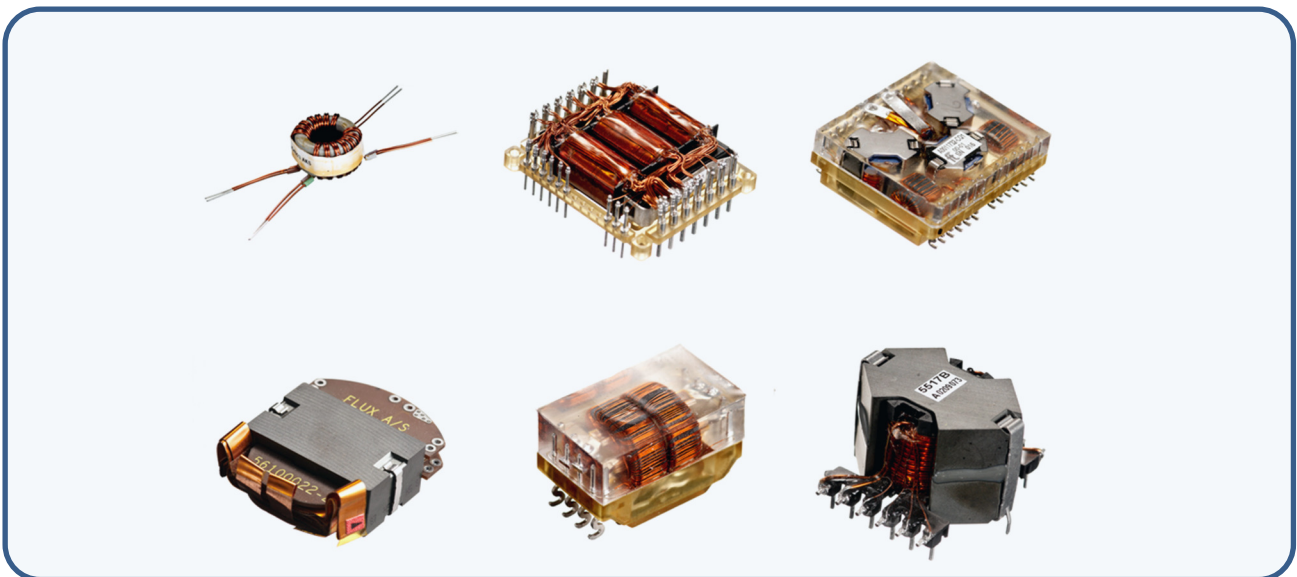


# **Declared Processes List:** **Magnetic Components for Space Applications**

**Document:** 08690028  
**Date:** 25<sup>th</sup> May 2021

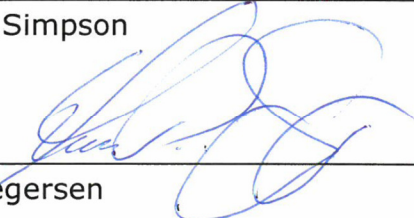
**Issue:** 10  
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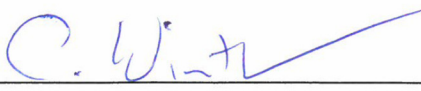
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**DOCUMENT CHANGE LOG**

<b>Change No.</b>	<b>Date</b>	<b>Initiator</b>	<b>Pages Affected</b>	<b>Short Description of Change</b>
Issue 7	04-06-12	-	-	The document has been reformatted and rewritten. For details of earlier versions please refer to issue 6
Issue 8	26-01-15	MS		Section 2.1 renaming of Applicable to Reference documents Section 2.2 Removal of Reference Documents and addition of Generic Documents Section 4.2 correction of typo Section 5 Addition of additional supplier references in column 9.1 Addition of process FT.03.003 Addition of process FT.14.004 Addition of process FT.16.004 Addition of process FT.16.005 Addition of process FT.16.006 Addition of process FT.16.007
Issue 9	30-11-16	MS	-	Addition of qualification references
Issue 10	25-05-21	MS	-	Addition of qualification references



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## 1. INTRODUCTION

### 1.1 Scope

This document lists processes used by Flux A/S for the manufacture of magnetic components for space applications.

The qualification and use of these processes on space applications originate with Alcatel Space Denmark and have been used in excess of 100 space programs over a 25 year period.

In order to be incorporated within DPLs for higher level assemblies, this DPL has been prepared in line with the requirements of ECSS-Q-ST-70C.

## 2. APPLICABLE DOCUMENTS

Unless stated otherwise, all documents will be used at their latest revision.

### 2.1 Reference Documents

Ref.	Document	Title
RD1	ECSS-Q-ST-70	Materials, mechanical parts and processes
RD2	ECSS-Q-ST-70-08	Manual soldering of high-reliability electrical connections
RD3	ECSS-Q-ST-70-71	Guidelines for space material selection
RD4	ECSS-Q-ST-70-36	Materials selection for controlling stress-corrosion cracking
RD5	MIL-PRF-27G	General Specification for Transformers and Inductors
RD6	MIL-STD-202	Test Method Standards – Electronic and Electrical Component Parts
RD7	MIL-STD-981C	Design, Manufacturing and Quality Standards for Custom Electromagnetic Devices for Space Applications
RD8	ECSS-Q-ST-60	Electrical Electronic and Electromechanical (EEE) Components
RD9	FT08700000	FLUX QMS

### 2.2 Generic Documents

Ref.	Document	Title
GD1	FT08690019	Process Identification Document
GD2	FT08690020	Generic Specification
GD3	FT08690027	Declared Materials List



**3. DEFINITIONS AND ABBREVIATIONS**

**3.1 Definitions**

For the purpose of this document, the terms and definitions given in ECSS-P-001B apply.

**3.2 Definitions of Status**

The qualification status of listed processes is given by reference to use on the relevant previous programs / reference to qualification reports where appropriate

The processes are defined as follows:

Status	Meaning
Critical	The process and the control of its use have not yet been demonstrated. All critical processes will be subject to qualification. After qualification, the process will be reclassified as "sensitive" or "standard".
Sensitive	The qualification has been completed, but the use of the process requires extensive control.
Standard	All other processes.

**3.3 Abbreviations**

Abbreviation	Meaning
AKA	Alcatel Kirk Aerospace document number
ASD	Alcatel Space Denmark document number
CORR	Corrosion
DML	Declared Materials List
DPL	Declared Processes List
FLAM	Flammability
FT	Flux A/S document number
N/A	Not Applicable
PS	Procurement Specification number
RFA	Request for approval
SCC	Stress Corrosion Cracking
TBA	To Be Advised
TBD	To Be Defined



**4. PROCESSES**

**4.1 Groups for Processes List**

Group	Description
01	Adhesive bonding
02	Composite manufacture
03	Encapsulation/moulding
04	Painting/coating
05	Cleaning
06	Welding/brazing
07	Crimping/stripping/wire wrapping
08	Soldering
09	Surface treatments
10	Plating
11	Machining
12	Forming
13	Heat treatment
14	Special fabrication: processes developed specifically for the programme
15	Marking
16	Miscellaneous processes
17	Inspection processes

**4.2 DPL Contents**

Column No	Purpose
1	Item number and user code
2	Process identification
3	1) User name 2) Associated procedure
4	Process description
5	1) Subsystem code 2) Equipment Code 3) Use
6	Not used by ECSS – Flux previous DPL reference from FT08690028 Issue 6
7	Associated DML item number
8	1) Criticality 2) Reason for criticality
9.1	1) Supplier reference 2) Prime comments
9.2	Prime approval status
10	Customer approval status/comments

For further assistance and clarification refer to Annex C of ECSS-Q-ST-70C



## 5. DECLARED PROCESSES LIST

1	2	3	4	5	6	7	8	9.1	9.2	10
Item No. And user code	Process identification.	User name & Ass.	Process description.	Subsystem, equipment code & use.	Previous FT DPL ref.	DML reference.	Status	Supplier reference	Prime approval.	Customer approval
FT.01.001	Bonding with eccobond 55/9	1) Flux A/S 2) FT08700000	1) Coating of transformers	1) TBA 2) TBA 3) TBA	4.3.1	FT08690027	1) Standard 2) FT qualified process	ASD/REPO/99011 FT08690279 FT08690380		
FT.01.002	Gluing with Scotchweld EC2216	1) Flux A/S 2) FT08700000	1) Gluing of transformers	1) TBA 2) TBA 3) TBA	4.3.2	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690257 FT08690269 FT08690279 FT08690380		
FT.01.003	Bonding with eccobond 285	1) Flux A/S 2) FT08700000	3) Coating of transformers	1) TBA 2) TBA 3) TBA	4.3.4	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690279 FT08690380		
FT.03.001	Impregnation with CV2500 or MAPSIL QS1123	1) Flux A/S 2) FT08700000	3) Impregnation of transformers	1) TBA 2) TBA 3) TBA	4.3.3	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690257 FT08690269 FT08690279 FT08690380		
FT.03.002	Impregnation with solithane 113	1) Flux A/S 2) FT08700000	4) Impregnation of transformers	1) TBA 2) TBA 3) TBA	4.3.4	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690279 FT08690380		
FT.03.003	Filling with CV2391	1) Flux A/S 2) FT08700000	Filling of cores with foam	1) TBA 2) TBA 3) TBA		FT08690027	1) Standard 2) FT qualified process	FT08690269 FT08690279 FT08690380		
FT.07.001	Wire stripping	1) Flux A/S 2) FT08700000	5) Chemical stripping of wire $\varnothing < 0.56\text{mm}$	1) TBA 2) TBA 3) TBA	4.1.1	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690257 FT08690269 FT08690279 FT08690380		
FT.07.002	Wire stripping	1) Flux A/S 2) FT08700000	Mechanical stripping of wire $\varnothing > 0.60\text{mm}$	1) TBA 2) TBA 3) TBA	4.1.2	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690257 FT08690279 FT08690380		
FT.07.003	Wire stripping	1) Flux A/S 2) FT08700000	Thermal stripping (solderable enamelled wire)	1) TBA 2) TBA 3) TBA	4.1.3	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690257 FT08690279 FT08690380		



1	2	3	4	5	6	7	8	9.1	9.2	10
Item No. And user code	Process identification.	User name & Ass.	Process description.	Subsystem, equipment code & use.	Previous FT DPL ref.	DML reference.	Status	Supplier reference	Prime approval.	Customer approval
FT.07.004	Wire stripping	1) Flux A/S 2) FT08700000	Class I chemical stripping	1) TBA 2) TBA 3) TBA	4.1.4	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690257 FT08690279 FT08690380		
FT.07.005	Wire cleaning	1) Flux A/S 2) FT08700000	Cleaning after Class I chemical stripping	1) TBA 2) TBA 3) TBA	4.1.5	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690257 FT08690269 FT08690279 FT08690380		
FT.07.006	Wire winding	1) Flux A/S 2) FT08700000	Wire winding of transformers and inductors with coilformer	1) TBA 2) TBA 3) TBA	4.2.1	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690279 FT08690380		
FT.07.007	Wire winding	1) Flux A/S 2) FT08700000	Wire winding of transformers and inductors on toroids	1) TBA 2) TBA 3) TBA	4.2.3	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690257 FT08690269 FT08690279 FT08690380		
FT.07.008	Staking of thin wire	1) Flux A/S 2) ECSS-Q-ST-70-08C	Staking of thin wire to avoid stress	1) TBA 2) TBA 3) TBA		FT08690027	1) Standard 2) FT qualified process& ECSS-Q-ST-70-08C	FT08690184 FT08690279 FT08690380		
FT.08.001	Soldering	1) Flux A/S 2) ECSS-Q-ST-70-08C	Soldering with Sn63Pb37	1) TBA 2) TBA 3) TBA		FT08690027	1) Standard 2) FT qualified process& ECSS-Q-ST-70-08C	FT08690184 FT08690244 FT08690257 FT08690269 FT08690279 FT08690380		
FT.08.002	High temperature Soldering	1) Flux A/S 2) ECSS-Q-ST-70-08C	Soldering with Sn96Ag4	1) TBA 2) TBA 3) TBA		FT08690027	1) Standard 2) FT qualified process& ECSS-Q-ST-70-08C	FT08690184 FT08690257 FT08690279 FT08690380		
FT.08.003	Soldering of planar transformers	1) Flux A/S 2) ECSS-Q-ST-70-08C	Soldering with Sn96Ag4	1) TBA 2) TBA 3) TBA		FT08690027	1) Standard 2) FT qualified process& ECSS-Q-ST-70-08C	FT08690279 FT08690380		
FT.09.001	Pure tin removal	1) Flux A/S 2) FT08700000	Removal of pure tin surface finishes	1) TBA 2) TBA 3) TBA		FT08690027	1) Sensitive 2) FT qualified process	FT08690184 FT08690279 FT08690380		





1	2	3	4	5	6	7	8	9.1	9.2	10
Item No. And user code	Process identification.	User name & Ass.	Process description.	Subsystem, equipment code & use.	Previous FT DPL ref.	DML reference.	Status	Supplier reference	Prime approval.	Customer approval
FT.09.002	Pretinning	1) Flux A/S 2) FT08700000	Pretinning	1) TBA 2) TBA 3) TBA		FT08690027	1) Sensitive 2) FT qualified process	FT08690184 FT08690244 FT08690257 FT08690269 FT08690279 FT08690380		
FT.13.001	Wire tempering	1) Flux A/S 2) FT08700000	Tempering of enamelled wires after winding to avoid solvent induced crazing	1) TBA 2) TBA 3) TBA	4.2.4	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690279 FT08690380		
FT.13.002	Destressing of carrier	1) Flux A/S 2) FT08700000	Destressing of carrier	1) TBA 2) TBA 3) TBA		FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690279 FT08690380		
FT.14.001	Assembly of cores	1) Flux A/S 2) FT08700000	Core Assembly	1) TBA 2) TBA 3) TBA		FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690257 FT08690279 FT08690380		
FT.14.002	Insertion of pins	1) Flux A/S 2) FT08700000	Insertion of pins into carrier	1) TBA 2) TBA 3) TBA		FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690257 FT08690269 FT08690279 FT08690380		
FT.14.003	Modification of coilformer	1) Flux A/S 2) FT08700000	Modification of coilformer	1) TBA 2) TBA 3) TBA		FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690279 FT08690380		
FT.14.004	Bending and insertion of L pin	1) Flux A/S 2) FT08700000	Bending and insertion of L pin in F6 house	1) TBA 2) TBA 3) TBA		FT08690027	1) Standard 2) FT qualified process	FT08690244 FT08690279 FT08690380		
FT.15.001	Marking	1) Flux A/S 2) FT08700000	Marking and serialisation	1) TBA 2) TBA 3) TBA	4.4.1	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690257 FT08690269 FT08690279 FT08690380		
FT.16.001	Grinding of cores	1) Flux A/S 2) FT08700000	Grinding of ferrite cores	1) TBA 2) TBA 3) TBA	4.2.2	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690279 FT08690380		
FT.16.002	Toroids on coupelle	1) Flux A/S 2) FT08700000	Assembly and potting of toroids in coupelles	1) TBA 2) TBA 3) TBA	4.3.5	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690279 FT08690380		



1 Item No. And user code	2 Process identification.	3 User name & Ass.	4 Process description.	5 Subsystem, equipment code & use.	6 Previous FT DPL ref.	7 DML reference.	8 Status	9.1 Supplier reference	9.2 Prime approval.	10 Customer approval
FT.16.003	Packing and Shipping	1) Flux A/S 2) FT08700000	Packing and Shipping	1) TBA 2) TBA 3) TBA		N/A	1) Standard 2) FT process	FT08690257 FT08690279 FT08690380		
FT.16.004	Housing Assembly	1) Flux A/S 2) FT08700000	Housing Assembly	1) TBA 2) TBA 3) TBA		FT08690027	1) Standard 2) FT qualified process	FT08690244 FT08690257 FT08690279 FT08690380		
FT.16.005	Potting with Stycast	1) Flux A/S 2) FT08700000	Potting with Stycast	1) TBA 2) TBA 3) TBA		FT08690027	1) Standard 2) FT qualified process	FT08690244 FT08690257 FT08690279 FT08690380		
FT.16.006	Foil Preparation: Folding and Stacking	1) Flux A/S 2) FT08700000	Foil Preparation:	1) TBA 2) TBA 3) TBA		FT08690027	1) Standard 2) FT qualified process	FT08690257 FT08690279 FT08690380		
FT.16.007	Stacking of PCBs and Foil	1) Flux A/S 2) FT08700000	Stacking of PCBs and Foils:	1) TBA 2) TBA 3) TBA		FT08690027	1) Standard 2) FT qualified process	FT08690257 FT08690279 FT08690380		
FT.17.001	Incoming inspection	1) Flux A/S 2) FT08700000	Incoming inspection	1) TBA 2) TBA 3) TBA	4.5.1	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690257 FT08690269 FT08690279 FT08690380		
FT.17.002	MIP/KIP	1) Flux A/S 2) FT08700000	Mandatory and Key inspection points	1) TBA 2) TBA 3) TBA	4.5.2	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690257 FT08690269 FT08690279 FT08690380		
FT.17.003	Manufacturing control	1) Flux A/S 2) FT08700000	Manufacturing control	1) TBA 2) TBA 3) TBA	4.5.3	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690257 FT08690279 FT08690380		
FT.17.004	Screening	1) Flux A/S 2) FT08700000	Screening test for inductors and transformers	1) TBA 2) TBA 3) TBA	4.5.4	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690257 FT08690269 FT08690279 FT08690380		



1	2	3	4	5	6	7	8	9.1	9.2	10
Item No. And user code	Process identification.	User name & Ass.	Process description.	Subsystem, equipment code & use.	Previous FT DPL ref.	DML reference.	Status	Supplier reference	Prime approval.	Customer approval
FT.17.005	In production testing	1) Flux A/S 2) FT08700000	Measuring of magnetic components	1) TBA 2) TBA 3) TBA	4.5.5	FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690257 FT08690269 FT08690279 FT08690380		
FT.17.006	Material Inspection	1) Flux A/S 2) FT08700000	Material Inspection prior to use	1) TBA 2) TBA 3) TBA		FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690257 FT08690269 FT08690279 FT08690380		
FT.17.007	Visual Inspection	1) Flux A/S 2) FT08700000	In production visual inspection	1) TBA 2) TBA 3) TBA		FT08690027	1) Standard 2) FT qualified process	FT08690184 FT08690244 FT08690257 FT08690269 FT08690279 FT08690380		
FT.17.008	Final Inspection	1) Flux A/S 2) FT08700000	Final Inspection	1) TBA 2) TBA 3) TBA		N/A	1) Standard 2) FT process	FT08690184 FT08690244 FT08690257 FT08690269 FT08690279 FT08690380		