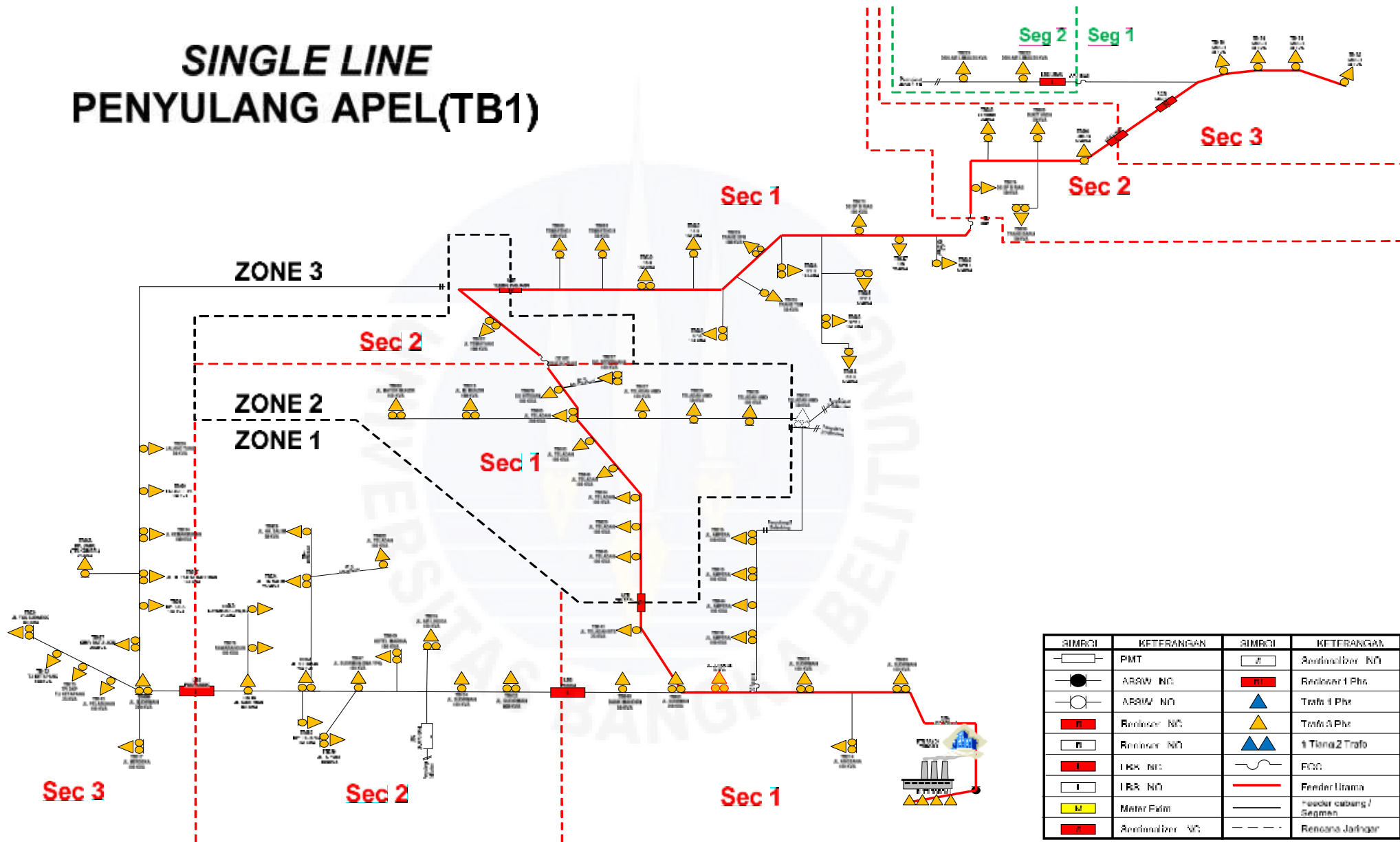


SINGLE LINE PENYULANG APEL(TB1)



SIMBOL	KETERANGAN	SIMBOL	KETERANGAN
	REKLOSER NC		REKLOSER 1 Ph
	REKLOSER 1 Ph		TRAF0 1 Ph
	REKLOSER NC		TRAF0 2 Ph
	REKLOSER NC		PCC
	LBS NC		Feeder Utama
	LBS NO		feeder cabang / Seaman
	Meter Palm		Rencana Jalinan
	REKLOSER NC		

SETTINGAN PROTEKSI TB APEL PLTD TOBOALI

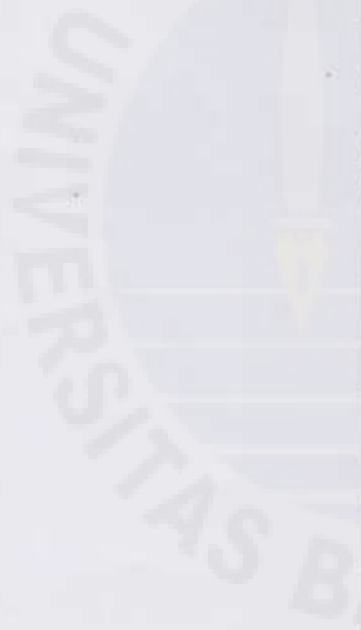
No	Penyulang	Lokasi	CT	Relay	Setting Phasa OCR						Setting Phasa GFR					
					I _{Set}	t _{Set}	Kurva	I _{Set}	t _{Set}	Kurva	I _{Set}	t _{Set}	Kurva	I _{Set}	t _{Set}	Kurva
1	TB 1	OutGoing	200/5	SEPAM 1000	150	0,1	SIT	250	0,05	DEF	40	0,1	SIT	70	0,05	DEF
		ACR Teladan		Recloser ENTEC	100	0,07	SIT	230	0,05	DEF	30	0,07	SIT	50	0,05	DEF
		ACR Tebing Panjang		Recloser SCHNEIDER	70	0,05	SIT	200	0,05	DEF	15	0,05	SIT	40	0,05	DEF
		ACR Tangit		Recloser SCHNEIDER	40	0,05	SIT	150	0,05	DEF	10	0,05	SIT	30	0,05	DEF

RAYON TOBOALI

No	Bulan Laporan	Padam		Nyala		Penyebab	Penyulang	Dasrah padam	Role yang Bekerja/ Dilaksanakan			Asus Padam (A)		PDM		
		Tanggal	Jam	Tanggal	Jam				OOB	GFR	UFR	R	S		T	N
6	FEBRUARI	06/02/2017	12:15	06/02/2017	12:40	ARRESTER GARDU TB023 R	TB1	ACR TELADAN	GFR			57	62	80	47	0
20	FEBRUARI	11/02/2017	11:55	11/02/2017	13:10	INDIKASI UFR	TB1	TOTAL	UFR							0
27	FEBRUARI	14/02/2017	8:10	14/02/2017	8:26	INDIKASI UFR	TB1	TOTAL	UFR							0
34	FEBRUARI	20/02/2017	14:05	20/02/2017	14:30	INDIKASI UFR	TB1	TOTAL	UFR							0
37	FEBRUARI	22/02/2017	22:25	22/02/2017	22:47	kegiatan TR di tiang besi dekat	TB1	LBS HONDA								1
40	FEBRUARI	24/02/2017	18:20	24/02/2017	18:45	GFR	TB1	TOTAL	GFR			88	86	128	55	0



No.	Bulan Laporan	Padam		Nyala		Penyebab	Perangking	Daerah padam	Rela yang Berakur/Dilepas			Arus Padam (A)					PDM			
		Tanggal	Jam	Tanggal	Jam				OCR	GFR	UFR	Siang	Malam	Har	Beban Padam	R		S	T	N
1	MARET	03/03/2017	3:25	03/03/2017	3:45	Perantaraian	TB1	TOTAL		GFR	UFR					61	61	178	116	0
2	MARET	03/03/2017	15:40	03/03/2017	15:59	UFR	TB1	TOTAL			UFR									0
3	MARET	05/03/2017	6:45	05/03/2017	7:20	UFR	TB1	TOTAL			UFR									0
4	MARET	05/03/2017	8:02	05/03/2017	8:30	UFR	TB1	TOTAL			UFR									0
5	MARET	06/03/2017	21:25	06/03/2017	21:55	OCR TB1	TB1	TOTAL		OCR						65	1310	1240		0
6	MARET	08/03/2017	6:30	08/03/2017	6:45	Indikasi GFR	TB1	TOTAL		GFR										0
7	MARET	08/03/2017	14:30	08/03/2017	14:33	UFR	TB1	TOTAL			UFR									0
8	MARET	09/03/2017	14:05	09/03/2017	14:50	UFR	TB1	TOTAL			UFR									0
9	MARET	14/03/2017	20:55	14/03/2017	21:10	UFR	TB1	TOTAL			UFR									0
10	MARET	14/03/2017	21:50	14/03/2017	22:05	UFR	TB1	TOTAL			UFR									0
11	MARET	16/03/2017	15:45	16/03/2017	15:58	Indikasi GFR	TB1	TOTAL		GFR						52	56	801	775	0
12	MARET	19/03/2017	13:57	19/03/2017	14:08	UFR	TB1	TOTAL			UFR									0
13	MARET	20/03/2017	2:50	20/03/2017	3:10	Indikasi OCR	TB1	TOTAL		OCR						62	64	66		0
14	MARET	21/03/2017	11:30	21/03/2017	11:35	Indikasi GFR	TB1	TOTAL		GFR						64	118	69	28	0
15	MARET	21/03/2017	20:35	21/03/2017	20:48	UFR	TB1	TOTAL			UFR									0
16	MARET	25/03/2017	1:10	25/03/2017	1:28	UFR	TB1	TOTAL			UFR									0
17	MARET	26/03/2017	5:50	26/03/2017	6:10	UFR	TB1	TOTAL			UFR									0
18	MARET	26/03/2017	23:55	26/03/2017	0:03	UFR	TB1	TOTAL			UFR									0
19	MARET	28/03/2017	6:25	29/03/2017	6:40	UFR	TB1	TOTAL			UFR									0
20	MARET	31/03/2017	11:30	31/03/2017	11:40	UFR	TB1	TOTAL			UFR									0
21	MARET	01/04/2017	7:30	01/04/2017	7:58	UFR	TB1	TOTAL			UFR									0



No	Bulan Laporan	Padam		Nyala		Penyebab	Penyulang	Daerah padam	Kode yang Berkejar Diligas			Beban Padam	Avis Padam (N)			PCM
		Tanggal	Jam	Tanggal	Jam				OCR	GFR	UFR		Dipadatkan	R	S	
1	APRIL	01/04/2017	7:30	01/04/2017	7:38	UFR	TB1	TOTAL			UFR					0
2	APRIL	06/04/2017	2:15	06/04/2017	2:30	UFR	TB1	TOTAL			UFR					0
3	APRIL	17/04/2017	23:20	17/04/2017	23:20	UFR	TB1	TOTAL			UFR					0
4	APRIL	18/04/2017	22:15	18/04/2017	22:30	INDIKASI OCR	TB1	TOTAL			OCR					0
5	APRIL	23/04/2017	5:35	23/04/2017	5:50	INDIKASI GFR	TB1	TOTAL			GFR					0
6	APRIL	28/04/2017	19:52	28/04/2017	20:05	UFR	TB1	TOTAL			UFR					0
7	APRIL	28/04/2017	0:20	28/04/2017	0:30	INDIKASI OCR	TB1	TOTAL			OCR					0
8	APRIL	28/04/2017	19:30	28/04/2017	19:32	INDIKASI GFR	TB1	TOTAL			GFR					0



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Short-Circuit Summary Report

1/2 Cycle - 3-Phase, LG, LL, & LLG Fault Currents

Prefault Voltage = 100 % of the Bus Nominal Voltage

Bus		3-Phase Fault			Line-to-Ground Fault			Line-to-Line Fault			*Line-to-Line-to-Ground		
ID	kV	Real	Imag.	Mag.	Real	Imag.	Mag.	Real	Imag.	Mag.	Real	Imag.	Mag.
TB.001	20.00	0.428	-2.122	2.164	0.623	-2.460	2.538	1.856	0.419	1.902	-2.230	1.032	2.457
TB.002	20.00	0.531	-1.904	1.977	0.632	-1.983	2.081	1.658	0.501	1.732	-1.975	0.536	2.046
TB.005	20.00	0.550	-1.850	1.930	0.627	-1.882	1.984	1.609	0.517	1.690	-1.912	0.446	1.963
TB.007	20.00	0.593	-1.706	1.806	0.603	-1.644	1.751	1.481	0.549	1.580	1.211	1.327	1.797
TB.008	20.00	0.560	-1.821	1.905	0.623	-1.831	1.934	1.584	0.524	1.668	-1.879	0.403	1.921
TB.009	20.00	0.296	-2.320	2.339	0.532	-3.048	3.094	2.039	0.309	2.062	-2.431	1.851	3.056
TB.019	20.00	0.450	-2.082	2.130	0.630	-2.363	2.445	1.820	0.436	1.871	-2.184	0.921	2.370
TB.020	20.00	0.526	-1.916	1.987	0.633	-2.006	2.104	1.669	0.498	1.742	-1.989	0.558	2.066
TB.021	20.00	0.593	-1.705	1.805	0.603	-1.642	1.749	1.480	0.549	1.579	1.211	1.326	1.796
TB.024	20.00	0.555	-1.837	1.919	0.625	-1.859	1.961	1.598	0.520	1.680	-1.897	0.426	1.944
TB.027	20.00	0.571	-1.786	1.875	0.618	-1.771	1.876	1.552	0.533	1.641	1.262	1.393	1.880
TB.029	20.00	0.502	-1.974	2.037	0.635	-2.122	2.215	1.722	0.478	1.787	-2.057	0.669	2.163
TB.031	20.00	0.366	-2.223	2.253	0.591	-2.737	2.800	1.949	0.368	1.983	-2.343	1.383	2.720
TB.032	20.00	0.463	-2.057	2.108	0.632	-2.303	2.389	1.797	0.447	1.851	-2.154	0.856	2.318
TB.040	20.00	0.447	-2.087	2.134	0.629	-2.375	2.457	1.824	0.434	1.875	-2.189	0.935	2.381
TB.044	20.00	0.415	-2.144	2.183	0.618	-2.517	2.591	1.876	0.408	1.920	-2.255	1.099	2.509
TB.045	20.00	0.479	-2.023	2.079	0.635	-2.226	2.315	1.766	0.461	1.825	-2.114	0.774	2.251
TB.046	20.00	0.531	-1.903	1.975	0.632	-1.980	2.079	1.657	0.502	1.731	-1.973	0.534	2.044
TB.047	20.00	0.504	-1.968	2.032	0.635	-2.110	2.204	1.716	0.481	1.782	-2.050	0.657	2.153
TB.048	20.00	0.547	-1.859	1.938	0.628	-1.899	2.000	1.618	0.514	1.698	-1.923	0.461	1.977
TB.049	20.00	0.494	-1.991	2.051	0.636	-2.157	2.249	1.737	0.473	1.800	-2.076	0.704	2.192
TB.058	20.00	0.583	-1.743	1.838	0.610	-1.702	1.808	1.514	0.542	1.608	1.235	1.357	1.835
TB.059	20.00	0.544	-1.868	1.946	0.629	-1.916	2.017	1.626	0.512	1.705	-1.933	0.476	1.991
TB.060	20.00	0.616	-1.597	1.712	0.579	-1.484	1.593	1.384	0.566	1.495	1.140	1.248	1.690
TB.065	20.00	0.607	-1.645	1.754	0.590	-1.553	1.661	1.427	0.559	1.533	1.172	1.282	1.737
TB.070	20.00	0.583	-1.744	1.839	0.610	-1.703	1.809	1.515	0.542	1.609	1.236	1.357	1.836
TB.080	20.00	0.621	-1.569	1.688	0.573	-1.445	1.555	1.359	0.569	1.474	1.121	1.229	1.664
TB.081	20.00	0.641	-1.337	1.483	0.509	-1.158	1.265	1.155	0.579	1.292	0.963	1.083	1.449
TB.082	20.00	0.635	-1.169	1.330	0.458	-0.977	1.079	1.008	0.569	1.157	0.845	0.983	1.297
TB.083	20.00	0.619	-1.035	1.206	0.415	-0.847	0.943	0.891	0.551	1.048	0.750	0.903	1.174
TB.084	20.00	0.559	-0.794	0.971	0.333	-0.632	0.715	0.683	0.494	0.843	0.577	0.750	0.946

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1/2 Cycle - 3-Phase, LG, LL, & LLG Fault Currents

Prefault Voltage = 100 % of the Bus Nominal Voltage

Bus		3-Phase Fault			Line-to-Ground Fault			Line-to-Line Fault			*Line-to-Line-to-Ground		
ID	kV	Real	Imag.	Mag.	Real	Imag.	Mag.	Real	Imag.	Mag.	Real	Imag.	Mag.
TB.085	20.00	0.548	-0.761	0.938	0.321	-0.605	0.685	0.655	0.483	0.814	0.553	0.727	0.914
TB.086	20.00	0.543	-0.746	0.923	0.316	-0.592	0.671	0.642	0.478	0.800	0.542	0.717	0.899
TB.087	20.00	0.524	-0.696	0.871	0.298	-0.551	0.626	0.598	0.461	0.755	0.506	0.682	0.849
TB.088	20.00	0.439	-0.515	0.677	0.231	-0.406	0.467	0.443	0.384	0.587	0.374	0.545	0.661
TB.089	20.00	0.413	-0.469	0.625	0.213	-0.370	0.427	0.404	0.361	0.541	0.341	0.506	0.610
TB.090	20.00	0.399	-0.447	0.599	0.204	-0.353	0.408	0.385	0.349	0.519	0.324	0.488	0.586
TB.091	20.00	0.383	-0.420	0.568	0.193	-0.332	0.385	0.362	0.334	0.492	0.305	0.464	0.556
TB.102	20.00	0.581	-1.752	1.846	0.612	-1.717	1.822	1.522	0.540	1.615	1.241	1.365	1.845
TB.103	20.00	0.542	-1.872	1.949	0.629	-1.924	2.024	1.630	0.511	1.708	-1.938	0.483	1.997
TB.104	20.00	0.518	-1.935	2.004	0.634	-2.044	2.140	1.687	0.491	1.757	-2.011	0.593	2.097
TB.120	20.00	0.619	-1.579	1.696	0.575	-1.459	1.569	1.368	0.568	1.481	1.128	1.236	1.673
TB.127	20.00	0.571	-1.785	1.874	0.617	-1.769	1.874	1.551	0.533	1.640	1.262	1.392	1.879
TB.132	20.00	0.580	-1.754	1.848	0.612	-1.719	1.825	1.524	0.540	1.617	1.242	1.366	1.846
TB.133	20.00	0.585	-1.738	1.834	0.609	-1.693	1.800	1.509	0.543	1.604	1.232	1.353	1.829
TB.134	20.00	0.479	-2.023	2.079	0.635	-2.228	2.316	1.766	0.460	1.825	-2.115	0.776	2.252
TB.137	20.00	0.532	-0.716	0.892	0.305	-0.567	0.644	0.616	0.468	0.774	0.520	0.696	0.869
TB.143	20.00	0.563	-1.812	1.898	0.622	-1.816	1.920	1.576	0.526	1.661	-1.869	0.390	1.909
TB.155	20.00	0.581	-0.867	1.044	0.358	-0.695	0.782	0.746	0.514	0.906	0.630	0.798	1.017
TB.159	20.00	0.376	-0.410	0.556	0.189	-0.324	0.375	0.352	0.328	0.482	0.297	0.455	0.543
TB.160	20.00	0.371	-0.402	0.547	0.186	-0.318	0.369	0.346	0.324	0.474	0.292	0.448	0.535
TB.161	20.00	0.341	-0.358	0.495	0.168	-0.285	0.331	0.309	0.298	0.429	0.260	0.409	0.484
TB.164	20.00	0.538	-0.732	0.908	0.311	-0.580	0.658	0.629	0.473	0.788	0.532	0.707	0.885
TB.169	20.00	0.330	-0.342	0.475	0.161	-0.272	0.316	0.295	0.288	0.412	0.248	0.393	0.465
TB.170	20.00	0.560	-1.820	1.904	0.623	-1.830	1.933	1.583	0.525	1.667	-1.878	0.401	1.920
TB.171	20.00	0.537	-0.731	0.907	0.311	-0.580	0.658	0.629	0.473	0.787	0.531	0.706	0.884
TB.174	20.00	0.481	-0.597	0.767	0.262	-0.471	0.539	0.514	0.422	0.665	0.434	0.609	0.748
TB.176	20.00	0.550	-1.851	1.931	0.627	-1.884	1.985	1.610	0.517	1.691	-1.913	0.448	1.965
TB.194	20.00	0.611	-1.626	1.737	0.586	-1.524	1.633	1.410	0.562	1.518	1.159	1.268	1.718
TB.196	20.00	0.390	-2.185	2.219	0.606	-2.628	2.697	1.914	0.388	1.953	-2.301	1.238	2.613
TB.197	20.00	0.600	-1.675	1.780	0.597	-1.597	1.705	1.454	0.554	1.556	1.191	1.304	1.766
TB.213	20.00	0.571	-1.787	1.876	0.618	-1.774	1.879	1.554	0.532	1.642	1.263	1.395	1.882
TB.214	20.00	0.349	-2.248	2.275	0.579	-2.811	2.870	1.972	0.354	2.003	-2.368	1.486	2.796
TB.215	20.00	0.523	-1.924	1.994	0.634	-2.022	2.119	1.677	0.495	1.748	-1.999	0.573	2.079
TB.217	20.00	0.577	-1.765	1.857	0.614	-1.738	1.843	1.534	0.537	1.625	1.249	1.376	1.858

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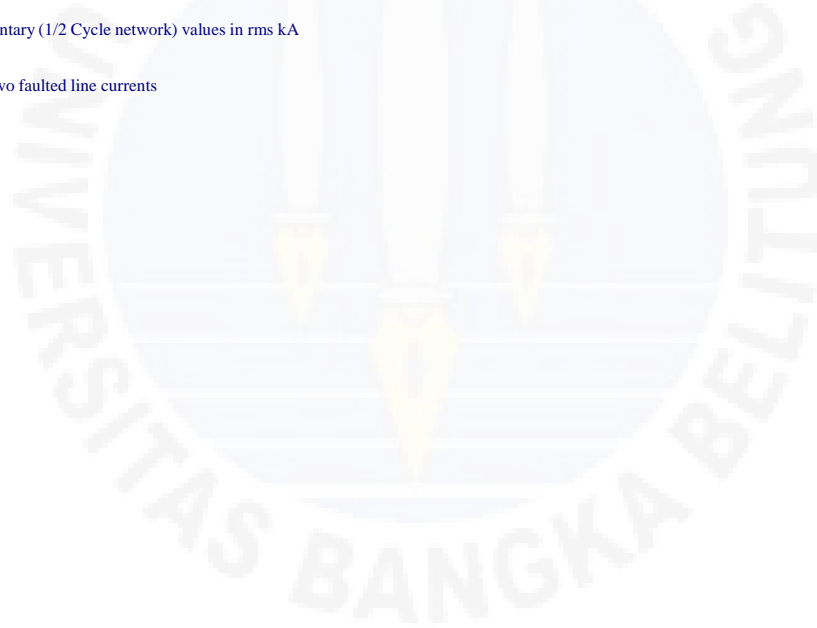
1/2 Cycle - 3-Phase, LG, LL, & LLG Fault Currents

Prefault Voltage = 100 % of the Bus Nominal Voltage

Bus		3-Phase Fault			Line-to-Ground Fault			Line-to-Line Fault			*Line-to-Line-to-Ground		
ID	kV	Real	Imag.	Mag.	Real	Imag.	Mag.	Real	Imag.	Mag.	Real	Imag.	Mag.
TB.222	20.00	0.370	-0.401	0.545	0.185	-0.317	0.368	0.345	0.323	0.473	0.291	0.447	0.533
TB.223	20.00	0.369	-0.399	0.544	0.185	-0.316	0.366	0.343	0.322	0.471	0.290	0.446	0.532
TB.226	20.00	0.621	-1.569	1.687	0.573	-1.445	1.554	1.359	0.569	1.473	1.121	1.228	1.663
TB.229	20.00	0.594	-1.702	1.803	0.602	-1.638	1.745	1.478	0.550	1.577	1.209	1.324	1.793
TB.233	20.00	0.563	-0.806	0.983	0.337	-0.642	0.725	0.693	0.497	0.853	0.585	0.758	0.957

All fault currents are symmetrical momentary (1/2 Cycle network) values in rms kA

* LLG fault current is the larger of the two faulted line currents



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Short-Circuit Summary Report

Bus		Positive Sequence Imp. (ohm)			Negative Sequence Imp. (ohm)			Zero Sequence Imp. (ohm)		
ID	kV	Resistance	Reactance	Impedance	Resistance	Reactance	Impedance	Resistance	Reactance	Impedance
TB.001	20.000	1.05483	5.22962	5.33495	1.25931	5.02514	5.18053	1.03746	2.97695	3.15255
TB.002	20.000	1.56816	5.62755	5.84195	1.77264	5.42306	5.70542	1.71567	4.80915	5.10602
TB.005	20.000	1.70686	5.73506	5.98367	1.91134	5.53058	5.85154	1.89892	5.30420	5.63387
TB.007	20.000	2.09808	6.03833	6.39244	2.30256	5.83384	6.27180	2.41579	6.70056	7.12274
TB.008	20.000	1.78197	5.79329	6.06115	1.98645	5.58880	5.93133	1.99815	5.57229	5.91972
TB.009	20.000	0.62490	4.89636	4.93607	0.82938	4.69187	4.76462	0.46945	1.44245	1.51692
TB.019	20.000	1.14422	5.29892	5.42105	1.34870	5.09444	5.26994	1.15557	3.29603	3.49273
TB.020	20.000	1.53774	5.60397	5.81112	1.74223	5.39949	5.67361	1.67549	4.70060	4.99028
TB.021	20.000	2.10176	6.04118	6.39635	2.30625	5.83670	6.27581	2.42066	6.71371	7.13677
TB.024	20.000	1.74050	5.76114	6.01831	1.94498	5.55665	5.88722	1.94336	5.42427	5.76189
TB.027	20.000	1.87643	5.86651	6.15930	2.08092	5.66203	6.03231	2.12296	5.90946	6.27922
TB.029	20.000	1.39628	5.49431	5.66895	1.60076	5.28983	5.52673	1.48858	4.19568	4.45192
TB.031	20.000	0.83226	5.05710	5.12512	1.03674	4.85261	4.96213	0.74341	2.18256	2.30570
TB.032	20.000	1.20182	5.34357	5.47706	1.40631	5.13909	5.32803	1.23167	3.50161	3.71192
TB.040	20.000	1.13270	5.28999	5.40990	1.33719	5.08551	5.25837	1.14035	3.25491	3.44889
TB.044	20.000	1.00598	5.19176	5.28833	1.21046	4.98728	5.13207	0.97293	2.80262	2.96669
TB.045	20.000	1.28108	5.40501	5.55476	1.48556	5.20053	5.40855	1.33638	3.78450	4.01353
TB.046	20.000	1.57138	5.63005	5.84523	1.77587	5.42556	5.70880	1.71993	4.82066	5.11830
TB.047	20.000	1.41056	5.50538	5.68322	1.61505	5.30090	5.54147	1.50746	4.24666	4.50628
TB.048	20.000	1.68197	5.71577	5.95811	1.88646	5.51129	5.82521	1.86604	5.21539	5.53917
TB.049	20.000	1.35665	5.46359	5.62951	1.56113	5.25911	5.48592	1.43623	4.05423	4.30111
TB.058	20.000	1.99255	5.95653	6.28096	2.19704	5.75204	6.15735	2.27637	6.32392	6.72115
TB.059	20.000	1.65847	5.69756	5.93403	1.86296	5.49307	5.80038	1.83499	5.13151	5.44973
TB.060	20.000	2.42755	6.29372	6.74566	2.63203	6.08924	6.63374	2.85108	7.87652	8.37664
TB.065	20.000	2.27779	6.17763	6.58418	2.48227	5.97315	6.46840	2.65322	7.34199	7.80669
TB.070	20.000	1.99163	5.95581	6.27999	2.19612	5.75133	6.15635	2.27516	6.32063	6.71764
TB.080	20.000	2.51648	6.36266	6.84223	2.72097	6.15818	6.73252	2.96858	8.19394	8.71511
TB.081	20.000	3.36712	7.02206	7.78760	3.57160	6.81757	7.69647	4.09242	11.23006	11.95250
TB.082	20.000	4.14633	7.62608	8.68039	4.35082	7.42160	8.60289	5.12190	14.01125	14.91807
TB.083	20.000	4.91356	8.22082	9.57731	5.11805	8.01634	9.51084	6.13556	16.74967	17.83806
TB.084	20.000	6.84754	9.71999	11.88978	7.05203	9.51550	11.84381	8.69069	23.65248	25.19857
TB.085	20.000	7.19591	9.99003	12.31185	7.40039	9.78555	12.26877	9.15094	24.89587	26.52441
TB.086	20.000	7.36318	10.11969	12.51497	7.56766	9.91521	12.47321	9.37194	25.49290	27.16102
TB.087	20.000	7.97558	10.59441	13.26090	8.18006	10.38993	13.22362	10.18103	27.67870	29.49176
TB.088	20.000	11.06202	12.98694	17.05957	11.26650	12.78245	17.03893	14.25877	38.69490	41.23843

Project:
 Location:
 Contract:
 Engineer:
 Filename: Fuse Tipe T

ETAP
 12.6.0H

Study Case: SC

Page: 5
 Date: 05-08-2017
 SN:
 Revision: Base
 Config.: Normal

Bus		Positive Sequence Imp. (ohm)			Negative Sequence Imp. (ohm)			Zero Sequence Imp. (ohm)		
ID	kV	Resistance	Reactance	Impedance	Resistance	Reactance	Impedance	Resistance	Reactance	Impedance
TB.089	20.000	12.20757	13.87494	18.48076	12.41205	13.67045	18.46457	15.77225	42.78363	45.59827
TB.090	20.000	12.83794	14.36359	19.26461	13.04243	14.15910	19.25059	16.60509	45.03358	47.99742
TB.091	20.000	13.67844	15.01512	20.31141	13.88292	14.81064	20.30001	17.71554	48.03351	51.19627
TB.102	20.000	1.96767	5.93724	6.25480	2.17215	5.73275	6.13048	2.24350	6.23511	6.62645
TB.103	20.000	1.64787	5.68934	5.92318	1.85236	5.48486	5.78921	1.82099	5.09368	5.40940
TB.104	20.000	1.49028	5.56718	5.76320	1.69477	5.36270	5.62412	1.61278	4.53120	4.80966
TB.120	20.000	2.48377	6.33730	6.80665	2.68825	6.13282	6.69613	2.92535	8.07717	8.59060
TB.127	20.000	1.87920	5.86866	6.16218	2.08368	5.66417	6.03528	2.12661	5.91932	6.28974
TB.132	20.000	1.96260	5.93331	6.24948	2.16708	5.72883	6.12501	2.23680	6.21701	6.60716
TB.133	20.000	2.00822	5.96867	6.29746	2.21270	5.76419	6.17430	2.29707	6.37984	6.78077
TB.134	20.000	1.27970	5.40394	5.55339	1.48418	5.19946	5.40714	1.33456	3.77957	4.00827
TB.137	20.000	7.71799	10.39474	12.94674	7.92248	10.19025	12.90763	9.84071	26.75932	28.51141
TB.143	20.000	1.80501	5.81115	6.08502	2.00949	5.60666	5.95590	2.02859	5.65453	6.00740
TB.155	20.000	6.16003	9.18704	11.06109	6.36451	8.98256	11.00879	7.78236	21.19859	22.58196
TB.159	20.000	14.04662	15.30052	20.77049	14.25110	15.09604	20.76016	18.20197	49.34763	52.59753
TB.160	20.000	14.32080	15.51306	21.11256	14.52528	15.30857	21.10299	18.56421	50.32622	53.64101
TB.161	20.000	16.09349	16.88721	23.32763	16.29798	16.68272	23.32246	20.90626	56.65338	60.38773
TB.164	20.000	7.53045	10.24936	12.71837	7.73493	10.04487	12.67788	9.59293	26.08992	27.79763
TB.169	20.000	16.86671	17.48659	24.29541	17.07120	17.28210	24.29191	21.92783	59.41319	63.33053
TB.170	20.000	1.78427	5.79507	6.06354	1.98876	5.59059	5.93379	2.00119	5.58052	5.92848
TB.171	20.000	7.54012	10.25686	12.73015	7.74461	10.05237	12.68973	9.60572	26.12446	27.83446
TB.174	20.000	9.44323	11.73209	15.06043	9.64771	11.52761	15.03210	12.12006	32.91707	35.07748
TB.176	20.000	1.70409	5.73292	5.98083	1.90858	5.52844	5.84861	1.89526	5.29434	5.62335
TB.194	20.000	2.33723	6.22371	6.64810	2.54172	6.01923	6.53387	2.73175	7.55415	8.03292
TB.196	20.000	0.91520	5.12139	5.20253	1.11969	4.91691	5.04279	0.85300	2.47861	2.62128
TB.197	20.000	2.18793	6.10798	6.48803	2.39242	5.90350	6.36985	2.53450	7.02127	7.46471
TB.213	20.000	1.87136	5.86258	6.15401	2.07585	5.65810	6.02688	2.11626	5.89136	6.25993
TB.214	20.000	0.77927	5.01602	5.07619	0.98375	4.81154	4.91107	0.67340	1.99343	2.10409
TB.215	20.000	1.51747	5.58825	5.79062	1.72195	5.38377	5.65244	1.64870	4.62823	4.91312
TB.217	20.000	1.93173	5.90938	6.21710	2.13621	5.70489	6.09173	2.19601	6.10682	6.48966
TB.222	20.000	14.36549	15.54770	21.16834	14.56998	15.34322	21.15889	18.62326	50.48576	53.81113
TB.223	20.000	14.42447	15.59343	21.24195	14.62896	15.38894	21.23266	18.70119	50.69628	54.03561
TB.226	20.000	2.51786	6.36374	6.84374	2.72235	6.15925	6.73406	2.97040	8.19888	8.72037
TB.229	20.000	2.10960	6.04726	6.40466	2.31408	5.84277	6.28434	2.43101	6.74167	7.16659
TB.233	20.000	6.73050	9.62926	11.74829	6.93498	9.42477	11.70130	8.53605	23.23472	24.75311

Nama Gardu	Daya Pengenal Trafo (KVA)	Arus Pengenal Fuse Link (A)
TB 001	200	15
TB 002	200	15
TB 005	200	15
TB 007	160	12
TB 008	200	15
TB 009	160	12
TB 019	100	8
TB 020	100	8
TB 021	100	8
TB 024	250	20
TB 027	200	15
TB 029	100	8
TB 031	100	8
TB 032	160	12
TB 040	50	6
TB 044	100	8
TB 045	100	8
TB 046	100	8
TB 047	100	8
TB 048	100	8
TB 049	100	8
TB 058	160	12
TB 059	100	8
TB 060	100	8
TB 065	25	2
TB 070	100	8
TB 080	100	8
TB 081	50	6

Lanjutan

TB 082	100	8
TB 083	100	8
TB 084	100	8
TB 085	50	6
TB 086	100	8
TB 087	50	6
TB 088	50	6
TB 089	50	6
TB 90	50	6
TB 91	50	6
TB 102	100	8
TB 103	50	6
TB 104	50	6
TB 120	100	8
TB 127	100	8
TB 132	100	8
TB 133	50	6
TB 134	100	6
TB 137	25	2
TB 143	100	8
TB 155	50	6
TB 159	50	6
TB 160	50	6
TB 161	50	6
TB 164	50	6
TB 169	50	6
TB 170	100	8
TB 171	100	8
TB 174	50	6

Lanjutan

TB 176	100	8
TB 194	100	8
TB 196	100	8
TB 197	100	8
TB 213	100	8
TB 214	100	8
TB 215	100	8
TB 217	100	8
TB 222	25	2
TB 223	25	2
TB 226	50	6
TB 229	50	6
TB 233	100	8

Tabel Arus Pengenal *Fuse Link* Pada Gardu Distribusi

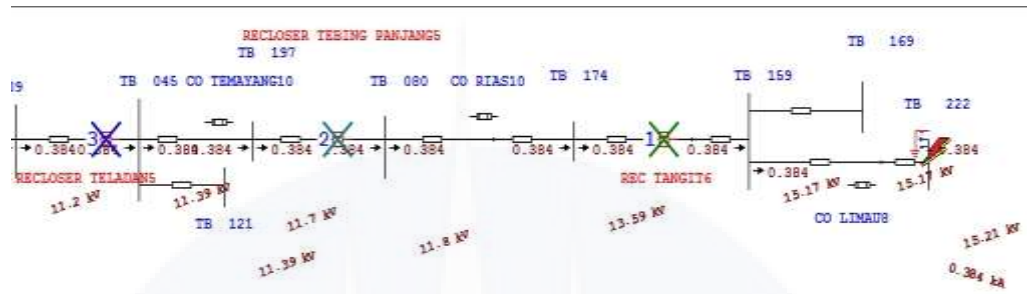
TABEL SETTINGAN PROTEKSI PENYULANG APEL PLTD TOBOALI HASIL ANALISIS

No	Penyulang	Lokasi	CT	Relay	Setting Phasa OCR						Setting Phasa GFR					
					I _{Set}	t _{Set}	Kurva	I _{Set}	t _{Set}	Kurva	I _{Set}	t _{Set}	Kurva	I _{Set}	t _{Set}	Kurva
1	TB 1	OutGoing	200/5	SEPAM 1000	150	0.1	SIT	250	0.05	DEF	40	0,1	SIT	70	0,05	DEF
		ACR Teladan		Recloser ENTECH	80	0,5	SIT	150	0,8	DEF	50	0,5	SIT	65	0,8	DEF
		ACR Tebing Panjang		Recloser SCHNEIDER	70	0,03	SIT	104	0,085	DEF	38	0,03	SIT	62	0,085	DEF
		ACR Tangit		Recloser SCHNEIDER	14	0,05	SIT	65	0,005	DEF	7	0,05	SIT	61	0,005	DEF

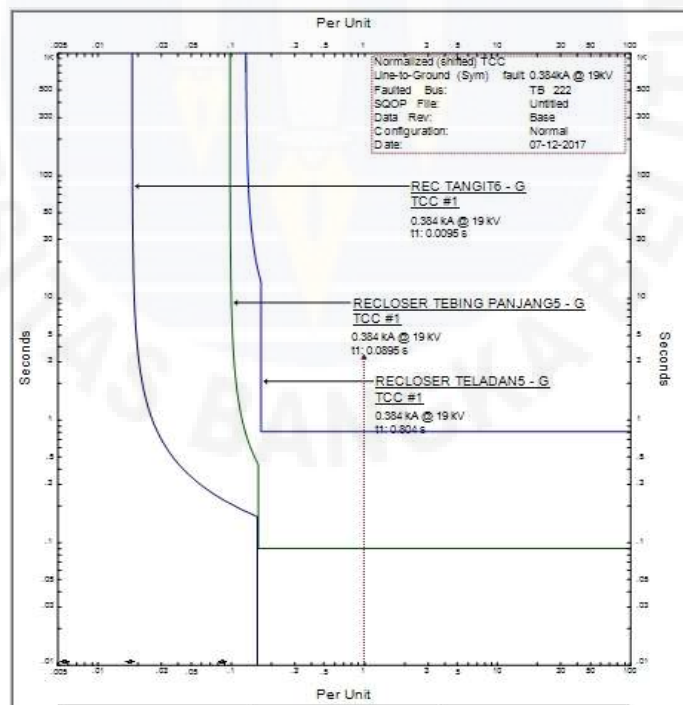


KURVA KARAKTERISTIK KERJA *RECLOSER* DAN FCO PADA PENYULANG APEL TOBOALI UNTUK GANGGUAN 1 FASA KE TANAH

A. Koordinasi *Recloser* dengan *Recloser*



Gambar 1. Simulasi Kerja *Recloser* Teladan, *Recloser* Tebing Panjang, dan *Recloser* Teladan



Gambar 2. Kurva Karakteristik *Recloser* Teladan, *Recloser* Tebing Panjang, dan *Recloser* Tangit

Sequence-of-Operation Events - Output Report: Untitled

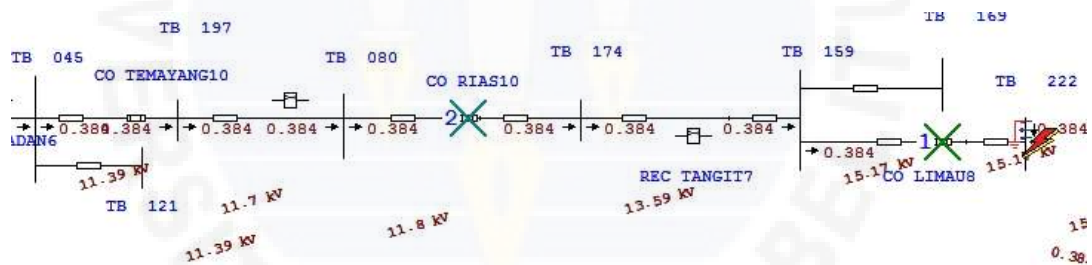
Line-to-Ground (Symmetrical) fault on bus: TB 222

Data Rev.: Base Config: Normal Date: 07-12-2017

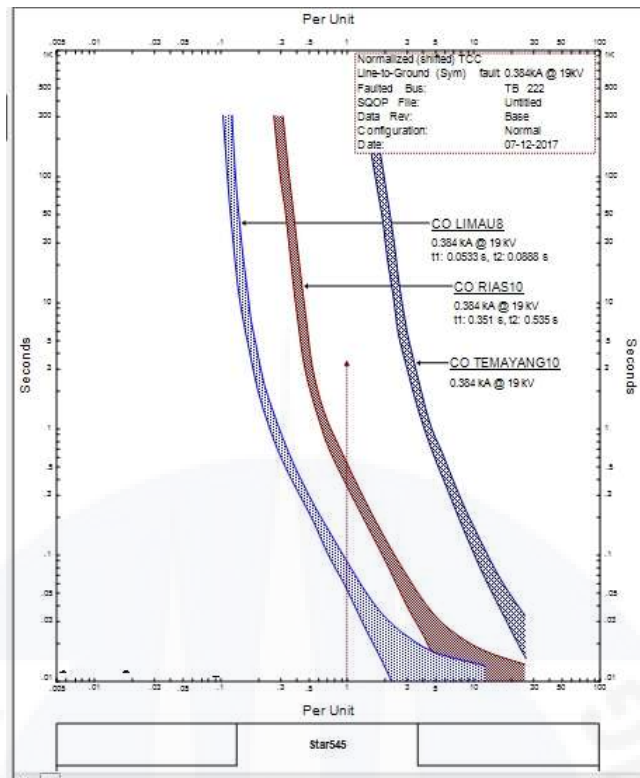
Time (ms)	ID	If (kA)	T1 (ms)	T2 (ms)	Condition
9.5	REC TANGI...	0.384	5.0	9.5	1st Operation - Lockout - Ground - TCC #1 - HC
89.5	RECLOSER...	0.384	85.0	89.5	1st Operation - Lockout - Ground - TCC #1 - HC
805	RECLOSER...	0.384	800	805	1st Operation - Lockout - Ground - TCC #1 - HC

Gambar 3. Hasil Report Waktu Kerja Recloser

B. Koordinasi Fuse dengan Fuse



Gambar 4. Simulasi Kerja FCO Temayang, FCO Rias, dan FCO Limau



Gambar 5. Kurva Karakteristik Kerja FCO Temayang, FCO Rias, dan FCO Limau

Sequence-of-Operation Events - Output Report: Untitled

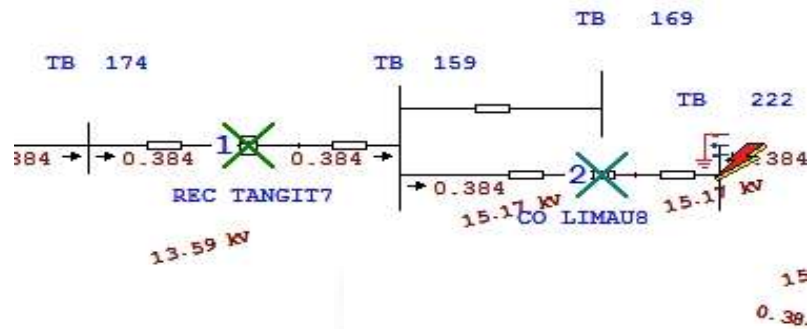
Line-to-Ground (Symmetrical) fault on bus: TB 222

Data Rev.: Base Config: Normal Date: 07-12-2017

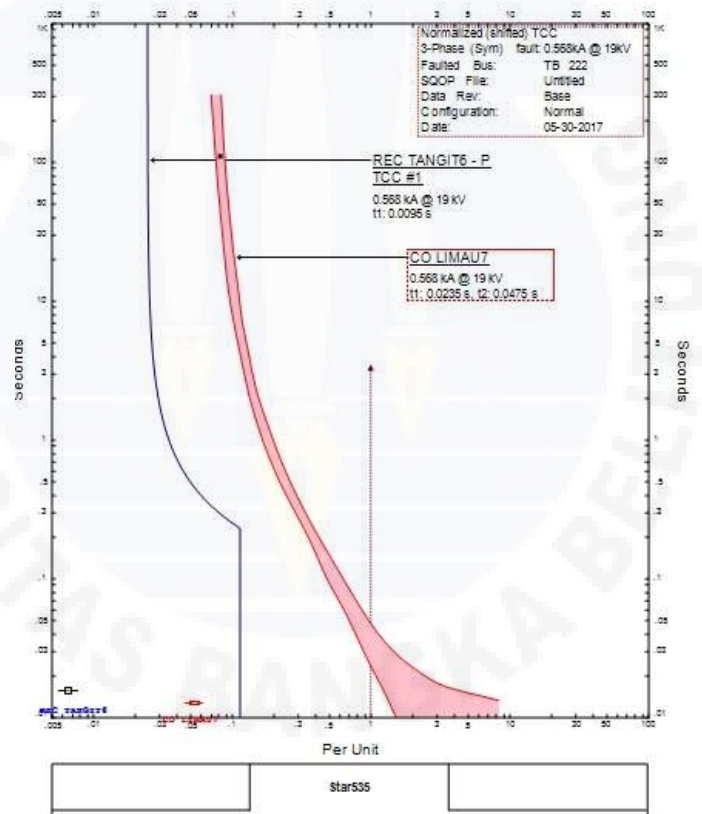
Time (ms)	ID	If (kA)	T1 (ms)	T2 (ms)	Condition
88.8	CO LIMAU8	0.384	53.3	88.8	
535	CO RIAS10	0.384	351	535	

Gambar 6. Hasil Report Waktu Kerja FCO

C. Koordinasi *Recloser* Tangit dengan FCO Limau



Gambar 7. Simulasi Kerja *Recloser* Tangit dengan FCO Limau



Gambar 8. Kurva Karakteristik *Recloser* Tangit dengan FCO Limau

Sequence-of-Operation Events - Output Report: Untitled

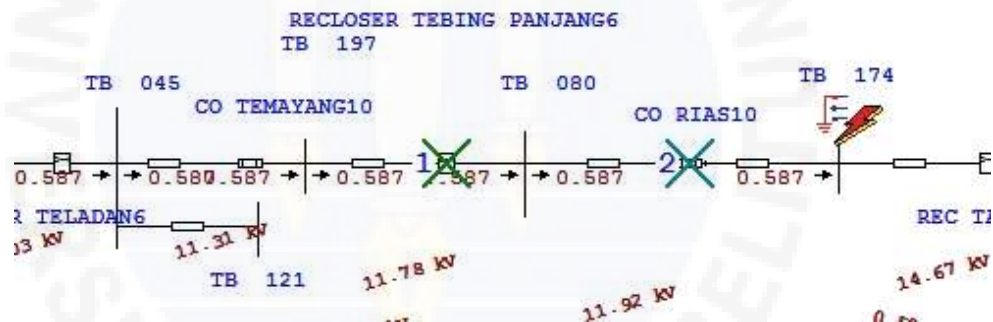
Line-to-Ground (Symmetrical) fault on bus: TB 222

Data Rev.: Base Config: Normal Date: 07-12-2017

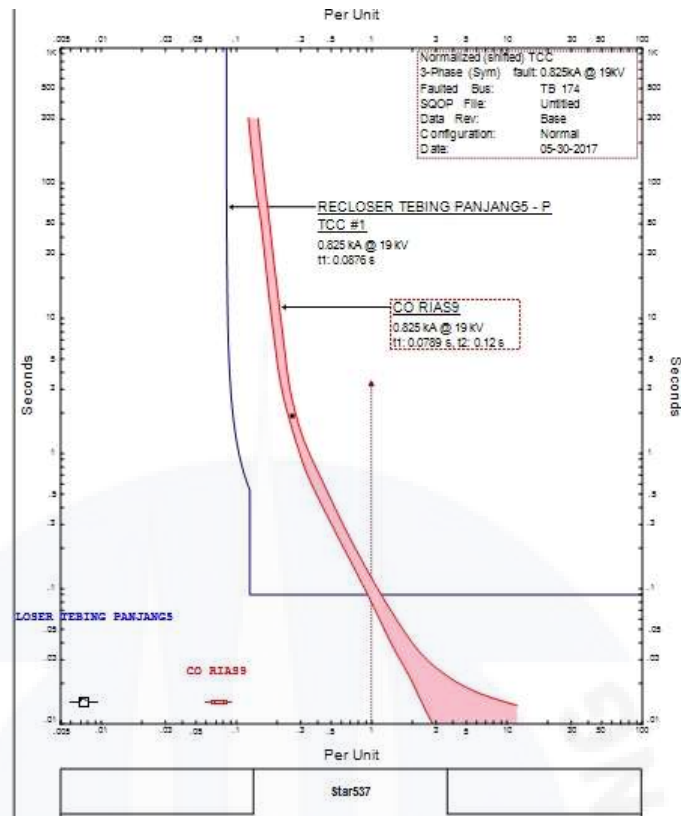
Time (ms)	ID	If (kA)	T1 (ms)	T2 (ms)	Condition
9.5	REC TANGI...	0.384	5.0	9.5	1st Operation - Lockout - Ground - TCC #1 - HC
88.8	CO LIMAU8	0.384	53.3	88.8	
89.5	RECLOSER...	0.384	85.0	89.5	1st Operation - Lockout - Ground - TCC #1 - HC
535	CO RIAS10	0.384	351	535	
805	RECLOSER...	0.384	800	805	1st Operation - Lockout - Ground - TCC #1 - HC

Gambar 9. Hasil Report Waktu Kerja Recloser Tangit dengan FCO Limau

D. Koordinasi Recloser Tebing Panjang dengan FCO Rias



Gambar 10. Simulasi Kerja Recloser Tebing Panjang dengan FCO Rias



Gambar 11. Kurva Karakteristik *Recloser* Tebing Panjang dengan FCO Rias

Sequence-of-Operation Events - Output Report: Untitled

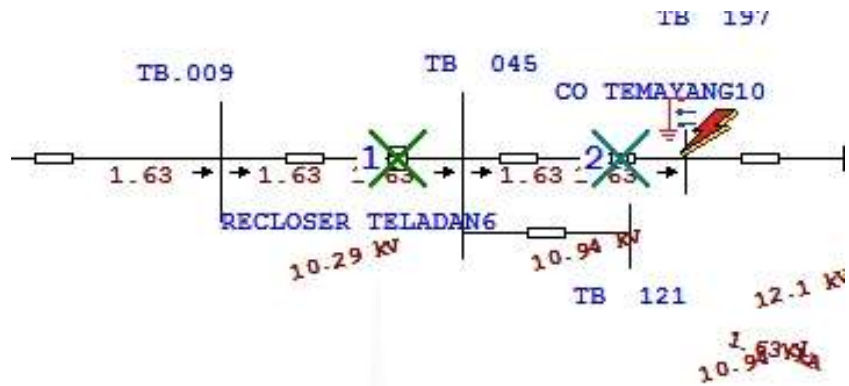
Line-to-Ground (Symmetrical) fault on bus: TB 174

Data Rev.: Base Config: Normal Date: 07-12-2017

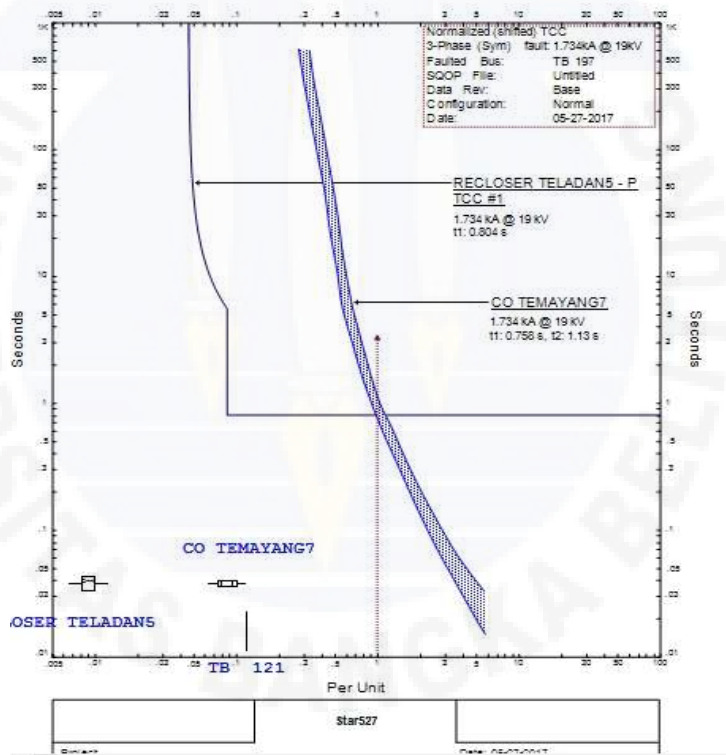
Time (ms)	ID	If (kA)	T1 (ms)	T2 (ms)	Condition
79.1	RECLOSER...	0.587	74.6	79.1	1st Operation - Lockout - Ground - TCC #1 - TOC
224	CO RIASS10	0.587	154	224	
805	RECLOSER...	0.587	800	805	1st Operation - Lockout - Ground - TCC #1 - HC
496147	CO TEMAY...	0.587	172176	496147	

Gambar 12. Hasil *Report* Waktu Kerja *Recloser* Tebing Panjang dengan FCO Rias

E. Koordinasi Recloser Teladan dengan FCO Temayang



Gambar 13. Simulasi Kerja Recloser Teladan dengan FCO Temayang



Gambar 14. Kurva Karakteristik Recloser Teladan dengan FCO Temayang

Sequence-of-Operation Events - Output Report: Untitled

Line-to-Ground (Symmetrical) fault on bus: TB 197

Data Rev.: Base Config: Normal Date: 07-12-2017

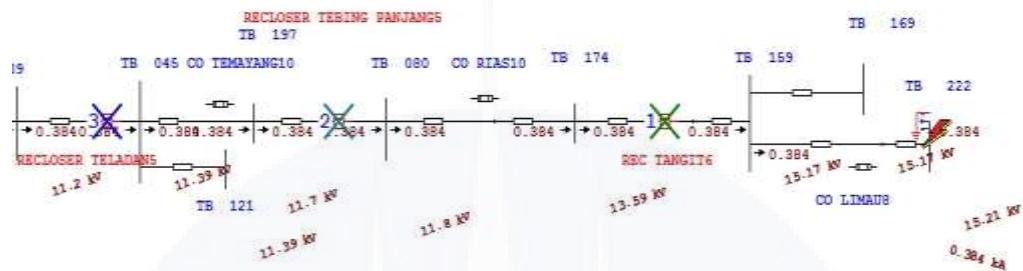
Time (ms)	ID	If (kA)	T1 (ms)	T2 (ms)	Condition
805	RECLOSER...	1.629	800	805	1st Operation - Lockout - Ground - TCC #1 - HC
1402	CO TEMAY...	1.629	907	1402	

Gambar 15. Hasil *Report Waktu Kerja Recloser* Teladan dengan FCO Temayang

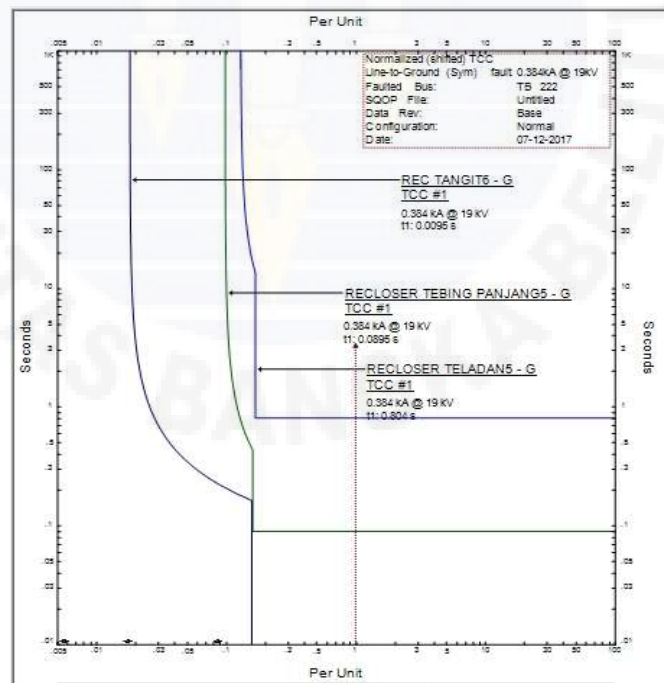


KURVA KARAKTERISTIK KERJA *RECLOSER* DAN FCO PADA PENYULANG APEL TOBOALI UNTUK GANGGUAN 2 FASA

A. Koordinasi *Recloser* dengan *Recloser*



Gambar 1. Simulasi Kerja *Recloser* Teladan, *Recloser* Tebing Panjang, dan *Recloser* Teladan



Gambar 2. Kurva Karakteristik *Recloser* Teladan, *Recloser* Tebing Panjang, dan *Recloser* Tangit

Sequence-of-Operation Events - Output Report: Untitled

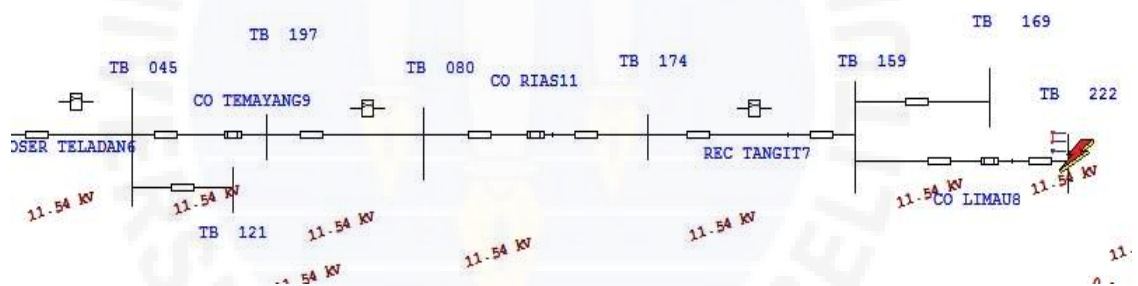
Line-to-Ground (Symmetrical) fault on bus: TB 222

Data Rev.: Base Config: Normal Date: 07-12-2017

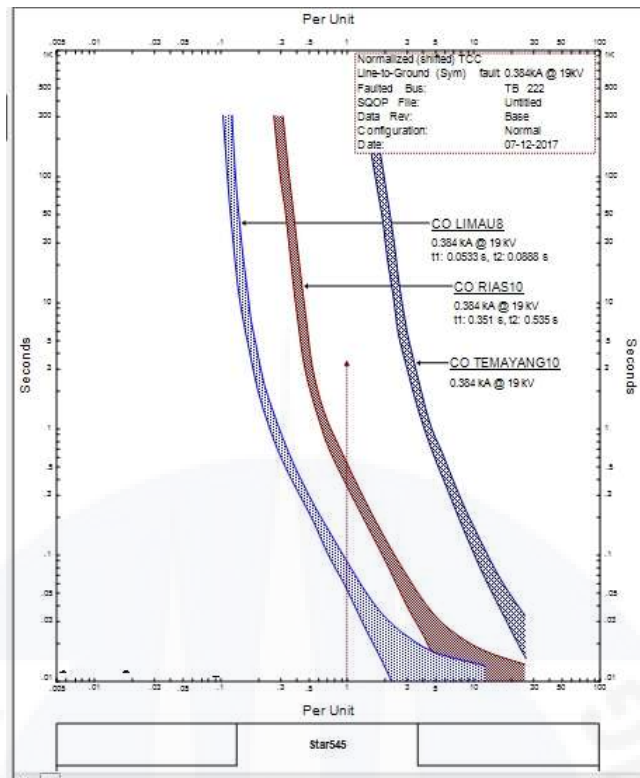
Time (ms)	ID	If (kA)	T1 (ms)	T2 (ms)	Condition
9.5	REC TANGI...	0.384	5.0	9.5	1st Operation - Lockout - Ground - TCC #1 - HC
89.5	RECLOSER...	0.384	85.0	89.5	1st Operation - Lockout - Ground - TCC #1 - HC
805	RECLOSER...	0.384	800	805	1st Operation - Lockout - Ground - TCC #1 - HC

Gambar 3. Hasil Report Waktu Kerja Recloser

B. Koordinasi Fuse dengan Fuse



Gambar 4. Simulasi Kerja FCO Temayang, FCO Rias, dan FCO Limau



Gambar 5. Kurva Karakteristik Kerja FCO Temayang, FCO Rias, dan FCO Limau

Sequence-of-Operation Events - Output Report: Untitled

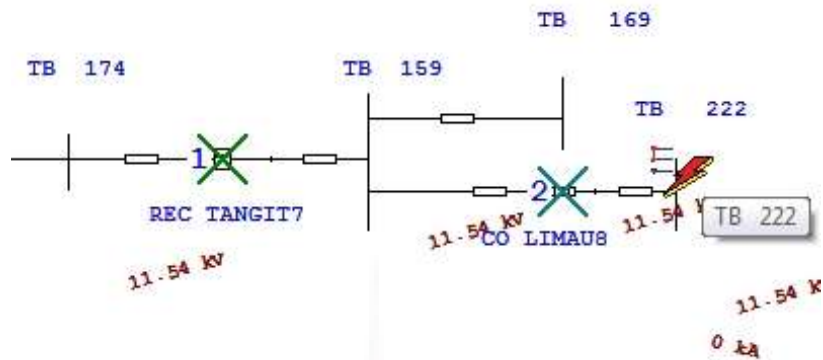
Line-to-Line (Symmetrical) fault on bus: TB 222

Data Rev.: Base Config: Normal Date: 07-12-2017

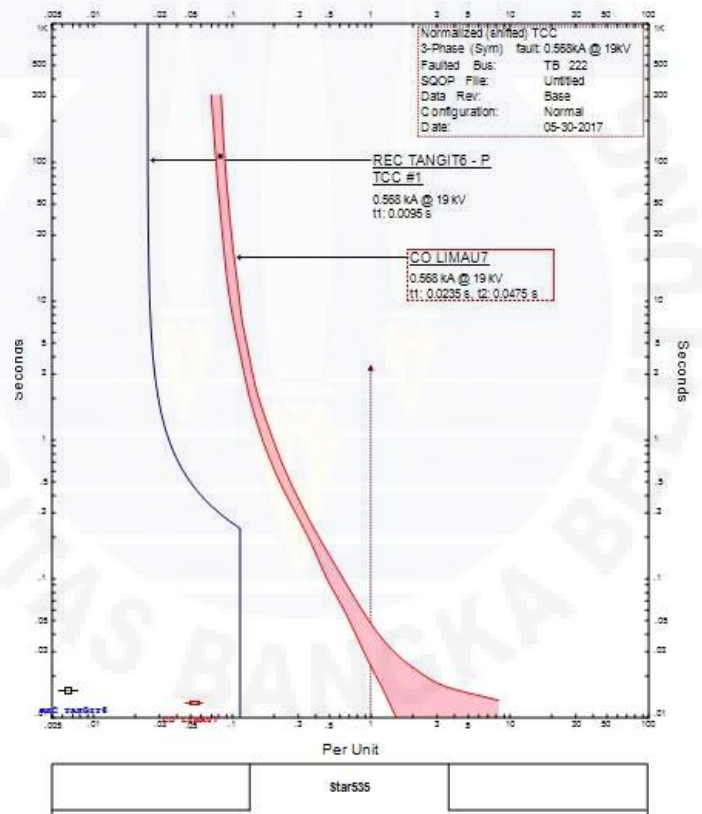
Time (ms)	ID	If (kA)	T1 (ms)	T2 (ms)	Condition
59.2	CO LIMAU8	0.492	31.5	59.2	
319	CO RIAS11	0.492	217	319	
601107	CO TEMAY...	0.492	526058	> 601107	

Gambar 6. Hasil Report Waktu Kerja FCO

C. Koordinasi Recloser Tangit dengan FCO Limau



Gambar 7. Simulasi Kerja *Recloser* Tangit dengan FCO Limau



Gambar 8. Kurva Karakteristik *Recloser* Tangit dengan FCO Limau

Sequence-of-Operation Events - Output Report: Untitled

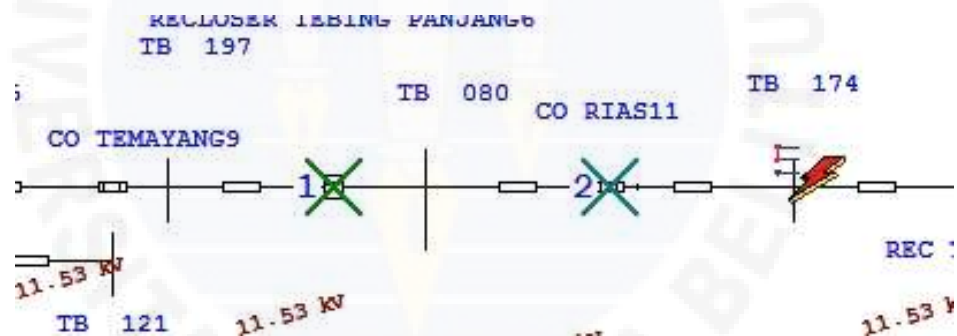
Line-to-Line (Symmetrical) fault on bus: TB 222

Data Rev.: Base Config: Normal Date: 07-12-2017

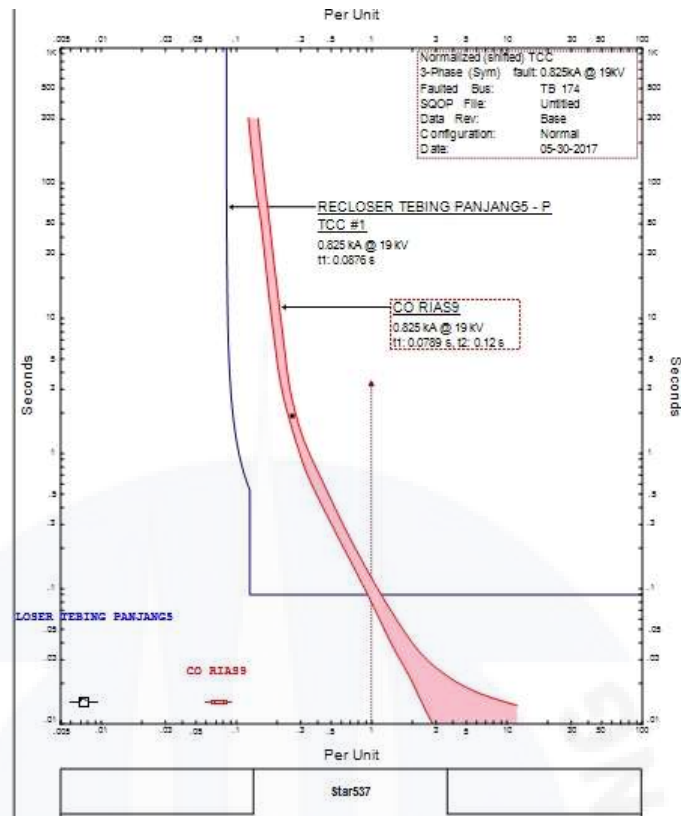
Time (ms)	ID	If (kA)	T1 (ms)	T2 (ms)	Condition
9.5	REC TANGI...	0.492	5.0	9.5	1st Operation - Lockout - Phase - TCC #1 - HC
59.2	CO LIMAU8	0.492	31.5	59.2	
89.5	RECLOSER...	0.492	85.0	89.5	1st Operation - Lockout - Phase - TCC #1 - HC
319	CO RIAS11	0.492	217	319	
805	RECLOSER...	0.492	800	805	1st Operation - Lockout - Phase - TCC #1 - HC
601107	CO TEMAY...	0.492	526058	> 601107	

Gambar 9. Hasil Report Waktu Kerja Recloser Tangit dengan FCO Limau

D. Koordinasi Recloser Tebing Panjang dengan FCO Rias



Gambar 10. Simulasi Kerja Recloser Tebing Panjang dengan FCO Rias



Gambar 11. Kurva Karakteristik *Recloser* Tebing Panjang dengan FCO Rias

Sequence-of-Operation Events - Output Report: Untitled

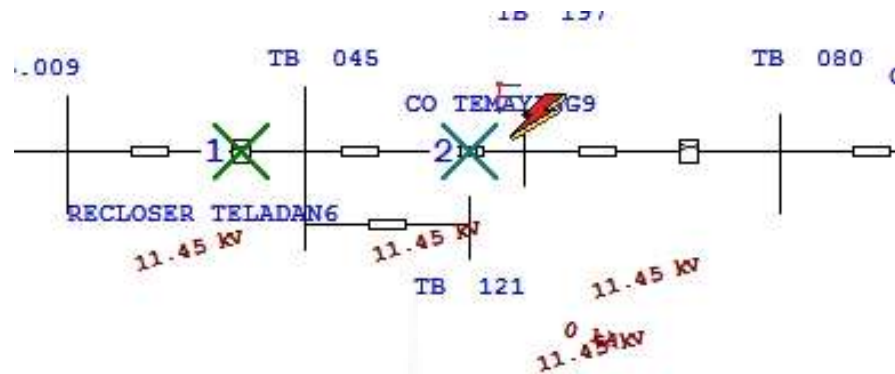
Line-to-Line (Symmetrical) fault on bus: TB 174

Data Rev.: Base Config: Normal Date: 07-12-2017

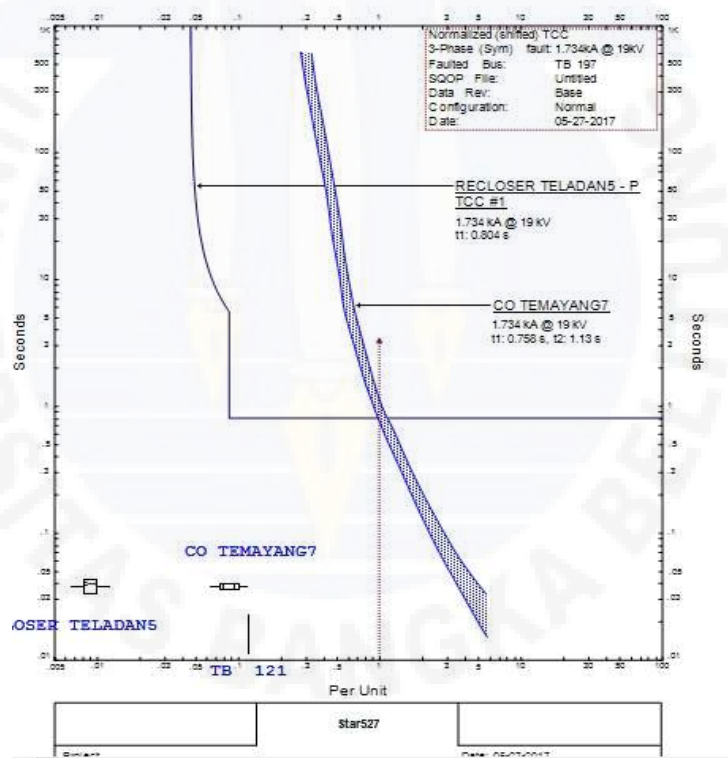
Time (ms)	ID	If (kA)	T1 (ms)	T2 (ms)	Condition
89.5	RECLOSER...	0.715	85.0	89.5	1st Operation - Lockout - Phase - TCC #1 - HC
155	CO RIAS11	0.715	105	155	
805	RECLOSER...	0.715	800	805	1st Operation - Lockout - Phase - TCC #1 - HC
141434	CO TEMAY...	0.715	55042	141434	

Gambar 12. Hasil *Report* Waktu Kerja *Recloser* Tebing Panjang dengan FCO Rias

E. Koordinasi *Recloser* Teladan dengan FCO Temayang



Gambar 13. Simulasi Kerja *Recloser* Teladan dengan FCO Temayang



Gambar 14. Kurva Karakteristik *Recloser* Teladan dengan FCO Temayang

Sequence-of-Operation Events - Output Report: Untitled

Line-to-Line (Symmetrical) fault on bus: TB 197

Data Rev.: Base Config: Normal Date: 07-13-2017

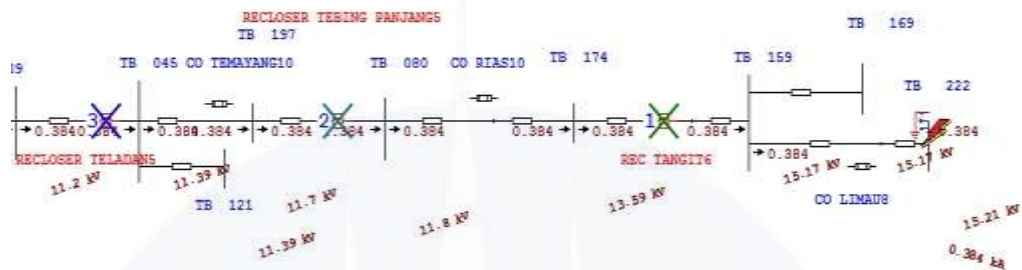
Time (ms)	ID	If (kA)	T1 (ms)	T2 (ms)	Condition
805	RECLOSER...	1.515	800	805	1st Operation - Lockout - Phase - TCC #1 - HC
1849	CO TEMAY...	1.515	1126	1849	

Gambar 15. Hasil Report Waktu Kerja Recloser Teladan dengan FCO Temayang

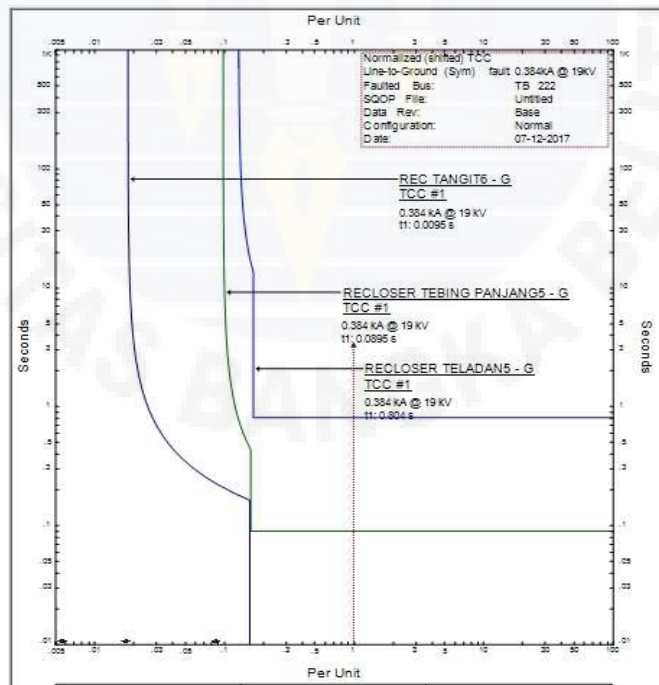


KURVA KARAKTERISTIK KERJA *RECLOSER* DAN FCO PADA PENYULANG APEL TOBOALI UNTUK GANGGUAN 2 FASA KE TANAH

A. Koordinasi *Recloser* dengan *Recloser*



Gambar 1. Simulasi Kerja *Recloser* Teladan, *Recloser* Tebing Panjang, dan *Recloser* Teladan



Gambar 2. Kurva Karakteristik *Recloser* Teladan, *Recloser* Tebing Panjang, dan *Recloser* Tangit

Sequence-of-Operation Events - Output Report: Untitled

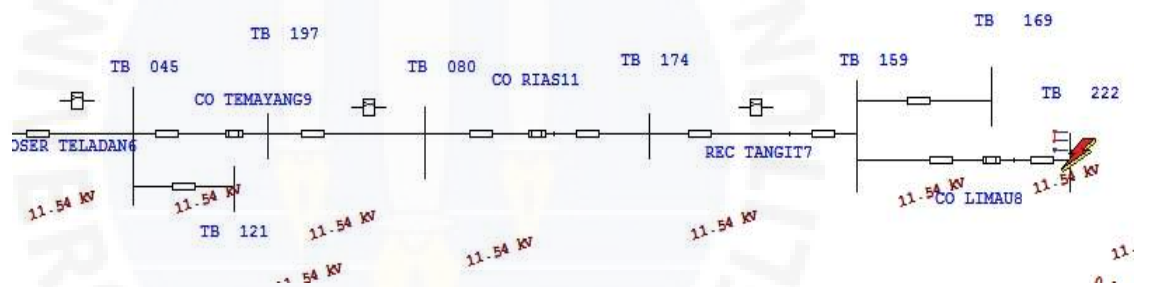
Line-to-Ground (Symmetrical) fault on bus: TB 222

Data Rev.: Base Config: Normal Date: 07-12-2017

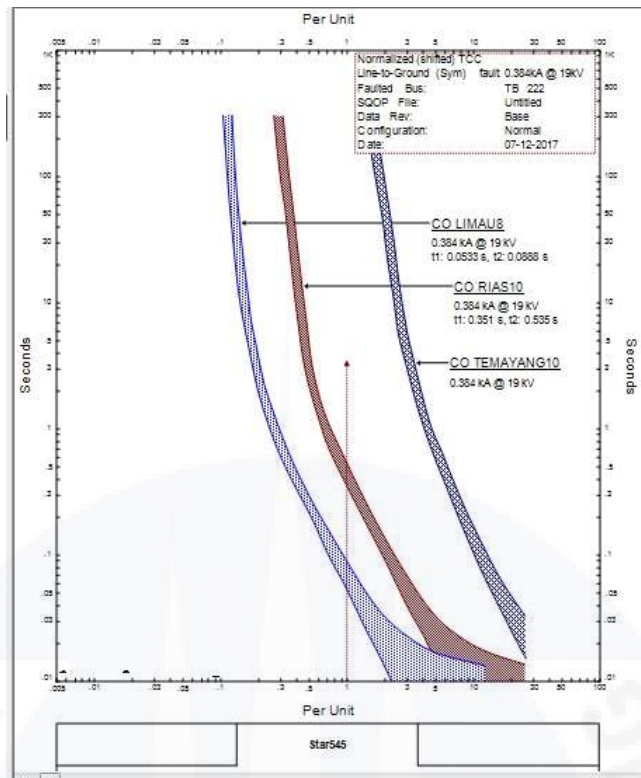
Time (ms)	ID	If (kA)	T1 (ms)	T2 (ms)	Condition
9.5	REC TANGI...	0.384	5.0	9.5	1st Operation - Lockout - Ground - TCC #1 - HC
89.5	RECLOSER...	0.384	85.0	89.5	1st Operation - Lockout - Ground - TCC #1 - HC
805	RECLOSER...	0.384	800	805	1st Operation - Lockout - Ground - TCC #1 - HC

Gambar 3. Hasil Report Waktu Kerja Recloser

B. Koordinasi Fuse dengan Fuse



Gambar 4. Simulasi Kerja FCO Temayang, FCO Rias, dan FCO Limau



Gambar 5. Kurva Karakteristik Kerja FCO Temayang, FCO Rias, dan FCO Limau

Sequence-of-Operation Events - Output Report: Untitled

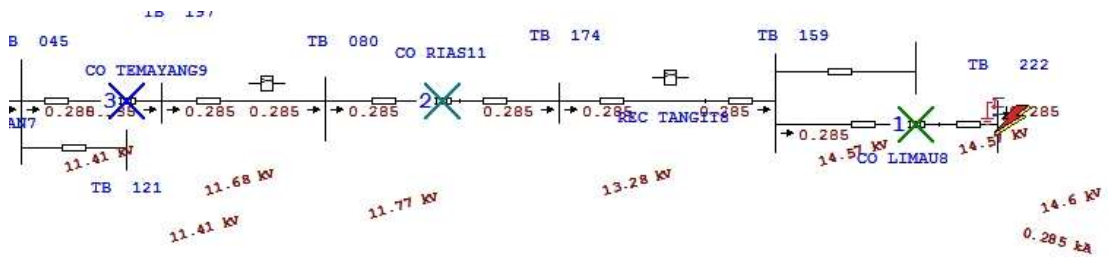
Line-to-Line-to-Ground (Symmetrical) fault on bus: TB 222

Data Rev.: Base Config: Normal Date: 07-13-2017

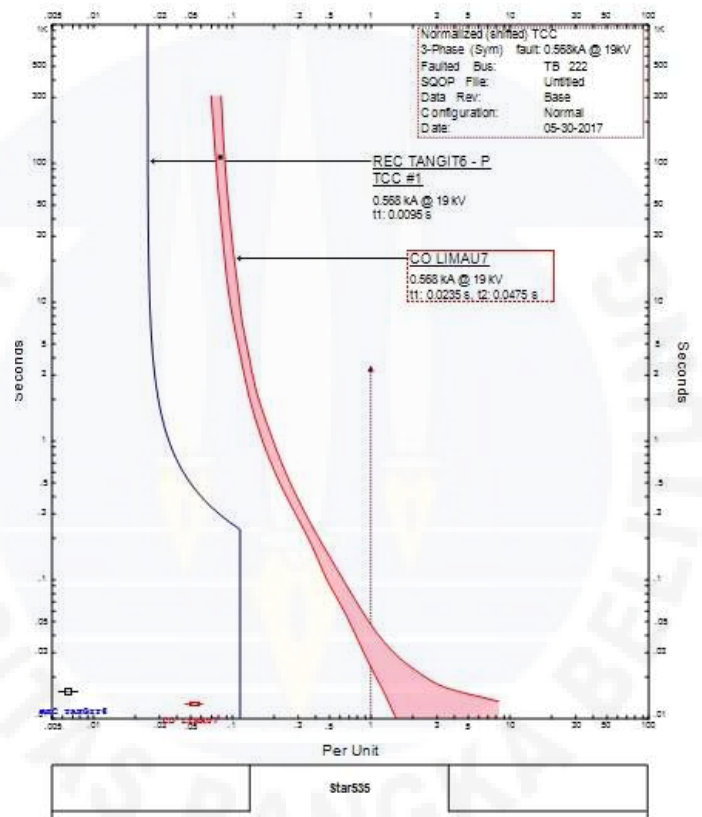
Time (ms)	ID	If (kA)	T1 (ms)	T2 (ms)	Condition
49.1	CO LIMAUS	0.555	24.6	49.1	
250	CO RIAS11	0.555	172	250	
601107	CO TEMAY...	0.555	239029	> 601107	

Gambar 6. Hasil Report Waktu Kerja FCO

C. Koordinasi Recloser Tangit dengan FCO Limau



Gambar 7. Simulasi Kerja Recloser Tangit dengan FCO Limau



Gambar 8. Kurva Karakteristik Recloser Tangit dengan FCO Limau

Sequence-of-Operation Events - Output Report: Untitled

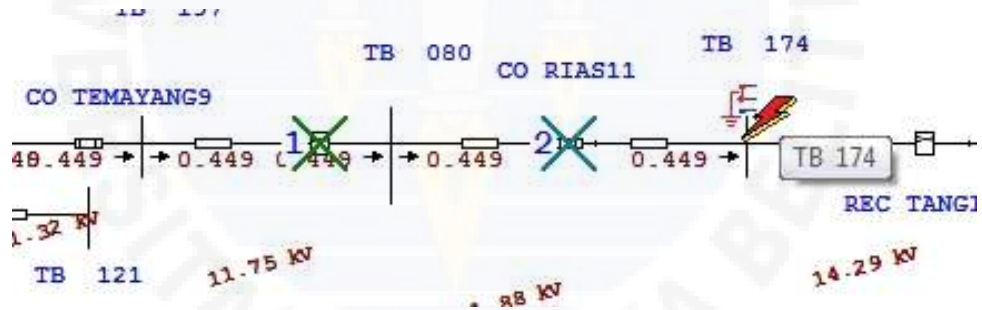
Line-to-Line-to-Ground (Symmetrical) fault on bus: TB 222

Data Rev.: Base Config: Normal Date: 07-13-2017

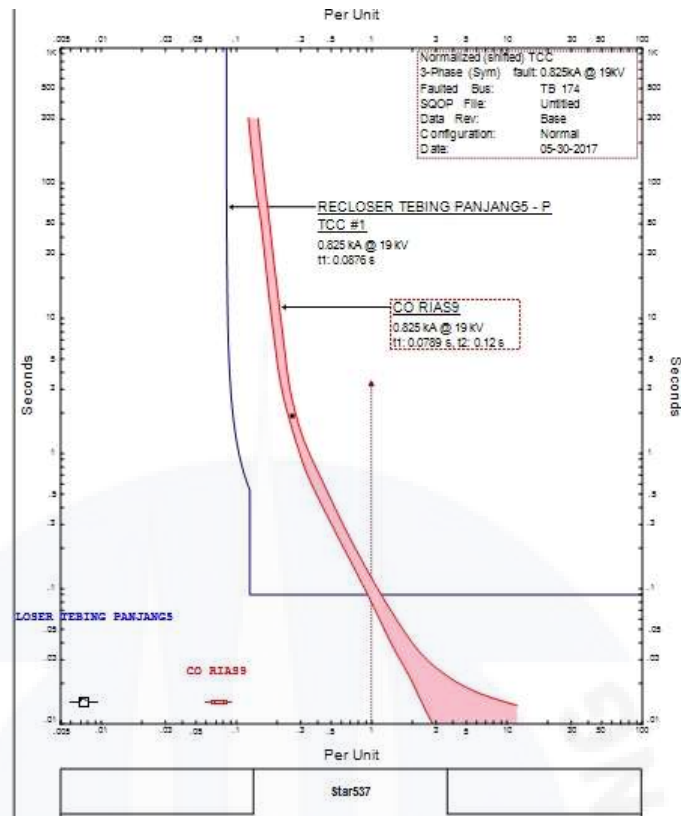
Time (ms)	ID	If (kA)	T1 (ms)	T2 (ms)	Condition
9.5	REC TANGI...	0.285	5.0	9.5	1st Operation - Lockout - Ground - TCC #1 - HC
49.1	CO LIMAU8	0.555	24.6	49.1	
89.5	RECLOSER...	0.285	85.0	89.5	1st Operation - Lockout - Ground - TCC #1 - HC
250	CO RIAS11	0.555	172	250	
805	RECLOSER...	0.285	800	805	1st Operation - Lockout - Ground - TCC #1 - HC
601107	CO TEMAY...	0.555	239029	> 601107	

Gambar 9. Hasil Report Waktu Kerja Recloser Tangit dengan FCO Limau

D. Koordinasi Recloser Tebing Panjang dengan FCO Rias



Gambar 10. Simulasi Kerja Recloser Tebing Panjang dengan FCO Rias



Gambar 11. Kurva Karakteristik Recloser Tebing Panjang dengan FCO Rias

Sequence-of-Operation Events - Output Report: Untitled

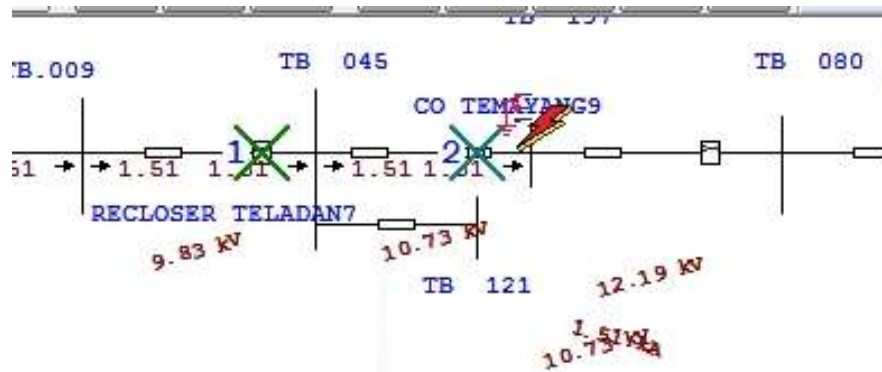
Line-to-Line-to-Ground (Symmetrical) fault on bus: TB 174

Data Rev.: Base Config: Normal Date: 07-13-2017

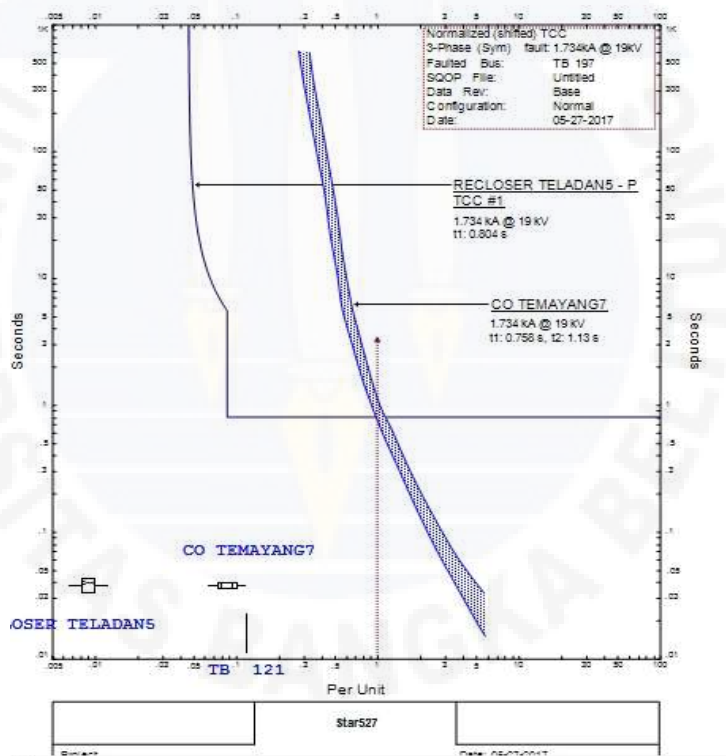
Time (ms)	ID	If (kA)	T1 (ms)	T2 (ms)	Condition
87.4	RECLOSER...	0.449	82.9	87.4	1st Operation - Lockout - Ground - TCC #1 - TOC
125	CO RIASS11	0.804	83.1	125	
805	RECLOSER...	0.449	800	805	1st Operation - Lockout - Ground - TCC #1 - HC
67441	CO TEMAY...	0.804	22052	67441	

Gambar 12. Hasil Report Waktu Kerja Recloser Tebing Panjang dengan FCO Rias

E. Koordinasi *Recloser* Teladan dengan FCO Temayang



Gambar 13. Simulasi Kerja *Recloser* Teladan dengan FCO Temayang



Gambar 14. Kurva Karakteristik *Recloser* Teladan dengan FCO Temayang

Sequence-of-Operation Events - Output Report: Untitled

Line-to-Line-to-Ground (Symmetrical) fault on bus: TB 197

Data Rev.: Base Config: Normal Date: 07-13-2017

Time (ms)	ID	If (kA)	T1 (ms)	T2 (ms)	Condition
805	RECLOSER...	1.511	800	805	1st Operation - Lockout - Ground - TCC #1 - HC
1171	CO TEMAY...	1.715	782	1171	

Gambar 15. Hasil Report Waktu Kerja Recloser Teladan dengan FCO Temayang

