

Independent Assurance Report

To the Management of Hellenic Exchanges - Athens Stock Exchange S.A. (“Athex”):

Scope

We have been engaged, in a reasonable assurance engagement, to report on Hellenic Exchanges - Athens Stock Exchange (hereinafter “Athens Exchange” or “Athex”) management’s [assertion](#) that for its Certification Authority (CA) operations in Athens, Greece, from January 1, 2017 to December 31, 2017, for its CAs as enumerated in [Attachment A](#), Athex has:

- ▶ disclosed its business, key lifecycle management, certificate lifecycle management, and CA environmental control practices in its:
 - [Qualified Certificate Policy](#);
 - [Certification Practice Statement of EU Qualified Certificates](#);
 - [Non Qualified Certificate Policy](#);
 - [Certification Practice Statement of Non-Qualified Certificates](#)
- ▶ maintained effective controls to provide reasonable assurance that:
 - Athex’s Certification Practice Statements are consistent with its Certificate Policies;
 - Athex provides its services in accordance with its Certificate Policies
- ▶ maintained effective controls to provide reasonable assurance that:
 - the integrity of keys and certificates it manages is established and protected throughout their lifecycles;
 - the integrity of subscriber keys and certificates it manages is established and protected throughout their lifecycles;
 - subscriber information is properly authenticated (for the registration activities performed by Athex); and
 - subordinate CA certificate requests are accurate, authenticated, and approved
- ▶ maintained effective controls to provide reasonable assurance that:
 - logical and physical access to CA systems and data is restricted to authorized individuals;
 - the continuity of key and certificate management operations is maintained; and
 - CA systems development, maintenance, and operations are properly authorized and performed to maintain CA systems integrity

in accordance with the [WebTrust Principles and Criteria for Certification Authorities v2.1](#).

Athex does not escrow its CA keys. Accordingly, our procedures did not extend to

controls that would address those criteria.

Certification authority's responsibilities

Athex's management is responsible for its assertion, including the fairness of its presentation, and the provision of its described services in accordance with the WebTrust Principles and Criteria for Certification Authorities v2.1.

Our independence and quality control

We have complied with the independence and other ethical requirements of the *Code of Ethics for Professional Accountants* issued by the International Ethics Standards Board for Accountants, which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

The firm applies International Standard on Quality Control 1, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Auditor's responsibilities

Our responsibility is to express an opinion on management's assertion based on our procedures. We conducted our procedures in accordance with International Standard on Assurance Engagements 3000, *Assurance Engagements Other than Audits or Reviews of Historical Financial Information*, issued by the International Auditing and Assurance Standards Board. This standard requires that we plan and perform our procedures to obtain reasonable assurance about whether, in all material respects, management's assertion is fairly stated, and, accordingly, included:

1. obtaining an understanding of Athex's key and certificate lifecycle management business practices and its controls over key and certificate integrity, over the authenticity and confidentiality of subscriber and relying party information, over the continuity of key and certificate lifecycle management operations and over development, maintenance and operation of systems integrity;
2. selectively testing transactions executed in accordance with disclosed key and certificate lifecycle management business practice;
3. testing and evaluating the operating effectiveness of the controls; and
4. performing such other procedures as we considered necessary in the circumstances.

We believe that the evidence we have obtained is sufficient and appropriate to provide a basis to our opinion.

Relative effectiveness of controls

The relative effectiveness and significance of specific controls at Athex and their effect on assessments of control risk for subscribers and relying parties are dependent on their interaction with the controls, and other factors present at individual subscriber and relying party locations. We have performed no procedures to evaluate the effectiveness of controls at individual subscriber and relying party locations.

Inherent limitations

Because of the nature and inherent limitations of controls, Athex's ability to meet the aforementioned criteria may be affected. For example, controls may not prevent, or detect and correct, error, fraud, unauthorized access to systems and information, or failure to comply with internal and external policies or requirements. Also, the projection of any conclusions based on our findings to future periods is subject to the risk that changes may alter the validity of such conclusions.

Opinion

In our opinion, throughout the period January 01, 2017 to December 31, 2017, Athex management's assertion, as referred to above, is fairly stated, in all material respects, in accordance with the WebTrust Principles and Criteria for Certification Authorities v2.1.

This report does not include any representation as to the quality of Athex's services beyond those covered by the WebTrust Principles and Criteria for Certification Authorities v2.1, nor the suitability of any of the Athex's services for any customer's intended purpose.

Ernst & Young (Hellas) S.A.
Certified Auditors Accountants
(SOEL R.N. 107)
Chimarras 8B
151 25 Maroussi
Athens, April 10, 2018



Attachment A
LIST OF IN SCOPE CAs

Root CAs
1. Athex Root CA G2
EV SSL Issuing CAs
2. Athex General Certificates CA G2
3. Athex Qualified Certificates CA G2



ATHEXGROUP
Athens Exchange Group

CA IDENTIFYING INFORMATION

CA #	Cert #	Subject	Issuer	Serial Number	Key Algorithm	Key Size	Digest Algorithm	Not Before	Not After	Subject Key Identifier	SHA256 Fingerprint
1	1	CN = ATHEX Root CA G2 O = ATHENS STOCK EXCHANGE C = GR	CN = ATHEX Root CA G2 O = ATHENS STOCK EXCHANGE C = GR	3E:CF	PKCS #1 SHA-384 With RSA Encryption	4096 bits	sha384	(Tuesday, March 15, 2016, 11:14:32 AM GMT)	(Friday, March 14, 2036, 10:00:00 PM GMT)	47 a3 a6 04 9d 2d 96 e5	C1:72:7F:3B:67:3E:6A:E7:F1:2F:23: D7:89:A7:BE:38:B9:18:22:3E:F6:91: 1C:59:2D:A1:F5:83:44:4A:54:7E
2	1	CN = ATHEX General Certificates CA G2 O = ATHENS STOCK EXCHANGE C = GR	CN = ATHEX Root CA G2 O = ATHENS STOCK EXCHANGE C = GR	3E:FB	PKCS #1 SHA-256 With RSA Encryption	2048 bits	sha256	(Wednesday, March 30, 2016, 9:10:11 AM GMT)	(Sunday, March 29, 2026, 9:00:00 PM GMT)	43 0d ea 0b d2 a2 a6 7d	DD:AA:00:A7:C9:04:80:D3:F2:55: F3:36:35:3C:30:7B:6F:9E:5D:13:63: 44:86:F0:1D:43:26:87:CB:52:F8:8F
3	1	"CN = ATHEX Qualified Certificates CA G2 O = ATHENS STOCK EXCHANGE C = GR"	"CN = ATHEX Root CA G2 O = ATHENS STOCK EXCHANGE C = GR"	3E:FA	PKCS #1 SHA-256 With RSA Encryption	2048 bits	sha256	(Wednesday, March 30, 2016, 8:59:17 AM GMT)	(Sunday, March 29, 2026, 9:00:00 PM GMT)	4c 04 c7 e4 7f 9a 7d 9e	1C:70:E1:DA:80:0C:25:4B:FD:F2:C1: 96:F6:0C:F7:66:29:28:CC:79:AC:EC: C8:DE:E5:BF:42:2C:3B:75:B1:79



Management Assertion

ATHEX MANAGEMENT'S ASSERTION

HELLENIC EXCHANGES - ATHENS STOCK EXCHANGE S.A. (hereinafter "Athens Exchange" or "Athex") operates the Certification Authority (CA) services known as [Appendix A](#), and provides the following CA services:

- ▶ Subscriber registration
- ▶ Certificate renewal
- ▶ Certificate rekey
- ▶ Certificate issuance
- ▶ Certificate distribution
- ▶ Certificate revocation
- ▶ Certificate suspension
- ▶ Certificate validation
- ▶ Subscriber key generation and management
- ▶ Subordinate CA certification

The management of Athex is responsible for establishing and maintaining effective controls over its CA operations, including its CA business practices disclosure on its [website](#), CA business practices management, CA environmental controls, CA key lifecycle management controls, subscriber key lifecycle management controls, certificate lifecycle management controls, and subordinate CA certificate lifecycle management controls. These controls contain monitoring mechanisms, and actions are taken to correct deficiencies identified.

There are inherent limitations in any controls, including the possibility of human error, and the circumvention or overriding of controls. Accordingly, even effective controls can provide only provide reasonable assurance with respect to Athex's Certification Authority operations. Furthermore, because of changes in conditions, the effectiveness of controls may vary over time.

Athex management has assessed its disclosures of its certificate practices and controls over its CA services. Based on that assessment, in Athex management's opinion, in providing its Certification Authority (CA) services in Athens, Greece, throughout the period January 01, 2017 to December 31, 2017, Athex has:

- ▶ Disclosed its business, key lifecycle management, certificate lifecycle management, and CA environmental control practices in its:
 - [Qualified Certificate Policy](#);
 - [Certification Practice Statement of EU Qualified Certificates](#);
 - [Non Qualified Certificate Policy](#);
 - [Certification Practice Statement of Non-Qualified Certificates](#)
- ▶ maintained effective controls to provide reasonable assurance that:
 - Athex's Certification Practice Statements are consistent with its Certificate Policies;



- Athex provides its services in accordance with its Certificate Policies
- ▶ maintained effective controls to provide reasonable assurance that:
 - the integrity of keys and certificates it manages is established and protected throughout their lifecycles;
 - the integrity of subscriber keys and certificates it manages is established and protected throughout their lifecycles;
 - subscriber information is properly authenticated (for the registration activities performed by Athex); and
 - subordinate CA certificate requests are accurate, authenticated, and approved
- ▶ maintained effective controls to provide reasonable assurance that:
 - logical and physical access to CA systems and data is restricted to authorized individuals;
 - the continuity of key and certificate management operations is maintained; and
 - CA systems development, maintenance, and operations are properly authorized and performed to maintain CA systems integrity

in accordance with the [WebTrust Principles and Criteria for Certification Authorities v2.1](#), including the following:

CA Business Practice Disclosure

- ▶ Certification Practice Statement (CPS)
- ▶ Certificate Policy (CP)

CA Business Practices Management

- ▶ Certificate Policy Management
- ▶ Certification Practice Statement Management
- ▶ CP and CPS Consistency

CA Environmental Controls

- ▶ Security Management
- ▶ Asset Classification and Management
- ▶ Personnel Security
- ▶ Physical & Environmental Security
- ▶ Operations Management
- ▶ System Access Management
- ▶ System Development and Maintenance
- ▶ Business Continuity Management
- ▶ Monitoring and Compliance
- ▶ Audit Logging

CA Key Lifecycle Management Controls

- ▶ CA Key Generation
- ▶ CA Key Storage, Backup, and Recovery



- ▶ CA Public Key Distribution
- ▶ CA Key Usage
- ▶ CA Key Archival and Destruction
- ▶ CA Key Compromise
- ▶ CA Cryptographic Hardware Lifecycle Management

Subscriber Key Lifecycle Management Controls

- ▶ CA-Provided Subscriber Key Generation Services
- ▶ CA-Provided Subscriber Key Storage and Recovery Services
- ▶ Requirements for Subscriber Key Management

Certificate Lifecycle Management Controls

- ▶ Subscriber Registration
- ▶ Certificate Renewal
- ▶ Certificate Rekey
- ▶ Certificate Issuance
- ▶ Certificate Distribution
- ▶ Certificate Revocation
- ▶ Certificate Suspension
- ▶ Certificate Validation

Subordinate CA Certificate Lifecycle Management Controls

- ▶ Subordinate CA Certificate Lifecycle Management

Athens, April 10, 2018