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**Space Engineering - Thermal design handbook - Part 3:  
Spacecraft Surface Temperature**

Ingénierie spatiale - Manuel de conception thermique -  
Partie 3 : Température de surface des véhicules  
spatiaux

Raumfahrttechnik - Handbuch für thermisches Design -  
Teil 3: von Oberflächen auf Raumfahrzeugen

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## Table of contents

<b>European Foreword</b>	<b>10</b>
<b>1 Scope</b>	<b>11</b>
<b>2 References</b>	<b>12</b>
<b>3 Terms, definitions and symbols</b>	<b>13</b>
3.1 Terms and definitions	13
3.2 Symbols	13
<b>4 Solar radiation</b>	<b>15</b>
4.1 General	15
4.2 Infinitely conductive planar surfaces	19
4.2.1 Flat plate emitting on one or both sides	19
4.3 Infinitely conductive spherical surfaces	21
4.3.1 Sphere	21
4.4 Infinitely conductive cylindrical surfaces	22
4.4.1 Two-dimensional circular cylinder	22
4.4.2 Three-dimensional circular cylinder	23
4.5 Infinitely conductive conical surfaces	25
4.5.1 Semi-infinite circular cone	25
4.5.2 Finite circular cone with insulated base. (axial configuration)	27
4.5.3 Finite height circular cone	29
4.6 Infinitely conductive cylindrical-conical surfaces	31
4.6.1 Cone-cylinder-cone	31
4.7 Infinitely conductive prismatic surfaces	49
4.7.1 Prism with an n-sided regular polygonal section	49
4.8 Infinitely conductive pyramidal surfaces	60
4.8.1 Pyramid with an n-sided regular polygonal section	60
4.9 Infinitely conductive prismatic-pyramidal surfaces	70
4.9.1.1 Pyramid-prism-pyramid with an n-sided regular polygonal	70
4.10 Thin-walled spherical bodies. Finite conductivity	80
4.10.1 Non-spinning sphere	80

4.10.2	Non-spinning sphere. Including internal radiation .....	82
4.11	Thin-walled cylindrical bodies. Finite conductivity. ....	83
4.11.1	Non-spinning two-dimensional circular cylinder .....	83
4.11.2	Spinning two-dimensional circular cylinder .....	85
4.11.3	Circular cylinder. solar radiation parallel to axis of symmetry .....	89
4.11.4	Cylindrical surface of rectangular cross section. Solar radiation normal to face .....	90
4.12	Thin-walled conical bodies. Conductivity .....	95
4.12.1	Non-spinning cone .....	95
<b>5</b>	<b>Planetary radiation .....</b>	<b>99</b>
5.1	General.....	99
5.2	Infinitely conductive planar surfaces .....	104
5.2.1	Flat plate absorbing and emitting on one side .....	104
5.3	Infinitely conductive spherical surfaces .....	105
5.3.1	Sphere .....	105
5.3.2	Hemispherical surface absorbing and emitting on outer face .....	106
5.4	Infinitely conductive cylindrical surfaces.....	108
5.4.1	Circular cylinder with insulated bases.....	108
5.4.2	Finite height circular cylinder .....	109
5.5	Infinitely conductive conical surfaces .....	119
5.5.1	Circular cone with insulated base.....	119
5.5.2	Finite height circular cone .....	122
<b>6</b>	<b>Albedo radiation .....</b>	<b>125</b>
6.1	General.....	125
6.2	Infinitely conductive planar surfaces .....	130
6.2.1	Flat plate absorbing and emitting on one side .....	130
6.3	Infinitely conductive spherical surfaces .....	135
6.3.1	Sphere .....	135
6.4	Infinitely conductive cylindrical surfaces.....	139
6.4.1	Circular cylinder with insulated bases.....	139
	<b>Bibliography.....</b>	<b>144</b>
<b>Figures</b>		
Figure 4-1: The function $T_R(A_E/A_I)^{1/4}$ vs. the distance to the Sun. Calculated by the compiler. ....		16
Figure 4-2: The function $T_R(A_E/A_I)^{1/4}$ vs. the optical characteristics of the surface. Shaded zone of <i>a</i> is enlarged in <i>b</i> . Calculated by the compiler.....		17

Figure 4-3: Temperature $T_R$ as a function of $\alpha_s / \varepsilon$ and $A_I/A_E$ for $d = 1$ AU. Shaded zone of $a$ is enlarged in $b$ . Calculated by the compiler. ....	18
Figure 4-4: Ratio $(A_I/A_E)^{1/4}$ as a function of $\gamma$ , in the case of a flat plate. Calculated by the compiler. ....	20
Figure 4-5: Ratio $(A_I/A_E)^{1/4}$ as a function of $\gamma$ and $H/R$ , in the case of a finite height circular cylinder. Calculated by the compiler. ....	24
Figure 4-6: Ratio $(A_I/A_E)^{1/4}$ as a function of $\delta$ , in the case of a semi-infinite circular cone. Calculated by the compiler. ....	26
Figure 4-7: Ratio $(A_I/A_E)^{1/4}$ as a function of $\delta$ , in the case of a finite circular cone with insulated base (axial configuration). Calculated by the compiler. ....	28
Figure 4-8: Ratio $(A_I/A_E)^{1/4}$ as a function of $\gamma$ and $\delta$ , in the case of a finite height cone. Calculated by the compiler. ....	30
Figure 4-9: Ratio $(A_I/A_E)^{1/4}$ as a function of $\gamma$ and $\delta$ , in the case of a cone-cylinder-cone. Calculated by the compiler. ....	32
Figure 4-10: Ratio $(A_I/A_E)^{1/4}$ as a function of $\gamma$ and $\delta$ , in the case of a cone-cylinder-cone. Calculated by the compiler. ....	33
Figure 4-11: Ratio $(A_I/A_E)^{1/4}$ as a function of $\gamma$ and $\delta$ , in the case of a cone-cylinder-cone. Calculated by the compiler. ....	34
Figure 4-12: Ratio $(A_I/A_E)^{1/4}$ as a function of $\gamma$ and $\delta$ , in the case of a cone-cylinder-cone. Calculated by the compiler. ....	35
Figure 4-13: Ratio $(A_I/A_E)^{1/4}$ as a function of $\gamma$ and $\delta$ , in the case of a cone-cylinder-cone. Calculated by the compiler. ....	36
Figure 4-14: Ratio $(A_I/A_E)^{1/4}$ as a function of $\gamma$ and $\delta$ , in the case of a cone-cylinder-cone. Calculated by the compiler. ....	37
Figure 4-15: Ratio $(A_I/A_E)^{1/4}$ as a function of $\gamma$ and $\delta$ , in the case of a cone-cylinder-cone. Calculated by the compiler. ....	38
Figure 4-16: Ratio $(A_I/A_E)^{1/4}$ as a function of $\gamma$ and $\delta$ , in the case of a cone-cylinder-cone. Calculated by the compiler. ....	39
Figure 4-17: Ratio $(A_I/A_E)^{1/4}$ as a function of $\gamma$ and $\delta$ , in the case of a cone-cylinder-cone. Calculated by the compiler. ....	40
Figure 4-18: Ratio $(A_I/A_E)^{1/4}$ as a function of $\gamma$ and $\delta$ , in the case of a cone-cylinder-cone. Calculated by the compiler. ....	41
Figure 4-19: Ratio $(A_I/A_E)^{1/4}$ as a function of $\gamma$ and $\delta$ , in the case of a cone-cylinder-cone. Calculated by the compiler. ....	42
Figure 4-20: Ratio $(A_I/A_E)^{1/4}$ as a function of $\gamma$ and $\delta$ , in the case of a cone-cylinder-cone. Calculated by the compiler. ....	43
Figure 4-21: Ratio $(A_I/A_E)^{1/4}$ as a function of $\gamma$ for any value of $H/R$ , in the case of a cone-cylinder-cone. Calculated by the compiler. ....	44
Figure 4-22: Ratio $(A_I/A_E)^{1/4}$ as a function of $\gamma$ and $H/R$ , in the case of a cone-cylinder-cone. Calculated by the compiler. ....	45
Figure 4-23: Ratio $(A_I/A_E)^{1/4}$ as a function of $\gamma$ and $H/R$ , in the case of a cone-cylinder-cone. Calculated by the compiler. ....	46

Figure 4-24: Ratio $(A_i/A_E)^{1/4}$ as a function of $\gamma$ and $H/R$ , in the case of a cone-cylinder-cone. Calculated by the compiler. ....	47
Figure 4-25: Ratio $(A_i/A_E)^{1/4}$ as a function of $\gamma$ and $H/R$ , in the case of a cone-cylinder-cone. Calculated by the compiler. ....	48
Figure 4-26: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a prism. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. Circular cylinder, $n = \infty$ . Calculated by the compiler. ....	50
Figure 4-27: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a prism. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. The values corresponding to $H/R \leq 1$ are also plotted in the previous figure. Circular cylinder, $n = \infty$ . Calculated by the compiler. ....	51
Figure 4-28: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a prism. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. Circular cylinder, $n = \infty$ . Calculated by the compiler. ....	52
Figure 4-29: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a prism. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. The values corresponding to $H/R \leq 1$ are also plotted in the previous figure. Circular cylinder, $n = \infty$ . Calculated by the compiler. ....	53
Figure 4-30: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a prism. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. Circular cylinder, $n = \infty$ . Calculated by the compiler. ....	54
Figure 4-31: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a prism. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. The values corresponding to $H/R \leq 1$ are also plotted in the previous figure. Circular cylinder, $n = \infty$ . Calculated by the compiler. ....	55
Figure 4-32: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a prism. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. Circular cylinder, $n = \infty$ . Calculated by the compiler. ....	56
Figure 4-33: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a prism. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. The values corresponding to $H/R \leq 1$ are also plotted in the previous figure. Circular cylinder, $n = \infty$ . Calculated by the compiler. ....	57
Figure 4-34: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a prism. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. Circular cylinder, $n = \infty$ . Calculated by the compiler. ....	58
Figure 4-35: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a prism. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. The values corresponding to $H/R \leq 1$ are also plotted in the previous figure. Circular cylinder, $n = \infty$ . Calculated by the compiler. ....	59
Figure 4-36: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. Circular cone, $n = \infty$ . Calculated by the compiler. ....	61
Figure 4-37: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. The values corresponding to $H/R \leq 1$ are also plotted in the previous figure. Circular cone, $n = \infty$ . Calculated by the compiler. ....	62

Figure 4-38: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. Circular cone, $n = \infty$ . Calculated by the compiler.....	63
Figure 4-39: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. The values corresponding to $H/R \leq 1$ are also plotted in the previous figure. Circular cone, $n = \infty$ . Calculated by the compiler.....	64
Figure 4-40: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. Circular cone, $n = \infty$ . Calculated by the compiler.....	65
Figure 4-41: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. The values corresponding to $H/R \leq 1$ are also plotted in the previous figure. Circular cone, $n = \infty$ . Calculated by the compiler.....	66
Figure 4-42: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. Circular cone, $n = \infty$ . Calculated by the compiler.....	67
Figure 4-43: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. The values corresponding to $H/R \leq 1$ are also plotted in the previous figure. Circular cone, $n = \infty$ . Calculated by the compiler.....	68
Figure 4-44: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. Circular cone, $n = \infty$ . Calculated by the compiler.....	69
Figure 4-45: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. The values corresponding to $H/R \leq 1$ are also plotted in the previous figure. Circular cone, $n = \infty$ . Calculated by the compiler.....	70
Figure 4-46: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid - prism - pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. Cone - cylinder - cone, $n = \infty$ . Calculated by the compiler. ....	71
Figure 4-47: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid - prism - pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. The values corresponding to $H/R \leq 1$ are also plotted in the previous figure. Cone - cylinder - cone, $n = \infty$ . Calculated by the compiler. ....	72
Figure 4-48: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid - prism - pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. Cone - cylinder - cone, $n = \infty$ . Calculated by the compiler. ....	73
Figure 4-49: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid - prism - pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. The values corresponding to $H/R \leq 1$ are also plotted in the previous figure. Cone - cylinder - cone, $n = \infty$ . Calculated by the compiler. ....	74

Figure 4-50: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid - prism - pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. Cone - cylinder - cone, $n = \infty$ . Calculated by the compiler. ....	75
Figure 4-51: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid - prism - pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. The values corresponding to $H/R \leq 1$ are also plotted in the previous figure. Cone - cylinder - cone, $n = \infty$ . Calculated by the compiler. ....	76
Figure 4-52: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid - prism - pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. Cone - cylinder - cone, $n = \infty$ . Calculated by the compiler. ....	77
Figure 4-53: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid - prism - pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. The values corresponding to $H/R \leq 1$ are also plotted in the previous figure. Cone - cylinder - cone, $n = \infty$ . Calculated by the compiler. ....	78
Figure 4-54: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid - prism - pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. Cone - cylinder - cone, $n = \infty$ . Calculated by the compiler. ....	79
Figure 4-55: Ratio $(A_i/A_E)^{1/4}$ as a function of $H/R$ , in the case of a pyramid - prism - pyramid. The curves plotted are those corresponding to the largest and smallest areas projected from the Sun. Cone - cylinder - cone, $n = \infty$ . Calculated by the compiler. ....	80
Figure 4-56: Temperature distribution on sphere. No spin. No internal radiation. Calculated by the compiler. ....	81
Figure 4-57: Temperature distribution on sphere including internal radiation. No spin. Calculated by the compiler. ....	83
Figure 4-58: Temperature distribution on a two-dimensional cylinder. No spin. No internal radiation. Calculated by the compiler. ....	85
Figure 4-59: Temperature distribution on a two - dimensional spinning cylinder for several $\mu$ and $\gamma$ values. No internal radiation. Calculated by the compiler. ....	87
Figure 4-60: Temperature distribution on a two - dimensional spinning cylinder for several $\mu$ and $\gamma$ values. No internal radiation. Calculated by the compiler. ....	88
Figure 4-61: Temperature distribution on cylinder. No spin. No internal radiation. From Nichols (1961) [11]. ....	90
Figure 4-62: Temperature distribution on a cylindrical surface whose cross section is a rectangle of aspect - ratio $\lambda = 0,5$ . No internal radiation. Calculated by the compiler. ....	92
Figure 4-63: Temperature distribution on a cylindrical surface whose cross section is a rectangle on aspect - ration $\lambda = 1$ . No internal radiation. Calculated by the compiler. ....	93
Figure 4-64: Temperature distribution on a cylindrical surface whose cross section is a rectangle on aspect - ration $\lambda = 2$ . No internal radiation. Calculated by the compiler. ....	94

Figure 4-65: Temperature distribution on cone. No spin. No internal radiation. From Nichols (1961) [11].	96
Figure 4-66: Temperature distribution on cone. No spin. No internal radiation. From Nichols (1961) [11].	97
Figure 4-67: Temperature distribution on cone. No spin. No internal radiation. From Nichols (1961) [11].	98
Figure 5-1: The ratio $T_{RP}/T_P$ vs. the optical characteristics of the surface for different values of $F_{SP}$ . Shaded zone of $a$ is enlarged in $b$ . Calculated by the compiler.	101
Figure 5-2: Radiation equilibrium temperature $T_{RP}$ vs. ratio $T_{RP}/T_P$ . Incoming radiation from different planets. After NASA - SP - 3051 (1965).	102
Figure 5-3: Different estimates of radiation equilibrium temperature $T_{RP}$ vs. $T_{RP}/T_P$ , for radiation from the Earth. Plotted from data by Johnson (1965) [9].	103
Figure 5-4: $F_{SP}$ as a function of $\lambda$ and $h/R_P$ in the case of a flat plate absorbing and emitting on one side. Calculated by the compiler.	105
Figure 5-5: $F_{SP}$ as a function of $h/R_P$ in the case of a sphere. Calculated by the compiler.	106
Figure 5-6: $F_{SP}$ as a function of $\lambda$ and $h/R_P$ in the case of a hemispherical surface absorbing and emitting on outer face. Calculated by the compiler.	107
Figure 5-7: $F_{SP}$ as a function of $\lambda$ and $h/R_P$ in the case of a circular cylinder with insulated bases. Calculated by the compiler.	109
Figure 5-8: $F_{SP}$ as a function of $\lambda$ and $h/R_P$ in the case of a finite height circular cylinder. Calculated by the compiler.	110
Figure 5-9: $F_{SP}$ as a function of $\lambda$ and $h/R_P$ in the case of a finite height circular cylinder. Calculated by the compiler.	111
Figure 5-10: $F_{SP}$ as a function of $\lambda$ and $h/R_P$ in the case of a finite height circular cylinder. Calculated by the compiler.	112
Figure 5-11: $F_{SP}$ as a function of $\lambda$ and $h/R_P$ in the case of a finite height circular cylinder. Calculated by the compiler.	113
Figure 5-12: $F_{SP}$ as a function of $\lambda$ and $h/R_P$ in the case of a finite height circular cylinder. Calculated by the compiler.	114
Figure 5-13: $F_{SP}$ as a function of $\lambda$ and $h/R_P$ in the case of a finite height circular cylinder. Calculated by the compiler.	115
Figure 5-14: $F_{SP}$ as a function of $\lambda$ and $h/R_P$ in the case of a finite height circular cylinder. Calculated by the compiler.	116
Figure 5-15: $F_{SP}$ as a function of $\lambda$ and $h/R_P$ in the case of a finite height circular cylinder. Calculated by the compiler.	117
Figure 5-16: $F_{SP}$ as a function of $\lambda$ and $h/R_P$ in the case of a finite height circular cylinder. Calculated by the compiler.	118
Figure 5-17: $F_{SP}$ as a function of $\lambda$ and $h/R_P$ in the case of a circular cone with insulated base. Calculated by the compiler.	120
Figure 5-18: $F_{SP}$ as a function of $\lambda$ and $h/R_P$ in the case of a circular cone with insulated base. Calculated by the compiler.	121



Figure 5-19: $F_{SP}$ as a function of $\lambda$ in the case of a finite height circular cone. Calculated by the compiler.....	123
Figure 5-20: $F_{SP}$ as a function of $\lambda$ in the case of a finite height circular cone. Calculated by the compiler.....	124
Figure 6-1: The ratio $T_{RA}/T_A$ vs. the optical characteristics of the surface for different values of $F$ . Shaded zone of $a$ is enlarged in $b$ . Calculated by the compiler. ....	126
Figure 6-2: Albedo equilibrium temperature, $T_{RA}$ , vs. dimensionless ratio $T_{RA}/T_A$ . Incoming albedo from different planets. After Anderson (1969) [1]. ....	127
Figure 6-3: Different estimates of albedo equilibrium temperature $T_{RA}$ , vs. $T_{RA}/T_A$ in case of the Earth. Calculated by the compiler. ....	128
Figure 6-4: Albedo view factor $F$ vs. $h/R_P$ for different values of $\theta_S$ in the case of a flat plate ( $\lambda = 0^\circ$ , $\phi_c = 180^\circ$ ). From Bannister (1965) [2]. ....	131
Figure 6-5: Albedo view factor $F$ vs. $h/R_P$ for different values of $\theta_S$ in the case of a flat plate ( $\lambda = 30^\circ$ , $\phi_c = 0^\circ$ ). From Bannister (1965) [2]. ....	132
Figure 6-6: Albedo view factor $F$ vs. $h/R_P$ for different values of $\theta_S$ in the case of a flat plate ( $\lambda = 30^\circ$ , $\phi_c = 90^\circ$ ). From Bannister (1965) [2]. ....	133
Figure 6-7: Albedo view factor $F$ vs. $h/R_P$ for different values of $\theta_S$ in the case of a flat plate ( $\lambda = 30^\circ$ , $\phi_c = 180^\circ$ ). From Bannister (1965) [2]. ....	134
Figure 6-8: Albedo view factor $F$ vs. $h/R_P$ for different values of $\theta_S$ in the case of a sphere. From Cunningham (1961) [6]. ....	136
Figure 6-9: Albedo view factor $F$ vs. $h/R_P$ for different values of $\theta_S$ in the case of a sphere. From Cunningham (1961) [6]. ....	137
Figure 6-10: Albedo view factor $F$ vs. $h/R_P$ for different values of $\theta_S$ in the case of a sphere. Calculated by the compiler. ....	138
Figure 6-11: Albedo view factor $F$ vs. $h/R_P$ for different values of $\theta_S$ in the case of a cylinder ( $\lambda = 0^\circ$ , $\phi_c = 0^\circ$ , $180^\circ$ ). From Bannister (1965) [2]. ....	140
Figure 6-12: Albedo view factor $F$ vs. $h/R_P$ for different values of $\theta_S$ in the case of a cylinder ( $\lambda = 60^\circ$ , $\phi_c = 0^\circ$ ). From Bannister (1965) [2]. ....	141
Figure 6-13: Albedo view factor $F$ vs. $h/R_P$ for different values of $\theta_S$ in the case of a cylinder ( $\lambda = 60^\circ$ , $\phi_c = 90^\circ$ ). From Bannister (1965) [2]. ....	142
Figure 6-14: Albedo view factor $F$ vs. $h/R_P$ for different values of $\theta_S$ in the case of a cylinder ( $\lambda = 60^\circ$ , $\phi_c = 180^\circ$ ). From Bannister (1965) [2]. ....	143

## Tables

Table 5-1: Relevant data on the Planets and the Moon. ....	104
Table 6-1: Relevant data on the Planets and the Moon. ....	129

## European Foreword

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This document (CEN/CLC/TR 17603-31-03:2021) 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 17603-31-03:2021) originates from ECSS-E-HB-31-01 Part 3A.

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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).

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# 1

## Scope

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Factors affecting the equilibrium temperature of a spacecraft surface are described in this Part 3 using simple geometrical configurations and basic assumptions.

Methods for conducting calculations on the affect of Solar, planetary and albedo radiation are given taking into consideration the internal and immediate environmental factors and incorporating the various configurations and dimensions of the constituent parts.

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

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EN Reference	Reference in text	Title
EN 16601-00-01	ECSS-S-ST-00-01	ECSS System - Glossary of terms

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