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Turboshaft Engine Exhaust Noise Identification

Fact Sheet

Project Information

TEENI

Grant agreement ID: 212367

Project closed

Start date
1 April 2008

End date
31 March 2013

Funded under
Specific Programme "Cooperation": Transport
(including Aeronautics)

Total cost
€ 4 686 636,88

EU contribution
€ 3 297 418,00

Coordinated by
SAFRAN HELICOPTER ENGINES
 France

This project is featured in...

RESEARCH*EU MAGAZINE



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Objective

Helicopters can generate a large amount of external noise, as their traditional missions –rescue, medical, law enforcement– are very close to populated areas. As emphasised in ACARE SRA2, increasing rotorcraft missions in the public vicinity should not lead to increasing public disturbance. Turboshift engine is known as a major contributor to exterior noise for take-off conditions. ACARE SRA2 objectives imply that noise reduction must be maximised for the most dominant engine noise source in flight. An increased knowledge of the exhaust sound sources balance is then required. Broadband noise at a turboshift exhaust is assumed to be a mix between combustion and turbine noise. TEENI (Turboshift Engine Exhaust Noise Identification) will find the relationship between engine modules (combustion chamber, HP Turbine, Power Turbine) and their broadband noise signature and will give a recommendation about the noise source to be reduced in priority. But noise sources breakdown is an ambitious goal, due to the complexity of the physics involved, the harsh environmental conditions, and the small space available. TEENI carries in parallel 4 objectives : 1. To develop sensors for fluctuating quantities, adapted to such an environment 2. To develop noise sources breakdown methods 3. To understand broadband noise generation and propagation through blade rows 4. To discriminate engine exhaust noise sources TEENI's workplan includes : - Innovative sensors development, - New noise sources breakdown techniques, - Basic studies, including rig experiments, to understand the propagation effects of broadband noise through blade rows. These tests will also help to verify noise breakdown techniques. - New instrumentation and source breakdown techniques will be applied to a full-scale engine test - Development in HELENA (from Friendcopter) of the source breakdown capability - Estimation with HELENA of the engine noise source to be reduced in priority in flight

Fields of science (EuroSciVoc)

[social sciences](#) > [law](#) > [law enforcement](#)

[engineering and technology](#) > [electrical engineering](#), [electronic engineering](#), [information engineering](#) > [electronic engineering](#) > [sensors](#)

[engineering and technology](#) > [mechanical engineering](#) > [vehicle engineering](#) > [aerospace engineering](#) > [aircraft](#) > [rotorcraft](#)



Keywords

ENGINE

HELICOPTER

TURBOSHAFT

aeronautics

engine

helicopter

noise

turboshaft

Programme(s)

[FP7-TRANSPORT - Specific Programme "Cooperation": Transport \(including Aeronautics\)](#)

Topic(s)

[AAT-2007-1.1-03 - Propulsion](#)

[AAT-2007-3.1-02 - Noise and Vibration](#)

Call for proposal

FP7-AAT-2007-RTD-1

[See other projects for this call](#)

Funding Scheme

[CP-FP - Small or medium-scale focused research project](#)

Coordinator



SAFRAN HELICOPTER ENGINES

EU contribution

€ 456 953,00

Total cost

No data

Address

Avenue du President Szydlowski

64510 Bordes

 France 

Region

Nouvelle-Aquitaine > Aquitaine > Pyrénées-Atlantiques

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) [Website](#)

[Participation in EU R&I programmes](#)

[HORIZON collaboration network](#)

Participants (10)



ANOTEC CONSULTING SL

Spain

EU contribution

€ 95 560,00

Address

CALLE RECTOR JOSE VIDA SORIA 7-2

18600 MOTRIL GRANADA

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

[Contact the organisation](#) [Website](#)

[Participation in EU R&I programmes](#)

[HORIZON collaboration network](#)

Total cost

No data



AVIO SPA

Italy

EU contribution

€ 94 000,00

Address

VIA ANTONIO SALANDRA N18

00187 ROMA

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

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Total cost

No data



BRUEL & KJAER SOUND & VIBRATION MEASUREMENT A/S

Denmark

EU contribution

€ 130 350,00

Address

Skodsborgvej 307
2850 NAERUM

Region

Danmark > Hovedstaden > Nordsjælland

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

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Total cost

No data



INSTITUTUL NATIONAL DE CERCETARE-DEZVOLTARE TURBOMOTOARE - COMOTI

Romania

EU contribution

€ 500 250,00

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IULIU MANIU AVENUE 220D, SECTOR 6
061126 Bucharest 6

Region

Activity type

Research Organisations

Links

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[Participation in EU R&I programmes](#)

[HORIZON collaboration network](#)

Total cost

No data



DEUTSCHES ZENTRUM FUR LUFT - UND RAUMFAHRT EV

Germany

EU contribution

€ 500 994,00

Address

LINDER HOHE
51147 Koln

Region

Nordrhein-Westfalen > Köln > Köln, Kreisfreie Stadt

Activity type

Research Organisations

Links

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[HORIZON collaboration network](#)

Total cost

No data



ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE

Switzerland

EU contribution

€ 295 432,00

Address

BATIMENT CE 3316 STATION 1
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Region
Schweiz/Suisse/Svizzera > Région lémanique > Vaud

Activity type
Higher or Secondary Education Establishments

Links
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Total cost
No data



INASCO HELLAS ETAIREIA EFARMOSMENON AERODIASTIMIKON EPISTIMON
EE

 Greece
EU contribution
€ 159 000,00

Address
NAPOLEONTOS ZERVA 18
16675 Glyfada Athina 

Region
Αττική > Αττική > Νότιος Τομέας Αθηνών

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links
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[HORIZON collaboration network](#) 

Total cost
No data



MICROFLOWN TECHNOLOGIES BV
 Netherlands

EU contribution

€ 564 000,00

Address

WESTERVOORTSEDIJK 50
6827 AT ARNHEM 

Region

Oost-Nederland > Gelderland > Arnhem/Nijmegen

Activity type

Private for-profit entities (excluding Higher or Secondary Education Establishments)

Links

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Total cost

No data



OFFICE NATIONAL D'ETUDES ET DE RECHERCHES AEROSPATIALES

 France

EU contribution

€ 198 678,00

Address

CHEMIN DE LA HUNIERE
91120 Palaiseau 

Region

Ile-de-France > Ile-de-France > Essonne

Activity type

Research Organisations

Links

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Total cost

No data



**THE PROVOST, FELLOWS, FOUNDATION SCHOLARS & THE OTHER
MEMBERS OF BOARD, OF THE COLLEGE OF THE HOLY & UNDIVIDED
TRINITY OF QUEEN ELIZABETH NEAR DUBLIN**

 Ireland

EU contribution

€ 302 201,00

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**COLLEGE GREEN TRINITY COLLEGE
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Region

Ireland > Eastern and Midland > Dublin

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

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Total cost

No data

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Permalink: <https://cordis.europa.eu/project/id/212367>

European Union, 2025