POWER SHAVER
Energy Saving Systems®

GSA Contract Holder
Contract Number GS-07F-0422W

Timed Interval Sampling Monitoring & Verification Report

For

isola

located at

3233 Dwight Rd.
Elk Grove, CA 95758

February 22, 2013

Prepared by:
John D. Knapp
President

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Power Conditioning and Energy Savings

TIS Report

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Prepared by:

Power Shaver, Energy Savings Systems®

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Executive Summary and Conclusions

During January of 2013, the Isola Group purchased and installed a USES® Shunt Efficiency System, manufactured by USES® MFG INC. The purpose of the USES® System is to reduce the overall demand and consumption of power and improve overall power quality. A total of eleven (11) USES® Model XL-3D-480V and one (1) USES® Model XL-3Y-480V power conditioners were installed throughout the Isola Group's Elk Grove facility.

In accordance with the proposal offered to the Isola Group by Power Shaver, Energy Saving Systems® in October of 2012, the USES® System was evaluated to determine the average power conditioning results, power demand reductions and resultant monetary savings and return on investment (ROI). Power Shaver used Timed Interval Sampling (TIS) methods to determine the USES® System performance, and the results of the TIS testing from February 22, 2013 are presented herein. TIS analytical techniques conform to the International Performance Monitoring and Verification Protocols (IPMVP) as established by the U. S. Department of Energy as a mechanism to evaluate the performance of Energy Conservation Measures.

The installation of the USES® Shunt Efficiency System at the Isola Group's Elk Grove facility, a total of 11 USES® XL 3-D 480V and 1 USES® XL 3-Y 480V units, has significantly improved power quality and resulted in a substantial decrease in electrical demand according to the conservative Amprobe DM II. The USES® System reduced the demand for electricity at low load by an average of **19.367 kW and 112.379 kVA.**

Due to the fact that utility customers are billed for Demand and Energy between the Real and Apparent Power powers, based on their Power Factor, power condition and power quality and the fact that our NIST certified and calibrated data logger Amprobe DM II Pro is very conservative to utility Revenue meters as to what it determines to be and measures as usable power, Power Shaver conservatively estimates the actual reduction in billed kWh to the Isola Group's Elk Grove facility to be approximately **459,558 kWh per year** between the verified, extrapolated Real Power kWh of 145,020 and Apparent Power kVah of 841,492 per year, for production hours, **for a cost reduction of $50,000.00 and ROI of approximately 18 months at 2012 cost of power.**

The performance of the USES® Shunt Efficiency System at the Isola Group's Elk Grove facility has proven to be consistent with all of the estimated power quality improvements as outlined in Power Shaver's proposal to the Isola Group in October of 2012. The USES® System was estimated to reduce annual consumption by approximately **459,558 kWh and cost by $50,000 per year**.

The data tables and graphs presented in this report clearly show the beneficial results provided by the USES® System. All power quality data was averaged to take into account short term load variations and to determine the average levels of power quality when the USES® System was activated and de-activated. All of the data tables presented in this report are from the TIS testing and evaluation conducted on February 22, 2013. Additional power quality improvements also realized by the installation of the USES® System are discussed later in this report.

The resultant power demand reductions during the TIS testing were used in an attempt to conservatively calculate the net annual effect of the USES® system in terms of actual savings and return on investment (ROI). During the last 12 months the Isola Group's Elk Grove facility has implemented some demand reducing methods which will need to be qualified in order to baseline the 2012 Demand and Usage to that of 2013.

Power Shaver along with the appointed Isola Group's representatives will do their best to come to as accurate of a billing benefit that the Power Shaver USES® Energy Saving System is providing the Isola Group's Elk Grove facility after carefully qualifying and considering all of the changes made and changeable elements involved with in the Isola Group's Elk Grove production facility.

The Demand performance verification information presented herein is considered to be of "low" Demand as it compares to the annual average because the seasonal loads, such as air conditioning, are at the lowest operational levels of the year. Typically the highest use, highest cost and least efficient operational period of the year is the "summer" billing period because of greater facility loads, higher summer billing rates and lower power quality and condition of the electrical distribution grid.

Power Shaver will reduce the negative operational effects and financial penalties of these issues not only in the poorer summer billing period, but all throughout the year.

Power Shavers' Energy Saving Systems are truly "green" systems that reduce electric energy consumption. Installing the Power Shaver Energy Saving System® at the Isola Group's Elk Grove facility will beneficially impact the environment by reducing the consumption of our precious natural resources. According to the U.S. Environmental Protection Agency and the U.S. Energy Information Administration, the proposed reduction of electricity demand provided by the Power Shaver System, will reduce **emissions of Greenhouse Gases by 370 tons per year** as well as your companies consumption of **Crude Oil by 280.03 barrels, Coal by 80.53 tons, Natural Gas by 1,579,910.75 cubic feet, Gasoline by 13,070.39 gallons or Diesel Fuel and Heating Oil by 11,710.32 gallons per year**, depending on which resource your power company depends on. There is also a significant reduction in water consumption associated with each of the above quantities reduced as it is a necessary part of all fuel processing. Power Shaver is proud to partner with you to reduce your operational cost and help sustain our environment for future generations.

Power Shaver is glad to be part of the Isola Group's, Elk Grove facilities energy savings program and looks forward to assisting with any additional needs in the future. For any questions or comments on this report, please contact John D. Knapp, CEO/President of Power Shaver, Energy Savings Systems® at (888) 9-POWER-5, or via email at john@powershaver.com.

Summary of Power Quality Improvements

Analysis of the low load TIS testing results from February 22, 2013 demonstrate that the USES® technology has provided substantial improvements in overall power quality. The following power quality improvements have been realized by the Isola Group's Elk Grove Facility:

- Real Power Demand Average (kW) – **Real Power demand was reduced by an average of 19.367 kW (2.74%)** at low load operational levels with 12 USES® Power Conditioners activated. Each USES® unit was individually tested and found to be operational and contributing to the overall power quality improvements as presented in the Power Shaver proposal of October 8, 2012. During the Off-Peak TIS testing of February 22, 2013, the average real power demand reduction was 19,366.97 watts. These results are considered in the ROI and Savings calculations as representative of low circuit load conditions.

- Real Power Demand Instant (kW) – **Real Power demand was reduced instantly by 24.285 kW (3.44%)** at low load operational levels when the USES® System was activated.

- Apparent Power Average – Apparent power was reduced by an average of 112.379 KVA (13.8%) at low load operational levels when the USES® System was activated. These results are considered in the ROI and Savings calculations as representative of low circuit load conditions.

- Apparent Power Instant – Apparent power was reduced instantly by 123.463 kVA (15.16%) at low load operational levels when the USES® System was activated.

- Reactive Power – Reactive power was reduced by an average of 283.737 KVAR (70%) at low load operational levels when the USES® System was activated.

- Power Factor –Power Factor improved from 87% to 98% (13.8%) and remained lagging when the USES® System was activated.

- Amperage – Amperage was reduced by approximately 146.49 amps (14.82%) per phase when the USES® System was activated.

- Voltage – Voltage improved by an average of 4.13 volts (.86%) per phase (VAB, VBC, VCA) when the USES® System was activated.

Savings and ROI Calculations

Evaluation of the USES® System installed at the Isola Group's Elk Grove facility shows a range of demand reductions at low load when the USES® System is activated. During the TIS testing period, when the facility was operational, the average extrapolated billed energy reduction was estimated to be 52.46 kWh. The total annual reduction of power consumed is averaged at 52.46 kWh x 8760 hours per year = 459,558 kWh per year.

Assuming the 2012 average cost of power of $0.1088/kWh will increase in 2013 to $0.1188/kWh and by $0.01/kWh each year thereafter, ROI savings are shown on the following pro-forma:

Year	COP	kWh/yr SVGS	SVGS/yr	
1	$0.108	459,558	$50,000	
2	$0.118	459,558	$54,595	
3	$0.128	459,558	$59,191	
4	$0.138	459,558	$63,787	
5	$0.148	459,558	$68,382	**Years 1-5**
6	$0.158	459,558	$72,978	**$295,955**
7	$0.168	459,558	$77,573	
8	$0.178	459,558	$82,169	
9	$0.188	459,558	$86,765	
10	$0.198	459,558	$91,360	**Years 6-10**
11	$0.208	459,558	$95,956	**$410,845**
12	$0.218	459,558	$100,551	
13	$0.228	459.558	$105,147	
14	$0.238	459,558	$109,742	
15	$0.248	459,558	$114,338	**Years 11-15**
Total		**6,893,370**	**$1,232,535**	**$525,734**

- **Actual ROI = 18 Months**
- **Year 1 savings = $50,000.00**
- **Purchase Cost, not including installation costs = $75,000.00.**
- **Total Savings over 15 years = $1,232,535.00 – $75,000.00 = $1,157,535.00.**

USES® Power Quality Benefits

The installation of the USES® System at Isola Group's Elk Grove facility has resulted in measurable and verifiable power quality improvements, as well as other benefits which cannot be measured. A discussion of the power quality improvements resulting from the USES® System is presented below:

Real Power Demand - The USES® System reduces real power demand in two principal ways: Through amperage reductions on the circuit, which reduce "Copper Losses", and through the reduction of Total Harmonic Distortion (THD) in the amperage and voltage supplied to operating loads, which improves motor efficiency. The amount of real power demand reduction associated with the USES® System exceeds that of comparable power factor correction capacitor (PFCC) equipment because of the reduced THD in addition to the improvement in power factor.

Power Factor – Power Factor is the ratio of real power to apparent power. Because the USES® System reduces both real power demand and apparent power demand, the power factor is improved and approaches unity, or 100%. Because the USES® System does not create RLC resonance, any leading Power Factor will have no effect on the performance or reliability of the equipment.

Reactive Power, Apparent Power and Amperage – The USES® System reduces the reactive power on the circuit in a manner which does not create RLC resonance. Each USES® Model XL-3D-480 power conditioner reduces reactive power by 28-29 KVAR and each USES® Model XL-3Y-480 power conditioner reduces reactive power by 20-21 KVAR. A reduction in reactive power results in a corresponding decrease in the apparent power on the circuit. This, in turn, results in a decrease in the amount of amperage on the circuit, which results in a decrease in real power demand as a result of reduced "Copper Losses" on the circuit. Copper losses manifest themselves as heat in motors and conductors and can reduce the useful life of motors, transformers and sensitive electronic equipment. The reduction in reactive power on the circuit also acts to "stiffen" the circuit by reducing overall circuit impedance. A "stiff" circuit will reduce the creation of voltage total harmonic distortion as a result of current harmonics.

Voltage Improvement - By improving voltage across each of the three phases (VAB, VBC, VCA), circuit amperage is further reduced and motors will run cooler and last longer. Increased voltage will also lessen the likelihood of equipment tripping off due to utility voltage sags. Fluctuations in voltage are dampened by the coupling of the three phases of power supplied, which will lessen any likelihood of equipment tripping problems associated with voltage fluctuations.

Harmonics – The USES® System reduces the Harmful Harmonic Distortion of the amperage and voltage on the circuit by passing all power generated within the USES® System through 60 Hz band-pass Filters. Because the USES® System is connected to the electrical circuit in parallel, some HD will continue to pass on to the operational loads. However, because a significant portion of the power supplied to the load is "choked" to 60 Hz, total HD supplied to the load is reduced. This action significantly reduces the THD in the voltage and current provided to the operating motors, thus increasing motor efficiency. This also drastically reduces the amount of NON POWER CURRENT or harmonic current, which the utility meter charges as kWh. Problems associated with circuit harmonics include:

- Excessive Neutral Currents, where voltage harmonics result in additional current on the circuit neutral conductor, resulting in additional heat, possible overloading and the need to install additional neutral conductors.

- Overheated transformers, where harmonics generated on the secondary side of a delta-wye transformer will circulate on the primary side of the transformer. Some types of transformer losses, such as skin losses and eddy currents will increase by the square of the harmonic order.

- Overheated solenoid coils and lighting ballasts.

- Positive, negative and zero sequence voltages on motors and generators, where certain harmonic frequencies will try to rotate the motor forward or backward, or simply heat up the motor.

- Incorrect reading power meters, especially disc type watt-hour meters and averaging type current meters.

- Failure of electronic equipment, including nuisance tripping and overload.

- Nuisance tripping of circuit protection devices including false tripping of relays and failure of UPS devices to properly transfer.

- Blown fuses and overheated power factor correction capacitors due to the cumulative effects of harmonic THD and RLC resonance.

Spike and Surge Protection - Inherent in the USES® System, but not measured, is the ability to provide superior spike and surge suppression capabilities. A surge is any voltage increase lasting 3 or more nanoseconds. A spike is any voltage increase lasting less than 3 nanoseconds. The USES® device detects any surges or spikes traveling along one of the active phases and shunts it to the other two phases. From there, the transformer/choke sets within the USES® device attenuate the surge/spike through the action of the "chokes", which use capacitors and inductors to resist the change in voltage and associated change in current, and flatten out the waveform. The surge/spike is recycled as usable power for the circuit. Because a USES® "Wye" unit was specified for this application, the USES® System will protect the circuit against ground fault transients or lightning strikes which can enter the circuit through the neutral conductor.

Timed Interval Sampling (TIS) Techniques

Timed Interval Sampling (TIS) techniques are used to determine actual performance of the USES® System. In order to ensure the accuracy, transparency and repeatability of the TIS evaluation, Power Shaver, Energy Saving Systems® has developed TIS methods which adhere to the International Performance Measurement & Verification Protocols (IPMVP). The IPMVP, endorsed by the U.S. Department of Energy, provides an overview of the best practice techniques available for verifying the results of energy savings projects.

Timed Interval Sampling is a statistical method of energy measurement with regard to electrical consumption, measured as average wattage demand reductions over a short span of time. It is used in facilities with dynamic electrical loads where energy use is a function of manufacturing, environmental loads, and related equipment. TIS techniques are utilized to minimize the high degree of variables present when measuring energy consumption. These variables often include: weather conditions, facility operational techniques, and load variations.

When the USES® System is being evaluated, it is alternately activated and deactivated at timed intervals such as 5, 10 or 15 minutes, to compare the average demand of real power by the loads in the facility under equal conditions. All samples are recorded and averaged in each respective operating condition (on vs. off), in order to demonstrate the effects that the USES® System has on the circuit when activated and deactivated. Power Shaver used an Amprobe DM-II Pro® Multi-meter and Data Logger to perform TIS metering and recording. This "True RMS" meter meets the standards of the National Institute of Standards and Technology and the IPMVP.

Evaluation of the USES® System performance was made through analysis of the data recorded from the TIS testing. The Amprobe DM-II Pro® Multi-meter was connected at a point at or near the main service breaker serving the entire facility in order to measure overall circuit power quality and average energy savings. The USES® System was activated and deactivated for intervals of 5 minutes during the test period to measure the changes in overall power quality in each operating condition. A separate test of the cumulative effect of the USES® power conditioners was also conducted to confirm that each of the units is operating properly. The differences between conditioned and unconditioned power quality was determined and averaged to demonstrate the overall effect that the USES® System has on the circuit.

- All recorded data was evaluated and averaged in the following manner to determine the overall average performance of the USES® System: The average power quality for each full interval was calculated and compared to the next interval before and after each transition from on to off, and off to on.

- Each instantaneous change in power quality was determined by comparing the last one-second with the USES® System on to the first one-second with the USES® System off, and vice-versa.

- The average power quality was calculated before and 15-seconds after each transition from on to off, and off to on.

- The average power quality was calculated before and 30-seconds after each transition from on to off, and off to on.

- The average power quality was calculated before and 45-seconds after each transition from on to off, and off to on.

- The average power quality was calculated before and 60-seconds after each transition from on to off, and off to on.

- All representative transitional changes are averaged to derive the overall average performance of the USES® System.

This report shows all differences in electrical performance with the USES® System activated and deactivated including:

- Real Power demand reductions (Watts)
- Apparent Power reductions (VA)
- Reactive Power reductions (VAR)
- Power Factor improvement (%)
- Amperage reductions across each phase (Amps)
- Voltage improvements across each phase (Volts)

Graphs and Data Tables

Through evaluation of the Amprobe DM-II Pro® Power Multi-meter and Data Logger recordings collected on February 22, 2013, we have prepared a series of graphs and data tables to show the effect of the USES® System. The following graphs are presented below, showing all changes to power quality and condition when the USES® System is activated or de-activated:

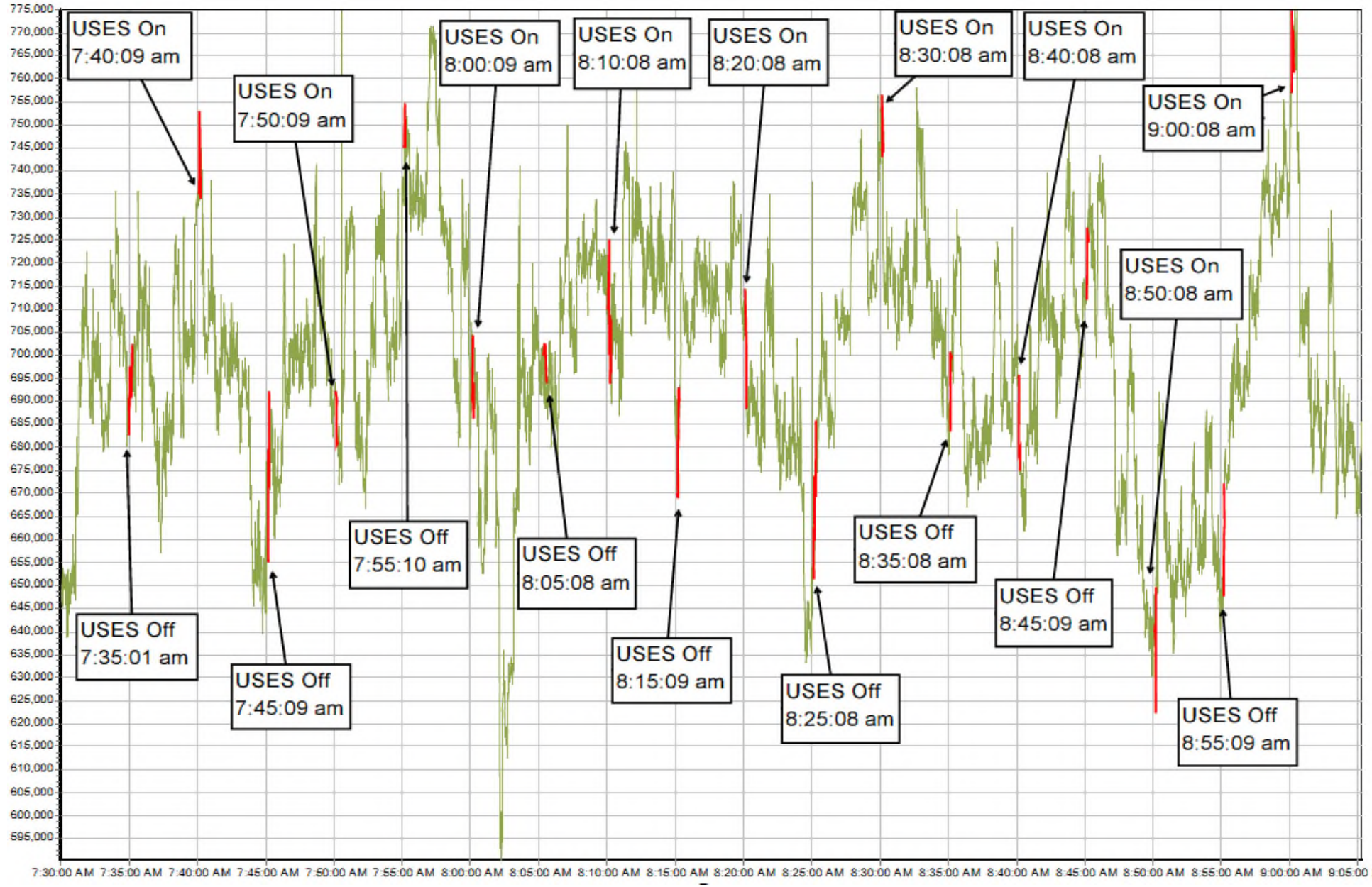
- Graph 1 – Real Power (watts) – This graph shows real power in watts during the February 22, 2013 TIS testing.
- Graph 2 – Apparent Power (VA) – This graph shows apparent power during the February 22, 2013 TIS testing.
- Graph 3 – Reactive Power (VAR) – This graph shows reactive power during the February 22, 2013 TIS testing.
- Graph 4 – Power factor – This graph shows power factor as a decimal during the February 22, 2013 TIS testing.
- Graph 5 – Amperage (Amps) – This graph shows amperage in amps for 3 phases during the February 22, 2013 TIS testing.
- Graph 6 – Voltage (Volts) – This graph shows the voltage in volts for 3 phases during the February 22, 2013 TIS testing.

The following data tables are presented to show the average observed performance of the USES® System during the February 22, 2013 TIS testing. Please note that during the testing, each USES® unit was tested individually to ensure performance and evaluate circuit improvements.

- Table 1 – Real Power (Watts) from the February 22, 2013 TIS testing.
- Table 2 – Apparent Power (VA) from the February 22, 2013 TIS testing.
- Table 3 – Reactive Power (VAR) from the February 22, 2013 TIS testing.
- Table 4 – Power Factor from the February 22, 2013 TIS testing.
- Table 5 – Amperage (Amps) 3 phases from the February 22, 2013 TIS testing.
- Table 6 – Voltage (Volts) 3 phases from the February 22, 2013 TIS testing.

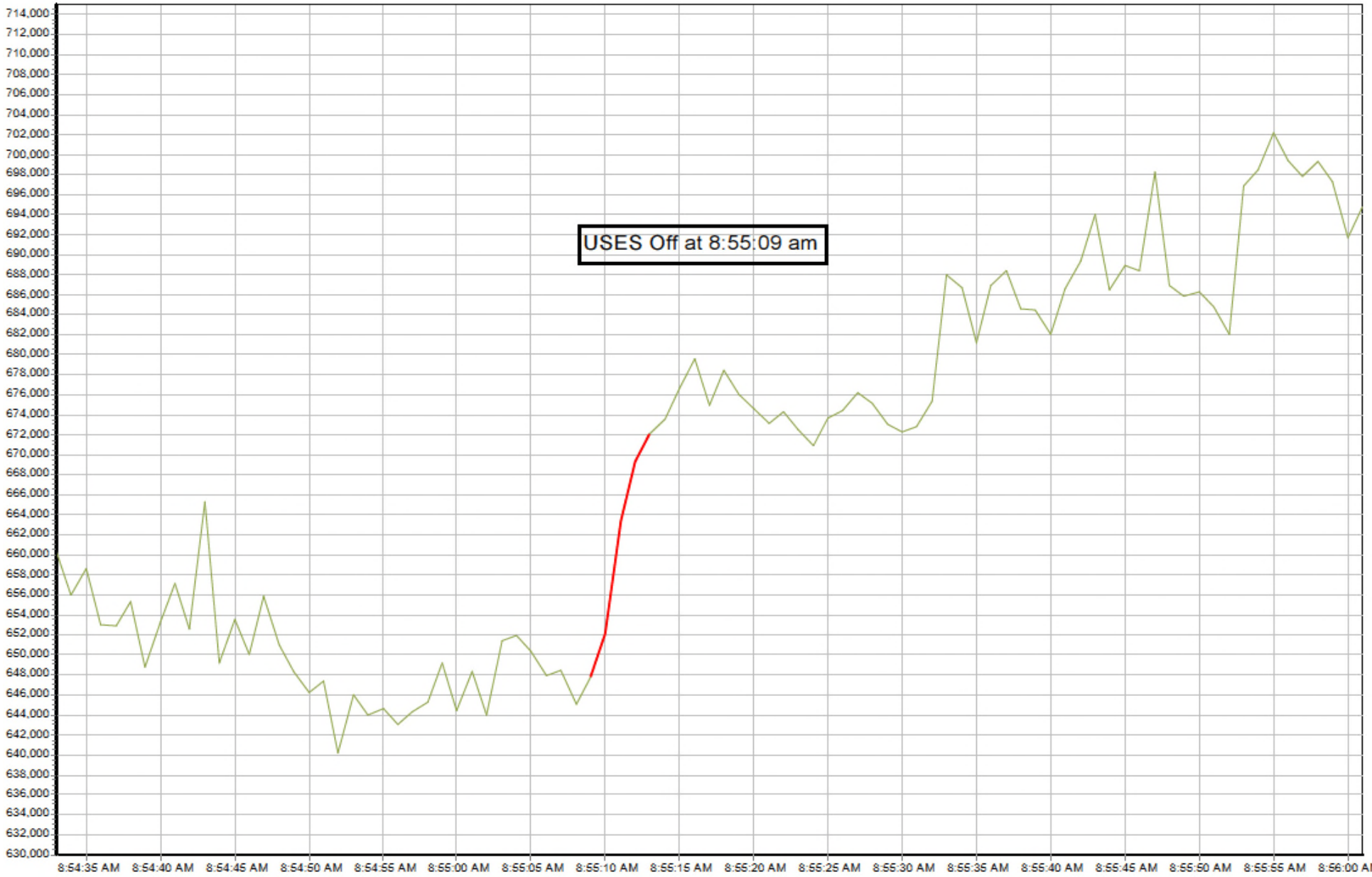
All Data Tables and Graphs, together with all raw data are included.

Graph 1



Graph 1 Above is the Real Power Demand in watts during the TIS testing on February 22, 2013 between 7:30 am and 9:05 am. With 11 USES® model XL-3D-480V and 1 USES® model XL-3Y-480V power conditioners operating, the real power demand is reduced an average of **19.367 KW.**

Graph 1A



Graph 1A Above is the instant change in Real Power Demand in watts during the TIS testing on February 22, 2013 at 8:55:09 am, with 11 USES® model XL-3D-480V and 1 USES® model XL-3Y-480V power conditioners operating. The real power demand is instantly reduced **24.285 kW** in low load conditions.

Table 1

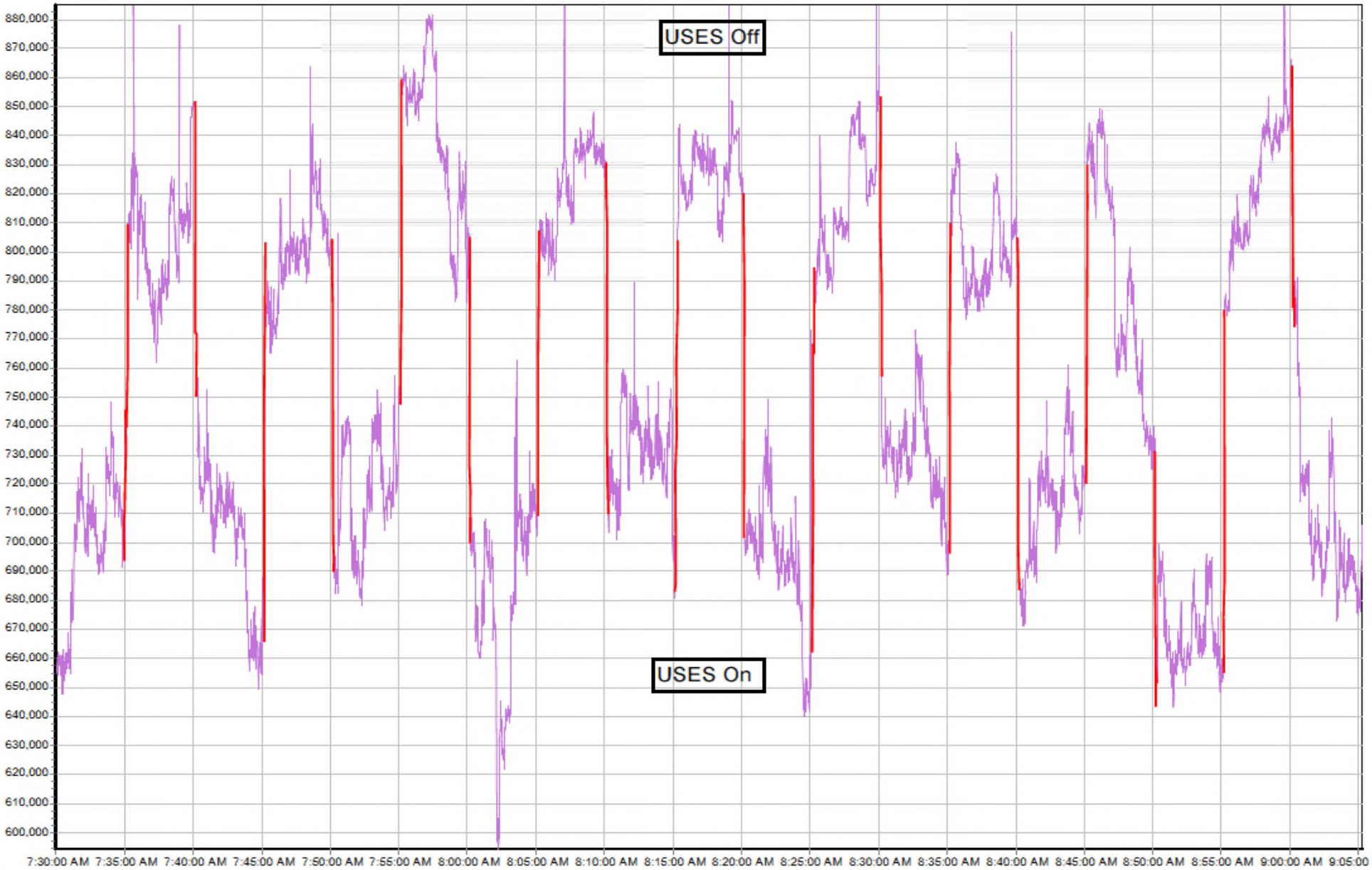
Real Power Demand (Watts)

Intervals						Full Interval		Instant	15 Sec	30 Sec	45 Sec	60 Sec
Interval Time Frame		# USES	Status	System On Average	System Off Average	Difference Off to On	Difference On to Off	Change At Transition	Change At Transition	Change At Transition	Change At Transition	Change At Transition
7:29:59 AM	7:35:01 AM		on	687170.94								
7:35:15 AM	7:40:09 AM		off		698699.29		11528.35	15192.63	4378.63	33878.63	312.88	29380.69
7:40:14 AM	7:45:09 AM		on	689151.83		9547.46		1506.25	28180.13	39656.88	20023.94	27983.56
7:45:17 AM	7:50:09 AM		off		696978.35		7826.53	16284.94	16691.38	15632.38	14967.57	51138.94
7:50:15 AM	7:55:10 AM		on	704636.15		-7657.79		11658.13	17134.57	-4317.68	-27544.93	-38381.18
7:55:14 AM	8:00:09 AM		off		729344.23		24708.08	-1383.25	1500.43	-12382.75	-11491.19	-14295.63
8:00:17 AM	8:05:08 AM		on	670726.46		58617.77		14018.00	26379.19	37726.31	41306.75	9011.00
8:05:13 AM	8:10:08 AM		off		710408.39		39681.94	-5025.25	-6338.57	3847.68	-15112.38	-9220.50
8:10:17 AM	8:15:09 AM		on	718382.57		-7974.18		13487.13	29.75	7594.25	2857.56	-31166.06
8:15:21 AM	8:20:08 AM		off		713356.38		-5026.19	18855.88	39472.63	38727.38	28754.44	41452.50
8:20:13 AM	8:25:08 AM		on	681662.48		31693.90		17970.44	15733.56	16316.87	20164.31	25844.94
8:25:17 AM	8:30:08 AM		off		712345.54		30683.06	31089.19	34158.44	50290.50	48695.63	27190.31
8:30:14 AM	8:35:08 AM		on	715409.98		-3064.45		-707.50	13532.69	24696.12	31256.62	40601.19
8:35:14 AM	8:40:08 AM		off		693663.36		-21746.63	13056.37	31533.62	39231.31	9928.87	-8234.44
8:40:14 AM	8:45:09 AM		on	702751.14		-9087.79		19054.63	26088.88	18188.13	-10023.62	6811.07
8:45:13 AM	8:50:08 AM		off		686307.93		-16443.21	10550.31	14678.19	8443.25	20959.00	22260.75
8:50:14 AM	8:55:09 AM		on	660384.86		25923.07		-10197.31	-49723.81	-44934.87	-17938.19	-19529.31
8:55:13 AM	9:00:08 AM		off		714621.37		54236.51	24285.07	27415.57	46201.44	51544.88	48148.50
9:00:17 AM	9:05:15 AM		on	694831.66		19789.71		-4426.44	-19836.94	50145.88	49282.63	48646.44

Average - System Off				706191.65								
Average - System On				692510.81								
Difference				13680.84								
Transition Avg - On to Off						13087.52		16370.87	22579.69	15450.49	18652.47	26277.25
Transition Avg - Off to On							13938.71	15237.67	21174.84	16698.84	23814.96	17412.64
Average - All Transitions				19366.97								

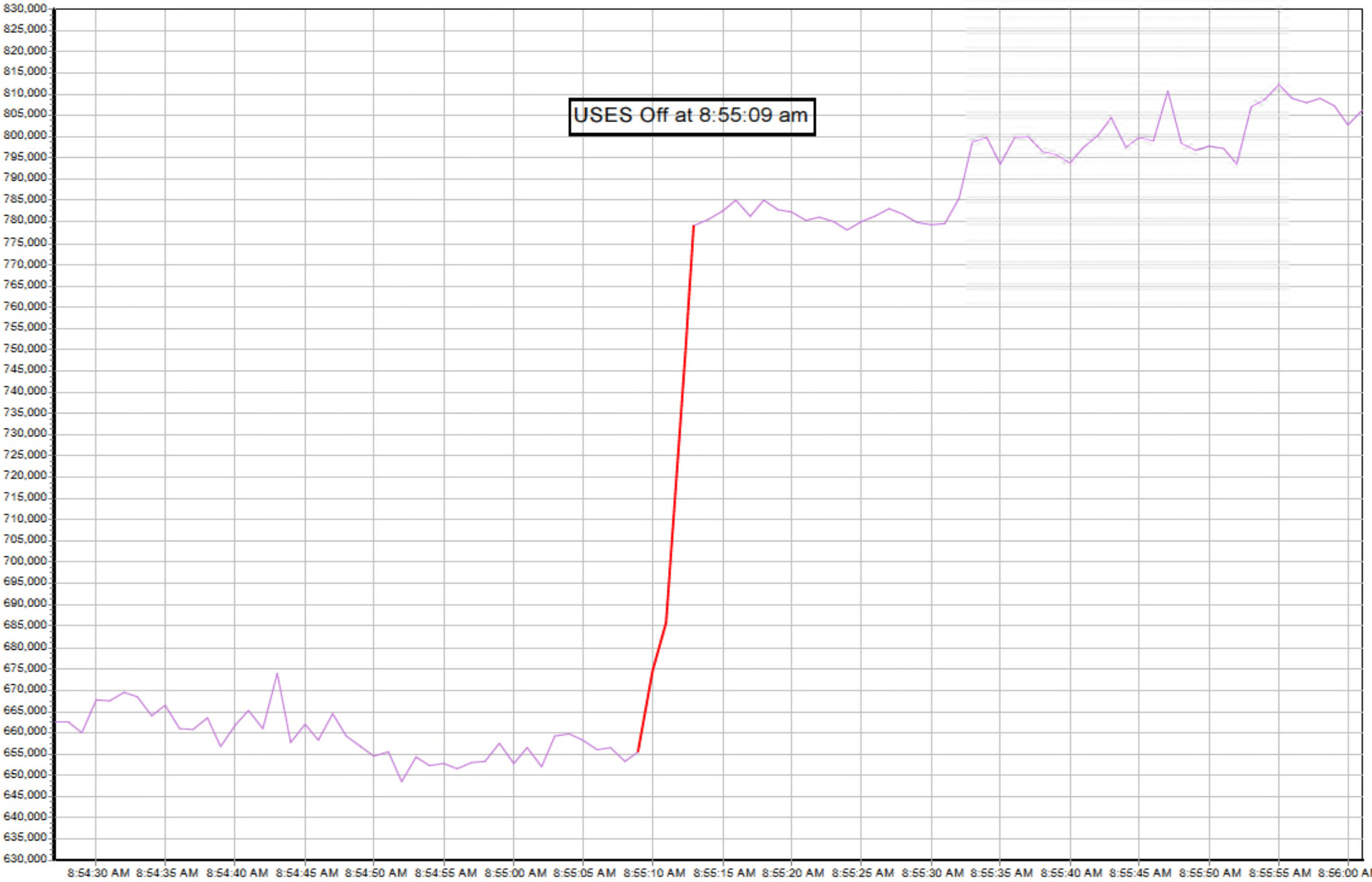
Table 1 Above is the analysis of the wattage data of 11 USES® model XL-3D-480V and 1 USES® model XL-3Y-480V units collected by the Amprobe DM-II Pro Multi-Meter and Data-Logger during the TIS testing on February 22, 2013. Each interval is 5 minutes in duration. The real power demand is reduced an average of **19.367 kW.** At the completion of the test period, each unit was tested individually. Shaded cells are not included in the average performance calculations because load changes unrelated to the performance of the USES® system occurred during the averaging period. Because of cyclical load changes, full interval comparisons are not used to quantify reductions in real power demand.

Graph 2



Graph 2 Above is the Apparent Power in VA during the TIS testing on February 22, 2013 between 7:30 am and 9:05 am with 11 USES® model XL-3D-480V and 1 USES® model XL-3Y-480V power conditioners operating. The apparent power is reduced an average of **112.379 KVA.**

Graph 2A



Graph 2A Above is the instant change in Apparent Power in VA during the TIS testing on February 22, 2013 at 8:55:09 am, with 11 USES® model XL-3D-480V and 1 USES® model XL-3Y-480V power conditioners operating. The apparent power is instantly reduced **123.463 KVA** in low load conditions.

Table 2

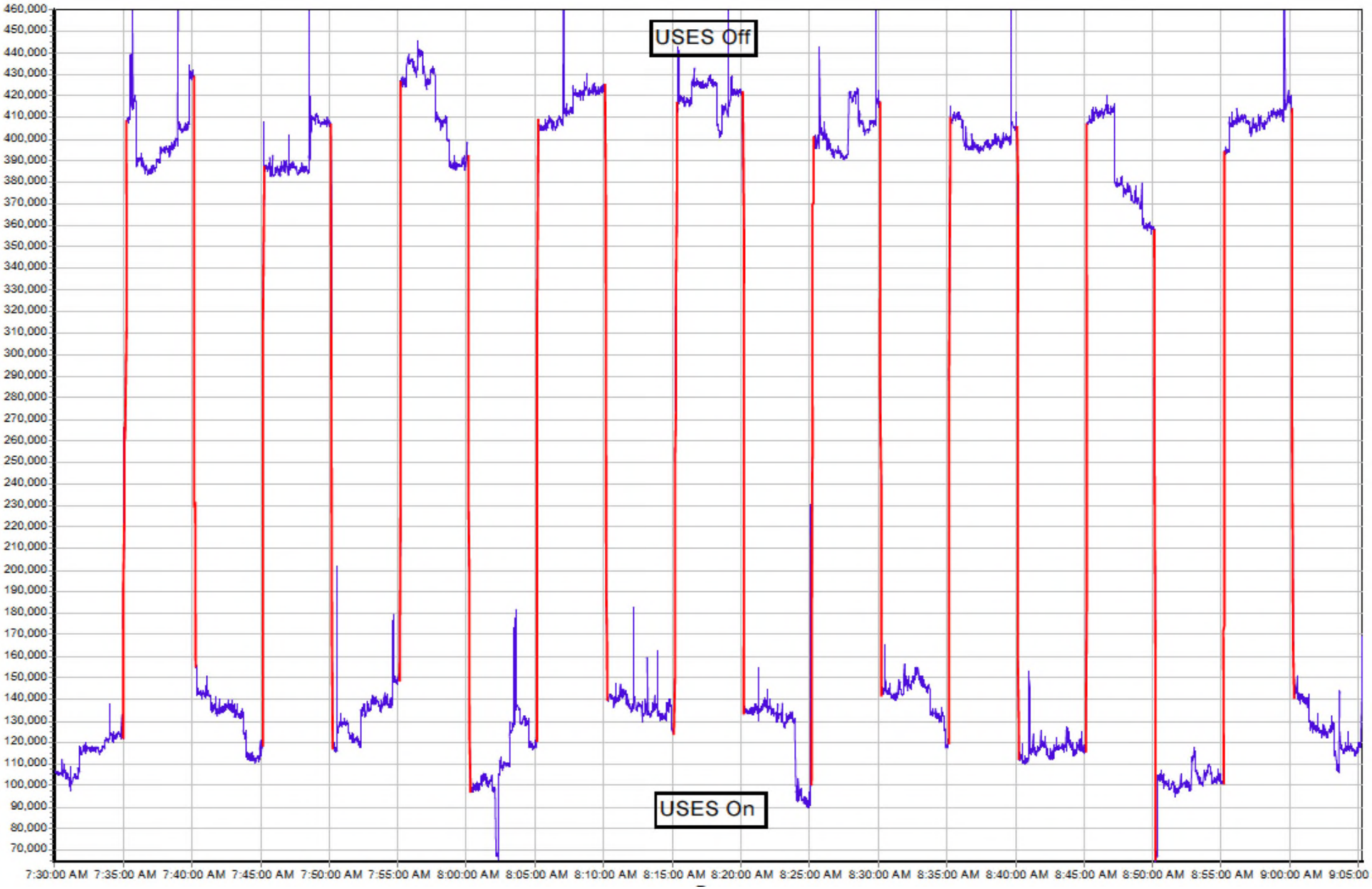
Apparent Power (VA)

Intervals						Full Interval		Instant	15 Sec	30 Sec	45 Sec	60 Sec
				System On	System Off	Difference	Difference	Change	Change	Change	Change	Change
Interval Time Frame		# USES	Status	Average	Average	Off to On	On to Off	At Transition	At Transition	At Transition	At Transition	At Transition
7:29:59 AM	7:35:01 AM	0	on	696587.50								
7:35:15 AM	7:40:09 AM	0	off		805573.23		108985.73	115304.00	106717.69	134311.32	91374.50	119016.75
7:40:14 AM	7:45:09 AM	0	on	701616.56		103956.67		101220.75	129493.50	141270.18	122125.18	129386.68
7:45:17 AM	7:50:09 AM	0	off		800361.25		98744.69	108952.38	109371.38	107534.57	106114.38	137957.32
7:50:15 AM	7:55:10 AM	0	on	717221.80		83139.45		112365.43	117733.56	94431.18	71704.06	60993.18
7:55:14 AM	8:00:09 AM	0	off		838909.21		121687.41	97732.32	100692.69	93290.75	93777.63	88759.50
8:00:17 AM	8:05:08 AM	0	on	680219.43		158689.78		108353.69	120213.06	131385.62	134948.44	102427.62
8:05:13 AM	8:10:08 AM	0	off		823039.84		142820.41	94976.94	93767.31	104055.38	86537.88	91348.06
8:10:17 AM	8:15:09 AM	0	on	731339.39		91700.44		117349.13	103678.38	111884.07	107019.13	72357.57
8:15:21 AM	8:20:08 AM	0	off		828535.96		97196.57	122197.37	142039.93	141032.62	132663.68	144170.93
8:20:13 AM	8:25:08 AM	0	on	693325.54		135210.42		120753.94	118977.75	119411.75	123561.69	128958.00
8:25:17 AM	8:30:08 AM	0	off		819141.54		125816.01	132425.31	132275.38	151003.56	150644.44	127048.50
8:30:14 AM	8:35:08 AM	0	on	729322.26		89819.28		94746.06	103858.94	119056.38	125900.56	135350.00
8:35:14 AM	8:40:08 AM	0	off		801616.44		72294.18	113801.69	130260.07	136845.00	111782.50	90646.57
8:40:14 AM	8:45:09 AM	0	on	712446.19		89170.25		119397.31	126582.75	118828.44	83174.81	106801.56
8:45:13 AM	8:50:08 AM	0	off		788105.70		75659.51	107007.37	111693.31	107635.75	118740.25	120506.31
8:50:14 AM	8:55:09 AM	0	on	668221.86		119883.85		78796.44	34843.75	39311.69	66336.62	65321.56
8:55:13 AM	9:00:08 AM	0	off		823609.97		155388.11	123463.07	126323.57	149056.00	153535.88	150974.63
9:00:17 AM	9:05:15 AM	0	on	706203.09		117406.88		88596.62	71562.75	142056.25	141198.87	141002.31

Average - System Off				814321.46								
Average - System On				703650.36								
Difference				110671.10								
Transition Avg - On to Off						109886.34		112873.38	117015.70	124973.88	116130.13	118936.51
Transition Avg - Off to On							110954.74	104619.93	102993.83	113070.62	108441.04	104733.16
Average - All Transitions				112378.82								

Table 2 Above is the analysis of the Apparent Power data of 11 USES® model XL-3D-480V and 1 USES® model XL-3Y-480V units collected by the Amprobe DM-II Pro Multi-Meter and Data-Logger during the TIS testing on February 22, 2013 between 7:30 am and 9:05 am. The test data shows an apparent power reduction of about **112.379 KVA.** Shaded cells are not included in the average performance calculations because load changes unrelated to the performance of the USES® system occurred during the averaging period.

Graph 3



Graph 3 Above is the Reactive Power in KVAR during the TIS testing on February 22, 2013 between 7:30 am and 9:05 am with 11 USES® model XL-3D-480V and 1 USES® model XL-3Y-480V power conditioners operating. The reactive power is reduced an average of **283.737 KVAR.**

Table 3

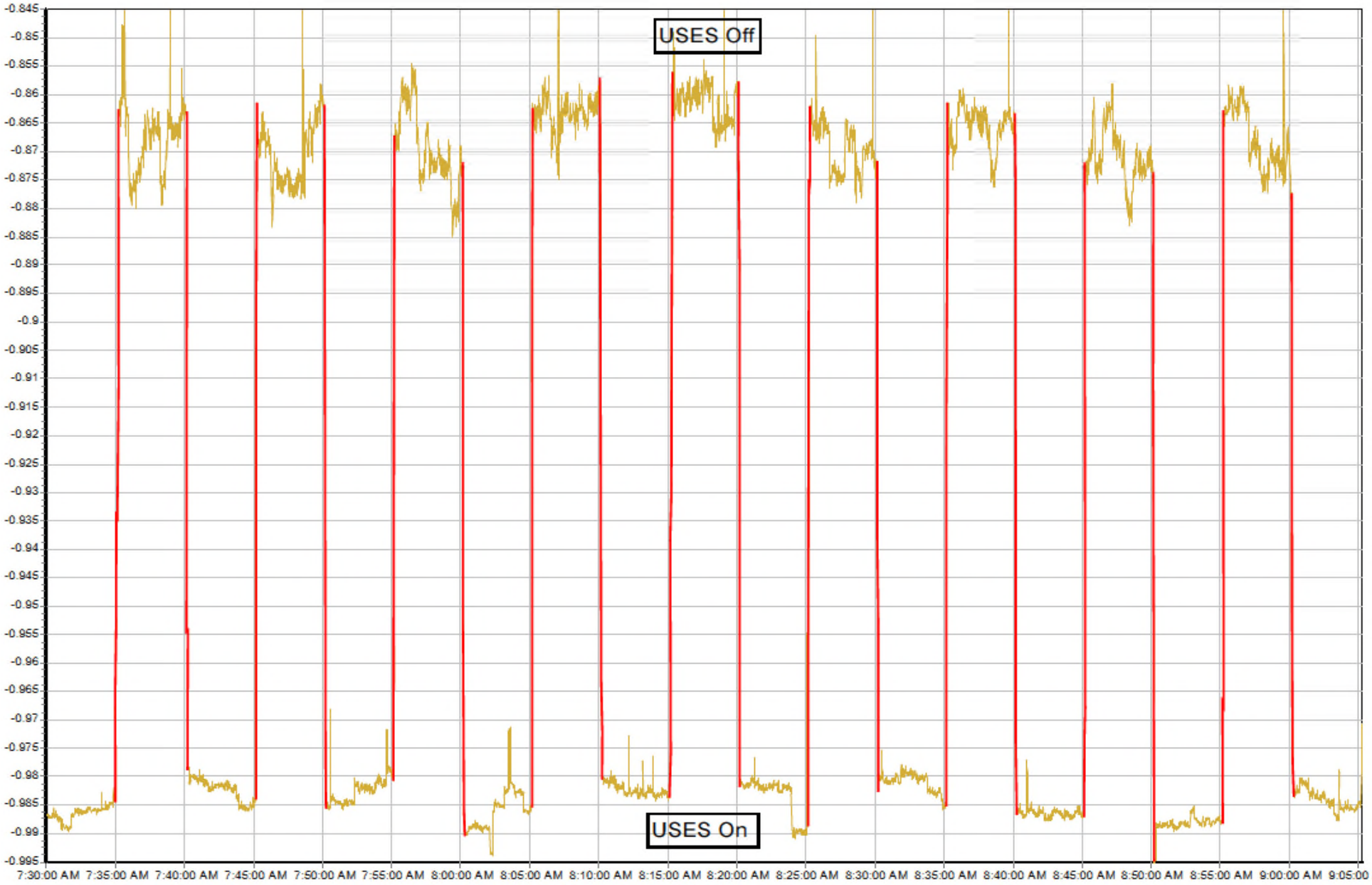
Reactive Power (VAR)

Intervals						Full Interval		Instant	15 Sec	30 Sec	45 Sec	60 Sec
				System On	System Off	Difference	Difference	Change	Change	Change	Change	Change
Interval Time Frame		# USES	Status	Average	Average	Off to On	On to Off	At Transition	At Transition	At Transition	At Transition	At Transition
7:29:59 AM	7:35:01 AM	0	on	114008.88								
7:35:15 AM	7:40:09 AM	0	off		400799.82		286790.93	287070.32	288492.16	292748.85	264953.29	269579.04
7:40:14 AM	7:45:09 AM	0	on	131463.69		269336.13		273873.97	284477.17	287136.53	287669.08	284906.64
7:45:17 AM	7:50:09 AM	0	off		393334.60		261870.91	268122.55	268256.33	266412.39	264715.33	265216.86
7:50:15 AM	7:55:10 AM	0	on	133463.97		259870.63		289723.88	289559.42	277206.40	277882.86	277640.09
7:55:14 AM	8:00:09 AM	0	off		414354.30		280890.33	278145.20	279067.76	288147.45	287602.11	282491.30
8:00:17 AM	8:05:08 AM	0	on	112283.11		302071.20		292949.36	290337.98	290001.38	290153.16	286221.38
8:05:13 AM	8:10:08 AM	0	off		415552.78		303269.67	285885.30	285733.58	288694.80	286369.45	285861.42
8:10:17 AM	8:15:09 AM	0	on	136971.10		278581.68		286020.20	283599.47	287641.51	286515.12	279895.01
8:15:21 AM	8:20:08 AM	0	off		421366.98		284395.89	290085.53	294233.22	293513.40	293927.09	295070.43
8:20:13 AM	8:25:08 AM	0	on	125594.19		295772.79		284533.79	286694.19	285974.86	287922.29	286999.86
8:25:17 AM	8:30:08 AM	0	off		404349.14		278754.95	301439.20	295852.20	305367.64	307411.26	297454.54
8:30:14 AM	8:35:08 AM	0	on	141637.01		262712.13		275443.00	251696.61	272196.80	274291.44	275751.81
8:35:14 AM	8:40:08 AM	0	off		401694.71		260057.70	290027.84	290957.81	290742.12	291363.53	280554.90
8:40:14 AM	8:45:09 AM	0	on	117032.52		284662.19		292871.43	294373.63	294627.00	252242.47	289720.48
8:45:13 AM	8:50:08 AM	0	off		387338.37		270305.85	287648.73	289868.20	292648.36	293075.61	294364.45
8:50:14 AM	8:55:09 AM	0	on	101856.65		285481.72		290726.62	252553.44	250766.71	253024.92	256714.30
8:55:13 AM	9:00:08 AM	0	off		409334.04		307477.40	293347.36	293661.11	306567.61	306302.20	307039.86
9:00:17 AM	9:05:15 AM	0	on	125958.76		283375.29		273581.12	263410.08	272877.94	272822.65	275022.98

Average - System Off				405347.19								
Average - System On				124026.99								
Difference				281320.21								
Transition Avg - On to Off						280207.08		286863.56	287346.93	291649.18	288413.32	286403.64
Transition Avg - Off to On							281534.85	284413.71	277411.33	279825.46	275836.00	279208.06
Average - All Transitions				283737.12								

Table 3 Above is the analysis of the Reactive Power data of 11 USES® model XL-3D-480V and 1 USES® model XL-3Y-480V units collected by the Amprobe DM-II Pro Multi-Meter and Data-Logger during the TIS testing on February 22, 2013 between 7:30 am and 9:05 am. The test data shows a reactive power reduction of about **283.737 KVAR.** Shaded cells are not included in the average performance calculations because load changes unrelated to the performance of the USES® system occurred during the averaging period.

Graph 4



Graph 4 Above is the Power Factor in decimals during the TIS testing on February 22, 2013 between 7:30 am and 9:05 am with 11 USES® model XL-3D-480V and 1 USES® model XL-3Y-480V power conditioners operating. The power factor is increased from **87 % to 98 %.**

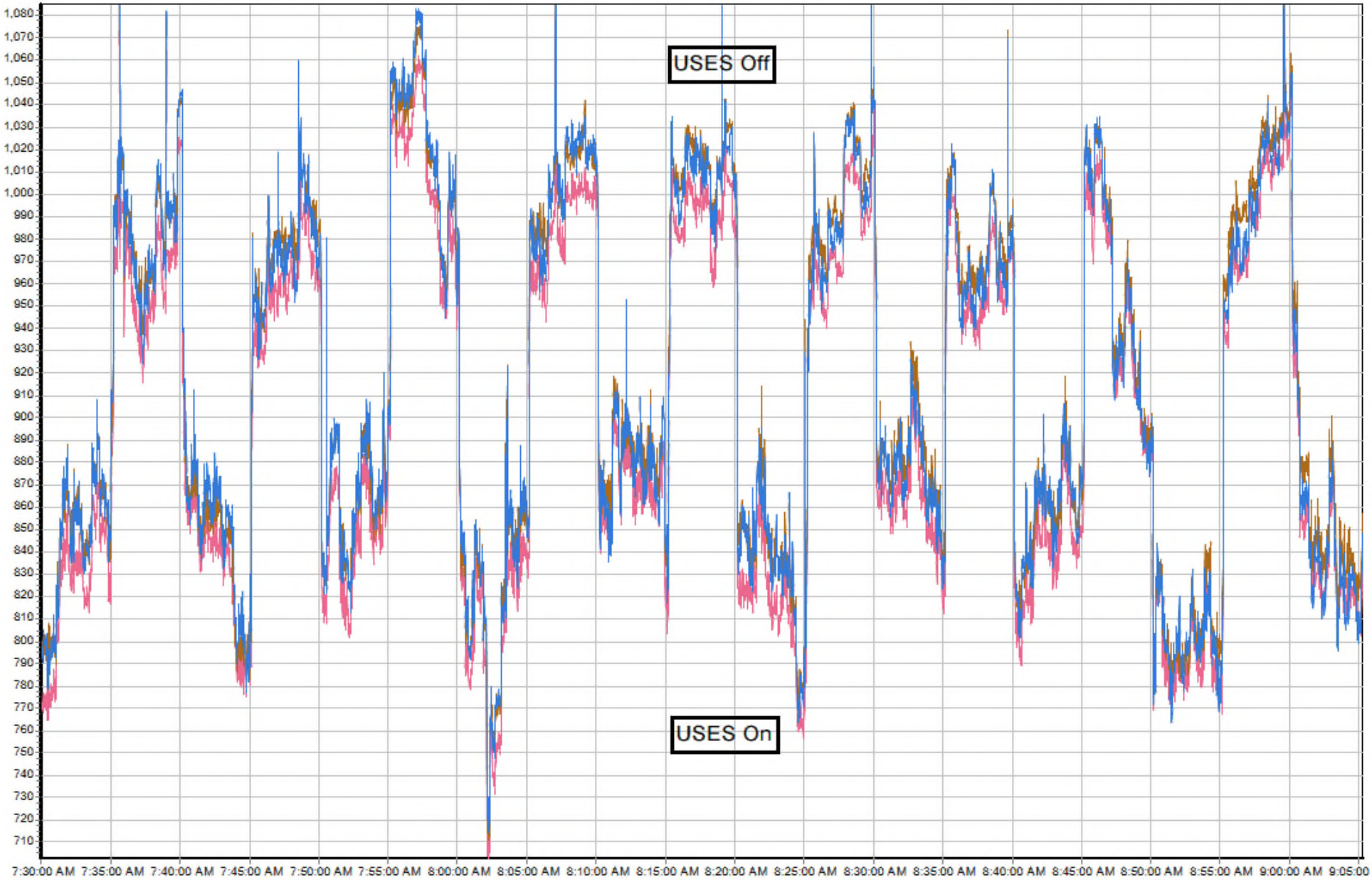
Table 4

Power Factor

Intervals						Full Interval		Instant	15 Sec	30 Sec	45 Sec	60 Sec
				System On	System Off	Difference	Difference	Change	Change	Change	Change	Change
Interval Time Frame		# USES	Status	Average	Average	Off to On	On to Off	At Transition	At Transition	At Transition	At Transition	At Transition
7:29:59 AM	7:35:01 AM	0	on	0.99								
7:35:15 AM	7:40:09 AM	0	off		0.87		0.12	0.12	0.12	0.11	0.11	0.10
7:40:14 AM	7:45:09 AM	0	on	0.98		0.11		0.12	0.12	0.12	0.12	0.12
7:45:17 AM	7:50:09 AM	0	off		0.87		0.11	0.11	0.11	0.11	0.11	0.10
7:50:15 AM	7:55:10 AM	0	on	0.98		0.11		0.13	0.13	0.12	0.12	0.12
7:55:14 AM	8:00:09 AM	0	off		0.87		0.11	0.11	0.11	0.12	0.12	0.12
8:00:17 AM	8:05:08 AM	0	on	0.99		0.12		0.12	0.12	0.12	0.12	0.12
8:05:13 AM	8:10:08 AM	0	off		0.86		0.12	0.13	0.13	0.13	0.13	0.13
8:10:17 AM	8:15:09 AM	0	on	0.98		0.12		0.12	0.12	0.12	0.12	0.12
8:15:21 AM	8:20:08 AM	0	off		0.86		0.12	0.12	0.12	0.12	0.12	0.12
8:20:13 AM	8:25:08 AM	0	on	0.98		0.12		0.12	0.12	0.12	0.12	0.12
8:25:17 AM	8:30:08 AM	0	off		0.87		0.11	0.13	0.12	0.12	0.12	0.13
8:30:14 AM	8:35:08 AM	0	on	0.98		0.11		0.11	0.11	0.11	0.11	0.11
8:35:14 AM	8:40:08 AM	0	off		0.86		0.12	0.13	0.12	0.12	0.13	0.13
8:40:14 AM	8:45:09 AM	0	on	0.99		0.13		0.13	0.13	0.13	0.12	0.13
8:45:13 AM	8:50:08 AM	0	off		0.87		0.12	0.12	0.12	0.12	0.12	0.12
8:50:14 AM	8:55:09 AM	0	on	0.99		0.12		0.13	0.12	0.12	0.12	0.12
8:55:13 AM	9:00:08 AM	0	off		0.87		0.12	0.13	0.13	0.13	0.13	0.13
9:00:17 AM	9:05:15 AM	0	on	0.98		0.12		0.10	0.10	0.10	0.10	0.10
Average - System On				0.98								
Average - System Off				0.87								
Difference				0.12								
Transition Avg - On to Off						0.12		0.12	0.12	0.12	0.12	0.12
Transition Avg - Off to On							0.12	0.12	0.12	0.12	0.12	0.12
Average - All Transitions				0.12								

Table 4 Above is the analysis of the Power Factor data of 11 USES® model XL-3D-480V and 1 USES® model XL-3Y-480V units collected by the Amprobe DM-II Pro Multi-Meter and Data-Logger during the TIS testing on February 22, 2013 between 7:30 am and 9:05 am. The test data shows the power factor is increased from **87 % to 98 %.** Shaded cells are not included in the average performance calculations because load changes unrelated to the performance of the USES® system occurred during the averaging period.

Graph 5



Graph 5 Above is the Current in Amps per phase during the TIS testing on February 22, 2013 between 7:30 am and 9:05 am with 11 USES® model XL-3D-480V and 1 USES® model XL-3Y-480V power conditioners operating. The current is reduced an average of **146.49 Amps per phase.**

Table 5

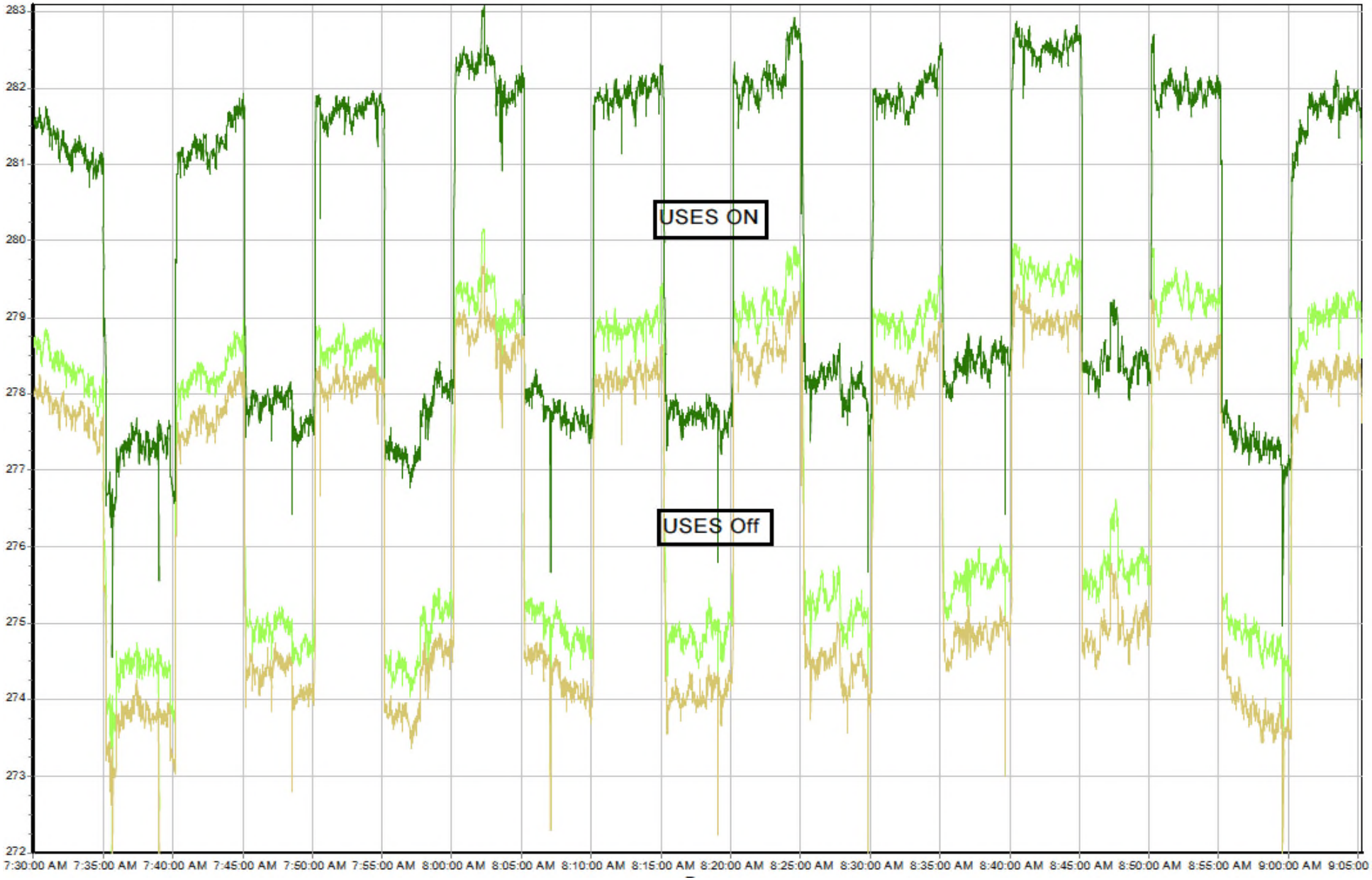
RMS Current (Amps)

Intervals						Full Interval		Instant	15 Sec	30 Sec	45 Sec	60 Sec
				System On	System Off	Difference	Difference	Change	Change	Change	Change	Change
Interval Time Frame		# USES	Status	Average	Average	Off to On	On to Off	At Transition	At Transition	At Transition	At Transition	At Transition
7:29:59 AM	7:35:01 AM	0	on	835.99								
7:35:15 AM	7:40:09 AM	0	off		980.04		144.05	152.69	141.44	176.22	121.26	154.87
7:40:14 AM	7:45:09 AM	0	on	842.10		137.94		135.95	170.55	184.74	161.93	170.59
7:45:17 AM	7:50:09 AM	0	off		971.55		129.45	142.34	142.43	140.79	138.79	177.80
7:50:15 AM	7:55:10 AM	0	on	859.57		111.98		148.08	154.44	125.66	98.95	86.07
7:55:14 AM	8:00:09 AM	0	off		1018.69		159.12	131.86	135.43	126.60	127.34	120.91
8:00:17 AM	8:05:08 AM	0	on	813.80		204.89		143.20	156.24	170.36	174.74	134.88
8:05:13 AM	8:10:08 AM	0	off		998.82		185.01	127.01	125.10	138.62	116.68	122.39
8:10:17 AM	8:15:09 AM	0	on	875.77		123.05		154.40	137.81	147.76	141.84	100.41
8:15:21 AM	8:20:08 AM	0	off		1005.97		130.21	160.30	184.76	183.07	173.00	187.60
8:20:13 AM	8:25:08 AM	0	on	829.68		176.29		158.94	155.91	156.51	162.23	167.65
8:25:17 AM	8:30:08 AM	0	off		993.29		163.61	171.83	171.19	194.38	194.03	164.79
8:30:14 AM	8:35:08 AM	0	on	873.12		120.17		127.38	136.84	155.89	164.70	175.60
8:35:14 AM	8:40:08 AM	0	off		970.96		97.84	149.10	169.88	177.62	146.40	120.45
8:40:14 AM	8:45:09 AM	0	on	851.20		119.76		155.45	164.12	154.79	109.87	139.47
8:45:13 AM	8:50:08 AM	0	off		954.18		102.98	141.57	147.21	142.42	155.72	158.42
8:50:14 AM	8:55:09 AM	0	on	799.70		154.47		106.31	51.68	56.96	89.75	88.70
8:55:13 AM	9:00:08 AM	0	off		1000.74		201.04	160.98	164.11	192.39	198.38	195.01
9:00:17 AM	9:05:15 AM	0	on	846.02		154.73		120.96	99.84	185.22	184.33	184.02

Average - System Off				988.25								
Average - System On				842.70								
Difference				145.56								
Transition Avg - On to Off						144.81		148.63	149.60	150.38	139.88	145.66
Transition Avg - Off to On							145.92	138.96	146.97	151.83	144.89	148.10
Average - All Transitions				146.49								

Table 5 Above is the analysis of the Current data of 11 USES® model XL-3D-480V and 1 USES® model XL-3Y-480V units collected by the Amprobe DM-II Pro Multi-Meter and Data-Logger during the TIS testing on February 22, 2013 between 7:30 am and 9:05 am. The test data shows the current is reduced an average of **146.49 Amps per phase.** Shaded cells are not included in the average performance calculations because load changes unrelated to the performance of the USES® system occurred during the averaging period.

Graph 6



Graph 6 Above is the Voltage in Volts per phase during the TIS testing on February 22, 2013 between 7:30 am and 9:05 am with 11 USES® model XL-3D-480V and 1 USES® model XL-3Y-480V power conditioners operating. The voltage is increased an average of **4.13 Volts per phase.**

Table 6

RMS Voltage (Volts)

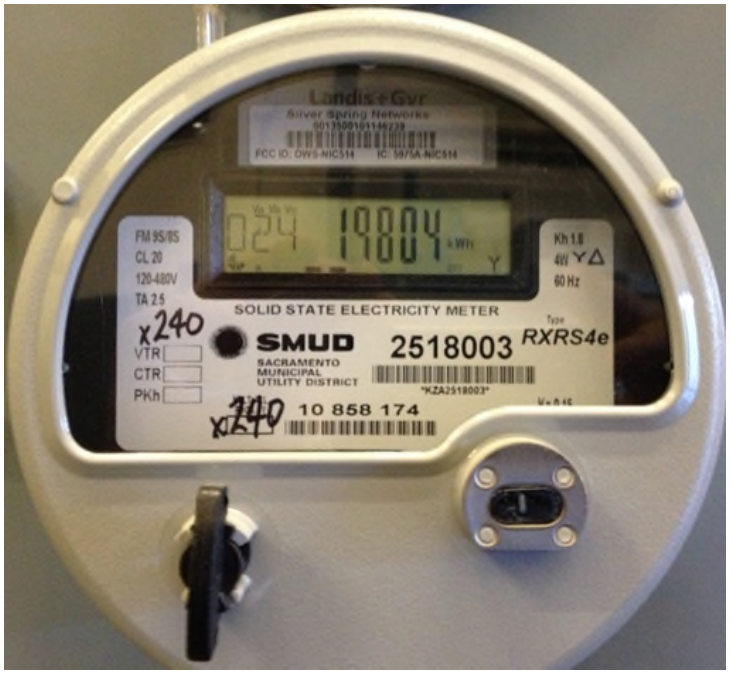
Intervals						Full Interval		Instant	15 Sec	30 Sec	45 Sec	60 Sec
				System On	System Off	Difference	Difference	Change	Change	Change	Change	Change
Interval Time Frame		# USES	Status	Average	Average	Off to On	On to Off	At Transition	At Transition	At Transition	At Transition	At Transition
7:29:59 AM	7:35:01 AM	0	on	279.13								
7:35:15 AM	7:40:09 AM	0	off		275.05		4.08	4.39	4.17	4.50	3.72	3.74
7:40:14 AM	7:45:09 AM	0	on	279.10		4.05		4.14	4.39	4.42	4.45	4.46
7:45:17 AM	7:50:09 AM	0	off		275.65		3.45	3.80	3.69	3.86	3.79	3.88
7:50:15 AM	7:55:10 AM	0	on	279.48		3.83		4.19	4.15	3.84	3.90	3.93
7:55:14 AM	8:00:09 AM	0	off		275.50		3.98	4.22	4.22	4.29	4.31	4.22
8:00:17 AM	8:05:08 AM	0	on	280.06		4.55		4.19	4.13	4.18	4.21	3.85
8:05:13 AM	8:10:08 AM	0	off		275.67		4.38	4.13	3.99	4.23	4.05	4.02
8:10:17 AM	8:15:09 AM	0	on	279.68		4.01		4.18	4.22	4.19	4.20	3.97
8:15:21 AM	8:20:08 AM	0	off		275.52		4.16	4.32	4.50	4.37	4.38	4.56
8:20:13 AM	8:25:08 AM	0	on	280.00		4.48		4.30	4.16	4.13	4.40	4.25
8:25:17 AM	8:30:08 AM	0	off		275.91		4.09	4.28	4.11	4.29	4.31	4.13
8:30:14 AM	8:35:08 AM	0	on	279.73		3.82		4.06	3.73	3.93	4.05	4.01
8:35:14 AM	8:40:08 AM	0	off		276.26		3.47	4.14	4.46	4.43	4.06	3.95
8:40:14 AM	8:45:09 AM	0	on	280.38		4.11		4.07	4.12	4.07	3.36	3.89
8:45:13 AM	8:50:08 AM	0	off		276.38		4.00	4.17	4.21	4.22	4.18	4.35
8:50:14 AM	8:55:09 AM	0	on	279.94		3.56		4.20	3.44	3.33	3.60	3.64
8:55:13 AM	9:00:08 AM	0	off		275.33		4.61	4.30	4.21	4.44	4.60	4.54
9:00:17 AM	9:05:15 AM	0	on	279.61		4.28		4.07	4.00	4.30	4.40	4.31
Average - System Off		275.70	x 1.73	477.51								
Average - System On		279.71	x 1.73	484.46								
Difference				6.95								
Transition Avg - Off to On						4.08		4.19	4.17	4.29	4.15	4.15
Transition Avg - On to Off							4.02	4.16	4.04	4.04	4.06	4.03
Average - All Transitions per Phase				4.13								

Table 6 Above is the analysis of the Voltage data of 11 USES® model XL-3D-480V and 1 USES® model XL-3Y-480V units collected by the Amprobe DM-II Pro Multi-Meter and Data-Logger during the TIS testing on February 22, 2013 between 7:30 am and 9:05 am. The test data shows the voltage is increased by **4.13 Volts per phase.** Shaded cells are not included in the average performance calculations because load changes unrelated to the performance of the USES® system occurred during the averaging period.

Installation Configuration

The photographs above show the installation of the USES® Shunt Efficiency System by Power Shaver, Energy Saving Systems® at the Isola Group's Elk Grove facility located at 3233 Dwight Rd., Elk Grove, CA 95758.

Test Configuration



The photographs above show the configuration for the Timed Interval Sampling. The Current Transformers for the Amprobe DM II Pro meter are placed around the incoming Buss bars for the service entrances.

Acceptance of TIS Report

Having read the USES® System Evaluation for the Isola Group's Elk Grove facility, dated March 1, 2013, I hereby accept the results and agree that Power Shaver, Energy Saving Systems® has sufficiently validated the guarantees as provided in the Purchase Agreement dated October 8th 2012.

3233 Dwight Rd.
Elk Grove, CA 95758

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Authorized Isola Representative Title Date

