

RFI-5G Mission Analysis and Requirements

1. Project description

This project is performed as part of the IEEE Geoscience and Remote Sensing/Frequency Allocations in Remote Sensing (GRSS/FARS) Technical Committee project to monitor the spectrum with the 24 GHz water vapor band and the low part of the 5G 26 GHz band.

The system has to be able to perform a power spectrum analysis dividing the 24-25 GHz band in smaller parts and output a voltage level related with the power of said part measured at the input. The system has to be small enough to fit in a PocketQube, a 5 cm side cubic picosatellite.

The payload is to be flown in two ways with the same configuration: as a satellite and drone attached to a drone.

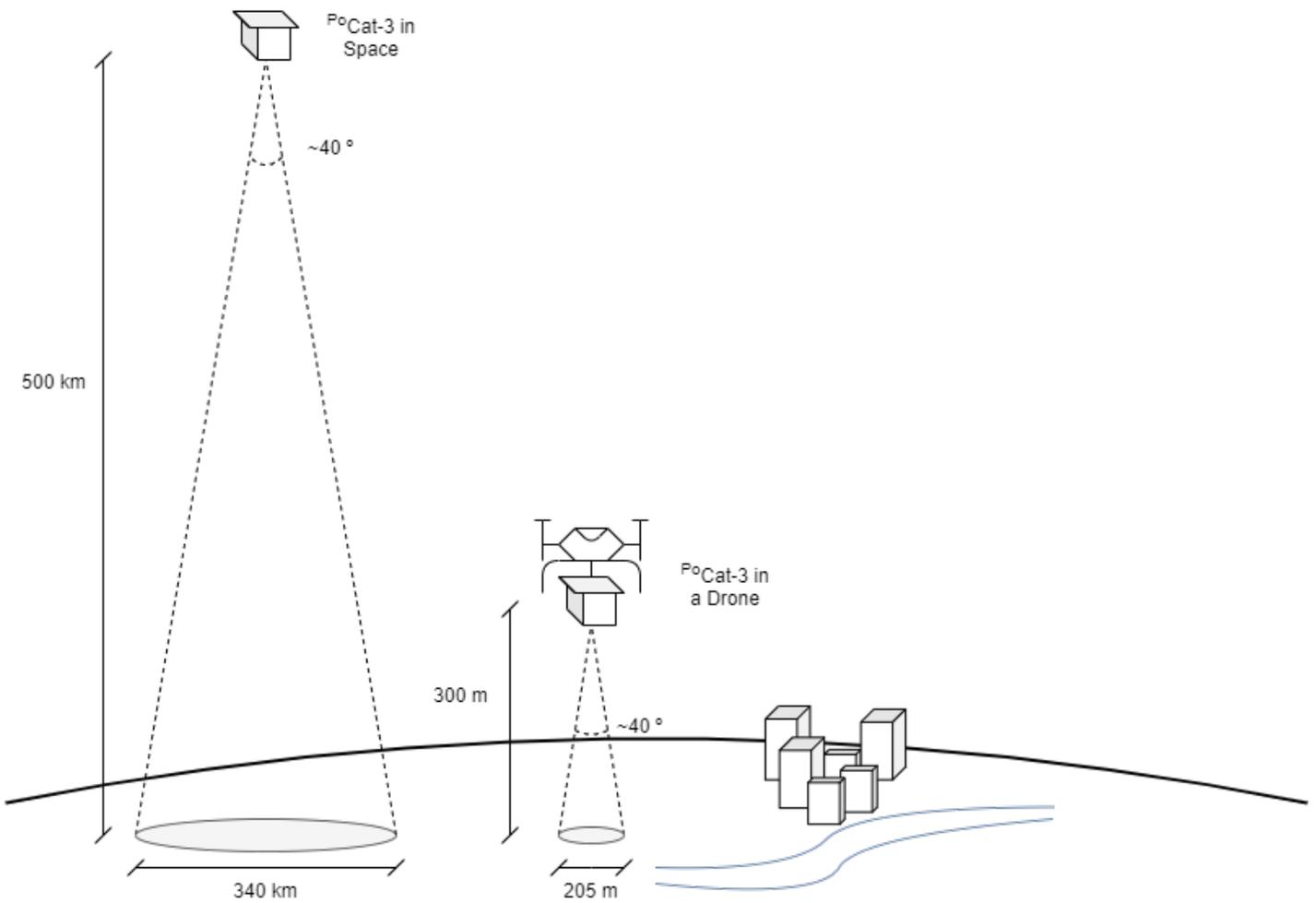


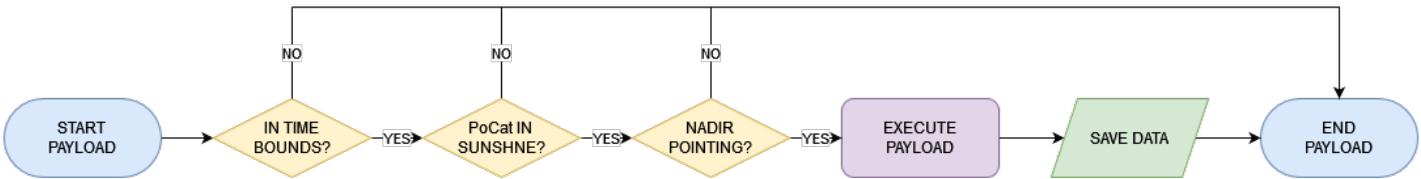
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2. Requirements

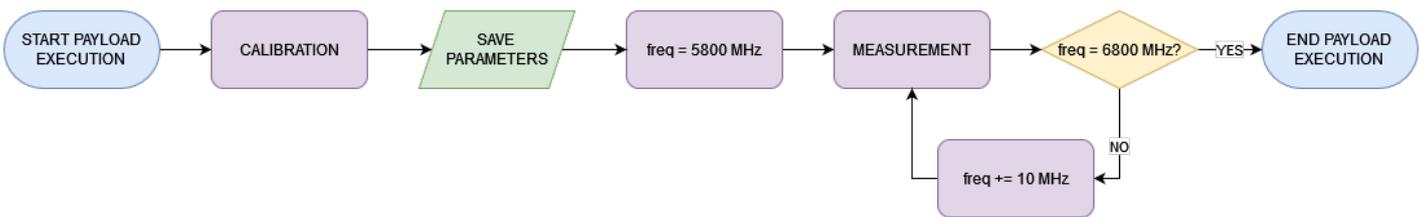
RFI5G_010	The payload shall measure input powers of -110 dBm in 10 MHz bands.
RFI5G_020	The payload frequency resolution has to be smaller or equal than 10 MHz.
RFI5G_030	The payload output has to be an analogue voltage between 0 and 3.3 V.
RFI5G_040	The payload's maximum peak power consumption has to be smaller than 1.5 W.
RFI5G_050	The payload's average power consumption has to be smaller than 0.5 W.
RFI5G_060	The payload has to interface with the "IEEE Open PocketQube".

RFI5G_070	The full PocketQube weight with the payload has to be smaller than 250 g.
RFI5G_080	The payload's non-operational temperature has to range from -40 to 80 °C.
RFI5G_090	The payload's operational temperature has to range from 0 to 45 °C.

3. Operation Conditions:



4. Pyload Execution:



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