

**SIMULATION**
**Embedded Simulator Function**

The BAMSE system has a fully embedded simulator function and recording equipment, meeting the requirement for realism, versatility, and evaluation. Training operations, from system operation by individual operators to combat training of complete units can be carried out without actually firing any missiles, thus minimising training costs and maximising affordability. Simulations can be carried out until seconds before automatically switching to the combat mode for live engagement.

**TRAINING**
**Classroom Trainer**

A complete Classroom Simulator contains the same functionality as the simulator functions fully integrated in the MCC.

The simulator systems have an interface that enables the connection of several MCC Classroom Trainers to a live SCC. A complete Classroom Trainer system for batteries or battalions is available on request.


**BAMSE SURVEILLANCE COORDINATION CENTRE (SCC)**

Frequency	5.4 – 5.9 GHz, C-band
Instrumented ranges	30, 60, 120 km
Full elevation coverage	>70°
Altitude detection ceiling	20,000 m (>60 kft)
Automatically tracked air targets	150 own + 80 external
IFF	Integrated back-to-back

**BAMSE FIRE CONTROL RADAR (FCR)**

FCR frequency	34 – 35 GHz, Ka-band (NATO K-band)
Radar type	Pulse-doppler monopulse
Peak power	<100 W
Antenna lobe (circular beam width)	<1° lobe

Function	Target and missile tracking
FCR instrumented range	30 km

**BAMSE MISSILE**

Effective range	20 km
Effective altitude coverage	15,000 m
Guidance	Automatic Command to Line of Sight (ACLOS)
Command uplink	Integrated in FCR general transmission
Frequencies (command uplink)	Several
Warhead	Fragmentation and shaped charge
Fuse	Proximity and impact fuse
Target types	Fighter-bombers, bombers and transport aircraft, combat and transport helicopters, stand-off weapons and guided bombs
Ready-to-fire missiles on MCC	Six missiles

Specifications subject to change without notice



**SAAB**

# BAMSE THE **OPTIMISED** GBAD MISSILE SYSTEM



CATEGORY **AUTOMATIC COMMAND TO LINE-OF-SIGHT**  
MISSION **DEDICATED GBAD**  
CAPABILITY **UNIQUE HIGH ALTITUDE**

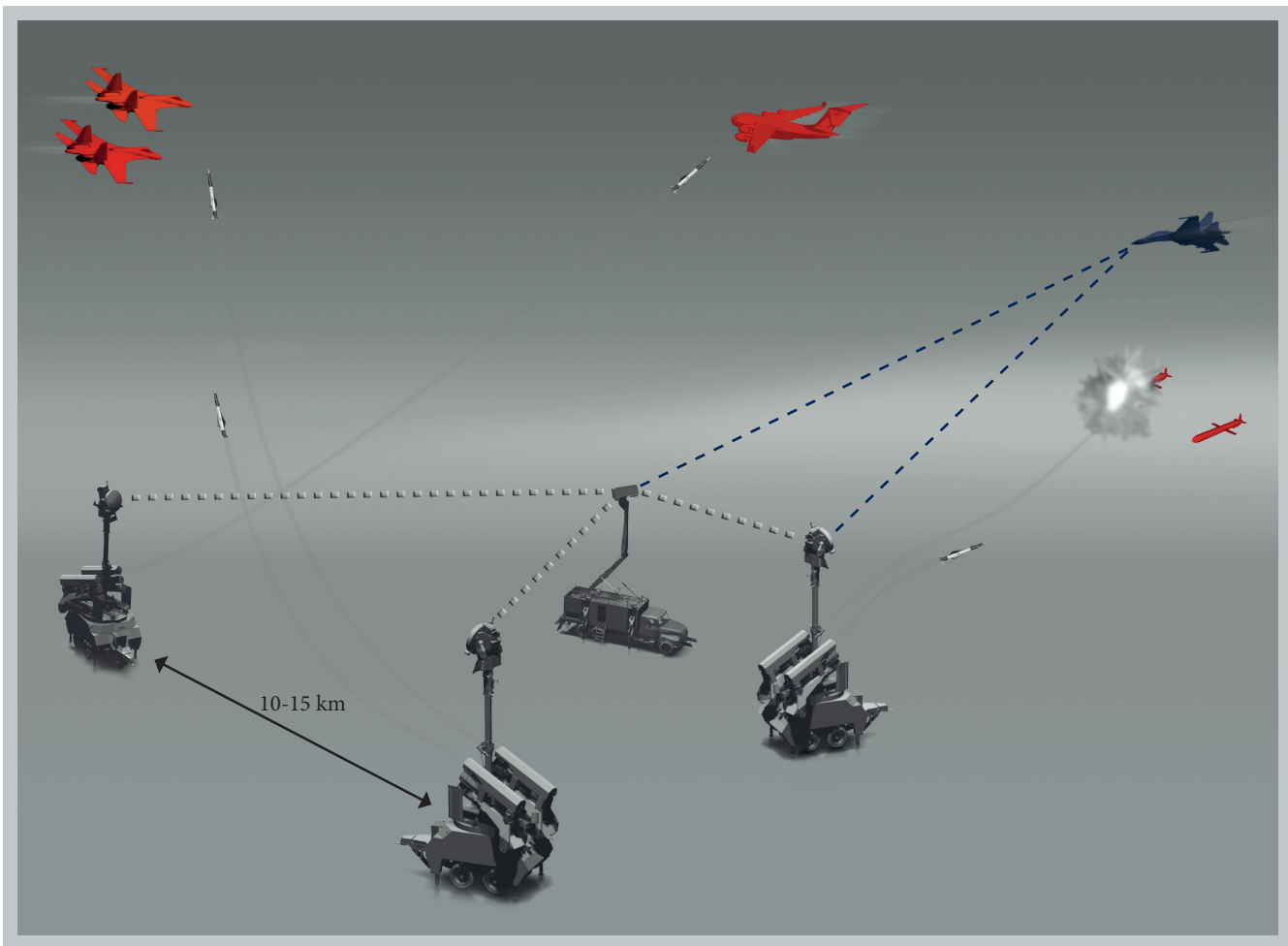
The BAMSE system is one of few systems in the world today that is developed and optimised as a dedicated Ground-Based Air Defence (GBAD) missile system designed for network, as well as stand-alone operation in flexible organisations. The philosophy is to optimise system effect by having a number of fully co-ordinated firing units that together create a ground coverage for the system of more than 1,500 km<sup>2</sup> and an effective altitude coverage of 15,000 m.

The BAMSE system has excellent ECCM capabilities due to the surveillance radar's agile multi-beam and the unique monopulse Fire Control Radar (FCR) Automatic Command-to-Line-Of-Sight (ACLOS) missile guidance function.

UNIQUE CAPABILITIES

To successfully meet threat scenarios, the BAMSE system has been provided with all vital capabilities for defeating the present threat and that of the foreseeable future with the following unique capabilities:

- Optimised situational awareness
- A large number of SHORADS can be connected
- Freedom of deployment due to elevated platforms
- Short deployment time; a complete battery is combat-ready in less than 10 min
- Short reloading time; all six missiles in less than 4 min
- Flexible system, one to six MCCs controlled by one SCC
- Embedded simulator in every unit
- Maintenance-free missiles
- Extensive BITE for every unit and a simplified maintenance concept
- Long servicable life and Low Life Cycle Cost (LCC)
- C-RAM warning capability



The BAMSE system is a state of the art system with several unique capabilities. The system has been developed for a conscript Army with the strong requirement for easy operation and maintenance. The BAMSE system has extensive Built in Test Equipment (BITE), which minimises the need for special test equipment.

The BAMSE system is in operation with the Swedish Armed Forces air defence. The BAMSE system is developed to have

high redundancy where every single firing unit has the capability to combat targets without any connection to an external information source or higher command.

The BAMSE system has unique high altitude coverage and is effective with maintained high missile manoeuvrability at 15,000 m altitude. Every single firing unit has BMC4I capabilities. The BAMSE system has high survivability with ballistic

protection on every unit and outstanding ECCM capabilities. The BAMSE system has the possibility to have integrated IFF on every firing unit in order to further strengthen the possibility to act as autonomous units, if necessary.

The BAMSE system has been specially developed to combat small and fast targets as well as low flying cruise missiles and UAVs.



#### CONFIGURATION AND CAPABILITIES

A typical BAMSE battery comprises one Surveillance Coordination Centre (SCC) and three Missile Control Centres (MCCs). The BAMSE battery has a total covered area exceeding 1,500 km<sup>2</sup> with overlapping coverage areas by the MCCs. One example of a SCC is the GIRAFFE AMB 3D radar with C<sup>4</sup>I function used for co-ordination and target assignment. A flexible communications design where data and voice communication can be implemented using combat net radios, TACCOM, and fibre optics, etc. – all fully customisable to satisfy individual user needs. The BAMSE air defence missile system is prepared for network integration. BAMSE is designed to work in ECM and NBC environments and has been optimised against targets such as:

- Attack and fighter aircraft
- Bombers and transport aircraft
- Stand-off weapons including:
  - Cruise missiles
  - Anti-radiation missiles
  - Laser-guided bombs
  - Unmanned Aerial Vehicles (UAVs)

All this is achieved at a very competitive price, which makes BAMSE unique in defeating high-altitude and stand-off threats at a much lower cost than other air defence missile systems.

#### THE BAMSE MISSILE

The missile delivers high effect in all types of aerial targets, from small, high velocity targets such as anti-radiation missiles and low-level targets like cruise missiles, to large, low-speed targets such as bomber aircraft.

High acceleration and subsequently maintained high velocity result in short time-of-flight, even at long ranges. The missile maintains high manoeuvrability right out to the range limit.



#### THE BAMSE MCC

An MCC contains all the essential elements for target engagement and is operated by one or two operators. Deployment and fire preparations can be carried out in less than 10 minutes. Reloading of all six missiles takes less than four minutes.

The MCC comprises the following elements:

- Sensor platform on an 8 m erectable mast with:
  - Fire Control Radar (FCR)
  - Thermal Imaging System (TIS)
  - Weather sensor
  - Optional IFF interrogator antenna
- Two launching pads, holding a total of six missiles located on the roof of the MCC.
- Integrated diesel generator
- NBC and ballistic protection
- Automatic climate control