

Re: Resolution with Gaussian point spread function

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By the way, how do you get a Gaussian point spread function?

The only "standard metric" for an aberrated system is to perform an MTF calculation. This is too complex (not worth while) for an individual to program.

Actually, it is possible to get a PSF that is very Gaussian like when you have many effects contributing to the system response (remember the central limit theorem). The optical system response includes more than just the as-designed PSF. Other effects will pertain in real world optical systems and these may include the optics (non-centered as-built residuals), spatial sampling (FPA), jitter, and very small angle diffraction effects (surface figure errors with long spatial periods or spurious diffraction orders if system uses kinoforms or binary optics).

Most FLIR system engineers use the Gaussian approximation as it makes for easy math when distributing first order requirements and tolerances for different system level effects. Gaussian PSFs are easily convolved (just with an RSS) and the MTF is also very easy to calculate. This makes it easy to switch between PSF and MTF based requirements.

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