

**Northeast Frontier Railway**

**Signal & Telecommunication Department**

**Technical Circular No. 03/2016**

**Sub: Provision of SPD at input port of OFC Channel card etc.**

Cases of damage of ports of OFC Channel card etc. are reported due to lightning at Katihar division. Similar problems had been observed by other railways also. It is therefore necessary to provide SPDs and high pass filters (in RE Section) on the used ports of OFC Channel card etc.

Specifications for SPD are attached herewith as Annexure – 'A'.

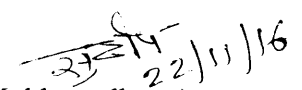
A high pass filter is also required to be provided. Specification for the filter unit is also attached herewith as Annexure-'B'.

Both these devices should be provided as per the connection scheme shown in Annexure-'C'.

These SPDs and filter units should be procured and provided along with installation of SSDAC with OFC, as well as at those installations where SSDACs are already working on OFC. However, the provisions mentioned in this technical circular does not supersede any provision in this regard given in Signal Engineering Manual or Telecommunication manual.

This has approval of CSTE.

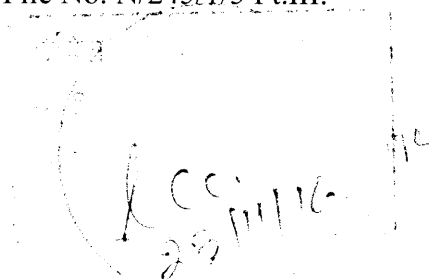
DA: As above.

  
 (Sudip Mukhopadhyay)  
 Chief Signal Engineer  
 For GM/S&T/MLG

**No.N/229/2/ 574**

**Dates: 22.11.2016**

1. CSTE/PLG., CSE, CCE, CSTE/CON-I&II.
2. DRM/KIR, APDJ, RNY, LMG, TSK.
3. Sr.DSTE/KIR, APDJ, RNY, MLG, LMG, TSK : To circulate to all S&T officers & supervisors.
4. All S&T Officers at HQ.
5. Principal, STTC/PNO.
6. Technical Circular File No. N/245/1/5 Pt.III.



**Annexure – ‘A’**  
**(N.F. Railway Technical Circular No. : 03/2016)**

Specifications of 5V SPD (SPD/5V)		
Sl.No	Items	Required value
1	Nominal Voltage	5 V (DC or AC)
2	Rated Voltage (Maximum Continuous Over Voltage)	$\geq 4.0V$ (DC or AC)
3	Nominal Current	$\geq 250ma$
4	Lightning Impulse Current (10/350) per line	$\geq 2.5KA$
5	Nominal discharge current (8/20) per line	$\geq 10KA$
6	Voltage protect level (core-core)	$\leq 50V$
7	Response Time	$\leq 1 ns$
8	Cut off frequency/Bandwidth	$\geq 1 MHz$
9	Input attenuation	$\leq 0.5db$ ( at $\leq 250KHz$ )
10	Operating temperature range	$-10^{\circ} C \dots \dots \dots 80^{\circ} C$
11	Mounting on	35mm DIN -rail

- Note: 1. Make Standard International product like – Phoenix, OBO, DEHN, ERICO, Transtector, Furse, Emerson etc.
2. UL certificate/ KEMA certificate of the product should be submitted along with the technical data sheet with the offer.
3. The model no. of the product offered which is complying these specifications should be mentioned and the catalogue of these should also be submitted.

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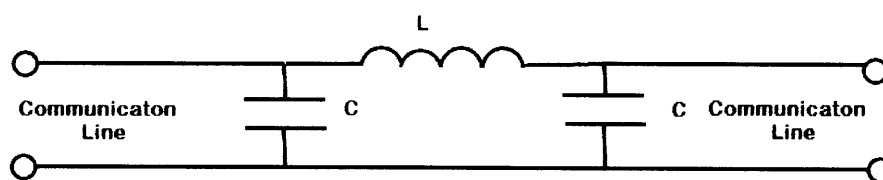


**Annexure- 'B'**

**(N.F. Railway Technical Circular No. : 03/2016)**

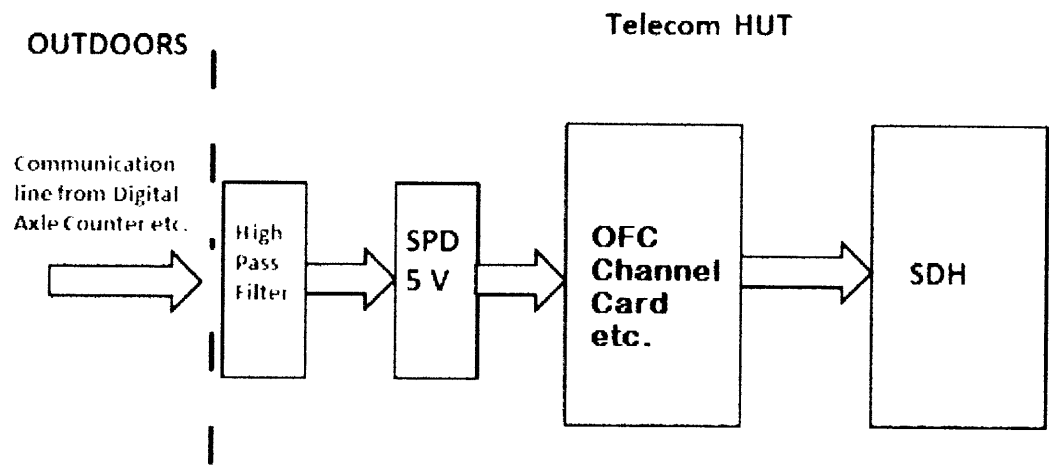
**Specification for High Pass filter:**

- 1) It should be a high pass filter to block 50Hz AC. Cut off frequency should be approximately between 100 Hz to 200 Hz.
- 2) Filter should be constructed in II configuration as shown below:-



- 3) It should be able to carry a rated current of up to 500mA.
- 4) The inductor should be constructed on ferrite core with high conductivity annealed copper conductor of 25 SWG with approx 200 turns.
- 5) Capacitors should be 0.22/K/400, polyesters capacitors of reputed make.
- 6) Input and output terminals should be physically separated. Cage clamp type (Wago) terminals mounted outside the body of the box and should be easily accessible.
- 7) Circuit should be made on glass epoxy pcb of 1.5 mm or more thickness. Green laquer and RTV silicon coating to be done.
- 8) It should be enclosed in a powder coated MS box suitable for floor/wall mounting and supplied with necessary screws etc for mounting.
- 9) A sample should be submitted for approval before bulk supply.
- 10) The diagram shown in (2) above should be printed on the cover.

**Annexure-'C'**  
**(N.F. Railway Technical Circular No.03/2016)**



Connections Scheme for SPD and High pass filter

