[Besiege Mod] Modern Air combat

**Manual**



By

Chen, Yulin

[chenyulin@sjtu.edu.cn](mailto:chenyulin@sjtu.edu.cn)

Update: 2022/8/23

Contents

[Overview 3](#_Toc112153973)

[Objection 3](#_Toc112153974)

[Feature 3](#_Toc112153975)

[Blocks 3](#_Toc112153976)

[SRAAM 4](#_Toc112153977)

[Block status 4](#_Toc112153978)

[Spotting strategy 5](#_Toc112153979)

[MRAAM 6](#_Toc112153980)

# Overview

## Objection

This mod concentrates on simulating modern air combat in Besiege, with a balanced trade-off between fidelity of simulation and performance cost.

## Feature

* Simulates the radar system on third generation fighter aircraft
* BVR attacking
* Nice particle systems for missile and flare.
* Low performance loss (so far)
* Tons of bugs (so far)

## Blocks

* SRAAM (short-range air-to-air missile)
* MRAAM (median-range air-to-air missile)
* Flare launcher
* Radar (Doppler)
* Radar display screen
* RWR alarm

# SRAAM

## Block status

Status.store

Default status, nothing more than a metal rod.

Status.launch

After press the launch button, it will enter this status.

There are two sliders that you can adjust:

**

Unit: second

* Launch delay: after you press the button, the missile will first wait for some time and then start the missile engine.
* Safety delay: after the rocket engine is on, the missile will first wait for some time and then try to find targets and active proximity fuse. For high speed jet, adjust this to be bigger.

The top speed of the missile is approximately 1.9 Mach.

The engine will keep working for 3.5s.

Status.explo

When there are colliders enter the range of proximity fuse, the missile will explode.

The PF range can be adjusted by:



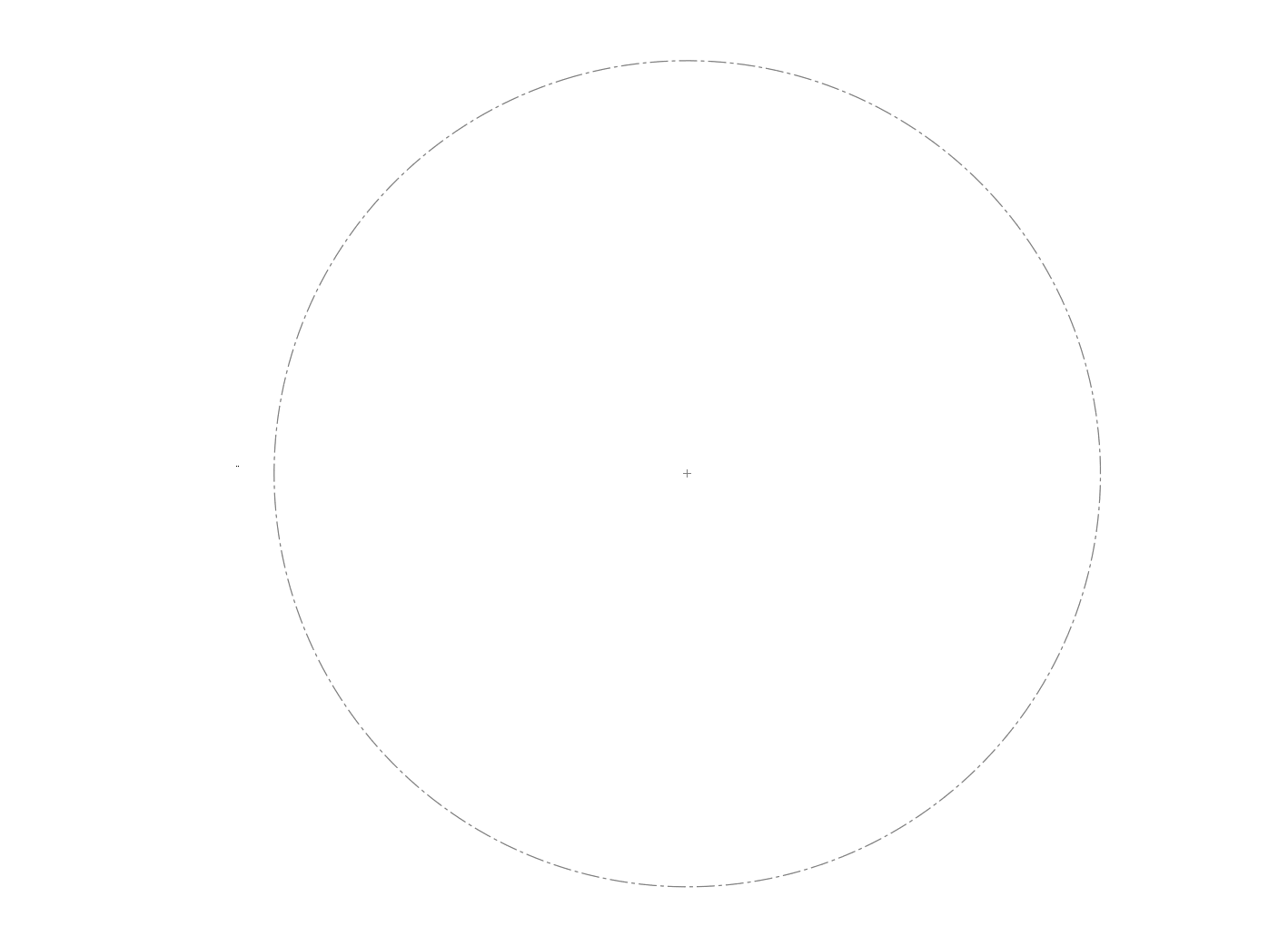
Unit: meter

Status.miss

After the engine stops and the missile doesn’t explode, the missile will enter “miss” status. Then it will become a flying metal rod.

## Spotting strategy

The detecting region of the missile is a sphere in front of it with a radius of 550m.



550

600

The missile will pick the 5th nearest collider as the target and automatically aims to the target’s predicted position. The calculation rate of the predicted position is 50 times per second.

# MRAAM

MRAAM is inherited from SRAAM, so most of the functions are similar.

MRAAM receive information (including position and velocity) of the locked target from radar and calculate the predicted position. After launched, it will first fly to the predicted position (this position can be updated if the radar keeps scanning that target). When the distance of the missile and the predicted position is less than 1100m, the missile use its own spotting strategy just like SRAAM’s.

The engine of MRAAM works for 3s and the top speed is approximately 4.25 Mach.

Mention:

Different from SRAAM, the missile can still keep track of target after the engine stop, but a big diversion will cut down its speed a lot.

Mention:

If the radar hasn’t detected any target, the missile will not be launched.