

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: 20 July 2024

Date audit report completed: 29 July 2024

Audit report due date: 4 August 2024

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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.

At the time of the previous audit, a RAMM database was held by **NZTA**, and remotely hosted by **thinkproject New Zealand Limited** (formerly RAMM NZ Ltd). Field work was carried out by **Tasman Journeys** who recorded light and pole details on paper forms, and the data was entered into RAMM by **WSP Ltd** (formerly Opus Consulting). WSP Ltd were contractors to Tasman Journeys, and WSP Ltd staff located in Tasman Journeys completed data entry into RAMM as paperwork was received. I attempted to verify any process changes with NZTA, but had not received a response by the time the draft report needed to be issued.

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. Over time as lights are changed in the field, database accuracy is decreasing.

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 field audit on 20 July 2024 found that the estimated field wattage is 94.4% of the database wattage, and the database is not accurate within $\pm 5\%$. The estimated field wattage is 1,031 W lower than the database wattage, leading to an estimated under submission of 4,403 kWh per annum.

This audit found five non-compliances and one recommendation is made. The future risk rating of 15 indicates that the next audit be completed in 12 months, and due to the low volume of over submission I 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>The field audit on 20 July 2024 found that the estimated field wattage is 94.4% of the database wattage, and the database is not accurate within ± 5 leading to an estimated under submission of 4,403 kWh per annum.</p> <p>17 items of load do not have a lamp make and model recorded. During the field audit I confirmed the wattages for these lamps were correct for 14 lights and incorrect for three lights, leading to an estimated under submission of 380 kWh per annum.</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 lamps were recorded in the database with a mix of high pressure sodium and LED light information. Two of the lamps had incorrect wattages recorded resulting in over submission of 336W or 1,435 kWh per annum.</p> <p>The database extract used for submission does not record installation or change dates.</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 model recorded. During the field audit I confirmed the wattages for these lamps were correct for 14 lights and</p> | Weak | Low | 3 | Investigating |

| Subject | Section | Clause | Non-Compliance | Controls | Audit Risk Rating | Breach Risk Rating | Remedial Action |
|-------------------------------|---------|--------------------------------|---|----------|-------------------|--------------------|-----------------|
| | | | incorrect for three lights, leading to an estimated under submission of 380 kWh per annum. | | | | |
| All load recorded in database | 2.5 | Clause 11(2A) of Schedule 15.3 | Three additional lights found in the field. | Weak | Low | 3 | Investigating |
| Database accuracy | 3.1 | Clause 15.2 and 15.37B(b) | <p>The field audit on 20 July 2024 found that the estimated field wattage is 94.4% of the database wattage, and the database is not accurate within ± 5 leading to an estimated under submission of 4,403 kWh per annum.</p> <p>17 items of load do not have a lamp make and model recorded. During the field audit I confirmed the wattages for these lamps were correct for 14 lights and incorrect for three lights, leading to an estimated under submission of 380 kWh per annum.</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 lamps were recorded in the database with a mix of high pressure sodium and LED light information. Two of the lamps had incorrect wattages recorded resulting in over submission of 336W or 1,435 kWh per annum.</p> | Weak | Low | 3 | Investigating |
| Volume information accuracy | 3.2 | Clause 15.2 and 15.37B(c) | The field audit on 20 July 2024 found that the estimated field wattage is 94.4% of the database wattage, and the database is not accurate within ± 5 leading to an estimated under | Weak | Low | 3 | Investigating |

| Subject | Section | Clause | Non-Compliance | Controls | Audit Risk Rating | Breach Risk Rating | Remedial Action |
|--------------------|---------|--------|---|----------|-------------------|--------------------|-----------------|
| | | | <p>submission of 4,403 kWh per annum.</p> <p>17 items of load do not have a lamp make and model recorded. During the field audit I confirmed the wattages for these lamps were correct for 14 lights and incorrect for three lights, leading to an estimated under submission of 380 kWh per annum.</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 lamps were recorded in the database with a mix of high pressure sodium and LED light information. Two of the lamps had incorrect wattages recorded resulting in over submission of 336W or 1,435 kWh per annum.</p> <p>The database extract used for submission does not record installation or change dates.</p> | | | | |
| Future Risk Rating | | | | | | 15 | |

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

RECOMMENDATIONS

| Subject | Section | Recommendation | Comment |
|-------------------|---------|--|---|
| Change management | 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. | Manawa will work with the NZTA to help strengthen their process for maintaining this DUML, Manawa is aware of NZTAs ongoing work to amalgamate regions of DUML into |

| Subject | Section | Recommendation | Comment |
|---------|---------|----------------|--|
| | | | one DB, so we will encourage NZTA to include this DB into the wider Nelson region. |

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

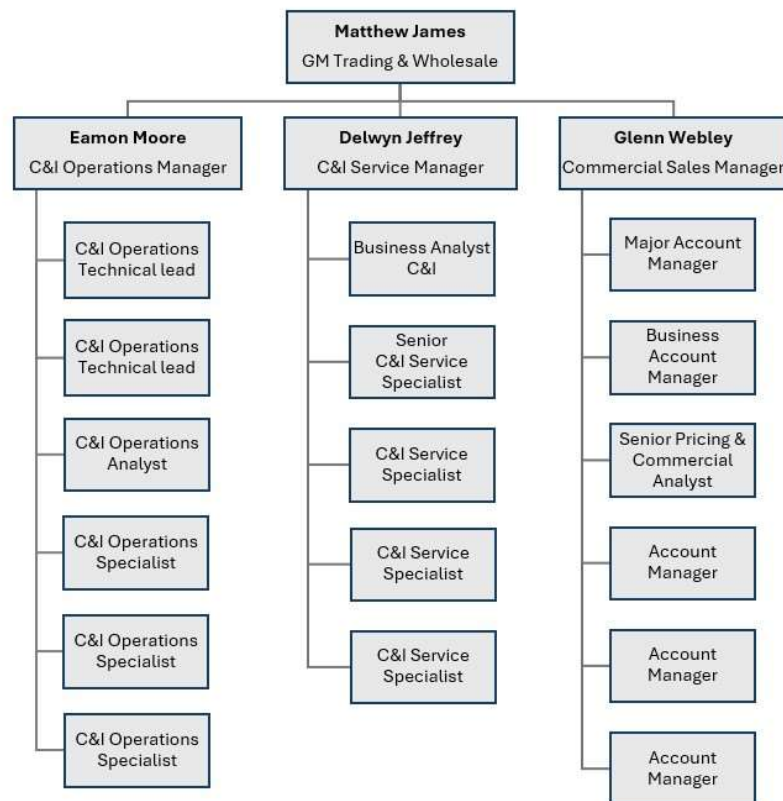
The Electricity Authority's website was reviewed to identify any exemptions relevant to the scope of this audit.

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 |
|---------------|---|---------------------------------|
| Eamon Moore | Commercial and Industrial Operations Specialist | Manawa Energy |
| Drew Chalmers | Network Manager, Nelson Tasman | NZ Transport Agency 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 NZTA.

1.8. Scope of Audit

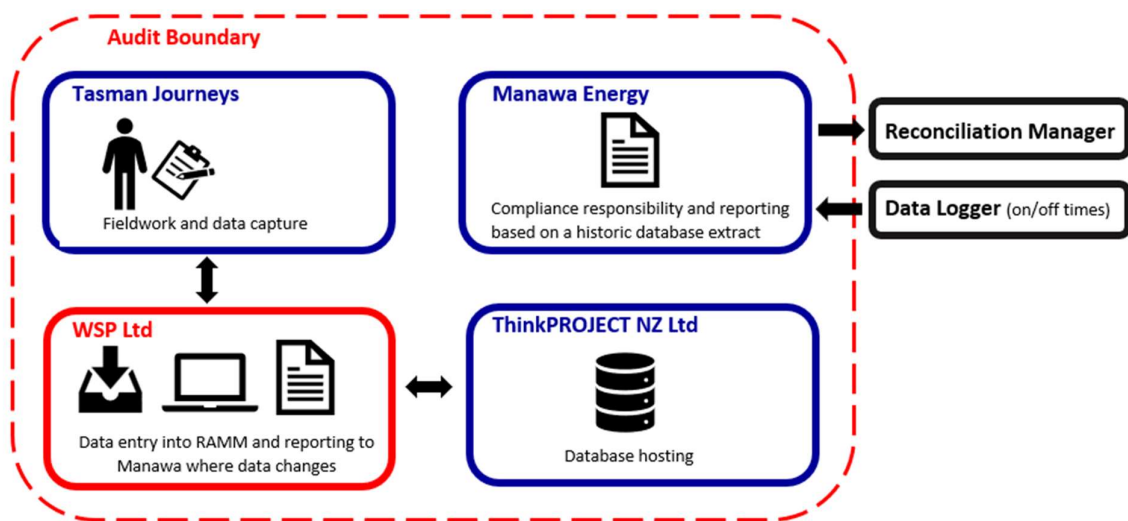
This audit of the NZTA Nelson Unmetered Streetlights DUML database and processes was conducted at the request of Manawa, in accordance with clause 15.37B. The purpose of this audit is to verify that the volume information is being calculated accurately, and that profiles have been correctly applied.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

At the time of the previous audit, a RAMM database is held by NZTA, and remotely hosted by thinkproject New Zealand Limited (formerly RAMM NZ Ltd). Field work was carried out by Tasman Journeys who recorded light and pole details on paper forms, and the data was entered into RAMM by WSP Ltd (formerly Opus Consulting). WSP Ltd were contractors to Tasman Journeys, and WSP Ltd staff located in Tasman Journeys completed data entry into RAMM as paperwork was received. I attempted to verify any process changes with NZTA, but had not received a response by the time the draft report needed to be issued.

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 20 July 2024.

1.9. Summary of previous audit

The previous audit was undertaken by Tara Gannon of Provera in July 2023. 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 | 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. | Still existing |
| | | | 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. | Still existing |
| | | | Three LED lights have 28W of ballast recorded in the database but should have 0W of ballast. This could result in an estimated over submission of 359 kWh per annum. | Still existing |
| | | | 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. | Still existing |
| Description and capacity of load | 2.4 | Clause 11(2)(c) & (d) of schedule 15.3 | 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. | 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) | 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. | Still existing |
| | | | 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. | Still existing |
| | | | Three LED lights have 28W of ballast recorded in the database but should have 0W of ballast. This could result in an estimated over submission of 359 kWh per annum. | Still existing |
| Volume information accuracy | 3.2 | Clause 15.2 and 15.37B(c) | 17 items of load do not have a lamp make and lamp model populated in the database. The field audit | Still existing |

| Subject | Section | Clause | Non-compliance | Status |
|---------|---------|--------|---|--|
| | | | 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 an estimated over submission of 359 kWh per annum. 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. | Still existing Still existing 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.

I reviewed the submission information for May 2024 and confirmed that it 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 |
|---|---|
| The field audit on 20 July 2024 found that the estimated field wattage is 94.4% of the database wattage, and the database is not accurate within $\pm 5\%$. The estimated field wattage is 1,031 W lower than the database wattage. | Estimated under submission of 4,403 kWh per annum. |
| 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 the wattages for these lamps were correct apart from: <ul style="list-style-type: none"> • pole 56 - 150W SON is recorded in the database as a 107W LED, • pole 91 - L103 is recorded in the database as LED 150W, and • pole 99 - no head on pole outside 541 Rocks Road which is recorded as a L103. | Estimated over submission of 380 kWh per annum ¹ . |
| 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 lamps were recorded in the database with a mix of high pressure sodium and LED light information. Two of the lamps had incorrect wattages recorded. | Estimated over submission of 1,435 kWh per annum ² . |

¹ Also counted in the 4,403 kWh difference for field audit accuracy.

² Also counted in the 4,403 kWh difference for field audit accuracy.

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-Aug-22 To: 20-Jul-24</p> | <p>The field audit on 20 July 2024 found that the estimated field wattage is 94.4% of the database wattage, and the database is not accurate within ± 5 leading to an estimated under submission of 4,403 kWh per annum.</p> <p>17 items of load do not have a lamp make and model recorded. During the field audit I confirmed the wattages for these lamps were correct for 14 lights and incorrect for three lights, leading to an estimated under submission of 380 kWh per annum.</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 lamps were recorded in the database with a mix of high pressure sodium and LED light information. Two of the lamps had incorrect wattages recorded resulting in over submission of 336W or 1,435 kWh per annum.</p> <p>The database extract used for submission does not record installation or change dates.</p> <p>Potential impact: Low Actual impact: Low Audit history: Three times Controls: Weak Breach risk rating: 3</p> | |
| Audit risk rating | Rationale for audit risk rating | |
| <p>Low</p> | <p>The controls are weak because changes made in the field are not being reflected in the database, which has not changed since August 2022.</p> <p>The impact is low based on the wattage differences identified.</p> | |
| Actions taken to resolve the issue | Completion date | Remedial action status |
| <p>Manawa will engage with NZTA and encourage them to complete a full field audit to identify changes to this DUML and update the database</p> | <p>01/11/2024</p> | <p>Investigating</p> |
| Preventative actions taken to ensure no further issues will occur | Completion date | |
| <p>Manawa will work with the NZTA to help strengthen their process for maintaining this DUML, Manawa is aware of NZTAs ongoing work to amalgamate regions of DUML into one DB, so we will encourage NZTA to include this DB into the wider Nelson region.</p> | <p>01/06/2025</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 DUML 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 fields 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/or 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 the wattages for these lamps were correct apart from:

- pole 56 - 150W SON is recorded in the database as a 107W LED,
- pole 91 - L103 is recorded in the database as LED 150W, and
- pole 99 - no head on pole outside 541 Rocks Road which is recorded as a L103.

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: 02-Jul-24 | 17 items of load do not have a lamp make and model recorded. During the field audit I confirmed the wattages for these lamps were correct for 14 lights and incorrect for three lights, leading to an estimated under submission of 380 kWh per annum. Potential impact: Low Actual impact: Low Audit history: Once Controls: Weak Breach risk rating: 3 | |
| Audit risk rating | Rationale for audit risk rating | |
| Low | The controls are weak because 17/114 (15%) items of load do not have a lamp make and model recorded. The impact is low based on the wattage differences identified. | |
| Actions taken to resolve the issue | Completion date | Remedial action status |
| Manawa will engage with NZTA and encourage them to complete a full field audit to identify changes to this DUML and update the database | 01/11/2024 | Investigating |
| Preventative actions taken to ensure no further issues will occur | Completion date | |
| Manawa will work with the NZTA to help strengthen their process for maintaining this DUML, Manawa is aware of NZTAs ongoing work to amalgamate regions of DUML into one DB, so we will encourage NZTA to include this DB into the wider Nelson region. | 01/06/2025 | |

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 DUML for which it is responsible is recorded in this database.

Audit observation

The field audit was undertaken of the entire database on 20 July 2024.

Audit commentary

The field audit discrepancies are detailed in the table below, and the incorrect information is highlighted.

| Pole no. | Pole ID | Road | Database lamp model | Database total Watts | Estimated Watts based on field audit | Field comment |
|----------|---------|-------------------------------|----------------------------|----------------------|--------------------------------------|---|
| 31 | | SH 6 QUEEN ELIZABETH II DRIVE | HPS-T-400 | 438 | 103 | A L103 is recorded in the database as 400W SON |
| 33 | | SH 6 QUEEN ELIZABETH II DRIVE | HPS-T-400 | 438 | 103 | A L103 is recorded in the database as 400W SON. |
| 36 | | SH 6 QUEEN ELIZABETH II DRIVE | Italo 2 6 Module LED 700mA | 278 | 103 | A L100 is recorded in the database as LED 250 with SON ballast. |
| 37 | | SH 6 QUEEN ELIZABETH II DRIVE | Italo 2 6 Module LED 700mA | 278 | 278 | A 250W SON is recorded in the database with the correct wattage but an LED description. |
| 38 | | SH 6 QUEEN ELIZABETH II DRIVE | HPS-T-250 | 278 | 100 | A L100 is recorded in the database as 250W SON. |
| 39 | | SH 6 QUEEN ELIZABETH II DRIVE | HPS-T-250 | 278 | 100 | A L100 is recorded in the database as 250W SON. |
| 40 | | SH 6 QUEEN ELIZABETH II DRIVE | Italo 2 6 Module LED 700mA | 278 | 120 | A L120 is recorded in the database as LED 250 with SON ballast. |
| 53 | 3066 | SH 6 WAKEFIELD QUAY | Italo 2 6 Module LED 700mA | 103 | 168 | A 150W SON is recorded in the database as a 103W LED. |
| 56 | 3068 | SH 6 WAKEFIELD QUAY | LED | 107 | 168 | A 150W SON is recorded in the database as a 107W LED. |
| 58 | 3071 | SH 6 WAKEFIELD QUAY | HPS-T-150 | 168 | 103 | A L103 is recorded in the database as 150W SON. |

| Pole no. | Pole ID | Road | Database lamp model | Database total Watts | Estimated Watts based on field audit | Field comment |
|----------|---------|--|---------------------------|----------------------|--------------------------------------|--|
| 68 | 5505 | SH 6 WAKEFIELD QUAY | HPS-T-150 | 278 | 278 | A 250W SON is recorded in the database with the correct wattage but a description of 150W SON. |
| 91 | 3105 | SH 6 ROCKS ROAD | LED | 150 | 103 | A L103 is recorded in the database as LED 150W. |
| 99 | | SH 6 ROCKS ROAD | LED | 103 | | No head on pole outside 541 Rocks Road. |
| | 491 | HAVEN ROAD (ARTERIAL, SOUTHBOUND) | HPS-T-150 | 168 | 150 | A 150W LED is recorded in the database as LED 150W SON. |
| | 3043 | SH 6 HAVEN ROAD (SOUTHBOUND) | Italo 2 6Module 700mA STW | 148 | 150 | A 150W LED is recorded in the database as LED 148W. |
| | 3051 | MAITAI TO ROCKS ROAD CYCLEWAY - HAY STREET TO COLLINS STREET | Italo 2 6Module 700mA STW | 148 | 150 | A 150W LED is recorded in the database as LED 148W. |
| | 3053 | MAITAI TO ROCKS ROAD CYCLEWAY - COLLINS STREET TO ROCKS ROAD | Italo 2 6Module 700mA STW | 148 | 150 | A 150W LED is recorded in the database as LED 148W. |
| | 7788 | SH 6 HAVEN ROAD (NORTHBOUND) | Italo 2 6Module 700mA STW | 148 | 150 | A 150W LED is recorded in the database as LED 148W. |
| | 7789 | SH 6 HAVEN ROAD (SOUTHBOUND) | Italo 2 6Module 700mA STW | 148 | 150 | A 150W LED is recorded in the database as LED 148W. |
| | 7792 | SH 6 HAVEN ROAD (SOUTHBOUND) | Italo 2 6Module 700mA STW | 148 | 150 | A 150W LED is recorded in the database as LED 148W. |
| | 7793 | SH 6 HAVEN ROAD (SOUTHBOUND) | Italo 2 6Module 700mA STW | 148 | 150 | A 150W LED is recorded in the database as LED 148W. |
| | | SH 6 WAKEFIELD QUAY | | | 168 | A 150W SON at the corner of Wakefield Quay and Victoria St is missing from the database. |
| | | SH 6 HAVEN ROAD (SOUTHBOUND) | | | 103 | Near intersection of Russell and Haven, one L103 is missing from |

| Pole no. | Pole ID | Road | Database lamp model | Database total Watts | Estimated Watts based on field audit | Field comment |
|----------|---------|------------------------------|---------------------|----------------------|--------------------------------------|--|
| | | | | | | the database on the island facing Haven Road. |
| | | SH 6 HAVEN ROAD (SOUTHBOUND) | | | 150 | Near intersection of Russell and Haven, one L150 is missing from the database on the island facing Russell St. |

The field audit found three additional lights in the field. 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: 20-Jul-24 To: 20-Jul-24 | Three additional lights found in the field. Potential impact: Low Actual impact: Low Audit history: Three times Controls: Weak Breach risk rating: 3 | |
| Audit risk rating | Rationale for audit risk rating | |
| Low | The controls are weak because changes made in the field are not being reflected in the database, which has not changed since August 2022. The impact is low based on the wattage differences identified. | |
| Actions taken to resolve the issue | Completion date | Remedial action status |
| Manawa will engage with NZTA and encourage them to complete a full field audit to identify changes to this DUML and update the database. | 01/11/2025 | Investigating |
| Preventative actions taken to ensure no further issues will occur | Completion date | |
| Manawa will work with the NZTA to help strengthen their process for maintaining this DUML, Manawa is aware of NZTAs ongoing work to amalgamate regions of DUML into one DB, so we will encourage NZTA to include this DB into the wider Nelson region. | 01/06/2025 | |

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.

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

Clauses 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 estimated field wattage is 94.4% of the database wattage, and the database is not accurate within $\pm 5\%$. The estimated field wattage is 1,031 W lower than the database wattage, leading to an estimated under submission of 4,403 kWh per annum. The discrepancies are listed in **section 2.5**.

Light description and capacity accuracy

The database contains fields 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.

Lamp and ballast wattage discrepancies identified during the previous audit are still present in the database extract, which has not been updated since the field audit by the Manawa Account Manager in August 2022.

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 the wattages for these lamps were correct apart from for pole numbers 56, 91 and 99.

| Pole no. | Pole ID | Road | Database lamp model | Database total Watts | Estimated Watts based on field audit | Field comment |
|----------|---------|---------------------|---------------------|----------------------|--------------------------------------|---|
| 56 | 3068 | SH 6 WAKEFIELD QUAY | LED | 107 | 168 | A 150W SON is recorded in the database as a 107W LED. |
| 91 | 3105 | SH 6 ROCKS ROAD | LED | 150 | 103 | A L103 is recorded in the database as LED 150W. |
| 99 | | SH 6 ROCKS ROAD | LED | 103 | | No head on pole outside 541 Rocks Road. |

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 |
|----------------------------|-----------------------|----------|-----------------------|
| HPS-T-150 | HPS-T-250 | 1 | 250 |
| 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 |

Three lamps were recorded in the database with a mix of high pressure sodium and LED light information. The lamp model fields showed AEC Illuminazione LED-Italo 2 6 Module LED 700mA and HPS with a lamp wattage of 250W and ballast wattage of 28W. Two of the lamps had incorrect wattages recorded resulting in over submission of 336W or 1,435 kWh per annum.

| Pole number | Light installed | Database total wattage | Correct total wattage if different |
|-------------|-----------------|------------------------|------------------------------------|
| 37 | L100 LED | 278W | 100W |
| 40 | 250W SON | 278W | correct |
| 36 | L120 LED | 278W | 120W |

Change management process findings

At the time of the previous audit, maintenance and new connection field work was carried out by Tasman Journeys who recorded light and pole details on paper forms, and the data was entered into RAMM by WSP Ltd. WSP Ltd were contractors to Tasman Journeys, and WSP Ltd staff located in the Tasman Journeys completed data entry into RAMM as paperwork was received. Quarterly Outage Patrols were completed by Tasman Journeys. I attempted to verify any process changes with NZTA, but had not received a response by the time the draft report needed to be issued.

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 I have repeated 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. | Manawa will work with the NZTA to help strengthen their process for maintaining this DUML, Manawa is aware of NZTAs ongoing work to amalgamate regions of DUML into one DB, so we will encourage NZTA to include this DB into the wider Nelson region. | Investigating |

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. NZTA 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 | |
|---|---|------------------------|
| <p>Audit Ref: 3.1 With: Clause 15.2 and 15.37B(b)</p> <p>From: 01-Aug-22 To: 20-Jul-24</p> | <p>The field audit on 20 July 2024 found that the estimated field wattage is 94.4% of the database wattage, and the database is not accurate within ± 5 leading to an estimated under submission of 4,403 kWh per annum.</p> <p>17 items of load do not have a lamp make and model recorded. During the field audit I confirmed the wattages for these lamps were correct for 14 lights and incorrect for three lights, leading to an estimated under submission of 380 kWh per annum.</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 lamps were recorded in the database with a mix of high pressure sodium and LED light information. Two of the lamps had incorrect wattages recorded resulting in over submission of 336W or 1,435 kWh per annum.</p> <p>Actual impact: Low Audit history: Three times Controls: Weak Breach risk rating: 3</p> | |
| Audit risk rating | Rationale for audit risk rating | |
| <p>Low</p> | <p>The controls are weak because changes made in the field are not being reflected in the database, which has not changed since August 2022.</p> <p>The impact is low based on the wattage differences identified.</p> | |
| Actions taken to resolve the issue | Completion date | Remedial action status |
| <p>Manawa will engage with NZTA and encourage them to complete a full field audit to identify changes to this DUMML and update the database.</p> | <p>01/11/2024</p> | <p>Investigating</p> |
| Preventative actions taken to ensure no further issues will occur | Completion date | |
| <p>Manawa will work with the NZTA to help strengthen their process for maintaining this DUMML, Manawa is aware of NZTAs ongoing work to amalgamate regions of DUMML into one DB, so we will encourage NZTA to include this DB into the wider Nelson region.</p> | <p>01/06/2025</p> | |

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

Code reference

Clauses 15.2 and 15.37B(c)

Code related audit information

The audit must verify that:

- volume information for the DUML is being calculated accurately,
- profiles for DUML 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

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

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 reviewed the submission information for May 2024 and confirmed that it 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 |
|---|---|
| The field audit on 20 July 2024 found that the estimated field wattage is 94.4% of the database wattage, and the database is not accurate within $\pm 5\%$. The estimated field wattage is 1,031 W lower than the database wattage. | Estimated under submission of 4,403 kWh per annum. |
| 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 the wattages for these lamps were correct apart from: <ul style="list-style-type: none">• pole 56 - 150W SON is recorded in the database as a 107W LED,• pole 91 - L103 is recorded in the database as LED 150W, and• pole 99 - no head on pole outside 541 Rocks Road which is recorded as a L103. | Estimated over submission of 380 kWh per annum ³ . |
| 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 lamps were recorded in the database with a mix of high pressure sodium and LED light information. Two of the lamps had incorrect wattages recorded. | Estimated over submission of 1,435 kWh per annum ⁴ . |

³ Also counted in the 4,403 kWh difference for field audit accuracy.

⁴ Also counted in the 4,403 kWh difference for field audit accuracy.

| Discrepancy | Potential impact on submission |
|--|---|
| 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 ⁵ . |

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-Aug-22</p> <p>To: 20-Jul-24</p> | <p>The field audit on 20 July 2024 found that the estimated field wattage is 94.4% of the database wattage, and the database is not accurate within ± 5 leading to an estimated under submission of 4,403 kWh per annum.</p> <p>17 items of load do not have a lamp make and model recorded. During the field audit I confirmed the wattages for these lamps were correct for 14 lights and incorrect for three lights, leading to an estimated under submission of 380 kWh per annum.</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 lamps were recorded in the database with a mix of high pressure sodium and LED light information. Two of the lamps had incorrect wattages recorded resulting in over submission of 336W or 1,435 kWh per annum.</p> <p>The database extract used for submission does not record installation or change dates.</p> <p>Potential impact: Low</p> <p>Actual impact: Low</p> <p>Audit history: Three times</p> <p>Controls: Weak</p> <p>Breach risk rating: 3</p> | |
| Audit risk rating | Rationale for audit risk rating | |
| Low | <p>The controls are weak because changes made in the field are not being reflected in the database, which has not changed since August 2022.</p> <p>The impact is low based on the wattage differences identified.</p> | |
| Actions taken to resolve the issue | Completion date | Remedial action status |
| Manawa will engage with NZTA and encourage them to complete a full field audit to identify changes to this DUMML and update the database. | 01/11/2024 | Investigating |

⁵ Also counted in the 4,403 kWh difference for field audit accuracy.

| Preventative actions taken to ensure no further issues will occur | Completion date | |
|---|-------------------|--|
| <p>Manawa will work with the NZTA to help strengthen their process for maintaining this DUML, Manawa is aware of NZTAs ongoing work to amalgamate regions of DUML into one DB, so we will encourage NZTA to include this DB into the wider Nelson region.</p> | <p>01/06/2025</p> | |

CONCLUSION

There is no regular reporting from NZTA's RAMM database to Manawa. 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. Over time as lights are changed in the field, database accuracy is decreasing.

The audit considered the accuracy of Manawa's historic DUML extract because it is used for submission. The field audit on 20 July 2024 found that the estimated field wattage is 94.4% of the database wattage, and the database is not accurate within $\pm 5\%$. The estimated field wattage is 1,031 W lower than the database wattage, leading to an estimated under submission of 4,403 kWh per annum.

This audit found five non-compliances and one recommendation is made. The future risk rating of 15 indicates that the next audit be completed in 12 months, and due to the low volume of over submission I agree with this recommendation.

PARTICIPANT RESPONSE

Manawa recognises that historically this DUML has had issues regarding maintenance and upkeep, and as mentioned above we have in the past completed our own field audit to bring this up to date. Manawa will work with the NZTA and encourage them to complete a full field audit of this DUML again, with the intention that this database is combined with other NZTA DBs in the Nelson region and provide any support required by the customer.

Manawa supports a 12 month audit timeframe for this DUML DB.