



Introduction

One of the biggest fears of any laboratory manager, research scientist, or instrument technician is the thought that dirty power may be affecting their ability to effectively operate critical analytical instrumentation. Dirty power causes flickering lights and leads to stressed components that overheat within the equipment. This stress often manifests in intermittent and premature failure of the equipment. Equipment failure is costly and involves expensive repairs and loss of production. You can lessen the effects of dirty power and power outages by implementing time-tested solutions proactively.

The Power Study

This study evaluated instrumentation from several different vendors to help us understand the direct impact of dirty power on instrument downtime and the role PerkinElmer's OneSource® Pure Power Solution plays to help mitigate that impact. The equipment evaluated were all previously installed units within PerkinElmer OneSource customer laboratories across the United States and represented a range of different instrumentation from various manufacturers.

The specific instrumentation evaluated included: Inductively Coupled Plasma Optical Emission Spectrometry systems (ICP-OES, 22 units), Multimode Detection systems (MMD, 7 units), Radiometric Detection systems (RRD, 22 units), Inductively Coupled Plasma Mass Spectrometry systems (ICP-MS, 11 units), and Material Characterization systems (MatCHAR,

37 units). Each installed unit evaluated had bracketed data with the same number of service months before and after implementation of the Pure Power Solution (PPS). In each case, PPS had been installed for more than three months. All installed units were of the same class with similar laboratory requirements and conditions (i.e. power, gas, humidity, exhaust, etc.).

Results

The study captured the length of downtime in days and the actual number of service call failures both before and after the implementation of a solution recommended by PerkinElmer's Pure Power Initiative. The data was collected over a five-day, 40-hour workweek for both data points, then annualized based on 260 working days in a year. It was presumed that taking an instrument out of service, calling for service repair, and returning the instrument to service requires a two-day laboratory reaction time. An overview of the number of service calls pre- and post-installation of Pure Power Solution (PPS) is shown in Figure 1, and an overview of instrument up-time shown in Figure 2.

The story is compelling for the case of cleaning up dirty power in the laboratory environment for most instruments across a variety of vendors. The installation of PerkinElmer's OneSource Pure Power Solution reduced the number of service repairs by 49% across instrumentation evaluated and increased the average up-time by over 12 days (see Table 1).

Figure 1. Number of service calls received pre- and post-installation of Pure Power Solution (PPS). (A) - Inductively Couple Plasma Optical Emission Spectrometry systems, (B) Multimode Detection systems, (C) Radiometric Detection systems, (D) Inductively Coupled Plasma Mass Spectrometry systems, and (E) Material Characterization systems.

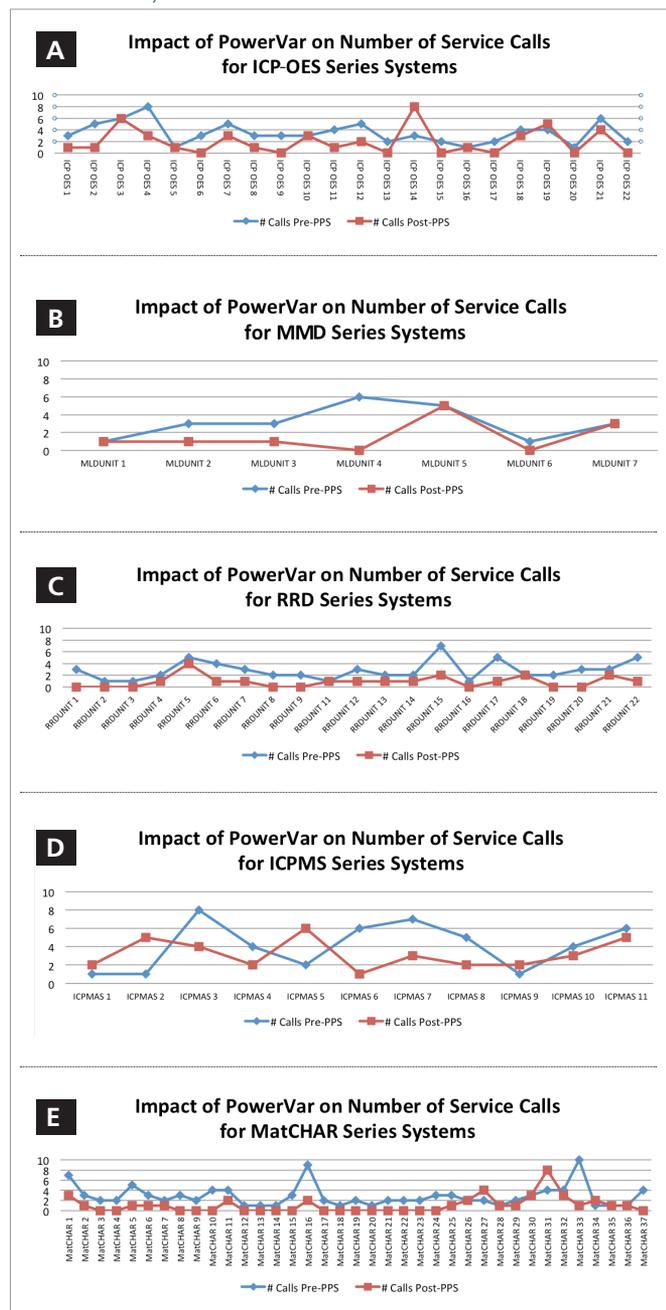


Figure 2. Instrument up-time pre- and post-installation of Pure Power Solution (PPS). (A) - Inductively Couple Plasma Optical Emission Spectrometry systems, (B) Multimode Detection systems, (C) Radiometric Detection systems, (D) Inductively Coupled Plasma Mass Spectrometry systems, and (E) Material Characterization systems.

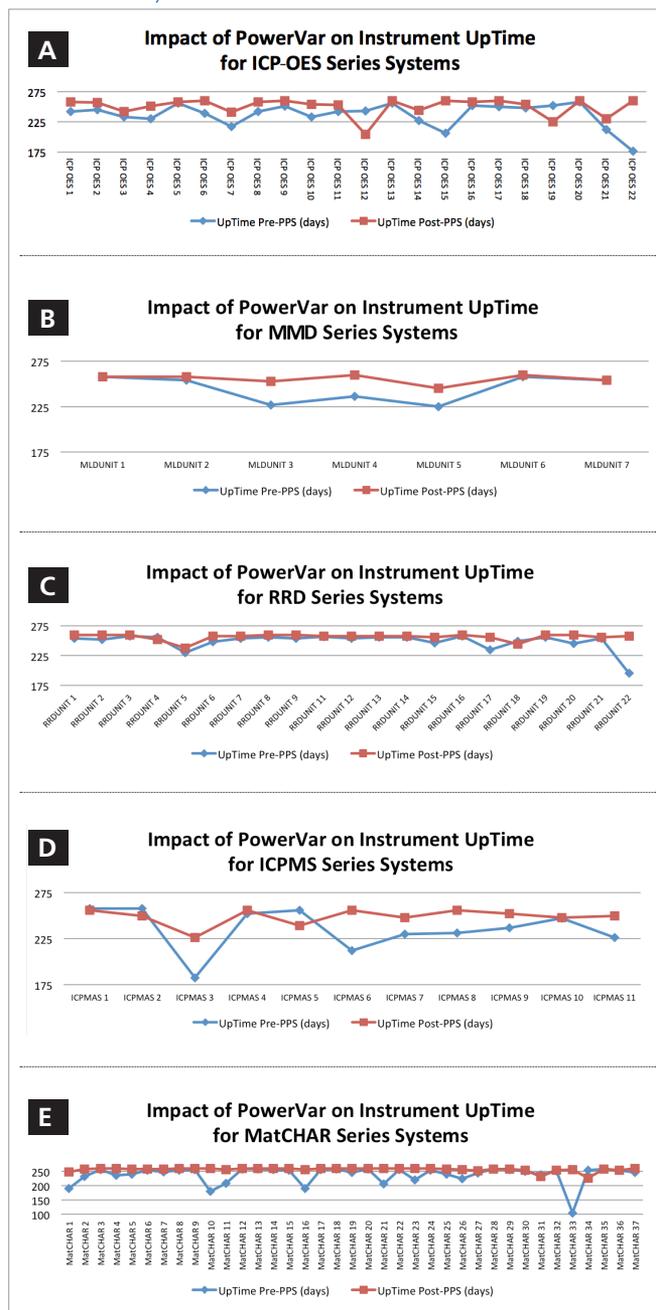


Table 1. Summary of up-time improvements after the installation of PerkinElmer Pure Power Solution (PPS).

Product Line Series	Post-PPS Uptime Improvement	%Service Call Reduction
ICP	13.49	43.4%
MMD	10.86	50.0%
RRD	7.86	67.8%
MatCHAR	18.58	62.9%
ICPMS	13.31	22.2%
Summary:	12.82 days	49.26%

Conclusion

Improvement in power quality impacts the bottom line for typical environmental laboratories. The effect of dirty power seems to be an issue that all vendors of analytical instrumentation are presented with. Potential revenue loss, additional accrued expenses, and service repair costs are just a view items to consider when a dirty power environment goes unaddressed. The benefits of installing a PerkinElmer OneSoure Pure Power Solution in a dirty power environment are substantial.

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