## CesrTA Machine Studies Task Overview

### I. Experiment Description

<table>
<thead>
<tr>
<th>Experimental Topic</th>
<th>vBSM Characterization of vertical beam size</th>
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</thead>
<tbody>
<tr>
<td>Classification</td>
<td>INST</td>
</tr>
<tr>
<td>Coordinator/</td>
<td>SW</td>
</tr>
<tr>
<td>Experimenters</td>
<td>SW</td>
</tr>
<tr>
<td>Primary Goals</td>
<td>Investigate possible measurement of vertical beam size with vBSM</td>
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</tbody>
</table>

**Description**

1. Make sure vertical beta knobs work for both species
2. Make sure the coupling knobs work
3. Alight the horizontal slits (d=10 mm, 5mm)
   - Check whether the Be mirror is uniformly illuminated
   - Check the imbalance factor between two slits
   - Determine the possibility to imbalance the intensity between two slits to measure small beam size.
   - Test the 377nm bandpass filter
4. Implement the interferometer
   - Measure visibility vs beta, and vs coupling 8
   - Measure visibility vs imbalance factor
5. Check the possibility to unbalance the intensity between two slits
   - Measure the visibility and extract small beam size

Better scheduled after obtaining the low emittance condition. May coordinate with xBSM to compare the vertical beam size.

### Special Needs/Requests

<table>
<thead>
<tr>
<th>Prerequisites</th>
<th>Personnel</th>
<th>Description</th>
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<tbody>
<tr>
<td>Modify Labview</td>
<td>SW</td>
<td>Modify Labview program to allow unbalanced factor</td>
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### Time Requested

<table>
<thead>
<tr>
<th>No. Shifts</th>
<th>Principal Tasks</th>
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* Machine Studies Classifications:
  - EC – Electron Cloud
  - LET – Optics Correction and Low Emittance Tuning
  - IBS – Intra-beam scattering studies
  - xBSM – x-ray Beam Size Monitor
  - INST – Instrumentation (BPM development, RFA development, other)
  - MDEV – Machine Development (includes injection configuration, injection tuning, custom orbit setup, instrumentation preparation, etc.)
  - MREC – Machine Startup (recovering conditions after down period or access)

† Attach additional pages for experimental description if needed
‡ Indicate other machine work that is required in preparation for this machine studies experiment.
§ Indicate the principal shift topics and estimated number of shifts required
## II. Machine Studies Assignments

<table>
<thead>
<tr>
<th>Topic ID</th>
<th>Priority**</th>
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<tbody>
<tr>
<td>Shift Assignments</td>
<td>Date</td>
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** Priority Scale:
1. Critical – results are necessary for preparation for subsequent down/run periods
2. Very high – results are strongly desired for achieving program milestones or in preparation for subsequent down/run periods
3. High – results are of immediate interest but not require
4. Moderate – results should be pursued at the first convenient opportunity
5. Low – results are not presently a high priority for either project milestones or planning