

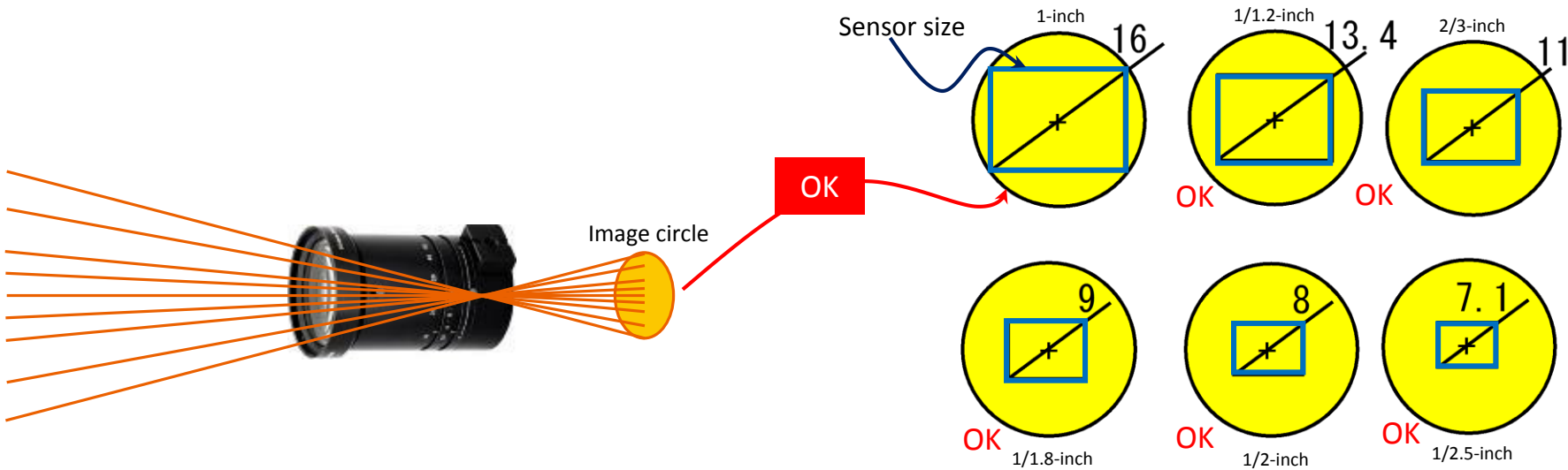


VT4Z1450

1" 14-50mm F2.6 6MP IR-Corrected



1 1 inch and 1/1.2 inch image size spec.



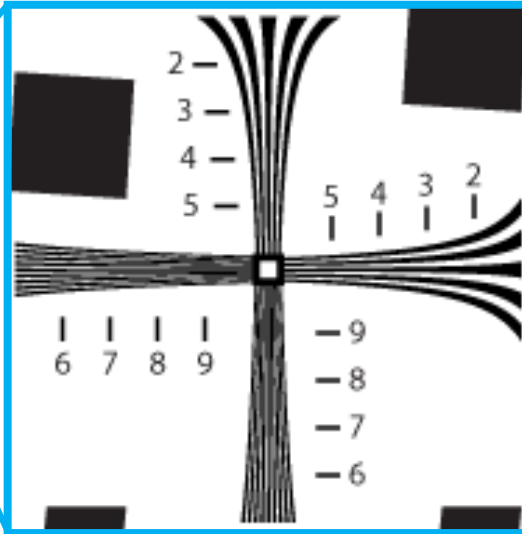
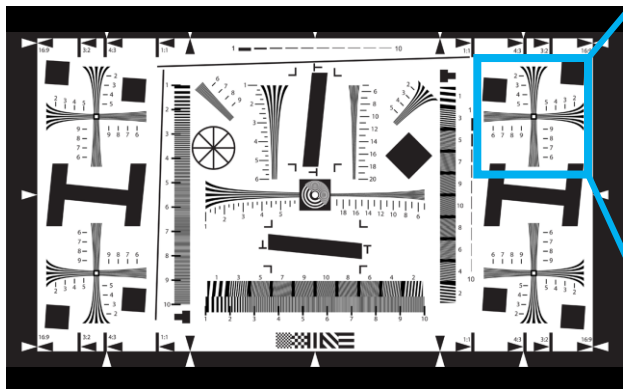
1-inch

<p>CMV4000</p> <p>CMOSIS image sensors</p> <p>ON</p>	<p>PYTHON5000</p> <p>ON</p>	<p>KAI-02150</p> <p>ON</p>	<p>KAI-2020</p> <p>ON</p>	<p>KAI-2093</p> <p>ON</p>	<p>KAI-4050</p> <p>ON</p>
<p>KAI-08051</p> <p>ON</p>	<p>ICX694</p> <p>SONY</p>	<p>ICX674</p> <p>SONY</p>	<p>ICX814</p> <p>SONY</p>	<p>ICX834</p> <p>SONY</p>	<p>ICX695</p> <p>SONY</p>

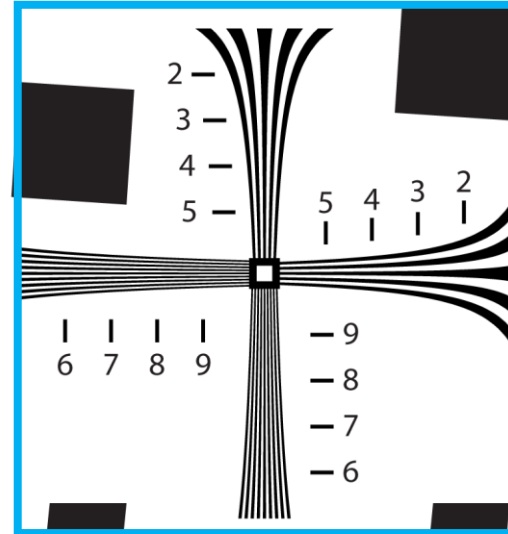
1/1.2-inch

<p>IMX174</p> <p>SONY</p>	<p>IMX249</p> <p>SONY</p>
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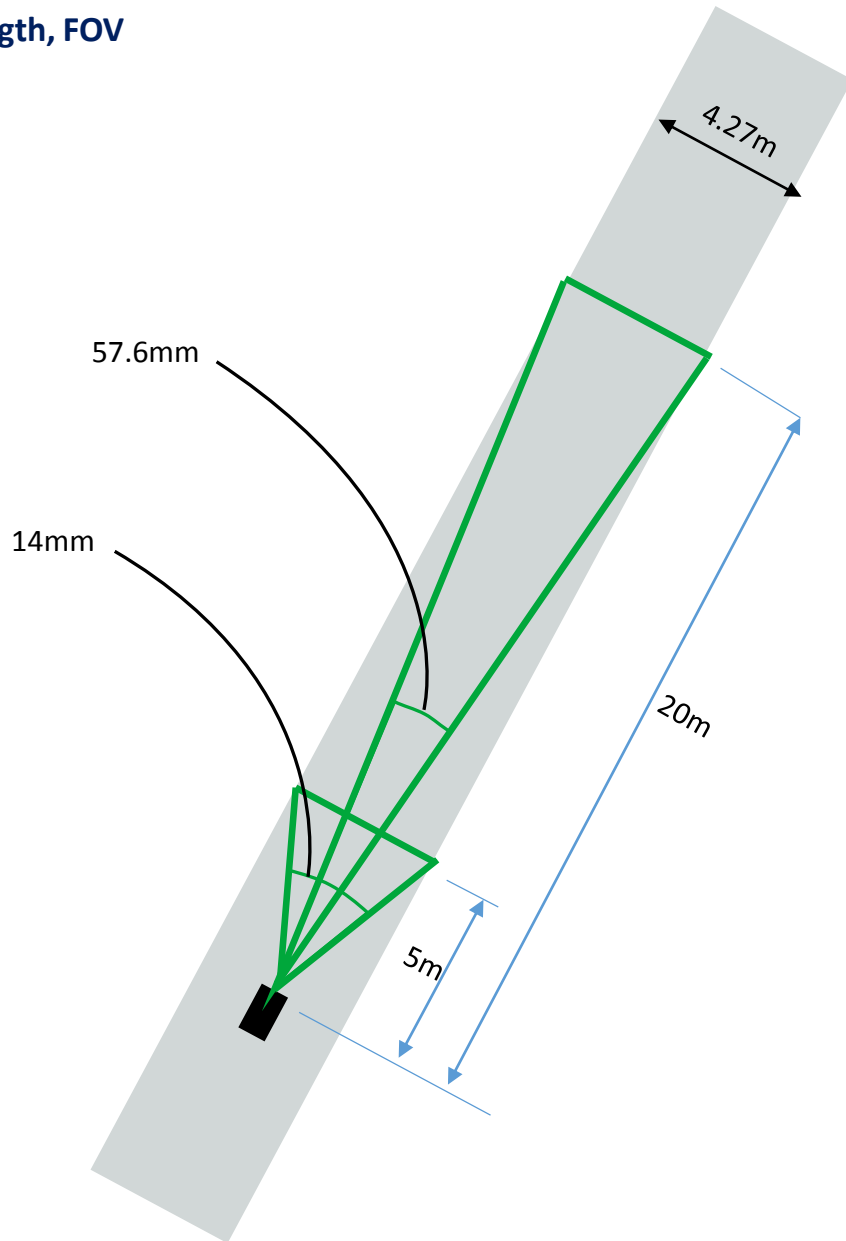
Conventional lens



TUSS Vision 14-50mm



### 3 Focal length, FOV



US Traffic



The reason of 14-50mm

US Traffic system has to capture 4.27m for horizontal at 5m to 20m

At 5m, it needs focal length 14mm.

At 20m, it needs focal length 57.6mm.

Thus T USS Vision decided with the focal length of VT4Z1450MXJ should be 14-50mm.

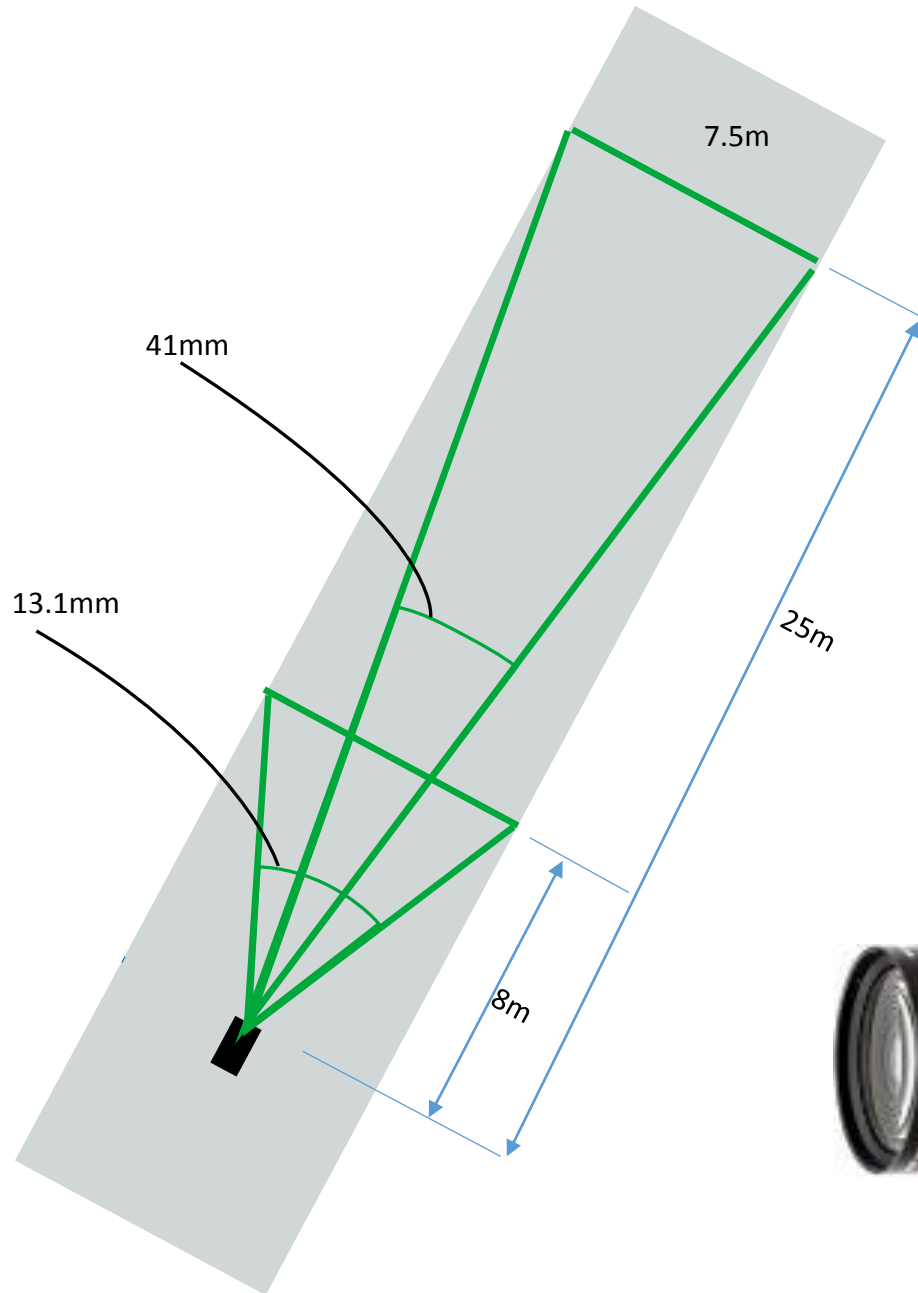


### 3 Focal length, FOV

#### Euro Traffic

The reason of 14-50mm

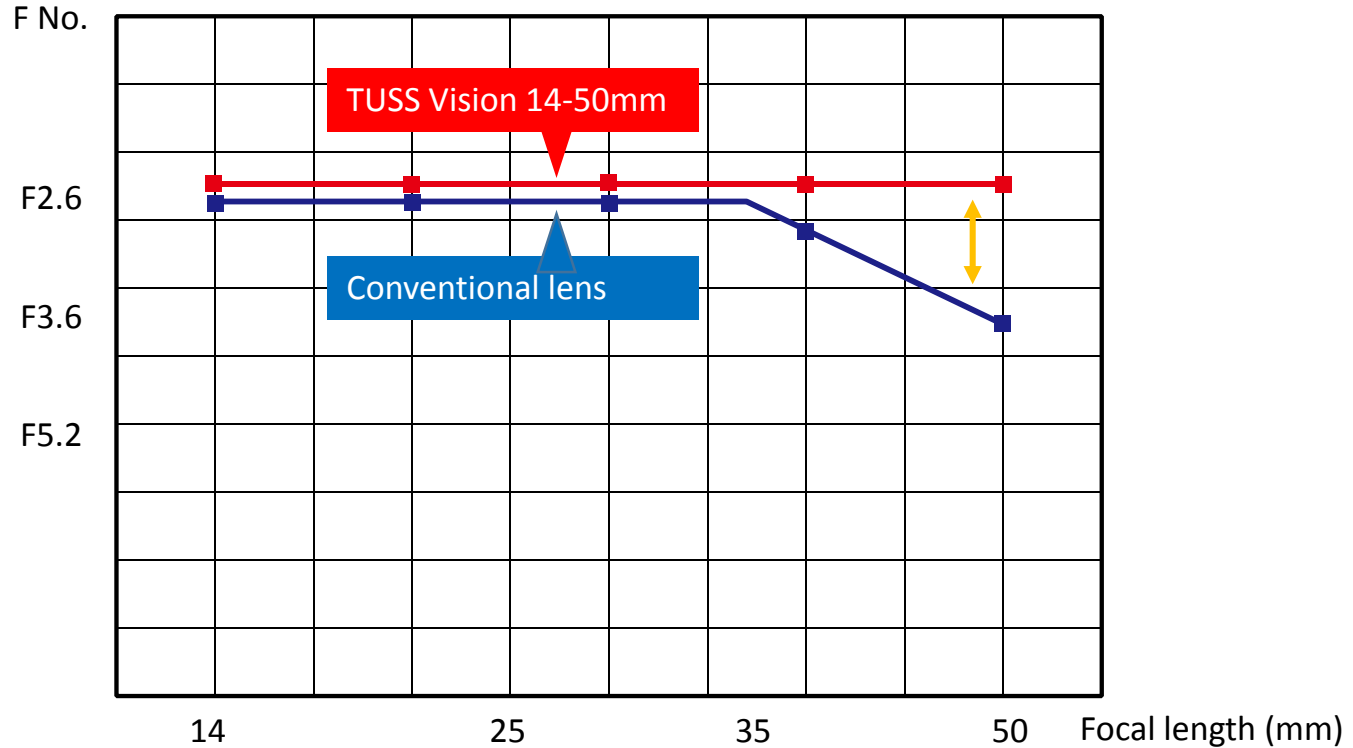
Euro Traffic system has to capture 7.5m for horizontal at 8m to 25m  
At 8m, it needs focal length 13.1mm.  
At 25m, it needs focal length 41mm.  
Thus TUSS Vision decided with the focal length of VT4Z1450MXJ should be 14-50mm.



4 Non ramping F NO.

VT4Z1450

1" 14-50mm F2.6 6MP IR-Corrected



Generally typical zoom lens or vari-focal lens's F NO. is ramping at the telephoto side.  
In case of telephoto zoom or vari-focal lens, the zoom position which is used well is telephoto side.  
The F NO. at telephoto side is most important.  
TUSS Vision 14-50mm has larger effective aperture and maintain F NO. from wide to telephoto.



## 5 Prevention of ghost image



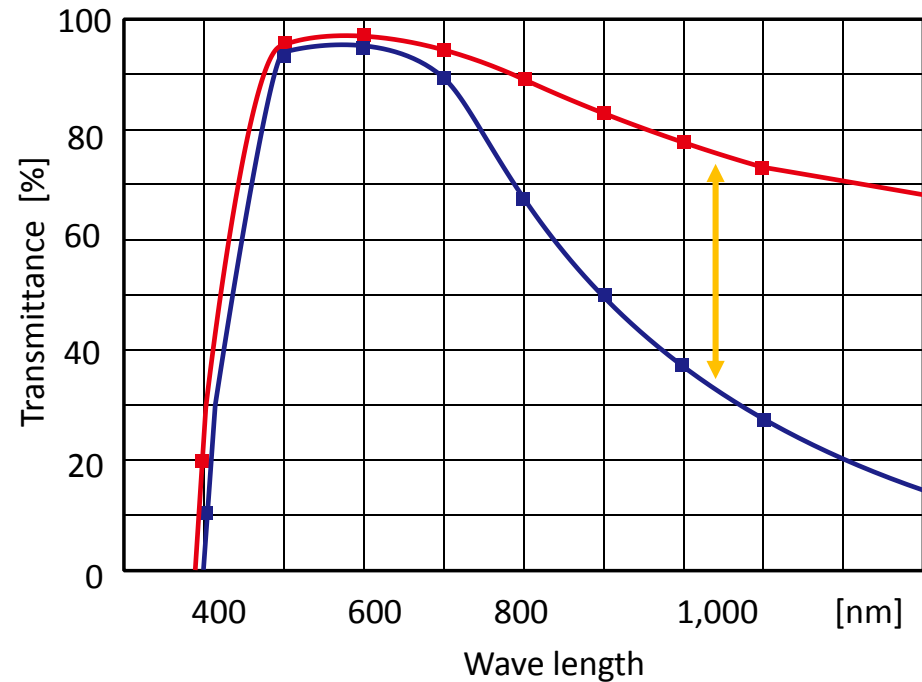
Ghost image on license plate (Typical lens)



Prevention of Ghost image (TUSS Vision)

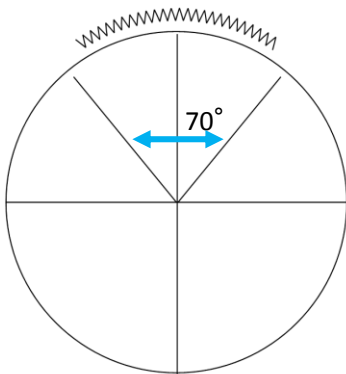
Sometimes it is not able to capture important image by ghost image. Lenses should be designed according to attention for it.

## 6 Wide band coating



TUSS Vision 14-50mm will use and install in 24 hours situation. Wide band coating is optimized and useful for day to night. It means it is available for visible ray and Near IR ray.

## 7 Wide adjustment focus

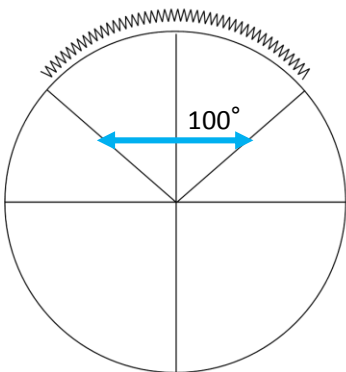


Typical lens

Focus adjustment for high resolution lens need delicate sensitivity. The best focus point is narrow.

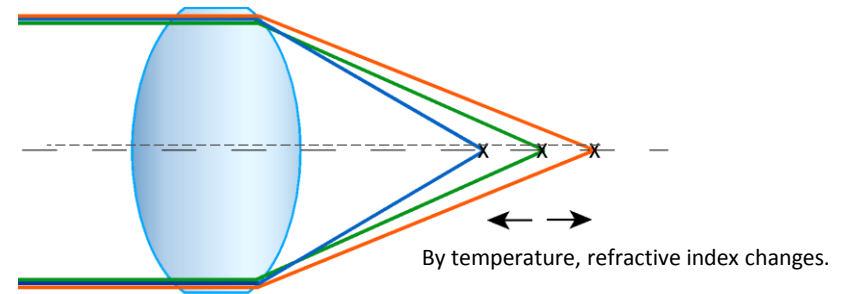
Typical lenses have around 70 degree rotation angle of focus adjustment.

TUSS Vision 14-50 has 100 degree and it is easy to adjust the best focus.

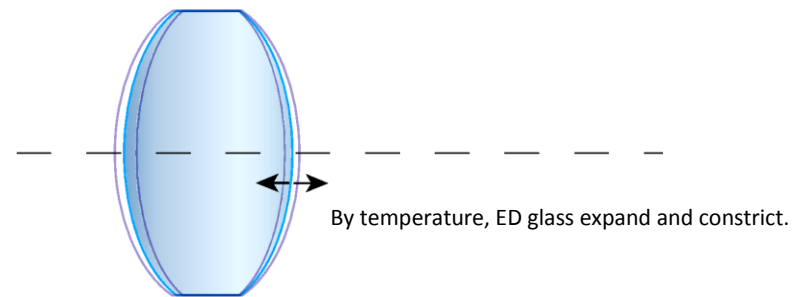


TUSS Vision

## 8 Maintaining back focus during temperature change



Attention for change of refractive index by temperature.



Attention for expansion and constriction of ED glass.



## 9 Day and Night, IR-corrected

Visible Ray



Near IR Ray



Non IR corrected lens

Near IR Ray

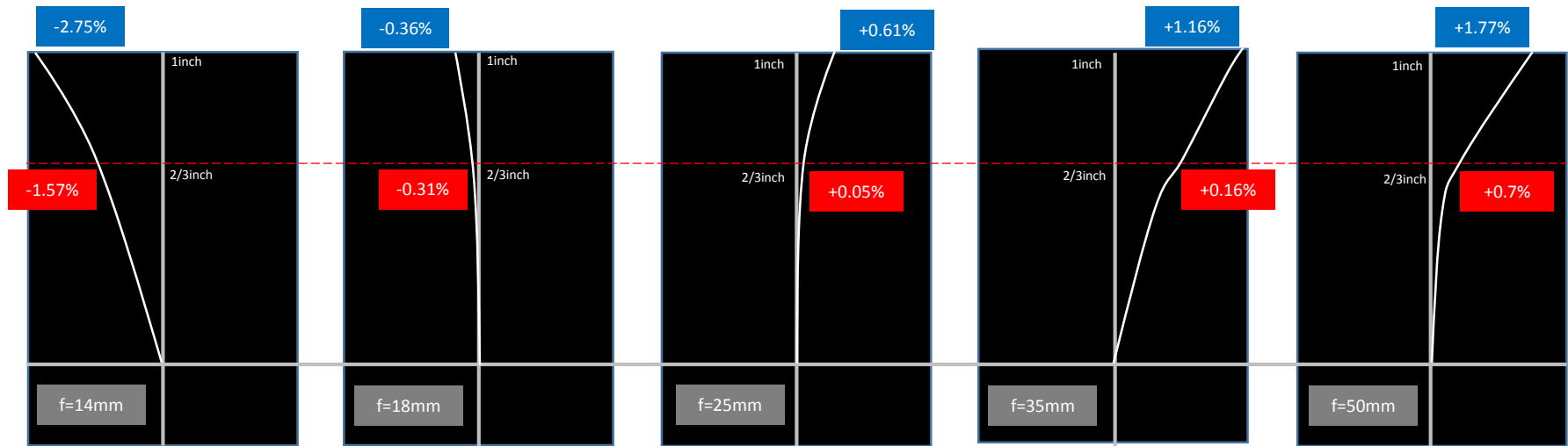


TUSS Vision 14-50mm, IR corrected

TUSS Vision 14-50mm can prevent chromatic aberration by using extra low dispersion glass. Focus under visible ray to near IR ray remain almost same position and doesn't make blur.



## Distortion In case of using with 2/3inch cameras



Distortion is the best at center of image and the worst at corner of image.

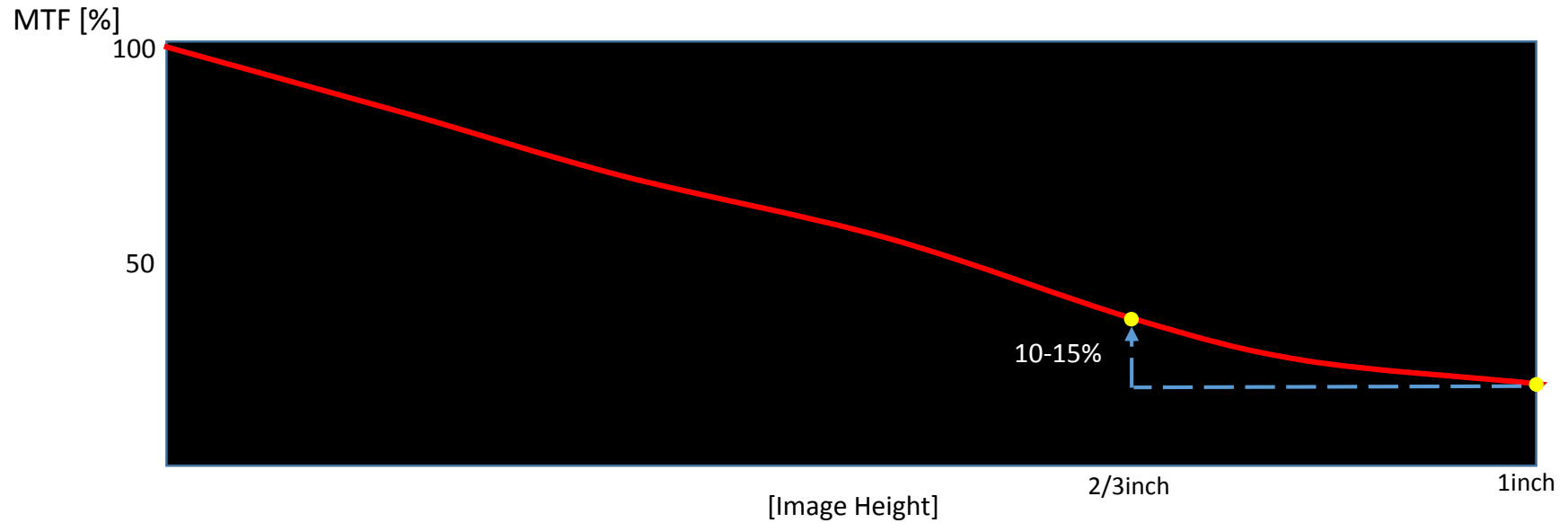
In case of lens is 1inch and camera is 2/3inch, corner of ray of 1inch lens can not be reached to 2/3inch camera.

The worst distortion of corner is gotten rid of.

For example, at f=14mm, the distortion of corner is -2.75%. In case using with 2/3inch camera, the distortion of corner could be -1.57%.



## In case of using with 2/3inch cameras



Distortion is the best at center of image and the worst at corner of image (generally).

In case of lens is 1inch and camera is 2/3inch, corner of ray of 1inch lens can not be reached to 2/3inch camera.

The worst MTF of corner is gotten rid of.

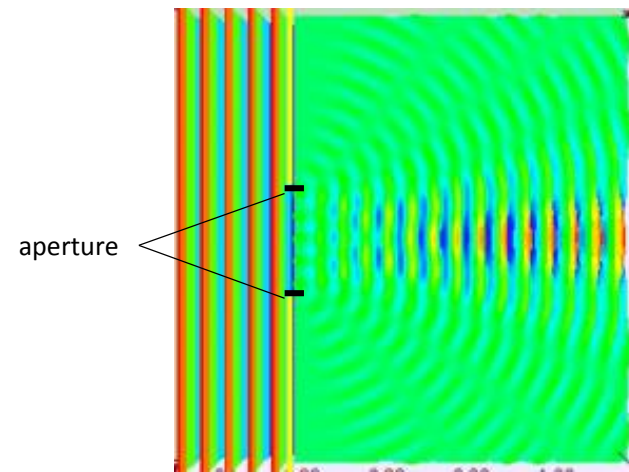
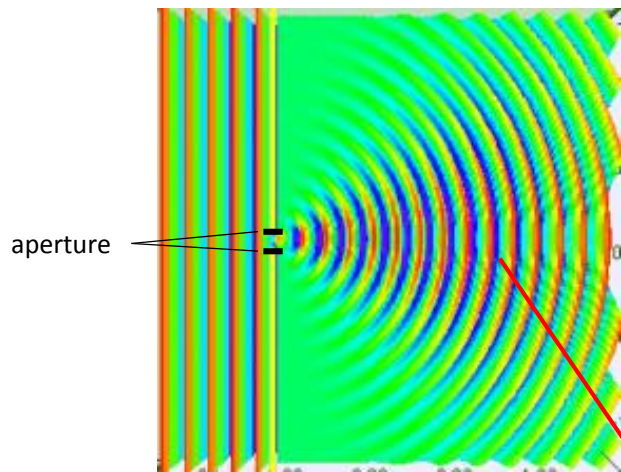
When 1inch lens is used with 2/3inch camera, the MTF of the corner will be increased around 10 to 15%.



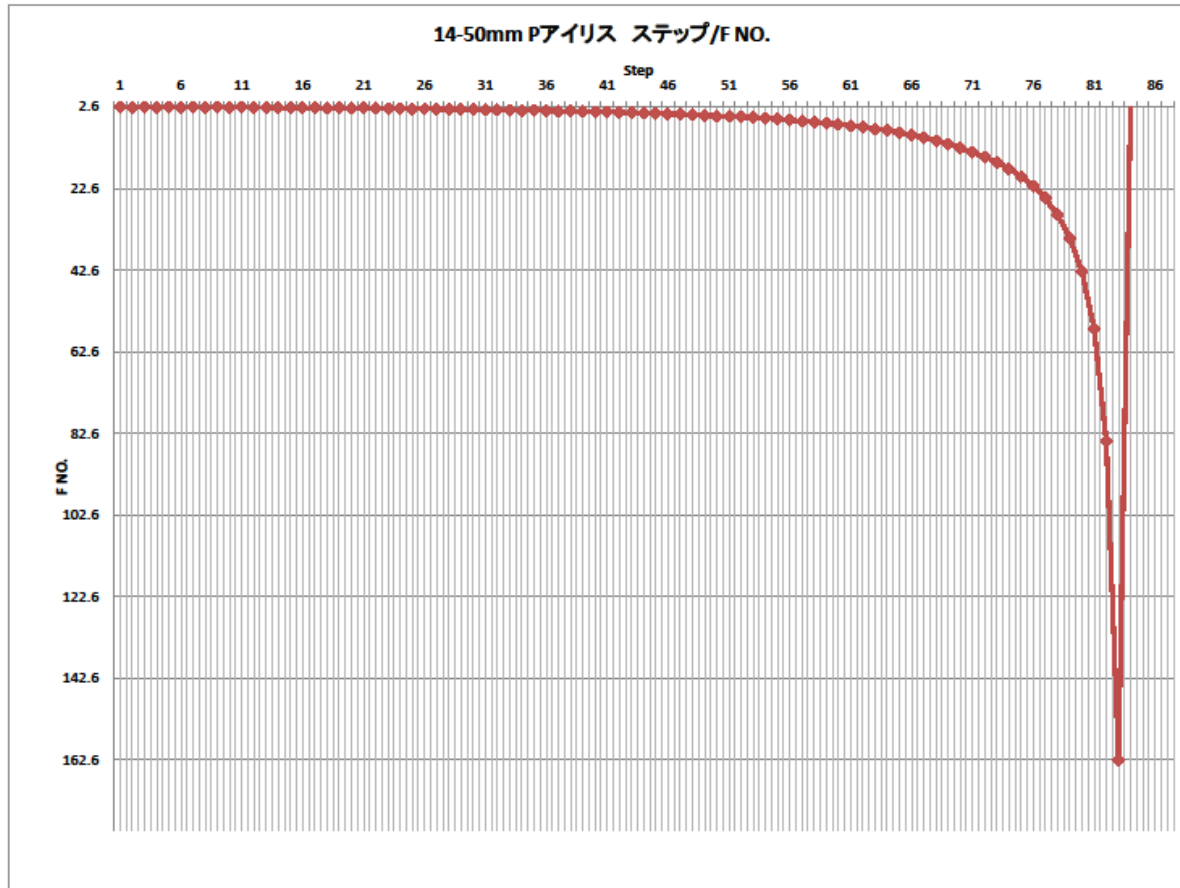
## 10 P-iris

P-iris can be specified iris position and be acquired optimum aperture.

- Prevent for diffraction
- Optimum resolution
- Optimum depth of field



Diffraction makes image blur.



P-iris can control iris precisely.  
It can realize both optimize aperture and prevention of diffraction.

The step number and F No. are connected with each other. P-iris can appoint F No.

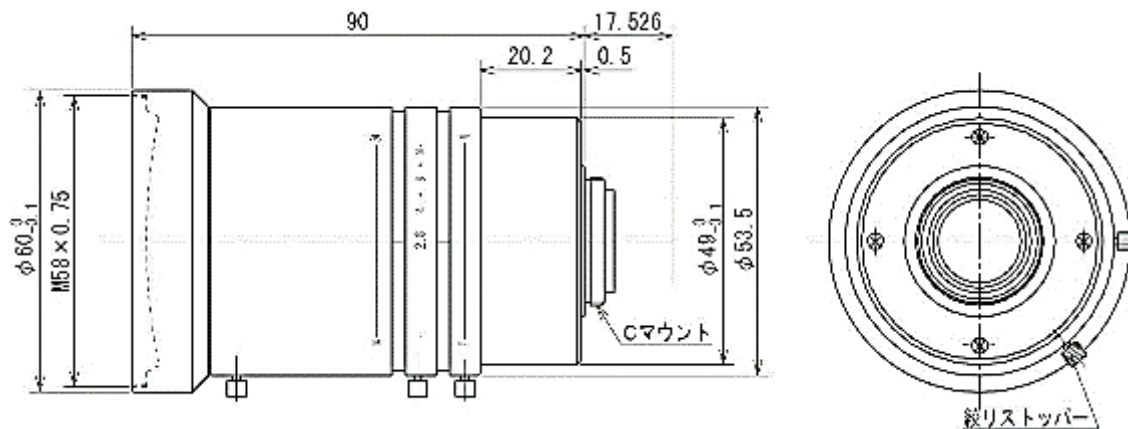


## 11 Specifications

Image size	1inch, 1/1.2inch, 2/3inch, 1/1.8inch, 1/2inch, 1/2.5inch	Zoom	1) Manual 2) Motorized
Focal length	14-50mm	Iris	1) Manual-iris 2) P-iris 3) DC-iris
Angle of view	14mm: 14.5° x 11.1° 50mm: 50.5° x 38.0°	Operation temperature	-10°C ~ +50°C
F NO.	Wide(F2.6) - Tele (F2.6)	Storage temperature	-20 °C ~ +70°C
Mount	C-mount	Warranty	2 years
Resolution	Mega Pixel	Dimensions	φ60x90mm
IR correction	Yes	Weight	Manual-iris: 390g P-iris, DC-iris: 320g
Operation		Country of Origin	Japan
Focus	1) Manual 2) Motorized		



14-50mm Manual



14-50mm P-iris

