Mamiya 645 80mm f/2.8 Lens Review

Last Updated on 06 June 2009 Hits: 26488

Introduction

Mamiya 645 80mm f/2.8 is a classical manual focus medium format prime for Mamiya's 645 series systems. The lens was designed as an entrance level standard angle prime and was often bundled with starter kits. Two types of the lens are available these days - the older, now discontinued 'C' version and the newer, still in production 'N' version. The 'N' version of the lens offers improved multi-coating, but otherwise implements same optical formula as the old lens. Technically speaking, there's also the AF version of Mamiya 645 80mm f/2.8, which is considered the most current revision in Mamiya's lineup. All three versions are readily available. New copies of the AF version of the lens are most expensive, priced at ~US$500, while new copies of the 'N' manual focus version of the lens are priced at ~US$300. Fortunately, this lens belongs to a group of lenses whose value does not seem to hold on used markets and good quality used copies of Mamiya 645 80mm f/2.8 are quite abundant and affordable. Both older 'C' as well as newer 'N' versions go for ~US$70, while AF versions sell for ~US$300 on used markets like eBay. The lens reviewed here is the newer, 'N' variant with fully manual focusing.

The optical construction of the lens consists of 6 elements in 5 groups. Build quality is kind of iffy - plastic barrel and cams don't leave an impression of sturdiness. Fortunately, there is no wobbling inside or out and no parts seem loose. It's worth to note here that the older, 'C' versions of this lens actually had all metal construction, so the new design looks like a step back (in terms of the build quality that is). The lens is pretty light and compact, weighing only 220g (7.7oz) and measuring 43 x 70mm (1.7 x 2.8in). The inner cam of the lens extends slightly during focusing towards closeup, adding another centimeter or so to the overall length. Focus ring is fully rubberized and rotates very smoothly. The minimum supported aperture is f/22 (the aperture ring moves in one full f-stop increments) and the minimum focusing distance is 70cm (2.2ft). The lens accepts 58mm screw-in type filters. Like all manual focus Mamiya lenses, this one has an A-M switch on the side of the barrel to control automatic metering mode along with a meter coupling shoe sticking out of the base of the lens mount.

I used a generic Mamiya 645 to Canon EOS adapter when testing this lens on Canon's APS-C and FF cameras. When used on the native medium format body, the lens has the field of view equivalent to a 50mm lens on a regular 35mm camera. When adapted to a full frame camera, the lens has the field of view resembling that of a 80mm prime, while when adapted to an APS-C camera, its field of view will be similar to that of a 128mm telephoto.

Summary	
Lens Composition	6 elements in 5 groups
Angular Field	~47 degrees (35mm EFL: 50mm)
Minimum Focus	70cm/2.2ft
Focusing Action	MF
f-stop Scale	f/2.8-f/22, manual
Filter Size	58mm
Lens Hood	N/A
Weight	220g/7.7oz
Dimensions	43x70mm/1.7x2.8"
Lens Case	N/A

Field Tests

In the native medium format world, Mamiya 645 80mm f/2.8 N is just yet another, moderately fast standard prime. But when it comes down to adapting the lens to traditional 35mm cameras, things are no longer as mundane. Firstly, if you use a regular non tilt/shift adapter, you get a pretty compact and light 80mm medium telephoto lens. Ok, so maybe not so compact once you attach the lens to an adapter, but still reasonably small. Things are probably still not very exciting here yet, since the lens becomes an alternative to a dozen or so medium telephoto lenses in all varieties and shapes. And while the lens shows very good results in the field, with images retaining sharpness throughout the frame, across the aperture range and on both APS-C as well as FF cameras, there are a few other well performing, reasonably priced lenses that don't require such an extreme 'makeover' (adaptation). Where things get more exciting is when you decide to use a tilt/shift adapter. This will turn your no frills medium format prime into a full-blown tilt/shift lens that would become a (hopefully viable) alternative to a native tilt/shift such as Canon's TS-E 90mm f/2.8L or Nikon's PC Nikkor 85mm f/2.8D. The idea is certainly very appealing - the Mamiya 645 80mm f/2.8 N and a tilt/shift adapter combo is going to cost you anywhere 5 to 7 times less then a native tilt/shift prime, so the price difference alone should make you seriously consider this setup.

But let's continue with the tests. As already mentioned, the lens showed pretty good performance in the field with a regular non tilt/shift adapter. Center as well as border image quality remained very good (visually) throughout the aperture range. However, keep in mind that since I used a non tilt/shift adapter, I could not test extreme corners (remember that the imaging circle of a medium format lens is larger then the sensor a FF or an APS-C camera, hence it's impossible to get a full coverage with a regular adapter).

ISO 400, 1/100, f/2.8, 80mm (Canon 5D)

When shot wide open, the lens produced well rounded and mostly uniform OOF highlights. I say mostly because here and there you'd see occasional harshly lit edges, but the overall effect is not too distracting. Contrast transitions in near/far OOF areas were somewhere in between - not too harsh, not too smooth either. And there was no visible sign of double-edging around background objects.

Vignetting @ f/2.8 - full frame vs 1.6x crop

The lens showed negligible, for all practical reasons non-existent, amount of vignetting on a FF body throughout the aperture range. Ditto for an APS-C camera. There was no sign of axial CA, however, the lens fell prone to occasional color fringing (lateral CA) around borders (check the chair on the left side of the 100% crop below). Color handling was pretty decent and color representation was quite accurate, with images carrying decent amount of contrast, especially with smaller apertures, where textures seemed to be a bit more saturated. Flare was well under control (as long as you don't have sun shining directly into the lens) and the lens did not exhibit any noticeable distortion.

ISO 100, 1/2000, f/2.8, 80mm (100% crop)

View the embedded image gallery online at:
http://slrlensreview.com/web/reviews/misc/mamiya/mamiya-standard-645/474-mamiya-645-80mm-f28-lens-review#sigProGalleria1ae55d5915

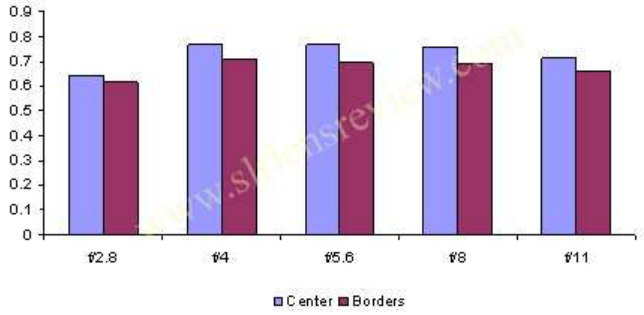
Lab Tests

Mamiya 645: At this time I do not have plans to conduct tests with any medium format cameras.

Canon APS-C: Mamiya 645 80mm f/2.8 N showed very solid performance in the lab. Center image quality is already pretty good at f/2.8, slightly improving with stopped down aperture, and peaking at f/4. Border quality is also very respectable in general, with slightly better results in the f/4-f/11 range. The overall results are pretty balanced, with no major performance gaps between the center and the borders. At its peak (around f/4), the lens is capable of producing outstanding 19in prints. In the f/4-f/11 range, the lens would be able to produce decent 24in prints. Conclusion? Overall performance is outstanding - the lens shows resolving capabilities that would easily put it into the top half of all primes tested so far.

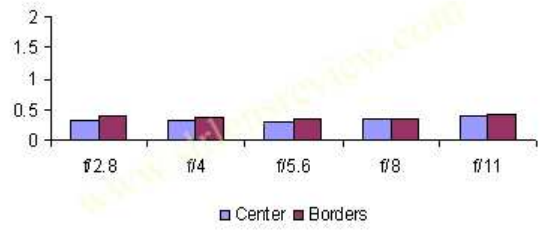
Reference Scale		Height(in)		f/2.8	f/4	f/5.6	f/8	f/11
150+	Excellent	4	Center	481	572	576	567	533
			Border	461	530	519	518	493
110+	Good	5	Center	385	458	460	453	427
			Border	369	424	415	414	394
80+	Fair	8	Center	241	286	288	283	267
			Border	230	265	259	259	246
60+	Subpar	11	Center	175	208	209	206	194
			Border	168	193	189	188	179
<60	Poor	16	Center	120	143	144	142	133
			Border	115	133	130	129	123
		19	Center	101	120	121	119	112
			Border	97	112	109	109	104
		24	Center	80	95	96	94	89
			Border	77	88	86	86	82

MTF50 (Line Width/Inch on the Print) @ 80mm



Normalized raw MTF50 @ 80mm

Chromatic aberration on an APS-C camera was well under control, with CA generally not exceeding ~0.5px both in the center as well as around borders throughout the aperture range. Nothing to worry about here.



Chromatic Aberration (APS-C) @ 80mm

Here are 100% crops taken with a APS-C Canon Digital Rebel XTi comparing images at f/2.8 and f/8.

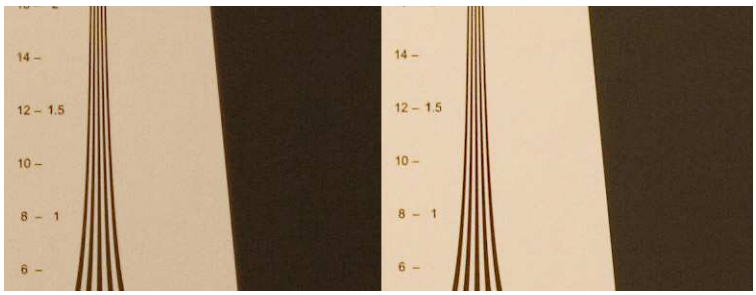
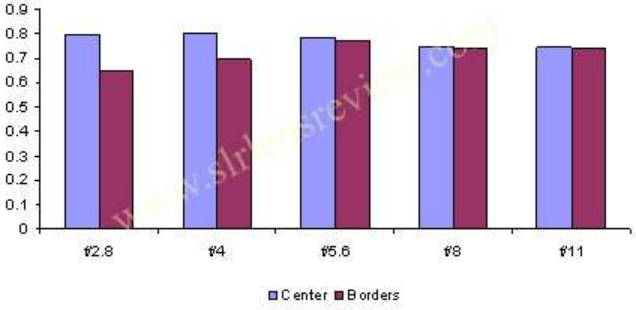


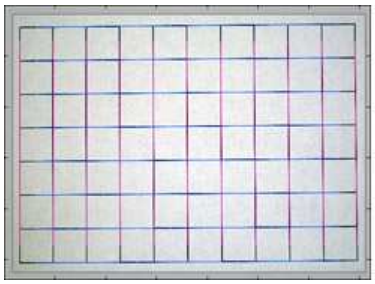
Image borders @ 80mm (100% crop): f/2.8 vs f/8

Canon FF: The lens showed pretty consistent results on a FF camera as well. Center performance remained top notch throughout the aperture range. Border quality lagged center performance a little bit at f/2.8, but the gap closed by f/5.6 and both center as well as border quality remained on a consistently high level throughout the rest of the aperture. It is worth noting here that while the border quality in the f/2.8-f/4 range is worse then that in the center, it's still very respectable, so the word 'lagging' is used in a relative sense here. All-in-all, pretty solid results throughout. Conclusion? Who knew that such a 'lowly' mainstream medium format lens would pack so much punch.

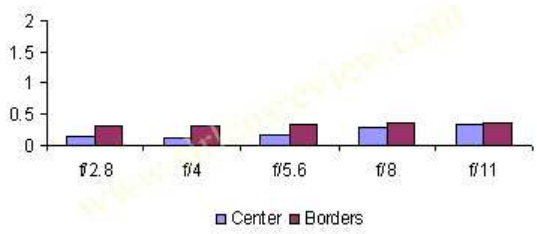


Normalized raw MTF50 @ 80mm

Mamiya 80mm f/2.8 N showed minor degree of barrel distortion, however, at 0.18% it is very unlikely to cause any problem in general photography.


Distortion (FF) @ 80mm

Chromatic aberration on a FF body remained under control. CA in the center was quite low at f/2.8, creeping up slightly towards f/11, but generally not exceeding ~0.5px. Border CA also remained under control and generally did not exceed ~0.5px.



Chromatic Aberration (FF) @ 80mm

Here are 100% crops taken with a FF Canon 5D comparing images at f/2.8 and f/8.

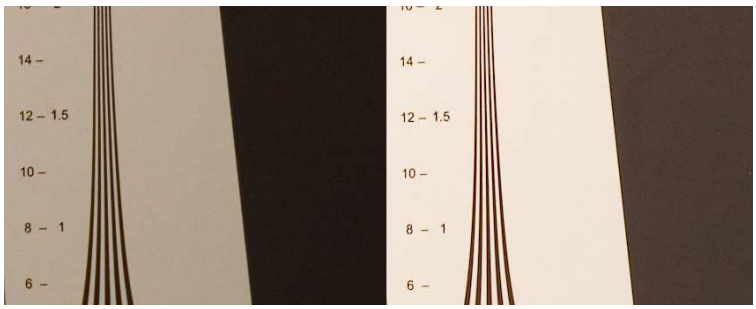


Image borders @ 80mm (100% crop): f/2.8 vs f/8

Alternatives

Assuming you're looking for a standard prime for your Mamiya system, you are limited to two alternatives: **Mamiya 645 80mm f/1.9** and **Mamiya 645 110mm f/2.8**. Both of these lenses are commonly available, but are slightly more expensive then 80mm f/2.8 reviewed here. If you are using Mamiya 645 AF or AFD series system, you can also include the AF version of 80mm f/2.8, although I'm not sure you will be gaining much in performance since both lenses implement identical optical formulas. You can also try adapting other medium format (or even large format) lenses to your Mamiya system. Carl Zeiss lenses for Hasselblad come to mind first and here you could explore Planar T* 80mm f/2 CF and Planar 100mm f/3.5 C primes. Both of these lenses are priced much higher then Mamiya's standard lens. Finally, you can try out **Pentax 645 smc A 75mm f/2.8** (or its newer FA version), which offers excellent performance at a very reasonable price.

Recommendation

Mamiya 645 85m f/2.8 shows a lot of promise. While it is not strictly speaking the ultimate champion when it comes down to raw MTF50 results, it shows enough punch to make it an interesting choice as a medium telephoto. However, the main appeal of the lens is its price/performance ratio since it stacks up very favorably against many much more expensive lenses from different manufacturers. While I don't mind occasionally paying top dollar for a really good lens, I like good bargains (and I'm sure you do too) and Mamiya 645 80mm f/2.8 N seems to be one of the best bargains these days. Keep in mind that for ~US$100 (including a generic adapter) you will get a well performing lens. If you decide to add a tilt/shift adapter, you would get a setup that would save you $$$$ when compared to native tilt/shift lenses from Canon/Nikon etc. I'm getting carried away here a little bit - the review does not cover performance in the tilted/shifted modes, so it would be too premature to claim that the lens would be a viable alternative to a native tilt/shift setup. But there's a promise and given time (sometime in the future), I will try to do a test of the tilt/shift operations as well...