



सत्यमेव जयते

**भारत सरकार**  
**Government of India**  
**विद्युत मंत्रालय**  
**Ministry of Power**  
**केन्द्रीय विद्युत प्राधिकरण**  
**Central Electricity Authority**  
**विद्युत प्रणाली संचार विकास प्रभाग**  
**Power System Communication Development**  
**Division**  
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| <b>CEA Case No. : UP-660</b>   |   |              |
|--|---|--------------|
| <b>Induced Voltage (IV) calculation for PTCC proposal of 220 kV S/C Birdha to Lalitpur Transmission Line on D/C Tower [Length-27.7 km] - Regd.</b> |   |              |
| <b>S. No</b>   | <b>Reference No.</b>                                      | <b>Dated</b> |
| (i)  | UPPTCL: 1314/ETD-(J)                                      | 21.08.2024   |
| (ii)   | BSNL: DE/PTCC/NZ/ BSNL-TD/DV-10458/UP-1215/2024-2025/     | 22.01.2025   |
| (iii)  | North Central Railway: NCR/S&T/2074/Telecom/PTCC (Part-2) | 20.09.2024   |
| (iv)   | Defense: B/46937/Sigs7(b)/4113                            | 06.11.2024   |

The PTCC proposal submitted vide reference (i) has been examined. The LF induction on block & telecom circuits of North Central Railway with respect to details furnished vide above references (iii) has been computed. The voltages likely to be induced on paralleling block & telecom circuits of North Central Railway under Single Line to Ground fault condition are enclosed at Annexure-I. The screening factors, as applicable, have been considered. DET-PTCC NZ,BSNL and DG Signals, MoD have issued No Objection Certificate (NOC) vide reference (ii) & (iv) respectively.

EPR zone for 220 kV proposed S/S is mentioned below:

| Name of the proposed Substation | Half diagonal distance , D/2 (mts) | Fault Current I (KA) | Resistance of Earth Mat, R (ohms) | d (mts) at 430 V | d (mts) at 650 V | d (mts) at 7kV | d (mts) at 10kV |
|---------------------------------|------------------------------------|----------------------|-----------------------------------|------------------|------------------|----------------|-----------------|
| 220 kV Birdha S/s               | 105                                | 24                   | 0.093                             | 440              | 256              | N.A            | N.A             |

As per the Telecom Details submitted by BSNL vide above reference (ii), no telephone exchange of BSNL is falling within the EPR zone of proposed Substation.

Taking above into consideration, necessary action for issuance of PTCC route approval (RAC) shall be taken under intimation to this office in the stipulated period as specified in PTCC Manual and subsequent CLPTCC meetings.

**Chief Engineer**

**To,**

|    |   |  |                       |
|----|---|--|-----------------------|
| 1. | Divisional Engineer (PTCC), Northern Zone | BSNL, O/o PGM(North), QA & Inspection Circle<br>D-Tax Building, Eastern Court, Janpath<br>New Delhi-110001 |                       |
| 2. | GM (S&T)                                  | North Central Railway<br>HQ (S &T) Branch, Prayagraj   |                       |
| 3. | Executive Engineer<br>UPPTCL              | ETD - UPPTCL<br>132 kV S/s Hasari, Jhansi  | Copy for information. |

**ANNEXURE-I**

| <b>CEA Case No.:</b> UP-660<br><b>Name of the Power line:</b> 220 kV S/C Birdha to Lalitpur Transmission Line on D/C Tower. |                            |                                     | <b>Map Scale</b> : 1 cm= 500 m<br><b>Total Length</b> : 27.7 km<br><b>S.R. Value</b> : 7500 Ohm-cm |   |                      |
|---|----------------------------|-------------------------------------|--|---|----------------------|
| <b>S.No.</b>  | <b>Telecom. Details</b>    | <b>Length of Parallelism in Km.</b> | <b>Mutual Coupling in Ohms.</b>  | <b>Effective Fault current in Amps.</b> | <b>I.V in Volts.</b> |
| North Central Railway: NCR/S&T/2074/Telecom/PTCC (Part-2) Dated 20.09.2024  |                            |                                     |  |   |                      |
| <b><u>Affected Blocks &amp; Telecom Circuits Details</u></b>  |                            |                                     |  |   |                      |
| 1   | Lalitpur R/s to Birari R/s | 2.0                                 | 0.0036   | 20600                                   | 74                   |
| 2   | Birari R/s to Udaipura R/s | -Out of Parallelism-                |  |   |                      |