# Ultraviolet (UV) Imaging Radiometers

Overview

Design, fabricate and characterize high speed/high resolution UV imaging radiometers in the spectral region from 250nm-300nm. Integrated sensors include Imaging Photon Detectors (IPDs), Intensified Charge-Coupled Devices (ICCDs) and Electron Multiplying Charge Coupled Devices (EMCCDs). These systems all feature narrow band solar blind filters (SBF) at specified wavelengths. Also included are custom UV optics at multiple focal lengths, neutral density filters (NDF) with a variety of optical densities, custom tripod mounts and imager carriage assemblies, and spotting scopes. These systems optionally feature ruggedized notebook computers.
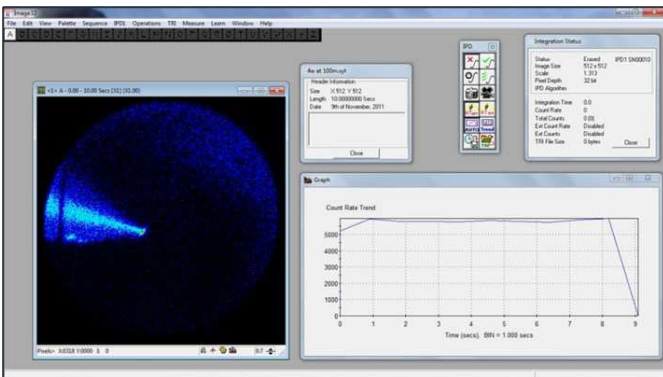
IPD Imaging Radiometer

◊ Initially an in-house R&D effort
◊ In use at laboratory and field test assets
◊ Second until fielded at the Electronic Combat Ranges, China Lake, California

Test Range Image

IPD Specifications

◊ Solar blind proximity focused detector
◊ 512x512 (user defined) pixel image
◊ Timing accuracy is +/- 10ns
◊ Frame rate is Selectable (1kHz typical)
◊ Image processing software
◊ Max photon count rate is 1e6 cps
◊ Responsivity is ~2e-17 W/cm²/cps
◊ Image, count rate trend, and video event storage

EWA Government Systems, Inc.

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ICCD Imaging Radiometers

◊ ICCD—Mod 1
◊ Initially an in-house R&R effort
◊ In use as a laboratory and field test asset

ICCD Specifications

◊ Solar blind detector with fused silica taper
◊ 768x576 pixel image
◊ Frame rate is 25Hz
◊ Image processing software
◊ Max photon count rate is 3e6 cps
◊ Responsivity is ~3e-17 W/cm²/cps
◊ Image, count rate trend, and video event storage
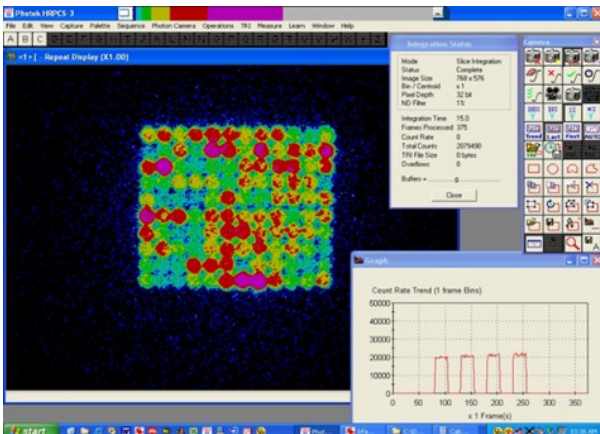
EMCCD Imaging Radiometers

◊ Developed as a commercial product

EMCCD Specifications

◊ Back illuminated EMCCD detector
◊ Solar blind, TE cooled
◊ 512x512 pixel image
◊ Multiple digitization modes (100 kHz—10MHz)
◊ Frame rate is 34–689 Hz
◊ Image processing software
◊ EM Gain 1-1000
◊ Responsivity is ~5e-17 W/cm²/cps
◊ Image, count rate trend, and video event storage