

CASE STUDY- ENERGY SAVING (By PASSIVE HARMONICS FILTER)

HARMONICS MITIGATION ELECTRICITY WASTAGE TO ENERGY SAVING OPPORTUNITY

Location	- LAKE CHEMICALS, BANGALORE
Type of entity	- Manufacturer of specialized Bulk Drugs.
Contract Demand KVA	- 250KVA (Transformer 300KVA)
Full Load Working. Hrs.	- 24 Hrs.
Reason of Harmonics Mitigation	- Harmonics produced at F G BLOCK Area
Harmonics Mitigation Method	- Installation of PASSIVE HARMONICS FILTER(PHF)
Load & Harmonics Monitoring	- By Storage Data Logger
Harmonics reduction scope	- Voltage & current Harmonics reduction below 8 % THD
Energy Saving opportunity By Harmonics Mitigation	- We have already Installed Energy Saving System of 325 KVA established saving above 10 %. PHF will also contribute additional Energy Saving with a Harmonics Reduction apart

COMPARISON CHART FOR HARMONICS REDUCTION By PASSIVE HARMONICS FILTER

Electrical Parameters	Before Installation of PHF	After Installation of PHF
Avg. Supply Voltage Variation	390-430VAC	400-410
Avg. Current Unbalance	20 A	3 A
Avg. KW	30	29
Max. KVA	35	30
Avg. KVAR	22	8
Avg. PF	0.8	1
Max. V-% THD	6	3
Max. I-% THD	100	6

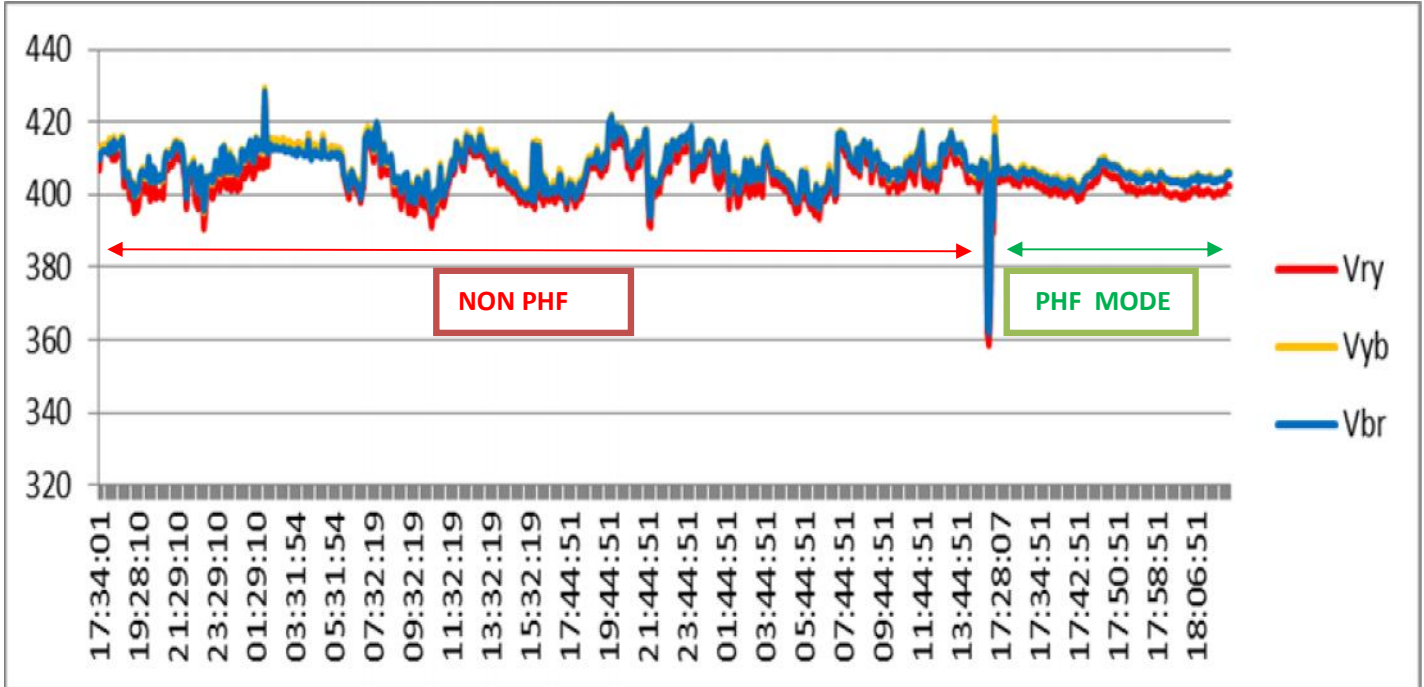
Remark – The Performance of Harmonics Mitigation Filter found Excellent
The detailed Graphical patterns are self Explanatory.

Harmonics Mitigation by Passive Harmonics Filter introduced by M/S **BNN POWER** Bureau of Energy Efficiency(BEE), Govt. of India, Ministry of power empanelled Energy Service Company (ESCO)

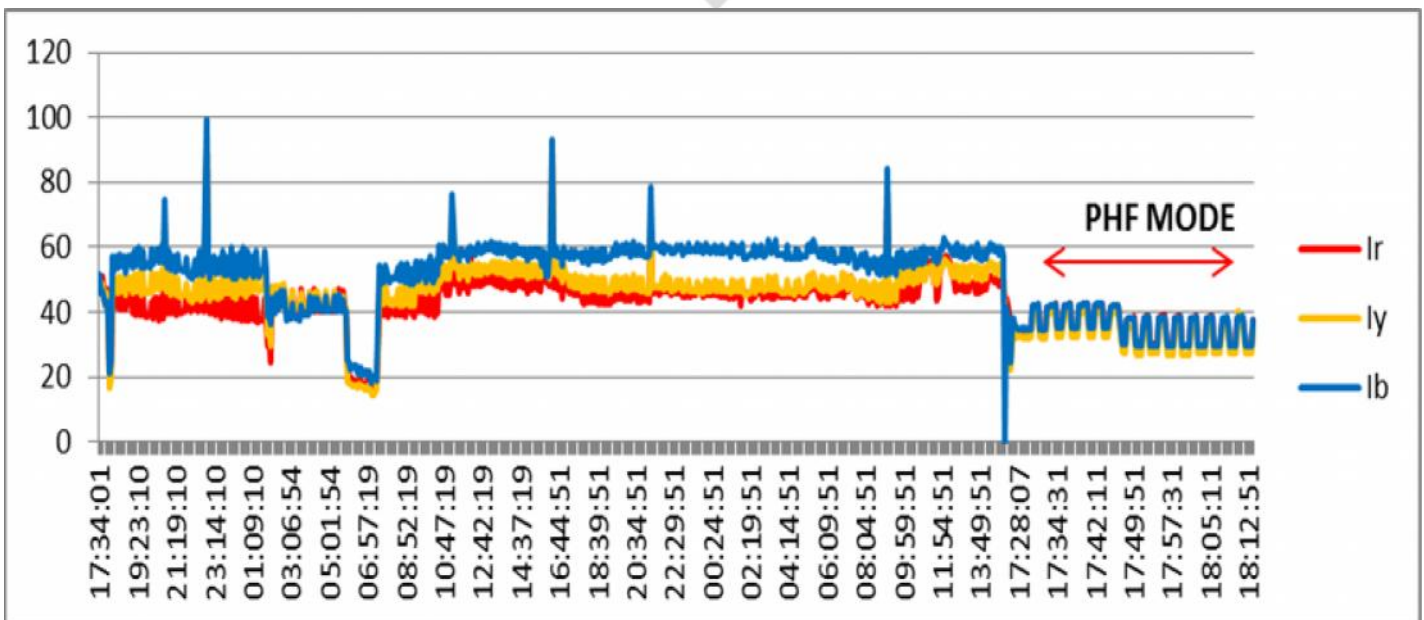
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DATA LOGGING BEFORE INSTALLATION & AFTER INSTALLATION OF
PASSIVE HARMONICS FILTER (PHF)



VOLTAGE WAVEFORM – SUPPLY VOLTAGE STABILITY

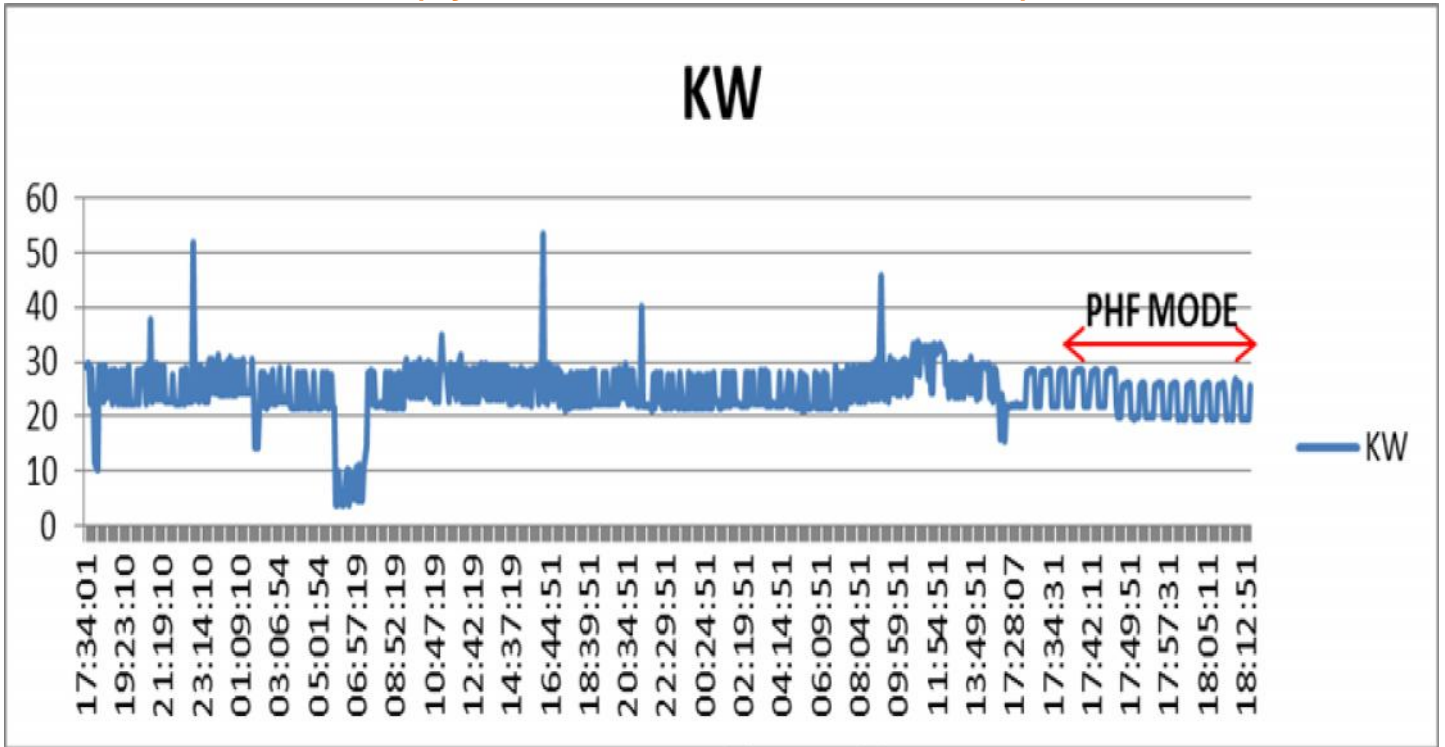


CURRENT WAVEFORM - CURRENT BALANCING
- CURRENT SPIKES REDUCTION

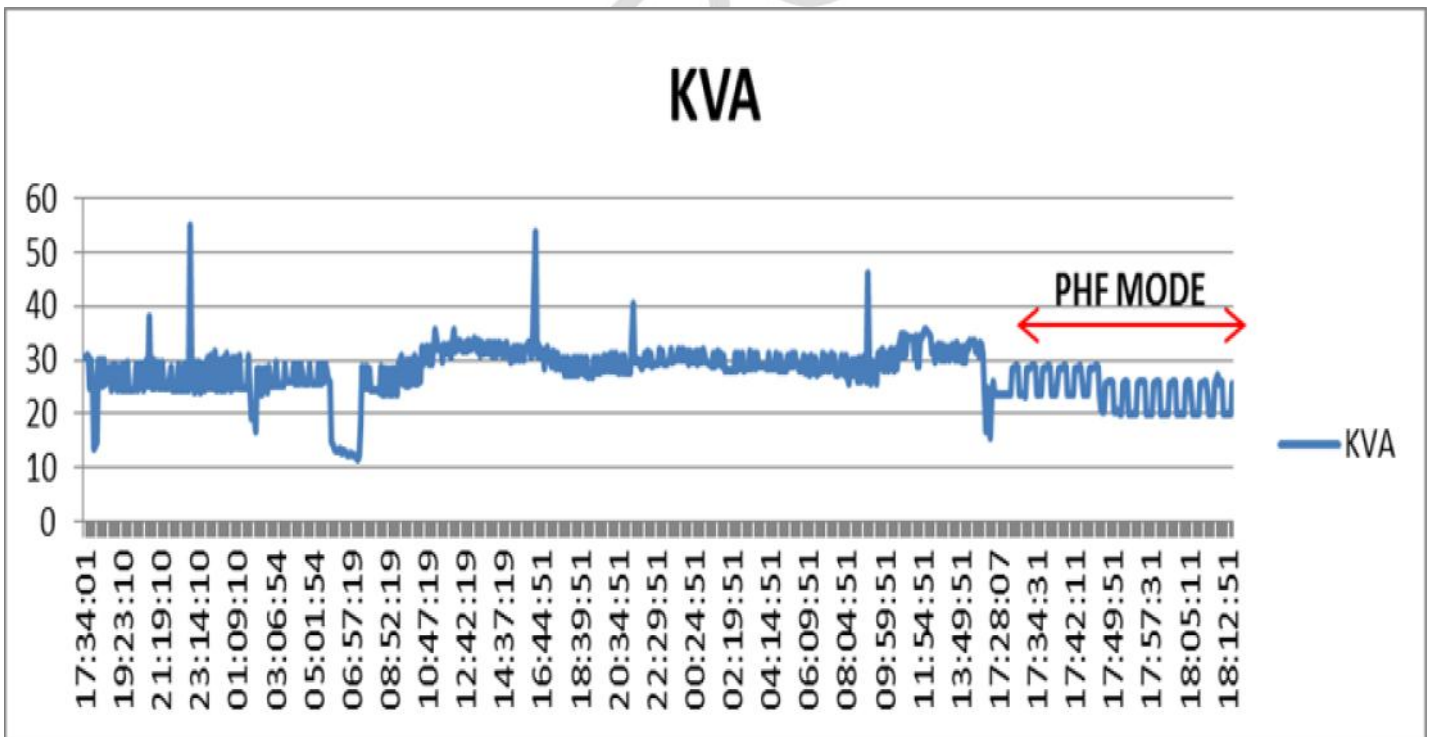
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KW WAVEFORM – ENERGY SAVING (ZERO SELF LOSSES)



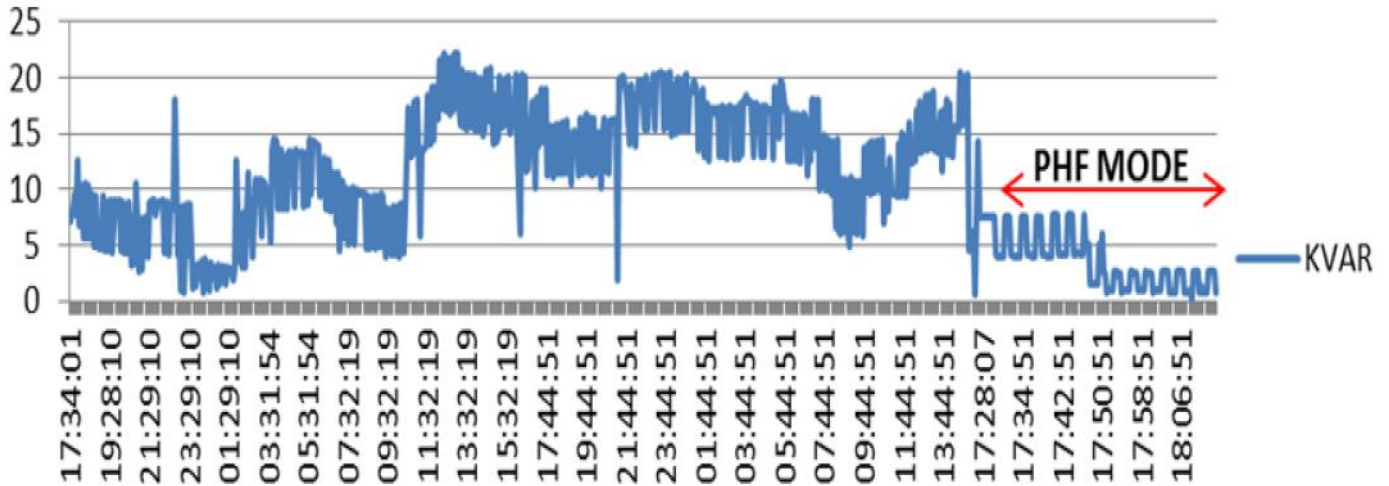
KVA WAVEFORM – KVA REDUCTION

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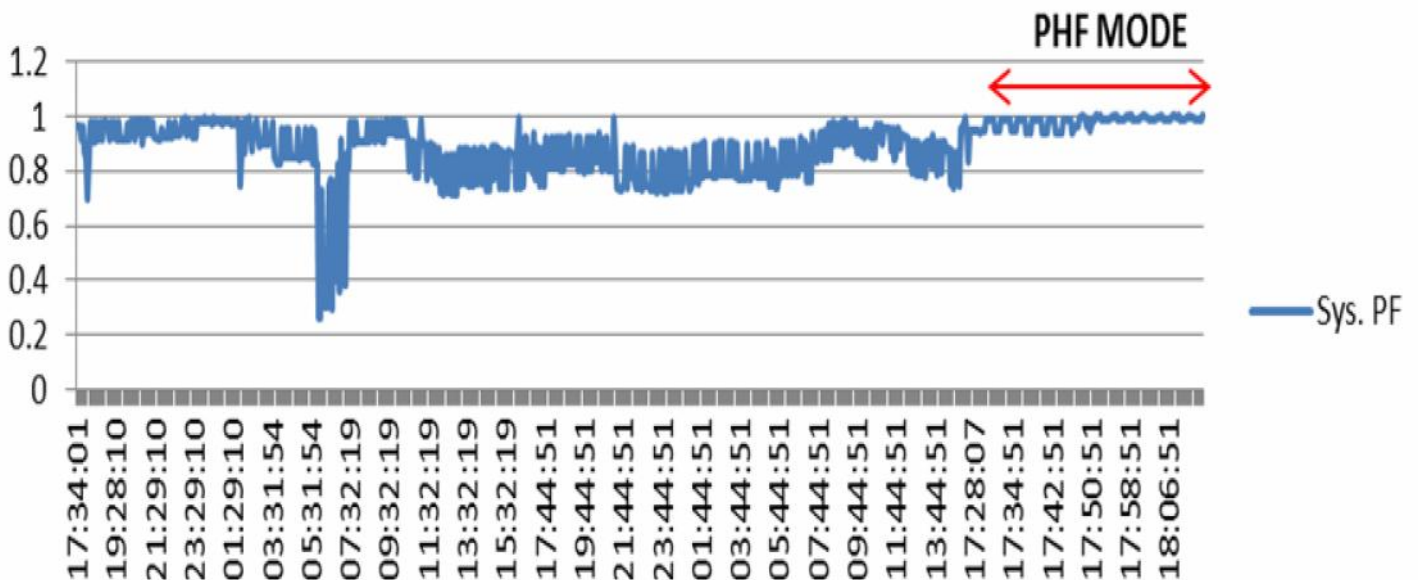
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KVAR



**KVAR WAVEFORM – KVAR BURDON REDUCED
WITHOUT POWER CAPACITORS**

Sys. PF

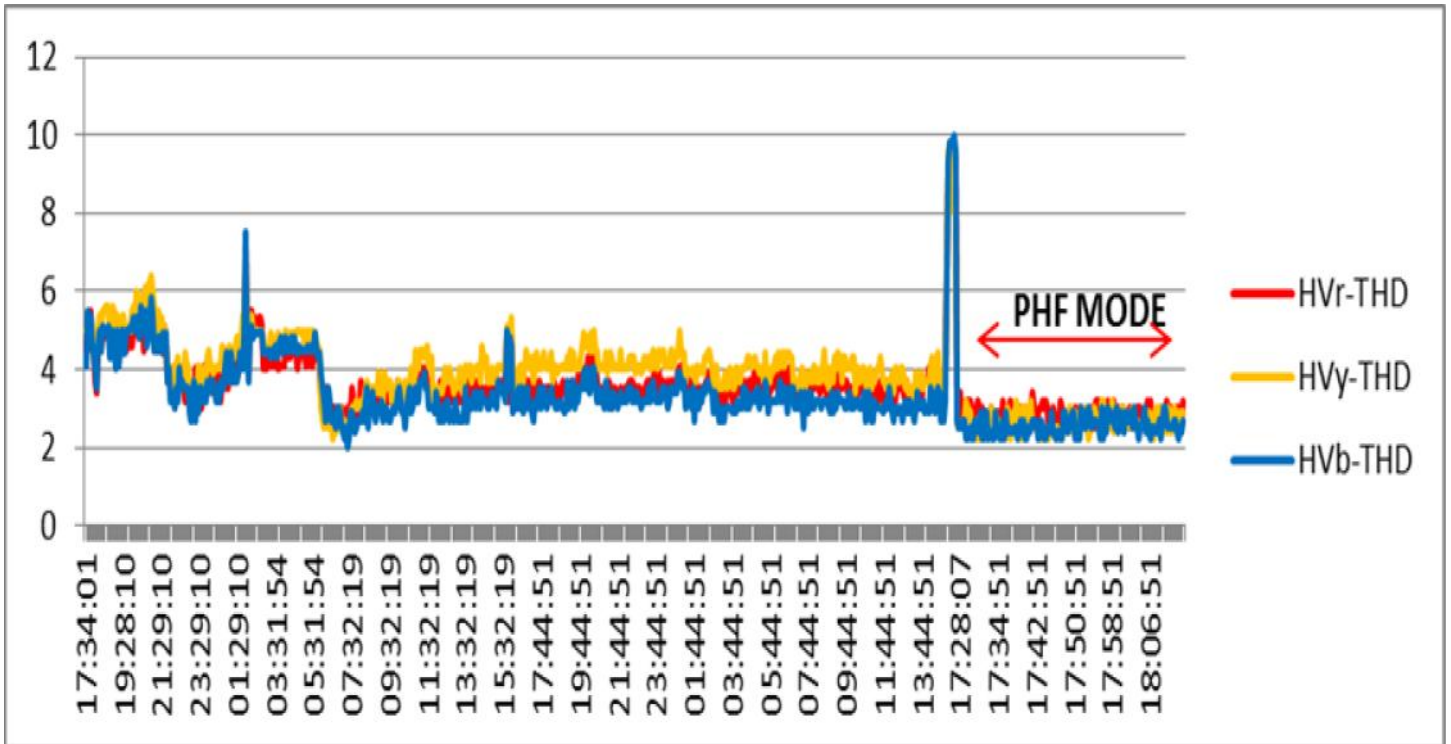


**POWER FACTOR WAVEFORM – POWER FACTOR IMPROVED
NEAR UNITY WITHOUT POWER CAPACITORS**

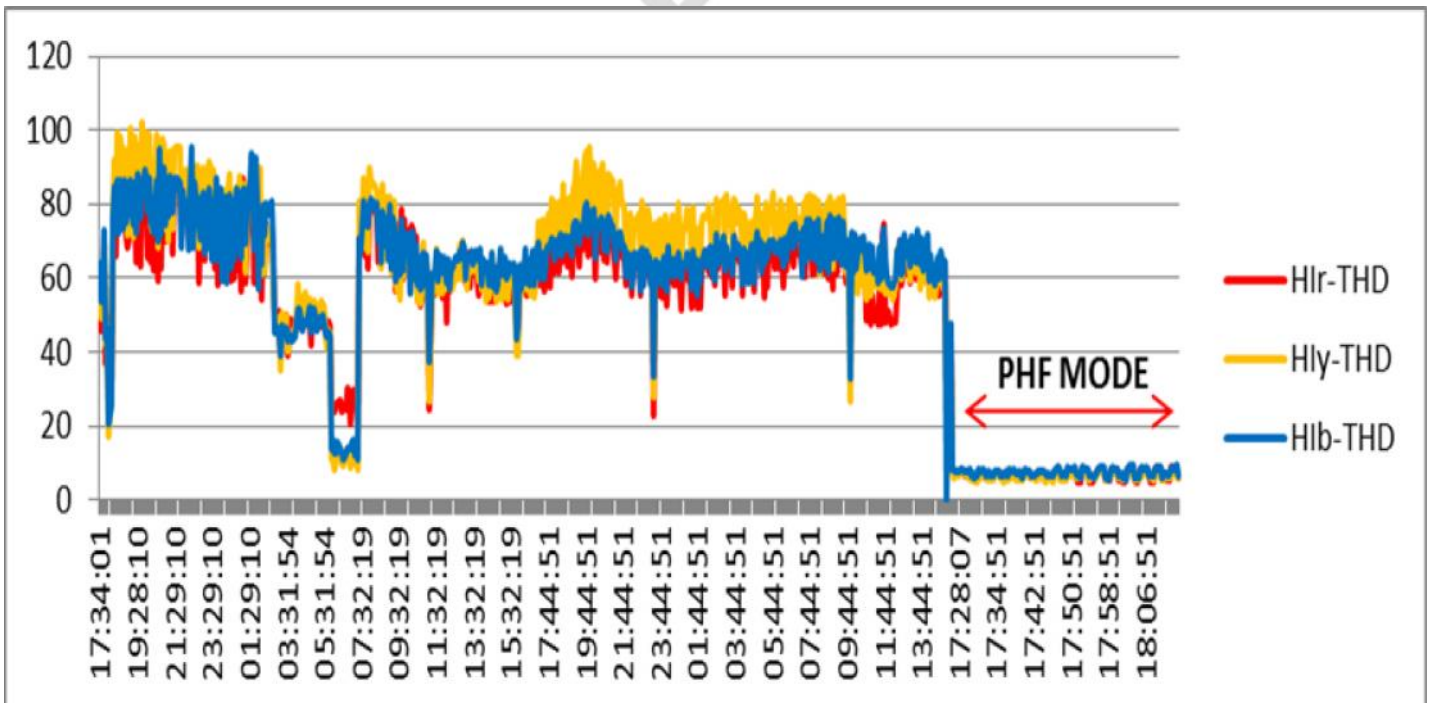
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VOLTAGE HARMONICS (V-%THD) WAVEFORM – HARMONICS REDUCTION



CURRENT HARMONICS (I - %THD) WAVEFORM – HARMONICS REDUCTION

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