



भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

केन्द्रीय विद्युत प्राधिकरण

Central Electricity Authority

पावर कम्युनिकेशन डवलपमेंट प्रभाग

Power Communication Development Division

No./CEA/PCD/PTCC/KER-323) 580 - 81

Date : 20.05.2019

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 Multicircuit line
Kattakada – Balarampuram - Vizhinjam**

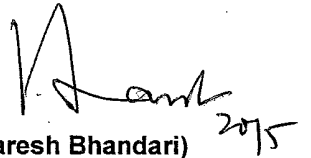
Reference: BSNL letter no. SR-PTCC/KRL/577/13 dated 15.09.2016

Sir,

The instant PTCC proposal has been examined. The low frequency induction on telecom cables of BSNL with respect to details furnished vide above reference has been computed. The Soil Resistivity (SR) value has been taken as 7,500 Ohm-cm and 35,000 Ohm-cm. The voltages likely to be induced on paralleling telecom cables of BSNL under Single Line to Ground fault condition are enclosed at Annex-I. The screening factors, as applicable, have been considered. Southern Railway has already accorded NOC based on the IV calculation done by KSEB (copy enclosed at Annex-II). It is to inform that as per PTCC Manual 2010, for power lines of 220 kV and above voltage level, IV calculation should be done by CEA. In this case, IV calculation done by KSEB has been verified by CEA and found in order. Accordingly, IV calculation done by KSEB on Railway circuits may be considered final as an exceptional case. Since the PTCC proposal was submitted before the inclusion of Defence into PTCC forum, NOC from Defence may be waived off.

Taking above into consideration, kindly take necessary action for PTCC Route Approval.

Encl.: As above


(Naresh Bhandari) 20/5
Chief Engineer

Copy to:

Deputy Chief Engineer (Tech), KSEB, Vidyuthi Bhavanam, Pattom, Thiruvananthapuram,
Kerala – 695004

- It is advised to refrain from computation of Induced Voltage for power lines above and including 220 kV voltage level in future.


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CEA Case No.: KER-323

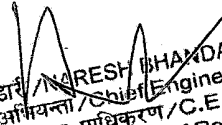
Case No. KRL- 577		SSA : Trivandrum			
Name of PWR line: PTCC clearance of 220 KV MC line from 220 KV SS at Kattakada to 66 KV SS at Vizhinjam being bussed at Balaramapuram 110 KV SS					
Length: 22 KM		Map Scale: 1 cm = 500 mts			
SR value: 7500 & 35000		Ohm cms			
No	Name of telecom line	LOP in KMs	MC in Ohms	FC in Amps	IV in Volts
(A)	VIZHINJAM Exge UG cables (PIJF)				
1	Exge to Old Exchange- Pillar 21	}			IV LESS THAN 430 V
2	Exge to Theatre Nada -Pillar 26				
3	Exge to Venganoor PO-Pillar 70				
4	Exge to Kalluvettan Kuzhi-Pillar 71				
5	Exge to Venganoor Jn -Pillar 72				
6	Exge to Pream Raj Pillar 73				
7	Exge to Nellivala temple Pillar 74				
8	Exge to Chavadinada-Pillar 75				
9	Exge to Pullanimukku-Pillar 76				
10	Exge to Chavadinad New-Pillar 79	2.3	0.0681	7900	538
11	Exge to Vizhinjam - Pillar 81	}			IV LESS THAN 430 V
12	Exge to Vizhinjam School -Pillar 82				
13	Exge to Vizhinjam Bridge -Pillar 83				
14	Exge to Kottapuram -Pillar 84				
15	Exge to Mukkoal-Pillar 85				
16	Exge to Thennoorkonam Pillar 87				
17	Exge to Vizhinjam New -Pillar 89				
18	Exge to Mullumukku-Pillar 91				
19	Exge to Kidarakuzhi Pillar 92				
(B)	BALARAMAPURAM Exge UG (PIJF)				
1	Exge to Mudavoorpara Old Pillar 61	}			IV LESS THAN 430 V
2	Exge to Mudavoorpara new Pillar 62				
3	Exge to Thannivila -Pillar 80				
4	Exge to Thannivila Railway tunnel Pillar 82				
5	Exge to Mukkampalamoodu-Pillar 83				
6	Exge to Eruthavoor-pillar 37				
7	Exge to Exchange -Pillar 28				
(C)	Kattakada Exchange UG cables				
1	Exge to junction-pillar 40	}			IV LESS THAN 430 V
2	Exge to Bus stand-pillar 63				
3	Exge to Veena-pillar 41				
4	Exge to Petrol pump-pillar 64				
5	Exge to Killy-pillar 66				

श्री / NARAYAN BHANDARI
 अभियन्ता / Chief Engineer
 विद्युत प्राधिकरण / C.E.A.
 मंत्रालय / Ministry of Power
 सरकार / Govt. of India
 दिल्ली / New Delhi-66

6	Exge to Kollode-pillar 68	}	IV	LESS THAN	430 V		
7	Exge to PNM-pillar 65						
8	Exge to Meechira-pillar 67	}	1.5	0.0582	9000	524	
9	Exge to Market-pillar 24						
10	Exge to Mini nagar-pillar 25						
11	Exge to Chamavila-pillar 27						
12	Exge to Muslimpalli-pillar 21						
13	Exge to Kattakode-pillar 22		}	IV	LESS THAN	430 V	
14	Exge to Chathiyode-pillar 26						
15	Exge to Villidumpara-pillar 28						
16	Exge to Kanchiyorkonam-pillar 61						
17	Exge to thoongampara-pillar 73						
18	Exge to Karingal-pillar 74						
19	Exge to Kottampally-pillar 75						
20	Exge to Ambalathinkala-pillar 76	}	2.4	0.0725	8800	638	
21	Exge to College-pillar 42						
22	Exge to Choondupalaka-pillar 43						
23	Exge to Mangalackal-pillar 54						
24	Exge to Charupara-pillar 52						
25	Exge to Plavoor-pillar 55						
26	Exge to Kollakonam-pillar 56		}	IV	LESS THAN	430 V	
27	Exge to Amachal-pillar 57						
28	Exge to Thalakonam-pillar 58						
29	Exge to Muthiyavila-pillar 45						
30	Exge to Mylottumoozhy-pillar 46						
31	Exge to Pattakulam-pillar 48	}	1.6	0.0668	9000	601	
32	Exge to Aravankonam-pillar 59		2.4	0.0662	8800	583	
33	Exge to Onamcode-pillar 47		1.6	0.0668	9000	601	
34	Exge to Anchuthenginmoodu-pillar 71	}	IV	LESS THAN	430 V		
35	Exge to Perumkulum -pillar 72						
(D)	POONGUMOODU EXGE ug cables(PIJF)						
1	Exge to Kandela New -pillar 24	}	IV	LESS THAN	430 V		
2	Exge to Kandela old -pillar 21						
3	Exge to Karumaloor old -pillar 22						


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

4	Exge to Arumaloor New -pillar 23				
5	Exge to Cheenivila -pillar 51				
6	Exge to poongummoodu -pillar 52				
7	Exge to navodaya -pillar 34				
8	Exge to Punnavor -pillar 31				
9	Exge to Melariyodu -pillar 32				
10	Exge to Veliyankodu -pillar 33	}	IV LESS THAN 430 V		
11	Exge to Moolakonam -pillar 53				
12	Exge to Koovalasery -pillar 41				
13	Exge to Palakunnu -pillar 42				
14	Exge to Manndikonam -pillar 43				
15	Exge to Popular -pillar 54				
16	Exge to Ooruttambalam -pillar 55				
17	Exge to Velikodu -pillar 56				
18	Exge to Govindamangalam -pillar 61				
19	Exge to Permana -pillar 62				
(E)	KALLIKADU EXGE ug cables(PIJF cable)				
1	Exge to Veeranakavu -pillar 54	}	IV LESS THAN 430 V		
2	Exge to Kallamam -pillar 55				
3	Exge to Aruvikuzhi -pillar 58				
4	Exge to Paruthipally -pillar 52				
5	Exge to Old Exchnage -pillar 57				
6	Exge to Thazhivilakam -pillar 59				
7	Exge to Mylakkara -pillar 21				
8	Exge to Moozhy -pillar 26				
9	Exge to Federal Bank -pillar 51				


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

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Annex - II

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KERALA STATE ELECTRICITY BOARD LIMITED

Deputy Chief Engineer (Tech) & Member (Power) PTCC Vydyuthi Bhavanam, Pattom Thiruvananthapuram-695 004		Telephone: +91-471-2446471 Fax: +91-471-2514460 Email: cets@ksebnet.com
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No. T2(J)/PTCC/371/KTDA-BLPM-VJM/710

Dated: - 04-02-2014

To

The General Manager,
Southern Railways,
S & T Branch, Headquarters Office,
Chennai-600003.

Sir,

Sub: -220kV MC line Kattakada-Balaramapuram-Vizhinjam -PTCC
proposal-regarding.

Ref: -That office letter No.W.384/3/4/451 dated 13-06-2013.

The induced voltage details of the railway sections by the subject line is
enclosed herewith. Railway clearance may please be issued at the earliest.

Yours faithfully,

Deputy Chief Engineer (Tech) &
Member (Power) PTCC

Acc: IV details

Copy to: 1) The Divisional Engineer Telecom, PTCC, Southern Region,
Inspection Circle, First floor, Raj Bhavan Telephone Exchange,
26, Sardar Patel Road, Guindy, Chennai-32.

2) The Sub Divisional Engineer PTCC, Inspection Circle, BSNL, First
floor, Microwave Station, Pongumoodu, Trivandrum.

D. T. D

(2/3)

Annex-II

SR 2 356002cm.

Name of the Circuits	Over head or UG cable or OFC	Belongs to	Mutual coupling in Ohms	Effective fault current in Amps.	Length of Parallelism	Safety separation in yards.	I.V in Volts
<u>VOICE FREQUENCY CIRCUITS</u> <u>SECTION CONTROL WITH METALLIC RETURN.</u> Trivandram - Quilon - Kanniyakumari & Nagarcoil Tirunelveli section. Starting station is Quilon & controlling station is Trivandram and terminal station are Kanniyakumari & Tirunelveli. Sub section Thiruvananthapuram central - Neyyattinkara	OFC OFC	Rlys					
<u>I. Magneto Circuits with metallic return.</u> <u>Thiruvananthapuram Central to LC at km No. 217/300-400</u> i) <u>Nemam to LC at km No. 223/900-224/000,</u> ii) <u>Balaramapuram to LC at km No. 233/100-200</u> iv) <u>Neyyattinkara to LC at km No. 238/700-800, 240/400-500, 242/100-200</u>	Quad cable	Rlys	NO NO NO NO	PARALLELISM PARALLELISM PARALLELISM PARALLELISM.			
<u>III. BLOCK CIRCUIT WITH THE METALLIC RETURN.</u> Thiruvananthapuram central - Nemam - Balaramapuram - Neyyattinkara. (FM type block instrument are in use).	Quad cable	Rlys	0.0134537	8KA	4.064		107.6296V.
<u>IV. other circuits:-</u> (i) Block - spare (ii) Disaster Management Circuits (iii) Emergency Communication circuits	Quad cable	Rlys					

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(3/3) Annex-II

SOUTHERN RAILWAY

Headquarters Office,
S&T Branch,
Chennai-600 003

Dated:15-04-2014

W.384/3/4/451

The Divisional Engineer-Telecom(PTCC),
1st Floor, Raj Bhavan Telephone Exchange,
26, Sardar Patel Road,
Guindy, Chennai 600 032

SUB:- 220KV MC line Kattakada – Balarampuram – Vizhinjam - PTCC
proposal - regarding.

REF: - KSEB letter No.T2(J)/PTCC /371/KTDA-BLPM-VJM/710 Dt.04-02-14.

In connection with the above proposal, it is observed that the details of induced voltage received from Dy.Chief Engineer, (Technical), Kerala Electricity Board, Trivandrum, vide letter under reference is within the safe permissible limits and hence this Railway has **no objection in giving clearance for energizing the proposed power line.**

M.K. (4/17)
(M.Kumar)

SSTE/ Tele./HQ/MAS
For General Manager/S&T.

- Copy to:-
1. DY.Chief Engineer (Tech.) & Member Power,
PTCC, Kerala State Electricity Board,
Vydyuthi Bhavanam, Pattam Palace P.O.,
Trivandrum- 695 004.
 2. The Divisional Engineer/Telecom
PTCC, Southern Regeion, Inspection Circle,
No. 26, Sardar Patel Road, Guindy, Chennai - 32