Various video test signals

For adjusting and quality appraisal the video system, the various test signals are devised and are utilized widely. Among those it tries introducing several standard ones. But, these signals are really utilized, in many cases measurement equipment such as corrugated monitor and vector monitor becomes necessary. You think that these measurement equipment private characteristic are high, the semi only professional or suitable whim have (I do not have, (the ^^;). If the oscilloscope because has anyone, it can use it is to as substitution of the corrugated monitor. Because several test signals are inserted in the blanking area of television broadcasting, when it tries looking with the oscilloscope, you think that it is funny.

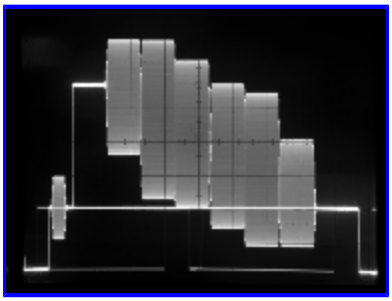
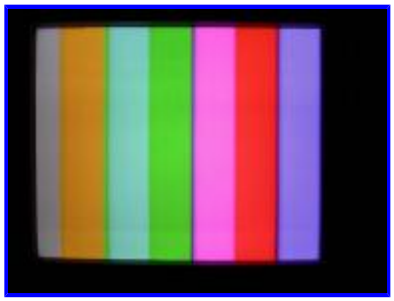
* In regard to work because video system it is outside the specialty, when perhaps it does, writing strange thing, perhaps it reaches, there is an explanatory insufficient place. When there is a point which becomes aware, please thrust and inserting (the ^^; .

*NTSCtest signal

- Black bursting

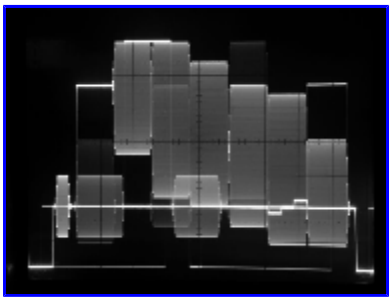
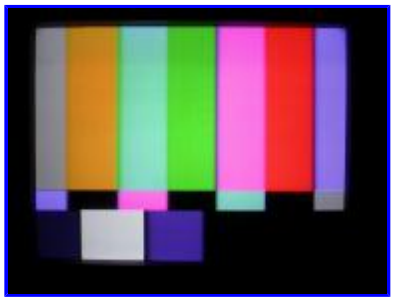
Marker pulse and the deep-black picture which is not at all other than color burst. Same period it can point, the frame of plural equipment such as the adjustment and external synchronization signal of SC-H making the timing signal which it is widely used.

- Full-color bar

It consists the picture of each color band of the white yellow cyanide green magenta red blue black which 8 is divided into horizontal direction the most basic color bar. There is a variation of 3 types depending upon the setting of luminance level of the white band and the other color band. Because the photograph to the right brightness of the respective color band is 75%, it is called 75% color bar, peak of the yellow and carrier chrominance signal which is superimposed in the cyanide reaches to 100IRE. Only the white band 100% those which are done are used for the adjustment of white level with 100% 75% color bar. Everything 100% any which are done it is 100% color bar, but peak becomes 133IRE and it passes always and being to become irregularity, it is not used for the normal broadcast test.

-SMPTEcolor bar

Black level and white level, in order to be able to do the color tone integral simply, those which expand the full-color bar. As for the color band 7 black is excluded 75% color bar and the reversal color bar, -I the signal and 100% white, +Q with the signalandthe PLUGE signal, theseare formed atstipulated size. Because -I and +Q, as for PLUGE when RGB it converts, negative value appears, it is impossible to designate the SMPTE color bar as the graphics file.

After the warming rise of the monitor, black of the PLUGE signal +4IRE the bar being visible, in order black -4IRE for the bar not to be visible, setup (brightness) you adjust. In order for white of 100% white bar not to collapse next, gain (image) you adjust.

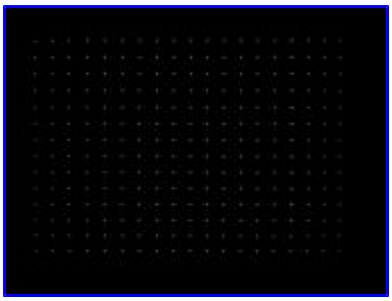
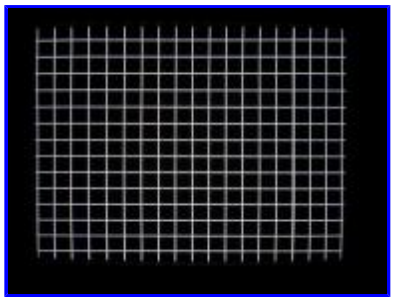
The color tone integral, the monitor Blue only mode (OFF) setting green red, in order for brightness difference of the color bar and the reversal color bar to be gone, adjusts the HUE knob and the SAT knob. Case it is the monitor which is not Blue only mode, using the optical filter which cuts off green red, it does.

-I/+Q as for the signal with the independent carrier chrominance signal which does not accompany the luminance signal, as for amplitude the same as color burst. You verify whether after the vector monitor -I/+Q the star of the signal is a stipulated position.

- Full field

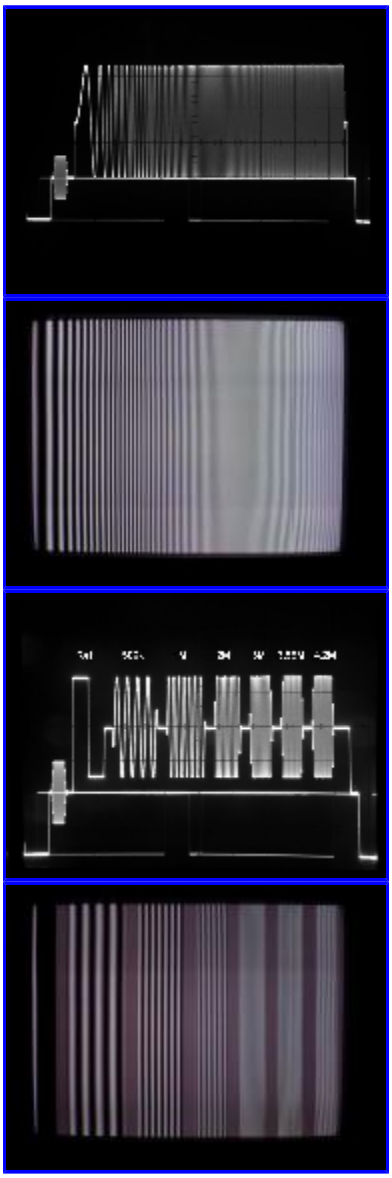
In the picture extensively indicating 100% or 50% color, you verify noise and the like. Especially, the red luster is well used for color noise and the appraisal of the dropout.

- Cross hatch/cross dot

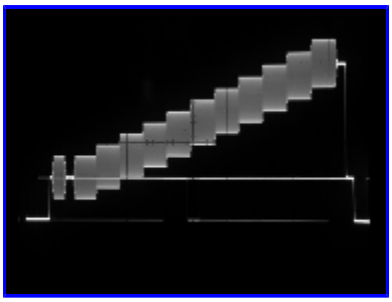
It indicates the graduation in the monitor with the dot, and the line is warped and it adjusts ???????. When ??????? adjusting, being not to remove the glasses and with not to be able to adjust just, you note.

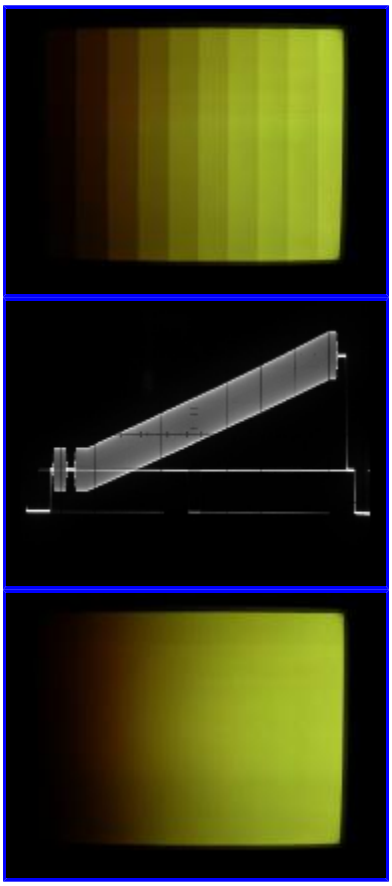
- Multiple bursting sweep



The test signal in order to inspect frequency characteristic. As for sweep of photograph, horizontality sweep. There is also the verticality sweep which changes at 1 field unit.

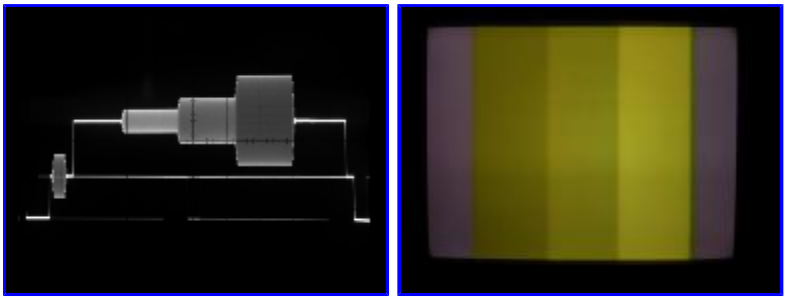
- Irregularity lamp irregularity staircase





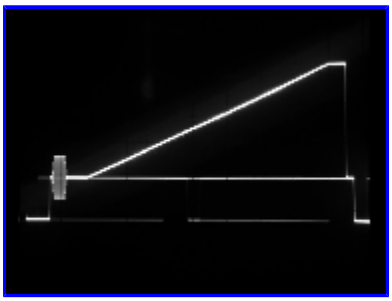
The test signal because brightness of image inspects the gain of the chroma signal and the influence which is given to phase. The chroma signal having been superimposed in the lamp and the staircase, in the corrugated monitor extracting the chroma component, you inspect whether or not amplitude uniformity. In the vector monitor seeing the shape of the star with DG/DP mode, you inspect whether there is no phase revolution and gain fluctuation.

- Irregularity pedestal



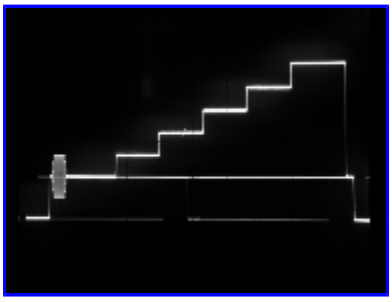
The test signal in order to inspect the influence which the chroma signal gives to brightness. When being normal, the ripple mark becomes the top and bottom symmetrical, but when the chroma signal has exerted influence on the DC offset, the envelope is inclined to top and bottom either one.

- Lamp



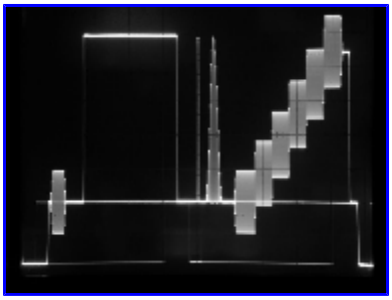
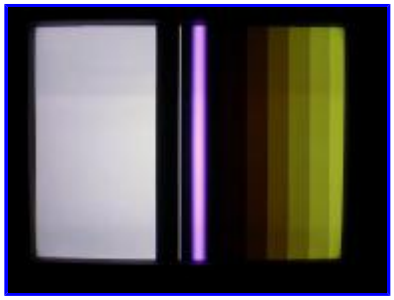
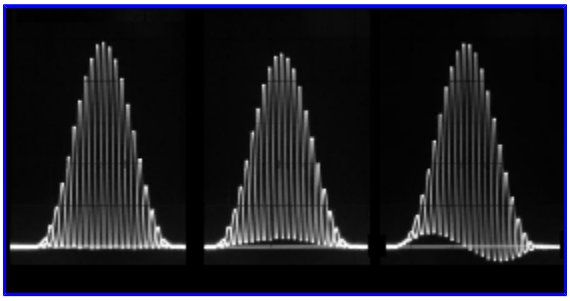

The test signal which inspects the brightness linearity. After the corrugated monitor the lamp should have become the straight line.

- Staircase




The test signal which inspects the brightness linearity. If height of the pulse which shows the edge of the stairway with the corrugated monitor as a differential mode should have been even.

-NTC7 composite

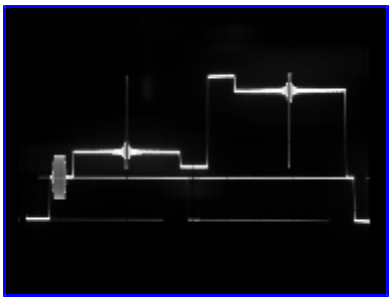




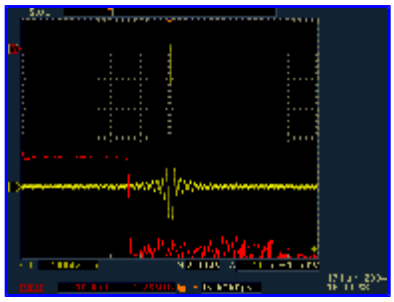
Collecting several test signals to 1 line, there are some which it tries to be able to measure plural items simultaneously, NTC7 compositely, 100% bar (sag), pulse (the K factor, high pass gain and chroma delay), the irregularity staircase (DG/DP) is included. The picture the right with enlargement of 12.5T irregularity pulse, the normality, shows the state of chroma attenuation and chroma delay from the left. As for 2T pulse when high pass gain is normal, peak becomes 100IRE.

- Window

Verification of influence and the high pressure regulation etc. which APL fluctuation gives to the clamp and synchronous separation. When there is a problem in the clamp, rectangular top bends on the left.

- Sin (x) /x

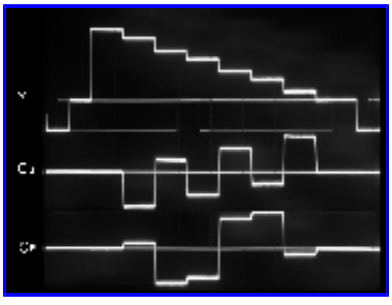




The signal which was devised attendant upon the progress of computer analysis, checks the frequency characteristic of gain group delay. Sin (x) /x (sinc function) as for the signal, with the ripple mark which passes through impulse to ideal LPF, it is known that all frequencies below a certain frequency are included. For example, when sin (x) 1 period t [is designated as sec], that ripple mark 1/t [Hz] means to include all frequencies below, because (in the test signal it becomes repetition at limited period, it becomes the discrete spectrum). With the analyzer you just look at the response ripple mark of the system it can grasp quality and, placing in the blanking area, also watch in real time while servicing it can. Those where the pattern where DC level differs becomes group, in order to try to be able to measure also the linearity and the like.

* Component test signal

- Full-color bar



The Y color difference component signal, the carrier chrominance signal of the Y/C signal furthermore amount being something which is separated in the R-Y component and the B-Y component, RGB almost is equivalence. Two color difference signals are transmitted with the line

which becomes independent respectively. Because it becomes transmission with baseband, there is no color burst which is necessary because of perpendicular 2 axial modulation and demodulation.

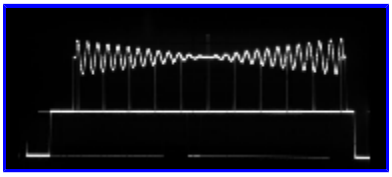
CB/CR, in order to adjust B-Y/R-Y signal respective largest amplitude to that of the Y signal, gain is something which was adjusted, if (Y 0-700mV, as forCB/CR ±350mV). *P B /P R* and the chartthere arealsotimes whenit is recordeddepending upon the textbook and standard.

-ARIBmultiple format color bar

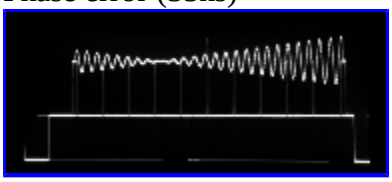
The wide picture which beginsHDTV (16:9) the colorbar signal which corresponds. When being converted to 4:3 in the pan scan, the color band left and right is cut down. Directly under 75% white bar (the right next door of 100% cyanide) as for value being optional, 75% white and 100% white, +I 3 sorts are widely used, it seems.

- Bow tie

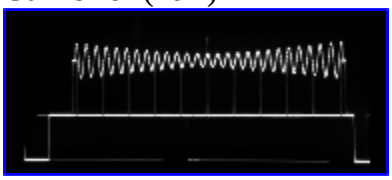
Y-CBor Y-CR



Phase error (35ns)



Gain error (1dB)



In order you verify & to adjust gain error and the skew between the brightness color difference signal which occurs on the transmission line and the like the test signal. The ripple mark which is indicated after the corrugated monitor has been attached the bow knot (Bowtie) from the fact that it has been similar, this name. As for the luminance signal the sine wave of 500kHz, as for the color difference signal with the sine wave of 502kHz, it has become relationship of the phase where peak agrees in the central part. When the corrugated monitor is designated as bow tie mode, the finite difference ripple mark of brightness and the color difference like the photograph to the right is indicated. When phase of the luminance signal and the color difference signal has slipped, position of the intersection comes off from the central part, unless gain is agreeable, amplitude of the intersection does not become zero.

When it becomes HDTV, because the phase management with delay adjustment becomes difficult, adding *ternarysame periods* toall signals, becoming independent respectively, it reaches the point where you take timing.

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