INFO DAY Barcelona

5th MAY 2022



CLEAN SKY 2

CLEAN AVIATION

Airbus Defence and Space





CLEAN SKY 2 - AIRBUS DS PROJECTS IN EUROPE

- Involving 112 participants
- 52 Industrial partners
- 16 Universities
- 36 Research & Technology Centers
 ... in 14 Countries
 ... through 33 Call for Proposals
- ... and 4 Call for Core Partners
- 4 SPDs participation as leader REG, AIR, SYS, LPA
- 1 ITD as Coordinator (AIR)
- 1 Flying Flagship Demonstrator
- 4 Major Ground Demonstrators





REGIONAL FTB#2: AIRCRAFT MODIFICATION

- Semi-morphing wing concept: multiple control surfaces controlled by a common system with smart redundancies to comply CS 25
- Affordable FBW to roll axis (ailerons) pitch (elevators) and yaw axes (rudder)
- FCL (Flight Control Laws): direct and normal laws: autotrims and dampers
- Control architecture: FCC (Flight Control Computer) + ACES's (Actuator Control Electronics) + BUCU's (Back Up Control Units)
- Servo-hydraulic actuation + EMAs (flap tab)
- Innovative Flaps: with new geometry and kinematics and Tuning capacity of flap position
- New antenna SatCom embedded in the wing fuselage fairing





CLEAN AVIATION

REGIONAL FTB#2: FLIGHT TEST CAMPAIGN

Flight test campaign completed in Feb 2022

Twelve flights performed in the south of Spain:

- Envelope expansion at low and high velocity
- Flight Control Laws expansion
- Embedded SATCOM antenna performance

Complete Data Gathering of the aircraft ${\boldsymbol{\mathcal{N}}}$

Crew feedback:

- Performances and handling qualities: excellent $\sqrt{}$
- Design tools and simulation facilities representatives $\boldsymbol{\sqrt{}}$
- No undesirable effects were found during the flight tests $\sqrt{}$
- The system is safe and robust $\boldsymbol{\vee}$
- All tests targets were addressed during the campaign ${\bf \sqrt{}}$





CLEAN AVIATION

CLEAN SKY 2 NEXT STEPS ELECTROMECHANICAL ACTUATION AND HVDC





CLEAN SKY 2 NEXT STEPS ADVANCED COMPOSITE EXTERNAL WING BOX





CLEAN SKY 2 - AIRBUS DS SUSTAINABLE TARGETS

Airbus Defence and Space consolidated environmental impact targets



Benefits vs Platforms	MISSION: Airliner 1,000 NM Dec 19			MISSION: SAR 400 NM RoA Dec 19		
PERFORMANCE	SFC	MASS	Drag	SFC	MASS	Drag
Aerodynamics High & Low speeds	3	7	22	3	7	22
Structure	3	22	-		23	-
Systems	-	2	-	-	3	-
Improvements for noise	-	ы	2	-	ы	2
Engine	-	-	-	-	-	-
<u>Total</u> <u>Performance</u>	-7%	-0.5t	-2.5%	-43%	-0.5t	-2.5%
Total	CO	NOv	NOISE	CO ₂	NOv	NOISE
IMPACTS avg %Reduction vs Ref 2014	-7%	-49%	TO~ -45% AP~ -20%	-43%	-70%	TO [~] -45% AP [~] -35%

TO : Take-Off; AP : Approach / Certification ICAO annex 16 conditions Emissions: Airliner (gr/NM/PAX); SAR (gr/ToS/ton)