accessories are designed and manufactured to the same high standards as all Humminbird products, and are backed by the same one-year warranty.

The Humminbird Accessory Catalog includes ordering information and descriptions of many available accessories. All Humminbird accessories can be ordered at your full-service Humminbird dealer or factory-direct through our Toll-Free number listed inside the back cover of this manual.

BP-DC5: Spare battery pack (NiCd 10.8 VDC)

CLC: Cigarette lighter adapter cable. Charge or operate your DC5s from a 12 VDC power source.

WC-1: One-hour fast charger.

SECTION THREE

INSTALLATION

WHAT YOU HAVE

Please ensure that the following items are included in the box:

<u>Item</u>	<u>Part Number</u>
Radio.....	DC5s
Antenna.....	N/A
110 VAC charger.....	WA-110
Belt clip.....	N/A
Operations manual.....	530355-1
FCC license information.....	N/A
.....	

- Charger only included with US/Canadian radios.



If any of these items are missing, call our Toll-Free Customer Support Hotline listed inside the back cover of this manual.

INSTALLING THE ANTENNA



The antenna supplied with your DC5s is specifically tuned to optimize the radio's transmit power and the sensitivity of the receiver. To install, ensure the threaded base and the recessed threads on the unit are free from debris, and screw the antenna into the base. Finger tighten only.

INSTALLING THE BELT CLIP

The belt clip performs two purposes – it can be used to carry the DC5s from a belt or pocket, and the rubber pad works in conjunction with the charger jack cover to provide a skid-proof stance when the radio is laying on it's back.



If you choose to use the belt clip included with your DC5s, simply fasten it to the mounting point using the attached screw. A flat head screwdriver or a small coin can be used. Do not over tighten the screw or use a fastener other than the one supplied.

BATTERY REMOVAL AND INSTALLATION

The battery pack is pre-installed on your DC5s. It is not necessary to remove it for charging or normal operation. If you are using more than one battery pack you can remove the battery pack by simply sliding it off the DC5s unit. Some force may be necessary to overcome the mechanical detent.



When the battery pack is off the DC5s unit, care should be used to prevent damage to the mating slide and electrical contacts on the top of the battery. Also the slide and contact area on the bottom of the unit will be vulnerable to damage if not protected. It is best to keep the battery pack installed even if the radio is being stored for extended periods.

BATTERY CHARGING

The battery pack included with your DC5s contains Nickel-Cadmium type rechargeable batteries. Battery charge life (how long the battery will hold a charge) varies with a number of factors including temperature, frequency of use, use of the transmitter, etc.

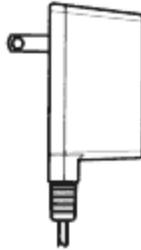
Nickel Cadmium batteries are used due to their long operational life. Proper use of your NiCd batteries will extend both the charge life and the battery life.

NiCd batteries require regular exercises in order to maintain their full potential. A battery that is kept at full charge continually, by charging over a long period of time (30 days) will develop a memory effect which considerably shortens the charge life. A more common type of memory effect is induced by uniform shallow cycling. For example, if a battery is repeatedly operated at 50% of its full capacity.

Ideally, a NiCd battery should be fully charged, fully depleted, fully charged, etc. This exercising prevents the memory effect and ensures maximum charge life of the battery.

If a battery shows early signs of reduced charge life due to the memory effect, it is easy to restore the battery to it's full potential by intentionally exercising the battery several cycles from full charge to full discharge.

The battery pack can be charged on or off the DC5s unit. Both the 110 VAC adapter and 12 VDC cigarette lighter adapter (available as an accessory) will power the DC5s for normal operation while maintaining a trickle charge to the battery pack.



Additionally, a 1-hour quick charger is available as an accessory which enables very fast charge cycles from a 110 VAC source.

If the DC5s is used frequently or for an emergency, a back-up battery pack is a good idea.

Before using your DC5s for the first time, the battery should be fully charged. To charge the DC5s battery, simply plug the charger into the charge jack on the rear of the battery pack. If you are using the wall charger, the red LED light will illuminate if proper connection is made and the battery is accepting the charge. When possible, charge the battery at room temperature. Never charge the battery below 50 degrees F (10 degree C) or above 95 degrees F (35 degrees C) since this could cause damage to the battery or reduce the charge life.



The battery drain is considerably greater when transmitting than receiving. A battery charge can be maintained for 8 hours or more (depending on ambient temperatures) when receiving only. Frequent transmitting, especially on High (5 Watt) output power will significantly increase the battery drain.

The battery will be fully discharged within one month even with power off.

Note: The nickel-cadmium (NiCd) battery contained in the DC5s battery pack must be recycled or disposed of in an environmentally sound manner. Do not place batteries in your regular trash. The incineration, land filling or mixing of nickel-cadmium batteries with the municipal solid waste stream is prohibited by law in some areas. Incineration may cause an explosion. Return the battery to a federal or state approved nickel –cadmium battery recycler,

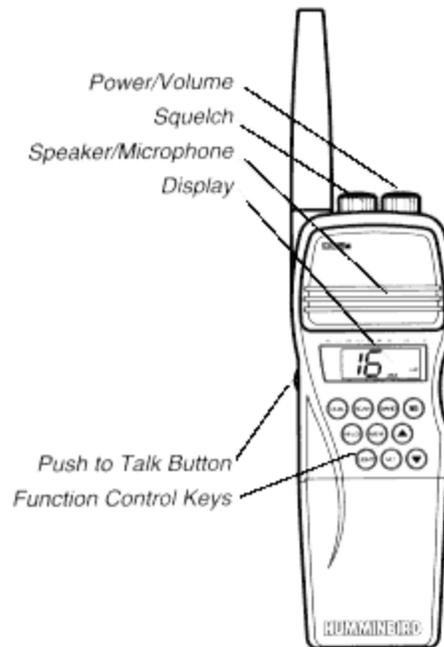
Contact your local waste management officials for additional information regarding the environmentally sound collection, recycling and disposal of this battery or call Humminbird at the Customer Support number listed inside the rear cover of this manual.

SECTION FOUR

CONTROL FUNCTIONS

Control of the DC5s are divided into three functional areas:

- The Power/Volume and Squelch controls are located on the top of the radio.
- The PTT (push to talk) switch is located on the side of the radio.
- The function control keys are located on the front of the radio.



Most control inputs result in audible, tactile, and visual feedback for positive actuation in loud environments.

POWER AND VOLUME CONTROLS

To power the DC5s for operation, turn the Power/Volume knob clockwise past the detent. The display will illuminate indicating that power is supplied to the DC5s unit. Continue turning the Volume knob until the desired audio volume is achieved. It may be necessary to adjust the squelch first, then adjust the volume once a transmission is received.

To turn the DC5s off, turn the Power/Volume knob counter-clockwise until the detent is felt and the display is blank.

ADJUSTING THE SQUELCH

The squelch is commonly used to eliminate static and background noise from being heard. To adjust the squelch, ensure that the unit is powered and sufficient volume is available to hear the speaker. Turn the Squelch knob counter-clockwise as far as it will go. Adjust the volume to the desired level. Wait for a period when no transmission is being received, and turn the Squelch slowly clockwise until the background static is eliminated.

The squelch allows silent operation of the DC5s until a transmission is received. If the Squelch is adjusted too high, only the strongest transmissions will be heard. If the Squelch is adjusted too low, intermittent static and noise will be heard.

USING THE PTT

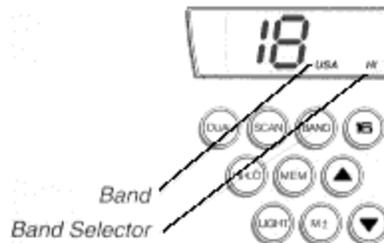
The Push To-Talk switch is located on the side of the DC5s and is easily accessible to both left and right hand users. To activate the PTT, simply press the raised portion of the switch. A tactile

click will be felt, and the display will show the TX (transmit) symbol indicating that the unit is transmitting.

Care should be used to prevent the inadvertent actuation of the PTT switch. When storing the radio while powered, ensure that nothing comes into contact with the PTT. Inadvertent actuation will transmit a signal causing interference with other users, possibly interfering with an emergency broadcast, and will quickly drain the battery as well.

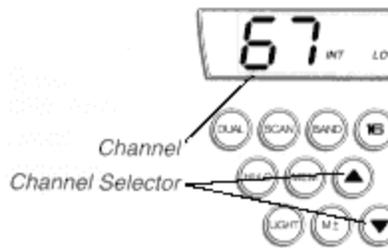
SELECTING THE BAND

Upon power-up, the last selected band will be in operation. The band, USA, INT (International), or WX (weather) is indicated on the display.



Pressing the BAND button will toggle between these three bands. As with all controls, an audible chirp will be heard when the button is pressed.

SELECTING THE CHANNEL



Within each of these three bands there are a number of discrete channels. These channels are selected using the UP and DOWN arrow keys. Pressing either key once will select the next higher or lower channel. Pressing and holding either arrow key will scroll through all available channels.

USING DUAL WATCH

Channel 16 is the normal monitoring channel for all maritime applications. In some instances, the government mandates continuous monitoring of channel 16. Dual watch is a useful feature that allows you to monitor channel 16 and another channel of your choice simultaneously.



Select any channel on either USA or INT bands. Press DUAL. The DC5s will monitor your selected channel and channel 16 simultaneously. If a transmission is heard on either channel, that channel will continue to be selected until no further transmission is received, then dual watch will be re-engaged.

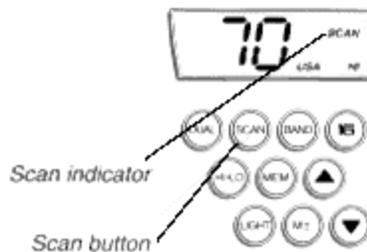
When using Dual Watch, the DC5s will also monitor the active WX channel for a special alert tone issued during times of severe weather. You must select an active WX channel prior to entering Dual Watch for this feature to work. Should this tone be received, the DC5s will emit an alarm tone. Pressing the BAND button will switch the broadcast to the weather channel. Pressing BAND again will exit the WX channel and you may enter Dual Watch again. You cannot enter Dual Watch from the WX channel.

Pressing DUAL a second time will disable Dual watch.

Pressing the PTT button will also disable Dual watch. Pressing the PTT button a second time will allow transmission.

USING SCAN

Scan is the sequential monitoring of all channels within the selected band. Pressing SCAN will cause the DC5s to briefly monitor each channel starting with the current channel, and if no transmission is heard, move to the next higher channel. If while monitoring a channel a transmission is heard, the DC5s will remain on that channel until it is clear, then move to the next channel.

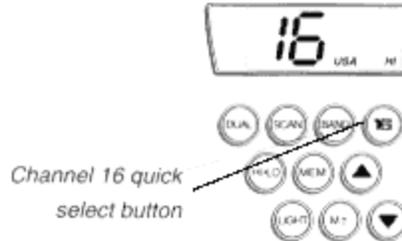


Pressing the SCAN button again will disengage scan.

Pressing the PTT button will also disable scan. Pressing the PTT button a second time will allow transmission.

USING THE CHANNEL 16 QUICK SELECT

Channel 16 is the standard channel for an emergency broadcast. The 16 button selects channel 16 quickly from any other channel or band. If the WX band is currently in use, channel 16 on the USA band is selected. If you are using the DC5s on the INT band when 16 is selected, channel 16 of the INT band is selected.



Channel 16 represents the same frequency on both USA and INT bands. If 16 is pressed again, the DC5s will return to the previously selected channel.

USING MEMORY

The DC5s is capable of storing up to 10 frequently used channels from either USA or INT bands. Memory acts as its own band, so that you can scan between memory channels. Weather channels cannot be stored in memory.

The Memory function consists of two buttons. M+/- and MEM. To store a channel to Memory, first select that channel, then press M+/. The MEM enunciator will appear on the display for a second indicating that the currently selected channel has been stored to Memory. Continue this procedure for all the frequently used channels you wish to store into memory.



By pressing MEM, the Memory function is selected and the MEM enunciator will be continuously displayed. When in the MEM function, only channels stored to Memory will be accessible. The Up and Down arrow keys can be used to select any channel stored to memory. SCAN can be used to scan only the Memory channels.

At least one channel must be stored in memory in order to access the Memory function. Pressing MEM when in Memory will return the unit to the previously selected band and channel.



To delete a channel from Memory, select the Memory function and ensure the MEM annunciator is displayed. Use the Up or Down arrow button to select the channel to be deleted, and press M+/. The channel is now deleted from memory.

Remember, you must be outside of the Memory function to store a channel to Memory, and the Memory function must be active to delete a channel from Memory.

Note: Removing the battery pack will erase programmed channels from memory. Programmed channels may also be lost if the battery charge is low.

USING THE BACKLIGHT

The LIGHT button turns on the backlight for both the display and the keypad. Pressing the LIGHT button again will turn the backlight off or, if no button is pressed, the light will go off automatically after about 10 seconds in order to save battery power.

SELECTING TRANSMIT POWER

The DC5s has a selectable transmit power output. The HI annunciator indicates that the unit will transmit at 5 watts, the LO annunciator indicates the 1 watt output power is selected. Press HI/LO to toggle between the two.



Selection of certain channels will cause the DC5s to automatically select the LO power output. This feature is required by the FCC.

The HI power output will usually result in greater transmit range, at the expense of battery consumption. When maximum range is not necessary, selecting LO transmit power will conserve battery power.

SECTION FIVE

OPERATION

USING THE DC5s

To place a call with the DC5s, turn the power on and adjust the volume and squelch controls.

Use the Up and Down arrow buttons to select the desired channel. Normally, channel 16 is used for an initial call, then once contact is made with the receiving party, another channel is selected by both parties to avoid excessive congestion on channel 16.



Before transmitting, listen for activity on your channel. Do not interrupt another user.

Press the PTT button to transmit. Pause briefly then speak at a normal volume while holding the DC5s unit 4-5" from your mouth. Speak directly into the speaker/microphone area. Greatest range will be achieved when the radio is held vertically, and standing clear of obstructions which may block the transmitted signal.

Refer to the FCC Rules and Regulations Part 80 for proper VHF radiotelephone procedures and terminology.

SECTION SIX

SAFETY AND MAINTENANCE

MAINTENANCE

Your Humminbird DC5s radio is designed to provide years of trouble-free operation with virtually no maintenance. Follow the simple procedures listed below to ensure your DC5s continues to deliver top performance.

If the DC5s comes into contact with salt spray, simply rinse the unit off with fresh water and a clean cloth.

When cleaning the protective clear lens, use a non-abrasive cleaner such as mild soap and water. Avoid using alcohol based glass cleaners as this may weaken the material and cause it to fail.

Never transmit with the antenna removed from the unit, as this will damage the transmit circuit of the unit.

Do not remove the housing fasteners or attempt to make repairs to the radio yourself. The case is sealed to prevent water intrusion and special tools are required for reassembly. Repairs should be performed by authorized Humminbird technicians only.

Periodically exercise the battery from full charge to fully drained. Keeping the battery continually at full charge will create a memory effect which reduces the charge life.

The battery pack contains Nickel-Cadmium batteries. Use care not to damage the outer case, and if the battery is no longer operable, dispose of properly. See “Battery Removal and Installation” section for additional disposal information or call Humminbird’s Customer Support number listed inside the rear cover of this manual.

Note: Do not dispose of any battery in a fire because it may explode!

SAFETY AND MAINTENANCE

Never leave this or any electronic device in a closed car or trunk – the extremely high temperatures generated in hot weather can damage temperature sensitive components.

TROUBLESHOOTING

1. The screen begins to fade out. Images on the screen are not as sharp and clear as usual. Check your battery to see that it is fully charged.
2. Low level or no sound comes from the speaker. Adjust the VOLUME and SQUELCH knobs as described in Section Four.
3. Sensitivity is low, and only strong signals are audible. Check the antenna connector for salt spray or dirt. Make sure the antenna connector is properly seated.
4. The battery only lasts a short period of time. Restore the full charge capability of the battery by exercising the battery from fully charged to fully depleted. This exercising prevents the memory effect and ensures maximum charge of the battery.

TABLES OF MARINE CHANNELS

USA MARINE CHANNELS

	TX	RX	
CH	FREQ	FREQ	COMMENT
1	156.05	156.06	Port Operation, Commercial
2	156.100	156.100	Port Operation
3	156.15	156.15	Port Operation, Commercial
4	156.200	156.200	Port Operation
5	156.25	156.25	Port Operation
6	156.30	156.30	Inership Safety
7	156.35	156.35	Commercial
8	156.40	156.40	Commercial
9	156.45	156.45	Commercial, Non Commercial
10	156.50	156.50	Commercial
11	156.55	156.55	Commercial
12	156.60	156.60	Port Operation

13	156.65	156.65	Navigational, (Low)
14	156.70	156.70	Port Operation
15		156.75	Environmental (receive only)
16	156.80	156.80	Distress, Safety, and Calling
17	156.85	156.85	Marine Control, (Low)
18	156.90	156.90	Commercial
19	156.95	156.95	Commercial
20	157.00	161.60	Port Opreation
21	157.05	157.05	US Government Only
22	157.10	157.10	Coast Guard Liaison
23	157.15	157.15	US Government Only
24	157.20	161.80	Public Correspondence
25	157.25	161.85	Public Correspondence
26	157.30	161.90	Public Correspondence
27	157.35	161.95	Public Correspondence
28	157.40	162.00	Public Correspondence
60	156.025	160.625	Port Operation, Public Correspondence
61	156.075	160.675	Port Operation, Public Correspondence
62	156.125	160.725	Port Operation, Public Correspondence
63	156.175	156.175	Port Operation, Commercial
64	156.225	160.825	Port Operation, Public Correspondence
65	156.275	156.275	Port Operation
66	156.325	156.325	Port Operation
67	156.375	156.375	Commercial, (Low)
68	156.425	156.425	Non-Commercial
69	156.475	156.475	Non-Commercial
70	156.525	156.525	Digital Selective Calling
71	156.575	156.575	Non-Commercial
72	156.525	156.625	Non-Commercial
73	156.675	156.675	Port Operation
74	156.725	156.725	Port Operation
75		156.775	Guard Band (receive only)
76		156.825	Guard Band (receive only)
77	156.875	156.875	Port Operation, Intership
78	156.925	156.925	Non-Commercial
79	156.975	156.975	Commercial
80	157.025	156.975	Commercial
81	157.075	157.075	US Government Only
82	157.125	157.125	US Government Only
83	157.175	157.175	US Government Only
84	157.225	161.825	Public Correspondence
85	157.275	161.875	Public Correspondence
86	157.325	161.925	Public Correspondence
87	157.375	161.975	Public Correspondence
88	157.425	157.425	Commercial

INTERNATIONAL MARINE CHANNELS

1	156.05	160.65	Public Correspondence. Port Operation
2	156.10	160.70	Public Correspondence, Port Operation
3	156.15	160.75	Public Correspondence, Port Operation
4	156.20	160.80	Public Correspondence, Port Operation
5	156,25	160.85	Public Correspondence, Port Operation

6	156.30	156.31	Safety Compulsory
7	156.35	160.95	Public Correspondence, Port Operation
8	156.40	156.40	Commercial, Intership
9	156.45	156.45	Commercial, Non-Commercial
10	156.50	156.50	Commercial
11	156.55	156.55	Commercial, VTS
12	156.60	156.60	Port Operation, VTS
13	156.65	156.65	Navigational
14	156.70	156.70	Port Operation, VTS
15	156.75	156.75	Environmental (Low)
16	156.80	156.75	Distress, Safety, and Calling
17	156.85	156.85	(Low)
18	156.90	161.50	Port Operation
19	156.95	161.55	Commercial
20	157.00	161.60	Public Correspondence
21	157.05	161.55	Public Correspondence
22	157.10	161.70	Public Correspondence
23	157.15	161.75	Public Correspondence
24	157.20	161.80	Public Correspondence
25	157.25	161.85	Public Correspondence
26	157.30	161.90	Public Correspondence
27	157.35	161.95	Public Correspondence
28	157.40	162.00	Public Correspondence
60	156.025	160.625	Port Operation, Public Correspondence
61	156.075	160.675	Port Operation, Public Correspondence
62	156.125	160.725	Port Operation, Public Correspondence
63	156.175	156.775	Port Operation, Public Correspondence
64	156.225	160.825	Port Operation, Public Correspondence
65	156.275	160.875	Port Operation, Public Correspondence
66	156.325	160.925	Port Operation, Public Correspondence
67	156.375	156.375	Commercial, VTS
68	156.425	156.425	Non Commercial
69	156.475	156.475	Non Commercial
70	156.525	156.525	Non Commercial
71	156.575	156.575	Port Operation, Non Commercial, Intership
72	156.625	156.625	Non Commercial
73	156.675	156.675	Port Operation, VTS
74	156.725	156.725	Port Operation, VTS
75		156.775	Guard Band (receive only)
76		156.825	Guard Band (receive only)
77	156.875	156.875	Port Operation, Intership
78	156.925	156.525	Port Operation, Public Correspondence
79	156.975	156.575	Port Operation, Public Correspondence
80	157.025	157.625	Port Operation, Public Correspondence
81	157.075	161.675	Port Operation, Public Correspondence
82	157.125	161.725	Port Operation, Public Correspondence
83	157.175	161.775	Port Operation, Public Correspondence
84	157.225	161.825	Public Correspondence
85	157.275	161.875	Public Correspondence
86	157.325	161.925	Public Correspondence
87	157.375	161.975	Public Correspondence
88	157.425	162..025	Port Operation, Public Correspondence

WEATHER MARINE CHANNELS

WX1	162.55	Weather
WX2	162.40	Weather
WX3	162.475	Weather
WX4	162.425	Weather
WX5	162.45	Weather
WX6	162.50	Weather
WX7	162.525	Weather
WX8	161.85	Weather
WX9	161.775	Weather
WX10	163.275	Weather

SPECIFICATIONS

Size.....	10 1/2" H x 2 5/8" W x 2" D
Weight.....	±1lb.
Power Source.....	10.8 VDC NiCd Battery
Capacity.....	600 mAh
5 Hour Charger.....	110 VAC
Channel Capacity	
Receive.....	57 US, 57 INT
Transmit.....	54 US, 55 INT
Frequency Stability.....	± 5ppm
Operating Temperature.....	-20 degrees C to + 50 degrees C
Channel Spacing.....	25 KHz
Current Drain	
Transmit	
@ 5 Watts.....	Less than 1.5 amps
@ 1 Watt.....	Less than 0.8 amps
Receive	
Squelched.....	Less than 60 mA
@ 0.3 Watts audio output.....	200 mA
Transmitter	
Power Output.....	5 Watts/ 1 Watt variable
Audio Distortion @ 8db.....	10 %
Spurious / Harmonic emissions.....	Less than 2.5 mW
FCC ID Number.....	ICLDDC-5
Receiver	
Compliance.....	FCC. Part 81, DOC Cat. P
Sensitivity:	
12 dB SINAD.....	0.3 uV or less
-20 dB quieting.....	0.5 uV or less
Modulation Type	
Threshold.....	0.3 uV Max
Full squelch.....	0.8 uV
IF Frequency	
1 st IF.....	21.6 MHz
2 nd IF.....	455 KHz
Adjacent Channel	

@ \pm 7.5 MHz.....-6dB Max
@ \pm 25 KHz.....-10 dB Min
Spurious Response ATT.More than 70 dB
Intermodulation ATT.More than 70 dB
Audio Output Power.....350mW Min