
REAL - Description with focus on LOIS

1 Summary

REAL (*Research, Engineering and Application Laboratories*) is a strategic venture at BTH (Blekinge Institute of Technology) aiming at building experimental facilities for research, development and educational purposes. The laboratories are constructed with a focus on *attraction, innovation and retention*.

Activities at REAL are mapped to the work programme of "ICT - Information and Communication Technologies" within FP7¹.

Attraction is mainly done by developing system concepts in cooperation with external partners. Viable projects and activities are moved to a dedicated facility for innovation and retention.

2 The LOIS station in Ronneby

The LOIS station in Ronneby will consist of two facilities, *Angelskog* and *Oktagonen*. The rough location of these can be seen in figure 1(a).



(a) Oktagonen and Angelskog, 3km apart



(b) Angelskog antenna park

2.1 Angelskog

Angelskog is the collecting facility, where the antennas will be physically located. The plan is to start constructing the first phase during the spring 2009. The Angelskog facility will be connected with a dedicated fibre optic link to the Oktagonen facility.

¹The Seventh Framework Programme (2007-2013) of the European Community for research, technological development and demonstration activities.

An aerial photo² of the location of the Angelskog facility can be seen in figure 1(b). Each antenna will have a separate feed to the network concentrators. The concentrators will aggregate the traffic on to a number of dedicated 10GbE links.

Some on-the-ground pictures of the same location can be seen in figures 1(c)-1(f). The network concentrators will be placed to the left in figure 1(c), where there is a “bump” of grass entering the field. The antenna park will be located directly beyond the lonely tree.



Figure 1: A field trip

The facility will be constructed and expanded in phases. In the first phase eight antennas will be placed in a circle. In the following two phases additional circles with 16 and 32 antennas will be added. A rough sketch of the antennas relative placements can be seen in figure 2.1.

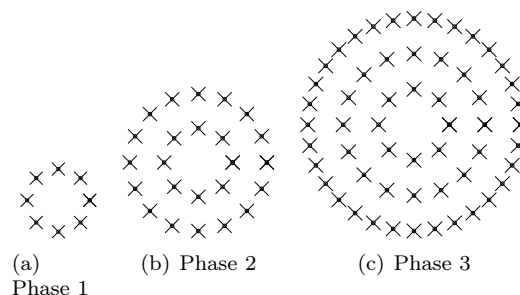


Figure 2: Expansion phases of antenna park at Angelskog

²Copied without permission from Eniro

2.2 Oktagonen

Oktagonen is the receiving and processing facility. This is where data from the antennas will be further processed. The location of this facility is on BTH's campus in Ronneby.

In figures 3(a)-3(d) a general overview of the premises at Oktagonen can be seen. Most of the system concepts development takes place at floor 6. The project assistants, figure 3(a), are currently implementing a demonstrator in the area of intelligent logistics, when relaxing they are currently implementing a gateway for some home automation equipment³. On the same floor there is a server room, figure 3(b), that is currently populated with four full height server racks, mainly empty, and a router⁴ dimensioned to be able to deal with the data from the Angelskog facility. Apart from offering a good view of the surroundings, floor 7 is used for demonstrating the results produced on floor 6. The demonstration area, figure 3(c), will be more properly furnished later this year, but is already acting as a fruitful meeting place for our external partners. Removing some hills and trees, we would on a clear day be able to see the Angelskog facility from this floor, figure 3(d).



(a) Server room



(b) Project assistants



(c) Facing Angelskog



(d) Demonstration floor

Figure 3: The Oktagonen premises

³The equipment used allows communication over the local power grid to devices on the same grid.

⁴Cisco 6506-E, Sup720-10G