1. **Non-functional requirements**
   1. Identified quality attributes
      1. Testability

The system and its parts have to be able to be tested through inspections, simulations and analyses before on-board installation.

“Hence, FDIR functionality must be validated through a combination of inspection, simulation, and analysis.” [EAS98]

Priority: High

* + 1. Availability

The system must not lock or stall when processing data. It must work asynchronously and must be available all the time.

“Fault protection operates asynchronously, and may be invoked at any time” [EAS98]

Priority: High

* + 1. Adaptability

The system has to be configurable in order to adapt to several environment. FDIR has to be adaptable for manned and unmanned spacecraft. It also has to adapt to several hardware component, different from one spacecraft to another.

“For unmanned spacecraft“ “additional requirements over those for unmanned craft”[EAS98]

Priority: High

* 1. Improvised quality attributes
     1. Availability

FDIR is processing a lot of critical information that shouldn’t be lost. Redundant storage system has to be added in order to avoid any waste of data.

Priority: Medium

* + 1. Reliability

The system must be reliable in all operating conditions. System failure could lead to loss of human life. However, as reliability is inversely related to complexity in software application, this non-functional requirement should be one of the top priorities.

Priority: High

* + 1. Resilience

The system must be able to maintain an acceptable level of service in spite failures in parts of the FDIR system.

Priority: Medium

* + 1. Performance
       1. Response time

The system must respond in timely manner so that problematic systems can be shut down before any damage is done.

Priority : Medium

* + - 1. Throughput

The system has to be able to deliver and receive a lot of requests and messages at the same time, and so we have to avoid overloading the FDIR.

Priority : Medium

* + 1. Usability
       1. Recoverability

FDIR has to limit errors of manipulation from users, considering the criticism of operations on a spacecraft. No operation should be irreversible, and confirmation should be asked to user each time he wants to do an action. Flow of information should be filtered to allow user to only focus on interesting parts, diminishing so the probability of mistakes to happen.

Priority: Medium

* + - 1. Learnability

FDIR is a professional application that treats a lot of information and needs a good efficiency from the users. However, system must provide easy-to-learn features, by displaying confirmation and error pop-ups, and by providing easy-to-understand views.

Priority: Low

* + - 1. Consistency

The FDIR interface should provide several views with consistent naming conventions and features from one view to another.

Priority: Low

Add to the references :

http://www.bredemeyer.com/pdf\_files/NonFunctReq.PDF