

QUESTIONS AND ANSWERS

Last updated: 4 Feb 2011

Please note: This file contains answers of general interest to questions received after the release of the ExoMars EDM AO. Information related to this AO can be found at <http://exploration.esa.int/EDM-AO>.

Questions regarding the AO should be addressed to all of the following:

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The latest date for the receipt of questions is 1 February 2011.

Q1: *Will the azimuth of the EDM at touchdown be controlled?*

A1: The EDM Guidance, Navigation, and Control (GNC) will ensure that the EDM platform lands "top-side up," but will not seek to achieve any pre-selected azimuth. The only control in roll (i.e. rotation about the X-axis) will be to cancel out the roll rate. The azimuth at landing will be known, after the event, by the EDM GNC.

Q2: *The AO text mentions that sensors "not requiring deployable mechanisms" will be considered. Does opening a protective cover before use constitute a deployment not allowed?*

A2: A small protective cover that requires opening after landing and is confined within a specified envelope may be allowed. This will be evaluated on a case-by-case basis by the ExoMars project team. The proposer should explain in as much detail as possible how risks to the system (blocking antennas, tearing thermal blankets, etc.) and risks to other parts of the payload (e.g. blocking sensors' Field of View, etc.) are avoided when the protective cover is deployed.

Q3: *Can the volume used by the Crushable Structure be used partly for a sensor looking at the soil?*

A3: No, the volume (or surface) of the Crushable Structure is not a possible mounting location for Surface Payload (SPL) units. Section 5.3 of the E-PIP states, "The current EDM design does not foresee to offer mounting locations that would bring sensors into direct contact with the Martian ground." Each SPL unit shall be accommodated in one of the three categories of mounting location specified in Table 4; the third of these locations refers to mounting points on the baseplate's upper surface only. Section 5.4 states, "The SPL shall not require deployment by the system."

Q4: *What level of qualification is required for components and sub-assemblies?*

A4: The E-PIP does not explicitly require any parts qualification level for components or sub-assemblies. It is expected that each SPL proposer make the appropriate design and cost decisions commensurate with the SPL lifetime, the applicable environmental condi-

tions, and the proposer's science objectives, *but shall as a minimum* follow the quality levels of Class 3 components, as outlined in ECSS-Q-ST-60C (Table 7-3). Furthermore:

- The standard requirement for EEE parts for the EDM system units (and the rest of ExoMars) is Class 2, and that is the class of parts to be procured via CPPA. So if the SPL PI opts for Class 3, or even selects another approach, they will have to procure parts themselves. ESA will only approve the components at the interface —i.e. connectors, DC-DC converters, line drivers, etc.— but will review all parts in the DCLs and provide recommendations.
- Note also the statement in the E-PIP sub-section 5.10.1 that "compatibility of the SPL hardware with Dry Heat Microbial Reduction (DHMR), as described in [IR 4] shall be assessed."
- Some guidance can also be obtained from the Informative References given in E-PIP section 3.2.
- Each proposal shall be compliant with the EDM integration and test flow, and shall not allow any failure inside the SPL to propagate across the interface into the EDM.