Welcome

PASS® PROFESSIONAL Medientechnik

Presentation Acoustic Hailing Devices

Bird/Wildlife Strike

Webinar 2022

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Aim of the presentation is to explore:

- Some facts about the Company
- Some basic facts about sound

Applications on Airports

- Operation and Safety implications

History

Since the 70's we are active in the design of highly efficient

Speaker systems and their distribution.

Our first military project resulted in 2004 in the development of the LSA-2006 MIL-Pack, a portable, battery-powered sound system. One of the first such systems designed to meet specific customer requirements.

In the years 2008 to 2010, a universal mobile sound system for the German Armed Forces was developed for the German Ministry of Defence. The advanced amplifier technology included in the resulting LSA combo and A-4 has been developed in conjunction with Glockenklang, which is known in the professional music industry for its amplifier technology.

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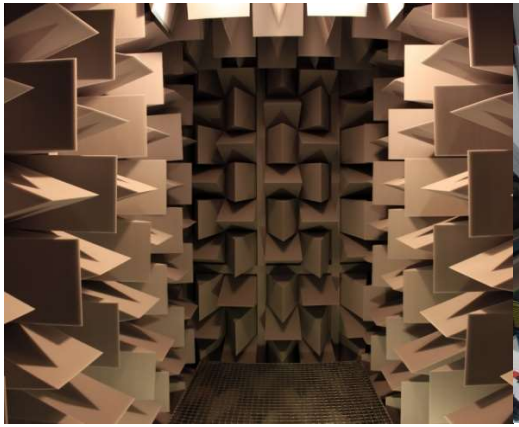
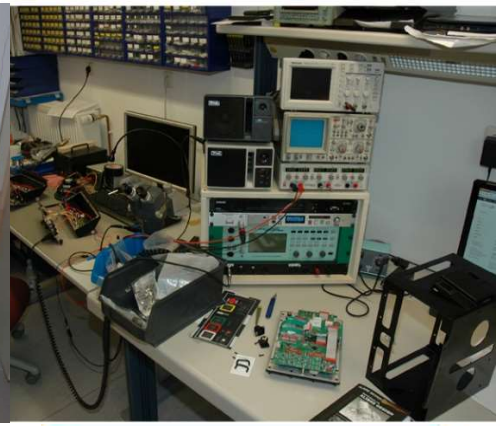
Part of our production area – special drivers

Facts

- 14 employees are supported by freelancers and contract manufacturers
- Own development and acoustics laboratory with anechoic measuring room
- Prototype production (CNC milling machine, lathe, etc.)
- Assembly workstations





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PASS-Medientechnik – Referenzen

Marine

Bundeswehr

Indonesien Marine

polizeischweiz

GRENZSCHUTZGRUPPE 9

MINISTRY OF DEFENCE

MOD

ROYAL CANADIAN NAVY MARINE ROYALE CANADIENNE

Canadian Coast Guard

BUNDESPOLIZEI

Navy South-Africa

Navy Japan

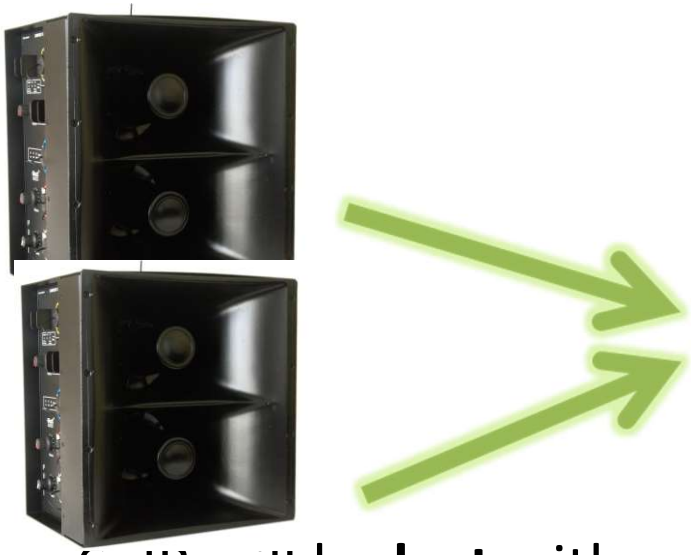
inter airport china

Russia railway

Coast Guard Malta

Acoustic theory

- To double the loudness perception of the human eaer, the SPL has to be approx **+3dB** higher
- Sytems (loudspeaker + amplifier) must be **doubled** to produce **each** additional +6dB.



+6 dB

- Approx 6 dB will be **lost** with each **doubling** of the distance to the target.

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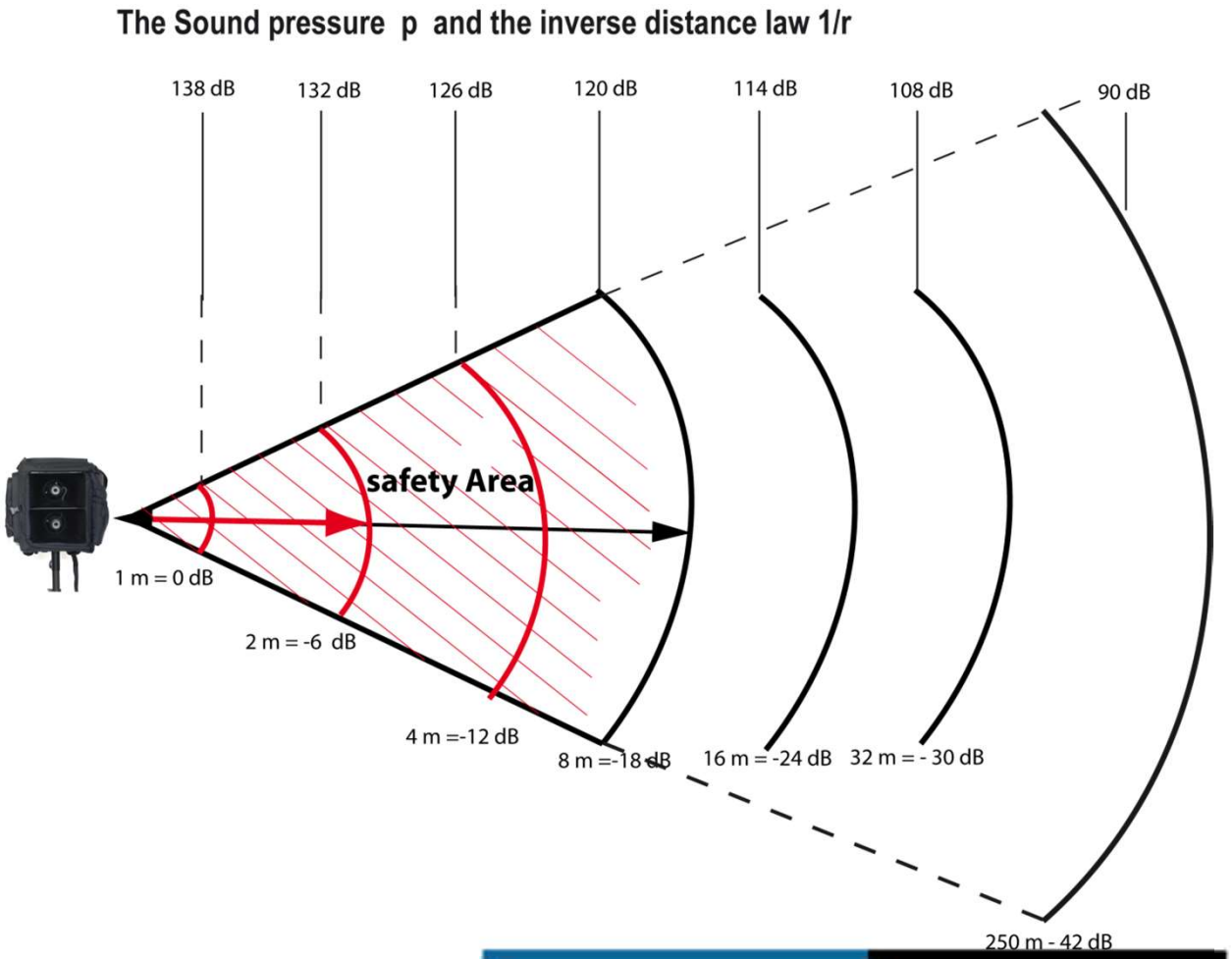
Typical Distances and SPL‘s

- **116 @ 1m Handheld**
- **83dB @ 50m**
- **77dB @ 100m**

- **138@ 1 m (LSA-X-MK1)**
- **98@ 100 m**
- **92@ 200 m**
- **78@ 1000 m**

- **148 @ 1m M-115X**
- **108 @ 100m**
- **102@ 200m**
- **88@ 1000m**



- You need +**3dB (ideal +6dB)** over your background sound to be heard.

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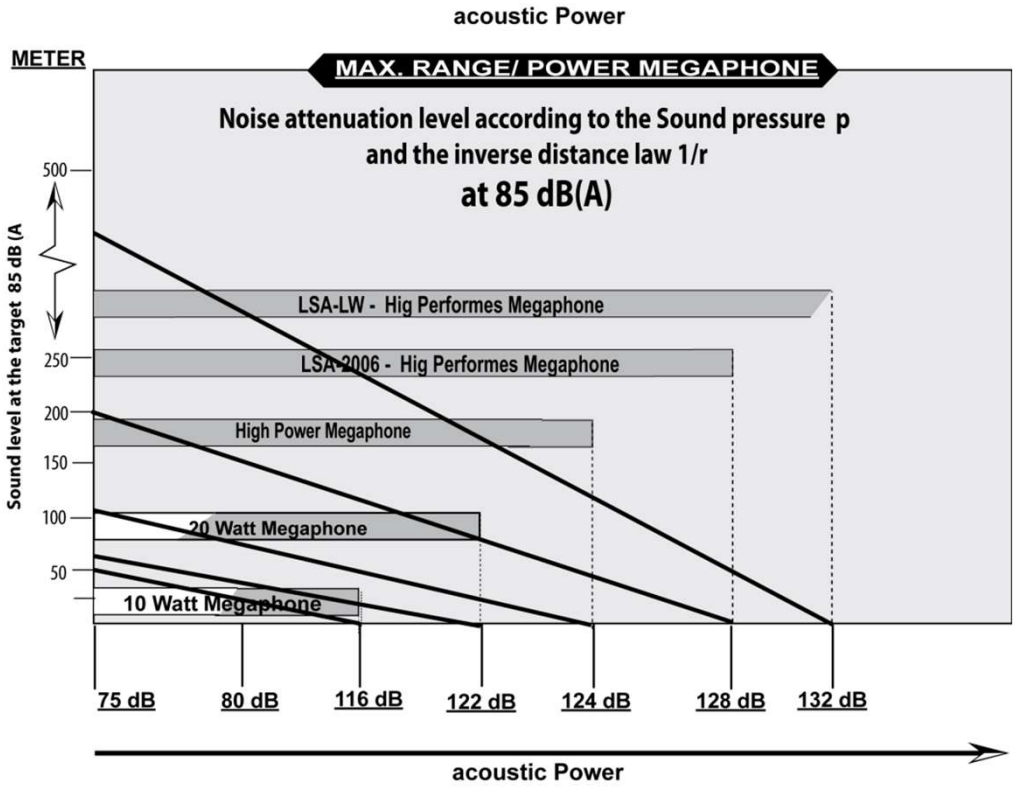
How loud?

To be clearly audible - the sound needs to be +**3dB** higher than the background noise.

- Loud background noise e.g. rioting crowd = ~80dB.
- Distance to subject = 100m
- Requires system to deliver **86dB** @ 100m -> **126dB** @ 1m



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Solutions – Portable Manpack

- **High powered megaphone - Megavoice LSA-X-MK1**
  - **Volume @1 Meter: circa. 138 dB**
  - **Maximum distances**:
  - Speech: 500m 800m
  - Alarm: 1000 -1200m
  - Battery Powered
  - 4-6 hours full power
  - Army, Police,Security
  - Personal Radio , MP3
  - Daisy Chain

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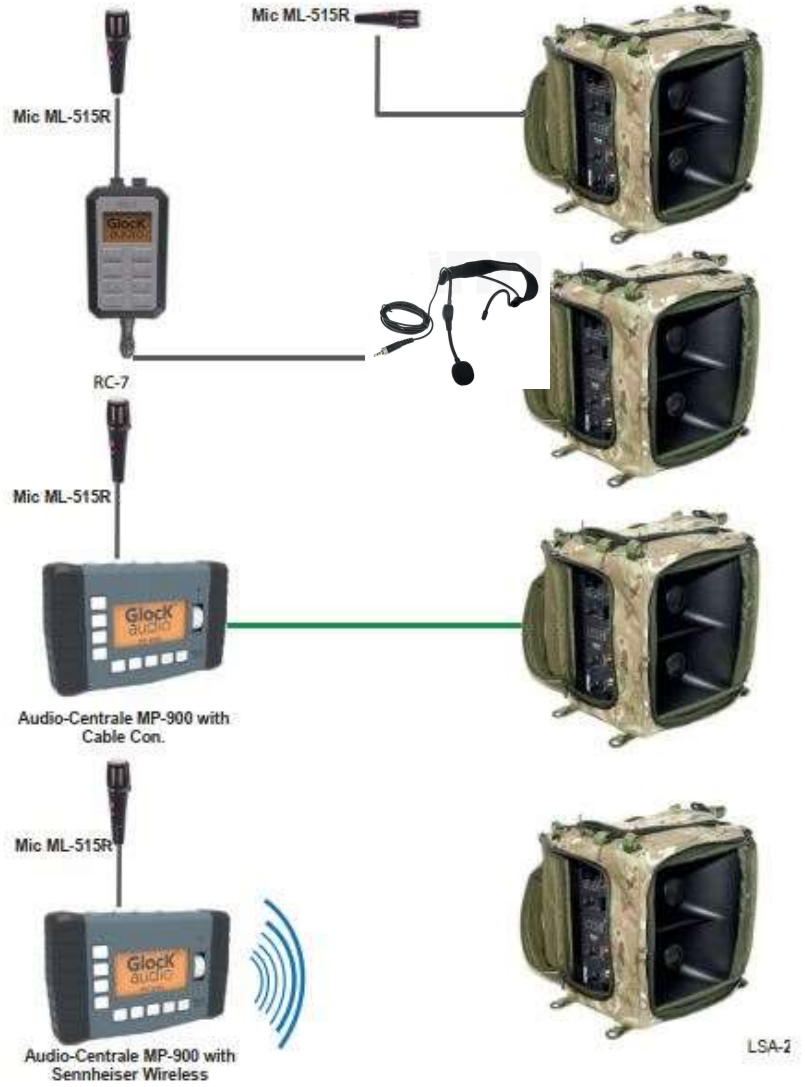
Solutions



Accessories

- Microphone ML-515R
  -wired
- Microphone ML-515
  -wireless
- Headset ME30
  -wireless
- Remote control RC 7
  -wired
- Remote Control MP 900
  -wired
- Remote Control MP 900
  -wireless

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Solutions - Vehicle mounted AHD

Technical Datas:
DC 9 bis 30 Volt or AC Freq Range: ± 3 dB / 500 Hz bis 12,5 kHz, Max-Peak-/Power: 154 dB SPL
Surface Treatment: Aluminium powder coated
Dimensions in mm: (B x H x T) 237 x 525 x 270, Weight: 11 Kg, Temperature [illegible] °C bis +70 °C

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Solutions

With the AHD 215X, acoustic signals of up to 154 dB can be transmitted in a directional or wide beam up to 2,000 meters. In the process, birds of prey screams and other noises disturbing birds are emitted. VOCCOM-AUDIO Systems are mature products for the professional user. Only trained employees are allowed to use VOCCOM-AUDIO.

The most important features of the directional sound system
Voccom AUDIO 215X
are extremely compact phase coherent sound pressure transmitters, with which any noises (birds of prey screams, warning or attention calls,
Noise, screams of various kinds) up to 2,000m far.

- The sound pressure level is up to 154 dB, the beam angle 30 °
- A habituation effect was barely noticed.
- The system will be adjusted after an analysis of the environment of use.
- M systems may only be used by professional users. Before use, training must be provided by the manufacturer.
- M systems are suitable for use at high population pressure.

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Fixed Acoustic Device with different sensor systems

SILENT SENTINEL
VISION & MOTION CONTROL

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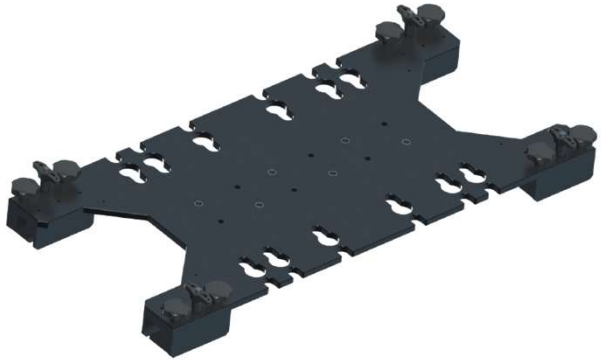
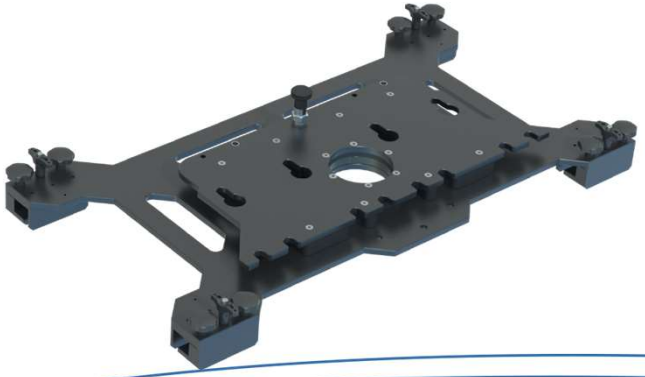
Solutions –brackets for vehicles

Roof mounting



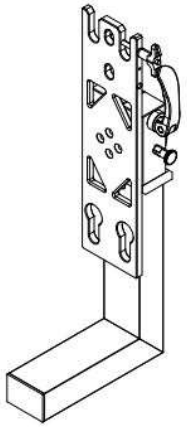
Roof mounting 360° hor, rotating



Accessories

for vehicle mounting

SA-1 TILT BRACKET



Tripod holder with Quick-Lock quick-release Fastener for one AHD-215X systems

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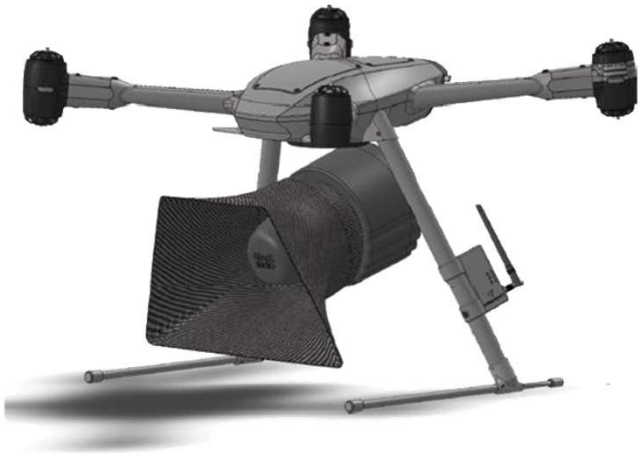
Solutions



CDL-136 CONDOR

-worldwide unique

Speaker Assembly: New ultra light Glock-Audio 1,5“ ND High-Power-Driver, Weather resistant **IP65**
±10dB 250 Hz bis 10 kHz, ± 3dB 250 Hz bis 8 kHz
60° x 35 ° (hor. x vert.)
Operating Range Beam Width / Nominal Coverage
Long Term (dB SPL) with
1 m 134 dB SPL @ 1 kHz
1 m 136 dB SPL @ 2,2 kHz (Lim.)
200-400 m / opneing angle 60°
Operation time
Depending on the performance 45 to 90 min
Weight: < 2,9 KG (LI incl. battery pack)

The CDL136 is the world first professional high performance self powered loudspeaker, light enough for drone application • the speaker system is ultracompact • servicable in all terrains • complete system weighs only 2,9 kg including amplifi cation and batteries • features excellent speech intelligibility at distances of 100 to 400 metres •is one of the most powerful speakers available world-wide for its size and weight • features a wide selection of accessories to make it an incomparable and fl exible solution for a range of applications • RPL- 600 Recording / Play / PTT-Mikrophone • Remote control features for covert operation
The CDL-136 is a battery powered high performance self powered loud- speaker system with ex-ceptional speech intelligibility and extreme long- range capability. Weighing only 2,9 kg (including batteries) makes the CDL-136 one the highest performing battery powered systems in its class worldwide. The use of a high effi ciency precision loudspeaker in combination with the latest in am-plifi er, battery and speaker technology, creates superior performance from such a small package. This system enables the transmission of high qualityintelligible speech over distances of 100 to 400 metres. Superior speech intelligibility addresses the target audience in the most eff ective way. There are two patents protecting the acoustic design of the system. The optional remote control allows operation from undercover positions, or while on the move. The system has been developed for use by the military, police, fi re and emergency services, as well as rescue and disaster relief organisations. Various adjustable In- and Outputs enable the connection of many different accessories.

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PART II:

The following table displays the results from 25 tested bird species:

Table 11: ASR thresholds among 25 testes species

№	Bird species	Sound pressure dB/SPL (C) at 3.3 feet from the tested species required for the initiation of ASR			
		300 Hz	600 Hz	1200 Hz	2400 Hz
1	Mallard - Anas platyrhynchos	113	113	115	120
2	Budgerigar - Melopsittacus undulates	104	103	104	105
3	Chicken - Gallus gallus domesticus	116	113	117	no ASR
4	Cockatiel - Nymphicus hollandicus	103	104	106	106
5	Common Buzzard - Buteo buteo	114	105	115	120
6	Common Pheasant - Phasianus colchicus	119	109	118	116
7	Crested Pigeon - Ocyphaps lophotes	113	112	114	no ASR
8	Eastern Imperial Eagle - Aquila heliacal	103	104	114	116
9	Eastern Marsh Harrier - Circus spilonotus	113	104	112	111
10	Eastern Rosella - Platycercus eximius	112	109	114	no ASR
11	European Herring Gull - Larus argentatus	118	102	108	114
12	Golden Eagle - Aquila chrysaetos	106	103	104	108
13	Greylag Goose - Anser anser /female/	119	113	115	no ASR
14	Greylag Goose - Anser anser /male/	105	110	102	115
15	Helmeted Guineafowl - Numida meleagris	117	113	no ASR	no ASR
16	Hooded Crow - Corvus cornix	114	108	117	no ASR
17	Kākāriki – Cyanoramphus	103	107	117	no ASR
18	Lovebird – Agapornis	103	103	97	108
19	Paradise Finch - Amadina erythrocephala	106	111	107	118
20	Red-breasted parakeet - Psittacula alexandri	no ASR	112	113	no ASR
21	Rook - Corvus frugilegus	111	109	111	118
22	Tawny Owl - Strix aluco	109	104	108	106
23	Western Jackdaw - Coloeus monedula	115	112	115	116
24	White Stork - Ciconia ciconia	117	103	108	108
25	Wild Turkey - Meleagris gallopavo	no ASR	117	120	no ASR
Averaged sound pressure levels at tested frequencies dB/SPL (C) @ 3.3 feet		111	108	111	113

Test-phase

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Portable Public address

In cooperation with DAVVL and from 2 scientifically accompanied test phases at the airports BER and HAJ, the resistance of the individual bird species with flight activities was determined over 6 months with artificially generated sounds.
These tests were based on findings from the University of Sofia and the German Fraunhofer Institute.

The findings obtained suggest that there is no habituation of the bird species to these sounds.
Consequently, this type of bird deterrence can be used both on vehicles as a control device or along runways via IP networking.

My special thanks go to Mr. Christian Hellberg, who accompanied us for these tests.

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Portable Public address

Species	Classification	Commends
Starling		Also bangs effectively
Buzzard		
Grey heron		
Red Kite		
Corvids		
Goldfinch		
Kestrel		React well with few exceptions, but quickly break off the escape. Usually it is enough to chase them out of the security area.
Woodpigeon		Bang sounds more effective
Domestic Pigeon		
Mallard		Respond well, but do not all leave the waters and escape swimming
White stork		Prolonged sonication necessary. Noise is more annoying, therefore no actual flight reaction. On storks circling in the air the sonication is ineffective on storks circling in the air

Burying ability medium. Depending on the situation the birds fled or were not buriable.

Predominantly good burrowing ability. If at all, the birds remained sitting only exceptionally sit.

Thank you for your attention

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