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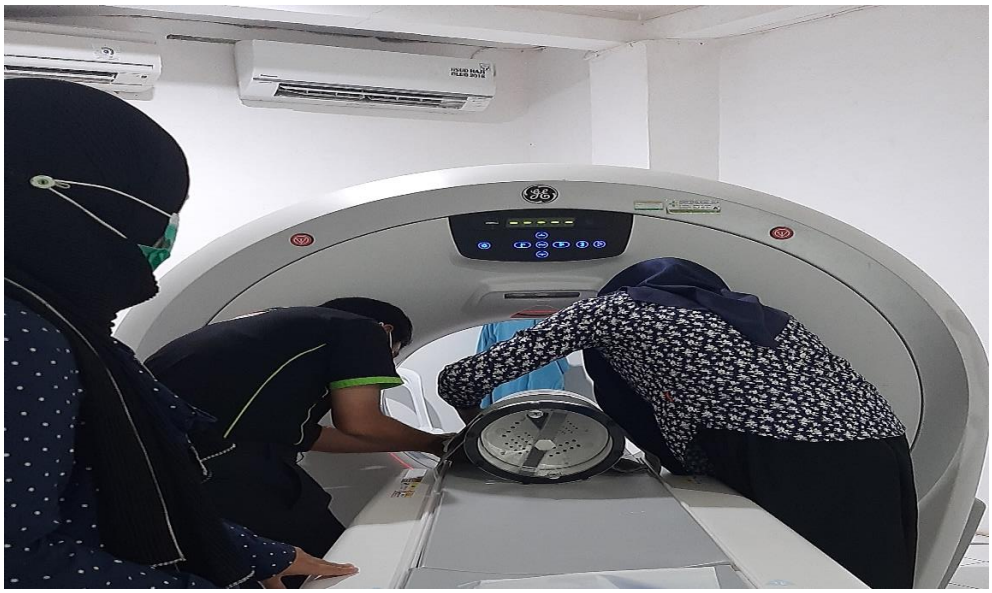
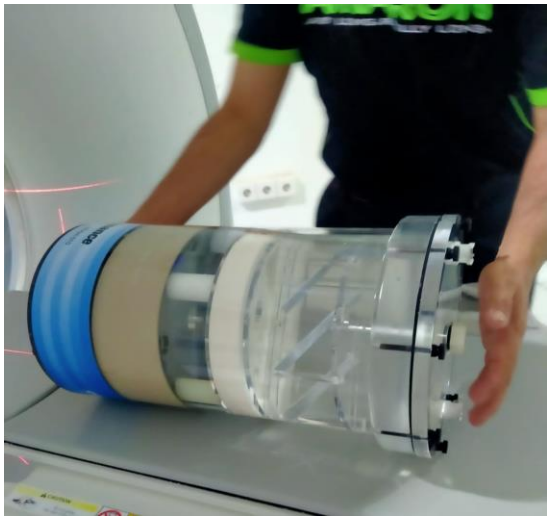
LAMPIRAN

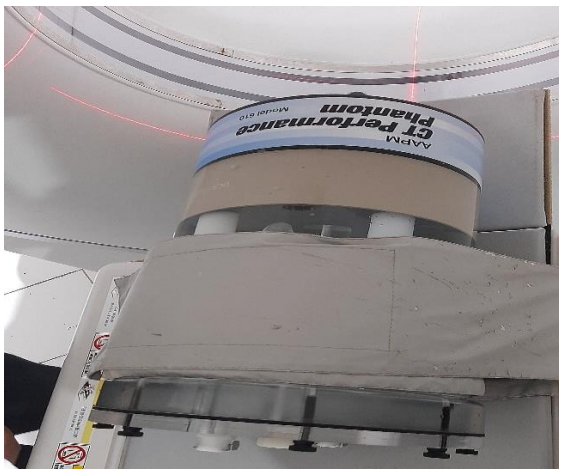
Lampiran 1: Gambar pesawat CT scan

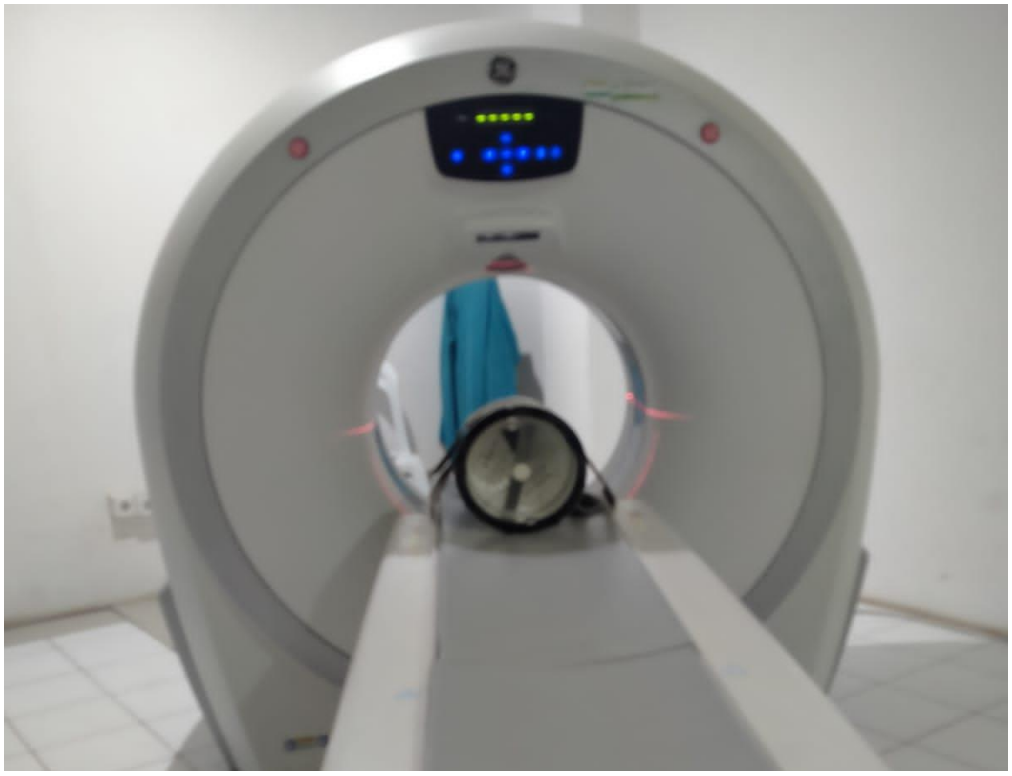
Lampiran 2: Phantom

Lampiran 3: Tes phantom dan kalibrasi pesawat CT Scan

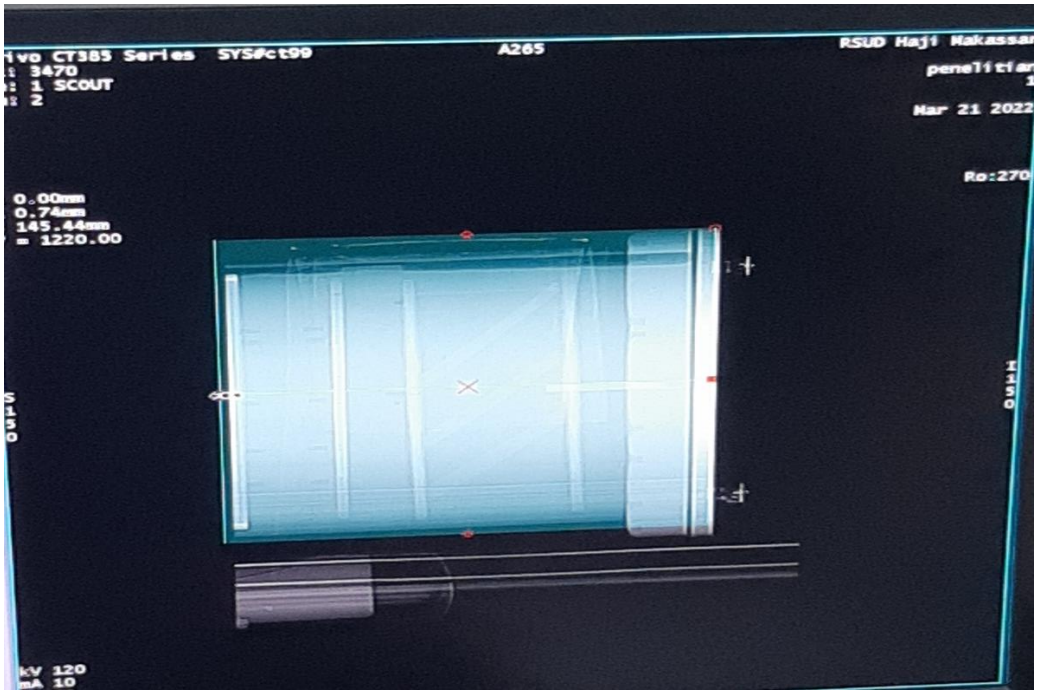






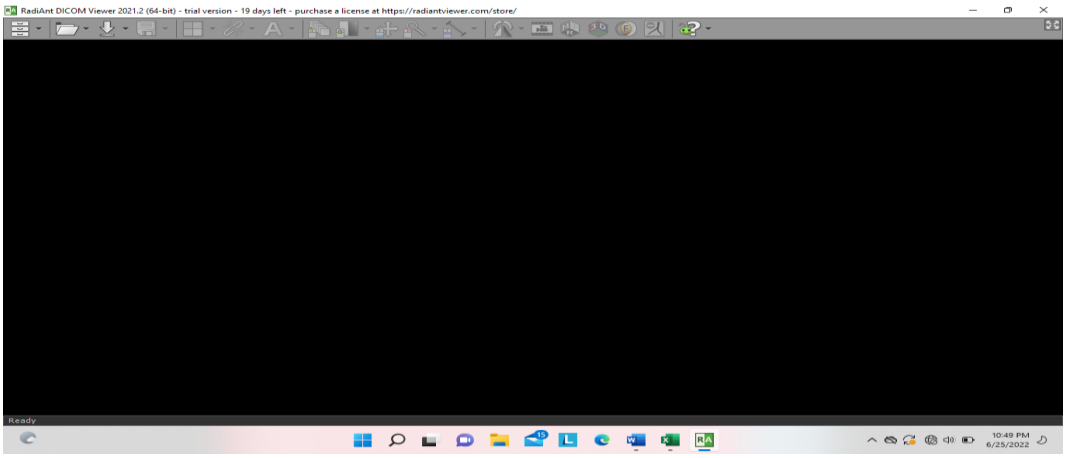


Lampiran 4: Pengaturan area scanning pada phantom

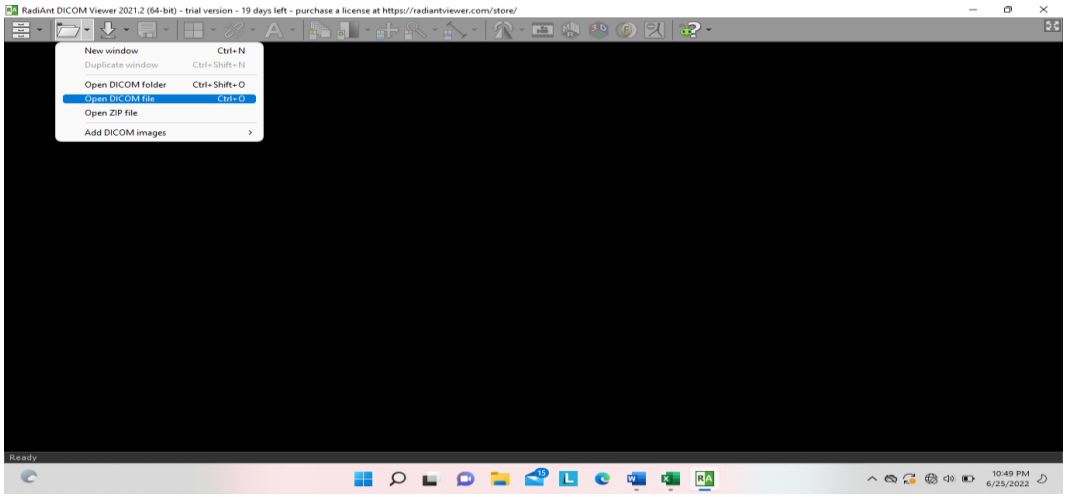


Lampiran 5: Pengukuran pada Sofware Radiant

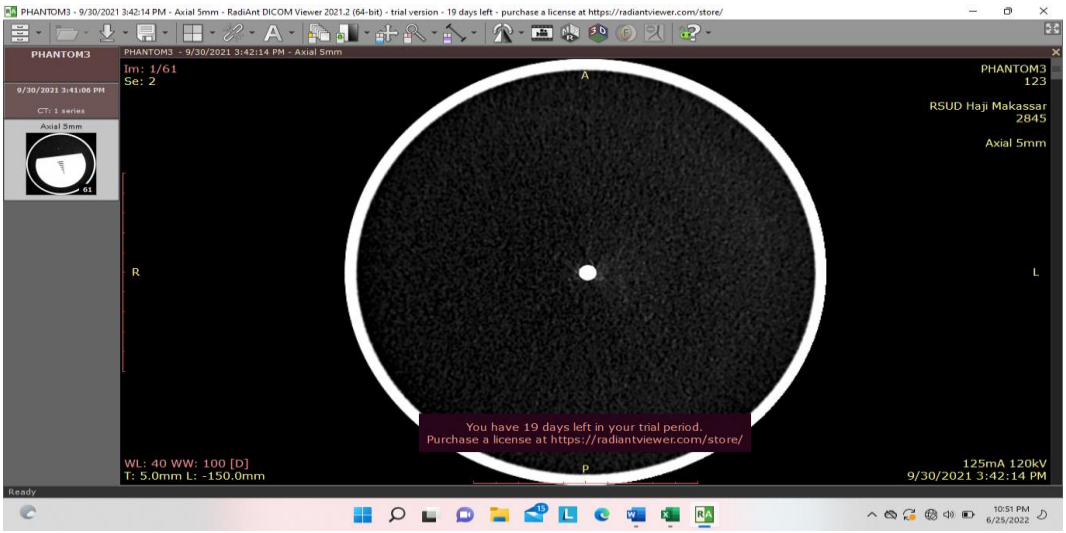
Gambar 1: Pertama membuka software radiant



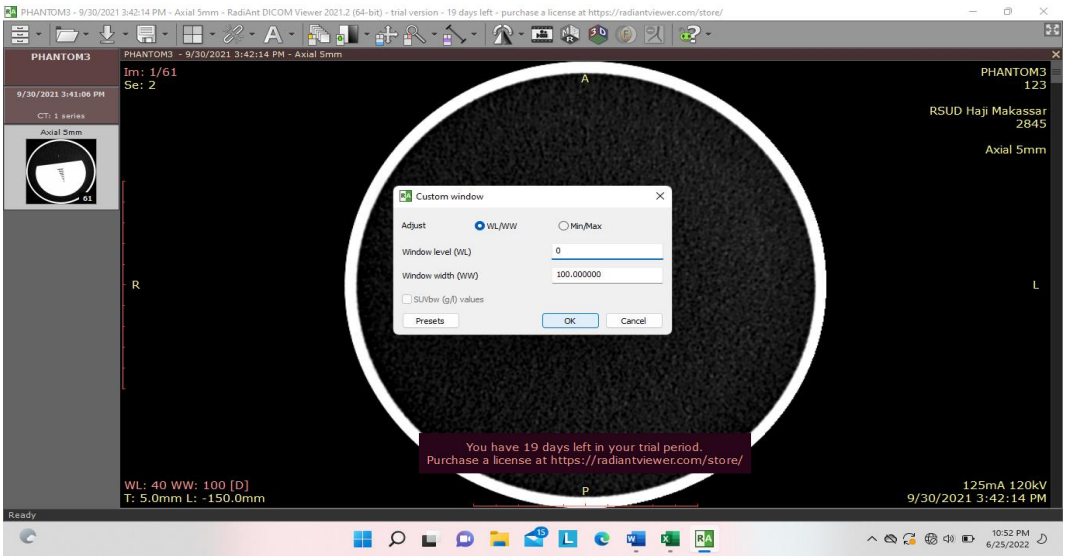
Gambar 2: Tampilan awal Ketika membuka radiant



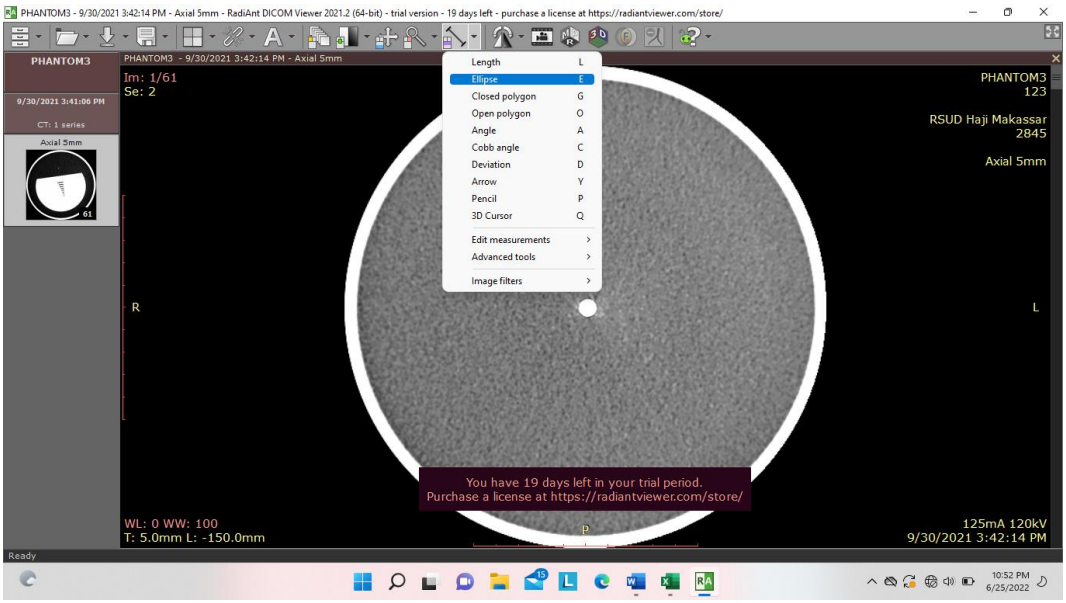
Gambar 3: Memilih open DICOM file



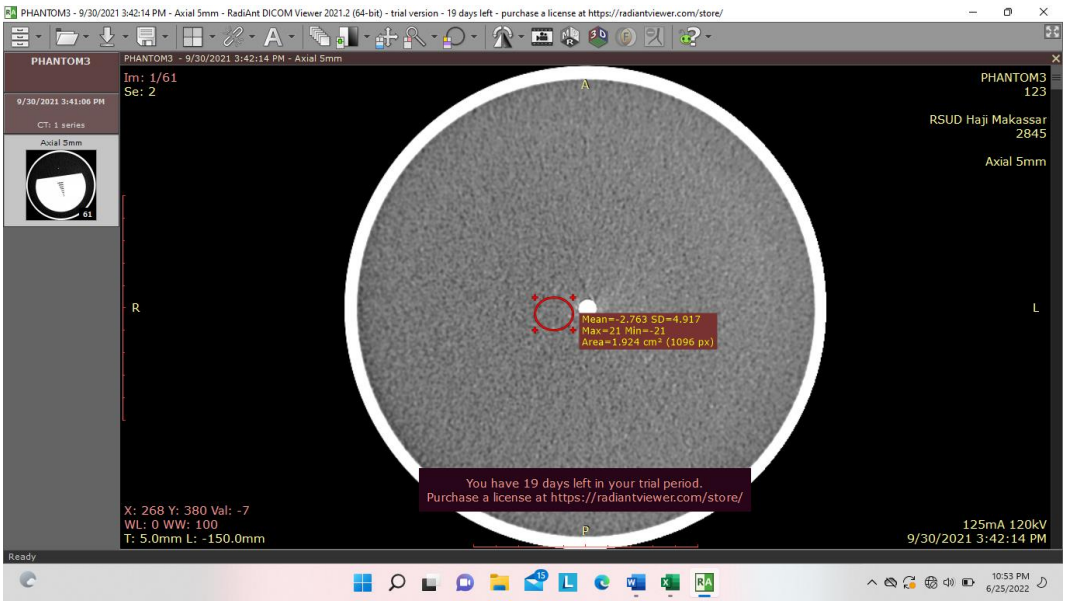
Gambar 4: Tampilan pada phantom yang sudah di scan



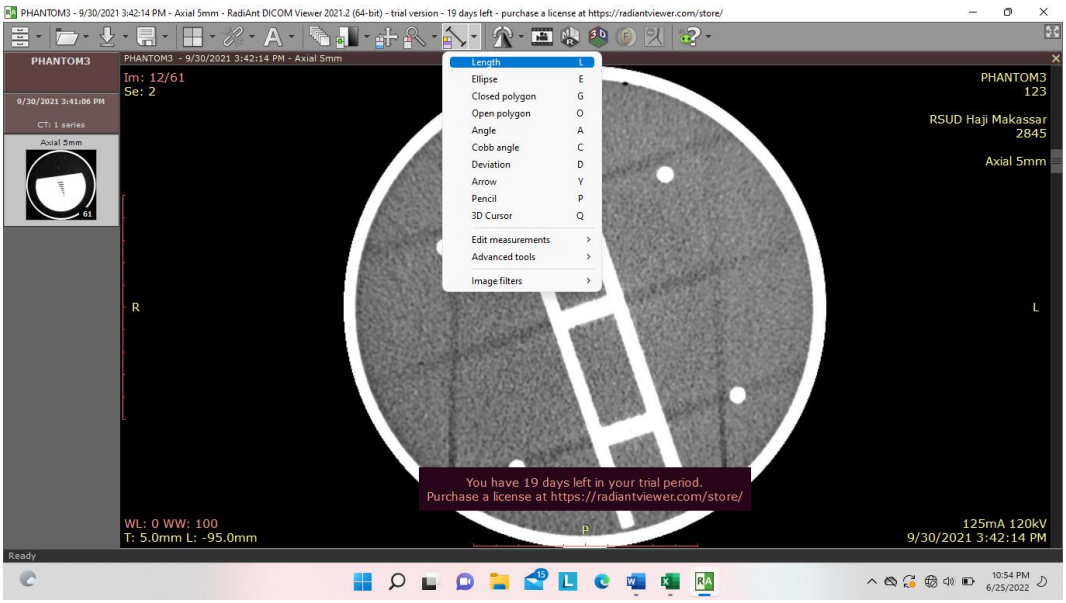
Gambar 5: memilih custom window untuk mengubah windows level (0) dan windows wist (100)



Gambar 6: Untuk mencari CTN dan noise memilih ellipse

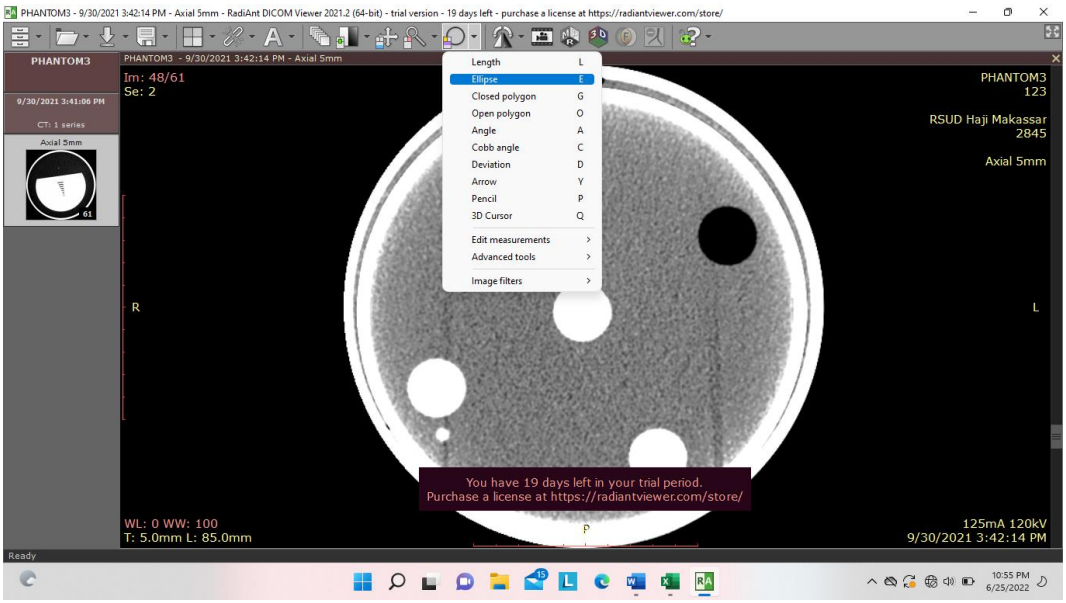


Gambar 7: Membuat ROI disekitar pusat dan tepi

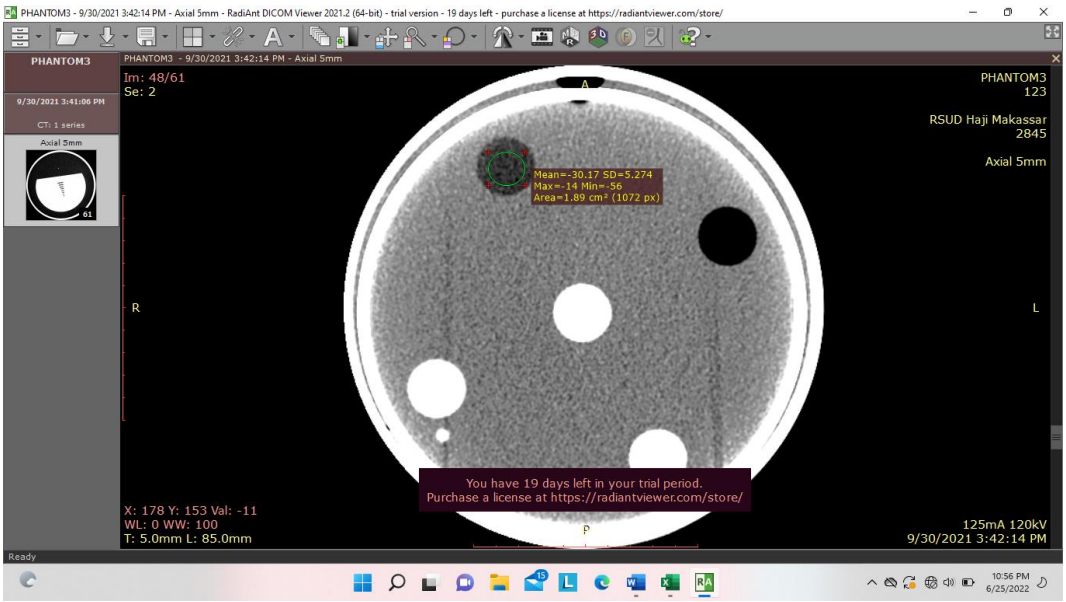


Gambar 8: Untuk mencari slice thickness dengan memilih length

Gambar 9: Mengukur Panjang dari citra slice thickness

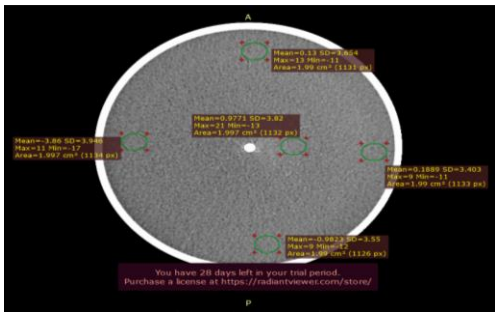


Gambar 10: Untuk mencari Linearitas CT *number* memilih ellipse

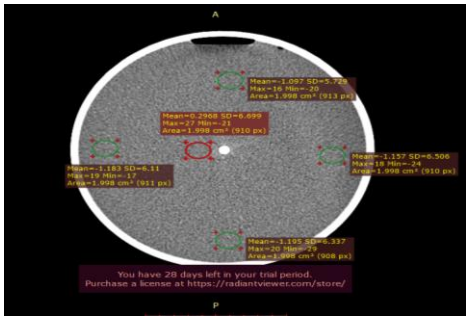


Gambar 6: Membuat ROI pada setiap material obyek

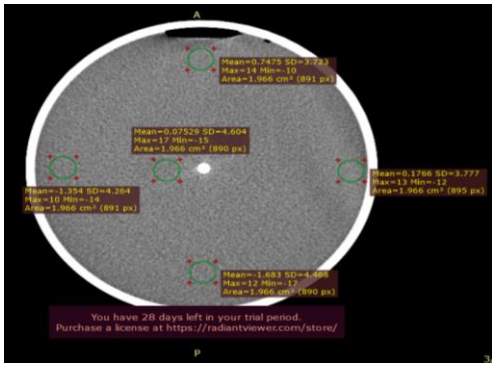
Lampiran 5: Hasil pengukuran dari Akurasi CT *number,* keseragaman CT *number,* keseragaman *noise,* linearitas CT *number* dan slice thickness



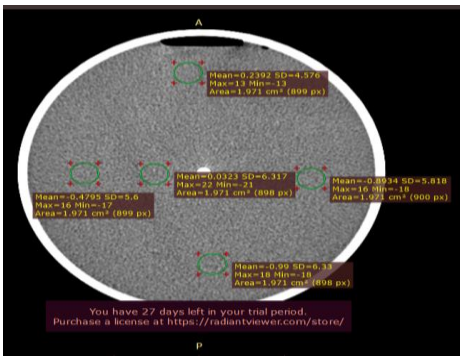
(a)



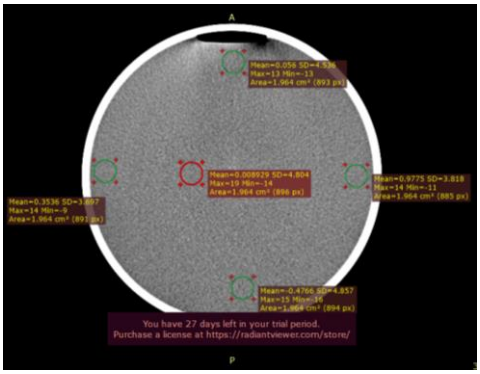
(b)



(c)

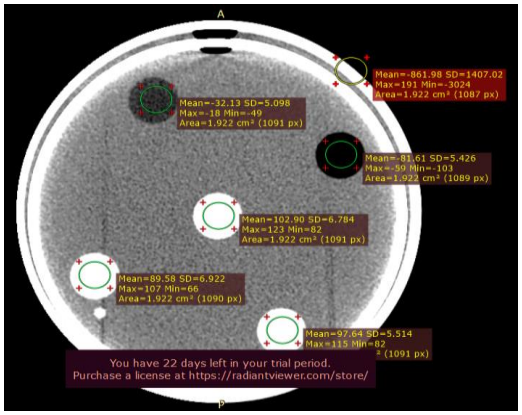


(d)

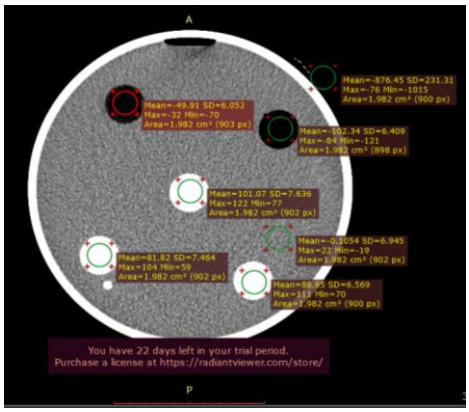


(e)

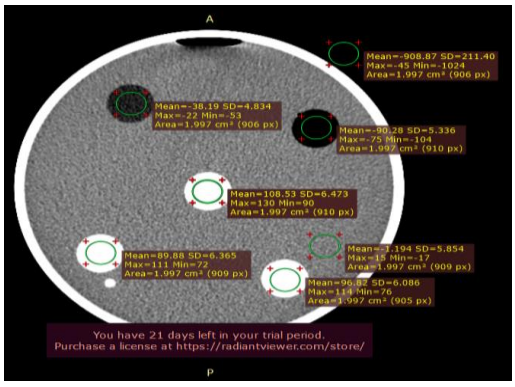
Akurasi, Keseragaman CT *number* dan Keseragaman *noise* (a) tegangan 120 kVdan 125 mA, (b) tegangan 100 kV dan 125 mA, (c) tegangan 140 kV dan 125 mA, (d) tegangan 120 kV dan 100 mA dan (e) tegangan 120 kV dan 140 mA



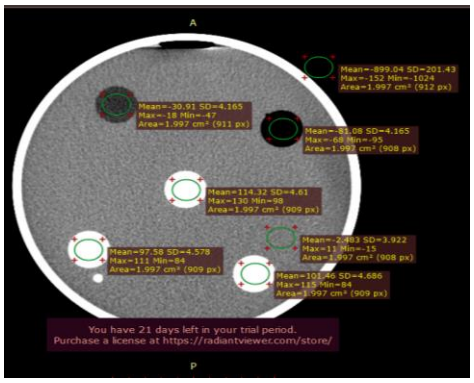
(a)



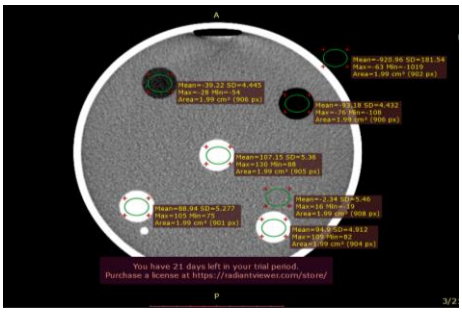
(b)



(c)

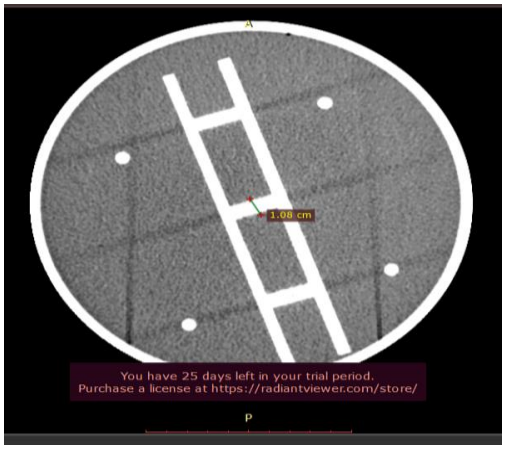


(d)

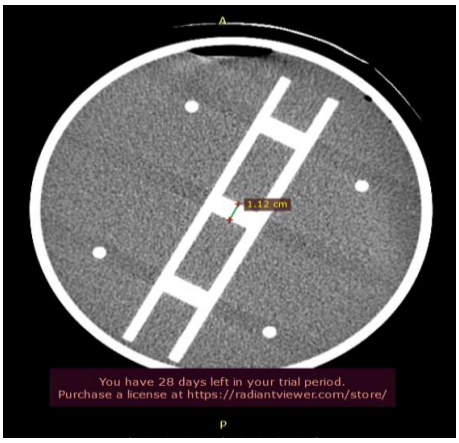


(e)

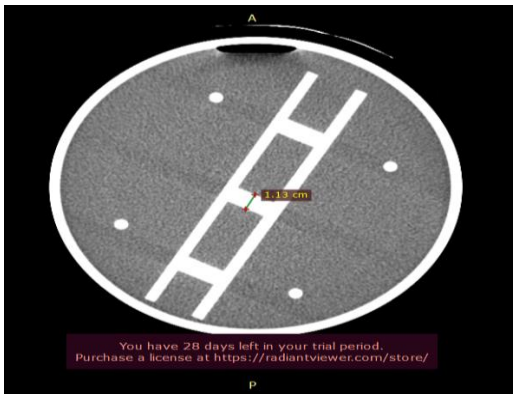
Linearitas CT *number* (a) tegangan 120 kVdan 125 mA, (b) tegangan 100 kV dan 125 mA, (c) tegangan 140 kV dan 125 mA, (d) tegangan 120 kV dan 100 mA dan (e) tegangan 120 kV dan 140 mA.



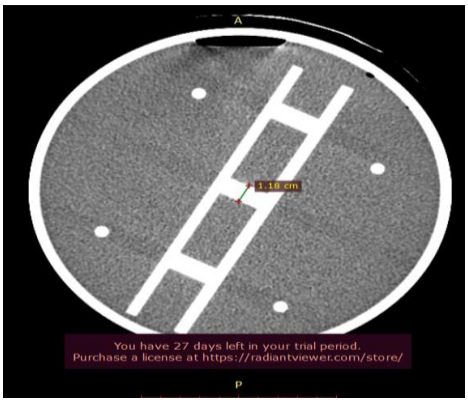
(a)



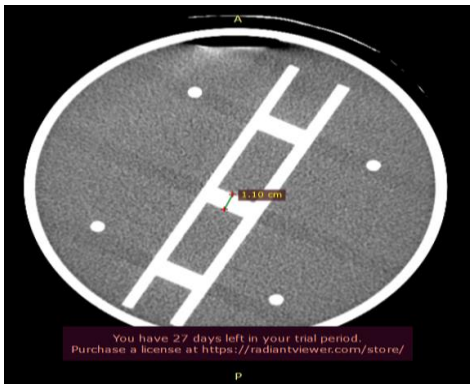
(b)



(c)



(d)



(e)

Slice Thickness (a) tegangan 120 kVdan 125 mA, (b) tegangan 100 kV dan 125 mA, (c) tegangan 140 kV dan 125 mA, (d) tegangan 120 kV dan 100 mA dan (e) tegangan 120 kV dan 140 mA.

Lampiran 6: Analisis data

1. Keseragaman CT *number*

   Nilai dari keseragaman CTN diperoleh dari rumus berikut untuk mengetahui nilai dari deviasi dengan CTN pusat, dimana deviasi diambil dar CTN yang diukur.

$$\Delta CT = CTN\ tepi - CTN\ pusat$$

$$Tepi\ 1\ \Delta CT = -2{,}968 - (-3{,}747) = 0{,}779$$
$$Tepi\ 2\ \Delta CT = -2{,}845 - (-3{,}747) = 0{,}902$$
$$Tepi\ 3\ \Delta CT = -2{,}611 - (-3{,}747) = 1{,}136$$
$$Tepi\ 4\ \Delta CT = -2{,}258 - (-3{,}747) = 1{,}489$$

Tegangan	Arus Tabung	Posisi ROI	CT Number	Deviasi dengan CTN Pusat	Nilai lolos uji CTN
120	125	Tepi 1	-2.968	0.779	1.489
		Tepi 2	-2.845	0.902	
		Tepi 3	-2.611	1.136	
		Tepi 4	-2.258	1.489	
100	125	Tepi 1	-1.097	1.393	1.491
		Tepi 2	-1.157	1.453	
		Tepi 3	-1.195	1.491	
		Tepi 4	-1.183	1.479	
140	125	Tepi 1	0.747	0.672	1.758
		Tepi 2	0.176	0.101	
		Tepi 3	-1.683	1.758	
		Tepi 4	-1.35	1.429	
100	120	Tepi 1	0.239	0.207	1.022
		Tepi 2	-0.893	0.925	
		Tepi 3	-0.99	1.022	
		Tepi 4	-0.48	0.511	
120	140	Tepi 1	0.056	0.048	0.969
		Tepi 2	0.977	0.969	
		Tepi 3	-0.476	0.484	
		Tepi 4	0.353	0.345	

2. Keseragaman *noise*

   Untuk memperoleh nilai dari keseragaman ternormalisir maka digunakan rumus berikut ini:

$$\sigma_s = \sigma_m \frac{KV_m}{120} \sqrt{\frac{mAs_m \times slice\ width_m}{300 \times 8}}$$

$$\sigma_s = 4{,}097\frac{120}{120}\sqrt{\frac{125 \times 10}{300 \times 8}}$$

$$\sigma_s = 4{,}097\sqrt{\frac{1250}{2400}}$$

$$\sigma_s = 4{,}097\sqrt{0{,}52}$$

$$\sigma_s = 2{,}96$$

Tegangan	Arus Tabung	Posisi ROI	Noise	Noise Ternormalisir	Keseragaman Noise
120	125	Tepi 1	3.654	2.64	0.39
		Tepi 2	3.403	2.46	
		Tepi 3	3.55	2.56	
		Tepi 4	3.946	2.85	
100	125	Tepi 1	5.729	3.45	0.47
		Tepi 2	6.506	3.91	
		Tepi 3	6.337	3.81	
		Tepi 4	6.110	3.67	
140	125	Tepi 1	3.723	3.13	0.64
		Tepi 2	3.777	3.18	
		Tepi 3	4.486	3.78	
		Tepi 4	4.264	3.59	
100	120	Tepi 1	4.576	2.70	1.03
		Tepi 2	5.818	3.43	
		Tepi 3	6.33	3.73	
		Tepi 4	5.600	3.30	
120	140	Tepi 1	4.536	3.46	0.89
		Tepi 2	3.818	2.92	
		Tepi 3	4.857	3.71	
		Tepi 4	3.697	2.82	