ONDOSAT-OWL-1, 2 Power Budget

1. Power Generation Prediction

Parameters	Abbreviations/Units	Values
Solar Cell Efficiency	(cEff)	0.293
Solar Constant	(sPower, [W/m2])	1366.1
Number of exposed panels for each side	(nPX, nPY, nMY, nPZ, nMZ)	(1, 1, 1, 2, 2)
Area per panel of satellite	(cArea, [m2])	0.003039
CubeSat Power Generation	[mW]	0.975
Energy available per Orbit	[mWh]	1505
Power loss in Blocking diode	[mWh]	240
Efficiency of Electronic devices (DC/DC Converters)	[Ŋ1]	0.8
Total Energy available per orbit	**[Wh]**	**1012**

2. Subsystem Level Power Budget

Subsystems	Maximum Power Allocated (mW)	Nominal Mode		Safe Mode	
		Duty cycle	Power (mWh)	Duty cycle	Power (mWh)
OBC + EPS	200	1.5	300	1.5	250
RX COMM	160	1.05	168	1.25	200
TX COMM CW	400	0.45	180	0.25	100
TX COMM Downlink	2000	OFF	OFF	OFF	OFF
CAM Mission	800	OFF	OFF	OFF	OFF
S&F Mission	450	OFF	OFF	OFF	OFF
Remote Sensor Mission	1200	OFF	OFF	OFF	OFF
TOTAL (mWh)		648		550	

3. Mission Power Budget

Subsystems	Duty cycle	Maximum Power Allocated (mW)	Power consumption (mWh)		
			Command & CW Beacon	S&F mission	OVCAM mission
OBC + EPS	1.5	200	300	300	300
RX COMM	1.05	160	168	168	168
TX COMM CW	0.45	400	180	OFF	OFF
TX COMM Downlink	0.1	2000	OFF	OFF	OFF
CAM Mission	0.05	800	OFF	OFF	40
S&F Mission	0.05	2000	OFF	100	OFF
Remote Sensor Mission	0.05	1200	60	OFF	OFF
TOTAL (mWh)			708	568	508