National Information Assurance Partnership

Common Criteria Evaluation and Validation Scheme

Validation Report

for the

MMA10G-IPX Series, Version 3.3

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National Institute of Standards and Technology
Information Technology Laboratory
100 Bureau Drive
Gaithersburg, MD 20899

Department of Defense
ATTN: NIAP, SUITE: 6982
9800 Savage Road
Fort George G. Meade, MD 20755-6982

ACKNOWLEDGEMENTS

Validation Team

Jim Donndelinger
Swapna Katikaneni

Marybeth Panock

Viet Hung Le

Aerospace Corporation

Common Criteria Testing Laboratory

Shehan D Dissanayake
Rahul Joshi
Ashish Panchal

Acumen Security, LLC

Table of Contents

1 Executive Summary

This Validation Report (VR) is intended to assist the end user of this product and any security certification Agent for that end user in determining the suitability of this Information Technology (IT) product for their environment. End users should review the Security Target (ST), which is where specific security claims are made, in conjunction with this VR, which describes how those security claims were tested and evaluated and any restrictions on the evaluated configuration. Prospective users should carefully read the Assumptions and Clarification of Scope in Section 5 and the Validator Comments in Section 10, where any restrictions on the evaluated configuration are highlighted.

This report documents the National Information Assurance Partnership (NIAP) assessment of the evaluation of the MMA10G-IPX Series Target of Evaluation (TOE). It presents the evaluation results, their justifications, and the conformance results. This VR is not an endorsement of the TOE by any agency of the U.S. Government and no warranty of the TOE is either expressed or implied. This VR applies only to the specific version and configuration of the product as evaluated and documented in the ST.

The evaluation was completed by Acumen Security in February 2023. The information in this report is largely derived from the Evaluation Technical Report (ETR) and associated test report, all written by Acumen Security. The evaluation determined that the product is both Common Criteria Part 2 Extended and Part 3 Extended, and meets the assurance requirements of the collaborative Protection Profile for Network Devices, Version 2.2e, 27 March 2020 [PP-ND].

The TOE identified in this VR has been evaluated at a NIAP approved Common Criteria Testing Laboratory using the Common Methodology for IT Security Evaluation (Version 3.1, Rev. 5) for conformance to the Common Criteria for IT Security Evaluation (Version 3.1, Rev. 5), as interpreted by the Assurance Activities contained in the Protection Profile (PP). This VR applies only to the specific version of the TOE as evaluated. The evaluation has been conducted in accordance with the provisions of the NIAP Common Criteria Evaluation and Validation Scheme and the conclusions of the testing laboratory in the ETR are consistent with the evidence provided.

The validation team provided guidance on technical issues and evaluation processes and reviewed the individual work units documented in the ETR and the Assurance Activities Report (AAR). The validation team found that the evaluation showed that the product satisfies all of the functional requirements and assurance requirements stated in the ST. Based on these findings, the validation team concludes that the testing laboratory's findings are accurate, the conclusions justified, and the conformance results are correct. The conclusions of the testing laboratory in the ETR are consistent with the evidence produced.

2 Identification

The CCEVS is a joint National Security Agency (NSA) and National Institute of Standards and Technology (NIST) effort to establish commercial facilities to perform trusted product evaluations.

Under this program, security evaluations are conducted by commercial testing laboratories called Common Criteria Testing Laboratories (CCTLs). CCTLs evaluate products against PPs containing Assurance Activities, which are interpretations of Common Evaluation Methodology (CEM) work units specific to the technology described by the PP.

The NIAP Validation Body assigns Validators to monitor the CCTLs to ensure quality and consistency across evaluations. Developers of IT products desiring a security evaluation contract with a CCTL and pay a fee for their product's evaluation. Upon successful completion of the evaluation, the product is added to NIAP's Product Compliant List.

Table 1 provides information needed to completely identify the product, including:

- The Target of Evaluation (TOE): the fully qualified identifier of the product as evaluated.
- The Security Target (ST), describing the security features, claims, and assurances of the product.
- The conformance result of the evaluation.
- The Protection Profile(s) to which the product is conformant.
- The organizations and individuals participating in the evaluation.

Table 1: Evaluation Identifiers

Item	Identifier
Evaluation Scheme	United States NIAP Common Criteria Evaluation and Validation Scheme
TOE	MMA10G-IPX Series, version 3.3
Protection Profile	Collaborative Protection Profile for Network Devices, Version 2.2e, 27 March 2020 [PP-ND]
Security Target	MMA10G-IPX Series v3.3 Security Target, version 1.1, February 06,2023
Evaluation Technical Report	Evaluation Technical Report for MMA10G-IPX Series v3.3, version 1.1
CC Version	Version 3.1, Revision 5
Conformance Result	CC Part 2 Extended and CC Part 3 Conformant
Sponsor	Evertz Microsystems
Developer	Evertz Microsystems
Common Criteria Testing Lab (CCTL)	Acumen Security Rockville, MD
CCEVS Validators	Jim Donndelinger Swapna Katikaneni Marybeth Panock Viet Hung Le

3 Architectural Information

The TOE (Internet Protocol Crosspoint (IPX) switch) is a network-based audio video distribution system and is classified as a network device (a generic infrastructure device that can be connected to a network). It is a 10 Gigabit (Gb) Internet Protocol (IP) switch optimized for video-over-IP traffic (compressed or uncompressed). For the MMA10G and 3080 models, each IPX card occupies two (2) slots (16- and 32-port IPX cards) or four (4) slots (64-port IPX cards) in an Evertz Modular Crosspoint (EMX) frame. The 9080 models include the IPX cards and frame in a 1RU form factor. All IPX-compatible cards may be inserted into any IPX frame configuration provided there are sufficient contiguous free slots available.

Since video by nature has a unidirectional flow, and multiple copies of a single incoming video stream are often sent to multiple output destinations, the IPX exclusively uses multicast IP addressing. Equipment to prepare video for IP transport, or to convert it into other video formats, is outside the scope of this TOE. Such equipment includes, but is not limited to, cameras, KVMs, codecs, video servers and video displays. Equipment to perform functions such as embedding audio and/or other information within the video stream is also outside the scope of this TOE.

The TOE provides secure remote management using an HTTPS/TLS web interface. Administrators only may access IPX via a dedicated management workstation operating over an Out-of-Band Management (OOBM) network. Sites may close this OOBM network or may operate IPX within an existing OOBM, as long as the topology is compliant with the security parameters listed below. Users and administrators may also access IPX software via direct connection using a terminal session.

The TOE generates audit logs and transmits the audit logs to a remote syslog server over a mutually authenticated TLS channel. The TOE verifies the authenticity of software updates by verifying the digital signature prior to installing any update.

The summary of the evaluated functionality provided by the TOE includes the following,

- Secure connectivity with remote audit servers and secure retention of audit logs locally
- Identification and authentication of the administrator of the TOE
- Secure remote administration of the TOE via TLS and secure Local administration of the TOE
- Secure access to the management functionality of the TOE
- Secure software updates
- Secure communication with the non-TOE 'video switch control systems' via TLS

The TOE hardware devices are the Evertz:

- MMA10G-IPX-16 running MMA10G-IPX-16-CC v3.3,
- MMA10G-IPX-32 running MMA10G-IPX-32-CC v3.3,
- MMA10G-IPX-64 running MMA10G-IPX-64-CC v3.3,
- 3080IPX-16-G3-CC running MMA10G-IPX-16-CC v3.3,
- 3080IPX-32-G3-CC running MMA10G-IPX-32-CC v3.3,
- 3080IPX-64-G6-CC running MMA10G-IPX-64-CC v3.3,

- 3080IPX-16-10G-CC running MMA10G-IPX-16-CC v3.3,
- 3080IPX-32-10G-CC running MMA10G-IPX-32-CC v3.3,
- 3080IPX-64-10G-CC running MMA10G-IPX-64-CC v3.3,
- 3080IPX-16-10G-HW-CC running MMA10G-IPX-16-CC v3.3,
- 3080IPX-32-10G-HW-CC running MMA10G-IPX-32-CC v3.3,
- 3080IPX-64-10G-HW-CC running MMA10G-IPX-64-CC v3.3,
- 3080IPX-16GE-CC running MMA10G-IPX-16-CC v3.3,
- 3080IPX-32GE-CC running MMA10G-IPX-32-CC v3.3,
- 3080IPX-64GE-CC running MMA10G-IPX-64-CC v3.3,
- 3080IPX-16GE-RJ45-CC running MMA10G-IPX-16-CC v3.3,
- 3080IPX-32GE-RJ45-CC running MMA10G-IPX-32-CC v3.3,
- 3080IPX-64GE-RJ45-CC running MMA10G-IPX-64-CC v3.3,
- 9080IPX-16-12RJ45-4SFP10GE-CC running MMA10G-IPX-16-CC v3.3,
- 9080IPX-16GE-12RJ45-4SFP-CC running MMA10G-IPX-16-CC v3.3,
- 9080IPX-32-28RJ45-4SFP10GE-CC running MMA10G-IPX-32-CC v3.3,
- 9080IPX-32-28RJ45-4SFP-CC running MMA10G-IPX-32-CC v3.3

and will be referred to as "IPX" throughout this document. The IPX appliances are Ethernet switches optimized for video content.

NOTE: All the devices listed above run on the same Freescale MPC8377E PowerQUICC II processor and use the same microarchitecture.

4 Security Policy

The TOE is comprised of several security features. Each of the security features identified above consists of several security functionalities, as identified below.

- Security Audit
- Cryptographic Support
- Identification and Authentication
- Security Management
- Protection of the TSF
- TOE Access
- Trusted Path/Channels

The TOE provides the security functions required by the Collaborative Protection Profile for Network Devices, hereafter referred to as NDcPP v2.2e or NDcPP.

Security Audit

The TOE's Audit security function supports audit record generation and review. The TOE provides date and time information that is used in audit timestamps. Very broadly, the Audit events generated by the TOE include:

- Establishment of a trusted path or channel session
- Failure to Establish a trusted path or channel session
- Termination of a trusted path or channel session
- Failure of trusted channel functions
- Identification and Authentication
- Unsuccessful attempt to validate a certificate
- Lockouts due to unsuccessful authentication attempts
- Any update attempt
- Result of the update attempt
- Management of TSF data
- Changes to Time
- Session timeouts

The TOE stores generated audit data on itself and sends audit events to a syslog server, using a TLS protected collection method. Logs are classified into various predefined categories. The logging categories help describe the content of the messages that they contain. Access to the logs is restricted to only Security Administrators, who has no access to edit them, only to copy or delete (clear) them. Audit records are protected from unauthorized modifications and deletions.

The TSF provides the capability to view audit data by using the Syslog tab in the web browser. The log records the time, host name, facility, application, and "message" (the log details). The previous audit records are overwritten when the allocated space for these records reaches the threshold on a FIFO basis.

Cryptographic Support

The TOE includes an OpenSSL library (Version 1.1.1k with Fedora Patches) that implements CAVP validated cryptographic algorithms for random bit generation, encryption/decryption, authentication, and integrity protection/verification. These algorithms are used to provide security for the TLS/HTTPs connections for secure management and secure connections to a syslog and authentication servers. TLS and HTTPs are also used to verify firmware updates. The cryptographic services provided by the TOE are described below:

Table 1 – TOE Cryptographic Protocols

Cryptographic Protocol	Use within the TOE
HTTPS/TLS (client)	Secure connection to syslog FCS_HTTPS_EXT.1, FCS_TLSC_EXT.1
HTTPS/TLS (server)	Peer connections to MAGNUM and remote management FCS_HTTPS_EXT.1, FCS_TLSS_EXT.1, FCS_TLSS_EXT.2
AES	Provides encryption/decryption in support of the TLS protocol. FCS_TLSC_EXT.1, FCS_TLSS_EXT.1, FCS_TLSS_EXT.2
DRBG	Deterministic random bit generation use to generate keys. FCS_TLSS_EXT.1, FCS_TLSS_EXT.2, FCS_RBG_EXT.1
Secure hash	Used as part of digital signatures and firmware integrity checks. FCS_COP.1/Hash, FCS_TLSC_EXT.1, FCS_TLSS_EXT.1, FCS_TLSS_EXT.2
HMAC	Provides keyed hashing services in support of TLS. FCS_COP.1/KeyedHash, FCS_TLSC_EXT.1, FCS_TLSS_EXT.1, FCS_TLSS_EXT.2
EC-DH	Provides key establishment for TLS. FCS_CKM.2, FCS_TLSC_EXT.1, FCS_TLSS_EXT.1, FCS_TLSS_EXT.2
ECDSA	Provides components for EC-DH key establishment. FCS_CKM.1, FCS_CKM.2, FCS_TLSS_EXT.1, FCS_TLSS_EXT.2
RSA	Provide key establishment, key generation and signature generation and verification (PKCS1_V1.5) in support of TLS. FCS_CKM.1, FCS_COP.1/SigGen, FCS_COP.1/SigVer, FCS_TLSC_EXT.1, FCS_TLSS_EXT.1, FCS_TLSS_EXT.2

Each of these cryptographic algorithms have been validated for conformance to the requirements specified in their respective standards, as identified below:

Table 2 – CAVP Algorithm Testing References

Algorithm	Standard	CAVP Certificate #	Processors

AES 128/256-bit CBC, GCM	IOS 19772 (GCM)	A2454	PowerQUICC® II Pro MPC8377E
CTR DRBG using AES 256	ISO/IEC 18031:2011	A2454	PowerQUICC® II Pro MPC8377E
EC-DH	NIST SP 800-56A (key establishment)	A2454	PowerQUICC® II Pro MPC8377E
ECDSA	FIPS PUB 186-4 (key generation)	A2454	PowerQUICC® II Pro MPC8377E
HMAC-SHA-1/256/384	ISO/IEC 9797-2:2011	A2454	PowerQUICC® II Pro MPC8377E
SHA-1/256/384	ISO/IEC 10118-3:2004	A2454	PowerQUICC® II Pro MPC8377E
RSA 2048/3072/4096	FIPS PUB 186-4 (key generation and Digital Signature) ISO/IEC 9796-2 (digital signature)	A2454	PowerQUICC® II Pro MPC8377E

Identification and Authentication

All Administrators wanting to use TOE services are identified and authenticated prior to being allowed access to any of the services other than the display of the warning banner. (“Regular” IPX users do not access IPX directly; they control IP video switching through the IPX using a switch control system, such as Evertz’ Magnum. The switching of those IP video transport stream is outside the scope of the TOE.)

Once an Administrator attempts to access the management functionality of the TOE, the TOE prompts the Administrator for a username and password for password-based authentication. The identification and authentication credentials are confirmed against a local user database. Only after the Administrator presents the correct identification and authentication credentials will access to the TOE functionality be granted. The TOE uses X.509v3 certificates as defined by RFC 5280 to support authentication for TLS/HTTPS connections.

The TOE provides the capability to set password minimum length rules. This is to ensure the use of strong passwords in attempts to protect against brute force attacks. The TOE also accepts passwords composed of a variety of characters to support complex password composition. During authentication, no indication is given of the characters composing the password.

Remote administrators are locked out after a configurable number of unsuccessful authentication attempts.

The IPX requires a password-protected serial connection to perform initial configuration of the system IP address(es). Once each address is established, administrators use IP connectivity for all further administrative actions, including configuration, operations, and monitoring.

Security Management

The TOE provides secure administrative services for management of general TOE configuration and the security functionality provided by the TOE. All TOE administration occurs either through a secure session or a local console connection. The TOE provides the ability to perform the following actions:

- Administer the TOE locally and remotely
- Configure the access banner
- Configure the cryptographic services
- Configure number of unsuccessful login attempts that trigger a lockout
- Update the TOE and verify the updates using digital signature capability prior to installing those updates
- Specify the time limits of session inactivity

All of these management functions are restricted to an Administrator, which covers all administrator roles. Administrators are individuals who manage specific type of administrative tasks. In IPX, only the only admin role exists, since there is no provision for “regular” users to access IPX directly (as described above), and the portion of IPX they access and control are outside the scope of the TOE.

Primary management is done using the Webeasy web-based interface using HTTPS. This provides a network administration console from which one can manage various identity services. These services include authentication, authorization, and reporting. All of these services can be managed from the web browser, which uses a menu-driven navigation system.

There is also a very simple serial-based connection (RS-232) that provides a simple menu interface. This is used to configure the IP interface (IP address, etc.). It is password-protected, and is typically only used once, for initial set-up.

Protection of the TSF

The TOE will terminate inactive sessions after an Administrator-configurable time period. Once a session has been terminated the TOE requires the user to re-authenticate to establish a new session. The TOE provides protection of TSF data (authentication data and cryptographic keys). In addition, the TOE internally maintains the date and time. This date and time are used as the time stamp that is applied to TOE generated audit records. The TOE also ensures firmware updates are from a reliable source. Finally, the TOE performs testing to verify correct operation.

In order for updates to be installed on the TOE, an administrator initiates the process from the web interface. IPX automatically uses the digital signature mechanism to confirm the integrity of the product before installing the update.

TOE Access

Aside from the automatic Administrators session termination due to inactivity describes above, the TOE also allows Administrators to terminate their own interactive session. Once a session has been terminated the TOE requires the user to re-authenticate to establish a new session.

The TOE will display an Administrator-specified banner on the web browser management interface prior to allowing any administrative access to the TOE.

Trusted Path/Channels

The TOE allows the establishment of a trusted path between a video control system (such as Evertz' Magnum) and the IPX. The TOE also establishes a secure connection for sending audit data to a syslog server using TLS and other external authentication stores using TLS-protected communications.

The TOE uses HTTPS/TLS to provide a trusted path between itself and remote administrative users. The TOE does not implement any additional methods of remote administration. The remote administrative users are responsible for initiating the trusted path when they wish to communicate with the TOE.

5 Assumptions, Threats & Clarification of Scope

5.1 Assumptions

The specific conditions listed in the following subsections are assumed to exist in the TOE's environment. These assumptions include both practical realities in the development of the TOE security requirements and the essential environmental conditions on the use of the TOE.

Table 3 – Assumptions

ID	Assumption
A.PHYSICAL_PROTECTION	The Network Device is assumed to be physically protected in its operational environment and not subject to physical attacks that compromise the security or interfere with the device's physical interconnections and correct operation. This protection is assumed to be sufficient to protect the device and the data it contains. As a result, the cPP does not include any requirements on physical tamper protection or other physical attack mitigations. The cPP does not expect the product to defend against physical access to the device that allows unauthorized entities to extract data, bypass other controls, or otherwise manipulate the device. For vNDs, this assumption applies to the physical platform on which the VM runs.
A.LIMITED_FUNCTIONALITY	The device is assumed to provide networking functionality as its core function and not provide functionality/services that could be deemed as general purpose computing. For example, the device should not provide a computing platform for general purpose applications (unrelated to networking functionality).
A.NO_THRU_TRAFFIC_PROTECTION	A standard/generic Network Device does not provide any assurance regarding the protection of traffic that traverses it. The intent is for the Network Device to protect data that originates on or is destined to the device itself, to include administrative data and audit data. Traffic that is traversing the Network Device, destined for another network entity, is not covered by the ND cPP. It is assumed that this protection will be covered by cPPs and PP-Modules for particular types of Network Devices (e.g., firewall).

ID	Assumption
A.TRUSTED_ADMINISTRATOR	The Security Administrator(s) for the Network Device are assumed to be trusted and to act in the best interest of security for the organization. This includes appropriately trained, following policy, and adhering to guidance documentation. Administrators are trusted to ensure passwords/credentials have sufficient strength and entropy and to lack malicious intent when administering the device. The Network Device is not expected to be capable of defending against a malicious Administrator that actively works to bypass or compromise the security of the device. For TOEs supporting X.509v3 certificate-based authentication, the Security Administrator(s) are expected to fully validate (e.g. offline verification) any CA certificate (root CA certificate or intermediate CA certificate) loaded into the TOE's trust store (aka 'root store', ' trusted CA Key Store', or similar) as a trust anchor prior to use (e.g. offline verification).
A.REGULAR_UPDATES	The Network Device firmware and software is assumed to be updated by an Administrator on a regular basis in response to the release of product updates due to known vulnerabilities.
A.ADMIN_CREDENTIALS_SECURE	The Administrator's credentials (private key) used to access the Network Device are protected by the platform on which they reside.
A.COMPONENTS_RUNNING	For distributed TOEs it is assumed that the availability of all TOE components is checked as appropriate to reduce the risk of an undetected attack on (or failure of) one or more TOE components. It is also assumed that in addition to the availability of all components it is also checked as appropriate that the audit functionality is running properly on all TOE components.
A.RESIDUAL_INFORMATION	The Administrator must ensure that there is no unauthorized access possible for sensitive residual information (e.g. cryptographic keys, keying material, PINs, passwords etc.) on networking equipment when the equipment is discarded or removed from its operational environment.

5.2 Threats

The following table lists the threats addressed by the TOE and the IT Environment. The assumed level of expertise of the attacker for all the threats identified below is Enhanced-Basic.

Table 4 – Threats

ID	Threat
T.UNAUTHORIZED_ADMINISTRATOR_ACCESS	Threat agents may attempt to gain Administrator access to the Network Device by nefarious means such as masquerading as an Administrator to the device, masquerading as the device to an Administrator, replaying an administrative session (in its entirety, or selected portions), or performing man-in-the-middle attacks, which would provide access to the administrative session, or sessions between Network Devices. Successfully gaining Administrator access allows malicious actions that compromise the security functionality of the device and the network on which it resides.
T.WEAK_CRYPTOGRAPHY	Threat agents may exploit weak cryptographic algorithms or perform a cryptographic exhaust against the key space. Poorly chosen encryption algorithms, modes, and key sizes will allow attackers to compromise the algorithms, or brute force exhaust the key space and give them unauthorized access allowing them to read, manipulate and/or control the traffic with minimal effort.
T.UNTRUSTED_COMMUNICATION_CHANNELS	Threat agents may attempt to target Network Devices that do not use standardized secure tunnelling protocols to protect the critical network traffic. Attackers may take advantage of poorly designed protocols or poor key management to successfully perform man-in-the-middle attacks, replay attacks, etc. Successful attacks will result in loss of confidentiality and integrity of the critical network traffic, and potentially could lead to a compromise of the Network Device itself.
T.WEAK_AUTHENTICATION_ENDPOINTS	Threat agents may take advantage of secure protocols that use weak methods to authenticate the endpoints, e.g. a shared password that is guessable or transported as plaintext. The consequences are the same as a poorly designed protocol, the attacker could masquerade as the Administrator or another device, and the attacker could insert themselves into the network stream and perform a man-in-the-middle attack. The result is the critical network traffic is exposed and there could be a loss of confidentiality and integrity, and

ID	Threat
	potentially the Network Device itself could be compromised.
T.UPDATE_COMPROMISE	Threat agents may attempt to provide a compromised update of the software or firmware which undermines the security functionality of the device. Non-validated updates or updates validated using non-secure or weak cryptography leave the update firmware vulnerable to surreptitious alteration.
T.UNDETECTED_ACTIVITY	Threat agents may attempt to access, change, and/or modify the security functionality of the Network Device without Administrator awareness. This could result in the attacker finding an avenue (e.g., misconfiguration, flaw in the product) to compromise the device and the Administrator would have no knowledge that the device has been compromised.
T.SECURITY_FUNCTIONALITY_COMPROMISE	Threat agents may compromise credentials and device data enabling continued access to the Network Device and its critical data. The compromise of credentials includes replacing existing credentials with an attacker's credentials, modifying existing credentials, or obtaining the Administrator or device credentials for use by the attacker.
T.PASSWORD_CRACKING	Threat agents may be able to take advantage of weak administrative passwords to gain privileged access to the device. Having privileged access to the device provides the attacker unfettered access to the network traffic and may allow them to take advantage of any trust relationships with other Network Devices.
T.SECURITY_FUNCTIONALITY_FAILURE	An external, unauthorized entity could make use of failed or compromised security functionality and might therefore subsequently use or abuse security functions without prior authentication to access, change or modify device data, critical network traffic or security functionality of the device.

5.3 Clarification of Scope

All evaluations (and all products) have limitations, as well as potential misconceptions that need clarifying. This text covers some of the more important limitations and clarifications of this evaluation. Note that:

- As with any evaluation, this evaluation only shows that the evaluated configuration meets the security claims made, with a certain level of assurance. The level of assurance for this evaluation is defined within the Collaborative Protection Profile for Network Devices, Version 2.2e, 27 March 2020 [PP-ND]

- Consistent with the expectations of the PP, this evaluation did not specifically search for, nor seriously attempt to counter, vulnerabilities that were not “obvious” or vulnerabilities to objectives not claimed in the ST. The CEM defines an “obvious” vulnerability as one that is easily exploited with a minimum of understanding of the TOE, technical sophistication and resources.
- The evaluation of security functionality of the product was limited to the functionality specified in the claimed PPs. Any additional security related functional capabilities included in the product were not covered by this evaluation.

6 Documentation

The following documents were provided by the vendor with the TOE for evaluation:

- 3080IPX Integrated Switching Fabric User Manual, Version 1.9, June 2016
- IPX MMA10G-IPX Security Administration Manual, Revision 1b, Aug 16, 2019
- MMA10G-IPX Series v3.3 Security Target 1.1, February 06, 2023
- IPX MMA10G-IPX v3.3 Security Administrative Guide Addendum for Common Criteria, version 1.2, 03 February 2023

Any additional customer documentation provided with the product, or that is available online was not included in the scope of the evaluation and therefore should not be relied upon when configuring or operating the device as evaluated. . Consumers are encouraged to download the evaluated administrative guidance documentation from the NIAP website.

7 TOE Evaluated Configuration

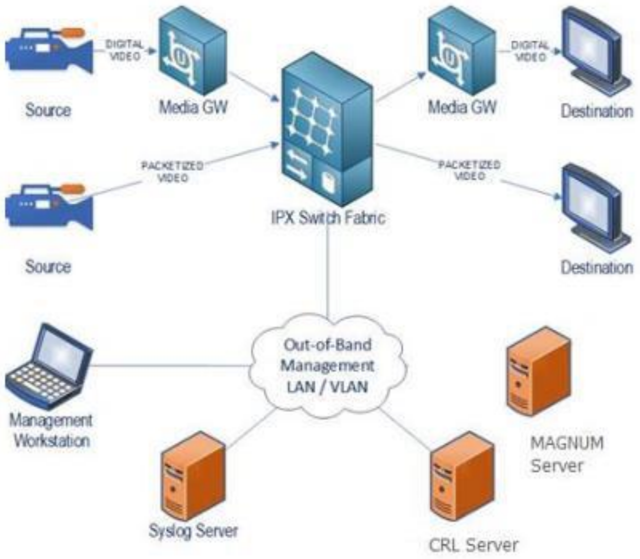
7.1 Evaluated Configuration

The section 1.2 of the ST provides an overview of the TOE architecture, including physical boundaries, security functions, and relevant TOE documentation and references.

7.1.1 Physical Boundaries and IT Testing Environment Components

The physical boundaries of the TOE are outlined in section 1.2 of the ST. All physical boundaries are required in the TOE Environment. The IT Testing Environment components used to test the TOE are shown in Table 2 of the ST.

Typical system deployment of the TOE is depicted below and the IPX Switch Fabric is the only component part of the TOE. All the other components of the IT environment are NOT part of the TOE physical boundary.



7.1.2 Security Functions Provided by the TOE

The TOE provides the security functions required by the Collaborative Protection Profile for Network Devices, hereafter referred to as NDcPP v2.2e or NDcPP.

7.2 Excluded Functionality

The following product functionality is not included in the CC evaluation:

- SNMP Traps (Alarms)
- VistaLINK PRO module
- External Authentication Servers for administrator authentication

These functions are outside the TOE. Alarm monitoring is the sending of SNMP traps to an alarm monitoring system (which is assigned by an Administrator).

In addition, IPX provides IP video stream switching. This IP video switching does not provide security functionality and was therefore not evaluated and is outside the scope of the TOE. The nature of video encryption and decryption is that a video stream is encrypted at the sending end and decrypted at the receiving end; since IPX is a midpoint device and therefore does not perform encryption or decryption functionality. This functionality, while present in the TOE, was not evaluated.

8 IT Product Testing

This section describes the testing efforts of the developer and the evaluation team. It is derived from information contained in ETR for MMA10G-IPX Series version 3.3, which is not publicly available. The AAR provides an overview of testing and the prescribed assurance activities.

8.1 Developer Testing

No evidence of developer testing is required in the Assurance Activities for this product.

8.2 Evaluation Team Independent Testing

The evaluation team verified the product according to the vendor-provided guidance documentation and ran the tests specified in the collaborative Protection Profile for Network Devices, Version 2.2e, 27 March 2020 [PP-ND].

All testing was carried at the Acumen Security offices located in 2400 Research Blvd Suite #395, Rockville, MD 20850. Testing occurred from January 2022 through February 2023.

The Independent Testing configuration is documented in section 4 of the AAR and the test activities are documented in section 6 of the AAR , which is publicly available, and is not duplicated here.

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9 Results of the Evaluation

The results of the assurance requirements are generally described in this section and are presented in detail in the proprietary documents: the Detailed Test Report (DTR) and the ETR. The reader of this document can assume that all activities and work units received a passing verdict.

A verdict for an assurance component is determined by the resulting verdicts assigned to the corresponding evaluator action elements. The evaluation was conducted based upon CC version 3.1 Rev. (5) and CEM version 3.1 Rev. (5). The evaluation determined the TOE Name to be Part 2 extended, and meets the SARs contained in the PP. Additionally, the evaluator performed the Assurance Activities specified in the claimed PP.

9.1 Evaluation of Security Target

The evaluation team applied each ASE CEM work unit. The ST evaluation ensured the ST contains a description of the environment in terms of policies and assumptions, a statement of security requirements claimed to be met by the MMA10G-IPX Series v3.3 Security Target version 1.1 that are consistent with the Common Criteria, and product security function descriptions that support the requirements. Additionally, the evaluator performed an assessment of the Assurance Activities specified in the collaborative Protection Profile for Network Devices, Version 2.2e, 27 March 2020 [PP-ND].

The validator reviewed the work of the evaluation team and found that sufficient evidence and justification was provided by the evaluation team to confirm that the evaluation was conducted in accordance with the requirements of the CEM, and that the conclusion reached by the evaluation team was justified.

9.2 Evaluation of Development Documentation

The evaluation team applied each EAL 1 ADV CEM work unit. The evaluation team assessed the design documentation and found it adequate to aid in understanding how the TSF provides the security functions. The design documentation consists of a functional specification contained in the ST's TOE Summary Specification. Additionally, the evaluator performed the Assurance Activities specified in the collaborative Protection Profile for Network Devices, Version 2.2e, 27 March 2020 [PP-ND] related to the examination of the information contained in the TOE Summary Specification.

The validator reviewed the work of the evaluation team and found that sufficient evidence and justification was provided by the evaluation team to confirm that the evaluation was conducted in accordance with the Assurance Activities, and that the conclusion reached by the evaluation team was justified.

9.3 Evaluation of Guidance Documents

The evaluation team applied each EAL 1 AGD CEM work unit. The evaluation team ensured the adequacy of the user guidance in describing how to use the operational TOE. Additionally, the evaluation team ensured the adequacy of the administrator guidance in describing how to securely administer the TOE. The guides were assessed during the design and testing phases of the evaluation to ensure they were complete. Additionally, the evaluator performed the Assurance Activities specified in the collaborative Protection Profile for Network Devices, Version 2.2e, 27 March 2020 [PP-ND] related to the examination of the information contained in the operational guidance documents.

The validator reviewed the work of the evaluation team and found that sufficient evidence and justification was provided by the evaluation team to confirm that the evaluation was conducted in accordance with the Assurance Activities, and that the conclusion reached by the evaluation team was justified.

9.4 Evaluation of Life Cycle Support Activities

The evaluation team applied each EAL 1 ALC CEM work unit. The evaluation team found that the TOE was identified.

The validator reviewed the work of the evaluation team and found that sufficient evidence and justification was provided by the evaluation team to confirm that the evaluation was conducted in accordance with the requirements of the CEM, and that the conclusion reached by the evaluation team was justified.

9.5 Evaluation of Test Documentation and the Test Activity

The evaluation team applied each EAL 1 ATE CEM work unit. The evaluation team ran the set of tests specified by the Assurance Activities in the collaborative Protection Profile for Network Devices, Version 2.2e, 27 March 2020 [PP-ND] and recorded the results in a Test Report, summarized in the ETR and AAR.

The validator reviewed the work of the evaluation team and found that sufficient evidence was provided by the evaluation team to show that the evaluation activities addressed the test activities in the collaborative Protection Profile for Network Devices, Version 2.2e, 27 March 2020 [PP-ND], and that the conclusion reached by the evaluation team was justified.

9.6 Vulnerability Assessment Activity

The evaluation team applied each EAL 1 AVA CEM work unit. The evaluation team performed a public search for vulnerabilities, performed vulnerability testing and did not discover any issues with the TOE.

The validator reviewed the work of the evaluation team and found that sufficient evidence and justification was provided by the evaluation team to confirm that the evaluation addressed the vulnerability analysis Assurance Activities in the collaborative Protection Profile for Network Devices, Version 2.2e, 27 March 2020 [PP-ND], and that the conclusion reached by the evaluation team was justified.

9.7 Summary of Evaluation Results

The evaluation team's assessment of the evaluation evidence demonstrates that the claims in the ST are met. Additionally, the evaluation team's test activities also demonstrated the accuracy of the claims in the ST.

The validation team's assessment of the evidence provided by the evaluation team is that it demonstrates that the evaluation team performed the Assurance Activities in the collaborative Protection Profile for Network Devices, Version 2.2e, 27 March 2020 [PP-ND], and correctly verified that the product meets the claims in the ST.

10 Validator Comments & Recommendations

The validation team notes that the evaluated configuration is dependent upon the TOE being configured per the evaluated configuration instructions in the Common Criteria Administrator Guide.

Please note that the functionality evaluated is scoped exclusively to the security functional requirements specified in the Security Target. The excluded functionality is specified in section 7.2 of this report. All other items and scope issues have been sufficiently addressed elsewhere in this document.

11 Annexes

Not applicable.

12 Security Target

MMA10G-IPX Series v3.3 Security Target, version 1.1, February 06,2023

13 Glossary

The following definitions are used throughout this document:

- **Common Criteria Testing Laboratory (CCTL).** An IT security evaluation facility accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) and approved by the CCEVS Validation Body to conduct Common Criteria-based evaluations.
- **Conformance.** The ability to demonstrate in an unambiguous way that a given implementation is correct with respect to the formal model.
- **Evaluation.** The assessment of an IT product against the Common Criteria using the Common Criteria Evaluation Methodology to determine whether or not the claims made are justified; or the assessment of a protection profile against the Common Criteria using the Common Evaluation Methodology to determine if the Profile is complete, consistent, technically sound and hence suitable for use as a statement of requirements for one or more TOEs that may be evaluated.
- **Evaluation Evidence.** Any tangible resource (information) required from the sponsor or developer by the evaluator to perform one or more evaluation activities.
- **Feature.** Part of a product that is either included with the product or can be ordered separately.
- **Target of Evaluation (TOE).** A group of IT products configured as an IT system, or an IT product, and associated documentation that is the subject of a security evaluation under the CC.
- **Validation.** The process carried out by the CCEVS Validation Body leading to the issue of a Common Criteria certificate.
- **Validation Body.** A governmental organization responsible for carrying out validation and for overseeing the day-to-day operation of the NIAP Common Criteria Evaluation and Validation Scheme.

14 Bibliography

The Validation Team used the following documents to produce this Validation Report:

1. Assurance Activity Report for MMA10G-IPX Series v3.3, version 1.1
2. Common Criteria for Information Technology Security Evaluation - Part 1: Introduction and general model, Version 3.1 Revision 5.
3. Common Criteria for Information Technology Security Evaluation - Part 2: Security functional requirements, Version 3.1 Revision 5.
4. Common Criteria for Information Technology Security Evaluation - Part 3: Security assurance requirements, Version 3.1 Revision 5.
5. Common Evaluation Methodology for Information Technology Security Evaluation, Version 3.1 Revision 5.
6. Evaluation Technical Report for MMA10G-IPX Series v3.3, version 1.1, February 07,2023.
7. IPX MMA10G-IPX v3.3 Security Administrative Guide Addendum for Common Criteria, version 1.2, 03 February 2023
8. collaborative Protection Profile for Network Devices, Version 2.2e, 27 March 2020 [PP-ND]
9. MMA10G-IPX Series v3.3 Security Target, version 1.1, February 06,2023