



No. C-D&D/T/34 (Part)
PEDSE, RDSO,
P.O. Manaknagar,
Lucknow – 226 011

Date: May 28, 2020

(Kind attn: Arvind Pandey, JDSE/Sys./RDSO)

Sub: Software of MICAS VCU for DPWCS operation in 3-phase locomotives.

Ref: This office letter no. C-D&D/T/34 (Part) dated 18.02.2020

1. After discussion on various forums with DPWCS/Propulsion manufacturer & RDSO final ICD for DPWCS (Interface Control Document for Distributed Power Wireless Control System) was circulated vide letter under reference above.
2. The basic control logic implemented for integration of DPWCS in MICAS VCU (Vehicle Control Unit) for Three Phase Locomotive is as under.
 - a. Port No. 3572 & 3573 are assigned for fetching the MVB signals from VCU to DPWCS for status, feedback and command. The list of signals are classified as follows:
 - i. Command from Master Loco send to DPWCS for processing and overriding the operations like CabActivation, Panto, VCB, Reversor, Throttle, Compressor, Sanding, Acknowledgment and Braking in Remote Loco.
 - ii. Status and Feedback signals like VCB, Panto, Node information, etc are send to DPWCS from Master and Slave loco for Display in DIU (Driver Interface Unit) and processing in CCU (Control Communication Unit) of DPWCS respectively.
 - b. Port No. 3571 is assigned for overriding the MVB signals in VCU from DPWCS. The list of signals are classified as follows:
 - i. Command obtained from Master Loco is processed and the functions like Cab 1/2 Activation/Deactivation, Panto(Up/Down), VCB (On/OFF), Reversor (Forward/Reverse), Throttle (TE, BE, 1/3, 2/3) , Compressor ON/OFF, PVEF Foot Switch, Inching mode, shunting Mode, Failure mode, Fault Acknowledgment, Emergency Stop, Fire Alarm, Sanding and Braking is overridden in Remote Loco through DPWCS.
 - ii. Command obtained from Slave loco is processed and the function like display of Fault Screen and Indication Lamps {BPFA (Fault Acknowledgment), LSFI (Subsystem Isolation/Fault Indication), LSDJ (VCB Status), LSAF (Train Parting) & LSP (Wheel Slip)) are overridden in Master Loco through DPWCS for fault indication.
 - c. Vigilance and Parking Brake Control is enabled in Master Locomotive only as LP/ALP wouldn't be available in remote locomotive.
 - d. A-9 Brake functionality is replicated in remote loco through BIU (Brake Interface Unit) which takes the Digital/Analog Input status from A-9 handle controller. However as BC equalizing is not connected in case of DPWCS operation so to replicate the functionality of SA-9 brake (which is purely Pneumatic) EBC5 (Blending unit) is used. Further EBC5 is also used for implementing Brake Valve out mode of DPWCS as isolating cocks not provided in SA9 brake control system.
 - e. Software version no. for STB/HBB is 0202 and FLG is 3202 for WAG-9 & 4202 for WAG-9H and the final bus load after software compilation on Windows platform is 92%.
3. It is hereby requested that RDSO may examine the logic in preview of operating condition of DPWCS in Three Phase Electric Locomotive and necessary clearance maybe given so that software maybe issued for regular use in MICAS based VCU

(R.P. Bharti) 28.5.20
Dy. CEE/D&D