



THE „AKUT“ PROJECT

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8th annual ASECAP Road Safety Conference

03.03.2015

Tunnel Safety



The Akut System is brand new!!!

Tunnel – Key Figures

- In operation** (including 4 PPP Tunnels):

158 pcs.	369 km
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 - Tunnels with two tubes

143 pcs.	315 km
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 - Tunnels with one tube

15 pcs.	54 km
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- Under construction or/in planning:**

89 km

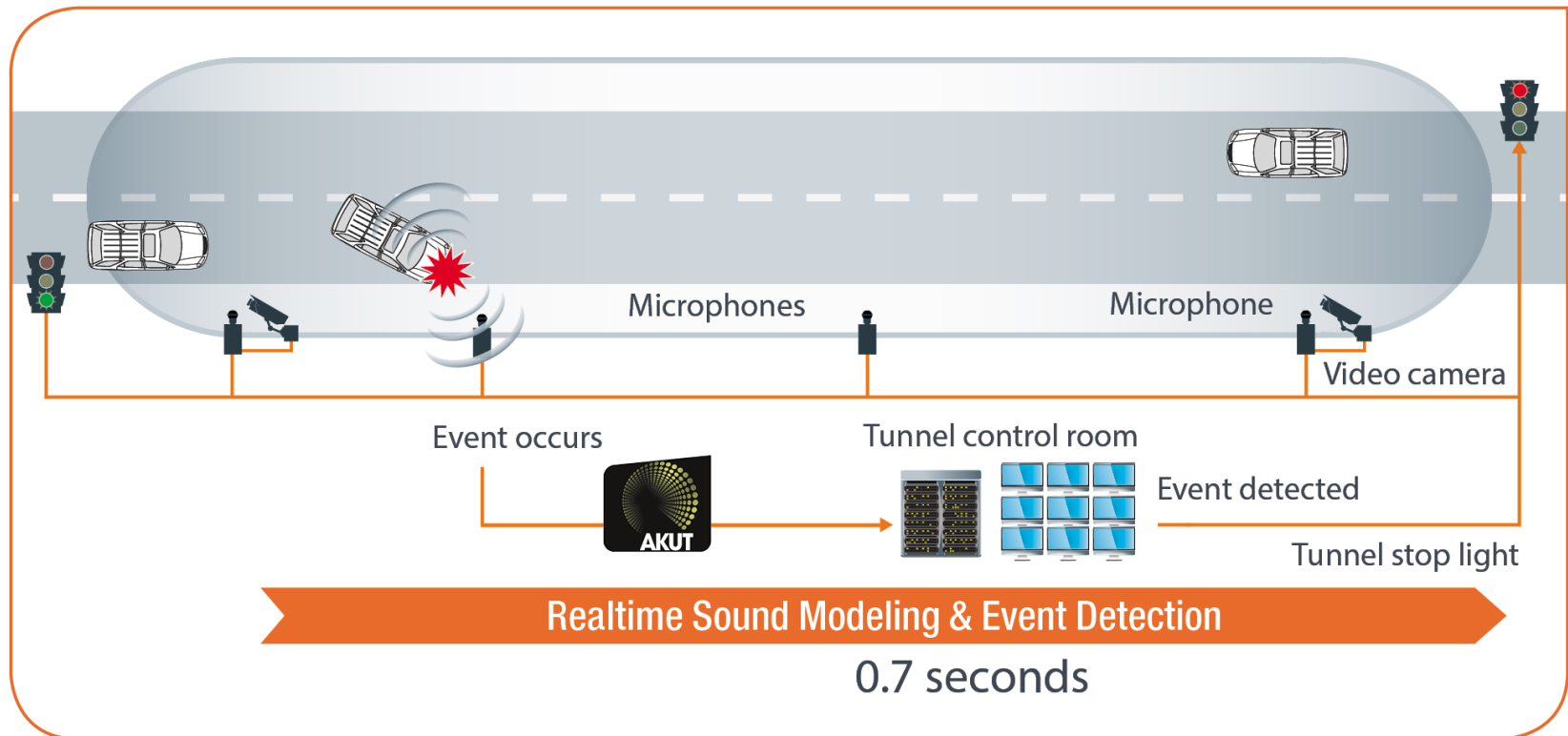
- Tunnel in operation 2015ff:**

189 pcs.	458 km
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- The monitoring is done by 9 regional traffic management headquarters.

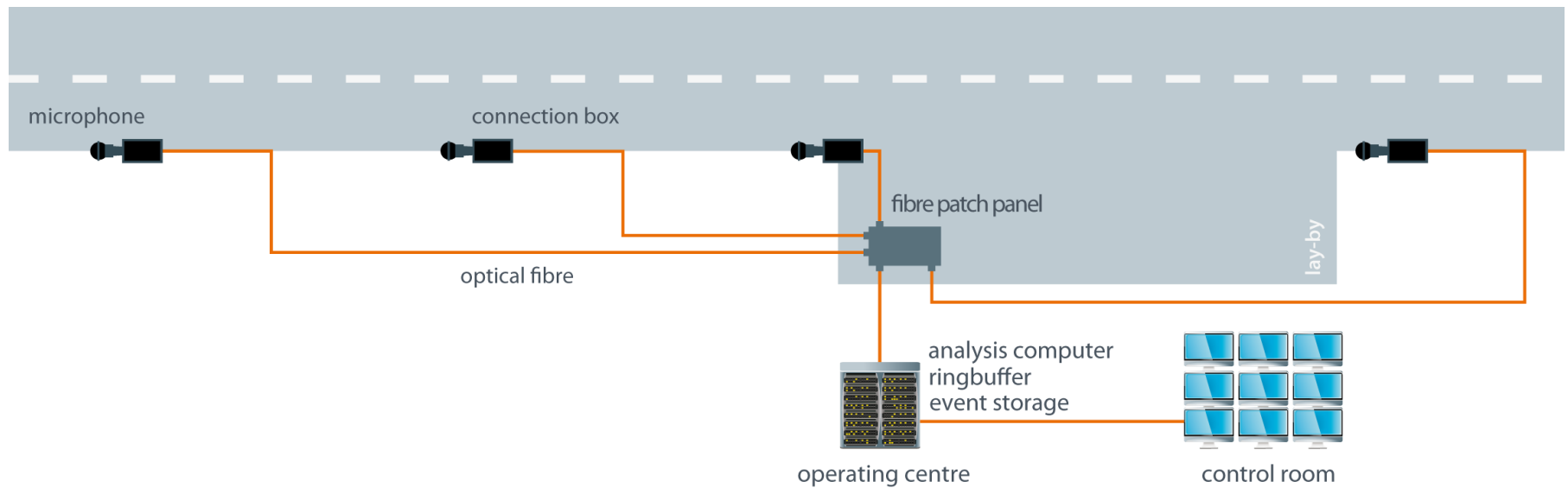
Acoustic Tunnel Monitoring

How it works



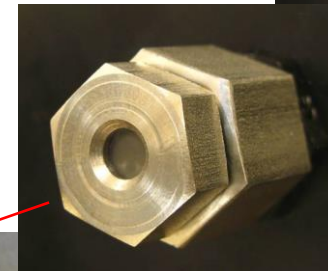
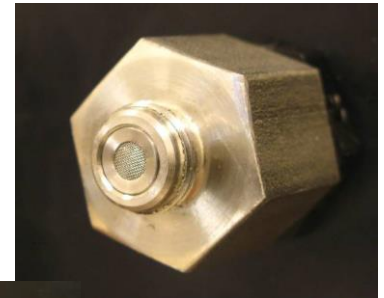
Assembly of the System

Main components



Tunnel microphone

- Resistance to dirt and corrosion
- Resistance to jet washing
- Easy maintenance and cleaning



Key Features

- Automatic detection of abnormal sounds in the tunnel
- Immediate alerting of the operator within **1 second**
- Discrimination of different danger categories (crash, squealing tyres, etc.)
- Incident information even with poor visibility – we can hear what happened inside!
- Communication with persons inside the tunnel!



Event types currently detected

Events/Hazard Class	ALERT	EVENT-LOG	REMARK
crash or tyre burst	camera activated	Yes	
tyre squealing	camera activated	Yes	
door banging	camera activated	Yes	
car horn	--	Yes	Filtering of honks with no relevance through „event-fusion“
Voices/speech/screaming people	camera activated	Yes	Scan for detecting voices is manually activated by the operator

1st Installation 2010

Tunnel Kirchdorf

- One-way traffic tunnel
- length: approx. 2,700 m
- 2 tubes
- 2 lanes in each direction



Notable incidents & alarms

- Traffic accident
- Vehicle fire
- Fire truck - broken drive shaft



Summary

Acoustic Tunnel Monitoring - AKUT

- Sounds in the tunnel = new source of information
- Events are alerted after 1s to the operator
- First system worldwide in Austria installed from ASFINAG
- NO maintenance so far!

Future prospects

- More than 30 tunnels will be equipped with this technology in the next years





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