



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



CEA Case No. : RAJ-788		
Induced Voltage (IV) calculation for 220 kV S/C Bharatpur to Sikri Transmission Line [Length- 69 km]– Regd.		
S.No	Reference No.	Dated
(i)	RRVNL: RVPN/SE(QC,Insp.&Montg.)/XEN(PTCC)/F.2044-A-00330-RajkajNo-13091343	21.01.2025
(ii)	RRVNL: e-Mail	11.09.2025
(iii)	BSNL: DET/PTCC/ND/DV-10496/RAJ-1553/2024-25	09.09.2025
(iv)	North Western Railway: SG/158/NWR/PTCC/1104	07.04.2025
(v)	Northern Central Railway: NCR/S&T/2074/Telecom/PTCC(Part-2)	22.07.2025
(vi)	West Central Railway: WCR/N-HQ/120 PTCC-T-50-Pt-III Caes-498	11.12.2025
(vii)	Defense: B/46937/Sigs7(b)/4411	28.03.2025

The PTCC proposal submitted vide reference (i) and (ii) has been examined. The LF induction on Block and Telecom circuits of Northern Central Railway and West Central Railway with respect to details furnished vide above reference (v) & (vi) has been computed. The voltage likely to be induced on paralleling Block and Telecom circuits of Northern Central Railway and West Central Railway under Single Line to Ground fault condition are enclosed at Annexure-I & Annexure-II respectively. The screening factors as applicable have been considered. Dy.CSTE, North Western Railway and DG Signals, MoD has issued No Objection Certificate (NOC) vide reference (iv) & (vii) 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 Sikri S/s	74	24	0.084	273	156	N.A	N.A

As per the Telecom Details submitted by BSNL vide above reference (iii), there is no copper cable or Armored OFC within 8 km boundary and hence IV computation is not done. Twenty BTS are present within 8 km boundary and they are not falling within the EPR zone of proposed 220 kV S/s.

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.

As per the decision taken in 111th and 112th CLPTCC meeting, necessary instructions for “Deemed Energization approval” shall be specified while issuing RAC.

Chief Engineer

To,

1.	Divisional Engineer (PTCC), Northern Zone	BSNL, O/o GM (North), QA & Inspection Circle D-Tax Building, Eastern Court, Janpath New Delhi-110001	
2.	GM (S&T)	1 st Floor Annex II building, P.F. No. 6, Jabalpur West Central Zone	
3.	GM (S&T)	HQ Office, S&T Branch North Central Railway, Prayagraj	
4.	SE (QC, Insp. & Montg.)	Room No 320, Vidyut Bhawan, Jyoti Nagar Jaipur- Rajasthan	Copy for information.

ANNEXURE-I

CEA Case No.: RAJ-788			Map Scale : 1 cm= 500 m		
Name of the Power line: 220 kV S/C Bharatpur to Sikri Transmission Line			Total Length : 69 km		
			S.R. Value : 15000 Ohm-cm		
S.N o.	Telecom. Details	Length of Parallelism in Km.	Mutual Coupling in Ohms.	Effective Fault current in Amps.	I.V in Volts.
North Central Railway: NCR/S&T/2074/Telecom/PTCC(Part-2) Dated 22.07.2025					
<u>Affected Blocks & Telecom Circuits Details</u>					
1.	Behaj R/s to Deeg R/s		Out of Parallelism		
2.	Deeg R/s to Bedham R/s	2.5	0.0013	17500	23
3.	Bedham R/s to Barsana R/s		Out of Parallelism		
4.	Barsana R/s to Brijnagar R/s		Out of Parallelism		

ANNEXURE-II

CEA Case No.: RAJ-788			Map Scale : 1 cm= 500 m		
Name of the Power line: 220 kV S/C Bharatpur to Sikri Transmission Line			Total Length : 69 km		
			S.R. Value : 15000 Ohm-cm		
S.No.	Telecom. Details	Length of Parallelism in Km.	Mutual Coupling in Ohms.	Effective Fault current in Amps.	I.V in Volts.
West Central Railway: WCR/N-HQ/120 PTCC-T-50-Pt-III Caes-498, Dated 11.12.2025					
<u>Affected Blocks & Telecom Circuits Details</u>					
1.	Sewan R/s to Bharatpur Junction R/s	Out of Parallelism			
2.	Bharatpur Junction R/s to Dharmui Jaghina R/s	2.0	0.0020	22000	45
3.	Dharmui Jaghina R/s to Jajjan Patti R/s	Out of Parallelism			