

STATE OF UAS AND UAM CERTIFICATION

Pulkit Agrawal

EXAMPLE USE CASE	US		EU	
	AIRCRAFT TYPE CERT.	OPERATIONAL CERT.	AIRCRAFT TYPE CERT.	OPERATIONAL CERT.
BVLOS Inspection Drone under 55 lbs.	None needed	Part 107 with Operational Risk Assessment (ORA) and BVLOS waiver. ARC recommends operation without waiver.	Open category, PDRA, SORA and "competent authority" approval	
BVLOS Small Delivery Drone (less than 25000 ft-lb of kinetic energy)	Type certification required. Defined in AIR 600 Memo	If type certified, then Part 135 with exemption/waivers. ARC recommends operation without waiver.	PDRA, design verification for medium risk under specific category (SAIL IV), type certification for higher risk under specific category (SAIL V, VI) and "competent authority" approval	
Autonomous middle mile cargo (more than 25000 ft-lb kinetic energy)	Part 21.17(b) for aircraft segment. Ground segment undefined.	If type certified, then Part 135 with exemption/waivers. ARC recommends operation without waiver.	Design verification for medium risk under specific category (SAIL IV), type certification for higher risk under specific category (SAIL V, VI), type certified via NPA 2022-06 (Opinion No. 03/2023) under certified category	SORA up to SAIL VI. Undefined for certified category
Piloted UAM	Part 21.17(b). Global harmonization ongoing.	SFAR in public review.	SC-VTOL. Global harmonization ongoing.	NPA 2022-06 (Opinion No. 03/2023)
Autonomous UAM and passenger aircraft	Part 21.17(b) for aircraft segment. Ground segment undefined.	Undefined	Type cert via NPA 2022-06 (Opinion No. 03/2023). Aircraft segment by existing regulations or SC-VTOL	Undefined

BVLOS: Beyond visual line of sight
 ORA: Operational risk assessment
 ARC: Aviation rule making committee
 PDRA: Predefined risk assessment

Disclaimer:
 The information presented constitutes forward-looking statements regarding the subject matter. Any forward-looking statements represent our current judgment and are subject to risks and uncertainties that could cause actual results to differ materially. The information is provided "as-is" and without warranty.

Source Documents

DOCUMENT	CONTENT
SC-VTOL	Defines the special condition certification regulations for eVTOL
NPA 2022-06 (EASA NPRM - Introduction of a regulatory framework for the operation of drones)	Proposes 3 major items: <ul style="list-style-type: none"> • Initial airworthiness of UAS subject to certification • Continuing airworthiness of the UAS in specific category (SAIL V, VI) • The operational requirements applicable to manned VTOL-capable aircraft
Opinion No. 03/2023 : After review of comments during NPA 2022-06 comment period, EASA developed this opinion and the draft regulations	Proposes amendments to existing EU aviation regulations: <ul style="list-style-type: none"> • Initial airworthiness of UAS subject to certification • Continuing airworthiness of the UAS in specific category (SAIL V, VI) • Operational requirements applicable to manned VTOL-capable aircraft
Specific Operations Risk Assessment (SORA)	<ul style="list-style-type: none"> • Defines risk assessment framework for UAS, • Provides direction to identify ground risk, air risk and specific assurance and integrity level (SAIL) number
Integrity and Assurance Levels for the Operation Safety Objectives (OSO)	Defines operation safety objective based on the SAIL number
Standard Practice for Operational Risk Assessment (ORA) of Small Unmanned Aircraft Systems (sUAS)	Provides guidance on preparing operational risk assessments for sUAS (aircraft under 55 lb.) design
Memorandum AIR600-21-AIR-600-PM01	Defines FAA approach to type certification of low risk unmanned aircraft. This includes certification of UA and the specification of associated elements (ground station)
UAS BVLOS ARC Final Report	Provides recommendation for UAS to operate BVLOS without waivers or exemptions
Design Verification Report	Define EASA process for UAS design verification under SORA
DVR Guidelines Issue 2_0	Provide guidelines for the design verification report applicable for specific category SAIL IV operations, mitigation means linked with design and verification of 'enhanced containment'
SC Light-UAS Medium Risk	Provides special condition light unmanned aircraft system for medium risk (SAIL III and SAIL IV)
SC Light-UAS High Risk	Provides special condition light unmanned aircraft system for high risk (SAIL V and SAIL VI)
Predefined Risk Assessment (PDRA)	Provides predefined risk assessment carried out by EASA. Operation still requires authorization, but process can be simpler.
Special Federal Aviation Regulation (SFAR)	Provides temporary (for 10 years) pilot certification and operational rules for Power-Lift aircrafts

Disclaimer:

The information presented constitutes forward-looking statements regarding the subject matter. Any forward-looking statements represent our current judgment and are subject to risks and uncertainties that could cause actual results to differ materially. The information is provided "as-is" and without warranty.

Honeywell Aerospace

1944 East Sky Harbor Circle
Phoenix, Arizona 85034
aerospace.honeywell.com

N61-3146-000-003 | 10/23
© 2023 Honeywell International Inc.

WF: 2329460

**THE
FUTURE
IS
WHAT
WE
MAKE IT**

Honeywell