

ASTM Standards F38 Fall 2020 Meeting

Presented to: ASTM F38

By: FAA UAS Integration Office

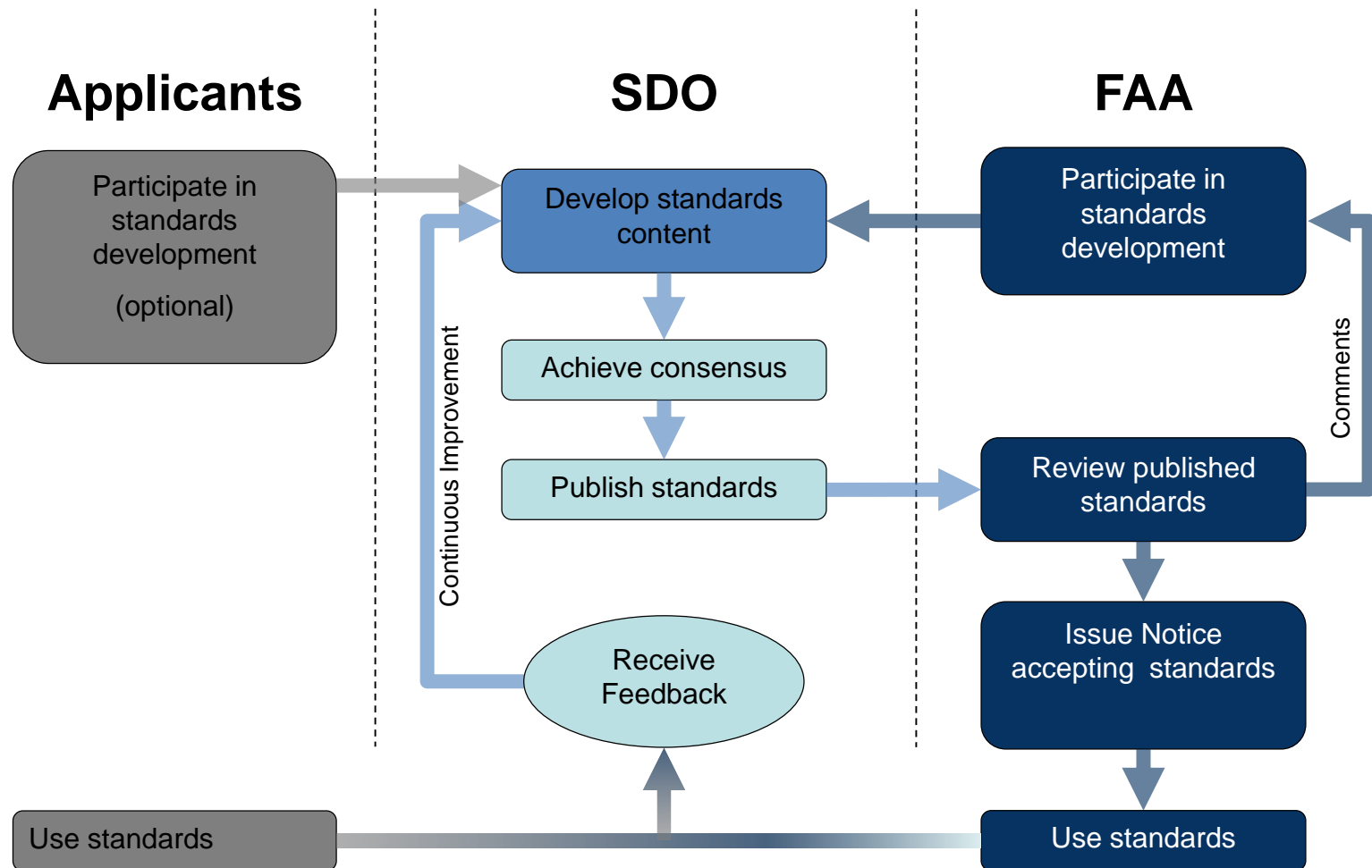
Date: 3 NOV 2020



Federal Aviation
Administration



Roles in Standards Development



FAA Challenges



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FAA Challenges

- Standards are being developed in parallel with rules (e.g. Remote ID and Operations over People (OOP)) or where rules do not exist yet. The FAA may not discuss standards during rulemaking.
- Industry to drive the standards development, not ASTM or the FAA.
- FAA resource commitments to support standards.



FAA Participation

AUS-420 working with AIR-600 and AGC to clarify and standardize FAA participation in Standards Development Activity:

- Equal Participants, not Spectators
- Appropriate to hold Leadership Positions?
- Appropriate to Vote?
- FAA Acceptance of Standards is separate process from FAA participation in Standards Development
- Result is expected to be a policy statement for FAA Employees on roles and responsibilities in Standards Development activity



FAA Priorities

Support rulemaking and certification

- Remote ID – F3411-19
- OOP Test Method – F3389-20
- DAA Performance Requirements – F3442-20
- DAA Test Methods – WK62669
- D&R – WK70877
- UTM – WK63418
- UTM Surveillance Supplemental Data Service Provider (SDSP) Performance - WK69690



FAA Incorporation

Ways to incorporate ASTM standards:

- Notice of Availability (NOA)
- Exemptions
- Advisory Circular (AC)
- Type Certification (TC)
- Rules



FAA UAS Rules and Regulations

- Part 107
- Remote ID
- Expanded Part 107 (OOP and Night)
- Durability and Reliability (D&R) – low risk
- MOSIAC – medium risk
- Part 23/25 – high risk



Questions?





Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Bundesamt für Zivilluftfahrt BAZL
Innovation und Digitalisierung

ASTM update

November 3 2020



Network Remote ID

- Based on F3411-19
- Nationally
- On voluntary basis
- Swiss U-Space Implementation Partnership (SUSI)



Stakeholders

- 11 industry participants
- 3 DSS providers
- 6 Service Providers and Display Providers
- 8 Display Clients



Filling the gaps – Master Agreement

- Rights and obligations of the Parties
- Service performance, availability and support
- Parameters for data sharing
- Dispute resolution procedures

Text available on [susi.swiss](https://www.susi.swiss)



Filling the gaps – Master Agreement

Severity Level	1.	Step 1 - Immediate Response (Identify)	Step 2 - Triage (Temporary Fix)		Step 3 - Problem Resolution (Fix)	
		Action / Response Time	Action	Response Time	Action	Response Time
Severity 1 (Critical)		Point of Contact Acknowledges & 100 % Escalation for triage within response 1h	Immediate and continuing best efforts	Next business day	Immediate and continuing best efforts	Update every week and upon request
Severity 2 (Degraded)		Point of contact acknowledges / 8 hours	Rollback of offending change	2 days	High priority resolution by the engineering team	Updates every 2 days to stakeholders
			Interim fix within 4 days, as agreed with stakeholders	4 days		
Severity 3 (Minimal)		Point of contact acknowledges / 3 days	Worked on a time available basis	7 days	As appropriate	Update 15 days

Service-related incidents response time



Filling the gaps – Testing

- Normal behavior test
- Complex behavior test
- Off-nominal behavior test
- Goal is to automate the procedures



Filling the gaps – Approval

- Preparing for the U-Space regulation
- Master Agreement + Successful checkout (tests)
- Self-declaration of compliance with ISO27001 (2021)



Current Challenges

- Test Automation
- Historical data for and police use
- Public acceptance and adoption
- Getting other authorities up to speed



A Blueprint for Future Services

- Participation to WG
- Demo
- Voluntary Implementation
- Regulatory Implementation

F38

Fall committee meeting

EASA Drones team
2 November 2020

Your safety is our mission.

RMT 0730 – AMC and GMs to open and specific

	2020						2021					
	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
NPA#1 AMC to Article 11 - SORA update for BVLOS urban operations Decision (direct publication) - 2 PDRAs mirroring EASA STS 01 and 02 - 1 PDRA from already published JARUS - AMC to Article 14 - drone/operator registration database	NPA 2020-07	Public consultation				Workshop			Publication Decision #1			
Decision (accelerated procedure) AMC to Article 15 - Geographical zones								Focus consultation workshop		AB consultation		Publication Decision #2
NPA#2 - AMC to Article 11 - industry standards for the specific category (based on inputs from AW drones project) - New AMC to STS-01 and 02 + general update - 2 PDRAs from JARUS WG6									NPA	Public consultation		

For 2021/2022 additional NPAs are planned to:

- recognise industry standards for the specific category
- Potential additional PDRAs
- expand scope of SORA based on the discussion in JARUS WG6 (swarm, autonomous ops, cybersecurity, quantitative assessment of risk)

U-SPACE

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Background and current status

- March: EASA Opinion published
- Apr-May: revised EC draft regulation
- 1st July: draft regulation discussed at EASA Cttee
- July-Aug: comments from EASA Cttee members
- July-Sept: revised EC draft regulation
- Sept-Oct: Draft regulation through EC internal consultation
- 27-28 Oct: 2nd discussion at EASA Cttee

Main principles of the Regulation

- First **set of requirements** that will launch the U-space;
- Minimum list of necessary **U-space services**;
- Strategic/pre-tactical means to **manage traffic** in U-space;
- **Roles and Responsibilities** of the U-space participants;
- Enabler for a **competitive U-space services market**
- Member States **designate the U-space** airspace(s)
- **Segregation of traffic** in the U-space airspace
- UAS operators **contract services** to U-space service providers
- **Certification scheme** for U-space service providers
- **Manned aircraft** to **provide information** to USSP in U-space airspace

UAS in 'certified' category

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RMT.0230 | UAS in 'certified' category

- July – September 2020 – Concept Paper Issue 2.2 consultation
- October 2020 – RMT.0230 updated ToR publication
- December 2020 – Release of the Concept Paper Issue 3.0
- Q2 2021 – NPA publication (3 months consultation)
- Q2 2022 – EASA Opinion

RMT.0230 | EASA Concept Paper

- Consultation phase Issue 2.2 in closure
- About 500 comments received so far, main topics are:
 - Automation vs autonomy
 - 3-2-1 Pilot Licencing concept
- Issue 3.0 will include
 - New Annex dedicated to “Discharging PIC/Commander responsibilities”
 - Detailed approach on Environmental Protection aspects
 - Clarification of regulatory approach for CAW pending decision on “specific” category

EASA Counter-UAS Action Plan

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C-UAS Action Plan

#	Objective	Deliverable	Status
1	Educate the public to prevent and reduce misuse of drones around aerodromes	<ol style="list-style-type: none"> 1. Safety promotion material to create public awareness and understanding of the existence and purpose of geographical zones. 2. AMC/GM defining a common unique digital format for UAS geographical zones. 	Complete On time
2	Prepare aerodromes to mitigate risks from unauthorised drone use	EASA guidance material (in the form of a manual) describing the roles and responsibilities of the actors, and best practices on how to respond to unauthorised drones in the surroundings of an aerodrome.	On time
3	Support the assessment of the safety risk of drones to manned aircraft	Paper (Input to Objective 2) addressing the consequences of drone collision with manned aircraft .	On time
4	Ensure that C-UAS measures are swiftly considered and implemented from a global safety perspective	Contribution to the development of International Standards to support the safe and harmonised implementation of Counter-UAS Systems into airport environment and ATM/ANS systems.	On time
5	Support adequate occurrence reporting	<ol style="list-style-type: none"> 1. Define high-level criteria to classify airprox events. 2. Evaluate compatibility of existing occurrence reporting procedures for inclusion of occurrences involving UA. 3. Develop suitable action plan to integrate UA in common occurrence reporting procedures. 	Initiated

Thank you for attention!

Any questions?

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TCCA Regulatory Update

Nov. 4, 2020

ASTM F.38 Fall Plenary



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Where are we now?



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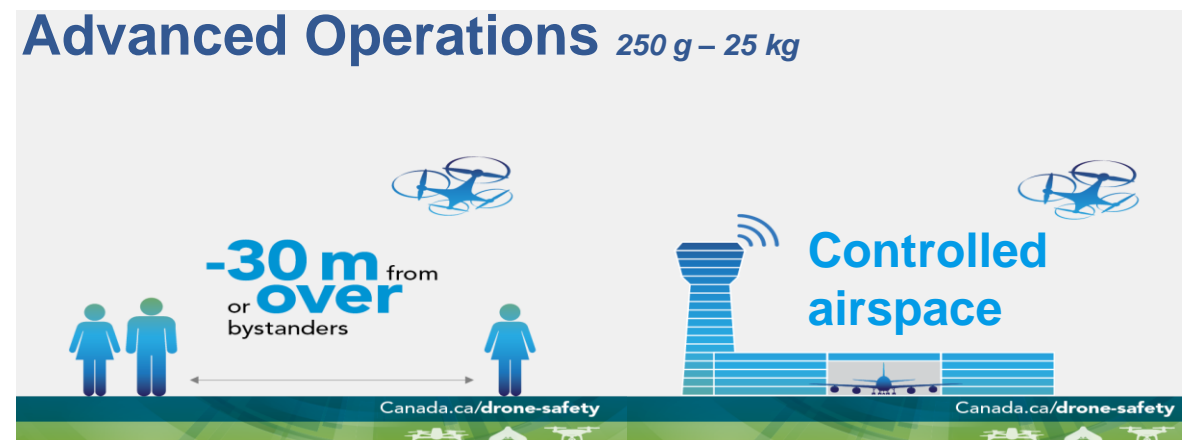
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CAR Part IX Operational

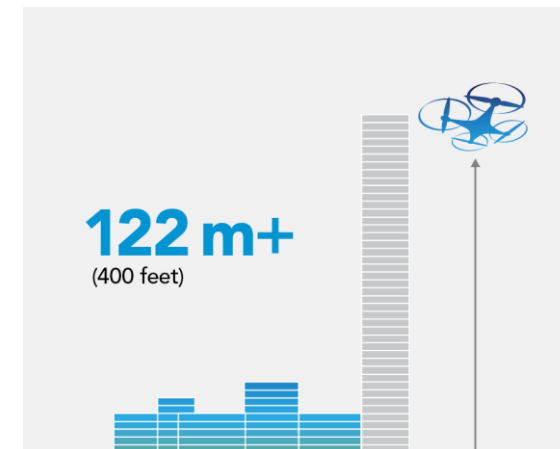
- Scope: RPAS with MTOW <25 kg operating VLOS below 400ft;
 - Equivalent of FAR 107/Open Category + Over People;
- Requires [registration of RPAS with TCCA](#);
- Two Operational Categories: Basic & Advanced:
 - Each has independent [licensing and training requirements](#); and
 - Advanced has additional operational responsibilities and requires RPAS with a [Manufacturer's Declaration](#) – AC 922-001 contains guidance material (including ASTM MoC).
- Advanced Operations are those in controlled airspace, near people not associated with the operation, and over people not associated with the operation;





Special Flight Operational Certificates (SFOCs)

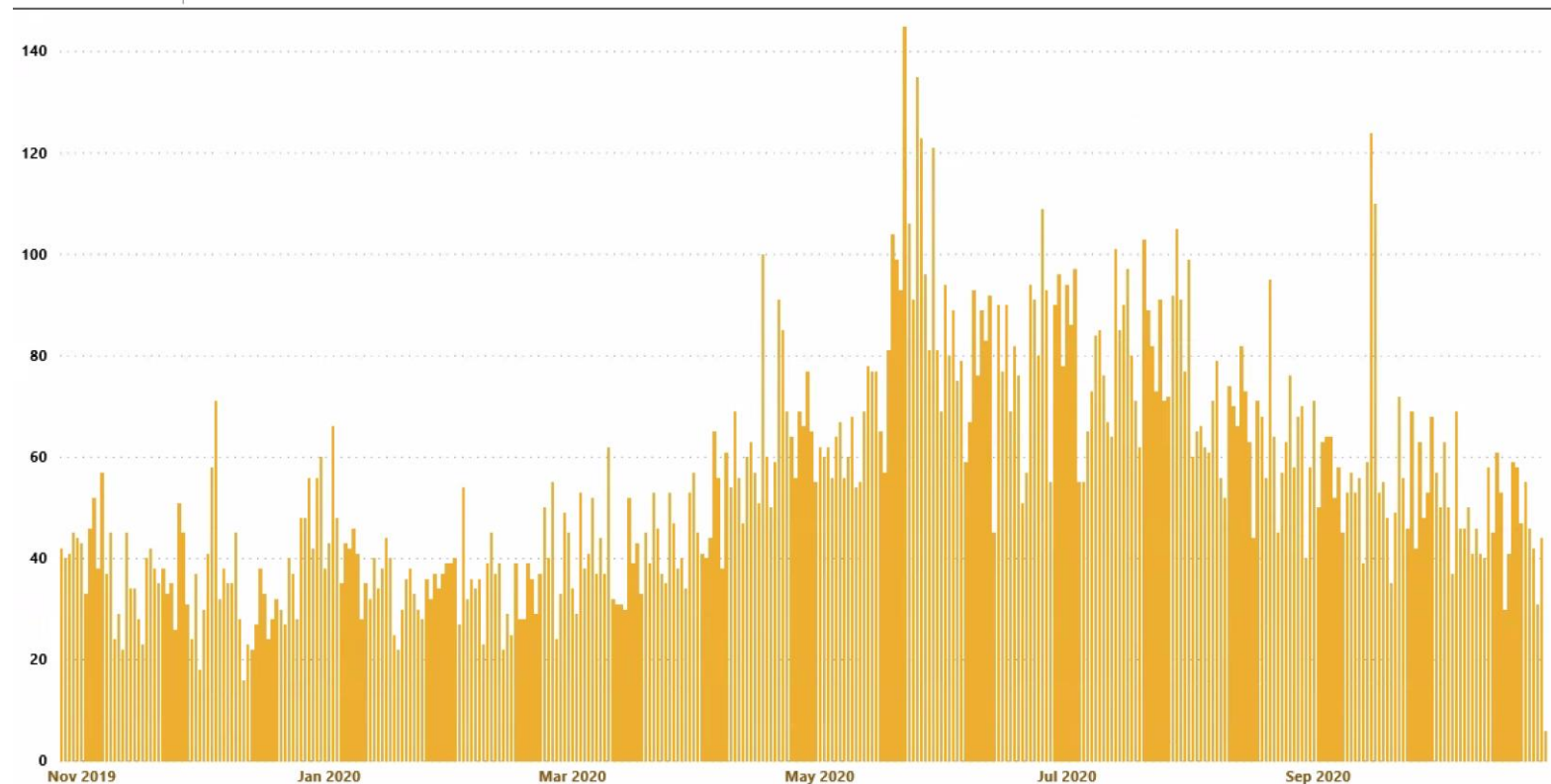
- For operations outside of VLOS, MTOW >25 kg, or above 400 ft an operator must [apply for an SFOC](#).
- Foreign operators must apply for SFOCs.
- RPAS Centre of Excellence in each region process applications.
- Applications leverage the SORA methodology – AC 903-001





sRPAS Operations in Canada

- **>50, 000** RPAS pilot licenses.
- **>600** Flight Reviewers.
- **~200** Declared RPAS. 99% Controlled Airspace, 73% Near People, 33% Over People.
- **~50** Declarations for RPAS modifications.
- **>50 BVLOS SFOCs** either issued or in processing.



Total Drones Registered: > 52 000



Where are we going?



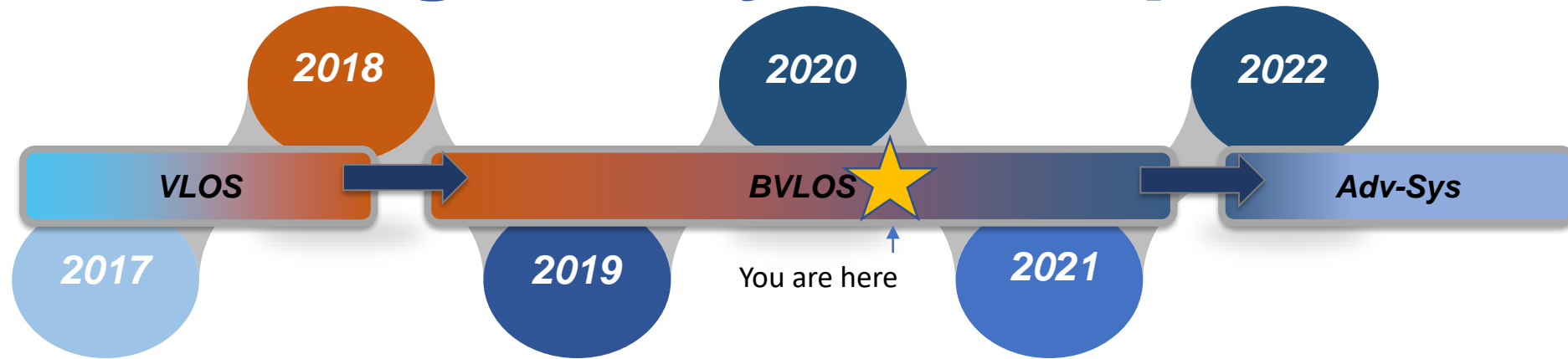
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BVLOS Regulatory Development



- In support of industry research, TC authorized the operation of two test ranges, and created research and development priorities to help guide private sector investment.
- Publication of regulations for small RPAS, 25 kilograms or less, operated VLOS.
- Creation of two test ranges for R&D.
- Trials for public safety organizations, pipeline surveys, drone delivery concepts, and RPAS Traffic Management (RTM).
- Increased international presence in standards making forums like the International Civil Aviation Organization (ICAO), the Joint Authority for Rulemaking of Unmanned Systems (JARUS), RTCA, and ASTM International.
- **Regulatory proposal for Low Risk BVLOS**
NPA 2020-012
- Creation of seven research and development priorities to help guide private sector investment and dialogue.
- Increased bilateral dialogue on how to certify advanced systems.



BVLOS and NPA 2020-012

- NPA 2020-012 released in May of 2020 outlined the approach for creating a “Low Risk BVLOS” regulatory environment;
- Building on CAR Part IX regulations focused on:
 - Personnel;
 - Procedures; and
 - Products.
- Informed by our SFOCs and feedback from the industry and public.

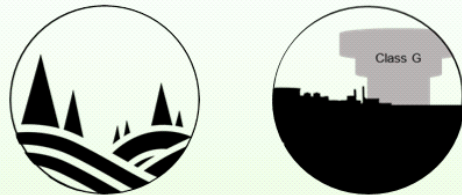


BVLOS – Operations

**Permitted Operating Categories since July 2019
(Lower risk areas)**

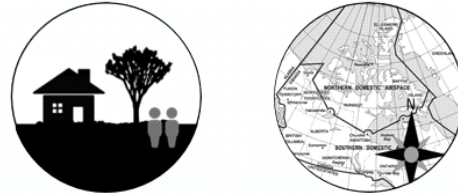


Isolated, Atypical

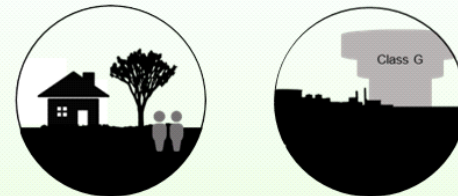


Isolated, Uncontrolled

**Permitted Operating Categories by SFOC
Summer 2020**



Rural, Atypical



Rural, Uncontrolled

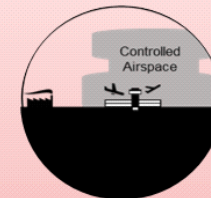
**Non Permitted Categories
(Higher risk areas)**



Population Centre



Populated Area



Controlled Airspace



BVLOS – Products

- Three major activities:
 - Incremental expansion of the Declaration applicability;
 - Creating Declaration+ process; and
 - New BVLOS standards in CAR Standard 922.
- Updates to CAR Standard 922 for BVLOS focused on a few technical areas:
 - DAA;
 - System Safety;
 - Human Factors;
 - Environmental; and
 - C2 Link.

These new performance based safety objectives aim to utilize industry consensus standards as means of compliance to support the Declaration and Declaration+ processes.



TCCA R&D

- TCCA coordinating research activities with FAA ASSURE;
- R&D is focused on supporting regulatory development initiatives which includes standards development and validation;
- Initial R&D projects coming to fruition this year:
 - Icing effects on sRPAS rotors;
 - sRPAS impact assessment thresholds for women (5th percentile);
 - sRPAS mid-air collision testing (sRPAS to traditional); and
 - DAA system validation testing.
- On-going initiatives:
 - Certification of Autonomy;
 - RPAS Traffic Management system Trials;



RPAS Traffic Management

- RPAS Traffic Management Action Team (RTMAT) is driving the Canadian approach to integration:
 - Industry and Government group chaired by TCCA (Regulator) and NAV Canada (ANSP).
 - Goal is to develop full integration between RPAS operations and traditional aviation operations across the country.
- Ongoing work to rollout the RTM Strategy:
 - Updates and tweaks to reflect industry trends and technological changes.
 - Focus of the RTMAT has been deploying RTM Service Trials.
 - Address issues through working groups on technology issues and stakeholder feedback - **Service Supplier Sub-Working Group is standing up.**



RPAS Traffic Management - Trials

- Trial program aims to achieve multiple objectives:
 - Inform the system architecture for management of RPAS traffic;
 - Identify performance requirements to ensure safe & secure operations;
 - Benchmark candidate technologies for services; and
 - Build confidence in the public, industry, and operators.
- Two RTM trials will be implemented beginning this Fall:
 - Operations are focused on rural and remote areas
 - Future trials will be considered in urban and airport environments
 - Additional industry testing is happening within the existing regulatory framework.
 - First round of reporting expected in Q1 2021.



Standards Priorities

Challenge: How can we improve our guidance material to recognize industry best practices?

- VLOS:
 - Design and Construction – Updates based on experience;
- BVLOS:
 - Traffic Management – Remote ID, Interoperability, SDSP;
 - Design and Construction - large systems & D&R;
 - DAA; and
 - Autonomous systems.



Questions?





Canada



Transport
Canada



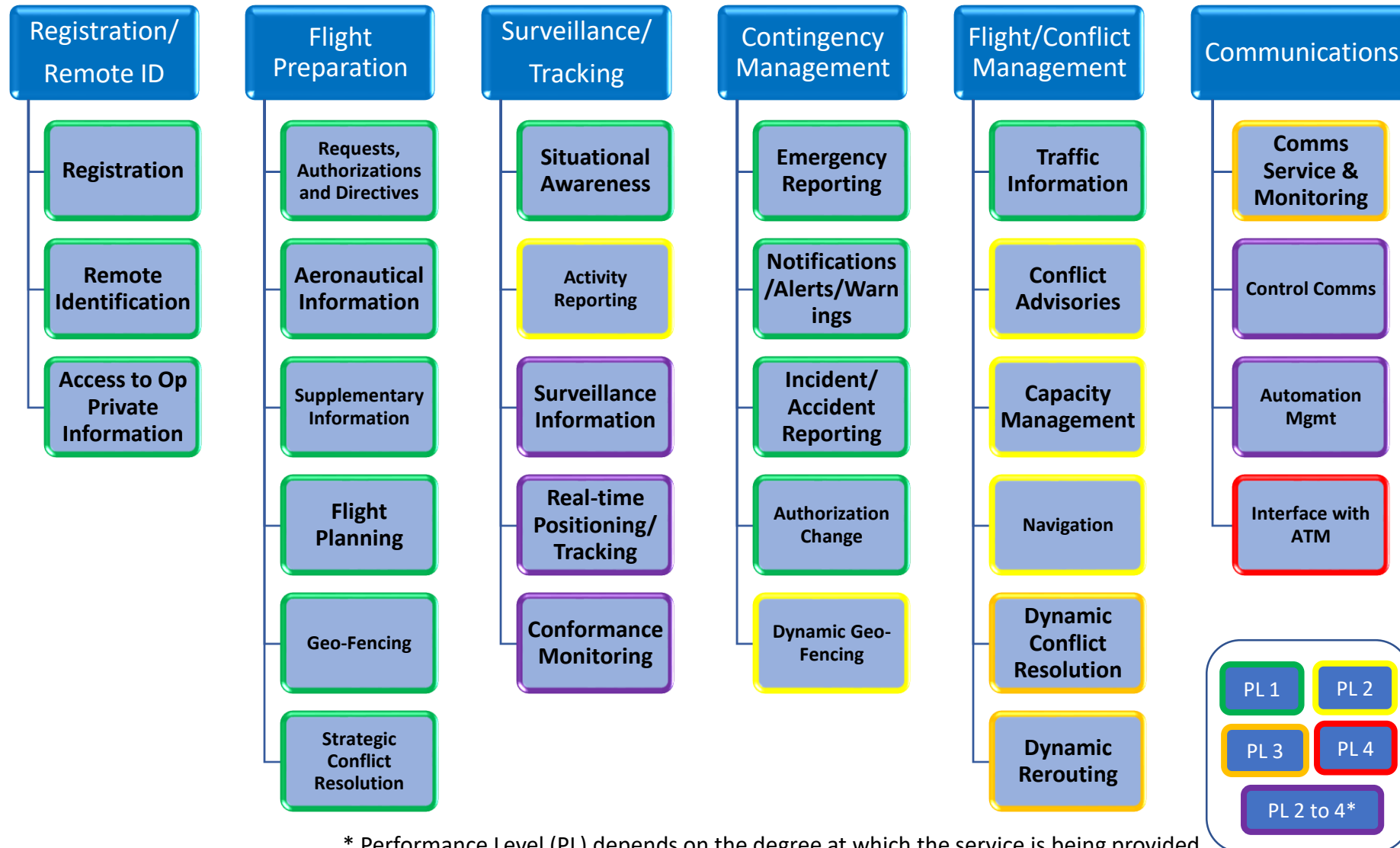


ASTM TCCA Team members

- F38.01 Airworthiness:
 - [Craig Bloch-Hansen](#) (UTM);
 - [Tom Hastie](#) (D&C); and
 - [Paul McKay](#) (DAA).
- F38.02 Operations:
 - Craig Bloch-Hansen (Autonomy); and
 - [Olivier Bellehumeur-Genier](#) (BVLOS).
- F38.03 Personnel:
 - [Martin Truman](#) (Maintenance Training)



RPAS Traffic Management - Notional Services



* Performance Level (PL) depends on the degree at which the service is being provided