

DISTRIBUTION COMMISSIONING FORM (DCF) 2.11 – Steel standard columns (Class 1 assemblies)



The *Distribution Commissioning Manual* ([EDM 34137510](#)) must be referenced for guidance when completing this form.

Purpose: This form covers the electrical testing and commissioning of the supply cables, cut-out, internal wiring for AMI or Small cell single insulated (Class I) assemblies mounted on steel standards. This form can be used for steel streetlight standards with Class II luminaires that incorporate AMI or Small cell assemblies.

Parameters

- These units are direct-fed and include a protective earth (PE) cable return to the point of supply.
- The following tests must be performed before energisation or re-energisation.
- Test results that do not meet requirements (in brackets) must be repaired before energising.
- Measures to prevent unauthorised access to steel standards must be implemented during testing procedures.
- Refer to the *Network Guideline - Telstra Equipment Installed on Western Power Structures* ([EDM 58704216](#)) Appendix A.
- Explanatory notes are also provided at the end of this commissioning form.

1. Task Details

Work Package No:		Supplied From:		Pick ID	
Instrument		Serial No.		Cal Date	
Instrument		Serial No.		Cal Date	

2. Location of Streetlight column (Lot No. and Road Name)

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3. Visual Inspection and Safety Check

Description		
1	Touch test between the streetlight column and the independent earth. (< 6V)	V
2	Confirm the supply isolated; lock and tag appropriately	
3	Remove the column inspection cover.	
4	Remove the cut-out fuse link cover and visually confirm the AMI/Small cell and Luminaire cable connection polarities, and the screws are tight. (See explanatory note 1 at the end of the form)	

4. Luminaire Cable Insulation Test (if applicable)

Note: To prevent failure of electronic components in the luminaire, DO NOT test between the active and neutral.

Description		
1	Test insulation resistance of the luminaire cables to bare metal on the steel standard: (> 1 MΩ at 500VDC)	MΩ
		Active - steel std
		Neutral - steel std

5. AMI / Small Cell Cable Insulation Test

Note: To prevent failure of electronic components in the AMI / Small Cell device, DO NOT test between the active and neutral.

Description			
1	Test insulation resistance of the AMI cable to bare metal on the steel standard: (> 1 MΩ at 500VDC)	Active - steel std	MΩ
		Neutral - steel std	MΩ

6. Supply Cable Insulation Resistance Test

Newly installed 16mm single core neutral screened cable and protective earth cable return must be tested.

Description			
1	Ensure the cut-out fuse link cover on the streetlight circuit is removed		
2	Check that the cables are correctly installed in the cut-out as per the work package and that there are no signs of damage.		
3	Use an insulation resistance tester to test at the supply connection point; active to neutral, active to independent earth, protective earth cable to independent earth. (>1 MΩ at 500VDC for A-N & A-E), (0 MΩ at 500VDC for PE-IE)	Active - neutral	Active - earth
		MΩ	MΩ
		PE – IE	MΩ

7. Handover after Completion of Above Tests

I hereby certify that items 1 to 6 have been completed and that the circuit is ready for commissioning.			
Testing officer/cable joiner/CPM		BNA	
Signature		Date & Time	

8. Supply Polarity and Impedance Test

Description	
1	Ensure the cut-out fuse link cover that isolates the luminaire and AMI/Small cell device from the supply is removed.
2	Ensure the streetlight column is safe to energise and that unauthorised access is prevented.
3	Ensure PE cable is connected to the neutral terminal at the point of supply. Pit or Pillar
4	PE cable labelled with the column Pick-ID and location.
5	Energise the streetlight supply cable at the point of supply. Pit or Pillar
6	For testing purposes, use an independent earth (IE) reference point spaced at least 2 meters from any electrically conductive object embedded in the ground.

Description			
7	Record voltages between: •line active and line neutral •line active and independent earth (IE) •line neutral and independent earth •line neutral and protective earth (PE)	A – N (226 – 254 V)	V
		A – IE (226 – 254 V)	V
		N – IE (< 6 V)	V
		N – PE (< 1 V)	V
8	Record loop impedance Z (Ω)	A – N (< 1 Ω)	Ω
		A – PE (< 1 Ω)	Ω
9	Connect a voltmeter between the steel standard and the independent earth (See explanatory note 2)		
10	Confirm correct fuse ratings - 10A (luminaire and AMI / Small Cell device) and continuity in the fuse link cover and reinstall to energise the unit.		
11	Whilst reinserting the cut-out, observe the voltmeter. If 6V or more is recorded, cease testing and DO NOT bring into service. Investigate the source of the voltage and/or report this to your supervisor.		V
12	On completion of all works, perform a final touch potential test between the steel column and the independent earth. Record the voltage (< 6V).		V

9. Declaration

I hereby certify that all items have been completed with satisfactory results and transfer control to the network operating authority.			
Commissioned by		BNA	
Signature		Date & Time	

1. Ensure that all the metal inspection covers are replaced, and the work area is left tidy with no hazards to the public.
2. Hand over responsibility to the operating authority.
3. The completed form must be returned to the project file/work pack.

Explanatory notes

In sections 4 & 5 Luminaire and AMI /Small Cell supply cable insulation test: Only a Separate Neutral-Earth cut-out is allowed. Cut-outs with a common earth-neutral connection block are not allowed. There must not be a neutral to earth link or MEN inside the cut-out. Refer to the *Network Guideline - Telstra Equipment Installed on Western Power Structures (EDM 58704216) Appendix A Streetlight Columns – Streetlight Cut-out UMS Supply (R45- SL)*.

In Section 8 steps 9, 11 & 12: Some PE cells have a very short delay-off time (2 – 5 sec) after initial energising. Connect the voltmeter between the steel standard and independent earth before replacing the cut-out, select “Peak-hold” if possible. Observe the voltmeter when replacing the cut-out; a constant (<6V) should be maintained. De-energise the steel standard and investigate for a result of 6V or greater.