

Introduction to EASA NPA 2020-15

This is a PDF version of the video published at:

<https://www.youtube.com/watch?v=7L3aIFyKL6k>

<https://www.traficom.fi/en/transport/aviation/flight-simulators-and-other-fstds>

Welcome!

You are watching a video prepared by Traficom. The purpose of this video is to give you an introduction to the proposed new regulations that are published by EASA in NPA 2020-15 that can be found at:

<https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2020-15>

The abbreviation NPA stands for Notice of Proposed Amendment. It means a draft of a new regulation that is made public for anyone to comment. EASA reviews all the comments and makes changes to the final rule based on the comments.

It is your benefit to understand the contents of this NPA. Your opinion on this NPA matters. You can send your comments of the NPA by 31 March 2021 at EASA website

<https://hub.easa.europa.eu/crt/>

What is NPA 2020-15 all about?

This NPA proposes a major change to flight training organizations and FSTD operators!

Already currently, the suitability of an FSTD to be used in flight training must be determined. The user of the FSTD is responsible for that work.

But there is no well documented process for that. There are differences between different European countries. We need a better and detailed method for this process.

This NPA provides exactly that.

Why is this change proposed?

Because the current system is not too practical.

Let's consider an imaginary FSTD qualification certificate of an FTD 1 device. Such a device is meant for part of type rating course. The certificate shows a table with this kind of data.

When an approved training organization (ATO) wishes to use this FTD 1 device, it should ensure that the device is suitable for the planned syllabus.

But the certificate raises questions.

Guidance information for training, testing and checking considerations

CAT I	RVR 500 m	DH 200 ft	n/a
CAT II	RVR 300 m	DH 100 ft	n/a
CAT III			n/a
LVTO	RVR 125 m		n/a
Recency			n/a
IFR-training / check			n/a / n/a
Type rating			yes (partially)
Proficiency checks			n/a
Autocoupled approach			yes
Autoland / roll-out guidance			n/a / n/a
ACAS I / II			n/a / yes (partially)
Windshear warning system / PWS			yes (partially) / yes
WX-radar			yes
HUD / HUGS			n/a / n/a
FANS			n/a
GPWS / EGPWS			n/a / yes (partially)
GPS			yes
ETOPS capability			yes

Why is this change proposed?

For example the following questions can be raised:

- Many rows say 'partially'. What exact elements can be trained?
- Why are ETOPS and FANS even listed? Why aren't they replaced with more relevant training topics?
- What is the criteria for 'yes' for each row? Why isn't that published in the regulations?

The current FSTD qualification certificate template does not serve its purpose well. This NPA proposes a major change that will enable easy checking if the FSTD is suitable for the training or not.

Guidance information for training, testing and checking considerations

CAT I	RVR 500 m	DH 200 ft	n/a
CAT II	RVR 300 m	DH 100 ft	n/a
CAT III			n/a
LVTO	RVR 125 m		n/a
Recency			n/a
IFR-training / check			n/a / n/a
Type rating			yes (partially)
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ACAS I / II			n/a / yes (partially)
Windshear warning system / PWS			yes (partially) / yes
WX-radar			yes
HUD / HUGS			n/a / n/a
FANS			n/a
GPWS / EGPWS			n/a / yes (partially)
GPS			yes
ETOPS capability			yes

What would change?

This NPA proposes changes to:

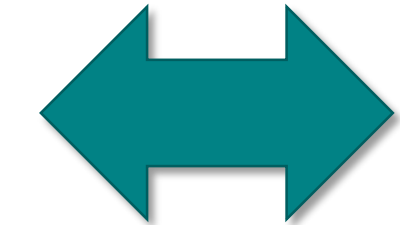
- CS-FSTD(A) - technical requirements for FSTDs
- Part-FCL - requirements on flight training
- Part-ORA - organization requirements
- Part-ARA - authority requirements

The methodology presented in the NPA is based on ICAO Doc 9625 revisions 3 and 4.

Well, what are the main changes then?

Part-FCL Appendix 9 would change to a large table filled with N, G, R and S.
And the FSTD Qualification Certificate would have corresponding elements.

SECTION 1	MULTI-PILOT AEROPLANES AND SINGLE-PILOT HIGH-PERFORMANCE COMPLEX AEROPLANES Manoeuvres/Procedures	Training task classification (If applicable)	Testing and checking (T&C) Training (T)	Flight deck layout and structure	Flight model (aerodynamics and engine)	Ground reaction and handling characteristics	Aeroplane systems	Flight controls and forces	Sound cue	Visual display cue	Motion cue	Environment - ATC	Environment – Navigation	Environment – Atmosphere and weather	Environment – Aerodromes and terrain
1	Flight preparation	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.1	Performance calculation	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.2	Aeroplane external visual inspection; location of each item and purpose of inspection	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.3	Cockpit inspection	-	T&C	S	N	N	S	S	R	S	R	S	S	R	R
1.4	Use of checklist prior to starting engines, starting procedures, radio and navigation equipment check, selection and setting of navigation and communication frequencies	-	T&C	S	S	R	S	R	R	S	R	S	S	R	R
1.5	Taxiing in compliance with ATC instructions or instructions of instructor	-	T&C	S	S	S	S	S	R	S	R	S	S	R	R
1.6	Before take-off checks	-	T&C	S	S	R	S	S	R	S	R	S	S	R	R



This NPA makes the training requirement (Appendix 9 on the left) and FSTD Qualification Certificate (on the right) match.

FSTD CAPABILITY SIGNATURE (FCS)		
H.	FSTD FEATURE	
1.	Flight deck layout and structure	(N/G/R/S)
2.	Flight model	(N/G/R/S)
3.	Ground reaction and handling characteristics	(N/G/R/S)
4.a	Aeroplane systems (fixed wing)	(N/G/R/S)
4.b	Helicopter systems (rotary wing)	(N/G/R/S)
5.	Flight controls and forces	(N/G/R/S)
6.	Sound cue	(N/G/R/S)
7.	Visual display cue	(N/G/R/S)
8.a	Motion cue	(N/G/R/S)
8.b.	Vibration cue (rotary wing)	(N/G/R/S)
9.	Environment — ATC	(N/G/R/S)
10.	Environment — Navigation	(N/G/R/S)
11.	Environment — Atmosphere and weather	(N/G/R/S)
12.a	Environment — Aerodromes and terrain (fixed wing)	(N/G/R/S)
12.b	Environment — Landing areas and terrain (rotary wing)	(N/G/R/S)

Well, what are the main changes then?

The NPA presents a systematic approach on how to determine the technical capabilities of an FSTD. There are 12 different FSTD features. Each feature can have 4 different fidelity levels (N, G, R or S). This list of 12 features and their fidelity levels are presented in the FSTD Qualification Certificate.

An FSTD can be built to fulfill a certain FSTD qualification level (for example FTD level A), or by selecting any combination of fidelity levels.

The training credits are based on the FSTD's capabilities.

The training requirements define what exact features and fidelity levels are needed for each training element.

As a result, this methodology enables an easy check if an FSTD is suitable for the planned training program or not.

Well, what are the main changes then?

The FSTD qualification levels would change. New FSTDs would be qualified in accordance with CS-FSTD(A) issue 3.

The correspondence between new and old **FNPT** qualification levels is presented in GM1 FCL.010. A screen capture is below:

CS-FSTD(A) Issue 3 and later revision(s)	ICAO Doc 9625 FSTD type	Typical usage	CS-FSTD(A) Initial Issue and Issue 2
N/A	N/A		BITD
FNPT Level B	II	Instrument rating	FNPT Level I
FNPT Level A	I	PPL,CPL, MPL Phase 1	FNPT Level II
FNPT Level D	IV	MPL Phase2, MCC	FNPT Level II and MCC
FNPT Level C	III	Class ratings, MCC	
FNPT Level E	VI	MPL Phase 3	N/A

Note to table: This table explains that an operator that operates an FNPT approved in accordance with CS-FSTD(A) Issue 3 (left column) will have the same credit as the FNPTs approved in accordance with CS-FSTD(A) Initial Issue and CS-FSTD(A) Issue 2 as referenced in Commission Regulation (EU) No 1178/2011.

Well, what are the main changes then?

As you correctly noticed, there are more FNPT levels than currently!

Changes to the FSTD qualification levels are:

- FFS level A, B and C would be removed. Only FFS level D remains. (There is no need for other levels, since new devices on those levels have not been manufactured.)
- FTD levels 1 and 2 would be replaced by FTD levels A and B.
- FNPT level I and II (and MCC) would be replaced by FNPT levels A, B, C, D and E.
- BITD concept would be removed.

We will introduce the characteristics of the new FSTD qualification levels later in this video.

Does this really concern everybody?

The NPA presents that only type rating training on aeroplanes would be affected by the new methodology at this stage.

It is easy to conclude, that after implementing this new methodology, at a later stage also other kind of trainings would be managed by using this same methodology. So it is important to understand this concept already now.

Still, all the FSTD Qualification Certificates would be updated. So also aeroplane FNPTs and all helicopter FSTDs would be affected.

Key learning points:

Structure of this training video

This video is split into two columns.

The left hand side column will show a summary of the key learning points. It will serve as a memo of what we have learned.

And this right hand side column will show details for each learning point.

Let's begin.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have

Flexibility

Current system is built around FSTD qualification levels. In the future we wouldn't see those qualification levels so important, since the **features** and their **fidelities** of FSTDs are the information that matters.

The proposed new CS-FSTD(A) still presents FSTD qualification levels, such as FTD B, FFS level D and so on. Note that for example an FTD B can have fidelities higher than the minimum requirement. The fidelities are recognized and the device can be used to a higher extent.

This means that you would have more flexibility to purchase such a device that suits your training needs. The target is that each individual device could be used to its full potential. This could mean more training credits from FSTDs.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S

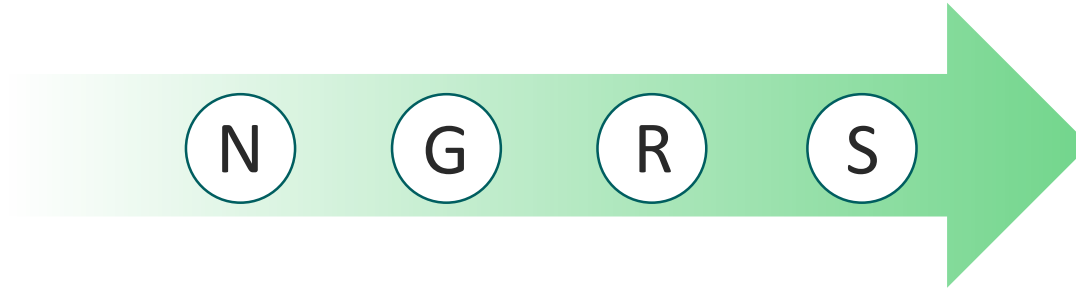
What exactly are N, G, R and S?

All the features of FSTDs can be classified into fidelity levels N, G, R or S. Those levels have clear criteria.

Definitions of levels N, G, R and S are presented in CS-FSTD(A) in a table of paragraph CS FSTD(A).200. Please see that table (in the NPA) for details.

N means that feature is not simulated.

G is the lowest fidelity. S is the highest fidelity.



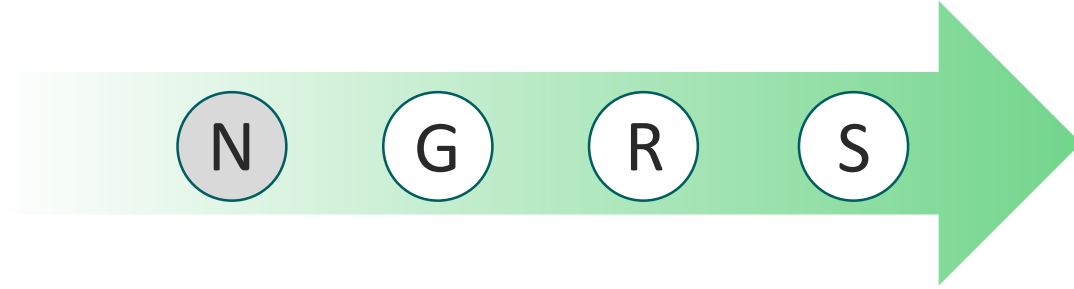
A short summary of the definitions is presented next.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S

What exactly are N, G, R and S?

N - None



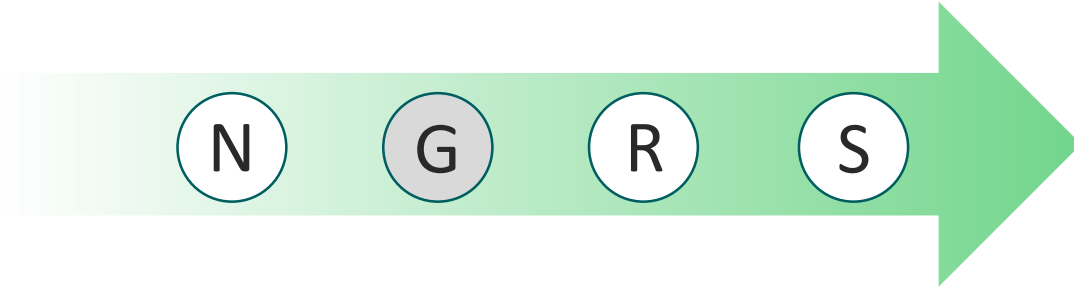
This means that the feature is not simulated, installed or available.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S

What exactly are N, G, R and S?

G - Generic



Not specific to any aeroplane model, type or variant. FSTD is simulating only the key features of a certain aeroplane class.

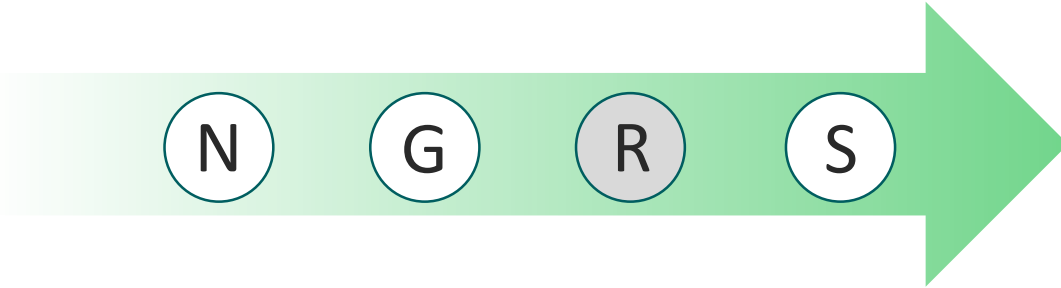
Similarly, for environmental and visual simulation, this fidelity level means simple modeling of basic features only.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S

What exactly are N, G, R and S?

R - Representative



Representative of an aeroplane of its class. It does not have to be type specific.

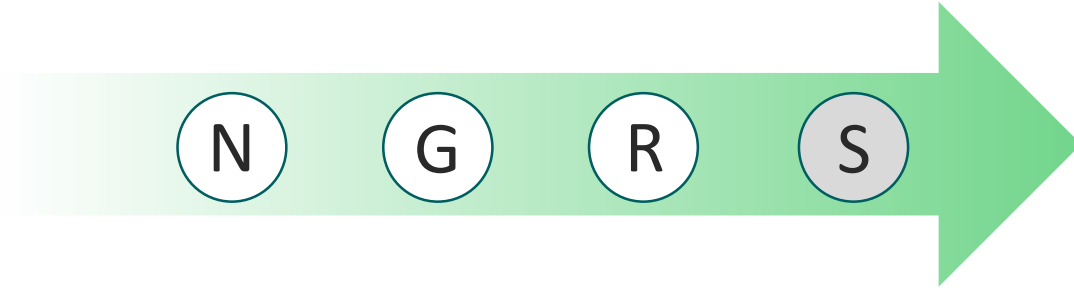
In all aspects, this fidelity level means that the simulation fidelity is higher than generic (G) but lower than specific (S).

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S

What exactly are N, G, R and S?

S - Specific



Replicates the specific aeroplane. Simulation is type specific.
In all aspects, this is the highest simulation fidelity level.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S

What exactly are N, G, R and S?

So the *features* of FSTDs are classified into different *fidelity* levels.

Similarly, the training requirements and training programs tell what fidelity level is required for each training item.

It means that everybody associated with flight training should understand the concept of N, G, R and S.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels

Well, what is FCS then?

FCS stands for 'FSTD capability signature'. It means a list of the 12 different FSTD features and their fidelity levels (N, G, R, S).

FCS is presented in the FSTD Qualification Certificate.

The users of the FSTD can easily use FCS table to check if the fidelity of an FSTD fulfills the training need.

Part-FCL Appendix 9 shows what fidelities are needed for each training task.

Key learning points:

- 1. Flexibility to decide what capabilities the FSTD should have
- 2. Fidelity levels N, G, R, S
- 3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels

Well, what is FCS then?

The FCS would look like this kind of a table:

FSTD CAPABILITY SIGNATURE (FCS)	
FSTD FEATURE	FIDELITY LEVEL
1. Flight deck layout and structure	S
2. Flight model	R
3. Ground reaction and handling characteristics	S
4 Aeroplane systems	S
5. Flight controls and forces	S
6. Sound cue	N
7. Visual display cue	R
8. Motion cue	R
9. Environment — ATC	N
10. Environment — Navigation	N
11. Environment — Atmosphere and weather	N
12. Environment — Aerodromes and terrain	N

Each feature has a fidelity (N/G/R/S) applicable to this FSTD. 21

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels

Well, what is FCS then?

The twelve features of the FCS can be divided as:

- 5 features concerning the aircraft simulation;
- 3 features concerning cueing (i.e. sound, visual and motion);
- 4 features concerning environment simulation.

FSTD CAPABILITY SIGNATURE (FCS)

FSTD FEATURE

1. Flight deck layout and structure
2. Flight model
3. Ground reaction and handling characteristics
4. Aeroplane systems
5. Flight controls and forces
6. Sound cue
7. Visual display cue
8. Motion cue
9. Environment — ATC
10. Environment — Navigation
11. Environment — Atmosphere and weather
12. Environment — Aerodromes and terrain

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels

Well, what is FCS then?

At first, only the type rating training for aeroplanes would be managed through this methodology. But this methodology is likely to be introduced also for other trainings (e.g. instrument rating, etc.) later in the future.

All the FSTD qualification certificates would be changed by adding FCS to them.

So also the FSTD Qualification Certificates of FNPTs and helicopter FSTD would be changed. But the FCS matrix in those certificates would be empty, since this concept is not yet applicable to them.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels

Well, what is FCS then?

A word of caution:

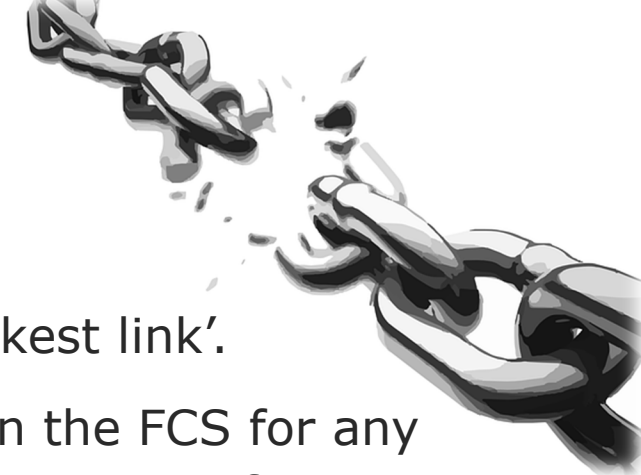
The FCS is based on a principle of a 'weakest link'.

To have the highest fidelity (S, specific) in the FCS for any feature, the FSTD must fulfill **all** the requirements for S.

For example, if the FSTD fulfills almost all the requirements for S for flight model, but for one requirement only R (representative), then the FCS would still say only R for the flight model.

This leads to the fact that the FCS does not really show the full fidelities of the device, but only the 'weakest links' for each feature.

The training credits are based on the FCS, so any additional capabilities above the 'weakest link' do not give more credits.



Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels

Well, what is FCS then?

CS FSTD(A).QB.101 helps us in summarizing the minimum fidelity levels (i.e. minimum FCS) for each FSTD qualification level

			FSTD features											
			Aircraft					Cueing			Environment			
FSTD type	FSTD level	ICAO equivalent type	Flight deck layout and structure	Flight model (aero and engine)	Ground handling	Aeroplane systems	Flight controls and forces	Sound cues	Visual cues	Motion cues	Environment — ATC (*)	Environment — Navigation	Environment — Atmosphere and weather	Environment — Aerodromes and terrain
FFS	D	VII	S	S	S	S	S	S	S	S	S	S	R	R
FTD	B	V	S	S	S	S	S	R	R	N	G	S	R	R
	A	N/A	G	R	G	S	G	G	N	N	N	S	G	N
FNPT	E	VI	R	R	R	R	R	R	S	R	S	S	R	R
	D	IV	R	G	G	R	G	G	G	N	G	S	G	R
	C	III	R	R	R	R	R	G	R	N	N	S	G	G
	B	II	G	G	G	R	G	G	G	N	G	S	G	G
	A	I	R	R	R	R	R	G	R	N	N	S	G	R
			FSTD feature fidelity levels											

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels

Well, what is FCS then?

A few notes to be made:

Systems of FTDs are type specific (S), as they are also currently. FNPTs have representative (R) and generic (G) characteristics. FNPT level E has a motion system and good visual system.

		FSTD features												
		Aircraft						Cueing			Environment			
FSTD type	FSTD level	ICAO equivalent type	Flight deck layout and structure	Flight model (aero and engine)	Ground handling	Aeroplane systems	Flight controls and forces	Sound cues	Visual cues	Motion cues	Environment — ATC (*)	Environment — Navigation	Environment — Atmosphere and weather	Environment — Aerodromes and terrain
FFS	D	VII	S	S	S	S	S	S	S	S	S	S	R	R
FTD	B	V	S	S	S	S	S	R	R	N	G	S	R	R
	A	N/A	G	R	G	S	G	G	N	N	N	S	G	N
FNPT	E	VI	R	R	R	R	R	R	S	R	S	S	R	R
	D	IV	R	G	G	R	G	G	G	N	G	S	G	R
	C	III	R	R	R	R	R	G	R	N	N	S	G	G
	B	II	G	G	G	R	G	G	G	N	G	S	G	G
	A	I	R	R	R	R	R	G	R	N	N	S	G	R
		FSTD feature fidelity levels												

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels

Well, what is FCS then?

FFS and **FTD** are meant for type rating training.

Let's compare **FNPTs** with GM1 FCL.010 matrix:

CS-FSTD(A) Issue 3 and later revision(s)	Typical usage
FNPT Level B	Instrument rating
FNPT Level A	PPL, CPL, MPL Phase 1
FNPT Level D	MPL Phase2, MCC
FNPT Level C	Class ratings, MCC
FNPT Level E	MPL Phase 3

It is easy to see how different training tasks require different fidelities, i.e. different FCS.

For example, MPL Phase 3 requires higher fidelities than instrument rating training.

		FSTD features												
		Aircraft						Cueing			Environment			
FSTD type	FSTD level	ICAO equivalent type	Flight deck layout and structure	Flight model (aero and engine)	Ground handling	Aeroplane systems	Flight controls and forces	Sound cues	Visual cues	Motion cues	Environment — ATC (*)	Environment — Navigation	Environment — Atmosphere and weather	Environment — Aerodromes and terrain
FFS	D	VII	S	S	S	S	S	S	S	S	S	S	R	R
FTD	B	V	S	S	S	S	S	R	R	N	G	S	R	R
	A	N/A	G	R	G	S	G	G	N	N	N	S	G	N
FNPT	E	VI	R	R	R	R	R	R	S	R	S	S	R	R
	D	IV	R	G	G	R	G	G	G	N	G	S	G	R
	C	III	R	R	R	R	R	G	R	N	N	S	G	G
	B	II	G	G	G	R	G	G	G	N	G	S	G	G
	A	I	R	R	R	R	R	G	R	N	N	S	G	R
		FSTD feature fidelity levels												

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS

Part-FCL Appendix 9

The required FSTD fidelities for each training task are presented in Part-FCL Appendix 9.

Next you will see how easy and straightforward this process becomes!

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS

Part-FCL Appendix 9

Appendix 9 shows a long table including all the training tasks related to type training. Basics of its structure:

	Manoeuvres / Procedures	Training task classification (If applicable)	Testing and checking (T&C) Training (T)	Flight deck layout and structure	Flight model	Ground reaction and handling characteristics	Aeroplane systems	Flight controls and forces	Sound cue	Visual display cue	Motion cue	Environment — ATC	Environment — Navigation	Environment — Atmosphere and weather	Environment — Aerodromes and terrain
1.6	Before take-off checks	-	T&C	S	S	R	S	S	R	S	R	S	S	R	R
		-	T	S	R	R	S	R	R	R	N	G	S	R	R

Note that these columns are the same as in the FCS table in the FSTD Qualification Certificate!

Key learning points:

- 1. Flexibility to decide what capabilities the FSTD should have
- 2. Fidelity levels N, G, R, S
- 3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
- 4. Training need defines the required FCS

Part-FCL Appendix 9

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1.6	Before take-off checks	-	T&C	S	S	R	S	S	R	S	R	S	S	R	R
		-	T	S	R	R	S	R	R	R	N	G	S	R	R

Note that training (**T**) requires different FSTD fidelities than testing and checking (**T&C**).

Key learning points:

- 1. Flexibility to decide what capabilities the FSTD should have
- 2. Fidelity levels N, G, R, S
- 3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
- 4. Training need defines the required FCS

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1.6	Before take-off checks	-	T&C	S	S	R	S	S	R	S	R	S	S	R	R
		-	T	S	R	R	S	R	R	R	N	G	S	R	R

Training can be given with lower fidelities (often without motion) than what is required for testing and checking.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS

Part-FCL Appendix 9

An example of upset recovery training in Appendix 9.
A specific (S) flight model is required also for training.

	Manoeuvres / Procedures	Training task classification (If applicable)	Testing and checking (T&C) Training (T)	Flight deck layout and structure	Flight model	Ground reaction and handling characteristics	Aeroplane systems	Flight controls and forces	Sound cue	Visual display cue	Motion cue	Environment — ATC	Environment — Navigation	Environment — Atmosphere and weather	Environment — Aerodromes and terrain
3.7	Recovery from stall event	-	T&C	S	S	N	S	S	R	R	R	S	S	R	R
		-	T	S	S	N	S	S	G	R	N	N	N	N	N

Hardly any current FTD device would fulfill this.
But an FTD can be updated to fulfill this fidelity level.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS

Part-FCL Appendix 9

An example of upset recovery training in Appendix 9.
But note that motion is not required for training.

	Manoeuvres / Procedures														
		Training task classification (If applicable)	Testing and checking (T&C) Training (T)	Flight deck layout and structure	Flight model	Ground reaction and handling characteristics	Aeroplane systems	Flight controls and forces	Sound cue	Visual display cue	Motion cue	Environment — ATC	Environment — Navigation	Environment — Atmosphere and weather	Environment — Aerodromes and terrain
3.7	Recovery from stall event	-	T&C	S	S	N	S	S	R	R	R	S	S	R	R
		-	T	S	S	N	S	S	G	R	N	N	N	N	N

Motion is required for testing and checking.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS

Part-FCL Appendix 9

See the whole Appendix 9 training matrix in the NPA in AMC3 to Appendix 9.

Because there are different requirements for training (T) and for testing and checking (T&C), it is for example natural to select a 'low end device' for training purposes and perform the testing and checking in a full flight simulator (FFS).

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS

Part-FCL Appendix 9

The training need defines the required FCS.

The training requirement (Appendix 9) and the FSTD Qualification Certificate correspond to each other perfectly.

It will be easy and simple to check if the FSTD is suitable for the planned training or not.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests

FSTD requirements

The NPA presents a draft of CS-FSTD(A) issue 3. It presents detailed information on how to fulfill requirements for fidelities G, R and S for all the features.

The main tables to study are:

- **CS FSTD(A).QB.110** - FSTD general requirements for feature fidelity levels
- **CS FSTD(A).QB.115** - General technical requirements for FSTD qualification levels
- **CS FSTD(A).FST.105** - Table of function and subjective tests
- **CS FSTD(A).QTG.105** - Table of FSTD validation tests versus feature fidelity levels

Let's look at these tables.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests

CS FSTD(A).QB.110 - General requirements

A screen capture from the NPA:

FEATURE GENERAL REQUIREMENTS		FEATURE FIDELITY LEVEL		
		G	R	S
1.	FLIGHT DECK LAYOUT AND STRUCTURE			
1.S	An enclosed full-scale replica of the aeroplane flight deck, which will have fully functional controls, instruments and switches to support the intended use. Anything not required to be accessed by the flight crew during normal, abnormal, emergency and, where applicable, non-normal operations, does not need to be functional.			✓
1.R	An enclosed or perceived to be enclosed flight deck, excluding distraction, which will represent that of the aeroplane derived from, and appropriate to class, to support the intended use.		✓	
1.G	An open, enclosed or perceived to be enclosed, flight deck, excluding distraction, which will represent that of the aeroplane derived from, and appropriate to class, to support the intended use.	✓		

The table presents requirements for each fidelity level. That makes it easy to read it.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests

CS FSTD(A).QB.115 - Qualification levels

This CS gives general technical information for FSTD qualification levels. A screen capture from the NPA:

Table 2: General technical requirements for FTD Level A	
This level of FTD is intended to support aircraft systems operations and procedures training.	
<u>Flight deck layout and structure = (G)</u>	
An open, enclosed or perceived to be enclosed, flight deck, excluding distraction, which will represent that of the aeroplane derived from, and appropriate to class, to support the intended use.	
<u>Flight model (aero and engine) = (R)</u>	
Aerodynamic, engine and ground effect modelling, aeroplane-like, derived from and appropriate to class to support the intended use. Flight dynamics model that accounts for various combinations of drag and thrust normally encountered in flight corresponding to actual flight conditions, including the effect of change in aeroplane attitude, sideslip, thrust, drag, altitude, temperature.	
<u>Ground reaction and handling characteristics = (G)</u>	
Represents ground reaction, aeroplane-like, derived from and appropriate to class. Simple aeroplane-like ground reactions, appropriate to the aeroplane geometry and mass.	
<u>Aeroplane systems = (S)</u>	
Aeroplane systems should be replicated with sufficient functionality for flight crew operation to support the intended use. System functionality should enable all normal, abnormal, and emergency operating procedures to be accomplished. To include communications, navigation, caution and warning equipment corresponding to the aeroplane. Circuit breakers required for operations should be functional.	

The rows are the same rows as in the FCS. Simple!

The tables give summaries and what fidelity levels to expect for FFS, FTD or FNPT. Very simple!

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests

CS FSTD(A).FST.105 - Function and subjective tests

The process for function and subjective tests will get a little more complicated compared to the current situation.

The targeted FCS defines what function and subjective tests are applicable for the FSTD in question. So each individual FSTD may have a slightly different list of applicable function and subjective tests.

Therefore, a readymade list can't exist and the operator must define the exact and applicable list. The authority will review that list.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests

CS FSTD(A).FST.105 - Function and subjective tests

The operator defines the applicable tests by selecting them from the list in CS FSTD(A).FST.105:

Number	TABLE OF FUNCTION AND SUBJECTIVE TESTS	APPLICABILITY	RESULT
1	PREPARATION FOR FLIGHT		
1.a	Pre-flight: Accomplish a functions check of all switches, indicators, systems and equipment at all crew members' and instructors' stations and determine that:		
1.a.1	The flight deck design and functions are identical to those of the aeroplane simulated.		
1.a.2	The flight deck design and functions represent those of the simulated class of aeroplane.		
1.a.3	The flight deck design and functions are aeroplane-like and generic but recognisable as within a class of aeroplane.		

Tests are then performed and results recorded.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests

CS FSTD(A).QTG.105 - Table of FSTD validation tests

The required QTG tests and their tolerances depend on the fidelity levels:

TESTS		TOLERANCE	FLIGHT CONDITIONS	FEATURE FIDELITY LEVEL			RELEVANT FEATURES
				G	R	S	
1.f	ENGINES						
1.f.1	Acceleration	$\pm 10 \% T_i$ or ± 0.25 s and $\pm 10 \% T_t$ or ± 0.25 s	Approach or landing			✓	FLT SYS FCF
		For fidelity level R: $\pm 10 \% T_i$ or ± 1 s and $\pm 10 \% T_t$ or ± 1 s			✓		FLT SYS FCF
		For fidelity level G: $\pm 10 \% T_i$ or ± 1 s and $\pm 10 \% T_t$ or ± 1 s		C T & M			FLT SYS FCF

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests

CS FSTD(A).QTG.105 - Table of FSTD validation tests

The appropriate fidelity level is selected by using the column 'Relevant features'

TESTS		TOLERANCE	FLIGHT CONDITIONS	FEATURE FIDELITY LEVEL			RELEVANT FEATURES
				G	R	S	
1.f	ENGINES						
1.f.1	Acceleration	$\pm 10 \% T_i$ or ± 0.25 s and $\pm 10 \% T_t$ or ± 0.25 s	Approach or landing			✓	FLT SYS FCF
		For fidelity level R: $\pm 10 \% T_i$ or ± 1 s and $\pm 10 \% T_t$ or ± 1 s			✓		FLT SYS FCF
		For fidelity level G: $\pm 10 \% T_i$ or ± 1 s and $\pm 10 \% T_t$ or ± 1 s		C T & M			FLT SYS FCF

Let's discuss this more.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests

CS FSTD(A).QTG.105 - Table of FSTD validation tests

The acronyms in the column 'Relevant features' are:

FLT: flight model (aero and engine)

GND: ground handling

SYS: aeroplane systems

FCF: flight controls and forces

SND: sound cues

VIS: visual cues

MOT: motion cues

EAT: environment — airports and terrain

Yes, you have seen those words earlier!

They are the very same as the rows in the FCS.
Everything is tied to the FCS.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests

CS FSTD(A).QTG.105 - Table of FSTD validation tests

So, let's think of an imaginary example.

You are in a process of negotiating with an FSTD manufacturer about a new FSTD.

You have determined the training need and you know what FCS your FSTD must have.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests

CS FSTD(A).QTG.105 - Table of FSTD validation tests

If the relevant features (FLT, SYS and FCF) for your device are all at same level (**R**), simply just select that row.

TESTS		TOLERANCE	FLIGHT CONDITIONS	FEATURE FIDELITY LEVEL			RELEVANT FEATURES
				G	R	S	
1.f	ENGINES						
1.f.1	Acceleration	$\pm 10\% T_i$ or ± 0.25 s and $\pm 10\% T_t$ or ± 0.25 s	Approach or landing			✓	FLT SYS FCF
		For fidelity level R: $\pm 10\% T_i$ or ± 1 s and $\pm 10\% T_t$ or ± 1 s			✓		FLT SYS FCF
		For fidelity level G: $\pm 10\% T_i$ or ± 1 s and $\pm 10\% T_t$ or ± 1 s		C T & M			FLT SYS FCF

If they are at different levels (for example FLT=R, SYS=S, FCF=R), select the lowest (R). Its the weakest link.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests

CS FSTD(A).QTG.105 - Table of FSTD validation tests

So we have defined the applicable tolerances for QTG test 1.f.1 for our FSTD.

TESTS		TOLERANCE	FLIGHT CONDITIONS	FEATURE FIDELITY LEVEL			RELEVANT FEATURES
				G	R	S	
1.f	ENGINES						
1.f.1	Acceleration	$\pm 10\% T_i$ or ± 0.25 s and $\pm 10\% T_t$ or ± 0.25 s	Approach or landing			✓	FLT SYS FCF
		For fidelity level R: $\pm 10\% T_i$ or ± 1 s and $\pm 10\% T_t$ or ± 1 s			✓		FLT SYS FCF
		For fidelity level G: $\pm 10\% T_i$ or ± 1 s and $\pm 10\% T_t$ or ± 1 s		C T & M			FLT SYS FCF

Then we would move to the next QTG test. And this way we can define the correct tolerances for each QTG test.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests

CS FSTD(A).QTG.105 - Table of FSTD validation tests

The mentioned principle is explained in detail in GM1 CS FSTD(A).QTG.105 and GM1 ORA.FSTD.210(a).

Yes, this method is more work than the current method.

But we have to remember that each FSTD can have a unique FCS. And FCS determines what is applicable to the FSTD and what is not. So this extra work is the price we have to pay to being able to have devices and standards for devices with any FCS.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests
6. FSTD Qualification Certificate changes

FSTD Qualification Certificate

The FSTD Qualification Certificate would have a significant change. It would be shortened.

Appendix IV to ANNEX VI (Part-ARA) shows a template for the new certificate.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests
6. FSTD Qualification Certificate changes

FSTD Qualification Certificate

The certificate would include these fields.

It shows the basic information about the FSTD.

Also the FCS is included.

FSTD QUALIFICATION CERTIFICATE: [Reference]

FSTD SPECIFICATION

A.	Type, class or variant of aircraft:	
B.	Primary reference document(s) (PRD(s));	
C.	FSTD type:	
D.	FSTD qualification level:	
E.	ESL reference:	
F.	Additional capabilities:	
G.	Limitations:	

FSTD CAPABILITY SIGNATURE (FCS)

H.	FSTD FEATURE	FIDELITY LEVEL
1.	Flight deck layout and structure (N/G/R/S)	
2.	Flight model (N/G/R/S)	
3.	Ground reaction and handling characteristics (N/G/R/S)	
4.a	Aeroplane systems (fixed wing) (N/G/R/S)	
4.b	Helicopter systems (rotary wing) (N/G/R/S)	
5.	Flight controls and forces (N/G/R/S)	
6.	Sound cue (N/G/R/S)	
7.	Visual display cue (N/G/R/S)	
8.a	Motion cue (N/G/R/S)	
8.b.	Vibration cue (rotary wing) (N/G/R/S)	
9.	Environment — ATC (N/G/R/S)	
10.	Environment — Navigation (N/G/R/S)	
11.	Environment — Atmosphere and weather (N/G/R/S)	
12.a	Environment — Aerodromes and terrain (fixed wing) (N/G/R/S)	
12.b	Environment — Landing areas and terrain (rotary wing) (N/G/R/S)	

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests
6. FSTD Qualification Certificate changes

FSTD Qualification Certificate

The new certificate is shorter than the current ones.

Where can we find more information on the FSTD? What has happened to the information that is shown in certificates currently?

The answer is ESL. It is a document giving all the additional information.

FSTD QUALIFICATION CERTIFICATE: [Reference]

FSTD SPECIFICATION

A.	Type, class or variant of aircraft:	
B.	Primary reference document(s) (PRD(s));	
C.	FSTD type:	
D.	FSTD qualification level:	
E.	ESL reference:	
F.	Additional capabilities:	
G.	Limitations:	

FSTD CAPABILITY SIGNATURE (FCS)

H.	FSTD FEATURE	FIDELITY LEVEL
1.	Flight deck layout and structure (N/G/R/S)	
2.	Flight model (N/G/R/S)	
3.	Ground reaction and handling characteristics (N/G/R/S)	
4.a	Aeroplane systems (fixed wing) (N/G/R/S)	
4.b	Helicopter systems (rotary wing) (N/G/R/S)	
5.	Flight controls and forces (N/G/R/S)	
6.	Sound cue (N/G/R/S)	
7.	Visual display cue (N/G/R/S)	
8.a	Motion cue (N/G/R/S)	
8.b.	Vibration cue (rotary wing) (N/G/R/S)	
9.	Environment — ATC (N/G/R/S)	
10.	Environment — Navigation (N/G/R/S)	
11.	Environment — Atmosphere and weather (N/G/R/S)	
12.a	Environment — Aerodromes and terrain (fixed wing) (N/G/R/S)	
12.b	Environment — Landing areas and terrain (rotary wing) (N/G/R/S)	

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests
6. FSTD Qualification Certificate changes
7. Equipment and Specifications List (ESL)

Equipment and Specifications List (ESL)

- ESL is a new document that lists all the necessary details of the FSTD.
- The FSTD operator is responsible for the ESL and can publish changes to it whenever deemed necessary.
- The FSTD operator gives a copy of the FSTD Qualification Certificate and ESL to their customers, i.e. to the FSTD users (see ORA.FSTD.115).
- The FSTD users can use the certificate and ESL to determine if the FSTD is suitable for their training, and to demonstrate that to their competent authority.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests
6. FSTD Qualification Certificate changes
7. Equipment and Specifications List (ESL)

Equipment and Specifications List (ESL)

- The ESL should list all the details of FSTD systems and simulated systems, etc.
- A sample template for the ESL is shown in AMC2 ORA.FSTD.120.
- Let's see that template.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests
6. FSTD Qualification Certificate changes
7. Equipment and Specifications List (ESL)

Equipment and Specifications List (ESL)

ESL-[FSTD identification]: [ESL document date], [ESL document revision number]:			
Section 1.0: Organisation operating FSTDs information			
Operator name:		FSTD Location:	
Address:		Address:	
City:		City:	
Country:		Country:	
Post code / ZIP:		Post Code / ZIP:	
Section 2.0: FSTD information			
Operator's FSTD ID:		EASA FSTD ID:	
FSTD manufacturer:		FSTD manufacturer serial number:	
Date of manufacture:		Qualification PRD:	
FSTD type:		FSTD Level:	
Validation/Reference data		Qualification test guide	
Document reference / revision:		Document reference / revision:	
Section 2.1: Flight deck layout and structure (N,G,R,S):			
Aircraft type		Number of seats:	
/make/model/class:			
Other:			
Section 2.2: Flight model (N,G,R,S):			
Primary engine type/Thrust:		Primary engine FADEC:	
Alternate engine type/thrust:		Alternate engine FADEC:	
Aero model/data revision:		Icing effects:	
UPRT:		Stall modelling:	
Other:			
Section 2.3: Ground reaction and handling characteristics (N,G,R,S):			
Runway contaminations:		Pushback:	
Section 2.4.a: Aeroplane systems (fixed wing) (N,G,R,S):			
AFM reference:			
Avionics type/suite:		Avionics Std/Rev:	
Autopilot:		Flight Director:	
Auto-coupled approach:		Autoland / Rollout:	
Auto go-around:		Auto throttle:	
FMS:		HUD/HGS/EVS:	
WX radar / PWS:		LPV/GPS/WAAS:	
NVG:		ACAS:	
TAWS:		EFB Class:	
CPDLC:		ADS A/B/C:	
RAAS:		AWO minima:	
RNP AR:		Other:	
Other:			
Section 2.5: Flight controls and forces (N,G,R,S):			
Flight controls data revision:		Flight controls type:	
Other:			
Section 2.6: Sound cues (N,G,R,S):			
Sound system:			
Section 2.7: Visual display cue (N,G,R,S):			
Image generator:		Projector type:	
System display:		Field of View:	
Other:			
Section 2.8.a: Motion cue (N,G,R,S):			
Manufacturer:		Type:	

Section 2.8.a: Motion cue (N,G,R,S):	
Manufacturer:	Type:
Model & payload:	Stroke:
Other:	
Section 2.9: Environment ATC (N,G,R,S):	
SATCE-enabled airports	SATCE regions:
Section 2.10: Environment — Navigation (N,G,R,S):	
FSTD navigation aids database:	Nav aids available:
Section 2.11: Atmosphere and weather (N,G,R,S):	
Weather presets:	Volcanic ash:
T-storms:	Precipitations:
Windshear:	Microburst:
Turbulence types:	Predictive W/S scenarios
Other:	
Section 2.12.a: Aerodromes and terrain (fixed wing) (N,G,R,S):	
Visual databases reference document:	
RNP AR scenes:	SMGCS:
VGS:	Other:
Other:	
Section 2.13: Miscellaneous	
Malfunctions reference document:	
Computer system:	Smoke:
Lesson plan:	Snapshot:
Other:	Other:
Other:	

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests
6. FSTD Qualification Certificate changes
7. Equipment and Specifications List (ESL)

Equipment and Specifications List (ESL)

- GM1 ORA.FSTD.120 gives practical examples on what and how to write to the ESL.
- The ESL could include details like the example below:

Section 2.2: Flight model		(N,G,R,S):	
Primary engine type/Thrust:	IAE V2527-A5	Primary engine FADEC:	SCN19

- Each individual FSTD has its own ESL document.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests
6. FSTD Qualification Certificate changes
7. Equipment and Specifications List (ESL)

Equipment and Specifications List (ESL)

- So the ESL requires a new process for the FSTD operator.
- The FSTD operator must ensure that it is publishing absolutely correct information in the ESL.
- The changes to the ESL must be tracked.
- The FSTD operator must deliver every change to the ESL to its competent authority.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests
6. FSTD Qualification Certificate changes
7. Equipment and Specifications List (ESL)

Equipment and Specifications List (ESL)

- So compared to the current situation, the ESL comprises more work for the FSTD operator.
- But wait, the ESL is still actually beneficial for the FSTD operators!
- In the current situation, the details of the FSTD are in the FSTD Qualification Certificate, prepared by the competent authority. If there is any need for a minor change in the certificate, there can be a delay when the issue is discussed and the certificate revised.
- With the ESL, the FSTD operator can make changes to the information quickly, at any time. So, the ESL provides flexibility for the FSTD operator.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests
6. FSTD Qualification Certificate changes
7. Equipment and Specifications List (ESL)

Equipment and Specifications List (ESL)

Still, a word of caution:

If the FSTD operator publishes erroneous information in the ESL, you can easily guess what kind of problems that would trigger...

The ESL requires a new process and some new competency from the FSTD operator.

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests
6. FSTD Qualification Certificate changes
7. Equipment and Specifications List (ESL)
8. New Part-ORA requirements

New Part-ORA requirements

- The NPA proposes many changes to Part-ORA.
- The changes naturally include all the aspects that have been discussed earlier in this video.
- But there are also other changes that concern the FSTD operator's processes.
- These are listed next.

Key learning points:

- 1. Flexibility to decide what capabilities the FSTD should have
- 2. Fidelity levels N, G, R, S
- 3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
- 4. Training need defines the required FCS
- 5. FSTD requirements: general requirements, QTG tests and functions & subjective tests
- 6. FSTD Qualification Certificate changes
- 7. Equipment and Specifications List (ESL)
- 8. New Part-ORA requirements

New Part-ORA requirements

The main changes in Part-ORA concerning FSTD operators:

Current situation	The proposal in the NPA
<p><u>Application</u> (to the competent authority) is presented in AMC1 ORA.FSTD.200.</p> <p>The application is for a certain FSTD qualification level (e.g. FFS A/B/C/D, FTD 1/2/3, FNPT I/II/MCC).</p>	<p>Application template now includes also the <u>sought FSTD capability signature (FCS)</u>.</p> <p>See AMC1 ORA.FSTD.200.</p>
<p>There is no clear information on how <u>new technology</u> (for example virtual reality) could be qualified for training use.</p>	<p>New technologies that do not have their own technical regulations yet, may achieve qualification and potential training, testing and checking credits.</p> <p>See GM2 ORA.FSTD.210(a)(3).</p>

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
4. Training need defines the required FCS
5. FSTD requirements: general requirements, QTG tests and functions & subjective tests
6. FSTD Qualification Certificate changes
7. Equipment and Specifications List (ESL)
8. New Part-ORA requirements

New Part-ORA requirements

The main changes in Part-ORA concerning FSTD operators:

Current situation	The proposal in the NPA
FSTD <u>reliability metrics</u> requirement is not fully clear. AMC2 ORA.FSTD.100 refers to ARINC report 433 as 'one acceptable means'.	FSTD reliability metrics are described directly in AMC2 ORA.FSTD.100.
The preparations for the authority evaluations (e.g. the <u>dossier</u>) are presented only in <i>guidance material</i> , GM3 ORA.FSTD.100.	The dossier is now described and required at AMC level, AMC4 ORA.FSTD.100.
Basics of FSTD <u>compliance monitoring system</u> are described in a long guidance material, GM1 ORA.FSTD.100.	The guidance is divided into three different topics: GM1 ORA.FSTD.100 GM2 ORA.FSTD.100 GM3 ORA.FSTD.100

Key learning points:

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New Part-ORA requirements

The main changes in Part-ORA concerning FSTD operators:

Current situation	The proposal in the NPA
A <u>template for FSTD auditing</u> is presented in GM2 ORA.FSTD.100.	The template is removed, because it is 'old school' and the FSTD operator should prepare audit checklists that cover its own processes.
Information is given for <u>BITDs</u> and their operation.	All information regarding BITDs are removed, since the number of BITDs is almost zero.
The <u>MQTG and the QTG process</u> is not described in Part-ORA, but in CS-FSTD.	AMC2 ORA.FSTD.105(b) includes a detailed description of MQTG and QTG process. This leads to a good situation: CS-FSTD(A) is used only for the initial qualification, and after that Part-ORA gives all the needed requirements to maintain the certificate.

Key learning points:

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New Part-ORA requirements

The main changes in Part-ORA concerning FSTD operators:

Current situation	The proposal in the NPA
<p><u>Configuration control system</u> has been mentioned in Part-ORA, but has not been clearly specified.</p>	<p>AMC1 ORA.FSTD.105(c) presents detailed information on what is expected from configuration control process.</p> <p>Also, AMC2 ORA.FSTD.105(c) tells requirements concerning configuration control of visual databases.</p>
<p>Criteria for when FSTD operator’s organisation is <u>complex or non-complex</u> is not clear. See AMC1 ORA.GEN.200(b).</p>	<p>Clear criteria for FSTD operators is presented in AMC1 ORA.GEN.200(b).</p>

Key learning points:

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- 6. FSTD Qualification Certificate changes
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New Part-ORA requirements

The main changes in Part-ORA concerning FSTD operators:

Current situation	The proposal in the NPA
ORA.FSTD.105 requires that the complete set of <u>functions and subjective tests</u> are performed progressively over a 12-month period.	<p>ORA.FSTD.105 is modified to <u>remove</u> this requirement.</p> <p>But AMC1 ORA.FSTD.100 is modified so that the <u>compliance monitoring programme</u> is responsible for performing functions and subjective tests & fly-outs.</p> <p>This is a notable change! The responsibility for this testing is transferred to the compliance monitoring programme.</p>

Key learning points:

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New Part-ORA requirements

The main changes in Part-ORA concerning FSTD operators:

Current situation	The proposal in the NPA
ORA.FSTD.110 tells about <u>FSTD modifications</u> .	<p>A new AMC2 ORA.FSTD.110(e) is added. It gives a template for a formal letter that the FSTD operator should send to the competent authority after each <u>major modication</u>.</p> <p><u>Definitions</u> of major modifications are updated in GM1 ORA.FSTD.110.</p> <p>This is a notable change. It is recommended to review it carefully.</p>
ORA.FSTD.225 tells the criteria for <u>extension of evaluation period</u> from 12 months up to 36 months.	New AMC1 ORA.FSTD.225(a)(2) is added and old AMC1 ORA.FSTD.225(b) is changed to give better details.

Key learning points:

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New Part-ORA requirements

The FSTD operators are affected also by the changes in Part-ARA which concerns competent authorities.

As is discussed earlier, the FSTD Qualification Certificate would change. And also the evaluation report, as prepared by the competent authority, would change.

The evaluation report would include the FCS.

And the results in the evaluation report would be classified to two categories (compared to current 5 categories):

- **Level A** – clear non-compliances. The operator must report the corrective actions to the competent authority.
- **Level B** – other items. The operator must manage the items, but corrective actions need not be reported.

See AMC1 ARA.FSTD.100(b) for details.

Key learning points:

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5. FSTD requirements: general requirements, QTG tests and functions & subjective tests
6. FSTD Qualification Certificate changes
7. Equipment and Specifications List (ESL)
8. New Part-ORA requirements
9. Easy to define how the FSTD should be updated to gain more credit

Difference between FCS and training need

If the FSTD does not have the fidelities (FCS) that is needed for the planned training tasks, the FSTD can be updated.

Update means a technological improvement or enhancement of an FSTD.

To gain a higher FCS, the FSTD operator would update the FSTD and report it to the competent authority. The authority would perform a special evaluation (see ARA.FSTD.130).

Key learning points:

1. Flexibility to decide what capabilities the FSTD should have
2. Fidelity levels N, G, R, S
3. FSTD Capability Signature (FCS) lists twelve features and their fidelity levels
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5. FSTD requirements: general requirements, QTG tests and functions & subjective tests
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9. Easy to define how the FSTD should be updated to gain more credit

Difference between FCS and training need

Proposed CS-FSTD(A) issue 3 tells exactly what is necessary to be modified in order to gain a higher FCS.

The answer is found by using the four tables:

- **CS FSTD(A).QB.110** - FSTD general requirements for feature fidelity levels
- **CS FSTD(A).QB.115** - General technical requirements for FSTD qualification levels
- **CS FSTD(A).FST.105** - Table of function and subjective tests
- **CS FSTD(A).QTG.105** - Table of FSTD validation tests versus feature fidelity levels

You know what you want to change in the FCS (for example one feature from R to S). Just use these tables to find out what is the new criteria that must be covered by the update! Simple.

That's all folks!

The NPA can't be covered in full details in this video.

But by understanding the key learning points, you are able to read the NPA and its details.

The objectives of the NPA are written as:

'To ensure that FSTDs better facilitate current and future training needs by establishing the necessary simulation fidelity levels required to support training tasks'.

'...it is the overall intent of EASA to enable better recognition and crediting of existing, as well as emerging training device/tool capabilities in all FCL- and OPS-related pilot training in due course.'

Does this NPA meet that goal?

Please, review the NPA and express your thoughts at <https://hub.easa.europa.eu/crt/>

Thank you!