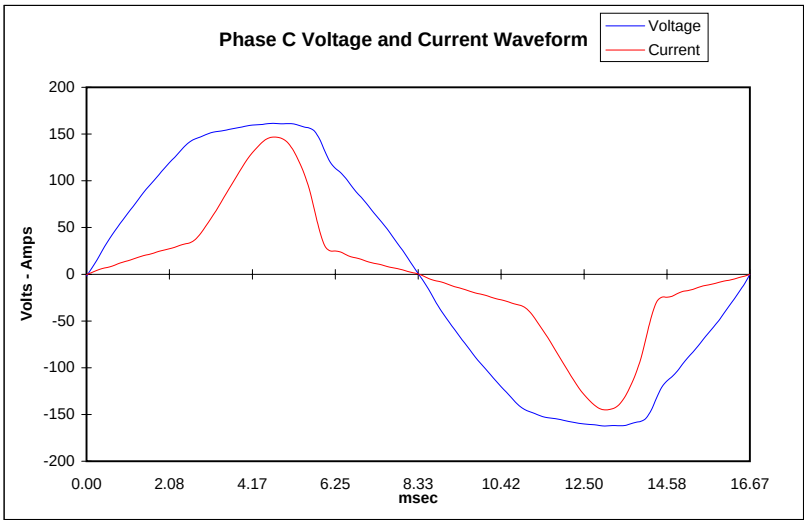
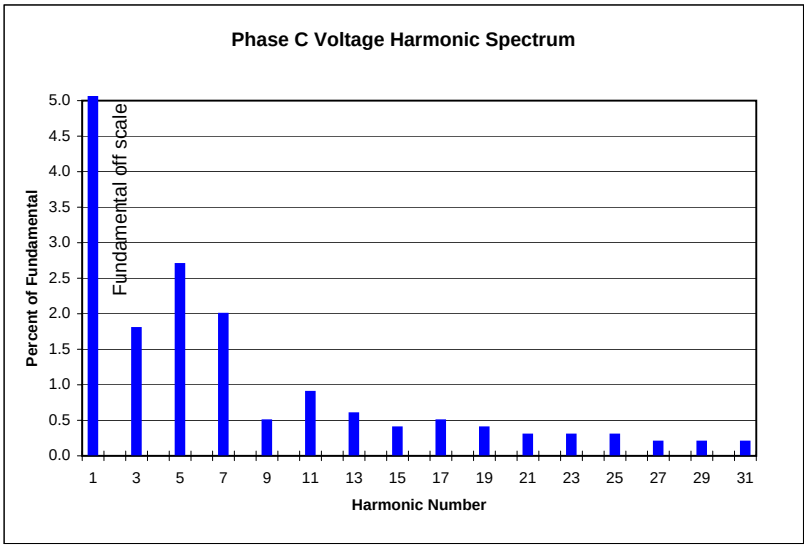
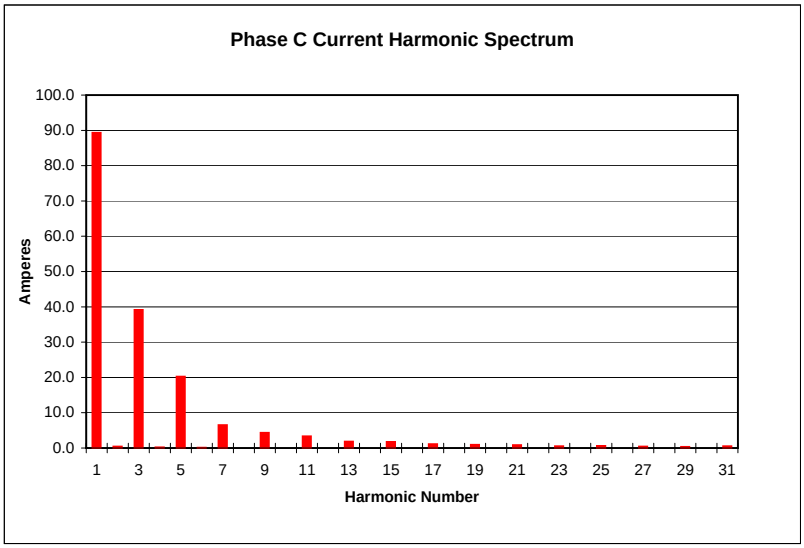
Sample Analysis - 30kva Xfmr, 600 - 120/208, delta-wye, K=1



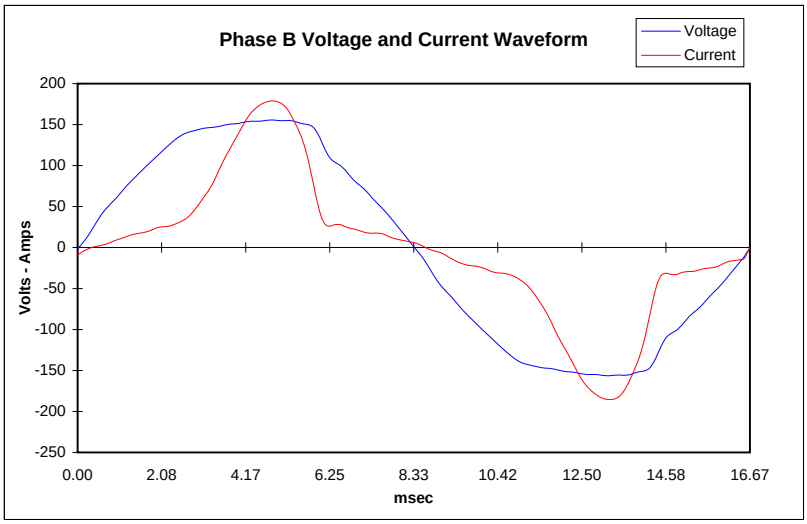
Measured Values				
Phase C				
			Voltage	Current
Frequency	60	**RMS**	118	69
Power		**Peak**	161.9	145.9
KW	7.2	**DC Offset**	-0.4	0.2
KVA	8.1	**Crest**	1.37	2.11
KVAR	0.5	**THD Rms**	4.1	45
Peak KW	23.7	**THD Fund**	4.1	50.3
Phase	4° lag	**HRMS**	4.8	31
Total PF	0.89	**KFactor**		4
DPF	1			



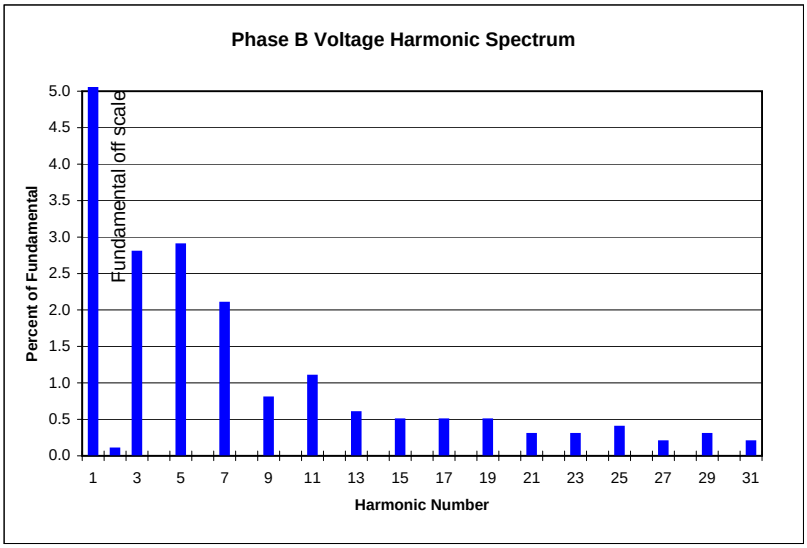
Harmonic Values				
	Voltage		Current	
Harmonic	Magnitude	% of fund.	Magnitude	% of fund.
DC	0.4	0.4	0.2	0.3
1	117.9	99.9	61.6	89.3
2	0.0	0.0	0.3	0.4
3	2.1	1.8	27.0	39.1
4	0.0	0.0	0.1	0.2
5	3.2	2.7	14.0	20.2
6	0.0	0.0	0.1	0.1
7	2.4	2.0	4.5	6.5
8	0.0	0.0	0.0	0.0
9	0.6	0.5	3.0	4.3
10	0.0	0.0	0.0	0.0
11	1.1	0.9	2.3	3.3
12	0.0	0.0	0.0	0.0
13	0.7	0.6	1.2	1.8
14	0.0	0.0	0.0	0.0
15	0.4	0.4	1.2	1.7
16	0.0	0.0	0.0	0.0
17	0.5	0.5	0.8	1.1
18	0.0	0.0	0.0	0.0
19	0.4	0.4	0.6	0.9
20	0.0	0.0	0.0	0.0
21	0.3	0.3	0.6	0.8
22	0.0	0.0	0.0	0.0
23	0.3	0.3	0.4	0.5
24	0.0	0.0	0.0	0.0
25	0.3	0.3	0.4	0.6
26	0.0	0.0	0.0	0.0
27	0.3	0.2	0.3	0.4
28	0.0	0.0	0.0	0.0
29	0.2	0.2	0.2	0.3
30	0.0	0.0	0.0	0.0
31	0.3	0.2	0.3	0.5



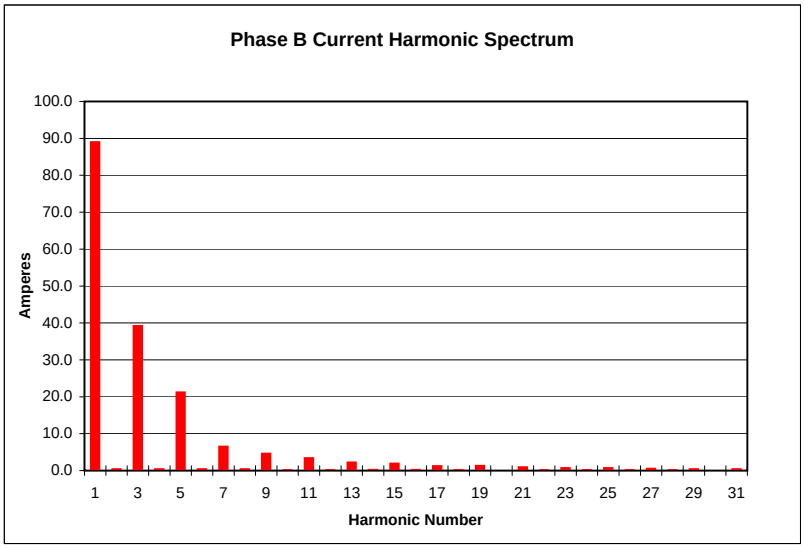
Sample Analysis - 30kva Xfmr, 600 - 120/208, delta-wye, K=1



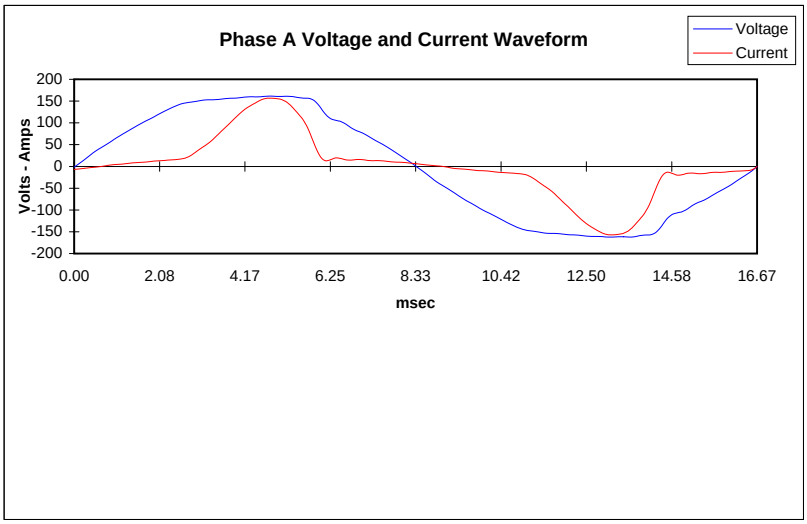
Measured Values				
Phase B				
			Voltage	Current
Frequency	60	**RMS**	114.6	86
Power		**Peak**	156	182
KW	8.7	**DC Offset**	-0.4	-3
KVA	9.9	**Crest**	1.36	2.11
KVAR	1.2	**THD Rms**	4.9	45.5
Peak KW	29	**THD Fund**	5	51.1
Phase	8° lag	**HRMS**	5.7	39
Total PF	0.88	**KFactor**		4.2
DPF	0.99			



Harmonic Values				
	Voltage		Current	
Harmonic	Magnitude	% of fund.	Magnitude	% of fund.
DC	0.4	0.4	3.0	3.2
1	114.5	99.9	77.0	89.0
2	0.1	0.1	0.0	0.4
3	3.2	2.8	34.0	39.2
4	0.0	0.0	0.0	0.4
5	3.4	2.9	18.0	21.2
6	0.0	0.0	0.0	0.4
7	2.4	2.1	6.0	6.5
8	0.0	0.0	0.0	0.4
9	0.9	0.8	4.0	4.6
10	0.0	0.0	0.0	0.1
11	1.2	1.1	3.0	3.4
12	0.0	0.0	0.0	0.1
13	0.7	0.6	2.0	2.2
14	0.0	0.0	0.0	0.2
15	0.5	0.5	2.0	1.9
16	0.0	0.0	0.0	0.2
17	0.6	0.5	1.0	1.2
18	0.0	0.0	0.0	0.1
19	0.6	0.5	1.0	1.3
20	0.0	0.0	0.0	0.0
21	0.4	0.3	1.0	0.9
22	0.0	0.0	0.0	0.1
23	0.4	0.3	1.0	0.7
24	0.0	0.0	0.0	0.1
25	0.5	0.4	1.0	0.7
26	0.0	0.0	0.0	0.1
27	0.3	0.2	0.0	0.5
28	0.0	0.0	0.0	0.1
29	0.3	0.3	0.0	0.4
30	0.0	0.0	0.0	0.0
31	0.3	0.2	0.0	0.4

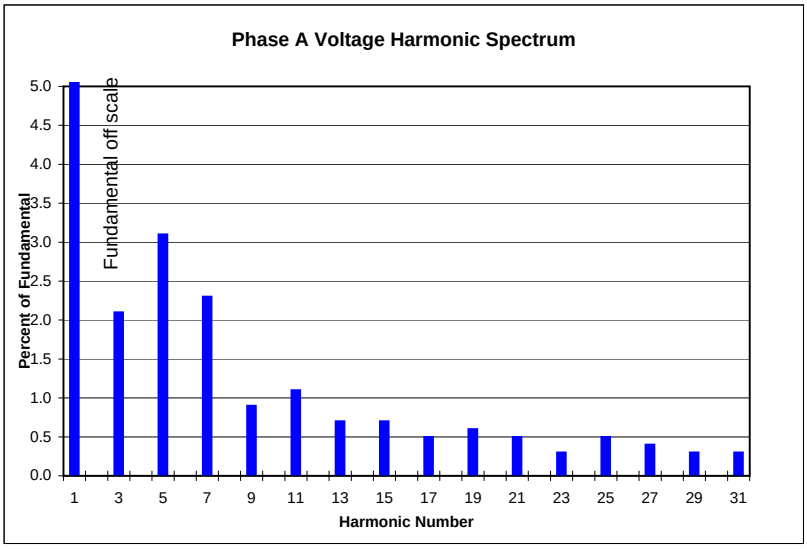


Sample Analysis - 30kva Xfmr, 600 - 120/208, delta-wye, K=1



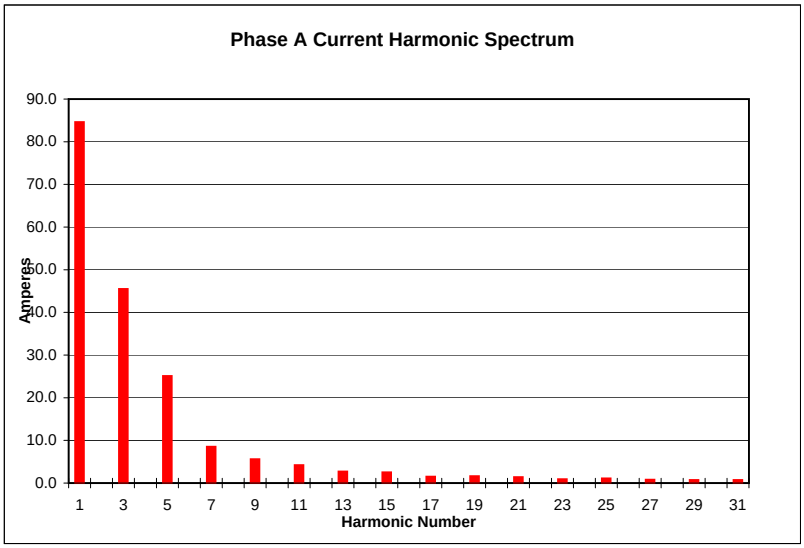
Measured Values
Phase A

			Voltage	Current
Frequency	60	**RMS**	118.5	70.6
Power		**Peak**	162	156.8
KW	6.9	**DC Offset**	-0.4	-0.2
KVA	8.4	**Crest**	1.37	2.22
KVAR	1.4	**THD Rms**	4.9	53.4
Peak KW	25.5	**THD Fund**	4.9	63.1
Phase	11° lag	**HRMS**	5.8	37.7
Total PF	0.83	**KFactor**		5.7
DPF	0.98			



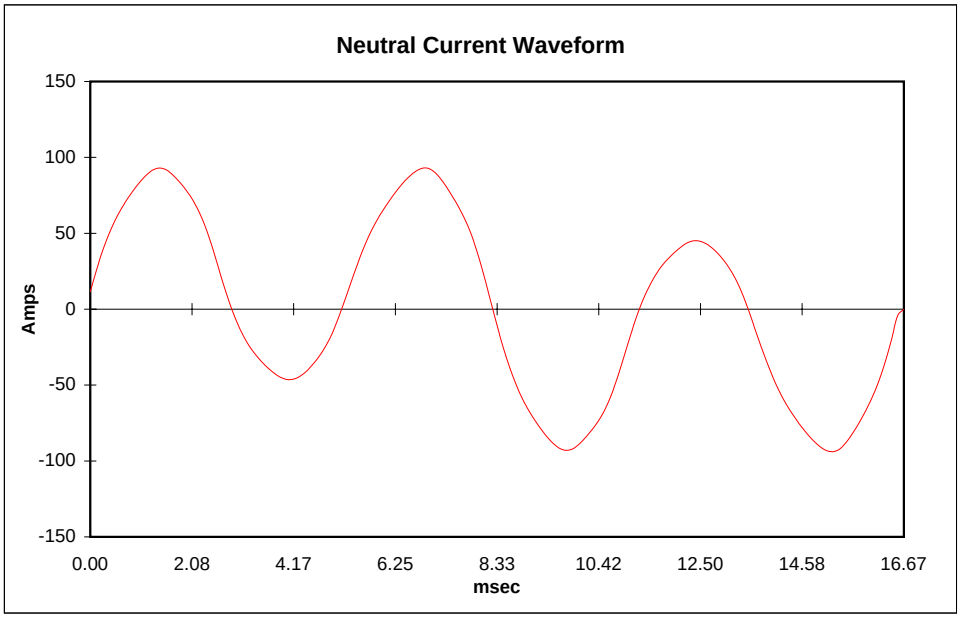
Harmonic Values

	Voltage		Current	
Harmonic	Magnitude	% of fund.	Magnitude	% of fund.
DC	0.4	0.3	0.2	0.3
1	118.4	99.9	59.7	84.6
2	0.0	0.0	0.0	0.0
3	2.5	2.1	32.1	45.5
4	0.0	0.0	0.0	0.0
5	3.6	3.1	17.8	25.1
6	0.0	0.0	0.0	0.0
7	2.7	2.3	6.0	8.5
8	0.0	0.0	0.0	0.0
9	1.1	0.9	4.0	5.6
10	0.0	0.0	0.0	0.0
11	1.3	1.1	3.0	4.2
12	0.0	0.0	0.0	0.0
13	0.9	0.7	1.9	2.7
14	0.0	0.0	0.0	0.0
15	0.8	0.7	1.8	2.5
16	0.0	0.0	0.0	0.0
17	0.6	0.5	1.0	1.5
18	0.0	0.0	0.0	0.0
19	0.7	0.6	1.1	1.6
20	0.0	0.0	0.0	0.0
21	0.6	0.5	1.0	1.4
22	0.0	0.0	0.0	0.0
23	0.4	0.3	0.6	0.9
24	0.0	0.0	0.0	0.0
25	0.6	0.5	0.8	1.1
26	0.0	0.0	0.0	0.0
27	0.4	0.4	0.6	0.8
28	0.0	0.0	0.0	0.0
29	0.4	0.3	0.5	0.7
30	0.0	0.0	0.0	0.0
31	0.4	0.3	0.5	0.7

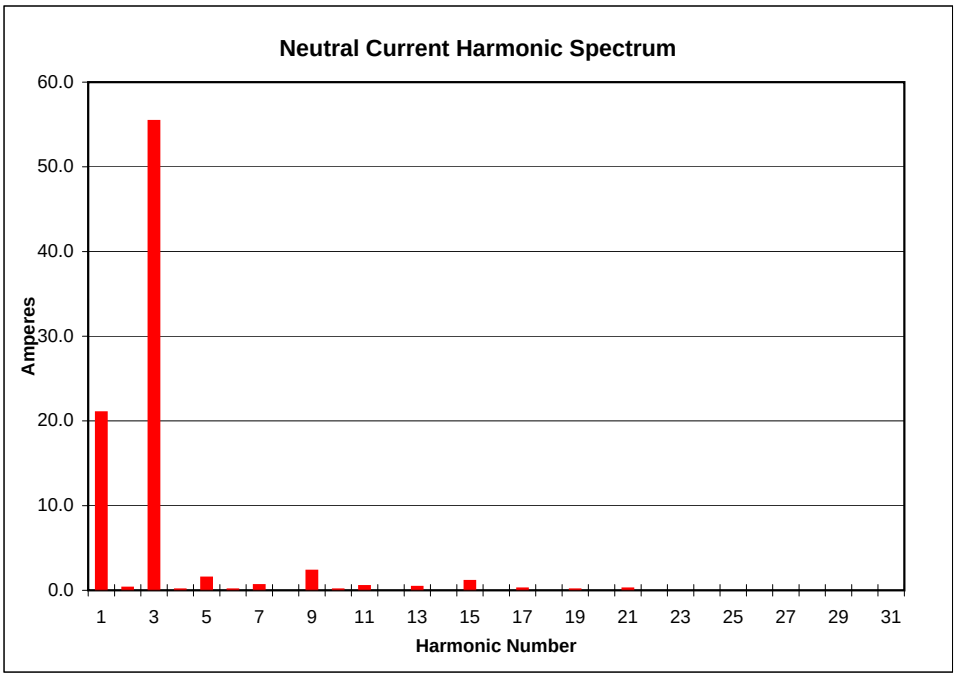


Harmonic Analysis

Sample Analysis - 30kva Xfmr, 600 - 120/208, delta-wye, K=1

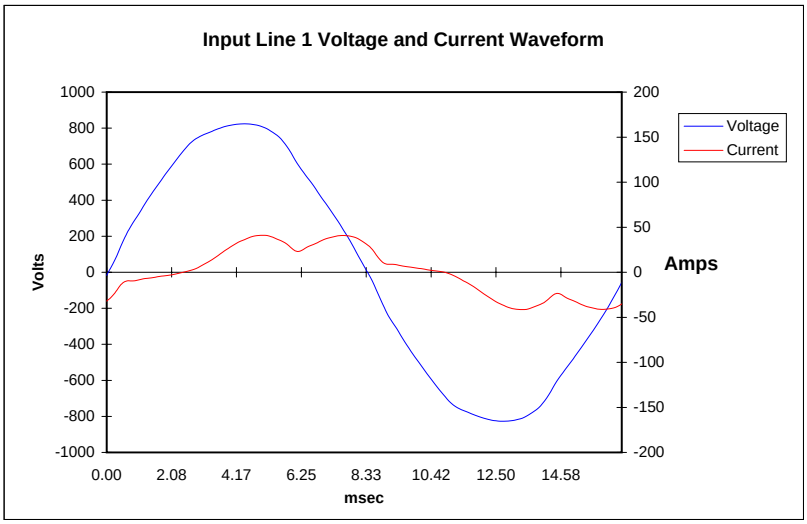


Measured Values Neutral	
	Current
RMS	59.3
Peak	93.4
DC Offset	-0.3
Crest	1.57
THD Rms	93.5
THD Fund	264.7
HRMS	55.5



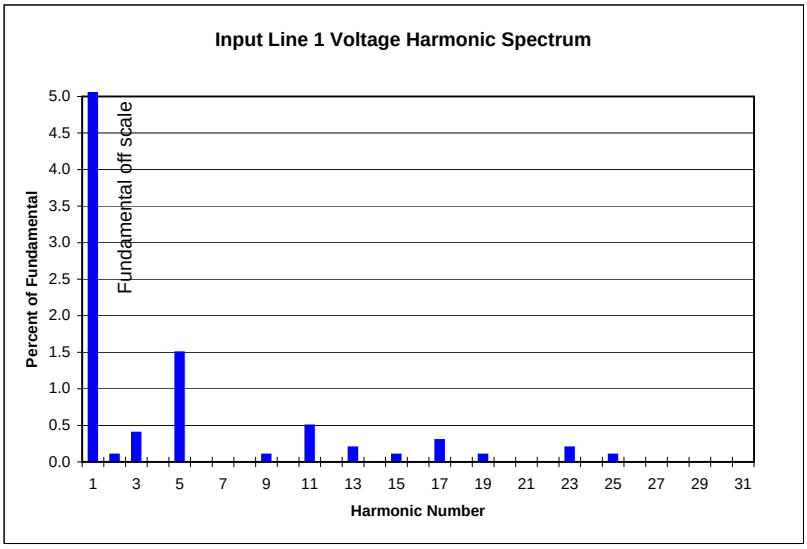
Harmonic Values		
	Current	
Harmonic	Magnitude	% of fund.
DC	0.3	0.5
1	21.0	35.3
2	0.3	0.4
3	55.4	93.4
4	0.1	0.2
5	1.5	2.5
6	0.1	0.1
7	0.6	1.1
8	0.0	0.1
9	2.3	3.8
10	0.1	0.1
11	0.5	0.9
12	0.0	0.0
13	0.4	0.7
14	0.0	0.0
15	1.1	1.8
16	0.0	0.1
17	0.2	0.3
18	0.0	0.0
19	0.1	0.2
20	0.0	0.0
21	0.2	0.3
22	0.0	0.0
23	0.0	0.1
24	0.0	0.0
25	0.0	0.0
26	0.0	0.0
27	0.0	0.0
28	0.0	0.0
29	0.0	0.0
30	0.0	0.0
31	0.0	0.1

Sample Analysis - 30kva Xfmr, 600 - 120/208, delta-wye, K=1



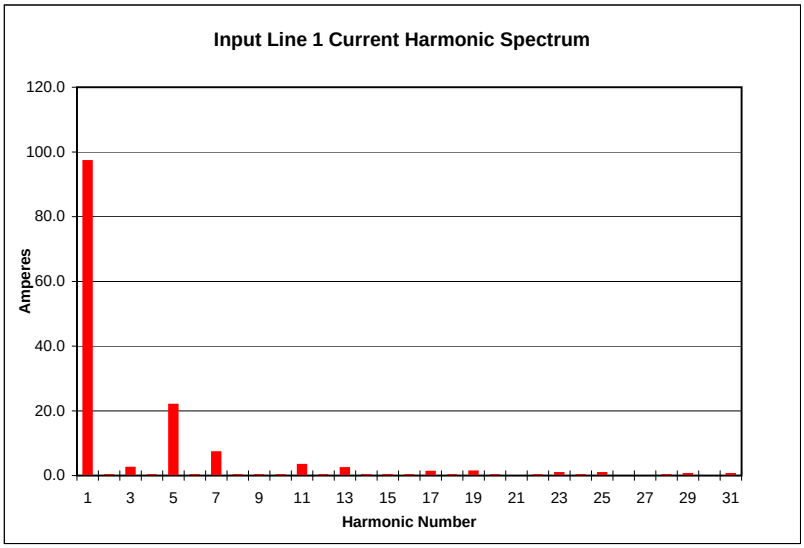
Measured Values
Input Line 1

			Voltage	Current
Frequency	60	**RMS**	591	27.4
Power		**Peak**	825	41.2
KW	11.2	**DC Offset**	-2	-0.2
KVA	16.2	**Crest**	1.4	1.5
KVAR	11.1	**THD Rms**	2.1	23.6
Peak KW	33.7	**THD Fund**	2.1	24.2
Phase	45° lag	**HRMS**	13	6.5
Total PF	0.69	**KFactor**		2.8
DPF	0.71			

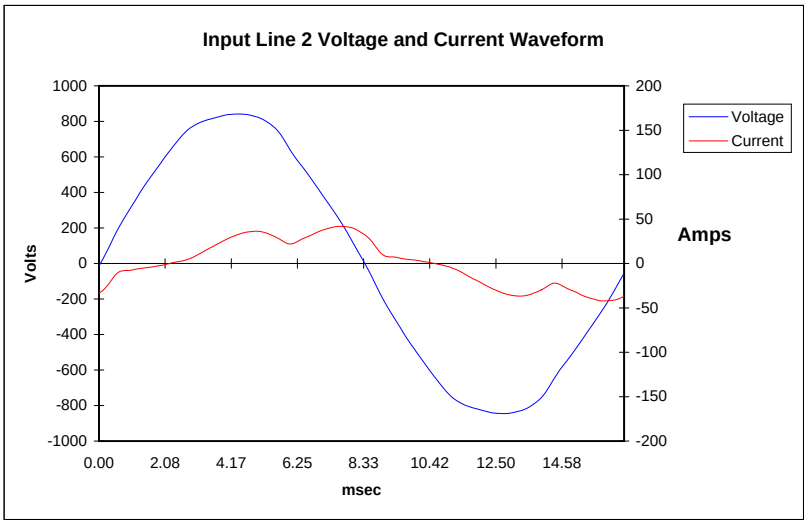


Harmonic Values

	Voltage		Current	
Harmonic	Magnitude	% of fund.	Magnitude	% of fund.
DC	2.0	0.3	0.2	0.8
1	590.0	100.0	26.6	97.2
2	0.0	0.1	0.0	0.1
3	2.0	0.4	0.7	2.4
4	0.0	0.0	0.0	0.1
5	9.0	1.5	6.0	21.9
6	0.0	0.0	0.0	0.1
7	0.0	0.0	2.0	7.2
8	0.0	0.0	0.0	0.1
9	1.0	0.1	0.0	0.1
10	0.0	0.0	0.0	0.1
11	3.0	0.5	0.9	3.3
12	0.0	0.0	0.0	0.1
13	1.0	0.2	0.6	2.3
14	0.0	0.0	0.1	0.2
15	0.0	0.1	0.1	0.2
16	0.0	0.0	0.0	0.1
17	2.0	0.3	0.3	1.2
18	0.0	0.0	0.0	0.1
19	1.0	0.1	0.4	1.3
20	0.0	0.0	0.0	0.1
21	0.0	0.0	0.0	0.0
22	0.0	0.0	0.0	0.1
23	1.0	0.2	0.2	0.8
24	0.0	0.0	0.0	0.1
25	0.0	0.1	0.2	0.8
26	0.0	0.0	0.0	0.0
27	0.0	0.0	0.0	0.0
28	0.0	0.0	0.0	0.1
29	0.0	0.0	0.1	0.5
30	0.0	0.0	0.0	0.0
31	0.0	0.0	0.1	0.5

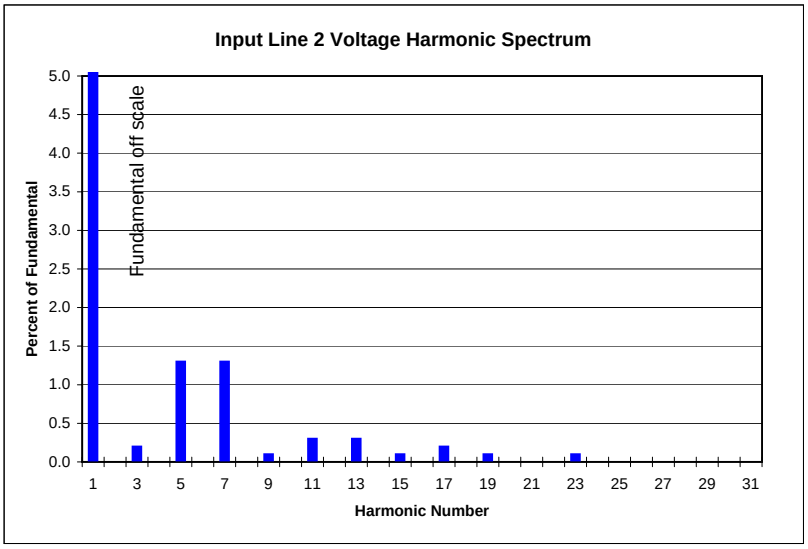


Sample Analysis - 30kva Xfmr, 600 - 120/208, delta-wye, K=1



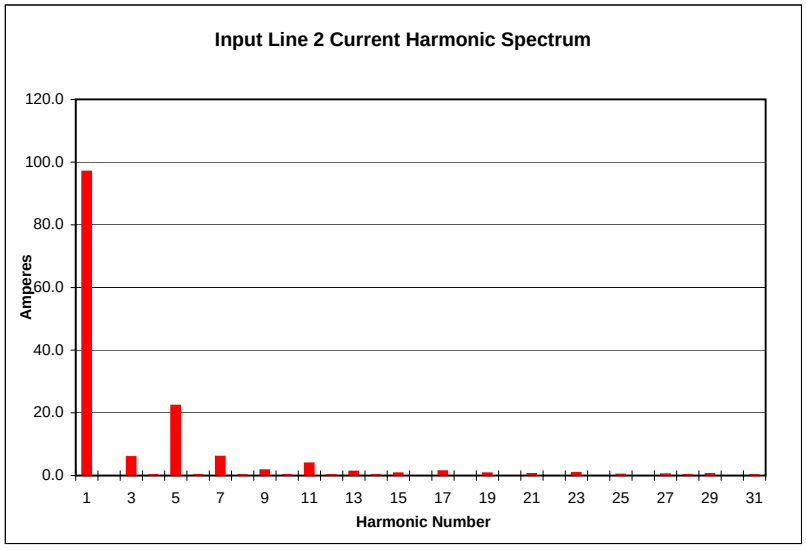
Measured Values
Input Line 2

			Voltage	Current
Frequency	60	**RMS**	602	26.4
Power		**Peak**	843	41.9
KW	10.8	**DC Offset**	-1	-0.2
KVA	15.9	**Crest**	1.4	1.59
KVAR	11	**THD Rms**	1.9	24.4
Peak KW	30.5	**THD Fund**	1.9	25.1
Phase	46° lag	**HRMS**	12	6.4
Total PF	0.68	**KFactor**		2.8
DPF	0.7			

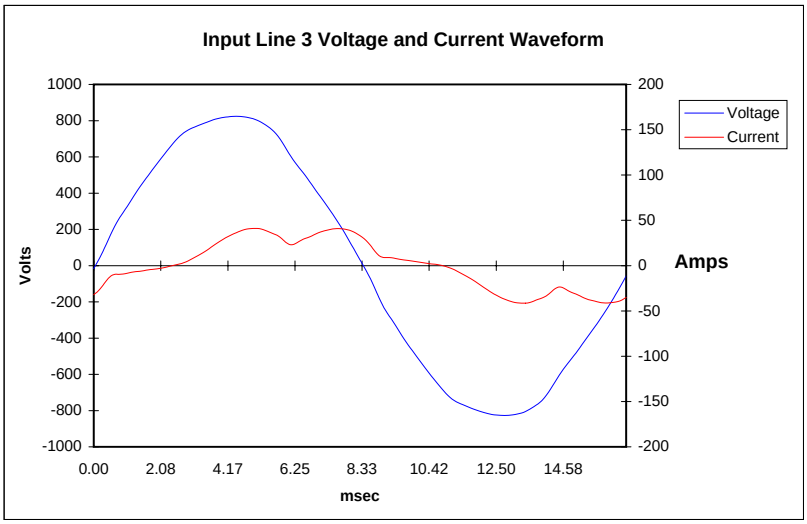


Harmonic Values

	Voltage		Current	
Harmonic	Magnitude	% of fund.	Magnitude	% of fund.
DC	1.0	0.2	0.2	0.8
1	602.0	100.0	25.6	97.0
2	0.0	0.0	0.0	0.0
3	1.0	0.2	1.6	5.9
4	0.0	0.0	0.0	0.1
5	8.0	1.3	5.9	22.3
6	0.0	0.0	0.0	0.1
7	8.0	1.3	1.6	6.0
8	0.0	0.0	0.0	0.1
9	1.0	0.1	0.4	1.7
10	0.0	0.0	0.0	0.1
11	2.0	0.3	1.0	3.9
12	0.0	0.0	0.0	0.1
13	2.0	0.3	0.3	1.3
14	0.0	0.0	0.0	0.1
15	1.0	0.1	0.2	0.7
16	0.0	0.0	0.0	0.0
17	1.0	0.2	0.4	1.4
18	0.0	0.0	0.0	0.0
19	1.0	0.1	0.2	0.7
20	0.0	0.0	0.0	0.0
21	0.0	0.0	0.1	0.5
22	0.0	0.0	0.0	0.0
23	1.0	0.1	0.2	0.8
24	0.0	0.0	0.0	0.0
25	0.0	0.0	0.1	0.3
26	0.0	0.0	0.0	0.0
27	0.0	0.0	0.1	0.4
28	0.0	0.0	0.0	0.1
29	0.0	0.0	0.1	0.5
30	0.0	0.0	0.0	0.0
31	0.0	0.0	0.0	0.1

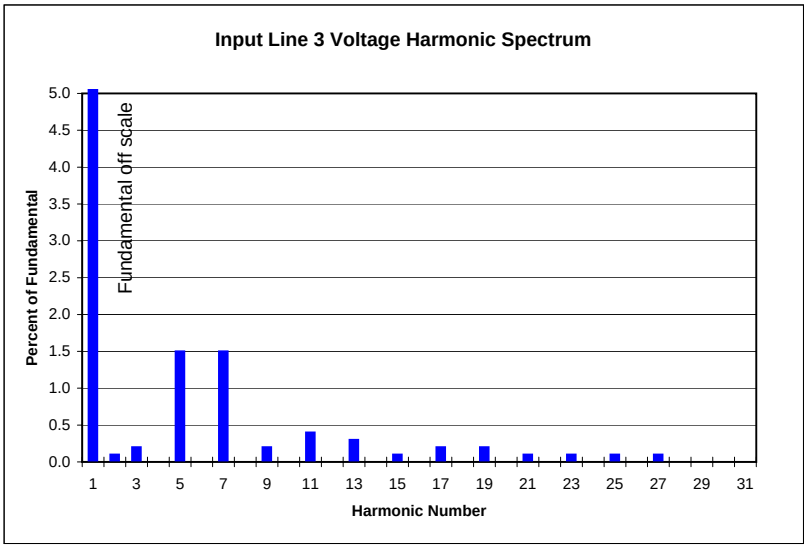


Sample Analysis - 30kva Xfmr, 600 - 120/208, delta-wye, K=1



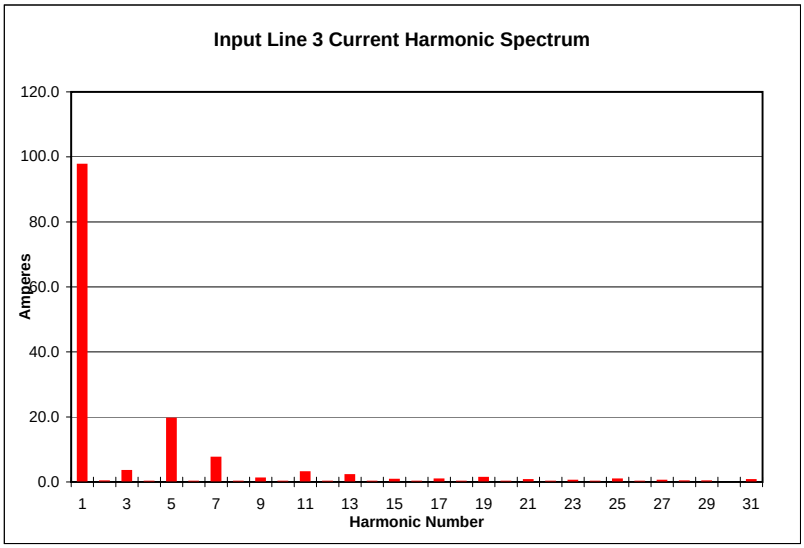
Measured Values
Input Line 3

			Voltage	Current
Frequency	60	**RMS**	604	26.7
Power		**Peak**	847	41.7
KW	12.3	**DC Offset**	-2	-0.3
KVA	16.2	**Crest**	1.4	1.56
KVAR	9.9	**THD Rms**	2.2	21.7
Peak KW	35	**THD Fund**	2.2	22.2
Phase	39° lag	**HRMS**	14	5.8
Total PF	0.76	**KFactor**		2.6
DPF	0.78			



Harmonic Values

	Voltage		Current	
Harmonic	Magnitude	% of fund.	Magnitude	% of fund.
DC	2.0	0.2	0.3	1.0
1	604.0	100.0	26.1	97.6
2	0.0	0.1	0.1	0.2
3	1.0	0.2	0.9	3.4
4	0.0	0.0	0.0	0.1
5	9.0	1.5	5.2	19.5
6	0.0	0.0	0.0	0.1
7	9.0	1.5	2.0	7.5
8	0.0	0.0	0.0	0.1
9	1.0	0.2	0.3	1.1
10	0.0	0.0	0.0	0.1
11	2.0	0.4	0.8	3.0
12	0.0	0.0	0.0	0.1
13	2.0	0.3	0.6	2.1
14	0.0	0.0	0.0	0.1
15	1.0	0.1	0.2	0.7
16	0.0	0.0	0.0	0.1
17	1.0	0.2	0.2	0.8
18	0.0	0.0	0.0	0.1
19	1.0	0.2	0.4	1.3
20	0.0	0.0	0.0	0.1
21	0.0	0.1	0.2	0.6
22	0.0	0.0	0.0	0.1
23	0.0	0.1	0.1	0.4
24	0.0	0.0	0.0	0.1
25	1.0	0.1	0.2	0.8
26	0.0	0.0	0.0	0.1
27	0.0	0.1	0.1	0.4
28	0.0	0.0	0.0	0.2
29	0.0	0.0	0.1	0.2
30	0.0	0.0	0.0	0.0
31	0.0	0.0	0.2	0.6



Transformer Derating Estimate

Sample Analysis - 30kva Xfmr, 600 - 120/208, delta-wye, K=1
This derating estimate is based on the highest recorded K-factor value of the input phases

Harmonic	hz	V Mag	%V RMS	V Ø°	I Mag	%I RMS	I Ø°	kW
DC	0	0.4	0.3	0	0.2	0.3	0	0
1	60	118.4	99.9	0	59.7	84.6	-11	6.9
2	119.9	0	0	-171	0	0	-114	0
3	179.9	2.5	2.1	38	32.1	45.5	152	0
4	239.8	0	0	82	0	0	68	0
5	299.8	3.6	3.1	-137	17.8	25.1	-57	0
6	359.8	0	0	32	0	0	-4	0
7	419.7	2.7	2.3	-6	6	8.5	68	0
8	479.7	0	0	-180	0	0	-115	0
9	539.7	1.1	0.9	62	4	5.6	155	0
10	599.6	0	0	0	0	0	-76	0
11	659.6	1.3	1.1	-173	3	4.2	-91	0
12	719.5	0	0	-109	0	0	-45	0
13	779.5	0.9	0.7	-60	1.9	2.7	6	0
14	839.5	0	0	-174	0	0	-59	0
15	899.4	0.8	0.7	22	1.8	2.5	114	0
16	959.4	0	0	129	0	0	-143	0
17	1019.3	0.6	0.5	145	1	1.5	-143	0
18	1079.3	0	0	0	0	0	87	0
19	1139.3	0.7	0.6	-131	1.1	1.6	-51	0
20	1199.2	0	0	-67	0	0	148	0
21	1259.2	0.6	0.5	-30	1	1.4	60	0
22	1319.2	0	0	-173	0	0	124	0
23	1379.1	0.4	0.3	70	0.6	0.9	148	0
24	1439.1	0	0	87	0	0	89	0
25	1499	0.6	0.5	170	0.8	1.1	-106	0
26	1559	0	0	-94	0	0	106	0
27	1619	0.4	0.4	-105	0.6	0.8	-13	0
28	1678.9	0	0	53	0	0	62	0
29	1738.9	0.4	0.3	-15	0.5	0.7	74	0
30	1798.8	0	0	78	0	0	84	0
31	1858.8	0.4	0.3	95	0.5	0.7	-174	0

H	I %Fund.	I^2	I^2H^2
1	1.0000	1.0000	1.0000
3	0.5377	0.2891	2.6020
5	0.2982	0.0889	2.2224
7	0.1005	0.0101	0.4949
9	0.0670	0.0045	0.3636
11	0.0503	0.0025	0.3055
13	0.0318	0.0010	0.1712
15	0.0302	0.0009	0.2045
17	0.0168	0.0003	0.0811
19	0.0184	0.0003	0.1226
21	0.0168	0.0003	0.1237
23	0.0101	0.0001	0.0534
25	0.0134	0.0002	0.1122
27	0.0101	0.0001	0.0736
29	0.0084	0.0001	0.0590
31	0.0084	0.0001	0.0674
Total		1.3985	8.0573

K-Factor **5.8**
Derating **0.86**

The transformer in this study has a rated capacity of **30** kva

Based on the worst case recorded K-factor of: **5.8**
this transformer should not be loaded to more than: **86%** ***
of its nameplate rated capacity.

It is recommended that the total load on this transformer should be limited to: **25.8** kva
The existing load is estimated to be: **26.4** kva

*Based on 8% eddy current loss (typ. 3-8% for Dry Xfmr<1Mva).