



TAMIL NADU ELECTRICITY OMBUDSMAN

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BEFORE THE TAMIL NADU ELECTRICITY OMBUDSMAN, CHENNAI

Present : Thiru. A. Dharmaraj, Electricity Ombudsman

Review Petition No.5 of 2016

M/s K.P. Blue Metal,
No.27A, MBT Road,
Navalpur,
Ranipet – 632 402

..... Appellant
(Rep by Thiru. R. Sekar)

Vs

The Superintending Engineer,
Vellore Electricity Distribution Circle,
TANGEDCO,
Gandhi nagar,
Vellore – 632 006.

..... Respondent
(Rep by Thiru. R.G. Prasad, Executive
Engineer/Arcot &
Tmt. R. Selvi, Executive Engineer/MRT)

Date of hearing : 16-2-2017

Date of order : 20-7-2017

M/s K.P. Blue Metal, Ranipet has filed a petition dated 14.11.2016 to review the order dt.17.10.2016 issued in AP No.4 of 2016. The above petition was registered as Review Petition No.5 of 2016. The above review petition came up before the Electricity Ombudsman for hearing on 16.2.2017. Upon perusing the Review petition, counter filed by the Respondent and after hearing both sides, the Electricity Ombudsman passes the following order.

Order

1. Prayer of the Appellant:

The Appellant prayed for the following:-

- i) Direct the TANGEDCO to ensure stable and balance supply.
- ii) Direct the TANGEDCO to refund the compensation collected for dumping of Harmonics due to poor quality of Grid supply and error in arriving I_L.

2. Arguments of the Appellant furnished in the Review Petition:

2.1 Details of the Unbalanced Voltages recorded by E.B. officials during their routine Inspections, Monthly & Quota checking readings are shown below.

S.No	Date	Time	RI	R2	R3	Average	%unbalance as per B.E.E. PERMISSIBLE LIMIT 1%
1	28/02/2015	16: 15	6090	6040	6290	6140.00	2.44
2	28/02/2015	16:05	6030	5970	6250	6083.33	2.79
3	28/02/2015	15:55	6030	5970	6230	6076.67	2.54
4	28/02/2015	15:45	5980	5940	6190	6036.67	2.55
5	28/02/2015	15:35	5960	5920	6160	6013.33	2.58
6	28/02/2015	15:25	5960	5900	6160	6006.67	2.6
7	28/02/2015	15:00	104.2	107.8	108.6	106.87	2.5
8	19/02/2015	15: 15	104.6	107.8	115.5	109.30	5.67
9	31/01/2015	10:09	103.5	107.5	110.6	107.20	3.45
10	28/01/2015	14:34	107.9	110.7	113.6	110.73	2.59
11	28/12/2014	8:14	107.7	106	105.3	106.33	1.29
12	19/12/2014	11 :45	105.6	107.7	107.1	106.80	1.12
13	12/12/2014	12:27	106.3	108.3	108.7	107.77	1.36
14	11/12/2014	14:59	108.1	111.1	114.5	111.23	2.94
15	06/12/2014	16:59	106.9	110.1	108.8	108.60	1.57
16	01/12/2014	9:47	105.6	108.9	113	109.17	3.51
17	28/11/2014	11 :00	106.7	109.1	109.5	108.43	1.6
18	20/11/2014	13:18	109.6	112.5	115.1	112.40	2.49
19	12/11/2014	15:07	109.5	112.5	115.1	112.37	2.55
20	06/11/2014	17:52	106.2	109.9	110.2	108.77	2.36
21	31/10/2014	10:42	105.4	108.9	109.1	107.80	2.23
22	28/10//2014	10:55	108.7	110.1	109.5	109.43	0.67
23	23/10/2014	10:04	110.6	112.4	111.1	111.37	0.93

24	15/10/2014	15:18	110.8	112.2	112.3	111.77	0.86
25	06/10/2014		106.7	109.6	108.8	108.37	1.54
26	30/09/2014	17:19	109.6	112.7	111.9	111.40	1.62
27	28/09/2014	10: 19	108.8	110.8	110.2	109.93	1.03
28	23/09/2014	14:52	111.1	113.9	115.5	113.50	2.11
29	20/08/2014	10:22	106.4	108.3	107.9	107.53	1.05
30	28/07/2014	10:22	101.6	104.7	103.2	103.17	1.52
31	28/06/2014	10:00	108.7	111.2	110.3	110.07	1.24
32	01/06/2014	11 :50	108.6	108.5	107.5	108.20	0.65
33	30/05/2014	18:31	112.8	116.3	119.7	116.27	2.98
34	28/05/2014	10:02	108.4	112.1	110.7	110.40	1.89
35	21/05/2014	12: 13	106.2	111.7	108.4	108.77	2.7
36	16/05/2014	11: 18	99.2	103.4	107.4	103.33	4
37	06/05/2014	17:52	111.2	115.5	114	113.57	2.08
38	30/04/2014	17: 18	110.6	112.6	110.7	111.30	1.17
39	28/04/2014	9:32	106.2	111.7	110.2	109.37	2.9
40	23/04/2014	14:38	102.3	106.9	110.4	106.53	3.97
41	19/04/2014	10:10	101.9	106.5	108.7	105.70	3.6
42	12/04/2014	16:09	99.7	100.2	101.6	100.50	1.09
43	06/04/2014	17:41	113.8	113.2	115.9	114.30	1.4
44	30/03/2014	18:01	105.9	112.1	115.8	111.27	4.82
45	28/03/2014	9:46	109.3	110.9	110.1	110.10	0.73
46	19/03/2014	10:45	107.2	109.8	113.5	110.17	3.03
47	12/03/2014	16:50	89.51	99	92.7	93.74	5.62
48	06/03/2014	17:25	113.1	115.8	116.7	115.20	1.82
49	28/02/2014	17:31	107.5	113.3	110.6	110.47	2.69
50	27/02/2014	9:19	105.1	110.2	108.9	108.07	2.75
51	20/02/2014	16:01	107.8	111.6	107.8	109.07	2.32
52	08/02/2014	16: 12	100.2	105	104.9	103.37	3.06
53	06/02/2014	18:34	97.2	104.8	109.7	103.90	6.45
54	30/01/2014	17:41	102.4	108.5	106	105.63	3.06
55	28/01/2014	9:29	104.4	109.1	112.5	108.67	3.93

From the above statement it is very clear that The T.N.E.B. has failed to supply quality of supply. The % Unbalance is always beyond the permissible limit as per the CEA (Technical Standard for connectivity to the Grid) Regulation, 2007 - Part IV - Section 4 & also as per Bureau of Energy efficiency. Because of that the dumping of harmonics increased which was accepted by C.E./ R&D vide letter dt.7.10.15. Even after fails to maintain the quality of supply by T.N.E.B, how can the T.N.E.B. insist the consumer to maintain the dumping of Harmonics.

2.2 IGNORING OF C.E.R & D REPORT

- (i) The Measurement of dumping of harmonics carried out on 28/02/2015 at 15.15 hrs to 16.15 hrs, during normal 3ph timing only during 3ph time itself the unbalance voltage lies between 2.5%to 2.79% (permissible limit is 1 %), because of which there was unbalance loading ranging between 26.34% to 34.58% (permissible limit is 10%). Neutral to ground voltage is higher, which is between 59.0 volts to 60.43volts (Permissible limit is zero to 5volts) which are accepted by C.E./R.D. vide para 04 of letter dt.7.10.15. The same is extracted below:

"Due to this level of unbalance, there could also be a higher neutral to ground voltage, neutral shifting, unbalanced loading between phases and higher losses. When the consumer has the patience and will to tolerate all other ill effects of unbalance for the sake of continuous supply for the industry, claiming that harmonics alone has increased because of the unbalance is not reasonable. "

- (ii) If the measurements were taken during (R&C) period i.e supply with 4th wire, then we can tolerate the above ill effects for the sake of continuous supply to the industry. But since the measurements were taken during normal 3 phase timings How can we tolerate these ill effects. Hence we filed petition in C.G.R.F. Vellore vide petition no 5 dated 28/03/2015 to set right the unbalanced voltage problem, and obtained final order No.06 of 2015, dated 18/04/2015.

2.3 ERROR IN ARRIVING I_L :

As per IEEE 519- I_L Maximum Demand load current I_L : Established at PCC and should be taken as the sum of the current corresponding to the maximum demand during each of the twelve previous months divided by 12.

I_L = Maximum demand load current at PCC under normal load Operating conditions.

Here the power cut period has not been considered

(ii) The maximum demand recorded in the following months with currents, voltages are as follows:

(The current and voltage details are awaited from TANGEDCO under Right Information Act), vide Lt. dated 25/10/2016.

S. No	Month	Date	Time	Max. Demand inKVA	Current in each phase (in Amps)			Voltage in each phases (in Volts)			Remarks
					A	B	C	A	B	C	
1	02/2014										
2	03/2014			244.8							
3	04/2014			250.4							
4	05/2014			257.6							
5	06/2014			273.2							
6	07/2014			287.6							
7	08/2014			278.8							
8	09/2014			271.6							
9	10/2014			251.8							
10	11/2014			250.8							
11	12/2014			257.2							
12	01/2015			257.0							
13	02/2015			241.2							
			Average	260.15							

2.4 The TANGEDCO has not supplied balanced supply, and also it hasn't supplied 11,000V in all lines throughout the year. Most of the currents were more than 13.65A. But the E.E M.R.T has arrived the I_L for 260.15 KV A as

13.65A ($IL = KVA / \sqrt{3} VL$, where VL is Line Voltage in kv. i.e $260.15 / (1.732 * 11) = 13.65$), under the conclusion of TANGEDCO has maintained 11,000V in all lines and throughout the year.

2.5 As per the testing procedure given by the licensee in para (4) note is extracted below:

1. In the case of arc furnace industries or industries having one or two harmonic rich continuous process loads (which does not have other substantial loads) the calculation of IL shall be based on their sanctioned load
2. For all other industries, the IL shall be calculated based on the average maximum demand for past 12 months or the number of months for which they were in service, if the period is less than one year

2.6 In our service, we are having 55 HP variable speed drive with 6 Pulse modulation PWM, and 20KV A welding set, other office equipments. Due to poor quality of grid supply (high unbalanced voltage with tune of 2.5 to 2.79%), our machines are running with unbalanced condition, thereby generating Triplant harmonics.

2.7 Our industry is a continuous flow industry, i.e we must run all the machineries at a time, for taking production. Hence we are opting for the optimum demand with power holidays of 6 days during the 20% power cut period. Therefore the IL may be arrived based on the sanction demand of 300KV A as stated above. From the above, it is very clear that the TTD arrived by the M.R.T are magnified values, otherwise it will be well within the permissible limit

3. Arguments of the Respondent furnished in the Counter :

3.1 Ignoring of Quality of Supply:

i. Complaining about the ignoring of quality supply is not reasonable, since initially the new HT Service No.1269 was effected on 24.02.2009. Later based on consumer's request the 4th wire has been provided in the 11KV Ayilam feeder of Kathiyavadi Sub-Station under DCW Head (Chargeable to consumer) at the estimate cost of Rs.2,77,880/- for 3 phase continuous supply to the HT Sc. No. 1269. This facility has been availed from May 2010.

ii. Further the fourth wire arrangement has been well executed for a long period in TANGEDCO throughout the state and lots of HT consumers are being benefited from this scheme. Similarly in Vellore Electricity Distribution Circle it is availed by several HT Consumers and no such complaint has come to notice so far.

iii. The consumer had complained unequal Voltage pertains in HT Sc. No. 1269. In response to the consumer complaint, the step by step rectification work has been carried out such as pole to pole inspection, renewal of jumpering etc. Further there were 41 Nos 100 KVA, 3 Nos 63 KVA and 1 No.250 KVA Distribution Transformers in the 11 KV Ayilam Feeder upto 26.05.2014. After that 13 Nos 100 KVA and 2 Nos 63 KV DT's were bifurcated from 11 KV Ayilam feeder. It was found that after 26.05.2014 the effect of unequal voltage much reduced. At present equal voltage is maintained in all the phases and quality of supply is maintained by TANGEDCO.

3.2 Ignoring of C.E., R & D Report:

The harmonics measured on 28.02.2015 : **8.405 %**

The harmonics measured on 12.06.2015 : **10.092%**

During testing of harmonics on 28.02.2015 between 15.15 Hrs to 16.15 Hrs in 6

Slots each 10 minutes during normal 3Ø timings the voltage is as follows:

Sl. No.	Time	Voltage (in Volts on 11 KV Side)			% Unbalance
		A	B	C	
1	15:25	10041	10378	10489	2.60
2	15:35	10056	10398	10497	2.58
3	15:45	10110	10469	10540	2.55
4	15:55	10167	10518	10603	2.54
5	16:05	10100	10472	10580	2.79
6	16:15	10108	10454	10561	2.63

During testing of harmonics on 12.06.2015 between 11.42 Hrs to 12.32 Hrs in 6

Slots each 10 minutes is as follows :

Sl. No.	Time	Voltage (in Volts on 11 KV Side)			% Unbalance
		A	B	C	
1	11:42	12185	12261	12257	0.42
2	11:52	12220	12301	12290	0.42
3	12:02	12129	12211	12199	0.43
4	12:12	11921	12001	11973	0.39
5	12:22	11779	11861	11839	0.43
6	12:32	11988	12071	12052	0.43

From the above it is clear that there is No unbalance voltage persists. Hence, it is very clear that, quality of supply is maintained by TANGEDCO and the % of unbalance voltage is well within 3% as per CEA regulations.

3.3 Error in arriving I_L :

As per IEEE std 519-1992 page 78, the load current, I_L be calculated on the average current of the maximum demand for the preceding 12 months.

For all calculation purpose, the system voltage level has to be taken. In this case, the load is connected with 11 KV system voltage. So 11 KV is taken as the voltage and the average current is arrived accordingly.

3.4 **As per the testing procedure to measure Current Harmonics:**

(1) In the case of arc furnace Industries (or) Industries having one (or) two

harmonic, rich continuous process loads (which does not have other substantial loads) the calculation of I_L shall be based on their sanctioned load.

(2) For all other industries, the I_L shall be calculated based on the average maximum demand for past 12 months (or) the number of months for which they were in service, if the service period is less than one year.

3.5 The list of machineries connected in the HTSC 1269 as disclosed by the consumer at the time of effecting the service is enclosed. From the List of Load details, it is clear that, the industry is having many loads that are not falling in the harmonic rich category and hence the industry falls in the category defined in para 2 above, (i.e) the I_L to be calculated based on the previous 12 months average maximum demand was taken into account. So, it is very clear that the harmonics arrived by MRT are actual value only and not magnified.

4. Hearing held by the Electricity Ombudsman :

4.1 To enable the Appellant and the Respondent to put forth their arguments in person, a hearing was held before the Electricity Ombudsman on 16.2.2017.

4.2 Thiru R. Sekar has represented the Appellant and put forth his side arguments.

4.3 Thiru R.G. Prasad, EE/O & M, Arcot and Thirumathi A. Selvi, EE/MRT, Vellore have represented the Respondent and put forth their side arguments.

5. Arguments put forth by the Appellant representative:

5.1 The Appellant representative reiterated the contents of the Review Petition.

5.2 He argued that the supply given to their industry is unbalanced and it is 5 – 9% as per CEA regulation and 2.5% to 5.67% as per BEE Standard during the R & C Period. The percentage of unbalanced voltage at normal 3 phase time is

3.99% to 4.6% as per CEA Regulations and 2.5% to 2.79% as per BEE Standard. Citing the above, the Appellant's representative argued that as the % of unbalance is beyond the limits prescribed, the supply to the Industry is not as per the required quality. When the quality of supply is not maintained by the licensee, they can not insist the consumer to maintain the Harmonics level.

5.3 As per IEE 519 amended during 2014 the maximum demand load current shall be the sum of the current corresponding to the maximum demand during each of the 12 months divided by 12. But the licensee has calculated the I_L by dividing the average maximum demand by the line voltage. But, the voltage was not maintained at 11 KV by the licensee.

5.4 He also argued that as the average maximum demand was arrived based on the maximum demand arrived on power cut period, the sanctioned demand has to be adopted for arriving the I_L .

5.5 Due to the above, the Appellant argued that the TDD arrived is a magnified value otherwise the value will be within the permissible limits.

6. Arguments of the Respondent:

6.1 The Executive Engineer/ O & M, Arcot argued that they have taken action to reduce the unequal voltage and at present equal voltage is maintained in all the phases.

6.2 The Executive Engineer/MRT argued that the percentage unbalance at the time of testing was within the limits of 3% prescribed by CEA.

6.3 The Executive Engineer/MRT argued that as per IEEE Std 519-1992, the load current is the maximum demand for the preceding 12 months. For calculation purpose, in the absence of current and voltage value, system voltage of

11 KV was adopted for arriving the I_L .

6.4 The I_L has been calculated as per IEEE Std 519 – 1992, and based on the I_L so arrived, the TDD was arrived by MRT. Therefore, the TDD arrived is only actual and not magnified.

7. Written argument of the Appellant:

7.1 (1) As per CEA (Technical standard for connectivity of grid) Regulation 2007, 2-(35) “Voltage unbalance” means the deviation between highest and lowest line voltage divided by average line voltage of the three phases.

PERMISSIBLE LIMIT 3%.

a. As per IEC 1000-3-3, As well as B.E..E. Standard.

Voltage unbalance = $\frac{\text{Max. deviation from mean of } V_{ab}, V_{bc}, V_{ca}}{\text{Mean of } V_{ab}, V_{bc}, V_{ca}}$

Permissible limit is 1%

b. As per regulation 14 of distribution standard performance regulation voltage variation permitted is 10% of declared voltage on the minimum side, and 6% on declared voltage on the maximum side.

7.2 On critical review of test results it reveals that the supply voltage at the time of measurement on 28/02/2015, between 15:15 hours to 16:15 are poor quality supply since the unbalance voltage lies between 2.54% to 2.79% as per IEC 1000-3-3, As well, as per B.E.E standards (Permissible limit is 1%), unbalance voltage as per CEA regulation lies between 3.99% to 4.6% (Permissible limit is 3%). Further the supply voltage at time of measurement on 12/06/2015 between 11:32 hrs to 12:32 hrs is also poor quality supply; since the voltages are between 11779 volts to 12301 volts declared voltage is 11000 volts.

7.3 T.N.E.B fails to maintain the quality of I_L supply in both the measurement Unbalance voltage, voltage variation, dumping of harmonics are all comes under the quality of supply. Unbalance voltage and voltage variations are to be maintained by the T.N.E.B. Dumping of harmonics to be maintain by the consumer, even though the T.N.E.B fails to maintain its parts it is not reasonable to insists the consumer to maintain the dumping of harmonics either by technically or by legally.

7.4 In 519-1992 the definition of I_L was based on the maximum load current. Measurement period of 15 minutes or 30 minutes.

In section 5.2 IEEE 519-2014 in the definition for TDD the maximum demand current is used and is defined as this current value is established at the point of common coupling and should be taken as sum of current corresponding to maximum demand during each of the twelve previous month divided by twelve. The T.N.E.B has not applied this I_L value as per the definition.

7.5 In the ombudsman order 11.17 in clause 10.4 of IEEE it has been recommended that the load current I_L be calculated as the average current of the maximum demand for the preceding 12 months. Which is differ from the calculation of I_L by the licensee which is based on the maximum demand of previous 12 month with system declared voltage without considering the actual supply voltage.

7.6 For example the demand, load current, recorded on various date during the harmonics measurement are as follows

S.NO.	DATE	TIME	MD	%UBV	A	B	C	%UBA
1	28.2.2015	15:35	261.8	2.58%	10.56	16.57	16.46	27.3%
2	12.6.2015	11:42	260.70	0.42%	11.7	12.31	13.05	5.64%

3	3.08.2015	16:18	262.1	1.27%	13.73	14.73	14.6	4.34%
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Avg demand & current = 261.53 = 11.99 14.55 18.37

As per Definition IEEE – 519 -2014 IL is 18.37 Amps for the demand 261.53 Kva but as per licensee calculation of I_L .

$$= \frac{261530}{\sqrt{3} \times 11000} - 13.72 \text{ Amps}$$

7.7 Like that licensee has arrived the IL as 13.65 Amps for demand of 260.15 Kva, which is not in order. I_L arrived as per definition will be 18.27 amps and T.D.D will be : $8.4 \times 13.65 / 18.27 = 6.27\%$ only, which is within permissible limit Further IEEE 519-1992 has been revised into IEEE 519-2014 on 27th March 2014 itself that means IEEE519-1992 has been superseded by IEEE519-2014 but the harmonics are measured on 28.02.2015, 12.06.2015 and 3.08.2015. In this circumstance application of IEEE 519-1992 is not reasonable hence the Ombudsman may ignore the test results an order may be passed to refund the amount already collected.

7.8 Till now the power quality problem has not been set right by T.N.E.B. The voltages recorded in our service are submitted for perusal. However T.N.E.B. has furnished wrong information that at present equal voltage is maintained in all the phases without any record and also during the measurement of harmonics on 28.02.2015 the un balance voltage is 3.9% to 4.6% as per CEA Regulation but they reports that the unbalance voltage is well within 3% as per CEA Regulations which was clearly discussed during hearing held on 16.02.2017.

8. Written arguments of the Respondent:

8.1 Maximum Demand Load Current, I_L , as per IEEE std 519-1992:

The load current, I_L , be calculated as the average current of the maximum demand for the preceding 12 months.

Maximum Demand Load Current, I_L , as per IEEE std 519-2014:

This current value is established at the point of common coupling and should be taken as the sum of the currents corresponding to the maximum demand during each of the twelve previous months divided by 12.

It is very clear that the definition of Maximum Demand Load Current, I_L , as per IEEE std 519-1992 and as per IEEE std 519-2014 are same. IEEE std 519-2014 gives the explanation of IEEE std 519-1992.

8.2 To arrive Maximum Demand Load Current, I_L :

Sl. No.	Month	Recorded Max Demand (KVA)	Corresponding Current : $(KVA/\sqrt{3}*11)$ as per IEEE std 519
1	02/2014	247.2	12.975
2	03/2014	244.8	12.849
3	04/2014	250.4	13.143
4	05/2014	257.6	13.521
5	06/2014	273.2	14.340
6	07/2014	287.6	15.096
7	08/2014	278.8	14.634
8	09/2014	271.6	14.256
9	10/2014	251.6	13.206
10	11/2014	250.8	13.164
11	12/2014	257.2	13.500
12	01/2015	251.2	13.185

1. As per IEEE std 519 -1992:

Average Demand Load current, I_L , of previous 12 months :

$$260.167/\sqrt{3}*11=13.656A$$

2. Maximum Demand Load Current, I_L , as per IEEE std 519 – 2014 :

Average Demand current of previous 12 months : 13.656 A

Note: For arriving the currents corresponding to the maximum demand during each of the twelve previous months, the rated supply voltage is taken as per Application Example 13.1 of IEEE std 519 – 1992.

Hence it is clear that calculation of Maximum Demand load Current, I_L , is as per

IEEE std 519 – 2014 only.

9. Findings of the Electricity Ombudsman:

9.1 Regarding the First prayer of the Appellant to direct the Respondents to ensure stable and balance supply, the above prayer was not considered in the Appeal petition, as the Appellant has not raised the issue in the CGRF for which the appeal petition was filed.

9.2 In this review petition, the Appellant has enclosed an order dt.18.4.2015 of the CGRF wherein the Forum has ordered the licensee to redress the Grievance of the consumer within 90 days. But, the above order is not the order for which appeal was made before the Electricity Ombudsman in A.P.No.4 of 2016.

9.3 The Appeal petition No.4 of 2016 for which now review is sought for is against the order of CGRF issued on 4.12.2015 wherein the issue of refund of compensation charges already collected alone was considered. The prayer to direct the licensee to ensure stable and balance supply is not raised in the above CGRF petition. Hence, in the appeal petition No.4 of 2016 the prayer was not considered. Therefore, it is held that the orders issued in para 12.2 of the AP No. 4 of 2016 could not be reviewed.

9.4 The next prayer is to direct the TANGEDCO to refund the compensation collected for dumping of harmonics.

9.5 In the review petition, the Appellant has stated that the definition of I_L has been modified in the year 2014 as below:-

The current value established at the point of common coupling and should be taken as sum of the current corresponding to maximum demand during each of twelve previous month divided by twelve. The TNEB has not applied the above for arriving the I_L . The TNEB has arrived I_L for the average demand of 260.15

KVA as 13.65 Amps by dividing the above demand by $\sqrt{3} \times 11$ KV. Therefore, the Appellant argued that the calculation of I_L is not in order. The Appellant argued that as per the above definition of I_L given in IEE 519, 2014, the I_L for the load of 260.15 KVA works out to 18.27 Amps.

9.6 The Appellant calculated the I_L as below:-

The demand and load current recorded on various dates during Harmonics testing is given below:

Sl.No	Date	Time	MD	%UBV	A	B	C	%UBA
1	28.2.15	15.35	261.8	2.58	10.56	16.57	16.46	27.3
2	12.6.15	11.42	260.70	0.42	11.70	12.31	13.05	5.64
3	3.8.2015	16.18	262.1	1.27	13.73	14.73	14.6	4.34

$$\text{Average Demand} : \quad \left[\frac{(261.8 + 260.70 + 262.1)}{3} \right] = 261.53$$

$$\text{Average ct} : \quad 11.99, 14.55, 18.37$$

$$\text{Therefore, the } I_L : \quad 18.37 \text{ for } 261.53 \text{ KVA}$$

$$\text{For } 260.15 \text{ KVA} = \frac{18.37 \times 260.15}{261.53} = 18.27$$

The Appellant based on the above calculation argued that the I_L shall be 18.27 A

9.7 The Respondent argued that the definition of the IEEE 519 – 1992 and 519 – 2014 are same only. The Respondent has furnished the calculation of I_L as per IEEE 519 – 2014 as below:-

To arrive Maximum Demand Load Current, I_L :

Sl. No.	Month	Recorded Max Demand (KVA)	Corresponding Current : $(\text{KVA}/\sqrt{3} \times 11)$ as per IEEE std
1	02/2014	247.2	12.975
2	03/2014	244.8	12.849
3	04/2014	250.4	13.143
4	05/2014	257.6	13.521
5	06/2014	273.2	14.340
6	07/2014	287.6	15.096

7	08/2014	278.8	14.634
8	09/2014	271.6	14.256
9	10/2014	251.6	13.206
10	11/2014	250.8	13.164
11	12/2014	257.2	13.500
12	01/2015	251.2	13.185

9.8 As per IEEE std 519 -1992:

Average Demand Load current, I_L , of previous 12 months :

$$260.167/\sqrt{3} \cdot 11 = 13.656A$$

9.9 Maximum Demand Load Current, I_L , as per IEEE 519 std 519 – 2014 :

Average Demand current of previous 12 months : 13.656 A

Note: For arriving the currents corresponding to the maximum demand during each of the twelve previous months, the rated supply voltage is taken as per Application Example 13.1 of IEEE std 519 – 1992.

9.10 Hence it is clear that calculation of Maximum Demand load Current, I_L , is as per IEEE std 519 – 2014 only.

9.11 In this regard I would like to refer the definition of I_L as per IEEE 519 – 2014 which is extracted below:-

“This current value is established at the point of common coupling and should be taken as the sum of the currents corresponding to the maximum demand during each of the twelve previous months divided by 12.

9.12 On a careful reading of the above definition, it is noted that I_L shall be the sum of current corresponding to the maximum demand during each month of the previous twelve months divided by 12.

9.13 The Appellant has taken readings during the test conducted on 28.2.2015, 12.6.15 and 3.8.15 to arrive at the average I_L for the average demand and based on the above calculation he has worked out the current for the average maximum demand of the previous one year.

9.14 The above is not as per the definition of the IEEE 519 – 2014. The three demand, he has taken for calculation is not the maximum demand in any of the previous 12 months. Further, he has taken only three of current readings recorded during the test conducted which is nearer to average demand and calculated the average current from the three readings and then projected it for the actual average maximum demand of the previous year. Therefore, I am of the view that, the working of the Appellant is not as per the definition of I_L .

9.15 The Respondent has worked out the corresponding current for the maximum demand reached by dividing the MD reached by the rated voltage and then arrived the sum and divided it by 12.

9.16 It is noted that the previous 12 months maximum demand reached alone is available. The current at the time of reaching the maximum demand is not available and it is informed by the Respondent's representative that in the existing meter there is no provision to record the current and voltage at the time of reaching maximum demand. Depending upon the voltage the corresponding current for the MD reached in every month may vary. But in the absence of the current and voltage reading of respective month M.D the calculation of current by dividing the Demand by $\sqrt{3}$ rated voltage appears to be reasonable.

9.17 The Respondent has also justified the above citing application example 13.1 of IEEE std 519 -1992.

9.18 In view of my discussion in the para above, I am of the view that the I_L worked out by the Respondent is reasonable, in the absence of provision to record the current at the time of maximum demand.

9.19 All the other arguments putforth by the Appellant have been discussed in AP No. 4 of 2016 and therefore. I am of the view that those arguments of the Appellant has already been taken into consideration and orders were issued.

9.20 As the Appellant has prayed for review of the order, I would like to refer regulation 22(6) of the Regulations for CGRF & Electricity Ombudsman, which is extracted below :-

*“22. xxx xxx xxx xxx xxx xxx
(6) The Ombudsman may on his own or on the application of any of the persons or parties concerned within 30 days of the making of the decision, direction or order review such decision, direction or order on the ground that such decision, direction or order was made under a mistake of fact, ignorance of any material fact or any error apparent on the face of the record. (a) The application for such review shall contain the name and address of the petitioner, Order Number & date of the Electricity Ombudsman and the grounds for review i.e, (i) mistake of fact (ii) ignorance of material fact (iii) error apparent on the face of the record.”*

9.21 On a careful reading of the said regulation, it is noted that the Electricity Ombudsman can review order if such order was made under mistake of fact, ignorance of any material fact or any error apparent on the face of the record.

9.22 In view of the discussions in para 9.18 & 9.19 above, I am of the opinion that the arguments putforth by the Appellant do not fall on the reasons given in the regulation 22(6) of the Regulations for CGRF and Electricity Ombudsman to review the order of the Electricity Ombudsman. Hence, the above review petition is dismissed.

10. Conclusion:

10.1 As the arguments put forth by the Appellant do not fall on any of the reasons given under regulation 22(6) of Regulation, for CGRF & Electricity Ombudsman, the above Review Petition No. 5 of 2016 is dismissed. No Costs.

(A. Dharmaraj)
Electricity Ombudsman

To

1) M/s K.P. Blue Metal,
No.27A, MBT Road,
Navalpur,
Ranipet – 632 402.

2) The Superintending Engineer,
Vellore Electricity Distribution Circle,
TANGEDCO,
Gandhi Nagar,
Vellore – 632 006.

3) The Chairman,
(Superintending Engineer),
Consumer Grievance Redressal Forum,
Vellore Electricity Distribution Circle,
TANGEDCO,
Gandhi Nagar,
Vellore – 632 006.

4) The Chairman & Managing Director,
TANGEDCO,
NPKRR Maaligai,
144, Anna Salai,
Chennai -600 002.

5) The Secretary,
Tamil Nadu Electricity Regulatory Commission,
19-A, Rukmini Lakshmi pathy Salai,
Egmore,
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6) The Assistant Director (Computer) – **For Hosting in the TNEO Website please**
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