SLOVENSKI STANDARD
SIST-TP CEN/CLC/TR 17603-31-15:2021

01-oktober-2021

Vesoljska tehnika - Priročnik o toplotni zasnovi - 15. del: Obstoječi sateliti

Space Engineering - Thermal design handbook - Part 15: Existing Satellites

Raumfahrttechnik - Handbuch für thermisches Design - Teil 15: Bestehende Satelliten

Ingénierie spatiale - Manuel de conception thermique - Partie 15: Véhicules spatiaux existants

Ta slovenski standard je istoveten z: **CEN/CLC/TR 17063-31-15:2021**

ICS:

49.140	Vesoljski sistemi in operacije	Space systems and operations

SIST-TP CEN/CLC/TR 17603-31-15:2021 **en,fr,de**

TECHNICAL REPORT

RAPPORT TECHNIQUE

TECHNISCHER BERICHT

CEN/CLC/TR 17063-31-15

August 2021

ICS 49.140

English version

Space Engineering - Thermal design handbook - Part 15: Existing Satellites

Ingénierie spatiale - Manuel de conception thermique - Partie 15 : Véhicules spatiaux existants

Raumfahrttechnik - Handbuch für thermisches Design - Teil 15: Existierende Satelliten

This Technical Report was approved by CEN on 28 June 2021. It has been drawn up by the Technical Committee CEN/CLC/JTC 5.

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CEN-CENELEC Management Centre:
Rue de la Science 23, B-1040 Brussels

Ref. No. CEN/CLC/TR 17063-31-15:2021 E

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European Foreword

This document (CEN/CLC/TR 17603-31-15:2021) has been prepared by Technical Committee CEN/CLC/JTC 5 “Space”, the secretariat of which is held by DIN.

It is highlighted that this technical report does not contain any requirement but only collection of data or descriptions and guidelines about how to organize and perform the work in support of EN 16603-31.

This Technical report (TR 17603-31-15:2021) originates from ECSS-E-HB-31-01 Part 15A.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

This document has been developed to cover specifically space systems and has therefore precedence over any TR covering the same scope but with a wider domain of applicability (e.g.: aerospace).

1 Scope

In this Part 15, existing satellites are described and examined from a thermal control and design view. The thermal control requirements are given and an assessment is made of the thermal control systems used against performance for each satellite.

The Thermal design handbook is published in 16 Parts

TR 17603-31-01	Thermal design handbook – Part 1: View factors
TR 17603-31-02	Thermal design handbook – Part 2: Holes, Grooves and Cavities
TR 17603-31-03	Thermal design handbook – Part 3: Spacecraft Surface Temperature
TR 17603-31-04	Thermal design handbook – Part 4: Conductive Heat Transfer
TR 17603-31-05	Thermal design handbook – Part 5: Structural Materials: Metallic and Composite
TR 17603-31-06	Thermal design handbook – Part 6: Thermal Control Surfaces
TR 17603-31-07	Thermal design handbook – Part 7: Insulations
TR 17603-31-08	Thermal design handbook – Part 8: Heat Pipes
TR 17603-31-09	Thermal design handbook – Part 9: Radiators
TR 17603-31-10	Thermal design handbook – Part 10: Phase – Change Capacitors
TR 17603-31-11	Thermal design handbook – Part 11: Electrical Heating
TR 17603-31-12	Thermal design handbook – Part 12: Louvers
TR 17603-31-13	Thermal design handbook – Part 13: Fluid Loops
TR 17603-31-14	Thermal design handbook – Part 14: Cryogenic Cooling
TR 17603-31-15	Thermal design handbook – Part 15: Existing Satellites
TR 17603-31-16	Thermal design handbook – Part 16: Thermal Protection System

2 References

EN Reference	Reference in text	Title
EN 16601-00-01	ECSS-S-ST-00-01	ECSS System - Glossary of terms
TR 17603-31-03	ECSS-E-HB-31-01 Part 3	Thermal design handbook – Part 3: Spacecraft Surface Temperature
TR 17603-31-05	ECSS-E-HB-31-01 Part 5	Thermal design handbook – Part 5: Structural Materials: Metallic and Composite
TR 17603-31-06	ECSS-E-HB-31-01 Part 6	Thermal design handbook – Part 6: Thermal Control Surfaces
TR 17603-31-07	ECSS-E-HB-31-01 Part 7	Thermal design handbook – Part 7: Insulations
TR 17603-31-08	ECSS-E-HB-31-01 Part 8	Thermal design handbook – Part 8: Heat Pipes
TR 17603-31-09	ECSS-E-HB-31-01 Part 9	Thermal design handbook – Part 9: Radiators
TR 17603-31-11	ECSS-E-HB-31-01 Part 11	Thermal design handbook – Part 11: Electrical Heating
TR 17603-31-12	ECSS-E-HB-31-01 Part 12	Thermal design handbook – Part 12: Louvers
TR 17603-31-13	ECSS-E-HB-31-01 Part 13	Thermal design handbook – Part 13: Fluid Loops
TR 17603-31-14	ECSS-E-HB-31-01 Part 14	Thermal design handbook – Part 14: Cryogenic Cooling

All other references made to publications in this Part are listed, alphabetically, in the **Bibliography**.

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purpose of this Standard, the terms and definitions given in ECSS-S-ST-00-01 apply.

3.2 Abbreviated terms

The following abbreviated terms are defined and used within this Standard.

ABM	apogee boost motor
ACM	acquisition camera module
ACS	attitude control system Clause 8: attitude control sensors
AFNOR	(association Française de normalisation), French standards association.
AIT	assembly, integration and testing
AMI	active microwave instrument
AOCS	attitude and orbit control system
AOP	advanced on-board processor
ATSR	along track scanning radiometer
BAPTA	bearing and power transfer assembly
BASD	ball aerospace system division
BCU	bus coupling unit
BD	Clause 8: burst disc Clause 9: (boitier de détection), detector housing
BOL	beginning of life
BSR	back side reflection cell
CCD	coupled charge device

CCHP	constant conductance heat pipe
CEU	control electronic unit
CM	communication module
CNES	(centre national d'etudes spatiales), French space agency
CRU	command relay unit
CSS	coarse sun sensor
CU	(charge utile) payload
d.o.d.	depth of discharge
DAX	Dutch additional experiment
DBS	direct broadcast service
DC	direct current
DET	direct energy transfer
E	equinox
EAIM	attitude measurement and control electronics
ECS	European communication satellite
EGSE	electrical ground support equipment
EIRP	equivalent isotropic radiated power
EM	engineering model
EMA	(electronique de mesure d'attitude), gyro electronics
EOL	end of life
EPC	electronic power conditioner
ERS	European remote sensing satellite
ETU	engineering test unit
FCV	fuel control valve
FDMA	frequency-division multiple access
FES	fine error sensor
FMW	fixed momentum wheel