

Tab 1 Comparison of reference image quality evaluation indexes of different methods

	X2	X4	X8	X16
	RMSE SSIM	RMSE SSIM	RMSE SSIM	RMSE SSIM
Bicubic interpolation	2.6 0.9996	3.85 0.9959	5.52 0.9741	8.36 0.902
Guided filter	3.0 0.9986	3.69 0.9957	5.22 0.9771	8.20 0.906
TGV	3.1 0.9974	3.83 0.9940	7.03 0.963	12.85 0.879
Guided by standard image	4.7 0.9798	5.16 0.9763	5.83 0.9682	7.69 0.936
Guided by regional similarity	2.5 0.9960	3.65 0.9947	5.18 0.9807	7.73 0.932
Our method	3.1 0.9941	3.83 0.9931	5.06 0.9813	7.45 0.939

Tab 2 Comparison of non-reference image quality evaluation indexes of different methods

	Brenner gradient	Energy gradient	Laplacian gradient
Bicubic interpolation	276	105	2350
Guided filter	202	75	2347
TGV	459	295	2990
Guided by standard image	340	177	2570
Guided by regional similarity	292	123	2426
Our method	508	343	3081