NZTA M12-C: 2022

Certificate and woRKSHEET templates for raised pavement markers

# General

This document provides editable pro-forma *Test Summary Certificates*, *Type Accepted Certificate* and *Performance Field Test* worksheets for use by *Test Managers* and testing laboratories

These Certificates may be completed and printed or printed and completed by hand. To create an electronic document save this entire document under a new title – clients name etc. Then delete all but the specific template required.

Final Certificates issued to the marker Manufacturer or Supplier must be in PDF format.

# Test Summary Certificates

Even though the laboratory that tests the raised pavement markers issues a detailed report to the marker manufacturer this report need not to be sent to Waka Kotahi unless it is specifically requested. The marker manufacturer must present the testing results using the *Test Summary Certificate* that should typically be submitted to the testing laboratory and to Waka Kotahi by the client.

The marker manufacturer must indicate whether the marker is retroreflective or non-retroreflective as required at the top of the *Test Summary Certificate*.

|  |  |
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| **Client**Name and Brief Address | Anon Markers Limited, 384 Marker Street, Somewhereton, Wellington |
| **Marker(s) Tested:**Brand, Series ID, CategoryRetroreflective Class, Added Features | ANON Brand 2180 Series markerCategory G Class C marker with glass abrasion resistant lens |
| **Test Colours:**Body and Retro colour combinations ID | White Body, White lens, Yellow Body, Yellow lensRed Body, Red lens, Blue Body, Blue lens |

Figure : Section of Form for the Manufacturer to Complete

The test laboratory will then complete their section of the Test Summary Certificate and indicate the outcome of all tests undertaken. Typically this will include all tests on the certificate but on occasion may only be rechecking an individual or set number of tests. If all tests are not being reported any not tested must be identified as “Not Tested”.

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| **Testing Laboratory** | Reliable Materials Testing Limited | **Address** | 14 Some Street |
| East Markerton, Wellington |
| **Telephone** | +64 4 123 4567 |
| **Test Laboratory Report Numbers** | GC2180-20 | **Test Summary Certificate Number** | 20.5-2180A |
| **Certificate Date** | 30 May 2022 |

Figure : Section of Form for Test Laboratory to Complete

The test laboratory must then sign the *Test Summary Certificate* and issue the requested copies to the client in PDF format without any changes

# Test Summary Certificates

## Permanent Raised Pavement Markers

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| **AS/NZS 1906.3** | **Test Summary Certificate** |  |
| **Permanent Raised Pavement markers** | **Retroreflective Permanent** | ✓ → | **✓** |
| **Non-retroreflective Permanent** | ✓ → |  |
| **Testing Laboratory** |  | **Address** |  |
|  |
| **Telephone** |  |
| **Test Laboratory Report Numbers** |  | **Test Summary Certificate Number** |  |
| **Certificate Date** |  |
| **Client**Name and Brief Address |  |
| **Marker(s) Tested:**Brand, Series ID, CategoryRetroreflective Class, Added Features |  |
| **Test Colours:**Body and Retro colour combinations ID |  |
| **Line** | **Clause** | **Description** | **Pass/Uncertain/Not Tested/Not Applicable** |
| 1 | 3.2.1 | Construction General |  |
| 2 | 3.2.2 | Dimensional Requirements |  |
| 3 | 3.2.3 | Marker Body Chromaticity Daylight colour |  |
| 4 | 3.2.3 | Marker Body Luminance Factor |  |
| 5 | 3.3.1 | Retroreflective performance (N & G only) |  |
| 6 | 3.3.2 | Chromaticity Reflective Colour (N & G only) |  |
| 7 | 3.4.1 | Water Resistance |  |
| 8 | 3.4.2 | Heat Test |  |
| 9 | 3.4.3 (a) | UV Exposure retroreflective performance (N & G only) |  |
| 10 | 3.4.3 (b) | Marker Body Colour and Luminance |  |
| 11 | 3.4.4 (a) | Impact Resistance – Shell Fracture (N & G only) |  |
| 12 | 3.4.4 (b) | Impact Resist. – Retroelement Delamination (N & G) |  |
| 13 | 3.4.4 (c) | Impact Resist. – Fracturing of Retroelement (N & G) |  |
| 14 | 3.4.5 | Resistance to Lens Cracking (N & G only) |  |
| 15 | 3.4.6 | Compressive Strength |  |
| 16 | 3.4.7 | Additional Requirements |  |
| 17 | 3.4.8 | Abrasion Resistance (AR) (if marker promotes this) |  |
| 18 | 3.4.9 | Longitudinal Strength (if marker promotes this) |  |
| 19 | Section 5 | Makers Name or Trademark and Serial Number |  |
| Performance measurement for White at a = 1.05° ± 0.05°, b1 = -1.24°, b2 = 0° |  mcd/lx |
|  |  |  |  |
|  |  | Tested By | Approved By |
| Signature |  |  |
| Print |  |  |
| Title |  |  |

## Temporary Raised Pavement Markers

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| **AS/NZS 1906.3** | **Test Summary Certificate** |  |
| **Permanent Raised Pavement markers** | **TL Temporary Marker** | ✓ → |  |
| **TF Temporary Markers** | ✓ → |  |
| **Testing Laboratory** |  | **Address** |  |
|  |
| **Telephone** |  |
| **Test Laboratory Report Numbers** |  | **Test Summary Certificate Number** |  |
| **Certificate Date** |  |
| **Client**Name and Brief Address |  |
| **Marker(s) Tested:**Brand, Series ID, CategoryRetroreflective Class, Added Features |  |
| **Test Specification:**Category, Class (Table #), Type TF or TL, Colour |  |
| **Line** | **Clause** | **Description** | **Pass/Uncertain/Not Tested/Not Applicable** |
| 1 | 4.2.2 (a) | Standard flat profile (TF)  |  |
| 2 | 4.2.2 (a) | 3.2.1 General requirements |  |
| 3 | 4.2.2 (a) | 3.2.2 Dimensional requirements |  |
| 4 | 4.2.2 (a) | 3.2.3 Body Chromaticity daytime colour |  |
| 5 | 4.2.2 (a) | 3.2.3 Body Luminance factor |  |
| 6 | 4.2.2 (b) | Upright “TL” profile |  |
| 7 | 4.2.2 (b) (i) | Clear cover over retroreflective element(s) |  |
| 8 | 4.2.2 (b) (ii) | Adhesive base |  |
| 9 | 4.2.2 (b) (iii)  | Dimension - Height |  |
| 10 | 4.2.2 (b) (iv) | Dimension - Width |  |
| 11 | 4.2.2 (b) (v) | Dimension - Base |  |
| 12 | 4.2.2 (b) (vi) | Retroreflective strip |  |
| 13 | 4.3.1 | Retroreflective Performance TF and TL  |  |
| 14 | 4.3.2 | Chromaticity Retro colour TF and TL  |  |
| 15 | 4.3.3 | Marker body Chromaticity Daylight colour TF and TL  |  |
| 16 | 4.4.2 | Impact Resistance TF Markers only |  |
| 17 | 4.4.3 | Resistance to lens cracking TF Markers only |  |
| 18 | Section 5 (a) | Manufacturer’s name or Trademark |  |
|  |  |  |  |
|  |  | Tested By | Approved By |
| Signature |  |  |
| Print |  |  |
| Title |  |  |

## Type Acceptance Certificate

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| --- | --- |
| **Certificate of Type Acceptance** | **Logo, company name  Description automatically generated** |
| **NZTA M12: Raised Pavement Markers** |
|  |
| **Field Test Number** |  | **Date** |  |
| *Type Acceptance confirms that the raised pavement marker(s) noted herein have been confirmed compliant with AS/NZS 1906.3 Standard as required in NZTA M12 Specification and have been successfully tested at a Waka Kotahi NZ Transport Agency approved Performance Field Test site for a period of twelve (12) months according to the specifications detailed in NZTA M12.* *Having met the performance specifications, the below listed Raised Pavement Markers now qualify as “Type Accepted” for use on New Zealand roads per the classification(s) noted, immediately after being officially confirmed by listing on the NZTA web site.* |

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| **Marker Manufacturer/Supplier:** |
| **Company** |  |
| **Address:**  |  |
| **Brand**Separate line per colour | **Model & Series**ID No. | **Category**(D, N, G) | **Retro****Class**(A, B, C) | **Marker Colours**(W, Y, R, G, B) | **Additional Features**Abrasive Resistance (Glass or Acrylic): Flexural Strength |
| Body | Lens |
|  |  |  |  |  |  |  |
| **Test Adhesive:** |  |

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| **Field Performance Test Manager:** |
| **Organisation** |  |
| **Address:** |  |
| **Assessor** |  | **Date (mm/yyyy)** |  |
| **Signature** |  |  **Print Name** |  |

## Performance Field test worksheets

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| --- |
| **Page 1 – Cover Page** |
| **Marker Manufacturer/Supplier** | Test Number |  |
|  | Contact |  |
| Street Address: |  | Phone No. |  |
| City & P.O. Box |  | Date |  |
| Email: |  | Phone |  | Mobile |  |

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| **TEST MARKER** |
| Marker Brand: |  | Series ID: |  |
| Colours additional to white (✓) | Yellow |  | Red |  | Green |  | Blue |  |
| Retroreflective Class (A, B or C): |  | AS/NZS 1906.3:2017 Table: |  |
| Abrasion Resistant (Glass or Acrylic or N/A) |  |  Flexural Strength (Yes/No) |  |
| Manufacturer Recommended Adhesive(s) |  |

|  |  |  |
| --- | --- | --- |
| **MARKER INSTALLATION**: Date Completed: |  | *This becomes* *Test Day ONE* |
| Installation Contractor |  | Contact |  |
| Address |  |
| Email |  | Phone |  | Mobile |  |
| **TRANSPORT AGENCY APPROVED** Test Manager |
| Test Manager  |  | Contact |  |
| Address |  |
| email |  | Phone |  | Mobile |  |
| **MARKER TEST SITES**  |
| ON Road Location Address: |  |
| White Test start point |  | Test end point |  |
| Pavement Type |  | Condition |  |
| Marker Adhesive approved by |  |
| Outdoor Coloured Marker test location |  |
| **NOTES**: Test Site and/or Installation Notes: (*time of installation, ambient temperature, weather conditions)* |
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|  | Attach added Note pages if necessary |

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| **Page 2** |  **1st *INTERIM ASSESSMENT*** | Test No: |  |
| Date: |  |
| **Assessor(s):**  |
| **WHITE Markers** \*MP = Marker present; DF = Daytime fail; MM = Missing marker: MR = Missing marker replaced; DR = Damage removed or replaced RP = Retroreflective Present; RF = Retroreflective fail Non-functional; |
| **Marker Place #** | **Day Rating\*** | ***Night Rating\**** | **Marker Place #** | **Day Rating\*** | ***Night Rating\**** |
| W1 |  |  | W26 |  |  |
| W2 |  |  | W27 |  |  |
| W3 |  |  | W28 |  |  |
| W4 |  |  | W29 |  |  |
| W5 |  |  | W30 |  |  |
| W6 |  |  | W31 |  |  |
| W7 |  |  | W32 |  |  |
| W8 |  |  | W33 |  |  |
| W9 |  |  | W34 |  |  |
| W10 |  |  | W35 |  |  |
| W11 |  |  | W36 |  |  |
| W12 |  |  | W37 |  |  |
| W13 |  |  | W38 |  |  |
| W14 |  |  | W39 |  |  |
| W15 |  |  | W40 |  |  |
| W16 |  |  | W41 |  |  |
| W17 |  |  | W42 |  |  |
| W18 |  |  | W43 |  |  |
| W19 |  |  | W44 |  |  |
| W20 |  |  | W45 |  |  |
| W21 |  |  | W46 |  |  |
| W22 |  |  | W47 |  |  |
| W23 |  |  | W48 |  |  |
| W24 |  |  | W49 |  |  |
| W25 |  |  | W50 |  |  |
| Status of test as at end of *1st Assessment* reported to Waka Kotahi: Date: |  |
| NOTES:  |
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| **Page 3** |  **2nd *INTERIM ASSESSMENT*** | Test No: |  |
| Date: |  |
| **Assessor(s):**  |
| **WHITE Markers** \*MP = Marker present; DF = Daytime fail; MM = Missing marker: MR = Missing marker replaced; DR = Damage removed or replaced RP = Retroreflective Present; RF = Retroreflective fail Non-functional; |
| **Marker Place #** | **Day Rating\*** | ***Night Rating*\*** | **Marker Place #** | **Day Rating\*** | ***Night Rating*\*** |
| W1 |  |  | W26 |  |  |
| W2 |  |  | W27 |  |  |
| W3 |  |  | W28 |  |  |
| W4 |  |  | W29 |  |  |
| W5 |  |  | W30 |  |  |
| W6 |  |  | W31 |  |  |
| W7 |  |  | W32 |  |  |
| W8 |  |  | W33 |  |  |
| W9 |  |  | W34 |  |  |
| W10 |  |  | W35 |  |  |
| W11 |  |  | W36 |  |  |
| W12 |  |  | W37 |  |  |
| W13 |  |  | W38 |  |  |
| W14 |  |  | W39 |  |  |
| W15 |  |  | W40 |  |  |
| W16 |  |  | W41 |  |  |
| W17 |  |  | W42 |  |  |
| W18 |  |  | W43 |  |  |
| W19 |  |  | W44 |  |  |
| W20 |  |  | W45 |  |  |
| W21 |  |  | W46 |  |  |
| W22 |  |  | W47 |  |  |
| W23 |  |  | W48 |  |  |
| W24 |  |  | W49 |  |  |
| W25 |  |  | W50 |  |  |
| Status of test as at end of 2nd Assessment reported to Waka Kotahi: Date: |  |
| NOTES:  |
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| **Page 4** | ***FINAL ASSESSMENT*** | Test No:  |  |
| Date: |  |
| **Assessor(s):**  |
| **WHITE Markers** \*MP = Marker present; DF = Daytime fail; MM = Missing marker: MR = Missing marker replaced; DR = Damage removed or replaced RP = Retroreflective Present; RF = Retroreflective fail Non-functional; |
| **Marker Place #** | **Day Rating\*** | ***Night Rating\**** | **‘*R’* test Sample** | **Marker Place #** | **Day Rating\*** | ***Night Rating\**** | **‘R’ test Sample** |
| W1 |  |  |  | W26 |  |  | ✓ |
| W2 |  |  |  | W27 |  |  | ✓ |
| W3 |  |  |  | W28 |  |  | ✓ |
| W4 |  |  |  | W29 |  |  | ✓ |
| W5 |  |  |  | W30 |  |  | ✓ |
| W6 |  |  |  | W31 |  |  | ✓ |
| W7 |  |  |  | W32 |  |  | ✓ |
| W8 |  |  |  | W33 |  |  | ✓ |
| W9 |  |  |  | W34 |  |  | ✓ |
| W10 |  |  | ✓ | W35 |  |  | ✓ |
| W11 |  |  | ✓ | W36 |  |  | ✓ |
| W12 |  |  | ✓ | W37 |  |  | ✓ |
| W13 |  |  | ✓ | W38 |  |  | ✓ |
| W14 |  |  | ✓ | W39 |  |  | ✓ |
| W15 |  |  | ✓ | W40 |  |  |  |
| W16 |  |  | ✓ | W41 |  |  |  |
| W17 |  |  | ✓ | W42 |  |  |  |
| W18 |  |  | ✓ | W43 |  |  |  |
| W19 |  |  | ✓ | W44 |  |  |  |
| W20 |  |  | ✓ | W45 |  |  |  |
| W21 |  |  | ✓ | W46 |  |  |  |
| W22 |  |  | ✓ | W47 |  |  |  |
| W23 |  |  | ✓ | W48 |  |  |  |
| W24 |  |  | ✓ | W49 |  |  |  |
| W25 |  |  | ✓ | W50 |  |  |  |
| Status of test as at end of *Final Assessment* reported to Waka Kotahi: Date: |  |
| NOTES:  |
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| **Page 5** | **Retroreflectivity Assessment ‘*R’* (*mcd/lx*)** | Test No:  |  |
| Date: |  |
| **Retroreflective Class** |  | **AS/NZS 1906.3:2017 Table No.** |  |
| Retroreflectometer Brand & ID |  |
| Calibration confirmation |  |
| Retroreflectometer Operator |  |
| **1** | **30 SELECTED – WHITE** | **New ‘*R’* valueby Class *A: 70.0 mcd/lx B: 279.0 mcd/lx C: 600.0 mcd/lx*** |
| **Marker Place #** | ***Retroreflective ‘R’ values in mcd/lx*** | **P=Pass F=Fail** | **Marker Place #** | ***Retroreflective ‘R’ values in mcd/lx*** | **P=Pass F=Fail** |
| *Actual ‘R’ Values* | *Min ‘R’* | *Actual ‘R’ Values* | *Min ‘R’* |
|  |  | Class A:5.0, Class B: 31.0, Class C: 87.0 |  |  |  | Class A 5.0, Class B 31.0, Class C 87.0 |  |
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| **2** |  **5 OUTDOOR EXPOSED WHITE & COLOURED MARKERS – Retroreflectivity – All markers must pass** |
| **Colour** | ***Min 66% ‘R’ Value*** | **Actual ‘*R*’ Value *mcd/lx equal to or greater than 66%*** |
| *A* | *B* | *C* | Sample 1 | Sample 2 | Sample 3 | Sample 4 | Sample 5 |
| **White** | 46.0 | 184.0 | 396.0 |  |  |  |  |  |
| **Yellow** | 23.0 | 110.0 | 238.0 |  |  |  |  |  |
| **Red** | 10.0 | 46.0 | 99.0 |  |  |  |  |  |
| **Green**  | 15.0 | 61.0 | 130.5 |  |  |  |  |  |
| **Blue** | 4.5 | 18.5 | 39.5 |  |  |  |  |  |
| **3** |  **5 OUTDOOR EXPOSED WHITE & COLOURED MARKERS – Colour – All five markers must pass = P** |
| **Colour** | Sample 1 | Sample 2 | Sample 3 | Sample 4 | Sample 5 | Notes |
| **White** |  |  |  |  |  |  |
| **Yellow** |  |  |  |  |  |  |
| **Red** |  |  |  |  |  |  |
| **Green**  |  |  |  |  |  |  |
| **Blue** |  |  |  |  |  |  |

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| **Page 6** | **Final *Performance Field Test* Summary** | Test No: |  |
| Date: |  |
| **Final On-Road White Summary** |
| Marker Brand and Series ID |  | Retroreflective Class |  |
| **White Markers** |
| **Physical rating** | **Actual Trial Outcome** | **Individual Max Permitted** | **Combined Max****Permitted** |
| **1** | **White Marker** - Total Markers Rated Missing: From Part 3 (**MM, MR plus DR**,) |  | 5 | 9 |
| **2** | **White Marker** - Total Markers Non-functional: From Part 3 (**DF plus RF**)  |  | 7 |
| **Retroreflective rating (A, B or C)**80% must exceed minimum *mcd.lx*  | **Number Pass ‘*R*’** mcd/lxActual Trial Outcome  | **Number ‘*R*’ Fail**mcd/lxActual Trial Outcome | **% Compliant** Minimum 80% required to Pass |
| **3** | **30 White Markers** - Retroreflectivity ‘*R’* OutcomeFrom Part 4  |  |  |  |
| **WHITE MARKERS Final Test Assessment:** | **PASS / FAIL =** |  |

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| **Final Outdoor Weathering Summary** |
| **Physical rating including colour** | **Colour** | **Number Pass****Actual Trial Outcome** | **Number Fail****Actual Trial Outcome** | **Minimum 80%****required to Pass** |
| **4** | **5 Colour Markers** - Total Markers of each colour compliant**From Section 3 of Page 4**Selected 5 of each colour must pass | White |  |  |  |
| Yellow |  |  |  |
| Red |  |  |  |
| Green |  |  |  |
| Blue |  |  |  |
| **Retroreflective rating (*‘R’*) (A, B or C)** | **Colour** | **Number Pass ‘*R*’**Actual Trial Outcome | **Number Fail ‘*R*’**Actual Trial Outcome | **Minimum 80% required to Pass** |
| **5** | **5 Colour Markers** - Retroreflective ‘*R*’ Outcome**From Section 2 of Page 4**Selected 5 of each colour must pass | White |  |  |  |
| Yellow |  |  |  |
| Red |  |  |  |
| Green |  |  |  |
| Blue |  |  |  |
| **Outdoor Coloured Marker Exposure** **WHITE and COLOURED MARKERS** **Final Test assessment after 12 months:** | **PASS** | **White** |  |
|  | **Yellow** |  |
| **or** | **Red** |  |
|  | **Blue** |  |
| **FAIL** | **Green** |  |

# Document Information and Amendment Record

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| **DOCUMENT INFORMATION** |
| Document Name | Certificates and worksheet templates for raised pavement markers |
| Document Number | M12 C |
| Primary Document | M12 Specification for the design, manufacture, installation and maintenance of raised pavement markers |
| Document Status | First introduced in 2022  |
| Document Availability | This document is located in electronic form on the Waka Kotahi NZ Transport Agency’s website at [www.nzta.govt.nz](http://www.nzta.govt.nz/) |
| Document Authors |  | Julian Chisnall Waka Kotahi |
|  | Grant Bosma Waka Kotahi |
|  | Alan Parker ALANRO Consultants |
| Document Owner | *Team Lead – Road Safety, Programme and Standards* |

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| **RECORD OF AMENDMENTS** |
| **Edition Number** | **Subject** | **Effective Date** | **Updated by** |
| **1.0** | **Introduction** NZTA M12:2022 Certificate and worksheet templates for RRPMs | August 2022 | G Bosma |