

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.: AND-695 Induced Voltage (IV) calculation for PTCC proposal of 220 kV SMDC Transmission Line from 400 kV Thalamanchipatnam S/s to the proposed 220 kV Bethamcherla S/s in Kurnool Dist. [Length-76.047 km]— Regd.					
S. No	Reference No.	Dated			
(i)	APTRANSCO:	21.06.2019			
	EE/Const./Div/AE(T)/KNL/F.No.Bethemcherla/D.No938/19				
(ii)	APTRANSCO: e-Mail	04.09.2024			
(iii)	BSNL: SR-PTCC/SAP/2574/08	05.04.2021			
(iv)	South Central Railway: SG.85/4/3/PTCC/SCR/2024-25/AP6RTD	22.07.2024			
(v)	Defense: B/46937/Sigs7(b)/3911	16.07.2024			

The PTCC proposal submitted vide reference (i) & (ii) has been examined. The LF induction on Block and Telecom circuits of BSNL & South Central Railway with respect to details furnished vide above reference (iii) & (iv) has been computed. The voltage likely to be induced on paralleling Block and Telecom circuits of BSNL & South 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	100	20	0.15	0.40	505	NT A	NY A
Bethamcherla S/s	108	28	0.15	940	585	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 220 kV Substation.

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

Encl.: As above

Chief Engineer

1.	Div. Engr.(PTCC)	I floor, Raj Bhavan Exchange		
	Southern Zone	No.26, Sardar Patel Road, Guindy, Chennai		
	GM (S&T)	O/o CSTE, 7 th Floor, Rail Nilayam		
2.	South Central	Secunderabad		
	Railway Railway			
2	Chief Engineer	O/o C.E Construction	Copy	for
3.	APTRANSCO	Vidyut Sabha, Vijaywada	information	

ANNEXURE-I

Name of the Power line: 220 kV SMDC Transmission Line from 400 kV Thalamanchipatnam S/s to the proposed 220 kV Bethamcherla S/s in Kurnool Dist. Length of Parallelism S.R. Value : 30000 Ohm-cm	CEA C	ase No.: AND-695		Map Scale	: 1 cm= 500 m	
S.R. Value	Name o	of the Power line: 220 kV SMDC Transmission	n Line from 400	_		
S.No. Telecom. Details Length of Parallelism in Ohms. Telecom. Details Details Telecom. Details Details A Bethamcherla Exchange Exge to Pillar 21 DPs 2101-2115 Exge to Pillar 22 DPs 2201-2212 Exge to Pillar 25 DPs 2501-2505 Exge to Pillar 26 DPs 2601-2603 Exge to Pillar 27 DPs 2701-2705 Ranagpuram Exchange Exchange to Mariamma Temple Exchange to Bethamcherla Road C Akumalla Exchange Exge to Post Office Exge to Ranaina Exchange Exchange to Mariamma Temple Exge to Post Office Exge to Post Office Exge to Post Office Exge to Post Office Exge to Robat High School Exge to Robank D Sanjimala Exchange Exge to Kanala Road			ethamcherla S/s			
Length of Parallelism in Km. Length of Parallelism in Km. Length of In Amps. Volts. BSNL Letter No: SR-PTCC/SAP/2574/08 Dated 05.04.2021	ın Kuri	iooi Dist.		S.K. value:		
Record			Length of	Mutual		I.V
BSNL Letter No: SR-PTCC/SAP/2574/08 Dated 05.04.2021	S.No.	Telecom. Details	Parallelism	Coupling		in
A Bethamcherla Exchange			in Km.	in Ohms.	in Amps.	Volts.
A Bethamcherla Exchange 1 Exge to Pillar 21 DPs 2101-2115 2 Exge to Pillar 22 DPs 2201-2212 3 Exge to Pillar 23 DPs 2301-2307 4 Exge to Pillar 24 DPs 2401-2415 5 Exge to Pillar 25 DPs 2501-2505 6 Exge to Pillar 26 DPs 2601-2603 7 Exge to Pillar 27 DPs 2701-2705 B Ranagpuram Exchange 1 Exchange to Mariamma Temple 2 Exchange to Bethamcherla Road C Akumalla Exchange 1 Exge to Owk Road C Exge to Post Office 3 Exge to Govt. High School 4 Exge to RG Bank D Sanjimala Exchange 1 Exge to Kanala Road	BSNL I	Letter No: SR-PTCC/SAP/2574/08 Dated 05.0-	4.2021			
A Bethamcherla Exchange 1 Exge to Pillar 21 DPs 2101-2115 2 Exge to Pillar 22 DPs 2201-2212 3 Exge to Pillar 23 DPs 2301-2307 4 Exge to Pillar 24 DPs 2401-2415 5 Exge to Pillar 25 DPs 2501-2505 6 Exge to Pillar 26 DPs 2601-2603 7 Exge to Pillar 27 DPs 2701-2705 B Ranagpuram Exchange 1 Exchange to Mariamma Temple 2 Exchange to Bethamcherla Road C Akumalla Exchange 1 Exge to Owk Road C Exge to Post Office 3 Exge to Govt. High School 4 Exge to RG Bank D Sanjimala Exchange 1 Exge to Kanala Road		Affected Blocks &	Telecom Circuit	s Details		
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Exge to Pillar 22 DPs 2201-2212 Exge to Pillar 23 DPs 2301-2307 Exge to Pillar 24 DPs 2401-2415 Exge to Pillar 25 DPs 2501-2505 Exge to Pillar 26 DPs 2601-2603 Exge to Pillar 27 DPs 2701-2705 Exge to Pillar 27 DPs 2701-2705 Exchange to Mariamma Temple Exchange to Bethamcherla Road C Akumalla Exchange Exge to Post Office Exge to Post Office Exge to Govt. High School Exge to RG Bank D Sanjimala Exchange Exge to Kanala Road			_			
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C Akumalla Exchange 1 Exge to Owk Road IV Less than 430 V 2 Exge to Post Office 3 Exge to Govt. High School 4 Exge to RG Bank D Sanjimala Exchange 1 Exge to Kanala Road	1	Exchange to Mariamma Temple	-			
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2 Exge to Post Office 3 Exge to Govt. High School 4 Exge to RG Bank D Sanjimala Exchange 1 Exge to Kanala Road	С	Akumalla Exchange				
3 Exge to Govt. High School 4 Exge to RG Bank D Sanjimala Exchange 1 Exge to Kanala Road	1	Exge to Owk Road	-	IV Less tha	an 430 V	
4 Exge to RG Bank D Sanjimala Exchange 1 Exge to Kanala Road	2	Exge to Post Office				
D Sanjimala Exchange 1 Exge to Kanala Road	3	Exge to Govt. High School				
1 Exge to Kanala Road	4	Exge to RG Bank				
	D	Sanjimala Exchange	1			
2 Exge to Mudigedu	1	Exge to Kanala Road	-			
	2	Exge to Mudigedu	-			

3	Exge to Govt. Primary School				
4	Exge to Pillar				
E	Perusomula Exchange				
1	Exge to Post Office	2.0	0.022	14000	309
2	Exge to Kotapadu DP		IV Less th	han 430 V	
3	Exge to Andhra Bank	1.5	0.024	14200	340
F	Banaganapalli Exchange		- I	<u> </u>	
1	Exge to P.30				
2	Exge to P.31 to P.29 to P.28 to DP.2801				
3	Exge to P.31 to P.29 to P.28 to DP.2802				
4	Exge to P.31 to P.29 to P.28 to DP.2803				
5	Exge to P.31 to P.29 to P.28 to DP.2804				
6	Exge to P.21 to DP.2101		IV Less th	han 430 V	
7	Exge to P.21 to DP.2102				
8	Exge to P.21 to DP.2103				
9	Exge to P.21 to DP.2104				
10	Exge to P.21 to DP.2105				
11	Exge to P.21 to DP.2106				
12	Exge to P.22 to DP.2201				
13	Exge to P.26				
14	Exge to P.25				
G	Palukur Exchange				
1	Exge to P.21 to DP.2101				
2	Exge to P.21 to DP.2102				
3	Exge to DP.IZ		IV Less th	han 430 V	
4	Exge to DP.IZ				
5	Exge to DP.IZ				
6	Exge to DP.IZ				
7	Exge to DP.IZ				

8	Exge to DP.IZ	
Н	Nandivaram Exchange	
1	Exge to P.21 to DP.2101	
2	Exge to P.21 to DP.2102	
3	Exge to P.21 to DP.2103	
4	Exge to P.21 to DP.2104	
5	Exge to DP.IZ01	IV Less than 430 V
6	Exge to DP.IZ02	
7	Exge to DP.IZ03	
8	Exge to DP.IZ04	

ANNEXURE-II

CEA Case No.: AND-695

Name of the Power line: 220 kV SMDC Transmission Line from 400

Map Scale : 1 cm = 500 m

Length : 76.047 km

kV Thalamanchipatnam S/s to the proposed 220 kV Bethamcherla S/in Kurnool Dist.		S.R. Value : 30000 Ohm-cm			
Telecom. Details	J		Effective Fault current in Amps.	I.V in Volts.	
entral Railway: SG.85/4/3/PTCC/SCR/2024-25/AP6l	RTD	Dated 2	2.07.2024		
Affected Blocks & Tele	ecom Circuit	s Details			
Jammalamaduga (JMDG) -S.Uppalapadu (R/S)		-Out of Pa	rallelism-		
S.Uppalapadu (SUPP) -Nossam(NOSM) (R/S)		-Out of Pa	rallelism-		
Nossam(NOSM) - Sanjamala (SJMA)	-Out of Parallelism-				
Sanjamala (SJMA) -Koilakuntla(KLKA) (R/S)	-Out of Parallelism-				
KoilaKuntla (KLKA) - Banaganapalli (BGNP)	9.5	0.0054	15650	85	
(R/S)					
Banaganapalli (BGNP) - Madduru	6.5	0.002	16100	32	
Madduru - Nandyal (NDL) (R/S)	-Out of Parallelism-				
Malkapuram(MLK) - Rangapuram (RGM) (R/S)		-Out of Pa	rallelism-		
Rangapuram (RGM) - Betamcherla (BMH) (R/S)	7.0	0.0154	23400	360	
Betamcherla (BMH) - Bugganipalli (BEY) (R/S)	2.0	0.00068	17500	12	
Bugganipalli (BEY) - Krishnammakona (KEF) (R/S)	-Out of Parallelism-				
Krishnammakona (KEF) - Panyam (PNM) (R/S)	-Out of Parallelism-				
Panyam (PNM) - Nandyal (NDL) (R/S)	-Out of Parallelism-				
Regadipalli (RLL) - Vanganur (VRN) (R/S)	-Out of Parallelism-				
Vanganur (VRN) - Challavaripalle (CLPE) (R/S)	-Out of Parallelism-				
	Telecom. Details Telecom. Details Affected Blocks & Tele Jammalamaduga (JMDG) -S.Uppalapadu (R/S) S.Uppalapadu (SUPP) -Nossam(NOSM) (R/S) Nossam(NOSM) - Sanjamala (SJMA) Sanjamala (SJMA) -Koilakuntla(KLKA) (R/S) KoilaKuntla (KLKA) - Banaganapalli (BGNP) (R/S) Banaganapalli (BGNP) - Madduru Madduru - Nandyal (NDL) (R/S) Malkapuram(MLK) - Rangapuram (RGM) (R/S) Rangapuram (RGM) - Betamcherla (BMH) (R/S) Betamcherla (BMH) - Bugganipalli (BEY) (R/S) Bugganipalli (BEY) - Krishnammakona (KEF) (R/S) Krishnammakona (KEF) - Panyam (PNM) (R/S) Panyam (PNM) - Nandyal (NDL) (R/S) Regadipalli (RLL) - Vanganur (VRN) (R/S)	Telecom. Details Telecom. Details ILength of Parallelism in Km. Entral Railway: SG.85/4/3/PTCC/SCR/2024-25/AP6RTD Affected Blocks & Telecom Circuit Jammalamaduga (JMDG) -S.Uppalapadu (R/S) S.Uppalapadu (SUPP) -Nossam(NOSM) (R/S) Nossam(NOSM) - Sanjamala (SJMA) Sanjamala (SJMA) -Koilakuntla(KLKA) (R/S) KoilaKuntla (KLKA) - Banaganapalli (BGNP) (R/S) Banaganapalli (BGNP) - Madduru 6.5 Madduru - Nandyal (NDL) (R/S) Malkapuram(MLK) - Rangapuram (RGM) (R/S) Rangapuram (RGM) - Betamcherla (BMH) (R/S) 7.0 Betamcherla (BMH) - Bugganipalli (BEY) (R/S) 2.0 Bugganipalli (BEY) - Krishnammakona (KEF) (R/S) Krishnammakona (KEF) - Panyam (PNM) (R/S) Panyam (PNM) - Nandyal (NDL) (R/S) Regadipalli (RLL) - Vanganur (VRN) (R/S)	Telecom. Details Telecom. Details Telecom. Details Length of Parallelism in Km. Mutual Coupling in Ohms. Parallelism in Km. Affected Blocks & Telecom Circuits Details Jammalamaduga (JMDG) -S.Uppalapadu (R/S) S.Uppalapadu (SUPP) -Nossam(NOSM) (R/S) S.Uppalapadu (SUPP) -Nossam(NOSM) (R/S) Nossam(NOSM) - Sanjamala (SJMA) Sanjamala (SJMA) -Koilakuntla(KLKA) (R/S) KoilaKuntla (KLKA) - Banaganapalli (BGNP) (R/S) (R/S) Banaganapalli (BGNP) - Madduru Madduru - Nandyal (NDL) (R/S) Rangapuram (RGM) - Betamcherla (BMH) (R/S) Bugganipalli (BEY) - Krishnammakona (KEF) (R/S) Krishnammakona (KEF) - Panyam (PNM) (R/S) Panyam (PNM) - Nandyal (NDL) (R/S) Regadipalli (RLL) - Vanganur (VRN) (R/S) -Out of Parallelism in Km. Mutual Coupling in Ohms. Pout of Pa -Out of Pa	Telecom. Details Length of Parallelism in Km. Length of In Coupling in Ohms. Effective Fault current in Amps.	