

NVIS TESTING OF TUNGSTEN BACKLIT DISPLAYS

Many challenges exist when attempting to accurately characterize a display intended to meet MIL-SPEC-3009/MIL-L-85762A, however one that proves to be elusive relates to CCD based detection systems. Most systems configured to measure NVIS compatible lighting utilize a Si based detector and with scanning monochromator systems this poses no problem, however for array based systems a failing NRa or NRb result can be misleading.

The issue stems from a combination of testing tungsten backlit displays with an NVIS filter that starts transmitting beyond 930 nm, the upper wavelength limit of NVIS testing. Because the Si detector is sensitive beyond 930 nm, it will "see" any signal up to 1100 nm, the natural cut off of Si response. If the leaked signal beyond 930 nm is greater than the signal from 380 nm – 930 nm, the dynamic range of the system is being affected, and as such the noise floor is higher than it should be and hence corrupting the NRa calculations.

Scanning systems like the 750 not only have variable gain, whereas the array based systems do not, but also can halt scanning at 930 nm. Since array based systems are limited to about 3 - 4 orders of magnitude at best, any leaks above the green peak will force the noise floor higher and hence the NRa values to be higher. To address this

issue with an existing system, a short pass filter to cut off the longer wavelengths is needed, however the new 770-NVS is designed with an NVIS specific spectrograph covering only the required wavelength range, eliminating the need for external filters.

Information Sheet: IS83 Feb 2019

As part of our policy of continuous product improvement, we reserve the right to change specifications at any time.