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TRISIGN

TIPES CERTIFICATE No.
22TCD01

November 2022

OFFICES IN:
BRISBANE, SYDNEY, ADELAIDE, PERTH, CANBERRA

NATIONAL TRANSPORT RESEARCH CENTRE
AND HEAD OFFICE:
MELBOURNE, 80A TURNER STREET
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Applicant's Original Objectives for the Product

The TriSign is a fit-for-purpose, remote access Traffic Control Device (TCD). It was primarily designed and developed to be used at locations / in situations where a traditional multi-message frames (MMFs) would be adopted as the default solution, including longer-term, major infrastructure projects.

By the nature of their design, traditional MMFs have to be manually placed and moved, and their message manually changed by a Traffic Controller whenever the message to the road user needs to be altered. Manual changes can be required many times during a working shift and this exposes Traffic Controllers to considerable cumulative risk from live traffic.

The TriSign incorporates technology which allows up to 3 message combinations to be incorporated within the same sign unit, with changes effected, to all intents and purposes instantaneously, using a remote-control unit. While changing the message to road users, Traffic Controllers are typically seated within a slow-moving vehicle. For major projects, the required location and schedule of TriSigns is pre-planned.

In summary, the product has the primary objective of considerably reducing the cumulative exposure of Traffic Controllers to being impacted by any off path or errant vehicle. Additionally, the adoption of a remote-control changing mechanism allows Traffic Controllers to be located, and hence further protected, within a moving vehicle.

TriSign (version 1) was trialled on a road project on the Bruce Highway on Australia's Sunshine Coast in August 2021 and reports obtained consistently indicated that 18 units were used and performed successfully.

At the date of issue of this Certificate, TriSign is being used on a Victorian Government major project in Pakenham, Victoria. This project commenced during 2022 and is due for completion in mid/late 2023. TriSign (version 2) was initially adopted with 22 units installed over a 5km length. Further, TriSign (version 3) began usage in August 2022, with usage rising to 45 units in total over an extended, 10km total length project site.

The initial application to TIPES related to TriSign (version 1). Detailed information was then provided in support of the application upon the evolution of TriSign to versions 2 and 3. The main differences between the 3 versions are summarised later in this Certificate. The Victorian project introduced on this page formed the Stage 3 (field-trial assessment) of the TIPES evaluation.

Operational Guidance Documents

The Applicant has prepared a suite of guidance documents relating to the device and its usage. These were reviewed as part of the TIPES assessment, and this Certificate is issued with the condition that the latest version of the guidance documents be obtained and followed by all users of the device, except where local controls and conditions apply

Several practical documents and comprehensive extracts of technical specifications were provided to the PEP documenting the usage of the device and providing guidance to its operatives. The submitted information included a TriSign User Manual and excerpts of XBee Pro Datasheet. All documentation was reviewed by the PEP and deemed to be inclusive and fit for purpose.

Road Agency Approval and Local Controls and Conditions

This Certificate is issued on the condition that all pertinent local road agency controls and conditions are satisfied with respect to the selection, prior approval, deployment, and usage of traffic control devices (generally) and the TriSign (specifically).

TriSign

Certificate Scope

This Certificate is issued in respect of version 3 of **TriSign** (the Product) only; that is used as a TCD. The Product is typically operated in pairs or sequentially as part of a traffic management layout for a site. The following photograph demonstrates a TriSign unit in 'open' (traffic flowing) configuration.



TriSign is configured through SmartSite which is a web app allowing the registered user to add / remove users, create / alter sign groups and allocate permission sets for users to activate the signage schemes.

A number of devices (e.g. tablets) can be used to activate and report on signage status, however each signage series i.e TriLink can only accommodate 1x Bluetooth connection at a time.

TriSign collects data from all signage within the series including its GPS location, date, and time of the sign changes, including the user.

Issued: 21 November 2022
Review: 3 years from date of issue – 18 November 2025

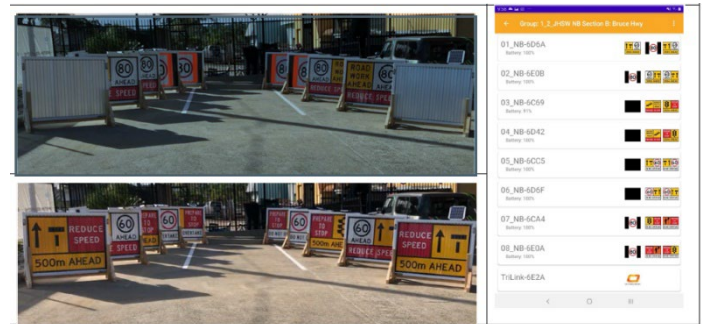
Mark Steidle,
 CCO and Governance Manager,
 TIPES

Paul Hillier,
 Principal Professional Leader,
 NTR0 Certification

This Transport Infrastructure Product Evaluation Scheme (TIPES) Certificate is issued by NTR0 Certification, a dedicated business unit of ARRB Group, on the condition that compliance is achieved with the conditions stated. The Product was assessed by a TIPES expert Product Evaluation Panel (PEP) between October 2021 and November 2022 as being fit for its intended usage provided that it is used and maintained as set out in the application and in accordance with latest user guidance and applicable local road agency requirements.

ID	Name	Location	Status
89	41C28D42 0A18-8D42	John Hillier@Sydney.ntr0.com.au	UJ_HV01 NB Section B - Blue Hwy
90	41C28D42 0A18-8D42	John Hillier@Sydney.ntr0.com.au	UJ_HV01 NB Section B - Blue Hwy
91	41C28D42 0A18-8D42	John Hillier@Sydney.ntr0.com.au	UJ_HV01 NB Section C - Blue Hwy
92	41C28D42 0A18-8D42	John Hillier@Sydney.ntr0.com.au	UJ_HV01 NB Section C - Blue Hwy
93	41C28D42 0A18-8D42	John Hillier@Sydney.ntr0.com.au	UJ_HV01 NB Section C - Blue Hwy
94	41C28D42 0A18-8D42	John Hillier@Sydney.ntr0.com.au	UJ_HV01 NB Section C - Blue Hwy
95	41C28D42 0A18-8D42	John Hillier@Sydney.ntr0.com.au	UJ_HV01 NB Section C - Blue Hwy
96	41C28D42 0A18-8D42	John Hillier@Sydney.ntr0.com.au	UJ_HV01 NB Section C - Blue Hwy
97	41C28D42 0A18-8D42	John Hillier@Sydney.ntr0.com.au	UJ_HV01 NB Section C - Blue Hwy
98	41C28D42 0A18-8D42	John Hillier@Sydney.ntr0.com.au	UJ_HV01 NB Section C - Blue Hwy
99	41C28D42 0A18-8D42	John Hillier@Sydney.ntr0.com.au	UJ_HV01 NB Section C - Blue Hwy
100	41C28D42 0A18-8D42	John Hillier@Sydney.ntr0.com.au	UJ_HV01 NB Section C - Blue Hwy

The following photograph demonstrates TriSign in both open and closed configurations, along with the multiple-messages available within each TriSign unit available for the series of signs.



- The app can be downloaded by any Android device and a user is required to secure a log in to use it.

TriSign

THIS CERTIFICATE INCLUDES A SUMMARY RELATING TO THE ASSESSMENT:

- Key factors relating to compliance with TIPES requirements
- Evaluation of Applicant’s claims relating to reducing the exposure of Traffic Controllers to significant road safety risk
- Evaluation of the Applicant’s claims relating to product structural integrity, build quality, and reliability
- Assessment of typical applications and operational guidance, as set out in the documentation provided by the Applicant at that time. The TriSign complies with static multi-message frames use, application and specifications as provided in AS 1742. TriSign is a direct replacement for pole mounted temporary traffic management (TTM) signage for project sites.

KEY FACTORS ORIGINALLY ASSESSED:

Factor 1 – The foreseeable effectiveness of TriSign as a TCD in Australia with consideration of the Applicant’s objectives for the device. TriSign allows the user to have 3 traffic guidance scheme setup available and the signage can be changed remotely. The TriSign is compliant with the traditional MMF sign as provided in AS1742 and is a direct replacement for pole mounted temporary traffic management (TTM) signage for project sites.

Factor 2 – The Applicant’s claimed benefits of the device’s operation which the product has the primary objective of considerably reducing the cumulative exposure of Traffic Controllers to being impacted by any off path or errant vehicle. The reliability of TriSign benefits major projects, with a greater level of complexity, longer-duration and over a longer works distance.

Factor 3 – The validity of testimonials at three trial locations of past usage of the original version and updated versions of the device at roadworks sites and environments used within Australia.

Compliance with operational guidance for users and local road agency controls and requirements were assessed and users of the device were consulted as described earlier in this Certificate. The TriSign allows registered users to activate signs / schemes within a short period of time and off the roadway. It also collects data from the signage including its GPS location, date and time of activation providing a digital signage record. This has been demonstrated at a trial in Victoria.

TriSign

PRODUCT MANUFACTURE:

The device is manufactured under contract to the Applicant by its approved companies to comply with the specifications within AS1742.3, AS1906.1 and Austroads Guide to Temporary Traffic Management. The Quality Assurance system of those companies shall meet the requirements of ISO 9000 series certification or equivalent scheme.

NATIONAL TECHNICAL DOCUMENTS

- Australian Standard AS 1742 (various parts) – Manual of Uniform Traffic Control Devices. Clause 4.2.2 of Standards Australia AS 1742.3 (2019) specifies conditions for frames including the dimensions of sign panels and only one regulatory sign within the same frame situated on the top panel and closest to traffic lane.
- Austroads Guide to Traffic Management series.

by substantiated advice provided by the Applicant that TriSign has been utilised successfully on major road works over a period of 2 years in Australia.

During the evaluation stage, the Applicant openly advised detail relating to the evolution of TriSign to versions 2 and the current version 3. The PEP was satisfied that the updates made improved TriSign's original efficiency and connectivity. The PEP also determined that the updates were well received by Traffic Controllers using the devices in the field.

Technical Evaluation and Opinion

The technical evaluation of the TriSign (Stages 1 and 2 of the TIPES process) was conducted between October 2021 to November 2022 by ARRB Group Ltd in accordance with the TIPES Guide for Applicants and Terms and Conditions (2020 edition).

The technical opinion of the TIPES Product Evaluation Panel (PEP) is that the TriSign is a robust, effective, remote-access TCD designed specifically for the temporary traffic management industry for works tending to be major projects, with a greater level of complexity, longer-duration and over a longer works distance. This is totally consistent with the Applicant's stated objective for the device (as set out earlier in this Certificate).

The PEP's opinion is that the Applicant had successfully demonstrated that the Product is a practical solution which can considerably reduce the exposure to a Traffic Controller of an impact with live traffic, when compared to changing traditional, manual multi-message frame signage. This opinion is supported

Special Conditions of Certification

1. Certification is issued expressly subject to the following conditions:
 - a. The TIPES Governance Board reserves the right to request that an additional field observance be undertaken by members of the PEP within 12 months of the issue of the Certificate should there be any requirement to confirm the previous findings of the PEP.
 - b. TIPES certificates are subject to a review every three years.
 - c. Summary record be kept by all users of each application of the Australian version of the TriSign within Australia. The record shall include location descriptor (name, location etc.), type of road (motorway, state road, local road, private road etc.), involvement of sub-contractors, and any incidents. In addition, records of any internal reviews of the device should also be maintained and made available to the TIPES Governance Board upon request.
 - d. The Technical Opinion of the PEP is issued in respect of version 3 of **TriSign**, being the final and particular Product put forward for evaluation under TIPES by SystemisedBy.Design Pty Ltd. Version 1 of the Product was submitted for evaluation in October 2021. It is expressly restricted to the Product having the composition, features and characteristics as submitted as version 3 for TIPES evaluation. This Technical Opinion is not applicable to, or valid in respect to any subsequent modification, variation, enhancement or redevelopment of the Product that significantly alters its objective and/or primary usage. Any representation that this Technical Opinion is referable to any other product is expressly forbidden.
2. The Certificate and the Technical Opinion have been issued solely in respect of the Product identified by the Applicant as TriSign, the original

version (version 1) of which was submitted for product evaluation under TIPES by the Applicant in October 2021, with an improved version (version 3) evaluated prior to the issue of this Certificate in November 2022.

General conditions of certification

1. The Certificate:
 - a. Relates only to the version of the product/device that is named and described on Page 2 and is expressly limited to the product having the composition, features and characteristics as submitted to ARRB Group Ltd (ARRB) for Tipes evaluation.
 - Is not applicable to, or valid in respect of, any subsequent significant modification, variation, enhancement or redevelopment of the product/device.
 - Any representation that this certificate is referable to any other product is expressly forbidden.
 - b. Is valid only within Australia.
 - c. Must be read and applied in its entirety.
 - d. Is copyright to ARRB and is the sole and exclusive property of ARRB.
 - e. Is licensed solely to the Applicant for the promotion or sale of the Product by the Applicant and use of it may not be sub-licensed by the Applicant who may not authorise its use to any other person or entity for any purpose whatsoever.
 - f. Is governed by the laws of the State of Victoria, Australia and the jurisdiction of the courts of that State and courts of appeal therefrom.
2. References to publications, documents, specifications, legislation, regulations, standards, and other documents in this Certificate are where relevant, references to the current versions or issues of those documents at the date of issue, revision or renewal of this Certificate, unless otherwise stated.
3. Unless otherwise cancelled or modified by ARRB, this Certificate remains valid for a period of 3 years from issue provided that the Product and its manufacture and/or fabrication, including all related documentation and relevant parts and processes thereof:
 - a. Are maintained at or above the levels which have been assessed and found to be satisfactory by ARRB.
 - b. Are checked as and when ARRB considers appropriate under arrangements that it will determine.
4. This Certificate has been prepared by ARRB at the request of, and for the benefit of, the Applicant. Interested parties should obtain independent professional advice about use of the product for any specific application.
5. ARRB has no liability whatsoever for any loss or damage, whether direct or indirect, suffered by any person arising from the use of the product by that person in reliance upon the content of this Certificate.

General conditions of certification (continued)

6. ARRB provides no warranty concerning:
 - a. The existence or ownership of any patent, intellectual property or similar rights subsisting in the product.
 - b. The rights of the Applicant to manufacture, supply, install, maintain, or market the product.
 - c. Any works and constructions in which the product is installed, including their nature, design, methods, performance, workmanship, and maintenance.
 - d. Any loss or damage, including personal injury, howsoever arising in connection with the product, including its manufacture, supply, installation, use, maintenance, and removal.
7. Any information relating to the manufacture, supply, installation, use, maintenance, and removal of the Product which is contained or referred to in this Certificate is the minimum required to be met when the product is manufactured, supplied, installed, used, maintained, and removed. Such information does not in any way restate the requirements of the Australian Work Health and Safety (WHS) Act applicable at the time of issue of this Certificate, nor is it descriptive of any legislated or common law obligation or duty in operation at the date of issue, revision or renewal of this Certificate. Conformity with such information shall not amount to satisfying any statutory or common law duties or obligations.
8. The NTRO Certification and TIPES logo(s) & symbol(s) use are governed by “The Conditions for Use by ARRB GROUP Ltd and TIPES Product Organisations” and form part of this Certificate.