X = Real satellite image,

X’ = Generated satellite image from a real satellite image input

X’’ = Generated satellite image from a fake satellite image input

Y = Real Map image

Y’ = Generated map from a real map image input

Y’’ = Generated map from a fake map image input

|  |  |  |  |
| --- | --- | --- | --- |
| Real & Fake Images | **Structural Similarity Index (SSIM)** | | |
| CycleGAN | VAE-CycleGAN | VAE-CycleGAN256 |
| Input: 64x64 | Input: 64x64 | Input: 256x256 |
| CR: 1:16 | Compression: 1:16 | Compression: 1:256 |
| SSIM (X, X’) | 0.0529 | 0.0497 | 0.0659 |
| SSIM (Y, Y’) | 0.4540 | 0.4601 | **0.5129** |
| SSIM (X, X’’) | 0.0943 | 0.1063 | 0.2671 |
| SSIM (Y, Y’’) | 0.4433 | 0.4756 | **0.5429** |