

# Calibration of an electro-optical system for the airborne remote sensing of the mine suspected areas

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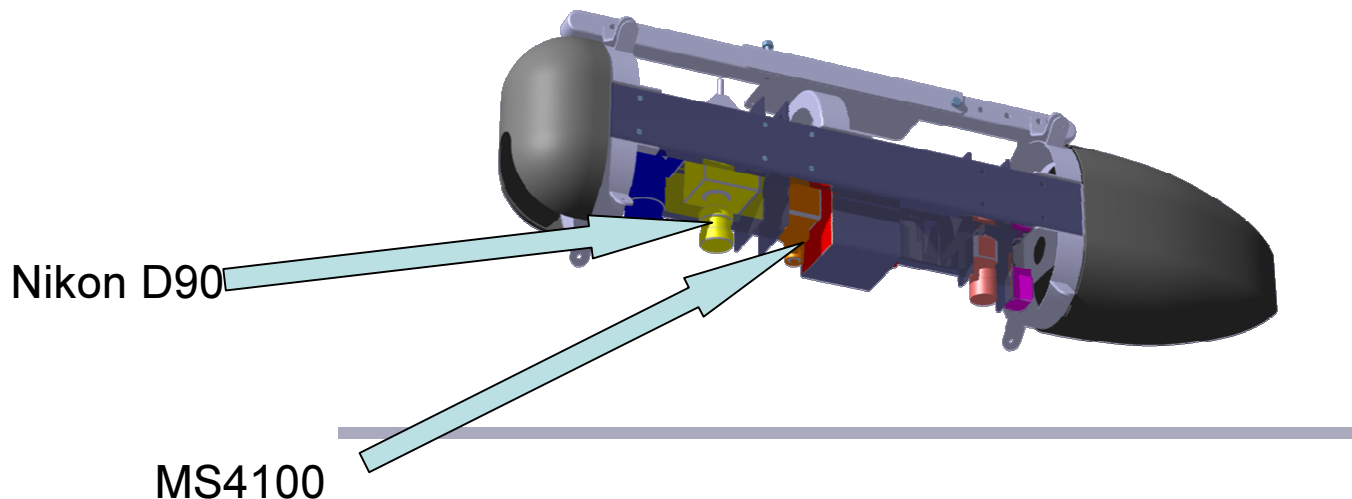
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# Introduction

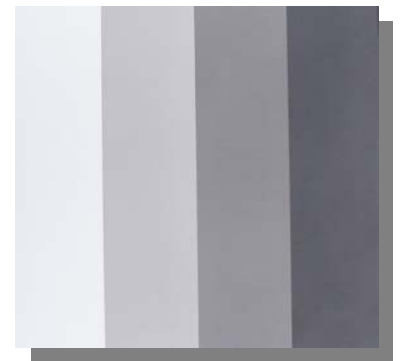
- The airborne multisensor images acquisition of the Advanced Intelligence Decision Support System (AIDSS) is in the intensive operational use:
  - Croatia
  - Bosnia and Herzegovina
  - ...



- The operational calibration of the most important features is mandatory
- Calibration of the spatial and radiometric parameters for visible and near infrared images of Nikon D90 and MS4100 was done
- Main contribution: operational calibration without any specially designed targets

# Calibration

- Calibration:
  - Modulation transfer function (MTF)
    - ISO 12233, slant-edge function
  - Radiometric properties
    - Spectralon Multi-Step Target

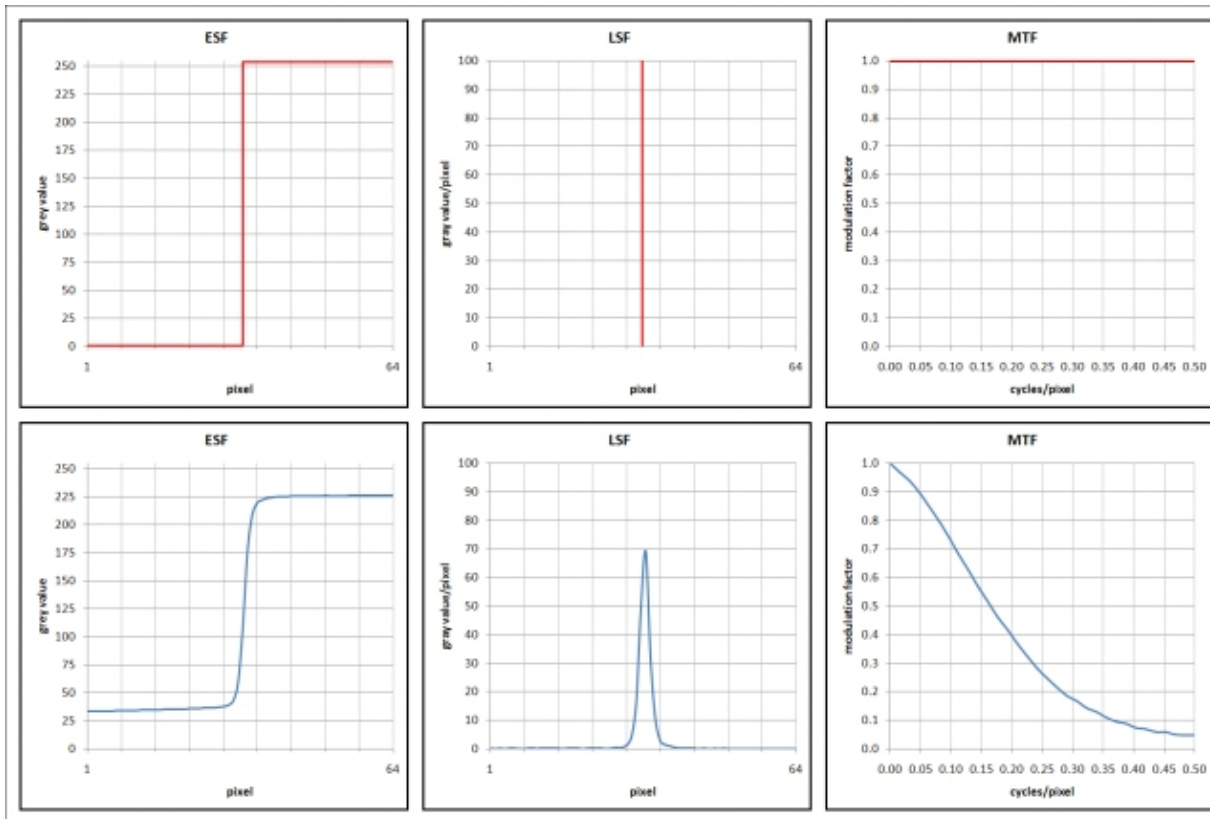


# Slanted Edge MTF

Edge Spread  
Function

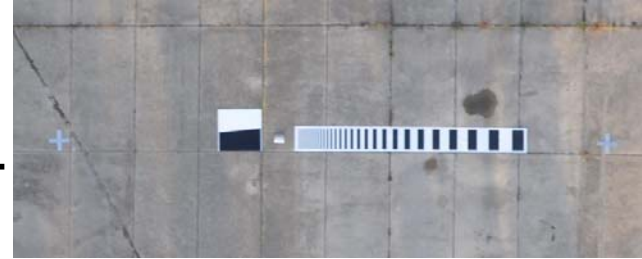
Line Spread  
Function

Modulation  
Transfer  
Function



# Different Conditions

- Controlled conditions;
  - on the airport; 100m, 200m, ..



- Operational use; on the field

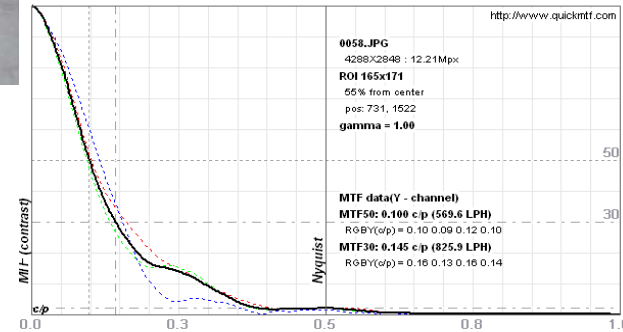
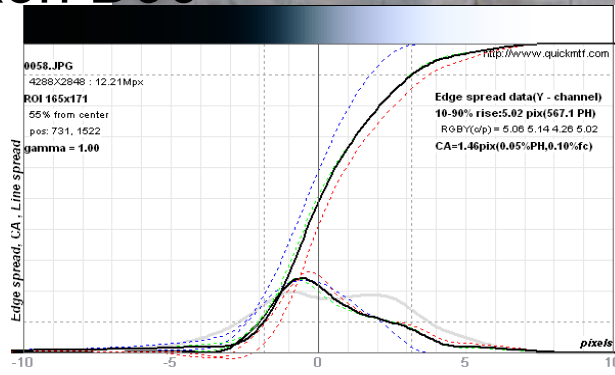
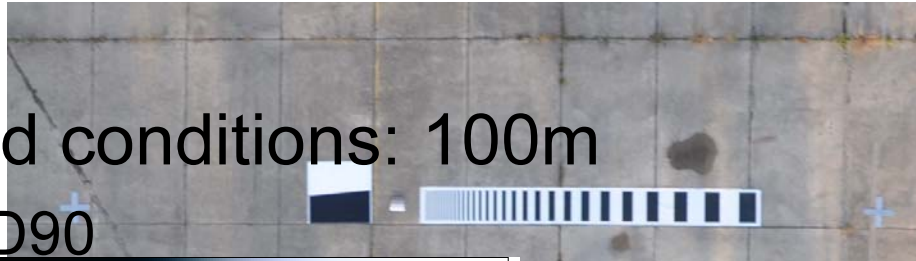


- Static conditions

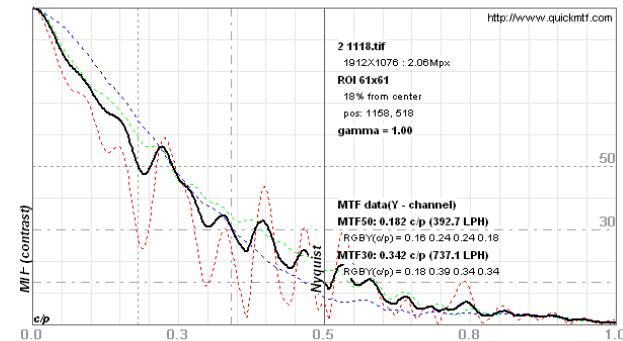
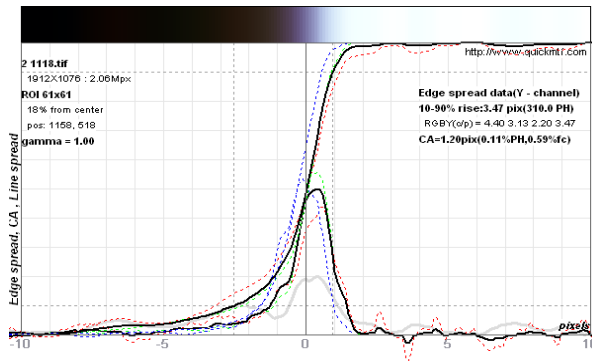


# Examples

- Controlled conditions: 100m
  - Nikon D90

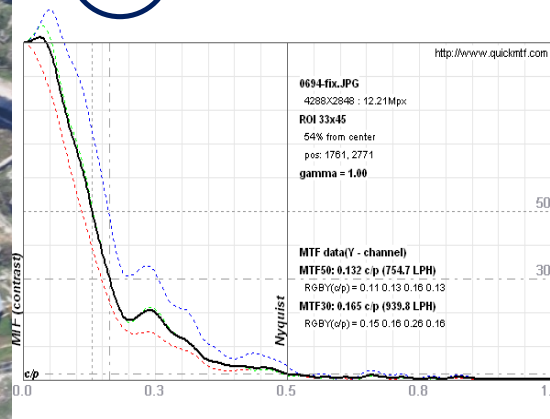
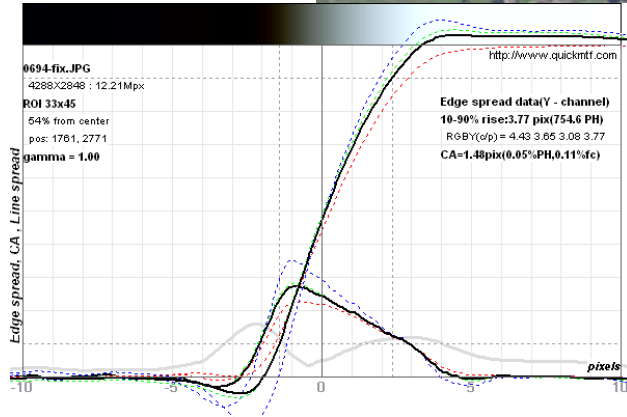
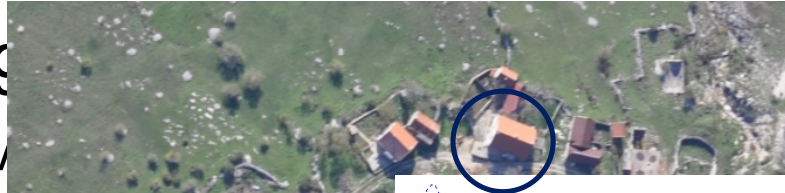


- MS 4100

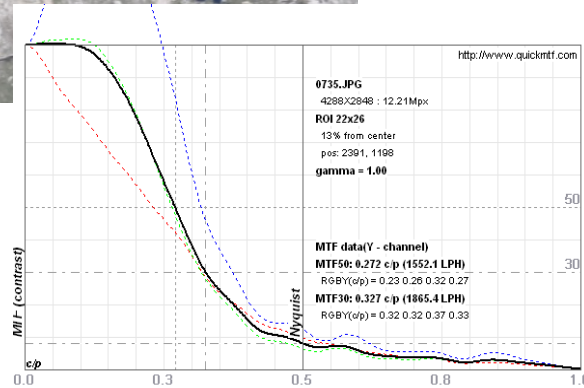
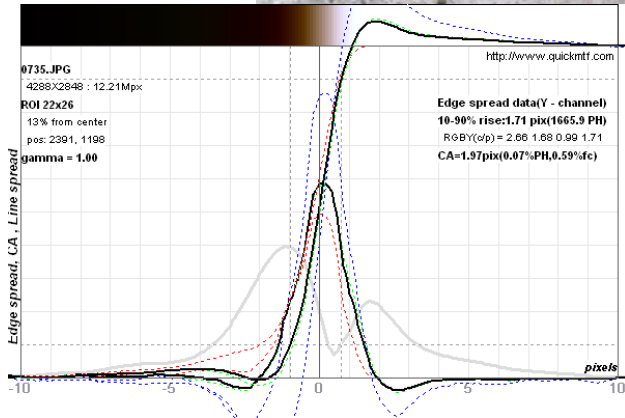
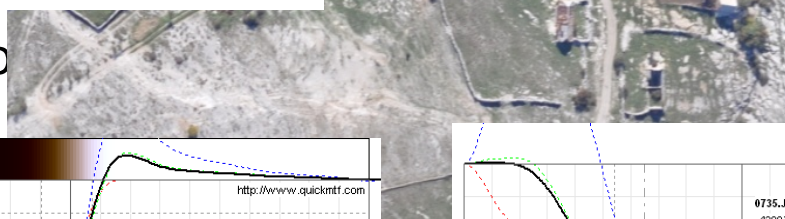


# Examples

- Nikon D 90
- Passive vibration

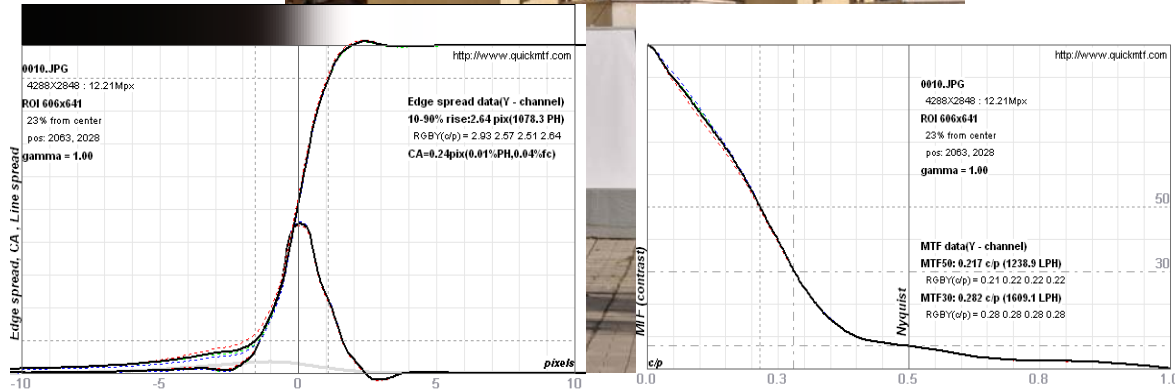


- Active vibration

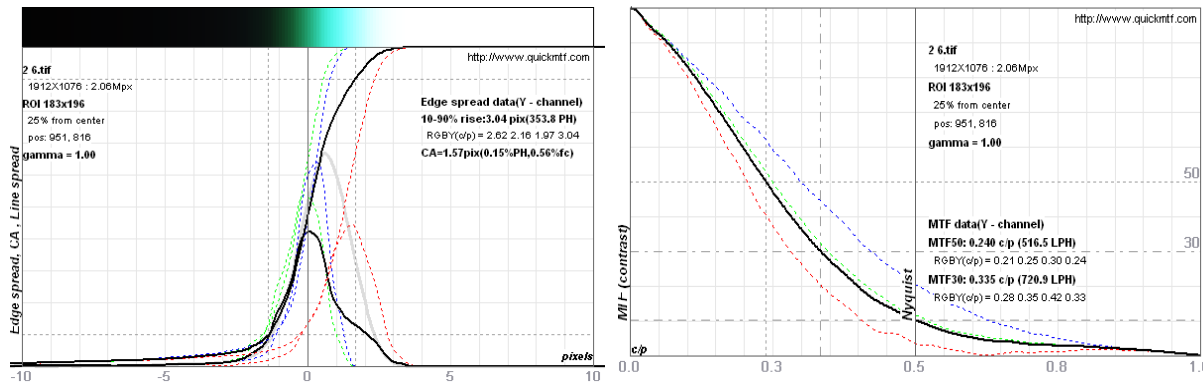


# Examples

- Nikon D 90

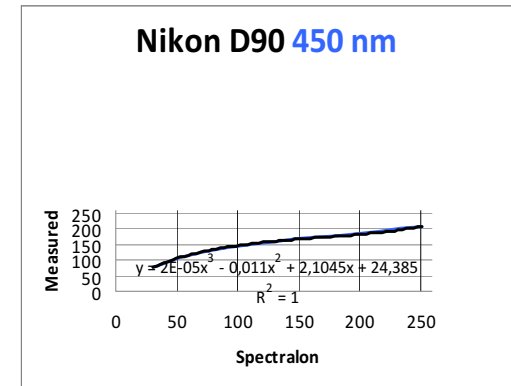
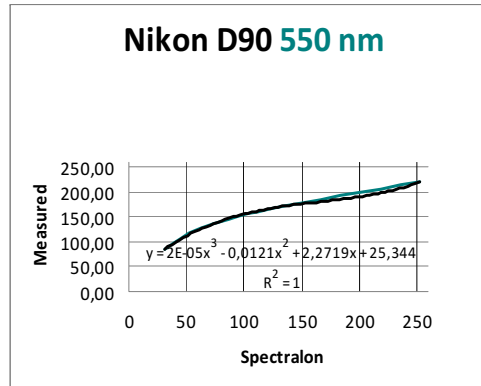
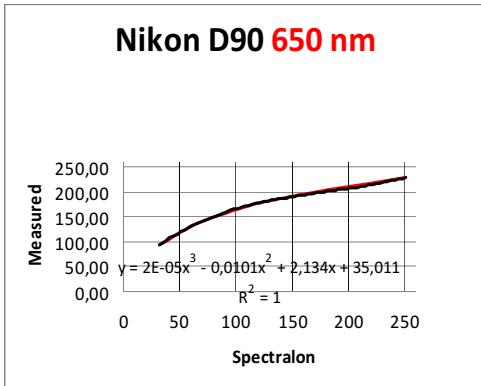


- MS 4100

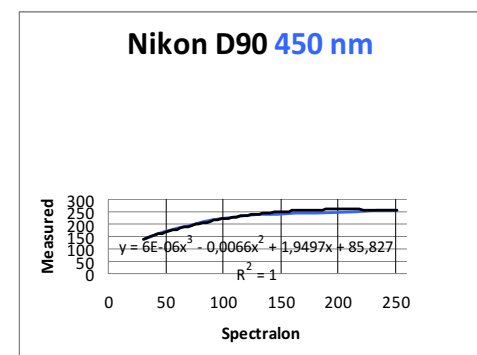
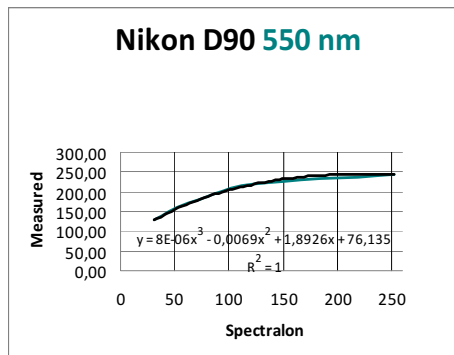
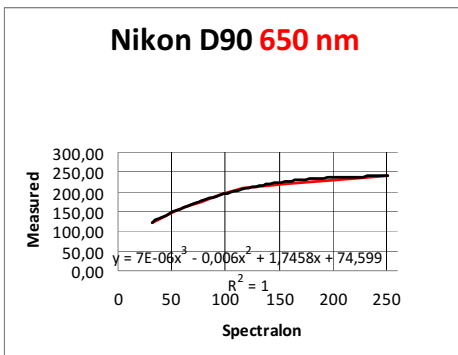


# Radiometry

- Nikon D90 static conditions

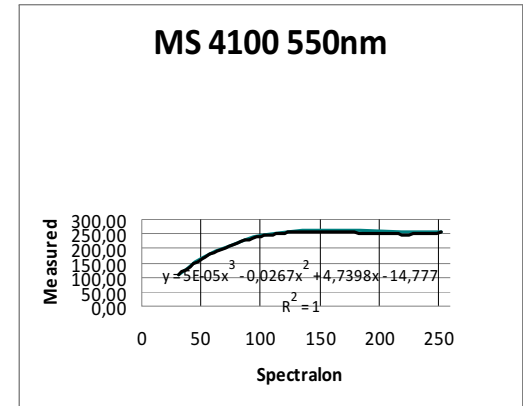
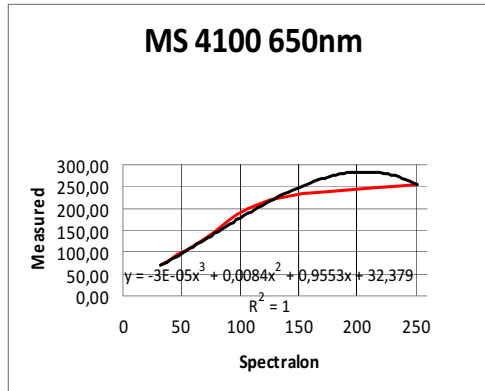
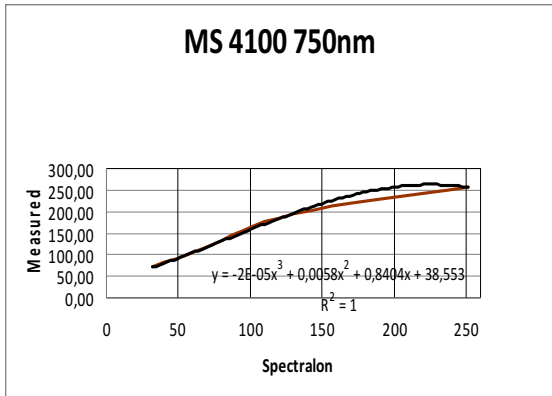


- Nikon D90 operational conditions

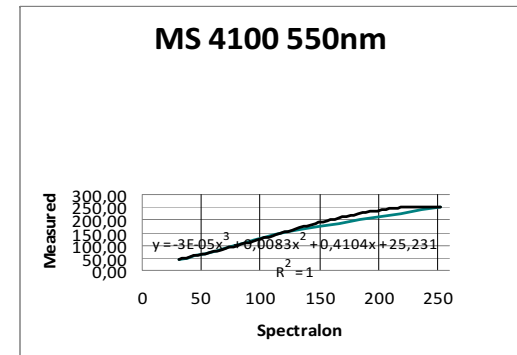
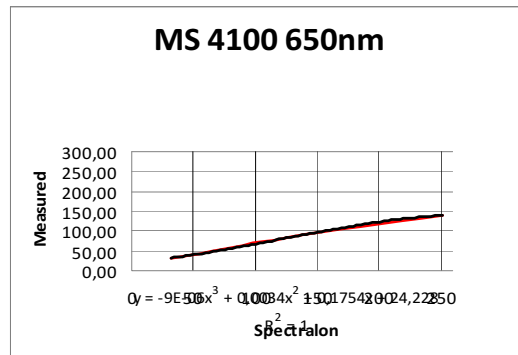
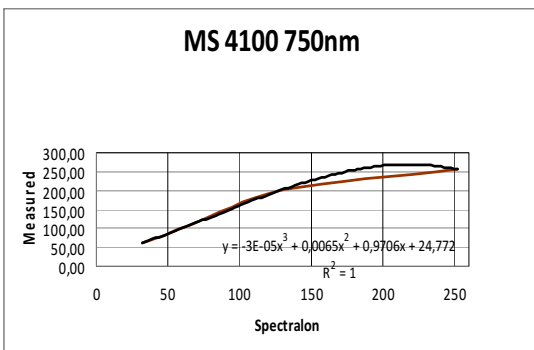


# Radiometry

- MS 4100 static conditions



- MS4100 operational conditions



# Conclusion

- Slant Edge MTF ideal for system calibration in operational use without any specially designed targets
- Usage of system vibration compensation proven
- Collect more data with every new mission

**Thanks!**