CRD responses and resulting text

In responding to the comments, the following terminology is applied to attest EASA's position:

(a) **Accepted** — EASA agrees with the comment and any proposed change is incorporated into the text.
(b) **Partially accepted** — EASA either partially agrees with the comment or agrees with it but the proposed change is partially incorporated into the text.
(c) **Noted** — EASA acknowledges the comment, but no change to the text is considered necessary.
(d) **Not accepted** — EASA does not agree with the comment or proposed change.

(General Comments)	-

comment	*1 (CRT 13)* comment by: *Swedish Transport Agency, Civil Aviation Department (Transportstyrelsen, Luftfartsavdelningen)* **General** Thank you for the opportunity to comment on Proposed Certification Memorandum CM-FCD-001 on Minimum Syllabus of Pilot Type Rating for VTOL-capable aircraft. Please be advised that there are no comments from the Swedish Transport Agency.
response	Noted EASA acknowledges the absence of further comments from the Swedish Transport Agency.

comment	*2* comment by: *Airbus Helicopters* **General** Airbus is looking forward to the establishment of the APL (automation-system – based aircraft pilot licence) licensing framework which is the target for our intended future operations. However, acknowledging the fact the work is still ongoing to reach the target we appreciate the possibility to comment on the present CM that will enable holders of Part-FCL CPLs or ATPLs for aeroplanes or helicopters who wish to obtain the privileges to fly a manned innovative aircraft and for whom the issuance of a separate APL may not be necessary. We do not expect this situation to become the only long-term solution
response	Noted Please refer to NPA 2022-06 (Section 2.3.5) for the proposed regulatory approach to flight crew licensing for VTOL-capable aircraft.

1.1. Purpose and scope p. 3

comment	*3 (CRT 1)* comment by: *Alexander Schaffler/ FTD Consulting* I understand this is a complex topic and some prerequisites need to be discussed. Please also take into consideration the need for a CS-FSTD for eVTOL which is a combination of CS-FSTD(A) and (H) and provide guidance as the simulators for training will be directly impacted by what is given in the OSDs. It makes sense to provide such info early on in the process and indicate when there is a pilot having an interim license acceptance,. how is the training performed. Is that on aircraft only? What about FSTDs?
response	Not accepted. Despite being clearly connected, CS-FSTD is outside the scope of the proposed Certification Memorandum. Qualification of FSTDs is not part of the aircraft type certification and is being dealt with as part of the necessary changes to the Aircrew Regulation ((EU) No 1178/2011).

comment	*4 (CRT 9)* comment by: *F.A.S.T.-Group (TB)* Please also consider FSTDs and the regulatory framework we need to incorporate those into the TR training syllabi. This document seems to be solely focused on the viewpoints of constructors, yet simulator training device requirements need to be discussed as well.
response	Not accepted. Despite being clearly connected, CS-FSTD is outside the scope of the proposed Certification Memorandum. Qualification of FSTDs is not part of the aircraft type certification and is being dealt with as part of the necessary changes to the Aircrew Regulation ((EU) No 1178/2011).

1.4. Definitions p. 4

comment	*5 (CRT 14)* comment by: *LBA* In Section 1.4 the expression "VTOL-capable aircraft" is defined. This definition is not equal to the definition of NPA 2022-06 which introduce this kind of aircraft in the OPS requirements (965/2012 including all subsequent changes). Furthermore, this definition is not equal to the definition which is used in SC-VTOL-01. Finally it uses the expressions airplane and rotorcraft. These expressions have different definitions in different regulations. CS-Definitions uses another definition than the OPS

	requirements. The different ICAO Annexes use different definitions of these expressions. So, it is highly recommended to clarify which definition of the expressions airplane and rotorcraft are applicable the terms of this CM. If somebody just reads this CM it is not clear what "manned VTOL-capable aircraft" means (see section 2). Is it with the pilot in command on board or does this expression also include passenger transport flights with the pilot in command not on board (remote pilot)?
response	Partially accepted The definition in section 1.4 of the Certification Memorandum is exactly the same as provided in NPA 2022-06 (refer to Section 2 of this NPA and to the proposals included in this NPA for the same definition to be introduced in Commission Regulations (EU) No 1178/2011, (EU) No 965/2012 and (EU) No 923/2012). In accordance with the essence of NPA 2022-06, which uses the term UAS (unmanned aircraft systems) to include drones and unmanned VTOL-capable aircraft, the reference to “manned VTOL-capable aircraft” implies that a pilot is on board. NPA 2022-06 does not address VTOL-capable aircraft in unmanned configurations as this will be dealt with in a subsequent, future NPA under RMT.0230. However, to provide more clarity to the reader the text has been modified to explicitly exclude unmanned VTOL-aircraft and remote pilots. EASA has revised the text as proposed.

2. Background	p. 4

comment	6 comment by: *AIR-618/ FAA* "EASA has determined the need of a pilot type rating for manned VTOL-capable aircraft" Why is the pilot type rating requirement limited to manned VTOL? The concerns raised based on novelty, complexity and lack of operational experience are even more relevant for remotely piloted VTOL. Requested change: Include rational for excluding type certificated RPAS from the pilot type rating requirement.
response	Noted. UAS (unmanned aircraft systems), including drones and unmanned VTOL-capable aircraft, have not been considered since their associated regulatory framework has not yet been defined.

NPA 2022-06 does not address VTOL-capable aircraft in unmanned configurations; this will be dealt with in a subsequent, future NPA under RMT.0230.

EASA will make a determination on the need of a pilot type rating for unmanned VTOL-capable aircraft in due time.

3.1. EASA Policy p. 4

comment

7 (CRT 2) comment by: *Bilge Atici*

The cross reference to § 3.2 for the means of compliance and guidance material is being used; however, §3.2 title is" Who this certification memo affects". We believe there is a typo and reference should be § 3.1.1 & 3.1.2. instead.

response

Accepted

EASA has revised the text as proposed.

3.1.1. Additional guidance for compliance with CS FCD.300 p. 5

comment

8 (CRT 3) comment by: *Bilge Atici*

Item 4 reads: " the table for training, testing and checking, as referred to in GM1 FCD.300(g) : we believe it is a typo as no §(g) exists in this GM and it should read GM1 FCD.300(a) as in CM §3.1.1 item 3.

3.1.1 indicates that not only the table containing the training elements (footprint) should be proposed as a compliance document but also the TNA.
We do not agree as we believe that the TNA is an OEM proprietary document and may be in a big database, which to our understanding should not be required to be shared. We would rather suggest that a methodology document explaining how the applicant is developing the TNA should be part of the compliance document in the OSD FCD certification plan (Training Concept, Methodology of the OEM and a Draft training footprint).

response

Accepted

EASA has revised the text as proposed.

comment	*9 (CRT 4)* comment by: *L3Harris ATO* Note: see table in Annex 1
response	Not accepted The Certification Memorandum does not intend to introduce changes to existing regulations but to provide guidance for compliance with the existing CS-FCD. EASA will not change the text.

comment	*10 (CRT 10)* comment by: *General Aviation Manufacturers Association (GAMA)* 3.1.1.4 **Rationale** GM1 FCD.300(g) seems to be a missed reference **Proposed action/text** EASA to correct the reference as follows: *The detailed table for training, testing, and checking, as referred to in GM1 FCD.300(a)..."*
response	Accepted EASA has revised the text as proposed.

comment	*11* comment by: *Airbus Helicopters* **Comment:** TNA training need analysis is not defined into details and the process should be clarified. It is up to the TC Holder to provide a method to define the training syllabus. For example possible method could be to use the training differences analysis as per CS FCD.400 and adapt it to the case of an eVTOL compared to existing applicant existing type such as an existing type rating of an helicopter if relevant as a base aircraft. **Proposed Change/Text:** The reference to the TNA could be generalised to any method provided the objective is reached: having a set of training requirements ensuring a proper training, checking and currency of pilots of the target VTOL aircraft

response	Accepted EASA has revised the text as proposed.

comment	*12* comment by: *Airbus Helicopters* **Comment:** "The detailed table for training, testing, and checking, as referred to in GM1 FCD.300(g)" should be clarified as "testing" is a term not to be found in other part of CS FCD and the reference to GM1 FCD.300(g) cannot be found in CS FCD Issue 2 **Proposed Change/Text:** Clarify the guidance
response	Accepted EASA has revised the text as proposed.

comment	*13* comment by: *Airbus Helicopters* **Comment:** "should include training elements, and where necessary specifically for aeroplane pilot licence or helicopter pilot licence holders, as to obtain the competence to operate the type." The applicant may wish to provide only one set of additional elements, for example from CPL(H) **Proposed Change/Text:** The guidance should be clarified to not systematically request both sets of data
response	Accepted The text has been modified to allow for the applicant to carry out the exercise for only aeroplane pilots, helicopter pilots or both.

3.1.2. Guidance for compliance with CS FCD.425(i) p. 5

comment	*14 (CRT 11)* comment by: *General Aviation Manufacturers Association (GAMA)* 3.1.2 **Rationale** "Guidance for compliance with CS FCD.425(i)" should be put as a high level reference instead of use letter (i) at the end **Proposed action/text** "EASA to amend the title to "Guidance for compliance with CS FCD.425"

response	Accepted EASA has revised the text as proposed.

comment	*15 (CRT 12)* comment by: *General Aviation Manufacturers Association (GAMA)* 3.1.2 **Rationale** This sentence should clarify its reference: "when demonstrating compliance with CS FCD.425(i) Evaluation process and evaluation descriptions:.." **Proposed action/text** EASA to amend the text as follows: *"when demonstrating compliance with CS FCD.425(i) - Evaluation 5 (T5): initial or transition training programme validation"*
response	Accepted EASA has revised the text as proposed.

comment	*16* comment by: *Airbus Helicopters* **Comment:** The CM request the applicant to have pilots representative of both aeroplane and helicopter license holders. This should be left to the decision/strategy of the TCH **Proposed Change/Text:** It is proposed to revise the guidance text to"When proposing/selecting evaluation subjects to EASA to participate in the T5 test, pilots representative of both aeroplane and helicopter licenses holders should be identified if it is intended to add VTOL-capable aircraft type rating to both CPL(A) and CPL(H)licenses"
response	Partially accepted EASA has revised the text in line with the comment but using a different wording than proposed.

Annex 1 (CM-FCD-001)

Reference	Section or paragraph	Page	Line # (if relevant)	RATIONALE / REASON / JUSTIFICATION for the Comment (What is the reason and justification behind the change you are requesting?)	PROPOSED TEXT (Be specific about the change you are requesting: specific wording change, deletion, addition…)
Part FCL.720.PL	Section 4	792	(a) 1	ATPL Theoretical knowledge for CPL/IR not relevent for PL (VTOL) Operations should not be mandatory.	ATPL theoretical knowledge - not required for PL Operations below 10000'
Part FCL.720.PL	Section 4	792	(a) 2	VTOL Operations predominately Single Pilot	MCC not required - Omit (Remove) requirement
Part FCL.720.PL	Section 4	792	(a) 3	Multi-pilot Aeroplanes not relevant to VTOL - should be single pilot operations	100 hours as Pilot in Command of Single Pilot Aircraft
Part FCL.720.PL	Section 4	792	(a) 4	VTOL Aircraft does not operate or fly like an Helicopter - Aerodynamics and system control / Management significantly different	Delete requirement
Part FCL.720.PL	Section 4	792	(b) 1	ATPL Theoretical knowledge for CPL/IR not relevent for PL (VTOL) Operations should not be mandatory.	ATPL theoretical knowledge - not required for PL Operations below 10000'
Part FCL.720.PL	Section 4	792	(b) 2	VTOL Operations predominately Single Pilot	MCC not required - Omit (Remove) requirement
Part FCL.720.PL	Section 4	792	(b) 3	Multi-pilot Helicopters not relevant to VTOL - should be single pilot operations	100 hours as Pilot in Command of Single Pilot Aircraft
Part FCL.720.PL	Section 4	792	(b) 4	VTOL Aircraft does not operate or fly like an Aeroplane - Aerodynamics	Delete requirement

				and system control / Management significantly different	
Part FCL.720.PL	Section 4	792	(c) 1 - 5	VTOL operations currently require CPL (A) or (H) Paragraph (C) is not relevent in terms of requirements for operating aircraft design for PL Operations	Delete Requirment
Appendix 9	Appendices to Annex I	1313 - 1318	2.3.2	Entire Document - Remove the phrase "heliport" VTOL operations will be from Vertiport	Replace Heliport with Vertiport in all instances
Appendix 9	Appendices to Annex I	1313	2.3.2	Remove Engine Failure - Replace with DEVT reference Engine Failure not relevent	Replace with DEVT Failure (Ducted Electronic Vectored Thrust)
Appendix 9	Appendices to Annex I	1313	2.4	Remove reference to Autorotative Landing - Not relevent to VTOL operations / aircraft aerodynamics do not facilitate Autorotation (Pitch of Blades not controlled by operator)	Delete Requirment
Appendix 9	Appendices to Annex I	1313	2.5.1	Remove Engine Failure - Replace with DEVT reference Engine Failure not relevent	Replace with DEVT Failure (Ducted Electronic Vectored Thrust)
Appendix 9	Appendices to Annex I	1313 - 1318	As required	Remove Engine Failure in all phases - Replace with DEVT reference - Engine Failure not relevent	Replace with DEVT Failure (Ducted Electronic Vectored Thrust)
Appendix 9	Appendices to Annex I	1314	3.1, 3.2, 3.3,3.4	Systems not relevent to VTOL (PL) Operations Aircraft design	Delete Requirements
Appendix 9	Appendices to Annex I	1314	3.6	Systems not relevent to VTOL (PL) Operations Aircraft design	Delete Requirements
Appendix 9	Appendices to Annex I	1314	3.10.	Systems not relevent to VTOL (PL) Operations Aircraft design	Delete Requirements

Appendix 9	Appendices to Annex I	1314	3.13	Systems not relevent to VTOL (PL) Operations Aircraft design	Delete Requirements
Appendix 9	Appendices to Annex I	1314	3.15	Systems not relevent to VTOL (PL) Operations Aircraft design	Delete Requirements
Appendix 9	Appendices to Annex I	1315	4.3	Systems not relevent to VTOL (PL) Operations Aircraft design	Delete Requirements
Appendix 9	Appendices to Annex I	1315	4.4	Systems not relevent to VTOL (PL) Operations Aircraft design	Delete Requirements
Appendix 9	Appendices to Annex I	1315	4.6	Systems not relevent to VTOL (PL) Operations Aircraft design	Delete Requirements
Appendix 9	Appendices to Annex I	1315	4.8	Item not relevent to VTOL (PL) Operations Aircraft design - Single Pilot	Delete Requirements
Appendix 9	Appendices to Annex I	1316	4.10.	Item not relevent to VTOL (PL) Operations Aircraft design	Delete Requirements
Appendix 9	Appendices to Annex I	1316	5.4.4	Item not relevent to VTOL (PL) Operations Aircraft design	Delete Requirements
Appendix 9	Appendices to Annex I	1316	5.7	Item not relevent to VTOL (PL) Operations Aircraft design	Delete Requirements
Appendix 9	Appendices to Annex I	1313		Training to be through CBTA	CBTA to be employed in all Training
Appendix 9	Appendices to Annex I	1313 - 1318	As required	OTD FTD FFS to be replaced by FCS which could include VR MR and other approved devices	FCS Designed Training Devices to be employed subject to EASA Approval
Appendix 9	Appendices to Annex I	1313	2.4a	Replace 2.4 with Hovering and Flight Management in VTOL aircraft - this should train both CPL H and A pilots for VTOL Operations and differences in flight controls and concepts	Repleace with: Hover and flight characteristics for VTOL Aircraft

GM1 FCD.300	Annex to ED Decision 2021/012/R	15	GM1 FCD.300	CBT may not be appropriate for courseware - VR MR and OTD could be approved for CBTA training	Remove CBT replace with OTD