

# Spectral Response for DigitalGlobe WorldView 1 and WorldView 2 Earth Imaging Instruments

## WorldView 1

The WorldView 1 satellite carries a panchromatic only instrument to produce basic black and white imagery for government and commercial customers who do not require color information. The spectral response band includes both visible and near infrared light for maximum sensitivity. The estimated spectral radiance response, expressed as output counts per unit radiance as a function of wavelength, normalized to unity at the peak response wavelength is shown in figure 1.

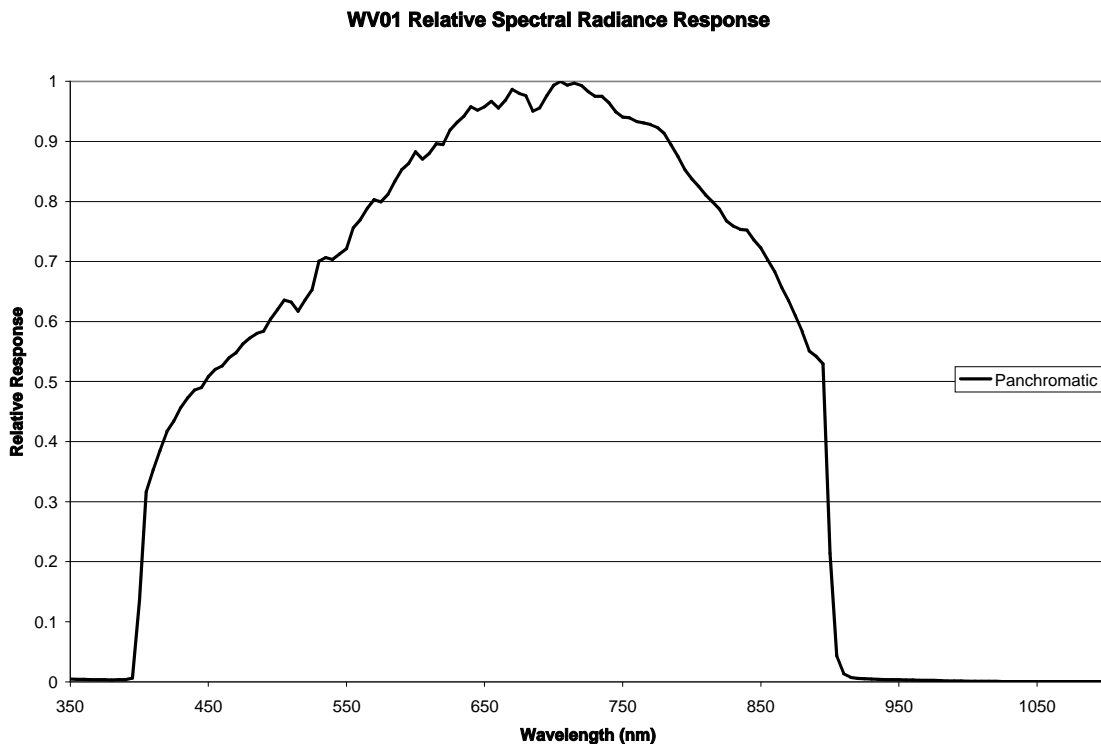


Figure 1. Spectral Response of the WorldView 1 panchromatic imager.

## WorldView 2

The WorldView 2 satellite carries an imaging instrument containing a high-resolution panchromatic band with a reduced infrared and blue response and eight lower spatial resolution spectral bands. The multi-spectral bands are capable of providing excellent color accuracy and bands for a number of unique applications. The four primary multi-spectral bands include traditional blue, green, red and near-infrared bands, similar but not identical to the QuickBird satellite. Four additional bands include a shorter wavelength blue band, centered at approximately 425 nm, called the coastal band for its applications in water color studies; a yellow band centered at approximately 605 nm; a red edge band centered strategically at approximately 725 nm at the onset of the high reflectivity portion of vegetation response; and an additional, longer wavelength near infrared band, centered

at approximately 950 nm, which is sensitive to atmospheric water vapor. The spectral responses of the bands are shown in Figure 2, individually normalized as in Figure 1. Table 1 gives the nominal upper and lower edges and center wavelengths for each band for both WorldView 1 and WorldView 2.

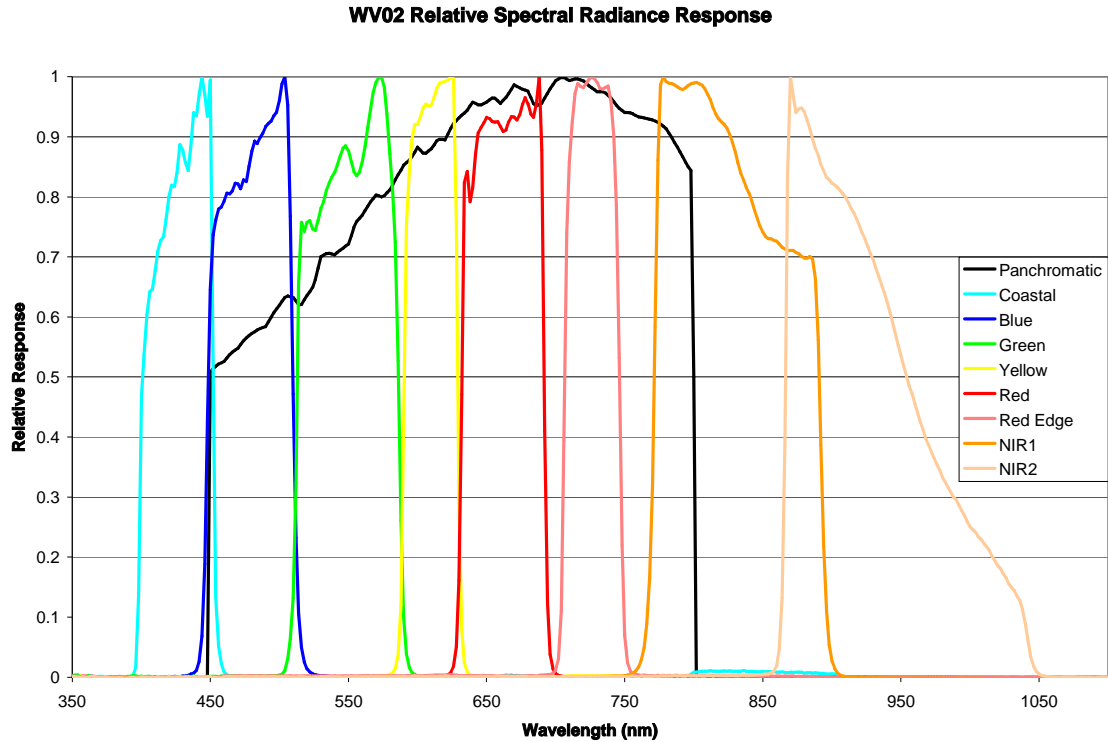


Figure 2. Spectral Response of the WorldView 2 panchromatic and multispectral imager.

Table 1. WorldView 1 and 2 Spectral Band Edges and Center Wavelengths

Band Name	Center Wavelength (nm)	Minimum Lower Band Edge (nm)	Maximum Upper Band Edge (nm)
Panchromatic WV1	650	400	900
Panchromatic WV2	625	450	800
MS1 (NIR 1)	835	770	895
MS2 (Red)	660	630	690
MS3 (Green)	545	510	580
MS4 (Blue)	480	450	510
MS5 (Red Edge)	725	705	745
MS6 (Yellow)	605	585	625
MS7 (Coastal)	425	400	450
MS8 (NIR 2)	950	860	1040