



No. EED/SVNIT/ Consultancy- Energy Audit / 152/2021-2022

Date:01/12/2021

To,
Registrar (I/C)
Veer Narmad South Gujarat University,
University Campus, Udhna Magdalla Road, Surat-395007 (Gujarat)


Through: Research and Consultancy Cell, Department of Electrical Engineering


Reference: Letter No. Estate/ 11553/2021, Dated: 04/08/2021 and EED, SVNIT Surat inward No EED/90/2021, Dated 12/08/2021


CERTIFICATE OF COMPLETION

This is to state that the work entitled "Electrical Energy Audit at Veer Narmad South Gujarat University, Surat Campus" vide work order no. Estate/11553, dated 04-08-2021 to Sardar Vallabhbhai National Institute of Technology, Surat is executed during the months of August 2021 to November 2021.


It is certified that the said work is completed satisfactorily in conformation to the requirements. Energy Audit Report (containing 115 pages) is attached herewith.


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- (1) Dean (Research and Consultancy), for necessary information and suggestions if any further procedure
- (2) Departmental, Research and Consultancy Cell

Energy Audit Report

Of



Veer Narmad South Gujarat University
Surat, India

November 2021

Energy Audit Report
of
Veer Narmad South Gujarat University
Surat, India

Audited by
Department of Electrical Engineering,
Sardar Vallabhbhai National Institute of Technology, Surat

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1. Introduction to Energy Audit

1.1 General

The Veer Narmad South Gujarat University, Surat entrusted the work of conducting the Electrical Energy Audit at university campus wide work order no. estate/11553, dated 04-08-2021 to SardarVallabhbai National Institute of Technology, Surat. The energy audit is to be carried out at the various buildings of university, including academic department buildings, common amenities buildings, administrative buildings, hostels and residential. The main objectives of the work are as below:

- ✓ To study the present pattern of energy consumption
- ✓ To identify potential areas for energy optimization
- ✓ To recommend energy conservation proposals

1.2 Scope of Work, Methodology and Approach

Scope of work and methodology are as per the discussion. While undertaking data collection, field trials and their analysis, due care was always taken to avoid abnormal situations so as to generate normal/representative pattern of energy consumption at the facility.

1.2.1 Approach to Energy Audit

We focused our attention on energy management and optimization of energy efficiency of the systems, sub systems and equipments. The key to such performance evaluation lies in the sound knowledge of performance of equipments and system as a whole.

1.2.2 Energy Audit

The objective of Energy Audit is to balance the total energy inputs with its use and to identify the energy conservation opportunities in the stream.

Energy Audit also gives focused attention to energy cost and cost involved in achieving higher performance with technical and financial analysis. The best alternative is selected on financial analysis basis. The energy audit is carried out in the month of August 2021 to November 2021.

2. Energy Audit Methodology

Energy Audit Study is divided into following three steps

System Data Analysis

This steps involves collection of system data, energy bills and actual operating pattern. The system data analysis involves verification of system, analysis of energy consumption pattern.

Actual Measurement and Data Analysis

This step involves actual site measurement and field trials using various portable measurement instruments, observations of system.

Identification and Evaluation of Energy Conservation Opportunities

This step involves evaluation of energy conservation opportunities identified during the energy audit. It gives potential of energy saving and investment required to implement the proposed modifications.

3. Electricity Supply Details

DGVCL supply details:

- Supply Voltage: 22 kV
- DGVCL contract maximum demand: 475 kVA.

HT Substation Details:

- Transformers: 2 nos., 500 kVA, 22kV / 0.433 kV
- Number of HT substation : One

LT Distribution System Details:

- LT distribution system through LT cable: Maximum length of distribution approx. 1000 m.
- Load point Voltage profile varying from 396 V to 411 V depending on length of distributed network
- Total connected load (approximately): 2600 kW.
- Demand factor = 0.183

Diesel Generator (DG) details:

Sr. No.	DG Location	Capacity (kVA)
1	Convention Hall	380
2	Main building	160
3	Computer Science	160
4	HRD	160
	Total	860

Installed Solar System Details:

Sr. No.	Details	Capacity
1	Street Light	50
2	Roof top solar plant	358 kW
3	Solar Water Heater	12000 LPH

4. Details of Load

1 Journalism Department.

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	90	60	5400
Fan	25	120	3000
Plug	20	60	1200
Computer	9	250	2250
Refrigerator/ Cooler	1	575	575
		TOTAL	12425

2 Rural Studies.

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	82	60	4920
Fan	28	120	3360
Plug	12	60	720
Computer	14	250	3500
Refrigerator/ Cooler	1	575	575
Geyser/Xerox	1	500	500
		TOTAL	13575

3 Conditioning hall.

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	22	60	1320
Fan	9	120	1080
Plug	11	60	660
Refrigerator/ Cooler	1	575	575
15 A Plug	2	200	400
		TOTAL	4035

4 Bio- Sciences.

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	118	60	7080
Fan	67	120	8040
Computer	10	250	2500
Refrigerator/ Cooler	2	575	1150
Xerox	1	500	500
5 A Plug	14	60	840
15 A Plug	20	200	4000
		TOTAL	24110

5 Chemistry Department.

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	88	60	5280
Fan	32	120	3840
Computer	39	250	9750
Refrigerator/ Cooler	2	575	1150
Xerox	1	500	500
5 A Plug	18	60	1080
15 A Plug	24	200	4800
		TOTAL	26400

6 Convention hall.

Lighting Load	Nos.	Wattage Each	Total Wattage
Stage Light	24	1000	24000
Light	150	60	9000
Fan	25	120	3000
Plug	12	60	720
Refrigerator/ Cooler	1	575	575
Water Pump	1	1500	1500
1 Phase Motor	2	1200	2400
15 A Plug	20	200	4000
		TOTAL	45195

7 Computer Sciences.

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	183	60	10980
Fan	69	120	8280
Computer	90	250	22500
Refrigerator/ Cooler	1	575	575
Xerox	1	500	500
5 A Plug	16	60	960
15 A Plug	10	200	2000
		TOTAL	45795

8 Administrative Building.

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	89	60	5340
Fan	49	120	5880
Computer	56	250	14000
Refrigerator/ Cooler	4	575	2300
Xerox	3	500	1500
5 A Plug	165	60	9900
15 A Plug	12	200	2400
		TOTAL	41320

9 H.R.D. Department.

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	306	60	18360
Fan	205	120	24600
Computer	58	250	14500
Refrigerator/ Cooler	1	575	575
Xerox	1	500	500
5 A Plug	116	60	6960
15 A Plug	14	200	2800
		TOTAL	68295

10 NarmadBhavan.

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	40	60	2400
Fan	14	120	1680
Computer	75	250	18750
Refrigerator/ Cooler	1	575	575
Xerox	1	500	500
5 A Plug	89	60	5340
15 A Plug	3	200	600
		TOTAL	29845

11 Education Department.

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	99	60	5940
Fan	56	120	6720
Computer	16	250	4000
Refrigerator/ Cooler	1	575	575
Xerox	1	500	500
5 A Plug	18	60	1080
15 A Plug	6	200	1200
		TOTAL	20015

12 Library.

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	212	60	12720
Fan	34	120	4080
Computer	85	250	21250
Refrigerator/ Cooler	1	575	575
Xerox	2	500	1000
5 A Plug	10	60	600
15 A Plug	6	200	1200
		TOTAL	41425

13. V.C. Bungalow

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	16	60	960
Fan	26	120	3120
Computer	1	250	250
Refrigerator/ Cooler	1	575	575
5 A Plug	10	60	600
15 A Plug	3	200	600
		TOTAL	6105

14. Guest House

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	55	60	3300
Fan	31	120	3720
Refrigerator/ Cooler	1	575	575
Air Conditioner	16	2300	36800
Geyser	25	500	12500
5 A Plug	10	60	600
15 A Plug	7	200	1400
		TOTAL	58895

15. Aquatic Biology

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	55	60	3300
Fan	41	120	4920
Refrigerator/ Cooler	4	575	2300
Computer	15	250	3750
Xerox	1	500	500
5 A Plug	10	60	600
15 A Plug	7	200	1400
		TOTAL	16770

16. Bapalal

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	24	60	1440
Fan	15	120	1800
Refrigerator/ Cooler	2	575	1150
Computer	5	250	1250
5 A Plug	10	60	600
15 A Plug	5	200	1000
		TOTAL	7240

17. Health Centre

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	23	60	1380
Fan	12	120	1440
Refrigerator/ Cooler	2	575	1150
Computer	2	250	500
5 A Plug	10	60	600
15 A Plug	3	200	600
		TOTAL	5670

18. Exam Section

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	302	60	18120
Fan	137	120	16440
Refrigerator/ Cooler	2	575	1150
Computer	56	250	14000
Xerox	2	500	1000
5 A Plug	62	60	3720
15 A Plug	7	200	1400
		TOTAL	55830

19. Humanities Building

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	255	60	15300
Fan	82	120	9840
Refrigerator/ Cooler	1	575	575
Air Conditioner	0	2300	0
Computer	70	250	17500
Xerox	1	500	500
5 A Plug	122	60	7320
15 A Plug	50	200	10000
		TOTAL	61035

20. Biotechnology C.R.C.

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	118	60	7080
Fan	65	120	7800
Refrigerator/ Cooler	3	575	1725
Computer	42	250	10500
Xerox	1	500	500
5 A Plug	49	60	2940
15 A Plug	9	200	1800
		TOTAL	32345

21. Canteen

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	29	60	1740
Fan	13	120	1560
Refrigerator/ Cooler	3	575	1725
5 A Plug	5	60	300
15 A Plug	3	200	600
		TOTAL	5925

22. Prarthna hall

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	26	60	1560
Fan	19	120	2280
5 A Plug	9	60	540
15 A Plug	2	200	400
		TOTAL	4780

23. Sciences Building

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	253	60	15180
Fan	149	120	17880
Refrigerator/ Cooler	5	575	2875
Computer	83	250	20750
Xerox	3	500	1500
5 A Plug	93	60	5580
15 A Plug	38	200	7600
		TOTAL	71365

24. USIC Building

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	77	60	4620
Fan	41	120	4920
Refrigerator/ Cooler	1	575	575
Computer	6	250	1500
Xerox	1	500	500
5 A Plug	8	60	480
15 A Plug	6	200	1200
		TOTAL	13795

25. Research Center

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	77	60	4620
Fan	41	120	4920
Refrigerator/ Cooler	1	575	575
Computer	6	250	1500
Xerox	1	500	500
5 A Plug	8	60	480
15 A Plug	6	200	1200
		TOTAL	13795

26. Satpuda Boys Hostel

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	63	60	3780
Fan	51	120	6120
Refrigerator/ Cooler	1	575	575
Computer	0	250	0
Xerox	0	500	0
5 A Plug	51	60	3060
15 A Plug	2	200	400
		TOTAL	13935

27. Ginar Boys Hostel

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	68	60	4080
Fan	51	120	6120
Refrigerator/ Cooler	1	575	575
Computer	0	250	0
Xerox	0	500	0
5 A Plug	69	60	4140
15 A Plug	2	200	400
		TOTAL	15315

28. Vindhayanchal Boys Hostel

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	96	60	5760
Fan	32	120	3840
Refrigerator/ Cooler	1	575	575
Computer	0	250	0
Xerox	0	500	0
5 A Plug	39	60	2340
15 A Plug	8	200	1600
		TOTAL	14115

29. Sahyadri Boys Hostel

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	79	60	4740
Fan	30	120	3600
Refrigerator/ Cooler	1	575	575
Computer	0	250	0
Xerox	0	500	0
5 A Plug	32	60	1920
15 A Plug	2	200	400
		TOTAL	11235

30. Santrunjay Boys Hostel

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	76	60	4560
Fan	30	120	3600
Refrigerator/ Cooler	1	575	575
Computer	0	250	0
Xerox	0	500	0
5 A Plug	32	60	1920
15 A Plug	2	200	400
		TOTAL	11055

31. M.B.A. Boys Hostel

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	34	60	2040
Fan	15	120	1800
Refrigerator/ Cooler	0	575	0
Computer	0	250	0
Xerox	0	500	0
5 A Plug	15	60	900
15 A Plug	1	200	200
		TOTAL	4940

32. Gujarati Bhavan

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	134	60	8040
Fan	78	120	9360
Refrigerator/ Cooler	1	575	575
Computer	9	250	2250
Xerox	0	500	0
5 A Plug	37	60	2220
15 A Plug	4	200	800
		TOTAL	23245

33. Instrument Center

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	159	60	9540
Fan	62	120	7440
Refrigerator/ Cooler	1	575	575
Computer	19	250	4750
Xerox	0	500	0
5 A Plug	42	60	2520
15 A Plug	9	200	1800
		TOTAL	26625

34. Narmada Girls Hostel

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	25	60	1500
Fan	25	120	3000
Refrigerator/ Cooler	1	575	575
Computer	0	250	0
Xerox	0	500	0
5 A Plug	25	60	1500
15 A Plug	25	200	5000
		TOTAL	11575

35. Purna Girls Hostel

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	64	60	3840
Fan	32	120	3840
Refrigerator/ Cooler	1	575	575
Computer	0	250	0
Xerox	0	500	0
5 A Plug	96	60	5760
15 A Plug	1	200	200
		TOTAL	14215

36. Kaveri Girls Hostel

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	52	60	3120
Fan	48	120	5760
Refrigerator/ Cooler	1	575	575
5 A Plug	192	60	11520
15 A Plug	1	200	200
		TOTAL	21175

37. Saraswati Girls Hostel

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	115	60	6900
Fan	32	120	3840
Refrigerator/ Cooler	1	575	575
Computer	0	250	0
Xerox	0	500	0
5 A Plug	96	60	5760
15 A Plug	1	200	200
		TOTAL	17275

38. Ambica Girls Hostel

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	70	60	4200
Fan	25	120	3000
Refrigerator/ Cooler	1	575	575
Computer	0	250	0
Xerox	0	500	0
5 A Plug	58	60	3480
15 A Plug	2	200	400
		TOTAL	11655

39. Tapi Girls Hostel

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	45	60	2700
Fan	37	120	4440
Refrigerator/ Cooler	1	575	575
Computer	0	250	0
Xerox	0	500	0
5 A Plug	8	60	480
15 A Plug	39	200	7800
		TOTAL	15995

40. Library Girls Hostel

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	28	60	1680
Fan	15	120	1800
Refrigerator/ Cooler	0	575	0
Computer	0	250	0
Xerox	0	500	0
5 A Plug	16	60	960
15 A Plug	3	200	600
		TOTAL	5040

41. New Boys Hostel

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	178	22	3916
Fan	171	50	8550
Refrigerator/ Cooler	1	575	575
Computer	0	250	0
Xerox	0	500	0
5 A Plug	616	60	36960
15 A Plug	74	200	14800
		TOTAL	64801

42. Day Care Center

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	90	60	5400
Fan	60	120	7200
Refrigerator/ Cooler	1	575	575
Computer	6	250	1500
Xerox	1	500	500
5 A Plug	60	60	3600
15 A Plug	0	200	0
		TOTAL	18775

43. Narmad Seminar Hall

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	80	22	1760
Fan	48	50	2400
Refrigerator/ Cooler	1	575	575
Computer	1	250	250
Xerox	0	500	0
5 A Plug	48	60	2880
15 A Plug	20	200	4000
		TOTAL	11865

44. Narmad House

Lighting Load	Nos	Wattage Each	Total Wattage
Light	35	60	2100
Fan	16	50	800
Refrigerator/ Cooler	0	575	0
Computer	1	250	250
Xerox	0	500	0
5 A Plug	16	60	960
15 A Plug	4	200	800
		TOTAL	4910

45. Assessment Building

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	159	60	9540
Fan	118	120	14160
Refrigerator/ Cooler	3	575	1725
Computer	100	250	25000
Xerox	2	500	1000
5 A Plug	60	60	3600
15 A Plug	28	200	5600
		TOTAL	60625

46. Law building

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	178	60	10680
Fan	84	120	10080
Refrigerator/ Cooler	1	575	575
Computer	10	250	2500
Xerox	2	500	1000
5 A Plug	117	60	7020
15 A Plug	3	200	600
		TOTAL	32455

47. Indoor Stadium

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	70	60	4200
Fan	10	120	1200
Refrigerator/ Cooler	1	575	575
Computer	0	250	0
Xerox	0	500	0
5 A Plug	42	60	2520
15 A Plug	38	200	7600
		TOTAL	16095

48. Swimming Pool

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	190	60	11400
Fan	100	120	12000
Refrigerator/ Cooler	1	575	575
Computer	0	250	0
Xerox	0	500	0
5 A Plug	270	60	16200
15 A Plug	80	200	16000
		TOTAL	56175

49. IPS Building

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	55	60	3300
Fan	33	120	3960
Refrigerator/ Cooler	1	575	575
Computer	6	250	1500
Xerox	0	500	0
5 A Plug	114	60	6840
15 A Plug	10	200	2000
		TOTAL	18175

50. Sociology Building

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	190	60	11400
Fan	85	120	10200
Refrigerator/ Cooler	2	575	1150
Computer	80	250	20000
Xerox	2	500	1000
5 A Plug	68	60	4080
15 A Plug	15	200	3000
		TOTAL	50830

51. Sport Complex

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	70	60	4200
Fan	25	120	3000
Refrigerator/ Cooler	0	575	0
Computer	0	250	0
Xerox	0	500	0
5 A Plug	15	60	900
15 A Plug	8	200	1600
		TOTAL	9700

52. Under Ground Water Tank

Lighting Load	Nos.	Wattage Each	Total Wattage
Light	12	22	264
Fan / Exhaust	4	120	480
Plug	15	60	900
Submercial Pumps 15 HP	5	12000	60000
Mono Block Pumps 15 HP	1	12000	12000
		TOTAL	73644

53. Other/Misc. Load

Type	Total number	Total capacity	kW
Pump Motor	54	136 HP	101.5
Residence / commercial building	15		60
DuctableAC	52	335 Ton	419
Split / Window AC	305	470 Ton	587

5. Details of Energy Consumptions

Electricity Bill Details (March 2020 – March 2021)

Consumer No. 10206, DGVCL

Contract Maximum Demand: 475 kVA

	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21
KWH	75424	39247	37252	5119 1	5305 3	42790	7073 6	6849 0	57520	4109 4	4061 3	5678 6	79304
KVAH	79622	45333	42518	5700 1	5899 7	48925	7473 7	7254 7	62237	4506 8	4678 3	6308 1	84371
KVAR	24067	20350	21515	2057 8	2422 5	22265	2252 6	2212 9	21358	1715 8	2216 9	2663 3	27878
AVG. PF	0.947	0.865	0.876	0.898	0.899	0.874	0.946	0.944	0.924	0.911	0.868	0.900	0.939
Actual Max. Demand	289	222	160	227	234	237	324	314	348	166	136	228	382
Peak HR	23636	13351	12575	1388 5	1436 6	12976	2079 1	1826 9	14969	1248 5	1393 4	1979 9	24524
Night HR	19508	16003	14524	1373 2	1365 3	13628	1751 2	1540 1	14275	1223 3	1298 8	1624 0	17705
PF Rebate	0	5495	3576	410	312	4450	0	0	0	0	5198	0	0
Night Rebate	7803	6401	6245	5905	5871	5860	7530	6622	6138	5260	5585	6983	7613
Current month bill	59857 8	27937 9	32588 3	4178 87	4305 82	37003 5	5598 68	5441 09	45469 7	3446 5	3478 12	4513 21	60349 6
Fuel Surcharge	15537 3	80849	70779	9726 3	1008 01	85580	1414 72	1369 80	10411 1	7438 0	7351 0	1027 83	14354 0
Solar Credit to Grid (KWH)	517	2202	716	361	158	595	4	0	1260	1040	829	308	0
Amount Credit due to solar(₹)	3603	14991	4779	2453	1073	4177	28	0	8419	6949	5661	2058	0

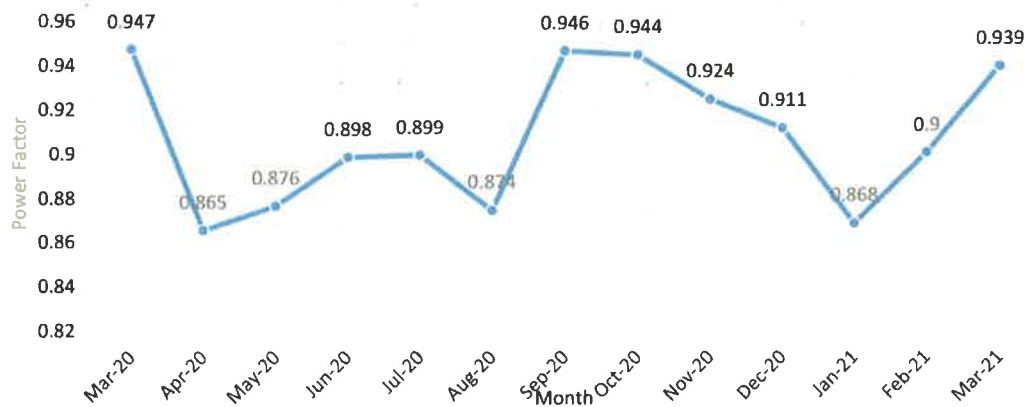


Figure 1 power factor variation

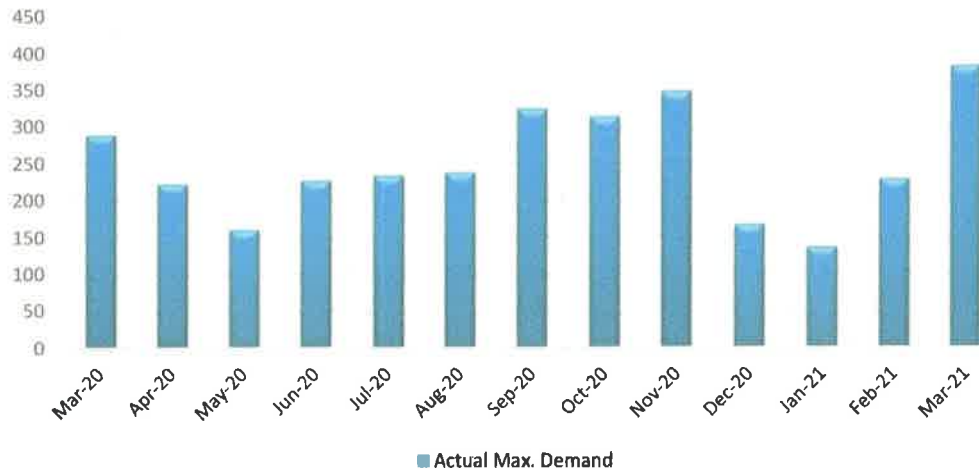


Figure 2 Maximum demand variation

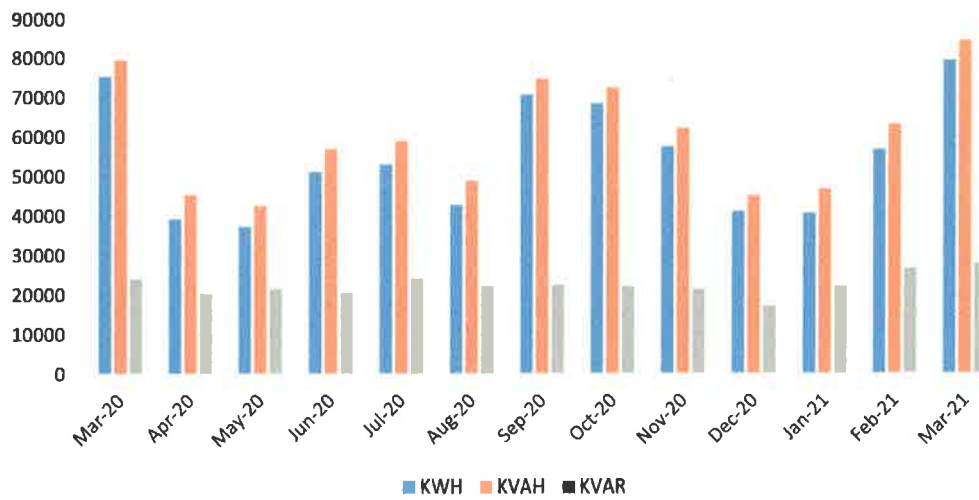


Figure 3 Active, reactive and apparent power consumption

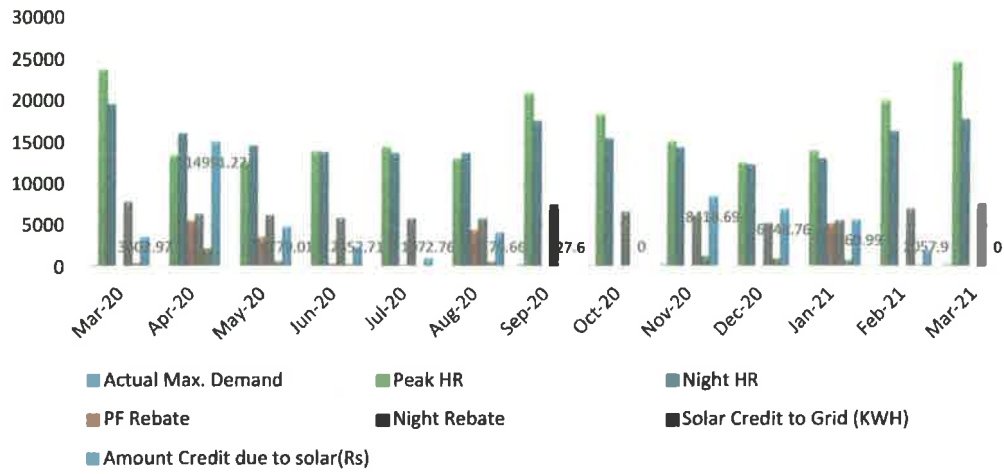


Figure 4 Rebate variation

6. Measurements and Observations

3 – phase supply voltage (phase and line), supply current, active and reactive power, power factor and Total Harmonic Distortion (THD) in current and voltage are measured at all the panels of various Department in university campus and details are given in **Appendix: 1**. Total Harmonic Distortion (THD) in current and voltage is given as per loading conditions at the time of our time visit.

University has taken few energy efficient measures like

1. All street lights are LED and recently commissioned.
2. Lightings in few departments are LED.
3. Substation is well maintained with APFC.
4. Most of the internal wiring, distribution panel and feeder pillar are in good conditions, though very few are bad condition and need attention.
5. Solar energy harvesting has started.

7. Required Energy Efficient Measures

Power is consumed mainly by the followings type of loads with approximate wattage

1. Light : 314 kW
2. Fan : 330 kW
3. Computer : 243 kW
4. Cooler and Refrigerator : 40 kW
5. Pump Motor : 102 kW
6. Air conditioner : 1000 kW
7. Residential Load : 60 kW
8. Street light (LED) : 10 kW
9. Plug point and misc. : 500 kW

Energy efficient measures:

1. All conventional Tube lights can be replaced with LED fittings for achieving the energy saving.
2. The old fans can also be replaced with energy efficient fans.
3. The rebate for maintaining the power factor is not achieved every month due to the poor power factor. Suitable measures must be taken for improving the power factor.
4. Replacing old wiring for reduced losses as well as for improving the safety.
5. There are scope of adding more solar PV systems (street light, roof top).
6. The old Air conditioners can also be replaced with efficient inverter based ACs.

Appendix: 1

3 – phase Voltage (phase and line), supply current, active and reactive Power, Power factor and Total Harmonic Distortion (THD) in current and voltage are measured at all the panels of various Department in university campus and given as bellows.

(Note: The negative values, showing for power factor (pf) in few cases, are due to the reverse connection of measuring instrument. The pf values are positive)

(1) Department of Computer Science at University Campus



Monitoring of Panel



Various electrical Parameter of the system

	L1	L2	L3
U _{eff}	227.55	227.91	227.94
I _{eff}	398.95	399.27	399.42
f	2.483	2.383	2.294
∠φ	0.00	226.72	119.48
∠θ	39.71	39.74	38.54
A	0.7789	0.7672	0.7806
P	0.490	0.417	0.409
Q	0.359	0.347	0.326
S	0.565	0.543	0.533

(a) Supply Voltage Distortion

(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :2.35%

(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :2.25 %

N	Amount	Angle
0	0.07	0.00°
1	100.00	0.00°
2	0.04	129.26°
3	0.69	11.63°
4	0.02	43.85°
5	2.14	51.63°
6	0.01	0.00°
7	0.35	38.01°
8	0.01	9.23°
9	0.31	30.44°
10	0.01	10.38°

N	Amount	Angle
0	0.00	0.00°
1	100.00	0.00°
2	0.03	101.48°
3	0.39	112.38°
4	0.02	85.30°
5	2.24	52.88°
6	0.04	24.39°
7	0.05	31.05°
8	0.03	3.14°
9	0.04	23.95°
10	0.01	28.01°

(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :2.35 %

N	Amount	Angle
0	0.05	0.00°
1	100.00	0.00°
2	0.04	95.83°
3	0.43	7.15°
4	0.01	0.00°
5	2.20	53.43°
6	0.01	49.71°
7	0.39	41.35°
8	0.00	0.00°
9	0.25	23.95°
10	0.01	20.71°

(b) Supply Current Distortion in Total Harmonic Distortion (THD)

(i) Phase 'a' current Total Harmonic Distortion (THD) : 5.54 %

(ii) Phase 'b' current Total Harmonic Distortion (THD) : 6.24%

N	Amount	Angle
0	0.06	0.00
1	100.00	0.00
2	0.24	120.79
3	0.33	113.10
4	0.13	19.31
5	5.20	71.31
6	0.05	14.39
7	1.17	16.26
8	0.03	5.43
9	0.28	0.22
10	0.02	20.75

N	Amount	Angle
0	0.12	0.00
1	100.00	0.00
2	0.29	49.71
3	0.61	110.61
4	0.12	15.21
5	5.38	2.55
6	0.08	45.94
7	1.20	38.03
8	0.05	2.96
9	0.55	20.42
10	0.07	5.65

(iii) Phase 'c' current Total Harmonic Distortion (THD) : 5.62 %

Monitoring of Panel from our energy audit team member at university campus

N	Amount	Angle
0	0.02	0.00
1	100.00	0.00
2	0.13	143.42
3	0.41	81.47
4	0.11	15.26
5	5.40	71.92
6	0.01	54.77
7	0.95	35.06
8	0.06	40.20
9	0.15	33.94
10	0.05	16.09



Total Harmonic Distortion (THD) in current and voltage is near to 5% at the time of our time visit in the month of Oct 2021.

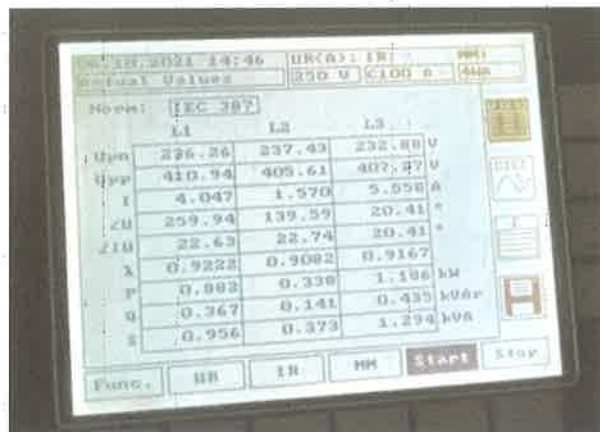
(2) Department of Mahatma Gandhi at University Campus



Monitoring of Panel



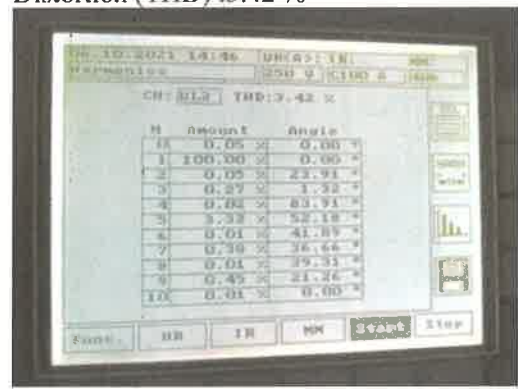
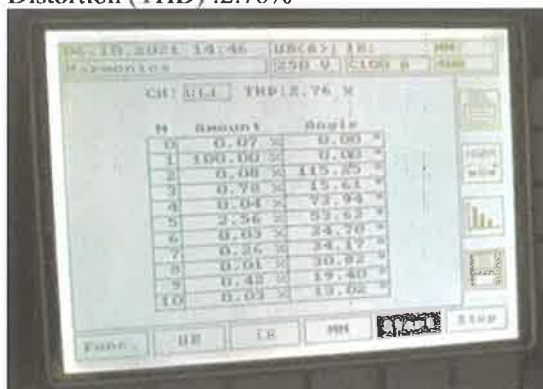
Various electrical Parameter of the system



(a) Supply Voltage Distortion

(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :2.76%

(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.42%



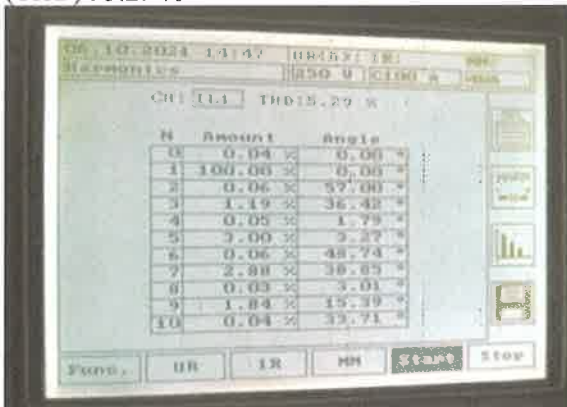
(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.53%



(b) Supply Current Distortion in Total Harmonic Distortion (THD)

(i) Phase 'a' current Total Harmonic Distortion (THD) : 5.29 %

(ii) Phase 'b' current Total Harmonic Distortion (THD) : 13.07%



(iii) Phase 'c' current Total Harmonic Distortion (THD) :22.42 %

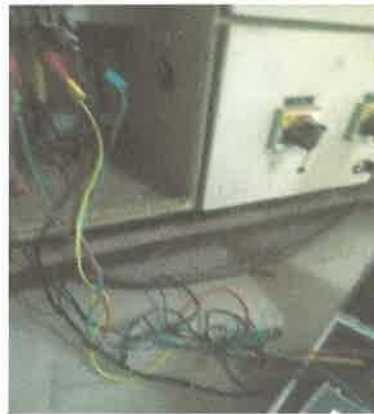


At the time of observation, Due to less loading current THD is higher in some phases but voltage THD is under limit in the month of Oct 2021.

(3) Department of Economics at University Campus



Monitoring of Panel

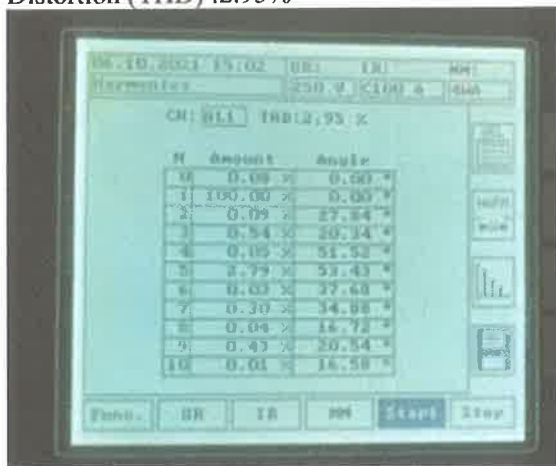


Various electrical Parameter of the system

	L1	L2	L3	
U _{ph}	233.00	238.41	229.55	V
I	17.076	11.841	16.672	A
P	3.483	2.687	3.586	kW
Q	1.902	0.823	3.827	kVA

(a) Supply Voltage Distortion

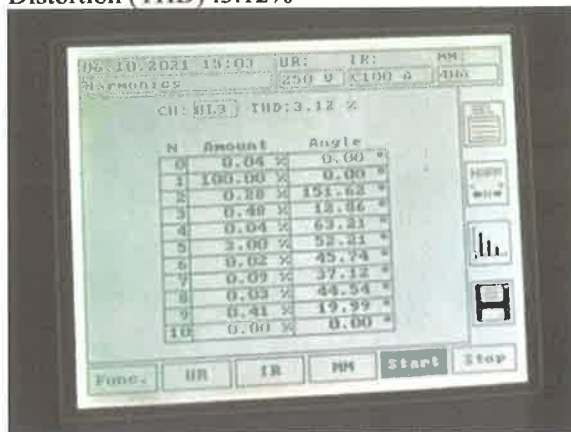
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :2.95%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.29 %

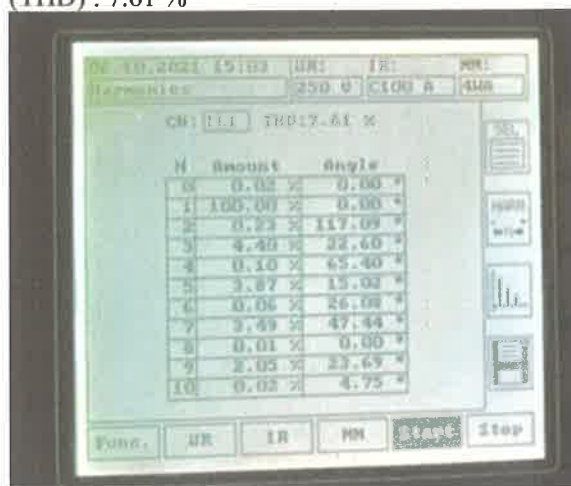


(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.12%



(b) Supply Current Distortion in Total Harmonic Distortion (THD)

(i) Phase 'a' current Total Harmonic Distortion (THD) : 7.61 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 9.45%



(iii) Phase 'c' current Total Harmonic Distortion (THD) :11 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021 .

(4) Department of HRD at University Campus



Monitoring of Panel



Various electrical Parameter of the system

	L1	L2	L3	Unit
U _{rn}	236.49	237.55	227.42	V
U _{bp}	408.49	402.77	403.69	V
I	4.671	11.822	16.626	A
Z _U	136.09	17.07	257.04	Ω
Z _{IU}	14.11	17.07	19.14	Ω
P	0.9467	0.9522	0.9403	kW
Q	1.046	2.674	3.556	kVar
S	0.259	0.815	1.233	kVA
S	1.105	2.808	3.781	kVA

(a) Supply Voltage Distortion

(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :2.94%

CH: H12 THD: 2.94 %

N	Amount	Angle
0	0.07 %	0.00 °
1	100.00 %	0.00 °
2	0.29 %	9.91 °
3	0.64 %	12.22 °
4	0.06 %	39.70 °
5	2.75 %	51.31 °
6	0.03 %	21.55 °
7	0.50 %	34.00 °
8	0.04 %	9.24 °
9	0.43 %	14.90 °
10	0.02 %	24.73 °

(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.25 %

CH: H12 THD: 3.25 %

N	Amount	Angle
0	0.03 %	0.00 °
1	100.00 %	0.00 °
2	0.12 %	50.02 °
3	0.24 %	119.40 °
4	0.01 %	0.00 °
5	3.11 %	50.77 °
6	0.02 %	41.13 °
7	0.27 %	43.88 °
8	0.02 %	15.52 °
9	0.29 %	22.01 °
10	0.01 %	14.49 °

(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.08%

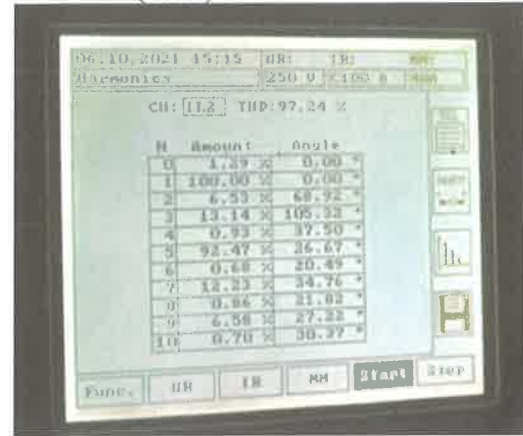
CH: H12 THD: 3.08 %

N	Amount	Angle
0	0.00 %	0.00 °
1	100.00 %	0.00 °
2	0.11 %	27.07 °
3	0.52 %	10.30 °
4	0.03 %	84.72 °
5	2.93 %	59.22 °
6	0.01 %	0.00 °
7	0.14 %	32.02 °
8	0.01 %	16.09 °
9	0.40 %	21.40 °
10	0.01 %	-4.52 °

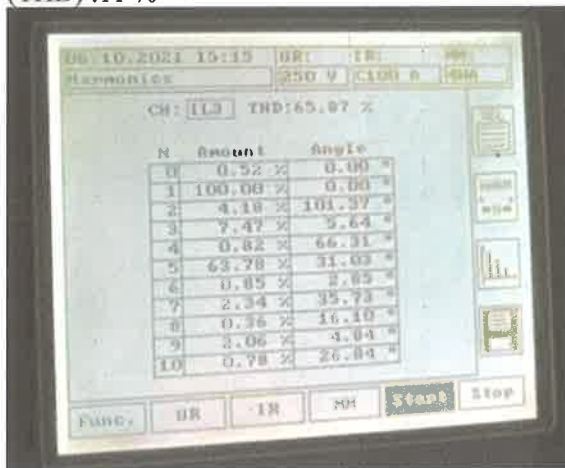
(b) Supply Current Distortion in Total Harmonic Distortion (THD)

(i) Phase 'a' current Total Harmonic Distortion (THD) : 46.15 %

(ii) Phase 'b' current Total Harmonic Distortion (THD) : 97.24%



(iii) Phase 'c' current Total Harmonic Distortion (THD) : 11 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit.

(5) Central library at University Campus

Monitoring of Panel

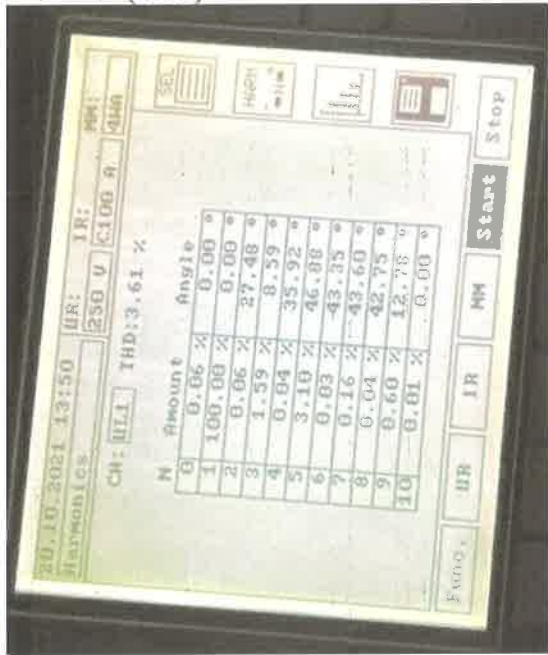


Various electrical Parameter of the system

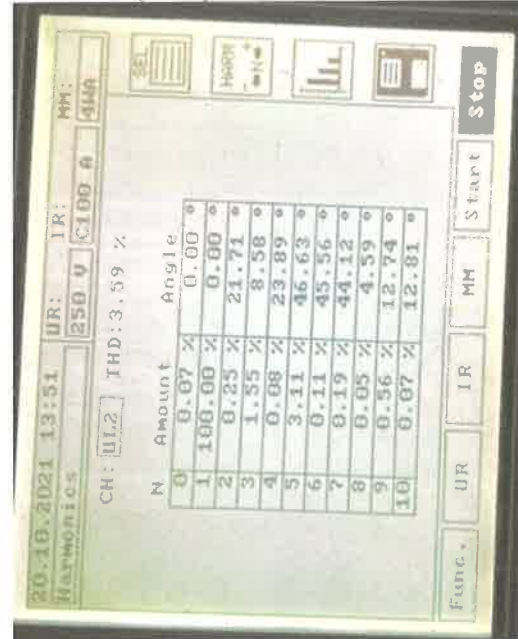
Actual Values		UR: 250 V	IR: C100 A	MM: 400
Norm: IEC 387				
	L1	L2	L3	
Upn	228.61	226.92	230.89	V
Upp	398.02	394.08	396.73	V
I	1.654	0.018	0.014	A
∠U	0.00	238.20	119.40	°
∠IU	34.06	-77.33	-83.37	°
λ	0.8269	0.1660	0.1027	
P	0.313	0.001	0.000	KW
Q	0.218	-0.003	-0.003	KVAR
S	0.378	0.004	0.003	KVA

(a) Supply Voltage Distortion

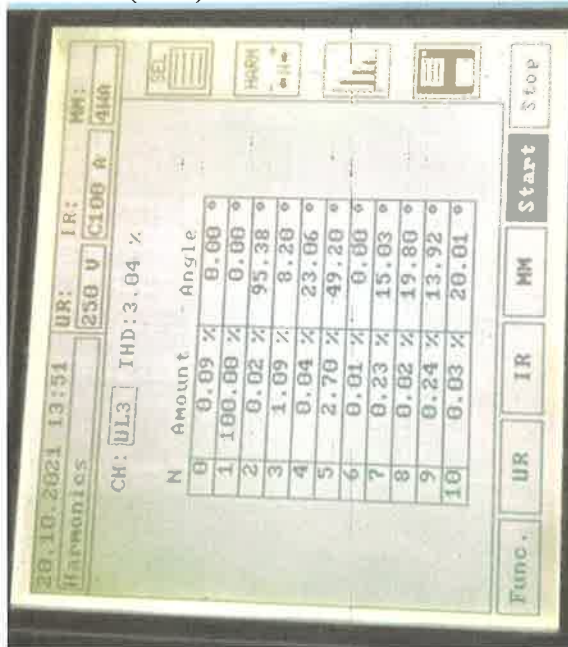
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.91%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.25 %



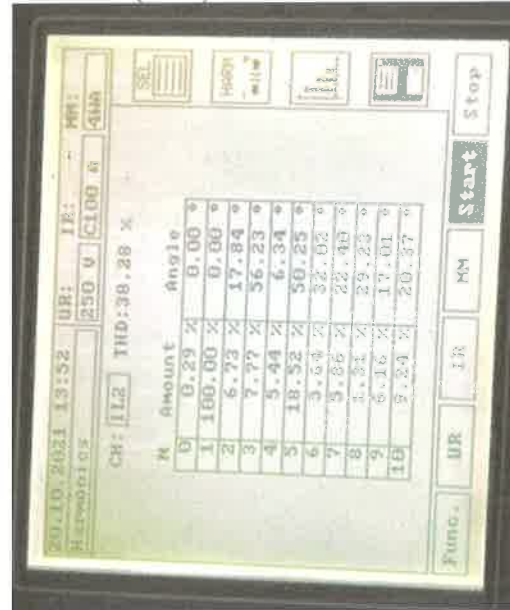
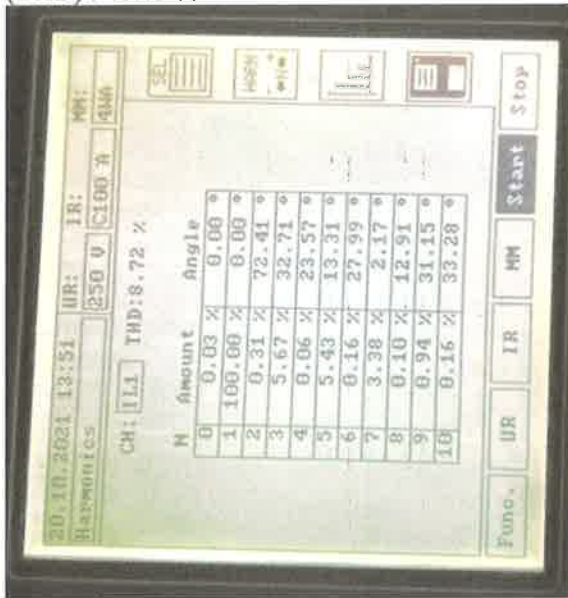
(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.08%



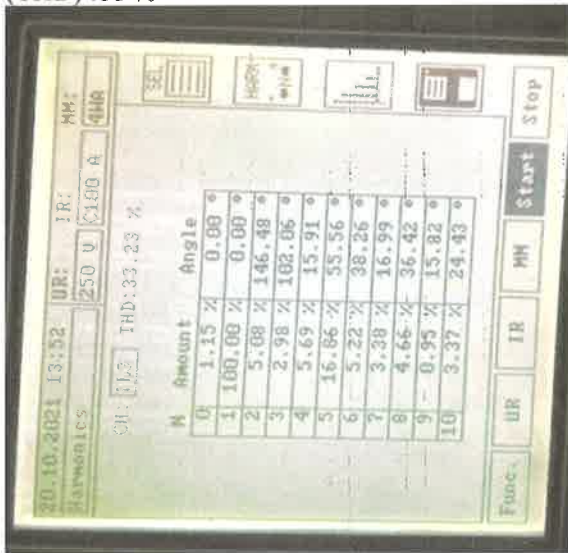
(b) Supply Current Distortion in Total Harmonic Distortion (THD)

(i) Phase 'a' current Total Harmonic Distortion (THD) : 46.15 %

(ii) Phase 'b' current Total Harmonic Distortion (THD) : 97.24%



(iii) Phase 'c' current Total Harmonic Distortion (THD) : 11 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021.

(6) Department of Gujarati at University Campus

Monitoring of Panel



Various electrical Parameter of the system

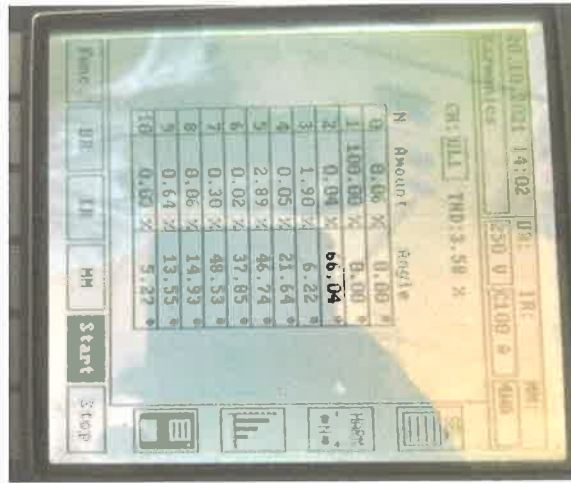
Param:	L1	L2	L3
U _{ph}	224.39	228.61	229.67
U _{pp}	394.81	393.53	393.92
I	16.470	10.167	5.964
W	359.11	237.82	119.48
W _{ph}	-0.89	-173.61	-4.55
λ	0.9912	-0.9869	0.9958
P	3.662	-2.294	1.364
Q	-0.048	-0.261	-0.109
S	3.695	2.324	1.370

Actual Values: 250 V, 10 A, 50 Hz

Buttons: Start, Stop, Dist, W, λ, P, Q, S, U_{ph}, U_{pp}, I, W, W_{ph}

(a) Supply Voltage Distortion

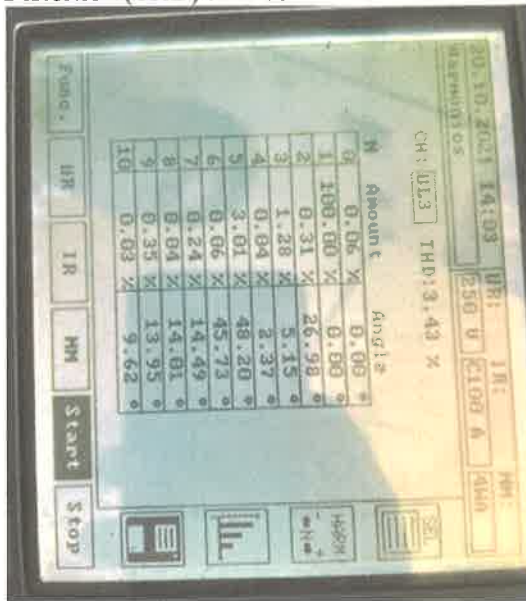
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.58%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :2.96 %



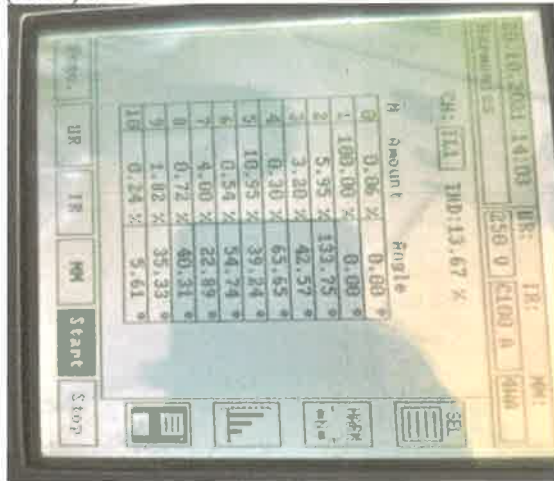
(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.43%



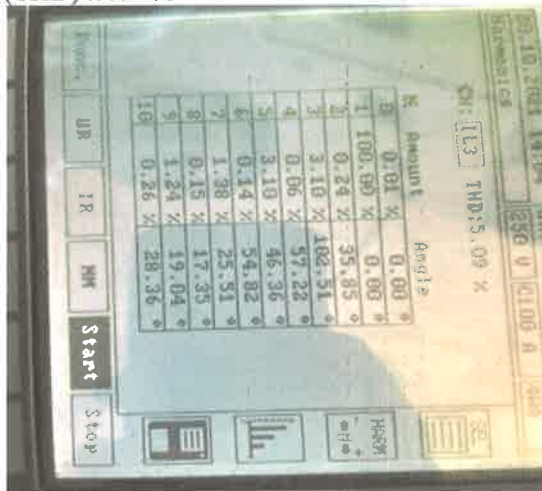
(b) Supply Current Distortion in Total Harmonic Distortion (THD)

(i) Phase 'a' current Total Harmonic Distortion (THD) : 13.67 %

(ii) Phase 'b' current Total Harmonic Distortion (THD) : 11.98 %



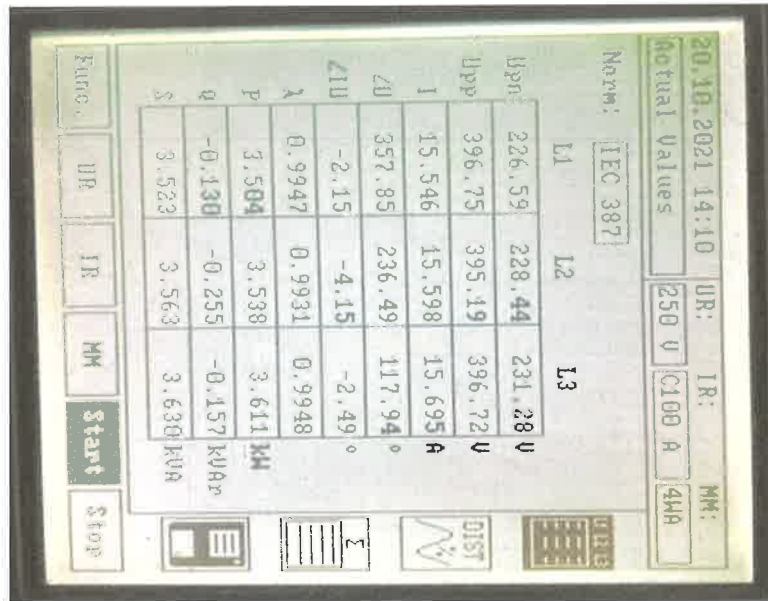
(iii) Phase 'c' current Total Harmonic Distortion (THD) : 5.09 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021.

(7) Department of Bio Technology at University Campus

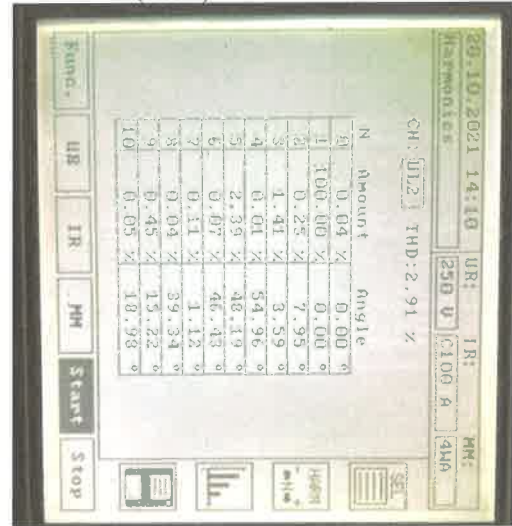
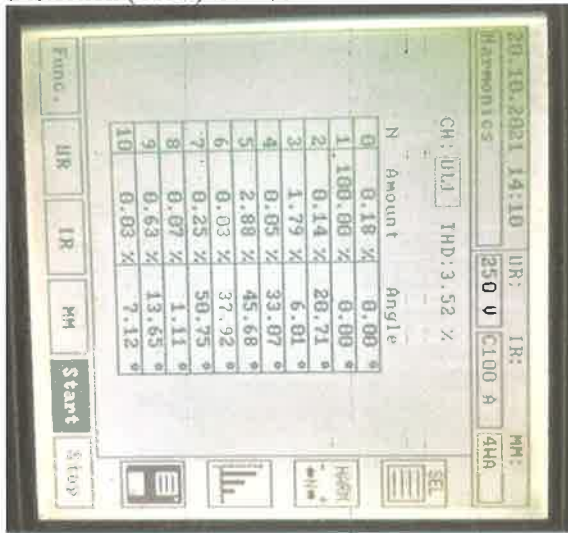
Various electrical Parameter of the system



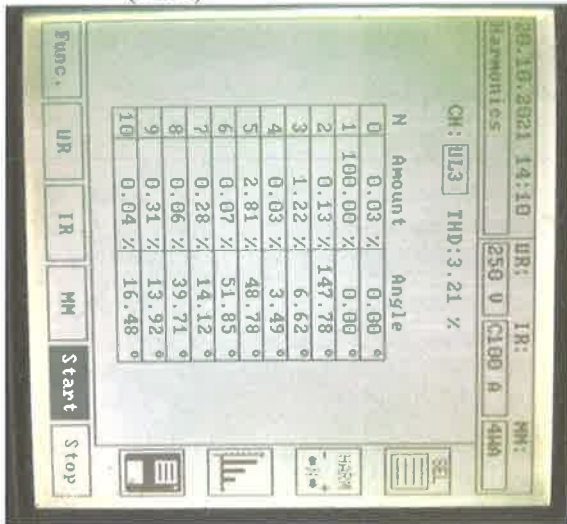
(a) Supply Voltage Distortion

(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.52%

(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :2.91%

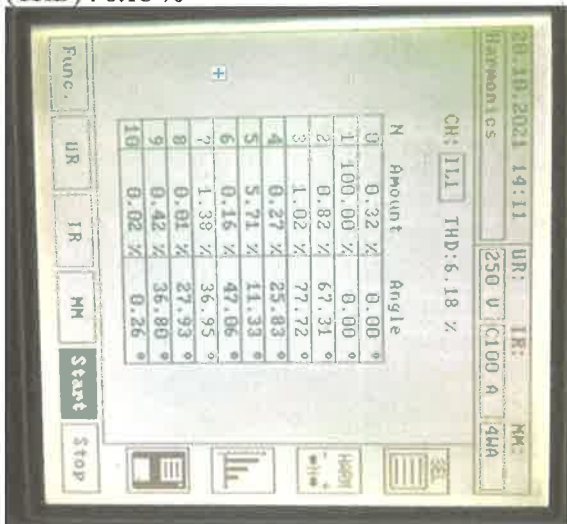


(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.21%

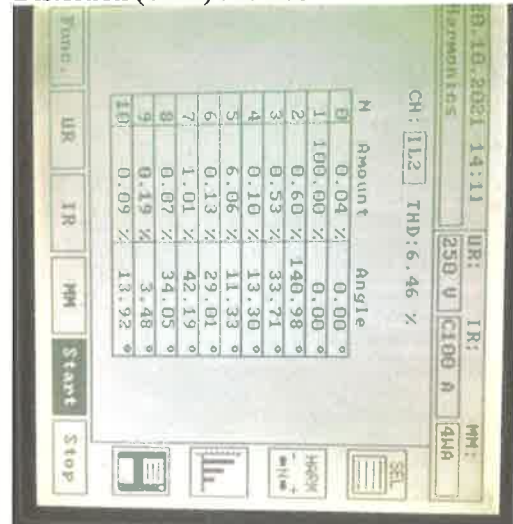


(b) Supply Current Distortion in Total Harmonic Distortion (THD)

(i) Phase 'a' current Total Harmonic Distortion (THD) : 6.18 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 6.46%



(iii) Phase 'c' current Total Harmonic Distortion (THD) :6.69 %



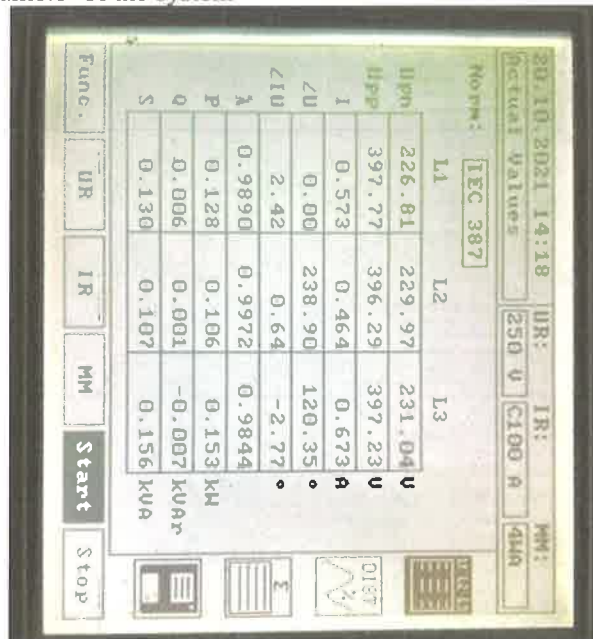
At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021.

(8) Department of Education at University Campus

Monitoring of Panel

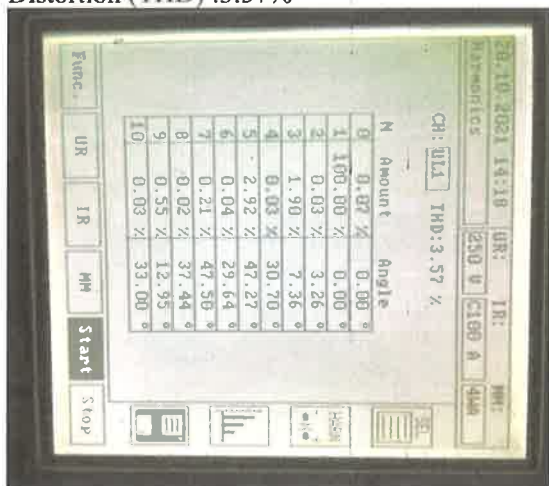


Various electrical Parameter of the system

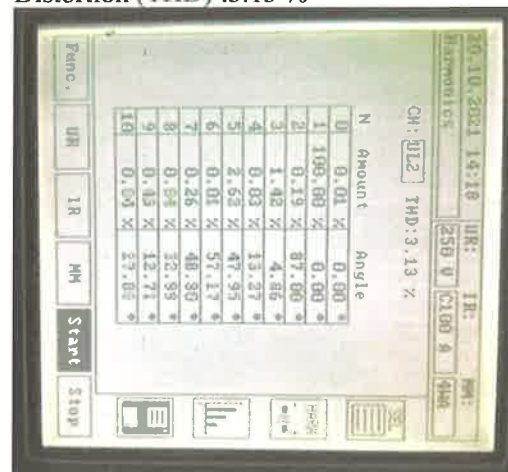


(a) Supply Voltage Distortion

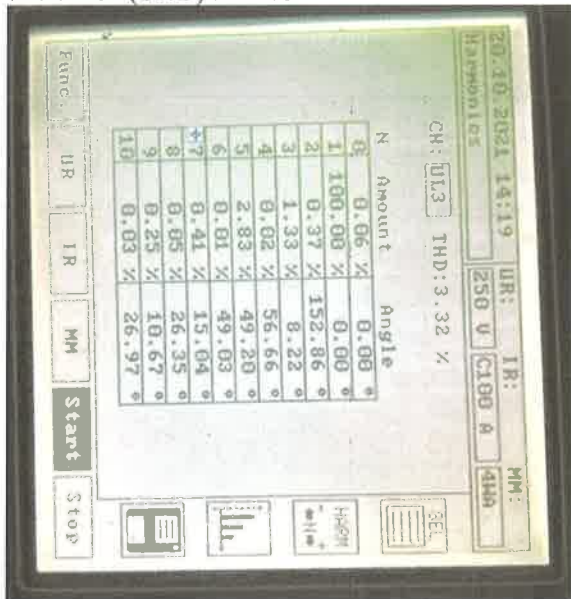
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.57%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.13%

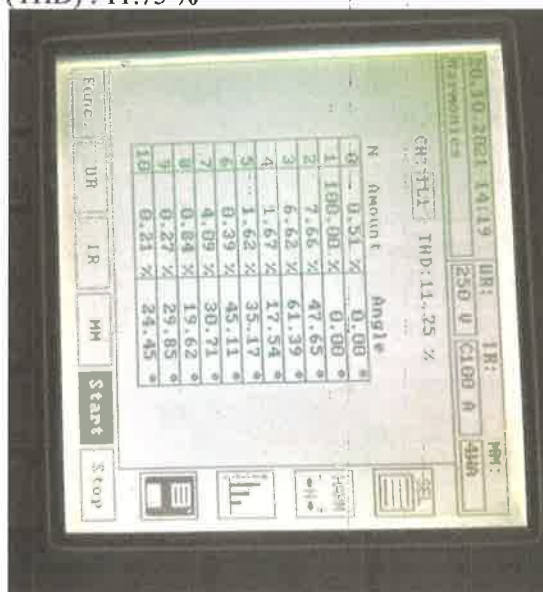


(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.32%

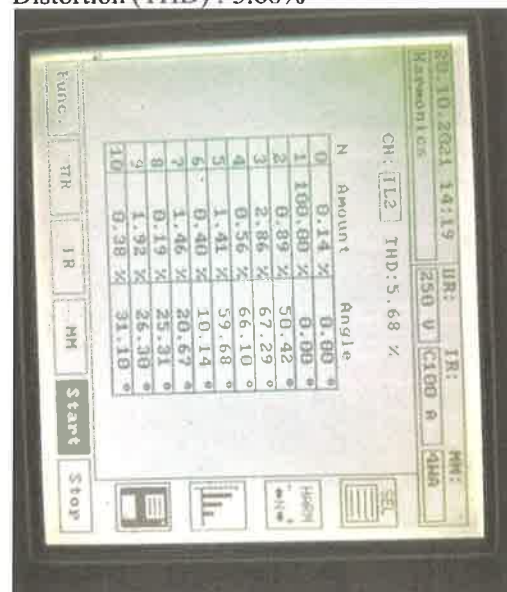


(b) Supply Current Distortion in Total Harmonic Distortion (THD)

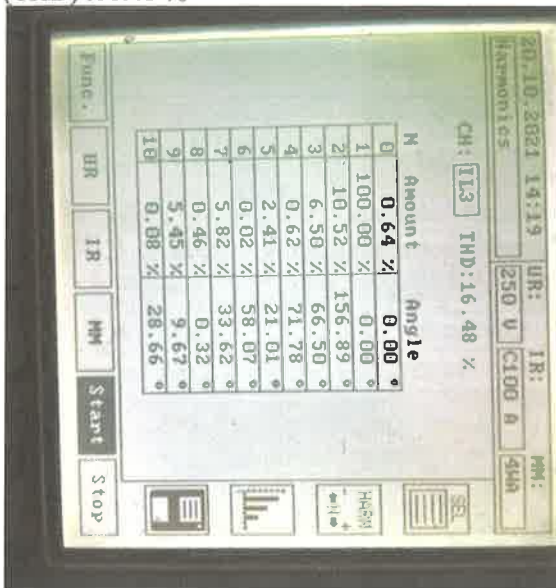
(i) Phase 'a' current Total Harmonic Distortion (THD) : 11.75 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 5.68%



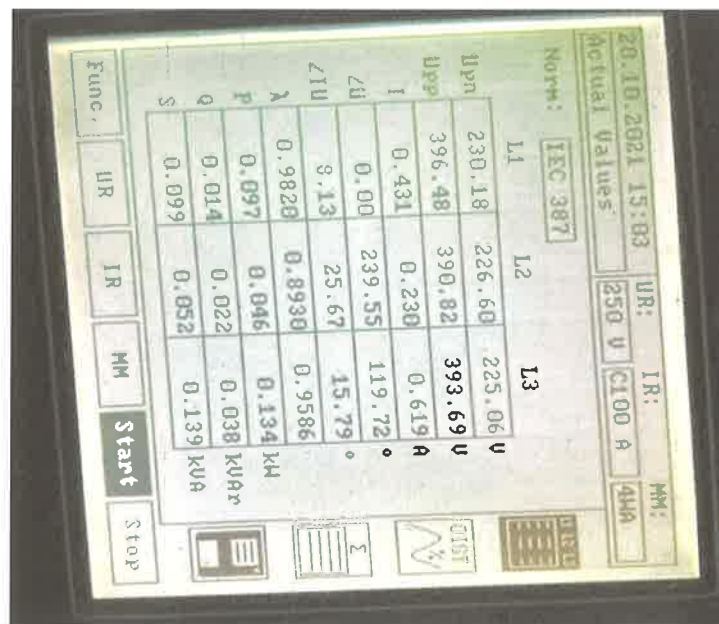
(iii) Phase 'c' current Total Harmonic Distortion (THD) :16.48 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021.

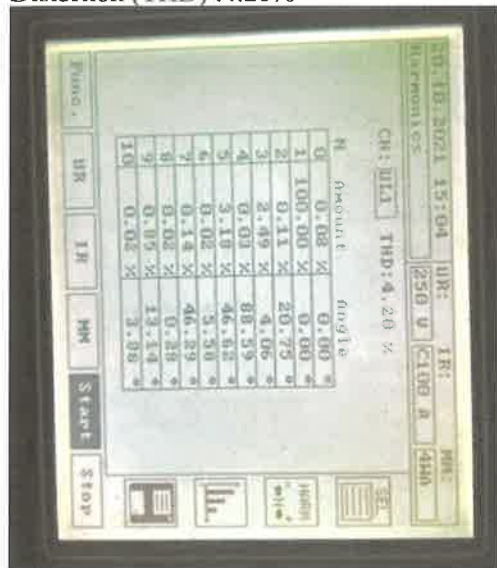
(9) Department of Bio Sciences (CT 250/5) at University Campus

Various electrical Parameter of the system

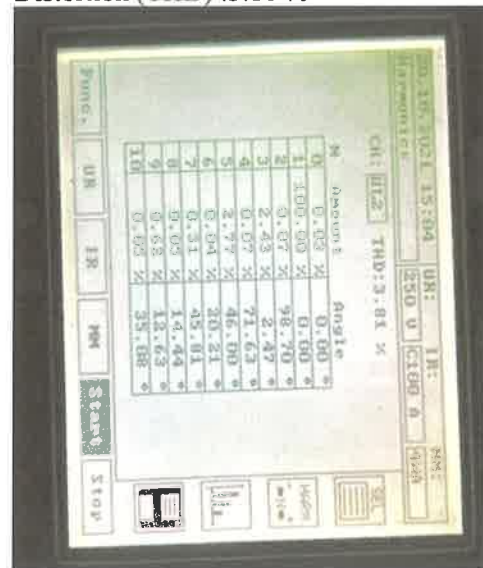


(a) Supply Voltage Distortion

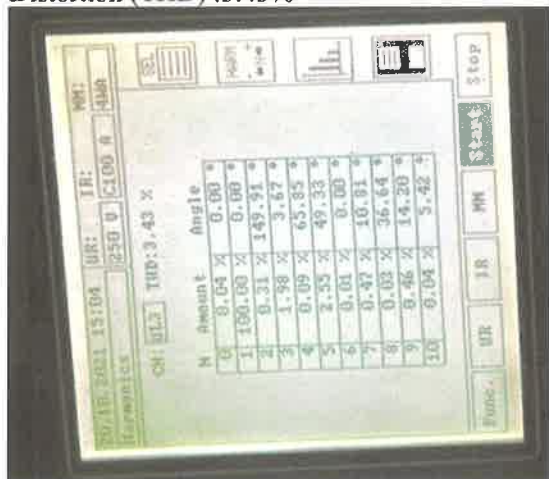
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :4.20%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.81 %



(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.43%



(b) Supply Current Distortion in Total Harmonic Distortion (THD)

(i) Phase 'a' current Total Harmonic Distortion (THD) : 12.09 %

(ii) Phase 'b' current Total Harmonic Distortion (THD) : 7.46%

N	Amount	Angle
0	0.82 %	0.00 °
1	100.00 %	154.35 °
2	0.10 %	52.50 °
3	7.31 %	20.67 °
4	0.24 %	54.08 °
5	9.37 %	26.13 °
6	0.68 %	23.31 °
7	1.23 %	26.82 °
8	0.11 %	25.48 °
9	0.30 %	25.48 °
10	0.30 %	28.28 °

N	Amount	Angle
0	0.44 %	0.00 °
1	100.00 %	135.83 °
2	1.02 %	83.32 °
3	3.47 %	1.26 °
4	0.84 %	19.07 °
5	3.00 %	43.93 °
6	0.53 %	0.16 °
7	4.21 %	11.52 °
8	0.51 %	25.28 °
9	2.12 %	25.28 °
10	0.43 %	6.84 °

(iii) Phase 'c' current Total Harmonic Distortion (THD) : 9.07 %

N	Amount	Angle
0	0.35 %	0.00 °
1	100.00 %	0.00 °
2	3.00 %	144.39 °
3	5.29 %	61.79 °
4	0.09 %	56.39 °
5	5.48 %	66.19 °
6	0.23 %	19.01 °
7	3.27 %	37.18 °
8	0.30 %	5.25 °
9	1.49 %	10.41 °
10	0.09 %	2.04 °

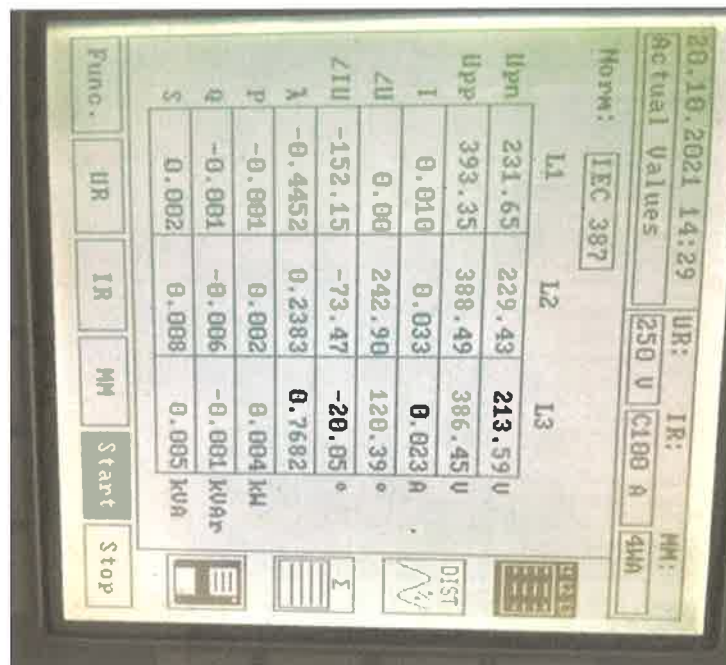
At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021.

(10) Department of Physics at University Campus

Monitoring of Panel

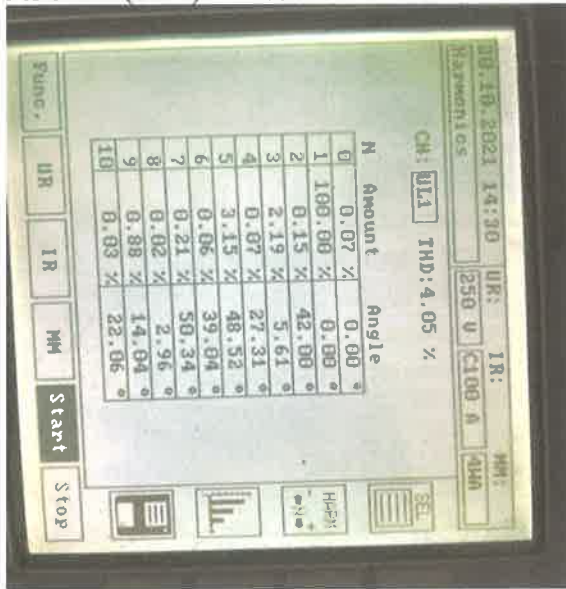


Various electrical Parameter of the system (CT 250/5)

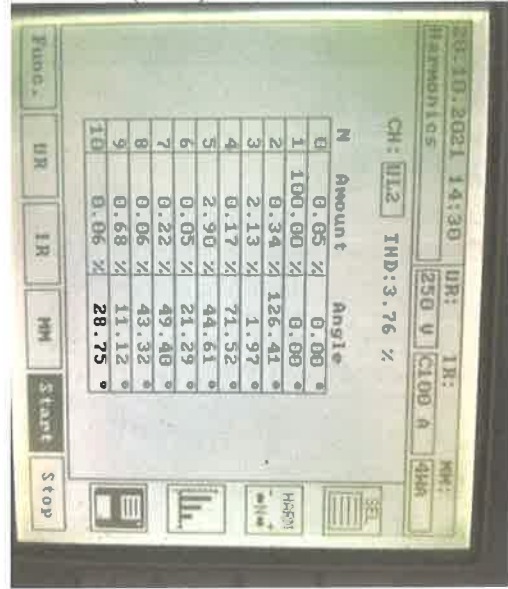


(a) Supply Voltage Distortion

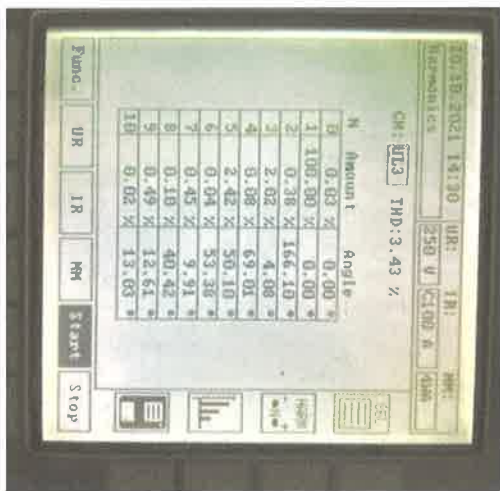
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :4.05%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.76 %



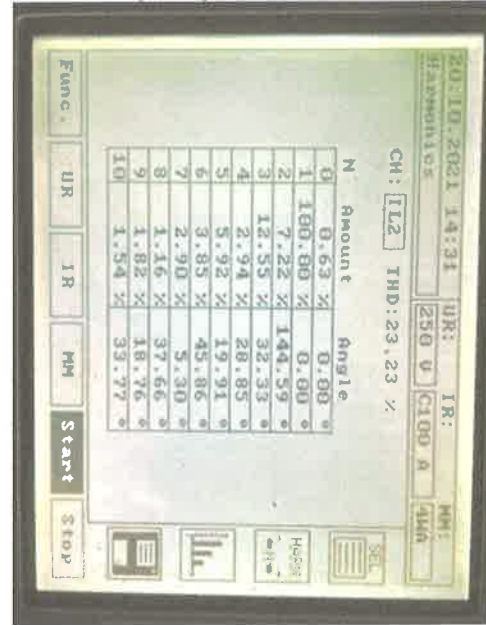
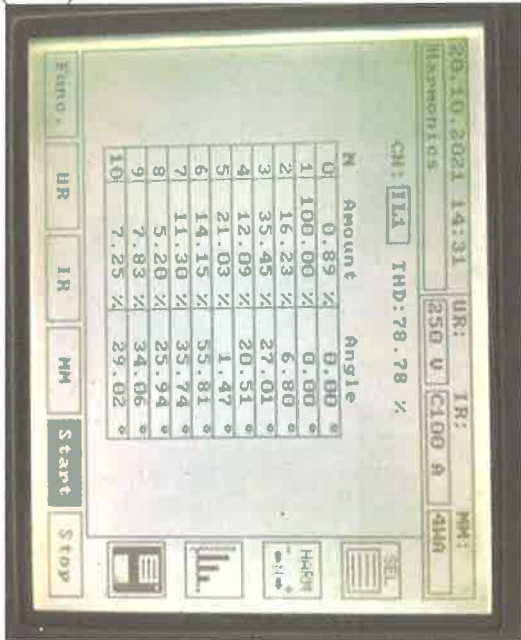
(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.43%



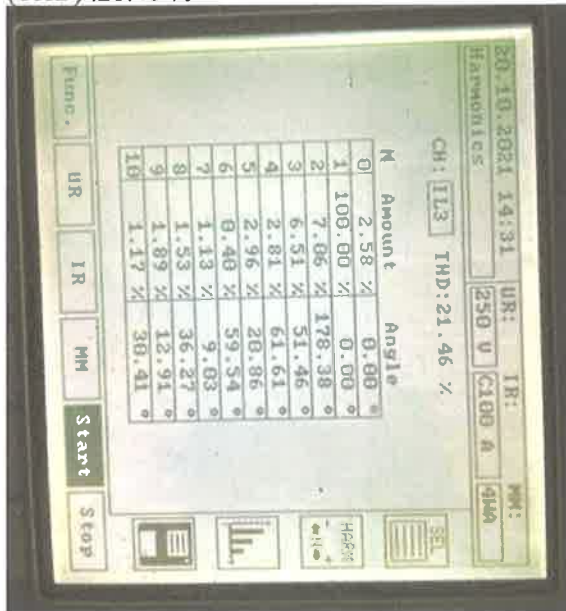
(b) Supply Current Distortion in Total Harmonic Distortion (THD)

(i) Phase 'a' current Total Harmonic Distortion (THD) : 78.78 %

(ii) Phase 'b' current Total Harmonic Distortion (THD) : 23.23%



(iii) Phase 'c' current Total Harmonic Distortion (THD) : 21.46 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021.

(11) Sophisticated Instrument Center at University Campus

Various electrical Parameter of the system

	L1	L2	L3
Uph	222.52	227.51	229.21 V
Upp	392.45	391.01	392.65 V
I	0.177	0.083	0.083 A
λ	0.00	238.60	120.83 %
P	-0.8137	-0.5551	-0.4563 kW
Q	-0.032	-0.011	-0.009 kVAR
S	-0.023	-0.015	-0.017 kVA
S	0.039	0.019	0.019 kVA

(a) Supply Voltage Distortion

(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :4.22%

(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.70 %

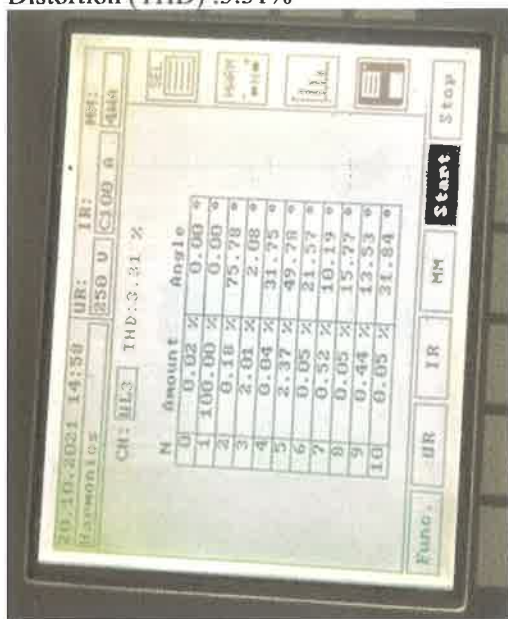
N	Amount	Angle
1	0.06 %	0.00 °
2	0.09 %	0.08 °
3	2.55 %	142.42 °
4	0.03 %	3.22 °
5	3.15 %	32.60 °
6	0.03 %	46.77 °
7	0.09 %	52.75 °
8	0.01 %	1.99 °
9	0.02 %	44.36 °
10	0.06 %	12.96 °

THD: 4.22 %

N	Amount	Angle
1	0.03 %	0.00 °
2	0.19 %	0.00 °
3	2.38 %	132.87 °
4	0.03 %	1.56 °
5	2.82 %	43.85 °
6	0.02 %	46.19 °
7	0.32 %	34.54 °
8	0.07 %	44.62 °
9	0.69 %	12.95 °
10	0.08 %	13.37 °

THD: 3.70 %

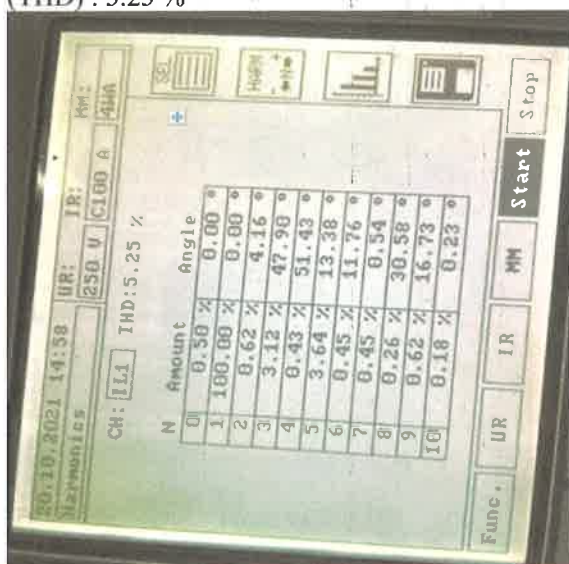
(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.31%



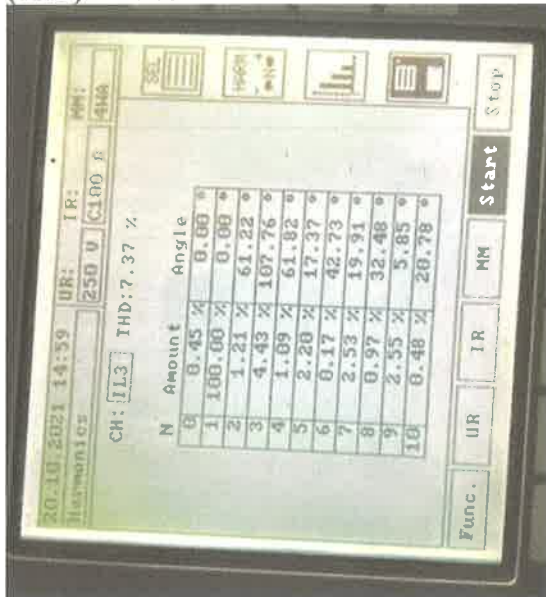
(b) Supply Current Distortion in Total Harmonic Distortion (THD)

(i) Phase 'a' current Total Harmonic Distortion (THD) : 5.25 %

(ii) Phase 'b' current Total Harmonic Distortion (THD) : 14.36%



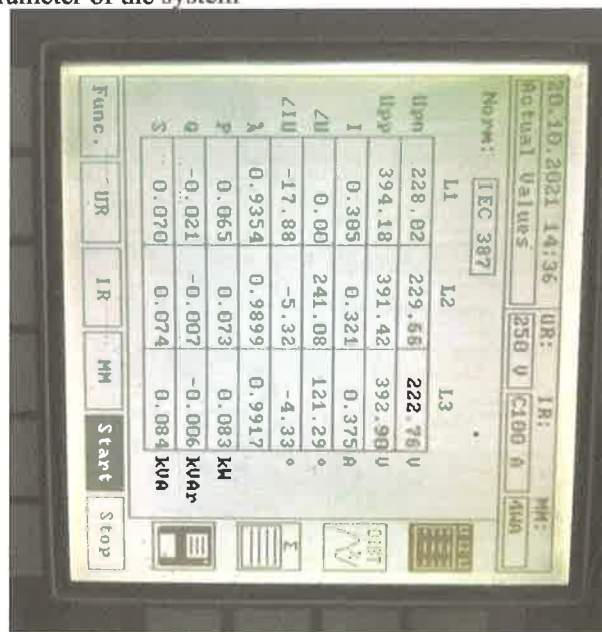
(iii) Phase 'c' current Total Harmonic Distortion (THD) :7.37 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021.

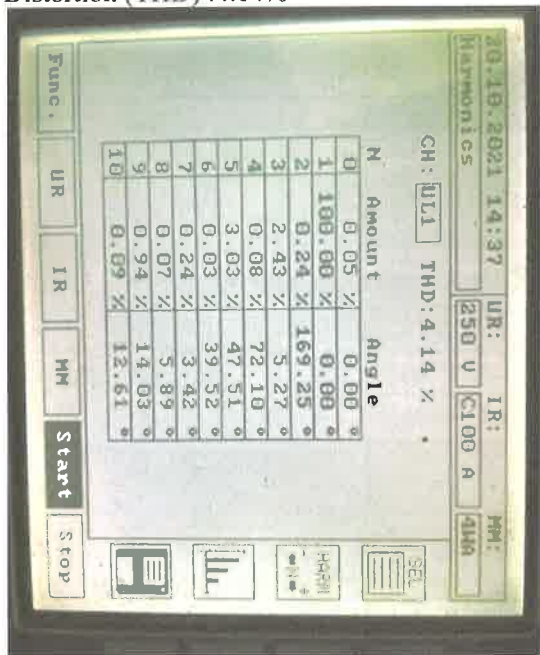
(12) Sciences building Part2 and Part1 at University Campus

Various electrical Parameter of the system

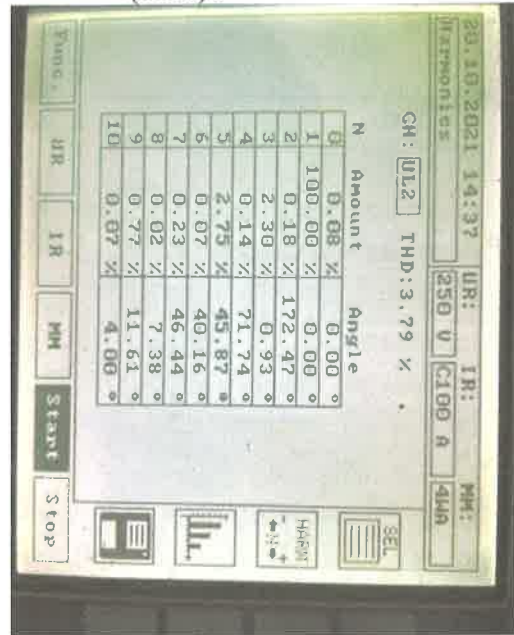


(a) Supply Voltage Distortion

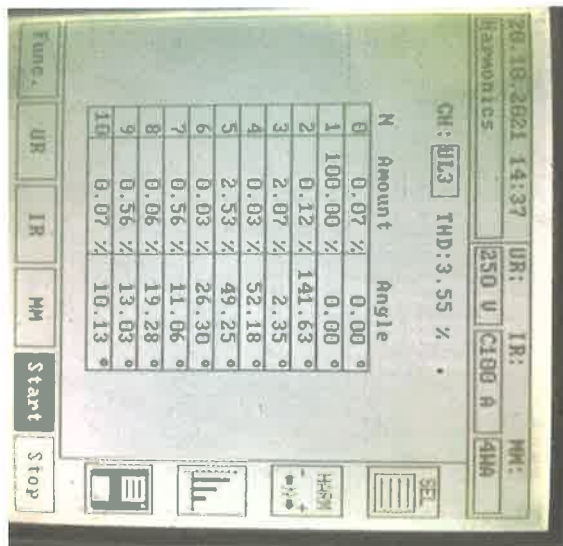
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :4.14%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.79 %



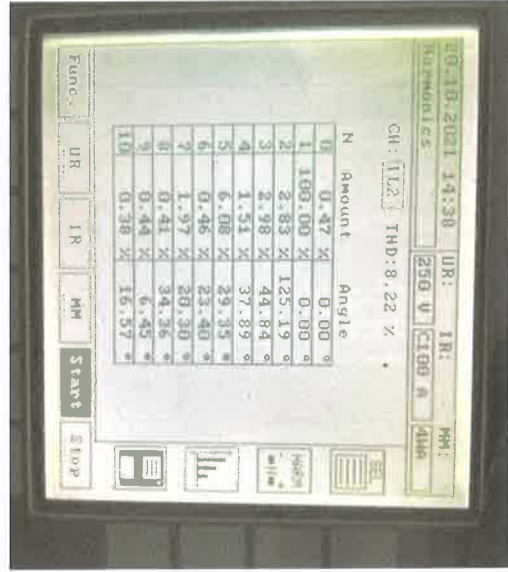
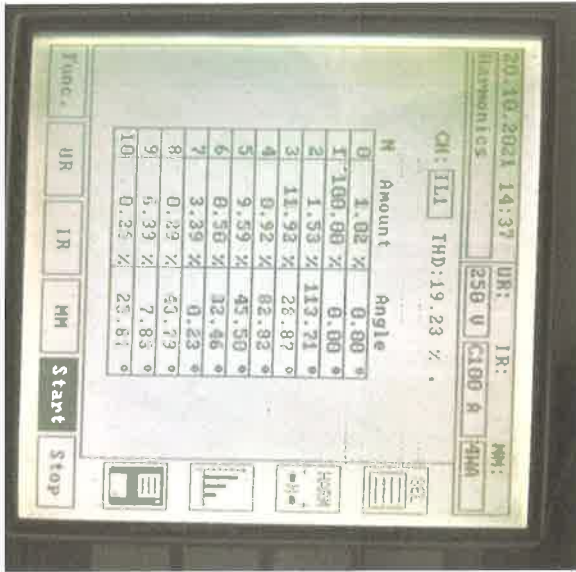
(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.55%



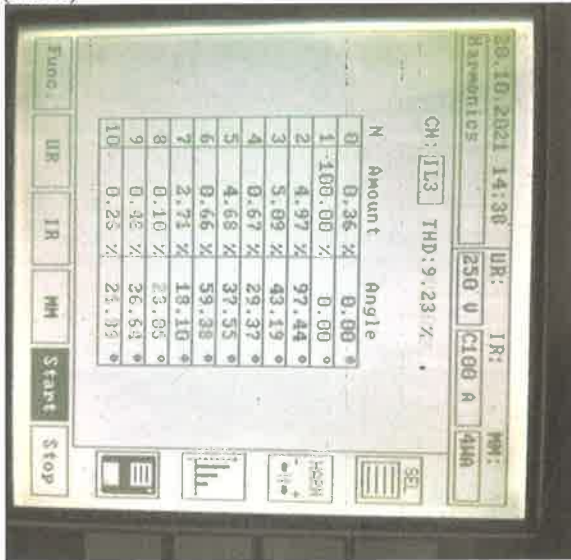
(b) Supply Current Distortion in Total Harmonic Distortion (THD)

(i) Phase 'a' current Total Harmonic Distortion (THD) : 19.23 %

(ii) Phase 'b' current Total Harmonic Distortion (THD) : 8.22%



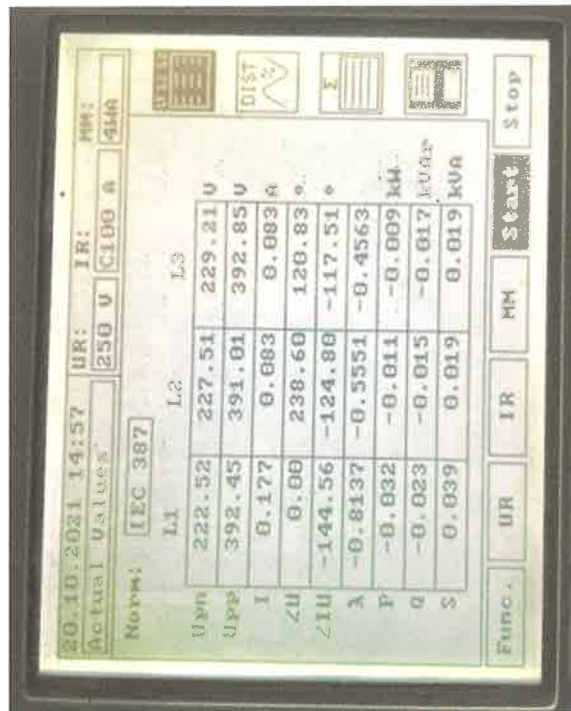
(iii) Phase 'c' current Total Harmonic Distortion (THD) : 9.23%



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021

(13) University science instrumentation centerat University Campus

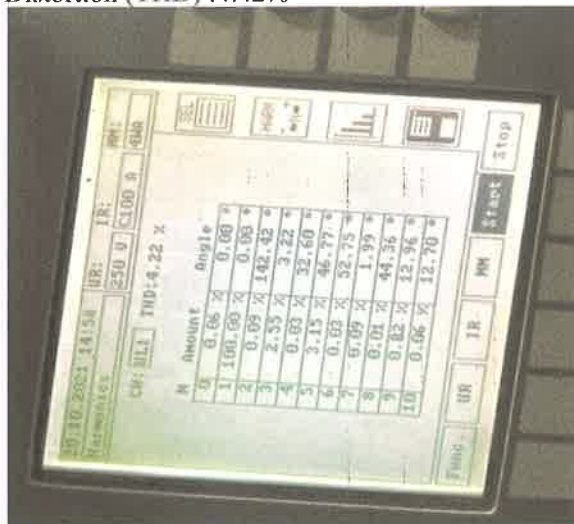
Various electrical Parameter of the system (250_5)



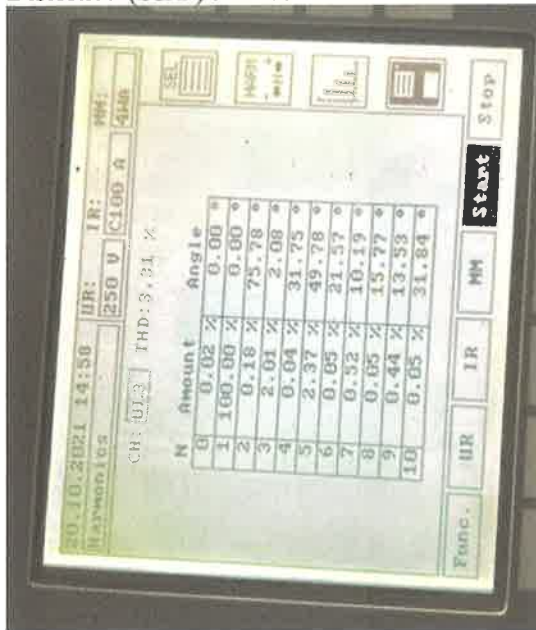
(a) Supply Voltage Distortion

(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :4.42%

(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.76 %



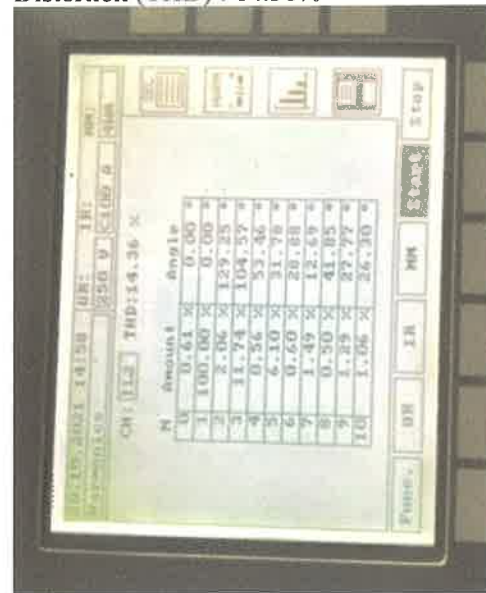
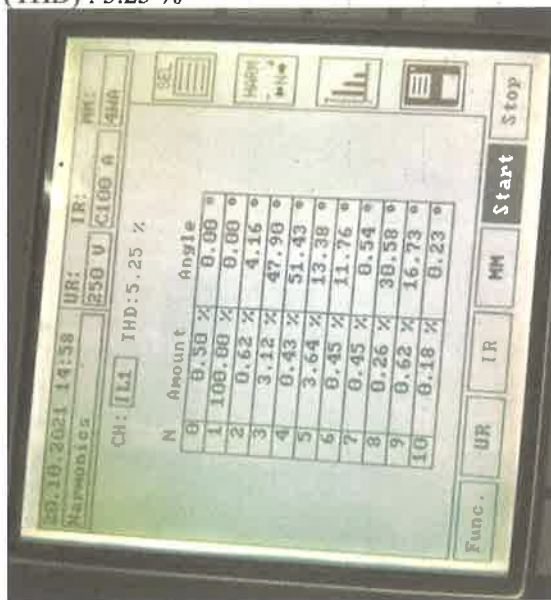
(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.31%



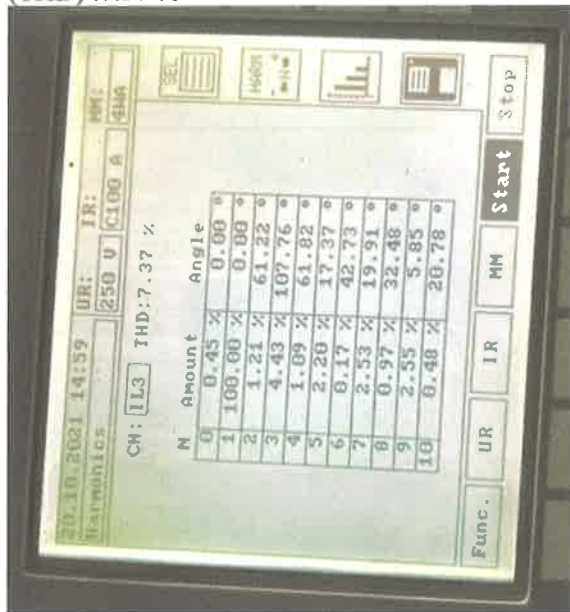
(b) Supply Current Distortion in Total Harmonic Distortion (THD)

(i) Phase 'a' current Total Harmonic Distortion (THD) : 5.25 %

(ii) Phase 'b' current Total Harmonic Distortion (THD) : 14.36%



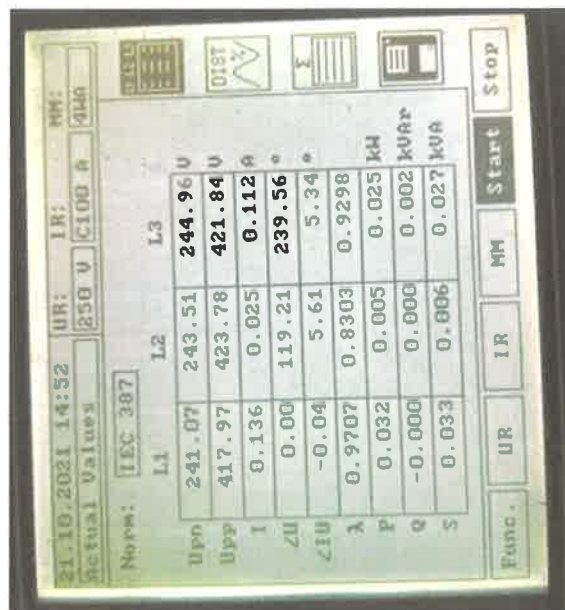
(iii) Phase 'c' current Total Harmonic Distortion (THD) :7.37 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021

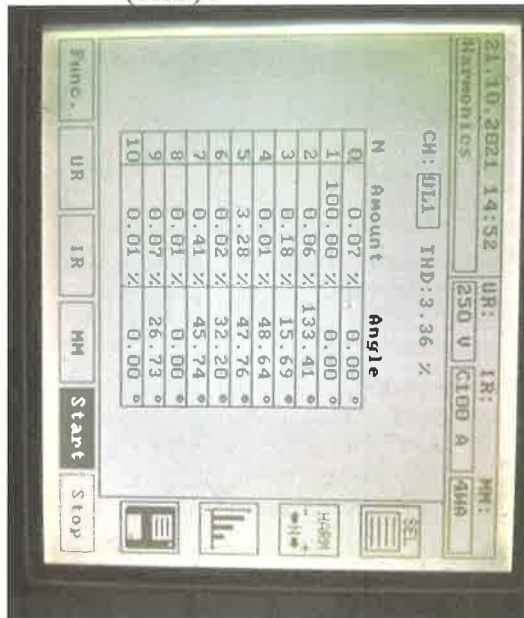
(14) Department of Architecture at University Campus

Various electrical Parameter of the system (250_5)

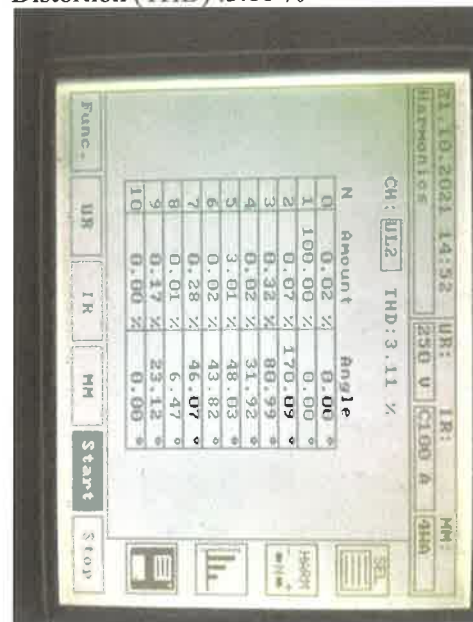


(a) Supply Voltage Distortion

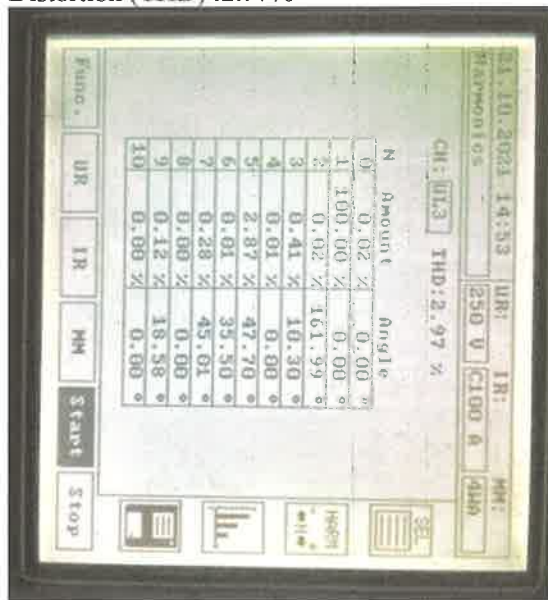
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.36%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.11 %



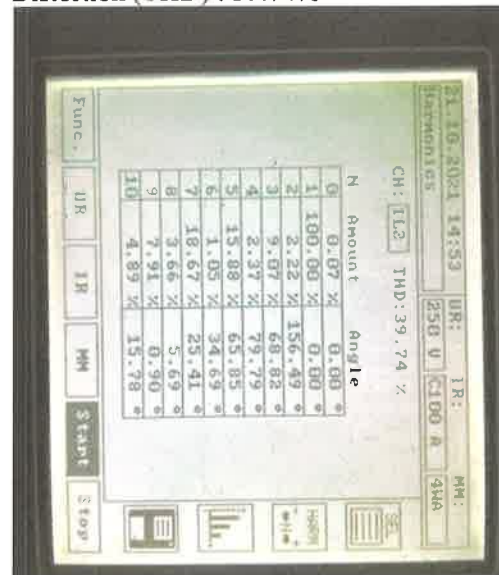
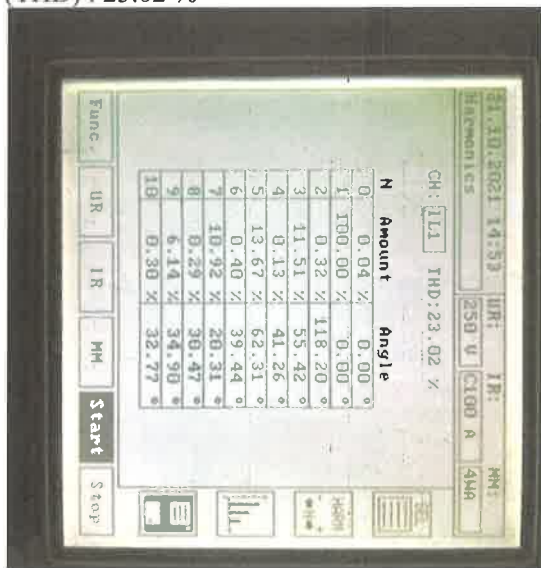
(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :2.97%



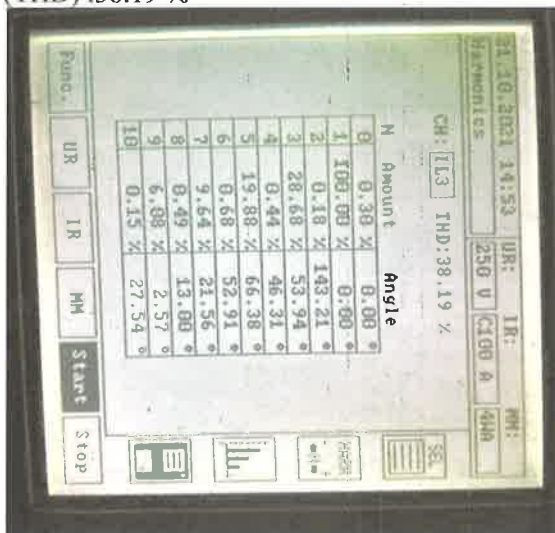
(b) Supply Current Distortion in Total Harmonic Distortion (THD)

(i) Phase 'a' current Total Harmonic Distortion (THD) : 23.02 %

(ii) Phase 'b' current Total Harmonic Distortion (THD) : 39.74%



(iii) Phase 'c' current Total Harmonic Distortion (THD) : 38.19 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021

(15) Convention hall at University Campus

Monitoring of Panel (CT:400/5)



Various electrical Parameter of the system

Phase	L1	L2	L3
V _{ph}	243.46	244.06	243.61 V
V _{ln}	421.70	424.12	419.83 V
I _{ph}	0.012	0.026	0.009 A
I _{ln}	0.08	239.95	119.29 A
W	155.81	5.79	33.04 W
P	-0.4883	0.8584	0.2894 kW
Q	0.001	0.001	0.001 kVAR
S	0.003	0.006	0.003 kVA

Total Values: 230 V, 1000 A, 4000 VA
 Total Power: 14.73 kW, 1.81 kVAR, 16.54 kVA
 Power Factor: 0.92

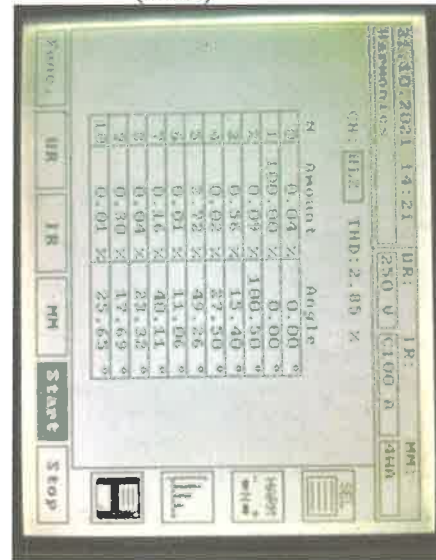
Buttons: UR, IR, HR, Stop, Start, Stop

(a) Supply Voltage Distortion

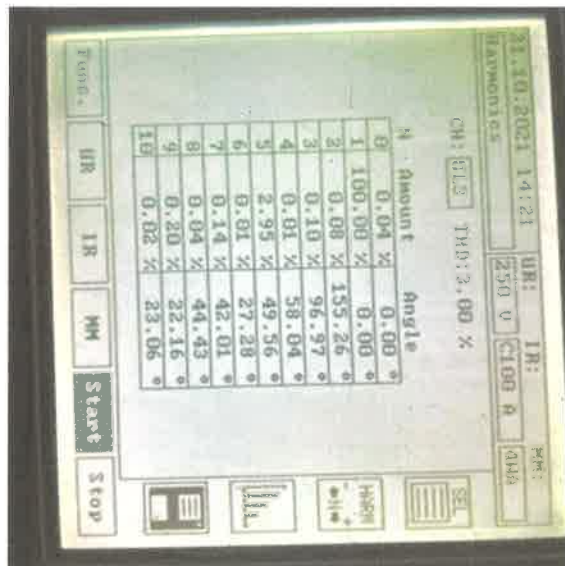
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :2.81%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :2.85 %

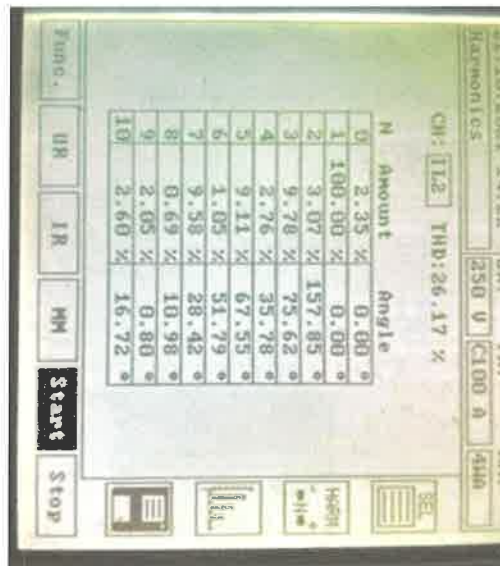


(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.00%



(b) Supply Current Distortion in Total Harmonic Distortion (THD)

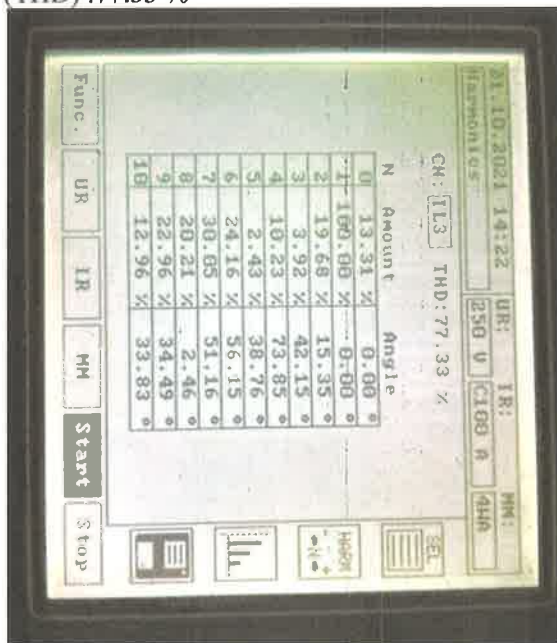
(i) Phase 'b' current Total Harmonic Distortion (THD) : 26.17%



(ii) Phase 'a' current Total Harmonic Distortion (THD) : 53.19 %



(iii) Phase 'c' current Total Harmonic Distortion (THD) :77.33 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021

(16) Department of MSc IT at University Campus

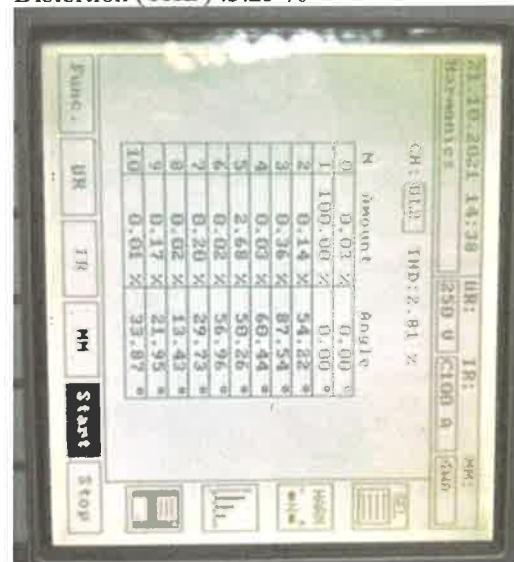
Various electrical Parameter of the system (250_5)



(a) Supply Voltage Distortion

(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.91%

(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.25 %

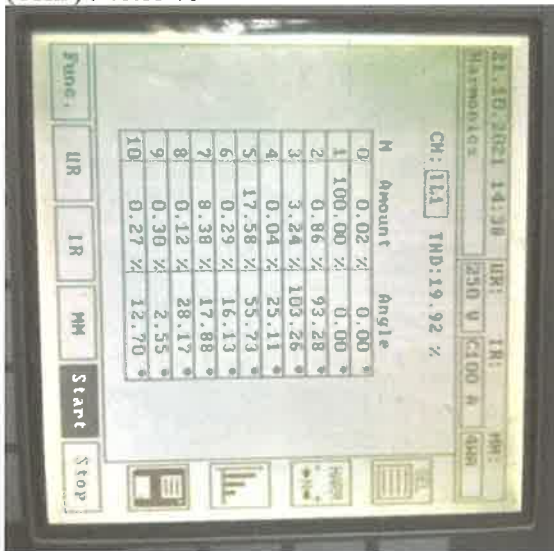


(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.08%

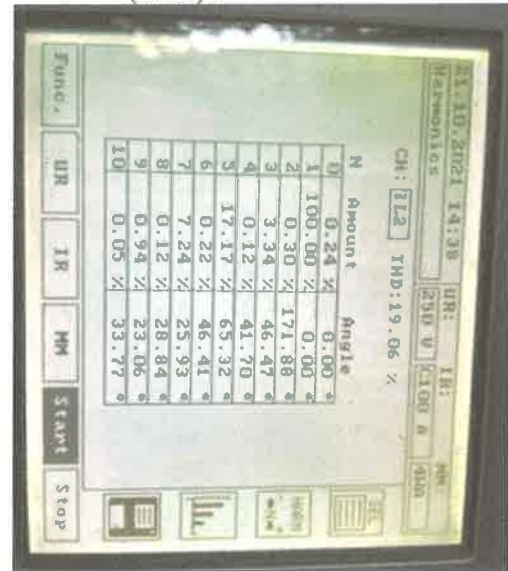


(b) Supply Current Distortion in Total Harmonic Distortion (THD)

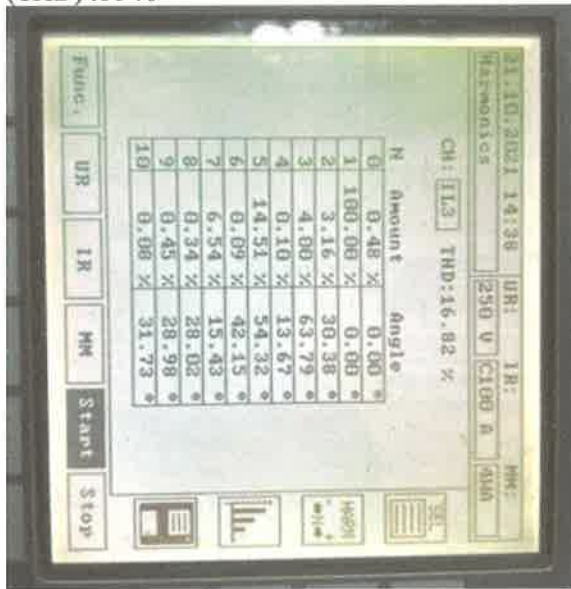
(i) Phase 'a' current Total Harmonic Distortion (THD) : 46.15 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 97.24%



(iii) Phase 'c' current Total Harmonic Distortion (THD) :11 %



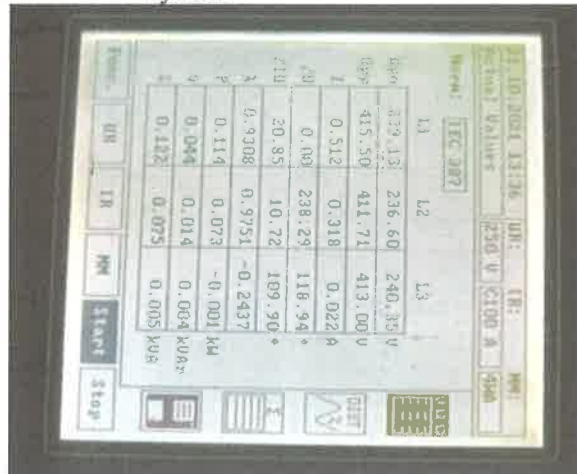
At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021

(17) Department of Chemistry Part-1at University Campus

Monitoring of Panel (250-5)

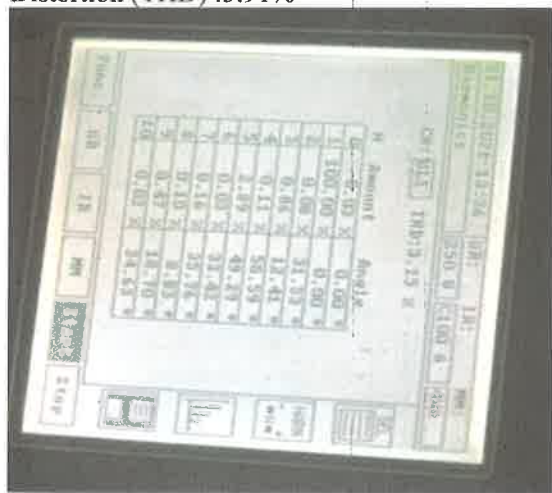


Various electrical Parameter of the system

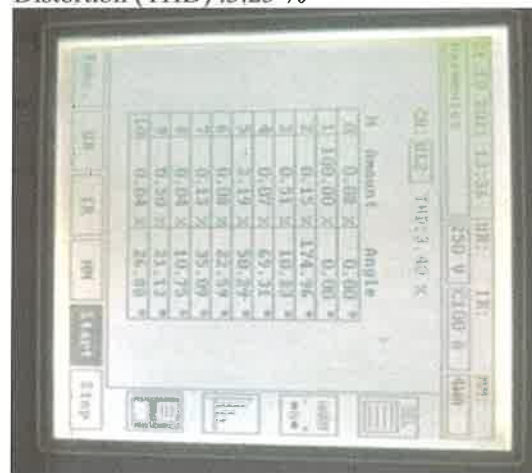


(a) Supply Voltage Distortion

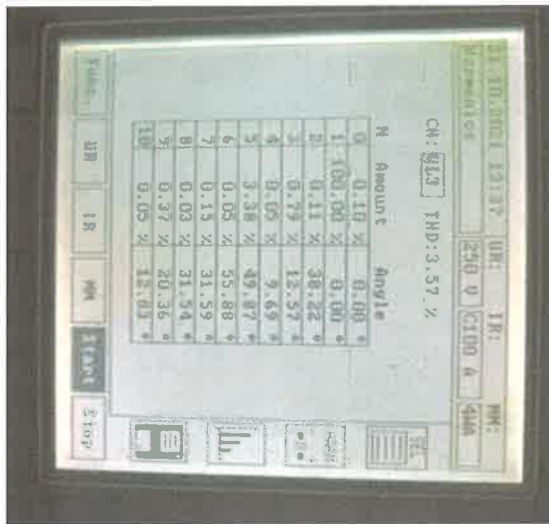
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.91%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.25 %

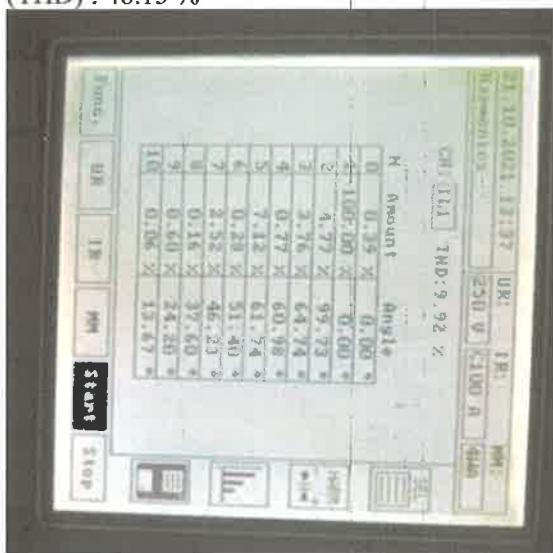


(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.08%



(b) Supply Current Distortion in Total Harmonic Distortion (THD)

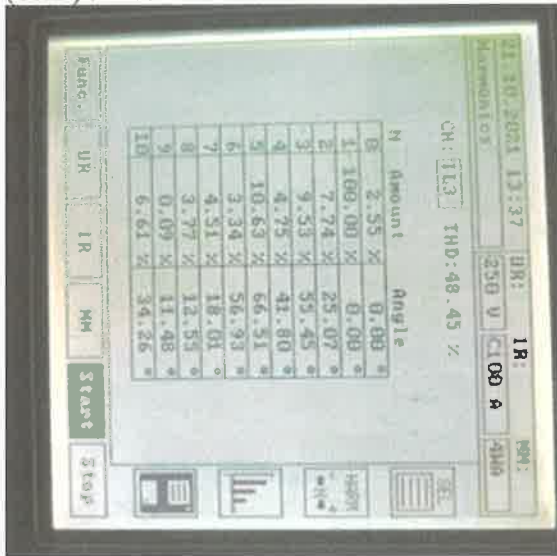
(i) Phase 'a' current Total Harmonic Distortion (THD) : 46.15 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 97.24%



(iii) Phase 'c' current Total Harmonic Distortion (THD) :11 %



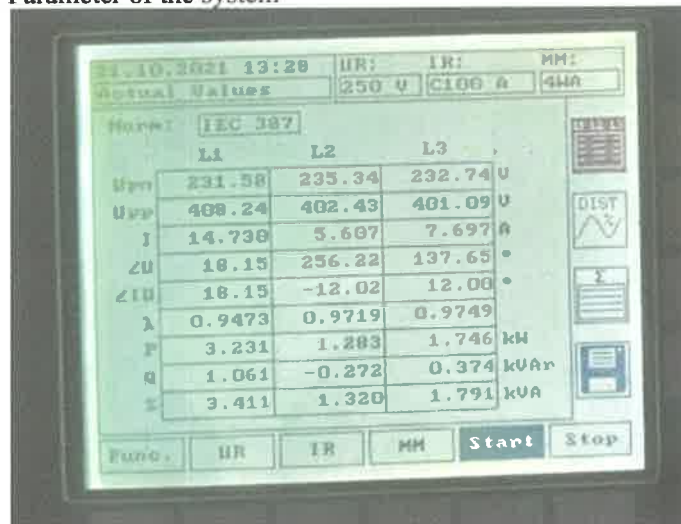
At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021

(18) Department of Chemistry Part-2 at University Campus

Monitoring of Panel



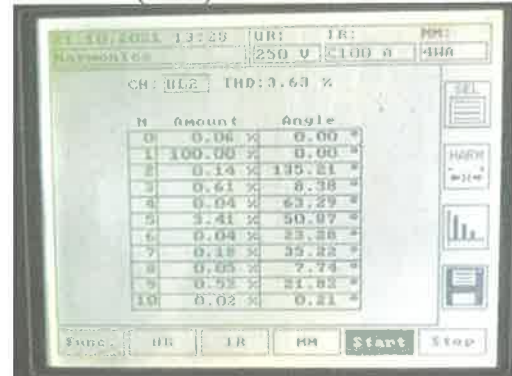
Various electrical Parameter of the system



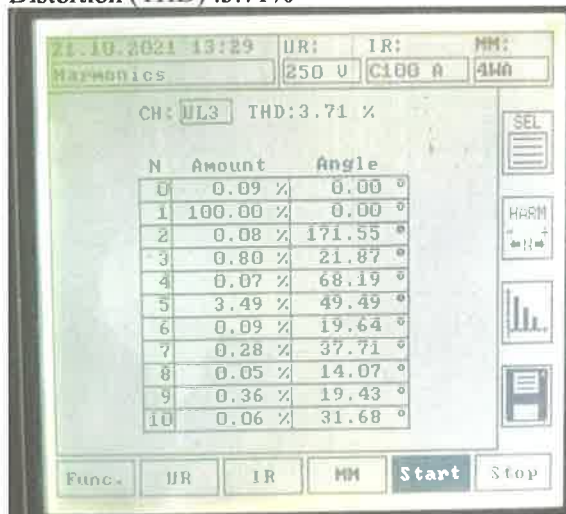
(a) Supply Voltage Distortion

(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.30%

(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.63 %



(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.71%



(b) Supply Current Distortion in Total Harmonic Distortion (THD)

(i) Phase 'a' current Total Harmonic Distortion (THD) : 8.31 %

(ii) Phase 'b' current Total Harmonic Distortion (THD) : 10.56%



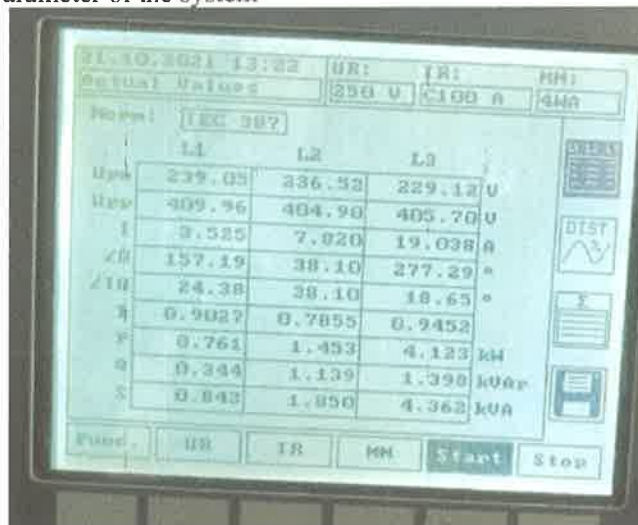
(iii) Phase 'c' current Total Harmonic Distortion (THD) : 8.04 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021

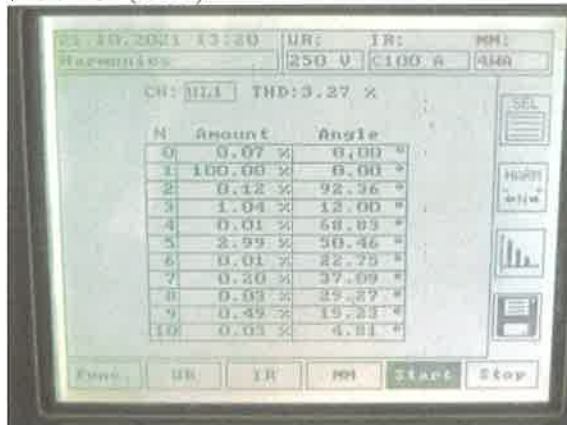
(19) Department of Chemistry Part-3 at University Campus

Various electrical Parameter of the system

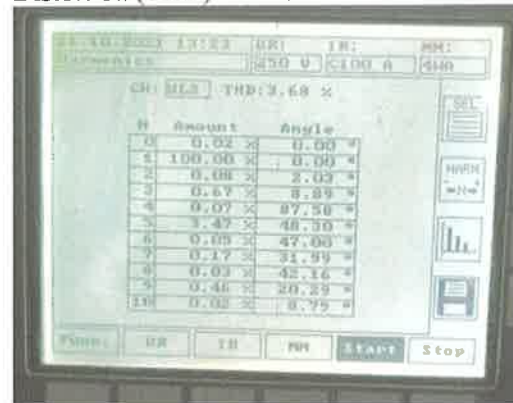


(a) Supply Voltage Distortion

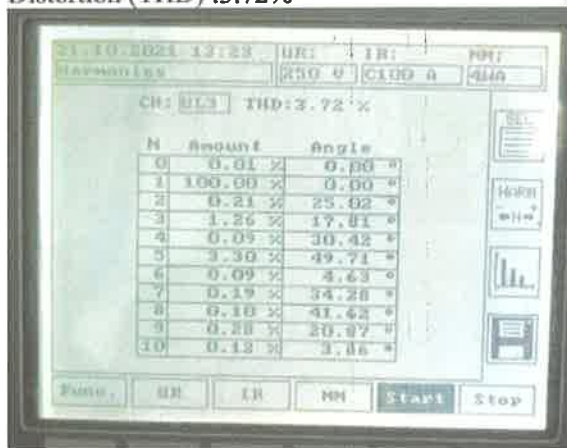
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.27%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.68 %



(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.72%

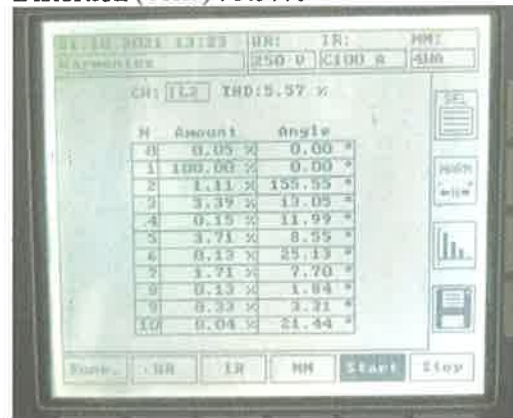


(b) Supply Current Distortion in Total Harmonic Distortion (THD)

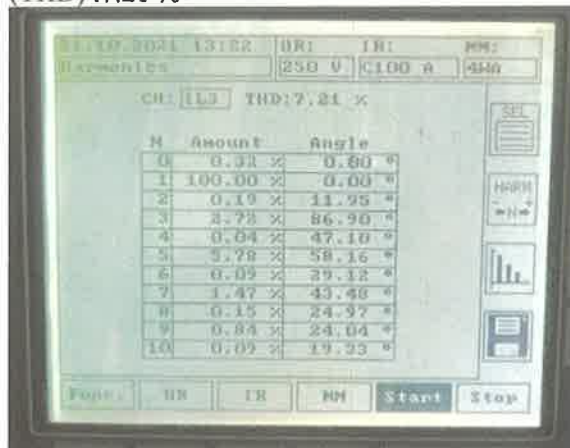
(i) Phase 'a' current Total Harmonic Distortion (THD) : 13.31 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 5.57%



(iii) Phase 'c' current Total Harmonic Distortion (THD) :7.21 %



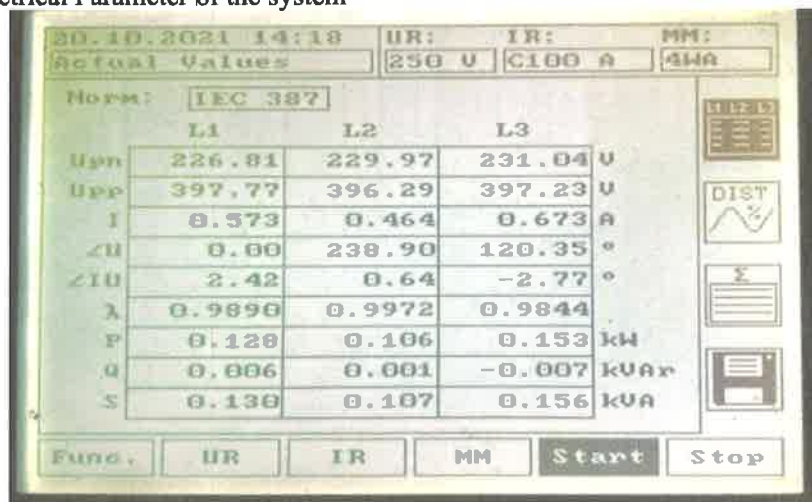
At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021

(20) Department of Education at University Campus

Monitoring of Panel

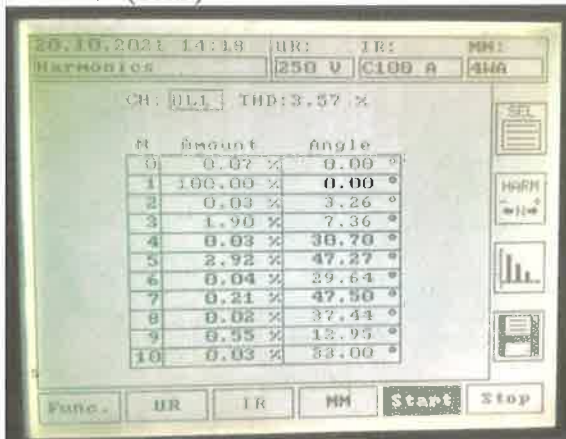


Various electrical Parameter of the system

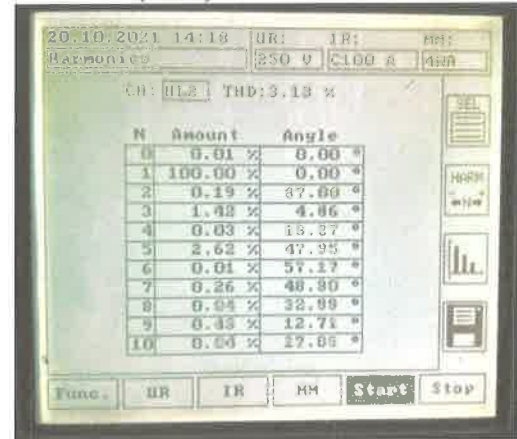


(a) Supply Voltage Distortion

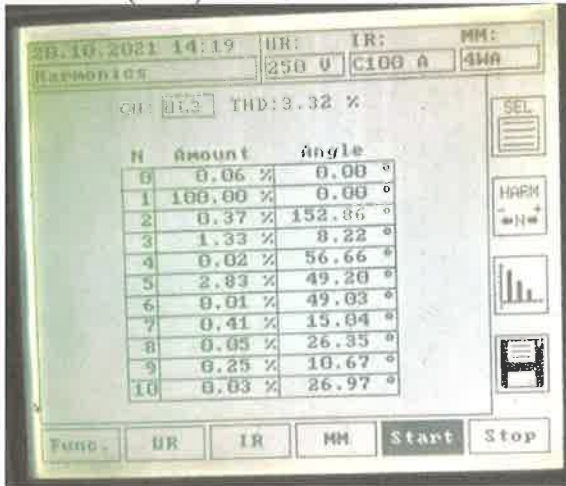
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.91%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.25%

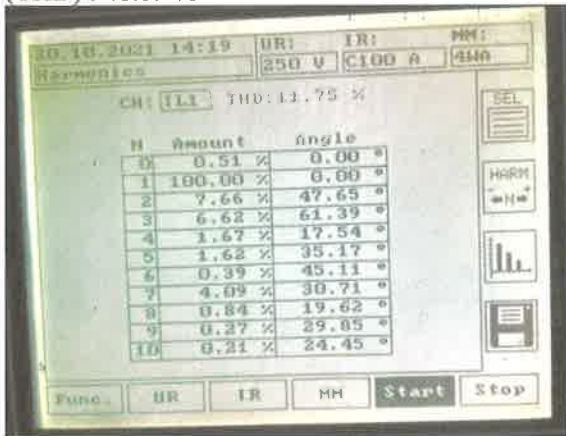


(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.08%

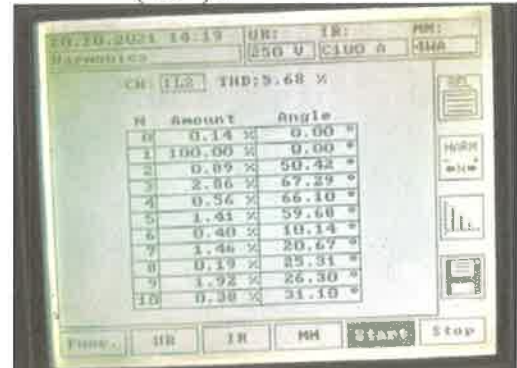


(b) Supply Current Distortion in Total Harmonic Distortion (THD)

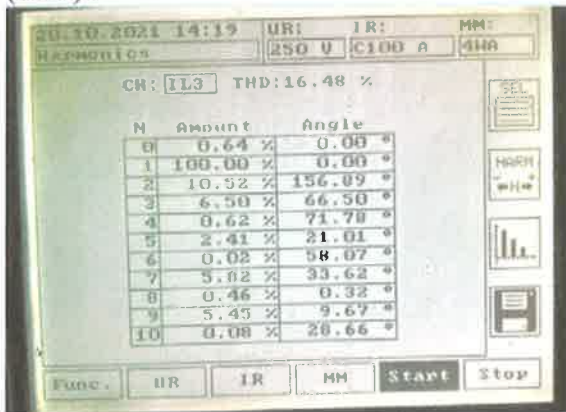
(i) Phase 'a' current Total Harmonic Distortion (THD) : 46.15 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 97.24%



(iii) Phase 'c' current Total Harmonic Distortion (THD) :11 %



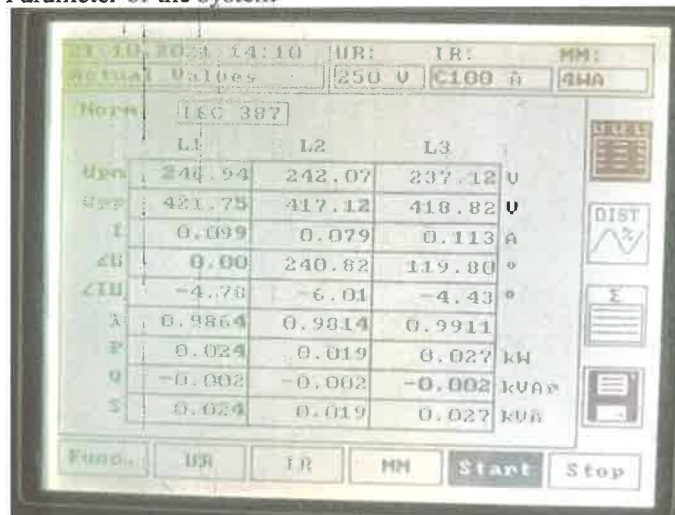
At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021

(21) Indoor sports complex at University Campus

Monitoring of Panel (250_5)

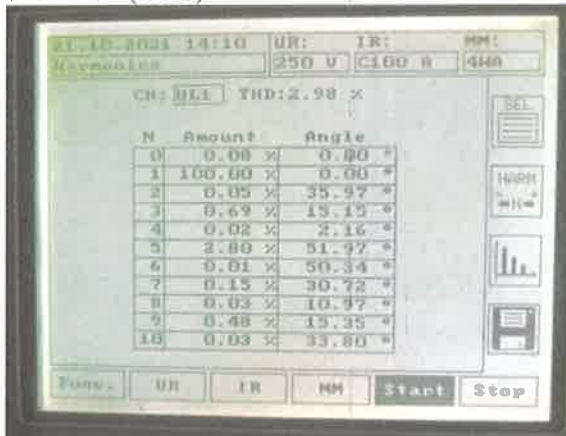


Various electrical Parameter of the system

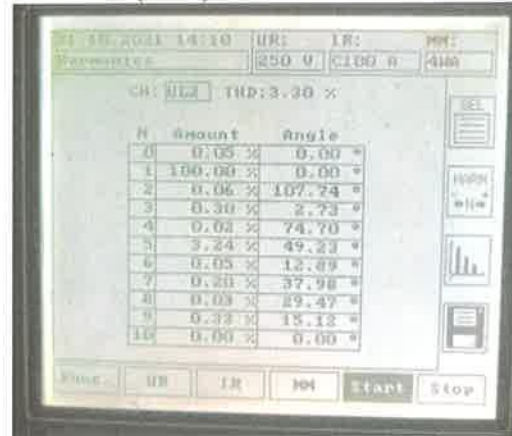


(a) Supply Voltage Distortion

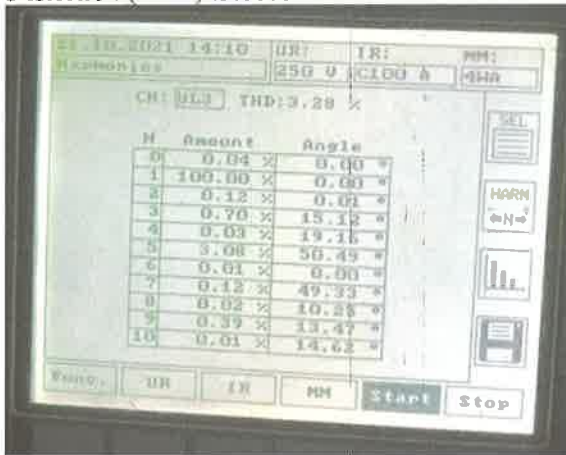
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.91%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.25 %

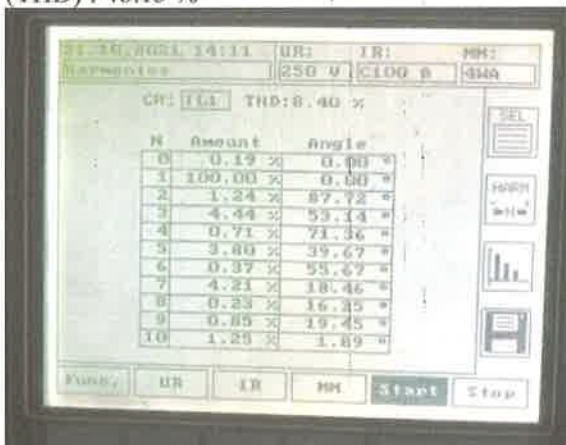


(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.08%

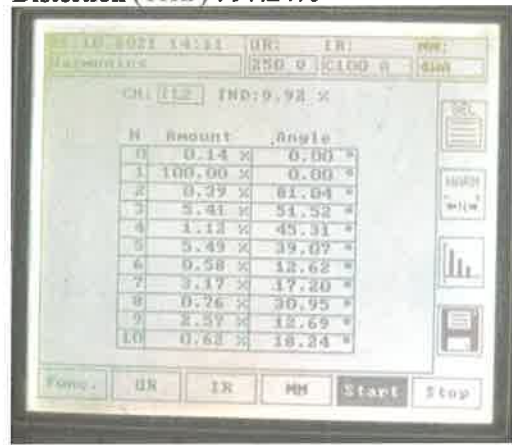


(b) Supply Current Distortion in Total Harmonic Distortion (THD)

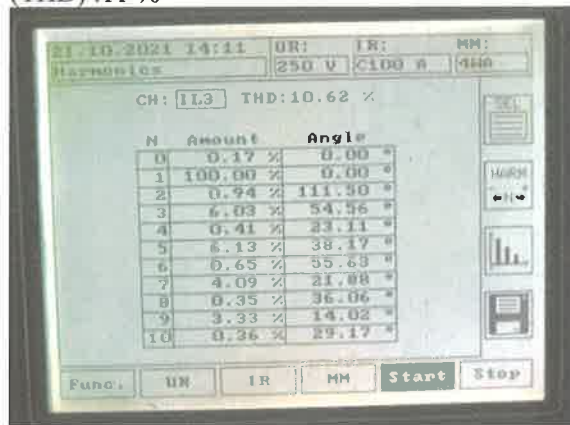
(i) Phase 'a' current Total Harmonic Distortion (THD) : 46.15 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 97.24%



(iii) Phase 'c' current Total Harmonic Distortion (THD) :11 %



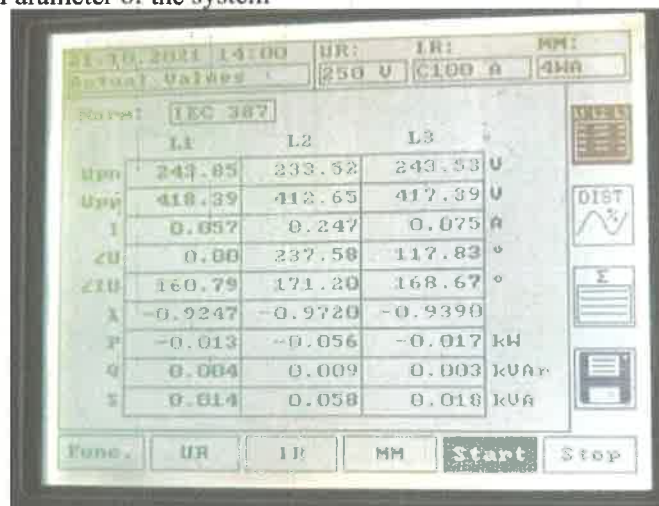
At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021

(22) Swimming indoor (250_5) at University Campus

Monitoring of Panel



Various electrical Parameter of the system

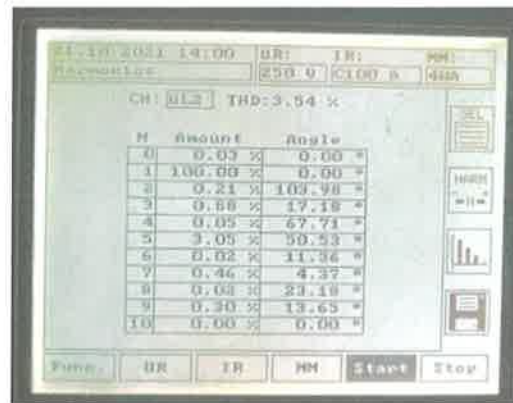


(a) Supply Voltage Distortion

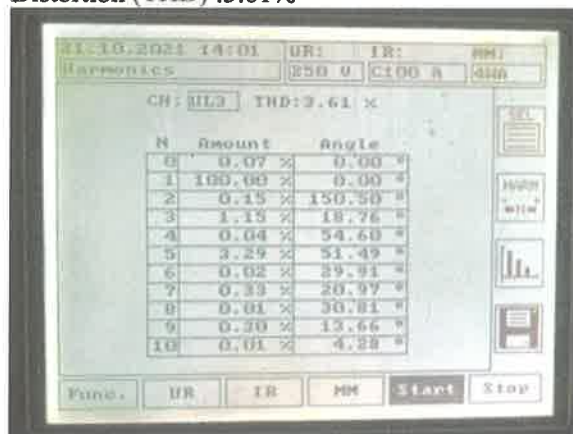
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.46%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.54 %

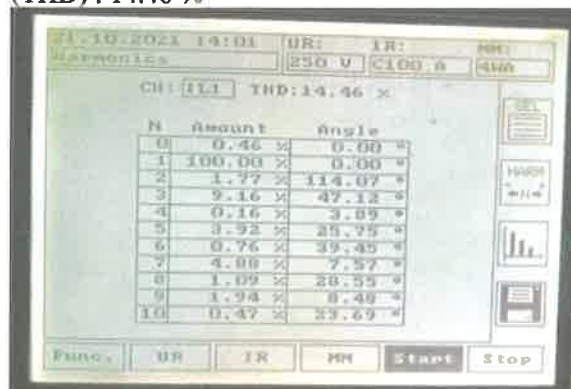


(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.61%

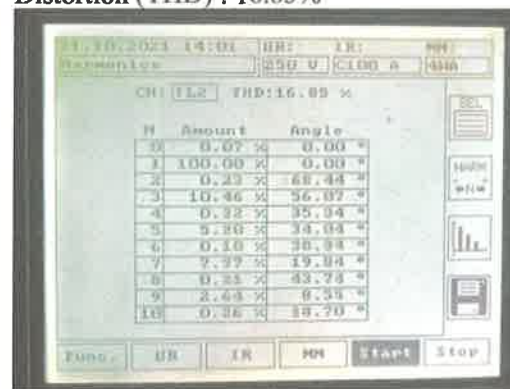


(b) Supply Current Distortion in Total Harmonic Distortion (THD)

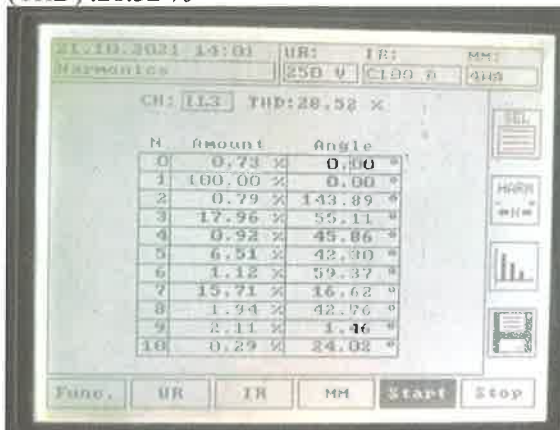
(i) Phase 'a' current Total Harmonic Distortion (THD) : 14.46 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 16.85%



(iii) Phase 'c' current Total Harmonic Distortion (THD) :28.52 %



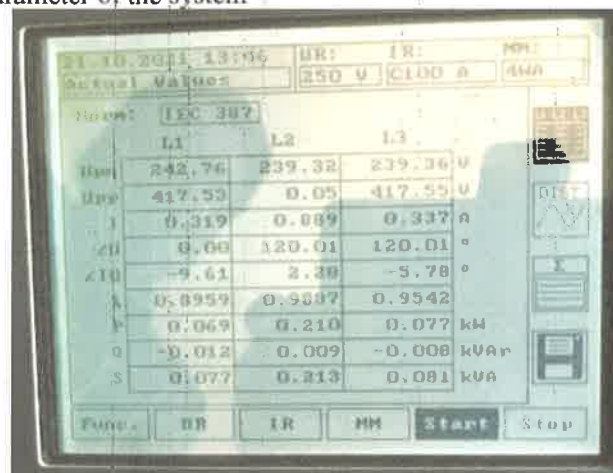
At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021

(23) Satpuda Hostel at University Campus

Monitoring of Panel

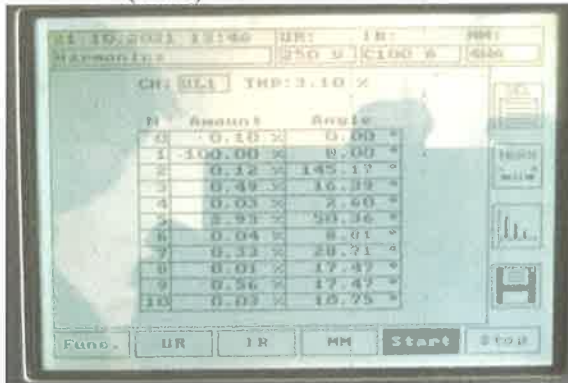


Various electrical Parameter of the system

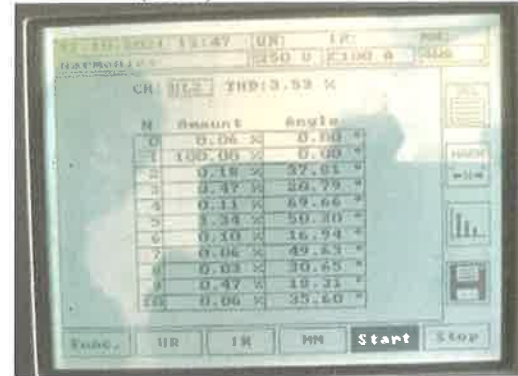


(a) Supply Voltage Distortion

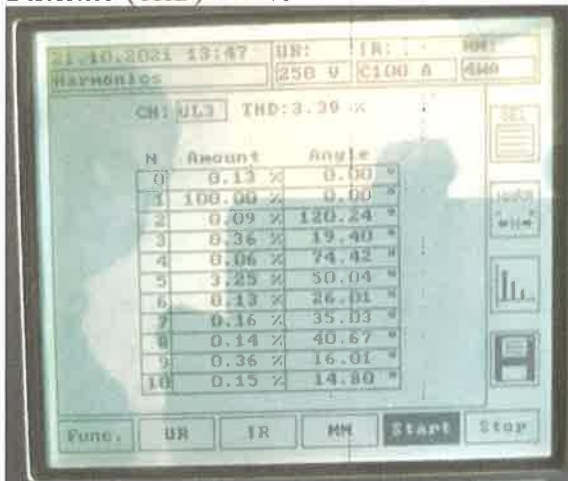
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.91%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.25 %



(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.08%

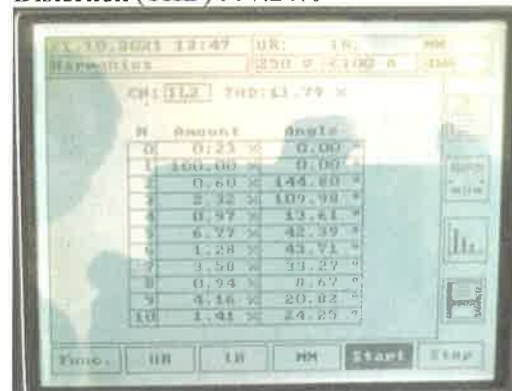


(b) Supply Current Distortion in Total Harmonic Distortion (THD)

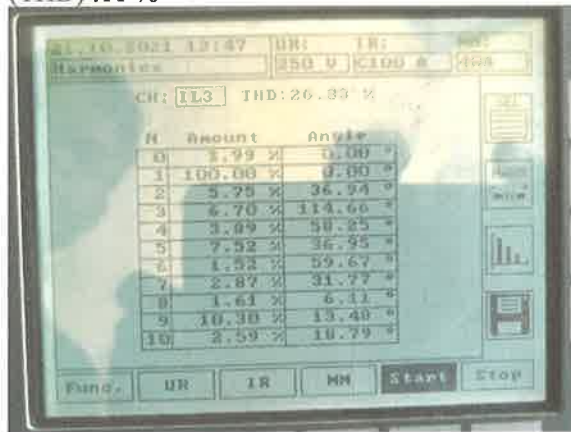
(i) Phase 'a' current Total Harmonic Distortion (THD) : 46.15 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 97.24%



(iii) Phase 'c' current Total Harmonic Distortion (THD) :11 %



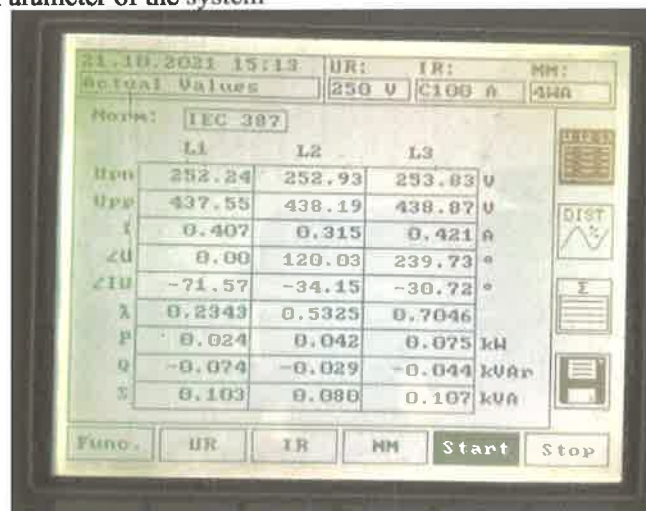
At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021

(24) Department of MBA at University Campus

Monitoring of Panel (CT:250/5)

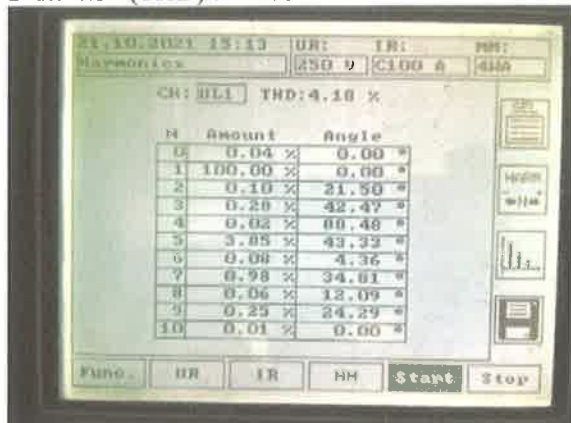


Various electrical Parameter of the system

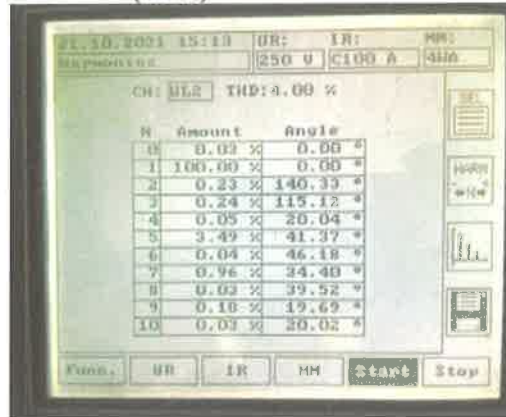


(a) Supply Voltage Distortion

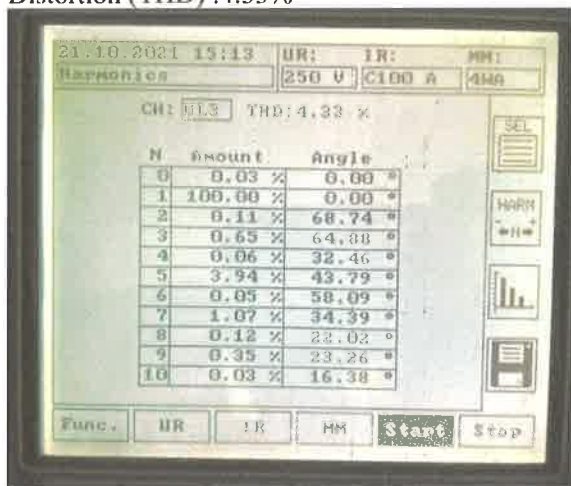
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :4.18%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :4.00 %

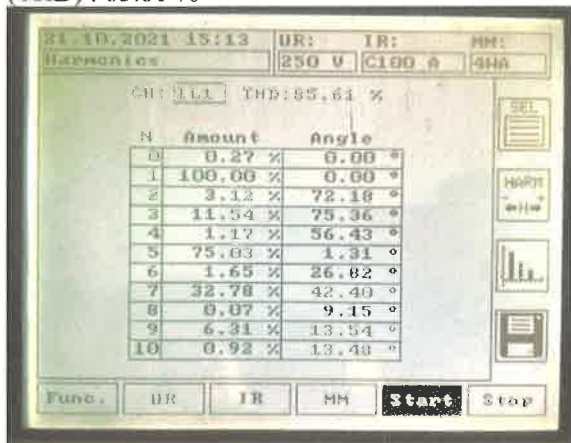


(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :4.33%

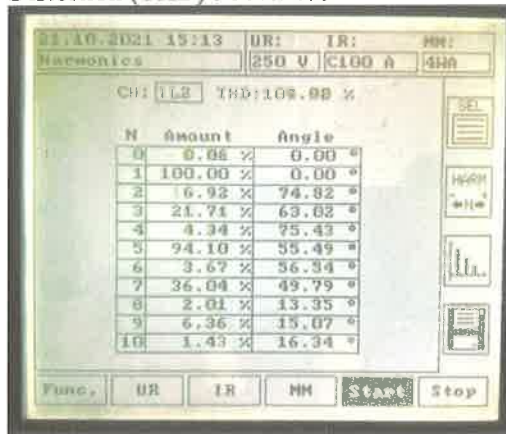


(b) Supply Current Distortion in Total Harmonic Distortion (THD)

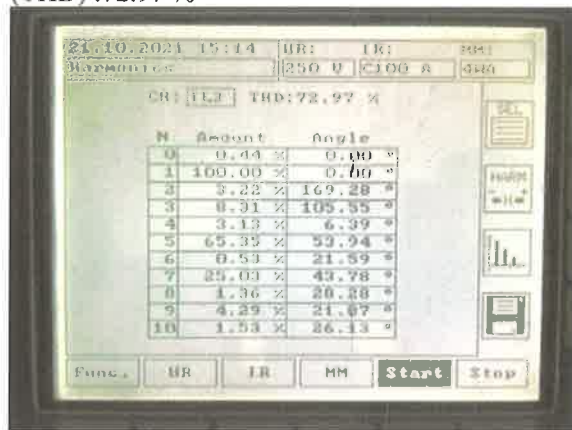
(i) Phase 'a' current Total Harmonic Distortion (THD) : 85.61 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 107.98%



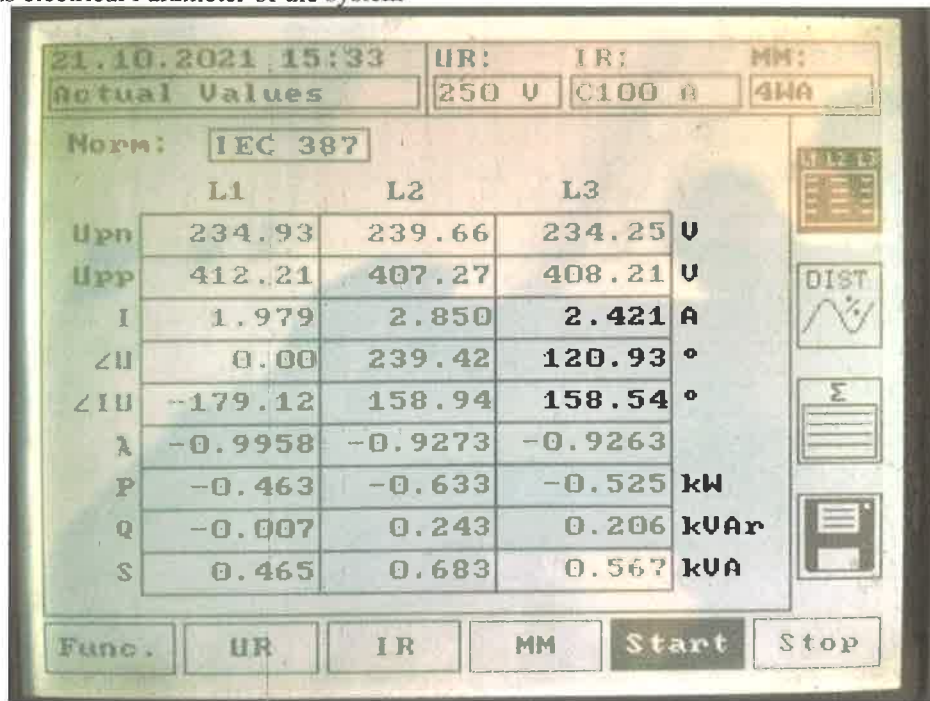
(iii) Phase 'c' current Total Harmonic Distortion (THD) :72.97 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under

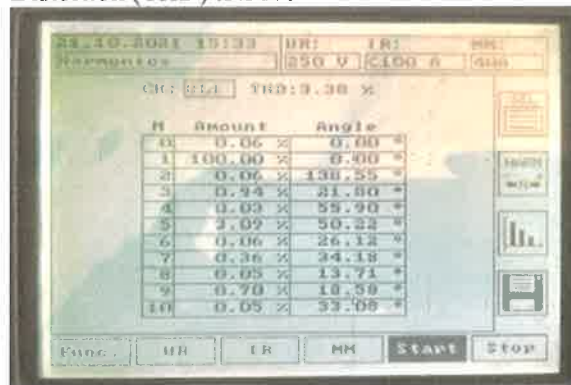
(25) New Guest House University Campus

Various electrical Parameter of the system

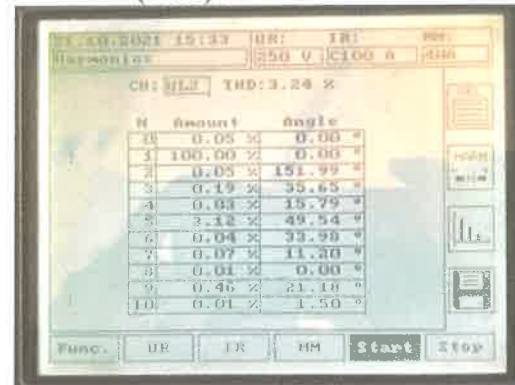


(a) Supply Voltage Distortion

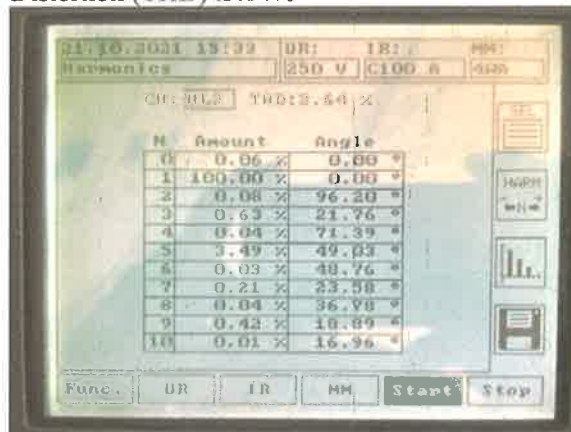
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.38%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.24 %

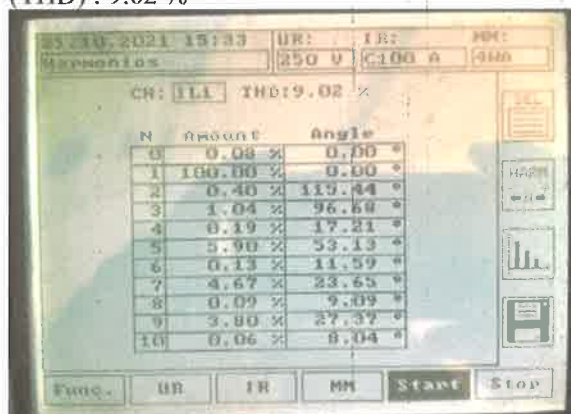


(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.64%

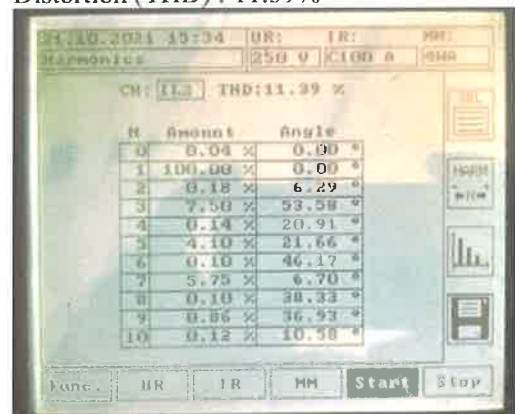


(b) Supply Current Distortion in Total Harmonic Distortion (THD)

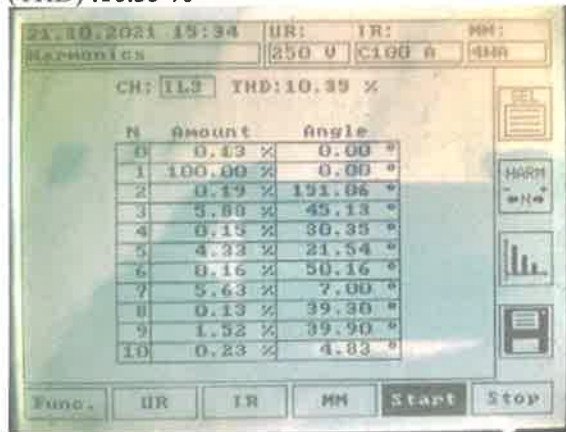
(i) Phase 'a' current Total Harmonic Distortion (THD) : 9.02 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 11.39%



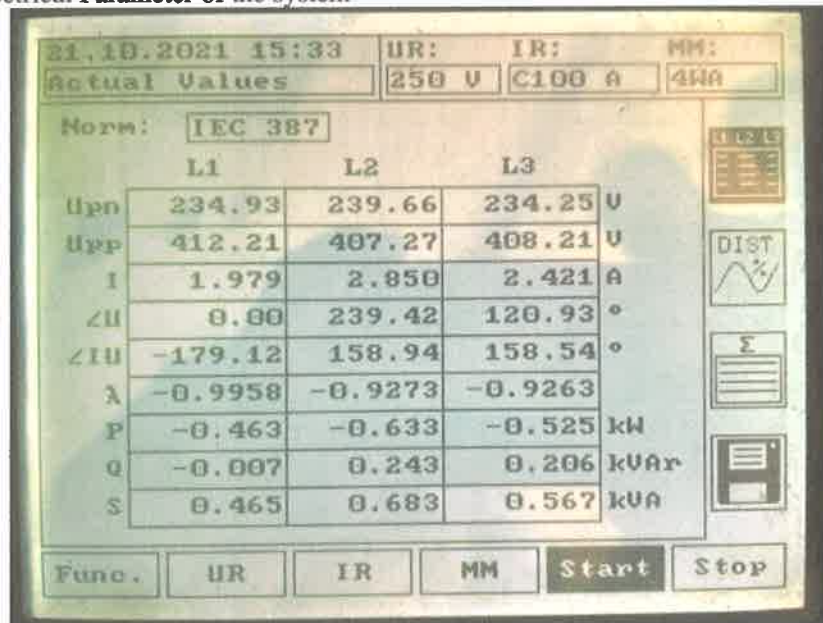
(iii) Phase 'c' current Total Harmonic Distortion (THD) :10.35 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021

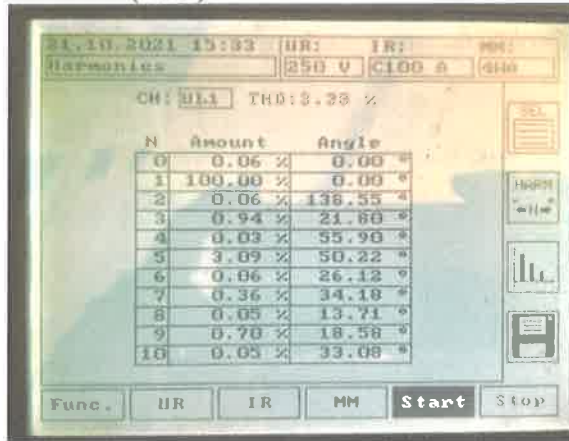
(26) Old Guest House at University Campus

Various electrical Parameter of the system

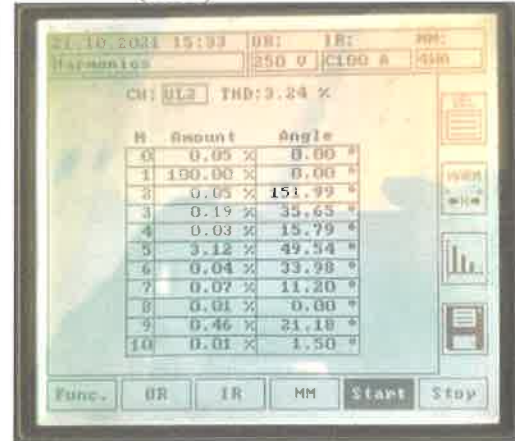


(a) Supply Voltage Distortion

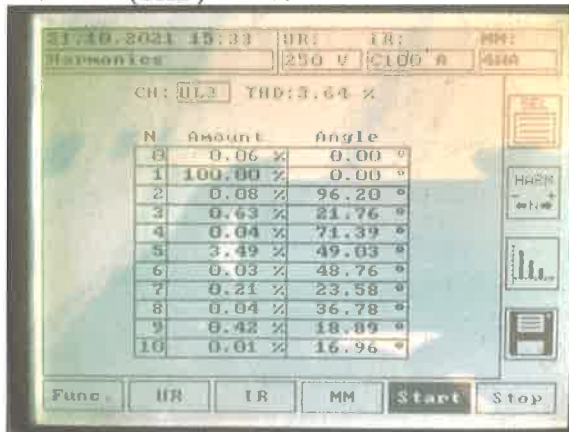
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.91%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.25 %

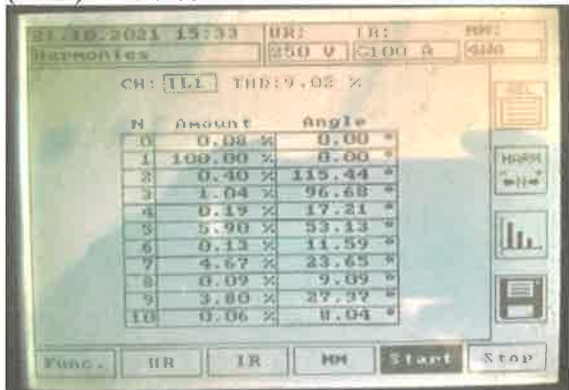


(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.08%

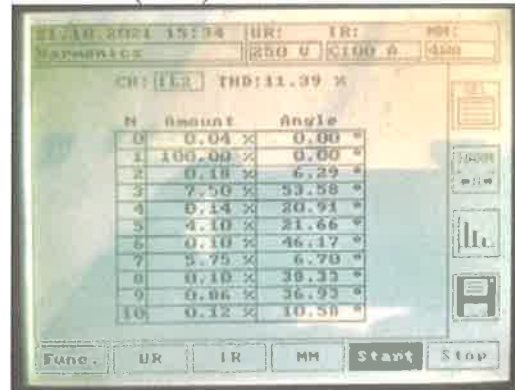


(b) Supply Current Distortion in Total Harmonic Distortion (THD)

(i) Phase 'a' current Total Harmonic Distortion (THD) : 46.15 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 97.24%



(iii) Phase 'c' current Total Harmonic Distortion (THD) :11 %

21.10.2021 15:34 UR: IR: MM:
 HARMONICS 250 V C100 A 400
 CR: [IL3] THD:10.29 %

N	Amount	Angle
0	0.13 %	0.00 °
1	100.00 %	0.00 °
2	0.19 %	151.06 °
3	5.08 %	45.13 °
4	0.15 %	30.35 °
5	4.33 %	21.54 °
6	0.16 %	50.16 °
7	5.63 %	7.00 °
8	0.13 %	39.30 °
9	1.52 %	39.90 °
10	0.23 %	4.83 °

Func. UR IR MM Start Stop

At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021

(27) Girnar Hostel at University Campus

Various electrical Parameter of the system

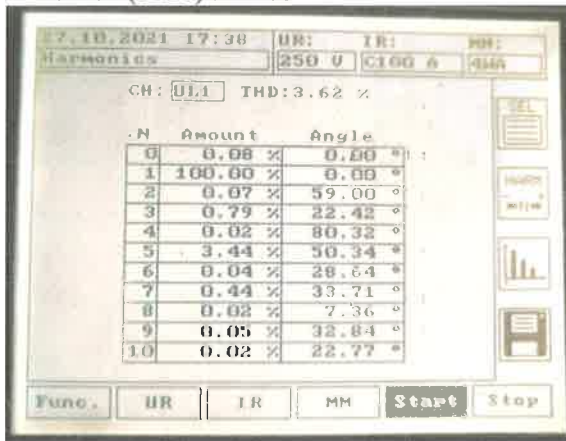
27.10.2021 17:37 UR: IR: MM:
 Actual Values 250 V C100 A 400
 Norm: IEC 387

	L1	L2	L3
Upn	244.87 V	240.95 V	238.67 V
Upp	428.25 V	418.22 V	417.78 V
I	1.631 A	3.068 A	3.759 A
∠U	0.00 °	239.65 °	119.68 °
∠IU	14.68 °	10.95 °	4.22 °
λ	0.962	0.9432	0.9962
P	0.384 kW	0.69 kW	0.891 kW
Q	0.100 kVar	0.239 kVar	0.066 kVar
S	0.399 kVA	0.738 kVA	0.894 kVA

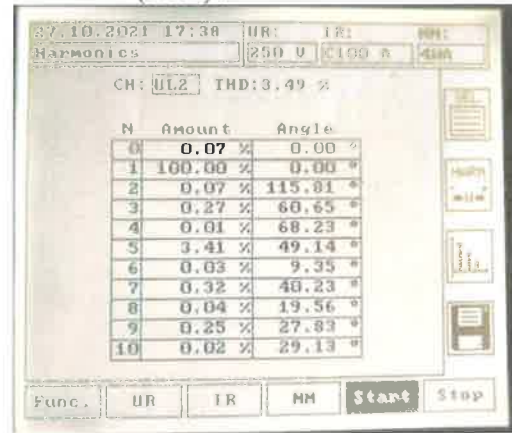
Func. UR IR MM Start Stop

(a) Supply Voltage Distortion

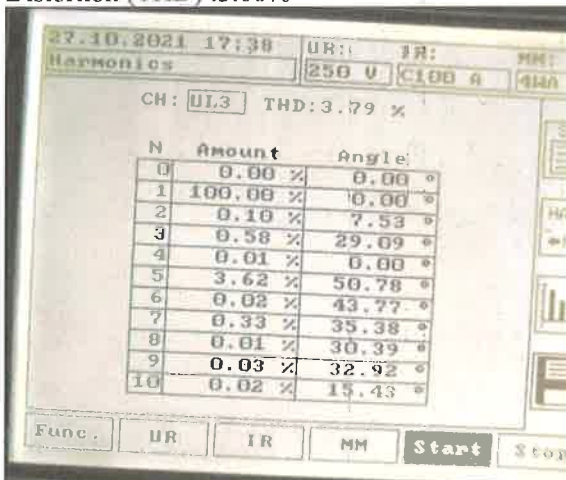
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.91%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.25 %

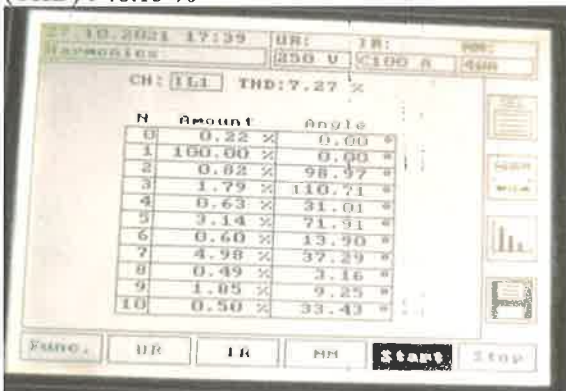


(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.08%

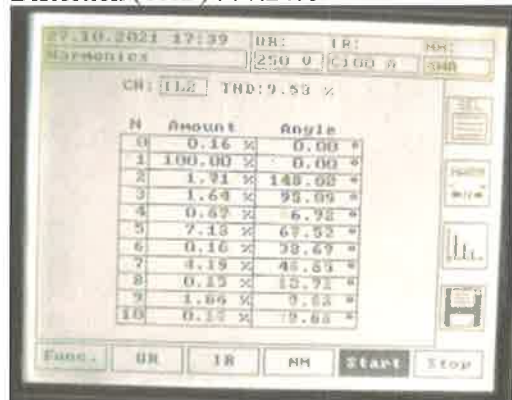


(b) Supply Current Distortion in Total Harmonic Distortion (THD)

(i) Phase 'a' current Total Harmonic Distortion (THD) : 46.15 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 97.24%



(iii) Phase 'c' current Total Harmonic Distortion (THD) :11 %

N	Amount	Angle
0	0.05 %	0.00 °
1	100.00 %	0.00 °
2	0.12 %	173.81 °
3	2.50 %	23.09 °
4	0.18 %	52.10 °
5	3.29 %	49.04 °
6	0.13 %	16.93 °
7	3.47 %	30.45 °
8	0.11 %	42.21 °
9	0.65 %	25.73 °
10	0.07 %	12.49 °

At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021

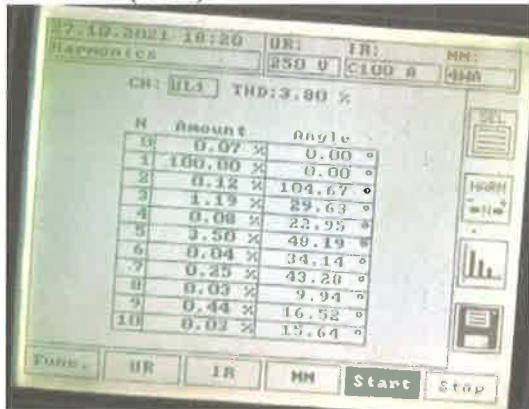
(28) Kaveri Girls Hostel at University Campus

Various electrical Parameter of the system

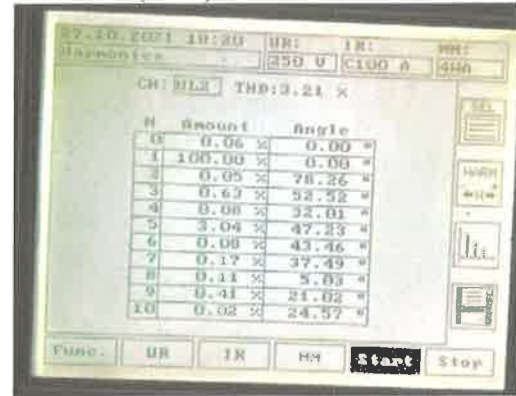
	L1	L2	L3	
U _{pn}	246.03	225.09	236.63	V
U _{pp}	412.27	403.94	409.16	V
I	8.223	11.753	11.131	A
Z _U	32.49	270.44	148.41	°
Z _{IU}	32.49	30.90	16.76	°
λ	0.8413	0.8562	0.9563	
P	1.702	2.265	2.519	kW
Q	1.083	1.357	0.757	KVAr
S	2.023	2.646	2.634	KVA

(a) Supply Voltage Distortion

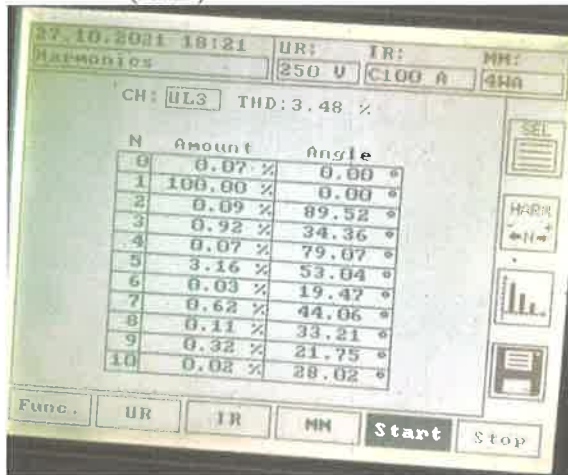
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.91%



(ii) Phase 'b' voltage Total Harmonic Distortion (THD) :3.25 %

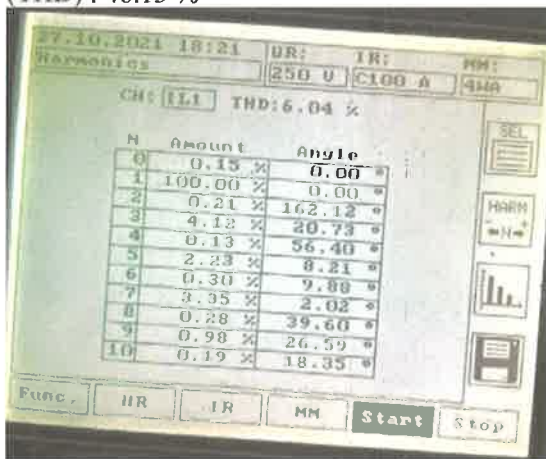


(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.08%

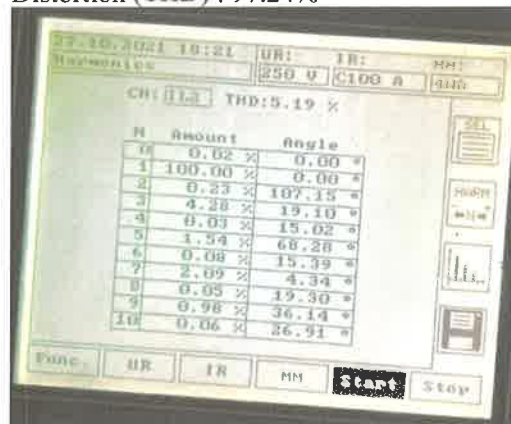


(b) Supply Current Distortion in Total Harmonic Distortion (THD)

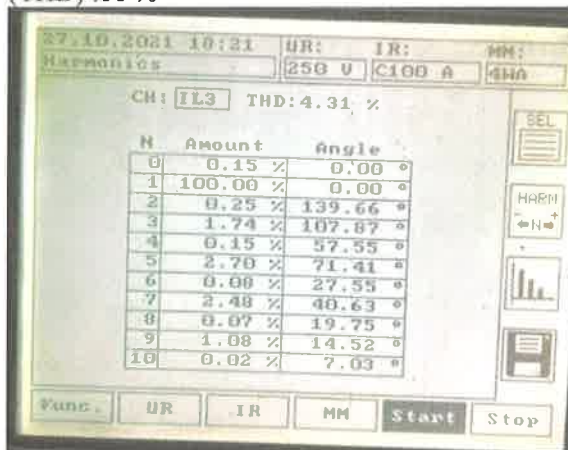
(i) Phase 'a' current Total Harmonic Distortion (THD) :46.15 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) :97.24%



(iii) Phase 'c' current Total Harmonic Distortion (THD) :11 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021

(29) Ambica Hostel at University Campus

Monitoring of Panel



Various electrical Parameter of the system

27.10.2021 18:42		UR:	IR:	MM:
Actual Values		250 V	C100 A	4HA
Norm: IEC 387				
	L1	L2	L3	
U _{pn}	250.31	234.28	244.10	V
U _{pp}	423.73	416.74	421.38	V
I	2.771	0.473	2.897	A
∠U	0.00	238.08	116.92	°
∠IU	23.55	-74.08	-38.78	°
λ	0.9116	0.2571	0.7580	
P	0.632	0.028	0.536	kW
Q	0.275	-0.099	-0.433	kVAr
S	0.694	0.111	0.707	kVA

Supply Voltage Distortion

(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.74 %

27.10.2021 18:42		UR:	IR:	MM:
Harmonics		250 V	C100 A	4HA
CH: ULL THD:3.74 %				
N	Amount	Angle		
0	0.07 %	0.00 °		
1	100.00 %	0.00 °		
2	0.09 %	110.98 °		
3	1.14 %	25.38 °		
4	0.01 %	26.19 °		
5	3.43 %	40.23 °		
6	0.07 %	22.42 °		
7	0.35 %	46.71 °		
8	0.05 %	30.80 °		
9	0.62 %	15.91 °		
10	0.06 %	22.04 °		

(ii) Phase 'b' current voltage Total Harmonic Distortion (THD) :3.08 %

27.10.2021 18:42		UR:	IR:	MM:
Harmonics		250 V	C100 A	4HA
CH: UL2 THD:3.08 %				
N	Amount	Angle		
0	0.05 %	0.00 °		
1	100.00 %	0.00 °		
2	0.07 %	112.06 °		
3	0.41 %	46.39 °		
4	0.02 %	17.80 °		
5	2.91 %	47.32 °		
6	0.07 %	26.76 °		
7	0.23 %	47.38 °		
8	0.02 %	38.84 °		
9	0.51 %	18.67 °		
10	0.06 %	29.96 °		

(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.88 %

27.10.2021 18:43		UR:	IR:	MM:
Harmonics		250 V	C100 A	4HA
CH: UL3 THD:3.88 %				
N	Amount	Angle		
0	0.07 %	0.00 °		
1	100.00 %	0.00 °		
2	0.12 %	149.90 °		
3	0.87 %	25.75 °		
4	0.04 %	29.86 °		
5	3.60 %	51.68 °		
6	0.07 %	55.32 °		
7	0.64 %	43.96 °		
8	0.03 %	4.99 °		
9	0.48 %	18.47 °		
10	0.03 %	0.26 °		

(b) Supply current distortion

(i) Phase 'a' current Total Harmonic Distortion (THD) : 9.26 %

27.10.2021 18:43 UR: IR: MM: Harmonics 250 V C100 A 4MA
CH: IL1 THD: 9.26 %

N	Amount	Angle
0	0.37 %	0.00 °
1	100.00 %	0.00 °
2	0.16 %	119.04 °
3	5.31 %	88.38 °
4	0.17 %	23.15 °
5	4.39 %	7.13 °
6	0.12 %	36.64 °
7	5.28 %	44.68 °
8	0.32 %	36.45 °
9	1.97 %	21.05 °
10	0.22 %	4.30 °

Func. UR IR MM Start Stop

(ii) Phase 'b' current Total Harmonic Distortion (THD) : 30.12 %

27.10.2021 18:43 UR: IR: MM: Harmonics 250 V C100 A 4MA
CH: IL2 THD: 30.12 %

N	Amount	Angle
0	4.45 %	0.00 °
1	100.00 %	0.00 °
2	0.68 %	147.46 °
3	17.21 %	13.84 °
4	0.65 %	66.29 °
5	11.57 %	50.35 °
6	0.58 %	38.25 °
7	15.55 %	11.77 °
8	0.97 %	1.80 °
9	10.15 %	14.65 °
10	1.00 %	12.97 °

Func. UR IR MM Start Stop

(ii) Phase 'c' current Total Harmonic Distortion (THD) : 23.48 %

27.10.2021 18:43 UR: IR: MM: Harmonics 250 V C100 A 4MA
CH: IL3 THD: 23.48 %

N	Amount	Angle
0	0.25 %	0.00 °
1	100.00 %	0.00 °
2	0.40 %	121.93 °
3	11.38 %	15.63 °
4	0.35 %	40.67 °
5	15.78 %	26.21 °
6	0.63 %	4.80 °
7	4.36 %	26.88 °
8	0.42 %	31.87 °
9	4.53 %	31.13 °
10	0.96 %	9.54 °

Func. UR IR MM Start Stop

At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021.

(30) Tapi Hostel at University Campus

Monitoring of Panel



Various electrical Parameter of the system

27.10.2021 18:37		UR:	IR:	MM:
Actual Values		250 V	C100 A	4MA
Norm: IEC 387				
	L1	L2	L3	
U _{pn}	248.75	236.04	242.99	V
U _{pp}	423.53	416.36	420.50	V
I	2.168	6.667	0.573	A
∠U	142.18	20.44	259.72	°
∠IU	1.58	20.44	52.82	°
λ	0.9977	0.9256	0.6004	
P	0.538	1.457	0.084	kW
Q	0.015	0.539	0.110	kVAr
S	0.539	1.574	0.139	kVA

(a) Supply Voltage Distortion

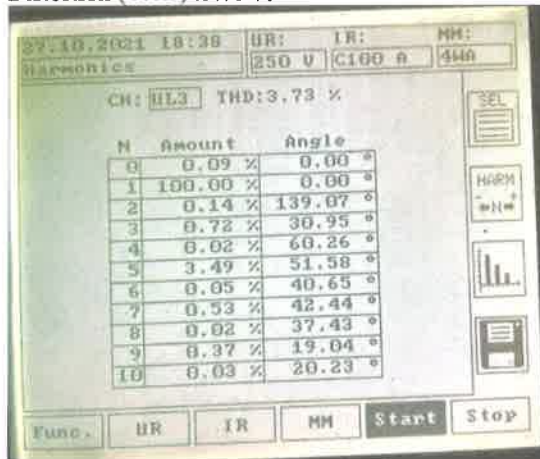
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.71 %

27.10.2021 18:37		UR:	IR:	MM:
Harmonics		250 V	C100 A	4MA
CH: UL1 THD:3.71 %				
N	Amount	Angle		
0	0.07 %	0.00 °		
1	100.00 %	0.00 °		
2	0.13 %	45.87 °		
3	1.11 %	86.54 °		
4	0.02 %	18.10 °		
5	3.41 %	49.31 °		
6	0.01 %	39.37 °		
7	0.33 %	45.45 °		
8	0.03 %	8.86 °		
9	0.55 %	16.18 °		
10	0.03 %	24.83 °		

(ii) Phase 'b' current voltage Total Harmonic Distortion (THD) :3.23 %

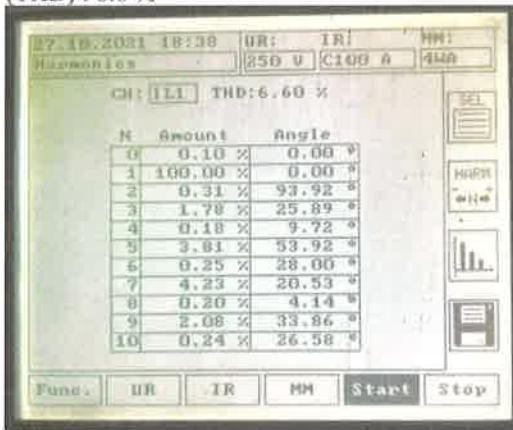
27.10.2021 18:38		UR:	IR:	MM:
Harmonics		250 V	C100 A	4MA
CH: UL2 THD:3.23 %				
N	Amount	Angle		
0	0.02 %	0.00 °		
1	100.00 %	0.00 °		
2	0.07 %	1.99 °		
3	0.58 %	54.30 °		
4	0.02 %	32.14 °		
5	3.06 %	47.20 °		
6	0.04 %	34.34 °		
7	0.32 %	45.05 °		
8	0.03 %	40.49 °		
9	0.56 %	20.35 °		
10	0.02 %	8.28 °		

(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.73 %

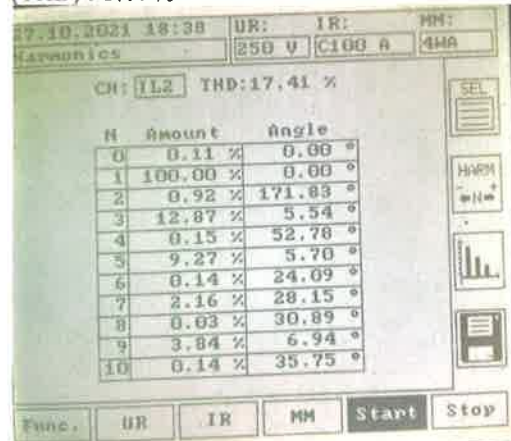


(b) Supply current distortion

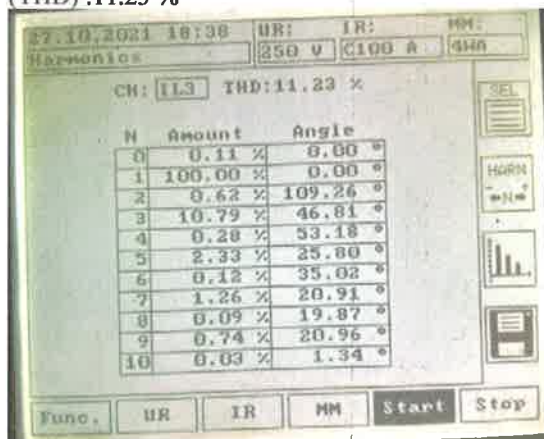
(i) Phase 'a' current Total Harmonic Distortion (THD) : 6.6 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 17.4 %



(ii) Phase 'c' current Total Harmonic Distortion (THD) :11.23 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021.

(30) Narmada Hostel at University Campus

Various electrical Parameter of the system

	L1	L2	L3	U
U _{ph}	244.58	226.29	244.48	V
U _{avg}	415.37	408.47	414.56	V
I	2.237	1.292	0.017	A
Z _U	0.00	236.24	115.92	°
Z _{U0}	0.95	1.72	-80.62	°
λ	0.9808	0.9611	0.1457	
P	0.537	0.281	0.001	kW
Q	0.083	0.007	-0.004	kVar
S	0.547	0.292	0.004	kVA

(a) Supply Voltage Distortion

(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.86 %

(ii) Phase 'b' current voltage Total Harmonic Distortion (THD) :2.75 %

N	Amount	Angle
0	0.00 %	0.00 °
1	100.00 %	0.00 °
2	0.16 %	108.22 °
3	0.09 %	24.88 °
4	0.00 %	85.88 °
5	3.63 %	47.08 °
6	0.06 %	38.41 °
7	0.24 %	48.14 °
8	0.03 %	3.00 °
9	0.44 %	16.28 °
10	0.03 %	22.92 °

N	Amount	Angle
0	0.03 %	0.00 °
1	100.00 %	0.00 °
2	0.09 %	1.73 °
3	0.32 %	45.86 °
4	0.02 %	85.42 °
5	2.62 %	47.69 °
6	0.04 %	33.22 °
7	0.13 %	43.15 °
8	0.04 %	10.21 °
9	0.43 %	22.13 °
10	0.02 %	11.94 °

(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.59 %

N	Amount	Angle
0	0.12 %	0.00 °
1	100.00 %	0.00 °
2	0.08 %	154.80 °
3	0.62 %	29.53 °
4	0.06 %	27.75 °
5	3.42 %	53.24 °
6	0.06 %	34.83 °
7	0.46 %	42.99 °
8	0.03 %	6.54 °
9	0.35 %	20.06 °
10	0.03 %	16.85 °

(b) Supply current distortion

(i) Phase 'a' current Total Harmonic Distortion (THD) : 8.45 %

N	Amount	Angle
0	0.76 %	0.00 °
1	100.00 %	0.00 °
2	0.47 %	165.69 °
3	1.80 %	2.50 °
4	0.19 %	29.22 °
5	5.71 %	65.08 °
6	0.20 %	9.57 °
7	2.16 %	29.10 °
8	0.20 %	32.24 °
9	3.45 %	34.48 °
10	0.29 %	10.10 °

(ii) Phase 'b' current Total Harmonic Distortion (THD) : 27.40 %

N	Amount	Angle
0	0.29 %	0.00 °
1	100.00 %	0.00 °
2	1.58 %	83.27 °
3	15.41 %	66.96 °
4	1.91 %	13.18 °
5	12.43 %	64.01 °
6	1.68 %	46.73 °
7	14.29 %	23.28 °
8	1.24 %	18.22 °
9	7.62 %	35.11 °
10	0.85 %	0.88 °

(ii) Phase 'c' current Total Harmonic Distortion (THD) : 32.72 %

N	Amount	Angle
0	2.65 %	0.00 °
1	100.00 %	0.00 °
2	0.98 %	128.89 °
3	5.74 %	85.94 °
4	2.28 %	3.23 °
5	15.78 %	52.64 °
6	6.19 %	29.30 °
7	7.12 %	21.82 °
8	2.28 %	15.07 °
9	3.89 %	27.95 °
10	3.83 %	21.02 °

At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021.

(30) New boys hostel at University Campus

Various Electrical Parameter of the system (CT: 250/5)

Norm:	IEC 387		
	L1	L2	L3
U _{pp}	244.13	241.86	239.22
U _{pp}	420.91	415.84	417.99
I	0.194	0.016	0.215
∠U	0.00	239.66	119.71
∠IU	-16.28	-29.76	-16.90
λ	0.8793	0.4986	0.9360
P	0.041	0.802	0.048
Q	-0.012	-0.001	-0.015
S	0.047	0.004	0.052

(a) Supply Voltage Distortion

(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.85%

N	Amount	Angle
0	0.06 %	0.00 °
1	100.00 %	0.00 °
2	0.12 %	152.57 °
3	0.94 %	22.73 °
4	0.04 %	47.50 °
5	3.64 %	50.41 °
6	0.05 %	29.06 °
7	0.36 %	30.05 °
8	0.04 %	9.80 °
9	0.26 %	33.63 °
10	0.01 %	26.29 °

(ii) Phase 'b' current voltage Total Harmonic Distortion (THD) :3.37 %

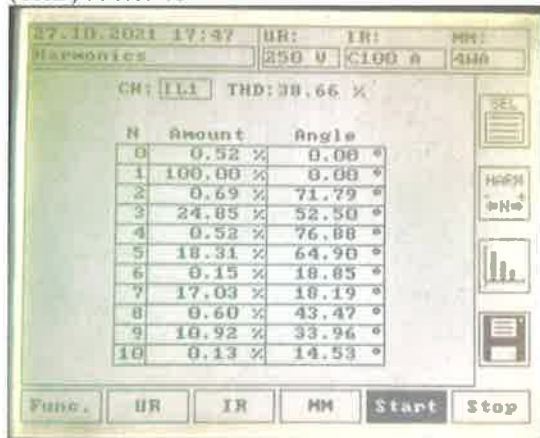
N	Amount	Angle
0	0.09 %	0.00 °
1	100.00 %	0.00 °
2	0.06 %	49.85 °
3	0.26 %	44.58 °
4	0.02 %	68.54 °
5	3.25 %	48.49 °
6	0.01 %	5.38 °
7	0.40 %	38.42 °
8	0.02 %	23.61 °
9	0.33 %	31.47 °
10	0.03 %	2.82 °

(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.83 %

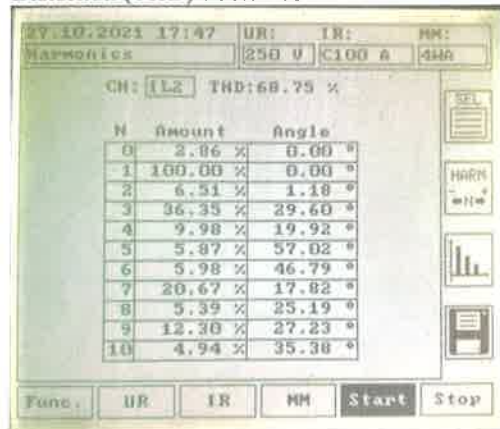
N	Amount	Angle
0	0.04 %	0.00 °
1	100.00 %	0.00 °
2	0.13 %	107.55 °
3	0.77 %	25.28 °
4	0.06 %	68.26 °
5	3.61 %	50.93 °
6	0.03 %	56.93 °
7	0.37 %	33.53 °
8	0.02 %	43.01 °
9	0.25 %	34.28 °
10	0.01 %	12.65 °

(b) Supply current distortion

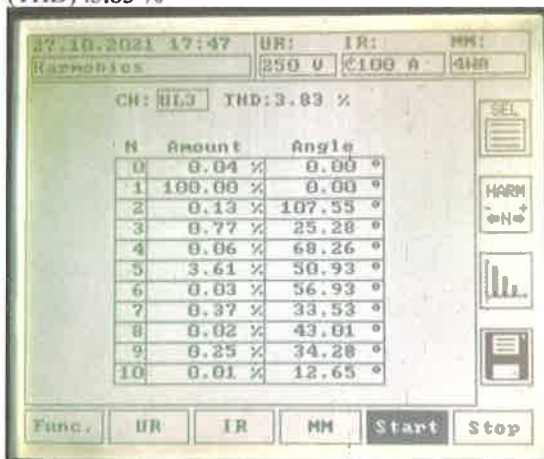
(i) Phase 'a' current Total Harmonic Distortion (THD) : 38.66 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 68.75 %



(ii) Phase 'c' current Total Harmonic Distortion (THD) : 3.83 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021.

(31) NEW Guest house at University Campus

Various Electrical Parameter of the system

21.10.2021 15:33		UR:	IR:	MM:
Actual Values		250 V	C100 A	40A
Norm: IEC 387				
	L1	L2	L3	
U _{pn}	234.93	239.66	234.25	V
U _{pp}	412.21	407.27	408.21	V
I	1.979	2.850	2.421	A
∠U	0.00	239.42	120.93	°
∠IU	-179.12	158.94	158.54	°
λ	-0.9958	-0.9273	-0.9263	
P	-0.463	-0.633	-0.525	kW
Q	-0.007	0.243	0.206	kVAr
S	0.465	0.683	0.567	kVA

(a) Supply Voltage Distortion

(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.38 %

(ii) Phase 'b' current voltage Total Harmonic Distortion (THD) :3.24 %

21.10.2021 15:33		UR:	IR:	MM:
Harmonics		250 V	C100 A	40A
CH: U11 THD:3.38 %				
N	Amount	Angle		
0	0.06 %	0.00 °		
1	100.00 %	0.00 °		
2	0.06 %	138.55 °		
3	0.94 %	21.80 °		
4	0.03 %	55.98 °		
5	3.09 %	50.22 °		
6	0.06 %	26.12 °		
7	0.36 %	34.18 °		
8	0.05 %	13.71 °		
9	0.70 %	18.58 °		
10	0.05 %	33.08 °		

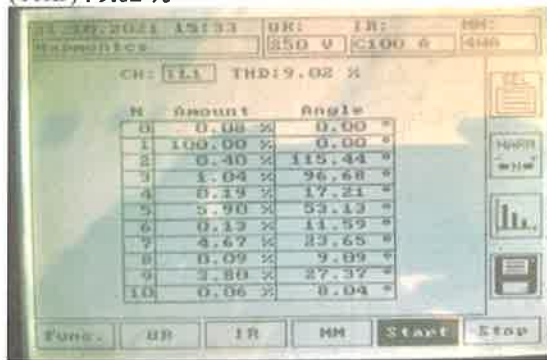
21.10.2021 15:33		UR:	IR:	MM:
Harmonics		250 V	C100 A	40A
CH: U12 THD:3.24 %				
N	Amount	Angle		
0	0.05 %	0.00 °		
1	100.00 %	0.00 °		
2	0.05 %	151.99 °		
3	0.19 %	35.65 °		
4	0.03 %	15.79 °		
5	3.12 %	49.54 °		
6	0.04 %	33.98 °		
7	0.07 %	11.20 °		
8	0.01 %	0.00 °		
9	0.46 %	21.18 °		
10	0.01 %	1.50 °		

(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.64 %

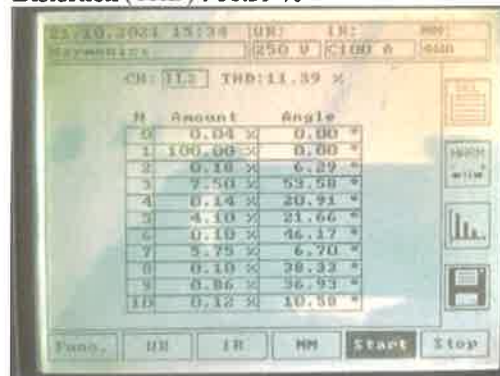
21.10.2021 15:33		UR:	IR:	MM:
Harmonics		250 V	C100 A	40A
CH: U13 THD:3.64 %				
N	Amount	Angle		
0	0.05 %	0.00 °		
1	100.00 %	0.00 °		
2	0.08 %	96.20 °		
3	0.63 %	21.76 °		
4	0.04 %	71.39 °		
5	3.49 %	49.03 °		
6	0.03 %	48.76 °		
7	0.21 %	23.58 °		
8	0.04 %	36.78 °		
9	0.42 %	18.89 °		
10	0.01 %	16.96 °		

(b) Supply current distortion

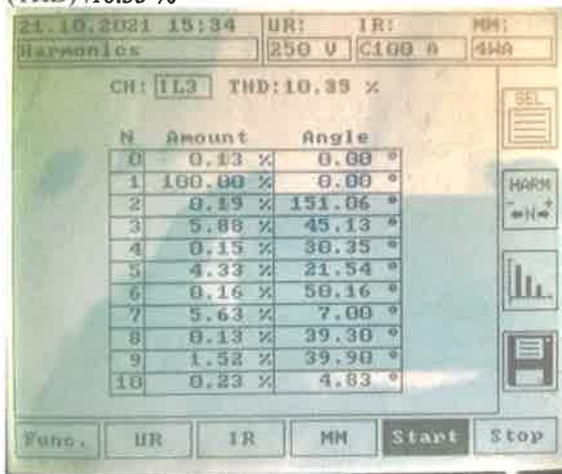
(i) Phase 'a' current Total Harmonic Distortion (THD) : 9.02 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 11.39 %



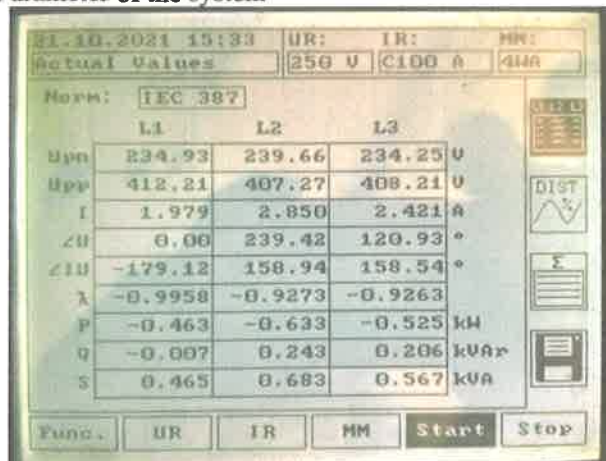
(ii) Phase 'c' current Total Harmonic Distortion (THD) : 10.35 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021.

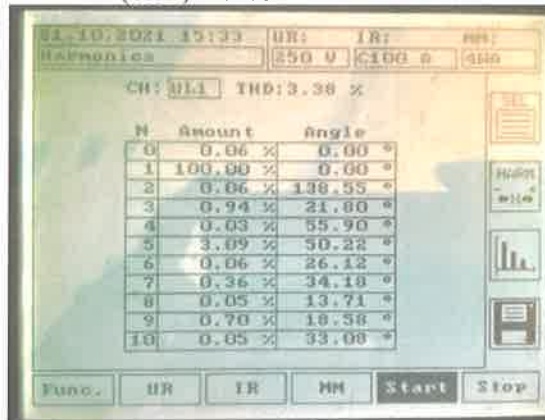
(32) Old Guest House at University Campus

Various Electrical Parameter of the system

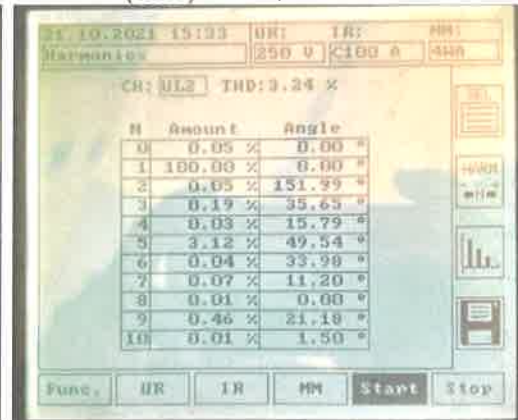


(a) Supply Voltage Distortion

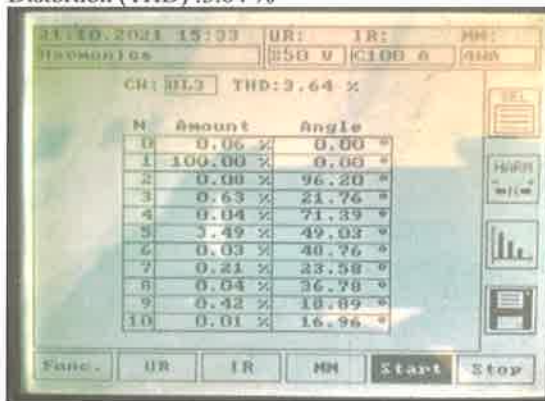
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.38%



(ii) Phase 'b' current voltage Total Harmonic Distortion (THD) :3.24 %

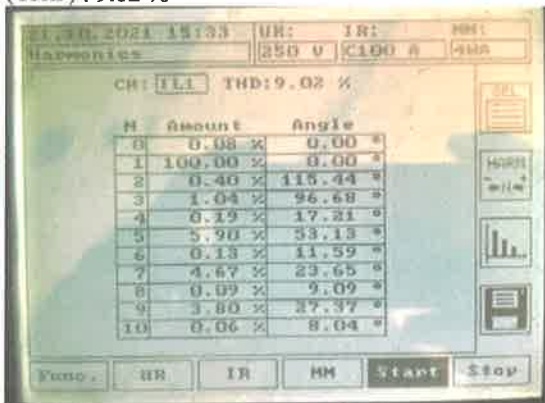


(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.64 %

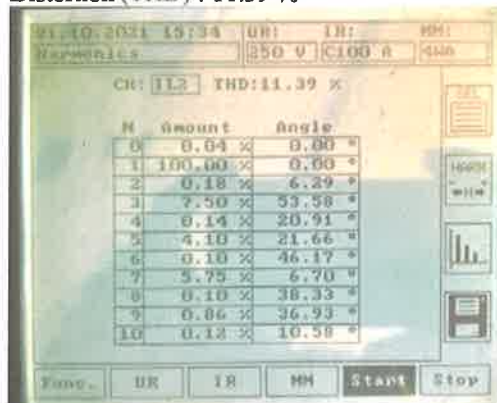


(b) Supply current distortion

(i) Phase 'a' current Total Harmonic Distortion (THD) : 9.02 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 11.39 %



(ii) Phase 'c' current Total Harmonic Distortion (THD) :10.35 %

21.10.2021 15:34 UR: 250 V IR: C100 A MM: 440
 Harmonics
 CH: IL3 THD:10.35 %

N	Amount	Angle
0	0.13 %	0.00 °
1	100.00 %	0.00 °
2	0.19 %	151.06 °
3	5.88 %	45.13 °
4	0.15 %	30.35 °
5	4.33 %	21.54 °
6	0.16 %	50.16 °
7	5.63 %	7.00 °
8	0.13 %	39.30 °
9	1.52 %	39.90 °
10	0.23 %	4.83 °

Func. UR IR MM Start Stop

At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021.

(33) Old Girls Hostel at University Campus

Various Electrical Parameter of the system

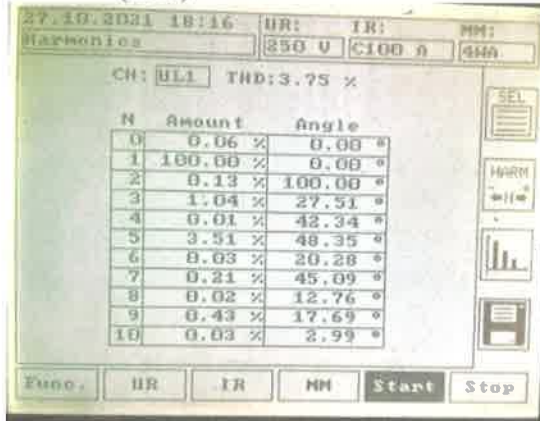
27.10.2021 18:15 UR: 250 V IR: C100 A MM: 440
 Actual Values
 Norm: IEC 387

	L1	L2	L3
Uyp	245.42	227.65	237.40 V
Uyp	413.71	406.11	410.37 V
I	15.021	16.291	15.292 A
ZU	18.44	256.50	134.84 °
ZIU	18.44	23.04	15.37 °
λ	0.9471	0.9190	0.9629
P	3.492	3.408	3.496 kW
Q	1.164	1.449	0.960 kVAR
S	3.686	3.709	3.630 kVA

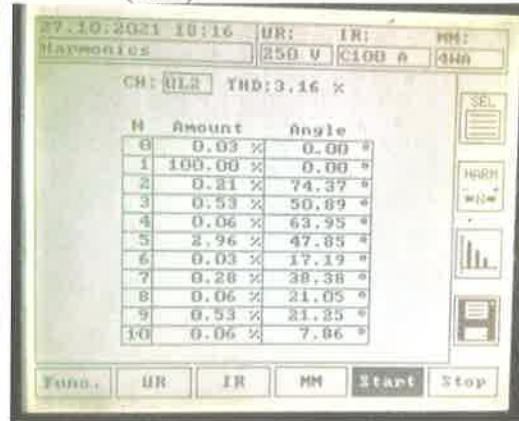
Func. UR IR MM Start Stop

(a) Supply Voltage Distortion

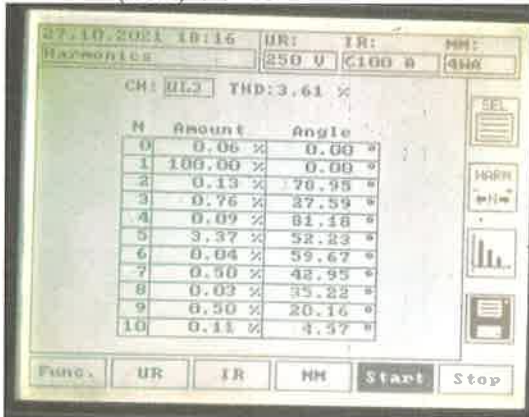
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.75 %



(ii) Phase 'b' current voltage Total Harmonic Distortion (THD) :3.16 %

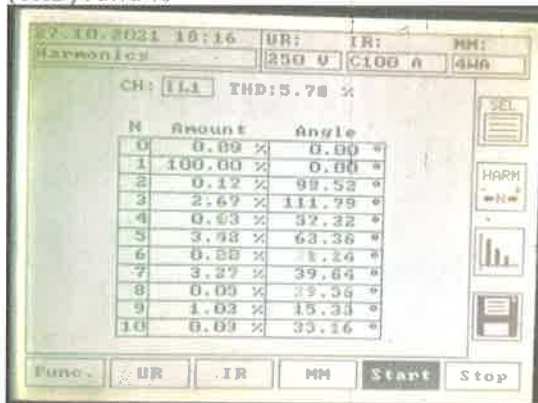


(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.61 %

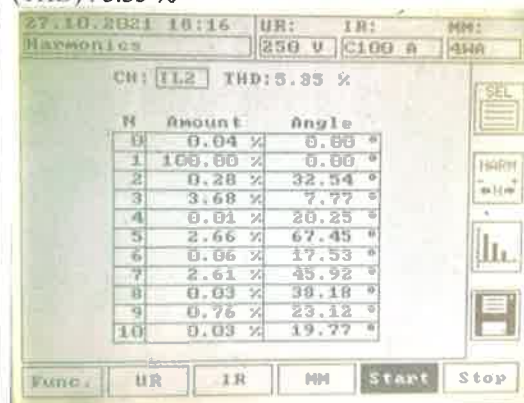


(b) Supply current distortion

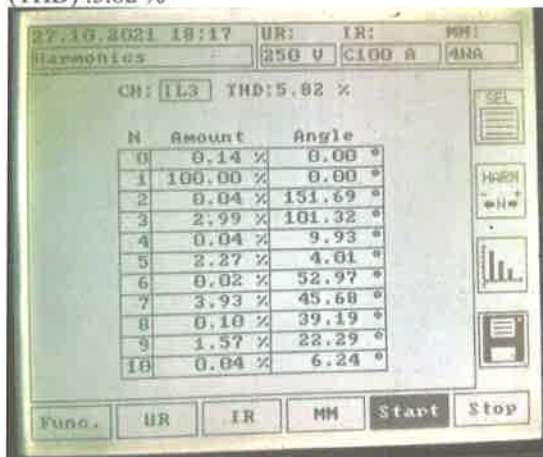
(i) Phase 'a' current Total Harmonic Distortion (THD) : 5.78 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 5.35 %



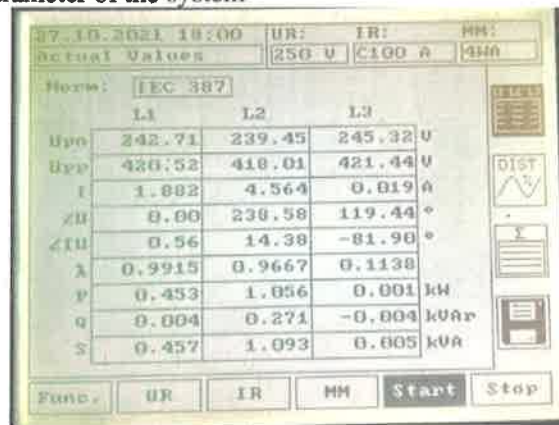
(ii) Phase 'c' current Total Harmonic Distortion (THD) :5.82 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021.

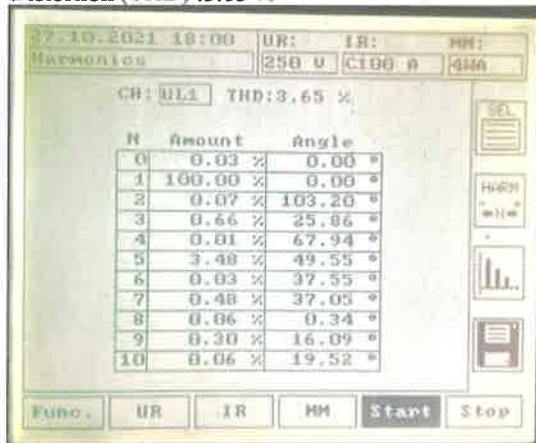
(34) Sahyadhri Boys hostel at University Campus

Various Electrical Parameter of the system



(a) Supply Voltage Distortion

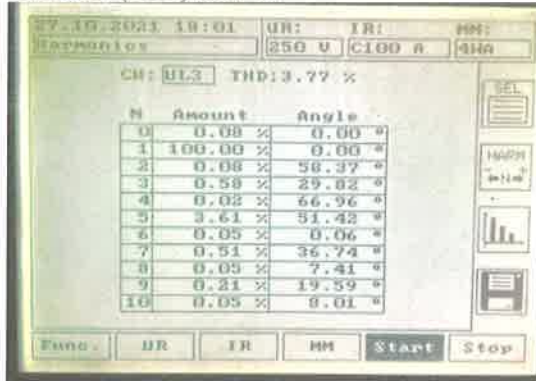
(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.65 %



(ii) Phase 'b' current voltage Total Harmonic Distortion (THD) :3.14 %

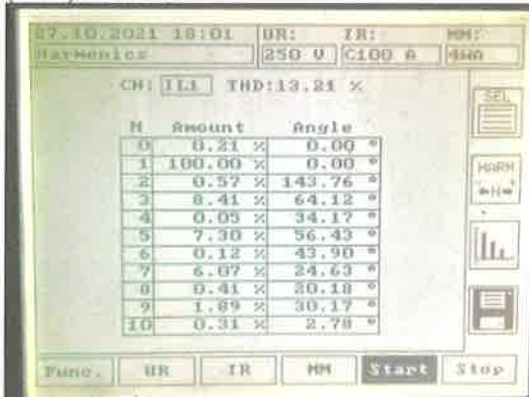


(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.77 %

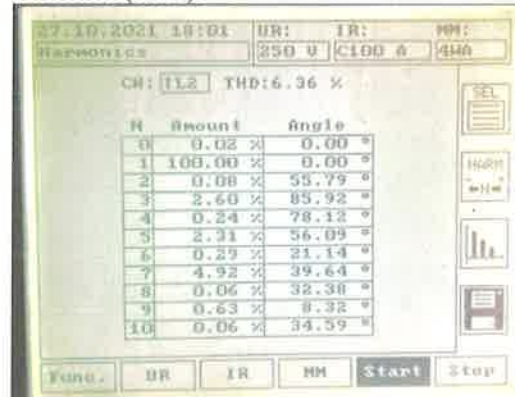


(b) Supply current distortion

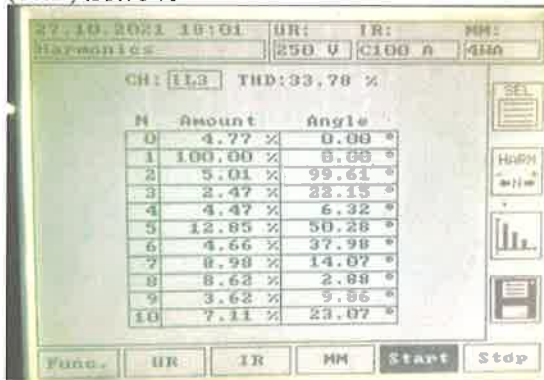
(i) Phase 'a' current Total Harmonic Distortion (THD) : 13.21 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 6.36 %



(ii) Phase 'c' current Total Harmonic Distortion (THD) :33.78 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021.

(35) Saraswati Girls Hostel at University Campus

Various Electrical Parameter of the system

	L1	L2	L3
U _{pn}	252.73	232.41	217.40
U _{pp}	419.35	396.28	401.16
I	6.370	1.537	16.879
Z _U	9.69	258.12	126.64
Z _{IR}	9.69	-48.99	6.52
λ	0.9819	0.6204	0.9915
P	1.581	0.222	3.638
Q	0.270	-0.256	0.412
S	1.610	0.357	3.669

(a) Supply Voltage Distortion

(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.92%

(ii) Phase 'b' current voltage Total Harmonic Distortion (THD) :3.13%

N	Amount	Angle
0	0.10 %	0.00 °
1	100.00 %	0.00 °
2	0.10 %	49.94 °
3	1.05 %	30.91 °
4	0.04 %	75.54 °
5	3.67 %	49.37 °
6	0.03 %	1.32 °
7	0.33 %	44.02 °
8	0.02 %	12.32 °
9	0.45 %	15.81 °
10	0.06 %	26.64 °

N	Amount	Angle
0	0.01 %	0.00 °
1	100.00 %	0.00 °
2	0.09 %	1.87 °
3	0.58 %	52.63 °
4	0.03 %	40.92 °
5	2.97 %	44.94 °
6	0.09 %	37.90 °
7	0.20 %	43.71 °
8	0.03 %	35.26 °
9	0.40 %	17.29 °
10	0.09 %	29.18 °

(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :4.65%

N	Amount	Angle
0	0.16 %	0.00 °
1	100.00 %	0.00 °
2	0.50 %	97.98 °
3	1.89 %	48.76 °
4	0.06 %	14.33 °
5	3.45 %	49.09 °
6	0.30 %	21.92 °
7	0.04 %	32.32 °
8	0.19 %	8.07 °
9	1.10 %	23.55 °
10	0.67 %	29.39 °

(b) Supply current distortion

(i) Phase 'a' current Total Harmonic Distortion (THD) : 6.21 %

N	Amount	Angle
0	0.31 %	0.00 °
1	100.00 %	0.00 °
2	0.73 %	124.37 °
3	1.72 %	82.57 °
4	0.11 %	16.41 °
5	4.30 %	58.19 °
6	0.14 %	41.63 °
7	3.43 %	33.13 °
8	0.12 %	8.58 °
9	0.82 %	37.04 °
10	0.11 %	35.97 °

(ii) Phase 'b' current Total Harmonic Distortion (THD) : 35.76 %

N	Amount	Angle
0	0.54 %	0.00 °
1	100.00 %	0.00 °
2	3.35 %	88.85 °
3	6.72 %	74.19 °
4	1.43 %	61.14 °
5	32.98 %	9.24 °
6	0.96 %	29.20 °
7	6.10 %	29.34 °
8	0.83 %	29.16 °
9	2.57 %	18.69 °
10	0.10 %	3.93 °

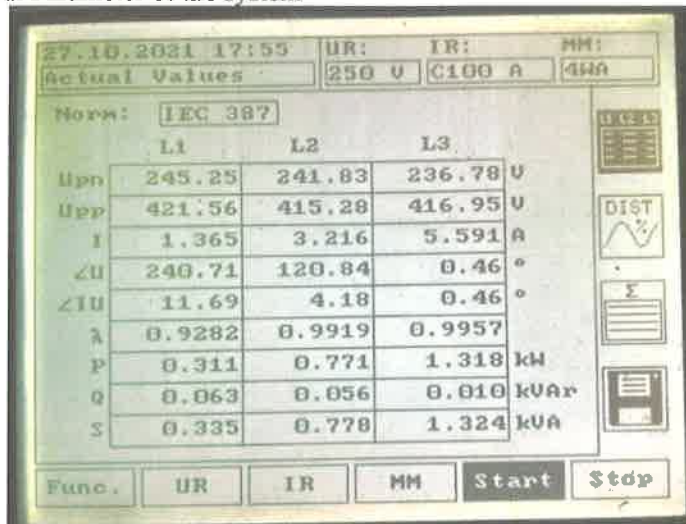
(ii) Phase 'c' current Total Harmonic Distortion (THD) : 6.37 %

N	Amount	Angle
0	0.28 %	0.00 °
1	100.00 %	0.00 °
2	2.15 %	78.22 °
3	2.39 %	59.33 °
4	0.36 %	37.19 °
5	4.82 %	57.97 °
6	0.18 %	56.88 °
7	0.96 %	34.58 °
8	0.23 %	11.45 °
9	0.99 %	28.12 °
10	0.50 %	35.43 °

At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021,

(36) Satrunjay Hostel at University Campus

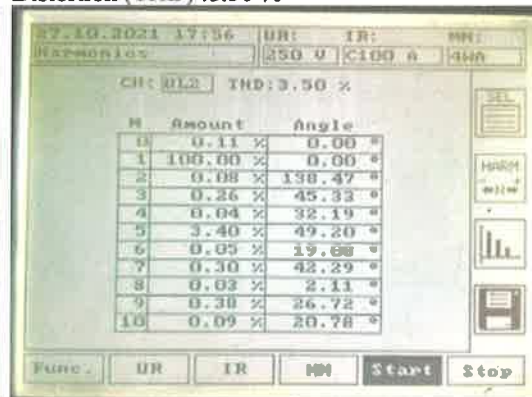
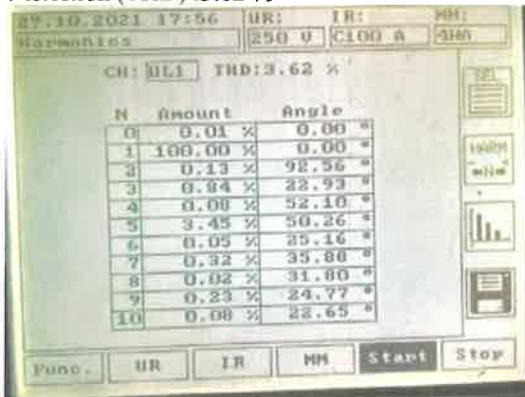
Various electrical Parameter of the system



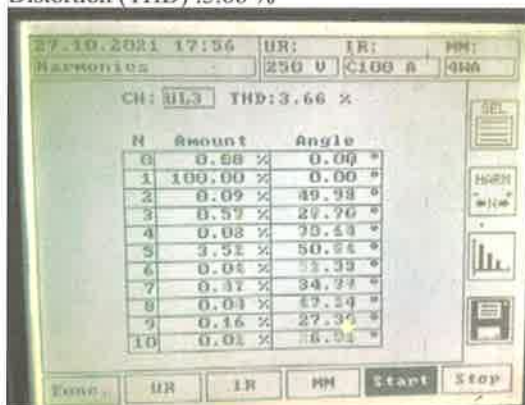
(a) Supply Voltage Distortion

(i) Phase 'a' Supply voltage Total Harmonic Distortion (THD) :3.62 %

(ii) Phase 'b' current voltage Total Harmonic Distortion (THD) :3.50 %

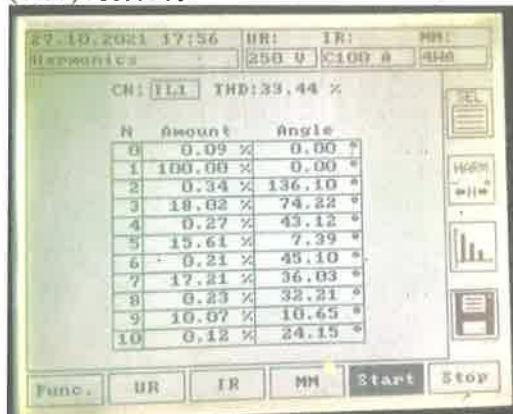


(iii) Phase 'c' Supply voltage Total Harmonic Distortion (THD) :3.66 %



(b) Supply current distortion

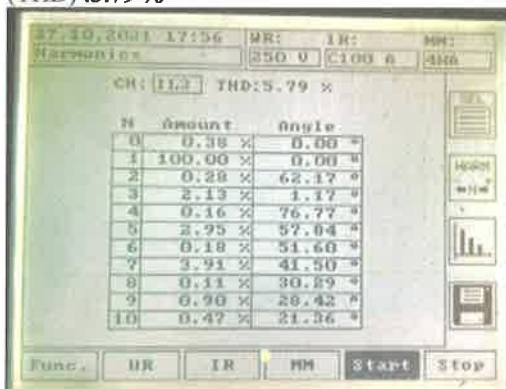
(i) Phase 'a' current Total Harmonic Distortion (THD) : 33.44 %



(ii) Phase 'b' current Total Harmonic Distortion (THD) : 10.03 %



(ii) Phase 'c' current Total Harmonic Distortion (THD) : 5.79 %



At the time of observation, Due to less loading current THD is higher but voltage THD is under limit in the month of Oct 2021.