

**Changes to the Radiation Budget Instrument (RBI)  
Performance Requirements Document (IPRD – Exhibit C)**

**FROM:** Draft RFP Release Version      **TO:** Final RFP Release Version (Baseline)

NASA Langley Research Center  
Document Date: May 31, 2013

General Changes:

- The Draft RFP Release Version of the IPRD has undergone a DOORS import / export process for requirements management and configuration management purposes. The DOORS-exported version of the IPRD will be the Final RFP Release Version. The DOORS import / export process results in some minor formatting differences (tables, for example) that have no impact on the requirements. These minor formatting differences are not identified in this from / to changes document. Additionally the Final RFP Release Version will be updated for baselining in configuration management: a JPSS document number will be assigned, and document headers / footers will be updated appropriately. These and other minor changes performed for the purpose of document finalization and baselining in configuration management are not identified in this from / to changes document.
- All requirement numbers will change from the draft RFP Release Version (RBPRD-XXXX) to the Final RFP Release Version (RB\_PRD-ABCD). This is an artifact of the DOORS requirements management process. Changes to requirement numbers are not identified or tracked in this from / to changes document.

Specific Changes:

- Specific changes from the Draft RFP release version to the Final RFP release version of the IPRD are identified on subsequent pages. In all cases **FROM** designates how the article appeared in the draft RFP release version of the IPRD, and **TO** designates the revised article as the Government anticipates it will appear in the final RFP release of the IPRD.

**Table 4.1.1.1-1:**

**FROM:**

**Table 4.1.1.1-1 Shortwave measurement relative spectral response requirements.**

<b>Wavelength, micron</b>	<b>Lower Bound</b>	<b>Upper Bound</b>
0.100	0.000	1.000
0.320	0.000	1.000
0.390	0.750	1.000
3.700	0.750	1.000
4.750	0.000	1.000
5.000	0.000	1.000
5.000	0.000	0.005
100.000	0.000	0.005

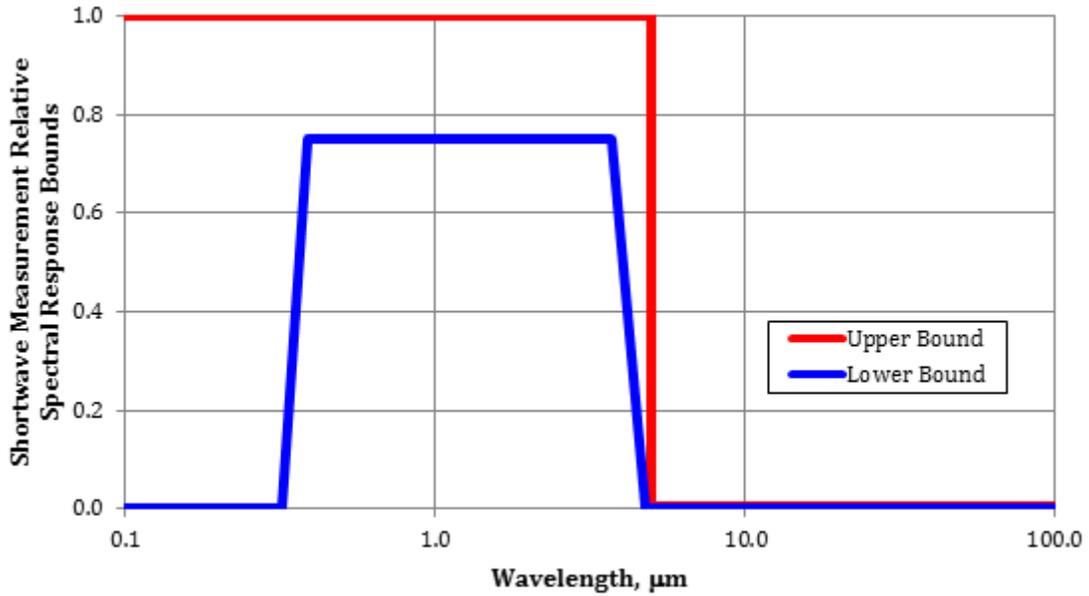
**TO:**

**Table 4.1.1.1-1 Shortwave measurement relative spectral response requirements.**

<b>Wavelength, micron</b>	<b>Lower Bound</b>	<b>Upper Bound</b>
0.200	0.000	1.000
0.320	0.000	1.000
0.390	0.750	1.000
3.700	0.750	1.000
4.750	0.000	1.000
5.000	0.000	1.000
5.000	0.000	0.005
50.000	0.000	0.005

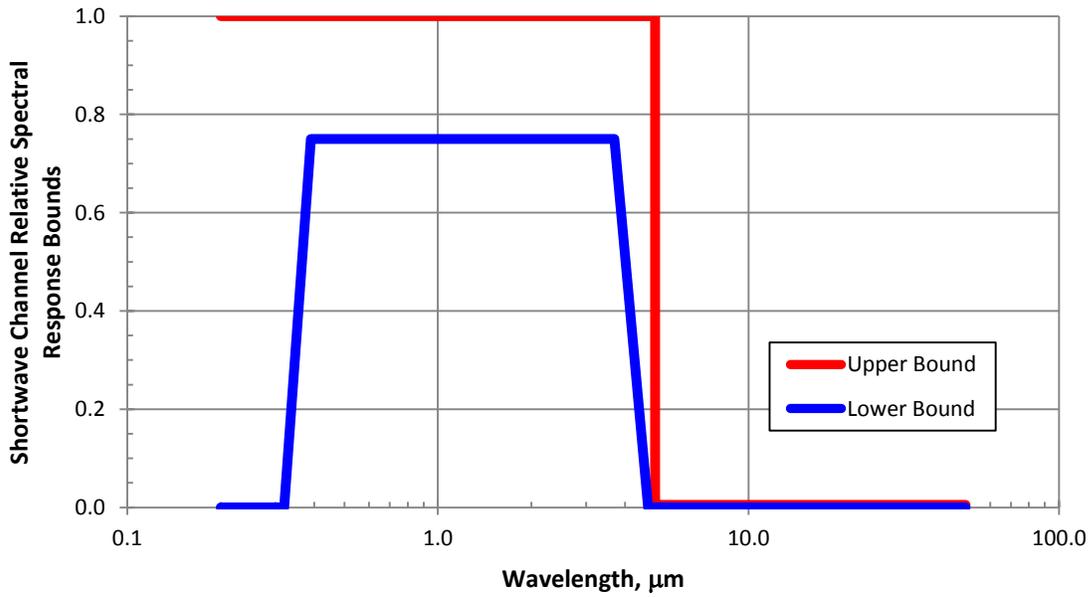
**Figure 4.1.1.1-1:**

**FROM:**



**Figure 4.1.1.1-1 Shortwave measurement relative spectral response requirements.**

**TO:**



**Figure 4.1.1.1-1 Shortwave measurement relative spectral response requirements.**

**Draft IPRD Requirement RBPRD-0008:**

**FROM:**

The out-of-band spectral response of the shortwave measurement shall be such that

$$\int_{5 \mu\text{m}}^{150 \mu\text{m}} R_{sw}(\lambda)L(\lambda)d\lambda \leq 0.005 \int_{5 \mu\text{m}}^{150 \mu\text{m}} L(\lambda)d\lambda$$

where  $L(\lambda)$  is the spectral radiance ( $\text{W}/\text{m}^2\text{-sr}$ ) from a 300 K blackbody and  $R_{sw}(\lambda)$  is the relative spectral response of the shortwave measurement.

**TO:**

The out-of-band spectral response of the shortwave measurement shall be such that

$$\int_{5 \mu\text{m}}^{50 \mu\text{m}} R_{sw}(\lambda)L(\lambda)d\lambda \leq 0.005 \int_{5 \mu\text{m}}^{50 \mu\text{m}} L(\lambda)d\lambda$$

where  $L(\lambda)$  is the spectral radiance ( $\text{W}/\text{m}^2\text{-sr}$ ) from a 300 K blackbody and  $R_{sw}(\lambda)$  is the relative spectral response of the shortwave measurement.

**Table 4.1.2.1-1:**

**FROM:**

**Table 4.1.2.1-1 Longwave measurement relative spectral response requirements.**

<b>Wavelength, micron</b>	<b>Lower Bound</b>	<b>Upper Bound</b>
0.100	0.000	0.005
5.000	0.000	0.005
5.000	0.000	1.000
5.250	0.000	1.000
6.500	0.850	1.000
35.000	0.850	1.000
100.000	0.600	1.000

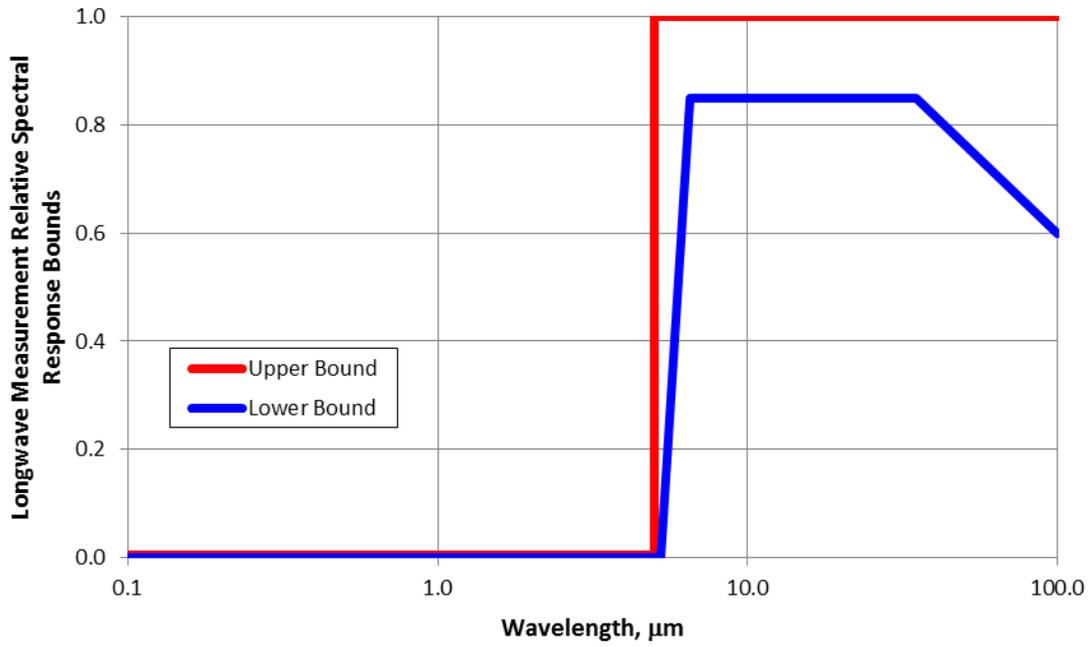
**TO:**

**Table 4.1.2.1-1 Longwave measurement relative spectral response requirements.**

<b>Wavelength, micron</b>	<b>Lower Bound</b>	<b>Upper Bound</b>
0.200	0.000	0.005
5.000	0.000	0.005
5.000	0.000	1.000
5.250	0.000	1.000
6.500	0.750	1.000
50.000	0.750	1.000

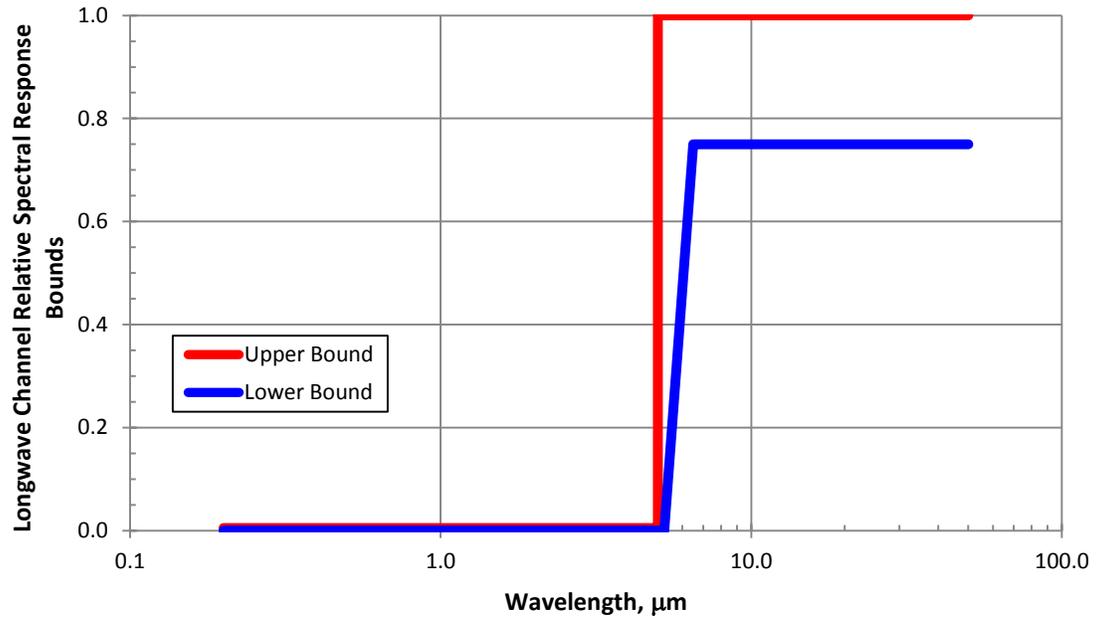
**Figure 4.1.2.1-1:**

**FROM:**



**Figure 4.1.2.1-1 Longwave measurement relative spectral response requirements.**

**TO:**



**Figure 4.1.2.1-1 Longwave measurement relative spectral response requirements.**

**Draft IPRD Requirement RBPRD-0010:**

**FROM:**

The out-of-band spectral response of the longwave measurement shall be such that

$$\int_{0.3 \mu\text{m}}^{4.5 \mu\text{m}} R_{lw}(\lambda)L(\lambda)d\lambda \leq 0.005 \int_{0.3 \mu\text{m}}^{4.5 \mu\text{m}} L(\lambda)d\lambda$$

where  $L(\lambda)$  is the spectral radiance ( $\text{W}/\text{m}^2\text{-sr}$ ) from a 2700 K blackbody and  $R_{lw}(\lambda)$  is the relative spectral response of the longwave measurement.

**TO:**

The out-of-band spectral response of the longwave measurement shall be such that

$$\int_{0.2 \mu\text{m}}^{4.5 \mu\text{m}} R_{lw}(\lambda)L(\lambda)d\lambda \leq 0.005 \int_{0.2 \mu\text{m}}^{4.5 \mu\text{m}} L(\lambda)d\lambda$$

where  $L(\lambda)$  is the spectral radiance ( $\text{W}/\text{m}^2\text{-sr}$ ) from a 2700 K blackbody and  $R_{lw}(\lambda)$  is the relative spectral response of the longwave measurement.

**Table 4.1.3.1-1:**

**FROM:**

**Table 4.1.3.1-1 Total measurement relative spectral response requirements.**

<b>Wavelength, micron</b>	<b>Lower Bound</b>	<b>Upper Bound</b>
0.100	0.000	1.000
0.320	0.000	1.000
0.350	0.750	1.000
60.000	0.750	1.000
100.000	0.600	1.000

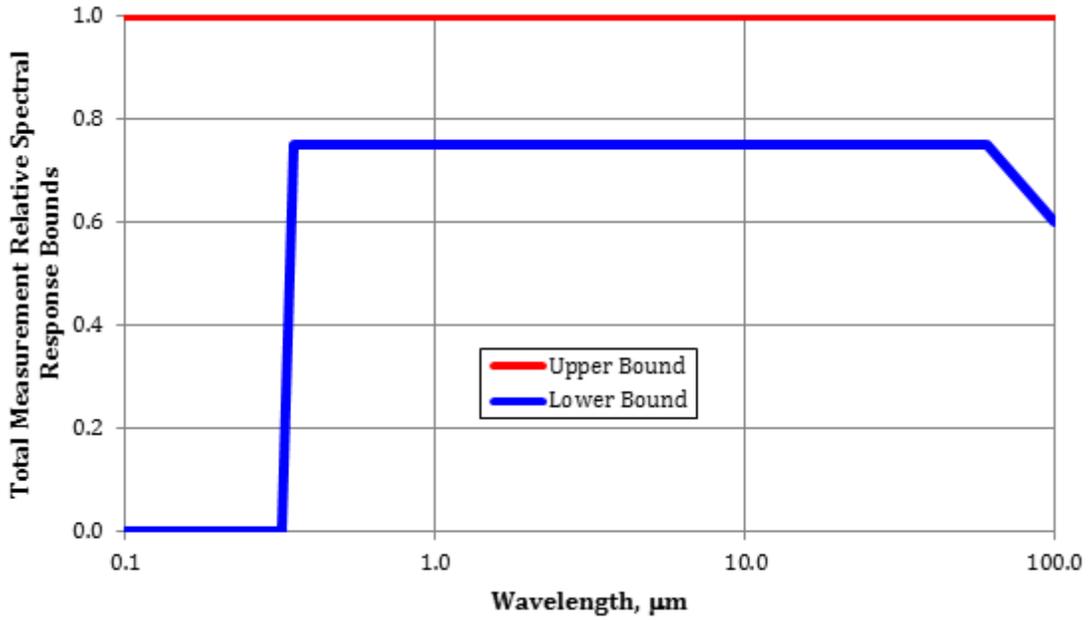
**TO:**

**Table 4.1.3.1-1 Total measurement relative spectral response requirements.**

<b>Wavelength, micron</b>	<b>Lower Bound</b>	<b>Upper Bound</b>
0.200	0.000	1.000
0.320	0.000	1.000
0.350	0.750	1.000
60.000	0.750	1.000
100.000	0.600	1.000

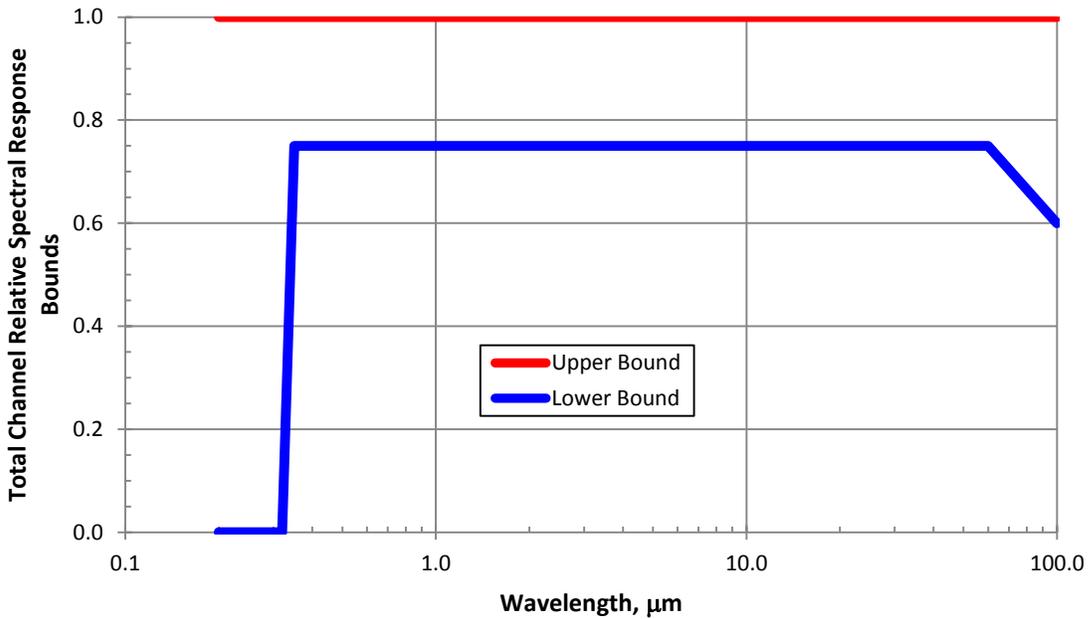
**Figure 4.1.3.1-1:**

**FROM:**



**Figure 4.1.3.1-1 Total measurement relative spectral response requirements.**

**TO:**



**Figure 4.1.3.1-1 Total measurement relative spectral response requirements.**

### **Section 4.1.3.2 - Total Measurement In-Band RSR:**

#### **FROM:**

Let the unfiltered total measurement response be defined:

$$U_{Li} = \int_{5 \text{ cm}^{-1}}^{40005 \text{ cm}^{-1}} L_i(k) dk$$

and let the filtered total measurement response be defined:

$$F_{Li} = \int_{5 \text{ cm}^{-1}}^{40005 \text{ cm}^{-1}} R(k)L_i(k) dk$$

where  $R(k)$  is the measured value of the total measurement RSR at wavenumber  $k$ , and  $L_i(k)$ ,  $i = 1, 2, \dots, 5$  are the five incident radiance distributions supplied in...

#### **TO:**

Let the unfiltered total measurement response be defined:

$$U_{Li} = \int_{.25 \mu\text{m}}^{100 \mu\text{m}} L_i(\lambda) d\lambda$$

and let the filtered total measurement response be defined:

$$F_{Li} = \int_{.25 \mu\text{m}}^{100 \mu\text{m}} R(\lambda)L_i(\lambda) d\lambda$$

where  $R(\lambda)$  is the measured value of the total measurement RSR at wavelength  $\lambda$ , and  $L_i(\lambda)$ ,  $i=1, 2, \dots, 5$  are the five incident radiance distributions supplied in...

**Draft IPRD Requirement RBPRD-0012:**

**FROM:**

The standard error of the estimate shall be less than one half percent of the mean response,  $s \leq 0.005 \overline{U}_L$ , for all temperatures of the detector surface expected in flight.

**TO:**

The standard error of the estimate shall be less than eight tenths of one percent of the mean response,  $s \leq 0.008 \overline{U}_L$ , for all temperatures of the detector surface expected in flight.

**Draft IPRD Requirement RBPRD-0013:**

**FROM:**

The absolute value of each residual,  $|\varepsilon_i|$ , shall be  $\leq 2 \text{ W/m}^2\text{-sr}$  for all temperatures of the detector surface expected in flight.

**TO:**

The absolute value of each residual,  $|\varepsilon_i|$ , shall be  $\leq 2.5 \text{ W/m}^2\text{-sr}$  for all temperatures of the detector surface expected in flight.

**Draft IPRD Requirement RBPRD-0015:**

**FROM:**

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.

**TO:**

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.

**Draft IPRD Requirement RBPRD-0019:**

No changes to requirement. Changed verification method in Appendix C VCRM:

**FROM:** Test

**TO:** Analysis

**Draft IPRD Requirement RBPRD-0020:**

**FROM:**

The Instrument shall have Type B standard uncertainty of  $\pm$  the larger of 0.380 W/m<sup>2</sup>-sr or 0.5% of  $L_E$  in the Longwave Channel for all Earth-viewing radiances as shown in Figure 4.2.4-2.

**TO:**

The Instrument shall have Type B standard uncertainty of  $\pm$  the larger of 0.750 W/m<sup>2</sup>-sr or 0.5% of  $L_E$  in the Longwave Channel for all Earth-viewing radiances as shown in Figure 4.2.4-2.

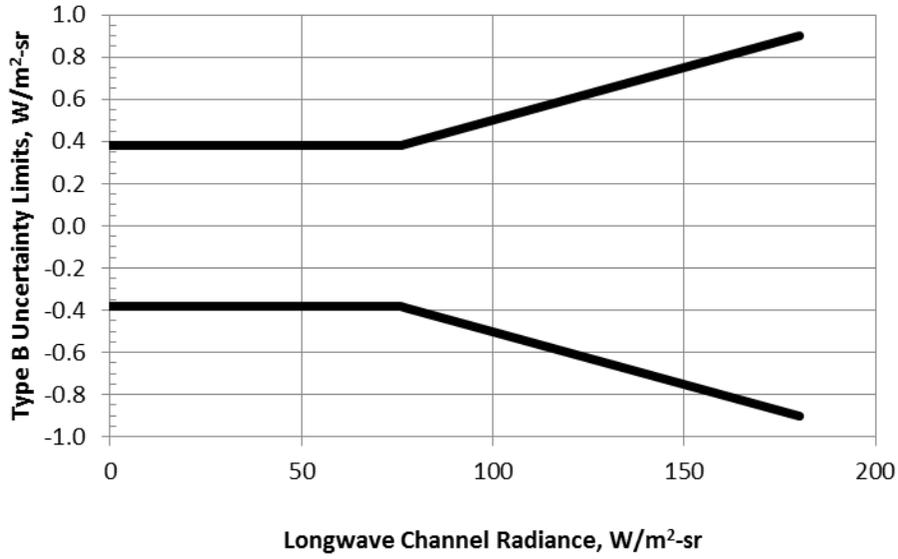
Changed Verification Method in Appendix C VCRM:

**FROM:** Test

**TO:** Analysis

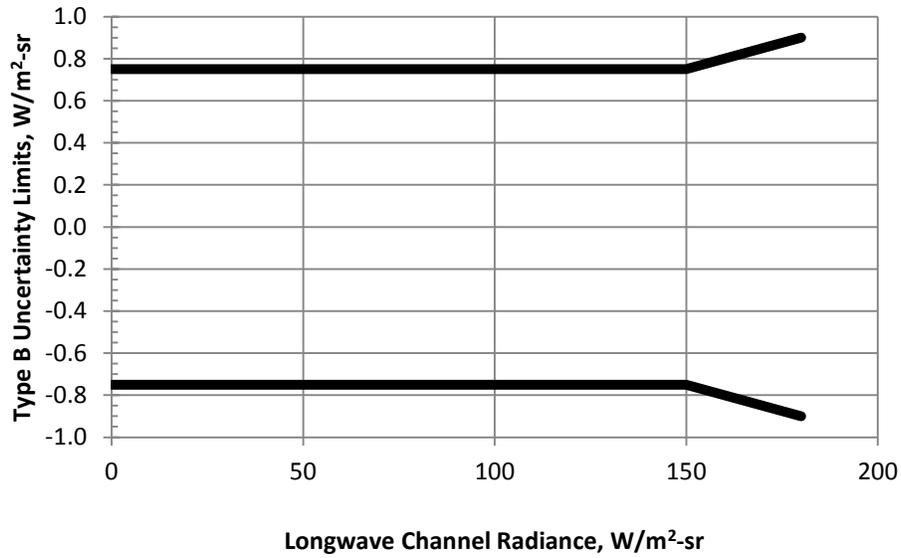
**Figure 4.2.4-2:**

**FROM:**



**Figure 4.2.4-2 Longwave channel Type B uncertainty limits.**

**TO:**



**Figure 4.2.4-2 Longwave channel Type B uncertainty limits.**

**Draft IPRD Requirement RBPRD-0021:**

No changes to requirement. Changed verification method in Appendix C VCRM:

**FROM:** Test

**TO:** Analysis

**Draft IPRD Requirement RBPRD-0022:**

No changes to requirement. Changed verification method in Appendix C VCRM:

**FROM:** Analysis

**TO:** Test

**Draft IPRD Requirement RBPRD-0023:**

No changes to requirement. Changed verification method in Appendix C VCRM:

**FROM:** Analysis

**TO:** Test

**Draft IPRD Requirement RBPRD-0024:**

No changes to requirement. Changed verification method in Appendix C VCRM:

**FROM:** Analysis

**TO:** Test

**Draft IPRD Requirement RBPRD-0041:**

**FROM:**

The overlap in the cross-track direction of the EHCIS, produced from the aggregation of the Instrument samples, shall be no less than the overlap in the cross-track direction of the PSF of the heritage CERES instrument.

**TO:**

The overlap at nadir in the cross-track direction of the EHCIS, produced from the aggregation of the Instrument samples, shall be no less than the overlap at nadir in the cross-track direction of the PSF of the heritage CERES instrument.

**Draft IPRD Requirement RBPRD-0042:**

**FROM:**

The overlap in the along-track direction of the EHCIS, produced from the aggregation of the Instrument samples, shall be no less than the overlap in the along-track direction of the PSF of the heritage CERES instrument.

**TO:**

The overlap at nadir in the along-track direction of the EHCIS, produced from the aggregation of the Instrument samples, shall be no less than the overlap at nadir in the along-track direction of the PSF of the heritage CERES instrument.

**Section 6.3.1.3.1 Operational Voltage:**

**ADD NEW REQUIREMENT and VCRM ENTRY:**

Requirement: The nominal operating voltage for all instrument testing shall be 30.0 VDC.

Verification Level: Instrument

Verification Method: Test

**ADD NEW REQUIREMENT and VCRM ENTRY:**

Requirement: Unless otherwise specified, the reference operating voltage for Instrument shall be 30 VDC. All current draws and power consumption requirements will be based on this reference voltage.

Verification Level: Instrument

Verification Method: Test

### **Section 6.3.3 Electromagnetic Interference (EMI) and EMC:**

#### **FROM:**

*This section, together with the corresponding ICD section, contains all instrument-related EMC requirements. EMC is necessary in each of the following areas:*

- *Self-compatibility of an instrument to itself;*
- *Compatibility between an instrument and all internal sources and receivers on the observatory (other instruments and the spacecraft bus);*
- *Compatibility between an instrument and all external sources and receivers “visible” on the ground, on the launch vehicle, and on-orbit.*

*The electromagnetic radiation environment on each JPSS observatory could differ from the environment on any other due to changes in the proposed instrument complements. For example, the EMI-sensitive SARR, SARP, ADCS, and GPSOS instruments will not fly on the JPSS-1 spacecraft, but may on JPSS-2 and subsequent missions. The RBI must satisfy overall JPSS EMI requirements, although waivers can be granted for non-compliance under conditions where the non-compliance is against requirements for an instrument not present on that flight.*

#### **TO:**

*EMC is necessary in each of the following areas:*

- *Self-compatibility of an instrument to itself;*
- *Compatibility between an instrument and all internal sources and receivers on the observatory (other instruments and the spacecraft bus);*
- *Compatibility between an instrument and all external sources and receivers “visible” on the ground, on the launch vehicle, and on-orbit.*

*The electromagnetic radiation environment on each JPSS observatory could differ from the environment on any other due to changes in the proposed instrument complements. The RBI must satisfy overall JPSS EMI requirements, although waivers can be granted for non-compliance under conditions where the non-compliance is against requirements for an instrument not present on that flight.*

**Draft IPRD Requirement RBPRD-5101:**

**FROM:**

The Instrument shall not exhibit any undesired response, due to negative transient signals, beyond specified tolerances when the test spikes having the waveform shown on Figure 6.3.3.2.1-6 are applied to the power input leads once per second, and for a total test period of 1 minute in duration (in lieu of the values in MIL-STD-462). The values to use for  $E(\ )$  is 0 V with a tolerance of +2.8V/-0V,  $t(\ )$  is 10  $\mu$ S, and initial voltage is 28 V. Each spike shall be superimposed on the power line voltage waveform.

**TO:**

The Instrument shall not exhibit any undesired response, due to negative transient signals, beyond specified tolerances when the test spikes having the waveform shown on Figure 6.3.3.2.1-6 are applied to the power input leads once per second, and for a total test period of 1 minute in duration (in lieu of the values in MIL-STD-462). The values to use for  $E(\ )$  is 0 V with a tolerance of +3.0V/-0V,  $t(\ )$  is 10  $\mu$ S, and initial voltage is 30 V. Each spike shall be superimposed on the power line voltage waveform.

**Draft IPRD Requirement RBPRD-3684:**

**FROM:**

The Instrument shall meet the radiated emissions requirements shown in Table 6.3.3.2.3.2-2 if the Instrument contains noise sources above 5 GHz.

**TO:**

The Instrument shall meet the radiated emissions requirements shown in Table 6.3.3.2.3.2-3 if the Instrument contains noise sources above 5 GHz.

**Table 6.3.3.2.3.2-1:**

**FROM:**

**Table 6.3.3.2.3.2-1 Unintentional radiated electric field emissions, 10 kHz to 18 GHz, standard MIL-STD-461F bandwidths.**

Frequency (MHz)	Limit Level (dB $\mu$ V/m)	6dB Resolution Bandwidth (Hz)	Receiver Protected	Frequency (MHz)	Limit Level (dB $\mu$ V/m)	6dB Resolution Bandwidth (Hz)	Receiver Protected
0.01	60	1000		405	32	100K	SARP
0.01-0.02	-16dB per decade	1000		405.9	32	100K	SARP
0.02	56	1000		405.9	18	100K	SARP
0.15	56	1000		406.2	18	100K	SARP
0.15	56	10K		406.2	32	100K	SARP
30	56	10K		407	32	100K	SARP
30	56	100K		407	48	100K	SARP/A-DCS
375	56	100K		411	48	100K	SARP/A-DCS
375	56	100K	A-DCS	411	56	100K	SARP
385	56	100K	A-DCS	425	56	100K	SARP
385	48	100K	A-DCS	425	56	100K	SARP
396	48	100K	A-DCS	435	56	100K	SARP
396	36	100K	A-DCS	435	56	100K	
399.9	36	100K	A-DCS	1000	56	100K	
399.9	18	100K	A-DCS	1000	56	1M	
400.05	18	100K	A-DCS	1207	56	1M	
400.05	36	100K	A-DCS	1207	31	1M	GPS-L2
401	36	100K	A-DCS	1250	31	1M	GPS-L2
401	18	100K	A-DCS	1250	56	1M	
401.225	18	100K	A-DCS	1550	56	1M	
401.225	36	100K	A-DCS	1550	34	1M	GPS-L1
401.275	36	100K	A-DCS	1600	34	1M	GPS-L1
401.275	18	100K	A-DCS	1600	56	1M	
401.69	18	100K	A-DCS	2025	56	1M	
401.69	36	100K	A-DCS	2025	36	1M	CMD
402.85	36	100K	A-DCS	2110	36	1M	CMD
402.85	18	100K	A-DCS	2110	56	1M	
403	18	100K	A-DCS	4000	56	1M	
403	36	100K	A-DCS	4000-18000	+20 dB per decade	1M	
405	36	100K	A-DCS	18000	69	1M	

*Note: For the JPSS-1 Components and Instruments only, the A-DCS and SARP limits between 375 MHz and 435 MHz are 56 dB $\mu$ V/m.*

**Table 6.3.3.2.3.2-1 (Continued):**

**TO:**

**Table 6.3.3.2.3.2-1 Unintentional radiated electric field emissions, 10 kHz to 18 GHz, standard MIL-STD-461F bandwidths.**

Frequency (MHz)	Limit Level (dB $\mu$ V/m)	6dB Resolution Bandwidth (Hz)	Receiver Protected
0.01	60	1000	
0.02	56	1000	
0.15	56	1000	
0.15	56	10K	
2	56	10K	
30	56	10K	
30	56	100K	
1000	56	100K	
1000	56	1M	
1202	56	1M	
1202	35	1M	GPS-L2
1253	35	1M	GPS-L2
1253	56	1M	
1550	56	1M	
1550	37	1M	GPS-L1
1600	37	1M	GPS-L1
1600	56	1M	
2025	56	1M	
2025	40	1M	CMD
2110	40	1M	CMD
2110	56	1M	
4000	56	1M	
4000-18000	+20 dB per decade	1M	
18000	69	1M	

**Table 6.3.3.2.3.2-2:**

**FROM:**

**Table 6.3.3.2.3.2-2 Unintentional radiated electric field emissions, receiver frequencies, narrowband MIL-STD-461F scans (modified bandwidths).**

Frequency (MHz)	Limit Level (dB $\mu$ V/m)	6dB Resolution Bandwidth (Hz)	Receiver Protected	Frequency (MHz)	Limit Level (dB $\mu$ V/m)	6dB Resolution Bandwidth (Hz)	Receiver Protected
375	56	1000	A-DCS	405	18	1000	SARP
385	56	1000	A-DCS	405.9	18	1000	SARP
385	48	1000	A-DCS	405.9	-17	100	SARP
396	48	1000	A-DCS	406.2	-17	100	SARP
396	22	1000	A-DCS	406.2	18	1000	SARP
399.9	22	1000	A-DCS	407	18	1000	SARP
399.9	-17	100	A-DCS	407	48	1000	SARP/A-DCS
400.05	-17	100	A-DCS	411	48	1000	SARP/A-DCS
400.05	22	1000	A-DCS	411	56	1000	SARP
401	22	1000	A-DCS	425	56	1000	SARP
401	-17	100	A-DCS	425	56	10K	SARP
401.225	-17	100	A-DCS	435	56	10K	SARP
401.225	22	1000	A-DCS				
401.275	22	1000	A-DCS	1207	11	10K	GPS-L2
401.275	-17	100	A-DCS	1250	11	10K	GPS-L2
401.69	-17	100	A-DCS				
401.69	22	1000	A-DCS	1550	14	10K	GPS-L1
402.85	22	1000	A-DCS	1600	14	10K	GPS-L1
402.85	-17	100	A-DCS				
403	-17	100	A-DCS	2025	15	10K	CMD
403	22	1000	A-DCS	2110	15	10K	CMD
405	22	1000	A-DCS				

*Note: For the JPSS-1 Spacecraft, Components and Instruments, the A-DCS and SARP measurements between 375 MHz and 435 MHz are for engineering information only.*

**Table 6.3.3.2.3.2-2 (Continued):**

**TO:**

**Table 6.3.3.2.3.2-2 Unintentional radiated electric field emissions, receiver frequencies, narrowband MIL-STD-461F scans (modified bandwidths).**

<b>Frequency (MHz)</b>	<b>Limit Level (dB<math>\mu</math>V/m)</b>	<b>6dB Resolution Bandwidth (Hz)</b>	<b>Receiver Protected</b>
1215	9	1000	GPS-L2
1240	9	1000	GPS-L2
1563	11	1000	GPS-L1
1588	11	1000	GPS-L1
2025	18	10K	CMD
2110	18	10K	CMD

**Table 7.6.1-1:**

**FROM:**

**Table 7.6.1-1 Radiated susceptibility levels due to factory/transport, launch site, launch vehicle, ascent, and on-orbit phases.**

<b>Frequency (Hz)</b>	<b>Factory/Transport (V/m)</b>	<b>Launch Site (V/m)</b>	<b>Ascent (V/m)</b>	<b>On Orbit External (V/m)</b>	<b>On Orbit Steady State* (V/m)</b>
10 k - 100 M	20	20	20	20	20
100 M - 200 M	20	20	100	20	20
200 M - 1 G	20	20	100	20	30
1 G - 1.7 G	100	100	200	30	30
1.7 G - 2.2 G	100	100	200	30	20
2.2 G - 2.5 G	100	100	200	45	20
2.5 G - 5 G	100	100	200	30	20
5 G - 7 G	100	100	200	110	20
7 G - 8 G	100	100	200	110	40
8 G - 10 G	100	100	200	110	20
10 G - 20 G	20	20	20	20	30
20 G - 26.4 G	20	20	20	20	20
26.4 G - 27 G	20	20	20	20	40
27 G - 40 G	20	20	20	20	20

\* Note: The On Orbit Steady State (RS103) values are the maximum levels at any Instrument and include 6 dB EMI susceptibility margin. Values that exceed 20 V/m are due to the local transmitters. Individual Instrument environments may be lower. See the respective ICDs.

Note: the large values (100-200 V/m) do not apply across the entire frequency ranges shown, but at discrete frequencies within those bands. The specific frequencies are classified and can be requested via NASA JPSS. The 'Factory/Transport' and 'Launch Site' environments may be reduced by any combination of procedures, facility shielding, or shipping container shielding.

**Table 7.6.1-1 (Continued):**

**TO:**

**Table 7.6.1-1 Radiated susceptibility levels due to factory/transport, launch site, launch vehicle, ascent, and on-orbit phases.**

Frequency (Hz)	Factory/Transport (V/m) [2]	Launch Site (V/m) [2]	Ascent (V/m) [2]	On Orbit External (V/m) [2]	On Orbit Steady State (V/m) [1]
10 k - 2 M	20	20	20	20	20
2 M - 100 M	20	20	20	20	20
100 M - 1 G	20	20	100	20	20
1 G - 1.67 G	100	100	200	30	20
1.67 G - 1.71 G	100	100	200	30	30
1.71 G - 2.2 G	100	100	200	30	20
2.2 G - 2.29 G	100	100	200	30	30
2.29 G - 2.5 G	100	100	200	45	20
2.5 G - 5 G	100	100	200	30	20
5 G - 7.4 G	100	100	200	110	20
7.4 G - 8.5 G	100	100	200	110	40
8.5 G - 10 G	100	100	200	110	20
10 G - 18 G	20	20	20	20	20
18 G - 26.4 G	20	20	20	20	20
26.4 G - 27 G	20	20	20	20	40
27 G - 40 G	20	20	20	20	20

Note [1]: The On Orbit Steady State (RS103) values are the maximum levels at any instrument and include 6 dB EMI susceptibility margin. Values that exceed 20 V/m are due to the local transmitters. Individual instrument environments may be lower. See the respective ICDs.

Note [2]: the large values (100-200 V/m) do not apply across the entire frequency ranges shown, but at discrete frequencies within those bands. The specific frequencies are classified and can be requested via NASA JPSS. The 'Factory/Transport' and 'Launch Site' environments may be reduced by any combination of procedures, facility shielding, or shipping container shielding.

**Draft IPRD Requirement RBPRD-4235:**

**FROM:**

The radiated emission measurement bandwidths and frequency steps in MIL-STD-461F shall be reduced as specified in Tables 6.3.3.2.3.2-1 and 6.3.3.2.3.2-2 to show compliance with the search and rescue receiver notches.

**TO:**

The radiated emission measurement bandwidths and frequency steps in MIL-STD-461F shall be reduced as specified in Table 6.3.3.2.3.2-2 to show compliance with the receiver notches.

**Draft IPRD Requirement RBPRD-4242:**

**FROM:**

Unintentional radiated emission measurements in the SAR and A-DCS receiver bands shall be made in accordance with MIL-STD-461F RE102 with the EMI meter (which may be replaced by a spectrum analyzer) preceded by a low-noise preamplifier such that the test system noise figure is < 3 dB.

**TO:**

Unintentional radiated emission measurements in the specified Table 6.3.3.2.3.2-2 receiver bands shall be made in accordance with MIL-STD-461F RE102 with the EMI receiver preceded by a low-noise preamplifier such that the test system noise figure is < 3 dB.

**MOVE:** Draft IPRD Requirement RBPRD-4242 **FROM** Section 8.3.2 **TO** Section 8.3.1.

**Section 8.3.2 - A-DCS and SARP Receiver Interference Testing:**

Change Section Heading:

**FROM:** A-DCS and SARP Receiver Interference Testing

**TO:** Reserved

**Draft IPRD Requirement RBPRD-4244:**

**FROM:**

The spectrum analyzer shall be tuned to the center of each of the frequency bands specified in Section 6.3.3.2.3.2.

**TO:**

This requirement is DELETED

**Draft IPRD Requirement RBPRD-4245:**

**FROM:**

The noise floor of the measuring equipment shall be verified to be lower than the specified maximum signal level in a 100 Hz resolution bandwidth.

**TO:**

This requirement is DELETED

**Draft IPRD Requirement RBPRD-4243:**

**FROM:**

The Instrument under test and associated clock and control signals shall have power applied and the spurious signals in the specified bands measured and recorded.

**TO:**

This requirement is DELETED

**Draft IPRD Requirement RBPRD-4230:**

**FROM:**

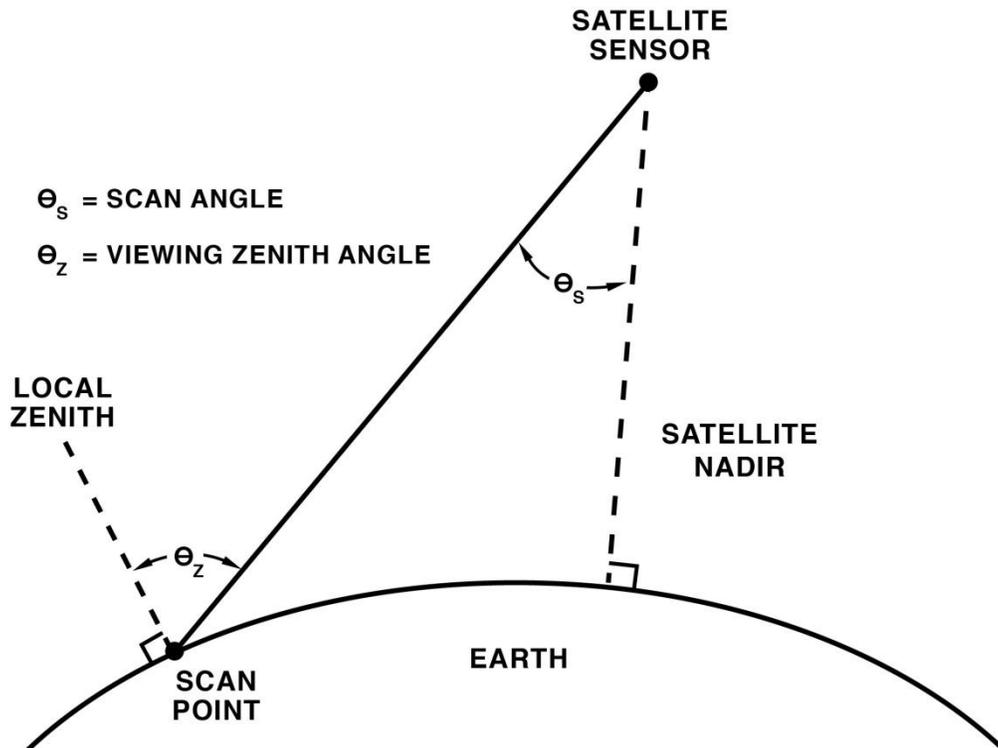
Thermal balance testing shall be performed at worst case hot, worst case cold, and cold or hot survival, using the environmental temperature ranges specified in Section 6.4.4 using GSFC-STD-7000 as a guideline.

**TO:**

Thermal balance testing shall be performed at worst case hot, worst case cold, and nominal, using the environmental temperature ranges specified in Section 6.4.4 using GSFC-STD-7000 as a guideline.

**Appendix B – Definitions:**

**ADDED** Definitions Table Entry and New Figure B-4 to define viewing zenith angle.



**Figure B-4 Definition of Viewing Zenith Angle**