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Field-of-view of lenses by focal length

[Bill Claff \(bclaff\)](#)Keywords: [lens](#), [basics](#), [guides](#), [tips](#), [nikon](#), [nikkor](#), [sensor](#), [format](#), [fx](#), [dx](#), [cx](#), [focal length](#), [fov](#), [field of view](#)

 $\approx 5.0 (3) \setminus 0$

Field-of-view (also known as FOV)

The values for Field of View (FOV), sometimes sloppily referred to as "lens view" or better, "angle of view", come up frequently enough at the [forums](#) that I thought a list might be helpful for quick reference.

Remember that focal length is stated for infinity and most lenses decrease in focal length as you focus closer.



*Panorama made of 12 vertical shots stitched together
Nikon D70 with 12-24mm f/4G ED-IF AF-S DX Nikkor @ 12mm, f/7.1, 1/60s
With hand-held SB-800 on SC-29 cable, TTL|BL flash setting*

Please note, this is a table of rectilinear values, i.e. values for rectilinear lenses; fisheye field of view is a different beast.

How to use the table: Hopefully the table is quite self-explanatory, but let's say you are looking for the Field-of-view of a 50mm lens mounted on an FX body. In the column "Lens Focal Length", go down to the row marked "50mm" and then over to the green area marked "35mm & FX"

format (1)". The FOV for a 50mm lens would be 39.6 degrees horizontally and 27.0 degrees vertically. Diagonally, the FOV is 46.8 degrees.

For a 55mm lens on a APS-C/DX sensor format body, the field of view would thus be 24.0 degrees horizontally, 16.1 degrees vertically and 28.7 degrees diagonally.

Lens Focal Length	FOV (Angles in degrees)								
	35mm & FX format (1)			DX format (2)			CX Nikon 1 format (3)		
	Horizontal	Vertical	Diagonal	Horizontal	Vertical	Diagonal	Horizontal	Vertical	Diagonal
10mm	121.9	100.4	130.4	99.0	75.9	109.2	66.8	47.5	76.8
11mm	117.1	95.0	126.1	93.5	70.7	103.9	61.9	43.6	71.6
12mm	112.6	90.0	122.0	88.5	66.0	99.0	57.6	40.3	66.9
14mm	104.3	81.2	114.2	79.8	58.2	90.3	50.5	34.9	59.1
15mm	100.4	77.3	110.5	75.9	54.9	86.3	47.5	32.7	55.7
17mm	93.3	70.4	103.7	69.1	49.3	79.2	42.4	29.0	50.0
18mm	90.0	67.4	100.5	66.0	46.9	76.0	40.3	27.5	47.6
19mm	86.9	64.6	97.4	63.2	44.6	73.0	38.3	26.1	45.3
20mm	84.0	61.9	94.5	60.7	42.6	70.2	36.5	24.8	43.3
24mm	73.7	53.1	84.1	52.0	36.0	60.7	30.8	20.8	36.6
28mm	65.5	46.4	75.4	45.4	31.1	53.3	26.5	17.9	31.6
30mm	61.9	43.6	71.6	42.6	29.1	50.2	24.8	16.7	29.6
35mm	54.4	37.8	63.4	37.0	25.1	43.8	21.4	14.3	25.5
45mm	43.6	29.9	51.4	29.1	19.7	34.7	16.7	11.2	20.0
50mm	39.6	27.0	46.8	26.3	17.7	31.4	15.0	10.1	18.0
55mm	36.2	24.6	42.9	24.0	16.1	28.7	13.7	9.1	16.4
60mm	33.4	22.6	39.7	22.1	14.8	26.4	12.6	8.4	15.1
70mm	28.8	19.5	34.3	19.0	12.7	22.7	10.8	7.2	12.9
75mm	27.0	18.2	32.2	17.7	11.9	21.2	10.1	6.7	12.1
80mm	25.4	17.1	30.3	16.6	11.1	19.9	9.4	6.3	11.3
85mm	23.9	16.1	28.6	15.7	10.5	18.8	8.9	5.9	10.7
90mm	22.6	15.2	27.0	14.8	9.9	17.8	8.4	5.6	10.1
100mm	20.4	13.7	24.4	13.3	8.9	16.0	7.6	5.0	9.1
105mm	19.5	13.0	23.3	12.7	8.5	15.3	7.2	4.8	8.6
120mm	17.1	11.4	20.4	11.1	7.4	13.4	6.3	4.2	7.6
125mm	16.4	11.0	19.6	10.7	7.1	12.8	6.0	4.0	7.3
135mm	15.2	10.2	18.2	9.9	6.6	11.9	5.6	3.7	6.7
150mm	13.7	9.1	16.4	8.9	6.0	10.7	5.0	3.4	6.1

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Thanks so much. This was my first submission to Nikonians.

John Driessen (johnnie5) on August 29, 2021 in
[Learning to Compose \(3\): Reimagining](#)

Thank you Martin, great writing and photos! For me a lot to think about and evaluate :-) The final picture is very very nice! kind regards John

Geoff Byrns (Jeffersonb) on August 28, 2021 in
[Why use Camera Manual with Flash Indoors?](#)

Well written explanation of some of the basic terms I come across when reading about flash. Finally, I'm beginning to understand these terms. Thank ...

Angela Friberg (Angi) on August 27, 2021 in
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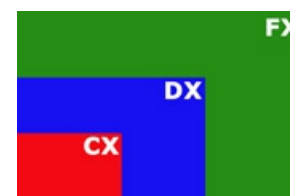
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170mm	12.1	8.1	14.5	7.9	5.3	9.5	4.4	3.0	5.3
180mm	11.4	7.6	13.7	7.4	5.0	8.9	4.2	2.8	5.0
200mm	10.3	6.9	12.3	6.7	4.5	8.0	3.8	2.5	4.5
210mm	9.8	6.5	11.8	6.4	4.3	7.7	3.6	2.4	4.3
300mm	6.9	4.6	8.2	4.5	3.0	5.4	2.5	1.7	3.0
400mm	5.2	3.4	6.2	3.4	2.2	4.0	1.9	1.3	2.3
500mm	4.1	2.7	5.0	2.7	1.8	3.2	1.5	1.0	1.8
600mm	3.4	2.3	4.1	2.2	1.5	2.7	1.3	0.8	1.5
800mm	2.6	1.7	3.1	1.7	1.1	2.0	0.9	0.6	1.1
Format	35mm & FX (1)			APS-C / DX (2)			CX Nikon 1 (3)		

(1) 36x24mm 35mm film frame/FX sensor size - Field of View Crop Factor = 1

(2) 23.6x15.7mm APS-C/DX sensor size - Crop factor = 1.5

(3) 13.2x8.8mm Nikon1/CX sensor size - Crop factor = 2.8



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Originally written on January 9, 2013
Last updated on January 18, 2021



Bill Claff (bclaff)



Sherborn, MA (8mi west of Bost, USA)
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I. Film Selection

David Goldstein (dagoldst) on August 5, 2021



Webinar with Dave Black

Bo Stahlbrandt (bgs) on August 2, 2021



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Bo Stahlbrandt (bgs) on July 6, 2021

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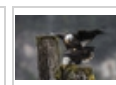
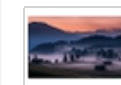


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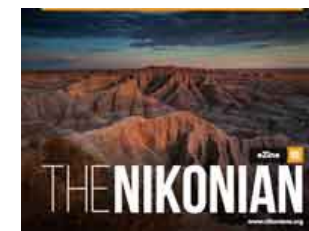
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