
# VSAT-MEVA III

## Maintenance Service Plan

**V1.0/27.09.2013**

| | |
|---|---|
| CFT Ref.: | **Sealed Tender ST-22501390** |
| Project No.: | **20131007** |
| Doc-ID.: | **VSAT-MEVA III_MSP_V1.0** |
| Customer: | **ICAO MEVA III, Mexico/Canada** |

Revision History

| Version | Date | Description |
|---|---|---|
| V1.0 | 27.09.2013 | Initial Version submitted as CFT response |

**COMSOFT** GmbH
Wachhausstrasse 5a
76227 Karlsruhe
Phone +49 721 9497 - 0
Fax +49 721 9497 - 129

# Contents

# List of Figures



# List of Tables

# 1 Introduction

## 1.1 Overview

(1) During the complete life cycle of the MEVA III VSAT Project, COMSOFT provides maintenance for the MEVA III VSAT Project deliverables (software, hardware, documentation). At the beginning in the context of the contractually agreed warranty period, later on basis of maintenance contracts or case-by case-support orders.

(2) This document establishes a mutually agreed basis for the conduction of the maintenance activities defined in a binding Service Level Agreements (SLA) which will provided at the date of negotiations and contract signature.

(3) General working procedures for hardware and software maintenance actions will conform to the COMSOFT Quality System.

## 1.2 Purpose

(1) This document specifies the maintenance activities for the MEVA III VSAT Project in combination with the SLAs. The present Maintenance Plan (MP) provides an overview of the maintenance organisation, the tasks and responsibilities of all groups involved. The plan shall also provide evidence of COMSOFT's ability to support the hardware and software of MEVA III VSAT Project during its complete life time.

(2) Maintenance activities are performed in order to

- maintain the functionality of the system as agreed upon between MEVA III TMG/Members and COMSOFT during the Design Phase,
- provide a transition and migration path for future system adaptations to new and enhanced technologies,
- improve and extend the system functionality according to specific customer requests.

## 1.3 Scope

(1) The scope of this document is the activities and procedures to maintain and support the MEVA III VSAT Project in its current and future configurations. The exact scope of maintenance will vary according to the options included in COMSOFT´s Service Level Agreement.

(2) **NOTE:** The following list of items under maintenance serves only as an example.

Hardware:

- as described network related hardware and software delivered by COMSOFT

System Documentation:

- Design Documentation
- Operator's and Administrator's Guides
- Hardware Documentation
- Maintenance Manual

(3) Maintenance activities will be applied to all hardware, software and documentation deliverables of the MEVA III VSAT Project configuration as it is described in this document.

(4) **The contractually agreed range of services for the MEVA III VSAT Project is, if not otherwise agreed, "Standard" as described in COMSOFT´s SLA (Service Level Agreement)**

(5) Descriptions of the technical maintenance procedures (e.g. hardware replacement, software upgrade) are not covered by this document, but will be covered by the corresponding maintenance manuals.

## 1.4 Intended Audience

(1) This document is intended for Maintenance Coordinators (MCo), Quality Engineers, Project/Program Managers and Service Staff of MEVA III TMG/Members and COMSOFT.

## 1.5 Referenced Material

(1) If no explicit revision of the stated documents is given, the latest revision applies.

(2) Applicable versions of the project documentation are related to the project phase and documented in the corresponding Configuration Item Document (CID).

## 1.6 Quality Procedures

(1) To ensure a premium quality services for the MEVA III VSAT Project, COMSOFT adapted each process of the project to the DIN ISO 9001/14001 Quality Standard.

(2) It is one of the priorities of COMSOFT to guarantee such significant Quality Standards from the beginning in the project line and therefore COMSOFT ensure that also the manufacturer ND SatCom has implemented such Quality Standards.

Please refer to the attached Quality Certificates of each company.

# 2 Overall Maintenance Concept

## 2.1 Design Strategy

(1) Maintenance cannot be separated from the system development life cycle. Maintenance considerations have to be taken into account very early in order to keep maintenance costs and efforts at a minimum during later stages. At the same time, the overall maintenance concept represents one of the components of a comprehensive ILS (Integrated Logistics Support) management strategy.

(2) Along with the design of the hardware architecture, "Lowest Replaceable Units (LRUs)" are identified which describe the smallest granularity of equipment. The LRUs correspond to the spares that are kept in stock during the maintenance period and can be replaced at the time of failure.

(3) All COMSOFT systems are equipped with system diagnostics features, both on hardware and software level, including BISTs (Built-In Self-Tests), error logging, error reporting and detailed analysis functions.

(4) The maintenance strategies proposed in the following chapters allow performing certain activities directly from COMSOFT's Network Operation Centers in Miami and Germany without any delay or downtimes.

## 2.2 Obsolescence

(1) The COMSOFT strategy to countervail obsolescence is based on three pillars, as summarised below:

- COTS Products

  COMSOFT relies on mature and state-of-the-art COTS products as core building blocks for the MEVA III VSAT Project. All products come from reliable vendors and represent mainstream developments in their field. Thus, a continuing upgrade of these products can be anticipated as a natural process of the market with downward compatibility as a given property.

- Open Standards

  COMSOFT uses open hardware standards wherever possible for MEVA III VSAT Project's internal and external interfaces. Adhering to standards has the invaluable advantage that products can be replaced by products from other vendors also adhering to a given standard, guaranteeing in this way a low risk logistics support and cost effectiveness through competition.

- Modularity

  The MEVA III VSAT Project architecture proposed by COMSOFT is strictly modular, i.e. it distinguishes between individual components with narrow and with efficient interfaces. This opens the option of replacing individual components, e.g. with newer technology without compromising the overall consistency of the system architecture.

(2) In total, the risk of obsolescence of equipment is minimised by the architecture itself and imminent decisions taken for the MEVA III VSAT Project design. COMSOFT provides the basis for ensuring that the procured system will remain on the highest technological level throughout its life time.

## 2.3 Maintenance Stages

(1) Within the life cycle of a system the project phase is followed by a maintenance phase. Generally, the maintenance phase is composed of a warranty period followed by an optional maintenance contract. As required by the ICAO´s MEVA III VSAT Tender, the commercial part of this offer includes an offer for the requested maintenance which includes hotline assistance during business hours, first and second level support and remote assistance. All the hardware provided is COTS hardware. The spare part stock always allows availability within **24 hours** (excluding customs clearance procedures) of the hardware. Necessary software updates are included in the maintenance contract.

(2) The range of services for the different maintenance stages are defined in the SLAs of COMSOFT.

(3) COMSOFT recommends signing hardware and software maintenance contracts for the post-warranty period.

# 3 Types of Maintenance

(1) The following types of maintenance activities exist:

- Corrective Maintenance;
- Preventive Maintenance;
- Adaptive Maintenance;
- Perfective Maintenance.

(2) Maintenance types relevant for the MEVA III VSAT Project are to be found in the SLAs.

## 3.1 Corrective Maintenance

(1) The purpose of Corrective Maintenance is to provide solutions or workarounds for abnormal system behaviour. The actions to be taken depend on the reported problem.

(2) Corrective Maintenance is initiated by problem reports generated by MEVA III Member´s personnel and verified by the MEVA III TMG Maintenance Coordinator. For problem reporting and handling procedures see chapter 8 „Problem Reporting and Handling“.

### 3.1.1 Corrective Field Services

(1) MEVA III TMG/Members relays by telefax and/or email to COMSOFT Helpdesk any events originating from abnormal station operation. Telephone communications should consequently be confirmed by telefax messages and/or email.

(2) If MEVA III TMG/Member´s headquarter directly contacts COMSOFT in case of a problem, COMSOFT shall at first contact the related site, forwarding the User´s or Customer´s message asking for support.

(3) In response at a fault report (Trouble Ticket) issued by MEVA III TMG/Members, COMSOFT Helpdesk will take appropriate measures to correct the fault within the time according to the Service Level of the VSAT terminal under contract.

(4) If COMSOFT is not able to keep the agreed reaction time in any case, COMSOFT will immediately call MEVA III TMG or respective Member State and inform them about the cause and time of delay.

(5) Before beginning and after finishing of work on-site, COMSOFT will contact MEVA III TMG/Members by phone. All fault elimination procedures will be reported by COMSOFT to MEVA III TMG/Members. After fault elimination COMSOFT will

conduct a final function test together with MEVA III TMG/Members. COMSOFT will complete the fault report (Trouble Ticket) issued by MEVA III TMG/Members, certifying the successful elimination of the fault.

## 3.2 Preventive Maintenance

(1) The purpose of Preventive Maintenance is to identify possible future problems or quality limitations. In this context it is important that MEVA III TMG/Member States informs COMSOFT on any misbehaviour and issues with the ability of the system to perform its task within the design envelope of the system. Thus, necessary system adaptations or enhancements can be initiated at a very early stage.

(2) The planned Preventive Maintenance activities will be kept to an absolute minimum and must not have any effect upon the operational service.

### 3.2.1 Preventive Field Services (optional)

(1) Over a period of time, all equipment needs some form of maintenance to avoid unexpected breakdowns and premature equipment failure.

(2) COMSOFT has developed a dedicated Preventive Maintenance Program for various types of equipment. These programs are designed to help MEVA III TMG/Members save time and money by avoiding unexpected breakdowns and premature equipment failures.

(3) COMSOFT´s Preventive Maintenance Programs include:

- Cleaning of the ODU
- Lubrication, if necessary
- Visual inspection of all hardware and cables
- Recommended Scheduled Repairs, agreed on prior approvals
- Maintenance Reports
- Recommended Spare Parts

## 3.3 Adaptive Maintenance

(1) Adaptive Maintenance deals with system adaptations to keep a software product usable in a changed or changing environment like new functional or non-functional requirements as well as hardware or operating system upgrades. As a result, a maintenance activity may be initiated even though no urgent problem exists. Thus, this type of maintenance is not problem driven, but performed whenever MEVA III TMG/Members and COMSOFT agree on the installation of new releases of the products.

(2) Upgrades of application, operating system, hardware components may be related to each other. Thus, adaptive maintenance operations and possible side effects must be planned and examined very carefully.

## 3.4 Perfective Maintenance

(1) Perfective Maintenance is related to system quality or maintainability improvements. This includes, but is not limited to software modifications and documentation enhancements. Corresponding activities can be initiated by MEVA III TMG/Members or COMSOFT.

# 4 COMSOFT´s Maintenance Organisation

(1) The maintenance of the system is performed by MEVA III TMG/Members and COMSOFT personnel. For COTS products maintenance is supported by the corresponding supplier if necessary. Maintenance activities are controlled by the maintenance co-ordinators of MEVA III TMG/Members and COMSOFT respectively.

(2) The following figure depicts the maintenance organisation for the system. The roles and responsibilities of each participant are described in chapter 5 “Roles and Responsibilities”.

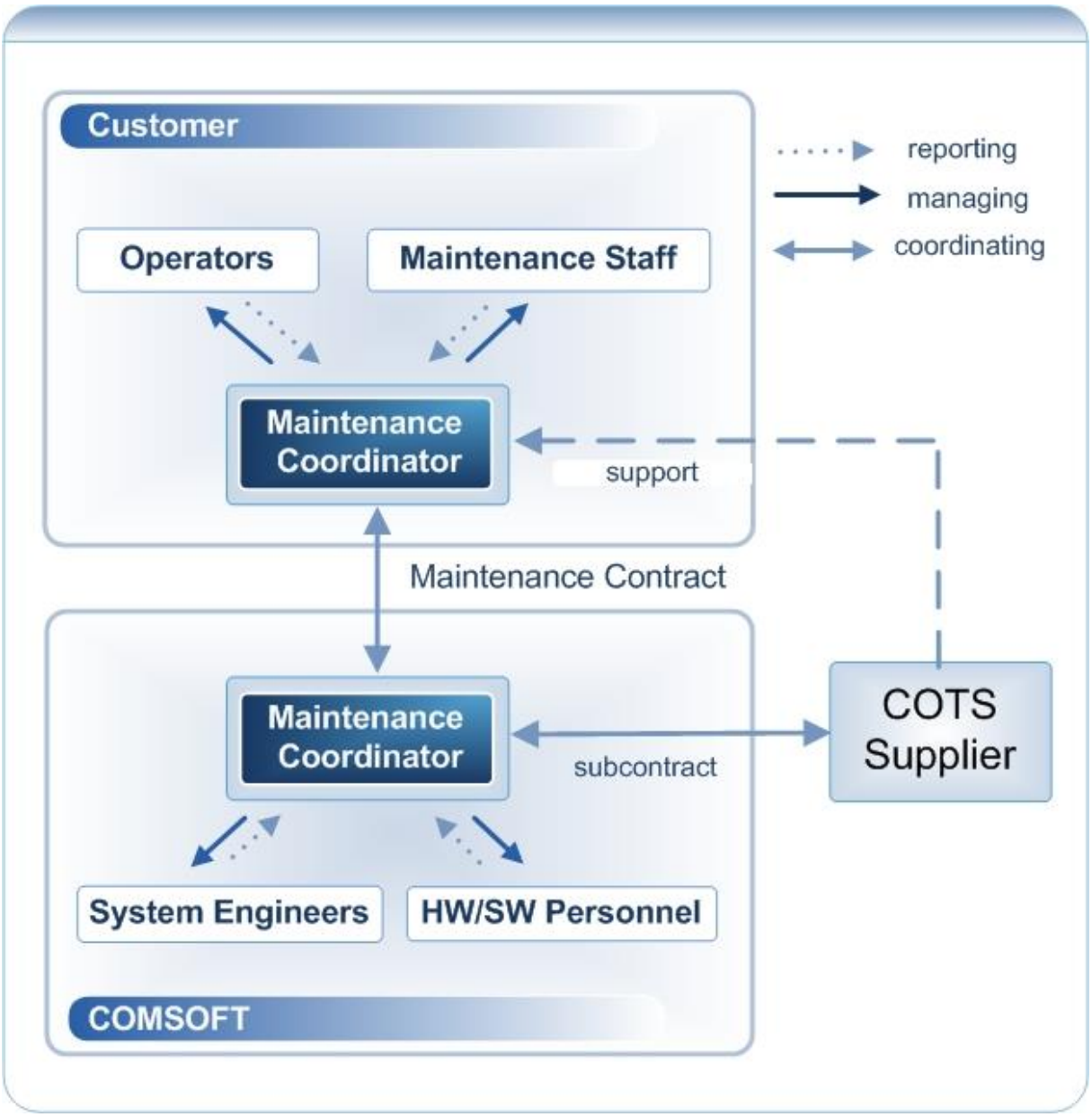


Figure 1: Maintenance Organization

# 5 Roles and Responsibilities

(1) This chapter specifies the roles and responsibilities of each participant in the maintenance activities.

## 5.1 COMSOFT Maintenance Coordinator

(1) The COMSOFT Maintenance Coordinator is responsible for the

- delivery of the maintenance services according to the SLAs and coordination of the maintenance process with the MEVA III TMG Maintenance Coordinator,
- management of the problem report database, including the ticket system (see chapter 8.3),
- management of the maintenance activities performed by the COMSOFT maintenance staff,
- establishment of maintenance contracts and initiation of the maintenance activities performed by third-party suppliers.

## 5.2 COMSOFT System Engineers

(1) The COMSOFT System Engineers

- process software-related problem reports,
- perform documentation updates.

## 5.3 COMSOFT Hardware Technicians

(1) The COMSOFT Hardware Technicians

- performs maintenance activities (e.g. exchange of defective parts) as agreed in the SLAs,
- supports MEVA TMG/Member's maintenance staff on request,
- repairs faulty items.

## 5.4 COMSOFT Software Engineers

(1) The COMSOFT Software Engineers

- fix defects, implement enhancements and improve the source code.

## 5.5 MEVA III TMG Maintenance Coordinator

(1) The MEVA III TMG Maintenance Coordinator

- submits problem reports and change requests to the COMSOFT Maintenance Coordinator,
- manages the maintenance activities performed by the MEVA III Member States maintenance staff and coordinates the maintenance process with the COMSOFT Maintenance Coordinator,
- monitors the system availability and reliability,
- reports failures and problems to the third-party supplier, if specifically agreed,
- coordinates on-site support actions of COMSOFT or third-party staff.

## 5.6 MEVA III TMG/Members Operator

(1) The MEVA III TMG/Members Operator

- reports abnormal system behaviour to the MEVA III TMG/Members Maintenance Coordinator,
- forwards system change requests to the MEVA III TMG/Members Maintenance Coordinator.

## 5.7 MEVA III TMG/Members Maintenance Staff

(1) The MEVA III TMG/Members Maintenance Staff

- will be completely trained by COMSOFT for all necessary maintenance activities,
- performs maintenance activities as agreed in the SLAs (e.g. exchange of defective parts),
- reports abnormal system behaviour to the MEVA III TMG/Members Maintenance Coordinator,
- forwards system change requests to the MEVA III TMG/Members Maintenance Coordinator.

## 5.8 COTS Suppliers

(1) Support by third-party suppliers – as far as applicable - is subject to subcontracts between COMSOFT and the suppliers. For system parts covered by corresponding

maintenance subcontracts the suppliers perform maintenance activities (e.g. exchange of defective parts).

(2) In the context of the SLAs (please refer to COMSOFT´s Service Level Agreement) the activities performed by a COTS supplier is considered as part of the COMSOFT service provision.

# 6 Software Maintenance

(1) COMSOFT assures all necessary coordination between the different providers of MEVA III VSAT Project's software package in order to fix faults, deficiencies and defects.

(2) COMSOFT integrates and validates updates of the software developed for MEVA III VSAT Project.

(3) COMSOFT validates and delivers / integrates upgrades or corrections to COTS software used in the MEVA III VSAT Project in order to correct faults, deficiencies and defects provided that a sound supplier version is available and this proves necessary for the safe operation of the system.

(4) If required, an update of the relevant documentation is included.

(5) It should be noted that the above commitments apply only to those COTS software products produced and procured for MEVA III VSAT Project by COMSOFT.

## 6.1 Software Failure Classes

(1) COMSOFT reacts on software problems within the defined period of time after having been appropriate notified about the software problem. Software issues will be solved within the reaction and solution times agreed upon in the SLAs for this severity class (refer to Table 1).

(2) In case of software modifications, COMSOFT will indicate the type of problem, how it has been fixed and which modules have been changed. Release notes for the new version indicate a summary of all changes implemented in the new version.

(3) Regression testing prior to the provision of a new software release will prove that the new features / fixes do not introduce any new faults or problems.

| Severity class | Definition |
|---|---|
| Major | The system operability is severely affected, and immediate action is required to ensure further operability.<br>Example: So-called Common-Mode Failures cause total system breakdowns. |
| Medium | The problem affects the system operation but does not endanger the overall operability. Effective workarounds and procedures are available to solve the problem.<br>Example: Application breakdown, but no total system failure due to the redundancy concept. |
| Minor | The problem has no major effect on the operability.<br>Example: Faults on the user interface that can be solved by workarounds. |

Table 1: Software Failure Severity Classes

## 6.2 Firmware and BIOS Update

(1) Within the maintenance activities, COMSOFT provides MEVA III VSAT Project with validated firmware update media for servers on an annual basis, if reasonable.

(2) In addition to the compatibility tests carried out by COMSOFT on a comparable system to the one of the MEVA III VSAT Project, COMSOFT advises MEVA III TMG/Member States to retest the firmware update on the MEVA III VSAT Project test system wherever applicable. In case of a server problem or failure, MEVA III TMG/Members or subcontractors shall install no firmware other than the latest firmware version validated by COMSOFT.

(3) Any server subject to repair activities needs to be tested on the MEVA III VSAT Project test system (if applicable) before being reintegrated into the operational MEVA III VSAT Project system or stored as MEVA III VSAT Project spare.

(4) COMSOFT cannot guarantee that the system provides its full functionality if other firmware versions are installed on the servers.

(5) To keep track of all hardware configuration items, MEVA III TMG/Member States shall use the Problem Report (PR) form to inform COMSOFT of all configuration changes such as swapping of parts, firmware updates etc. performed by MEVA III TMG/Member States or subcontractors. For details on how to obtain this information please refer to the respective administrator guides and manuals.

## 6.3 Third-Party Software Update

(1) The system may contain a security device or other software that requires to update malware patterns periodically. The license to receive updates for the virus checker may be included in the maintenance contract between MEVA III TMG/Member States and COMSOFT (for details please refer to COMSOFT´s Service Level Agreement). However, it is MEVA III TMG/Member's responsibility to ensure that the updates are loaded and activated on the system.

(2) For other third-party software, COMSOFT will provide updates if necessary.

## 6.4 Additional Technical Software Support

(1) Additional Technical Software Support is always an adaptive maintenance activity.

# 7 Hardware Maintenance

(1) During the Maintenance Contract Period

- COMSOFT provides support related to equipment supplied under its responsibility. For details on hardware maintenance included in the MEVA III VSAT Project please refer to COMSOFT´s Service Level Agreement.
- For simplification of daily work MEVA III TMG/Member States first-level maintenance staff shall perform the trained hardware exchange activities on COMSOFT´s advice.

(2) COMSOFT keeps a record of all hardware configuration items in the Hardware CID. In order to support the configuration management activities, MEVA III TMG/Member States will inform COMSOFT of all configuration changes on-site (e.g. swapping of parts, firmware updates) performed by MEVA III TMG/Member States or subcontractors using the PR template (refer to section Annex D: Problem Report Form). A suitable procedure to identify the firmware versions installed is described in the respective administrator's guide.

(3) Please note that non-compliance to the above procedure may cause costs and risk to be borne by MEVA III TMG/Member States.

## 7.1 Additional Technical Hardware Support

(1) Additional Technical Support includes, but is not limited to:

- Upgrade of hardware or hardware components as a result of
  1. End-Of-Life (EOL) of the product type or product family
  2. Upgrade of the environmental system (hardware or /and software) or parts of it
  3. Improvement of the system performance
- Regular site visits
- System re-location
- Extension / enhancements of the existing MEVA III VSAT Project system

# 8 Problem Reporting and Handling

(1) Problems are usually reported to COMSOFT by the customer. In case a problem detected by COMSOFT impacts the safety of the MEVA III VSAT Project system, a problem report may also be filed by COMSOFT directly.

(2) Problem reporting, inquiries, and requests for information are handled through the Problem Report Form (see chapter Annex D), which can be sent by e-mail. The forms must always be completed (in English) regardless whether the problem has already been communicated via phone or email.

(3) Additionally, the following items should be provided to ensure that COMSOFT has sufficient information for analysing the problem. This should include (but not be limited to)

- the event log for the time range when the problem was observed (+/- 3 minutes),
- the system logs (e.g. collect_info.sh; see Administrator's Guide for details),
- screenshots if the problem is related to a terminal screen.

(4) All problem reports are logged by COMSOFT in an internal ticket system. For details on this system please refer to chapter 8.3 “Ticket System”.

(5) COMSOFT will classify the problem reports according to the severity categories given in Table 1. The severity classification has impact on the reaction time as defined in the SLA.

## 8.1 Helpdesk, Telephone Service and On-Duty Hotline Details

(1) COMSOFT will provide a permanent 24/7 Hotline and Helpdesk Support to MEVA III Member States from COMSOFT´s NOCs (Network Operation Centre) in Miami and Germany.

(2) The helpdesk operator is a central point of contact for MEVA III Member States. If a fault occurs, the helpdesk personnel will initiate the fault-finding process by issuing instructions to the maintenance organisation for the remote satellite stations. The helpdesk personnel keep MEVA III Member States informed of the progress of the fault finding process.

(3) COMSOFT shall operate the network of satellite links and monitor all active technical components on a 24-hour service basis. COMSOFT shall clear faults in the service promptly subject to technical and operational feasibility. In this context it shall provide the following services particular:

### 8.1.1 Hotline Service

(1) COMSOFT shall be available 24/7 to receive fault reports from MEVA III Member States on the service telephone number. Faults shall be analysed and handled within specified reaction and response times. The hotline is the central point of contact for all questions and problems concerning operation.

### 8.1.2 Service Standby

(1) Fault clearance work which has to be done on-site shall be carried out by COMSOFT or by its authorized partner (field service provider), if applicable.

(2) Further details on the operation of the network service are stipulated in COMSOFT´s Service Level Agreement.

## 8.2 Ticket System

(1) COMSOFT's internal ticket system aims at tracing MEVA III TMG/Member's problem/change request/inquiry/information reported via the Problem Report or Change Request Form.

(2) The ticket number serves as an ID for the reported problem / change request and will be passed on to the MEVA III TMG/Member States to simplify communication.

(3) The ticket with the exact explication of the problem or request will then be passed on to the COMSOFT expert team who will take care of it. The COMSOFT Maintenance Coordinator manages the internal handling of the problem and the constant communication with the MEVA III TMG Maintenance Coordinator.

(4) The fixed and tested ticket will be closed after MEVA III Member States approval.

## 8.3 Monthly Reports

(1) COMSOFT will submit to MEVA III TMG/Member States a monthly report covering details of the periodic inspection and servicing accomplished and outstanding.

(2) The monthly report includes, but shall not be limited to a log showing:-

(3) (a) The time when Corrective Maintenance is initiated and completed.

(4) (b) A summary of the status of the system, the nature of any fault

(5) Analysis of all the above reports shall be required from the COMSOFT at the end of each calendar month.

## 8.4 Remote Access

(1) In order to facilitate maintenance tasks such as examination of system functions and configurations, remote access to system components is possible from COMSOFT's premises if the appropriate facilities are installed and enabled. Thereby, COMSOFT is able to perform maintenance and support activities without the need for physical presence of COMSOFT staff at the corresponding system locations.

(2) COMSOFT will provide support via the MEVA III VSAT Project's remote access after having received a request for support from MEVA III TMG/Member States. The maintenance personnel of MEVA III Member States are in charge of enabling the remote access facilities on customer's site if not always enabled.

(3) Prior to and during the remote monitoring session, COMSOFT and MEVA III Member States maintenance personnel will agree on the maintenance actions to be performed remotely.

(4) Please be aware that this facility entirely depends on the quality of lines used for the remote login. COMSOFT indicates the specifications for the required line quality and will ensure that the specified quality is reached at COMSOFT premises whereas it is in the responsibility of MEVA III Member States to assure the quality within the specification at their premises is reached.

## 8.5 On-Site Support

(1) If required, a site visit will be organized (either personnel from the local representative or personnel from COMSOFT).

## 8.6 Hardware Repair

### 8.6.1 Hardware Components Category

(1) For each hardware component category a specific repair strategy is applied. There are four different categories of hardware items:

- hardware components covered by spares stored on-site
- hardware components covered by supplier service contracts
- any other hardware components
- hardware components without maintenance service

(2) For details on repair times in the MEVA III VSAT Project please refer to COMSOFT´s Service Level Agreement.

#### 8.6.1.1 Hardware Components covered by Spares stored On-Site

(1) Failures of essential hardware components must be remediable in a short period. In order to minimise impact on the system, corresponding spare parts are stored on-site. The spare stock includes all critical components and all components containing wearing parts (e.g. printers). In order to achieve a minimum possible replacement time the spares are pre-configured if possible and applicable.

(2) The initial spare stock for essential components contains components of the same type and quality as the installed components.

(3) In case that spare parts have been used and need to be replaced in the spare stock, COMSOFT guarantees the selection of an identical, equivalent or better component within the hardware maintenance.

(4) Due to the openness of the proposed system, COMSOFT is able to guarantee the availability of spares for the whole life cycle of the system's equipment. This is achieved by COMSOFT's Obsolescence Strategy.

(5) All COMSOFT quality standards will be applied to the spares as well.

(6) Hardware spares directly purchased by MEVA III Member States from the original equipment supplier will not be evaluated by COMSOFT.

#### 8.6.1.2 Hardware Components covered by Supplier Service Contracts

(1) COMSOFT reserves the right to authorise the original equipment manufacturer or a qualified local company with the maintenance of defined components.

(2) In this case, COMSOFT will be in charge to close the relevant contracts with the supplier.

#### 8.6.1.3 Other Hardware Components

(1) For other hardware components such as non-essential parts (e.g. equipment cabinet components), COMSOFT will procure the corresponding spare part or will repair the defective part. No spares for these parts are intended to be stored onsite.

#### 8.6.1.4 Hardware Components without Maintenance Service

(1) If no maintenance service is agreed upon for the system or for specific components COMSOFT will not be responsible for its repair.

### 8.6.2 Return of Faulty Items

(1) MEVA III Member States shall identify and inform COMSOFT of faulty items as soon as possible.

(2) As soon as it has been agreed to send a defective unit for repair to the factory, the COMSOFT Maintenance Coordinator will assign a unique RMA (Return of Material Authorisation) number for the item. This number shall be written on the postal item in order to be identified upon arrival at COMSOFT's premises.

(3) MEVA III Member States will then return the defective system components to COMSOFT. Upon arrival, the item will be registered with the corresponding RMA number as well as the description of the defect.

(4) Depending on the defect, the item will be repaired by COMSOFT or will be sent to the repair facilities of the hardware supplier. COMSOFT and/or the hardware supplier will decide whether the item will be replaced or repaired.

(5) COMSOFT will return the repaired equipment to the MEVA III Member States premises together with an update of the respective documentation and background information about the repair.

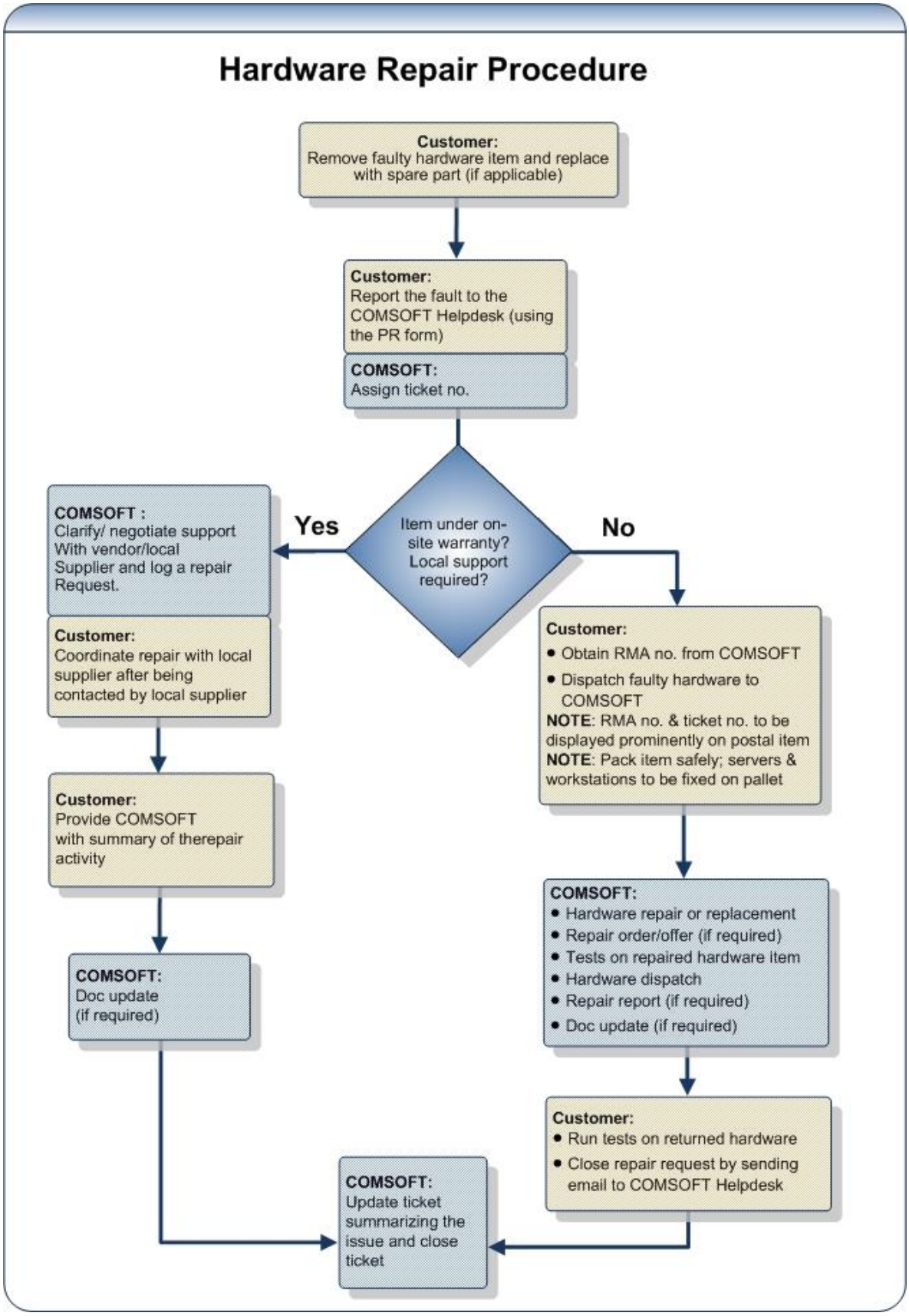


Figure 2: Hardware Repair Procedure

## 8.7 Testing

(1) All repaired / changed goods – hardware and software – will be subject to testing prior to their release.

(2) For software, all bug fixes and changed software parts will be tested. An appropriate regression test suite will be performed to avoid regression of the software. Test evidence may be provided by general product release test reports or dedicated test reports whatever is appropriate.

(3) For hardware appropriate visual and/or functional inspections will be executed.

## 8.8 Documentation

(1) System changes introduced by maintenance activities are accompanied by appropriate documentation changes.

# 9 Engineering Changes – Change Request Handling

(1) Change requests are usually reported to COMSOFT by the MEVA III TMG/Member States with respect to the MEVA III VSAT Project software or hardware.

(2) In addition, COMSOFT will inform the MEVA III TMG/Member States of necessary technical changes in terms of hardware and software which from COMSOFT's point of view would contribute to the improvement of the system, or in case a problem detected by COMSOFT impacts the safety of the MEVA III VSAT Project system. Appropriate details will be given to the MEVA III TMG/Member States to support his decision whether or not to implement the changes in the MEVA III VSAT Project.

(3) In any case change requests are handled through the System Change Request Form (see chapter Annex E) which can be sent by e-mail. The forms must always be completed (in English) regardless whether the change requests have already been communicated via phone or email.

(4) The System Change Request Form will also be used to discuss the functional and commercial impact on the project and may serve as attachment to a contract amendment.

(5) A Change Request will contain the following information as a minimum

- the reason for the change (for example: technical enhancement, etc.),
- a brief description of the technical , functional and safety related (if applicable) consequences of the change(s),
- a list of the affected parts of the system,
- proposed schedules and dates.

(6) Change requests will be assessed by both COMSOFT and MEVA III Member States and will either be agreed upon or rejected.

# 10 COMSOFT´s Service Level Agreement

## 10.1 Overview

(1) In the case of a maintenance contract, MEVA III TMG/Member States have the possibility to choose separate levels of support for Software, Hardware and Helpdesk / Hotline.

(2) During warranty, the conditions of the MEVA III VSAT Project contract are applicable.

(3) A detailed description of COMSOFT´s service level will be described in the document SLA (Service Level Agreement). This document will be a part of the contact between MEVA III TMG/Member States and COMSOFT and has to be discussed at the date of negotiations and contract signature.

# 11 Annex A: Contact Details

## 11.1 COMSOFT Contacts

| Function/Item | Name/Email/Address | Phone/Fax Number |
|---|---|---|
| **COMSOFT Helpdesk (Normal Problem Reporting)** | **mailto:** noc@comsoft-sat.com | +49 7062 91651 18 (Phone)<br>+49 7062 91651 99 (Fax) |
| COMSOFT Maintenance Coordinator | helpdesk@comsoft-sat.com | +49 7062 91651 18 (Phone)<br>+49 7062 91651 99 (Fax) |
| Deputy Representative | Markus.tenbeck@comsoft-sat.com | +49 7062 91651 14 (Phone)<br>+49 7062 91651 99 (Fax) |
| Site/Delivery and Mail Address | COMSOFT Satellite Services GmbH<br>Benzstrasse 2<br>71720 Oberstenfeld<br>Germany | +49 7062 91651 0 (Phone) |

Table 2: COMSOFT Contact Details

## 11.2 MEVA III TMG/Member States Contacts

| Function/Item | Name/Email/Address | Phone/Fax Number |
|---|---|---|
| MEVA III TMG Maintenance Coordinator | | |
| Deputy Representative | | |
| Equipment room | | |
| | | |
| | | |
| Site/Delivery Address | | |
| | | |
| Mail Address | | |

Table 3: MEVA III TMG/Member States Contact Details

# 12 Annex B: Duration

(1) The Warranty period starts and ends as agreed upon in the MEVA III VSAT Project contract.

(2) The MEVA III VSAT Project post warranty maintenance services will be provided as agreed upon in the respective commercial offer.

| Offer / Contract ref. | Start Date | End Date | Comments |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

# 13 Annex C: Terms & Conditions

## 13.1 Force Majeure

(1) Neither party shall be liable for failure to perform its obligations under the Contract if such failure results from circumstances beyond the party's reasonable control.

## 13.2 Miscellaneous

(1) Further Terms and Conditions are defined in COMSOFT´s Service Level Agreement.

# 14 Annex D: Problem Report Form

# Problem Report Form

*Please fill in this form in English and send it as email attachment to COMSOFT*

| | | | | |
|---|---|---|---|---|
| 1. Customer/Project: | | | | |
| 2. Customer-Ref-ID: | | | | |
| 3. Summary (heading) | | | | |
| 4. Type: | ☐ Problem Report | ☐ Inquiry | | |
| | ☐ Information | | | |
| Product/Component: | ☐ Satellite ODU | <please choose component> | | |
| | ☐ Satellite IDU | <please choose component> | | |
| | ☐ Multiplexer | <please choose component> | | |
| | ☐ Router | <please choose components> | | |
| | ☐ NMS | <please chose component> | | |
| | ☐ | | | |
| Location/System-ID: | | | | |
| Part name(s) (in case of HW issues): | ☐ VSAT Modem | ☐ Server/PC | | |
| | ☐ Multiplexer | ☐ UPS | | |
| | ☐ Amplifier | ☐ | | |
| | ☐ LNB | ☐ | | |
| | ☐ Monitor | ☐ Other: | | |
| Part number(s): | | | | |
| Serial number(s): | | | | |
| 5. Found by (name): | | | | |
| 6. Date found: | | | | |
| 7. Version Found: | | | | |
| 8. Short Description: | | | | |
| 9. Details: | | | | |
| 10. Reproducible: | ☐ always | ☐ sometimes | ☐ rarely | |
| | ☐ no | ☐ did not try | ☐ | |
| 11. Actions performed: | | | | |
| 3rd party HW support already informed? | ☐ yes | ☐ no | | |
| | ☐ | | | |
| Spare parts swapped? (in case of HW issues) | ☐ yes, new serial number(s): | | | |
| | ☐ no | | | |

| | |
|---|---|
| 12. New firmware version (if applicable): | |
| 13. Current status: | |
| 14. Attached Files: | ☐ syslog ☐ eventlog ☐ collect_info output ☐ |
| 15. Additional comments: | |

## Instructions for Use

| | |
|---|---|
| 2. Customer Ref-ID: | Here you may enter any internal ID or reference required for the correct allocation of the process on your part. |
| 3. Summary | Please enter a few keywords to facilitate allocation and retrieval of the report when processed. |
| 8. Short Description: | Please give a high-level short description specifying the problem itself and its effects on the environment |
| 9. Details | Please give a detailed description on system engineer level, including observations (e.g. LED status display on the interface module) |

# 15 Annex E: System Change Request Form

# System Change Request Form (SCR)

*Please fill in this form in English and send it as email attachment to COMSOFT*

| | | |
|---|---|---|
| 1. | Customer/Project: | |
| 2. | Date of request: | |
| 3. | Customer-Ref-ID: | |
| 4. | Summary (heading) | |
| 5. | Type: | ☐ Change Request ☐ Inquiry<br>☐ Problem ☐ Improvement |
| 6. | Product/Component: | ☐ Satellite ODU <please choose component> |
| | | ☐ Satellite IDU <please choose component> |
| | | ☐ Multiplexer <please choose component> |
| | | ☐ Router <please choose components> |
| | | ☐ NMS <please chose component> |
| | | ☐ |
| | Location/System-ID: | |
| | Part name(s)<br>(in case of HW issues): | ☐ VSAT Modem ☐ Server / PC<br>☐ Multiplexer ☐ UPS<br>☐ Amplifier ☐<br>☐ LNB ☐<br>☐ Monitor ☐ Other: |
| | Part number (s): | |
| | Serial number(s): | |
| | Documentation | ☐ Documentation |
| 7. | Referenced version: | |
| 8. | Change reason | |
| 9. | Change details: | |
| 10. | Functional consequences | |
| 11. | Proposed schedule and dates | |
| 12. | Additional comments: | |

**To be completed by COMSOFT:**

| | |
|---|---|
| 1. Date of response: | |
| 2. Ticket number: | |
| 3. Solution comments: | |
| 4. Impact on project schedule and costs: | |
| 5. Acceptance/Rejection conditions: | |
| 6. Revision history: | |

☐ **Agreed** Due Date ☐ **Rejected**

MEVA III TMG/Member States representative approval:_____ Date:

COMSOFT representative approval:_____ Date:

## Instructions for Use

| | |
|---|---|
| 3. Customer Ref-ID: | Here you may enter any internal ID or reference required for the correct allocation of the process on your part. |
| 4. Summary | Please enter a few keywords to facilitate allocation and retrieval of the report when processed. |
| 9. Change details: | Please give a high-level short description specifying the change request itself and its effects on the environment |
| 12. Additional comments: | Please give additional comments that might be helpful for finding a solution to the change request. |

End of Document !