

NNL13ZB1001R

Radiation Budget Instrument (RBI)

Industry Questions/Comments and Government Response # 2

June 7, 2013

(Questions and Responses 21-25 are new; Responses for 1 and 3 have been updated)

	Contract/SOW Reference/Topic	Industry Question/Comment	Government Response
1	General	Does the Government still anticipate a June 6, 2013 release of the final RFP?	<p style="text-align: center;">↓ Updated</p> The release of the final RBI Request for Proposal (RFP) has been postponed. The final RFP will not be released on June 6, 2013 as anticipated. The Government will provide further information on the NASA Acquisition Internet Service (NAIS) and the Federal Business Opportunities (FedBizOpps) websites as soon as possible and no later than June 13, 2013. Please continue monitoring these sites for further information.
2	RFP, Section L	Will the total evaluated price be a sum of CLIN 001 and CLIN 002?	Provision L.18, Factor 2 – CLIN 001 Cost/Price applies only to CLIN 001. There is no requirement for pricing on CLIN 002 since requirements have not been defined at this time.
3	General dRFP	Regarding the proposal due date with a 45 day turnaround period - is it possible to extend the RFP due date?	<p style="text-align: center;">↓ Updated</p> The release of the final RFP has been postponed (see response #1 above) and the proposal due date will be revised accordingly in the final RFP.

4	RFP, Section B, CLIN 002	Is it NASA's plan to negotiate both cost and fee structure on each IDIQ task order in CLIN 002?	Yes.
5	RFP, Section B, CLIN 002	Will the Government consider increasing the number of days for the submission of task order proposals?	Yes, the Government intends to increase the number of days for the submission of task order proposals to 15 days.
6	RFP, Section L.12	Page limits for the Past Performance volumes are 20 pages prime and 10 pages for each significant subcontractor. Could this be changed to 20 pages for both the prime and each significant subcontractor?	Yes. We intend to update the page limits for Past Performance volumes in the final RFP to 20 pages for the prime and each significant subcontractor.
7	IPRD-0015	Each measurement channel of the instrument shall have a yearly rate of change in response of less than 0.4% of the average radiance magnitude of that channel described in Section 4.2.1. However, Section 4.2.1 only describes ranges, not average radiance. Should we assume that average radiance is the mean of the ranges (i.e. 250, 90, 212.5)?	The IPRD is being revised and is expected to include the following: "Each measurement channel of the instrument shall have a yearly rate of change in response of less than 0.2% of that channel's maximum value of radiance given in section 4.2.1."
8	IPRD-0020 and IPRD-0023	The Type A uncertainty appears to exceed the Type B uncertainty for the range 0 to 100 W/m ² -sr. Is that correct?	The IPRD is being revised and is expected to include the following: "The instrument shall have type B standard uncertainty of +/- the larger of 0.75 W/m ² -sr or 0.5% of LE in the LW channel for all Earth-viewing radiances as shown in Figure 4.2.4-2." Further, figure 4.2.4-2 is being updated to reflect these changes.

9	dRFP, Sect. H.5	The clause requires the contractor and its subcontractors performing software engineering to have a non-expired rating at CMMI for Development Maturity Level 2 or higher for software, or Capability Level 2 or higher as measured by a SEI appraiser. Please clarify that firmware development and testing will not be subject to CMMI standards.	CMMI certification is required for software that will execute as firmware, but not for Field Programmable Gate Arrays (FPGAs) or other Programmable Logic Devices (PLDs) with logic developed using VHDL. NASA Handbook 8739.23 provides definitions and guidance for firmware and Programmable Logic Devices including FPGAs. NASA 8739.23 – Figure 1 identifies “firmware” as software residing in non-volatile memory on a hardware device, whereas most PLDs – including FPGAs – are considered hardware devices. Therefore, software that will execute as firmware does require CMMI certification, but FPGA development does not.
10	IPRD, Sect. 4.1	Please clarify in the RFP text: The 'measurement of radiance' referred to in the requirements RBPRD-0004, 5 and 6 are these 'filtered' radiances. Is it radiance as measured which includes the instrument relative spectral response, or is it unfiltered radiance, which requires extra ground processing step of removal of relative spectral response (unfiltering)?	Instrument Science Performance Requirements pertain only to filtered (as measured, which includes the instrument relative spectral response) radiance measurements. Unfiltering is the responsibility of the Government after data is downloaded and archived.
11	Exhibit C, IPRD Sect. 5.5.2.5.2	Is there a similar heritage sample requirement for the ADM mode as there is for the Swath Mode?	The PSF requirements of Section 4.3.2 apply to all modes. Although the ADM mode includes azimuth angle rotation, the azimuth rotation rates are small at 0.5 to 6.0 degrees per second (draft IPRD, RBPRD-0063) and have negligible effect on the shape of the sensor point spread function.
12	IPRD	Why does RBI have a 7-year reliability requirement?	The JPSS-2 Mission will have a 7-year mission life in contrast to the NASA Earth Observing System and Suomi NPP 5-year mission life. The RBI reliability requirement of $P_s = 0.85$ at 7 years is necessary to mitigate the risk of gaps in Earth Radiation Budget measurements. JPSS Observatory launches are planned nominally every 5 years (JPSS-1

			launch planned December 2016, JPSS-2 launch planned November 2021), and 1-year of instrument overlap is required for measurement continuity. The RBI reliability design requirement is consistent with other JPSS instruments and spacecraft and has been agreed upon among stakeholders.
13	Sect. M	Change to the RFP	In the final RFP, MSEPA 3.3 will be updated to include evaluation of a minimum of one level of tasks and logic supporting 1) instrument subsystem development, test, and integration 2) instrument level qualification and 3) calibration activities. Additionally, MSEPA 3.3 will be updated to evaluate the schedule duration to SAR to be within 54 months, and not equal to 54 months.
14	CDRL/DRD	Change to the RFP	In the final RFP, the CDRL/DRD will be revised to clarify use of previously existing data items. The anticipated text is: Previously existing data items, updated as needed to meet RBI DRD requirements, may be used to fulfill a DRD submission. For the Government to consider acceptance of the data item the contractor shall have thoroughly reviewed and evaluated the existing data item against RBI requirements and contemporary standards, processes, best practices and analytical approaches, and have updated the data item specifically for RBI prior to submission.
15	IPRD, Sect. 4, Table 4.1.1.1-1 and Fig. 4.1.1.1-1	Change to the RFP	Table 4.1.1.1-1 and Fig. 4.1.1.1-1 will be updated in the final RFP to restrict the SW upper bounds to 50um.
16	IPRD, Sect. 4.1.2.1, LW Measurement	Change to the RFP	The final IPRD will be revised to modify the LW spectral response such that the requirement ends at 50um in the final RFP.

	Bandpass		
17	dRFP Sect. H.8, Special Clause for Contract Changes	Change to the RFP	In Section H.8 in the final RFP, the cumulative value will be revised from \$1,000,000 to \$500,000.
18	SOW	Change to the RFP	The SOW will be revised in the final RFP such that NASA will accept ESA Workmanship standards in lieu of NASA Workmanship Standards, with the exception that IPC 6012 Rev B, with the 3-A appendix will be mandatory. Although a formal, documented gap analysis between NASA and ESA workmanship standards does not exist, prior work has established general equivalence between NASA and ESA workmanship standards. See Dunn, B.D., "Workmanship standards and their application on ESA projects", Soldering & Surface Mount Technology, Volume 20, Number 4, 2008, pages 37-44.
19	dRFP, Sect. L, URTA 1.5	Change to the RFP	Sections L and M, URTA 1.5 will be revised in the final RFP. The anticipated text for the second bullet is: The scope and technical risk of modifications, the plan and schedule for completion of the modifications, and any analysis, life test, or other testing required to use the hardware design/software for RBI. Note: Life testing is required for any mechanism of new design, mechanisms that must incur design or manufacturing changes to enable use for RBI where the changes invalidate any prior demonstrated performance, or mechanisms that have been used in a substantially different operational manner or environment than RBI whereby prior life testing or demonstrated performance is not directly applicable. See SOW 3.8-04, DRD MA-26, SOW 4.1-04 and SOW 4.1-05 and URTA 1.5.
20	IPRD Section 4.3.2	Change to the RFP	The IPRD Section 4.3.2 is being revised in the final RFP and is expected

	(RBPRD-0042)		to specify the overlap “at nadir.”
↓ New Questions as of June 7, 2013			
21	☆NEW☆ IPRD	The spectral limits for the SWIR Out of Band Response (RBPRD-0008) and Total Measurement In-Band RSR (Section 4.1.3.2) are significantly wider than the RSR requirements for these bands (RBPRD-0007 and RBPRD-0011). Also, per the VCRM, these wider spectral limits are to be verified via test. Is this the government’s intent?	The spectral limits for the shortwave and longwave measurements, and the limits for shortwave and longwave out-of-band response have been changed to be consistent. The spectral limits for the total measurement, and the limits for total in-band relative spectral response have been changed to be consistent. Per the Verification Cross Reference Matrix (VCRM), these spectral limits are to be verified via test.
22	☆NEW☆ SOW	In Section 4.3.3, there is a statement that the impulse response is to be “calculated on a time basis common to measurements in all three spectral bands”, but there is no tolerance value provided for the time basis (i.e., the maximum time difference between data in the three bands). Can a maximum tolerance value be provided that is consistent with mission science needs?	While a smaller time difference between measurements is better than a larger time difference between measurements (all else being equal), the requirement is for spatial alignment of the equivalent heritage CERES instrument samples for measurements in the three spectral bands. The “time basis common to measurements in all three spectral bands” shall be the time of one complete cross-track scan.
23	☆NEW☆ IPRD (include on industry response doc)	The verification methods for Type A uncertainty is test and Type B is analysis. (p.161). This seems to be reversed, is this the government’s intent? In section 4, the government defines Type B as uncertainty	The draft IPRD-Appendix C VCRM lists the verification method for Type B uncertainties as “Test” (RBPRD-0019 through 0021), and Type A uncertainties as “Analysis” (RBPRD-0022 through 0024). The primary verification method for Type B uncertainties should be “Analysis” and Type A should be “Test”. The Government anticipates changing the verification methods accordingly in the baseline IPRD released with the final RFP.

		for periods greater than a month.	The intended purpose for the IPRD-Appendix C VCRM is to ensure that each requirement will be verified by at least one of the approved methods (Inspection, Analysis, Demonstration, Test). The Verification Matrix in the IPRD – Appendix C lists what the Government believes to be the primary verification method for each requirement. The IPRD – Appendix C VCRM does not list combinations of methods, although verification using a combination of methods is allowed per draft IPRD requirement RBPRD-0200. Many requirements will be verified using a combination of methods, e.g. Test and Analysis, Inspection and Test, etc. These combinations will be captured in the Contractor’s submissions for DRD SE-15, “Requirements Verification Matrices”. In the case of Type A and Type B uncertainties, the Government anticipates that Type A and Type B uncertainty requirements will be verified using a combination of Test and Analysis. It is anticipated that verification of Type A uncertainty requirements would rely primarily on test data with supporting analysis, whereas the verification of Type B uncertainty requirements would rely primarily on analysis using supporting test data. The actual verification methods used to verify each requirement will be devised by the Contractor and approved by the Government per DRDs CV-01, CV-05, SE-03, SE-15, and IT-02. In the event of a discrepancy between a primary verification method listed in the IPRD - Appendix C VCRM and a future Contractor devised / Government approved method, the actual primary verification method used can be captured in a future update to the IPRD.
24	☆NEW☆ IPRD	RBPRD-0064 - The Instrument shall operate in an Earth Target mode in which the IFOV is pointed to, is centered on, and tracks a fixed ground target on the Earth’s surface in accordance with uploaded commands at any time during normal	The RFP will not have additional defining requirements regarding RBPRD-0064. Possible combinations of dwell time, calibration time, space-look time, and time to return to target for a given orbit and target location will likely depend strongly on particular scanner concepts and implementations. For reference, the time allowed between successive Earth targets is on the order of the time to complete one orbit. For reference on a proposed use of this capability, see the following paper:

		<p>operations.</p> <p>Are there any additional defining requirements such as?</p> <ol style="list-style-type: none"> 1. Dwell time required on target 2. Maximum time allowed between successive earth targets 	<p><i>Kelly K. Teague; G. Louis Smith; Kory Priestley; Constantine Lukashin; Carlos Roithmayr, "Development of dedicated target tracking capability for the CERES instruments through flight software: enhancing radiometric validation and on-orbit calibration," Proc. SPIE 8533, Sensors, Systems, and Next-Generation Satellites XVI, 85331E (November 19, 2012): doi:10.1117/12.974772.</i></p>
25	<p>☆NEW☆</p> <p>Exhibit C, Appendix C, Table C-1</p>	<p>In reviewing Exhibit C, Appendix C, Table C-1 the Verification Level term "Instrument" appears to be used to designate those requirements that must be verified before the Instrument comes to the Observatory.</p> <p>In light of this observation, can "Instrument" Verification Level when combined with the "Test" Verification Method be interpreted to include tests performed at the component (or assembly) level of the instrument so that data from component/assembly level tests can be combined with data collected from unit/instrument tests to generate data that is used to demonstrate performance, and remain compliant with the intent of this verification level?</p>	<p>Yes, data from instrument component / assembly level tests can be used in combination with data from Instrument system-level tests to demonstrate performance and compliance with requirements while meeting the intent of "Instrument"- level verification. See DRD SE-03 - "System Performance Verification Plan" for description on how the contractor is to identify and provide rationale for requirements that can only be verified at levels-of-assembly other than Instrument system-level. Additionally, see DRD SE-15 – "Requirements Verification Matrices".</p>