<u>Test 21: Missile, Thermal Sensor, Radar Fuze</u>

1.
This test verifies that a missile equipped with a thermal sensor and radar fuze can be fired from an airplane towards a ship.

2.
An airplane `MY_AIRPLANE1` starts off at a stationary location facing east, with no speed. `MY_AIRPLANE1` is equipped with a missile that has a thermal sensor and a radar fuze sensor. A ship `MY_SHIP1` starts off with a speed of 1 with a longitude of 30 seconds away from `MY_AIRPLANE1` facing north.

3.
```
define sensor radar FUZE_RADAR1 with field of view 30 power 50
sensitivity 10
define sensor thermal FUZE_THERMAL1 with field of view 45
sensitivity 0.1

define munition missile MUNITION_MISSILE1 with sensor FUZE_RADAR1
fuze FUZE_THERMAL1 arming distance 1.0

define airplane ACTOR_AIRPLANE1 with munition (MUNITION_MISSILE1)

define ship ACTOR_SHIP1 with munition (MUNITION_MISSILE1)

create actor MY_AIRPLANE1 from ACTOR_AIRPLANE1 at
49*39'37.9#/117*26'19.0#/0 with course 90 speed 0

create actor MY_SHIP1 from ACTOR_SHIP1 at
49*39'37.9#/117*25'30.0#/0 with course 0 speed 1

set MY_AIRPLANE1 load munition MUNITION_MISSILE1

@wait 10

set MY_AIRPLANE1 deploy munition MY_AIRPLANE1.MUNITION_MISSILE1.1
```
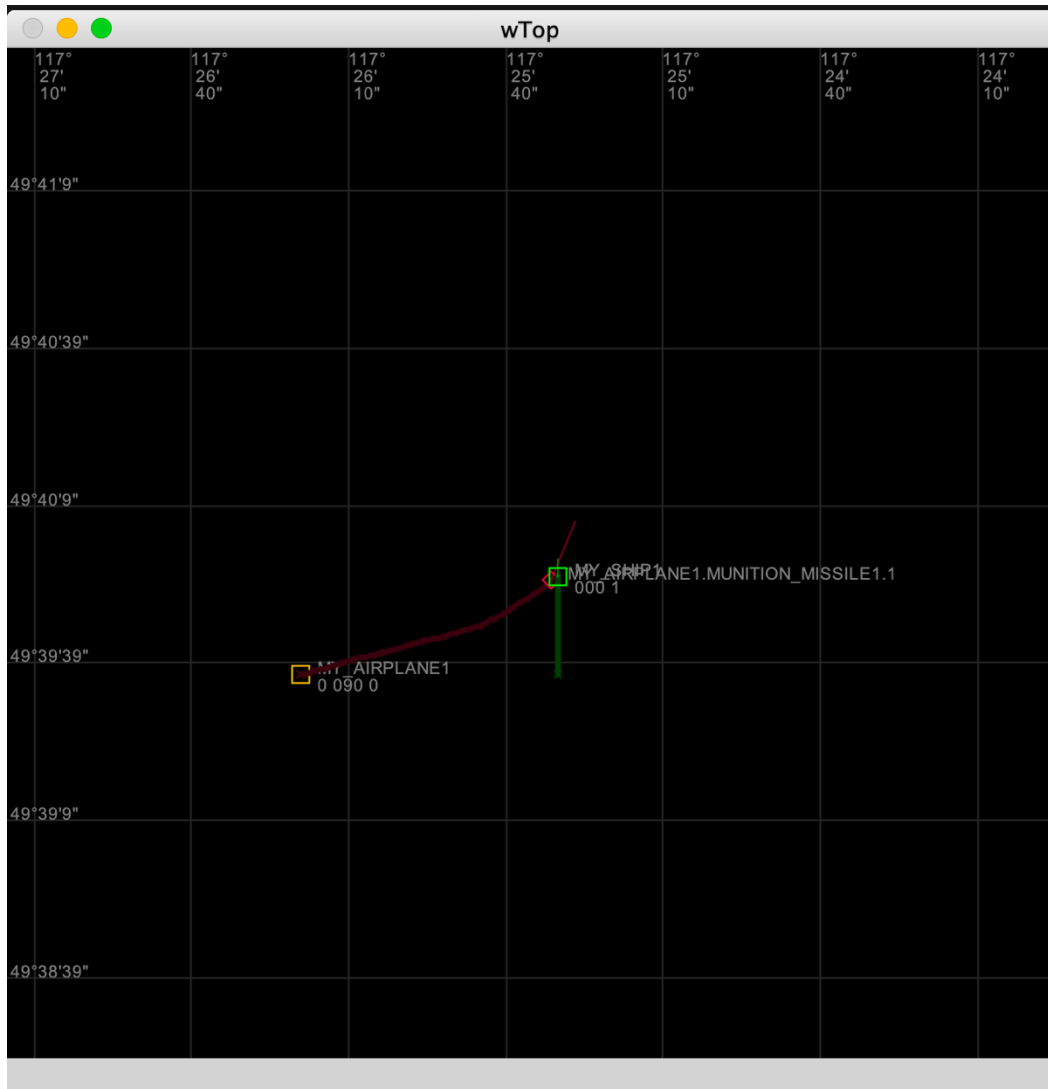
4. After 10 seconds, `MY_AIRPLANE1` will launch missile]
`MY_AIRPLANE1.MUNITION_MISSILE1.1`

The missile should chase after `MY_SHIP1` and eventually strike `MY_SHIP1`.

5.

6.

event_num	event_group	time	agent_type	agent_id	latitude	longitude	altitude	course	speed_horizontal	speed_vertical	deployed	armed	target_id	power_raw	power_attenuated	distance_ela	time_elapse	target_bearin
1428	360	12.6	missile	MY_AIRPLANE1.MUNITION_MISSILE1.1	49.66052778	117.438611	0	90	0	0	FALSE	FALSE						
1429	360	12.6	thermal	MY_AIRPLANE1.MUNITION_MISSILE1.1.FUZE_THERMAL1.2	49.66052778	117.438611	0	90	0	0			MY_SHIP1	0.15	0.137932628			
1430	360	12.6	radar	MY_AIRPLANE1.MUNITION_MISSILE1.1.FUZE_RADAR1.1	49.66052778	117.438611	0	90	0	0			MY_SHIP1	48.01095919	44.14851858			
1431	361	12.635	airplane	MY_AIRPLANE1	49.66052778	117.438611	0	90	0	0								90
1432	361	12.635	ship	MY_SHIP1	49.6645	117.425	0	0	1	0								
1433	361	12.635	missile	MY_AIRPLANE1.MUNITION_MISSILE1.1	49.66052778	117.438611	0	90	0	0	TRUE	FALSE						
1434	361	12.635	thermal	MY_AIRPLANE1.MUNITION_MISSILE1.1.FUZE_THERMAL1.2	49.66052778	117.438611	0	90	0	0			MY_SHIP1	0.15	0.137894838			
1435	361	12.635	radar	MY_AIRPLANE1.MUNITION_MISSILE1.1.FUZE_RADAR1.1	49.66052778	117.438611	0	90	0	0			MY_SHIP1	47.99780523	44.12433042			
1436	362	12.67	airplane	MY_AIRPLANE1	49.66052778	117.438611	0	90	0	0								89.9415349
1437	362	12.67	ship	MY_SHIP1	49.66451389	117.425	0	0	1	0								
1438	362	12.67	missile	MY_AIRPLANE1.MUNITION_MISSILE1.1	49.66052778	117.438444	0	90	4	0	TRUE	FALSE						
1439	362	12.67	thermal	MY_AIRPLANE1.MUNITION_MISSILE1.1.FUZE_THERMAL1.2	49.66052778	117.438444	0	90	4	0			MY_SHIP1	0.15	0.139428606			
1440	362	12.67	radar	MY_AIRPLANE1.MUNITION_MISSILE1.1.FUZE_RADAR1.1	49.66052778	117.438444	0	90	4	0			MY_SHIP1	47.93740693	44.55897218			
1441	363	12.705	airplane	MY_AIRPLANE1	49.66052778	117.438611	0	90	0	0								89.88307

event_num	event_group	time	agent_type	agent_id	latitude	longitude	altitude	course	speed_horizontal	speed_vertical	deployed	armed	target_id	power_raw	power_attenuated	distance_ela	time_elapse	target_bearin
1863	447	15.645	missile	MY_AIRPLANE1.MUNITION_MISSILE1.1	49.66524271	117.425588	0	53.33922593	4	0	TRUE	FALSE						
1864	447	15.645	thermal	MY_AIRPLANE1.MUNITION_MISSILE1.1.FUZE_THERMAL1.2	49.66524271	117.425588	0	53.33922593	4	0			MY_SHIP1	0.15	2.636136596			
1865	447	15.645	radar	MY_AIRPLANE1.MUNITION_MISSILE1.1.FUZE_RADAR1.1	49.66524271	117.425588	0	53.33922593	4	0			MY_SHIP1	39.6562492	696.9285986			
1866	448	15.68	airplane	MY_AIRPLANE1	49.66052778	117.438611	0	90	0	0								90
1867	448	15.68	ship	MY_SHIP1	49.66570833	117.425	0	0	1	0								
1868	448	15.68	missile	MY_AIRPLANE1.MUNITION_MISSILE1.1	49.66534422	117.425456	0	52.47851267	4	0	TRUE	FALSE						
1869	448	15.68	thermal	MY_AIRPLANE1.MUNITION_MISSILE1.1.FUZE_THERMAL1.2	49.66534422	117.425456	0	52.47851267	4	0			MY_SHIP1	0.15	3.350311291			
1870	448	15.68	radar	MY_AIRPLANE1.MUNITION_MISSILE1.1.FUZE_RADAR1.1	49.66534422	117.425456	0	52.47851267	4	0			MY_SHIP1	39.07436192	872.7418395			
1871	449	15.715	airplane	MY_AIRPLANE1	49.66052778	117.438611	0	90	0	0								
1872	449	15.715	ship	MY_SHIP1	49.66572222	117.425	0	0	1	0								89.9415349
1873	449	15.715	missile	MY_AIRPLANE1.MUNITION_MISSILE1.1	49.66549823	117.425392	0	22.47851267	4	0	TRUE	TRUE						
1874	450	15.75	airplane	MY_AIRPLANE1	49.66052778	117.438611	0	90	0	0								
1875	450	15.75	ship	MY_SHIP1	49.66573611	117.425	0	0	1	0								
1876	451	15.785	airplane	MY_AIRPLANE1	49.66052778	117.438611	0	90	0	0								
1877	451	15.785	ship	MY_SHIP1	49.66575	117.425	0	0	1	0								89.88307

Log entry 1433 shows that MY_AIRPLANE1.MUNITION_MISSILE1.1 has been deployed after 10 seconds towards MY_SHIP1. Entry 1873 shows MY_AIRPLANE1.MUNITION_MISSILE1.1 striking MY_SHIP1.

7.
The actual results are constituent with the expected results.

8.
A different ship should target MY_SHIP1 instead of an aircraft, this would verify that a missile can be deployed from different types of actors.