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| **Notes to applicant**  **General**   1. This form will take approximately 10 minutes to complete. Please complete the form, ensure that the applicable fee is fully paid and all required supporting documentation is provided. Incomplete/incorrect form or/and inadequate payment will lead to delays in processing the application. 2. Completed form and supporting documents are to be submitted to CAAS Flight Standards Division.   **Fee**   1. The fee payable is prescribed in Paragraph 7(4) of the Twelfth Schedule of the Air Navigation Order. 2. Payment can be made via the following methods: 3. Telegraphic/wire transfer to the following bank account:   Bank Name: DBS Bank Ltd  Bank Address: 12 Marina Boulevard, DBS Asia Central,  Marina Bay Financial Centre Tower 3, Singapore 018982  Account Name: Civil Aviation Authority of Singapore  Account No: 0039186673  Bank Code: 7171  Branch Code: 003  Swift Code: DBSSSGSG   1. All bank charges and correspondent bank/agent fees, i.e., the remittance amount, your bank charges, as well as all the other banks’ (Intermediary and Beneficiary banks, etc.) shall be borne by the applicant and the Beneficiary receives full payment. 2. Provide the necessary payment details, including your organisation name and purpose of payment (e.g., Renewal of User Approval) in your payment. 3. PayNow |

**You do not need to submit this page with your application form.**

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| **Instructions:**   1. Please tick the checkboxes as appropriate 2. Sections A & C must be completed by all applicants 3. FSTD operators must complete an additional Section B & Appendix 1 4. Completed gap analysis is to be attached and submitted together with this form | |
| **Section A** (For all applicants) | |
| 1. **Application type** (please tick 🗹 as appropriate) | |
|  |  |
| 1. **Basic particulars of organisation** | |
| Name of organisation: | |
| Address of organisation: | |
| Name of organisation’s representative: | Designation: |
| Email: | Contact No: |
| 1. **FSTD information** | |
| CAAS Certificate of qualification No: | Date of expiry (Qualification): |
| Foreign FSTD qualification no. *(If applicable)*: | Foreign FSTD date of expiry (Qualification): |
| Name of FSTD operator (if different from name of organisation): | |
| Address of FSTD operator (if different from address of organisation): | |
| Location of FSTD (if different from operator’s address): | |
| FSTD aircraft type & variant: | FSTD identification: |

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| **Section B** (For FSTD operators only) | | |
| 1. **Technical information** | | |
| Full name of FSTD manufacturer: | FSTD manufacturer ID: | |
| Date of initial Singapore Certificate of Qualification: | Qualification standard used at initial qualifications in Singapore:  Current qualification standard: | |
| FSTD engine model & data revision: | MQTG reference number: | |
| Engine instrumentation: | Flight instrumentation: | |
| Motion system model (Type and manufacturer): | Avionic equipment system: | |
| Visual system model (Type and manufacturer): | Date of last visual database update: | |
| 1. **FSTD operator’s declarations:** | | |
| 1. FSTD has been tested using a documented acceptance testing procedure covering flight deck layout, all simulated aeroplane systems and the Instructor Operating Station, as well as the engineering facilities, the motion, visual and other systems meet the criteria described in CAAS SASP 11. | |  |
| 1. Manual validation tests have been conducted in a satisfactory manner using only procedures as contained in the QTG manual test procedure. | |  |
| 1. FSTD functions and subjective testing have been conducted in a satisfactory manner in accordance with Appendix 1\*\* of this form.   \*\* ICAO Doc 9625 Part II – Flight Simulation Training Device Criteria Appendix C – Functions and subjective tests | |  |
| Level of qualification (please tick 🗹 as appropriate):    Others, please specify (e.g. Grandfathered): | | |
| Name of organisation(s) using the FSTD: | | |

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| **Section C** (For all applicants) | | | |
| 1. **Documents** | | | |
| *List all manuals which contain training programmes that will be conducted using the FSTD.*   |  |  |  | | --- | --- | --- | | **Manual(s)** | **Issue and/or Revision Number** | **Date Approved** | | **ATO training manual(s)** | | | |  |  |  | |  |  |  | | **AOC operations manual(s)** | | | |  |  |  | |  |  |  | | **AOC flight crew training / techniques manual(s)** | | | |  |  |  | |  |  |  | | | | |
| 1. **Training tasks required** (please tick 🗹 as appropriate) | | | |
| Tick the applicable training tasks required for this FSTD and indicate the reference(s) in the manual. | | | |
|  | Reference:  Reference:  Reference: | | |
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| Specify airport(s) / runway(s) : | Reference: | | |
|  | Reference: | | |
|  | Reference: | | |
| Specify airport: | Reference: | | |
|  | Reference:  Reference: | | |
| 1. **Applicant’s declaration** (Please check the applicable boxes) | | | |
| **For qualification of FSTD** | | **Yes** | **No** |
| Compliance with Section B (2) a, b, c | |  |  |
| **For approval to use the FSTD (AOC holders only)** | | | |
| Gap Analysis certified by the company | |  |  |
| I declare to the best of my knowledge and belief that the statements made and the information supplied in this form are complete and correct. I understand that any false information provided by me in this application is an offence under section 86(1)(a) of the Air Navigation Act 1966 and I may be subject to the penalties stipulated thereunder and any approval granted pursuant to the application will be revoked.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Name & designation of representative Signature & Date | | | |

1. **Review of FSTD documents submitted by the operator**

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| **Review of Documents** | **Yes** | **No** |
| The submitted documents in section C(1) has been reviewed. |  |  |

1. **Evaluation details**

|  |  |
| --- | --- |
| **Purpose:** |  |
| **Type of evaluation:**      *(for renewal only, refer to FSP 4.8.2 for conditions of eligibility)* | |
| **Date of evaluation:** | |

|  |  |  |
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| **Evaluator / Organisation representative(s)** | **Role** | **Organisation** |
|  | Qualitative evaluator | CAAS |
|  | Quantitative evaluator | CAAS |
|  | Qualitative pilot (User) |  |
|  | FSTD operator representative |  |

1. **Results and findings**

List of objective and subjective tests that are classified as:

**S - SATISFACTORY**

The item is suitable to be trained or checked in the FSTD.

**U - UNACCEPTABLE**

The FSTD cannot be used for training or checking the item.

**R - RESTRICTION**

The FSTD does not have the full capability for the requested training/checking and the use of the FSTD is restricted to conditions of use.

**U/S - UNSERVICEABLE**

An item which is temporarily inoperative and unable to be evaluated for approval to use.

**N/A – NOT APPLICABLE**

An item which was not tested.

1. **Objective Tests**

Auto and manual driven

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| **S/No** | **QTG** | **Title** | **S** | **U** | **R** | **U/S** |
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| **Recommended qualification level** |
| **FSTD level:** Type \_\_ / Grandfathered\*  *(\*Delete as appropriate)* |
| **Qualification standard:** |

1. **Functions and subjective tests**

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| --- | --- | --- | --- | --- | --- |
| **Training / Checking tasks**  ***(Evaluator’s selection from user’s training manual)***  ***Note: Include additional items as appropriate*** | **S** | **U** | **R** | **U/S** | **N/A** |
| Cockpit & Pre-flight Preparation – FMS / OIS setup |  |  |  |  |  |
| Pushback & Normal Engine Start. |  |  |  |  |  |
| Engine Start Malfunction |  |  |  |  |  |
| Taxi including 180° turn |  |  |  |  |  |
| Departure – FMS RNAV SID |  |  |  |  |  |
| Normal Take Off, Go-around and Landing (Moderate Crosswind) |  |  |  |  |  |
| Precision and Non-Precision Approaches |  |  |  |  |  |
| Maximum crosswind take-off and landing, as per the AOC or OEM limitations. |  |  |  |  |  |
| Circling (visual) approach |  |  |  |  |  |
| Rejected Take-off (RTO) with outboard engine failure close to V1 |  |  |  |  |  |
| Engine failure V1 |  |  |  |  |  |
| Outboard engine failure on approach and landing with cross wind |  |  |  |  |  |
| 2-Engine Approach and Landing (*Applicable to 4-engine aircraft*) |  |  |  |  |  |
| Wind shear to include Predictive and Reactive Windshear |  |  |  |  |  |
| Enhanced Ground Proximity Warning System (EGPWS) |  |  |  |  |  |
| Traffic Collision Avoidance System (TCAS) – TA & RA |  |  |  |  |  |
| *As applicable to Airbus aircraft types:*  Flight envelope protections (Normal Law)  Flight Control Laws (Normal, Alternate and Direct Law) |  |  |  |  |  |
| *As applicable to Boeing aircraft types:*  Flight Control protection (Primary mode)  Primary Flight Computer (Primary, Secondary and Direct mode) |  |  |  |  |  |
| Flap failure with abnormal leading or trailing edge flaps landing |  |  |  |  |  |
| High Altitude Hi Speed / Low Speed Buffer |  |  |  |  |  |
| Stall – Clean and Landing Configuration |  |  |  |  |  |
| UPRT (within valid simulator flight envelope) |  |  |  |  |  |
| Cold Weather Operations – (Test not only visual effects but effects on runway performance) |  |  |  |  |  |
| Aircraft Systems  *Verify the Annunciations and Checklist procedures* |  |  |  |  |  |
| Multiple Electrical Bus failures |  |  |  |  |  |
| Flaps / Slats System control failures |  |  |  |  |  |
| Pressurization System control failures |  |  |  |  |  |
| Unreliable Airspeeds |  |  |  |  |  |
| *As applicable to Airbus aircraft types:*  Back Up Speed Scale |  |  |  |  |  |
| Special Authorisation *(As applicable*) |  |  |  |  |  |
| LVO CAT II / IIIA / IIIB / IIIC\*  *\*Delete the category that’s not applicable* |  |  |  |  |  |
| RNP approach |  |  |  |  |  |
| RNP approach with Authorisation Required (AR)  *Specify airport(s) / runway(s) :* |  |  |  |  |  |
| ILS / Precision Runway Monitor (ILS/PRM) |  |  |  |  |  |
| LDA / Precision Runway Monitor (LDA/PRM) |  |  |  |  |  |
| Narrow Runway  *Specify airport(s):* |  |  |  |  |  |
| The selected Functions and Subjective tests from appendix 1, marked  1 / 2 / 3 (delete as appropriate) |  |  |  |  |  |
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1. **Gap analysis review**

(*For AOC holders only*)

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| --- | --- |
|  | *(State reason(s))* |

1. **Evaluation summary**

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| (*Tick the applicable training tasks as requested, in the boxes below*) | *(Provide comments)* |
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| |  | | --- | |  | |  | | *Specify airport(s) / runway(s): ­­­­­­­­­­­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*\_\_\_\_\_\_\_\_ | |  | |  | | *Specify Airport(s): ­­­­­­­­­­­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*\_\_\_\_\_\_\_\_\_\_\_ | | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | |

1. **Remarks**

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1. **Names and signatures (as applicable)**

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**FUNCTIONS AND SUBJECTIVE TESTS - ICAO DOC 9625 4th EDITION (Part II Appendix C)**

**Instructions for completing the table:**

1. FSTD operators must conduct the complete list of functions and subjective tests in this appendix.
2. FSTD operators shall indicate all completed tests in the table below along with the date of completion.
3. If any item cannot be completed, the reason shall be annotated in the remarks column.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Section E** (For FSTD operators only) *please tick 🗹 as appropriate* | | | | | | |
| **No.** | **Description** | **Type IV** | **Type V** | **Type VII** | **For Official Use** | **Date completed / Remarks** |
| 1 | **Preparation for flight** | | | |  |  |
| 1.a.1 | The flight deck design and functions are identical to that of the aeroplane being simulated |  |  |  |  |  |
| 1.a.3 | The flight deck design and functions are aeroplane-like and generic but recognizable as within a class of aeroplanes |  |  |  |  |  |
| 2 | **Surface operations (Pre-flight)** | | | |  |  |
| 2.a | **Engine start** | | | |  |  |
| 2.a.1 | Normal start |  |  |  |  |  |
| 2.a.2 | Alternate start procedures |  |  |  |  |  |
| 2.a.3 | Abnormal starts and shutdowns (hot start, hung start, tail pipe fire, etc.) |  |  |  |  |  |
| 2.b | **Taxi** | | | |  |  |
| 2.b.1 | Pushback/power back |  |  |  |  |  |
| 2.b.2 | Thrust response |  |  |  |  |  |
| 2.b.3 | Power lever friction |  |  |  |  |  |
| 2.b.4 | Ground handling |  |  |  |  |  |
| 2.b.5 | Nosewheel scuffing |  |  |  |  |  |
| 2.b.6 | Taxi aids (e.g., taxi camera, moving map) |  |  |  |  |  |
| 2.b.7 | Low visibility (taxi route, signage, lighting, markings, etc.) (*if applicable)* |  |  |  |  |  |
| 2.c | **Brake operation** | | | |  |  |
| 2.c.1 | Normal, automatic and alternate/emergency operation |  |  |  |  |  |
| 2.c.2 | Brake fade *(NA for carbon brakes)* |  |  |  |  |  |
| 3 | **Take-off**  *Note — Only those take-off tests relevant to the type or class of the aeroplane being simulated should be selected from the following list, where tests should be made with limiting wind velocities, wind shear and with relevant system failures* | | | |  |  |
| 3.a | **Normal** | | | |  |  |
| 3.a.1 | Aeroplane/engine parameter relationships, including run-up |  |  |  |  |  |
| 3.a.2 | Nosewheel and rudder steering |  |  |  |  |  |
| 3.a.3 | Crosswind (maximum demonstrated) |  |  |  |  |  |
| 3.a.4 | **Special performance** | | | |  |  |
| 3.a.4.a | Reduced V1 |  |  |  |  |  |
| 3.a.4.b | Maximum engine de-rate |  |  |  |  |  |
| 3.a.4.c | Soft surface *(If applicable)* |  |  |  |  |  |
| 3.a.4.d | Short field/short take-off and landing (STOL) operations *(if applicable)* |  |  |  |  |  |
| 3.a.4.e | Obstacle (performance over visual obstacle) *(if applicable)* |  |  |  |  |  |
| 3.a.5 | Low visibility take-off |  |  |  |  |  |
| 3.a.6 | Landing gear, wing flap and leading edge device operation |  |  |  |  |  |
| 3.a.7 | Contaminated runway operations |  |  |  |  |  |
| 3.b | **Abnormal/emergency** | | | |  |  |
| 3.b.1 | Rejected take-off |  |  |  |  |  |
| 3.b.2 | Rejected special performance take-off (e.g., reduced V1, maximum engine de-rate, short field/short take-off and landing (STOL) operations, etc.) |  |  |  |  |  |
| 3.b.3 | Rejected take-off with contaminated runway |  |  |  |  |  |
| 3.b.4 | Continued take-off with failure of most critical engine at most critical point |  |  |  |  |  |
| 3.b.5 | Flight control system failures, reconfiguration modes, manual reversion and associated handling |  |  |  |  |  |
| 4 | **Climb** | | | |  |  |
| 4.a | Normal |  |  |  | 1 |  |
| 4.b | One or more engine(s) inoperative |  |  |  | 1 |  |
| 4.c | Approach climb in icing (for aeroplanes with icing accountability) *(if applicable)* |  |  |  | 1 |  |
| 5 | **Cruise** | | | |  |  |
| 5.a | **Performance characteristics (speed versus power, configuration and attitude)** | | | | 1 |  |
| 5.a.1 | Straight and level flight |  |  |  |  |  |
| 5.a.2 | Change of airspeed |  |  |  |  |  |
| 5.a.3 | High-altitude handling |  |  |  |  |  |
| 5.a.4 | High-Mach number handling (Mach tuck, Mach buffet) and recovery (trim change) |  |  |  |  |  |
| 5.a.5 | Overspeed warning (in excess of Vmo or Mmo) |  |  |  |  |  |
| 5.a.6 | High-IAS handling |  |  |  |  |  |
| 5.b | **Maneuvers** | | | |  |  |
| 5.b.1.a | High angle of attack, approach to stall, stall warning, buffet and g-break (take-off, cruise, approach and landing configuration) |  |  |  | 2 |  |
| 5.b.1.b | High angle of attack, approach to stall, stall warning, buffet, g-break/pitch break and stick pusher response (take-off, cruise, approach and landing configuration). Aeroplane automation (such as autopilot and autothrottle) response to stall warning, stall and stick pusher. |  |  |  | 2 |  |
| 5.b.2 | Slow flight *(if applicable)* |  |  |  | 2 |  |
| 5.b.3 | Upset recognition and recovery maneuvers within the FSTD’s validated envelope as defined on the statement of compliance |  |  |  |  |  |
| 5.b.4 | Flight envelope protection (high angle of attack, bank limit, overspeed, etc.) |  |  |  |  |  |
| 5.b.5 | Turns with/without speedbrakes/spoilers deployed |  |  |  | 2 |  |
| 5.b.6 | Normal and standard rate turns |  |  |  |  |  |
| 5.b.7 | Steep turns |  |  |  |  |  |
| 5.b.8 | Performance turn |  |  |  | 2 |  |
| 5.b.9 | In-flight engine shutdown and restart (assisted and windmill) |  |  |  |  |  |
| 5.b.10 | Maneuvering with one or more engines inoperative |  |  |  |  |  |
| 5.b.11 | Specific flight characteristics (e.g., direct lift control) *(if applicable)* |  |  |  |  |  |
| 5.b.12 | Flight control system failures, reconfiguration modes, manual reversion and associated handling |  |  |  | 2 |  |
| 5.b.13 | Gliding to a forced landing *(Applicable for light aircraft)* |  |  |  |  |  |
| 5.b.14 | **Visual resolution and FSTD handling and performance for the following:**  *(Applicable for light aircraft)* | | | |  |  |
| 5.b.14.a | Terrain accuracy for forced landing area selection |  |  |  |  |  |
| 5.b.14.b | Terrain accuracy for VFR Navigation |  |  |  |  |  |
| 5.b.14.c | Eights on pylons (visual resolution) |  |  |  |  |  |
| 5.b.14.d | Turns about a point |  |  |  |  |  |
| 5.b.14.e | S-turns about a road or section line |  |  |  |  |  |
| 6 | **Descent** | | | |  |  |
| 6.a | Normal |  |  |  |  |  |
| 6.b | Maximum rate/emergency (clean, with speedbrakes, etc.) |  |  |  |  |  |
| 6.c | With autopilot |  |  |  |  |  |
| 6.d | Flight control system failures, reconfiguration modes, manual reversion and associated handling |  |  |  |  |  |
| 7 | **Instrument approaches operations**  *Note — Only those instrument approach and landing tests relevant to the type or class of the aeroplane being simulated should be selected from the following list, where tests should be made with limiting wind velocities, wind shear (except for the CAT II and III precision approaches) and with relevant system failures.* | | | |  |  |
| 7.a | **3D operations on precision approach procedures** | | | |  |  |
| 7.a.1 | **CAT I published approaches (all types)** | | | |  |  |
| 7.a.1.a | Manual approach with/without flight director including landing |  |  |  |  |  |
| 7.a.1.b | Autopilot/autothrottle coupled approach and manual landing |  |  |  |  |  |
| 7.a.1.c | Autopilot/autothrottle coupled approach, engine(s) inoperative |  |  |  |  |  |
| 7.a.1.d | Manual approach, engine(s) inoperative |  |  |  |  |  |
| 7.a.1.e | HUD/EFVS *(if applicable)* |  |  |  |  |  |
| 7.a.2 | **CAT II published approaches** | | | |  |  |
| 7.a.2.a | Autopilot/autothrottle coupled approach to DH and landing (manual and autoland) |  |  |  |  |  |
| 7.a.2.b | Autopilot/autothrottle coupled approach with one-engine-inoperative approach to DH and go-around (manual and autopilot) |  |  |  |  |  |
| 7.a.2.c | HUD/EFVS *(if applicable)* |  |  |  |  |  |
| 7.a.3 | **CAT III published approaches** | | | |  |  |
| 7.a.3.a | Autopilot/autothrottle coupled approach to landing and roll-out (if applicable) guidance (manual and autoland) |  |  |  |  |  |
| 7.a.3.b | Autopilot/autothrottle coupled approach to DH and go-around (manual and autopilot) |  |  |  |  |  |
| 7.a.3.c | Autopilot/autothrottle coupled approach to land and roll-out (if applicable) guidance with one engine inoperative (manual and autoland) |  |  |  |  |  |
| 7.a.3.d | Autopilot/autothrottle coupled approach to DH and go-around with one engine inoperative (manual and autopilot) |  |  |  |  |  |
| 7.a.3.e | HUD/EFVS *(if applicable)* |  |  |  |  |  |
| 7.a.4 | **Autopilot/autothrottle coupled approach (to a landing or to a go-around):** | | | |  |  |
| 7.a.4.a | With generator failure |  |  |  | 1 |  |
| 7.a.4.b | With maximum tail wind component certified or authorized |  |  |  | 1 |  |
| 7.a.4.c | With maximum crosswind component demonstrated or authorized |  |  |  | 1 |  |
| 7.a.5 | PAR (Precision Approach Radar) approach, all engine(s) operating and with one or more engine(s) inoperative *(If applicable)* |  |  |  | 1 |  |
| 7.a.6 | MLS, GBAS (Ground Based Augmentation System), all engine(s) operating and with one or more engine(s) inoperative *(if applicable)* |  |  |  | 1 |  |
| 7.b | **2D and 3D operations on non-precision approach procedures** | | | |  |  |
| 7.b.1 | Surveillance radar approach, all engine(s) operating and with one or more engine(s) inoperative |  |  |  | 2 |  |
| 7.b.2 | NDB approach (with and without CDFA), all engine(s) operating and with one or more engine(s) inoperative *(if applicable)* |  |  |  | 2 |  |
| 7.b.3 | VOR, VOR/DME, TACAN approach (with and without CDFA), all engines(s) operating and with one or more engine(s) inoperative *(if applicable)* |  |  |  | 2 |  |
| 7.b.4 | RNP APCH approach procedures (with and without CDFA) — localizer performance (LP) and lateral navigation (LNAV) minima (at nominal and minimum authorized temperatures), all engine(s) operating and with one or more engine(s) inoperative |  |  |  | 2 |  |
| 7.b.5 | ILS localizer only (LOC), and ILS localizer back course (LOC-BC) approaches (with and without CDFA), all engine(s) operating and with one or more engine(s) inoperative |  |  |  | 2 |  |
| 7.b.6 | ILS offset localizer approach, all engine(s) operating and with one or more engine(s) inoperative *(if applicable)* |  |  |  | 2 |  |
| 7.c | **3D operations on approach procedures with vertical guidance (APV), e.g. SBAS, flight path vector** | | | |  |  |
| 7.c.1 | RNP APCH Baro VNAV approach procedures (LNAV/VNAV minima), all engine(s) operating and with one or more engine(s) inoperative |  |  |  | 3 |  |
| 7.c.2 | RNP APCH approach procedures based on SBAS (LPV minima), all engine(s) operating and with one or more engine(s) inoperative |  |  |  | 3 |  |
| 7.c.3 | RNP AR APCH approach procedures with Baro-VNAV (RNP 0.3-0.1 minima), all engine(s) operating and with one or more engine(s) inoperative |  |  |  | 3 |  |
| 8 | **Visual approaches (Segment) and landings** | | | |  |  |
| 8.a | Maneuvering, normal approach and landing all engines operating, with and without visual and navigational approach aid guidance |  |  |  | 3 |  |
| 8.b | Approach and landing with one or more engine(s) inoperative |  |  |  | 3 |  |
| 8.c | Operation of landing gear, flap/slats and speedbrakes (normal and abnormal) |  |  |  | 3 |  |
| 8.d | Approach and landing with crosswind (maximum demonstrated crosswind component) |  |  |  | 3 |  |
| 8.e | Approach and landing with flight control system failures (for reconfiguration modes, manual reversion and associated handling with the most significant degradation which is probable) |  |  |  | 3 |  |
| 8.f | Approach and landing with standby (minimum) electrical/hydraulic power |  |  |  | 3 |  |
| 8.g | Approach and landing from circling conditions (circling approach).  *Note.— For Types III, V, VI and VII, this test requires as a minimum a representative airport scene that can provide a heading difference of 90°or more, and 180°or less, between approach and landing runways. Any associated hazard lights or any other visual aids for use as part of the published circling procedure should be included in the correct position(s) and be of the appropriate colour(s), directionality and behaviour. For Type II and Type IV, a generic airport model to be consistent with published data used for aeroplane operations may be used and should contain both the approach and landing runways and have the capability to light both at the same time. Any associated hazard lights or any other visual aids for use as part of the published circling procedure need to be included in the correct position(s) and be of the appropriate colour(s) and behaviour.* |  |  |  | 3 |  |
| 8.h | Approach and landing from a visual traffic pattern |  |  |  | 3 |  |
| 8.i | Approach and landing from a non-precision approach |  |  |  | 3 |  |
| 8.j | Approach and landing from a precision approach |  |  |  | 3 |  |
| 8.k | Approach and landing from published visual approach (including those that use PBN) *(if applicable)* |  |  |  | 3 |  |
|  | *Note — An FSTD with a visual system, which permits completing a special approach procedure in accordance with applicable regulations, may be approved for that particular approach procedure.* | | | |  |  |
| 9 | **Missed approach** | | | |  |  |
| 9.a | All engines operating, manual and autopilot |  |  |  |  |  |
| 9.b | One or more engine(s) inoperative, manual and autopilot |  |  |  |  |  |
| 9.c | Rejected landing |  |  |  |  |  |
| 9.d | With auto-flight, flight control system failures, reconfiguration modes and manual reversion |  |  |  |  |  |
| 10 | **Surface operations (Landing, after landing and post-flight)** | | | |  |  |
| 10.a | **Landing roll and taxi** | | | |  |  |
| 10.a.1 | HUD/EFVS *(if applicable)* |  |  |  |  |  |
| 10.a.2 | Spoiler operation |  |  |  |  |  |
| 10.a.3 | Reverse thrust operation |  |  |  |  |  |
| 10.a.4 | Directional control and ground handling, both with and without reverse thrust |  |  |  |  |  |
| 10.a.5 | Reduction of rudder effectiveness with increased reverse thrust (rear pod-mounted engines) |  |  |  |  |  |
| 10.a.6 | **Brake and anti-skid operation** | | | |  |  |
| 10.a.6.a | Brake and anti-skid operation with dry, wet, icy, patchy wet, patchy ice, wet on rubber residue in touchdown zone conditions |  |  |  |  |  |
| 10.a.6.c | Brake and anti-skid operation with dry conditions |  |  |  |  |  |
| 10.a.6.d | Auto-braking system operation |  |  |  |  |  |
| 10.b | **Engine shutdown and parking** | | | |  |  |
| 10.b.1 | Engine and systems operation |  |  |  |  |  |
| 10.b.2 | Parking brake operation |  |  |  |  |  |
| 11 | **Any flight phase** | | | |  |  |
| 11.a | **Aeroplane and engine systems operation (where fitted)** | | | |  |  |
| 11.a.1 | Air conditioning and pressurisation (Environmental Control System) |  |  |  | 1 |  |
| 11.a.2 | De-icing/anti-icing |  |  |  | 1 |  |
| 11.a.3 | Auxiliary engine/auxiliary power unit (APU) |  |  |  | 1 |  |
| 11.a.4 | Communications |  |  |  | 1 |  |
| 11.a.5 | Electrical |  |  |  | 1 |  |
| 11.a.6 | Fire and smoke detection and suppression |  |  |  |  |  |
| 11.a.7 | Flight controls (primary and secondary) |  |  |  |  |  |
| 11.a.8 | Fuel and oil |  |  |  | 1 |  |
| 11.a.9 | Hydraulic |  |  |  |  |  |
| 11.a.10 | Pneumatic |  |  |  | 1 |  |
| 11.a.11 | Landing gear |  |  |  | 1 |  |
| 11.a.12 | Oxygen |  |  |  | 1 |  |
| 11.a.13 | Engine |  |  |  |  |  |
| 11.a.14 | Airborne radar |  |  |  | 1 |  |
| 11.a.15 | Autopilot and flight director |  |  |  | 1 |  |
| 11.a.16 | Terrain awareness warning systems and collision avoidance systems (e.g., EGPWS, GPWS, TCAS) |  |  |  | 1 |  |
| 11.a.17 | Flight control computers including stability and control augmentation |  |  |  | 1 |  |
| 11.a.18 | Flight display systems |  |  |  | 1 |  |
| 11.a.19 | Flight management systems |  |  |  |  |  |
| 11.a.20 | Head-up displays (including EFVS, if appropriate) |  |  |  |  |  |
| 11.a.21 | Navigation systems |  |  |  | 1 |  |
| 11.a.22 | Stall warning/avoidance |  |  |  | 2 |  |
| 11.a.23 | Wind shear avoidance/recovery guidance equipment |  |  |  | 2 |  |
| 11.a.24 | Flight envelope protections |  |  |  | 2 |  |
| 11.a.25 | Electronic flight bag *(if applicable)* |  |  |  | 2 |  |
| 11.a.26 | Automatic checklists (normal, abnormal and emergency procedures) *(if applicable)* |  |  |  | 2 |  |
| 11.a.27 | Runway alerting and advisory system |  |  |  |  |  |
| 11.b | **Airborne procedures** | | | |  |  |
| 11.b.1 | Holding (conventional and RNAV) |  |  |  | 2 |  |
| 11.b.2 | Air hazard avoidance (traffic, weather, including visual correlation) |  |  |  | 2 |  |
| 11.b.3 | **Wind shear:** | | | |  |  |
| 11.b.3.a | Prior to take-off rotation *(if applicable)* |  |  |  |  |  |
| 11.b.3.b | At lift-off *(if applicable)* |  |  |  |  |  |
| 11.b.3.c | During initial climb *(if applicable)* |  |  |  |  |  |
| 11.b.3.d | On final approach, below 150 m (500 ft) AGL *(if applicable)* |  |  |  |  |  |
| 12 | **Visual system**  This section is written in the context of the FSTD operator presenting models of real-world airports, serviced by the aeroplane type being simulated, for use in completion of the functions and subjective tests described in this appendix. The models should also be airports that are used regularly in the training programme(s) and, as applicable, may be presented for approval of circling approaches. However, where the requirement for the device visual system fidelity level allows, the FSTD operator may elect to use demonstration models for use during the device initial qualification which need not be fully up to date nor replicate any particular airport (fictitious airport).  During recurrent evaluations, the CAA may select any visual scene used in the air operator’s training programme(s) for completion of the functions and subjective tests, provided these visual scenes were modelled with the features required. | | | |  |  |
| 12.a | **Functional test content requirements**  The following are the minimum airport model content requirements to satisfy visual capability tests and provide suitable visual cues to allow completion of all functions and subjective tests described in this Appendix. FSTD operators are encouraged to use the model content described below for the functions and subjective tests. | | | |  |  |
| 12.a.1 | **Airport scenes** | | | |  |  |
| 12.a.1.a | A minimum of three real-world airport models to be consistent with published data used for aeroplane operations and capable of demonstrating all the visual system features below. Each model should be in a different visual scene to permit assessment of FSTD automatic visual scene changes. Each model should be selectable from the IOS. |  |  |  |  |  |
| 12.a.1.c | A minimum of one generic airport model to be consistent with published data used for aeroplane operations. This model should be acceptable to the FSTD operator’s CAA and selectable from the IOS. |  |  |  |  |  |
| 12.a.2 | **Visual scene fidelity** | | | |  |  |
| 12.a.2.a | The visual scene should correctly represent the parts of the airport and its surroundings used in the training programme. |  |  |  |  |  |
| 12.a.2.c | The fidelity of the visual scene should be sufficient for the flight crew to successfully accomplish take-offs, approaches and landings. |  |  |  |  |  |
| 12.a.3 | **Runways and taxiways** |  |  |  |  |  |
| 12.a.3.a | The airport runways and taxiways |  |  |  |  |  |
| 12.a.3.b | Representative runways and taxiways |  |  |  |  |  |
| 12.a.3.c | Generic runways and taxiways |  |  |  |  |  |
| 12.a.4 | If appropriate to the airport, two parallel runways and one crossing runway displayed simultaneously; at least two runways should be capable of being lit simultaneously. |  |  |  |  |  |
| 12.a.5 | Runway threshold elevations and locations should be modelled to provide correlation with aeroplane systems (e.g., HUD, GPS, compass, altimeter). |  |  |  |  |  |
| 12.a.6 | Slopes in runways, taxiways and ramp areas should not cause distracting or unrealistic effects, including pilot eyepoint height variation. |  |  |  |  |  |
| 12.a.7 | **Runway surface and markings for each “in-use” runway should include the following, if appropriate:**  *Note — The feature, if required, should be representative for Types I and III and generic for Types II and IV.* | | | |  |  |
| 12.a.7.a | Threshold markings |  |  |  |  |  |
| 12.a.7.b | Runway numbers |  |  |  |  |  |
| 12.a.7.c | Touchdown zone markings |  |  |  |  |  |
| 12.a.7.d | Fixed distance markings |  |  |  |  |  |
| 12.a.7.e | Edge markings |  |  |  |  |  |
| 12.a.7.f | Centre line markings |  |  |  |  |  |
| 12.a.7.g | Distance remaining signs |  |  |  |  |  |
| 12.a.7.h | Signs at intersecting runways and taxiways |  |  |  |  |  |
| 12.a.7.i | Windsock that gives appropriate wind cues |  |  |  |  |  |
| 12.a.8 | **Runway lighting of appropriate colours, directionality, behaviour and spacing for each “in-use” runway including the following, if appropriate:**  *Note — The feature, if required, should be representative for Types I and III and generic for Types II and IV.* | | | |  |  |
| 12.a.8.a | Threshold lights |  |  |  |  |  |
| 12.a.8.b | Edge lights |  |  |  |  |  |
| 12.a.8.c | End lights |  |  |  |  |  |
| 12.a.8.d | Centre line lights |  |  |  |  |  |
| 12.a.8.e | Touchdown zone lights |  |  |  |  |  |
| 12.a.8.f | Lead-off lights |  |  |  |  |  |
| 12.a.8.g | Appropriate visual landing aid(s) for that runway |  |  |  |  |  |
| 12.a.8.h | Appropriate approach lighting system for that runway |  |  |  |  |  |
| 12.a.9 | **Taxiway surface and markings (associated with each “in-use” runway) should include the following, if appropriate:**  *Note – The feature, if required, should be representative for Types I and III and generic for Types II and IV.* | | | |  |  |
| 12.a.9.a | Edge markings |  |  |  | 1 |  |
| 12.a.9.b | Centre line markings |  |  |  | 1 |  |
| 12.a.9.c | Runway holding position markings |  |  |  | 1 |  |
| 12.a.9.d | ILS critical area markings |  |  |  | 1 |  |
| 12.a.9.e | All taxiway markings, lighting and signage to taxi, as a minimum, from a designated parking position to a designated runway and return, after landing on the designated runway, to a designated parking position; a low-visibility taxi route (e.g. surface movement guidance control system, follow-me truck, daylight taxi lights) should also be demonstrated for operations authorized in low visibility. The designated runway and taxi routing should be consistent with that airport for operations in low visibility. |  |  |  | 1 |  |
| 12.a.10 | **Taxiway lighting of appropriate colours, directionality, behaviour and spacing (associated with each “in­-use” runway) should include the following, if appropriate:**  *Note — The feature, if required, should be representative for Types I and III and generic for Types II and IV.* | | | |  |  |
| 12.a.10.a | Edge lights |  |  |  | 1 |  |
| 12.a.10.b | Centre line lights |  |  |  | 1 |  |
| 12.a.10.c | Runway holding position and ILS critical area lights |  |  |  | 1 |  |
| 12.a.11 | **Required visual model correlation with other aspects of the airport environment simulation** | | | |  |  |
| 12.a.11.a | The airport model should be properly aligned with the navigational aids that are associated with operations at the runway “in-use” |  |  |  | 1 |  |
| 12.a.11.b | The simulation of runway contaminants should be correlated with the displayed runway surface and lighting |  |  |  | 1 |  |
| 12.a.12 | **Airport buildings, structures and lighting** | | | |  |  |
| 12.a.12.a | **Buildings, structures and lighting** | | | |  |  |
| 12.a.12.a.1 | The airport buildings, structures and lighting |  |  |  | 1 |  |
| 12.a.12.a.2 | Representative airport buildings, structures and lighting |  |  |  | 1 |  |
| 12.a.12.a.3 | Generic airport buildings, structures and lighting |  |  |  | 1 |  |
| 12.a.12.b | At least one useable gate, set at the appropriate height (required only for aeroplanes that typically operate from terminal gates) |  |  |  | 1 |  |
| 12.a.12.c | Representative moving and static airport clutter (e.g., other aeroplanes, power carts, tugs, fuel trucks, additional gates) |  |  |  | 1 |  |
| 12.a.12.d | Gate/apron markings (e.g., hazard markings, lead-in lines, gate numbering), lighting and gate docking aids or a marshaller |  |  |  | 1 |  |
| 12.a.13 | **Terrain and obstacles** | | | |  |  |
| 12.a.13.a | Terrain and obstacles within 46 km (25 NM) of the reference airport |  |  |  | 1 |  |
| 12.a.13.b | Representative depiction of terrain and obstacles within 46 km (25 NM) of the reference airport |  |  |  | 1 |  |
| 12.a.14 | **Significant, identifiable natural and cultural features and moving airborne traffic** | | | |  |  |
| 12.a.14.a | Significant, identifiable natural and cultural features within 46 km (25 NM) of the reference airport.  *Note.— This refers to natural and cultural features that are typically used for pilot orientation in flight. Outlying airports not intended for landing need only provide a reasonable facsimile of runway orientation.* |  |  |  | 1 |  |
| 12.a.14.b | Representative depiction of significant and identifiable natural and cultural features within 46 km (25 NM) of the reference airport.  *Note — This refers to natural and cultural features that are typically used for pilot orientation in flight. Outlying airports not intended for landing need only provide a reasonable facsimile of runway orientation.* |  |  |  | 1 |  |
| 12.a.14.c | Representative moving airborne traffic (including the capability to present air hazards, e.g. airborne traffic on a possible collision course). |  |  |  | 1 |  |
| 12.b | **Visual scene management.** | | | |  |  |
| 12.b.1 | Airport runway, approach and taxiway lighting and cultural feature lighting intensity for any approach should be capable of being set to six different intensities (0 to 5); all visual scene light points should fade into view appropriately. |  |  |  | 2 |  |
| 12.b.2 | Airport runway, approach and taxiway lighting and cultural feature lighting intensity for any approach should be set at an intensity representative of that used in training for the visibility set; all visual scene light points should fade into view appropriately. |  |  |  | 2 |  |
| 12.b.3 | The directionality of strobe lights, approach lights, runway edge lights, visual landing aids, runway center line lights, threshold lights and touchdown zone lights on the runway of intended landing should be realistically replicated. |  |  |  | 2 |  |
| 12.c | **Visual feature recognition.**  *Note — The following are the minimum distances at which runway features should be visible. Distances are measured from runway threshold to an aeroplane aligned with the runway on an extended 3°glide slope in suitable simulated meteorological conditions. For circling approaches, all tests below apply both to the runway used for the initial approach and to the runway of intended landing.* | | | |  |  |
| 12.c.1 | Runway definition, strobe lights, approach lights and runway edge white lights from 8 km (5 sm) of the runway threshold |  |  |  | 2 |  |
| 12.c.2 | **Visual approach aids lights** | | | |  |  |
| 12.c.2.a | Visual approach aids lights from 8 km (5 sm) of the runway threshold |  |  |  | 2 |  |
| 12.c.2.b | Visual approach aids lights from 4.8 km (3 sm) of the runway threshold |  |  |  | 2 |  |
| 12.c.3 | Runway centre line lights and taxiway definition from 4.8 km (3 sm) |  |  |  | 2 |  |
| 12.c.4 | Threshold lights and touchdown zone lights from 3.2 km (2 sm) |  |  |  | 2 |  |
| 12.c.5 | Runway markings within range of landing lights for night scenes; as required by the surface resolution test on day scenes |  |  |  | 2 |  |
| 12.c.6 | For circling approaches, the runway of intended landing and associated lighting should fade into view in a non-distracting manner |  |  |  | 2 |  |
| 12.d | **Selectable airport visual scene capability for:** | | | |  |  |
| 12.d.1 | Night |  |  |  | 2 |  |
| 12.d.2 | Twilight |  |  |  | 2 |  |
| 12.d.3 | Day |  |  |  | 2 |  |
| 12.d.4 | Dynamic effects — the capability to present multiple ground and air hazards such as another aeroplane crossing the active runway or converging airborne traffic; hazards should be selectable via controls at the instructor station. |  |  |  | 2 |  |
| 12.d.5 | Illusions — operational visual scenes which portray representative physical relationships known to cause landing illusions, for example short runways, landing approaches over water, uphill or downhill runways, rising terrain on the approach path and unique topographic features.  *Note — Illusions may be demonstrated at a generic airport or at a specific airport.* |  |  |  | 2 |  |
| 12.e | **Correlation with aeroplane and associated equipment** | | | |  |  |
| 12.e.1 | Visual cues to relate to actual aeroplane responses |  |  |  | 2 |  |
| 12.e.2 | **Visual cues during take-off, approach and landing** | | | |  |  |
| 12.e.2.a | Visual cues to assess sink rate and depth perception during landings |  |  |  | 2 |  |
| 12.e.2.b | Visual cueing sufficient to support changes in approach path by using runway perspective. Changes in visual cues during take-off, approach and landing should not distract the pilot. |  |  |  | 2 |  |
| 12.e.3 | Accurate portrayal of environment relating to aeroplane attitudes |  |  |  | 2 |  |
| 12.e.4 | The visual scene should correlate with integrated aeroplane systems, where fitted (e.g., terrain, traffic and weather avoidance systems and HUD/EFVS) |  |  |  | 2 |  |
| 12.e.5 | The effect of rain removal devices should be provided |  |  |  | 2 |  |
| 12.f | **Scene quality** | | | |  |  |
| 12.f.1 | **Quantization** | | | |  |  |
| 12.f.1.a | Surfaces and textural cues should be free from apparent quantization (aliasing) |  |  |  | 2 |  |
| 12.f.1.b | Surfaces and textural cues should not create distracting quantization (aliasing) |  |  |  | 2 |  |
| 12.f.2 | System capable of portraying full colour realistic textural cues |  |  |  | 2 |  |
| 12.f.3 | The system light points should be free from distracting jitter, smearing or streaking |  |  |  | 2 |  |
| 12.f.4 | System capable of providing focus effects that simulate rain |  |  |  | 2 |  |
| 12.f.5 | System capable of providing light point perspective growth |  |  |  | 2 |  |
| 12.g | **Environmental effects** | | | |  |  |
| 12.g.1 | The displayed scene should correspond to the appropriate surface contaminants and include runway lighting reflections for wet, partially obscured lights for snow, or suitable alternative effects. |  |  |  | 3 |  |
| 12.g.2 | Special weather representations which include the sound, motion and visual effects of light, medium and heavy precipitation near a thunderstorm on take-off, approach and landings at and below an altitude of 600 m (2 000 ft) above the airport surface and within a radius of 16 km (10 sm) from the airport. |  |  |  | 3 |  |
| 12.g.3 | One airport with a snow scene, if appropriate to the air operator’s area of operations, to include terrain snow and snow-covered taxiways and runways *(if applicable)* |  |  |  | 3 |  |
| 12.g.4 | In-cloud effects such as variable cloud density, speed cues and ambient changes should be provided |  |  |  | 3 |  |
| 12.g.5 | The effect of multiple cloud layers representing few, scattered, broken and overcast conditions giving partial or complete obstruction of the ground scene |  |  |  | 3 |  |
| 12.g.6 | Gradual break-out to ambient visibility/RVR, defined as up to 10% of the respective cloud base or top, 6 m (20 ft) ≤ transition layer ≤ 61 m (200 ft); cloud effects should be checked at and below a height of 600 m (2 000 ft) above the airport and within a radius of 16 km (10 sm) from the airport. Transition effects should be complete when the IOS cloud base or top is reached when exiting and start when entering the cloud, i.e., transition effects should occur within the IOS defined cloud layer. |  |  |  | 3 |  |
| 12.g.7 | Visibility and RVR measured in terms of distance. Visibility/RVR should be checked at and below a height of 600 m (2 000 ft) above the airport and within a radius of 16 km (10 sm) from the airport. *Note — RVR only required for Types V, VI and VII.* |  |  |  | 3 |  |
| 12.g.8 | Patchy fog (sometimes referred to as patchy RVR) giving the effect of variable RVR. The lowest RVR should be that selected on the IOS, i.e. variability is only > IOS RVR. |  |  |  | 3 |  |
| 12.g.9 | Effects of fog on airport lighting such as halos and defocus |  |  |  | 3 |  |
| 12.g.10 | Effect of own ship lighting in reduced visibility, such as reflected glare, to include landing lights, strobes and beacons |  |  |  | 3 |  |
| 12.g.11 | Wind cues to provide the effect of blowing snow or sand across a dry runway or taxiway should be selectable from the instructor station |  |  |  | 3 |  |
| 13 | **Motion and vibration effects**  The following specific motion and vibration effects are required to indicate the threshold at which a flight crew member should recognize an event or situation. Where applicable below, the FSTD pitch, side loading and directional control characteristics, as well as the vibration characteristics, should be representative of the aeroplane. There is a need for motion objective tests to be validated against data. | | | |  |  |
| 13.a | Taxiing effects such as lateral, longitudinal and directional cues resulting from steering and braking inputs*(if applicable)* |  |  |  | 3 |  |
| 13.b | Effects of runway rumble, oleo deflections, ground speed, uneven runway, runway center line lights, runway contamination with associated anti-skid and taxiway characteristics. |  |  |  | 3 |  |
| 13.c | Buffets on the ground due to spoiler/speedbrake extension and thrust |  |  |  | 3 |  |
| 13.d | Bumps associated with the landing gear |  |  |  | 3 |  |
| 13.e | Buffet during extension and retraction of landing gear |  |  |  | 3 |  |
| 13.f | Buffet in the air due to flap and spoiler/speedbrake extension |  |  |  | 3 |  |
| 13.g | Buffet due to atmospheric disturbances *(if applicable)* |  |  |  | 3 |  |
| 13.h | Approach to stall buffet |  |  |  | 3 |  |
| 13.i | Touchdown cues for main and nose gear |  |  |  | 3 |  |
| 13.j | Nosewheel scuffing |  |  |  | 3 |  |
| 13.k | Thrust effect with brakes set |  |  |  | 3 |  |
| 13.l | Mach and maneuver buffet |  |  |  | 3 |  |
| 13.m | Tire failure dynamics |  |  |  | 3 |  |
| 13.n | Engine failures, malfunction, engine and airframe structural damage |  |  |  | 3 |  |
| 13.o | Tail, engine pod/propeller, wing strikes |  |  |  | 3 |  |
| 14 | **Sound system** | | | |  |  |
| 14.a | Precipitation |  |  |  | 3 |  |
| 14.b | Rain removal equipment |  |  |  | 3 |  |
| 14.c | Significant aeroplane noises perceptible to the pilot during normal operations, such as noises from engine, propeller, flaps, gear, anti-skid, spoiler extension/retraction and thrust reverser, to a comparable level of that found in the aeroplane. |  |  |  | 3 |  |
| 14.d | Abnormal operations for which there are associated sound cues including, but not limited to, engine malfunctions, landing gear/tire malfunctions, tail and engine pod/propeller strike and pressurization malfunctions. |  |  |  | 3 |  |
| 14.e | Sound of a crash when the FSTD is landed in excess of limitations |  |  |  | 3 |  |
| 15 | **Special effects** | | | |  |  |
| 15.a | Braking dynamics (normal and anti-skid, failure dynamics for brakes and anti-skid, reduced efficiency due to high temperature, etc.) |  |  |  | 3 |  |
| 15.b | Effects of airframe and engine icing |  |  |  | 3 |  |
| 16 | **Simulated Air Traffic Control (ATC) environment** *(if applicable)*  *Note 1 — Automated simulation of standard ATC communications to the own ship is not mandated by this document but is nevertheless strongly recommended. If the FSTD operator has elected to use the instructor to provide all ATC communications to the own ship, the evaluator will need to review the following functions list taking this into consideration.*  *Note 2 — Features that are unrealistic or could potentially disrupt training (for example, issues with the visual representation of other traffic, ATC communication errors and incorrect clearances) should be corrected or removed.* | | | |  |  |
| 16.a | **Automated weather reporting** | | | |  |  |
| 16.a.1 | Instructor control |  |  |  | 3 |  |
| 16.a.2 | Automated weather reporting | | | |  |  |
| 16.a.2.a | Multiple stations |  |  |  | 3 |  |
| 16.a.2.b | Single station |  |  |  | 3 |  |
| 16.a.3 | **Message format and regional characteristics** | | | |  |  |
| 16.a.3.a | Regional |  |  |  | 3 |  |
| 16.a.3.b | ICAO message format |  |  |  | 3 |  |
| 16.a.4 | Provided by data link |  |  |  | 3 |  |
| 16.b | **Other traffic** | | | |  |  |
| 16.b.1 | **Aircraft behaviour** | | | |  |  |
| 16.b.1.a | Airport specific |  |  |  | 3 |  |
| 16.b.1.b | **Aircraft behaviour** | | | |  |  |
| 16.b.1.b.1 | Appropriate routing |  |  |  | 3 |  |
| 16.b.1.b.2 | Representative performance |  |  |  | 3 |  |
| 16.b.2 | Airport clutter |  |  |  | 3 |  |
| 16.b.3 | **Traffic flow and separation** | | | |  |  |
| 16.b.3.a | Scalable, if required |  |  |  | 3 |  |
| 16.b.3.b | Sufficient intensity, representative separation |  |  |  | 3 |  |
| 16.b.4 | Traffic type (airport specific) |  |  |  | 3 |  |
| 16.b.5 | Traffic call sign and livery |  |  |  | 3 |  |
| 16.b.6 | Runway incursion |  |  |  | 3 |  |
| 16.c | **Background radio traffic** | | | |  |  |
| 16.c.1 | **Background radio traffic** | | | |  |  |
| 16.c.1.a | No obviously erroneous information |  |  |  | 3 |  |
| 16.c.1.b | Frequency specific messages |  |  |  | 3 |  |
| 16.c.1.c | No overstepping (normally) |  |  |  | 3 |  |
| 16.c.1.d | Reasonable frequency access |  |  |  | 3 |  |
| 16.c.2 | **Other traffic radio communications** | | | |  |  |
| 16.c.2.a | Intrusive, if required |  |  |  | 3 |  |
| 16.c.2.b | Non-intrusive |  |  |  | 3 |  |
| 16.c.3 | **ATC radio communications** | | | |  |  |
| 16.c.3.a | Location-specific procedures and nomenclature |  |  |  | 3 |  |
| 16.c.3.b | **ATC radio communications** | | | |  |  |
| 16.c.3.b.1 | Consistent with other traffic movements |  |  |  | 3 |  |
| 16.c.3.b.2 | Continuous across sector boundaries |  |  |  | 3 |  |
| 16.c.3.b.3 | ICAO standard phraseology (as per Doc 4444, PANS-ATM) |  |  |  | 3 |  |
| 16.c.4 | **Overstepping on frequency** | | | |  |  |
| 16.c.4.a | Basic ATC notification |  |  |  | 3 |  |
| 16.c.4.b | Indication at the IOS |  |  |  | 3 |  |
| 16.d | **Airport and airspace modelling** | | | |  |  |
| 16.d.1 | **Simulated ATC environment modelled areas** | | | |  |  |
| 16.d.1.a | Minimum of one specific and two generic (or higher fidelity) airport models |  |  |  | 3 |  |
| 16.d.1.b | Minimum of two generic (or higher fidelity) airport models |  |  |  | 3 |  |
| 16.d.2 | **Runways** | | | |  |  |
| 16.d.2.a | Multiple |  |  |  | 3 |  |
| 16.d.2.b | Single |  |  |  | 3 |  |
| 16.d.3 | Data synchronization |  |  |  | 3 |  |
| 16.e | **Weather** | | | |  |  |
| 16.e.1 | Reference runway |  |  |  | 3 |  |
| 16.e.2 | Other traffic separation |  |  |  | 3 |  |
| 16.e.3 | Low visibility operations |  |  |  | 3 |  |
| 16.f | **ATC *—* own ship communications** | | | |  |  |
| 16.f.1 | Time synchronization |  |  |  | 3 |  |
| 16.f.2 | ATC radio communications |  |  |  | 3 |  |
| 16.f.3 | **Message triggering** | | | |  |  |
| 16.f.3.a | Automatic |  |  |  | 3 |  |
| 16.f.3.b | Manual |  |  |  | 3 |  |
| 16.f.4 | “Standby” and “say again” |  |  |  | 3 |  |
| 16.f.5 | Readback and acknowledgements |  |  |  | 3 |  |
| 16.f.6 | Clearance deviations |  |  |  | 3 |  |
| 16.g | **Language and phraseology** | | | |  |  |
| 16.g.1 | English |  |  |  | 3 |  |
| 16.g.2 | Standard phraseology |  |  |  | 3 |  |
| 16.h | **Own ship radio operation** | | | |  |  |
| 16.h.1 | Multi-frequency radio operation |  |  |  | 3 |  |
| 16.i | **System correlation** | | | |  |  |
| 16.i.1 | Visual system |  |  |  | 3 |  |
| 16.i.2 | TCAS |  |  |  | 3 |  |
| 16.i.3 | Cockpit traffic displays, if installed |  |  |  | 3 |  |
| 16.i.4 | IOS |  |  |  | 3 |  |
| 16.j | **Data link communications** | | | |  |  |
| 16.j.1 | ATS clearances |  |  |  | 1 |  |
| 16.j.2 | ATS weather |  |  |  | 1 |  |
| 16.j.3 | DLIC |  |  |  | 1 |  |
| 16.j.4 | Connection management |  |  |  | 1 |  |
| 16.j.5 | CPDLC |  |  |  | 1 |  |
| 16.j.6 | ADS-C |  |  |  | 1 |  |
| 16.j.7 | AOC/DSP |  |  |  | 1 |  |
| 16.j.8 | Service failures |  |  |  | 1 |  |
| 16.k | **ATC voice characteristics** | | | |  |  |
| 16.k.1 | **Voice assignment** | | | |  |  |
| 16.k.1.a | Multiple ATC voices |  |  |  | 1 |  |
| 16.k.1.b | Single ATC voice |  |  |  | 1 |  |
| 16.k.2 | Gender and accents |  |  |  | 1 |  |
| 16.l | **Instructor controls** | | | |  |  |
| 16.l.1 | Access to radio communications |  |  |  | 2 |  |
| 16.l.2 | Simulator functions |  |  |  | 2 |  |
| 16.l.3 | Disable |  |  |  | 2 |  |
| 16.l.4 | Mute (background radio traffic) |  |  |  | 2 |  |
| 17 | **Instructor operating station** | | | |  |  |
| 17.a | **Repositions**  *Note — Repositions should be in-trim at the appropriate speed and configuration for the point.* | | | |  |  |
| 17.a.1 | Ramp/gate |  |  |  | 2 |  |
| 17.a.2 | Take-off position |  |  |  | 2 |  |
| 17.a.3 | Approach position (at least three positions at 1.8, 5.5 and 9.3 km (1.3 and 5 NM) from the runway threshold |  |  |  | 2 |  |
| 17.b | **Resets** | | | |  |  |
| 17.b.1 | System |  |  |  | 2 |  |
| 17.b.2 | Temperature |  |  |  | 2 |  |
| 17.b.3 | Fluids and agents |  |  |  | 2 |  |
| 17.c | **Environment** | | | |  |  |
| 17.c.1 | **Weather presets** | | | |  |  |
| 17.c.1.a | Unlimited, CAVOK, VFR, non-precision, APV, precision (CAT I, CAT II, CAT III), EFVS (if appropriate) |  |  |  | 2 |  |
| 17.c.1.b | Unlimited, CAVOK, VFR |  |  |  | 2 |  |
| 17.c.2 | **Visual effects** | | | |  |  |
| 17.c.2.a | Time of day (day, dusk, night); clouds (bases, tops, layers, types, density); visibility in kilometers/statute miles; RVR in meters/feet; and special effects (precipitation, thunderstorms, blowing snow, sand, etc.). |  |  |  | 2 |  |
| 17.c.2.b | Time of day (day, dusk, night); clouds (bases, tops, layers, types, density); visibility in kilometres/statute miles; RVR in metres/feet; and special effects (precipitation, thunderstorms, etc.). |  |  |  | 2 |  |
| 17.c.2.c | Time of day (day, dusk, night); clouds (bases, tops); visibility in kilometers/statute miles. |  |  |  | 2 |  |
| 17.c.3 | **Wind** |  |  |  |  |  |
| 17.c.3.a | Surface |  |  |  | 2 |  |
| 17.c.3.b | Intermediate levels |  |  |  | 2 |  |
| 17.c.3.c | Typical gradient |  |  |  | 2 |  |
| 17.c.3.d | Gust with associated heading and speed variance |  |  |  | 2 |  |
| 17.c.3.e | Turbulence |  |  |  | 2 |  |
| 17.c.4 | Temperature — surface |  |  |  | 2 |  |
| 17.c.5 | Atmospheric pressure (QNH, QFE) |  |  |  | 2 |  |
| 17.d | **Airport** | | | |  |  |
| 17.d.1 | **Runway selection** | | | |  |  |
| 17.d.1.a | To include active runway selection, and as appropriate to the airport, should be able to light at least one additional parallel or crossing runway |  |  |  | 2 |  |
| 17.d.1.b | To include active runway selection |  |  |  | 2 |  |
| 17.d.2 | **Airport lighting** | | | |  |  |
| 17.d.2.a | Airport lighting including variable intensity and control of progressive low visibility taxiway and stop bar lighting, as appropriate |  |  |  | 2 |  |
| 17.d.2.b | Airport lighting |  |  |  | 2 |  |
| 17.d.3 | Dynamic effects including ground and flight traffic |  |  |  | 2 |  |
| 17.e | Aeroplane configuration (fuel, weight, cg, etc.) |  |  |  | 2 |  |
| 17.f | FMS *—* reloading of programmed data unless precluded by installed equipment. |  |  |  | 2 |  |
| 17.g | Plotting and recording (take-off and approach) |  |  |  | 2 |  |
| 17.h | Malfunctions (inserting and removing) |  |  |  | 2 |  |