

"Rough-Order-of-Magnitude"-Information about an ADS-B Surveillance Receiver and Display Installation at



PlaneTRack Small Airport ADS-B System

This ROM information is for

- 2 ADS-B receiving stations at KTRK and KTVL airport sites
- associated equipment (antennas, cables, surge protection)
- associated installation (man hours)
- associated recurring costs (software maintenance)
- other services

The system offered requires

- available antenna installation space for 4 antennas, preferably on tower roof or similar exposed spot
- air conditioned space for a 10" or 19" receiver, 110VAC supply, ethernet access to local network and/or internet, preferably inside the tower cab or building
- distance between receiver and antennas not exceeding 150 ft, better 100 ft
- computer and displays for traffic representation in a web browser (multiple, if desired)

PlaneTRack Small Airport ADS-B System

The system offered is suitable for

- display of ADS-B 1090 ES and 978 UAT targets on multiple office computer displays (inside web browser), at KTRK or KTVL or other sites connected by internet
- optional display of FLARM technology targets (glider traffic)
- a customized display map showing local area, airspace and other details as required (stored on the receiver or via internet)
- a display update rate of 1/sec or less often
- fusing data from the two receiver sites into one traffic picture
- enhanced and precise situational awareness for all participants (pilots, tower staff) within the aerodrome area, "for information only"
- traffic information for pilots about conflicting traffic
- QDM (heading) information for pilots towards the airfield
- no-fly zones intrusion control and visual/aural alarm in the tower cab
- pilot's support in distress situation

PlaneTRack Small Airport ADS-B System

The system is not suitable for

- exercising any kind of "Air Traffic Control"
 - no clearances, be it lateral (headings) or vertical (altitude, vertical rate), shall be issued when derived from the traffic picture
 - no radar vectoring shall be permitted by ATC staff
- providing "radar"-like supervision for the establishment of new Instrument Approach or Departure Procedures by the FAA
- providing "radar"-like supervision for the establishment of Certified Visual Flight Patterns
- feed data into the nationwide FAA ATC system
- feed data into the Oakland and Reno TRACON displays
- providing TIS-B/Weather and ADS-R/Repeater services to pilots

Rough-Order-of-Magnitude Pricing Information for 1 site (Non-recurring costs)

Qty	Item	Price \$	Remark
1	ADS-B receiver 19" for 1090ES	3,500 \$	standard price, discount may apply
1	ADS-B module for 978UAT	3,500	option, housed in receiver
1	Flarm module	3,500	option, housed in receiver
4	Antennas	included	1090ES, 978UAT, Flarm, GPS
4	Antenna cables 3/8", 100 ft	ca. 500	please procure locally in US
	Surge protection equipment as required by local laws	ca. 500-2,000	additional jumper cables, lightning surge protectors etc., depends on existing installation
1	Map design (airspace etc.)	500-1,000	according to customer requirements
1	Setup of intrusion control module with alarm	1,000	option
	Miscellaneous remote support	100/hr	via phone or Skype, estimated 2 hours
	Local installation support for antennas, network etc.	est. 65-100/hr locally	estimated 10 hours, can be done by airport staff or contractor in conjunction with remote support

Rough-Order-of-Magnitude Pricing Information for 1 site (Recurring costs)

Qty	Item	Price \$	Remark
	Internet connection	local	only required if two or remote sites and for METAR access if not available inside local network
	Power	local	ca. 130 kWh annually
	Regular maintenance	none	
	software maintenance	100/hr	for map updates or functional changes etc.

Hardware service concept:

12 months warranty included

24 months warranty at extra costs excluding local spares, see below (ca. 300 \$, to cover freight)

48 months warranty at extra costs excluding local spares, see below (ca. 550 \$)

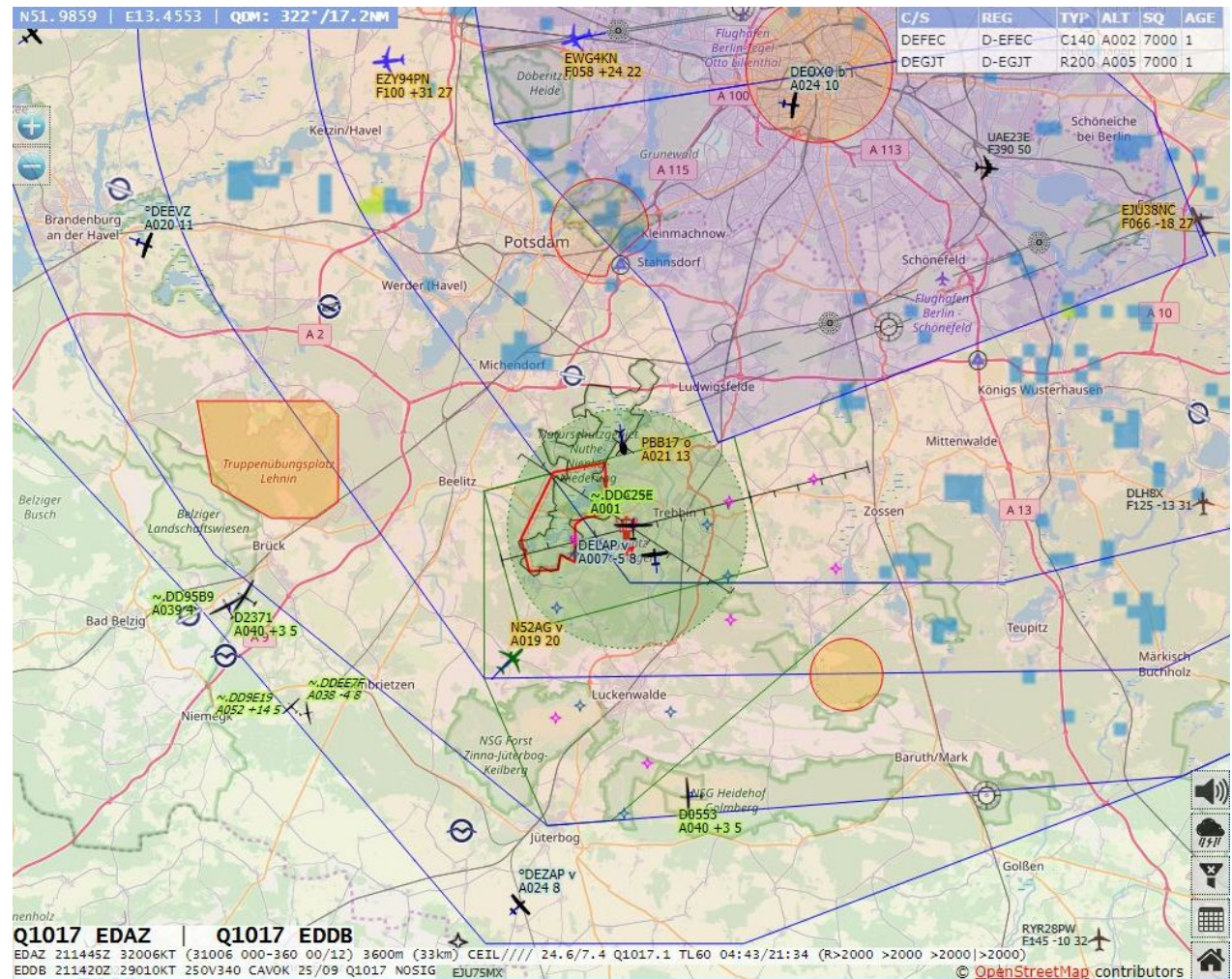
Component exchange service:

1 ADS-B 978 + 1 ADS-B 1090 receiver module (small boxes) spares for exchange stored at the airport. Module exchange can be performed by Airport IT staff or contractor. Module sent back to Germany for repair and returned.

Spare fee 20\$ per month per module

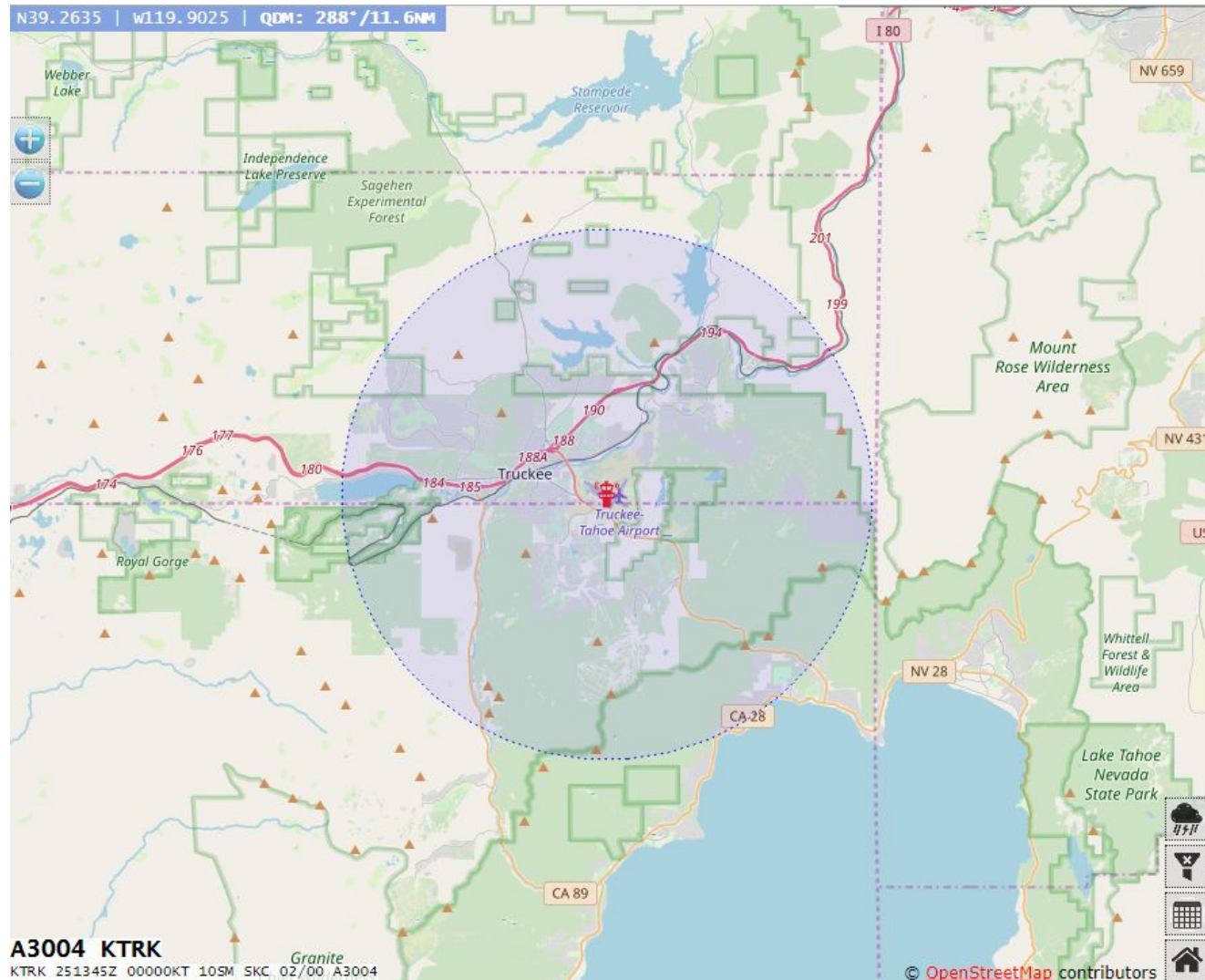
Sample display - Reference installation - Schönhagen/Berlin Airfield (EDAZ)

- 55,000 annual movements
- RNAV/GPS IFR approach rw 25/07
- RNAV SIDs 25/07
- Airspace F/RMZ
- 5 receivers for ADS-B and MLAT
- 1 receiver for FLARM
- Automatic altitude correction for QNH (local or remote)
- Intrusion control for bird sanctuary
- Internet based data traffic, no extra costs
- Total costs 35,000 \$ including 4 yrs warranty and installation



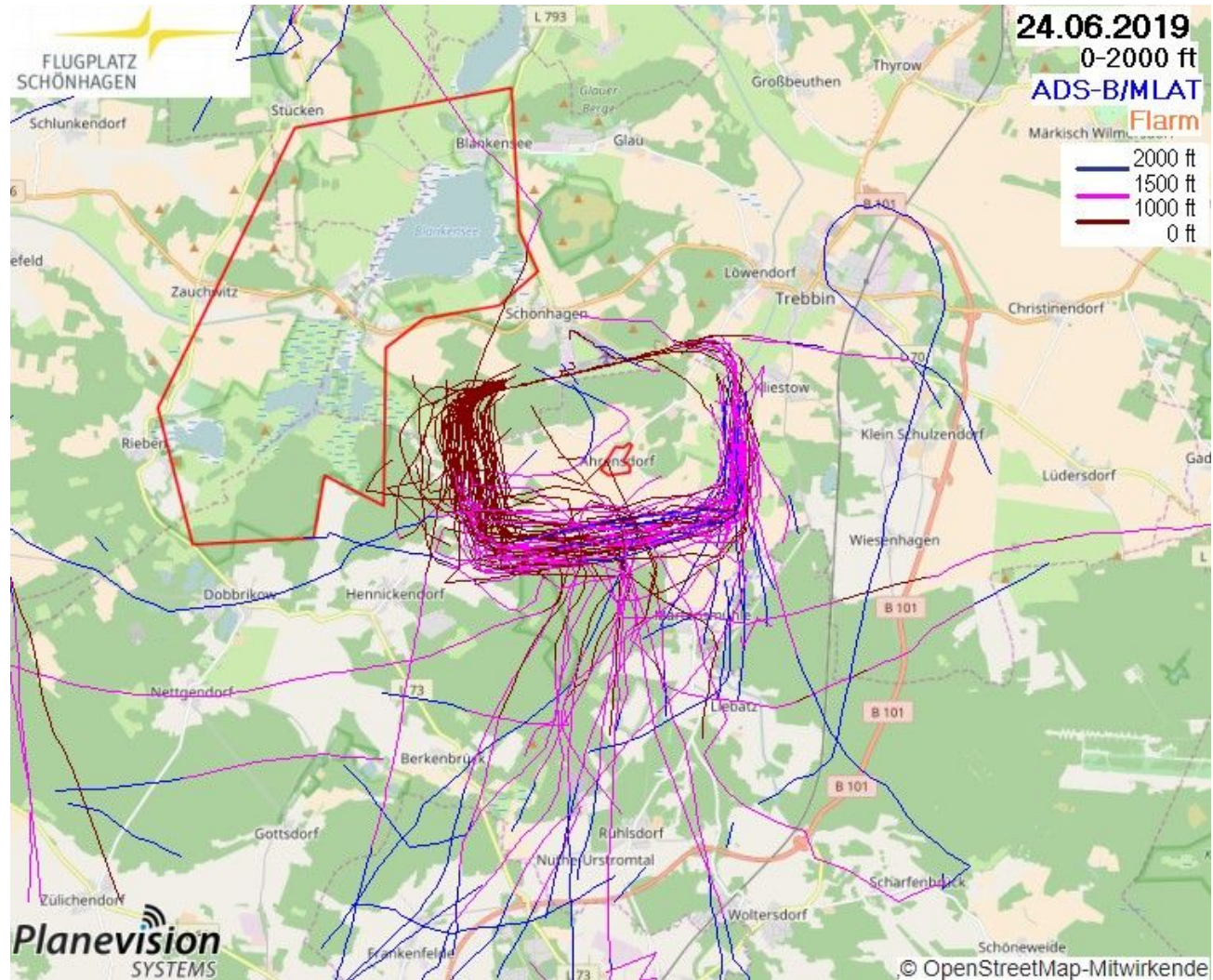
How a display at Truckee Tahoe Airport would look like ...

- Nav aids and airspaces would be added
- Residential areas and visual flight paths can be marked
- Terrain could be added
- Colors can be changed
- Weather (precipitation) display overlay possible depending on availability of source



Option: Intrusion control module ...

- Provides visual/aural alarm at the computer when a flight enters the no-fly zone (red area)
- Flights in airport vicinity are recorded as CSV
- Intrusion statistics are generated for day, week, month, year
- A track picture is created automatically every day, stored in archive and published on the airport webpage for neighborhood transparency
- Any day and time can be comfortably replayed from archive and displayed on the map



[Daily flight plot on airport webpage \(German\)](#)

How the receiving equipment would look like ...

- Not more than just a single box, 19" wide
- Needs 110VAC
- Needs ethernet (network)
- Needs 32-110°F
- Can be placed anywhere in tower cab, office, under desk
- No cabinet or rack required, but possible
- Antenna cables must be connectable
- No maintenance needed





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