The exploitation of signals stemming from global navigation systems for passive bistatic radar applications has been proposed and implemented within numerous studies. The fact that such missions do not rely on high power amplifiers and that the need of high gain antennas with large geometrical dimensions can be avoided, makes them suitable for small satellite missions. Applications where a continuous high coverage is needed, as for example disaster warning, have the demand for a large number of satellites in orbit, which in turn requires small and relatively low cost satellites. The proposed PRETTY (Passive Reflectometry and Dosimetry) mission includes a demonstrator payload for passive reflectometry and scatterometry focusing on very low incidence angles whereby the direct and reflected signal will be received via the same antenna. The correlation of both signals will be done by a specific FPGA based hardware implementation. The demonstration of a passive reflectometer without the use of local code replica implicitly shows that also signals of unknown data modulation can be exploited for such a purpose. The PRETTY mission is proposed by an Austrian consortium with RUAG GmbH as prime contractor, relying on the results from a previous CubeSat mission (OPS-SAT) conducted by TU Graz under ESA contract [18]. Within the present paper we will describe the architecture of the passive reflectometer payload within this 3U CubeSat mission and discuss operational routines and constraints to be elaborated in the frame of the proposed activity.