

Parabolic Flight Medical Document

NOVSPACE



Ref.: DM-2009-1-en
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Following personnel work on the issuance of the present document:



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MEDICAL REQUIREMENTS FOR PARABOLIC FLIGHTS

Parabolic flights in the A300 ZERO-G require being in good health because the flights last between 3 to 5 hours and the human body will undergo several variations in g-acceleration. A typical parabolic flight consists of 31 parabolas. During each parabola, the candidate will undergo 20 seconds of hyper gravity of up to 1.8g, followed by 20 to 30 seconds of microgravity, then another 20 seconds of hyper gravity (1.8g).

In order to prevent health accidents, and moreover to avoid flight interruption due to medical issues, it is mandatory that parabolic flight candidates undergo a specific medical examination.

1. FLIGHT MEDICAL EXAMINATION

The medical examination for parabolic flight aptitude is similar to a standard aviation medical examination for private pilot aptitude (**JAR FCL3 Class 2 medical examination**).

In addition, people over 65 years of age are requested to have a normal exercise electrocardiogram obtained within 2 years of the parabolic flight campaign.

This physical is valid for 2 years for people who are under the age of 40 and is valid for 1 year for people who are 40 and over. Please note that these time limits are specific to parabolic flights and are not in line with JAR requirements.

2. AUTHORIZED MEDICAL EXAMINER

The medical examination must be performed either by a(n):

- Medical Examiner or an Aeronautical Medical Centre authorized by their National Civil Aviation Authority.
- Active Air Force Aeronautical medical Examiner, holder of the Certificate of Aeronautical Medicine

Please bring this document to your medical examiner or send it well ahead of the medical examination date. Your medical examiner will find a description of the specific details pertaining to parabolic flights and their requirements in the document.

A list of aeronautical medical examiners should be available at your local aviation authority. For medical examiners in France, please check the following link:

http://www.aviation-civile.gouv.fr/html/avia_leg/MEDECINS%20AGREES.pdf.

Note:

Participants having claustrophobia or who have never flown in a commercial aircraft are urged to mention it to their medical doctor when taking the parabolic flight medical exam.

3. MEDICAL DOCUMENTS

At the end of the examination, you should be in possession of the following documents (completed in English only):

- *Parabolic flight medical certificate* (Form 1)
This document should be filled in and signed by the medical doctor.
- *Application Form for a medical certificate* (Form 2)
To be completed by the applicant and signed by both the applicant and the examiner.
- *Medical examination report* (Form 3)
To be completed and signed by the examiner.
- All the medical exams required by the examiner during the examination (including ECG and the exercise ECG when necessary).

4. SENDING THE MEDICAL DOCUMENTS

At the end of the medical examination, the medical doctor will either:

- 1) Deem you fit
- 2) Deem you unfit or,
- 3) Request the *Parabolic Flight Medical Commission* to take the final decision on your fitness to fly.

Regardless of the medical decision, please **return the Parabolic Flight Medical Certificate** at least **8 weeks** before the first flight of the flight campaign to the following address:

NOVSPACE
Anne-Clotilde Duchesne
15 rue des Halles
75001 Paris
France

If the medical examiner requires the support of the Parabolic Flight Medical Commission, the following procedure applies:

A copy of all medical documents must be sent to the Medical Commission **8 weeks** before the first flight of the flight campaign, according to the procedure described hereafter. It is important that you follow this procedure in order to ensure medical confidentiality.

Place a copy of the medical examination report into a C5 envelope (162mm x 229mm) and write the following comments on the outside:

- a. "Confidential Medical Information",
- b. your full name and a phone number where you can be reached during the day,
- c. the name and phone number of your medical examiner,
- d. the reference of the parabolic flight campaign number and agency (example: VP66/ESA).

Place this envelope and a copy of the Parabolic Flight Medical Certificate into a second envelope and post it to the following address:

CHU Caen
Pr. Pierre Denise – Parabolic Flight Medical Commission
BP 95182
14033 Caen CEDEX 9
France

Note 1: Please keep a copy of all your medical documents as they are not archived.

Note 2: Documents sent by fax or email will not be reviewed since this does not ensure medical confidentiality.

Parabolic flight medical approval process

8 weeks before the flight campaign, the Medical Commission will review candidates' medical documents and will give the final medical approval for parabolic flight. As such, this Medical Commission may ask for further medical investigations or decide that a person is not fit for parabolic flight.

Please note that no medical files received after the previously mentioned deadline will be reviewed. Hence, for any medical file received after the deadline, the person will be declared unfit for the current parabolic flight campaign.

Just before the flight

You will have to confirm that your medical status has not changed (e.g. you have not contracted a disease or you have not had an accident) since you underwent the medical examination. Otherwise, you will have to inform the flight surgeon who might decide that you are no longer allowed to fly.

5. SPECIAL CASE FOR PILOTS

If you hold a valid airplane pilot license (PPL, CPL, MPL, ATPL) just send a copy of your license and of your medical certificate (class 1 or 2) to Novespace:

**NOVSPACE
Anne-Clotilde Duchesne
15 rue des Halles
75001 Paris
France**

Important: note that the *Parabolic Flight Medical Certificate* is valid for 2 years if you are less than 40 years old and 1 year if you are 40 and over. Accordingly, for parabolic flight the same time limits will apply to your class 1 or class 2 medical certificate, even if it has a longer duration of validity.

Moreover, people over 65 are requested to have normal results on an exercise electrocardiogram performed within 2 years of the parabolic flight campaign. In this case you must:

Place a copy of the exercise electrocardiogram report into a C5 envelope (162mm x 229mm) and write the following comments on the outside:

- a. "Confidential Medical Information",
- b. your full name and a phone number where you can be reached during the day,
- c. the name and phone number of your medical examiner,
- d. the reference of the parabolic flight campaign number and agency (example: VP66/ESA).

Place this envelope and a copy of the Parabolic Flight Medical Certificate into a second envelope and post it to the following address:

**CHU Caen
Pr. Pierre Denise – Parabolic Flight Medical Commission
BP 95182
14033 Caen CEDEX 9
France**

**DOCUMENTS TO BRING ALONG
AT YOUR MEDICAL VISIT**

Letter to the Authorized Medical Examiner

Dear Doctor,

The bearer of this letter is a candidate for an upcoming Parabolic Flight Experiment onboard the Airbus A300 ZERO-G owned by Novespace. Each candidate has to undergo a medical examination performed by a certified Aviation Medical Examiner. Conditions of weightlessness are reached within the aircraft by following a specific flight path. During one flight, the aircraft usually performs the following maneuver **31 times**: level flight (1g phase) for about 1 min 50 seconds, pull-up (1.8g phase) for about 20 seconds, parabola (microgravity) for about 20 seconds and then pull-out (1.8g phase) for about 20 seconds.

Note that this examination is not an official medical examination for qualifying for a private pilot license (JAR-FCL 3 Class 2), although the forms used for this visit are similar. Parabolic flight experiment participants have no crew responsibilities, thus some medical conditions that disqualify candidates for private pilot aptitude may not disqualify them for parabolic flight aptitude (problems in visual system, color vision, hearing, if they do not prevent the applicant from behaving in an appropriate way in case of emergency). Conversely, **for people over 65, it is requested that they undergo an exercise electrocardiogram to participate in parabolic flight** though it is not mandatory for a Class 2 aptitude because the repetitive gravity changes cause fatigue.

If the candidate does not comply with Class 2 requirements but you are not sure he/she complies with parabolic flight requirements, the *Parabolic Flight Medical Commission* will pronounce the final decision regarding the candidate's medical fitness for flight onboard the A300 ZERO-G based on the specificities of parabolic flights and based on the results you collected during the examination.

Motion sickness is common during parabolic flights. This is why scopolamine (patch, tablet or subcutaneous injection), the single most effective anti motion sickness drug, is offered to participants. Thus, we also request you to certify that the candidate presents or does not present any contraindications to scopolamine.

Note that scopolamine contraindication does not automatically exclude the candidate from obtaining a Parabolic Flight Medical Certificate.

Attached to this letter you will find:

- A Parabolic Flight Medical Certificate – to be completed and signed by the medical examiner.
- An Application Form – to be signed by the applicant and the medical examiner.
- A Medical Examination Report – to be completed and signed by the medical examiner.

Following the medical examination, you should hand over the documents mentioned above to the candidate, as well as all the medical exams required during the examination (including ECG if it is required by the current regulations and an exercise ECG print-out if the candidate is over 65).

Note 1: Please check that all forms are signed and that all the items are completed.

Note 2: People over the age of 65 are requested to have a normal exercise electrocardiogram which was performed within 2 years of the parabolic flight experiment.

If you have any questions or require further information on any aspect of the above, please contact Novespace at +33 5 56 34 05 99 or +33 1 42 33 41 41.

Sincerely,

NOVSPACE team

Parabolic Flight Medical Certificate

I, undersigned, Doctor

Holder of Aeromedical Examiner approval n°

Address

.....

.....

Certify that (Forename and Surname):

Address:

.....

.....

Date of birth:

Place of birth:

Complies with the Physical and Mental requirements for non professional technical flying personnel (with JAR-FCL3 class 2 certification) AND, if over 65 years old, has had a normal exercise test within the last two years.

Does not comply with the Physical and Mental requirements for non professional technical flying personnel

In that case:

Complies with parabolic flight medical requirements (i.e. has problems only in visual system, colour vision or hearing that would disqualify the applicant for a pilot medical certificate but does not constitute a safety hazard, even in case of emergency, for an experiment participant without crew responsibility).

Does not comply with parabolic flight medical requirements

I am not sure that the medical condition rules out the candidate for parabolic flight and I request a medical commission evaluation

Has no medical contraindication to scopolamine

Has a medical contraindication to scopolamine

Place and date:

Authorized Aeromedical Examiner's Signature and Stamp:

APPLICATION FORM FOR A MEDICAL CERTIFICATE

Complete this page fully and in block capitals

MEDICAL IN CONFIDENCE

Surname:	Previous surname(s):	
Forenames:	Date of birth:	Sex Male <input type="checkbox"/> Female <input type="checkbox"/>
		Place and country of birth:
Permanent address: Country Telephone No.:	Postal address (if different) Country: TelephoneNo.:	Occupation (principal)
		Employer

Do you smoke tobacco? Never <input type="checkbox"/> No <input type="checkbox"/> Date stopped: Yes <input type="checkbox"/> state type and amount: Alcohol – state average weekly intake:	Do you currently use any medication? No <input type="checkbox"/> Yes <input type="checkbox"/> State drug, dose, date started and why:
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General and medical history: Have you a history of any of the following? YES or NO (or as indicated) must be ticked after each question. Elaborate YES answers in the remarks section.

Yes		No		Yes		No		Family history of:		Yes		No		
Eye trouble/Eye operation				Frequent or severe headaches				Admission to hospital				Heart disease		
Spectacles and/or contact lenses ever worn				Dizziness or fainting spells				Any other blood tests/disorders				High blood pressure		
				Unconsciousness for any reason				Any other illness or injury				High cholesterol level		
Spectacle prescriptions change since last medical exam.				Neurological disorders; epilepsy, seizure, paralysis, etc				Visit to medical practitioner since last medical exam.				Epilepsy		
												Mental illness		
Allergy or hay fever				Mental disorders of any sort; depression, anxiety, etc.				Refusal for life insurance				Diabetes mellitus		
Asthma or lung disease												Refusal for flying licence		
Heart or vascular trouble				Treatment of alcohol/drug/ Substance abuse				Conviction for a civil, criminal or traffic offence				Allergy/asthma/eczema)		
High or low blood pressure												Inherited disorders		
Kidney stone or blood in urine				Attempted suicide				Medical rejection from or for military service				Glaucoma		
Sugar or albumine in urine				Motion sickness requiring drugs				Award of pension or compensation for injury or illness				Females Only		
Stomach trouble				Malaria or other tropical disease								Gynaecological conditions		
Deafness or ear disorder				Anaemia / Sickle cell trait								Obstetric complications		
Nose, throat or speech disorder				A Positive HIV test								Menstrual problems		
Head injury or concussion				Sexually transmitted disease								Last menstruation date		

Remarks: If previously reported and no change since, so state.

Declaration: I hereby declare that I have carefully considered the statements made above and that to the best of my belief they are complete and correct and that I have not withheld any relevant information or made any misleading statement. I understand that if I have made any false or misleading statement in connection with this application, or fail to release the supporting medical information, the Authority may refuse to grant me a medical certificate or may withdraw any medical certificate granted, without prejudice to any other action applicable under national law. **CONSENT TO RELEASE OF MEDICAL INFORMATION:** I hereby authorise the release of all information contained in this report and any or all attachments to the Aeromedical Examiner, the Authority and where necessary the Aeromedical Section of another State, recognising that these documents or any other electronically stored data are to be used for completion of a medical assessment and will become and remain the property of the Authority, providing that I or my physician may have access to them according to national law. Medical Confidentiality will be respected at all times.

Date
Signature of applicant
Signature of AME (Witness)

MEDICAL EXAMINATION REPORT

Examination Category Initial <input type="checkbox"/> Renew/Reval <input type="checkbox"/> Extended <input type="checkbox"/>	Height cm	Weight kg	Eye Colour	Hair Colour	Blood Pressure – seated		Pulse – resting	
					Systolic	Diastolic	Rate	Rhythm

Clinical examination: Check each item		Normal	Abnormal	Normal	Abnormal
Head, face, neck, scalp				Abdomen, hernia, liver, spleen	
Mouth, throat, teeth				Anus, rectum	
Nose, sinuses				Genito-urinary system	
Ears, drums, eardrum motility				Endocrine system	
Eyes – orbit & adnexa; visual fields				Upper & lower limbs, joints	
Eyes – pupile and optic fundi				Spine, other musculoskeletal	
Eyes – ocular motility; nystagmus				Neurologic – reflexes, etc.	
Lungs, chest, breasts				Psychiatric	
Heart				Skin, identifying marks and lymphatics	
Vascular system				General systemic	

Notes: Describe every abnormal finding. Enter applicable item number before each comment.

Visual acuity

Distant vision at 5m /6m		Spectacles Contact lenses			
Right eye	Corrected to				
Left eye	Corrected to				
Both eyes	Corrected to				
Intermediate vision		Uncorrected		Corrected	
N14 at 100 cm	Yes	No	Yes	No	
Right eye					
Left eye					
Both eyes					
Near vision		Uncorrected		Corrected	
N5 at 30-50 cm	Yes	No	Yes	No	
Right eye					
Left eye					
Both eyes					

Pulmonary function		Haemoglobin	
Peak Expiratory Flow	l/min	g/dl	
Normal <input type="checkbox"/>	Abnormal <input type="checkbox"/>	Normal <input type="checkbox"/>	Abnormal <input type="checkbox"/>
Accompanying Reports		Not performed	Normal
ECG			
Audiogram			
Ophthalmology			
OPL (ENT)			
Chest X-ray			
Blood lipids			
Pulmonary function			
EEG			
Other (No)			

Spectacles	Contact lenses
Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Type:	Type:

Hearing	Right ear	Left ear
Conversational voice test at 2 m back turned to examiner	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>

Urinalysis Normal <input type="checkbox"/> Abnormal <input type="checkbox"/>			
Glucose	Protein	Blood	Other

Comments, restrictions, limitations:

Medical examiner's declaration:

I hereby certify that I/my AME group have personally examined the applicant named on this medical examination report and that this report with any attachment embodies my findings completely and correctly.

Place and date:	Examiner's Name and Address:(Block Capitals)	AME Stamp with AME No.:
Authorised Medical Examiner's Signature:	Telephone No.:	
	Telefax No.:	