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Ball Technic Condenser Cleaning System Installed on Air-conditioning Chillers.

Background

In August 1997, five Ball Technic Systems were installed onto the chillers at our Toa Payoh site. Prior to installing the Ball Technic System, air-conditioning was provided by one 200RT, two 450RT, one 500RT chillers operating at almost 100% Capacity. The typical condenser approach temperature of the chillers ranges from 2 deg. F to 5.6 deg. F. The service of a independant consultant was engaged to monitor the energy consumption of each chillers before and after installation of the Ball Technic Systems.

Installation

The systems were installed onto the chillers with no interruption to the operation. Each installation was completed in a day.

Results

After the Ball Technic were commissioned, the following results were observed.

- a) The loading on the chillers dropped by 15% - 25%.
- b) The chiller condenser approach temperature reduced significantly, ranging 0 deg. F to 1.2 deg. F. depending on the loading.
- c) Energy consumption of each chiller dropped by 15% - 25%. This is equivalent to an energy saving of US\$45000/year.

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During the 15 months of continuous operations, periodic audits were conducted. These audits have confirmed that the Ball Technic Systems have consistently maintained the results shown above. The systems have functioned well, with no failure or malfunctions.

Costing

To date, the cost to operate the system has been less the US\$300 a chiller. This was for replacement of the sponge cleaning balls. The payback for our investment in the 5 Ball Technic Systems was achieved in less than 6 months.

I am well pleased with the results achieved by the Ball Technic System.

Yours faithfully,

KS Maniam
Manager
Plant Engineering & Facilities

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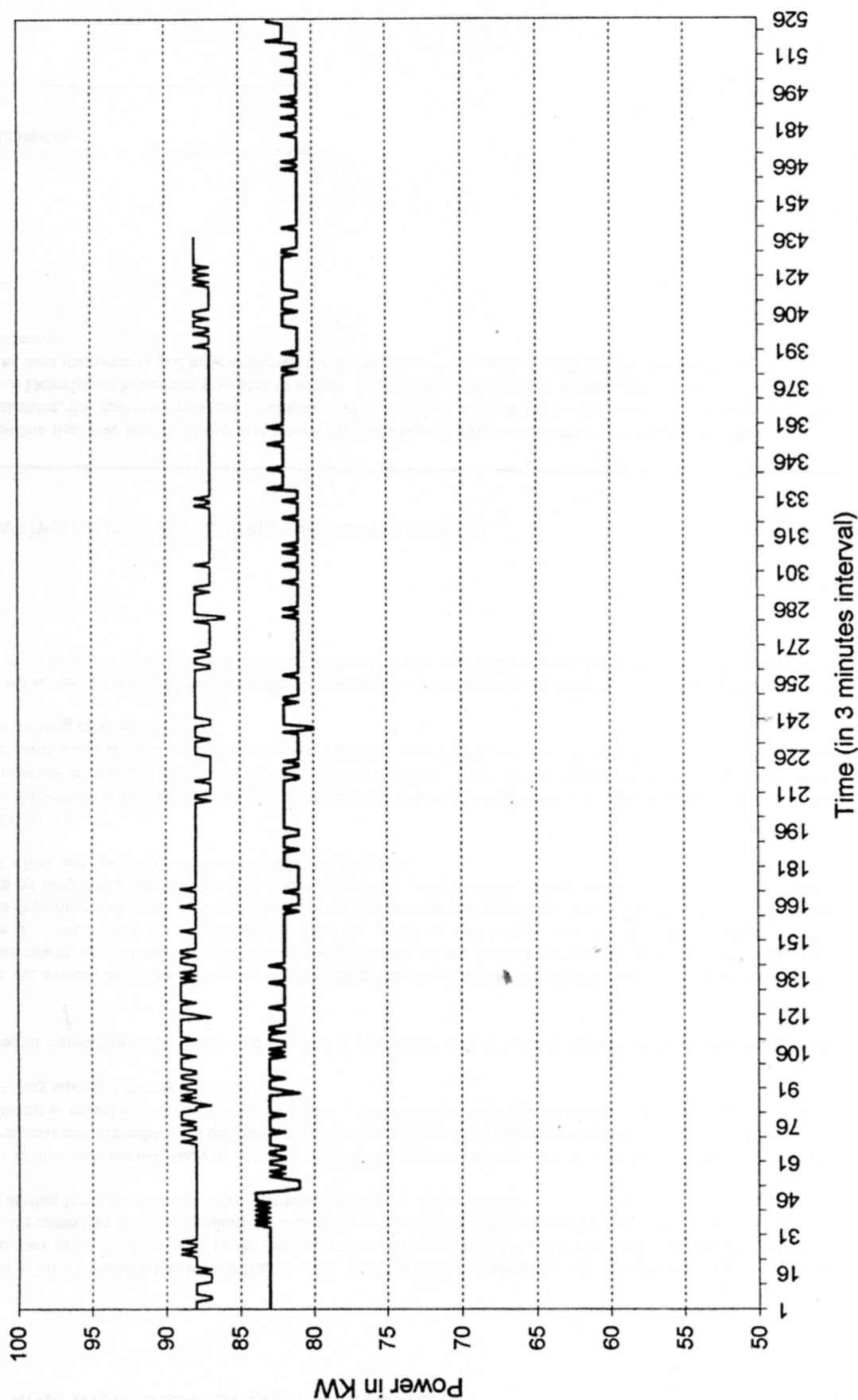




HS Inspection Pte Ltd

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Chiller No. 1's Total Power (kW) Versus Time at 3 mins interval



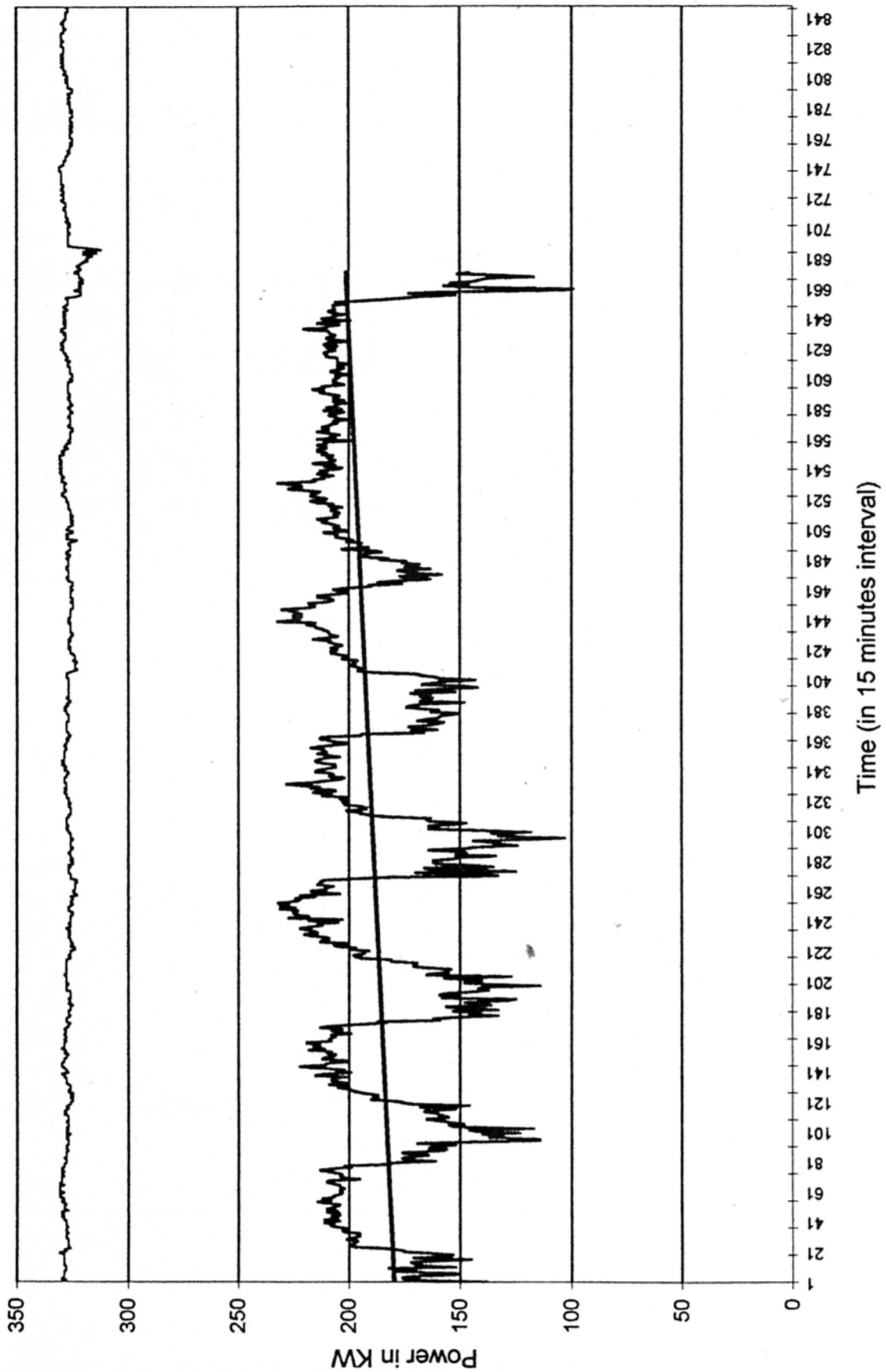
CH1-1



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Chiller No. 2's Total Power (kW) Versus Time in 15 minutes interval

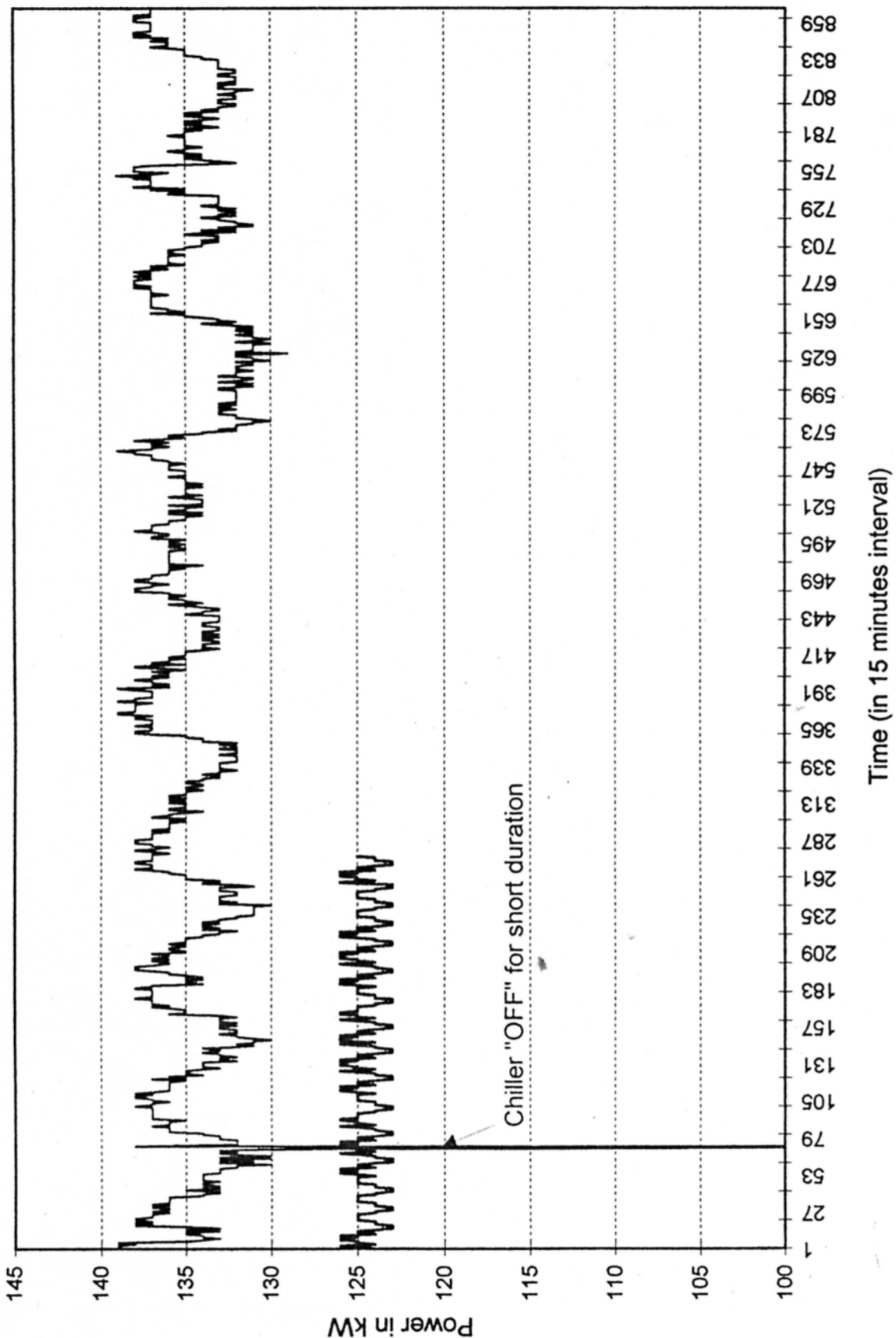




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Chiller No. 3's Total Power (kW) Versus Time at 15 mins interval

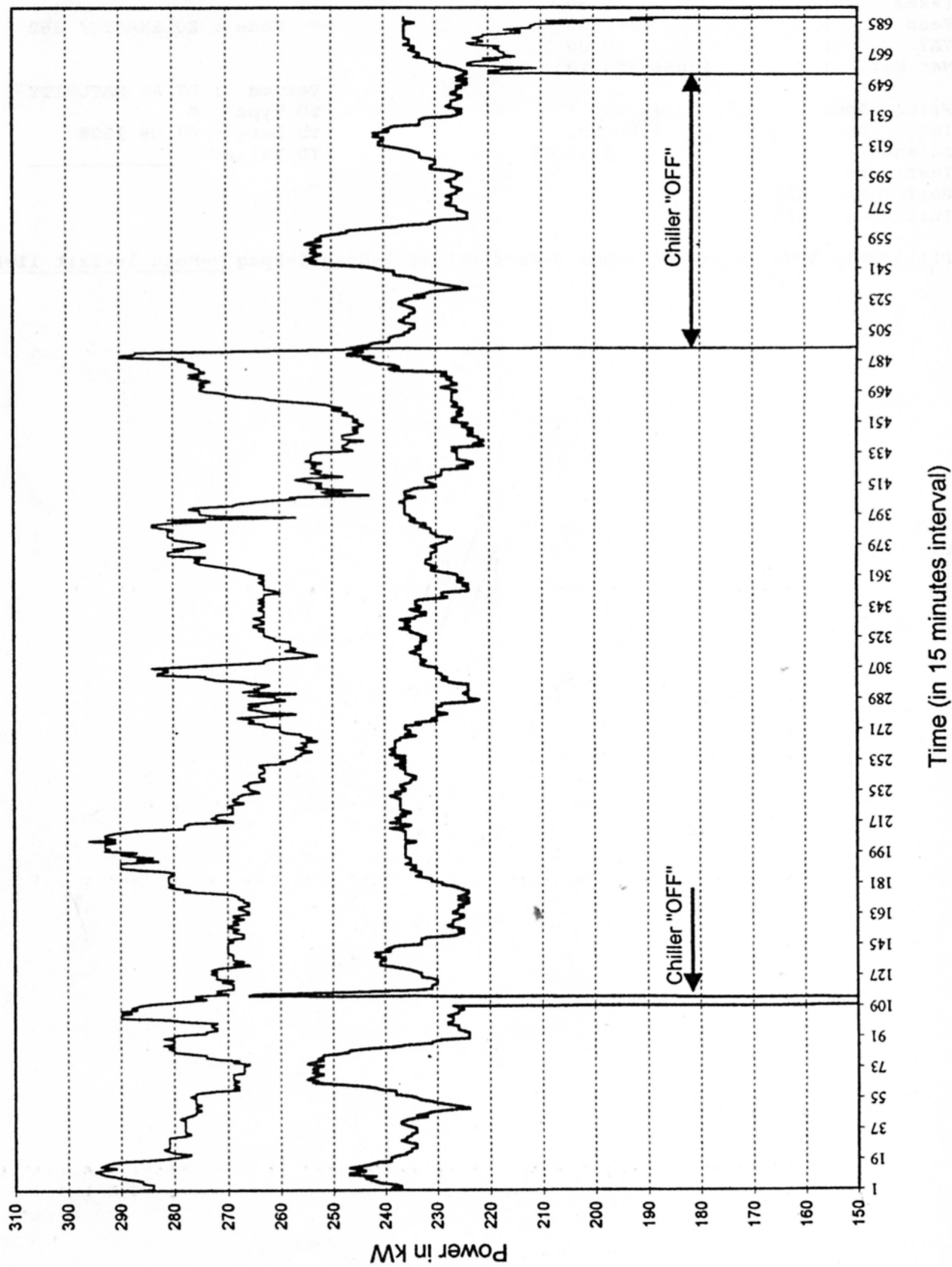




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Chiller No. 4's Total Power (kW) Versus Time at 15mins interval





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Chiller No. 5's Total Power (kW) Versus Time at 15 mins interval

