

## **Aprize Satellite Inc.**

**Form 442 File Number: 0103-EX-CM-2017**

### **Exhibit 1**

#### **Other Particulars – Addition**

This modification of the FCC authorization granted to Aprize Satellite Inc. (Call Sign: WD2XFT) on July 1, 2015 (File Number: 0157-EX-RR-2015), is for the purpose of adding two low-Earth orbit satellites, AprizeSat-11 and AprizeSat-12, to its experimental program.

The estimated launch date for the satellites is 1<sup>st</sup> Quarter of 2018. The orbital parameters of the satellites are as follows:

Orbital Type:	NGSO
Apogee:	575 km
Perigee:	575 km
Inclination:	97.52 °
Period:	5766 seconds
Eccentricity:	.000
Celestial Reference Body:	Earth

There are no changes to the frequencies previously approved by the Commission and no interference issues have arisen in connection with the AprizeSat transmissions.

Aprize plans to continue with its on-going experimental program as previously approved including an AprizeSat experimental payload ship tracking system which will collect data for customers, including the Naval Research Lab, U.S. Navy SPAWAR and the U.S.Coast Guard.

The addition of AprizeSat-11 and AprizeSat-12 to the current Aprize experimental program will enable Aprize to evaluate and qualify two new payloads including:(1) an advanced message de-collision processing algorithm, and (2) an experimental SDR communications payload that will exchange short messages with very small, low-cost user terminals. These experiments can only be performed using a space platform.

Today's satellite AIS receivers are not able to receive and demodulate multiple simultaneous messages in the same marine frequency channel. Therefore, AIS signals detected by satellites from ships in densely populated areas must be digitally sampled, transmitted to the ground, and processed on a super computer in post real time. SpaceQuest has developed a Software Defined

Radio (SDR) with a powerful Zynq FPGA processor that digitally samples the AIS signal and applies advanced signal processing techniques to extract far more simultaneous messages than is possible with a standard AIS demodulator. Successful space qualification of this advanced AIS receiver will facilitate satellite reception of AIS signals transmitted by ships in densely populated regions, such as the North Sea, South China Sea and the Mediterranean Sea. This real-time processing of AIS signal on board the satellite will substantially reduce the cost and time needed to process these signals on the ground.

The other AprizeSat experimental payload is designed to provide multiuser communications with high spectral efficiency to enable the development of a Global Sensor Network (GSN) for remote sensor data gathering and communication using small low-power user terminals. The payload incorporates novel techniques for efficient two-way data communications with large numbers of remotely located sensors and devices. This advanced communications protocol includes new architectures and waveforms, which can provide a cost effective, scalable and flexible system that can support a very large number of users that are simultaneously in the field of view of LEO satellites, while maximizing the use of precious satellite frequency spectrum.

A debris mitigation analysis for AprizeSat-11 and AprizeSat-12 are included with this request.