

## DAFTAR PUSTAKA

1. Ningtias DR, Suryono S, Susilo S. PENGUKURAN KUALITAS CITRA DIGITAL COMPUTED RADIOGRAPHY MENGGUNAKAN PROGRAM PENGOLAH CITRA. *Jurnal Pendidikan Fisika Indonesia*. 2016 Oct 30;12(2):161–8.
2. Andhika DA, Catur EW. Comparison of Computed Radiography(CR) and Digital Radiography(DR) Image Quality toward Low-Contrast and High-Contrast Object. *International Journal of Innovative Research in Advanced Engineering (IJIRAE) Issue 07 [Internet]*. 2018;5:256–60. Available from: [www.ijirae.com](http://www.ijirae.com)
3. Asriningrum S, Ansory K, Hasan PT, Al P, Bandung I, Corresponding I. Jurnal Imejing Diagnostik Faktor Ekspose terhadap Kualitas Citra Radiografi dan Dosis Pasien Menggunakan Parameter Penilaian Signal to Noise Ratio (SNR) pada Pemeriksaan Thorax Posteroanterior dengan Menggunakan Pesawat Computed Radiografi. *Jurnal Imejing Diagnostik [Internet]*. 2021;7:15–8. Available from: <http://ejournal.poltekkes-smg.ac.id/ojs/index.php/jimed/index>
4. Gede Puja Satwika L, Nyoman Ratini N, Iffah M, Teknik Radiodiagnostik dan Radioterapi Bali A, Tukad Batanghari VII No J. Pengaruh Variasi Tegangan Tabung Sinar-X terhadap Signal to Noise Ratio (SNR) dengan Penerapan Anode Heel Effect menggunakan Stepwedge Effect of X-ray Tube Voltage Variation on Signal to Noise Ratio (SNR) by Application of Anode Heel Effect using Stepwedge.
5. Allen E, Hogg P, Ma WK, Szczepura K. Fact or fiction: An analysis of the 10kVp “rule” in computed radiography. *Radiography*. 2013 Aug;19(3):223–7.
6. Ching W, Robinson J, Mcentee M. Patient-based radiographic exposure factor selection: A systematic review. Vol. 61, *Journal of Medical Radiation Sciences*. John Wiley and Sons Ltd; 2014. p. 176–90.
7. Peacock NE, Steward AL, Riley PJ. An evaluation of the effect of tube potential on clinical image quality using direct digital detectors for pelvis and lumbar spine radiographs. *J Med Radiat Sci*. 2020;
8. Hannah Coffey VCBLDN. Comparing 10 kVp and 15% Rules in Extremity Radiography. *Radiol Technol* 2020 Jul;91(6):516-524. 2020 Jul;516–24.
9. Rasad S. *Radiologi Diagnostik Edisi Kedua*. Edisi 2. Indonesia: Jakarta: Badan Penerbit FKUI.; 2005.
10. Sartinah S dan NAYUKU. Variasi Nilai Ekspose Aturan 15% pada Radiografi menggunakan Imaging Plate untuk mendapatkan Kontras Tertinggi. *Jurnal Berkala Fisika*. 2008;11(2).
11. Dhahryan. dan M. Azam. Pengaruh Teknik Tegangan Tinggi Entrasse Skin Exposure (ESE) dan Laju Paparan Radiasi Hambur Pada Pemeriksaan Abdomen. *Jurnal Berkala Fisika*. 2009;12.
12. Artz DS. *Computed Radiography for the Radiological Technologist*. Semin Roentgenol. 1997;32:12–24.

13. Korner M, WCH, WS, PKJ, RMF, & TM. Advances in Digital Radiography: Physical Principles and System Overview 1. Radiographics,. 2007;27:675–85.
14. Koman Suganda. Kumpulan Materi Perkuliahan Tingkat II Edisi Perdana. Penerbit ATRO Departemen Kesehatan RI. 1995;
15. Ball, John, Price. Chesneys' radiographic imaging. Blackwell Scientific Publications. 1990;
16. Lança L, Franco L, Ahmed A, Harderwijk M, Marti C, Nasir S, et al. 10kVp rule - An anthropomorphic pelvis phantom imaging study using a CR system: Impact on image quality and effective dose using AEC and manual mode. Radiography. 2014 Nov 1;20(4):333–8.
17. Allen E, Hogg P, Ma WK, Szczepura K. Fact or fiction: An analysis of the 10kVp “rule” in computed radiography. Radiography. 2013 Aug;19(3):223–7.
18. Fauber TL,. Radiographic Imaging and Exposure. Toronto. 2000;
19. Musdalifah I, Suryani S, Rauf N. IJEScA Implementation of the Theory of Terri L. Fauber on Various Tube Voltage (KV) and Current (mAs) on Radiographic Density. International Journal of Engineering and Science Applications.
20. Louk AC, Suparta GB. Pengukuran Kualitas Sistem Pencitraan Radiografi Digital Sinar-X Quality Measurement of Imaging System of X-ray Digital Radiography. Vol. 24. 2014.
21. Martin CJ. Optimsation in General Radiography. 2007;
22. Ratini NN, Yuliara IM, Windaryoto W. Anode heel effect application with step wedge against effect of signal to noise ratio in computed radiography. Int J Health Sci (Qassim). 2020 Nov 15;4(3):75–82.
23. Gede Puja Satwika L, Nyoman Ratini N, Iffah M, Teknik Radiodiagnostik dan Radioterapi Bali A, Tukad Batanghari VII No J. Pengaruh Variasi Tegangan Tabung Sinar-X terhadap Signal to Noise Ratio (SNR) dengan Penerapan Anode Heel Effect menggunakan Stepwedge Effect of X-ray Tube Voltage Variation on Signal to Noise Ratio (SNR) by Application of Anode Heel Effect using Stepwedge.
24. Seeram E, Davidson R, Bushong S, Swan H. Radiation dose optimization research: Exposure technique approaches in CR imaging - A literature review. Radiography. 2013 Nov;19(4):331–8.
25. Surip. surip 2009 hubungan kv mas dan dosis. SKRIPSI. 2009 Aug 5;
26. hubungan kv terhadap ketebalan objek ayu wita sari 2018. journal of health. 2018;



Lampiran 1. 4 percobaan 10 kVp rule pada 40 kV dan 32 mAs

40 kvp mentah 1

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	36,39	68,92	78,41	47,16	36,12	31,13	27,76	25,63	22,71	27,61	54,87
-1	23,89	30,38	49,11	67,56	69,91	67,51	63,71	57,87	58,99	71,27	
0	20,53	26,56	40,50	55,01	68,32	75,96	78,26	73,89	90,54	199,95	
1	23,67	31,36	44,75	64,76	74,32	76,07	70,77	67,84	70,17	60,46	
2	42,90	87,20	66,80	52,78	44,15	39,62	34,15	36,09	35,94	28,04	

40 kvp mentah 2

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	40,59	82,42	67,70	48,08	42,80	40,88	40,96	36,82	26,89	29,85	49,00
-1	27,57	32,28	45,57	64,78	68,86	62,45	63,85	64,36	60,10	43,11	
0	20,04	26,19	37,89	58,24	67,35	68,88	66,25	67,30	82,47	35,78	
1	23,39	29,09	38,80	63,09	69,00	68,48	66,77	63,01	61,68	34,94	
2	29,98	59,08	84,31	58,59	42,99	29,90	23,51	19,55	18,79	44,88	

40 kvp mentah 3

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	61,22	77,45	50,81	51,88	46,96	47,83	52,27	57,16	50,10	33,29	55,21
-1	25,98	33,23	46,94	69,82	70,41	71,27	65,89	60,92	61,02	55,54	
0	24,49	27,79	41,54	58,99	70,57	65,82	68,04	66,76	78,08	73,07	
1	21,40	30,30	45,06	63,77	71,35	69,23	65,22	64,04	59,98	54,16	
2	37,94	42,90	50,21	62,59	71,68	79,83	67,97	61,11	43,81	32,73	

40 kvp mentah 4

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	52,91	78,73	55,16	43,02	32,80	34,36	34,45	34,69	32,62	27,91	51,49
-1	31,41	32,21	47,73	65,47	69,55	68,14	67,82	66,02	56,74	51,71	
0	24,04	25,00	38,41	61,81	63,77	70,01	67,25	66,07	78,89	85,81	
1	25,00	27,92	42,16	69,46	66,96	67,24	66,67	60,21	62,54	75,13	
2	38,73	64,82	87,83	69,32	45,33	35,59	28,21	24,71	23,41	28,93	

52,64



Lampiran 2. 4 percobaan 10 kVp rule pada 50 kV dan 16 mAs

50 kvp mentah 1

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	47,21	34,33	44,29	43,28	53,69	65,36	50,33	38,75	34,31	41,77	64,40
-1	39,27	36,88	51,51	51,78	67,46	87,57	100,98	105,63	101,71	108,66	
0	33,97	31,56	40,39	40,12	55,29	72,79	93,92	104,52	104,99	107,92	
1	37,58	34,46	43,81	43,47	63,23	80,20	99,69	103,89	97,13	104,89	
2	35,54	45,10	61,84	65,40	86,68	98,75	71,93	60,74	50,42	44,99	

50 kvp mentah 2

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	64,30	82,59	94,43	82,51	68,51	59,67	55,02	52,71	45,89	35,25	68,92
-1	46,32	40,47	50,17	61,89	86,53	88,43	97,59	108,11	101,34	85,79	
0	31,93	30,88	39,34	54,54	68,81	80,51	92,19	98,33	106,47	104,30	
1	36,15	33,77	40,37	62,01	76,54	87,09	96,82	96,36	105,93	94,93	
2	40,01	47,50	69,71	106,66	92,38	66,26	51,55	41,75	39,21	46,38	

50 kvp mentah 3

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	54,31	48,21	78,70	80,55	106,79	94,58	74,09	63,24	48,72	33,76	71,64
-1	38,66	37,74	50,39	66,22	89,68	96,24	105,64	101,07	94,48	94,60	
0	33,12	32,39	40,16	57,57	74,51	79,27	89,84	98,85	104,32	96,68	
1	36,55	36,25	45,30	66,43	85,58	90,00	100,47	103,86	100,73	92,09	
2	34,21	33,71	40,97	48,72	57,66	82,99	94,43	102,61	95,59	69,18	

50 kvp mentah 4

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	56,39	41,39	51,98	65,69	82,62	105,72	117,33	102,74	79,32	44,71	74,33
-1	37,38	38,06	52,23	71,54	89,29	97,20	109,20	109,20	96,35	98,15	
0	34,07	30,77	43,21	57,42	71,43	85,43	94,03	96,99	102,96	108,20	
1	36,09	35,24	46,35	63,92	79,19	91,88	100,13	106,02	100,91	100,49	
2	35,30	38,01	44,93	59,21	73,02	102,45	117,79	96,65	73,82	44,24	

69,82



Lampiran 3. 4 percobaan 10 kVp rule pada 60 kV dan 8 mAs

60 kvp mentah 1

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	69,99	46,16	59,40	79,10	101,16	127,12	93,16	84,07	56,46	39,68	80,82
-1	71,09	42,20	54,20	71,28	85,51	109,61	113,15	125,93	122,02	106,13	
0	59,47	37,63	45,45	70,29	77,80	93,99	102,18	108,01	132,79	97,12	
1	58,14	38,93	49,67	64,31	85,87	104,93	110,00	115,63	126,86	105,86	
2	46,30	40,64	45,44	46,54	57,11	73,14	65,12	110,55	109,50	104,09	

60 kvp mentah 2

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	61,58	51,13	63,72	98,40	108,71	114,92	71,78	68,67	60,87	72,22	80,68
-1	62,97	45,36	52,43	76,77	78,45	99,43	113,36	124,23	136,04	111,35	
0	49,50	38,99	47,14	61,17	75,46	87,21	101,81	115,23	131,39	100,27	
1	52,54	41,94	49,87	68,03	83,29	98,10	116,51	114,21	129,84	101,12	
2	39,18	44,16	40,60	46,44	63,45	62,37	89,39	120,80	99,72	91,76	

60 kvp mentah 3

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	67,68	38,04	44,49	51,92	53,91	72,23	96,71	133,76	118,88	58,75	84,89
-1	52,34	41,02	52,18	67,85	91,00	105,94	117,52	127,55	122,52	107,69	
0	47,09	44,76	45,92	59,65	72,83	90,46	101,06	112,03	127,50	115,02	
1	44,56	37,90	49,21	63,24	84,87	106,63	111,66	123,34	130,66	111,15	
2	47,11	51,68	82,77	119,34	96,75	111,79	118,09	129,41	119,10	67,09	

60 kvp mentah 4

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	61,85	39,13	40,61	47,96	57,63	61,81	81,34	91,47	126,75	74,90	82,00
-1	63,30	41,86	52,51	73,10	87,49	102,29	126,34	120,06	137,80	111,16	
0	48,28	37,38	45,93	57,74	76,25	91,69	110,29	116,51	131,57	117,90	
1	49,01	37,88	49,53	63,39	83,96	97,95	108,50	119,33	118,40	118,03	
2	46,89	43,84	58,12	87,87	105,62	115,84	112,24	102,42	86,31	62,10	

82,10



Lampiran 4. 4 percobaan 10 kVp rule pada 70 kV dan 4 mAs

70 kvp mentah 1											
ROI	SNR STEP										RATA
	1	2	3	4	5	6	7	8	9	10	RATA
-2	79,35	48,44	54,10	62,12	53,93	68,51	82,07	108,87	133,19	67,17	85,15
-1	75,54	50,40	55,37	76,48	81,54	98,65	124,36	121,44	130,94	131,29	
0	68,14	50,13	52,59	71,48	74,64	87,17	103,82	114,79	126,21	140,67	
1	62,54	47,76	53,18	69,38	82,03	98,97	112,74	119,80	127,90	132,47	
2	47,21	43,49	50,66	57,23	64,97	80,84	107,44	123,18	99,75	82,56	
70 kvp mentah 2											
ROI	SNR STEP										RATA
	1	2	3	4	5	6	7	8	9	10	RATA
-2	72,77	46,25	52,48	58,14	73,46	100,16	118,20	86,09	71,43	97,30	85,72
-1	79,54	49,06	57,86	74,88	86,71	101,14	119,47	125,89	133,23	121,09	
0	67,23	45,91	51,65	67,94	79,80	91,28	104,44	111,23	136,20	115,97	
1	63,70	46,06	53,90	68,02	84,98	95,21	123,42	124,99	134,97	107,22	
2	48,63	47,62	62,91	58,86	50,20	69,16	96,12	90,08	135,96	127,16	
70 kvp mentah 3											
ROI	SNR STEP										RATA
	1	2	3	4	5	6	7	8	9	10	RATA
-2	89,16	58,51	69,17	90,91	118,77	116,26	106,83	81,26	83,45	85,87	84,88
-1	76,17	46,51	76,46	65,19	84,34	101,05	120,14	118,62	94,55	112,25	
0	70,93	44,06	53,16	65,32	79,15	96,06	103,89	109,51	132,66	107,97	
1	63,09	43,25	48,70	61,31	74,42	90,40	105,21	110,05	133,89	96,32	
2	58,54	54,48	80,93	100,56	108,80	84,76	75,29	71,35	54,79	69,70	
70 kvp mentah 4											
ROI	SNR STEP										RATA
	1	2	3	4	5	6	7	8	9	10	RATA
-2	78,95	50,45	85,98	113,61	115,20	79,61	112,30	78,67	79,65	93,97	88,77
-1	65,69	47,26	59,84	70,33	92,17	98,42	115,75	122,02	129,43	134,47	
0	52,29	42,38	50,51	64,36	80,49	98,20	107,15	109,12	122,49	138,78	
1	58,42	44,50	54,43	67,87	79,17	97,70	118,51	126,50	136,72	125,57	
2	51,46	44,31	47,48	51,77	75,49	94,65	109,09	120,43	117,58	127,47	

86,13



Lampiran 5. 4 percobaan 15% kVp rule pada 40 kV dan 32 mAs

40 kvp mentah 1											
ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
1	31,31	65,46	80,68	74,02	48,54	39,61	37,15	36,19	34,49	35,20	48,81
2	26,97	31,64	42,60	61,87	65,29	66,63	60,90	54,19	60,09	51,46	
3	23,50	26,84	33,73	57,54	63,27	64,87	68,90	66,80	80,07	41,37	
4	27,35	31,76	40,59	62,09	65,75	71,50	68,00	65,22	57,33	41,32	
5	35,63	78,82	52,14	44,44	33,54	26,56	27,56	25,92	22,01	31,57	
40 kvp mentah 2											
ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
1	72,35	77,69	99,40	74,23	55,61	46,11	38,86	36,16	31,56	28,82	52,49
2	39,04	33,42	49,79	66,99	72,98	64,85	65,32	59,16	58,19	49,90	
3	31,48	25,89	38,36	60,28	60,66	66,13	68,29	68,52	84,49	52,84	
4	33,47	28,03	41,53	59,91	68,55	68,41	65,32	60,51	60,91	49,36	
5	43,56	58,75	74,85	37,58	34,54	31,42	33,76	30,48	32,12	34,14	
40 kvp mentah 3											
ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
1	43,91	75,06	91,28	54,05	49,72	29,02	31,31	30,13	32,86	35,37	56,37
2	28,10	31,63	54,42	71,66	81,60	80,95	72,49	70,38	63,24	56,80	
3	21,80	27,19	41,64	58,65	76,40	82,98	81,54	80,94	93,07	68,45	
4	23,89	30,60	94,85	64,93	78,56	83,84	81,84	78,14	71,94	59,74	
5	28,02	36,53	51,17	94,84	62,77	40,41	27,70	23,68	20,36	48,27	
40 kvp mentah 4											
ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
1	35,50	37,09	66,90	86,13	86,84	73,39	55,71	41,02	33,21	34,80	56,35
2	32,60	34,78	51,82	68,17	66,32	68,63	72,97	62,63	59,55	61,60	
3	23,62	25,14	42,03	54,24	56,02	68,23	69,56	69,55	85,52	89,66	
4	23,77	28,86	43,60	60,67	67,60	67,45	71,77	68,55	64,76	92,46	
5	31,94	52,49	56,64	46,39	73,16	81,06	75,71	34,97	24,20	38,08	

53,50

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Lampiran 6. 4 percobaan 15% kVp rule pada 46 kV dan 16 mAs

46 kvp mentah 1

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	55,05	50,73	94,64	79,00	49,40	40,30	28,63	25,66	24,82	66,20	60,49
-1	40,19	33,23	49,92	68,74	79,85	81,52	77,78	77,27	79,63	67,52	
0	28,58	27,02	35,39	55,12	66,46	72,94	81,57	81,46	57,30	67,54	
1	30,50	28,18	39,42	55,66	69,76	76,17	76,03	75,23	75,53	59,83	
2	46,64	48,97	87,97	97,58	90,68	80,20	75,35	66,55	54,91	45,98	

46 kvp mentah 2

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	46,02	32,78	44,67	62,03	83,73	92,23	84,92	81,76	64,07	39,73	61,88
-1	40,45	33,68	41,88	68,81	77,54	84,17	87,13	81,75	77,92	59,50	
0	30,01	30,01	37,71	56,02	66,18	74,88	75,49	78,50	76,93	69,91	
1	32,76	33,86	41,20	57,27	71,58	79,78	81,52	76,08	75,86	75,90	
2	30,87	41,48	54,23	63,97	74,85	84,63	76,25	69,91	55,50	36,19	

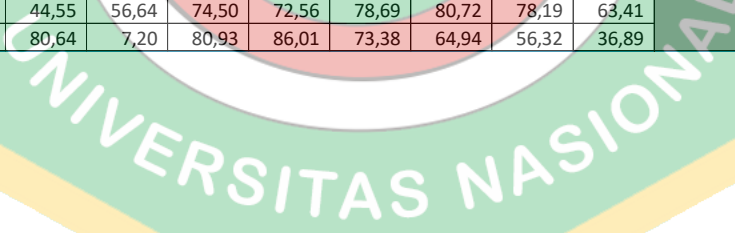
46 kvp mentah 3

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	63,60	85,27	79,42	57,74	36,92	37,85	40,74	54,01	58,10	51,39	61,11
-1	40,70	38,30	48,96	62,92	80,53	80,53	78,89	84,95	69,31	75,37	
0	30,30	28,30	37,12	53,49	66,14	70,20	79,99	78,13	79,88	95,89	
1	31,02	29,16	41,03	50,62	65,94	73,98	76,27	78,75	73,11	102,55	
2	40,59	52,11	83,24	94,30	85,63	70,39	48,51	45,91	34,69	32,97	

46 kvp mentah 4

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	47,08	31,34	42,56	48,64	60,08	72,39	84,10	86,02	67,31	39,31	60,35
-1	43,42	34,87	47,22	64,10	82,69	81,58	82,71	78,57	74,63	65,96	
0	28,60	29,01	37,51	52,91	66,58	74,19	76,31	83,20	78,75	68,18	
1	30,53	31,58	44,55	56,64	74,50	72,56	78,69	80,72	78,19	63,41	
2	47,86	42,34	80,64	7,20	80,93	86,01	73,38	64,94	56,32	36,89	

60,96



Lampiran 7. 4 percobaan 15% kVp rule pada 53 kV dan 8 mAs

53 kvp mentah 1

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	60,88	56,92	80,53	92,49	68,78	66,15	64,41	59,25	53,21	49,21	63,79
-1	48,53	37,01	47,38	60,39	79,63	84,04	85,77	84,13	79,68	89,39	
0	40,28	32,97	41,45	54,25	66,50	70,33	75,71	84,47	92,17	84,08	
1	41,63	34,45	44,58	60,68	74,40	80,24	77,94	90,33	89,68	88,15	
2	36,90	35,28	36,82	66,64	69,50	90,14	61,96	42,66	33,90	43,87	

53 kvp mentah 2

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	50,34	60,08	85,28	97,57	84,58	79,59	71,31	56,62	41,34	40,23	65,80
-1	39,61	38,56	46,17	61,83	77,46	76,42	87,77	85,20	80,76	84,96	
0	37,48	33,15	38,44	55,85	67,09	76,51	82,57	86,22	85,44	85,11	
1	40,51	35,84	43,14	59,02	77,76	80,14	83,15	81,48	90,06	81,44	
2	36,00	41,10	37,93	50,57	58,47	79,23	75,27	87,07	89,71	68,67	

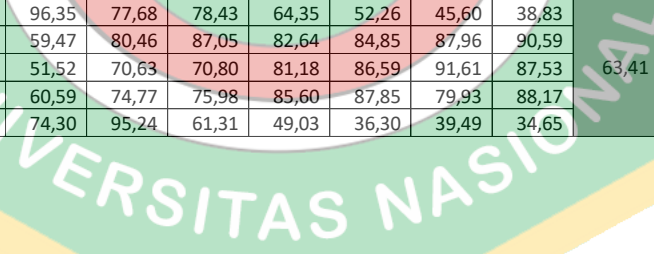
53 kvp mentah 3

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	57,69	58,84	98,05	96,12	77,61	62,12	68,91	91,26	85,27	42,34	67,35
-1	36,37	37,77	48,42	66,68	73,22	71,44	82,05	84,68	90,30	77,72	
0	32,72	32,49	39,35	53,98	71,17	72,50	76,70	79,83	88,49	77,82	
1	36,21	33,04	39,39	51,36	69,54	82,49	79,37	84,44	88,71	80,01	
2	44,05	38,94	55,26	70,55	83,01	87,16	81,56	85,30	90,77	54,60	

53 kvp mentah 4

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	50,85	51,35	80,72	96,35	77,68	78,43	64,35	52,26	45,60	38,83	63,41
-1	48,30	39,03	46,16	59,47	80,46	87,05	82,64	84,85	87,96	90,59	
0	40,95	34,28	40,10	51,52	70,63	70,80	81,18	86,59	91,61	87,53	
1	44,53	37,53	44,55	60,59	74,77	75,98	85,60	87,85	79,93	88,17	
2	35,90	31,52	35,21	74,30	95,24	61,31	49,03	36,30	39,49	34,65	

65,09



Lampiran 8. 4 percobaan 15% kVp rule pada 61 kV dan 4 mAs

61 kvp mentah 1

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	57,40	42,59	53,60	59,52	64,37	76,30	89,18	90,91	71,08	52,11	67,37
-1	54,05	43,08	50,61	68,90	76,89	81,40	87,60	84,00	94,66	94,13	
0	47,24	38,69	42,76	54,05	62,02	73,85	81,20	85,31	90,46	89,08	
1	46,63	39,31	46,19	59,11	70,50	81,21	83,53	86,52	86,29	91,07	
2	40,83	40,58	44,53	47,53	55,35	65,22	77,41	82,80	97,51	69,17	

61 kvp mentah 2

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	69,04	62,07	83,79	101,05	97,95	94,50	82,70	72,12	63,52	64,00	70,77
-1	52,02	42,30	47,76	65,56	70,66	81,74	85,97	91,77	93,62	95,08	
0	51,08	38,92	44,69	53,01	70,40	78,87	77,68	85,69	95,31	85,37	
1	51,62	37,57	43,59	56,01	69,24	74,73	80,66	90,29	95,38	79,67	
2	58,04	54,88	65,86	87,51	94,27	80,69	58,23	53,33	42,95	65,78	

61 kvp mentah 3

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	55,46	54,88	71,46	90,76	78,16	70,20	55,76	48,31	49,30	51,84	67,22
-1	52,99	42,70	49,76	60,48	75,87	82,52	85,95	87,37	91,40	85,83	
0	46,99	36,69	44,69	55,52	68,01	75,57	81,61	82,77	89,07	88,32	
1	48,24	38,01	44,99	51,20	59,68	82,33	80,80	83,83	94,06	85,26	
2	46,66	50,64	58,82	68,94	91,04	96,51	92,99	76,33	53,78	46,78	

61 kvp mentah 4

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	63,43	63,60	94,97	101,65	74,75	61,90	44,93	42,63	46,15	70,54	70,83
-1	54,56	41,28	50,67	69,19	75,30	86,92	86,89	90,60	95,41	92,87	
0	49,72	36,28	44,92	53,97	70,43	73,94	83,67	87,24	90,98	93,60	
1	57,23	36,19	45,15	57,24	67,30	70,95	85,62	85,70	87,90	83,52	
2	53,25	55,62	74,80	94,85	95,88	98,15	89,03	79,10	73,53	57,70	

69,05

Lampiran 9. 4 percobaan 15% kVp rule pada 70 kV dan 2 mAs

70 kvp mentah 1

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	73,33	51,01	50,01	54,11	54,29	69,42	86,00	104,90	135,45	84,66	85,45
-1	75,49	51,47	52,50	73,85	83,96	96,87	125,42	128,10	127,70	131,79	
0	65,73	46,90	52,37	69,61	76,72	86,81	105,30	117,31	128,57	141,03	
1	62,83	49,97	54,27	66,61	81,68	100,12	112,03	121,34	121,85	132,47	
2	45,53	44,20	46,47	59,61	70,09	84,59	107,40	122,40	109,10	79,45	

70 kvp mentah 2

ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	69,11	51,11	48,39	56,27	71,30	113,90	102,28	60,60	56,52	98,44	83,30
-1	72,85	50,57	58,60	75,88	82,01	106,44	107,06	134,61	129,62	121,48	
0	65,09	43,85	51,13	68,11	83,62	89,37	104,46	108,49	134,13	116,92	
1	60,55	47,44	54,16	66,22	84,20	95,07	113,16	123,76	135,78	112,71	
2	49,76	52,40	55,29	54,80	53,11	67,05	59,21	96,58	124,06	127,67	

70 kvp mentah 3

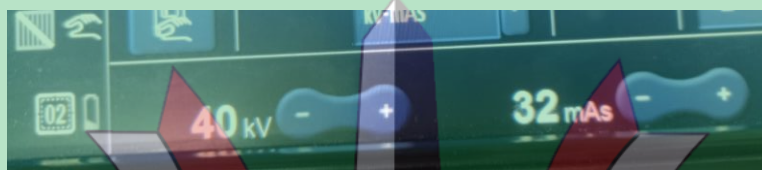
ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	85,39	53,38	85,51	102,35	118,02	120,68	99,63	84,62	82,02	91,54	86,89
-1	70,69	44,43	53,66	69,69	81,69	93,05	121,88	120,57	132,62	107,08	
0	72,70	43,03	51,83	64,42	79,00	94,97	103,54	109,68	131,28	108,19	
1	67,09	42,75	54,19	60,19	75,45	83,52	103,68	109,39	132,99	103,73	
2	61,90	55,77	104,36	114,27	96,03	98,95	90,32	65,36	58,25	89,17	

70 kvp mentah 4

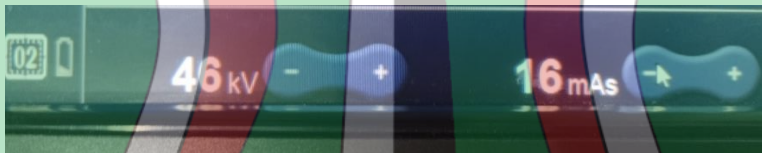
ROI	SNR STEP										RATA RATA
	1	2	3	4	5	6	7	8	9	10	
-2	76,97	49,89	69,20	104,18	108,19	121,58	104,43	81,04	82,55	95,66	87,79
-1	60,99	46,51	58,05	72,19	91,24	93,06	121,40	121,91	134,71	98,23	
0	54,70	43,51	51,81	64,36	80,92	101,87	105,35	108,53	122,50	141,80	
1	89,42	42,82	55,35	68,53	87,62	103,09	117,94	115,43	135,87	128,32	
2	51,53	40,55	42,89	54,97	45,25	66,51	109,25	125,67	117,73	123,23	

85,86

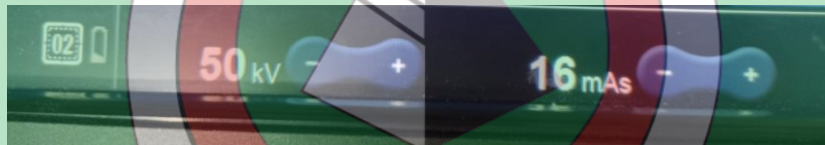
Lampiran 10. Parameter 40 kV dan 32 mAs



Lampiran 11. Parameter 46 kV dan 16 mAs



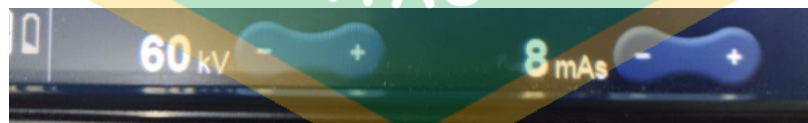
Lampiran 12. Parameter 50 kV dan 16 mAs



Lampiran 13. Parameter 53 kV dan 8 mAs



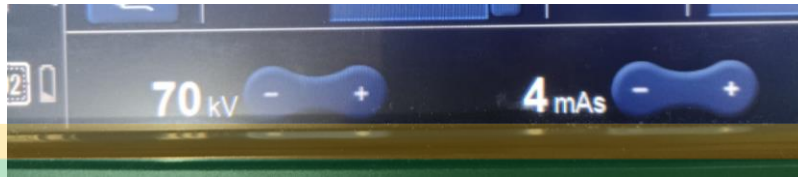
Lampiran 14. Parameter 60 kV dan 8 mAs



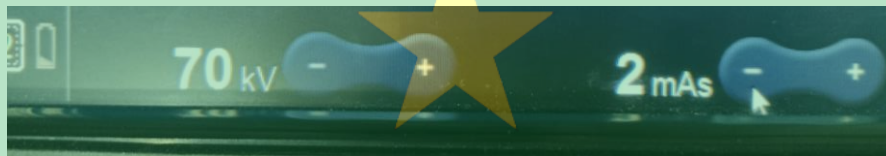
Lampiran 15. Parameter 61 kV dan 4 mAs



Lampiran 16. Parameter 70 kV dan 4 mAs



Lampiran 17. Parameter 70 kV dan 2 mAs



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