



EUROPEAN COMMISSION HEARING ON LIABILITY & INSURANCE

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Civil RPAS Regulation & Certification

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On recommendation of ICAO, and in compliance with the terminology of the European RPAS Roadmap, the terms Remotely Piloted Aircraft (RPA) & Remotely Piloted Aircraft Systems (RPAS) are used in this presentation [instead of Unmanned Aircraft (UA) & Unmanned Aircraft System (UAS) & Unmanned Aerial Vehicle (UAV) & drone].

RPA & RPAS are invariant – Singular = Plural.



Definitions

Used in this presentation



The National Aviation Authority (NAA) of each of the 28 European Union (EU) Member States is responsible in its country for **rulemaking, certification & operational approval of:**

- Civil **RPAS with a MTOM <150 kg**
- Civil **RPAS flight crews** (*pilots*)
- Civil **RPAS operators** employing the flight crews

RPAS Operator

Person, organization or enterprise engaged in or offering to engage in an RPAS operation (*ICAO definition*).

Certification

Any form of recognition that a product, part or appliance, organisation or person complies with the applicable requirements, including the provisions of this regulation and its implementing rules, as well as the issuance of the relevant certificate **attesting such compliance** (*EASA Basic Reg. Art. 3*).

(The term “Certification” is used because there is no common understanding of the terms “Authorized” & “Approved”)

Civil RPAS Applications

Commercial & non-commercial aerial work (*Specialised Operations*).

Qualified Entity (QE)

Entity to which a **specific certification task** has been allocated by the European Aviation Safety Agency (EASA) or a NAA (*and is then not necessarily compliant with EC Regulation No 216/2008*).



Aerial Operations

				RPAS Ops		
Governmental	M U T U A L I Z A T I O N	Military		◆	N O N M I L I T A R Y	
		Non-Military	State Flights <i>Security related</i>	Police Customs Border Guards Coast Guard		◆ ◆ ◆ ◆
			Not State Flights <i>Incl. Safety related</i>	Civil Protection Fire Fighters National Mapping Agencies		◆ ◆ ◆
		Non-Governmental	Public	European Union		Flights on behalf of a public EU agency (<i>without national oversight</i>)
		Commercial Air Transport <i>(Transport of Persons & Freight)</i>	Scheduled Air Service Non-scheduled Revenue Ops. Non-revue Operations			
		General Aviation	Corporate Operations Flight Training / Instruction Pleasure			
	Object of this presentation	Aerial Work / Specialized Operations	Commercial Non-Commercial (incl. Corporate Operations) Training / Instruction Other Miscellaneous	◆ ◆ ◆ ◆	R P A S O P S	



Civil RPAS Aerial Operations



Aerial Work - Commercial & Non-Commercial *(Including Corporate Operations)*

- Aerial Advertising
- Aerial Monitoring
- Aerial Patrol
- Aerial Survey & Mapping (Photogrammetry)
- Research & Scientific
- Aerial Inspection
- Aerial Observation
- Aerial Photography, Video, Cinema
- Aerial Spraying & Dispensing
- Aerial Search & Rescue Assistance

Flight Training / Instruction *(Private & Commercial)*

- Duo
- Solo
- Check

Other Miscellaneous *(Private & Commercial)*

- Test / Experimental
- Demonstration
- Ferry / Positioning
- Air Show / Race



	NAA Mbr of		RPAS Regulation					National RPAS Association
	ICAO UASSG	JARUS	Regulation in Place	Regs in Preparation	Operations Facilitated	Qualified Entity in Place	UK Qualified Entity Used	
Austria	◆	◆	◆		◆			◆
Belgium		◆		◆	◆			◆
Bulgaria								
Croatia								
Cyprus								
Czech Rep.	◆	◆	◆		◆			

Comments (with inputs from JARUS)

AT - 3 Ratings: < 5 kg, 5-25 kg, 25-150 kg
 VLOS operations only.
 Operator responsible for incident reporting.
Insurance: according to Austrian Aviation Act.

BE - Regulation finalised, but not yet in force.
Insurance: EC Regulation 785/2004

CZ – Aerial Work Permit obligatory.
 Airworthiness certificate required for flights over people.
 Operators must submit proof of insurance.
 Operator approval validity: 1 year
 Applications for 70 RPAS authorizations & 103 remote pilot approvals received (Feb '14)
Insurance: EC Regulation 785/2004 mandatory



RPAS Regulation



	NAA Mbr of		Regulation in Place	Regs in Preparation	Operations Facilitated	Qualified Entity in Place	UK Qualified Entity Used	National RPAS Association
	ICAO UAASSG	JARUS						
Denmark		◆	◆		◆			
Estonia								
Finland	◆	◆		◆	◆			
France	◆	◆	◆	◆	◆			◆

Comments (with inputs from JARUS)

DK - Ratings: MTOM <7 kg, 7-25 kg, 25-150 kg < 25 kg VLOS (< 100m AGL) in segregated airspace over urban areas & unrestricted at >150m from buildings. National registration marks: Required
Insurance: EC 785/2004

FI – Ongoing Notice of Proposed Rulemaking. Initial regulation (<25 kg) is planned for May '14. Current operations (<25 kg): VLOS over low population density areas only.

FR – Update of current regulation expected in 2014. Approved Pilots = 100 flight hours. Pilot license validity: 1 year
Insurance: EC Regulation 785/2004



	NAA Mbr of		RPAS Regulation					National RPAS Association	Comments (with inputs from JARUS)
	ICAO UASSG	JARUS	Regulation in Place	Regs in Preparation	Operations Facilitated	Qualified Entity in Place	UK Qualified Entity Used		
Germany	◆	◆	◆	□	◆	□	□	◆	<p>DE – Länder Level < 5 kg (electric propulsion only) VLOS flight <100m AGL) Operator approval validity: 2 years (max) Harmonised over 16 Länder (= federal states)</p> <p>DE – Federal Level > 5 kg MTOM (electric or combustion engine) Operator approval: Case-by-case & with defined mission duration & location. Operator approval validity: Case-by-case No reciprocity between Länder</p>
Greece	□	◆	□	□	◆	□	□	□	<p>GR - VLOS flights permitted on case-to-case basis under model aircraft rules.</p>
Hungary	□	□	□	□	◆	□	□	□	<p>HU – National registration marks: Required</p>
Ireland	□	◆	◆	□	◆	□	◆	□	<p>IE - Has adapted UK regulation. Accepts UK QE approvals.</p>



	NAA Mbr of		RPAS Regulation					National RPAS Association
	ICAO UASSG	JARUS	Regulation in Place	Regs in Preparation	Operations Facilitated	Qualified Entity in Place	UK Qualified Entity Used	
Italy	◆	◆	◆		◆			◆
Latvia								
Lithuania					◆			
Luxembourg								
Malta		◆			◆		◆	

Comments (with inputs from JARUS)

IT – Ratings: <25 kg + 25 -150 kg

LT – VLOS flights only.

MT - Approvals on case-to-case basis
 First operator approval in pipeline
 National registration marks: Required
 QE in process of being appointed



RPAS Regulation



	NAA Mbr of		Regulation in Place	Regs in Preparation	Operations Facilitated	Qualified Entity in Place	UK Qualified Entity Used	National RPAS Association
	ICAO UASSG	JARUS						
Netherlands	◆	◆	■	◆	◆	■	◆	◆
Norway	■	◆	■	◆	◆	■	■	◆

Comments (with inputs from JARUS)

NL - Flights prohibited unless exemption obtained from CAA-NL. Exemptions, only for VLOS (>150 m from persons, traffic, buildings), given to approved operators (validity 1 year) & other operators for specific project (validity: several months).
 Types of operation: VLOS 1, VLOS 2, EVLOS, BVLOS (NOTAM posted)
 National registration marks: Required
 Accepts UK QE (EuroUSC) approvals - 2nd QE to be announced shortly.
 +/- 60 Operator approvals by QE in the pipeline.
Insurance: EC 785/2004 mandatory (proof must be submitted to CAA).

NO - VLOS Flight Permits granted on case-to-case basis. BLOS Flight Permits granted on case-to-case basis in unpopulated areas.
 Operator approval validity: 2 years
 Regulation expected to be published in 2014.



RPAS Regulation



	NAA Mbr of		RPAS Regulation					National RPAS Association
	ICAO UASSG	JARUS	Regulation in Place	Regs in Preparation	Operations Facilitated	Qualified Entity in Place	UK Qualified Entity Used	
Poland					◆			
Portugal								
Romania					◆			
Slovakia								
Slovenia				◆	◆			
Spain		◆		◆	◆			◆

Comments (with inputs from JARUS)

PL - Ratings: MTOM <2 kg, 2-7 kg, 7-25 kg, 25-50 kg, 50-150 kg
 BLOS Operations only in segregated airspace.
 Operator's certificate being established.
 National registration marks: Required >25 kg

ES - Ratings being considered: MTOM < 2 kg, 2-25 kg, 25-50 kg & 50-150 kg
 No airworthiness approval to be required below 25 kg.
 National registration marks: >25 kg
 Use of QE under discussion.



RPAS Regulation



	NAA Mbr of		Regulation in Place	Regs in Preparation	Operations Facilitated	Qualified Entity in Place	UK Qualified Entity Used	National RPAS Association
	ICAO UASSG	JARUS						
Sweden	◆	◆	◆	□	◆	□	□	□
Switzerland	□	◆	□	□	◆	□	□	□
UK	◆	◆	◆	□	◆	◆	□	◆

Comments (with inputs from JARUS)

SE - Ratings: MTOM <1,5 kg, 1,5-7 kg, >7 kg
Operator approval validity: 2 years

CH - <30 kg MTOM: VLOS flights (<150m AGL) permitted under model aircraft rules.
>30 kg MTOM: Airworthiness certificate & Air Operator's Certificate required.
BLOS operations possible - Flight Permits granted on case-to-case basis.
Operator certificate validity: 2 years
Directive relative to the VLOS operations over people & public gatherings will be published in July 2014.

UK - < 20 kg MTOM (excl. Fuel - incl. Battery): Operator accreditation by QE (validity 1 year)
> 20 kg : Airworthiness approval required.
National registration marks: Required MTOM > 20 kg
QE approved under national legislation (*not EASA compliant*).



RPAS REGULATION IN EU - I



	In Place			In Preparation	
Austria	< 150 kg	VLOS			
Belgium				< 150 kg	VLOS
Bulgaria					
Croatia					
Cyprus					
Czech Rep.	< 150 kg	VLOS	BLOS		
Denmark	< 150 kg	VLOS			
Estonia					
Finland				< 150 kg	VLOS
France	< 25 kg	VLOS	BLOS	VLOS & BLOS	
Germany	< 25 kg	VLOS			
Greece					
Hungary				< 150 kg	VLOS
Ireland	< 20 kg	VLOS			

← Finalised ,
but not in force

← Expected in 2014

← Update of
current regulation
expected in 2014

Info Sources:
EASA, JARUS,
Min. of Transport,
NAA web sites,
NAAs, national
associations



RPAS REGULATION IN EU - II



	In Place			In Preparation	
Italy	< 25 kg	VLOS			
Latvia					
Lithuania	< 25 kg	VLOS			
Luxembourg					
Malta				< 150 kg	VLOS
Netherlands	< 25 kg	VLOS		<150 kg	VLOS
Poland	< 150 kg	VLOS	BLOS		
Portugal					
Romania	< 25 kg	VLOS			
Slovakia					
Slovenia					
Spain				< 25 kg	VLOS
Sweden	< 150 kg	VLOS			
UK	< 20 kg	VLOS			

← 20 kg = without fuel, but with battery

Info Sources:
EASA, JARUS,
Min. of Transport,
NAA web sites,
NAAs, national
associations



RPAS REGULATION – III (Non-EU)

	In Place			In Preparation			
	Rating	VLOS	BLOS	Rating	VLOS	BLOS	
	Iceland						
Norway				< 150 kg	VLOS	BLOS	← Expected in 2014
Switzerland				Directive on VLOS operations over people			← Expected in 2014

*Info Sources:
EASA, JARUS,
Min. of Transport,
NAA web sites,
NAAs, national
associations*



RPAS (< 150 kg) REGULATION – EUROPE

QUANTITY	In Place		In Preparation		Anticipated 2014	
	VLOS	BLOS	VLOS	BLOS	VLOS	BLOS
EU	13	3	8		21	3
Non-EU			1		1	
Total Europe	13	3	9		22	3
Rest of the world	7	3	7	3		

<i>Australia</i>	Yes	Yes	NA	NA
<i>Brazil</i>	No	No	Yes	No
<i>Canada</i>	Yes	No	NA	No
<i>Colombia</i>	Yes	Yes	NA	NA
<i>Israel</i>	Yes	Yes	NA	NA
<i>Japan</i>	Yes	No	NA	Yes
<i>New Zealand</i>	No	No	Yes	?
<i>South Africa</i>	No	No	Yes	No
<i>South Korea</i>	Yes	No	NA	?
<i>Russian Fed.</i>	No	No	Yes	No
<i>Turkey</i>	No	No	Yes	Yes
<i>Ukraine</i>	Yes	No	Yes	No
<i>USA</i>	No	No	Yes	Yes

NA = Not applicable

Info Sources:
 EASA, JARUS,
 Min. of Transport,
 NAA web sites,
 NAAs, national
 associations



CERTIFICATION IN EU - I



QUANTITY	Operator	Pilot	Producer	RPAS
Austria	★			
Belgium	★	10		
Bulgaria				
Croatia				
Cyprus				
Czech Rep.	★	24	29	31
Denmark	★	???		
Estonia				
Finland	★	33		
France	★	431	30	
Germany	★	???		
Greece				
Hungary				
Ireland	★	12		

- ★ Regulation in place
- ★ Regulation in preparation

Certification:
as per definition on
slide 4

Info Sources:
EASA, JARUS,
Min. of Transport,
NAA web sites,
NAAs, national
associations



CERTIFICATION IN EU - II



QUANTITY		Operator	Pilot	Producer	RPAS
Italy	★	1			
Latvia					
Lithuania	★				
Luxembourg					
Malta	★				
Netherlands	★	13	30		
Poland	★				
Portugal					
Romania					
Slovakia					
Slovenia					
Spain	★				
Sweden	★	216			
UK	★	212			

★ Regulation in place

★ Regulation in preparation

Certification:
as per definition on slide 4

Info Sources:
EASA, JARUS,
Min. of Transport,
NAA web sites,
NAAs, national
associations



CERTIFICATION – III (Non-EU)

QUANTITY	Operator	Pilot	Producer	RPAS
Iceland				
Norway	76			
Switzerland				

- ★ Regulation in place
- ★ Regulation in preparation

Certification:
as per definition on slide 4

Info Sources:
EASA, JARUS,
Min. of Transport,
NAA web sites,
NAAs, national
associations



CERTIFICATION – EUROPE

QUANTITY	Operator	Pilot	Producer	RPAS
EU	1364	59	30	31
Non-EU	76	<i>If the estimated quantity of operators in 2 countries is included</i>		
Total Europe	1440	59	30	31
Rest of the world	2262	14000	30	31
<i>Australia</i> <i>Canada</i> <i>Israel</i> <i>Japan</i> <i>South Korea</i>	70 60 2 2000 130	? ? ? 14 000 ?		

Certification:
as per definition on
slide 4

Info Sources:
EASA, JARUS,
Min. of Transport,
NAA web sites,
NAAs, national
associations



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