

I/29231/2023



सत्यमेव जयते



**भारत सरकार**  
**Government of India**  
**विद्युत मंत्रालय**  
**Ministry of Power**  
**केन्द्रीय विद्युत प्राधिकरण**  
**Central Electricity Authority**  
**विद्युत संचार विकास प्रभाग**  
**Power Communication Development Division**  
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<b>CEA Case No.: BHR-181</b>		
<b>Induced Voltage (IV) calculation for PTCC proposal of 220 kV D/C transmission Line from 400/220/132 kV Bakhtiyarpur (New) GIS to 220/132 kV Fatuha GSS [Length- 45.2 km]– Regd.</b>		
<b>Reference:</b>		
<b>S. No.</b>	<b>Reference No.</b>	<b>Dated</b>
(i)	BSPTCL Letter No: Tele/PTCC/27/2021/390	28.09.2021
(ii)	BSPTCL Letter No: Tele/PTCC/27/2021/123	05.07.2023
(iii)	BSPTCL E-mail	20.07.2023
(iv)	BSNL: DET/PTCC/ER/EBR031220213681,EBR031220213683 & EBR031220213684/IV/1	08.06.2023
(v)	East Central Railway : ECR-HQ0SnT(CPTC)/1/2020-O/oDy.CSTE/HQ/ECR/2086	01.04.2022
(vi)	Defense : B/46937/Sigs 7(b)/2597	09.11.2021

The PTCC proposal submitted vide reference (i), (ii) & (iii) 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 (iv) & (v) respectively, have 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
400/220/132kV Bakhtiyarpur S/S	166	63	0.143	3312	2135	N.A	N.A

As per the Telecom Details submitted by BSNL vide above reference (iv), 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.

**Director**

I/29231/2023 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

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ANNEXURE-I

CEA Case No.: BHR-181 Name of the Power line: 220 kV D/C Bakhtiyarpur (New) to Fatuha Transmission Line			Map Scale : 1 cm= 500 m Total Length : 45.2 km S.R. Value : 7500 Ω-cm		
S.No.	Telecom. Details	Length of Parallelism in Km.	Mutual Coupling in Ohms.	Effective Fault current in Amps.	I.V in Volts.

BSNL Letter No: DET/PTCC/ER/EBR031220213681,EBR031220213683 & EBR031220213684/IV/1 Date: 08.06.2023

Affected Blocks & Telecom Circuits Details

1	BSNL main Fatuha Telephone Exchange from near LOC No Fatuha S/S Gantry.	IV Calculation not required (Telephone Exchange)			
2	BSNL BTS Khusrupur-2 from near LOC No. 16/5 220 kV Bakhtiyarpur-Fatuha T/L.	IV Calculation not required (Telephone Exchange)			
3	BSNL Khusrupur Telephone Exchange from near LOC No. 16/5 220 kV Bakhtiyarpur-Fatuha T/L.	IV Calculation not required (Telephone Exchange)			
4	BSNL Bakhtiyarpur OFCR Telephone Exchange from near LOC No. 22/0 220 kV Bakhtiyarpur-Fatuha T/L.	IV Calculation not required (Telephone Exchange)			
5	Athamalgola BSNL Exchange from near LOC No. 28/6 220 kV Bakhtiyarpur-Fatuha T/L.	IV Calculation not required (Telephone Exchange)			
6	BSNL Barh NTPC Exchange from near LOC No. 41/0 220 kV Bakhtiyarpur-Fatuha T/L.	IV Calculation not required (Telephone Exchange)			
7	BSNL Barh Telephone Exchange from near LOC No. 38/0 220 kV Bakhtiyarpur-Fatuha T/L.	IV Calculation not required (Telephone Exchange)			
8	BSNL Hospital Mor Exchange from near LOC No. 85/0 220 kV Bakhtiyarpur-Fatuha T/L.	IV Calculation not required (Telephone Exchange)			

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ANNEXURE-II

CEA Case No.: BHR-181		Map Scale : 1 cm= 500 m			
Name of the Power line: 220 kV D/C Bakhtiyarpur (New) to Fatuha Transmission Line		Total Length : 45.2 km			
		S.R. Value : 7500 Ω-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 Letter No: ECR-HQ0SnT(CPTC)/1/2020-O/oDy.CSTE/HQ/ECR/2086 Date: 01.04.2022					
<b><u>Affected Blocks &amp; Telecom Circuits Details</u></b>					
1	Bankaghat-Fatuha	-Out of Parallelism-			
2	Fatuha- Khusrupur	5.25	0.0031	26050	81
3	Khusrupur-Karauta	8.5	0.001	25640	26
4	Karauta-Tekabigha	2.2	0.0009	24860	22
5	Tekabigha-Bakhtiyarpur	4.5	0.0006	24380	15
6	Bakhtiyarpur - Athmalgola	6.2	0.001	28400	28
7	Athmalgola - Barh	2.0	0.0003	28040	08
8	Barh - Punarakh	-Out of Parallelism-			
9	Bakhtiyarpur – Karnauti	0.75	0.0005	28240	14
10	Karnauti – Haraunt	3.25	0.006	24650	148
11	Haraunt- Wnea	-Out of Parallelism-			
12	Fatuha - Daniwan	1.25	0.0005	24200	12
13	Daniwan-Singriyawan	-Out of Parallelism-			