

# EAD AEROSPACE

*AN ECLIPSE COMPANY*



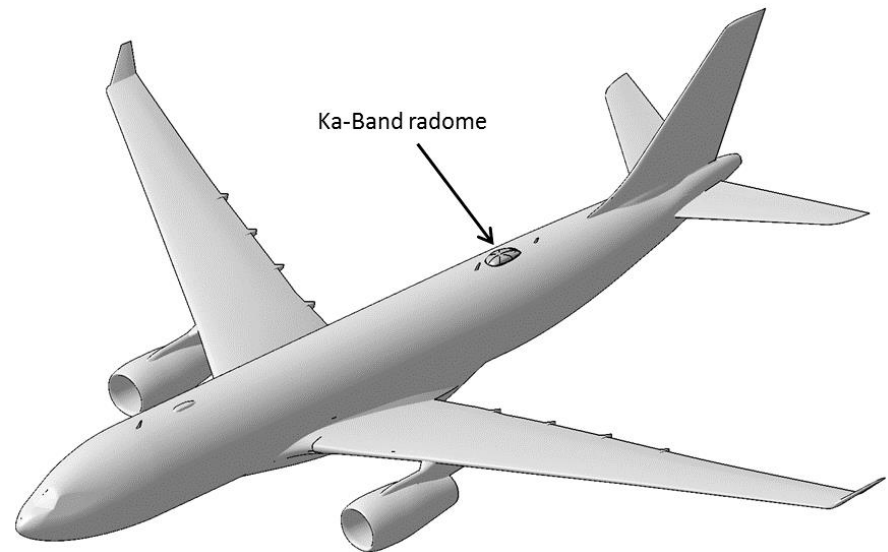
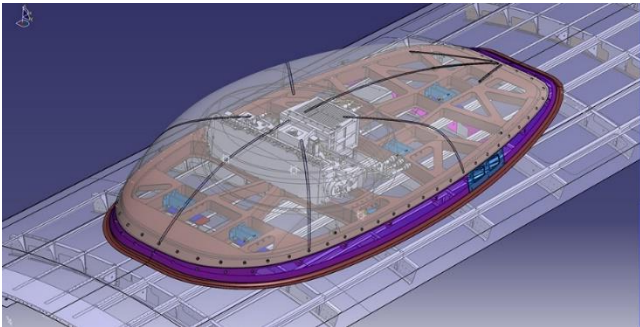
## EASA STC WORKSHOP LOI IMPLEMENTATION ON EAD AEROSPACE PROJECT COLOGNE, JUNE 4th, 2018

- MAIN CONSIDERATION OF LOI IMPLEMENTATION
- PROJECT EXAMPLE OF LOI IMPLEMENTATION
- CDI DEFINITION: PROJECT BREAKING DOWN APPROACH
- RISK-ASSESSMENT
- LOI PROPOSAL
- LESSONS LEARNED

- A **2-Level CDI** defined as follow for new compliance data to be produced:
  - Generic **Top level Area** of demonstration:
    - *Structure, System Installation, Environment, Flight Characteristics, operational/maintenance doc...*
    - *Grouping under Area of anticipated reports that would constitute a significant compliance showing demonstration element*
  - Association of Area to each involved Panel
  
- **Principles of document distribution** from its Documentation Structure in regards of risk classes :
  - NOTE: Differences between Class 3 to Class 4 considered is EASA participation in demonstration activities (Testing)

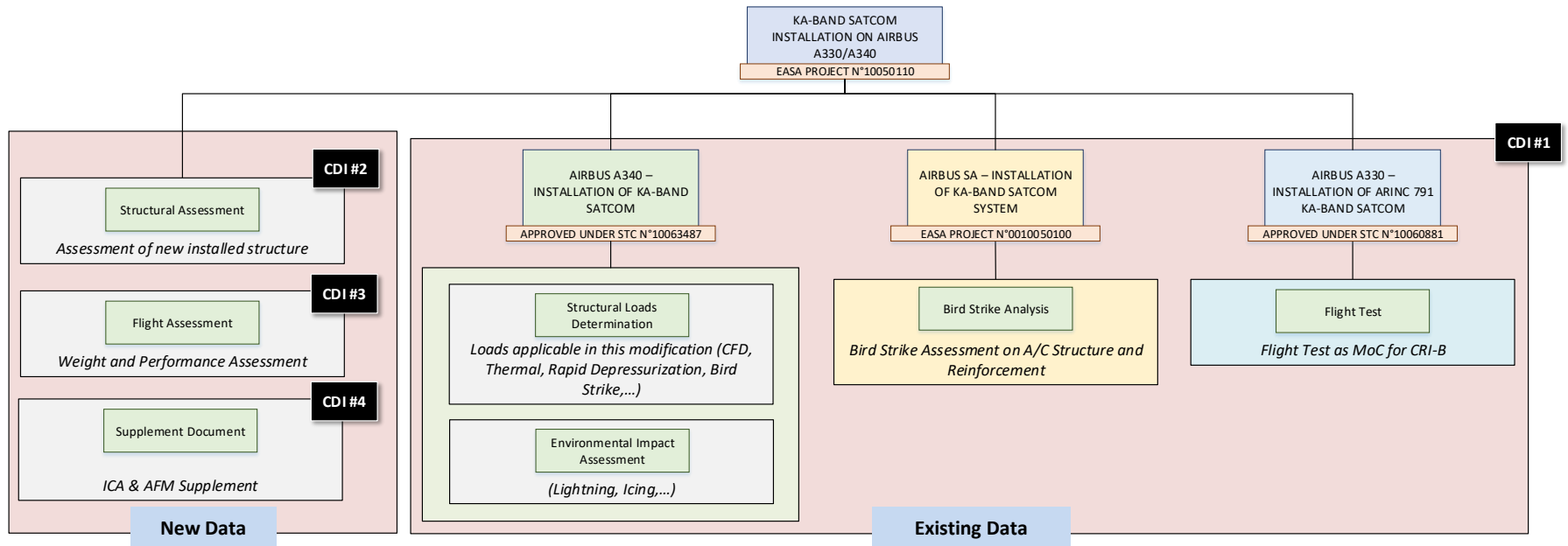
Certification Document List	Risk Classes			
	Class 1	Class 2	Class 3	Class 4
Supplemental Type Design	X	X	X	X
Certification Summary Plan		X	X	X
Analysis			X	X
Test Plan/Report			X	X
Reconciliation Report			X	X
Certification Summary Report		X	X	X
Manual Supplement	X	X	X	X
Compliance Check List	X	X	X	X

- PROJECT EXAMPLE: KA-BAND ANTENNA INSTALLATION (SATCOM SYSTEMS ALLOWING CONNECTIVITY IN THE AIR)
- KEY DEMONSTRATION ACTIVITIES:
  - Structural
  - Environmental (Icing)
  - Flight Characteristics assessment
  - ....



# CDI DEFINITION: BREAKING DOWN PROJECT

- CDI : « Top level » compliance Areas



- Association with of Top Level activities with Affected Technical panel

CDI # - Panel	Boundaries	Panel	criteria		Assessment likelihood			Risk classes	
					Justif	Likelihood	Critical?	Justification	Proposed risk class 1 à 4
1-P1 1-P3 1-P5 1-P8	Existing Analysis reused based on previous approved modification	PE1	Novel?	NO	-	LOW	NO		1
		PE3							
		PE5	Complex?	NO	-				
		PE8	DOA perfo	MEDIUM	Based on Overall DOA perfo				
2-P3	Installation Ka-band antenna on A330/A340 (model -200/-300) - Structure	PE3	Novel?	NO	-	HIGH	YES		4
			Complex?	YES	-				
			DOA perfo.	LOW					
3-P1	Installation Ka-band antenna on A330/A340 (model -200/-300) - Flight	PE1	Novel?	NO	-	LOW	YES		2
			Complex?	NO	-				
			DOA perfo.	MEDIUM	-				
4-P1 4-P3 4-P5	Installation Ka-band antenna on A330/A340 (model -200/-300) - Airworthiness & Operational document supplement	PE1	Novel?	NO	-	MEDIUM	YES	Airworthiness and operating limitations shall be reviewed by EASA	3
		PE3	Complex?	YES	-				
		PE5	DOA perfo.	MEDIUM	Based on Overall DOA perfo				

## ➤ Compliance Check List with compliance showing document

CS 25 – Subpart D – Design and Construction				
➔ General				
§	Title	Substantiation	Document	MOC
25.601	General	Design does not include any hazardous and unreliable features.	[STD]	1
25.603	Materials	Materials chosen are compliant with standard aeronautical specifications. Materials characterizations have been used for structural analysis. Radome material characterization has been provided by the supplier in accordance with applicable means of compliance. Coupons tests have been performed for skirt material characterization under EASA STC 10063487.	[STD] [STA_AC] [STA_B] [STA_R] [FDT_AC] [FDT_B] See §3	1 2 0
25.605	Fabrication Methods	The fabrication methods used by EAD are in accordance with aircraft standard practices. A fabrication process specification has been performed for the radome composite following the applicable means of compliance. A fabrication process specification has been performed for the skirt composite following the applicable means of compliance. The process has been validated by CVE.	[STD]	1

**Note: In this example, the CDI 1-P1, 1-P3, 1-P5 & 1-P8 are grouped (1-Px) as documents associated to CDI retain same risk class.**

## ➤ Document List In CPM:

REF	TITLE	Project Sources	ID	Applicable Risk Classes				LOI
				1-Px	2-P3	3-P1	4-Px	
Master Document List								
01555-EAS-A-MDL	Master Document List	Current Project (N°10050110)	MDL	1	4	2	3	Retained
Supplemental Type Design								
01555-EAS-A-STD-01	Supplement Type Design	Current Project (N°10050110)	STD	1	4	2	3	Retained
Certification Summary Plan								
01555-EAS-A-CSP-01	Structure Certification Summary Plan	Current Project (N°10050110)	SCSP	1	4			Retained
Compliance Showing – Flight								
01555-EAS-A-ANA-02	A/C Performance Analysis	Current Project (N°10050110)	PERF			2		Not Retained
01555-EAS-A-WBA-01	Weight and Balance Analysis	Current Project (N°10050110)	WBA			2		Not Retained
Compliance Showing - Structure								
01501-EAS-A-REC-04	Rapid Decompression Reconciliation Report	STC 10063487 (A340)	RDA	1				Not Retained
01501-EAS-A-REC-05	Thermal Analysis Reconciliation Report	STC 10063487 (A340)	THER	1				Not Retained
01501-EAS-A-REC-03	CFD Aerodynamic Reconciliation Report	STC 10063487 (A340)	CFD	1				Not Retained
01555-EAS-A-ANA-01	Pre-Mod Stresses Static & FDT Analysis	Current Project (N°10050110)	PRE_	1	4			Retained
01501-EAS-A-REC-02	Bird Strike Reconciliation Report (for Baseplate, Radome & skirt)	STC 10063487 (A340)	REC_	1				Not Retained
01523-EAS-A-REC-04	Bird Strike Reconciliation Report (for A/C structure and reinforced parts)	STC 10062160 (B777)	REC_	1				Not Retained
01555-EAS-A-STA-01	A/C Structural Analysis	Current Project (N°10050110)	STA_		4			Retained
01501-EAS-A-STA-01	Baseplate Structural Analysis	STC 10063487 (A340)	STA_B	1				Not Retained
01501-EAS-A-STA-03	Radome & Skirt Structural Analysis	STC 10063487 (A340)	STA_R	1				Not Retained
01555-EAS-A-FDT-01	A/C FDT Analysis	Current Project (N°10050110)	FDT_		4			Retained
01501-EAS-A-FDT-01	Baseplate FDT Analysis	STC 10063487 (A340)	FDT_B	1				Not Retained
Icing								
01501-EAS-A-CSR-02	Icing Certification Summary Report	STC 10063487 (A340)	ICE	1				Not Retained

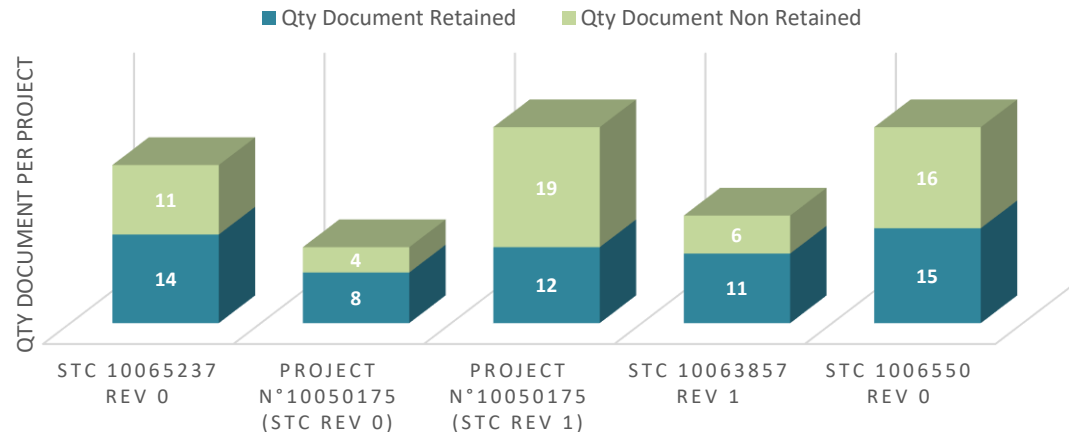
## Difficulties:

- Different ways to break down the project into CDI.
- Additional effort on CP writing
- Update of Organisation procedures
- DOA performance dashboard dependency

## Advantages:

- Allows to keep Experts « *in-the loop* » : timely management of STC issuance
- (Relative) Decrease of Retained Document

## LOI IMPLEMENTATION - REVIEWED DOCUMENT FOLLOW-UP





THANK YOU FOR YOUR ATTENTION !