Common Instrument Interface Team Responses to Stakeholder Feedback

	Concern	Recommendation
Comment #51	Choice of a specific orbit for validation total dose could be significantly mis-leading; either too low or too high (especially at LEO).	Make the recommendation to use a "blessed" model (AE8/AP8 or AE9/AP9 or …) and do the analysis for the required orbit, etc. This goes for all of the enivornments, even plasma, micro-meteoroids, etc, atomic oxygen, …

CII Team Response

- The TID environment was analyzed for multiple orbits, but the "worst case" environment was considered to be overly conservative. Therefore, the TID environment provided for LEO was for an orbit of 813 km, sun-synchronous. This was considered to be a "significant," but not overly conservative, example of a TID environment for a LEO Earth science instrument as this is an orbit that is well populated by Earth science mission satellites. While this is not the most stressing case, it is one of the more stressing examples and should envelop the TID environment experienced by most LEO Earth science instrument missions.
- The TID provided for GEO was readily available from the GOES satellite program and since the GEO orbits are nearly equivalent in terms of TID, this example should envelop the TID environment experienced by most GEO Earth science instrument missions.
- The micrometeoroid and artificial space debris LEO environments were analyzed over a range of orbits and provide "worst-case" data which envelop the environments experienced by LEO Earth science instrument missions.
- The micrometeoroid and artificial space debris GEO environments were analyzed over a range of GEO orbits (variation of longitude) and provide "worst-case" data which envelop the environments experienced by GEO Earth science instrument missions.
- Please note that the artificial space debris environment in both LEO and GEO is constantly changing and and is growing in severity; the data provided are for CY2015. This will be addressed in the response to feedback ID# 60
- The atomic oxygen LEO environment was provided for a single orbit of 705 km circular polar and a mission duration of two years. Additional data has been obtained in the form of an atomic oxygen flux variation by altitude and solar cycle, and the subject guidance will be updated accordingly.
- The "Plasma" environment provided for LEO was for an orbit of 705 km, sun-synchronous. This was considered to be a "significant" but not overly conservative example of the subject environment for a LEO Earth science instrument as this is an orbit that is well populated by Earth science mission satellites. While this is not the most stressing case, it is one of the more stressing examples and should envelop the "Plasma" environment experienced by most LEO Earth science instrument missions.
- The "Plasma" provided for GEO was readily available from the GOES satellite program, and since the GEO orbits are nearly equivalent, this example should envelop the environment experienced by most GEO Earth science instrument missions.
- Since the nature and configuration of the Instrument, the Spacecraft Host and the mission of each is unknown, with exception to those boundary conditions the CII development team has self-defined, the nature of any data supplied are intended to be "general to any mission". If more accurate data are desired or required, then additional analysis will, as a matter of course, need to be performed by the Instrument developer.
- The models used to develop the TID environment as well as the other environments cited are all considered to be appropriate for the purpose.

	Concern	Recommendation
Comment #52	Observed that many presenters/audience members commented that mass could be "purchased" later from fuel margin. This paradigm is no longer true with the emergence of Xenon Ion Propulsion as redundant and even primary propulsion to GEO. In some cases liquid fuel is no longer used for GEO spacecraft.	Caution when assuming mass margin can be offset with Service Providers - they may not have excess margin and/or could cost millions of dollars.

CII Team Response

The transition from liquid to electric propulsion technology shifts the traditional mindset of trading propellant mass for payload mass, with likely higher order effects on hosted payload prices. While an in depth discussion of that concept is outside the scope of the Guidelines document, we updated the document to mention Xenon Ion Propulsion as an example of a new technology. The CII team appreciates you bringing that to the attention of our stakeholders.

	Concern	Recommendation
Comment #53	ID 9.4.3.4; Typically payloads MUST know that the payload temperature is in an acceptable range before the payload element is turned on. If the payload is off, the host is the only source of this information.	Delete 9.4.3.4. As recommendations include that the host will provide at least one temperature monitor, but (perhaps) warn that this temperature may not be available in extreme cases, e.g. host anomalies, start-up, etc. [if this was the point of ID 9.4.3.4]

CII Team Response

The concern has been duly noted. This issue was extensively discussed by the CII team members during the formulation of the guidelines. It was felt making fewer demands on the host would make it easier for host to accommodate the payload. However, based on all the feedback received in this regard at the workshop from both the payload and the host spacecraft managers, this guideline will be modified and the updated guideline 9.4.3.4 will read as follows:

Revision to Guideline 9.4.3.4

"9.4.3.4 The Instrument Developer should assume that Spacecraft will monitor only one temperature on the spacecraft side of the payload interface with it when the payload is off. However during extreme cases such as host anomalies, even this temperature may not be available."

	Concern	Recommendation
Comment #54 Lad Curtis Sierra Nevada Corporation	Section 6.3.1. Mechanical envelope for LEO seems too large for a microsatellite class (< 500kg) spacecraft-especially spacecraft that may be flying as secondaries on ESPA. In particular, the 0.85m dimension is a large number for a hosted payload on a microsatellite.	1) If the 0.85m dimension could be constrained to be perpendicular to a bus deck, it would lessen the impact. 2) Often there is more flexibility to accommoate a larger deployed payload envelope. Consider specification of stowed and deployed envelopes if a commonality of those envelopes can be identified from RSDO or other sources.

CII Team Response

The CII Hosted Payload Guidelines document assumes LEO spacecraft accommodations based on those spacecraft most utilized in past NASA Earth Science investigations in LEO. This methodology is believed reasonable given that the range of small, micro-, and nano-satellite capabilities to support hosted payloads is very diverse and using the smaller accommodations associated with these platforms as the basis for LEO hosting seems overly restrictive. So that we do not to preclude micro-satellites or secondary structures as potential host platforms, the CII team has modified Section 1.0 to explain this rationale. The CII team will continue to assess the capabilities of all LEO platforms capable of hosting a government payload including microsatellites and secondary allotments on principal structures, such as ESPA.

	Concern	Recommendation
Comment #55	Mechanical discussion. I didn't see any discussion for ground strap provisions. One item the spacecraft provider will need to know is where to drill ground strap mounting location in the deck. This is needed when panels are being prepared with mounting. Perhaps this is already spelled out in the MICD or maybe I just missed it. Also I saw mention of kinematic mounts. What about needs for any other type of brackets? Typically I've seen the spacecraft provider provide these.	

CII Team Response

Ground strapping is not currently referenced in the guidelines, but could be addressed under 9.3 Mechanical Interface Reference Material / Best Practices (see revision to 9.3.5.1 Documentation of Mounting).

Since 9.3.5.6 recommends that kinematic mounts, if needed, should be provided by the Instrument Provider, it is assumed that hard mount brackets will be provided by the Host Spacecraft. Although this is not spelled out, it would fall under 6.0 Mechanical Level 2 Guidelines, 6.1 Assumptions:

1)During the matching process, the Host Spacecraft Manufacturer/Systems Integrator and the Instrument Developer will negotiate detailed parameters of the mechanical interface. The Mechanical Interface Control Document (MICD) will record those parameters and decisions.

	Concern	Recommendation
Comment #56	Discussion on thermal temperature monitoring when instrument is off. Typically the provider will offer two sensors monitored through the spacecraft telemetry. Easy fix is mount one by the interface mount and one on the sensor box. While there may be a limit on channels, there is usually enough to accommodate.	
CII Team Response	Response: the Thermal Guideline 9.4.3.4 will be updated to reflect the Host Spacecraft monitoring one temperature on its side of the thermal interface (see the update to the guideline listed under ID #53 above).	
Comment #57	Is "Do No Harm" a guideline that can be waived, or really a requirement? More generally, there really ARE some requirements, and the community would be well served by documenting them carefully.	Adopt "Hosted Payload shall no do harm" as a requirement and work through major implications. Certain (hosted payload-to-host) guidelines look like they all _should_ be requirements. They were written at a level and amount of detail that sems appropriate -- and necessary.
CII Team Response	The CII Hosted Payload Interface Guidelines document seeks to inform instrument development teams of the technical accommodations consistently available from host platforms. While it is expected that any partnership between government payload teams and commercial spacecraft manufacturers and owner/operators will contractually require an agreement on the "Do No Harm" provision, this and other programmatic requirements will be documented outside of CII documentation. The CII team has modified the introductory narratives of the Guidelines document to clarify this approach.	
Comment #58 David Crain GeoMetWatch	New Host Opportunity. Add to Hosted Payload Opportunity Database. We will publish hosted payload guidelines for a standardized interface for each of our six GEO missions in March 2013. Earth view and angles up to 110deg from nadir. Payload nominal specs: - Up to 10 Mb/s downlink - Up to 50 W - Up to 20 kg (under 5 kg preferred) - Volume up to 20 x 20 x 20 cm (Similar to SensorPod developed for IridiumNEXT) Launch Dates: - Dec 2016, Oct 2017, four more TBD on about one year intervals	
CII Team Response	Thank you for notifying the CII team about your future Hosted Payload Opportunities. Once GeoMetWatch publicly announces a deal tying your sensors to specific mission, we will be glad to add those data to the Hosted Payload Opportunities Database.	

	Concern	Recommendation
Comment #59	Pointing guidelines, as stated, are slightly ambiguous, and many Earth-observing payloads wil need much better at GEO.	Re-word these guidelines to state: 1) That Payload cannot expect pointing that is more accurate or more stable than x,y,z, and 2) If more accurate and more stable pointing are required, here is what the payload needs to think about doing.
CII Team Response	- As described in the associated rationale(s), the GEO pointing and stability guidelines are based upon the responses to the CII RFI provided by a majority of the GEO Communications Satellite S/C bus vendors - Based upon the content of the above noted responses, it is only appropriate to provide the LCD (Lowest Common Denominator) response as guidance. - As described in the associated rationale(s), alternatives are defined for instruments which require better point accuracy, better pointing knowledge or better stability that those levels which are common to all S/C buses	
Comment #60	Micro-meteoroid and space debris guidelines are not clearly described.	Make the guideline that these environments exist, and recommend that the payload provider assess the risk to the performance of the payload given these environments. Do not state "must survive in this environment" unless "must survive" means with a certain probability over the mission life. A similar comment goes for EMI/EMC. Recommend that payload realizes that host will require compatibility and demo to MIL-STD-xyz and provide advice. No need to duplicate -461 here.
CII Team Response	- The intent of the guidance was to convey that a probability analysis should be performed to determine the type and amount of shielding needed to mitigate exposure to the flux of micrometeoroids and artificial space debris in the defined mission orbit over the defined mission lifetime and in the correct mission period of performance in order to ensure mission success. - The response to the comment requesting clarification of the EMI/EMC guidance will be integrated with the responses to Feedback ID# 75 and 76	
Comment #61	CCSDS Requirement	Keep it open as Surrey uses IP protocol and has not done CCSDS yet.
CII Team Response	The CII Guidelines recommend CCSDS headers only as a best practice, making its use “open”. The best practice recommends only the CCSDS primary and secondary headers. The primary header is six bytes and contains basic packet control information (version, packet count, packet length, etc.). The secondary header is nine bytes and contains a timestamp (counter since an epoch). This header can be embedded in an IP packet or ignored in lieu of IP packet headers with an equivalent purpose. The spirit of this recommendation is to capture basic packet control and time information. The CCSDS-specific implementation recommendation is due only to its prevalence in both ground and onboard aerospace applications.	
Comment #62	No mention of test instrumentation, such as thermocoupler, accelerometer. Late requirements for this may be hard or impossible to accommodate. On some projects, schedule issues push test to spacecraft level.	Consider guideline recommending early discussion/negotiation with Host Spacecraft to define capability/availability of Spacecraft to accommodate.
CII Team Response	These recommendations are valid best practices for any satellite payload development. Because the CII team has tried to limit the scope of its document to guidelines which are hosted-payload unique, however, we do not intend to change the document text to reflect your recommendations.	

	Concern	Recommendation
Comment #63	A potential PI or Instrument Developer doesn't get the _range_ of resources available on commercial GEO buses from the CII guidelines. They are pretty much only seeing the worst case value for each parameter, which may give a false impression of what is possible at GEO.	You should explicitly state that the 60 Mbps data rate limit assomes only _one_ transponder, but leasing more than one transponder is just a financial question. It would also be nice if you could provide another bound on performance available (for things like mass, power, pointing, etc) assuming you could find a way to do that without releasing any proprietary information.
CII Team Response	We will add this clarification to the data guidelines and investigate to what extent the other guidelines can be bounded without releasing proprietary information.	
Comment #64	Not enough information is available concerning mission ground activities and standard practices.	Canvas and assess operators to collect standard practices for data delivery, operating oversight and maintenance, and commanding/mission operations. Document guidelines for hosted payloads. This may be particularly valuable for GEO hosted payloads on comsats, as there may be real "standard practices" that can be described.
CII Team Response	The CII Concept of Operations document already contains many of these details. Where there are gaps, and time and resources permitting, we will gather additional information and update the document.	
Comment #65		1. For the contamination environment it may be wise to categorize platforms/Spacecraft as to their ability to accommodate various classes of cleanliness for payloads. 2. Identify locations on the platform/spacecraft that are desirable for clean payloads . Identify locations that are not desirable for payloads that have cleanliness requirements. 3. Categorize payloads on the requirement for cleanliness.
CII Team Response	As a guiding approach, one may adopt a rule of thumb wherein "like pairs with like"; meaning, that host spacecraft platforms that incorporate prime mission flight system elements that have similar contamination sensitivity to prospective hosted instruments would already posses attributes—with respect to ground processing, launch vehicle interface and flight system design features—enabling a pairing that would potentially minimize adverse accommodation impacts. This theme could be extended to guide in the identification of suitable locations for hosted payloads aboard host spacecraft; placing a hosted payload in a contamination zone that has been created to enable the performance of an element of the host platform may also enable the hosted instrument; assuming cross-contamination concerns are addressed. The payload provider of each prospective hosted payload should assess the contamination sensitivity of the instrument and understand the contamination environments presented by ground processing and flight.	
Comment #66		I think that in the guideline handbook it is good to present the design information (e.g., load factors , random environments, etc.) that envelope the platforms . You might also represent values from specific platforms that are representative of the low and high side of a category. For example present the table of loads versus frequency but give an examples of values from a spacecraft that represent low, average and high values. I know from my Hitchhiker days it was always a good idea to be conservative in design assumptions.
CII Team Response	Thank you for the comment. The CII Hosted Payload Interface Guidelines document contains information on spacecraft interfaces that are intended to increase a government payload's compatibility with host platforms. While your suggestion would likely increase awareness of individual spacecraft capabilities and their sensitivities, the CII team is committed to the proper handling of commercial manufacturer's proprietary data which prohibits any use of received data in a manner that can be used to identify individual spacecraft performance.	

	Concern	Recommendation
Comment #67	NASA has a history of taking a document that is intended as recommendations or best practices, and turning them into requirements. A great example of this is the Gold Rules, which is now being used as a set of requirements (in practice, if not in letter). I am afraid that the CII document will sound OK when read as recommendations (knowing many exceptions will expected), but will drive up costs (AGAIN!) if taken as a set of requirements (in practice, if not in letter). What is NASA doing to ensure this does not happen again?	I think that it would greatly help potential users if there is an introductory section that talks in very simple, plain language about how to think about hosted payloads, and how to interpret some of the information that follows in the document. Sort of a “so you are thinking of launching an instrument on a hosted payload. Here’s are few things to consider on how this might be different than the dedicated S/C launch you have worked on before…”. A examples might read: o “Power: for once in your life, you probably don’t need to worry about saving watts in your instrument. The typical telecom spacecraft has kilowatts of power, and the system is sized for the end of life, not the beginning of the mission when your instrument is probably operating. This means you can look at solutions that might be less power efficient but which could lower costs (e.g. hybrid power converters vs. custom converters).” o “Vibration environment: there are a number of telecom spacecraft designs, and the mounting location for your instrument will vary substantially depending on your viewing needs, instrument size, and the spacecraft accommodation possibilities. If you end up mounted in the middle of a large S/C panel, you could see high vibration loads. If you end up mounted in the corner of a stiff, small S/C panel, you could see much lower vibration loads. The levels you will see in this document envelope almost all these cases, so the levels are very high. If your instrument isn’t sensitive to vibration- great! You can mount almost anywhere, on any available host opportunity, and that gives you flexibility. If you are sensitive to vibration, it just means you need to be a bit more selective on what spacecraft to choose and where you mount. These are things to negotiate with the host providers.”
CII Team Response	Thank you for the excellent suggestion. The CII team received several comments focused on the appropriate use and interpretation of the Hosted Payload Interface Guidelines document. As such, we have made revisions to the introductory narratives of the document which provide context on how this information should be leveraged; not as specification for requirements but rather as guidance. The CII Guidelines will undergo future revision as a “living document” so as to stay current with industry recommendations and based on the feedback from instrument teams.	
Comment #70	7.2.2 This may be restrictive for small boxes. Can the spec be 10W total (vs. 4)? I am concerned that a small box, facing nadir, will not have enough surface area to radiate away heat. I find it hard to believe that the spacecraft will care about whether the number is 4 or 10, for example.	
CII Team Response	A Level 1 Thermal Design Guideline (2.2.6) for the Instrument Provider is to keep the instrument thermally isolated from the Host Spacecraft. The conductive interface of 4 W is considered small enough to meet the intent of being thermally isolated. Even nadir pointed instrument should plan to dissipate its own waste heat. However, during the time of matching with the Host Spacecraft, the payload can negotiate with the host to obtain heat sinking facility.	

	Concern	Recommendation
Comment #71	8.4.8 The vibration specification shown for LEO and particularly GEO are quite high. I understand that this is probably the worst case to envelope all host vehicles, but this is a very high spec, and will drive mass and costs. The spec is particularly high for smaller payloads. In discussion with one of the S/C provides, they said that this number is high, and that most cases will be significantly lower. Can you add some words to say that "use these numbers, and you can fly on anything; if you need lower environments, you will need to talk with the bus providers to locate the instrument such that the mechanical inputs are lower."	
CII Team Response	The intent of this guidance was to convey a conservative random vibration environment for use by Instrument developers. It is also permissible to tailor the environment following Instrument pairing with the Spacecraft Host to be representative of the actual environment that the Instrument payload will experience. It is important to note that if the Instrument is capable of meeting the described random vibration environment then it will be compatible, WRT this particular guidance, with any spacecraft host that responded to the CII HPO RFI.	
Comment #72	8.4.1 Similarly, the Shock specs are also very high	
CII Team Response	The intent of this guidance was to convey a conservative shock environment for use by Instrument developers. It is also permissible to tailor the environment and the quality factor following Instrument pairing with the Spacecraft Host to be representative of the actual environment that the Instrument payload will experience. It is important to note that if the Instrument is capable of meeting the described shock environment then it will be compatible, WRT this particular guidance, with any spacecraft host that responded to the CII HPO RFI.	
Comment #73	9.3.3.4 There are a number of recommendations (e.g. to measure moments of inertia) that may not be needed for small instruments. The S/C won't care, and to meet the recommendations will drive up costs unnecessarily.	
CII Team Response	The measurements guidelines (9.3.2 Mass Centering; 9.3.3.2 Mass; 9.3.3.3 Center of Mass; 9.3.3.4 Moment of Inertia) in 9.3.3 Documentation of Mechanical Properties were determined from the STP-SIV Payload User's Guide (LEO) and Payload Users Guides from responders to the CII RFI for GEO Hosted Payload Opportunities. Since these guidelines were established, based on Host Spacecraft user guides, it is felt they should remain in the document. However, since all of these are items are recommended for documentation in the MICD, which would occur after pairing, it is assumed their necessity could be negotiated at pairing with the Spacecraft.	
Comment #74		9.4.1.2 Reword this to make it clear you are recommending to test down to –55C, and that no additional margin is needed (I.e. Survive to –55 with 10C margin, meaning you test to –65C). Also, confirm with GSFC that they have suitable adhesives, etc. that they use to –55C.
CII Team Response	The Allowable Flight Temperatures (AFT) of thermal interface for space electronics packages is typically in the -40 to +50 C range. These packages are qualified to a thermal interface of -55 to +70 C. There are many adhesives and interface materials commonly used in space instruments flown on many NASA missions.	

	Concern	Recommendation
Comment #75	9.5.5.3 The RE02 levels, like 4 dBuV/m, are VERY tough to meet. I worry that giving this spec to all instrument providers will be a large cost driver. How real is this?	

CII Team Response

As described in the Rationale for this guidance, the RE102 radiated emissions environment is a composite environment constructed from an analysis of the inputs from both the CII HPO RFI responses and all available Launch Vehicle Payload Planning Guidebooks.

Please note that if you were to plot the data provided, it would very quickly become apparent that the data in the upper frequencies are grouped into frequency bands. Some of these bands allow for larger radiated emission amplitudes and some for significantly reduced radiated emission amplitudes. Those frequency bands in which reduced emissions amplitudes are defined represent frequencies which are restricted for launch vehicle and spacecraft command and telemetry communications signals and launch range communications signals. The restrictions on emissions in those frequencies utilized by launch vehicles and launch range are limited to mission phases beginning with ground operations at the launch range complex and extending through launch and early operations. The restrictions on emissions in those frequencies utilized by spacecraft are limited to mission phases beginning with Instrument integration operations at the spacecraft vendor and extend throughout the mission lifetime. Please note that the frequencies defined constitute those from all CII HPO RFI responders and all available Launch Vehicle Payload Planning Guidebooks.

Instrument operation and operational testing should conclude prior to the beginning of Instrument integration to the spacecraft or else, prior to the initiation of ground operations at the launch range complex. Therefore, since the Instrument will be non-operational during the time period beginning at the initiation of ground operations (at the latest) until regular spacecraft operations are initiated on-orbit, the limitations to emission amplitudes in specific frequency ranges required by the launch vehicle and/or launch range should not be a concern.
It is important to note that if the Instrument is capable of meeting the described radiated emissions environment then it will be compatible, WRT this particular guidance, with any spacecraft host that responded to the CII HPO RFI as well as any Launch Vehicle that has a publically available Launch Vehicle Payload Planning Guidebook.

Comment #76	9.5.4.5 I am concerned that the CS115 test spec, e.g. Figures 9-6 and 9-8, may drive too much current into a small instrument power supply. The impedance on small traces, inductors, etc. may create very large voltages and damage components.	

CII Team Response

The intent of this guidance was to convey the appropriate content associated with MIL-STD-461F. Per Appendix A of that document, tailoring of the amplitude is permissible for both CS115 and CS116. It is also permissible to tailor the pulse duration to adjust the energy content of the pulse for CS115 or tailor the lower frequency breakpoint to be more consistent with the lowest resonance of a particular platform for CS116.

	Concern	Recommendation
Comment #77	Contamination (general): Please consider including some guidelines for contamination-sensitive instruments, including recommendations about how to achieve acceptable levels at the instrument while avoiding driving the cost of the host S/C. This may include the recommendation to purge, to remove instrument during TV testing, to pay for T0 purge, to negotiate special care not to use cleaning solutions, soldering, etc. near the instrument while at the host I&T facility or launch pad. I am not sure what you do when the S/C solar array drive motors use lubricants that are problematic, etc.	
CII Team Response	An instrument provider should generally treat contamination originating from the host spacecraft integration venue, launch vehicle integrated operations and the flight phase as environments around which an instrument must design. Although some accommodation of instrument-specific contamination sensitivity may be possible within the context of business as usual for the host spacecraft, hardware or operational changes on the host side of the contamination interface should, as a conservative default assumption, be assumed to involve some cost. The contamination sensitivity of the instrument and the induced contamination environments described above, will influence the selection process with respect to the compatibility of an instrument with a spectrum of host spacecraft. Instruments that are less contamination sensitive, either by virtue of the science objectives or hardware design features that protect the instrument from external environments, will have a wider array of compatible host spacecraft open to them.	
Comment #78	Ionizing Radiation (general): Consider removing everything in this section other than a few statements (e.g. Use an RDM of two, based on the radiation environment for your specific orbit and an assumed spherical model; if wish to optimize further, negotiate with the spacecraft provider for information to perform a ray-trace model). Other than that, all the data you have in this section would be general to any mission, not just a hosted payload, and does not need to be here.	
CII Team Response	Ionizing radiation environment guidance was provided because this environment is considered to be of significance to Hosted Payload Instrument developers. The data and formats provided exemplify the "typical" presentation of this environment . The environment(s) provided have been selected after careful consideration. For example, the LEO TID environment is considered to be a "significant" but not overly conservative example for a LEO Earth science instrument as this is an orbit that is well populated by Earth science mission satellites. While this is not the most stressing case, it is one of the more stressing examples and should envelop the TID environment experienced by most LEO Earth science instrument missions. The TID environment provided for GEO was readily available from the GOES satellite program and since the GEO orbits are nearly equivalent in terms of TID, this example should envelope the TID environment experienced by most GEO Earth science instrument missions. Since the nature and configuration of the Instrument, the Spacecraft Host and the mission of each is unknown, with exception to those boundary conditions the CII development team has self-defined, the nature of any data supplied are intended to be "general to any mission". If more accurate data are desired or required, then additional analysis will, as a matter of course, need to be performed by the Instrument developer.	