

## DAFTAR PUSTAKA

- [1] N. C. Panakkal, R. Kadavigere, S. Sukumar, and N. Ravishankar, "A *Phantom*-based Investigation Into the Influence of Low Tube Potential and Matrix Size on Radiation Dose and Image Quality for a 128 Slice Abdominopelvic Ct Protocol," *Malaysian J. Med. Heal. Sci.*, vol. 18, no. 2, pp. 14–19, 2022.
- [2] N. Paramita, N. Mulyono, E. Hidayanto, Z. Arifin, and C. Anam, "Analisis Distribusi Computed Tomography Dose Index (Ctdi) Pada Body *Phantom*," *Youngster Phys. J.*, vol. 3, no. 4, pp. 357–362, 2014.
- [3] K. Khairunnisak, D. Milvita, and K. Y. P. Sandy, "Uji Kesesuaian Pesawat CT – *Scan* 64 Slice Merek Philips di Instalasi Radiologi Rumah Sakit Universitas Andalas Padang Menggunakan Detektor Unfors Raysafe X2," *J. Fis. Unand*, vol. 6, no. 4, pp. 355–361, 2017, doi: 10.25077/jfu.6.4.355-361.2017.
- [4] A. Almuslimiati, D. Milvita, and H. Prasetio, "Analisis Nilai *Noise* dari Citra Pesawat CT-*Scan* pada Beberapa Rekonstruksi Kernel dengan Variasi Slice Thickness," *J. Fis. Unand*, vol. 8, no. 1, pp. 57–63, 2019, doi: 10.25077/jfu.8.1.57-63.2019.
- [5] D. A. Sari, E. Setiawati, Z. Arifin, D. Fisika, F. Sains, and U. Diponegoro, "Analisis Nilai Computed Tomography Dose Index ( Ctdi ) *Phantom* Kepala Menggunakan Ct Dose Profiler Dengan Variasi Pitch," *Berk. Fis.*, vol. 23, no. 2, pp. 42–48, 2020.
- [6] A. U. Usman, "Analysis of image quality and radiation dose in routine adult brain *helical* and wide-volume computed tomography procedures," *J. Med. Imaging Radiat. Sci.*, vol. 53, no. 3, pp. 429–436, 2023, doi: 10.1016/j.jmir.2022.05.008.
- [7] I. G. A. P. Adnyana, "Uji Kesesuaian Lampu Kolimasi Dengan Berkas Radiasi Menggunakan Alat *Quality Control (QC)*," *Univ. Udayana*, pp. 1–30, 2014.
- [8] H. Dabukke and B. Panjaitan, "Pengaruh Kualitas Berkas Sinar-x Terhadap Dosis Radiasi Pada Pesawat Radiografi Umum," *J. TEKESNOS*, vol. 1, no.

- 1, pp. 1–4, 2019.
- [9] H. Silvia, D. Milvita, H. Prasetyo, and H. Yuliati, “Estimasi Nilai Ctdi dan Dosis Efektif Pasien Bagian Head , Thorax dan Abdomen Hasil Pemeriksaan Ct-Scan Merek Philips Briliance 6,” *J. Fis. Unand*, vol. 2, no. 2, pp. 128–134, 2013.
- [10] D. Aprilyanti, D. Milvita, H. Prasetyo, and H. Yuliati, “Pengaruh Diameter *Phantom* Dan Tebal Slice Terhadap Nilai Ctdi Pada Pemeriksaan Menggunakan Ct-Scan,” *J. Fis. Unand*, vol. 2, no. 2, pp. 81–87, 2013.
- [11] S. Wahyuni and L. Amalia, “Perkembangan Dan Prinsip Kerja Computed Tomography (CT Scan),” *Galen. J. Kedokt. dan Kesehat. Mhs. Malikussaleh*, vol. 1, no. 2, p. 88, 2022, doi: 10.29103/jkkmm.v1i2.8097.
- [12] E. D. Sinta, “Evaluasi Metode *Helical* Dan *Axial* Dengan Variasi mAs Dan kV Pada CT-Scan Fantom Terhadap Kualitas Citra,” pp. 1–3, 2017.
- [13] I. A. P. A. Hutami, G. N. Sutapa, and I. B. A. Paramarta, “Analisis Analisis Pengaruh Slice Thickness Terhadap Kualitas Citra Pesawat CT Scan Di RSUD Bali Mandara,” *Bul. Fis.*, vol. 22, no. 2, p. 77, 2021, doi: 10.24843/bf.2021.v22.i02.p04.
- [14] C. A. I Wayan Adi Makmur, Wahyu Setiabudi, “Evaluasi Ketebalan Irisan Slice Thicknes.” pp. 42–47, 2013.
- [15] P. B. P. T. N. R. I. N. 2 T. 2022, “Perubahan Atas Peraturan Badan Pengawas Tenaga Nuklir Nomor 2 Tahun 2018 Tentang Uji Kesesuaian Pesawat Sinar-X Radiologi Diagnostik Dan Intervensional,” *Perubahan Atas Peratur. Badan Pengawas Tenaga Nukl. Nomor 2 Tahun 2018 Tentang Uji Kesesuaian Pesawat Sinar-X Radiol. Diagnostik Dan Interv.*, 2022.
- [16] R. Slamet, S. B. Wahyu, and A. Choirul, “Pengaruh Arus Tabung Terhadap Noise Dan Kontras Citra Pada Pesawat Ct Scan,” *Berk. Fis.*, vol. 22, no. 3, pp. 105–109, 2019.
- [17] Louk, A. Christian, Suparta, and G. Bayu, “Pengukuran Kualitas Sistem Pencitraan Radiografi Digital Sinar-X Quality Measurement of Imaging System of X-ray Digital Radiography,” *Berk. MIPA*, vol. 24, no. 2, pp. 149–166, 2014.
- [18] N. Desai, A. Singh, and D. J. Valentino, “Practical evaluation of image

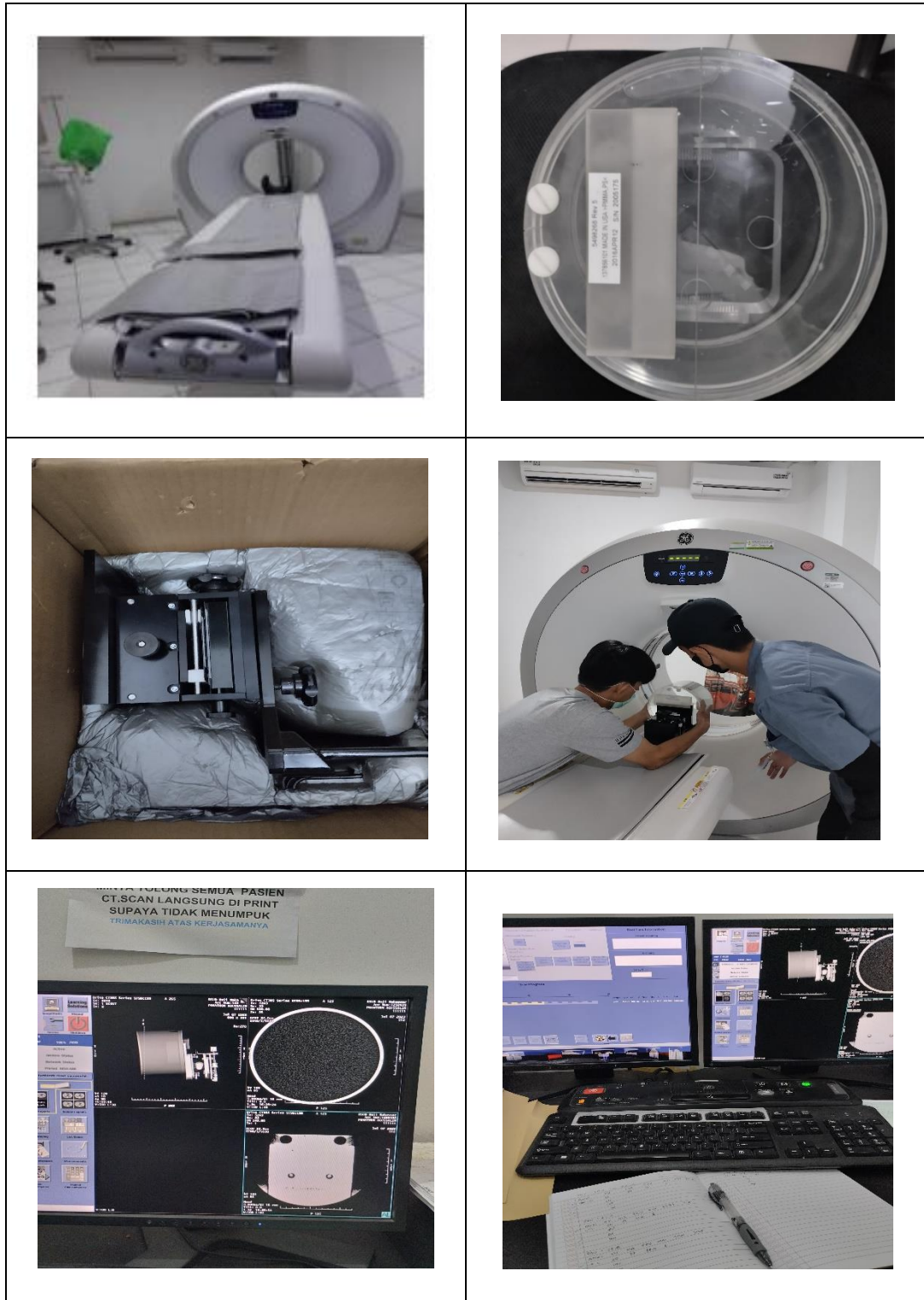
quality in computed radiographic (CR) imaging systems,” *Med. Imaging 2010 Phys. Med. Imaging*, vol. 7622, no. d, p. 76224Q, 2010, doi: 10.1117/12.844640.

[19] J. Hsieh and T. Flohr, “Computed tomography recent history and future perspectives,” *J. Med. Imaging*, vol. 8, no. 05, pp. 1–24, 2021, doi: 10.1117/1.jmi.8.5.052109.

[20] F. Zarb, “A Comparison of Sequential and Spiral *Scanning* Techniques in Brain CT.,” no. March, 2015.

## LAMPIRAN

Lampiran 1. Proses Pengambilan Data



## Lampiran 2. Proses Pengolahan Data



## Lampiran 3. Analisis Data

$$SNR = \frac{(Mean ROI_1) - (Mean ROI_2)}{\sqrt{\frac{(SD ROI_1)^2 + (SD ROI_2)^2}{2}}} \quad (1)$$

$$CNR = \frac{Mean ROI_1 - Mean ROI_2}{SD ROI_2} \quad (2)$$

Dimana :

ROI<sub>1</sub> : ROI obyek

ROI<sub>2</sub> : ROI *background*

- a. Perhitungan nilai SNR dan CNR mode *Helical* tegangan 140 kV, FOV 25 cm

$$SNR = \frac{(Mean ROI_1) - (Mean ROI_2)}{\sqrt{\frac{(SD ROI_1)^2 + (SD ROI_2)^2}{2}}}$$

$$SNR = \frac{(131,50) - (32,60)}{\sqrt{\frac{(3,98)^2 + (5,28)^2}{2}}}$$

$$SNR = \frac{98,90}{\sqrt{\frac{(15,8404) + (27,8784)}{2}}}$$

$$SNR = \frac{98,90}{\sqrt{\frac{(43,7188)}{2}}}$$

$$SNR = \frac{98,90}{\sqrt{21,8594}}$$

$$SNR = \frac{98,90}{4,67540373}$$

$$SNR = 21,1550802$$

$$CNR = \frac{Mean ROI_1 - Mean ROI_2}{SD ROI_2}$$

$$CNR = \frac{(131,50) - (32,60)}{5,28}$$

$$CNR = \frac{98,90}{5,28}$$

$$CNR = \frac{98,90}{5,28}$$

$$CNR = 18,7310606$$

b. Perhitungan nilai SNR dan CNR mode *Axial* tegangan 140 kV, FOV 25 cm

$$SNR = \frac{(Mean ROI_1) - (Mean ROI_2)}{\sqrt{\frac{(SD ROI_1)^2 + (SD ROI_2)^2}{2}}}$$

$$SNR = \frac{(132,68) - (1,65)}{\sqrt{\frac{(8,48)^2 + (6,22)^2}{2}}}$$

$$SNR = \frac{131,03}{\sqrt{\frac{(71,9104) + (38,6884)}{2}}}$$

$$SNR = \frac{131,03}{\sqrt{\frac{(71,9104) + (38,6884)}{2}}}$$

$$SNR = \frac{131,03}{\sqrt{\frac{(110,5988)}{2}}}$$

$$SNR = \frac{131,03}{\sqrt{55,2994}}$$

$$SNR = \frac{131,03}{7,43635663}$$

$$SNR = 17,6201878$$

$$CNR = \frac{Mean ROI_1 - Mean ROI_2}{SD ROI_2}$$

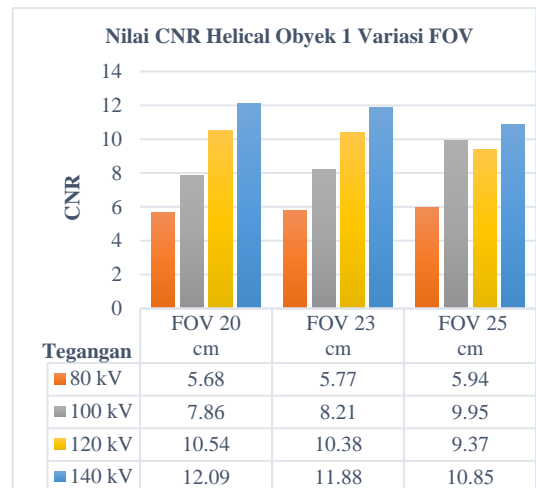
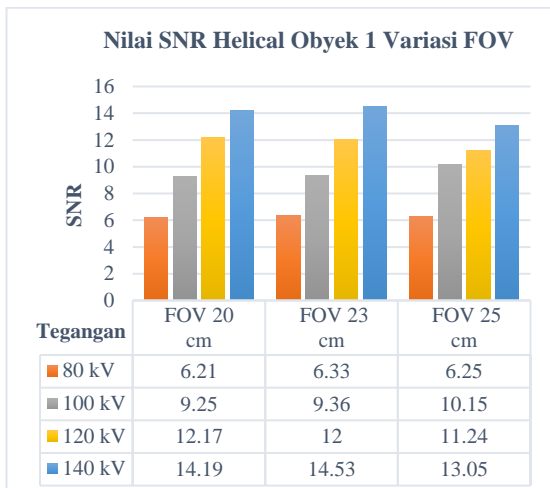
$$CNR = \frac{(132,68) - (1,65)}{6,22}$$

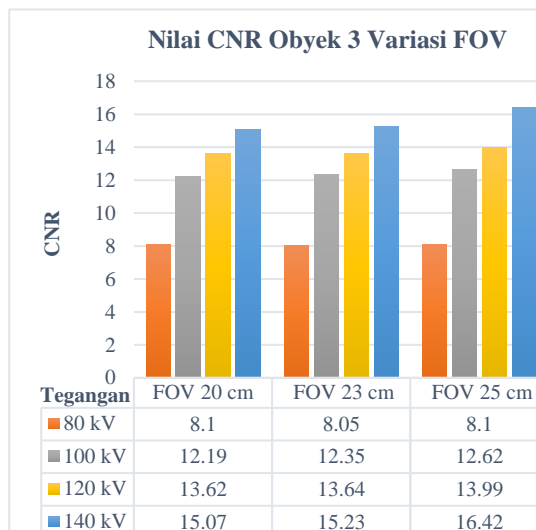
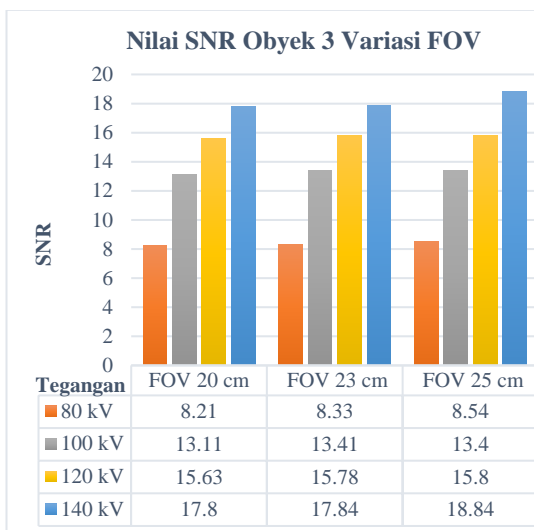
$$CNR = \frac{131,03}{6,22}$$

$$CNR = 21,0659164$$

Lampiran 4. Grafik variasi nilai FOV untuk perubahan tegangan tabung terhadap nilai SNR dan CNR pada obyek I dan III dengan mode *helical* dan *axial*

a. *Helical*





*b. Axial*

