



# Advantages of Simulators (FSTDs) in Helicopter Flight Training

FOR HELICOPTER PILOTS AND INSTRUCTORS

TRAINING LEAFLET



**HE 6**





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## INTRODUCTION

Crew training and instructional aspects have been identified in the report by the European Helicopter Safety Team “EHEST Analysis of 2000-2005 Accidents” as one of the top categories for Intervention Recommendations (recommended means to fix the safety issues identified in the analysis).

Flight Simulator Training Devices (FSTDs) are without doubt great tools to significantly improve the training benefits and efficiencies with the various capabilities and specific benefits they bring such as:

- Safety
- Extended training scope compared to actual helicopters
- Special manoeuvres training capability
- 24 hour availability, all weather conditions

- Progressive and pedagogical learning
- High availability (> 96% field proven)
- Cost-effectiveness
- Environmentally-friendly

The purpose of this leaflet is to highlight the various helicopter flight simulation training devices available and to also review the additional training and safety benefits related to recent technological and regulatory developments.

EASA Part FCL Appendix 9 states that examiners shall make full use of FSTDs where available.

Note that the time reference for all regulatory references, material and tables used in this Leaflet is May 2013.



# 1. TYPES OF FLIGHT SIMULATION TRAINING DEVICES (FSTDs)

The different types of helicopter flight simulation training devices are defined in the EASA CS-FSTD (H) (Certification Specification for Flight Simulation Training Device). The definitions encompassed in this specification include the technical minimum requirements/standards for each level of qualification (or type) and the acceptable means of compliance to demonstrate compliance with the defined standards.

Note: For the same type name, the definition included in the EASA regulation may differ from that included in the FAA regulation, because currently these two regulation standards are not fully harmonised.

The following FSTD qualification levels are defined in the CS-FSTD (H):

1. FNPT I, II, III (Flight and Navigational Procedures Trainer)
2. FTD 1, 2, 3 (Flight Training Device)
3. FFS A, B, C, D (Full Flight Simulator)

Note: The training conducted must be adapted to the FSTD used in order to reduce the chances of possible negative training issues.

## 1.1 FNPT – Flight and Navigation Procedures Trainer.

This is the first qualification level defined in the EASA regulation. The main technical features and training capabilities are presented in Figure 1.

<b>Main Training Value</b>	<ul style="list-style-type: none"> <li>✓ Ab-Initio</li> <li>✓ Procedures Training</li> <li>✓ Instrument Training</li> <li>✓ Navigation</li> <li>✓ Safety Exercises</li> <li>✓ Multi-Crew Cooperation (MCC) with specific features</li> </ul>
<b>Training Credits (EASA)</b>	<ul style="list-style-type: none"> <li>✓ Up to 30% ab-initio flight hours (ATPL integrated)</li> </ul>
<b>Checking</b>	<ul style="list-style-type: none"> <li>✓ Operator Recurrent (limited)</li> <li>✓ MCC (if MCC qualified)</li> </ul>
<b>Main Technical Features</b>	Helicopter Models: Generic
<b>(Minimal Qualification Requirements)</b>	Visual System: Yes Field of View up to: 150°(horizontal) x 60°(vertical)
	Vibration System: No Motion System: No



Figure 1 : FNPT Main Features

This generic system is a very cost effective solution and a different training syllabus may be used for ab-initio, Multi Crew Cooperation (MCC) and procedural navigation training towards the instrument rating. This may be also a very efficient tool to demonstrate safety procedures and good practises such as the ones highlighted in the HE1 Training Leaflet<sup>1</sup>. The qualification level ranges from I (without visual and motion system) to II and III (with visual reference system).

<sup>1</sup> Document ref.: Training Leaflet HE1 - Safety Considerations, Methods to Improve Helicopter Pilot's Capabilities

### 1.2 FTD – Flight Training Device

In addition to the FNPT definition, this FSTD features helicopter type specific simulation models, which bring the capability to perform type rating training. This type of FSTD has a limited checking/testing capability due to the fact that it does not include a motion system or a vibration system. The main technical features and training capabilities are presented in Figure 2. There are three levels of FTD qualification (1, 2, and 3); however, there are limited training credits available for level 1 FTDs. The main application of the FTD (level 2 and 3) is type rating training. An FTD 2/3 can also be used for Instrument Rating (IR) revalidation (Part FCL.625 H IR).

<b>Main Training Value</b>	<ul style="list-style-type: none"> <li>✓ Type Rating Training</li> <li>✓ Procedures</li> <li>✓ Recurrent Training</li> <li>✓ Ab-Initio</li> <li>✓ Safety Exercises</li> <li>✓ Multi-Crew Cooperation (MCC) – Depending on Type of Helicopter simulated</li> </ul>
<b>Training Credits (EASA)</b>	<ul style="list-style-type: none"> <li>✓ Up to 67% type rating flight hours</li> <li>✓ Up to 33% ab-initio flight hours</li> </ul>
<b>Checking</b>	<ul style="list-style-type: none"> <li>✓ MCC (if MCC qualified)</li> </ul>
<b>Main Technical Features</b>	Helicopter Models: Type Specific Visual System: Yes
<b>(Minimal Qualification Requirements)</b>	Field of View up to: 150°(horizontal) x 60° (vertical) Vibration System: No Motion System: No



Figure 2 : FTD Main Features

Note: Although FTD 3 features higher quality flight model fidelity, it does not bring any additional training credits as compared with FTD 2.

### 1.3 FFS – Full Flight Simulator

This is the highest level of technical complexity and training capability in the EASA and FAA regulations. In addition to the FTD definition, the FFS provides a vibration and cabin motion capability. The qualification levels range from A to D, although some lower levels are rarely used (level A in particular). The higher qualification levels

bring a very comprehensive training capability to checking and testing.

OPC: Operator Proficiency Check  
 PC: for Proficiency Check  
 LC: for Line Check.

<b>Main Training Value</b>	<ul style="list-style-type: none"> <li>✓ Type Rating Training</li> <li>✓ Recurrent Training</li> <li>✓ Navigation</li> <li>✓ Safety Exercises</li> <li>✓ Multi-Crew Cooperation (MCC) – Depending on Type of Helicopter simulated</li> </ul>
<b>Training Credits (EASA)</b>	<ul style="list-style-type: none"> <li>✓ Up to 83% type rating flight hours</li> <li>✓ Up to 36% ab-initio flight hours</li> </ul>
<b>Checking</b>	<ul style="list-style-type: none"> <li>✓ OPC/PC</li> <li>✓ MCC (if MCC qualified) (No for type Rating Skill check)</li> </ul>
<b>Main Technical Features</b>	Helicopter Models: Type Specific Visual System: Yes Field of View up to: 180°(horizontal) x 60° (vertical) Vibration System: Yes Motion System: Yes
<b>(Minimal Qualification Requirements)</b>	

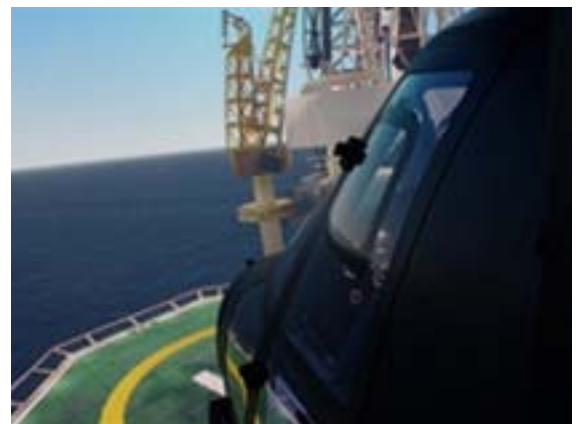


Figure 3 : FFS Main Features



## 2. EASA TRAINING CREDITS

### 2.1 Definition of Training Credits

The value of the training performed using FSTDs is recognised within the EASA regulation (and more widely, internationally) by the ability to replace or complement actual flight training hours by instruction hours on flight training devices. The amount of training hours that may be performed on the FSTD towards the minimum hours required for the issue of a licence, rating or certificate is known as 'Training Credit'.

The total Training Credit allowed is dependent upon the type of FSTD and its qualification level. A summary of these training credits is included in the Acceptable Means of Compliance and Guidance Material to Part-FCL of the AIRCREW regulation<sup>2</sup>:

- AMC2 FCL.725(a) Requirements for the issue of class and type ratings
- GM1 to Appendix 3; Appendix 6; FCL.735.H for dual instruction in helicopter flying training courses.

The tables of training credits included in the AMC and GM to Part-FCL are reproduced in section 2.2 as an example.

Where approved FNPTs can also be used for checking in the CPL skills test Appendix 4 C para 5 for IF items and also Appendix 7 Instrument Rating Section 6 a. Single engine failure.

It is possible that an FNPT could also be used for limited training and checking in an AOCs recurrent training and checking programme e.g TCAS event training. The term FSTD is used throughout in Part Ops thereby opening the door to a multitude of devices.

<sup>2</sup> Acceptable Means of Compliance and Guidance Material to Commission Regulation (EU) No 1178/2011 of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council.





## 2.2 FSTD Training Credits

Note: The applicable training credit must be obtained directly from the current version of the reference regulation Part-FCL.

	Training Requirements				FSTD Training Credits				
	Dual	Solo	SPIC	Total	FS C,D	FTD 2,3	FTD 1	FNPT II, III (MCC)	FNPT I
<b>ATPL(H)/IR Integrated</b>									
Visual, including ME T/R training	75h	15h	40h	130h	30h	25h		20h	
Basic Instrument	10h			10h					
Instrument Rating Training	40h			40h	20h	20h		20h	10h
MCC	15h			15h	15h	15h		15h	
<b>Total</b>	<b>140h</b>	<b>55h</b>		<b>195h</b>	<b>65h</b>	<b>60h</b>		<b>55h</b>	<b>10h</b>
<b>ATPL(H)/VFR Integrated</b>									
Visual, including ME T/R training	75h	15h	40h	130h	30h	25h		20h	
Basic Instrument	10h			10h	5h	5h		5h	5h
MCC / VFR	10h			10h	10h	10h		10h	
<b>Total</b>	<b>95h</b>	<b>55h</b>		<b>150h</b>	<b>45h</b>	<b>40h</b>		<b>35h</b>	<b>5h</b>
<b>CPL(H)/IR Integrated</b>									
Visual, including ME T/R training	75h	15h	40h	130h	30h	25h		20h	
Basic Instrument	10h			10h					
Instrument Rating Training	40h			40h	20h	20h		20h	5h
<b>Total</b>	<b>125h</b>	<b>55h</b>		<b>180h</b>	<b>50h</b>	<b>45h</b>		<b>40h</b>	<b>5h</b>
<b>CPL(H) Integrated</b>									
Visual	75h	15h	35h	125h	30h	25h		20h	
Basic Instrument	10h			10h	5h	5h		5h	5h
<b>Total</b>	<b>85h</b>	<b>50h</b>		<b>135h</b>	<b>35h</b>	<b>30h</b>		<b>25h</b>	<b>5h</b>
<b>CPL(H) Modular</b>									
Visual	20h			20h	5h	5h		5h	
Basic Instrument	10h			10h	5h	5h		5h	5h
<b>Total</b>	<b>30h</b>			<b>30h</b>	<b>10h</b>	<b>10h</b>		<b>10h</b>	<b>5h</b>
<b>PPL(H)</b>									
Visual / Basic Instrument	35h	10h		45h	5h	5h	5h	5h	5h
<b>Total</b>	<b>35h</b>	<b>10h</b>		<b>45h</b>	<b>5h</b>	<b>5h</b>	<b>5h</b>	<b>5h</b>	<b>5h</b>
<b>I/R(H) Modular</b>									
Single Engine	50h			50h	35h	35h		35h	20h
Multi Engine	55h			55h	40h	40h		40h	20h
<b>MCC(H) Modular</b>									
MCC / VFR	15h			15h	15h	15h		15h	
MCC (VFR+IR)	20h			20h	20h	20h		20h	
MCC / IR for MCC Holder	5h			5h	5h	5h		5h	

Source EASA Part-FCL (GM1 to Appendix 3; appendix 6; FCL.735.H)  
See section 4.1 for FSTD training credit for PPL3

Type Rating Initial issue – Minimum Flight Instruction Excluding Skill Test

Helicopter Type	In Helicopter	Helicopter and FSTD Associated Training Credits			
		Total	Helicopter	FS C,D	FTD 2/3
SEP (H)	5h	6h	2h	4h	
		OR			
		6h	4h		2h
SET (H) under 3175 kg MTOM	5h	6h	2h	4h	
		OR			
		6h	4h		2h
SET (H) at or over 3175 kg MTOM	8h	10h	2h	8h	
		OR			
		10h	4h		6h
SPH MET (H) CS and FAR 27 and 29	8h	10h	2h	8h	
		OR			
		10h	4h		6h
MPH	10h	12h	2h	10h	
		OR			
		12h	4h		8h

Additional Types – Minimum Flight Instruction Excluding Skill Test

Helicopter Types	In Helicopter	Helicopter and FSTD Associated Training Credits			
		Total	Helicopter	FS C,D	FTD 2/3
SEP(H) to SEP(H) within AMC1 FCL.740.H (a)(3)	2h	3h	1h	2h	
		OR			
		4h	1h		3h
SEP(H) to SEP(H) not included in AMC1 FCL.740.H (a)(3)	5h	6h	1h	5h	
		OR			
		7h	2h		5h
SET(H) to SET(H)	2h	3h	1h	2h	
		OR			
		4h	1h		3h
MET(H) to MET(H)	3h	4h	1h	3h	
		OR			
		5h	2h		3h

Helicopter Types	In Helicopter	Helicopter and FSTD Associated Training Credits			
		Total	Helicopter	FS C,D	FTD 2/3
MPH to MPH	5h	6h	1h	5h	
		OR			
		7h	2h		5h
Extend privileges on the same type rating from SPH to MPH, or from MPH to SPH	2h	3h	1h	2h	

Source EASA Part-FCL (AMC2 FCL.725(a))

(e) Holders of an IR(H) wishing to extend the IR(H) to further types should have additionally 2 hours flight training on type by sole reference to instruments according to IFR which may be conducted in an FFS C/D or FTD 2/3. Holders of an SE IR(H) wishing to extend the IR privileges to an ME IR(H) for the first time should complete at least 5 hours training.

- SEP: Single Engine Piston
- SET : Single Engine Turbine
- SPH : Single Pilot Helicopter
- MET : Multi Engine Turbine
- MPH : Multi-Pilot Helicopter

These matrices have to be considered as the bare minimum,  
 And additional training could be necessary depending on:

- Complexity of the aircraft type, handling characteristics, level of technology
- Category of helicopter (SEP or SET helicopter, multi-engine turbine and multi Pilot helicopter)
- Previous experience of the applicant
- Operational Evaluation Board reports recommend, in general, additional training for most Helicopter Type ratings.

An FTD can also be used for checking. Examples are FCL 6.25 H Instrument Rating (IR) revalidation in an FTD 2/3. FCL 940 MCCI Renewal and Revalidation.

An FSTD can be used for command course and recurrent training under LOFT conditions. This is where an FSTD becomes an invaluable tool by combing real time events with complex abnormal and emergency conditions. As new technology marches on so does the need for the training requirement to keep pace with ever complex flight displays and associated systems.



## 3. BENEFITS OF FSTD USE

### 3.1 Safety

The first and obvious benefit of using an FSTD for training is the safety of the training operation itself. In the FSTD, the training environment is designed and controlled to avoid any real hazards for the trainees and instructors. In this safe environment a trainee can make mistakes and errors and learn from them, perform and repeat normal and abnormal procedures which may not be considered appropriate or safe when performed in a helicopter. Whilst the benefits of training in an FSTD are well known, it is important that FSTD training does not replace, but rather complements live flight training.

Note: The use of FSTDs is increasingly encouraged by regulatory bodies. EASA Air Operations, AMC1 ORO.FC.230 (Recurrent training and checking) states:

- Where a suitable FSTD is available it should be used for the aircraft/FSTD training programme.

If the operator is able to demonstrate, on the basis of a compliance and risk assessment, that using an aircraft for this training provides equivalent standards of training with safety levels similar to those achieved using an FSTD, the aircraft may be used for this training to the extent necessary.

- The recurrent training should include the following additional items, which should be completed in an FSTD:
  - Settling with power and vortex ring;
  - Loss of Tail rotor Effectiveness (LTE).
- Use of FSTD for recurrent checking: Training and checking provide an opportunity to practice abnormal/emergency procedures that rarely arise in normal operations and should be part of a structured programme of recurrent training. This should be carried out in an FSTD whenever possible.



Where an FSTD of any level is available, all pilots (single and multi-crew), irrespective of experience, should consider the benefits of regular training sessions in order to maintain and further enhance their skills, knowledge and decision making. For those who do not have the means or access to FSTDs, there are numerous proprietary software flight simulation packages available for use on desktop computers. Whilst the use of these also enhances knowledge and flight safety, provided that appropriate behaviours are trained, they cannot replace all the benefits of using an FSTD with a qualified instructor.

### 3.2 Emergency and Procedure Training.

In addition to the normal operations and procedures that can be performed in helicopters, the training program utilising an FSTD offers opportunity to further develop more complex scenarios. For instance, a typical training program approved for the issue of a type rating utilising a helicopter is not suitable for the training of certain emergency procedures on safety grounds whilst no such restrictions apply to FSTDs. In addition to the procedures outlined in the flight manual, the FSTD can be used to practice various flight regimes such as LTE, Vortex Ring, DVE, dynamic roll-over, etc.

### 3.3 Realism in FSTD training

For safety reasons, when performing an abnormal procedure or a failure in the helicopter, the malfunction is simulated either by pretending or by reproducing the effect of the malfunction. For some critical scenarios trained on the helicopter such as engine failure during take-off, the element of surprise is often missing because of safety

considerations (see HE 5 Risk management in Training). This denies the pilot the opportunity to experience failures as they would happen in real life thereby greatly diminishing the diagnostic element of the training exercise. These considerations don't apply when performing this training on an FSTD. This allows the pilot to experience more realistic training which includes a surprise element, the diagnostic process and the ability to learn from errors made in a safe environment. The use of FSTDs offers further benefits to a training organisation, for example:


- No delays due to traffic congestion.
- In flight conditions: VMC /IMC and Day/Night, icing condition, selection as required regardless of the prevailing conditions
- Recognised high average FSTD serviceability (typically around 96-98%).

### 3.4 Economical Benefits

There are economic benefits from using FSTDs in training. The savings made when compared with actual flight time can be quite significant for complex helicopter types in a multi-crew environment. Training in an FSTD is more cost effective. Additionally, whilst training in an FSTD, the helicopter is available to be used for revenue generating flights.

### 3.5 Environmental Benefits

The environmental benefits of using an FSTD in place of a helicopter include lower emissions, a lower carbon footprint, zero noise pollution and minimal impact on the local area particularly during night time.



## 4. TYPES OF TRAINING

### 4.1 Private Pilot Licence (PPL)

The use of FSTDs for PPL training and licensing is still limited (FCL.210.H PPL(H) - Experience requirements and crediting (a) Applicants for a PPL(H) shall have completed at least 45 hours of flight instruction on helicopters, 5 of which may have been completed in an FNPT or FFS). Nevertheless, taking into account that safety analyses regularly point to the General Aviation (GA) sector as being a contributor to the high number of incidents and accidents, the use of appropriate FSTDs should be encouraged for performing specific training, safety manoeuvres and demonstrations. In particular simple FSTDs can be used to perform manoeuvres and teach scenarios as identified in the EHEST Leaflet HE 1 - Safety Considerations.

- Flight in Degraded Visual Environment (DVE)
- Vortex Ring State
- Loss of Tail Rotor Effectiveness (LTE)
- Static & Dynamic Rollover
- Situational Awareness
- Use of checklists
- Cockpit management
- Emergency procedures
- Unexpected weather encounter

### 4.2 Commercial Pilot Licence (CPL) / Airline Transport Pilot Licence (ATPL) and Type Rating Training

The use of FSTDs for CPL / ATPL and initial type rating training is well established. All aspects of CPL / ATPL and type rating training benefit from FSTD credits as illustrated in section 2.2 of this document.

### 4.3 Recurrent Training

The use of an FSTD for recurrent training is a well-established practice among many helicopter operators. All recurrent training and checking such as OPC and even PC may be performed on an FSTD with all the benefits illustrated in this leaflet.

FSTD are perfect for such training as command course and recurrent training under Line Oriented Flight Training (LOFT) conditions. This is where an FSTD becomes an invaluable tool by combining real time events with complex abnormal and emergency conditions. As new technology marches on so does the need for the training requirement to keep pace with ever complex flight displays and associated systems. A number of recent incidents and accidents have indicated that the recognition phase of a complex emergency situation is still poorly handled by many crews, who then go on and apply an incorrect drill or worse put the aircraft into an undesired state.

### 4.4 IR Training

The benefits of using an FSTD for initial IR training have been recognised by the regulators, as evidenced by the large training credits available towards the rating issue. For initial training an ATO would typically use an FNPT. There are also training credits available for other ratings where an element of instrument flying is involved, i.e. PPL, CPL and ATPL / IR. FSTDs are also widely used for recurrent training. The renewal and revalidation of the IR may be carried out in some of the higher level devices. For all these applications an FSTD is a very efficient tool due to its capacity to perform essential training independent of real weather conditions without compromising safety.

#### 4.5 MCC Training

The benefits of using an FSTD for MCC training have been recognised by the regulators, as the entire course must be completed in an FSTD. MCCI renewal and revalidation can be carried out in FNPT II/III MCC or FTD 2/3 or FFS.

#### 4.6 Role Specific Training

Due to the potentially higher risks involved in certain specific roles i.e. off-shore transportation, Search and Rescue (SAR), Helicopter Emergency Medical Services (HEMS) and some Aerial Work applications, the FSTD is an excellent tool that enhances safe training without exposure to the risks involved in these operations. This applies to both initial and recurrent crew training.

In addition, many operators have expanded the use of simulators to include additional operation specific training requirements. These might not be recognised for licensing credits however, the additional training value can result in higher skilled crews and as a consequence safer operations.

It is possible that an FNPT could also be used for limited training and checking in an operator recurrent training and checking programme. The term FSTD is used throughout in EASA Part Ops thereby opening the door to a multitude of devices. Clearly an NAA operations approval will be required, but if a device is “fit for purpose” for specific training roles like TCAS event training, etc., its use should be considered.



## 5. ADDITIONAL NOTES ON FSTD TRAINING

### 5.1 Motion Sickness

FSTD sickness is slightly different from the usual airsickness. The most often reported symptoms are eyestrain, blurred vision, difficulty focusing, and visual flashbacks, with occasional headache and difficulty concentrating. Some pilots, even those who never have any problems during flight, get a little unsteady on their feet following a FSTD training session. Authorities usually recommend that pilots do not fly, or even operate a vehicle, for a period of time after an extended session in an FSTD.

Tips to minimise motion sickness:

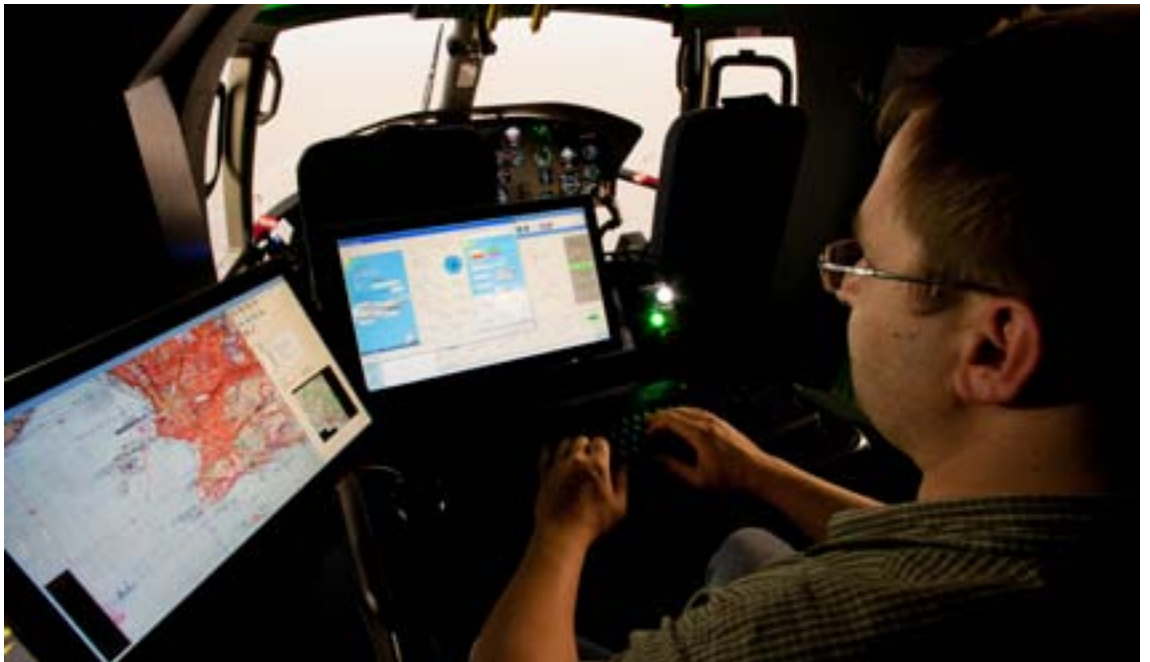
- Avoid FSTD training if you are fatigued or have an upset stomach
- Light refreshments only and maintain hydration
- Ensure adequate ventilation and temperature control

- Avoid abrupt attitude changes
- Maintain balanced flight
- Minimise head movement
- Regular exposure to FSTDs helps adaptation

### 5.2 Good Training practises

In order to maximise the value of an FSTD training session, full and mission orientated pre- and post-flight briefings are essential and should include at least:

- FSTD / Helicopter differences, capabilities and limitations
- Scenario / Lesson preparation
- Training objectives
- A thorough debrief utilising CRM facilitative techniques
- Include Threat and Error Management techniques throughout





## 6. SUMMARY

Flight Simulator Training Devices (FSTDs) are great tools to significantly improve training benefits and efficiency, while avoiding training accidents and the risks involved in helicopter operations.

FSTDs present other advantages such as extended training scope and special manoeuvres training capability, 24 hour availability, all weather conditions, and progressive learning. FSTDs are also cost-effective and environmentally-friendly.

This Leaflet also reviewed these benefits and addressed additional advantages related to technological and regulatory developments, in particular regarding the use of realistic training scenarios where operational aspects can be introduced, such as genuine surprise effects.

However, we have to remember that helicopter regulation today does not allow zero flight time training as the fixed wing regulation does, therefore a minimum number of helicopter flight hours is required for any initial type rating.

The followings subjects were addressed:

- Types of FSTDs: FNPT, FTD, and FFS
- EASA training credits
- Benefits of FSTDs
- Use of FSTDs for various types of training: PPL, CPL/ATPL, Recurrent Training, Instrument Rating (IR) Training, MCC training, and Role Specific Training
- Motion Sickness
- Good training practices



# ACRONYMS, BIBLIOGRAPHY

## Acronyms

<b>AMC</b>	Acceptable Means of Compliance
<b>ATO</b>	Approved Training Organisation
<b>ATPL</b>	Airline Transport Pilot Licence
<b>CPL</b>	Commercial Pilot Licence
<b>EASA</b>	European Aviation Safety Agency
<b>EHEST</b>	European Helicopter Safety Team
<b>FAA</b>	Federal Aviation Administration
<b>FFS</b>	Full Flight Simulator
<b>FNPT</b>	Flight and Navigation Procedures Trainer
<b>FSTD</b>	Flight Simulation Training Device
<b>FTD</b>	Flight Training Device
<b>GM</b>	Guidance Materials
<b>IMC</b>	Instrument Meteorological Conditions
<b>IR</b>	Instrument Rating
<b>LC</b>	Line Check
<b>MCC</b>	Multi-Crew Cooperation
<b>MET</b>	Multi Engine Turbine
<b>MPH</b>	Multi Pilot Helicopter
<b>NAA</b>	National Aviation Authority
<b>OEB</b>	Operational Evaluation Board
<b>OPC</b>	Operator Proficiency Check
<b>PC</b>	Proficiency Check
<b>PPL</b>	Private Pilot Licence
<b>SEP</b>	Single Engine Piston
<b>SET</b>	Single Engine Turbine
<b>SPH</b>	Single-Pilot Helicopter
<b>SRM</b>	Single (Pilot) Resource Management
<b>TCAS</b>	Traffic Collision and Avoidance System
<b>VMC</b>	Visual Meteorological Conditions

## EASA Definitions:

‘Full Flight Simulator’ (FFS) means a full size replica of a specific type or make, model and series aircraft flight deck, including the assemblage of all equipment and computer programmes necessary to

represent the aircraft in ground and flight operations, a visual system providing an out-of-the-flight deck view, and a force cueing motion system.

‘Flight Training Device’ (FTD) means a full size replica of a specific aircraft type’s instruments, equipment, panels and controls in an open flight deck area or an enclosed aircraft flight deck, including the assemblage of equipment and computer software programmes necessary to represent the aircraft in ground and flight conditions to the extent of the systems installed in the device. It does not require a force cueing motion or visual system, except in the case of helicopter FTD levels 2 and 3, where visual systems are required.

‘Flight and Navigation Procedures Trainer’ (FNPT) means a training device which represents the flight deck or cockpit environment, including the assemblage of equipment and computer programmes necessary to represent an aircraft type or class in flight operations to the extent that the systems appear to function as in an aircraft.

## Bibliography

Commission Regulation (EU) No 1178/2011 as amended, laying down technical requirements and administrative procedures related to civil aviation aircrew Acceptable Means of Compliance (AMC) and Guidance Material (GM) to Part-FCL Certification Specification of Helicopter FSTD – CS-FSTD (H)

# IMPRINT

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## Download the previous leaflets:

### EHEST HE 1 Training Leaflet – Safety considerations

[http://easa.europa.eu/essi/ehest/wp-content/uploads/2012/04/HE1\\_Leaflet\\_safety\\_considerations\\_Training-DE.pdf](http://easa.europa.eu/essi/ehest/wp-content/uploads/2012/04/HE1_Leaflet_safety_considerations_Training-DE.pdf)

### EHEST HE 2 Training Leaflet – Helicopter airmanship

[http://easa.europa.eu/essi/ehest/wp-content/uploads/2011/12/HE2\\_leaflet\\_helicopter\\_airmanship\\_v1.pdf](http://easa.europa.eu/essi/ehest/wp-content/uploads/2011/12/HE2_leaflet_helicopter_airmanship_v1.pdf)

### EHEST HE 3 Training Leaflet – Off airfield landing site operations

[http://easa.europa.eu/essi/ehest/wp-content/uploads/2012/01/HE3\\_Off-Airfield-Landing-Site-Operations-v10.pdf](http://easa.europa.eu/essi/ehest/wp-content/uploads/2012/01/HE3_Off-Airfield-Landing-Site-Operations-v10.pdf)

### EHEST HE 4 Training Leaflet – Decision making

[http://easa.europa.eu/essi/ehest/wp-content/uploads/2012/06/HE4\\_Single-Pilot-Decision-Making-v1.pdf](http://easa.europa.eu/essi/ehest/wp-content/uploads/2012/06/HE4_Single-Pilot-Decision-Making-v1.pdf)

### EHEST HE 5 Training Leaflet – Risk Management in Training

[http://easa.europa.eu/essi/ehest/wp-content/uploads/2013/03/HE5\\_Risk-assesment-in-Training.pdf](http://easa.europa.eu/essi/ehest/wp-content/uploads/2013/03/HE5_Risk-assesment-in-Training.pdf)



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