

## Introduction

The purpose of this license is to enable the airlink testing of four satellites under three different programs that this company (Orbital Sciences) is working on:

Optus, which has two satellites  
PanAmSat-11  
Horizons-2

Each satellite has at least one bank of transponders, that have both an uplink and a downlink set of channels. With the exception of the telemetry downlink, these channels are fed via reflector style, High gain antennas. As detailed in the submission for question 7 of form 442, these antennas will be tested in an antenna range with absorber all around them in an attempt to minimize the emission of the downlink frequencies.

For the uplink channels, the test antennas will be horn antennas with approximately 60 degree beamwidth. These will also have absorber placed strategically in order to keep the emissions down.

For the downlink channels, the antennas will be as detailed in the subsequent tabs labeled "Optus", "PAS\_11", and "Horizons\_2". The high gain antennas on the satellite will be pointing up into the ceiling absorber inside the antenna range where the testing will be performed. The satellite will also have absorber placed strategically in order to keep the emissions down.

For the Telemetry channels, including the uplink power control beacons on the satellite, some of the antennas are omnidirectional. These will also have absorber placed around them in order to minimize the external emissions.

In short, we will be testing in an indoor range using enough absorber placed to minimize, as much as possible, the radiation that will leave the highbay building where the tests will take place.

This is a list of all the frequencies that we are planning to test on, including as much information about power levels, antennas and modulations that I can think that you might need to process this application. If you need more information, please don't hesitate to call me and ask. My name and Phone number are:

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