**Explanation of Thread pattern mathing**

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# Action is required on item SR14

From :

Meeting4

Minutes of meeting Terma SRR meeting at IHA 28/09-10

Point 9 on the agenda

Restrict requirement SR-14 about the supported "intelligent" threat response so it is more clear what is possible, i.e. which parameters the customer can set and how many, etc.

**Looking at SR-14 and the history.**

SR-14 Originally as taken from : SRS Missile Warning System ver A

|  |  |
| --- | --- |
| SR-14 | When the Threat Response Subsystem automatically chooses a countermeasure program, it shall be done by matching the stored Thread patterns with the actual threat pattern and finding the best match using the mathematical zyx procedure. |

In the tracability matrix this is traced back onto UR- 15

|  |  |  |
| --- | --- | --- |
| SR-14 | UR-15 |  |

UR-15 Originally as taken from “Terma Case.pdf”

|  |  |
| --- | --- |
| UR-15 | Automatic mode shall initiate an intelligent threat response without pilot interaction. |

**Critical view of UR-15**

The word intelligent is not a very good word when reffering to system requirements so a question was raised:

From Terma case meeting at IHA 17/09-10 The question was raised as

21. UR-15: What is meant by an “intelligent threat response”?

This question is (at time of writing ) still not answered.

(There is supposed to be an FAQ on the Campusnet, but it is only an FA ☺ )

**Analysis**

A broader picture is achieved by looking at SR12-15 simultaneously

|  |  |
| --- | --- |
| REQ ID | Requirement |
| SR-12 | The Threat Response Subsystem shall be able to store 100 Threat patterns  INFO : A thread pattern is a certain number of threads attacking the aircraft from certain angles. |
| SR-13 | All data concerning the Threat patterns shall be handled by the winXYZapplication. This includes programming configuration uploading or downloading to the Threat response system. |
| SR-14 | When the Threat Response Subsystem automatically chooses a countermeasure program, it shall be done by matching the stored Thread patterns with the actual threat pattern and finding the best match using the mathematical zyx procedure. |
| SR-15 | All data concerning the mathematical zyx procedure shall be handled by the winXYZapplication. This includes programming configuration uploading or downloading to the Threat response system. |

In the point SR-12 a vague INFO regarding a thread pattern is given.

This INFO will be enhanced to the following:

**Solution**

*The info bullet under SR-12 will be replaced by the following*

**Thread paterns as saved in the thread response subsystem is a complex data structure that reflects important attack data like:**

* **the severity**
* **the angle or angles of attack**
* **the massiveness the number of missiles**
* **the speed of incoming missiles**
* **so on and so forth.**

**The thread pattern data structure is open, meaning that new elements may be in cooperated with full backward and forward compatibility.**

**These threat patters are created by sampling real time data from the mws during real life attacks on fighters, or from combat simulators.**

**The actual thread pattern as observed by the mws is correlated to the thread patterns in the database, and the best match is found.**

**When looking at SR-14, it is specified that the matching of threadpatterns is done by the matematical zyx procedure. This procedure is delivered as is. So no further actions are taken**.