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# Java DAR Tool Requirements For the ECS Project

Technical Paper

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# Abstract

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The Java DAR Tool (JDT) is a user interface for submitting, modifying, and querying the status of data acquisition requests (DARs) for ASTER data. A DAR is a request to take data with the ASTER instrument. DARs are submitted to the ASTER Ground Data System (GDS) in Japan. This paper describes the detailed requirements for the JDT and the infrastructure components needed to perform the JDT functions. This paper represents a snapshot of these requirements for a requirements review of the work associated with contract modification 72 (Mod 72). Mod 72 establishes the need for the ECS contract to support the submission of DARs through a Web interface without the installation of software to the user's workstation. Subsequent modifications to these requirements will be maintained in the Requirements Traceability Matrix (RTM) tool using the normal ECS configuration control and requirements maintenance procedures.

**Keywords:** Client, DAR, Mod-72, ASTER, JDT

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## Abbreviations and Acronyms

# 1. Introduction

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## 1.1 Purpose

The purpose of this paper is to outline the requirements of the Java DAR Tool (JDT) as they are understood at the time of the JDT Requirements Review to solidify the requirements base for the design of the JDT. The purpose of the Level 4 requirements in this paper is to show the functionality needed to design the JDT and provide enough information to software engineers and testers to design and test the JDT effectively. The JDT is a tool for submitting, modifying, and querying the status of ASTER data acquisition requests to the ASTER Ground Data System (GDS) in Japan. A DAR is a request to take ASTER instrument data from the satellite. The need for the JDT is established in contract modification 72 where the Level 3 requirement for a Web interface for submitting DARs is established. This paper establishes an initial set of detailed requirements for the JDT. All subsequent modifications to these requirements after the final version of this paper will be maintained through the normal ECS configuration control and requirements maintenance procedures for ECS Level 4 (L4) requirements.

## 1.2 Organization

This paper is organized as follows:

Section 1 provides the purpose and organization of the paper.

Section 2 provides an introduction to the context of the JDT and how the tool is to be used.

Section 3 provides the L4 requirements of JDT and the supporting infrastructure components.

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## 2. JDT Overview

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### 2.1 JDT Usage

The JDT will be available under the ECS Home Page in addition to the Java Earth Science Tool (JEST). JEST is the tool used by science users to search for, order, and perform other services on ECS data. The JDT will be a standalone tool written in Java that will follow the same look and feel guidelines as JEST so users of both tools will be able to easily transition between these tools.

Users must be “registered” in order to perform certain services within ECS. This means that users must establish user accounts with an ECS DAAC in order to perform these services. The User Registration Tool delivered with the at-launch ECS system provides the capability for users to submit User Registration requests. The DAAC operators will use the information provided by the user to create an ECS User Profile. This information includes name, address, e-mail address, affiliation, billing and shipping addresses, and more.

One of the services that requires special access is the submission of ASTER DARs. Guest users will be able to initiate the JDT and create DARs stored in their sessions directory, but they will not be allowed to submit these DARs to ASTER GDS. There is a portion of the User Profile that establishes a user as a DAR user. This information can only be added by a DAAC operator upon approval of the user as an authorized DAR user. The approval process is a policy issue outside of the scope of the JDT.

In order for ECS to establish the user’s identity, the user will be required to log in to ECS before using JEST and/or JDT. The log in procedure is separate from JDT, but it establishes the user’s identity in order to determine the user’s privileges. As part of the login process, the user’s profile will be retrieved. Once the user has logged in and started the JDT, the JDT will check the profile that was retrieved and determine whether the user is allowed to submit DARs. The user will still be able to create DARs even if they are not authorized to submit them. The total range of DAR Tool capabilities are described in the following sections.

#### 2.1.1 X/Motif DAR Tool

As part of the at-launch system, an X/Motif GUI was developed. The major functions planned for this GUI appear below. Note that because the X/Motif DAR tool will be replaced by the JDT, some of these functions were not implemented.

Function	Brief Description
Text entry of DAR	This allows the user to enter a DAR through a series of text fields on a GUI. The capability for selecting from a map and timeline are listed as separate functions but are coordinated with these text fields so selections on the graphical part of the interface are reflected in the text fields and vice versa.

<b>Function</b>	<b>Brief Description</b>
DAR Submit	This is the ability to submit the DAR to the ASTER GDS in a protocol according to the ASTER ICD.
Calculate area/resource	This allows the user to calculate the number of scenes that would be generated by the DAR specified in the current request. This can be used by the user to determine if they really want to submit this DAR request.
Save As...	This allows the user to save DARs on the user's local disk.
Graphic entry of AOI	This allows the specification on a map of the spatial region that the DAR should cover.
DAR modify	This allows the user to modify certain fields of a previously submitted DAR in accordance with the ASTER ICD.
View swaths and ground tracks	This allows the user to display ground tracks and view swaths on a map during the specification of the spatial region that the DAR should cover. Deferred to JDT.
Copy	This allows the user to copy one DAR to another DAR from which the user can modify the DAR and submit it as a new one.
Delete	This allows the user to delete a saved DAR from the file system. Deferred to JDT.
Remaining DAR Budget	This allows the user to send a request to the ASTER GDS to determine the DAR budget the user has not consumed. Deferred to JDT.
Attached DPRs	Deferred.

## 2.1.2 JDT Functions

The JDT is a tool that integrates the existing functions from the X/Motif GUI with the Java tool that queries status of existing DARs. The major functions of the JDT (in no particular order) are as follows:

<b>Function</b>	<b>Brief Description</b>
Query by xAR ID	This allows a user to query for the xAR status if the xAR ID is known or picked from a saved query or submission record.
View spatial extent of scenes and cloud cover	This allows the user to view on a map the spatial extent and cloud coverage of the resulting scenes of a DAR after querying for the xAR status.
xAR ID "autolist" feature	This allows the user to pick xAR IDs from a list of saved information. This saved information may be from past queries or submission requests.
Query by attribute	This allows the user to query for xAR status by constructing a search of attributes contained in the ASTER GDS DAR database. The attributes that can be searched on are specified in the ASTER ICD (505-41-34).
DAR Query results, textual	This allows the user to see the results of a DAR query on a textual display. This is currently in a table format.
DAR Query results, graphical	This allows the user to see the results of a query graphically.

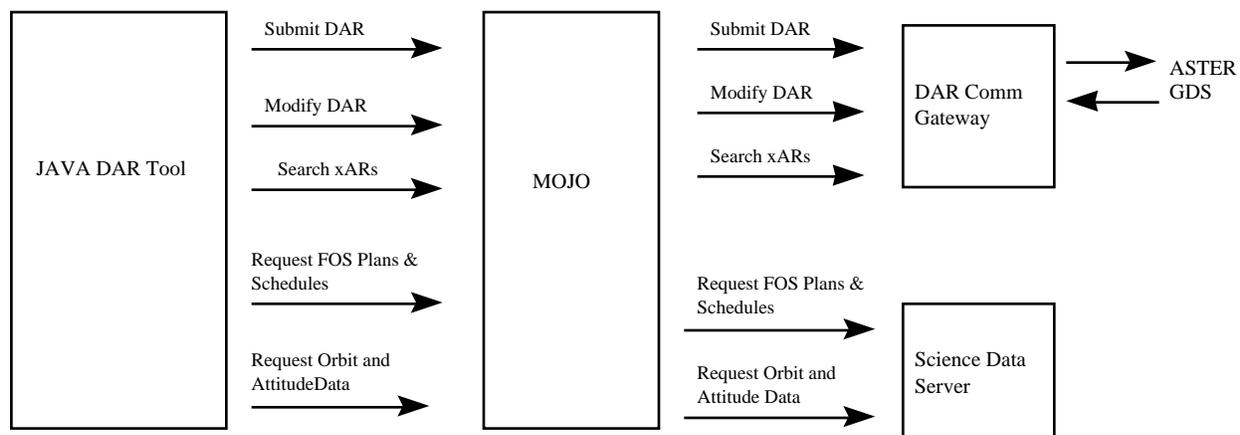
<b>Function</b>	<b>Brief Description</b>
Interactive timeline	This allows the user to select time ranges for queries and DAR submissions using a timeline.
Copy results for DAR Submit	This allows the user to easily duplicate a DAR by copying DAR Query Status results into a DAR submission request. The user will be able to edit the DAR before actually submitting it to ASTER GDS.
Schedule timeline	This allows the user to view the FOS planning and scheduling timelines.
Text entry of DAR	This allows the user to enter a DAR through a series of text fields on a GUI. The capability for selecting from a map and timeline are listed as separate functions but are coordinated with these text fields so selections on the graphical part of the interface are reflected in the text fields and vice versa.
DAR Submit	This is the ability to submit the DAR to the ASTER GDS in a protocol according to the ASTER ICD.
Calculate area/resource	This allows the user to calculate the number of scenes that would be generated by the DAR specified in the current request. This can be used by the user to determine if they really want to submit this DAR request.
Save As...	This is done automatically at the server side in the DAAC, but the user will have the ability to download this information to his/her workstation.
Attached DPR	This allows the user to request a higher level product for each scene generated by a DAR. This is provided so the user does not have to submit a separate processing request for each granule generated out of a DAR.
Delete of stored DAR	This allows the user to delete DARs, DAR searches, or DAR search results from the server side session directories.
DAR Download	This allows the user to download DAR information. This is a work around for the lack of printing capability in Java.
Graphic entry of AOI	This allows the specification on a map of the spatial region that the DAR should cover.
DAR modify	This allows the user to modify certain fields of a previously submitted DAR in accordance with the ASTER ICD.
View swaths and ground tracks	This allows the user to display ground tracks and view swaths on a map during the specification of the spatial region that the DAR should cover.
Remaining DAR Budget	This allows the user to submit a request to the ASTER GDS to find out the user's remaining DAR budget. This request must be in accordance with the ASTER ICD.

The detailed L4 requirements for each of these functions is specified in Section 3.

## 2.2 JDT System Interfaces

The Java DAR Tool only interfaces directly with the MOJO server in CSS, thus all DAR related requests go from the JDT to MOJO to the DAR Communications Gateway. The actual physical

architecture is more complex than this, but the Java DAR Tool box is abstracted up to the context of the tool. This does not necessarily mean that the tool is all in one process.



**Figure 2-1. JDT Interfaces**

The following table defines the event flows that are shown in Figure 2-1.

**Table 2-1. JDT Event Flow Descriptions**

Event Flow Name	Description
Submit DAR	This event occurs when the user selects the Submit button on the Java DAR Tool. It results in the user's request being sent through MOJO and the DAR Communications Gateway to the ASTER GDS. The data that is returned to the client is the resulting DAR ID as assigned by ASTER GDS.
Modify DAR	This event occurs when the user wants to modify a previously submitted DAR. It results in a modify request being sent through MOJO and the DAR Communications Gateway to the ASTER GDS. The data that is returned to the client is the request status of success or failure.
Search xARs	This event occurs when the user submits a search for xAR status. It results in a xAR search request being submitted through MOJO to the DAR Communications Gateway to the ASTER GDS. The data that is returned to the client are the xARs that match the search criteria specified by the user.
Request FOS Plans and Schedules	This event occurs when the user wants to view the spacecraft plans and schedules. It results in a search being submitted through MOJO into the Science Data Server which holds this information. The data that is returned to the client are the plans and schedule data.
Request Orbit and Attitude Data	This event occurs as a background process to retrieve this information on regular intervals so when the user needs to view the ground tracks and view swaths the data is readily available for the client to use. It results in a search being submitted through MOJO into the Science Data Server which holds this information. The data that is returned to the client are the orbit and attitude data.

### 3. Detailed Requirements

The following table contains the detailed Level 4 (L4) requirements for the Java DAR Tool only. The left side of the table contains the L4 information and the right side contains the parent L3 and/or Interface requirements that these detailed requirements are derived from for ECS linkage and coverage of L4 to L3 requirements for requirement audit purposes.

#### 3.1 General Requirements

These requirements are all the requirements that don't fit neatly into any of the other buckets. They include things like help, tutorials, user interface standards, etc.

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
NEW	The WKBCH CI DAR Tool shall allow users that are not authorized for DAR submission to use the DAR Tool to submit searches and construct DARs, but will not allow them to submit these DARs to the ASTER GDS.	functional	test	IMS-0080#B	The IMS shall maintain a list of authorized ECS services for each user and shall update the list with information supplied by the SMC.			security
				IMS-0130#B	The IMS shall verify that a user is authorized to access a particular IMS service before providing the service to the user.			security
NEW	The WKBCH CI shall support a web interface that provides users system access through one of the following Web browsers that they have installed on their workstation or personal computer: a. Netscape b. Mosaic c. Microsoft	functional	test	IMS-0110#B	The IMS user interface shall support access to ECS services from the personal computers and workstations of the general user community, without requiring them to install IMS client software.			functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
				IMS-1075#B	The IMS Tool that provides users with the capability to construct and submit DARs shall be accessible from personal computers and workstations, without requiring users to install IMS client software.			functional
NEW	The WKBCHCI DAR Tool shall have a common look and feel within the interface and with other ECS user interfaces (i.e., JEST) as defined by the ECS User Interface Style Guide.	standards	inspection	IMS-0120#B	The IMS shall provide, dependent upon the user's display device capabilities, a user-friendly interface with the following features at a minimum: a. Multiple window display b. Buttons and pull down menus c. Valid lists for all variables d. An information base of associations between variables (e.g., between instruments and geophysical parameters) e. Ability to restore a session after interruption f. Context-sensitive help g. Minimal and consistent use of non-standard keys h. Random movement through fields i. Capability to save and restore the contents of a menu or form j. Standardized use of commands and terminology across screens k. Self-explanatory, meaningful error messages l. Automatic acronym expansion, which can be enabled and disabled interactively m. Availability of a menu tree diagram n. Command language			functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
				IMS-0150#B	The IMS shall supply a uniform user interface for access to the following at a minimum: a. Heterogeneous data sets b. Communications networks c. Data bases that are geographically dispersed d. Multi-disciplined directories and inventories			security
S-CLS-18105	The WKBCH CI shall ensure that the following calendar transitions are handled completely and accurately: a. New Year b. New Decade c. New Century d. Leap Year.	functional	test/demo	EOSD0500#B	ECS shall perform the following major functions: a. EOS Mission Planning and Scheduling b. EOS Mission Operations c. Command and Control d. Communications and Networking e. Data Input f. Data Processing g. Data Storage h. Data Distribution i. Information Management j. End-to-End Fault Management k. System Management	Applicable to all ECS development. Data Access Service Event Chaining is B1 capability.	This requirement covers a global perspective of ECS. Therefore, only selected software and hardware requirements are mapped to this RbR. Additional requirements are mapped to RBRs that are more specific. System Management includes mode management, which is the provision for independent and simultaneous unique activities of operations, test, and training.	functional   operational

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
				ASTER-0120#B	<p>ASTER GDS shall have the capability to send and ECS shall have the capability to receive DAR status, when requested by ECS. DAR status shall include such information as confirmation or rejection of the DAR, and notification of DAR scheduling and completion, to include at a minimum:</p> <ul style="list-style-type: none"> <li>a. Date and time</li> <li>b. Instrument ID</li> <li>c. DAR ID</li> <li>d. Request status</li> <li>e. Implementation schedule</li> <li>f. If rejection, then the reason for the rejection.</li> </ul>			interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
				IMS-0320#B	<p>Standard Product related metadata shall contain, at a minimum:</p> <ul style="list-style-type: none"> <li>Keywords and glossary from investigators</li> <li>Keywords, synonyms, and glossary for cross-product and cross-directory referencing</li> <li>Identifiers for locating products in the DADS archive by granule</li> <li>Documentation on algorithms, including version history, authors, written description of product, equations, and references</li> <li>Documentation on instrument(s) and spacecraft(s) including history of housekeeping and ancillary parameters, discipline characterization, calibration parameters, key individuals, and references</li> <li>Identifiers, algorithms, written descriptions, equations, authors, and references associated with static browse products and subsetted, subsampled, and summary data products</li> <li>Published papers, research results, significant results, and references by author and date</li> <li>Key organizations and personnel for all product-related DAACs, ADCs, and ODCs</li> <li>Granule-specific information as listed in Tables C-10 and C-11 in Appendix C</li> </ul>	ODCs will not be supported (information will not be sent to or received from ODCs) for Release B.0.		functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
				IMS-1230#B	The IMS shall accept from the ASTER GDS and provide to the requester such information as data acquisition request confirmation or rejection, and notification of data acquisition request scheduling and completion, to include at a minimum: a. Date and time b. Instrument ID c. Data acquisition request ID d. Request status e. Implementation schedule f. If rejection, then the reason for the rejection			functional
S-CLS-19132	The WKBCH CI DAR Tool shall have the capability to provide a resource estimate for a DAR of the total area to be imaged in square km [AOI in square km * number of repeats].	Functional	demo	ASTER-0100#B	ASTER GDS shall have the capability to send and ECS shall have the capability to receive information on ASTER instrument operations and constraints that may be applicable to DAR specification. The ASTER instrument constraint information shall include (at a minimum): a. descriptive information for the ASTER instrument b. default settings for instrument configurable parameters c. range of values for instrument configurable parameters d. instrument constraint information			interface
				IMS-0580#B	The IMS shall provide geographic and geophysical (e.g. ocean bathymetry surface features) overlays to aid in the selection of spatial data and to enhance the display of metadata.			functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-19140	The WKBCH CI DAR Tool shall establish a maximum waiting period (in addition to that specified by the API) within which an acknowledgment is expected for all requests sent to the ASTER GDS.	functional	demo	ASTER-0120#B	<p>ASTER GDS shall have the capability to send and ECS shall have the capability to receive xAR status, when requested by ECS. xAR status shall include such information as confirmation or rejection of the DAR, and notification of DAR scheduling and completion, to include at a minimum:</p> <ul style="list-style-type: none"> <li>a. Date and time</li> <li>b. Instrument ID</li> <li>c. DAR ID</li> <li>d. Request status</li> <li>e. Implementation schedule</li> <li>f. If rejection, then the reason for the rejection.</li> </ul>			interface
				IMS-1230#B	<p>The IMS shall accept from the ASTER GDS and provide to the requester such information as data acquisition request confirmation or rejection, and notification of data acquisition request scheduling and completion, to include at a minimum:</p> <ul style="list-style-type: none"> <li>a. Date and time</li> <li>b. Instrument ID</li> <li>c. Data acquisition request ID</li> <li>d. Request status</li> <li>e. Implementation schedule</li> <li>f. If rejection, then the reason for the rejection</li> </ul>			functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-19141	The WKBCH CI DAR Tool shall retransmit all DAR requests after the waiting period expires, for a configurable number of times.	functional	demo	ASTER-0110#B	ECS shall have the capability to send and ASTER GDS shall have the capability to receive DARs for the ASTER instrument. DARs shall contain the following information, at a minimum: a. Observation number b. Experimenter identification c. Experimenter address d. Investigation identification e. Scientific discipline f. Observation repetition period g. Tolerance in observation time h. User priority i. Scheduling priority and target of opportunity flag j. Descriptive text k. Location data expressed in terms of longitude and latitude as earliest start coordinates and latest stop coordinates l. Earliest start time m. Latest stop time n. Minimum coverage required o. Maximum coverage desired p. Deleted q. Deleted r. Associated product generation request and product distribution request s. Pointing angle t. Calibration requirements u. Coordination requirements v. Data transmission requirements w. Illumination requirements (day/night) x. Specific time of observation y. Sun angle z. Direct downlink option			interface
				IMS-1261#B	The IMS shall provide the capability to forward data acquisition requests to the ASTER GDS, in accordance with applicable IRDs and ICDs.		For Release B, only ASTER DARs information is processed.	interface

<b>L4 ID</b>	<b>L4 Text</b>	<b>Req Type</b>	<b>Verif Method</b>	<b>RBR ID</b>	<b>L3 Text</b>	<b>Clarification</b>	<b>Interpretation</b>	<b>Req Type</b>
S-CLS-19142	The WKBCH CI DAR TOOL shall provide messages to users of the current state of each user request (DAR submit, modify, or search), while waiting for results to be returned from ASTER GDS.	functional	demo	IMS-0665#B	The IMS shall provide informational messages to indicate that a query is being executed, and shall provide the capability for the user to abort any time-intensive operations.			functional
S-CLS-19155	The WKBCH CI DAR TOOL help system shall provide ASTER-specific default settings for the three ASTER telescopes.	functional	demo	IMS-1160#B	The IMS shall provide instrument specific default settings for instrument configurable parameters.			functional
S-CLS-19156	The WKBCH CI DAR TOOL help system shall provide ASTER-specific help messages that instruct users how to change the instrument parameter settings for the three ASTER telescopes in their DARs.	functional	demo	IMS-1170#B	The IMS shall provide instrument specific help to assist with setting instrument parameters.			functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-19158	The WKBCH CI DAR TOOL shall provide synchronous submission of complete DARs to the ASTER GDS which are correct in format and syntax.	functional	demo	ASTER-0110#B	<p>ECS shall have the capability to send and ASTER GDS shall have the capability to receive DARs for the ASTER instrument. DARs shall contain the following information, at a minimum:</p> <ul style="list-style-type: none"> <li>a. Observation number</li> <li>b. Experimenter identification</li> <li>c. Experimenter address</li> <li>d. Investigation identification</li> <li>e. Scientific discipline</li> <li>f. Observation repetition period</li> <li>g. Tolerance in observation time</li> <li>h. User priority</li> <li>i. Scheduling priority and target of opportunity flag</li> <li>j. Descriptive text</li> <li>k. Location data expressed in terms of longitude and latitude as earliest start coordinates and latest stop coordinates</li> <li>l. Earliest start time</li> <li>m. Latest stop time</li> <li>n. Minimum coverage required</li> <li>o. Maximum coverage desired</li> <li>p. Deleted</li> <li>q. Deleted</li> <li>r. Associated product generation request and product distribution request</li> <li>s. Pointing angle</li> <li>t. Calibration requirements</li> <li>u. Coordination requirements</li> <li>v. Data transmission requirements</li> <li>w. Illumination requirements (day/night)</li> <li>x. Specific time of observation</li> <li>y. Sun angle</li> <li>z. Direct downlink option</li> </ul>			interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-19166	The WKBCH CI DAR Tool shall have the capability to provide a meaningful error message to users based on the receipt of an error code from ECS network components or services or the ASTER GDS.	functional	demo	IMS-1230#B	The IMS shall accept from the ASTER GDS and provide to the requester such information as data acquisition request confirmation or rejection, and notification of data acquisition request scheduling and completion, to include at a minimum: a. Date and time b. Instrument ID c. Data acquisition request ID d. Request status e. Implementation schedule f. If rejection, then the reason for the rejection			functional
NEW	The WKBCH CI DAR Tool shall submit a request for the user's remaining DAR budget to the ASTER GDS, upon request by the user, in accordance with the ECS to ASTER GDS ICD.	functional	demo	IMS-0626#B	The IMS shall provide bi-directional interoperability between ECS and ASTER GDS to support 1. access to directory metadata, inventory data, guide information, price information, and browse products 2. Product ordering and order statusing, and 3. inter-system transfer of billing information as specified in ICDS.			functional
				IMS-1360#B	The IMS shall provide the capability for users to request and receive the current status of their account balance.			interface

### 3.2 Spatial

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
NEW	The WKBCH CI DAR Tool shall provide users the option to display Latitude/Longitude pairs as symbols, displayed in their proper geo-location on the map used to select areas of interest when constructing a DAR.	functional	test	IMS-0580#B	The IMS shall provide geographic and geophysical (e.g. ocean bathymetry surface features) overlays to aid in the selection of spatial data and to enhance the display of metadata.			functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Req Type
NEW	The WKBCH CI DAR Tool shall provide users the option to display a series of Latitude/Longitude pairs as connected lines, displayed in their proper geo-location on top of the map used to select areas of interest when constructing a DAR.	functional	demo	IMS-1140#B	The IMS shall provide ASTER instrument specific graphic displays to help with the creation of data acquisition requests, which shall include at a minimum: a. Geographic reference aids b. Spacecraft location projections		functional
NEW	The WKBCH CI DAR Tool spatial map shall support the following DAR Tool functions: a) spatial selection for DAR AOI creation b) xAR Status AOI/AOS viewing c) xAR Status Acquired Scenes viewing	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		interface
NEW	The WKBCH CI DAR Tool spatial selection function shall allow users to select and add geographic areas of interest as a polygon during DAR formulation.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Req Type
NEW	The WKBCH CI DAR Tool spatial selection function shall support the graphical and textual selection of a minimum bounding rectangle AOIs to be used as part of a xAR Search.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		Interface
NEW	The WKBCH CI DAR Tool spatial selection function shall support a minimum bounding rectangle selection on the spatial map by defining a lat/long box to be used as part of a xAR Search.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		interface
NEW	The WKBCH CI DAR Tool spatial selection function shall support the selection of polygons on the spatial map by the simple connection of points established by the user's mouse clicks and ending either at the first point or by double clicking the last selected point.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		Interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Req Type
NEW	The WKBCH CI DAR Tool spatial selection function shall allow users to delete AOIs drawn by them on a map prior to their addition to a DAR or xAR search.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		Interface
NEW	The WKBCH CI DAR Tool spatial selection function shall allow users to highlight an AOI to allow it to be distinguished from overlapping AOIs.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		Interface
NEW	The WKBCH CI DAR Tool spatial selection function shall allow the user to stop a current web transaction relating to spatial map server connections and downloads and the spatial map will revert to its previous state.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Req Type
NEW	The WKBCH CI DAR Tool spatial map shall support the display of a base map and additional map overlays.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		Interface
NEW	The WKBCH CI DAR Tool spatial map function shall support the following zoom capabilities: a) zoom by window: zoom to a user defined area drawn interactively on a map using a rubberbanding box. b) zoom in: zoom in on the map center point by a pre-defined zoom factor c) zoom out: zoom out from the map center point by a pre-defined zoom factor d) zoom by percent: zoom in or out on the map center by a percentage.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		Interface
NEW	The WKBCH CI DAR Tool spatial map shall support the following pan capabilities: a) point-and-click: click on any point within the map to make that point the map center point. b) drag-and-release: drag a map point to a new position within the map area to effect a corresponding pan.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Req Type
NEW	The WKBCH CI DAR Tool spatial map shall support the reset of the map scale and pan to a zoom factor of 1 (100%) and a pan center of 0 degrees lat. and 0 degrees long. with a single user action (button or mouse click).	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		Interface
NEW	The WKBCH CI DAR Tool shall allow the user to see the current zoom area in relation to the whole earth and use this display to pan the zoom window to another area on the earth.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		Interface
NEW	The WKBCH CI DAR Tool spatial map shall respond appropriately (resize) to window resizing events.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		Interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Req Type
NEW	The WKBCH CI DAR Tool spatial map shall allow selection of projections via a GUI select list.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		interface
NEW	The WKBCH CI DAR Tool spatial map shall allow control of overlay resources to include, at a minimum, the following: a) color b) line style c) line thickness d) line width	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		Interface
NEW	The WKBCH CI DAR Tool spatial map shall allow the user to control overlay positions within the list of overlays that are being displayed.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		Interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Req Type
NEW	The WKBCH CI DAR Tool spatial map shall support the display of a lat/long grid which shall include the annotation of user selected lat/long intervals.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		interface
NEW	The WKBCH CI DAR Tool spatial map shall support user customization of the lat/long grid to include at a minimum: a) the grid size in the following increments: 5, 10, 15, 20, 25, 30, 45, 60, 90 b) showing/hiding of lat/long annotations	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		Interface
NEW	The WKBCH CI DAR Tool spatial map shall support the display of the following data, at a minimum: a) current projection b) zoom factor/percentage c) cursor location in lat/long coordinates.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		Interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Req Type
NEW	The WKBCH CI DAR Tool xAR Status viewing function shall support the ability to simultaneously view xAR spatial and temporal information graphically..	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		interface
NEW	The WKBCH CI DAR Tool xAR Status function shall allow the user to highlight or hide a xAR geographic or temporal AOI within the viewing window.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		Interface
NEW	The WKBCH CI DAR Tool xAR Status function shall support the display of xAR acquired scenes overlaid with the xAR AOI.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Req Type
NEW	The WKBCH CI DAR Tool acquired scenes viewing function shall support the display of the following acquired scenes data, at a minimum: a) xAR ID b) maximum acceptable cloud coverage c) scene ID d) date observed e) cloud cover by quadrant (i.e., distinguishing quadrants that meet the cloud cover criteria from those that do not) f) lat/long coordinates of scenes	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		interface
NEW	The WKBCH CI DAR Tool xAR Status Acquired Scenes viewing function shall support the geographic display of the xAR AOI(s) and the acquired scenes on a map of the world.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		interface
NEW	The WKBCH CI DAR Tool Acquired Scenes viewing function shall support the highlighting or hiding of acquired scenes within the viewing window.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Req Type
S-CLS-13870	The WKBCH CI DAR Tool shall provide visualizations of a single view swath for the ASTER sensors, based on user selection, as a reference aid to the creation of an area of interest for a DAR.	functional	test	IMS-1140#B	The IMS shall provide ASTER instrument specific graphic displays to help with the creation of data acquisition requests, which shall include at a minimum: a. Geographic reference aids b. Spacecraft location projections		functional
S-CLS-13990	The WKBCH CI DAR Tool shall provide users the capability to view the resulting selection area on a map when a lat/long selection is typed in using the keyboard during DAR formulation and xAR Search creation.	functional	test	IMS-1140#B	The IMS shall provide ASTER instrument specific graphic displays to help with the creation of data acquisition requests, which shall include at a minimum: a. Geographic reference aids b. Spacecraft location projections		functional
S-CLS-14420	The WKBCH CI DAR Tool shall synchronize geographic selection criteria for DARs so that selection of an area on a DAR map display will be translated into latitude/longitude coordinates in a DAR submission window.	functional	test	IMS-1140#B	The IMS shall provide ASTER instrument specific graphic displays to help with the creation of data acquisition requests, which shall include at a minimum: a. Geographic reference aids b. Spacecraft location projections		functional
				IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Req Type
S-CLS-14430	The WKBCH CI DAR Tool shall synchronize geographic selection criteria for DARs so that typing latitude / longitude coordinates in a DAR submission window will be graphically displayed as a bounded area on a DAR map display.	functional	test	IMS-1140#B	The IMS shall provide ASTER instrument specific graphic displays to help with the creation of data acquisition requests, which shall include at a minimum: a. Geographic reference aids b. Spacecraft location projections		functional
				IMS-0640#B	The IMS shall provide the capability to query geographic metadata by any of the following criteria at a minimum: a. Geographic reference b. Data element content (as specified in metadata) c. Minimum bounding rectangle d. Point and radius e. Polygon f. Geographic name (based on a standard data base, such as USGS Geographic Names Information System) g. WRS h. Any combination that allows for specification of multiple, distinct geographic areas		functional
NEW	The WKBCH CI DAR Tool shall synchronize geographic selection criteria for a xAR Search so that selection of an area on a xAR Search map display will be translated into latitude / longitude coordinates in a Search Request submission window.	functional	test	IMS-0640#B	The IMS shall provide the capability to query geographic metadata by any of the following criteria at a minimum: a. Geographic reference b. Data element content (as specified in metadata) c. Minimum bounding rectangle d. Point and radius e. Polygon f. Geographic name (based on a standard data base, such as USGS Geographic Names Information System) g. WRS h. Any combination that allows for specification of multiple, distinct geographic areas		functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Req Type
				IMS-1140#B	The IMS shall provide ASTER instrument specific graphic displays to help with the creation of data acquisition requests, which shall include at a minimum: a. Geographic reference aids b. Spacecraft location projections		functional
NEW	The WKBCH CI DAR Tool shall synchronize geographic selection criteria for a xAR Search so that typed lat/long coordinates in a xAR Search Request submission window will be graphically displayed as a minimum bounding rectangle on a xAR Search map display.	functional	test	IMS-0640#B	The IMS shall provide the capability to query geographic metadata by any of the following criteria at a minimum: a. Geographic reference b. Data element content (as specified in metadata) c. Minimum bounding rectangle d. Point and radius e. Polygon f. Geographic name (based on a standard data base, such as USGS Geographic Names Information System) g. WRS h. Any combination that allows for specification of multiple, distinct geographic areas		functional
				IMS-1140#B	The IMS shall provide ASTER instrument specific graphic displays to help with the creation of data acquisition requests, which shall include at a minimum: a. Geographic reference aids b. Spacecraft location projections		functional
NEW	The WKBCH CI DAR Tool map displays shall provide the following types of geographic data sets for background reference: 1. land/oceans, 2. major lakes and rivers, 3. mountain ranges, 4. volcanoes, 5. major highways and railroads, 6. urban areas, and 7. political boundaries.	functional	test	IMS-0580#B	The IMS shall provide geographic and geophysical (e.g. ocean bathymetry surface features) overlays to aid in the selection of spatial data and to enhance the display of metadata.		functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification		Req Type
S-CLS-19119	The WKBCH CI DAR TOOL shall provide the capability for users to interactively enter, edit, and delete lat/long coordinates in an Area of Interest (AOI) polygon via a GUI spatial tool and/or keyboard entries.	functional	demo	IMS-1140#B	The IMS shall provide ASTER instrument specific graphic displays to help with the creation of data acquisition requests, which shall include at a minimum: a. Geographic reference aids b. Spacecraft location projections			functional
S-CLS-19136	The WKBCH CI DAR Tool shall have the capability to show or hide overlays or backgrounds to or from the map on a geographic display.	functional	demo	IMS-0580#B	The IMS shall provide geographic and geophysical (e.g. ocean bathymetry surface features) overlays to aid in the selection of spatial data and to enhance the display of metadata.			functional
S-CLS-19137	The WKBCH CI DAR Tool spatial display shall provide the capability to display the following geographic projections: 1. Geographical Projection (Plate Carree) 2. Universal Transverse Mercator 3. Polar Stereographic 4. Lambert Conformal Conic 5. Space Oblique Mercator	functional	demo	IMS-0580#B	The IMS shall provide geographic and geophysical (e.g. ocean bathymetry surface features) overlays to aid in the selection of spatial data and to enhance the display of metadata.			functional
S-CLS-19138	The WKBCH CI DAR Tool spatial display shall provide the capability to display the following information during DAR formulation: a) ground tracks b) terminator crossings c) equator and other major latitude crossings d) possible view swaths	functional	demo	IMS-0280#B	The IMS shall maintain DAR generation information, for example, instrument information received from the ICC and spacecraft information received from the EOC, in a data base which will be accessible during the DAR planning and submittal process.			interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Req Type
				IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		interface
				IMS-0580#B	The IMS shall provide geographic and geophysical (e.g. ocean bathymetry surface features) overlays to aid in the selection of spatial data and to enhance the display of metadata.		Functional
				IMS-0640#B	The IMS shall provide the capability to query geographic metadata by any of the following criteria at a minimum: a. Geographic reference b. Data element content (as specified in metadata) c. Minimum bounding rectangle d. Point and radius e. Polygon f. Geographic name (based on a standard data base, such as USGS Geographic Names Information System) g. WRS h. Any combination that allows for specification of multiple, distinct geographic areas		functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Req Type
S-CLS-19139	The WKBCH CI DAR Tool spatial display shall provide the capability to display the following information during the display of xAR Search results: a) areas of interest with xAR ID b) terminator crossings c) equator and other major latitude crossings d) display of successfully observed scenes with cloud cover by quadrant (in association with the Area of Interest (AOI) polygon).	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.		interface
				IMS-0580#B	The IMS shall provide geographic and geophysical (e.g. ocean bathymetry surface features) overlays to aid in the selection of spatial data and to enhance the display of metadata.		functional
				IMS-0640#B	The IMS shall provide the capability to query geographic metadata by any of the following criteria at a minimum: a. Geographic reference b. Data element content (as specified in metadata) c. Minimum bounding rectangle d. Point and radius e. Polygon f. Geographic name (based on a standard data base, such as USGS Geographic Names Information System) g. WRS h. Any combination that allows for specification of multiple, distinct geographic areas		functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Req Type
S-CLS-19145	The WKBCH CI DAR Tool shall provide visualizations of possible ASTER instrument view swaths based on user supplied angles as a reference aid to the creation of ASTER DARs.	functional	demo	IMS-1140#B	The IMS shall provide ASTER instrument specific graphic displays to help with the creation of data acquisition requests, which shall include at a minimum: a. Geographic reference aids b. Spacecraft location projections		functional
				IMS-0580#B	The IMS shall provide geographic and geophysical (e.g. ocean bathymetry surface features) overlays to aid in the selection of spatial data and to enhance the display of metadata.		functional
S-CLS-19153	The WKBCH CI DAR Tool spatial display shall have the capability to display the lat/long coordinates of any point on a geographical display selected by the user's pointing device.	functional	demo	IMS-0580#B	The IMS shall provide geographic and geophysical (e.g. ocean bathymetry surface features) overlays to aid in the selection of spatial data and to enhance the display of metadata.		functional
				IMS-1140#B	The IMS shall provide ASTER instrument specific graphic displays to help with the creation of data acquisition requests, which shall include at a minimum: a. Geographic reference aids b. Spacecraft location projections		functional
S-CLS-19154	The WKBCH CI DAR TOOL shall be able to calculate and display to the user the size (in square km) of any user-specified polygonal area on a geographical display.	functional	demo	IMS-1140#B	The IMS shall provide ASTER instrument specific graphic displays to help with the creation of data acquisition requests, which shall include at a minimum: a. Geographic reference aids b. Spacecraft location projections		functional
				IMS-0580#B	The IMS shall provide geographic and geophysical (e.g. ocean bathymetry surface features) overlays to aid in the selection of spatial data and to enhance the display of metadata.		functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification		Req Type
NEW	The WKBCH CI DAR Tool spatial display shall label view swaths with the angle from nadir upon the request of the user.	functional	demo	IMS-1140#B	The IMS shall provide ASTER instrument specific graphic displays to help with the creation of data acquisition requests, which shall include at a minimum: a. Geographic reference aids b. Spacecraft location projections			functional
NEW	The WKBCH CI DAR Tool spatial display shall label ground tracks with the orbit number upon the request of the user.	functional	demo	IMS-1140#B	The IMS shall provide ASTER instrument specific graphic displays to help with the creation of data acquisition requests, which shall include at a minimum: a. Geographic reference aids b. Spacecraft location projections			functional
NEW	The WKBCH CI DAR Tool spatial display shall turn off view swath and ground track labels upon the request of the user.	functional	demo	IMS-1140#B	The IMS shall provide ASTER instrument specific graphic displays to help with the creation of data acquisition requests, which shall include at a minimum: a. Geographic reference aids b. Spacecraft location projections			functional

### 3.3 DAR Search

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
NEW	The WKBCH CI DAR Tool shall allow the user to select only one value per attribute with a distinct set of values in support of creating a xAR Search.	functional	demo	IMS-1070#B	The IMS shall provide the capability for users to construct DARs for collection of ASTER instrument data which shall contain information as listed in the ASTER IRD.			
				IMS-1180#B	The IMS shall validate that user specified instrument settings are within the range of acceptable values.			functional
				IMS-1190#B	The IMS shall validate DAR parameters against EOC provided constraints.			interface
NEW	The WKBCH CI DAR Tool shall allow the user to search for xAR status using either a DAR ID or DAR attributes but not both in the same search.	functional	demo	IMS-1261#B	The IMS shall provide the capability to forward data acquisition requests to the ASTER GDS, in accordance with applicable IRDs and ICDs.			interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
				IMS-1262#B	The IMS shall provide the capability to request and receive the ASTER GDS data acquisition request status in accordance with applicable IRDs and ICDs and provide the status to the data acquisition requester.		For Release B, only ASTER DARs information is processed.	interface
NEW	The WKBCH CI DAR Tool shall provide users the capability to select from a list of values for DAR parameters that have a distinct set of values.	functional	test	IMS-1180#B	The IMS shall validate that user specified instrument settings are within the range of acceptable values.			functional
				IMS-1190#B	The IMS shall validate DAR parameters against EOC provided constraints.			interface
				IMS-1195#B	The IMS shall validate DAR parameters against constraints provided by external instrument operations facilities (e.g. ASTER) as applicable and in accordance with applicable MOUs.			interface
S-CLS-13940	The WKBCH CI DAR Tool shall allow the user to search for ASTER xAR status resulting in a display with the following information: a. Date and time of DAR submittal b. Sensor name c. Data acquisition request ID d. Request status e. Implementation schedule f. If rejection, then the reason for the rejection.	functional	test	IMS-1230#B	The IMS shall accept from the ASTER GDS and provide to the requester such information as data acquisition request confirmation or rejection, and notification of data acquisition request scheduling and completion, to include at a minimum: a. Date and time b. Instrument ID c. Data acquisition request ID d. Request status e. Implementation schedule f. If rejection, then the reason for the rejection			functional
				IMS-1262#B	The IMS shall provide the capability to request and receive the ASTER GDS data acquisition request status in accordance with applicable IRDs and ICDs and provide the status to the data acquisition requester.		For Release B, only ASTER DARs information is processed.	interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
				IMS-1320#B	The IMS shall provide the capability to accept, from ASTER instrument data acquisition requesters, data acquisition status requests, retrieve the request status, and display the status to the requester.		For Release B, only ASTER DARs information is processed.	functional
S-CLS-19127	The WKBCH CI DAR Tool shall allow an ECS user to display the results of xAR Searches on spatial, temporal, and textual-based displays.	functional	demo	IMS-1320#B	The IMS shall provide the capability to accept, from ASTER instrument data acquisition requesters, data acquisition status requests, retrieve the request status, and display the status to the requester.		For Release B, only ASTER DARs information is processed.	functional
NEW	The WKBCH CI DAR Tool shall allow the xAR search results to be sorted by any of the attributes listed in the xAR search results display.	functional	demo	IMS-1320#B	The IMS shall provide the capability to accept, from ASTER instrument data acquisition requesters, data acquisition status requests, retrieve the request status, and display the status to the requester.			functional
NEW	The WKBCH CI DAR Tool xAR status function shall allow the user to view the following, at a minimum: a) xAR status b) xAR temporal and spatial bounds c) xAR type d) xAR requestor (user ID) e) xAR contents f) xAR AOIs overlaid with the geographical extent of the status search area (AOS - Area of Search). g) xAR Acquired Scenes	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.			interface

### 3.4 Saving and restoring

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
NEW	The WKBCH CIDAR Tool shall support the save and restore of search criteria and search results.	functional	test	IMS-0120#B	<p>The IMS shall provide, dependent upon the user's display device capabilities, a user-friendly interface with the following features at a minimum:</p> <ul style="list-style-type: none"> <li>a. Multiple window display</li> <li>b. Buttons and pull down menus</li> <li>c. Valid lists for all variables</li> <li>d. An information base of associations between variables (e.g., between instruments and geophysical parameters)</li> <li>e. Ability to restore a session after interruption</li> <li>f. Context-sensitive help</li> <li>g. Minimal and consistent use of non-standard keys</li> <li>h. Random movement through fields</li> <li>i. Capability to save and restore the contents of a menu or form</li> <li>j. Standardized use of commands and terminology across screens</li> <li>k. Self-explanatory, meaningful error messages</li> <li>l. Automatic acronym expansion, which can be enabled and disabled interactively</li> <li>m. Availability of a menu tree diagram</li> <li>n. Command language</li> </ul>			functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-14440	The WKBCH CI DAR Tool shall provide users the capability to save and retrieve the DAR parameters of any of their previously submitted DARs.	functional	test	IMS-0120#B	<p>The IMS shall provide, dependent upon the user's display device capabilities, a user-friendly interface with the following features at a minimum:</p> <ul style="list-style-type: none"> <li>a. Multiple window display</li> <li>b. Buttons and pull down menus</li> <li>c. Valid lists for all variables</li> <li>d. An information base of associations between variables (e.g., between instruments and geophysical parameters)</li> <li>e. Ability to restore a session after interruption</li> <li>f. Context-sensitive help</li> <li>g. Minimal and consistent use of non-standard keys</li> <li>h. Random movement through fields</li> <li>i. Capability to save and restore the contents of a menu or form</li> <li>j. Standardized use of commands and terminology across screens</li> <li>k. Self-explanatory, meaningful error messages</li> <li>l. Automatic acronym expansion, which can be enabled and disabled interactively</li> <li>m. Availability of a menu tree diagram</li> <li>n. Command language</li> </ul>			functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-19176	The WKBCH CI DAR Tool shall allow the user to delete: 1) a xAR search, 2) xAR search results.	functional	demo	IMS-0120#B	<p>The IMS shall provide, dependent upon the user's display device capabilities, a user-friendly interface with the following features at a minimum:</p> <ul style="list-style-type: none"> <li>a. Multiple window display</li> <li>b. Buttons and pull down menus</li> <li>c. Valid lists for all variables</li> <li>d. An information base of associations between variables (e.g., between instruments and geophysical parameters)</li> <li>e. Ability to restore a session after interruption</li> <li>f. Context-sensitive help</li> <li>g. Minimal and consistent use of non-standard keys</li> <li>h. Random movement through fields</li> <li>i. Capability to save and restore the contents of a menu or form</li> <li>j. Standardized use of commands and terminology across screens</li> <li>k. Self-explanatory, meaningful error messages</li> <li>l. Automatic acronym expansion, which can be enabled and disabled interactively</li> <li>m. Availability of a menu tree diagram</li> <li>n. Command language</li> </ul>			functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
NEW	The WKBCH CI DAR Tool shall automatically save: 1) a xAR search submitted by the user , 2) the corresponding xAR search results and have the capability to correlate the search request with the corresponding search results.	functional	demo	IMS-0120#B	The IMS shall provide, dependent upon the user's display device capabilities, a user-friendly interface with the following features at a minimum: a. Multiple window display b. Buttons and pull down menus c. Valid lists for all variables d. An information base of associations between variables (e.g., between instruments and geophysical parameters) e. Ability to restore a session after interruption f. Context-sensitive help g. Minimal and consistent use of non-standard keys h. Random movement through fields i. Capability to save and restore the contents of a menu or form j. Standardized use of commands and terminology across screens k. Self-explanatory, meaningful error messages l. Automatic acronym expansion, which can be enabled and disabled interactively m. Availability of a menu tree diagram n. Command language			functional

### 3.5 DAR Submit and Modify

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-13790	The WKBCH CI DAR Tool shall provide users the capability to construct ASTER DARs with ASTER DAR Parameters as listed in the ECSto ASTER GDS ICD.	functional	test	EOSD1720 #B	ECS elements shall receive from the ECS user community the following types of data requests at a minimum: a. Data Acquisition Requests for the ASTER Instrument b. Data Distribution Requests c. Reprocessing Requests	Applicable to all ECS development. Includes B1 capability for reprocessing.		interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
				IMS-1070#B	The IMS shall provide the capability for users to construct DARS for collection of ASTER instrument data which shall contain information as listed in the ASTER IRD.			functional
S-CLS-13800	The WKBCH CI DAR Tool shall submit a subscription request for notification of data arrival on the user's behalf upon receiving a DAR ID from the ASTER GDS in response to a DAR submittal request.	functional	test	IMS-1230#B	The IMS shall accept from the ASTER GDS and provide to the requester such information as data acquisition request confirmation or rejection, and notification of data acquisition request scheduling and completion, to include at a minimum: a. Date and time b. Instrument ID c. Data acquisition request ID d. Request status e. Implementation schedule f. If rejection, then the reason for the rejection			functional
				IMS-1261#B	The IMS shall provide the capability to forward data acquisition requests to the ASTER GDS, in accordance with applicable IRDs and ICDs.			interface
S-CLS-13820	The WKBCH CI DAR Tool shall accept requests for changes to an existing DAR from the science user who submitted it.	functional	test	IMS-1090#B	The IMS shall accept requests for changes to existing ASTER DARS from the requester and forward the changes to the ASTER GDS.		ASTER GDS interfaces to EDC DAAC only.	Interface
S-CLS-13850	The WKBCH CI DAR Tool shall provide detailed help on the ASTER instrument and parameters during DAR formulation and submittal.	functional	demo	IMS-1130#B	The IMS shall provide descriptive information on instruments and parameters available in Standard Products to help with the creation of data acquisition requests for the ASTER.			Functiona l
				IMS-1170#B	The IMS shall provide instrument specific help to assist with setting instrument parameters.			functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-13880	The WKBCH CI DAR Tool shall provide instrument specific default settings for the ASTER instrument configuration parameters.	functional	test	IMS-1160#B	The IMS shall provide instrument specific default settings for instrument configurable parameters.			functional
				IMS-1170#B	The IMS shall provide instrument specific help to assist with setting instrument parameters.			functional
S-CLS-14442	The WKBCH CI DAR Tool shall provide the capability to create a new DAR by editing the parameters of a previously submitted DAR.	functional	demo	IMS-1090#B	The IMS shall accept requests for changes to existing ASTER DARs from the requester and forward the changes to the ASTER GDS.			interface
S-CLS-14450	The WKBCH CI DAR Tool shall submit a subscription at the request of the user that results in a data processing request for a higher level product on the Level 1B data sent to ECS as the result of a Data Acquisition Request.	functional	test	IMS-1072#B	The IMS shall provide the capability for users to construct a Product Processing Order associated with a Data Acquisition Request.			functional
NEW	The WKBCH CI DAR Tool shall submit a subscription at the request of the user that results in a product order for the Level 1B data sent to ECS as the result of a Data Acquisition Request.	functional	test	IMS-1071#B	The IMS shall provide the capability for users to construct a Product Order associated with a Data Acquisition Request.			functional
NEW	The WKBCH CI DAR Tool shall submit a subscription at the request of the user that results in a data processing request with non-default parameters for a higher level product in the Level 1A data sent to ECS as the result of a Data Acquisition Request.	functional	test	IMS-1072#B	The IMS shall provide the capability for users to construct a Product Processing Order associated with a Data Acquisition Request.			functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
NEW	The WKBCH CI DAR Tool screen shall distinguish optional fields from mandatory fields.	functional	demo	IMS-0120#B	<p>The IMS shall provide, dependent upon the user's display device capabilities, a user-friendly interface with the following features at a minimum:</p> <ul style="list-style-type: none"> <li>a. Multiple window display</li> <li>b. Buttons and pull down menus</li> <li>c. Valid lists for all variables</li> <li>d. An information base of associations between variables (e.g., between instruments and geophysical parameters)</li> <li>e. Ability to restore a session after interruption</li> <li>f. Context-sensitive help</li> <li>g. Minimal and consistent use of non-standard keys</li> <li>h. Random movement through fields</li> <li>i. Capability to save and restore the contents of a menu or form</li> <li>j. Standardized use of commands and terminology across screens</li> <li>k. Self-explanatory, meaningful error messages</li> <li>l. Automatic acronym expansion, which can be enabled and disabled interactively</li> <li>m. Availability of a menu tree diagram</li> <li>n. Command language</li> </ul>			functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-15990	The WKBCH CI DAR Tool shall send DARs for the ASTER instrument to the ASTER GDS according to the information in Table 1 of Appendix C in the ECS to ASTER GDS ICD.	interface	test	ASTER-0110#B	<p>ECS shall have the capability to send and ASTER GDS shall have the capability to receive DARs for the ASTER instrument. DARs shall contain the following information, at a minimum:</p> <ul style="list-style-type: none"> <li>a. Observation number</li> <li>b. Experimenter identification</li> <li>c. Experimenter address</li> <li>d. Investigation identification</li> <li>e. Scientific discipline</li> <li>f. Observation repetition period</li> <li>g. Tolerance in observation time</li> <li>h. User priority</li> <li>i. Scheduling priority and target of opportunity flag</li> <li>j. Descriptive text</li> <li>k. Location data expressed in terms of longitude and latitude as earliest start coordinates and latest stop coordinates</li> <li>l. Earliest start time</li> <li>m. Latest stop time</li> <li>n. Minimum coverage required</li> <li>o. Maximum coverage desired</li> <li>p. Deleted</li> <li>q. Deleted</li> <li>r. Associated product generation request and product distribution request</li> <li>s. Pointing angle</li> <li>t. Calibration requirements</li> <li>u. Coordination requirements</li> <li>v. Data transmission requirements</li> <li>w. Illumination requirements (day/night)</li> <li>x. Specific time of observation</li> <li>y. Sun angle</li> <li>z. Direct downlink option</li> </ul>			interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-19104	The WKBCH CI DAR Tool shall have the capability to receive DARs from the ASTER GDS and incorporate the parameters in new ASTER DARs.	functional	demo	ASTER-0110#B	ECS shall have the capability to send and ASTER GDS shall have the capability to receive DARs for the ASTER instrument. DARs shall contain the following information, at a minimum: a. Observation number b. Experimenter identification c. Experimenter address d. Investigation identification e. Scientific discipline f. Observation repetition period g. Tolerance in observation time h. User priority i. Scheduling priority and target of opportunity flag j. Descriptive text k. Location data expressed in terms of longitude and latitude as earliest start coordinates and latest stop coordinates l. Earliest start time m. Latest stop time n. Minimum coverage required o. Maximum coverage desired p. Deleted q. Deleted r. Associated product generation request and product distribution request s. Pointing angle t. Calibration requirements u. Coordination requirements v. Data transmission requirements w. Illumination requirements (day/night) x. Specific time of observation y. Sun angle z. Direct downlink option			interface
				IMS-1070#B	The IMS shall provide the capability for users to construct DARs for collection of ASTER instrument data which shall contain information as listed in the ASTER IRD.			functional

<b>L4 ID</b>	<b>L4 Text</b>	<b>Req Type</b>	<b>Verif Method</b>	<b>RBR ID</b>	<b>L3 Text</b>	<b>Clarification</b>	<b>Interpretation</b>	<b>Req Type</b>
S-CLS-19110	The WKBCH CI DAR Tool shall validate that DAR parameters are within the allowable format, range and settings (e.g., no invalid entry) based upon the ECS to ASTER GDS ICD for DAR submissions and modifications.	functional	demo	IMS-1180#B	The IMS shall validate that user specified instrument settings are within the range of acceptable values.			functional
				IMS-1190#B	The IMS shall validate DAR parameters against EOC provided constraints.			interface
				IMS-1195#B	The IMS shall validate DAR parameters against constraints provided by external instrument operations facilities (e.g. ASTER) as applicable and in accordance with applicable MOUs.			interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-19116	The WKBCH CI DAR Tool shall provide a selection list for all DAR parameters having an enumerated set of values during DAR formulation.	functional	demo	IMS-0120#B	The IMS shall provide, dependent upon the user's display device capabilities, a user-friendly interface with the following features at a minimum: a. Multiple window display b. Buttons and pull down menus c. Valid lists for all variables d. An information base of associations between variables (e.g., between instruments and geophysical parameters) e. Ability to restore a session after interruption f. Context-sensitive help g. Minimal and consistent use of non-standard keys h. Random movement through fields i. Capability to save and restore the contents of a menu or form j. Standardized use of commands and terminology across screens k. Self-explanatory, meaningful error messages l. Automatic acronym expansion, which can be enabled and disabled interactively m. Availability of a menu tree diagram n. Command language			functional
				IMS-1070#B	The IMS shall provide the capability for users to construct DARs for collection of ASTER instrument data which shall contain information as listed in the ASTER IRD.			functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-19118	The WKBCH CI DAR TOOL shall have the capability to receive DAR IDs from the ASTER GDS on receipt of a valid DAR submission and store the DAR ID with the DAR configuration parameters.	functional	demo	ASTER-0120#B	ASTER GDS shall have the capability to send and ECS shall have the capability to receive xAR status, when requested by ECS. xAR status shall include such information as confirmation or rejection of the DAR, and notification of DAR scheduling and completion, to include at a minimum: a. Date and time b. Instrument ID c. DAR ID d. Request status e. Implementation schedule f. If rejection, then the reason for the rejection.			interface
				IMS-1230#B	The IMS shall accept from the ASTER GDS and provide to the requester such information as data acquisition request confirmation or rejection, and notification of data acquisition request scheduling and completion, to include at a minimum: a. Date and time b. Instrument ID c. Data acquisition request ID d. Request status e. Implementation schedule f. If rejection, then the reason for the rejection			functional
S-CLS-19124	The WKBCH CI DAR TOOL shall provide the capability for the user to interactively select the instrument mode, gain settings, and bands.	functional	demo	IMS-1070#B	The IMS shall provide the capability for users to construct DARS for collection of ASTER instrument data which shall contain information as listed in the ASTER IRD.			functional
				IMS-1170#B	The IMS shall provide instrument specific help to assist with setting instrument parameters.			functional

<b>L4 ID</b>	<b>L4 Text</b>	<b>Req Type</b>	<b>Verif Method</b>	<b>RBR ID</b>	<b>L3 Text</b>	<b>Clarification</b>	<b>Interpretation</b>	<b>Req Type</b>
S-CLS-19143	The WKBCH CI DAR Tool shall accept user requests to modify existing DARs from the science user in the following ways: a) suspend an active DAR that has been submitted b) change the percent Cloud Cover in the increments specified by the DAR TOOL c) reactivate a suspended DAR.	functional	demo	ASTER-0140#B	ECS shall have the capability to send and ASTER GDS shall have the capability to receive changes to DARs for the ASTER instrument.			interface
				IMS-1090#B	The IMS shall accept requests for changes to existing ASTER DARs from the requester and forward the changes to the ASTER GDS.		ASTER GDS interfaces to EDC DAAC only.	interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-19174	The WKBCH CI DAR Tool shall have the capability to copy DAR configuration parameters from a DAR retrieved by a search of the ASTER GDS xAR database into a new set of DAR configuration parameters.	functional	demo	IMS-0120#B	The IMS shall provide, dependent upon the user's display device capabilities, a user-friendly interface with the following features at a minimum: a. Multiple window display b. Buttons and pull down menus c. Valid lists for all variables d. An information base of associations between variables (e.g., between instruments and geophysical parameters) e. Ability to restore a session after interruption f. Context-sensitive help g. Minimal and consistent use of non-standard keys h. Random movement through fields i. Capability to save and restore the contents of a menu or form j. Standardized use of commands and terminology across screens k. Self-explanatory, meaningful error messages l. Automatic acronym expansion, which can be enabled and disabled interactively m. Availability of a menu tree diagram n. Command language			functional
NEW	The WKBCH CI DAR Tool shall ensure that only those gain settings appropriate to the selected sensor(s) can be enabled by the user during DAR creation.	functional	demo	IMS-1261#B	The IMS shall provide the capability to forward data acquisition requests to the ASTER GDS, in accordance with applicable IRDs and ICDs.			interface
NEW	The WKBCH CI DAR Tool shall disable the entry of Minimum and Maximum Look Angles and Specific Look Angles when the user enters a Specific View Swath during DAR creation.	functional	demo	IMS-1261#B	The IMS shall provide the capability to forward data acquisition requests to the ASTER GDS, in accordance with applicable IRDs and ICDs.			interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
NEW	The WKBCH CI DAR Tool shall disable the entry of Minimum and Maximum Look Angles and Specific View Swath when the user enters a Specific Look Angle during DAR creation.	functional	demo	IMS-1261#B	The IMS shall provide the capability to forward data acquisition requests to the ASTER GDS, in accordance with applicable IRDs and ICDs.			interface
NEW	The WKBCH CI DAR Tool shall ensure that when Implementation Urgency is set to 'Yes', that xAR lifetime start and end days do not exceed a total of 18 days during DAR creation.	functional	demo	IMS-1261#B	The IMS shall provide the capability to forward data acquisition requests to the ASTER GDS, in accordance with applicable IRDs and ICDs.			interface
NEW	The WKBCH CI DAR Tool shall ensure that when Ground Campaign is set to 'Yes', that the tool does not permit users to set 'Allow Cross-Track Fragmentation' to 'Yes' during DAR creation.	functional	demo	IMS-1261#B	The IMS shall provide the capability to forward data acquisition requests to the ASTER GDS, in accordance with applicable IRDs and ICDs.			interface
NEW	The WKBCH CI DAR Tool shall ensure that when the Avoid Clouds Flag is set to 'No', that the tool does not permit users to enter Cloud Coverage settings during DAR creation.	functional	demo	IMS-1261#B	The IMS shall provide the capability to forward data acquisition requests to the ASTER GDS, in accordance with applicable IRDs and ICDs.			interface

### 3.6 FOS Schedules

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-13830	The WKBCH CI DAR Tool shall have the capability to display instrument and AM-1 spacecraft activities chronologically on a schedule timeline.	functional	test	IMS-1100#B	The IMS shall accept from the EOC the current data acquisition schedules and plans and make the data acquisition schedules and plans accessible to authorized users on request.	The terms plans and schedules are the same.		interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
				IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.			interface
				IMS-1240#B	The IMS shall be expandable to accept from the IP Information Management System or an equivalent IP facility the current data acquisition schedules and plans for U.S. instruments on foreign spacecraft, and shall make the schedules and plans accessible to authorized users on request, in accordance with applicable MOUs.			security

<b>L4 ID</b>	<b>L4 Text</b>	<b>Req Type</b>	<b>Verif Method</b>	<b>RBR ID</b>	<b>L3 Text</b>	<b>Clarification</b>	<b>Interpretation</b>	<b>Req Type</b>
NEW	<p>The WKBCH CI DAR Tool shall have the capability to display any user-defined combination of the following on a timeline schedule for any selected orbits and/or time period of the input schedule data:</p> <ul style="list-style-type: none"> <li>a. observations scheduled</li> <li>b. pointing activities for each telescope</li> <li>c. mode changes (for each telescope)</li> <li>d. calibration activities (for each telescope)</li> <li>e. activities of instruments other than ASTER requiring coordination with ASTER</li> <li>f. spacecraft activities</li> <li>g. terminator crossings</li> </ul>	functional	test	IMS-1100#B	The IMS shall accept from the EOC the current data acquisition schedules and plans and make the data acquisition schedules and plans accessible to authorized users on request.	The terms plans and schedules are the same.		interface
NEW	<p>The WKBCH CI DAR Tool shall have the capability to display the following information on a timeline schedule display for scheduled observations and observation opportunities:</p> <ul style="list-style-type: none"> <li>a. start and stop times in GMT and orbit-relative times</li> <li>b. Telescopes used</li> <li>c. Pointing angle</li> <li>d. Gain setting of each telescope</li> <li>e. Band selection of the VNIR subsystem</li> <li>f. xAR id</li> </ul>	functional	test	IMS-1100#B	The IMS shall accept from the EOC the current data acquisition schedules and plans and make the data acquisition schedules and plans accessible to authorized users on request.	The terms plans and schedules are the same.		interface

<b>L4 ID</b>	<b>L4 Text</b>	<b>Req Type</b>	<b>Verif Method</b>	<b>RBR ID</b>	<b>L3 Text</b>	<b>Clarification</b>	<b>Interpretation</b>	<b>Req Type</b>
NEW	The WKBCH CI DAR Tool shall provide users with the capability to de-clutter the screen by turning off the display of various schedule objects that overlap or interfere with one another.	functional	test	IMS-1100#B	The IMS shall accept from the EOC the current data acquisition schedules and plans and make the data acquisition schedules and plans accessible to authorized users on request.	The terms plans and schedules are the same.		interface
NEW	The WKBCH CI DAR Tool shall provide an indication when a subset of the observations on the schedule timeline are displayed as a result of screen de-cluttering.	functional	test	IMS-1100#B	The IMS shall accept from the EOC the current data acquisition schedules and plans and make the data acquisition schedules and plans accessible to authorized users on request.	The terms plans and schedules are the same.		interface
NEW	The WKBCH CI DAR Tool shall allow the user to control the scale of the timeline display in units of: a. hours b. days c. weeks d. months e. years	functional	test	IMS-1100#B	The IMS shall accept from the EOC the current data acquisition schedules and plans and make the data acquisition schedules and plans accessible to authorized users on request.	The terms plans and schedules are the same.		interface
NEW	The WKBCH CI DAR Tool shall allow the user to scroll through the schedule timeline display such that the actual timeline being displayed is one time segment within a longer timeline.	functional	test	IMS-1100#B	The IMS shall accept from the EOC the current data acquisition schedules and plans and make the data acquisition schedules and plans accessible to authorized users on request.	The terms plans and schedules are the same.		interface

### 3.7 Temporal

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-14400	<p>The WKBCH CI DAR Tool shall update the DAR date/time fields after the following information has been selected via the timeline display:</p> <ul style="list-style-type: none"> <li>a. repeat interval</li> <li>b. acquisition window</li> <li>c. xAR lifetime</li> </ul>	functional	test	ASTER-0110#B	<p>ECS shall have the capability to send and ASTER GDS shall have the capability to receive DARs for the ASTER instrument. DARs shall contain the following information, at a minimum:</p> <ul style="list-style-type: none"> <li>a. Observation number</li> <li>b. Experimenter identification</li> <li>c. Experimenter address</li> <li>d. Investigation identification</li> <li>e. Scientific discipline</li> <li>f. Observation repetition period</li> <li>g. Tolerance in observation time</li> <li>h. User priority</li> <li>i. Scheduling priority and target of opportunity flag</li> <li>j. Descriptive text</li> <li>k. Location data expressed in terms of longitude and latitude as earliest start coordinates and latest stop coordinates</li> <li>l. Earliest start time</li> <li>m. Latest stop time</li> <li>n. Minimum coverage required</li> <li>o. Maximum coverage desired</li> <li>p. Deleted</li> <li>q. Deleted</li> <li>r. Associated product generation request and product distribution request</li> <li>s. Pointing angle</li> <li>t. Calibration requirements</li> <li>u. Coordination requirements</li> <li>v. Data transmission requirements</li> <li>w. Illumination requirements (day/night)</li> <li>x. Specific time of observation</li> <li>y. Sun angle</li> <li>z. Direct downlink option</li> </ul>			interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-14410	<p>The WKBCH CI DAR Tool shall update the timeline display during DAR formulation when the user provides the following information:</p> <ul style="list-style-type: none"> <li>a. repeat interval</li> <li>b. acquisition window</li> <li>c. xAR lifetime.</li> </ul>	functional	test	ASTER-0110#B	<p>ECS shall have the capability to send and ASTER GDS shall have the capability to receive DARs for the ASTER instrument. DARs shall contain the following information, at a minimum:</p> <ul style="list-style-type: none"> <li>a. Observation number</li> <li>b. Experimenter identification</li> <li>c. Experimenter address</li> <li>d. Investigation identification</li> <li>e. Scientific discipline</li> <li>f. Observation repetition period</li> <li>g. Tolerance in observation time</li> <li>h. User priority</li> <li>i. Scheduling priority and target of opportunity flag</li> <li>j. Descriptive text</li> <li>k. Location data expressed in terms of longitude and latitude as earliest start coordinates and latest stop coordinates</li> <li>l. Earliest start time</li> <li>m. Latest stop time</li> <li>n. Minimum coverage required</li> <li>o. Maximum coverage desired</li> <li>p. Deleted</li> <li>q. Deleted</li> <li>r. Associated product generation request and product distribution request</li> <li>s. Pointing angle</li> <li>t. Calibration requirements</li> <li>u. Coordination requirements</li> <li>v. Data transmission requirements</li> <li>w. Illumination requirements (day/night)</li> <li>x. Specific time of observation</li> <li>y. Sun angle</li> <li>z. Direct downlink option</li> </ul>			interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
NEW	The WKBCH CI DAR Tool shall synchronize time-related data for a xAR Search Request so that selection of a time range on a Search Request timeline tool will be translated into date/time ranges in a Search Request submission window.	functional	test	ASTER-0110#B	<p>ECS shall have the capability to send and ASTER GDS shall have the capability to receive DARs for the ASTER instrument. DARs shall contain the following information, at a minimum:</p> <ul style="list-style-type: none"> <li>a. Observation number</li> <li>b. Experimenter identification</li> <li>c. Experimenter address</li> <li>d. Investigation identification</li> <li>e. Scientific discipline</li> <li>f. Observation repetition period</li> <li>g. Tolerance in observation time</li> <li>h. User priority</li> <li>i. Scheduling priority and target of opportunity flag</li> <li>j. Descriptive text</li> <li>k. Location data expressed in terms of longitude and latitude as earliest start coordinates and latest stop coordinates</li> <li>l. Earliest start time</li> <li>m. Latest stop time</li> <li>n. Minimum coverage required</li> <li>o. Maximum coverage desired</li> <li>p. Deleted</li> <li>q. Deleted</li> <li>r. Associated product generation request and product distribution request</li> <li>s. Pointing angle</li> <li>t. Calibration requirements</li> <li>u. Coordination requirements</li> <li>v. Data transmission requirements</li> <li>w. Illumination requirements (day/night)</li> <li>x. Specific time of observation</li> <li>y. Sun angle</li> <li>z. Direct downlink option</li> </ul>			interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-14490	The WKBCH CI DAR Tool shall synchronize time-related data for a xAR Search Request so that a date/time range typed in a Search Request window will be graphically displayed as a time range on a Search Request timeline window.	functional	test	ASTER-0110#B	<p>ECS shall have the capability to send and ASTER GDS shall have the capability to receive DARs for the ASTER instrument. DARs shall contain the following information, at a minimum:</p> <ul style="list-style-type: none"> <li>a. Observation number</li> <li>b. Experimenter identification</li> <li>c. Experimenter address</li> <li>d. Investigation identification</li> <li>e. Scientific discipline</li> <li>f. Observation repetition period</li> <li>g. Tolerance in observation time</li> <li>h. User priority</li> <li>i. Scheduling priority and target of opportunity flag</li> <li>j. Descriptive text</li> <li>k. Location data expressed in terms of longitude and latitude as earliest start coordinates and latest stop coordinates</li> <li>l. Earliest start time</li> <li>m. Latest stop time</li> <li>n. Minimum coverage required</li> <li>o. Maximum coverage desired</li> <li>p. Deleted</li> <li>q. Deleted</li> <li>r. Associated product generation request and product distribution request</li> <li>s. Pointing angle</li> <li>t. Calibration requirements</li> <li>u. Coordination requirements</li> <li>v. Data transmission requirements</li> <li>w. Illumination requirements (day/night)</li> <li>x. Specific time of observation</li> <li>y. Sun angle</li> <li>z. Direct downlink option</li> </ul>			interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-19103	The WKBCH CI DAR Tool shall have the capability for users to specify single or multiple observation times on the DAR Tool temporal GUI.	functional	demo	ASTER-0110#B	ECS shall have the capability to send and ASTER GDS shall have the capability to receive DARs for the ASTER instrument. DARs shall contain the following information, at a minimum: a. Observation number b. Experimenter identification c. Experimenter address d. Investigation identification e. Scientific discipline f. Observation repetition period g. Tolerance in observation time h. User priority i. Scheduling priority and target of opportunity flag j. Descriptive text k. Location data expressed in terms of longitude and latitude as earliest start coordinates and latest stop coordinates l. Earliest start time m. Latest stop time n. Minimum coverage required o. Maximum coverage desired p. Deleted q. Deleted r. Associated product generation request and product distribution request s. Pointing angle t. Calibration requirements u. Coordination requirements v. Data transmission requirements w. Illumination requirements (day/night) x. Specific time of observation y. Sun angle z. Direct downlink option			interface
				IMS-1070#B	The IMS shall provide the capability for users to construct DARs for collection of ASTER instrument data which shall contain information as listed in the ASTER IRD.			functional

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-19121	The WKBCH CI DAR TOOL shall enforce the entry of an acquisition window if a repeat interval is specified.	functional	demo	ASTER-0100#B	<p>ASTER GDS shall have the capability to send and ECS shall have the capability to receive information on ASTER instrument operations and constraints that may be applicable to DAR specification. The ASTER instrument constraint information shall include (at a minimum):</p> <ul style="list-style-type: none"> <li>a. descriptive information for the ASTER instrument</li> <li>b. default settings for instrument configurable parameters</li> <li>c. range of values for instrument configurable parameters</li> <li>d. instrument constraint information</li> </ul>			interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-19123	<p>The WKBCH CI DAR TOOL shall provide the capability for users to change the following information which controls the timeline display:</p> <ul style="list-style-type: none"> <li>a. the number of increments</li> <li>b. the units of increments (years or months)</li> </ul>	functional	demo	ASTER-0110#B	<p>ECS shall have the capability to send and ASTER GDS shall have the capability to receive DARs for the ASTER instrument. DARs shall contain the following information, at a minimum:</p> <ul style="list-style-type: none"> <li>a. Observation number</li> <li>b. Experimenter identification</li> <li>c. Experimenter address</li> <li>d. Investigation identification</li> <li>e. Scientific discipline</li> <li>f. Observation repetition period</li> <li>g. Tolerance in observation time</li> <li>h. User priority</li> <li>i. Scheduling priority and target of opportunity flag</li> <li>j. Descriptive text</li> <li>k. Location data expressed in terms of longitude and latitude as earliest start coordinates and latest stop coordinates</li> <li>l. Earliest start time</li> <li>m. Latest stop time</li> <li>n. Minimum coverage required</li> <li>o. Maximum coverage desired</li> <li>p. Deleted</li> <li>q. Deleted</li> <li>r. Associated product generation request and product distribution request</li> <li>s. Pointing angle</li> <li>t. Calibration requirements</li> <li>u. Coordination requirements</li> <li>v. Data transmission requirements</li> <li>w. Illumination requirements (day/night)</li> <li>x. Specific time of observation</li> <li>y. Sun angle</li> <li>z. Direct downlink option</li> </ul>			interface

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
NEW	The WKBCH CI DAR Tool temporal selection function shall support the graphical and textual selection of temporal ranges in support of DAR creation and xAR searches.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.			interface

### 3.8 Help

L4 ID	L4 Text	Req Type	Verif Method	RBR ID	L3 Text	Clarification	Interpretation	Req Type
S-CLS-19130	The WKBCH CI DAR Tool shall provide: 1. context sensitive help 2. general help at a window level	functional	demo	IMS-0120#B	The IMS shall provide, dependent upon the user's display device capabilities, a user-friendly interface with the following features at a minimum: a. Multiple window display b. Buttons and pull down menus c. Valid lists for all variables d. An information base of associations between variables (e.g., between instruments and geophysical parameters) e. Ability to restore a session after interruption f. Context-sensitive help g. Minimal and consistent use of non-standard keys h. Random movement through fields i. Capability to save and restore the contents of a menu or form j. Standardized use of commands and terminology across screens k. Self-explanatory, meaningful error messages l. Automatic acronym expansion, which can be enabled and disabled interactively m. Availability of a menu tree diagram n. Command language			functional
S-CLS-19155	The WKBCH CI DAR TOOL help system shall provide ASTER-specific default settings for the three ASTER telescopes.	functional	demo	IMS-1160#B	The IMS shall provide instrument specific default settings for instrument configurable parameters.			functional
S-CLS-19156	The WKBCH CI DAR TOOL help system shall provide ASTER-specific help messages that instruct authorized users how to change the instrument parameter settings for the three ASTER telescopes in their DARs.	functional	demo	IMS-1170#B	The IMS shall provide instrument specific help to assist with setting instrument parameters.			functional

S-CLS-13850	The WKBCH CI DAR Tool shall provide detailed help on the ASTER instrument and parameters during DAR formulation and submittal.	functional	demo	IMS-1130#B	The IMS shall provide descriptive information on instruments and parameters available in Standard Products to help with the creation of data acquisition requests for the ASTER.			functional
NEW	The WKBCH CI DAR Tool shall provide an HTML tutorial for training users in the use of the DAR Tool.	functional	test	IMS-0100#B	The IMS shall support, at a minimum: a. Interactive sessions b. Non-interactive remote sessions c. Client-server interface d. Simulated sessions for training purposes			interface
S-CLS-19135	The WKBCH CI DAR Tool shall provide references to sources of climatology information, including: cloud climatology probabilities, seasonal snow and ice cover, and major ecosystem regions.	functional	demo	IMS-0510#B	The IMS shall provide tools for research planning and data search, to include at a minimum: a. Data acquisition schedules and plans b. The capability to map specified geophysical parameters to the appropriate instrument and/or Standard Product c. Descriptive information on instruments and geophysical parameters available in Standard Products d. Climatology information e. Phenomenology information f. Geographic reference aids g. Spacecraft location projections.			interface
				IMS-1105#B	The IMS shall maintain or provide access to climatology databases for DAR generation.			interface
S-CLS-19156	The WKBCH CI DAR TOOL help system shall provide ASTER-specific help messages that instruct authorized users how to change the instrument parameter settings for the three ASTER telescopes in their DARs.	functional	demo	IMS-1170#B	The IMS shall provide instrument specific help to assist with setting instrument parameters.			functional

# Abbreviations and Acronyms

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AOI	Area of Interest
AOS	Area of Search
API	Application Program Interface
ASTER	Advanced Spaceborne Thermal Emission and Reflection Radiometer
ASTER GDS	ASTER Ground Data System
CSS	Communications Subsystem
DAAC	Data Active Archive Center
DAR	Data Acquisition Request
ECS	EOSDIS Core System
EOSDIS	Earth Observing System Data and Information System
FOS	Flight Operations Segment
GUI	Graphical User Interface
HTML	Hyper-Text Markup Language
ICD	Interface Control Document
JDT	JAVA DAR Tool
JEST	JAVA Earth Science Tool
km	kilometers
lat	latitude
long	longitude
Mod 72	Contract modification 72 (for the JDT design and implementation)
MOJO	Message Oriented JAVA ?
RTM	Requirements Traceability Matrix Tool
SMC	System Management Center
xAR	(generic) Acquisition Request

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