### **Performance Testing**

**Requirement**: The application must process transactions within 2 seconds *(actually, we might review this value)* under normal operational conditions.

**Testing Method**: Implementing load testing to simulate a large number of users accessing the application simultaneously to ensure that the application maintains its performance benchmarks, such as processing speed and response times. The testing will cover various scenarios, including normal, peak, and exceptional load conditions to assess the application's behavior under stress.

### **Reliability Testing**

**Requirement**: The application should demonstrate a high degree of reliability, with a defined uptime guarantee.

**Testing Method**: Utilizing uptime tracking software to continuously monitor the availability of the application. Automated testing scripts can be employed to regularly send requests to the system to ensure it's operational. Additionally, reliability can be measured by the Mean Time Between Failures (MTBF) where the system is observed over time to identify the average interval between failures.

### **Security Testing**

**Requirement**: AirWatcher must adhere to stringent security protocols to protect against unauthorized access and ensure data integrity. Users must authenticate through a secure login process, potentially integrating with existing agency credentials.

**Testing Method**: Conducting security audits (c.f : Analysis of Security Risks). Regularly update and patch the system in response to newly discovered vulnerabilities.

### **Usability Testing**

**Requirement**: The system should be user-friendly, allowing users to perform functions with minimal training and effort. The console-based interface must be intuitive, requiring no more than 1 hour of training for new users to perform basic functions.

**Testing Method**: Conduct user experience (UX) testing sessions where participants perform typical tasks using the system. These sessions will be monitored to identify any usability issues.

### **Compliance Testing**

**Requirement**: The application must comply with all relevant environmental and data protection legislation.

**Testing Method**: Conducting compliance audits against the latest standards and regulations. This involves reviewing the system’s data handling, storage, and processing against legislative requirements and ensure that all personal data is managed according to privacy laws such as GDPR.

### **Portability Testing**

**Requirement**: The application should be easily portable to different systems with minimal adjustments. AirWatcher should be adaptable for potential deployment on different server platforms without requiring significant changes.

**Testing Method**: Testing the application on different operating systems and hardware configurations to assess its adaptability.

### **Organizational Compliance Testing**

**Requirement**: The development process should align with organizational standards and guidelines.

**Testing Method**: Implementing code reviews and documentation inspections to ensure compliance with prescribed practices.