AutoHaul™

Project No: AUASFP88

COMMISSIONING - AC - NIU II Pre-Installation Commissioning

|  |  |
| --- | --- |
| Locomotive: | %LOCONAME% |
|  |  |
| Date Commenced: | %STARTDATE% |

|  |  |  |  |
| --- | --- | --- | --- |
| Document Author | Verified by | Approved by | Authorised by |
| Lucas Szmeja  Senior Lead Tester  Irshad Ali Teamcentre Author | David Holder  Senior Lead Tester  Teck Lee  Teamcentre Author | Javier Gonzalez  Senior Commissioning Manager | Maurizio Zamparelli  Project Engineer |

REVISION HISTORY

The revision history of the document is:

| Rev. | Prepared by | Changes/Comments | Date |
| --- | --- | --- | --- |
| A | Lucas Szmeja | Initial Draft | 24 May 2018 |
| B | Irshad Ali | Review & update | 27 May 2018 |
| 00.00 | Irshad Ali | Teamcentre updates | 23 June 2018 |
| 01.00 | Irshad Ali | Update to Rio review comments | 05 July 2018 |

REVIEW HISTORY

The review history for the document is:

|  |  |  |
| --- | --- | --- |
| Rev. | Reviewer | Review Type |
| A | Dave Holder, Irshad Ali | Technical |
| B | Teck Lee, Lucas Szmeja, Dave Holder | Technical |
| 00.00 | Teck Lee | Teamcentre |
| 01.00 | Teck Lee | Teamcentre |

TABLE OF CONTENTS

[1 Introduction 5](#_Toc518571767)

[1.1 Overview 5](#_Toc518571768)

[1.2 Purpose 5](#_Toc518571769)

[1.3 Definitions, Acronyms and Abbreviations 5](#_Toc518571770)

[1.4 References 5](#_Toc518571771)

[2 Test Overview 6](#_Toc518571772)

[2.1 Location 6](#_Toc518571773)

[2.2 Responsibilities 6](#_Toc518571774)

[2.3 Locomotive Setup 6](#_Toc518571775)

[2.4 Resources 6](#_Toc518571776)

[3 Test Equipment Records 7](#_Toc518571777)

[4 Safety Precautions 8](#_Toc518571778)

[5 PRE-TEST software checks 9](#_Toc518571779)

[Appendix A NIU II Swap & static data programming (LOW RISK – DRIVER NOT REQUIRED) 11](#_Toc518571780)

[Appendix B TMC firmware & configuration (LOW RISK – DRIVER NOT REQUIRED) 14](#_Toc518571781)

[Appendix C TIM Update (LOW RISK – DRIVER NOT REQUIRED) 17](#_Toc518571782)

[Appendix D CDU Leader Update (LOW RISK – DRIVER NOT REQUIRED) 18](#_Toc518571783)

[Appendix E ATP Application Update (LOW RISK – DRIVER NOT REQUIRED) 19](#_Toc518571784)

[Appendix F Brake Pipe transducer calibration (LOW RISK – DRIVER NOT REQUIRED) 21](#_Toc518571785)

[Appendix G Bit lab calibration & testing (LOW RISK – DRIVER NOT REQUIRED) 23](#_Toc518571786)

[Appendix H Tap Update & Pairing (LOW RISK – DRIVER NOT REQUIRED) 27](#_Toc518571787)

LIST OF TABLES

[Table 1‑1 Abbreviations and Acronyms 6](#_Toc454458414)

# Introduction

## Overview

Rio Tinto Iron Ore (RTIO) operates a heavy-haul railway in the Pilbara region of Western Australia designed to move iron ore from mines located 300 to 500 km inland to ports for shipping overseas.

The AutoHaul® Project is concerned with the introduction of a system to automatically drive trains on the mainline. This includes trainborne, control centre, and wayside systems to control and monitor locomotives and ensure the safe movement of driverless trains, both in driver attended and driverless mode of operation.

## Purpose

The purpose of this document is to describe the tests to be performed prior to any AutoHaul installation commencing on an AC NIU II Series locomotive. The tests aim to identify any existing issues with locomotive equipment that may be affected by the installation works. The requirement for this document is described in [1].

## Definitions, Acronyms and Abbreviations

Table 1‑1 Abbreviations and Acronyms

| Abbreviation/Acronym | Definition |
| --- | --- |
| AC | Alternating Current |
| ASTS | Ansaldo STS |
| ATP | Automatic Train Protection |
| ATS | Automatic Train Supervision |
| CDU | Computer Display Unit |
| DLC | Direct Locomotive Control |
| ECP | Electronically Controlled Pneumatic (Braking) |
| EIU | ECP Interface Unit |
| EOT | End of Train |
| GE | General Electric |
| LCS | Locomotive Control System |
| NIU | Network Interface Unit |
| RTIO | Rio Tinto Iron Ore |
| RTRD | Rio Tinto Rail Division |

## References

Unless otherwise specified, each document reference is to the latest approved revision.

1. AutoHaul On Board Installation Testing and Commissioning Plan - 90000277.P06.EN
2. Epic and FastBrake Full Brake Test - RTIO-AM-0143924

# Test Overview

## Location

The pre-installation commissioning and tests will be completed in the 8-Mile Yard, on 86rd and 87rd, in the workshop, and on the in-go tracks.

## Responsibilities

The tests will be completed by the AutoHaul commissioning team personnel, with the assistance of drivers for movement testing where required.

The commissioning engineer is responsible for checking over the completion of all tests and deciding if any issues require rectification before commencement of installation.

The Client representative will review the documentation following completion and raise any existing issues to RTRD if required.

## Locomotive Setup

The locomotive must be setup in the following condition before commencing the commissioning tests:

* All intercar connectors connected to the termination connectors;
* Air brakes set to lead/cut-in; and
* ATP cut-out.

## Resources

The following resources are required for the commissioning testing:

* Commissioning laptop with software:
  + NIU II Static Data Utility (with loco specific data) xml;
  + AVR Downloader;
  + ECP Wintool;
  + WLANA;
  + Putty;
  + ACM Updater; and
  + TIM Updater
* TAP USB serial Adapter;
* ECP intercar connector programming cable;
* Tim J4 Programming Cable;
* Pre-Programmed NIU II;
* NIU II J3 to serial cable;
* NIU II static data flash card;
* Bit Lab Test Device;
* Multimeter;
* Straight serial cable; and
* ATP application programming cable.

# Test Equipment Records

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 1: Test Equipment Records** | | | | | | |
| **Item** | **Description** | **Make** | **Model** | **Serial Number** | **Calibration Due Date** | **Inputted By** |
|  | **Text** | **Text** | **Text** | **Text** | **Text** | **UserSignature** |
| Record the details of all test equipment used in the tests. | | | | | | |
| 1. |  |  |  |  |  |  |
| 2. |  |  |  |  |  |  |
| 3. |  |  |  |  |  |  |
| 4. |  |  |  |  |  |  |
| 5. |  |  |  |  |  |  |
| 6. |  |  |  |  |  |  |
| 7. |  |  |  |  |  |  |
| 8. |  |  |  |  |  |  |

# Safety Precautions

The tests throughout this procedure have been assessed into the following two risk categories:

**LOW RISK – DRIVER NOT REQUIRED**

A driver is not required, however, the following safety precautions must be observed:

1. Handbrake must be applied;
2. Wheel chocks to be in place on driver side wheel 2;
3. Reverser must be removed from control stand;
4. No operation of the throttle;
5. Gen Field CB off;
6. Engine control switch to be in isolated position (except for starting the locomotive or if required for a test);
7. Brake handles only to be operated by competent tester;

# PRE-TEST software checks

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 10: Pre-Test Software Checks** | | | | | |
| **Device** | **Expected** | **Actual** | **Appendix** | **Signature** | **Comments** |
|  |  | **Text** |  | **UserSignature** | **Text** |
| If the Actual Matches Expected then no further action is required | | | | | |
| If Actual is not as Expected Software version is to be updated | | | | | |
| NIU II IO Board | 1.2.1.1 |  | NIU II Swap & static data programming |  |  |
| NIU II RF Board | 1.0.4.0 |  | NIU II Swap & static data programming |  |  |
| NIU II Image | 14\_08\_07\_18 |  | NIU II Swap & static data programming |  |  |
| CDU Image | 14\_03\_14\_16 |  | CDU Leader Update |  |  |
| ATS Image | 14\_08\_13\_20 |  |  |  |  |
| EIU Atmel | 01.02.03.01 |  |  |  |  |
| EIU Neuron | 04.02.01.27 |  |  |  |  |
| PSC Atmel | 01.01.01.00 |  |  |  |  |
| PSC Neuron | 05.02.01.20 |  |  |  |  |
| TIM | 04.00.01.05 |  | TIM Update |  |  |
| TAP Neuron | 2.10 |  | Tap Update & Pairing |  |  |
| TAP Atmel | 2.1.0.0 |  | Tap Update & Pairing |  |  |
| TMC RSM | 1.04 |  | TMC Firmware & Configuration |  |  |
| TMC IOC | 1.09 |  | TMC Firmware & Configuration |  |  |
| TMC DIO | 1.04 |  | TMC Firmware & Configuration |  |  |
| DLC P | 02.00.00.00 |  | ATP Application Update |  |  |
| Fastbrake ABM | 02.17.79.00 |  |  |  |  |
| Fastbrake CAN | 02.10.46.00 |  |  |  |  |

1. NIU II Swap & static data programming (LOW RISK – DRIVER NOT REQUIRED)

| **Table 2: NIU II Swap and Static Data Programming** | | | | |
| --- | --- | --- | --- | --- |
| **Action** | **Expected Result** | **Outcome** | **Signature** | **Notes** |
|  |  | **Text** | **UserSignature** |  |
| NIU II Swap | | | | |
| Switch off the DLC NIU circuit breaker | DLC will power down |  |  |  |
| Disconnect all cables from the DLC NIU II in the CEL CAB |  |  |  |  |
| Remove the DLC and replace with a pre-programmed DLC NIU II with HOT mod completed |  |  |  |  |
| Only connect the J1 & J5 back in, also connect the J3 programming cable |  |  |  | It’s easier to leave the unit out until programming has been completed |
| NIU II Static Data Programming - Install the static data following the steps | | | | |
| Insert the static data flash card into the back of the NIU II | N/A |  |  |  |
| Plug the serial port and ethernet port of J3 programming cable into the laptop:   * IP of laptop should be 10.255.255.100 * Turn on the DLC breaker * Confirm the NIU is set to the correct ip by pinging 10.255.255.101 * If there is no response, telnet into the niu via 10.255.255.40 * Type: ip 10.255.255.101 (this will change the ip to the correct one to configure the static data) * Cycle the NIU II and ping 10.255.255.101 to confirm the settings stuck |  |  |  |  |
| Run “NIU-II Static Data Utility”   * Click Connect → Import from file (navigate to loco specific data xml file and select) * Click “Write to Memory” wait for the data to load * Cycle the NIU II and reconnect with the utility * Click “get from memory” and verify the data was applied * Close the program |  |  |  |  |
| Telnet to 10.255.255.101   * Type: ip 10.255.255.40 (this will change the ip back to operating mode) * Cycle the NIU II and ping 10.255.255.40 to confirm ip change is applied |  |  |  |  |
| Remove the J3 programming cable, reconnect all cables & install the DLC correctly |  |  |  |  |

1. TMC firmware & configuration (LOW RISK – DRIVER NOT REQUIRED)

| **Table 3: TMC Firmware and Configuration** | | | | |
| --- | --- | --- | --- | --- |
| **Action** | **Expected Result** | **Outcome** | **Signature** | **Notes** |
|  |  | **Text** | **UserSignature** |  |
| Switch off the TMC via the “Driver Assist” circuit breaker | TMC will power down |  |  |  |
| Loosen the screws around the flash card panel and remove the flash card from slot 1 |  |  |  |  |
| Install the Firmware flash card into slot 1 and power up the TMC for 2 minutes |  |  |  |  |
| Power down the TMC and install the original flash card back into slot 1, re-install the flash card panel and power up the TMC |  |  |  |  |
| TMC Configuration - Install the Configuration information following the steps | | | | |
| Plug into one of the spare TMC ports |  |  |  |  |
| Telnet to 10.255.255.18 and enter the following:   * io bcast 10.255.255.11 23008 * save * close the session |  |  |  |  |
| Telnet to 10.255.255.17 and enter the following (note; it is advised to use a text document and copy and paste the following to avoid error): | serial 1 mode=ASYNC |  |  |  |
| serial 1 baud=9600 |  |
| serial 1 config=8,n,1 |  |
| serial 1 limits=120,200,10 |  |
| serial 1 bcast=0.0.0.0 22001 |  |
| serial 2 mode=ASYNC |  |
| serial 2 baud=9600 |  |
| serial 2 config=8,n,1 |  |
| serial 2 limits=120,200,10 |  |
| serial 2 bcast=0.0.0.0 22002 |  |
| serial 3 mode=ASYNC |  |  |  |
| serial 3 baud=9600 |  |
| serial 3 config=8,n,1 |  |
| serial 3 limits=120,200,10 |  |
| serial 3 bcast=0.0.0.0 22003 |  |
| serial 4 mode=ASYNC |  |
| serial 4 baud=9600 |  |
| serial 4 config=8,n,1 |  |
| serial 4 limits=120,200,10 |  |
| serial 4 bcast=0.0.0.0 22004 |  |
| serial 5 mode=SYNC |  |  |  |
| serial 5 txclock internal |  |
| serial 5 baud=9600 |  |
| serial 5 bcast=0.0.0.0 22005 |  |
| serial 6 mode=ASYNC |  |
| serial 6 baud=9600 |  |
| serial 6 config=8,n,1 |  |
| serial 6 limits=120,200,10 |  |
| serial 6 bcast=0.0.0.0 22006 |  |
| io bcast 0.0.0.0 22008 |  |
| csm bcast 0.0.0.0 22007 |  |
| save |  |
| Once complete, cycle the TMC |  |  |  |  |

1. TIM Update (LOW RISK – DRIVER NOT REQUIRED)

| **Table 4: TIM Update** | | | | |
| --- | --- | --- | --- | --- |
| **Action** | **Expected Result** | **Outcome** | **Signature** | **Notes** |
|  |  | **Text** | **UserSignature** |  |
| Switch off the TIM circuit breaker and remove the J4 plug |  |  |  |  |
| Install the TIM programming cable into J4 and follow the steps | N/A |  |  |  |
| Open “TIM Loader” |  |  |  |  |
| Click “load” |  |  |  |  |
| select correct TIM version hex file |  |  |  |  |
| Turn on the “TIM” breaker |  |  |  |  |
| click “Connect” |  |  |  |  |
| Click “Erase → download” and wait for the process to complete |  |  |  |  |
| Open “TIM Loader” |  |  |  |  |
| Remove the Tim J4 programming cable and reconnect the original J4 plug |  |  |  |  |

1. CDU Leader Update (LOW RISK – DRIVER NOT REQUIRED)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Table 5: CDU Leader Update | | | | |
| Action | Expected Result | Outcome | Signature | Notes |
|  |  | Text | UserSignature |  |
| Remove the 6 allen head screws of the CDU | N/A |  |  |  |
| Remove the flashcard cover from the back of the CDU | N/A |  |  |  |
| Remove the Flash card from the CDU & replace with an updated leader flashcard | N/A |  |  |  |
| Reinstall panel and screw the CDU back into place | N/A |  |  |  |
| Verify that the CDU has the correct version of leader | N/A |  |  |  |

1. ATP Application Update (LOW RISK – DRIVER NOT REQUIRED)

| **Table 6: ATP Application Update** | | | | |
| --- | --- | --- | --- | --- |
| **Action** | **Expected Result** | **Outcome** | **Signature** | **Notes** |
|  |  | **Text** | **UserSignature** |  |
| Follow the Steps to complete the update | ATP application should be updated |  |  |  |
| SoftwareUpdate | | | | |
| Connect laptop to atp x8 with atp programming cable | N/A |  |  |  |
| Power on cardfile | N/A |  |  |  |
| Open **acm data uploader** | N/A |  |  |  |
| Wait for worms on vcu | N/A |  |  |  |
| Click connect | N/A |  |  |  |
| Select file – **binary** | N/A |  |  |  |
| Click start upload | N/A |  |  |  |
| When **upload successful atp updated** | N/A |  |  |  |
| Click disconnect | N/A |  |  |  |
| Software Verification | | | | |
| Power cycle atp cardfile | N/A |  |  |  |
| Open **acm data uploader** | N/A |  |  |  |
| Wait for worms on vcu | N/A |  |  |  |
| Click connect | N/A |  |  |  |
| Click atp information tab | N/A |  |  |  |
| Confirm correct file has been uploaded | N/A |  |  |  |
| Confirm crc | N/A |  |  |  |
| Turn off cardfile | N/A |  |  |  |
| Disconnect laptop from atp | N/A |  |  |  |
| Record software version in tcr | N/A |  |  |  |

1. Brake Pipe transducer calibration (LOW RISK – DRIVER NOT REQUIRED)

| **Table 7: Brake Pipe Transducer Calibration** | | | |
| --- | --- | --- | --- |
| **Action** | Expected Outcome | Signature | **Notes** |
|  |  | UserSignature |  |
| In the RLA CAB unscrew the Transducer lid to calibrate it | N/A |  | The ATP circuit breaker needs to be on to perform this task |
| Follow the steps | Transducer calibrated |  |  |
| Once transducer is in and turned on, go to calibrate transducer (it will go through a “loading” stage) | N/A |  |  |
| Go back to main menu screen | N/A |  |  |
| Set upper and lower PV limits:   * **DEVICE SETUP → SET PV → UPPER PV** (manually set to approx. 630 Kpa) * **LOWER PV** (manually set to 0 Kpa) | N/A |  |  |
| After this you will need to apply the upper and lower PV Limits, to do this:   * **DEVICE SETUP** → **APPLY PV** → **upper** (make sure the loco brake pressure is set to 620 Kpa before you apply this) | N/A |  |  |
| Set the offset to around 89-91 %, to do this:   * **DEVICE SETUP → SET OFFSET** (this is where you enter 89-91% depending on what % takes to reach 620Kpa on the IFC screen) | N/A |  |  |
| ONCE YOU GET THIS 620Kpa:   * Plug in the laptop (with APS download software running) to the recorder card * Pump up the locomotive brake pressure to 620 Kpa and make sure it is duplicated on the laptop and also APS screen on the locomotive IFC. * Bleed the brakes back down to 0 Kpa and make sure again, that they both read the same. * NOTE; if these two screens don’t match each other, go back and change the offset % up or down accordingly. | N/A |  |  |
| Once complete screw the Transducer lid back on | N/A |  |  |

1. Bit lab calibration & testing (LOW RISK – DRIVER NOT REQUIRED)

| **Table 8: Bit Lab Calibration and Testing** | | | | |
| --- | --- | --- | --- | --- |
| **Action** | **Expected Result** | **Outcome** | **Signature** | **Notes** |
|  |  | **Text** | **UserSignature** |  |
| Log BitLab Serial Number | S/N xxxx |  |  |  |
| Place the Generator Coil under the locomotive to position the generator coil for best test results |  |  |  | Place the Generator Coil under the locomotive so that centre of the generator coil is centred under the locomotive cab coils, |
| Connect the Generator Coil to the Cab Code Generator  Unit to complete the test unit set up |  |  |  |  |
| Start-up ATP | Start-up ATP system as per normal procedure |  |  | Single engine  Short hood first |
| Navigate to “ATP session > screen 2 > show more | ATP session screen should show mV reading |  |  |  |
| Power on the Generator  To complete test unit  function tests | The unit will light up and run through its start-up procedure (about 15 seconds). |  |  | The Generator will run for a number of hours without mains power.  Use Mains Power when available |
| Turn the Level knob Anti-clockwise | The knob will click into place |  |  | Standard mode is calibrated to represent 81 Road |
| Press the Next button until the 40Hz LED is lit. | 40Hz LED is lit. |  |  | This will Generate a 40Hz Carrier |
| Adjust the pot setting on Bit Lab filter to ensure the CDU screen states 680mV ±10mV. ATP Screen 2 |  |  |  | “A” is for short hood “B” is for long hood |
| Record the Input voltages of the BitLab | Input Voltage (pins 1&2), Normal result between 1.3 and 1.5V |  |  |  |
| Record the Output voltages of the BitLab | Output Voltage (pins 5&6), Normal result is between 1.4 and 1.5V |  |  |  |
| Press the Next button until the 180-Clear LED is lit. | The word "Clear" should be displayed in the Direction field of the CDU. |  |  |  |
| Record the CDU Voltage | 570mV ± 10mV |  |  |  |
| Press the Next button until the 120-Caution LED is lit | Check that “Caution” is displayed on the CDU |  |  |  |
| Record the CDU Voltage | 615mV ± 10mV |  |  |  |
| Press the Next button until the 75-Stop LED is lit | Check that “Stop” is displayed on the CDU |  |  |  |
| Record the CDU Voltage | 640mV ± 10mV |  |  |  |
| Press the Next button until the 50-Turnout LED is lit. | Check that “caution” is displayed on the CDU |  |  |  |
| Record the CDU Voltage | 650mV ± 10mV |  |  |  |
| Turn of the generator and remove the generator coil from the short hood end to place under the long hood cab coils |  |  |  |  |
| Navigate back to the main ATP session screen and change the loco configuration to Long hood first |  |  |  |  |
| Navigate to “screen 2 > show more” | ATP session screen should show mV reading |  |  |  |
| Power on the Generator  To complete test unit  function tests | The unit will light up and run through its start-up procedure (about 15 seconds). |  |  |  |
| Turn the Level knob Anti-clockwise | The knob will click into place |  |  | Standard mode is calibrated to represent 81 Road |
| Press the Next button until the 40Hz LED is lit. | 40Hz LED is lit. |  |  | This will Generate a 40Hz Carrier |
| Adjust the pot setting on Bit Lab filter to ensure the CDU screen states 680mV ±10mV. ATP Screen 2 |  |  |  | “A” is for short hood “B” is for long hood  You may need to move the reverser to the reverse position for mV readings to update on the CDU screen |
| Record the Input voltages of the BitLab | Input Voltage (pins 3&4), Normal result between 1.3 and 1.5V |  |  |  |
| Record the output voltages of the BitLab | Output Voltage (pins 7&8), Normal result is between 1.4 and 1.5V |  |  |  |
| Press the Next button until the 180-Clear LED is lit. | The word "Clear" should be displayed in the Direction field of the CDU. |  |  |  |
| Record the CDU Voltage | 570mV ± 10mV |  |  |  |
| Press the Next button until the 120-Caution LED is lit | Check that “Caution” is displayed on the CDU |  |  |  |
| Record the CDU Voltage | 615mV ± 10mV |  |  |  |
| Press the Next button until the 75-Stop LED is lit | Check that “Stop” is displayed on the CDU |  |  |  |
| Record the CDU Voltage | 640mV ± 10mV |  |  |  |
| Press the Next button until the 50-Turnout LED is lit. | Check that “caution” is displayed on the CDU |  |  |  |
| Record the CDU Voltage | 650mV ± 10mV |  |  |  |
| Cut ATP out turn of the bitlab calibrator and remove the coil generator from the long hood |  |  |  |  |

1. Tap Update & Pairing (LOW RISK – DRIVER NOT REQUIRED)

| **Table 9: Tap Update and Pairing** | | | | |
| --- | --- | --- | --- | --- |
| **Action** | **Expected Result** | **Outcome** | **Signature** | **Notes** |
|  |  | **Text** | **UserSignature** |  |
| Follow the Process | TAP will be programmed |  |  |  |
| Have the TAP circuit breaker off |  |  |  |  |
| Remove the ATP side and Connect the TAP programming serial cable to the RLTB wago:   * 86 – Orange White * 87 – Orange * 88 – Blue White * 89 – Blue * 90 – Thick Blue (Leave the ATPX7-25 GN in) |  |  |  |  |
| Connect the USB side into the laptop: |  |  |  |  |
| Open “AVR Downloader” |  |  |  |  |
| Select “Dual Mode EOT ECP” |  |  |  |  |
| Browse in the Application Code section for the correct hex file |  |  |  |  |
| Once selected start the upgrade and then have someone turn the TAP breaker on |  |  |  |  |
| Once update is complete switch the TAP breaker off and remove the cables from the RLTB wago, replace existing cables. |  |  |  |  |
| Switch the TAP breaker back on |  |  |  |  |
| Connect the ECP intercar connector Junction cable |  |  |  |  |
| Connect the battery to the junction box along with the mill spec connector and usb converter |  |  |  |  |
| Plug the usb into the laptop and open “ECP Wintool” |  |  |  |  |
| Click the 4th icon one the main window (Connect to USB Train net TLA) |  |  |  |  |
| This will open a trainnet window Click “Network → Add Nodes → LonWorks NM Query → Primary Domain” |  |  |  |  |
| This will show the TAP as “EVT REC”, right click on it and select “Download → Neuron” |  |  |  |  |
| Select the correct TAP nxe file (currently “TAP-03\_WPN29113\_v2.10.nxe) |  |  |  |  |
| Once the update is complete verify it has been by re-querying nodes |  |  |  |  |
| \*\*add “crosstalk protection active” check to procedure\*\* |  |  |  |  |
| Boot ECP in switch mode |  |  |  |  |
| Move the automatic brake to reach a TBC of 85% | TBC shows 85% |  |  |  |
| recycle tap then leave for 1min |  |  |  |  |
| Switch the DLC Breaker off for 1min | Air will dump on the locomotive |  |  |  |
| cycle brakes to clear faults | Brakes and Penalties should clear |  |  |  |
| Confirm the TAP is paired by booting L15k and then ECP | ATP should Give a Penalty when lowering the TBC by 60% in ECP test mode |  |  |  |

| **COMMISSIONING - AC - NIU II Pre-Installation Commissioning - Signatures** | | | |
| --- | --- | --- | --- |
| **Name** | **Date** | **Comments** | **Signature** |
| %USERS.NAME% |  |  |  |