2.3 FPI Telemetry Allocations

Component	Stored Telemetry					bytes
	Average Rates (kbit/s, includes packet overhead)					
	Slow Survey	Calibration	Fast Survey	Burst	Trigger Data	Trigger Data
FPI	1.02	11.25	8.19	1,572.86	0.0256	32
Fields	2.44	2.36	8.05	843.61	0.0288	36
HPCA	0.80	96.00	6.00	180.00	0.0160	20
EPD EIS	0.14	0.07	1.35	12.00	0.0160	20
EPD FEEPS	0.13	0.13	1.33	24.00	0.0384	48
CIDP Fill	0.20			9.60		
Total Average Rate (kbit/s)	4.74	109.81	24.93	2,642.07	0.12	156
Orbit Duty Cycle	49.31%	0.69%	50.00%	1.16%	50.00%	
Orbit Averaged Rate (kbit/s)	2.34	0.76	12.47	30.73	0.06	
Avg. Data Volume (Mbit/day)	201.84	65.89	1,077.06	2,655.21	5.39	
	Peak Rates (125%)					
	Slow Survey		Fast Survey	Burst		
FPI	1.28		10.24	1,966.08		
Fields	3.05		10.07	1,054.51		
HPCA	1.00		7.50	225.00		
EPD EIS	0.18		1.69	15.00		
EPD FEEPS	0.17		1.67	30.00		
CIDP Fill	0.25			12.00		
Total Peak Rate (kbit/s)	5.92		31.17	3,302.59		
	Data Volume Allocation/Day (Mbit/day)			4000.00		
	SS + Calibration + Trigger Data + FS (Mbit/day)			1344.79		
	Remaining Volume Allocated to Burst Data (Mbit/day)			2655.21		
				IS		
	Burst data bit rate (Mbits/s)			2.64		
	Burst data volume/day (seconds)			1004.97		
	Burst data volume/day (minutes)			16.75		
	Burst Margin			11.7%		
	Required minutes of burst data/day			15.00		

Please be aware that for FPI (not necessarily other MMS instruments), the telemetry output is variable. The FPI IDPU compression ASIC is tuned to produce packets that stay within FPI's allocation cap for that spacecraft. Depending on the environment the FPI data stream may be somewhat below or above that cap. Thus, the difference between Average and Peak rates.

The burst data is stored onboard and about 5% is selected and downlinked (about 200-300 minutes per 3 day orbit). All of the Fast Survey is downlinked, about 40 hours worth is collected per 70+hour orbit. FPI Slow Survey data is <1% of the total.