

VS-THV1-110-LQL1 + EL-16-40-TC-VIS-5D-C

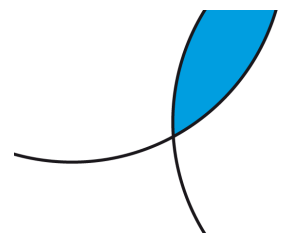
Test report

October 2018

Krister Magnusson, Sales Engineer

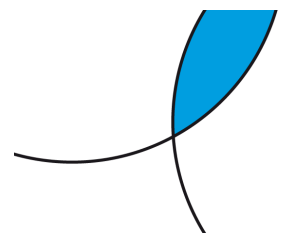
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Summary

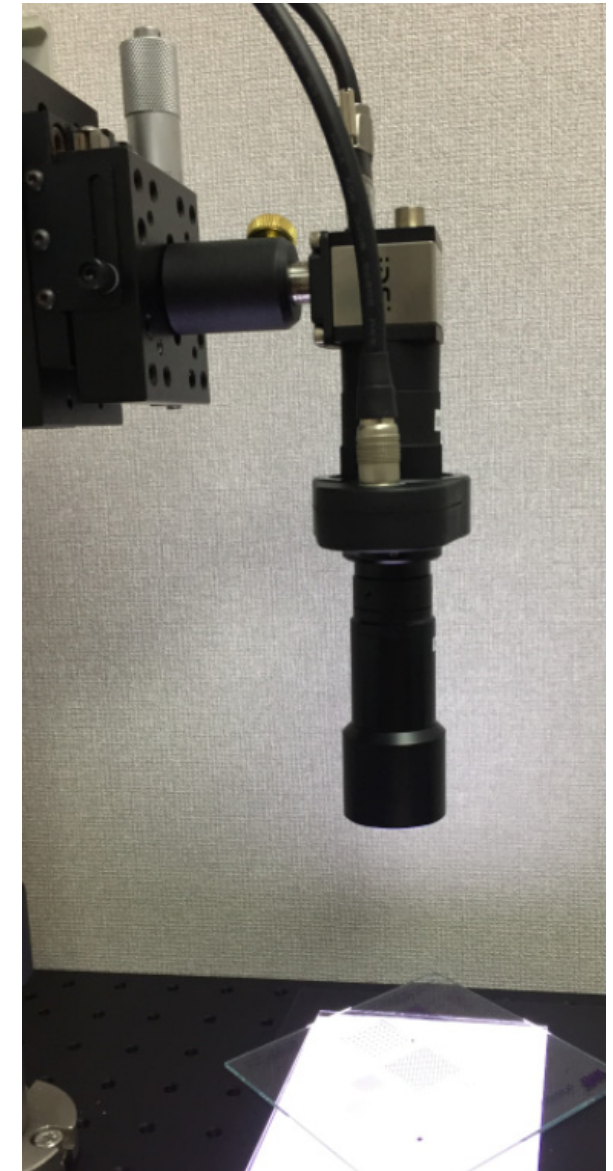


- Working Distance : 114mm @ 0 dpt
- Working Range: 15mm @ 5dpt range
- Horizontal Field of View on 1.1" sensor: 15mm @ 0 dpt
- Optical leverage: 3 mm/dpt
- Magnification range: 0.900 – 1.000
- Magnification change per mm z-range: 0.67%
- Resolution: 91-104 lp/mm

Test setup



- Camera IDS UI-3200SE-M-GL, 1.1" sensor, 3.45um pixel pitch
- 25mm Extension tube
- EL-16-40-TC-VIS-5D-C mounted behind VS lens
- Lens: VS-THV1-110-LQL1
- USAF target chrome on glass, red lighting

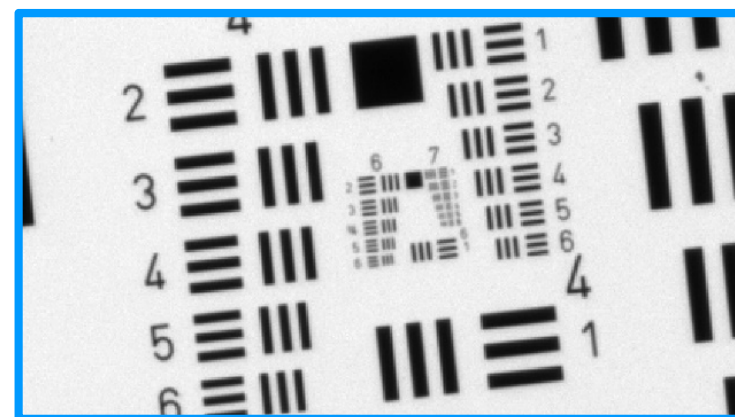
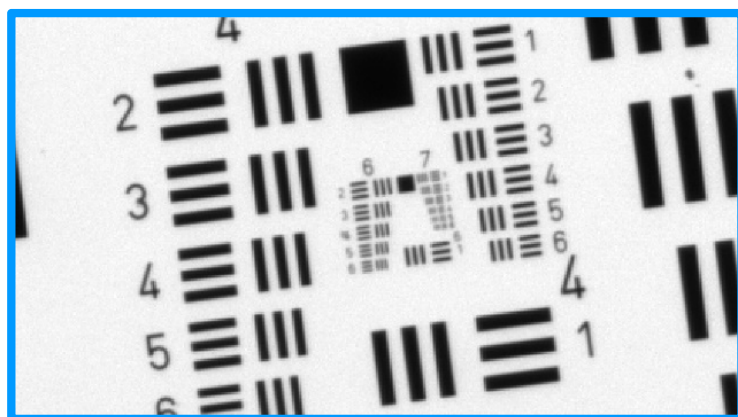
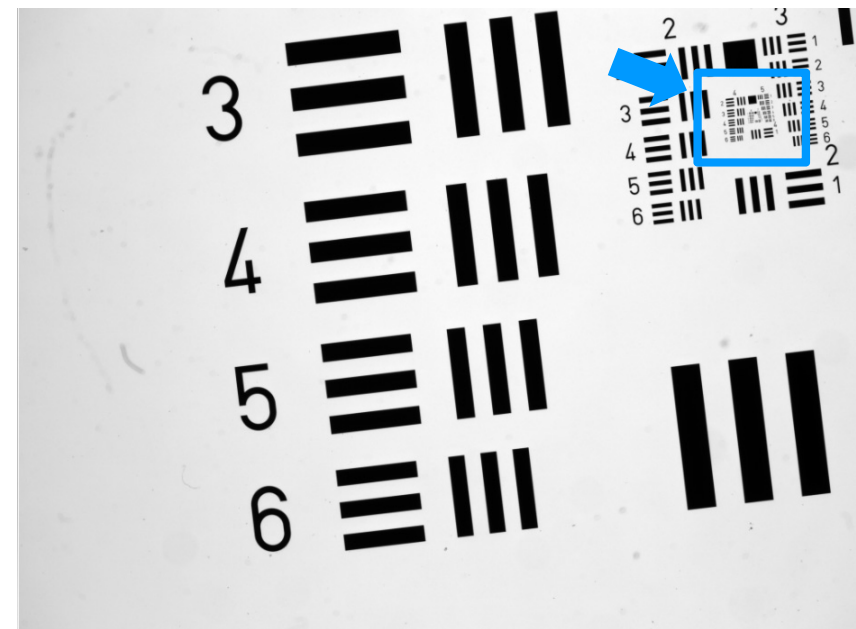
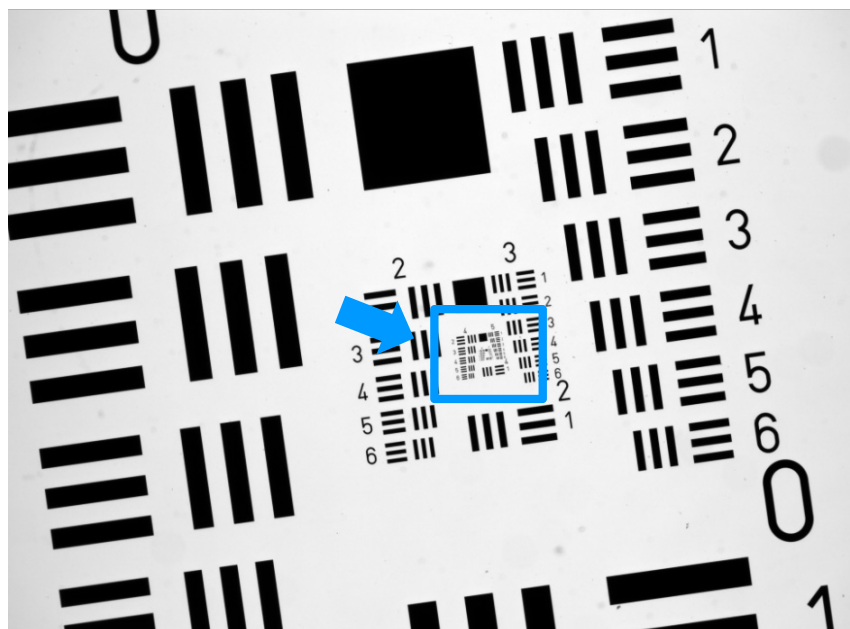


Full Image with 1.1" Sensor HFOV 15mm @ 0 dpt



Center

Corner



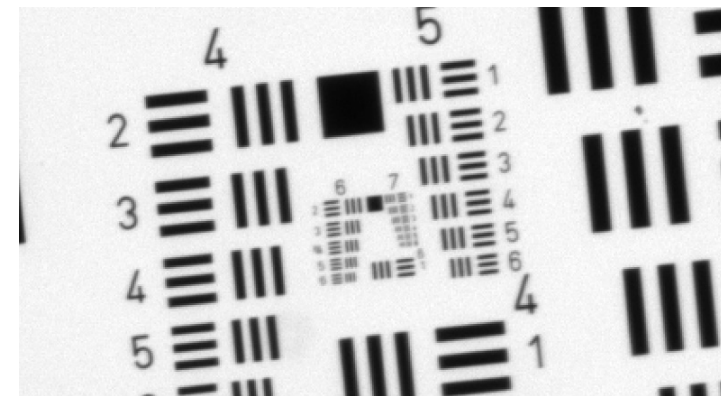
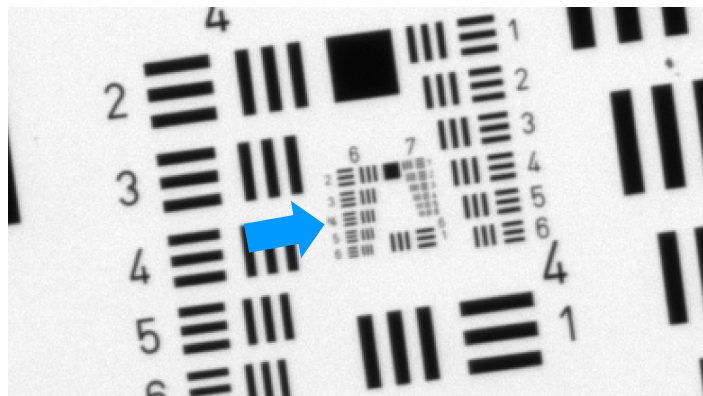
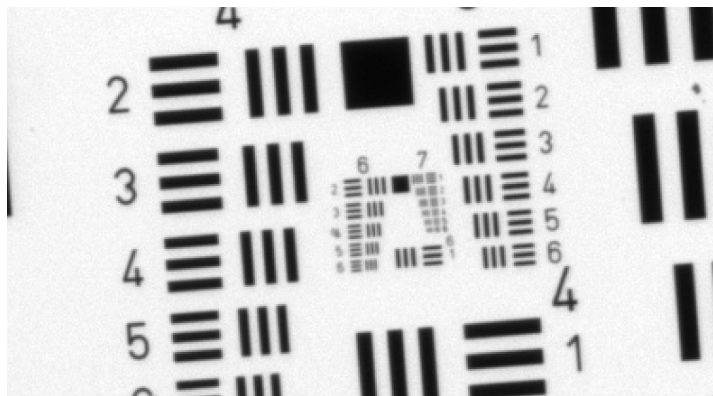
Resolution maintained across nominal tuning range of -2 to +3 dpt (Center)



-2.0 dpt Center

0 dpt Center

+3.0 dpt Center



USAF element:	6/4
Line width (um):	5.52
Lp/mm (object):	91
Magnification:	0.964
Lp/mm (image):	94
Nyquist limit:	145
Pixel size (um):	3.45

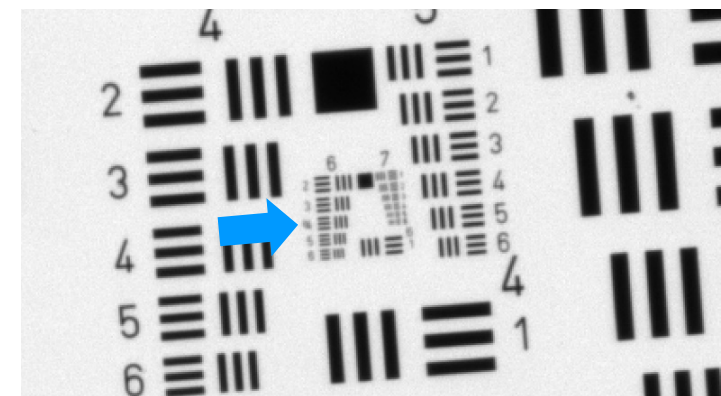
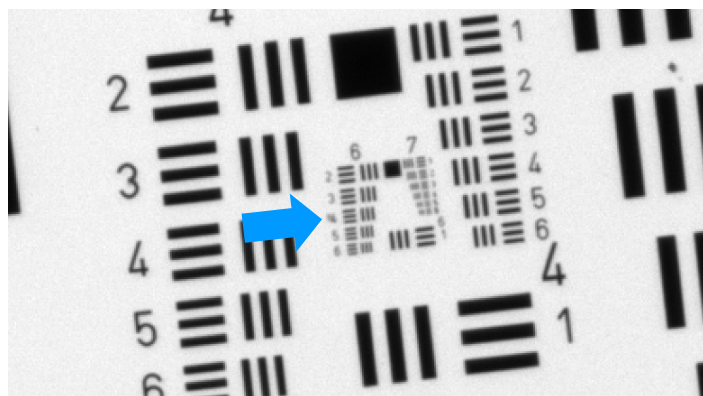
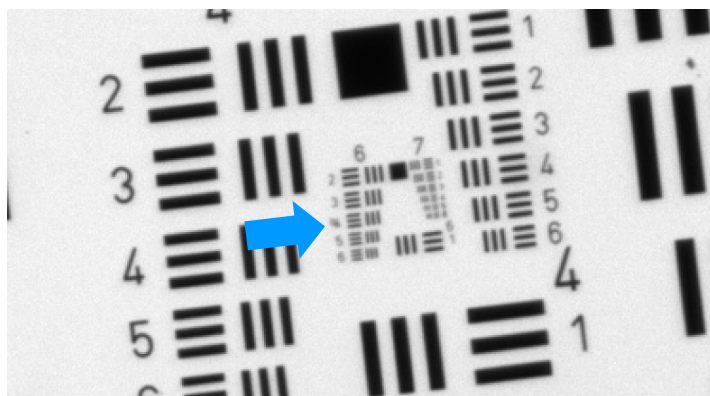
Even resolution in field between -2 to +3 dpt, magnification change from 1.000 to 0.900



-2.0 dpt Corner

0 dpt Corner

+3.0 dpt Corner

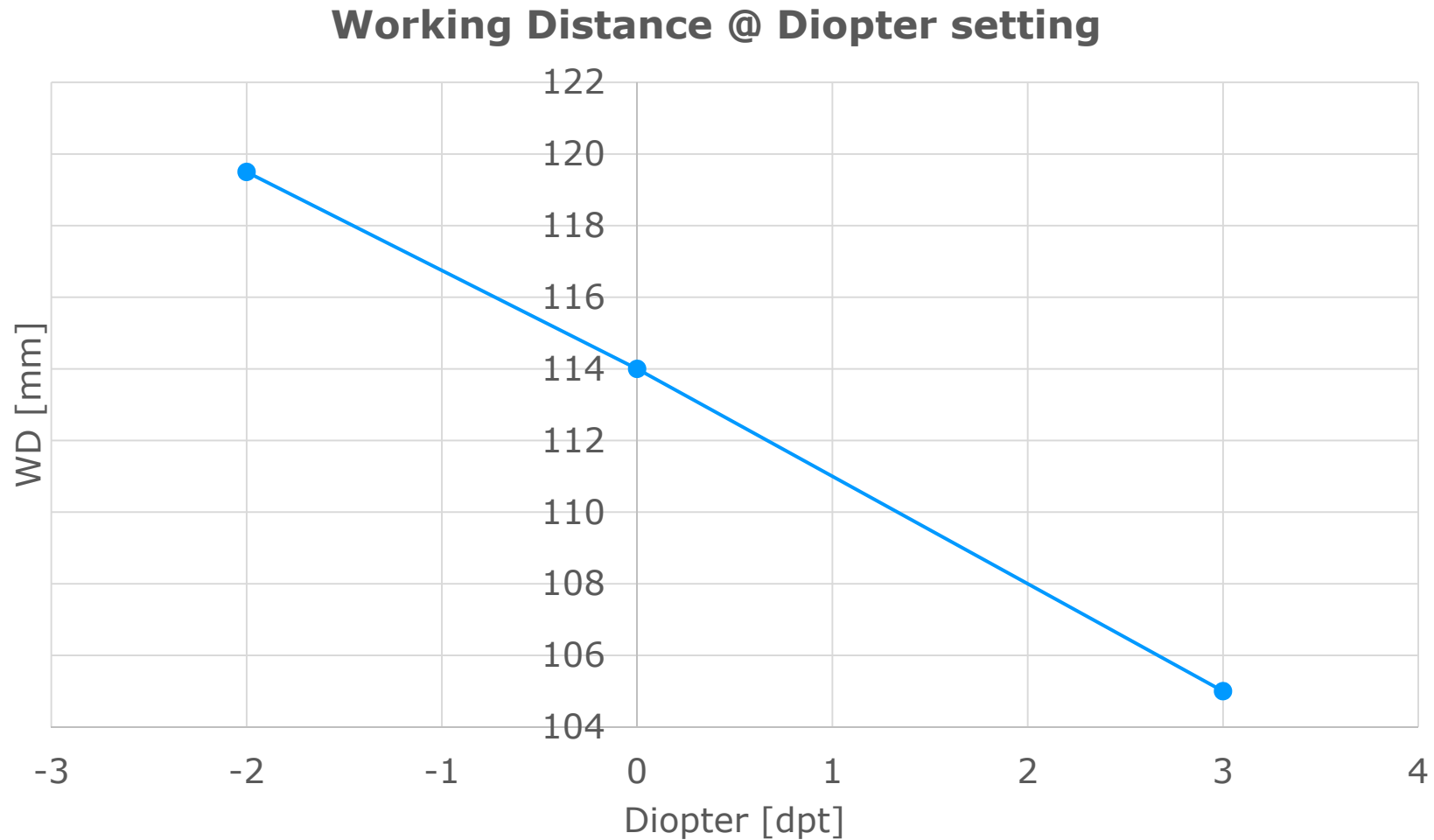
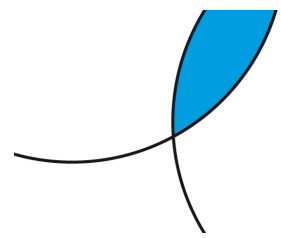


USAF element:	6/4
Line width (um):	5.52
Lp/mm (object):	91
Magnification:	1.000
Lp/mm (image):	91
Nyquist limit:	145
Pixel size (um):	3.45

USAF element:	6/4
Line width (um):	5.52
Lp/mm (object):	91
Magnification:	0.960
Lp/mm (image):	94
Nyquist limit:	145
Pixel size (um):	3.45

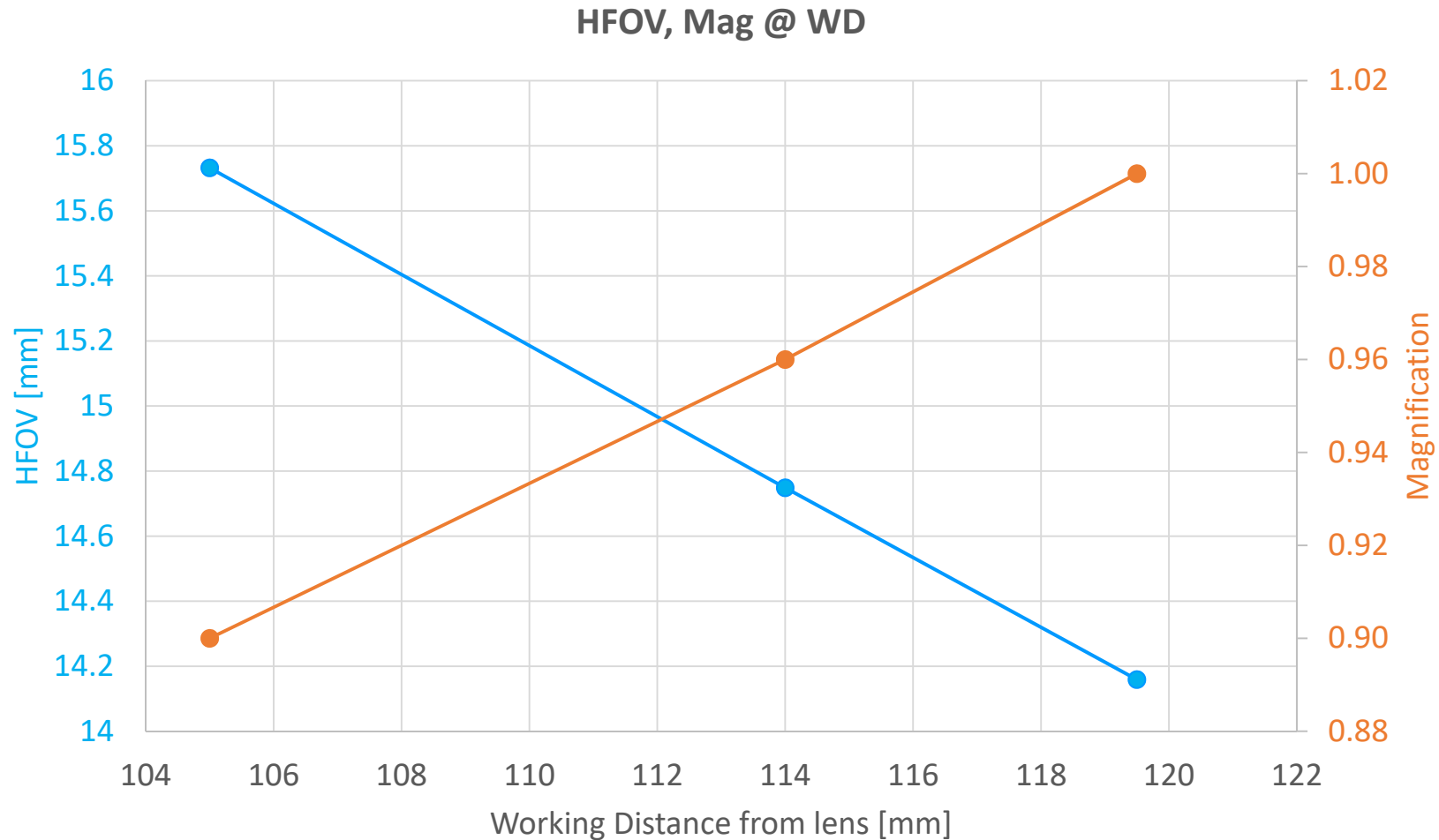
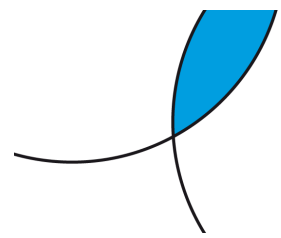
USAF element:	6/4
Line width (um):	5.52
Lp/mm (object):	91
Magnification:	0.900
Lp/mm (image):	101
Nyquist limit:	145
Pixel size (um):	3.45

Working distance of 15mm over 5 dpt range



Optical leverage: ~ 3 mm per diopter

Magnification change of 10% over 5 dpt range



Magnification change: 0.67 %/mm Working Distance

Appendix: Link to data



- Data stored in MV DB L:\40-Optotune Media\Pictures\MV DB Images

P00422 YY10DD VS-THV1-110S-LQL2 F10.5, 25mm tube V + UI-3200SE-M-GL @3ms + EL-16-40-TC-VIS-5D-C (ANAA2564) @-2dpt, Red, 264.5mm WDS 120mm WDL 14mm HFOV, USAF Center
P00423 YY10DD VS-THV1-110S-LQL2 F10.5, 25mm tube V + UI-3200SE-M-GL @3ms + EL-16-40-TC-VIS-5D-C (ANAA2564) @-2dpt, Red, 264.5mm WDS 120mm WDL 14mm HFOV, USAF Edge
P00424 YY10DD VS-THV1-110S-LQL2 F10.5, 25mm tube V + UI-3200SE-M-GL @3ms + EL-16-40-TC-VIS-5D-C (ANAA2564) @0dpt, Red, 259mm WDS 114mm WDL 15mm HFOV, USAF Center
P00425 YY10DD VS-THV1-110S-LQL2 F10.5, 25mm tube V + UI-3200SE-M-GL @3ms + EL-16-40-TC-VIS-5D-C (ANAA2564) @0dpt, Red, 259mm WDS 114mm WDL 15mm HFOV, USAF Edge
P00426 YY10DD VS-THV1-110S-LQL2 F10.5, 25mm tube V + UI-3200SE-M-GL @3ms + EL-16-40-TC-VIS-5D-C (ANAA2564) @3dpt, Red, 250mm WDS 105mm WDL 16mm HFOV, USAF Center
P00427 YY10DD VS-THV1-110S-LQL2 F10.5, 25mm tube V + UI-3200SE-M-GL @3ms + EL-16-40-TC-VIS-5D-C (ANAA2564) @3dpt, Red, 250mm WDS 105mm WDL 16mm HFOV, USAF Edge