

On-ground calibration and performance verification campaign of the METImage instrument PFM

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ABSTRACT

METImage is a cross-purpose, medium resolution, multi-spectral optical imaging radiometer designed for meteorological applications as part of the Metop Second Generation (Metop-SG) mission. It is engineered to measure both the thermal radiance emitted by the Earth and the solar backscattered radiation across 20 spectral bands from 443 nm to 13.345 μm . The METImage proto-flight model (PFM) was successfully launched on 12th Aug 2025 onboard the Metop-SG A1 satellite.

This paper details the instrument's design and optical architecture, followed by a review of the on-ground optical calibration and performance verification (CPV) campaign of the PFM. Conducted under flight-representative thermal-vacuum conditions, the campaign characterizes the radiometric, spectral, geometric, and imaging performance of METImage using multiple specialized optical ground support equipments (OGSE). We discuss key methodologies employed during the measurements and present the primary results of the successful CPV campaign.

Keywords: METImage, imager, multi-spectral, calibration, verification, characterization

1. INTRODUCTION

The EUMETSAT Polar System – Second generation (EPS-SG) is a program for the next generation of operational global weather and climate observations. The Meteorological Operational Satellites – Second Generation (Metop-SG) mission constitutes the space segment of this program. The mission comprises three planned flight models for each of two distinct satellite types: MetOp-SGA carrying optical instruments and atmospheric sounders, and MetOp-SGB designed for microwave imaging and radar observations. The first flight model of satellite A was launched from the Guiana Space Centre in Kourou, French Guiana on 12th Aug 2025 local time; the launch of the first MetOp-SGB model is scheduled for October 2026. The satellites are intended to operate in tandem in a sun-synchronous, quasi-polar orbit at an altitude of 831km.

METImage is a multi-spectral imaging radiometer on satellite A that will support now-casting, numerical weather prediction, climate monitoring, land and sea surface temperature, and aerosol monitoring, among other applications. It features 20 different spectral channels ranging from 443nm to 13.345 μm and offers a spatial resolution on ground of 500m. This paper focuses on the on-ground verification, calibration, and characterization tests performed at the instrument level to meet various optical requirements. Those tests were conducted both to verify instrument requirements and to establish the relationship between the input radiance at the top of atmosphere and the output of the instrument electronic chain. For the sake of brevity, this paper focuses on an overview over the different tests conducted and keeps details on the evaluation of the data brief. Previous literature [1] and [2] provides detailed information regarding the instrument status prior to the CPV campaign. Furthermore [3] gives an overview over the in-orbit commissioning activities of the first METImage instrument.

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2. INSTRUMENT DESIGN AND OPTICAL ARCHITECTURE

This section summarizes the primary components of the METImage optical architecture. For a more comprehensive discussion, see (Pellegrini, 2021). The METImage instrument uses a whisk-broom scanner, employing a rotating in-beam scanning mirror to continuously cover adjoining swathes with a length of 2560 km. This rotation also enables the acquisition of two distinct calibration views every 1.7 seconds: a deep-space port and an ambient-temperature thermal blackbody. A third calibration view is available to observe a reflective diffuser illuminated by the sun at regular intervals. This is illustrated in Figure 1, together with key elements of the optical and signal chain. Because the rotation of the on-axis scan mirror induces image rotation at different scan angles along the swath, an additional derotator is employed to correct this effect. This derotator consists of five different mirrors to reduce polarization effects.

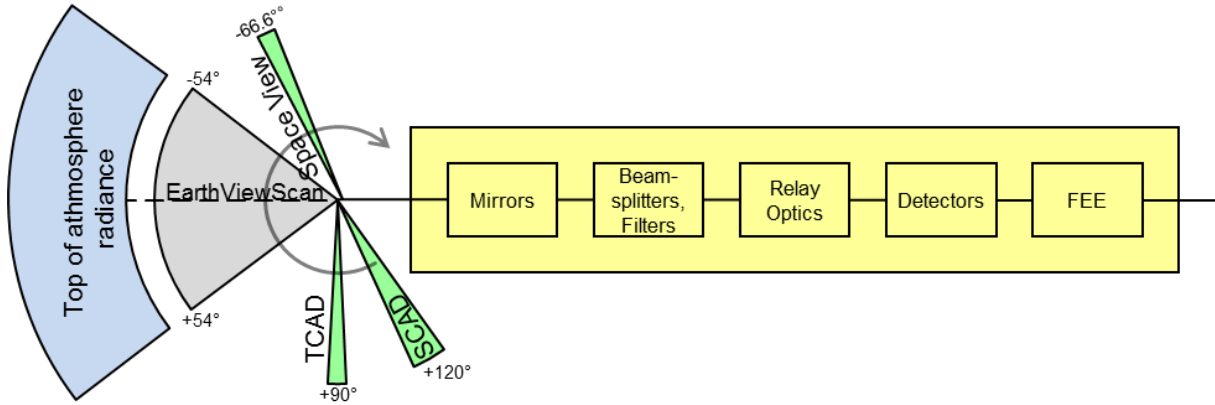


Figure 1: Overview over the METImage measurement principle with calibration views (TCAD: Thermal Calibration Device and SCAD: Solar Calibration Device) and elements of the further signal chain.

To detect electromagnetic radiation across 20 bands—spanning from high-energy visible light to thermal infrared—three distinct detectors are utilized: a visible detector (VNIR) covering bands $< 1 \mu\text{m}$, a short-to-mid-wavelength infrared (SMWIR) detector, and a long-to-very-long-wavelength infrared (LVWIR) detector. Incoming radiation is split into different optical paths via two successive beam splitters and is directed to the respective detectors. Both the SMWIR and LVWIR detectors are housed within a cryostat and are cooled below 60 K. Due to their differing detector technologies compared to the VNIR, these detectors feature a reduced pixel pitch, necessitating the use of a relay optics group for demagnification.

In front of each detector, a filter array divides the light into six to seven spectral regions (see Figure 2 b)). These regions are separated in the across-track direction; the movement of the scan mirror allows for the co-registration of measurements at different wavelengths by measuring each ground pixel successively with channels sensitive to different wavelengths, as shown in Figure 2 a). For example, two neighbouring spectral channels on the visible detector measure the same ground pixel with a temporal separation of exactly two frame times.

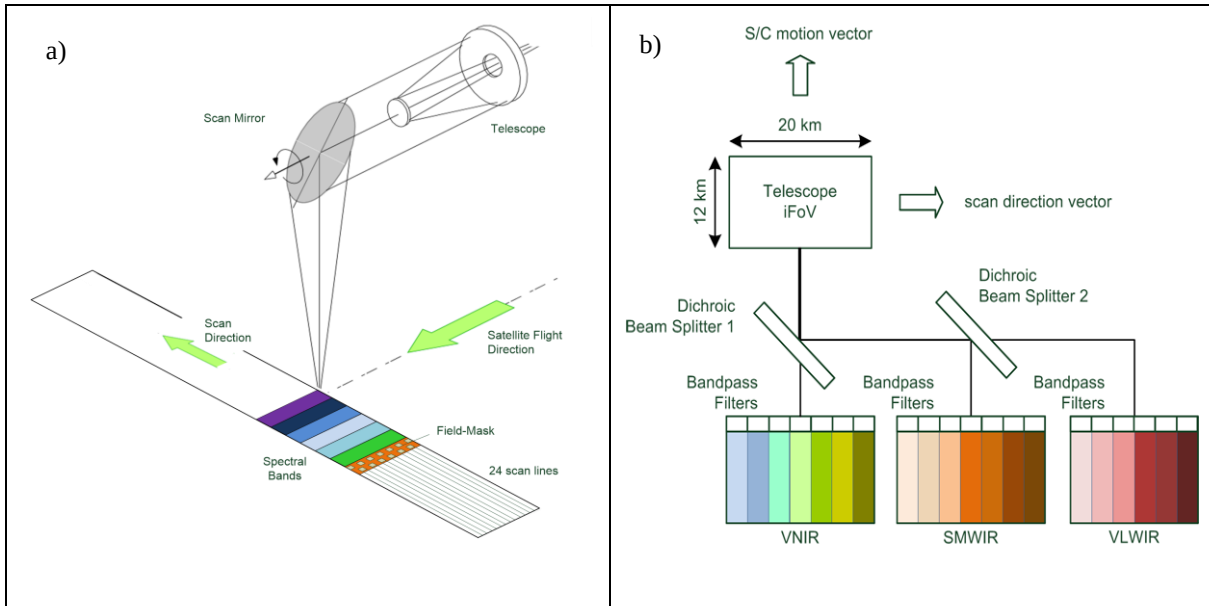


Figure 2: a) Sketch of the swath data taking of METimage. b) Illustration of the splitting of the incoming light onto three different detectors, each having its own set of spectral filters.

3. TESTING LOGIC AND FACILITIES

The instrument-level tests performed for the METimage PFM were conducted across distinct test campaigns. While some tests for the VNIR detector were performed under ambient conditions, all tests involving thermal detectors were conducted under thermal-vacuum (TV) conditions in the Centre Spatial de Liège (CSL) in Belgium. Table 1 gives an overview over the different tests that have been performed with the instrument and their respective campaign phases and places. Note that this table only covers verifications performed by direct testing using the full instrument. Additional to this, various unit and sub-system test campaign have already been conducted prior to these final tests.

Table 1: Overview over different verification and characterization measurements for the different detectors. The location for each test campaign is given in the table. FDH abbreviates here Airbus Defence and Space GmbH in Friedrichshafen, Germany and CSL is an abbreviation for Centre Spatial de Liège in Belgium.

	Visible	SWIR	MWIR	LVWIR
absolute LoS	Ambient, FDH			
MTF	Ambient, FDH	TV, CSL	TV, CSL	TV, CSL
COREG	Ambient, FDH	TV, CSL	TV, CSL	TV, CSL
end to end scanning				
Polarization	Ambient, FDH	TV, CSL	TV, CSL	TV, CSL
Spectral ISRF	Ambient, CSL		TV, CSL	TV, CSL

Radiometry calibration	TV, CSL	TV, CSL	TV, CSL	TV, CSL
Stray light	Ambient, CSL		TV, CSL	
Crosstalk in-field with 3x3 Px				
Stray light	Ambient, CSL			
Out Of Field ACT&ALT				
VNIR nonlin.	Ambient, CSL			

The following sections describe the key aspects of these tests and highlight a few specific test results. The scope of this paper focuses on covering the tests as they were performed. Consequently, detailed data analysis sequences are generally not covered. Depending on the specific test and detector, various corrections were applied to the data, including pixel substructure corrections (e.g., for noisy or de-selected subpixels), compensation for known optical ghosts, dark-reference pixel corrections, cross-talk mitigation, and non-linearity corrections.

4. TESTS IN AMBIENT CONDITIONS

The ambient tests for METImage fall into two main categories. First, prior the vacuum calibration campaign, ambient testing was conducted at the Airbus Defence and Space GmbH facilities in Friedrichshafen in an ISO 5 environment. Second, following the vacuum phase of the campaign, spectral response function testing, non-linearity, and visible stray-light tests were performed in the CSL cleanroom. Due to the ambient environment, the cryostat and IR detectors remained inactive during these phases.

The initial ambient campaign served as a risk mitigation step for the full testing chain, including control software usage, instrument operation, data handling, and result evaluation. Additionally, because the OGSE used for in-vacuum testing cannot cover the full spectral range, this phase allowed for necessary verification measurements for the coregistration (relative to the VNIR detector), polarization sensitivity, and MTF for the shortest wavelength channels. However, these tests are described in more detail in the vacuum part of the campaign and are therefore not covered here individually. The tests of the second ambient phase at CSL is summarized below.

Instrument Spectral Response Function (ISRF) determination

A critical component of the campaign was determining the exact wavelength-dependent response of the VNIR detector channels. The ISRF is an important delivery for our customers used in the creation of data products beyond L1. Furthermore, the ISRF verifies that the channels are sensitive within the specified spectral range and with the requested channel width to allow to measure a precise part of the spectral reflectance from the Earth. Lastly, these tests allow to assess if the broadband signal coming from outside of the designed band is sufficiently suppressed to avoid relevant signal contributions from unwanted sources.

To reconstruct the ISRF of each band, the OGSE uses light from a supercontinuum white-light fibre laser. A specific spectral portion of this laser is selected in a tuneable way via a grating-based bandpass filter and delivered through an integrating sphere and an off-axis parabola to the METImage entrance aperture. A portion of the light is additionally fed into an optical spectrum analyser to monitor wavelength and spectral shape of the optical stimulus for the instrument. A picture of the OGSE in front of the vacuum chamber at CSL is shown in Figure 3. There the optical path of the OGSE is covered with a light-tight black container and the laser is visible as a smaller box below.



Figure 3: The ISRF OGSE mounted in front of the 5m vacuum chamber. The larger black box in the centre of the vacuum chamber lid contains the filter, the integrating sphere and the off-axis parabola. The smaller black-grey box next to it indicated by a red arrow is the super-continuum laser. The alignment of the two boxes together is facilitated by a hexapod below the boxes (lower red arrow). Lastly, the optical spectrum analyser employed by this OGSE is shown to the right, also highlighted by a red arrow (picture courtesy of CSL).

While the resulting light of the OGSE is not spectrally narrow enough to resolve all features of the ISRF alone, the additional usage of the precisely measured spectrum of the OGSE allows to deconvolve the signal detected with METimage with the source spectrum to arrive at the instrument's ISRF. This procedure is illustrated in Figure 4, where a) shows the measured spectrum of the OGSE at 752nm.

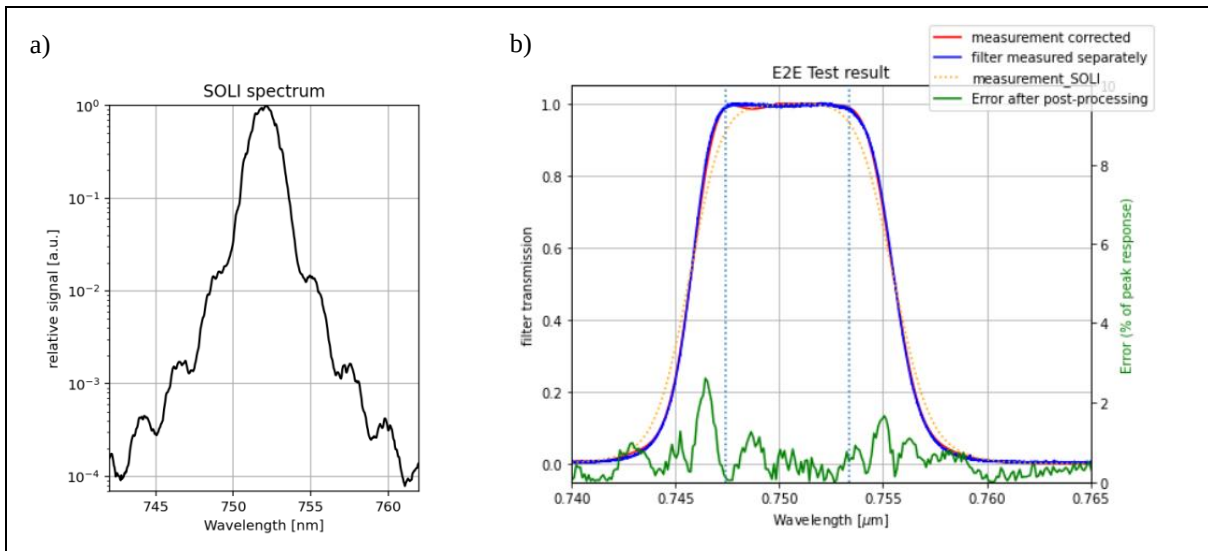


Figure 4: a) The spectrum of the ISRF OGSE at 752nm. b) The measurement of a known commissioning filter with the full reconstruction method. In blue, the filter transmission is shown, the yellow curve is the uncorrected OGSE measurement and in red the deconvoluted measurement is given with the error between the known transmission curve and the final OGSE result shown in green.

With light around this wavelength, an additional filter with known spectral transmission curve has been measured during the commissioning of this OGSE. This filter displays edges and changes in slope that are comparable to expected ISRF features and was therefore chosen for an end-to-end test of the OGSE with the final measurement and reconstruction

principle. Figure 4 b) shows the known spectral shape of the filter in blue, the measured OGSE filter curve in yellow and the reconstructed transmission curve in red. Additionally, the error between known and reconstructed curves is shown in green. In the steep flanks of the filter, higher deviations are permissible due to residual wavelength inaccuracies; however, across the rest of the spectrum, the reconstruction error is typically below 1%. There are additionally error sources related to the complex interplays between the ISRF shape, the measured OGSE light spectrum (and its accuracy and change over each band) and the sampling size of the measurement. Based on this first measurement and the predicted ISRF shapes from subsystem measurements, this measurement method was optimized for each channel to provide a precise measurement of the ISRF within the allowed accuracy limits. In the end, each channel could be measured with a residual ISRF magnitude error of below 2%.

Straylight and Cross-Talk

Straylight testing utilized another specialized OGSE called OSLO, which employs six LEDs within an integrating sphere to illuminate an optical target plate. This plate is positioned at the focus of an off-axis parabola, allowing METimage to image various structured light patterns. The setup of this OGSE at CSL was specifically optimized to minimize external straylight and internal scattering. Furthermore, it was ensured that the LEDs run very stably. The OGSE installed in front of the vacuum chamber at CSL is shown in Figure 5.

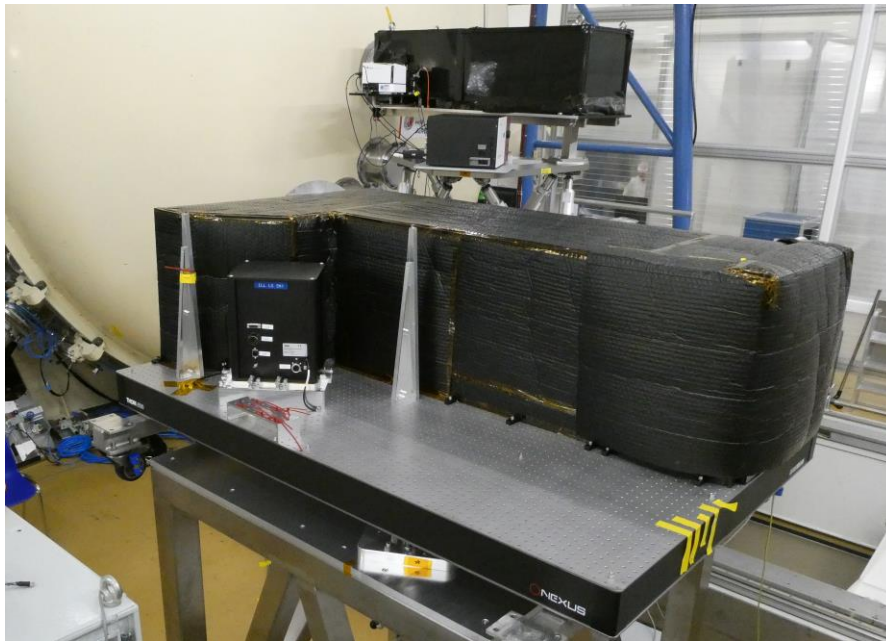


Figure 5: The OSLO OGSE can be seen in the foreground of this picture (in the back, there is still the ISRF OGSE mounted in front of the CSL vacuum chamber). This picture showcases especially the light-tight black enclosure of the full OGSE to prevent any straylight from unknown sources entering the optical path. The OSLO is mounted on an optical baseplate that can be moved on the hexapod of the ISRF OGSE for the final alignment in front of the vacuum chamber.

To meet METimage requirements, the straylight test must cover a field of view (FoV) of approximately $3.5^\circ \times 3.5^\circ$, significantly larger than the VNIR instantaneous FoV ($\sim 0.8^\circ \times 0.65^\circ$). This extended range was achieved for this test by combining scan mirror movement (across track) with instrument rotation (along track) on its mounting mechanical ground support equipment.

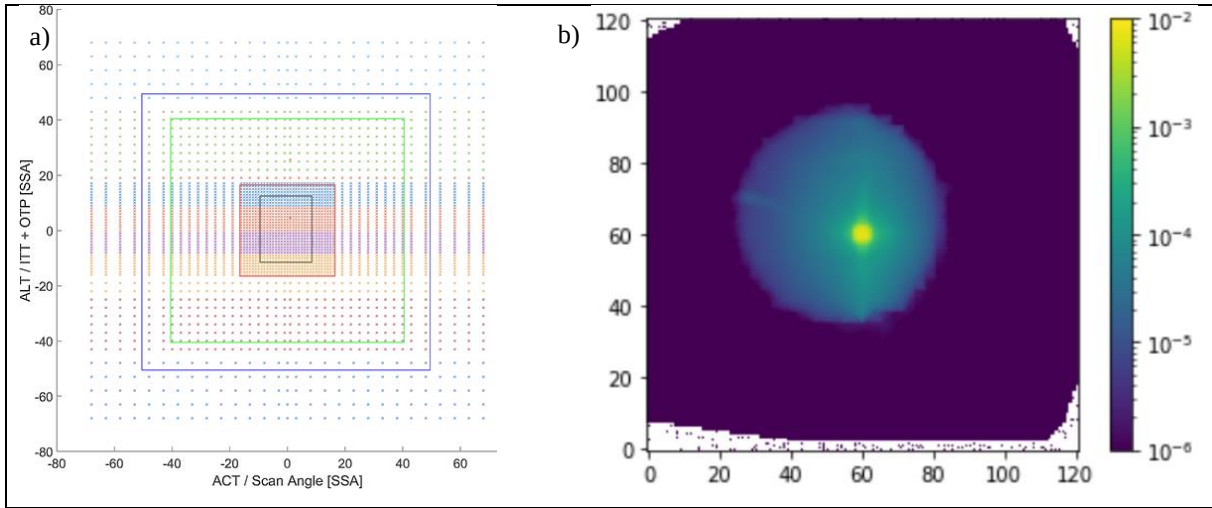


Figure 6: a) Shows the distribution of individual measurement points for the straylight tests. The central black square indicates the size of the instantaneous field-of-view of the full VNIR detector, whereas the other squares denote regions in that the testing sampling changes density. b) A fully reconstructed straylight kernel for an individual pixel.

By adapting the sampling density—using denser sampling in regions where the straylight kernel exhibited more features—the reasonable total measurement times could be maintained despite significantly increased integration times. The actual sampling density over the field-of-view can be seen in Figure 6 a). Furthermore, the light level per measurement was chosen to be 3 pixels x 3 pixels instead of a single pixel to increase the signal levels in order to further decrease the necessary integration times.

With this, the straylight kernels for all pixels in the VNIR detector were successfully determined and—with additional measurements—later validated. Practically, the stray light outside the field stop within the METImage telescope becomes negligible. This becomes apparent in Figure 6 b), where the field stop shows as a blue circle above, with the (decentred) bright spot representing the actual position of the specific illuminated pixel in the kernel. Generally, for a separately measured larger scene, the kernels allowed a reduction of the straylight in all channels by a factor of seven.

While straylight results in a part of an optical light stimulus arriving outside of the intended target pixels, there are additionally electronic cross-talk effects between different pixels to be considered. They stem from unwanted coupling during the sequential readout of the individual pixels in a single video chain. To characterize this effect, the central data from the non-saturated straylight measurements (where the 3x3 pixel target covers only part of the VNIR detector itself) is used. Together with the known readout sequence, it allows to analyse the influence of the signal of any illuminated pixel on subsequent pixels in the readout. The results from this test generated important key data to correct the measured data by reversing the cross-talk effects algorithmically.

Non-linearity

In sub-system tests with the thermal SMWIR and LVWIR detectors, it was demonstrated that they show a very good linearity. Hence, the characterization of the non-linearity of the response function of METImage on instrument level could be limited to the VNIR detector. The non-linearity of this detector is furthermore expected to evolve during the instrument lifetime, particularly due to radiation damages. Therefore, a regular re-calibration in orbit is foreseen. While METImage can use the sun as a calibration light source via the diffuser, the constant solar radiance means signal variations can only be achieved by adjusting the integration time. This is in contrast to nominal operation in science mode in space, where the integration remains constant and the non-linearity is caused only by differences in the measured flux. Therefore, on-ground tests were conducted to prove the flux-time equivalence of the non-linearity. However, these tests failed to do so when the integration time exceeded the single nominal design frame time of the detector. Consequently, both flux-variation and time-variation data (under orbit-like conditions) were recorded during the on-ground testing. From the differences between the two a flux-time correction curve could be established, which then can be applied to in-orbit calibration measurements to obtain a flux linearity curve, and update the corresponding non-linearity correction polynomial for the normal in-orbit operation.

While the OGSEs for this measurement lack an absolute reference output which could deliver linear reference values independent of the integration time and emitted flux, the flux-time correspondence in the first frame time of the detector can be used to compare light levels for settings when the OGSE light is reduced to cover also longer integration time representative of the in-orbit situation. The curve in Figure 7 shows the final relative flux-equivalent linearity deviation for pixel 0 in the long wave visible channel. The area with a white background indicated the relevant signal range for the fitting polynomial.

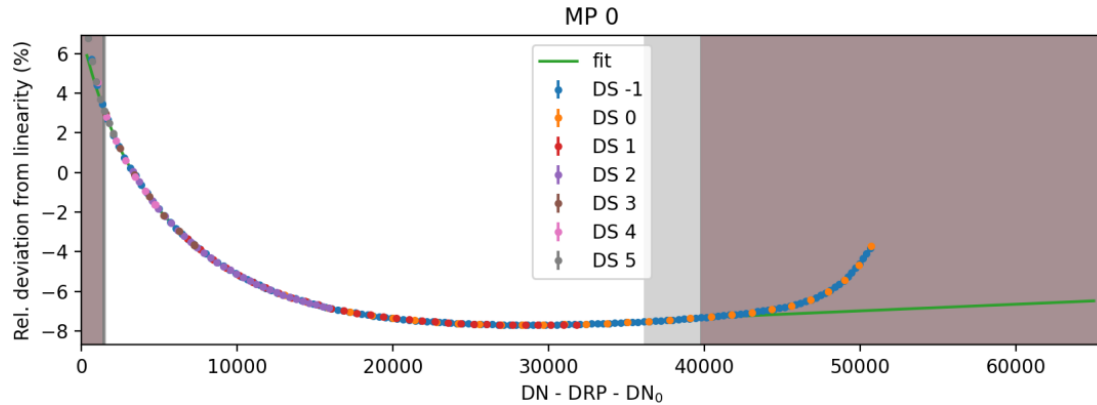


Figure 7: The non-linearity measurement and polynomial fit data for one pixel at the edge of the visible detector. The white region shows the relevant range for non-linearity correction.

5. VACUUM TEST

Vacuum tests were conducted at CSL in Liège using a 5m diameter vacuum chamber equipped with a thermal tent to simulate a representative thermal environment.



Figure 8: The instrument mounted on the turning table inside the thermal tent inside the vacuum chamber at CSL.

The instrument was mounted on a turning table to allow for orientation changes, enabling testing with optical stimuli from various directions. Three different illumination options existed in the vacuum chamber and the thermal tent, all of which could be closed with a shutter if necessary. From the front of the instrument (which can be viewed in Figure 8), there was a ZnSe window allowing broadband illumination from visible light (except for the smallest wavelength channel) to thermal

radiation at $13.345\mu\text{m}$. Additionally, two ports at the side (IR-enhanced fused silica) allowed to illuminate the METImage internal diffuser on one side and to illuminate an additional OGSE diffuser in the Earthview of the instrument, in order to characterize the ratio between the views for in-orbit calibration.

Inside the vacuum chamber, there were additionally two black bodies, one a performance black body with a very high emissivity as a thermal light source and the other one a black body that is cooled to $< 90\text{K}$ to serve for many of the thermal tests as a “deep-space-view” reference.

Another OGSE, COLA (Calibration & Characterization OGSE Collimation Assembly), was used for all other tests in this section besides the radiometric tests. It consists of an optical target plate with various patterns that is located in the focus of an off-axis parabola mirror. As an illumination source, three different options are available: A black body, a QTH lamp attached to an integrating sphere and a set of quantum cascade lasers (QCLs) that can feed into the same sphere. The sphere is coated with gold, allowing good sphere multipliers for all channels but the two visible channels with the lowest wavelengths. This integrating sphere contains additionally an InGaAs and an MCT detectors to get a reference of the signal strength incident on the instrument. Lastly, the OGSE has optional solar and thermal polarizers that can be mounted for polarization checks. A picture of the OGSE mounted in front of the vacuum chamber at CSL is shown in Figure 9.

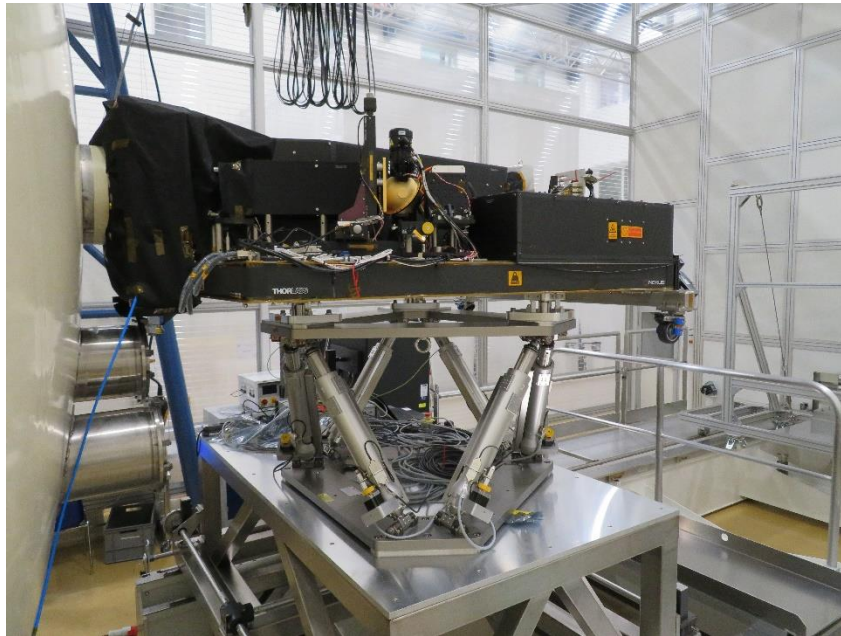


Figure 9: The COLA OGSE mounted in front of the vacuum chamber at CSL. The baseplate of the OGSE is mounted on a hexapod for the final alignment. In the middle of the OGSE the golden integrating sphere can be seen with part of the mechanism for the optical target plates just left of the sphere. The rest of the optical path and the QCLs are covered by black enclosures.

Radiometric tests

To measure the radiometric noise of METImage, both the solar and the thermal channels used their own OGSE. For the thermal channels, the above-described black bodies were used. The bright black body was set to different temperatures allowing radiometric tests with different incoming spectral radiances, while the deep-space-view black body allowed to correct for any (drifting) offsets of the measurements.

For the solar channels, a sun-simulator OGSE was used that combines four Xe light sources and used an off-axis parabola to bring the resulting broad-band light spectrum towards the instrument. As the instrument has in-orbit the additional calibration view of a diffuser towards the sun, the main purpose of the on-ground calibration was to find the differential transmission between the earth view port and the path via the sun diffuser and the solar calibration view. For this purpose, the sun-simulator illuminated for one set of measurements the sun port of METImage (assuming different solar angles) and for one set of measurements an additional OGSE diffuser in front of the Earth view. For both positions, additional

nitrogen purging was employed in the optical path outside of the vacuum chamber to limit any water vapour absorption in the shortwave infrared solar bands.

With this measurement as a calibration key data, future measurements of the sun in orbit can be directly used to rescale any measurement in the Earth view to realistic radiometric units. Further information on the radiometric performance of METImage in-orbit is given in [3].

Co-registration checks

Since the COLA contains with the QTH and the black body two broadband light sources whose signal spans two different detectors, separate scanning measurements with these illumination sources were combined to check the spatial co-registration of ground pixels onto the different instrument channels and detectors. For this purpose, a structured target was used for the COLA that has 14 different target squares (corresponding to 2x2px on the METi detectors). A resulting picture from METImage's measurement of this target is shown in Figure 10. The instrument was operated in full scanning mode and the result of the measurements of the individual spectral channels was evaluated by using a centre-of-mass algorithm to find the different target square coordinates.

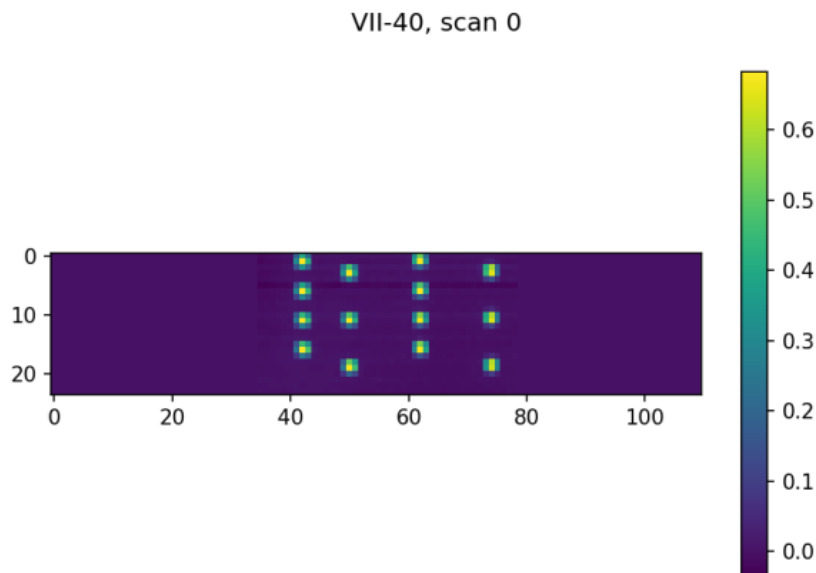


Figure 10: The coregistration pattern as it was measured during the campaign for one individual spectral channel. The horizontal axis of the pictures gives across-track coordinates in pixels and the vertical axis indicates along-track coordinates. The same pattern on a neighbouring channel of the VNIR detector would be shifted for an ideal co-registration by exactly 2 pixels along the horizontal axis.

The measured offsets of the measured coordinates per target square were compared between different channels with the expected offsets, i.e., two pixels offset for neighbouring visible channels across-track and zero pixel offset along-track. Furthermore, the alignment between the channels on different detectors could be compared: The QTH lamp gives significant signal on the visible and the SMWIR detector and the black body at a temperature of 350K covers both the SMWIR and the LVWIR detectors. Lastly, the measurement results from the ambient campaign for the channels with the lowest wavelengths had to be considered. For a full check of the co-registration, additional ground-to-orbit effects (like ground track motion or vibrations) had to be added to the analysis.

With the final analysis, a good co-registration was confirmed for all spectral channels fully within the requirement.

Modulation transfer function (MTF)

The modulation transfer functions of the different channels were determined by using a knife edge target of the COLA and stepping it over the instrument field of view, either by moving the OTP (along-track MTF) or by stepping the scan mirror over the target (across-track MTF). As a result of this measurement, we obtained the edge spread function from which the

MTF can be derived by first differentiating to get the line spread function and then calculating the Fourier transform of the result. Like for the co-registration, also this test had to be done twice for each direction using different light sources (QTH lamp for VNIR and part of SMWIR, and black body for part of SMWIR and LVWIR). Furthermore, the testing has been repeated for different scan and derotator angles to fully analyse the relevant measurement combinations along different swathes in-orbit.

The result for 24 pixels of channel 20B is shown representatively in Figure 11. The picture shows first the edge spread function in a), then the line spread function in b) and finally the derived MTF in c). For all channels and pixels, the resulting MTFs are compliant, both in its height for lower frequencies as well as in the suppression of signal for higher frequencies (anti-aliasing).

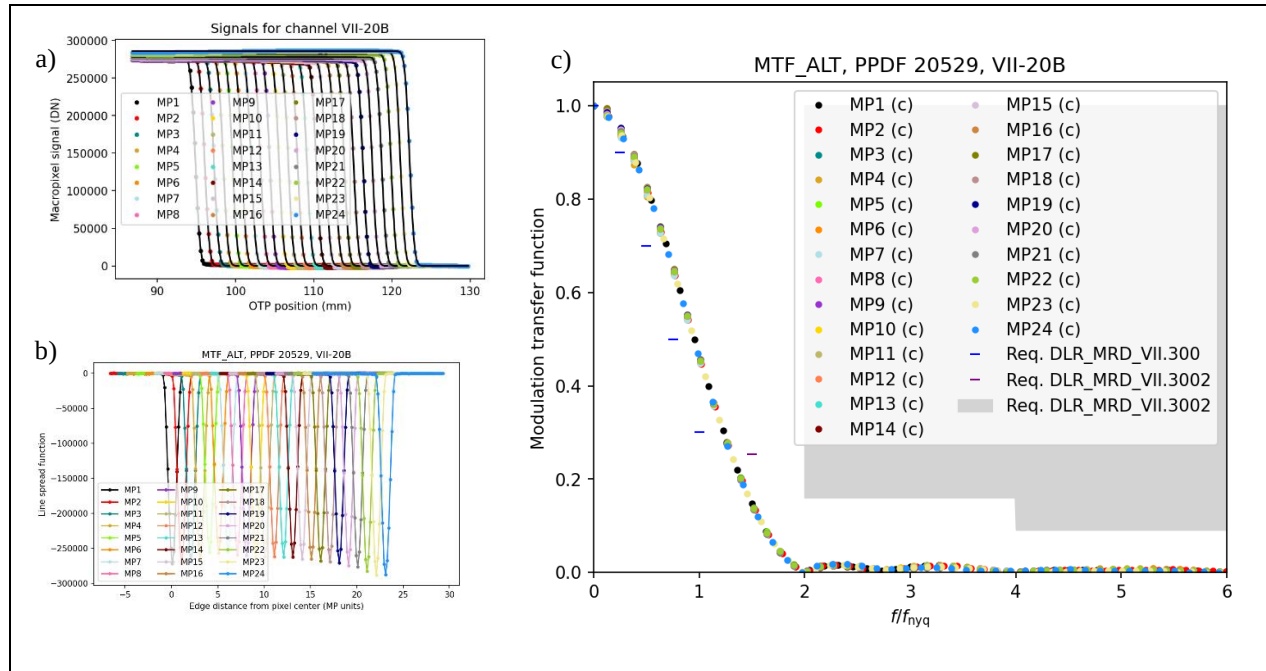


Figure 11: Results of the MTF measurement ALT for a channel on the edge of the VNIR detector. a) The edge spread function. b) The line spread function. c) The MTF including the requirement values for the MTF and the anti-aliasing.

For the visible channels, this test has also been done in the ambient campaign part at CSL where especially the measurements for the two channels with the lowest wavelengths were important, as these could not be measured again due to the cut-off of the gold coating in the integrating sphere.

Thermal ISRF

The instrument spectral response function of the thermal channels of METimage was measured using the quantum cascade lasers of the COLA. Ideally, the light source would be placed in vacuum to prevent an impact of water vapour absorption on the measurement. However, for the affected channels, the approach chosen for METimage was to combine the measurement subject to water vapour absorption together with the subsystem measurements influencing the ISRF. This allowed to use the measurement as a general guide to identify the rising and falling flanks of the signal, whereas the detailed shape was retrieved from additional measurements and analyses. Note that for channels with significant water absorption, the resulting ISRF still has a higher uncertainty than in other channels where it was directly measured.

To allow for a background and drift correction, the QCL signal was chopped at 619 Hz, creating both a modulated signal on the MCT detector measuring the input signal, and on the METimage instrument. The separate spectral calibration of the MCT detector [4] allowed to measure the instrument response as the demodulated instrument signal divided by the demodulated and spectrally corrected MCT signal.

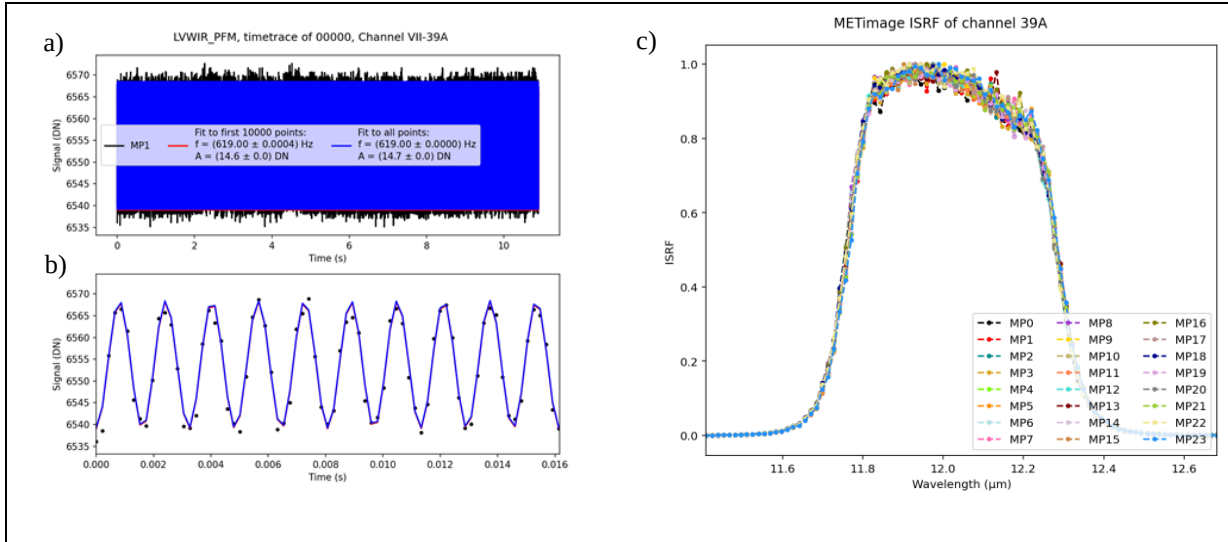


Figure 12: Reconstruction of the ISRF with the modulated signal. a) Time trace for an instrument measurement. b) Zoom-in for the time trace. c) Reconstructed ISRF for one channel.

In Figure 12 there is the time trace of instrument data shown in a) with a zoom in b). The chopping frequency of 619Hz is indicated by the blue sinusoidal curve is well sampled by the METImage frame time (black dots). The full demodulated ISRF of this channel is shown in Figure 12 c) for 24 macro pixels of this channel. Note that the distribution on top of the band still looks broad. This stems from the number of pixels and from residual etaloning on the cryostat window, which was later reduced with additional averaging over different wavelength sampling points.

The result of the ISRF measurements with the QCLs yielded the spectral calibration data of the METImage instrument and verified the spectral shape of the bands and the suppression of the out of band signal.

Polarization sensitivity

A last important test concerned the polarization sensitivity of the instrument. As the detectors are not meant to discern between different polarizations, the measurements of the radiance in the different channels were tested to be mostly insensitive to the polarization state of the light for all channels and measurement positions along the swath. In order to test this, the COLA was equipped with a polarizer (different polarizers were used to cover different wavelength ranges) that can be automatically rotated. For a sequence turning the polarizer in regular steps the corresponding instrument response was recorded in each measurement.

Figure 13 shows an example of the resulting curves for 24 pixels in a channel around 865nm (a)) and around 12 μm (b)). The signal is given relative to the mean signal and the corresponding degree of polarization sensitivity is written on top of each plot. For the visible channels, this test has also been done in the ambient campaign part at CSL where especially the measurements for the two channels with the lowest wavelengths were important, as these could not be measured again due to the cut-off of the gold coating in the integrating sphere.

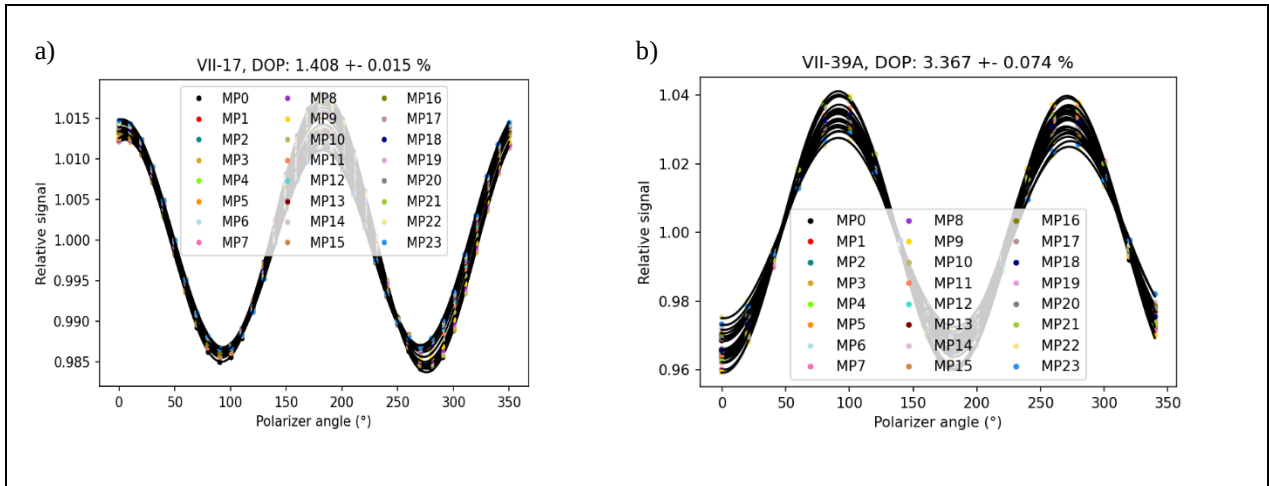


Figure 13: Polarization sensitivity curves for a VNIR channel (a)) and for an LVWIR channel (b)).

Additional measurements that were done on ground include checks of the line of sight of the different detectors, the clearance of the scanning baffle, the dark noise and the image wobble due to the derotator rotation. Generally, from these measurements no key calibration data for in-orbit operation of the PFM were extracted. The measurements of the image wobble and the dark noise are repeated in-orbit and additional information on them is given in [3].

6. CONCLUSION

All planned tests for the METImage instrument were successfully completed, resulting in a full characterization of the instrument. Following the successful campaign and subsequent review of the results with DLR and EUMETSAT, the instrument was formally handed over to DLR and the end customers.

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