INSTALLTION PROCEDURE

FOR

RFID TAG UNITS

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DOCUMENT DATA SHEET

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Abstract

This document details Assembly Instruction of RFID TAG for Train Collision Avoidance System (TCAS)

DOCUMENT CONTROL SHEET

Internal

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CHANGE HISTORY

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1 PURPOSE:

The purpose of this document is to give comprehensive guidelines and set of procedures to be adopted for installation of RFID TAG Assemblies.

2 SCOPE:

The installation procedures are prepared to cover all the activities involved in installation of RFID TAG assemblies.

3 RESPONSIBILITY AND AUTHORITY:

I&C in-charge shall be responsible for implementation and maintain the installation procedures

4 TOOLS & EQUIPMENT REQUIRED:

- Screw drivers tool kit – 1 No.
- Spanners tool kit - 1 No.
- Torque Wrench-1(All sizes3,4,6 mm suitable)
- Anchor mat 250X250X8mm (Make - Ploymax) - As required.

5 DOCUMENTS REQUIRED:

RFID TAG units mechanical bracket Drawings

a) 1000031447_RFID_TAG_SLEEPER_BRACKET_516670119, (For 90Kg Rails -168(W1) X 195(W2) X 210(H))
b) 1000081003_RFID_TAG_SLPR_180X250X185_BRKT_516670490 (For 52Kg & 60 Kg Rails)
c) 1000031448_RFID_TAG_POINT_BRACKET_516670106 (For Point-244(W1) X 244(W2) X 210(H))
d) 1000070471_RFID_TAG_ASSY_FIXING_ARANGEMENT_CC_APRON_516670456 (For CC Apron -108(W1)X410(W2)X Depends on Concrete level (H))

6 RFID TAG units:

a) Factory will ship the RFID tags as per the approve station layout and the corresponding RFID brackets to fix these RFID tags on respective sleepers.

b) Each RFID tag will be engraved with details of tag number, type of the sleeper and its absolute location on bottom side of the enclosure.

c) Check the tag details which are marked on bottom side of the RFID tag enclosure before fixit on respective sleepers.

Fig.1 – RFID Tag Top view

Fig.2 – RFID Tag Bottom view

Details of RFID Tag, engraved on bottom of the enclosure.

1. RFID N0
2. Type
3. ABS Location

7 Sleepers and Rail types

7.1 Types of Sleepers

i. Normal Sleepers

Norma sleepers being used in all sections, except at point crossovers. These sleepers are with different dimensions based on the type of rail.

ii. Point Sleepers

Point sleepers being used at Point crossovers only

iii. CC Apron Sleepers

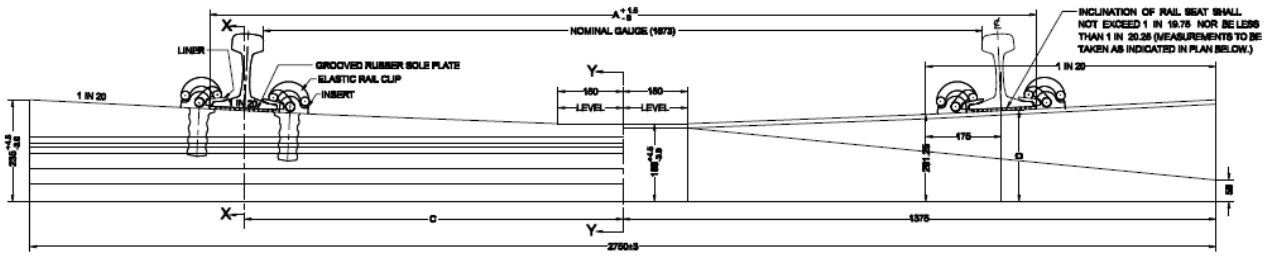
CC Apron sleepers being used at station berthing track circuits only.

7.2 Types rails

i. Mono Block 52 Kgs(Drwg:RDSO /T-2495 PDS12)-BG
ii. Mono Block 60 Kgs(Drwg:RDSO /T-2496 PDS14)-BG
iii. Mono Block 52/60 Kgs(Drwg:RDSO /T-3602 Post Tension Type)-BG
iv. Mono Block 90/75 Kgs(Drwg:RDSO /T-2521 RCS6)-BG
v. Mono Block 90R Kgs(Drwg:RDSO /T-2503 PCS17)-BG
vi. Twin Block 75R Kgs(Drwg:RDSO /T-153 PCS11)-BG
vii. Twin Block 60R/75R Kgs(Drwg:RDSO /T-3518 PCS12)-MG

In Indian railways 4 types of rails been widely used namely (52Kg, 60Kg, 75Kg and 90Kg) and these are fixed on the PSC (Pre stressed Concrete) sleepers.

As per RDSO drawings (RDSO/T-2495(52Kg) & 2496(60Kg) Dated:01.04.2021) dimensions of the sleeper is 150mm(W1) X 220(W2) X 180(H)



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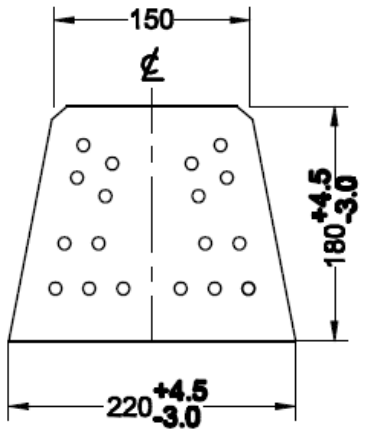


SECTION ON YY

7.3 Dimensions of the Sleepers.

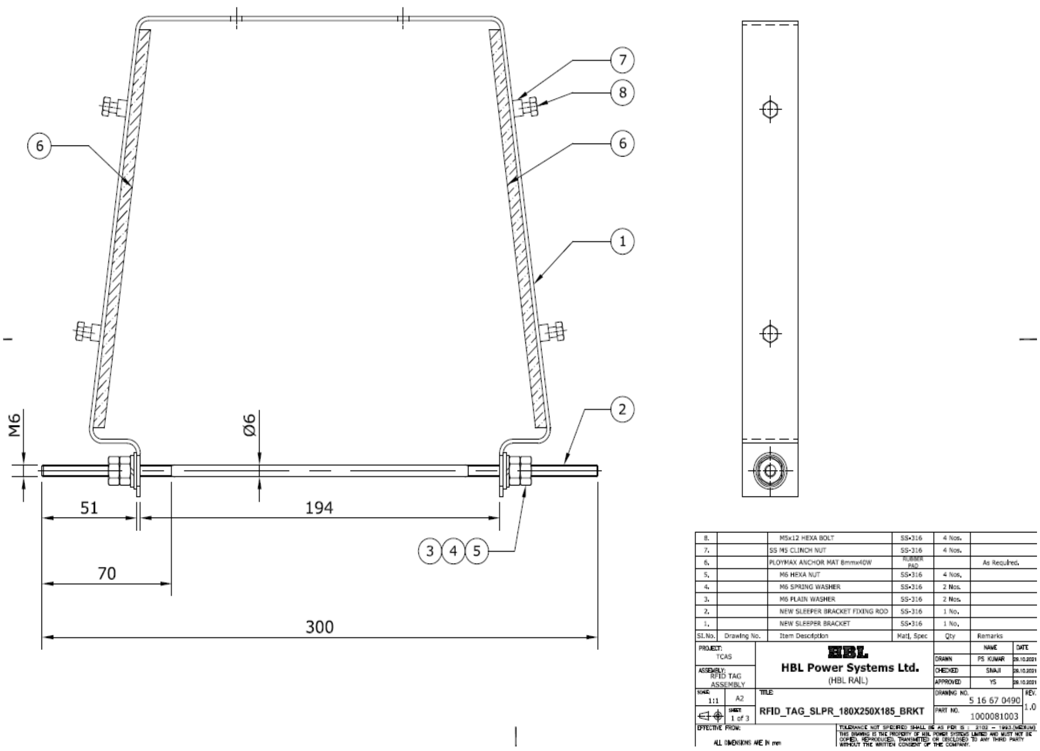
#	Type of sleepers	Rail type	RDSO Approved Dimensions (mm)			Actual Field Dimensions (mm)			HBL Clamp Dimensions (mm)			Remarks
			W1	W2	H	W1	W2	H	W1	W2	H	
1	Normal	52 & 60Kg	150	220	180	185	235	205	185	235	205	
3	Normal	90Kg	NA	NA	NA	160	195	185	168	195	200	
4	Point		NA	NA	NA	NA	NA	NA	244	244	210	

1. Observed the sleeper dimensions in the field are different to RDSO approved dimensions.
2. Engineering team prepared the fixing clamps as per field inputs provided by I&C team.

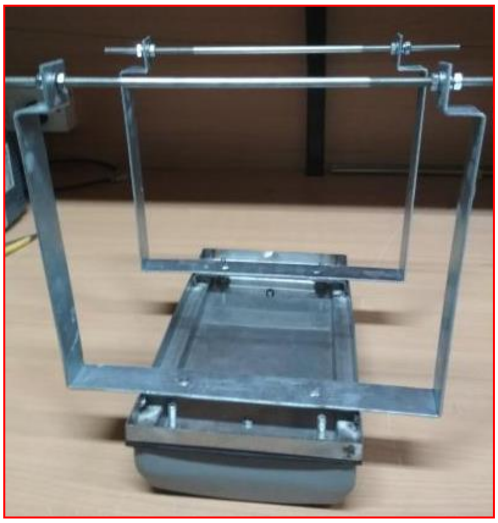
8 RFID Tag units Installation

8.1 Tag Installation on Normal Sleeper (52, 60 & 90 Kg Rails)

a. There are two types brackets for installing the RFID tag units on normal sleepers. Use RFID Tag bracket (DWG # 516670119) for 90 kg rail and RFID Tag bracket (DWG # 516670490) for 52 & 60Kg rails. Except dimensions both brackets are in similar profiles.



b. Use SS type fasteners in fixing the brackets to RFID Tag units, (NUT(Hex) (M6)-12No's, Washer plain (M6)-12No's, Washer spring (M6) 8No's,



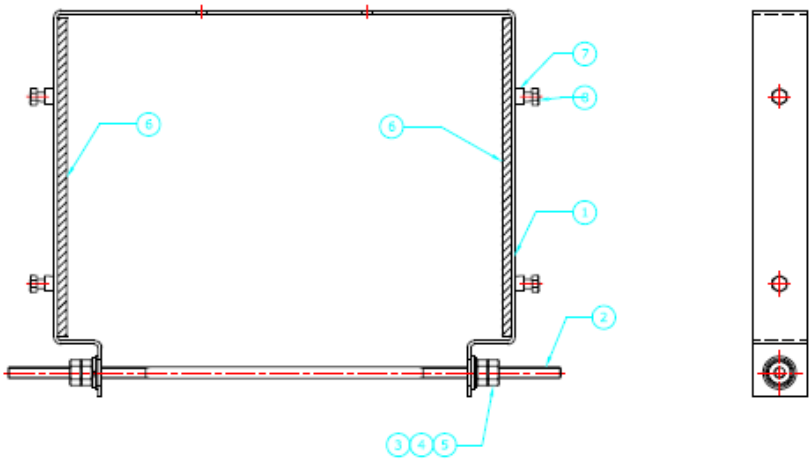
The RFID tag assembly bracket is designed w.r.t the dimensions of normal sleeper. However, while installation RFID tag assembly on normal sleeper, we can observe the gap between tag assembly bracket and the sleeper is due to the inconsistency in maintain the dimensions of normal sleepers in manufacturing by various suppliers.

Due to these gaps between tag assembly bracket and the sleeper, the units tend to vibrate while passing the train which will lead to breakage of tag assembly bracket. In order to avoid / sustain these vibrations, insert anti vibration rubber pad (Polymax Anchor Mat – 8mm thick and 40mm width) in the gaps between tag assembly bracket and the normal sleeper.

Updated the bracket drawings with additional provision to keep this anti vibration rubber pad and holding mechanism between rubber pad to bracket by M5 clinch screw as shown in the bracket drawings (DWG # 516670119 & 516670490).

8.2 Tag Installation on Point Sleepers

a. Use RFID Tag bracket (DWG # 516670106) for installing RFID Tag units at Point Sleepers.



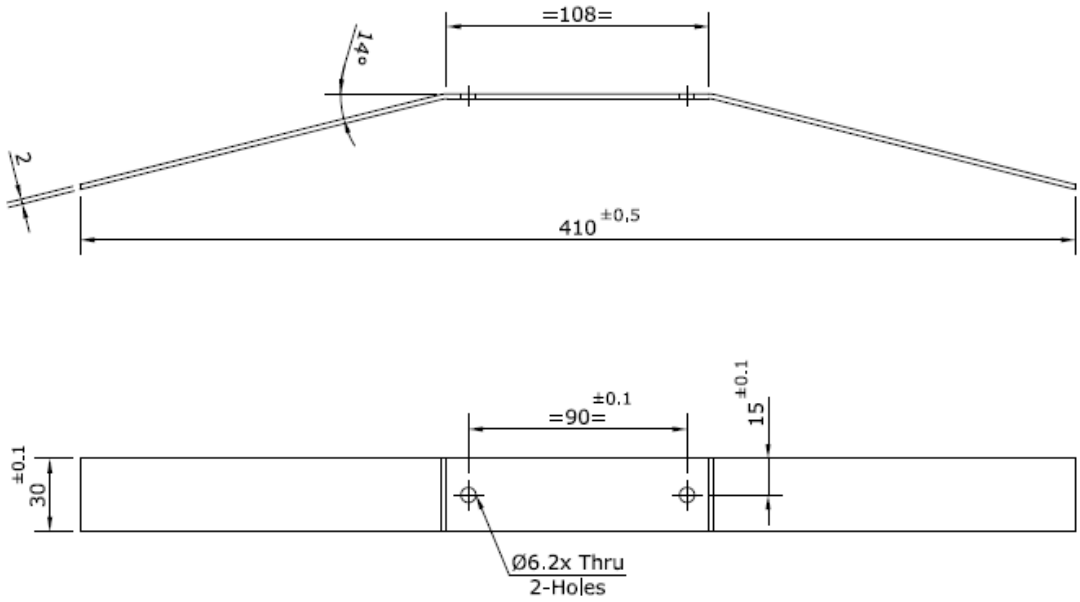
b. Use SS type fasteners in fixing the brackets to RFID Tag units, (NUT(Hex) (M6)-12No's, Washer plain (M6)-12No's, Washer spring (M6) 8No's,

The RFID tag assembly bracket is designed w.r.t the dimensions of point sleeper. Unlike normal sleeper, point sleepers has wide surface area bigger than the base of the RFID tag unit. The gap between the bracket and point sleepers is minimal and can be ignored. However, suggested to insert the anti-vibration mat wherever is required.

Updated the bracket drawings with additional provision to keep this anti vibration rubber pad and holding mechanism between rubber pad to bracket by M5 clinch screw as shown in the bracket drawings (DWG # 516670106).

8.3 CC Apron type Sleeper

Factory will arrange the brackets (DWG # 516670456) for installing RFID Tag units at CC Apron Sleepers. I&C team must bend the bracket and drill the mounting holes as per the site requirements.



This type of sleepers being used at station berthing tracks only where the height of the sleepers varies drastically from station to station depends on the flooring.

The bracket height to be adjusted as per the site requirement and holes to be drilled at the site. suggested to insert the anti-vibration mat between bracket and sleeper wherever is required

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Installation procedure for RFID tags

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