

## Douglas Young

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**From:** Mike Miller <mlmiller@sterksolutions.com>  
**Sent:** Friday, October 09, 2015 1:41 PM  
**To:** Douglas Young  
**Subject:** Re: Request for Info - File #0227-EX-PL-2015  
**Attachments:** Beacon Packets.pdf

Doug,

Re your question 3, I have attached a PDF file with a table showing the data contents of the beacon packet.

Re your questions 1. and 2:

We agree that the phrase "operations handed over" is an unfortunate choice of words in the ODAR. The NASA Manager, and all others involved, do not consider this to mean that NASA ever operates the spacecraft. It just means that after SCU gets the experiment data down, then NASA has no further requirements, and SCU can operate the spacecraft for educational purposes.

The "Flight Segment to Ground Segment Interface Control Document (ICD)", currently in the final stages of signoff, describes the mission operations concept in detail. When it is complete, I can forward this description of mission operations if that would be helpful. Our hope is that this would provide adequate clarification without a revision to the ODAR.

Please let me know if anything else is needed.

Thanks,

Mike

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To: Michael Miller, Santa Clara University  
mlmiller@sterksolutions.com

From: Doug Young  
Douglas.Young@fcc.gov

Applicant: Santa Clara University

File Number: 0227-EX-PL-2015

Correspondence Reference Number: 29684

Date of Original Email: 10/07/2015

1. Does the current ODAR accurately reflect the NASA Manager's understanding of the mission, in particular the statements in the ODAR mission description that say operations will be handed off to Santa Clara "after" the primary mission is completed?

2. Will the ODAR be updated to include the information provided in your email?

3. Please describe the "small subset of satellite telemetry" planned for the beacon.

## Bus Beacon Packet

Name	Size (Bytes)	Description	Valid Field for Well Number	Units
Website	11	EcAMSat.org	All	NA
Reserved	3	<space>		
BusTime	6	Bus Time	All	Seconds
SolarI	4	Solar panel 1 current	0	ADC counts
		Solar panel 2 current	1	ADC counts
		Solar panel 3 current	2	ADC counts
		Solar panel 4 current	3	ADC counts
SolarT	4	Solar panel 1 temp	0	Centidegrees C
		Solar panel 2 temp	1	Centidegrees C
		Solar panel 3 temp	2	Centidegrees C
		Solar panel 4 temp	3	Centidegrees C
Health0	2	Bus' power port status	0	Bit field
		Startup counter	1	Integer
		Spacecraft to ground ID	2	Integer
		Experiment phase	3	Bit field
Health1	4	Payload1T	0	Centidegrees C
		Radiation value	1	Events per 30s
		MHX current	2	ADC counts
		MHX Voltage	3	ADC counts
Health2	4	BatteryV	0	ADC counts
		CommV	1	ADC counts
		SensorsV	2	ADC counts
		BusV	3	ADC counts
Health3	4	PayloadHeaterI	0	ADC counts
		PayloadI	1	ADC counts
		Bus Data Page	2	Integer
		Register File Wrap Count	3	Integer
PageNumber	4	Payload Data Page	All	Integer
CardTempM	4	Median card temperature	All	Centidegrees C
Well Number	2	Well Number	All	Integer
TaosR	4	TAOS Reading: Red LED	All	Frequency
TaosG	4	TAOS Reading: Green LED	All	Frequency
TaosB	4	TAOS Reading: Blue LED	All	Frequency
Total Bytes	64			

Note 1: Experiment well will increment by one every time a beacon packet is transmitted. When well 59 is reached, it will roll over to well 0.

Note 2: All Data is in hexadecimal format.

Note 3: Beacon elements that have multiple definitions mean that the data transmitted will rotate between the four different quantities and thus repeat every four transmissions