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सत्यमेव जयते

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

Pre-commissioning check of Remote Interface Unit as per RDSO/ SPN/196/2020 Ver 4.0

(Annexure-A1)

Issued by

S&T DIRECTORATE
RESEARCH, DESIGNS & STANDARDS ORGANISATION
MINISTRY OF RAILWAYS
MANAK NAGAR
LUCKNOW – 226 011



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SN.	Issue	Version	Reason of Amendment
1	First	1.0	First Issue

Prepared by:	Approved by:
Manish Kumar Gupta, SSE/S&T R.N.Singh, ADE/S&T G.Pavan Kumar, ED/Tele-II	Sh Suresh Kumar PED/ S&T

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1 General Information

Railway :		Division:	
Stationary KAVACH Id		Station Name	
Date of Installation:		Date of Commissioning	
Remote Interface Unit		Date of Manufacturing of RIU	
Details of Card /module of Stationary KAVACH (as Applicable)			
Card Description	Sr No.	Date of Manufacturing	
Vital Input Card			
Communication Module			
Battery Charger			
EMI filter			
Any Other Module/sub item			

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2 Hardware Check-list

Before making the interconnections between the sub-systems, ensure the following:

S. No	Items / Requirements	Observed / Measured	Remarks OK/Not OK
1	Foundation and insulation bases for RIU racks Check whether the foundation of RIU bin are firm, straight and permissible height with respect to the LC/IB HUT/LB/Cabin Room floor with insulation base		
2	Visual inspection on RIU Equipment Check whether the configuration is carried as per manual. Ensure that proper nomenclature of modules and cards is inserted in the respective slots. Check whether locking arrangement is provided for front, glass and rear doors of the RIU rack Check whether dummy fascia's are fixed on the unused slots. The RIU rack should be installed properly in order to withstand vibrations and it should be supported by scaffolding All the modules should be free of dirt, dust and be neat, clean and fitted into the TCAS-RIU rack as per the RIU section in Station TCAS Installation Manual Module/Cards details should be given inside the TCAS RIU rack door. Check whether all the OFC cables are connected properly to the respective modules at RIU. Check whether the RIU Communication modules are properly connected to the respective Stationary TCAS in Ring Network Check the FRC Connections between FIC card to RIU motherboard. Check whether all the Wago/Fuses/SPD is fixed properly on DIN rail in the RIU bin. Check whether all the connections from field input Relays/Wago's to the Field Interface Card are properly connected Check whether shielded communication cable is used for connection between the OFC converter and the RIU Motherboard.		

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S. No	Items / Requirements	Observed / Measured	Remarks OK/Not OK
	Check whether all the OFC cables are connected properly from OFC converter to the Railway CT box/modules at RIU location box		
	Check whether the input status of LEDs on the VIP module is in agreement with the relays connected to the module.		
3	Input/Output wiring and Power cables		
	Ensure insulated wires are protected from mechanical damage in bend. Use rubber gasket in holes and sharp cut edges		
	Ensure that there are no loose wires hanging out from any of the modules. Check all plug-in connectors, including OFC, have a locking arrangement.		
	Ensure that wires are tagged and marked for easy identification markers (ferrules)		
	Ensure that the wire ends are properly crimped with correct size of lugs and inserted properly in the Battery terminals/Wago and Power connectors		
	Ensure that internal and external wires are isolated to each other		
	All the I/O Cable connection shall be keyed as per the Station/RIU specific Interface design Drawing.		
	Ensure that the input and output cables (RDSO approved) of the TCAS system shall be twisted to minimize EMI and EMC effect		
4	OFC Cabling and Routing		
	Ensure OFC routing is properly done with avoiding 90 degree bending		
	Ensure OFC properly routed via PVC Casing / in flexible hose pipe		
	Ensure protective dust caps are provided at spare OFC connectors		

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S. No	Items / Requirements	Observed / Measured	Remarks OK/Not OK
4.1	<p>OFC Ring Network heath check:</p> <ol style="list-style-type: none"> 1. Check system is running normally. Remove primary OFC channel. Communication shall changer over from primary to secondary OFC channel automatically. Check RIU communication with station TCAS should not fail during OFC channel change over. 2. Restore the primary OFC channel link. No effect on RIU communication. 3. Remove secondary OFC channel. Communication shall changer over from secondary to primary OFC channel automatically. Check RIU communication with station TCAS should not fail during OFC channel change over. 4. Restore the secondary OFC channel link. No effect on RIU communication. 		
4.2	<p>OFC Channel dB loss measurement :</p> <p>Check primary OFC channel dB loss (node to node) is ≤ 4dB</p> <p>Check secondary OFC channel dB loss (node to node) is ≤ 4dB</p>		
5	<p>Type of Relays(For Repeater) inserted in RIU Location Box for field inputs (If Applicable)</p> <p>Check whether the type of the Relays mounted on the RIU relay racks are as per the Relay disposition chart (RDC) with parallel relay contacts given in the interface circuits and have RDSO inspection seal.</p>		
6	<p>Batteries and Fuses are proper rating in RIU</p> <p>Check whether the type of the Batteries used in RIU for Power Supply are approved by RDSO</p> <p>Check the Power rating(Voltage & Current) of Batteries as per RIU section in Station TCAS Installation Manual</p> <p>Ensure fuse should be fit in the fuse holders properly and there is no loose connection/contact.</p> <p>Check whether the fuse terminals are fixed with proper fuse ratings marking, fuse number as per the interface circuits and should be of indicative type. Check spare fuses are kept in the zip lock bag.</p>		

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S. No	Items / Requirements	Observed / Measured	Remarks OK/Not OK
	Ensure the Fuse particulars details shall be painted in RIU Location box as per the design document for the specific RIU.		
7	Wiring and Routing		
	Check whether all the OFC cables are routed properly to the Termination box(CT) without obstructing the view of any of the cards		
	Check whether all the D-type connectors are provided with Dust covers and firmly fixed to the boards with fixing screws		
	Check whether cable glands are provided for all the incoming and outgoing wires		
	Check whether all the wires are routed and harnessed properly. No loose wire from any module.		
	Check whether the Power connections are as per the details given in the laminated power wiring scheme available in the RIU equipment rack.		

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3 Earthing:

S. No	Items / Requirements	Expected	Observed / Measured	Remarks (OK / NOT OK)
1.	Check the value of earth resistance at the RIU equipment earth pit	Value of earth resistance should be $\leq 2 \Omega$		

4 Commissioning:

S. No	Item	Expected	Observed / Measured	Remarks (OK / NOT OK)
1.	Commissioning	System should be installed & commissioned by personnel trained by the manufacturer		
2.	Training	Railway personnel should be trained before commissioning		
3.	Verification of working	System to be monitored for 72 hours for trouble free operation before commissioning		

The following card versions should be checked:

S. No	Type of Card	Part No.	Version	Remarks (OK/ NOT OK)
1.	Power supply (DC-DC converter card)			
2.	Vital Input Card			
3.	Bottom Back Plane			
4.	M485OFBS			
5.	Field Interface Card			
6.	Battery Charger			

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5.1 Executing Software Checksum:

S. No	Module Name	Checksum	Version No.	Verified (OK/Not OK)
1	Vital Input card			

5.2 Stationary KAVACH FAT and SAT Check list

S.No	Requirements	Remarks OK/Not OK
1	Check whether the FAT and SAT is completed and the relevant certificates are obtained prior to commissioning.	

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