

From: Kris Kroc

To: Jose Trevino

Date: September 13, 2012

Subject: FCC file number 0366-EX-PL-2012

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Message:

Per Correspondence Reference Number 17801, please find herein the description of operation to be conducted and its purpose for File Number 0366-EX-PL-2012.

In addition to providing launch services, SpaceX provides cargo resupply to the International Space Station. Designed and built at the facility in Hawthorne, CA, SpaceX operates the Dragon space vehicle as a low cost solution for bringing cargo to orbit. Moving forward, higher production volume with efficient workflow can further drive down cost to foster a competitive commercial space market. Regimented testing of avionics hardware is critical to each successful flight, including over-the-air tests of communications systems. Currently, all radiated tests at licensed frequencies are conducted at Cape Canaveral launch site in coordination with the Eastern Range. SpaceX is applying to use Dragon's command and telemetry frequencies within the Hawthorne production facility to buy down hardware risk prior to shipment to the launch facility.

A major limitation for SpaceX to efficiently produce Dragon vehicles is the inability to conduct complete end-to-end radiated testing of the flight vehicle's communication system prior to shipment to the launch facility. After completing flight acceptance testing, the communication hardware is integrated onto the flight vehicle and progresses through multiple stages of testing to establish full confidence in the system's functionality. Hardline tests can fulfill a portion of the checkouts during the integration flow, but the final verification of flight readiness must be in a flight configuration. The flight configuration includes installation of antennas which prohibits hardline access to RF paths. At this time, SpaceX is not authorized to conduct radiated tests in Dragon's flight configuration in Hawthorne, CA, and risks the flight vehicle will ship to the launch facility with latent defects present. If latent defects are found during the launch site processing, the cost of transferring resources and the risk to maintain launch schedule elevate substantially.

The intent of File Number 0366-EXPL-2012 is to allow SpaceX to conduct radiated tests at listed frequencies and radiated powers within the confines of the production facility. The intended link distance is within 100 feet from the vehicle to test equipment. The testing would occur inside a cleanroom in a central location at the facility. The facility pictured in Figure 1 has dimensions of 702'x422'x60' and is located in an industrial park in Hawthorne, California. The walls of the facility are corrugated metal which nominally remain closed, but have the capability of opening to pass large materials. Based on the location and surroundings of the test environment, it is estimated that no more than 0 dBm equivalent isotropic radiated power will reach outside of the facility for any frequency requested.