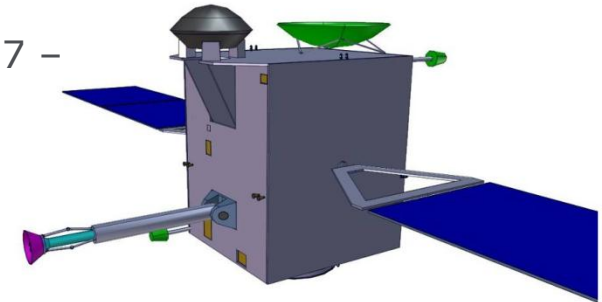


MarcoPolo-R – Mission design features

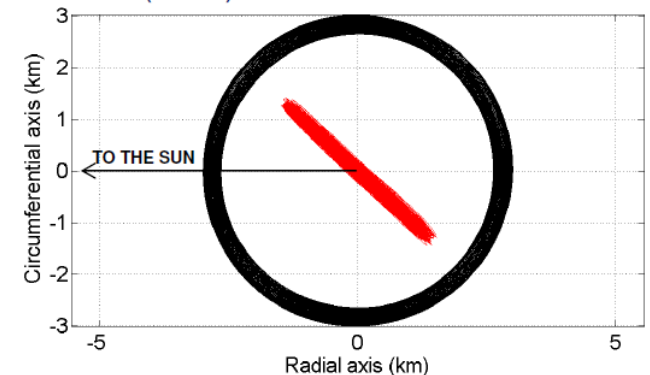


- ❑ Baseline target binary asteroid 1996 FG3
 - Distance to the Sun: cruise 0.52 - 1.6 AU ; asteroid 0.7 – 1.4 AU ; Distance to Earth: up to 2.4 AU
 - Diameter 1.5–2.1 km, rotation period \sim 3.6 hours
- ❑ Direct escape, 4 launch options in 2022-2024, 7-8 year mission, electric propulsion
- ❑ Platforms: e.g. Sol. Orb., Her./Pla., Proteus, etc.
- ❑ Touch & Go sampling (few seconds)
- ❑ Rosetta-based GNC + camera-based nav. \rightarrow fine velocity control at touchdown + increased landing accuracy \sim 50 m landing ellipse
- ❑ Fully passive re-entry capsule
- ❑ X-band fixed antenna
- ❑ Total data volume sent to Earth before start of sampling operations \sim 120 GBit



Example

S/C ORBIT @ 1 KM ALTITUDE (RED) AND SECONDARY ASTEROID ORBIT (BLACK) AS SEEN FROM ASTEROID ORBIT POLE



Example

GUIDELINE ONLY !! Timeline will be refined based on the actual payload selection

