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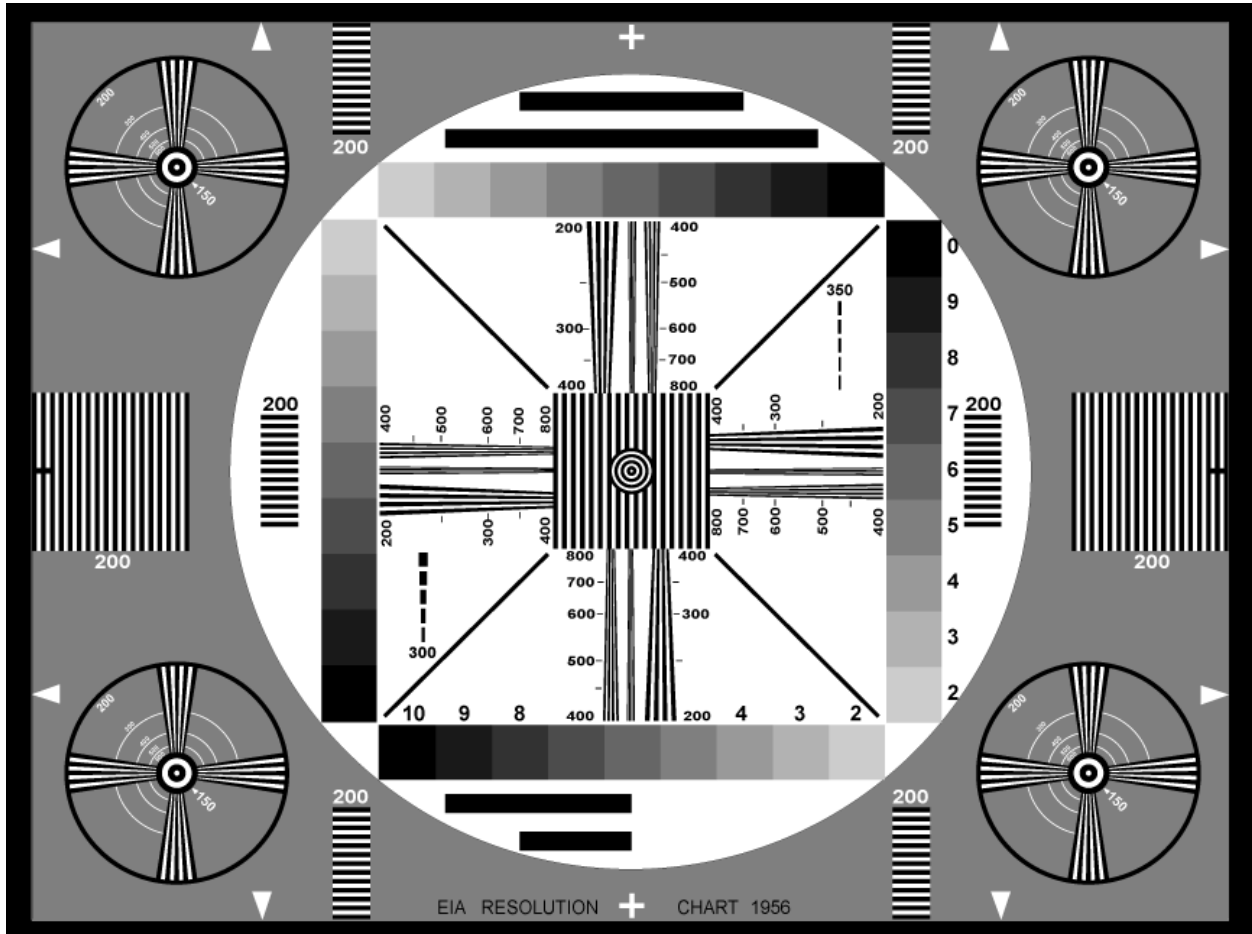
QA-70-1
Video Resolution Pattern
(EIA-1956)
Product Specifications

APPLIED[®]
IMAGE
Inc 

Catalog Part No: **QA-70-1-P-RM / QA-70-1-P-TM**

Product Name: **Video Resolution Pattern (EIA-1956)**

Drawing / Photo of Part:




The above image is an approximate representation of the actual product.
Specifications are subject to change without notice.

Description: Specifically designed for use with television systems, this test pattern conforms to the EIA-1956 Video Resolution Standard. Its useful range is from 200 to 1000 TV lines. Distortion (aliasing), image contrast and brightness levels, streaking and ringing can all be evaluated using this image.

Image Forming Material: Photographic emulsion

Please contact Applied Image customer service at the address noted above, for custom images, shapes and materials.

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Substrate Type: Part Number suffix specifies substrate material

RM = Reflective Material (photographic paper; 0.23 mm thick)

TM = Transmissive Material (photographic film; 0.18 mm thick)

Image Size: 219 x 292 mm (8.62 x 11.5 inches)

Substrate Size: 229 x 305 mm (9.0 x 12.0 inches)

Polarity: Positive overall


Reading Direction: Right Read Emulsion Up (RREU)

Image Contrast: 40:1 typical

History and Typical Use: The standard EIA-1956 resolution chart was first designed for television systems. Its linear wedge patterns range from 200 to 1000 Tele-Vision Lines (TVL). The limiting horizontal resolution, being the most important resolution measure in a video system, can be found when the field of view is filled with this chart's full image height. A resolution limit is then found by visual inspection of the linear wedge patterns. (Note that the wedge patterns having highest frequencies are not labeled but follow the horizontal and vertical centerlines of the target area.) Distortion or aliasing can be detected by comparison of resolution features at the target's center and corners. Density step wedges are useful for contrast and brightness level adjustments. Various other image features can be used to detect non-uniformity such as streaking or ringing.

Terminology:

- *Aliasing* – An effect that causes the image of a feature to be less recognizable. Features that are originally different become indistinguishable (or aliases of one another). This effect is most apparent by image artifacts due to limited or diminished resolution.
- *Resolution* – The measure of an imaging component or system to convey detail.
- *TV-Lines (TVL)* – The maximum number of light or dark lines resolved horizontally determines the resolving power of a video system. Each line transition is counted and expressed in TV lines or in Lines of Horizontal Resolution (*LoHR*) rather than in cycles or line pairs as often done in other

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imaging systems. TVL are coupled directly to picture height and sometimes reported as Television Lines per Picture Height (TVL/PH). For this reason, the numbers shown on the EIA-1956 chart are TV lines of resolution and the entire chart image as indicated by the arrow marks must fill the field of view, including the over-scan region.

These units can be easily understood by example: 400 TVL means that 400 light to dark transitions have occurred in a length equal to the height of the picture. 200 distinct dark bars and 200 light bars can be counted. For a 1.0 inch picture height, 400 TVL will have a pitch of 0.005inch (0.0025inch bar and 0.0025inch space). Bar size can be calculated (in bar or space width) by dividing the picture height by the desired TVL.

Related Applied Image Products:

- *QA-70-2; Video Resolution Pattern 1/10x (EIA-1956)* – This target is the same image as QA-70-1 but at 1/10th size and as a chrome on 2 x 2 inch glass (QA-70-2-CG) or on 2 x 2 inch white opal glass (QA-70-2-OP). The QA-70-2-CG having a 2 x 2 inch overall size allows its use in a standard slide projector. QA-70-2-OP is intended for viewing in reflection mode.
- *QA-71; IEEE Video Resolution Chart* – This target is another standard useful for evaluation of resolution in a video component or system.
- *QA-76; Digital Cine Resolution Chart* – This target is another standard useful for evaluation of resolution in a video component or system. Adapted from ISO-12233.