Monoscope and color still picture patterns are provided

$C\epsilon$
Upon request

LT 436NP NTSC/PAL PATTERN GENERATOR

● GENERAL

The LT 436NP Analog Pattern Generator applicable to NTSC and PAL systems is ideal for production line, inspection, and R&D applications of LCD TVs. Providing 24 test patterns (e.g., monoscope pattern, 8-color raster, flash pattern, slant pattern, variable luminance raster, color still picture), this instrument is suitable for the latest high quality and resolution LCD TVs.

The full color still picture pattern data can be changed by sending bit map data.

● FEATURES

■ Monoscope pattern

The monoscope pattern with a resolution of 1000 TV lines is provided.

Since color bar is superimposed on this pattern, resolution and color reproducibility can be tested simultaneously.

■ Color still picture pattern

A full-color still picture pattern can be stored inside the instrument. Users can transfer and use their original data for the still picture pattern. The sample pattern stored inside the instrument when it is shipped from the factory is Leader's original still pic-

ture pattern. For NTSC, an ITE color matching chart(a lady with a carnation) is provided as a fixed color still pattern in addition to the rewritable color still picture pattern.

■ S connector

Since S connector is used to output Y/C signals, this instrument can be used for adjusting and inspecting LCD TVs equipped with the S connector input.

■ Component signal output

Since Y, P_B, P_R and G, B, R can be output together with the composite signal, this instrument can be used for adjusting and inspecting LCD TVs equipped with the component signal input.

■ D Connector (for D1)

Two output systems (i.e., D connector, BNC connector) are provided to output Y, P_B, P_R component signals.

■ Various test patterns

Since various patterns (e.g., monoscope pattern, 8-color raster, flash pattern, slant pattern, variable luminance raster) are provided, this instrument is ideal for a variety of adjustment and inspection applications.

■ LT 436NP REAR PANEL

● SPECIFICATIONS LT 436NP

Video Signal
Common Specifications for Video Signal
Color Format :	NTSC (525/60)
	PAL (625/50)

Scanning Method
NTSC :	525 interlace scanning
PAL :	625 interlace scanning
	624 non-interlace scanning

Field Frequency
NTSC :	59.94 Hz±25 ppm
PAL :	50.00 Hz±25 ppm(at interlace scanning)
	50.08 Hz±25 ppm(at non-interlace scanning)

Line Frequency
NTSC :	15.734 kHz±25 ppm
PAL :	15.625 kHz±25 ppm
Output Impedance:	75 Ω

Composite Video Signal
Subcarrier Frequency
NTSC :	3.579545 MHz±25 ppm
PAL :	4.43361875 MHz±25 ppm

Output Level
Video Level
NTSC :	714 mV (100 % Level)±22 mV
PAL :	700 mV (100 % Level)±21 mV

Sync Level
NTSC :	286 mV±9 mV
PA L :	300 mV±9 mV

Color Burst Level
NTSC :	286 mVp-p±9 mV
PAL :	300 mVp-p±9 mV
Phase Error :	±3 °

Output Connector
NTSC :	BNC (Always outputs NTSC signal)
PAL :	BNC (Always outputs PAL signal)
NTSC/PAL :	BNC, RCA pin jack (NTSC or PAL signal selectable)
Number of Outputs :	1 each

Y/C Separation Output
System :	Same as the composite signal specifications
Output Connector :	S type (NTSC/PAL,Selectable)
Number of Outputs :	1

Y, PB, PR Signal
Y Output Level
Video Level :	700 mV ±21 mV(100 % Level)
Sync Level :	300 mV ±9 mV
PB, PR Output Level :	±350 mV ±21 mV(100 % Level)
Output Connector :	BNC, D-connector (525/60 Always output)

Number of Outputs
BNC :	2 each (Also used for R, G, B)
D-connector :	1

* The number of scanning lines is the same as the composite signal.

R, G, B Signal
Sync Signal :	Superimposed on the G signal (ON/OFF selectable)

R, G, B Output Level
Video Level :	700 mV ±50 mV (100 % Level)
Sync Level :	300 mV ±15 mV (When sync signal is added)
Output Connector :	BNC
Number of Outputs :	2 each (Two connectors are also used for Y, PB, PR)

* The number of scanning lines is the same as the composite signal.

D Connector (for D1 Format) Output
* Signal in 525/60 format is always output. (Signal in 625/50 format is not output.)
Specifications :	Conform to JEITA CP-4120 standards

Video Signal
Signal Format :	Same as the Y, PB, PR signal.
Output :	Inserting a plug does not turn the output off.

Identification Signal
Line 1, 2, 3 :	0 V
Output DC Impedance :	10 kΩ

Auxiliary Lines
Auxiliary 1, 2, 3 :	NC

Connector
Connector :	D connector (conforms toJEITA RC-5237 standards)

Pin Assignments

Pin Number	Signal Name	Pin Number	Signal Name
1	Y	8	Line 1
2	Y_GND	9	Line 2
3	PB	10	Auxiliary Lines 2
4	PB_GND	11	Line 3
5	PR	12	Plug Detect GND
6	PR_GND	13	Auxiliary Lines 3
7	Auxiliary Lines 1	14	Plug Detect

Sync Signal Output
Sync Signal :	HS, VS, C.SYNC
Output Level :	0 V to 5 V±250 mV (into open circuit)
Output Impedance :	75 Ω
Output Connector :	BNC
Number of Outputs :	1 each

Pattern
Display Pattern
Color Bar
NTSC :	Full field color bar (100/0/100/0, 100/0/75/0 saturation, selectable)
	SMPTE color bar
	Split field color bar
PAL :	Full field color bar (100 %, 75 % saturation, selectable)
	SMPTE color bar
	(A ratio is the same the NTSC system.)
	Split field color bar
	(A ratio is the same the NTSC system.)

* For NTSC (525/60) and PAL (625/50) systems, the R, G, B connectors do not output the SMPTE color bar and split field color bar. (A black raster is output.)
Raster :	White, yellow, cyan, green, magenta, red, blue, black (100 %, 75 % saturation,selectable)

Demodulation
NTSC :	The phase of R-Y and B-Y in the chroma signal are inverted every line.
PAL :	The phase of R-Y and B-Y of the chroma signal, and I and Q are inverted every line.

* For NTSC (525/60) and PAL (625/50) systems, the R, G, B connectors do not output this signal. (A black raster is output.)
Flashing :	The 0 % or 100 % monochrome pattern is alternately displayed every field.
Slant Pattern :	Black line displayed from lower-left to upper-right corners at aspect ratio of 4:3 on a 100 % white background

Line Sweep
NTSC :	0.1 to 5.0 MHz Marker 0.5, 1, 2, 3, 3.58, 4.5 MHz
PAL :	0.25 to 6.1 MHz Marker 1, 2, 3, 4, 5, 6 MHz

Pulse Bar
NTSC :	Modulated 12.5T pulse, 2T pulse, 2T bar
PAL :	Modulated 20T pulse, 2T pulse, 2T bar
Ramp :	0 to 100 % ramp

Step
NTSC :	Level of 0 to 100 % is divided into 10 equal steps for 11 levels.
PAL :	Level of 0 to 100 % is divided into 10 equal steps for 11 levels.

Split Gray Scale :	The screen is split in ratio of 1:1 for top and bottom At top portion, level between 0 % and 100 % is divided into 15 equal steps for 16 levels. Bottom portion is a 100 % white pattern.
Window :	Black/white reversible
Monoscope :	Scale in units of %
	Color bars can be superimposed (100/0/75/0 saturation) Chroma component ON/OFF function (including color burst)

Convergence
NTSC :	17 (V) x 14 (H) lines
PAL :	19 (V) x 15 (H) lines

Character
NTSC :	47 (H) x 24 (V) alphanumeric characters
PAL :	45 (H) x 24 (V) alphanumeric characters

* Color burst is not superimposed in both NTSC and PAL systems.

Color Still Picture
NTSC :	755 dots (H) x 483 lines (V)
PAL :	923 dots (H) x 574 lines (V)
	Full color
	Data can be changed by sending bit map data. (Windows application software is supplied for sending bit map data.)

Level Variable in Video Period
Applicable Pattern :	Raster White•Window
Variable Range :	Continuous variable between 0 and 100 %

Sound Output
Frequency :	1 kHz±150 Hz
Output Level :	1 Vp-p±0.1 V
Output Impedance :	10 kΩ±2 kΩ
Output Connector :	RCA pin jack
Number of Outputs :	2

Environmental Conditions
Operating : Temperature :	0 to 40 ˚C
Operating : Humidity :	≤ 90 %RH (without condensation)
Spec-Guaranteed : Temperature :	10 to 30 ˚C
Spec-Guaranteed : Humidity :	≤ 85 %RH (without condensation)
Operating Environment :	Indoor use
Operating Altitude :	Up to 2,000 m
Overvoltage Category :	II
Pollution Degree :	2
Power Requirements :	90 to 250 VAC, universal, 50/60 Hz, 40 W max.
Dimensions and Weight :	426 (W) x 88 (H) x 400 (D) mm, 5.9 kg
Accessories :	Power cord 1
	*Floppy disk (LT 436 series application software) 1
	Instruction manual 1

* "Windows" is a trademark of Microsoft Corporation, registered in the USA and other countries.