

Digitálna Fotografia

Miroslav Hájek

Kompozičné techniky

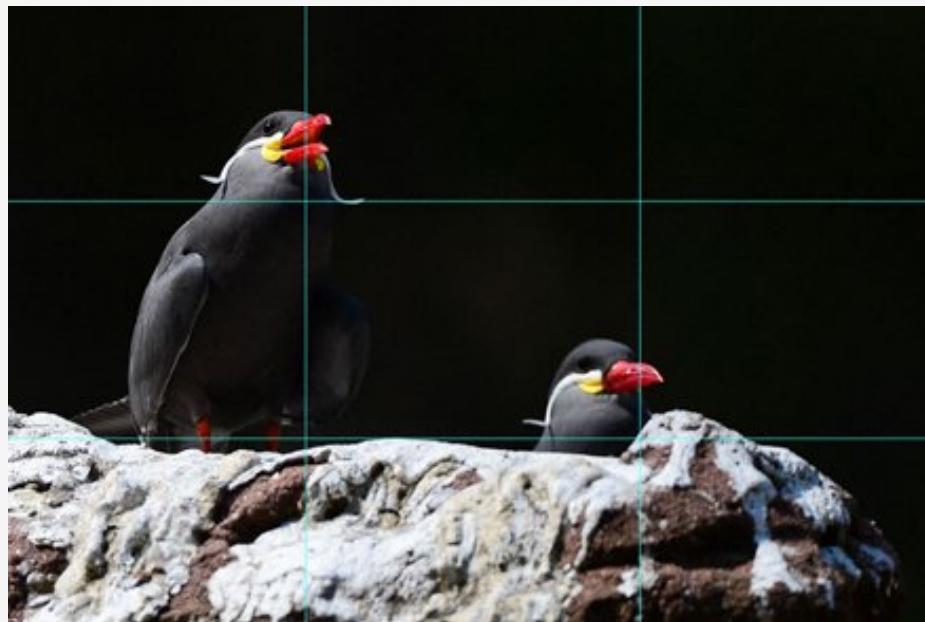
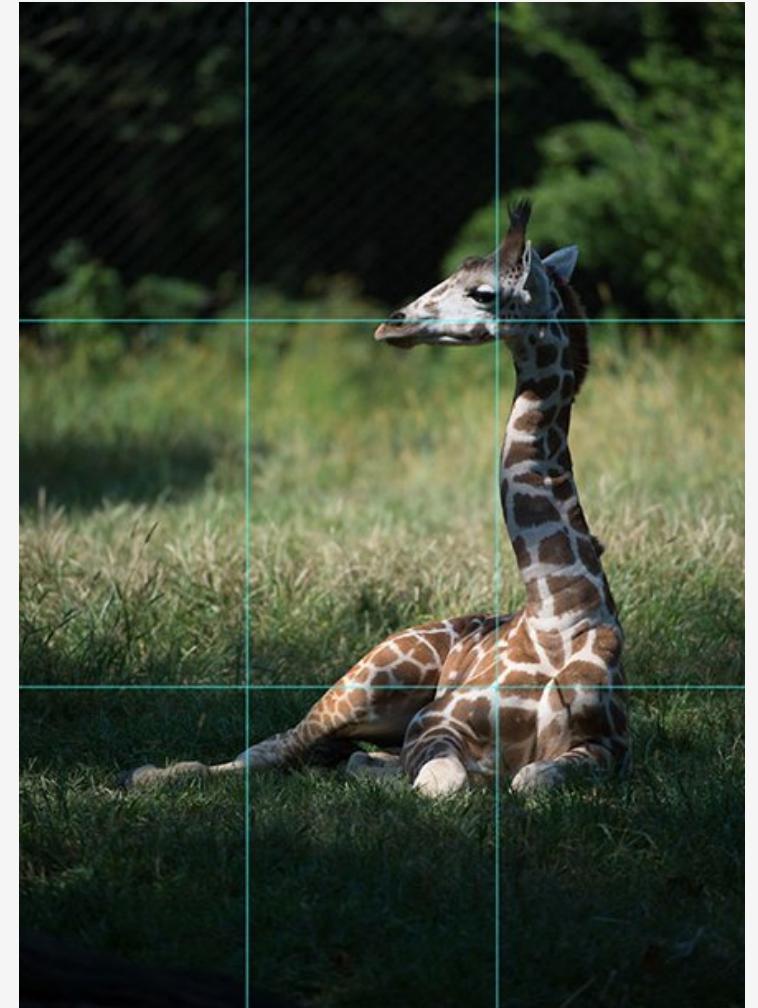
Výber hlavného motívu

- odstránenie rušivých prvkov



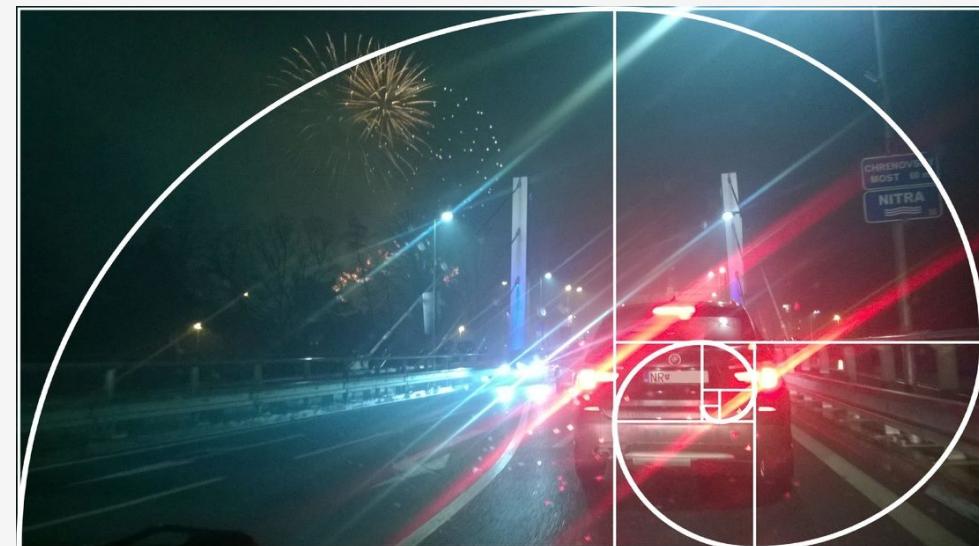
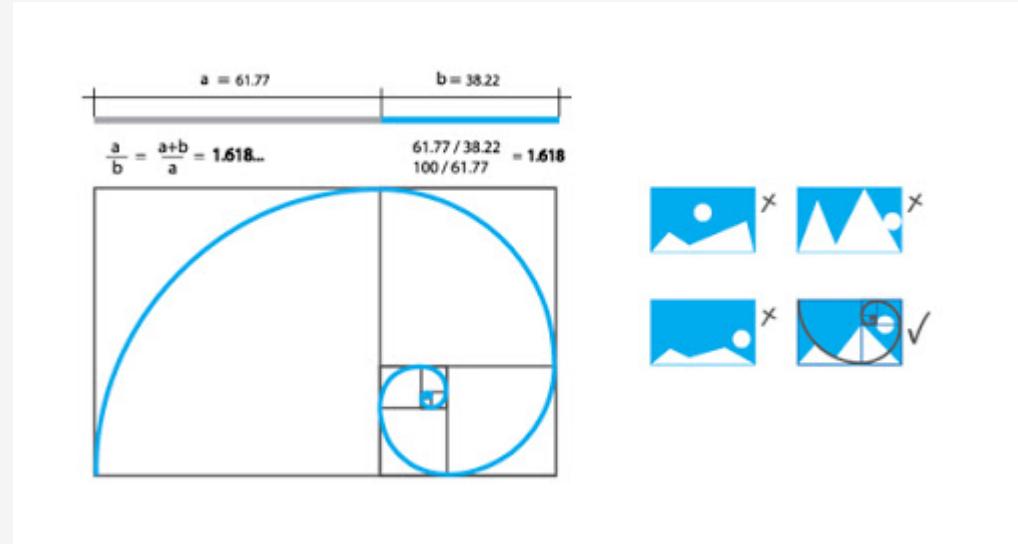
Umelecký aspekt - Kompozícia

Pravidlo tretín



Umelecký aspekt - Kompozícia

Zlatý rez



Umelecký aspekt - Kompozícia

Pohľad do snímky



Umelecký aspekt - Kompozícia

Umiestnenie horizontu



Vodiace línie, symetria, opakujúce sa vzory

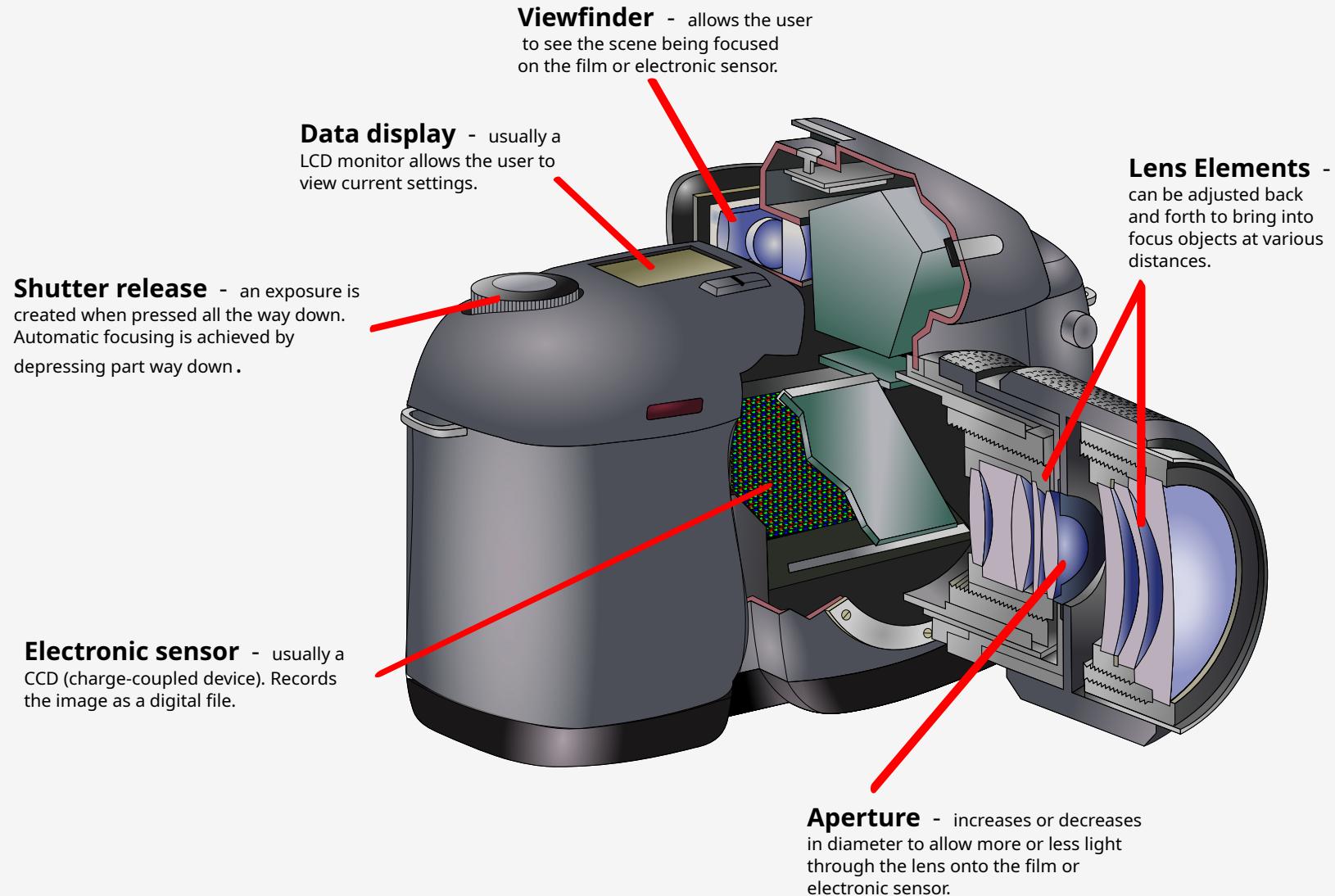


Umelecký aspekt - Kompozícia

Orámovanie predmetu

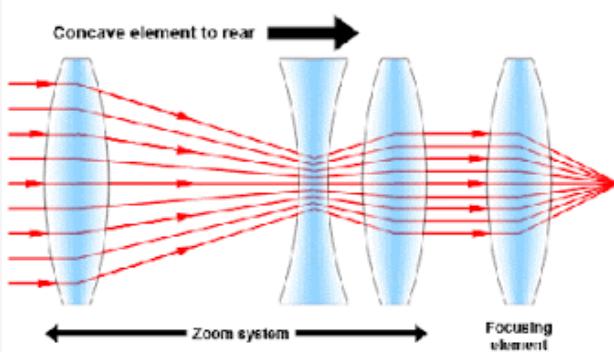


Digitálny fotoaparát

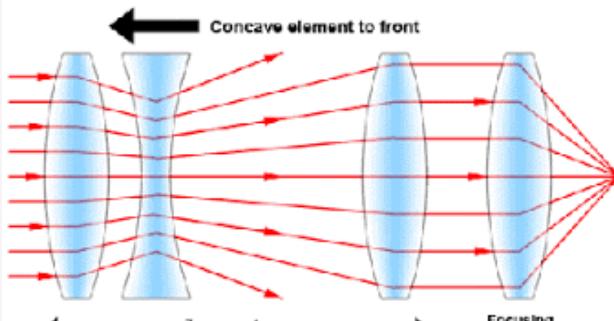


Objektív

- Širokoúhly objektív (18 - 35 mm)
- Normálny objektív (50 mm)
- Teleobjektív (80 – 1600 mm)



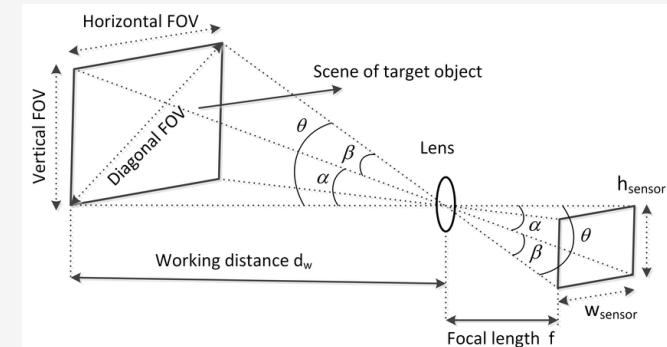
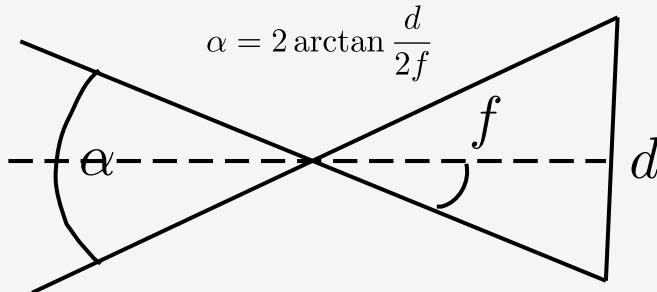
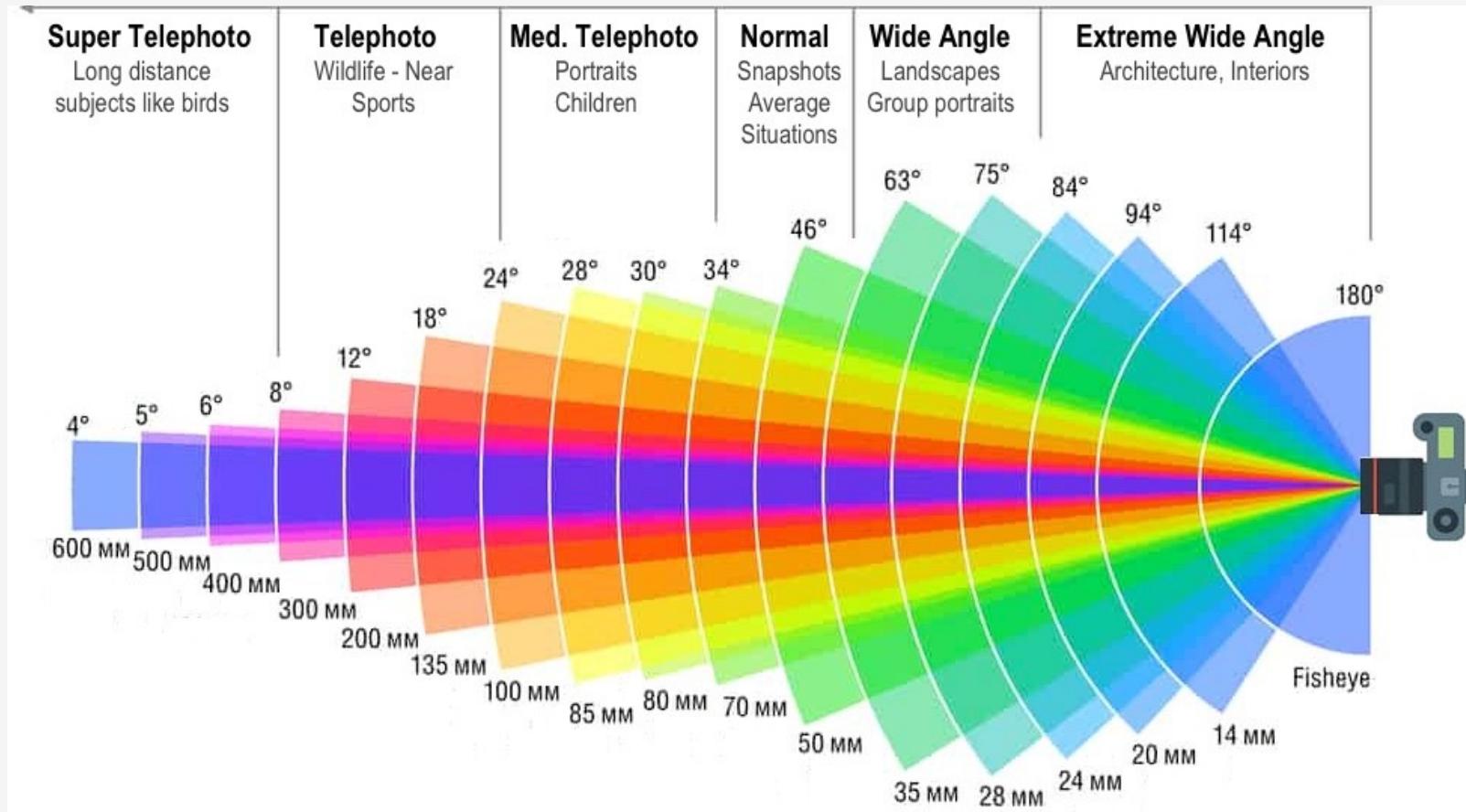
Zoom lens at wide-angle setting



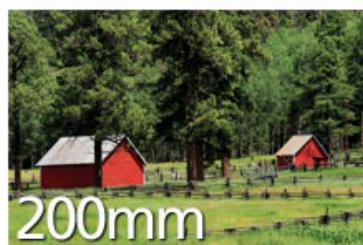
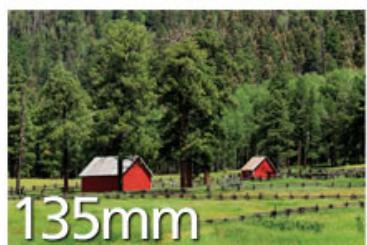
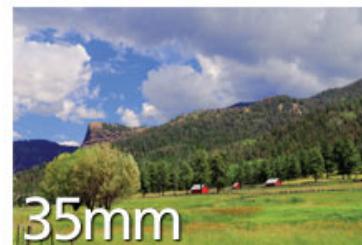
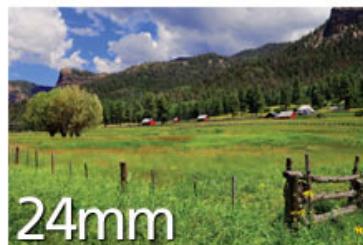
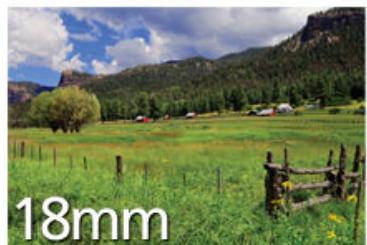
Zoom lens at telephoto setting



Ohnisková vzdialenosť



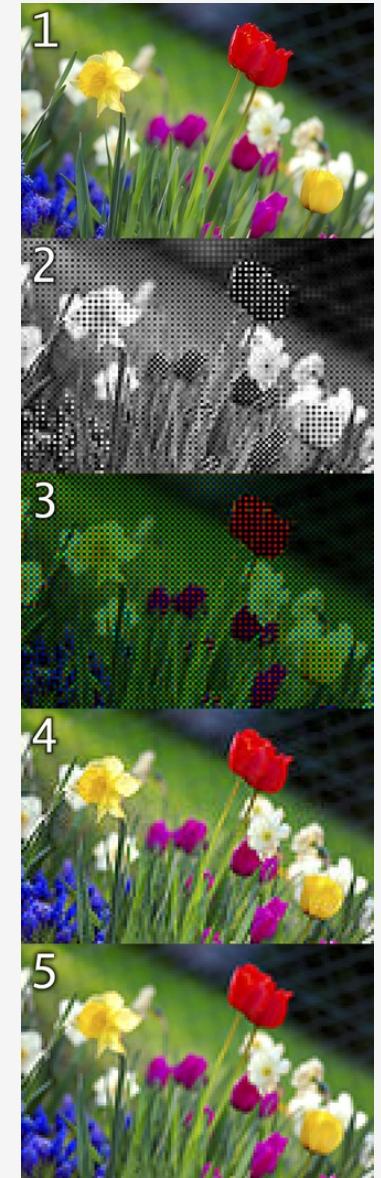
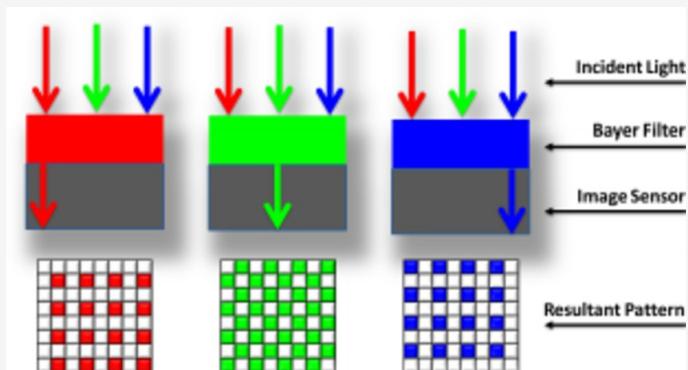
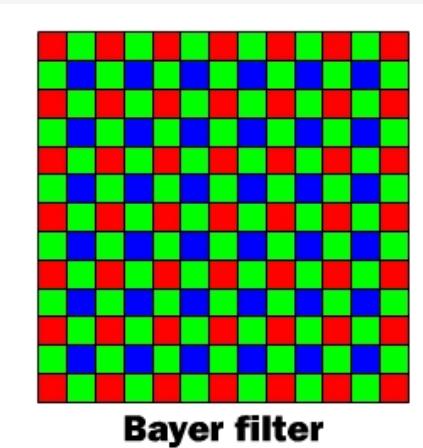
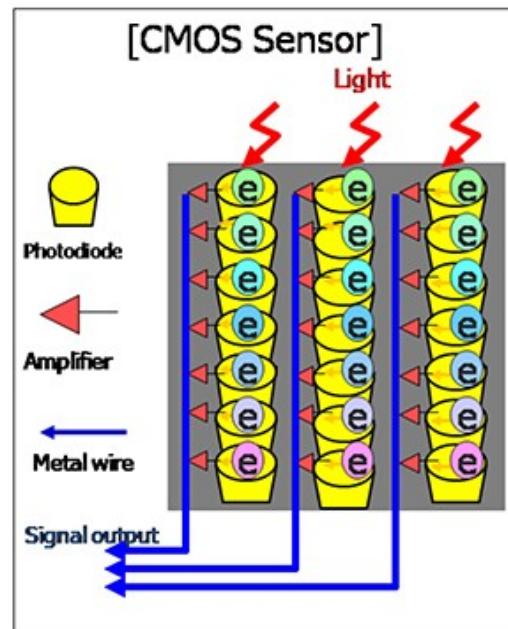
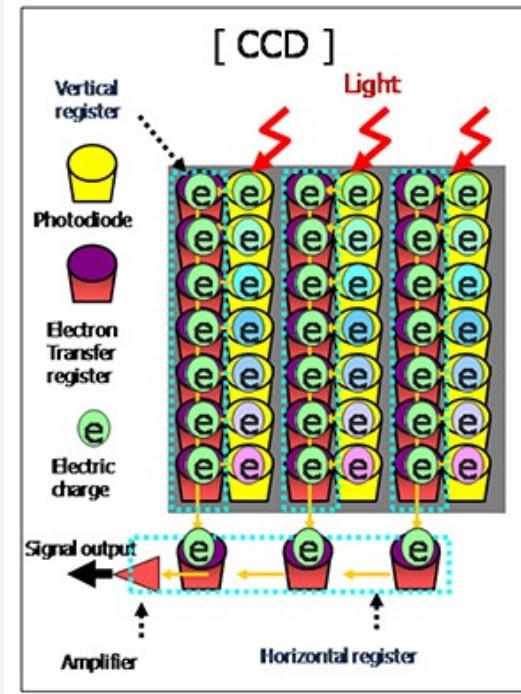
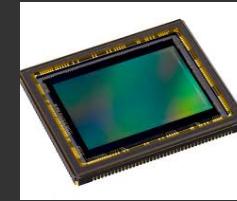
Ohnisková vzdialenosť



Ohnisková vzdialenosť



Snímač



Expozícia

$$EV = \log_2 \frac{N^2}{t}$$

Podexponovaný

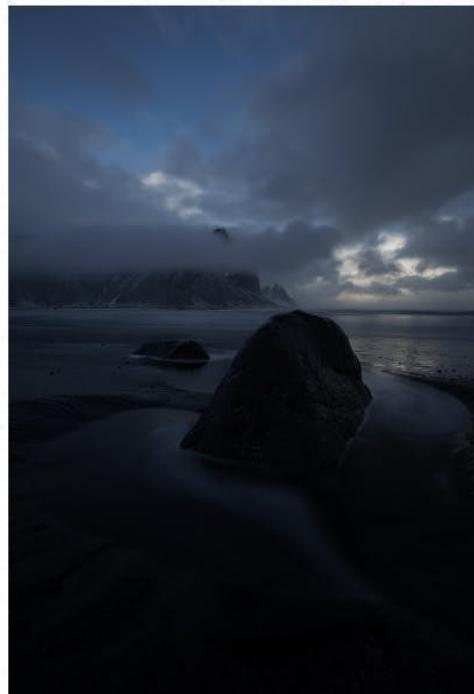
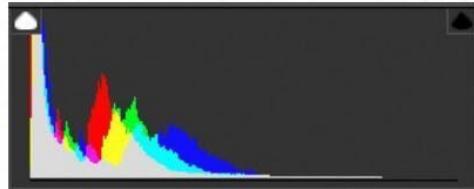


Preexponovaný

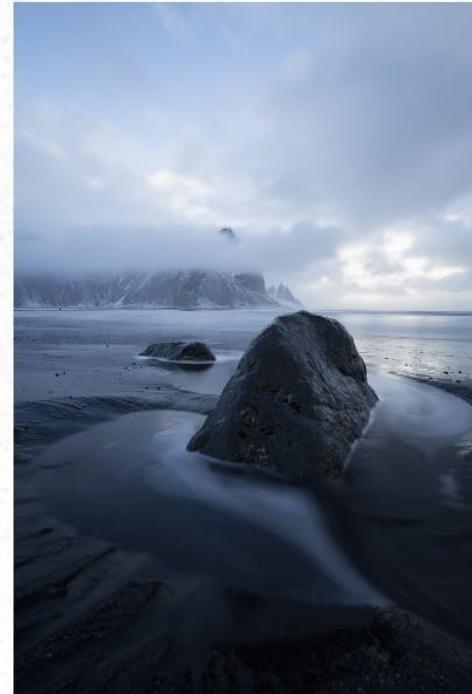
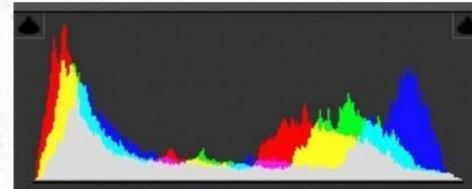


Expozícia

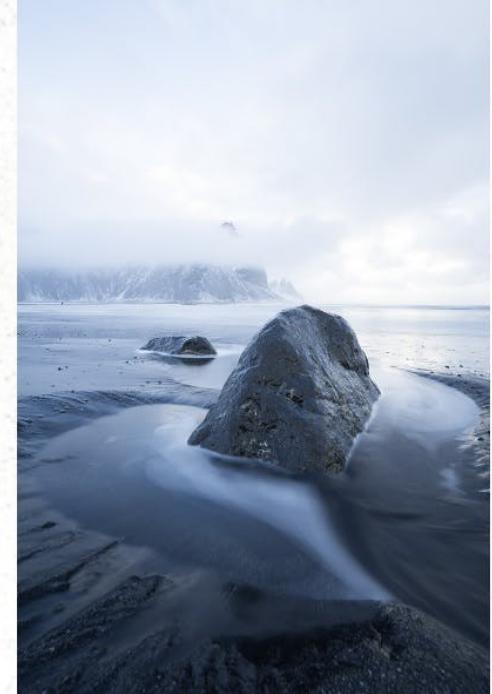
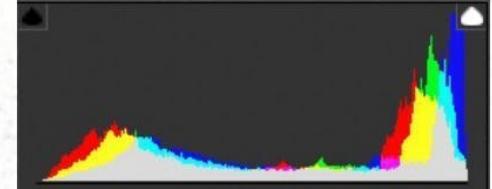
Underexposed



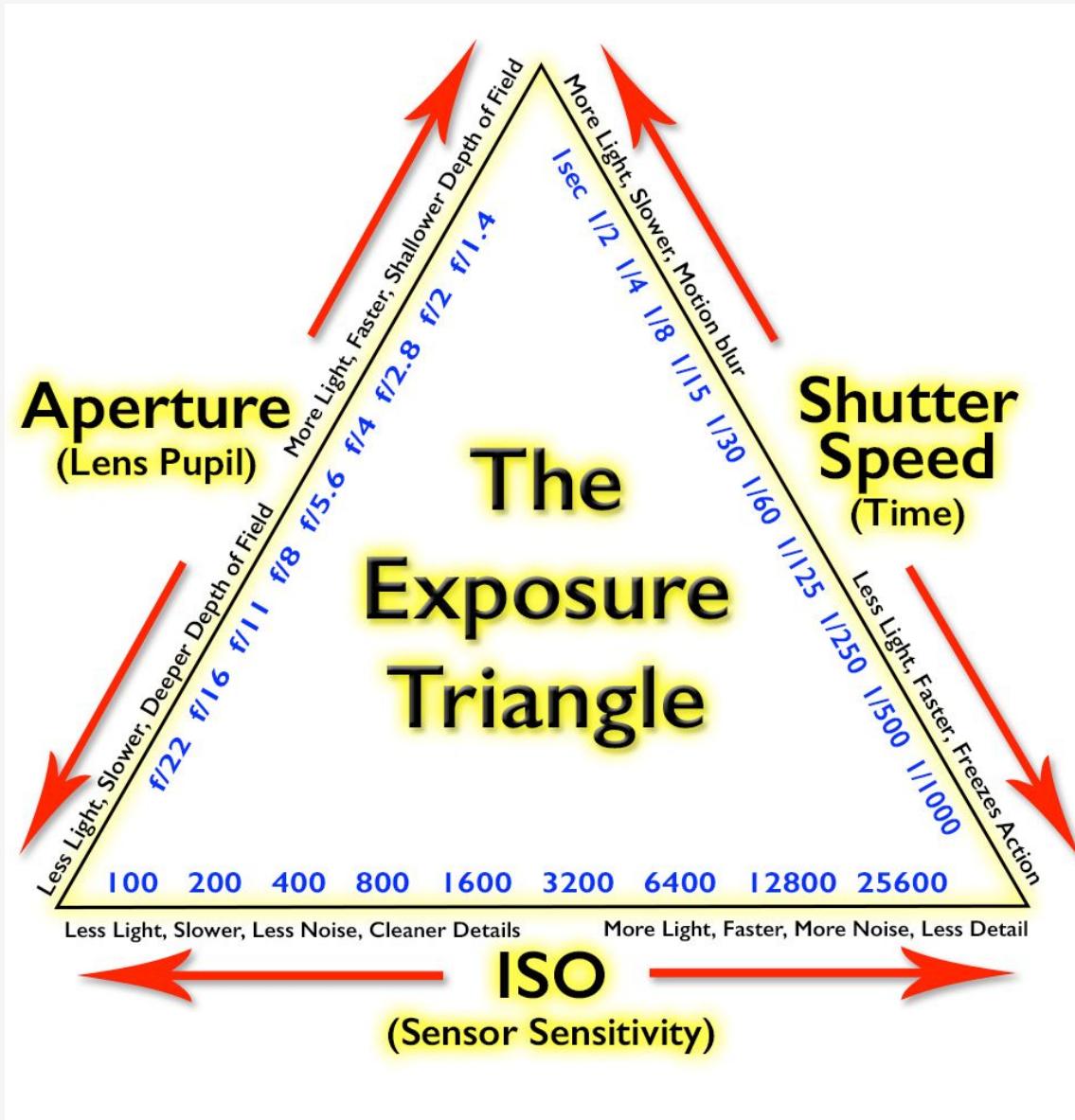
Correct exposure



Overexposed



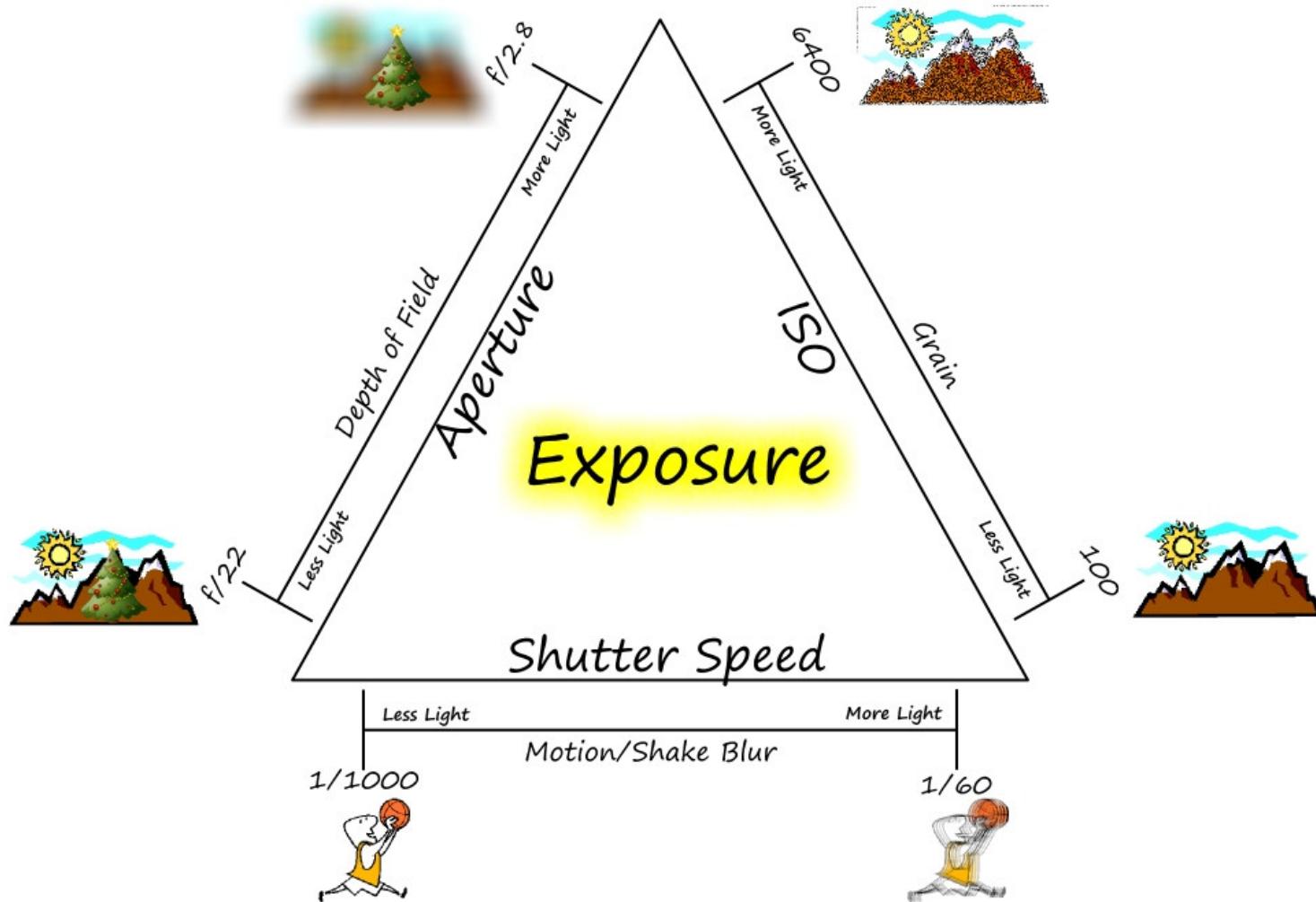
Expozičný trojuholník



Expozičný trojuholník

Aesthetic Exposure Triangle ©2011 Michael P. Young

Each side of the triangle represents an "ingredient" in the amount of light contributed to the overall exposure of a given scene. The longer the side of the triangle, the more light contributed. If you increase/decrease the length of one side of the triangle, you must equally decrease/increase, respectively, the length of another side, or split the change proportionately between the other two sides.



Clona



$$\kappa = \frac{f}{D}$$

Clonové číslo =
Ohnisková vzdialenosť /
Priemer vstupnej šošovky

$f/1.4$



$f/2.0$



$f/2.8$



$f/4.0$



$f/5.6$

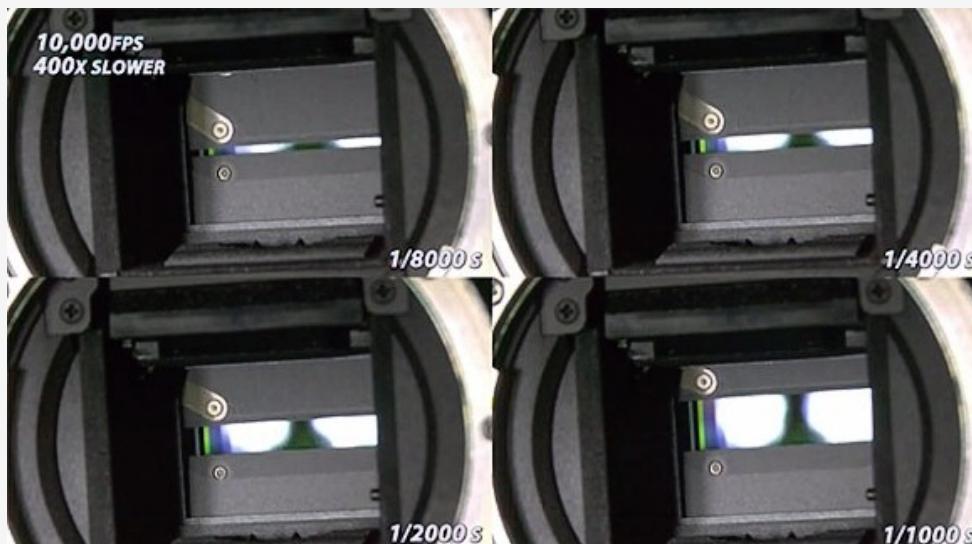


$f/8.0$

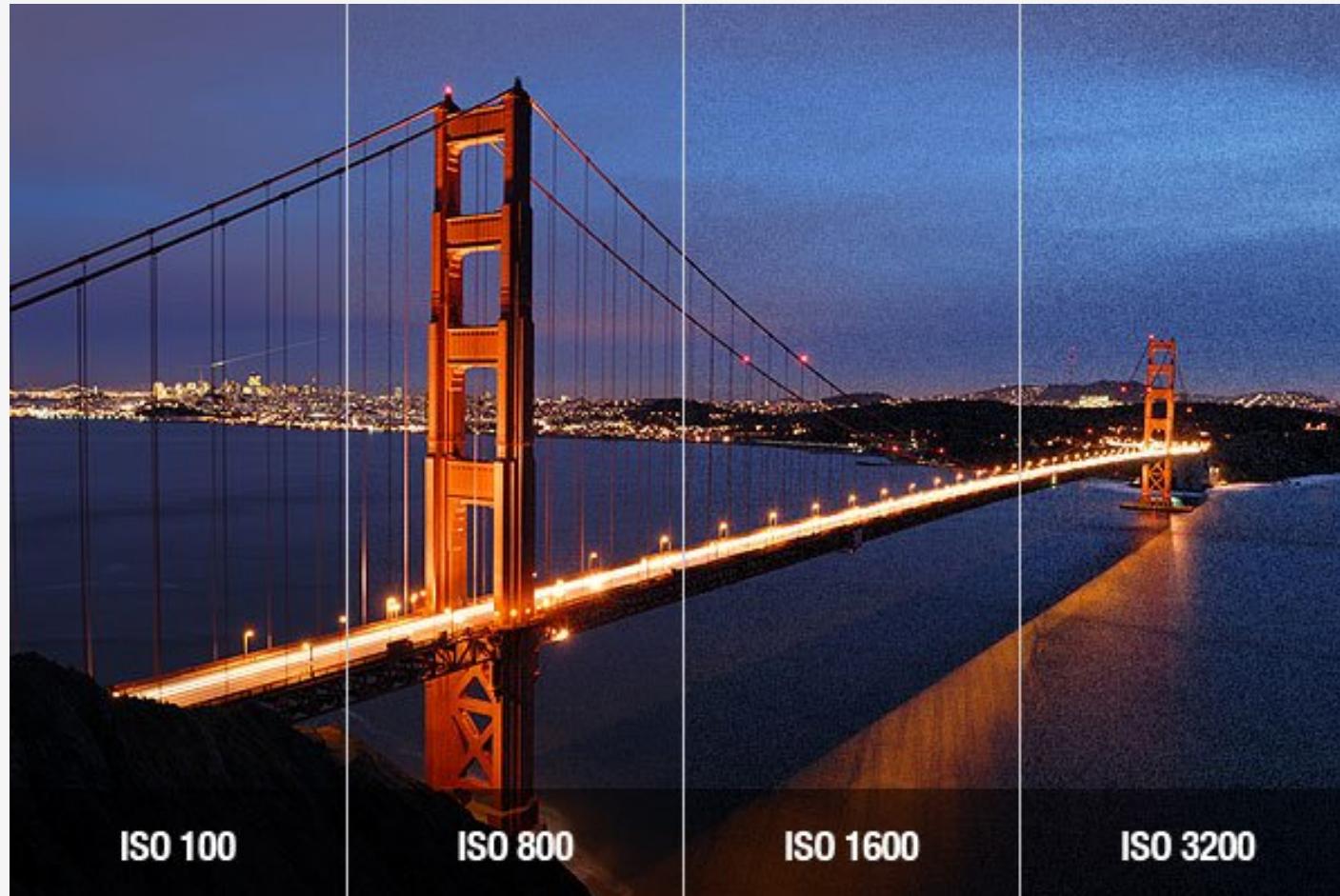


$$\kappa_{n+1} = \sqrt{2} \cdot \kappa_n$$

Závierka



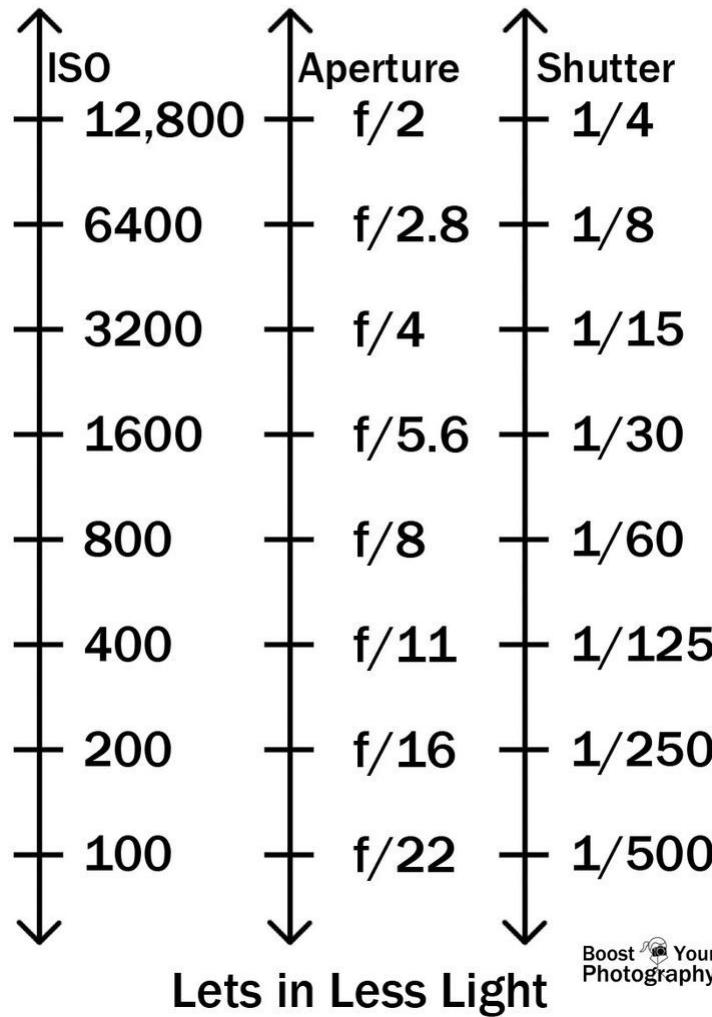
Citlivost' snímača - ISO



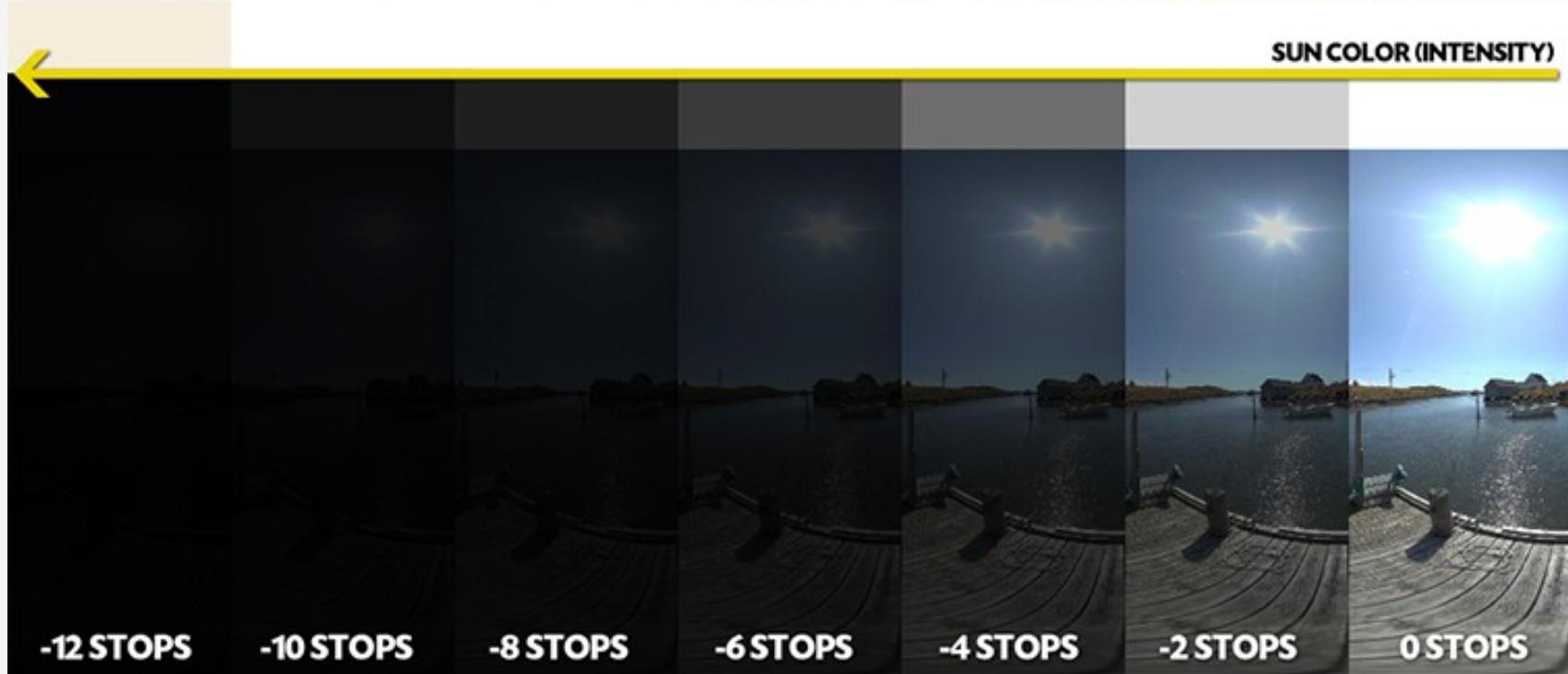
Ekvivalentná expozícia

Know Your Stops

Lets in More Light



Dynamický rozsah snímača



Vysoký kontrast a HDR fotografia

Rosánou Abbey (HDR) - Before and After

farbspiel-photo.com



Source images straight out of the camera (Camera: Nikon D7000; Lens: Nikon 10-24mm@10mm; f/8; ISO200; 1/2000s - 1/50s)



Tone-mapped HDR



Final image after post-processing

Exif - metadáta obrázku

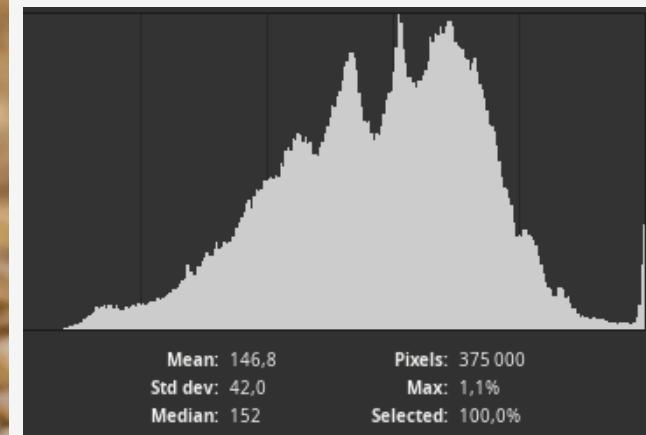
Exchangeable image file format (JPEG, TIFF)

- značka, typ, model fotoaparátu
- čas a dátum
- nastavenia fotoaparátu
- náhľad obrázka
- informácie o polohe
- opis obrázka, autorské práva, komentár



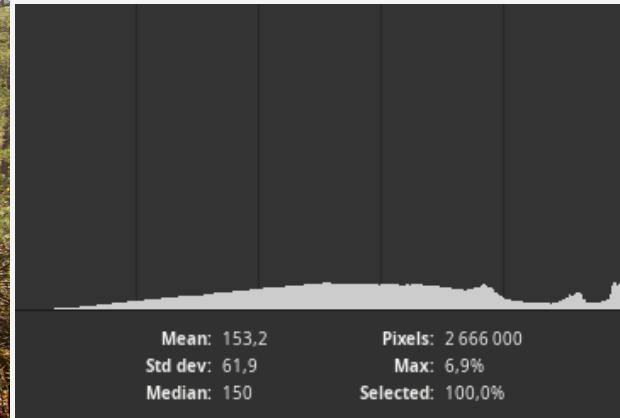
Make	:	Canon
Camera Model Name	:	Canon PowerShot SX40 HS
Orientation	:	Horizontal (normal)
Exposure Time (Shutter speed)	:	1/30
F Number (Aperature)	:	3.2
ISO	:	400
Date/Time Original	:	2019:09:13 15:59:39
Create Date	:	2019:09:13 15:59:39
Focal Length	:	5.6 mm
Macro Mode	:	Macro
Exposure Compensation	:	+1/3
White Balance	:	Auto
Image Width	:	4000
Image Height	:	3000
Y Cb Cr Sub Sampling	:	YCbCr4:2:2
Shooting Mode	:	Program AE
Image Size	:	4000x3000
Megapixels	:	12.0
Scale Factor To 35 mm Equivalent	:	5.6
Thumbnail Image	:	(Binary data)
Lens	:	4.3 - 150.5 mm (35 mm equivalent: 24.0 - 840.5 mm)
Field Of View	:	59.4 deg
Focal Length	:	5.6 mm (35 mm equivalent: 31.5 mm)

Samuel Gašpar



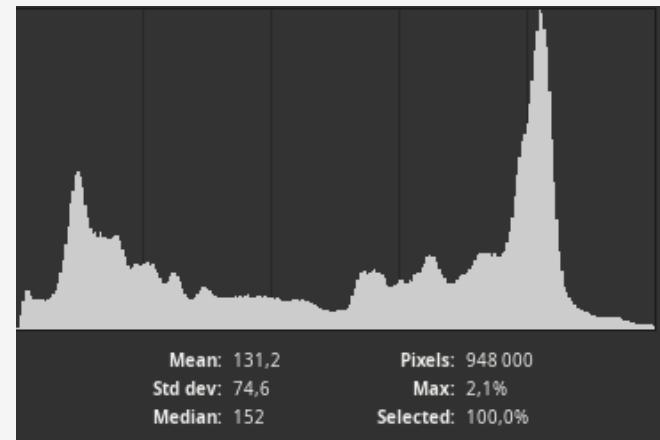
Canon EOS 7D [APS-C]; 27,2 MB; 5184 × 3456; 100mm
[160mm], 1/100s, f/2.8, ISO 2500

Samuel Gašpar



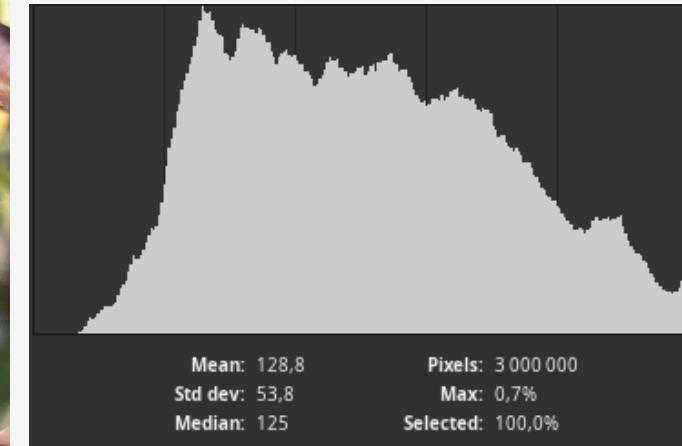
Canon EOS 7D, 28,2 MB, 5184 × 3456, 11mm,
1/500s, f/5, ISO 100

Matej Chovanec



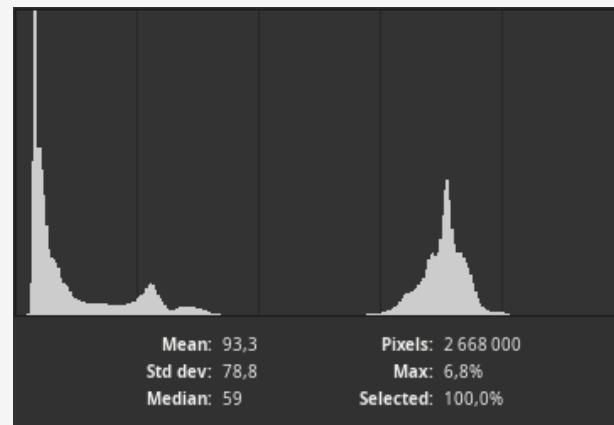
- model fotoaparátu
 - iPhone SE (2nd generation)
- formát - JPG
- rozlíšenie - 3024 x 3190;
9,6 MegaPixels
- ohnisková vzdialenosť - 3,99 mm ;
35mm ekvivalent - 28 mm
- expozičný čas - 1/32s
- clonové číslo - f/1,8
- ISO - 400

Matej Chovanec



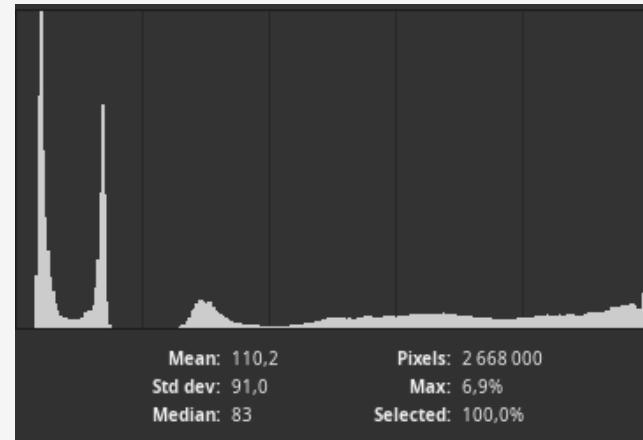
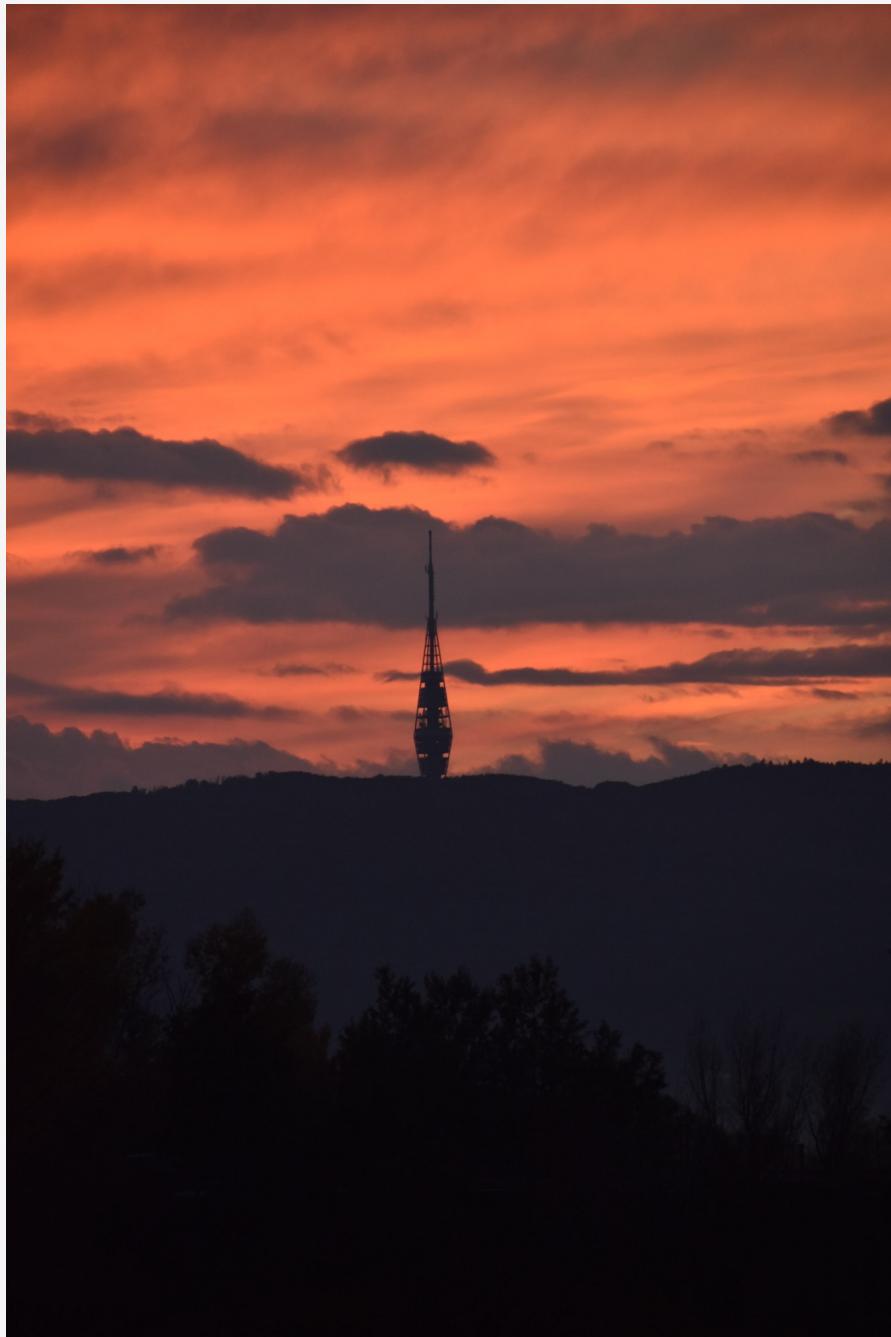
- model fotoaparátu
 - iPhone SE (2nd generation)
- formát - JPG
- rozlíšenie - 3024 x 4032 ;
12,2 MegaPixels
- ohnisková vzdialenosť - 3,99 mm
35mm ekvivalent - 28 mm
- expozičný čas - 1/322s
- clonové číslo - f/1,8
- ISO - 20

Patrícia Kodnárová



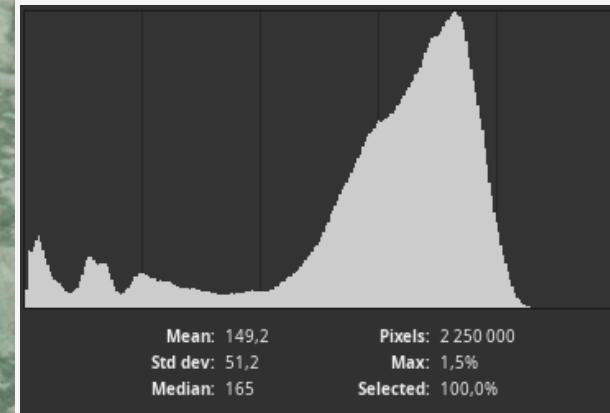
NIKON D3500, JPG,
3000x4496,
270 mm (405 mm),
1/80 s, f/6, ISO 1600

Patrícia Kodnárová



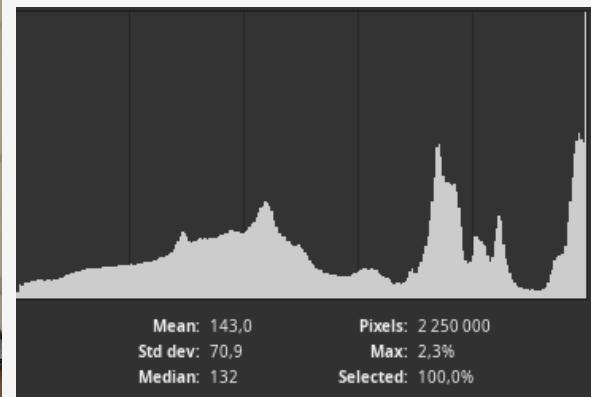
NIKON D3500, JPG,
3000x4496,
200 mm (300 mm),
1/160 s, f/5,6, ISO 400

Lukáš Šrol



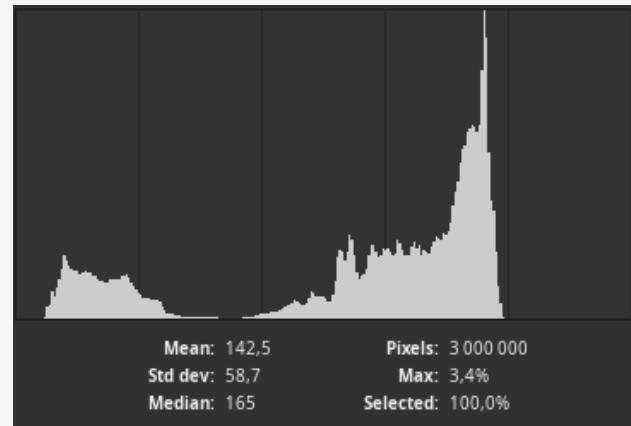
Model: Redmi Note 6 Pro
Formát: JPEG
Rozlíšenie: 2250 x 4000; 9 MPx
Ohnisková vzdialenosť: 3,9 mm
-35 mm ekvivalent: 24 mm
Rýchlosť závierky: 1/15
Clonové číslo: 1,9
ISO: 6400

Lukáš Šrol



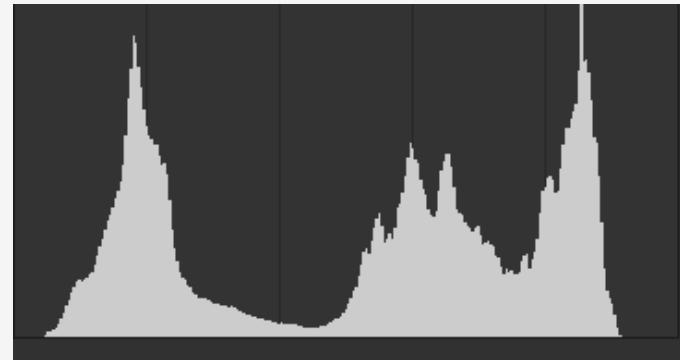
Model: Redmi Note 6 Pro
Formát: JPEG
Rozlíšenie: 2250 x 4000; 9 MPx
Ohnisková vzdialenosť: 3,9 mm
-35 mm ekvivalent: 24 mm
Rýchlosť závierky: 1/1718
Clonové číslo: 1,9
ISO: 160

Kristián Vo



model : FIG-LX1, format: JPEG,
rozlisenie : [4160x3120], 13MP,
ohniskova vzdialenosť
objektivu : 3.5mm,
- v 35 mm ekvivalente : 26mm,
rychlosť závierky : 1/999963365
expozitívny čas : 1/17,
čítačné číslo : 2.2,
ISO : 400

Kristián Vo

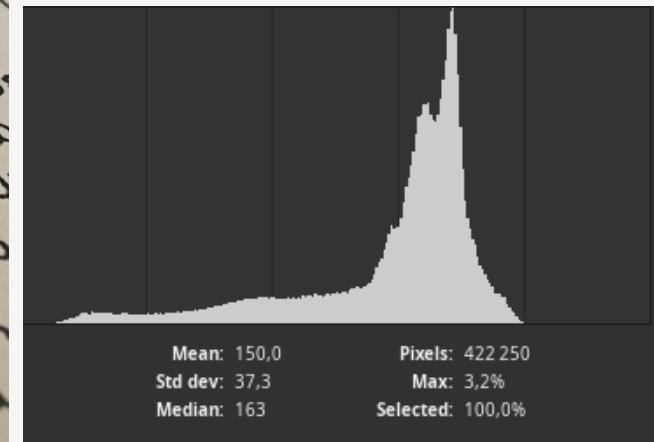


Mean: 135,0
Std dev: 68,7
Median: 153
Pixels: 3 000 000
Max: 1,6%
Selected: 100,0%

model : FIG-LX1, format: JPEG,
rozdelenie : [4160x3120], 13MP,
ohniskova vzdialenosť
objektivu : 3.5mm,
- v 35 mm ekvivalente : 26mm,
rychlosť závierky : 1/999963365,
expozitívny čas : 1/1587,
čítačkové číslo : 2.2,
ISO : 50

Filip Marczy

Ξενος και οι άλλοι
Όχι. Εγώ είμαι Έλληνας.
Εσύ από που είσαι;
Είμαι Κούρδος απ' το Ιράκ.
Κι η κοπελιά;
Είμαι απ' την Αλβανία. Δούλευα μαζί με τον Ταρίκ σ' εμένα
αλλά τώρα είμαστε κι οι δύο χωρίς δουλειά. Αναρωτήσας
και γι' αυτό ήρθαμε εδώ να δούμε.
ύσκολα τα πράγματα, παιδιά. Εγώ ψάχνω τέσσερα
τω η δουλειά είναι δικαίωμα του κάθε ανθρώπου.
βέβαια έχεις. Αλλά τι μπορούμε να κάνουμε;
ξέρω. Εγώ, πάντως αρνούμαι να δεχτώ
είναι δυνατό να θέλεις να δουλέψεις
σμα που παίρνω, αν φάω έξω κανιά
μην παραπονιέσαι. Υπάρχουν κανιά
πονιέρα.
πιστεύω! Και πώς τα καταφέρεις;
καμένεια πολλά.



iPhone 6s

jpg

12,2 MegaPixels

4,15 mm

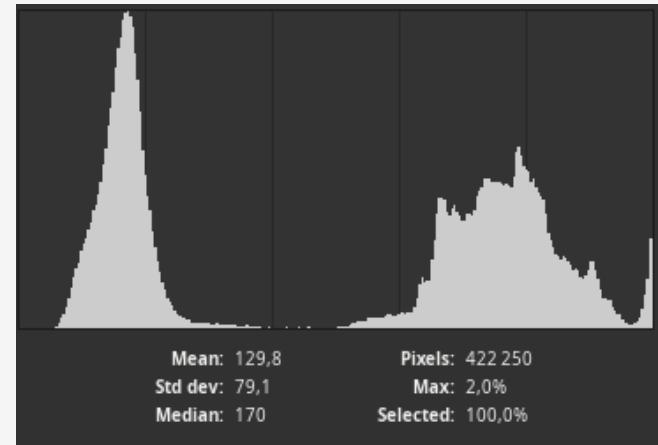
29 mm

109 / 1817 s

f/2,2

640

Filip Marczy



iPhone 6s

jpg

12,2 MegaPixels

4,15 mm

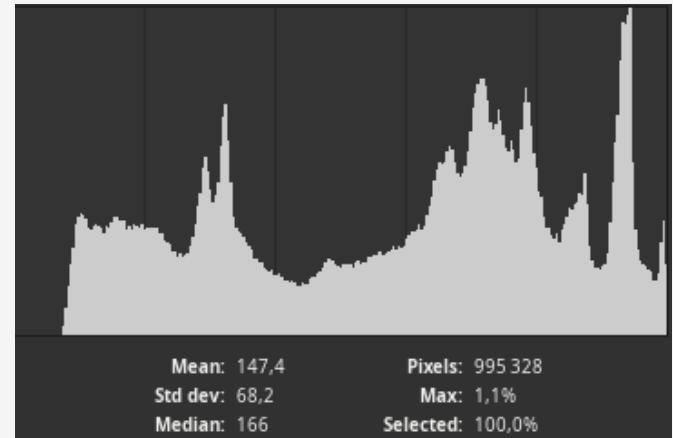
29 mm

23 / 767 s

f/2,2

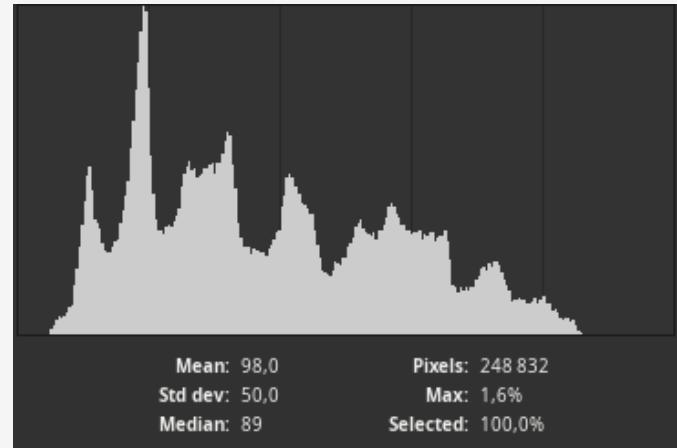
80

Denis Tomaník



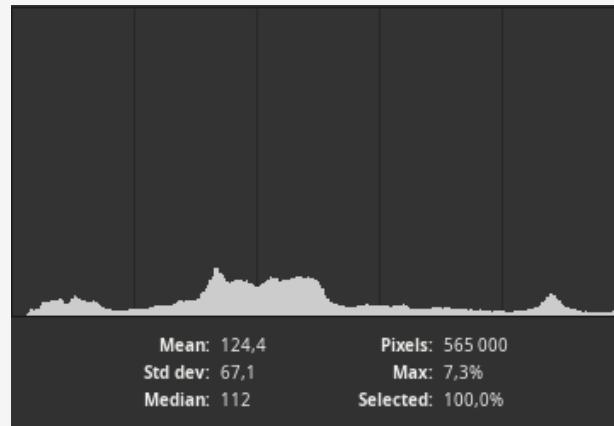
- model fotoaparátu: ANE-LX1
- formát súboru: JPG
- rozlíšenie: 3456x4608 16Mpx
- ohnisková vzdialenosť: 4mm (26 mm)
- rýchlosť závierky: 1/33s
- clonové číslo: F/2.2
- ISO: 160

Denis Tomaník



- model fotoaparátu: ANE-LX1
- formát súboru: JPG
- rozlíšenie: 3456x4608 16Mpx
- ohnisková vzdialenosť: 4mm (26 mm)
- rýchlosť závierky: 1/17s
- clonové číslo: F/2.2
- ISO: 1600

Nina Karasová



Model: WAS-LX1

Formát: .jpg

Rozlíšenie: 2240x3968 mpx

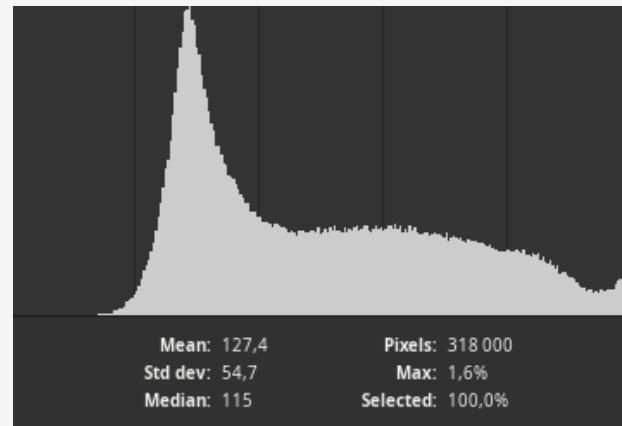
Ohnisková vzdialenosť objektívu: 26mm

Rýchlosť závierky: 1/120s

Clonové číslo: 2,20

ISO: 64

Nina Karasová



Model: WAS-LX1

Formát: .jpg

Rozlíšenie: 2240x3968 mpx

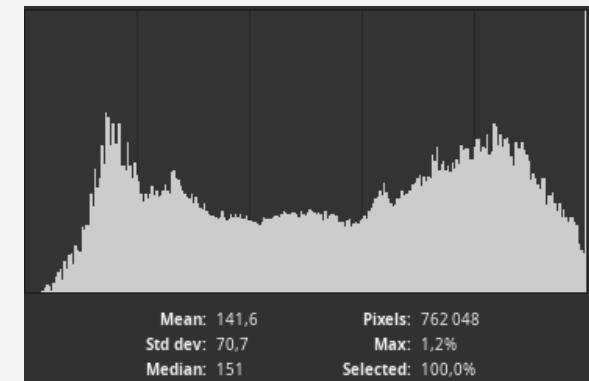
Ohnisková vzdialenosť objektívu: 26mm

Rýchlosť závierky: 1/40s

Clonové číslo: 2,20

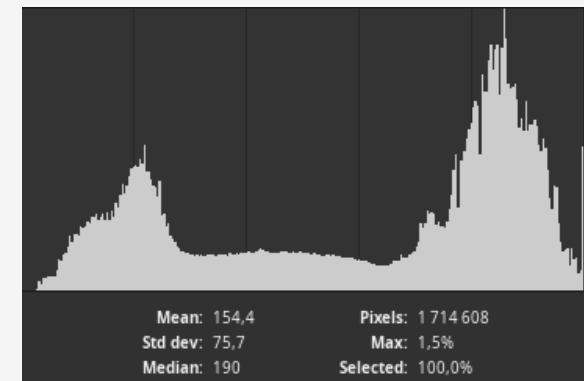
ISO: 100

Jakub Čavojský



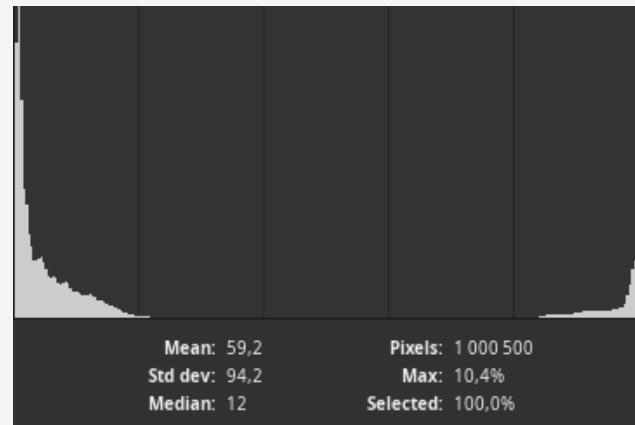
model fotoaparátu: iPhone XR
 formát súboru: súbor JPG
 rozlíšenie: 4032x3024 12Mpx
 ohnisková vzdialenosť objektívu
 (aj 35mm ekvivalent): 4mm
 rýchlosť závierky : 1/122s
 clonové číslo: F/1.8
 ISO: 100

Jakub Čavojský



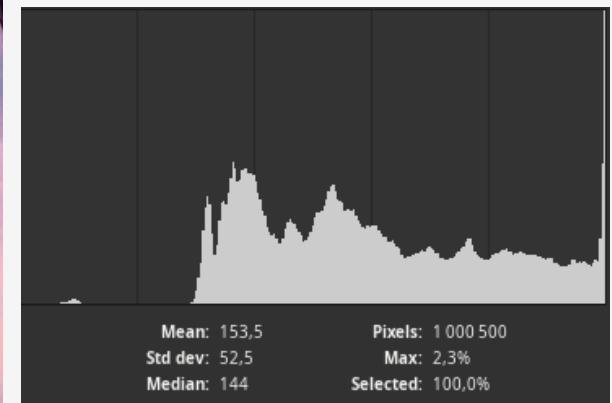
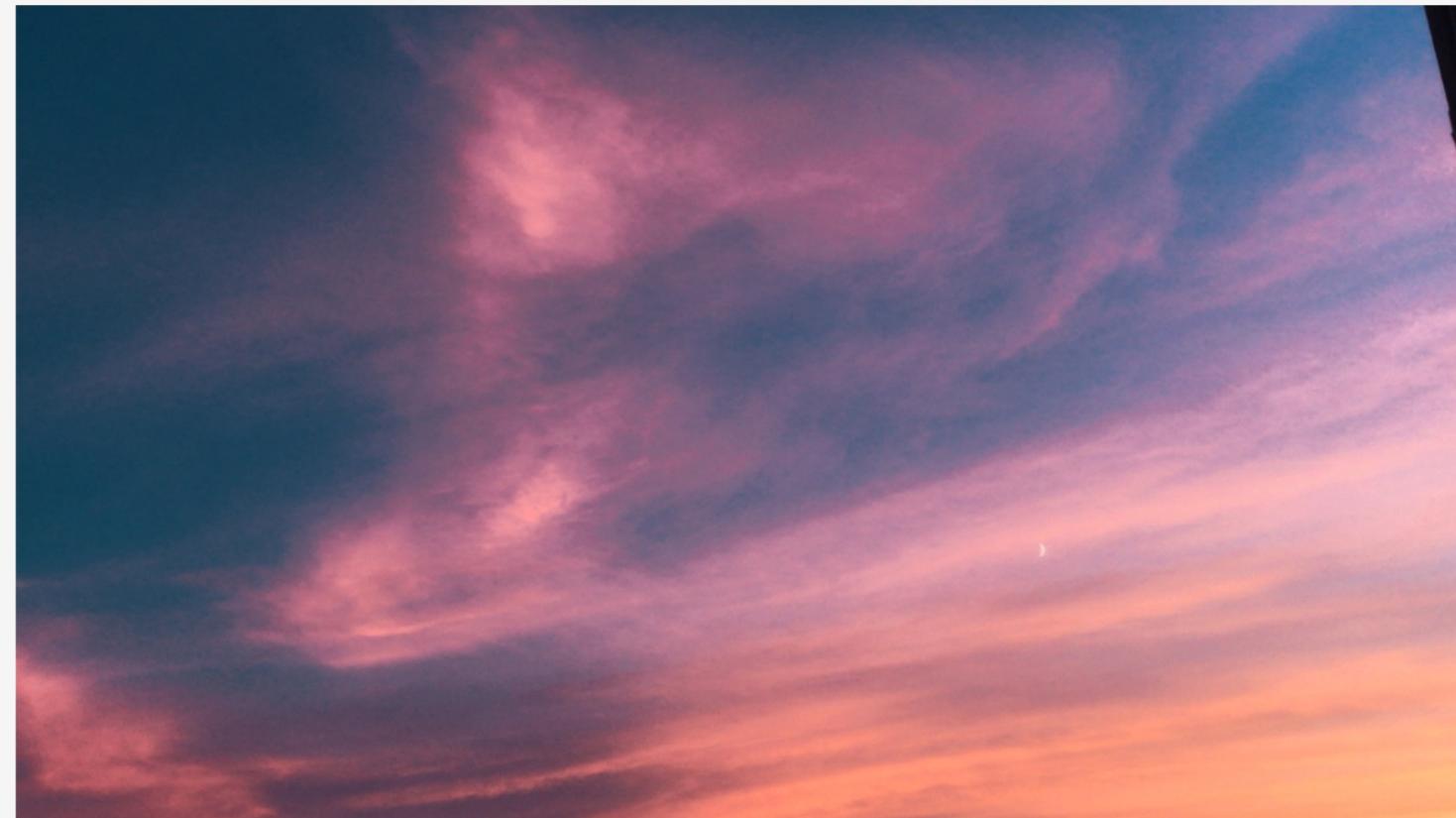
model fotoaparátu: iPhone XR
formát súboru: súbor JPG
rozdílenie: 4032x3024 12Mpx
ohnisková vzdialenosť objektív
(aj 35mm ekvivalent): 4mm
rýchlosť závierky : 1/2075s
clonové číslo: F/1.8
ISO: 25

Lukáš Dobrota



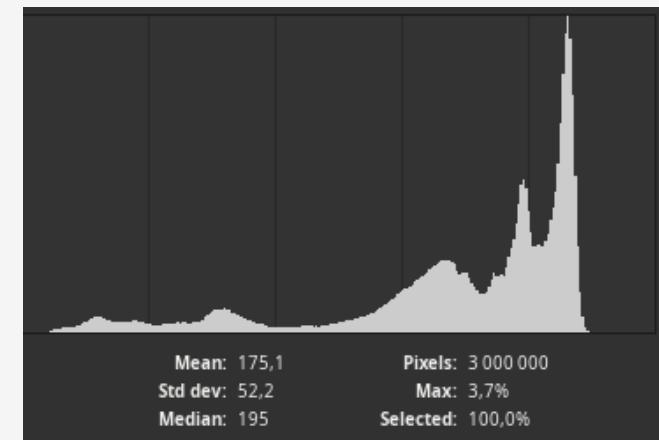
model fotoaparátu: iPhone 7
formát súboru: súbor JPG
rozdelenie: 750x1334 1Mpx
ohnisková vzdialenosť : 4mm
rýchlosť závierky: 1/50s
clonové číslo: F/1.8
ISO: 400

Lukáš Dobrota



model fotoaparátu: iPhone 7
formát súboru: súbor JPG
rozdelenie: 1334x750 1Mpx
ohnisková vzdialenosť : 4mm
rýchlosť závierky: 1/50s
clonové číslo: F/1.8
ISO: 40

Samuel Horváth



Model: ONEPLUS A5010

Formát: JPEG

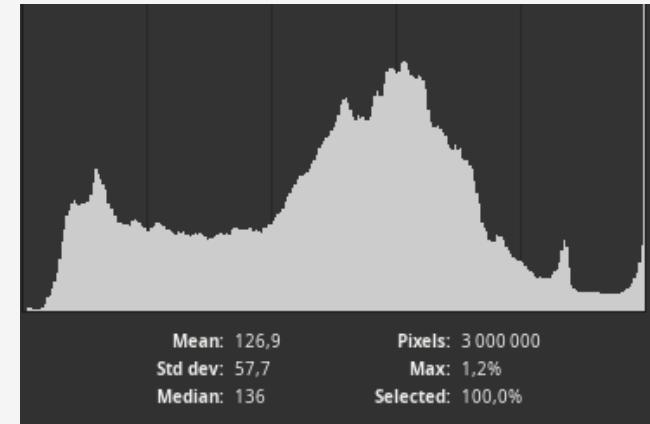
Rozlisenie: 4608x3456 , 15.9 megapixelov
ohniskova vzdialenosť objektív : 24mm

expozicny cas: 1/50

clonove cislo: -

ISO: 800

Samuel Horváth



Model: ONEPLUS A5010

Forma: JPEG

Rozlisenie: 4608x3456 , 15.9 megapixelov
ohniskova vzdialenosť objektív : 24mm

expozicny cas: 1/121

clonove cislo: -

ISO: 125