

**Normal Category Rotorcraft
Generic Validation Items**

Avionics

Subject	Description
Automatic Dependent Surveillance Broadcast (ADS-B)	New generation of satellite intensive surveillance equipment
Enhanced Vision Systems	Infrared or other sensor based vision systems provided on head-up display and are intended to partially substitute for natural vision. A special condition may be required.
Integrated Modular Avionics	An issue paper may be needed to establish a method of compliance for highly complex and integrated system architectures.
Synthetic Vision	Use of terrain data from a database to display “synthetic vision information to the pilot.
Complex systems with catastrophic failure	Special conditions may be required for system installation with catastrophic failure conditions to address the occurrence of any failure condition which would prevent the continued safe flight and landing of the rotorcraft must be extremely improbable.
System Safety Analysis	The application of SAE ARP 4754 to reduce the design assurance level based on system architectural features

Electrical Systems

Subject	Description
Operation without normal electrical power	Proposed Special Condition – Affected rotorcraft include those with modern electronics in safety critical applications such as fly by wire flight controls, etc.

Flight

Subject	Description
General Handling Qualities (Subpart B)	For projects involving significant external modification to the basic airframe (FLIR, Night-sun, etc.)
Instrument Flight (Appendix B)	<ul style="list-style-type: none">• Intercept and track ILS, VOR, GPS, and BC (if requested)• Autopilot interface: coupled approaches• H/Q during flight at V_{mini}• Single pilot IFR – workload assessment during normal and emergency procedures (include multiple / cascading failures)• Steep angle approaches (if approval is sought for $G/S > 3^\circ$)• 30-minute IFR operations, using only standby systems available on Battery power.• Cockpit evaluation / pilot workload / human factors (displays, avionics, etc.)• Degraded H/Q following single system failures must meet basic VFR H/Q requirements.• Generator load-shedding.
Category-A – if Requested by the Applicant (Subpart B)	<ul style="list-style-type: none">• Evaluation of T/O and Landing procedures, including abuse testing• Engine failure below/at/above DP.• Assessment of displays & required equipment to execute maneuver (RADALT, lights, etc.)

- Assessment of “TNG mode” (if applicable)
- Verification of RFMS WAT performance information.
- Evaluation of elevated heliport procedures, if approval is requested. [Note: this may be difficult to schedule – early coordination is essential, as simulation of an elevated heliport procedures has not been accepted.]
- Evaluation of “Training Mode” & displays, if applicable.

AFCS / Autopilot
(§§ 671, 695, 1329)

- Hardovers & slowovers, at the critical flight condition
- ILS to 100’
- RADALT power interrupt during ILS

External Loads
(§133)

- General H/Q; evaluation of low-speed controllability and related flight limits.
- Review substantiation for equipment intended for Human External Cargo (HEC) operations.

NVG Compatible Cockpits
(§§ 1321, 1322, 1381, 1383, 1385, 1401)

- Evaluation of cockpit for compatibility with approved NVG systems.
- Aircraft must still meet the basic lighting requirements for unaided flight.
- Review of RFMS limitations and procedures.

Flight Control systems

27.695 Power boost & power-operated control system. Encourage dual Hydraulic system in case of single system need Dry Boost testing. Verify by flt test single system hydraulic off still able to land safely.

Powerplant

Subject	Description
Power Situation Indicator	27.1305 Powerplant Instruments. Use of 1 cockpit display of the minimum limit engine power parameter vs. the analog display of 3 instruments (Nr, MGT, and Q).
Inlet Barrier Filter (IBF)	27.1091 Air Induction & 27.901 Installation. Adequate compliance requirements for use of IBFs. Policy guidance memorandum in legal review.
HUMs	MG 15-1 Airworthiness Approval of Rotorcraft Health Usage Monitoring Systems (HUMS). To include various drive system vibrations monitoring systems. * - Current AC material has not been standardized between authorities.

Structures

Subject	Description
Composite Structure	Currently, there is no specific rule addressing composite structure. Current § 27.571 is the compliance requirement and the advisory guidance addresses a compliance methodology.
Yawing (§27.351)	This may become a generic validation item due to different regulatory interpretations between FAA and EASA