

**SAILOR600/900 Viasat Ka  
pTRIA**

**CE approval fundamentals**

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## 1. Scope and Purpose

This document will describe the thoughts behind the CE conformity and approval of the SAILOR 600 Viasat Ka (part number 407060D) and 900 Viasat Ka (part number 407090F) VSAT antenna system.

The purpose of this document is to keep the thoughts behind the CE-conformity and the approval process of the 407060D and 407090F in one document, as the complete evidence consists of several reports from several CE evaluations of different products.

### 1.1. Related Documents

#### 1.1.1. Standards

DS EN 60950-1-2006  
IEC 60695-2-11  
EN 62368-1:2014  
EN 301489-1, EN 301489-12  
EN 301843-1, EN 301843-6  
EN 60945:2004

#### 1.1.2. Test reports associated to this evaluation

99-163859-B or newer (overview document)  
99—153805-A (safety evaluation of SAILOR 900 VSAT HP)  
99-158477-A (EN/IEC60950-22)  
99-161900-A (IP evaluation)  
99-153806-A (EN/IEC60950-1 evaluation of the “APS” AC/DC SMPS)  
99-152389-A (EN 60945 evaluation of SAILOR 100GX)

### 1.2. References

- [1] 98-164678-A: Reference manual.  
[2] 99-164903-A: CE-approval test-instructions:

### 1.3. Abbreviations

ACU	Antenna Control Unit
ADU	Above Deck Unit (antenna)
BDU	Below Deck Unit
CE	European Community (EU) marking
GMU	GX Modem Unit
PIM	mpTRIA Interface Module
PIU	mpTRIA Interface Unit
PWB	Printed Wiring Board (aka PCB, Printed Circuit Board)
TBD	To Be Defined
TBC	To Be Confirmed
VIM	VSAT Interface Module

**2. Introduction**

This document will describe the thoughts behind the CE conformity and approval of the SAILOR 600 Viasat Ka (part number 407060D), and SAILOR 900 Viasat Ka(part number 407090F) VSAT antenna systems.

### 3. SAILOR 600/900 Viasat Ka evaluation

pTRIA product differs from the other SAILOR VSAT models, primarily by the PIM (*pTRIA Interface Module*) vs the VIM (*VSAT Interface Module*) and the addition of the PIU (*pTRIA Interface Unit*) between the ACU and any different ADUs.

Based on the above, following interpretation and assumptions are create (in relation to Low Voltage Directive, LVD, and Radio Equipment Directory, RED, with respect to standards EN/IEC 60950-1, EN/IEC 60950-22 or EN/IEC 62368-1:2014):

VIM has identical circuitry with VIM, which was evaluated in the SAILOR 900 HP evaluation and SAILOR 600Ku.

PIU is deem compliant to the above mention EU directives and standards, based on the fact, that the electrical behaviour between ACU and VIM (located in the ADU as first entry point from the ACU). Furthermore is the circuitry in the PIU very simple, consisting of an input connector (N-type connector), and solid copper trace on the PWB, and an output connector (N-type connector).

The enclosure of the PIU is identical to the GMU, besides some minor changes to the back panel. Due to this, the applicable IP rating is similar to the GMU, IP class 3X verified by EN/IEC 60950-1 clause 4.6.

#### 3.1. Required evaluations

To show compliance for LVD and RED, the ACU was originally evaluated, as described in document: 99-153805-A, while the AC/DC converter in the ACU was evaluated as described in 99-153806-A, in accordance to EN/IEC 60950-1.

Furthermore, was the ACU evaluated in accordance with EN/IEC 62368-1 as described in 99-153851-B.

For evidence of further compliance to RED (in terms for EMC and RF matters), Viasat provides the required reports of the evaluation of the pTRIA and SPOCK modules.

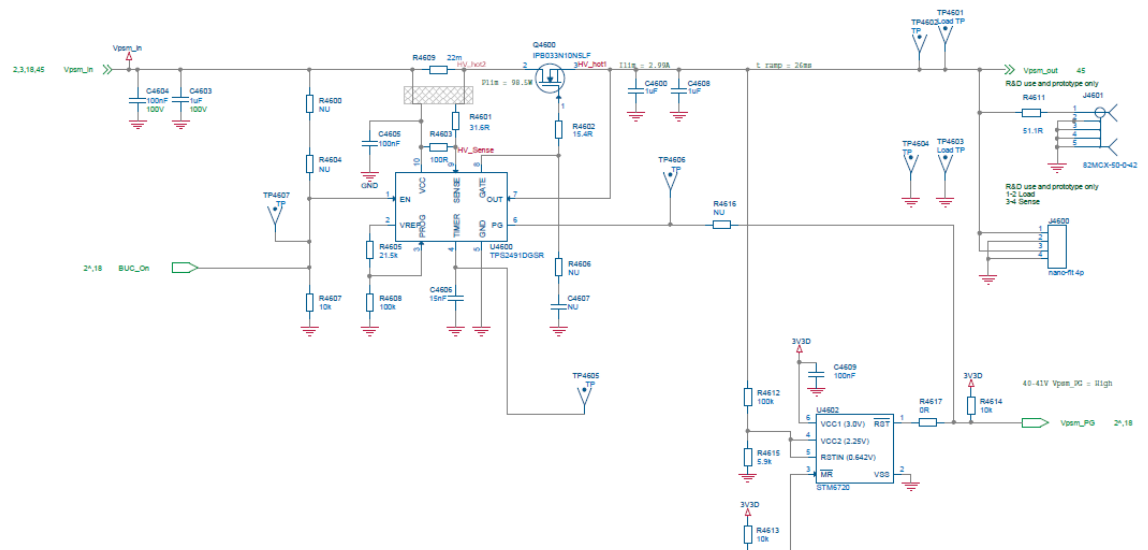
Cobham SATCOM submit evaluations of the two complete systems in terms of EMC. Test is conduct by CTC advanced, Saarbrücken in Germany.

### 3.2. Schematics

As described in Schematic 2, the N-connector in the PIM, supplying the ADU, saying that the full current for the ADU flows through the N-connector and its associated circuitry. As noted below in 3.2.1, the circuit (the PIM hot-swap) defines the limit of the current available in the rest of the modules in the ADU, and hence any further testing is not required, as previous product evaluations includes the required tests.

#### 3.2.1. PIM, hot-swap

The PIM hot-swap circuitry, in which the highest current available is present through Q4600. This circuitry is close to 100% identical with the VIM.



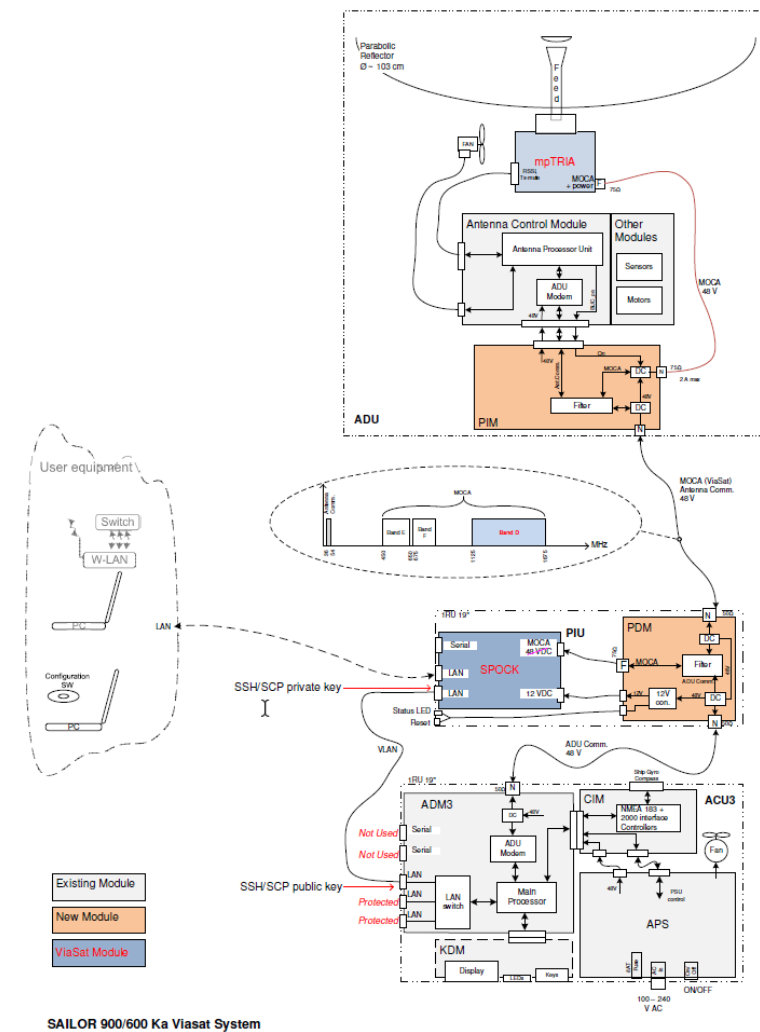
Schematic 1

The only major difference is the current limit, which is reduced to 3 A in PIM.

### 3.2.2. PIU and SPOCK module

The PIU is connected between the ACU and the ADU, to enable the communication to the mpTRIA in the ADU. The connections on a higher level is illustrate in below block diagram.

Block diagram



Schematic 2



#### 4. Required standards for compliance to CE and FCC

Below table lists all applicable standards, and if already evaluated the associated product number:

Standard	Show compliance for	Responsible	Document number / explanation	SAILOR 600	SAILOR 900
EN/IEC 60950-1	LVD Safety	Cobham	99-153806-A, + 99-153805-A	X	X
EN/IEC 60950-22	LVD Safety - outdoor equipment	Cobham	99-158477-A + 99-161900-A	-	X
EN/IEC 60950-22	LVD Safety – outdoor equipment	Cobham	99-148528-A	X	-
EN/IEC 62368-1	LVD Safety (the "new standard")	Cobham	99-153851-B	X	X (ACU only)
EN/IEC 60945	Maritime safety	Cobham	99-152389-A, 99-143334-A	X	X
EN/IEC 60945	Maritime safety	Cobham	99-149122-A	X	-
EN 301489-1	EMC, radio equipment	Cobham/Viasat	Viasat: report for pTRIA. Cobham: report for the system	X	X
EN 301489-12	EMC, VSAT	Cobham/Viasat	Viasat: report for pTRIA. Cobham: report for the system	X	X
EN 301843-1	EMC, maritime radio equipment	Cobham	Cobham provide report from CTC	X	X
EN 301843-6	EMC, maritime VSAT	Cobham	Cobham provide report from CTC	X	X
EN 55032	EMC conducted	Cobham	Cobham provide report from CTC	X	X
FCC part 15	EMC, North America	Cobham/Viasat	Viasat: report for pTRIA. Cobham: report for the system	X	X
EN 303978	RF spectrum	Viasat	Viasat provides report for the pTRIA BUC	X	X
Fcc part 25	RF spectrum, North America/Canada	Viasat	Viasat provides report for the pTRIA BUC	X	X
EN 62311	Health vs radiation	Cobham/Viasat	Cobham delivers figures and simulations for both platforms to Viasat, prior to RF-spectrum reports.	X	X
FCC part 1	Health vs radiation, North America	Cobham/Viasat		X	X
IC RSS 102	Health vs radiation, Canada	Cobham/Viasat		X	X