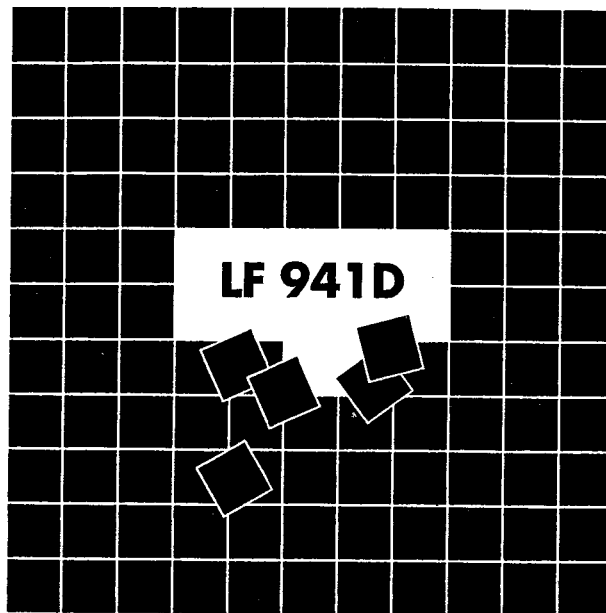


LEADER

SIGNAL LEVEL METER

INSTRUCTION MANUAL



LEADER ELECTRONICS CORP.

OPERATING SAFETY PRECAUTIONS

Thank you for your purchase of the LF 941D. To ensure safe operation of this measuring instrument, be sure to follow the warnings and precautions provided below.

The conventions for presenting warning and cautions in this manual are as follow. Please observe them to ensure safe operation of the LF 941D.

 **Warning**When warnings labeled as such are not observed, there is a risk of bodily harm, including a risk to human life.

 **Caution**When cautions are not observed, there is a risk of bodily harm, and of damage to this product or equipment connected to this product.

Warning

- Do not use this product or equipment connected to it in an explosive, ignitable, or flammable atmosphere, as this will result in the risk of explosion.
- Use C size (IEC type R14) batteries, as the use of other types can cause failures of the LF 941D and fire.
- Do not connect this product to a piece of equipment or cable having a voltage with respect to ground on its chassis, as such connection can result in the risk of electrical shock.

Caution

- Do not remove the case cover, as this can risk failures or loss of performance.
- Do not allow water to enter the LF 941D. The LF 941D is not waterproof.
- If condensation forms on the LF 941D due to a sudden change in temperature, use the LF 941D only after allowing it to dry sufficiently.

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1. INTRODUCTION

Thank you for purchasing our product. Read the manual carefully before using this instrument to ensure correct operation. Contact your local Leader agent as required.

1.1 Operating Precautions

1.1.1 Maximum Allowable Input Voltage

The maximum allowable input voltage is as follows:

If voltage exceeds this value, it may cause trouble.

INPUT connector:	Maximum input signal level	110 dB μ V (50 dBmV)
	Maximum input voltage (DC)	50 V

1.1.2 Mechanical Shock

To prevent damage to precision components such as crystal oscillator, be careful not to expose the instrument to other forms of severe mechanical shock.

1.1.3 Routine Maintenance

When cleaning the instrument, remove the battery. Do not use such solvents as thinner or benzol which will remove paint or damage the plastic surface. Use a soft cloth dampened with neutral detergent.

Do not drop water or detergent, or insert metal objects into the instrument while cleaning. Otherwise, you run the risk of electrical shock or fire.

1.1.4 Electrical Shock

Read the service manual of the equipment under test (e.g., TV, VTR). When connecting this instrument in the equipment, disconnect the power cord to cut power off completely. Wear a pair of insulated gloves when working in the TV receiver with high-voltage source.

1.1.5 Warm-up Time

Allow a setup warm-up time of about 5 minutes for accurate measurements.

2. SPECIFICATIONS

2.1 General

The Model LF 941D TV Signal Level Meter enables speedy and accurate measurement of VHF/UHF TV and CATV signals.

This level meter can measure levels of digital broadcast signals as well as conventional analog broadcast signals. Since ten programmable channels are provided to store arbitrary frequencies, a pilot signal, FM broadcast signals, and frequently used frequencies can be stored.

The large digital display for level readout and bar-graph level indicator for antenna installation enhance speedy and accurate level measurements.

This compact & lightweight level meter is ideal for VHF/UHF antenna and CATV installations.

2.2 Features

- This level meter can measure levels of digital and analog VHF/UHF TV and CATV signals.
- Ten programmable channels are provided to store arbitrary frequencies.
- Compact, lightweight (1.3kg), and simple operation ideal for field use.
- Digital level readout for easy and accurate measurements.
- Sound carrier level can also be measured.
- Continuous 12-hour operation with six Alkaline C cells.
- Time settable automatic power-off function prevents useless battery power consumption.
- Built-in ten channel tables for worldwide use.

2.3 Specification

Measurement Frequency			46 to 870 MHz (except 47.8 to 48.2 MHz, 95.8 to 96.2 MHz)
Frequency Range			50 kHz
Setting Resolution			8 countries/areas, 10 tables (selectable)
Stored Channel Table			Japan, USA (each frequency of STD, HRC, IRC for CATV) ITU-R (CCIR), China, UK, Hong Kong area, Indonesia, Australia
Level Measurement			
Broadcast Format	Analog		AM (video), FM (sound), CW
	Digital		MSK, BPSK, QPSK, 16 to 256 QAM, OFDM, 8VSB (Channel bandwidth: 5 MHz, 6 MHz, 7 MHz, 8 MHz)
Resolution			1 dB
Measurement Bandwidth			280 kHz (typ.)
Measurement Range	Analog		30 to 110 dB μ V (-30 to 50 dBmV) (1 dB steps)
	Digital		45 to 100 dB μ V (-15 to 40 dBmV) (1 dB steps)
Minimum Display Level	Analog		20 dB μ V (typ.)
	Digital		35 dB μ V (typ.)
Accuracy	Analog		± 3 dB
	Digital		± 3 dB (Frequency response of channel bandwidth should be flat.)
Detection Method	Analog		Peak detection
	Digital		Average-value detection (Five-point measurement)
Display	LCD panel		Display area: 30 x 70 mm
Input connector			F-type, 75 Ω

Sound Monitor Output	
Function	Monitors sound and buzz for analog TV
Detection Method	AM detection (video frequency) FM detection (sound frequency)
Output Jack	3.5 ø, monaural jack (for earphone)
Memory Channel	
Number of Storable Channels	Up to 10
Storable Items	Frequency, modulation type (analog or digital)
Power Requirements	6 C cells
Power Consumption	2.5 W
Battery Life	At least 4 hours with high-grade Manganese battery At least 12 hours with Alkaline battery (25 °C, in continuous operation mode)
Other Functions	
Automatic Power-off	5, 10, 20, 60 minutes, continuous
Environmental Conditions	
Operating Temperature Range	0 to 40 °C
Operating Humidity Range	≤ 85 % RH (without condensation)
Spec-Guaranteed Temperature Range	0 to 40 °C
Spec-Guaranteed Humidity Range	≤ 85 % RH (without condensation)
Storage Temperature Range	-10 to 50 °C
Operating Environment	Indoor/outdoor use (no rain water)
Operating Altitude	Up to 2000m
Pollution Degree	2
Dimensions	180 (W) x 68 (H) x 200 (D) mm (excluding projections)

Weight

850 g (excluding battery)

Approx. 1.3 kg (including C battery)

Accessories

Carrying Case 1

Name Plate 1

C cell 6

Instruction Manual 1

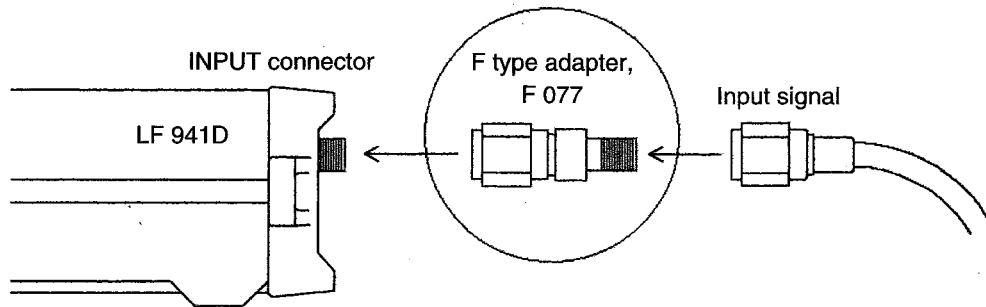
3. BEFORE USING THE LF 941D

- (1) Select the channel table according to your country or region.
"Japan" is selected when shipped from the factory.
Refer to Section, 3.2 "**Selecting Channel Table**" for detail.
- (2) This instrument is not waterproof. Do not expose the instrument to large amounts of water (e.g., rain water). This can cause trouble.
- (3) The battery supplied is only to be used to check operation. Since this battery may be depleted, replace it with a new battery.
- (4) When replacing the battery, power must be turned off. If the battery is removed while power is turned on, the stored data may be lost.
- (5) Automatic power-off function saves power consumption. When power is turned, "APO 5" (five minutes, for example) is displayed on the screen for two seconds.
Refer to Section 6.5, "**Auto Power-Off Mode**" for detail.
- (6) Level of signals, including signals other than the channels to be measured, applied to the **INPUT** connector should be below allowable input level. Otherwise, it may cause measurement error.

3.1 Notes on Connector

Use one of the connectors listed in the Table 3-1 for signal input to the **INPUT** connector of this instrument. Using a connector other than those specified may cause trouble (e.g., contact failure, damage).

To protect the INPUT connector, the F Type Adapter F 077 (sold separately) as shown in Figure 3-1 should be used.



Figurer 3-1 Using F 077

Table 3-1

Nominal Name	Model	Remarks
F type	—	The coaxial cable with center conductor 1.05 mm in diameter can only be used when using the conductor as a center contact. Example: RG59 5C-2V, TVEFCX, BSCX, etc.
NF type	C12 type	High-frequency coaxial connector
C15 type	C15 type	High-frequency coaxial connector

3.2 Selecting Channel Table

Ten channel tables are provided as shown in Table 3-2 and can be used throughout the world. Select the channel table according to your country or region. Refer to Section, 9 “**CHANNEL TABLES**” for detail.
 ”0, Japan” is selected when shipped from the factory.

Procedure

- (1) Turn the power off. Remove the battery compartment cover on the bottom. Remove the battery if it is installed.
- (2) Select the channel table according to your country or region by rotating the selector in the battery compartment with a wedge-shape screwdriver.

Figure 3-2 Channel Table Selector

No.	Country/Area
0	Japan
1	USA ① VHF/UHF/CATV (STD EIA)
2	USA ② VHF/UHF/CATV (HRC EIA)
3	USA ③ VHF/UHF/CATV (IRC EIA)
4	ITU-R (CCIR)
5	China
6	UK
7	Hong Kong Area
8	Indonesia
9	Australia

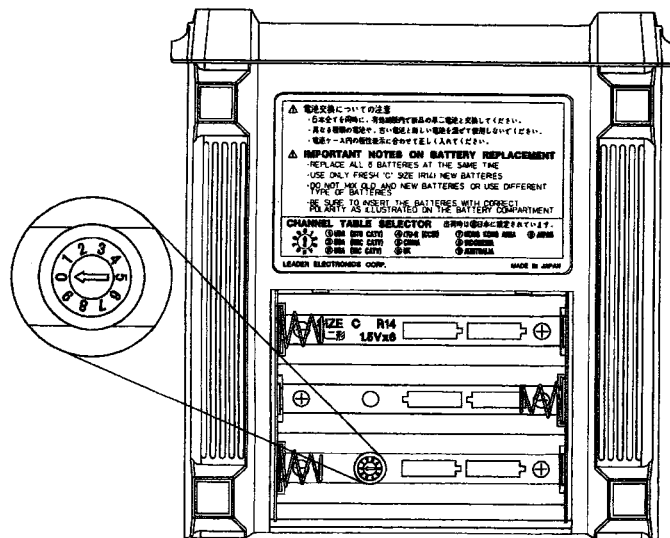


Table 3-2 Channel Table Selector

3.3 Installing Battery

- ① Slide and remove the battery compartment cover on the bottom.
- ② Install six new cells according to the correct polarity indicated in the compartment.
- ③ Place the bottom cover.

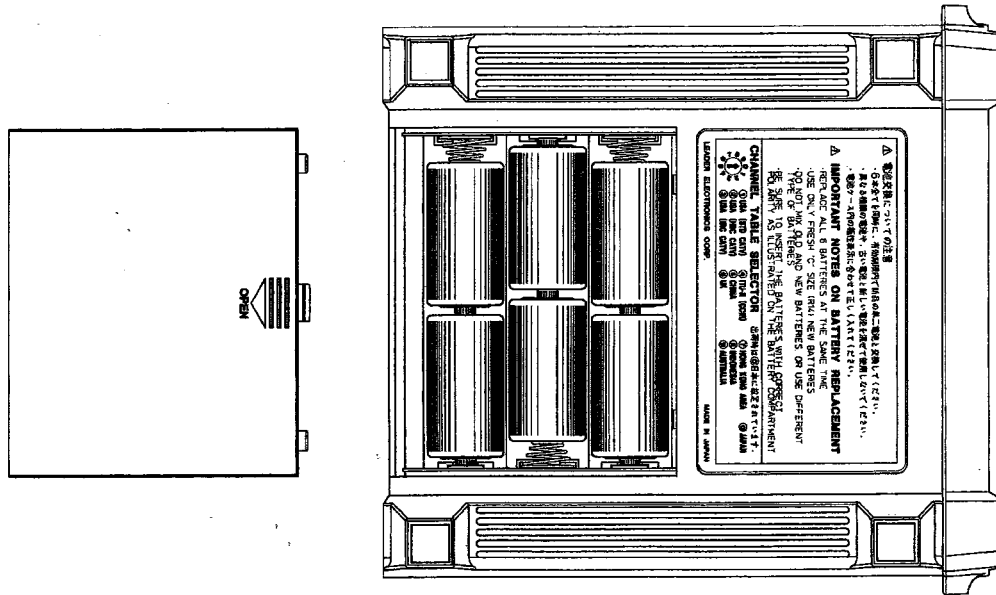


Figure 3-3 Installing battery

3.4 Battery Life

Battery life depends on the battery type, ambient temperature, storage time, operating conditions, etc. Table 3-3 lists approximate battery life in continuous operation at an ambient temperature of 25 °C.

Table 3-3 Approximate battery life

Start → End of battery service life				
Battery Sign 	No Display	Blinks in 2 sec interval	Blinks in 0.5 sec interval	Automatically turned off
Manganese Battery	2 hours	30 min.	10 min.	Total: 2 hours 40 min.
High-Grade Manganese Battery	4 hours 10 min.	40 min.	10 min.	Total: 5 hours
Alkaline Battery	12 hours 10 min.	1 hours 40 min.	10 min.	Total: 14 hours

- When battery voltage drops, the battery sign on the LCD panel blinks slowly (two seconds intervals). If operation continues, the sign blinks quickly (0.5 second intervals).
When the battery reaches the end of its service life, power is automatically turned off. Replace the battery with new one.
- The battery supplied is only to be used to check operation. Since this battery may be depleted.
- The battery is depleted more quickly under low ambient temperature. Alkaline battery should be used in this case.
- Note that a Ni-Cd battery and Ni-MH battery can also be used, however, the battery sign is incorrectly displayed since discharge character differs.

3.5 Using Carrying Case

The carrying case should be used for operating this instrument.

The accessory name plate, shown in Figure 3-4, is convenient to write user's ID on the front and setting conditions stored in the memory channel on the rear.

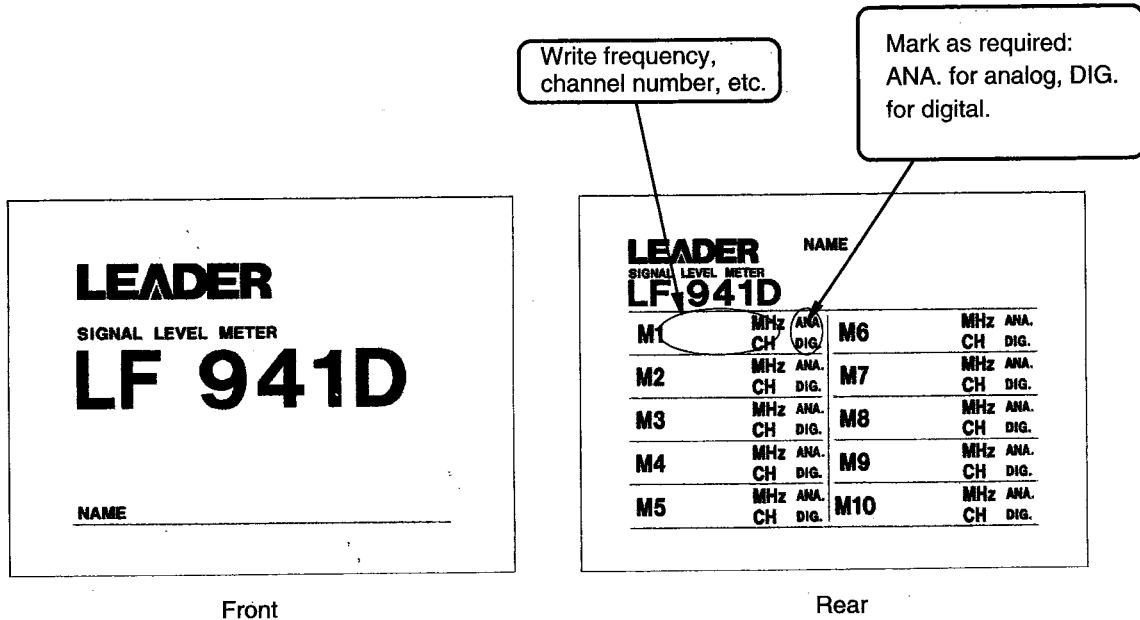
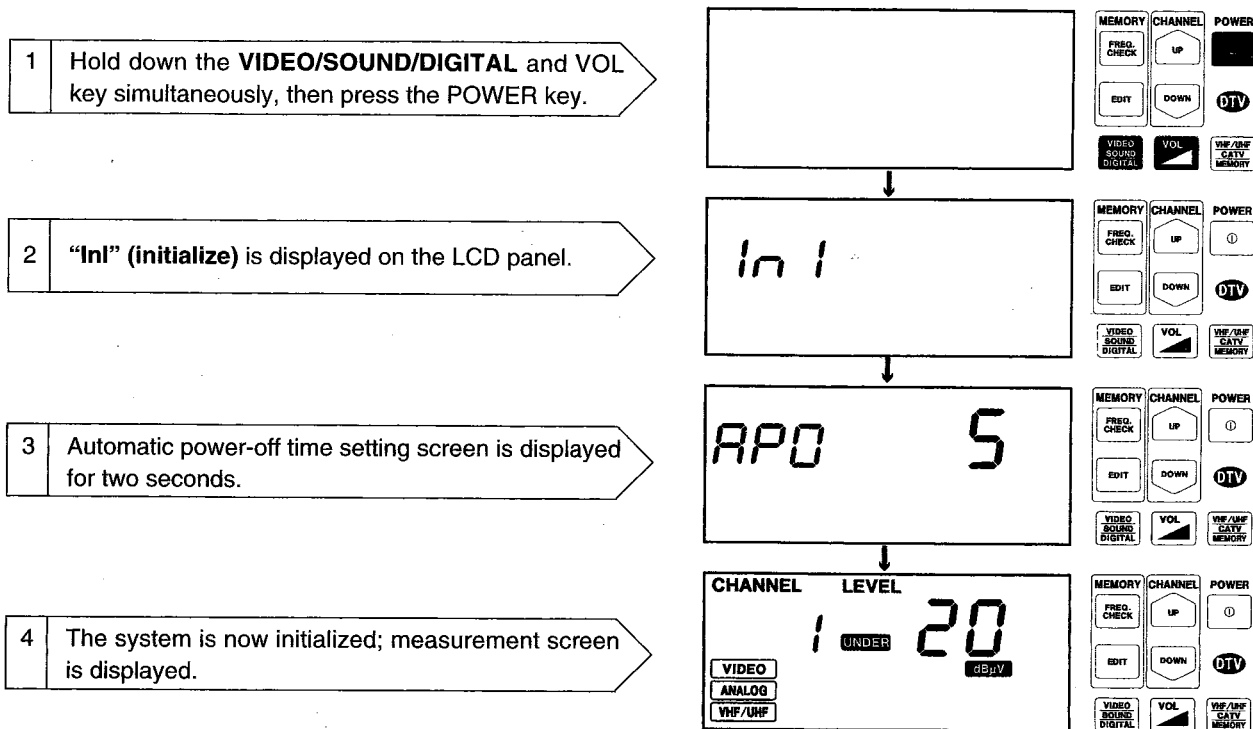


Figure 3-4 Name plate

3.6 Initializing System

This section describes the procedure to initialize the system. The VIDEO, SOUND, and DIGITAL settings for each channel, and contents of memory channel cannot be initialized, however.



4. FRONT PANEL DESCRIPTION

4.1 Controls/Connectors

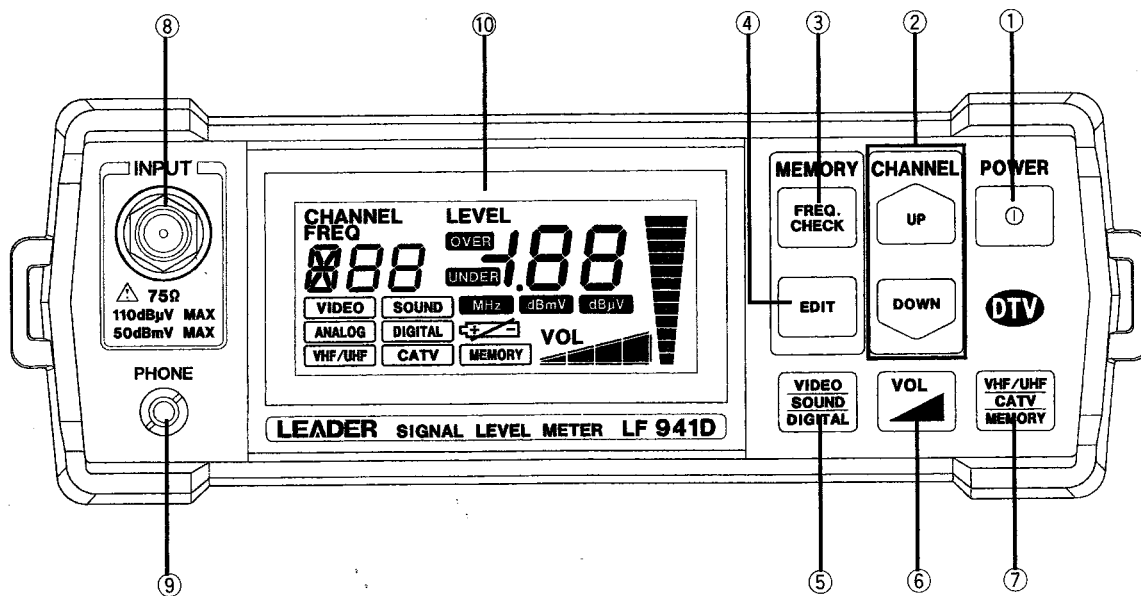


Figure 4-1 Front panel

- | | |
|---|--|
| ① POWER key | Turns power on and off. |
| ② CHANNEL UP/DOWN key | Selects the channel to be measured. |
| ③ MEMORY FREQ. CHECK key | Checks the channel frequency currently measured. |
| ④ MEMORY EDIT key | Sets the memory channel. |
| ⑤ VIDEO/SOUND/DIGITAL | Selects measurement mode: video carrier level (analog broadcast signal), sound carrier level (analog broadcast signal), or digital broadcast signal. |
| ⑥ VOL key | Controls monitor loudness. |
| ⑦ VHF•UHF/CATV/MEMORY | Selects VHF/UHF band, CATV band, or memory channel. |
| ⑧ INPUT connector | Accepts measurement signal. |
| <p>⚠ Do not apply excessive voltage i.e., 110 dBμV/50 dBmV of signal level, 50 VDC to the INPUT connector. It can cause trouble.</p> | |
| ⑨ PHONE jack | Outputs buzz and demodulated sound in analog mode. |
| ⑩ LCD panel | Displays measurement level, setting conditions, etc. |

4.2 LCD Panel

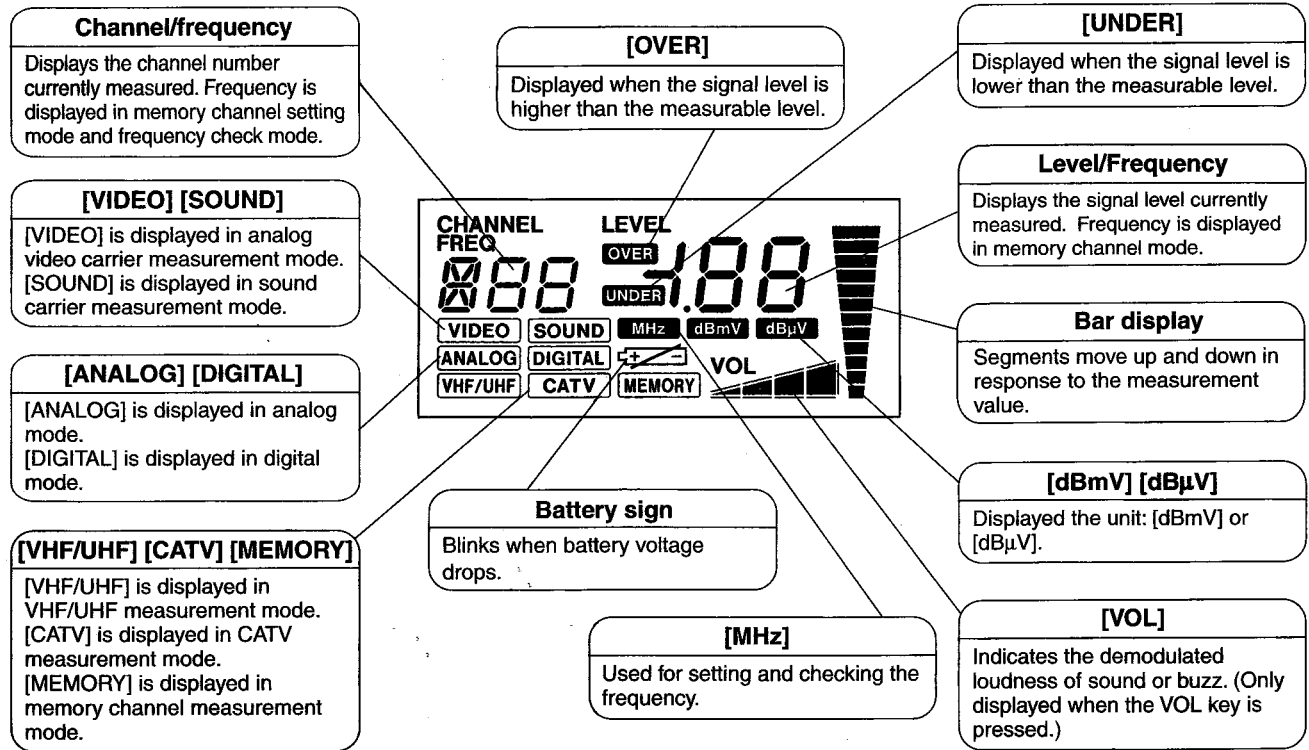


Figure 4-2 LCD panel

5. OPERATING PROCEDURE

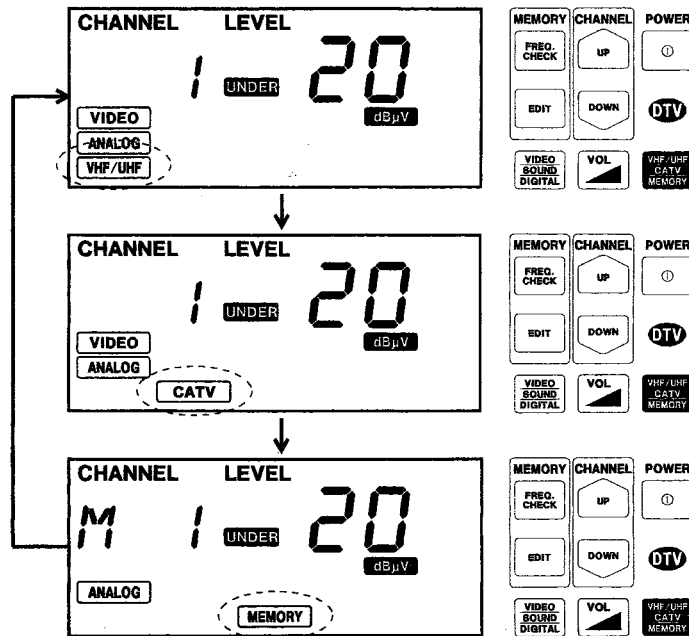
5.1 Selecting VHF•UHF/CATV/MEMORY

The VHF/UHF band (terrestrial TV), CATV band, and MEMORY channel can be selected.

The frequency should be set before using the memory channel. Refer to Section 6.2, "Memory Channel Mode" for detail.

Pressing the **VHF•UHF/CATV/MEMORY** key sequentially selects the band:
[VHF/UHF] → [CATV] → [MEMORY]

The LEVEL value illustrated in this manual shows as an example.
Noise level is displayed when no signal is applied; the level depends on the channel and unit.

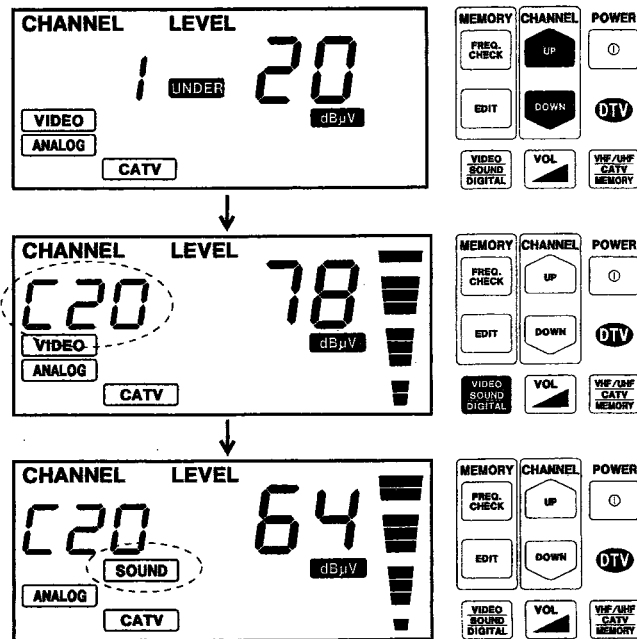


5.2 Signal Level Measurement

5.2.1 Measuring Terrestrial TV and CATV

Example: Measuring sound carrier level of CATV channel 20

- 1 Refer to Section 5.1, "**Selecting VHF•UHF/CATV/MEMORY.**"
Select CATV band, then set the channel (C20, here) by pressing the **CHANNEL (UP/DOWN)** key.
- 2 Select **[SOUND]** (analog sound carrier) by pressing the **VIDEO/SOUND/DIGITAL** key.
- 3 The sound carrier level measurement mode of CATV channel 20 is now enabled.



Holding down the **CHANNEL (UP/DOWN)** key allows quick setting changes.
The **VIDEO/SOUND/DIGITAL** setting is stored for each channel.

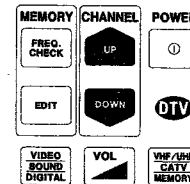
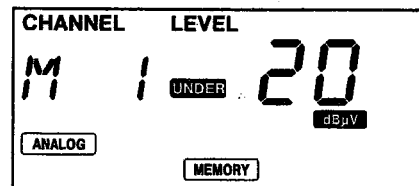
5.2.2 Measuring Signal in Memory Channel

Up to ten frequencies can be stored in the memory channel.

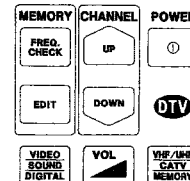
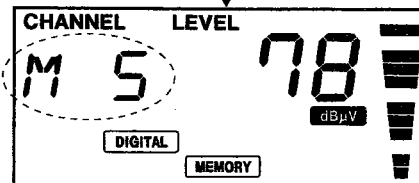
The frequency should be set before measuring the level in memory channel mode. All channels (M1 to M10) are set to 500 MHz, analog mode when shipped from the factory. Refer to Section 6.2, "**Memory Channel Mode**" for detail.

Example: Measuring signal level in the memory channel M5

- 1 **Refer to Section 5.1, "Selecting VHF•UHF/CATV/MEMORY."**
Select MEMORY band, then set the channel (M5, here) by pressing the CHANNEL (UP/DOWN) key.



- 2 The channel M5 is now set.



The ANALOG/DIGITAL cannot be selected on the memory channel measurement screen by using the VIDEO/SOUND/DIGITAL key.

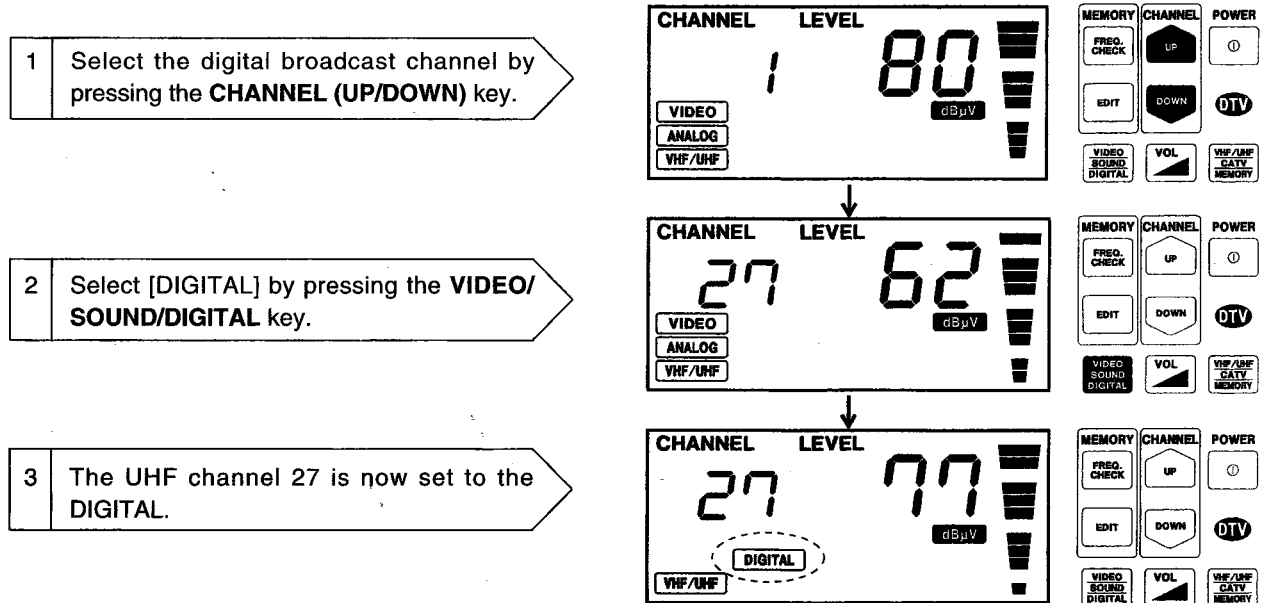
Refer to Section 6.2.1, "**Setting Memory Channel**" for detail.

6. USEFUL FUNCTIONS

6.1 Digital Broadcast Signal Level

This instrument can measure the digital broadcast signal level (e.g., terrestrial digital broadcast, CATV digital broadcast) as well as the analog broadcast signal.

Refer to Section 7, "REMARKS ON MEASUREMENT" for measurable modulation systems and ranges.



- Digital broadcast signal level will be incorrect when measurement is performed in [ANALOG] mode.
- Refer to Section 6.2.1, "Setting Memory Channel" when measuring the digital broadcast signal level in memory channel mode.

6.2 Memory Channel Mode

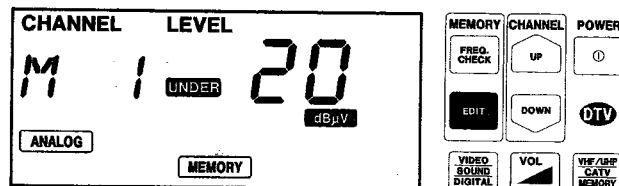
Since ten memory channels are provided to store arbitrary frequencies (46 to 870 MHz, in 50 kHz steps), a CATV, FM pilot signal, and frequently used frequencies can be stored and recalled.

6.2.1 Setting Memory Channel

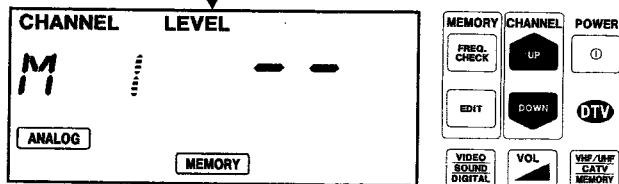
Example: Setting 123.45 MHz (digital) to channel M2

(Dotted channel number in the illustration is blinking.)

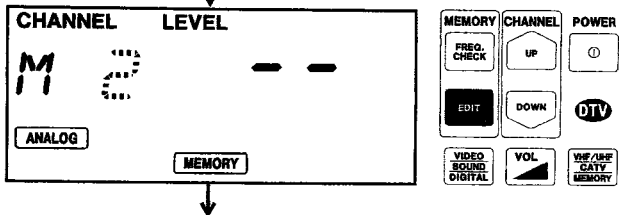
- 1 Select [MEMORY] by pressing the **VHF•UHF/CATV/MEMORY**, then press the **EDIT (MEMORY)** key.



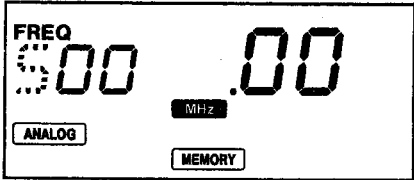
- 2 Select channel to be set (M2, here) by pressing the **CHANNEL (UP/DOWN)** key.



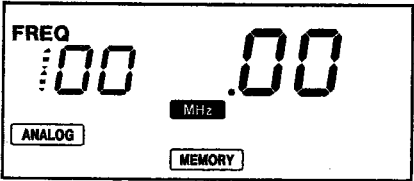
- 3 Press the **EDIT (MEMORY)** key.



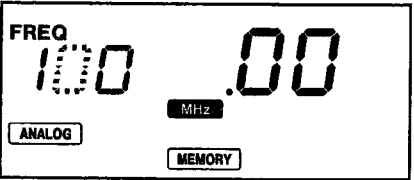
4 Set the digit "100 MHz" to "1" by pressing the **CHANNEL (UP/DOWN)** key.



5 Press the **EDIT (MEMORY)** key.



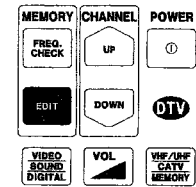
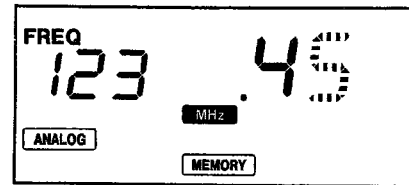
6 Set the digit "10 MHz" to "2" by pressing the **CHANNEL (UP/DOWN)** key.



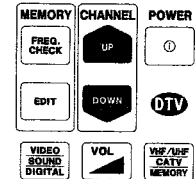
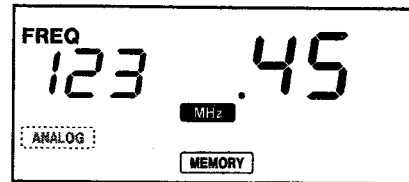
7 Press the **EDIT (MEMORY)** key.
Apply the same procedure to set all digits to "0.01 MHz."



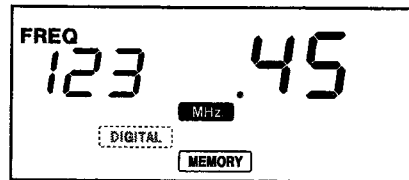
- 8 Set the frequency, then press the **EDIT (MEMORY)** key. **[ANALOG]** or **[DIGITAL]** blinks.



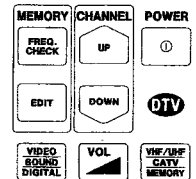
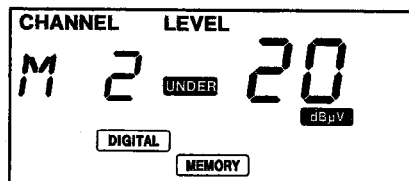
- 9 Select **[DIGITAL]** by pressing the **CHANNEL (UP/DOWN)** key. (The **VIDEO/SOUND/DIGITAL** key can also be used.)



- 10 Press the **EDIT (MEMORY)** key.



- 11 Setting is now completed. The measurement screen is displayed.

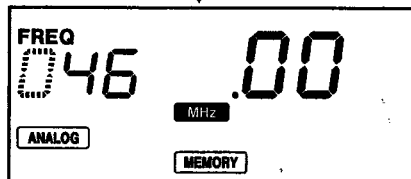
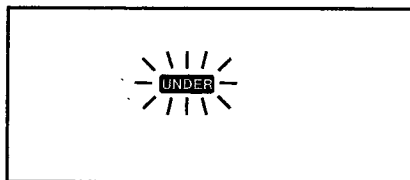


6.2.2 Frequency Settable Range

The settable frequency for the memory channel is **46 to 870 MHz** in analog mode, **49 to 867 MHz** in digital mode. If a frequency outside this range is entered, **[OVER]** or **[UNDER]** blinks several times, then returns to the measurement screen.

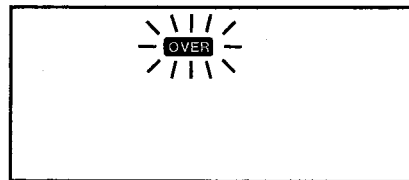
Set the frequency again within the range, in this case.

In case of the frequency is lower than
46.00 MHz.
(Analog mode)



Display returns to the setting screen;
46.00 MHz is displayed.

In case of the frequency is higher than
870.05 MHz.
(Analog mode)



Display returns to the setting screen;
870.00 MHz is displayed.

- For the following frequencies, incorrect measurement value is displayed due to self spurious reception of this instrument.

47.8 to 48.2 MHz

95.8 to 96.2 MHz

6.2.3 Frequency Setting for Digital Broadcast

When measuring the digital broadcast signals in memory channel mode, the frequency to be set differs from the analog broadcast signals.

As shown in Figure 6-1, center frequency of the CATV digital broadcast and terrestrial digital broadcast differs from the analog broadcast signals.

When measuring the digital broadcast signals in memory channel mode, set the frequency to the center of the channel bandwidth. Set the **[ANALOG]** **[DIGITAL]** to **[DIGITAL]**.

Example: Setting analog and digital broadcast signals of terrestrial UHF channel 36 of USA (channel bandwidth: 602.00 to 608.00 MHz)

The measurement frequency of digital broadcast signal should be set 1.75 MHz higher than the analog video signal.

Broadcast signal to be Measured		Memory Channel Settings	
Analog Broadcast	Video	603.25 MHz	ANALOG
	Sound	607.75 MHz	ANALOG
Terrestrial Digital Broadcast		605.00 MHz	DIGITAL

The same frequency is used to measure the CATV internet downlink signal for QAM modulation.

Use the **[ANALOG]** for measuring CATV status monitor, pilot signal, and FM radio broadcast.

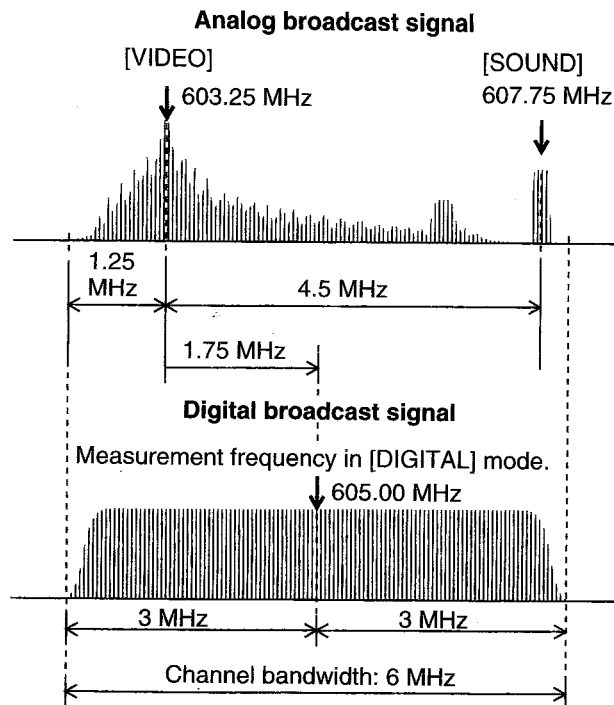


Figure 6-1 Spectrum of TV signal (UHF channel 36, USA)

6.2.4 Skipping Memory Channel

Unused memory channels can be skipped when measuring the level.

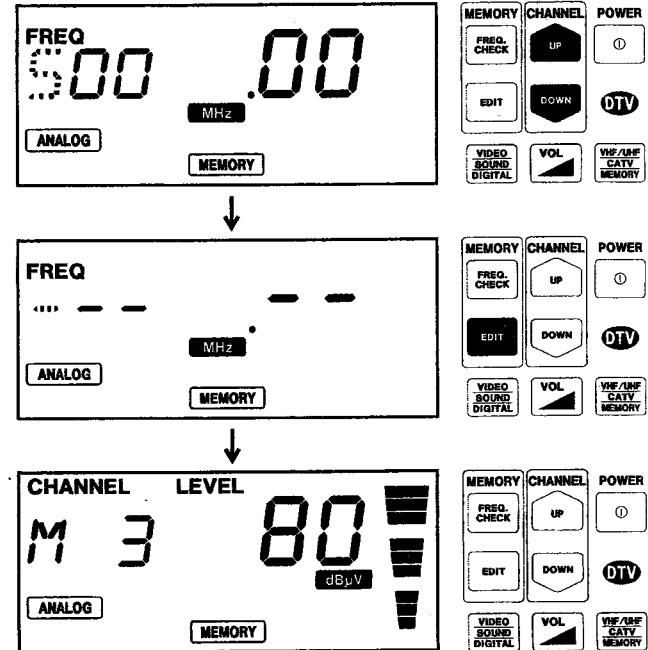
To skip the channel, set the frequency to "-." Refer to Section 6.2.1, "Setting Memory Channel" for detail.

Example: Skipping the channel M2

1 Apply the Steps 1 through 3 described in the Section 6.2.1, "**Setting Memory Channel**" to display the frequency setting screen. Set the digit "100 MHz" to "-." by pressing the **CHANNEL (UP/DOWN)** key; all digits are automatically set to "-."

2 Press the **EDIT (MEMORY)** key.

3 The channel M2 will be skipped until this mode is canceled.

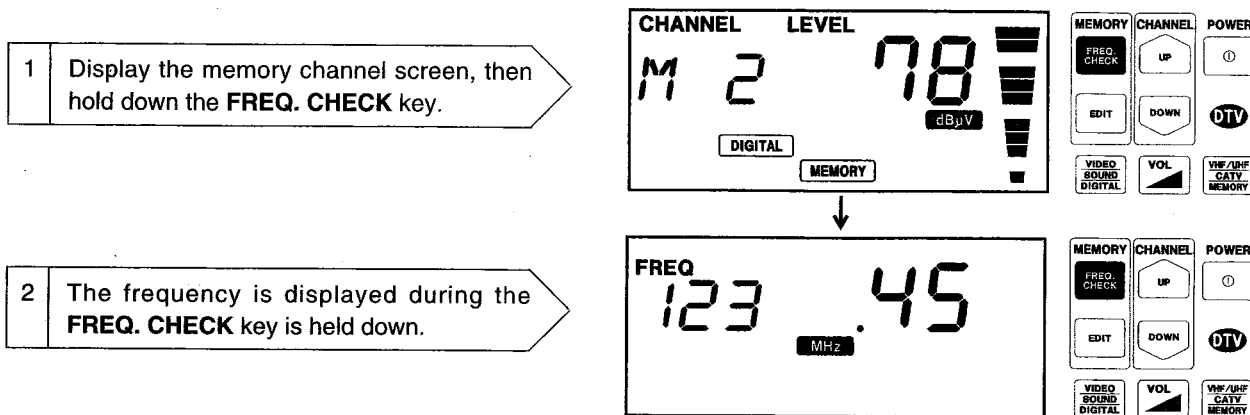


6.2.5 Canceling Skip Mode

Resetting the frequency canceled this mode according to the Section 6.2.1, “**Setting Memory Channel.**”

6.2.6 Checking Frequency Set

The frequency set in the memory channel can be confirmed while measuring level.

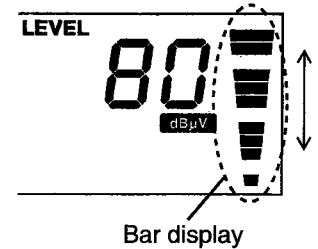


- The frequency of VHF/UHF and CATV band can also be confirmed by holding down the **FREQ. CHECK** key.

6.3 Using Bar Display

The bar display is convenient for adjusting antenna direction.

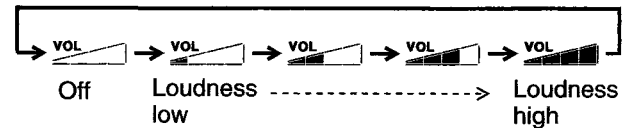
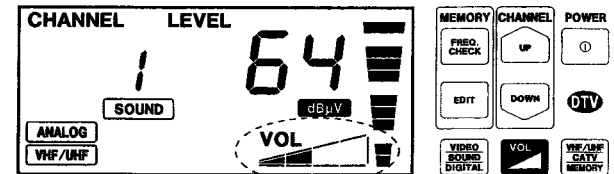
- ① Roughly adjust the antenna direction to obtain the maximum level reading.
- ② The bar display segments move up in proportion to the level increments, and vice versa.
To finely adjust antenna direction, set the antenna to the maximum indication of the bar display.



6.4 Monitoring Buzz and Sound

A buzz can be monitored while measuring analog broadcast video carrier with an earphone; a sound can be monitored while measuring sound carrier. The sound of digital broadcast signal cannot be monitored.

- ① Connect an earphone (with 3.5 ϕ monaural plug) to the **PHONE** jack.
- ② Select channel by pressing the **CHANNEL (UP/DOWN)** key.
- ③ Select **[VIDEO]** (video carrier) or **[SOUND]** (sound carrier) by pressing the **VIDEO/SOUND/DIGITAL** key.
- ④ Adjust the loudness by pressing the **VOL** key.
Pressing the **VOL** key sequentially changes the loudness.



6.5 Auto Power-Off

When the auto power-off function is set on, power is automatically turned off at the preset time after last key operation. Auto power-off function should be enabled to save power consumption.

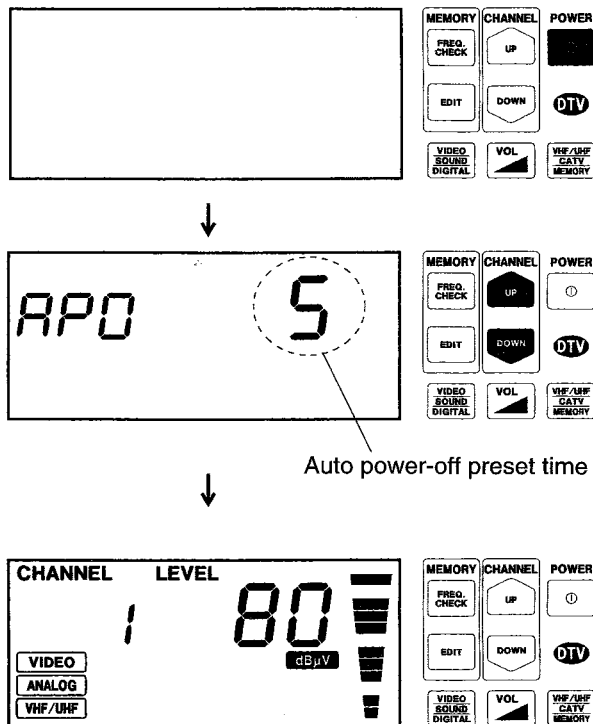
1 Turn power off, then turn power on.

2 When power is turned on, auto power-off preset time is displayed for two seconds. Set the time by using the **CHANNEL (UP/DOWN)** key during the time is displayed.

Display	Preset Time
APO 5	5 minutes
APO 10	10 minutes
APO 20	20 minutes
APO 60	60 minutes
APO —	Continuous (disables auto power-off mode)

(APO: Auto Power Off)

3 The new time is displayed for two seconds. The measurement screen is displayed after setting is completed. The time is retained until new time is entered.

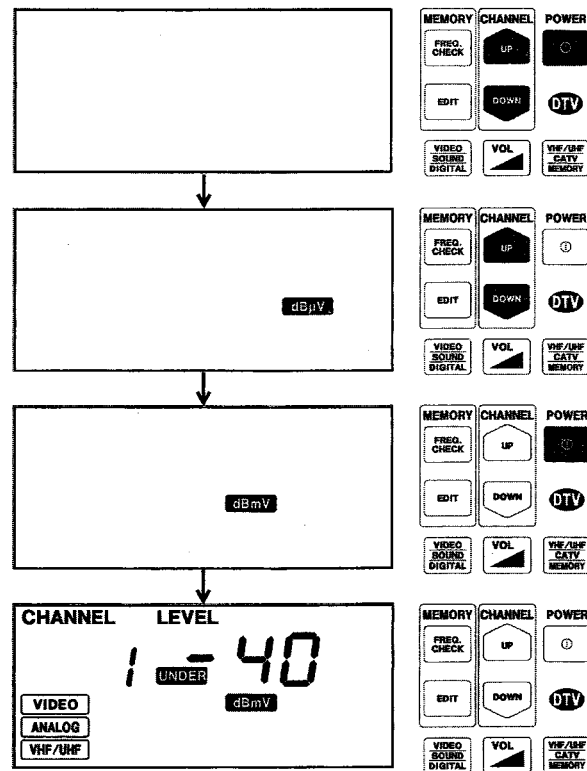


6.6 Selecting Level Unit (dBμV, dBmV)

There are two level units: **dBμV** and **dBmV**.

The unit is set to **dBμV** (except for USA channel table, **dBmV**) when shipped from the factory. (0 dBμV = 1 μV into 75 Ω load)

- 1 Turn power off.
Hold down the **CHANNEL UP** and **CHANNEL DOWN** keys simultaneously, then press the **POWER** key to turn power on.
- 2 [dBmV] or [dBμV] is displayed on the LCD panel.
Select [dBμV], for example, by pressing the **CHANNEL (UP/DOWN)** key.
- 3 Press the **POWER** key to turn power off, then turn power on again.
- 4 The unit is set to [dBmV].



7. REMARKS ON MEASUREMENT

7.1 Measurement Range and Display Range

Table 7-1 lists the measurement range and display range.

Table 7-1 Level measurement range and display range for VHF, UHF, and CATV in memory channel mode

Measurement Item		Measurement Range	Display Range (*1)	Out-of-Range Display
Level	Analog	30 to 110 dB μ V	20 (typ.) to 110 dB μ V	UNDER + level (*2) or OVER lights.
	Digital	45 to 100 dB μ V	35 (typ.) to 100 dB μ V	

(*1) The displayable lowest level is restricted according to the noise level of this instrument; the level depends on the channel and unit.

(*2) The displayed level below the measurement range (UNDER lights) is only for your reference; the measurement accuracy is not guaranteed. Use this value such as antenna direction adjustment.

7.2 Level Measurement Conditions

Table 7-2 lists the level measurement conditions.

Table 7-2 Level measurement conditions of VHF, UHF, and CATV bands

Channel Table	Measurement Signal	Carrier Wave Type	LCD Panel Display	Band	Channel Band Width	Detection Method	Compensating Measurement Data	
Common to each channel table	Analog	Video carrier	ANALOG (VIDEO)	Common to each band	—	Peak detection	No compensation	
		Sound carrier	ANALOG (SOUND)					
Japan	Digital	MSK BPSK QPSK 16 to 256 QAM OFDM 8VSB	DIGITAL	VHF	6 MHz	Average-value detection	Five-point measurement, bandwidth compensation	
UHF								
CATV								
USA 1, 2, 3				VHF	6 MHz			
				UHF				
		CATV						

(continued)

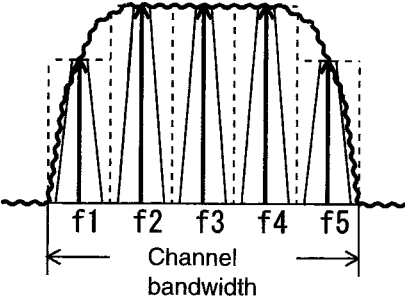
Channel Table	Measurement Signal	Carrier Wave Type	LCD Panel Display	Band	Channel Band Width	Detection Method	Compensating Measurement Data
ITU-R (CCIR)	Digital	MSK BPSK QPSK 16 to 256 QAM OFDM 8VSB	DIGITAL	VHF	7 MHz	Average-value detection	Five-point measurement, bandwidth compensation
				UHF	8 MHz		
				CATV	7 MHz		
					8 MHz		
China				VHF	8 MHz		
				UHF			
				CATV			
UK				UHF	8 MHz		
				CATV			
Hong Kong Area				VHF	5 MHz		
				UHF	8 MHz		
				CATV	7 MHz		
Indonesia				VHF	7 MHz		
				UHF	8 MHz		
Australia				VHF	7 MHz		
				UHF			

- The channel bandwidth in digital broadcast signal measurement mode is automatically set as shown in Table 7-2.
- Based on reception filter characteristics, level measurement value may be displayed at adjacent channel in digital broadcast signal measurement mode.

7.3 Principles of Digital Broadcast Signal Level Measurement

This instrument measures five points of digital signal levels in the channel bandwidth as shown in Table 7-3. This method reduces measurement error caused by an uneven frequency response such as terrestrial digital broadcast signals.

Table 7-3 Principles of digital broadcast signal level measurement

Frequency Band	5 MHz, 6 MHz, 7 MHz, 8 MHz
Measurement Method	Divides the channel bandwidth into five equal ranges, measures power at each center frequency, then performs compensation of the measurement data on entire band to obtain total power.
	
Modulation System	MSK, BPSK, QPSK, 16 to 256 QAM, OFDM, 8VSB

8. MAINTENANCE

The LF 941D is designed to provide stable performance when used properly.

If the instrument requires adjustment or calibration after extended use, be sure to contact your nearest Leader agent.

9. CHANNEL TABLES

Table below lists the channel table stored in this instrument.

Since this instrument can set the measurement frequency in 50 kHz steps, some frequency may slightly differ from actual broadcast frequency.

Refer to Section 6.2.3, “Frequency Setting for Digital Broadcast” for digital broadcast frequency.

JAPAN

VHF

CH	VIDEO (MHz)	SOUND (MHz)	23	531.25	535.75	50	693.25	697.75	C21	157.25	161.75	C39	319.25	323.75	15	483.25	487.75	42	645.25	649.75
			24	537.25	541.75	51	699.25	703.75	C22	165.25	169.75	C40	325.25	329.75	16	489.25	493.75	43	651.25	655.75
1	91.25	95.75	25	543.25	547.75	52	705.25	709.75	4	171.25	175.75	C41	331.25	335.75	17	495.25	499.75	44	657.25	661.75
2	97.25	101.75	26	549.25	553.75	53	711.25	715.75	5	177.25	181.75	C42	337.25	341.75	18	501.25	505.75	45	663.25	667.75
3	103.25	107.75	27	555.25	559.75	54	717.25	721.75	6	183.25	187.75	C43	343.25	347.75	19	507.25	511.75	46	669.25	673.75
4	171.25	175.75	28	561.25	565.75	55	723.25	727.75	7	189.25	193.75	C44	349.25	353.75	20	513.25	517.75	47	675.25	679.75
5	177.25	181.75	29	567.25	571.75	56	729.25	733.75	8	193.25	197.75	C45	355.25	359.75	21	519.25	523.75	48	681.25	685.75
6	183.25	187.75	30	573.25	577.75	57	735.25	739.75	9	199.25	203.75	C46	361.25	365.75	22	525.25	529.75	49	687.25	691.75
7	189.25	193.75	31	579.25	583.75	58	741.25	745.75	10	205.25	209.75	C47	367.25	371.75	23	531.25	535.75	50	693.25	697.75
8	193.25	197.75	32	585.25	589.75	59	747.25	751.75	11	211.25	215.75	C48	373.25	377.75	24	537.25	541.75	51	699.25	703.75
9	199.25	203.75	33	591.25	595.75	60	753.25	757.75	12	217.25	221.75	C49	379.25	383.75	25	543.25	547.75	52	705.25	709.75
10	205.25	209.75	34	597.25	601.75	61	759.25	763.75	C23	223.25	227.75	C50	385.25	389.75	26	549.25	553.75	53	711.25	715.75
11	211.25	215.75	35	603.25	607.75	62	765.25	769.75	C24	231.25	235.75	C51	391.25	395.75	27	555.25	559.75	54	717.25	721.75
12	217.25	221.75	36	609.25	613.75	CATV			C25	237.25	241.75	C52	397.25	401.75	28	561.25	565.75	55	723.25	727.75
UHF			37	615.25	619.75	CH	VIDEO (MHz)	SOUND (MHz)	C26	243.25	247.75	C53	403.25	407.75	29	567.25	571.75	56	729.25	733.75
CH	VIDEO (MHz)	SOUND (MHz)	38	621.25	625.75	1	91.25	95.75	C27	249.25	253.75	C54	409.25	413.75	30	573.25	577.75	57	735.25	739.75
13	471.25	475.75	39	627.25	631.75	2	97.25	101.75	C28	253.25	257.75	C55	415.25	419.75	31	579.25	583.75	58	741.25	745.75
14	477.25	481.75	40	633.25	637.75	3	103.25	107.75	C29	259.25	263.75	C56	421.25	425.75	32	585.25	589.75	59	747.25	751.75
15	483.25	487.75	41	639.25	643.75	C13	109.25	113.75	C30	265.25	269.75	C57	427.25	431.75	33	591.25	595.75	60	753.25	757.75
16	489.25	493.75	42	645.25	649.75	C14	115.25	119.75	C31	271.25	275.75	C58	433.25	437.75	34	597.25	601.75	61	759.25	763.75
17	495.25	499.75	43	651.25	655.75	C15	121.25	125.75	C32	277.25	281.75	C59	439.25	443.75	35	603.25	607.75	62	765.25	769.75
18	501.25	505.75	44	657.25	661.75	C16	127.25	131.75	C33	283.25	287.75	C60	445.25	449.75	36	609.25	613.75			
19	507.25	511.75	45	663.25	667.75	C17	133.25	137.75	C34	289.25	293.75	C61	451.25	455.75	37	615.25	619.75			
20	513.25	517.75	46	669.25	673.75	C18	139.25	143.75	C35	295.25	299.75	C62	457.25	461.75	38	621.25	625.75			
21	519.25	523.75	47	675.25	679.75	C19	145.25	149.75	C36	301.25	305.75	C63	463.25	467.75	39	627.25	631.75			
22	525.25	529.75	48	681.25	685.75	C20	151.25	155.75	C37	307.25	311.75	13	471.25	475.75	40	633.25	637.75			
			49	687.25	691.75				C38	313.25	317.75	14	477.25	481.75	41	639.25	643.75			

U.S.A.

VHF

CH	VIDEO (MHz)	SOUND (MHz)
2	55.25	59.75
3	61.25	65.75
4	67.25	71.75
5	77.25	81.75
6	83.25	87.75
7	175.25	179.75
8	181.25	185.75
9	187.25	191.75
10	193.25	197.75
11	199.25	203.75
12	205.25	209.75
13	211.25	215.75

UHF

CH	VIDEO (MHz)	SOUND (MHz)
14	471.25	475.75
15	477.25	481.75
16	483.25	487.75
17	489.25	493.75
18	495.25	499.75
19	501.25	505.75
20	507.25	511.75
21	513.25	517.75
22	519.25	523.75
23	525.25	529.75
24	531.25	535.75
25	537.25	541.75
26	543.25	547.75
27	549.25	553.75
28	555.25	559.75

29	561.25	565.75
30	567.25	571.75
31	573.25	577.75
32	579.25	583.75
33	585.25	589.75
34	591.25	595.75
35	597.25	601.75
36	603.25	607.75
37	609.25	613.75
38	615.25	619.75
39	621.25	625.75
40	627.25	631.75
41	633.25	637.75
42	639.25	643.75
43	645.25	649.75
44	651.25	655.75
45	657.25	661.75
46	663.25	667.75
47	669.25	673.75
48	675.25	679.75
49	681.25	685.75
50	687.25	691.75
51	693.25	697.75
52	699.25	703.75
53	705.25	709.75
54	711.25	715.75
55	717.25	721.75
56	723.25	727.75
57	729.25	733.75
58	735.25	739.75
59	741.25	745.75
60	747.25	751.75

61	753.25	757.75
62	759.25	763.75
63	765.25	769.75
64	771.25	775.75
65	777.25	781.75
66	783.25	787.75
67	789.25	793.75
68	795.25	799.75
69	801.25	805.75
70	807.25	811.75
71	813.25	817.75
72	819.25	823.75
73	825.25	829.75
74	831.25	835.75
75	837.25	841.75
76	843.25	847.75
77	849.25	853.75
78	855.25	859.75
79	861.25	865.75

CATV (STD EIA)

CH	VIDEO (MHz)	SOUND (MHz)
2	55.25	59.75
3	61.25	65.75
4	67.25	71.75
5	77.25	81.75
6	83.25	87.75
95	91.25	95.75
96	97.25	101.75
97	103.25	107.75
98	109.25	113.75
99	115.25	119.75

14	121.25	125.75
15	127.25	131.75
16	133.25	137.75
17	139.25	143.75
18	145.25	149.75
19	151.25	155.75
20	157.25	161.75
21	163.25	167.75
22	169.25	173.75
7	175.25	179.75
8	181.25	185.75
9	187.25	191.75
10	193.25	197.75
11	199.25	203.75
12	205.25	209.75
13	211.25	215.75
23	217.25	221.75
24	223.25	227.75
25	229.25	233.75
26	235.25	239.75
27	241.25	245.75
28	247.25	251.75
29	253.25	257.75
30	259.25	263.75
31	265.25	269.75
32	271.25	275.75
33	277.25	281.75
34	283.25	287.75
35	289.25	293.75
36	295.25	299.75
37	301.25	305.75
38	307.25	311.75

39	313.25	317.75
40	319.25	323.75
41	325.25	329.75
42	331.25	335.75
43	337.25	341.75
44	343.25	347.75
45	349.25	353.75
46	355.25	359.75
47	361.25	365.75
48	367.25	371.75
49	373.25	377.75
50	379.25	383.75
51	385.25	389.75
52	391.25	395.75
53	397.25	401.75
54	403.25	407.75
55	409.25	413.75
56	415.25	419.75
57	421.25	425.75
58	427.25	431.75
59	433.25	437.75
60	439.25	443.75
61	445.25	449.75
62	451.25	455.75
63	457.25	461.75
64	463.25	467.75
65	469.25	473.75
66	475.25	479.75
67	481.25	485.75
68	487.25	491.75
69	493.25	497.75
70	499.25	503.75

71	505.25	509.75
72	511.25	515.75
73	517.25	521.75
74	523.25	527.75
75	529.25	533.75
76	535.25	539.75
77	541.25	545.75
78	547.25	551.75
79	553.25	557.75
80	559.25	563.75
81	565.25	569.75
82	571.25	575.75
83	577.25	581.75
84	583.25	587.75
85	589.25	593.75
86	595.25	599.75
87	601.25	605.75
88	607.25	611.75
89	613.25	617.75
90	619.25	623.75
91	625.25	629.75
92	631.25	635.75
93	637.25	641.75
94	643.25	647.75
100	649.25	653.75
101	655.25	659.75
102	661.25	665.75
103	667.25	671.75
104	673.25	677.75
105	679.25	683.75
106	685.25	689.75
107	691.25	695.75

108	697.25	701.75
109	703.25	707.75
110	709.25	713.75
111	715.25	719.75
112	721.25	725.75
113	727.25	731.75
114	733.25	737.75
115	739.25	743.75
116	745.25	749.75
117	751.25	755.75
118	757.25	761.75
119	763.25	767.75
120	769.25	773.75
121	775.25	779.75
122	781.25	785.75
123	787.25	791.75
124	793.25	797.75
125	799.25	803.75
126	805.25	809.75
127	811.25	815.75
128	817.25	821.75
129	823.25	827.75
130	829.25	833.75
131	835.25	839.75
132	841.25	845.75
133	847.25	851.75
134	853.25	857.75
135	859.25	863.75
136	865.25	869.75

U.S.A.

CATV (HRC EIA)

CH	VIDEO (MHz)	SOUND (MHz)	28	246.00	250.50	60	438.00	442.50	92	630.05	634.55	129	822.05	826.55
2	54.00	58.50	29	252.00	256.50	61	444.00	448.50	93	636.05	640.55	130	828.05	832.55
3	60.00	64.50	30	258.00	262.50	62	450.00	454.50	94	642.05	646.55	131	834.05	838.55
4	66.00	70.50	31	264.00	268.50	63	456.00	460.50	100	648.05	652.55	132	840.05	844.55
1	72.00	76.50	32	270.00	274.50	64	462.00	466.50	101	654.05	658.55	133	846.05	850.55
5	78.00	82.50	33	276.00	280.50	65	468.00	472.50	102	660.05	664.55	134	852.05	856.55
6	84.00	88.50	34	282.00	286.50	66	474.00	478.50	103	666.05	670.55	135	858.05	862.55
95	90.00	94.50	35	288.00	292.50	67	480.00	484.50	104	672.05	676.55	136	864.05	868.55
96	96.00	100.50	36	294.00	298.50	68	486.00	490.50	105	678.05	682.55			
97	102.00	106.50	37	300.00	304.50	69	492.00	496.50	106	684.05	688.55			
14	120.00	124.50	38	306.00	310.50	70	498.00	502.50	107	690.05	694.55			
15	126.00	130.50	39	312.00	316.50	71	504.05	508.55	108	696.05	700.55			
16	132.00	136.50	40	318.00	322.50	72	510.05	514.55	109	702.05	706.55			
17	138.00	142.50	41	324.00	328.50	73	516.05	520.55	110	708.05	712.55			
18	144.00	148.50	42	330.00	334.50	74	522.05	526.55	111	714.05	718.55			
19	150.00	154.50	43	336.00	340.50	75	528.05	532.55	112	720.05	724.55			
20	156.00	160.50	44	342.00	346.50	76	534.05	538.55	113	726.05	730.55			
21	162.00	166.50	45	348.00	352.50	77	540.05	544.55	114	732.05	736.55			
22	168.00	172.50	46	354.00	358.50	78	546.05	550.55	115	738.05	742.55			
7	174.00	178.50	47	360.00	364.50	79	552.05	556.55	116	744.05	748.55			
8	180.00	184.50	48	366.00	370.50	80	558.05	562.55	117	750.05	754.55			
9	186.00	190.50	49	372.00	376.50	81	564.05	568.55	118	756.05	760.55			
10	192.00	196.50	50	378.00	382.50	82	570.05	574.55	119	762.05	766.55			
11	198.00	202.50	51	384.00	388.50	83	576.05	580.55	120	768.05	772.55			
12	204.00	208.50	52	390.00	394.50	84	582.05	586.55	121	774.05	778.55			
13	210.00	214.50	53	396.00	400.50	85	588.05	592.55	122	780.05	784.55			
23	216.00	220.50	54	402.00	406.50	86	594.05	598.55	123	786.05	790.55			
24	222.00	226.50	55	408.00	412.50	87	600.05	604.55	124	792.05	796.55			
25	228.00	232.50	56	414.00	418.50	88	606.05	610.55	125	798.05	802.55			
26	234.00	238.50	57	420.00	424.50	89	612.05	616.55	126	804.05	808.55			
27	240.00	244.50	58	426.00	430.50	90	618.05	622.55	127	810.05	814.55			
			59	432.00	436.50	91	624.05	628.55	128	816.05	820.55			

U.S.A.

CATV (IRC EIA)

CH	VIDEO (MHz)	SOUND (MHz)	26	235.25	239.75	58	427.25	431.75	90	619.25	623.75	127	811.25	815.75
2	55.25	59.75	27	241.25	245.75	59	433.25	437.75	91	625.25	629.75	128	817.25	821.75
3	61.25	65.75	28	247.25	251.75	60	439.25	443.75	92	631.25	635.75	129	823.25	827.75
4	67.25	71.75	29	253.25	257.75	61	445.25	449.75	93	637.25	641.75	130	829.25	833.75
1	73.25	77.75	30	259.25	263.75	62	451.25	455.75	94	643.25	647.75	131	835.25	839.75
5	79.25	83.75	31	265.25	369.75	63	457.25	461.75	100	649.25	653.75	132	841.25	845.75
6	85.25	89.75	32	271.25	275.75	64	463.25	467.75	101	655.25	659.75	133	847.25	851.75
95	91.25	95.75	33	277.25	281.75	65	469.25	473.75	102	661.25	665.75	134	853.25	857.75
96	97.25	101.75	34	283.25	287.75	66	475.25	479.75	103	667.25	671.75	135	859.25	863.75
97	103.25	107.75	35	289.25	293.75	67	481.25	485.75	104	673.25	677.75	136	865.25	869.75
98	109.25	113.75	36	295.25	299.75	68	487.25	491.75	105	679.25	683.75			
99	115.25	119.75	37	301.25	305.75	69	493.25	497.75	106	685.25	689.75			
14	121.25	125.75	38	307.25	311.75	70	499.25	503.75	107	691.25	695.75			
15	127.25	131.75	39	313.25	317.75	71	505.25	509.75	108	697.25	701.75			
16	133.25	137.75	40	319.25	323.75	72	511.25	515.75	109	703.25	707.75			
17	139.25	143.75	41	325.25	329.75	73	517.25	521.75	110	709.25	713.75			
18	145.25	149.75	42	331.25	335.75	74	523.25	527.75	111	715.25	719.75			
19	151.25	155.75	43	337.25	341.75	75	529.25	533.75	112	721.25	725.75			
20	157.25	161.75	44	343.25	347.75	76	535.25	539.75	113	727.25	731.75			
21	163.25	167.75	45	349.25	353.75	77	541.25	545.75	114	733.25	737.75			
22	169.25	173.75	46	355.25	359.75	78	547.25	551.75	115	739.25	743.75			
7	175.25	179.75	47	361.25	365.75	79	553.25	557.75	116	745.25	749.75			
8	181.25	185.75	48	367.25	371.75	80	559.25	563.75	117	751.25	755.75			
9	187.25	191.75	49	373.25	377.75	81	565.25	569.75	118	757.25	761.75			
10	193.25	197.75	50	379.25	383.75	82	571.25	575.75	119	763.25	767.75			
11	199.25	203.75	51	385.25	389.75	83	577.25	581.75	120	769.25	773.75			
12	205.25	209.75	52	391.25	395.75	84	583.25	587.75	121	775.25	779.75			
13	211.25	215.75	53	397.25	401.75	85	589.25	593.75	122	781.25	785.75			
23	217.25	221.75	54	403.25	407.75	86	595.25	599.75	123	787.25	791.75			
24	223.25	227.75	55	409.25	413.75	87	601.25	605.75	124	793.25	797.75			
25	229.25	233.75	56	415.25	419.75	88	607.25	611.75	125	799.25	803.75			
			57	421.25	425.75	89	613.25	617.75	126	805.25	809.75			

ITU-R (CCIR)

VHF

CH	VIDEO (MHz)	SOUND (MHz)
2	48.25	53.75
3	55.25	60.75
4	62.25	67.75
5	175.25	180.75
6	182.25	187.75
7	189.25	194.75
8	196.25	201.75
9	203.25	208.75
10	210.25	215.75
11	217.25	222.75
12	224.25	229.75

UHF

CH	VIDEO (MHz)	SOUND (MHz)
21	471.25	476.75
22	479.25	484.75
23	487.25	492.75
24	495.25	500.75
25	503.25	508.75
26	511.25	516.75
27	519.25	524.75
28	527.25	532.75
29	535.25	540.75
30	543.25	548.75
31	551.25	556.75
32	559.25	564.75
33	567.25	572.75
34	575.25	580.75
35	583.25	588.75
36	591.25	596.75

37	599.25	604.75
38	607.25	612.75
39	615.25	620.75
40	623.25	628.75
41	631.25	636.75
42	639.25	644.75
43	647.25	652.75
44	655.25	660.75
45	663.25	668.75
46	671.25	676.75
47	679.25	684.75
48	687.25	692.75
49	695.25	700.75
50	703.25	708.75
51	711.25	716.75
52	719.25	724.75
53	727.25	732.75
54	735.25	740.75
55	743.25	748.75
56	751.25	756.75
57	759.25	764.75
58	767.25	772.75
59	775.25	780.75
60	783.25	788.75
61	791.25	796.75
62	799.25	804.75
63	807.25	812.75
64	815.25	820.75
65	823.25	828.75
66	831.25	836.75
67	839.25	844.75
68	847.25	852.75

69	855.25	860.75
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CATV

CH	VIDEO (MHz)	SOUND (MHz)
E2	48.25	53.75
E3	55.25	60.75
E4	62.25	67.75
X	69.25	74.75
Y	76.25	81.75
Z	83.25	88.75
Z+1	90.25	95.75
Z+2	97.25	102.75
S1	105.25	110.75
S2	112.25	117.75
S3	119.25	124.75
S4	126.25	131.75
S5	133.25	138.75
S6	140.25	145.75
S7	147.25	152.75
S8	154.25	159.75
S9	161.25	166.75
S10	168.25	173.75
E5	175.25	180.75
E6	182.25	187.75
E7	189.25	194.75
E8	196.25	201.75
E9	203.25	208.75
E10	210.25	215.75
E11	217.25	222.75
E12	224.25	229.75
S11	231.25	236.75
S12	238.25	243.75

S13	245.25	250.75
S14	252.25	257.75
S15	259.25	264.75
S16	266.25	271.75
S17	273.25	278.75
S18	280.25	285.75
S19	287.25	292.75
S20	294.25	299.75
S21	303.25	308.75
S22	311.25	316.75
S23	319.25	324.75
S24	327.25	332.75
S25	335.25	340.75
S26	343.25	348.75
S27	351.25	356.75
S28	359.25	364.75
S29	367.25	372.75
S30	375.25	380.75
S31	383.25	388.75
S32	391.25	396.75
S33	399.25	404.75
S34	407.25	412.75
S35	415.25	420.75
S36	423.25	428.75
S37	431.25	436.75
S38	439.25	444.75
S39	447.25	452.75
S40	455.25	460.75
S41	463.25	468.75
E21	471.25	476.75
E22	479.25	484.75
E23	487.25	492.75

E24	495.25	500.75
E25	503.25	508.75
E26	511.25	516.75
E27	519.25	524.75
E28	527.25	532.75
E29	535.25	540.75
E30	543.25	548.75
E31	551.25	556.75
E32	559.25	564.75
E33	567.25	572.75
E34	575.25	580.75
E35	583.25	588.75
E36	591.25	596.75
E37	599.25	604.75
E38	607.25	612.75
E39	615.25	620.75
E40	623.25	628.75
E41	631.25	636.75
E42	639.25	644.75
E43	647.25	652.75
E44	655.25	660.75
E45	663.25	668.75
E46	671.25	676.75
E47	679.25	684.75
E48	687.25	692.75
E49	695.25	700.75
E50	703.25	708.75
E51	711.25	716.75
E52	719.25	724.75
E53	727.25	732.75
E54	735.25	740.75
E55	743.25	748.75

E56	751.25	756.75
E57	759.25	764.75
E58	767.25	772.75
E59	775.25	780.75
E60	783.25	788.75
E61	791.25	796.75
E62	799.25	804.75
E63	807.25	812.75
E64	815.25	820.75
E65	823.25	828.75
E66	831.25	836.75
E67	839.25	844.75
E68	847.25	852.75
E69	855.25	860.75

CHINA

VHF

CH	VIDEO (MHz)	SOUND (MHz)
1	49.25	56.75
2	57.25	64.75
3	65.25	72.75
4	77.25	83.75
5	85.25	91.75
6	168.25	174.75
7	176.25	182.75
8	184.25	190.75
9	192.25	198.75
10	200.25	206.75
11	208.25	214.75
12	216.25	222.75

UHF

CH	VIDEO (MHz)	SOUND (MHz)
13	471.25	477.75
14	479.25	485.75
15	487.25	493.75
16	495.25	501.75
17	503.25	509.75
18	511.25	517.75
19	519.25	525.75
20	527.25	533.75
21	535.25	541.75
22	543.25	549.75
23	551.25	557.75
24	559.25	565.75
25	607.25	613.75
26	615.25	621.75
27	623.25	629.75

CATV

28	631.25	637.75
29	639.25	645.75
30	647.25	653.75
31	655.25	661.75
32	663.25	669.75
33	671.25	677.75
34	679.25	685.75
35	687.25	693.75
36	695.25	701.75
37	703.25	709.75
38	711.25	717.75
39	719.25	725.75
40	727.25	733.75
41	735.25	741.75
42	743.25	749.75
43	751.25	757.75
44	759.25	765.75
45	767.25	773.75
46	775.25	781.75
47	783.25	789.75
48	791.25	797.75
49	799.25	805.75
50	807.25	813.75
51	815.25	821.75
52	823.25	829.75
53	831.25	837.75
54	839.25	845.75
55	847.25	853.75
56	855.25	861.75
57	863.25	869.75

CH	VIDEO (MHz)	SOUND (MHz)
Z1	112.25	118.75
Z2	120.25	126.75
Z3	128.25	134.75
Z4	136.25	142.75
Z5	144.25	150.75
Z6	152.25	158.75
Z7	160.25	166.75
D6	168.25	174.75
D7	176.25	182.75
D8	184.25	190.75
D9	192.25	198.75
D10	200.25	206.75
D11	208.25	214.75
D12	216.25	222.75
Z8	224.25	230.75
Z9	232.25	238.75
Z10	240.25	246.75
Z11	248.25	254.75
Z12	256.25	262.75
Z13	264.25	270.75
Z14	272.25	278.75
Z15	280.25	286.75
Z16	288.25	294.75
Z17	296.25	302.75
Z18	304.25	310.75
Z19	312.25	318.75
Z20	320.25	326.75
Z21	328.25	334.75
Z22	336.25	342.75
Z23	344.25	350.75

Z24	352.25	358.75
Z25	360.25	366.75
Z26	368.25	374.75
Z27	376.25	382.75
Z28	384.25	390.75
Z29	392.25	398.75
Z30	400.25	406.75
Z31	408.25	414.75
Z32	416.25	422.75
Z33	424.25	430.75
Z34	432.25	438.75
Z35	440.25	446.75
Z36	448.25	454.75
Z37	456.25	462.75
D13	471.25	477.75
D14	479.25	485.75
D15	487.25	493.75
D16	495.25	501.75
D17	503.25	509.75
D18	511.25	517.75
D19	519.25	525.75
D20	527.25	533.75
D21	535.25	541.75
D22	543.25	549.75
D23	551.25	557.75
D24	559.25	565.75
Z38	567.25	573.75
Z39	575.25	581.75
Z40	583.25	589.75
Z41	591.25	597.75
Z42	599.25	605.75
D25	607.25	613.75

D26	615.25	621.75
D27	623.25	629.75
D28	631.25	637.75
D29	639.25	645.75
D30	647.25	653.75
D31	655.25	661.75
D32	663.25	669.75
D33	671.25	677.75
D34	679.25	685.75
D35	687.25	693.75
D36	695.25	701.75
D37	703.25	709.75
D38	711.25	717.75
D39	719.25	725.75
D40	727.25	733.75
D41	735.25	741.75
D42	743.25	749.75
D43	751.25	757.75
D44	759.25	765.75
D45	767.25	773.75
D46	775.25	781.75
D47	783.25	789.75
D48	791.25	797.75
D49	799.25	805.75
D50	807.25	813.75
D51	815.25	821.75
D52	823.25	829.75
D53	831.25	837.75
D54	839.25	845.75
D55	847.25	853.75
D56	855.25	861.75
D57	863.25	869.75

U. K.

UHF

CH	VIDEO (MHz)	SOUND (MHz)	51	711.25	717.25	12	136.00	142.00	44	392.00	398.00	76	648.00	654.00
21	471.25	477.25	52	719.25	725.25	13	144.00	150.00	45	400.00	406.00	77	656.00	662.00
22	479.25	485.25	53	727.25	733.25	14	152.00	158.00	46	408.00	414.00	78	664.00	670.00
23	487.25	493.25	54	735.25	741.25	15	160.00	166.00	47	416.00	422.00	79	672.00	678.00
24	495.25	501.25	55	743.25	749.25	16	168.00	174.00	48	424.00	430.00	80	680.00	686.00
25	503.25	509.25	56	751.25	757.25	17	176.00	182.00	49	432.00	438.00	81	688.00	694.00
26	511.25	517.25	57	759.25	765.25	18	184.00	190.00	50	440.00	446.00	82	696.00	702.00
27	519.25	525.25	58	767.25	773.25	19	192.00	198.00	51	448.00	454.00	83	704.00	710.00
28	527.25	533.25	59	775.25	781.25	20	200.00	206.00	52	456.00	462.00	84	712.00	718.00
29	535.25	541.25	60	783.25	789.25	21	208.00	214.00	53	464.00	470.00	85	720.00	726.00
30	543.25	549.25	61	791.25	797.25	22	216.00	222.00	54	472.00	478.00	86	728.00	734.00
31	551.25	557.25	62	799.25	805.25	23	224.00	230.00	55	480.00	486.00	87	736.00	742.00
32	559.25	565.25	63	807.25	813.25	24	232.00	238.00	56	488.00	494.00	88	744.00	750.00
33	567.25	573.25	64	815.25	821.25	25	240.00	246.00	57	496.00	502.00	89	752.00	758.00
34	575.25	581.25	65	823.25	829.25	26	248.00	254.00	58	504.00	510.00	90	760.00	766.00
35	583.25	589.25	66	831.25	837.25	27	256.00	262.00	59	512.00	518.00	91	768.00	774.00
36	591.25	597.25	67	839.25	845.25	28	264.00	270.00	60	520.00	526.00	92	776.00	782.00
37	599.25	605.25	68	847.25	853.25	29	272.00	278.00	61	528.00	534.00	93	784.00	790.00
38	607.25	613.25	69	855.25	861.25	30	280.00	286.00	62	536.00	542.00	94	792.00	798.00
39	615.25	621.25	CATV			31	288.00	294.00	63	544.00	550.00	95	800.00	806.00
40	623.25	629.25	CH	VIDEO (MHz)	SOUND (MHz)	32	296.00	302.00	64	552.00	558.00	96	808.00	814.00
41	631.25	637.25	2	56.00	62.00	33	304.00	310.00	65	560.00	566.00	97	816.00	822.00
42	639.25	645.25	3	64.00	70.00	34	312.00	318.00	66	568.00	574.00	98	824.00	830.00
43	647.25	653.25	4	72.00	78.00	35	320.00	326.00	67	576.00	582.00	99	832.00	838.00
44	655.25	661.25	5	80.00	86.00	36	328.00	334.00	68	584.00	590.00	100	840.00	846.00
45	663.25	669.25	6	88.00	94.00	37	336.00	342.00	69	592.00	598.00	101	848.00	854.00
46	671.25	677.25	7	96.00	102.00	38	344.00	350.00	70	600.00	606.00	102	856.00	862.00
47	679.25	685.25	8	104.00	110.00	39	352.00	358.00	71	608.00	614.00	103	864.00	870.00
48	687.25	693.25	9	112.00	118.00	40	360.00	366.00	72	616.00	622.00			
49	695.25	701.25	10	120.00	126.00	41	368.00	374.00	73	624.00	630.00			
50	703.25	709.25	11	128.00	134.00	42	376.00	382.00	74	632.00	638.00			
						43	384.00	390.00	75	640.00	646.00			

HONG KONG AREA

VHF

CH	VIDEO (MHz)	SOUND (MHz)
2	51.75	48.25
3	56.75	53.25
4	61.75	58.25
5	66.75	63.25
6	179.75	176.25
7	184.75	181.25
8	189.75	186.25
9	194.75	191.25
10	199.75	196.25
11	204.75	201.25
12	209.75	206.25
13	214.75	211.25
14	219.75	216.25

UHF

CH	VIDEO (MHz)	SOUND (MHz)
21	471.25	477.25
22	479.25	485.25
23	487.25	493.25
24	495.25	501.25
25	503.25	509.25
26	511.25	517.25
27	519.25	525.25
28	527.25	533.25
29	535.25	541.25
30	543.25	549.25
31	551.25	557.25
32	559.25	565.25
33	567.25	573.25
34	575.25	581.25

35	583.25	589.25
36	591.25	597.25
37	599.25	605.25
38	607.25	613.25
39	615.25	621.25
40	623.25	629.25
41	631.25	637.25
42	639.25	645.25
43	647.25	653.25
44	655.25	661.25
45	663.25	669.25
46	671.25	677.25
47	679.25	685.25
48	687.25	693.25
49	695.25	701.25
50	703.25	709.25
51	711.25	717.25
52	719.25	725.25
53	727.25	733.25
54	735.25	741.25
55	743.25	749.25
56	751.25	757.25
57	759.25	765.25
58	767.25	773.25
59	775.25	781.25
60	783.25	789.25
61	791.25	797.25
62	799.25	805.25
63	807.25	813.25
64	815.25	821.25
65	823.25	829.25
66	831.25	837.25

67	839.25	845.25
68	847.25	853.25
69	855.25	861.25

CATV

CH	VIDEO (MHz)	SOUND (MHz)
E2	48.25	53.75
E3	55.25	60.75
E4	62.25	67.75
X	69.25	74.75
Y	76.25	81.75
Z	83.25	88.75
Z+1	90.25	95.75
Z+2	97.25	102.75
S1	105.25	110.75
S2	112.25	117.75
S3	119.25	124.75
S4	126.25	131.75
S5	133.25	138.75
S6	140.25	145.75
S7	147.25	152.75
S8	154.25	159.75
S9	161.25	166.75
S10	168.25	173.75
E5	175.25	180.75
E6	182.25	187.75
E7	189.25	194.75
E8	196.25	201.75
E9	203.25	208.75
E10	210.25	215.75
E11	217.25	222.75
E12	224.25	229.75

S11	231.25	236.75
S12	238.25	243.75
S13	245.25	250.75
S14	252.25	257.75
S15	259.25	264.75
S16	266.25	271.75
S17	273.25	278.75
S18	280.25	285.75
S19	287.25	292.75
S20	294.25	299.75
S21	303.25	308.75
S22	311.25	316.75
S23	319.25	324.75
S24	327.25	332.75
S25	335.25	340.75
S26	343.25	348.75
S27	351.25	356.75
S28	359.25	364.75
S29	367.25	372.75
S30	375.25	380.75
S31	383.25	388.75
S32	391.25	396.75
S33	399.25	404.75
S34	407.25	412.75
S35	415.25	420.75
S36	423.25	428.75
S37	431.25	436.75
S38	439.25	444.75
S39	447.25	452.75
S40	455.25	460.75
S41	463.25	468.75
E21	471.25	476.75

E22	479.25	484.75
E23	487.25	492.75
E24	495.25	500.75
E25	503.25	508.75
E26	511.25	516.75
E27	519.25	524.75
E28	527.25	532.75
E29	535.25	540.75
E30	543.25	548.75
E31	551.25	556.75
E32	559.25	564.75
E33	567.25	572.75
E34	575.25	580.75
E35	583.25	588.75
E36	591.25	596.75
E37	599.25	604.75
E38	607.25	612.75
E39	615.25	620.75
E40	623.25	628.75
E41	631.25	636.75
E42	639.25	644.75
E43	647.25	652.75
E44	655.25	660.75
E45	663.25	668.75
E46	671.25	676.75
E47	679.25	684.75
E48	687.25	692.75
E49	695.25	700.75
E50	703.25	708.75
E51	711.25	716.75
E52	719.25	724.75
E53	727.25	732.75

E54	735.25	740.75
E55	743.25	748.75
E56	751.25	756.75
E57	759.25	764.75
E58	767.25	772.75
E59	775.25	780.75
E60	783.25	788.75
E61	791.25	796.75
E62	799.25	804.75
E63	807.25	812.75
E64	815.25	820.75
E65	823.25	828.75
E66	831.25	836.75
E67	839.25	844.75
E68	847.25	852.75
E69	855.25	860.75

INDONESIA

VHF

CH	VIDEO (MHz)	SOUND (MHz)
2	55.25	60.75
3	62.25	67.75
4	175.25	180.75
5	182.25	187.75
6	189.25	194.75
7	196.25	201.75
8	203.25	208.75
9	210.25	215.75
10	217.25	222.75
11	224.25	229.75

UHF

CH	VIDEO (MHz)	SOUND (MHz)
21	471.25	476.75
22	479.25	484.75
23	487.25	492.75
24	495.25	500.75
25	503.25	508.75
26	511.25	516.75
27	519.25	524.75
28	527.25	532.75
29	535.25	540.75
30	543.25	548.75
31	551.25	556.75
32	559.25	564.75
33	567.25	572.75
34	575.25	580.75
35	583.25	588.75
36	591.25	596.75
37	599.25	604.75

38	607.25	612.75
39	615.25	620.75
40	623.25	628.75
41	631.25	636.75
42	639.25	644.75
43	647.25	652.75
44	655.25	660.75
45	663.25	668.75
46	671.25	676.75
47	679.25	684.75
48	687.25	692.75
49	695.25	700.75
50	703.25	708.75
51	711.25	716.75
52	719.25	724.75
53	727.25	732.75
54	735.25	740.75
55	743.25	748.75
56	751.25	756.75
57	759.25	764.75
58	767.25	772.75
59	775.25	780.75
60	783.25	788.75
61	791.25	796.75
62	799.25	804.75
63	807.25	812.75
64	815.25	820.75
65	823.25	828.75
66	831.25	836.75
67	839.25	844.75
68	847.25	852.75
69	855.25	860.75

AUSTRALIA

VHF

CH	VIDEO (MHz)	SOUND (MHz)
0	46.25	51.75
1	57.25	62.75
2	64.25	69.75
3	86.25	91.75
4	95.25	100.75
5	102.25	107.75
5A	138.25	143.75
6	175.25	180.75
7	182.25	187.75
8	189.25	194.75
9	196.25	201.75
9A	203.25	208.75
10	209.25	214.75
11	216.25	221.75
12	224.25	229.75

UHF

CH	VIDEO (MHz)	SOUND (MHz)
28	527.25	532.75
29	534.25	539.75
30	541.25	546.75
31	548.25	553.75
32	555.25	560.75
33	562.25	567.75
34	569.25	574.75
35	576.25	581.75
36	583.25	588.75
37	590.25	595.75
38	597.25	602.75
39	604.25	609.75

40	611.25	616.75
41	618.25	623.75
42	625.25	630.75
43	632.25	637.75
44	639.25	644.75
45	646.25	651.75
46	653.25	658.75
47	660.25	665.75
48	667.25	672.75
49	674.25	679.75
50	681.25	686.75
51	688.25	693.75
52	695.25	700.75
53	702.25	707.75
54	709.25	714.75
55	716.25	721.75
56	723.25	728.75
57	730.25	735.75
58	737.25	742.75
59	744.25	749.75
60	751.25	756.75
61	758.25	763.75
62	765.25	770.75
63	772.25	777.75
64	779.25	784.75
65	786.25	791.75
66	793.25	798.75
67	800.25	805.75
68	807.25	812.75
69	814.25	819.75



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