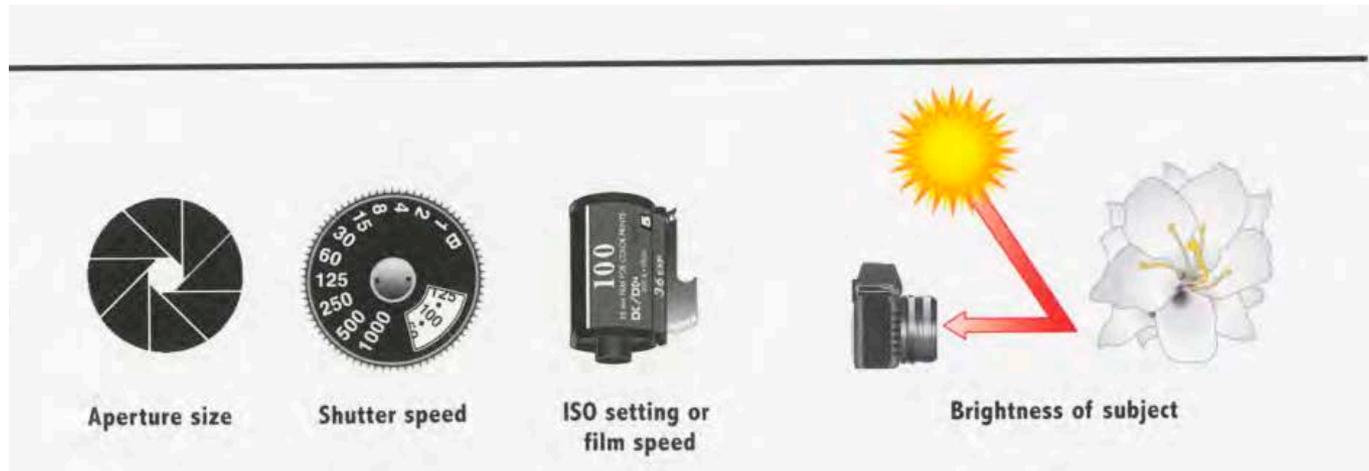


DSLR

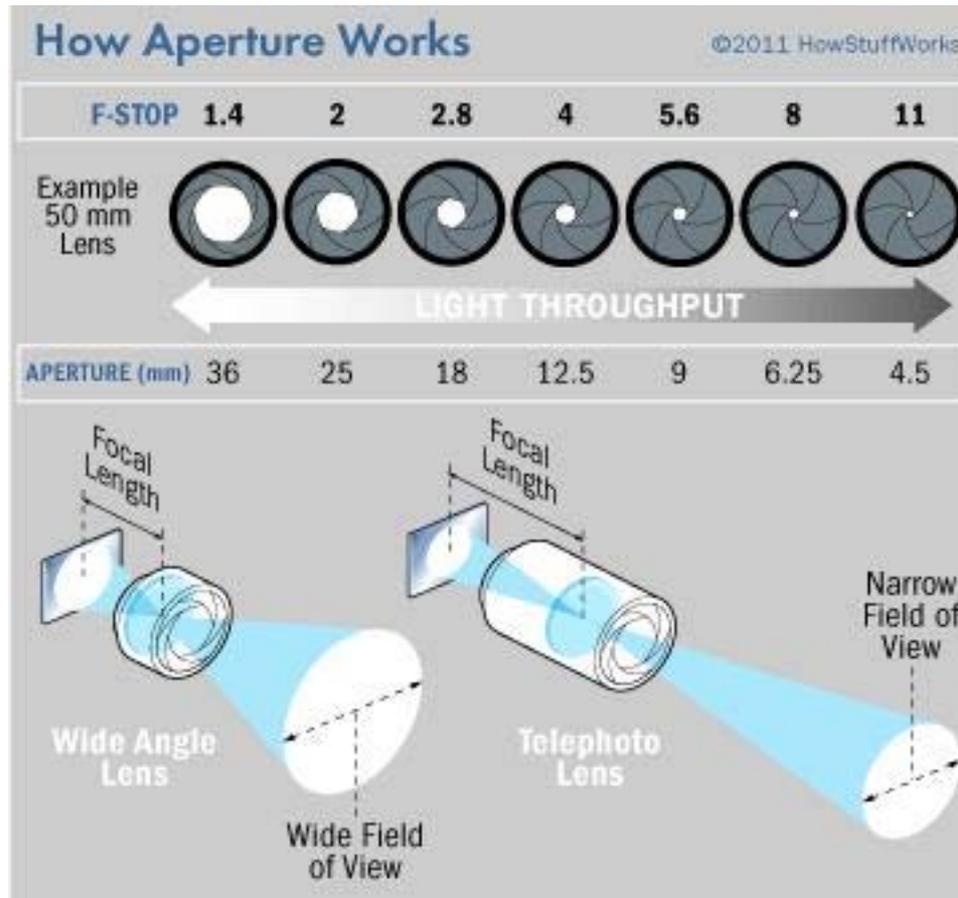
- Lets review the fundamental camera controls.
- Aperture
- Shutter Speed
- ISO
- White Balance



Factors that control exposure



APERTURE

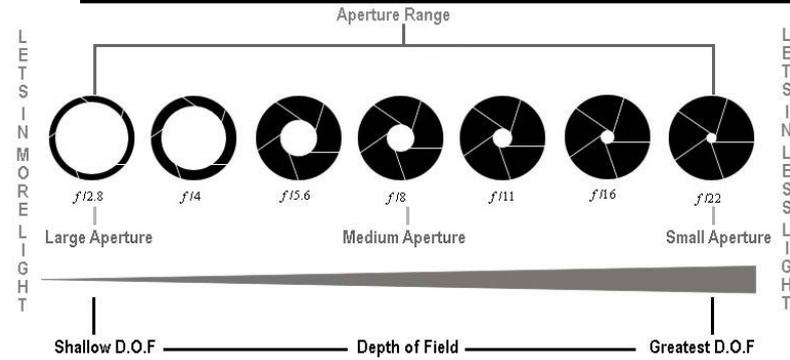




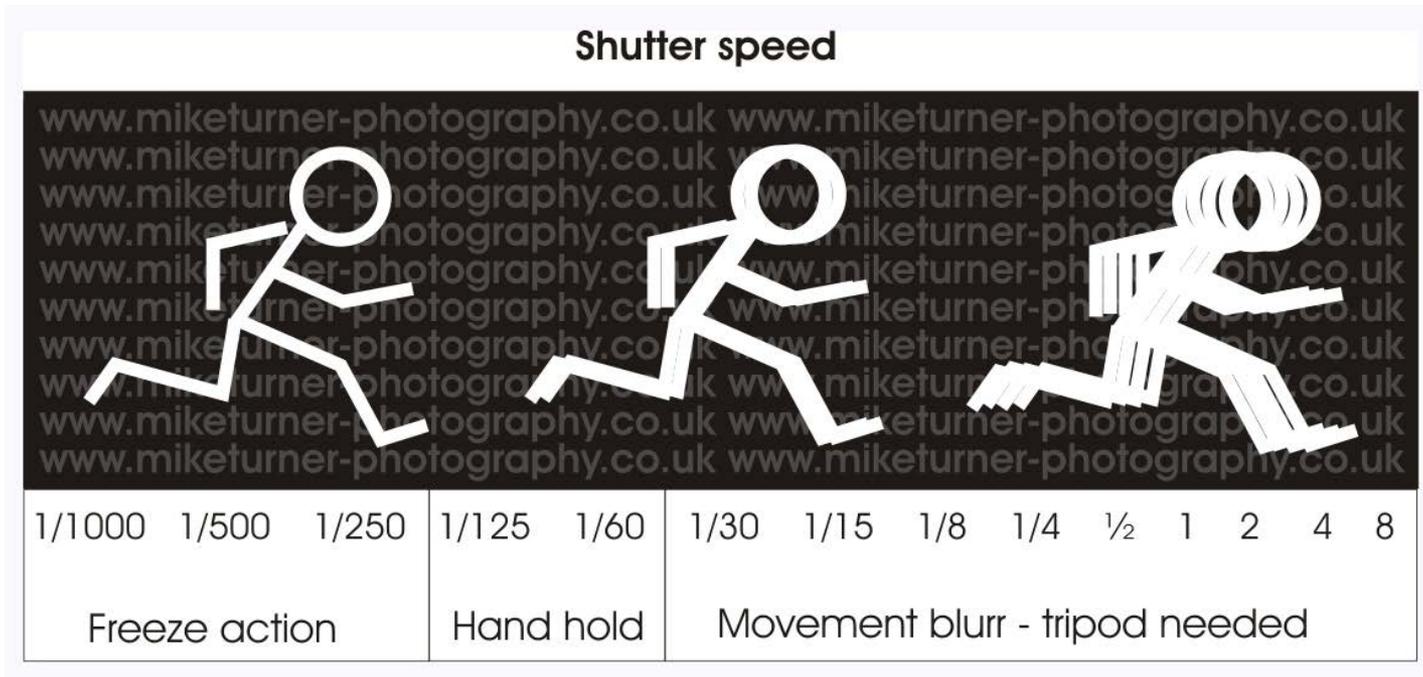
1/125 sec. at f/2.8 85mm lens



1/4 sec. at f/16 85mm lens



SHUTTER SPEED

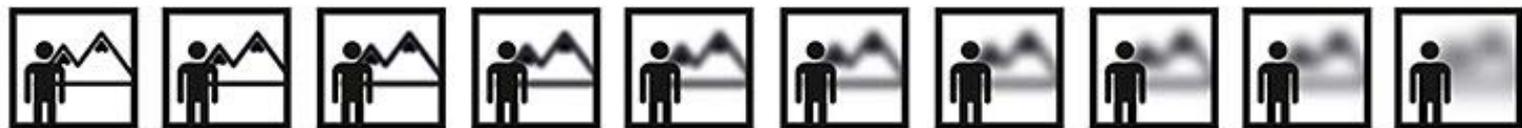


General sports	1/1000	Always a good starting point for most action and sports.
Birds in flight	1/2000	Also try some longer shutter speeds to try and capture the movement of the birds wings.
Relatively static wildlife	1/150 - 1/60	Wildlife often means using a long lens so take this into account.
Airshow	1/125 - 1/750	Use the slower speeds to blur propellers
Panning cars & sports	1/125 - 1/30	The longer the focal length, the more exaggerated the panning effect will be.
Panning people walking	1/4	
Landscape photos	1/125 - 1/2	Longer speeds can look nice in landscape photos when you want to show a little movement in grass and trees.
Photographing kids	1/250	
Blurring water	1-5 seconds	You'll often need to use a neutral density filter to get really long shutter speeds for water in the daytime.
Single point stars	21-30 seconds	The shutter speed required for a star to appear as a point, will be heavily dependant on the focal length you are using.
Star trails	10 minutes -->> and up!	You can create a star trail with one single long exposure, or you can stack a series of single point star shots together.



Aperture

small aperture



F32 F22 F16 F11 F8 F5,6 F4 F2,8 F2 F1,4

large aperture

Shutter

fast shutter speed



1/1000 1/500 1/250 1/125 1/60 1/30 1/15 1/8 1/4 1/2

slow shutter speed

ISO

low sensitivity



ISO 50 ISO 100 ISO 200 ISO 400 ISO 800 ISO 1600 ISO 3200 ISO 6400 ISO 12800 ISO 25600

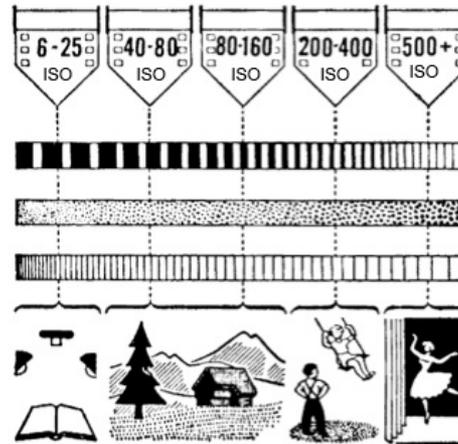
high sensitivity



ISO HOW SENSITIVE THE CAMERA IS TO LIGHT

ISO

To keep a consistency in your photos, choose your ISO before each shoot depending on shooting conditions.



ISO: the higher the ISO the more sensitive to light and more pixelated.

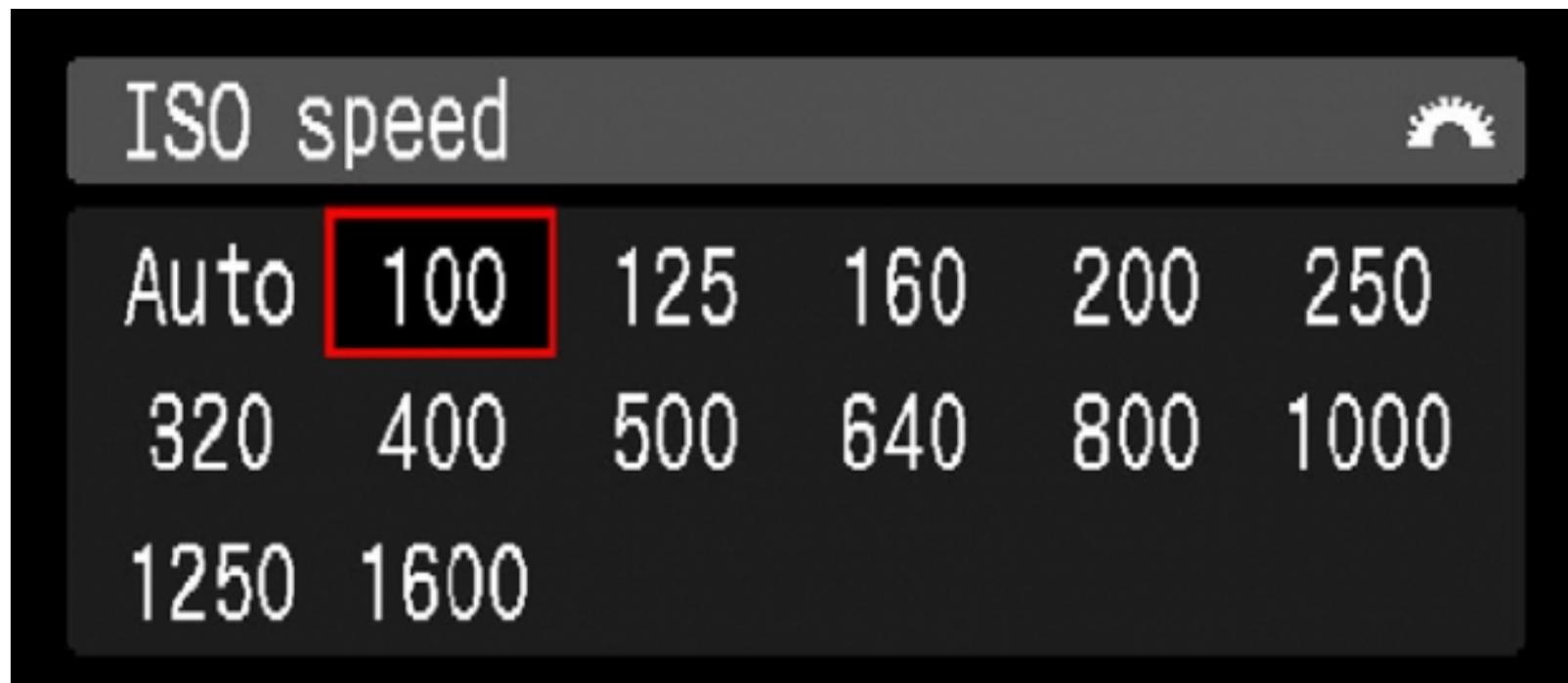


(ISO) INTERNATIONAL STANDARDS ORGANIZATION

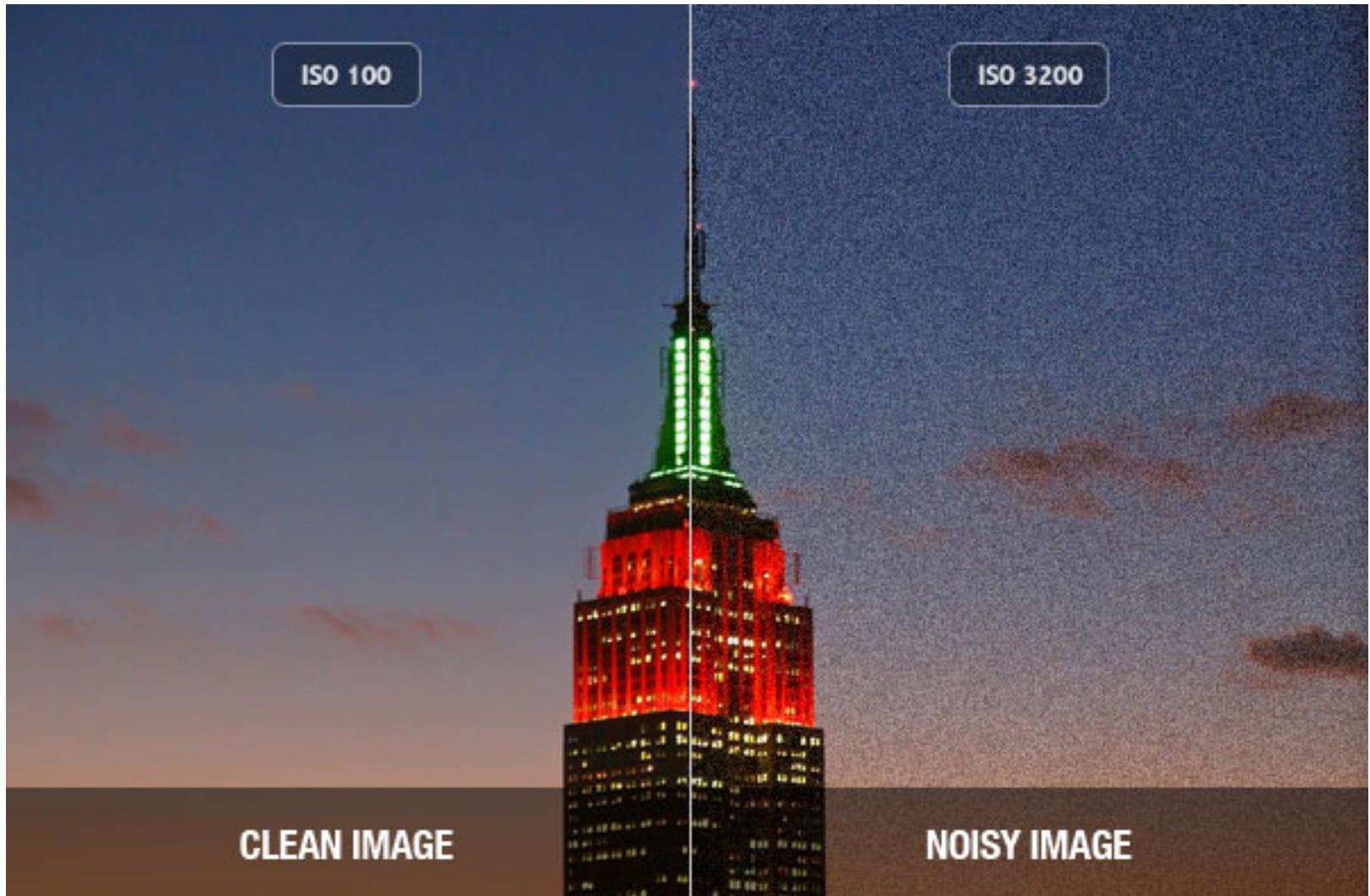


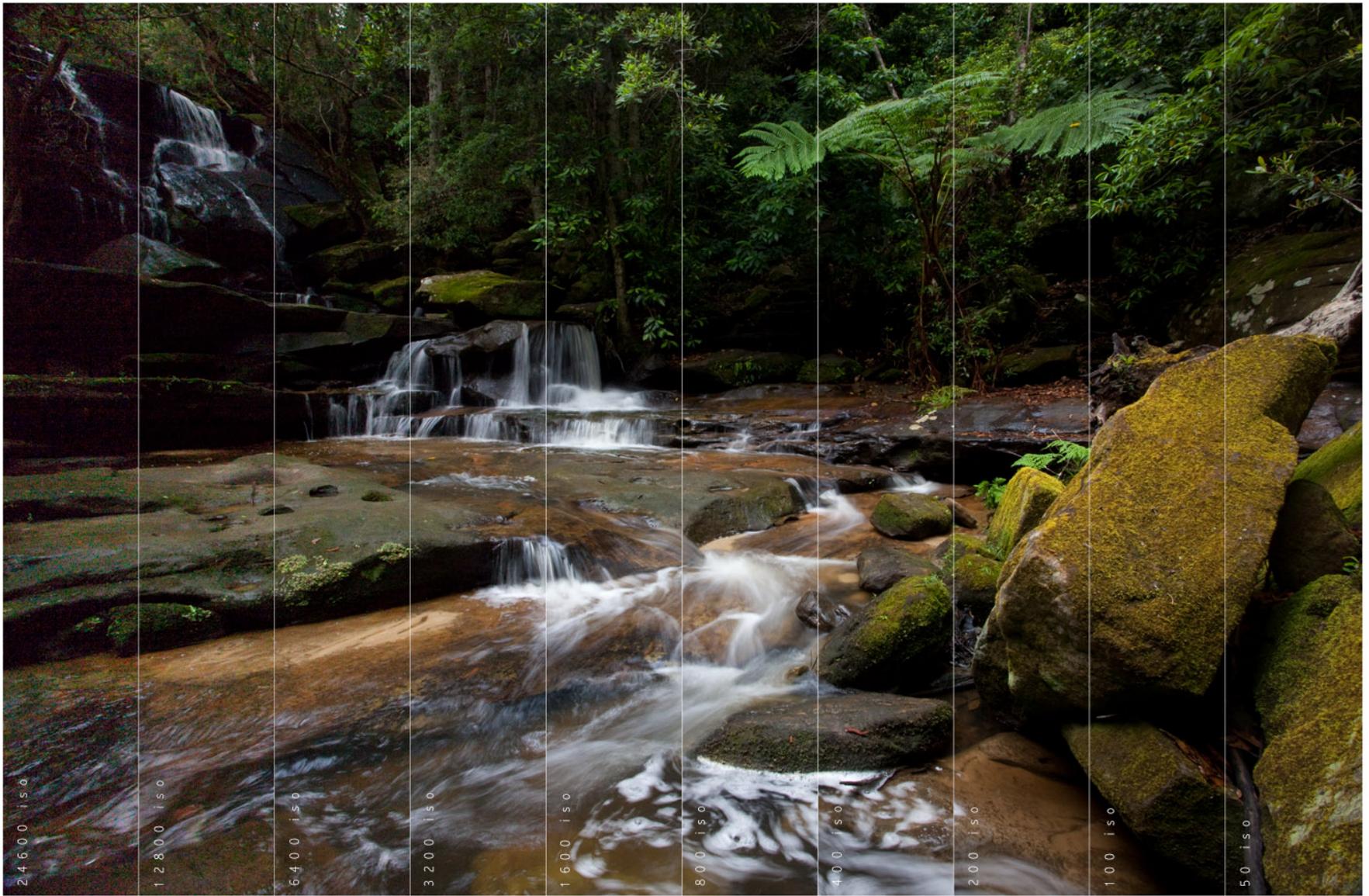
ISO controls exposure when you keep your Shutter Speed and Aperture at the same settings as shooting outdoors during a sunny day





THE DOWNSIDE



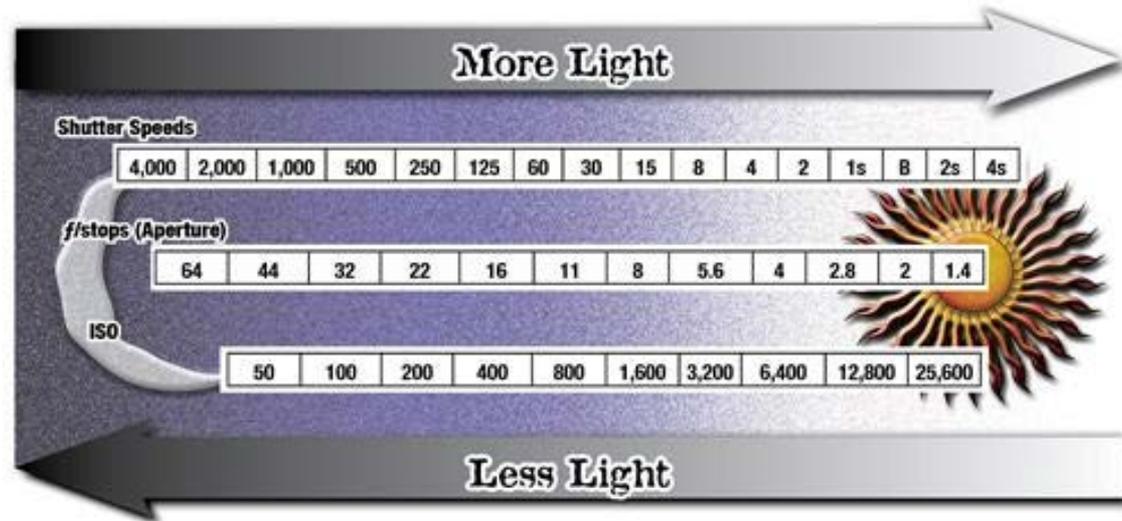


Full ISO range test on Canon 5D Mark II

www.rubbingpixels.com

LAW OF RECIPROcity

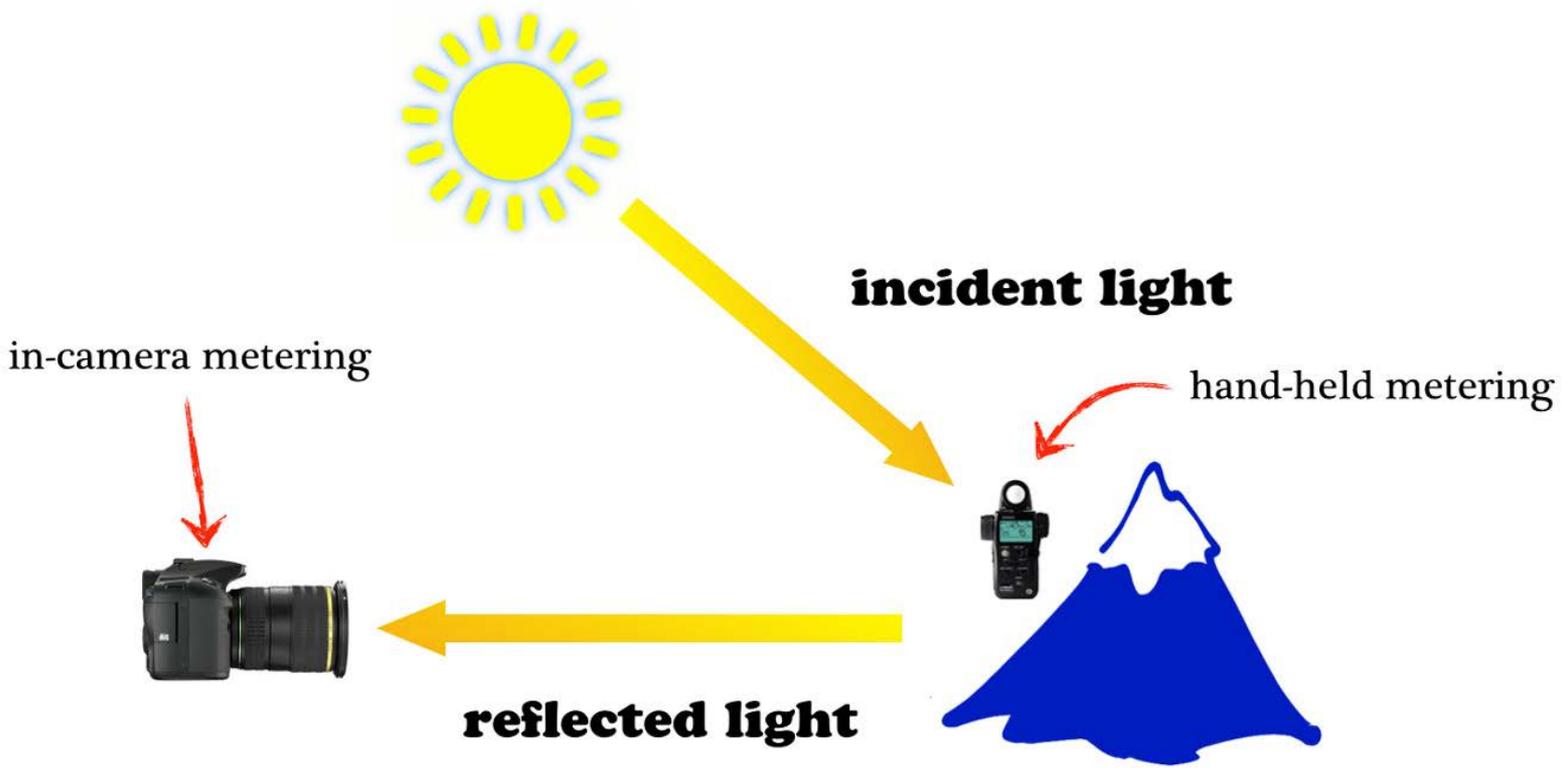
Reciprocity is the law of the relationship between shutter and aperture. It stipulates that one stop increases in aperture is equivalent to the shutter duration doubling. Both increase light by one stop.

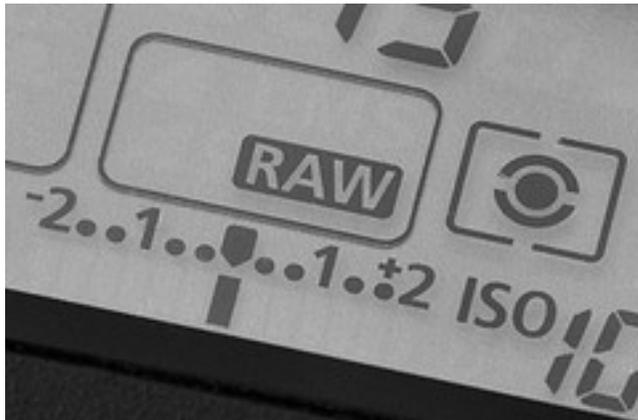


DSLR

- Lets explore the Light meter and Color Temperature
- Two types of Light
- Light meters
- Metering Modes
- Bracketing
- Histogram

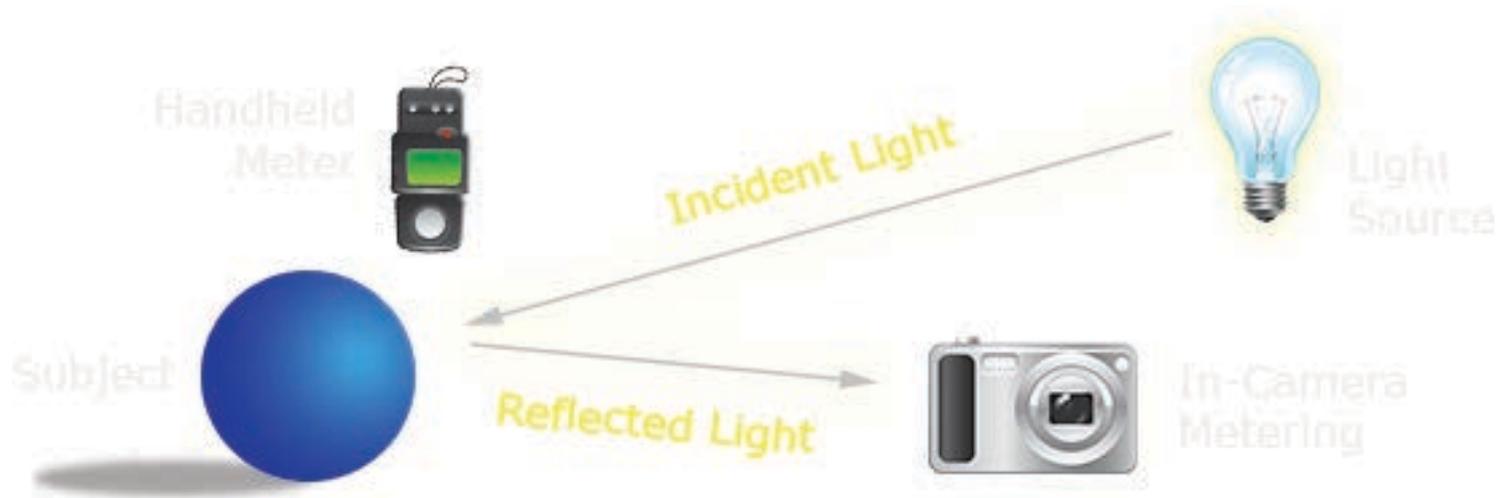


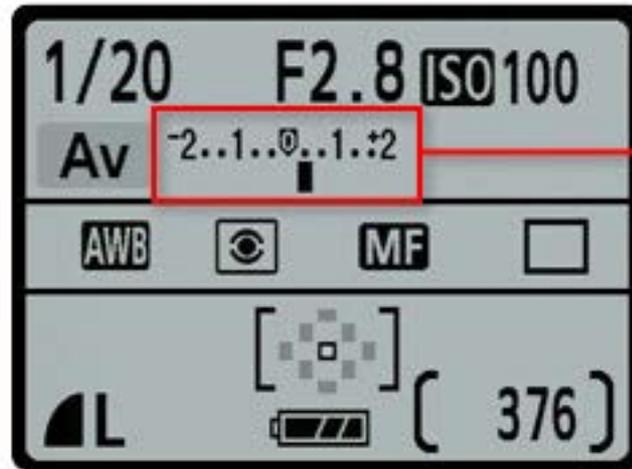




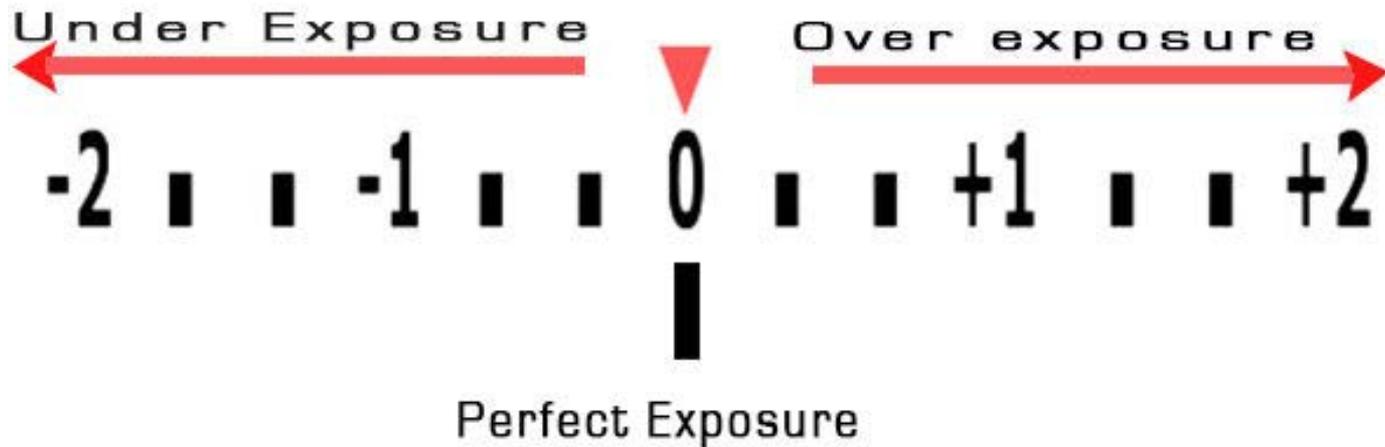
Exposure meter display on LCD

Exposure meter display in view finder





The light meter.
Note that it goes from
-2 stops to +2 stops



PHOTOGRAPH OF WHITE SHEET

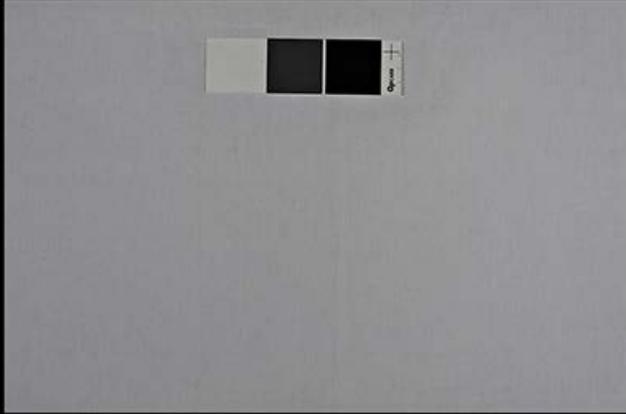


PHOTO WITH CAMERA'S METER

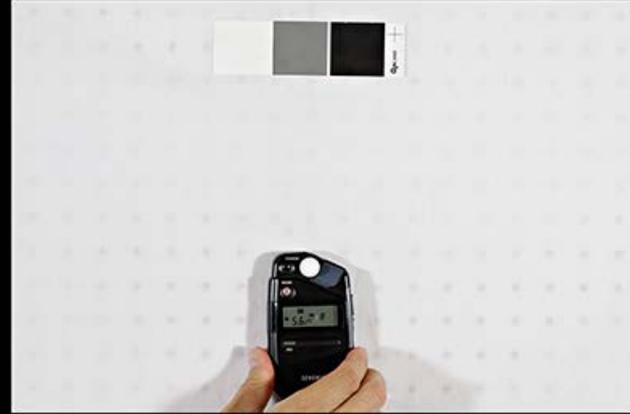


PHOTO USING INCIDENT METER

A CAMERA'S REFLECTIVE METER WILL UNDEREXPOSE WHITE RENDERING IT GRAY

PHOTOGRAPH OF BLACK SHEET

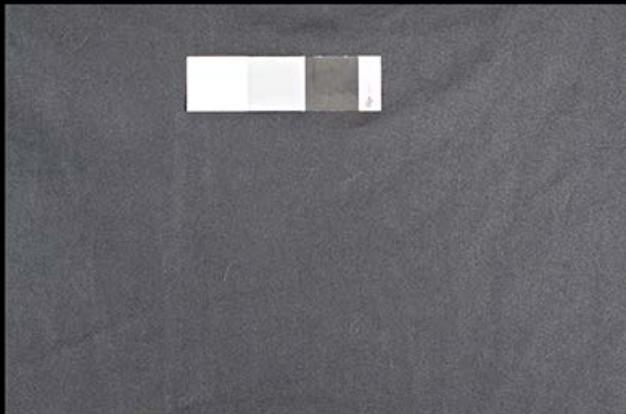


PHOTO WITH CAMERA'S METER



PHOTO USING INCIDENT METER

A CAMERA'S REFLECTIVE METER WILL OVEREXPOSE BLACK RENDERING IT GRAY



METERING

Canon EOS Metering Icons:

Evaluative



Partial



Spot



Center-weighted Average



☑ Changing the Metering Mode ★

The metering mode determines the exposure. Different metering modes measure the subject brightness differently. Normally, evaluative metering is recommended.

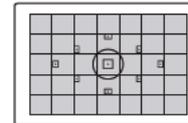
- 1 **Select the [Metering mode].**
 - Under the [☑] tab, select [Metering mode], then press <SET>.

- 2 **Set the metering mode.**
 - Press the <◀▶> key to select the metering mode, then press <SET>.



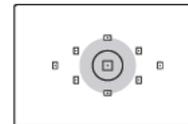
☑ Evaluative metering

This is an all-around metering mode suited for portraits and even backlit subjects. The camera sets the exposure automatically to suit the scene. This metering mode is set automatically in the Basic Zone modes.



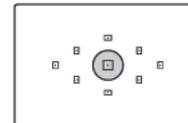
☑ Partial metering

Effective when the background is much brighter than the subject due to backlighting, etc. The gray area in the figure is where the metering is weighted to obtain the standard exposure.



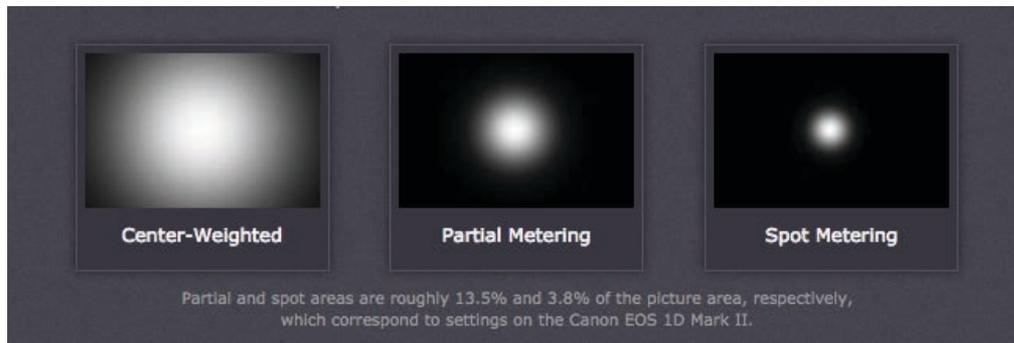
☑ Spot metering

This is for metering a specific part of the subject or scene. The gray area in the left figure is where the metering is weighted to obtain the standard exposure. This metering mode is for advanced users.



☑ Center-weighted average metering

The metering is weighted at the center and then averaged for the entire scene. This metering mode is for advanced users.



NIKON METERING MODES EXPLAINED

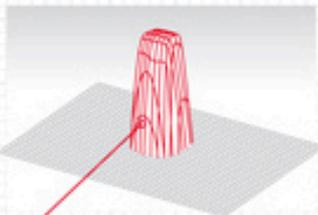
MODES AT A GLANCE

How each of the metering patterns works, and when to use them

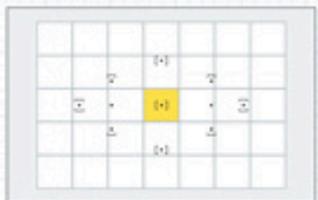


Spot

Spot metering only measures the intensity of light over a small circular area around the active AF point, so you need to pay attention to where this is. The area corresponds to roughly 1.5-2.5 per cent of the frame, depending on which Nikon D-SLR you're using.



This graph shows how spot metering concentrates around the AF point

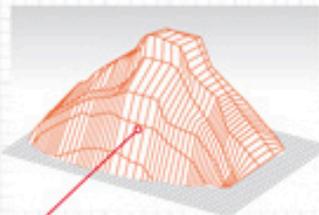


The small area around the AF point gives an indication of the region covered by spot metering

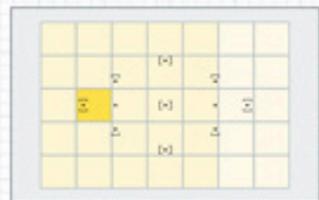


3D Color Matrix

The default metering mode on Nikon D-SLRs measures light distribution across the whole frame, together with colour and focus data. It then compares this to an internal database of typical photographic scenes to arrive at a suitable exposure.



With matrix metering, the shape of the graph changes with each scene

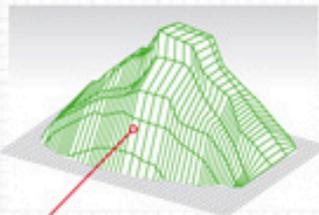


Your current focus point is one of the criteria used by matrix metering to work out the best exposure



Centre-weighted

This mode measures the light across the whole picture area, but strongly biases the resulting reading to the centre of the viewfinder. On more advanced Nikon D-SLRs, you can change the size of this central area, and hence the overall bias.



This graph is higher in the middle, where it's heavily 'weighted'

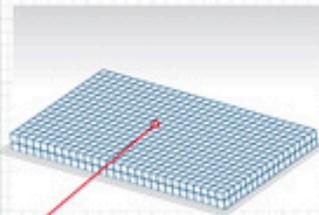


The exposure is based mainly on the central part of the image, though the outer parts have an influence too

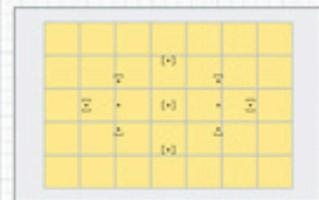


Average

This is a variation on the centre-weighted mode that's only available on Nikon's pro D-SLRs. It measures light evenly across the whole frame, which makes it the least sophisticated metering system of all, but for experts it can be the easiest to interpret.



The graph for average metering is flat, as all areas are treated equally



The light across the whole frame is measured as a single value. It's a crude method but can be useful





Matrix
f/4.5 @ 1/30



Center Weighted
f/4.5 @ 1/60



Spot
f/4.5 @ 1/100



Standing in sun, shooting into shade



Matrix
f/4.5 @ 1/1,250



Center Weighted
f/4.5 @ 1/1,600



Spot
f/4.5 @ 1/400



Standing in sun, shooting into shade



Matrix

f/4.5 @ 1/1,250

Center Weighted

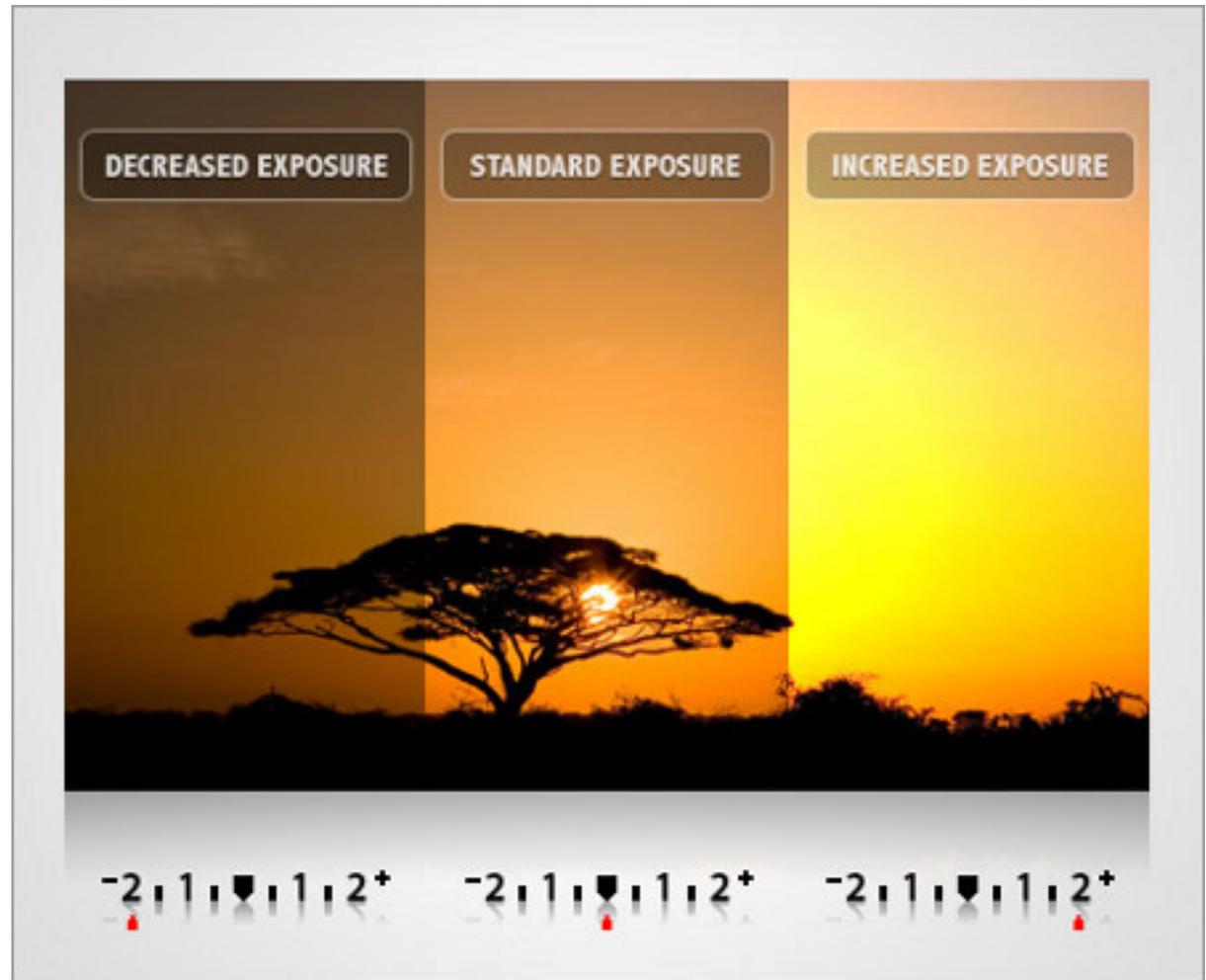
f/4.5 @ 1/400

Spot

f/4.5 @ 1/320



BRACKETING



BRACKETING



-2EV



'Correct' exposure



+2EV



BRACKETING



-1 stop Bracketing

ISO 200 *f*8 1/125 sec



Normal exposure

ISO 200 *f*8 1/250 sec

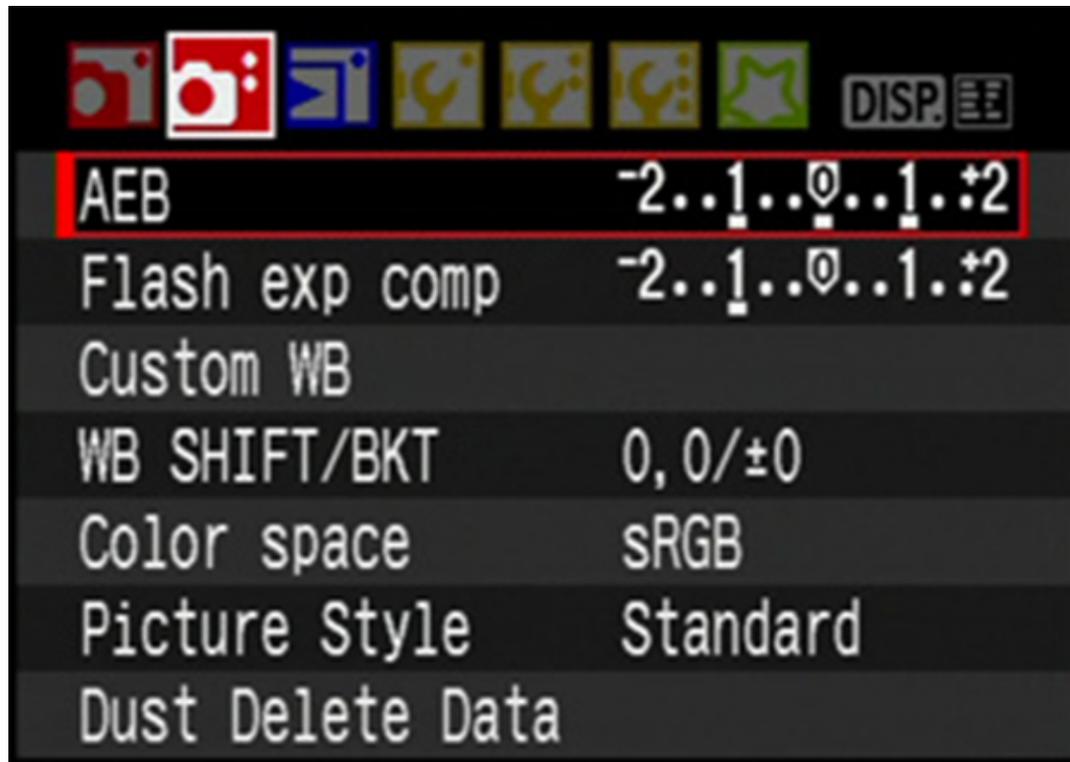


+1 stop Bracketing

ISO 200 *f*8 1/500 sec



AUTO EXPOSURE BRACKETING



~2700 K

60 W Incandescent

3500 K

13 W Fluorescent

5500 K

13 W Fluorescent



COLOR TEMPERATURE

Degrees Kelvin	Type of Light Source	Indoor (3200k) Color Balance	Outdoor (5500k) Color Balance
1700-1800K	Match Flame		
1850-1930K	Candle Flame		
2000-3000K	Sun: At Sunrise or Sunset		
2500-2900K	Household Tungsten Bulbs		
3000K	Tungsten lamp 500W-1k		
3200-3500K	Quartz Lights		
3200-7500K	Fluorescent Lights		
3275K	Tungsten Lamp 2k		
3380K	Tungsten Lamp 5k, 10k		
5000-5400K	Sun: Direct at Noon		
5500-6500K	Daylight (Sun + Sky)		
5500-6500K	Sun: through clouds/haze		
6000-7500K	Sky: Overcast		
6500K	RGB Monitor (White Pt.)		
7000-8000K	Outdoor Shade Areas		
8000-10000K	Sky: Partly Cloudy		

Based on information from the book [digital] Lighting & Rendering Chart and colors (c)2003 Jeremy Birn for www.3dRender.com



WHITE BALANCE



What is RAW?

- A raw file is a collection of unprocessed data. This means the file has not been altered, compressed, or manipulated in any way by the computer. Raw files are often used as data files by software programs that load and process the data. A popular type of raw file is "Camera RAW," which is generated by a digital camera. Instead of processing the image captured by the camera, the data is left unprocessed and uncompressed until it is opened with a computer program.

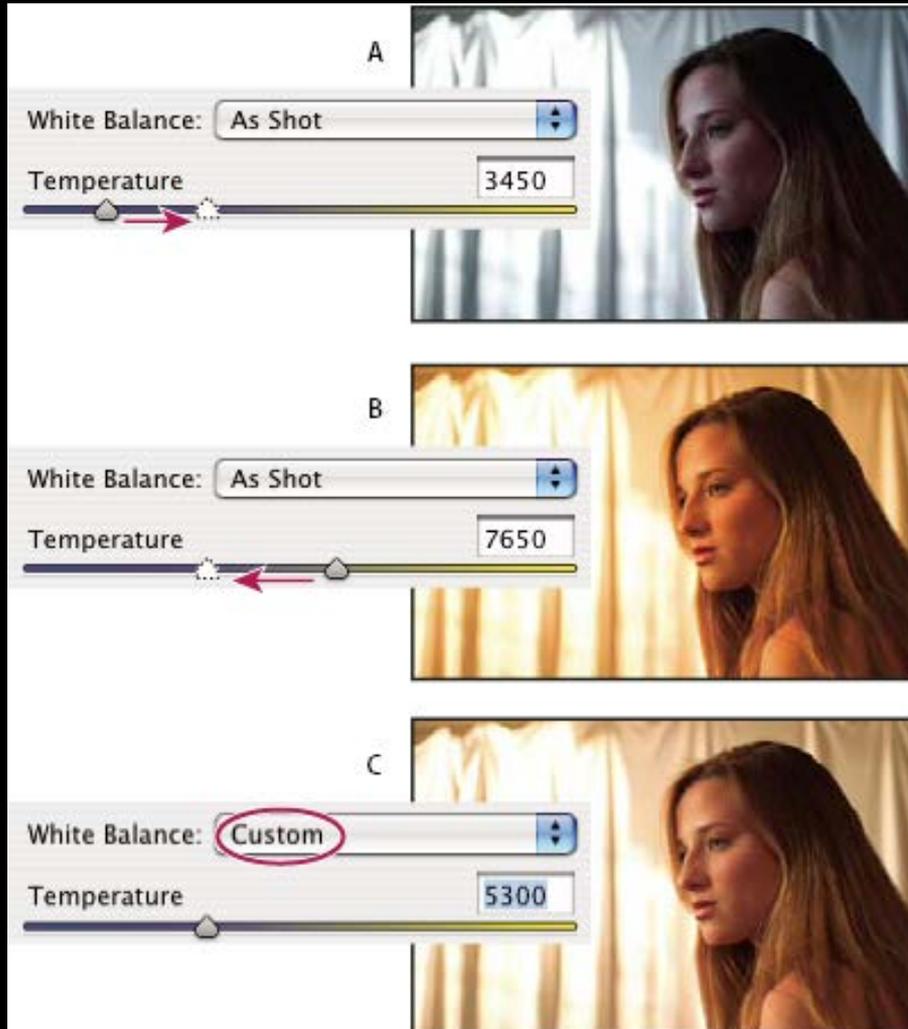




JPEG

RAW

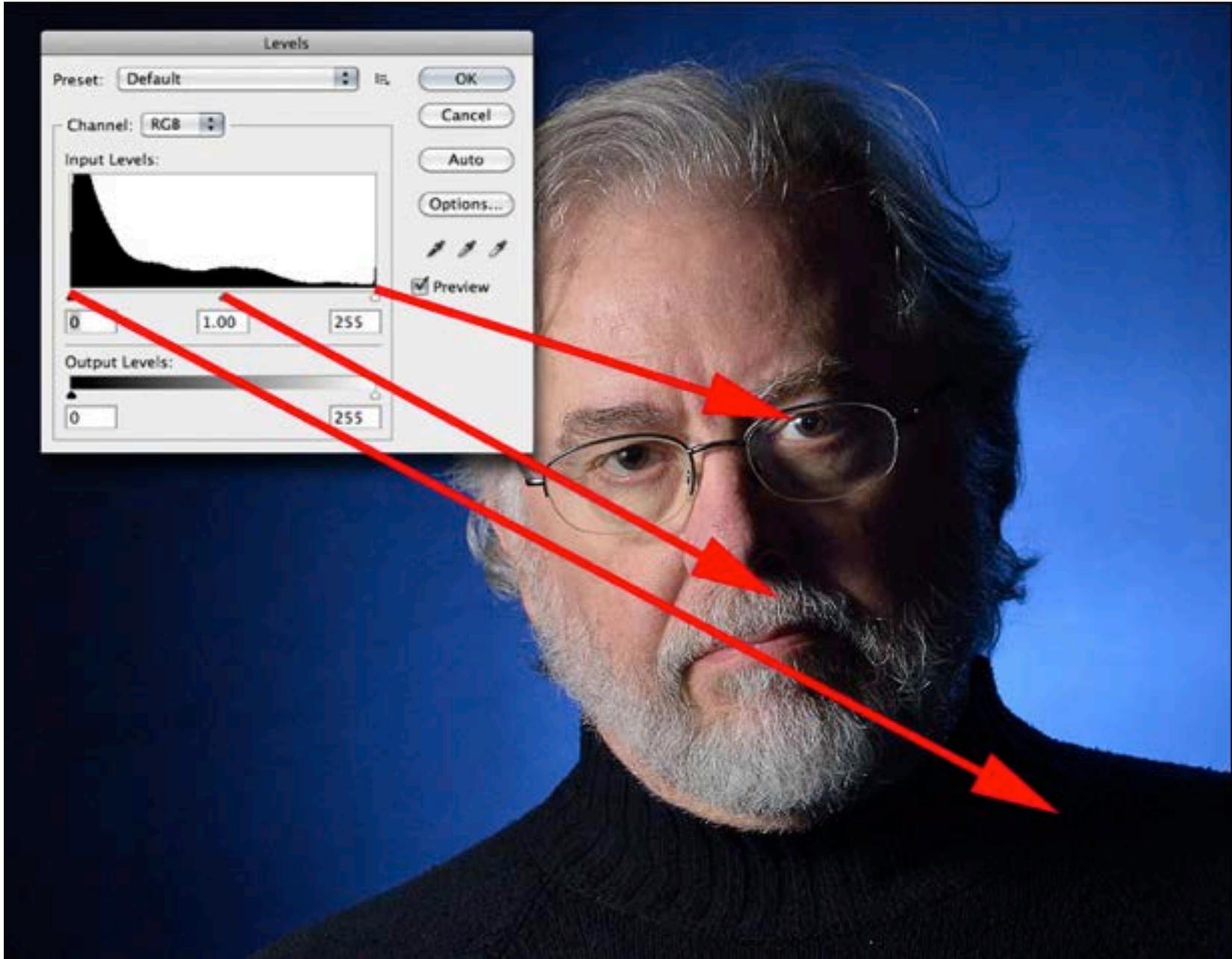
BEST PRACTICE: THE RAW FILE FORMAT



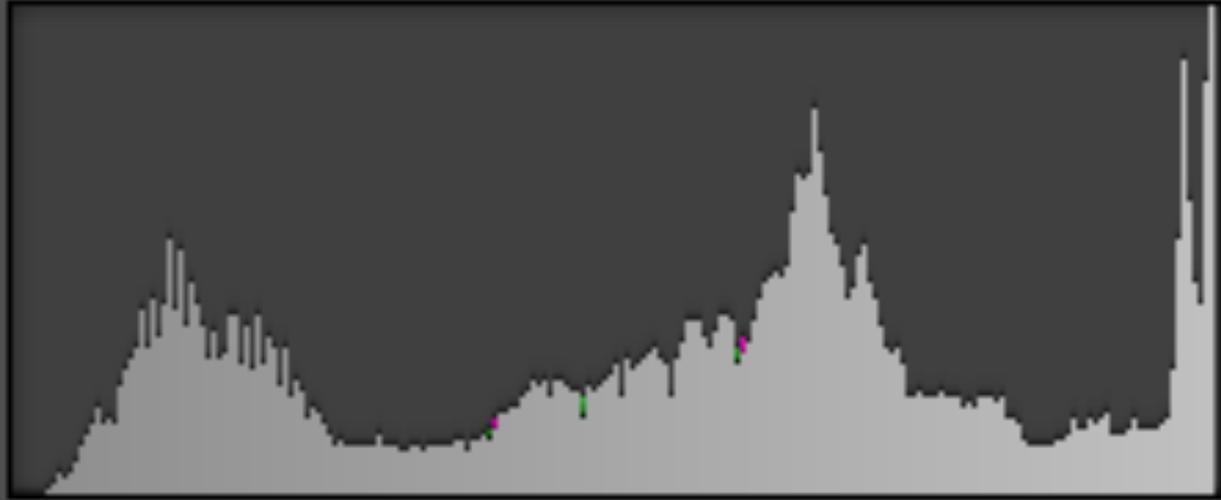
By far the best white balance solution is to photograph using the RAW file format (if your camera supports them), as these allow you to set the WB *after* the photo has been taken. RAW files also allow one to set the WB based on a broader range of color temperature and green-magenta shifts.

8 BIT HISTOGRAM





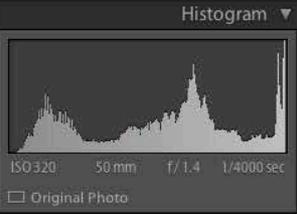
Histogram ▾



ISO 320 50 mm f/ 1.4 1/4000 sec

Original Photo





Quick Develop ▼

Saved Preset: Custom ▼

White Balance: As Shot ▼

Tone Control: Auto Tone ▼

Exposure: <<< < > >>>

Clarity: <<< < > >>>

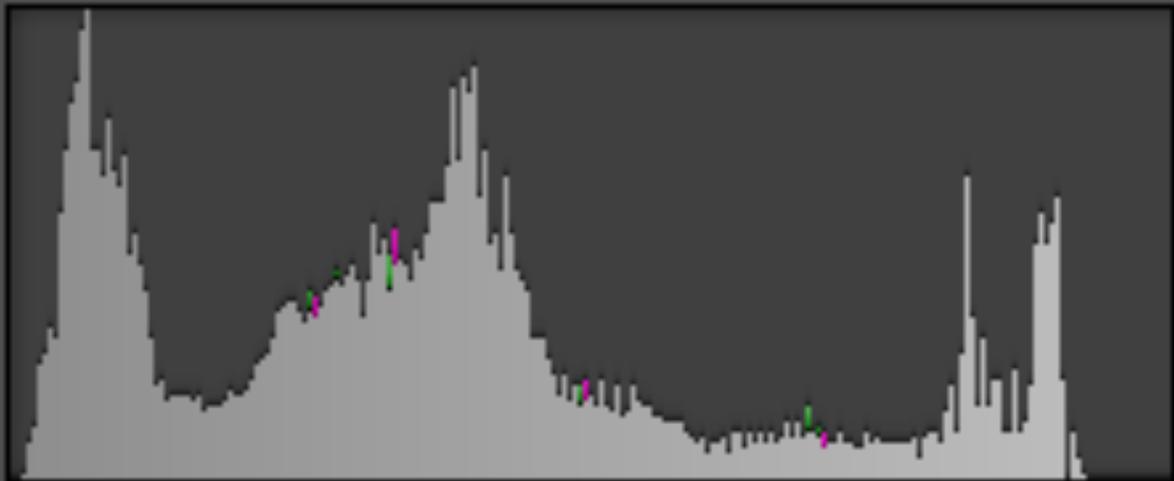
Vibrance: <<< < > >>>

Reset All

- Keywording ▼
- + Keyword List ▼
- Default ▼ Metadata ▼
- Comments ▼



Histogram ▼



ISO 320

50 mm

f/ 1.4

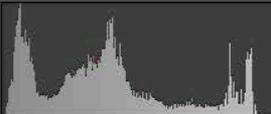
1/4000 sec

Original Photo





Histogram ▾



ISO 320 50 mm f/1.4 1/4000 sec

Original Photo

Quick Develop ▾

Saved Preset: Custom ▾

White Balance: As Shot ▾

Tone Control: Auto Tone ▾

Exposure: << < > >>

Clarity: <<< < > >>>

Vibrance: << < > >>

Reset All

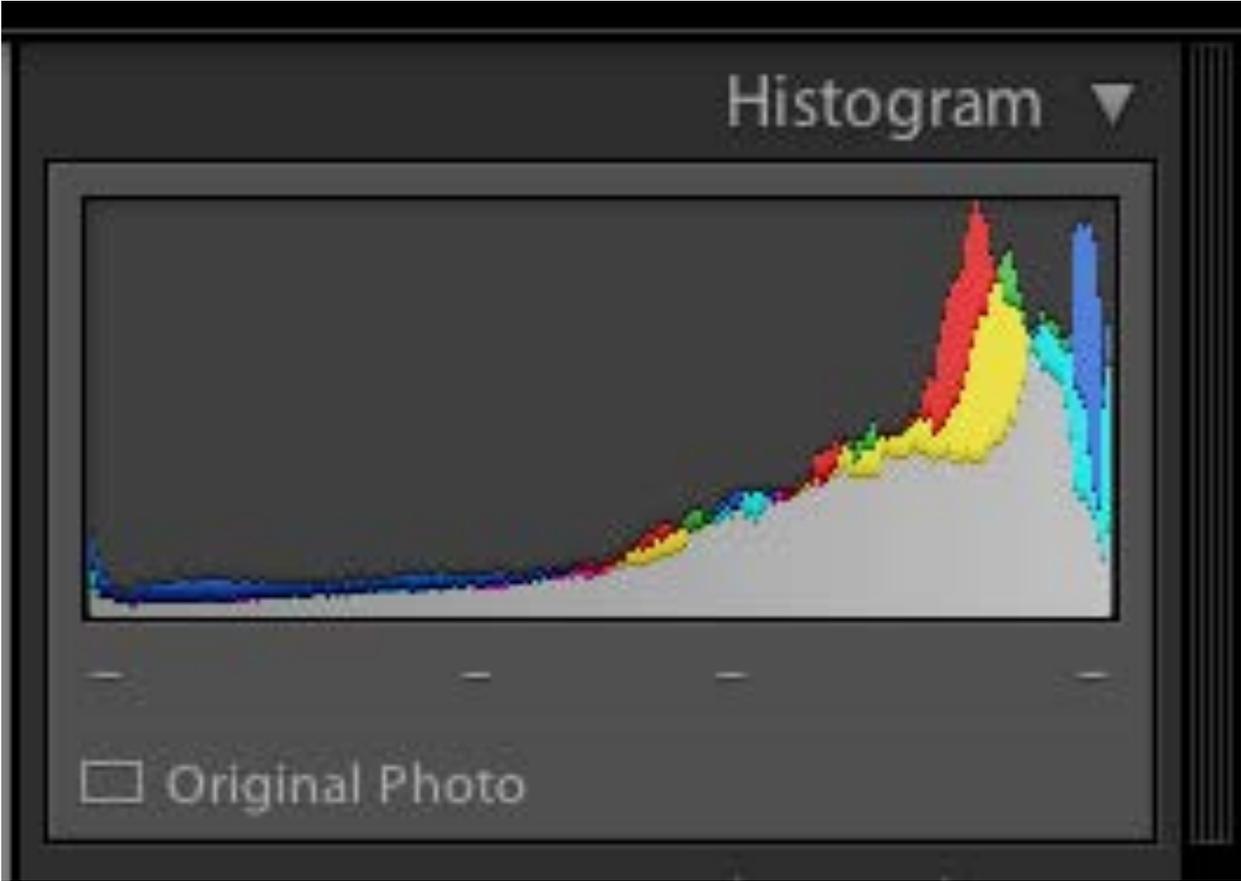
Keywording ▾

+ Keyword List ▾

Default ▾ Metadata ▾

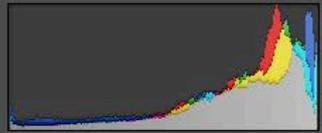
Comments ▾







Histogram ▾



Original Photo

Quick Develop ▾

Saved Preset ▾

White Balance ▾

Tone Control ▾

Exposure << < > >>

Clarity << < > >>

Vibrance << < > >>

Reset All

Keywording ▾

+ ▾

Default ▾ ▾

▾

