CLAIMS

1. Infrared countermeasure system (1) designed to be installed on a platform (A) for protection against infrared-guided missiles and to be connected to a missile warning system (2) installed on said platform (A), wherein said missile warning system (2) is configured to detect approaching infrared-guided missiles; said infrared countermeasure system (1) comprising a directed infrared countermeasure system (11), a flare deployment/launch apparatus (12) and a self-protection suite manager (114);

wherein the directed infrared countermeasure system (11) is operable to track and jam approaching infrared-guided missiles, the flare deployment/launch apparatus (12) is operable to deploy/launch flares, and the self-protection suite manager (114) is configured to:

- operate
  - the directed infrared countermeasure system (11) to track and jam approaching infrared-guided missiles detected by the missile warning system (2) and
  - the flare deployment/launch apparatus (12) to deploy/launch flares;
- receive, from the missile warning system (2), messages related to infrared-guided missiles detected by said missile warning system (2), wherein said messages related to detected infrared-guided missiles include
  - pre-alarm messages signaling potential approaching infrared-guided missiles,
  - pre-alarm update messages indicative of updates on potential approaching infrared-guided missiles previously signaled,
  - alarm confirmation messages confirming actual approaching infrared-guided missiles, and
  - alarm update messages indicative of updates on

actual approaching infrared-guided missiles;

- receive, from the directed infrared countermeasure system (11), tracking update messages indicative of updates on approaching infrared-guided missiles tracked and jammed by said directed infrared countermeasure system (11);
- in response to a pre-alarm message received from the missile warning system (2) and indicative of a potential approaching infrared-guided missile, operate the directed infrared countermeasure system (11) to track and jam said potential approaching infrared-guided missile; and
- carry out a scenario analysis based on
  - the pre-alarm message and pre-alarm update messages received from the missile warning system (2) and related to said potential approaching infrared-guided missile, and
  - tracking update messages received from the directed infrared countermeasure system (11) and related to said potential approaching infrared-guided missile tracked and jammed by said directed infrared countermeasure system (11);

characterized in that the self-protection suite manager (114) is further configured to:

- store one or more DIRCM-flare coordination libraries indicative of a predefined policy of coordination of flare deployment/launch with operation of the directed infrared countermeasure system (11);
- in response to an alarm confirmation message received from the missile warning system (2) and confirming that a potential approaching infrared-guided missile is an actual approaching infrared-guided missile, operate also the flare deployment/launch apparatus (12) to deploy/launch flares at one or more given times and according to one or more predefined flare deployment/launch sequences, based on the one or more stored DIRCM-flare coordination ~~library(ies)~~ libraries and the scenario analysis carried

out;

• inform the directed infrared countermeasure system (11) of flare deployment/launch, whereby said directed infrared countermeasure system (11) disregards flares' glares during tracking thereby keeping tracking and jamming the actual approaching infrared-guided missile; and,

• for a predefined blanking period after flare deployment/launch, keep carrying out the scenario analysis only based on tracking update messages received from the directed infrared countermeasure system (11) and related to the actual approaching infrared-guided missile tracked and jammed by said directed infrared countermeasure system (11), while disregarding messages received from the missile warning system (2) and related to one or more infrared-guided ~~missile(s)~~ missiles detected by said missile warning system (2) in a given space sector where the actual approaching infrared-guided missile is located;

wherein the self-protection suite manager (114) is configured to determine the one or more given ~~time(s)~~ times based on the stored DIRCM-flare coordination ~~library(ies)~~ libraries;

and wherein the one or more predefined flare deployment/launch ~~sequence(s)~~ sequences, the predefined blanking period and the given space sector are indicated in the one or more stored DIRCM-flare coordination ~~library(ies)~~ libraries.

2. The infrared countermeasure system of claim 1, wherein the directed infrared countermeasure system includes a plurality of directed infrared countermeasure steerable turrets, each operable to track and jam infrared-guided missiles in a respective coverage region; and wherein the self-protection suite manager (114) is configured to coordinate operation of said directed infrared countermeasure steerable turrets.

3. The infrared countermeasure system according to claim 1 or 2, comprising a plurality of flare deployment/launch ~~apparatus/systems/devices~~ apparatuses.

4. Method of operation of an infrared countermeasure system (1) installed on a platform (A) for protection against infrared-guided missiles, wherein said infrared countermeasure system (1) is connected to a missile warning system (2) that is installed on the platform (A) and that is configured to detect approaching infrared-guided missiles; said infrared countermeasure system (1) comprising:

- a directed infrared countermeasure system (11) operable to track and jam approaching infrared-guided missiles;
- a flare deployment/launch apparatus (12) operable to deploy/launch flares; and
- a self-protection suite manager (114);

the method comprising carrying out the following operations by means of the self-protection suite manager (114):

- operating
  - the directed infrared countermeasure system (11) to track and jam approaching infrared-guided missiles detected by the missile warning system (2) and
  - the flare deployment/launch apparatus (12) to deploy/launch flares;
- receiving, from the missile warning system (2), messages related to infrared-guided missiles detected by said missile warning system (2), wherein said messages related to detected infrared-guided missiles include
  - pre-alarm messages signaling potential approaching infrared-guided missiles,
  - pre-alarm update messages indicative of updates

on potential approaching infrared-guided missiles previously signaled,

- alarm confirmation messages confirming actual approaching infrared-guided missiles, and
- alarm update messages indicative of updates on actual approaching infrared-guided missiles;

• receiving, from the directed infrared countermeasure system (11), tracking update messages indicative of updates on approaching infrared-guided missiles tracked and jammed by said directed infrared countermeasure system (11);

• in response to a pre-alarm message received from the missile warning system (2) and indicative of a potential approaching infrared-guided missile, operating the directed infrared countermeasure system (11) to track and jam said potential approaching infrared-guided missile; and

• carrying out a scenario analysis based on

- the pre-alarm message and pre-alarm update messages received from the missile warning system (2) and related to said potential approaching infrared-guided missile, and
- tracking update messages received from the directed infrared countermeasure system (11) and related to said potential approaching infrared-guided missile tracked and jammed by said directed infrared countermeasure system (11);

characterized in that the self-protection suite manager (114) stores one or more DIRCM-flare coordination libraries indicative of a predefined policy of coordination of flare deployment/launch with operation of the directed infrared countermeasure system (11);

wherein the method further comprises carrying out also the following operations by means of the self-protection suite manager (114):

• in response to an alarm confirmation message received from the missile warning system (2) and confirming that a potential approaching infrared-guided missile is an actual approaching infrared-guided missile, operating also the flare deployment/launch apparatus (12) to deploy/launch flares at one or more given times and according to one or more predefined flare deployment/launch sequences, based on the stored DIRCM-flare coordination ~~library(ies)~~ libraries and the scenario analysis carried out;

• informing the directed infrared countermeasure system (11) of flare deployment/launch, whereby said directed infrared countermeasure system (11) disregards flares' glares during tracking thereby keeping tracking and jamming the actual approaching infrared-guided missile; and,

• for a predefined blanking period after flare deployment/launch, keeping carrying out the scenario analysis only based on tracking update messages received from the directed infrared countermeasure system (11) and related to the actual approaching infrared-guided missile tracked and jammed by said directed infrared countermeasure system (11), while disregarding messages received from the missile warning system (2) and related to one or more infrared-guided ~~missile(s)~~ missiles detected by said missile warning system (2) in a given space sector where the actual approaching infrared-guided missile is located;

wherein the self-protection suite manager (114) determines the one or more given ~~time(s)~~ times based on the one or more stored DIRCM-flare coordination ~~library(ies)~~ libraries;

and wherein the one or more predefined flare deployment/launch ~~sequence(s)~~ sequences, the predefined blanking period and the given space sector are indicated in the stored DIRCM-flare coordination ~~library(ies)~~ libraries.

5. The method of claim 4, wherein the directed infrared countermeasure system includes a plurality of directed infrared countermeasure steerable turrets, each operable to track and jam infrared-guided missiles in a respective coverage region; and wherein the method comprises coordinating, by means of the self-protection suite manager (114), operation of said directed infrared countermeasure steerable turrets.

~~6. The method according to claim 4 or 5, wherein the infrared countermeasure system (1) comprises a plurality of flare deployment/launch apparatus/systems/devices.~~

~~7. Computer program product comprising software and/or firmware code portions loadable on an electronic control and processing unit of an infrared countermeasure system (1) installed on a platform (A) for protection against infrared guided missiles, wherein said infrared countermeasure system (1) is connected to a missile warning system (2) that is installed on the platform (A) and that is configured to detect approaching infrared-guided missiles; said infrared countermeasure system (1) comprising:~~

~~• a directed infrared countermeasure system (11) operable to track and jam approaching infrared-guided missiles; and~~

~~• a flare deployment/launch apparatus (12) operable to deploy/launch flares;~~

~~wherein said software and/or firmware code portions are such that to cause, when loaded on the electronic control and processing unit, said electronic control and processing unit to become configured as the self-protection suite manager (114) of the infrared countermeasure system (1) as claimed in any claim 1-3.~~

6. Computer program product comprising instructions to cause the device of any of claims 1–3 to execute the steps of the method of any of claims 4–5.

~~8.~~7. Land platform or vehicle equipped with the infrared countermeasure system (1) as claimed in any claim 1–3.

~~9.~~8. Avionic platform (A) equipped with the infrared countermeasure system (1) as claimed in any claim 1–3.

~~10.~~9. Naval unit equipped with the infrared countermeasure system (1) as claimed in any claim 1–3.