



SECCHI Instrument Suite System Description

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SECCHI Instrument Requirements

- **The SECCHI Instrument Requirements Are Obtained From:**
 - 1) **The STEREO Science Requirements (STEREO Mission Requirements Document 460-RQMT-0001)**
 - 2) **The SECCHI Science Goals (SECCHI Science Requirements & Instrument Performance Specification Document 7906-SPC-9-0-003)**
- **The Flow Down of STEREO Requirements and the Derivation of the SECCHI Requirements Are Detailed in the SECCHI Science Requirements & Instrument Performance Specification Document**



STEREO Science Objectives

SECCHI Instrument Requirements Flow Down

- **Understand the Causes and Mechanisms of CME Initiation**
- **Characterize the Propagation of CMEs Through the Heliosphere**
- **Discover the Mechanisms and Sites of Energetic Particle Acceleration**
- **Develop a Three-Dimensional, Time-Dependent Model of the Magnetic Topology, Density, and Velocity Structure of the Ambient Solar Wind**



Mission Science Measurement Requirements

SECCHI Instrument Requirements Flow Down

- 1A Determine the CME Initiation Time to an Accuracy of Order 10 Minutes**
- 1B Determine the Location of the CME Initiation to Within ± 5 Degrees of Solar Latitude and Longitude**
- 2C Determine the Evolution of the CME Mass Distribution and the Longitudinal Extent to an Accuracy of ± 5 Degrees As It Propagates in the Low Corona, the Upper Corona and the Interplanetary Medium**
- 2D Determine the CME and MHD Shock Speeds Accurate to $\pm 10\%$ As It Propagates in the Low Corona, the Upper Corona and the Interplanetary Medium**
- 2E Determine the Direction of the CME and MHD Shock Propagation to Within ± 5 Degrees of Latitude and Longitude As the CME Evolves in the Low Corona, the Upper Corona and the Interplanetary Medium**
- 4J Obtain a Time Series of the Solar Wind Speed Accurate to $\pm 10\%$ at Two Points Separated in Solar Longitude**



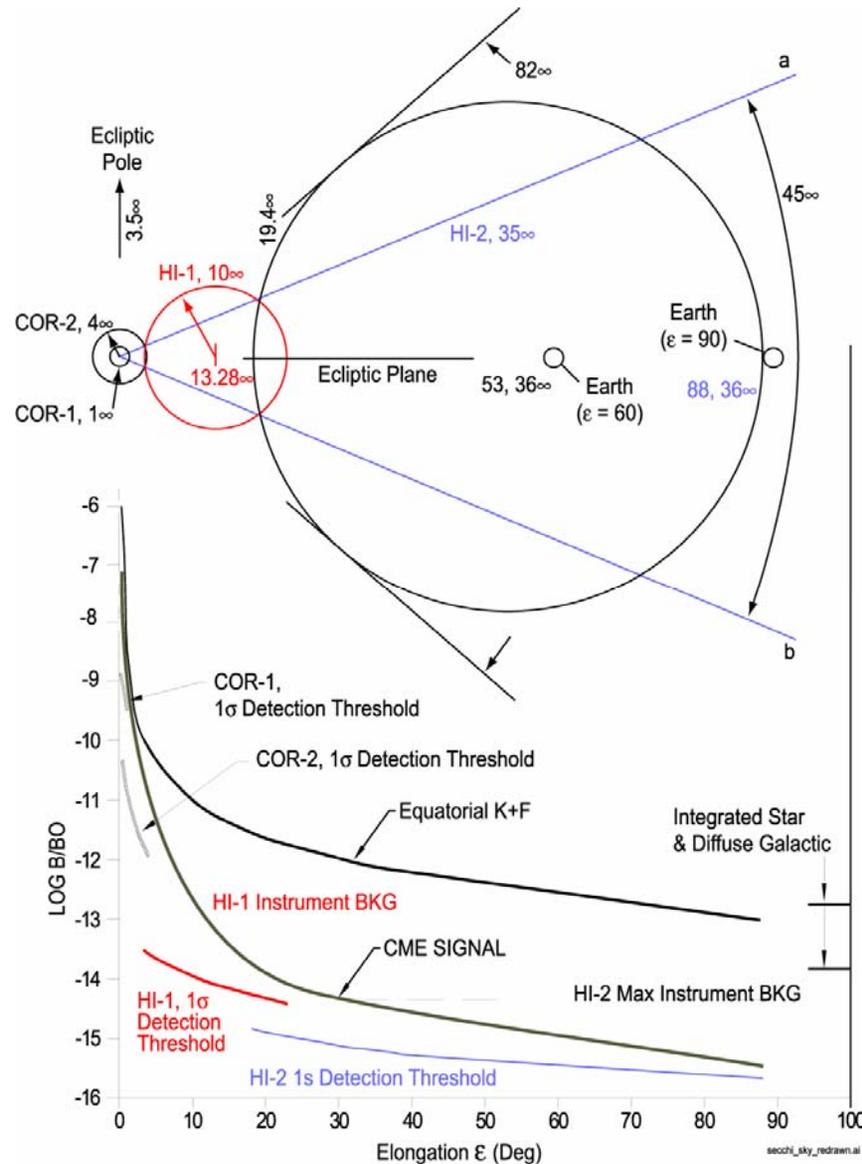
SECCHI Science Measurement Goals

- 1A Determine the CME Initiation Time to an Accuracy of Order 1 Minute**
- 1B Determine the Evolution of the CMEs, the Transition Region Structures, the Coronal Structures, EUV Waves, Coronal Dimming and Global Interactions at the Highest Cadence Rate and Matching Positional Accuracy**
- 2A Determine the Three-Dimensional Evolution of CMEs and Associated Disturbances in Ambient Structures in the Lower Corona, the Upper Corona, and in the Interplanetary Medium at the Highest Cadence Rate and Matching Positional Accuracy**
- 2B Determine the Evolution of the Tracers of CME Interaction With the Corona and Interplanetary Medium, the CME Shock Formation, and the Ambient Material Sweep-up at the Highest Cadence Rate and Matching Positional Accuracy**
- 3A Determine the Candidate Sites of Energetic Particle Acceleration With a Timing Accuracy of ≤ 1 Minute**
- 3B Determine the Evolution of the CME Front at the Highest Cadence Rate and Matching Positional Accuracy**
- 4A Determine the Three-Dimensional Shape of Coronal Loops, Coronal Streamers, and Large-Scale Coronal Structures and Solar Wind Tracers With a Positional Accuracy of ≤ 1250 km in the Lower Corona From the Solar Disk to $1.5 R_{\text{sun}}$, ≤ 4500 km in the Lower Corona From $1.5 R_{\text{sun}}$ to $3.0 R_{\text{sun}}$, and $\leq 11,500$ km in the Upper Corona**



Coronal and CME Detection With SECCHI Coronagraphs and Heliospheric Imager

The STEREO Science Requirements Emphasis on Earth-Directed CMEs Is Addressed With HI FOVs Covering a Cone of 45 Degrees From the Ecliptic Plane



Using a Combination of Existing Coronagraphic Techniques With Stepwise Extensions of Those Techniques, CMEs Will Be Observed by SECCHI, Without Gaps, From the Inner Corona to the Orbit of the Earth



Image Cadence Requirements to Capture CME and Solar Wind Evolution Over Individual Coverage Regions

| Meas Reqt Number | Helio-spheric Feature | Coronal / Heliospheric Coverage | Helio-spheric Feature Velocity (km/sec) | # of Images over Coverage Region | Image Cadence (min) |
|------------------|-----------------------|---|---|----------------------------------|---------------------|
| 1A, 1B | CME | Low Corona (0-1.5 R _{sun}) | 275 | 3 | 5.2 |
| | | Low Corona (1.5-3.0 R _{sun}) | 800 | 3 | 5.3 |
| | | Upper Corona (3.0-13.5 R _{sun}) | 1000 | 5 | 19.8 |
| 2C, 2D, 2E | CME | Low Corona (0-1.5 R _{sun}) | 275 | 3 | 5.2 |
| | | Low Corona (1.5-3.0 R _{sun}) | 800 | 1 | 10.6 |
| | | Upper Corona (3.0-13.5 R _{sun}) | 1000 | 5 | 19.8 |
| | | IP Medium (13.5-80 R _{sun}) | 1000 | 11 | 62.8 |
| | | IP Medium (80-215 R _{sun}) | 500 | 24 | 122.5 |
| 4J | Fast Solar Wind Speed | IP Medium (13.5-80 R _{sun}) | 800 | 14 | 62.8 |
| | | IP Medium (80-215 R _{sun}) | 800 | 14 | 127.6 |
| | Slow Solar Wind Speed | IP Medium (13.5-80 R _{sun}) | 400 | 14 | 125.7 |
| | | IP Medium (80-215 R _{sun}) | 400 | 14 | 255.1 |

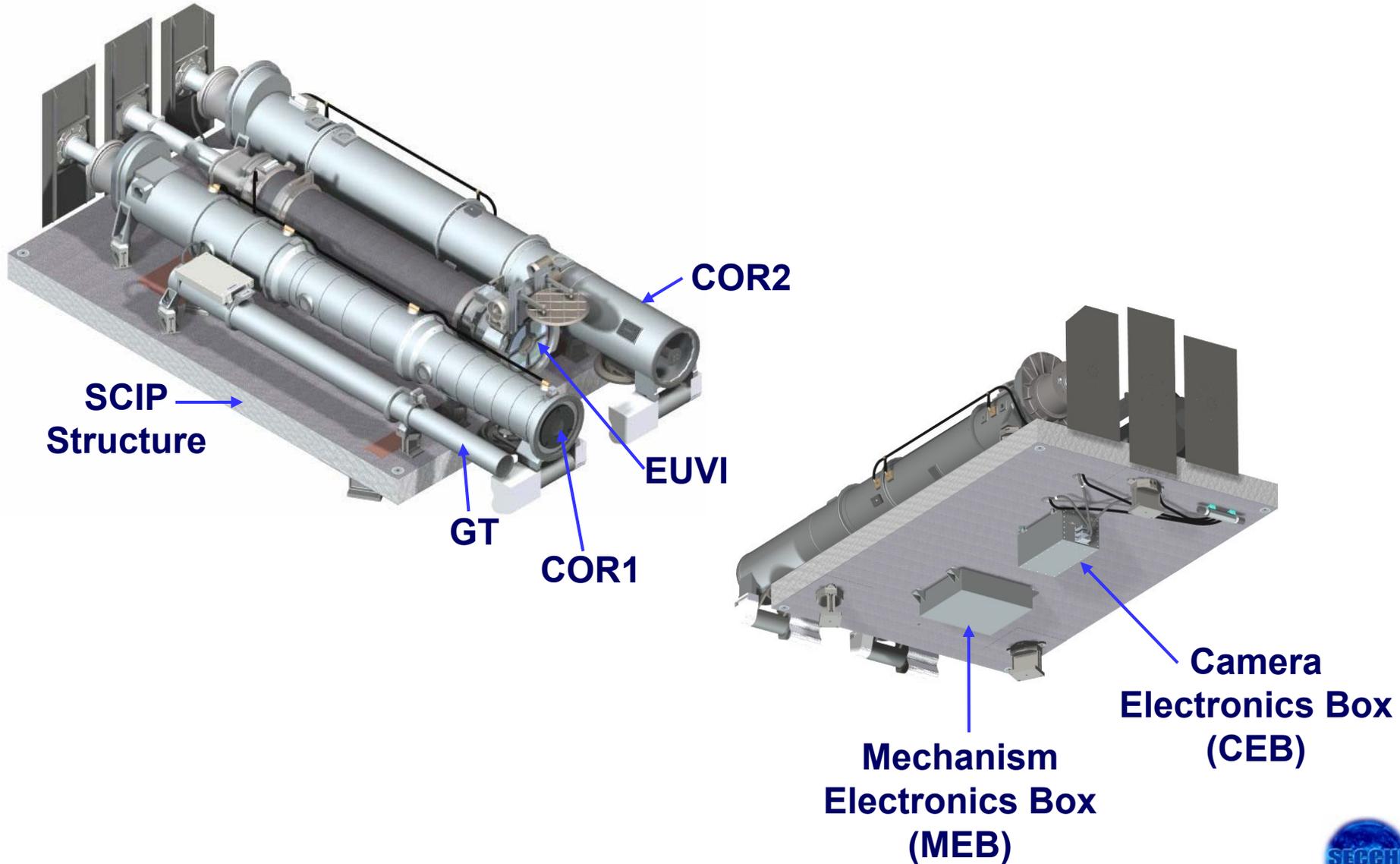


SECCHI Instrument Performance Specification Matrix

| | EUVI | COR1 | COR2 | HI-1 | HI-2 |
|---|--|---|---|--------------------------------------|--------------------------------------|
| Telescope FOV (deg) | ≥ 0.90 | ≥ 2.13 | ≥ 8.00 | ≥ 20.0 | ≥ 69.2 |
| Occulter Size (deg) | N/A | S/C A: ≤ 0.75 S/C B: ≤ 0.68 | S/C A: ≤ 1.34 S/C B: ≤ 1.22 | N/A | N/A |
| Bandpass (nm) | Fe IX: 17.1 Fe XII: 19.5 Fe XV: 28.4 He II: 30.4 | [650, 750] | [650, 750] | [650, 750] | [400, 1000] |
| Spatial Resolution (arcsec) | ≤ 3.5 | ≤ 16.0 | ≤ 30.0 | ≤ 140 | ≤ 486 |
| Intensity / Brightness Range (I/I₀, B/B₀) | Fe IX: [2.39e-4, 0.477] Fe XII: [3.23e-4, 0.645] Fe XV: [4.11e-3, 0.821] He II: [1.0e-3, 1.000] | [2.0e-9, 1.0e-6] | [2.0e-11, 6.0e-9] | [1.0e-12, 9.0e-11] | [1.0e-13, 6.0e-12] |
| Intensity / Brightness Resolution (I/I₀, B/B₀) | Fe IX: 1.2e-4 Fe XII: 1.6e-4 Fe XV: 4.1e-4 He II: 5.0e-4 | ≤ 2.0e-9, 5.0e-10 at FOV edge | ≤ 8.0e-11, 1.0e-12 at FOV edge | ≤ 6.0e-14, 5.0e-15 at FOV edge | ≤ 2.0e-15, 5.0e-16 at FOV edge |
| Exposure Time Range (sec) | Fe IX: [0.1, 14.0] Fe XII: [0.1, 20.0] Fe XV: [15.0, 30.0] He II: [7.0, 25.0] | [0.1, 1] | [1, 8] | [10, 30] | [40, 70] |
| Image Sequence Specification | 2 EUV emission line images at 2 different wavelengths | 3 white light images at 3 different polarization angles | 3 white light images at 3 different polarization angles | 70 white light images | 50 white light images |
| Image Sequence Acquisition Time | ≤ 60 sec | ≤ 12 sec | ≤ 45 sec | ≤ 38 min | ≤ 64 min |
| Image Sequence Cadence | ≥ 1 min | ≥ 1 min | ≥ 5 min | ≥ 47 min | ≥ 102 min |

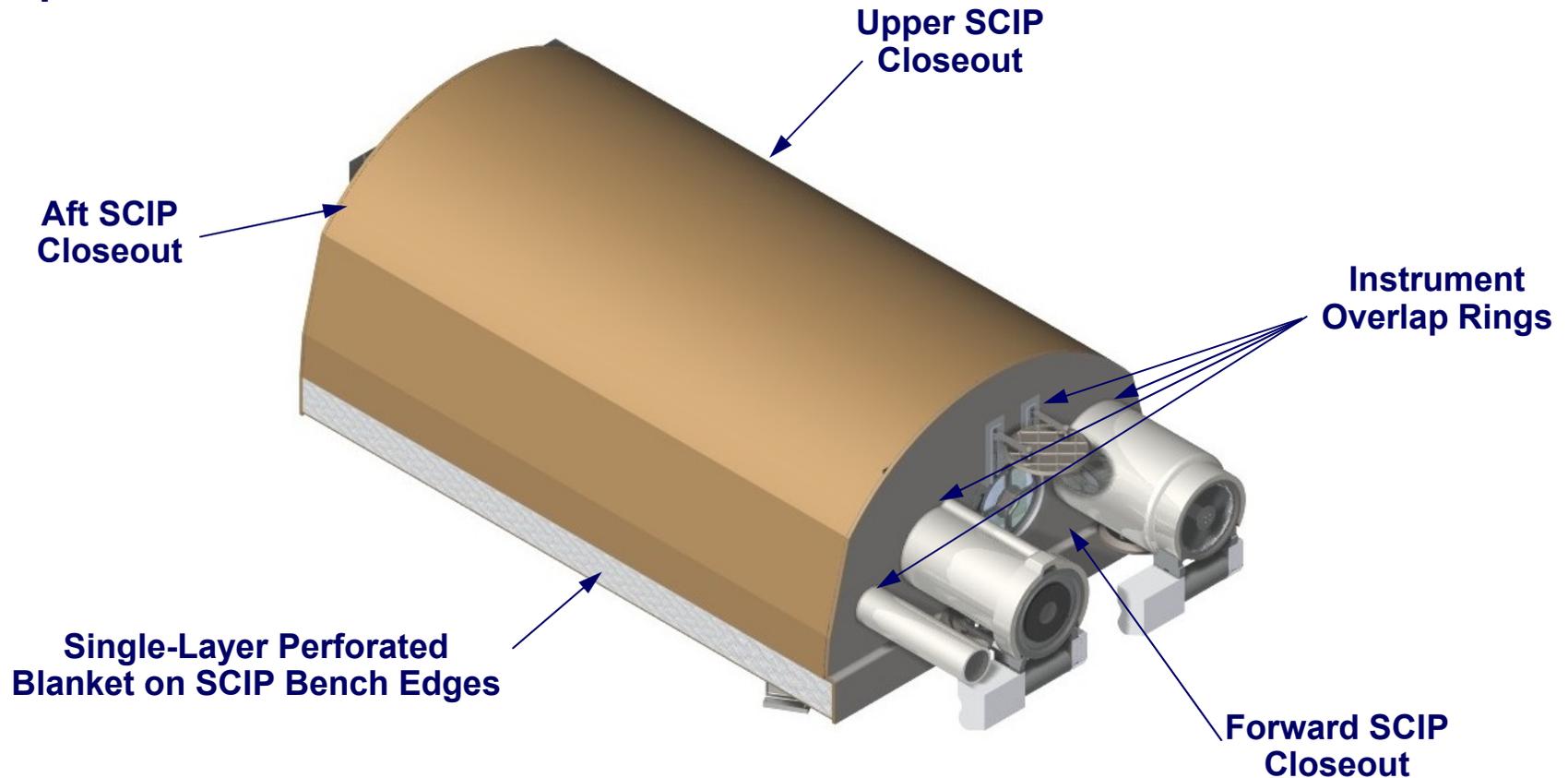


SCIP Assembly Configuration



SCIP Assembly With Thermal Tent (1 of 2)

- Top View

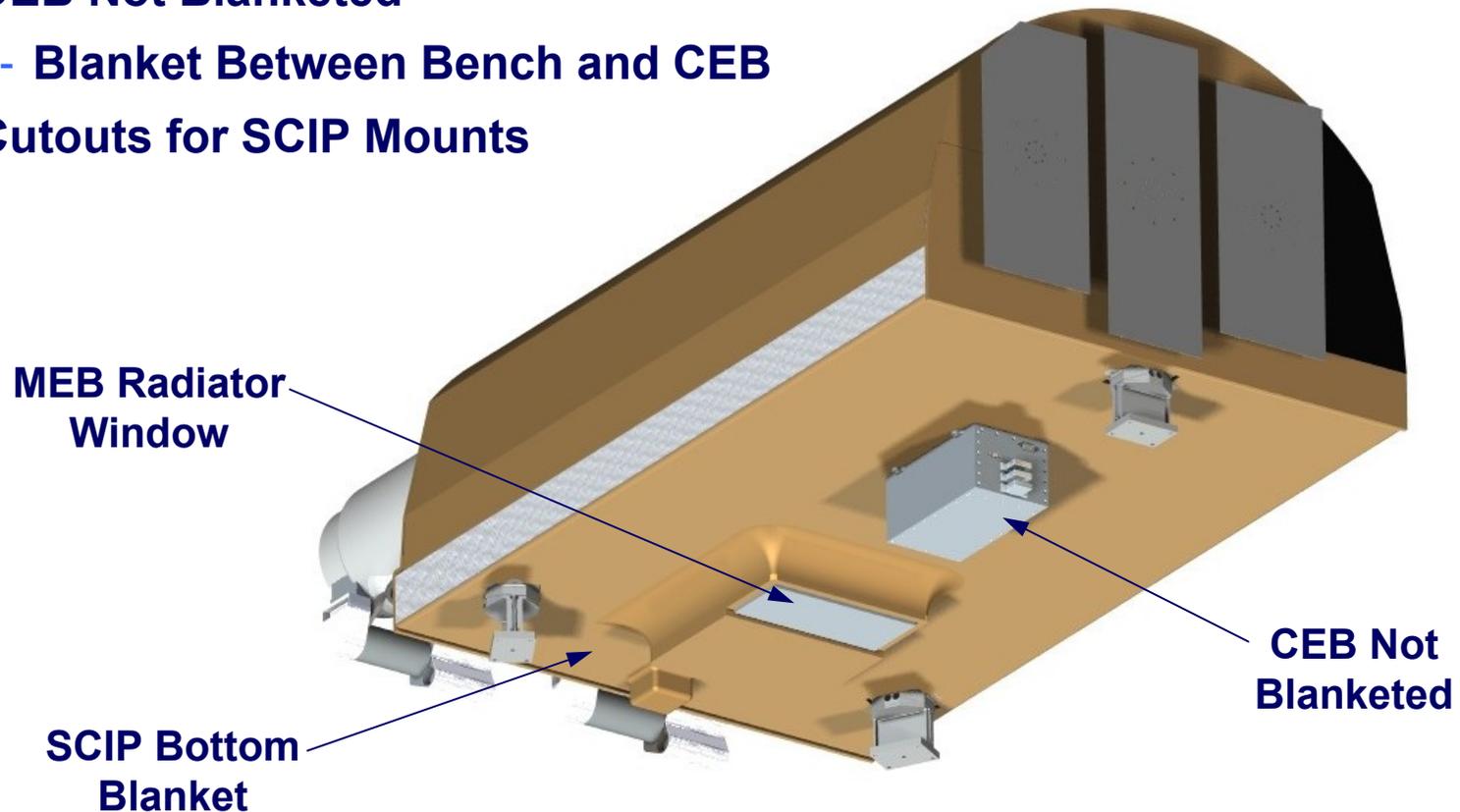


SCIP Assembly With Thermal Tent

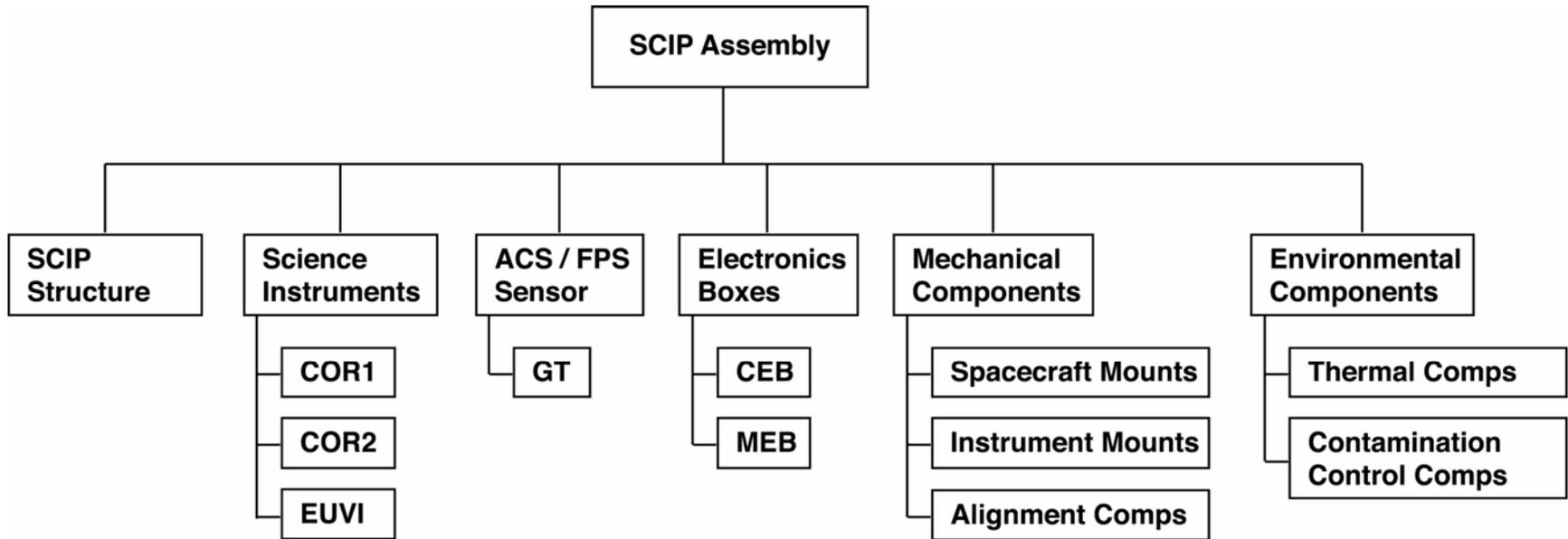
(2 of 2)

- **Bottom View**

- **MEB Partially Blanketed**
- **CEB Not Blanketed**
 - **Blanket Between Bench and CEB**
- **Cutouts for SCIP Mounts**

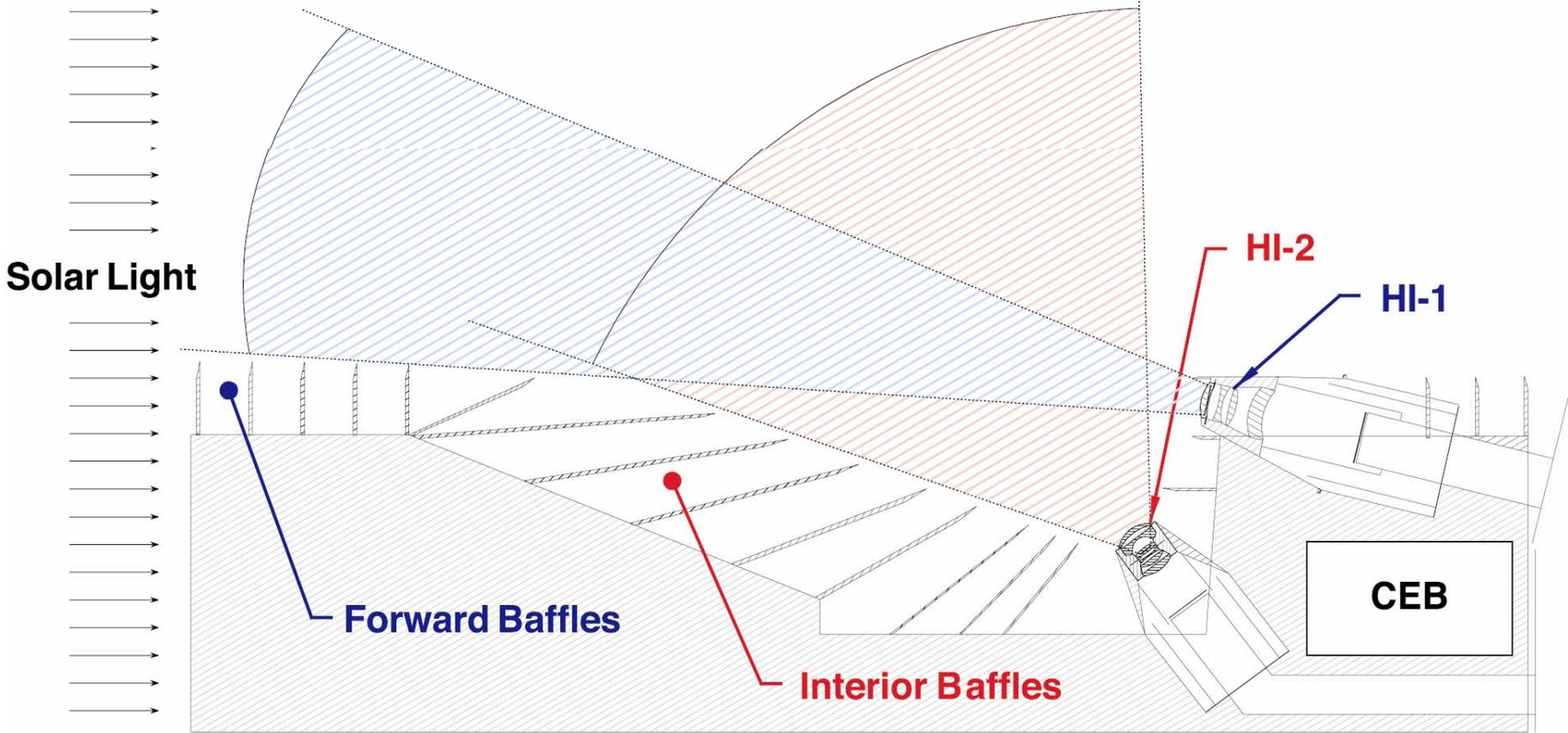


SCIP Assembly Subsystem Breakdown

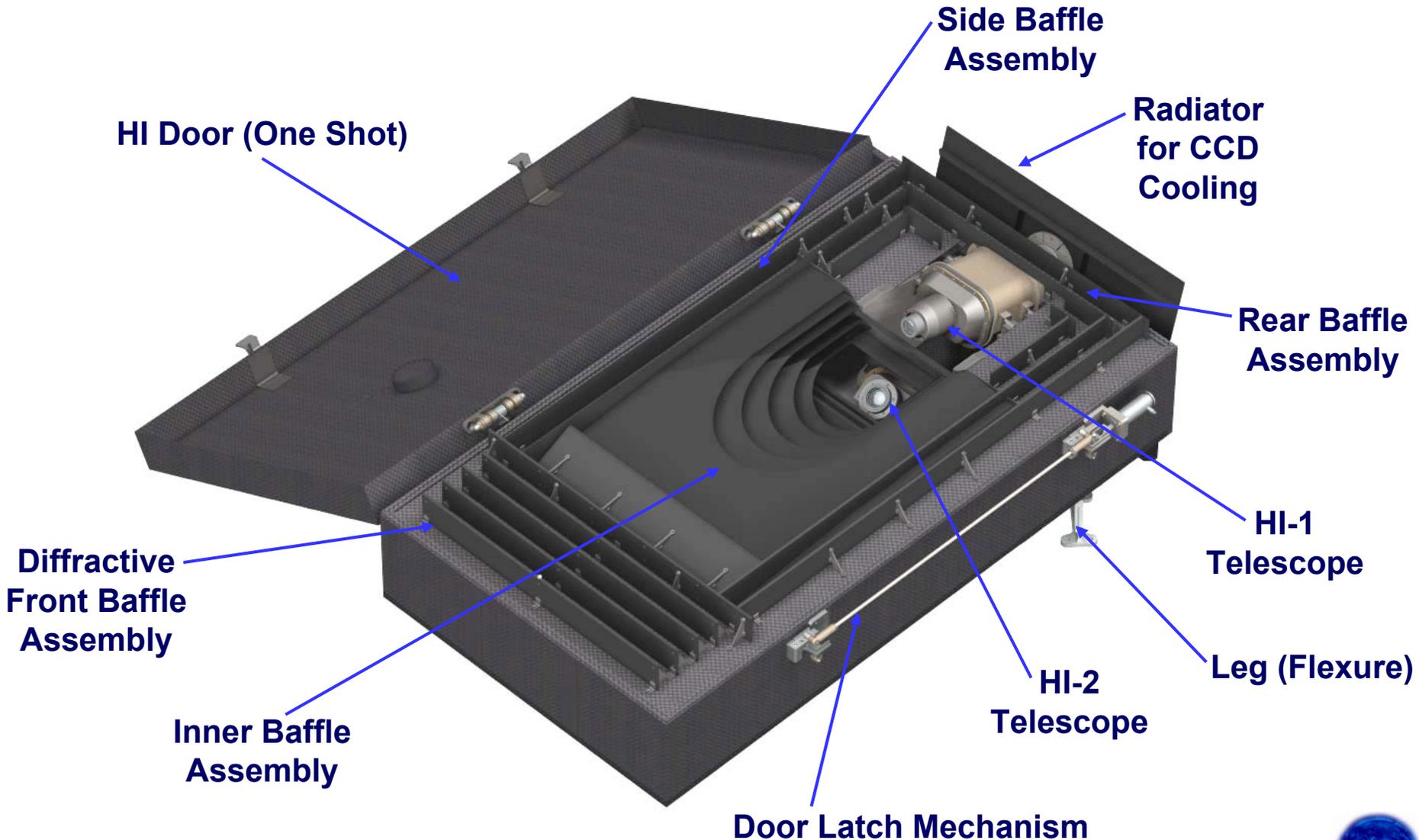


HI Assembly Configuration

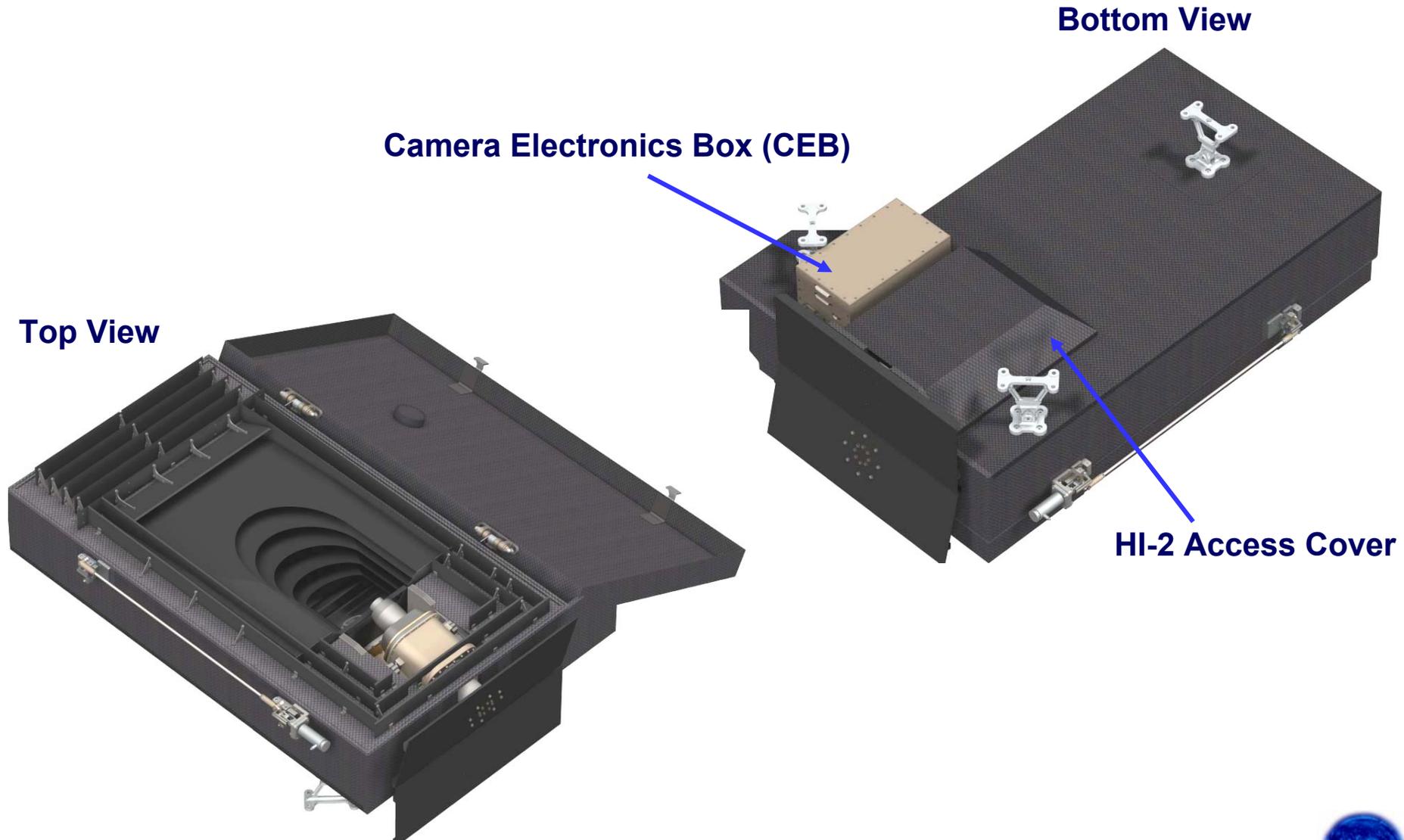
Side view



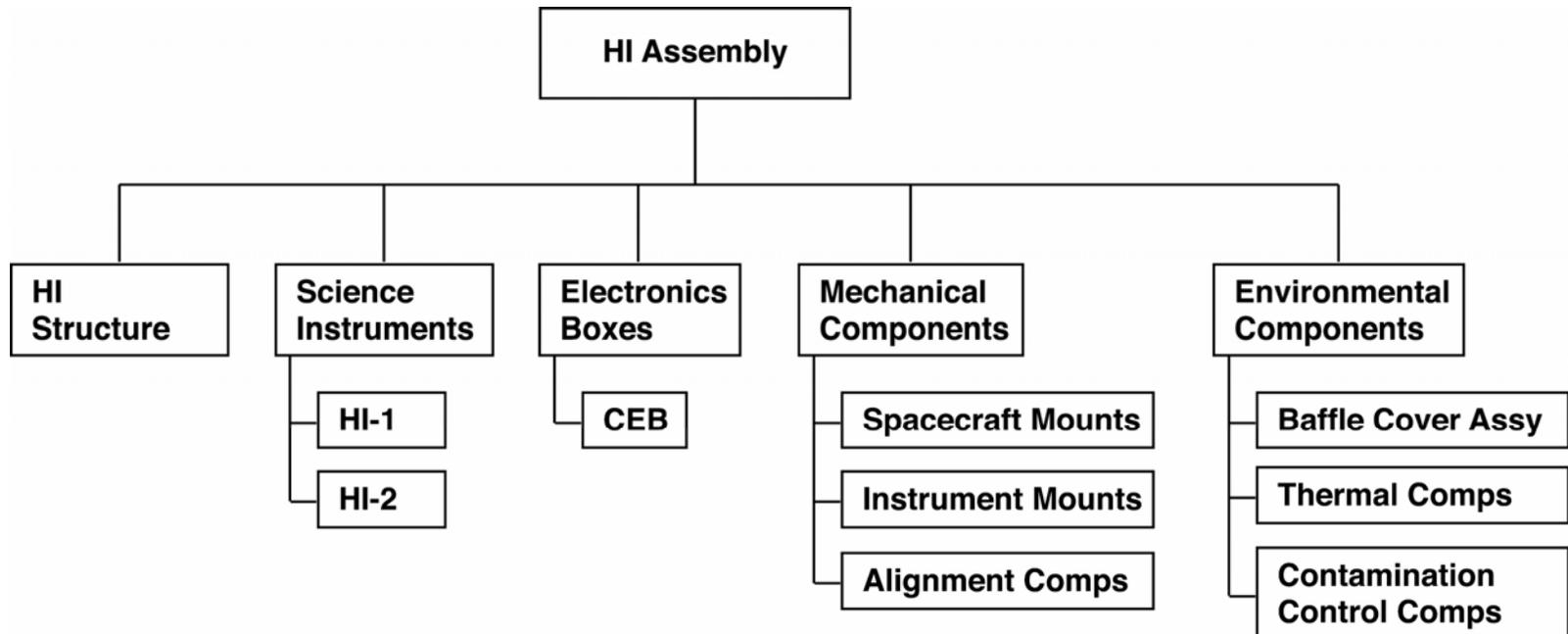
HI Assembly Configuration



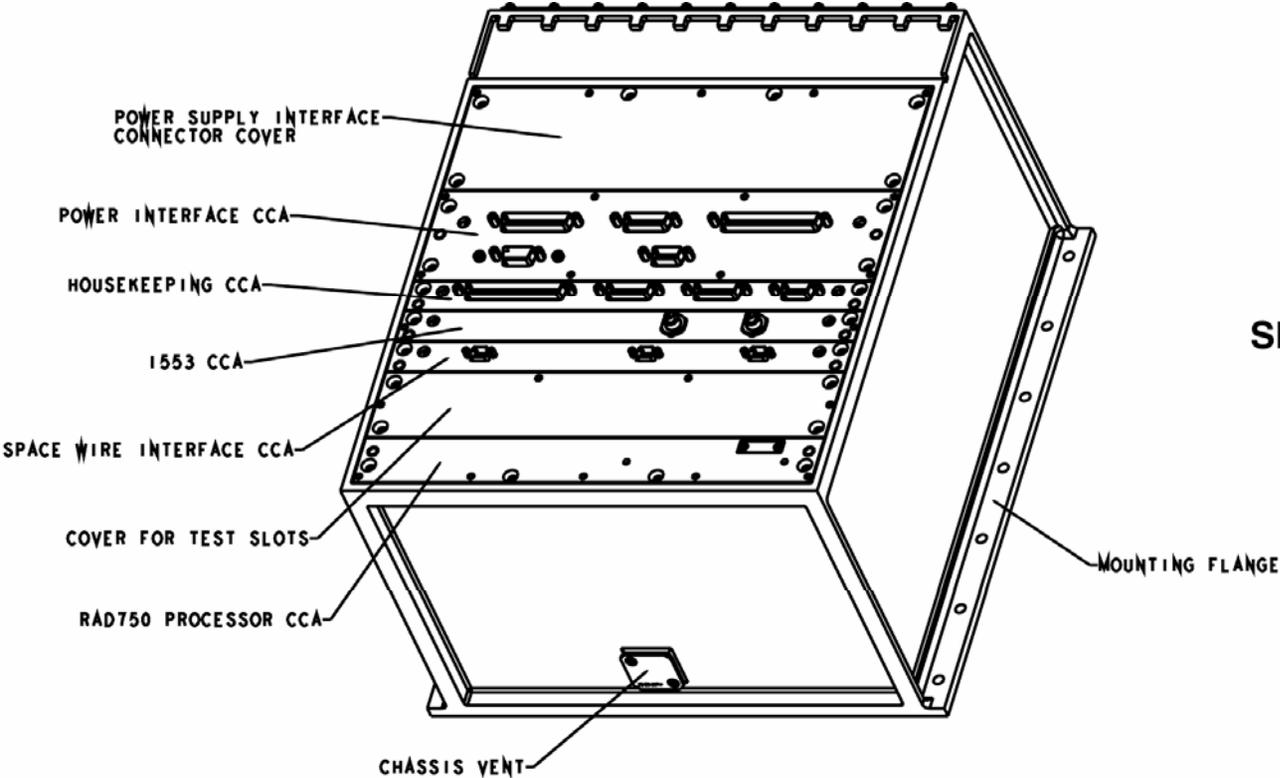
HI Assembly



HI Assembly Subsystem Breakdown



SECCHI Electronics Box (SEB)



**Note:
SEB EDM Top Cover
is Removed**



Instrument Accommodations Metrics Relationship to the Instrument Performance Metrics

| | Spacecraft Radial Position | Telescope Orientation | Telescope UFOV | Pointing Accuracy | Pointing Jitter | Pointing Stability |
|------------------------------|----------------------------|-----------------------|----------------|-------------------|-----------------|--------------------|
| Telescope FOV | ● | ● | | | | |
| Occulter Size | ● | ● | | ● | | |
| Bandpass | ● | ● | | | | |
| Spatial Resolution | ● | ● | ● | ● | ● | ● |
| Brightness Range | ● | ● | | ● | | |
| Brightness Resolution | ● | ● | ● | ● | ● | ● |
| Exposure Time | ● | ● | ● | ● | ● | |
| Image Sequence Specification | ● | ● | | | | ● |

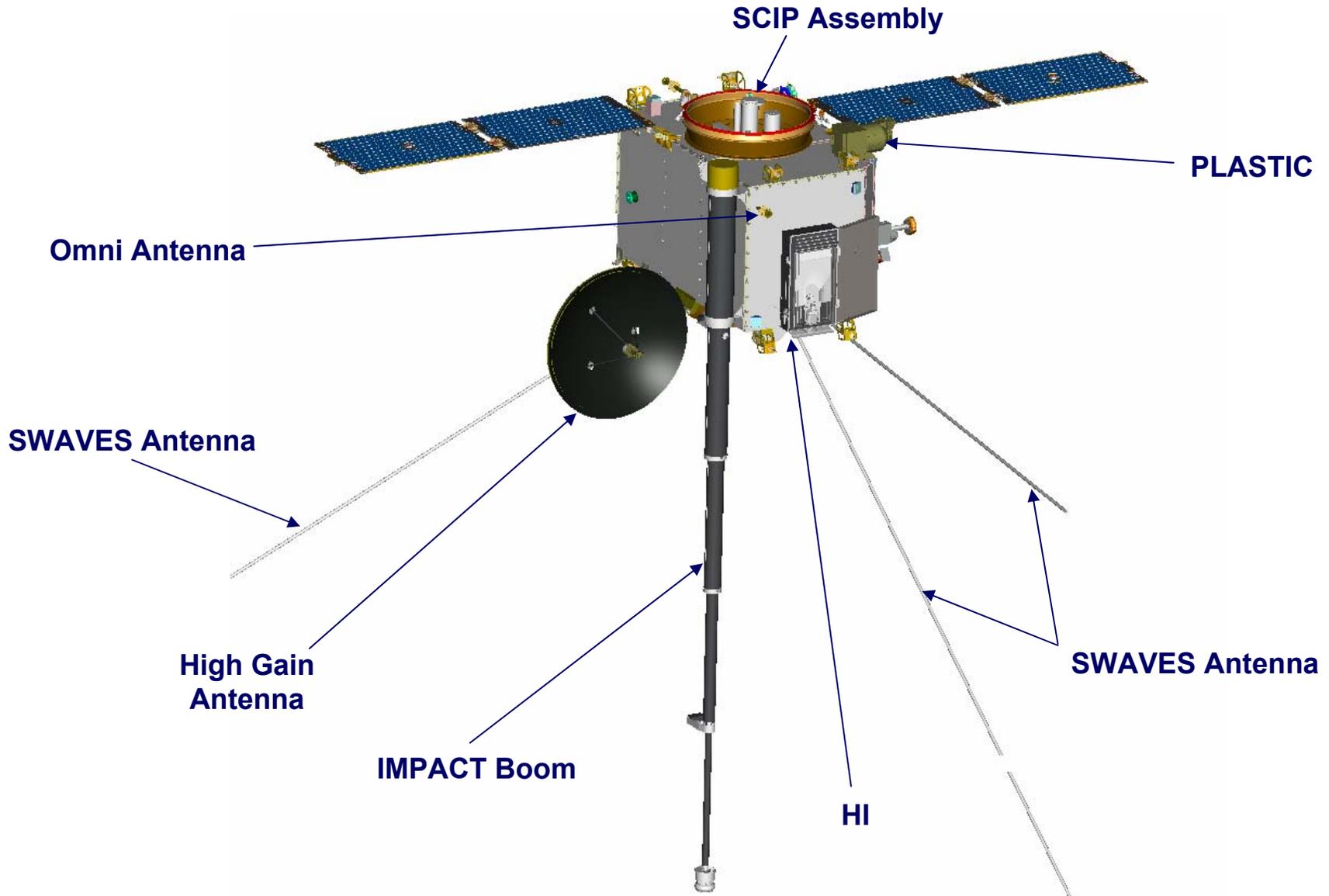


SECCHI Instrument Accommodations Matrix

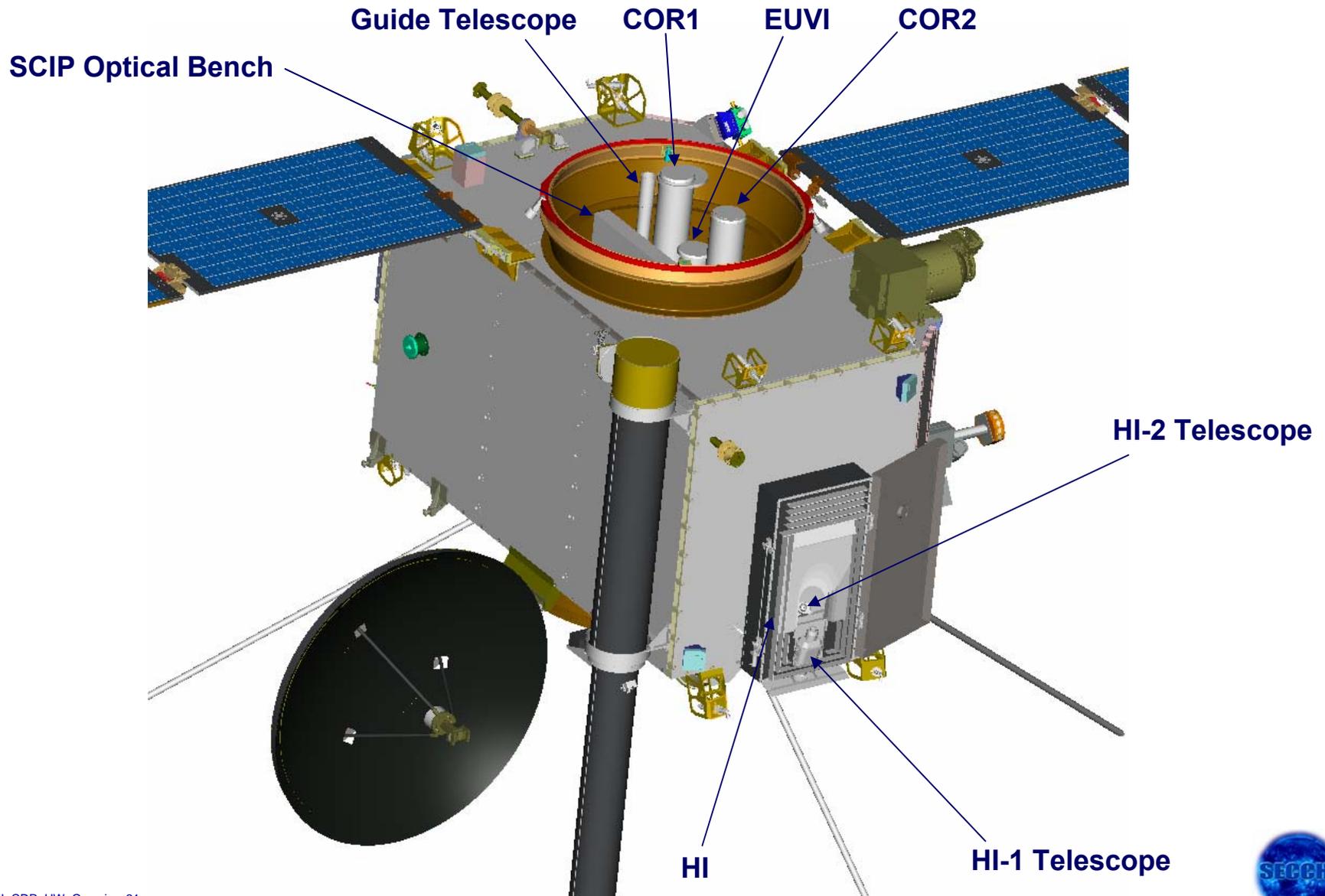
| | EUVI | COR1 | COR2 | HI-1 | HI-2 |
|---|----------------------------------|----------------------------------|--------------------------------|---|---|
| Telescope Orientation | Sun-Pointing | Sun-Pointing | Sun-Pointing | Sun Center Off-pointing by 13.65 deg along Sun-Earth Line | Sun Center Off-pointing by 53.35 deg along Sun-Earth Line |
| Telescope UFOV | ≥ 8 deg | ≥ 170 deg | ≥ 150 deg | 1.5 deg below Baffle Plane at Outer Baffles | 1.5 deg below Baffle Plane at Outer Baffles |
| Boresight Pointing Accuracy (3σ) | ≤ 60 arcsec | ≤ 8 arcsec | ≤ 36 arcsec | ≤ 6.8 arcmin (Pitch) ≤ 16.0 arcmin (Yaw) | ≤ 9.0 arcmin (Pitch) ≤ 16.0 arcmin (Yaw) |
| Roll Pointing Accuracy (3σ) | N/A | ≤ 15 deg | ≤ 10 deg | ≤ 0.583 deg | ≤ 0.583 deg |
| Pitch/Yaw Pointing Jitter (1σ) | ≤ 0.5 arcsec over [0.1, 30] sec | ≤ 1.9 arcsec over [0.1, 1] sec | ≤ 3.75 arcsec over [1, 8] sec | ≤ 17.5 arcsec over [10, 30] sec | ≤ 60 arcsec over [40, 70] sec |
| Roll Pointing Jitter (1σ) | ≤ 6.8 arcmin over [0.1, 30] sec | ≤ 6.7 arcmin over [0.1, 1] sec | ≤ 7.2 arcmin over [1, 8] sec | ≤ 13.4 arcmin over [10, 30] sec | ≤ 13.4 arcmin over [40, 70] sec |
| Pitch/Yaw Pointing Stability | ≤ 16 arcsec over [4.1, 60] sec | ≤ 1.9 arcsec over [1.1, 10] sec | ≤ 3.75 arcsec over [5, 45] sec | ≤ 17.5 arcsec over [0.2, 38] min | ≤ 60 arcsec over [1.1, 64] min |
| Roll Pointing Stability | ≤ 13.6 arcmin over [4.1, 60] sec | ≤ 13.4 arcmin over [1.1, 10] sec | ≤ 3.6 arcmin over [5, 45] sec | ≤ 13.4 arcmin over [0.2, 38] min | ≤ 13.4 arcmin over [1.1, 64] min |



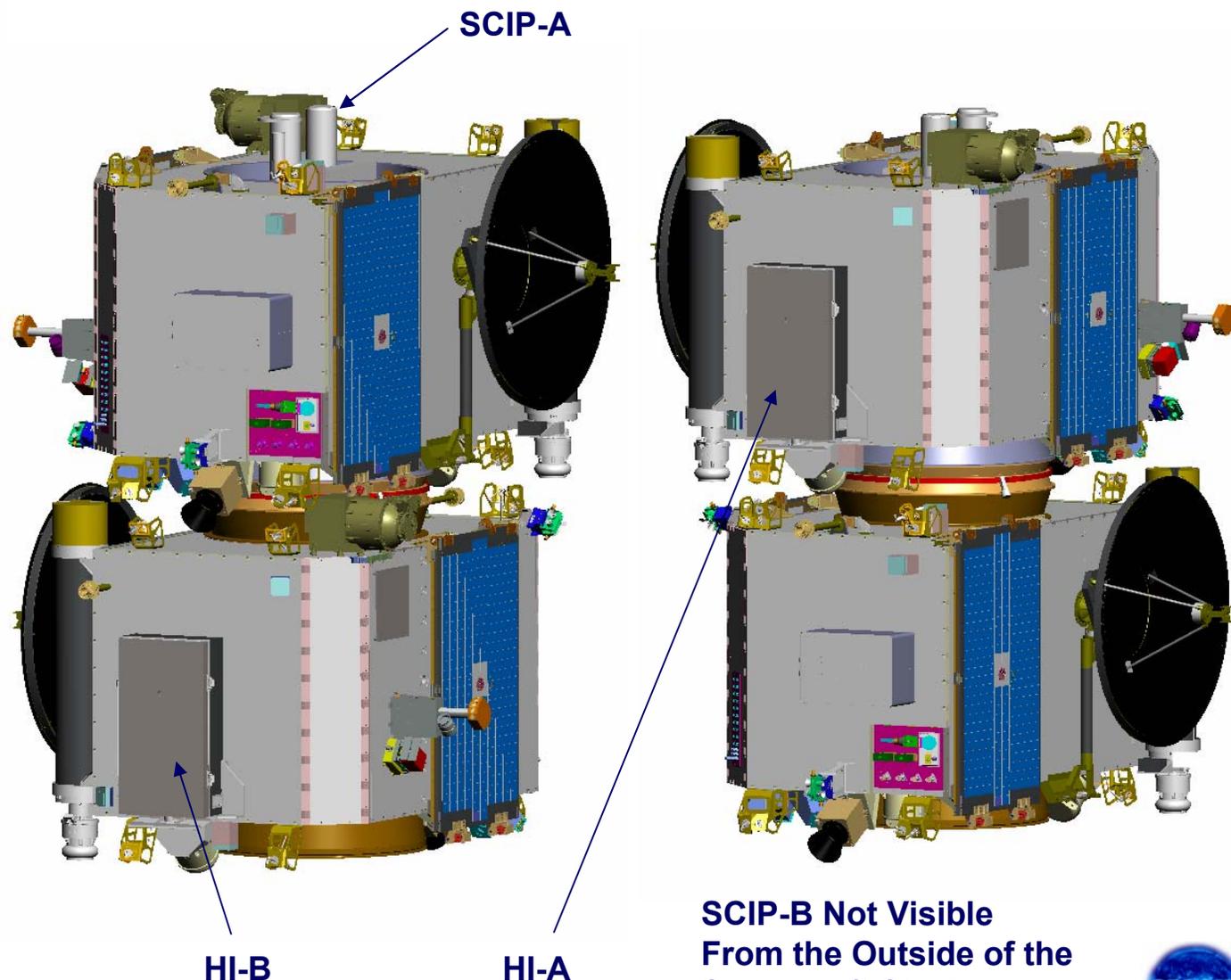
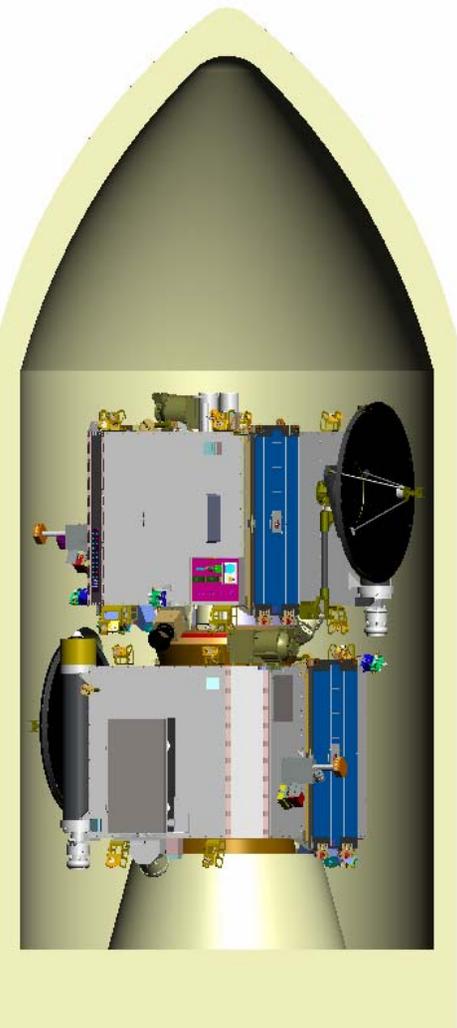
SECCHI-B Spacecraft Accommodation



SECCHI-B Spacecraft Accommodation



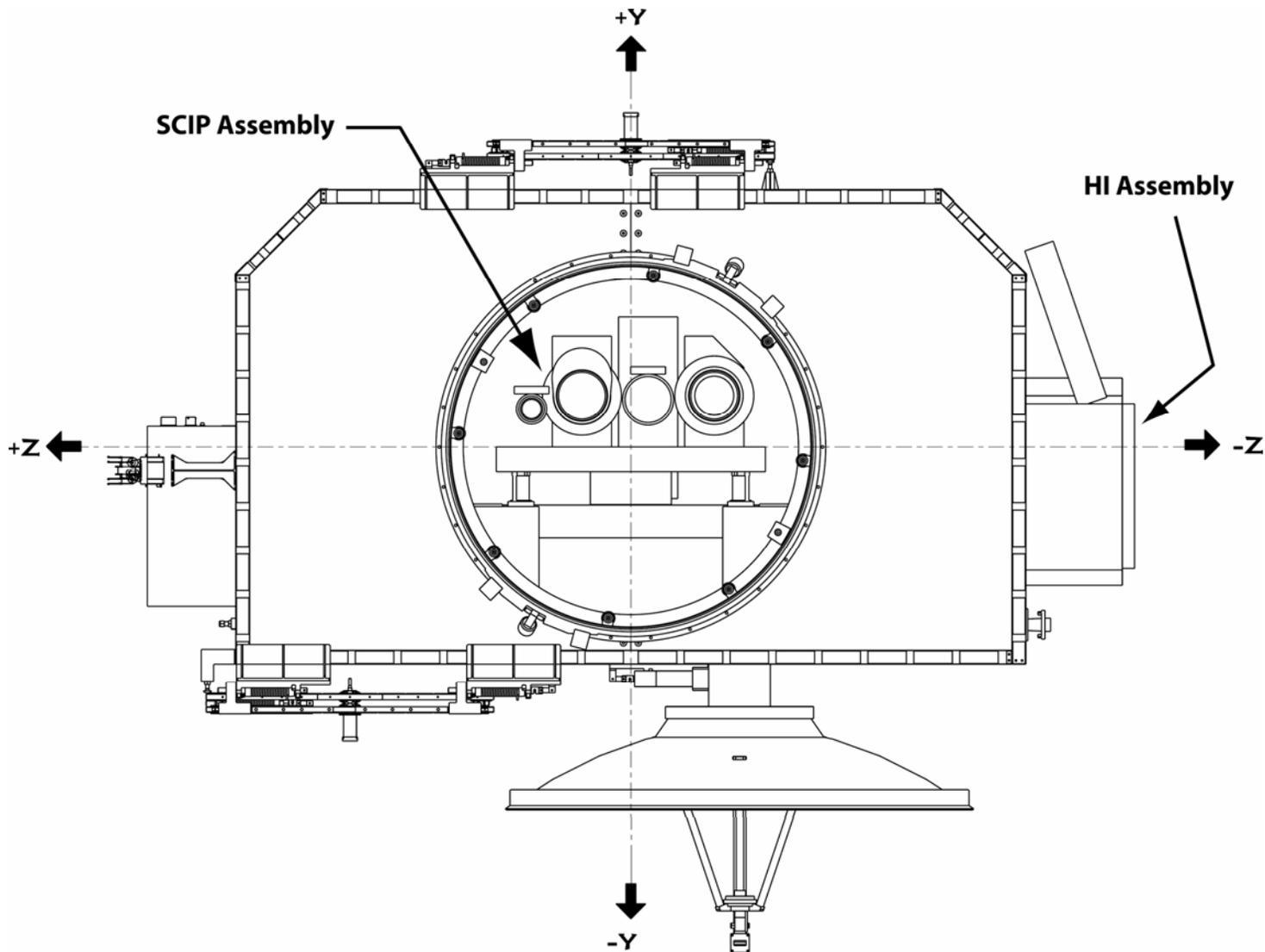
SECCHI Accommodation in Launch Configuration



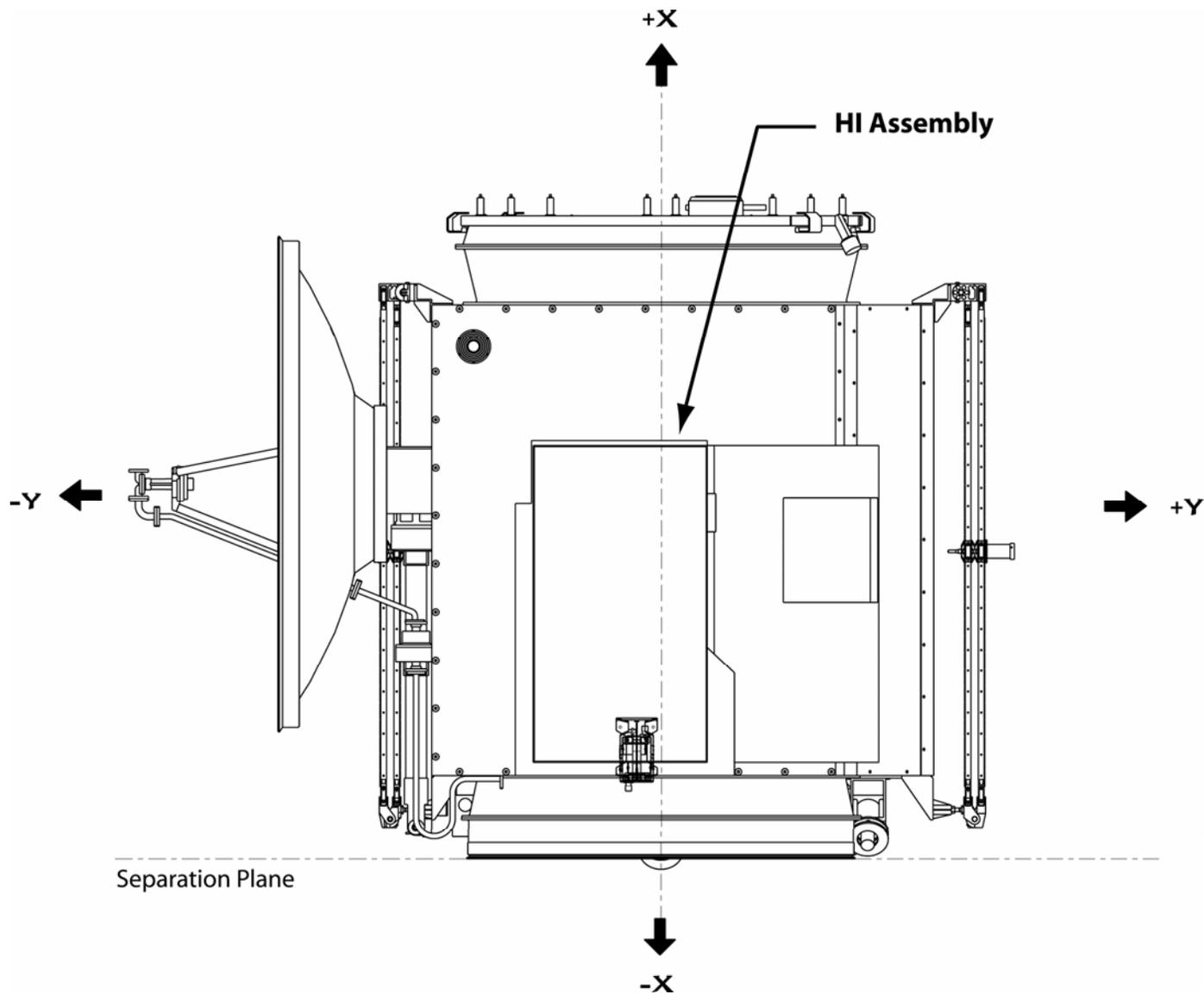
SCIP-B Not Visible
From the Outside of the
Spacecraft Stack



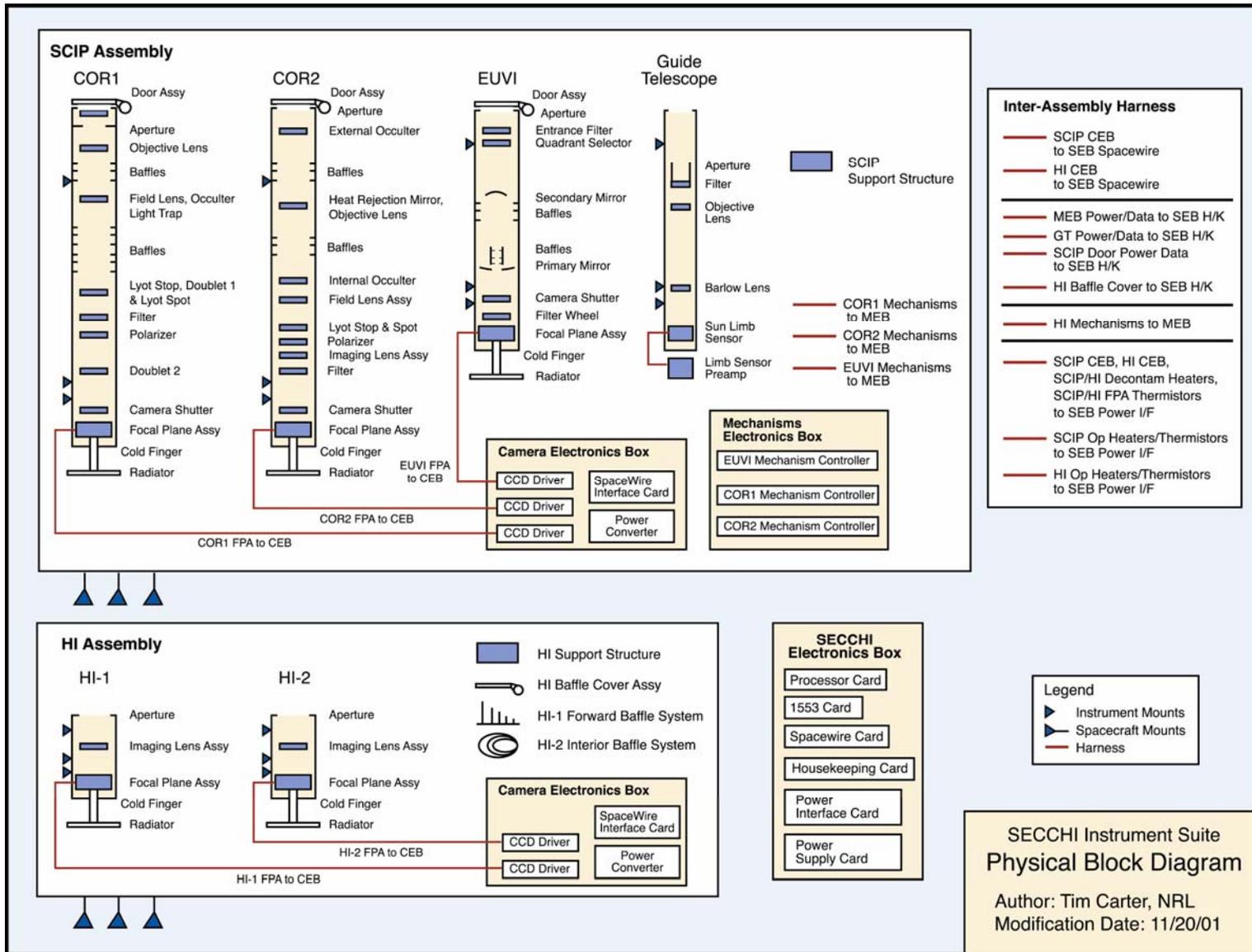
SECCHI Instrument Suite Accommodations on STEREO Observatory (+X Deck View)



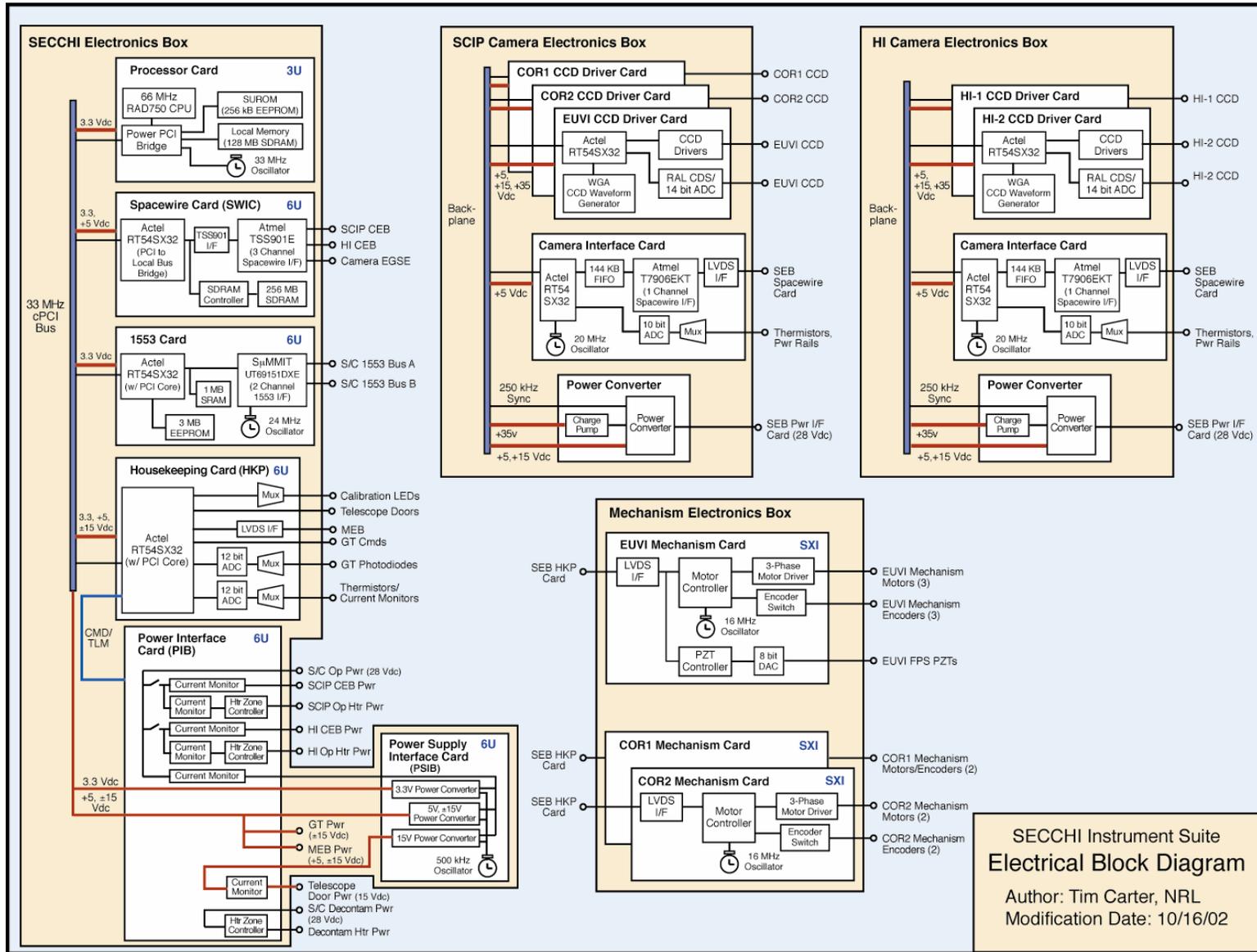
SECCHI Instrument Suite Accommodations on STEREO Observatory (-Z Deck View)



SECCHI Physical Block Diagram



SECCHI Electrical Block Diagram



SECCHI Instrument Suite

Organizational Responsibilities

| Organization | Assy I&T | Structure | Instrument | Electronics | Mechanisms | Environmental / Test Components | Software |
|--------------------|----------|-----------|-----------------------------|--|--|--|--------------------------------|
| NRL (Code 7000) | SCIP | | COR2 | Harnesses | FPA (Design) | SCIP MLI, SCIP Alignment Cubes | Flight SW, Ground SW |
| HYTEC | | SCIP | | | SCIP S/C Mounts, SCIP Instr Mounts | SCIP Purge Manifold | |
| GSFC | | | COR1 | | | | |
| LMSAL | | | EUVI GT | MEB | Telescope Mechanisms | | Mechanisms EGSE Test SW |
| IAS/ IOTA | | | EUVI Mirror Coatings | | | | |
| NRL (Code 8000) | | | | SEB | | | |
| MPAe | | | | | Reclosable Telescope Door | | Telescope Door EGSE Test SW |
| Univ. Birmingham | HI | HI | HI-1 HI-2 | CEB (Fab FM) | FPA (Fab), HI Baffle Cover Assy, HI S/C Mounts, HI Instr Mounts | HI MLI, Purge System, HI Alignment Cubes | |
| CSL | | | HI-1, HI-2 (Opt. Design) | | | | |
| RAL | | | | CEB (Design, Fab DM), SEB-CEB Harness | | | Camera EGSE Test SW |



Backup



Image Positional Accuracy Requirements Based on Velocity Accuracy and Number of Images for CME / Solar Wind Evolution Analysis

| Meas Req Number | Coronal / Heliospheric Coverage | # of Images over Coverage Region | Image Cadence (min) | Velocity Accuracy (%) | Velocity Accuracy (km/sec) | Positional Accuracy (km) | Positional Accuracy (arcsec) |
|-----------------|---|----------------------------------|---------------------|-----------------------|----------------------------|--------------------------|------------------------------|
| 1A | Low Corona (0-1.5 R _{sun}) | 3 | 5.2 | 3 | 8.25 | 1304 | 2.1 |
| | Low Corona (1.5-3.0 R _{sun}) | 3 | 5.3 | 3.5 | 28 | 4547 | 8.5 |
| 1B | Low Corona (0-1.5 R _{sun}) | 3 | 5.2 | 3 | 8.25 | 1304 | 2.1 |
| | Low Corona (1.5-3.0 R _{sun}) | 3 | 5.3 | 3.5 | 28 | 4547 | 8.5 |
| | Upper Corona (3.0-13.5 R _{sun}) | 5 | 19.8 | 4 | 40 | 23915 | 37.5 |
| 2C | Low Corona (0-1.5 R _{sun}) | 3 | 5.2 | 5.5 | 15.1 | 2368 | 3.8 |
| | Low Corona (1.5-3.0 R _{sun}) | 1 | 10.6 | 3.5 | 28 | 9012 | 16.9 |
| | Upper Corona (3.0-13.5 R _{sun}) | 5 | 19.8 | 2.5 | 25 | 14985 | 23.5 |
| | IP Medium (13.5-80 R _{sun}) | 11 | 62.8 | 2.5 | 25 | 47229 | 75.2 |
| | IP Medium (80-215 R _{sun}) | 24 | 122.5 | 5 | 25 | 91896 | 249.3 |
| 2D | Low Corona (0-1.5 R _{sun}) | 3 | 5.2 | 10 | 27.5 | 4282 | 6.8 |
| | Low Corona (1.5-3.0 R _{sun}) | 1 | 10.6 | 10 | 80 | 25600 | 48.1 |
| | Upper Corona (3.0-13.5 R _{sun}) | 5 | 19.8 | 10 | 100 | 59638 | 93.5 |
| | IP Medium (13.5-80 R _{sun}) | 11 | 62.8 | 10 | 100 | 188615 | 300.2 |
| | IP Medium (80-215 R _{sun}) | 24 | 122.5 | 10 | 50 | 183741 | 498.4 |
| 2E | Low Corona (0-1.5 R _{sun}) | 3 | 5.2 | 5.5 | 15.1 | 2368 | 3.8 |
| | Low Corona (1.5-3.0 R _{sun}) | 1 | 10.6 | 3.5 | 28 | 9012 | 16.9 |
| | Upper Corona (3.0-13.5 R _{sun}) | 5 | 19.8 | 2.5 | 25 | 14985 | 23.5 |
| | IP Medium (13.5-80 R _{sun}) | 11 | 62.8 | 2.5 | 25 | 47229 | 75.2 |
| | IP Medium (80-215 R _{sun}) | 24 | 122.5 | 5 | 25 | 91896 | 249.3 |
| 4J | IP Medium (13.5-80 R _{sun}) | 14 | 62.8 | 10 | 100 | 188615 | 300.2 |
| | IP Medium (80-215 R _{sun}) | 14 | 127.6 | 10 | 50 | 191395 | 519.1 |



SECCHI Observation Requirement Set Metric Relationship to the Derived Quantities in the STEREO Measurement Requirements

| Meas Req | Quantity | Coronal / Heliospheric Coverage Region | EUV Emission Metrics | | TS Visible Light Metrics | | | | 3D Image Metrics | | | |
|----------|---|--|------------------------|--------------------|--------------------------|----------------------------|--------------------------|---------------------|------------------|----------------------------------|----------------------------|--------------------|
| | | | Temp Range of Interest | Intensity Accuracy | pB Image Capability | B / pB Brightness Accuracy | Image Spatial Resolution | Image Time Accuracy | Image Cadence | Image Time Synchronization Error | Orbital Position Knowledge | Attitude Knowledge |
| 1A | CME Initiation Time | ● | ● | ● | ● | ● | ● | ● | ● | | | |
| 1B | CME Initiation Location | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 2C | CME Mass Distribution / Longitudinal Extent | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 2D | CME Speed | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 2E | CME Direction / Propagation | ● | | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 4J | Solar Wind Speed | ● | | | | ● | ● | ● | ● | ● | ● | ● |

obs_req.tif



SECCHI Observation Requirement Subset for EUV Emission and Visible Light Images

| Observ Req Set Number | Coronal / Heliospheric Coverage | Image Type | EUV Emission Image Capability /Metrics | | Visible Light Image Capability/Metrics | | | Image Spatial Resolution (arcsec) | Image Time Accuracy (sec) | Image Cadence (min) |
|-----------------------|---------------------------------|---------------|--|----------------------------|--|--------------------------------|------|-----------------------------------|---------------------------|---------------------|
| | | | Temp Range of Interest (10 ⁶ K) | EUV Intensity Accuracy (%) | pB Images | B / pB Brightness Accuracy (%) | | | | |
| 1A-1 | Low Corona (0- 1.5 Rsun) | EUV emission | 0.8 - 2.8 | 10 | | | 4.2 | 0.1 | 5 | |
| 1A-2 | Low Corona (1.5- 3.0 Rsun) | Visible Light | | | | 20 | 17 | 0.1 | 5.25 | |
| 1B-1 | Low Corona (0- 1.5 Rsun) | EUV emission | 0.8 - 2.8 | 10 | | | 4.2 | 0.1 | 5 | |
| 1B-2 | Low Corona (1.5- 3.0 Rsun) | Visible Light | | | No | 20 | 17 | 0.1 | 5.25 | |
| 1B-3 | Upper Corona (3.0- 13.5 Rsun) | Visible Light | | | No | 20 | 75 | 0.1 | 20 | |
| 2C-1 | Low Corona (0- 1.5 Rsun) | EUV emission | 0.8 - 2.8 | 10 | | | 7.6 | 0.1 | 5 | |
| 2C-2 | Low Corona (1.5- 3.0 Rsun) | Visible Light | | | Yes | 12 | 34 | 0.1 | 10.5 | |
| 2C-3 | Upper Corona (3.0- 13.5 Rsun) | Visible Light | | | Yes | 12 | 47 | 0.1 | 20 | |
| 2C-4 | IP Medium (13.5- 80 Rsun) | Visible Light | | | No | 10 | 150 | 0.1 | 63 | |
| 2C-5 | IP Medium (80-215 Rsun) | Visible Light | | | No | 10 | 500 | 0.1 | 123 | |
| 2D-1 | Low Corona (0- 1.5 Rsun) | EUV emission | 1.2 - 1.8 | 10 | | | 14 | 0.1 | 5 | |
| 2D-2 | Low Corona (1.5- 3.0 Rsun) | Visible Light | | | Yes | 12 | 120 | 0.1 | 10.5 | |
| 2D-3 | Upper Corona (3.0- 13.5 Rsun) | Visible Light | | | Yes | 12 | 188 | 0.1 | 20 | |
| 2D-4 | IP Medium (13.5- 80 Rsun) | Visible Light | | | No | 10 | 600 | 0.1 | 63 | |
| 2D-5 | IP Medium (80-215 Rsun) | Visible Light | | | No | 10 | 1000 | 0.1 | 123 | |
| 2E-1 | Low Corona (0- 1.5 Rsun) | EUV emission | 0.8 - 2.8 | 10 | | | 7.6 | 0.1 | 5 | |
| 2E-2 | Low Corona (1.5- 3.0 Rsun) | Visible Light | | | Yes | 12 | 34 | 0.1 | 10.5 | |
| 2E-3 | Upper Corona (3.0- 13.5 Rsun) | Visible Light | | | Yes | 12 | 47 | 0.1 | 20 | |
| 2E-4 | IP Medium (13.5- 80 Rsun) | Visible Light | | | No | 10 | 150 | 0.1 | 63 | |
| 2E-5 | IP Medium (80-215 Rsun) | Visible Light | | | No | 10 | 500 | 0.1 | 123 | |
| 4J-1 | IP Medium (13.5- 80 Rsun) | Visible Light | | | No | 10 | 600 | 0.1 | 63 | |
| 4J-2 | IP Medium (80-215 Rsun) | Visible Light | | | No | 10 | 1040 | 0.1 | 128 | |



SECCHI Observation Requirement Subset for 3D Images

| Observ Req Set Number | Coronal / Heliospheric Coverage | Image Time Sync Error (sec) | Orbital Radial Position Knowledge (km) | Orbital Tangential Position Knowledge (km) | Pitch/Yaw Attitude Knowledge (arcsec) | Roll Attitude Knowledge (arcmin) |
|------------------------|--|-----------------------------|--|--|---------------------------------------|----------------------------------|
| 1A-1 | Low Corona (0- 1.5 R _{sun}) | | | | | |
| 1A-2 | Low Corona (1.5- 3.0 R _{sun}) | | | | | |
| 1B-1 | Low Corona (0- 1.5 R _{sun}) | 1 | 7600 | 7830 | 1.0 | 3.4 |
| 1B-2 | Low Corona (1.5- 3.0 R _{sun}) | 1 | 12200 | 7830 | 2.1 | 3.4 |
| 1B-3 | Upper Corona (3.0- 13.5 R _{sun}) | 2 | 8200 | 9140 | 4.5 | 3.4 |
| 2C-1, 2D-1, 2E-1 | Low Corona (0- 1.5 R _{sun}) | 1 | 7600 | 7830 | 1.0 | 3.4 |
| 2C-2, 2D-2, 2E-2 | Low Corona (1.5- 3.0 R _{sun}) | 1 | 12200 | 7830 | 2.1 | 3.4 |
| 2C-3, 2D-3, 2E-3 | Upper Corona (3.0- 13.5 R _{sun}) | 2 | 8200 | 9140 | 4.5 | 3.4 |
| 2C-4, 2D-4, 2E-4 | IP Medium (13.5- 80 R _{sun}) | 4 | 18500 | 11750 | 9.9 | 3.4 |
| 2C-5, 2D-5, 2E-5 | IP Medium (80-215 R _{sun}) | 4 | 13600 | 13060 | 33.8 | 3.4 |
| 4J-1 | IP Medium (13.5- 80 R _{sun}) | 4 | 18500 | 11750 | 9.9 | 3.4 |
| 4J-2 | IP Medium (80-215 R _{sun}) | 4 | 13600 | 13060 | 33.8 | 3.4 |



Image Cadence Goals to Capture CME Evolution Over Individual Coverage Regions

| Meas Goal Number | Helio-spheric Feature | Coronal / Heliospheric Coverage | Helio-spheric Feature Velocity (km/sec) | # of Images over Coverage Region | Image Cadence (min) |
|------------------|---------------------------------------|---|---|----------------------------------|---------------------|
| 1a | Coronal Structures | Low Corona (0-1.5 R _{sun}) | 275 | 20 | 1.0 |
| | | Low Corona (1.5-3.0 R _{sun}) | 800 | 20 | 1.0 |
| 1b | CME | Low Corona (0-1.5 R _{sun}) | 275 | 20 | 1.0 |
| | | Low Corona (1.5-3.0 R _{sun}) | 800 | 20 | 1.0 |
| | | Upper Corona (3.0-13.5 R _{sun}) | 1000 | 23 | 5.0 |
| 2a, 2b | CME | Low Corona (0-1.5 R _{sun}) | 275 | 10 | 1.9 |
| 3b | | Low Corona (1.5-3.0 R _{sun}) | 800 | 20 | 1.0 |
| | | Upper Corona (3.0-13.5 R _{sun}) | 1000 | 23 | 5.0 |
| | | IP Medium (13.5-80 R _{sun}) | 1000 | 15 | 47.1 |
| | | IP Medium (80-215 R _{sun}) | 500 | 29 | 102.0 |
| 3a | Energetic Particle Acceleration Sites | Low Corona (0-1.5 R _{sun}) | 275 | 20 | 1.0 |
| 4a | Slow Solar Wind Speed | Low Corona (0-1.5 R _{sun}) | 400 | 6 | 2.0 |
| | | Low Corona (1.5-3.0 R _{sun}) | 400 | 20 | 2.0 |
| | | Upper Corona (3.0-13.5 R _{sun}) | 400 | 28 | 10.3 |
| | | IP Medium (13.5-80 R _{sun}) | 400 | 30 | 60.8 |
| | | IP Medium (80-215 R _{sun}) | 400 | 30 | 123.4 |

