FÉDÉRATION AÉRONAUTIQUE INTERNATIONALE

ENVIRONMENTAL COMMISSION

MINUTES OF THE ANNUAL MEETING

OLYMPIC MUSEUM
LAUSANNE SWITZERLAND
2003-01-17/18

Present:

In the chair:	Mr. Chris J. Nicholas, President (UNITED KINGDOM)
CANADA	Mr. Robert(Bob) I. CARLSON, Delegate and Secretary
DENMARK	Dr. Ricard MATZEN, Delegate
GERMANY	Dr. Michael GOTH, Delegate Dr. Wolfgang SCHOLZE, Alternate Delegate
SWEDEN	Mr. Rolf BJORKMAN, Delegate
SWITZERLAND	Mr. Leo CAMINADA, Delegate
TURKEY	Mr. Tülay CAN, Delegate Mr. Ali Ihasan TUNA, Observer
UNITED STATES OF AMERICA	Mr. Bernald S. SMITH, Delegate and Vice-President
FAI	Mr. Max Bishop, Secretary General, on 2003-01-17 only
APOLOGIES	None

Where appropriate, capitalized member initials are used to denote the source of some comments.

1. Opening Remarks by the President, Chris Nicholas,

The President called the meeting to order at 1500h and welcomed those attending.

2. Approval of the Minutes of the last Meeting

The minutes of the 2002 meeting were approved as corrected and amended (cf.revised **To Do List** appended to this minute).

3. The Presidents Report

Chris Nicholas, was pleased to advise that the Air Sports Commission Presidents had acknowledged their responsibilities in respect of the FAI policy regarding environmental issues and needs: e.g. the IGC acceptance, attitude, activity and future application to World Level Competitions.

The IGC now requires that, within the organizers agreement for of a World Gliding Championship, the event activities must reflect, respect and honour the environmental requirements of the contest location and site.

In the discussion that followed, it was agreed that we, the Environmental Commission, through the means of a letter from the Environmental Commission President to the FAI President, Mr. Wolfgang Weinreich, would ask the Executive Board to ensure that all agreements for sanctioned FAI World level competitions require the organizers to respect the environmental policies of the FAI, the relevant Air Sport Commission, the Host Country and region, the National Aero Club, local Club(s) and last, but not least, the site. The default policy, at any level, shall be that which favours the environment.

With concurrence of the Executive Board, this policy would be presented to the Sport Commission Presidents.

Thereafter, the policy should be included in the Environmental Section of the FAI Web Site. It will be the responsibility of the each Sport Commission to ensure compliance.

As an adjunct to that policy, the work and report prepared by Olli Berg of FINLAND, on the environmental impact of Aerosports should be presented to each Air sport Commission/community for review, acceptance and utilization.

TO DO: President Nicholas to prepare noted letter to the FAI President, and, as appropriate, the Sport Commission Presidents

President Nicholas also advised that he had been invited to an ECAC European conference on noise measurements. He chose not to go as the agenda and focus of the conference was on large airports for large aircraft.

4. Old Business --- Web Site Development

Bernald had sent out a request for comment and needs. Little response.

Thierry has been continuing to monitor the existing content.

There was an extended discussion on Website layout, picture, themes and written comment.

All agreed that the site development should proceed with appropriate hyperlinks and cross references --- especially those that tie into the FAI Environmental policy. In this context Michael Goth volunteered to resume his prior and joint work with Thierry and Chris.

Thierry , searching, has yet to find any references or evidence of the results of the questionnaire/report produced for the 1995 Council meeting in Montréal. RIC, in turn, checked with Bob Clipsham, who was a delegate for Canada, at the 1995 Council Meeting in Montréal. He has no record nor file with the results of the questionnaire.

--- ISO report.
This area of activity is, seemingly, in a state of turmoil as many of the familiar natural organizations are being displaced by new ones developed and mandated by the EU Secretariat in Brussels. There are a variety of EU agencies, as well as ICAO, looking at environmental issues related to airports, large and small.

For example, a new noise standard called EU2616/2002 will be implemented two(2) years from now. There is no known background on the "raison d'être" for this standard.
Additionally, the UK government is planning to map the country for noise. Who will pay for this is not known. Whether it will list/locate noise sources is not known.

Sweden is mapping the country for noise. "Quiet" areas will require that there be no non-natural(?) noise will be permitted. "Tranquil areas", yet to be defined, are also planned.

Denmark has adopted similar principles.

TO DO: Chris: Letter on this subject to Europe Aerospace Meet with CAA to see if adverse actions can be reversed.

Max: Assess EU direction: Study 06-22/2002/49/EF.

All: If something happens send it into the Web Site.

Advise commission of any events affecting aerosports, especially those associated with aerosport --- anywhere --- Europe, North, Central and South Americas, Antipodes, China, India, Russian and Africa.

Web Site: Chris may set up a bulletin Board or equivalent, a spot on the web site(a registry) where activity/actions can be listed and progress or activity recorded.

There was an extended discussion on the philosophy of measuring noise.

-should it be uniform, 2.5 km from the centre of the airport , or
-should it be an extended point 2.5 km from the end of the take-off runway?

RIC's muse: How do you measure and assess noise in rough or mountainous country, where geography can nullify or magnify the absolute level of noise created?

There was an extended discussion of the technique and execution of noise measurements at small airports in the UK.

There was a further extended discussion of the technique of noise measurements at European airports.

To Do: RIC to report regarding Canadian noise complaints, particularily float aircraft in BC and QC.

At this point Max Bishop reviewed the general agenda items of interest that will be discussed at the Executive Board meeting in Dayton OH, U.S. of A. during the following week.

The strategic plan to 2005. Strengths and weaknesses. The FAI to be dominant everywhere insofar as Aerosport is concerned..

New visual image

Effective World Air Games

Change the general nature of the Annual General Conference. Limited traditional Activities. Plenary sessions on broader issues.

Agenda items 7, 8 and 9 are now complete.

Thus, the meeting adjorned until the following morning.

The meeting readjorned the morning of 2003-01-18 at 0900h. Save for Max Bishop, all of the previous days participants returned.

There was a reprise of the discussion, from the previous day, of the presentation of the Commissions view on environmental standards for competitions. Emphasis was placed on the need to encourage the Sport Commission Presidents to emphasize environmental issues and solutions using the examples of the Nordic countries and Germany for guidance.

TO DO: Bernald is to prepare a draft of the committees' views on environmental policy implementation for the Executive Board.

10 & 11 NORDIC and GERMAN REPORT.

There was an extended discussion of the content of these reports that are attached as appendices. Discussion revolved around minimum heights above ground, variable take off patterns, methods of counting take offs, jurisdictional variations and their effect on activities and practices. For example, Aero Clubs in Germany using solar power to enhance their environmental sensitivity.

Other issues discussed were the use of micro/ultra lights to facilitate environmental activities. The best example is the "imprinting" guidance for bird migration of an ultra/micro-light. The blue flag program in Germany. Critical overflight altitudes. Posters to enhance the image of environmental sensitivity.

TO DO: Chris Nicholas to send copy of Ricard Matzens' report to the UK group working on noise measurements.
Wolfgang Scholze to enter appropriate activities and guidelines on the Web Site.

12. BARAFAAWG
Bernald advised that this item is now closed. It is an excellent example of a process that worked to the benefit of all. The major environmental issue in California, now, is Windmills.

13.OTHER

Bernald will address the environmental issues associated with Astronautics issues and performance codes.

14. ELECTIONS
After appropriate nominations and balloting, the following were elected to office:

President: Chris J. Nicholas

Vice Presidents: Michael Goth
Ricard Matzen
Bernald Smith

Secretary: Bob Carlson

15. NEXT MEETING Olympic Museum, LAUSANNE, SUISSE
2004-01-23 @1500h
2004-01-24 @ 0900h

HAVE A GREAT AVIATION SUMMER!

Report to the Environmental Commission
January 2003

Progress Versus Objectives

Part of the adopted FAI environmental policy was: “FAI will publish detailed environmental codes of conduct for air sport disciplines . . . and ensure that these are implemented by its member organisations”. This is partly completed - detailed codes have been published. Implementation is in the hands of the ASC’s and NAC’s. I suspect, however, that nothing is happening on this.

Another part of the policy included "The development of facilities and the carrying out of air sport activities are to be conducted in a manner that harmonises the interaction between the air sport activities and the environment. . . . Responsibility for impact on the environment starts with the individual but extends to club managements, federations, National Airsport Controls, and organisers of airsports. FAI aims to improve awareness and understanding amongst all these groups . . . of the impact of air sports on the environment . . .".

The Air Sport Commission Presidents have therefore been asked to consider how to improve this awareness and understanding. It appears that they did not do so, however.

FAI funded a translation into English of a Finnish study by an airsport environmentalist, Olli Borg, entitled “A Survey on the Environmental Factors of Sports Aviation” which became available in February 2002. The translation is a 35-page document in pdf format, available by email. It covers a unique approach to airsport environmental impact, assessing the total impact by participants in the majority of airsports. The study may be helpful in negotiations with authorities, and in any case is a valuable contribution to the growing library of scientific studies with relevance to FAI members.

Present Work of the Commission

A renewed effort has begun into setting up web pages to provide a more accessible database of information world-wide. I hope delegates will have seen the emails I have sent recently with proposals for some of the pages, which I developed having looked back to the original work by Dr. Michael Goth. I plan to have drafted formats for remaining pages very soon. Of course, I welcome any other contributions to that, and comments on my drafts, with a view to updating the web site in the next few months.

The work of the Commission continues, though slowly, in the field of noise measurement techniques. An approach to measurement of noise levels for small airfields, based upon a widely accepted measure used in several countries already, is being pursued at present in the UK, with a view to seeking first UK Government agreement and then seeking a wider agreement internationally. The hope is to provide an acceptable, affordable, and safe alternative to the increasing tendency of Planning Authorities to restrict flying sites by indirect and unhelpful conditions aimed at noise control.

Resources

As in previous years, the Commission work is restricted to that which a few working members can achieve. Most Commission members are heavily committed either to voluntary work elsewhere in airsports or in a few cases to their professional scope, and spare time to pursue FAI Environmental objectives is very limited.

Chris J Nicholas 16th January 2003

President, FAI Environmental Commission

German Report to FAI Environmental Commission Meeting 2003 – January 17 – 18, 2003, Lausanne, Switzerland

by Dr. Michael Goth (DAeC Delegate) and Dr. Wolfgang Scholze (DAeC Alternate Delegate), Environmental Officer DAeC, Technical Officer Environment Europe Air Sports

1 Report of Dr. Michael Goth

1.1 German Air Sports Associations and Environmental Commissioners within the Federal Republic of Germany

The primary task of the delegate is to act on a voluntary basis as environmental and nature preserve commissioner of one of the German Federal State Air Sport Associations, the Baden-Württemberg Luftfahrtverband (BWLV), an association of about 11,000 members.

Each of the other 16 German Federal State Air Sport Associations and 21 associated special air sports groups have assigned environmental and nature preserve commissioners on voluntary basis.

These Air Sport Associations constitute the German Aero Club (DAeC), an Air Sports Association of about 100.000 members. Several years ago DAeC decided to employ a full time paid environmental professional (Wolfgang Scholze) to take care of the many and complex tasks related to sportive flying and environmental/ nature preserve protection. This investment was very successful in terms of an increasingly improved co-operation and understanding between organized environmentalists and agencies on the one hand and air sports practioners on the other hand. The second part of this report informs on actual projects and achievements.

Further, these activities resulted in raised awareness for considerate handling with nature on airfields.

1.2 Achievements in 2002 within BWLV

A major technical development significant for the environment is the application of solar electricity for air sports purposes:

- A glider airfield in Baden-Württemberg not having connection to the electricity network installed solar electricity panels. These are now sufficient to supply the airfield restaurant, hangar and workshop over the weekend with electrical power. The formerly operated Diesel engine is no longer needed.
- Further, the solar panels load the batteries of an electromotor powered self-launching glider.

Solar electricity is becoming more than just an application for 12 Volt batteries in aircrafts. There is potential for much wider applications.

2 Report of Dr. Wolfgang Scholze

2.1 Contact to Europe Air Sports

Wolfgang Scholze (WS) is Technical Officer Environment within Europe Air Sports (EAS), thus a direct link is provided between the FAI Environmental Commission and EAS.

Nevertheless, due to heavy workload of WS and intensive work of EAS on other than environmental topics (European regulations, EASA) currently there is no active discussion within EAS on environmental issues. To the knowledge of WS moreover in the moment there is no urgent need for.

2.2 Blue Flag Air Sports

In 2001 the Blue Flag environmental distinction, until then being restricted to glider airfields only, for the first time was opened to airfields of all air sport disciplines. The existing criteria catalogue (questionnaire) to be fulfilled in order to be awarded with the Blue Flag was changed in some detail to be applicable to the different air sport disciplines. It is still a general questionnaire only, not differentiated for each air sport discipline. It is available at www.daec.de for application in German only.

In 2001 about 20 model aircraft, microlight, glider and mixed airfields participated and were successfully awarded the Blue Flag Air Sports. Experiences of air sport clubs participating at the Blue Flag campaign are very positive.

It is a pity that still an European Blue Flag Air Sports Award is not available, although the Foundation for Environmental Education (FEE), the International Head Organisation of the German Association for Environmental Education (DGU) was very interested to initiate it. If National Aero Clubs (NACs) are interested, it is suggested that the NAC searches contact with its national Association for Environmental Education (which at least for most of the countries within the European Community should exist) and initiate the contact on a national basis at first. Another possibility could be to win environmental authorities as partner organisations to establish a similar campaign. In Germany a new award, similar to the Blue Flag, but exclusively sports related, may be developed soon.

2.3 Microlight-Goose project / Aktion Zwerggans

In 2001 DAeC supported the foundation of “Aktion Zwerggans” (AZ, Society for the rescue and protection of the Lesser White-fronted Goose). The objective of AZ and DAeC is to carry out a spectacular project leading young Lesser Whitefronts (an endangered goose species whose Fennoscandian population is very close to extinction) with help of microlight aircraft from their former breeding regions in Sweden or Finland via Denmark to Germany (see also reports 2000 and 2001).

In 2002 AZ carried out a test within Germany using a new type of microlight, the three axles controlled Australian “Dragonfly” (instead of using Trikes). A small group of 12 Lesser Whitefronts was successfully trained to follow the Dragonfly without problems. The Dragonfly’s performance on floats was tested as well and revealed to be very good. The European Union has strong interest in the project by already granting a LIFE Starter project to Aktion Zwerggans, further funding within LIFE III seems possible. The Allianz Insurance Environmental Foundation has granted nearly half a million €. Aktion Zwergans now is ready to start the project. If Swedish, Finish and Danish authorities and conservation organisations

will agree on co-operation (which is in preparation in moment), the project could begin already in 2003. NAC's from Sweden, Finland and Denmark will be asked to support the project. It should be noted that this project receives a very high public interest as various TV teams applied to document the goose breeding, raising and flying activities.

2.4 New Results on Studies of low Aircraft Overflight Disturbances to Animals

Disturbance of animals, especially birds, by low overflying aircrafts can happen and on a local scale still is a problem for related conservation areas. Due to lack of data the discussion about acceptable overflight altitudes (adopted by voluntary self-regulation) is controversial in detail. For example nobody knew whether the recommended overflight altitude of 300 m (1000 ft) for balloons would be enough especially for bird species very sensitive to disturbance (e.g. wintering water birds, geese).

Therefore, during winter 2001/2002 a test program was carried out at the Lower River Rhine basin within a Ramsar and IBA conservation area, which is one of Germany's most renowned wintering areas for arctic geese. A series of balloon cruises in different altitudes over resting geese were carried out by air sport enthusiasts and ornithological scientists together, collecting data on the behaviour of the geese in relation to the overflying balloons.

It could be worked out clearly that for this group of birds the critical flight altitude is about 500 m (1700 ft) above ground. Balloon cruises below 500 m to a high percentage led to immediate and severe disturbance reactions (large geese flocks started flying), which obviously has negative effects on the energy balance of the birds. Cruises above 500 m will force minimal reactions only, if at all.

The new flight altitude recommendations consider these results. Altitudes of 300 m and – in such special goose wintering areas – 500 m above ground are acceptable by balloon pilots and conservation ornithologists as overflight altitudes do not cause lasting negative effects to wildlife. Therefore, these altitudes are recommended to balloon pilots cruising over important wildlife areas sensitive to disturbance. For motorized aircraft an overflight altitude of 600 m (2000 ft) is recommended. The results of the balloon/goose-overflight study will be published soon (see 2.5).

2.5 Handbook "Airsports & Nature Conservation"

Two years ago the results of the German conference "Airsports & Nature Conservation" (mentioned in previous reports) were prepared to be published by DAeC and the Federal Agency for Nature Conservation (BfN). The implementation of the amended German Nature Preserve Act, which incorporates new EU-regulations on nature conservation (esp. NATURA 2000, Fauna-Flora-Habitat Directive) to national law, was delayed and consequently the publication of the handbook had to be delayed as well. The Nature Preserve Act was implemented in 2002, which allows the completion of our publication soon. It will cover new developments for example on recommended overflight altitude in conservation areas (see 2.4), a description of the air sport disciplines and a collection of projects, results and conclusions dealing on the relations between nature conservation and air sports. Most of the contents will be also available on the DAeC web pages.

Report to the FAI Environmental Commission
Annual Meeting in Lausanne 18-19 January 2003

Aerodrome Noise Assessment in Denmark six years experience

by Dr. Ricard Matzen, Royal Danish Aeroclub (KDA)

In Denmark noise assessment and approval of aerodromes has been compulsory since 1996. This is regulated by a set of rules given by the Ministry of Environment, Danish EPA (Miljøstyrelsen - Vejledning 4/1995) as guidelines for the County Council (Amts Miljøudvalg), who are the responsible body for issue of noise approvals and the running inspections. Airfields with less than 100 operations per month are normally regarded as farmers field and approval is not required. The guidelines are not direct applicable to major aerodromes and airforce bases.

The guidelines
The guidelines are practically considered a Bible for all noise assessment of aerodromes. It is based on the Integrated Noise Methods (INM), i.e. that a noise source (aircraft - noise number 73 dB) under take off is climbing at TAS 80 kt and climbing at angle 1:10 corresponding to R/C about 800 ft/min. Landing is done by the same speed and descend angle (about 6 deg). The reference aircraft could be a C 172, PA 28 or similar single engine plane. In addition to this, other aircraft with different MTOM and performance, are characterised by noise classification numbers.

Definition of noise source
All aircraft on Danish register (OY-), except old-timers only used occasionally and registered prior to about 1980, have a noise classification based on noise certification measurements, performed in accordance with ICAO Annex 16 Chapter 6. This is done under level flight 1000 ft AGL at max. continuous power, without the performance correction. The noise classification is given for the standard equipped type of aircraft in the guidelines. If you claim reduction e.g. if a special noise silencer or non-standard propeller is fitted, you have to obtain an individual noise certificate.

TSEL values
Noise immission to the surroundings of aerodromes is integrated according to INM for different operations, and the TSEL values (Total Sound Exposure Level) for take-off and landing are stated in the guidelines as reference. The TSEL for e.g. C 172 take-off and landing is 155,6 dB and 154,6 dB respectively. This is the actual immission noise dose to the surroundings.

Noise Approval
The approval for aerodromes is based on the common Danish rules for max. industrial noise exposure for different type of living areas. The surroundings of an aerodrome is often regarded as residential areas and noise sensitive buildings.

The max. limit for equivalent continuous noise is 45 dB(A) for private aerodromes and 50 dB(A) for public aerodromes regarded as being of regional importance. The authorising political body (County Council) will normally accept few individual residential houses (say up to 20) exposed more than that, but no more than 5 dB extra. The limit issued are for daytime only. At evening, Saturday afternoon and Sunday the limit is 5 dB lower. At night it is 10 dB lower.

Instead of registration of equivalent noise level at the different day - evening - night periods separately, the procedure is laid down so that operations in evenings etc. are given an additional value of 5 dB and at night 10 dB. Special flying activities, such as UL, school VFR landing exercises, etc. have an extra 5 dB on top of that if not performed in daytime on working days.

Period:			Correction values: Normal Activities	Correction values: Special Activities
Monday	Day	07-19	0 dB	0 dB
to	Evening	19-22	+5 dB	+10 dB
Friday	Night	22-07	+10 dB	+15 dB
Saturday	Day:	07-19	0 dB	+ 5 dB
and	Evening	19-22	+5 dB	+ 10 dB
Sunday	Night	22-07	+10 dB	+ 15 dB

Table 1: The DENL method for corrections according to weekdays and time. Special activities is: parachute drop, UL flying, sight-seeing flights, aerobatics close to airfield and VFR landing exercises connected to school flight (- after Danish EPA Rec. 5/1994).

TDENL values

The TDENL value (Total Day Evening Night Level) is used for operation control and follow up of activities for an aerodrome, and an aerodrome could be given a operation quota of TDENL value as a figure of weighed noise doses/time unit.

Reference operations

For most practical considerations it is more convenient to use a linear calculation model, rather than the logarithmic model expressed in decibel. We have defined a reference operation (ReOp) as the weighed noise dose of a normal class II (73 dB(A)) operation, average for take-off and landing on working days in the daytime. This means that a C172 operation on working days daytime counts 1 ReOp and if operated at evenings it counts 3,16 ReOp. At night it counts10 ReOp. A special operation e.g. school VFR landing exercises at night counts 31,6 ReOp for a C 172 and 100 ReOp if a class III aircraft e.g. a BE 35 is used.

Noise approval of an aerodrome

In the approval, it is stated that the operator should register the activity and calculate the noise immission to the surroundings. According to planning and operation, a budget is issued and calculated noise exposure contours for the sum of weighed (see table) noise dose. Contours for 45, 50, 55, and 60 dB(A) should be given.

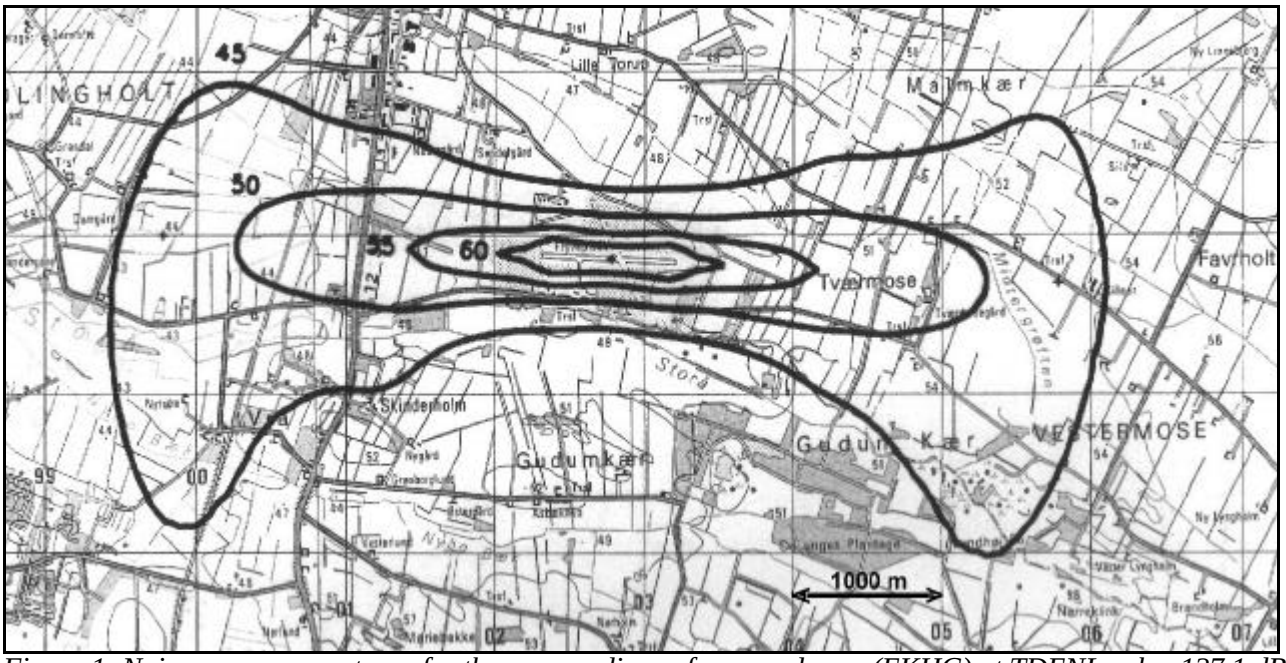

Figure 1: Noise exposure contours for the surroundings of an aerodrome (EKHG) at TDENL value 127,1 dB or 50.000 ReOp/year (- thanks to DELTA Acoustics & Vibrations). Five residential houses is inside the 50 dB(A) contour.

Registration of activities
According to my experience two methods seems practical:

a) Manual registration of aerodrome activity on paper journal and subsequently counting different operation types, classes, weekday, time, etc. manually for monthly calculation in a computer spreadsheet (e.g. MS Excel) of the TDENL values etc. and presentation to the yearly environmental report (*AGRARTEKNIK*).

b) Electronic aerodrome journal registration and running calculation of operations including weighed noise dose summation re. class, working days-weekend, D-E-N and special activities (MS Navision + *AGRARTEKNIK* programme modification).

Experience during six years of operation
The noise immission to the surroundings of an aerodrome is never realistically demonstrated and it is considerably overestimated for the following reasons:

a) During climb (full throttle, best R/C) fixed prop aircraft will not reach the max. rpm as stated in the certification procedure chapter 6. Typical values is 200 rpm lower and the rpm noise response is approximately 1,1 dB/100 rpm according to own measurement on cabin noise, but slightly affected also by the power load at same rpm. **Conclusion ~2 dB +**.

b) Typical landing under VFR conditions engine is idle or slightly power on. Approximately 1000 rpm below max. level flight rpm could be an estimate. **Conclusion ~10 dB +**.

c) TAS different from 80 kt should be taken into account. A reduction for the heavy noise classes III and VI, could be estimated to 100 – 120 kt respectively. Noise classes UL and I should be calculated to 40 – 60 kt. **Conclusion ~1 to 2 dB + and ~1 to 3 dB –**.

d) High performance aircraft is set too high, they should be reevaluated according to the better than 80 kt and 800 ft/min climbing. E.g.1600 ft/min will reduce noise dose 50 %. **Conclusion ~3 dB +**.

e) The 5 dB + for special activities such as UL flight, parachute drop, VFR landing exercise for school flight, etc. is not clear and should be deleted. **Conclusion ~5 dB +**.

f) If the reference operation idea is accepted, the ReOp could be obtained using a simple table, comparable with a pricelist, and adding as simple linear value giving the total weighed noise dose for a given period of time.

Summary

- My experience from GA activities and small/medium size aerodromes is that the noise dose exposure is overestimated 5–10 dB in total, or a factor 3 – 10 times to high.

- The noise dose should be calculated on the basis of noise source definitions in the chapter 10 procedure, corrected for microphone and noise reflector position to if it were 1,2 m above the ground as in chapter 6. According to Dr. Per V. Brüel's measurements this is about 6 dB –.

- Obtaining expert noise analysis and reports to the approving authorities is complicated and expensive. 100.000 –500.000 DKK (14.000 – 70.000 EUR) even for small grass airfields is not unusual.

- Complicated, time consuming and expensive recording of operations. ReOp calculations give simple liniar calculations.