

I/28772/2023



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

CEA Case No. : TN-695		
Induced Voltage (IV) calculation for PTCC proposal of 765 kV D/C line proposed 765/400 kV Ariyalur S/s to 765/400 kV Tiruvalam (PGCIL) S/s (173.214 km)		
S. No	Reference No.	Dated
(i)	SE/TR-I/EE/TSM/A1/F.PTCC/D.12/21	02.07.2021
(ii)	TANTRANSCO: E-mail	03.07.2023
(iii)	BSNL: SR-PTCC/STN3425/06	28.03.2023
(iv)	Southern Railway: W.384/3/2/1216	13.07.2021
(v)	Defense: B/46937/Sigs 7(b)/2660	31.05.2022

The PTCC proposal submitted vide reference (i) and (ii) has been examined. The LF induction on communication circuits of BSNL and Southern Railway with respect to details furnished vide above references (iii) and (iv) respectively have been computed. The voltage likely to be induced on paralleling communication cables of BSNL and Southern Railway under Single Line to Ground fault condition are enclosed at Annexure-I and Annexure-II respectively. The screening factors as applicable have been considered. Vide reference (v) above, DG Signals, MoD has issued No Objection Certificate (NOC) (enclosed as Annexure-III).

EPR Zones for proposed substations are mentioned below.

Name of the proposed SS	Half Diagonal Distance, D/2 (mts)	Fault Current, I (kA)	Resistance of earthmat, R (Ohms)	d (mts) at 430 V	d (mts) at 650 V	d (mts) at 7 kV	d (mts) at 10 kV
765/400 kV Ariyalur S/s	344	30	0.099	2032	1228	NA	NA

As per the details submitted by BSNL vide reference (iii) above, no telephone exchange is falling in the EPR zone of the proposed substations.

Taking above into consideration, necessary action for issuance of PTCC route approval may be taken under intimation to this office.

Encl.: As above

Director

To,

1.	Divisional Engineer (PTCC), Southern Zone	BSNL, Inspection Circle, 1st Floor, Raj Bhavan Exchange No. 26, Sardar Patel Road, Guindy, Chennai-600032	
2.	Principal Chief Signal & Telecom Engineer	Southern Railway, Headquarters Office, S&T branch, Chennai – 600 003	
3.	Superintending Engineer, Tr-I	TANTRANSCO	Copy for information

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ANNEXURE-I

CEA Case No.: TN-695 Name of the Power line: 765 kV D/C line proposed 765/400 kV Ariyalur S/s to 765/400 kV Tiruvalam (PGCIL) S/s			Map Scale : 1 cm= 500 m Total Length : 173.214 km S.R. Value : 20000 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: SR-PTCC/STN3425/06 Date: 28.03.2023					
I	Sankarpuram Telephone Exchange				
1	EXGE P41- DP4101		Out of parallelism		
2	EXGE - P61 - DP6101		Out of parallelism		
3	EXGE - P81 - DP8101		Out of parallelism		
II	Ariyalur Telephone Exchange				
1	EXGE - INZ- DP0001		IV less than 430 V		
2	EXGE - INZ- DP0002		Out of parallelism		
3	EXGE - P21- DP2101		IV less than 430 V		
4	EXGE - P22 - DP2201		IV less than 430 V		
5	EXGE - P21 - DP2102		IV less than 430 V		
III	Manalurpet Telephone Exchange				
1	EXGE - INZ- DP0012		IV less than 430 V		
2	EXGE - INZ- DP0015		IV less than 430 V		
3	EXGE - INZ- DP0021		IV less than 430 V		
4	EXGE - INZ- DP0017		IV less than 430 V		
IV	Moongilthuraipattu Telephone Exchange				
1	EXGE - P31- DP3102		IV less than 430 V		
2	EXGE - P51 - DP5101		IV less than 430 V		
3	EXGE - P35 - DP3501		IV less than 430 V		
V	Arni Telephone Exchange				
1	EXGE - P22-DP2211		IV less than 430 V		
2	EXGE - P23-DP2316		IV less than 430 V		
3	EXGE - P26-DP2614		IV less than 430 V		
4	EXGE - P26-DP2621		IV less than 430 V		

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5	EXGE - P26-DP2623	IV less than 430 V			
6	EXGE - P44-DP4411	IV less than 430 V			
7	EXGE - P44-DP4427	IV less than 430 V			
8	EXGE - P44-DP4421	5.3	0.0075	17067	128
9	EXGE - P61-DP6130	IV less than 430 V			
10	EXGE-P53-DP5314	IV less than 430 V			
11	EXGE-P72-DP7215	IV less than 430 V			
12	EXGE-P72-DP7229	IV less than 430 V			
VI	Devikapuram Telephone Exchange				
1	EXGE- P02-DP0201	IV less than 430 V			
2	EXGE – P02-DP0202	IV less than 430 V			
3	EXGE - P03-DP0304	IV less than 430 V			
4	EXGF - P03-DP0305	IV less than 430 V			
5	EXGE - P04-DP0401	IV less than 430 V			
6	EXGE -P04-DP0402	IV less than 430 V			
7	EXGE -P05-DP0501	IV less than 430 V			
8	EXGE – P05-DP0502	IV less than 430 V			
9	EXGE -INZ- DP0009	IV less than 430 V			
VII	Mamandur Telephone Exchange				
1	EXGE -P21-DP2101	IV less than 430 V			
2	EXGE - P31-DP3101	IV less than 430 V			
VIII	Onnupuram telephone Exchange				
1	EXGE-P02-DP0201	IV less than 430 V			
IX	Kanathur Telephone Exchange				
1	EXGE - P21-DP2101	IV less than 430 V			
2	EXGE - P21-DP2102	2.6	0.02141	18029	386
3	EXGE - P22-DP2201	IV less than 430 V			
4	EXGE - P22-DP2202	IV less than 430 V			
5	EXGE -INZ- DP0003	IV less than 430 V			
X	Thatchur Telephone Exchange				
1	EXGE - P22-DP2201	IV less than 430 V			
2	EXGE - P22-DP2202	IV less than 430 V			
3	EXGE -INZ-DP0003	IV less than 430 V			
4	EXGE - P21-DP2101	IV less than 430 V			

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XI	Damarpakkam Telephone Exchange				
1	EXGE – P21-DP2105	1.621	0.0208	19712	410
XII	Polur Telephone Exchange				
1	EXGE - P33-DP0001	IV less than 430 V			
2	EXGE - P42-DP0049	IV less than 430 V			
3	EXGE – P43-DP0040	IV less than 430 V			
4	EXGE - P45-DP0027	IV less than 430 V			
5	EXGE - P45-DP0031	IV less than 430 V			
6	EXGE - P51-DP0049	IV less than 430 V			
XIII	Kelur Telephone Exchange				
1	EXGE- P21-DP0012	IV less than 430 V			
2	EXGE- P21-DP0015	IV less than 430 V			
3	EXGE- P21-DP0016	IV less than 430 V			
XIV	Vada Madimangalam Telephone Exchange				
1	EXGE - P21-DP0009	2.8	0.0368	15244	561
2	EXGE - P22-DP0001	IV less than 430 V			
3	EXGE - P23-DP0026	IV less than 430 V			
XV	Kalambur Telephone Exchange				
1	EXCE - P22-DP0066	IV less than 430 V			
2	EXGE - P23-DP0140	IV less than 430 V			
3	EXGE - F24-DP0090	3.9	0.0333	16216	540
4	EXGE - P31-DP0200	IV less than 430 V			
5	EXGE - P33-DP0070	IV less than 430 V			
6	EXGE - P33-DP0080	IV less than 430 V			
XVI	Sandavasal Telephone Exchange				
1	EXGE -P24-DP0085	IV less than 430 V			
2	EXGE - P24- DP0091	IV less than 430 V			
3	EXGE – P32-DP0063	IV less than 430 V			
4	EXGE - P32-DP0072	IV less than 430 V			
XVII	Kalasapakkam Telephone Exchange				
1	EXGE-P24-DP0080	IV less than 430 V			
2	EXGE – P25-DP0110	IV less than 430 V			
3	EXGE -P27-DP0150	IV less than 430 V			
XVIII	Karigiri Telephone Exchange				

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1	EXGE -P31-DB114	IV less than 430 V
2	EXGE -P41-DP4150	IV less than 430 V
3	EXGE -P51-DE 199	IV less than 430 V
4	EXGE -P61-DP6180	IV less than 430 V
5	EXGE -1NZ-DP0099	IV less than 430 V
XIX	Ammundi Telephone Exchange	
1	EXGE -P71-DP7130	IV less than 430 V
2	EXGE -P31-DB 120	IV less than 430 V
3	EXGE -P61-DP6199	IV less than 430 V
4	EXGE -P51-DP5140	IV less than 430 V
5	EXGE -P81-DP8120	IV less than 430 V
6	EXGE -1NZ-DP0099	IV less than 430 V
XX	Arcot Telephone Exchange	
1	EXGE -P51-DP5109	IV less than 430 V
2	EXGE -P60A-DP60A12	IV less than 430 V
3	EXGE -P62-DP6225	IV less than 430 V
4	EXGE -P63-DP6310	IV less than 430 V
5	EXGE -P63-DP6319	IV less than 430 V
XXI	Timiri Telephone Exchange	
1	EXGE -INZ- DP0002	IV less than 430 V
2	EXGE-INZ- DP0013	IV less than 430 V
3	EXGE -INZ- DP0003	IV less than 430 V
4	EXGE- P22-DP2219	IV less than 430 V
5	EXGE -INZ- DP0015	IV less than 430 V
6	EXGE- P21-DP2108	IV less than 430 V
7	EXGE - P21-DP2112	IV less than 430 V
XXII	Kavanur Telephone Exchange	
1	EXGE – P23-DP2302	IV less than 430 V
XXIII	Sakkaramallur Telephone Exchange	
1	EXGE - INZ- DP0002	IV less than 430 V
2	EXGE - INZ- DP0003	IV less than 430 V
3	EXGE - P21-DP2105	IV less than 430 V
4	EXGE - P21-DP2106	IV less than 430 V
XXIV	Walaja Telephone Exchange	

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1	EXGE - P41-DP4104	IV less than 430 V
2	EXGE - P42-0P4202	IV less than 430 V
3	EXGE - P43-OP4302	IV less than 430 V
4	EXGE - p44-DP4401	IV less than 430 V
5	EXGE - P45-DP4502	IV less than 430 V
6	EXGE - P46-DP4601	IV less than 430 V
7	EXGE - P48-DP4802	IV less than 430 V
8	EXGE - P49-DP4901	IV less than 430 V
9	EXGE - P50-DP5001	IV less than 430 V
10	EXGE - P51-DP5104	IV less than 430 V
11	EXGE - P52-DPS201	IV less than 430 V
12	EXGE - P54-DP5401	IV less than 430 V
XXV	Ranipet Telephone Exchange	
1	EXGE -INZ- DP0025	IV less than 430 V
2	EXGE -INZ- DP0026	IV less than 430 V
3	EXGE -INZ- DP0027	IV less than 430 V
4	EXGE - P31-DP3101	IV less than 430 V
5	EXGE - P23-DP2302	IV less than 430 V
6	EXGE - P22-DP2204	IV less than 430 V
7	EXGE - P26-DP2602	IV less than 430 V
8	EXGE - P24-DP2403	IV less than 430 V
9	EXGE- P27-DP2703	IV less than 430 V
10	EXGE - P37-DP3703	IV less than 430 V
11	EXGE- P38-DP3802	IV less than 430 V
12	EXGE - P61-DP6101	IV less than 430 V
13	EXGE - P62-DP6201	IV less than 430 V
14	EXGE- P71-DP7101	IV less than 430 V
15	EXGE - P71-DP7104	IV less than 430 V
16	EXGE- P80-DP8001	IV less than 430 V
XXVI	Sipcot Telephone Exchange	
1	EXGE - P29-DP2909	IV less than 430 V
2	EXGE - P45-DP4515	IV less than 430 V
3	EXGE - P43-DP4308	IV less than 430 V
4	EXGE - P34-DP3420	IV less than 430 V

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5	EXGE - INZ-DP0007	IV less than 430 V			
XXVII	BHEL Telephone Exchange				
1	EXGE -INZ- DP0016	IV less than 430 V			
2	EXGE - P23-DP2305	IV less than 430 V			
3	EXGE - P22-DP22C9	IV less than 430 V			
4	EXGE- P24-DP2410	IV less than 430 V			
5	EXGE - P24-DP2408	IV less than 430 V			
XXVIII	KR Thangal Telephone Exchange				
1	EXGE -INV DP0003	IV less than 430 V			
2	EXGE - P21-DP21003	3.7	0.06941	26826	1862
3	EXGE - P21-DP21004	3.7	0.06612	26826	1774
4	EXGE - P22-DP22003	2.2	0.05258	25865	1360
5	EXGE -NZ- DP0005	IV less than 430 V			
6	EXGE -INZ- DP0006	IV less than 430 V			
7	EXGE -IN2 DP0007	IV less than 430 V			
XXIX	Ponnai Telephone Exchange				
1	EXGE -P24-DP24001	IV less than 430 V			
2	EXGE - P24-DP24003	IV less than 430 V			
3	EXGE - P24-DP24002	IV less than 430 V			
4	EXG E - P25-DP25002	IV less than 430 V			
5	EXGE - P25-DP25003	IV less than 430 V			
6	EXGE - P26-DP26001	IV less than 430 V			
7	EXGE - P26-DP26003	IV less than 430 V			
8	EXGE- P26-DP26004	IV less than 430 V			
XXX	Melpadi Telephone Exchange				
1	EXGE -INZ- DP0001	IV less than 430 V			
2	EXGE - P21-DP21003	IV less than 430 V			
3	EXGE - P22-DP22003	IV less than 430 V			
XXXI	Kodakkal Telephone Exchange				
1	EXGE - P21-DP21002	IV less than 430 V			
2	EXGE - P23-DP23001	IV less than 430 V			
3	EXGE – P22-DP22001	IV less than 430 V			
XXXII	Velam Telephone Exchange				
1	EXGE - P21-DP21002	IV less than 430 V			

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2	EXGE - P21-DP21003	IV less than 430 V			
3	EXGE - P22-DP22001	IV less than 430 V			
4	EXGE - P22-DP22004	IV less than 430 V			
5	EXGE - P22-DP22006	IV less than 430 V			
XXXIII	Vengikkai Telephone Exchange				
1	EXGE-P26-DP2651	IV less than 430 V			
XXXIV	Tiruvannamalai Telephone Exchange				
1	EXGE-P49A-DP 49A15	IV less than 430 V			
2	EXGE-P57-DP 5734	IV less than 430 V			
3	EXGE-P69- DP 6911	IV less than 430 V			
4	EXGE-P75-DP 7535	IV less than 430 V			
XXXV	Thamarainagar Telephone Exchange				
1	EXGE-P51-DP 009	IV less than 430 V			
2	EXGE-P25-DP 007	IV less than 430 V			
XXXVI	Narthampoondi Telephone Exchange				
1	EXGE-P21-DP 2113	IV less than 430 V			
2	EXGE-P21-DP 2114	IV less than 430 V			
3	EXGE-P21-DP 2117	IV less than 430 V			
4	EXGE-P21DP 2417	IV less than 430 V			
XXXVII	Porkunam Telephone Exchange				
1	EXGE-INZ-DP 0003	Out of parallelism			
2	EXGE-INZ-DP 0009	IV less than 430 V			
3	EXGE-INZ-DP 0015	1.1	0.0113	19027	215
4	EXGE-INZ-DP 0021	2.9	0.0375	18613	698
XXXVIII	Mangalam Telephone Exchange				
1	EXGE-INZ-DP 0007	IV less than 430 V			
2	EXGE-INZ-DP 0016	IV less than 430 V			
3	EXGE-INZ-DP 0021	IV less than 430 V			
4	EXGE-INZ-DP 0022	IV less than 430 V			
5	EXGE-INZ-DP 0024	IV less than 430 V			
6	EXGE-INZ-DP 0025	IV less than 430 V			
XXXIX	Pudhumallavadi Telephone Exchange				
1	EXGE-INZ-DP 0006	1.9	0.0323	20557	664
2	EXGE-INZ-DP 0007	IV less than 430 V			

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3	EXGE-INZ-DP 0010	1.7	0.04189	20315	851
4	EXGE-INZ-DP 0015	IV less than 430 V			
5	EXGE-INZ-DP 0016	IV less than 430 V			
6	EXGE-INZ-DP 0003	IV less than 430 V			
XL	Somasipadi Telephone Exchange				
1	EXGE-INZ-DP 0006	IV less than 430 V			
2	EXGE-INZ-DP 0017	IV less than 430 V			
3	EXGE-INZ-DP 0021	IV less than 430 V			
4	EXGE-INZ-DP 0025	IV less than 430 V			
XLI	Vettavalam Telephone Exchange				
1	EXGE-INZ-DP 0026	Out of parallelism			
XLII	Kilpennathur Telephone Exchange				
1	EXGE-P21-DP 2132	Outside IV consideration zone			
2	EXGE-INZ-DP 0001	Outside IV consideration zone			
3	EXGE-P21-DP 2105	Outside IV consideration zone			
4	EXGE-INZ-DP 0014	Outside IV consideration zone			
5	EXGE-INZ-DP 0015	Outside IV consideration zone			
6	EXGE-P23-DP 2320	Outside IV consideration zone			
7	EXGE-INZ-DP 0022	Outside IV consideration zone			
XLIII	Nadalaganandhal Telephone Exchange				
1	EXGE-INZ-DP 0001	IV less than 430 V			
2	EXGE-INZ-DP 0022	1.4	0.01182	23943	283
3	EXGE-INZ-DP 0028	IV less than 430 V			
XLIV	Veraiyur Telephone Exchange				
1	EXGE-INZ-DP 0005	IV less than 430 V			
2	EXGE-INZ-DP 0012	IV less than 430 V			
3	EXGE-INZ-DP 0015	IV less than 430 V			
4	EXGE-INZ-DP 0027	2.2	0.02959	24806	734
XLV	Katampoondi Telephone Exchange				
1	EXGE-INZ-DP 0010	2.2	0.00468	25641	120
2	EXGE-INZ-DP 0031	3.2	0.04837	25429	1230
3	EXGE-INZ-DP 0018	1.7	0.03625	25324	918
4	EXGE-INZ-DP 0034	IV less than 430 V			
5	EXGE-IN2-DP 0041	IV less than 430 V			

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6	EXGE-INZ-DP 0018	IV less than 430 V
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ANNEXURE-II

CEA Case No.: TN-695		Map Scale : 1 cm= 500 m			
Name of the Power line: 765 kV D/C line proposed 765/400 kV Ariyalur S/s to 765/400 kV Tiruvalam (PGCIL) S/s		Total Length : 173.214 km			
		S.R. Value : 20000 Ohm-cm			
S.No.	Telecom. Details	Length of Parallelism in Km.	Mutual Coupling in Ohms.	Effective Fault current in Amps.	I.V in Volts.
Southern Railway: W.384/3/2/1216 Date: 13.07.2021					
1	Tandarai to Tiruvannamalai	15.9	0.031	21742	674
2	Tiruvannamalai to Turinjapuram	6.3	0.0061	20656	126
3	Turinjurapuram to AgaramSibbandi	9.3	0.0035	19429	68
4	AgaramSibbandi to Polur	13.4	0.0059	16440	97
5	Polur to Arni Road	16.5	0.0364	15302	557
6	Arni road to Kannamangalam	4.7	0.0194	16443	319
7	Thalangai to Walaja Road	4.0	0.0055	24181	133
8	Walaja Road to Mukundaryapuram	1.8	0.0002	20000	4
9	Mukundaryapuram to Tiruvalam	2.5	0.00027	29630	8

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Tele : 23019746

TN-695

Directorate General of Signals
Signals 7
General Staff Branch
Integrated HQ of MoD, (Army)
DHQ PO, New Delhi - 110011


B/46937/Sigs 7(b)/2660/

31 May 2022

Superintending Engineer/Transmission-I &
Secretary/Power, SLPTCC
TamilNadu Transmission Corporation Limited
5th Floor, TANTRANSCO Main Building,
144 Anna Salai, Chennai-600 002

**PTCC ROUTE APPROVAL OF 765KV DC LINE WITH HEXA ZEBRA ACSR
CONDUCTOR FROM THE PROPOSED ARIYALUR 765/400KV SS TO
TIRUVALAM PGCIL 765/400KV - REG.**

1. Refer your letter Lr.No. SE/TR-I/EE/TSM/A1/F.PTCC/D.13/21 dt 02 Jul 2021 (copy att).
2. No Objection Certificate (NOC) is accorded based on inputs provided as per Map sheets received vide your letter mentioned above.
3. Documents alongwith map sheets (in original) are returned herewith for your further necessary action.


(SP Choyal)
Lt Col
GSO 1 (Coord)
for SO-in-C

Enclosures : As above

Copy to :-

The Director (PTCC), CEA
Power Communication Development Division
NRPC Complex, 18-A Shaheed Jeet Singh Marg
Katwaria Sarai, New Delhi - 110016

- for information

The DET(PTCC), Northern Zone
O/o PGM (North), QA & Inspection Circle,
D-Tax Building, Eastern Court, Janpath
New Delhi-110001

D/R/Batek

US
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