Table E-1. (revised) *Performance and resource specifications for the SMART Optimized Payload*

FIELDS (Sensor/Unit)	AFG	DFG	SCM	SDP	ADP	EDI	CEB
Number of Packages	1	1	1	4	2	2	1
Mass/Package (kg)	1.88 (10) (w/boom)	1.90 (10) (w/boom)	0.60 (10)	1.50 (15) (w/boom)	5.10 (10) (w/booms)	4.25 (10)	3.19 (15)
Fast Sur. Pwr/Package(W)	0.06 (20)	0.06 (20)	0.10 (20)	0.33 (15)	0.37 (20)	2.75 (10)	9.48 (15)
Orbit-Avg. Total Pwr(W)	0.06 (20)	0.02 (20)	0.04 (20)	0.904 (15)	0.293 (20)	4.22 (10)	8.31 (15)
Dimensions/Pkg.(cm) Lgth. x Width x Height	5x5x3	4x7 dia.	10x10x10	31x13x11	22x43x10	39x20x20	24x20x8
Burst Rate (kbps)	7.7	7.7	150	393	197	40	n/a
Fast Survey (kbps)	0.96	0.96	1.5	2.06	1.03	1.5	n/a
Slow Survey (bps)	384	0	0	416	0	0	n/a
Daily Cmd Vol. (kB)	2.0	2.0	2.0	2.0	2.0	2.0	0.5
Package Location	3 m boom	3 m boom	DFG Boom	4 x 48 m booms in spin plane separated by 90°	9.5 m boom along spin axis	Opposite sides of deckplate	Deckplate
Resolution	0.005 nT	0.005 nT	~ 0.01 pT	0.05 mV/m	0.05 mV/m	5% sc frame	n/a
Sensitivity/Precision	0.05 nT	0.05 nT	2×10^{-5} nT/Hz$^{1/2}$ @ 1 kHz	1×10^{-8}V/m-Hz$^{1/2}$ @ 10 kHz	2×10^{-7} (V/m)/(Hz)$^{1/2}$ @ 10 kHz	< 0.01 mV/m (|B| < 60 nT)	n/a
Accuracy	0.1 nT**	0.1 nT**	N/A	0.3 mV/m**	0.5mV/m**	20%	n/a
Surv. Freq. Range	0-8 Hz	0-8 Hz	2–10000 Hz	0–100 kHz	0-100 kHz	0-4 Hz	n/a
Burst Freq. Range	0-64 Hz	0-64 Hz	2–100000 Hz	0-100 kHz	0-100 kHz	0-20 Hz	n/a
Heritage	ISEE, Polar, ST5	Equator-S, ROMAP	Ulysses, Cassini, Cluster II	Polar, Freja, Cluster II	Cassini, Cluster II (electronics)	Equator-S, Cluster II	ST5, FAST, Cluster II

PARTICLES (Sensor/Unit)	Fast Plasma			HPCA	EPD/EIS	EPD/FEEPS		Units
	e^-	i^+	IDPU		i^+	e^-	i^+	
Number of Packages	4***	4***	1	1	1	2		
Mass / package	1.80 (10)	1.70 (10)	1.00 (20)	5.88 (20)	0.60 (10)	0.97 (20)		kg (±%)
* **Fast Sur. Pwr**/Package (W)	2.40 (20)	2.30 (20)	1.00(20)	7.63 (20)	0.80 (10)	1.50 (15)		W (±%)
Orbit-Avg. Total Power	5.28 (20)	5.06 (20)	1.00 (20)	6.13 (20)	0.32 (10)	1.20 (15)		W (±%)
Dimensions/Package Lgth. X width x Height	16x13x11	28x20x17	11x20x6	44x23x22	15x13x8	19x19x8		cm
Burst Data Rate	700	100	n/a	60	12.9	23		kbps
Fast Survey Data Rate	4.1	4.1	n/a	2.8	0.86	1.14		kbps
Slow Survey Data Rate	0.35	0.35	n/a	0	0	0	0	kbps
Daily Command Volume	2.0	2.0	0.5	2.0	1.0	2.0		kB
Pixel Geometric Factor	3×10^{-4}	1×10^{-3}	n/a	2×10^{-3}	n/a	n/a	n/a	cm^2-sr-eV/eV
Pixel Geometric Factor	n/a	n/a	n/a	n/a	0.016	0.1		cm^2-sr
Mass Resolution (FW@1%)	n/a	n/a	n/a	4	H^+, O^+	n/a	n/a	M/ΔM
Energy Range	10^{-3}-30	10^{-3}-40	n/a	10^{-3} – 40	5-1000	20-10^3	40-10^3	keV
Energy Resolution	17	10	n/a	17	45	35		%
Sensor Field of View	6 x 180	5 x 180	n/a	10 x 360	12x160	All Sky		deg
Angle Resolution	6 x 11	5 x 11	n/a	10 x 22.5	23x26	25 (w/analysis)		deg
Best 3D Time Resolution	0.025	0.150	n/a	10.0	20.0	2.4		seconds
Heritage	Cassini, Cluster II	Geotail, Nozomi, Polar	Wind, Polar, IMAGE	Polar, DS1, Cassini, IMAGE	Galileo, Geotail, IMAGE	Polar, Cluster II		n/a

OTHER	ASPOC	CIDP	Units
Number of Packages	2	n/a (housed in HPCA enclosure)	
Mass / Package	1.84 (10)	0.76 (15)	kg (±%)
* **Fast Sur. Pwr**/Package (W)	4.90 (25)	1.92 (10)	W (±%)
Orbit-Avg. Total Power	1.96 (25)	1.92 (10)	W (±%)
Daily Cmd/Tlm Volume	2.0/86.4	2.0/864	kB/kB
Dimensions/Package	19 x 16 x 17	n/a (housed in HPCA enclosure)	cm
Heritage	Cluster II	IMAGE, RADARSAT-1	n/a

Mass and power uncertainties are given in parentheses in percent. *Primary power (conversion efficiency included). **Depends on in-flight calibration using EDI. ***Each package contains two 180° top hats. **Particle instrument locations shown in Foldout E.2.**

Use or disclosure of the data on this page is subject to the restrictions on the title page of this proposal.