1 NOTE FOR MINIMUM ALTITUDE

Determined through guidance from the ITU, this note is provided to describe the change of the orbital parameters through the lifetime of the Cesium Mission 1 spacecraft in response to the fatal error listed below.

Beam	E/R	Grp Id	Table	Field	Value	Row	Valerr	Rule	F/W	Ap4 Ref	Error Message
			orbit	op_ht	500.3	1	242	4	F	A.4.b.4.f	Altitude of Perigee <= Minimum altitude <= altitude of Apogee

Figure 1: SpaceCap validation program fatal error regarding minimum altitude stated

Cesium Satellite 1 (CS1) and Cesium Satellite 2 (CS2) will deploy from an Atlas V 401 upper stage into a sun-synchronous orbit (SSO) from which they will naturally decay due to atmospheric drag. The nominal deployment altitude is 550 km.

- Nominal Insertion Case: Apogee: 550 km, Perigee: 550 km
- Inclination: ~97.6^{o}
- Local Time: 10:30 AM

Between payload experiment operations, the electric thrusters will be used to move the spacecraft to ~96.6^{o} to allow Earth's J_2 effect to rotate the orbit's RAAN relative to SSO. Once the desired MLT is obtained, a second maneuver will be used to return the spacecraft to SSO (dawn-dusk). The spacecraft will remain at 6:00 AM dawn-dusk orbit for the remainder of the mission. Over the course of the five-year lifetime of the mission, if the thrusters are not used to sustain an orbital altitude of 550 km, the spacecraft altitudes will gradually decrease to an end-of-mission apogee of ~524.9 km and perigee of ~500.3 km. Due to this decrease in orbital altitude, the SpaceCap file states a minimum operating altitude of 500.3 km.