**RIH – CAROTID AND BRAIN CTA**  
**SIEMENS DEFINITION AS20 PROTOCOL**

**Indications:** carotid/cerebral artery stenosis or aneurysm; non-trauma

| Position/Landmark | Supine head first or feet first  
|  | 1cm superior to skull vertex |
| Topogram Direction | Craniocaudal / Craniocaudal  
| Respiratory Phase | Any  
| Scan Type | Helical  
| Ref kV/Ref mAs/Rotation time (sec) | nc brain  
|  | cta  
|  | Care kV 120/Care Dose4D 250/ 0.5 sec  
|  | Care kV 120/Care Dose4D 90/0.5 sec  
| Pitch / Speed (mm/rotation) | nc brain  
|  | cta  
|  | .7:1 , 8.75mm  
|  | 1 / 3  
|  | 1.2:1 , 15.00mm  
|  | 3 / 11  
| Safire Strength / Dose Optimization | nc brain  
|  | cta  
|  | 0.625mm x 20 = 12.5mm  
|  | 0.625mm x 20 = 12.5mm  
| Detector width x Rows = Beam Collimation | nc brain  
|  | cta  
|  | 0.625mm x 20 = 12.5mm  
|  | 0.625mm x 20 = 12.5mm  
| Average Tube Output | nc brain  
|  | cta  
|  | ctdi – 35.0 mGy  
|  | ctdi – 11.1 mGy  
|  | dlp – 600 mGy.cm  
|  | dlp – 352 mGy.cm  
| First Helical Set | nc brain  
|  | cta  
|  | Recon Destination  
| Slice Thickness/ Spacing | body  
| Algorithm | thickness/ 
| Recon Destination | recon part spacing algorithm destination  
| 1 | thick helical brain  
|  | 5mm x 5mm  
|  | J40f medium  
| 2 | axial brain reformat  
|  | 5mm x 5mm  
|  | J40f medium  
| 3 | axial skull reformat  
|  | 5mm x 5mm  
|  | H60f sharp  
| 4 | coronal brain reformat  
|  | 5mm x 5mm  
|  | J40f medium  
| 5 | thin brain  
|  | .75mm x .7mm  
|  | J40f medium  
| Second Helical Set | nc brain  
|  | cta  
|  | Recon Destination  
| Slice Thickness/ Spacing | body  
| Algorithm | thickness/ 
| Recon Destination | recon part spacing algorithm destination  
| 1 | thin axial neck brain cta  
|  | .75mm x .7mm  
|  | J30f smooth  
| 2 | thin coronal neck brain cta  
|  | .75mm x .7mm  
|  | J30f smooth  
| 3 | thin sagittal neck brain cta  
|  | .75mm x .7mm  
|  | J30f smooth  
| 4 | thick axial neck brain cta mip  
|  | 10mm x 3mm  
|  | J30f smooth  
| Scan Start / End Locations | nc brain  
|  | cta  
|  | DFOV  
|  | 1cm inferior to skull base  
|  | 1cm inferior to aortic arch  
|  | skull vertex  
|  | skull vertex  
|  | 25cm  
|  | 20cm  
|  | decrease appropriately  
|  |  
| IV Contrast Volume / Type / Rate | 90mL Iohexol (Omnipaque 350) / 4mL per second  
| Scan Delay | Smart Prep at Aortic Arch  
| 2D/3D Technique Used | Workstream 4d mpr 5mm x 5mm non con axial brain reformat, axial skull reformat, coronal brain reformat, auto transferred to PACS  
|  | Workstream 4d mpr axial, sagittal and coronal cta reformat  
|  | .75 mm x .7mm, thick axial reformat, 10.0mm x 3.0mm, mip mode, auto transferred to PACS  
| Images required in PACS | Topograms , 5mm x 5mm axial brain, 5mm x 5mm coronal brain, 5mm x 5mm axial skull, .75mm x .7mm axial neck and brain cta, 10mm x 3mm axial neck and brain cta mip, .75mm x 7mm sagittal neck and brain cta, .75mm x .7mm neck and brain coronal cta, Patient Protocol  

*updated Jan 23, 2017*