

Project:  
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### System Harmonics Bus Information

Bus		Voltage Distortion								
ID	kV	Fund. %	RMS %	ASUM %	THD %	TIF	TIHD %	TSHD %	THDG %	THDS %
# Bus1	33.000	100.00	100.03	103.61	2.26	8.93	0.00	0.00	2.26	2.26
# Bus2	33.000	99.99	100.02	103.62	2.27	8.97	0.00	0.00	2.27	2.27
# Bus3	33.000	99.99	100.02	103.62	2.28	8.97	0.00	0.00	2.28	2.28
# Bus4	33.000	99.98	100.01	103.63	2.29	8.99	0.00	0.00	2.29	2.29
# * Bus5	0.400	99.39	99.49	107.16	4.33	10.18	0.00	0.00	4.33	4.33
# Bus6	33.000	99.97	99.99	103.64	2.31	9.02	0.00	0.00	2.31	2.31
# Bus7	33.000	99.93	99.96	103.67	2.36	9.08	0.00	0.00	2.36	2.36
# * Bus8	0.400	99.87	99.97	108.02	4.51	11.03	0.00	0.00	4.51	4.51
# Bus9	33.000	99.93	99.96	103.67	2.36	9.09	0.00	0.00	2.36	2.36
# Bus10	33.000	99.92	99.95	103.67	2.37	9.10	0.00	0.00	2.37	2.37
# Bus11	33.000	99.92	99.95	103.67	2.37	9.10	0.00	0.00	2.37	2.37
# * Bus12	0.400	98.53	98.62	105.88	4.18	9.22	0.00	0.00	4.18	4.18
# Bus13	33.000	99.92	99.95	103.68	2.37	9.11	0.00	0.00	2.37	2.37
# * Bus14	0.400	99.54	99.63	107.46	4.41	10.52	0.00	0.00	4.41	4.41
# Bus15	33.000	99.92	99.95	103.68	2.37	9.11	0.00	0.00	2.37	2.37
# Bus17	33.000	99.92	99.95	103.68	2.38	9.11	0.00	0.00	2.38	2.38
# Bus18	33.000	99.92	99.95	103.68	2.38	9.11	0.00	0.00	2.38	2.38
# * Bus19	0.400	99.57	99.67	107.53	4.43	10.70	0.00	0.00	4.43	4.43
# * Bus20	0.400	99.20	99.30	107.16	4.46	10.37	0.00	0.00	4.46	4.46
# Bus21	33.000	99.99	100.02	103.63	2.28	9.02	0.00	0.00	2.28	2.28
# * Bus22	0.400	99.68	99.78	107.53	4.35	10.58	0.00	0.00	4.35	4.35
# Bus24	33.000	99.97	100.00	103.69	2.33	9.27	0.00	0.00	2.33	2.33
# * Bus25	0.400	99.85	99.95	108.00	4.49	11.29	0.00	0.00	4.49	4.49
# Bus26	33.000	99.97	100.00	103.69	2.33	9.27	0.00	0.00	2.33	2.33
# * Bus27	0.400	99.27	99.36	106.81	4.22	9.99	0.00	0.00	4.22	4.22
# Bus28	33.000	99.96	99.99	103.71	2.35	9.40	0.00	0.00	2.35	2.35
# * Bus30	0.400	99.75	99.85	107.86	4.48	11.21	0.00	0.00	4.48	4.48
# Bus31	33.000	99.95	99.98	103.73	2.36	9.46	0.00	0.00	2.36	2.36
# Bus32	33.000	99.95	99.98	103.73	2.36	9.46	0.00	0.00	2.36	2.36
# * Bus34	0.400	99.74	99.84	107.88	4.49	11.26	0.00	0.00	4.49	4.49
# Bus35	33.000	99.95	99.98	103.73	2.36	9.47	0.00	0.00	2.36	2.36
# * Bus37	0.400	99.56	99.66	107.52	4.41	10.83	0.00	0.00	4.41	4.41
# Bus38	33.000	99.95	99.98	103.74	2.37	9.54	0.00	0.00	2.37	2.37
# * Bus41	0.400	99.83	99.93	108.06	4.53	11.54	0.00	0.00	4.53	4.53
# Bus42	33.000	99.95	99.98	103.74	2.37	9.55	0.00	0.00	2.37	2.37
# Bus43	33.000	99.95	99.97	103.74	2.38	9.55	0.00	0.00	2.38	2.38
# Bus44	33.000	99.94	99.97	103.75	2.38	9.56	0.00	0.00	2.38	2.38
# * Bus46	0.400	99.24	99.33	106.87	4.27	10.21	0.00	0.00	4.27	4.27
# Bus47	33.000	99.94	99.97	103.75	2.38	9.56	0.00	0.00	2.38	2.38
# Bus51	33.000	99.94	99.97	103.75	2.39	9.56	0.00	0.00	2.39	2.39
# * Bus52	0.400	99.24	99.33	106.87	4.27	10.22	0.00	0.00	4.27	4.27

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Bus		Voltage Distortion								
ID	kV	Fund. %	RMS %	ASUM %	THD %	TIF	TIHD %	TSHD %	THDG %	THDS %
# Bus53	33.000	99.94	99.97	103.76	2.39	9.64	0.00	0.00	2.39	2.39
# Bus54	33.000	99.94	99.96	103.77	2.40	9.72	0.00	0.00	2.40	2.40
# * Bus56	0.400	99.23	99.32	106.89	4.28	10.31	0.00	0.00	4.28	4.28
# Bus57	33.000	99.93	99.96	103.78	2.40	9.76	0.00	0.00	2.40	2.40
# * Bus59	0.400	99.81	99.92	108.10	4.55	11.73	0.00	0.00	4.55	4.55
# Bus60	33.000	99.93	99.96	103.78	2.40	9.77	0.00	0.00	2.40	2.40
# * Bus62	0.400	99.20	99.29	107.04	4.39	10.25	0.00	0.00	4.39	4.39
# Bus63	33.000	99.93	99.96	103.79	2.41	9.82	0.00	0.00	2.41	2.41
# Bus64	33.000	99.92	99.95	103.81	2.42	9.92	0.00	0.00	2.42	2.42
# * Bus66	0.400	99.08	99.18	107.12	4.49	10.75	0.00	0.00	4.49	4.49
# * Bus68	0.400	99.52	99.62	107.67	4.51	11.18	0.00	0.00	4.51	4.51
# Bus69	33.000	99.92	99.95	103.81	2.42	9.92	0.00	0.00	2.42	2.42
# Bus70	33.000	99.91	99.94	103.83	2.44	10.09	0.00	0.00	2.44	2.44
# * Bus72	0.400	99.22	99.32	107.30	4.50	10.84	0.00	0.00	4.50	4.50
# Bus73	33.000	99.91	99.94	103.84	2.44	10.10	0.00	0.00	2.44	2.44
# * Bus75	0.400	99.70	99.80	107.99	4.56	11.81	0.00	0.00	4.56	4.56
# Bus76	33.000	99.91	99.94	103.84	2.45	10.10	0.00	0.00	2.45	2.45
# * Bus78	0.400	99.61	99.71	107.77	4.50	11.64	0.00	0.00	4.50	4.50
# Bus79	33.000	99.91	99.94	103.84	2.45	10.11	0.00	0.00	2.45	2.45
# * Bus81	0.400	99.35	99.45	107.35	4.45	10.78	0.00	0.00	4.45	4.45
# Bus82	33.000	99.91	99.94	103.84	2.45	10.11	0.00	0.00	2.45	2.45
# Bus83	33.000	99.91	99.94	103.84	2.44	10.16	0.00	0.00	2.44	2.44
# * Bus85	0.400	99.32	99.42	107.31	4.44	10.76	0.00	0.00	4.44	4.44
# Bus86	33.000	99.91	99.94	103.84	2.44	10.17	0.00	0.00	2.44	2.44
# Bus87	33.000	99.91	99.94	103.86	2.45	10.33	0.00	0.00	2.45	2.45
# * Bus89	0.400	99.33	99.43	107.37	4.46	11.04	0.00	0.00	4.46	4.46
# Bus90	33.000	99.90	99.93	103.89	2.47	10.59	0.00	0.00	2.47	2.47
# * Bus92	0.400	99.32	99.43	107.54	4.54	11.49	0.00	0.00	4.54	4.54
# Bus93	33.000	99.89	99.93	103.90	2.48	10.60	0.00	0.00	2.48	2.48
# * Bus95	0.400	99.52	99.62	107.72	4.51	11.84	0.00	0.00	4.51	4.51
# Bus96	33.000	99.89	99.92	103.90	2.48	10.61	0.00	0.00	2.48	2.48
# * Bus98	0.400	99.58	99.68	107.88	4.57	11.85	0.00	0.00	4.57	4.57
# Bus99	33.000	99.89	99.92	103.90	2.48	10.61	0.00	0.00	2.48	2.48
# * Bus101	0.400	99.30	99.41	107.68	4.61	12.22	0.00	0.00	4.61	4.61
# Bus102	33.000	99.89	99.92	103.90	2.48	10.61	0.00	0.00	2.48	2.48
# Bus103	33.000	99.89	99.92	103.90	2.48	10.61	0.00	0.00	2.48	2.48
# * Bus105	0.400	99.28	99.38	107.36	4.48	11.23	0.00	0.00	4.48	4.48
# Bus106	33.000	99.89	99.92	103.90	2.48	10.61	0.00	0.00	2.48	2.48
# * Bus108	0.400	99.09	99.19	107.09	4.46	10.80	0.00	0.00	4.46	4.46
# Bus113	33.000	99.90	99.93	103.90	2.47	10.68	0.00	0.00	2.47	2.47
# Bus114	33.000	99.90	99.93	103.91	2.47	10.81	0.00	0.00	2.47	2.47
# * Bus116	0.400	99.48	99.58	107.64	4.49	11.71	0.00	0.00	4.49	4.49
# * Bus119	0.400	99.62	99.72	107.82	4.51	11.94	0.00	0.00	4.51	4.51

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Bus		Voltage Distortion								
ID	kV	Fund. %	RMS %	ASUM %	THD %	TIF	TIHD %	TSHD %	THDG %	THDS %
# Bus120	33.000	99.90	99.93	103.91	2.47	10.81	0.00	0.00	2.47	2.47
# Bus121	33.000	99.90	99.93	103.93	2.47	11.05	0.00	0.00	2.47	2.47
# Bus124	33.000	99.90	99.93	103.93	2.47	11.05	0.00	0.00	2.47	2.47
# * Bus125	0.400	99.27	99.36	107.34	4.46	11.35	0.00	0.00	4.46	4.46
# Bus126	33.000	99.91	99.94	103.94	2.46	11.27	0.00	0.00	2.46	2.46
# Bus127	33.000	99.91	99.94	103.95	2.46	11.48	0.00	0.00	2.46	2.46
# * Bus129	0.400	99.52	99.62	107.73	4.49	12.32	0.00	0.00	4.49	4.49
# Bus132	33.000	99.92	99.95	103.97	2.45	11.82	0.00	0.00	2.45	2.45
# * Bus133	0.400	99.46	99.56	107.63	4.47	12.20	0.00	0.00	4.47	4.47
# Bus134	33.000	99.92	99.95	103.97	2.45	11.82	0.00	0.00	2.45	2.45
# Bus135	33.000	99.92	99.95	103.98	2.44	12.00	0.00	0.00	2.44	2.44
# Bus138	33.000	99.93	99.96	104.00	2.43	12.37	0.00	0.00	2.43	2.43
# * Bus139	0.400	98.92	99.02	106.94	4.41	11.76	0.00	0.00	4.41	4.41
# Bus142	33.000	99.90	99.93	103.94	2.47	11.27	0.00	0.00	2.47	2.47
# * Bus143	0.400	99.05	99.15	107.04	4.44	11.04	0.00	0.00	4.44	4.44
# Bus145	33.000	99.91	99.94	103.71	2.40	9.15	0.00	0.00	2.40	2.40
# Bus146	33.000	99.90	99.93	103.71	2.41	9.16	0.00	0.00	2.41	2.41
# * Bus148	0.400	97.85	97.94	105.34	4.30	9.12	0.00	0.00	4.30	4.30
# * Bus150	0.400	99.71	99.81	107.76	4.47	10.93	0.00	0.00	4.47	4.47
# Bus151	33.000	99.90	99.93	103.72	2.42	9.17	0.00	0.00	2.42	2.42
# Bus152	33.000	99.90	99.93	103.71	2.41	9.16	0.00	0.00	2.41	2.41
# * Bus154	0.400	99.82	99.92	107.92	4.48	11.16	0.00	0.00	4.48	4.48
# Bus155	33.000	99.89	99.92	103.73	2.43	9.19	0.00	0.00	2.43	2.43
# * Bus157	0.400	97.84	97.94	105.35	4.32	9.15	0.00	0.00	4.32	4.32
# Bus158	33.000	99.89	99.92	103.73	2.43	9.19	0.00	0.00	2.43	2.43
# Bus159	33.000	99.89	99.92	103.74	2.44	9.20	0.00	0.00	2.44	2.44
# Bus160	33.000	99.89	99.92	103.75	2.45	9.21	0.00	0.00	2.45	2.45
# * Bus162	0.400	99.55	99.65	107.61	4.49	10.83	0.00	0.00	4.49	4.49
# Bus163	33.000	99.89	99.92	103.75	2.45	9.22	0.00	0.00	2.45	2.45
# * Bus165	0.400	99.55	99.65	107.61	4.49	10.84	0.00	0.00	4.49	4.49
# Bus166	33.000	99.89	99.92	103.76	2.45	9.22	0.00	0.00	2.45	2.45
# Bus167	33.000	99.89	99.92	103.76	2.45	9.22	0.00	0.00	2.45	2.45
# Bus168	33.000	99.89	99.92	103.76	2.45	9.23	0.00	0.00	2.45	2.45
# * Bus170	0.400	99.28	99.37	107.01	4.34	10.26	0.00	0.00	4.34	4.34
# Bus171	33.000	99.89	99.92	103.76	2.46	9.23	0.00	0.00	2.46	2.46
# Bus172	33.000	99.90	99.93	103.72	2.42	9.17	0.00	0.00	2.42	2.42
# Bus173	33.000	99.86	99.89	103.73	2.45	9.22	0.00	0.00	2.45	2.45
# * Bus175	0.400	96.16	96.24	102.98	4.04	8.03	0.00	0.00	4.04	4.04
# Bus176	33.000	99.86	99.89	103.74	2.46	9.24	0.00	0.00	2.46	2.46
# * Bus178	0.400	98.95	99.04	106.54	4.30	9.71	0.00	0.00	4.30	4.30
# Bus179	33.000	99.86	99.89	103.74	2.46	9.24	0.00	0.00	2.46	2.46
# Bus180	33.000	99.84	99.87	103.75	2.48	9.26	0.00	0.00	2.48	2.48
# Bus181	33.000	99.83	99.86	103.75	2.49	9.28	0.00	0.00	2.49	2.49

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Bus		Voltage Distortion								
ID	kV	Fund. %	RMS %	ASUM %	THD %	TIF	TIHD %	TSHD %	THDG %	THDS %
# * Bus183	0.400	97.78	97.87	105.37	4.37	9.28	0.00	0.00	4.37	4.37
# Bus184	33.000	99.83	99.86	103.75	2.49	9.28	0.00	0.00	2.49	2.49
# Bus185	33.000	99.82	99.85	103.75	2.50	9.29	0.00	0.00	2.50	2.50
# * Bus188	0.400	97.77	97.87	105.37	4.37	9.29	0.00	0.00	4.37	4.37
# * Bus189	33.000	99.82	99.85	103.76	2.50	9.29	0.00	0.00	2.50	2.50
# * Bus191	0.400	99.67	99.78	107.87	4.55	11.20	0.00	0.00	4.55	4.55
# * Bus192	33.000	99.82	99.85	103.76	2.50	9.30	0.00	0.00	2.50	2.50
# * Bus193	33.000	99.82	99.85	103.76	2.50	9.29	0.00	0.00	2.50	2.50
# Bus194	33.000	99.84	99.87	103.75	2.48	9.27	0.00	0.00	2.48	2.48
# Bus195	33.000	99.84	99.87	103.76	2.49	9.28	0.00	0.00	2.49	2.49
# Bus196	33.000	99.84	99.87	103.76	2.49	9.28	0.00	0.00	2.49	2.49
# Bus197	33.000	99.84	99.87	103.76	2.49	9.28	0.00	0.00	2.49	2.49
# Bus198	33.000	99.84	99.87	103.76	2.49	9.28	0.00	0.00	2.49	2.49
# * Bus200	0.400	99.51	99.62	107.75	4.59	11.02	0.00	0.00	4.59	4.59
# Bus201	33.000	99.83	99.86	103.76	2.50	9.29	0.00	0.00	2.50	2.50
# * Bus203	0.400	99.64	99.75	107.82	4.54	11.12	0.00	0.00	4.55	4.55
# Bus204	33.000	99.83	99.86	103.76	2.50	9.29	0.00	0.00	2.50	2.50
# Bus205	33.000	99.83	99.86	103.76	2.50	9.29	0.00	0.00	2.50	2.50
# Bus206	33.000	99.83	99.86	103.76	2.50	9.29	0.00	0.00	2.50	2.50
# * Bus208	0.400	99.50	99.60	107.70	4.57	10.91	0.00	0.00	4.57	4.57
# Bus209	33.000	99.83	99.86	103.76	2.50	9.29	0.00	0.00	2.50	2.50
# * Bus211	0.400	99.29	99.39	107.44	4.56	10.63	0.00	0.00	4.56	4.56
# * Bus212	0.400	99.80	99.99	116.31	6.16	224.47	0.00	0.00	6.16	6.16
# Bus213	33.000	99.93	99.96	104.00	2.43	12.37	0.00	0.00	2.43	2.43
Bus215	33.000	100.00	100.00	100.30	0.13	2.04	0.00	0.00	0.14	0.14
# * Bus216	0.400	94.65	94.76	104.68	4.81	71.47	0.00	0.00	4.81	4.81

\* Indicates THD (Total Harmonic Distortion) Exceeds the Limit.

# Indicates IHD (Individual Harmonic Distortion) Exceeds the Limit.

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**System Harmonics Branch Information**

Bus		Current Distortion											
From Bus ID	To Bus ID	Fund. Amp	RMS Amp	ASUM Amp	THD %	TIF	IT Amp	ITB Amp	ITR Amp	TIHD %	TSHD %	THDG %	THDS %
Bus1	Bus2	48.13	55.42	87.13	57.06	111.00	6150.87	6150.87	0.00	0.00	0.00	57.06	57.06
Bus2	Bus3	25.92	28.29	41.14	43.74	79.05	2236.22	2236.22	0.00	0.00	0.00	43.74	43.74
	Bus21	22.22	27.50	46.15	72.90	154.17	4239.51	4239.51	0.00	0.00	0.00	72.90	72.90
Bus3	Bus1	48.13	55.42	87.13	57.06	111.00	6150.87	6150.87	0.00	0.00	0.00	57.06	57.06
	Bus2	25.92	28.29	41.14	43.74	79.05	2236.22	2236.22	0.00	0.00	0.00	43.74	43.74
	Bus4	25.92	28.29	41.14	43.74	79.05	2236.22	2236.22	0.00	0.00	0.00	43.74	43.74
Bus4	Bus3	25.92	28.29	41.14	43.74	79.05	2236.22	2236.22	0.00	0.00	0.00	43.74	43.74
	Bus6	25.13	27.38	39.73	43.26	78.31	2143.98	2143.98	0.00	0.00	0.00	43.26	43.26
	Bus5	0.79	0.82	1.11	29.83	57.80	47.66	47.66	0.00	0.00	0.00	29.83	29.83
Bus5	Bus4	65.19	98.86	163.30	114.01	42.34	4185.52	3931.95	1434.71	0.00	0.00	114.01	114.01
Bus6	Bus4	25.13	27.38	39.73	43.26	78.31	2143.98	2143.98	0.00	0.00	0.00	43.26	43.26
	Bus7	25.13	27.38	39.73	43.26	78.31	2143.98	2143.98	0.00	0.00	0.00	43.26	43.26
Bus7	Bus9	24.22	26.08	37.22	39.99	73.15	1907.99	1907.99	0.00	0.00	0.00	39.99	39.99
	Bus6	25.13	27.38	39.73	43.26	78.31	2143.98	2143.98	0.00	0.00	0.00	43.26	43.26
	Bus8	1.00	1.17	1.82	61.09	105.05	122.85	122.85	0.00	0.00	0.00	61.09	61.09
Bus8	Bus7	82.34	205.76	332.03	229.02	52.33	10767.54	10135.50	3634.79	0.00	0.00	229.02	229.02
Bus9	Bus7	24.22	26.08	37.22	39.99	73.15	1907.99	1907.99	0.00	0.00	0.00	39.99	39.99
	Bus10	3.93	4.39	6.58	50.20	88.66	389.59	389.59	0.00	0.00	0.00	50.20	50.20
	Bus145	20.29	21.71	30.65	38.02	69.95	1518.47	1518.47	0.00	0.00	0.00	38.02	38.02
Bus10	Bus11	1.04	1.08	1.43	28.03	52.82	57.13	57.13	0.00	0.00	0.00	28.03	28.03
	Bus9	3.93	4.39	6.58	50.20	88.66	389.59	389.59	0.00	0.00	0.00	50.20	50.20
	Bus13	2.89	3.34	5.14	58.20	99.58	332.53	332.53	0.00	0.00	0.00	58.20	58.20
Bus11	Bus10	1.04	1.08	1.43	28.03	52.82	57.13	57.13	0.00	0.00	0.00	28.03	28.03
	Bus12	1.04	1.05	1.24	13.77	27.93	29.36	29.36	0.00	0.00	0.00	13.77	13.77
Bus12	Bus11	85.92	97.96	147.63	54.75	26.42	2587.94	2422.42	910.67	0.00	0.00	54.75	54.75
Bus13	Bus15	2.31	2.61	3.94	52.37	91.76	239.73	239.73	0.00	0.00	0.00	52.37	52.37
	Bus10	2.89	3.34	5.14	58.20	99.58	332.53	332.53	0.00	0.00	0.00	58.20	58.20
	Bus14	0.57	0.62	0.90	41.50	77.27	47.97	47.97	0.00	0.00	0.00	41.50	41.50
Bus14	Bus13	47.31	88.27	145.75	157.52	47.71	4210.92	3957.88	1437.72	0.00	0.00	157.52	157.52
Bus15	Bus17	0.46	0.65	1.09	102.78	142.49	93.15	93.15	0.00	0.00	0.00	102.78	102.78
	Bus13	2.31	2.61	3.94	52.37	91.76	239.73	239.73	0.00	0.00	0.00	52.37	52.37
	Bus20	1.86	1.90	2.37	20.11	40.38	76.58	76.58	0.00	0.00	0.00	20.11	20.11
Bus17	Bus15	0.46	0.65	1.09	102.78	142.49	93.15	93.15	0.00	0.00	0.00	102.78	102.78
	Bus18	0.46	0.65	1.09	102.78	142.49	93.15	93.15	0.00	0.00	0.00	102.78	102.78
Bus18	Bus17	0.46	0.65	1.09	102.78	142.49	93.15	93.15	0.00	0.00	0.00	102.78	102.78
	Bus19	0.46	0.51	0.78	52.45	93.42	48.09	48.09	0.00	0.00	0.00	52.45	52.45
Bus19	Bus18	37.61	83.52	136.16	198.28	50.53	4219.90	3967.23	1438.27	0.00	0.00	198.28	198.28
Bus20	Bus15	153.40	193.95	310.11	77.37	34.65	6720.87	6317.99	2291.98	0.00	0.00	77.37	77.37
Bus21	Bus2	22.22	27.50	46.15	72.90	154.17	4239.51	4239.51	0.00	0.00	0.00	72.90	72.90
	Bus24	21.81	26.89	45.11	72.16	154.95	4166.45	4166.45	0.00	0.00	0.00	72.16	72.16
	Bus22	0.42	0.48	0.74	57.72	100.44	48.18	48.18	0.00	0.00	0.00	57.72	57.72

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Bus		Current Distortion											
From Bus ID	To Bus ID	Fund. Amp	RMS Amp	ASUM Amp	THD %	TIF	IT Amp	ITB Amp	ITR Amp	TIHD %	TSHD %	THDG %	THDS %
Bus22	Bus21	34.27	82.11	132.91	217.70	51.48	4227.04	3974.61	1438.87	0.00	0.00	217.70	217.70
Bus24	Bus28	20.76	25.18	42.09	68.72	156.47	3940.60	3940.60	0.00	0.00	0.00	68.72	68.72
	Bus26	0.53	0.61	0.93	56.33	97.03	58.71	58.71	0.00	0.00	0.00	56.33	56.33
	Bus21	21.81	26.89	45.11	72.16	154.95	4166.45	4166.45	0.00	0.00	0.00	72.16	72.16
	Bus25	0.53	0.81	1.35	116.42	152.17	122.69	122.69	0.00	0.00	0.00	116.42	116.42
Bus25	Bus24	43.34	193.44	292.91	434.98	55.59	10754.00	10121.79	3632.90	0.00	0.00	434.98	434.98
Bus26	Bus24	0.53	0.61	0.93	56.33	97.03	58.71	58.71	0.00	0.00	0.00	56.33	56.33
	Bus27	0.53	0.55	0.73	28.35	55.04	30.16	30.16	0.00	0.00	0.00	28.35	28.35
Bus27	Bus26	43.49	64.40	106.07	109.19	41.18	2651.82	2488.15	917.20	0.00	0.00	109.19	109.19
Bus28	Bus31	20.23	24.33	40.56	66.82	157.39	3829.72	3829.72	0.00	0.00	0.00	66.82	66.82
	Bus24	20.76	25.18	42.09	68.72	156.47	3940.60	3940.60	0.00	0.00	0.00	68.72	68.72
	Bus30	0.53	0.65	1.05	73.43	118.91	77.55	77.55	0.00	0.00	0.00	73.43	73.43
Bus30	Bus28	43.37	127.16	201.53	275.65	53.48	6800.32	6397.96	2304.44	0.00	0.00	275.65	275.65
Bus31	Bus32	1.05	1.61	2.69	116.02	150.68	242.79	242.79	0.00	0.00	0.00	116.02	116.02
	Bus28	20.23	24.33	40.56	66.82	157.39	3829.72	3829.72	0.00	0.00	0.00	66.82	66.82
	Bus38	19.18	22.80	37.90	64.19	160.38	3656.04	3656.04	0.00	0.00	0.00	64.19	64.19
Bus32	Bus31	1.05	1.61	2.69	116.02	150.68	242.79	242.79	0.00	0.00	0.00	116.02	116.02
	Bus35	0.53	0.70	1.15	88.94	131.97	92.95	92.95	0.00	0.00	0.00	88.94	88.94
	Bus34	0.53	0.65	1.05	73.42	118.91	77.55	77.55	0.00	0.00	0.00	73.42	73.42
Bus34	Bus32	43.37	127.16	201.53	275.64	53.47	6800.13	6397.75	2304.44	0.00	0.00	275.64	275.64
Bus35	Bus32	0.53	0.70	1.15	88.94	131.97	92.95	92.95	0.00	0.00	0.00	88.94	88.94
	Bus37	0.53	0.58	0.85	45.30	83.08	48.00	48.00	0.00	0.00	0.00	45.30	45.30
Bus37	Bus35	43.42	86.25	141.89	171.65	48.85	4212.88	3959.99	1437.65	0.00	0.00	171.65	171.65
Bus38	Bus42	1.58	2.38	3.97	112.73	148.76	354.19	354.19	0.00	0.00	0.00	112.73	112.73
	Bus31	19.18	22.80	37.90	64.19	160.38	3656.04	3656.04	0.00	0.00	0.00	64.19	64.19
	Bus53	17.61	20.53	33.97	59.98	166.45	3417.84	3417.84	0.00	0.00	0.00	59.98	59.98
Bus41	Bus42	43.35	193.44	292.91	434.92	55.59	10753.04	10120.76	3632.90	0.00	0.00	434.92	434.92
Bus42	Bus38	1.58	2.38	3.97	112.73	148.76	354.19	354.19	0.00	0.00	0.00	112.73	112.73
	Bus43	1.05	1.21	1.85	56.30	96.99	117.38	117.38	0.00	0.00	0.00	56.30	56.30
	Bus41	0.53	0.81	1.35	116.38	152.16	122.68	122.68	0.00	0.00	0.00	116.38	116.38
Bus43	Bus42	1.05	1.21	1.85	56.30	96.99	117.38	117.38	0.00	0.00	0.00	56.30	56.30
	Bus44	1.05	1.21	1.85	56.30	96.99	117.38	117.38	0.00	0.00	0.00	56.30	56.30
Bus44	Bus47	0.53	0.61	0.93	56.30	96.99	58.69	58.69	0.00	0.00	0.00	56.30	56.30
	Bus43	1.05	1.21	1.85	56.30	96.99	117.38	117.38	0.00	0.00	0.00	56.30	56.30
	Bus46	0.53	0.55	0.73	28.33	55.02	30.15	30.15	0.00	0.00	0.00	28.33	28.33
Bus46	Bus44	43.50	64.40	106.07	109.16	41.17	2651.42	2487.72	917.20	0.00	0.00	109.16	109.16
Bus47	Bus44	0.53	0.61	0.93	56.30	96.99	58.69	58.69	0.00	0.00	0.00	56.30	56.30
	Bus51	0.53	0.61	0.93	56.30	96.99	58.69	58.69	0.00	0.00	0.00	56.30	56.30
Bus51	Bus47	0.53	0.61	0.93	56.30	96.99	58.69	58.69	0.00	0.00	0.00	56.30	56.30
	Bus52	0.53	0.55	0.73	28.33	55.02	30.15	30.15	0.00	0.00	0.00	28.33	28.33
Bus52	Bus51	43.50	64.40	106.07	109.16	41.17	2651.36	2487.65	917.20	0.00	0.00	109.16	109.16
Bus53	Bus54	17.61	20.53	33.97	59.98	166.45	3417.84	3417.84	0.00	0.00	0.00	59.98	59.98
	Bus38	17.61	20.53	33.97	59.98	166.45	3417.84	3417.84	0.00	0.00	0.00	59.98	59.98

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Bus		Current Distortion											
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Bus54	Bus57	17.08	19.93	33.05	60.13	169.58	3380.46	3380.46	0.00	0.00	0.00	60.13	60.13
	Bus53	17.61	20.53	33.97	59.98	166.45	3417.84	3417.84	0.00	0.00	0.00	59.98	59.98
	Bus56	0.53	0.55	0.73	28.32	55.02	30.15	30.15	0.00	0.00	0.00	28.32	28.32
Bus56	Bus54	43.50	64.40	106.07	109.16	41.17	2651.43	2487.73	917.20	0.00	0.00	109.16	109.16
Bus57	Bus54	17.08	19.93	33.05	60.13	169.58	3380.46	3380.46	0.00	0.00	0.00	60.13	60.13
	Bus63	15.33	17.61	29.13	56.50	180.76	3183.21	3183.21	0.00	0.00	0.00	56.50	56.50
	Bus60	1.24	1.32	1.86	37.49	69.03	91.06	91.06	0.00	0.00	0.00	37.49	37.49
	Bus59	0.53	0.81	1.35	116.36	152.16	122.67	122.67	0.00	0.00	0.00	116.36	116.36
Bus59	Bus57	43.35	193.44	292.91	434.88	55.59	10752.41	10120.10	3632.90	0.00	0.00	434.88	434.88
Bus60	Bus57	1.24	1.32	1.86	37.49	69.03	91.06	91.06	0.00	0.00	0.00	37.49	37.49
	Bus62	1.24	1.26	1.55	18.75	37.76	47.45	47.45	0.00	0.00	0.00	18.75	18.75
Bus62	Bus60	101.91	126.01	199.64	72.73	33.08	4168.40	3914.63	1432.22	0.00	0.00	72.73	72.73
Bus63	Bus57	15.33	17.61	29.13	56.50	180.76	3183.21	3183.21	0.00	0.00	0.00	56.50	56.50
	Bus64	15.33	17.61	29.13	56.50	180.76	3183.21	3183.21	0.00	0.00	0.00	56.50	56.50
Bus64	Bus69	1.27	1.47	2.27	59.07	100.68	148.14	148.14	0.00	0.00	0.00	59.07	59.07
	Bus63	15.33	17.61	29.13	56.50	180.76	3183.21	3183.21	0.00	0.00	0.00	56.50	56.50
	Bus70	11.88	13.91	23.75	60.86	217.65	3027.61	3027.61	0.00	0.00	0.00	60.86	60.86
	Bus66	2.19	2.22	2.70	16.95	34.50	76.62	76.62	0.00	0.00	0.00	16.95	16.95
Bus66	Bus64	180.65	216.03	337.08	65.58	31.12	6722.52	6320.88	2288.82	0.00	0.00	65.58	65.58
Bus68	Bus69	104.52	158.51	262.08	114.02	42.69	6766.30	6363.54	2299.59	0.00	0.00	114.02	114.02
Bus69	Bus64	1.27	1.47	2.27	59.07	100.68	148.14	148.14	0.00	0.00	0.00	59.07	59.07
	Bus68	1.27	1.32	1.78	29.96	58.32	77.13	77.13	0.00	0.00	0.00	29.96	29.96
Bus70	Bus83	7.94	9.37	16.72	62.53	301.01	2819.11	2819.11	0.00	0.00	0.00	62.53	62.53
	Bus64	11.88	13.91	23.75	60.86	217.65	3027.61	3027.61	0.00	0.00	0.00	60.86	60.86
	Bus73	1.80	2.47	4.07	93.54	135.67	334.90	334.90	0.00	0.00	0.00	93.54	93.54
	Bus72	2.14	2.18	2.66	17.36	35.37	76.99	76.99	0.00	0.00	0.00	17.36	17.36
Bus72	Bus70	176.92	213.03	333.69	67.06	31.70	6752.33	6351.40	2292.10	0.00	0.00	67.06	67.06
Bus73	Bus76	1.28	1.58	2.53	73.05	116.90	185.12	185.12	0.00	0.00	0.00	73.05	73.05
	Bus70	1.80	2.47	4.07	93.54	135.67	334.90	334.90	0.00	0.00	0.00	93.54	93.54
	Bus75	0.53	0.65	1.05	73.37	118.88	77.53	77.53	0.00	0.00	0.00	73.37	73.37
Bus75	Bus73	43.38	127.17	201.54	275.56	53.46	6798.76	6396.30	2304.44	0.00	0.00	275.56	275.56
Bus76	Bus79	0.95	1.06	1.57	49.09	86.95	91.80	91.80	0.00	0.00	0.00	49.09	49.09
	Bus73	1.28	1.58	2.53	73.05	116.90	185.12	185.12	0.00	0.00	0.00	73.05	73.05
	Bus78	0.35	0.43	0.68	68.15	113.04	48.22	48.22	0.00	0.00	0.00	68.15	68.15
Bus78	Bus76	29.08	80.09	127.75	256.63	52.81	4230.12	3977.85	1438.96	0.00	0.00	256.63	256.63
Bus79	Bus76	0.95	1.06	1.57	49.09	86.95	91.80	91.80	0.00	0.00	0.00	49.09	49.09
	Bus82	0.95	1.06	1.57	49.09	86.95	91.80	91.80	0.00	0.00	0.00	49.09	49.09
Bus81	Bus82	78.18	107.86	176.26	95.04	38.82	4187.09	3933.50	1435.03	0.00	0.00	95.04	95.04
Bus82	Bus79	0.95	1.06	1.57	49.09	86.95	91.80	91.80	0.00	0.00	0.00	49.09	49.09
	Bus81	0.95	0.98	1.27	24.71	48.84	47.68	47.68	0.00	0.00	0.00	24.71	24.71
	Bus70	7.94	9.37	16.72	62.53	301.01	2819.11	2819.11	0.00	0.00	0.00	62.53	62.53
Bus83	Bus87	6.96	8.32	15.17	65.42	335.18	2787.13	2787.13	0.00	0.00	0.00	65.42	65.42
	Bus86	0.99	1.10	1.62	46.88	83.72	91.68	91.68	0.00	0.00	0.00	46.88	46.88

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Bus		Current Distortion											
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Bus85	Bus86	81.80	110.49	179.82	90.80	37.87	4184.16	3930.56	1434.54	0.00	0.00	90.80	90.80
Bus86	Bus83	0.99	1.10	1.62	46.88	83.72	91.68	91.68	0.00	0.00	0.00	46.88	46.88
	Bus85	0.99	1.02	1.31	23.58	46.77	47.64	47.64	0.00	0.00	0.00	23.58	23.58
Bus87	Bus83	6.96	8.32	15.17	65.42	335.18	2787.13	2787.13	0.00	0.00	0.00	65.42	65.42
	Bus90	6.10	7.38	13.74	68.04	373.90	2757.61	2757.61	0.00	0.00	0.00	68.04	68.04
	Bus89	0.86	0.89	1.18	27.23	53.34	47.67	47.67	0.00	0.00	0.00	27.23	27.23
Bus89	Bus87	71.14	102.87	169.23	104.46	40.69	4186.37	3932.79	1434.87	0.00	0.00	104.46	104.46
Bus90	Bus113	0.86	2.37	5.62	256.30	1106.22	2625.80	2625.80	0.00	0.00	0.00	256.30	256.30
	Bus93	5.25	6.21	9.72	63.28	105.96	658.51	658.51	0.00	0.00	0.00	63.28	63.28
	Bus87	6.10	7.38	13.74	68.04	373.90	2757.61	2757.61	0.00	0.00	0.00	68.04	68.04
	Bus92	1.61	1.65	2.12	23.42	46.66	76.95	76.95	0.00	0.00	0.00	23.42	23.42
Bus92	Bus90	132.48	178.01	289.63	89.74	37.92	6750.65	6348.39	2295.48	0.00	0.00	89.74	89.74
Bus93	Bus96	4.79	5.57	8.63	59.63	101.44	565.47	565.47	0.00	0.00	0.00	59.63	59.63
	Bus90	5.25	6.21	9.72	63.28	105.96	658.51	658.51	0.00	0.00	0.00	63.28	63.28
	Bus95	0.46	0.52	0.79	51.47	92.05	48.05	48.05	0.00	0.00	0.00	51.47	51.47
	Bus93	38.29	83.81	136.82	194.70	50.31	4216.61	3963.86	1437.91	0.00	0.00	194.70	194.70
Bus96	Bus93	4.79	5.57	8.63	59.63	101.44	565.47	565.47	0.00	0.00	0.00	59.63	59.63
	Bus103	2.13	2.33	3.38	43.47	78.58	182.82	182.82	0.00	0.00	0.00	43.47	43.47
	Bus99	1.78	2.14	3.37	66.14	109.62	234.12	234.12	0.00	0.00	0.00	66.14	66.14
	Bus98	1.02	1.09	1.54	37.40	70.96	77.29	77.29	0.00	0.00	0.00	37.40	37.40
Bus98	Bus96	84.17	146.02	242.00	141.76	46.43	6779.44	6376.72	2301.80	0.00	0.00	141.76	141.76
Bus99	Bus102	1.78	2.14	3.37	66.14	109.62	234.12	234.12	0.00	0.00	0.00	66.14	66.14
	Bus96	1.78	2.14	3.37	66.14	109.62	234.12	234.12	0.00	0.00	0.00	66.14	66.14
Bus101	Bus102	146.96	238.17	394.73	127.53	44.61	10623.88	9989.69	3615.67	0.00	0.00	127.53	127.53
Bus102	Bus99	1.78	2.14	3.37	66.14	109.62	234.12	234.12	0.00	0.00	0.00	66.14	66.14
	Bus101	1.78	1.88	2.59	33.64	64.43	121.09	121.09	0.00	0.00	0.00	33.64	33.64
Bus103	Bus96	2.13	2.33	3.38	43.47	78.58	182.82	182.82	0.00	0.00	0.00	43.47	43.47
	Bus106	1.25	1.33	1.87	37.07	68.35	90.95	90.95	0.00	0.00	0.00	37.07	37.07
	Bus105	0.89	0.92	1.21	26.41	51.89	47.62	47.62	0.00	0.00	0.00	26.41	26.41
Bus105	Bus103	73.20	104.28	171.23	101.47	40.11	4182.10	3928.47	1434.25	0.00	0.00	101.47	101.47
Bus106	Bus103	1.25	1.33	1.87	37.07	68.35	90.95	90.95	0.00	0.00	0.00	37.07	37.07
	Bus108	1.25	1.27	1.56	18.51	37.38	47.43	47.43	0.00	0.00	0.00	18.51	18.51
Bus108	Bus106	102.93	126.81	200.59	71.95	32.86	4166.58	3913.02	1431.33	0.00	0.00	71.95	71.95
Bus113	Bus90	0.86	2.37	5.62	256.30	1106.22	2625.80	2625.80	0.00	0.00	0.00	256.30	256.30
	Bus114	0.86	2.37	5.62	256.30	1106.22	2625.80	2625.80	0.00	0.00	0.00	256.30	256.30
Bus114	Bus113	0.86	2.37	5.62	256.30	1106.22	2625.80	2625.80	0.00	0.00	0.00	256.30	256.30
	Bus120	0.45	0.65	1.08	105.09	143.92	93.15	93.15	0.00	0.00	0.00	105.09	105.09
	Bus121	1.83	3.17	7.02	141.75	828.96	2629.00	2629.00	0.00	0.00	0.00	141.75	141.75
	Bus116	0.61	0.65	0.93	38.98	73.32	47.93	47.93	0.00	0.00	0.00	38.98	38.98
	Bus114	50.24	89.84	148.65	148.24	46.83	4207.02	3953.93	1437.17	0.00	0.00	148.24	148.24
Bus119	Bus120	36.81	83.20	135.47	202.73	50.79	4226.28	3973.68	1439.20	0.00	0.00	202.73	202.73
Bus120	Bus114	0.45	0.65	1.08	105.09	143.92	93.15	93.15	0.00	0.00	0.00	105.09	105.09
	Bus119	0.45	0.51	0.77	53.64	95.14	48.17	48.17	0.00	0.00	0.00	53.64	53.64



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Bus		Current Distortion											
From Bus ID	To Bus ID	Fund. Amp	RMS Amp	ASUM Amp	THD %	TIF	IT Amp	ITB Amp	ITR Amp	TIHD %	TSHD %	THDG %	THDS %
Bus121	Bus124	1.56	1.73	2.57	47.51	84.67	146.70	146.70	0.00	0.00	0.00	47.51	47.51
	Bus126	3.36	4.55	9.13	91.66	580.46	2641.77	2641.77	0.00	0.00	0.00	91.66	91.66
	Bus114	1.83	3.17	7.02	141.75	828.96	2629.00	2629.00	0.00	0.00	0.00	141.75	141.75
Bus124	Bus121	1.56	1.73	2.57	47.51	84.67	146.70	146.70	0.00	0.00	0.00	47.51	47.51
	Bus125	1.56	1.61	2.08	23.89	47.37	76.22	76.22	0.00	0.00	0.00	23.89	23.89
Bus125	Bus124	129.11	175.44	285.90	92.01	38.15	6693.53	6288.08	2294.20	0.00	0.00	92.01	92.01
Bus126	Bus127	4.67	5.79	10.88	73.31	458.05	2654.28	2654.28	0.00	0.00	0.00	73.31	73.31
	Bus121	3.36	4.55	9.13	91.66	580.46	2641.77	2641.77	0.00	0.00	0.00	91.66	91.66
	Bus142	1.33	1.41	1.96	34.65	64.32	90.78	90.78	0.00	0.00	0.00	34.65	34.65
Bus127	Bus126	4.67	5.79	10.88	73.31	458.05	2654.28	2654.28	0.00	0.00	0.00	73.31	73.31
	Bus132	5.20	6.44	11.89	73.06	414.46	2669.06	2669.06	0.00	0.00	0.00	73.06	73.06
	Bus129	0.53	0.58	0.85	45.27	83.09	48.01	48.01	0.00	0.00	0.00	45.27	45.27
Bus129	Bus127	43.43	86.25	141.93	171.60	48.86	4213.90	3961.08	1437.65	0.00	0.00	171.60	171.60
Bus132	Bus135	5.90	7.24	13.11	71.02	371.19	2687.18	2687.18	0.00	0.00	0.00	71.02	71.02
	Bus127	5.20	6.44	11.89	73.06	414.46	2669.06	2669.06	0.00	0.00	0.00	73.06	73.06
	Bus134	0	0	0	0	0	0.00	2669.06	0.00	0.00	0.00	0.00	0.00
Bus133	Bus133	0.71	0.75	1.03	33.49	64.30	47.91	47.91	0.00	0.00	0.00	33.49	33.49
	Bus132	58.29	94.54	156.66	127.70	44.48	4205.57	3952.60	1436.58	0.00	0.00	127.70	127.70
	Bus134	0	0	0	0	0	0.00	3952.60	1436.58	0.00	0.00	0.00	0.00
Bus135	Bus132	5.90	7.24	13.11	71.02	371.19	2687.18	2687.18	0.00	0.00	0.00	71.02	71.02
	Bus138	5.90	7.24	13.11	71.02	371.19	2687.18	2687.18	0.00	0.00	0.00	71.02	71.02
	Bus138	5.90	7.24	13.11	71.02	371.19	2687.18	2687.18	0.00	0.00	0.00	71.02	71.02
Bus138	Bus139	1.32	1.34	1.64	17.44	35.36	47.41	47.41	0.00	0.00	0.00	17.44	17.44
	Bus213	7.22	8.34	14.55	57.69	367.15	3060.55	3060.55	0.00	0.00	0.00	57.69	57.69
Bus139	Bus138	108.96	131.66	206.46	67.83	31.63	4163.60	3910.93	1428.36	0.00	0.00	67.83	67.83
Bus142	Bus126	1.33	1.41	1.96	34.65	64.32	90.78	90.78	0.00	0.00	0.00	34.65	34.65
	Bus143	1.33	1.35	1.65	17.28	35.09	47.49	47.49	0.00	0.00	0.00	17.28	17.28
Bus143	Bus142	110.02	132.60	207.63	67.27	31.46	4171.02	3918.04	1430.52	0.00	0.00	67.27	67.27
Bus145	Bus146	20.29	21.71	30.65	38.02	69.95	1518.47	1518.47	0.00	0.00	0.00	38.02	38.02
	Bus9	20.29	21.71	30.65	38.02	69.95	1518.47	1518.47	0.00	0.00	0.00	38.02	38.02
Bus146	Bus152	4.20	4.72	7.08	51.29	90.18	425.26	425.26	0.00	0.00	0.00	51.29	51.29
	Bus145	20.29	21.71	30.65	38.02	69.95	1518.47	1518.47	0.00	0.00	0.00	38.02	38.02
	Bus172	13.07	13.87	19.31	35.53	65.85	913.51	913.51	0.00	0.00	0.00	35.53	35.53
	Bus151	0.30	0.56	0.93	158.82	168.52	93.60	93.60	0.00	0.00	0.00	158.82	158.82
	Bus148	2.73	2.74	3.04	7.98	16.89	46.32	46.32	0.00	0.00	0.00	7.98	7.98
Bus148	Bus146	225.60	237.07	321.18	32.30	17.19	4074.25	3821.76	1411.98	0.00	0.00	32.30	32.30
Bus150	Bus151	24.42	78.61	123.24	306.03	53.98	4243.44	3991.45	1440.54	0.00	0.00	306.03	306.03
Bus151	Bus146	0.30	0.56	0.93	158.82	168.52	93.60	93.60	0.00	0.00	0.00	158.82	158.82
	Bus150	0.30	0.38	0.62	81.44	126.76	48.38	48.38	0.00	0.00	0.00	81.44	81.44
Bus152	Bus146	4.20	4.72	7.08	51.29	90.18	425.26	425.26	0.00	0.00	0.00	51.29	51.29
	Bus155	4.08	4.41	6.33	41.25	75.15	331.39	331.39	0.00	0.00	0.00	41.25	41.25
	Bus154	0.12	0.27	0.45	201.90	179.46	48.68	48.68	0.00	0.00	0.00	201.90	201.90
Bus154	Bus152	9.93	75.50	109.00	753.58	56.51	4267.06	4015.94	1442.24	0.00	0.00	753.58	753.58

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Bus		Current Distortion											
From Bus ID	To Bus ID	Fund. Amp	RMS Amp	ASUM Amp	THD %	TIF	IT Amp	ITB Amp	ITR Amp	TIHD %	TSHD %	THDG %	THDS %
Bus155	Bus158	1.34	1.82	3.00	91.99	134.48	245.25	245.25	0.00	0.00	0.00	91.99	91.99
	Bus152	4.08	4.41	6.33	41.25	75.15	331.39	331.39	0.00	0.00	0.00	41.25	41.25
	Bus157	2.73	2.74	3.04	7.98	16.89	46.34	46.34	0.00	0.00	0.00	7.98	7.98
Bus157	Bus155	225.61	237.08	321.19	32.29	17.19	4075.43	3823.02	1411.98	0.00	0.00	32.29	32.29
Bus158	Bus155	1.34	1.82	3.00	91.99	134.48	245.25	245.25	0.00	0.00	0.00	91.99	91.99
	Bus159	1.34	1.82	3.00	91.99	134.48	245.25	245.25	0.00	0.00	0.00	91.99	91.99
Bus159	Bus160	1.34	1.82	3.00	91.99	134.48	245.25	245.25	0.00	0.00	0.00	91.99	91.99
	Bus158	1.34	1.82	3.00	91.99	134.48	245.25	245.25	0.00	0.00	0.00	91.99	91.99
Bus160	Bus163	0.90	1.18	1.92	85.60	129.10	152.09	152.09	0.00	0.00	0.00	85.60	85.60
	Bus159	1.34	1.82	3.00	91.99	134.48	245.25	245.25	0.00	0.00	0.00	91.99	91.99
	Bus162	0.45	0.51	0.77	53.48	94.86	48.10	48.10	0.00	0.00	0.00	53.48	53.48
Bus162	Bus160	36.89	83.20	135.44	202.16	50.73	4220.97	3968.34	1438.37	0.00	0.00	202.16	202.16
Bus163	Bus160	0.90	1.18	1.92	85.60	129.10	152.09	152.09	0.00	0.00	0.00	85.60	85.60
	Bus166	0.45	0.54	0.85	66.44	109.62	58.94	58.94	0.00	0.00	0.00	66.44	66.44
	Bus165	0.45	0.51	0.77	53.48	94.86	48.10	48.10	0.00	0.00	0.00	53.48	53.48
Bus165	Bus163	36.89	83.20	135.44	202.16	50.73	4220.95	3968.32	1438.37	0.00	0.00	202.16	202.16
Bus166	Bus167	0.45	0.54	0.85	66.44	109.62	58.94	58.94	0.00	0.00	0.00	66.44	66.44
	Bus163	0.45	0.54	0.85	66.44	109.62	58.94	58.94	0.00	0.00	0.00	66.44	66.44
Bus167	Bus166	0.45	0.54	0.85	66.44	109.62	58.94	58.94	0.00	0.00	0.00	66.44	66.44
	Bus168	0.45	0.54	0.85	66.44	109.62	58.94	58.94	0.00	0.00	0.00	66.44	66.44
Bus168	Bus167	0.45	0.54	0.85	66.44	109.62	58.94	58.94	0.00	0.00	0.00	66.44	66.44
	Bus171	0.45	0.54	0.85	66.44	109.62	58.94	58.94	0.00	0.00	0.00	66.44	66.44
Bus170	Bus171	36.95	60.22	99.63	128.69	44.21	2662.19	2498.88	918.08	0.00	0.00	128.69	128.69
Bus171	Bus168	0.45	0.54	0.85	66.44	109.62	58.94	58.94	0.00	0.00	0.00	66.44	66.44
	Bus170	0.45	0.47	0.65	33.56	64.12	30.29	30.29	0.00	0.00	0.00	33.56	33.56
Bus172	Bus146	13.07	13.87	19.31	35.53	65.85	913.51	913.51	0.00	0.00	0.00	35.53	35.53
	Bus173	13.07	13.87	19.31	35.53	65.85	913.51	913.51	0.00	0.00	0.00	35.53	35.53
Bus173	Bus176	10.31	11.20	16.19	42.39	76.95	861.93	861.93	0.00	0.00	0.00	42.39	42.39
	Bus172	13.07	13.87	19.31	35.53	65.85	913.51	913.51	0.00	0.00	0.00	35.53	35.53
	Bus175	2.76	2.77	2.95	4.69	10.22	28.27	28.27	0.00	0.00	0.00	4.69	4.69
Bus175	Bus173	228.05	232.58	287.45	20.03	10.73	2495.72	2332.36	888.10	0.00	0.00	20.03	20.03
Bus176	Bus173	10.31	11.20	16.19	42.39	76.95	861.93	861.93	0.00	0.00	0.00	42.39	42.39
	Bus179	0.75	0.80	1.14	39.40	72.08	57.97	57.97	0.00	0.00	0.00	39.40	39.40
	Bus180	9.57	10.40	15.04	42.62	77.31	803.97	803.97	0.00	0.00	0.00	42.62	42.62
Bus178	Bus179	61.72	77.78	123.96	76.68	33.76	2626.10	2461.47	915.16	0.00	0.00	76.68	76.68
Bus179	Bus176	0.75	0.80	1.14	39.40	72.08	57.97	57.97	0.00	0.00	0.00	39.40	39.40
	Bus178	0.75	0.76	0.95	19.60	39.13	29.84	29.84	0.00	0.00	0.00	19.60	19.60
Bus180	Bus176	9.57	10.40	15.04	42.62	77.31	803.97	803.97	0.00	0.00	0.00	42.62	42.62
	Bus194	2.86	3.47	5.50	68.61	112.14	389.44	389.44	0.00	0.00	0.00	68.61	68.61
	Bus181	5.68	5.85	7.52	24.02	45.60	266.61	266.61	0.00	0.00	0.00	24.02	24.02
	Bus208	1.04	1.11	1.56	36.57	69.55	77.18	77.18	0.00	0.00	0.00	36.57	36.57

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Bus		Current Distortion											
From Bus ID	To Bus ID	Fund. Amp	RMS Amp	ASUM Amp	THD %	TIF	IT Amp	ITB Amp	ITR Amp	TIHD %	TSHD %	THDG %	THDS %
Bus181	Bus184	2.95	3.09	4.18	31.09	58.26	179.90	179.90	0.00	0.00	0.00	31.09	31.09
	Bus180	5.68	5.85	7.52	24.02	45.60	266.61	266.61	0.00	0.00	0.00	24.02	24.02
	Bus183	2.74	2.74	3.04	7.96	16.88	46.33	46.33	0.00	0.00	0.00	7.96	7.96
Bus183	Bus181	225.71	237.17	321.24	32.28	17.18	4074.71	3822.25	1411.98	0.00	0.00	32.28	32.28
Bus184	Bus181	2.95	3.09	4.18	31.09	58.26	179.90	179.90	0.00	0.00	0.00	31.09	31.09
	Bus185	2.95	3.09	4.18	31.09	58.26	179.90	179.90	0.00	0.00	0.00	31.09	31.09
Bus185	Bus189	0.21	0.52	0.85	220.27	181.56	93.83	93.83	0.00	0.00	0.00	220.27	220.27
	Bus184	2.95	3.09	4.18	31.09	58.26	179.90	179.90	0.00	0.00	0.00	31.09	31.09
	Bus188	2.74	2.74	3.04	7.96	16.88	46.34	46.34	0.00	0.00	0.00	7.96	7.96
Bus188	Bus185	225.71	237.18	321.24	32.27	17.18	4075.24	3822.81	1411.98	0.00	0.00	32.27	32.27
Bus189	Bus193	0	0	0	0	0	0.00	3822.81	1411.98	0.00	0.00	0.00	0.00
	Bus185	0.21	0.52	0.85	220.27	181.56	93.83	93.83	0.00	0.00	0.00	220.27	220.27
	Bus192	0.21	0.52	0.85	220.27	181.56	93.83	93.83	0.00	0.00	0.00	220.27	220.27
Bus191	Bus192	17.62	76.82	116.54	424.25	55.36	4252.84	4001.19	1441.22	0.00	0.00	424.25	424.25
Bus192	Bus189	0.21	0.52	0.85	220.27	181.56	93.83	93.83	0.00	0.00	0.00	220.27	220.27
	Bus191	0.21	0.32	0.54	113.21	150.29	48.50	48.50	0.00	0.00	0.00	113.21	113.21
Bus193	Bus189	0	0	0	0	0	0.00	48.50	0.00	0.00	0.00	0.00	0.00
Bus194	Bus180	2.86	3.47	5.50	68.61	112.14	389.44	389.44	0.00	0.00	0.00	68.61	68.61
	Bus195	2.86	3.47	5.50	68.61	112.14	389.44	389.44	0.00	0.00	0.00	68.61	68.61
Bus195	Bus196	2.86	3.47	5.50	68.61	112.14	389.44	389.44	0.00	0.00	0.00	68.61	68.61
	Bus194	2.86	3.47	5.50	68.61	112.14	389.44	389.44	0.00	0.00	0.00	68.61	68.61
Bus196	Bus195	2.86	3.47	5.50	68.61	112.14	389.44	389.44	0.00	0.00	0.00	68.61	68.61
	Bus197	2.86	3.47	5.50	68.61	112.14	389.44	389.44	0.00	0.00	0.00	68.61	68.61
Bus197	Bus198	0.89	1.17	1.90	83.88	127.60	148.93	148.93	0.00	0.00	0.00	83.88	83.88
	Bus209	1.97	2.32	3.60	61.64	103.89	240.53	240.53	0.00	0.00	0.00	61.64	61.64
	Bus196	2.86	3.47	5.50	68.61	112.14	389.44	389.44	0.00	0.00	0.00	68.61	68.61
Bus198	Bus197	0.89	1.17	1.90	83.88	127.60	148.93	148.93	0.00	0.00	0.00	83.88	83.88
	Bus200	0.89	0.97	1.41	42.74	79.40	77.22	77.22	0.00	0.00	0.00	42.74	42.74
Bus200	Bus198	73.77	140.29	231.54	161.75	48.28	6773.55	6370.48	2301.71	0.00	0.00	161.75	161.75
Bus201	Bus204	0	0	0	0	0	0.00	6370.48	2301.71	0.00	0.00	0.00	0.00
	Bus209	0.27	0.54	0.90	174.53	172.87	93.66	93.66	0.00	0.00	0.00	174.53	174.53
	Bus203	0.27	0.36	0.59	89.54	133.87	48.40	48.40	0.00	0.00	0.00	89.54	89.54
Bus203	Bus201	22.22	77.96	121.06	336.30	54.45	4245.04	3993.11	1440.63	0.00	0.00	336.30	336.30
Bus204	Bus201	0	0	0	0	0	0.00	3993.11	1440.63	0.00	0.00	0.00	0.00
	Bus205	0	0	0	0	0	0.00	3993.11	1440.63	0.00	0.00	0.00	0.00
	Bus206	0	0	0	0	0	0.00	3993.11	1440.63	0.00	0.00	0.00	0.00
Bus205	Bus204	0	0	0	0	0	0.00	3993.11	1440.63	0.00	0.00	0.00	0.00
Bus206	Bus204	0	0	0	0	0	0.00	3993.11	1440.63	0.00	0.00	0.00	0.00
Bus208	Bus180	85.97	147.03	243.65	138.74	46.05	6770.12	6367.05	2301.12	0.00	0.00	138.74	138.74
Bus209	Bus201	0.27	0.54	0.90	174.53	172.87	93.66	93.66	0.00	0.00	0.00	174.53	174.53
	Bus197	1.97	2.32	3.60	61.64	103.89	240.53	240.53	0.00	0.00	0.00	61.64	61.64
	Bus211	1.70	1.74	2.21	22.05	44.11	76.90	76.90	0.00	0.00	0.00	22.05	22.05
Bus211	Bus209	140.46	184.03	297.53	84.66	36.66	6747.18	6344.50	2296.04	0.00	0.00	84.66	84.66

Bus		Current Distortion											
From Bus ID	To Bus ID	Fund. Amp	RMS Amp	ASUM Amp	THD %	TIF	IT Amp	ITB Amp	ITR Amp	TIHD %	TSHD %	THDG %	THDS %
Bus212	Bus213	610.60	641.11	935.75	32.00	172.38	110512.00	110512.00	0.00	0.00	0.00	32.00	32.00
Bus213	Bus212	7.22	7.60	11.16	32.80	176.27	1339.54	1339.54	0.00	0.00	0.00	32.80	32.80
	Bus138	7.22	8.34	14.55	57.69	367.15	3060.55	3060.55	0.00	0.00	0.00	57.69	57.69
Bus215	Bus216	16.56	16.68	19.48	12.04	36.88	615.08	615.08	0.00	0.00	0.00	12.04	12.04
Bus216	Bus215	1366.18	1376.04	1607.46	12.04	36.88	50744.37	50744.37	0.00	0.00	0.00	12.04	12.04

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**Bus Tabulation**

**Harmonic Voltages (% of Fundamental Voltage )**

Bus ID: **Bus1**  
Fund. kV: **33.000**

Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %
3.00	150.00	0.00	5.00	250.00	1.82	7.00	350.00	1.33	11.00	550.00	0.12	13.00	650.00	0.06	17.00	850.00	0.09
19.00	950.00	0.06	23.00	1150.00	0.07	25.00	1250.00	0.05									

Bus ID: **Bus138**  
Fund. kV: **32.978**

Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %
3.00	150.00	0.00	5.00	250.00	1.93	7.00	350.00	1.43	11.00	550.00	0.19	13.00	650.00	0.09	17.00	850.00	0.13
19.00	950.00	0.10	23.00	1150.00	0.11	25.00	1250.00	0.08									

Bus ID: **Bus139**  
Fund. kV: **0.396**

Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %
3.00	150.00	2.47	5.00	250.00	2.99	7.00	350.00	2.08	11.00	550.00	0.17	13.00	650.00	0.08	17.00	850.00	0.11
19.00	950.00	0.07	23.00	1150.00	0.07	25.00	1250.00	0.05									

Bus ID: **Bus2**  
Fund. kV: **32.998**

Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %
3.00	150.00	0.00	5.00	250.00	1.83	7.00	350.00	1.34	11.00	550.00	0.12	13.00	650.00	0.06	17.00	850.00	0.09
19.00	950.00	0.06	23.00	1150.00	0.07	25.00	1250.00	0.05									

Bus ID: **Bus21**  
Fund. kV: **32.997**

Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %
3.00	150.00	0.00	5.00	250.00	1.84	7.00	350.00	1.34	11.00	550.00	0.12	13.00	650.00	0.06	17.00	850.00	0.09
19.00	950.00	0.06	23.00	1150.00	0.07	25.00	1250.00	0.05									

Bus ID: **Bus212**  
Fund. kV: **0.399**

Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %
3.00	150.00	0.00	5.00	250.00	3.19	7.00	350.00	0.96	11.00	550.00	2.52	13.00	650.00	1.30	17.00	850.00	2.43
19.00	950.00	1.79	23.00	1150.00	2.56	25.00	1250.00	1.78									

Bus ID: **Bus213**  
Fund. kV: **32.978**

Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %
3.00	150.00	0.00	5.00	250.00	1.93	7.00	350.00	1.43	11.00	550.00	0.19	13.00	650.00	0.09	17.00	850.00	0.13
19.00	950.00	0.10	23.00	1150.00	0.11	25.00	1250.00	0.08									

Bus ID: **Bus22**  
Fund. kV: **0.399**

Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %	Order	Freq. Hz	Mag. %
3.00	150.00	2.47	5.00	250.00	2.93	7.00	350.00	2.04	11.00	550.00	0.12	13.00	650.00	0.06	17.00	850.00	0.08













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