



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.: BHR-188</b>		
<b>Induced Voltage (IV) calculation for PTCC proposal of 220 kV D/C Tajpur to Samastipur New Transmission Line [Length- 18.457 km]– Regd.</b>		
<b>Reference:</b>		
<b>S. No.</b>	<b>Reference No.</b>	<b>Dated</b>
(i)	BSPTCL Letter No: Tele/PTCC/24/2021/520	20.09.2022
(ii)	BSPTCL: e-Mail	31.07.2024
(iii)	BSNL: DE/PTCC/ER/EBR031220213682/2	07.09.2022
(iv)	East Central Railway : ECR-HQ0SnT(CPTC)/1/2020-O/oDy.CSTE/HQ/ECR/2047	08.02.2022
(v)	Defense : B/46937/Sigs 7(b)/2680	23.12.2021

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

EPR zone for 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
220/132kV Tajpur GSS	130	27.2	0.169	1260	789	N.A	N.A

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

Taking above into consideration, necessary action regarding issuance of PTCC approval for the subject cited transmission line might be taken under intimation to this office.

**Encl.:** As above.

**Chief Engineer**

**To,**

1.	Divisional Engineer (PTCC), Eastern Zone	BSNL QA & Inspection Circle, QA Bhawan, EP-GP Block, Sector-V Kolkata	
2.	General Manager (S&T)	O/o GM (S&T) East Central Railway Hajipur	
3.	Chief Engineer (Telecom & OPGW)	Bihar State Power Transmission Co. Ltd. 4 <sup>th</sup> Floor, Vidyut Bhawan Patna	Copy for information

**ANNEXURE-I**

<b>CEA Case No.:</b> BHR-188 <b>Name of the Power line:</b> 220 kV Tajpur to Samastipur New Transmission Line			<b>Map Scale</b> : 1 cm= 500 m <b>Total Length</b> : 18.547 km <b>S.R. Value</b> : 50000 $\Omega$ -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>
BSNL: DE/PTCC/ER/EBR031220213682/2      Date: 07.09.2022					
<b><u>Affected Blocks &amp; Telecom Circuits Details</u></b>					
1	Morwa Telephone Exchange	IV Calculation not required (Telephone Exchange)			
2	Sarairanjan Telephone Exchange	IV Calculation not required (Telephone Exchange)			
3	Musharigharari Telephone Exchange	IV Calculation not required (Telephone Exchange)			
4	Tajpur Telephone Exchange	IV Calculation not required (Telephone Exchange)			

**ANNEXURE-II**

<b>CEA Case No.:</b> BHR-188 <b>Name of the Power line:</b> 220 kV Tajpur to Samastipur New Transmission Line			<b>Map Scale</b> : 1 cm= 500 m <b>Total Length</b> : 18.547 km <b>S.R. Value</b> : 50000 $\Omega$ -cm		
S.No.	Telecom. Details	Length of Parallelism in Km.	Mutual Coupling in Ohms.	Effective Fault current in Amps.	I.V in Volts.

East Central Railway : ECR-HQ0SnT(CPTC)/1/2020-O/oDy.CSTE/HQ/ECR/2047 Date: 08.02.2022

**Affected Blocks & Telecom Circuits Details**

1	Khudiram Bose Pusa R/s to Karpurigram R/s	-Out of Parallelism-			
2	Karpurigram R/s to Samastipur R/s	-Out of Parallelism-			
3	Samastipur R/s to Bhagwanpur Desua R/s	-Out of Parallelism-			
4	Bhagwanpur Desua R/s to Anarghat R/s	-Out of Parallelism-			
5	Najirganj R/s to Ujjiyarpur R/s	1.5	0.0022	20500	45
6	Ujjiyarpur R/s to Samastipur R/s	2.0	0.004	19800	79