EPOXI In-Flight Calibrations Summary

Throughout the EPOXI mission various calibrations were conducted to monitor the health and performance of the HRII, HRIV, and MRI instruments and to better characterize certain aspects of their performance. In-flight calibrations included dark and stim lamp frames, stellar images, and observations of the Moon as shown in the table below that is an excerpt from the EPOXI instrument calibration report by Klaasen, et al. (2011, in preparation). Data were acquired and returned uncompressed. Please note the calibration collection includes HRIV and MRI dark and stim lamp frames occasionally acquired from January 2008 to November 2009 in support of the EPOCh exoplanet transit, Earth, and Mars observations as well as from September through November 2010 in support of the DIXI/Hartley 2; these items are not listed in the table below. ***Please note the target 'iCar' is the star "i Car"; it is designated "HD 79447" in archived data products. Also for the last entry, the date of acquisition for the IR extended linearity calibration is 2/5-6/2011.***

Date of Acquisition	DOY(s) of downlink	Activity	Data Types			Target(s)	Purpose	Comments
			HRIVIS	MRIVIS	IR			
10/4/2007	283	Instrument checkout	Images	Images	Frames	Dark sky	Test instruments	
11/4-9/2007	312-313	EPOCh photometry test	Images	Images		HD 80606 & HD 80607	Assess HRIVIS photometric accuracy	
12/4/2007	338	Instrument checkout retest			Frames	Dark sky	Test IR Spectrometer funtionality	
12/17/2007	351-352	HRI scattered light cal	Darks, short & long exposures			Moon	Measure scattered light in selected HRIVIS filters	
12/29/2007	363-364	Lunar calibration	Radiometry	Radiometry, scattered light	Along and cross-slit scans	Moon	IR flat field, anti-saturation filter characterization, scattered light, radiometry	Long-wavelength saturation of flat-field data
1/9/2008	9,10	Cruise calibration	Stars, clusters, darks, STIMs	Stars, clusters, darks, STIMs	Stars, clusters, darks	Achernar, iCar, 16CygA, Vega, Canopus, bet Hyi, HD60753, 47Tuc, NGC3114, NGC7027	Radiometry, focal length, geometric disotrtion, psf, VIS crosstalk, IR alignment	Good radiometry, geometry, linearity data
1/16-17/2008	19	IR darks			Darks	None	Determine IR background level	
6/23-25/2008	175-178	Cruise calibration	Stars, clusters, darks, STIMs	Stars, clusters, darks, STIMs	Stars, clusters, darks	Achernar, iCar, 16CygA, Vega, Canopus, bet Hyi, HD60753, 47Tuc, NGC3114, NGC7027	Radiometry, focal length, geometric disotrtion, psf, VIS crosstalk, IR alignment	Good radiometry, geometry, linearity data
9/18/2008	262	IR reciprocity			Darks	None	Background rate vs. exposure and detector flush history	
9/26/2008	270	IR flush test			Darks	None	Background rate vs. exposure and detector flush history	
10/2/2008	276	DI encounter rerun			Darks	None	Obtain darks applicable to the DI encounter frames	
10/8/2008	282	IR gap test			Darks	None	Background rate vs. mode, gap time, and flushes	
12/17/2008	352-353	HRIVIS PSF test	Star images, darks, STIMs			Achernar, Canopus	Improved HRIVIS psf	
1/26/2009	26	IR subframe gain test		Context frames	Cross-slit scans at different modes, rates, gap times	Moon	Determine if subframe response differences are a gain or an offset effect	
6/1-2/2009	153, 156	IR flat field		Context frames	Along-slit scans	Moon	IR flat field, radiometry	Poor short-wave SNR
6/9/2009	161	IR ASF scattering		Context frames	Cross-slit scans	Moon	Radiometry, anti-sat filter scattering	
6/18/2009	169	IR linearity			Darks	Dark sky	Linearity	
10/13-24/2009	286-297	Bet Hyi IR radiometry		Context frames	Star scans	Bet Hyi	Absolute spectral radiometric response	
11/20/2009	325	IR subframe darks			Darks	None	Background signal rate in subframes vs. integration time and gap time	
12/5,12 & 18/2009	339-352	IR flat field and radiometry		Context frames	Cross- and along-slit scans	Moon	IR flat field, radiometry	Good flat-field data
2/16/2010	47-49	Cruise calibration	Stars, clusters, darks, STIMs	Stars, clusters, darks, STIMs	Stars, clusters, darks	Achernar, iCar, 16CygA, Vega, Canopus, bet Hyi, HD60753, 47Tuc, NGC3114, NGC7027	Radiometry, focal length, geometric disotrtion, psf, VIS crosstalk, IR alignment	Good radiometry, geometry, linearity data
4/20/2010	110	IR no-save flush test			Darks	None	Test flush frames to eliminate first-frame transient in background level	
5/3-17/2010	123-138	Bet Hyi IR radiometry		Context frames	Star scans	Bet Hyi	Absolute spectral radiometric response	
7/12/2010	193	DOSIDO test		Stars		Random space	Test S/C ability to support approach observing plan	
9/3/2010	246	HRIVIS PSF test	Star images, darks, STIMs			Canopus	Improved HRIVIS psf	
9/28-29/2010	271-272	Pre-encounter calibration	Stars, clusters, darks, STIMs	Stars, clusters, darks, STIMs	Stars, clusters, darks	Achernar, iCar, 16CygA, Vega, Canopus, bet Hyi, HD60753, 47Tuc, NGC3114, NGC7027	Radiometry, focal length, geometric disotrtion, psf, VIS crosstalk, IR alignment	Good radiometry, geometry, linearity data
11/27-28/2010	331, 332, 334	Post-encounter calibration	Stars, clusters, darks, STIMs	Stars, clusters, darks, STIMs	Stars, clusters, darks	Achernar, iCar, 16CygA, Vega, Canopus, bet Hyi, HD60753, 47Tuc, NGC3114, NGC7027	Radiometry, focal length, geometric disotrtion, psf, VIS crosstalk, IR alignment	Good radiometry, geometry, linearity data
2/5-6/2010	36-42	IR extended linearity			Darks	None	Gather enough data to allow pixel-by-pixel linearity determination	