

DAFTAR PUSTAKA

- Anwar, S., & Sari, S. P. (2013). Generator Mini dengan Prinsip Termoelektrik dari Uap Panas Kondensor pada Sistem Pendingin. *Jurnal Rekayasa Elektrika*, 10(4), 180-185.
- Arkha, A., Budiarta, U., & Sofyan, A. (2018). Pengaruh Tegangan Listrik Terhadap Ketebalan Lapisan Dan Laju Korosi (Mpy) Hasil Elektroplating Plat Besi Strip Dengan Pelapis Tembaga. *Jurnal Rekayasa Teknologi dan sains*, 2(1).
- Arya Utamaningrat dan Nurul Iskan. 2018. *Studi Pelapisan Tembaga Pada Bahan Non-Logam Untuk Aplikasi Produk Kerajinan Dengan Metode Electroforming*. Yogyakarta. Balai Besar Kerajinan dan Batik.
- Bell, L. E. (2008). Cooling, heating, generating power, and recovering waste heat with thermoelectric systems. *Science*, 321(5895), 1457-1461.
- Bringas, J. E., and Wayman, M. L., *The metals red book: nonferrous metals* vol. 2: Casti Pub., 1998.
- Champagne, V. K. (2007). *The cold spray materials deposition process* (pp. 21-30). Elsevier Science.
- Chu, X., Chakrabarty, R., Che, H., Shang, L., Vo, P., Song, J., & Yue, S. (2018). Investigation of the feedstock deposition behavior in a cold sprayed 316L/Fe composite coating. *Surface and Coatings Technology*, 337, 53-62.
- Chu, X., Che, H., Vo, P., Chakrabarty, R., Sun, B., Song, J., & Yue, S. (2017). Understanding the cold spray deposition efficiencies of 316L/Fe mixed powders by performing splat tests onto as-polished coatings. *Surface and Coatings Technology*, 324, 353-360.
- Coddet, P., Verdy, C., Coddet, C., Debray, F., & Lecouturier, F. (2015). Mechanical properties of thick 304L stainless steel deposits processed by He cold spray. *Surface and Coatings Technology*, 277, 74-80.

- Cormier, Y., Dupuis, P., Jodoin, B., & Corbeil, A. (2016). Pyramidal fin arrays performance using streamwise anisotropic materials by cold spray additive manufacturing. *Journal of Thermal Spray Technology*, 25(1-2), 170-182.
- DiSalvo, F. J. (1999). Thermoelectric cooling and power generation. *Science*, 285(5428), 703-706.
- El-Giar, E. M., Said, R.A., Bridge, G.E., Thomson, D.J. 2000. Localized Electrochemical Deposition of Copper Microstructure. *Journal of the Electrochemical Society*. Vol. 147. No. 2. Pp 586-591.
- H.J. Goldsmid. 2010. Introduction to thermoelectricity, Springer Series in Material Science 121, Springer-Verlag Berlin Heidelberg.
- Hussain, T., McCartney, D. G., Shipway, P. H., & Marrocco, T. (2011). Corrosion behavior of cold sprayed titanium *coatings* and free standing deposits. *Journal of Thermal Spray Technology*, 20(1-2), 260-274.
- Liu, W., Hu, J., Zhang, S., Deng, M., Han, C. G., & Liu, Y. (2017). New trends, strategies and opportunities in thermoelectric materials: a perspective. *Materials Today Physics*, 1, 50-60.
- Madhavaram, R., Sander, J., Gan, Y. X., & Masiulaniec, C. K. (2009). Thermoelectric property of PbTe *coating* on copper and nickel. *Materials Chemistry and Physics*, 118(1), 165-173.
- Majanasastra, R. B. S. (2016). Analisis sifat mekanik dan struktur mikro hasil proses hydroforming pada material tembaga (Cu) C84800 dan aluminium Al 6063. *Jurnal ilmiah teknik mesin*, 4(2), 15-30.
- Mustofa. 2019. *Karakterisasi Spektrum Low Lights Intensity Dengan Hot Dan Cold Mirror Tipe Techspec Aoi 50.0mm Square Pada Hibrid Photovoltaic-Thermoelectric Generator*. Makassar. Universitas Hasanuddin
- Papyrin, A., Kosarev, V., Klinkov, S., Alkhimov, A., & Fomin, V. M. (2006). *Cold spray technology*. Elsevier.

- Paridawati. 2013. Analisa Besar Pengaruh Tegangan Listrik Terhadap Ketebalan Pelapisan Chrome pada Plat Baja dengan Proses Elektroplating. *Jurnal Ilmiah Teknik Mesin*. Vol 1. No 1. Hal 36-44
- Pattison, J., Celotto, S., Morgan, R., Bray, M., & O’neill, W. (2007). Cold gas dynamic manufacturing: A non-thermal approach to freeform fabrication. *International Journal of Machine Tools and Manufacture*, 47(3-4), 627-634.
- Petrovskiy, P., Doubenskaia, M., Sova, A., & Travyanov, A. (2020). Analysis of copper-tungsten cold spray coating: Kinetics of coating formation and its thermal properties. *Surface and Coatings Technology*, 125376.
- Poudel, B., Hao, Q., Ma, Y., Lan, Y., Minnich, A., Yu, B., ... & Chen, X. (2008). High-thermoelectric performance of nanostructured bismuth antimony telluride bulk alloys. *Science*, 320(5876), 634-638.
- Pradana, M. A., & Widyardono, M. (2020). Prototipe Pembangkit Listrik Termoelektrik Generator Menggunakan Penghantar Panas Aluminium, Kuningan Dan seng. *JURNAL TEKNIK ELEKTRO*, 9(2).
- Pudjanarsa A dan Nursuhud D.2008. “Mesin Konversi Energi”. CV. Andi Offset, Yogyakarta.
- Purwanto, dan Syamsul H. 2005.,*Teknologi Industri Elektroplating*. Semarang : Universitas Diponegoro
- Putra, N., Koestoer, R. A., Adhitya, M., Roekettino, A., & Trianto, B. (2009). Potensi Pembangkit Daya Termoelektrik untuk Kendaraan Hibrid. *Makara Journal of Technology*, 13(2).
- S. L. Soo, *Direct Energy Conversion*, London, UK: Prentice Hall, 1968.
- Salim, A. T. A., & Indarto, B. (2018). Studi Eksperimental Karakterisasi Elemen Termoelektrik Peltier Tipe TEC. *JEECAE (Journal of Electrical, Electronics, Control, and Automotive Engineering)*, 3(1), 179-182.

- Shuai, J., Mao, J., Song, S., Zhang, Q., Chen, G., & Ren, Z. (2017). Recent progress and future challenges on thermoelectric Zintl materials. *Materials Today Physics*, 1, 74-95.
- Sova, A., Grigoriev, S., Okunkova, A., & Smurov, I. (2013). Potential of cold gas dynamic spray as additive manufacturing technology. *The International Journal of Advanced Manufacturing Technology*, 69(9-12), 2269-2278.
- Sova, A., Maestracci, R., Jeandin, M., Bertrand, P., & Smurov, I. (2017). Kinetics of composite coating formation process in cold spray: modelling and experimental validation. *Surface and Coatings Technology*, 318, 309-314.
- Sudarmanto Jayanegara. 2019. *Pemanfaatan Panas Cerobong Insinerator Sebagai Energi Listrik Berbasis Generator Termoelektrik*. Makassar. Universitas Hasanuddin
- Supriadi, H. 2010. Studi Eksperimental Tentang Pengaruh Variasi Rapat Arus pada Hard Chrome Electroplating Terhadap Karakterisasi Permukaan Baja Karbon Rendah. *Jurnal Mechanical*. Vol 1. Hal 1.
- Umboh, R., Wuwung, J. O., Allo, E. K., & Narasiang, B. S. (2012). Perancangan alat pendinginan portable menggunakan elemen peltier. *Jurnal Teknik Elektro dan Komputer*, 1(3).
- Wang, X., Feng, F., Klecka, M. A., Mordasky, M. D., Garofano, J. K., El-Wardany, T., ... & Champagne, V. K. (2015). Characterization and modeling of the bonding process in cold spray additive manufacturing. *Additive Manufacturing*, 8, 149-162.
- Yerikho, Raharjo W.P., Kusharjanta Bambang. 2013. Optimalisasi Variasi Tegangan dan Waktu terhadap Ketebalan dan Adhesivitas Lapisan pada Plat Baja karbon Rendah dengan Proses *Electroplating* Menggunakan Pelapis Seng. *Jurnal Mekanika*. Vol 11.No 2. Hal 62-68.

LAMPIRAN

DOKUMENTASI PERSIAPAN ALAT DAN BAHAN



DOKUMENTASI PROSES PENELITIAN



DOKUMENTASI PROSES PENGAMBILAN DATA



DATA TABEL KETEBALAN LAPISAN COATING

VARIASI 1 (Perendaman dengan tegangan 2,5 Volt selama 30 Menit)									
	Berat sebelum coating (gram)	Berat setelah diberi grafit (gram)	Berat setelah dicoating (gram)	Berat lapisan grafit (gram)	Berat Tembaga (gram)	Tahanan sebelum coating (ohm)	Tahanan setelah coating (ohm)	Volume tembaga (cm ³)	Ketebalan tembaga (mm)
TEG 1	22,54	22,565	22,893	0,025	0,328	5	6,5	0,03661	0,02287946
TEG 2	22,633	22,669	22,943	0,036	0,274	5,3	6,5	0,03058	0,01911272
TEG 3	22,796	22,819	23,135	0,023	0,316	5,6	5,1	0,03527	0,02204241
TEG 4	22,712	22,735	23,151	0,023	0,416	3,4	4,6	0,04643	0,02901786
Total	90,681	90,788	92,122	0,107	1,334	19,3	22,7	0,14888	0,09305246
Rerata	22,67025	22,697	23,0305	0,02675	0,3335	4,825	5,675	0,03722	0,02326311

VARIASI 2 (Perendaman dengan tegangan 2,5 Volt selama 45 Menit)									
	Berat sebelum coating (gram)	Berat setelah diberi grafit (gram)	Berat setelah dicoating (gram)	Berat lapisan grafit (gram)	Berat Tembaga (gram)	Tahanan sebelum coating (ohm)	Tahanan setelah coating (ohm)	Volume tembaga (cm ³)	Ketebalan tembaga (mm)
TEG 5	22,769	22,782	23,272	0,013	0,49	4,4	4,6	0,05469	0,03417969
TEG 6	22,563	22,59	23,087	0,027	0,497	5,8	6,1	0,05547	0,03466797
TEG 7	22,569	22,617	23,009	0,048	0,392	6,6	6,7	0,04375	0,02734375
TEG 8	22,615	22,746	23,154	0,131	0,408	6	6,2	0,04554	0,02845982
Total	90,516	90,735	92,522	0,219	1,787	26,8	27,3	0,19944	0,12465123
Rerata	22,629	22,6838	23,1305	0,05475	0,44675	5,7	5,9	0,04986	0,03116281

VARIASI 3 (Perendaman dengan tegangan 2,5 Volt selama 60 Menit)									
	Berat sebelum coating (gram)	Berat setelah diberi grafit (gram)	Berat setelah dicoating (gram)	Berat lapisan grafit (gram)	Berat Tembaga (gram)	Tahanan sebelum coating (ohm)	Tahanan setelah coating (ohm)	Volume tembaga (cm ³)	Ketebalan tembaga (mm)
TEG 9	22,766	22,781	23,405	0,015	0,624	5,4	6,4	0,06964	0,04352679
TEG 10	22,743	22,769	23,185	0,026	0,416	3,9	4,1	0,04643	0,02901786
TEG 11	22,815	22,845	23,549	0,03	0,704	4,4	6,8	0,07857	0,04910714
TEG 12	23,004	23,034	23,638	0,03	0,604	5,2	8,3	0,06741	0,0421317
Total	91,328	91,429	93,777	0,101	2,348	18,9	25,6	0,26205	0,16378348
Rerata	22,832	22,8573	23,4443	0,02525	0,587	4,725	6,4	0,06551	0,04094587

VARIASI 4 (Perendaman dengan tegangan 3 Volt selama 30 Menit)									
	Berat sebelum coating (gram)	Berat setelah diberi grafit (gram)	Berat setelah dicoating (gram)	Berat lapisan grafit (gram)	Berat Tembaga (gram)	Tahanan sebelum coating (ohm)	Tahanan setelah coating (ohm)	Volume tembaga (cm ³)	Ketebalan tembaga (mm)
TEG 13	22,497	22,518	22,882	0,021	0,364	7,2	6,1	0,04063	0,02539063
TEG 14	22,515	22,536	22,93	0,021	0,394	5,7	5,7	0,04397	0,02748326
TEG 15	22,569	22,608	23,029	0,039	0,421	6,1	6,1	0,04699	0,02936663
TEG 16	22,745	22,769	23,135	0,024	0,366	5,8	6,1	0,04085	0,02553013
Total	90,326	90,431	91,976	0,105	1,545	24,8	24	0,17243	0,10777065
Rerata	22,5815	22,6078	22,994	0,02625	0,38625	6,2	6	0,04311	0,02694266

VARIASI 5 (Perendaman dengan tegangan 3 Volt selama 45 Menit)									
	Berat sebelum coating (gram)	Berat setelah diberi grafit (gram)	Berat setelah dicoating (gram)	Berat lapisan grafit (gram)	Berat Tembaga (gram)	Tahanan sebelum coating (ohm)	Tahanan setelah coating (ohm)	Volume tembaga (cm ³)	Ketebalan tembaga (mm)
TEG 17	22,613	22,647	23,077	0,034	0,43	6,3	6,5	0,04799	0,02999442
TEG 18	23,514	23,527	24,116	0,013	0,589	4,8	4,8	0,06574	0,04108538
TEG 19	22,885	22,929	23,45	0,044	0,521	5,3	5,8	0,05815	0,03634208
TEG 20	23,777	23,798	24,312	0,021	0,514	5,6	5,6	0,05737	0,03585379
Total	92,789	92,901	94,955	0,112	2,054	21,6	31,1	0,22924	0,14327567
Rerata	23,19725	23,2253	23,7388	0,028	0,5135	5,5	5,675	0,05731	0,03581892

VARIASI 6 (Perendaman dengan tegangan 3 Volt selama 60 Menit)									
	Berat sebelum coating (gram)	Berat setelah diberi grafit (gram)	Berat setelah dicoating (gram)	Berat lapisan grafit (gram)	Berat Tembaga (gram)	Tahanan sebelum coating (ohm)	Tahanan setelah coating (ohm)	Volume tembaga (cm ³)	Ketebalan tembaga (mm)
TEG 21	22,35	22,553	23,197	0,203	0,644	4,7	6,6	0,07187	0,04492187
TEG 22	22,25	22,366	23,19	0,116	0,824	5,3	5,4	0,09196	0,05747768
TEG 23	22,606	22,618	23,411	0,012	0,793	4,4	4,6	0,0885	0,05531529
TEG 24	22,613	22,626	23,342	0,013	0,716	5,7	7,3	0,07991	0,0499442
Total	89,819	90,163	93,14	0,344	2,977	19,1	22,8	0,33225	0,20765904
Rerata	22,45475	22,5408	23,285	0,086	0,74425	5,025	5,975	0,08306	0,05191476

VARIASI 7 (Perendaman dengan tegangan 3,5 Volt selama 30 Menit)									
	Berat sebelum coating (gram)	Berat setelah diberi grafit (gram)	Berat setelah dicoating (gram)	Berat lapisan grafit (gram)	Berat Tembaga (gram)	Tahanan sebelum coating (ohm)	Tahanan setelah coating (ohm)	Volume tembaga (cm ³)	Ketebalan tembaga (mm)
TEG 25	23,141	23,168	23,497	0,027	0,329	6,4	6,4	0,03672	0,02294922
TEG 26	23,616	23,647	24,009	0,031	0,362	5,6	5,4	0,0404	0,02525112
TEG 27	23,911	23,939	24,41	0,028	0,471	5,5	5,4	0,05257	0,03285435
TEG 28	22,864	22,875	23,332	0,011	0,457	6,2	5,2	0,051	0,03187779
Total	93,532	93,629	95,148	0,097	1,519	0	22,7	0,16953	0,10595703
Rerata	23,383	23,4073	23,812	0,02425	0,40475	5,925	5,6	0,04517	0,02823312

VARIASI 8 (Perendaman dengan tegangan 3,5 Volt selama 45 Menit)									
	Berat sebelum coating (gram)	Berat setelah diberi grafit (gram)	Berat setelah dicoating (gram)	Berat lapisan grafit (gram)	Berat Tembaga (gram)	Tahanan sebelum coating (ohm)	Tahanan setelah coating (ohm)	Volume tembaga (cm ³)	Ketebalan tembaga (mm)
TEG 29	23,285	23,325	23,961	0,04	0,636	6,5	5,6	0,07098	0,04436384
TEG 30	22,585	22,604	23,208	0,019	0,604	6,9	5,3	0,06741	0,0421317
TEG 31	22,47	22,496	23,155	0,026	0,659	5,9	5,4	0,07355	0,04596819
TEG 32	22,496	22,513	23,109	0,017	0,596	5,9	4,6	0,06652	0,04157366
Total	90,836	90,938	93,433	0,102	2,495	25,2	20,9	0,27846	0,17403739
Rerata	22,709	22,7345	23,3583	0,0255	0,62375	6,3	5,225	0,06961	0,04350935

VARIASI 9 (Perendaman dengan tegangan 3,5 Volt selama 60 Menit)									
	Berat sebelum coating (gram)	Berat setelah diberi grafit (gram)	Berat setelah dicoating (gram)	Berat lapisan grafit (gram)	Berat Tembaga (gram)	Tahanan sebelum coating (ohm)	Tahanan setelah coating (ohm)	Volume tembaga (cm ³)	Ketebalan tembaga (mm)
TEG 33	22,904	22,94	23,877	0,036	0,937	6,9	6,9	0,10458	0,06535993
TEG 34	23,204	23,233	24,039	0,029	0,806	5,6	5,4	0,08996	0,0562221
TEG 35	22,525	22,569	23,36	0,044	0,791	7,2	6,3	0,08828	0,05517578
TEG 36	22,56	22,623	23,437	0,063	0,814	6,9	6,4	0,09085	0,05678013
Total	91,193	91,365	94,713	0,172	3,348	26,6	25	0,37366	0,23353795
Rerata	22,79825	22,8413	23,6783	0,043	0,837	6,65	6,25	0,09342	0,05838449

DATA RERATA DAN PERHITUNGAN

1. Data variasi *coating* perendaman dengan tegangan 2,5 Volt selama 30 menit

- Rerata

RERATA																		
No.	tc13	th13	dt13	tc14	th14	dt14	tc15	th15	dt15	tc16	th16	dt16	tkipas 4	theatsinl tc avg	th avg	dt avg	voltage	
1	32,082	33,884	1,8016	31,959	33,649	1,69	31,55	33,486	1,9358	31,528	33,596	2,068	30,842	29,949	31,78	33,654	1,8739	0,2988
2	32,37	34,276	1,9059	32,325	34,293	1,9682	32,089	34,411	2,3214	32,209	34,456	2,2468	31,456	30,577	32,248	34,359	2,1106	0,3201
3	32,259	34,137	1,8779	32,12	33,858	1,7378	31,722	33,72	1,9981	31,709	33,862	2,153	31,034	30,169	31,952	33,894	1,9417	0,309
4	33,998	36,22	2,2216	33,25	34,666	1,4153	33,22	34,686	1,4658	33,175	35,017	1,8412	32,592	32,342	33,411	35,147	1,736	0,3215
5	34,018	36,356	2,3378	33,302	34,83	1,5279	33,27	34,754	1,4841	33,232	35,028	1,7962	32,66	32,352	33,456	35,242	1,7865	0,3373
6	34,29	36,588	2,2977	33,561	35,026	1,4648	33,547	34,911	1,364	33,479	35,142	1,6634	32,809	32,454	33,719	35,417	1,6975	0,3428
7	34,792	37,229	2,4367	33,968	35,45	1,4826	33,832	35,319	1,4868	33,742	35,545	1,8028	33,133	32,882	34,084	35,886	1,8022	0,3573
8	34,215	36,902	2,6873	33,685	35,554	1,8682	33,893	35,781	1,8883	34,034	36,081	2,0479	33,528	33,288	33,957	36,08	2,1229	0,3655
9	34,767	37,711	2,9438	34,311	36,239	1,9278	34,4	36,369	1,9691	34,456	36,65	2,194	33,865	33,635	34,484	36,742	2,2587	0,3795
10	34,992	37,843	2,8517	34,35	35,985	1,6356	34,429	35,999	1,5703	34,434	36,211	1,7773	33,731	33,371	34,551	36,46	1,9087	0,3703
11	35,549	38,552	3,0037	35,004	36,807	1,8027	34,824	36,543	1,7191	34,436	36,336	1,9001	33,479	33,225	34,953	37,06	2,1064	0,3862
12	34,741	37,491	2,7503	33,874	35,623	1,7491	34,029	36,011	1,982	34,488	36,774	2,2852	34,397	34,293	34,283	36,475	2,1917	0,3884
13	34,221	37,516	3,2958	34,293	36,281	1,9881	34,725	36,388	1,6622	34,85	36,854	2,0034	34,522	34,119	34,522	36,76	2,2374	0,388
14	35,732	38,506	2,7738	35,208	36,801	1,593	35,253	36,638	1,3852	35,211	36,928	1,7172	34,882	34,369	35,351	37,218	1,8673	0,374
15	35,779	38,366	2,5863	35,271	36,796	1,5257	35,31	36,632	1,3216	35,275	36,901	1,6252	34,906	34,358	35,409	37,174	1,7647	0,3683
16	35,79	38,405	2,6148	35,35	36,893	1,5433	35,392	36,755	1,3626	35,391	37,049	1,6578	34,953	34,373	35,481	37,275	1,7946	0,3671
17	35,948	38,524	2,5766	35,551	37,138	1,5868	35,591	37,002	1,4112	35,62	37,268	1,6481	35,202	34,592	35,677	37,483	1,8007	0,3561
18	35,841	38,339	2,4977	35,43	36,94	1,5096	35,456	36,733	1,2771	35,505	37,023	1,5187	35,02	34,349	35,558	37,259	1,7058	0,3489
19	36,148	38,628	2,4794	35,772	37,272	1,4993	35,781	37,041	1,2602	35,833	37,323	1,4902	35,337	34,612	35,884	37,566	1,6823	0,3352
20	36,465	39,916	2,4507	36,094	37,606	1,5117	36,18	37,391	1,273	36,185	37,635	1,4507	35,699	34,945	36,215	37,887	1,6715	0,3243
21	36,847	39,247	2,4006	36,481	37,948	1,4673	36,504	37,742	1,2383	36,706	37,981	1,2752	36,067	35,289	36,634	38,23	1,5954	0,3147
22	36,634	39,065	2,4312	36,161	37,699	1,5377	36,19	37,284	1,0938	36,564	37,708	1,1446	35,767	34,991	36,387	37,939	1,5518	0,3011
23	36,057	38,209	2,152	35,592	37,141	1,5496	35,646	36,535	0,8888	36,397	36,85	0,4532	35,152	34,396	35,923	37,184	1,2609	0,2805
24	35,787	37,748	1,9611	35,361	36,707	1,3467	35,41	36,094	0,6841	36,204	36,481	0,2773	35,011	34,158	35,69	36,758	1,0673	0,2572
25	35,211	36,942	1,7309	34,79	35,956	1,1659	34,819	35,277	0,4582	35,539	35,58	0,041	34,332	33,46	35,09	35,939	0,849	0,2331
26	34,579	36,181	1,6023	34,179	35,318	1,1386	34,22	34,726	0,5056	35,063	35,01	-0,0538	33,823	33,257	34,511	35,309	0,7982	0,2067
27	34,688	35,969	1,2803	34,365	35,169	0,8039	34,428	34,586	0,1587	35,237	35,014	-0,2234	34,315	33,335	34,68	35,185	0,5049	0,183
28	34,562	35,736	1,1744	34,266	34,976	0,7091	34,33	34,437	0,1064	35,233	34,866	-0,367	34,273	33,293	34,598	35,004	0,4058	0,1625
29	34,353	35,266	0,9133	34,087	34,591	0,5046	34,149	34,066	-0,0833	34,926	34,44	-0,4862	34,132	33,24	34,379	34,591	0,2121	0,1312
30	34,21	34,984	0,7739	33,944	34,332	0,388	33,991	33,851	-0,1409	34,818	34,185	-0,6328	33,976	33,128	34,241	34,338	0,0971	0,1134
31	34,21	34,708	0,4969	33,954	34,047	0,0925	33,989	33,628	-0,3617	34,685	33,956	-0,7296	34,018	33,223	34,21	34,085	-0,1255	0,0868
32	33,596	33,754	0,1573	33,358	33,164	-0,194	33,389	32,816	-0,5726	33,771	33,135	-0,636	33,614	32,876	33,529	33,217	-0,3113	0,0547

- Perhitungan

no	tc avg	th avg	dt avg	voltage	Intensitas	R	Jenis	alpa	Arus	k	Qh	Daya	Eff
1	31,78	33,654	1,8739	0,2988	644	6,5	TEG 9	0,1594	0,001	0,9977	0,012	0,0003	2,5157
2	32,248	34,359	2,1106	0,3201	665,333	6,5	TEG 10	0,1517	0,0011	0,9977	0,01351	0,00035	2,5641
3	31,952	33,894	1,9417	0,309	652,667	5,1	TEG 11	0,1592	0,001	0,9977	0,01243	0,00032	2,5972
4	33,411	35,147	1,736	0,3215	673	4,6	TEG 50	0,1852	0,0011	0,9977	0,01113	0,00035	3,14
5	33,456	35,242	1,7865	0,3373	704,333	273	Beban	0,1888	0,0011	0,9977	0,01146	0,00038	3,3595
6	33,719	35,417	1,6975	0,3428	737,333	295,7	Total	0,202	0,0012	0,9977	0,01089	0,0004	3,6496
7	34,084	35,886	1,8022	0,3573	775			0,1982	0,0012	0,9977	0,01156	0,00043	3,7335
8	33,957	36,08	2,1229	0,3655	795	0,0064	A	0,1722	0,0012	0,9977	0,01036	0,00045	3,3215
9	34,484	36,742	2,2587	0,3795	841			0,168	0,0013	0,9977	0,01447	0,00049	3,3651
10	34,551	36,46	1,9087	0,3703	855,667			0,194	0,0013	0,9977	0,01224	0,00046	3,7864
11	34,953	37,06	2,1064	0,3862	864,667			0,1833	0,0013	0,9977	0,01351	0,0005	3,7343
12	34,283	36,475	2,1917	0,3884	873,333			0,1772	0,0013	0,9977	0,01405	0,00051	3,6305
13	34,522	36,76	2,2374	0,388	881,667			0,1734	0,0013	0,9977	0,01434	0,00051	3,5502
14	35,351	37,218	1,8673	0,374	877,333			0,2003	0,0013	0,9977	0,01198	0,00047	3,9482
15	35,409	37,174	1,7647	0,3683	870			0,2087	0,0012	0,9977	0,01133	0,00046	4,0484
16	35,481	37,275	1,7946	0,3671	853,667			0,2046	0,0012	0,9977	0,01152	0,00046	3,9567
17	35,677	37,483	1,8057	0,3561	828,667			0,1972	0,0012	0,9977	0,01159	0,00043	3,7014
18	35,558	37,259	1,7008	0,3489	807,333			0,2052	0,0012	0,9977	0,01092	0,00041	3,7717
19	35,884	37,566	1,6823	0,3352	776,333			0,1992	0,0011	0,9977	0,0108	0,00038	3,5186
20	36,215	37,887	1,6715	0,3243	740,667			0,194	0,0011	0,9977	0,01072	0,00036	3,3156
21	36,634	38,23	1,5954	0,3147	707,667			0,1973	0,0011	0,9977	0,01024	0,00033	3,2712
22	36,387	37,939	1,5518	0,3011	676,667			0,194	0,001	0,9977	0,00996	0,00031	3,079
23	35,923	37,184	1,2609	0,2805	637			0,2225	0,0009	0,9977	0,0081	0,00027	3,2844
24	35,69	36,758	1,0673	0,2572	590			0,2409	0,0009	0,9977	0,00686	0,00022	3,258
25	35,09	35,939	0,849	0,2331	544			0,2746	0,0008	0,9977	0,00547	0,00018	3,359
26	34,511	35,309	0,7982	0,2067	487			0,2589	0,0007	0,9977	0,00514	0,00014	2,812
27	34,68	35,185	0,5049	0,183	440,333			0,3625	0,0006	0,9977	0,00327	0,00011	3,4588
28	34,598	35,004	0,4058	0,1625	389,333			0,4004	0,0005	0,9977	0,00264	8,9E-05	3,3809
29	34,379	34,591	0,2121	0,1312	324,667			0,6188	0,0004	0,9977	0,00142	5,8E-05	4,1157
30	34,241	34,338	0,0971	0,1134	299,333			1,1682	0,0004	0,9977	0,00072	4,3E-05	6,0533
31	34,21	34,085	-0,125	0,0868	203,667			-0,692	0,0003	0,9977	-0,0008	2,6E-05	-3,017
32	33,529	33,217	-0,311	0,0547	154,667			-0,176	0,0002	0,9977	-0,002	1E-05	-0,507

2. Data variasi *coating* perendaman dengan tegangan 2,5 Volt selama 45 menit

- Rerata

RERATA																		
No.	tc5	th5	dt5	tc6	th6	dt6	tc7	th7	dt7	tc8	th8	dt8	tkipas 2	theatsinl	tc avg	th avg	dt avg	voltage
1	31,497	33,726	2,2292	31,21	32,72	1,5102	31,088	32,361	1,2728	32,266	34,359	2,0938	31,283	30,95	31,515	33,292	1,7765	0,307
2	32,254	34,453	2,1983	31,624	33,283	1,6588	31,238	32,681	1,4421	32,587	34,737	2,1508	31,641	31,278	31,926	33,788	1,8625	0,3296
3	31,787	34,097	2,3099	31,433	32,986	1,5532	31,038	32,202	1,1641	32,487	34,698	2,2104	31,517	31,164	31,687	33,496	1,8094	0,3184
4	32,76	35,071	2,3109	32,832	34,671	1,8382	32,494	34,608	2,1142	31,561	34,054	2,4927	31,169	31,109	32,412	34,601	2,189	0,3462
5	32,893	35,226	2,3434	32,97	34,82	1,8501	32,608	34,786	2,1782	31,364	33,894	2,5299	31,043	31,049	32,456	34,682	2,2254	0,3637
6	32,334	35,229	2,2944	33,042	34,869	1,8269	32,681	34,772	2,0905	31,258	33,849	2,5905	30,941	30,939	32,479	34,68	2,2006	0,3751
7	33,31	35,749	2,4386	33,427	35,4	1,9728	33,067	35,309	2,2426	31,694	34,548	2,8538	31,649	31,735	32,875	35,252	2,3769	0,3862
8	33,205	35,786	2,581	33,339	35,575	2,2368	33,003	35,517	2,5136	32,693	35,461	2,7681	32,185	32,039	33,06	35,585	2,5249	0,3952
9	33,537	36,286	2,7493	33,679	36,114	2,4351	33,354	36,058	2,7038	33,394	36,193	2,7986	32,714	32,536	33,491	36,163	2,6717	0,4104
10	33,447	35,875	2,4277	33,601	35,71	2,1082	33,279	35,599	2,3199	33,218	35,676	2,4586	32,464	32,275	33,386	35,715	2,3286	0,3996
11	33,823	36,479	2,6559	33,961	36,228	2,2674	33,649	36,51	2,8608	33,607	36,34	2,7327	32,913	32,7	33,76	36,389	2,6292	0,4151
12	33,956	36,516	2,5599	34,095	36,164	2,0684	33,799	36,569	2,7693	33,706	36,382	2,6756	32,983	32,763	33,889	36,407	2,5183	0,4158
13	34,211	36,737	2,5261	34,319	36,25	1,9314	33,981	36,586	2,6047	33,889	36,495	2,6061	33,184	32,991	34,1	36,517	2,4171	0,4168
14	34,456	36,642	2,1852	34,575	36,342	1,7673	34,286	36,402	2,116	34,116	36,468	2,3523	33,413	33,204	34,358	36,463	2,1052	0,3997
15	34,569	36,602	2,0328	34,685	36,417	1,7314	34,427	36,339	1,9118	34,282	36,475	2,1932	33,538	33,297	34,491	36,458	1,9673	0,39
16	34,749	36,867	2,1176	34,864	36,713	1,8487	34,626	36,543	1,9167	34,472	36,736	2,2634	33,708	33,505	34,678	36,715	2,0366	0,3889
17	34,995	36,995	2,0003	35,104	36,32	1,8162	34,889	36,703	1,8138	34,721	36,913	2,192	33,953	33,726	34,927	36,883	1,9556	0,3745
18	34,878	36,788	1,9106	34,894	36,628	1,7342	34,569	36,244	1,6748	34,671	36,75	2,0795	33,82	33,631	34,753	36,603	1,8498	0,3862
19	34,95	36,975	2,0253	35,111	37,005	1,8949	35,062	36,879	1,8179	34,722	36,783	2,0614	33,875	33,705	34,961	36,911	1,9499	0,3509
20	35,888	37,653	2,0658	35,76	37,651	1,8902	35,689	37,509	1,8193	34,723	36,822	2,0991	33,963	33,864	35,44	37,409	1,9686	0,3385
21	35,856	37,875	2,019	35,945	37,793	1,8481	35,854	37,631	1,7767	35,03	37,104	2,0733	34,268	34,165	35,671	37,601	1,9293	0,3289
22	36,342	38,286	1,9446	36,413	37,86	1,4466	36,365	37,986	1,6216	35,566	37,413	1,8471	34,688	34,704	36,172	37,886	1,7149	0,3106
23	36,01	37,618	1,608	36,068	37,195	1,1267	36,015	37,231	1,2159	35,234	36,782	1,548	34,389	34,392	35,832	37,206	1,3746	0,2851
24	35,586	37,201	1,6149	35,643	36,878	1,2357	35,635	36,867	1,2314	35,046	36,53	1,4843	34,237	34,232	35,477	36,689	1,3916	0,2628
25	35,035	36,292	1,2571	35,08	35,922	0,8417	35,096	35,928	0,8328	34,637	35,776	1,1392	33,788	33,748	34,962	35,979	1,0177	0,2337
26	34,529	35,631	1,1022	34,549	35,236	0,6869	34,578	35,261	0,6829	34,132	35,094	0,9618	33,43	33,382	34,447	35,205	0,8564	0,2031
27	34,236	35,322	1,0862	34,255	35,109	0,8538	34,319	34,956	0,6376	34,101	35,028	0,9267	33,307	33,28	34,228	35,104	0,8781	0,1862
28	34,09	35,176	1,086	34,095	34,968	0,8726	34,188	34,806	0,6179	33,998	34,899	0,9007	33,274	33,221	34,093	34,962	0,8693	0,163
29	33,883	34,708	0,825	33,879	34,526	0,6471	33,991	34,374	0,3828	33,772	34,415	0,6427	33,166	33,096	33,881	34,506	0,6244	0,1286
30	33,78	34,535	0,7551	33,76	34,279	0,5191	33,884	34,224	0,34	33,648	34,215	0,567	33,054	32,997	33,768	34,313	0,5453	0,1082
31	33,839	34,341	0,5017	33,802	34,071	0,2685	33,91	34,054	0,1436	33,687	34,022	0,335	33,109	33,013	33,81	34,122	0,3122	0,0801
32	33,159	33,393	0,2336	33,056	33,139	0,0832	33,058	32,854	-0,2048	33,144	33,258	0,1143	32,744	32,651	33,104	33,161	0,0566	0,0473

- Perhitungan

no	tc avg	th avg	dt avg	voltage	Intensitas	R	Jenis	alpha	Arus	k	Qh	Daya	Eff
1	31,515	33,292	1,7765	0,307	644	4,6	TEG 46	0,17279	0,00103	0,9377	0,0114	0,000317682	2,7912
2	31,926	33,788	1,8625	0,3296	665,333	6,1	TEG 47	0,17698	0,00111	0,9377	0,0119	0,000366348	3,0695
3	31,687	33,496	1,8094	0,3184	652,667	6,7	TEG 48	0,17595	0,00107	0,9377	0,0116	0,000341743	2,9476
4	32,412	34,601	2,189	0,3462	673	6,2	TEG 4	0,15816	0,00117	0,9377	0,014	0,000404121	2,8828
5	32,456	34,682	2,2254	0,3637	704,333	273	Beban	0,16343	0,00123	0,9377	0,0143	0,000445939	3,1289
6	32,479	34,68	2,2006	0,3751	737,333	296,6	Total	0,17044	0,00126	0,9377	0,0141	0,000474307	3,3641
7	32,875	35,252	2,3769	0,3862	775			0,16249	0,0013	0,9377	0,0152	0,00050232	3,3032
8	33,06	35,585	2,5249	0,3952	795	0,0064	A	0,15652	0,00133	0,9377	0,0162	0,000526567	3,2566
9	33,491	36,163	2,6717	0,4104	841			0,15361	0,00138	0,9377	0,0171	0,00056786	3,3191
10	33,386	35,715	2,3286	0,3996	855,667			0,17162	0,00135	0,9377	0,0149	0,000538467	3,6087
11	33,76	36,389	2,6292	0,4151	864,667			0,1579	0,0014	0,9377	0,0168	0,000581072	3,4506
12	33,889	36,407	2,5183	0,4158	873,333			0,16511	0,0014	0,9377	0,0161	0,000582869	3,6127
13	34,1	36,517	2,4171	0,4168	881,667			0,17243	0,00141	0,9377	0,0155	0,000585663	3,7808
14	34,358	36,463	2,1052	0,3997	877,333			0,18986	0,00135	0,9377	0,0135	0,000538614	3,9891
15	34,491	36,458	1,9673	0,39	870			0,19825	0,00131	0,9377	0,0126	0,000512852	4,063
16	34,678	36,715	2,0366	0,3889	853,667			0,19094	0,00131	0,9377	0,0131	0,000509808	3,9027
17	34,927	36,883	1,9556	0,3745	828,667			0,1915	0,00126	0,9377	0,0125	0,00047283	3,7694
18	34,753	36,603	1,8498	0,3662	807,333			0,19796	0,00123	0,9377	0,0119	0,000452092	3,8092
19	34,961	36,911	1,9499	0,3509	776,333			0,17998	0,00118	0,9377	0,0125	0,000415227	3,3216
20	35,44	37,409	1,9686	0,3385	740,667			0,17197	0,00114	0,9377	0,0126	0,000386429	3,0627
21	35,671	37,601	1,9293	0,3289	707,667			0,17046	0,00111	0,9377	0,0124	0,000364656	2,9492
22	36,172	37,886	1,7149	0,3106	678,667			0,18113	0,00105	0,9377	0,011	0,000325306	2,9583
23	35,832	37,206	1,3746	0,2851	637			0,20738	0,00096	0,9377	0,0088	0,000273999	3,1048
24	35,477	36,869	1,3916	0,2628	590			0,18882	0,00089	0,9377	0,0089	0,000232775	2,6081
25	34,962	35,979	1,0177	0,2337	544			0,22967	0,00079	0,9377	0,0065	0,000184191	2,8164
26	34,447	35,305	0,8584	0,2031	487			0,23659	0,00068	0,9377	0,0055	0,000139071	2,5203
27	34,228	35,104	0,8761	0,1862	440,333			0,21258	0,00063	0,9377	0,0056	0,000116928	2,0792
28	34,093	34,962	0,8693	0,163	389,333			0,18753	0,00055	0,9377	0,0056	8,95999E-05	1,6076
29	33,881	34,506	0,6244	0,1286	324,667			0,20592	0,00043	0,9377	0,004	5,57362E-05	1,3911
30	33,768	34,313	0,5453	0,1082	299,333			0,19839	0,00036	0,9377	0,0035	3,94595E-05	1,1261
31	33,81	34,122	0,3122	0,0801	203,667			0,25671	0,00027	0,9377	0,002	2,16527E-05	1,0781
32	33,104	33,161	0,0566	0,0473	154,667			0,83534	0,00016	0,9377	0,0004	7,52779E-06	1,933

3. Data variasi *coating* perendaman dengan tegangan 2,5 Volt selama 45 menit

- Rerata

RERATA																		
No.	tc9	th9	dt9	tc10	th10	dt10	tc11	th11	dt11	tc12	dt12	tkipas 3	theatsinl	tc avg	th avg	dt avg	voltage	
1	31,852	34,24	2,3875	31,597	34,042	2,4447	31,439	34,38	2,9409	31,453	33,223	1,7696	29,903	29,687	31,585	33,971	2,3857	0,2925
2	32,245	34,808	2,5629	32,043	34,719	2,6754	31,947	35,149	3,2013	32,051	34,05	1,9991	30,639	30,534	32,072	34,681	2,6097	0,3129
3	31,96	34,404	2,4443	31,724	34,256	2,5323	31,618	34,678	3,0601	31,674	33,603	1,9298	30,214	30,045	31,744	34,236	2,4916	0,3035
4	32,28	33,701	1,4206	32,496	34,414	1,9187	32,515	35,104	2,5884	32,792	34,887	2,095	32,202	32,815	32,521	34,526	2,0057	0,3282
5	32,38	33,925	1,5447	32,681	34,69	2,0087	32,633	34,59	1,8969	32,988	35,276	2,2882	32,502	33,076	32,685	34,62	1,9346	0,3481
6	32,474	33,962	1,4885	32,924	34,954	2,0305	33,114	35,031	1,9169	33,566	35,888	2,3223	33,116	33,52	33,019	34,959	1,9396	0,3579
7	33,334	34,821	1,4869	33,705	35,774	2,069	33,699	35,625	1,926	33,973	36,374	2,401	33,327	33,723	33,678	35,648	1,9707	0,3715
8	33,563	35,076	1,5124	33,787	35,994	2,2069	33,705	35,856	2,1503	33,95	36,626	2,6761	33,289	33,644	33,752	35,888	2,1364	0,3821
9	33,921	35,655	1,7343	34,119	36,5	2,3806	34,009	36,339	2,3239	34,248	37,088	2,84	33,487	33,938	34,074	36,395	2,3212	0,3966
10	33,787	35,105	1,3187	33,931	36,158	2,1664	33,884	35,851	1,9677	34,102	36,6	2,4979	33,42	33,696	33,941	35,329	1,9877	0,3894
11	34,175	35,811	1,6361	34,385	36,826	2,4412	34,27	36,631	2,3614	34,5	37,368	2,8679	33,747	34,122	34,332	36,659	2,3267	0,4038
12	34,277	35,818	1,5414	34,482	36,846	2,3642	34,356	36,584	2,2281	34,575	37,337	2,7623	33,833	34,111	34,422	36,646	2,224	0,4055
13	34,436	36,004	1,5679	34,601	36,919	2,3183	34,423	36,569	2,1467	34,58	37,19	2,6102	33,936	34,188	34,51	36,671	2,1608	0,4031
14	34,632	35,989	1,357	34,8	37,044	2,2437	34,63	36,598	1,9684	34,785	37,192	2,4073	34,234	34,308	34,712	36,706	1,9941	0,3925
15	34,701	35,861	1,1598	34,898	37,046	2,1474	34,747	36,554	1,8069	34,933	37,13	2,1968	34,31	34,508	34,82	36,648	1,8277	0,3849
16	34,837	36,034	1,1963	35,048	37,232	2,1948	34,888	36,813	1,925	35,078	37,36	2,2821	34,313	34,682	34,963	36,86	1,8971	0,3824
17	35,032	36,237	1,205	35,226	37,425	2,199	35,063	36,964	1,9011	35,279	37,475	2,1961	34,498	34,924	35,15	37,025	1,8753	0,3697
18	34,837	36,041	1,2038	35,01	37,194	2,1839	34,821	36,743	1,9221	35,093	37,257	2,164	34,289	34,802	34,94	36,809	1,8685	0,3626
19	35,016	36,269	1,2531	35,228	37,399	2,1709	35,084	37,088	2,0042	35,457	37,682	2,2254	34,771	35,288	35,196	37,11	1,9134	0,3472
20	35,239	36,527	1,2878	35,54	37,749	2,2094	35,489	37,526	2,0373	35,875	38,087	2,2118	35,232	35,662	35,536	37,472	1,9366	0,3349
21	35,64	36,832	1,1922	35,91	38,096	2,1859	35,841	37,889	1,848	36,181	38,257	2,0756	35,456	35,875	35,893	37,718	1,8254	0,3228
22	35,79	36,627	0,8369	35,988	37,912	1,9247	35,951	37,498	1,547	36,242	38,055	1,8126	35,579	35,597	35,993	37,523	1,5303	0,3003
23	35,454	35,992	0,5376	35,719	37,432	1,7131	35,719	37,025	1,3052	35,98	37,455	1,475	35,349	35,299	35,718	36,976	1,2577	0,2778
24	35,175	35,759	0,5842	35,406	37,035	1,6286	35,362	36,627	1,2654	35,606	37,007	1,4006	34,958	35,088	35,387	36,607	1,2197	0,2557
25	34,683	34,969	0,286	34,877	36,265	1,3884	34,83	35,799	0,969	35,044	36,124	1,0801	34,477	34,498	34,858	35,789	0,9309	0,2294
26	34,256	34,539	0,2834	34,41	35,68	1,2702	34,328	35,198	0,8697	34,475	35,418	0,9426	34,133	33,957	34,367	35,209	0,8415	0,2014
27	34,086	34,28	0,1944	34,239	35,345	1,1062	34,157	34,94	0,7828	34,312	35,156	0,8443	33,731	34,041	34,199	34,931	0,7319	0,1815
28	33,977	34,226	0,2491	34,106	35,201	1,0949	34,018	34,813	0,795	34,15	35,016	0,8657	33,633	33,999	34,063	34,814	0,7512	0,1613
29	33,795	33,847	0,0514	33,907	34,749	0,8424	33,836	34,355	0,5191	33,944	34,533	0,5897	33,604	33,876	33,87	34,371	0,5007	0,1293
30	33,686	33,641	-0,045	33,754	34,469	0,7147	33,654	34,061	0,4069	33,713	34,211	0,4977	33,435	33,614	33,702	34,096	0,3936	0,1103
31	33,642	33,327	-0,315	33,606	34,056	0,4499	33,501	33,597	0,0967	33,552	33,809	0,257	33,435	33,589	33,575	33,698	0,1222	0,0833
32	33,106	32,62	-0,486	33,105	33,332	0,2262	33,058	32,88	-0,178	33,112	33,194	0,0216	33,118	33,411	33,095	32,991	-0,104	0,0522

- Perhitungan

no	tc avg	th avg	dt avg	voltage	Intensitas	R	Jenis	alpha	Arus	k	Qh	Daya	Eff
1	31,585	33,971	2,3857	0,2925	644	6,4	TEG 40	0,1226	0,000979	0,9977	0,0153	0,000286433	1,8771
2	32,072	34,681	2,6097	0,3129	665,33	4,1	TEG 49	0,1199	0,001048	0,9977	0,0167	0,000327855	1,9642
3	31,744	34,236	2,4916	0,3035	652,67	6,8	TEG 7	0,1218	0,001016	0,9977	0,0159	0,000308528	1,9359
4	32,521	34,526	2,0057	0,3282	673	8,3	TEG 23	0,1637	0,001099	0,9977	0,0128	0,000360834	2,8088
5	32,685	34,62	1,9346	0,3481	704,33	273	Beban	0,1799	0,001166	0,9977	0,0124	0,000405772	3,2725
6	33,019	34,959	1,9396	0,3579	737,33	298,6	Total	0,1845	0,001198	0,9977	0,0124	0,000428881	3,4492
7	33,678	35,648	1,9707	0,3715	775			0,1885	0,001244	0,9977	0,0126	0,000462158	3,6571
8	33,752	35,888	2,1364	0,3821	795	0,0064	A	0,1788	0,00128	0,9977	0,0137	0,000488886	3,57
9	34,074	36,395	2,3212	0,3966	841			0,1708	0,001328	0,9977	0,0149	0,000526656	3,5407
10	33,941	35,929	1,9877	0,3894	855,67			0,1959	0,001304	0,9977	0,0128	0,000507895	3,9833
11	34,332	36,659	2,3267	0,4038	864,67			0,1736	0,001352	0,9977	0,0149	0,000546162	3,6627
12	34,422	36,646	2,224	0,4055	873,33			0,1823	0,001358	0,9977	0,0143	0,000550767	3,8626
13	34,51	36,671	2,1608	0,4031	881,67			0,1865	0,00135	0,9977	0,0139	0,000544093	3,9267
14	34,712	36,706	1,9941	0,3925	877,33			0,1968	0,001314	0,9977	0,0128	0,000515943	4,0328
15	34,82	36,648	1,8277	0,3849	870			0,2106	0,001289	0,9977	0,0117	0,000496256	4,2291
16	34,963	36,86	1,8971	0,3824	853,67			0,2016	0,00128	0,9977	0,0122	0,000489604	4,0217
17	35,15	37,025	1,8753	0,3697	828,67			0,1971	0,001238	0,9977	0,012	0,000457687	3,8039
18	34,94	36,809	1,8685	0,3626	807,33			0,1941	0,001214	0,9977	0,012	0,000440331	3,6736
19	35,196	37,11	1,9134	0,3472	776,33			0,1814	0,001163	0,9977	0,0123	0,000403684	3,2906
20	35,536	37,472	1,9366	0,3349	740,67			0,173	0,001122	0,9977	0,0124	0,000375716	3,027
21	35,893	37,718	1,8254	0,3228	707,67			0,1768	0,001081	0,9977	0,0117	0,000348863	2,9812
22	35,993	37,523	1,5303	0,3003	676,67			0,1963	0,001006	0,9977	0,0098	0,000302055	3,0763
23	35,718	36,976	1,2577	0,2778	637			0,2209	0,00093	0,9977	0,0081	0,000258406	3,1983
24	35,387	36,607	1,2197	0,2557	590			0,2096	0,000856	0,9977	0,0078	0,000218886	2,7954
25	34,858	35,789	0,9309	0,2294	544			0,2465	0,000768	0,9977	0,006	0,000176278	2,9442
26	34,367	35,209	0,8415	0,2014	487			0,2393	0,000674	0,9977	0,0054	0,000135819	2,5108
27	34,199	34,931	0,7319	0,1815	440,33			0,2479	0,000608	0,9977	0,0047	0,000110269	2,3425
28	34,063	34,814	0,7512	0,1613	389,33			0,2147	0,00054	0,9977	0,0048	8,71386E-05	1,807
29	33,87	34,371	0,5007	0,1293	324,67			0,2582	0,000433	0,9977	0,0032	5,59862E-05	1,7379
30	33,702	34,096	0,3936	0,1103	299,33			0,2802	0,000369	0,9977	0,0025	4,07316E-05	1,6061
31	33,575	33,698	0,1222	0,0833	203,67			0,6815	0,000279	0,9977	0,0008	2,32308E-05	2,8286
32	33,095	32,991	-0,104	0,0522	154,67			-0,502	0,000175	0,9977	-7E-04	9,11619E-06	-1,336

4. Data variasi Coating Perendaman dengan tegangan 3 Volt selama 30 Menit

- Rerata

No.	PERATA														Voltage			
	tc9	th9	dt9	tc10	th10	dt10	tc11	th11	dt11	tc12	th12	dt12	tkipas 3	theatsin		tc avg	th avg	dt avg
1	32,808	34,811	2,0021	32,617	35,112	2,4953	32,547	34,678	2,1313	32,585	34,881	2,2956	31,547	33,523	32,639	34,87	2,2311	0,258
2	33,624	35,806	2,1816	33,333	36,008	2,6146	33,362	35,598	2,2358	33,421	35,867	2,4461	32,362	33,446	33,45	35,819	2,3695	0,2768
3	34,22	36,558	2,3376	33,99	36,79	2,8003	33,965	36,354	2,3889	34,027	36,647	2,6202	32,943	33,935	34,051	36,587	2,5368	0,296
4	34,689	37,123	2,434	34,465	37,36	2,8957	34,463	36,945	2,4822	34,531	37,301	2,7636	33,389	34,458	34,537	37,182	2,6454	0,3088
5	34,632	37,162	2,5298	34,429	37,297	2,8682	34,448	36,971	2,5229	34,515	37,282	2,7663	33,473	34,311	34,506	37,178	2,6718	0,3173
6	35,376	38,18	2,8039	35,171	38,309	3,1378	35,206	37,965	2,7591	35,269	38,377	3,1081	34,218	35,19	35,255	38,208	2,9522	0,3406
7	35,322	38,223	2,9013	35,12	38,317	3,197	35,169	37,986	2,817	35,242	38,431	3,1897	34,223	35,597	35,213	38,239	3,0263	0,3468
8	35,869	38,779	2,9101	35,68	38,818	3,138	35,729	38,546	2,8172	35,779	38,961	3,1821	34,741	36,269	35,764	38,776	3,0119	0,3526
9	35,756	38,733	2,9778	35,581	38,686	3,1053	35,64	38,489	2,849	35,686	38,873	3,1868	34,742	36,24	35,666	38,695	3,0297	0,3578
10	35,964	38,909	2,9451	35,807	38,835	3,0271	35,881	38,722	2,8412	35,935	39,154	3,2188	34,998	36,791	35,897	38,905	3,0081	0,3581
11	35,679	38,208	2,5299	35,518	38,121	2,603	35,585	38,199	2,6147	35,6	38,48	2,8802	34,61	36,574	35,595	38,252	2,6569	0,3429
12	36,479	39,342	2,8633	36,321	39,313	2,9921	36,402	39,295	2,8926	36,447	39,761	3,3144	35,368	37,688	36,412	39,428	3,0156	0,3643
13	36,204	38,793	2,5888	36,048	38,762	2,7138	36,131	38,87	2,7382	36,15	39,271	3,1206	35,074	37,807	36,133	38,924	2,7903	0,3505
14	36,327	38,97	2,6433	36,176	38,861	2,6851	36,264	38,964	2,7009	36,288	39,36	3,0721	35,225	39,048	36,264	39,039	2,7754	0,3489
15	36,849	39,58	2,7312	36,704	39,459	2,7554	36,799	39,572	2,7229	36,834	40,021	3,1868	35,773	40,261	36,797	39,658	2,8616	0,353
16	36,752	39,37	2,6173	36,609	39,181	2,5727	36,696	39,307	2,6114	36,715	39,674	2,959	35,742	40,522	36,693	39,383	2,6901	0,3371
17	36,704	39,092	2,388	36,568	38,872	2,3039	36,662	39,137	2,4749	36,687	39,508	2,8213	35,678	40,72	36,655	39,152	2,497	0,3241
18	35,361	37,374	2,0128	35,176	37,031	1,8548	35,209	37,284	2,0752	35,172	37,437	2,2649	34,404	38,445	35,229	37,281	2,0519	0,2832
19	35,662	37,526	1,8637	35,514	37,363	1,8497	35,577	37,643	2,0659	35,576	37,924	2,3481	34,684	38,886	35,582	37,614	2,0318	0,279
20	35,217	36,971	1,7538	35,072	36,787	1,7141	35,123	36,985	1,8619	35,118	37,232	2,1144	34,386	37,981	35,133	36,994	1,8611	0,2489
21	35,225	36,653	1,4272	35,125	36,524	1,3983	35,19	36,737	1,547	35,194	36,987	1,7929	34,526	37,566	35,184	36,725	1,5414	0,217
22	34,34	35,54	1,2	34,288	35,418	1,1293	34,365	35,655	1,2899	34,37	35,837	1,4671	33,852	36,494	34,341	35,612	1,2716	0,1861
23	34,191	35,368	1,1774	34,14	35,317	1,1768	34,277	35,625	1,3478	34,367	35,888	1,5203	33,859	36,96	34,244	35,549	1,3056	0,184
24	34,57	35,723	1,153	34,399	35,503	1,1041	34,422	35,703	1,2807	34,458	35,978	1,5201	33,989	37,311	34,462	35,727	1,2645	0,1796
25	34,507	35,571	1,0648	34,354	35,354	1,0002	34,342	35,548	1,2059	34,263	35,679	1,4158	33,531	35,582	34,367	35,538	1,1717	0,1803
26	34,422	35,45	1,0287	34,395	35,325	0,9303	34,395	35,514	1,187	34,335	35,613	1,2778	33,641	35,918	34,387	35,476	1,0889	0,1689
27	34,299	35,176	0,8772	34,334	35,175	0,8408	34,363	35,247	0,8848	34,255	35,336	1,0814	33,786	36,915	34,313	35,234	0,9211	0,1397
28	34,334	35,022	0,6871	34,301	35,028	0,7274	34,358	35,174	0,8162	34,292	35,222	0,9301	33,727	36,313	34,321	35,112	0,7902	0,1284
29	33,506	33,796	0,2901	33,397	33,775	0,378	33,38	33,813	0,4333	33,312	33,849	0,5378	33,097	35,853	33,399	33,808	0,4098	0,0855
30	32,967	33,141	0,1738	32,932	33,218	0,2861	32,962	33,249	0,2866	32,948	33,356	0,4067	32,685	35,534	32,952	33,241	0,2868	0,0663
31	32,753	32,907	0,1534	32,774	33,052	0,2781	32,841	33,11	0,2698	32,847	33,231	0,3841	32,702	35,164	32,804	33,075	0,2714	0,0629
32	32,447	32,431	-0,016	32,441	32,583	0,1419	32,479	32,563	0,0842	32,447	32,631	0,1838	32,432	34,862	32,453	32,552	0,0984	0,0443

- Perhitungan

no	tc avg	th avg	dt avg	Voltage	Intensitas	R	Jenis	alpha	Arus	k	Qh	Daya	Eff
1	32,639	34,87	2,2311	0,258	586	6,1	TEG 37	0,1157	0,0009	0,9977	0,0143	0,0002	1,5713
2	33,45	35,819	2,3695	0,2768	612,67	5,7	TEG 38	0,1168	0,0009	0,9977	0,0152	0,0003	1,7027
3	34,051	36,587	2,5368	0,296	660,33	6,1	TEG 39	0,1167	0,001	0,9977	0,0162	0,0003	1,8184
4	34,537	37,182	2,6454	0,3088	702,67	6,1	TEG 24	0,1167	0,001	0,9977	0,0169	0,0003	1,897
5	34,506	37,178	2,6718	0,3173	738	273	Beban	0,1188	0,0011	0,9977	0,0171	0,0003	1,9837
6	35,255	38,208	2,9522	0,3406	775,67	297	Total	0,1154	0,0011	0,9977	0,0189	0,0004	2,0682
7	35,213	38,239	3,0263	0,3468	807,33			0,1146	0,0012	0,9977	0,0194	0,0004	2,0922
8	35,764	38,776	3,0119	0,3526	831,33	0,0064	A	0,1171	0,0012	0,9977	0,0193	0,0004	2,1731
9	35,666	38,695	3,0297	0,3578	868			0,1181	0,0012	0,9977	0,0194	0,0004	2,2238
10	35,897	38,905	3,0081	0,3581	884,33			0,1191	0,0012	0,9977	0,0192	0,0004	2,2439
11	35,595	38,252	2,6569	0,3429	865			0,1291	0,0012	0,9977	0,017	0,0004	2,329
12	36,412	39,428	3,0156	0,3643	895,33			0,1208	0,0012	0,9977	0,0193	0,0004	2,3155
13	36,133	38,924	2,7903	0,3505	896,67			0,1256	0,0012	0,9977	0,0179	0,0004	2,3168
14	36,264	39,039	2,7754	0,3489	894,33			0,1257	0,0012	0,9977	0,0178	0,0004	2,3086
15	36,797	39,658	2,8616	0,353	883,33			0,1233	0,0012	0,9977	0,0183	0,0004	2,291
16	36,693	39,383	2,6901	0,3371	866,67			0,1253	0,0011	0,9977	0,0172	0,0004	2,2226
17	36,655	39,152	2,497	0,3241	846,67			0,1298	0,0011	0,9977	0,016	0,0004	2,2139
18	35,229	37,281	2,0519	0,2832	792,67			0,138	0,001	0,9977	0,0131	0,0003	2,0564
19	35,582	37,614	2,0318	0,279	776,67			0,1373	0,0009	0,9977	0,013	0,0003	2,0153
20	35,133	36,994	1,8611	0,2489	678			0,1337	0,0008	0,9977	0,0119	0,0002	1,7507
21	35,184	36,725	1,5414	0,217	638,67			0,1408	0,0007	0,9977	0,0099	0,0002	1,6075
22	34,341	35,612	1,2716	0,1861	562			0,1463	0,0006	0,9977	0,0081	0,0001	1,4322
23	34,244	35,549	1,3056	0,184	572,33			0,1409	0,0006	0,9977	0,0084	0,0001	1,3637
24	34,462	35,727	1,2645	0,1796	558,67			0,142	0,0006	0,9977	0,0081	0,0001	1,3421
25	34,367	35,538	1,1717	0,1803	567,33			0,1539	0,0006	0,9977	0,0075	0,0001	1,4584
26	34,387	35,476	1,0889	0,1689	488			0,1551	0,0006	0,9977	0,007	1E-04	1,3772
27	34,313	35,234	0,9211	0,1397	440			0,1517	0,0005	0,9977	0,0059	7E-05	1,1142
28	34,321	35,112	0,7902	0,1284	378,67			0,1624	0,0004	0,9977	0,0051	6E-05	1,0962
29	33,399	33,808	0,4098	0,0855	285			0,2086	0,0003	0,9977	0,0026	2E-05	0,936
30	32,952	33,241	0,2888	0,0663	268,67			0,2296	0,0002	0,9977	0,0019	1E-05	0,7977
31	32,804	33,075	0,2714	0,0629	257,33			0,2318	0,0002	0,9977	0,0017	1E-05	0,7645
32	32,453	32,552	0,0984	0,0443	172,67			0,4508	0,0001	0,9977	0,0006	7E-06	1,0309

5. Data Variasi *Coating* perendaman dengan tegangan 3 Volt selama 45 Menit

- Rerata

No	tc5	th5	dt5	tc6	th6	dt6	tc7	th7	dt7	tc8	th8	dt8	tkipas2	theatsink2	tc avg	th avg	dt avg	voltage
1	32,373	34,126	1,7531	31,661	33,339	1,6782	30,936	32,877	1,9406	33,019	35,116	2,0963	32,138	32,5637778	31,997	33,864	1,8671	0,297402
2	33,905	35,882	1,9769	33,381	35,197	1,8152	32,71	34,685	1,975	34,011	36,003	1,9916	33,011	33,4735556	33,502	35,442	1,9397	0,319623
3	34,627	36,879	2,2524	34,342	36,473	2,1311	34,164	36,794	2,6306	34,666	36,776	2,1104	33,602	34,0377778	34,45	36,731	2,2811	0,345588
4	35,068	37,401	2,3331	34,827	36,93	2,1034	34,693	37,399	2,706	35,18	37,306	2,1257	34,114	34,5577778	34,942	37,259	2,3171	0,353201
5	35,144	37,575	2,431	34,911	37,06	2,149	34,747	37,521	2,7739	35,1	37,098	1,9978	34,048	34,577	34,976	37,314	2,3379	0,371553
6	35,66	38,492	2,8323	35,47	37,948	2,478	35,326	38,466	3,1403	35,778	38,211	2,4329	34,672	35,1032222	35,558	38,279	2,7209	0,411343
7	35,576	38,485	2,9086	35,398	37,812	2,4138	35,228	38,338	3,11	35,691	38,149	2,4581	34,645	35,0837778	35,473	38,196	2,7226	0,419779
8	36,142	39,086	2,944	35,967	38,295	2,3283	35,759	38,849	3,0894	36,213	38,462	2,2482	35,113	35,5836667	36,02	38,673	2,6525	0,430243
9	36,136	39,183	3,0468	35,981	38,42	2,4392	35,771	38,948	3,1774	36,068	38,341	2,2736	35,021	35,5146667	35,989	38,723	2,7343	0,439372
10	36,144	39,182	3,0376	35,984	38,371	2,3876	35,757	38,812	3,0549	36,292	38,402	2,1097	35,28	35,724	36,044	38,692	2,6474	0,440907
11	36,066	38,682	2,6159	35,876	37,936	2,0594	35,59	38,341	2,7509	36,283	37,96	1,6764	35,291	35,7801111	35,954	38,23	2,2757	0,418997
12	36,559	39,537	2,9776	36,392	38,58	2,1881	36,124	39,016	2,8922	37,002	38,97	1,968	36,044	36,4355556	36,519	39,026	2,5065	0,444545
13	36,285	39,064	2,7788	36,114	38,16	2,0454	35,834	38,635	2,8014	36,732	38,496	1,7633	35,769	36,1755556	36,242	38,589	2,3473	0,428803
14	36,455	39,256	2,8008	36,287	38,316	2,029	36,007	38,771	2,764	36,82	38,563	1,7429	35,855	36,2955556	36,392	38,726	2,3342	0,428606
15	36,937	39,857	2,9188	36,785	38,858	2,0732	36,509	39,336	2,8266	37,341	39,246	1,9052	36,399	36,79	36,893	39,324	2,4309	0,438628
16	36,937	39,748	2,8111	36,779	38,772	1,9931	36,496	39,229	2,7327	37,239	38,957	1,7181	36,276	36,7166667	36,863	39,177	2,3138	0,421256
17	36,788	39,417	2,6292	36,643	38,476	1,8327	36,375	38,93	2,5548	37,15	38,617	1,4678	36,203	36,6228889	36,739	38,86	2,1211	0,404314
18	35,642	37,865	2,2232	35,473	37,065	1,5919	35,192	37,411	2,2192	35,977	37,101	1,1234	35,075	35,5305556	35,571	37,361	1,7894	0,353744
19	35,828	37,952	2,1238	35,675	37,128	1,4536	35,419	37,571	2,1517	36,214	37,308	1,0934	35,405	35,8198889	35,784	37,49	1,7056	0,347579
20	35,419	37,426	2,0068	35,267	36,64	1,3729	35,032	37,01	1,9778	35,702	36,796	1,0943	35,023	35,456	35,355	36,968	1,6129	0,312802
21	35,396	37,085	1,6889	35,261	36,376	1,1153	35,057	36,723	1,6662	35,555	36,411	0,8569	35,015	35,4576667	35,317	36,649	1,3318	0,275622
22	34,605	36,008	1,4028	34,465	35,382	0,9172	34,259	35,687	1,428	34,541	35,277	0,7359	34,17	34,6531111	34,467	35,588	1,121	0,236419
23	34,459	35,863	1,4038	34,326	35,257	0,9313	34,124	35,586	1,4619	34,179	35,073	0,8932	34,024	34,5217778	34,272	35,445	1,1726	0,234713
24	34,762	36,187	1,4252	34,635	35,516	0,8832	34,453	35,841	1,388	34,316	35,263	0,9464	34,351	34,8916667	34,542	35,702	1,1607	0,231487
25	34,579	35,952	1,3729	34,454	35,292	0,8377	34,264	35,668	1,404	34,303	35,144	0,8408	34,239	34,7838889	34,4	35,514	1,1138	0,234236
26	34,556	35,881	1,3248	34,431	35,276	0,8454	34,221	35,562	1,3412	34,202	35,007	0,8048	34,192	34,7486667	34,353	35,432	1,0791	0,222361
27	34,456	35,588	1,1316	34,337	35,008	0,6708	34,142	35,197	1,055	33,956	34,671	0,7148	34,117	34,6582222	34,223	35,116	0,893	0,185091
28	34,352	35,367	1,0158	34,229	34,843	0,6148	34,056	35,069	1,028	34,427	34,846	0,4184	34,254	34,7196667	34,266	35,031	0,7654	0,17411
29	33,584	34,194	0,61	33,459	33,817	0,3577	33,304	33,972	0,6682	33,982	34,045	0,063	33,66	34,0781111	33,582	34,007	0,4247	0,118231
30	33,156	33,614	0,4574	33,045	33,29	0,2449	32,922	33,441	0,5194	33,034	33,194	0,1601	33,027	33,4903333	33,039	33,385	0,3455	0,093254
31	32,98	33,333	0,4539	32,768	33,027	0,2592	32,628	33,178	0,5499	32,562	32,841	0,2788	32,732	33,2398889	32,709	33,095	0,3854	0,091665
32	32,533	32,796	0,2628	32,431	32,568	0,1364	32,319	32,697	0,3778	32,474	32,549	0,0746	32,509	32,9846669	32,44	32,652	0,2128	0,065973

- Perhitungan

No	tc avg	th avg	dt avg	voltage	Intensitas	R	Jenis	alpha	Arus	k	Qh	Daya	Eff
1	31,997	33,864	1,8671	0,2974	586	6,5	TEG 51	0,1533	0,001	0,9977	0,012	0,000299	2,5017074
2	33,502	35,442	1,9397	0,3196	612,67	4,8	TEG 18	0,1648	0,0011	0,9977	0,0124	0,000345	2,7803747
3	34,45	36,731	2,2811	0,3456	660,33	5,8	TEG 19	0,1515	0,0012	0,9977	0,0146	0,000404	2,7650013
4	34,942	37,259	2,3171	0,3592	702,67	5,8	TEG 22	0,155	0,0012	0,9977	0,0148	0,000436	2,9403032
5	34,976	37,314	2,3379	0,3716	738	273	Beban	0,1589	0,0013	0,9977	0,015	0,000467	3,1174294
6	35,558	38,279	2,7209	0,4113	775,67	295,7	Total	0,1512	0,0014	0,9977	0,0174	0,000572	3,2838269
7	35,473	38,196	2,7226	0,4198	807,33			0,1542	0,0014	0,9977	0,0174	0,000596	3,4173592
8	36,02	38,673	2,6525	0,4302	831,33	0,0064	A	0,1622	0,0015	0,9977	0,017	0,000626	3,6833677
9	35,989	38,723	2,7343	0,4394	868			0,1607	0,0015	0,9977	0,0175	0,000653	3,7267061
10	36,044	38,692	2,6474	0,4409	884,33			0,1665	0,0015	0,9977	0,017	0,000657	3,8749185
11	35,954	38,23	2,2757	0,4119	865			0,181	0,0014	0,9977	0,0146	0,000574	3,9318593
12	36,519	39,026	2,5065	0,4445	895,33			0,1774	0,0015	0,9977	0,0161	0,000668	4,1584732
13	36,242	38,589	2,3473	0,4288	898,67			0,1827	0,0015	0,9977	0,0151	0,000622	4,1907845
14	36,392	38,726	2,3342	0,4286	894,33			0,1836	0,0014	0,9977	0,015	0,000621	4,1948737
15	36,893	39,324	2,4309	0,4386	883,33			0,1804	0,0015	0,9977	0,0156	0,000651	4,1735505
16	36,863	39,177	2,3138	0,4215	866,67			0,1822	0,0014	0,9977	0,0148	0,000601	4,0493971
17	36,739	38,86	2,1211	0,4043	846,67			0,1906	0,0014	0,9977	0,0136	0,000553	4,0622757
18	35,571	37,361	1,7894	0,3537	792,67			0,1977	0,0012	0,9977	0,0115	0,000423	3,685394
19	35,784	37,49	1,7056	0,3476	776,67			0,2038	0,0012	0,9977	0,0109	0,000409	3,731721
20	35,355	36,968	1,6129	0,3128	678			0,1939	0,0011	0,9977	0,0103	0,000331	3,1977601
21	35,317	36,649	1,3318	0,2756	638,67			0,2069	0,0009	0,9977	0,0085	0,000257	3,0049911
22	34,467	35,588	1,121	0,2364	562			0,2109	0,0008	0,9977	0,0072	0,000189	2,6267351
23	34,272	35,445	1,1726	0,2347	572,33			0,2002	0,0008	0,9977	0,0075	0,000186	2,4764232
24	34,542	35,702	1,1607	0,2315	558,67			0,1994	0,0008	0,9977	0,0074	0,000181	2,4333658
25	34,4	35,514	1,1138	0,2342	567,33			0,2103	0,0008	0,9977	0,0072	0,000186	2,5950674
26	34,353	35,432	1,0791	0,2224	488			0,2061	0,0008	0,9977	0,0069	0,000167	2,4145408
27	34,223	35,116	0,893	0,1851	440			0,2073	0,0006	0,9977	0,0057	0,000116	2,021554
28	34,266	35,031	0,7654	0,1741	378,67			0,2275	0,0006	0,9977	0,0049	0,000103	2,0846903
29	33,582	34,007	0,4247	0,1182	285			0,2784	0,0004	0,9977	0,0027	4,73E-05	1,7276919
30	33,039	33,385	0,3455	0,0933	268,67			0,2699	0,0003	0,9977	0,0022	2,94E-05	1,3222877
31	32,709	33,095	0,3854	0,0917	257,33			0,2378	0,0003	0,9977	0,0025	2,84E-05	1,1472852
32	32,44	32,652	0,2128	0,066	172,67			0,31	0,0002	0,9977	0,0014	1,47E-05	1,0716846

6. Data variasi *coating* perendaman dengan tegangan 3 Volt selama 60 Menit

- Rerata

No.	RERATA															tkipas 4	theatsin	tc avg	th avg	dt avg	voltage
	tc13	th13	dt13	tc14	th14	dt14	tc15	th15	dt15	tc16	th16	dt16									
1	33,338	35,438	2,1002	33,082	35,116	2,0344	32,872	35,115	2,2436	32,636	34,92	2,2836	32,708	31,206	32,982	35,147	2,1654	0,3102			
2	33,78	36,015	2,2351	33,577	35,872	2,2948	33,501	35,825	2,3238	33,358	35,869	2,5112	33,049	32,304	33,554	35,895	2,3412	0,3303			
3	34,185	36,617	2,4317	34,041	36,495	2,4539	33,981	36,344	2,3623	33,855	36,529	2,6741	33,442	32,762	34,016	36,496	2,4805	0,3529			
4	34,624	37,143	2,5191	34,505	37,038	2,5327	34,442	36,836	2,3936	34,32	37,123	2,803	33,784	33,233	34,473	37,035	2,5621	0,3665			
5	34,535	37,097	2,5616	34,399	37,055	2,6563	34,323	36,763	2,44	34,188	37,006	2,8183	33,696	33,095	34,361	36,98	2,6191	0,3768			
6	35,263	38,155	2,8926	35,177	38,23	3,0524	35,109	37,792	2,6828	34,985	38,156	3,1706	34,393	33,87	35,134	38,083	2,9496	0,4087			
7	35,228	38,178	2,9498	35,14	38,16	3,0196	35,084	37,68	2,5968	34,962	38,201	3,2394	34,437	33,322	35,103	38,055	2,9514	0,414			
8	35,805	38,758	2,9529	35,722	38,788	3,0662	35,667	38,265	2,5982	35,527	38,729	3,2028	34,681	34,44	35,68	38,635	2,954	0,4205			
9	35,64	38,628	2,9888	35,548	38,686	3,1377	35,497	38,148	2,6507	35,353	38,575	3,2228	34,78	34,35	35,509	38,509	3	0,4273			
10	35,919	38,946	3,0271	35,845	38,896	3,051	35,805	38,302	2,4974	35,668	38,864	3,1963	35,113	34,671	35,809	38,752	2,943	0,4255			
11	35,626	38,331	2,7047	35,489	38,078	2,5887	35,449	37,554	2,105	35,301	38,212	2,9108	35,278	34,28	35,466	38,044	2,5773	0,4037			
12	35,885	38,949	3,0637	35,994	38,975	2,9806	36,253	38,603	2,35	36,245	39,499	3,2547	35,894	35,326	36,094	39,006	2,9122	0,4265			
13	36,313	39,079	2,7664	36,064	38,622	2,5584	35,861	38,007	2,1461	35,741	38,837	3,0963	35,136	34,939	35,995	38,636	2,6418	0,4128			
14	36,354	39,161	2,8071	36,242	38,881	2,6396	36,196	38,33	2,1339	36,047	39,026	2,9788	35,153	34,905	36,21	38,85	2,6398	0,4097			
15	36,255	39,504	2,9782	36,606	39,336	2,7299	36,634	38,889	2,2553	36,556	39,647	3,091	35,665	35,604	36,58	39,344	2,7636	0,4128			
16	35,606	38,56	2,954	36,005	38,805	2,8004	36,317	38,562	2,2443	36,377	39,366	2,9892	35,488	35,517	36,076	38,823	2,747	0,3952			
17	35,555	38,403	2,848	35,945	38,423	2,4786	36,126	38,07	1,9436	36,176	39,053	2,8762	35,452	35,609	35,951	38,487	2,5366	0,3797			
18	33,909	36,262	2,3523	34,167	36,348	2,1813	34,426	36,154	1,7274	34,612	37,046	2,4333	33,936	33,907	34,279	36,452	2,1736	0,3317			
19	34,596	36,889	2,2937	34,816	36,813	1,9974	34,977	36,5	1,5238	34,977	37,341	2,3637	34,289	34,34	34,841	36,886	2,0446	0,3249			
20	34,49	36,544	2,0539	34,606	36,387	1,7809	34,674	36,06	1,3869	34,602	36,672	2,0706	33,9	33,895	34,583	36,416	1,8231	0,2981			
21	34,809	36,557	1,748	34,915	36,319	1,4041	34,955	35,938	0,9834	34,861	36,582	1,7212	34,11	34,123	34,885	36,349	1,4642	0,252			
22	34,01	35,45	1,4401	34,103	35,312	1,2093	34,185	35,027	0,8417	34,061	35,471	1,4099	33,324	33,326	34,09	35,315	1,2253	0,2161			
23	33,753	35,175	1,4216	33,82	35,009	1,169	33,989	34,879	0,89	34,002	35,485	1,483	33,38	33,401	33,891	35,137	1,2459	0,212			
24	33,928	35,352	1,4242	34,026	35,166	1,1933	34,171	35,092	0,9201	34,2	35,665	1,4646	33,656	33,734	34,082	35,319	1,2371	0,2059			
25	34,005	35,374	1,3689	34,055	35,058	1,0027	34,128	34,923	0,7941	34,112	35,527	1,4147	33,401	33,477	34,075	35,22	1,1451	0,2062			
26	34,357	35,484	1,1272	34,16	35,042	0,8826	34,1	34,844	0,7437	33,973	35,259	1,2869	33,291	33,339	34,147	35,157	1,0101	0,1924			
27	34,91	35,749	0,8394	34,567	35,221	0,6543	34,422	34,963	0,5417	34,165	35,113	0,9481	33,405	33,392	34,516	35,262	0,7459	0,1583			
28	34,255	35,08	0,825	34,099	34,614	0,5153	34,091	34,574	0,4829	34,01	34,914	0,9046	33,409	33,492	34,114	34,796	0,6819	0,1437			
29	33,095	33,721	0,6259	33,183	33,439	0,2566	33,179	33,413	0,2334	33,105	33,657	0,552	32,71	32,8	33,14	33,557	0,417	0,0963			
30	33,196	33,528	0,3326	33,12	33,246	0,126	33,199	33,21	0,071	33,001	33,339	0,3377	32,549	32,638	33,114	33,331	0,2168	0,0741			
31	33,257	33,495	0,2383	33,068	33,115	0,0471	33,048	33,076	0,0272	32,937	33,235	0,2981	32,439	32,513	33,078	33,23	0,1527	0,0694			
32	32,72	32,813	0,0927	32,573	32,508	-0,065	32,556	32,5	-0,056	32,467	32,618	0,1507	32,088	32,203	32,579	32,61	0,0305	0,0484			

- Perhitungan

No	tc avg	th avg	dt avg	voltage	Intensitas	R	Jenis	alpa	Arus	k	Qh	Daya	Eff
1	32,982	35,147	2,1654	0,31024	586		6,6 TEG 13	0,1433	0,001	0,9977	0,0139	0,0003	2,3388
2	33,554	35,895	2,3412	0,33035	612,67		5,4 TEG 14	0,1411	0,0011	0,9977	0,015	0,0004	2,4528
3	34,016	36,496	2,4805	0,35286	660,33		4,6 TEG 15	0,1423	0,0012	0,9977	0,0159	0,0004	2,6412
4	34,473	37,035	2,5621	0,36651	702,67		7,3 TEG 16	0,1431	0,0012	0,9977	0,0164	0,0005	2,7586
5	34,361	36,98	2,6191	0,37685	738		273 Beban	0,1439	0,0013	0,9977	0,0168	0,0005	2,8528
6	35,134	38,083	2,9496	0,40867	775,67		296,9 Total	0,1386	0,0014	0,9977	0,0189	0,0006	2,9794
7	35,103	38,055	2,9514	0,41403	807,33			0,1403	0,0014	0,9977	0,0189	0,0006	3,056
8	35,68	38,635	2,955	0,42054	831,33		0,0064 A	0,1423	0,0014	0,9977	0,0189	0,0006	3,1486
9	35,509	38,509	3	0,42727	868			0,1424	0,0014	0,9977	0,0192	0,0006	3,2015
10	35,809	38,752	2,943	0,42553	884,33			0,1446	0,0014	0,9977	0,0188	0,0006	3,2366
11	35,466	38,044	2,5773	0,40366	865			0,1566	0,0014	0,9977	0,0165	0,0005	3,3244
12	36,094	39,006	2,9122	0,42655	895,33			0,1465	0,0014	0,9977	0,0186	0,0006	3,2862
13	35,995	38,636	2,6418	0,41282	898,67			0,1563	0,0014	0,9977	0,0169	0,0006	3,392
14	36,21	38,85	2,6398	0,40971	894,33			0,1552	0,0014	0,9977	0,0169	0,0006	3,3436
15	36,58	39,344	2,7636	0,41285	883,33			0,1494	0,0014	0,9977	0,0177	0,0006	3,2436
16	36,076	38,823	2,747	0,39521	866,67			0,1439	0,0013	0,9977	0,0176	0,0005	2,9911
17	35,951	38,487	2,5366	0,37973	846,67			0,1497	0,0013	0,9977	0,0162	0,0005	2,9899
18	34,279	36,452	2,1736	0,33168	792,67			0,1526	0,0011	0,9977	0,0139	0,0004	2,662
19	34,841	36,886	2,0446	0,32487	776,67			0,1589	0,0011	0,9977	0,0131	0,0004	2,7142
20	34,593	36,416	1,8231	0,28813	678			0,1581	0,001	0,9977	0,0117	0,0003	2,3948
21	34,885	36,349	1,4642	0,25204	638,67			0,1721	0,0008	0,9977	0,0094	0,0002	2,2802
22	34,09	35,315	1,2253	0,21607	562			0,1763	0,0007	0,9977	0,0079	0,0002	2,0025
23	33,891	35,137	1,2459	0,21202	572,33			0,1702	0,0007	0,9977	0,008	0,0002	1,8967
24	34,082	35,319	1,2371	0,20592	558,67			0,1665	0,0007	0,9977	0,0079	0,0001	1,802
25	34,075	35,22	1,1451	0,20619	567,33			0,1801	0,0007	0,9977	0,0073	0,0001	1,9508
26	34,147	35,157	1,0101	0,1924	488			0,1905	0,0006	0,9977	0,0065	0,0001	1,9248
27	34,516	35,262	0,7459	0,1583	440			0,2122	0,0005	0,9977	0,0048	8E-05	1,7627
28	34,114	34,796	0,6819	0,14373	378,67			0,2108	0,0005	0,9977	0,0044	7E-05	1,5896
29	33,14	33,557	0,417	0,09634	285			0,231	0,0003	0,9977	0,0027	3E-05	1,167
30	33,114	33,331	0,2168	0,07408	268,67			0,3417	0,0002	0,9977	0,0014	2E-05	1,318
31	33,078	33,23	0,1527	0,06936	257,33			0,4542	0,0002	0,9977	0,001	2E-05	1,6241
32	32,579	32,61	0,0305	0,04843	172,67			1,5893	0,0002	0,9977	0,0002	8E-06	3,1767

7. Data variasi *coating* perendaman dengan tegangan 3,5 Volt selama 30 Menit

- Rerata

No	RERATA																	
	tc13	th13	dt13	tc14	th14	dt14	tc15	th15	dt15	tc16	th16	dt16	tkipas 4	theatsink	tc avg	th avg	dt avg	voltage
1	33,794	35,58	1,7863	33,635	35,344	1,7092	33,648	34,968	1,32	33,649	35,977	2,328	32,2061	33,035287	33,681	35,467	1,7853	0,27617
2	34,694	36,606	1,9116	34,528	36,342	1,8136	34,506	35,839	1,3334	34,479	36,911	2,4313	33,0218	33,922333	34,552	36,424	1,8725	0,29011
3	34,926	36,892	1,9658	34,761	36,812	2,0509	34,74	36,171	1,4306	34,698	37,294	2,5956	33,3121	33,729889	34,781	36,792	2,0107	0,31122
4	35,159	37,014	1,8546	34,982	37,008	2,026	34,97	36,347	1,3769	34,948	37,418	2,4704	33,4901	33,915222	35,015	36,947	1,932	0,31383
5	35,772	37,807	2,0352	35,607	37,743	2,1363	35,599	37,07	1,4711	35,618	38,238	2,6197	34,1727	34,566333	35,649	37,714	2,0656	0,33055
6	35,739	37,861	2,1218	35,536	37,809	2,273	35,52	37,047	1,5276	35,523	38,24	2,717	34,0763	34,460111	35,579	37,739	2,1598	0,34533
7	35,61	37,478	1,8683	35,334	37,525	2,1907	35,324	36,623	1,299	35,276	37,878	2,6021	33,7543	34,182556	35,386	37,376	1,93	0,34658
8	35,918	38,153	2,2342	35,718	38,246	2,5276	35,721	37,469	1,7482	35,796	38,728	2,9316	34,3044	34,694889	35,788	38,149	2,3604	0,37537
9	36,936	39,063	2,1268	36,805	39,55	2,7452	36,831	39,071	2,2398	36,906	40,193	3,2867	35,369	35,803778	36,87	39,469	2,5996	0,395
10	36,604	38,572	1,9677	36,306	38,827	2,5217	36,265	37,96	1,8954	36,234	39,255	3,0204	34,7912	35,254444	36,352	38,654	2,3013	0,38067
11	36,436	38,347	1,912	36,148	38,627	2,4782	36,122	37,819	1,8963	36,107	39,024	2,9174	34,7236	35,155111	36,203	38,454	2,2508	0,37513
12	36,008	37,839	1,8309	35,677	38,05	2,3724	35,639	37,116	1,4777	35,576	38,369	2,7926	34,2698	34,665778	35,725	37,844	2,1184	0,36622
13	35,463	37,374	1,912	35,322	37,789	2,4672	35,343	36,941	1,5976	35,325	38,12	2,7956	34,033	34,422889	35,363	37,556	2,1929	0,3859
14	35,208	36,663	1,4541	34,787	37,077	2,2899	34,764	36,328	1,5637	34,779	37,385	2,6067	33,483	33,887444	34,895	36,863	1,9786	0,34993
15	35,279	36,718	1,4383	34,975	37,154	2,1793	34,94	36,247	1,3074	34,899	37,331	2,4314	33,5878	33,963222	35,023	36,863	1,8391	0,33712
16	35,173	36,612	1,439	34,959	37,155	2,1963	34,952	36,226	1,274	34,924	37,35	2,4254	33,5982	33,960333	35,002	36,836	1,8337	0,33684
17	34,773	36,486	1,7132	34,907	37,266	2,3587	35,03	36,369	1,3391	35,055	37,598	2,5437	33,7682	34,144	34,941	36,93	1,9887	0,34196
18	34,39	35,636	1,2463	34,302	36,326	2,0234	34,442	35,672	1,23	34,698	37,089	2,3912	33,767	34,215778	34,458	36,181	1,7228	0,3088
19	34,149	35,452	1,3029	34,243	36,219	1,9764	34,328	35,397	1,0682	34,359	36,52	2,1607	33,3523	33,708222	34,27	35,697	1,6271	0,29616
20	34,517	35,61	1,0932	34,352	36,185	1,8337	34,342	35,289	0,9463	34,299	36,296	1,997	33,2016	33,627333	34,377	35,845	1,4677	0,28635
21	34,41	35,642	1,2317	34,431	36,307	1,8756	34,463	35,404	0,9418	34,325	36,272	1,9466	33,1113	33,447778	34,407	35,906	1,4969	0,28335
22	33,573	34,946	1,3727	33,696	35,573	1,877	33,834	34,918	1,0842	33,773	35,644	1,871	32,842	33,016222	33,719	35,27	1,5512	0,25877
23	33,153	34,168	1,0152	33,32	35,05	1,7302	33,629	34,591	0,9671	33,803	35,607	1,8037	32,9184	33,337444	33,476	34,854	1,3777	0,24602
24	34,113	34,374	0,8609	34,253	35,691	1,4371	34,435	35,082	0,6472	34,478	36,023	1,5447	33,6339	34,048889	34,32	35,442	1,1225	0,22099
25	33,879	34,667	0,7878	33,992	35,297	1,305	34,122	34,706	0,5833	34,112	35,492	1,3802	33,2032	33,574111	34,026	35,04	1,0141	0,20211
26	33,837	34,525	0,6878	33,998	35,14	1,1418	34,089	34,554	0,4651	34,035	35,278	1,2421	33,2239	33,577222	33,99	34,874	0,8842	0,18034
27	34,522	34,986	0,4639	34,34	35,348	1,0081	34,364	34,866	0,5026	34,231	35,393	1,162	33,4627	33,755333	34,364	35,149	0,7841	0,16327
28	35,462	35,748	0,286	35,168	35,999	0,8314	35,164	35,679	0,5146	35,084	36,142	1,0577	34,4278	34,675	35,22	35,892	0,6724	0,14295
29	34,657	34,879	0,2223	34,466	35,128	0,6624	34,489	34,828	0,339	34,419	35,272	0,8532	33,8478	34,096333	34,508	35,027	0,5193	0,11881
30	34,186	34,409	0,2223	34,196	34,726	0,5299	34,278	34,494	0,2167	34,224	34,928	0,7039	33,7477	34,025889	34,221	34,639	0,4182	0,09805
31	34,487	34,449	-0,038	34,161	34,449	0,2886	34,111	34,163	0,0518	33,962	34,39	0,4281	33,5044	33,699111	34,18	34,363	0,1827	0,07329
32	34,225	34,094	-0,131	33,93	34,03	0,0997	33,895	33,799	-0,096	33,75	33,956	0,206	33,3827	33,512222	33,95	33,97	0,0197	0,04829

- Perhitungan

No	tc avg	th avg	dt avg	voltage	Intensitas	R	Jenis	alpa	Arus	k	Qh	Daya	Eff
1	33,681	35,467	1,7859	0,2762	596	6,4	TEG 25	0,1546	0,0009	0,9377	0,011436229	0,0003	2,2576
2	34,552	36,424	1,8725	0,2901	611,667	5,4	TEG 26	0,1549	0,001	0,9377	0,0119191731	0,0003	2,376
3	34,781	36,792	2,0107	0,3112	651,667	5,4	TEG 27	0,1548	0,0011	0,9377	0,012877246	0,0003	2,5463
4	35,015	36,947	1,932	0,3138	661,667	5,2	TEG 28	0,1624	0,0011	0,9377	0,012376991	0,0003	2,6338
5	35,649	37,714	2,0656	0,3306	710,333	273	Beban	0,16	0,0011	0,9377	0,013232551	0,0004	2,7953
6	35,579	37,739	2,1598	0,3453	763,333	295,4	Total	0,1599	0,0012	0,9377	0,013836286	0,0004	2,9177
7	35,386	37,376	1,99	0,3466	800,667			0,1742	0,0012	0,9377	0,012755763	0,0004	3,1879
8	35,788	38,149	2,3604	0,3754	840,667	0,0064	A	0,159	0,0013	0,9377	0,015121082	0,0005	3,1545
9	36,87	39,469	2,5996	0,395	935			0,1519	0,0013	0,9377	0,016650567	0,0005	3,1721
10	36,352	38,654	2,3013	0,3807	917			0,1654	0,0013	0,9377	0,014747214	0,0005	3,3264
11	36,203	38,454	2,2508	0,3751	895			0,1667	0,0013	0,9377	0,014424113	0,0005	3,3027
12	35,725	37,844	2,1184	0,3662	885,333			0,1729	0,0012	0,9377	0,013578414	0,0005	3,3436
13	35,363	37,556	2,1929	0,3659	880			0,1669	0,0012	0,9377	0,014051886	0,0005	3,2253
14	34,885	36,863	1,9786	0,3499	874,333			0,1769	0,0012	0,9377	0,012683235	0,0004	3,2682
15	35,023	36,863	1,8391	0,3371	860,333			0,1833	0,0011	0,9377	0,01179277	0,0004	3,2625
16	35,002	36,836	1,8337	0,3368	866,667			0,1837	0,0011	0,9377	0,011758034	0,0004	3,2667
17	34,941	36,93	1,9887	0,342	875			0,172	0,0012	0,9377	0,01274524	0,0004	3,1059
18	34,458	36,181	1,7228	0,3088	822,333			0,1792	0,001	0,9377	0,011043631	0,0003	2,9231
19	34,27	35,897	1,6271	0,2982	803			0,1833	0,001	0,9377	0,010431699	0,0003	2,8849
20	34,377	35,845	1,4677	0,2884	774			0,1965	0,001	0,9377	0,009415636	0,0003	2,9694
21	34,407	35,906	1,4989	0,2833	767			0,189	0,001	0,9377	0,009612494	0,0003	2,8274
22	33,719	35,27	1,5512	0,2588	735			0,1668	0,0009	0,9377	0,009337974	0,0002	2,2809
23	33,476	34,854	1,3777	0,246	667,667			0,1786	0,0008	0,9377	0,00883014	0,0002	2,3204
24	34,32	35,442	1,1225	0,221	590,333			0,1969	0,0007	0,9377	0,007200709	0,0002	2,2959
25	34,026	35,04	1,0141	0,2021	549			0,1993	0,0007	0,9377	0,006505786	0,0001	2,1255
26	33,99	34,874	0,8842	0,1803	493			0,204	0,0006	0,9377	0,005673619	0,0001	1,9404
27	34,364	35,149	0,7841	0,1633	442			0,2082	0,0006	0,9377	0,005032835	9E-05	1,7931
28	35,22	35,892	0,6724	0,143	379,667			0,2126	0,0005	0,9377	0,004317202	7E-05	1,6024
29	34,508	35,027	0,5193	0,1188	336,667			0,2288	0,0004	0,9377	0,003336187	5E-05	1,4324
30	34,221	34,639	0,4182	0,0981	280,333			0,2345	0,0003	0,9377	0,002687542	3E-05	1,211
31	34,18	34,363	0,1827	0,0733	220			0,4012	0,0002	0,9377	0,001188272	2E-05	1,5304
32	33,95	33,97	0,0197	0,0483	165			2,4522	0,0002	0,9377	0,000212914	8E-06	3,7084

8. Data variasi *coating* perendaman dengan tegangan 3,5 Volt selama 45 Menit

- Rerata

No	RERATA												tkipas	theatsin	tc avg	th avg	dt avg	voltage
	tc9	th9	dt9	tc10	th10	dt10	tc11	th11	dt11	tc12	th12	dt12						
1	33,667	36,221	2,5543	33,582	36,217	2,6357	33,549	36,231	2,6815	33,955	35,967	2,012	32,298	32,447	33,69	36,159	2,4709	0,32263
2	34,557	37,239	2,6814	34,478	37,21	2,7318	34,462	37,256	2,7944	34,891	37,018	2,1268	33,25	33,4254	34,6	37,181	2,5836	0,33932
3	34,831	37,735	2,9036	34,763	37,716	2,9521	34,756	37,763	3,0066	35,221	37,491	2,2698	33,484	33,682	34,89	37,676	2,783	0,36359
4	35,034	37,892	2,8577	34,955	37,811	2,8556	34,943	37,918	2,9751	35,409	37,67	2,2611	33,651	33,8624	35,09	37,823	2,7374	0,3672
5	35,688	38,75	3,062	35,62	38,632	3,0123	35,612	38,789	3,1768	36,114	38,576	2,4627	34,296	34,5312	35,76	38,687	2,9284	0,38928
6	35,661	38,897	3,236	35,587	38,833	3,2462	35,572	38,921	3,3494	36,088	38,671	2,5829	34,275	34,5084	35,73	38,831	3,1036	0,40765
7	35,451	38,572	3,1212	35,37	38,477	3,1072	35,349	38,633	3,2843	35,865	38,306	2,4408	33,9	34,2488	35,51	38,497	2,9884	0,4098
8	35,902	39,523	3,621	35,839	39,386	3,5462	35,818	39,474	3,6557	36,37	39,169	2,7997	34,519	34,7936	35,98	39,388	3,4056	0,44487
9	37,026	40,843	3,8169	36,98	40,65	3,6696	36,961	40,744	3,7822	37,554	40,484	2,9303	35,671	35,9152	37,13	40,68	3,5498	0,4643
10	36,475	40,075	3,5996	36,437	39,977	3,5396	36,417	40,095	3,6784	36,987	39,785	2,7783	35,017	35,3294	36,58	39,978	3,399	0,45401
11	36,418	39,95	3,5323	36,373	39,849	3,4751	36,343	39,974	3,6307	36,9	39,609	2,7086	35,022	35,288	36,51	39,845	3,3367	0,44848
12	35,891	39,257	3,3654	35,823	39,171	3,3484	35,785	39,308	3,5226	36,322	38,939	2,617	34,515	34,7076	35,96	39,169	3,2134	0,43805
13	35,627	39,008	3,3809	35,559	38,906	3,3476	35,532	39,071	3,5388	36,066	38,689	2,6224	34,285	34,4323	35,7	38,919	3,2224	0,436
14	35,216	38,305	3,089	35,114	38,159	3,0454	35,056	38,345	3,2691	35,547	37,892	2,3454	33,779	33,9227	35,23	38,176	2,9423	0,41382
15	35,162	38,119	2,9569	35,081	37,954	2,8736	35,042	38,212	3,1706	35,529	37,808	2,2791	33,797	34,0148	35,2	38,023	2,82	0,39809
16	35,161	38,092	2,931	35,07	37,912	2,8418	35,024	38,185	3,1609	35,513	37,764	2,2508	33,729	34,0011	35,19	37,988	2,7961	0,39674
17	35,255	38,319	3,0637	35,174	38,124	2,9503	35,139	38,428	3,2889	35,64	38,014	2,3744	33,839	34,1534	35,3	38,222	2,9194	0,40391
18	35,052	37,752	2,7	34,992	37,52	2,5284	34,962	37,871	2,909	35,421	37,533	2,1118	33,749	34,0578	35,11	37,669	2,5623	0,36528
19	34,738	37,366	2,6274	34,687	37,117	2,43	34,665	37,491	2,8264	35,107	37,188	2,0802	33,556	33,817	34,8	37,29	2,491	0,3539
20	34,749	37,263	2,5133	34,712	37,06	2,3483	34,695	37,439	2,7439	35,139	37,132	1,993	33,599	33,7987	34,82	37,223	2,3996	0,34381
21	34,541	37,1	2,5689	34,572	37,004	2,4318	34,593	37,35	2,7568	35,055	37,042	1,9872	33,598	33,7141	34,69	37,127	2,4362	0,33994
22	33,76	36,249	2,4891	33,796	36,191	2,3952	33,857	36,477	2,6201	34,259	36,147	1,888	33,172	33,1896	33,92	36,266	2,3481	0,3092
23	33,933	36,092	2,1588	33,861	35,917	2,0562	33,893	36,33	2,437	34,42	36,148	1,7272	33,202	33,3656	34,03	36,122	2,0948	0,2958
24	34,678	36,584	1,9063	34,59	36,279	1,6884	34,554	36,69	2,1359	34,958	36,512	1,5547	33,734	33,9276	34,7	36,516	1,8213	0,26681
25	34,554	36,276	1,7229	34,408	35,955	1,5469	34,206	36,102	1,8962	34,434	35,769	1,3346	33,187	33,2598	34,4	36,026	1,6251	0,24564
26	34,507	36,064	1,5567	34,455	35,851	1,396	34,322	35,987	1,6646	34,454	35,591	1,1366	33,239	33,2797	34,43	35,873	1,4384	0,22108
27	34,609	36,077	1,4684	34,64	36,033	1,3937	34,592	36,164	1,5712	34,773	35,8	1,0271	33,731	33,689	34,65	36,019	1,3651	0,2009
28	35,243	36,503	1,2597	35,242	36,418	1,1761	35,182	36,566	1,3838	35,385	36,363	0,9779	34,7	34,552	35,26	36,463	1,1994	0,17772
29	34,686	35,663	0,9769	34,673	35,623	0,9506	34,626	35,744	1,1174	34,79	35,534	0,7449	34,099	34,0316	34,69	35,641	0,9474	0,14743
30	34,352	35,168	0,8158	34,374	35,127	0,7531	34,322	35,237	0,9149	34,454	35,059	0,6044	33,934	33,7888	34,38	35,147	0,7721	0,12446
31	33,972	34,531	0,5597	34,031	34,534	0,5027	34,002	34,616	0,6137	34,091	34,461	0,37	33,733	33,576	34,02	34,535	0,5115	0,09159
32	33,754	34,053	0,2986	33,797	34,058	0,2612	33,768	34,103	0,335	33,809	33,958	0,1492	33,576	33,3943	33,78	34,043	0,261	0,06141

- Perhitungan

No	tc avg	th avg	dt avg	voltage	Intensitas	R	Jenis	alpa	Arus	k	Qh	Daya	Eff
1	33,688	36,159	2,4709	0,3226	536	5,8	TEG 29	0,1306	0,0011	0,9977	0,0158	0,000354161	2,2401
2	34,597	37,181	2,5836	0,3393	611,67	5,3	TEG 30	0,1313	0,0012	0,9977	0,0165	0,000391762	2,3696
3	34,893	37,676	2,783	0,3636	651,67	5,4	TEG 31	0,1306	0,0012	0,9977	0,0178	0,000449798	2,5256
4	35,086	37,823	2,7374	0,3672	661,67	4,8	TEG 44	0,1341	0,0012	0,9977	0,0175	0,000458791	2,6188
5	35,758	38,687	2,9284	0,3893	710,33	273,9	Beban	0,1329	0,0013	0,9977	0,0187	0,000515611	2,751
6	35,727	38,831	3,1036	0,4076	763,33	293,9	Total	0,1313	0,0014	0,9977	0,0199	0,000565425	2,8466
7	35,509	38,497	2,9884	0,4098	800,67			0,1371	0,0014	0,9977	0,0191	0,000571398	2,9871
8	35,982	39,388	3,4056	0,4449	840,67	0,0064	A	0,1306	0,0015	0,9977	0,0218	0,000673377	3,0895
9	37,13	40,68	3,5498	0,4643	935			0,1308	0,0016	0,9977	0,0227	0,0007335	3,2284
10	36,579	39,978	3,399	0,454	917			0,1336	0,0015	0,9977	0,0218	0,000701342	3,2236
11	36,509	39,845	3,3367	0,4485	895			0,1344	0,0015	0,9977	0,0214	0,00068437	3,2043
12	35,955	39,169	3,2134	0,4381	885,33			0,1363	0,0015	0,9977	0,0206	0,000652907	3,1742
13	35,696	38,919	3,2224	0,436	880			0,1353	0,0015	0,9977	0,0206	0,000646814	3,1359
14	35,233	38,176	2,9423	0,4138	874,33			0,1406	0,0014	0,9977	0,0188	0,000582667	3,0935
15	35,203	38,023	2,82	0,3981	860,33			0,1412	0,0014	0,9977	0,0181	0,000539218	2,9668
16	35,192	37,988	2,7961	0,3967	866,67			0,1419	0,0013	0,9977	0,0179	0,00053557	2,9919
17	35,302	38,222	2,9194	0,4039	875			0,1384	0,0014	0,9977	0,0187	0,000555096	2,9704
18	35,107	37,669	2,5623	0,3653	822,33			0,1426	0,0012	0,9977	0,0164	0,000453993	2,7676
19	34,799	37,29	2,491	0,3539	803			0,1421	0,0012	0,9977	0,0159	0,000426141	2,6723
20	34,824	37,223	2,3996	0,3438	774			0,1433	0,0012	0,9977	0,0154	0,000402193	2,6181
21	34,69	37,127	2,4362	0,3399	767			0,1395	0,0012	0,9977	0,0156	0,000393186	2,5214
22	33,918	36,266	2,3481	0,3092	735			0,1317	0,0011	0,9977	0,015	0,000325288	2,1649
23	34,027	36,122	2,0948	0,2958	667,67			0,1412	0,001	0,9977	0,0134	0,000297716	2,2203
24	34,695	36,516	1,8213	0,2668	590,33			0,1465	0,0009	0,9977	0,0117	0,000242225	2,0773
25	34,401	36,026	1,6251	0,2456	549			0,1512	0,0008	0,9977	0,0104	0,00020531	1,973
26	34,435	35,873	1,4384	0,2211	493			0,1537	0,0008	0,9977	0,0092	0,000166305	1,8054
27	34,654	36,019	1,3651	0,2009	442			0,1472	0,0007	0,9977	0,0087	0,000137327	1,5713
28	35,263	36,463	1,1994	0,1777	379,67			0,1482	0,0006	0,9977	0,0077	0,000107465	1,3994
29	34,694	35,641	0,9474	0,1474	336,67			0,1556	0,0005	0,9977	0,0061	7,39559E-05	1,2189
30	34,375	35,147	0,7721	0,1245	280,33			0,1612	0,0004	0,9977	0,0049	5,27076E-05	1,0658
31	34,024	34,535	0,5115	0,0916	220			0,1791	0,0003	0,9977	0,0033	2,85439E-05	0,8707
32	33,782	34,043	0,261	0,0614	165			0,2353	0,0002	0,9977	0,0017	1,28324E-05	0,7851

9. Data variasi *Coating* perendaman dengan tegangan 3,5 volt selama 60 Menit

- Rerata

No.	RERATA														tegangan			
	tc5	th5	dt5	tc6	th6	dt6	tc7	th7	dt7	tc8	th8	dt8	thipas2	theatsink2		tc avg	th avg	dt avg
1	33,324	35,028	1,7044	32,762	34,084	1,3220	32,32	34,114	1,7941	34,04	36,213	2,1734	33,0518	32,3365517	33,111	34,86	1,7487	0,3082119
2	34,652	36,574	1,922	34,42	35,878	1,4573	34,14	36,114	1,9743	35,07	37,324	2,254	34,052	33,6372222	34,571	36,473	1,9019	0,3238047
3	34,87	36,887	2,0176	34,751	36,27	1,5164	34,632	37,043	2,3508	35,302	37,589	2,2874	34,1741	33,9608869	34,904	36,947	2,0436	0,3464522
4	35,052	36,823	1,7713	34,324	36,251	1,9369	34,842	37,144	2,302	35,583	37,774	2,1652	34,4411	34,2189889	35,101	37,002	1,9004	0,3474232
5	35,688	37,648	1,9597	35,577	37,005	1,4278	35,48	37,935	2,4546	36,244	38,632	2,3877	35,1184	34,3283889	35,747	37,805	2,0574	0,3676535
6	35,682	37,115	2,0523	35,512	36,338	1,4261	35,364	37,912	2,5477	36,349	38,615	2,4654	35,1874	34,3674444	35,722	37,845	2,123	0,3830301
7	35,423	37,181	1,7563	35,285	36,381	1,1153	35,093	37,467	2,3743	36,247	38,47	2,2233	35,0239	34,7856667	35,508	37,376	1,8681	0,382341
8	35,756	38,245	2,4887	35,633	37,338	1,6988	35,48	38,37	2,8903	36,334	39,206	2,8122	35,2761	35,0845556	35,817	38,29	2,4725	0,4211939
9	36,822	39,517	2,6946	36,771	38,825	2,0549	36,606	39,832	3,2253	37,139	40,186	3,047	36,0379	35,8328889	36,834	39,59	2,7554	0,4476986
10	36,31	38,495	2,1853	36,192	37,581	1,3881	36,003	38,809	2,8053	37,136	39,776	2,6396	35,9232	35,7201111	36,41	38,665	2,2547	0,4248798
11	36,385	38,528	2,1636	36,239	37,711	1,4721	36,032	38,828	2,796	37,151	39,706	2,5543	35,9619	35,7433333	36,447	38,693	2,2465	0,4203444
12	35,898	37,771	1,8729	35,708	36,862	1,154	35,447	38,002	2,5556	36,843	39,217	2,3738	35,7024	35,5142222	35,974	37,963	1,9891	0,4037416
13	35,67	37,554	1,8838	35,499	36,728	1,2288	35,234	37,791	2,5568	36,438	38,805	2,3677	35,3202	35,4682222	35,71	37,72	2,0093	0,4043796
14	35,424	37	1,5761	35,229	36,353	1,1297	34,926	37,268	2,3413	36,112	38,146	2,0344	34,9636	35,1756667	35,423	37,193	1,7704	0,3843717
15	35,234	36,636	1,402	35,057	35,974	0,9164	34,782	36,973	2,1904	35,935	37,959	1,9648	34,922	35,1161111	35,267	36,885	1,6184	0,368435
16	35,23	36,563	1,3332	35,047	35,938	0,8913	34,768	36,934	2,1661	36,014	37,925	1,9108	34,9029	35,1161111	35,265	36,84	1,5754	0,3687314
17	35,308	36,736	1,4282	35,134	36,034	0,9004	34,865	37,129	2,2843	36,057	38,099	2,0424	34,9411	35,1731111	35,341	37	1,6589	0,3748344
18	35,043	36,198	1,1548	34,881	35,642	0,761	34,641	36,674	2,0329	35,858	37,634	1,7784	34,8239	35,0268889	35,106	36,537	1,4313	0,3400976
19	34,687	35,842	1,1551	34,535	35,313	0,7786	34,307	36,235	1,9874	35,445	37,228	1,7832	34,5111	34,6525556	34,743	36,169	1,4261	0,3305967
20	34,79	35,847	1,0563	34,634	35,314	0,68	34,397	36,302	1,9051	35,459	37,173	1,7142	34,5817	34,7414444	34,82	36,159	1,3391	0,3202621
21	34,744	35,86	1,1162	34,586	35,306	0,7202	34,352	36,246	1,8937	34,929	36,802	1,8737	34,2846	34,5	34,853	35,054	1,4009	0,3152955
22	34,01	35,259	1,2488	33,854	34,697	0,8433	33,661	35,469	1,8073	34,033	35,943	1,9104	33,6262	33,777	33,889	35,364	1,4525	0,285495
23	34,288	35,174	0,8859	34,12	34,724	0,604	33,875	35,488	1,6133	34,14	35,802	1,662	33,6537	33,8765556	34,106	35,297	1,1913	0,2766614
24	34,624	35,351	0,7267	34,488	34,925	0,4378	34,288	35,755	1,4673	34,921	36,451	1,5302	34,4573	34,5634444	34,58	35,621	1,0405	0,251965
25	34,313	34,958	0,6442	34,161	34,578	0,4172	33,967	35,314	1,347	34,828	36,187	1,3592	34,3819	34,51	34,317	35,259	0,9419	0,2298425
26	34,299	34,838	0,5392	34,153	34,495	0,3417	33,971	35,172	1,2009	34,745	35,941	1,1953	34,3196	34,4427778	34,292	35,111	0,8193	0,2077784
27	34,429	35,018	0,5897	34,281	34,674	0,3933	34,111	35,292	1,1804	34,613	35,866	1,2527	34,3412	34,4608889	34,359	35,213	0,854	0,1906032
28	34,872	35,503	0,631	34,754	35,212	0,4586	34,628	35,724	1,0957	35,427	36,392	0,965	34,9103	34,3166667	34,32	35,708	0,7876	0,1720901
29	34,387	34,787	0,3998	34,26	34,506	0,2463	34,141	35,019	0,878	34,918	35,647	0,729	34,4173	34,4326667	34,426	34,99	0,5633	0,137451
30	34,086	34,428	0,3418	33,981	34,18	0,1989	33,901	34,649	0,7478	34,369	35,054	0,6851	34,0681	34,0908889	34,084	34,577	0,4934	0,122468
31	33,789	33,915	0,1453	33,649	33,694	0,0446	33,558	34,045	0,4872	33,802	34,341	0,539	33,742	33,7948889	33,895	33,999	0,304	0,0908188
32	33,48	33,475	-0,005	33,363	33,318	-0,044	33,302	33,62	0,3176	33,767	34,046	0,2781	33,6611	33,6684444	33,478	33,615	0,1367	0,062072

- Perhitungan

No	tc avg	th avg	dt avg	voltage	Intensitas	R	Jenis	alpa	Arus	k	Qh	Daya	Eff
1	33,111	34,86	1,7487	0,3082	596		6,3 TEG 33	0,1763	0,001	0,9377	0,012	0,000318774	2,8446
2	34,571	36,473	1,9019	0,3238	611,667		5,4 TEG 34	0,1703	0,0011	0,9377	0,0122	0,000351844	2,8869
3	34,904	36,947	2,0436	0,3465	651,667		6,3 TEG 35	0,1695	0,0012	0,9377	0,0131	0,000402782	3,0758
4	35,101	37,002	1,9004	0,3474	661,667		6,4 TEG 36	0,1828	0,0012	0,9377	0,0122	0,000405057	3,2433
5	35,747	37,805	2,0574	0,3677	710,333		273 Beban	0,1787	0,0012	0,9377	0,0132	0,000453602	3,4389
6	35,722	37,845	2,123	0,383	763,333		298 Total	0,1804	0,0013	0,9377	0,0136	0,000493232	3,6167
7	35,508	37,376	1,8681	0,3823	800,667			0,2047	0,0013	0,9377	0,012	0,000490553	4,0909
8	35,817	38,29	2,4725	0,4212	840,667	0,0064	A	0,1704	0,0014	0,9377	0,0158	0,000595316	3,7567
9	36,834	39,59	2,7554	0,4477	935			0,1625	0,0015	0,9377	0,0177	0,000672597	3,8094
10	36,41	38,665	2,2547	0,4249	917			0,1884	0,0014	0,9377	0,0145	0,000605781	4,1883
11	36,447	38,693	2,2465	0,4203	895			0,1871	0,0014	0,9377	0,0144	0,000592918	4,1147
12	35,974	37,963	1,9891	0,4037	885,333			0,203	0,0014	0,9377	0,0128	0,000547004	4,2844
13	35,71	37,72	2,0093	0,4044	880			0,2013	0,0014	0,9377	0,0129	0,000548735	4,2552
14	35,423	37,193	1,7704	0,3844	874,333			0,2171	0,0013	0,9377	0,0114	0,000495777	4,36
15	35,267	36,885	1,6184	0,3694	860,333			0,2283	0,0012	0,9377	0,0104	0,000457994	4,4036
16	35,265	36,84	1,5754	0,3687	866,667			0,2341	0,0012	0,9377	0,0101	0,000456251	4,5051
17	35,341	37	1,6589	0,3748	875			0,226	0,0013	0,9377	0,0107	0,000471479	4,4231
18	35,106	36,537	1,4313	0,3401	822,333			0,2376	0,0011	0,9377	0,0092	0,000388142	4,2178
19	34,743	36,169	1,4261	0,3306	803			0,2318	0,0011	0,9377	0,0092	0,000366759	4,0015
20	34,82	36,159	1,3391	0,3203	774			0,2392	0,0011	0,9377	0,0086	0,000344185	3,9976
21	34,653	36,054	1,4009	0,3153	767			0,2251	0,0011	0,9377	0,009	0,000333595	3,7065
22	33,889	35,342	1,4525	0,2855	735			0,1966	0,001	0,9377	0,0093	0,000273515	2,9356
23	34,106	35,297	1,1913	0,2767	667,667			0,2322	0,0009	0,9377	0,0077	0,000256851	3,3551
24	34,58	35,621	1,0405	0,252	590,333			0,2422	0,0008	0,9377	0,0067	0,000213041	3,1842
25	34,317	35,259	0,9419	0,2298	549			0,244	0,0008	0,9377	0,0061	0,000177274	2,9268
26	34,292	35,111	0,8193	0,2078	493			0,2536	0,0007	0,9377	0,0053	0,000144872	2,7484
27	34,359	35,213	0,854	0,1906	442			0,2232	0,0006	0,9377	0,0055	0,000121911	2,2225
28	34,92	35,708	0,7876	0,1721	379,667			0,2185	0,0006	0,9377	0,0051	9,93792E-05	1,9649
29	34,426	34,99	0,5633	0,1437	336,667			0,2551	0,0005	0,9377	0,0036	6,33088E-05	1,9124
30	34,084	34,577	0,4934	0,1221	280,333			0,2476	0,0004	0,9377	0,0032	5,00666E-05	1,578
31	33,695	33,999	0,304	0,0908	220			0,2987	0,0003	0,9377	0,002	2,7678E-05	1,4113
32	33,478	33,615	0,1367	0,0621	165			0,4542	0,0002	0,9377	0,0009	1,29293E-05	1,4478