

Test Pattern Provides Key To Good TV Reception

Television stations transmit, during several hours each day, what is known as a test pattern. The Indian head test pattern used by many television stations represents the last word in the type of picture that a properly adjusted television receiver should be able to reproduce.

This type of test pattern has been designed primarily to provide service technicians with a picture which will facilitate the adjustment of receivers and antennas during installation and also with a means of locating more easily some of the faults which develop in television receivers.

The set owner can also make use of it to judge the performance of his receiver, and if necessary make certain minor adjustments which may be required from time to time to improve the operation of the set. Without getting involved in complicated technical details, let us see what information the test pattern can give us about the operation of a television receiver.

Quite often a well framed test pattern will offer very little resemblance to our present illustration. For instance if the linearity is not correct the circles, particularly the large one, will not be round at all—they will be flattened or egg-shaped. Also the lines forming the squares in the background of the chart will not all have equal spacing between them. The controls to correct this condition will again usually be found at the rear of the receiver. They are designated: "vertical linearity" and "horizontal linearity."

It should be noted that adjustment of the linearity controls will generally affect the height and width of the picture and as a result it will be necessary to readjust the "vertical" and "horizontal size" controls to obtain proper framing and size.

Room Plan For Best Television

Is yours a "house divided?" Perhaps a "room divided" is the answer to your needs if your family's interests are varied and you find father no longer has a place to relax while the children are watching television.

Here is a suggestion from Mrs. Vivian Overand, Admiral Director of Home Economics, regarding an interesting use of couches as room dividers, adaptable to many living rooms.

The two couches, placed back-to-back create a television and study area, and set aside the rest of the room for other living-dining activities. The arrangement permits double-duty seating—both a place to relax while the children are watching television.

The TV area centres interest on the table model which is placed on a low table for good visibility. Additional chairs can be drawn up if the group is larger, and "little viewers" might sit on pillows on the floor.

Depth is added to the television area by the mirror hung between the windows, and the drapes can be completely drawn for added coziness, if desired.

The division of a room in this manner is particularly effective in a large living room, because it makes possible smaller conversational groupings of chairs and couches.

For the smaller living room it makes possible the most efficient use of space for maximum availability.

The controls which are used to obtain proper framing of the picture are generally located at the rear of the receiver or hidden behind a small flap on the front panel. They are usually labelled "horizontal centering," "vertical size" or "height," "horizontal size" or "width."

SYMMETRICAL
You will have noted that the test chart is symmetrical and that all circles are perfectly formed.



JOAN FAIRFAX



DENNY VAUGHAN

Stars on the Denny Vaughan Shows

"Harmer's A Charmer"

Shirley Harmer, the songstress from Ontario, who catapulted into international fame last season in New York radio and television circles, has been signed to star on Canada's headline television show "Canadian General Election Showtime."

A top-flight Canadian vocalist at 21, Shirley added the international lustre to her career when Paul Whiteman heard her sing and a three-year contract for two American networks was forthcoming with two Whiteman-directed shows "American Music Hall" and "Paul Whiteman Varieties."

Dave Garraway insisted she be a featured performer on his show, and MGM put her on its roster for recordings. As the star of CGE "Showtime," Shirley plans to live in Toronto and commute to New York for her American commitments.

EARLY YEARS
Thornton's Corners, Ontario, Shirley's birthplace is a friendly community on the outskirts of Oshawa, where she took her early education in a small two-room school house, and later attended the high school in Oshawa. At the age of fifteen, Shirley had an opportunity to work with a local orchestra.

By the time she was 18, the band was playing in Toronto and Shirley started taking vocal coaching from orchestra leader Art Hallman.

Although she was working full-time in Oshawa, Shirley managed to get her musical career underway with the help of parents,

three brothers and two sisters. Her routine was a set pattern, rushing home from work, a quick shower, one sister putting her hair up, while her mother laid out her dress and another sister made a sandwich. A half hour later she would be ready to leave for the singing date. Although bedtime was three a.m. she was always on time for work the next day.

Shirley's first radio experience on the CBC Children's Show "Microphone Moppets," when she was 14, came in 1951, when she sang with Cal Jackson's group in Toronto, on a program called "Cal's Club." She shared the vocal spotlight with George Murray on a Sunday night show over CPB Toronto. The summer series "Whispering Strings" with Lucio Agostini's orchestra featured the Harmer voice, and later she had her own 15 minute show on CBC Trans-Canada.

FIRST TV BREAK
The first television break came appropriately enough on New Year's Eve 1952, with a half-hour musical show, "Four for the Show," "The Big Revue" and in 1953, Shirley won the top award for the most promising television and radio performer sharing the honours with actress Kate Reid.

In February 1954, in a Manhattan radio studio, she stepped up on the ABC network microphone at the beginning of a brilliant international career, the premiere performance of "Paul Whiteman's Varieties," from then on "the thrush from Thornton's Corners," as American radio and

TV Briefs

An error which people sometimes make in buying a television set is to imagine that the size of the room should determine the size of the TV screen. This misconception was born of an old idea that proper viewing distance was measured by placing a chair one foot away from the screen for every inch of screen size. Under the erroneous formula a 17-inch screen required a 17-foot distance and a 21-inch screen required a 21-foot distance, etc.

The first system using radio relays to transmit television signals from point to point across the country was developed by RCA scientists and is still in use. Because television transmits both pictures and sound a station

needs a channel 6,000 kilocycles wide as against only 10 kilocycles for a radio station. That creates a tremendous problem of space on the airwaves.

No one man, company or laboratory can claim credit for the development of television. Sets now being installed in homes and other centres, and the technical station transmitting equipment which supplies the pictures and sound for these receivers—these are the products of many minds, and another triumph for mass production.

Children are the most critical and responsive audiences, television people say. On one program recently a benevolent announcer thought it would be a good idea if the children would help their mothers with dishes.

Phones rang at the studios from irate mothers who reported that their kitchens had been invaded by moppets earnestly trying to help, but only getting under foot.

The first long-distance reception of modern high definition television took place in the Helderberg Hills, near Schenectady, on June 10, 1939. There, about 129 miles from New York City and almost 8,000 feet below the line of sight, General Electric engineers received pictures of King George and Queen Elizabeth of England touring the World Fair.

Lighting Of Room Is Important

Television is no more harmful to the eyes than reading, sewing, studying or watching the movies, providing correct conditions are maintained.

A dark room should be strictly avoided. If the room is dark the pupils of the eyes try to adjust in size for the darkness of the room and the brightness of the screen. This results in eye-strain.

Looking at television is not like watching a movie. Theatres of necessity are dimly lit because the motion picture screen is many feet square and the picture is relatively low in brightness.

10 TIMES BRIGHTER
In the home, however, the television screen is measured in inches and the picture tube is about 10 times brighter than the movie screen. It is only logical that it be viewed in a room where there is enough general illumination to reduce the contrast between screen and room background.

To assure proper lighting, avoid placing lamps so that they are reflected from the television screen back into the viewer's eyes. To eliminate these reflections try this simple test: With the television set off sit in all the various viewing positions in the room. If the lighted lamps can be seen reflected in the darkened viewing screen, that same brightness will remain as an annoyance when the set is in use.

Avoid placing lamps in front of and so close to the set that light coming under or through the shade falls directly on the screen, thus fading the television picture. Also, avoid lamp shades that are brighter than the screen, especially when they are within the line of vision.

BACKGROUND LIGHTING
When the wall which forms a background for the television set is a dark color, particular attention should be paid to the lighting of this area. Background wall lighting can be accomplished by concealing a lamp bulb behind the television set, or by placing on the receiver a lamp that directs light toward the dark wall but none toward the viewer's eyes.

Most adults will find the most comfortable location about eight to 12 feet from the television screen. Children should be trained to sit at least four feet from the set.

Sit as directly in front of the screen as possible. There may be considerable distortion of the picture if viewed from too great an angle. Periodic glances away from the screen are also recommended, to relax eye muscles.

SETS FOUND IN ODD PLACES
Television receivers find their way into surprisingly diversified places. Among some reported way into surprisingly diversified are:

Doctors' and dentists' offices where patients' minds are taken off their ailments by a television receiver in the waiting room. A currency exchange when a television receiver is used to pre-

Good Resolution Means Sharp, Clear Picture

The words definition and resolution are commonly used in rating the capability of a receiver to make clear small details in the picture. If the picture is sharp and clear you say that it has good resolution. If on the other hand it is soft and blurred, and small details are indistinct, you say that it has poor resolution.

Television pictures are made up in such a way that the definition from top to bottom is generally different from the definition sideways. With present TV standards the vertical definition is somewhat better than the horizontal definition.

Vertical resolution is expressed on the number of horizontal lines that can be distinguished in the space occupied by the height of the picture. Horizontal resolution or definition corresponds to the number of vertical lines which can be traced in a horizontal space equal to three quarters of the width of the picture.

This length (3/4 of width) is selected because it equals the height of the picture and therefore gives a basis of direct comparison between horizontal and vertical resolution.

On the test pattern the lines used to measure horizontal and vertical resolution are the same. A ship where river pilots await assignments.

Television for the classroom is under investigation by the U.S. Navy at its Special Devices Centre at Sands Point, Long Island, where experiments in mass-training of recruits are being conducted with the aid of General Electric studio equipment and large-screen receivers.

TERRIFIC SPEED!
Television paints pictures faster than man can think. A television screen has a total of 367,000 tiny dots spaced along 525 lines from top to bottom. And each second the television electron "gun" paints in light or shadow each dot—and does it 30 times in that second!

Television provides more than recreation and information as far as manufacturers are concerned. The oscillograph, for example, is now used to test precision instruments in a fraction of the time previously required. The oscillograph uses a variation of the picture tube found in living room sets. A welding rod manufacturer, for example, can now look at the pattern lines on a screen to determine the quality of each instrument he manufactures in just a few minutes. Before the oscillograph these tests required hours.

"Snow" appearing on a television screen is the result of a condition met within fringe of other low signal strength areas. It consists of innumerable white spots, rather evenly distributed over the entire picture. Any means that will increase the strength of the signal being fed to the receiver, such as a more efficient, higher antenna will reduce the "snowy" appearance.

vertical definition are in the centre circle and appear in the form of a Maltese Cross. The cross is made up of a number of converging lines. Each is wide at the periphery of the circle and narrows as it approaches the centre. At the periphery, the left-hand and lower wedges represent about 150 line resolution. This means that approximately 150 lines of that thickness, with equal spaces of the same thickness between the lines, will fill three quarters of the horizontal space or the vertical space completely.

LINE'S NARROWER
The lines become narrower as they approach the centre of the test pattern and so do the spaces between the lines. Obviously more of these lines and spaces can be contained across the height of the picture. Along side of the wedges formed by the lines are a series of numbers from 20 to 65. When multiplied by 10 these numbers indicate the number of the lines represented by that particular line and space thickness.

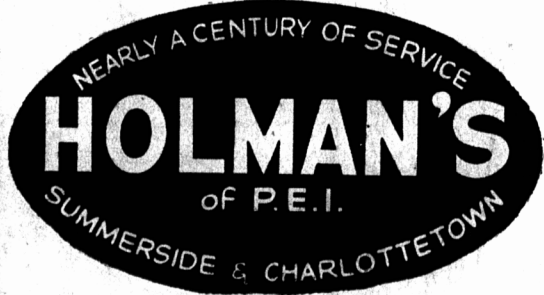
Vertical resolution (read on horizontal wedges) will be greater than the horizontal definition (read on vertical wedges), but on a well designed and well adjusted receiver it should be possible to read at least 300 lines on the vertical wedge. The point on a wedge where distinction between individual lines just disappears indicates the amount of resolution. This is shown by the calibration number where separation between lines just becomes indistinguishable.

Two additional wedges are diagonally located within the centre circle. These contain varying degrees of shading. They are used in adjusting the contrast and brightness controls to provide a full tonal range. Four distinct shades, black and three greys should be visible in each wedge. The background of the test pattern represents white.

Tube Faces Are Precise
Precision machinery is required in the making of television picture tubes. The face of the tube, which becomes the viewing screen on a television set, must be close to perfect to prevent blurring.

An impurity of one part in 3,000,000 is enough to impair the surface. At a tube plant in Pennsylvania a three-ton machine is so finely balanced that it can be operated with a quarter-horse-power motor, similar to that used in a home vacuum cleaner.

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