



B. MILLER
ENGINEERING

PO Box 483 Deerfield, IL 60015
Phone: (847) 948-7746 Fax: (847) 948-7340
www.bmillerengineering.com

January 19, 2006

Illinois Commerce Commission
527 East Capitol Ave
Springfield, IL. 62701

Attention: Consumer Services Division

Subject: {redacted}

The purpose of this letter is to file the following formal complaints against Commonwealth Edison Company (ComEd):

- 1) The voltage supply to the subject residence contains excessive waveform distortion and harmonics.
- 2) ComEd refuses to investigate this problem.

I am an electrical consultant and owner of the subject residence. I recently looked into various power-related problems such as short bulb life, excessive heat and buzzing from small transformers, erratic computer problems and noise in audio systems at the residence. Measurements made on December 5, 2005 at the service entrance with the main breaker open, show a badly distorted voltage waveform with flattened peaks, notching, high-frequency noise, and a voltage THD of 9.5%, with third harmonic distortion of 9.3%. I repeated these measurements on January 11, 2006 and measured slightly lower values of 8.7 % THD and 8.3% third harmonic distortion. These distortion levels are well above the IEEE519-1992 recommendation of 5% max THD and 3% max for any harmonic. This level of harmonic content can cause many different problems, including overheating of neutral wiring, overheating of the transformers such as those in most power supplies, overheating of motors, increased power consumption in light bulbs and heaters, and improper operation of switch-mode power supplies such as those found in computers and printers. The additional heat and power consumption noted above all result in increased energy use, for which ComEd is charging us.

To date, ComEd has not responded to this matter, and they have made themselves inaccessible. I started by filing a complaint on their web site, but got no response. A follow-up phone call to their main number on December 5 reached someone who argued with me about my web complaint because he could find no record of it. He had no understanding of what I was talking about, and, by his own admission, had no procedure to follow for this type of complaint. He promised to have someone call, and he did that.

The person who called me, who I believe was John Vessel (sp?), asked whether I was experiencing any outage or flicker. When I told him "no" he seemed uninterested in my complaint but said he

would “have someone go out to investigate it”. His comment to the effect that “you are only concerned because the sine wave doesn’t look right?” clearly shows a lack of understanding and/or interest in this issue. He requested a copy of my data, which I faxed to him. I have not heard from him since then, and my second fax on December 19, asking about the status, went unanswered. He did not give me any contact information other than that fax number.

On January 12, I received an e-mail response from ComEd to my original web complaint, over one month after I filed it. They indicated that my account showed that a “complaint has been made” and I should call their main support number if I am still having problems. In other words, start all over again. I responded to their message, stating that the complaint line would be of no help, and that I was preparing to file this complaint to the commission. I gave them the opportunity to resolve the matter by providing me with a contact name and direct access phone number for someone at an engineering level. As of this date I have not heard from them, which confirms their unwillingness to cooperate.

I have attached the following substantiating documents for your review:

- My original test results showing the distorted waveforms and harmonic measurements;
- A baseline test showing a low-distortion sine wave on the same measuring instrument, indicating the instrument accuracy;
- ComEd correspondence;
- “Dealing with Harmonic Distortion”, Patricia Irwin, PE, NEC Digest, Fall 2003, which discusses typical and excessive harmonic levels on power systems, and describes potential problems;
- IEEE Std 1100-1999, “Powering and Grounding Electronic Equipment”, pages 106-107 which discuss harmonic problems;

I would be happy to work with you in any way necessary to resolve this problem. Please let me know if you need any further information. Thank you for your attention to this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Ben Miller". The signature is stylized and cursive.

Benjamin D. Miller, P.E.

Tel: 847-948-7746

e-mail: ben@bmillerengineering.com