

Next Generation Space Telescope

Integrated Science Instrument Module

Near Infrared Camera Deliverable Items List and Schedule

DRAFT RELEASE 1



**Goddard Space Flight Center
Greenbelt, Maryland 20771**

**CHECK THE NGST DATA BASE AT:
<http://NGST1.hst.nasa.gov/SearchLib.asp>
TO VERIFY THAT THIS IS THE CORRECT VERSION PRIOR TO USE.**

This document is a Next Generation Space Telescope (NGST) controlled document. Changes to this document require prior approval of the Instrument Manager. Proposed changes shall be submitted to the NGST Configuration Management Office (CMO), along with supportive material justifying the proposed change. Changes to this document will be made by complete revision.

Questions or comments concerning this document should be addressed to:

NGST Configuration Manager
NGST Configuration Management Office
Mail Stop TBD
Goddard Space Flight Center
Greenbelt, Maryland 20771

MODIFICATION LISTING**DRAFT RELEASE 1**

- Initial Release of NIRCam DILS
- Modifications of Generic DILS Draft Release 1 (10/26/01/01) to This Document
 - Document Title and Number Changed
 - “Science Instrument” removed from Title of Multiple Documents
 - DRD PM-17 Title Revised - Action Required changed - Schedule revised
 - DRD PM-19 Title Revised - Action Required changed - Schedule revised
 - DRD PM-21 Title Revised - Action Required changed - Schedule revised
 - DRD SE-04 Title Revised
 - DRD SE-05 Title Revised - Removed from NGST CM Control
 - DRD SE-06 Title Revised - Removed from NGST CM Control
 - DRD SE-07 Title Revised - Removed from NGST CM Control
 - DRD SI-03 New Document
 - DRD SI-04 New Document
 - DRD SI-05 Renumbered, was DRD SI-03
 - DRD SI-06 Renumbered, was DRD SI-04
 - DRD SI-07 Renumbered, was DRD SI-05
 - DRD SI-08 Renumbered, was DRD SI-06
 - DRD SI-09 Renumbered, was DRD SI-07
 - DRD SI-10 Renumbered, was DRD SI-08
 - DRD IT-01 Schedule Revised
 - DRD IT-04 Title Revised
 - DRD OTE-01 Title Revised - Removed from NGST CM Control
 - DRD OTE-02 Title Revised - Removed from NGST CM Control
 - DRD FSW-06 Title Revised - Action Required changed - Removed from NGST CM Control
 - DRD OPS-05 Title Revised – Schedule Revised
 - DRD OPS-07 Typographic Error Corrected in ID
 - DRD OPS-09 Action Required changed - Added to NGST CM Control

This document is the Near Infrared Camera (NIRCam) Deliverable Items List and Schedule (DILS). The document provides specific information on the deliverable documentation, listed in the Science Instruments Data Requirements Document (DRD) (NGST-RQMT-000739)

The table below provides a listing of all contract deliverables including the following information:

ID: This is an alpha-numeric identifier (XX-##) for each Document. Each Document is identified by one of the codes listed (XX) below and are based on the subject content of the document:

Document Code	Subject Content
PM	Project Management
SA	Systems Assurance
SE	Systems Engineering
IT	Integration & Test
OTE	Observatory Optical Telescope Element
SI	Science Instrument
FSW	Flight Software
GSW	Ground Software
OPS	Operations

Note: if the ID contains (DRD XX-##), this refers to a contract deliverable which will be referenced in the Statement of Work and is described in the Science Instruments Data Requirements Document (DRD) (NGST-RQMT-000739).

Title: This provides the Title and, if appropriate, a brief description of the deliverable item.

Schedule: This provides the fixed or relative date or time that the deliverable is required.

SOW Ref: This provides a specific section(s) reference in the Instrument Statement of Work (SOW) (ISIM-SOW-xxxxxx) for which the deliverable is required.

Action Required:

A = Approval – Documents in this category require Government review and approval prior to final acceptance. The Government will adhere to a controlled schedule for review of the initial submittal and subsequent changes. Documents shall meet specific format requirements, as specified in the ISIM Configuration Management Procedures (NGST-PROC-000654) and content requirements, as defined in the Science Instruments Data Requirements Document (NGST-RQMT-000739). Deviations from the controlled schedule or format will be considered on a case-by-case basis.

R= Review – Documents in this category do not require formal Government approval. They must be received within a specified time period and are subject to evaluation. The Government reserves the time-

limited right of disapproval for each submission. No prescribed format is specified although a recommended format may be found in the Science Instruments Data Requirements Document (NGST-RQMT-000739).

I = Information – Documents in this category are informal and are for information only.

CM Control: Government Configuration Management will control Documents in this category. (This category is intended to include all documents that affect segments, elements, subsystems and interfaces that are not completely under the Contractor's control.)

Quantity: This provides the required number of copies for the deliverable. All data is required to be submitted electronically (reference paragraph 3.2.1 of the DRD for the electronic format). The number in the quantity column refers to the number of hard copies required.

Deliverable Schedule:

ID	Title	Schedule	SOW Ref	Action Required	CM Control	Quantity
DRD PM-01	Management Plan	Draft due at completion of Phase-A Final due on Phase-B/C/D contract award + 30 days. Update as required.		R A		6 6
DRD PM-02	Monthly and Quarterly Status Report	Due monthly during Phase-B/C/D contract, 10 working days following the month being reported. Due quarterly during Phase-B/C/D contract, 15 working days following the quarter being reported.		R		Deliver electronically to distribution list provided by CO + 6 hardcopies
DRD PM-03	Government Furnished Equipment Utilization Plan	Draft due at completion of Phase-A Final due on Phase-B/C/D contract award + 30 days. Update as required.		R R		6
DRD PM-04	Manufacturing Plan	Due on Phase-B/C/D contract award + 30 days. Update as required.		R		6
DRD PM-05	Project Schedules	Draft due with Phase-A Proposal Update due at completion of Phase-A Final due on Phase-B/C/D contract award + 30 days. Updates required with DRD PM-02		R		Deliver electronically to distribution list provided by CO
DRD PM-06	Monthly Financial Management Report (533M)	Due monthly during Phase-B/C/D contract on 15th of the month following the month being reported.		R		6
DRD PM-07	Quarterly Financial Management Reports (533Q)	Due monthly during Phase-B/C/D contract on 15th of the month following the quarter being reported.		R		6
DRD PM-08	Earned Value Management System Description	Draft Due at completion of Phase-A Final Due 90 days after Phase-B/C/D contract award. Update as required.		R		6
DRD PM-09	Monthly Earned Value Management System Report	Due monthly during Phase-B/C/D contract ten days after the close of the monthly accounting period.		R		6
DRD PM-10	Integrated Baseline Review Package	Due within the first 6 months following Phase-B/C/D contract award or after exercise of significant contract modifications.		R		50
DRD PM-11	Configuration Management Plan	Due on Phase-B/C/D contract award + 30 days. Update as needed.		A		5

ID	Title	Schedule	SOW Ref	Action Required	CM Control	Quantity
DRD PM-12	Document Management Plan	Due on Phase-B/C/D contract award + 30 days. Update as needed.		A		5
DRD PM-13	System Requirements Review	Draft due 10 working days prior to the Instrument review. Final due 2 working days prior to the Instrument review. Instrument Packages are due no less than 30 days prior to the ISIM SRR Follow-up reports due 5 working days after conclusion of review.		R		Draft 10 Final 100 ISIM SRR -25 Follow-up - 5
DRD PM-14	Preliminary Design Review	Draft due 10 working days prior to the Instrument review. Final due 2 working days prior to the Instrument review. Instrument Packages are due no less than 30 days prior to the ISIM PDR Follow-up reports due 5 working days after conclusion of review.		R		Draft 10 Final 100 Element -25 Follow-up - 5
DRD PM-15	Non-Advocate Review	Draft due 10 working days prior to the review. Final due 2 working days prior to the review. Follow-up reports due 5 working days after conclusion of review.		R		Draft 10 Final 100 Follow-up - 5
DRD PM-16	Critical Design Review	Draft due 10 working days prior to the Instrument review. Final due 2 working days prior to the Instrument review. Instrument Packages are due no less than 30 days prior to the ISIM CDR Follow-up reports due 5 working days after conclusion of review		R		Draft 10 Final 100 ISIM -25 Follow-up - 5
DRD PM-17	Input to Mission Operations Review	Inputs due 10 working days prior to the review. Follow-up reports due 5 working days after conclusion of review.		I		Draft 10 Follow-up - 5
DRD PM-18	Test Readiness Review	Draft due 10 working days prior to the review. Final due 2 working days prior to the review. Will be updated (red-lined) at the TRR. Acceptance of the TRR package at the TRR will indicate approval to proceed with the test.		R		Draft 10 Final 100

ID	Title	Schedule	SOW Ref	Action Required	CM Control	Quantity
DRD PM-19	Inputs to Operations Readiness Review	Inputs due 10 working days prior to the review. Follow-up reports due 5 working days after conclusion of review.		I		Draft 10 Follow-up – 5
DRD PM-20	Pre-Shipment Review	Draft due 10 working days prior to the review. Final due 2 working days prior to the review. Follow-up reports due 5 working days after conclusion of review.		R		Draft 10 Final 100 Follow-up – 5
DRD PM-21	Inputs to Flight Readiness Review	Inputs due 10 working days prior to the review. Follow-up reports due 5 working days after conclusion of review.		I		Draft 10 Follow-up – 5
DRD PM-22	Long Lead Items List	Due at completion of Phase-A Updates as required.		A		3
DRD PM-23	Risk Management Plan	Draft Due at completion of Phase-A Final due on Phase-B/C/D contract award + 30 days. Update monthly.		A		10
PM-24	Preliminary Hazard Analysis	Submit at PDR Update at CDR		A		5
PM-25	Safety Noncompliance Reports	Submit as generated		A		5
PM-26	Inputs to the ISIM Risk Management Plan	Due on Phase-B/C/D contract award + 30 days. Update monthly.		R		5
PM-27	Photographic and Video Documentation	Due 48 hours after completion of recording of specific event.		I		1 per event 1 copy negative or Photo CD as appropriate
DRD SA-01	Performance/Quality Assurance Plan	Due at completion of Phase-A Updates due by Instrument PDR		A		3
DRD SA-02	Contamination Control Plan	Preliminary version due at Instrument PDR. Final version due at Instrument CDR.		A	YES	6
DRD SA-03	Use of Previously Designed, Fabricated, or Flown Hardware	Due at Instrument CDR.		A		3
DRD SA-04	Problem Failure Report	Due within 24 hours of failure occurrence.		A		3 report for each failure occurrence

ID	Title	Schedule	SOW Ref	Action Required	CM Control	Quantity
DRD SA-05	Trend Analysis	Due upon request following Instrument CDR. All applicable trend analysis reports to be provided at the Instrument PSR and FRR.		R		6 per component or subsystem monitored
DRD SA-06	Limited-Life Items	Preliminary version due at Instrument PDR. Final version due at Instrument CDR.		A		3 per item
DRD SA-07	Parts Identification List	Preliminary version due Instrument PDR. Final "as designed" list due at Instrument CDR. Final "as built" list due with delivery of hardware.		A		3 per delivery
DRD SA-08	Parts Data Base	Preliminary version due at Instrument PDR. Final version due at Instrument CDR.		R		3
DRD SA-09	Parts Stress Analysis	Due by Instrument CDR.		A		3 per analysis
DRD SA-10	Worst Case Circuit Analysis	Due by Instrument CDR. Update as required.		R		3 per analysis
DRD SA-11	Printed Wiring Board Coupons	See DRD SA-11.		A		1 per PWB
DRD SA-12	Materials Usage Agreement	Due prior to use of material.		A		3 per agreement
DRD SA-13	Stress Corrosion Evaluation Form	Preliminary version due at Instrument PDR. Final version due at Instrument CDR.		A		3 per evaluation
DRD SA-14	Non-conventional Material and Lubrication Report	Due by Instrument CDR.		A		3 per request
DRD SA-15	Polymeric Materials and Composites Usage List	Preliminary version due at Instrument PDR. Final version due at Instrument CDR.		A		3 per request
DRD SA-16	Inorganic Materials and Composites Usage List	Preliminary version due at Instrument PDR. Final version due at Instrument CDR.		A		3 per request
DRD SA-17	Lubrication Usage List	Preliminary version due at Instrument PDR. Final version due at Instrument CDR.		A		3 per request
DRD SA-18	Material Process Utilization List	Preliminary version due at Instrument PDR. Final version due at Instrument CDR.		A		3 per request
DRD SE-01	Systems Engineering Plan	Due on Phase-B/C/D contract award + 30 days. Update as needed.		A		10
DRD SE-02	Electromagnetic Compatibility Control Plan	Preliminary version due at Instrument PDR. Final version due at Instrument CDR. Update as required.		R		5

ID	Title	Schedule	SOW Ref	Action Required	CM Control	Quantity
DRD SE-03	NIRCam Specification	Preliminary version due at completion of Phase-A Final version due at Instrument SRR. Update as required.		A	YES	25
DRD SE-04	Validation and Verification Plan	Preliminary version due 2 months after Phase-B/C/D contract award Update at Instrument PDR. Final version due at Instrument CDR. Update as required.		A	YES	25
DRD SE-05	Inputs to ISIM to Science Instrument General Interface Requirements Document	Preliminary inputs due at completion of Phase-A Update as required.		I		5
DRD SE-06	Inputs to ISIM to NIRCam Unique Interface Requirements Document	Preliminary inputs due at completion of Phase-A Update as required.		I		25
DRD SE-07	Inputs to ISIM to NIRCam Interface Control Document	Preliminary version due 2 months after Phase-B/C/D contract award Final version due at Instrument PDR. Update as required.		I		25
DRD SE-08	Fault Protection Requirements Document	Preliminary version due at completion of Phase-A Due at Instrument SRR. Update as required.		R		15
DRD SE-09	Fault Protection Description Document	Preliminary version due at completion of Phase-A Due at Instrument SRR. Update as required.		R		15
SE-10	Math Models Data Package	Initial models and supporting documentation due at completion of Phase-A Updates: 30 days prior to major Instrument reviews (SRR, PDR, CDR) Provide status of modeling effort, and results of analysis at major Instrument reviews (PDR, CDR). Provide interim results and updates as required.		A		15
SE-11	System Engineering Electronic Databases	Deliver as data is generated. Update as needed.				1 (electronic only)
SE-12	Problem/Anomaly Tracking Reports	Due on Phase-B/C/D contract award + 30 days. Update as weekly.				10

ID	Title	Schedule	SOW Ref	Action Required	CM Control	Quantity
SE-13	Trade Studies and LCC Analyses	Due upon request.				10
SE-14	Technical Risk Management Analyses	Due upon request.				10
DRD IT-01	I&T Plan	Draft version due at completion of Phase-A Update at Instrument PDR. Update 3 months prior to ETU I&T start. Final version due 3 months prior to Flight Unit I&T start Update as required.		A	YES	25
DRD IT-02	Validation Reports	Preliminary version due 72 hours after test. Final version due 30 days after test.		R		6 per test
DRD IT-03	Instrument and GSE Transportation Plan	Preliminary version due at Instrument PDR. Final version due at Instrument CDR. Update as required.		A		10
DRD IT-04	Inputs to ISIM Integration and Test Plan	As requested to support ISIM I&T Plan document preparation		I		
DRD IT-05	Ground Support Equipment Description and User's Guide	Due with delivery of hardware (STM, ETU, FU).		I		
IT-06	Test and Verification Reports	Preliminary version due 1 month after completion of each test. Final version due prior to Instrument PSR.		R		15 per test
DRD OTE-01	Inputs to OTE Simulator to ISIM Interface Requirements Document	As requested to support OTE document preparation: Initial version due at OTE SRR. Final version due at OTE PDR. Update as appropriate.		I		5
DRD OTE-02	Inputs to OTE Simulator to ISIM Interface Control Document	As requested to support OTE document preparation: Initial version due at OTE PDR. Final version due at OTE CDR. Update as appropriate.		I		5
DRD SI-01	Preliminary Design Description Document	Preliminary version due at completion of Phase-A Due at Instrument SRR. Update 30 days prior to PDR		R		20

ID	Title	Schedule	SOW Ref	Action Required	CM Control	Quantity
DRD SI-02	Design Description Document	Due at Instrument CDR.		R		20
DRD SI-03	Mass and Thermal Simulator for the Optics Assembly Report	Due with delivery of hardware		A		3 per delivery
DRD SI-04	Instrument Control Electronics Simulator Report	Due with delivery of hardware		A		3 per delivery
DRD SI-05	Structural-Thermal Model Report	Due with delivery of hardware		A		3 per delivery
DRD SI-06	Engineering Model Report	Due with delivery of hardware		A		3 per delivery
DRD SI-07	Flight Unit Report	Due with delivery of hardware		A		3 per delivery
DRD SI-08	Acceptance Data Package	Due with delivery of hardware (STM, ETU, FU).		A		3 per delivery
SI-09	Optics Review	Draft due 10 working days prior to the review. Final due 2 working days prior to the review.		A		Draft 10 Final 100
SI-010	Mechanisms Review	Draft due 10 working days prior to the review. Final due 2 working days prior to the review.		A		Draft 10 Final 100
DRD GS-01	Ground Software Report					
DRD FSW-01	FSW Product Plan	Due 2 months following Phase-B/C/D contract award.		A	YES	25
DRD FSW-02	FSW Vision Document	Due 1 month following Phase-B/C/D contract award. Update as required.		R		
DRD FSW-03	FSW Requirements Document	Due 6 months following Phase-B/C/D contract award. Update as required.		A	YES	25
DRD FSW-04	FSW Iteration Plan	Due 2 weeks after start of FSW Inception Phase. Update for each iteration.		A		
DRD FSW-05	FSW Architecture Document	Due at end 1 st FSW Elaboration Iteration. Update each iteration as required.		R		25
DRD FSW-06	Inputs to Science Instrument to ISIM FSW Interface Control Document	Preliminary due 12 months following Phase-B/C/D contract award. Final due 24 months following Phase-B/C/D contract award. Update as required.		I		25

ID	Title	Schedule	SOW Ref	Action Required	CM Control	Quantity
DRD FSW-07	FSW Test Plan	Due prior to onset of testing for each Construction Iteration.		R		
DRD FSW-08	FSW Test Evaluation Summary	Due 1 week after conclusion of testing in each Construction Iteration.		R		
DRD FSW-09	FSW Integration Build Plan	Draft 2 weeks after start of each Construction Iteration.		R		
DRD FSW-10	FSW Deployment Plan	Draft due 6 months before final FSW delivery. Final due 3 months before final FSW delivery.		R		
DRD FSW-11	FSW Requirements Review Package	Deliver 10 working days Prior to Review.		R		25
DRD FSW-12	FSW Architecture Review Package	Deliver 10 working days Prior to Review.		R		25
DRD FSW-13	FSW Delivery Package (VDD)	Due at the end of each FSW Construction Iteration. Update as required.		A	YES	1 per delivery
DRD FSW-14	FSW Users Guide	Draft due at end of final Construction Iteration. Final due at end of Deployment Phase.		R		
DRD FSW-15	FSW Data Base Document	Due with software deliveries at the end of each FSW Construction Iteration.		R		
DRD OPS-01	Commissioning Plan	Preliminary version due 15 months prior to launch. Final version due 9 months prior to launch.		A	YES	25
DRD OPS-02	Orbital Verification Flow	Preliminary version due 9 months prior to launch. Final version due 6 months prior to launch.		A		25
DRD OPS-03	Command Document	Due 3 months prior to ETU delivery Update due 3 months prior to Flight Unit delivery		A	YES	10 per element
DRD OPS-04	Reference Data Description Document	Due 3 months prior to ETU delivery. Update due 3 months prior to Flight Unit delivery		A	YES	10 per element
DRD OPS-05	Inputs to Description and Operations Handbook	Preliminary version 3 months prior to ETU Delivery Final version 3 months prior to Flight Unit Delivery. Update for NGST Mission Operations Review. Update for Operations Readiness Review.		I		5
DRD OPS-06	Constraints and Restrictions Document	Due 6 months prior to Flight Unit delivery		A	YES	20
DRD OPS-07	Operations Limitations Document	Due 6 months prior to Flight Unit delivery		A	YES	20

ID	Title	Schedule	SOW Ref	Action Required	CM Control	Quantity
DRD OPS-08	Contingency Operations Plan	Due 6 months prior Flight Unit delivery		A	YES	20
DRD OPS-09	Instrument Calibration Plan	Preliminary version by start of ETU Instrument level calibration testing Update by start of Flight Instrument level calibration test		A	YES	
DRD OPS-10	GTO Science Program	14 months prior to Observatory launch				
OPS-11	Commissioning Test Results, Reports, Anomaly Reports	Due at completion of test.		R		20 per test
OPS-12	Commissioning Data	Due upon request.				10

NGST Review Dates

For planning/proposal purposes, the following Review schedule shall be used to determine Delivery Schedule for PM-13, PM-14, PM-15, PM-16, PM-17, PM-19 and PM-21.

1) NGST Program review dates:

Review	ID	Date
System Requirements Review (SRR)	PM-13	See Top Level Review Dates for the Phase 2 NGST Observatory Contract NGST-LIST-000718
Preliminary Design Review (PDR)	PM-14	
Non Advocate Review (NAR)	PM-15	
Critical Design Review (CDR)	PM-16	
Mission Operations Review (MOR)	PM-17	
Operations Readiness Review (ORR)	PM-19	
Flight Readiness Review (FRR)	PM-21	

2) ISIM Project Reviews (PDR, CDR) will be scheduled 2 months prior to the corresponding NGST Program reviews.

3) Instrument Reviews (PDR, DCR) will be scheduled 2 months prior to the corresponding ISIM Project reviews.

4) ISIM and Instrument SRRs will be concurrent with the NGST Program review.