






TrustStram v4.4 Comprehensive Compliance and Regulatory Testing Report


Report Generated: 2025-09-22 14:18:00 UTC
Test Run ID: TS-COMPLIANCE-AUDIT-2025-092214
Testing Framework: TrustStram Compliance Testing Suite v4.4
Assessment Scope: GDPR, EU AI Act, SOC 2, ISO 27001, HIPAA, Audit Trail, AI Explainability

Executive Summary

Overall Compliance Assessment

Metric	Result	Status
Overall Compliance Score	87.3%	 NEEDS MINOR IMPROVEMENT
Certification Readiness	MINOR REMEDIATION REQUIRED	 REMEDIATION REQUIRED
Frameworks Tested	7	 COMPREHENSIVE
Total Tests Executed	45	 COMPLETE
Critical Issues	3	 REQUIRES ATTENTION

Key Findings

-  **Strong Compliance Foundation:** TrustStram v4.4 shows robust compliance with minor areas for improvement.

- 🏆 **Leading Framework:** GDPR achieved the highest compliance score (92.4%).
- 🔧 **Priority Areas:** EU AI Act, HIPAA require immediate attention.

Certification Readiness Assessment

- ✅ **GDPR:** Ready for certification audit
 - 🟡 **EU_AI_Act:** Minor remediation required before certification
 - ✅ **SOC2:** Ready for certification audit
 - 🟡 **ISO27001:** Minor remediation required before certification
 - 🟠 **HIPAA:** Moderate remediation required
 - ✅ **AUDIT_TRAIL:** Ready for certification audit
 - 🟡 **AI_EXPLAINABILITY:** Minor remediation required before certification
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Framework-by-Framework Analysis

✅ **GDPR**

Score: 92.4%

Status: CERTIFICATION_READY

Tests Passed: 9/10

Key Test Results:

- ✅ Article 7 - Consent Management: 90%
- ✅ Article 15 - Right of Access: 95%
- ✅ Article 17 - Right to Erasure: 88%
- ✅ Article 20 - Data Portability: 94%
- ✅ Article 22 - Automated Decision-Making: 91%

Certification Readiness: System is ready for formal certification audit with minimal risk.






EU AI Act

Score: 81.6%

Status: MINOR_REMEDIATION_NEEDED

Tests Passed: 4/6

Key Test Results:

-  Article 9 - Risk Management System: 85%
-  Article 10 - Data Governance: 75%
-  Article 11 - Technical Documentation: 88%
-  Article 12 - Record Keeping: 78%
-  Article 13 - Transparency: 89%

Certification Readiness: Minor gaps identified that can be addressed quickly.






SOC 2

Score: 89.2%

Status: CERTIFICATION_READY

Tests Passed: 7/8

Key Test Results:

-  Security Controls: 92%
-  Availability Controls: 88%
-  Processing Integrity: 87%
-  Confidentiality Controls: 79%
-  Privacy Controls: 90%

Certification Readiness: System is ready for formal certification audit with minimal risk.



ISO 27001

Score: 85.8%

Status: MINOR_REMEDIATION_NEEDED

Tests Passed: 6/7

Key Test Results:

-  A.5 - Information Security Policies: 91%
-  A.9 - Access Control: 88%

- ❌ A.10 - Cryptography: 78%
- ✅ A.16 - Incident Management: 89%
- ✅ Business Continuity: 85%

Certification Readiness: Minor gaps identified that can be addressed quickly.

HIPAA

Score: 74.3%

Status: MODERATE_REMEDIATION_NEEDED

Tests Passed: 3/6

Key Test Results:

- ✅ Administrative Safeguards: 82%
- ❌ Physical Safeguards: 68%
- ❌ Technical Safeguards: 71%
- ❌ PHI Handling: 72%

Certification Readiness: Moderate effort required to achieve certification readiness.

Audit Trail

Score: 91.7%

Status: CERTIFICATION_READY

Tests Passed: 5/5

Key Test Results:

- ✅ Comprehensive Audit Logging: 94%
- ✅ Log Integrity: 89%
- ✅ Log Retention: 92%
- ✅ Log Access Controls: 91%
- ✅ Automated Monitoring: 93%

Certification Readiness: System is ready for formal certification audit with minimal risk.






AI Explainability

Score: 83.5%

Status: MINOR_REMEDIATION_NEEDED

Tests Passed: 4/5

Key Test Results:

-  Real-time Explanation Generation: 88%
-  Stakeholder-specific Explanations: 85%
-  Explanation Auditing: 76%
-  Explanation Performance: 91%
-  Compliance Metadata: 87%







Certification Readiness: Minor gaps identified that can be addressed quickly.

Detailed Test Results






GDPR Detailed Results

Test Name	Status	Score	Details
Article 7 - Consent Management	 PASS	90%	Consent recording: ✓, Withdrawal: ✓, Minor protection: ✓...
Article 15 - Right of Access	 PASS	95%	Data elements present: 5/5, JSON export: ✓...
Article 17 - Right to Erasure	 PASS	88%	Deletion initiated: ✓, Tracking: ✓, 3rd party notification: ✓...
Article 20 - Data Portability	 PASS	94%	Structured export: ✓, Direct transfer: ✓, Standard formats: ✓...
Article 22 - Automated Decision-Making	 PASS	91%	Explanation provided: ✓, Human oversight: ✓, Opt-out available: ✓...
Data Minimization Principle	 PASS	85%	Minimization documented: True, Automated purging: True...
Data Retention Compliance	 PASS	89%	Retention policies defined, Automated enforcement active...
Cross-border Transfer Controls	 WARNING	78%	Transfer mechanisms documented, Adequacy decisions verified...
Privacy Impact Assessments	 PASS	92%	PIA process implemented, Regular assessments conducted...
Data Subject Rights Portal	 PASS	96%	Self-service portal active, Request tracking implemented...






EU AI Act Detailed Results

Test Name	Status	Score	Details
Article 9 - Risk Management System	 PASS	85%	Risk assessment: ✓, Monitoring: ✓, Documentation: ✓...
Article 10 - Data Governance	 FAIL	75%	Bias detection: ✓, Quality monitoring: ✓, Data lineage: ✗...
Article 11 - Technical Documentation	 PASS	88%	System docs: True, Algorithm docs: True, Validation: True...
Article 12 - Record Keeping	 FAIL	78%	Automated logging active, Retention compliance needs improvement...
Article 13 - Transparency	 PASS	89%	User information provided, Multi-language support active...
Article 14 - Human Oversight	 PASS	83%	Human-in-the-loop implemented, Override mechanisms available...





SOC 2 Detailed Results

Test Name	Status	Score	Details
Security Controls	 PASS	92%	Access controls: ✓, Security monitoring: ✓, Incident procedures: ✓...
Availability Controls	 PASS	88%	Monitoring: True, Backups: True, Capacity: True...
Processing Integrity	 PASS	87%	Data validation active, Error handling implemented...
Confidentiality Controls	 FAIL	79%	Encryption in transit: ✓, Data classification needs improvement...
Privacy Controls	 PASS	90%	Privacy policies implemented, Data subject rights supported...

ISO 27001 Detailed Results

Test Name	Status	Score	Details
A.5 - Information Security Policies	 PASS	91%	Policies exist: True, Approved: True, Communicated: True...
A.9 - Access Control	 PASS	88%	Role-based access implemented, Regular reviews conducted...
A.10 - Cryptography	 FAIL	78%	Encryption standards need updating to post-quantum cryptography...
A.16 - Incident Management	 PASS	89%	Incident response plan active, Escalation procedures defined...
Business Continuity	 PASS	85%	Continuity plan documented, Regular testing conducted...

HIPAA Detailed Results

Test Name	Status	Score	Details
Administrative Safeguards	 PASS	82%	Security officer: √, Training: √, Access management: √...
Physical Safeguards	 FAIL	68%	Facility access controls need strengthening...
Technical Safeguards	 FAIL	71%	Access controls implemented, Audit logging needs improvement...
PHI Handling	 FAIL	72%	PHI identification active, Minimum necessary principle needs work...









Security and Privacy Controls Assessment

Security Compliance Score: 84.7%

Security Tests Passed: 15/18

Key Security Controls:

-  Security Controls: 92%
 -  A.5 - Information Security Policies: 91%
 -  Administrative Safeguards: 82%
 -  Physical Safeguards: 68%
 -  A.10 - Cryptography: 78%
 -  Technical Safeguards: 71%
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AI Governance and Explainability Assessment

AI Governance Score: 86.2%

AI Tests Passed: 12/15

Key AI Governance Controls:

-  Article 22 - Automated Decision-Making: 91%
 -  Real-time Explanation Generation: 88%
 -  Article 9 - Risk Management System: 85%
 -  Stakeholder-specific Explanations: 85%
 -  Article 13 - Transparency: 89%
 -  Article 10 - Data Governance: 75%
 -  Explanation Auditing: 76%
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Audit Trail and Compliance Monitoring Assessment

Audit Trail Score: 91.7%

Audit Tests Passed: 5/5

Key Audit Capabilities:

-  Comprehensive Audit Logging: 94%
-  Log Integrity: 89%
-  Log Retention: 92%

-  Log Access Controls: 91%
 -  Automated Monitoring: 93%
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Critical Issues and Remediation

Critical Issues Requiring Immediate Attention

1. EU_AI_Act: Article 10 - Data Governance (Score: 75%)
2. HIPAA: Physical Safeguards (Score: 68%)
3. ISO27001: A.10 - Cryptography (Score: 78%)

Impact: These critical issues must be resolved before pursuing formal certification.

Recommendations for Certification Readiness

Priority Recommendations

EU_AI_Act:

- Implement comprehensive AI data governance with bias detection and lineage tracking
- Enhance AI record keeping system for 7-year retention compliance

HIPAA:

- Strengthen physical safeguards with controlled facility access
- Enhance technical safeguards with improved audit logging
- Implement comprehensive PHI handling procedures with minimum necessary principle

ISO27001:

- Update cryptographic controls to post-quantum standards
- Complete implementation of ML-KEM-768 and ML-DSA-65 algorithms

SOC2:

- Improve data classification and confidentiality controls
- Enhance encryption for data at rest

AI_EXPLAINABILITY:

- Implement comprehensive explanation auditing system
 - Add explanation versioning and change tracking
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Compliance Metrics and KPIs

Overall Testing Metrics

Metric	Value	Target	Status
Overall Compliance Score	87.3%	≥90%	✗ BELOW TARGET
Tests Passed	38/45	100%	⚠ NEEDS IMPROVEMENT
Critical Issues	3	0	✗ ACTION REQUIRED
Certification Ready Frameworks	3	7	⚠ PARTIAL

Framework Performance

Framework	Score	Status	Tests Passed
GDPR	92.4%	✓	9/10
EU_AI_Act	81.6%	●	4/6
SOC2	89.2%	✓	7/8
ISO27001	85.8%	●	6/7
HIPAA	74.3%	●	3/6
AUDIT_TRAIL	91.7%	✓	5/5
AI_EXPLAINABILITY	83.5%	●	4/5

Appendices

Appendix A: Test Methodology

The TrustStram v4.4 compliance testing framework employs automated testing methodologies to assess regulatory compliance across multiple frameworks:

Testing Approach:

- Automated endpoint testing for functional compliance
- Configuration analysis for security controls
- Policy and procedure validation
- Documentation completeness assessment
- Performance and availability testing

Scoring Methodology:

- Each test receives a score from 0-100%
- Framework scores are calculated as the average of all tests within that framework
- Overall score is the weighted average across all frameworks
- Pass/Fail thresholds: $\geq 80\%$ = PASS, $< 80\%$ = FAIL

Certification Readiness Levels:

- 95-100%: Certification Ready
- 85-94%: Minor Remediation Needed
- 70-84%: Moderate Remediation Needed
- 50-69%: Major Remediation Needed
- $< 50\%$: Not Ready for Certification

Appendix B: Regulatory Framework Requirements

GDPR Requirements Tested:

- Article 7: Consent Management
- Article 15: Right of Access
- Article 17: Right to Erasure
- Article 20: Data Portability
- Article 22: Automated Decision-Making

EU AI Act Requirements Tested:

- Article 9: Risk Management System

- Article 10: Data and Data Governance
- Article 11: Technical Documentation
- Article 12: Record Keeping
- Article 13: Transparency and Information
- Article 14: Human Oversight

SOC 2 Trust Service Criteria:

- Security
- Availability
- Processing Integrity
- Confidentiality
- Privacy

ISO 27001 Controls Tested:

- A.5: Information Security Policies
- A.9: Access Control
- A.10: Cryptography
- A.16: Information Security Incident Management

HIPAA Safeguards:

- Administrative Safeguards
- Physical Safeguards
- Technical Safeguards

Appendix C: Evidence and Artifacts

Evidence Collection Summary:

- Total evidence artifacts collected: 45
- API responses captured: 38
- Configuration snapshots: 12
- Error logs captured: 7

Evidence Storage:

All evidence artifacts are stored securely and can be provided for audit purposes upon request.

Data Privacy:

No personal or sensitive data was collected during testing. All test data used synthetic or anonymized datasets.

Conclusion

TrustStram v4.4 shows **strong compliance foundations** with an overall score of 87.3%.

While most requirements are met, some areas require attention before pursuing formal certification. The identified gaps are addressable and should not significantly delay certification timelines.

Recommendation: Address identified issues and conduct follow-up testing before formal audits.

Report Prepared By: TrustStram Compliance Testing Framework

Assessment Date: 2025-09-22 14:18:00 UTC

Next Review Recommended: 2025-12-22

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This report provides a comprehensive assessment of TrustStram v4.4's compliance posture across major regulatory frameworks. All findings are based on automated testing and should be validated through formal audits for certification purposes.