TECHNICAL SPECIFICATIONS

OF

LAYING OF DIFFERENT WIRES & CABLES MOUNTED ON POLES

FOR BRPL/BYPL

SPECIFICATION NO- GN101-03-SP-13-02

INDEX

DWG. NO- PN101-01X000-DR-233 - Clamping arrangement For RCC Poles – 9M (400 KG).

DWG. NO- PN101-01X000-DR-234 - General arrangement of Clamping & Cleating along with Signal Box arrangement.

DWG. NO- PN101-01X000-DR-235 - Clamping arrangement For RCC Poles – 9M 400 KG (Cable Signalling Box Arrangement).

DWG. NO- PN101-01X000-DR-236 - Clamping arrangement For RCC Poles – 9M 160 KG (Cable Signalling Box Arrangement).

1.0 SCOPE OF DOCUMENT

This is in continuation (2nd Revision) of the **Specification No**. **GN101-03-SP-13-00** dated 12.02.2007

This specification covers installation design criteria for laying of TV Cables/Wires along poles including clamping and cleating arrangement to be provided on the poles of BRPL/BYPL system in order to develop a clean & safe overhead system for all the cables and wires that are laid along/over the poles.

Currently all the BRPL/BYPL poles are carrying different kinds and sizes of cables and wires laid by various agencies/cable operators other than the electric wires in a haphazard manner. This specification is an attempt to delineate two solutions to avoid the haphazard arrangement of wires and cables over the poles of BRPL/BYPL system.

2.0 DESIGN

The TV cables/wire shall be laid along the poles carrying LT Conductors,LTAB Cables duly clamped and secured at safe distance from the electrical wires/conductor.

All the proposed arrangements shall be mounted at a distance of **1.38** meters (Minimum) from the present 415V overhead conductor on the pole in order to have a proper clearance from the electric wires to avoid any kind of interference or safety hazard.

The Insulation of TV cable should be graded for Voltage of not less than 650V which is running on the Same support of 415V Overhead Conductor.

Laying of TV Cables/Wires has not been envisaged along HT/EHV Poles/Towers, because of insulation rating limitation on insulation material over TV Cables/Wires.

The clamping and cleating arrangement will be equipped with two main components- One will be similar to a suspension type component through which different wires and cables of various agencies/cable operators will be laid. This will essentially help in bunching various cables and wires together. The other component will be connected around the pole as a support system.

This support system will bear the entire load of the wires and cables.

Based on the above concept, two clamping arrangements are proposed and are as following:-

3.0 Arrangement: 1-

In this type arrangement a stainless steel strap is to be wrapped around the poles through yoke and buckle with the support of a Steel tightening tool. The main advantage of having this type of arrangement is that the steel strap are available in form of rolls. This can be cost effective and can be used on all types of poles.

The details of this type of clamping and cleating arrangement are as following:-

(i) Stainless Steel Strap with Yoke/Buckle-

- The strap and yoke shall be of Stainless steel only and shall have non-cutting edges.
- The strap shall be of 20mm width and 0.7mm thick.
- The breaking strength of the strap along with the buckle/yoke shall be min 600 N/mm2
- The percentage elongation of the strainless steel shall be min 40%.
- Manufacturer's trademark or Name of manufacturer shall be embossed on the strap.

(ii) Service Dead End clamp

- This clamp shall be made of high climatic and mechanical resistant insulating material.
- The clamp shall essentially comprise of an open body, two unloosable wedges ensuring a positive and pressure reparted grip on conductors and an anchoring rigid bail made of stainless steel.

- The min & max area coverage of the clamp shall be 2*6sqmm & 4*35 sqmm.

3.1 Arrangement: 2-

This arrangement is similar to that of mounting of LT Distribution Boxes. One clamp and one angular rod will be mounted on the pole to serve the clamping and cleating arrangement. The types of clamps will be different for PCC and tubular poles. For the PCC poles, the BRPL/BYPL system is currently having two types, one of 160 Kg & other of 400Kg. In this arrangement, for two different poles, two types of clamps will be there.

The details of this type of clamping and cleating arrangement are as following:-

(i) Round/Square Clamps

- All the clamps shall be of Mild Steel material.
- The clamps shall be of Round/Square shape, as per the pole type.
- The MS clamps shall be of 50mm width and 6mm thickness.
- Two nos. of 18mm diameter shall be provided on the two ends of the clamp at a distance indicated in the drawing as per the pole requirement.
- The hot dip galvanizing thickness shall be min 75 microns

(ii) Angular Rod with 4-5 holes

- The material of the rod shall be of Mild Steel only, that is similar to that of clamps
- The slots provided on the angular rod shall be approx of size 12*18mm with slot to slot distance of 50mm.
- The hot dip galvanizing thickness shall be min 75 microns

(iii) Removable Notched Straps

- The material of the strap shall be Polyamide black
- The material of the strap shall be halogenless, flame retardant, ultraviolet, and Ozone resistant and shall be in such a way so that it can be re-used and re-connected. The material shall be resistant against bases, acids, oils, greases, hydrocarbons and salt fogs.
- Melting temperature of the material shall be 180 deg C.
- The temperature range of the material shall be -45 to +120 deg C
- The moisture uptake (after 4 days) shall be approximately 1%
- The straps shall be supplied in two types of lengths- 105mm & 188mm in such a way so that the min and max loop diameter can be 8/22mm (min/max) and 10/42mm (min/max) respectively. The width of the strap shall be 9mm.
- The removable notched straps will be tied from slot to slot in order to have better hold onto the angular rod.

4.0 CLAMPING ARRANGEMENT FOR SIGNALLING/DISTRIBUTION BOX DESIGN

The TV signal/distribution box shall be fixed along the poles duly clamped and secured at safe distance from the electrical wires/conductor.

The clamping arrangement will be equipped for various agencies/cable operators for fixing their distribution box.

Provision for holes to be provided by the corresponding Cable operator in their signal / distribution box as per drawing attached.

4.1 Clamping Arrangement :- Brief Description- This type of clamping arrangement will comprise of following Two components:-

- One no. of Square clamps as mentioned in drawing.

- MS rod with 8-10 nos. of holes provision

5.0 SAFETY MEASURES :

5.1 Every overhead telecommunication line erected on supports carrying a power line shall consist of conductors each having a breaking strength of not less than 270KG

5.2 Every telephone used on a telecommunication line erected on supports carrying a power line shall be suitable guarded against lighting and shall be protected by cut-outs.

5.3 Where a telecommunication line is erected on supports arrangement shall be made to safeguard any person using the telephone lagainst injury resulting from contact, leakage or induction between such power and telecommunication lines.

	Low and Medium Voltages Line
Minimum Vertical Clearance between power and communication wires at the pole	1380 mm
Minimum Vertical Clearance between communication wiresand ground wire on the power line	1070 mm

6.0 IDENTIFICATION

6.1 Each cable or wires which are passed along/over the pole shall have a standard colour code with manufacturer's logo/trademark.

Or

6.2 The plastic tag with the company's logo/trademark shall be installed over the

cables/wires at a distance of 1 meter on either side of the poles. The colour code/plastic tags shall have prior approval of the DISCOMS.

7.0 QUALITY ASSURANCE

5.1	Vendor quality plan	To be submitted for purchaser approval.
5.2	Inspection point	To be mutually identified and agreed in quality plan

8 INSPECTION & TESTING

8.1 Physical and chemical composition testing shall be done from NABL approved lab only and test reports shall be submitted to CES for review.

8.2 The manufacturer shall carry out all tests by mutual arrangement between purchaser and supplier.