

B.1. PERFORMANCE INCENTIVE (1852.216-88) (JAN 1997)(Applicable to CLIN 001)

A performance incentive applies to the following Radiation Budget Instrument (herein referred to as RBI) delivered under this contract.

(a) The performance incentive (PI) will measure the performance of the RBI against the salient hardware performance requirements, called unit(s) of measurement, identified in paragraph (f) below. The performance incentive covers RBI performance after delivery of the instrument to the Government for integration to the Joint Polar Satellite System 2 (JPSS-2) spacecraft through first two years of operations after successful on-orbit commissioning. The performance incentive includes a standard performance level, a positive incentive, and a negative incentive, which are described in this clause. The term “exceeds” as used in this clause refers to performance that is better than the standard performance level and the term “fails” refers to performance that does not meet the standard performance level.

(b) **Standard performance level.** At the standard performance level, the Contractor has met the contract requirement for all units of measurement. Neither positive nor negative incentives apply when actual performance equals standard performance.

(c) **Positive incentive.** The Contractor will earn a positive incentive amount for the RBI when the actual performance level for that item is better than the standard performance level. The amount earned for each item varies with the units of measurement achieved, up to a maximum positive performance incentive percentage identified in Table B.1-1. The total performance incentive pool is set forth in section B.5 of the contract.

Table B.1-1: Performance Incentive Pool Distribution

Performance Incentive Period	% of Maximum PI Pool	Milestone
f.1	25	Post-Satellite Integration and Test Campaign
f.2	25	On-Orbit Commissioning
f.3	25	Post On-Orbit Intensive Calibration and Validation Campaign
f.4	25	Post One Year of Sustained Science Operations

(d) **Maximum negative performance incentive.** The maximum negative incentive applies if there is a total, permanent and immediate failure of RBI during the RBI on-orbit commissioning phase (period f.2). The maximum negative performance incentive is equal to the amount of total **earned** fee (including 100% of base fee, 100% of earned award fee and 100% of earned performance incentive).

(e) **Negative incentive.** This Performance Incentive Plan contains a negative incentive for other than immediate failures during on-orbit commissioning. Table B.1-

2 identifies the worst case negative incentive to be repaid to the Government for each performance incentive period. The actual negative performance incentive varies based on the units of measurement achieved as defined in sections f.1 through f.4.

Achieving a negative performance incentive in one performance period does not impact the Contractor's ability to earn positive performance incentives in future periods.

The maximum cumulative negative incentive for periods f.1 through f.4, for other than immediate failures during on-orbit commissioning, is -50% of the earned award fee and -100% of earned performance incentive.

Table B.1-2: Worst Case Negative Performance Incentives

Performance Incentive Period	Maximum % of Earned Award Fee	Maximum % of Earned Performance Incentive Fee	Performance Incentive Period
f.1	-50	0	Post-Satellite Integration and Test Campaign
f.2	0	0	On-Orbit Commissioning
f.3	-50	-100	Post On-Orbit Intensive Calibration and Validation Campaign
f.4	0	-100	Post One Year of Sustained Science Operations

(f) **Assessment of positive and negative incentive amounts.** Sections f.1 through f.4 below describe the definition of the units of measurement and the applicable standard performance level. The final calculation of positive or negative performance incentive amounts shall be done at the end of the period or when performance (as defined by the unit of measurement) ceases or when the maximum positive or maximum negative incentive is reached.

(f.1) Post-Satellite Integration and Test Campaign Performance

The Government will evaluate RBI compliance with the contract requirements throughout the instrument integration and JPSS-2 observatory environmental test campaign, concluding with the Observatory Pre-Ship Review, and will determine compliance within 45 calendar days thereafter. The units of measurement for assessing performance incentive in period f.1 are:

- (1) Cumulative labor-hours for repair, rework, or modification for reasons attributable to a RBI non-compliance(s) with the contract.
- (2) Cumulative schedule days of delay for reasons attributable to a RBI non-compliance(s) with the contract.
- (3) The degree to which RBI calibration data as measured during satellite vacuum testing using the internal calibration sources conforms to the calibration data obtained during the instrument development phase calibration.

Labor-hours of repair (1) and schedule delay (2) will be accumulated at:

- (A) Completion of RBI integration to the spacecraft.
- (B) Completion of the spacecraft environmental test campaign.

Meeting and Exceeding Standard Performance Levels: Performance levels and positive performance incentives for period f.1 are defined in Table B.1-3. To meet the identified performance levels, labor hours (1) and days of attributable schedule delay (2) must be less than or equal labor/schedule specified in each column of the table; and calibration performance (3) must be less than or equal to the values in the table. To earn 50% of the available performance incentive for period f.1, the contractor must meet or exceed (i.e. smaller values) all values in the “Exceeds 50%” column. To earn 100% of the available performance incentive for period f.1 the contractor must meet or exceed (i.e. smaller values) all values in the “Exceeds 100%” column.

**Table B.1-3 Post-Satellite Integration and Test Campaign
Positive Performance Levels**

Units of Measurement	Meets	Exceeds 50%	Exceeds 100%
(A) Integration (1) Labor / (2) Schedule	240 / 14	240 / 7	120 / 7
(B) S/C Env. Test (1) Labor / (2) Schedule	480 / 14	480 / 7	240 / 7
(3) Performance	+/- 2.5%	+/- 2.5%	+/- 2.0%

Failure to Meet Standard Performance Levels: The Contractor fails to achieve the “Meets” standard performance level identified in Table B.1-3. A negative performance incentive applies if RBI repair, rework or modification causes a cumulative schedule delay [see (2) above] greater than 30 days. Negative performance incentive for period f.1 is a percentage of the worst case negative performance incentive identified in Table B.1-2 according to Table B.1-4 and reaches the worst case after 180 days of delay.

**Table B.1-4 Post-Satellite Integration and Test Campaign
Negative Performance Incentive for Period f.1**

Total Schedule Days of Delay	Percentage of Worst Case Negative Performance Incentive
Less than 30 Days	0%
30 to 180 Days	$[100 * \text{Days} / 150 - 100 * 30 / 150] \%$
More than 180 Days	100%

(f.2) On-Orbit Commissioning Performance

The Government will evaluate RBI compliance with the contract requirements throughout the JPSS-2 on-orbit commissioning phase, concluding with the Observatory Operations Transition Review, and will determine compliance within 45 calendar days thereafter.

Standard Performance Level:

Meets: The Contractor meets the standard performance level if:

RBI executes all planned instrument commissioning activities with no more than three weeks (504 hours) cumulative unavailability over the entire on-orbit commissioning phase due to problems or anomalies directly attributable to the RBI instrument. Unavailability is defined as time when the Instrument is not operable or capable of performing its intended commissioning activities.

Exceeds: The Contractor exceeds the standard performance level and receives a percentage of the maximum performance incentive if the hours of cumulative unavailability are less than or equal to the hours identified in table B.1-5.

**Table B.1-5 On-Orbit Commissioning
Positive Performance Incentive for Period f.2**

Hours Cumulative Unavailability	Percentage of Positive Performance Incentive
More than 504 Hours	0%
168 to 504 Hours	[(504 – Hours)/3.36]%
Less than 168 Hours	100%

Fails: The Contractor fails to meet the standard performance level. The maximum negative incentive applies if there is a total, permanent and immediate failure of RBI during the RBI on-orbit commissioning.

(f.3) Post On-Orbit Intensive Calibration and Validation Campaign

The Government will evaluate RBI performance against the stated criteria at the one year anniversary date of the Observatory Operations Transition Review, and will determine compliance within 45 days thereafter. The Performance Incentive awarded for the (f.3) performance period will be determined based on the demonstrated Instrument performance margin at the completion of the (f.3) performance period.

The Government will evaluate Instrument performance margin of key performance measures using flight data collected during the last 30 calendar days of the (f.3) period. Key performance measures analyzed will be:

- All key performance measures identified in the report submitted in response to DRD SE-10 that are relevant to on-orbit Instrument health and performance;
- Type A and Type B uncertainties as defined within IPRD Section 4.2 for Reflected Solar, Emitted Thermal, and Total radiometric channels; and
- Mission availability per IPRD Section 5.4.6.1.

The performance margin M for each performance measure p will be calculated using equations (f.3-2) or (f.3-3) as applicable, at time $t = t_0 + 1 \text{ year}$ where t_0 = the date of the Observatory Operations Transition Review.

For parameters where a demonstrated performance value less than the required performance level indicates positive (beneficial) margin:

$$M_p(t) = \left[1 - \frac{D_p(t)}{R_p} \right] \times 100\% \quad (\text{f.3-2})$$

For parameters where a demonstrated performance value greater than the required performance level indicates positive (beneficial) margin:

$$M_p(t) = \left[\frac{D_p(t)}{R_p} - 1 \right] \times 100\% \quad (\text{f.3-3})$$

where p = performance measure 1, 2, 3..., D_p is the demonstrated on-orbit performance of measure p averaged over the 30 calendar day time period, and R_p is the required performance for measure p .

Determination of Performance Level:

Positive Performance Incentive Fee will only be awarded if positive margin is demonstrated for all key performance measures. In this case, the average performance margin M_{ave} will be calculated using equation (f.3-4) at time $t = t_0 + 1$ year.

$$M_{ave} = \frac{\sum_{p=1}^n M_p(t)}{n} \quad (\text{f.3-4})$$

where n is the number of key performance measures. The percentage of available Performance Incentive Fee will be determined based on equation (f.3-5):

$$\begin{aligned} PI(0 \leq M_{ave} < 30\%) &= 3.333 \times M_{ave} \\ PI(M_{ave} \geq 30\%) &= 100\% \end{aligned} \quad (\text{f.3-5})$$

In the case where the performance margin of one or more key performance measures is negative (detrimental), a negative performance incentive will be determined based on the average of all key performance measures demonstrating negative margin. The average negative margin will be computed using equation (f.3-6) with p = each key performance measure demonstrating negative margin, and n = the total number of key performance measures demonstrating negative margin. The percentage of available Performance Incentive Fee for factor will be determined based on equation (f.3-6):

$$\begin{aligned} PI(0 \geq M_{ave} \geq -30\%) &= 3.333 \times M_{ave} \\ PI(M_{ave} \leq -30\%) &= -100\% \end{aligned} \quad (\text{f.3-6})$$

(f.4) Post One Year of Sustained Science Operations

The Government will evaluate RBI performance against the stated criteria at the two year anniversary date of the Observatory Operations Transition Review, and will determine compliance within 45 days thereafter. The Performance Incentive awarded for the (f.4) performance period will be determined based on two factors:

1. (f.4.a) – The demonstrated Instrument performance margin at the completion of the (f.4) performance period; and
2. (f.4.b) – The projected Instrument performance margin at end-of-mission.

The total percentage of available Performance Incentive Fee PI awarded for period (f.4) will be calculated using equation (f.4-1):

$$PI(f.4) = 0.5 \times PI(f.4.a) + 0.5 \times PI(f.4.b) \quad (f.4-1)$$

where the individual PI values for each factor are expressed in terms of percentages.

(f.4.a) Demonstrated Instrument Performance Margin at completion of (f.4) performance period

The Government will evaluate Instrument performance margin of key performance measures using flight data collected during the last 30 calendar days of the (f.4) period. Key performance measures analyzed will be:

- All key performance measures identified in the report submitted in response to DRD SE-10 that are relevant to on-orbit Instrument health and performance;
- Type A and Type B uncertainties as defined within IPRD Section 4.2 for Reflected Solar, Emitted Thermal, and Total radiometric channels; and
- Mission availability per IPRD Section 5.4.6.1.

The performance margin M for each performance measure p will be calculated using equations (f.4-2) or (f.4-3) as applicable, at time $t = t_0 + 2 \text{ years}$ where t_0 = the date of the Observatory Operations Transition Review.

For parameters where a demonstrated performance value less than the required performance level indicates positive (beneficial) margin:

$$M_p(t) = \left[1 - \frac{D_p(t)}{R_p} \right] \times 100\% \quad (f.4-2)$$

For parameters where a demonstrated performance value greater than the required performance level indicates positive (beneficial) margin:

$$M_p(t) = \left[\frac{D_p(t)}{R_p} - 1 \right] \times 100\% \quad (f.4-3)$$

where p = performance measure 1, 2, 3..., D_p is the demonstrated on-orbit performance of measure p averaged over the 30 calendar day time period, and R_p is the required performance

for measure p .

Determination of Performance Level:

Positive Performance Incentive Fee will only be awarded if positive margin is demonstrated for all key performance measures. In this case, the average performance margin M_{ave} will be calculated using equation (f.4-4) at time $t = t_0 + 2 \text{ years}$:

$$M_{ave} = \frac{\sum_{p=1}^n M_p(t)}{n} \quad (\text{f.4-4})$$

where n is the number of key performance measures. The percentage of available Performance Incentive Fee for factor (f.4.a) will be determined based on equation (f.4-5):

$$\begin{aligned} PI(0 \leq M_{ave} < 30\%) &= 3.333 \times M_{ave} \\ PI(M_{ave} \geq 30\%) &= 100\% \end{aligned} \quad (\text{f.4-5})$$

In the case where the performance margin of one or more key performance measures is negative (detrimental), a negative performance incentive will be determined based on the average of all key performance measures demonstrating negative margin. The average negative margin will be computed using equation (f.4-4) with $p =$ each key performance measure demonstrating negative margin, and $n =$ the total number of key performance measures demonstrating negative margin. The percentage of available Performance Incentive Fee for factor (f.4.a) will be determined based on equation (f.4-6):

$$\begin{aligned} PI(0 \geq M_{ave} \geq -30\%) &= 3.333 \times M_{ave} \\ PI(M_{ave} \leq -30\%) &= -100\% \end{aligned} \quad (\text{f.4-6})$$

(f.4.b) Projected Instrument Performance at End of Mission

The Government will evaluate trends of Instrument key performance measures identified in (f.4.a) to determine the projected performance margin at end-of-mission. A performance trend for each key performance measure will be established via numerical curve fit to flight data collected from the end of commissioning activities through the end of the (f.4) period. The curve fit basis function(s) will be selected to maximize goodness-of-fit while having order sufficiently low to not model orbital and diurnal variations. The curve fit coefficients will define a trend equation $T_p(t)$ for each key performance measure p . The performance margin M for each performance measure p will be calculated using equations (f.4-7) or (f.4-8) as applicable, at time $t = t_0 + 7 \text{ years}$ where $t_0 =$ the date of the Observatory Operations Transition Review.

For parameters where a demonstrated performance value less than the required performance level indicates positive (beneficial) margin:

$$M_p(t) = \left[1 - \frac{T_p(t)}{R_p} \right] \times 100\% \quad (\text{f.4-7})$$

For parameters where a demonstrated performance value greater than the required performance level indicates positive (beneficial) margin:

$$M_p(t) = \left[\frac{T_p(t)}{R_p} - 1 \right] \times 100\% \quad (\text{f.4-8})$$

where p = performance measure 1, 2, 3..., T_p is the projected on-orbit performance of measure p at end of mission, and R_p is the required performance for measure p .

Determination of Performance Level:

Positive Performance Incentive Fee will only be awarded if positive margin is projected for all key performance measures. In this case, the average performance margin M_{ave} will be calculated using equation (f.4-4) at time $t = t_0 + 7$ years. The percentage of available Performance Incentive Fee for factor (f.4.b) will be determined based on equation (f.4-9):

$$\begin{aligned} PI(0 \leq M_{ave} < 20\%) &= 5.0 \times M_{ave} \\ PI(M_{ave} \geq 20\%) &= 100\% \end{aligned} \tag{f.4-9}$$

In the case where the projected performance margin of one or more key performance measures is negative (detrimental), a negative performance incentive will be determined based on the average of all key performance measures with projected negative margin. The average negative margin will be computed using equation (f.4-4) with p = each key performance measure with projected negative margin, and n = the total number of key performance measures with projected negative margin. The percentage of available Performance Incentive Fee for factor (f.4.b) will be determined based on equation (f.4-10):

$$\begin{aligned} PI(0 \geq M_{ave} \geq -30\%) &= 3.333 \times M_{ave} \\ PI(M_{ave} \leq -30\%) &= -100\% \end{aligned} \tag{f.4-10}$$

(g) Payment of Performance Incentive:

- (1) If the Contractor exceeds the performance standards for the first event f.1, the Government may unilaterally elect to provisionally pay the Contractor up to 80% of the performance incentive fee allotted to the next event. Similarly, the Government may unilaterally elect to provisionally pay the Contractor up to 80% of the incentive fee for events f.2 and f.3 if the contractor exceeded the performance standards for the previous event. If the Contractor fails to exceed the standard performance level for an event for which a provisional payment was made, the Contractor shall return the full amount of the provisionally paid unearned performance incentive fee to the Government within 30 days of receiving the notification. If the Contracting Officer elects not to provisionally pay the Contractor provisional fee for the next event, then payment of performance incentive earned will be made upon completion of the Government's assessment.
- (2) The final calculation of positive or negative performance incentive amounts shall be done when performance (as defined by the unit of measurement) ceases or when the maximum positive incentive is reached.
 - (i) When the Contracting Officer determines that the performance level achieved falls below the standard performance level, the Contractor will either pay the amount due the Government or credit the next payment voucher for the amount due, as directed by the Contracting Officer.
 - (ii) When the performance level exceeds the standard level, the Contractor may request payment of the incentive amount associated with a given level of performance, provided that such payments shall not be more frequent than monthly. When

performance ceases or the maximum positive incentive is reached, the Government shall calculate the final performance incentive earned and unpaid and promptly remit it to the contractor.

(h) Events Beyond the Control of the Contractor will be considered based on (1), (2) or (3) below.

- (1) The Contractor is not responsible for unrecoverable failures caused by the spacecraft or launch vehicle or other reasons beyond the control of the Contractor. Consequently, if there is early mission termination due to these reasons, the Contractor shall be entitled to an equitable adjustment of the remaining incentive amount. The performance incentive equitable adjustment amount shall be determined by the Contracting Officer. In making this decision, the Contracting Officer shall consider all relevant information regarding the cause(s) of the failure as well as instrument performance prior to the failure.
- (2) If launch does not take place within four years of hardware acceptance, through no fault of the Contractor, the Contractor shall be entitled to an equitable adjustment of the remaining incentive amount. The performance incentive equitable adjustment amount shall be determined by the Contracting Officer. In making this decision, the Contracting Officer shall consider all relevant information.
- (3) If the instrument does not reach spacecraft integration within four years of hardware acceptance, through no fault of the contractor, the Contractor shall be entitled to a percentage of the performance incentive equal to the percentage of the earned award fee.

(i) Disputes

The decisions made as to the amount(s) of positive or negative incentives are subject to the Disputes clause. (End of clause)