



# Certification Report

## Owl DualDiode Communication Cards v7

Issued by:

**Communications Security Establishment**

**Certification Body**

**Canadian Common Criteria Evaluation and Certification Scheme**

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**Document number:** 383-4-273-CR  
**Version:** 1.0  
**Date:** 23 December 2014  
**Pagination:** i to iii, 1 to 10



**DISCLAIMER**

The Information Technology (IT) product identified in this certification report, and its associated certificate, has been evaluated at an approved evaluation facility – established under the Canadian Common Criteria Evaluation and Certification Scheme (CCS) – using the *Common Methodology for Information Technology Security Evaluation, Version 3.1 Revision 4*, for conformance to the *Common Criteria for Information Technology Security Evaluation, Version 3.1 Revision 4*. This certification report, and its associated certificate, applies only to the identified version and release of the product in its evaluated configuration. The evaluation has been conducted in accordance with the provisions of the CCS, and the conclusions of the evaluation facility in the evaluation report are consistent with the evidence adduced. This report, and its associated certificate, are not an endorsement of the IT product by the Communications Security Establishment, or any other organization that recognizes or gives effect to this report, and its associated certificate, and no warranty for the IT product by the Communications Security Establishment, or any other organization that recognizes or gives effect to this report, and its associated certificate, is either expressed or implied.

## FOREWORD

The Canadian Common Criteria Evaluation and Certification Scheme (CCS) provides a third-party evaluation service for determining the trustworthiness of Information Technology (IT) security products. Evaluations are performed by a commercial Common Criteria Evaluation Facility (CCEF) under the oversight of the CCS Certification Body, which is managed by the Communications Security Establishment.

A CCEF is a commercial facility that has been approved by the CCS Certification Body to perform Common Criteria evaluations; a significant requirement for such approval is accreditation to the requirements of *ISO/IEC 17025:2005, the General Requirements for the Competence of Testing and Calibration Laboratories*. Accreditation is performed under the Program for the Accreditation of Laboratories - Canada (PALCAN), administered by the Standards Council of Canada.

The CCEF that carried out this evaluation is CSC Security Testing/Certification Laboratories.

By awarding a Common Criteria certificate, the CCS Certification Body asserts that the product complies with the security requirements specified in the associated security target. A security target is a requirements specification document that defines the scope of the evaluation activities. The consumer of certified IT products should review the security target, in addition to this certification report, in order to gain an understanding of any assumptions made during the evaluation, the IT product's intended environment, the evaluated security functionality, and the testing and analysis conducted by the CCEF.

This certification report is associated with the certificate of product evaluation dated 23 December 2014, and the security target identified in Section 4 of this report.

The certification report, certificate of product evaluation and security target are posted on the CCS Certified Products list (CPL) and the Common Criteria portal (the official website of the Common Criteria Project).

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## Executive Summary

Owl DualDiode Communication Cards v7 (hereafter referred to as Owl DualDiode v7), from Owl Computing Technologies, Inc., is the Target of Evaluation. The results of this evaluation demonstrate that Owl DualDiode v7 meets the requirements of Evaluation Assurance Level (EAL) 2 for the evaluated security functionality.

Owl DualDiode v7 is a product that allows information to flow one-way-only. The TOE provides an absolute one-way unidirectional flow of any data and information between a source domain, the sending host system or network to a destination domain, and the receiving host system or network. The TOE also employs a proprietary transport protocol which ensures a non-routable, true protocol break to prevent any back channel or covert channel security threat. The combined features of the TOE protect the destination host or network from any potential leaks of information or potential network probing attacks.

CSC Security Testing/Certification Laboratories is the CCEF that conducted the evaluation. This evaluation was completed on 23 December 2014 and was carried out in accordance with the rules of the Canadian Common Criteria Evaluation and Certification Scheme (CCS).

The scope of the evaluation is defined by the security target, which identifies assumptions made during the evaluation, the intended environment for Owl DualDiode v7, and the security functional/assurance requirements. Consumers are advised to verify that their operating environment is consistent with that specified in the security target, and to give due consideration to the comments, observations and recommendations in this certification report.

Communications Security Establishment, as the CCS Certification Body, declares that the Owl DualDiode v7 evaluation meets all the conditions of the *Arrangement on the Recognition of Common Criteria Certificates* and that the product will be listed on the CCS Certified Products list (CPL) and the Common Criteria portal (the official website of the Common Criteria Project).

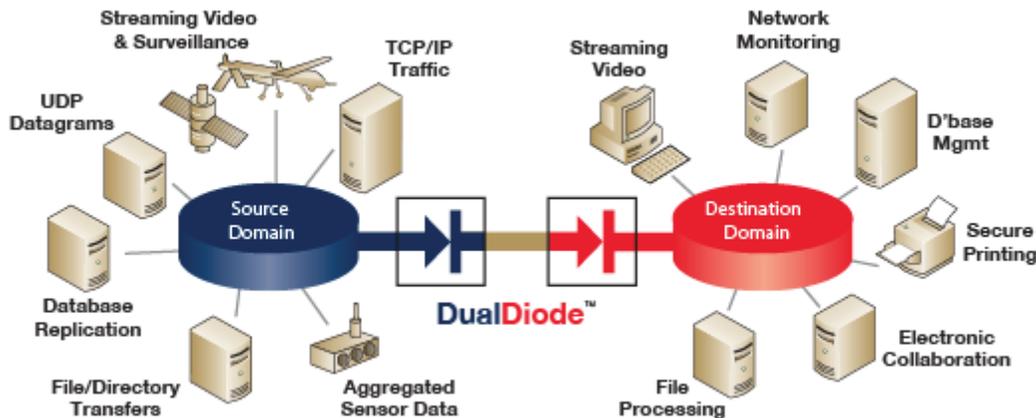
## 1 Identification of Target of Evaluation

The Target of Evaluation (TOE) for this EAL 2 evaluation is Owl DualDiode Communication Cards v7 (hereafter referred to as Owl DualDiode v7), from Owl Computing Technologies, Inc.

## 2 TOE Description

Owl DualDiode v7 is a product that allows information to flow one-way-only. The TOE provides an absolute one-way unidirectional flow of any data and information between a source domain, the sending host system or network to a destination domain, and the receiving host system or network. The TOE also employs a proprietary transport protocol which ensures a non-routable, true protocol break to prevent any back channel or covert channel security threat. The combined features of the TOE protect the destination host or network from any potential leaks of information or potential network probing attacks.

A diagram of the Owl DualDiode v7 architecture is as follows:



## 3 Security Policy

Owl DualDiode v7 implements policies pertaining to the following security functional classes:

- *User data protection*
- *Protection of the TSF*

## 4 Security Target

The ST associated with this Certification Report is identified below:

DualDiode Communication Cards 10G, 2.5G, 1.0G v.7 & v.7t Models Security Target, v011,11 December 2014

## 5 Common Criteria Conformance

The evaluation was conducted using the *Common Methodology for Information Technology Security Evaluation, Version 3.1 Revision 4*, for conformance to the *Common Criteria for Information Technology Security Evaluation, Version 3.1 Revision 4*.

Owl DualDiode v7 is:

- a. *EAL 2 conformant, with all security assurance requirements listed for EAL 2.*
- b. *Common Criteria Part 2 conformant; with security functional requirements based only upon functional components in Part 2;*
- c. *Common Criteria Part 3 conformant, with security assurance requirements based only upon assurance components in Part 3.*

## 6 Assumptions and Clarification of Scope

Consumers of Owl DualDiode v7 should consider assumptions about usage and environmental settings as requirements for the product's installation and its operating environment. This will ensure the proper and secure operation of the TOE.

### 6.1 Secure Usage Assumptions

The following Secure Usage Assumptions are listed in the ST:

- *Authorized personnel that possess the necessary privileges to access the secure side information shall install, administer and use the TOE by adhering to the security policies and practices regarding the usage of the TOE; and*
- *Authorized personnel shall ensure the TOE is delivered, installed and administered in a manner that maintains security. The appropriate security authority shall accredit the installation of the TOE.*

### 6.2 Environmental Assumptions

The following Environmental Assumptions are listed in the ST:

- *Information cannot flow between the source network and destination network without going through the TOE. This prevents a threat agent from circumventing the security being provided by the TOE through an untrustworthy product;*
- *The TOE will be installed so only relevant network traffic will flow through the TOE and hence be subject to the organizational security policy; and*
- *The TOE and its operating environment will be physically protected to a degree commensurate with the value of the information it is intended to protect.*

## 7 Evaluated Configuration

The evaluated configuration for Owl DualDiode v7 comprises the following components:

<i>Fiber Optic Cable / (Jacket Color)</i>	<i>OS Req.</i>	<i>OS Driver</i>	<i>Minimum Server Requirements</i>	<i>Interface (bus) Type (Non-Graphics)</i>
<b>Owl DualDiode 10G v.7 Communication Cards</b>				
multi-mode LC–LC simplex patch cable (Aqua)	64-bit OS	Version 7	3.3GHz Multi-core Processor /Xeon	PCIe Express x8
<b>Owl DualDiode v.7 Standard-Capacity 2.5G Communication Cards in Industrial or Commercial Variation</b>				
single-mode LC–LC simplex patch cable (Yellow)	64-bit OS	Version 7	3.3GHz Multi-core Processor /Pentium core i5	PCIe Express x4
<b>Owl DualDiode v.7 Standard-Capacity 1.0G Communication Cards in Industrial or Commercial Variation</b>				
multi-mode LC–LC simplex patch cable (Orange)	64-bit OS	Version 7	3.0 GHz Multi-core Processor /Pentium core i3	PCIe Express x4
<b>Owl DualDiode v.7t Industrial or Commercial 1.0G Communication Cards</b>				
multi-mode LC–LC simplex patch cable (Orange)	64-bit OS	Version 7	1.8 GHz Dual-core Processor (PC104 Form Factor)	PC104 PCIe Express x1

*The publication entitled Owl Version 7 Card (Type 7000) Installation Manual describes the procedures necessary to install and operate Owl DualDiode v7 in its evaluated configuration.*

## 8 Documentation

The Owl Computing Technologies, Inc. documents provided to the consumer are as follows:

- a. *Owl Version 7 Card (Type 7000) Installation Manual v.03a, 12/5/2014; and*
- b. *DualDiode Communication Cards 10G, 2.5G, 1.0G v.7 & v.7t Models Security Target v.01l, 12/11/14.*

## 9 Evaluation Analysis Activities

The evaluation analysis activities involved a structured evaluation of Owl DualDiode v7, including the following areas:

**Development:** The evaluators analyzed the Owl DualDiode v7 functional specification and design documentation; they determined that the design completely and accurately describes the TOE security functionality (TSF) interfaces, the TSF subsystems and how the TSF implements the security functional requirements (SFRs). The evaluators analyzed the Owl DualDiode v7 security architectural description and determined that the initialization process is secure, that the security functions are protected against tamper and bypass, and that security domains are maintained. The evaluators also independently verified that the correspondence mappings between the design documents are correct.

**Guidance Documents:** The evaluators examined the Owl DualDiode v7 preparative user guidance and operational user guidance and determined that it sufficiently and unambiguously describes how to securely transform the TOE into its evaluated configuration and how to use and administer the product. The evaluators examined and tested the preparative and operational guidance, and determined that they are complete and sufficiently detailed to result in a secure configuration.

**Life-cycle support:** An analysis of the Owl DualDiode v7 configuration management system and associated documentation was performed. The evaluators found that the Owl DualDiode v7 configuration items were clearly marked.

The evaluators examined the delivery documentation and determined that it described all of the procedures required to maintain the integrity of Owl DualDiode v7 during distribution to the consumer.

The evaluators reviewed the flaw remediation procedures used by developer for the Owl DualDiode v7. During a site visit, the evaluators also examined the evidence generated by adherence to the procedures.

All these evaluation activities resulted in **PASS** verdicts.

## 10 ITS Product Testing

Testing consists of the following three steps: assessing developer tests, performing independent functional tests, and performing penetration tests.

### 10.1 Assessment of Developer Tests

The evaluators verified that the developer has met their testing responsibilities by examining their test evidence, and reviewing their test results, as documented in the ETR<sup>1</sup>.

The evaluators analyzed the developer's test coverage analysis and found it to be complete and accurate. The correspondence between the tests identified in the developer's test documentation and the functional specification was complete.

### 10.2 Independent Functional Testing

During this evaluation, the evaluator developed independent functional tests by examining design and guidance documentation.

All testing was planned and documented to a sufficient level of detail to allow repeatability of the testing procedures and results. Resulting from this test coverage approach is the following list of test goals:

- a. Repeat of Developer's Tests: The objective of this test goal is to repeat a subset of the developer's tests;
- b. Forward transfer function: The objective of this test goal is to confirm that the TOE can send information from its send-only optical interface to the receive-only optical interface on the other instance of the TOE;
- c. Forward transfer without Fiber: The objective of this test goal is to confirm that no information will flow between two instances of the TOE when the fibre cable is removed;
- d. Software change: The objective of this test goal is to confirm that the TOE is not dependent on the underlying software for one-way transfer of information between two instances of the TOE; and
- e. Physical breach: The objective of this test goal is to confirm that no information flows occur between the send and receive sides of the TOE when there is a physical breach in the connection.

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<sup>1</sup> The ETR is a CCS document that contains information proprietary to the developer and/or the evaluator, and is not releasable for public review.

### **10.3 Independent Penetration Testing**

Subsequent to the independent review of public domain vulnerability databases and all evaluation deliverables, limited independent evaluator penetration testing was conducted. The penetration test focused on:

- a. Capture traffic: The objective of this test goal is to attempt to capture traffic flowing between two instances of the TOE using Wireshark.

The independent penetration testing did not uncover any exploitable vulnerabilities in the intended operating environment.

### **10.4 Conduct of Testing**

Owl DualDiode v7 was subjected to a comprehensive suite of formally documented, independent functional and penetration tests. The testing took place at the Information Technology Security Evaluation and Test Facility. The CCS Certification Body witnessed a portion of the independent testing. The detailed testing activities, including configurations, procedures, test cases, expected results and observed results are documented in a separate Test Results document.

### **10.5 Testing Results**

The developer's tests and the independent functional tests yielded the expected results, providing assurance that Owl DualDiode v7 behaves as specified in its ST and functional specification.

## **11 Results of the Evaluation**

This evaluation has provided the basis for an EAL 2 level of assurance. The overall verdict for the evaluation is **PASS**. These results are supported by evidence in the ETR.

## 12 Acronyms, Abbreviations and Initializations

<u>Acronym/Abbreviation/Initialization</u>	<u>Description</u>
CCEF	Common Criteria Evaluation Facility
CCS	Canadian Common Criteria Evaluation and Certification Scheme
CPL	Certified Products list
CM	Configuration Management
EAL	Evaluation Assurance Level
ETR	Evaluation Technical Report
IT	Information Technology
ITSET	Information Technology Security Evaluation and Testing
PALCAN	Program for the Accreditation of Laboratories - Canada
SFR	Security Functional Requirement
ST	Security Target
TOE	Target of Evaluation
TSF	TOE Security Function

## 13 References

This section lists all documentation used as source material for this report:

- a. CCS Publication #4, Technical Oversight, Version 1.8, October 2010.
- b. Common Criteria for Information Technology Security Evaluation, Version 3.1 Revision 4, September 2012.
- c. Common Methodology for Information Technology Security Evaluation, CEM, Version 3.1 Revision 4, September 2012.
- d. DualDiode Communication Cards 10G, 2.5G, 1.0G v.7 & v.7t Models Security Target, v011,11 December 2014
- e. Owl Computing Technologies, Inc. DualDiode Communication Card Version 7 Evaluation Technical Report v1.2, 23 December 2014.