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15 October 2014

**WORKING PAPER
AC/334-WP(2014)0051**

WORKING GROUP OF NATIONAL TECHNICAL EXPERTS

**GE – TBCE – RESTORE LOCAL MILITARY FS RADIO EQUIPMENT –
GEILENKIRCHEN (E3A) AIRFIELD – FIRST STAGE AUTHORISATION
(PROJECT 5AF0523200)**

1. Please find enclosed the above mentioned document prepared by Germany that is planned for discussion at our next WGNTTE meeting to be held on 17 November 2014.

(Signed) J. RODRIGUEZ-ARROYO

Enclosure 1: TBCE GE

Original: English

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TYPE B COST ESTIMATE (TBCE)

**Capability Package Number: 5A 0013
PROJECT SERIAL AND TITLE:**

2009/5AF052320

**REPLACEMENT OF THE AIR TRAFFIC CONTROL (ATC)
RADIO SYSTEM
AT
NATO E-3A COMPONENT GEILENKIRCHEN**

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1. REFERENCES

- a) SRB/SEC(2009)0002
- b) SOG(D)(2010)0006-REV3 dated 12 April 2010
- c) AC/4(PP)D/26494 and AC/4-DS(2010)0021
- d) ConOps E-3A Component
- e) E-3ACD 80-100-10-14, E-3A Component Command, Control and Communications Plan

2. BACKGROUND

This TBCE is based on the approved CP 5A0013 ADD 3 ("Provide and maintain facilities and equipment for NAEW support") which has been distributed under ref. a). With ref. b) it was agreed that the Investment Committee should authorise the project listed in Appendix 4 of the a.m. document.

The major task of the local military air traffic control (ATC) is to direct and support the flying operations. For that reason a system of several radios was established at the airfield in Geilenkirchen.

The TBCE with a budget of 2,2 million EURO covers the replacement of the ATC Ground Radio Systems at NAEW&CF Ground Station including integration and testing, documentation and training.

The costs of this project could increase if it becomes necessary that the ATC is in service during the replacement of the radios.

The request covers the total scope programmed under Serial 5AF052320.

Advance planning funds in the amount of 59,997 EURO had been authorised with ref. c).

2.1 Description of the project

The proposed modernization of the more than 30-year-old radio systems is intended in accordance with the pertinent STANAG 4205 ED 3 and the German ATC radio concept ("Funkkonzept örtliche Militärische Flugsicherung" - 04.12.2000).

Functionalities and responsibilities:

- To establish and maintain the VHF and UHF voice radio links between the base and airborne aircrafts at all times
- To perform the maintenance and servicing of the radio systems and the specified equipment
- To conduct the training and continuing training of the operating personnel
- To support the new concept of operation and incorporate the system into the concept of NATO Reaction Forces

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2.2 General problems of the old systems

Due to the fact that all VHF and UHF equipment has been in service for more than 30 years, the non-operational phase and the failure of some radios are increasing. The lack of spare parts leads to procurement problems and causes more time-delays to fix them. Some spare parts are not available at all and alternatives must be specially verified by the company, which takes more time and is much more expensive.

The old radios are not 8.33 kHz channel spacing compliant. There are no technical possibilities to upgrade these radios to this new demanded functionality.

2.3 New System configuration

In accordance with the pertinent STANAGS and the German ATC radio concept the following different radios are necessary:

- 10 fixed frequency VHF transceiver
- 10 fixed frequency UHF transceiver
- 3 fixed frequency VHF/UHF transceiver
- 5 fixed frequency VHF/UHF transceiver with embedded Multi-Guard Receiver

One of each listed radio is not directly connected to the air traffic control system. They are used as spare parts to reduce the downtime to a minimum.

Further the following equipment is needed:

- 1 service-kit
- 5 racks 19"
- 10 filter VHF
- 10 filter UHF
- 8 filters VHF/UHF
- 6 remote control units
- 9 antennas VHF
- 8 antennas UHF
- 7 antennas VHF/UHF
- 28 power supplies

3. OPERATIONAL REQUIREMENTS

The proposed modernization of the radio system is intended to ensure that the NATO E-3A Component is able to accomplish its missions. Interoperability with existing systems (of the Navy, the Air Force and the Army) can and must be maintained. The new transceiver stations must comply with the pertinent STANAGs.

- a) Summary of further radio requirements:
 - Establishment of open voice radio links

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- 100% duty cycle
 - Remote voice and control capability for the radio systems
 - Monitoring function
 - Easy exchangeability of electronic devices
 - Built In Test (BIT)
 - MTBF greater than 2000 hrs
 - Operations with 24 volts backup power supply
 - Voicerecording Interface
 - 8.33 kHz and 25kHz channel spacing at VHF
 - 25 kHz channel spacing at UHF
- b) Operational users:
- All airborne aircrafts
 - NAEW&C force command
- c) Environmental constraints
- Compliance with the German regulations and criteria concerning environmental protection
 - German ATC radio concept (“Funkkonzept örtliche Militärische Flugsicherung”)

A detailed technical description of the transceiver system is given in Annex A.

4. IMPLEMENTATION OF THE PROPOSAL

Only new equipment is fulfilling the operational requirements. Upgrading the existing equipment is impossible. With the acquisition and the integration of the new radios the minimum military requirement (MMR) will be achieved. For cost effective reasons the equipment must be commercial off-the-shelf meeting NATO standards and providing the functionality to fulfil the operational requirements.

For giving all bidders necessary information a bidder's conference will be held in Geilenkirchen. During the proposal preparation each bidder has to send a radio to the German technical defence office WTD 81 for a detailed examination. The results of this examination will be considered at the evaluation of the proposals.

5. INTERDEPENDENCIES

The project has interdependencies with the project:

- Serial 2010/5AF052300

For an economical implementation of the new radio systems it is necessary that these projects are coordinated.

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6. LIFE CYCLE AND OPERATING SUPPORT CONCEPT

The operating life cycle is specified at 15 years with a two-year warranty from the contractor. To reduce the downtime of the system to a minimum an alternate device of each radio type will be available.

Maintenance will be performed at Geilenkirchen. For that reason the contractor have to train the technicians. The goal of the training is that the participants are able to repair hardware faults.

7. PROJECT MANAGEMENT

The Federal Office of Bundeswehr Equipment, Information Technology and In-Service Support (BAAINBw I6.1) is responsible for the program.

Point of contact:

Host Nation GE:

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8. RISK MANAGEMENT

The existing obsolescent systems will be replaced by new commercial off-the-shelf systems. The purchase and integration of new equipment is a project with a containable risk. If possible the basic structure of the existing system will be maintained. All interfaces will be the same (e.g. to the backup power supply).

The costs, the duration of the integration and problems with the coordination of this project could increase if it becomes necessary to use the old system during the replacement of the radios.

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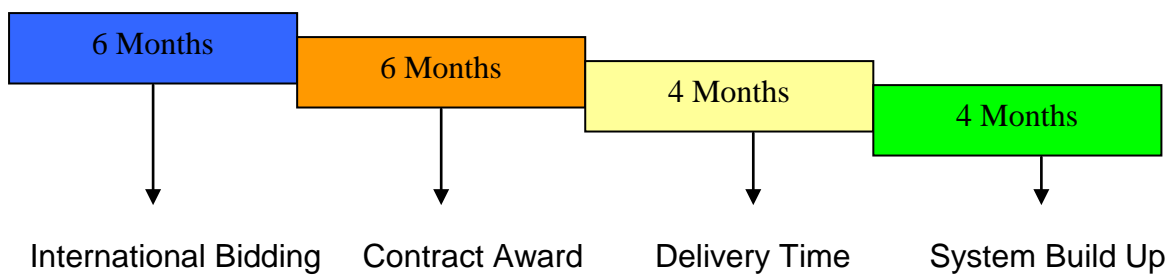
9. SCHEDULE

Time line

If the equipment would be authorized today the following time line could be expected:

- 6 months for international bidding
- 6 months for contract award
- 4 months delivery time (approximately)
- 4 months for system build up and first use

Total time: 20 months



The timeline shows the implementation timeframe for the new system including the bidding / build up times and testing as well as the integration phase.

The duration of the timeframes is a rough estimate. They are variable based on the availability of equipment, transportation and personnel.

10. REQUIRED RESOURCES

A detailed listing is provided at Annex B. The prices are based on year 2014 price levels. Cost increase is estimated. An international competitive bidding will show the real costs.

Training by the supplier is required for 8 radio communication technicians. This will provide an initial cadre of instructors who will train further radio operators.

11. PROCUREMENT STRATEGY

The project management conducts an international competitive bidding.

12. SUPPORTING DOCUMENTATION

Annex A TECHNICAL DESCRIPTION OF THE ATC TRANSCEIVER

Annex B FINANCIAL ANNEX