

ELECTRICITY INDUSTRY PARTICIPATION CODE  
DISTRIBUTED UNMETERED LOAD AUDIT REPORT



For

NZTA NELSON SH6 AND  
MANAWA ENERGY  
NZBN: 9429038917912

Prepared by: Tara Gannon

Date audit commenced: 14 July 2023

Date audit report completed: 7 August 2023

Audit report due date: 1 September 2023

---

## TABLE OF CONTENTS

Executive summary .....	3
Audit summary .....	4
Non-compliances .....	4
Recommendations .....	6
Issues .....	6
1. Administrative.....	7
1.1. Exemptions from Obligations to Comply with Code .....	7
1.2. Structure of Organisation.....	7
1.3. Persons involved in this audit.....	8
1.4. Hardware and Software .....	8
1.5. Breaches or Breach Allegations.....	8
1.6. ICP Data .....	8
1.7. Authorisation Received .....	8
1.8. Scope of Audit .....	9
1.9. Summary of previous audit .....	10
1.10. Distributed unmetered load audits (Clause 16A.26 and 17.295F).....	11
2. DUML database requirements.....	12
2.1. Deriving submission information (Clause 11(1) of Schedule 15.3) .....	12
2.2. ICP identifier and items of load (Clause 11(2)(a) and (aa) of Schedule 15.3) .....	13
2.3. Location of each item of load (Clause 11(2)(b) of Schedule 15.3) .....	14
2.4. Description and capacity of load (Clause 11(2)(c) and (d) of Schedule 15.3) .....	14
2.5. All load recorded in database (Clause 11(2A) of Schedule 15.3) .....	15
2.6. Tracking of load changes (Clause 11(3) of Schedule 15.3).....	17
2.7. Audit trail (Clause 11(4) of Schedule 15.3).....	18
3. Accuracy of DUML database .....	19
3.1. Database accuracy (Clause 15.2 and 15.37B(b)) .....	19
3.2. Volume information accuracy (Clause 15.2 and 15.37B(c)) .....	21
Conclusion .....	24
Participant response .....	24

## EXECUTIVE SUMMARY

This audit of the **NZTA Nelson Unmetered Streetlights** DUML database and processes was conducted at the request of **Manawa Energy Limited (Manawa)**, in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied. The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1.

A RAMM database is held by **Waka Kotahi**, and remotely hosted by **thinkproject New Zealand Limited** (formerly RAMM NZ Ltd). Field work is carried out by **Tasman Journeys** who record light and pole details on paper forms, and the data is entered into RAMM by **WSP Ltd** (formerly Opus Consulting). WSP Ltd are contractors to Tasman Journeys, and WSP Ltd staff located in Tasman Journeys complete data entry into RAMM as paperwork is received.

There is no regular reporting from the database to Manawa. Manawa have requested that if changes to database occur, a database extract (including change dates) is provided so that submission data can be correctly calculated. No database updates have been received since submission commenced for this ICP.

Manawa submits the DUML load as NHH using the STL profile. On hours are derived using data logger information and the wattage is derived from a historic database extract which was validated through a field audit by the Manawa Account Manager in August 2022.

The audit considered the accuracy of Manawa's historic DUML extract because it is used for submission. A full field audit was undertaken, and the database was within the allowable  $\pm 5\%$  accuracy threshold and is therefore deemed to be accurate. Based on the field audit findings and database analysis, it appears that some discrepancies identified during the last audit have not been corrected, and that some changes in the field have not been reflected in the database extract.

This audit found five non-compliances and one recommendation is made. The future risk rating of 14 indicates that the next audit be completed in 12 months. I have considered this in conjunction with Manawa's comments and agree with this recommendation.

## AUDIT SUMMARY

### NON-COMPLIANCES

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Deriving submission information	2.1	Clause 11(1) of Schedule 15.3	<p>17 items of load do not have a lamp make and lamp model populated in the database. The field audit confirmed that the wattages were correct and there is no impact on submission.</p> <p>Eight items of load have incorrect lamp model information populated in the database. The field audit confirmed that the wattages were correct and there is no impact on submission.</p> <p>Three LED lights have 28W of ballast recorded in the database but should have 0W of ballast. This could result in estimated over submission of 359 kWh per annum.</p> <p>The database extract used for submission does not record installation or change dates. This is expected to have no impact as no known changes have occurred.</p>	Weak	Low	3	Investigating
Description and capacity of load	2.4	Clause 11(2)(c) & (d) of Schedule 15.3	<p>17 items of load do not have a lamp make and lamp model populated in the database. The field audit confirmed that the wattages were correct and there is no impact on submission.</p>	Weak	Low	3	Investigating
All load recorded in database	2.5	Clause 11(2A) of Schedule 15.3	<p>One additional light found in the field.</p>	Moderate	Low	2	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
Database accuracy	3.1	Clause 15.2 and 15.37B(b)	<p>17 items of load do not have a lamp make and lamp model populated in the database. The field audit confirmed that the wattages were correct and there is no impact on submission.</p> <p>Eight items of load have incorrect lamp model information populated in the database. The field audit confirmed that the wattages were correct and there is no impact on submission.</p> <p>Three LED lights have 28W of ballast recorded in the database but should have 0W of ballast. This could result in estimated over submission of 359 kWh per annum.</p>	Weak	Low	3	Investigating
Volume information accuracy	3.2	Clause 15.2 and 15.37B(c)	<p>17 items of load do not have a lamp make and lamp model populated in the database. The field audit confirmed that the wattages were correct and there is no impact on submission.</p> <p>Eight items of load have incorrect lamp model information populated in the database. The field audit confirmed that the wattages were correct and there is no impact on submission.</p> <p>Three LED lights have 28W of ballast recorded in the database but should have 0W of ballast. This could result in estimated over</p>	Weak	Low	3	Investigating

Subject	Section	Clause	Non-Compliance	Controls	Audit Risk Rating	Breach Risk Rating	Remedial Action
			<p>submission of 359 kWh per annum.</p> <p>The database extract used for submission does not record installation or change dates. This is expected to have no impact as no known changes have occurred.</p>				
Future Risk Rating						14	

<b>Future risk rating</b>	0	1-4	5-8	9-15	16-18	19+
<b>Indicative audit frequency</b>	36 months	24 months	18 months	12 months	6 months	3 months

## RECOMMENDATIONS

Subject	Section	Recommendation
Database accuracy	3.1	Review the change management process to ensure that updates made in the field are updated in the database in a timely manner, and reporting is provided to Manawa.

## ISSUES

Subject	Section	Description	Issue
		Nil	

## 1. ADMINISTRATIVE

### 1.1. Exemptions from Obligations to Comply with Code

#### Code reference

Section 11 of Electricity Industry Act 2010.

#### Code related audit information

Section 11 of the Electricity Industry Act provides for the Electricity Authority to exempt any participant from compliance with all or any of the clauses.

#### Audit observation

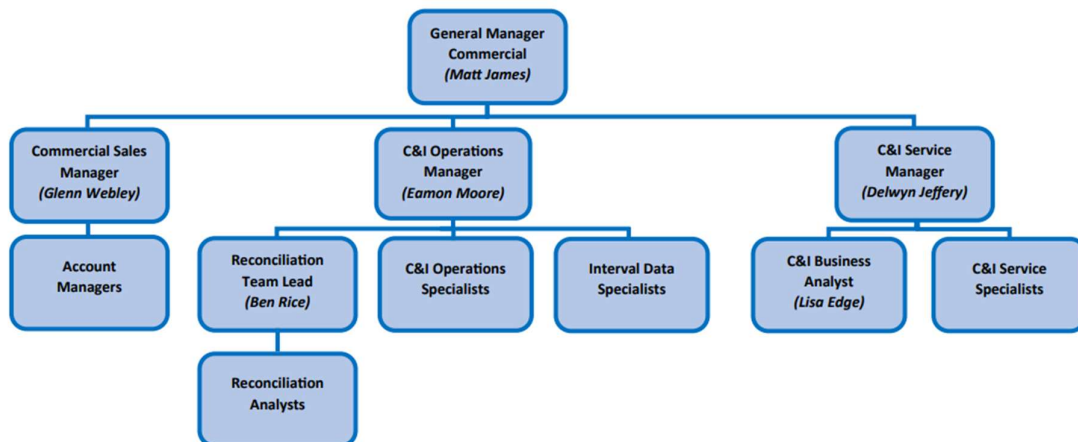
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

#### Audit commentary

There are no exemptions in place relevant to the scope of this audit.

### 1.2. Structure of Organisation

Manawa provided a copy of their organisational structure:



### 1.3. Persons involved in this audit

Auditors:

Name	Role	Company
Tara Gannon	Auditor	Provera

Other personnel assisting in this audit were:

Name	Title	Company
Jamie Watts	Commercial and Industrial Operations Specialist	Manawa Energy
Phil Hamblin	Senior Network Manager Nelson/Tasman	Waka Kotahi

### 1.4. Hardware and Software

#### **RAMM**

The SQL database used for the management of DUML is remotely hosted by thinkproject New Zealand Limited. The database is commonly known as “RAMM” which stands for “Road Assessment and Maintenance Management”. The specific data used for DUML is held in the Streetlight tables. thinkproject New Zealand Limited backs up the database and assists with disaster recovery as part of their hosting service.

#### **Manawa systems**

Systems used by the trader to calculate submissions are assessed as part of their reconciliation participant audits.

### 1.5. Breaches or Breach Allegations

There are no breach allegations relevant to the scope of this audit.

### 1.6. ICP Data

ICP Number	Description	NSP	Profile	Number of items of load	Database wattage (watts)
0000202024CT59F	NZTA SH6 Streetlights	STK0331	STL	114	18,403

### 1.7. Authorisation Received

All information was provided directly by Manawa and Waka Kotahi.



## 1.8. Scope of Audit

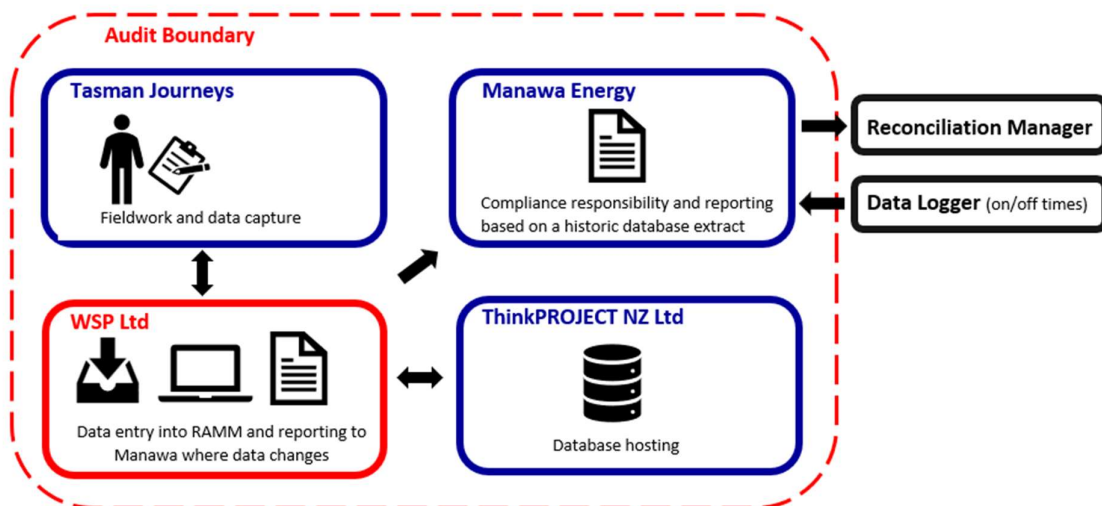
This audit of the NZTA Nelson Unmetered Streetlights DUML database and processes was conducted at the request of Manawa, in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied. The audit was conducted in accordance with the audit guidelines for DUML audits version 1.1.

A RAMM database is held by Waka Kotahi, and remotely hosted by thinkproject New Zealand Limited (formerly RAMM NZ Ltd). Field work is carried out by Tasman Journeys who record light and pole details on paper forms, and the data is entered into RAMM by WSP Ltd (formerly Opus Consulting). WSP Ltd are contractors to Tasman Journeys, and WSP Ltd staff located in the Tasman Journeys complete data entry into RAMM as paperwork is received.

Manawa submits the DUML load as NHH using the STL profile. On hours are derived using data logger information and the wattage is derived from a historic database extract which was validated through a field audit by the Manawa Account Manager in August 2022.

The audit considered the accuracy of Manawa's historic DUML extract because it is used for submission.

The scope of the audit encompasses the collection, security, and accuracy of the data, including the preparation of submission information based on the database reporting. The diagram below shows the audit boundary for clarity.



The field audit of all items of load was undertaken on 14 July 2023.

### 1.9. Summary of previous audit

The previous audit was undertaken by Steve Woods of Veritek Limited in September 2022. The summary table below shows the statuses of the non-compliances and recommendations raised in the previous audit. Further comment is made in the relevant sections of this report.

#### **Table of Non-Compliance**

Subject	Section	Clause	Non-compliance	Status
Deriving submission information	2.1	Clause 11(1) of Schedule 15.3	Eight lights with the incorrect light description. The correct wattage is recorded so this has no impact on reconciliation.  17 items of load do not have a lamp make and lamp model populated in the database.	Still existing
Description and capacity of load	2.4	Clause 11(2)(c) & (d) of Schedule 15.3	17 lights with no lamp make and model populated.	Still existing
All load recorded in database	2.5	Clause 11(2A) of Schedule 15.3	One additional light found in the field.	Still existing
Database accuracy	3.1	Clause 15.2 and 15.37B(b)	Eight lights with the incorrect light description. The correct wattage is recorded so this has no impact on reconciliation.  17 items of load do not have a lamp make and lamp model populated in the database.	Still existing
Volume information accuracy	3.2	Clause 15.2 and 15.37B(c)	Eight lights with the incorrect light description. The correct wattage is recorded so this has no impact on reconciliation.  17 items of load do not have a lamp model and lamp model populated in the database.	Still existing

#### **Table of Recommendations**

Subject	Section	Recommendation	Status
Database accuracy	3.1	Review the change management process to ensure that updates made in the field are updated in the database in a timely manner, and reporting is provided to Manawa.	No change, re-raised

## 1.10. Distributed unmetered load audits (Clause 16A.26 and 17.295F)

### **Code reference**

*Clause 16A.26 and 17.295F*

### **Code related audit information**

*Retailers must ensure that DUML database audits are completed:*

- 1. by 1 June 2018 (for DUML that existed prior to 1 June 2017)*
- 2. within three months of submission to the reconciliation manager (for new DUML)*
- 3. within the timeframe specified by the Authority for DUML that has been audited since 1 June 2017.*

### **Audit observation**

Manawa have requested Provera to undertake this streetlight audit.

### **Audit commentary**

This audit report confirms that the requirement to conduct an audit has been met for this database.

### **Audit outcome**

Compliant

## 2. DUML DATABASE REQUIREMENTS

### 2.1. Deriving submission information (Clause 11(1) of Schedule 15.3)

#### Code reference

Clause 11(1) of Schedule 15.3

#### Code related audit information

The retailer must ensure the:

- DUML database is up to date
- methodology for deriving submission information complies with Schedule 15.5.

#### Audit observation

The process for calculation of consumption was examined and the application of profiles was checked. The database extract used for submission was checked for accuracy.

#### Audit commentary

Manawa submits the DUML load as NHH using the STL profile. On hours are derived using data logger information and the wattage is derived from a historic database extract which was validated through a field audit by the Manawa Account Manager in August 2022. The field audit indicated that the database extract was within the allowable  $\pm 5\%$  accuracy threshold and is therefore deemed to be accurate.

I reviewed the submission information for May 2023 and confirmed that the calculation methodology was correct, with wattages based on the historic database extract totals and on hours based on data logger information.

Volume inaccuracy is present as follows:

Discrepancy	Potential impact on submission
17 items of load do not have a lamp make and lamp model populated in the database. The field audit confirmed that the wattages were correct and there is no impact on submission.	No impact
Eight items of load have incorrect lamp model information populated in the database. The field audit confirmed that the wattages were correct and there is no impact on submission.	No impact
Three LED lights have 28W of ballast recorded in the database but should have 0W of ballast.	Estimated over submission of 359 kWh per annum.

The database extract used for submission does not record installation or change dates.

#### Audit outcome

Non-compliant

Non-compliance	Description	
<p>Audit Ref: 2.1 With: Clause 11(1) of Schedule 15.3</p> <p>From: 01-Jun-23 To: 31-Jul-23</p>	<p>17 items of load do not have a lamp make and lamp model populated in the database. The field audit confirmed that the wattages were correct and there is no impact on submission.</p> <p>Eight items of load have incorrect lamp model information populated in the database. The field audit confirmed that the wattages were correct and there is no impact on submission.</p> <p>Three LED lights have 28W of ballast recorded in the database but should have 0W of ballast. This could result in estimated over submission of 359 kWh per annum.</p> <p>The database extract used for submission does not record installation or change dates. This is expected to have no impact as no known changes have occurred.</p> <p>Potential impact: Low Actual impact: Low Audit history: Twice Controls: Weak Breach risk rating: 3</p>	
Audit risk rating	Rationale for audit risk rating	
<p><b>Low</b></p>	<p>The controls are rated as weak as changes made in the field are not being reflected in the database extract and I have recommended this process is reviewed.</p> <p>The impact is assessed to be low due to the field audit confirming the correct wattage.</p>	
Actions taken to resolve the issue	Completion date	Remedial action status
<p>Manawa to work with Phil Hamblin &amp; Waka Kotahi (WK) to investigate Nelson SH6 database inaccuracy and update the data where required. We will also update the identified LED Ballast issue and assess whether any revision is required in the available 14-month period.</p>	<p>01/11/2023</p>	<p>Identified</p>
Preventative actions taken to ensure no further issues will occur	Completion date	
<p>WK has outlined their plan for improving their DUMML data across NZ by consolidating DUMML by region and centralising each region in a RAMM database managed by WK themselves rather than contracted local entities. Manawa is supportive of this project and will continue to work with WK to make sure that the ongoing maintenance of these centralised databases is also addressed.</p>	<p>01/09/2024</p>	

## 2.2. ICP identifier and items of load (Clause 11(2)(a) and (aa) of Schedule 15.3)

### Code reference

*Clause 11(2)(a) and (aa) of Schedule 15.3*

### Code related audit information

*The DUMML database must contain:*

- *each ICP identifier for which the retailer is responsible for the DUML*
- *the items of load associated with the ICP identifier.*

**Audit observation**

The database was checked to confirm an ICP is recorded for each item of load.

**Audit commentary**

All items of load have an ICP number recorded.

**Audit outcome**

Compliant

**2.3. Location of each item of load (Clause 11(2)(b) of Schedule 15.3)**

**Code reference**

*Clause 11(2)(b) of Schedule 15.3*

**Code related audit information**

*The DUML database must contain the location of each DUML item.*

**Audit observation**

The database was checked to confirm the location is recorded for all items of load.

**Audit commentary**

The database contains fields for the road, pole number, location number, road side, and GPS coordinates. GPS coordinates are recorded for all 114 items of load.

**Audit outcome**

Compliant

**2.4. Description and capacity of load (Clause 11(2)(c) and (d) of Schedule 15.3)**

**Code reference**

*Clause 11(2)(c) and (d) of Schedule 15.3*

**Code related audit information**

*The DUML database must contain:*

- *a description of load type for each item of load and any assumptions regarding the capacity*
- *the capacity of each item in watts.*

**Audit observation**

The database was checked to confirm that it contained a field for lamp type and wattage capacity and included any ballast or gear wattage.

**Audit commentary**

The database contains field for light make, light model, gear make, gear model, lamp make, lamp model, lamp wattage, ballast, and total wattage. All items of load have a lamp wattage, ballast wattage and total wattage recorded.

17 items of load do not have a lamp make and model recorded. The light model for these lights is recorded as LED, and no other make or model information is available. During the field audit I confirmed that the wattages recorded for these lamps were correct.

The accuracy of the lamp description, capacity, and ballasts recorded is discussed in **section 3.1**.

**Audit outcome**

Non-compliant

Non-compliance	Description		
Audit Ref: 2.4 With: Clause 11(2)(c) & (d) of Schedule 15.3  From: 01-Jun-23 To: 31-Jul-23	17 items of load do not have a lamp make and lamp model populated in the database. The field audit confirmed that the wattages were correct and there is no impact on submission.  Potential impact: Low  Actual impact: Low  Audit history: Once  Controls: Weak  Breach risk rating: 3		
Audit risk rating	Rationale for audit risk rating		
<b>Low</b>	The controls are recorded as weak because 17/114 (15%) items of load do not have a lamp make and model recorded. The field audit confirmed that the wattages were correct and there is no impact on submission.		
Actions taken to resolve the issue		Completion date	Remedial action status
Manawa to work with Phil Hamblin & Waka Kotahi (WK) to - identify individual lamp make and models so that the database can be updated.		01/11/2023	Identified
Preventative actions taken to ensure no further issues will occur		Completion date	
WK has outlined their plan for improving their DUMML data across NZ by consolidating DUMML by region and centralising each region in a RAMM database managed by WK themselves rather than contracted local entities. Manawa is supportive of this project and will continue to work with WK to make sure that the ongoing maintenance of these centralised databases is also addressed.		01/09/2024	

**2.5. All load recorded in database (Clause 11(2A) of Schedule 15.3)**

**Code reference**

*Clause 11(2A) of Schedule 15.3*

**Code related audit information**

*The retailer must ensure that each item of DUMML for which it is responsible is recorded in this database.*

**Audit observation**

The field audit was undertaken of the entire database on 14 July 2023.

### Audit commentary

The field audit discrepancies are detailed in the table below:

Address	Database Count	Field Count	Count differences	Wattage differences	Comments
SH 6 WAKEFIELD QUAY	1	1	-	1	One 150W SON outside 300 Haven Road (pole ID 3066) was recorded as L103 in the database extract.
MAITAI TO ROCKS ROAD CYCLEWAY - COLLINS STREET TO ROCKS ROAD	1	1	-	1	One L150 (pole ID 3053) was recorded as LED 148W in the database extract.
SH 6 HAVEN ROAD (SOUTHBOUND)	1	1	-	1	One L150 (pole ID 7789) was recorded as LED 148W in the database extract.
SH 6 HAVEN ROAD (NORTHBOUND)	1	1	-	1	One L150 (pole ID 7788) was recorded as LED 148W in the database extract.
SH 6 HAVEN ROAD (SOUTHBOUND)	1	1	-	1	One L150 (pole ID 7792) was recorded as LED 148W in the database extract.
SH 6 HAVEN ROAD (SOUTHBOUND)	1	1	-	1	One L150 (pole ID 7793) was recorded as LED 148W in the database extract.
SH 6 HAVEN ROAD (SOUTHBOUND)	1	1	-	1	One L150 (pole ID 3043) was recorded as LED 148W in the database extract.
MAITAI TO ROCKS ROAD CYCLEWAY - HAY STREET TO COLLINS STREET	1	1	-	1	One L150 (pole ID 3051) was recorded as LED 148W in the database extract.
SH 6 ROCKS ROAD	1	1	-	1	One L103 (pole ID 3105) was labelled LED 150 in the database extract.
HAVEN ROAD (ARTERIAL, SOUTHBOUND)	1	1	-	1	One L150 (pole ID 491) was recorded as LED 148W in the database extract.
SH 6 QUEEN ELIZABETH II DRIVE	1	1	-	1	One L103 (pole 33) at the corner of SH6 and Kinzett Tce was recorded as HPS 400W in the database extract.
CNR WAKEFIELD QY AND VICTORIA RD	-	1	1	-	One 150W SON at the corner of Wakefield Quay and Victoria Road was missing from the database extract. The previous audit comments indicated this light had been added. All 150W SON lights recorded in the database have GPS locations, and none matched this location.
<b>Total</b>	<b>114</b>	<b>115</b>	<b>+1</b>	<b>11</b>	

The field audit found one additional light in the field. This is recorded as non-compliance below. The accuracy of the database is detailed in **section 3.1**.



## Audit outcome

Non-compliant

Non-compliance	Description	
Audit Ref: 2.5 With: Clause 11(2A) of Schedule 15.3 From: 04-Aug-21 To: 31-Jul-23	One additional light found in the field. Potential impact: Low Actual impact: Low Audit history: Twice Controls: Moderate Breach risk rating: 2	
Audit risk rating	Rationale for audit risk rating	
<b>Low</b>	The controls are rated as moderate, because they are sufficient to ensure that lamp information is correctly recorded most of the time. The impact is assessed to be low as only one additional item of load was found in the field audit.	
Actions taken to resolve the issue	Completion date	Remedial action status
Manawa to work with Phil Hamblin & Waka Kotahi (WK) to add additional lamp to database.	01/11/2023	Identified
Preventative actions taken to ensure no further issues will occur	Completion date	
WK has outlined their plan for improving their DUMML data across NZ by consolidating DUMML by region and centralising each region in a RAMM database managed by WK themselves rather than contracted local entities. Manawa is supportive of this project and will continue to work with WK to make sure that the ongoing maintenance of these centralised databases is also addressed.	01/09/2024	

## 2.6. Tracking of load changes (Clause 11(3) of Schedule 15.3)

### Code reference

*Clause 11(3) of Schedule 15.3*

### Code related audit information

*The DUMML database must track additions and removals in a manner that allows the total load (in kW) to be retrospectively derived for any given day.*

### Audit observation

The process for tracking of changes in the database was examined.

### Audit commentary

The RAMM database functionality achieves compliance with the code.

The database tracks additions and removals as required by this clause. The “light install date” is used to identify the date lights are installed and the date lights are changed.

**Audit outcome**

Compliant

**2.7. Audit trail (Clause 11(4) of Schedule 15.3)**

**Code reference**

*Clause 11(4) of Schedule 15.3*

**Code related audit information**

*The DUMML database must incorporate an audit trail of all additions and changes that identify:*

- *the before and after values for changes*
- *the date and time of the change or addition*
- *the person who made the addition or change to the database*

**Audit observation**

The database was checked for audit trails.

**Audit commentary**

The RAMM database has a complete audit trail of all additions and changes to the database information.

**Audit outcome**

Compliant

### 3. ACCURACY OF DUML DATABASE

#### 3.1. Database accuracy (Clause 15.2 and 15.37B(b))

##### Code reference

Clause 15.2 and 15.37B(b)

##### Code related audit information

Audit must verify that the information recorded in the retailer's DUML database is complete and accurate.

##### Audit observation

Manawa submits the DUML load as NHH using the STL profile. On hours are derived using data logger information and the wattage is derived from a historic database extract which was validated through a field audit by the Manawa Account Manager in August 2022. I assessed the accuracy of the extract used for submission by conducting a field audit of all lights.

Wattages were checked for alignment with the published standardised wattage table produced by the Electricity Authority.

##### Audit commentary

###### Database accuracy based on the field audit

The full field audit found 11 errors and one missing light as discussed in **section 2.5**. The field wattage was 99.16% of the database wattage. Accuracy is within the  $\pm 5\%$  accuracy threshold.

###### Light description and capacity accuracy

The database contains field for light make, light model, gear make, gear model, lamp make, lamp model, lamp wattage, ballast, and total wattage. All items of load have a lamp wattage, ballast wattage and total wattage recorded.

17 items of load do not have a lamp make and model recorded. The light model for these lights is recorded as LED, and no other make or model information is available. During the field audit I confirmed that the wattages recorded for these lamps were correct.

Lamp models were compared to the expected model information, and eight lights had lamp wattages inconsistent with the lamp model information. The wattages were confirmed to be correct during the field audit.

Lamp Model recorded	Expected Lamp Model	Quantity	Recorded Lamp Wattage	Comment
HPS-T-150	HPS-T-250	1	250	The wattage was confirmed to be correct in the field audit.
Italo 2 6 Module LED 700mA	HPS-T-250	3	250	
Italo2 8 module 700MA 201	Italo2 6 module 700MA	3	150	
Italo2 8 module 700MA 201	Italo2 6 module 700MA	1	213	

The following lamps appear to have incorrect ballast wattages recorded. Waka Kotahi intends to check these with Tasman Journeys and communicate any corrections to Manawa.

Lamp make and model	pole number	Ballast wattage	Expected ballast wattage
AEC Illuminazione LED-Italo 2 6 Module LED 700mA	37	28	0
AEC Illuminazione LED-Italo 2 6 Module LED 700mA	40	28	0
AEC Illuminazione LED-Italo 2 6 Module LED 700mA	36	28	0

### Change management process findings

Maintenance and new connection field work is carried out by Tasman Journeys who record light and pole details on paper forms, and the data is entered into RAMM by WSP Ltd. WSP Ltd are contractors to Tasman Journeys, and WSP Ltd staff located in the Tasman Journeys complete data entry into RAMM as paperwork is received.

There is no regular reporting from the database to Manawa. Manawa have requested that if changes to database occur, a database extract (including change dates) is provided so that submission data can be correctly calculated. No database updates have been received since submission commenced for this ICP, and it appears that at least one light was upgraded during the audit period - pole 33 at the corner of SH6 and Kinzett Tce was recorded as HPS 400W in the database extract but an L103 was present in the field on 14 July 2023. I repeat the previous audit recommendation to review the update process and ensure reporting is provided to Manawa where changes are made.

Recommendation	Description	Audited party comment	Remedial action
Change management	Review the change management process to ensure that updates made in the field are updated in the database in a timely manner, and reporting is provided to Manawa.	<p>WK has outlined their plan for improving their DUMML data across NZ by consolidating DUMML by region and centralising each region in a RAMM database managed by WK themselves rather than contracted local entities. Manawa is supportive of this project and will continue to work with WK to make sure that the ongoing maintenance of these centralised databases is also addressed.</p> <p>Manawa will also work with WK to address the maintenance process in the short term while this project is under way so any changes that occur before consolidation are updated in the submission data.</p>	Identified

Quarterly Outage Patrols are completed by Tasman Journeys.

### LED upgrades

Lights have been replaced with LEDs where funding was available. The remaining non-LED lights will be upgraded as they fail if replacement parts cannot be sourced. Waka Kotahi has no plans to use dimming.

### Festive and private lights

There are no private or festive lights associated with the NZTA lights.

### Audit outcome

Non-compliant

Non-compliance	Description	
Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b)  From: 01-Jun-22 To: 31-Jul-23	17 items of load do not have a lamp make and lamp model populated in the database. The field audit confirmed that the wattages were correct and there is no impact on submission.  Eight items of load have incorrect lamp model information populated in the database. The field audit confirmed that the wattages were correct and there is no impact on submission.  Three LED lights have 28W of ballast recorded in the database but should have 0W of ballast. This could result in estimated over submission of 359 kWh per annum.  Actual impact: Low  Audit history: Twice  Controls: Weak  Breach risk rating: 3	
Audit risk rating	Rationale for audit risk rating	
<b>Low</b>	The controls are rated as weak as changes made in the field are not being reflected in the database extract and I have recommended this process is reviewed. The impact is assessed to be low due to the field audit confirming the correct wattage.	
Actions taken to resolve the issue	Completion date	Remedial action status
Manawa to work with Phil Hamblin & Waka Kotahi (WK) to investigate Nelson SH6 database inaccuracy and update the data where required. We will also update the identified LED Ballast issue and assess whether any revision is required in the available 14-month period.	01/11/2023	Investigating
Preventative actions taken to ensure no further issues will occur	Completion date	
WK has outlined their plan for improving their DUMML data across NZ by consolidating DUMML by region and centralising each region in a RAMM database managed by WK themselves rather than contracted local entities. Manawa is supportive of this project and will continue to work with WK to make sure that the ongoing maintenance of these centralised databases is also addressed.	01/09/2024	

### 3.2. Volume information accuracy (Clause 15.2 and 15.37B(c))

#### Code reference

Clause 15.2 and 15.37B(c)

#### Code related audit information

The audit must verify that:

- volume information for the DUMML is being calculated accurately
- profiles for DUMML have been correctly applied.

### Audit observation

Submission data was checked for accuracy, including:

- checking the registry to confirm that all ICPs have the correct profile and submission flag, and
- checking the database extract combined with the burn hours against the submitted figure to confirm accuracy.

### Audit commentary

Manawa submits the DUML load as NHH using the STL profile. On hours are derived using data logger information and the wattage is derived from a historic database extract which was validated through a field audit by the Manawa Account Manager in August 2022. The field audit indicated that the database extract was within the allowable  $\pm 5\%$  accuracy threshold and is therefore deemed to be accurate.

I reviewed the submission information for May 2023 and confirmed that the calculation methodology was correct, with wattages based on the historic database extract totals and on hours based on data logger information.

Volume inaccuracy is present as follows:

Discrepancy	Potential impact on submission
17 items of load do not have a lamp make and lamp model populated in the database. The field audit confirmed that the wattages were correct and there is no impact on submission.	No impact
Eight items of load have incorrect lamp model information populated in the database. The field audit confirmed that the wattages were correct and there is no impact on submission.	No impact
Three LED lights have 28W of ballast recorded in the database but should have 0W of ballast.	Estimated over submission of 359 kWh per annum.

The database extract used for submission does not record installation or change dates.

### Audit outcome

Non-compliant

Non-compliance	Description
<p>Audit Ref: 3.2</p> <p>With: Clause 15.2 and 15.37B(c)</p> <p>From: 01-Jun-23</p> <p>To: 31-Jul-23</p>	<p>17 items of load do not have a lamp make and lamp model populated in the database. The field audit confirmed that the wattages were correct and there is no impact on submission.</p> <p>Eight items of load have incorrect lamp model information populated in the database. The field audit confirmed that the wattages were correct and there is no impact on submission.</p> <p>Three LED lights have 28W of ballast recorded in the database but should have 0W of ballast. This could result in estimated over submission of 359 kWh per annum.</p> <p>The database extract used for submission does not record installation or change dates. This is expected to have no impact as no known changes have occurred.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Twice</p>

	Controls: Weak Breach risk rating: 3	
<b>Audit risk rating</b>	<b>Rationale for audit risk rating</b>	
<b>Low</b>	The controls are rated as weak as changes made in the field are not being reflected in the database extract and I have recommended this process is reviewed.  The impact is assessed to be low due to the field audit confirming the correct wattage.	
<b>Actions taken to resolve the issue</b>	<b>Completion date</b>	<b>Remedial action status</b>
Manawa to work with Phil Hamblin & Waka Kotahi (WK) to investigate Nelson SH6 database inaccuracy and update the data where required. We will also update the identified LED Ballast issue and assess whether any revision is required in the available 14-month period.	01/11/2023	Investigating
<b>Preventative actions taken to ensure no further issues will occur</b>	<b>Completion date</b>	
WK has outlined their plan for improving their DUMML data across NZ by consolidating DUMML by region and centralising each region in a RAMM database managed by WK themselves rather than contracted local entities. Manawa is supportive of this project and will continue to work with WK to make sure that the ongoing maintenance of these centralised databases is also addressed.  Manawa will also work with WK to address the maintenance process in the short term while this project is under way so any changes that occur before consolidation are updated in the submission data	01/09/2024	

## CONCLUSION

A RAMM database is held by Waka Kotahi. There is no regular reporting from the database to Manawa. Manawa have requested that if changes to database occur, a database extract (including change dates) is provided so that submission data can be correctly calculated.

Manawa submits the DUML load as NHH using the STL profile. On hours are derived using data logger information and the wattage is derived from a historic database extract which was validated through a field audit by the Manawa Account Manager in August 2022.

The audit considered the accuracy of Manawa's historic DUML extract because it is used for submission. A full field audit was undertaken, and the database was within the allowable  $\pm 5\%$  accuracy threshold and is therefore deemed to be accurate. Based on the field audit findings and database analysis, it appears that some discrepancies identified during the last audit have not been corrected, and that some changes in the field have not been reflected in the database extract.

This audit found five non-compliances and one recommendation is made. The future risk rating of 14 indicates that the next audit be completed in 12 months. I have considered this in conjunction with Manawa's comments and agree with this recommendation.

## PARTICIPANT RESPONSE

The full field audit undertaken on this DUML has identified some minor issues which Manawa is confident we can address in the short term to improve the accuracy of our submission data. Manawa will take action in the coming month to address the identified issues regarding the lamp make/model information, ballast information, and additional lamp. Any remediation within the available 14-month period will be corrected in our start of month reconciliation process.

As outlined in our commentary Waka Kotahi (WK) is undertaking a project to improve the accuracy of their DUML across the country by consolidating local DUML into a regional database managed centrally by WK themselves. Manawa recognises that this is a significant undertaking for WK, with each region having different challenges; because of this we believe an audit period of 18 months is appropriate for this database.

Thank you, Provera, for undertaking this audit, and travelling to Nelson to conduct a full in-field assessment.