Mamiya 645 80mm f/1.9 Lens Review

Last Updated on 06 June 2009 Hits: 29613

Introduction

Mamiya 645 80mm f/1.9 is yet another fully manual medium format prime in Mamiya's 645 lineup of lenses. The company offers the lens only as a fully manual variant, with the older revision carrying 'C' designation and the newer one carrying 'N' designation. The optical formula remained the same for both variants, and the only thing that changed was coating and build quality. The lens is priced at ~US$650 new, but it is pretty common on used markets, with good quality copies selling for ~US$200 on eBay.

The optical construction of the lens consists of 7 elements in 6 groups. The build quality is pretty good - all metal barrel and cams with rubberized focusing and aperture rings give impressions of quality and sturdiness. The focus ring is very smooth and the aperture ring is snappy (the aperture ring moves in one full f-stop increments). Size-wise, the lens resembles a regular medium telephoto lens, measuring 59 x 75mm (2.3 x 3in) and weighing 420g (14.8oz) - not very compact, but not bulky either. Like most Mamiya lenses, the inner cam of 80mm f/1.9 extends slightly when focusing towards the closeup, making the lens slightly longer.

Like all manual lenses, Mamiya 645 80mm f/1.9 sports a DOC scale engraved on the barrel. A meter coupling shoe sticks out of the bases of the mount. The lens has the minimum aperture of f/22, focuses down to 70cm (2.2ft) and accepts 67mm screw-in type filters. An A-M switch on the side of the barrel controls the automatic metering mode of the 645 system.

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	7 elements in 6 groups
Angular Field	~47 degrees (35mm EFL: 50mm)
Minimum Focus	70cm/2.2ft
Focusing Action	MF
f-stop Scale	f/1.9-f/22, manual
Filter Size	67mm
Lens Hood	N/A
Weight	420g/14.8oz
Dimensions	59x75mm/2.3x3"
Lens Case	N/A

Field Tests

The lens showed pretty good performance in the field, with images retaining sharpness in the center across the aperture range. Border image quality seemed to lag a little bit at f/1.9 and to a lesser degree at f/2.8. As with any other medium format lens, I was not able to test extreme corners since I relied on a non-tilt/shift adapter, which centers the lens so that even FF 35mm sensor does not cover completely the imaging circle of the lens. However, considering that the border performance at f/1.9 was somewhat weaker on a full frame 35mm body, we can speculate that it is not going to be any better around extreme borders if you decide to use a tilt/shift adapter.

Speaking of the tilt/shift adapter. Mamiya 645 80mm f/1.9 is currently the fastest standard lens in the medium format world. If you indeed decide to adapt it to your favorite dSLR using a tilt/shift adapter, you will also get the fastest tilt/shift setup. Moreover, such setup is also likely to be cheaper then a native tilt/shift lens/ By how much? You do the numbers...

ISO 400, 1/200, f/1.9, 80mm (Canon 5D)

When shot with wide open aperture, Mamiya 645 80mm f/1.9 produced round, mostly uniformly lit out-of-focus highlights. Unfortunately, OOF highlights also often carried harshly defined edges, hinting on over-correction in spherical aberration. Contrast transitions in background and foreground OOF areas were pretty decent - not to the same level you would see in some of the faster medium telephotos, but not bad ad all. There was no visible double-edging around fore/back-ground objects.

Vignetting @ f/1.9 - full frame vs 1.6x crop (80mm)

The lens showed minimal level of vignetting on a full frame body with wide open aperture. Vignetting is reduced at f/2.8, but does not completely go away until the lens is stopped down to f/4. Vignetting on an APS-C body was even less pronounces, even negligible for all practical purposes even at f/1.9.

Color reproduction was pretty decent overall - images carried good amount of contrast at smaller apertures, but at f/1.9 textures seemed a bit less saturated, as if they were 'washed-out'. The lens fell prone to both lateral as well as axial CA at wider apertures, and while axial CA pretty much disappeared once stopped down to f/4, color fringing continued to persist around borders through the rest of the aperture range (check halation effect in the picture of blooming tree in the sample image gallery). Flare was well under control and there was no visible sign of any distortion.

ISO 100, 1/4000, f/1.9, 80mm (100% crop)

View the embedded image gallery online at:
http://slrlensreview.com/web/reviews/misc/mamiya/mamiya-standard-645/473-mamiya-645-80mm-f19-lens-review#sigProGalleria1443668aad

[0:1] range used to report results for both types of cameras.

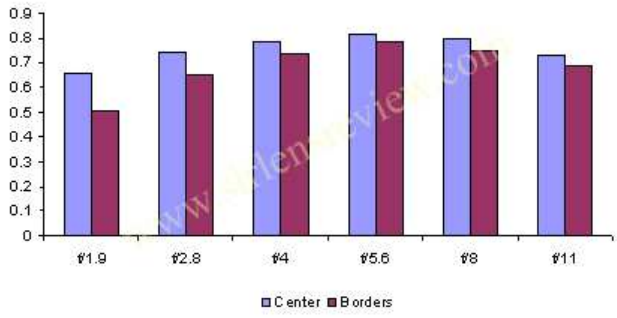
Mamiya 645: At this time I do not have plans to start testing any medium format system.

Canon APS-C: Mamiya 645 80mm f/1.9 showcased pretty decent overall results on an APS-C body. Center performance is good throughout the aperture range, but border image quality suffers a little bit at wider apertures. Border quality at f/1.9 is not very impressive, even mediocre. Stop down the aperture a bit and quality reaches very respectable level and gets even better in the f/4-f/11 range. With the exception of the f/1.9-f/2.8 range, the lens shows pretty balanced performance across the frame, which is obviously a great characteristic in any lens. At its peak in the f/4-f/8 range the lens is capable of producing outstanding 19in prints and decent 24in prints almost throughout the rest of the aperture range (exception here is f/1.9). Conclusion? Some softness around borders at f/1.9. Is this bad? It's certainly pretty common among fast lenses, wide angle and telephoto alike. Other then that, pretty solid performer.

Height(in)		f/1.9	f/2.8	f/4	f/5.6	f/8	f/11
4	Center	492	556	589	614	600	547
	Border	381	491	551	586	561	517
5	Center	393	444	471	491	480	438
	Border	305	393	441	469	449	413
8	Center	246	278	295	307	300	274
	Border	190	246	276	293	281	258
11	Center	179	202	214	223	218	199
	Border	138	179	200	213	204	188
16	Center	123	139	147	153	150	137
	Border	95	123	138	147	140	129
19	Center	104	117	124	129	126	115
	Border	80	103	116	123	118	109
24	Center	82	93	98	102	100	91
	Border	63	82	92	98	94	86

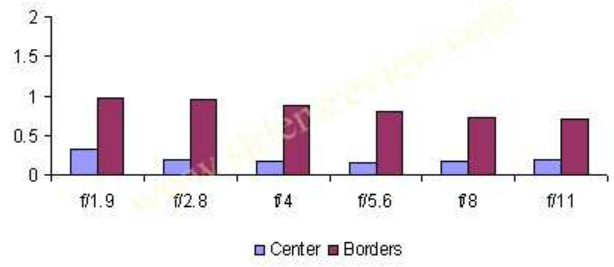
Reference Scale	
150+	Excellent
110+	Good
80+	Fair
60+	Subpar
<60	Poor

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



Normalized raw MTF50 @ 80mm

Chromatic aberration on an APS-C body was pretty low in the center. Here CA averaged ~0.4px across the frame - nothing to worry about. Border CA however was significantly higher, reaching ~1px with wider apertures, but then gradually falling to ~0.7px by f/11. Not disastrous, but somewhat higher then expected from a medium telephoto lens.



Chromatic Aberration (APS-C) @ 80mm

Here are 100% crops taken with an APS-C type Canon Digital Rebel XTi comparing images at f/1.9 and f/8.

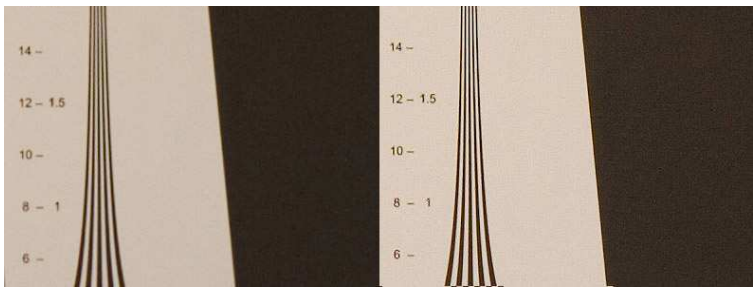
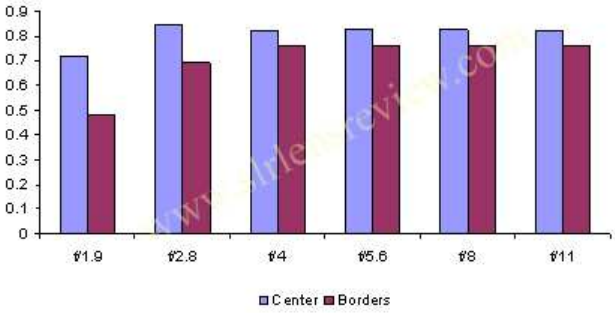


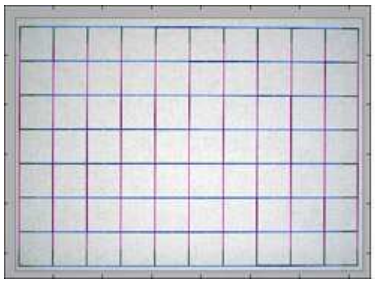
Image borders @ 80mm (100% crop): f/1.9 vs f/8

Canon FF: Performance trend on a full-frame body mirrors that of an APS-C camera. Center image quality remains outstanding throughout the aperture range. But border performance suffers at f/1.9, where quality is rather mediocre. Fortunately, border quality improves quite nicely once you stop down to f/2.8 and through the rest of the aperture range quality remains on a consistently high level. The lens shows very well balanced results in the f/4-f/11 range, where the gap between border and center performance is the smallest. Conclusion? Well, at least there are no surprises here (performance-wise that is). The lens shows results that could be considered very good, but not unique among fast medium telephoto primes.

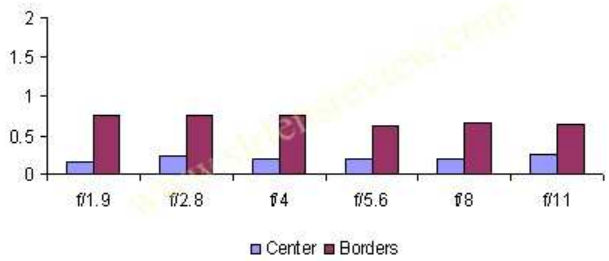


Normalized raw MTF50 @ 80mm

The lens exhibited pretty small barrel distortion and at 0.357% it's unlikely to be even visible in general photography.


Distortion (FF) @ 80mm

The lens showed better handling of chromatic aberration on a full frame body. Center CA remained pretty low, averaging ~0.3px across the aperture range. Border CA at wider apertures approached ~0.8px, but dropped to much more manageable ~0.6px by f/5.6.



Chromatic Aberration (FF) @ 80mm

Here are 100% crops taken with a FF Canon 5D comparing images at f/1.9 and f/8.

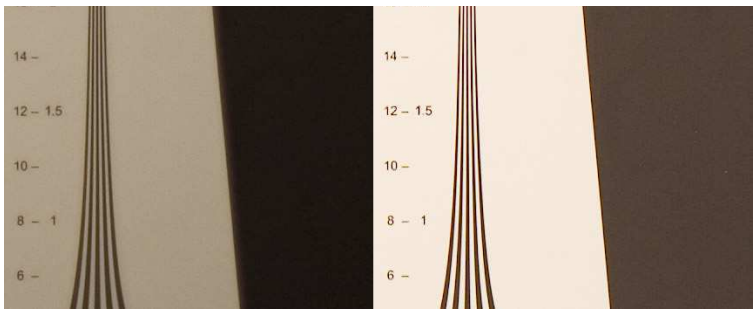


Image borders @ 80mm (100% crop): f/1.9 vs f/8

Alternatives

Mamiya currently offers four standard primes for its 645 lineup. The Mamiya 645 80mm f/1.9 reviewed here, slightly slower **Mamiya 645 80mm f/2.8** and its AF version, as well as **Mamiya 645 110mm f/2.8**. Not enough choice? Well, you can always experiment with 3rd party lenses on your favorite system. You can expand your search to Carl Zeiss manufactured lenses for Hasselblad system like Planar T* 80mm f/2 CF (as well as its numerous variations), Planar T* 100mm f/3.5 C or Planar T* 110mm f/2 F (and its variations). You should also consider adapting the now discontinued Pentax 645 lenses like **Pentax 645 smc A 75mm f/2.8**. If you're trying to find an alternative lens for your traditional 35mm system, then in addition to the above mentioned lenses, you also have a wide choice of standard lenses from Carl Zeiss, Leica and many other manufacturer.

Recommendation

Like most fast primes, Mamiya 645 80mm f/1.9 shows some weakness around borders at wide apertures. While this is not uncommon, it is still a bit disappointing. Setting aside this issue, overall performance is pretty good, but as mentioned earlier, not unique among medium telephoto primes (for 35mm cameras). Obviously if you plan to use this lens on the native Mamiya system, then your choice is rather limited - there are maybe 3 or 4 different lenses that you could consider as alternatives to your Mamiya 645 80mm f/1.9. And among those, the 80mm f/1.9 stacks up pretty favorably. However, if your primary system is a FF or an APS-C dSLR, then this is a completely different story, especially if you plan to use the lens along with a tilt/shift adapter as an alternative to a more expensive native lens. All-in-all, keep in mind that Mamiya 645 80mm f/1.9 offers a pretty darn good bang for the buck, even if you decide to use it just as a regular medium telephoto lens.