



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-745		
Induced Voltage (IV) calculation for 220 kV D/C Alwar to Sikri Transmission Line [Length-50.337 km]– Regd.		
S. No	Reference No.	Dated
(i)	RRVPNL: RVPN/SE(QC,Insp.&Montg.)/XEN(PTCC)/F.2006-A-00233-RajkajNo-7761461	04.06.2024
(ii)	RRVPNL: e-Mail	29.12.2025
(iii)	BSNL: DET/PTCC/ND/DV-10374/RAJ-1482/2024-25	17.02.2025
(iv)	North Western Railway: SG/158/NWR/PTCC/972	21.06.2024
(v)	North Central Railway: NCR/S&T/2074/Telecom/PTCC(Part-2)	04.09.2024
(vi)	Defense: B/46937/Sigs7(b)/3989	25.07.2024

The PTCC proposal submitted vide reference (i) and (ii) has been examined. The LF induction on Block and Telecom circuits of North Western Railway and North Central Railway with respect to details furnished vide above reference (iv) & (v) has been computed. The voltage likely to be induced on paralleling Block and Telecom circuits of North Western Railway and North 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. DET (NZ), BSNL and DG Signals, MoD has issued No Objection Certificate (NOC) vide reference (iii) & (vi) 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

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) NWR	North Western Railway, Headquarter Office, Room No. 136, First Floor, Near Jawahar Circle, Jaipur - 302017	
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-745			Map Scale : 1 cm= 500 m		
Name of the Power line: 220 kV D/C Alwar to Sikri Transmission Line			Total Length : 50.337 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.
North Western Railway: SG/158/NWR/PTCC/972, Dated 21.06.2024					
<u>Affected Blocks & Telecom Circuits Details</u>					
1.	Alwar R/s to Mahwa R/s				
2.	Mahwa R/s to Malakhera R/s				Out of Parallelism
3.	Malakhera R/s to Dhigawara R/s				Out of Parallelism

ANNEXURE-II

CEA Case No.: RAJ-745 Name of the Power line: 220 kV D/C Alwar to Sikri Transmission Line			Map Scale : 1 cm= 500 m Total Length : 50.337 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.
North Central Railway: NCR/S&T/2074/Telecom/PTCC(Part-2)			Dated 04.09.2024		
<u>Affected Blocks & Telecom Circuits Details</u>					
1.	Ootwar R/s to Ramgarh R/s	Out of Parallelism			
2.	Ramgarh R/s to Jadoli ka Bas R/s	2.5	0.0083	14500	120
3.	Jadoli ka Bas R/s to Govindgarh R/s	2.0	0.0061	15400	94
4.	Govindgarh R/s to Jhareda R/s	Out of Parallelism			