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| **Instrument Accommodations Table (Fill out applicable fields)**This form, unless stated otherwise, applies to all accommodations necessary for a single spacecraft.\*For parameters not well-constrained, provide an upper/lower limit value (as appropriate). |
| **Item** | **Parameter** | **Units** |
| 1 | Mass (CBE and MEV) | kg |
| 1.1 | Mass |  |
| 2 | Power (CBE and MEV) | W |
| 2.1 | Peak operating |  |
| 2.2 | Standby (including operational pre-heating) |  |
| 2.3 | Nominal flight hardware power (over a data acquisition period) |  |
| 2.4 | Required S/C-provided primary bus voltage level(s), tolerances and number of services |  |
| 3 | Volume (l x w x h) and Center of Gravity (include reference locations) | cm3cm |
| 3.1 | Physical dimensions of sensor, with CG |  |
| 3.2 | Physical dimensions of electronics boxes, with CG (if separate from sensor) |  |
| 4 | Mounting |  |
| 4.1 | Mounting footprint dimensions (envelope) | m x m |
| 4.2 | Preferred sensor mounting location(s) and orientation(s) |  |
| 4.3 | Alignment requirements with respect to S/C frame (X: along-track, Y: cross-track, Z: twist) | mmarcsec |
| 4.4 | Other mounting requirements (e.g., offset from mounting surface) |  |
| 4.5 | Maximum allowable distance between electronic boxes | m |
| 4.6 | Does the instrument require special mounting on an articulating mechanism (yes/no)? If yes, describe the driving requirements (e.g., the need to scan, and jitter), articulation range, articulation rate, and mass of object being articulated. |  |
| 4.7 | Does the instrument require mounting on a boom? (See GDC Proposal Information Package, Table 4-2, for assumptions on s/c boom length.) |  |
| 5 | Field of view (FOV) (include degree range and reference location) | deg |
| 5.1 | FOV, along track and cross track |  |
| 5.2 | Field of regard (FOR), along track and cross track |  |
| 5.3 | Other viewing requirements |  |
| 6 | Pointing |  |
|  | Requirements (3σ, about all 3 axes; X: along-track, Y: cross-track, Z: twist) |  |
| 6.1 | Instrument requirement for pointing control about S/C axis.\* Please specify value and axis (X: along-track, Y: cross-track, Z: twist). | deg |
| 6.2 | Instrument requirement for stability | arcsec |
| 6.3 | Instrument requirement for jitter | arcsec/sec |
| 6.4 | Instrument requirement for pointing knowledge at the sensor.\* Please specify value and axis (X: along-track, Y: cross-track, Z: twist). | arcsec |
| 6.5 | Boresight Sun viewing limitations (list limitations for operating and non-operating separately, if different) |  |
| 6.6 | Required S/C configuration and roll, spin or slew requirements | degdegdeg/min |
| 7 | Trajectory |  |
| 7.1 | Instrument requirement for post facto definitive position knowledge relative to the inertial frame. \* | m (RSS 3σ) |
| 7.2 | Instrument requirement for post facto definitive velocity knowledge relative to the inertial frame. \* | cm/s (RSS 3σ) |
| 7.3 | Instrument requirement for UTC time registration accuracy. \* | msec |
| 8 | Operations |  |
| 8.1 | The instrument is assumed to be able to collect data at all points in the notional mission trajectory over the appropriate latitude range (see PIP Table 2-1), independent of altitude (350-400 km), longitude, and beta angle; with only brief and infrequent calibration sequences. If otherwise (e.g., sun avoidance angles, eclipse or beta angle constraints, South Atlantic Anomaly constraints), please specify constraint(s) and the instrument operation plan. |  |
| 8.2 | Does the instrument have limitations on frequency or speed of power cycling (yes/no)? If yes, please specify. (e.g., ability to survive unannounced removal of power, time constraint getting back to operational mode after removal of power.) |  |
| 8.3 | Does the instrument need to be powered down or otherwise be safed during propulsive maneuvers (yes/no)? If yes, please specify constraint. |  |
| 9 | Calibration |  |
| 9.1 | Provide inflight calibration plans. Include a description (with details of any necessary S/C maneuvers and operational constraints), duration, frequency, and timing of the calibration. |  |
| 10 | Data collection CBE and MEV |  |
| 10.1 | Expected nominal instrument telemetry data volume and rate collected per orbit (include science, calibration, and engineering data) | kbkbps |
| 10.2 | Expected peak instantaneous instrument data transfer rate to spacecraft | kbps |
| 11 | Electrical interfaces |  |
| 11.1 | Preferred command and telemetry data interface |  |
| 11.2 | Maximum data rate and average data rate to the S/C | kbps |
| 11.3 | Acceptable alternative interfaces |  |
| 11.4 | Number of power interfaces |  |
| 11.5 | Number of pyro interfaces, if any |  |
| 11.6 | Number of analog measurements |  |
| 11.7 | Number of discretes |  |
| 12 | Thermal |  |
| 12.1 | Planned thermal interfaces to S/C |  |
| 12.2 | Operating and survival temperature ranges for each sub-assembly | oC |
| 12.3 | Stability and gradient requirements for each sub-assembly | oC/minoC |
| 12.4 | Expected power dissipation to S/C across interfaces vs. power mode for each sub-assembly | W |
| 13 | Deployables |  |
| 13.1 | Description of any instrument-furnished deployable elements including physical location, geometry, structural properties, motion paths, deployment mechanism, deployment plans, number of services, and first-mode vibrational frequency, if not ejected |  |
| 13.2 | Maximum torque and torque axis caused by articulating mechanisms during data acquisition, if applicable. | Nm |
| 14 | Spacecraft support |  |
| 14.1 | Required relative time synchronization to other instruments in the payload (default is 1 ms). | ms |
| 14.2 | Does the instrument require fault protection monitoring or other S/C response capability needs (e.g., telemetry monitoring) (yes/no)? If yes, please specify. |  |
| 15 | Electromagnetic environment(See GDC Proposal Information Package, Table 4-2, for assumptions on s/c boom length.) |  |
| 15.1 | Instrument requirement for differential voltage around its sensor.\* | V |
| 15.2 | If ram mounted, provide instrument requirement for DC static magnetic field at the sensor. \* | nT |
| 15.3 | If boom mounted, provide instrument requirement for DC static magnetic field at the sensor.\* | nT |
| 15.4 | If boom mounted, provide instrument requirement for DC magnetic field stability at the sensor.\* | nT/min |
| 15.5 | Does the instrument require a magnetic, electromagnetic and/or electrostatic noise level over a certain frequency range (yes/no)? If yes, please provide the noise spectral density as a function of frequency. | nT/sqrt(Hz) |
| 16 | Cleanliness Requirements |  |
|  | Magnetic |  |
| 16.1 | Magnetic moment generated by instrument (powered and unpowered). \* | A m^2 |
| 17 | Contamination (Molecular, Outgassing, and/or Particulate) |  |
| 17.1 | Can the instrument suffer performance degradation (or other damage/catastrophic loss) from contamination plausibly produced by neighboring instruments or surfaces (yes/no)? If yes, specify the performance parameter (e.g., throughput loss, scatter, resolution) and the allowable performance degradation. Also, specify the nature of any degradation or damage (e.g., shorting, dielectric breakdown, jamming mechanisms). Specify the permissible levels of surface contamination and allowable limits per IEST-STD-1246 and identify the contamination critical surfaces. Include outgassing requirements and particular chemical sensitivities (e.g., highly absorbing species [silicone in UV bands], water, vapors).  |  |
| 17.2 | Does the instrument have materials that can be a source of molecular, particulate or outgassing contamination for neighboring instruments and surfaces (e.g., velcro, vent outgassing, silicones) (yes/no)? If yes, please specify contamination type, location and quantify (e.g., size, mass, volume). |  |
| 17.3 | Are there internal components in the instrument susceptible to humidity, condensable vacuum or airborne molecular contaminants (yes/no)? If yes, what level? (e.g., no more than 10 percent humidity, no more than 20 hours exposure to 0.5 ppm or higher) |  |
| 18 | Radiation Sources |  |
| 18.1 | Does the instrument contain an ionizing or particulate radiation source (radioactive source) (yes/no)? If yes, what is the type and mass? |  |
| 18.2 | Does the instrument emit other types of radiation (optical, electromagnetic, etc.) that may cause payload compatibility concerns (yes/no)? If yes, describe the radiation (type, activity level, location, containment approaches). |  |