

# Panasonic WV-CP500 SD5 Series Day/Night Camera

Panasonic CCTV cameras have always been designed and manufactured with performance and robustness in mind. A good example of this is the Panasonic Super Dynamic II (SDII) series cameras which were released in 2000, they were superseded by the SDIII series cameras in 2005 and now in 2010 we have the new SD5 series cameras. There appears to be a five year production window for each of these cameras which is good news for end users who know that Panasonic CCTV cameras are designed well enough in the first place to last the technology distance and are not chasing market with new models every six, or twelve months as some do.

To see how well Panasonic has done we will carry out some basic objective tests on the Panasonic WV-CP500 SD5 1/3" Day/Night camera. The camera tests to be carried out will comply with the European Standard EN 61146-1 Video Cameras (PAL/SECAM/NTSC) – Methods of measurement – Part 1: Non-broadcast single-sensor cameras. This standard is accepted world wide as the preferred method of testing single

chip CCTV cameras and is suitable for all current colour or monochrome CCTV single chip cameras. We will limit the results to the most common tests discussed in the industry, in relation to CCTV cameras, such as greyscale linearity, sensitivity, resolution and overshoot.

The Panasonic WV-CP500 SD5 1/3" Day/Night camera has a number of intelligent video functions which will not be tested because there is no suitable standard for testing these functions at this time. These functions should be tested for your applications to see if they suit.

## The Camera:

Some interesting features of the new Panasonic WV-CP500 SD5 1/3" Day/Night camera series include:

The SD5 delivers Superior image by fusion of Super Dynamic, ABS (Adaptive Black Stretch).

High resolution: 650 TV lines typical (Colour mode), 700 TV lines minimum (B/W mode).

High sensitivity with Day/Night function.

i-VMD (Intelligent-Video Motion Detection) including scene change detection when lens is covered, spray painted, removed or defocused (Not available in all models).

ABF (Auto Back Focus) ensures easy installation and stable focus in both colour and B/W modes (Not available in all models).

3-dimensional colour conversion functions for natural colour reproduction.

Adaptive Digital Noise Reduction: Integration of 2D-DNR and 3D-DNR ensures noise reduction in various conditions.

Electronic sensitivity enhancement.

Electronic shutter from 1/100 (NTSC), 1/120 (PAL) to 1/10,000 sec.

Alarm input and alarm output terminals (Not available in all models).

Auto Image Stabilizer.

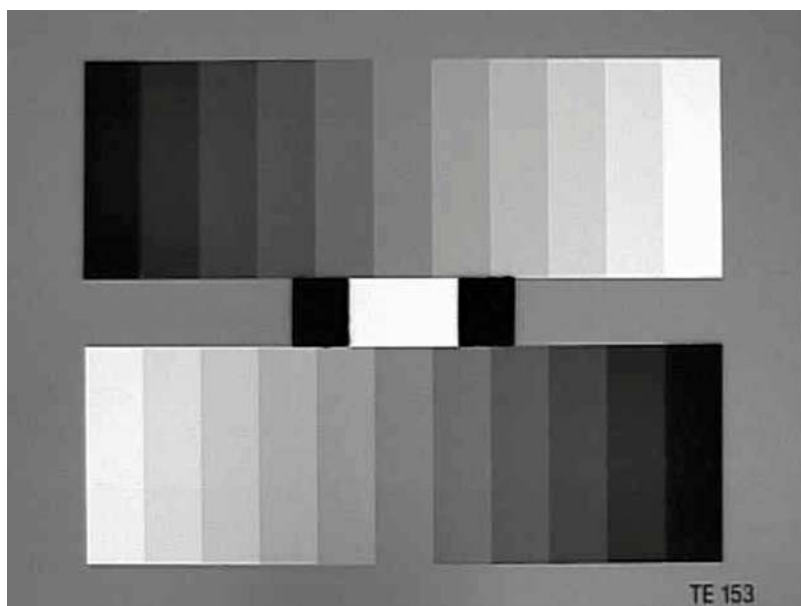
Over the coaxial cable data communication.

Auto Back Focus.

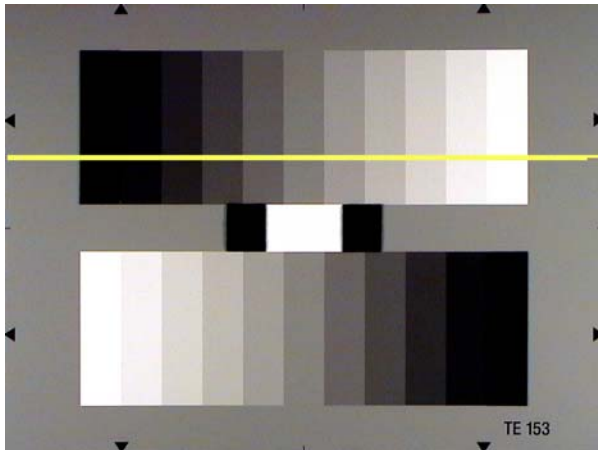
## The Tests:

This series of tests shows the camera test chart with a yellow marker showing the actual position of measurement on the camera test chart in relation to the waveform image. This will assist those who are interested to know where the relevant test measurements are made.

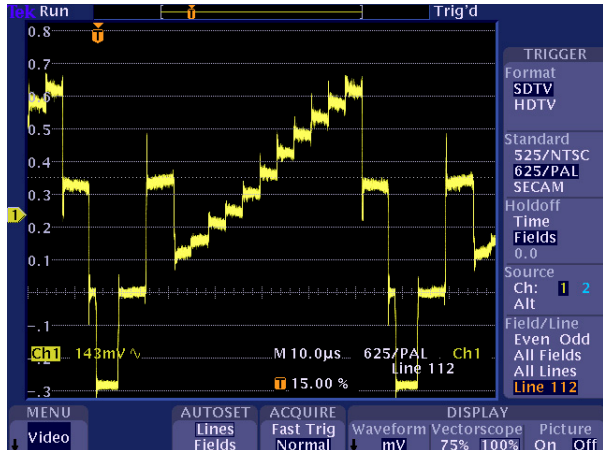
These tests were carried out with the camera in its default (out of the box) settings, with one automatic exception where it set itself for a manual lens to suit our high performance Schneider test lens.



Panasonic WV-CP500 SD5 Day/Night camera snapshot of the greyscale output. (This is the best quality greyscale output seen by us so far for similar CCTV cameras).



Esser Greyscale test chart image showing measurement area in yellow.

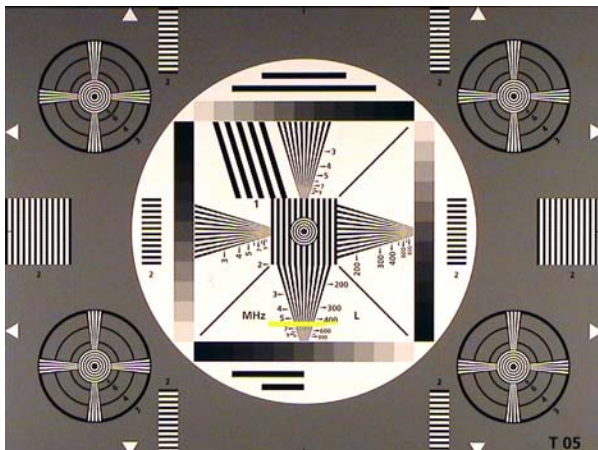


Panasonic WV-CP500 SD5 Day/Night camera greyscale waveform image of test area and good linearity, but with slightly high set-up.

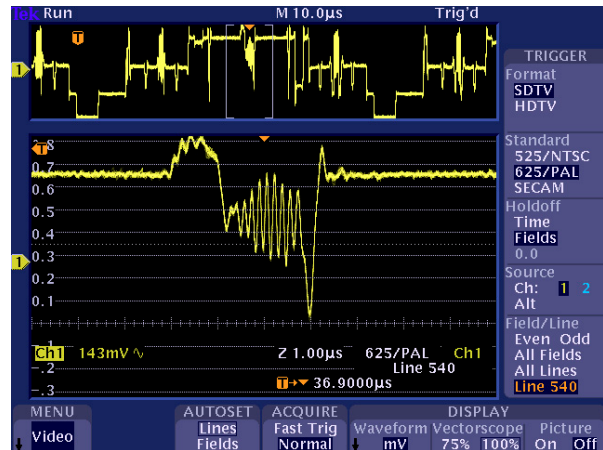
We found the greyscale linearity to be well within specification, and more linear than most we have tested, but it included a slightly higher set-up which in many instances would actually help the

This figure is in variance with the manufacturer's claim, but this is normal with most cameras because sensitivity test references and/or standards are rarely quoted by manufacturers these days.

depth of modulation is close to 15%. This is by far the best resolution result we have experienced for any analogue single chip CCTV camera tested by us.



Esser Universal camera test chart (RETMA) image showing area of resolution measurement.



Panasonic WV-CP500 SD5 Day/Night camera resolution waveform showing about 40% depth of modulation at 600 TV lines.

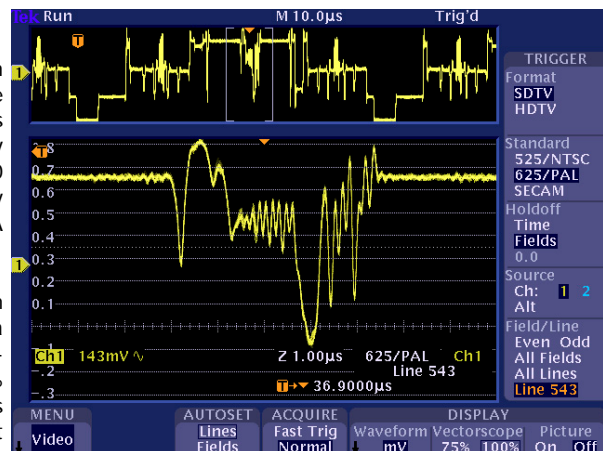
image quality.

The overall greyscale is very good for a single chip CCTV camera and we have included a snapshot in this article of the Panasonic WV-CP500 SD5 1/3" Day/Night camera greyscale image.

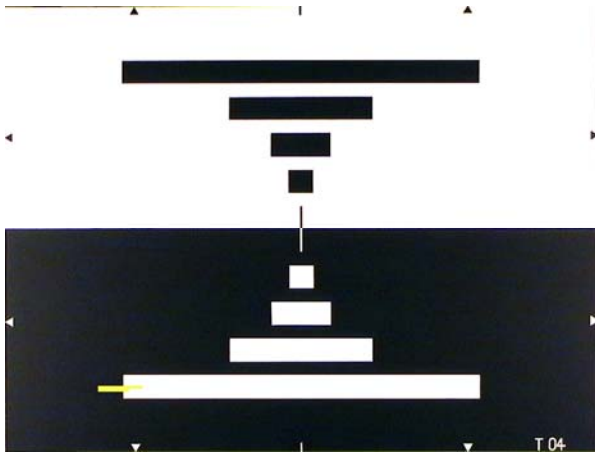
EN 61146-1 does not have provision for testing day/night cameras; therefore we developed a test which is based on EN 61146-1, but determined what is a useable image (without image smear due to the camera sampling speed) for a slow moving image at half screen height. With this test the sensitivity of the sensitivity of the the Panasonic WV-CP500 SD5 1/3" Day/Night camera is 2.64 lux.

The resolution was found to be 640 TV lines which is very close to the 650 TVL specified by Panasonic. A pleasant surprise!

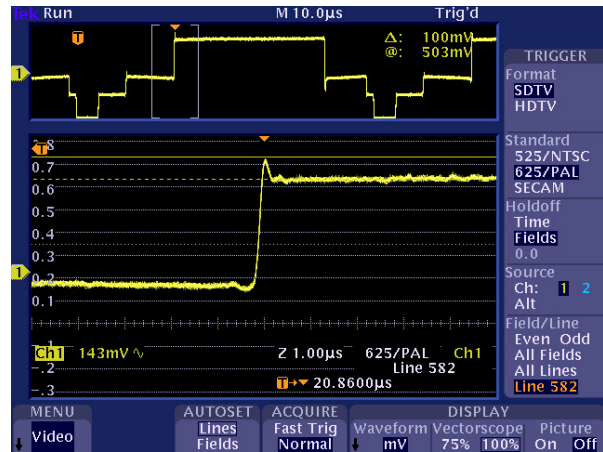
The waveform image shows a depth of modulation of about 40% at 600 TV lines which is eight times more than the 5% depth of modulation specified in EN 61146-1. At 640 TVL the



Panasonic WV-CP500 SD5 Day/Night camera resolution waveform showing about 15% depth of modulation at 640 TV lines. Note: The modulations shown on each side of the resolution wedge are test chart numbers and symbols.



Esser Bar Test Chart showing area of overshoot measurement.



Panasonic WV-CP500 SD5 Day/Night camera overshoot measurement waveform showing an overshoot level 50% lower than other similar cameras.

We tested overshoot according to EN 61146-1 and found that overshoot is 50% less than other high quality analogue single chip CCTV camera tested by us.

It appears that this camera will once again position Panasonic as one of the leading CCTV camera companies.

In the next issue we will test the first IP HD camera and in the near future compare backlight compensation performance of the Panasonic WV-CP500 SD5 1/3" Day/Night camera against some other well known analogue single chip CCTV cameras.

**Les Simmonds is an independent CCTV consultant and CCTV testing authority.**

**Email:**  
[les@cctvconsultants.com.au](mailto:les@cctvconsultants.com.au)

**Web:**  
[www.cctvconsultants.com.au](http://www.cctvconsultants.com.au)

*This article was originally published in Security Electronics & Networks Australia.*