WAVELENGTH OPTO-ELECTRONIC

Wavelength Opto-Electronic Singapore

Laser Optics

Infrared Optics

Biomedical Optics

Vision product introduction

Date: 27 Nov 2020

Scan Vision Module - Narror FOV
(front coaxial system)

- Model no: NFV-xx-xx
- Standard visual module(Figure1), also called “front coaxial system”
- can be used for most of lasers 355/532/1064/10600nm,
- to calibrate precision positioning, product image capture and other visual functions.

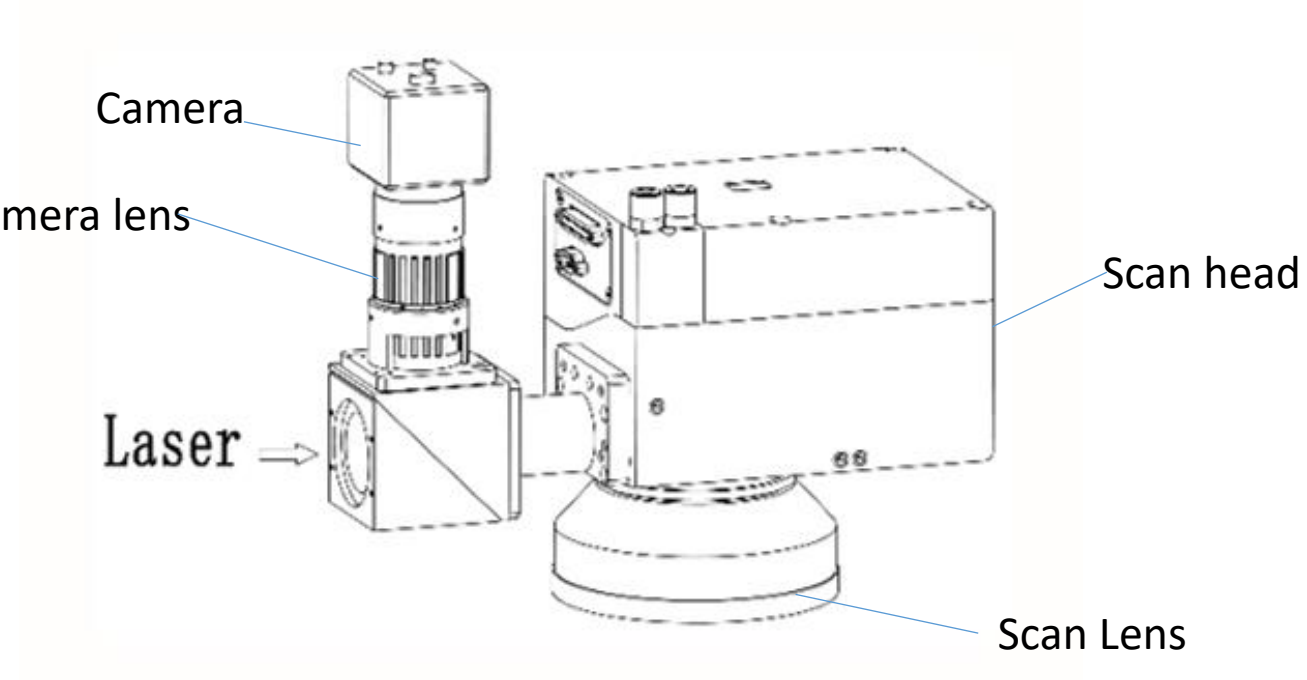


Figure1

Narrow field of view module development

Example:

- Customized visual module, with customer's 355 laser marking system to achieve coaxial processing. Red light guidance is added to this module to facilitate the view of the current laser position.(figure2)

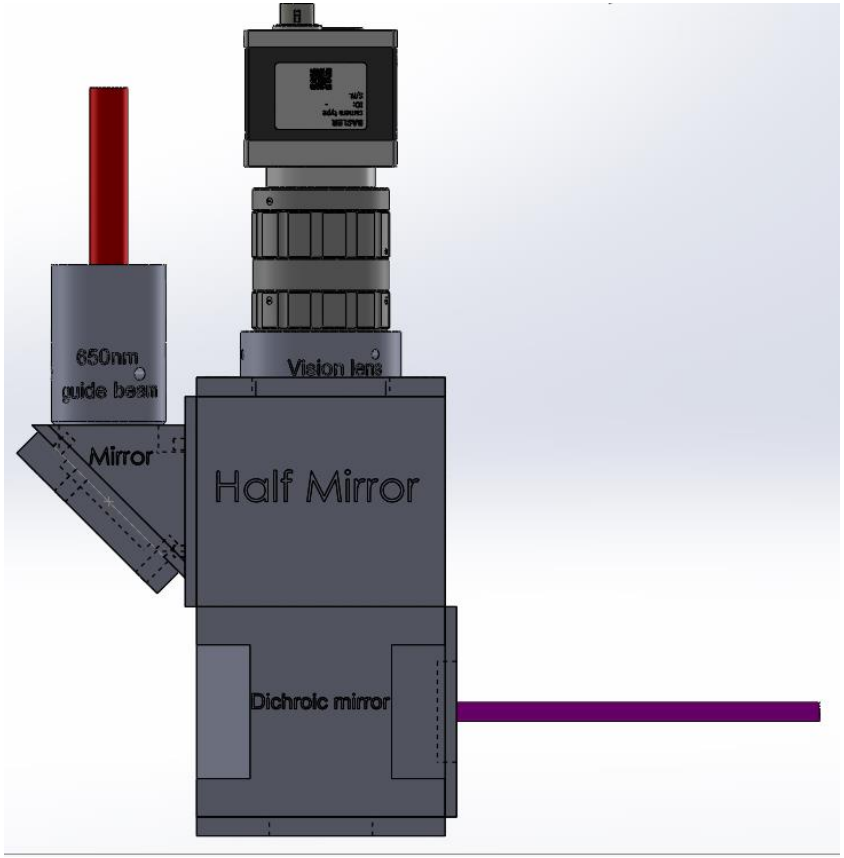


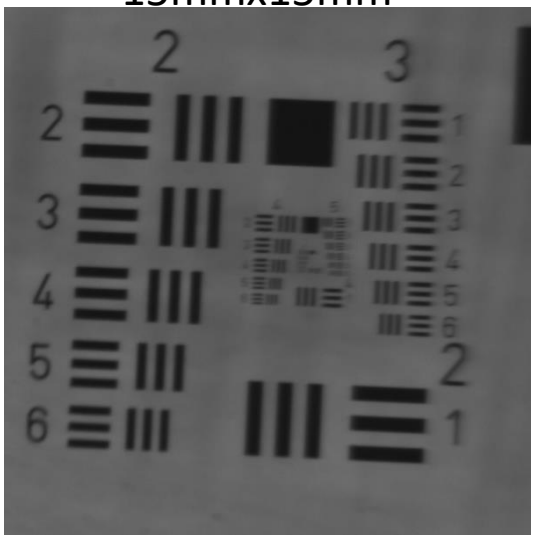
Figure2

Narrow field of view module development

F-theta scan lens with the narrow FOV vision system

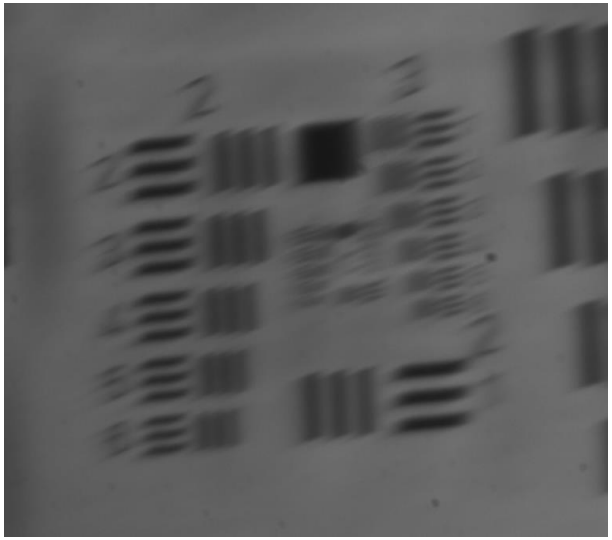
- By normal F-theta scan lens
- due to the chromatic aberration, the image is not clear on scanning edge
- Below is image difference on center and edge (Figure3).

Image size:
15mmx15mm



Center image

Image size:
15mmx15mm



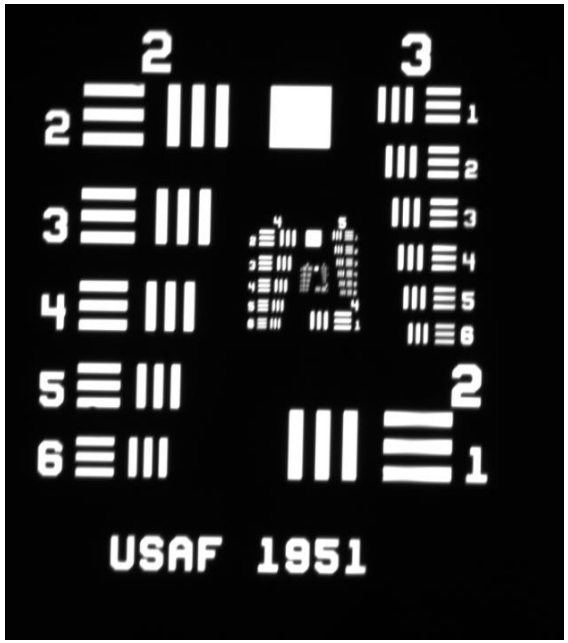
Edge image

Figure3

Narrow FOV module development

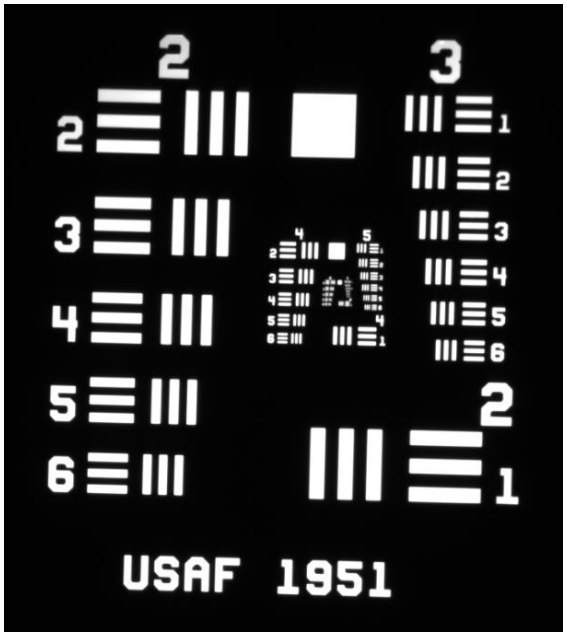
- with an achromatic scan lens
- it eliminate the chromatic aberration, image quality of the center and the edges are consistent. (Figure4).

Image size:
15mmx15mm



Center image

Image size:
15mmx15mm



Edge image

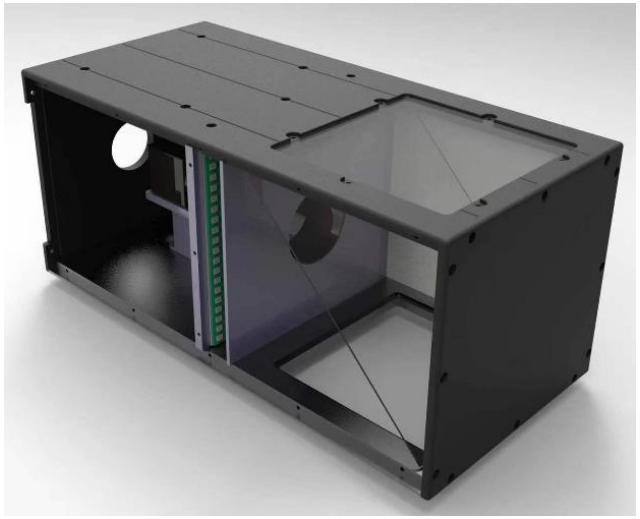
Figure4

Scan Vision Module - Wide FOV
(rear coaxial system)

Model No: SVW-xx-xxx

- Wide field of view module, placed after the scanning system,
- also called “rear coaxial system” is to observe the image of the entire working range.

- This module is subject to specification of scan lens, camera and vision lens with suitable lighting. (Figure 5)



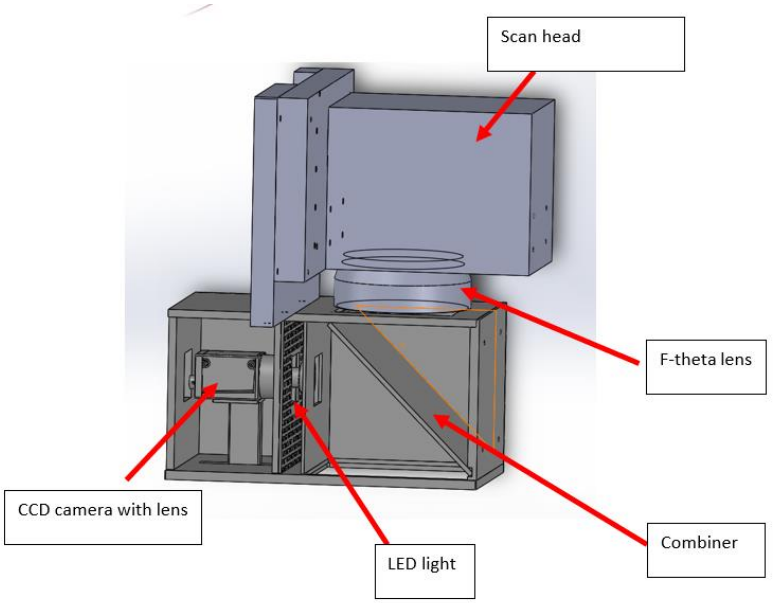


Figure 5

Wide field of view module development

F-theta scan lens with the wide field of view vision system

- The wide field of view module can capture images of the entire working range.
- However, due to the magnification, it is only suitable for the capture and detection of larger objects.(figure6)

Image size:
100mmx100mm

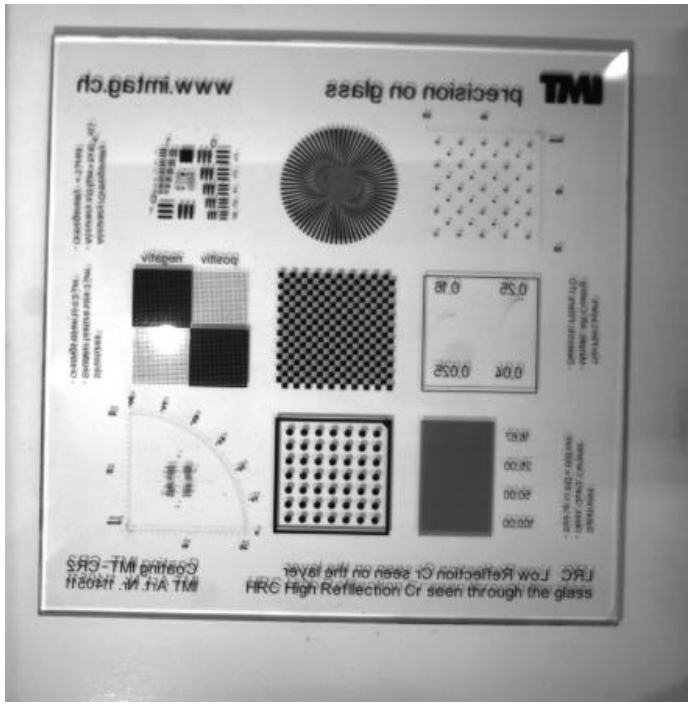


Figure6

How to choose Scan vision system

- Choose front coaxial system or rear coaxial system
- Choose the right scan lens, camera, vision lens, filter and lighting etc.
- Software is available upon request

Example1:
Vision Lens => camera Resolution

Lens parameters	
Image Size	1/3’
Lens interface	C mount
FOV	120x100mm
Customer requires accuracy	0.02mm

(12/0.02)*(10/0.02)=30Mp

Example2:
camera => Vision Lens

Camera parameters	
CCD Size	1/3’
Mount interface	C mount
FOV	40x40mm
Working Distance	100mm

1/3‘=3.6mm, thus FL=（100*3.6）/40