HASP Payload Specification and Integration Plan

Payload Title: HawkHASP

Payload Class: (Small) Large (circle one)

Payload ID: 2007-07

Institution: **University of Maryland Eastern Shore**

Contact Name: Robert Davis

Contact Phone: 757-824-1534

Contact E-mail: rjdavis@mdhawk.org

Submit Date: June 1, 2007

I. Mechanical Specifications:

A. Measured weight of the payload (not including payload plate)

Fully assembled payload has not been weighed yet, but is expected to be about 980 grams. Will be less than 1000 gram requirement.

B. Provide a mechanical drawing detailing the major components of your payload and specifically how your payload is attached to the payload mounting plate

Attached.

C. If you are flying anything that is potentially hazardous to HASP or the ground crew before or after launch, please supply all documentation provided with the hazardous components (i.e. pressurized containers, radioactive material, projectiles, rockets…)

No hazardous components.

D. Other relevant mechanical information

II. Power Specifications:

A. Measured current draw at 28 VDC

Current draw has not been finalized. Will be less than 0.5 amp maximum requirement.

B. If HASP is providing power to your payload, provide a power system wiring diagram starting from pins on the student payload interface plate EDAC 516 connector through your power conversion to the voltages required by your subsystems.

Draft attached.

C. Other relevant power information

The HOBO data loggers are self-powered with “coin” cell batteries. The data loggers will continue to log data until manually turned off. These are not controlled by the external switch.

III. Downlink Telemetry Specifications:

A. Serial data downlink format: Stream Packetized (circle one)

No serial downlink. Data is stored on-board.

B. Approximate serial downlink rate (in bits per second)

C. Specify your serial data record including record length and information contained in each record byte.

D. Number of analog channels being used:

E. If analog channels are being used, what are they being used for?

F. Number of discrete lines being used:

G. If discrete lines are being used what are they being used for?

H. Are there any on-board transmitters? If so, list the frequencies being used and the transmitted power.

No on-board transmitter.

I. Other relevant downlink telemetry information.

IV. Uplink Commanding Specifications:

A. Command uplink capability required: Yes (No) (circle one)

B. If so, will commands be uplinked in regular intervals: Yes (No) (circle one)

C. How many commands do you expect to uplink during the flight (can be an absolute number or a rate, i.e. *n commands per hour*)

D. Provide a table of all of the commands that you will be uplinking to your payload

E. Are there any on-board receivers? If so, list the frequencies being used.

No on-board receivers.

F. Other relevant uplink commanding information.

V. Integration and Logistics

A. Date and Time of your arrival for integration:

Integration first choice: July 24/25. Alternate is July 26/27

B. Approximate amount of time required for integration:

1 day.

C. Name of the integration team leader:

Mike Dunn.

D. Email address of the integration team leader:

mhdunn@umes.edu

E. List **ALL** integration participants (first and last names) who will be present for integration with their email addresses:

Robert Davis, rjdavis@mdhawk.org

Mike Dunn, mhdunn@umes.edu

Other integration participants are being considered at this time.

F. Define a successful integration of your payload:

Demonstrating camera operation using LSU power.

G. List all expected integration steps:

i. Unpack
ii. Install payload (with Mounting Plate installed but without Side 1) to LSU structure.
iii. Mate connector
iv. Functional test (see item H,v below)
v. Post Functional Data Recovery (see item H,vi below)
vi. Install Side 1 and corresponding foam (using hook and loop fasteners)
vii. * wait for launch prep*
viii. Flight Ready Status
    1. Remove Side 1 and corresponding foam
    2. Turn on HOBO #1
    3. Turn on HOBO #2
    4. Install Side 1 and corresponding foam (using hook and loop fasteners)
    5. Turn external switch to “on”
    6. Apply power (LSU) to payload TBD minutes prior to balloon release

H. List all checks that will determine a successful integration:

i. Fit check of HawkHASP on Mounting Plate to LSU bracket.
ii. Check for clear field of view of digital camera. Document variances.
iii. Check for clear field of view of film camera. Document variances.

iv. Check for clear field of view of pyranometer. Document variances.

v. Functional Test

1. Turn on HOBO #1
2. Turn on HOBO #2
3. Turn payload external switch to “on”
4. Apply LSU power
5. Allow TBD minutes for timers to begin nominal operations
6. Remove LSU power
7. Turn payload external switch to “off”

vi. Post Functional Data Recovery

1. Remove film from camera and label as “Functional Test” and date
2. Add fresh film to camera.
3. Remove SD card from digital camera
4. Cut and paste SD card images in directory as “Functional Test” and date.
5. Replace emptied SD card to digital camera
6. Download HOBO #1 data in a directory as “Functional Test” and date
7. Remove stored data from HOBO #1
8. Turn off HOBO #1
9. Download HOBO #2 data in a directory as “Functional Test” and date
10. Remove stored data from HOBO #2
11. Turn off HOBO #2

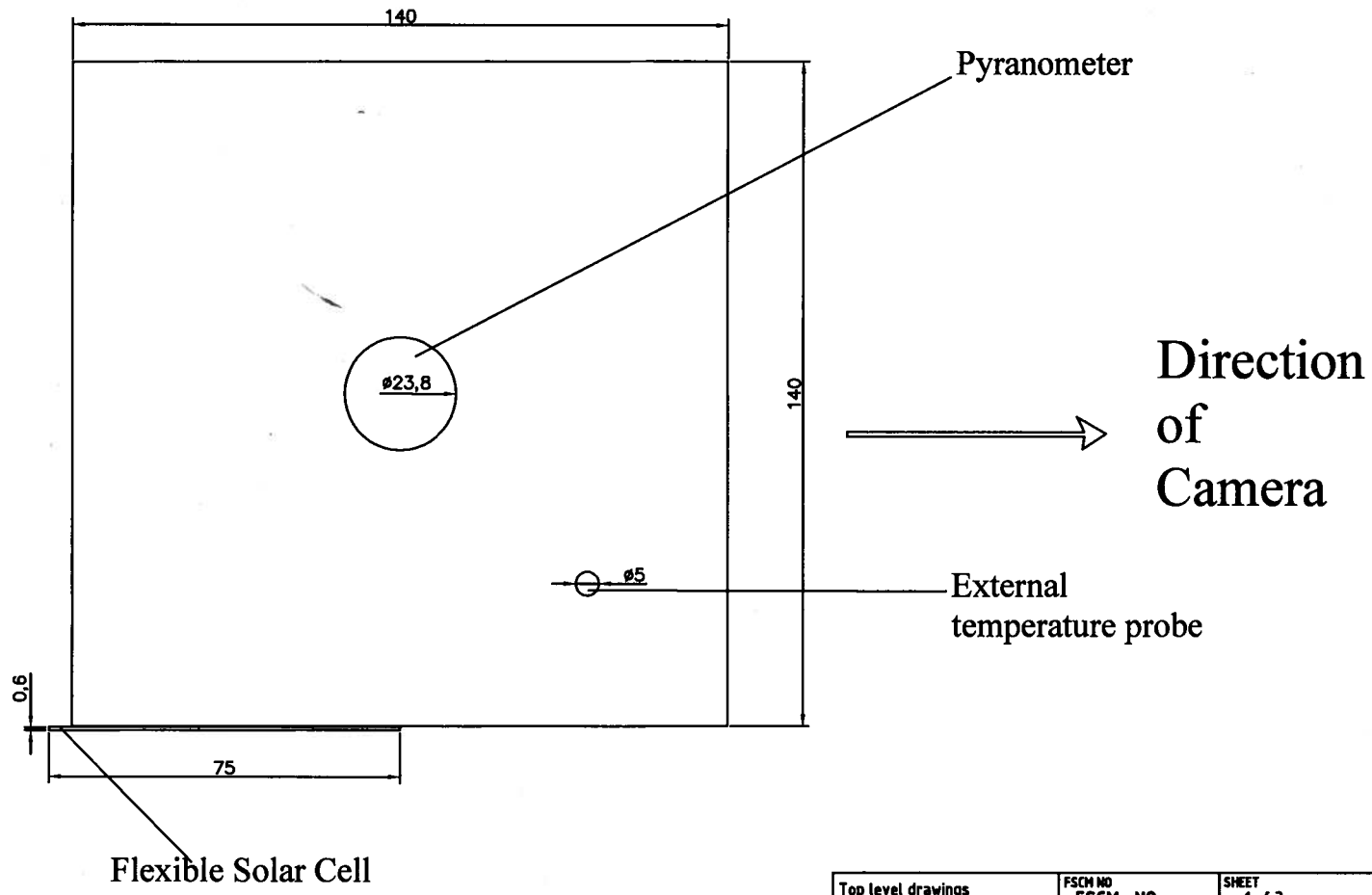
I. List any additional LSU personnel support needed for a successful integration other than directly related to the HASP integration (i.e. lifting, moving equipment, hotel information/arrangements, any special delivery needs…):

i. None

J. List any LSU supplied equipment that may be needed for a successful integration:

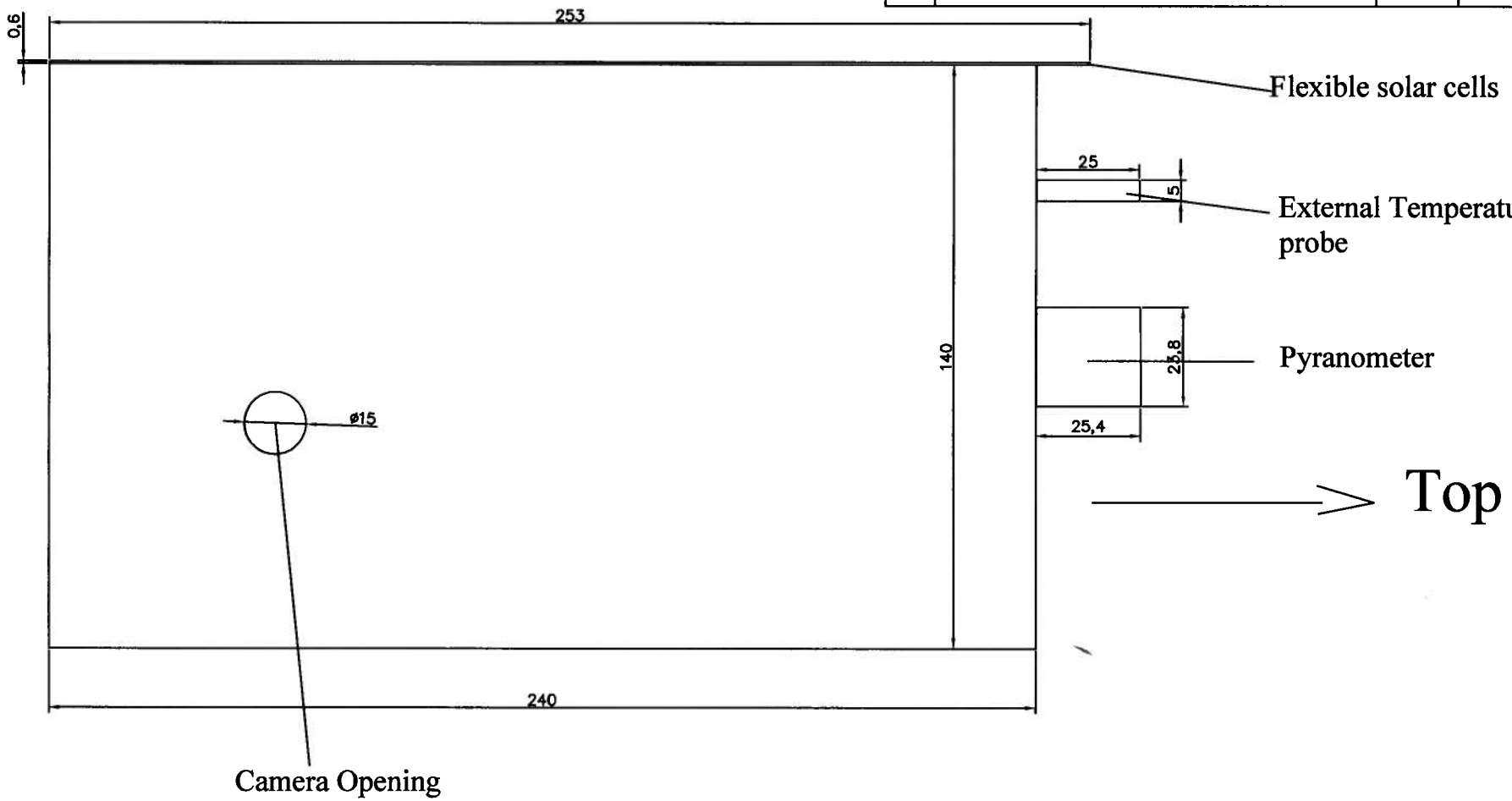
i. None

RevNo	Revision note	Date	Signature	Checked
1	Initial top down view of top level drawings	4/24/07		



Top level drawings	FSCM NO FSCM NO	SHEET 1 of 3	SCALE 1:1
SIZE		Hawk H.A.S.P. Project	
All measurements in millimeters unless noted.			
CHECK		AVSC 288	
APPR.			
ISSUED			
REV			
CONTRACT NO			

RevNo	Revision note	Date	Signature	Checked
1.1	Added orientation information and Side designation.	4/27/07		



Side 1

Top level drawings	FSCM NO FSCM_NO	SHEET 2 of 3	SCALE 1:1
SIZE All measurements in millimeters unless noted.		Hawk H.A.S.P. Project	
CHECK		AVSC 288	
APPR.			
ISSUED			
REV		External View	
CONTRACT NO			

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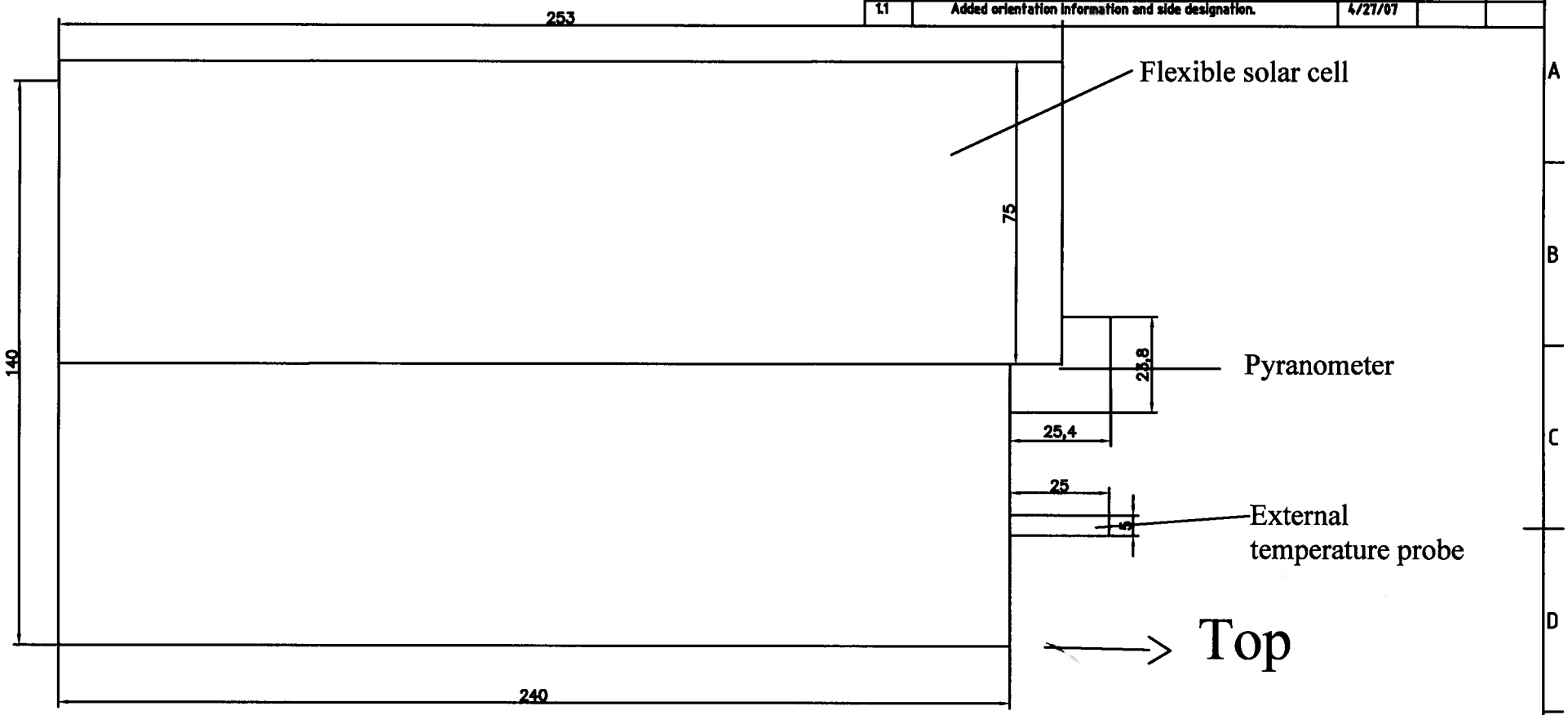

Side 2

Direction of camera

Top level drawings	FSCM NO FSCM NO	SHEET 3 of 3	SCALE 1:1
SIZE		Hawk H.A.S.P. Project	
All measurements in millimeters unless noted.			
CHECK		AVSC 288	
APPR.			
ISSUED			
REV		External Veiw	
CONTRACT NO			