



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

CEA Case No. : MP-502		
Induced Voltage (IV) calculation for 220 kV DCDS Transmission Line from 220 kV Mandideep S/s to 220kV M/s HEG Ltd. S/s [Length- 11.166 km]– Regd.		
S. No	Reference No.	Dated
(i)	MPPTCL: 04-02/PTCC/2713/2556	04.11.2022
(ii)	MPPTCL: 04-02/PTCC/2713/PS/2561	21.10.2024
(iii)	BSNL: IC/MBI/PTCC/MP (Topo Sheet received by hand on 23.10.2024)	13.09.2024
(iv)	West Central Railway: WCR/N-HQ/120PTCC-T-50-Pt-IIICase-368	19.12.2022
(v)	Defense: B/46937/Sigs7(b)/3131	20.01.2023

The PTCC proposal submitted vide reference (i) & (ii) has been examined. The LF induction on Block and Telecom circuits of BSNL & West 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 & 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. DG Signals, MoD has issued No Objection Certificate (NOC) vide reference (v).

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 M/s HEG S/s	57	40.632	0.223	1139	734	17	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 the subject cited transmission line may be taken under intimation to this office.

Encl.: As above

Chief Engineer

To,

1.	Divisional Engineer (PTCC), Western Zone	QA & Inspection circle, 1 st floor, D- wing, BSNL Admin Bldg., Junu Tara Road, Santa Cruz (West), Mumbai-400054	
2.	GM (S&T) West Central Railway	O/o GM (S&T), 1 st Floor Jabalpur	
3.	Chief Engineer (Png. & Design) MPPTCL	Block No.2, Shakti Bhawan Rampur, Jabalpur	Copy for information.

ANNEXURE-I

CEA Case No.: MP-502 Name of the Power line: 220 kV DCDS Transmission Line from 220 kV Mandideep S/s to 220kV M/s HEG Ltd. S/s.			Map Scale : 1 cm= 500 m Length : 11.166 km S.R. Value : 7500 Ohm-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: IC/MBI/PTCC/MP Dated 13.09.2024					
<u>Affected Blocks & Telecom Circuits Details</u>					
1	Mandideep Exchange A to B B to C C to D			IV Less than 430 V	

ANNEXURE-II

CEA Case No.: MP-502			Map Scale : 1 cm= 500 m		
Name of the Power line: 220 kV DCDS Transmission Line from 220 kV Mandideep S/s to 220kV M/s HEG Ltd. S/s.			Length : 11.166 km		
			S.R. Value : 7500 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 Letter No: WCR/N-HQ/120PTCC-T-50-Pt-IIICase-368 Dated 19.12.2022					
<u>Affected Blocks & Telecom Circuits Details</u>					
1	Obaidullaganj R/s to Itayakalan R/s	2.0	0.0044	14200	62
2	Itayakalan R/s to Mandideep R/s	1.5	0.0031	14500	45
3	Mandideep R/s to Misrod R/s	-Out of Parallelism-			