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Flat-field reference files for observations through NIRSpec's fixed slits

ABSTRACT

This report describes the approach to remove from observations through NIRSpec's fixed slits the artefacts caused by variations in the pixel-to-pixel sensitivity of the detectors and by changes in the instrument response in the optical path (i.e. the flat-field correction). We present the flat-field reference files to be used in the data reduction pipeline for this purpose and describe how they were obtained from data collected during the second NIRSpec ground calibration campaign in 2013.

1 INTRODUCTION

The calibration and pipeline concepts for NIRSpec are described, at increasing level of detail, in De Marchi, Böker & Falcon Barroso (2008), De Marchi et al. (2008), and Beck (2009). A crucial step in the calibration process of scientific data is flat-fielding, i.e. the removal of the artefacts introduced by variations in the pixel-to-pixel sensitivity of the detectors and by distortions in the optical path. Generally, these effects vary with wavelength and with field angle, albeit slowly. The purpose of the flat-fielding calibration is to limit the impact of these effects, considering that in the case of NIRSpec the allocation for flat-fielding uncertainties in the radiometric calibration error budget is 3.2% (Ferruit 2005).

In principle, one could correct separately for these effects, since the variations in the pixel-to-pixel sensitivity are independent of any throughput variations introduced by distortions or non-uniformities along the optical path (such as, for instance, the blaze function of the gratings). In practice, however, in the case of observations through NIRSpec's fixed slits (FS) it is convenient to derive a combined correction for these effects. This is because, for a given spectrographic configuration or observing mode (i.e. a combination of filter and dispersing element), a given pixel in the detector area illuminated by the FS is normally hit by radiation at the same or similar wavelength. Small wavelength variations are introduced by the limited repositioning repeatability of the grating wheel assembly (GWA; see De Marchi 2012; Alves de Oliveira & De Marchi 2013), but the quantum efficiency of the pixels is insensitive to such small variations. Therefore, it is possible and advisable to build flat-field reference files by combining multiple exposures of the same calibration source obtained in the same configuration.

Furthermore, in the specific case of the detectors present on NIRSpec at the time of the second ground calibration campaign (Focal Plane Array 104), there is an additional and perhaps more compelling reason in favour of a combined correction of pixel-to-pixel detector variations and optical path distortions. The currently available pixel-to-pixel sensitivity information is based on a series of monochromatic flat-field exposures acquired in 2010 April at the Detectors Characterization Laboratory at NASA's Goddard Space Flight Centre. Unfortunately, the response of the pixels has changed significantly over time due to the deterioration of the detectors and the available monochromatic flat-field observations can no longer be used to correct for pixel-to-pixel variations. We do not expect this problem to happen with the Focal Plane Array 106, to be installed on NIRSpec at the end of 2014, but nonetheless for the FS we have followed a method that is robust with respect to this type of change.

Having established to proceed to a combined removal of the artefacts due to unevenness in the pixel response and of those caused by optical throughput variations across the field of view, we have constructed flat-field reference files by selecting and suitably combining a series of exposures collected during the second NIRSpec ground calibration campaign, conducted in 2013 January and February (Gnata & Candeias 2013). The observations are described in Section 2, whereas the specific steps to combine them and derive the reference files are discussed in Section 3. In Section 4 we present the reference files and illustrate their format. Some applications are shown in Section 5.

2 OBSERVATIONS

The measurements described in this report were acquired during the second NIRSpec ground calibration campaign (hereafter Cycle 2a), conducted by ESA and Airbus at the Industrieanlagen-Betriebgesellschaft (IABG) facility in Ottobrunn, Germany (Gnata & Candeias 2013). A high-level description of the optical ground support equipment (OGSE) used for these tests is contained in Birkmann (2011a). For the observations described here, the most relevant components inside the main chamber is the Calibration Light Source (CLS) with its integrating sphere, providing uniform illumination across the NIRSpec's field of view using continuum and line sources over the spectral range 0.6 – 5.0 μm. Only the observations of continuum sources are considered here. Furthermore, observations with the Calibration Assembly (CAA) internal to NIRSpec were also used, also through continuum sources in the 0.6 – 5.0 μm wavelength range.

During Cycle 2a, the main combined calibration activity for flat-fielding and wavelength calibration of multi-object spectroscopy consists of 41 series of observations of various internal and external light sources. In each series of observations, the micro shutter array (MSA) is configured to be all closed, except for a fully open column of shutters (at times only partly open), to mimic a "long-slit" configuration. The location of this long-slit varies from series to series, in order to provide a uniform, albeit sparse, coverage of the entire field of view. Each unit cycles through all seven dispersing GWA elements and for each dispersing element the series include exposures for wavelength calibration and "spectral flat-field", using the appropriate lamps in both the internal (CAA) and external (CLS) calibration sources. The main goal of this test, called `MOS-COMBO`, is to derive the spectral flat-field data cube, which contains the response of every pixel to every wavelength. As a side benefit, these exposures also allow the corresponding calibrations of the slit modes because the FS are always illuminated, regardless of the MSA configuration. However, because some of the spectra of the wider slits (particularly S1600_A) might saturate in full frame exposures, there is a dedicated calibration sequence for the slit modes (SLIT-COMBO) using smaller subarrays.

Table 1 provides a list of the exposure identification (NID) and NIRSpec and OGSE parameters for the MOS-COMBO and SLIT-COMBO observations relevant to the analysis that follows. The brightness of the continuum lamps deliver typical rates of ~300 count s^{-1} in high-resolution mode (G140H, G235H and G395H), ~500 count s^{-1} in medium resolution (G140M, G235M, G395M), and 1000 count s^{-1} in low resolution (PRISM). All rates are given at the peak of the spectrum in slit S200_A1. Note that longwards of ~3 µm any observations using the CLS sources are affected by thermal background, so dedicated exposures with no illumination (see Table 1) were used to subtract the contamination from observations through selected spectral elements (PRISM, G395M, G395H). Since for each observing mode there are 41 independent exposures, they were median combined to improve the signal-to-noise ratio (SNR), as explained in Section 3. As measure of the corresponding uncertainty we took the standard deviation.

While observations of CLS sources probe the entire NIRSpec optical train, those collected with the internal CAA sources bypass the NIRSpec foreoptics and make use of calibration mirrors outside the main optical path. Once in orbit, calibration exposures are planned with the CAA, so a comparison between the two sets of derived flat-fields is necessary to compensate for throughput variations caused by the foreoptics and calibration optics (see Section 5).

3 DATA ANALYSIS

The purpose of combining, by averaging them together, multiple observations taken in the same mode is to improve the ultimate SNR of the flat-field reference file. However, this combination has to account for small differences in the wavelength of the light falling on the same pixel in different exposures. As mentioned above, these differences stem from the limited repeatability of the GWA mechanism (De Marchi 2012; Alves de Oliveira & De Marchi 2013). Since the continuum calibration sources have some sharp features in certain wavelength ranges (see Figure 1), a given detector pixel might display significantly different fluxes in different exposures. In such circumstances, multiple exposures cannot be simply averaged together without introducing additional uncertainties in the result.

Even though, in practice, this is a concern only for observations in the lowest resolution (PRISM) and not the rest, we have developed a uniform approach to overcome these limitations by dividing the flux in each pixel by the intensity of the calibration source at the specific wavelength of that pixel. The NIRSpec parametric model (Dorner et al. 2010; Giardino 2013b) provides an accurate value of the wavelength of the radiation landing on any given pixel, by taking into account the readings of the GWA position sensors installed on the GWA (De Marchi 2012; Alves de Oliveira & De Marchi 2013). The intensity of the lamp at that specific wavelength can then be easily obtained by interpolation in the known source spectrum.

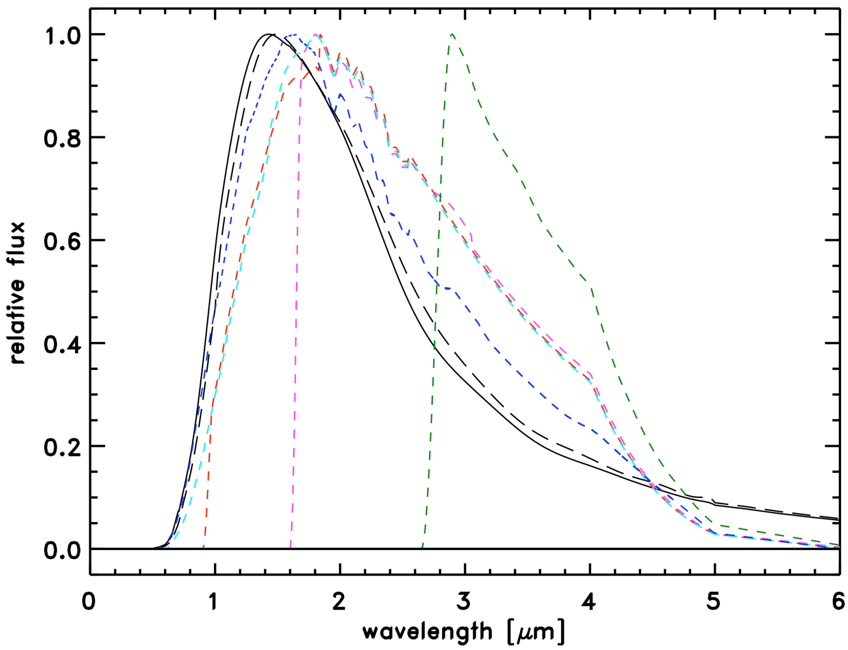

Figure 1. Intensities of the CLS (black lines) and CAA (coloured lines) sources, all normalised to unity at their peak. The black long-dashed line corresponds to the CLS FF1, FF2, and FF3 sources, while the black solid line corresponds to the CLS FFV and FFB sources. The short dashed coloured lines correspond to the CAA sources as follows: red for FLAT1, magenta for FLAT2, green for FLAT3, cyan for FLAT4, and blue for FLAT5.

The spectra of the calibration sources were measured during the characterisation of the CLS (Cole 2010) and CAA (Cole 2013) and are available in tabular form. However, after the CAA sources were installed in NIRSpec, it was realised that their intensity was too high to avoid saturation in full-frame exposures. To prevent saturation, it was decided to attenuate the intensity of the CAA sources by reshaping the apertures and telescopes, but this also introduced small changes in the spectral profile. Thus, the spectral profiles of the lamps originally measured (Cole 2013) no longer reflect their current spectral shape. By comparing observations collected with NIRSpec before and after the change to the CAA sources, we were able to recover their actual spectral shape. The details of this comparison are covered in a forthcoming report (De Marchi et al. 2015), but the spectral shape of the recalibrated CAA sources are already shown in Figure 1, together with those of the CLS sources.

Once each relevant pixel in an exposure is divided by the intensity of the lamp at the corresponding wavelength, all exposures in the same observing mode can be combined together. We assume that the quantum efficiency of the pixels will vary only slowly with wavelength (De Marchi et al. 2008), so it is safe to average together multiple reads of the same pixel even if the radiation that lands on it is not always at exactly the same wavelength.

The overall procedure can be summarised as follows.

1. A portion of the detector array (hereafter "trace") containing the signal from all FS is extracted from each exposure (pipeline processed count-rate maps in count s^{-1}). One trace is extracted per detector, measuring 2048 x 256 pixel square. These traces are placed at pre-defined pixel

positions, the same for all observing modes. Thanks to dedicated world coordinate system (WCS) keywords in the file header of the extracted trace, track is kept of the original pixel locations. Besides the science exposure, the corresponding portions of the extensions containing the variance and data quality flags of each pixel are also extracted.

2. Inside the extracted trace, the precise location of the spectrum produced by each individual slit is defined (hereafter "slit trace") using the NIRSpec parametric model and the wavelengths of the corresponding pixels are calculated and stored in a separate extension. Pixels not illuminated by radiation through the specific slit are not assigned a wavelength and are ignored in the analysis that follows.

3. In an iterative approach, each slit trace is processed individually, considering only illuminated pixels and ignoring all other pixels. All slit traces have the same size (2048 x 256 pixel square), but only the pixels corresponding to one slit are assigned a value in each file. All other pixels are assigned a value of 0 and flagged in the data quality extension as "unreliable flat". They are meant to be ignored by the pipeline.

4. The flux in each pixel of the science extension of the slit trace is divided by the interpolated intensity of the lamp at the same wavelength (only the wavelength range defined by the filters used is considered, namely 0.6 – 5.0 μm for CLEAR; 0.7 – 1.4 μm for F070LP; 1.0 – 1.8 μm for F100LP; 1.7 – 3.0 μm for F170LP; and 2.9 – 5.0 μm for F290LP). Indicating with $C(x,y)$ the countrate in pixel (x,y), and with $L(\lambda)$ the intensity of the calibration source interpolated at the wavelength λ of pixel (x,y), we build a temporary array with the same size as the slit trace in which each pixel has a value

$$D(x,y) = \frac{C(x,y)}{L(\lambda)}. \tag{1}$$

5. The flux of the lamps is originally provided in units of photon sr^{-1} μm^{-1} s^{-1}, however we plan to convert it into energy per unit wavelength per unit surface in the plane of the slits (W m^{-3}) using the NIRSpec parametric model. In this way, division by the lamp intensity at each wavelength will automatically provide the relative normalisation of the flat-fields. This step will be implemented at a later stage, without any changes to the format or purpose of the reference files.

6. The slit traces corresponding to the same slit are median combined to form the science extension of the flat-field reference file for that slit. Only illuminated pixels in each slit trace are considered to derive the median, since GWA repositioning uncertainties can cause a given pixel at the edge of the slit trace to not receive light in all exposures. Indicating with $D_i\,(x,y)$ the value in pixel (x,y) of the temporary array corresponding to exposure i, the value of the flat-field reference file for that pixel is

$$SCI(x,y) = median\left[D_i(x,y)\right], \tag{2}$$

where the index i includes all exposures for which that specific pixel receives light through the slit. Note that the although the originally extracted traces had a size of 2048x256 pixel square, all extensions in the flat-field reference file are 2048x2048 pixel square, for compatibility with the flat-fields for the NIRSpec multi-object spectroscopy mode.

7. The value of the same pixel in the error extension is simply the standard deviation around the median, defined as

$$ERR(x,y) = \sqrt{\frac{1}{N}\sum_i \left[C_i(x,y) - SCI(x,y)\right]^2}\,, \qquad (3)$$

where N is the number of exposures *i* for which that specific pixel receives light through the slit.

8. The data quality extensions are populated with a zero in the first bit only for valid pixels (i.e. those that receive light in at least one of the exposures), while all other pixels are flagged as unreliable flat (see Section 4).

9. As mentioned in the Introduction, some of the spectra through the S1600_A slit are partly saturated in CLS full frame exposures, so we used equivalent exposures in subarray mode, collected as part of the SLIT-COMBO procedure (see Table 1), to derive the flat-field reference files specific to those configurations. In those cases, however, only one exposure exists per observing mode, therefore implying that steps 6 and 7 in the procedure above cannot be applied and the SNR is lower. In those cases,

$$SCI(x,y) = D(x,y), \qquad (4)$$

$$ERR(x,y) = \frac{ERR^*(x,y)}{L(\lambda)}, \qquad (5)$$

where $ERR^*(x,y)$ is the original value for that pixel in the error extension generated by the NIRSpec pre-processing pipeline.

Finally, the absolute normalisation of the flat-fields requires observations of calibration reference stars across NIRSpec's field of view and will only be possible in orbit. However, since an accurate transformation between the plane of the detectors and the plane of the sky is already possible with suitable assumptions on the response of the telescope's optics, we will compute a "pixel area map", i.e. a map providing the area in $arcsec^2$ subtended by each detector pixel. The flat-field reference files for each slit are already divided by this map, which is also included in the FITS file as a separate extension, called PAM. For the time being, the value of each pixel in the PAM extension is set to 1, but its value will be updated as part of the ongoing work.

4 FORMAT OF THE REFERENCE FILES AND THEIR USE

The list of flat-field reference files for the FS mode of NIRSpec is presented in Table 2. All files listed there are provided in FITS format as part of the "Build 3" delivery package (Sirianni 2014). Filenames contain all information needed to identify the observing mode to which they refer. The format is `nirspec_flat_`*`GWAname_FWAname_LAMPname_SCAname_ver.subver`* where the parts in italics are replaced by the name of the corresponding optical element, light source, detector, and by the version and subversion of the file. For example, version 1.00 of the flat-field reference file for the G140M grating and F070LP filter combination obtained using the FFV source for detector SCA491 would be named: `nirspec_flat_G140M_F070LP_FFV_491_01.00.fits`.

The format originally agreed for the NIRSpec flat-field reference files is described in Dixon (2014; see also Giardino 2013a), where it is specified that a set of three FITS extensions (science, uncertainty and data quality, namely `SCI`, `ERR` and `DQ`) is provided for each slit, plus an extension defining the names of the data quality flags (`DQ_DEF`). In the course of the review of the first delivery of flat-field reference files for the NIRSpec fixed slits, it was agreed with STScI that it would be more convenient to combine the reference flat-field spectra for all slits in one FITS file covering the full extent of the field of view, with a size of 2048x2048 pixel square. The advantage of this approach is that the pipeline can apply the flat-field correction step before extracting the 2D traces. The structure of the FITS files, as regards their extensions, is the same as described in Dixon (2014). As discussed in Section 3, the physical size of these FITS extensions is 2048 x 2048 pixel square, but not all pixels have useable values. Pixels for which no flat-field information exists are assigned a value of 2 in the first bit of the `DQ` extension, to indicate an unreliable flat (see Dixon 2014). We also flagged as "unreliable flat" the pixels that receive light from two neighbouring slits, as their wavelength is not unique. An additional extension named `PAM` (pixel area map) is added to the set of each slit, providing the area of the pixels on the sky in $arcsec^2$, as mentioned in Section 3.

It is very important to keep in mind that, due to the way in which these flat-field reference files have been generated, they must be used on the pre-processed count-rate maps generated by the pipeline, before any extraction and rectification of the spectra, as mentioned above.

5 FLAT-FIELDING EXAMPLES AND COMPARISONS

We present in this section some applications of the flat-field reference files derived above. We also show examples of the throughput differences between the main optical path sampled by external observations and the path probed by the internal calibration sources.

As a first application of the flat-field reference files, we show in Figure 2 the spectrum of the FLAT1 source of the CAA, observed through the G140M grating, extracted from slits S200_A_1and S200_A_2. The spectrum extracted from slit S200_A_1 (thick dashed line) comes from NID=9591, while that from slit S200_A_2 (thick solid line) belongs to NID=11955. The units on the ordinates are arbitrary since no absolute calibration is applied. This test is simply a sanity check of the procedure that we followed to derive the flat-field reference files. The flat-field used here, as explained in Section 3, is the median of 41 observations of the LAMP1 source, properly divided by the spectrum of the lamp itself (reference spectrum). Therefore, the extracted spectrum is expected to reproduce that of the calibration source itself (reference spectrum), and this is what Figure 2 shows, where the thin dot-dashed line is the reference spectrum of the lamp. The purpose of this test is also to show that *i)* the median-averaged flat-field can effectively be used in place of dedicated internal flat-field exposures ("autocal"); and that *ii)* the uncertainties introduced by the flat-field process are small (less than 0.2% rms) and within the limits allocated for this step in the NIRSpec radiometric calibration error budget (see Jensen et al. 2013; De Marchi et al. 2008; Ferruit 2005). The difference between the observed spectrum and that of the lamp is shown by the red dots, scaled in such a way that they correspond to percentage units in this graph.

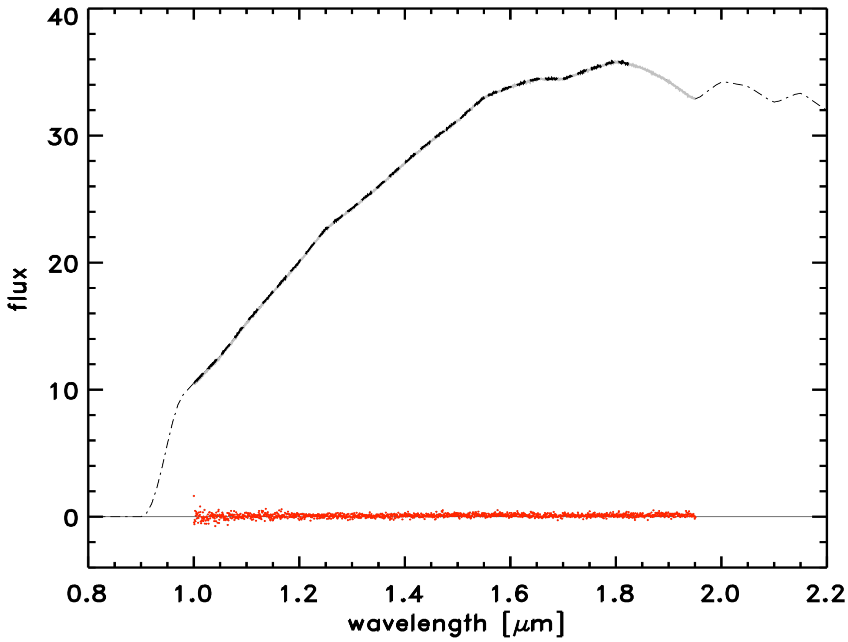

Figure 2. Spectrum of the CAA/FLAT1 source, observed through the G140M grating, extracted from slits S200_A_1 (dashed line) and S200_A_2 (solid line). The dot-dashed line is the spectrum of the CAA/FLAT1 source. The red dots give the difference between the observed spectrum through S200_A_2 and that of the lamp, scaled in such a way that they correspond to percentage units in this graph. Typical deviations of less than 0.2% are observed.

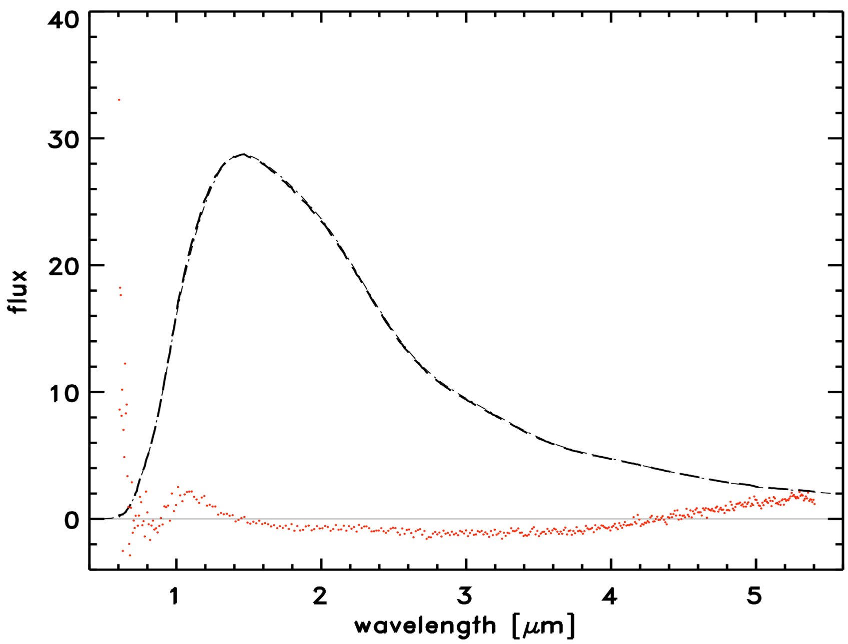

Figure 3. Spectrum of the CLS/FFV source, observed through the prism, extracted from slits S200_B (dashed line). The dot-dashed line is the spectrum of the CLS/FFV source. The red dots give the difference between the observed spectrum and that of the lamp, scaled in such a way that they correspond to percentage units in this graph. Typical deviations at the ~1% level are observed.

The second example, contained in Figure 3, is an observation of the FFV lamp in the CLS through the prism, extracted from slit S200_B. In this case, the differences between the reference and extracted flat-fielded spectrum are larger, of order of 1% and can be larger (~2%) in those ranges where the spectrum is steepest. As mentioned in Section 3, the limited repositioning accuracy of the GWA implies that, in different exposures, a given detector pixel might receive light at sufficiently different wavelengths to cause significant flux differences in those wavelength ranges where the spectrum of the source is steepest. It is precisely to compensate for this effect that we divide the flux in each pixel by the intensity of the lamp at the corresponding wavelength, but when the resolution is low, such as in the case of the prism, larger residuals remain. Nevertheless, the residuals are stillwithin the limits allocated for flat-fielding in NIRSpec's radiometric calibration error budget (namely 3.2%; Ferruit 2005).

As a final example, we have compared the flat-fields derived using the CAA source and the corresponding CLS source for the same observing mode. The purpose of this test is to characterise the contribution of NIRSpec's foreoptics to the total throughput. As mentioned in the Introduction, light from the CAA sources bypasses NIRSpec's foreoptics, which are instead fully probed by the external CLS sources. In Figure 4 we show in black the extracted spectrum of the CLS/FF2 source and in red that of the CAA/LAMP2 source. The grating and filter used are G235M and F170LP, respectively. The spectra were both extracted from the S200_A_1 slit using the standard pipeline extraction procedures offered by NIPS (Dorner 2012; Alves de Oliveira & Giardino 2014), but without applying the flat-fielding calibration step. Therefore, the curves shown in Figure 4 provide the actual spectral shapes of the two flat-fields. Both curves are normalised to unity at 2 μm.

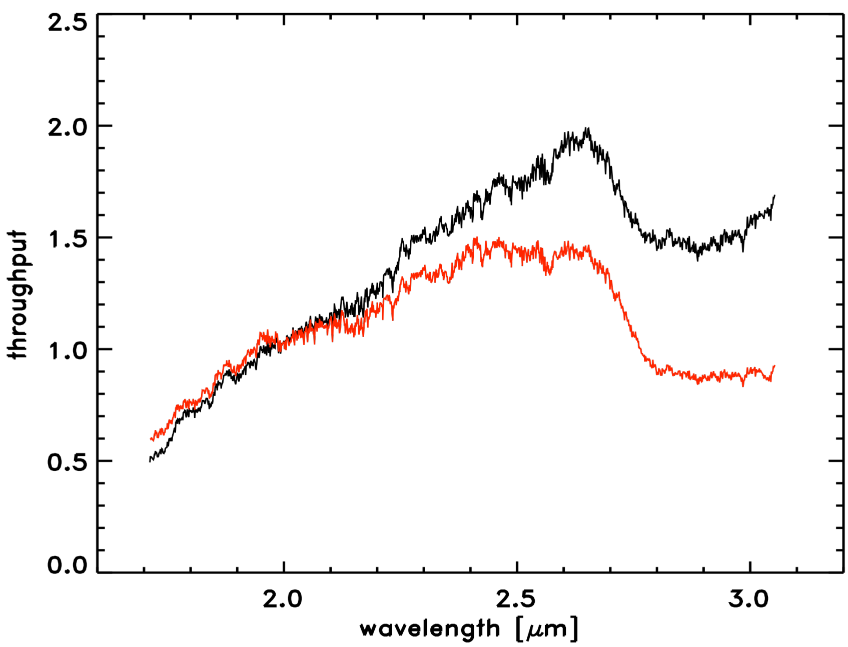

Figure 4. Spectral shape of the flat-field for grating G235M. The black line corresponds to the flat-field obtained with the CLS/FF2 source, through the F190LP filter, while the red line shows the one for CAA/FLAT2. Both curves have been normalised to unity at 2 μm.

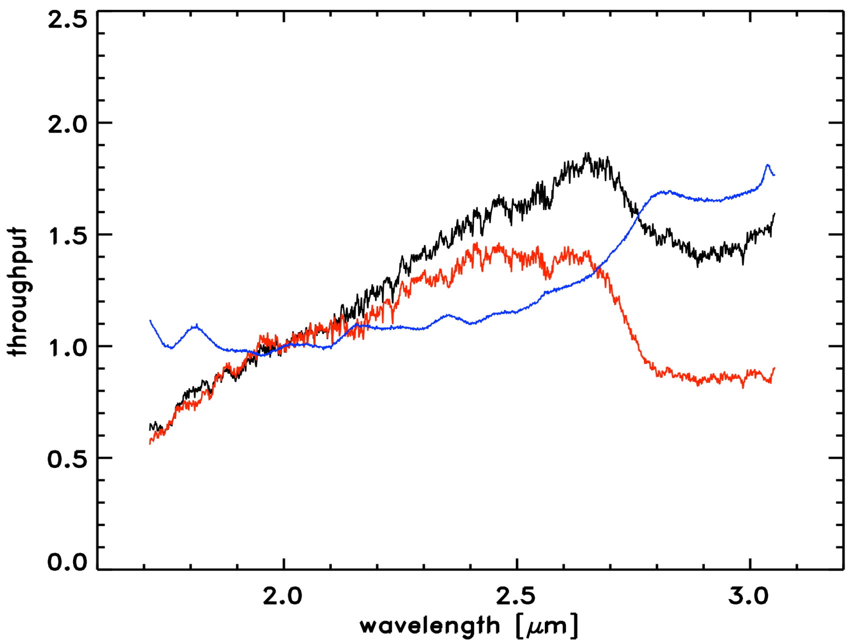

Figure 5. Same as Figure4, but the spectral shape of the flat-field derived with the CLS/FF2 source (black curve) has been further divided by the transmission of the F170LP filter. The blue curve shows the ratio between the black and red curves. It represents the throughput differences between the main optical path sampled by external sources and the one probed by observations with the CAA.

A difference is expected between the curves, first of all because the light of the CLS source travels through the NIRSpec filter set, while this is not the case for CAA sources. The CAA sources already include a filter set closely matching that of NIRSpec and the throughput of these filters is already included in the spectrum of the sources, by which we have divided the observations (seestep 4 in Section 3). Therefore, for a meaningful comparison we have to divide the spectral shape of the flat-field obtained with the CLS source by the spectral response of the filter. This is done in Figure 5, where the black line is the same as shown in Figure 4 after division by the profile of theF170LP filter. A difference, however, remains, which is quantified by the blue curve, representing the ratio between the CLS and CAA curves. Assuming that the intensity of the calibration sources and the transmission of the filters are accurately known as a function of wavelength, the blue curve provides a measure of the throughput differences between the NIRSpec foreoptics and calibration optics and can be used to derive one from the other. This conversion is of course different for each observing mode and, in the case of G235M, it is in practice given by the blue curve in Figure 5

Comparisons of this type between flat-fields derived through the full and internal optical paths will be crucial in orbit, when the CAA will be used to derive internal flat-field reference files and to monitor their stability. The flat-fields derived in this way will have to be calibrated to take into account the full optical path, including also the telescope, by comparison with the spectra of standard stars observed with NIRSpec.

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NID (1)	OBS_ID (2)	DATE (3)	GWA (4)	FWA (5)	CAA (6)	CLS (7)
9591	MOS-COMBO-01-025	2013-01-19T00:31:21	G140M	OPAQUE	FLAT1	CLOSE
9642	MOS-COMBO-02-025	2013-01-19T04:43:05	G140M	OPAQUE	FLAT1	CLOSE
9698	MOS-COMBO-03-025	2013-01-19T10:20:06	G140M	OPAQUE	FLAT1	CLOSE
9749	MOS-COMBO-04-025	2013-01-19T14:26:40	G140M	OPAQUE	FLAT1	CLOSE
9918	MOS-COMBO-05-025	2013-01-20T06:36:01	G140M	OPAQUE	FLAT1	CLOSE
9969	MOS-COMBO-06-025	2013-01-20T10:48:16	G140M	OPAQUE	FLAT1	CLOSE
10053	MOS-COMBO-07-025	2013-01-20T18:40:15	G140M	OPAQUE	FLAT1	CLOSE
10217	MOS-COMBO-08-025	2013-01-21T23:19:04	G140M	OPAQUE	FLAT1	CLOSE
10268	MOS-COMBO-09-025	2013-01-22T03:23:10	G140M	OPAQUE	FLAT1	CLOSE
10319	MOS-COMBO-10-025	2013-01-22T07:25:49	G140M	OPAQUE	FLAT1	CLOSE
10370	MOS-COMBO-11-025	2013-01-22T11:29:35	G140M	OPAQUE	FLAT1	CLOSE
10433	MOS-COMBO-12-025	2013-01-22T19:03:32	G140M	OPAQUE	FLAT1	CLOSE
10484	MOS-COMBO-13-025	2013-01-22T23:12:01	G140M	OPAQUE	FLAT1	CLOSE
10535	MOS-COMBO-14-025	2013-01-23T03:45:16	G140M	OPAQUE	FLAT1	CLOSE
10590	MOS-COMBO-15-025	2013-01-23T21:54:24	G140M	OPAQUE	FLAT1	CLOSE
10641	MOS-COMBO-16-025	2013-01-24T01:57:58	G140M	OPAQUE	FLAT1	CLOSE
10692	MOS-COMBO-17-025	2013-01-24T05:59:22	G140M	OPAQUE	FLAT1	CLOSE
10756	MOS-COMBO-18-025	2013-01-24T13:20:56	G140M	OPAQUE	FLAT1	CLOSE
10807	MOS-COMBO-19-025	2013-01-24T17:30:01	G140M	OPAQUE	FLAT1	CLOSE
10858	MOS-COMBO-20-025	2013-01-24T21:43:34	G140M	OPAQUE	FLAT1	CLOSE
10909	MOS-COMBO-21-025	2013-01-25T01:46:30	G140M	OPAQUE	FLAT1	CLOSE
10960	MOS-COMBO-22-025	2013-01-25T06:00:41	G140M	OPAQUE	FLAT1	CLOSE
11011	MOS-COMBO-23-025	2013-01-25T10:08:28	G140M	OPAQUE	FLAT1	CLOSE
11062	MOS-COMBO-24-025	2013-01-25T14:17:57	G140M	OPAQUE	FLAT1	CLOSE
11113	MOS-COMBO-25-025	2013-01-25T18:24:58	G140M	OPAQUE	FLAT1	CLOSE
11177	MOS-COMBO-26-025	2013-01-26T01:46:28	G140M	OPAQUE	FLAT1	CLOSE
11228	MOS-COMBO-27-025	2013-01-26T05:55:33	G140M	OPAQUE	FLAT1	CLOSE
11279	MOS-COMBO-28-025	2013-01-26T10:04:43	G140M	OPAQUE	FLAT1	CLOSE
11330	MOS-COMBO-29-025	2013-01-26T14:08:37	G140M	OPAQUE	FLAT1	CLOSE
11381	MOS-COMBO-30-025	2013-01-26T18:48:18	G140M	OPAQUE	FLAT1	CLOSE
11432	MOS-COMBO-31-025	2013-01-26T22:55:50	G140M	OPAQUE	FLAT1	CLOSE
11483	MOS-COMBO-32-025	2013-01-27T03:02:54	G140M	OPAQUE	FLAT1	CLOSE
11534	MOS-COMBO-33-025	2013-01-27T07:08:04	G140M	OPAQUE	FLAT1	CLOSE
11598	MOS-COMBO-34-025	2013-01-27T14:26:06	G140M	OPAQUE	FLAT1	CLOSE
11649	MOS-COMBO-35-025	2013-01-27T18:37:21	G140M	OPAQUE	FLAT1	CLOSE
11700	MOS-COMBO-36-025	2013-01-27T22:44:41	G140M	OPAQUE	FLAT1	CLOSE
11751	MOS-COMBO-37-025	2013-01-28T02:52:45	G140M	OPAQUE	FLAT1	CLOSE
11802	MOS-COMBO-38-025	2013-01-28T07:21:40	G140M	OPAQUE	FLAT1	CLOSE
11853	MOS-COMBO-39-025	2013-01-28T11:32:52	G140M	OPAQUE	FLAT1	CLOSE
11904	MOS-COMBO-40-025	2013-01-28T16:46:01	G140M	OPAQUE	FLAT1	CLOSE
11955	MOS-COMBO-41-025	2013-01-28T20:51:21	G140M	OPAQUE	FLAT1	CLOSE
9568	MOS-COMBO-01-002	2013-01-18T22:29:25	G140H	OPAQUE	FLAT1	CLOSE
9619	MOS-COMBO-02-002	2013-01-19T02:42:14	G140H	OPAQUE	FLAT1	CLOSE
9675	MOS-COMBO-03-002	2013-01-19T08:17:54	G140H	OPAQUE	FLAT1	CLOSE
9726	MOS-COMBO-04-002	2013-01-19T12:24:28	G140H	OPAQUE	FLAT1	CLOSE
9895	MOS-COMBO-05-002	2013-01-20T04:29:58	G140H	OPAQUE	FLAT1	CLOSE
9946	MOS-COMBO-06-002	2013-01-20T08:46:13	G140H	OPAQUE	FLAT1	CLOSE
10030	MOS-COMBO-07-002	2013-01-20T16:37:47	G140H	OPAQUE	FLAT1	CLOSE
10194	MOS-COMBO-08-002	2013-01-21T21:17:22	G140H	OPAQUE	FLAT1	CLOSE
10245	MOS-COMBO-09-002	2013-01-22T01:22:06	G140H	OPAQUE	FLAT1	CLOSE
10296	MOS-COMBO-10-002	2013-01-22T05:24:15	G140H	OPAQUE	FLAT1	CLOSE

10347	MOS-COMBO-11-002	2013-01-22T09:27:39	G140H	OPAQUE	FLAT1	CLOSE
10410	MOS-COMBO-12-002	2013-01-22T17:02:20	G140H	OPAQUE	FLAT1	CLOSE
10461	MOS-COMBO-13-002	2013-01-22T21:08:54	G140H	OPAQUE	FLAT1	CLOSE
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10564	MOS-COMBO-14-002	2013-01-23T19:22:26	G140H	OPAQUE	FLAT1	CLOSE
10567	MOS-COMBO-15-002	2013-01-23T19:51:51	G140H	OPAQUE	FLAT1	CLOSE
10618	MOS-COMBO-16-002	2013-01-23T23:55:20	G140H	OPAQUE	FLAT1	CLOSE
10669	MOS-COMBO-17-002	2013-01-24T03:57:45	G140H	OPAQUE	FLAT1	CLOSE
10733	MOS-COMBO-18-002	2013-01-24T11:19:26	G140H	OPAQUE	FLAT1	CLOSE
10784	MOS-COMBO-19-002	2013-01-24T15:28:56	G140H	OPAQUE	FLAT1	CLOSE
10835	MOS-COMBO-20-002	2013-01-24T19:37:17	G140H	OPAQUE	FLAT1	CLOSE
10886	MOS-COMBO-21-002	2013-01-24T23:44:36	G140H	OPAQUE	FLAT1	CLOSE
10937	MOS-COMBO-22-002	2013-01-25T04:00:47	G140H	OPAQUE	FLAT1	CLOSE
10988	MOS-COMBO-23-002	2013-01-25T08:06:06	G140H	OPAQUE	FLAT1	CLOSE
11039	MOS-COMBO-24-002	2013-01-25T12:13:35	G140H	OPAQUE	FLAT1	CLOSE
11090	MOS-COMBO-25-002	2013-01-25T16:23:14	G140H	OPAQUE	FLAT1	CLOSE
11154	MOS-COMBO-26-002	2013-01-25T23:45:32	G140H	OPAQUE	FLAT1	CLOSE
11205	MOS-COMBO-27-002	2013-01-26T03:50:45	G140H	OPAQUE	FLAT1	CLOSE
11256	MOS-COMBO-28-002	2013-01-26T08:02:50	G140H	OPAQUE	FLAT1	CLOSE
11307	MOS-COMBO-29-002	2013-01-26T12:06:24	G140H	OPAQUE	FLAT1	CLOSE
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11409	MOS-COMBO-31-002	2013-01-26T20:53:35	G140H	OPAQUE	FLAT1	CLOSE
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11575	MOS-COMBO-34-002	2013-01-27T12:25:08	G140H	OPAQUE	FLAT1	CLOSE
11626	MOS-COMBO-35-002	2013-01-27T16:35:21	G140H	OPAQUE	FLAT1	CLOSE
11677	MOS-COMBO-36-002	2013-01-27T20:42:51	G140H	OPAQUE	FLAT1	CLOSE
11728	MOS-COMBO-37-002	2013-01-28T00:50:55	G140H	OPAQUE	FLAT1	CLOSE
11779	MOS-COMBO-38-002	2013-01-28T05:21:17	G140H	OPAQUE	FLAT1	CLOSE
11830	MOS-COMBO-39-002	2013-01-28T09:31:10	G140H	OPAQUE	FLAT1	CLOSE
11881	MOS-COMBO-40-002	2013-01-28T14:43:53	G140H	OPAQUE	FLAT1	CLOSE
11932	MOS-COMBO-41-002	2013-01-28T18:51:08	G140H	OPAQUE	FLAT1	CLOSE
9598	MOS-COMBO-01-032	2013-01-19T00:57:37	G235M	OPAQUE	FLAT2	CLOSE
9649	MOS-COMBO-02-032	2013-01-19T05:10:06	G235M	OPAQUE	FLAT2	CLOSE
9705	MOS-COMBO-03-032	2013-01-19T10:46:57	G235M	OPAQUE	FLAT2	CLOSE
9756	MOS-COMBO-04-032	2013-01-19T14:53:21	G235M	OPAQUE	FLAT2	CLOSE
9925	MOS-COMBO-05-032	2013-01-20T07:03:17	G235M	OPAQUE	FLAT2	CLOSE
9976	MOS-COMBO-06-032	2013-01-20T11:14:42	G235M	OPAQUE	FLAT2	CLOSE
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10224	MOS-COMBO-08-032	2013-01-21T23:45:31	G235M	OPAQUE	FLAT2	CLOSE
10275	MOS-COMBO-09-032	2013-01-22T03:50:44	G235M	OPAQUE	FLAT2	CLOSE
10326	MOS-COMBO-10-032	2013-01-22T07:53:23	G235M	OPAQUE	FLAT2	CLOSE
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10440	MOS-COMBO-12-032	2013-01-22T19:30:23	G235M	OPAQUE	FLAT2	CLOSE
10491	MOS-COMBO-13-032	2013-01-23T00:10:17	G235M	OPAQUE	FLAT2	CLOSE
10542	MOS-COMBO-14-032	2013-01-23T04:12:17	G235M	OPAQUE	FLAT2	CLOSE
10597	MOS-COMBO-15-032	2013-01-23T22:21:29	G235M	OPAQUE	FLAT2	CLOSE
10648	MOS-COMBO-16-032	2013-01-24T02:25:04	G235M	OPAQUE	FLAT2	CLOSE
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10763	MOS-COMBO-18-032	2013-01-24T13:48:05	G235M	OPAQUE	FLAT2	CLOSE
10814	MOS-COMBO-19-032	2013-01-24T17:58:15	G235M	OPAQUE	FLAT2	CLOSE
10865	MOS-COMBO-20-032	2013-01-24T22:10:25	G235M	OPAQUE	FLAT2	CLOSE
10916	MOS-COMBO-21-032	2013-01-25T02:13:36	G235M	OPAQUE	FLAT2	CLOSE
10967	MOS-COMBO-22-032	2013-01-25T06:28:09	G235M	OPAQUE	FLAT2	CLOSE

11018	MOS-COMBO-23-032	2013-01-25T10:35:28	G235M	OPAQUE	FLAT2	CLOSE
11069	MOS-COMBO-24-032	2013-01-25T14:44:38	G235M	OPAQUE	FLAT2	CLOSE
11120	MOS-COMBO-25-032	2013-01-25T18:51:43	G235M	OPAQUE	FLAT2	CLOSE
11184	MOS-COMBO-26-032	2013-01-26T02:13:29	G235M	OPAQUE	FLAT2	CLOSE
11235	MOS-COMBO-27-032	2013-01-26T06:23:04	G235M	OPAQUE	FLAT2	CLOSE
11286	MOS-COMBO-28-032	2013-01-26T10:30:54	G235M	OPAQUE	FLAT2	CLOSE
11337	MOS-COMBO-29-032	2013-01-26T14:35:43	G235M	OPAQUE	FLAT2	CLOSE
11388	MOS-COMBO-30-032	2013-01-26T19:15:24	G235M	OPAQUE	FLAT2	CLOSE
11439	MOS-COMBO-31-032	2013-01-26T23:23:54	G235M	OPAQUE	FLAT2	CLOSE
11490	MOS-COMBO-32-032	2013-01-27T03:30:04	G235M	OPAQUE	FLAT2	CLOSE
11541	MOS-COMBO-33-032	2013-01-27T07:35:24	G235M	OPAQUE	FLAT2	CLOSE
11605	MOS-COMBO-34-032	2013-01-27T14:53:45	G235M	OPAQUE	FLAT2	CLOSE
11656	MOS-COMBO-35-032	2013-01-27T19:05:00	G235M	OPAQUE	FLAT2	CLOSE
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11758	MOS-COMBO-37-032	2013-01-28T03:20:00	G235M	OPAQUE	FLAT2	CLOSE
11809	MOS-COMBO-38-032	2013-01-28T07:49:34	G235M	OPAQUE	FLAT2	CLOSE
11860	MOS-COMBO-39-032	2013-01-28T12:00:35	G235M	OPAQUE	FLAT2	CLOSE
11911	MOS-COMBO-40-032	2013-01-28T17:12:42	G235M	OPAQUE	FLAT2	CLOSE
11962	MOS-COMBO-41-032	2013-01-28T21:18:49	G235M	OPAQUE	FLAT2	CLOSE

9578	MOS-COMBO-01-012	2013-01-18T23:29:03	G235H	OPAQUE	FLAT2	CLOSE
9629	MOS-COMBO-02-012	2013-01-19T03:42:36	G235H	OPAQUE	FLAT2	CLOSE
9685	MOS-COMBO-03-012	2013-01-19T09:19:12	G235H	OPAQUE	FLAT2	CLOSE
9736	MOS-COMBO-04-012	2013-01-19T13:24:12	G235H	OPAQUE	FLAT2	CLOSE
9905	MOS-COMBO-05-012	2013-01-20T05:31:02	G235H	OPAQUE	FLAT2	CLOSE
9956	MOS-COMBO-06-012	2013-01-20T09:47:11	G235H	OPAQUE	FLAT2	CLOSE
10040	MOS-COMBO-07-012	2013-01-20T17:37:52	G235H	OPAQUE	FLAT2	CLOSE
10204	MOS-COMBO-08-012	2013-01-21T22:18:16	G235H	OPAQUE	FLAT2	CLOSE
10255	MOS-COMBO-09-012	2013-01-22T02:22:00	G235H	OPAQUE	FLAT2	CLOSE
10306	MOS-COMBO-10-012	2013-01-22T06:25:28	G235H	OPAQUE	FLAT2	CLOSE
10357	MOS-COMBO-11-012	2013-01-22T10:27:23	G235H	OPAQUE	FLAT2	CLOSE
10420	MOS-COMBO-12-012	2013-01-22T18:03:05	G235H	OPAQUE	FLAT2	CLOSE
10471	MOS-COMBO-13-012	2013-01-22T22:10:39	G235H	OPAQUE	FLAT2	CLOSE
10522	MOS-COMBO-14-012	2013-01-23T02:44:13	G235H	OPAQUE	FLAT2	CLOSE
10577	MOS-COMBO-15-012	2013-01-23T20:53:07	G235H	OPAQUE	FLAT2	CLOSE
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10794	MOS-COMBO-19-012	2013-01-24T16:29:29	G235H	OPAQUE	FLAT2	CLOSE
10845	MOS-COMBO-20-012	2013-01-24T20:38:35	G235H	OPAQUE	FLAT2	CLOSE
10896	MOS-COMBO-21-012	2013-01-25T00:44:06	G235H	OPAQUE	FLAT2	CLOSE
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10998	MOS-COMBO-23-012	2013-01-25T09:06:29	G235H	OPAQUE	FLAT2	CLOSE
11049	MOS-COMBO-24-012	2013-01-25T13:13:13	G235H	OPAQUE	FLAT2	CLOSE
11100	MOS-COMBO-25-012	2013-01-25T17:23:13	G235H	OPAQUE	FLAT2	CLOSE
11164	MOS-COMBO-26-012	2013-01-26T00:45:45	G235H	OPAQUE	FLAT2	CLOSE
11215	MOS-COMBO-27-012	2013-01-26T04:55:10	G235H	OPAQUE	FLAT2	CLOSE
11266	MOS-COMBO-28-012	2013-01-26T09:03:54	G235H	OPAQUE	FLAT2	CLOSE
11317	MOS-COMBO-29-012	2013-01-26T13:07:49	G235H	OPAQUE	FLAT2	CLOSE
11368	MOS-COMBO-30-012	2013-01-26T17:42:10	G235H	OPAQUE	FLAT2	CLOSE
11419	MOS-COMBO-31-012	2013-01-26T21:54:51	G235H	OPAQUE	FLAT2	CLOSE
11470	MOS-COMBO-32-012	2013-01-27T02:02:39	G235H	OPAQUE	FLAT2	CLOSE
11521	MOS-COMBO-33-012	2013-01-27T06:07:38	G235H	OPAQUE	FLAT2	CLOSE
11585	MOS-COMBO-34-012	2013-01-27T13:23:59	G235H	OPAQUE	FLAT2	CLOSE
11636	MOS-COMBO-35-012	2013-01-27T17:35:41	G235H	OPAQUE	FLAT2	CLOSE

11687	MOS-COMBO-36-012	2013-01-27T21:42:50	G235H	OPAQUE	FLAT2	CLOSE
11738	MOS-COMBO-37-012	2013-01-28T01:52:14	G235H	OPAQUE	FLAT2	CLOSE
11789	MOS-COMBO-38-012	2013-01-28T06:21:34	G235H	OPAQUE	FLAT2	CLOSE
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11891	MOS-COMBO-40-012	2013-01-28T15:43:42	G235H	OPAQUE	FLAT2	CLOSE
11942	MOS-COMBO-41-012	2013-01-28T19:51:41	G235H	OPAQUE	FLAT2	CLOSE

9607	MOS-COMBO-01-041	2013-01-19T01:32:30	G395M	OPAQUE	FLAT3	CLOSE
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9765	MOS-COMBO-04-041	2013-01-19T15:27:07	G395M	OPAQUE	FLAT3	CLOSE
9934	MOS-COMBO-05-041	2013-01-20T07:36:31	G395M	OPAQUE	FLAT3	CLOSE
9985	MOS-COMBO-06-041	2013-01-20T11:49:48	G395M	OPAQUE	FLAT3	CLOSE
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10284	MOS-COMBO-09-041	2013-01-22T04:24:13	G395M	OPAQUE	FLAT3	CLOSE
10335	MOS-COMBO-10-041	2013-01-22T08:26:51	G395M	OPAQUE	FLAT3	CLOSE
10386	MOS-COMBO-11-041	2013-01-22T12:30:25	G395M	OPAQUE	FLAT3	CLOSE
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10606	MOS-COMBO-15-041	2013-01-23T22:56:21	G395M	OPAQUE	FLAT3	CLOSE
10657	MOS-COMBO-16-041	2013-01-24T02:59:01	G395M	OPAQUE	FLAT3	CLOSE
10708	MOS-COMBO-17-041	2013-01-24T07:00:25	G395M	OPAQUE	FLAT3	CLOSE
10772	MOS-COMBO-18-041	2013-01-24T14:22:21	G395M	OPAQUE	FLAT3	CLOSE
10823	MOS-COMBO-19-041	2013-01-24T18:32:57	G395M	OPAQUE	FLAT3	CLOSE
10874	MOS-COMBO-20-041	2013-01-24T22:45:37	G395M	OPAQUE	FLAT3	CLOSE
10925	MOS-COMBO-21-041	2013-01-25T02:48:36	G395M	OPAQUE	FLAT3	CLOSE
10976	MOS-COMBO-22-041	2013-01-25T07:02:31	G395M	OPAQUE	FLAT3	CLOSE
11027	MOS-COMBO-23-041	2013-01-25T11:09:41	G395M	OPAQUE	FLAT3	CLOSE
11078	MOS-COMBO-24-041	2013-01-25T15:18:41	G395M	OPAQUE	FLAT3	CLOSE
11129	MOS-COMBO-25-041	2013-01-25T19:26:59	G395M	OPAQUE	FLAT3	CLOSE
11193	MOS-COMBO-26-041	2013-01-26T02:51:27	G395M	OPAQUE	FLAT3	CLOSE
11244	MOS-COMBO-27-041	2013-01-26T06:57:11	G395M	OPAQUE	FLAT3	CLOSE
11295	MOS-COMBO-28-041	2013-01-26T11:05:22	G395M	OPAQUE	FLAT3	CLOSE
11346	MOS-COMBO-29-041	2013-01-26T15:10:00	G395M	OPAQUE	FLAT3	CLOSE
11397	MOS-COMBO-30-041	2013-01-26T19:48:57	G395M	OPAQUE	FLAT3	CLOSE
11448	MOS-COMBO-31-041	2013-01-26T23:58:16	G395M	OPAQUE	FLAT3	CLOSE
11499	MOS-COMBO-32-041	2013-01-27T04:04:37	G395M	OPAQUE	FLAT3	CLOSE
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11614	MOS-COMBO-34-041	2013-01-27T15:27:32	G395M	OPAQUE	FLAT3	CLOSE
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11716	MOS-COMBO-36-041	2013-01-27T23:46:41	G395M	OPAQUE	FLAT3	CLOSE
11767	MOS-COMBO-37-041	2013-01-28T03:55:10	G395M	OPAQUE	FLAT3	CLOSE
11818	MOS-COMBO-38-041	2013-01-28T08:24:01	G395M	OPAQUE	FLAT3	CLOSE
11869	MOS-COMBO-39-041	2013-01-28T12:34:15	G395M	OPAQUE	FLAT3	CLOSE
11920	MOS-COMBO-40-041	2013-01-28T17:46:40	G395M	OPAQUE	FLAT3	CLOSE
11971	MOS-COMBO-41-041	2013-01-28T21:52:23	G395M	OPAQUE	FLAT3	CLOSE

9584	MOS-COMBO-01-018	2013-01-18T23:58:31	G395H	OPAQUE	FLAT3	CLOSE
9635	MOS-COMBO-02-018	2013-01-19T04:09:57	G395H	OPAQUE	FLAT3	CLOSE
9691	MOS-COMBO-03-018	2013-01-19T09:47:01	G395H	OPAQUE	FLAT3	CLOSE
9742	MOS-COMBO-04-018	2013-01-19T13:53:33	G395H	OPAQUE	FLAT3	CLOSE
9911	MOS-COMBO-05-018	2013-01-20T05:58:49	G395H	OPAQUE	FLAT3	CLOSE
9962	MOS-COMBO-06-018	2013-01-20T10:14:42	G395H	OPAQUE	FLAT3	CLOSE

10046	MOS-COMBO-07-018	2013-01-20T18:05:55	G395H	OPAQUE	FLAT3	CLOSE
10210	MOS-COMBO-08-018	2013-01-21T22:44:40	G395H	OPAQUE	FLAT3	CLOSE
10261	MOS-COMBO-09-018	2013-01-22T02:48:44	G395H	OPAQUE	FLAT3	CLOSE
10312	MOS-COMBO-10-018	2013-01-22T06:53:20	G395H	OPAQUE	FLAT3	CLOSE
10363	MOS-COMBO-11-018	2013-01-22T10:56:27	G395H	OPAQUE	FLAT3	CLOSE
10426	MOS-COMBO-12-018	2013-01-22T18:30:43	G395H	OPAQUE	FLAT3	CLOSE
10477	MOS-COMBO-13-018	2013-01-22T22:38:28	G395H	OPAQUE	FLAT3	CLOSE
10528	MOS-COMBO-14-018	2013-01-23T03:10:57	G395H	OPAQUE	FLAT3	CLOSE
10583	MOS-COMBO-15-018	2013-01-23T21:20:56	G395H	OPAQUE	FLAT3	CLOSE
10634	MOS-COMBO-16-018	2013-01-24T01:24:45	G395H	OPAQUE	FLAT3	CLOSE
10685	MOS-COMBO-17-018	2013-01-24T05:25:23	G395H	OPAQUE	FLAT3	CLOSE
10749	MOS-COMBO-18-018	2013-01-24T12:46:45	G395H	OPAQUE	FLAT3	CLOSE
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11004	MOS-COMBO-23-018	2013-01-25T09:34:33	G395H	OPAQUE	FLAT3	CLOSE
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11272	MOS-COMBO-28-018	2013-01-26T09:31:35	G395H	OPAQUE	FLAT3	CLOSE
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11693	MOS-COMBO-36-018	2013-01-27T22:11:55	G395H	OPAQUE	FLAT3	CLOSE
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11897	MOS-COMBO-40-018	2013-01-28T16:11:56	G395H	OPAQUE	FLAT3	CLOSE
11948	MOS-COMBO-41-018	2013-01-28T20:19:11	G395H	OPAQUE	FLAT3	CLOSE

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11905	MOS-COMBO-40-026	2013-01-28T16:48:55	G140M	OPAQUE	FLAT4	CLOSE
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11882	MOS-COMBO-40-003	2013-01-28T14:48:53	G140H	OPAQUE	FLAT4	CLOSE
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9937	MOS-COMBO-05-044	2013-01-20T07:48:48	PRISM	OPAQUE	FLAT5	CLOSE
9988	MOS-COMBO-06-044	2013-01-20T12:02:17	PRISM	OPAQUE	FLAT5	CLOSE
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11081	MOS-COMBO-24-044	2013-01-25T15:30:49	PRISM	OPAQUE	FLAT5	CLOSE
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11770	MOS-COMBO-37-044	2013-01-28T04:06:54	PRISM	OPAQUE	FLAT5	CLOSE
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11872	MOS-COMBO-39-044	2013-01-28T13:42:46	PRISM	OPAQUE	FLAT5	CLOSE
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10375	MOS-COMBO-11-030	2013-01-22T11:48:20	G140M	F100LP	NO_LAMP	FF1
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11437	MOS-COMBO-31-030	2013-01-26T23:15:24	G140M	F100LP	NO_LAMP	FF1
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11603	MOS-COMBO-34-030	2013-01-27T14:45:04	G140M	F100LP	NO_LAMP	FF1
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11756	MOS-COMBO-37-030	2013-01-28T03:11:53	G140M	F100LP	NO_LAMP	FF1
11807	MOS-COMBO-38-030	2013-01-28T07:40:12	G140M	F100LP	NO_LAMP	FF1
11858	MOS-COMBO-39-030	2013-01-28T11:51:19	G140M	F100LP	NO_LAMP	FF1
11909	MOS-COMBO-40-030	2013-01-28T17:04:40	G140M	F100LP	NO_LAMP	FF1
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9679	MOS-COMBO-03-006	2013-01-19T08:40:41	G140H	F100LP	NO_LAMP	FF1
9730	MOS-COMBO-04-006	2013-01-19T12:47:21	G140H	F100LP	NO_LAMP	FF1
9899	MOS-COMBO-05-006	2013-01-20T04:52:50	G140H	F100LP	NO_LAMP	FF1
9950	MOS-COMBO-06-006	2013-01-20T09:07:11	G140H	F100LP	NO_LAMP	FF1
10034	MOS-COMBO-07-006	2013-01-20T16:58:40	G140H	F100LP	NO_LAMP	FF1
10198	MOS-COMBO-08-006	2013-01-21T21:39:59	G140H	F100LP	NO_LAMP	FF1
10249	MOS-COMBO-09-006	2013-01-22T01:43:32	G140H	F100LP	NO_LAMP	FF1
10300	MOS-COMBO-10-006	2013-01-22T05:45:13	G140H	F100LP	NO_LAMP	FF1
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10414	MOS-COMBO-12-006	2013-01-22T17:24:56	G140H	F100LP	NO_LAMP	FF1
10465	MOS-COMBO-13-006	2013-01-22T21:29:56	G140H	F100LP	NO_LAMP	FF1
10516	MOS-COMBO-14-006	2013-01-23T02:03:47	G140H	F100LP	NO_LAMP	FF1
10571	MOS-COMBO-15-006	2013-01-23T20:14:32	G140H	F100LP	NO_LAMP	FF1

10622	MOS-COMBO-16-006	2013-01-24T00:15:58	G140H	F100LP	NO_LAMP	FF1
10673	MOS-COMBO-17-006	2013-01-24T04:18:38	G140H	F100LP	NO_LAMP	FF1
10737	MOS-COMBO-18-006	2013-01-24T11:42:03	G140H	F100LP	NO_LAMP	FF1
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10941	MOS-COMBO-22-006	2013-01-25T04:22:12	G140H	F100LP	NO_LAMP	FF1
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11043	MOS-COMBO-24-006	2013-01-25T12:35:01	G140H	F100LP	NO_LAMP	FF1
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11260	MOS-COMBO-28-006	2013-01-26T08:25:32	G140H	F100LP	NO_LAMP	FF1
11311	MOS-COMBO-29-006	2013-01-26T12:28:55	G140H	F100LP	NO_LAMP	FF1
11362	MOS-COMBO-30-006	2013-01-26T17:04:26	G140H	F100LP	NO_LAMP	FF1
11413	MOS-COMBO-31-006	2013-01-26T21:16:18	G140H	F100LP	NO_LAMP	FF1
11464	MOS-COMBO-32-006	2013-01-27T01:24:09	G140H	F100LP	NO_LAMP	FF1
11515	MOS-COMBO-33-006	2013-01-27T05:27:32	G140H	F100LP	NO_LAMP	FF1
11579	MOS-COMBO-34-006	2013-01-27T12:46:48	G140H	F100LP	NO_LAMP	FF1
11630	MOS-COMBO-35-006	2013-01-27T16:58:13	G140H	F100LP	NO_LAMP	FF1
11681	MOS-COMBO-36-006	2013-01-27T21:05:32	G140H	F100LP	NO_LAMP	FF1
11732	MOS-COMBO-37-006	2013-01-28T01:13:32	G140H	F100LP	NO_LAMP	FF1
11783	MOS-COMBO-38-006	2013-01-28T05:43:13	G140H	F100LP	NO_LAMP	FF1
11834	MOS-COMBO-39-006	2013-01-28T09:53:42	G140H	F100LP	NO_LAMP	FF1
11885	MOS-COMBO-40-006	2013-01-28T15:06:19	G140H	F100LP	NO_LAMP	FF1
11936	MOS-COMBO-41-006	2013-01-28T19:11:15	G140H	F100LP	NO_LAMP	FF1
9815	SLIT-COMBO-040	2013-01-19T22:35:10	G140M	F100LP	NO_LAMP	FF1

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9755	MOS-COMBO-04-031	2013-01-19T14:48:35	G235M	F170LP	NO_LAMP	FF2
9924	MOS-COMBO-05-031	2013-01-20T06:58:57	G235M	F170LP	NO_LAMP	FF2
9975	MOS-COMBO-06-031	2013-01-20T11:10:40	G235M	F170LP	NO_LAMP	FF2
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10274	MOS-COMBO-09-031	2013-01-22T03:45:53	G235M	F170LP	NO_LAMP	FF2
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10376	MOS-COMBO-11-031	2013-01-22T11:52:05	G235M	F170LP	NO_LAMP	FF2
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10915	MOS-COMBO-21-031	2013-01-25T02:09:23	G235M	F170LP	NO_LAMP	FF2
10966	MOS-COMBO-22-031	2013-01-25T06:23:28	G235M	F170LP	NO_LAMP	FF2
11017	MOS-COMBO-23-031	2013-01-25T10:30:47	G235M	F170LP	NO_LAMP	FF2
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11183	MOS-COMBO-26-031	2013-01-26T02:09:15	G235M	F170LP	NO_LAMP	FF2
11234	MOS-COMBO-27-031	2013-01-26T06:18:29	G235M	F170LP	NO_LAMP	FF2

11285	MOS-COMBO-28-031	2013-01-26T10:27:14	G235M	F170LP	NO_LAMP	FF2
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11387	MOS-COMBO-30-031	2013-01-26T19:10:49	G235M	F170LP	NO_LAMP	FF2
11438	MOS-COMBO-31-031	2013-01-26T23:19:24	G235M	F170LP	NO_LAMP	FF2
11489	MOS-COMBO-32-031	2013-01-27T03:26:09	G235M	F170LP	NO_LAMP	FF2
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11706	MOS-COMBO-36-031	2013-01-27T23:07:35	G235M	F170LP	NO_LAMP	FF2
11757	MOS-COMBO-37-031	2013-01-28T03:16:09	G235M	F170LP	NO_LAMP	FF2
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11859	MOS-COMBO-39-031	2013-01-28T11:56:21	G235M	F170LP	NO_LAMP	FF2
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11961	MOS-COMBO-41-031	2013-01-28T21:14:30	G235M	F170LP	NO_LAMP	FF2
9830	SLIT-COMBO-055	2013-01-19T23:33:19	G235M	F170LP	NO_LAMP	FF2
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9632	MOS-COMBO-02-015	2013-01-19T03:53:22	G235H	F170LP	NO_LAMP	FF2
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9739	MOS-COMBO-04-015	2013-01-19T13:36:32	G235H	F170LP	NO_LAMP	FF2
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10043	MOS-COMBO-07-015	2013-01-20T17:51:07	G235H	F170LP	NO_LAMP	FF2
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10580	MOS-COMBO-15-015	2013-01-23T21:04:45	G235H	F170LP	NO_LAMP	FF2
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11052	MOS-COMBO-24-015	2013-01-25T13:24:54	G235H	F170LP	NO_LAMP	FF2
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11167	MOS-COMBO-26-015	2013-01-26T00:57:25	G235H	F170LP	NO_LAMP	FF2
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11269	MOS-COMBO-28-015	2013-01-26T09:15:34	G235H	F170LP	NO_LAMP	FF2
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11371	MOS-COMBO-30-015	2013-01-26T17:55:25	G235H	F170LP	NO_LAMP	FF2
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11588	MOS-COMBO-34-015	2013-01-27T13:37:01	G235H	F170LP	NO_LAMP	FF2
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11690	MOS-COMBO-36-015	2013-01-27T21:56:06	G235H	F170LP	NO_LAMP	FF2
11741	MOS-COMBO-37-015	2013-01-28T02:03:15	G235H	F170LP	NO_LAMP	FF2
11792	MOS-COMBO-38-015	2013-01-28T06:33:24	G235H	F170LP	NO_LAMP	FF2
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9763	MOS-COMBO-04-039	2013-01-19T15:21:20	G395M	F290LP	NO_LAMP	FF3
9932	MOS-COMBO-05-039	2013-01-20T07:31:19	G395M	F290LP	NO_LAMP	FF3
9983	MOS-COMBO-06-039	2013-01-20T11:43:58	G395M	F290LP	NO_LAMP	FF3
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11242	MOS-COMBO-27-039	2013-01-26T06:51:31	G395M	F290LP	NO_LAMP	FF3
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11395	MOS-COMBO-30-039	2013-01-26T19:43:50	G395M	F290LP	NO_LAMP	FF3
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11765	MOS-COMBO-37-039	2013-01-28T03:48:57	G395M	F290LP	NO_LAMP	FF3
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11918	MOS-COMBO-40-039	2013-01-28T17:41:37	G395M	F290LP	NO_LAMP	FF3
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9582	MOS-COMBO-01-016	2013-01-18T23:47:28	G395H	F290LP	NO_LAMP	FF3
9633	MOS-COMBO-02-016	2013-01-19T03:59:27	G395H	F290LP	NO_LAMP	FF3
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10208	MOS-COMBO-08-016	2013-01-21T22:36:01	G395H	F290LP	NO_LAMP	FF3
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10581	MOS-COMBO-15-016	2013-01-23T21:11:06	G395H	F290LP	NO_LAMP	FF3
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11168	MOS-COMBO-26-016	2013-01-26T01:03:40	G395H	F290LP	NO_LAMP	FF3
11219	MOS-COMBO-27-016	2013-01-26T05:12:55	G395H	F290LP	NO_LAMP	FF3
11270	MOS-COMBO-28-016	2013-01-26T09:21:40	G395H	F290LP	NO_LAMP	FF3
11321	MOS-COMBO-29-016	2013-01-26T13:25:44	G395H	F290LP	NO_LAMP	FF3
11372	MOS-COMBO-30-016	2013-01-26T18:01:50	G395H	F290LP	NO_LAMP	FF3
11423	MOS-COMBO-31-016	2013-01-26T22:12:05	G395H	F290LP	NO_LAMP	FF3
11474	MOS-COMBO-32-016	2013-01-27T02:20:45	G395H	F290LP	NO_LAMP	FF3
11525	MOS-COMBO-33-016	2013-01-27T06:25:34	G395H	F290LP	NO_LAMP	FF3
11589	MOS-COMBO-34-016	2013-01-27T13:43:17	G395H	F290LP	NO_LAMP	FF3
11640	MOS-COMBO-35-016	2013-01-27T17:55:01	G395H	F290LP	NO_LAMP	FF3
11691	MOS-COMBO-36-016	2013-01-27T22:02:10	G395H	F290LP	NO_LAMP	FF3
11742	MOS-COMBO-37-016	2013-01-28T02:09:26	G395H	F290LP	NO_LAMP	FF3
11793	MOS-COMBO-38-016	2013-01-28T06:39:30	G395H	F290LP	NO_LAMP	FF3
11844	MOS-COMBO-39-016	2013-01-28T10:49:15	G395H	F290LP	NO_LAMP	FF3
11895	MOS-COMBO-40-016	2013-01-28T16:03:13	G395H	F290LP	NO_LAMP	FF3
11946	MOS-COMBO-41-016	2013-01-28T20:09:26	G395H	F290LP	NO_LAMP	FF3

9595	MOS-COMBO-01-029	2013-01-19T00:43:13	G140M	F070LP	NO_LAMP	FFV
9646	MOS-COMBO-02-029	2013-01-19T04:54:58	G140M	F070LP	NO_LAMP	FFV
9702	MOS-COMBO-03-029	2013-01-19T10:32:12	G140M	F070LP	NO_LAMP	FFV
9753	MOS-COMBO-04-029	2013-01-19T14:38:38	G140M	F070LP	NO_LAMP	FFV
9922	MOS-COMBO-05-029	2013-01-20T06:48:22	G140M	F070LP	NO_LAMP	FFV
9973	MOS-COMBO-06-029	2013-01-20T11:00:26	G140M	F070LP	NO_LAMP	FFV
10057	MOS-COMBO-07-029	2013-01-20T18:52:31	G140M	F070LP	NO_LAMP	FFV
10221	MOS-COMBO-08-029	2013-01-21T23:31:15	G140M	F070LP	NO_LAMP	FFV
10272	MOS-COMBO-09-029	2013-01-22T03:35:56	G140M	F070LP	NO_LAMP	FFV
10323	MOS-COMBO-10-029	2013-01-22T07:38:20	G140M	F070LP	NO_LAMP	FFV
10374	MOS-COMBO-11-029	2013-01-22T11:41:52	G140M	F070LP	NO_LAMP	FFV
10437	MOS-COMBO-12-029	2013-01-22T19:15:23	G140M	F070LP	NO_LAMP	FFV
10488	MOS-COMBO-13-029	2013-01-22T23:24:12	G140M	F070LP	NO_LAMP	FFV
10539	MOS-COMBO-14-029	2013-01-23T03:56:53	G140M	F070LP	NO_LAMP	FFV
10594	MOS-COMBO-15-029	2013-01-23T22:06:30	G140M	F070LP	NO_LAMP	FFV
10645	MOS-COMBO-16-029	2013-01-24T02:10:14	G140M	F070LP	NO_LAMP	FFV
10696	MOS-COMBO-17-029	2013-01-24T06:11:29	G140M	F070LP	NO_LAMP	FFV
10760	MOS-COMBO-18-029	2013-01-24T13:33:06	G140M	F070LP	NO_LAMP	FFV
10811	MOS-COMBO-19-029	2013-01-24T17:43:05	G140M	F070LP	NO_LAMP	FFV
10862	MOS-COMBO-20-029	2013-01-24T21:55:40	G140M	F070LP	NO_LAMP	FFV
10913	MOS-COMBO-21-029	2013-01-25T01:59:15	G140M	F070LP	NO_LAMP	FFV
10964	MOS-COMBO-22-029	2013-01-25T06:13:01	G140M	F070LP	NO_LAMP	FFV

11015	MOS-COMBO-23-029	2013-01-25T10:20:33	G140M	F070LP	NO_LAMP	FFV
11066	MOS-COMBO-24-029	2013-01-25T14:30:03	G140M	F070LP	NO_LAMP	FFV
11117	MOS-COMBO-25-029	2013-01-25T18:37:19	G140M	F070LP	NO_LAMP	FFV
11181	MOS-COMBO-26-029	2013-01-26T01:58:35	G140M	F070LP	NO_LAMP	FFV
11232	MOS-COMBO-27-029	2013-01-26T06:07:30	G140M	F070LP	NO_LAMP	FFV
11283	MOS-COMBO-28-029	2013-01-26T10:16:48	G140M	F070LP	NO_LAMP	FFV
11334	MOS-COMBO-29-029	2013-01-26T14:20:38	G140M	F070LP	NO_LAMP	FFV
11385	MOS-COMBO-30-029	2013-01-26T19:00:14	G140M	F070LP	NO_LAMP	FFV
11436	MOS-COMBO-31-029	2013-01-26T23:08:44	G140M	F070LP	NO_LAMP	FFV
11487	MOS-COMBO-32-029	2013-01-27T03:15:10	G140M	F070LP	NO_LAMP	FFV
11538	MOS-COMBO-33-029	2013-01-27T07:20:30	G140M	F070LP	NO_LAMP	FFV
11602	MOS-COMBO-34-029	2013-01-27T14:38:22	G140M	F070LP	NO_LAMP	FFV
11653	MOS-COMBO-35-029	2013-01-27T18:49:37	G140M	F070LP	NO_LAMP	FFV
11704	MOS-COMBO-36-029	2013-01-27T22:56:41	G140M	F070LP	NO_LAMP	FFV
11755	MOS-COMBO-37-029	2013-01-28T03:05:19	G140M	F070LP	NO_LAMP	FFV
11806	MOS-COMBO-38-029	2013-01-28T07:34:16	G140M	F070LP	NO_LAMP	FFV
11857	MOS-COMBO-39-029	2013-01-28T11:45:31	G140M	F070LP	NO_LAMP	FFV
11908	MOS-COMBO-40-029	2013-01-28T16:58:07	G140M	F070LP	NO_LAMP	FFV
11959	MOS-COMBO-41-029	2013-01-28T21:03:36	G140M	F070LP	NO_LAMP	FFV
9812	SLIT-COMBO-037	2013-01-19T22:15:31	G140M	F070LP	NO_LAMP	FFV
9573	MOS-COMBO-01-007	2013-01-18T22:55:43	G140H	F070LP	NO_LAMP	FFV
9624	MOS-COMBO-02-007	2013-01-19T03:07:46	G140H	F070LP	NO_LAMP	FFV
9680	MOS-COMBO-03-007	2013-01-19T08:44:22	G140H	F070LP	NO_LAMP	FFV
9731	MOS-COMBO-04-007	2013-01-19T12:50:17	G140H	F070LP	NO_LAMP	FFV
9900	MOS-COMBO-05-007	2013-01-20T04:56:32	G140H	F070LP	NO_LAMP	FFV
9951	MOS-COMBO-06-007	2013-01-20T09:12:27	G140H	F070LP	NO_LAMP	FFV
10035	MOS-COMBO-07-007	2013-01-20T17:03:21	G140H	F070LP	NO_LAMP	FFV
10199	MOS-COMBO-08-007	2013-01-21T21:43:45	G140H	F070LP	NO_LAMP	FFV
10250	MOS-COMBO-09-007	2013-01-22T01:46:35	G140H	F070LP	NO_LAMP	FFV
10301	MOS-COMBO-10-007	2013-01-22T05:50:29	G140H	F070LP	NO_LAMP	FFV
10352	MOS-COMBO-11-007	2013-01-22T09:53:42	G140H	F070LP	NO_LAMP	FFV
10415	MOS-COMBO-12-007	2013-01-22T17:27:54	G140H	F070LP	NO_LAMP	FFV
10466	MOS-COMBO-13-007	2013-01-22T21:35:17	G140H	F070LP	NO_LAMP	FFV
10517	MOS-COMBO-14-007	2013-01-23T02:09:07	G140H	F070LP	NO_LAMP	FFV
10572	MOS-COMBO-15-007	2013-01-23T20:18:15	G140H	F070LP	NO_LAMP	FFV
10623	MOS-COMBO-16-007	2013-01-24T00:20:55	G140H	F070LP	NO_LAMP	FFV
10674	MOS-COMBO-17-007	2013-01-24T04:24:13	G140H	F070LP	NO_LAMP	FFV
10738	MOS-COMBO-18-007	2013-01-24T11:45:50	G140H	F070LP	NO_LAMP	FFV
10789	MOS-COMBO-19-007	2013-01-24T15:54:58	G140H	F070LP	NO_LAMP	FFV
10840	MOS-COMBO-20-007	2013-01-24T20:03:30	G140H	F070LP	NO_LAMP	FFV
10891	MOS-COMBO-21-007	2013-01-25T00:10:49	G140H	F070LP	NO_LAMP	FFV
10942	MOS-COMBO-22-007	2013-01-25T04:25:10	G140H	F070LP	NO_LAMP	FFV
10993	MOS-COMBO-23-007	2013-01-25T08:32:25	G140H	F070LP	NO_LAMP	FFV
11044	MOS-COMBO-24-007	2013-01-25T12:37:54	G140H	F070LP	NO_LAMP	FFV
11095	MOS-COMBO-25-007	2013-01-25T16:48:48	G140H	F070LP	NO_LAMP	FFV
11159	MOS-COMBO-26-007	2013-01-26T00:10:06	G140H	F070LP	NO_LAMP	FFV
11210	MOS-COMBO-27-007	2013-01-26T04:16:59	G140H	F070LP	NO_LAMP	FFV
11261	MOS-COMBO-28-007	2013-01-26T08:29:10	G140H	F070LP	NO_LAMP	FFV
11312	MOS-COMBO-29-007	2013-01-26T12:32:43	G140H	F070LP	NO_LAMP	FFV
11363	MOS-COMBO-30-007	2013-01-26T17:08:08	G140H	F070LP	NO_LAMP	FFV
11414	MOS-COMBO-31-007	2013-01-26T21:19:53	G140H	F070LP	NO_LAMP	FFV
11465	MOS-COMBO-32-007	2013-01-27T01:27:43	G140H	F070LP	NO_LAMP	FFV
11516	MOS-COMBO-33-007	2013-01-27T05:32:13	G140H	F070LP	NO_LAMP	FFV
11580	MOS-COMBO-34-007	2013-01-27T12:50:36	G140H	F070LP	NO_LAMP	FFV

11631	MOS-COMBO-35-007	2013-01-27T17:02:00	G140H	F070LP	NO_LAMP	FFV
11682	MOS-COMBO-36-007	2013-01-27T21:09:09	G140H	F070LP	NO_LAMP	FFV
11733	MOS-COMBO-37-007	2013-01-28T01:16:40	G140H	F070LP	NO_LAMP	FFV
11784	MOS-COMBO-38-007	2013-01-28T05:46:40	G140H	F070LP	NO_LAMP	FFV
11835	MOS-COMBO-39-007	2013-01-28T09:56:55	G140H	F070LP	NO_LAMP	FFV
11886	MOS-COMBO-40-007	2013-01-28T15:10:01	G140H	F070LP	NO_LAMP	FFV
11937	MOS-COMBO-41-007	2013-01-28T19:16:45	G140H	F070LP	NO_LAMP	FFV
9614	MOS-COMBO-01-048	2013-01-19T01:56:11	PRISM	CLEAR	NO_LAMP	FFB
9665	MOS-COMBO-02-048	2013-01-19T06:06:55	PRISM	CLEAR	NO_LAMP	FFB
9721	MOS-COMBO-03-048	2013-01-19T11:44:40	PRISM	CLEAR	NO_LAMP	FFB
9772	MOS-COMBO-04-048	2013-01-19T15:49:59	PRISM	CLEAR	NO_LAMP	FFB
9941	MOS-COMBO-05-048	2013-01-20T08:00:05	PRISM	CLEAR	NO_LAMP	FFB
9992	MOS-COMBO-06-048	2013-01-20T12:12:59	PRISM	CLEAR	NO_LAMP	FFB
10076	MOS-COMBO-07-048	2013-01-20T20:05:24	PRISM	CLEAR	NO_LAMP	FFB
10240	MOS-COMBO-08-048	2013-01-22T00:43:10	PRISM	CLEAR	NO_LAMP	FFB
10291	MOS-COMBO-09-048	2013-01-22T04:47:47	PRISM	CLEAR	NO_LAMP	FFB
10342	MOS-COMBO-10-048	2013-01-22T08:50:26	PRISM	CLEAR	NO_LAMP	FFB
10393	MOS-COMBO-11-048	2013-01-22T12:53:59	PRISM	CLEAR	NO_LAMP	FFB
10456	MOS-COMBO-12-048	2013-01-22T20:28:06	PRISM	CLEAR	NO_LAMP	FFB
10507	MOS-COMBO-13-048	2013-01-23T01:07:15	PRISM	CLEAR	NO_LAMP	FFB
10558	MOS-COMBO-14-048	2013-01-23T05:09:55	PRISM	CLEAR	NO_LAMP	FFB
10613	MOS-COMBO-15-048	2013-01-23T23:19:08	PRISM	CLEAR	NO_LAMP	FFB
10664	MOS-COMBO-16-048	2013-01-24T03:22:12	PRISM	CLEAR	NO_LAMP	FFB
10715	MOS-COMBO-17-048	2013-01-24T07:23:13	PRISM	CLEAR	NO_LAMP	FFB
10779	MOS-COMBO-18-048	2013-01-24T14:45:23	PRISM	CLEAR	NO_LAMP	FFB
10830	MOS-COMBO-19-048	2013-01-24T18:59:18	PRISM	CLEAR	NO_LAMP	FFB
10881	MOS-COMBO-20-048	2013-01-24T23:08:49	PRISM	CLEAR	NO_LAMP	FFB
10932	MOS-COMBO-21-048	2013-01-25T03:11:37	PRISM	CLEAR	NO_LAMP	FFB
10983	MOS-COMBO-22-048	2013-01-25T07:25:27	PRISM	CLEAR	NO_LAMP	FFB
11034	MOS-COMBO-23-048	2013-01-25T11:32:51	PRISM	CLEAR	NO_LAMP	FFB
11085	MOS-COMBO-24-048	2013-01-25T15:41:52	PRISM	CLEAR	NO_LAMP	FFB
11136	MOS-COMBO-25-048	2013-01-25T19:50:00	PRISM	CLEAR	NO_LAMP	FFB
11200	MOS-COMBO-26-048	2013-01-26T03:14:30	PRISM	CLEAR	NO_LAMP	FFB
11251	MOS-COMBO-27-048	2013-01-26T07:19:58	PRISM	CLEAR	NO_LAMP	FFB
11302	MOS-COMBO-28-048	2013-01-26T11:29:06	PRISM	CLEAR	NO_LAMP	FFB
11353	MOS-COMBO-29-048	2013-01-26T15:33:01	PRISM	CLEAR	NO_LAMP	FFB
11404	MOS-COMBO-30-048	2013-01-26T20:13:12	PRISM	CLEAR	NO_LAMP	FFB
11455	MOS-COMBO-31-048	2013-01-27T00:21:27	PRISM	CLEAR	NO_LAMP	FFB
11506	MOS-COMBO-32-048	2013-01-27T04:29:06	PRISM	CLEAR	NO_LAMP	FFB
11557	MOS-COMBO-33-048	2013-01-27T08:32:58	PRISM	CLEAR	NO_LAMP	FFB
11621	MOS-COMBO-34-048	2013-01-27T15:54:39	PRISM	CLEAR	NO_LAMP	FFB
11672	MOS-COMBO-35-048	2013-01-27T20:01:53	PRISM	CLEAR	NO_LAMP	FFB
11723	MOS-COMBO-36-048	2013-01-28T00:09:34	PRISM	CLEAR	NO_LAMP	FFB
11774	MOS-COMBO-37-048	2013-01-28T04:18:28	PRISM	CLEAR	NO_LAMP	FFB
11825	MOS-COMBO-38-048	2013-01-28T08:46:23	PRISM	CLEAR	NO_LAMP	FFB
11876	MOS-COMBO-39-048	2013-01-28T13:53:07	PRISM	CLEAR	NO_LAMP	FFB
11927	MOS-COMBO-40-048	2013-01-28T18:10:05	PRISM	CLEAR	NO_LAMP	FFB
11978	MOS-COMBO-41-048	2013-01-28T22:15:57	PRISM	CLEAR	NO_LAMP	FFB
9851	SLIT-COMBO-076	2013-01-20T01:07:40	PRISM	CLEAR	NO_LAMP	FFB

Table 1. List of the observations collected during the NIRSpec ground calibration campaign and used to derive the flat-field reference files. The columns are as follows: (1) observation ID, (2) name and number of the procedure, (3) date, (4) name of the disperser, (5) name of the filter, (6) name of the CAA source, (8) name of the CLS source.

FILENAME
nirspec_flat_G140H_F100LP_FF1_491_02.01.fits
nirspec_flat_G140H_F100LP_FF1_492_02.01.fits
nirspec_flat_G140H_F070LP_FFV_491_02.01.fits
nirspec_flat_G140H_F070LP_FFV_491_02.01.fits
nirspec_flat_G140H_OPAQUE_FLAT1_491_02.01.fits
nirspec_flat_G140H_OPAQUE_FLAT1_492_02.01.fits
nirspec_flat_G140H_OPAQUE_FLAT4_491_02.01.fits
nirspec_flat_G140H_OPAQUE_FLAT4_492_02.01.fits
nirspec_flat_G140M_F100LP_FF1_491_02.01.fits
nirspec_flat_G140M_F100LP_FF1_492_02.01.fits
nirspec_flat_G140M_F070LP_FFV_491_02.01.fits
nirspec_flat_G140M_F070LP_FFV_492_02.01.fits
nirspec_flat_G140M_OPAQUE_FLAT1_491_02.01.fits
nirspec_flat_G140M_OPAQUE_FLAT1_492_02.01.fits
nirspec_flat_G140M_OPAQUE_FLAT4_491_02.01.fits
nirspec_flat_G140M_OPAQUE_FLAT4_492_02.01.fits
nirspec_flat_G235H_F170LP_FF2_491_02.01.fits
nirspec_flat_G235H_F170LP_FF2_492_02.01.fits
nirspec_flat_G235H_OPAQUE_FLAT2_491_02.01.fits
nirspec_flat_G235H_OPAQUE_FLAT2_492_02.01.fits
nirspec_flat_G235M_F170LP_FF2_491_02.01.fits
nirspec_flat_G235M_F170LP_FF2_492_02.01.fits
nirspec_flat_G235M_OPAQUE_FLAT2_491_02.01.fits
nirspec_flat_G235M_OPAQUE_FLAT2_492_02.01.fits
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nirspec_flat_G395H_F290LP_FF3_492_02.01.fits
nirspec_flat_G395H_OPAQUE_FLAT3_491_02.01.fits
nirspec_flat_G395H_OPAQUE_FLAT3_492_02.01.fits
nirspec_flat_G395M_F290LP_FF3_491_02.01.fits
nirspec_flat_G395M_F290LP_FF3_492_02.01.fits
nirspec_flat_G395M_OPAQUE_FLAT3_491_02.01.fits
nirspec_flat_G395M_OPAQUE_FLAT3_492_02.01.fits
nirspec_flat_PRISM_CLEAR_FFB_491_02.01.fits
nirspec_flat_PRISM_CLEAR_FFB_492_02.01.fits
nirspec_flat_PRISM_OPAQUE_FLAT5_491_02.01.fits
nirspec_flat_PRISM_OPAQUE_FLAT5_492_02.01.fits

Table 2. List of the flat-field reference files that are part of this delivery, in alphabetical order.