

ANSWERS FROM SURREY SATELLITE TECHNOLOGY IN BOLD BLUE TEXT.

From: <oeotech@fccsun27w.fcc.gov>
Date: November 19, 2015 at 2:13:29 PM MST
To: <byoder@surreysatellite.com>
Subject: Request for Info - File #0426-EX-PL-2015

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Office of Engineering and Technology

To: Rebecca Yoder, Surrey Satellite Technology US LLC
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From: Doug Young
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Applicant: Surrey Satellite Technology US LLC
File Number: 0426-EX-PL-2015
Correspondence Reference Number: 30122
Date of Original Email: 11/19/2015

The FCC's International Bureau requests responses to the following issues:

1. In the ODAR, the DAS output with respect to requirement 4.5-1 was not readable - please supply a readable version.

Figure 1 is a replacement image for the DAS output.

2. Related question - was compliance with the criteria for large objects collision risk assessed using a five year mission life with a 1.92m^2 area, followed by a ca. 9 year period at 12.56m^2 ? If not, please supply that assessment.

During our initial analysis we only performed the probability of collision with large objects for the five year mission life. Figure 2 shows the probability analysis run for the 9 years following the nominal mission duration with the deployed tether system.

3. Please provide the estimated spacecraft orbital lifetime in the event of a failed tether deployment.

Figure 3 shows the orbital lifetime calculations for OTB following the deployment of the Tethers device. In this chart it can be seen that analysis was performed to show the expected orbital lifetime should the tether either be severed in half or if the tether was only to deploy to half length. As can be seen here, even if the tether was to be damaged or not fully deployed, OTB will deorbit within 13 yrs. of EOM.

The items indicated above must be submitted before processing can continue on the above referenced application.

Failure to provide the requested information within 30 days of 11/19/2015 may result in application dismissal pursuant to Section 5.67 and forfeiture of the filing fee pursuant to Section 1.1108.

DO NOT Reply to this email by using the reply button. In order for your response to be processed expeditiously, you must upload your response via the Internet by visiting [The OET Experimental Licensing System](#), followed by clicking on the "Reply to Correspondence" hyperlink.

(Requirement 4.5-1) Limiting Debris Generated by Collisions with Large Objects

Input

Start Year

2016

	Space	Perigee	Apogee	Inclination	RAAN	Argument of	Mission	Final Area-To-Mass	Final
	Structure	(km)	(km)	(deg)	(deg)	Perigee (deg)	Duration (yrs)	Ratio (m^2/kg)	Mass (kg)
OTB-1	Payload	720	720	24.00			5	0.0087	180

Run

Requirement

Help

Output

	Space	Compliance	Collision
	Structure	Status	Probability
OTB-1	Payload	Compliant	0.00047

Messages

Requirement 4.5-1: Compliant - OTB-1

Figure 1: OTB Probability of Collisions with Large Objects (Before Tethers Deployment)

(Requirement 4.5-1) Limiting Debris Generated by Collisions with Large Objects

Input

Start Year

2021

	Space	Perigee	Apogee	Inclination	RAAN	Argument of	Mission	Final Area-To-Mass	Final	
	Structure	(km)	(km)	(deg)	(deg)	Perigee (deg)	Duration (yrs)	Ratio (m^2/kg)	Mass (kg)	
OTB-1	Payload	720	720	24.00			9	0.07	180	

Run

Requirement

Help

Output

	Space	Compliance	Collision	
	Structure	Status	Probability	
OTB-1	Payload	Compliant	0.00025	

Messages

Requirement 4.5-1: Compliant - OTB-1

Figure 2: OTB Probability of Collisions with Large Objects (After Tethers Deployment)

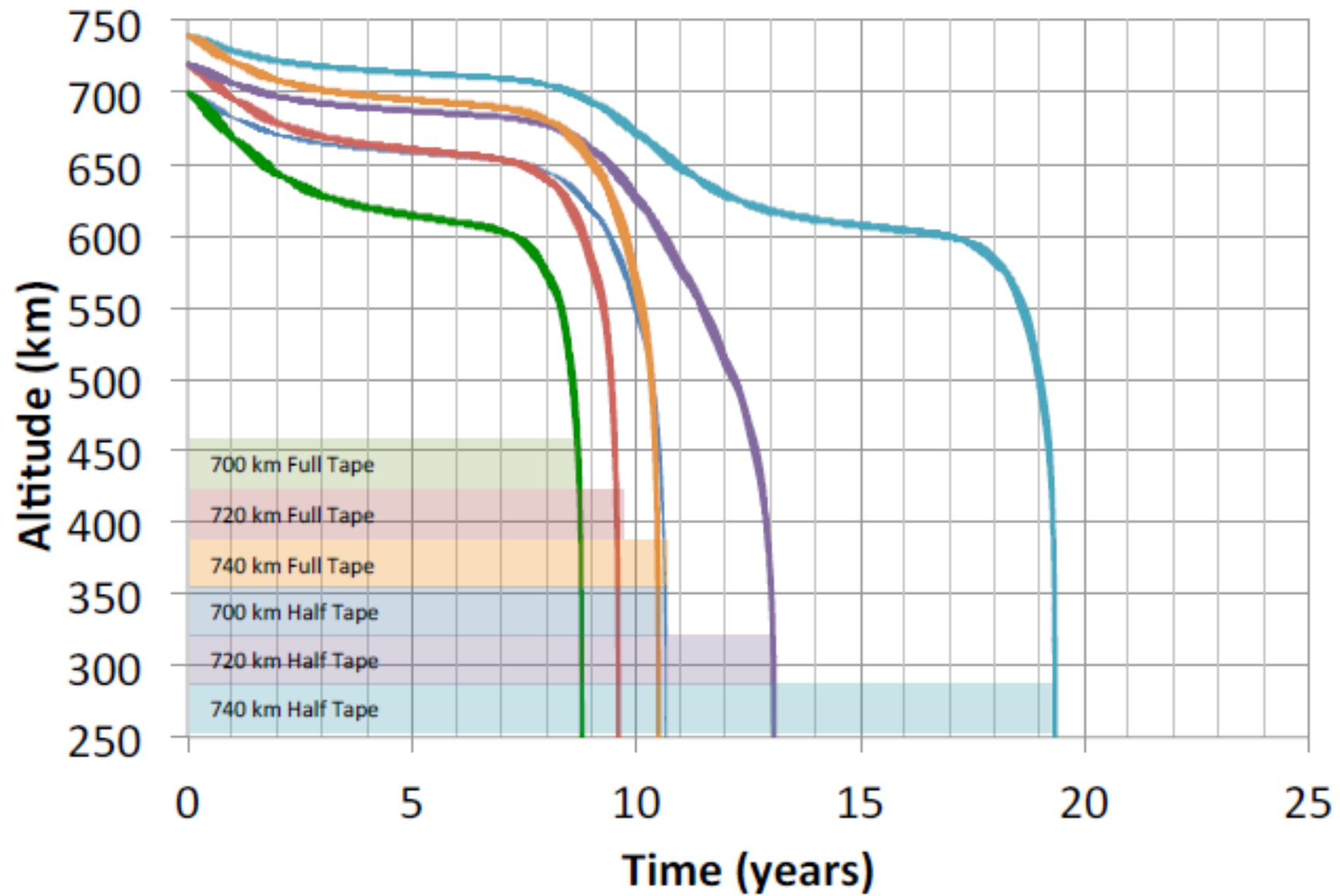


Figure 3: Estimated Orbital Lifetime following Tethers Deployment