

**RIH – CAROTID CTA, CHEST ABD PELVIS, SPINES FOR TRAUMA  
SIEMENS DEFINITION AS+ PROTOCOL**

| <b>Position/Landmark</b>  | Head first or feet first-Supine 1cm superior to skull vertex  |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
|---|---|------------------------------|--------------------------------|------------------------------------|------------------------------------|--------------------------|--------------------|-------------------------------|-----------|------------------------|-----|---|-----------------------------|-----------|-----------------|-----|---|-------------------------|-----------|-----------------|-----|---|---------------------------------|-----------|-----------------|-----|---|--------------------------------|-----------|-----------------|-----|---|------------------------|--------------|-----------------|-----------|---|-------------------------|-----------|-----------------|-----|---|-------------------------|-----------|-----------------|-----|
| <b>Topogram Direction</b>   | Craniocaudal / Craniocaudal   |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| <b>Scan Type</b>  | Helical   |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| <b>Ref kV/Ref mAs/Rotation time (sec)<br/>Pitch / Speed (mm/rotation)<br/>Safire Strength / Dose Optimization</b> | <table border="0" style="width:100%"> <tr> <td align="center">Neck</td> <td align="center">Chest Abd Pelvis</td> </tr> <tr> <td>Care kV 120/Care Dose4D 100/0.5sec</td> <td>Care kV 120/Care Dose4D 210/0.5sec</td> </tr> <tr> <td align="center">1:1 , 40.00mm</td> <td align="center">.8:1 , 32.00mm</td> </tr> <tr> <td align="center">3 / 7</td> <td align="center">3 / 6</td> </tr> </table>   | Neck                         | Chest Abd Pelvis               | Care kV 120/Care Dose4D 100/0.5sec | Care kV 120/Care Dose4D 210/0.5sec | 1:1 , 40.00mm            | .8:1 , 32.00mm     | 3 / 7                         | 3 / 6     |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| Neck  | Chest Abd Pelvis  |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| Care kV 120/Care Dose4D 100/0.5sec  | Care kV 120/Care Dose4D 210/0.5sec  |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| 1:1 , 40.00mm   | .8:1 , 32.00mm  |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| 3 / 7   | 3 / 6   |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| <b>Detector width x Rows = Beam Collimation</b>   | 0.625mm x 64 = 40mm<br>(128 x .6mm)   |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| <b>Average Tube Output</b>  | <table border="0" style="width:100%"> <tr> <td>First Helical: ctdi – 9.7mGy</td> <td>Second Helical: ctdi – 11.0mGy</td> </tr> <tr> <td align="center">dlp – 305.6 mGy.cm</td> <td align="center">dlp – 856 mGy.cm</td> </tr> </table>  | First Helical: ctdi – 9.7mGy | Second Helical: ctdi – 11.0mGy | dlp – 305.6 mGy.cm                 | dlp – 856 mGy.cm                   |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| First Helical: ctdi – 9.7mGy  | Second Helical: ctdi – 11.0mGy  |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| dlp – 305.6 mGy.cm  | dlp – 856 mGy.cm  |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| <b>First Helical Set</b><br>Slice Thickness/ Spacing<br>Algorithm<br>Recon Destination                            | <table border="0" style="width:100%"> <thead> <tr> <th>recon</th> <th>body part</th> <th>thickness/<br/>spacing</th> <th>algorithm</th> <th>recon destination .</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><b>axial neck cta</b></td> <td>2mm x 2mm</td> <td>B30s medium</td> <td>pac</td> </tr> <tr> <td>2</td> <td><b>axial cervical spine</b></td> <td>3mm x 3mm</td> <td>I70f very sharp</td> <td>pac</td> </tr> <tr> <td>3</td> <td><b>coronal neck cta</b></td> <td>2mm x 2mm</td> <td>B30s medium</td> <td>pac</td> </tr> <tr> <td>4</td> <td><b>coronal cervical spine</b></td> <td>3mm x 3mm</td> <td>I70f very sharp</td> <td>pac</td> </tr> <tr> <td>5</td> <td><b>sagittal cervical spine</b></td> <td>3mm x 3mm</td> <td>I70f very sharp</td> <td>pac</td> </tr> <tr> <td>6</td> <td>thin neck</td> <td>.75mm x .7mm</td> <td>B30s medium</td> <td>terarecon</td> </tr> </tbody> </table>   | recon                        | body part                      | thickness/<br>spacing              | algorithm                          | recon destination .      | 1                  | <b>axial neck cta</b>         | 2mm x 2mm | B30s medium            | pac | 2 | <b>axial cervical spine</b> | 3mm x 3mm | I70f very sharp | pac | 3 | <b>coronal neck cta</b> | 2mm x 2mm | B30s medium     | pac | 4 | <b>coronal cervical spine</b>   | 3mm x 3mm | I70f very sharp | pac | 5 | <b>sagittal cervical spine</b> | 3mm x 3mm | I70f very sharp | pac | 6 | thin neck              | .75mm x .7mm | B30s medium     | terarecon |   |                         |           |                 |     |   |                         |           |                 |     |
| recon   | body part   | thickness/<br>spacing        | algorithm                      | recon destination .                |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| 1   | <b>axial neck cta</b>   | 2mm x 2mm                    | B30s medium                    | pac                                |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| 2   | <b>axial cervical spine</b>   | 3mm x 3mm                    | I70f very sharp                | pac                                |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| 3   | <b>coronal neck cta</b>   | 2mm x 2mm                    | B30s medium                    | pac                                |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| 4   | <b>coronal cervical spine</b>   | 3mm x 3mm                    | I70f very sharp                | pac                                |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| 5   | <b>sagittal cervical spine</b>  | 3mm x 3mm                    | I70f very sharp                | pac                                |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| 6   | thin neck   | .75mm x .7mm                 | B30s medium                    | terarecon                          |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| <b>Second Helical Set</b><br>Slice Thickness/ Spacing<br>Algorithm<br>Recon Destination                           | <table border="0" style="width:100%"> <thead> <tr> <th>recon</th> <th>body part</th> <th>thickness/<br/>spacing</th> <th>algorithm</th> <th>recon destination .</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><b>axial chest abd pelvis</b></td> <td>5mm x 5mm</td> <td>I40f medium</td> <td>pac</td> </tr> <tr> <td>2</td> <td><b>axial t and l spine</b></td> <td>3mm x 3mm</td> <td>I70f very sharp</td> <td>pac</td> </tr> <tr> <td>3</td> <td><b>lungs</b></td> <td>5mm x 5mm</td> <td>I70f very sharp</td> <td>pac</td> </tr> <tr> <td>4</td> <td><b>coronal chest abd pelvis</b></td> <td>5mm x 5mm</td> <td>I40f medium</td> <td>pac</td> </tr> <tr> <td>5</td> <td><b>coronal t spine</b></td> <td>3mm x 3mm</td> <td>I70f very sharp</td> <td>pac</td> </tr> <tr> <td>6</td> <td><b>coronal l spine</b></td> <td>3mm x 3mm</td> <td>I70f very sharp</td> <td>pac</td> </tr> <tr> <td>7</td> <td><b>sagittal t spine</b></td> <td>3mm x 3mm</td> <td>I70f very sharp</td> <td>pac</td> </tr> <tr> <td>8</td> <td><b>sagittal l spine</b></td> <td>3mm x 3mm</td> <td>I70f very sharp</td> <td>pac</td> </tr> </tbody> </table> | recon                        | body part                      | thickness/<br>spacing              | algorithm                          | recon destination .      | 1                  | <b>axial chest abd pelvis</b> | 5mm x 5mm | I40f medium            | pac | 2 | <b>axial t and l spine</b>  | 3mm x 3mm | I70f very sharp | pac | 3 | <b>lungs</b>            | 5mm x 5mm | I70f very sharp | pac | 4 | <b>coronal chest abd pelvis</b> | 5mm x 5mm | I40f medium     | pac | 5 | <b>coronal t spine</b>         | 3mm x 3mm | I70f very sharp | pac | 6 | <b>coronal l spine</b> | 3mm x 3mm    | I70f very sharp | pac       | 7 | <b>sagittal t spine</b> | 3mm x 3mm | I70f very sharp | pac | 8 | <b>sagittal l spine</b> | 3mm x 3mm | I70f very sharp | pac |
| recon   | body part   | thickness/<br>spacing        | algorithm                      | recon destination .                |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| 1   | <b>axial chest abd pelvis</b>   | 5mm x 5mm                    | I40f medium                    | pac                                |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| 2   | <b>axial t and l spine</b>  | 3mm x 3mm                    | I70f very sharp                | pac                                |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| 3   | <b>lungs</b>  | 5mm x 5mm                    | I70f very sharp                | pac                                |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| 4   | <b>coronal chest abd pelvis</b>   | 5mm x 5mm                    | I40f medium                    | pac                                |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| 5   | <b>coronal t spine</b>  | 3mm x 3mm                    | I70f very sharp                | pac                                |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| 6   | <b>coronal l spine</b>  | 3mm x 3mm                    | I70f very sharp                | pac                                |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| 7   | <b>sagittal t spine</b>   | 3mm x 3mm                    | I70f very sharp                | pac                                |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| 8   | <b>sagittal l spine</b>   | 3mm x 3mm                    | I70f very sharp                | pac                                |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| <b>Scan Start / End Locations</b><br><br><b>DFOV</b>  | <table border="0" style="width:100%"> <tr> <td align="center">neck</td> <td align="center">chest abd pelvis</td> </tr> <tr> <td align="center">aortic arch</td> <td align="center">1cm superior to lung apices</td> </tr> <tr> <td align="center">through circle of willis</td> <td align="center">lesser trochanters</td> </tr> <tr> <td align="center">18cm</td> <td align="center">38cm</td> </tr> <tr> <td align="center" colspan="2">decrease appropriately</td> </tr> </table>  | neck                         | chest abd pelvis               | aortic arch                        | 1cm superior to lung apices        | through circle of willis | lesser trochanters | 18cm                          | 38cm      | decrease appropriately |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| neck  | chest abd pelvis  |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| aortic arch   | 1cm superior to lung apices   |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| through circle of willis  | lesser trochanters  |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| 18cm  | 38cm  |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| decrease appropriately  |   |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| <b>IV Contrast Volume / Type / Rate</b>   | 30mL Iohexol (Omnipaque 350) followed by 40mL of saline prior to scouts<br>then 5 minute delay<br>then 100mL Iohexol (Omnipaque 350) , 4mL/sec  |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| <b>Scan Delay</b>   | bolus tracking at aortic arch, the trigger is +100 HU   |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| <b>2D/3D Technique Used</b>   | <b>Coronal carotid reformats</b> 2.0mm x 2.0mm, mip mode<br><b>Sagittal/oblique carotid reformats</b> , 2.0mm x 2.0mm, mip mode<br>5mm x 5mm <b>coronal chest, abdomen, pelvis</b> series , average mode<br>3mm x 3mm <b>sagittal, and coronal reformats of the cervical, thoracic and lumbar spines</b> , average mode   |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |
| <b>Images required in PACS</b>  | Topograms, 2mm x 2mm axial carotid cta, 2mm x 2mm left sagittal/oblique carotid, 2mm x 2mm right sagittal/oblique carotid, 2mm x 2mm coronal carotids, 5mm x 5mm axial chest abdomen pelvis, 5mm x 5mm coronal chest abdomen pelvis, 5mm x 5mm axial lungs, 3mm x 3mm axial, sagittal, and coronal cervical, thoracic and lumbar spines, Patient Protocol   |                              |                                |                                    |                                    |                          |                    |                               |           |                        |     |   |                             |           |                 |     |   |                         |           |                 |     |   |                                 |           |                 |     |   |                                |           |                 |     |   |                        |              |                 |           |   |                         |           |                 |     |   |                         |           |                 |     |