LM870-N(R)

SIGNAL LEVEL METER

User Manual Ver3.0

3 .HOW TO TEST

3-1.KEYS

SET Function setting key.

Press The key will enter setting interface to set and change testing specifications.

SCAN Channel scan key. Press the key will enter Channel scan mode.

FREQ Frequency key. Press the key will turn to the frequency testing mode.

▲ Step up key. (▼ step down key)

Press the key will increase or deduce the channel No. Frequency value. At setting mode, press the key will move up /down the menu.

Power On/Off key. Press the key will turn on/off the instrument.

ENT Function confirm key. Confirm the input Channel no./Frequency or confirm new setting or enter sub menu.

CLR Clear key. Clear newly input number or clear unconfirmed setting or escape from sub menu.

0 ∽ 9 ./Z Number and point/Additional Channel key. Use the key to operate Second function operation.

Press these keys to input the channel No. And Frequency value. If input integral frequency value same or less than Max Channel No. one need to input decimal point. To input additional Channel No., press key "./Z" at first, then input number. After all is input, the instrument will

confirm automatically. Or else one need to press key ENTER for confirmation or press key "CLR" to clear operation.
At SETUP mode, use them to input English letter, space, etc.

[2ndF] Second function key. Use the key to begin the second function operation.

NOTE: Operation described in this section is under second function!

[6] "6' VOLT" Voltage testing key. Press key "2ndF" then press this key will begin built in battery and trunk cable Voltage testing.

[5] "5/C/N"Carrier to noise testing key. Press "2ndF"then press the key to test CATV carrier to noise difference.

[4] "4/TILT"TILT testing key. Press key "2ndF" then press this key begin to test TILT.

[PRN /9] "PRINT". Value added Opt. (1). At SCAN or SPECTRUM mode press the key to print the data stored in the memory.

[LOAD/8] "8/LOAD"key. At SCAN or SPECTRUM mode, press the key to load the current data.

[CLR] "CLR/DEL" Delete key. At SCAN or SPECTRUM mode , press the key to delete the data in memory.

[▲] [▼] Press key "2ndF"then press this key to change the LCD contrast.

Note! notified that the following operation procedures are all under "Set Mode"

3-2 HOW TO TEST

3-2-1 VOLUME CONTROL

Press key "▼" or "▲" to make "→" point to Volume Set , press key "ENTER" , LCD will display:

→	Volume Auto	Volume auto turn On/Off
	Volume Off	Volume is always off

Press key "▼" or "▲" and select , then press key "ENTER" to confirm and escape to testing mode .Or you can press key "CLR" to escape to testing mode.

Note! Volume auto turn On/Off refer to: At audio and frequency testing mode, volume will be auto turn on if the signal level is bigger than 30dB; Volume will be auto turn off if less than 33dB or other mode.

3-2-2 LEVEL UNIT SET

Press key "▼" or "▲" to make "→" point to "Level Unit"

Press key "ENTER" , LCD will display:

	dB μ V	Disable
→	dBm	Enable

Don't select dB μ V

Select dB μ V

Press key "▼" or "▲" and select , then press key "ENTER" to confirm and escape

to testing mode .Or you can press key "CLR" to escape to testing mode.

3-2-3. AUTO OFF TIME

Press key "▼" or "▲" to make "→" point to "Auto Off Time"

Press key "ENTER" ,LCD will display:

→	5 Minutes off
	Always On

Auto Turn off without key operation within 5 minutes

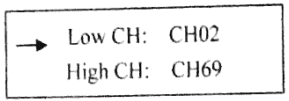
Power always on except battery low

Press key "▼" or "▲" and select , then press key "ENTER" to confirm and escape to testing mode .Or you can press key "CLR" to escape to testing mode.

3-2-4. SET TILT CHANNELS

Press key "▼" or "▲" to made "→" point to " Tilt CH Set"

Press key "ENTER", LCD will display :

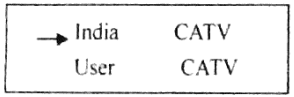


Set a low end Channel
Set a high end Channel

Press key "▼" or "▲" and select low end channel. Use key "SET" change into high end Channel Set (or vice versa) and select high end channel like the way to select Low channel. After low and high end channel is selected, press key "ENTER" to escape to testing mode.

3-2-5. SET CHANNEL LIST

Press key "▼" or "▲" to make "→" point to "Channel Plan" , press key "ENTER" , LCD will display:



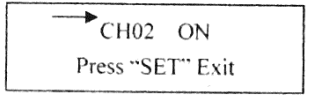
Indian Channel List
User edited Channel List

Press key "▼" or "▲" and select , then press key "ENTER" to confirm and escape to testing mode .Or you can press key "CLR" to escape to testing mode.

Note! If user select "User Plan, procedure 3-2-6 is required to be carried out first.

3-2-6. USER CHANNEL LIST EDITING

Press key "▼" or "▲" to make "→" point to "User Edit " ,press key "ENTER" ,LCD will display:



Select CH02 (ON) or don't select (Off)
Press key "SET" to edit

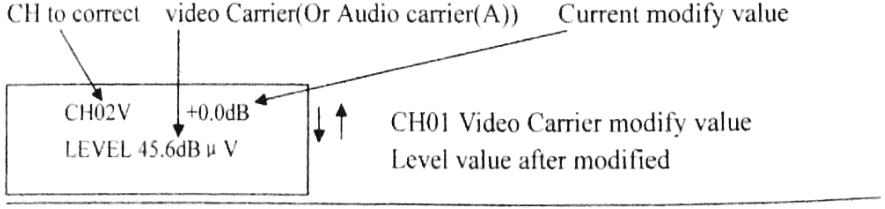
Press key "▼" or "▲" and select the channel No.s, then press key "SET" to confirm selected (on) or not selected (off) .After one channel is edited, then press key "▼" or

"▲" to select next channel and edit .After all the channels are edited, press "ENTER" or "CLR" to escape to testing mode.

3-2-7. DEVIATION MODIFY

Before leaving factory, the instrument has already been carried out automatic digital frequency response modifying. However we still supply our user the function to modify the deviation. With a standard signal generator, you can find if there is deviation and correct if any.

Press key "▼" or "▲" to make "→" point to "Correct CH dB", press key "ENTER" .LCD will display:



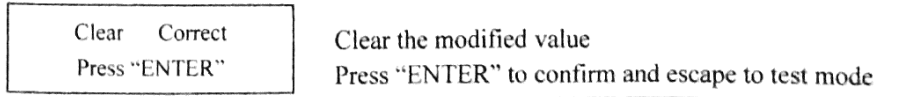
The displayed CH02 is the CH to be modified. The current modifying is video carrier. To modify the Audio carrier, press key "V/A" to switch.

Press key "▼" or "▲" to change the modify value ,press key "SET" to confirm until you reach the correct value. At this moment the tested data is same the standard signal generator. To modify the neighbor Channels. After all were modified, press key "ENTER" to confirm and escape to test mode. Or you can press key "CLR" to escape to test mode.

3-2-8. CLEAR THE CORRECTED VALUE

In case you are not satisfied with the modifying in 3-2-9, you clear all the modifying by the following operation and the Correct Value shall return to the ex-factory value.

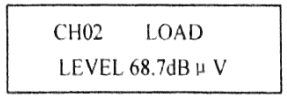
Press key "▼" or "▲" to make "→" point to "Channel Plan", press key "ENTER", LCD will display:



To confirm clearing all the Correct value, press key "ENTER" .All the modifying is cleared (correct value =0dB) and escape to test mode.
If you have enter this menu but don't want to clear the correct value, press key "CLR" to clear the operation and escape to test mode.

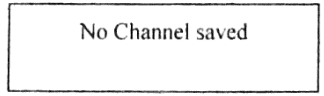
3-2-9. LOAD MEMORY DATA

Data acquired when auto scanning channels (please refer to 3-4-3) is auto stored in the memory. The data is able to be load out by following the below operation.
Press key "▼" or "▲" to make "→" point to "Load data" , press key "ENTER". LCD will display:



CH No. to Load Data
Video carrier signal level

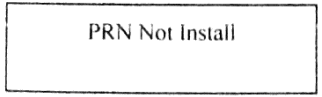
The displayed data is the video carrier signal level of CH02.
Press key "▼" or "▲" and select, then press key "ENTER" to confirm and load the data of video and audio carrier . To escape operation press key "CLR".
In case no data stored, LCD will display:



No Channel Level Stored
Then auto escape to test mode

3-2-10.
DATA PRINT(this function is the Opt3 and LM870-N(R) have no such function)

Instrument without printing option will display:



No printer installed
Then auto escape to test mode.

Instrument with printing option, please connect to EPSON LX-300 Printer with the special printing cable attached. Then press key "ENTER", LCD will display:

Now Printing...	Data is being printed Auto escape to test mode after finish printing

3-2-11. ADJUST LCD CONTRAST (LM870-N(R) have no such function))

In case the temperature cause the insufficient LCD contrast, this operation will help you to adjust the LCD's contrast.

Press key "▼" or "▲" to make "→" point to "Contrast", press key "ENTER" ,LCD will display:

Correct Contrast Use key ↓

Press key "▼" or "▲" until data is clearly displayed. Then press key "ENTER" to confirm and escape to testing mode.

4. SPECIFICATIONS

4.1 Frequency and Level

◆ Frequency Range:	46 — 870MHz
	5 — 870MHz (LM870-NR)
◆ Resolution Bandwidth:	280KHz ± 50KHz
◆ Channels:	All user designate Channels
◆ Level Range:	30dBμV — 115dBμV
◆ Accuracy:	±1.5dBuV (under room temperature)
	±2.5dBuV (- 10 — +40℃)
◆ input impedance	75Ω (BNC or F connector)
◆ Wave detection	Peak value

4.2 AUTO SCAN TESTING

■ Max Channel Scan:	125 Channels
■ Scan Range:	All Channels within 5(46)--870MHz
■ Scan Speed:	30 Channels/Min
■ Memory Groups	14 Groups(00--13) Each group store Max 100 Channels.

4.3 VOLTAGE

◇ Voltage Range:	0 -- 100VAC
◇ Accuracy:	±1.5V
◇ Resolution	0.1V

4.4 C/N(The measure result is only for reference. Not accuracy)

■ Level Range:	80dBuV - 105dBuV

4.5 OTHERS

■ Dimension:	214mm x 94mm X 47mm
■ Weight:	1.4 kg
■ Working Temperature:	-10℃ -- + 40℃
■ Display LCD:	16X2 LCD with back light

4.6 POWER

■ DC Supply:	DC 7.2V/1.5Ah rechargeable battery
■ AC Supply:	AC 220V/50Hz±10%
■ Battery working hours:	longer than 3.5 hours at continuous working mode
■ Recharging hours:	12 -- 14 hours.

4.7 ACCESORIES

★ Battery Charger:	charger 1pc
★ RF Input Port:	F type 2pcs
★ User Manual	1 copy

LM870-N(R) TEST REPORT (LM870-N(R) have no such function)

TRUNK Voltage: 70.8VAC Battery Voltage 7.1VDC

Channel	Video (dBuV)	Audio (dBuV)	V/A (dB)
CH02	99.0	85.0	+14.0
CH03	90.0	75.0	+15.0
CH04	80.0	67.0	+13.0
ZCH01	70.0	58.0	+12.0
ZCH02	60.0	50.0	+10.0
ZCH03	55.0	45.0	+10.0
ZCH04	54.0	44.0	+10.0
ZCH05	53.0	43.0	+10.0
ZCH1	52.0	46.0	+ 6.0

Min Video Level:	52.0dBuV	ZCH1
Max Video Level:	99.0dBuV	CH02
Min Audio Level:	46.0dBuV	ZCH1
Max Audio Level:	85.0dBuV	CH02
Min V/A:	+6.0dBuV	ZCH1
Max V/A:	52.0dBuV	CH03

Conclusion:

Reviewed: Date: