

## 6.1 Furnace Complex - EAF4 – 33kV Panel

The measurements have been carried out on 3<sup>rd</sup> January 2007 for about three and half hours. The measured parameters such as RMS Voltage, Current, Maximum and Average Total Voltage and Current Harmonic Distortion (THD), frequency, Power (MW), Power factor, Apparent Power (MVA), Reactive Power (MVAR), Various individual Voltage & Current harmonics, Voltage & Current FFT, V & I Wave form, V & I Phasors, PST & PLT Flicker graphs over the measurement period are shown in Figure 6.1 to 6.17. The CT and PT ratios are as given in the table below.

<b>CT RATIO</b>	2000A/1A
<b>PT RATIO</b>	33kV/110V

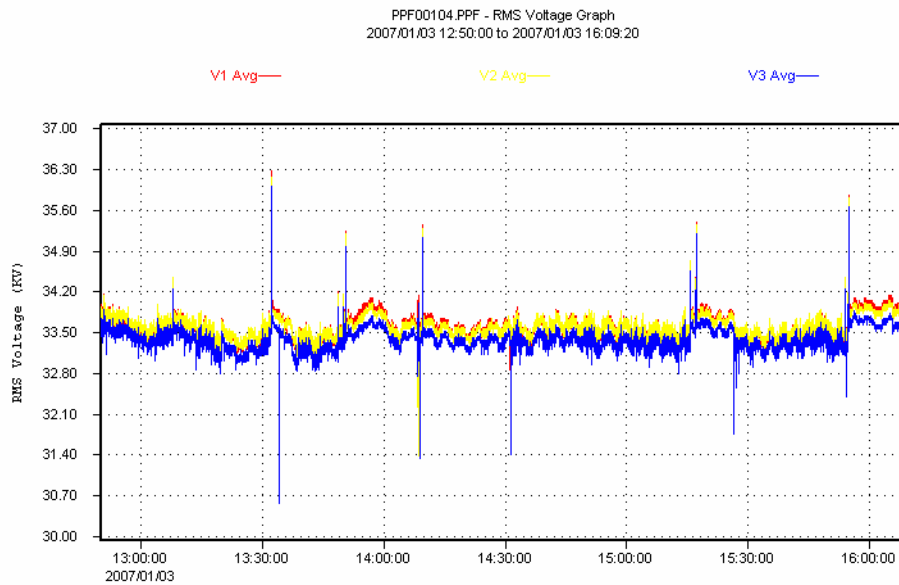


Fig.6.1. RMS Voltage wave forms from 12.50.00 Hrs to 16.09.20Hrs.

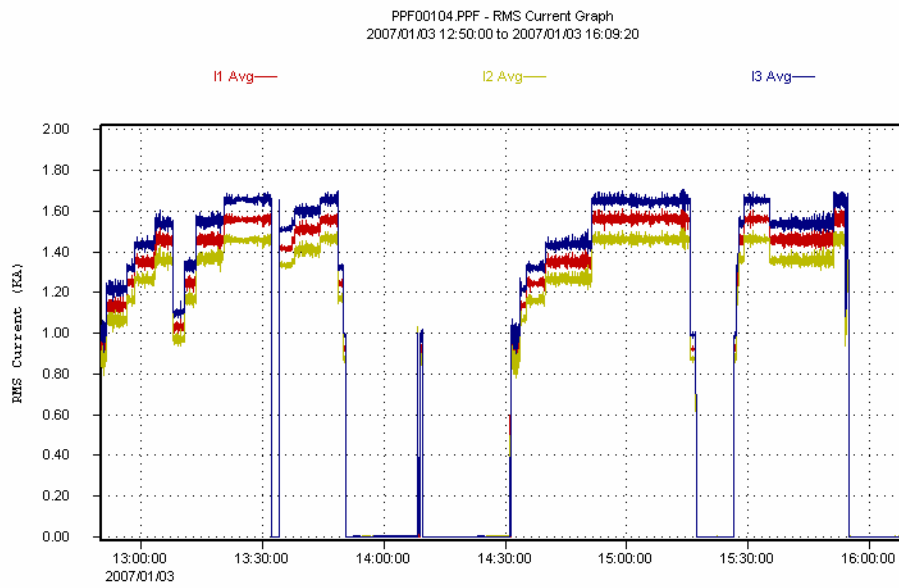


Fig.6.2. RMS Current wave forms from 12.50.00 Hrs to 16.09.20Hrs.

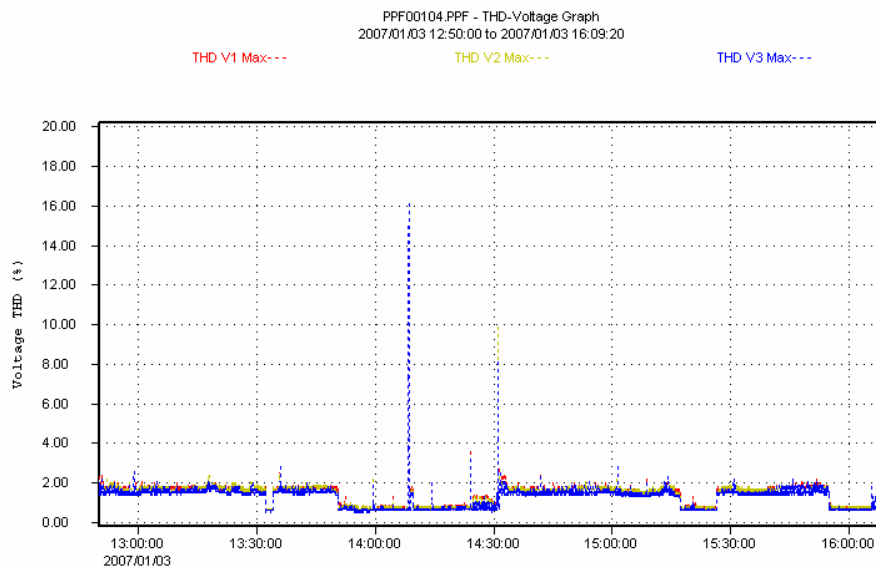


Fig.6.3. V THD Max wave forms from 12.50.00 Hrs to 16.09.20Hrs.

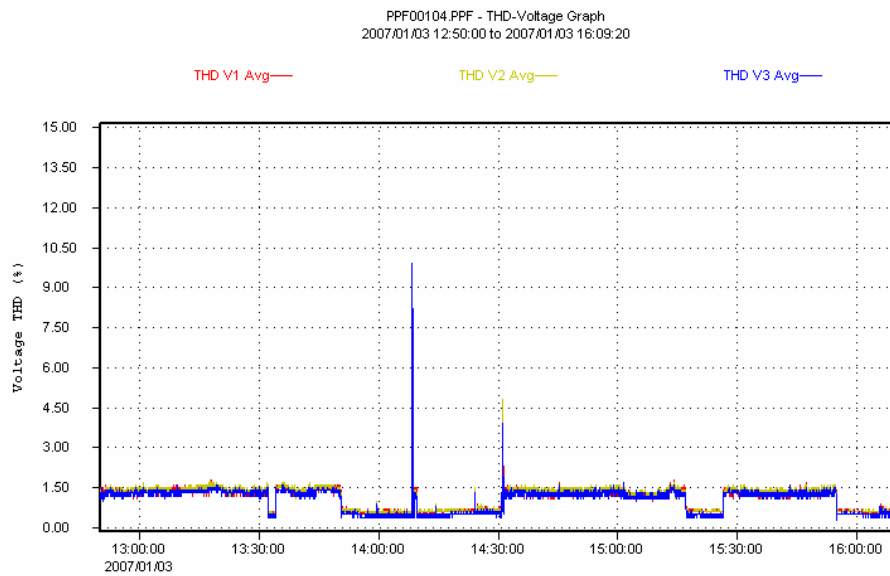


Fig.6.4. V THD Ave wave forms from 12.50.00 Hrs to 16.09.20Hrs.

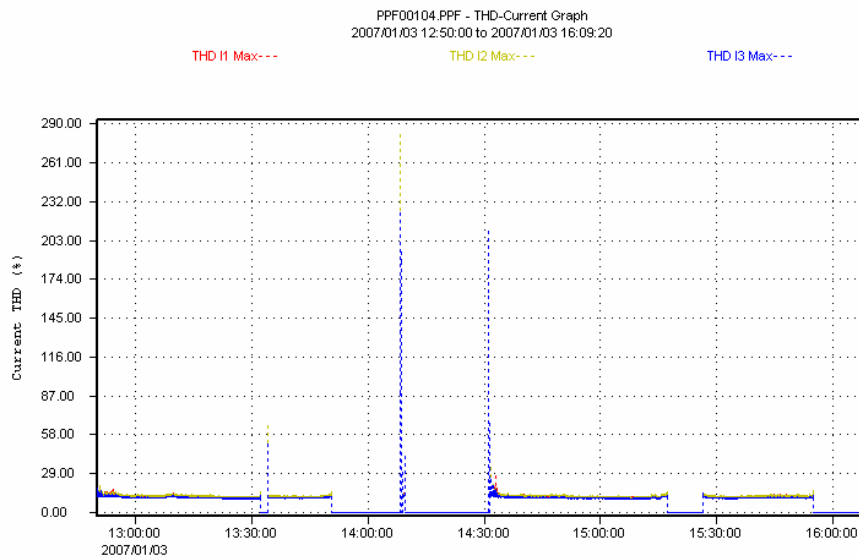


Fig.6.5. I THD Max wave forms from 12.50.00 Hrs to 16.09.20Hrs.

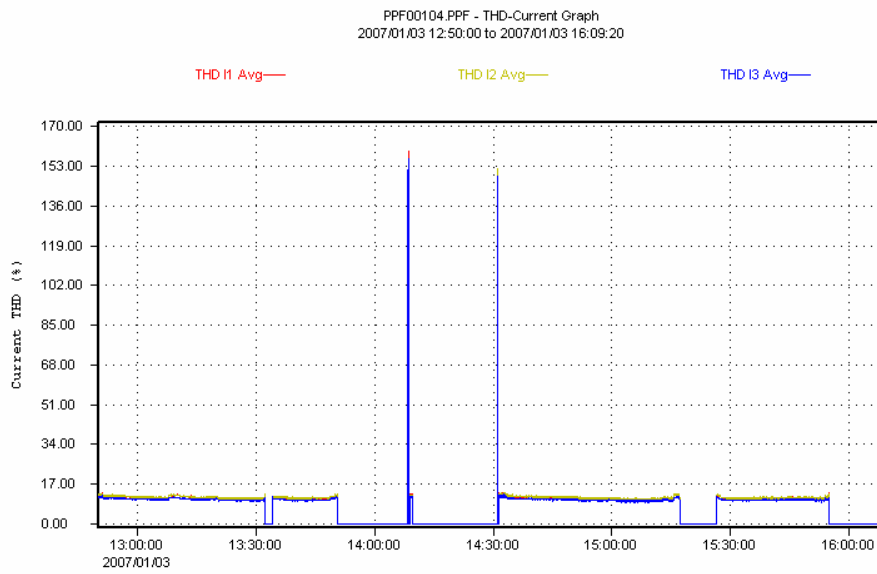


Fig.6.6. I THD Ave. wave forms from 12.50.00 Hrs to 16.09.20Hrs.

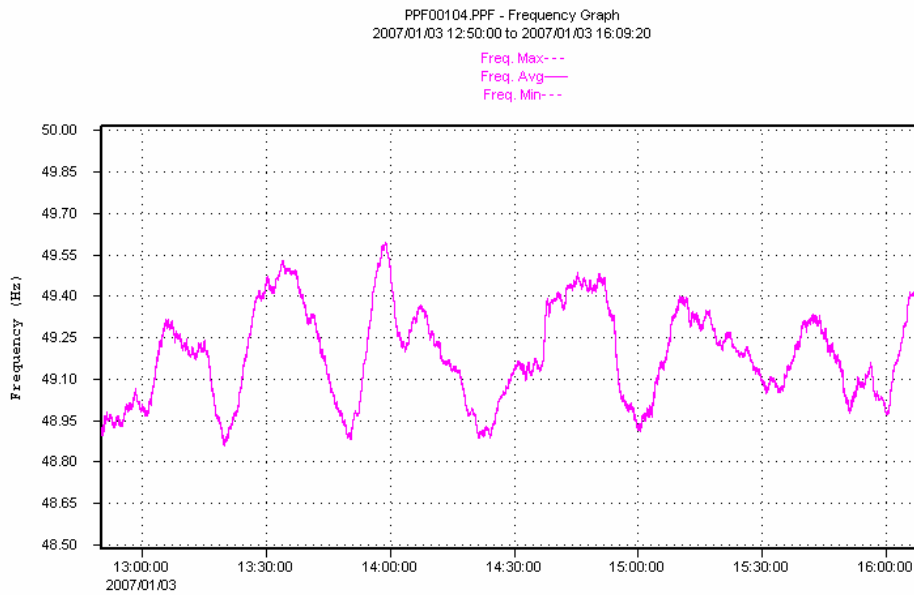


Fig.6.7. Frequency variation from 12.50.00 Hrs to 16.09.20Hrs.

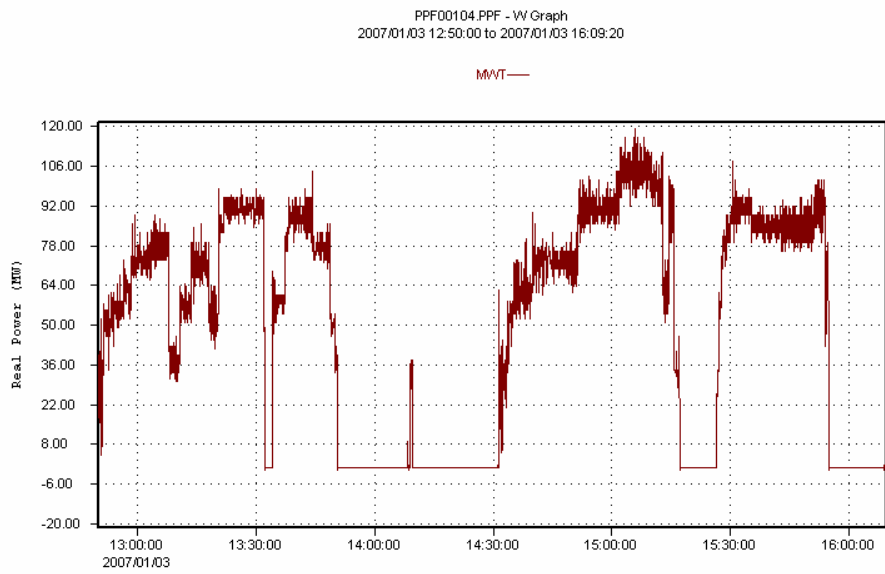


Fig.6.8. Total MW (MWT) variation from 12.50.00 Hrs to 16.09.20Hrs.

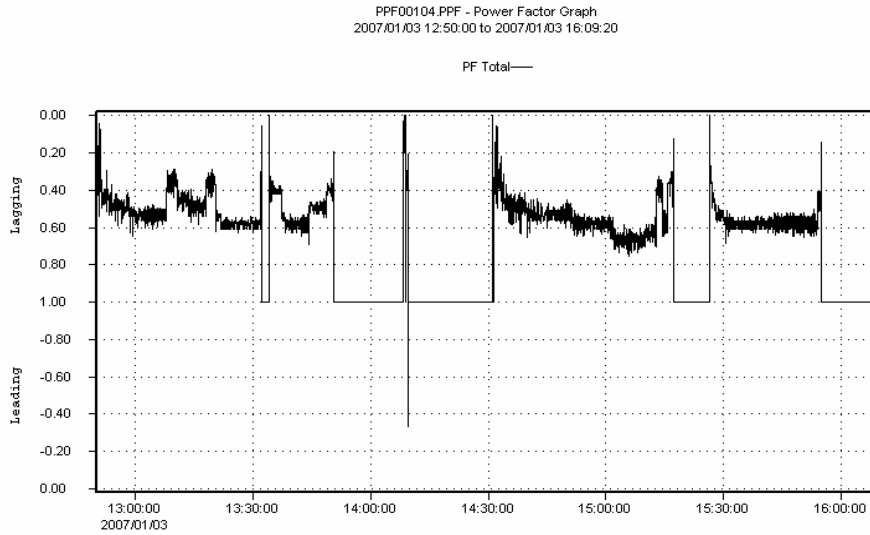


Fig.6.9. Power factor variation from 12.50.00 Hrs to 16.09.20Hrs.

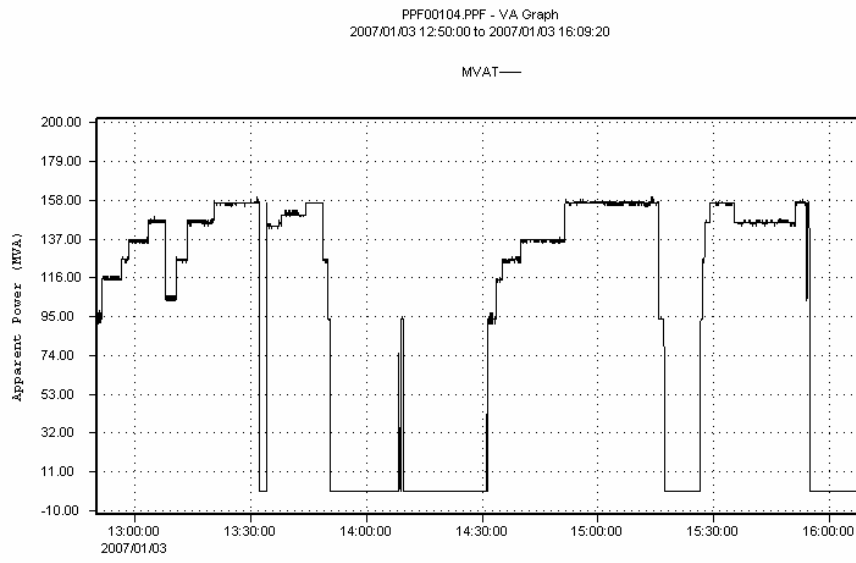


Fig.6.10. Total MVA (MVAT) variation from 12.50.00 Hrs to 16.09.20Hrs.

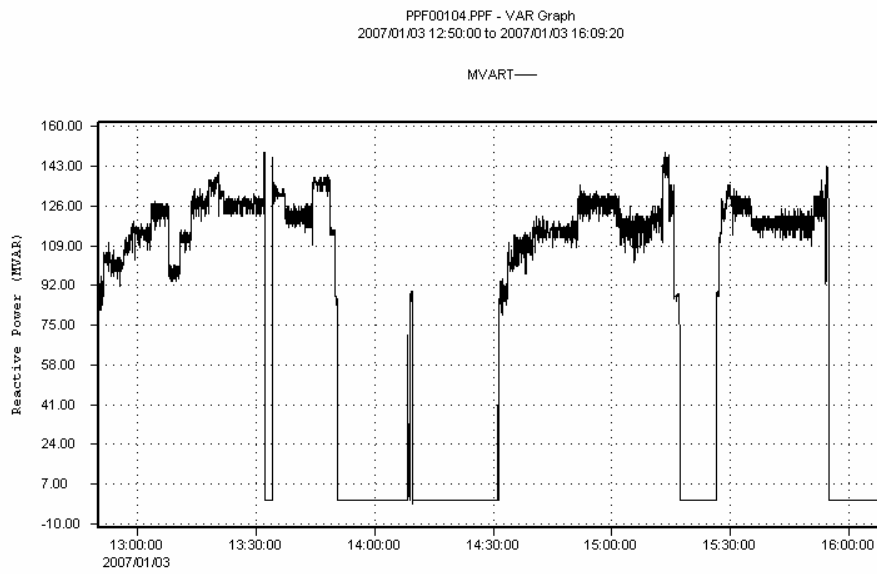


Fig.6.11. Total MVAR (MVART) variation from 12.50.00 Hrs to 16.09.20Hrs.

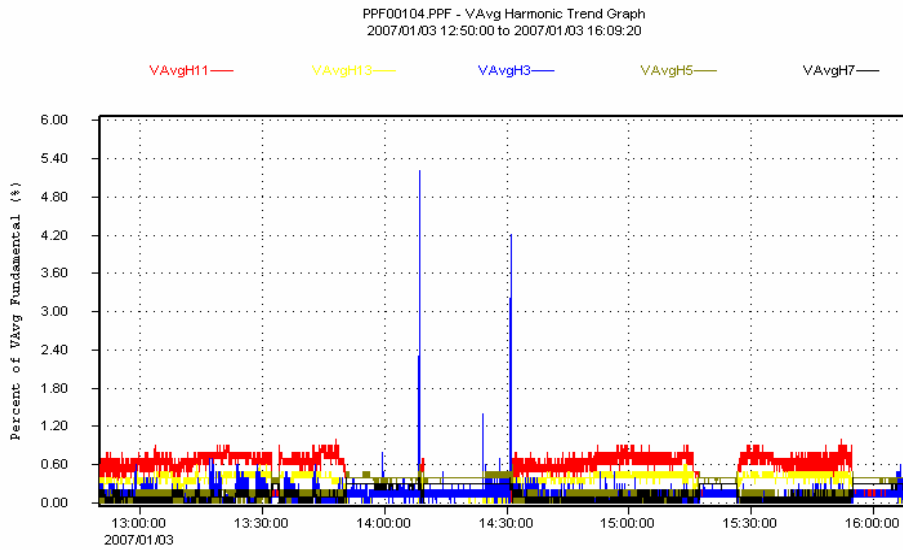


Fig.6.12. Average Voltage harmonics (Individual 3<sup>rd</sup>, 5<sup>th</sup>, 7<sup>th</sup>, 11<sup>th</sup> & 13<sup>th</sup>)  
– from 12.50.00 Hrs to 16.09.20Hrs.

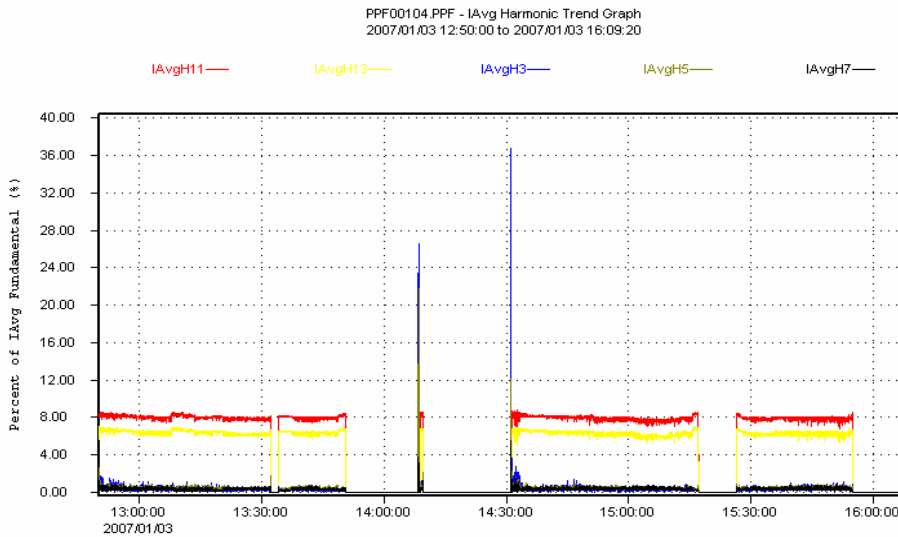


Fig.6.13. Average Current harmonics (Individual 3<sup>rd</sup>, 5<sup>th</sup>, 7<sup>th</sup>, 11<sup>th</sup> & 13<sup>th</sup>)  
– from 12.50.00 Hrs to 16.09.20Hrs.

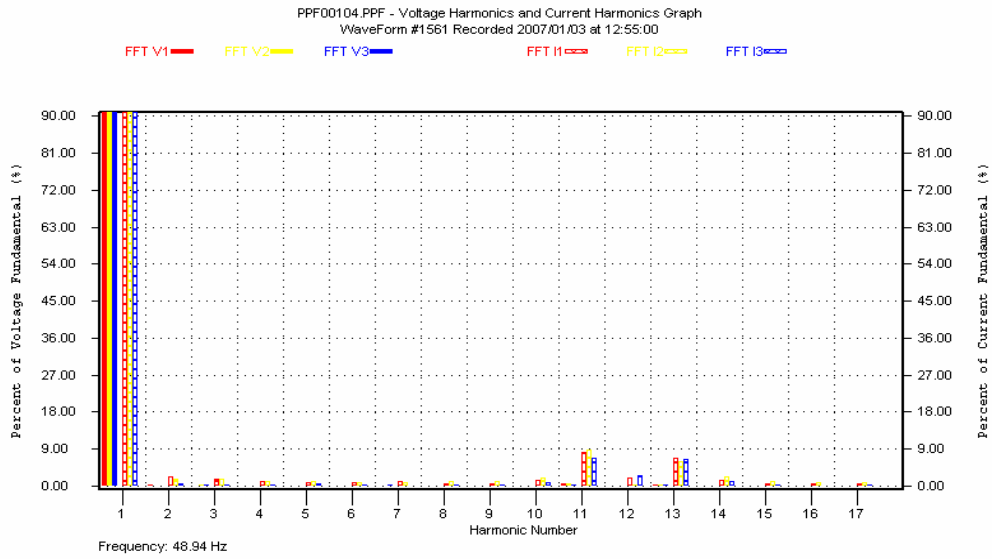


Fig.6.14. Voltage & Current FFT recorded at 12.55.00 Hrs

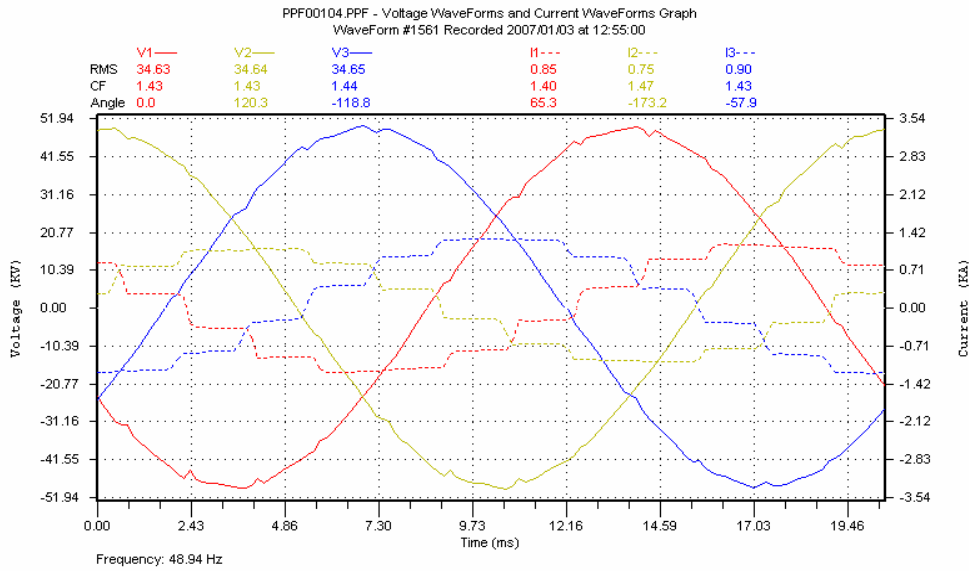


Fig.6.15. Voltage & Current wave form graph recorded at 12.55.00 Hrs



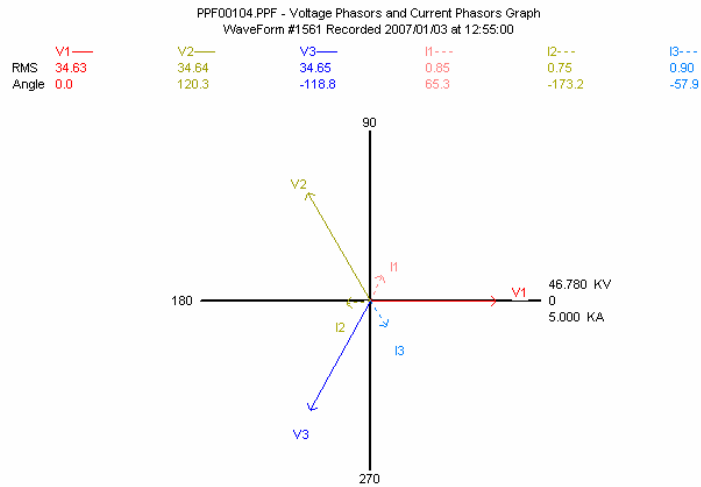


Fig.6.16. Voltage and Current Phasors recorded at 12.55.00 Hrs

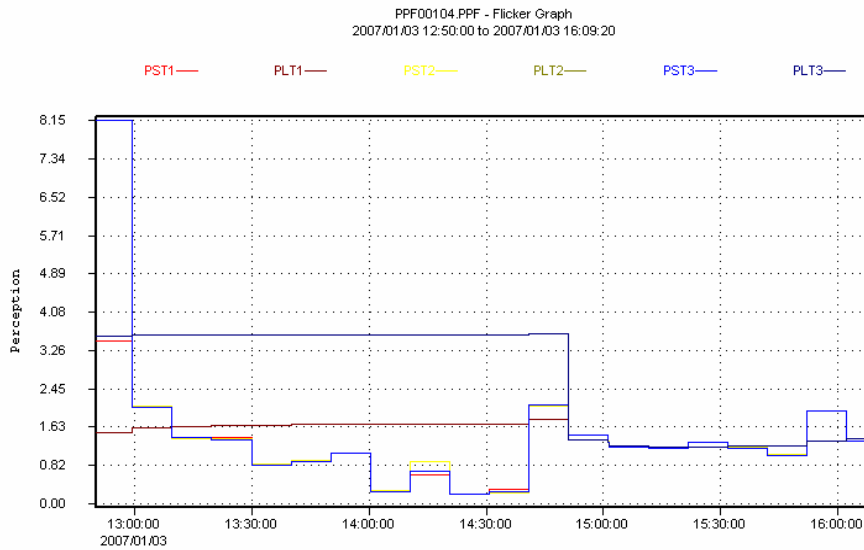


Fig.6.17. Flicker graph – PST & PLT – from 12.50.00 Hrs to 16.09.20Hrs.

The measured parameters are converted in to the Tabular Column and are tabulated in Annexure – 1 at Table – 6.1 to 6.13 & 6.17. (Enclosed in CD)

## 7.1 Furnace Complex - LF4 – 33kV Panel

The measurements have been carried out on 3<sup>rd</sup> January 2007 for about three and half hours. The measured parameters such as RMS Voltage, Current, Maximum and Average Total Voltage and Current Harmonic Distortion (THD), frequency, Power (MW), Power factor, Apparent Power (MVA), Reactive Power (MVAR), Various individual Voltage & Current harmonics, Voltage & Current FFT, V & I Wave form, V & I Phasors, PST & PLT Flicker graphs over the measurement period are shown in Figure 7.1 to 7.17. The CT and PT ratios are as given in the table below.

<b>CT RATIO</b>	600A/1A
<b>PT RATIO</b>	33kV/110V

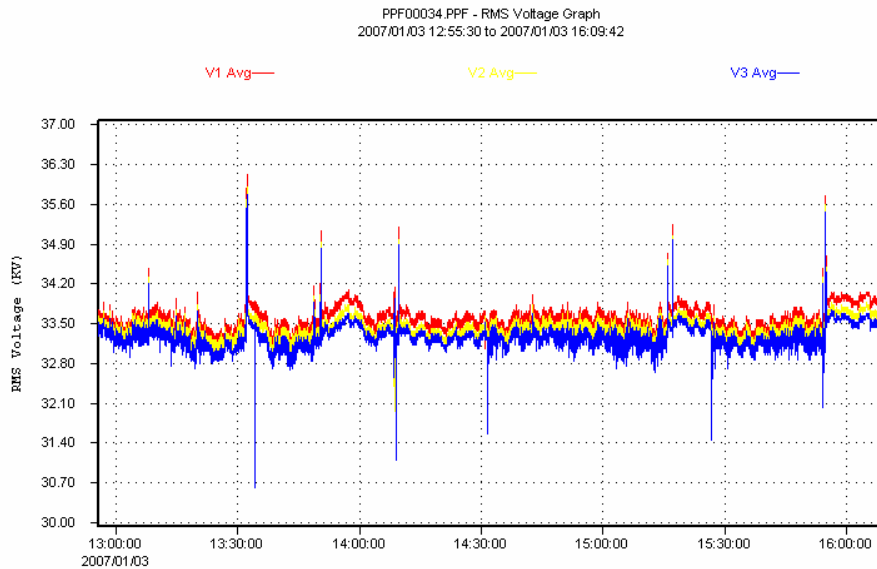


Fig.7.1. RMS Voltage wave forms from 12.55.30 Hrs to 16.09.42Hrs.

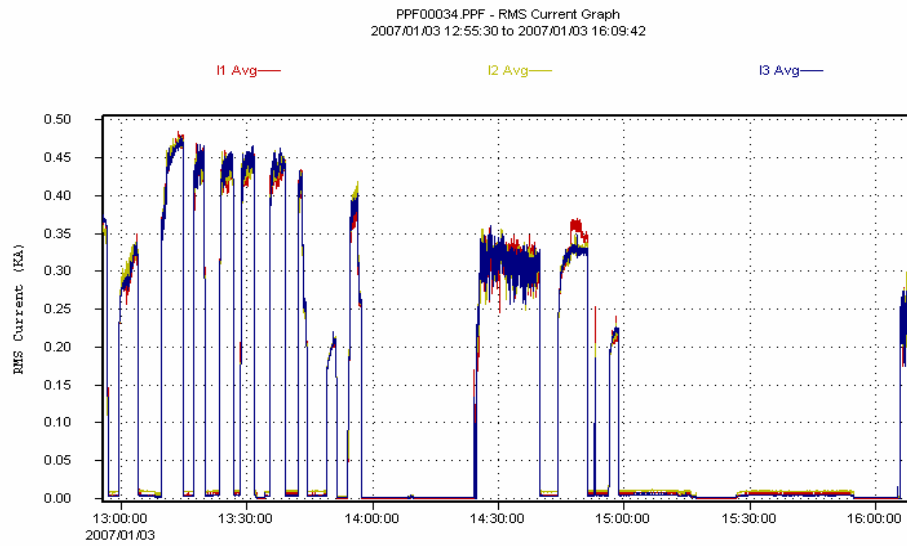


Fig.7.2. RMS Current wave forms from 12.55.30 Hrs to 16.09.42Hrs.

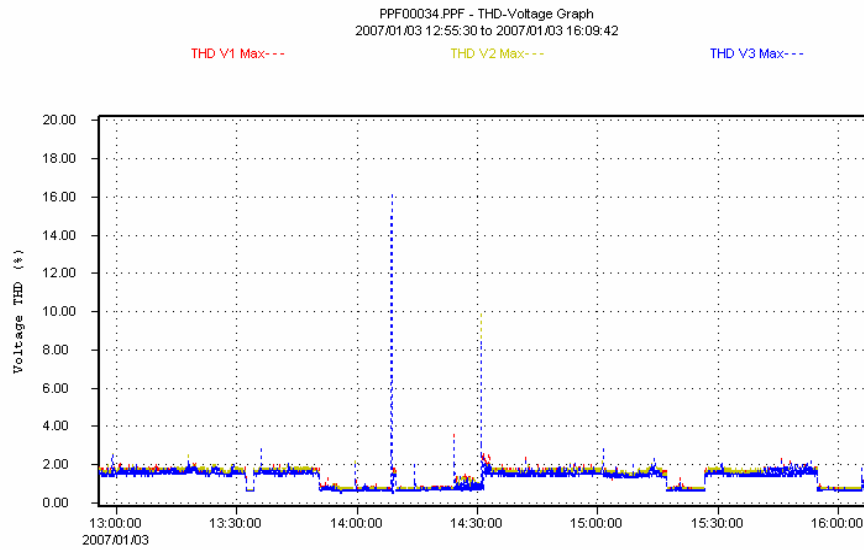


Fig.7.3. V THD Max wave forms from 12.55.30 Hrs to 16.09.42Hrs.

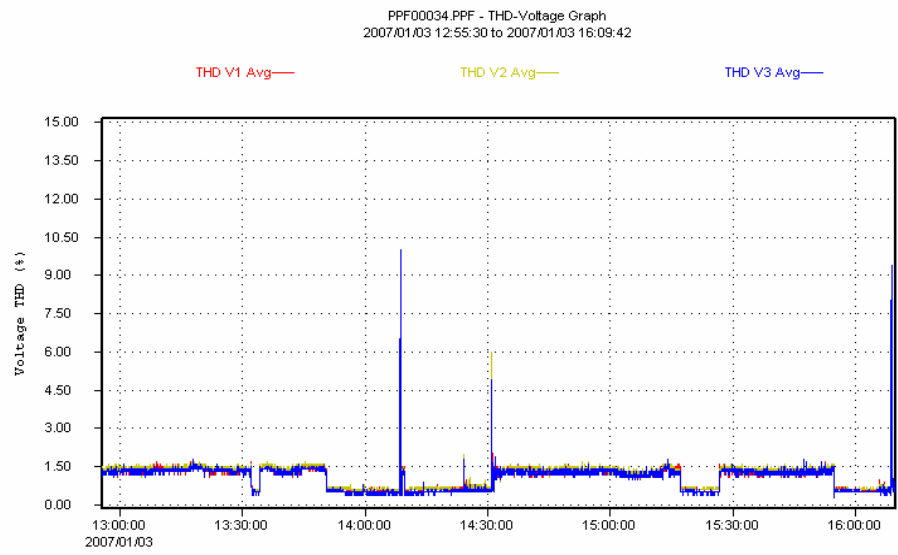


Fig.7.4. V THD Ave wave forms from 12.55.30 Hrs to 16.09.42Hrs.

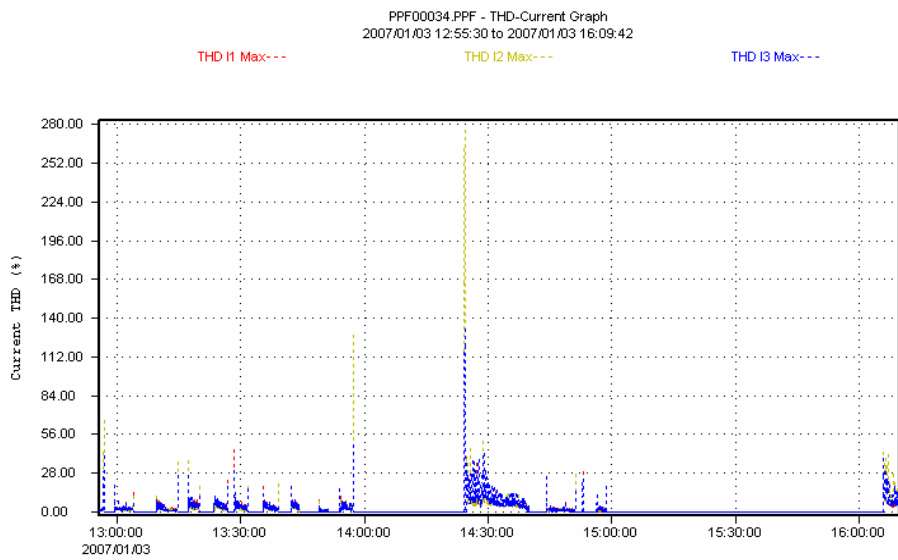


Fig.7.5. I THD Max wave forms from 12.55.30 Hrs to 16.09.42Hrs.

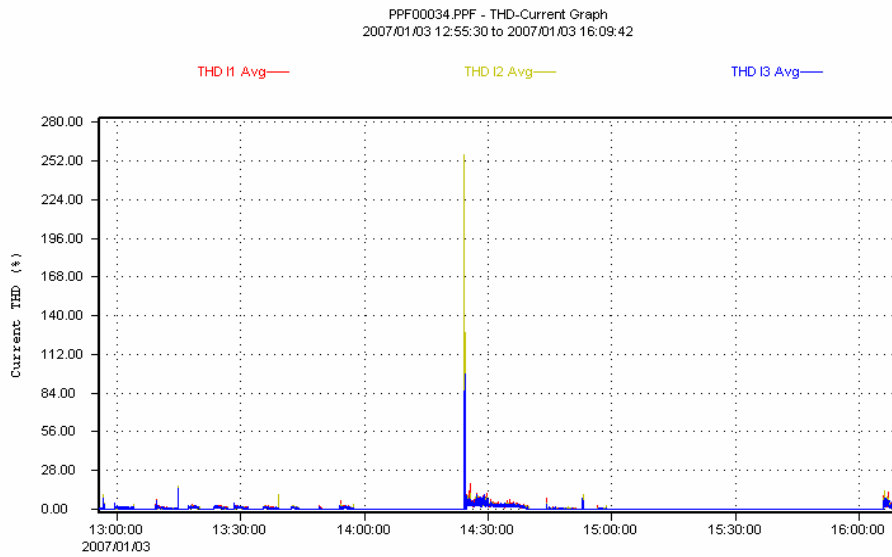


Fig.7.6. I THD Ave. wave forms from 12.55.30 Hrs to 16.09.42Hrs.

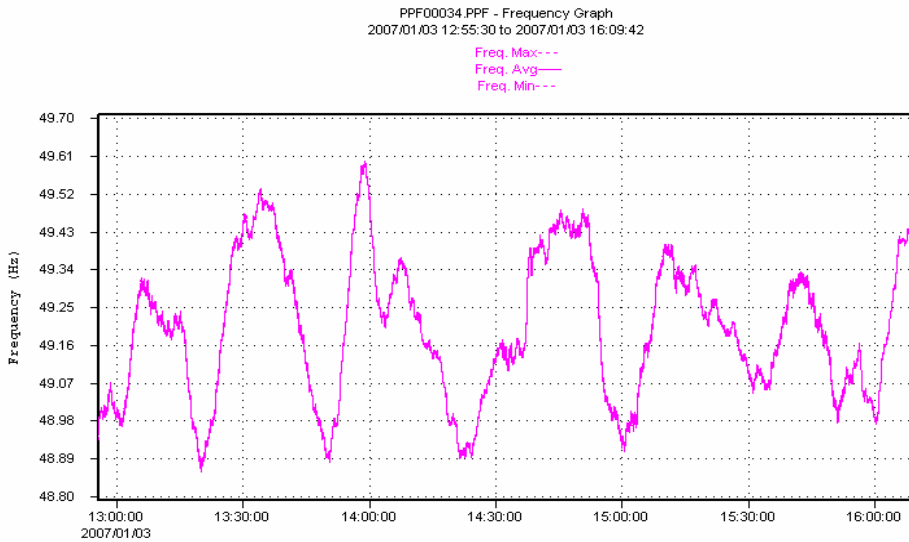


Fig.7.7. Frequency variation from 12.55.30 Hrs to 16.09.42Hrs.