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CEEAMA™
Consulting Electrical Engineers Association of Maharashtra

# CEEAMA E-NEWS

Published by Consulting Electrical Engineers Association of Maharashtra

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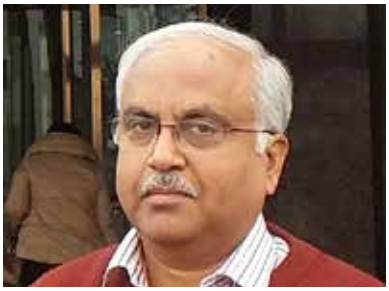
Volume 3 Issue# 8 | Electrical Consultants' Newsletter | September 2019

## *From the Secretary's Desk*



Hello Friends,

This month has brought in lot of positivity in the form of "Ganesh Festival" – the most favorite festival of Maharashtra at the backdrop of recovery of flood affected area. Continuous flow of relief from all corners of Maharashtra and from Government authorities have really helped the affected common man. Science and technology field also experienced Ups and Downs during "CHANDRAYAN 2" mission. Our country will now learn to respect some failures. Sir Thomas Edison" had not invented electric bulb in 1st attempt !!!. Respecting failures may start real innovation activity in India and may result in reversing brain drain – let us hope so. I personally feel India has huge potential (and resources also) to develop Intellectual Property.

Back to business.

CEEAMA **Annual General Meeting** is now scheduled on 20th Sept 2019 at 4 PM. The venue is Chembur Gymkhana Mumbai. Get together and dinner is also arranged at the same venue immediately after the meeting. All of you must have received a formal invitation / notice. I earnestly request you all to join us during the meeting. CEEAMA now has resources to do better things for all us. GC has planned some activities – which will be discussed during the meeting. GC also is in need of more and more hands to take the task ahead.

The second-round table meeting will be on "Importance of codes and standards in Electrical designs". The first meeting on this subject will be on 27th Sept at Pune and the second on 11th Oct at Mumbai. We had appealed to members to express their thoughts about the subject in one page. I regret to mention that we have not received even a single opinion.

Further consolidation regarding CEEAMATECH 2020 is now done at GC level and the program will be launched during AGM officially. As you know CEEAMA has chosen a very interesting upcoming topic of "Industry4.0 and it's relevance to Electrical engineers". Looking forward to see most of you during AGM.

Goodbye till next issue.

**Narendra Duvedi**

Hon Secretary.

**Note: Transportation facility is arranged for Members to attend the AGM. Please register your names with** FAIRACT **by sending a mail on** suchita.warty@fairactexpo.com **on or before 15th Sept 2019.**

## *Whats New*

**Future of lighting - Intelligent lighting meets the IoT – INTERACT by Philips**

**Interact IoT Platform** enables connected LED lighting systems and embedded sensor networks to deliver insights, benefits and new services to customers. It makes lighting intelligent. Delivering an IoT ecosystem for partners, customers and developers powered by the world's largest network – connected LED lighting.

**The Interact portfolio** of tailor-made software applications unites connected lighting systems and the data that those systems collect with your intelligent building, smart city, and other Internet of Things solutions

**Philips** first introduced us to energy-efficient LED luminaires and now is helping by connecting your lighting systems using standard networking and communications technologies.

With better lighting management, diagnostics, and maintenance, connected lighting systems help you lower costs and operate more efficiently.

With **INTERACT**, you can collect data from the illuminated environment via sensors embedded in the lighting system.

INTERACT is a portfolio of tailor-made software applications specifically designed to bring together connected lighting systems

- One dashboard for all lighting applications, with a common user interface and experience across all software
- Easy operations and maintenance through remote monitoring, diagnostics, and upgrades
- Integrates with existing IT security policy and management system for robust security
- Integrates and exchanges commands, events, and data with your enterprise software systems
- Retrieves contextualized data from sensors and other IoT devices connected to the lighting system
- Offers open, secure APIs plus a developer sandbox through the Interact Developer Portal
- Guaranteed to work with any luminaire, lamp, or sensor under our certification programs

Source:{ HYPERLINK "https://www.interact-lighting.com/en-gb/what-is-interact"\t"_blank"}

**Contributed By Mangesh Shirgaonkar**

**Improved Power Reliability by using HT Aerial Bunch Cables**

**Preamble:**

Distribution of electricity requires the use of conductors in various forms i.e. cables, wires, busbars etc. The most common types of cables are: insulated, flexible, armoured, shielded, braided etc. One of the newer variants is the "Bundled Cable" where 3 fully insulated conductors are bunched together with a bare conductor to form a cable suitable for hanging from poles. This configuration helps to achieve flexibility as well as maintain insulation and isolation from nearby conductors & structures. These range of cables are known by the self-descriptive name "Aerial Bunch Cable" and come in both Low Tension and High Tension varieties. (LT- ABC, HT- ABC) ABC combines the advantages of underground armoured cables and overhead bare conductors. Let us now see how we can use the properties of HT- ABC to solve some common problems faced by Discoms in Urban, Rural as well as Industrial Areas

Why ABC ? ABC are suitable for distribution of power in highly congested urban areas and as well as rural areas. The major advantages of ABC are :

a) In urban areas, the narrow gaps between buildings do not provide sufficient bare conductor clearance. Here ABC can be an ideal replacement
b) ABC can be laid without cutting or trimming any trees as no fault is caused by passing ABC thru branches Due to completely insulated construction, it is a deterrent for pilferage of power Stray leakages being less, overall power loss is also less in ABC
c) Right of Way (ROW) issues are avoided due to use of existing poles to lay new feeders The safety afforded to Linemen climbing poles to attend to faults is much higher with ABC when compared to bare conductor Bird faults are eliminated in case of ABC
d) High winds can cause bare conductors to touch resulting in line faults which are not applicable to ABC
e) Upto 6 ABC cables can be laid on 1 pole which is remarkable as space for new lines is always scarce in urban areas
f) Faults on ABC are visible and fault location can be faster than underground cables
g) In MIDC or Municipal areas, road cutting charges are phenomenally high for underground cables

As in all methods, the demerits also need to be outlined & underlined:

a) ABC being heavier, tends to sag and it should be considered while deciding the span
b) The span for HT ABC should be ideally limited to 20 meters for 11m pole height and 25 meters for 12m pole height
c) Mid-span joints are not possible without bringing the cable to ground level
d) Passage of fault current could damage the copper screen if not earthed properly at the terminations.

In this paper, we are examining the use of ABC to enhance reliability and hence we are sharing this real case study. Some visuals are depicted in Annexure B & C.

**Background** : MIDC Tarapur is a major Industrial Area near Boisar on the Western Railway track. Since it was set up in the 1980's, the area is now home to 1500+ small, medium and large industries. MSETCL & MSEDCL have set up 3 EHV stations and 7 peripheral 33kV Sub-stations. HT Consumers are connected to the grid at 11kV, 33kV & 132kV levels while LT consumers are fed from numerous 11kV Distribution Transformer Centres (DTC) in the area. Over 50 feeders are emanating from various 132/33kV/11kV & 33kV/11kV sub-stations. As a result, the area is criss-crossed with overhead lines of all voltages and types. Additionally, the ground is crowded with

HT cables, Telephone cables, Gas lines & Water pipe lines. Road and Drainage work is continually ongoing and underground cables are repeatedly damaged with resultant outages of power supply. Hence, an alternative way of accommodating new feeders while maintaining safety and reliability is the need of the hour. At the same time, Industries are becoming power intensive and contract demands above 1 MVA are now common. MSEDCL allows 11kV consumers with loads above 1.5 MVA to opt for Express Feeder which involve laying a separate dedicated line from the sub-station

**Case Study :** Two existing industries in MIDC Tarapur were expanding and required Contract Demand of 2 MVA ( ~ 100A load at 11kV ). The additional load was not feasible on the existing feeders having 0.1 ACSR conductor, as the ampere load was > 300A. Over 25 consumers were already connected on the same feeder and clients were facing interruption whenever a fault occurred in any of the premises. Frequent and prolonged use of DG set was affecting overall power cost. As a result, clients decided to opt for Express Feeder. The distance of these industries were 1.5kM and 1 kM respectively from the nearest MSEDCL 33kV/11kV substations. The options of laying a new express feeder were : 1. Underground Cable (many gate & road crossings) 2. Overhead Line using Bare conductor (insufficient clearance for erecting new feeder) 3. Overhead Line using ABC Annexure A shows the cost comparative for all 3 options After careful consideration of the merits and demerits, we opted for Express Feeder via ABC. The work was done under supervision of MSEDCL under DDF scheme. Vendors were identified and orders were placed. Tarapur being a highly polluted area, hot dip galvanized (HDG) poles and pole fittings were used for long life. In the initial stage, the handling of ABC drum was difficult but soon the knack of paying out the ABC using mobile cranes (hydra) was learnt. Laying upto 15 spans per day (0.4 km) was achieved after initial trial period. Adjusting equal sag in all spans demands considerable skill and continuous monitoring is required to ensure an aesthetically decent finish. For the uptake and downtake, normal armoured HT cables with end termination kits were used. Lightning arresters were installed at sending end as well as receiving end. The 1st Express Feeder using HT ABC was commissioned in January 2017 and the 2nd in July 2017. A new industry used HT ABC to take 1.5MVA connection via Express Feeder by using the existing poles on which ABC was laid earlier and was commissioned in October 2017. Thus, 3 consumers with Express Feeder via ABC are working at present in Tarapur MIDC. No fault has occurred so far and we are monitoring the performance periodically.

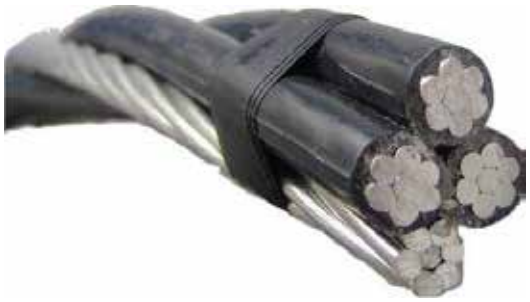
**Post Script :** In my recent visits to clients in other states, I was pleasantly surprised to learn that in Telangana, a client with a load of 1200 kVA had an 11kV Express Feeder using HT-ABC since 2015 ! Also another client in Himachal Pradesh was served an estimate for new connection using ABC ! Similarly, a client in Uttarakhand has a connection using HT-ABC since 8 years ! In Punjab, near Ludhiana, I actually saw a pole carrying 6 feeders of HT ABC . In Sikkim, I saw HT & LT ABC put to use very effectively thru forest areas. In Gujarat, I saw composite lines with bare conductor and ABC on the same pole. It was humbling to know that we are not doing something very innovative but rather, we are following what other states have already adopted !

**Conclusion :** The advantages of using ABC are very clear and selecting the right application is the job of Electrical Engineers. Human nature is to be suspicious about anything new but after hands-on experience, we tend to accept it easily. So it is with ABC. After having used in 3 projects in 2 years, I would now say, using ABC is as easy as saying A.. B.. C.. !

| S.No. | OPTION 1 : UNDERGROUND | | | | | OPTION 2 : OVERHEAD BARE CONDUCTOR | | | | | OPTION 3 : OVERHEAD AERIAL BUNCHED CABLE | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Description | Qty. | Units | Rate Rs. | Amt. Rs. | Description | Qty. | Units | Rate Rs. | Amt. Rs. | Description | Qty. | | Rate Rs. | Amt. Rs. |
| 1 | 3C x 185 sq.mm. 11kV ( E ), XLPE Insulated, Al. conductor, G.I. Round Armoured Cable | 1000 | mts. | 1,050 | 1,050,000 | 0.1 ACSR (Dog) Conductor / (3 conductors per running mt. of line) | 3000 | mts. | 110 | 330,000 | 3c x 120 sq.mm. 11kV ( E ) HT ABC with 95sq.mm. bare messenger wire | 1000 | mts. | 600 | 600,000 |
| 2 | 200mm dia HDPE DWC Pipes for road / gate crossings | 200 | mts. | 275 | 55,000 | (152 x 152) x 12m long RSJ Poles | 30 | nos. | 19,000 | 570,000 | (100 x 116) x 11m long RSJ Poles | 60 | nos. | 12,000 | 720,000 |
| 3 | 150mm dia RCC Half Round Pipe for cable cover | 700 | mts. | 150 | 105,000 | HDGI Cross Arms, Clamps & Fabrication | 2 | tons | 75,000 | 150,000 | HDGI Cross Arm, Clamps & Fabrication | 0.75 | ton | 75,000 | 56,250 |
| 4 | Cable protection using red bricks | 8000 | nos. | 5 | 40,000 | Stay sets & stay wires | 1 | lot | 50,000 | 50,000 | Stay sets & stay wires | 1 | lot | 50,000 | 50,000 |
| 5 | Sand bedding & covering using dry river sand | 15 | brass | 3,000 | 45,000 | 11kV Polymer Composite Pin Insulators | 100 | nos. | 400 | 40,000 | Suspension & Dead end clamps | 1 | lot | 40,000 | 40,000 |
| 6 | RCC Cable Route Markers | 100 | nos. | 300 | 30,000 | 11kV Polymer Long Rod Insulators with Tension H/W | 45 | nos. | 1,000 | 45,000 | 1 phase jointing kits & Insulator Support at Mid Span | 1 | lot | 25,000 | 25,000 |
| 7 | Excavation, Refilling and levelling | 600 | cu.mt | 500 | 300,000 | 1:4:8 Concreting of poles, studs, stay sets | 60 | cu.mt | 3,000 | 180,000 | 1:4:8 Concreting of poles, studs, stay sets | 100 | cu.mt | 3,000 | 300,000 |
| 8 | Cable Laying (labour charges) | 1000 | mts. | 150 | 150,000 | Pole erection incl. excavation, re-filling | 30 | nos. | 3,000 | 90,000 | Pole erection incl. excavation, re-filling | 60 | nos. | 2,500 | 150,000 |
| 9 | MIDC Road & Gate cutting cess | 10 | locations | 15,000 | 150,000 | Conductor Stringing | 25 | spans | 1,500 | 37,500 | HT ABC Cable hanging | 1000 | mts. | 150 | 150,000 |
| 10 | Sundries | 1 | lot | 50,000 | 50,000 | Pole painting, muffing, danger signs, ACDs | 1 | lot | 100,000 | 100,000 | Pole painting, muffing, danger signs, ACDs | 1 | lot | 100,000 | 100,000 |
| | Say Rs. 20 lacs / km | | | | 1,975,000 | Say Rs. 16 lacs / km | | | | 1,592,500 | Say Rs. 22 lacs / km | | | | 2,191,250 |
| | **Note : Common items like LA installation, Cable Jointing for end of feeder connection, Guarding are not considered as they are common to all 3 methods of erection** | | | | | | | | | | | | | | |

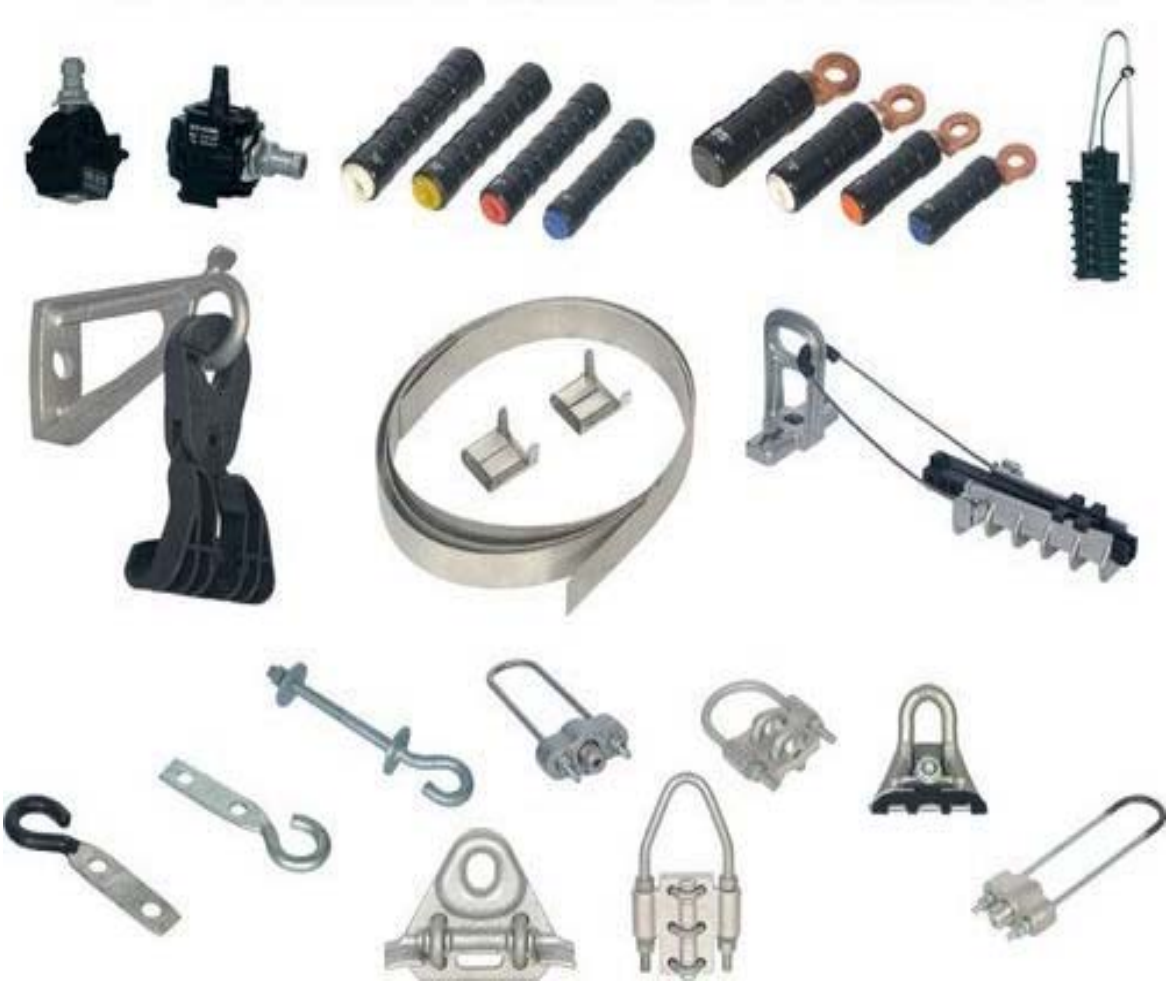
## ANNEXURE B

## HT Aerial Bunched Cable (ABC)



Typical configuration of HT ABC – 3 XLPE Insulated Cores with 1 bare ‘Messenger Wire’

## Aerial Bunched Cable Accessories



A variety of suspension clamps, eye bolts, J hooks, dead end clamps are available for simple installation of ABC from poles. More customized accessories are still being developed for fast installation and connections.

## ANNEXURE C : ABC INSTALLATION VARIETIES

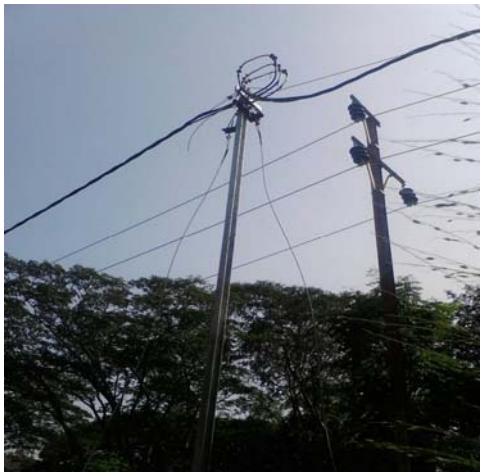


Fig 1. Mid Span Joint in ABC Feeder

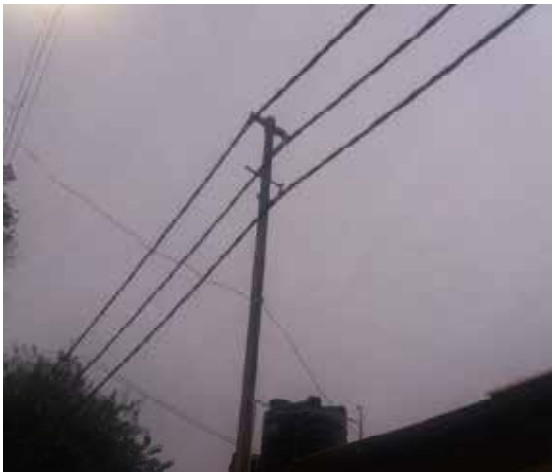


Fig 2. 3 Feeders on 1 Pole using ABC

Fig 3. 2 ABC Feeders + 1 ACSR Feeder

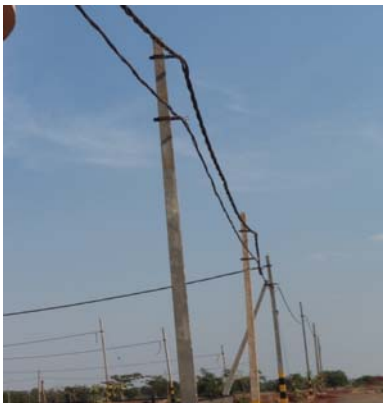


Fig. 4 HT + LT ABC on 1 Pole

Fig. 5. ABC Cable Passing Thru Trees

(Courtesy – Ensto India Pvt. Ltd.)

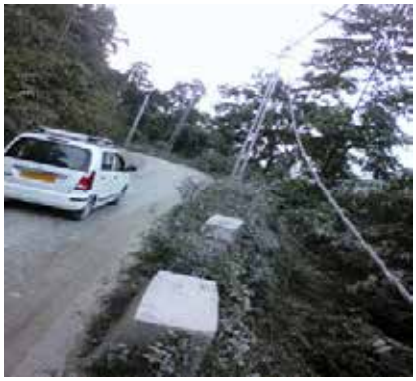


Fig 6 Excessively Sagging ABC

MAHAVITARAN
Maharashtra State Electricity Distribution Co. Ltd.

(A Govt. of Maharashtra Undertaking)
CIN: U40109MH2005SGC153645

**Office of the Chief Engineer (Testing)**
**Maharashtra State Electricity Distribution Co. Ltd.**
"Prakashgad", 5th Fl., Dr. A.Kanekar Road,
Bandra (E), Mumbai-400051.
Tel.: (P) 26478252 (O) 26474211 Extn: 2207
Email: cetesting@mahadiscom.in
Website: www.mahadiscom.in

**CE/Testing/Insp & Testing /Reg.30-43/ 22974** **Date: 19/08/2019**

## CIRCULAR

**Sub : Inspection and testing of electrical installations upto notified voltage as per Reg.30 & Reg. 43 of CEA (Measures relating to Safety and Electric Supply) Regulations 2010, amended on 2015 and amended on 2018.**

In exercise of the powers conferred by section 177 of the Electricity Act, 2003 (36 of 2003), the Central Electricity Authority has issued the regulations for Measures relating to Safety and Electric Supply regulations 2010 amended on 2015 & amended on 1st Mar 2018. In this connection, now GoM vide GR dt. 19.07.2019 has declared 11kV as a notified voltage in the state of Maharashtra.

As per Reg. 30(2) the periodical inspection and testing of installation of voltage equal to or below the notified voltage(i.e. up to & below11kV) and as per Reg. 43(1) (a) Every electrical installation of notified voltage and below(i.e. up to & below 11kV) shall be inspected, tested and self-certified by the owner or supplier or consumer, as the case may be, before commencement of supply or recommencement after shutdown for six months and above for ensuring observance of safety measures specified under these regulations and such owner or supplier or consumer, as the case may be, shall submit the report of self-certification to the Electrical Inspector in the formats(Form I (upto 250V), Form II (above 250V to 650V) & Form III(above 650V)) as framed and issued by the Authority. Above notified voltage (11kV) every installation shall be inspected and tested by Electrical Inspector for the purpose of said regulations.

In this regard it is to inform that the Board of Directors have accorded approval as follows:-

1) For the purpose of inspection & testing and self certification under regulation 30(Periodical Inspection- atleast once in five year) the designated Self-certifying officers for ensuring observance of safety measures specified under said CEA Safety regulations(amended up to date) shall be as follows:-

| INSPECTION & TESTING OF | SELF-CERTIFYING OFFICER |
|---|---|
| LT Lines | Section Engineer |
| DTC & 11kV Lines | Sub-Divisional Officer (O&M) |
| Substations - 11kV part | Additional Executive Engineer (Maintenance) |

2) For the purpose of inspection & testing and self certification under regulation 43 (Every Electrical Installation-before commencement of Supply & recommencement after shutdown for six months and above) the designated Self-certifying officers for ensuring observance of safety measures specified under these regulations(up to date) shall be as follows:-

| INSPECTION & TESTNG OF | SELF-CERTIFYING OFFICER |
|---|---|
| LT Lines | Section Engineer |
| DTC & 11kV Lines | Additional Executive Engineer (Maintenance) |
| Substations - 11kV part | Executive Engineer (Testing) |

3) Further, concerned Executive Engineer (O&M) shall check at least 5% of installations of LT Lines and DTCs for which, self certification has been done by concerned self certifying officer.

4) Moreover, concerned Superintending Engineer (O&M) shall check at least 5% of 11 kV installations for which, self certification has been done by concerned self certifying officer.

5) The inspection and testing procedure in the matter is attached herewith.

This is for your information and immediate implementation please.

Encl: Procedure & forms

(Dr. Manish Wath)
Chief Engineer (Testing)

***Procedure to be followed for inspection and testing and Self Certification of Electrical Installation of Notified Voltage up to and below 11 KV as per CEA(Measures relating to Safety and Electric Supply) regulation 2010 amended on 2015 & amended on 2018 under Regulation 30.***

***For Periodical Inspection (Regulation 30- atleast once in a five year):***

**A) LT Lines** -The Designated Self Certifying Officer for LT line is **Section Engineer.**

1) The Section Engineer will visit the site. Check the work of existing LT line as per MSEDCL's Standard construction practices and as per time to time directives/circulars issued by higher offices about construction of LT lines.
2) He should check Line to line clearance, across and above ground clearance, and clearance from nearby house/building.
3) The safety measure like Earthing, use of stay insulator, guarding etc should be invariably checked.
4) If irregularity/abnormality found in LT Line Construction works, get it rectified and accordingly charge the LT line.
5) Section Engineer will prepare the report as per Form-I/II as the case may be ( Formats enclosed), and send the copies along with the certificate to the Electrical Inspector, MSEDCL Sub-divisional officer and Executive Engineer.
6) If the Electrical Inspector is not satisfied with the compliance report, shall inspect the electrical installation within a period of one year (for reg-30) from the date of submission of self-certification report and intimate the Section Engineer the defects, if any, for rectification within fifteen days.
7) The Section Engineer will rectify/clear the discrepancies if any and re-submit the report to the Electrical Inspector.
8) The copies of each report should also be submitted to the SDO, Executive Engineer (O&M) of concerned division.
9) Concerned Executive Engineer shall check at least 5% of installations of LT Lines for which, self certification has been done by concerned self certifying officer.

**B) DTC & 11 kV Lines** -The Designated Self Certifying Officer for DTC & 11 kV Lines is **Sub-Divisional Officer.**

1) The Sub-Divisional Officer will visit the site. Check the work of existing DTC & 11 kV Lines as per MSEDCL's Standard construction practices and as per time to time directives/circulars issued by higher offices about construction of DTC & 11 kV Lines.
2) He should check Line to line clearance, across and above ground clearance, and clearance from nearby house/building.
3) The safety measure like Earthing, use of stay insulator, guarding etc should be invariably checked.
4) If irregularity/abnormality found in DTC & 11 kV Lines, get it rectified and accordingly charge the DTC & 11 kV Lines.
5) Sub-Divisional Officer will prepare the report as per Form-III ( Format enclosed), and send the copies along with the certificate to the Electrical Inspector and Executive Engineer.
6) If the Electrical Inspector is not satisfied with the compliance report, shall inspect the electrical installation within a period of one year (for reg-30) from the date of submission of self-certification report and intimate the Sub-Divisional Officer the defects, if any, for rectification within fifteen days.

7) The Sub-Divisional Officer will rectify/clear the discrepancies if any and re-submit the report to the Electrical Inspector.
8) The copies of each report should also be submitted to the Executive Engineer (O&M) of concerned division and Superintending Engineer of concerned Circle.
9) Concerned Executive Engineer shall check at least 5% of installations of DTCs for which, self certification has been done by concerned self certifying officer.
10) Concerned Superintending Engineer shall check at least 5% of 11 kV installations for which, self certification has been done by concerned self certifying officer

C) **Substation-11kV part** -The Designated Self Certifying Officer for Substation-11kV part is **Additional Executive Engineer(Maintenance)**

1) Additional Executive Engineer (Maintenance) will visit the site. Check the work of existing Substation-11kV part as per MSEDCL's Standard construction practices and as per time to time directives/circulars issued by higher offices about construction of Substation-11kV part.
2) He should check Line to line clearance, across and above ground clearance.
3) The safety measure like Earthing should be invariably checked.
4) If irregularity/abnormality found in Substation-11kV part, get it rectified and accordingly charge the Substation-11kV part.
5) Additional Executive Engineer (Maintenance) will prepare the report as per Form-III( Format enclosed), and send the copies along-with the certificate to the Electrical Inspector and Executive Engineer.
6) If the Electrical Inspector is not satisfied with the compliance report, shall inspect the electrical installation within a period of one year (for reg-30) from the date of submission of self-certification report and intimate the Additional Executive Engineer (Maintenance) the defects, if any, for rectification within fifteen days.
7) The Additional Executive Engineer (Maintenance) will rectify/clear the discrepancies if any and re-submit the report to the Electrical Inspector.
8) The copies of each report should also be submitted to the Executive Engineer (O&M) of concerned division and Superintending Engineer of concerned Circle.
9) Concerned Superintending Engineer shall check at least 5% of 11 kV installations for which, self certification has been done by concerned self certifying officer.

==========

***Procedure** for Inspection and Testing of Every Installation as per Regulation 43- (i.e Every Electrical Installation-before commencement of Supply (New Installation) or recommencement after shutdown for six months and above):*

**A) LT Lines** -The Designated Self Certifying Officer for LT line is **Section Engineer**.

1) After completion of erection of LT Line (Single phase and Three phase) under any scheme concerned agency/contractor will give intimation in writing to Section Engineer for charging the line.
2) The Section Engineer will visit the site within two days after intimation from the agency. Check the work of newly erected LT line as per MSEDCL's Standard construction practices and as per time to time directives/circulars issued by higher offices about construction of LT lines.
3) He should check Line to line clearance, across and above ground clearance, and clearance from nearby house/building as per CEA safety Regulations 2010(amended up to date).
4) The safety measure like Earthing, use of stay insulator, guarding etc should be invariably checked.
5) If irregularity/abnormality found in LT Line Construction works should be conveyed in writing (by email/ register post/ Electronic Media) to concerned agency/contractor on same day of inspection. The same is brought to the notice of SDO and Executive Engineer.
6) Agency should rectify irregularity/abnormality conveyed to him by the Section Engineer within 3 days and again submit the compliance to Section Engineer.
7) Section Engineer will visit immediately to the said location and inspect the rectified work.
8) After satisfactory report i.e as per MSEDCL's Standard construction practices, Section Engineer will charge / commission the LT line.
9) Section Engineer will prepare the report as per Form-I/II as the case may be ( Format enclosed), and send the copies along with the certificate to the Electrical Inspector, MSEDCL Sub-divisional officer and Executive Engineer.
10) If the Electrical Inspector is not satisfied with the compliance report, shall inspect the electrical installation within a period of ninety days (for reg-43) from the date of submission of self-certification report and intimate the Section Engineer the defects, if any, for rectification within fifteen days.
11) The Section Engineer will get rectify/clear the discrepancies if any and re-submit the report to the Electrical Inspector.
12) The copies of each report should also be submitted to the SDO, Executive Engineer(O&M) of concerned division.
13) Concerned Executive Engineer shall check at least 5% of installations of LT Lines for which, self certification has been done by concerned self certifying officer.

**B) DTC & 11 kV Lines** -The Designated Self Certifying Officer for DTC & 11 kV Lines is **Sub-Divisional Officer.**

1) The Sub-Divisional Officer will visit the site within two days after intimation from the agency. Check the work of existing DTC & 11 kV Lines as per MSEDCL's Standard construction practices and as per time to time directives/circulars issued by higher offices about construction of DTC & 11 kV Lines.
2) He should check Line to line clearance, across and above ground clearance, and clearance from nearby house/building.

3) The safety measure like Earthing, use of stay insulator, guarding etc should be invariably checked.
4) If irregularity/abnormality found in DTC & 11 kV Lines Construction works should be conveyed in writing (by email/ register post/ Electronic Media) to concerned agency/contractor on same day of inspection and get it rectified.
5) After satisfactory report i.e as per MSEDCL's Standard construction practices, Sub-Divisional Officer will charge the DTC & 11 kV Lines
6) Sub-Divisional Officer will prepare the report as per Form-III( Format enclosed), and send the copies along with the certificate to the Electrical Inspector and Executive Engineer.
7) If the Electrical Inspector is not satisfied with the compliance report, shall inspect the electrical installation within a period of ninety days (for reg-43) from the date of submission of self-certification report and intimate the Sub-Divisional Officer the defects, if any, for rectification within fifteen days.
8) The Sub-Divisional Officer will get rectify/clear the discrepancies if any and re-submit the report to the Electrical Inspector.
9) The copies of each report should also be submitted to the Executive Engineer (O&M) of concerned division and Superintending Engineer of concerned Circle.
10) Concerned Executive Engineer shall check at least 5% of installations of DTCs for which, self certification has been done by concerned self certifying officer.
11) Concerned Superintending Engineer shall check at least 5% of 11 kV installations for which, self certification has been done by concerned self certifying officer

C) **Substation-11kV part -**The Designated Self Certifying Officer for Substation-11kV part is **Executive Engineer(Testing)**

1) Executive Engineer (Testing) will visit the site within two days after intimation from the agency. Check the new work of Substation-11kV part as per MSEDCL's Standard construction practices and as per time to time directives/circulars issued by higher offices about construction of Substation-11kV part (New).
2) He should check Line to line clearance, across and above ground clearance.
3) The safety measure like Earthing should be invariably checked.
4) If irregularity/abnormality found in Substation-11kV part Construction works should be conveyed in writing (by email/ register post/ Electronic Media) to concerned agency/contractor on same day of inspection and get it rectified.
5) After satisfactory report i.e as per MSEDCL's Standard construction practices, Executive Engineer (Testing) will charge the Substation-11kV part.
6) Executive Engineer (Testing) will prepare the report as per Form-III( Format enclosed), and send the copies along-with the certificate to the Electrical Inspector and Executive Engineer.
7) If the Electrical Inspector is not satisfied with the compliance report, shall inspect the electrical installation within a period of ninety days (for reg-43) from the date of submission of self-certification report and intimate the Executive Engineer (Testing)the defects, if any, for rectification within fifteen days.
8) The Executive Engineer (Testing) will get rectify/clear the discrepancies if any and re-submit the report to the Electrical Inspector.
9) The copies of each report should also be submitted to the Executive Engineer (O&M) of concerned division and Superintending Engineer of concerned Circle.
10) Concerned Superintending Engineer shall check at least 5% of 11 kV installations for which, self certification has been done by concerned self certifying officer.

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