



सत्यमेव जयते

भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

केन्द्रीय विद्युत प्राधिकरण

Central Electricity Authority

पावर कम्युनिकेशन डेवलपमेंट प्रभाग

Power Communication Development Division

No./CEA/PCD/PTCC/KER-324 / 254-256

Date : 28.02.2019

The Divisional Engineer Telecom (PTCC),
QA & Inspection (T&D) circle, BSNL,
1st floor, Raj Bhavan Exchange,
No.26, Sardar Patel Road,
Guindy, Chennai-600032

Subject: Induced Voltage Calculation in respect of PTCC proposal for 220 kV DC line from Brahmapuram to Thutiyoor and 220 kV UG cable from Thutiyoor to Kaloor

Reference: i) BSNL letter no. SR-PTCC/SKL-1726/12 dated 21.12.2018
ii) Southern Railway letter no. W.384/3/4/512-A dated 16.10.2018

Sir,

The instant PTCC proposal has been examined. The low frequency induction on telecom cables of BSNL and Block & Telecom circuits of Southern Railway with respect to details furnished vide above references have been computed. The Average Soil Resistivity (SR) value has been taken as 40,000 Ohm-cm, as intimated by the Power authority. The voltages likely to be induced on paralleling telecom cables of BSNL and Block & Telecom circuits of Southern Railway under Single Line to Ground fault condition are enclosed at Annex-I & II respectively. The screening factors, as applicable, have been considered. Telecommunication details from Defense are pending and the power authority has shown urgency for charging the line. In view of this, you are requested to issue provisional PTCC route approval.

Encl.: As above

M/F

(Naresh Bhandari)
Chief Engineer

Copy to:

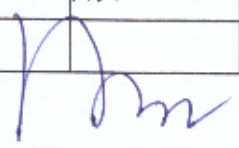
1. GM(S&T), Southern Railway, Headquarters Office, S&T Branch, Chennai – 600003 (Annex –II only)
2. Deputy Chief Engineer (Tech), KSEB, Vidyuthi Bhavanam, Pattom, Thiruvananthapuram, Kerala - 695004

Case No.SKT-1726		SSA: Ernakulam			
Name of the power line		Proposed 220/110 KV Line using narrow base Multi Circuit Multi Voltage towers from Brahmapuram to Thuthiyoor and then by 220 KV UG cable upto Kaloor.			
Length:	Brahmapuram to Thuthiyoor- 4.5 Kms and Thuthiyoor to Kaloor -7 Kms			Map Scale °	1 cm = 500 mts
Average SR value : 40,000 ohm cms		Type of BSNL telecom cable : PIJF			
Sl.No.	Name of Telecom line	LOP in KMs	MC in Ohms	FC in Amps	IV in Volts
(1)	PALARIVATTOM Exge(PVTM) UG cables				
1	Exge to Pillar 50	}			
2	Exge to Pillar 58				
3	Exge to Pillar 59				
4	Exge to Pillar 60				
5	Exge to Pillar 61				
6	Exge to Pillar 31				
7	Exge to Pillar 20				
8	Exge to Pillar 21				
9	Exge to Pillar 22				
10	Exge to Pillar 23				
11	Exge to Pillar 24				
(2)	KALOOR Exge(KLR) UG cables				
1	Exge to Punnakkal Junction(Pillar 23)	}			
2	Exge to Karukappilly Junction SIUP School Road(Pillar 21)				
3	Exge to Keerthinagar(Pillar 22)				
4	Exge to George Eden Road Entrance(Pillar 81)				
5	Exge to Asoka Road near pattupurakkal temple(Pillar 82)				
6	Exge to LFC Road VB court falt(Pillar 87)				
7	Exge to LFC Road near Mannuel Industries(Pillar 88)				
8	Exge to sastha temple Road(Pillar 89)				
9	Exge to Deshabhimani Jn(Pillar 80)				
10	Exge to Mathrubhumi(Pillar 83)				
11	Exge to Kaloor Junction(Pillar 86)				

IV LESS THAN 430 V

OUT OF PARALLELISM

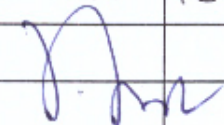
IV LESS THAN 430 V



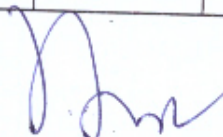
(3)	VENNALA Exge(VNN) UG cables			
1	Exge to Sreekala Road(Pillar 40)	}	IV LESS THAN 430 V	
2	Exge to POC(Pillar 41)			
3	Exge to Thaikavu(Pillar 42)			
4	Exge to Chakkaraprambu(Pillar 43)			
5	Exge to Oberon Mall(Pillar 44)			
6	Exge to Kakkanadu Road(Pillar 45)			
7	Exge to Puzhakkrapadam(Pillar 46)			
8	Exge to Vennala High School Road(Pillar 47)			
9	Exge to Kottankavu(Pillar 48)			
10	Exge to Chalikkavattom(Pillar 49)			
11	Exge to Kumbalappilly Road(Pillar 50)			
12	Exge to Medical centre(Pillar 51)			
13	Exge to Sobha Road(Pillar 52)			
(4)	SRM Rd Exge(SRM) UG cables			
1	Exge to Lisie Junction(Pillar 20)	}	OUT OF PARALLELISM	
2	Exge to St. Augustine School road(Pillar 51)			
3	Exge to Judges Avenue(Pillar 50)			
4	Exge to Mosque Lane(Pillar 21)		IV LESS THAN 430 V	
5	Exge to Karshaka Road(Pillar 25)	}	OUT OF PARALLELISM	
6	Exge to Lisie Hospital Road(Pillar 52)			
(5)	GANDHI NAGAR Exge(GNR) UG cables			
1	Exge to Opp. Lions Club(Pillar 44)	}	IV LESS THAN 430 V	
2	Exge to Central School(Pillar 43)			
3	Exge to Near RG Stadium(Pillar 42)			
4	Exge to Civil Supply Co(Pillar 45)			
5	Exge to Warehouse(Pillar 46)			
6	Exge to Gandhi nagar Jn(Pillar 48)			
7	Exge to Near PF Qtrs(Pillar 70)			
8	Exge to Kumaranasan Road(Pillar 49)			
9	Exge to Skyline(Pillar 66)			
10	Exge to KR bakers(Pillar 60)			
11	Exge to Vrindavan(Pillar 64)			
				नरेश भंडारी/NARESH BHANDARI मुख्य अभियंता/Chief Engineer केन्द्रीय विद्युत प्राधिकरण/C.E.A. मंत्रालय/Ministry of Power भारत सरकार/Govt. of India नई दिल्ली/New Delhi-66

(6)	PANAMPILLY NAGAR Exge(PNR) UG cables			
1	Exge to IOC Quarter (Pillar 23)	}	IV LESS THAN 430 V	
2	Exge to Income tax Qtrs(Pillar 30)			
3	Exge to Karshaka Road(Pillar 38)			
4	Exge to DD Vyabhar Bhavan(Pillar 61)			
5	Exge to Near Varsha(Pillar 63)			
6	Exge to Easland enclave(Pillar 65)			
7	Exge to Pillar 64			
(7)	VYTTILA Exge(VYL) UG cables			
1	Exge to Kachappally Road ST(Pillar 41)	}	IV LESS THAN 430 V	
2	Exge to Petta Junction(Pillar 61)			
3	Exge to Gandhi Square(Pillar 62)			
4	Exge to Thamaraserry Rd ST(Pillar 69)			
5	Exge to Thykoodam Bus stop(Pillar 83)			
6	Exge to Kaniampuzha Start(Pillar 85)			
7	Exge to Ponnurunni Temple(Pillar 86)			
8	Exge to kunjanbhava RD ST(Pillar 89)			
9	Exge to NAIR Hospital(Pillar 90)			
10	Exge to Kannadikkadu NH(Pillar 91)			
(8)	TRIPUNITHURA Exge(TRPA) UG cables			
1	Exge to SN Junction(Pillar 31)	}	IV LESS THAN 430 V	
2	Exge to SN Junction to towards Petta(Pillar 32)			
3	Exge to VKM Hospital(Pillar 34)			
4	Exge to Puthiya RD Junction. Eroor(Pillar 51)			
5	Exge to Labour Junction(Pillar 53)			
6	Exge to Jyothi Gas(Eroor) Godown (Pillar 54)			
7	Exge to Pulse Nagar Eroor(Pillar 56)			
8	Exge to Vilaku Junction Irumpanam(Pillar 41)			
9	Exge to Irumpanam Seaport airport RD Junction(Pillar 43)			
10	Exge to Irumpanam Railway Bridge(Pillar 44)			
				<p>नरेश भंडारी/NARESH BHANDARI मुख्य अभियंता/Chief Engineer कनिष्ठ विद्युत प्राधिकरण/C.E.A. विद्युत मंत्रालय/Ministry of Power भारत सरकार/Govt. of India नई दिल्ली/New Delhi-66</p>

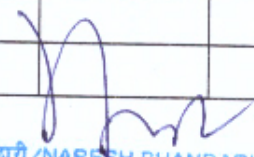
(9)	THIRUVANKULAM Exge(TVK) UG cables					
1	Exge to Pillar 20	}	OUT OF PARALLELISM			
2	Exge to Pillar 41					
3	Exge to Pillar 30					
4	Exge to Pillar 26	}	IV LESS THAN 430V			
5	Exge to Pillar 32					
6	Exge to Pillar 21	}	OUT OF PARALLELISM			
7	Exge to Pillar 22					
8	Exge to Pillar 24					
9	Exge to Pillar 86		IV LESS THAN 430V			
(10)	AMBALAMUGAL Exge(AMBL) UG cables					
1	Exge to Pillar 25	}	IV LESS THAN 430V			
2	Exge to Pillar 26					
3	Exge to Pillar 20	}	OUT OF PARALLELISM			
4	Exge to Pillar 22					
5	Exge to Pillar 21					
6	Exge to Pillar 23					
7	Exge to Pillar 27					
8	Exge to Pillar 30					
9	Exge to Pillar 33					
10	Exge to Pillar 31				IV LESS THAN 430V	
(11)	THRIKKAKARA Exge(TKR) UG cables					
1	Exge to IMG JN(Pillar 22)	}	IV LESS THAN 430V			
2	Exge to Mavelipuram(Pillar 23)					
3	Exge to Navodaya Jn(Pillar 24)					
4	Exge to Nilampathinji Jn(Pillar 25)					
5	Exge to Infopark Jn(Pillar 26)					
6	Exge to VSNL Road Jn(Pillar 27)					
7	Exge to Olimugal Jn(Pillar 28)					
8	Exge to CSEZ office(Pillar 31)					
9	Exge to Eachamukku Jn(Pillar 32) to DP 3236					
10	Exge to Adarsa School jn(Pillar 34)					
11	Exge to Adarsa Nagar(Pillar 35) to DP3518					


 नरेश भंडारी / NARESH BHANDARI
 मुख्य अभियंता / Chief Engineer
 विद्युत विभाग, नई दिल्ली / C.E.A.
 विद्युत मंत्रालय / Ministry of Power
 भारत सरकार / Govt. of India
 नई दिल्ली / New Delhi-66

12	Exge to Subjail Jn(Pillar 36)				
13	Exge to Satelite Township(Pillar 42) to DP4252				
14	Exge to Vazhakkala-North(Pillar 43)				
15	Exge to Chembumukku South(Pillar 44) to DP4422				
16	Exge to Padamugal North(Pillar 45)				
17	Exge to Padamugal South(Pillar 46)				
18	Exge to Vazhakkala South(Pillar 47) to DP 4739	}	IV LESS THAN 430 V		
19	Exge to Chembumukku North(Pillar 48)				
20	Exge to Indira Jn(Pillar 49)				
21	Exge to NGO Qtrs(Pillar 51)				
22	Exge to Kennedymukku(Pillar 52)				
23	Exge to Bharat matha College(Pillar 54)				
24	Exge to Bombay Stores(Pillar 55)				
(12)	KANGARAPPADY Exge(KGP) UG cables				
1	Exge to Holy cross Junction (Pillar 22)		}		
2	Exge to Medical College(Pillar 25)				
3	Exge to Kangarappady Exge(Pillar 58)				
4	Exge to Ration Shop,Kangarappady(Pillar 23)				
5	Exge to Vayanacode Junction(Pillar 24)	OUT OF PARALLELISM			
6	Exge to Thevakkal(Pillar 69)				
7	Exge to Kuzhivelippady(Pillar 68)				
8	Exge to Panchayath Road(Pillar 67)				
9	Exge to Maliekkalppady(Pillar 66)				
(13)	KINFRA Exge(KFR).				
1	Exge to Inner Zone DP(DP IZ1)	}			
2	Exge to Inner Zone DP(DP IZ2)		IV LESS THAN 430 V		
3	Exge to Inner Zone DP(DP IZ3)				
(14)	CSEZ Exge(CSZ)				
1	Exge to Pillar 31 to DP 3114		IV LESS THAN 430 V		


 नरेश भंडारी/NARESH BHANDARI
 मुख्य अभियंता/Chief Engineer
 मन्दीय विद्युत प्राधिकरण/C.E.A.
 विद्युत मंत्रालय/Ministry of Power
 भारत सरकार/Govt. of India
 नई दिल्ली/New Delhi-66

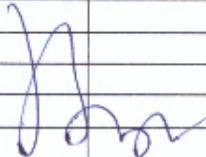
(15)	CUSAT Exge(CUSAT) UG cables				
1	Exge to Near Thrikkakkara Temple(Pillar 32)	}	IV LESS THAN 430 V		
2	Exge to Model Engineering College(Pillar 53)				
3	Exge to CUSAT Campus, Near CSC CUSAT (Pillar 66)				
4	Exge to CUSAT Administrative Office(Pillar 30)				
5	Exge to Pipeline(Pillar 39)				
6	Exge to Unichira(Pillar 65)				
7	Exge to Paruthelipalam(Pillar 38)				
8	Exge to Marottichodu(Pillar 68)				
(16)	KALAMASSERY Exge(KMSR) UG cables				
1	Exge to Changampuzhanagar(Pillar 63)	}	OUT OF PARALLELISM		
2	Exge to KIMS(Pillar 84)				
3	Exge to Milma(Pillar 81)				
4	Exge to Methar Nagar(Pillar 62)				
5	Exge to HMT Jn(Pillar 21)	}	IV LESS THAN 430 V		
6	Exge to KSEB(Pillar 24)				
7	Exge to Carborandum Jn(Pillar 22)				
8	Exge to Kalamassery Pump(Pillar 25)	}	OUT OF PARALLELISM		
9	Exge to Manjummel Church(Pillar 45)				
10	Exge to TCC Colony(Pillar 41)				
11	Exge to Pillar 66				
(17)	Edappally Exge(EDP) UG cables				
1	Exge to Metal Box Road(Pillar 66)	}	IV LESS THAN 430 V		
2	Exge to Amritha(Nr SBI)(Pillar 67)				
3	Exge to Nr Amritha Hospital(Pillar 76)				
4	Exge to Nr Al ameen School(Pillar 75)				


 नरेश भंडारी/NARESH BHANDARI
 मुख्य अभियंता/Chief Engineer
 केन्द्रीय विद्युत प्राधिकरण/C.E.A.
 विद्युत मंत्रालय/Ministry of Power
 भारत सरकार/Govt. of India
 नई दिल्ली/New Delhi-66

ANNEXURE – II

Case No.: KER-324 Name of the Power line: 220 kV DC line from Brahmapuram to Thutiyoor and 220 kV UG cable from Thutiyoor to Kaloor	Map Scale : 1cm=500mts Total Length : 11.5 Km Avg. Soil Resistivity : 40000 ohm-cm			
Telecom. Details	Length of Parallelism in Km.	Mutual Coupling in Ohms.	Effective Fault current in Amps.	I.V in Volts.

Southern Railway letter no. W.384/3/4/512-A dated 16.10.2018				
1	Kochi Harbour (CHTS) - Matancheri (MNTC)	OUT OF PARALLELISM		0
2	Matancheri (MNTC) – Irumbanam (IPN)	6.25	0.0052	8000
3	Irumbanam (IPN) – Tirupanitura (TRTR)	OUT OF PARALLELISM		0
4	Tirupanitura (TRTR) – Mulanturuthi (MNTT)	0.5	0.0004	9000



नरेश भंडारी / NARESH BHANDARI
 मुख्य अभियंता / Chief Engineer
 केन्द्रीय विद्युत प्राधिकरण / C.E.A.
 विद्युत मंत्रालय / Ministry of Power
 भारत सरकार / Govt. of India
 नई दिल्ली / New Delhi-66