



Optimized Longitudinal-Fin Heat Sinks Accounting for Non-Uniform Heat Transfer Coefficient

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ABSTRACT

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An optimization method is presented to determine the optimal fin spacing and thickness of a fully-shrouded longitudinal-fin heat sink (LFHS) with an isothermal base that minimize its thermal resistance under conditions of hydrodynamically and thermally fully developed laminar flow. The thermal resistance of the LFHS is expressed in a dimensionless form that allows it to be calculated algebraically over a relevant range of dimensionless parameters by utilizing a dense tabulation that has been prepared and provided in the present work, eliminating the need to solve the complicated and time consuming conjugate problem for each particular case. Therefore, the optimization method in the present work requires only a fraction of the time that it is required for a CFD brute force optimization. Prescribed quantities are the density, viscosity, thermal conductivity and specific heat capacity of the fluid, the thermal conductivity and height of the fins, the width and length of the LFHS and the pressure gradient, or, if the optimal length of the LFHS is also of interest, the pressure drop across the LFHS. The analysis assumes adiabatic shroud, constant thermophysical properties, cooling driven by forced convection, negligible heat dissipation and axial conduction in the flow, negligible axial conduction in the fin, and negligible temperature variation across the thickness of the fin. Also, the width of the LFHS is assumed to be very large compared to the pitch of the fins. The present study is distinct from previous work because it does not assume a uniform heat transfer coefficient, but fully captures the velocity and temperature fields by numerically solving the conjugate heat transfer problem in dimensionless form, utilizing an existing approach, in order to compute the aforementioned tabulation. The optimization method is illustrated by optimizing a LFHS in the context of direct liquid cooling of microelectronics.

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Nomenclature

B	Dimensionless parameter ($B = \alpha\mu L/H^4 (-dp/dz)$)
B''	B per square streamwise unit length [$1/m^2$]
c_p	Specific heat capacity [$J/(kgK)$]
D	Heat sink width [m]
D_h	Hydraulic diameter of the channel [m]
f	Friction factor
H	Fin height [m]
\bar{h}	Average heat transfer coefficient [$W/(m^2K)$]
i	i -th node in x direction
j	j -th node in y direction
k	Fluid thermal conductivity [$W/(mK)$]
k_f	Fin thermal conductivity [$W/(mK)$]
K	Thermal conductivity ratio ($K = 2k/k_f$)
L	Heat sink length [m]
\dot{m}_{ch}	Mass flow rate per channel [kg/s]
\overline{Nu}	Average Nusselt number
n_{ch}	Number of channels
$n_{x,grid}$	Number of nodes in x direction
$n_{y,grid}$	Number of nodes in y direction
p	Pressure [Pa]

Q_{ch}	Heat transfer rate per channel [W]
Q_L	Total heat transfer rate through LFHS [W]
Q'	Local heat transfer rate per streamwise unit length [W/m]
Q'_b	Local heat transfer rate per streamwise unit length from the base [W/m]
Q'_f	Local heat transfer rate per streamwise unit length from the fin [W/m]
R_t	Thermal resistance [$^{\circ}\text{C}/\text{W}$]
$R_{t,asym.}$	Asymptotic limit of R_t [$^{\circ}\text{C}/\text{W}$]
$R'_{t,asym.}$	$R_{t,asym.}$ per streamwise unit length [$^{\circ}\text{C}/(\text{mW})$]
Re_{D_h}	Reynolds number based on the hydraulic diameter
s	Fin spacing [m]
S	Dimensionless fin spacing ($S = s/H$)
T	Fluid temperature [$^{\circ}\text{C}$]
T_b	Fluid bulk temperature [$^{\circ}\text{C}$]
$T_{b,i}$	Inlet bulk temperature [$^{\circ}\text{C}$]
$T_{b,L}$	Outlet bulk temperature [$^{\circ}\text{C}$]
T_f	Fin temperature [$^{\circ}\text{C}$]
T_w	Base temperature [$^{\circ}\text{C}$]
t	Fin thickness [m]
w	Streamwise velocity [m/s]
\bar{w}	Mean streamwise velocity [m/s]
W	Dimensionless streamwise velocity ($W = w/(H^2/\mu)(-dp/dz)$)
\bar{W}	Mean dimensionless streamwise velocity

W_{-1}	Lower branch of Lambert W function
x	Coordinate along the base [m]
X	Dimensionless coordinate ($X = x/H$)
y	Coordinate along the fin [m]
Y	Dimensionless coordinate ($Y = y/H$)
z	Streamwise coordinate [m]
Z	Dimensionless coordinate ($Z = (z/H)/(\bar{w}H/\alpha)$)
Z_L	Dimensionless heat sink length ($Z = (L/H)/(\bar{w}H/\alpha)$)

Greek Letters

Δp	Pressure drop [Pa]
Ω	Dimensionless fin thickness ($\Omega = k_f (t/2)/kH$)
α	Thermal diffusivity [m^2/s]
ε	Convergence criterion
θ	Fluid dimensionless temperature ($\theta = (T - T_w)/(T_b - T_w)$)
θ_f	Fin dimensionless temperature ($\theta_f = (T_f - T_w)/(T_b - T_w)$)
λ	Exponential decay rate ($\lambda = (dT_b/dZ)/(T_b - T_w)$)
μ	Dynamic viscosity [kg/(ms)]
ρ	Density [kg/m^3]
ϕ	Scaled fluid dimensionless temperature ($\phi = \theta/\lambda$)
ϕ_f	Scaled fin dimensionless temperature ($\phi_f = \theta_f/\lambda$)

Subscripts

n	n-th iteration
opt	Optimal values

CHAPTER I

Introduction

1.1 Problem Statement

The electronic device industry seeks to develop products with higher performance and higher efficiency. Higher performance, however, is accompanied by higher power consumption-heat dissipation unless there is a major breakthrough in the existing transistor technology. Moreover, gains in efficiency are usually directed to increase the performance of the electronic devices and not to decrease their power consumption. Therefore, there is an increased demand for electronic cooling systems that can facilitate the growing power dissipation.

The heat dissipation of an electronic component can be increased by mounting it at the base of a heat sink. The thermal performance of a heat sink is described by the value of its thermal resistance, i.e., the ratio of the temperature difference between the hottest point along the base of the heat sink and the inlet temperature of the fluid to the heat rate through the heat sink. The highest temperature of the base is prescribed by the manufacturer of the electronic component and the minimum inlet temperature of the fluid is described by the ambient temperature. Thus, the heat dissipation of the attached electronic component can be maximized by minimizing the thermal resistance of the heat sink. Longitudinal-fin heat sinks (LFHSs), as per Fig. 1, are widely employed in the thermal management of electronics due to their simplicity and low cost [1]. Therefore, the objective of the present work is to develop an optimization method based on first principles to minimize the thermal resistance of LFHSs.

Initially, an expression in dimensionless form for the thermal resistance of a fully-shrouded LFHS with an isothermal base is developed for hydrodynamically and thermally fully developed laminar flow.

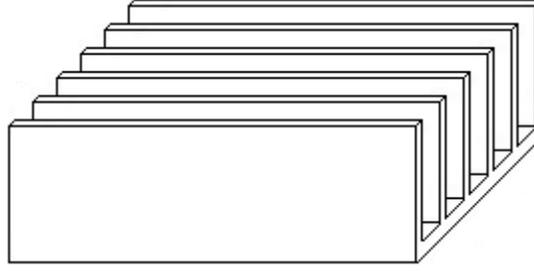


Figure 1: Longitudinal-fin heat sink.

The expression allows the thermal resistance to be calculated algebraically over a relevant range of dimensionless parameters by utilizing a dense tabulation that has been prepared and provided and thus avoids the need to solve the complicated and time consuming conjugate heat transfer problem for each particular case. The algorithm for the calculation of the relevant tables is presented and its implementation in MATLAB[®] is also provided. Then, the optimization process to calculate the optimal fin thickness and spacing that minimize the thermal resistance of the heat sink is presented.

The assumptions of the formulation are; adiabatic shroud, constant thermophysical properties, cooling driven by forced convection ($Gr/Re^2 \ll 1$), negligible heat dissipation ($Br \ll 1$) and axial conduction in the flow ($Pe \gg 1$), negligible axial conduction in the fin, and negligible temperature variation across the thickness of the fin ($Bi \ll 1$). The width of the LFHS is assumed to be very large compared to the pitch of the fins in order to neglect edge effects. The assumptions are relevant to real world applications such as, e.g., the case of a LFHS with an embedded vapour chamber in its base that is shrouded by the plastic case of the electronic device.

Finally, it must be noted that the present work provides a mathematical tool to minimize the thermal resistance of LFHSs based on the aforementioned assumptions. The applicability of the optimization process in a particular case, and thus the accuracy of the results, needs to be evaluated on a case by case basis. However, if the case at hand does not meet in full all the assumptions, the results from the present analysis serve as a good starting point for a CFD brute-force optimization.

1.2 Previous Work

The relevant literature can be divided into two categories. The first category minimizes the thermal resistance of LFHSs assuming a uniform heat transfer coefficient along the fins [2-5]. However, this assumption was shown to be generally invalid by Sparrow et al. [6] for the case of hydrodynamically and thermally fully developed laminar flow through a shrouded or unshrouded LFHS. Sparrow et al. [6] solved the conjugate heat transfer problem in dimensionless form and demonstrated that the heat transfer coefficient is a function of the location along the fin and that it can be negative near the tip of a sufficiently slender fin. Their results also show that due to the relatively low velocity of the fluid in the area adjacent to the base, the heat dissipation near the root of the fin and from the prime surface is modest compared to that from the upper part of the fin, contrary to the notion that the root of the fin is the most thermally active part of the fin and that the prime surface is more efficient heat transfer surface.

The second category of previous work minimizes the thermal resistance by solving the conjugate problem multiple times either in dimensional or dimensionless form and the results are relevant to the specific problem [7-9].

The present analysis is distinct from previous work because it expresses the thermal resistance of LFHSs in a dimensionless form that allows the thermal resistance to be evaluated algebraically over a relevant range of dimensionless parameters by utilizing a dense tabulation that has been prepared and provided in the present work. The dimensionless formulation of the thermal resistance and the calculation of the relevant tables is based upon the dimensionless formulation of the conjugate problem that was developed by Sparrow et al. [6]. Therefore, the present analysis avoids the assumption of a uniform heat transfer coefficient, and the optimization does not require the solution of the dimensionless conjugate problem.

CHAPTER II

Analysis

This section is divided into five parts. The first part presents the background theory developed by Sparrow et al. [6] upon which the present formulation is based. In the second and third parts this approach is extended such that it can be used to obtain and minimize the thermal resistance R_t of a LFHS. Specifically, the second part examines the case of prescribed pressure gradient dp/dz and length L of the LFHS, whereas the third part examines the case of prescribe pressure drop Δp across the LFHS and enables the computation of the optimal length of the heat sink L_{opt} in addition to the optimal fin thickness and spacing. Finally, the fourth and fifth parts present, respectively, the algorithm for the numerical computation of the necessary quantities for the optimizations, and the tables of the optimal dimensionless fin spacing and thickness for prescribed solid-fluid combinations.

2.1 Conjugate Heat Transfer Problem Formulation

Sparrow et al. [6] present a method that precisely solves the conjugate heat transfer problem in dimensionless form for hydrodynamically and thermally fully developed laminar flow through a shrouded LFHS with an isothermal base. They assumed negligible axial conduction in the fin, negligible axial conduction in the fluid ($Pe \gg 1$) and viscous dissipation ($Br \ll 1$), and constant thermophysical properties. The present work pertains to the case of a fully-shrouded LFHS with an isothermal base. The shroud is adiabatic. Also, in the case at hand the width D of the heat sink is assumed to be very large compared to the pitch of the fins, i.e., the sum of fin spacing s and thickness t . Thus, edge effects can be

ignored and it is sufficient to solve the conjugate heat transfer problem for the domain depicted in Fig. 2, where H is the height of the fins.

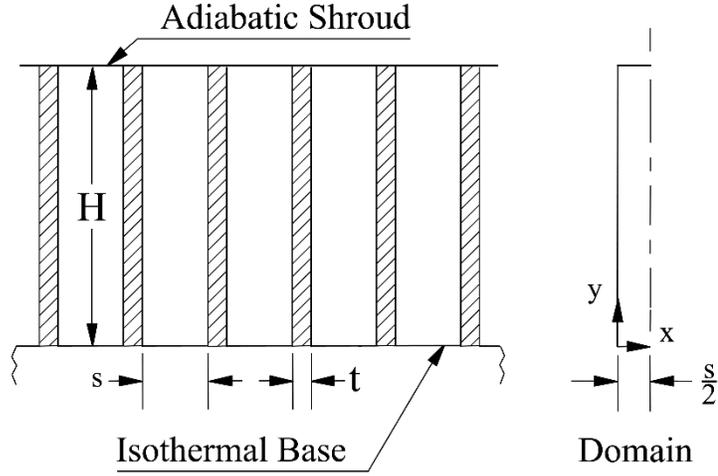


Figure 2: Fully-shrouded LFHS and cross-sectional view of domain.

The dimensionless coordinates X , Y , and Z , the dimensionless fin spacing S and thickness Ω , and the dimensionless streamwise velocity W are defined following Sparrow et al. [6] to be

$$X = \frac{x}{H} \quad (2.1)$$

$$Y = \frac{y}{H} \quad (2.2)$$

$$Z = \frac{z/H}{\bar{w}H/\alpha} \quad (2.3)$$

$$S = \frac{s}{H} \quad (2.4)$$

$$\Omega = \frac{k_f(t/2)}{kH} \quad (2.5)$$

$$W = \frac{w\mu}{H^2(-dp/dz)}, \quad (2.6)$$

where μ , α and k are the viscosity, thermal diffusivity and thermal conductivity of the fluid, k_f is the thermal conductivity of the fin and, w and \bar{w} are the local and mean values of the streamwise velocity.

It must be noted that Eq. 2.6 implies

$$\bar{W} = \frac{\bar{w}\mu}{H^2(-dp/dz)} \quad (2.7)$$

The dimensionless temperatures of the fluid θ and the fin θ_f are [6]

$$\theta = \frac{T - T_w}{T_b - T_w} \quad (2.8)$$

$$\theta_f = \frac{T_f - T_w}{T_b - T_w}, \quad (2.9)$$

where T and T_f are the local temperatures of the fluid and the fin, respectively, and T_b and T_w are the bulk temperature of the fluid and the constant temperature of the base, respectively. For the case of an isothermal wall, the assumption of thermally fully developed flow dictates

$$\frac{\partial T}{\partial z} = \frac{T_w - T}{T_w - T_b} \frac{dT_b}{dz} \quad (2.10)$$

and that the exponential decay rate λ of the temperature difference between T_w and T_b is constant [6]

$$\frac{1}{(T_b - T_w)} \frac{dT_b}{dZ} = \lambda. \quad (2.11)$$

The dimensionless form of the streamwise momentum equation is [6]

$$\frac{\partial^2 W}{\partial X^2} + \frac{\partial^2 W}{\partial Y^2} = -1, \quad (2.12)$$

where the boundary conditions (BCs) on the three solid-fluid interfaces and at the symmetry line $X = S/2$ are, respectively,

$$W|_{Y=0} = 0, \quad W|_{X=0} = 0, \quad W|_{Y=1} = 0, \quad \partial W/\partial X|_{X=S/2} = 0. \quad (2.13)$$

The dimensionless form of the thermal energy equation is [6]

$$\frac{\partial^2 \theta}{\partial X^2} + \frac{\partial^2 \theta}{\partial Y^2} = \theta \lambda \left(\frac{W}{\bar{W}} \right) \quad (2.14)$$

with BCs along the base, the fin, the shroud and the symmetry line, respectively, given by [6]

$$\theta|_{Y=0} = 0, \quad \theta|_{X=0} = \theta_f, \quad \partial \theta/\partial Y|_{Y=1} = 0, \quad \partial \theta/\partial X|_{X=S/2} = 0. \quad (2.15)$$

Importantly, heat conduction from the surface of the fin, at $x=0$, to the fluid is described using Fourier's law and thus the analysis avoids the assumption of a uniform heat transfer coefficient along the fin. It is assumed that the Biot number based on the thickness of the fin is very small and that the axial conduction can be ignored. An energy balance in the fin yields [6]

$$\Omega \frac{d^2 \theta_f}{dY^2} = - \frac{\partial \theta}{\partial X} \Big|_{X=0}, \quad (2.16)$$

where the BCs at the root and at the tip of the fin are, respectively, [6]

$$\theta_f|_{Y=0} = 0, \quad d\theta_f/dY|_{Y=1} = 0. \quad (2.17)$$

Sparrow et al. [6] introduce scaled temperatures for the fluid ϕ and the fin ϕ_f as

$$\phi = \frac{\theta}{\lambda} \quad (2.18)$$

$$\phi_f = \frac{\theta_f}{\lambda}. \quad (2.19)$$

Equation 2.18 combined with the definition of the bulk temperature provides an integral equation for λ of the form [6]

$$\lambda = \frac{S/2}{\iint \phi \left(\frac{W}{\bar{W}} \right) dXdY}. \quad (2.20)$$

Substituting Eq. 2.18 into Eq. 2.14, the thermal energy equation becomes [6]

$$\frac{\partial^2 \phi}{\partial X^2} + \frac{\partial^2 \phi}{\partial Y^2} = \phi \lambda \left(\frac{W}{\bar{W}} \right) \quad (2.21)$$

subjected to

$$\phi|_{Y=0} = 0, \quad \phi|_{X=0} = \phi_f, \quad \partial\phi/\partial Y|_{Y=1} = 0, \quad \partial\phi/\partial X|_{X=S/2} = 0. \quad (2.22)$$

Substituting Eq. 2.19 into Eq. 2.16, the thermal energy equation for the fin becomes [6]

$$\Omega \frac{d^2 \phi_f}{dY^2} = - \frac{\partial \phi}{\partial X} \Big|_{X=0} \quad (2.23)$$

subjected to

$$\phi_f|_{Y=0} = 0, \quad d\phi_f/dY|_{Y=1} = 0. \quad (2.24)$$

Once W is calculated from Eq. 2.12, the remaining three unknowns ϕ , ϕ_f and λ are computed numerically from Eqns. 2.20, 2.21 and 2.23. The solution process is presented in section 2.4. The outputs that are the key parameters for the formulation and the minimization of R_t are $\bar{W}(S)$ and $\lambda(S, \Omega)$.

2.2 Thermal Resistance Formulation for Prescribed Pressure Gradient

The outlet bulk temperature of the fluid $T_{b,L}$ follows from Eq. 2.11 as

$$T_{b,L} = T_w - (T_w - T_{b,i}) \exp(\lambda Z_L), \quad (2.25)$$

where $T_{b,i}$ is the inlet bulk temperature and Z_L is the dimensionless length of the heat sink. The heat transfer rate through a channel Q_{ch} becomes

$$Q_{ch} = \rho \bar{w} s H c_p [T_{b,L} - T_{b,i}]. \quad (2.26)$$

Invoking the assumption that the width of the heat sink D is very large compared to the sum of s and t , the number of the channels n_{ch} and the total heat transfer rate through the heat sink Q_L are, respectively,

$$n_{ch} = \frac{D}{s+t} \quad (2.27)$$

$$Q_L = \frac{D}{s+t} \rho \bar{w} s H c_p [T_{b,L} - T_{b,i}]. \quad (2.28)$$

R_t for the case at hand is defined as the ratio of the difference between the constant temperature of the base and the inlet temperature of the fluid, to the total heat transfer rate through the heat sink as per

$$R_t = \frac{T_w - T_{b,i}}{Q_L}. \quad (2.29)$$

Substituting Eqns. 2.7, 2.25, 2.28 and 2.20 into Eq. 2.29, R_t can be expressed as the product of the asymptotic limit of the thermal resistance $R_{t,asym}$ and the dimensionless component within the curly brackets as

$$R_t = R_{t,asym} \left\{ \frac{1}{\frac{S}{S+K\Omega} \bar{W} \left[1 - \exp\left(B \frac{\lambda}{\bar{W}} \right) \right]} \right\}, \quad (2.30)$$

where

$$R_{t,asym} = \frac{\mu}{D\rho c_p H^3 (-dp/dz)} \quad (2.31)$$

$$K = \frac{2k}{k_f} \quad (2.32)$$

$$B = \frac{\alpha\mu L}{H^4 (-dp/dz)}. \quad (2.33)$$

Equation 2.30 dictates that for prescribed $R_{t,asym}$, K and B the minimum value of R_t depends only on S and Ω . Therefore, once the values of $\bar{W}(S)$ and $\lambda(S, \Omega)$ are computed, the dimensionless optimal fin spacing S_{opt} and thickness Ω_{opt} can be calculated by numerically differentiating R_t as per Eq. 2.30 with respect to S and Ω , and setting the result equal to zero. The computation of dense tables of $\bar{W}(S)$ and $\lambda(S, \Omega)$ is necessary to accomplish this and is presented in section 2.4.

2.3 Thermal Resistance Formulation for Prescribed Pressure Drop

In this case, the optimal length of the LFHS L_{opt} is an outcome in addition to s_{opt} and t_{opt} . For hydrodynamically fully developed flow

$$\frac{dp}{dz} = -\frac{\Delta p}{L}. \quad (2.34)$$

Substituting Eq. 2.34 into Eq. 2.30

$$R_t = R'_{t,asym} \cdot L \left\{ \frac{1}{\frac{S}{S + K\Omega} \bar{W} \left[1 - \exp\left(B'' L^2 \frac{\lambda}{\bar{W}} \right) \right]} \right\}, \quad (2.35)$$

where $R'_{t,asym}$ is the asymptotic limit of the thermal resistance per unit length

$$R'_{t,asym.} = \frac{\mu}{D\rho c_p H^3 \Delta p} \quad (2.36)$$

$$B'' = \frac{B}{L^2}. \quad (2.37)$$

The partial derivative of R_t with respect to L is

$$\frac{\partial R_t}{\partial L} = \frac{R'_{t,asym.}}{\frac{S}{S + K\Omega} \bar{W} \left[1 - \exp\left(B'' \frac{\lambda}{\bar{W}} L^2 \right) \right]^2} \left\{ 1 + \left[\left(2B'' \frac{\lambda}{\bar{W}} \right) L^2 - 1 \right] \exp\left(B'' \frac{\lambda}{\bar{W}} L^2 \right) \right\}. \quad (2.38)$$

L_{opt} is calculated by setting Eq. 2.38 equal to zero and solving for L . The branch of the solution that is of engineering interest is

$$L_{opt} = \frac{\sqrt{\frac{-2 \left[W_{-1}(-1/2\sqrt{e}) \right] - 1}{2}}}{\sqrt{-B'' \lambda / \bar{W}}}, \quad (2.39)$$

where W_{-1} is the lower branch of the Lambert W function. Evaluating the numerator of Eq. 2.39, the expression for L_{opt} becomes

$$L_{opt} = \frac{1.121}{\sqrt{-B'' \lambda / \bar{W}}}. \quad (2.40)$$

Combining Eq. 2.35 with Eq. 2.40

$$R_{t,L_{opt}} = R'_{t,asym.} \frac{1.567}{\sqrt{-B'' \lambda \bar{W}}} \left(1 + \frac{K\Omega}{S} \right). \quad (2.41)$$

Finally, S_{opt} and Ω_{opt} are computed from Eq. 2.41 as previously described.

2.4 Tabulation of $\bar{W}(S)$ and $\lambda(S, \Omega)$

The present work follows Sparrow et al. [6] to iteratively compute the dense tables of $\bar{W}(S)$ and $\lambda(S, \Omega)$ that are required to execute the optimizations. Given that the solution process had to be repeated for a large number of different pairs of (S, Ω) the algorithm was coded in MATLAB[®] along with a meshing algorithm. The meshing algorithm discretizes the domain producing a uniform grid with m_x and m_y nodes in the x and y directions, respectively, where

$$m_y = \text{round}\left[2 \cdot (m_x - 1)/S\right] + 1. \quad (2.42)$$

A mesh independence study was conducted and it was found that it is sufficient to set m_x equal to 30 for $0.5 \leq S \leq 1$ and equal to 14 for $S < 0.5$.

The steps of the algorithm that were coded are as follows [6]. First, for each pair of (S, Ω) , Eq. 2.12 is solved subjected to the boundary conditions given by Eq. 2.13 to obtain $W(X, Y)$ and, subsequently, compute \bar{W} . Then, the distribution of $\phi(X, Y)_{n-1}$ is either guessed if $n=1$ (the first iteration) or acquired from the previous iteration. In the n_{th} iteration, this distribution of ϕ_{n-1} is used to calculate λ from Eq. 2.20 and to compute the right-hand sides of Eqns. 2.21 and 2.23 over the interior of the domain. Next, Eq. 2.23 is solved subjected to the boundary conditions given by Eq. 2.24 to compute $\phi_{f, n-1}$ and thus to provide the fourth boundary condition on Eq. 2.21. Subsequently, Eq. 2.21 is solved subjected to the boundary conditions given by Eq. 2.22 to calculate $\phi(X, Y)_n$. If ϕ_{n-1} and ϕ_n satisfy Eq. 2.43 the solution has converged and the code records the values of $\bar{W}(S)$ and $\lambda(S, \Omega)$; otherwise, ϕ_{n-1} is set equal to ϕ_n and the solution process is repeated.

$$\max_{\substack{1 \leq i \leq m_x \\ 1 \leq j \leq m_y}} |\phi_n(i, j) - \phi_{n-1}(i, j)| \leq \varepsilon. \quad (2.43)$$

The convergence criterion ε was chosen to be equal to 10^{-9} , which is 4 orders of magnitude smaller than the smallest value of ϕ_n . An advantage of this technique is that at each iteration n , Eq. 2.21 reduces to a Poisson equation after the calculation of its right hand side using ϕ_{n-1} .

The values of $\bar{W}(S)$ and $\lambda(S, \Omega)$ have been calculated for $1 \leq 1/S \leq 35$ and $1 \leq \Omega \leq 100$. The step sizes for the variable $1/S$ and Ω are 0.1 and 0.25, respectively, for the range $1 \leq 1/S \leq 2$, 0.25 for the range $2 \leq 1/S \leq 16$, 0.5 for the range $16 \leq 1/S \leq 23$, and 1 for the range $23 \leq 1/S \leq 35$. The calculated tables are provided in Appendix B and the MATLAB[®] code is provided in Appendix A.1. Finally, the code exports all the results corresponding to the graphs presented by Sparrow et al. [6] for each pair of (S, Ω) . These results are compared in section 3.1 with those available in [6] and in the literature to validate the derived tables of $\bar{W}(S)$ and $\lambda(S, \Omega)$.

2.5 Tabulation of $S_{opt}(B)$ and $\Omega_{opt}(B)$ for Prescribed K

Equation 2.30 dictates that for prescribed K , i.e., solid-fluid combination, S_{opt} and Ω_{opt} are only functions of B . Therefore, a second MATLAB[®] code was developed to compute $S_{opt}(B)$ and $\Omega_{opt}(B)$ for common heat sink material and coolant combinations, i.e., Si-Water ($K = 9.25 \times 10^{-3}$), Cu-Water ($K = 3.02 \times 10^{-3}$), Cu-Air ($K = 1.31 \times 10^{-4}$) and Al-Air ($K = 2.28 \times 10^{-4}$).

The code, for each prescribed K , evaluates the ratio $(R_t/R_{t,asym})$ from Eq. 2.30 over a wide range of values of B utilizing the computed tables $\bar{W}(S)$ and $\lambda(S, \Omega)$. The minimum value $(R_t/R_{t,asym})_{\min}$ is

located for every B and the corresponding $S_{opt}(B)$ and $\Omega_{opt}(B)$ are recorded. The tables of $S_{opt}(B)$ and $\Omega_{opt}(B)$ for the four prescribed solid-fluid combinations are provided in Appendix C and the corresponding MATLAB[®] code is provided in Appendix A.2.

Significantly, it is noted that tables of $S_{opt}(B)$ and $\Omega_{opt}(B)$ can be calculated as per above for every particular solid-fluid combination simply by using the tables $\bar{W}(S)$ and $\lambda(S, \Omega)$ that are provided in Appendix B without the need to solve the conjugate heat transfer problem. Moreover, the provided code in Appendix A.1 can be used to calculate new entries for the tables $\bar{W}(S)$ and $\lambda(S, \Omega)$ if higher resolution is required over a particular range of interest for S and Ω .

CHAPTER III

Results

This section is divided into two parts. First, the results from the MATLAB[®] code, described at section 2.4, are validated against the literature. Then, an example demonstrates the minimization of R_t for the case of a Si LFHS and water, and prescribed dp/dz and L .

3.1 Validation of the Derived Tables $\bar{W}(S)$ and $\lambda(S, \Omega)$

Sparrow et al. [6] used the definitions of the friction factor f and the Reynolds number based on the hydraulic diameter Re_{D_h} , to derive the expression for the product $f Re$ which for the case of fully-shrouded LFHS is

$$f Re = \frac{8}{\bar{W}} \left(\frac{S}{1+S} \right)^2. \quad (3.1)$$

The MATLAB[®] code evaluates $f Re$ from Eq. 3.1 for every S after the calculation of \bar{W} from Eq. 2.12 subjected to the boundary conditions given by Eq. 2.13. The values of $f Re(S)$ acquired during the tabulation of $\bar{W}(S)$ were compared against the results given by the available expression in the literature [10] for hydrodynamically fully developed laminar flow through rectangular ducts,

$$f Re = 96(1 - 1.3553 \cdot S + 1.9467 \cdot S^2 - 1.7012 \cdot S^3 + 0.9564 \cdot S^4 - 0.2537 \cdot S^5). \quad (3.2)$$

The minimum, maximum and mean discrepancies were 0.005%, 0.195% and 0.136%, respectively. Therefore, the calculated values of $\bar{W}(S)$ are valid.

The heat transfer rate per unit length from the half fin Q'_f and the half prime surface Q'_b at each streamwise location are [6]

$$Q'_f = \int_0^H -k \left. \frac{\partial T}{\partial x} \right|_{x=0} dy \quad (3.3)$$

$$Q'_b = \int_0^{s/2} -k \left. \frac{\partial T}{\partial y} \right|_{y=0} dx \quad (3.4)$$

$$Q' = Q'_f + Q'_b, \quad (3.5)$$

where Q' is the total heat transfer rate per unit length of the half channel at each streamwise location. The average heat transfer coefficient \bar{h} and average Nusselt number \overline{Nu} are defined as [6]

$$\bar{h} = \frac{1}{(H + s/2)} \frac{Q'}{(T_w - T_b)} \quad (3.6)$$

$$\overline{Nu} = \frac{\bar{h}H}{k}. \quad (3.7)$$

The values of the ratio Q'_f/Q' and \overline{Nu} were calculated for S equal to 0.1 and 0.5 and for Ω equal to 1, 5, 10, 25 and ∞ using the tables $\bar{W}(S)$ and $\lambda(S, \Omega)$. Then, Q'_f/Q' and \overline{Nu} were compared with the corresponding values from [6]. The minimum, maximum and mean discrepancy for the ratio Q'_f/Q' were 0.003%, 0.618% and 0.135%, respectively, and for \overline{Nu} they were 0.005%, 0.57% and 0.319%, respectively. Thus, the computed table of $\lambda(S, \Omega)$ is valid.

Finally, Fig. 3 presents representative values of the table $\lambda(S, \Omega)$. The absolute value of λ increases as Ω increases, i.e., as the fins become thicker and thus closer to isothermal. Conversely, $|\lambda|$ decreases with respect to S as it should, given that the space between the fins becomes wider.

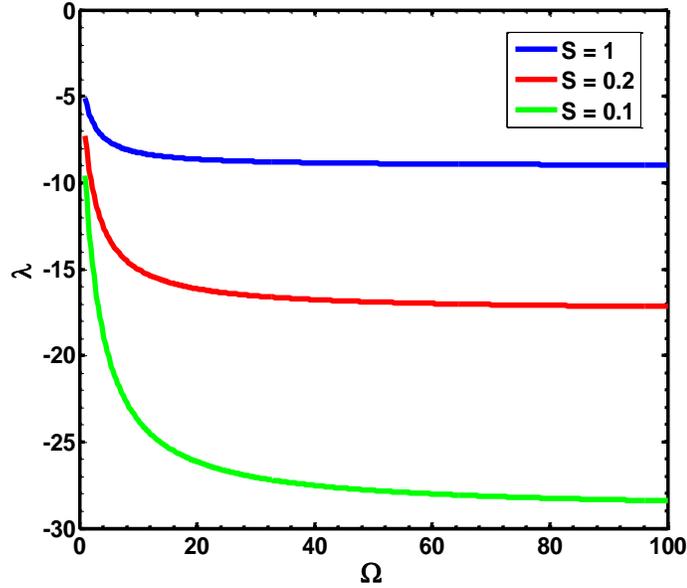


Figure 3: λ vs. Ω at selected S .

3.2 Thermal Resistance Minimization Example for Prescribed dp/dz

The first step of the optimization process is to calculate the parameters $R_{t,asym}$, K , and B from Eqns. 2.31, 2.32 and 2.33 for the prescribed geometry (H , L and D), thermophysical properties of the fluid and the fin μ , ρ , c_p , k and k_f , and pressure gradient dp/dz . Then, R_t is calculated from Eq. 2.30 using the tables of $\bar{W}(S)$ and $\lambda(S, \Omega)$. The minimum value $R_{t,min}$ and the corresponding S_{opt} and Ω_{opt} can be obtained either by calling a built in function of the mathematical software that is used or by plotting $R_t(S, \Omega)$ as per Fig. 4. Then, the optimal dimensional values of the fin spacing s_{opt} and thickness t_{opt} are

calculated algebraically from Eqns. 2.4 and 2.5. At the end, caution should be exercised to verify that the calculated s_{opt} and t_{opt} along with the prescribed quantities lead to hydrodynamically and thermally fully developed flow, and that the axial conduction in the fin and the fluid can be ignored.

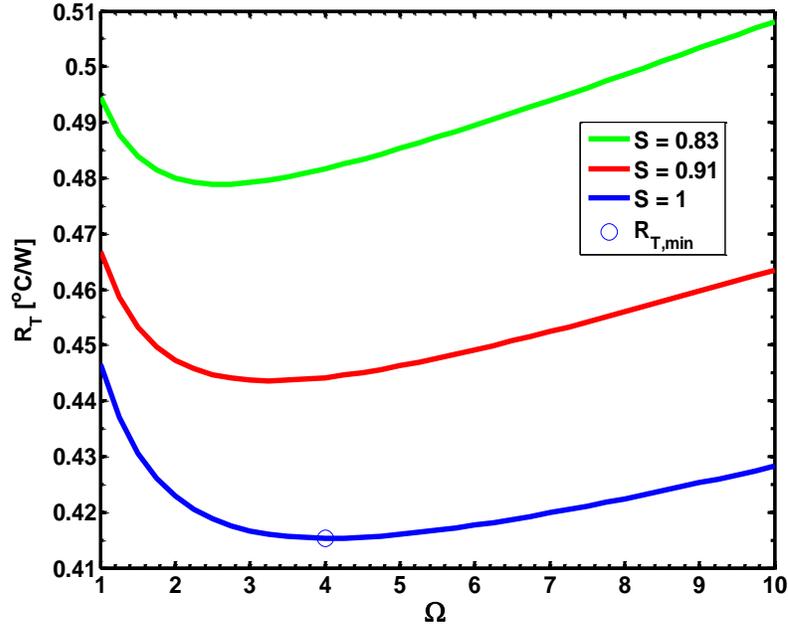


Figure 4: R_t vs Ω and S for Si-Water, $R_{t,asym} = 0.013$ °C/W, $K = 9.3 \times 10^{-3}$, $B = 1.3 \times 10^{-2}$.

Figure 4 presents R_t for the case of a Si LFHS and water. The heat sink is 2 cm wide and long, and the fins are 250 μm tall. The pressure gradient is -56.31 kPa/m . The S_{opt} and Ω_{opt} are equal to 1.0 and 4.0 respectively. Thus, s_{opt} and t_{opt} are equal to 250 μm and 9.25 μm , respectively, as per Eqns. 2.4 and 2.5. The Reynolds number of the flow is 33.52 and the Peclet number is 221.78. The hydrodynamic and thermal entrance lengths represent 2.5% and 16.6% of the length of the heat sink respectively [10]. Therefore, the assumptions for hydrodynamically and thermally fully developed laminar flow with negligible axial conduction are justified for the present case.

It is noted that S_{opt} and Ω_{opt} can be rigorously calculated by numerically differentiating R_t as per Eq. 2.30 with respect to S and Ω , and setting the result equal to zero. However, this method also requires the evaluation of the derivative $\partial^2 R_t / \partial S \partial \Omega$ for multiple pairs of (S, Ω) to determine the pair (S_{opt}, Ω_{opt}) that fulfills the equality to zero due to the fact that $\bar{W}(S)$ and $\lambda(S, \Omega)$ are tabular.

Finally, if a particular case does not meet in full all the assumptions that have been made, e.g., if the heat source is smaller than the base of the heat sink or if the axial conduction in the fins is important, the results from the present analysis serve as a good starting point for CFD brute-force optimization.

CHAPTER IV

Conclusions and Future Work

A formulation to compute the thermal resistance of a fully-shrouded longitudinal-fin heat sink (LFHS) with an isothermal base under conditions of hydrodynamically and thermally fully developed laminar flow has been developed in dimensionless form based on an existing approach to the solution of the relevant conjugate problem [6]. The developed expression allows the direct calculation of the thermal resistance over a relevant range of dimensionless parameters without the need to solve the particular conjugate problem at hand but by using a dense tabulation that has been prepared and provided in the present work. The algorithm for the calculation of the relevant tables has been presented and its implementation in MATLAB[®] is provided. The optimization process to determine the optimal fin thickness and spacing that minimize the thermal resistance of the LFHS has been demonstrated. The optimal dimensionless fin thickness and spacing have been calculated for four solid-fluid combinations; Si-Water, Cu-Water, Cu-Air and Al-Air. Finally, an example illustrates the minimization of the thermal resistance for the case of a Si LFHS and water in the context of direct liquid cooling of microelectronics.

The applicability of the presented formulation for the thermal resistance of a LFHS in a particular case and thus of the optimization process needs to be evaluated on a case by case basis. For instance, the optimization process will have good performance on predicting the optimal fin spacing and thickness for the case of a sufficiently wide LFHS with a very low thermal conductivity plastic shroud, an embedded vapor chamber to make the base essentially isothermal, and hydrodynamic and thermal entrance lengths for the flow that represent a small fraction of the length of the heat sink. On the contrary, the optimization process will have reduced performance for the case of a LFHS that the width represents a small multiple of the fin pitch, the heat source does not have the same form factor as the base, the hydrodynamic and/or the

thermal entrance lengths are comparable with the length of the heat sink, the heat is transferred in the flow mainly through conduction ($Pe \ll 1$), or there is bypass flow. However, the results of the optimization process for the latter case serve as a good starting point for a CFD brute-force optimization.

In future work one may relax the assumption for hydrodynamically and thermally fully developed flow and extend the optimization process to the case of simultaneously developing flow.

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APPENDIX A

MATLAB[®] Codes

A.1 Mesh Generation and Calculation of $\bar{W}(S)$ and $\lambda(S, \Omega)$

```

%-----
%Georgios Karamanis
%Thesis
%Grid - Solver
%-----
clear all
clc
%-----
%Parameters
%-----
%Upper Limits
%-----
S_denom_min=10;           % 1/Channel Aspect Ratio
S_denom_step=0.25;
S_denom_max=10;          % 1/Channel Aspect Ratio
Omega_min=25;            % Omega
Omega_step=0.25;
Omega_max=25;            % Omega
%-----
S_denom_cntr_max=floor((S_denom_max-S_denom_min)/S_denom_step)+1;
Omega_cntr_max=floor((Omega_max-Omega_min)/Omega_step)+1;
%-----
S_denom_vector(1:S_denom_cntr_max,1:Omega_cntr_max)=0;
Omega_vector(1:S_denom_cntr_max,1:Omega_cntr_max)=0;
%-----
S_nodes=14;                % #Half Channel Nodes
Sg=1.000000000000001;     % DS Geometric Percentage
Hg=1.000000000000001;     % DH Geometric Percentage
%-----
%Loop to Solve for different S
%-----
tstart_global = tic;
%-----
S_denom_cntr=0;
cntr_global=0;
%-----
for S_denom=S_denom_min:S_denom_step:S_denom_max
%-----
S_denom_cntr=S_denom_cntr+1;
%-----
S_nd=1/S_denom;           % Dimensionless Channel width Factor
H_nodes=floor(2*(S_nodes-1)/S_nd)+1; % #Fin Nodes
%-----
H_ch=1;                   % Dimensionless Fin Height
S_ch=S_nd*H_ch;           % Dimensionless Channel width
%-----
%Grid
%-----
S_max=S_ch/2;
H_max=H_ch;
%-----
S(1:S_nodes)=0;
S(S_nodes)=S_max;
%-----
if mod(S_nodes,2)==0      % Odd number
%-----
DS=S_max*(1-Sg)/(2-Sg^(S_nodes/2-1)-Sg^(S_nodes/2));

```

```

for S_cntr=2:1:S_nodes/2
S(S_cntr)=S(S_cntr-1)+Sg^(S_cntr-2)*DS;
S(S_nodes-S_cntr+1)=S(S_nodes-S_cntr+2)-Sg^(S_cntr-2)*DS;
end
%-----
else
%-----
DS=S_max*(1-Sg)/(2-2*Sg^((S_nodes-1)/2));
for S_cntr=2:1:(S_nodes-1)/2+1
S(S_cntr)=S(S_cntr-1)+Sg^(S_cntr-2)*DS;
S(S_nodes-S_cntr+1)=S(S_nodes-S_cntr+2)-Sg^(S_cntr-2)*DS;
end
%-----
end
%-----
H(1:H_nodes)=0;
H(H_nodes)=H_max;
if mod(H_nodes,2)==0 % Odd number
%-----
DH=H_max*(1-Hg)/(2-Hg^(H_nodes/2-1)-Hg^(H_nodes/2));
for H_cntr=2:1:H_nodes/2
H(H_cntr)=H(H_cntr-1)+Hg^(H_cntr-2)*DH;
H(H_nodes-H_cntr+1)=H(H_nodes-H_cntr+2)-Hg^(H_cntr-2)*DH;
end
%-----
else
%-----
DH=H_max*(1-Hg)/(2-2*Hg^((H_nodes-1)/2));
for H_cntr=2:1:(H_nodes-1)/2+1
H(H_cntr)=H(H_cntr-1)+Hg^(H_cntr-2)*DH;
H(H_nodes-H_cntr+1)=H(H_nodes-H_cntr+2)-Hg^(H_cntr-2)*DH;
end
%-----
end
%-----
X(1:S_nodes,1:H_nodes)=0;
Y(1:S_nodes,1:H_nodes)=0;
for H_cntr=1:1:H_nodes
X(:,H_cntr)=S(:);
end
for S_cntr=1:1:S_nodes
Y(S_cntr,:)=H(:);
end
%-----
%{
figure(1)
Grid(1:S_cntr,1:H_cntr)=1;
surf(X,Y,Grid)
view([0 90]);
title('Grid');
axis image;
%}
%-----
%Hydrodynamic Problem
%-----
%Equations
%-----

```

```

W(1:S_nodes,1:H_nodes)=0;
%-----
Lin_Res(1:S_nodes*H_nodes,1)=0;
%-----
B(1:S_nodes*H_nodes,1)=0;
%-----
W_cntr=0;
for H_cntr=1:1:H_nodes
for S_cntr=1:1:S_nodes
W_cntr=W_cntr+1;
if (S_cntr==1) B(W_cntr,1)=0;
elseif (H_cntr==1) B(W_cntr,1)=0;
elseif (H_cntr==H_nodes) B(W_cntr,1)=0;
else
%-----
if (S_cntr==S_nodes) B(W_cntr,1)=-1;           % Symmetry for Poisson
Equation
else B(W_cntr,1)=-1;                           % Poisson Equation
end
%-----
end
end
end
%-----
A(S_nodes*H_nodes,S_nodes*H_nodes)=0;
%-----
for H_cntr=1:1:H_nodes
for S_cntr=1:1:S_nodes
%-----
%Mixed
%-----
if (S_cntr==1) A((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr)=1;
% Dirichlet BC
elseif (H_cntr==1) A((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr)=1;
% Dirichlet BC
elseif (H_cntr==H_nodes) A((H_cntr-1)*S_nodes+S_cntr,(H_cntr-
1)*S_nodes+S_cntr)=1;   %Dirichlet BC
else
%-----
if (S_cntr==S_nodes)                               % Symmetry Poisson Equation
TX_1=2/(2*(S(S_cntr)-S(S_cntr-1)));
TX_2=1/(S(S_cntr)-S(S_cntr-1));
TX_3=1/(S(S_cntr)-S(S_cntr-1));
TX_4=TX_2+TX_3;
%-----
TY_1=2/(H(H_cntr+1)-H(H_cntr-1));
TY_2=1/(H(H_cntr+1)-H(H_cntr));
TY_3=1/(H(H_cntr)-H(H_cntr-1));
TY_4=TY_2+TY_3;
%-----
A((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr)=-(TX_1*TX_4)-
(TY_1*TY_4);
A((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr-1)=TX_1*TX_3+TX_1*TX_2;
A((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr+S_nodes)=TY_1*TY_2;
A((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr-S_nodes)=TY_1*TY_3;
%-----
else                               % Poisson Equation

```

```

%-----
TX_1=2/(S(S_cntr+1)-S(S_cntr-1));
TX_2=1/(S(S_cntr+1)-S(S_cntr));
TX_3=1/(S(S_cntr)-S(S_cntr-1));
TX_4=TX_2+TX_3;
%-----
TY_1=2/(H(H_cntr+1)-H(H_cntr-1));
TY_2=1/(H(H_cntr+1)-H(H_cntr));
TY_3=1/(H(H_cntr)-H(H_cntr-1));
TY_4=TY_2+TY_3;
%-----
A((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr)=-(TX_1*TX_4)-
(TY_1*TY_4);
A((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr+1)=TX_1*TX_2;
A((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr-1)=TX_1*TX_3;
A((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr+S_nodes)=TY_1*TY_2;
A((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr-S_nodes)=TY_1*TY_3;
%-----
end
%-----
end
end
end
%-----
Lin_Res=A\B;
%-----
W_cntr=0;
for H_cntr=1:1:H_nodes
for S_cntr=1:1:S_nodes
W_cntr=W_cntr+1;
W(S_cntr,H_cntr)=Lin_Res(W_cntr,1);
end
end
%-----
W_Int=0;
for H_cntr=1:1:H_nodes-1
for S_cntr=1:1:S_nodes-1
LLC=W(S_cntr,H_cntr);
LRC=W(S_cntr+1,H_cntr);
ULC=W(S_cntr,H_cntr+1);
URC=W(S_cntr+1,H_cntr+1);
W_c_m=(LLC+LRC+ULC+URC)/4;
dA=(S(S_cntr+1)-S(S_cntr))*(H(H_cntr+1)-H(H_cntr));
W_Int=W_Int+W_c_m*dA;
end
end
%-----
W_Bar=W_Int/(S_max*H_max);
fRe=(8/W_Bar)*(S_ch/(1+S_ch))^2;
%-----
%{
figure(2)
surf(X,Y,W)
title('W')
view([0 90]);
axis image;
%}

```

```

%-----
%Loop to Solve for different Omega
%-----
Omega_cntr=0;
%-----
for Omega=Omega_min:Omega_step:Omega_max
%-----
tstart = tic;
%-----
cntr_global=cntr_global+1;
Omega_cntr=Omega_cntr+1;
%-----
%Thermal Problem
%-----
Phi=2*W;
Phi_New=3*W;
Residual_Phi=10;
iteration_n=0;
%-----
while (Residual_Phi>1E-9 || iteration_n<15)&& Residual_Phi<1000
iteration_n=iteration_n+1;
%-----
%Lamda
%-----
Lamda_Int=0;
for H_cntr=1:1:H_nodes-1
for S_cntr=1:1:S_nodes-1
LLC=Phi(S_cntr,H_cntr)*W(S_cntr,H_cntr)/W_Bar;
LRC=Phi(S_cntr+1,H_cntr)*W(S_cntr+1,H_cntr)/W_Bar;
ULC=Phi(S_cntr,H_cntr+1)*W(S_cntr,H_cntr+1)/W_Bar;
URC=Phi(S_cntr+1,H_cntr+1)*W(S_cntr+1,H_cntr+1)/W_Bar;
PhiW=(LLC+LRC+ULC+URC)/4;
dA=(S(S_cntr+1)-S(S_cntr))*(H(H_cntr+1)-H(H_cntr));
Lamda_Int=Lamda_Int+PhiW*dA;
end
end
Lamda=(S_ch/2)/Lamda_Int;
%-----
%dPhidX
%-----
dPhidX(1:H_nodes,1)=0;
for H_cntr=1:1:H_nodes
dPhidX(H_cntr,1)=(Phi(2,H_cntr)-Phi(1,H_cntr))/(S(2)-S(1));
end
%-----
%Fin Equation
%-----
Phi_Fin(1:H_nodes,1)=0;
%-----
B_Fin(1:H_nodes,1)=0;
%-----
for H_cntr=1:1:H_nodes
if (H_cntr==1) B_Fin(H_cntr,1)=0;
else
%-----
if (H_cntr==H_nodes) B_Fin(H_cntr,1)=-dPhidX(H_cntr,1)/Omega; % Symmetry
for Fin Equation

```

```

else B_Fin(H_cntr,1)=-dPhidX(H_cntr,1)/Omega; % Fin
Equation
end
end
%-----
end
%-----
A_Fin(H_nodes,H_nodes)=0;
%-----
for H_cntr=1:1:H_nodes
%-----
%Mixed
%-----
if (H_cntr==1) A_Fin(H_cntr,H_cntr)=1; % Dirichlet BC
else
%-----
if (H_cntr==H_nodes) %Symmetry Fin Equation
TF_1=2/(2*(H(H_cntr)-H(H_cntr-1)));
TF_2=1/(H(H_cntr)-H(H_cntr-1));
TF_3=1/(H(H_cntr)-H(H_cntr-1));
TF_4=TF_2+TF_3;
%-----
A_Fin(H_cntr,H_cntr)=- (TF_1*TF_4);
A_Fin(H_cntr,H_cntr-1)=TF_1*TF_3+TF_1*TF_2;
%-----
else % Poisson Equation
%-----
TF_1=2/(H(H_cntr+1)-H(H_cntr-1));
TF_2=1/(H(H_cntr+1)-H(H_cntr));
TF_3=1/(H(H_cntr)-H(H_cntr-1));
TF_4=TF_2+TF_3;
%-----
A_Fin(H_cntr,H_cntr)=- (TF_1*TF_4);
A_Fin(H_cntr,H_cntr+1)=TF_1*TF_2;
A_Fin(H_cntr,H_cntr-1)=TF_1*TF_3;
%-----
end
%-----
end
end
%-----
Phi_Fin=A_Fin\B_Fin;
%-----
%{
figure(3)
plot(H/H_ch,Phi_Fin);
title('PhiFin');
%}
%-----
Left_Wall_Phi(1:H_nodes,1)=Phi_Fin(1:H_nodes,1);
%-----
%Temperature Equation
%-----
Lin_Res_Temp(1:S_nodes*H_nodes,1)=0;
%-----
B_Temp(1:S_nodes*H_nodes,1)=0;
%-----

```

```

T_cntr=0;
for H_cntr=1:1:H_nodes
for S_cntr=1:1:S_nodes
T_cntr=T_cntr+1;
if (S_cntr==1) B_Temp(T_cntr,1)=Left_Wall_Phi(H_cntr,1);
elseif (H_cntr==1) B_Temp(T_cntr,1)=0;
else
%-----
if (S_cntr==S_nodes)
B_Temp(T_cntr,1)=W(S_cntr,H_cntr)*Phi(S_cntr,H_cntr)*Lamda/W_Bar; %X
Symmetry for Temperature Equation
elseif (H_cntr==H_nodes)
B_Temp(T_cntr,1)=W(S_cntr,H_cntr)*Phi(S_cntr,H_cntr)*Lamda/W_Bar; %Y
Symmetry for Temperature Equation
else B_Temp(T_cntr,1)=W(S_cntr,H_cntr)*Phi(S_cntr,H_cntr)*Lamda/W_Bar;
% Temperature Equation
end
%-----
end
end
end
%-----
A_Temp(S_nodes*H_nodes,S_nodes*H_nodes)=0;
%-----
for H_cntr=1:1:H_nodes
for S_cntr=1:1:S_nodes
%-----
%Mixed
%-----
if (S_cntr==1) A_Temp((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr)=1;
%Dirichlet BC
elseif (H_cntr==1) A_Temp((H_cntr-1)*S_nodes+S_cntr,(H_cntr-
1)*S_nodes+S_cntr)=1; %Dirichlet BC
else
%-----
if (S_cntr==S_nodes&&H_cntr==H_nodes) %Upper Right Node Symmetry
Temperature Equation
TTX_1=2/(2*(S(S_cntr)-S(S_cntr-1)));
TTX_2=1/(S(S_cntr)-S(S_cntr-1));
TTX_3=1/(S(S_cntr)-S(S_cntr-1));
TTX_4=TTX_2+TTX_3;
%-----
TTY_1=2/(2*(H(H_cntr)-H(H_cntr-1)));
TTY_2=1/(H(H_cntr)-H(H_cntr-1));
TTY_3=1/(H(H_cntr)-H(H_cntr-1));
TTY_4=TTY_2+TTY_3;
%-----
A_Temp((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr)=-(TTX_1*TTX_4)-
(TTY_1*TTY_4);
A_Temp((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr-
1)=TTX_1*TTX_3+TTX_1*TTX_2;
A_Temp((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr-
S_nodes)=TTY_1*TTY_3+TTY_1*TTY_2;
%-----
elseif (S_cntr==S_nodes) %X Symmetry Temperature Equation
TTX_1=2/(2*(S(S_cntr)-S(S_cntr-1)));
TTX_2=1/(S(S_cntr)-S(S_cntr-1));

```

```

TTX_3=1/(S(S_cntr)-S(S_cntr-1));
TTX_4=TTX_2+TTX_3;
%-----
TTY_1=2/(H(H_cntr+1)-H(H_cntr-1));
TTY_2=1/(H(H_cntr+1)-H(H_cntr));
TTY_3=1/(H(H_cntr)-H(H_cntr-1));
TTY_4=TTY_2+TTY_3;
%-----
A_Temp((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr)=-(TTX_1*TTX_4)-
(TTY_1*TTY_4);
A_Temp((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr-
1)=TTX_1*TTX_3+TTX_1*TTX_2;
A_Temp((H_cntr-1)*S_nodes+S_cntr,(H_cntr-
1)*S_nodes+S_cntr+S_nodes)=TTY_1*TTY_2;
A_Temp((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr-
S_nodes)=TTY_1*TTY_3;
%-----
elseif (H_cntr==H_nodes) %Y Symmetry Temperature Equation
TTX_1=2/(S(S_cntr+1)-S(S_cntr-1));
TTX_2=1/(S(S_cntr+1)-S(S_cntr));
TTX_3=1/(S(S_cntr)-S(S_cntr-1));
TTX_4=TTX_2+TTX_3;
%-----
TTY_1=2/(2*(H(H_cntr)-H(H_cntr-1)));
TTY_2=1/(H(H_cntr)-H(H_cntr-1));
TTY_3=1/(H(H_cntr)-H(H_cntr-1));
TTY_4=TTY_2+TTY_3;
%-----
A_Temp((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr)=-(TTX_1*TTX_4)-
(TTY_1*TTY_4);
A_Temp((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr+1)=TTX_1*TTX_2;
A_Temp((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr-1)=TTX_1*TTX_3;
A_Temp((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr-
S_nodes)=TTY_1*TTY_3+TTY_1*TTY_2;
%-----
else % Temperature Equation
%-----
TTX_1=2/(S(S_cntr+1)-S(S_cntr-1));
TTX_2=1/(S(S_cntr+1)-S(S_cntr));
TTX_3=1/(S(S_cntr)-S(S_cntr-1));
TTX_4=TTX_2+TTX_3;
%-----
TTY_1=2/(H(H_cntr+1)-H(H_cntr-1));
TTY_2=1/(H(H_cntr+1)-H(H_cntr));
TTY_3=1/(H(H_cntr)-H(H_cntr-1));
TTY_4=TTY_2+TTY_3;
%-----
A_Temp((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr)=-(TTX_1*TTX_4)-
(TTY_1*TTY_4);
A_Temp((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr+1)=TTX_1*TTX_2;
A_Temp((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr-1)=TTX_1*TTX_3;
A_Temp((H_cntr-1)*S_nodes+S_cntr,(H_cntr-
1)*S_nodes+S_cntr+S_nodes)=TTY_1*TTY_2;
A_Temp((H_cntr-1)*S_nodes+S_cntr,(H_cntr-1)*S_nodes+S_cntr-
S_nodes)=TTY_1*TTY_3;
%-----
end

```

```

%-----
end
end
end
%-----
Lin_Res_Temp=A_Temp\B_Temp;
%-----
T_cntr=0;
for H_cntr=1:1:H_nodes
for S_cntr=1:1:S_nodes
T_cntr=T_cntr+1;
Phi_New(S_cntr,H_cntr)=Lin_Res_Temp(T_cntr,1);
end
end
%-----
Difference_Phi=Phi-Phi_New;
Residual_Phi=max(max(abs(Difference_Phi)))
Phi=Phi_New;
%-----
end
%-----
%{
figure(5)
surf(X,Y,Phi)
title('Phi')
view([0 90]);
axis image;
%}
%-----
Thita=Lamda*Phi;
Thita_Fin=Lamda*Phi_Fin;
%-----
%{
figure(6)
surf(X,Y,Thita)
title('Thita')
view([0 90]);
axis image;
%}
%-----
figure(7)
plot(H,Thita_Fin)
title('Thita Fin')
axis tight;
%}
%-----
S_Om_Lamda_fRe_Time(cntr_global,1)=1/S_nd;
S_Om_Lamda_fRe_Time(cntr_global,2)=S_nd;
S_Om_Lamda_fRe_Time(cntr_global,3)=Omega;
S_Om_Lamda_fRe_Time(cntr_global,4)=W_Bar;
S_Om_Lamda_fRe_Time(cntr_global,5)=Lamda;
S_Om_Lamda_fRe_Time(cntr_global,6)=fRe;
S_Om_Lamda_fRe_Time(cntr_global,7)=toc(tstart);
S_Om_Lamda_fRe_Time(cntr_global,8)=toc(tstart_global);
%-----
Export=['S = ',num2str(1/S_nd),' s = ',num2str(S_nd),' Omega = ',num2str(Omega),' W_Bar = ',num2str(W_Bar),' Lamda = ',num2str(Lamda),'

```

```

fRe = ',num2str(fRe),' t = ',num2str(toc(tstart)), ' t_gl =
',num2str(toc(tstart_global))];
%-----
disp(Export)
%-----
S_denom_vector(:,Omega_cntr)=Omega;
Omega_vector(S_denom_cntr,:)=1/S_nd;
W_Bar_array(S_denom_cntr,Omega_cntr)=W_Bar;
Lamda_array(S_denom_cntr,Omega_cntr)=Lamda;
%-----
%END of Loop to Solve for different Omega
%-----
end
%-----
%END of Loop to Solve for different S
%-----
end
%-----
save S_Omega_W_Bar_Lamda
%-----
%{
figure
surf(S_denom_vector,Omega_vector,W_Bar_array)
title('W_Bar vs S_nd and Omega')
%-----
figure
surf(S_denom_vector,Omega_vector,Lamda_array)
title('Lamda vs S_nd and Omega')
%}
%-----
rho=998.003992; %kg/m3
mu=9.59E-04; %Ns/m2
k=6.06E-01; %W/mK
cp=4.18E+03; %J/kgK
kf=148; %W/mK
H_f=3.02E-04; % Fin Height
Tw=500; % Wall Temperature
Tb_in=100; % Inlet Bulk Temperature
n_dev_len=20;
Re=200;
a=k/(rho*cp); % Thermal diffusivity
%-----
H_ch=1; % Dimensionless Fin Height
S_nd=1/S_denom; % Dimensionless Channel width Factor
s=S_nd*H_f;
S_ch=S_nd*H_ch; % Dimensionless Channel width
De=4*H_f*(s/2)/(H_f+s);
t=2*Omega*k*H_ch/kf; % Fin Thickness
%-----
f=fRe/Re;
w_bar=Re*mu/(rho*De);
dpdz=-f*(0.5*rho*(w_bar)^2)/De;
dpdz2=-w_bar/((H_f^2)*W_Bar/mu);
z_fd=(1/16)*Re*De;
Z_ch=(n_dev_len*z_fd/H_f)/(w_bar*H_f/a);
%-----
%Temperature

```

```

%-----
Tb_out=Tw-(Tw-Tb_in)*exp(Lamda*Z_ch)
for H_cntr=1:1:H_nodes
for S_cntr=1:1:S_nodes
Temp(S_cntr,H_cntr)=Thita(S_cntr,H_cntr)*(Tb_out-Tw)+Tw;
end
end
%{
%-----
%Temperature Averaging Routine to verify Tb_out
%-----
Temp_Int=0;
for H_cntr=1:1:H_nodes-1
for S_cntr=1:1:S_nodes-1
LLC=Temp(S_cntr,H_cntr)*W(S_cntr,H_cntr)/W_Bar;
LRC=Temp(S_cntr+1,H_cntr)*W(S_cntr+1,H_cntr)/W_Bar;
ULC=Temp(S_cntr,H_cntr+1)*W(S_cntr,H_cntr+1)/W_Bar;
URC=Temp(S_cntr+1,H_cntr+1)*W(S_cntr+1,H_cntr+1)/W_Bar;
Temp_c_m=(LLC+LRC+ULC+URC)/4;
dA=(S(S_cntr+1)-S(S_cntr))*(H(H_cntr+1)-H(H_cntr));
Temp_Int=Temp_Int+Temp_c_m*dA;
end
end
Tb_new=Temp_Int/(S_max*H_max)
%}
%-----
X=X*H_f;
Y=Y*H_f;
%-----
%{
figure(8)
surf(X,Y,Temp)
title('Temperature')
view([0 90]);
axis image;
%}
%-----
%Heat Rate
%-----
qf_tot_pp=0;
qf_tot=0;
for H_cntr=1:1:H_nodes
qf_pp(1,H_cntr)=-k*(Temp(2,H_cntr)-Temp(1,H_cntr))/(X(2,H_cntr)-X(1,H_cntr));
qf_tot_pp=qf_tot_pp+qf_pp(1,H_cntr);
if (H_cntr==1)
Width_y=0;
else
Width_y=H(H_cntr)-H(H_cntr-1);
end
qf(1,H_cntr)=-k*(Temp(2,H_cntr)-Temp(1,H_cntr))*Width_y*H_f/(X(2,H_cntr)-
X(1,H_cntr));
qf_tot=qf_tot+qf(1,H_cntr);
end
qf_tot_pp=qf_tot_pp-qf_pp(1,1);
qf_mean_pp=qf_tot_pp/(H_nodes);
%-----
qb_tot_pp=0;

```

```

qb_tot=0;
for S_cntr=1:1:S_nodes
qb_pp(1,S_cntr)=-k*(Temp(S_cntr,2)-Temp(S_cntr,1))/(Y(S_cntr,2)-Y(S_cntr,1));
qb_tot_pp=qb_tot_pp+qb_pp(1,S_cntr);
if (S_cntr==1)
Width_x=0;
else
Width_x=S(S_cntr)-S(S_cntr-1);
end
qb(1,S_cntr)=-k*(Temp(S_cntr,2)-Temp(S_cntr,1))*Width_x*H_f/(Y(S_cntr,2)-
Y(S_cntr,1));
qb_tot=qb_tot+qb(1,S_cntr);
end
qb_tot_pp=qb_tot_pp-qb_pp(1,1); % Node at (x=0,y=0) considered to be part of
the fin
qb_mean=qb_tot_pp/(S_nodes-1);
%-----
%{
figure
plot(H,qf_pp/qf_mean_pp)
title('qf/qf mean')
axis tight;
%-----
figure
plot(S,qb_pp/qb_mean)
title('qb/qb mean')
axis tight;
%}
%-----
%Nu #
%-----
for H_cntr=1:1:H_nodes
hf(1,H_cntr)=qf_pp(1,H_cntr)/(Temp(1,H_cntr)-Tb_out);
Nuf(1,H_cntr)=hf(1,H_cntr)*H_f/k;
end
%-----
for S_cntr=1:1:S_nodes
hb(1,S_cntr)=qb_pp(1,S_cntr)/(Tw-Tb_out);
Nub(1,S_cntr)=hb(1,S_cntr)*H_f/k;
end
hb_mean=qb_mean/(Tw-Tb_out);
Nub_mean=hb_mean*H_f/k;
%-----
%{
figure
plot(H,Nuf)
title('Nu_f')
axis tight;
%-----
figure
plot(S,Nub/Nub_mean)
title('Nub/Nub mean')
axis tight;
%}
%-----
%Average Heat Transfer Coefficient and Nu #
%-----

```

```

Q=qf_tot+qb_tot;
qf_q=qf_tot/Q;
h_bar=Q/((H_f+s/2)*(Tw-Tb_out));
Nu_bar=h_bar*H_f/k;
%-----
Nu_texts=h_bar*De/k;
Pr=mu*cp/k;
%-----
W_Bar
fRe
Tb_out
Nub_mean
Nu_bar
Q
qf_q
%-----
Pr
Nu_texts
%-----

```

A.2 Calculation of $S_{opt}(B)$ and $\Omega_{opt}(B)$ for prescribed \mathcal{K}

```

%-----
clear all
clc
%-----
load('LFHS_FD_Res.mat')
%-----
% Thermophysical Properties, Pressure Drop, Geometry
%-----
%Cooper
%k_f=401;
%B_steps=4000;
%B_max=0.044; %Water
%B_max=0.099; %Air
%B(:,1)=logspace(-7,0,B_steps); %Water
%B(:,1)=logspace(-7,-1,B_steps); %Air
%-----
%Aluminum
%k_f=230;
%B_steps=4000;
%B_max=0.065;
%B(:,1)=logspace(-7,0,B_steps);
%-----
%Si
k_f=131;
B_steps=4000;
B_max=0.039;
B(:,1)=logspace(-7,0,B_steps);
%-----
%Water
k=606E-3;
rho=1/1002*1E6;
mu=959E-6;
cp=4181;
%-----
%Air
%k=0.0262;
%rho=1.1614;
%mu=184.6E-7;
%cp=1.007E+3;
%-----
% Parameters
%-----
K=2*k/k_f;
%-----
D=2E-2;
H=250E-6;
L=2E-2;
%-----
% Array Manipulations
%-----
Inv_S(:,1)=LFHSFDResforMatalb(:,1);
S(:,1)=LFHSFDResforMatalb(:,2);
Omega(:,1)=LFHSFDResforMatalb(:,3);
Lamda(:,1)=LFHSFDResforMatalb(:,4);
W_Bar(:,1)=LFHSFDResforMatalb(:,5);
fRe(:,1)=LFHSFDResforMatalb(:,6);
%-----

```

```

[counter_max,dummy]=size(S);
%-----
b_cntr=1;
%-----
while (B(b_cntr,1)<=B_max)
%-----
% Rt Calculation
%-----
Rt(1:counter_max,1)=0;
%-----
for cntr=1:1:counter_max
Rt(cntr,1)=1/((S(cntr,1)/(S(cntr,1)+K*Omega(cntr,1)))*W_Bar(cntr,1)*(1-
exp(B(b_cntr,1)*Lamda(cntr,1)/W_Bar(cntr,1))));
end
[min_value,min_location]=min(Rt);
%-----
S_opt=S(min_location,1);
Omega_opt=Omega(min_location,1);
%-----
dpdz=-(mu*k*L)/(rho*cp*(H^4)*B(b_cntr,1));
%-----
s_opt=H*S(min_location,1);
t_opt=2*Omega(min_location,1)*k*H/k_f;
%-----
Dh_opt=4*(s_opt*H)/((2*s_opt)+(2*H));
%-----
W_Bar_opt=W_Bar(min_location,1);
w_bar_opt=W_Bar(min_location,1)*(-dpdz)*(H^2)/mu;
Re_opt=rho*w_bar_opt*Dh_opt/mu;
%-----
Pr=cp*mu/k;
%-----
h_fd_opt=0.06*Re_opt*Dh_opt;
t_fd_opt=0.06*Re_opt*Dh_opt*Pr;
%-----
n_h_dev=L/h_fd_opt;
n_th_dev=L/t_fd_opt;
%-----
K_Sopt_Omopt(b_cntr,1)=K;
K_Sopt_Omopt(b_cntr,2)=B(b_cntr,1);
K_Sopt_Omopt(b_cntr,3)=S_opt;
K_Sopt_Omopt(b_cntr,4)=Omega_opt;
K_Sopt_Omopt(b_cntr,5)=min_value;
K_Sopt_Omopt(b_cntr,6)=s_opt;
K_Sopt_Omopt(b_cntr,7)=t_opt;
K_Sopt_Omopt(b_cntr,8)=Re_opt;
K_Sopt_Omopt(b_cntr,9)=n_h_dev;
K_Sopt_Omopt(b_cntr,10)=n_th_dev;
K_Sopt_Omopt(b_cntr,11)=-dpdz;
%-----
b_cntr=b_cntr+1;
end
%-----

```

APPENDIX B

Tables $\bar{W}(S)$ and $\lambda(S, \Omega)$

Tables $\bar{W}(S)$

S	\bar{W}	f Re	S	\bar{W}	f Re
1.00e+00	3.51e-02	5.69633e+01	4.76e-02	1.83e-04	9.03187e+01
9.09e-01	3.18e-02	5.70702e+01	4.65e-02	1.75e-04	9.04447e+01
8.33e-01	2.88e-02	5.73592e+01	4.55e-02	1.67e-04	9.05654e+01
7.69e-01	2.62e-02	5.77820e+01	4.44e-02	1.60e-04	9.06810e+01
7.14e-01	2.38e-02	5.83007e+01	4.35e-02	1.53e-04	9.07920e+01
6.67e-01	2.17e-02	5.88869e+01	4.17e-02	1.41e-04	9.10009e+01
6.25e-01	1.99e-02	5.95190e+01	4.00e-02	1.30e-04	9.11942e+01
5.88e-01	1.82e-02	6.01799e+01	3.85e-02	1.20e-04	9.13735e+01
5.56e-01	1.68e-02	6.08573e+01	3.70e-02	1.11e-04	9.15402e+01
5.26e-01	1.55e-02	6.15418e+01	3.57e-02	1.04e-04	9.16957e+01
5.00e-01	1.43e-02	6.22263e+01	3.45e-02	9.68e-05	9.18410e+01
4.44e-01	1.18e-02	6.40363e+01	3.33e-02	9.05e-05	9.19771e+01
4.00e-01	9.95e-03	6.56298e+01	3.23e-02	8.48e-05	9.21049e+01
3.64e-01	8.48e-03	6.71238e+01	3.13e-02	7.97e-05	9.22251e+01
3.33e-01	7.30e-03	6.85099e+01	3.03e-02	7.49e-05	9.23383e+01
3.08e-01	6.35e-03	6.97923e+01	2.94e-02	7.06e-05	9.24452e+01
2.86e-01	5.57e-03	7.09753e+01	2.86e-02	6.67e-05	9.25462e+01
2.67e-01	4.92e-03	7.20679e+01			
2.50e-01	4.38e-03	7.30766e+01			
2.35e-01	3.92e-03	7.40103e+01			
2.22e-01	3.53e-03	7.48751e+01			
2.11e-01	3.20e-03	7.56783e+01			
2.00e-01	2.91e-03	7.64252e+01			
1.90e-01	2.66e-03	7.71217e+01			
1.82e-01	2.43e-03	7.77719e+01			
1.74e-01	2.24e-03	7.83806e+01			
1.67e-01	2.07e-03	7.89510e+01			
1.60e-01	1.91e-03	7.94868e+01			
1.54e-01	1.78e-03	7.99908e+01			
1.48e-01	1.66e-03	8.04658e+01			
1.43e-01	1.54e-03	8.09140e+01			
1.38e-01	1.45e-03	8.13378e+01			
1.33e-01	1.35e-03	8.17388e+01			
1.29e-01	1.27e-03	8.21191e+01			
1.25e-01	1.20e-03	8.24799e+01			
1.21e-01	1.13e-03	8.28229e+01			
1.18e-01	1.07e-03	8.31492e+01			
1.14e-01	1.01e-03	8.34601e+01			
1.11e-01	9.55e-04	8.37566e+01			
1.08e-01	9.06e-04	8.40396e+01			
1.05e-01	8.61e-04	8.43101e+01			
1.03e-01	8.19e-04	8.45689e+01			
1.00e-01	7.80e-04	8.48166e+01			
9.76e-02	7.43e-04	8.50541e+01			
9.52e-02	7.09e-04	8.52818e+01			
9.30e-02	6.78e-04	8.55004e+01			
9.09e-02	6.48e-04	8.57104e+01			
8.89e-02	6.21e-04	8.59124e+01			
8.70e-02	5.95e-04	8.61067e+01			
8.51e-02	5.70e-04	8.62939e+01			
8.33e-02	5.47e-04	8.64741e+01			
8.16e-02	5.26e-04	8.66480e+01			
8.00e-02	5.06e-04	8.68157e+01			
7.84e-02	4.86e-04	8.69777e+01			
7.69e-02	4.68e-04	8.71340e+01			
7.55e-02	4.51e-04	8.72853e+01			
7.41e-02	4.35e-04	8.74314e+01			
7.27e-02	4.20e-04	8.75729e+01			
7.14e-02	4.05e-04	8.77099e+01			
7.02e-02	3.92e-04	8.78426e+01			
6.90e-02	3.79e-04	8.79711e+01			
6.78e-02	3.66e-04	8.80958e+01			
6.67e-02	3.54e-04	8.82167e+01			
6.56e-02	3.43e-04	8.83341e+01			
6.45e-02	3.32e-04	8.84480e+01			
6.35e-02	3.22e-04	8.85587e+01			
6.25e-02	3.12e-04	8.86662e+01			
6.06e-02	2.94e-04	8.88724e+01			
5.88e-02	2.77e-04	8.90676e+01			
5.71e-02	2.62e-04	8.92526e+01			
5.56e-02	2.48e-04	8.94281e+01			
5.41e-02	2.35e-04	8.95950e+01			
5.26e-02	2.23e-04	8.97537e+01			
5.13e-02	2.12e-04	8.99050e+01			
5.00e-02	2.01e-04	9.00493e+01			
4.88e-02	1.92e-04	9.01870e+01			

Table $\lambda(S, \Omega)$

S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ
6.78e-02	2.68e+01	-9.00299e+02	6.78e-02	4.58e+01	-1.10306e+03	6.78e-02	6.48e+01	-1.21404e+03	6.78e-02	8.38e+01	-1.28365e+03	6.67e-02	3.50e+00	-2.28630e+02
6.78e-02	2.70e+01	-9.04034e+02	6.78e-02	4.60e+01	-1.10494e+03	6.78e-02	6.50e+01	-1.21516e+03	6.78e-02	8.40e+01	-1.28439e+03	6.67e-02	3.75e+00	-2.42606e+02
6.78e-02	2.73e+01	-9.07729e+02	6.78e-02	4.63e+01	-1.10681e+03	6.78e-02	6.53e+01	-1.21628e+03	6.78e-02	8.43e+01	-1.28513e+03	6.67e-02	4.00e+00	-2.56329e+02
6.78e-02	2.75e+01	-9.11386e+02	6.78e-02	4.65e+01	-1.10866e+03	6.78e-02	6.55e+01	-1.21739e+03	6.78e-02	8.45e+01	-1.28586e+03	6.67e-02	4.25e+00	-2.69805e+02
6.78e-02	2.78e+01	-9.15005e+02	6.78e-02	4.68e+01	-1.11050e+03	6.78e-02	6.58e+01	-1.21849e+03	6.78e-02	8.48e+01	-1.28660e+03	6.67e-02	4.50e+00	-2.83042e+02
6.78e-02	2.80e+01	-9.18587e+02	6.78e-02	4.70e+01	-1.11233e+03	6.78e-02	6.60e+01	-1.21959e+03	6.78e-02	8.50e+01	-1.28732e+03	6.67e-02	4.75e+00	-2.96044e+02
6.78e-02	2.83e+01	-9.22131e+02	6.78e-02	4.73e+01	-1.11414e+03	6.78e-02	6.63e+01	-1.22068e+03	6.78e-02	8.53e+01	-1.28805e+03	6.67e-02	5.00e+00	-3.08817e+02
6.78e-02	2.85e+01	-9.25639e+02	6.78e-02	4.75e+01	-1.11594e+03	6.78e-02	6.65e+01	-1.22176e+03	6.78e-02	8.55e+01	-1.28877e+03	6.67e-02	5.25e+00	-3.21367e+02
6.78e-02	2.88e+01	-9.29111e+02	6.78e-02	4.78e+01	-1.11773e+03	6.78e-02	6.68e+01	-1.22284e+03	6.78e-02	8.58e+01	-1.28949e+03	6.67e-02	5.50e+00	-3.33700e+02
6.78e-02	2.90e+01	-9.32547e+02	6.78e-02	4.80e+01	-1.11950e+03	6.78e-02	6.70e+01	-1.22391e+03	6.78e-02	8.60e+01	-1.29020e+03	6.67e-02	5.75e+00	-3.45821e+02
6.78e-02	2.93e+01	-9.35949e+02	6.78e-02	4.83e+01	-1.12126e+03	6.78e-02	6.73e+01	-1.22498e+03	6.78e-02	8.63e+01	-1.29091e+03	6.67e-02	6.00e+00	-3.57734e+02
6.78e-02	2.95e+01	-9.39317e+02	6.78e-02	4.85e+01	-1.12301e+03	6.78e-02	6.75e+01	-1.22603e+03	6.78e-02	8.65e+01	-1.29162e+03	6.67e-02	6.25e+00	-3.69445e+02
6.78e-02	2.98e+01	-9.42650e+02	6.78e-02	4.88e+01	-1.12474e+03	6.78e-02	6.78e+01	-1.22709e+03	6.78e-02	8.68e+01	-1.29232e+03	6.67e-02	6.50e+00	-3.80959e+02
6.78e-02	3.00e+01	-9.45951e+02	6.78e-02	4.90e+01	-1.12646e+03	6.78e-02	6.80e+01	-1.22813e+03	6.78e-02	8.70e+01	-1.29302e+03	6.67e-02	6.75e+00	-3.92280e+02
6.78e-02	3.03e+01	-9.49218e+02	6.78e-02	4.93e+01	-1.12817e+03	6.78e-02	6.83e+01	-1.22917e+03	6.78e-02	8.73e+01	-1.29372e+03	6.67e-02	7.00e+00	-4.03412e+02
6.78e-02	3.05e+01	-9.52454e+02	6.78e-02	4.95e+01	-1.12986e+03	6.78e-02	6.85e+01	-1.23021e+03	6.78e-02	8.75e+01	-1.29441e+03	6.67e-02	7.25e+00	-4.14361e+02
6.78e-02	3.08e+01	-9.55657e+02	6.78e-02	4.98e+01	-1.13155e+03	6.78e-02	6.88e+01	-1.23124e+03	6.78e-02	8.78e+01	-1.29510e+03	6.67e-02	7.50e+00	-4.25130e+02
6.78e-02	3.10e+01	-9.58829e+02	6.78e-02	5.00e+01	-1.13322e+03	6.78e-02	6.90e+01	-1.23226e+03	6.78e-02	8.80e+01	-1.29579e+03	6.67e-02	7.75e+00	-4.35723e+02
6.78e-02	3.13e+01	-9.61970e+02	6.78e-02	5.03e+01	-1.13488e+03	6.78e-02	6.93e+01	-1.23327e+03	6.78e-02	8.83e+01	-1.29647e+03	6.67e-02	8.00e+00	-4.46145e+02
6.78e-02	3.15e+01	-9.65080e+02	6.78e-02	5.05e+01	-1.13652e+03	6.78e-02	6.95e+01	-1.23428e+03	6.78e-02	8.85e+01	-1.29715e+03	6.67e-02	8.25e+00	-4.56399e+02
6.78e-02	3.18e+01	-9.68161e+02	6.78e-02	5.08e+01	-1.13816e+03	6.78e-02	6.98e+01	-1.23529e+03	6.78e-02	8.88e+01	-1.29783e+03	6.67e-02	8.50e+00	-4.66490e+02
6.78e-02	3.20e+01	-9.71211e+02	6.78e-02	5.10e+01	-1.13978e+03	6.78e-02	7.00e+01	-1.23629e+03	6.78e-02	8.90e+01	-1.29850e+03	6.67e-02	8.75e+00	-4.76420e+02
6.78e-02	3.23e+01	-9.74233e+02	6.78e-02	5.13e+01	-1.14139e+03	6.78e-02	7.03e+01	-1.23728e+03	6.78e-02	8.93e+01	-1.29917e+03	6.67e-02	9.00e+00	-4.86194e+02
6.78e-02	3.25e+01	-9.77225e+02	6.78e-02	5.15e+01	-1.14299e+03	6.78e-02	7.05e+01	-1.23827e+03	6.78e-02	8.95e+01	-1.29984e+03	6.67e-02	9.25e+00	-4.95815e+02
6.78e-02	3.28e+01	-9.80189e+02	6.78e-02	5.18e+01	-1.14458e+03	6.78e-02	7.08e+01	-1.23925e+03	6.78e-02	8.98e+01	-1.30050e+03	6.67e-02	9.50e+00	-5.05286e+02
6.78e-02	3.30e+01	-9.83125e+02	6.78e-02	5.20e+01	-1.14616e+03	6.78e-02	7.10e+01	-1.24023e+03	6.78e-02	9.00e+01	-1.30117e+03	6.67e-02	9.75e+00	-5.14611e+02
6.78e-02	3.33e+01	-9.86034e+02	6.78e-02	5.23e+01	-1.14772e+03	6.78e-02	7.13e+01	-1.24120e+03	6.78e-02	9.03e+01	-1.30182e+03	6.67e-02	1.00e+01	-5.23792e+02
6.78e-02	3.35e+01	-9.88915e+02	6.78e-02	5.25e+01	-1.14928e+03	6.78e-02	7.15e+01	-1.24216e+03	6.78e-02	9.05e+01	-1.30248e+03	6.67e-02	1.03e+01	-5.32833e+02
6.78e-02	3.38e+01	-9.91769e+02	6.78e-02	5.28e+01	-1.15082e+03	6.78e-02	7.18e+01	-1.24312e+03	6.78e-02	9.08e+01	-1.30313e+03	6.67e-02	1.05e+01	-5.41738e+02
6.78e-02	3.40e+01	-9.94596e+02	6.78e-02	5.30e+01	-1.15236e+03	6.78e-02	7.20e+01	-1.24408e+03	6.78e-02	9.10e+01	-1.30378e+03	6.67e-02	1.08e+01	-5.50508e+02
6.78e-02	3.43e+01	-9.97398e+02	6.78e-02	5.33e+01	-1.15388e+03	6.78e-02	7.23e+01	-1.24503e+03	6.78e-02	9.13e+01	-1.30443e+03	6.67e-02	1.10e+01	-5.59147e+02
6.78e-02	3.45e+01	-1.00017e+03	6.78e-02	5.35e+01	-1.15539e+03	6.78e-02	7.25e+01	-1.24597e+03	6.78e-02	9.15e+01	-1.30507e+03	6.67e-02	1.13e+01	-5.67657e+02
6.78e-02	3.48e+01	-1.00292e+03	6.78e-02	5.38e+01	-1.15689e+03	6.78e-02	7.28e+01	-1.24691e+03	6.78e-02	9.18e+01	-1.30571e+03	6.67e-02	1.15e+01	-5.76042e+02
6.78e-02	3.50e+01	-1.00565e+03	6.78e-02	5.40e+01	-1.15839e+03	6.78e-02	7.30e+01	-1.24785e+03	6.78e-02	9.20e+01	-1.30635e+03	6.67e-02	1.18e+01	-5.84304e+02
6.78e-02	3.53e+01	-1.00835e+03	6.78e-02	5.43e+01	-1.15987e+03	6.78e-02	7.33e+01	-1.24878e+03	6.78e-02	9.23e+01	-1.30698e+03	6.67e-02	1.20e+01	-5.92445e+02
6.78e-02	3.55e+01	-1.01102e+03	6.78e-02	5.45e+01	-1.16134e+03	6.78e-02	7.35e+01	-1.24970e+03	6.78e-02	9.25e+01	-1.30761e+03	6.67e-02	1.23e+01	-6.00468e+02
6.78e-02	3.58e+01	-1.01368e+03	6.78e-02	5.48e+01	-1.16280e+03	6.78e-02	7.38e+01	-1.25062e+03	6.78e-02	9.28e+01	-1.30824e+03	6.67e-02	1.25e+01	-6.08375e+02
6.78e-02	3.60e+01	-1.01630e+03	6.78e-02	5.50e+01	-1.16425e+03	6.78e-02	7.40e+01	-1.25153e+03	6.78e-02	9.30e+01	-1.30887e+03	6.67e-02	1.28e+01	-6.16169e+02
6.78e-02	3.63e+01	-1.01891e+03	6.78e-02	5.53e+01	-1.16569e+03	6.78e-02	7.43e+01	-1.25244e+03	6.78e-02	9.33e+01	-1.30949e+03	6.67e-02	1.30e+01	-6.23853e+02
6.78e-02	3.65e+01	-1.02149e+03	6.78e-02	5.55e+01	-1.16712e+03	6.78e-02	7.45e+01	-1.25334e+03	6.78e-02	9.35e+01	-1.31011e+03	6.67e-02	1.33e+01	-6.31427e+02
6.78e-02	3.68e+01	-1.02405e+03	6.78e-02	5.58e+01	-1.16854e+03	6.78e-02	7.48e+01	-1.25424e+03	6.78e-02	9.38e+01	-1.31073e+03	6.67e-02	1.35e+01	-6.38895e+02
6.78e-02	3.70e+01	-1.02658e+03	6.78e-02	5.60e+01	-1.16996e+03	6.78e-02	7.50e+01	-1.25514e+03	6.78e-02	9.40e+01	-1.31134e+03	6.67e-02	1.38e+01	-6.46259e+02
6.78e-02	3.73e+01	-1.02909e+03	6.78e-02	5.63e+01	-1.17136e+03	6.78e-02	7.53e+01	-1.25603e+03	6.78e-02	9.43e+01	-1.31195e+03	6.67e-02	1.40e+01	-6.53520e+02
6.78e-02	3.75e+01	-1.03159e+03	6.78e-02	5.65e+01	-1.17275e+03	6.78e-02	7.55e+01	-1.25691e+03	6.78e-02	9.45e+01	-1.31256e+03	6.67e-02	1.43e+01	-6.60681e+02
6.78e-02	3.78e+01	-1.03405e+03	6.78e-02	5.68e+01	-1.17414e+03	6.78e-02	7.58e+01	-1.25779e+03	6.78e-02	9.48e+01	-1.31317e+03	6.67e-02	1.45e+01	-6.67744e+02
6.78e-02	3.80e+01	-1.03650e+03	6.78e-02	5.70e+01	-1.17551e+03	6.78e-02	7.60e+01	-1.25867e+03	6.78e-02	9.50e+01	-1.31377e+03	6.67e-02	1.48e+01	-6.74710e+02
6.78e-02	3.83e+01	-1.03893e+03	6.78e-02	5.73e+01	-1.17688e+03	6.78e-02	7.63e+01	-1.25954e+03	6.78e-02	9.53e+01	-1.31437e+03	6.67e-02	1.50e+01	-6.81582e+02
6.78e-02	3.85e+01	-1.04134e+03	6.78e-02	5.75e+01	-1.17824e+03	6.78e-02	7.65e+01	-1.26040e+03	6.78e-02	9.55e+01	-1.31497e+03	6.67e-02	1.53e+01	-6.88362e+02
6.78e-02	3.88e+01	-1.04372e+03	6.78e-02	5.78e+01	-1.17959e+03	6.78e-02	7.68e+01	-1.26126e+03	6.78e-02	9.58e+01	-1.31557e+03	6.67e-02	1.55e+01	-6.95050e+02
6.78e-02	3.90e+01	-1.04609e+03	6.78e-02	5.80e+01	-1.18092e+03	6.78e-02	7.70e+01	-1.26212e+03	6.78e-02	9.60e+01	-1.31616e+03	6.67e-02	1.58e+01	-7.01650e+02
6.78e-02	3.93e+01	-1.04843e+03	6.78e-02	5.83e+01	-1.18226e+03	6.78e-02	7.73e+01	-1.26297e+03	6.78e-02	9.63e+01	-1.31675e+03	6.67e-02	1.60e+01	-7.08161e+02
6.78e-02	3.95e+01	-1.05075e+03	6.78e-02	5.85e+01	-1.18358e+03	6.78e-02	7.75e+01	-1.26382e+03	6.78e-02	9.65e+01	-1.31734e+03	6.67e-02	1.63e+01	-7.14588e+02
6.78e-02	3.98e+01	-1.05306e+03	6.78e-02	5.88e+01	-1.18489e+03	6.78e-02	7.78e+01	-1.26466e+03	6.78e-02	9.68e+01	-1.31792e+03	6.67e-02	1.65e+01	-7.20930e+02
6.78e-02	4.00e+01	-1.05534e+03	6.78e-02	5.90e+01	-1.18620e+03	6.78e-02	7.80e+01	-1.26550e+03	6.78e-02	9.70e+01	-1.31851e+03	6.67e-02	1.68e+01	-7.27189e+02
6.78e-02	4.03e+01	-1.05761e+03	6.78e-02	5.93e+01	-1.18749e+03	6.78e-02	7.83e+01	-1.26634e+03	6.78e-02	9.73e+01	-1.31909e+03	6.67e-02	1.70e+01	-7.33368e+02
6.78e-02	4.05e+01	-1.05986e+03	6.78e-02	5.95e+01	-1.18878e+03	6.78e-02	7.85e+01	-1.26717e+03	6.78e-02	9.75e+01	-1.31966e+03	6.67e-02	1.73e+01	-7.39467e+02
6.78e-02	4.08e+01	-1.06209e+03	6.78e-02	5.98e+01	-1.19006e+03	6.78e-02	7.88e+01	-1.26799e+03	6.78e-02					

S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ
6.67e-02	2.25e+01	-8.51503e+02	6.67e-02	4.15e+01	-1.09914e+03	6.67e-02	6.05e+01	-1.22968e+03	6.67e-02	7.95e+01	-1.30975e+03	6.67e-02	9.85e+01	-1.36368e+03
6.67e-02	2.28e+01	-8.56171e+02	6.67e-02	4.18e+01	-1.10138e+03	6.67e-02	6.08e+01	-1.23099e+03	6.67e-02	7.98e+01	-1.31060e+03	6.67e-02	9.88e+01	-1.36427e+03
6.67e-02	2.30e+01	-8.60786e+02	6.67e-02	4.20e+01	-1.10361e+03	6.67e-02	6.10e+01	-1.23228e+03	6.67e-02	8.00e+01	-1.31144e+03	6.67e-02	9.90e+01	-1.36486e+03
6.67e-02	2.33e+01	-8.65348e+02	6.67e-02	4.23e+01	-1.10582e+03	6.67e-02	6.13e+01	-1.23357e+03	6.67e-02	8.03e+01	-1.31228e+03	6.67e-02	9.93e+01	-1.36545e+03
6.67e-02	2.35e+01	-8.69859e+02	6.67e-02	4.25e+01	-1.10801e+03	6.67e-02	6.15e+01	-1.23485e+03	6.67e-02	8.05e+01	-1.31311e+03	6.67e-02	9.95e+01	-1.36603e+03
6.67e-02	2.38e+01	-8.74320e+02	6.67e-02	4.28e+01	-1.11018e+03	6.67e-02	6.18e+01	-1.23612e+03	6.67e-02	8.08e+01	-1.31394e+03	6.67e-02	9.98e+01	-1.36662e+03
6.67e-02	2.40e+01	-8.78731e+02	6.67e-02	4.30e+01	-1.11234e+03	6.67e-02	6.20e+01	-1.23738e+03	6.67e-02	8.10e+01	-1.31476e+03	6.67e-02	1.00e+02	-1.36719e+03
6.67e-02	2.43e+01	-8.83093e+02	6.67e-02	4.33e+01	-1.11448e+03	6.67e-02	6.23e+01	-1.23864e+03	6.67e-02	8.13e+01	-1.31558e+03	6.67e-02	1.00e+00	-7.46655e+01
6.67e-02	2.45e+01	-8.87408e+02	6.67e-02	4.35e+01	-1.11660e+03	6.67e-02	6.25e+01	-1.23988e+03	6.67e-02	8.15e+01	-1.31640e+03	6.67e-02	1.25e+00	-9.18712e+01
6.67e-02	2.48e+01	-8.91675e+02	6.67e-02	4.38e+01	-1.11870e+03	6.67e-02	6.28e+01	-1.24112e+03	6.67e-02	8.18e+01	-1.31721e+03	6.67e-02	1.50e+00	-1.08748e+02
6.67e-02	2.50e+01	-8.95895e+02	6.67e-02	4.40e+01	-1.12079e+03	6.67e-02	6.30e+01	-1.24235e+03	6.67e-02	8.20e+01	-1.31802e+03	6.67e-02	1.75e+00	-1.25304e+02
6.67e-02	2.53e+01	-9.00069e+02	6.67e-02	4.43e+01	-1.12287e+03	6.67e-02	6.33e+01	-1.24358e+03	6.67e-02	8.23e+01	-1.31883e+03	6.67e-02	2.00e+00	-1.41549e+02
6.67e-02	2.55e+01	-9.04199e+02	6.67e-02	4.45e+01	-1.12492e+03	6.67e-02	6.35e+01	-1.24480e+03	6.67e-02	8.25e+01	-1.31963e+03	6.67e-02	2.25e+00	-1.57489e+02
6.67e-02	2.58e+01	-9.08284e+02	6.67e-02	4.48e+01	-1.12696e+03	6.67e-02	6.38e+01	-1.24601e+03	6.67e-02	8.28e+01	-1.32042e+03	6.67e-02	2.50e+00	-1.73133e+02
6.67e-02	2.60e+01	-9.12325e+02	6.67e-02	4.50e+01	-1.12899e+03	6.67e-02	6.40e+01	-1.24721e+03	6.67e-02	8.30e+01	-1.32122e+03	6.67e-02	2.75e+00	-1.88489e+02
6.67e-02	2.63e+01	-9.16324e+02	6.67e-02	4.53e+01	-1.13099e+03	6.67e-02	6.43e+01	-1.24840e+03	6.67e-02	8.33e+01	-1.32200e+03	6.67e-02	3.00e+00	-2.03563e+02
6.67e-02	2.65e+01	-9.20280e+02	6.67e-02	4.55e+01	-1.13299e+03	6.67e-02	6.45e+01	-1.24959e+03	6.67e-02	8.35e+01	-1.32279e+03	6.67e-02	3.25e+00	-2.18363e+02
6.67e-02	2.68e+01	-9.24194e+02	6.67e-02	4.58e+01	-1.13496e+03	6.67e-02	6.48e+01	-1.25077e+03	6.67e-02	8.38e+01	-1.32357e+03	6.67e-02	3.50e+00	-2.32895e+02
6.67e-02	2.70e+01	-9.28068e+02	6.67e-02	4.60e+01	-1.13693e+03	6.67e-02	6.50e+01	-1.25195e+03	6.67e-02	8.40e+01	-1.32435e+03	6.67e-02	3.75e+00	-2.47167e+02
6.67e-02	2.73e+01	-9.31901e+02	6.67e-02	4.63e+01	-1.13887e+03	6.67e-02	6.53e+01	-1.25311e+03	6.67e-02	8.43e+01	-1.32512e+03	6.67e-02	4.00e+00	-2.61185e+02
6.67e-02	2.75e+01	-9.35694e+02	6.67e-02	4.65e+01	-1.14081e+03	6.67e-02	6.55e+01	-1.25427e+03	6.67e-02	8.45e+01	-1.32589e+03	6.67e-02	4.25e+00	-2.74954e+02
6.67e-02	2.78e+01	-9.39448e+02	6.67e-02	4.68e+01	-1.14273e+03	6.67e-02	6.58e+01	-1.25543e+03	6.67e-02	8.48e+01	-1.32666e+03	6.67e-02	4.50e+00	-2.88482e+02
6.67e-02	2.80e+01	-9.43163e+02	6.67e-02	4.70e+01	-1.14463e+03	6.67e-02	6.60e+01	-1.25657e+03	6.67e-02	8.50e+01	-1.32742e+03	6.67e-02	4.75e+00	-3.01774e+02
6.67e-02	2.83e+01	-9.46840e+02	6.67e-02	4.73e+01	-1.14652e+03	6.67e-02	6.63e+01	-1.25771e+03	6.67e-02	8.53e+01	-1.32818e+03	6.67e-02	5.00e+00	-3.14835e+02
6.67e-02	2.85e+01	-9.50480e+02	6.67e-02	4.75e+01	-1.14839e+03	6.67e-02	6.65e+01	-1.25884e+03	6.67e-02	8.55e+01	-1.32893e+03	6.67e-02	5.25e+00	-3.27672e+02
6.67e-02	2.88e+01	-9.54082e+02	6.67e-02	4.78e+01	-1.15026e+03	6.67e-02	6.68e+01	-1.25997e+03	6.67e-02	8.58e+01	-1.32968e+03	6.67e-02	5.50e+00	-3.40289e+02
6.67e-02	2.90e+01	-9.57649e+02	6.67e-02	4.80e+01	-1.15210e+03	6.67e-02	6.70e+01	-1.26109e+03	6.67e-02	8.60e+01	-1.33043e+03	6.67e-02	5.75e+00	-3.52692e+02
6.67e-02	2.93e+01	-9.61179e+02	6.67e-02	4.83e+01	-1.15394e+03	6.67e-02	6.73e+01	-1.26220e+03	6.67e-02	8.63e+01	-1.33117e+03	6.67e-02	6.00e+00	-3.64886e+02
6.67e-02	2.95e+01	-9.64674e+02	6.67e-02	4.85e+01	-1.15576e+03	6.67e-02	6.75e+01	-1.26331e+03	6.67e-02	8.65e+01	-1.33191e+03	6.67e-02	6.25e+00	-3.76762e+02
6.67e-02	2.98e+01	-9.68135e+02	6.67e-02	4.88e+01	-1.15756e+03	6.67e-02	6.78e+01	-1.26441e+03	6.67e-02	8.68e+01	-1.33265e+03	6.67e-02	6.50e+00	-3.88667e+02
6.67e-02	3.00e+01	-9.71561e+02	6.67e-02	4.90e+01	-1.15936e+03	6.67e-02	6.80e+01	-1.26550e+03	6.67e-02	8.70e+01	-1.33338e+03	6.67e-02	6.75e+00	-4.00262e+02
6.67e-02	3.03e+01	-9.74953e+02	6.67e-02	4.93e+01	-1.16114e+03	6.67e-02	6.83e+01	-1.26659e+03	6.67e-02	8.73e+01	-1.33411e+03	6.67e-02	7.00e+00	-4.11668e+02
6.67e-02	3.05e+01	-9.78312e+02	6.67e-02	4.95e+01	-1.16291e+03	6.67e-02	6.85e+01	-1.26767e+03	6.67e-02	8.75e+01	-1.33484e+03	6.67e-02	7.25e+00	-4.22888e+02
6.67e-02	3.08e+01	-9.81638e+02	6.67e-02	4.98e+01	-1.16466e+03	6.67e-02	6.88e+01	-1.26874e+03	6.67e-02	8.78e+01	-1.33556e+03	6.67e-02	7.50e+00	-4.33925e+02
6.67e-02	3.10e+01	-9.84932e+02	6.67e-02	5.00e+01	-1.16640e+03	6.67e-02	6.90e+01	-1.26981e+03	6.67e-02	8.80e+01	-1.33628e+03	6.67e-02	7.75e+00	-4.44786e+02
6.67e-02	3.13e+01	-9.88194e+02	6.67e-02	5.03e+01	-1.16813e+03	6.67e-02	6.93e+01	-1.27087e+03	6.67e-02	8.83e+01	-1.33699e+03	6.67e-02	8.00e+00	-4.55473e+02
6.67e-02	3.15e+01	-9.91424e+02	6.67e-02	5.05e+01	-1.16985e+03	6.67e-02	6.95e+01	-1.27193e+03	6.67e-02	8.85e+01	-1.33771e+03	6.67e-02	8.25e+00	-4.65990e+02
6.67e-02	3.18e+01	-9.94624e+02	6.67e-02	5.08e+01	-1.17156e+03	6.67e-02	6.98e+01	-1.27298e+03	6.67e-02	8.88e+01	-1.33842e+03	6.67e-02	8.50e+00	-4.76341e+02
6.67e-02	3.20e+01	-9.97792e+02	6.67e-02	5.10e+01	-1.17325e+03	6.67e-02	7.00e+01	-1.27403e+03	6.67e-02	8.90e+01	-1.33912e+03	6.67e-02	8.75e+00	-4.86531e+02
6.67e-02	3.23e+01	-1.00093e+03	6.67e-02	5.13e+01	-1.17493e+03	6.67e-02	7.03e+01	-1.27506e+03	6.67e-02	8.93e+01	-1.33982e+03	6.67e-02	9.00e+00	-4.96562e+02
6.67e-02	3.25e+01	-1.00404e+03	6.67e-02	5.15e+01	-1.17660e+03	6.67e-02	7.05e+01	-1.27610e+03	6.67e-02	8.95e+01	-1.34052e+03	6.67e-02	9.25e+00	-5.06437e+02
6.67e-02	3.28e+01	-1.00712e+03	6.67e-02	5.18e+01	-1.17825e+03	6.67e-02	7.08e+01	-1.27712e+03	6.67e-02	8.98e+01	-1.34122e+03	6.67e-02	9.50e+00	-5.16161e+02
6.67e-02	3.30e+01	-1.01017e+03	6.67e-02	5.20e+01	-1.17990e+03	6.67e-02	7.10e+01	-1.27815e+03	6.67e-02	9.00e+01	-1.34191e+03	6.67e-02	9.75e+00	-5.25737e+02
6.67e-02	3.33e+01	-1.01319e+03	6.67e-02	5.23e+01	-1.18153e+03	6.67e-02	7.13e+01	-1.27916e+03	6.67e-02	9.03e+01	-1.34260e+03	6.67e-02	1.00e+01	-5.35167e+02
6.67e-02	3.35e+01	-1.01619e+03	6.67e-02	5.25e+01	-1.18316e+03	6.67e-02	7.15e+01	-1.28017e+03	6.67e-02	9.05e+01	-1.34329e+03	6.67e-02	1.03e+01	-5.44455e+02
6.67e-02	3.38e+01	-1.01915e+03	6.67e-02	5.28e+01	-1.18477e+03	6.67e-02	7.18e+01	-1.28117e+03	6.67e-02	9.08e+01	-1.34397e+03	6.67e-02	1.05e+01	-5.53604e+02
6.67e-02	3.40e+01	-1.02209e+03	6.67e-02	5.30e+01	-1.18637e+03	6.67e-02	7.20e+01	-1.28217e+03	6.67e-02	9.10e+01	-1.34465e+03	6.67e-02	1.08e+01	-5.62617e+02
6.67e-02	3.43e+01	-1.02500e+03	6.67e-02	5.33e+01	-1.18796e+03	6.67e-02	7.23e+01	-1.28317e+03	6.67e-02	9.13e+01	-1.34533e+03	6.67e-02	1.10e+01	-5.71497e+02
6.67e-02	3.45e+01	-1.02789e+03	6.67e-02	5.35e+01	-1.18953e+03	6.67e-02	7.25e+01	-1.28415e+03	6.67e-02	9.15e+01	-1.34600e+03	6.67e-02	1.13e+01	-5.80247e+02
6.67e-02	3.48e+01	-1.03075e+03	6.67e-02	5.38e+01	-1.19110e+03	6.67e-02	7.28e+01	-1.28514e+03	6.67e-02	9.18e+01	-1.34667e+03	6.67e-02	1.15e+01	-5.88868e+02
6.67e-02	3.50e+01	-1.03358e+03	6.67e-02	5.40e+01	-1.19266e+03	6.67e-02	7.30e+01	-1.28611e+03	6.67e-02	9.20e+01	-1.34734e+03	6.67e-02	1.18e+01	-5.97364e+02
6.67e-02	3.53e+01	-1.03639e+03	6.67e-02	5.43e+01	-1.19420e+03	6.67e-02	7.33e+01	-1.28708e+03	6.67e-02	9.23e+01	-1.34800e+03	6.67e-02	1.20e+01	-6.05738e+02
6.67e-02	3.55e+01	-1.03917e+03	6.67e-02	5.45e+01	-1.19574e+03	6.67e-02	7.35e+01	-1.28805e+03	6.67e-02	9.25e+01	-1.34866e+03	6.67e-02	1.23e+01	-6.13992e+02
6.67e-02	3.58e+01	-1.04192e+03	6.67e-02	5.48e+01	-1.19726e+03	6.67e-02	7.38e+01	-1.28901e+03	6.67e-02	9.28e+01	-1.34932e+03	6.67e-02	1.25e+01	-6.22129e+02
6.67e-02	3.60e+01	-1.04466e+03	6.67e-02	5.50e+01	-1.19878e+03	6.67e-02	7.40e+01	-1.28997e+03	6.67e-02	9.30e+01	-1.34998e+03	6.67e-02	1.28e+01	-6.30150e+02
6.67e-02	3.63e+01	-1.04736e+03	6.67e-02	5.53e+01	-1.20028e+03	6.67e-02	7.43e+01	-1.29092e+03	6.67e-02	9.33e+01	-1.35063e+03	6.67e-02	1.30e+01	-6.38058e+02
6.67e-02	3.65e+01	-1.05005e+03	6.67e-02	5.55e+01	-1.20178e+03	6.67e-02	7.45e+01	-1.29186e+03	6.67e-02	9.35e+01	-1.35128e+03	6.67e-02	1.33e+01	-6.45

S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ
6.56e-02	1.83e+01	-7.81609e+02	6.56e-02	3.73e+01	-1.08706e+03	6.56e-02	5.63e+01	-1.24139e+03	6.56e-02	7.53e+01	-1.33375e+03	6.56e-02	9.43e+01	-1.39498e+03
6.56e-02	1.85e+01	-7.87519e+02	6.56e-02	3.75e+01	-1.08975e+03	6.56e-02	5.65e+01	-1.24291e+03	6.56e-02	7.55e+01	-1.33472e+03	6.56e-02	9.45e+01	-1.39565e+03
6.56e-02	1.88e+01	-7.93355e+02	6.56e-02	3.78e+01	-1.09242e+03	6.56e-02	5.68e+01	-1.24442e+03	6.56e-02	7.58e+01	-1.33568e+03	6.56e-02	9.48e+01	-1.39631e+03
6.56e-02	1.90e+01	-7.99120e+02	6.56e-02	3.80e+01	-1.09507e+03	6.56e-02	5.70e+01	-1.24591e+03	6.56e-02	7.60e+01	-1.33664e+03	6.56e-02	9.50e+01	-1.39697e+03
6.56e-02	1.93e+01	-8.04814e+02	6.56e-02	3.83e+01	-1.09769e+03	6.56e-02	5.73e+01	-1.24740e+03	6.56e-02	7.63e+01	-1.33759e+03	6.56e-02	9.53e+01	-1.39763e+03
6.56e-02	1.95e+01	-8.10440e+02	6.56e-02	3.85e+01	-1.10029e+03	6.56e-02	5.75e+01	-1.24888e+03	6.56e-02	7.65e+01	-1.33854e+03	6.56e-02	9.55e+01	-1.39829e+03
6.56e-02	1.98e+01	-8.15998e+02	6.56e-02	3.88e+01	-1.10287e+03	6.56e-02	5.78e+01	-1.25035e+03	6.56e-02	7.68e+01	-1.33948e+03	6.56e-02	9.58e+01	-1.39894e+03
6.56e-02	2.00e+01	-8.21489e+02	6.56e-02	3.90e+01	-1.10543e+03	6.56e-02	5.80e+01	-1.25181e+03	6.56e-02	7.70e+01	-1.34041e+03	6.56e-02	9.60e+01	-1.39959e+03
6.56e-02	2.03e+01	-8.26915e+02	6.56e-02	3.93e+01	-1.10797e+03	6.56e-02	5.83e+01	-1.25325e+03	6.56e-02	7.73e+01	-1.34135e+03	6.56e-02	9.63e+01	-1.40024e+03
6.56e-02	2.05e+01	-8.32276e+02	6.56e-02	3.95e+01	-1.11049e+03	6.56e-02	5.85e+01	-1.25469e+03	6.56e-02	7.75e+01	-1.34227e+03	6.56e-02	9.65e+01	-1.40088e+03
6.56e-02	2.08e+01	-8.37574e+02	6.56e-02	3.98e+01	-1.11298e+03	6.56e-02	5.88e+01	-1.25613e+03	6.56e-02	7.78e+01	-1.34319e+03	6.56e-02	9.68e+01	-1.40152e+03
6.56e-02	2.10e+01	-8.42811e+02	6.56e-02	4.00e+01	-1.11545e+03	6.56e-02	5.90e+01	-1.25755e+03	6.56e-02	7.80e+01	-1.34411e+03	6.56e-02	9.70e+01	-1.40216e+03
6.56e-02	2.13e+01	-8.47985e+02	6.56e-02	4.03e+01	-1.11791e+03	6.56e-02	5.93e+01	-1.25896e+03	6.56e-02	7.83e+01	-1.34502e+03	6.56e-02	9.73e+01	-1.40280e+03
6.56e-02	2.15e+01	-8.53100e+02	6.56e-02	4.05e+01	-1.12034e+03	6.56e-02	5.95e+01	-1.26036e+03	6.56e-02	7.85e+01	-1.34593e+03	6.56e-02	9.75e+01	-1.40343e+03
6.56e-02	2.18e+01	-8.58156e+02	6.56e-02	4.08e+01	-1.12275e+03	6.56e-02	5.98e+01	-1.26176e+03	6.56e-02	7.88e+01	-1.34684e+03	6.56e-02	9.78e+01	-1.40406e+03
6.56e-02	2.20e+01	-8.63153e+02	6.56e-02	4.10e+01	-1.12515e+03	6.56e-02	6.00e+01	-1.26314e+03	6.56e-02	7.90e+01	-1.34777e+03	6.56e-02	9.80e+01	-1.40469e+03
6.56e-02	2.23e+01	-8.68094e+02	6.56e-02	4.13e+01	-1.12752e+03	6.56e-02	6.03e+01	-1.26452e+03	6.56e-02	7.93e+01	-1.34863e+03	6.56e-02	9.83e+01	-1.40531e+03
6.56e-02	2.25e+01	-8.72978e+02	6.56e-02	4.15e+01	-1.12988e+03	6.56e-02	6.05e+01	-1.26589e+03	6.56e-02	7.95e+01	-1.34952e+03	6.56e-02	9.85e+01	-1.40594e+03
6.56e-02	2.28e+01	-8.77807e+02	6.56e-02	4.18e+01	-1.13221e+03	6.56e-02	6.08e+01	-1.26725e+03	6.56e-02	7.98e+01	-1.35040e+03	6.56e-02	9.88e+01	-1.40656e+03
6.56e-02	2.30e+01	-8.82582e+02	6.56e-02	4.20e+01	-1.13453e+03	6.56e-02	6.10e+01	-1.26860e+03	6.56e-02	8.00e+01	-1.35128e+03	6.56e-02	9.90e+01	-1.40717e+03
6.56e-02	2.33e+01	-8.87303e+02	6.56e-02	4.23e+01	-1.13683e+03	6.56e-02	6.13e+01	-1.26994e+03	6.56e-02	8.03e+01	-1.35216e+03	6.56e-02	9.93e+01	-1.40779e+03
6.56e-02	2.35e+01	-8.91972e+02	6.56e-02	4.25e+01	-1.13911e+03	6.56e-02	6.15e+01	-1.27128e+03	6.56e-02	8.05e+01	-1.35303e+03	6.56e-02	9.95e+01	-1.40840e+03
6.56e-02	2.38e+01	-8.96589e+02	6.56e-02	4.28e+01	-1.14137e+03	6.56e-02	6.18e+01	-1.27260e+03	6.56e-02	8.08e+01	-1.35390e+03	6.56e-02	9.98e+01	-1.40901e+03
6.56e-02	2.40e+01	-9.01154e+02	6.56e-02	4.30e+01	-1.14361e+03	6.56e-02	6.20e+01	-1.27392e+03	6.56e-02	8.10e+01	-1.35476e+03	6.56e-02	1.00e+02	-1.40962e+03
6.56e-02	2.43e+01	-9.05670e+02	6.56e-02	4.33e+01	-1.14584e+03	6.56e-02	6.23e+01	-1.27523e+03	6.56e-02	8.13e+01	-1.35562e+03	6.45e-02	1.00e+00	-7.58991e+01
6.56e-02	2.45e+01	-9.10137e+02	6.56e-02	4.35e+01	-1.14804e+03	6.56e-02	6.25e+01	-1.27653e+03	6.56e-02	8.15e+01	-1.35647e+03	6.45e-02	1.25e+00	-9.34122e+01
6.56e-02	2.48e+01	-9.14555e+02	6.56e-02	4.38e+01	-1.15024e+03	6.56e-02	6.28e+01	-1.27783e+03	6.56e-02	8.18e+01	-1.35732e+03	6.45e-02	1.50e+00	-1.10596e+02
6.56e-02	2.50e+01	-9.18925e+02	6.56e-02	4.40e+01	-1.15241e+03	6.56e-02	6.30e+01	-1.27911e+03	6.56e-02	8.20e+01	-1.35817e+03	6.45e-02	1.75e+00	-1.27458e+02
6.56e-02	2.53e+01	-9.23248e+02	6.56e-02	4.43e+01	-1.15457e+03	6.56e-02	6.33e+01	-1.28039e+03	6.56e-02	8.23e+01	-1.35901e+03	6.45e-02	2.00e+00	-1.44408e+02
6.56e-02	2.55e+01	-9.27525e+02	6.56e-02	4.45e+01	-1.15671e+03	6.56e-02	6.35e+01	-1.28166e+03	6.56e-02	8.25e+01	-1.35984e+03	6.45e-02	2.25e+00	-1.60252e+02
6.56e-02	2.58e+01	-9.31756e+02	6.56e-02	4.48e+01	-1.15883e+03	6.56e-02	6.38e+01	-1.28292e+03	6.56e-02	8.28e+01	-1.36068e+03	6.45e-02	2.50e+00	-1.76199e+02
6.56e-02	2.60e+01	-9.35943e+02	6.56e-02	4.50e+01	-1.16094e+03	6.56e-02	6.40e+01	-1.28418e+03	6.56e-02	8.30e+01	-1.36151e+03	6.45e-02	2.75e+00	-1.91857e+02
6.56e-02	2.63e+01	-9.40085e+02	6.56e-02	4.53e+01	-1.16303e+03	6.56e-02	6.43e+01	-1.28543e+03	6.56e-02	8.33e+01	-1.36233e+03	6.45e-02	3.00e+00	-2.07232e+02
6.56e-02	2.65e+01	-9.44183e+02	6.56e-02	4.55e+01	-1.16510e+03	6.56e-02	6.45e+01	-1.28667e+03	6.56e-02	8.35e+01	-1.36315e+03	6.45e-02	3.25e+00	-2.22331e+02
6.56e-02	2.68e+01	-9.48239e+02	6.56e-02	4.58e+01	-1.16716e+03	6.56e-02	6.48e+01	-1.28790e+03	6.56e-02	8.38e+01	-1.36397e+03	6.45e-02	3.50e+00	-2.37162e+02
6.56e-02	2.70e+01	-9.52253e+02	6.56e-02	4.60e+01	-1.16920e+03	6.56e-02	6.50e+01	-1.28913e+03	6.56e-02	8.40e+01	-1.36478e+03	6.45e-02	3.75e+00	-2.51730e+02
6.56e-02	2.73e+01	-9.56225e+02	6.56e-02	4.63e+01	-1.17123e+03	6.56e-02	6.53e+01	-1.29034e+03	6.56e-02	8.43e+01	-1.36559e+03	6.45e-02	4.00e+00	-2.66043e+02
6.56e-02	2.75e+01	-9.60156e+02	6.56e-02	4.65e+01	-1.17325e+03	6.56e-02	6.55e+01	-1.29156e+03	6.56e-02	8.45e+01	-1.36639e+03	6.45e-02	4.25e+00	-2.80106e+02
6.56e-02	2.78e+01	-9.64047e+02	6.56e-02	4.68e+01	-1.17524e+03	6.56e-02	6.58e+01	-1.29276e+03	6.56e-02	8.48e+01	-1.36719e+03	6.45e-02	4.50e+00	-2.93926e+02
6.56e-02	2.80e+01	-9.67898e+02	6.56e-02	4.70e+01	-1.17723e+03	6.56e-02	6.60e+01	-1.29396e+03	6.56e-02	8.50e+01	-1.36799e+03	6.45e-02	4.75e+00	-3.07508e+02
6.56e-02	2.83e+01	-9.71711e+02	6.56e-02	4.73e+01	-1.17919e+03	6.56e-02	6.63e+01	-1.29515e+03	6.56e-02	8.53e+01	-1.36878e+03	6.45e-02	5.00e+00	-3.20858e+02
6.56e-02	2.85e+01	-9.75484e+02	6.56e-02	4.75e+01	-1.18115e+03	6.56e-02	6.65e+01	-1.29633e+03	6.56e-02	8.55e+01	-1.36957e+03	6.45e-02	5.25e+00	-3.33981e+02
6.56e-02	2.88e+01	-9.79220e+02	6.56e-02	4.78e+01	-1.18309e+03	6.56e-02	6.68e+01	-1.29750e+03	6.56e-02	8.58e+01	-1.37036e+03	6.45e-02	5.50e+00	-3.46883e+02
6.56e-02	2.90e+01	-9.82918e+02	6.56e-02	4.80e+01	-1.18501e+03	6.56e-02	6.70e+01	-1.29867e+03	6.56e-02	8.60e+01	-1.37114e+03	6.45e-02	5.75e+00	-3.59570e+02
6.56e-02	2.93e+01	-9.86579e+02	6.56e-02	4.83e+01	-1.18692e+03	6.56e-02	6.73e+01	-1.29983e+03	6.56e-02	8.63e+01	-1.37192e+03	6.45e-02	6.00e+00	-3.72045e+02
6.56e-02	2.95e+01	-9.90204e+02	6.56e-02	4.85e+01	-1.18882e+03	6.56e-02	6.75e+01	-1.30099e+03	6.56e-02	8.65e+01	-1.37269e+03	6.45e-02	6.25e+00	-3.84315e+02
6.56e-02	2.98e+01	-9.93793e+02	6.56e-02	4.88e+01	-1.19070e+03	6.56e-02	6.78e+01	-1.30214e+03	6.56e-02	8.68e+01	-1.37346e+03	6.45e-02	6.50e+00	-3.96383e+02
6.56e-02	3.00e+01	-9.97347e+02	6.56e-02	4.90e+01	-1.19257e+03	6.56e-02	6.80e+01	-1.30328e+03	6.56e-02	8.70e+01	-1.37423e+03	6.45e-02	6.75e+00	-4.08254e+02
6.56e-02	3.03e+01	-1.00087e+03	6.56e-02	4.93e+01	-1.19442e+03	6.56e-02	6.83e+01	-1.30442e+03	6.56e-02	8.73e+01	-1.37499e+03	6.45e-02	7.00e+00	-4.19934e+02
6.56e-02	3.05e+01	-1.00335e+03	6.56e-02	4.95e+01	-1.19626e+03	6.56e-02	6.85e+01	-1.30554e+03	6.56e-02	8.75e+01	-1.37575e+03	6.45e-02	7.25e+00	-4.31425e+02
6.56e-02	3.08e+01	-1.00780e+03	6.56e-02	4.98e+01	-1.19809e+03	6.56e-02	6.88e+01	-1.30667e+03	6.56e-02	8.78e+01	-1.37651e+03	6.45e-02	7.50e+00	-4.42733e+02
6.56e-02	3.10e+01	-1.01122e+03	6.56e-02	5.00e+01	-1.19991e+03	6.56e-02	6.90e+01	-1.30778e+03	6.56e-02	8.80e+01	-1.37726e+03	6.45e-02	7.75e+00	-4.53862e+02
6.56e-02	3.13e+01	-1.01460e+03	6.56e-02	5.03e+01	-1.20171e+03	6.56e-02	6.93e+01	-1.30889e+03	6.56e-02	8.83e+01	-1.37801e+03	6.45e-02	8.00e+00	-4.64815e+02
6.56e-02	3.15e+01	-1.01796e+03	6.56e-02	5.05e+01	-1.20350e+03	6.56e-02	6.95e+01	-1.31000e+03	6.56e-02	8.85e+01	-1.37876e+03	6.45e-02	8.25e+00	-4.75596e+02
6.56e-02	3.18e+01	-1.02128e+03	6.56e-02	5.08e+01	-1.20528e+03	6.56e-02	6.98e+01	-1.31109e+03	6.56e-02	8.88e+01	-1.37950e+03	6.45e-02	8.50e+00	-4.86209e+02
6.56e-02	3.20e+01	-1.02456e+03	6.56e-02	5.10e+01	-1.20704e+03	6.56e-02	7.00e+01	-1.31218e+03	6.56e-02	8.90e+01	-1.38024e+03	6.45e-02	8.75e+00	-4.96659e+02
6.56e-02	3.23e+01	-1.02782e+03	6.56e-02	5.13e+01	-1.20879e+03	6.56e-02	7.03e+01	-1.31327e+03	6.56e-02	8.93e+01	-1.38097e+03	6.45e-02	9.00e+00	-5.06948e

S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ
6.45e-02	1.40e+01	-6.83742e+02	6.45e-02	3.30e+01	-1.06485e+03	6.45e-02	5.20e+01	-1.24837e+03	6.45e-02	7.10e+01	-1.35525e+03	6.45e-02	9.00e+01	-1.42489e+03
6.45e-02	1.43e+01	-6.91336e+02	6.45e-02	3.33e+01	-1.06811e+03	6.45e-02	5.23e+01	-1.25014e+03	6.45e-02	7.13e+01	-1.35636e+03	6.45e-02	9.03e+01	-1.42564e+03
6.45e-02	1.45e+01	-6.98828e+02	6.45e-02	3.35e+01	-1.07133e+03	6.45e-02	5.25e+01	-1.25190e+03	6.45e-02	7.15e+01	-1.35746e+03	6.45e-02	9.05e+01	-1.42639e+03
6.45e-02	1.48e+01	-7.06220e+02	6.45e-02	3.38e+01	-1.07453e+03	6.45e-02	5.28e+01	-1.25365e+03	6.45e-02	7.18e+01	-1.35855e+03	6.45e-02	9.08e+01	-1.42714e+03
6.45e-02	1.50e+01	-7.13515e+02	6.45e-02	3.40e+01	-1.07769e+03	6.45e-02	5.30e+01	-1.25539e+03	6.45e-02	7.20e+01	-1.35964e+03	6.45e-02	9.10e+01	-1.42789e+03
6.45e-02	1.53e+01	-7.20712e+02	6.45e-02	3.43e+01	-1.08083e+03	6.45e-02	5.33e+01	-1.25711e+03	6.45e-02	7.23e+01	-1.36073e+03	6.45e-02	9.13e+01	-1.42863e+03
6.45e-02	1.55e+01	-7.27816e+02	6.45e-02	3.45e+01	-1.08394e+03	6.45e-02	5.35e+01	-1.25883e+03	6.45e-02	7.25e+01	-1.36180e+03	6.45e-02	9.15e+01	-1.42936e+03
6.45e-02	1.58e+01	-7.34827e+02	6.45e-02	3.48e+01	-1.08702e+03	6.45e-02	5.38e+01	-1.26053e+03	6.45e-02	7.28e+01	-1.36287e+03	6.45e-02	9.18e+01	-1.43010e+03
6.45e-02	1.60e+01	-7.41747e+02	6.45e-02	3.50e+01	-1.09008e+03	6.45e-02	5.40e+01	-1.26222e+03	6.45e-02	7.30e+01	-1.36394e+03	6.45e-02	9.20e+01	-1.43083e+03
6.45e-02	1.63e+01	-7.48577e+02	6.45e-02	3.53e+01	-1.09310e+03	6.45e-02	5.43e+01	-1.26390e+03	6.45e-02	7.33e+01	-1.36500e+03	6.45e-02	9.23e+01	-1.43155e+03
6.45e-02	1.65e+01	-7.55321e+02	6.45e-02	3.55e+01	-1.09610e+03	6.45e-02	5.45e+01	-1.26557e+03	6.45e-02	7.35e+01	-1.36605e+03	6.45e-02	9.25e+01	-1.43228e+03
6.45e-02	1.68e+01	-7.61978e+02	6.45e-02	3.58e+01	-1.09908e+03	6.45e-02	5.48e+01	-1.26722e+03	6.45e-02	7.38e+01	-1.36710e+03	6.45e-02	9.28e+01	-1.43300e+03
6.45e-02	1.70e+01	-7.68550e+02	6.45e-02	3.60e+01	-1.10203e+03	6.45e-02	5.50e+01	-1.26887e+03	6.45e-02	7.40e+01	-1.36814e+03	6.45e-02	9.30e+01	-1.43371e+03
6.45e-02	1.73e+01	-7.75040e+02	6.45e-02	3.63e+01	-1.10495e+03	6.45e-02	5.53e+01	-1.27050e+03	6.45e-02	7.43e+01	-1.36918e+03	6.45e-02	9.33e+01	-1.43443e+03
6.45e-02	1.75e+01	-7.81449e+02	6.45e-02	3.65e+01	-1.10784e+03	6.45e-02	5.55e+01	-1.27213e+03	6.45e-02	7.45e+01	-1.37021e+03	6.45e-02	9.35e+01	-1.43514e+03
6.45e-02	1.78e+01	-7.87778e+02	6.45e-02	3.68e+01	-1.11071e+03	6.45e-02	5.58e+01	-1.27374e+03	6.45e-02	7.48e+01	-1.37124e+03	6.45e-02	9.38e+01	-1.43585e+03
6.45e-02	1.80e+01	-7.94028e+02	6.45e-02	3.70e+01	-1.11356e+03	6.45e-02	5.60e+01	-1.27534e+03	6.45e-02	7.50e+01	-1.37226e+03	6.45e-02	9.40e+01	-1.43655e+03
6.45e-02	1.83e+01	-8.00201e+02	6.45e-02	3.73e+01	-1.11638e+03	6.45e-02	5.63e+01	-1.27693e+03	6.45e-02	7.53e+01	-1.37327e+03	6.45e-02	9.43e+01	-1.43725e+03
6.45e-02	1.85e+01	-8.06298e+02	6.45e-02	3.75e+01	-1.11918e+03	6.45e-02	5.65e+01	-1.27851e+03	6.45e-02	7.55e+01	-1.37428e+03	6.45e-02	9.45e+01	-1.43795e+03
6.45e-02	1.88e+01	-8.12321e+02	6.45e-02	3.78e+01	-1.12195e+03	6.45e-02	5.68e+01	-1.28008e+03	6.45e-02	7.58e+01	-1.37529e+03	6.45e-02	9.48e+01	-1.43865e+03
6.45e-02	1.90e+01	-8.18272e+02	6.45e-02	3.80e+01	-1.12470e+03	6.45e-02	5.70e+01	-1.28164e+03	6.45e-02	7.60e+01	-1.37629e+03	6.45e-02	9.50e+01	-1.43934e+03
6.45e-02	1.93e+01	-8.24150e+02	6.45e-02	3.83e+01	-1.12743e+03	6.45e-02	5.73e+01	-1.28319e+03	6.45e-02	7.63e+01	-1.37728e+03	6.45e-02	9.53e+01	-1.44003e+03
6.45e-02	1.95e+01	-8.29957e+02	6.45e-02	3.85e+01	-1.13013e+03	6.45e-02	5.75e+01	-1.28473e+03	6.45e-02	7.65e+01	-1.37827e+03	6.45e-02	9.55e+01	-1.44071e+03
6.45e-02	1.98e+01	-8.35696e+02	6.45e-02	3.88e+01	-1.13281e+03	6.45e-02	5.78e+01	-1.28626e+03	6.45e-02	7.68e+01	-1.37925e+03	6.45e-02	9.58e+01	-1.44139e+03
6.45e-02	2.00e+01	-8.41366e+02	6.45e-02	3.90e+01	-1.13547e+03	6.45e-02	5.80e+01	-1.28778e+03	6.45e-02	7.70e+01	-1.38023e+03	6.45e-02	9.60e+01	-1.44207e+03
6.45e-02	2.03e+01	-8.46969e+02	6.45e-02	3.93e+01	-1.13810e+03	6.45e-02	5.83e+01	-1.28930e+03	6.45e-02	7.73e+01	-1.38120e+03	6.45e-02	9.63e+01	-1.44275e+03
6.45e-02	2.05e+01	-8.52507e+02	6.45e-02	3.95e+01	-1.14072e+03	6.45e-02	5.85e+01	-1.29080e+03	6.45e-02	7.75e+01	-1.38217e+03	6.45e-02	9.65e+01	-1.44343e+03
6.45e-02	2.08e+01	-8.57979e+02	6.45e-02	3.98e+01	-1.14331e+03	6.45e-02	5.88e+01	-1.29229e+03	6.45e-02	7.78e+01	-1.38314e+03	6.45e-02	9.68e+01	-1.44410e+03
6.45e-02	2.10e+01	-8.63389e+02	6.45e-02	4.00e+01	-1.14588e+03	6.45e-02	5.90e+01	-1.29377e+03	6.45e-02	7.80e+01	-1.38409e+03	6.45e-02	9.70e+01	-1.44476e+03
6.45e-02	2.13e+01	-8.68735e+02	6.45e-02	4.03e+01	-1.14843e+03	6.45e-02	5.93e+01	-1.29524e+03	6.45e-02	7.83e+01	-1.38505e+03	6.45e-02	9.73e+01	-1.44543e+03
6.45e-02	2.15e+01	-8.74020e+02	6.45e-02	4.05e+01	-1.15096e+03	6.45e-02	5.95e+01	-1.29670e+03	6.45e-02	7.85e+01	-1.38600e+03	6.45e-02	9.75e+01	-1.44609e+03
6.45e-02	2.18e+01	-8.79245e+02	6.45e-02	4.08e+01	-1.15347e+03	6.45e-02	5.98e+01	-1.29816e+03	6.45e-02	7.88e+01	-1.38694e+03	6.45e-02	9.78e+01	-1.44675e+03
6.45e-02	2.20e+01	-8.84410e+02	6.45e-02	4.10e+01	-1.15595e+03	6.45e-02	6.00e+01	-1.29960e+03	6.45e-02	7.90e+01	-1.38788e+03	6.45e-02	9.80e+01	-1.44741e+03
6.45e-02	2.23e+01	-8.89516e+02	6.45e-02	4.13e+01	-1.15842e+03	6.45e-02	6.03e+01	-1.30104e+03	6.45e-02	7.93e+01	-1.38881e+03	6.45e-02	9.83e+01	-1.44806e+03
6.45e-02	2.25e+01	-8.94565e+02	6.45e-02	4.15e+01	-1.16087e+03	6.45e-02	6.05e+01	-1.30247e+03	6.45e-02	7.95e+01	-1.38974e+03	6.45e-02	9.85e+01	-1.44871e+03
6.45e-02	2.28e+01	-8.99558e+02	6.45e-02	4.18e+01	-1.16330e+03	6.45e-02	6.08e+01	-1.30388e+03	6.45e-02	7.98e+01	-1.39066e+03	6.45e-02	9.88e+01	-1.44936e+03
6.45e-02	2.30e+01	-9.04495e+02	6.45e-02	4.20e+01	-1.16571e+03	6.45e-02	6.10e+01	-1.30529e+03	6.45e-02	8.00e+01	-1.39158e+03	6.45e-02	9.90e+01	-1.45001e+03
6.45e-02	2.33e+01	-9.09376e+02	6.45e-02	4.23e+01	-1.16809e+03	6.45e-02	6.13e+01	-1.30669e+03	6.45e-02	8.03e+01	-1.39250e+03	6.45e-02	9.93e+01	-1.45065e+03
6.45e-02	2.35e+01	-9.14204e+02	6.45e-02	4.25e+01	-1.17046e+03	6.45e-02	6.15e+01	-1.30808e+03	6.45e-02	8.05e+01	-1.39341e+03	6.45e-02	9.95e+01	-1.45129e+03
6.45e-02	2.38e+01	-9.18979e+02	6.45e-02	4.28e+01	-1.17282e+03	6.45e-02	6.18e+01	-1.30947e+03	6.45e-02	8.08e+01	-1.39431e+03	6.45e-02	9.98e+01	-1.45193e+03
6.45e-02	2.40e+01	-9.23702e+02	6.45e-02	4.30e+01	-1.17515e+03	6.45e-02	6.20e+01	-1.31084e+03	6.45e-02	8.10e+01	-1.39522e+03	6.45e-02	1.00e+02	-1.45256e+03
6.45e-02	2.43e+01	-9.28373e+02	6.45e-02	4.33e+01	-1.17746e+03	6.45e-02	6.23e+01	-1.31221e+03	6.45e-02	8.13e+01	-1.39611e+03	6.35e-02	1.00e+00	-7.71326e+01
6.45e-02	2.45e+01	-9.32994e+02	6.45e-02	4.35e+01	-1.17976e+03	6.45e-02	6.25e+01	-1.31357e+03	6.45e-02	8.15e+01	-1.39700e+03	6.35e-02	1.25e+00	-9.49532e+01
6.45e-02	2.48e+01	-9.37565e+02	6.45e-02	4.38e+01	-1.18204e+03	6.45e-02	6.28e+01	-1.31491e+03	6.45e-02	8.18e+01	-1.39789e+03	6.35e-02	1.50e+00	-1.12444e+02
6.45e-02	2.50e+01	-9.42087e+02	6.45e-02	4.40e+01	-1.18430e+03	6.45e-02	6.30e+01	-1.31626e+03	6.45e-02	8.20e+01	-1.39878e+03	6.35e-02	1.75e+00	-1.29612e+02
6.45e-02	2.53e+01	-9.46561e+02	6.45e-02	4.43e+01	-1.18654e+03	6.45e-02	6.33e+01	-1.31759e+03	6.45e-02	8.23e+01	-1.39965e+03	6.35e-02	2.00e+00	-1.46467e+02
6.45e-02	2.55e+01	-9.50987e+02	6.45e-02	4.45e+01	-1.18877e+03	6.45e-02	6.35e+01	-1.31891e+03	6.45e-02	8.25e+01	-1.40053e+03	6.35e-02	2.25e+00	-1.63016e+02
6.45e-02	2.58e+01	-9.55366e+02	6.45e-02	4.48e+01	-1.19098e+03	6.45e-02	6.38e+01	-1.32023e+03	6.45e-02	8.28e+01	-1.40140e+03	6.35e-02	2.50e+00	-1.79266e+02
6.45e-02	2.60e+01	-9.59700e+02	6.45e-02	4.50e+01	-1.19317e+03	6.45e-02	6.40e+01	-1.32154e+03	6.45e-02	8.30e+01	-1.40227e+03	6.35e-02	2.75e+00	-1.95226e+02
6.45e-02	2.63e+01	-9.63988e+02	6.45e-02	4.53e+01	-1.19534e+03	6.45e-02	6.43e+01	-1.32284e+03	6.45e-02	8.33e+01	-1.40313e+03	6.35e-02	3.00e+00	-2.10902e+02
6.45e-02	2.65e+01	-9.68231e+02	6.45e-02	4.55e+01	-1.19750e+03	6.45e-02	6.45e+01	-1.32414e+03	6.45e-02	8.35e+01	-1.40398e+03	6.35e-02	3.25e+00	-2.26301e+02
6.45e-02	2.68e+01	-9.72431e+02	6.45e-02	4.58e+01	-1.19964e+03	6.45e-02	6.48e+01	-1.32542e+03	6.45e-02	8.38e+01	-1.40484e+03	6.35e-02	3.50e+00	-2.41430e+02
6.45e-02	2.70e+01	-9.76587e+02	6.45e-02	4.60e+01	-1.20177e+03	6.45e-02	6.50e+01	-1.32670e+03	6.45e-02	8.40e+01	-1.40569e+03	6.35e-02	3.75e+00	-2.56295e+02
6.45e-02	2.73e+01	-9.80700e+02	6.45e-02	4.63e+01	-1.20388e+03	6.45e-02	6.53e+01	-1.32797e+03	6.45e-02	8.43e+01	-1.40653e+03	6.35e-02	4.00e+00	-2.70903e+02
6.45e-02	2.75e+01	-9.84772e+02	6.45e-02	4.65e+01	-1.20597e+03	6.45e-02	6.55e+01	-1.32923e+03	6.45e-02	8.45e+01	-1.40737e+03	6.35e-02	4.25e+00	-2.85260e+02
6.45e-02	2.78e+01	-9.88802e+02	6.45e-02	4.68e+01	-1.20805e+03	6.45e-02	6.58e+01	-1.33049e+03	6.45e-02	8.48e+01	-1.40821e+03	6.35e-02	4.50e+00	-2.99372e+02
6.45e-02	2.80e+01	-9.92791e+02	6.45e-02	4.70e+01	-1.21012e+03	6.45e-02	6.60e+01	-1.33174e+03	6.					

S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ
6.35e-02	9.75e+00	-5.48055e+02	6.35e-02	2.88e+01	-1.02998e+03	6.35e-02	4.78e+01	-1.24963e+03	6.35e-02	6.68e+01	-1.37377e+03	6.35e-02	8.58e+01	-1.45315e+03
6.35e-02	1.00e+01	-5.57986e+02	6.35e-02	2.90e+01	-1.03394e+03	6.35e-02	4.80e+01	-1.25172e+03	6.35e-02	6.70e+01	-1.37504e+03	6.35e-02	8.60e+01	-1.45400e+03
6.35e-02	1.03e+01	-5.67772e+02	6.35e-02	2.93e+01	-1.03787e+03	6.35e-02	4.83e+01	-1.25378e+03	6.35e-02	6.73e+01	-1.37631e+03	6.35e-02	8.63e+01	-1.45485e+03
6.35e-02	1.05e+01	-5.77415e+02	6.35e-02	2.95e+01	-1.04176e+03	6.35e-02	4.85e+01	-1.25584e+03	6.35e-02	6.75e+01	-1.37756e+03	6.35e-02	8.65e+01	-1.45569e+03
6.35e-02	1.08e+01	-5.86918e+02	6.35e-02	2.98e+01	-1.04562e+03	6.35e-02	4.88e+01	-1.25787e+03	6.35e-02	6.78e+01	-1.37881e+03	6.35e-02	8.68e+01	-1.45653e+03
6.35e-02	1.10e+01	-5.96283e+02	6.35e-02	3.00e+01	-1.04943e+03	6.35e-02	4.90e+01	-1.25990e+03	6.35e-02	6.80e+01	-1.38005e+03	6.35e-02	8.70e+01	-1.45737e+03
6.35e-02	1.13e+01	-6.05514e+02	6.35e-02	3.03e+01	-1.05321e+03	6.35e-02	4.93e+01	-1.26191e+03	6.35e-02	6.83e+01	-1.38129e+03	6.35e-02	8.73e+01	-1.45820e+03
6.35e-02	1.15e+01	-6.14614e+02	6.35e-02	3.05e+01	-1.05695e+03	6.35e-02	4.95e+01	-1.26390e+03	6.35e-02	6.85e+01	-1.38252e+03	6.35e-02	8.75e+01	-1.45903e+03
6.35e-02	1.18e+01	-6.23584e+02	6.35e-02	3.08e+01	-1.06066e+03	6.35e-02	4.98e+01	-1.26588e+03	6.35e-02	6.88e+01	-1.38374e+03	6.35e-02	8.78e+01	-1.45986e+03
6.35e-02	1.20e+01	-6.32428e+02	6.35e-02	3.10e+01	-1.06433e+03	6.35e-02	5.00e+01	-1.26785e+03	6.35e-02	6.90e+01	-1.38495e+03	6.35e-02	8.80e+01	-1.46068e+03
6.35e-02	1.23e+01	-6.41149e+02	6.35e-02	3.13e+01	-1.06796e+03	6.35e-02	5.03e+01	-1.26980e+03	6.35e-02	6.93e+01	-1.38616e+03	6.35e-02	8.83e+01	-1.46150e+03
6.35e-02	1.25e+01	-6.49748e+02	6.35e-02	3.15e+01	-1.07157e+03	6.35e-02	5.05e+01	-1.27174e+03	6.35e-02	6.95e+01	-1.38736e+03	6.35e-02	8.85e+01	-1.46231e+03
6.35e-02	1.28e+01	-6.58228e+02	6.35e-02	3.18e+01	-1.07513e+03	6.35e-02	5.08e+01	-1.27366e+03	6.35e-02	6.98e+01	-1.38856e+03	6.35e-02	8.88e+01	-1.46312e+03
6.35e-02	1.30e+01	-6.66591e+02	6.35e-02	3.20e+01	-1.07867e+03	6.35e-02	5.10e+01	-1.27557e+03	6.35e-02	7.00e+01	-1.38974e+03	6.35e-02	8.90e+01	-1.46393e+03
6.35e-02	1.33e+01	-6.74840e+02	6.35e-02	3.23e+01	-1.08217e+03	6.35e-02	5.13e+01	-1.27747e+03	6.35e-02	7.03e+01	-1.39093e+03	6.35e-02	8.93e+01	-1.46473e+03
6.35e-02	1.35e+01	-6.82976e+02	6.35e-02	3.25e+01	-1.08564e+03	6.35e-02	5.15e+01	-1.27935e+03	6.35e-02	7.05e+01	-1.39210e+03	6.35e-02	8.95e+01	-1.46553e+03
6.35e-02	1.38e+01	-6.91003e+02	6.35e-02	3.28e+01	-1.08908e+03	6.35e-02	5.18e+01	-1.28122e+03	6.35e-02	7.08e+01	-1.39327e+03	6.35e-02	8.98e+01	-1.46632e+03
6.35e-02	1.40e+01	-6.98922e+02	6.35e-02	3.30e+01	-1.09248e+03	6.35e-02	5.20e+01	-1.28308e+03	6.35e-02	7.10e+01	-1.39443e+03	6.35e-02	9.00e+01	-1.46711e+03
6.35e-02	1.43e+01	-7.06736e+02	6.35e-02	3.33e+01	-1.09586e+03	6.35e-02	5.23e+01	-1.28493e+03	6.35e-02	7.13e+01	-1.39558e+03	6.35e-02	9.03e+01	-1.46790e+03
6.35e-02	1.45e+01	-7.14445e+02	6.35e-02	3.35e+01	-1.09920e+03	6.35e-02	5.25e+01	-1.28676e+03	6.35e-02	7.15e+01	-1.39673e+03	6.35e-02	9.05e+01	-1.46868e+03
6.35e-02	1.48e+01	-7.22053e+02	6.35e-02	3.38e+01	-1.10251e+03	6.35e-02	5.28e+01	-1.28858e+03	6.35e-02	7.18e+01	-1.39787e+03	6.35e-02	9.08e+01	-1.46946e+03
6.35e-02	1.50e+01	-7.29560e+02	6.35e-02	3.40e+01	-1.10580e+03	6.35e-02	5.30e+01	-1.29039e+03	6.35e-02	7.20e+01	-1.39901e+03	6.35e-02	9.10e+01	-1.47024e+03
6.35e-02	1.53e+01	-7.36970e+02	6.35e-02	3.43e+01	-1.10905e+03	6.35e-02	5.33e+01	-1.29218e+03	6.35e-02	7.23e+01	-1.40014e+03	6.35e-02	9.13e+01	-1.47101e+03
6.35e-02	1.55e+01	-7.44284e+02	6.35e-02	3.45e+01	-1.11228e+03	6.35e-02	5.35e+01	-1.29397e+03	6.35e-02	7.25e+01	-1.40126e+03	6.35e-02	9.15e+01	-1.47178e+03
6.35e-02	1.58e+01	-7.51503e+02	6.35e-02	3.48e+01	-1.11547e+03	6.35e-02	5.38e+01	-1.29574e+03	6.35e-02	7.28e+01	-1.40238e+03	6.35e-02	9.18e+01	-1.47255e+03
6.35e-02	1.60e+01	-7.58630e+02	6.35e-02	3.50e+01	-1.11864e+03	6.35e-02	5.40e+01	-1.29750e+03	6.35e-02	7.30e+01	-1.40349e+03	6.35e-02	9.20e+01	-1.47331e+03
6.35e-02	1.63e+01	-7.65665e+02	6.35e-02	3.53e+01	-1.12178e+03	6.35e-02	5.43e+01	-1.29925e+03	6.35e-02	7.33e+01	-1.40460e+03	6.35e-02	9.23e+01	-1.47407e+03
6.35e-02	1.65e+01	-7.72612e+02	6.35e-02	3.55e+01	-1.12489e+03	6.35e-02	5.45e+01	-1.30098e+03	6.35e-02	7.35e+01	-1.40570e+03	6.35e-02	9.25e+01	-1.47483e+03
6.35e-02	1.68e+01	-7.79471e+02	6.35e-02	3.58e+01	-1.12797e+03	6.35e-02	5.48e+01	-1.30271e+03	6.35e-02	7.38e+01	-1.40679e+03	6.35e-02	9.28e+01	-1.47558e+03
6.35e-02	1.70e+01	-7.86243e+02	6.35e-02	3.60e+01	-1.13103e+03	6.35e-02	5.50e+01	-1.30442e+03	6.35e-02	7.40e+01	-1.40788e+03	6.35e-02	9.30e+01	-1.47633e+03
6.35e-02	1.73e+01	-7.92931e+02	6.35e-02	3.63e+01	-1.13406e+03	6.35e-02	5.53e+01	-1.30612e+03	6.35e-02	7.43e+01	-1.40896e+03	6.35e-02	9.33e+01	-1.47708e+03
6.35e-02	1.75e+01	-7.99537e+02	6.35e-02	3.65e+01	-1.13707e+03	6.35e-02	5.55e+01	-1.30781e+03	6.35e-02	7.45e+01	-1.41004e+03	6.35e-02	9.35e+01	-1.47782e+03
6.35e-02	1.78e+01	-8.06060e+02	6.35e-02	3.68e+01	-1.14005e+03	6.35e-02	5.58e+01	-1.30949e+03	6.35e-02	7.48e+01	-1.41111e+03	6.35e-02	9.38e+01	-1.47856e+03
6.35e-02	1.80e+01	-8.12504e+02	6.35e-02	3.70e+01	-1.14300e+03	6.35e-02	5.60e+01	-1.31116e+03	6.35e-02	7.50e+01	-1.41217e+03	6.35e-02	9.40e+01	-1.47929e+03
6.35e-02	1.83e+01	-8.18869e+02	6.35e-02	3.73e+01	-1.14593e+03	6.35e-02	5.63e+01	-1.31281e+03	6.35e-02	7.53e+01	-1.41323e+03	6.35e-02	9.43e+01	-1.48003e+03
6.35e-02	1.85e+01	-8.25156e+02	6.35e-02	3.75e+01	-1.14883e+03	6.35e-02	5.65e+01	-1.31446e+03	6.35e-02	7.55e+01	-1.41428e+03	6.35e-02	9.45e+01	-1.48076e+03
6.35e-02	1.88e+01	-8.31368e+02	6.35e-02	3.78e+01	-1.15171e+03	6.35e-02	5.68e+01	-1.31610e+03	6.35e-02	7.58e+01	-1.41533e+03	6.35e-02	9.48e+01	-1.48148e+03
6.35e-02	1.90e+01	-8.37505e+02	6.35e-02	3.80e+01	-1.15456e+03	6.35e-02	5.70e+01	-1.31772e+03	6.35e-02	7.60e+01	-1.41637e+03	6.35e-02	9.50e+01	-1.48221e+03
6.35e-02	1.93e+01	-8.43569e+02	6.35e-02	3.83e+01	-1.15739e+03	6.35e-02	5.73e+01	-1.31933e+03	6.35e-02	7.63e+01	-1.41741e+03	6.35e-02	9.53e+01	-1.48293e+03
6.35e-02	1.95e+01	-8.49560e+02	6.35e-02	3.85e+01	-1.16020e+03	6.35e-02	5.75e+01	-1.32094e+03	6.35e-02	7.65e+01	-1.41844e+03	6.35e-02	9.55e+01	-1.48364e+03
6.35e-02	1.98e+01	-8.55481e+02	6.35e-02	3.88e+01	-1.16298e+03	6.35e-02	5.78e+01	-1.32253e+03	6.35e-02	7.68e+01	-1.41947e+03	6.35e-02	9.58e+01	-1.48436e+03
6.35e-02	2.00e+01	-8.61332e+02	6.35e-02	3.90e+01	-1.16574e+03	6.35e-02	5.80e+01	-1.32412e+03	6.35e-02	7.70e+01	-1.42049e+03	6.35e-02	9.60e+01	-1.48507e+03
6.35e-02	2.03e+01	-8.67115e+02	6.35e-02	3.93e+01	-1.16848e+03	6.35e-02	5.83e+01	-1.32569e+03	6.35e-02	7.73e+01	-1.42150e+03	6.35e-02	9.63e+01	-1.48577e+03
6.35e-02	2.05e+01	-8.72830e+02	6.35e-02	3.95e+01	-1.17119e+03	6.35e-02	5.85e+01	-1.32725e+03	6.35e-02	7.75e+01	-1.42251e+03	6.35e-02	9.65e+01	-1.48648e+03
6.35e-02	2.08e+01	-8.78480e+02	6.35e-02	3.98e+01	-1.17388e+03	6.35e-02	5.88e+01	-1.32881e+03	6.35e-02	7.78e+01	-1.42352e+03	6.35e-02	9.68e+01	-1.48718e+03
6.35e-02	2.10e+01	-8.84064e+02	6.35e-02	4.00e+01	-1.17655e+03	6.35e-02	5.90e+01	-1.33035e+03	6.35e-02	7.80e+01	-1.42452e+03	6.35e-02	9.70e+01	-1.48788e+03
6.35e-02	2.13e+01	-8.89584e+02	6.35e-02	4.03e+01	-1.17920e+03	6.35e-02	5.93e+01	-1.33188e+03	6.35e-02	7.83e+01	-1.42551e+03	6.35e-02	9.73e+01	-1.48857e+03
6.35e-02	2.15e+01	-8.95041e+02	6.35e-02	4.05e+01	-1.18182e+03	6.35e-02	5.95e+01	-1.33341e+03	6.35e-02	7.85e+01	-1.42650e+03	6.35e-02	9.75e+01	-1.48926e+03
6.35e-02	2.18e+01	-9.00437e+02	6.35e-02	4.08e+01	-1.18443e+03	6.35e-02	5.98e+01	-1.33492e+03	6.35e-02	7.88e+01	-1.42749e+03	6.35e-02	9.78e+01	-1.48995e+03
6.35e-02	2.20e+01	-9.05771e+02	6.35e-02	4.10e+01	-1.18701e+03	6.35e-02	6.00e+01	-1.33643e+03	6.35e-02	7.90e+01	-1.42847e+03	6.35e-02	9.80e+01	-1.49064e+03
6.35e-02	2.23e+01	-9.11046e+02	6.35e-02	4.13e+01	-1.18957e+03	6.35e-02	6.03e+01	-1.33792e+03	6.35e-02	7.93e+01	-1.42944e+03	6.35e-02	9.83e+01	-1.49132e+03
6.35e-02	2.25e+01	-9.16261e+02	6.35e-02	4.15e+01	-1.19212e+03	6.35e-02	6.05e+01	-1.33941e+03	6.35e-02	7.95e+01	-1.43041e+03	6.35e-02	9.85e+01	-1.49200e+03
6.35e-02	2.28e+01	-9.21419e+02	6.35e-02	4.18e+01	-1.19464e+03	6.35e-02	6.08e+01	-1.34088e+03	6.35e-02	7.98e+01	-1.43138e+03	6.35e-02	9.88e+01	-1.49268e+03
6.35e-02	2.30e+01	-9.26520e+02	6.35e-02	4.20e+01	-1.19714e+03	6.35e-02	6.10e+01	-1.34235e+03	6.35e-02	8.00e+01	-1.43234e+03	6.35e-02	9.90e+01	-1.49335e+03
6.35e-02	2.33e+01	-9.31564e+02	6.35e-02	4.23e+01	-1.19962e+03	6.35e-02	6.13e+01	-1.34381e+03	6.35e-02	8.03e+01	-1.43329e+03	6.35e-02	9.93e+01	-1.49403e+03
6.35e-02	2.35e+01	-9.36554e+02	6.35e-02	4.25e+01	-1.20208e+03	6.35e-02	6.15e+01	-1.34526e+03	6.35e-02	8.05e+01	-1.43424e+03	6.35e-02	9.95e+01	-1.49469e+03
6.35e-02	2.38e+01	-9.41489e+02	6.35e-02	4.28e+01	-1.20453e+03	6.35e-02	6.18e+01	-1.34670e+03	6.35e-02	8.08e+01	-1.43519e+03	6.35e-02	9.98e+01	-1.49

S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ
6.25e-02	5.50e+00	-3.60087e+02	6.25e-02	2.45e+01	-9.79080e+02	6.25e-02	5.85e+01	-1.36406e+03	6.25e-02	9.65e+01	-1.53003e+03	6.06e-02	3.50e+01	-1.20552e+03
6.25e-02	5.75e+00	-3.73342e+02	6.25e-02	2.48e+01	-9.83963e+02	6.25e-02	5.90e+01	-1.36728e+03	6.25e-02	9.70e+01	-1.53149e+03	6.06e-02	3.55e+01	-1.21246e+03
6.25e-02	6.00e+00	-3.86383e+02	6.25e-02	2.50e+01	-9.88795e+02	6.25e-02	5.95e+01	-1.37046e+03	6.25e-02	9.75e+01	-1.53294e+03	6.06e-02	3.60e+01	-1.21929e+03
6.25e-02	6.25e+00	-3.99213e+02	6.25e-02	2.53e+01	-9.93575e+02	6.25e-02	6.00e+01	-1.37361e+03	6.25e-02	9.80e+01	-1.53438e+03	6.06e-02	3.65e+01	-1.22600e+03
6.25e-02	6.50e+00	-4.11839e+02	6.25e-02	2.55e+01	-9.98306e+02	6.25e-02	6.05e+01	-1.37671e+03	6.25e-02	9.85e+01	-1.53580e+03	6.06e-02	3.70e+01	-1.23260e+03
6.25e-02	6.75e+00	-4.24264e+02	6.25e-02	2.58e+01	-1.00299e+03	6.25e-02	6.10e+01	-1.37978e+03	6.25e-02	9.90e+01	-1.53721e+03	6.06e-02	3.75e+01	-1.23909e+03
6.25e-02	7.00e+00	-4.36494e+02	6.25e-02	2.60e+01	-1.00762e+03	6.25e-02	6.15e+01	-1.38280e+03	6.25e-02	9.95e+01	-1.53861e+03	6.06e-02	3.80e+01	-1.24547e+03
6.25e-02	7.25e+00	-4.48532e+02	6.25e-02	2.63e+01	-1.01221e+03	6.25e-02	6.20e+01	-1.38579e+03	6.25e-02	1.00e+02	-1.54000e+03	6.06e-02	3.85e+01	-1.25174e+03
6.25e-02	7.50e+00	-4.60382e+02	6.25e-02	2.65e+01	-1.01675e+03	6.25e-02	6.25e+01	-1.38875e+03	6.06e-02	1.00e+00	-8.08333e+01	6.06e-02	3.90e+01	-1.25791e+03
6.25e-02	7.75e+00	-4.72050e+02	6.25e-02	2.68e+01	-1.02124e+03	6.25e-02	6.30e+01	-1.39167e+03	6.06e-02	1.50e+00	-1.17988e+02	6.06e-02	3.95e+01	-1.26399e+03
6.25e-02	8.00e+00	-4.83538e+02	6.25e-02	2.70e+01	-1.02568e+03	6.25e-02	6.35e+01	-1.39455e+03	6.06e-02	2.00e+00	-1.53846e+02	6.06e-02	4.00e+01	-1.26996e+03
6.25e-02	8.25e+00	-4.94850e+02	6.25e-02	2.73e+01	-1.03009e+03	6.25e-02	6.40e+01	-1.39740e+03	6.06e-02	2.50e+00	-1.88470e+02	6.06e-02	4.05e+01	-1.27584e+03
6.25e-02	8.50e+00	-5.05991e+02	6.25e-02	2.75e+01	-1.03444e+03	6.25e-02	6.45e+01	-1.40022e+03	6.06e-02	3.00e+00	-2.21917e+02	6.06e-02	4.10e+01	-1.28163e+03
6.25e-02	8.75e+00	-5.16963e+02	6.25e-02	2.78e+01	-1.03876e+03	6.25e-02	6.50e+01	-1.40300e+03	6.06e-02	3.50e+00	-2.54242e+02	6.06e-02	4.15e+01	-1.28732e+03
6.25e-02	9.00e+00	-5.27772e+02	6.25e-02	2.80e+01	-1.04303e+03	6.25e-02	6.55e+01	-1.40575e+03	6.06e-02	4.00e+00	-2.85496e+02	6.06e-02	4.20e+01	-1.29293e+03
6.25e-02	9.25e+00	-5.38419e+02	6.25e-02	2.83e+01	-1.04726e+03	6.25e-02	6.60e+01	-1.40847e+03	6.06e-02	4.50e+00	-3.15729e+02	6.06e-02	4.25e+01	-1.29845e+03
6.25e-02	9.50e+00	-5.48909e+02	6.25e-02	2.85e+01	-1.05144e+03	6.25e-02	6.65e+01	-1.41116e+03	6.06e-02	5.00e+00	-3.44986e+02	6.06e-02	4.30e+01	-1.30388e+03
6.25e-02	9.75e+00	-5.59245e+02	6.25e-02	2.90e+01	-1.05969e+03	6.25e-02	6.70e+01	-1.41382e+03	6.06e-02	5.50e+00	-3.73311e+02	6.06e-02	4.35e+01	-1.30923e+03
6.25e-02	1.00e+01	-5.69429e+02	6.25e-02	2.95e+01	-1.06779e+03	6.25e-02	6.75e+01	-1.41644e+03	6.06e-02	6.00e+00	-4.00744e+02	6.06e-02	4.40e+01	-1.31450e+03
6.25e-02	1.03e+01	-5.79465e+02	6.25e-02	3.00e+01	-1.07572e+03	6.25e-02	6.80e+01	-1.41904e+03	6.06e-02	6.50e+00	-4.27325e+02	6.06e-02	4.45e+01	-1.31969e+03
6.25e-02	1.05e+01	-5.89357e+02	6.25e-02	3.05e+01	-1.08350e+03	6.25e-02	6.85e+01	-1.42161e+03	6.06e-02	7.00e+00	-4.53909e+02	6.06e-02	4.50e+01	-1.32480e+03
6.25e-02	1.08e+01	-5.99106e+02	6.25e-02	3.10e+01	-1.09114e+03	6.25e-02	6.90e+01	-1.42414e+03	6.06e-02	7.50e+00	-4.78074e+02	6.06e-02	4.55e+01	-1.32984e+03
6.25e-02	1.10e+01	-6.08717e+02	6.25e-02	3.15e+01	-1.09864e+03	6.25e-02	6.95e+01	-1.42665e+03	6.06e-02	8.00e+00	-5.02310e+02	6.06e-02	4.60e+01	-1.33480e+03
6.25e-02	1.13e+01	-6.18191e+02	6.25e-02	3.20e+01	-1.10599e+03	6.25e-02	7.00e+01	-1.42914e+03	6.06e-02	8.50e+00	-5.25830e+02	6.06e-02	4.65e+01	-1.33969e+03
6.25e-02	1.15e+01	-6.27531e+02	6.25e-02	3.25e+01	-1.11321e+03	6.25e-02	7.05e+01	-1.43159e+03	6.06e-02	9.00e+00	-5.48662e+02	6.06e-02	4.70e+01	-1.34451e+03
6.25e-02	1.18e+01	-6.36741e+02	6.25e-02	3.30e+01	-1.12030e+03	6.25e-02	7.10e+01	-1.43402e+03	6.06e-02	9.50e+00	-5.70835e+02	6.06e-02	4.75e+01	-1.34926e+03
6.25e-02	1.20e+01	-6.45822e+02	6.25e-02	3.35e+01	-1.12726e+03	6.25e-02	7.15e+01	-1.43642e+03	6.06e-02	1.00e+01	-5.92376e+02	6.06e-02	4.80e+01	-1.35394e+03
6.25e-02	1.23e+01	-6.54778e+02	6.25e-02	3.40e+01	-1.13409e+03	6.25e-02	7.20e+01	-1.43879e+03	6.06e-02	1.05e+01	-6.13310e+02	6.06e-02	4.85e+01	-1.35855e+03
6.25e-02	1.25e+01	-6.63711e+02	6.25e-02	3.45e+01	-1.14081e+03	6.25e-02	7.25e+01	-1.44114e+03	6.06e-02	1.10e+01	-6.33661e+02	6.06e-02	4.90e+01	-1.36310e+03
6.25e-02	1.28e+01	-6.72322e+02	6.25e-02	3.50e+01	-1.14740e+03	6.25e-02	7.30e+01	-1.44346e+03	6.06e-02	1.15e+01	-6.53451e+02	6.06e-02	4.95e+01	-1.36758e+03
6.25e-02	1.30e+01	-6.80915e+02	6.25e-02	3.55e+01	-1.15388e+03	6.25e-02	7.35e+01	-1.44576e+03	6.06e-02	1.20e+01	-6.72703e+02	6.06e-02	5.00e+01	-1.37200e+03
6.25e-02	1.33e+01	-6.89392e+02	6.25e-02	3.60e+01	-1.16025e+03	6.25e-02	7.40e+01	-1.44803e+03	6.06e-02	1.25e+01	-6.91438e+02	6.06e-02	5.05e+01	-1.37636e+03
6.25e-02	1.35e+01	-6.97755e+02	6.25e-02	3.65e+01	-1.16650e+03	6.25e-02	7.45e+01	-1.45028e+03	6.06e-02	1.30e+01	-7.09674e+02	6.06e-02	5.10e+01	-1.38066e+03
6.25e-02	1.38e+01	-7.06006e+02	6.25e-02	3.70e+01	-1.17266e+03	6.25e-02	7.50e+01	-1.45251e+03	6.06e-02	1.35e+01	-7.27431e+02	6.06e-02	5.15e+01	-1.38491e+03
6.25e-02	1.40e+01	-7.14148e+02	6.25e-02	3.75e+01	-1.17870e+03	6.25e-02	7.55e+01	-1.45471e+03	6.06e-02	1.40e+01	-7.44726e+02	6.06e-02	5.20e+01	-1.38909e+03
6.25e-02	1.43e+01	-7.22181e+02	6.25e-02	3.80e+01	-1.18465e+03	6.25e-02	7.60e+01	-1.45689e+03	6.06e-02	1.45e+01	-7.61577e+02	6.06e-02	5.25e+01	-1.39322e+03
6.25e-02	1.45e+01	-7.30110e+02	6.25e-02	3.85e+01	-1.19049e+03	6.25e-02	7.65e+01	-1.45905e+03	6.06e-02	1.50e+01	-7.77999e+02	6.06e-02	5.30e+01	-1.39729e+03
6.25e-02	1.48e+01	-7.37935e+02	6.25e-02	3.90e+01	-1.19624e+03	6.25e-02	7.70e+01	-1.46118e+03	6.06e-02	1.55e+01	-7.94009e+02	6.06e-02	5.35e+01	-1.40130e+03
6.25e-02	1.50e+01	-7.45658e+02	6.25e-02	3.95e+01	-1.20189e+03	6.25e-02	7.75e+01	-1.46329e+03	6.06e-02	1.60e+01	-8.09620e+02	6.06e-02	5.40e+01	-1.40527e+03
6.25e-02	1.53e+01	-7.53281e+02	6.25e-02	4.00e+01	-1.20745e+03	6.25e-02	7.80e+01	-1.46538e+03	6.06e-02	1.65e+01	-8.24848e+02	6.06e-02	5.45e+01	-1.40918e+03
6.25e-02	1.55e+01	-7.60807e+02	6.25e-02	4.05e+01	-1.21293e+03	6.25e-02	7.85e+01	-1.46745e+03	6.06e-02	1.70e+01	-8.39704e+02	6.06e-02	5.50e+01	-1.41304e+03
6.25e-02	1.58e+01	-7.68236e+02	6.25e-02	4.10e+01	-1.21831e+03	6.25e-02	7.90e+01	-1.46950e+03	6.06e-02	1.75e+01	-8.54203e+02	6.06e-02	5.55e+01	-1.41685e+03
6.25e-02	1.60e+01	-7.75571e+02	6.25e-02	4.15e+01	-1.22361e+03	6.25e-02	7.95e+01	-1.47153e+03	6.06e-02	1.80e+01	-8.68357e+02	6.06e-02	5.60e+01	-1.42061e+03
6.25e-02	1.63e+01	-7.82813e+02	6.25e-02	4.20e+01	-1.22882e+03	6.25e-02	8.00e+01	-1.47354e+03	6.06e-02	1.85e+01	-8.82177e+02	6.06e-02	5.65e+01	-1.42432e+03
6.25e-02	1.65e+01	-7.89965e+02	6.25e-02	4.25e+01	-1.23396e+03	6.25e-02	8.05e+01	-1.47552e+03	6.06e-02	1.90e+01	-8.95674e+02	6.06e-02	5.70e+01	-1.42798e+03
6.25e-02	1.68e+01	-7.97027e+02	6.25e-02	4.30e+01	-1.23901e+03	6.25e-02	8.10e+01	-1.47749e+03	6.06e-02	1.95e+01	-9.08660e+02	6.06e-02	5.75e+01	-1.43160e+03
6.25e-02	1.70e+01	-8.04001e+02	6.25e-02	4.35e+01	-1.24398e+03	6.25e-02	8.15e+01	-1.47944e+03	6.06e-02	2.00e+01	-9.21744e+02	6.06e-02	5.80e+01	-1.43517e+03
6.25e-02	1.73e+01	-8.10889e+02	6.25e-02	4.40e+01	-1.24888e+03	6.25e-02	8.20e+01	-1.48137e+03	6.06e-02	2.05e+01	-9.34337e+02	6.06e-02	5.85e+01	-1.43870e+03
6.25e-02	1.75e+01	-8.17693e+02	6.25e-02	4.45e+01	-1.25370e+03	6.25e-02	8.25e+01	-1.48328e+03	6.06e-02	2.10e+01	-9.46648e+02	6.06e-02	5.90e+01	-1.44218e+03
6.25e-02	1.78e+01	-8.24413e+02	6.25e-02	4.50e+01	-1.25845e+03	6.25e-02	8.30e+01	-1.48517e+03	6.06e-02	2.15e+01	-9.58686e+02	6.06e-02	5.95e+01	-1.44562e+03
6.25e-02	1.80e+01	-8.31052e+02	6.25e-02	4.55e+01	-1.26313e+03	6.25e-02	8.35e+01	-1.48704e+03	6.06e-02	2.20e+01	-9.70459e+02	6.06e-02	6.00e+01	-1.44902e+03
6.25e-02	1.83e+01	-8.37611e+02	6.25e-02	4.60e+01	-1.26774e+03	6.25e-02	8.40e+01	-1.48889e+03	6.06e-02	2.25e+01	-9.81976e+02	6.06e-02	6.05e+01	-1.45238e+03
6.25e-02	1.85e+01	-8.44090e+02	6.25e-02	4.65e+01	-1.27228e+03	6.25e-02	8.45e+01	-1.49073e+03	6.06e-02	2.30e+01	-9.93246e+02	6.06e-02	6.10e+01	-1.45569e+03
6.25e-02	1.88e+01	-8.50492e+02	6.25e-02	4.70e+01	-1.27675e+03	6.25e-02	8.50e+01	-1.49255e+03	6.06e-02	2.35e+01	-1.00427e+03	6.06e-02	6.15e+01	-1.45896e+03
6.25e-02	1.90e+01	-8.56818e+02	6.25e-02	4.75e+01	-1.28116e+03	6.25e-02	8.55e+01	-1.49435e+03	6.06e-02	2.40e+01	-1.01507e+03	6.06e-02	6.20e+01	-1.46220e+03
6.25e-02	1.93e+01	-8.63069e+02	6.25e-02	4.80e+01	-1.28551e+03	6.25e-02	8.60e+01	-1.49613e+03	6.06e-02	2.45e+01	-1.02564e+03	6.06e-02	6.25e+01	-1.46540e+03
6.25e-02	1.95e+01	-8.69246e+02	6.25e-02	4.85e+01	-1.28979e+03	6.25e-02	8.65e+01	-1.49790e+03	6.06e-02	2.50e+01	-1.03599e+03	6.06e-02	6.30e+0	

S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ
6.06e-02	7.30e+01	-1.52464e+03	5.88e-02	1.15e+01	-6.79478e+02	5.88e-02	4.95e+01	-1.43814e+03	5.88e-02	8.75e+01	-1.67545e+03	5.71e-02	2.60e+01	-1.15442e+03
6.06e-02	7.35e+01	-1.52713e+03	5.88e-02	1.20e+01	-6.99701e+02	5.88e-02	5.00e+01	-1.44289e+03	5.88e-02	8.80e+01	-1.67747e+03	5.71e-02	2.65e+01	-1.16541e+03
6.06e-02	7.40e+01	-1.52960e+03	5.88e-02	1.25e+01	-7.19393e+02	5.88e-02	5.05e+01	-1.44758e+03	5.88e-02	8.85e+01	-1.67947e+03	5.71e-02	2.70e+01	-1.17619e+03
6.06e-02	7.45e+01	-1.53203e+03	5.88e-02	1.30e+01	-7.38572e+02	5.88e-02	5.10e+01	-1.45220e+03	5.88e-02	8.90e+01	-1.68146e+03	5.71e-02	2.75e+01	-1.18676e+03
6.06e-02	7.50e+01	-1.53445e+03	5.88e-02	1.35e+01	-7.57257e+02	5.88e-02	5.15e+01	-1.45677e+03	5.88e-02	8.95e+01	-1.68342e+03	5.71e-02	2.80e+01	-1.19713e+03
6.06e-02	7.55e+01	-1.53684e+03	5.88e-02	1.40e+01	-7.75467e+02	5.88e-02	5.20e+01	-1.46127e+03	5.88e-02	9.00e+01	-1.68537e+03	5.71e-02	2.85e+01	-1.20731e+03
6.06e-02	7.60e+01	-1.53920e+03	5.88e-02	1.45e+01	-7.93218e+02	5.88e-02	5.25e+01	-1.46570e+03	5.88e-02	9.05e+01	-1.68731e+03	5.71e-02	2.90e+01	-1.21730e+03
6.06e-02	7.65e+01	-1.54154e+03	5.88e-02	1.50e+01	-8.10527e+02	5.88e-02	5.30e+01	-1.47009e+03	5.88e-02	9.10e+01	-1.68922e+03	5.71e-02	2.95e+01	-1.22710e+03
6.06e-02	7.70e+01	-1.54385e+03	5.88e-02	1.55e+01	-8.27410e+02	5.88e-02	5.35e+01	-1.47441e+03	5.88e-02	9.15e+01	-1.69112e+03	5.71e-02	3.00e+01	-1.23672e+03
6.06e-02	7.75e+01	-1.54614e+03	5.88e-02	1.60e+01	-8.43881e+02	5.88e-02	5.40e+01	-1.47867e+03	5.88e-02	9.20e+01	-1.69300e+03	5.71e-02	3.05e+01	-1.24616e+03
6.06e-02	7.80e+01	-1.54841e+03	5.88e-02	1.65e+01	-8.59955e+02	5.88e-02	5.45e+01	-1.48288e+03	5.88e-02	9.25e+01	-1.69486e+03	5.71e-02	3.10e+01	-1.25544e+03
6.06e-02	7.85e+01	-1.55066e+03	5.88e-02	1.70e+01	-8.75646e+02	5.88e-02	5.50e+01	-1.48704e+03	5.88e-02	9.30e+01	-1.69671e+03	5.71e-02	3.15e+01	-1.26455e+03
6.06e-02	7.90e+01	-1.55288e+03	5.88e-02	1.75e+01	-8.90965e+02	5.88e-02	5.55e+01	-1.49114e+03	5.88e-02	9.35e+01	-1.69854e+03	5.71e-02	3.20e+01	-1.27349e+03
6.06e-02	7.95e+01	-1.55508e+03	5.88e-02	1.80e+01	-9.05927e+02	5.88e-02	5.60e+01	-1.49519e+03	5.88e-02	9.40e+01	-1.70035e+03	5.71e-02	3.25e+01	-1.28228e+03
6.06e-02	8.00e+01	-1.55726e+03	5.88e-02	1.85e+01	-9.20543e+02	5.88e-02	5.65e+01	-1.49919e+03	5.88e-02	9.45e+01	-1.70215e+03	5.71e-02	3.30e+01	-1.29092e+03
6.06e-02	8.05e+01	-1.55941e+03	5.88e-02	1.90e+01	-9.34823e+02	5.88e-02	5.70e+01	-1.50314e+03	5.88e-02	9.50e+01	-1.70394e+03	5.71e-02	3.35e+01	-1.29940e+03
6.06e-02	8.10e+01	-1.56155e+03	5.88e-02	1.95e+01	-9.48780e+02	5.88e-02	5.75e+01	-1.50703e+03	5.88e-02	9.55e+01	-1.70571e+03	5.71e-02	3.40e+01	-1.30774e+03
6.06e-02	8.15e+01	-1.56366e+03	5.88e-02	2.00e+01	-9.62424e+02	5.88e-02	5.80e+01	-1.51088e+03	5.88e-02	9.60e+01	-1.70746e+03	5.71e-02	3.45e+01	-1.31594e+03
6.06e-02	8.20e+01	-1.56576e+03	5.88e-02	2.05e+01	-9.75765e+02	5.88e-02	5.85e+01	-1.51468e+03	5.88e-02	9.65e+01	-1.70920e+03	5.71e-02	3.50e+01	-1.32400e+03
6.06e-02	8.25e+01	-1.56783e+03	5.88e-02	2.10e+01	-9.88812e+02	5.88e-02	5.90e+01	-1.51844e+03	5.88e-02	9.70e+01	-1.71092e+03	5.71e-02	3.55e+01	-1.33192e+03
6.06e-02	8.30e+01	-1.56988e+03	5.88e-02	2.15e+01	-1.00157e+03	5.88e-02	5.95e+01	-1.52214e+03	5.88e-02	9.75e+01	-1.71263e+03	5.71e-02	3.60e+01	-1.33971e+03
6.06e-02	8.35e+01	-1.57191e+03	5.88e-02	2.20e+01	-1.01406e+03	5.88e-02	6.00e+01	-1.52581e+03	5.88e-02	9.80e+01	-1.71432e+03	5.71e-02	3.65e+01	-1.34737e+03
6.06e-02	8.40e+01	-1.57393e+03	5.88e-02	2.25e+01	-1.02628e+03	5.88e-02	6.05e+01	-1.52942e+03	5.88e-02	9.85e+01	-1.71600e+03	5.71e-02	3.70e+01	-1.35491e+03
6.06e-02	8.45e+01	-1.57592e+03	5.88e-02	2.30e+01	-1.03824e+03	5.88e-02	6.10e+01	-1.53300e+03	5.88e-02	9.90e+01	-1.71767e+03	5.71e-02	3.75e+01	-1.36232e+03
6.06e-02	8.50e+01	-1.57790e+03	5.88e-02	2.35e+01	-1.04996e+03	5.88e-02	6.15e+01	-1.53653e+03	5.88e-02	9.95e+01	-1.71932e+03	5.71e-02	3.80e+01	-1.36961e+03
6.06e-02	8.55e+01	-1.57985e+03	5.88e-02	2.40e+01	-1.06142e+03	5.88e-02	6.20e+01	-1.54002e+03	5.88e-02	1.00e+02	-1.72096e+03	5.71e-02	3.85e+01	-1.37679e+03
6.06e-02	8.60e+01	-1.58179e+03	5.88e-02	2.45e+01	-1.07265e+03	5.88e-02	6.25e+01	-1.54346e+03	5.71e-02	1.00e+00	-8.57676e+01	5.71e-02	3.90e+01	-1.38385e+03
6.06e-02	8.65e+01	-1.58371e+03	5.88e-02	2.50e+01	-1.08366e+03	5.88e-02	6.30e+01	-1.54687e+03	5.71e-02	1.50e+00	-1.25381e+02	5.71e-02	3.95e+01	-1.39080e+03
6.06e-02	8.70e+01	-1.58561e+03	5.88e-02	2.55e+01	-1.09444e+03	5.88e-02	6.35e+01	-1.55024e+03	5.71e-02	2.00e+00	-1.63688e+02	5.71e-02	4.00e+01	-1.39764e+03
6.06e-02	8.75e+01	-1.58750e+03	5.88e-02	2.60e+01	-1.10500e+03	5.88e-02	6.40e+01	-1.55356e+03	5.71e-02	2.50e+00	-2.00747e+02	5.71e-02	4.05e+01	-1.40437e+03
6.06e-02	8.80e+01	-1.58936e+03	5.88e-02	2.65e+01	-1.11536e+03	5.88e-02	6.45e+01	-1.55685e+03	5.71e-02	3.00e+00	-2.36614e+02	5.71e-02	4.10e+01	-1.41100e+03
6.06e-02	8.85e+01	-1.59121e+03	5.88e-02	2.70e+01	-1.12551e+03	5.88e-02	6.50e+01	-1.56010e+03	5.71e-02	3.50e+00	-2.71342e+02	5.71e-02	4.15e+01	-1.41753e+03
6.06e-02	8.90e+01	-1.59304e+03	5.88e-02	2.75e+01	-1.13546e+03	5.88e-02	6.55e+01	-1.56332e+03	5.71e-02	4.00e+00	-3.04979e+02	5.71e-02	4.20e+01	-1.42396e+03
6.06e-02	8.95e+01	-1.59486e+03	5.88e-02	2.80e+01	-1.14523e+03	5.88e-02	6.60e+01	-1.56649e+03	5.71e-02	4.50e+00	-3.37574e+02	5.71e-02	4.25e+01	-1.43029e+03
6.06e-02	9.00e+01	-1.59666e+03	5.88e-02	2.85e+01	-1.15480e+03	5.88e-02	6.65e+01	-1.56963e+03	5.71e-02	5.00e+00	-3.69169e+02	5.71e-02	4.30e+01	-1.43652e+03
6.06e-02	9.05e+01	-1.59844e+03	5.88e-02	2.90e+01	-1.16419e+03	5.88e-02	6.70e+01	-1.57274e+03	5.71e-02	5.50e+00	-3.99809e+02	5.71e-02	4.35e+01	-1.44267e+03
6.06e-02	9.10e+01	-1.60021e+03	5.88e-02	2.95e+01	-1.17341e+03	5.88e-02	6.75e+01	-1.57581e+03	5.71e-02	6.00e+00	-4.29532e+02	5.71e-02	4.40e+01	-1.44872e+03
6.06e-02	9.15e+01	-1.60196e+03	5.88e-02	3.00e+01	-1.18245e+03	5.88e-02	6.80e+01	-1.57885e+03	5.71e-02	6.50e+00	-4.58376e+02	5.71e-02	4.45e+01	-1.45468e+03
6.06e-02	9.20e+01	-1.60369e+03	5.88e-02	3.05e+01	-1.19133e+03	5.88e-02	6.85e+01	-1.58185e+03	5.71e-02	7.00e+00	-4.86378e+02	5.71e-02	4.50e+01	-1.46055e+03
6.06e-02	9.25e+01	-1.60541e+03	5.88e-02	3.10e+01	-1.20005e+03	5.88e-02	6.90e+01	-1.58482e+03	5.71e-02	7.50e+00	-5.13572e+02	5.71e-02	4.55e+01	-1.46635e+03
6.06e-02	9.30e+01	-1.60712e+03	5.88e-02	3.15e+01	-1.20860e+03	5.88e-02	6.95e+01	-1.58775e+03	5.71e-02	8.00e+00	-5.39990e+02	5.71e-02	4.60e+01	-1.47250e+03
6.06e-02	9.35e+01	-1.60881e+03	5.88e-02	3.20e+01	-1.21700e+03	5.88e-02	7.00e+01	-1.59066e+03	5.71e-02	8.50e+00	-5.65663e+02	5.71e-02	4.65e+01	-1.47768e+03
6.06e-02	9.40e+01	-1.61048e+03	5.88e-02	3.25e+01	-1.22526e+03	5.88e-02	7.05e+01	-1.59353e+03	5.71e-02	9.00e+00	-5.90620e+02	5.71e-02	4.70e+01	-1.48322e+03
6.06e-02	9.45e+01	-1.61214e+03	5.88e-02	3.30e+01	-1.23336e+03	5.88e-02	7.10e+01	-1.59637e+03	5.71e-02	9.50e+00	-6.14890e+02	5.71e-02	4.75e+01	-1.48869e+03
6.06e-02	9.50e+01	-1.61379e+03	5.88e-02	3.35e+01	-1.24132e+03	5.88e-02	7.15e+01	-1.59918e+03	5.71e-02	1.00e+01	-6.38499e+02	5.71e-02	4.80e+01	-1.49407e+03
6.06e-02	9.55e+01	-1.61542e+03	5.88e-02	3.40e+01	-1.24915e+03	5.88e-02	7.20e+01	-1.60196e+03	5.71e-02	1.05e+01	-6.61471e+02	5.71e-02	4.85e+01	-1.49939e+03
6.06e-02	9.60e+01	-1.61703e+03	5.88e-02	3.45e+01	-1.25683e+03	5.88e-02	7.25e+01	-1.60471e+03	5.71e-02	1.10e+01	-6.83832e+02	5.71e-02	4.90e+01	-1.50463e+03
6.06e-02	9.65e+01	-1.61864e+03	5.88e-02	3.50e+01	-1.26439e+03	5.88e-02	7.30e+01	-1.60743e+03	5.71e-02	1.15e+01	-7.05604e+02	5.71e-02	4.95e+01	-1.50980e+03
6.06e-02	9.70e+01	-1.62023e+03	5.88e-02	3.55e+01	-1.27182e+03	5.88e-02	7.35e+01	-1.61013e+03	5.71e-02	1.20e+01	-7.26809e+02	5.71e-02	5.00e+01	-1.51489e+03
6.06e-02	9.75e+01	-1.62180e+03	5.88e-02	3.60e+01	-1.27912e+03	5.88e-02	7.40e+01	-1.61279e+03	5.71e-02	1.25e+01	-7.47468e+02	5.71e-02	5.05e+01	-1.51992e+03
6.06e-02	9.80e+01	-1.62336e+03	5.88e-02	3.65e+01	-1.28630e+03	5.88e-02	7.45e+01	-1.61543e+03	5.71e-02	1.30e+01	-7.67600e+02	5.71e-02	5.10e+01	-1.52488e+03
6.06e-02	9.85e+01	-1.62491e+03	5.88e-02	3.70e+01	-1.29336e+03	5.88e-02	7.50e+01	-1.61804e+03	5.71e-02	1.35e+01	-7.87225e+02	5.71e-02	5.15e+01	-1.52978e+03
6.06e-02	9.90e+01	-1.62645e+03	5.88e-02	3.75e+01	-1.30030e+03	5.88e-02	7.55e+01	-1.62062e+03	5.71e-02	1.40e+01	-8.06360e+02	5.71e-02	5.20e+01	-1.53460e+03
6.06e-02	9.95e+01	-1.62797e+03	5.88e-02	3.80e+01	-1.30713e+03	5.88e-02	7.60e+01	-1.62317e+03	5.71e-02	1.45e+01	-8.25023e+02	5.71e-02	5.25e+01	-1.53937e+03
6.06e-02	1.00e+02	-1.62948e+03	5.88e-02	3.85e+01	-1.31385e+03	5.88e-02	7.65e+01	-1.62570e+03	5.71e-02	1.50e+01	-8.43231e+02	5.71e-02	5.30e+01	-1.54407e+03
5.88e-02	1.00e+00	-8.33004e+01	5.88e-02	3.90e+01	-1.32046e+03	5.88e-02	7.70e+01	-1.62821e+03	5.71e-02	1.55e+01	-8.60999e+02	5.71e-02	5.35e+01	-1.54871e+03
5.88e-02	1.50e+00	-1.21684e+02	5.88e-02	3.95e+01	-1.32697e+03	5.88e-02	7.75e+01	-1.63068e+03	5.71e-02	1.60e+01	-8.78342e+02	5.71e-02	5.40e+01	-1.55329e

S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ
5.71e-02	6.40e+01	-1.63379e+03	5.56e-02	2.50e+00	-2.06888e+02	5.56e-02	4.05e+01	-1.46993e+03	5.56e-02	7.85e+01	-1.81035e+03	5.41e-02	1.70e+01	-9.84771e+02
5.71e-02	6.45e+01	-1.63733e+03	5.56e-02	3.00e+00	-2.43967e+02	5.56e-02	4.10e+01	-1.47700e+03	5.56e-02	7.90e+01	-1.81315e+03	5.41e-02	1.75e+01	-1.00263e+03
5.71e-02	6.50e+01	-1.64082e+03	5.56e-02	3.50e+00	-2.79898e+02	5.56e-02	4.15e+01	-1.48396e+03	5.56e-02	7.95e+01	-1.81591e+03	5.41e-02	1.80e+01	-1.02099e+03
5.71e-02	6.55e+01	-1.64428e+03	5.56e-02	4.00e+00	-3.14730e+02	5.56e-02	4.20e+01	-1.49082e+03	5.56e-02	8.00e+01	-1.81865e+03	5.41e-02	1.85e+01	-1.03717e+03
5.71e-02	6.60e+01	-1.64770e+03	5.56e-02	4.50e+00	-3.48509e+02	5.56e-02	4.25e+01	-1.49758e+03	5.56e-02	8.05e+01	-1.82136e+03	5.41e-02	1.90e+01	-1.05388e+03
5.71e-02	6.65e+01	-1.65108e+03	5.56e-02	5.00e+00	-3.81279e+02	5.56e-02	4.30e+01	-1.50423e+03	5.56e-02	8.10e+01	-1.82404e+03	5.41e-02	1.95e+01	-1.07023e+03
5.71e-02	6.70e+01	-1.65443e+03	5.56e-02	5.50e+00	-4.13081e+02	5.56e-02	4.35e+01	-1.51079e+03	5.56e-02	8.15e+01	-1.82670e+03	5.41e-02	2.00e+01	-1.08623e+03
5.71e-02	6.75e+01	-1.65773e+03	5.56e-02	6.00e+00	-4.43955e+02	5.56e-02	4.40e+01	-1.51725e+03	5.56e-02	8.20e+01	-1.82933e+03	5.41e-02	2.05e+01	-1.10189e+03
5.71e-02	6.80e+01	-1.66100e+03	5.56e-02	6.50e+00	-4.73938e+02	5.56e-02	4.45e+01	-1.52362e+03	5.56e-02	8.25e+01	-1.83194e+03	5.41e-02	2.10e+01	-1.11723e+03
5.71e-02	6.85e+01	-1.66423e+03	5.56e-02	7.00e+00	-5.03066e+02	5.56e-02	4.50e+01	-1.52989e+03	5.56e-02	8.30e+01	-1.83453e+03	5.41e-02	2.15e+01	-1.13225e+03
5.71e-02	6.90e+01	-1.66743e+03	5.56e-02	7.50e+00	-5.31373e+02	5.56e-02	4.55e+01	-1.53608e+03	5.56e-02	8.35e+01	-1.83709e+03	5.41e-02	2.20e+01	-1.14696e+03
5.71e-02	6.95e+01	-1.67060e+03	5.56e-02	8.00e+00	-5.58891e+02	5.56e-02	4.60e+01	-1.54217e+03	5.56e-02	8.40e+01	-1.83962e+03	5.41e-02	2.25e+01	-1.16137e+03
5.71e-02	7.00e+01	-1.67372e+03	5.56e-02	8.50e+00	-5.85651e+02	5.56e-02	4.65e+01	-1.54818e+03	5.56e-02	8.45e+01	-1.84213e+03	5.41e-02	2.30e+01	-1.17549e+03
5.71e-02	7.05e+01	-1.67682e+03	5.56e-02	9.00e+00	-6.11681e+02	5.56e-02	4.70e+01	-1.55411e+03	5.56e-02	8.50e+01	-1.84462e+03	5.41e-02	2.35e+01	-1.18934e+03
5.71e-02	7.10e+01	-1.67988e+03	5.56e-02	9.50e+00	-6.37010e+02	5.56e-02	4.75e+01	-1.55995e+03	5.56e-02	8.55e+01	-1.84708e+03	5.41e-02	2.40e+01	-1.20290e+03
5.71e-02	7.15e+01	-1.68291e+03	5.56e-02	1.00e+01	-6.61664e+02	5.56e-02	4.80e+01	-1.56571e+03	5.56e-02	8.60e+01	-1.84953e+03	5.41e-02	2.45e+01	-1.21620e+03
5.71e-02	7.20e+01	-1.68591e+03	5.56e-02	1.05e+01	-6.85669e+02	5.56e-02	4.85e+01	-1.57139e+03	5.56e-02	8.65e+01	-1.85195e+03	5.41e-02	2.50e+01	-1.22924e+03
5.71e-02	7.25e+01	-1.68887e+03	5.56e-02	1.10e+01	-7.09048e+02	5.56e-02	4.90e+01	-1.57700e+03	5.56e-02	8.70e+01	-1.85434e+03	5.41e-02	2.55e+01	-1.24203e+03
5.71e-02	7.30e+01	-1.69180e+03	5.56e-02	1.15e+01	-7.31824e+02	5.56e-02	4.95e+01	-1.58253e+03	5.56e-02	8.75e+01	-1.85672e+03	5.41e-02	2.60e+01	-1.25458e+03
5.71e-02	7.35e+01	-1.69471e+03	5.56e-02	1.20e+01	-7.54020e+02	5.56e-02	5.00e+01	-1.58798e+03	5.56e-02	8.80e+01	-1.85917e+03	5.41e-02	2.65e+01	-1.26689e+03
5.71e-02	7.40e+01	-1.69758e+03	5.56e-02	1.25e+01	-7.75655e+02	5.56e-02	5.05e+01	-1.59336e+03	5.56e-02	8.85e+01	-1.86140e+03	5.41e-02	2.70e+01	-1.27897e+03
5.71e-02	7.45e+01	-1.70042e+03	5.56e-02	1.30e+01	-7.96751e+02	5.56e-02	5.10e+01	-1.59867e+03	5.56e-02	8.90e+01	-1.86372e+03	5.41e-02	2.75e+01	-1.29082e+03
5.71e-02	7.50e+01	-1.70324e+03	5.56e-02	1.35e+01	-8.17325e+02	5.56e-02	5.15e+01	-1.60390e+03	5.56e-02	8.95e+01	-1.86601e+03	5.41e-02	2.80e+01	-1.30245e+03
5.71e-02	7.55e+01	-1.70602e+03	5.56e-02	1.40e+01	-8.37397e+02	5.56e-02	5.20e+01	-1.60907e+03	5.56e-02	9.00e+01	-1.86828e+03	5.41e-02	2.85e+01	-1.31387e+03
5.71e-02	7.60e+01	-1.70878e+03	5.56e-02	1.45e+01	-8.56983e+02	5.56e-02	5.25e+01	-1.61417e+03	5.56e-02	9.05e+01	-1.87053e+03	5.41e-02	2.90e+01	-1.32509e+03
5.71e-02	7.65e+01	-1.71150e+03	5.56e-02	1.50e+01	-8.76100e+02	5.56e-02	5.30e+01	-1.61920e+03	5.56e-02	9.10e+01	-1.87276e+03	5.41e-02	2.95e+01	-1.33610e+03
5.71e-02	7.70e+01	-1.71420e+03	5.56e-02	1.55e+01	-8.94765e+02	5.56e-02	5.35e+01	-1.62417e+03	5.56e-02	9.15e+01	-1.87497e+03	5.41e-02	3.00e+01	-1.34691e+03
5.71e-02	7.75e+01	-1.71688e+03	5.56e-02	1.60e+01	-9.12992e+02	5.56e-02	5.40e+01	-1.62980e+03	5.56e-02	9.20e+01	-1.87716e+03	5.41e-02	3.05e+01	-1.35754e+03
5.71e-02	7.80e+01	-1.71952e+03	5.56e-02	1.65e+01	-9.30796e+02	5.56e-02	5.45e+01	-1.63392e+03	5.56e-02	9.25e+01	-1.87933e+03	5.41e-02	3.10e+01	-1.36797e+03
5.71e-02	7.85e+01	-1.72214e+03	5.56e-02	1.70e+01	-9.48191e+02	5.56e-02	5.50e+01	-1.63870e+03	5.56e-02	9.30e+01	-1.88148e+03	5.41e-02	3.15e+01	-1.37823e+03
5.71e-02	7.90e+01	-1.72474e+03	5.56e-02	1.75e+01	-9.65190e+02	5.56e-02	5.55e+01	-1.64342e+03	5.56e-02	9.35e+01	-1.88362e+03	5.41e-02	3.20e+01	-1.38831e+03
5.71e-02	7.95e+01	-1.72731e+03	5.56e-02	1.80e+01	-9.81806e+02	5.56e-02	5.60e+01	-1.64808e+03	5.56e-02	9.40e+01	-1.88574e+03	5.41e-02	3.25e+01	-1.39821e+03
5.71e-02	8.00e+01	-1.72985e+03	5.56e-02	1.85e+01	-9.98052e+02	5.56e-02	5.65e+01	-1.65268e+03	5.56e-02	9.45e+01	-1.88783e+03	5.41e-02	3.30e+01	-1.40795e+03
5.71e-02	8.05e+01	-1.73237e+03	5.56e-02	1.90e+01	-1.01394e+03	5.56e-02	5.70e+01	-1.65722e+03	5.56e-02	9.50e+01	-1.88991e+03	5.41e-02	3.35e+01	-1.41752e+03
5.71e-02	8.10e+01	-1.73486e+03	5.56e-02	1.95e+01	-1.02948e+03	5.56e-02	5.75e+01	-1.66171e+03	5.56e-02	9.55e+01	-1.89198e+03	5.41e-02	3.40e+01	-1.42693e+03
5.71e-02	8.15e+01	-1.73733e+03	5.56e-02	2.00e+01	-1.04468e+03	5.56e-02	5.80e+01	-1.66615e+03	5.56e-02	9.60e+01	-1.89402e+03	5.41e-02	3.45e+01	-1.43618e+03
5.71e-02	8.20e+01	-1.73978e+03	5.56e-02	2.05e+01	-1.05956e+03	5.56e-02	5.85e+01	-1.67052e+03	5.56e-02	9.65e+01	-1.89605e+03	5.41e-02	3.50e+01	-1.44529e+03
5.71e-02	8.25e+01	-1.74220e+03	5.56e-02	2.10e+01	-1.07412e+03	5.56e-02	5.90e+01	-1.67485e+03	5.56e-02	9.70e+01	-1.89806e+03	5.41e-02	3.55e+01	-1.45424e+03
5.71e-02	8.30e+01	-1.74460e+03	5.56e-02	2.15e+01	-1.08837e+03	5.56e-02	5.95e+01	-1.67912e+03	5.56e-02	9.75e+01	-1.90005e+03	5.41e-02	3.60e+01	-1.46305e+03
5.71e-02	8.35e+01	-1.74697e+03	5.56e-02	2.20e+01	-1.10233e+03	5.56e-02	6.00e+01	-1.68335e+03	5.56e-02	9.80e+01	-1.90203e+03	5.41e-02	3.65e+01	-1.47171e+03
5.71e-02	8.40e+01	-1.74933e+03	5.56e-02	2.25e+01	-1.11600e+03	5.56e-02	6.05e+01	-1.68752e+03	5.56e-02	9.85e+01	-1.90399e+03	5.41e-02	3.70e+01	-1.48024e+03
5.71e-02	8.45e+01	-1.75166e+03	5.56e-02	2.30e+01	-1.12939e+03	5.56e-02	6.10e+01	-1.69164e+03	5.56e-02	9.90e+01	-1.90593e+03	5.41e-02	3.75e+01	-1.48863e+03
5.71e-02	8.50e+01	-1.75397e+03	5.56e-02	2.35e+01	-1.14250e+03	5.56e-02	6.15e+01	-1.69572e+03	5.56e-02	9.95e+01	-1.90786e+03	5.41e-02	3.80e+01	-1.49689e+03
5.71e-02	8.55e+01	-1.75626e+03	5.56e-02	2.40e+01	-1.15536e+03	5.56e-02	6.20e+01	-1.69974e+03	5.56e-02	1.00e+02	-1.90977e+03	5.41e-02	3.85e+01	-1.50502e+03
5.71e-02	8.60e+01	-1.75852e+03	5.56e-02	2.45e+01	-1.16795e+03	5.56e-02	6.25e+01	-1.70372e+03	5.41e-02	1.00e+00	-9.07019e+01	5.41e-02	3.90e+01	-1.51302e+03
5.71e-02	8.65e+01	-1.76077e+03	5.56e-02	2.50e+01	-1.18030e+03	5.56e-02	6.30e+01	-1.70765e+03	5.41e-02	1.50e+00	-1.32775e+02	5.41e-02	3.95e+01	-1.52090e+03
5.71e-02	8.70e+01	-1.76299e+03	5.56e-02	2.55e+01	-1.19241e+03	5.56e-02	6.35e+01	-1.71154e+03	5.41e-02	2.00e+00	-1.73532e+02	5.41e-02	4.00e+01	-1.52866e+03
5.71e-02	8.75e+01	-1.76520e+03	5.56e-02	2.60e+01	-1.20428e+03	5.56e-02	6.40e+01	-1.71539e+03	5.41e-02	2.50e+00	-2.13031e+02	5.41e-02	4.05e+01	-1.53630e+03
5.71e-02	8.80e+01	-1.76738e+03	5.56e-02	2.65e+01	-1.21593e+03	5.56e-02	6.45e+01	-1.71919e+03	5.41e-02	3.00e+00	-2.51323e+02	5.41e-02	4.10e+01	-1.54382e+03
5.71e-02	8.85e+01	-1.76955e+03	5.56e-02	2.70e+01	-1.22735e+03	5.56e-02	6.50e+01	-1.72294e+03	5.41e-02	3.50e+00	-2.88459e+02	5.41e-02	4.15e+01	-1.55124e+03
5.71e-02	8.90e+01	-1.77169e+03	5.56e-02	2.75e+01	-1.23855e+03	5.56e-02	6.55e+01	-1.72658e+03	5.41e-02	4.00e+00	-3.24488e+02	5.41e-02	4.20e+01	-1.55854e+03
5.71e-02	8.95e+01	-1.77382e+03	5.56e-02	2.80e+01	-1.24955e+03	5.56e-02	6.60e+01	-1.73033e+03	5.41e-02	4.50e+00	-3.59453e+02	5.41e-02	4.25e+01	-1.56573e+03
5.71e-02	9.00e+01	-1.77592e+03	5.56e-02	2.85e+01	-1.26034e+03	5.56e-02	6.65e+01	-1.73396e+03	5.41e-02	5.00e+00	-3.93400e+02	5.41e-02	4.30e+01	-1.57282e+03
5.71e-02	9.05e+01	-1.77801e+03	5.56e-02	2.90e+01	-1.27093e+03	5.56e-02	6.70e+01	-1.73755e+03	5.41e-02	5.50e+00	-4.26368e+02	5.41e-02	4.35e+01	-1.57980e+03
5.71e-02	9.10e+01	-1.78008e+03	5.56e-02	2.95e+01	-1.28133e+03	5.56e-02	6.75e+01	-1.74110e+03	5.41e-02	6.00e+00	-4.58396e+02	5.41e-02	4.40e+01	-1.58669e+03
5.71e-02	9.15e+01	-1.78213e+03	5.56e-02	3.00e+01	-1.29155e+03	5.56e-02	6.80e+01	-1.74461e+03	5.41e-02	6.50e+00	-4.89522e+02	5.41e-02	4.45e+01	-1.59347e+03
5.71e-02	9.20e+01	-1.78416e+03	5.56e-02	3.05e+01	-1.30157e+03	5.56e-02	6.85e+01	-1.74809e+03	5.41e-02	7.00e+00	-5.19781e+02	5.41e-02	4.50e+01	-1.60

S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ
5.41e-02	5.50e+01	-1.71628e+03	5.41e-02	9.30e+01	-1.97660e+03	5.26e-02	3.15e+01	-1.43592e+03	5.26e-02	6.95e+01	-1.92787e+03	5.13e-02	8.00e+00	-6.15808e+02
5.41e-02	5.55e+01	-1.72133e+03	5.41e-02	9.35e+01	-1.97890e+03	5.26e-02	3.20e+01	-1.44658e+03	5.26e-02	7.00e+01	-1.93172e+03	5.13e-02	8.50e+00	-6.45863e+02
5.41e-02	5.60e+01	-1.72631e+03	5.41e-02	9.40e+01	-1.98117e+03	5.26e-02	3.25e+01	-1.45707e+03	5.26e-02	7.05e+01	-1.93554e+03	5.13e-02	9.00e+00	-6.75150e+02
5.41e-02	5.65e+01	-1.73123e+03	5.41e-02	9.45e+01	-1.98343e+03	5.26e-02	3.30e+01	-1.46737e+03	5.26e-02	7.10e+01	-1.93931e+03	5.13e-02	9.50e+00	-7.03697e+02
5.41e-02	5.70e+01	-1.73609e+03	5.41e-02	9.50e+01	-1.98567e+03	5.26e-02	3.35e+01	-1.47751e+03	5.26e-02	7.15e+01	-1.94305e+03	5.13e-02	1.00e+01	-7.31530e+02
5.41e-02	5.75e+01	-1.74089e+03	5.41e-02	9.55e+01	-1.98789e+03	5.26e-02	3.40e+01	-1.48747e+03	5.26e-02	7.20e+01	-1.94675e+03	5.13e-02	1.05e+01	-7.58675e+02
5.41e-02	5.80e+01	-1.74563e+03	5.41e-02	9.60e+01	-1.99009e+03	5.26e-02	3.45e+01	-1.49728e+03	5.26e-02	7.25e+01	-1.95040e+03	5.13e-02	1.10e+01	-7.85154e+02
5.41e-02	5.85e+01	-1.75031e+03	5.41e-02	9.65e+01	-1.99227e+03	5.26e-02	3.50e+01	-1.50692e+03	5.26e-02	7.30e+01	-1.95403e+03	5.13e-02	1.15e+01	-8.10992e+02
5.41e-02	5.90e+01	-1.75494e+03	5.41e-02	9.70e+01	-1.99443e+03	5.26e-02	3.55e+01	-1.51641e+03	5.26e-02	7.35e+01	-1.95761e+03	5.13e-02	1.20e+01	-8.36211e+02
5.41e-02	5.95e+01	-1.75951e+03	5.41e-02	9.75e+01	-1.99658e+03	5.26e-02	3.60e+01	-1.52574e+03	5.26e-02	7.40e+01	-1.96116e+03	5.13e-02	1.25e+01	-8.60830e+02
5.41e-02	6.00e+01	-1.76403e+03	5.41e-02	9.80e+01	-1.99870e+03	5.26e-02	3.65e+01	-1.53493e+03	5.26e-02	7.45e+01	-1.96467e+03	5.13e-02	1.30e+01	-8.84870e+02
5.41e-02	6.05e+01	-1.76850e+03	5.41e-02	9.85e+01	-2.00081e+03	5.26e-02	3.70e+01	-1.54397e+03	5.26e-02	7.50e+01	-1.96814e+03	5.13e-02	1.35e+01	-9.08350e+02
5.41e-02	6.10e+01	-1.77291e+03	5.41e-02	9.90e+01	-2.00291e+03	5.26e-02	3.75e+01	-1.55287e+03	5.26e-02	7.55e+01	-1.97159e+03	5.13e-02	1.40e+01	-9.31289e+02
5.41e-02	6.15e+01	-1.77727e+03	5.41e-02	9.95e+01	-2.00498e+03	5.26e-02	3.80e+01	-1.56163e+03	5.26e-02	7.60e+01	-1.97499e+03	5.13e-02	1.45e+01	-9.53704e+02
5.41e-02	6.20e+01	-1.78158e+03	5.41e-02	1.00e+02	-2.00704e+03	5.26e-02	3.85e+01	-1.57026e+03	5.26e-02	7.65e+01	-1.97837e+03	5.13e-02	1.50e+01	-9.75612e+02
5.41e-02	6.25e+01	-1.78584e+03	5.26e-02	1.00e+00	-9.31691e+01	5.26e-02	3.90e+01	-1.57875e+03	5.26e-02	7.70e+01	-1.98170e+03	5.13e-02	1.55e+01	-9.97030e+02
5.41e-02	6.30e+01	-1.79005e+03	5.26e-02	1.50e+00	-1.36472e+02	5.26e-02	3.95e+01	-1.58711e+03	5.26e-02	7.75e+01	-1.98501e+03	5.13e-02	1.60e+01	-1.01797e+03
5.41e-02	6.35e+01	-1.79421e+03	5.26e-02	2.00e+00	-1.78456e+02	5.26e-02	4.00e+01	-1.59535e+03	5.26e-02	7.80e+01	-1.98829e+03	5.13e-02	1.65e+01	-1.03846e+03
5.41e-02	6.40e+01	-1.79833e+03	5.26e-02	2.50e+00	-2.19174e+02	5.26e-02	4.05e+01	-1.60346e+03	5.26e-02	7.85e+01	-1.99153e+03	5.13e-02	1.70e+01	-1.05849e+03
5.41e-02	6.45e+01	-1.80240e+03	5.26e-02	3.00e+00	-2.58681e+02	5.26e-02	4.10e+01	-1.61145e+03	5.26e-02	7.90e+01	-1.99474e+03	5.13e-02	1.75e+01	-1.07810e+03
5.41e-02	6.50e+01	-1.80642e+03	5.26e-02	3.50e+00	-2.97023e+02	5.26e-02	4.15e+01	-1.61933e+03	5.26e-02	7.95e+01	-1.99792e+03	5.13e-02	1.80e+01	-1.09728e+03
5.41e-02	6.55e+01	-1.81040e+03	5.26e-02	4.00e+00	-3.34250e+02	5.26e-02	4.20e+01	-1.62708e+03	5.26e-02	8.00e+01	-2.00107e+03	5.13e-02	1.85e+01	-1.11607e+03
5.41e-02	6.60e+01	-1.81433e+03	5.26e-02	4.50e+00	-3.70405e+02	5.26e-02	4.25e+01	-1.63473e+03	5.26e-02	8.05e+01	-2.00419e+03	5.13e-02	1.90e+01	-1.13445e+03
5.41e-02	6.65e+01	-1.81822e+03	5.26e-02	5.00e+00	-4.05530e+02	5.26e-02	4.30e+01	-1.64226e+03	5.26e-02	8.10e+01	-2.00728e+03	5.13e-02	1.95e+01	-1.15246e+03
5.41e-02	6.70e+01	-1.82207e+03	5.26e-02	5.50e+00	-4.39667e+02	5.26e-02	4.35e+01	-1.64968e+03	5.26e-02	8.15e+01	-2.01034e+03	5.13e-02	2.00e+01	-1.17009e+03
5.41e-02	6.75e+01	-1.82588e+03	5.26e-02	6.00e+00	-4.72854e+02	5.26e-02	4.40e+01	-1.65700e+03	5.26e-02	8.20e+01	-2.01337e+03	5.13e-02	2.05e+01	-1.18737e+03
5.41e-02	6.80e+01	-1.82964e+03	5.26e-02	6.50e+00	-5.05126e+02	5.26e-02	4.45e+01	-1.66422e+03	5.26e-02	8.25e+01	-2.01637e+03	5.13e-02	2.10e+01	-1.20429e+03
5.41e-02	6.85e+01	-1.83336e+03	5.26e-02	7.00e+00	-5.36520e+02	5.26e-02	4.50e+01	-1.67133e+03	5.26e-02	8.30e+01	-2.01935e+03	5.13e-02	2.15e+01	-1.22088e+03
5.41e-02	6.90e+01	-1.83705e+03	5.26e-02	7.50e+00	-5.67068e+02	5.26e-02	4.55e+01	-1.67843e+03	5.26e-02	8.35e+01	-2.02229e+03	5.13e-02	2.20e+01	-1.23714e+03
5.41e-02	6.95e+01	-1.84069e+03	5.26e-02	8.00e+00	-5.96803e+02	5.26e-02	4.60e+01	-1.68525e+03	5.26e-02	8.40e+01	-2.02521e+03	5.13e-02	2.25e+01	-1.25308e+03
5.41e-02	7.00e+01	-1.84429e+03	5.26e-02	8.50e+00	-6.25753e+02	5.26e-02	4.65e+01	-1.69207e+03	5.26e-02	8.45e+01	-2.02810e+03	5.13e-02	2.30e+01	-1.26870e+03
5.41e-02	7.05e+01	-1.84786e+03	5.26e-02	9.00e+00	-6.53949e+02	5.26e-02	4.70e+01	-1.69879e+03	5.26e-02	8.50e+01	-2.03097e+03	5.13e-02	2.35e+01	-1.28403e+03
5.41e-02	7.10e+01	-1.85139e+03	5.26e-02	9.50e+00	-6.81417e+02	5.26e-02	4.75e+01	-1.70542e+03	5.26e-02	8.55e+01	-2.03381e+03	5.13e-02	2.40e+01	-1.29906e+03
5.41e-02	7.15e+01	-1.85488e+03	5.26e-02	1.00e+01	-7.08184e+02	5.26e-02	4.80e+01	-1.71197e+03	5.26e-02	8.60e+01	-2.03662e+03	5.13e-02	2.45e+01	-1.31380e+03
5.41e-02	7.20e+01	-1.85833e+03	5.26e-02	1.05e+01	-7.34275e+02	5.26e-02	4.85e+01	-1.71842e+03	5.26e-02	8.65e+01	-2.03941e+03	5.13e-02	2.50e+01	-1.32827e+03
5.41e-02	7.25e+01	-1.86175e+03	5.26e-02	1.10e+01	-7.59714e+02	5.26e-02	4.90e+01	-1.72478e+03	5.26e-02	8.70e+01	-2.04218e+03	5.13e-02	2.55e+01	-1.34247e+03
5.41e-02	7.30e+01	-1.86513e+03	5.26e-02	1.15e+01	-7.84524e+02	5.26e-02	4.95e+01	-1.73107e+03	5.26e-02	8.75e+01	-2.04491e+03	5.13e-02	2.60e+01	-1.35640e+03
5.41e-02	7.35e+01	-1.86848e+03	5.26e-02	1.20e+01	-8.08726e+02	5.26e-02	5.00e+01	-1.73726e+03	5.26e-02	8.80e+01	-2.04763e+03	5.13e-02	2.65e+01	-1.37008e+03
5.41e-02	7.40e+01	-1.87180e+03	5.26e-02	1.25e+01	-8.32342e+02	5.26e-02	5.05e+01	-1.74338e+03	5.26e-02	8.85e+01	-2.05032e+03	5.13e-02	2.70e+01	-1.38350e+03
5.41e-02	7.45e+01	-1.87508e+03	5.26e-02	1.30e+01	-8.55392e+02	5.26e-02	5.10e+01	-1.74942e+03	5.26e-02	8.90e+01	-2.05298e+03	5.13e-02	2.75e+01	-1.39669e+03
5.41e-02	7.50e+01	-1.87832e+03	5.26e-02	1.35e+01	-8.77895e+02	5.26e-02	5.15e+01	-1.75537e+03	5.26e-02	8.95e+01	-2.05563e+03	5.13e-02	2.80e+01	-1.40964e+03
5.41e-02	7.55e+01	-1.88154e+03	5.26e-02	1.40e+01	-8.99868e+02	5.26e-02	5.20e+01	-1.76125e+03	5.26e-02	9.00e+01	-2.05824e+03	5.13e-02	2.85e+01	-1.42236e+03
5.41e-02	7.60e+01	-1.88472e+03	5.26e-02	1.45e+01	-9.21331e+02	5.26e-02	5.25e+01	-1.76706e+03	5.26e-02	9.05e+01	-2.06084e+03	5.13e-02	2.90e+01	-1.43485e+03
5.41e-02	7.65e+01	-1.88787e+03	5.26e-02	1.50e+01	-9.42299e+02	5.26e-02	5.30e+01	-1.77279e+03	5.26e-02	9.10e+01	-2.06341e+03	5.13e-02	2.95e+01	-1.44713e+03
5.41e-02	7.70e+01	-1.89099e+03	5.26e-02	1.55e+01	-9.62789e+02	5.26e-02	5.35e+01	-1.77845e+03	5.26e-02	9.15e+01	-2.06596e+03	5.13e-02	3.00e+01	-1.45919e+03
5.41e-02	7.75e+01	-1.89408e+03	5.26e-02	1.60e+01	-9.82816e+02	5.26e-02	5.40e+01	-1.78403e+03	5.26e-02	9.20e+01	-2.06849e+03	5.13e-02	3.05e+01	-1.47104e+03
5.41e-02	7.80e+01	-1.89713e+03	5.26e-02	1.65e+01	-1.00240e+03	5.26e-02	5.45e+01	-1.78955e+03	5.26e-02	9.25e+01	-2.07100e+03	5.13e-02	3.10e+01	-1.48269e+03
5.41e-02	7.85e+01	-1.90016e+03	5.26e-02	1.70e+01	-1.02154e+03	5.26e-02	5.50e+01	-1.79500e+03	5.26e-02	9.30e+01	-2.07349e+03	5.13e-02	3.15e+01	-1.49415e+03
5.41e-02	7.90e+01	-1.90316e+03	5.26e-02	1.75e+01	-1.04027e+03	5.26e-02	5.55e+01	-1.80038e+03	5.26e-02	9.35e+01	-2.07595e+03	5.13e-02	3.20e+01	-1.50541e+03
5.41e-02	7.95e+01	-1.90613e+03	5.26e-02	1.80e+01	-1.05859e+03	5.26e-02	5.60e+01	-1.80569e+03	5.26e-02	9.40e+01	-2.07839e+03	5.13e-02	3.25e+01	-1.51648e+03
5.41e-02	8.00e+01	-1.90906e+03	5.26e-02	1.85e+01	-1.07651e+03	5.26e-02	5.65e+01	-1.81094e+03	5.26e-02	9.45e+01	-2.08082e+03	5.13e-02	3.30e+01	-1.52737e+03
5.41e-02	8.05e+01	-1.91198e+03	5.26e-02	1.90e+01	-1.09405e+03	5.26e-02	5.70e+01	-1.81612e+03	5.26e-02	9.50e+01	-2.08322e+03	5.13e-02	3.35e+01	-1.53808e+03
5.41e-02	8.10e+01	-1.91486e+03	5.26e-02	1.95e+01	-1.11122e+03	5.26e-02	5.75e+01	-1.82125e+03	5.26e-02	9.55e+01	-2.08560e+03	5.13e-02	3.40e+01	-1.54862e+03
5.41e-02	8.15e+01	-1.91771e+03	5.26e-02	2.00e+01	-1.12804e+03	5.26e-02	5.80e+01	-1.82631e+03	5.26e-02	9.60e+01	-2.08796e+03	5.13e-02	3.45e+01	-1.55898e+03
5.41e-02	8.20e+01	-1.92054e+03	5.26e-02	2.05e+01	-1.14450e+03	5.26e-02	5.85e+01	-1.83131e+03	5.26e-02	9.65e+01	-2.09030e+03	5.13e-02	3.50e+01	-1.56918e+03
5.41e-02	8.25e+01	-1.92334e+03	5.26e-02	2.10e+01	-1.16063e+03	5.26e-02	5.90e+01	-1.83624e+03	5.26e-02	9.70e+01	-2.09263e+03	5.13e-02	3.55e+01	-1.57922e+03
5.41e-02	8.30e+01	-1.92612e+03	5.26e-02	2.15e+01	-1.17642e+03	5.26e-02	5.95e+01	-1.84113e+03	5.26e-02	9.75e+01	-2.09493e+03	5.13e-02	3.60e+01	-1.58

S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ
5.13e-02	4.60e+01	-1.75815e+03	5.13e-02	8.40e+01	-2.12044e+03	5.00e-02	2.25e+01	-1.29938e+03	5.00e-02	6.05e+01	-2.01875e+03	5.00e-02	9.85e+01	-2.30221e+03
5.13e-02	4.65e+01	-1.76539e+03	5.13e-02	8.45e+01	-2.12354e+03	5.00e-02	2.30e+01	-1.31577e+03	5.00e-02	6.10e+01	-2.02409e+03	5.00e-02	9.90e+01	-2.30749e+03
5.13e-02	4.70e+01	-1.77253e+03	5.13e-02	8.50e+01	-2.12660e+03	5.00e-02	2.35e+01	-1.33186e+03	5.00e-02	6.15e+01	-2.02937e+03	5.00e-02	9.95e+01	-2.30734e+03
5.13e-02	4.75e+01	-1.77957e+03	5.13e-02	8.55e+01	-2.12964e+03	5.00e-02	2.40e+01	-1.34764e+03	5.00e-02	6.20e+01	-2.03459e+03	5.00e-02	1.00e+02	-2.30987e+03
5.13e-02	4.80e+01	-1.78652e+03	5.13e-02	8.60e+01	-2.13265e+03	5.00e-02	2.45e+01	-1.36312e+03	5.00e-02	6.25e+01	-2.03975e+03	4.88e-02	1.00e+00	-1.00571e+02
5.13e-02	4.85e+01	-1.79337e+03	5.13e-02	8.65e+01	-2.13564e+03	5.00e-02	2.50e+01	-1.37832e+03	5.00e-02	6.30e+01	-2.04485e+03	4.88e-02	1.50e+00	-1.47565e+02
5.13e-02	4.90e+01	-1.80014e+03	5.13e-02	8.70e+01	-2.13859e+03	5.00e-02	2.55e+01	-1.39324e+03	5.00e-02	6.35e+01	-2.04990e+03	4.88e-02	2.00e+00	-1.93229e+02
5.13e-02	4.95e+01	-1.80681e+03	5.13e-02	8.75e+01	-2.14152e+03	5.00e-02	2.60e+01	-1.40788e+03	5.00e-02	6.40e+01	-2.05489e+03	4.88e-02	2.50e+00	-2.37613e+02
5.13e-02	5.00e+01	-1.81340e+03	5.13e-02	8.80e+01	-2.14443e+03	5.00e-02	2.65e+01	-1.42226e+03	5.00e-02	6.45e+01	-2.05982e+03	4.88e-02	3.00e+00	-2.80766e+02
5.13e-02	5.05e+01	-1.81990e+03	5.13e-02	8.85e+01	-2.14731e+03	5.00e-02	2.70e+01	-1.43639e+03	5.00e-02	6.50e+01	-2.06470e+03	4.88e-02	3.50e+00	-3.22736e+02
5.13e-02	5.10e+01	-1.82632e+03	5.13e-02	8.90e+01	-2.15016e+03	5.00e-02	2.75e+01	-1.45026e+03	5.00e-02	6.55e+01	-2.06953e+03	4.88e-02	4.00e+00	-3.63566e+02
5.13e-02	5.15e+01	-1.83266e+03	5.13e-02	8.95e+01	-2.15299e+03	5.00e-02	2.80e+01	-1.46388e+03	5.00e-02	6.60e+01	-2.07430e+03	4.88e-02	4.50e+00	-4.03300e+02
5.13e-02	5.20e+01	-1.83891e+03	5.13e-02	9.00e+01	-2.15579e+03	5.00e-02	2.85e+01	-1.47727e+03	5.00e-02	6.65e+01	-2.07903e+03	4.88e-02	5.00e+00	-4.41977e+02
5.13e-02	5.25e+01	-1.84508e+03	5.13e-02	9.05e+01	-2.15857e+03	5.00e-02	2.90e+01	-1.49042e+03	5.00e-02	6.70e+01	-2.08370e+03	4.88e-02	5.50e+00	-4.79637e+02
5.13e-02	5.30e+01	-1.85118e+03	5.13e-02	9.10e+01	-2.16133e+03	5.00e-02	2.95e+01	-1.50335e+03	5.00e-02	6.75e+01	-2.08832e+03	4.88e-02	6.00e+00	-5.16316e+02
5.13e-02	5.35e+01	-1.85720e+03	5.13e-02	9.15e+01	-2.16406e+03	5.00e-02	3.00e+01	-1.51605e+03	5.00e-02	6.80e+01	-2.09290e+03	4.88e-02	6.50e+00	-5.52050e+02
5.13e-02	5.40e+01	-1.86314e+03	5.13e-02	9.20e+01	-2.16677e+03	5.00e-02	3.05e+01	-1.52854e+03	5.00e-02	6.85e+01	-2.09742e+03	4.88e-02	7.00e+00	-5.86872e+02
5.13e-02	5.45e+01	-1.86901e+03	5.13e-02	9.25e+01	-2.16945e+03	5.00e-02	3.10e+01	-1.54082e+03	5.00e-02	6.90e+01	-2.10190e+03	4.88e-02	7.50e+00	-6.20815e+02
5.13e-02	5.50e+01	-1.87481e+03	5.13e-02	9.30e+01	-2.17211e+03	5.00e-02	3.15e+01	-1.55289e+03	5.00e-02	6.95e+01	-2.10633e+03	4.88e-02	8.00e+00	-6.53910e+02
5.13e-02	5.55e+01	-1.88053e+03	5.13e-02	9.35e+01	-2.17475e+03	5.00e-02	3.20e+01	-1.56476e+03	5.00e-02	7.00e+01	-2.11071e+03	4.88e-02	8.50e+00	-6.86186e+02
5.13e-02	5.60e+01	-1.88619e+03	5.13e-02	9.40e+01	-2.17737e+03	5.00e-02	3.25e+01	-1.57644e+03	5.00e-02	7.05e+01	-2.11505e+03	4.88e-02	9.00e+00	-7.17671e+02
5.13e-02	5.65e+01	-1.89178e+03	5.13e-02	9.45e+01	-2.17996e+03	5.00e-02	3.30e+01	-1.58792e+03	5.00e-02	7.10e+01	-2.11935e+03	4.88e-02	9.50e+00	-7.48393e+02
5.13e-02	5.70e+01	-1.89730e+03	5.13e-02	9.50e+01	-2.18253e+03	5.00e-02	3.35e+01	-1.59922e+03	5.00e-02	7.15e+01	-2.12360e+03	4.88e-02	1.00e+01	-7.78377e+02
5.13e-02	5.75e+01	-1.90275e+03	5.13e-02	9.55e+01	-2.18509e+03	5.00e-02	3.40e+01	-1.61034e+03	5.00e-02	7.20e+01	-2.12780e+03	4.88e-02	1.05e+01	-8.07649e+02
5.13e-02	5.80e+01	-1.90814e+03	5.13e-02	9.60e+01	-2.18762e+03	5.00e-02	3.45e+01	-1.62128e+03	5.00e-02	7.25e+01	-2.13197e+03	4.88e-02	1.10e+01	-8.36231e+02
5.13e-02	5.85e+01	-1.91346e+03	5.13e-02	9.65e+01	-2.19013e+03	5.00e-02	3.50e+01	-1.63204e+03	5.00e-02	7.30e+01	-2.13609e+03	4.88e-02	1.15e+01	-8.64146e+02
5.13e-02	5.90e+01	-1.91873e+03	5.13e-02	9.70e+01	-2.19261e+03	5.00e-02	3.55e+01	-1.64264e+03	5.00e-02	7.35e+01	-2.14017e+03	4.88e-02	1.20e+01	-8.91418e+02
5.13e-02	5.95e+01	-1.92393e+03	5.13e-02	9.75e+01	-2.19508e+03	5.00e-02	3.60e+01	-1.65307e+03	5.00e-02	7.40e+01	-2.14421e+03	4.88e-02	1.25e+01	-9.18066e+02
5.13e-02	6.00e+01	-1.92906e+03	5.13e-02	9.80e+01	-2.19753e+03	5.00e-02	3.65e+01	-1.66337e+03	5.00e-02	7.45e+01	-2.14821e+03	4.88e-02	1.30e+01	-9.44110e+02
5.13e-02	6.05e+01	-1.93414e+03	5.13e-02	9.85e+01	-2.19996e+03	5.00e-02	3.70e+01	-1.67344e+03	5.00e-02	7.50e+01	-2.15217e+03	4.88e-02	1.35e+01	-9.69571e+02
5.13e-02	6.10e+01	-1.93916e+03	5.13e-02	9.90e+01	-2.20237e+03	5.00e-02	3.75e+01	-1.68340e+03	5.00e-02	7.55e+01	-2.15609e+03	4.88e-02	1.40e+01	-9.94465e+02
5.13e-02	6.15e+01	-1.94413e+03	5.13e-02	9.95e+01	-2.20475e+03	5.00e-02	3.80e+01	-1.69320e+03	5.00e-02	7.60e+01	-2.15997e+03	4.88e-02	1.45e+01	-1.01881e+03
5.13e-02	6.20e+01	-1.94903e+03	5.13e-02	1.00e+02	-2.20712e+03	5.00e-02	3.85e+01	-1.70285e+03	5.00e-02	7.65e+01	-2.16381e+03	4.88e-02	1.50e+01	-1.04263e+03
5.13e-02	6.25e+01	-1.95388e+03	5.00e-02	1.00e+00	-9.81036e+01	5.00e-02	3.90e+01	-1.71236e+03	5.00e-02	7.70e+01	-2.16762e+03	4.88e-02	1.55e+01	-1.06593e+03
5.13e-02	6.30e+01	-1.95868e+03	5.00e-02	1.50e+00	-1.43867e+02	5.00e-02	3.95e+01	-1.72173e+03	5.00e-02	7.75e+01	-2.17139e+03	4.88e-02	1.60e+01	-1.08873e+03
5.13e-02	6.35e+01	-1.96342e+03	5.00e-02	2.00e+00	-1.88304e+02	5.00e-02	4.00e+01	-1.73096e+03	5.00e-02	7.80e+01	-2.17512e+03	4.88e-02	1.65e+01	-1.11105e+03
5.13e-02	6.40e+01	-1.96811e+03	5.00e-02	2.50e+00	-2.31465e+02	5.00e-02	4.05e+01	-1.74006e+03	5.00e-02	7.85e+01	-2.17882e+03	4.88e-02	1.70e+01	-1.13290e+03
5.13e-02	6.45e+01	-1.97275e+03	5.00e-02	3.00e+00	-2.73402e+02	5.00e-02	4.10e+01	-1.74902e+03	5.00e-02	7.90e+01	-2.18248e+03	4.88e-02	1.75e+01	-1.15430e+03
5.13e-02	6.50e+01	-1.97733e+03	5.00e-02	3.50e+00	-3.14162e+02	5.00e-02	4.15e+01	-1.75785e+03	5.00e-02	7.95e+01	-2.18611e+03	4.88e-02	1.80e+01	-1.17525e+03
5.13e-02	6.55e+01	-1.98187e+03	5.00e-02	4.00e+00	-3.53790e+02	5.00e-02	4.20e+01	-1.76655e+03	5.00e-02	8.00e+01	-2.18970e+03	4.88e-02	1.85e+01	-1.19578e+03
5.13e-02	6.60e+01	-1.98635e+03	5.00e-02	4.50e+00	-3.92329e+02	5.00e-02	4.25e+01	-1.77513e+03	5.00e-02	8.05e+01	-2.19326e+03	4.88e-02	1.90e+01	-1.21588e+03
5.13e-02	6.65e+01	-1.99079e+03	5.00e-02	5.00e+00	-4.29820e+02	5.00e-02	4.30e+01	-1.78359e+03	5.00e-02	8.10e+01	-2.19678e+03	4.88e-02	1.95e+01	-1.23559e+03
5.13e-02	6.70e+01	-1.99518e+03	5.00e-02	5.50e+00	-4.66303e+02	5.00e-02	4.35e+01	-1.79193e+03	5.00e-02	8.15e+01	-2.20027e+03	4.88e-02	2.00e+01	-1.25490e+03
5.13e-02	6.75e+01	-1.99952e+03	5.00e-02	6.00e+00	-5.01815e+02	5.00e-02	4.40e+01	-1.80015e+03	5.00e-02	8.20e+01	-2.20373e+03	4.88e-02	2.05e+01	-1.27383e+03
5.13e-02	6.80e+01	-2.00381e+03	5.00e-02	6.50e+00	-5.36391e+02	5.00e-02	4.45e+01	-1.80826e+03	5.00e-02	8.25e+01	-2.20716e+03	4.88e-02	2.10e+01	-1.29239e+03
5.13e-02	6.85e+01	-2.00806e+03	5.00e-02	7.00e+00	-5.70067e+02	5.00e-02	4.50e+01	-1.81625e+03	5.00e-02	8.30e+01	-2.21056e+03	4.88e-02	2.15e+01	-1.31059e+03
5.13e-02	6.90e+01	-2.01227e+03	5.00e-02	7.50e+00	-6.02875e+02	5.00e-02	4.55e+01	-1.82414e+03	5.00e-02	8.35e+01	-2.21392e+03	4.88e-02	2.20e+01	-1.32845e+03
5.13e-02	6.95e+01	-2.01643e+03	5.00e-02	8.00e+00	-6.34845e+02	5.00e-02	4.60e+01	-1.83191e+03	5.00e-02	8.40e+01	-2.21725e+03	4.88e-02	2.25e+01	-1.34595e+03
5.13e-02	7.00e+01	-2.02054e+03	5.00e-02	8.50e+00	-6.66007e+02	5.00e-02	4.65e+01	-1.83958e+03	5.00e-02	8.45e+01	-2.22056e+03	4.88e-02	2.30e+01	-1.36313e+03
5.13e-02	7.05e+01	-2.02461e+03	5.00e-02	9.00e+00	-6.96391e+02	5.00e-02	4.70e+01	-1.84715e+03	5.00e-02	8.50e+01	-2.22383e+03	4.88e-02	2.35e+01	-1.37999e+03
5.13e-02	7.10e+01	-2.02864e+03	5.00e-02	9.50e+00	-7.26023e+02	5.00e-02	4.75e+01	-1.85462e+03	5.00e-02	8.55e+01	-2.22708e+03	4.88e-02	2.40e+01	-1.39653e+03
5.13e-02	7.15e+01	-2.03263e+03	5.00e-02	1.00e+01	-7.54929e+02	5.00e-02	4.80e+01	-1.86199e+03	5.00e-02	8.60e+01	-2.23029e+03	4.88e-02	2.45e+01	-1.41277e+03
5.13e-02	7.20e+01	-2.03658e+03	5.00e-02	1.05e+01	-7.83134e+02	5.00e-02	4.85e+01	-1.86926e+03	5.00e-02	8.65e+01	-2.23348e+03	4.88e-02	2.50e+01	-1.42871e+03
5.13e-02	7.25e+01	-2.04049e+03	5.00e-02	1.10e+01	-8.10661e+02	5.00e-02	4.90e+01	-1.87643e+03	5.00e-02	8.70e+01	-2.23663e+03	4.88e-02	2.55e+01	-1.44436e+03
5.13e-02	7.30e+01	-2.04435e+03	5.00e-02	1.15e+01	-8.37535e+02	5.00e-02	4.95e+01	-1.88351e+03	5.00e-02	8.75e+01	-2.23976e+03	4.88e-02	2.60e+01	-1.45973e+03
5.13e-02	7.35e+01	-2.04818e+03	5.00e-02	1.20e+01	-8.63776e+02	5.00e-02	5.00e+01	-1.89050e+03	5.00e-02	8.80e+01	-2.24287e+03	4.88e-02	2.65e+01	-1.47483e+03
5.13e-02	7.40e+01	-2.05197e+03	5.00e-02	1.25e+01	-8.89406e+02	5.00e-02	5.05e+01	-1.89740e+03	5.00e-02	8.85e+01	-2.24594e+03	4.88e-02	2.70e+01	-1.48966e

S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ
4.88e-02	3.70e+01	-1.73914e+03	4.88e-02	7.50e+01	-2.24630e+03	4.76e-02	1.35e+01	-1.00033e+03	4.76e-02	5.15e+01	-2.07033e+03	4.76e-02	8.95e+01	-2.45490e+03
4.88e-02	3.75e+01	-1.74964e+03	4.88e-02	7.55e+01	-2.25048e+03	4.76e-02	1.40e+01	-1.02621e+03	4.76e-02	5.20e+01	-2.07777e+03	4.76e-02	9.00e+01	-2.45830e+03
4.88e-02	3.80e+01	-1.75998e+03	4.88e-02	7.60e+01	-2.25461e+03	4.76e-02	1.45e+01	-1.05153e+03	4.76e-02	5.25e+01	-2.08512e+03	4.76e-02	9.05e+01	-2.46167e+03
4.88e-02	3.85e+01	-1.77016e+03	4.88e-02	7.65e+01	-2.25870e+03	4.76e-02	1.50e+01	-1.07632e+03	4.76e-02	5.30e+01	-2.09237e+03	4.76e-02	9.10e+01	-2.46501e+03
4.88e-02	3.90e+01	-1.78020e+03	4.88e-02	7.70e+01	-2.26275e+03	4.76e-02	1.55e+01	-1.10057e+03	4.76e-02	5.35e+01	-2.09954e+03	4.76e-02	9.15e+01	-2.46833e+03
4.88e-02	3.95e+01	-1.79009e+03	4.88e-02	7.75e+01	-2.26676e+03	4.76e-02	1.60e+01	-1.12432e+03	4.76e-02	5.40e+01	-2.10662e+03	4.76e-02	9.20e+01	-2.47161e+03
4.88e-02	4.00e+01	-1.79983e+03	4.88e-02	7.80e+01	-2.27074e+03	4.76e-02	1.65e+01	-1.14757e+03	4.76e-02	5.45e+01	-2.11361e+03	4.76e-02	9.25e+01	-2.47487e+03
4.88e-02	4.05e+01	-1.80944e+03	4.88e-02	7.85e+01	-2.27467e+03	4.76e-02	1.70e+01	-1.17034e+03	4.76e-02	5.50e+01	-2.12052e+03	4.76e-02	9.30e+01	-2.47810e+03
4.88e-02	4.10e+01	-1.81890e+03	4.88e-02	7.90e+01	-2.27857e+03	4.76e-02	1.75e+01	-1.19265e+03	4.76e-02	5.55e+01	-2.12735e+03	4.76e-02	9.35e+01	-2.48130e+03
4.88e-02	4.15e+01	-1.82823e+03	4.88e-02	7.95e+01	-2.28243e+03	4.76e-02	1.80e+01	-1.21450e+03	4.76e-02	5.60e+01	-2.13409e+03	4.76e-02	9.40e+01	-2.48448e+03
4.88e-02	4.20e+01	-1.83742e+03	4.88e-02	8.00e+01	-2.28626e+03	4.76e-02	1.85e+01	-1.23591e+03	4.76e-02	5.65e+01	-2.14076e+03	4.76e-02	9.45e+01	-2.48763e+03
4.88e-02	4.25e+01	-1.84649e+03	4.88e-02	8.05e+01	-2.29005e+03	4.76e-02	1.90e+01	-1.25690e+03	4.76e-02	5.70e+01	-2.14734e+03	4.76e-02	9.50e+01	-2.49075e+03
4.88e-02	4.30e+01	-1.85543e+03	4.88e-02	8.10e+01	-2.29380e+03	4.76e-02	1.95e+01	-1.27747e+03	4.76e-02	5.75e+01	-2.15385e+03	4.76e-02	9.55e+01	-2.49385e+03
4.88e-02	4.35e+01	-1.86424e+03	4.88e-02	8.15e+01	-2.29752e+03	4.76e-02	2.00e+01	-1.29763e+03	4.76e-02	5.80e+01	-2.16029e+03	4.76e-02	9.60e+01	-2.49692e+03
4.88e-02	4.40e+01	-1.87293e+03	4.88e-02	8.20e+01	-2.30121e+03	4.76e-02	2.05e+01	-1.31741e+03	4.76e-02	5.85e+01	-2.16665e+03	4.76e-02	9.65e+01	-2.49997e+03
4.88e-02	4.45e+01	-1.88150e+03	4.88e-02	8.25e+01	-2.30486e+03	4.76e-02	2.10e+01	-1.33685e+03	4.76e-02	5.90e+01	-2.17294e+03	4.76e-02	9.70e+01	-2.50300e+03
4.88e-02	4.50e+01	-1.88995e+03	4.88e-02	8.30e+01	-2.30848e+03	4.76e-02	2.15e+01	-1.35583e+03	4.76e-02	5.95e+01	-2.17915e+03	4.76e-02	9.75e+01	-2.50600e+03
4.88e-02	4.55e+01	-1.89829e+03	4.88e-02	8.35e+01	-2.31206e+03	4.76e-02	2.20e+01	-1.37449e+03	4.76e-02	6.00e+01	-2.18530e+03	4.76e-02	9.80e+01	-2.50897e+03
4.88e-02	4.60e+01	-1.90652e+03	4.88e-02	8.40e+01	-2.31561e+03	4.76e-02	2.25e+01	-1.39280e+03	4.76e-02	6.05e+01	-2.19137e+03	4.76e-02	9.85e+01	-2.51192e+03
4.88e-02	4.65e+01	-1.91464e+03	4.88e-02	8.45e+01	-2.31913e+03	4.76e-02	2.30e+01	-1.41077e+03	4.76e-02	6.10e+01	-2.19738e+03	4.76e-02	9.90e+01	-2.51485e+03
4.88e-02	4.70e+01	-1.92264e+03	4.88e-02	8.50e+01	-2.32262e+03	4.76e-02	2.35e+01	-1.42841e+03	4.76e-02	6.15e+01	-2.20332e+03	4.76e-02	9.95e+01	-2.51775e+03
4.88e-02	4.75e+01	-1.93054e+03	4.88e-02	8.55e+01	-2.32608e+03	4.76e-02	2.40e+01	-1.44573e+03	4.76e-02	6.20e+01	-2.20919e+03	4.76e-02	1.00e+02	-2.52064e+03
4.88e-02	4.80e+01	-1.93834e+03	4.88e-02	8.60e+01	-2.32951e+03	4.76e-02	2.45e+01	-1.46273e+03	4.76e-02	6.25e+01	-2.21500e+03	4.65e-02	1.00e+00	-1.05505e+02
4.88e-02	4.85e+01	-1.94604e+03	4.88e-02	8.65e+01	-2.33290e+03	4.76e-02	2.50e+01	-1.47943e+03	4.76e-02	6.30e+01	-2.22075e+03	4.65e-02	1.00e+00	-1.54961e+02
4.88e-02	4.90e+01	-1.95363e+03	4.88e-02	8.70e+01	-2.33627e+03	4.76e-02	2.55e+01	-1.49582e+03	4.76e-02	6.35e+01	-2.22643e+03	4.65e-02	1.50e+00	-2.49075e+02
4.88e-02	4.95e+01	-1.96113e+03	4.88e-02	8.75e+01	-2.33960e+03	4.76e-02	2.60e+01	-1.51193e+03	4.76e-02	6.40e+01	-2.23205e+03	4.65e-02	2.50e+00	-2.49910e+02
4.88e-02	5.00e+01	-1.96853e+03	4.88e-02	8.80e+01	-2.34291e+03	4.76e-02	2.65e+01	-1.52775e+03	4.76e-02	6.45e+01	-2.23761e+03	4.65e-02	3.00e+00	-2.95499e+02
4.88e-02	5.05e+01	-1.97583e+03	4.88e-02	8.85e+01	-2.34619e+03	4.76e-02	2.70e+01	-1.54329e+03	4.76e-02	6.50e+01	-2.24311e+03	4.65e-02	3.00e+00	-3.39892e+02
4.88e-02	5.10e+01	-1.98304e+03	4.88e-02	8.90e+01	-2.34944e+03	4.76e-02	2.75e+01	-1.55877e+03	4.76e-02	6.55e+01	-2.24855e+03	4.65e-02	4.50e+00	-8.83131e+02
4.88e-02	5.15e+01	-1.99017e+03	4.88e-02	8.95e+01	-2.35266e+03	4.76e-02	2.80e+01	-1.57358e+03	4.76e-02	6.60e+01	-2.25393e+03	4.65e-02	4.50e+00	-4.25259e+02
4.88e-02	5.20e+01	-1.99720e+03	4.88e-02	9.00e+01	-2.35585e+03	4.76e-02	2.85e+01	-1.58834e+03	4.76e-02	6.65e+01	-2.25925e+03	4.65e-02	5.00e+00	-4.66314e+02
4.88e-02	5.25e+01	-2.00414e+03	4.88e-02	9.05e+01	-2.35902e+03	4.76e-02	2.90e+01	-1.60285e+03	4.76e-02	6.70e+01	-2.26452e+03	4.65e-02	5.50e+00	-5.06334e+02
4.88e-02	5.30e+01	-2.01100e+03	4.88e-02	9.10e+01	-2.36216e+03	4.76e-02	2.95e+01	-1.61711e+03	4.76e-02	6.75e+01	-2.26973e+03	4.65e-02	6.00e+00	-5.45356e+02
4.88e-02	5.35e+01	-2.01777e+03	4.88e-02	9.15e+01	-2.36527e+03	4.76e-02	3.00e+01	-1.63114e+03	4.76e-02	6.80e+01	-2.27489e+03	4.65e-02	6.50e+00	-5.83412e+02
4.88e-02	5.40e+01	-2.02446e+03	4.88e-02	9.20e+01	-2.36836e+03	4.76e-02	3.05e+01	-1.64493e+03	4.76e-02	6.85e+01	-2.28000e+03	4.65e-02	7.00e+00	-6.20538e+02
4.88e-02	5.45e+01	-2.03107e+03	4.88e-02	9.25e+01	-2.37141e+03	4.76e-02	3.10e+01	-1.65850e+03	4.76e-02	6.90e+01	-2.28505e+03	4.65e-02	7.50e+00	-6.56763e+02
4.88e-02	5.50e+01	-2.03760e+03	4.88e-02	9.30e+01	-2.37445e+03	4.76e-02	3.15e+01	-1.67184e+03	4.76e-02	6.95e+01	-2.29005e+03	4.65e-02	8.00e+00	-6.92119e+02
4.88e-02	5.55e+01	-2.04405e+03	4.88e-02	9.35e+01	-2.37746e+03	4.76e-02	3.20e+01	-1.68497e+03	4.76e-02	7.00e+01	-2.29500e+03	4.65e-02	8.50e+00	-7.26635e+02
4.88e-02	5.60e+01	-2.05042e+03	4.88e-02	9.40e+01	-2.38044e+03	4.76e-02	3.25e+01	-1.69789e+03	4.76e-02	7.05e+01	-2.29989e+03	4.65e-02	9.00e+00	-7.60338e+02
4.88e-02	5.65e+01	-2.05672e+03	4.88e-02	9.45e+01	-2.38340e+03	4.76e-02	3.30e+01	-1.71061e+03	4.76e-02	7.10e+01	-2.30474e+03	4.65e-02	9.50e+00	-7.93256e+02
4.88e-02	5.70e+01	-2.06294e+03	4.88e-02	9.50e+01	-2.38632e+03	4.76e-02	3.35e+01	-1.72312e+03	4.76e-02	7.15e+01	-2.30954e+03	4.65e-02	1.00e+01	-8.25413e+02
4.88e-02	5.75e+01	-2.06909e+03	4.88e-02	9.55e+01	-2.38924e+03	4.76e-02	3.40e+01	-1.73543e+03	4.76e-02	7.20e+01	-2.31429e+03	4.65e-02	1.05e+01	-8.56834e+02
4.88e-02	5.80e+01	-2.07516e+03	4.88e-02	9.60e+01	-2.39213e+03	4.76e-02	3.45e+01	-1.74756e+03	4.76e-02	7.25e+01	-2.31899e+03	4.65e-02	1.10e+01	-8.87543e+02
4.88e-02	5.85e+01	-2.08117e+03	4.88e-02	9.65e+01	-2.39499e+03	4.76e-02	3.50e+01	-1.75949e+03	4.76e-02	7.30e+01	-2.32365e+03	4.65e-02	1.15e+01	-9.17563e+02
4.88e-02	5.90e+01	-2.08710e+03	4.88e-02	9.70e+01	-2.39783e+03	4.76e-02	3.55e+01	-1.77124e+03	4.76e-02	7.35e+01	-2.32826e+03	4.65e-02	1.20e+01	-9.46915e+02
4.88e-02	5.95e+01	-2.09297e+03	4.88e-02	9.75e+01	-2.40065e+03	4.76e-02	3.60e+01	-1.78381e+03	4.76e-02	7.40e+01	-2.33282e+03	4.65e-02	1.25e+01	-9.75620e+02
4.88e-02	6.00e+01	-2.09877e+03	4.88e-02	9.80e+01	-2.40344e+03	4.76e-02	3.65e+01	-1.79421e+03	4.76e-02	7.45e+01	-2.33734e+03	4.65e-02	1.30e+01	-1.00370e+03
4.88e-02	6.05e+01	-2.10450e+03	4.88e-02	9.85e+01	-2.40621e+03	4.76e-02	3.70e+01	-1.80544e+03	4.76e-02	7.50e+01	-2.34182e+03	4.65e-02	1.35e+01	-1.03117e+03
4.88e-02	6.10e+01	-2.11017e+03	4.88e-02	9.90e+01	-2.40896e+03	4.76e-02	3.75e+01	-1.81649e+03	4.76e-02	7.55e+01	-2.34625e+03	4.65e-02	1.40e+01	-1.05805e+03
4.88e-02	6.15e+01	-2.11578e+03	4.88e-02	9.95e+01	-2.41168e+03	4.76e-02	3.80e+01	-1.82739e+03	4.76e-02	7.60e+01	-2.35064e+03	4.65e-02	1.45e+01	-1.08436e+03
4.88e-02	6.20e+01	-2.12132e+03	4.88e-02	1.00e+02	-2.41439e+03	4.76e-02	3.85e+01	-1.83812e+03	4.76e-02	7.65e+01	-2.35499e+03	4.65e-02	1.50e+01	-1.11012e+03
4.88e-02	6.25e+01	-2.12680e+03	4.76e-02	1.00e+00	-1.03038e+02	4.76e-02	3.90e+01	-1.84869e+03	4.76e-02	7.70e+01	-2.35929e+03	4.65e-02	1.55e+01	-1.13534e+03
4.88e-02	6.30e+01	-2.13222e+03	4.76e-02	1.50e+00	-1.51263e+02	4.76e-02	3.95e+01	-1.85911e+03	4.76e-02	7.75e+01	-2.36356e+03	4.65e-02	1.60e+01	-1.16004e+03
4.88e-02	6.35e+01	-2.13757e+03	4.76e-02	2.00e+00	-1.98154e+02	4.76e-02	4.00e+01	-1.86938e+03	4.76e-02	7.80e+01	-2.36778e+03	4.65e-02	1.65e+01	-1.18423e+03
4.88e-02	6.40e+01	-2.14287e+03	4.76e-02	2.50e+00	-2.43761e+02	4.76e-02	4.05e+01	-1.87950e+03	4.76e-02	7.85e+01	-2.37196e+03	4.65e-02	1.70e+01	-1.20793e+03
4.88e-02	6.45e+01	-2.14812e+03	4.76e-02	3.00e+00	-2.88132e+02	4.76e-02	4.10e+01	-1.88948e+03	4.76e-02	7.90e+01	-2.37611e+03	4.65e-02	1.75e+01	-1.23115e+03
4.88e-02	6.50e+01	-2.15330e+03	4.76e-02	3.50e+00	-3.31313e+02	4.76e-02	4.15e+01	-1.89932e+03	4.76e-02	7.95e+01	-2.38021e+03	4.65e-02	1.80e+01	-1.25

S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ
4.65e-02	2.80e+01	-1.62901e+03	4.65e-02	6.60e+01	-2.34554e+03	4.55e-02	4.50e+00	-4.36247e+02	4.55e-02	4.25e+01	-2.06488e+03	4.55e-02	8.05e+01	-2.58909e+03
4.65e-02	2.85e+01	-1.64447e+03	4.65e-02	6.65e+01	-2.35118e+03	4.55e-02	5.00e+00	-4.78493e+02	4.55e-02	4.30e+01	-2.07532e+03	4.55e-02	8.10e+01	-2.59358e+03
4.65e-02	2.90e+01	-1.65967e+03	4.65e-02	6.70e+01	-2.35676e+03	4.55e-02	5.50e+00	-5.19697e+02	4.55e-02	4.35e+01	-2.08563e+03	4.55e-02	8.15e+01	-2.59803e+03
4.65e-02	2.95e+01	-1.67462e+03	4.65e-02	6.75e+01	-2.36228e+03	4.55e-02	6.00e+00	-5.59893e+02	4.55e-02	4.40e+01	-2.09580e+03	4.55e-02	8.20e+01	-2.60244e+03
4.65e-02	3.00e+01	-1.68933e+03	4.65e-02	6.80e+01	-2.36774e+03	4.55e-02	6.50e+00	-5.99115e+02	4.55e-02	4.45e+01	-2.10583e+03	4.55e-02	8.25e+01	-2.60681e+03
4.65e-02	3.05e+01	-1.70379e+03	4.65e-02	6.85e+01	-2.37315e+03	4.55e-02	7.00e+00	-6.37396e+02	4.55e-02	4.50e+01	-2.11573e+03	4.55e-02	8.30e+01	-2.61113e+03
4.65e-02	3.10e+01	-1.71802e+03	4.65e-02	6.90e+01	-2.37850e+03	4.55e-02	7.50e+00	-6.74768e+02	4.55e-02	4.55e+01	-2.12549e+03	4.55e-02	8.35e+01	-2.61542e+03
4.65e-02	3.15e+01	-1.73202e+03	4.65e-02	6.95e+01	-2.38380e+03	4.55e-02	8.00e+00	-7.11261e+02	4.55e-02	4.60e+01	-2.13513e+03	4.55e-02	8.40e+01	-2.61967e+03
4.65e-02	3.20e+01	-1.74580e+03	4.65e-02	7.00e+01	-2.38905e+03	4.55e-02	8.50e+00	-7.46902e+02	4.55e-02	4.65e+01	-2.14465e+03	4.55e-02	8.45e+01	-2.62389e+03
4.65e-02	3.25e+01	-1.75935e+03	4.65e-02	7.05e+01	-2.39424e+03	4.55e-02	9.00e+00	-7.81721e+02	4.55e-02	4.70e+01	-2.15404e+03	4.55e-02	8.50e+01	-2.62807e+03
4.65e-02	3.30e+01	-1.77270e+03	4.65e-02	7.10e+01	-2.39937e+03	4.55e-02	9.50e+00	-8.15743e+02	4.55e-02	4.75e+01	-2.16331e+03	4.55e-02	8.55e+01	-2.63221e+03
4.65e-02	3.35e+01	-1.78583e+03	4.65e-02	7.15e+01	-2.40446e+03	4.55e-02	1.00e+01	-8.48994e+02	4.55e-02	4.80e+01	-2.17246e+03	4.55e-02	8.60e+01	-2.63631e+03
4.65e-02	3.40e+01	-1.79877e+03	4.65e-02	7.20e+01	-2.40949e+03	4.55e-02	1.05e+01	-8.81499e+02	4.55e-02	4.85e+01	-2.18149e+03	4.55e-02	8.65e+01	-2.64038e+03
4.65e-02	3.45e+01	-1.81150e+03	4.65e-02	7.25e+01	-2.41448e+03	4.55e-02	1.10e+01	-9.13280e+02	4.55e-02	4.90e+01	-2.19041e+03	4.55e-02	8.70e+01	-2.64441e+03
4.65e-02	3.50e+01	-1.82404e+03	4.65e-02	7.30e+01	-2.41942e+03	4.55e-02	1.15e+01	-9.44361e+02	4.55e-02	4.95e+01	-2.19922e+03	4.55e-02	8.75e+01	-2.64841e+03
4.65e-02	3.55e+01	-1.83638e+03	4.65e-02	7.35e+01	-2.42430e+03	4.55e-02	1.20e+01	-9.74726e+02	4.55e-02	5.00e+01	-2.20792e+03	4.55e-02	8.80e+01	-2.65237e+03
4.65e-02	3.60e+01	-1.84854e+03	4.65e-02	7.40e+01	-2.42914e+03	4.55e-02	1.25e+01	-1.00451e+03	4.55e-02	5.05e+01	-2.21651e+03	4.55e-02	8.85e+01	-2.65630e+03
4.65e-02	3.65e+01	-1.86052e+03	4.65e-02	7.45e+01	-2.43394e+03	4.55e-02	1.30e+01	-1.03361e+03	4.55e-02	5.10e+01	-2.22500e+03	4.55e-02	8.90e+01	-2.66020e+03
4.65e-02	3.70e+01	-1.87232e+03	4.65e-02	7.50e+01	-2.43868e+03	4.55e-02	1.35e+01	-1.06210e+03	4.55e-02	5.15e+01	-2.23338e+03	4.55e-02	8.95e+01	-2.66406e+03
4.65e-02	3.75e+01	-1.88395e+03	4.65e-02	7.55e+01	-2.44338e+03	4.55e-02	1.40e+01	-1.08999e+03	4.55e-02	5.20e+01	-2.24166e+03	4.55e-02	9.00e+01	-2.66789e+03
4.65e-02	3.80e+01	-1.89540e+03	4.65e-02	7.60e+01	-2.44804e+03	4.55e-02	1.45e+01	-1.11729e+03	4.55e-02	5.25e+01	-2.24983e+03	4.55e-02	9.05e+01	-2.67169e+03
4.65e-02	3.85e+01	-1.90669e+03	4.65e-02	7.65e+01	-2.45265e+03	4.55e-02	1.50e+01	-1.14403e+03	4.55e-02	5.30e+01	-2.25791e+03	4.55e-02	9.10e+01	-2.67545e+03
4.65e-02	3.90e+01	-1.91782e+03	4.65e-02	7.70e+01	-2.45721e+03	4.55e-02	1.55e+01	-1.17022e+03	4.55e-02	5.35e+01	-2.26590e+03	4.55e-02	9.15e+01	-2.67919e+03
4.65e-02	3.95e+01	-1.92878e+03	4.65e-02	7.75e+01	-2.46174e+03	4.55e-02	1.60e+01	-1.19588e+03	4.55e-02	5.40e+01	-2.27378e+03	4.55e-02	9.20e+01	-2.68289e+03
4.65e-02	4.00e+01	-1.93959e+03	4.65e-02	7.80e+01	-2.46622e+03	4.55e-02	1.65e+01	-1.22102e+03	4.55e-02	5.45e+01	-2.28158e+03	4.55e-02	9.25e+01	-2.68656e+03
4.65e-02	4.05e+01	-1.95024e+03	4.65e-02	7.85e+01	-2.47065e+03	4.55e-02	1.70e+01	-1.24566e+03	4.55e-02	5.50e+01	-2.28928e+03	4.55e-02	9.30e+01	-2.69021e+03
4.65e-02	4.10e+01	-1.96074e+03	4.65e-02	7.90e+01	-2.47505e+03	4.55e-02	1.75e+01	-1.26981e+03	4.55e-02	5.55e+01	-2.29689e+03	4.55e-02	9.35e+01	-2.69382e+03
4.65e-02	4.15e+01	-1.97110e+03	4.65e-02	7.95e+01	-2.47941e+03	4.55e-02	1.80e+01	-1.29348e+03	4.55e-02	5.60e+01	-2.30441e+03	4.55e-02	9.40e+01	-2.69740e+03
4.65e-02	4.20e+01	-1.98131e+03	4.65e-02	8.00e+01	-2.48372e+03	4.55e-02	1.85e+01	-1.31670e+03	4.55e-02	5.65e+01	-2.31185e+03	4.55e-02	9.45e+01	-2.70096e+03
4.65e-02	4.25e+01	-1.99138e+03	4.65e-02	8.05e+01	-2.48800e+03	4.55e-02	1.90e+01	-1.33947e+03	4.55e-02	5.70e+01	-2.31919e+03	4.55e-02	9.50e+01	-2.70448e+03
4.65e-02	4.30e+01	-2.00132e+03	4.65e-02	8.10e+01	-2.49223e+03	4.55e-02	1.95e+01	-1.36180e+03	4.55e-02	5.75e+01	-2.32646e+03	4.55e-02	9.55e+01	-2.70798e+03
4.65e-02	4.35e+01	-2.01111e+03	4.65e-02	8.15e+01	-2.49643e+03	4.55e-02	2.00e+01	-1.38370e+03	4.55e-02	5.80e+01	-2.33364e+03	4.55e-02	9.60e+01	-2.71144e+03
4.65e-02	4.40e+01	-2.02078e+03	4.65e-02	8.20e+01	-2.50059e+03	4.55e-02	2.05e+01	-1.40519e+03	4.55e-02	5.85e+01	-2.34074e+03	4.55e-02	9.65e+01	-2.71488e+03
4.65e-02	4.45e+01	-2.03031e+03	4.65e-02	8.25e+01	-2.50471e+03	4.55e-02	2.10e+01	-1.42629e+03	4.55e-02	5.90e+01	-2.34776e+03	4.55e-02	9.70e+01	-2.71830e+03
4.65e-02	4.50e+01	-2.03972e+03	4.65e-02	8.30e+01	-2.50880e+03	4.55e-02	2.15e+01	-1.44699e+03	4.55e-02	5.95e+01	-2.35470e+03	4.55e-02	9.75e+01	-2.72168e+03
4.65e-02	4.55e+01	-2.04900e+03	4.65e-02	8.35e+01	-2.51284e+03	4.55e-02	2.20e+01	-1.46731e+03	4.55e-02	6.00e+01	-2.36157e+03	4.55e-02	9.80e+01	-2.72504e+03
4.65e-02	4.60e+01	-2.05815e+03	4.65e-02	8.40e+01	-2.51685e+03	4.55e-02	2.25e+01	-1.48726e+03	4.55e-02	6.05e+01	-2.36836e+03	4.55e-02	9.85e+01	-2.72837e+03
4.65e-02	4.65e+01	-2.06719e+03	4.65e-02	8.45e+01	-2.52083e+03	4.55e-02	2.30e+01	-1.50685e+03	4.55e-02	6.10e+01	-2.37507e+03	4.55e-02	9.90e+01	-2.73168e+03
4.65e-02	4.70e+01	-2.07611e+03	4.65e-02	8.50e+01	-2.52477e+03	4.55e-02	2.35e+01	-1.52608e+03	4.55e-02	6.15e+01	-2.38171e+03	4.55e-02	9.95e+01	-2.73496e+03
4.65e-02	4.75e+01	-2.08491e+03	4.65e-02	8.55e+01	-2.52867e+03	4.55e-02	2.40e+01	-1.54498e+03	4.55e-02	6.20e+01	-2.38827e+03	4.55e-02	1.00e+02	-2.73821e+03
4.65e-02	4.80e+01	-2.09360e+03	4.65e-02	8.60e+01	-2.53254e+03	4.55e-02	2.45e+01	-1.56354e+03	4.55e-02	6.25e+01	-2.39477e+03	4.44e-02	1.00e+00	-1.10440e+02
4.65e-02	4.85e+01	-2.10218e+03	4.65e-02	8.65e+01	-2.53638e+03	4.55e-02	2.50e+01	-1.58178e+03	4.55e-02	6.30e+01	-2.40119e+03	4.44e-02	1.50e+01	-1.62358e+02
4.65e-02	4.90e+01	-2.11065e+03	4.65e-02	8.70e+01	-2.54019e+03	4.55e-02	2.55e+01	-1.59969e+03	4.55e-02	6.35e+01	-2.40755e+03	4.44e-02	2.00e+00	-2.12932e+02
4.65e-02	4.95e+01	-2.11901e+03	4.65e-02	8.75e+01	-2.54396e+03	4.55e-02	2.60e+01	-1.61730e+03	4.55e-02	6.40e+01	-2.41383e+03	4.44e-02	2.50e+00	-2.62211e+02
4.65e-02	5.00e+01	-2.12726e+03	4.65e-02	8.80e+01	-2.54769e+03	4.55e-02	2.65e+01	-1.63641e+03	4.55e-02	6.45e+01	-2.42005e+03	4.44e-02	3.00e+00	-3.10238e+02
4.65e-02	5.05e+01	-2.13542e+03	4.65e-02	8.85e+01	-2.55140e+03	4.55e-02	2.70e+01	-1.65163e+03	4.55e-02	6.50e+01	-2.42621e+03	4.44e-02	3.50e+00	-3.57057e+02
4.65e-02	5.10e+01	-2.14347e+03	4.65e-02	8.90e+01	-2.55507e+03	4.55e-02	2.75e+01	-1.66835e+03	4.55e-02	6.55e+01	-2.43230e+03	4.44e-02	4.00e+00	-4.02711e+02
4.65e-02	5.15e+01	-2.15141e+03	4.65e-02	8.95e+01	-2.55871e+03	4.55e-02	2.80e+01	-1.68480e+03	4.55e-02	6.60e+01	-2.43832e+03	4.44e-02	4.50e+00	-4.47239e+02
4.65e-02	5.20e+01	-2.15927e+03	4.65e-02	9.00e+01	-2.56232e+03	4.55e-02	2.85e+01	-1.70098e+03	4.55e-02	6.65e+01	-2.44428e+03	4.44e-02	5.00e+00	-4.90679e+02
4.65e-02	5.25e+01	-2.16702e+03	4.65e-02	9.05e+01	-2.56590e+03	4.55e-02	2.90e+01	-1.71688e+03	4.55e-02	6.70e+01	-2.45018e+03	4.44e-02	5.50e+00	-5.33067e+02
4.65e-02	5.30e+01	-2.17468e+03	4.65e-02	9.10e+01	-2.56946e+03	4.55e-02	2.95e+01	-1.73253e+03	4.55e-02	6.75e+01	-2.45602e+03	4.44e-02	6.00e+00	-5.74440e+02
4.65e-02	5.35e+01	-2.18225e+03	4.65e-02	9.15e+01	-2.57298e+03	4.55e-02	3.00e+01	-1.74792e+03	4.55e-02	6.80e+01	-2.46180e+03	4.44e-02	6.50e+00	-6.14831e+02
4.65e-02	5.40e+01	-2.18973e+03	4.65e-02	9.20e+01	-2.57647e+03	4.55e-02	3.05e+01	-1.76307e+03	4.55e-02	6.85e+01	-2.46752e+03	4.44e-02	7.00e+00	-6.54271e+02
4.65e-02	5.45e+01	-2.19712e+03	4.65e-02	9.25e+01	-2.57993e+03	4.55e-02	3.10e+01	-1.77797e+03	4.55e-02	6.90e+01	-2.47318e+03	4.44e-02	7.50e+00	-6.92793e+02
4.65e-02	5.50e+01	-2.20442e+03	4.65e-02	9.30e+01	-2.58336e+03	4.55e-02	3.15e+01	-1.79264e+03	4.55e-02	6.95e+01	-2.47878e+03	4.44e-02	8.00e+00	-7.30425e+02
4.65e-02	5.55e+01	-2.21163e+03	4.65e-02	9.35e+01	-2.58677e+03	4.55e-02	3.20e+01	-1.80707e+03	4.55e-02	7.00e+01	-2.48433e+03	4.44e-02	8.50e+00	-7.67196e+02
4.65e-02	5.60e+01	-2.21876e+03	4.65e-02	9.40e+01	-2.59014e+03	4.55e-02	3.25e+01	-1.82128e+03	4.					

S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ
4.44e-02	1.90e+01	-1.38101e+03	4.35e-02	7.40e+01	-2.72580e+03	4.17e-02	5.00e+01	-2.53861e+03	4.00e-02	2.60e+01	-1.94043e+03	3.85e-02	2.00e+00	-2.47427e+02
4.44e-02	1.95e+01	-1.40423e+03	4.35e-02	7.50e+01	-2.73706e+03	4.17e-02	5.10e+01	-2.55939e+03	4.00e-02	2.70e+01	-1.98411e+03	3.85e-02	3.00e+00	-3.61861e+02
4.44e-02	2.00e+01	-1.42702e+03	4.35e-02	7.60e+01	-2.74812e+03	4.17e-02	5.20e+01	-2.57967e+03	4.00e-02	2.80e+01	-2.02643e+03	3.85e-02	4.00e+00	-4.71330e+02
4.35e-02	1.00e+00	-1.12907e+02	4.35e-02	7.70e+01	-2.75897e+03	4.17e-02	5.30e+01	-2.59948e+03	4.00e-02	2.90e+01	-2.06747e+03	3.85e-02	5.00e+00	-5.76126e+02
4.35e-02	2.00e+00	-2.17859e+02	4.35e-02	7.80e+01	-2.76961e+03	4.17e-02	5.40e+01	-2.61884e+03	4.00e-02	3.00e+01	-2.10727e+03	3.85e-02	6.00e+00	-6.76522e+02
4.35e-02	3.00e+00	-3.17609e+02	4.35e-02	7.90e+01	-2.78006e+03	4.17e-02	5.50e+01	-2.63776e+03	4.00e-02	3.10e+01	-2.14588e+03	3.85e-02	7.00e+00	-7.72772e+02
4.35e-02	4.00e+00	-4.12506e+02	4.35e-02	8.00e+01	-2.79033e+03	4.17e-02	5.60e+01	-2.65625e+03	4.00e-02	3.20e+01	-2.18337e+03	3.85e-02	8.00e+00	-8.65110e+02
4.35e-02	5.00e+00	-5.02870e+02	4.35e-02	8.10e+01	-2.80040e+03	4.17e-02	5.70e+01	-2.67433e+03	4.00e-02	3.30e+01	-2.21977e+03	3.85e-02	9.00e+00	-9.53756e+02
4.35e-02	6.00e+00	-5.88998e+02	4.35e-02	8.20e+01	-2.81030e+03	4.17e-02	5.80e+01	-2.69201e+03	4.00e-02	3.40e+01	-2.25513e+03	3.85e-02	1.00e+01	-1.03891e+03
4.35e-02	7.00e+00	-6.71161e+02	4.35e-02	8.30e+01	-2.82002e+03	4.17e-02	5.90e+01	-2.70930e+03	4.00e-02	3.50e+01	-2.28949e+03	3.85e-02	1.10e+01	-1.12077e+03
4.35e-02	8.00e+00	-7.49610e+02	4.35e-02	8.40e+01	-2.82957e+03	4.17e-02	6.00e+01	-2.72623e+03	4.00e-02	3.60e+01	-2.32290e+03	3.85e-02	1.20e+01	-1.19951e+03
4.35e-02	9.00e+00	-8.24577e+02	4.35e-02	8.50e+01	-2.83896e+03	4.17e-02	6.10e+01	-2.74279e+03	4.00e-02	3.70e+01	-2.35539e+03	3.85e-02	1.30e+01	-1.27529e+03
4.35e-02	1.00e+01	-8.96274e+02	4.35e-02	8.60e+01	-2.84818e+03	4.17e-02	6.20e+01	-2.75899e+03	4.00e-02	3.80e+01	-2.38699e+03	3.85e-02	1.40e+01	-1.34827e+03
4.35e-02	1.10e+01	-9.64900e+02	4.35e-02	8.70e+01	-2.85725e+03	4.17e-02	6.30e+01	-2.77486e+03	4.00e-02	3.90e+01	-2.41775e+03	3.85e-02	1.50e+01	-1.41860e+03
4.35e-02	1.20e+01	-1.03064e+03	4.35e-02	8.80e+01	-2.86616e+03	4.17e-02	6.40e+01	-2.79041e+03	4.00e-02	4.00e+01	-2.44770e+03	3.85e-02	1.60e+01	-1.48641e+03
4.35e-02	1.30e+01	-1.09365e+03	4.35e-02	8.90e+01	-2.87492e+03	4.17e-02	6.50e+01	-2.80563e+03	4.00e-02	4.10e+01	-2.47686e+03	3.85e-02	1.70e+01	-1.55182e+03
4.35e-02	1.40e+01	-1.15411e+03	4.35e-02	9.00e+01	-2.88353e+03	4.17e-02	6.60e+01	-2.82054e+03	4.00e-02	4.20e+01	-2.50526e+03	3.85e-02	1.80e+01	-1.61495e+03
4.35e-02	1.50e+01	-1.21215e+03	4.35e-02	9.10e+01	-2.89201e+03	4.17e-02	6.70e+01	-2.83515e+03	4.00e-02	4.30e+01	-2.53294e+03	3.85e-02	1.90e+01	-1.67592e+03
4.35e-02	1.60e+01	-1.26791e+03	4.35e-02	9.20e+01	-2.90034e+03	4.17e-02	6.80e+01	-2.84947e+03	4.00e-02	4.40e+01	-2.55993e+03	3.85e-02	2.00e+01	-1.73484e+03
4.35e-02	1.70e+01	-1.32151e+03	4.35e-02	9.30e+01	-2.90854e+03	4.17e-02	6.90e+01	-2.86350e+03	4.00e-02	4.50e+01	-2.58623e+03	3.85e-02	2.10e+01	-1.79179e+03
4.35e-02	1.80e+01	-1.37307e+03	4.35e-02	9.40e+01	-2.91660e+03	4.17e-02	7.00e+01	-2.87726e+03	4.00e-02	4.60e+01	-2.61189e+03	3.85e-02	2.20e+01	-1.84687e+03
4.35e-02	1.90e+01	-1.42271e+03	4.35e-02	9.50e+01	-2.92453e+03	4.17e-02	7.10e+01	-2.89076e+03	4.00e-02	4.70e+01	-2.63693e+03	3.85e-02	2.30e+01	-1.90017e+03
4.35e-02	2.00e+01	-1.47052e+03	4.35e-02	9.60e+01	-2.93234e+03	4.17e-02	7.20e+01	-2.90399e+03	4.00e-02	4.80e+01	-2.66135e+03	3.85e-02	2.40e+01	-1.95177e+03
4.35e-02	2.10e+01	-1.51659e+03	4.35e-02	9.70e+01	-2.94003e+03	4.17e-02	7.30e+01	-2.91697e+03	4.00e-02	4.90e+01	-2.68520e+03	3.85e-02	2.50e+01	-2.00175e+03
4.35e-02	2.20e+01	-1.56102e+03	4.35e-02	9.80e+01	-2.94759e+03	4.17e-02	7.40e+01	-2.92971e+03	4.00e-02	5.00e+01	-2.70848e+03	3.85e-02	2.60e+01	-2.05018e+03
4.35e-02	2.30e+01	-1.60390e+03	4.35e-02	9.90e+01	-2.95504e+03	4.17e-02	7.50e+01	-2.94221e+03	4.00e-02	5.10e+01	-2.73122e+03	3.85e-02	2.70e+01	-2.09713e+03
4.35e-02	2.40e+01	-1.64529e+03	4.35e-02	1.00e+02	-2.96237e+03	4.17e-02	7.60e+01	-2.95447e+03	4.00e-02	5.20e+01	-2.75344e+03	3.85e-02	2.80e+01	-2.14265e+03
4.35e-02	2.50e+01	-1.68527e+03	4.17e-02	1.00e+00	-1.17842e+02	4.17e-02	7.70e+01	-2.96652e+03	4.00e-02	5.30e+01	-2.77515e+03	3.85e-02	2.90e+01	-2.18682e+03
4.35e-02	2.60e+01	-1.72391e+03	4.17e-02	2.00e+00	-2.27714e+02	4.17e-02	7.80e+01	-2.97934e+03	4.00e-02	5.40e+01	-2.79636e+03	3.85e-02	3.00e+01	-2.22970e+03
4.35e-02	2.70e+01	-1.76127e+03	4.17e-02	3.00e+00	-3.32355e+02	4.17e-02	7.90e+01	-2.98994e+03	4.00e-02	5.50e+01	-2.81711e+03	3.85e-02	3.10e+01	-2.27133e+03
4.35e-02	2.80e+01	-1.79742e+03	4.17e-02	4.00e+00	-4.32103e+02	4.17e-02	8.00e+01	-3.00134e+03	4.00e-02	5.60e+01	-2.83739e+03	3.85e-02	3.20e+01	-2.31176e+03
4.35e-02	2.90e+01	-1.83240e+03	4.17e-02	5.00e+00	-5.27269e+02	4.17e-02	8.10e+01	-3.01254e+03	4.00e-02	5.70e+01	-2.85723e+03	3.85e-02	3.30e+01	-2.35105e+03
4.35e-02	3.00e+01	-1.86628e+03	4.17e-02	6.00e+00	-6.18140e+02	4.17e-02	8.20e+01	-3.02354e+03	4.00e-02	5.80e+01	-2.87664e+03	3.85e-02	3.40e+01	-2.38925e+03
4.35e-02	3.10e+01	-1.89910e+03	4.17e-02	7.00e+00	-7.04982e+02	4.17e-02	8.30e+01	-3.03435e+03	4.00e-02	5.90e+01	-2.89564e+03	3.85e-02	3.50e+01	-2.42639e+03
4.35e-02	3.20e+01	-1.93091e+03	4.17e-02	8.00e+00	-7.88040e+02	4.17e-02	8.40e+01	-3.04497e+03	4.00e-02	6.00e+01	-2.91422e+03	3.85e-02	3.60e+01	-2.46252e+03
4.35e-02	3.30e+01	-1.96176e+03	4.17e-02	9.00e+00	-8.67541e+02	4.17e-02	8.50e+01	-3.05541e+03	4.00e-02	6.10e+01	-2.93242e+03	3.85e-02	3.70e+01	-2.49768e+03
4.35e-02	3.40e+01	-1.99169e+03	4.17e-02	1.00e+01	-9.43697e+02	4.17e-02	8.60e+01	-3.06567e+03	4.00e-02	6.20e+01	-2.95024e+03	3.85e-02	3.80e+01	-2.53190e+03
4.35e-02	3.50e+01	-2.02073e+03	4.17e-02	1.10e+01	-1.01670e+03	4.17e-02	8.70e+01	-3.07575e+03	4.00e-02	6.30e+01	-2.96770e+03	3.85e-02	3.90e+01	-2.56523e+03
4.35e-02	3.60e+01	-2.04892e+03	4.17e-02	1.20e+01	-1.08673e+03	4.17e-02	8.80e+01	-3.08567e+03	4.00e-02	6.40e+01	-2.98479e+03	3.85e-02	4.00e+01	-2.59769e+03
4.35e-02	3.70e+01	-2.07631e+03	4.17e-02	1.30e+01	-1.15397e+03	4.17e-02	8.90e+01	-3.09542e+03	4.00e-02	6.50e+01	-3.00154e+03	3.85e-02	4.10e+01	-2.62932e+03
4.35e-02	3.80e+01	-2.10292e+03	4.17e-02	1.40e+01	-1.21855e+03	4.17e-02	9.00e+01	-3.10501e+03	4.00e-02	6.60e+01	-3.01796e+03	3.85e-02	4.20e+01	-2.66015e+03
4.35e-02	3.90e+01	-2.12878e+03	4.17e-02	1.50e+01	-1.28064e+03	4.17e-02	9.10e+01	-3.11445e+03	4.00e-02	6.70e+01	-3.03405e+03	3.85e-02	4.30e+01	-2.69020e+03
4.35e-02	4.00e+01	-2.15393e+03	4.17e-02	1.60e+01	-1.34036e+03	4.17e-02	9.20e+01	-3.12373e+03	4.00e-02	6.80e+01	-3.04982e+03	3.85e-02	4.40e+01	-2.71951e+03
4.35e-02	4.10e+01	-2.17839e+03	4.17e-02	1.70e+01	-1.39785e+03	4.17e-02	9.30e+01	-3.13286e+03	4.00e-02	6.90e+01	-3.06528e+03	3.85e-02	4.50e+01	-2.74811e+03
4.35e-02	4.20e+01	-2.20219e+03	4.17e-02	1.80e+01	-1.45321e+03	4.17e-02	9.40e+01	-3.14185e+03	4.00e-02	7.00e+01	-3.08045e+03	3.85e-02	4.60e+01	-2.77601e+03
4.35e-02	4.30e+01	-2.22536e+03	4.17e-02	1.90e+01	-1.50657e+03	4.17e-02	9.50e+01	-3.15069e+03	4.00e-02	7.10e+01	-3.09533e+03	3.85e-02	4.70e+01	-2.80324e+03
4.35e-02	4.40e+01	-2.24792e+03	4.17e-02	2.00e+01	-1.55801e+03	4.17e-02	9.60e+01	-3.15940e+03	4.00e-02	7.20e+01	-3.10992e+03	3.85e-02	4.80e+01	-2.82983e+03
4.35e-02	4.50e+01	-2.26989e+03	4.17e-02	2.10e+01	-1.60765e+03	4.17e-02	9.70e+01	-3.16796e+03	4.00e-02	7.30e+01	-3.12424e+03	3.85e-02	4.90e+01	-2.85579e+03
4.35e-02	4.60e+01	-2.29130e+03	4.17e-02	2.20e+01	-1.65557e+03	4.17e-02	9.80e+01	-3.17640e+03	4.00e-02	7.40e+01	-3.13830e+03	3.85e-02	5.00e+01	-2.88116e+03
4.35e-02	4.70e+01	-2.31217e+03	4.17e-02	2.30e+01	-1.70185e+03	4.17e-02	9.90e+01	-3.18470e+03	4.00e-02	7.50e+01	-3.15209e+03	3.85e-02	5.10e+01	-2.90594e+03
4.35e-02	4.80e+01	-2.33251e+03	4.17e-02	2.40e+01	-1.74657e+03	4.17e-02	1.00e+02	-3.19288e+03	4.00e-02	7.60e+01	-3.16563e+03	3.85e-02	5.20e+01	-2.93016e+03
4.35e-02	4.90e+01	-2.35235e+03	4.17e-02	2.50e+01	-1.78981e+03	4.00e-02	1.00e+00	-1.22776e+02	4.00e-02	7.70e+01	-3.17893e+03	3.85e-02	5.30e+01	-2.95384e+03
4.35e-02	5.00e+01	-2.37170e+03	4.17e-02	2.60e+01	-1.83164e+03	4.00e-02	2.00e+00	-2.37570e+02	4.00e-02	7.80e+01	-3.19199e+03	3.85e-02	5.40e+01	-2.97699e+03
4.35e-02	5.10e+01	-2.39059e+03	4.17e-02	2.70e+01	-1.87213e+03	4.00e-02	3.00e+00	-3.47106e+02	4.00e-02	7.90e+01	-3.20481e+03	3.85e-02	5.50e+01	-2.99963e+03
4.35e-02	5.20e+01	-2.40902e+03	4.17e-02	2.80e+01	-1.91132e+03	4.00e-02	4.00e+00	-4.51712e+02	4.00e-02	8.00e+01	-3.21741e+03	3.85e-02	5.60e+01	-3.02178e+03
4.35e-02	5.30e+01	-2.42701e+03	4.17e-02	2.90e+01	-1.94930e+03	4.00e-02	5.00e+00	-5.51689e+02	4.00e-02	8.10e+01	-3.22979e+03	3.85e-02	5.70e+01	-3.04346e+03
4.35e-02	5.40e+01	-2.44459e+03	4.17e-02	3.00e+01	-1.98610e+03	4.00e-02	6.00e+00	-6.47316e+02	4.00e-02	8.20e+01	-3.24195e+03	3.85e-02	5.80e+01	-3.06467e

S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ
3.85e-02	7.80e+01	-3.41036e+03	3.70e-02	5.40e+01	-3.16056e+03	3.57e-02	3.00e+01	-2.47801e+03	3.45e-02	6.00e+00	-7.64292e+02	3.45e-02	8.20e+01	-4.16340e+03
3.85e-02	7.90e+01	-3.42447e+03	3.70e-02	5.50e+01	-3.18518e+03	3.57e-02	3.10e+01	-2.52587e+03	3.45e-02	7.00e+00	-8.74757e+02	3.45e-02	8.30e+01	-4.18051e+03
3.85e-02	8.00e+01	-3.43832e+03	3.70e-02	5.60e+01	-3.20927e+03	3.57e-02	3.20e+01	-2.57242e+03	3.45e-02	8.00e+00	-9.81144e+02	3.45e-02	8.40e+01	-4.19734e+03
3.85e-02	8.10e+01	-3.45194e+03	3.70e-02	5.70e+01	-3.23284e+03	3.57e-02	3.30e+01	-2.61771e+03	3.45e-02	9.00e+00	-1.08366e+03	3.45e-02	8.50e+01	-4.21390e+03
3.85e-02	8.20e+01	-3.46532e+03	3.70e-02	5.80e+01	-3.25593e+03	3.57e-02	3.40e+01	-2.66179e+03	3.45e-02	1.00e+01	-1.18250e+03	3.45e-02	8.60e+01	-4.23020e+03
3.85e-02	8.30e+01	-3.47848e+03	3.70e-02	5.90e+01	-3.27853e+03	3.57e-02	3.50e+01	-2.70471e+03	3.45e-02	1.10e+01	-1.27785e+03	3.45e-02	8.70e+01	-4.24623e+03
3.85e-02	8.40e+01	-3.49141e+03	3.70e-02	6.00e+01	-3.30067e+03	3.57e-02	3.60e+01	-2.74650e+03	3.45e-02	1.20e+01	-1.36988e+03	3.45e-02	8.80e+01	-4.26201e+03
3.85e-02	8.50e+01	-3.50413e+03	3.70e-02	6.10e+01	-3.32236e+03	3.57e-02	3.70e+01	-2.78722e+03	3.45e-02	1.30e+01	-1.45875e+03	3.45e-02	8.90e+01	-4.27755e+03
3.85e-02	8.60e+01	-3.51663e+03	3.70e-02	6.20e+01	-3.34361e+03	3.57e-02	3.80e+01	-2.82690e+03	3.45e-02	1.40e+01	-1.54460e+03	3.45e-02	9.00e+01	-4.29284e+03
3.85e-02	8.70e+01	-3.52893e+03	3.70e-02	6.30e+01	-3.36444e+03	3.57e-02	3.90e+01	-2.86558e+03	3.45e-02	1.50e+01	-1.62759e+03	3.45e-02	9.10e+01	-4.30790e+03
3.85e-02	8.80e+01	-3.54103e+03	3.70e-02	6.40e+01	-3.38485e+03	3.57e-02	4.00e+01	-2.90330e+03	3.45e-02	1.60e+01	-1.70785e+03	3.45e-02	9.20e+01	-4.32273e+03
3.85e-02	8.90e+01	-3.55293e+03	3.70e-02	6.50e+01	-3.40486e+03	3.57e-02	4.10e+01	-2.94009e+03	3.45e-02	1.70e+01	-1.78550e+03	3.45e-02	9.30e+01	-4.33734e+03
3.85e-02	9.00e+01	-3.56464e+03	3.70e-02	6.60e+01	-3.42449e+03	3.57e-02	4.20e+01	-2.97598e+03	3.45e-02	1.80e+01	-1.86066e+03	3.45e-02	9.40e+01	-4.35172e+03
3.85e-02	9.10e+01	-3.57616e+03	3.70e-02	6.70e+01	-3.44373e+03	3.57e-02	4.30e+01	-3.01100e+03	3.45e-02	1.90e+01	-1.93344e+03	3.45e-02	9.50e+01	-4.36588e+03
3.85e-02	9.20e+01	-3.58750e+03	3.70e-02	6.80e+01	-3.46211e+03	3.57e-02	4.40e+01	-3.04519e+03	3.45e-02	2.00e+01	-2.00396e+03	3.45e-02	9.60e+01	-4.37984e+03
3.85e-02	9.30e+01	-3.59867e+03	3.70e-02	6.90e+01	-3.48114e+03	3.57e-02	4.50e+01	-3.07858e+03	3.45e-02	2.10e+01	-2.07230e+03	3.45e-02	9.70e+01	-4.39359e+03
3.85e-02	9.40e+01	-3.60965e+03	3.70e-02	7.00e+01	-3.49931e+03	3.57e-02	4.60e+01	-3.11119e+03	3.45e-02	2.20e+01	-2.13857e+03	3.45e-02	9.80e+01	-4.40714e+03
3.85e-02	9.50e+01	-3.62047e+03	3.70e-02	7.10e+01	-3.51714e+03	3.57e-02	4.70e+01	-3.14304e+03	3.45e-02	2.30e+01	-2.20285e+03	3.45e-02	9.90e+01	-4.42050e+03
3.85e-02	9.60e+01	-3.63112e+03	3.70e-02	7.20e+01	-3.53466e+03	3.57e-02	4.80e+01	-3.17417e+03	3.45e-02	2.40e+01	-2.26523e+03	3.45e-02	1.00e+02	-4.43356e+03
3.85e-02	9.70e+01	-3.64161e+03	3.70e-02	7.30e+01	-3.55185e+03	3.57e-02	4.90e+01	-3.20459e+03	3.45e-02	2.50e+01	-2.32579e+03	3.33e-02	1.00e+00	-1.47450e+02
3.85e-02	9.80e+01	-3.65194e+03	3.70e-02	7.40e+01	-3.56872e+03	3.57e-02	5.00e+01	-3.23434e+03	3.45e-02	2.60e+01	-2.38459e+03	3.33e-02	2.00e+00	-2.86863e+02
3.85e-02	9.90e+01	-3.66211e+03	3.70e-02	7.50e+01	-3.58530e+03	3.57e-02	5.10e+01	-3.26342e+03	3.45e-02	2.70e+01	-2.44173e+03	3.33e-02	3.00e+00	-4.20912e+02
3.85e-02	1.00e+02	-3.67214e+03	3.70e-02	7.60e+01	-3.60158e+03	3.57e-02	5.20e+01	-3.29187e+03	3.45e-02	2.80e+01	-2.49725e+03	3.33e-02	4.00e+00	-5.49878e+02
3.70e-02	1.00e+00	-1.32646e+02	3.70e-02	7.70e+01	-3.61757e+03	3.57e-02	5.30e+01	-3.31970e+03	3.45e-02	2.90e+01	-2.55124e+03	3.33e-02	5.00e+00	-6.74022e+02
3.70e-02	2.00e+00	-2.57285e+02	3.70e-02	7.80e+01	-3.63328e+03	3.57e-02	5.40e+01	-3.34694e+03	3.45e-02	3.00e+01	-2.60374e+03	3.33e-02	6.00e+00	-7.93591e+02
3.70e-02	3.00e+00	-3.76620e+02	3.70e-02	7.90e+01	-3.64872e+03	3.57e-02	5.50e+01	-3.37360e+03	3.45e-02	3.10e+01	-2.65481e+03	3.33e-02	7.00e+00	-9.08817e+02
3.70e-02	4.00e+00	-4.90956e+02	3.70e-02	8.00e+01	-3.66390e+03	3.57e-02	5.60e+01	-3.39969e+03	3.45e-02	3.20e+01	-2.70452e+03	3.33e-02	8.00e+00	-1.01992e+03
3.70e-02	5.00e+00	-6.00580e+02	3.70e-02	8.10e+01	-3.67881e+03	3.57e-02	5.70e+01	-3.42524e+03	3.45e-02	3.30e+01	-2.75291e+03	3.33e-02	9.00e+00	-1.12709e+03
3.70e-02	6.00e+00	-7.05755e+02	3.70e-02	8.20e+01	-3.69347e+03	3.57e-02	5.80e+01	-3.45027e+03	3.45e-02	3.40e+01	-2.80094e+03	3.33e-02	1.00e+01	-1.23054e+03
3.70e-02	7.00e+00	-8.06731e+02	3.70e-02	8.30e+01	-3.70789e+03	3.57e-02	5.90e+01	-3.47478e+03	3.45e-02	3.50e+01	-2.84594e+03	3.33e-02	1.10e+01	-1.33043e+03
3.70e-02	8.00e+00	-9.03736e+02	3.70e-02	8.40e+01	-3.72207e+03	3.57e-02	6.00e+01	-3.49880e+03	3.45e-02	3.60e+01	-2.89068e+03	3.33e-02	1.20e+01	-1.42694e+03
3.70e-02	9.00e+00	-9.96987e+02	3.70e-02	8.50e+01	-3.73601e+03	3.57e-02	6.10e+01	-3.52233e+03	3.45e-02	3.70e+01	-2.93428e+03	3.33e-02	1.30e+01	-1.52023e+03
3.70e-02	1.00e+01	-1.08668e+03	3.70e-02	8.60e+01	-3.74972e+03	3.57e-02	6.20e+01	-3.54540e+03	3.45e-02	3.80e+01	-2.97679e+03	3.33e-02	1.40e+01	-1.61044e+03
3.70e-02	1.10e+01	-1.17301e+03	3.70e-02	8.70e+01	-3.76321e+03	3.57e-02	6.30e+01	-3.56801e+03	3.45e-02	3.90e+01	-3.01825e+03	3.33e-02	1.50e+01	-1.69772e+03
3.70e-02	1.20e+01	-1.25615e+03	3.70e-02	8.80e+01	-3.77648e+03	3.57e-02	6.40e+01	-3.59019e+03	3.45e-02	4.00e+01	-3.05870e+03	3.33e-02	1.60e+01	-1.78220e+03
3.70e-02	1.30e+01	-1.33627e+03	3.70e-02	8.90e+01	-3.78954e+03	3.57e-02	6.50e+01	-3.61193e+03	3.45e-02	4.10e+01	-3.09817e+03	3.33e-02	1.70e+01	-1.86401e+03
3.70e-02	1.40e+01	-1.41351e+03	3.70e-02	9.00e+01	-3.80239e+03	3.57e-02	6.60e+01	-3.63326e+03	3.45e-02	4.20e+01	-3.13670e+03	3.33e-02	1.80e+01	-1.94326e+03
3.70e-02	1.50e+01	-1.48801e+03	3.70e-02	9.10e+01	-3.81504e+03	3.57e-02	6.70e+01	-3.65418e+03	3.45e-02	4.30e+01	-3.17432e+03	3.33e-02	1.90e+01	-2.02008e+03
3.70e-02	1.60e+01	-1.55993e+03	3.70e-02	9.20e+01	-3.82749e+03	3.57e-02	6.80e+01	-3.67471e+03	3.45e-02	4.40e+01	-3.21105e+03	3.33e-02	2.00e+01	-2.09455e+03
3.70e-02	1.70e+01	-1.62938e+03	3.70e-02	9.30e+01	-3.83975e+03	3.57e-02	6.90e+01	-3.69486e+03	3.45e-02	4.50e+01	-3.24694e+03	3.33e-02	2.10e+01	-2.16679e+03
3.70e-02	1.80e+01	-1.69648e+03	3.70e-02	9.40e+01	-3.85181e+03	3.57e-02	7.00e+01	-3.71463e+03	3.45e-02	4.60e+01	-3.28201e+03	3.33e-02	2.20e+01	-2.23689e+03
3.70e-02	1.90e+01	-1.76134e+03	3.70e-02	9.50e+01	-3.86370e+03	3.57e-02	7.10e+01	-3.73405e+03	3.45e-02	4.70e+01	-3.31628e+03	3.33e-02	2.30e+01	-2.30493e+03
3.70e-02	2.00e+01	-1.82407e+03	3.70e-02	9.60e+01	-3.87540e+03	3.57e-02	7.20e+01	-3.75310e+03	3.45e-02	4.80e+01	-3.34978e+03	3.33e-02	2.40e+01	-2.37101e+03
3.70e-02	2.10e+01	-1.88477e+03	3.70e-02	9.70e+01	-3.88692e+03	3.57e-02	7.30e+01	-3.77182e+03	3.45e-02	4.90e+01	-3.38254e+03	3.33e-02	2.50e+01	-2.43521e+03
3.70e-02	2.20e+01	-1.94352e+03	3.70e-02	9.80e+01	-3.89828e+03	3.57e-02	7.40e+01	-3.79020e+03	3.45e-02	5.00e+01	-3.41458e+03	3.33e-02	2.60e+01	-2.49759e+03
3.70e-02	2.30e+01	-2.00043e+03	3.70e-02	9.90e+01	-3.90946e+03	3.57e-02	7.50e+01	-3.80827e+03	3.45e-02	5.10e+01	-3.44592e+03	3.33e-02	2.70e+01	-2.55824e+03
3.70e-02	2.40e+01	-2.05556e+03	3.70e-02	1.00e+02	-3.92048e+03	3.57e-02	7.60e+01	-3.82601e+03	3.45e-02	5.20e+01	-3.47659e+03	3.33e-02	2.80e+01	-2.61722e+03
3.70e-02	2.50e+01	-2.10901e+03	3.57e-02	1.00e+00	-1.37580e+02	3.57e-02	7.70e+01	-3.84344e+03	3.45e-02	5.30e+01	-3.50660e+03	3.33e-02	2.90e+01	-2.67459e+03
3.70e-02	2.60e+01	-2.16083e+03	3.57e-02	2.00e+00	-2.67144e+02	3.57e-02	7.80e+01	-3.86057e+03	3.45e-02	5.40e+01	-3.53598e+03	3.33e-02	3.00e+01	-2.73043e+03
3.70e-02	2.70e+01	-2.21111e+03	3.57e-02	3.00e+00	-3.91381e+02	3.57e-02	7.90e+01	-3.87740e+03	3.45e-02	5.50e+01	-3.56475e+03	3.33e-02	3.10e+01	-2.78478e+03
3.70e-02	2.80e+01	-2.25991e+03	3.57e-02	4.00e+00	-5.10590e+02	3.57e-02	8.00e+01	-3.89395e+03	3.45e-02	5.60e+01	-3.59292e+03	3.33e-02	3.20e+01	-2.83770e+03
3.70e-02	2.90e+01	-2.30729e+03	3.57e-02	5.00e+00	-6.25048e+02	3.57e-02	8.10e+01	-3.91023e+03	3.45e-02	5.70e+01	-3.62051e+03	3.33e-02	3.30e+01	-2.88926e+03
3.70e-02	3.00e+01	-2.35330e+03	3.57e-02	6.00e+00	-7.35013e+02	3.57e-02	8.20e+01	-3.92622e+03	3.45e-02	5.80e+01	-3.64754e+03	3.33e-02	3.40e+01	-2.93949e+03
3.70e-02	3.10e+01	-2.39801e+03	3.57e-02	7.00e+00	-8.40727e+02	3.57e-02	8.30e+01	-3.94196e+03	3.45e-02	5.90e+01	-3.67403e+03	3.33e-02	3.50e+01	-2.98845e+03
3.70e-02	3.20e+01	-2.44147e+03	3.57e-02	8.00e+00	-9.42416e+02	3.57e-02	8.40e+01	-3.95743e+03	3.45e-02	6.00e+01	-3.69999e+03	3.33e-02	3.60e+01	-3.03618e+03
3.70e-02	3.30e+01	-2.48373e+03	3.57e-02	9.00e+00	-1.04029e+03	3.57e-02	8.50e+01	-3.97266e+03	3.45e-02	6.10e+01	-3.72544e+03	3.33e-02	3.70e+01	-3.08273e+03
3.70e-02	3.40e+01	-2.52483e+03	3.57e-02	1.00e+01	-1.13455e+03	3.57e-02	8.60e+01	-3.98763e+03	3.45e-02	6.20e+01	-3.75039e+03	3.33e-02	3.80e+01	-3.12814e

S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ	S	Ω	λ
3.33e-02	5.80e+01	-3.84762e+03	3.23e-02	3.40e+01	-3.08008e+03	3.13e-02	1.00e+01	-1.32682e+03	3.13e-02	8.60e+01	-4.98417e+03	3.03e-02	6.20e+01	-4.59965e+03
3.33e-02	5.90e+01	-3.87615e+03	3.23e-02	3.50e+01	-3.13216e+03	3.13e-02	1.10e+01	-1.43585e+03	3.13e-02	8.70e+01	-5.00443e+03	3.03e-02	6.30e+01	-4.63216e+03
3.33e-02	6.00e+01	-3.90412e+03	3.23e-02	3.60e+01	-3.18295e+03	3.13e-02	1.20e+01	-1.54140e+03	3.13e-02	8.80e+01	-5.02438e+03	3.03e-02	6.40e+01	-4.66407e+03
3.33e-02	6.10e+01	-3.93155e+03	3.23e-02	3.70e+01	-3.23251e+03	3.13e-02	1.30e+01	-1.64360e+03	3.13e-02	8.90e+01	-5.04403e+03	3.03e-02	6.50e+01	-4.69541e+03
3.33e-02	6.20e+01	-3.95844e+03	3.23e-02	3.80e+01	-3.28088e+03	3.13e-02	1.40e+01	-1.74260e+03	3.13e-02	9.00e+01	-5.06338e+03	3.03e-02	6.60e+01	-4.72620e+03
3.33e-02	6.30e+01	-3.98483e+03	3.23e-02	3.90e+01	-3.32810e+03	3.13e-02	1.50e+01	-1.83856e+03	3.13e-02	9.10e+01	-5.08245e+03	3.03e-02	6.70e+01	-4.75643e+03
3.33e-02	6.40e+01	-4.01701e+03	3.23e-02	4.00e+01	-3.37421e+03	3.13e-02	1.60e+01	-1.93159e+03	3.13e-02	9.20e+01	-5.10123e+03	3.03e-02	6.80e+01	-4.78614e+03
3.33e-02	6.50e+01	-4.03611e+03	3.23e-02	4.10e+01	-3.41925e+03	3.13e-02	1.70e+01	-2.02182e+03	3.13e-02	9.30e+01	-5.11974e+03	3.03e-02	6.90e+01	-4.81533e+03
3.33e-02	6.60e+01	-4.06104e+03	3.23e-02	4.20e+01	-3.46325e+03	3.13e-02	1.80e+01	-2.10937e+03	3.13e-02	9.40e+01	-5.13798e+03	3.03e-02	7.00e+01	-4.84402e+03
3.33e-02	6.70e+01	-4.08550e+03	3.23e-02	4.30e+01	-3.50625e+03	3.13e-02	1.90e+01	-2.19435e+03	3.13e-02	9.50e+01	-5.15596e+03	3.03e-02	7.10e+01	-4.87221e+03
3.33e-02	6.80e+01	-4.10952e+03	3.23e-02	4.40e+01	-3.54828e+03	3.13e-02	2.00e+01	-2.27687e+03	3.13e-02	9.60e+01	-5.17367e+03	3.03e-02	7.20e+01	-4.89993e+03
3.33e-02	6.90e+01	-4.13311e+03	3.23e-02	4.50e+01	-3.58937e+03	3.13e-02	2.10e+01	-2.35703e+03	3.13e-02	9.70e+01	-5.19114e+03	3.03e-02	7.30e+01	-4.92718e+03
3.33e-02	7.00e+01	-4.15627e+03	3.23e-02	4.60e+01	-3.62955e+03	3.13e-02	2.20e+01	-2.43493e+03	3.13e-02	9.80e+01	-5.20835e+03	3.03e-02	7.40e+01	-4.95398e+03
3.33e-02	7.10e+01	-4.17902e+03	3.23e-02	4.70e+01	-3.66885e+03	3.13e-02	2.30e+01	-2.51064e+03	3.13e-02	9.90e+01	-5.22533e+03	3.03e-02	7.50e+01	-4.98033e+03
3.33e-02	7.20e+01	-4.20136e+03	3.23e-02	4.80e+01	-3.70730e+03	3.13e-02	2.40e+01	-2.58427e+03	3.13e-02	1.00e+02	-5.24206e+03	3.03e-02	7.60e+01	-5.00625e+03
3.33e-02	7.30e+01	-4.22332e+03	3.23e-02	4.90e+01	-3.74493e+03	3.13e-02	2.50e+01	-2.65589e+03	3.03e-02	1.00e+00	-1.62254e+02	3.03e-02	7.70e+01	-5.03174e+03
3.33e-02	7.40e+01	-4.24489e+03	3.23e-02	5.00e+01	-3.78176e+03	3.13e-02	2.60e+01	-2.72558e+03	3.03e-02	2.00e+00	-3.16447e+02	3.03e-02	7.80e+01	-5.05683e+03
3.33e-02	7.50e+01	-4.26609e+03	3.23e-02	5.10e+01	-3.81781e+03	3.13e-02	2.70e+01	-2.79341e+03	3.03e-02	3.00e+00	-4.65226e+02	3.03e-02	7.90e+01	-5.08152e+03
3.33e-02	7.60e+01	-4.28693e+03	3.23e-02	5.20e+01	-3.85311e+03	3.13e-02	2.80e+01	-2.85945e+03	3.03e-02	4.00e+00	-6.08850e+02	3.03e-02	8.00e+01	-5.10579e+03
3.33e-02	7.70e+01	-4.30742e+03	3.23e-02	5.30e+01	-3.88769e+03	3.13e-02	2.90e+01	-2.92378e+03	3.03e-02	5.00e+00	-7.47563e+02	3.03e-02	8.10e+01	-5.12969e+03
3.33e-02	7.80e+01	-4.32755e+03	3.23e-02	5.40e+01	-3.92156e+03	3.13e-02	3.00e+01	-2.98645e+03	3.03e-02	6.00e+00	-8.81593e+02	3.03e-02	8.20e+01	-5.15322e+03
3.33e-02	7.90e+01	-4.34736e+03	3.23e-02	5.50e+01	-3.95474e+03	3.13e-02	3.10e+01	-3.04752e+03	3.03e-02	7.00e+00	-1.01116e+03	3.03e-02	8.30e+01	-5.17638e+03
3.33e-02	8.00e+01	-4.36684e+03	3.23e-02	5.60e+01	-3.98726e+03	3.13e-02	3.20e+01	-3.10706e+03	3.03e-02	8.00e+00	-1.13646e+03	3.03e-02	8.40e+01	-5.19918e+03
3.33e-02	8.10e+01	-4.38600e+03	3.23e-02	5.70e+01	-4.01913e+03	3.13e-02	3.30e+01	-3.16512e+03	3.03e-02	9.00e+00	-1.25770e+03	3.03e-02	8.50e+01	-5.22164e+03
3.33e-02	8.20e+01	-4.40484e+03	3.23e-02	5.80e+01	-4.05037e+03	3.13e-02	3.40e+01	-3.22174e+03	3.03e-02	1.00e+01	-1.37505e+03	3.03e-02	8.60e+01	-5.24373e+03
3.33e-02	8.30e+01	-4.42338e+03	3.23e-02	5.90e+01	-4.08100e+03	3.13e-02	3.50e+01	-3.27699e+03	3.03e-02	1.10e+01	-1.48869e+03	3.03e-02	8.70e+01	-5.26551e+03
3.33e-02	8.40e+01	-4.44163e+03	3.23e-02	6.00e+01	-4.11105e+03	3.13e-02	3.60e+01	-3.33091e+03	3.03e-02	1.20e+01	-1.59878e+03	3.03e-02	8.80e+01	-5.28696e+03
3.33e-02	8.50e+01	-4.45958e+03	3.23e-02	6.10e+01	-4.14051e+03	3.13e-02	3.70e+01	-3.38354e+03	3.03e-02	1.30e+01	-1.70547e+03	3.03e-02	8.90e+01	-5.30809e+03
3.33e-02	8.60e+01	-4.47724e+03	3.23e-02	6.20e+01	-4.16942e+03	3.13e-02	3.80e+01	-3.43493e+03	3.03e-02	1.40e+01	-1.80891e+03	3.03e-02	9.00e+01	-5.32890e+03
3.33e-02	8.70e+01	-4.49463e+03	3.23e-02	6.30e+01	-4.19778e+03	3.13e-02	3.90e+01	-3.48512e+03	3.03e-02	1.50e+01	-1.90924e+03	3.03e-02	9.10e+01	-5.34941e+03
3.33e-02	8.80e+01	-4.51175e+03	3.23e-02	6.40e+01	-4.22562e+03	3.13e-02	4.00e+01	-3.53416e+03	3.03e-02	1.60e+01	-2.00659e+03	3.03e-02	9.20e+01	-5.36961e+03
3.33e-02	8.90e+01	-4.52861e+03	3.23e-02	6.50e+01	-4.25294e+03	3.13e-02	4.10e+01	-3.58207e+03	3.03e-02	1.70e+01	-2.10108e+03	3.03e-02	9.30e+01	-5.38952e+03
3.33e-02	9.00e+01	-4.54520e+03	3.23e-02	6.60e+01	-4.27976e+03	3.13e-02	4.20e+01	-3.62890e+03	3.03e-02	1.80e+01	-2.19283e+03	3.03e-02	9.40e+01	-5.40915e+03
3.33e-02	9.10e+01	-4.56155e+03	3.23e-02	6.70e+01	-4.30609e+03	3.13e-02	4.30e+01	-3.67468e+03	3.03e-02	1.90e+01	-2.28195e+03	3.03e-02	9.50e+01	-5.42849e+03
3.33e-02	9.20e+01	-4.57764e+03	3.23e-02	6.80e+01	-4.33194e+03	3.13e-02	4.40e+01	-3.71945e+03	3.03e-02	2.00e+01	-2.36856e+03	3.03e-02	9.60e+01	-5.44756e+03
3.33e-02	9.30e+01	-4.59350e+03	3.23e-02	6.90e+01	-4.35734e+03	3.13e-02	4.50e+01	-3.76324e+03	3.03e-02	2.10e+01	-2.45273e+03	3.03e-02	9.70e+01	-5.46636e+03
3.33e-02	9.40e+01	-4.60911e+03	3.23e-02	7.00e+01	-4.38228e+03	3.13e-02	4.60e+01	-3.80607e+03	3.03e-02	2.20e+01	-2.53459e+03	3.03e-02	9.80e+01	-5.48489e+03
3.33e-02	9.50e+01	-4.62450e+03	3.23e-02	7.10e+01	-4.40679e+03	3.13e-02	4.70e+01	-3.84799e+03	3.03e-02	2.30e+01	-2.61420e+03	3.03e-02	9.90e+01	-5.50317e+03
3.33e-02	9.60e+01	-4.63966e+03	3.23e-02	7.20e+01	-4.43087e+03	3.13e-02	4.80e+01	-3.88901e+03	3.03e-02	2.40e+01	-2.69167e+03	3.03e-02	1.00e+02	-5.52119e+03
3.33e-02	9.70e+01	-4.65460e+03	3.23e-02	7.30e+01	-4.45453e+03	3.13e-02	4.90e+01	-3.92916e+03	3.03e-02	2.50e+01	-2.76707e+03	2.94e-02	1.00e+00	-1.67189e+02
3.33e-02	9.80e+01	-4.66932e+03	3.23e-02	7.40e+01	-4.47779e+03	3.13e-02	5.00e+01	-3.96848e+03	3.03e-02	2.60e+01	-2.84048e+03	2.94e-02	1.00e+00	-3.26309e+02
3.33e-02	9.90e+01	-4.68383e+03	3.23e-02	7.50e+01	-4.50065e+03	3.13e-02	5.10e+01	-4.00698e+03	3.03e-02	2.70e+01	-2.91198e+03	2.94e-02	2.00e+00	-4.80001e+02
3.33e-02	1.00e+02	-4.69814e+03	3.23e-02	7.60e+01	-4.52312e+03	3.13e-02	5.20e+01	-4.04470e+03	3.03e-02	2.80e+01	-2.98163e+03	2.94e-02	4.00e+00	-6.28517e+02
3.23e-02	1.00e+00	-1.52384e+02	3.23e-02	7.70e+01	-4.54522e+03	3.13e-02	5.30e+01	-4.08165e+03	3.03e-02	2.90e+01	-3.04951e+03	2.94e-02	5.00e+00	-7.72094e+02
3.23e-02	2.00e+00	-2.96724e+02	3.23e-02	7.80e+01	-4.56695e+03	3.13e-02	5.40e+01	-4.11786e+03	3.03e-02	3.00e+01	-3.11568e+03	2.94e-02	6.00e+00	-9.10957e+02
3.23e-02	3.00e+00	-4.35682e+02	3.23e-02	7.90e+01	-4.58834e+03	3.13e-02	5.50e+01	-4.15332e+03	3.03e-02	3.10e+01	-3.18019e+03	2.94e-02	7.00e+00	-1.04532e+03
3.23e-02	4.00e+00	-5.69530e+02	3.23e-02	8.00e+01	-4.60935e+03	3.13e-02	5.60e+01	-4.18813e+03	3.03e-02	3.20e+01	-3.24312e+03	2.94e-02	8.00e+00	-1.17538e+03
3.23e-02	5.00e+00	-6.98526e+02	3.23e-02	8.10e+01	-4.63004e+03	3.13e-02	5.70e+01	-4.22223e+03	3.03e-02	3.30e+01	-3.30451e+03	2.94e-02	9.00e+00	-1.30133e+03
3.23e-02	6.00e+00	-8.22909e+02	3.23e-02	8.20e+01	-4.65038e+03	3.13e-02	5.80e+01	-4.25567e+03	3.03e-02	3.40e+01	-3.36442e+03	2.94e-02	1.00e+01	-1.42334e+03
3.23e-02	7.00e+00	-9.42906e+02	3.23e-02	8.30e+01	-4.67042e+03	3.13e-02	5.90e+01	-4.28847e+03	3.03e-02	3.50e+01	-3.42289e+03	2.94e-02	1.10e+01	-1.54160e+03
3.23e-02	8.00e+00	-1.05873e+03	3.23e-02	8.40e+01	-4.69013e+03	3.13e-02	6.00e+01	-4.32065e+03	3.03e-02	3.60e+01	-3.47999e+03	2.94e-02	1.20e+01	-1.65625e+03
3.23e-02	9.00e+00	-1.17058e+03	3.23e-02	8.50e+01	-4.70952e+03	3.13e-02	6.10e+01	-4.35222e+03	3.03e-02	3.70e+01	-3.53575e+03	2.94e-02	1.30e+01	-1.76745e+03
3.23e-02	1.00e+01	-1.27864e+03	3.23e-02	8.60e+01	-4.72862e+03	3.13e-02	6.20e+01	-4.38320e+03	3.03e-02	3.80e+01	-3.59022e+03	2.94e-02	1.40e+01	-1.87535e+03
3.23e-02	1.10e+01	-1.38310e+03	3.23e-02	8.70e+01	-4.74742e+03	3.13e-02	6.30e+01	-4.41360e+03	3.03e-02	3.90e+01	-3.64344e+03	2.94e-02	1.50e+01	-1.98009e+03
3.23e-02	1.20e+01	-1.48411e+03	3.23e-02	8.80e+01	-4.76592e+03	3.13e-02	6.40e+01	-4.44345e+03	3.03e-02	4.00e+01	-3.69546e+03	2.94e-02	1.60e+01	-2.08178e+03
3.23e-02	1.30e+01	-1.58185e+03	3.23e-02	8.90e+01	-4.78415e+03	3.13e-02	6.50e+01	-4.47274e+03	3.03e-02	4.10e+01	-3.74630e+03	2.94e-02	1.70e+01	-2.18056e+03
3.23e-02	1.40e+01	-1.67644e+03	3.23e-02	9.00e+01	-4.80210e+03	3.13e-02	6.60e+01	-4.50152e+03	3.03e-02	4.20e+01	-3.79602e+03	2.94e-02	1.80e+01	-2.27

S	Ω	λ	S	Ω	λ
2.94e-02	3.80e+01	-3.74667e+03	2.86e-02	1.40e+01	-1.94192e+03
2.94e-02	3.90e+01	-3.80298e+03	2.86e-02	1.50e+01	-2.05108e+03
2.94e-02	4.00e+01	-3.85803e+03	2.86e-02	1.60e+01	-2.15714e+03
2.94e-02	4.10e+01	-3.91188e+03	2.86e-02	1.70e+01	-2.26024e+03
2.94e-02	4.20e+01	-3.96454e+03	2.86e-02	1.80e+01	-2.36048e+03
2.94e-02	4.30e+01	-4.01607e+03	2.86e-02	1.90e+01	-2.45798e+03
2.94e-02	4.40e+01	-4.06649e+03	2.86e-02	2.00e+01	-2.55284e+03
2.94e-02	4.50e+01	-4.11585e+03			
2.94e-02	4.60e+01	-4.16417e+03			
2.94e-02	4.70e+01	-4.21148e+03			
2.94e-02	4.80e+01	-4.25783e+03			
2.94e-02	4.90e+01	-4.30322e+03			
2.94e-02	5.00e+01	-4.34770e+03			
2.94e-02	5.10e+01	-4.39129e+03			
2.94e-02	5.20e+01	-4.43401e+03			
2.94e-02	5.30e+01	-4.47589e+03			
2.94e-02	5.40e+01	-4.51695e+03			
2.94e-02	5.50e+01	-4.55722e+03			
2.94e-02	5.60e+01	-4.59672e+03			
2.94e-02	5.70e+01	-4.63548e+03			
2.94e-02	5.80e+01	-4.67350e+03			
2.94e-02	5.90e+01	-4.71081e+03			
2.94e-02	6.00e+01	-4.74743e+03			
2.94e-02	6.10e+01	-4.78338e+03			
2.94e-02	6.20e+01	-4.81868e+03			
2.94e-02	6.30e+01	-4.85334e+03			
2.94e-02	6.40e+01	-4.88738e+03			
2.94e-02	6.50e+01	-4.92082e+03			
2.94e-02	6.60e+01	-4.95367e+03			
2.94e-02	6.70e+01	-4.98595e+03			
2.94e-02	6.80e+01	-5.01767e+03			
2.94e-02	6.90e+01	-5.04884e+03			
2.94e-02	7.00e+01	-5.07949e+03			
2.94e-02	7.10e+01	-5.10961e+03			
2.94e-02	7.20e+01	-5.13924e+03			
2.94e-02	7.30e+01	-5.16837e+03			
2.94e-02	7.40e+01	-5.19701e+03			
2.94e-02	7.50e+01	-5.22520e+03			
2.94e-02	7.60e+01	-5.25292e+03			
2.94e-02	7.70e+01	-5.28019e+03			
2.94e-02	7.80e+01	-5.30703e+03			
2.94e-02	7.90e+01	-5.33345e+03			
2.94e-02	8.00e+01	-5.35944e+03			
2.94e-02	8.10e+01	-5.38505e+03			
2.94e-02	8.20e+01	-5.41023e+03			
2.94e-02	8.30e+01	-5.43503e+03			
2.94e-02	8.40e+01	-5.45946e+03			
2.94e-02	8.50e+01	-5.48351e+03			
2.94e-02	8.60e+01	-5.50720e+03			
2.94e-02	8.70e+01	-5.53056e+03			
2.94e-02	8.80e+01	-5.55355e+03			
2.94e-02	8.90e+01	-5.57620e+03			
2.94e-02	9.00e+01	-5.59850e+03			
2.94e-02	9.10e+01	-5.62051e+03			
2.94e-02	9.20e+01	-5.64218e+03			
2.94e-02	9.30e+01	-5.66355e+03			
2.94e-02	9.40e+01	-5.68461e+03			
2.94e-02	9.50e+01	-5.70537e+03			
2.94e-02	9.60e+01	-5.72584e+03			
2.94e-02	9.70e+01	-5.74602e+03			
2.94e-02	9.80e+01	-5.76592e+03			
2.94e-02	9.90e+01	-5.78555e+03			
2.94e-02	1.00e+02	-5.80491e+03			
2.86e-02	1.00e+00	-1.72123e+02			
2.86e-02	2.00e+00	-3.36172e+02			
2.86e-02	3.00e+00	-4.94778e+02			
2.86e-02	4.00e+00	-6.48188e+02			
2.86e-02	5.00e+00	-7.96633e+02			
2.86e-02	6.00e+00	-9.40334e+02			
2.86e-02	7.00e+00	-1.07950e+03			
2.86e-02	8.00e+00	-1.21432e+03			
2.86e-02	9.00e+00	-1.34499e+03			
2.86e-02	1.00e+01	-1.47169e+03			
2.86e-02	1.10e+01	-1.59457e+03			
2.86e-02	1.20e+01	-1.71381e+03			
2.86e-02	1.30e+01	-1.82954e+03			

APPENDIX C

Tables of $S_{opt}(B)$ and $\Omega_{opt}(B)$ for Prescribed K

$S_{opt}(B)$ and $\Omega_{opt}(B)$ for Si-Water

B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}
1.00000e-07	4.76e-02	9.00e+00	9.13041e-06	1.54e-01	8.50e+00	1.27799e-03	5.88e-01	7.25e+00
1.00809e-07	4.88e-02	9.00e+00	9.93686e-06	1.60e-01	8.75e+00	1.38527e-03	6.25e-01	7.75e+00
1.10601e-07	5.00e-02	9.00e+00	1.05137e-05	1.60e-01	8.50e+00	1.39648e-03	6.25e-01	7.50e+00
1.21835e-07	5.13e-02	9.00e+00	1.14885e-05	1.60e-01	8.25e+00	1.51983e-03	6.25e-01	7.25e+00
1.34751e-07	5.26e-02	9.00e+00	1.15815e-05	1.67e-01	8.75e+00	1.65407e-03	6.25e-01	7.00e+00
1.49639e-07	5.41e-02	9.00e+00	1.21555e-05	1.67e-01	8.50e+00	1.70140e-03	6.67e-01	7.50e+00
1.65503e-07	5.56e-02	9.00e+00	1.33362e-05	1.67e-01	8.25e+00	1.82207e-03	6.67e-01	7.25e+00
1.84530e-07	5.71e-02	9.00e+00	1.36077e-05	1.74e-01	8.75e+00	1.97503e-03	6.67e-01	7.00e+00
2.06575e-07	5.88e-02	9.00e+00	1.34673e-05	1.74e-01	8.50e+00	2.10659e-03	7.14e-01	7.50e+00
2.31255e-07	6.06e-02	9.00e+00	1.55435e-05	1.74e-01	8.25e+00	2.18441e-03	7.14e-01	7.25e+00
2.57842e-07	6.25e-02	9.25e+00	1.61177e-05	1.82e-01	8.75e+00	2.38696e-03	7.14e-01	7.00e+00
2.69530e-07	6.25e-02	9.00e+00	1.65789e-05	1.82e-01	8.50e+00	2.58734e-03	7.14e-01	6.75e+00
2.85177e-07	6.35e-02	9.00e+00	1.81893e-05	1.82e-01	8.25e+00	2.62939e-03	7.69e-01	7.50e+00
3.02950e-07	6.45e-02	9.00e+00	1.91677e-05	1.90e-01	8.75e+00	2.64001e-03	7.69e-01	7.25e+00
3.21830e-07	6.56e-02	9.25e+00	1.95579e-05	1.90e-01	8.50e+00	2.88480e-03	7.69e-01	7.00e+00
3.23130e-07	6.56e-02	9.00e+00	2.14577e-05	1.90e-01	8.25e+00	3.12697e-03	7.69e-01	6.75e+00
3.43268e-07	6.67e-02	9.00e+00	2.30723e-05	2.00e-01	8.75e+00	3.32185e-03	8.33e-01	7.25e+00
3.66135e-07	6.78e-02	9.00e+00	2.31655e-05	2.00e-01	8.50e+00	3.48647e-03	8.33e-01	7.00e+00
3.92101e-07	6.90e-02	9.00e+00	2.55183e-05	2.00e-01	8.25e+00	3.79441e-03	8.33e-01	6.75e+00
4.19910e-07	7.02e-02	9.00e+00	2.78844e-05	2.11e-01	8.50e+00	4.11295e-03	8.33e-01	6.50e+00
4.47881e-07	7.14e-02	9.00e+00	3.04699e-05	2.11e-01	8.25e+00	4.26489e-03	9.09e-01	7.00e+00
4.81582e-07	7.27e-02	9.00e+00	3.34296e-05	2.11e-01	8.00e+00	4.60432e-03	9.09e-01	6.75e+00
5.15737e-07	7.41e-02	9.00e+00	3.42479e-05	2.22e-01	8.50e+00	5.01101e-03	9.09e-01	6.50e+00
5.54544e-07	7.55e-02	9.00e+00	3.68249e-05	2.22e-01	8.25e+00	5.43167e-03	9.09e-01	6.25e+00
5.96271e-07	7.69e-02	9.00e+00	4.04019e-05	2.22e-01	8.00e+00	5.51995e-03	1.00e+00	7.00e+00
6.41138e-07	7.84e-02	9.00e+00	4.22334e-05	2.35e-01	8.50e+00	5.58710e-03	1.00e+00	6.75e+00
6.92166e-07	8.00e-02	9.00e+00	4.50467e-05	2.35e-01	8.25e+00	6.10515e-03	1.00e+00	6.50e+00
7.47254e-07	8.16e-02	9.00e+00	4.92236e-05	2.35e-01	8.00e+00	6.61767e-03	1.00e+00	6.25e+00
8.09985e-07	8.33e-02	9.00e+00	5.29274e-05	2.50e-01	8.50e+00	7.14436e-03	1.00e+00	6.00e+00
8.74451e-07	8.33e-02	8.75e+00	5.53268e-05	2.50e-01	8.25e+00	7.71297e-03	1.00e+00	5.75e+00
8.77983e-07	8.51e-02	9.00e+00	6.07010e-05	2.50e-01	8.00e+00	8.29334e-03	1.00e+00	5.50e+00
9.44047e-07	8.51e-02	8.75e+00	6.63293e-05	2.50e-01	7.75e+00	8.88152e-03	1.00e+00	5.25e+00
9.55532e-07	8.70e-02	9.00e+00	6.71362e-05	2.67e-01	8.50e+00	9.51140e-03	1.00e+00	5.00e+00
1.02330e-06	8.70e-02	8.75e+00	6.90573e-05	2.67e-01	8.25e+00	1.01860e-02	1.00e+00	4.75e+00
1.03993e-06	8.89e-02	9.00e+00	7.57652e-05	2.67e-01	8.00e+00	1.08645e-02	1.00e+00	4.50e+00
1.10920e-06	8.89e-02	8.75e+00	8.27903e-05	2.67e-01	7.75e+00	1.16350e-02	1.00e+00	4.25e+00
1.13635e-06	9.09e-02	9.00e+00	8.61954e-05	2.86e-01	8.50e+00	1.24100e-02	1.00e+00	4.00e+00
1.20718e-06	9.09e-02	8.75e+00	8.72439e-05	2.86e-01	8.25e+00	1.32902e-02	1.00e+00	3.75e+00
1.24172e-06	9.30e-02	9.00e+00	9.61049e-05	2.86e-01	8.00e+00	1.41755e-02	1.00e+00	3.50e+00
1.31380e-06	9.30e-02	8.75e+00	1.05016e-04	2.86e-01	7.75e+00	1.51808e-02	1.00e+00	3.25e+00
1.35685e-06	9.52e-02	9.00e+00	1.12464e-04	3.08e-01	8.25e+00	1.62575e-02	1.00e+00	3.00e+00
1.43562e-06	9.52e-02	8.75e+00	1.23388e-04	3.08e-01	8.00e+00	1.74808e-02	1.00e+00	2.75e+00
1.49466e-06	9.76e-02	9.00e+00	1.34829e-04	3.08e-01	7.75e+00	1.87961e-02	1.00e+00	2.50e+00
1.56873e-06	9.76e-02	8.75e+00	1.47330e-04	3.08e-01	7.50e+00	2.03740e-02	1.00e+00	2.25e+00
1.63985e-06	1.00e-01	9.00e+00	1.49725e-04	3.33e-01	8.25e+00	2.20844e-02	1.00e+00	2.00e+00
1.72111e-06	1.00e-01	8.75e+00	1.61641e-04	3.33e-01	8.00e+00	2.42296e-02	1.00e+00	1.75e+00
1.81370e-06	1.03e-01	9.00e+00	1.76629e-04	3.33e-01	7.75e+00	2.66905e-02	1.00e+00	1.50e+00
1.88829e-06	1.03e-01	8.75e+00	1.93006e-04	3.33e-01	7.50e+00	2.97590e-02	1.00e+00	1.25e+00
1.99791e-06	1.05e-01	9.00e+00	2.03389e-04	3.64e-01	8.25e+00	3.37196e-02	1.00e+00	1.00e+00
2.08008e-06	1.05e-01	8.75e+00	2.15196e-04	3.64e-01	8.00e+00			
2.20971e-06	1.08e-01	9.00e+00	2.36099e-04	3.64e-01	7.75e+00			
2.29134e-06	1.08e-01	8.75e+00	2.57990e-04	3.64e-01	7.50e+00			
2.46376e-06	1.11e-01	9.00e+00	2.80777e-04	3.64e-01	7.25e+00			
2.53426e-06	1.11e-01	8.75e+00	2.81911e-04	4.00e-01	8.25e+00			
2.73596e-06	1.14e-01	9.00e+00	2.93506e-04	4.00e-01	8.00e+00			
2.81425e-06	1.14e-01	8.75e+00	3.23316e-04	4.00e-01	7.75e+00			
3.06282e-06	1.18e-01	9.00e+00	3.53295e-04	4.00e-01	7.50e+00			
3.12517e-06	1.18e-01	8.75e+00	3.84500e-04	4.00e-01	7.25e+00			
3.44258e-06	1.21e-01	9.00e+00	4.03554e-04	4.44e-01	8.25e+00			
3.49853e-06	1.21e-01	8.75e+00	4.11769e-04	4.44e-01	8.00e+00			
3.83836e-06	1.21e-01	8.50e+00	4.53591e-04	4.44e-01	7.75e+00			
3.86943e-06	1.25e-01	9.00e+00	4.95648e-04	4.44e-01	7.50e+00			
3.91650e-06	1.25e-01	8.75e+00	5.39427e-04	4.44e-01	7.25e+00			
4.29693e-06	1.25e-01	8.50e+00	5.82360e-04	5.00e-01	8.25e+00			
4.36677e-06	1.29e-01	9.00e+00	5.96615e-04	5.00e-01	8.00e+00			
4.38440e-06	1.29e-01	8.75e+00	6.57210e-04	5.00e-01	7.75e+00			
4.81028e-06	1.29e-01	8.50e+00	7.18148e-04	5.00e-01	7.50e+00			
4.96791e-06	1.33e-01	8.75e+00	7.84736e-04	5.00e-01	7.25e+00			
5.42855e-06	1.33e-01	8.50e+00	7.94282e-04	5.26e-01	7.75e+00			
5.62908e-06	1.38e-01	8.75e+00	8.40390e-04	5.26e-01	7.50e+00			
6.15102e-06	1.38e-01	8.50e+00	9.18313e-04	5.26e-01	7.25e+00			
6.45584e-06	1.43e-01	8.75e+00	9.48406e-04	5.56e-01	7.75e+00			
6.96965e-06	1.43e-01	8.50e+00	9.87413e-04	5.56e-01	7.50e+00			
7.40402e-06	1.48e-01	8.75e+00	1.07897e-03	5.56e-01	7.25e+00			
7.96114e-06	1.48e-01	8.50e+00	1.14160e-03	5.88e-01	7.75e+00			
8.52575e-06	1.54e-01	8.75e+00	1.16955e-03	5.88e-01	7.50e+00			

$S_{opt}(B)$ and $\Omega_{opt}(B)$ for Cu-Water

B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}
1.00000e-07	4.88e-02	1.60e+01	1.70729e-06	1.00e-01	1.50e+01	2.95031e-05	2.11e-01	1.43e+01	7.56780e-04	5.00e-01	1.28e+01	1.48181e-02	1.00e+00	5.75e+00
1.02448e-07	4.88e-02	1.55e+01	1.72806e-06	1.03e-01	1.55e+01	3.09651e-05	2.11e-01	1.40e+01	7.81580e-04	5.26e-01	1.35e+01	1.53655e-02	1.00e+00	5.50e+00
1.04113e-07	5.00e-02	1.60e+01	1.78469e-06	1.03e-01	1.53e+01	3.24996e-05	2.11e-01	1.38e+01	8.07192e-04	5.26e-01	1.33e+01	1.59975e-02	1.00e+00	5.25e+00
1.12399e-07	5.00e-02	1.55e+01	1.88070e-06	1.03e-01	1.50e+01	3.30278e-05	2.22e-01	1.48e+01	8.47192e-04	5.26e-01	1.30e+01	1.65884e-02	1.00e+00	5.00e+00
1.15150e-07	5.13e-02	1.60e+01	1.91126e-06	1.05e-01	1.55e+01	3.38363e-05	2.22e-01	1.45e+01	8.89175e-04	5.26e-01	1.28e+01	1.72707e-02	1.00e+00	4.75e+00
1.23317e-07	5.13e-02	1.55e+01	1.96595e-06	1.05e-01	1.53e+01	3.56564e-05	2.22e-01	1.43e+01	9.33238e-04	5.56e-01	1.35e+01	1.79810e-02	1.00e+00	4.50e+00
1.27358e-07	5.26e-02	1.60e+01	2.06338e-06	1.05e-01	1.50e+01	3.74234e-05	2.22e-01	1.40e+01	9.56082e-04	5.56e-01	1.33e+01	1.87205e-02	1.00e+00	4.25e+00
1.36390e-07	5.26e-02	1.55e+01	2.11388e-06	1.08e-01	1.55e+01	3.94366e-05	2.22e-01	1.38e+01	1.00346e-03	5.56e-01	1.30e+01	1.94905e-02	1.00e+00	4.00e+00
1.41429e-07	5.41e-02	1.60e+01	2.16563e-06	1.08e-01	1.53e+01	4.08934e-05	2.35e-01	1.48e+01	1.05319e-03	5.56e-01	1.28e+01	2.03740e-02	1.00e+00	3.75e+00
1.50850e-07	5.41e-02	1.55e+01	2.28213e-06	1.08e-01	1.50e+01	4.12243e-05	2.35e-01	1.45e+01	1.10538e-03	5.56e-01	1.25e+01	2.12977e-02	1.00e+00	3.50e+00
1.57054e-07	5.56e-02	1.60e+01	2.35691e-06	1.11e-01	1.55e+01	4.34420e-05	2.35e-01	1.43e+01	1.12788e-03	5.88e-01	1.35e+01	2.23531e-02	1.00e+00	3.25e+00
1.66842e-07	5.56e-02	1.55e+01	2.39522e-06	1.11e-01	1.53e+01	4.57778e-05	2.35e-01	1.40e+01	1.13701e-03	5.88e-01	1.33e+01	2.35555e-02	1.00e+00	3.00e+00
1.75110e-07	5.71e-02	1.60e+01	2.52406e-06	1.11e-01	1.50e+01	4.80475e-05	2.35e-01	1.38e+01	1.19335e-03	5.88e-01	1.30e+01	2.48227e-02	1.00e+00	2.75e+00
1.86023e-07	5.71e-02	1.55e+01	2.61731e-06	1.14e-01	1.55e+01	5.06321e-05	2.35e-01	1.35e+01	1.25755e-03	5.88e-01	1.28e+01	2.62636e-02	1.00e+00	2.50e+00
1.95242e-07	5.88e-02	1.60e+01	2.65984e-06	1.14e-01	1.53e+01	5.12481e-05	2.50e-01	1.45e+01	1.30927e-03	5.88e-01	1.25e+01	2.79005e-02	1.00e+00	2.25e+00
2.07410e-07	5.88e-02	1.55e+01	2.80293e-06	1.14e-01	1.50e+01	5.37877e-05	2.50e-01	1.43e+01	1.36862e-03	6.25e-01	1.33e+01	2.97590e-02	1.00e+00	2.00e+00
2.19450e-07	6.06e-02	1.60e+01	2.92999e-06	1.18e-01	1.55e+01	5.66811e-05	2.50e-01	1.40e+01	1.43067e-03	6.25e-01	1.30e+01	3.19983e-02	1.00e+00	1.75e+00
2.32189e-07	6.06e-02	1.55e+01	2.95371e-06	1.18e-01	1.53e+01	5.94900e-05	2.50e-01	1.38e+01	1.49553e-03	6.25e-01	1.28e+01	3.48245e-02	1.00e+00	1.50e+00
2.46660e-07	6.25e-02	1.60e+01	3.11260e-06	1.18e-01	1.50e+01	6.24380e-05	2.50e-01	1.35e+01	1.57598e-03	6.25e-01	1.25e+01	3.82072e-02	1.00e+00	1.25e+00
2.53718e-07	6.25e-02	1.58e+01	3.28004e-06	1.18e-01	1.48e+01	6.50060e-05	2.67e-01	1.45e+01	1.64742e-03	6.25e-01	1.23e+01	4.27718e-02	1.00e+00	1.00e+00
2.67366e-07	6.25e-02	1.55e+01	3.29329e-06	1.21e-01	1.53e+01	6.71362e-05	2.67e-01	1.43e+01	1.68096e-03	6.67e-01	1.33e+01			
2.70619e-07	6.35e-02	1.58e+01	3.47044e-06	1.21e-01	1.50e+01	7.07477e-05	2.67e-01	1.40e+01	1.72210e-03	6.67e-01	1.30e+01			
2.84029e-07	6.35e-02	1.55e+01	3.65713e-06	1.21e-01	1.48e+01	7.45535e-05	2.67e-01	1.38e+01	1.80744e-03	6.67e-01	1.28e+01			
2.87485e-07	6.45e-02	1.58e+01	3.70162e-06	1.25e-01	1.53e+01	7.82480e-05	2.67e-01	1.35e+01	1.89701e-03	6.67e-01	1.25e+01			
3.01731e-07	6.45e-02	1.55e+01	3.88506e-06	1.25e-01	1.50e+01	8.21256e-05	2.67e-01	1.33e+01	1.98301e-03	6.67e-01	1.23e+01			
3.06635e-07	6.56e-02	1.58e+01	4.09405e-06	1.25e-01	1.48e+01	8.37975e-05	2.86e-01	1.45e+01	2.07290e-03	6.67e-01	1.20e+01			
3.20536e-07	6.56e-02	1.55e+01	4.17739e-06	1.29e-01	1.53e+01	8.51594e-05	2.86e-01	1.43e+01	2.08128e-03	7.14e-01	1.30e+01			
3.27061e-07	6.67e-02	1.58e+01	4.36677e-06	1.29e-01	1.50e+01	9.01029e-05	2.86e-01	1.40e+01	2.19324e-03	7.14e-01	1.28e+01			
3.40512e-07	6.67e-02	1.55e+01	4.58316e-06	1.29e-01	1.48e+01	9.45679e-05	2.86e-01	1.38e+01	2.30192e-03	7.14e-01	1.25e+01			
3.48848e-07	6.78e-02	1.58e+01	4.73335e-06	1.33e-01	1.53e+01	9.96551e-05	2.86e-01	1.35e+01	2.39660e-03	7.14e-01	1.23e+01			
3.63195e-07	6.78e-02	1.55e+01	4.90821e-06	1.33e-01	1.50e+01	1.04594e-04	2.86e-01	1.33e+01	2.51536e-03	7.14e-01	1.20e+01			
3.72085e-07	6.90e-02	1.58e+01	5.17224e-06	1.33e-01	1.48e+01	1.09335e-04	3.08e-01	1.45e+01	2.60828e-03	7.69e-01	1.30e+01			
3.87389e-07	6.90e-02	1.55e+01	5.38496e-06	1.38e-01	1.53e+01	1.10220e-04	3.08e-01	1.43e+01	2.65067e-03	7.69e-01	1.28e+01			
3.98474e-07	7.02e-02	1.58e+01	5.56143e-06	1.38e-01	1.50e+01	1.16149e-04	3.08e-01	1.40e+01	2.80454e-03	7.69e-01	1.25e+01			
4.13194e-07	7.02e-02	1.55e+01	5.86060e-06	1.38e-01	1.48e+01	1.22397e-04	3.08e-01	1.38e+01	2.91989e-03	7.69e-01	1.23e+01			
4.26734e-07	7.14e-02	1.58e+01	6.15102e-06	1.38e-01	1.45e+01	1.28463e-04	3.08e-01	1.35e+01	3.06458e-03	7.69e-01	1.20e+01			
4.40718e-07	7.14e-02	1.55e+01	6.17586e-06	1.43e-01	1.53e+01	1.34829e-04	3.08e-01	1.33e+01	3.20351e-03	7.69e-01	1.18e+01			
4.56999e-07	7.27e-02	1.58e+01	6.32704e-06	1.43e-01	1.50e+01	1.41510e-04	3.08e-01	1.30e+01	3.30849e-03	8.33e-01	1.28e+01			
4.71974e-07	7.27e-02	1.55e+01	6.64057e-06	1.43e-01	1.48e+01	1.45560e-04	3.33e-01	1.43e+01	3.43071e-03	8.33e-01	1.25e+01			
4.91386e-07	7.41e-02	1.58e+01	6.99780e-06	1.43e-01	1.45e+01	1.52773e-04	3.33e-01	1.40e+01	3.57181e-03	8.33e-01	1.23e+01			
5.05447e-07	7.41e-02	1.55e+01	7.11153e-06	1.48e-01	1.53e+01	1.60991e-04	3.33e-01	1.38e+01	3.74881e-03	8.33e-01	1.20e+01			
5.28361e-07	7.55e-02	1.58e+01	7.19804e-06	1.48e-01	1.50e+01	1.68969e-04	3.33e-01	1.35e+01	3.90299e-03	8.33e-01	1.18e+01			
5.41294e-07	7.55e-02	1.55e+01	7.58525e-06	1.48e-01	1.48e+01	1.78058e-04	3.33e-01	1.33e+01	4.09641e-03	8.33e-01	1.15e+01			
5.68118e-07	7.69e-02	1.58e+01	7.96114e-06	1.48e-01	1.45e+01	1.86882e-04	3.33e-01	1.30e+01	4.24773e-03	9.09e-01	1.25e+01			
5.82024e-07	7.69e-02	1.55e+01	8.18895e-06	1.54e-01	1.53e+01	1.95354e-04	3.33e-01	1.28e+01	4.38693e-03	9.09e-01	1.23e+01			
6.13334e-07	7.84e-02	1.58e+01	8.25523e-06	1.54e-01	1.50e+01	1.98529e-04	3.64e-01	1.43e+01	4.56736e-03	9.09e-01	1.20e+01			
6.25820e-07	7.84e-02	1.55e+01	8.69931e-06	1.54e-01	1.48e+01	2.05035e-04	3.64e-01	1.40e+01	4.81305e-03	9.09e-01	1.18e+01			
6.59485e-07	7.84e-02	1.53e+01	9.13041e-06	1.54e-01	1.45e+01	2.16265e-04	3.64e-01	1.38e+01	5.03124e-03	9.09e-01	1.15e+01			
6.62148e-07	8.00e-02	1.58e+01	9.54432e-06	1.60e-01	1.50e+01	2.27688e-04	3.64e-01	1.35e+01	5.25933e-03	9.09e-01	1.13e+01			
6.72910e-07	8.00e-02	1.55e+01	1.00173e-05	1.60e-01	1.48e+01	2.38971e-04	3.64e-01	1.33e+01	5.47564e-03	9.09e-01	1.10e+01			
7.09108e-07	8.00e-02	1.53e+01	1.05137e-05	1.60e-01	1.45e+01	2.50813e-04	3.64e-01	1.30e+01	5.51995e-03	1.00e+00	1.23e+01			
7.14848e-07	8.16e-02	1.58e+01	1.10793e-05	1.60e-01	1.43e+01	2.62624e-04	3.64e-01	1.28e+01	5.65507e-03	1.00e+00	1.20e+01			
7.26466e-07	8.16e-02	1.55e+01	1.11240e-05	1.67e-01	1.50e+01	2.75176e-04	3.64e-01	1.25e+01	5.88766e-03	1.00e+00	1.18e+01			
7.65545e-07	8.16e-02	1.53e+01	1.15815e-05	1.67e-01	1.48e+01	2.76287e-04	4.00e-01	1.43e+01	6.15456e-03	1.00e+00	1.15e+01			
7.74858e-07	8.33e-02	1.58e+01	1.22045e-05	1.67e-01	1.45e+01	2.81911e-04	4.00e-01	1.40e+01	6.45955e-03	1.00e+00	1.13e+01			
7.84284e-07	8.33e-02	1.55e+01	1.28093e-05	1.67e-01	1.43e+01	2.98276e-04	4.00e-01	1.38e+01	6.75239e-03	1.00e+00	1.10e+01			
8.26474e-07	8.33e-02	1.53e+01	1.31229e-05	1.74e-01	1.50e+01	3.14322e-04	4.00e-01	1.35e+01	7.03010e-03	1.00e+00	1.08e+01			
8.39907e-07	8.51e-02	1.58e+01	1.34984e-05	1.74e-01	1.48e+01	3.29898e-04	4.00e-01	1.33e+01	7.34880e-03	1.00e+00	1.05e+01			
8.46705e-07	8.51e-02	1.55e+01	1.42245e-05	1.74e-01	1.45e+01	3.46246e-04	4.00e-01	1.30e+01	7.62027e-03	1.00e+00	1.03e+01			
8.92252e-07	8.51e-02	1.53e+01	1.49294e-05	1.74e-01	1.43e+01	3.63404e-04	4.00e-01	1.28e+01	7.96572e-03	1.00e+00	1.00e+01			
9.14093e-07	8.70e-02	1.58e+01	1.54809e-05	1.82e-01	1.50e+01	3.79879e-04	4.00e-01	1.25e+01	8.25998e-03	1.00e+00	9.75e+00			
9.17784e-07	8.70e-02	1.55e+01	1.57961e-05	1.82e-01	1.48e+01	3.93912e-04	4.44e-01	1.43e+01	8.59971e-03	1.00e+00	9.50e+00			
9.67156e-07	8.70e-02	1.53e+01	1.66458e-05	1.82e-01	1.45e+01									

$S_{opt}(B)$ and $\Omega_{opt}(B)$ for Cu-Air

B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}
1.00000e-07	5.00e-02	7.25e+01	2.93844e-07	6.67e-02	7.25e+01	5.86397e-07	7.84e-02	7.05e+01	1.16618e-06	9.30e-02	6.93e+01	2.34338e-06	1.11e-01	6.83e+01
1.00346e-07	5.00e-02	7.20e+01	2.96905e-07	6.67e-02	7.23e+01	5.92507e-07	8.00e-02	7.23e+01	1.17022e-06	9.52e-02	7.15e+01	2.36779e-06	1.11e-01	6.80e+01
1.01042e-07	5.13e-02	7.45e+01	2.98964e-07	6.67e-02	7.20e+01	5.94557e-07	8.00e-02	7.20e+01	1.17427e-06	9.52e-02	7.13e+01	2.39246e-06	1.14e-01	7.05e+01
1.01742e-07	5.13e-02	7.40e+01	3.02079e-07	6.67e-02	7.18e+01	6.00751e-07	8.00e-02	7.18e+01	1.18650e-06	9.52e-02	7.10e+01	2.40074e-06	1.14e-01	7.03e+01
1.03873e-07	5.13e-02	7.35e+01	3.05226e-07	6.67e-02	7.15e+01	6.07010e-07	8.00e-02	7.15e+01	1.19886e-06	9.52e-02	7.08e+01	2.42575e-06	1.14e-01	7.00e+01
1.06049e-07	5.13e-02	7.30e+01	3.08406e-07	6.67e-02	7.13e+01	6.13334e-07	8.00e-02	7.13e+01	1.21135e-06	9.52e-02	7.05e+01	2.45102e-06	1.14e-01	6.98e+01
1.08270e-07	5.13e-02	7.25e+01	3.09473e-07	6.78e-02	7.28e+01	6.19724e-07	8.00e-02	7.10e+01	1.22397e-06	9.52e-02	7.03e+01	2.47656e-06	1.14e-01	6.95e+01
1.10538e-07	5.13e-02	7.20e+01	3.12697e-07	6.78e-02	7.25e+01	6.24020e-07	8.00e-02	7.08e+01	1.23672e-06	9.52e-02	7.00e+01	2.50236e-06	1.14e-01	6.93e+01
1.11689e-07	5.26e-02	7.45e+01	3.15955e-07	6.78e-02	7.25e+01	6.30522e-07	8.00e-02	7.05e+01	1.24961e-06	9.52e-02	6.98e+01	2.52843e-06	1.14e-01	6.90e+01
1.12464e-07	5.26e-02	7.40e+01	3.19246e-07	6.78e-02	7.20e+01	6.37090e-07	8.00e-02	7.03e+01	1.25827e-06	9.52e-02	6.95e+01	2.55477e-06	1.14e-01	6.88e+01
1.14819e-07	5.26e-02	7.35e+01	3.22572e-07	6.78e-02	7.18e+01	6.39295e-07	8.16e-02	7.23e+01	1.27138e-06	9.52e-02	6.93e+01	2.57248e-06	1.14e-01	6.85e+01
1.17224e-07	5.26e-02	7.30e+01	3.25933e-07	6.78e-02	7.15e+01	6.41508e-07	8.16e-02	7.20e+01	1.28463e-06	9.52e-02	6.90e+01	2.59928e-06	1.14e-01	6.83e+01
1.19679e-07	5.26e-02	7.25e+01	3.28193e-07	6.78e-02	7.13e+01	6.48191e-07	8.16e-02	7.18e+01	1.28907e-06	9.76e-02	7.13e+01	2.62636e-06	1.14e-01	6.80e+01
1.21765e-07	5.26e-02	7.20e+01	3.30468e-07	6.90e-02	7.28e+01	6.54944e-07	8.16e-02	7.15e+01	1.29841e-06	9.76e-02	7.10e+01	2.65373e-06	1.14e-01	6.78e+01
1.24315e-07	5.41e-02	7.40e+01	3.33911e-07	6.90e-02	7.25e+01	6.61767e-07	8.16e-02	7.13e+01	1.31153e-06	9.76e-02	7.08e+01	2.68137e-06	1.18e-01	7.03e+01
1.26919e-07	5.41e-02	7.35e+01	3.37390e-07	6.90e-02	7.23e+01	6.66355e-07	8.16e-02	7.10e+01	1.32520e-06	9.76e-02	7.05e+01	2.69996e-06	1.18e-01	7.00e+01
1.29577e-07	5.41e-02	7.30e+01	3.39729e-07	6.90e-02	7.20e+01	6.73298e-07	8.16e-02	7.08e+01	1.33900e-06	9.76e-02	7.03e+01	2.71868e-06	1.18e-01	6.98e+01
1.32291e-07	5.41e-02	7.25e+01	3.43268e-07	6.90e-02	7.18e+01	6.80312e-07	8.16e-02	7.05e+01	1.35295e-06	9.76e-02	7.00e+01	2.74701e-06	1.18e-01	6.95e+01
1.35062e-07	5.41e-02	7.20e+01	3.46845e-07	6.90e-02	7.15e+01	6.87400e-07	8.16e-02	7.03e+01	1.36233e-06	9.76e-02	6.98e+01	2.77563e-06	1.18e-01	6.93e+01
1.37415e-07	5.41e-02	7.15e+01	3.50458e-07	6.90e-02	7.13e+01	6.94561e-07	8.33e-02	7.20e+01	1.37653e-06	9.76e-02	6.95e+01	2.80454e-06	1.18e-01	6.90e+01
1.37891e-07	5.56e-02	7.40e+01	3.54109e-07	7.02e-02	7.28e+01	6.99377e-07	8.33e-02	7.18e+01	1.39087e-06	9.76e-02	6.93e+01	2.83376e-06	1.18e-01	6.88e+01
1.40779e-07	5.56e-02	7.35e+01	3.56564e-07	7.02e-02	7.25e+01	7.06663e-07	8.33e-02	7.15e+01	1.40536e-06	9.76e-02	6.90e+01	2.86328e-06	1.18e-01	6.85e+01
1.43727e-07	5.56e-02	7.30e+01	3.60279e-07	7.02e-02	7.23e+01	7.14025e-07	8.33e-02	7.13e+01	1.42000e-06	1.00e-01	7.10e+01	2.89311e-06	1.18e-01	6.83e+01
1.46738e-07	5.56e-02	7.25e+01	3.62777e-07	7.02e-02	7.20e+01	7.21464e-07	8.33e-02	7.10e+01	1.43479e-06	1.00e-01	7.08e+01	2.92325e-06	1.18e-01	6.80e+01
1.49811e-07	5.56e-02	7.20e+01	3.66557e-07	7.02e-02	7.18e+01	7.28980e-07	8.33e-02	7.08e+01	1.44974e-06	1.00e-01	7.05e+01	2.95371e-06	1.18e-01	6.78e+01
1.52421e-07	5.56e-02	7.15e+01	3.70375e-07	7.02e-02	7.15e+01	7.36575e-07	8.33e-02	7.05e+01	1.46484e-06	1.00e-01	7.03e+01	2.98448e-06	1.18e-01	6.75e+01
1.54009e-07	5.71e-02	7.40e+01	3.74234e-07	7.02e-02	7.13e+01	7.41682e-07	8.33e-02	7.03e+01	1.48011e-06	1.00e-01	7.00e+01	3.00517e-06	1.18e-01	6.73e+01
1.56693e-07	5.71e-02	7.35e+01	3.78133e-07	7.02e-02	7.10e+01	7.49409e-07	8.33e-02	7.00e+01	1.49553e-06	1.00e-01	6.98e+01	3.01557e-06	1.21e-01	7.00e+01
1.59975e-07	5.71e-02	7.30e+01	3.79441e-07	7.14e-02	7.28e+01	7.54605e-07	8.51e-02	7.20e+01	1.51111e-06	1.00e-01	6.95e+01	3.03648e-06	1.21e-01	6.98e+01
1.63325e-07	5.71e-02	7.25e+01	3.80755e-07	7.14e-02	7.25e+01	7.57216e-07	8.51e-02	7.18e+01	1.52685e-06	1.00e-01	6.93e+01	3.06812e-06	1.21e-01	6.95e+01
1.66171e-07	5.71e-02	7.20e+01	3.84721e-07	7.14e-02	7.23e+01	7.65105e-07	8.51e-02	7.15e+01	1.53743e-06	1.00e-01	6.90e+01	3.10008e-06	1.21e-01	6.93e+01
1.69651e-07	5.71e-02	7.15e+01	3.88729e-07	7.14e-02	7.20e+01	7.73076e-07	8.51e-02	7.13e+01	1.55345e-06	1.00e-01	6.88e+01	3.13238e-06	1.21e-01	6.90e+01
1.72607e-07	5.88e-02	7.40e+01	3.92779e-07	7.14e-02	7.18e+01	7.81130e-07	8.51e-02	7.10e+01	1.56964e-06	1.03e-01	7.10e+01	3.16501e-06	1.21e-01	6.88e+01
1.75009e-07	5.88e-02	7.35e+01	3.96871e-07	7.14e-02	7.15e+01	7.86546e-07	8.51e-02	7.08e+01	1.57507e-06	1.03e-01	7.08e+01	3.19798e-06	1.21e-01	6.85e+01
1.78675e-07	5.88e-02	7.30e+01	3.99623e-07	7.14e-02	7.13e+01	7.94740e-07	8.51e-02	7.05e+01	1.59148e-06	1.03e-01	7.05e+01	3.23130e-06	1.21e-01	6.83e+01
1.81788e-07	5.88e-02	7.25e+01	4.03786e-07	7.14e-02	7.10e+01	8.03020e-07	8.51e-02	7.03e+01	1.60806e-06	1.03e-01	7.03e+01	3.26496e-06	1.21e-01	6.80e+01
1.85595e-07	5.88e-02	7.20e+01	4.07993e-07	7.27e-02	7.25e+01	8.11386e-07	8.51e-02	7.00e+01	1.62481e-06	1.03e-01	7.00e+01	3.29898e-06	1.21e-01	6.78e+01
1.89483e-07	5.88e-02	7.15e+01	4.10822e-07	7.27e-02	7.23e+01	8.19839e-07	8.70e-02	7.18e+01	1.64174e-06	1.03e-01	6.98e+01	3.32185e-06	1.21e-01	6.75e+01
1.93451e-07	6.06e-02	7.40e+01	4.15102e-07	7.27e-02	7.20e+01	8.28380e-07	8.70e-02	7.15e+01	1.65884e-06	1.03e-01	6.95e+01	3.35646e-06	1.21e-01	6.73e+01
1.95467e-07	6.06e-02	7.35e+01	4.19426e-07	7.27e-02	7.18e+01	8.37010e-07	8.70e-02	7.13e+01	1.67612e-06	1.03e-01	6.93e+01	3.39143e-06	1.25e-01	7.00e+01
1.99561e-07	6.06e-02	7.30e+01	4.23796e-07	7.27e-02	7.15e+01	8.45730e-07	8.70e-02	7.10e+01	1.69359e-06	1.03e-01	6.90e+01	3.40316e-06	1.25e-01	6.98e+01
2.03740e-07	6.06e-02	7.25e+01	4.28211e-07	7.27e-02	7.13e+01	8.54541e-07	8.70e-02	7.08e+01	1.70533e-06	1.03e-01	6.88e+01	3.43862e-06	1.25e-01	6.95e+01
2.08008e-07	6.06e-02	7.20e+01	4.32672e-07	7.27e-02	7.10e+01	8.63444e-07	8.70e-02	7.05e+01	1.72309e-06	1.03e-01	6.85e+01	3.47444e-06	1.25e-01	6.93e+01
2.12364e-07	6.06e-02	7.15e+01	4.37180e-07	7.41e-02	7.25e+01	8.72439e-07	8.70e-02	7.03e+01	1.73504e-06	1.05e-01	7.08e+01	3.51064e-06	1.25e-01	6.90e+01
2.16065e-07	6.06e-02	7.10e+01	4.40211e-07	7.41e-02	7.23e+01	8.78488e-07	8.70e-02	7.00e+01	1.75312e-06	1.05e-01	7.05e+01	3.54721e-06	1.25e-01	6.88e+01
2.18316e-07	6.25e-02	7.40e+01	4.44797e-07	7.41e-02	7.20e+01	8.87640e-07	8.70e-02	6.98e+01	1.77138e-06	1.05e-01	7.03e+01	3.58417e-06	1.25e-01	6.85e+01
2.19829e-07	6.25e-02	7.35e+01	4.49431e-07	7.41e-02	7.18e+01	8.93795e-07	8.89e-02	7.18e+01	1.78984e-06	1.05e-01	7.00e+01	3.62151e-06	1.25e-01	6.83e+01
2.24434e-07	6.25e-02	7.30e+01	4.54113e-07	7.41e-02	7.15e+01	8.99982e-07	8.89e-02	7.15e+01	1.80848e-06	1.05e-01	6.98e+01	3.65924e-06	1.25e-01	6.80e+01
2.29134e-07	6.25e-02	7.25e+01	4.58844e-07	7.41e-02	7.13e+01	9.09368e-07	8.89e-02	7.13e+01	1.82732e-06	1.05e-01	6.95e+01	3.68461e-06	1.25e-01	6.78e+01
2.33933e-07	6.25e-02	7.20e+01	4.63625e-07	7.41e-02	7.10e+01	9.18842e-07	8.89e-02	7.10e+01	1.84636e-06	1.05e-01	6.93e+01	3.72300e-06	1.25e-01	6.75e+01
2.38009e-07	6.25e-02	7.15e+01	4.68455e-07	7.41e-02	7.08e+01	9.25213e-07	8.89e-02	7.08e+01	1.86560e-06	1.05e-01	6.90e+01	3.76178e-06	1.25e-01	6.73e+01
2.39660e-07	6.35e-02	7.30e+01	4.70076e-07	7.55e-02	7.25e+01	9.34852e-07	8.89e-02	7.05e+01	1.87853e-06	1.05e-01	6.88e+01	3.80097e-06	1.25e-01	6.70e+01
2.41321e-07	6.35e-02	7.28e+01	4.73335e-07	7.55e-02	7.23e+01	9.44591e-07	8.89e-02	7.03e+01	1.89810e-06	1.05e-01	6.85e+01	3.84057e-06	1.29e-01	6.98e+01
2.43835e-07	6.35e-02	7.25e+01	4.78266e-07	7.55e-02	7.20e+01	9.54432e-07	8.89e-02	7.00e+01	1.91788e-06	1.05e-01	6.83e+01	3.85386e-06	1.29e-01	6.95e+01
2.46376e-07	6.35e-02	7.23e+01	4.83249e-07	7.55e-02	7.18e+01	9.64375e-07	8.89e-02	6.98e+01	1.92451e-06	1.08e-01	7.08e+01	3.89401e-06	1.29e-01	6.93e+01
2.48942e-07	6.35e-02	7.20e+01	4.86600e-07	7.55e-02	7.15e+01	9.74422e-07	8.89e-02	6.95e+01	1.93786e-06	1.08e-01	7.05e+01	3.93458e-06	1.29e-01	6.90e+01
2.51536e-07	6.35e-02	7.18e+01	4.91669e-07	7.55e-02	7.13e+01	9.77794e-07	9.09e-02							

B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}
4.70889e-06	1.33e-01	6.75e+01	9.82875e-06	1.60e-01	6.58e+01	2.05153e-05	1.90e-01	6.33e+01	4.23796e-05	2.35e-01	6.43e+01	9.25213e-05	2.86e-01	6.25e+01
4.77441e-06	1.33e-01	6.73e+01	9.93114e-06	1.60e-01	6.55e+01	2.06575e-05	1.90e-01	6.30e+01	4.29693e-05	2.35e-01	6.40e+01	9.38087e-05	2.86e-01	6.23e+01
4.80751e-06	1.33e-01	6.70e+01	1.00346e-05	1.60e-01	6.53e+01	2.08728e-05	1.90e-01	6.28e+01	4.35672e-05	2.35e-01	6.38e+01	9.51140e-05	2.86e-01	6.20e+01
4.85760e-06	1.33e-01	6.68e+01	1.01391e-05	1.60e-01	6.50e+01	2.09450e-05	2.00e-01	6.70e+01	4.37180e-05	2.35e-01	6.35e+01	9.57735e-05	2.86e-01	6.18e+01
4.90821e-06	1.33e-01	6.65e+01	1.02448e-05	1.60e-01	6.48e+01	2.12364e-05	2.00e-01	6.68e+01	4.43263e-05	2.35e-01	6.33e+01	9.64375e-05	2.86e-01	6.15e+01
4.95934e-06	1.33e-01	6.63e+01	1.03515e-05	1.60e-01	6.45e+01	2.13837e-05	2.00e-01	6.65e+01	4.47881e-05	2.35e-01	6.30e+01	9.77794e-05	2.86e-01	6.13e+01
4.97650e-06	1.38e-01	6.93e+01	1.03873e-05	1.67e-01	6.80e+01	2.16812e-05	2.00e-01	6.63e+01	4.52547e-05	2.35e-01	6.28e+01	9.81178e-05	2.86e-01	6.10e+01
5.02835e-06	1.38e-01	6.90e+01	1.05319e-05	1.67e-01	6.78e+01	2.19071e-05	2.00e-01	6.60e+01	4.57262e-05	2.35e-01	6.25e+01	9.94831e-05	2.86e-01	6.08e+01
5.08073e-06	1.38e-01	6.88e+01	1.06049e-05	1.67e-01	6.75e+01	2.21353e-05	2.00e-01	6.58e+01	4.60432e-05	2.35e-01	6.23e+01	1.00867e-04	2.86e-01	6.05e+01
5.13367e-06	1.38e-01	6.85e+01	1.07525e-05	1.67e-01	6.73e+01	2.22888e-05	2.00e-01	6.55e+01	4.63625e-05	2.35e-01	6.20e+01	1.01216e-04	2.86e-01	6.03e+01
5.18715e-06	1.38e-01	6.83e+01	1.08270e-05	1.67e-01	6.70e+01	2.25990e-05	2.00e-01	6.53e+01	4.71703e-05	2.35e-01	6.18e+01	1.02625e-04	2.86e-01	6.00e+01
5.24119e-06	1.38e-01	6.80e+01	1.09398e-05	1.67e-01	6.68e+01	2.28344e-05	2.00e-01	6.50e+01	4.73335e-05	2.35e-01	6.15e+01	1.02980e-04	2.86e-01	5.98e+01
5.29579e-06	1.38e-01	6.78e+01	1.10920e-05	1.67e-01	6.65e+01	2.29927e-05	2.00e-01	6.48e+01	4.79922e-05	2.35e-01	6.13e+01	1.04413e-04	3.08e-01	6.63e+01
5.33251e-06	1.38e-01	6.75e+01	1.12076e-05	1.67e-01	6.63e+01	2.32127e-05	2.00e-01	6.45e+01	4.83249e-05	2.35e-01	6.10e+01	1.05501e-04	3.08e-01	6.60e+01
5.40671e-06	1.38e-01	6.73e+01	1.12853e-05	1.67e-01	6.60e+01	2.34743e-05	2.00e-01	6.43e+01	4.86600e-05	2.50e-01	6.63e+01	1.06600e-04	3.08e-01	6.55e+01
5.44420e-06	1.38e-01	6.70e+01	1.14029e-05	1.67e-01	6.58e+01	2.38009e-05	2.00e-01	6.40e+01	4.93371e-05	2.50e-01	6.60e+01	1.08833e-04	3.08e-01	6.53e+01
5.50092e-06	1.38e-01	6.68e+01	1.15217e-05	1.67e-01	6.55e+01	2.40489e-05	2.00e-01	6.38e+01	4.98511e-05	2.50e-01	6.58e+01	1.09966e-04	3.08e-01	6.50e+01
5.55823e-06	1.38e-01	6.65e+01	1.16417e-05	1.67e-01	6.53e+01	2.42156e-05	2.00e-01	6.35e+01	5.01967e-05	2.50e-01	6.55e+01	1.11112e-04	3.08e-01	6.48e+01
5.61613e-06	1.38e-01	6.63e+01	1.17630e-05	1.67e-01	6.50e+01	2.44679e-05	2.00e-01	6.33e+01	5.08952e-05	2.50e-01	6.53e+01	1.12270e-04	3.08e-01	6.45e+01
5.67464e-06	1.38e-01	6.60e+01	1.18855e-05	1.67e-01	6.48e+01	2.47228e-05	2.00e-01	6.30e+01	5.14254e-05	2.50e-01	6.50e+01	1.13439e-04	3.08e-01	6.43e+01
5.71399e-06	1.43e-01	6.90e+01	1.20094e-05	1.67e-01	6.45e+01	2.49804e-05	2.00e-01	6.28e+01	5.23214e-05	2.50e-01	6.45e+01	1.14621e-04	3.08e-01	6.40e+01
5.77352e-06	1.43e-01	6.88e+01	1.20926e-05	1.67e-01	6.43e+01	2.51536e-05	2.00e-01	6.25e+01	5.30495e-05	2.50e-01	6.43e+01	1.15815e-04	3.08e-01	6.38e+01
5.83366e-06	1.43e-01	6.85e+01	1.22186e-05	1.67e-01	6.40e+01	2.54157e-05	2.11e-01	6.70e+01	5.36022e-05	2.50e-01	6.40e+01	1.17022e-04	3.08e-01	6.35e+01
5.89444e-06	1.43e-01	6.83e+01	1.22609e-05	1.74e-01	6.78e+01	2.55036e-05	2.11e-01	6.68e+01	5.41606e-05	2.50e-01	6.38e+01	1.17833e-04	3.08e-01	6.33e+01
5.93531e-06	1.43e-01	6.80e+01	1.23886e-05	1.74e-01	6.75e+01	2.57693e-05	2.11e-01	6.65e+01	5.47248e-05	2.50e-01	6.35e+01	1.20301e-04	3.08e-01	6.28e+01
6.01790e-06	1.43e-01	6.78e+01	1.25177e-05	1.74e-01	6.73e+01	2.61279e-05	2.11e-01	6.63e+01	5.52950e-05	2.50e-01	6.33e+01	1.22397e-04	3.08e-01	6.23e+01
6.08059e-06	1.43e-01	6.75e+01	1.26481e-05	1.74e-01	6.70e+01	2.64001e-05	2.11e-01	6.60e+01	5.58710e-05	2.50e-01	6.30e+01	1.24530e-04	3.08e-01	6.20e+01
6.12275e-06	1.43e-01	6.73e+01	1.27799e-05	1.74e-01	6.68e+01	2.66751e-05	2.11e-01	6.58e+01	5.64531e-05	2.50e-01	6.28e+01	1.26263e-04	3.08e-01	6.15e+01
6.20795e-06	1.43e-01	6.70e+01	1.29130e-05	1.74e-01	6.65e+01	2.69530e-05	2.11e-01	6.55e+01	5.70413e-05	2.50e-01	6.25e+01	1.27578e-04	3.08e-01	6.13e+01
6.25099e-06	1.43e-01	6.68e+01	1.30475e-05	1.74e-01	6.63e+01	2.72338e-05	2.11e-01	6.53e+01	5.74367e-05	2.50e-01	6.23e+01	1.29353e-04	3.08e-01	6.10e+01
6.31612e-06	1.43e-01	6.65e+01	1.31835e-05	1.74e-01	6.60e+01	2.75176e-05	2.11e-01	6.50e+01	5.80351e-05	2.50e-01	6.20e+01	1.32050e-04	3.08e-01	6.08e+01
6.38192e-06	1.43e-01	6.63e+01	1.33208e-05	1.74e-01	6.58e+01	2.78042e-05	2.11e-01	6.48e+01	5.88427e-05	2.50e-01	6.18e+01	1.31607e-04	3.08e-01	6.05e+01
6.44841e-06	1.43e-01	6.60e+01	1.34596e-05	1.74e-01	6.55e+01	2.80939e-05	2.11e-01	6.45e+01	5.90463e-05	2.50e-01	6.15e+01	1.33439e-04	3.08e-01	6.03e+01
6.51559e-06	1.43e-01	6.58e+01	1.35998e-05	1.74e-01	6.53e+01	2.82887e-05	2.11e-01	6.43e+01	5.98679e-05	2.50e-01	6.13e+01	1.34364e-04	3.08e-01	6.00e+01
6.58347e-06	1.48e-01	6.88e+01	1.37415e-05	1.74e-01	6.50e+01	2.86823e-05	2.11e-01	6.40e+01	6.02830e-05	2.50e-01	6.10e+01	1.35295e-04	3.08e-01	5.98e+01
6.65205e-06	1.48e-01	6.85e+01	1.38847e-05	1.74e-01	6.48e+01	2.88812e-05	2.11e-01	6.38e+01	6.11219e-05	2.50e-01	6.08e+01	1.36233e-04	3.08e-01	5.95e+01
6.72136e-06	1.48e-01	6.83e+01	1.39809e-05	1.74e-01	6.45e+01	2.92831e-05	2.11e-01	6.35e+01	6.13334e-05	2.50e-01	6.05e+01	1.38129e-04	3.08e-01	5.93e+01
6.79138e-06	1.48e-01	6.80e+01	1.41755e-05	1.74e-01	6.43e+01	2.94861e-05	2.11e-01	6.33e+01	6.17586e-05	2.67e-01	6.65e+01	1.39087e-04	3.33e-01	6.65e+01
6.86213e-06	1.48e-01	6.78e+01	1.42738e-05	1.74e-01	6.40e+01	2.97933e-05	2.11e-01	6.30e+01	6.19724e-05	2.67e-01	6.60e+01	1.40536e-04	3.33e-01	6.60e+01
6.93362e-06	1.48e-01	6.75e+01	1.44225e-05	1.74e-01	6.38e+01	3.01037e-05	2.11e-01	6.28e+01	6.34893e-05	2.67e-01	6.55e+01	1.42491e-04	3.33e-01	6.58e+01
7.00586e-06	1.48e-01	6.73e+01	1.45225e-05	1.82e-01	6.75e+01	3.04173e-05	2.11e-01	6.25e+01	6.43728e-05	2.67e-01	6.53e+01	1.44474e-04	3.33e-01	6.53e+01
7.07885e-06	1.48e-01	6.70e+01	1.46738e-05	1.82e-01	6.73e+01	3.07342e-05	2.11e-01	6.23e+01	6.52685e-05	2.67e-01	6.50e+01	1.46484e-04	3.33e-01	6.50e+01
7.15259e-06	1.48e-01	6.68e+01	1.48780e-05	1.82e-01	6.70e+01	3.09473e-05	2.11e-01	6.20e+01	6.61767e-05	2.67e-01	6.48e+01	1.49553e-04	3.33e-01	6.45e+01
7.20219e-06	1.48e-01	6.65e+01	1.50330e-05	1.82e-01	6.68e+01	3.12697e-05	2.22e-01	6.68e+01	6.66355e-05	2.67e-01	6.45e+01	1.52158e-04	3.33e-01	6.43e+01
7.30240e-06	1.48e-01	6.63e+01	1.51372e-05	1.82e-01	6.65e+01	3.13779e-05	2.22e-01	6.65e+01	6.70976e-05	2.67e-01	6.43e+01	1.54276e-04	3.33e-01	6.38e+01
7.35303e-06	1.48e-01	6.60e+01	1.53478e-05	1.82e-01	6.63e+01	3.17048e-05	2.22e-01	6.63e+01	6.77966e-05	2.67e-01	6.40e+01	1.58052e-04	3.33e-01	6.33e+01
7.42964e-06	1.48e-01	6.58e+01	1.55077e-05	1.82e-01	6.60e+01	3.21460e-05	2.22e-01	6.60e+01	6.87400e-05	2.67e-01	6.38e+01	1.59698e-04	3.33e-01	6.30e+01
7.50704e-06	1.48e-01	6.55e+01	1.56152e-05	1.82e-01	6.58e+01	3.23689e-05	2.22e-01	6.58e+01	6.92166e-05	2.67e-01	6.35e+01	1.61362e-04	3.33e-01	6.28e+01
7.58525e-06	1.48e-01	6.53e+01	1.58325e-05	1.82e-01	6.55e+01	3.27061e-05	2.22e-01	6.55e+01	6.99377e-05	2.67e-01	6.33e+01	1.63043e-04	3.33e-01	6.25e+01
7.61150e-06	1.54e-01	6.85e+01	1.59423e-05	1.82e-01	6.53e+01	3.32760e-05	2.22e-01	6.53e+01	7.09108e-05	2.67e-01	6.30e+01	1.65312e-04	3.33e-01	6.23e+01
7.69080e-06	1.54e-01	6.83e+01	1.61641e-05	1.82e-01	6.50e+01	3.35067e-05	2.22e-01	6.50e+01	7.16496e-05	2.67e-01	6.28e+01	1.67034e-04	3.33e-01	6.18e+01
7.79782e-06	1.54e-01	6.80e+01	1.62762e-05	1.82e-01	6.48e+01	3.37390e-05	2.22e-01	6.48e+01	7.21464e-05	2.67e-01	6.25e+01	1.70533e-04	3.33e-01	6.15e+01
7.85188e-06	1.54e-01	6.78e+01	1.65027e-05	1.82e-01	6.45e+01	3.42085e-05	2.22e-01	6.45e+01	7.28980e-05	2.67e-01	6.23e+01	1.71715e-04	3.33e-01	6.13e+01
7.96114e-06	1.54e-01	6.75e+01	1.66171e-05	1.82e-01	6.43e+01	3.45648e-05	2.22e-01	6.43e+01	7.36575e-05	2.67e-01	6.20e+01	1.72309e-04	3.33e-01	6.10e+01
8.04408e-06	1.54e-01	6.73e+01	1.67902e-05	1.82e-01	6.40e+01	3.48045e-05	2.22e-01	6.40e+01	7.41682e-05	2.67e-01	6.18e+01	1.75312e-04	3.33e-01	6.05e+01
8.09985e-06	1.54e-01	6.70e+01	1.69651e-05	1.82e-01	6.38e+01	3.52888e-05	2.22e-01	6.38e+01	7.52002e-05	2.67e-01	6.15e+01	1.78366e-04	3.33e-01	6.03e+01
8.18424e-06	1.54e-01	6.68e+01	1.71419e-05	1.82e-01	6.35e+01	3.56564e-05	2.22e-01							

B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}
2.30325e-04	3.64e-01	6.18e+01	9.93114e-04	5.56e-01	6.15e+01	8.63444e-03	1.00e+00	4.55e+01	2.12732e-02	1.00e+00	1.45e+01
2.32724e-04	3.64e-01	6.13e+01	1.03515e-03	5.56e-01	6.03e+01	8.72439e-03	1.00e+00	4.50e+01	2.14948e-02	1.00e+00	1.43e+01
2.39246e-04	3.64e-01	6.08e+01	1.07154e-03	5.56e-01	5.98e+01	8.99992e-03	1.00e+00	4.40e+01	2.16438e-02	1.00e+00	1.40e+01
2.41739e-04	3.64e-01	6.03e+01	1.07525e-03	5.56e-01	5.95e+01	9.18842e-03	1.00e+00	4.33e+01	2.18693e-02	1.00e+00	1.38e+01
2.47656e-04	3.64e-01	5.98e+01	1.09777e-03	5.88e-01	6.38e+01	9.51140e-03	1.00e+00	4.18e+01	2.20971e-02	1.00e+00	1.35e+01
2.50236e-04	3.64e-01	5.95e+01	1.14423e-03	5.88e-01	6.25e+01	9.77794e-03	1.00e+00	4.13e+01	2.22503e-02	1.00e+00	1.33e+01
2.52843e-04	3.64e-01	5.93e+01	1.17630e-03	5.88e-01	6.20e+01	9.98274e-03	1.00e+00	4.05e+01	2.25600e-02	1.00e+00	1.30e+01
2.56361e-04	3.64e-01	5.88e+01	1.20509e-03	5.88e-01	6.13e+01	1.00173e-02	1.00e+00	4.03e+01	2.27164e-02	1.00e+00	1.28e+01
2.61731e-04	3.64e-01	5.83e+01	1.26045e-03	5.88e-01	5.98e+01	1.02271e-02	1.00e+00	3.98e+01	2.28739e-02	1.00e+00	1.25e+01
2.64457e-04	4.00e-01	6.65e+01	1.31380e-03	5.88e-01	5.90e+01	1.04413e-02	1.00e+00	3.88e+01	2.31122e-02	1.00e+00	1.23e+01
2.70931e-04	4.00e-01	6.60e+01	1.33669e-03	6.25e-01	6.40e+01	1.06600e-02	1.00e+00	3.83e+01	2.34338e-02	1.00e+00	1.20e+01
2.76605e-04	4.00e-01	6.55e+01	1.35529e-03	6.25e-01	6.30e+01	1.08457e-02	1.00e+00	3.75e+01	2.35963e-02	1.00e+00	1.18e+01
2.83376e-04	4.00e-01	6.48e+01	1.39809e-03	6.25e-01	6.25e+01	1.10347e-02	1.00e+00	3.70e+01	2.38421e-02	1.00e+00	1.15e+01
2.89311e-04	4.00e-01	6.45e+01	1.43727e-03	6.25e-01	6.20e+01	1.12970e-02	1.00e+00	3.63e+01	2.40905e-02	1.00e+00	1.13e+01
2.95371e-04	4.00e-01	6.40e+01	1.44225e-03	6.25e-01	6.15e+01	1.13832e-02	1.00e+00	3.58e+01	2.43415e-02	1.00e+00	1.10e+01
3.01557e-04	4.00e-01	6.33e+01	1.48266e-03	6.25e-01	6.10e+01	1.15815e-02	1.00e+00	3.50e+01	2.45951e-02	1.00e+00	1.08e+01
3.07873e-04	4.00e-01	6.30e+01	1.51896e-03	6.25e-01	6.03e+01	1.19061e-02	1.00e+00	3.40e+01	2.49373e-02	1.00e+00	1.05e+01
3.13238e-04	4.00e-01	6.25e+01	1.56152e-03	6.25e-01	5.93e+01	1.21975e-02	1.00e+00	3.35e+01	2.51102e-02	1.00e+00	1.03e+01
3.18695e-04	4.00e-01	6.20e+01	1.62201e-03	6.25e-01	5.85e+01	1.22397e-02	1.00e+00	3.30e+01	2.54596e-02	1.00e+00	1.00e+01
3.24248e-04	4.00e-01	6.18e+01	1.64458e-03	6.67e-01	6.40e+01	1.24961e-02	1.00e+00	3.25e+01	2.57248e-02	1.00e+00	9.75e+00
3.29898e-04	4.00e-01	6.10e+01	1.67323e-03	6.67e-01	6.23e+01	1.25393e-02	1.00e+00	3.23e+01	2.60828e-02	1.00e+00	9.50e+00
3.37973e-04	4.00e-01	6.05e+01	1.75615e-03	6.67e-01	6.15e+01	1.28202e-02	1.00e+00	3.13e+01	2.63545e-02	1.00e+00	9.25e+00
3.46246e-04	4.00e-01	5.98e+01	1.79914e-03	6.67e-01	6.10e+01	1.30701e-02	1.00e+00	3.08e+01	2.67212e-02	1.00e+00	9.00e+00
3.55949e-04	4.00e-01	5.90e+01	1.85595e-03	6.67e-01	6.00e+01	1.32978e-02	1.00e+00	3.03e+01	2.69996e-02	1.00e+00	8.75e+00
3.60902e-04	4.00e-01	5.88e+01	1.90796e-03	6.67e-01	5.98e+01	1.33439e-02	1.00e+00	3.00e+01	2.73753e-02	1.00e+00	8.50e+00
3.65924e-04	4.00e-01	5.85e+01	1.91457e-03	6.67e-01	5.93e+01	1.35764e-02	1.00e+00	2.93e+01	2.77563e-02	1.00e+00	8.25e+00
3.71016e-04	4.00e-01	5.78e+01	1.96822e-03	6.67e-01	5.83e+01	1.38129e-02	1.00e+00	2.90e+01	2.81425e-02	1.00e+00	8.00e+00
3.80097e-04	4.44e-01	6.68e+01	2.01640e-03	6.67e-01	5.78e+01	1.39087e-02	1.00e+00	2.85e+01	2.84357e-02	1.00e+00	7.75e+00
3.93458e-04	4.44e-01	6.58e+01	2.04446e-03	7.14e-01	6.25e+01	1.40051e-02	1.00e+00	2.83e+01	2.88313e-02	1.00e+00	7.50e+00
4.05884e-04	4.44e-01	6.50e+01	2.12364e-03	7.14e-01	6.20e+01	1.42491e-02	1.00e+00	2.78e+01	2.93337e-02	1.00e+00	7.25e+00
4.17258e-04	4.44e-01	6.48e+01	2.16812e-03	7.14e-01	6.10e+01	1.44474e-02	1.00e+00	2.70e+01	2.97419e-02	1.00e+00	7.00e+00
4.23065e-04	4.44e-01	6.43e+01	2.26772e-03	7.14e-01	6.03e+01	1.46484e-02	1.00e+00	2.68e+01	3.01557e-02	1.00e+00	6.75e+00
4.28951e-04	4.44e-01	6.38e+01	2.29927e-03	7.14e-01	5.98e+01	1.48523e-02	1.00e+00	2.60e+01	3.06812e-02	1.00e+00	6.50e+00
4.40972e-04	4.44e-01	6.33e+01	2.38009e-03	7.14e-01	5.83e+01	1.50070e-02	1.00e+00	2.58e+01	3.12157e-02	1.00e+00	6.25e+00
4.51766e-04	4.44e-01	6.25e+01	2.48942e-03	7.14e-01	5.75e+01	1.52158e-02	1.00e+00	2.53e+01	3.17596e-02	1.00e+00	6.00e+00
4.62825e-04	4.44e-01	6.20e+01	2.53280e-03	7.14e-01	5.73e+01	1.53743e-02	1.00e+00	2.50e+01	3.23130e-02	1.00e+00	5.75e+00
4.74154e-04	4.44e-01	6.13e+01	2.54157e-03	7.14e-01	5.70e+01	1.55345e-02	1.00e+00	2.45e+01	3.28760e-02	1.00e+00	5.50e+00
4.84085e-04	4.44e-01	6.08e+01	2.56804e-03	7.69e-01	6.25e+01	1.56964e-02	1.00e+00	2.43e+01	3.35646e-02	1.00e+00	5.25e+00
4.94224e-04	4.44e-01	6.03e+01	2.64915e-03	7.69e-01	6.20e+01	1.58599e-02	1.00e+00	2.38e+01	3.42676e-02	1.00e+00	5.00e+00
5.04575e-04	4.44e-01	5.95e+01	2.65831e-03	7.69e-01	6.08e+01	1.60251e-02	1.00e+00	2.35e+01	3.49853e-02	1.00e+00	4.75e+00
5.15143e-04	4.44e-01	5.93e+01	2.79005e-03	7.69e-01	6.03e+01	1.61921e-02	1.00e+00	2.33e+01	3.57181e-02	1.00e+00	4.50e+00
5.24119e-04	4.44e-01	5.85e+01	2.82887e-03	7.69e-01	5.95e+01	1.63608e-02	1.00e+00	2.28e+01	3.65924e-02	1.00e+00	4.25e+00
5.33251e-04	4.44e-01	5.83e+01	2.90814e-03	7.69e-01	5.90e+01	1.64742e-02	1.00e+00	2.25e+01	3.74881e-02	1.00e+00	4.00e+00
5.42542e-04	4.44e-01	5.80e+01	2.98964e-03	7.69e-01	5.83e+01	1.66458e-02	1.00e+00	2.23e+01	3.85386e-02	1.00e+00	3.75e+00
5.44420e-04	4.44e-01	5.75e+01	3.03124e-03	7.69e-01	5.78e+01	1.67612e-02	1.00e+00	2.20e+01	3.96186e-02	1.00e+00	3.50e+00
5.51995e-04	4.44e-01	5.73e+01	3.14865e-03	7.69e-01	5.63e+01	1.68774e-02	1.00e+00	2.18e+01	4.08698e-02	1.00e+00	3.25e+00
5.55823e-04	5.00e-01	6.78e+01	3.25933e-03	7.69e-01	5.58e+01	1.70533e-02	1.00e+00	2.15e+01	4.21605e-02	1.00e+00	3.00e+00
5.61613e-04	5.00e-01	6.70e+01	3.27061e-03	8.33e-01	6.15e+01	1.71715e-02	1.00e+00	2.13e+01	4.37936e-02	1.00e+00	2.75e+00
5.75360e-04	5.00e-01	6.65e+01	3.42085e-03	8.33e-01	6.00e+01	1.72906e-02	1.00e+00	2.10e+01	4.54898e-02	1.00e+00	2.50e+00
5.89444e-04	5.00e-01	6.60e+01	3.43268e-03	8.33e-01	5.95e+01	1.74105e-02	1.00e+00	2.08e+01	4.75794e-02	1.00e+00	2.25e+00
6.01790e-04	5.00e-01	6.55e+01	3.62777e-03	8.33e-01	5.85e+01	1.75312e-02	1.00e+00	2.05e+01	4.99372e-02	1.00e+00	2.00e+00
6.14394e-04	5.00e-01	6.50e+01	3.80755e-03	8.33e-01	5.65e+01	1.76527e-02	1.00e+00	2.03e+01	5.27753e-02	1.00e+00	1.75e+00
6.27263e-04	5.00e-01	6.45e+01	4.03786e-03	8.33e-01	5.58e+01	1.77751e-02	1.00e+00	2.00e+01	5.63557e-02	1.00e+00	1.50e+00
6.38192e-04	5.00e-01	6.43e+01	4.15102e-03	8.33e-01	5.43e+01	1.78984e-02	1.00e+00	1.98e+01	6.08059e-02	1.00e+00	1.25e+00
6.49312e-04	5.00e-01	6.38e+01	4.20878e-03	9.09e-01	6.05e+01	1.80848e-02	1.00e+00	1.95e+01	6.65205e-02	1.00e+00	1.00e+00
6.62911e-04	5.00e-01	6.30e+01	4.32672e-03	9.09e-01	5.93e+01	1.82102e-02	1.00e+00	1.93e+01			
6.83847e-04	5.00e-01	6.23e+01	4.52547e-03	9.09e-01	5.85e+01	1.83365e-02	1.00e+00	1.90e+01			
6.95762e-04	5.00e-01	6.18e+01	4.63625e-03	9.09e-01	5.75e+01	1.85275e-02	1.00e+00	1.88e+01			
7.17735e-04	5.00e-01	6.13e+01	4.91669e-03	9.09e-01	5.53e+01	1.85916e-02	1.00e+00	1.85e+01			
7.27722e-04	5.00e-01	6.05e+01	5.19612e-03	9.09e-01	5.48e+01	1.87853e-02	1.00e+00	1.83e+01			
7.50704e-04	5.00e-01	5.98e+01	5.28665e-03	9.09e-01	5.40e+01	1.89156e-02	1.00e+00	1.80e+01			
7.58525e-04	5.26e-01	6.43e+01	5.45361e-03	9.09e-01	5.28e+01	1.90467e-02	1.00e+00	1.78e+01			
7.66428e-04	5.26e-01	6.38e+01	5.49142e-03	1.00e+00	5.95e+01	1.92451e-02	1.00e+00	1.75e+01			
7.82480e-04	5.26e-01	6.35e+01	5.54863e-03	1.00e+00	5.88e+01	1.93786e-02	1.00e+00	1.73e+01			
7.96114e-04	5.26e-01	6.30e+01	5.72387e-03	1.00e+00	5.73e+01	1.95805e-02	1.00e+00	1.70e+01			
8.12788e-04	5.26e-01	6.20e+01	6.19724e-03	1.00e+00	5.48e+01	1.97162e-02	1.00e+00	1.68e+01			
8.41359e-04	5.26e-01	6.18e+01	6.64057e-03	1.00e+00	5.33e+01	1.98529e-02	1.00e+00	1.65e+01			
8.44271e-04	5.26e-01	6.13e+01	7.04226e-03	1.00e+00	5.15e+01	1.99906e-02	1.00e+00	1.63e+01			
8.70934e-04	5.26e-01	6.05e+01	7.28980e-03	1.00e+00	5.08e+01	2.01988e-02	1.00e+00	1.60e+01			
8.73948e-04	5.26e-01	6.03e+01	7.41682e-03	1.00e+00	5.03e+01	2.04093e-02	1.00e+00	1.58e+01			
9.01548e-04	5.26e-01	5.95e+01	7.78436e-03	1.00e+00	4.83e+01	2.04799e-02	1.00e+00	1.55e+01			
9.07799e-04	5.56e-01	6.40e+01	8.11386e-03	1.00e+00	4.78e+01	2.06933e-02	1.00e+00	1.53e+01			
9.30020e-04	5.56e-01	6.35e+01	8.22676e-03	1.00e+00	4.70e+01	2.09088e-02	1.00e+00	1.50e+01			
9.49499e-04	5.56e-01	6.25e+01	8.42813e-03	1.00e+00	4.63e+01	2.10538e-02					

$S_{opt}(B)$ and $\Omega_{opt}(B)$ for Al-Air

B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}
1.00000e-07	5.00e-02	5.55e+01	3.60279e-07	7.02e-02	5.55e+01	8.67430e-07	8.70e-02	5.40e+01	2.10538e-06	1.08e-01	5.25e+01	5.29884e-06	1.38e-01	5.20e+01
1.01625e-07	5.00e-02	5.50e+01	3.63195e-07	7.02e-02	5.53e+01	8.77983e-07	8.70e-02	5.38e+01	2.13960e-06	1.08e-01	5.23e+01	5.36330e-06	1.38e-01	5.18e+01
1.03277e-07	5.13e-02	5.65e+01	3.67613e-07	7.02e-02	5.50e+01	8.92252e-07	8.70e-02	5.35e+01	2.16563e-06	1.11e-01	5.40e+01	5.45047e-06	1.38e-01	5.15e+01
1.06232e-07	5.13e-02	5.60e+01	3.73588e-07	7.02e-02	5.48e+01	9.03106e-07	8.70e-02	5.33e+01	2.18316e-06	1.11e-01	5.38e+01	5.51678e-06	1.38e-01	5.13e+01
1.09272e-07	5.13e-02	5.55e+01	3.78133e-07	7.02e-02	5.45e+01	9.06754e-07	8.89e-02	5.48e+01	2.20971e-06	1.11e-01	5.35e+01	5.58389e-06	1.38e-01	5.10e+01
1.11947e-07	5.13e-02	5.50e+01	3.82733e-07	7.02e-02	5.43e+01	9.17784e-07	8.89e-02	5.45e+01	2.24563e-06	1.11e-01	5.33e+01	5.65182e-06	1.38e-01	5.08e+01
1.14226e-07	5.26e-02	5.65e+01	3.85831e-07	7.14e-02	5.55e+01	9.28949e-07	8.89e-02	5.43e+01	2.27295e-06	1.11e-01	5.30e+01	5.72057e-06	1.38e-01	5.05e+01
1.17022e-07	5.26e-02	5.60e+01	3.87389e-07	7.14e-02	5.53e+01	9.40250e-07	8.89e-02	5.40e+01	2.30060e-06	1.11e-01	5.28e+01	5.76687e-06	1.43e-01	5.28e+01
1.20371e-07	5.26e-02	5.55e+01	3.93685e-07	7.14e-02	5.50e+01	9.55532e-07	8.89e-02	5.38e+01	2.33799e-06	1.11e-01	5.25e+01	5.86009e-06	1.43e-01	5.25e+01
1.23815e-07	5.26e-02	5.50e+01	3.98474e-07	7.14e-02	5.48e+01	9.67156e-07	8.89e-02	5.35e+01	2.36643e-06	1.11e-01	5.23e+01	5.93189e-06	1.43e-01	5.23e+01
1.26335e-07	5.41e-02	5.65e+01	4.04950e-07	7.14e-02	5.45e+01	9.78921e-07	8.89e-02	5.33e+01	2.39522e-06	1.11e-01	5.20e+01	6.02830e-06	1.43e-01	5.20e+01
1.29428e-07	5.41e-02	5.60e+01	4.09877e-07	7.14e-02	5.43e+01	9.90830e-07	9.09e-02	5.48e+01	2.41460e-06	1.14e-01	5.40e+01	6.10164e-06	1.43e-01	5.18e+01
1.33132e-07	5.41e-02	5.55e+01	4.13194e-07	7.27e-02	5.55e+01	9.94831e-07	9.09e-02	5.45e+01	2.42435e-06	1.14e-01	5.38e+01	6.17586e-06	1.43e-01	5.15e+01
1.36941e-07	5.41e-02	5.50e+01	4.14863e-07	7.27e-02	5.53e+01	1.01100e-06	9.09e-02	5.43e+01	2.45385e-06	1.14e-01	5.35e+01	6.27624e-06	1.43e-01	5.13e+01
1.40293e-07	5.41e-02	5.45e+01	4.21605e-07	7.27e-02	5.50e+01	1.02330e-06	9.09e-02	5.40e+01	2.48370e-06	1.14e-01	5.33e+01	6.35259e-06	1.43e-01	5.10e+01
1.40860e-07	5.56e-02	5.65e+01	4.26734e-07	7.27e-02	5.48e+01	1.03575e-06	9.09e-02	5.38e+01	2.52406e-06	1.14e-01	5.30e+01	6.42987e-06	1.43e-01	5.08e+01
1.43727e-07	5.56e-02	5.60e+01	4.31926e-07	7.27e-02	5.45e+01	1.05258e-06	9.09e-02	5.35e+01	2.55477e-06	1.14e-01	5.28e+01	6.50809e-06	1.43e-01	5.05e+01
1.47840e-07	5.56e-02	5.55e+01	4.38946e-07	7.27e-02	5.43e+01	1.06539e-06	9.09e-02	5.33e+01	2.58585e-06	1.14e-01	5.25e+01	6.61386e-06	1.43e-01	5.03e+01
1.51459e-07	5.56e-02	5.50e+01	4.44285e-07	7.41e-02	5.53e+01	1.07835e-06	9.09e-02	5.30e+01	2.62788e-06	1.14e-01	5.23e+01	6.64057e-06	1.48e-01	5.28e+01
1.55793e-07	5.56e-02	5.45e+01	4.51506e-07	7.41e-02	5.50e+01	1.08270e-06	9.30e-02	5.48e+01	2.65984e-06	1.14e-01	5.20e+01	6.66739e-06	1.48e-01	5.25e+01
1.57054e-07	5.71e-02	5.65e+01	4.56999e-07	7.41e-02	5.48e+01	1.08707e-06	9.30e-02	5.45e+01	2.69220e-06	1.14e-01	5.18e+01	6.77576e-06	1.48e-01	5.23e+01
1.59670e-07	5.71e-02	5.60e+01	4.62585e-07	7.41e-02	5.45e+01	1.10030e-06	9.30e-02	5.43e+01	2.70307e-06	1.18e-01	5.38e+01	6.85818e-06	1.48e-01	5.20e+01
1.64174e-07	5.71e-02	5.55e+01	4.70076e-07	7.41e-02	5.43e+01	1.11368e-06	9.30e-02	5.40e+01	2.72495e-06	1.18e-01	5.35e+01	6.96965e-06	1.48e-01	5.18e+01
1.68872e-07	5.71e-02	5.50e+01	4.75794e-07	7.41e-02	5.40e+01	1.13178e-06	9.30e-02	5.38e+01	2.76924e-06	1.18e-01	5.33e+01	7.05443e-06	1.48e-01	5.15e+01
1.73005e-07	5.71e-02	5.45e+01	4.77716e-07	7.55e-02	5.53e+01	1.14555e-06	9.30e-02	5.35e+01	2.80293e-06	1.18e-01	5.30e+01	7.14025e-06	1.48e-01	5.13e+01
1.75817e-07	5.88e-02	5.65e+01	4.83527e-07	7.55e-02	5.50e+01	1.15949e-06	9.30e-02	5.33e+01	2.83703e-06	1.18e-01	5.28e+01	7.25630e-06	1.48e-01	5.10e+01
1.77956e-07	5.88e-02	5.60e+01	4.89410e-07	7.55e-02	5.48e+01	1.17359e-06	9.30e-02	5.30e+01	2.88313e-06	1.18e-01	5.25e+01	7.34457e-06	1.48e-01	5.08e+01
1.83048e-07	5.88e-02	5.55e+01	4.97364e-07	7.55e-02	5.45e+01	1.18787e-06	9.52e-02	5.45e+01	2.91821e-06	1.18e-01	5.23e+01	7.43392e-06	1.48e-01	5.05e+01
1.88286e-07	5.88e-02	5.50e+01	5.03414e-07	7.55e-02	5.43e+01	1.20232e-06	9.52e-02	5.43e+01	2.95371e-06	1.18e-01	5.20e+01	7.52435e-06	1.48e-01	5.03e+01
1.92895e-07	5.88e-02	5.45e+01	5.09538e-07	7.55e-02	5.40e+01	1.21695e-06	9.52e-02	5.40e+01	3.00171e-06	1.18e-01	5.18e+01	7.64664e-06	1.48e-01	5.00e+01
1.96822e-07	5.66e-02	5.65e+01	5.15737e-07	7.69e-02	5.53e+01	1.23175e-06	9.52e-02	5.38e+01	3.03823e-06	1.21e-01	5.35e+01	7.67753e-06	1.54e-01	5.25e+01
1.99216e-07	6.06e-02	5.60e+01	5.19911e-07	7.69e-02	5.50e+01	1.25177e-06	9.52e-02	5.35e+01	3.08761e-06	1.21e-01	5.33e+01	7.77092e-06	1.54e-01	5.23e+01
2.04917e-07	6.06e-02	5.55e+01	5.26236e-07	7.69e-02	5.48e+01	1.26700e-06	9.52e-02	5.33e+01	3.12517e-06	1.21e-01	5.30e+01	7.86546e-06	1.54e-01	5.20e+01
2.10781e-07	6.06e-02	5.50e+01	5.34788e-07	7.69e-02	5.45e+01	1.28241e-06	9.52e-02	5.30e+01	3.17596e-06	1.21e-01	5.28e+01	7.99329e-06	1.54e-01	5.18e+01
2.15940e-07	6.06e-02	5.45e+01	5.41294e-07	7.69e-02	5.43e+01	1.29801e-06	9.52e-02	5.28e+01	3.21460e-06	1.21e-01	5.25e+01	8.09053e-06	1.54e-01	5.15e+01
2.22119e-07	6.25e-02	5.65e+01	5.47879e-07	7.69e-02	5.40e+01	1.30325e-06	9.76e-02	5.45e+01	3.25370e-06	1.21e-01	5.23e+01	8.22202e-06	1.54e-01	5.13e+01
2.23917e-07	6.25e-02	5.60e+01	5.54544e-07	7.69e-02	5.38e+01	1.31380e-06	9.76e-02	5.43e+01	3.29329e-06	1.21e-01	5.20e+01	8.32204e-06	1.54e-01	5.10e+01
2.30325e-07	6.25e-02	5.55e+01	5.56784e-07	7.84e-02	5.53e+01	1.32978e-06	9.76e-02	5.40e+01	3.34681e-06	1.21e-01	5.18e+01	8.42328e-06	1.54e-01	5.08e+01
2.36916e-07	6.25e-02	5.50e+01	5.59032e-07	7.84e-02	5.50e+01	1.35140e-06	9.76e-02	5.38e+01	3.38752e-06	1.21e-01	5.15e+01	8.52575e-06	1.54e-01	5.05e+01
2.42715e-07	6.25e-02	5.45e+01	5.65833e-07	7.84e-02	5.48e+01	1.36784e-06	9.76e-02	5.35e+01	3.42873e-06	1.25e-01	5.35e+01	8.66432e-06	1.54e-01	5.03e+01
2.43695e-07	6.35e-02	5.58e+01	5.75029e-07	7.84e-02	5.45e+01	1.38448e-06	9.76e-02	5.33e+01	3.45648e-06	1.25e-01	5.33e+01	8.76972e-06	1.54e-01	5.00e+01
2.45667e-07	6.35e-02	5.55e+01	5.82024e-07	7.84e-02	5.43e+01	1.40132e-06	9.76e-02	5.30e+01	3.49853e-06	1.25e-01	5.30e+01	8.87640e-06	1.54e-01	4.98e+01
2.49660e-07	6.35e-02	5.53e+01	5.89105e-07	7.84e-02	5.40e+01	1.42409e-06	9.76e-02	5.28e+01	3.55539e-06	1.25e-01	5.28e+01	8.94825e-06	1.60e-01	5.23e+01
2.52697e-07	6.35e-02	5.50e+01	5.96271e-07	7.84e-02	5.38e+01	1.44352e-06	1.00e-01	5.43e+01	3.59865e-06	1.25e-01	5.25e+01	9.05710e-06	1.60e-01	5.20e+01
2.55771e-07	6.35e-02	5.48e+01	6.01097e-07	8.00e-02	5.50e+01	1.45895e-06	1.00e-01	5.40e+01	3.64242e-06	1.25e-01	5.23e+01	9.20430e-06	1.60e-01	5.18e+01
2.58883e-07	6.45e-02	5.58e+01	6.10867e-07	8.00e-02	5.48e+01	1.47670e-06	1.00e-01	5.38e+01	3.70162e-06	1.25e-01	5.20e+01	9.31628e-06	1.60e-01	5.15e+01
2.60978e-07	6.45e-02	5.55e+01	6.18298e-07	8.00e-02	5.45e+01	1.50070e-06	1.00e-01	5.35e+01	3.74665e-06	1.25e-01	5.18e+01	9.46769e-06	1.60e-01	5.13e+01
2.65220e-07	6.45e-02	5.53e+01	6.25820e-07	8.00e-02	5.43e+01	1.51896e-06	1.00e-01	5.33e+01	3.79223e-06	1.25e-01	5.15e+01	9.58287e-06	1.60e-01	5.10e+01
2.68446e-07	6.45e-02	5.50e+01	6.35991e-07	8.00e-02	5.40e+01	1.53743e-06	1.00e-01	5.30e+01	3.83836e-06	1.25e-01	5.13e+01	9.69944e-06	1.60e-01	5.08e+01
2.71712e-07	6.45e-02	5.48e+01	6.43728e-07	8.00e-02	5.38e+01	1.55614e-06	1.00e-01	5.28e+01	3.88506e-06	1.29e-01	5.33e+01	9.85708e-06	1.60e-01	5.05e+01
2.75017e-07	6.45e-02	5.45e+01	6.48938e-07	8.16e-02	5.50e+01	1.58143e-06	1.00e-01	5.25e+01	3.93232e-06	1.29e-01	5.30e+01	9.97699e-06	1.60e-01	5.03e+01
2.76128e-07	6.56e-02	5.58e+01	6.56832e-07	8.16e-02	5.48e+01	1.58784e-06	1.03e-01	5.43e+01	3.98015e-06	1.29e-01	5.28e+01	1.00984e-05	1.60e-01	5.00e+01
2.77243e-07	6.56e-02	5.55e+01	6.67507e-07	8.16e-02	5.45e+01	1.60067e-06	1.03e-01	5.40e+01	4.04484e-06	1.29e-01	5.25e+01	1.02212e-05	1.60e-01	4.98e+01
2.81749e-07	6.56e-02	5.53e+01	6.75628e-07	8.16e-02	5.43e+01	1.62014e-06	1.03e-01	5.38e+01	4.09405e-06	1.29e-01	5.23e+01	1.03873e-05	1.60e-01	4.95e+01
2.85177e-07	6.56e-02	5.50e+01	6.83847e-07	8.16e-02	5.40e+01	1.64647e-06	1.03e-01	5.35e+01	4.14385e-06	1.29e-01	5.20e+01	1.04714e-05	1.67e-01	5.23e+01
2.88646e-07	6.56e-02	5.48e+01	6.94961e-07	8.16e-02	5.38e+01	1.66650e-06	1.03e-01	5.33e+01	4.21120e-06	1.29e-01	5.18e+01	1.05137e-05	1.67e-01	5.20e+01
2.93337e-07	6.56e-02	5.45e+01	7.03415e-07	8.33e-02	5.50e+01	1.68677e-06	1.03e-01							

B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}
1.34984e-05	1.74e-01	5.03e+01	3.45251e-05	2.22e-01	4.93e+01	9.01029e-05	2.86e-01	4.83e+01	2.36099e-04	3.64e-01	4.65e+01	8.10452e-04	5.26e-01	4.75e+01
1.36626e-05	1.74e-01	5.00e+01	3.49451e-05	2.22e-01	4.90e+01	9.19371e-05	2.86e-01	4.80e+01	2.39936e-04	3.64e-01	4.63e+01	8.26950e-04	5.26e-01	4.70e+01
1.38288e-05	1.74e-01	4.98e+01	3.55130e-05	2.22e-01	4.88e+01	9.30555e-05	2.86e-01	4.78e+01	2.43835e-04	3.64e-01	4.60e+01	8.43785e-04	5.26e-01	4.68e+01
1.40536e-05	1.74e-01	4.95e+01	3.59450e-05	2.22e-01	4.85e+01	9.41875e-05	2.86e-01	4.75e+01	2.45809e-04	3.64e-01	4.58e+01	8.47192e-04	5.26e-01	4.65e+01
1.42245e-05	1.74e-01	4.93e+01	3.63823e-05	2.22e-01	4.83e+01	9.53333e-05	2.86e-01	4.73e+01	2.48799e-04	3.64e-01	4.55e+01	8.64439e-04	5.26e-01	4.60e+01
1.43976e-05	1.74e-01	4.90e+01	3.68249e-05	2.22e-01	4.80e+01	9.64931e-05	2.86e-01	4.70e+01	2.51826e-04	3.64e-01	4.53e+01	8.82036e-04	5.26e-01	4.58e+01
1.45727e-05	1.74e-01	4.88e+01	3.74234e-05	2.22e-01	4.78e+01	9.80614e-05	2.86e-01	4.68e+01	2.55919e-04	3.64e-01	4.50e+01	8.96372e-04	5.26e-01	4.55e+01
1.46316e-05	1.82e-01	5.18e+01	3.78787e-05	2.22e-01	4.75e+01	9.88550e-05	2.86e-01	4.65e+01	2.56952e-04	3.64e-01	4.48e+01	9.10940e-04	5.56e-01	4.88e+01
1.48096e-05	1.82e-01	5.15e+01	3.83395e-05	2.22e-01	4.73e+01	1.00462e-04	2.86e-01	4.63e+01	2.61128e-04	3.64e-01	4.45e+01	9.18313e-04	5.56e-01	4.83e+01
1.49897e-05	1.82e-01	5.13e+01	3.88059e-05	2.22e-01	4.70e+01	1.02029e-04	2.86e-01	4.60e+01	2.65373e-04	3.64e-01	4.43e+01	9.56082e-04	5.56e-01	4.75e+01
1.52334e-05	1.82e-01	5.10e+01	3.89626e-05	2.35e-01	5.08e+01	1.02921e-04	2.86e-01	4.58e+01	2.66444e-04	4.00e-01	5.08e+01	9.83441e-04	5.56e-01	4.70e+01
1.54187e-05	1.82e-01	5.08e+01	3.95958e-05	2.35e-01	5.05e+01	1.04173e-04	2.86e-01	4.55e+01	2.67520e-04	4.00e-01	5.05e+01	1.00751e-03	5.56e-01	4.65e+01
1.56062e-05	1.82e-01	5.05e+01	4.02394e-05	2.35e-01	5.03e+01	1.05016e-04	3.08e-01	5.05e+01	2.70775e-04	4.00e-01	5.03e+01	1.03218e-03	5.56e-01	4.60e+01
1.58599e-05	1.82e-01	5.03e+01	4.07289e-05	2.35e-01	5.00e+01	1.05866e-04	3.08e-01	5.03e+01	2.75176e-04	4.00e-01	5.00e+01	1.05744e-03	5.56e-01	4.58e+01
1.60528e-05	1.82e-01	5.00e+01	4.12243e-05	2.35e-01	4.98e+01	1.07154e-04	3.08e-01	5.00e+01	2.78523e-04	4.00e-01	4.98e+01	1.07897e-03	5.56e-01	4.50e+01
1.63137e-05	1.82e-01	4.98e+01	4.17258e-05	2.35e-01	4.95e+01	1.08895e-04	3.08e-01	4.98e+01	2.83050e-04	4.00e-01	4.95e+01	1.10093e-03	5.88e-01	4.88e+01
1.64458e-05	1.82e-01	4.95e+01	4.24040e-05	2.35e-01	4.93e+01	1.10665e-04	3.08e-01	4.95e+01	2.86493e-04	4.00e-01	4.93e+01	1.10984e-03	5.88e-01	4.83e+01
1.67131e-05	1.82e-01	4.93e+01	4.30932e-05	2.35e-01	4.90e+01	1.11561e-04	3.08e-01	4.93e+01	2.89978e-04	4.00e-01	4.90e+01	1.12788e-03	5.88e-01	4.78e+01
1.69164e-05	1.82e-01	4.90e+01	4.36174e-05	2.35e-01	4.88e+01	1.13832e-04	3.08e-01	4.90e+01	2.93506e-04	4.00e-01	4.88e+01	1.17901e-03	5.88e-01	4.73e+01
1.71222e-05	1.82e-01	4.88e+01	4.41480e-05	2.35e-01	4.85e+01	1.15682e-04	3.08e-01	4.88e+01	3.00690e-04	4.00e-01	4.85e+01	1.18377e-03	5.88e-01	4.68e+01
1.74004e-05	1.82e-01	4.85e+01	4.48655e-05	2.35e-01	4.83e+01	1.16149e-04	3.08e-01	4.85e+01	3.01905e-04	4.00e-01	4.83e+01	1.21765e-03	5.88e-01	4.65e+01
1.74707e-05	1.90e-01	5.15e+01	4.54113e-05	2.35e-01	4.80e+01	1.18514e-04	3.08e-01	4.83e+01	3.08051e-04	4.00e-01	4.80e+01	1.24745e-03	5.88e-01	4.60e+01
1.76832e-05	1.90e-01	5.13e+01	4.59638e-05	2.35e-01	4.78e+01	1.20440e-04	3.08e-01	4.80e+01	3.11798e-04	4.00e-01	4.78e+01	1.25249e-03	5.88e-01	4.58e+01
1.79706e-05	1.90e-01	5.10e+01	4.65229e-05	2.35e-01	4.75e+01	1.21905e-04	3.08e-01	4.78e+01	3.15591e-04	4.00e-01	4.75e+01	1.28315e-03	5.88e-01	4.53e+01
1.82627e-05	1.90e-01	5.08e+01	4.70889e-05	2.35e-01	4.73e+01	1.22892e-04	3.08e-01	4.75e+01	3.19430e-04	4.00e-01	4.73e+01	1.31456e-03	5.88e-01	4.50e+01
1.84849e-05	1.90e-01	5.05e+01	4.78542e-05	2.35e-01	4.70e+01	1.24889e-04	3.08e-01	4.73e+01	3.25933e-04	4.00e-01	4.68e+01	1.33055e-03	5.88e-01	4.45e+01
1.87098e-05	1.90e-01	5.03e+01	4.84363e-05	2.35e-01	4.68e+01	1.26819e-04	3.08e-01	4.70e+01	3.32568e-04	4.00e-01	4.65e+01	1.34132e-03	6.25e-01	4.83e+01
1.90138e-05	1.90e-01	5.00e+01	4.88284e-05	2.50e-01	5.08e+01	1.27946e-04	3.08e-01	4.68e+01	3.37973e-04	4.00e-01	4.63e+01	1.34674e-03	6.25e-01	4.80e+01
1.92451e-05	1.90e-01	4.98e+01	4.92236e-05	2.50e-01	5.05e+01	1.29502e-04	3.08e-01	4.65e+01	3.39338e-04	4.00e-01	4.60e+01	1.39648e-03	6.25e-01	4.73e+01
1.95579e-05	1.90e-01	4.95e+01	4.98224e-05	2.50e-01	5.03e+01	1.31607e-04	3.08e-01	4.63e+01	3.44853e-04	4.00e-01	4.58e+01	1.44807e-03	6.25e-01	4.68e+01
1.97162e-05	1.90e-01	4.93e+01	5.08366e-05	2.50e-01	5.00e+01	1.33208e-04	3.08e-01	4.60e+01	3.49048e-04	4.00e-01	4.55e+01	1.47161e-03	6.25e-01	4.63e+01
2.00367e-05	1.90e-01	4.90e+01	5.12481e-05	2.50e-01	4.98e+01	1.34829e-04	3.08e-01	4.58e+01	3.54721e-04	4.00e-01	4.53e+01	1.51983e-03	6.25e-01	4.58e+01
2.02804e-05	1.90e-01	4.88e+01	5.20810e-05	2.50e-01	4.95e+01	1.36469e-04	3.08e-01	4.55e+01	3.57592e-04	4.00e-01	4.50e+01	1.54453e-03	6.25e-01	4.55e+01
2.06100e-05	1.90e-01	4.85e+01	5.29274e-05	2.50e-01	4.93e+01	1.37573e-04	3.08e-01	4.53e+01	3.63404e-04	4.00e-01	4.45e+01	1.58873e-03	6.25e-01	4.48e+01
2.08607e-05	1.90e-01	4.83e+01	5.35713e-05	2.50e-01	4.90e+01	1.39809e-04	3.33e-01	5.05e+01	3.72300e-04	4.00e-01	4.40e+01	1.63419e-03	6.25e-01	4.40e+01
2.10296e-05	1.90e-01	4.80e+01	5.42230e-05	2.50e-01	4.88e+01	1.40941e-04	3.33e-01	5.03e+01	3.81413e-04	4.44e-01	5.10e+01	1.64742e-03	6.67e-01	4.80e+01
2.11145e-05	2.00e-01	5.13e+01	5.51043e-05	2.50e-01	4.85e+01	1.43232e-04	3.33e-01	5.00e+01	3.86053e-04	4.44e-01	5.03e+01	1.66746e-03	6.67e-01	4.78e+01
2.13714e-05	2.00e-01	5.10e+01	5.57746e-05	2.50e-01	4.83e+01	1.45560e-04	3.33e-01	4.98e+01	4.01931e-04	4.44e-01	4.98e+01	1.70828e-03	6.67e-01	4.73e+01
2.17187e-05	2.00e-01	5.08e+01	5.64531e-05	2.50e-01	4.80e+01	1.46738e-04	3.33e-01	4.95e+01	4.08463e-04	4.44e-01	4.95e+01	1.74305e-03	6.67e-01	4.70e+01
2.20717e-05	2.00e-01	5.05e+01	5.73706e-05	2.50e-01	4.78e+01	1.50330e-04	3.33e-01	4.93e+01	4.16778e-04	4.44e-01	4.93e+01	1.77854e-03	6.67e-01	4.65e+01
2.23402e-05	2.00e-01	5.03e+01	5.80686e-05	2.50e-01	4.75e+01	1.51546e-04	3.33e-01	4.90e+01	4.23552e-04	4.44e-01	4.88e+01	1.81474e-03	6.67e-01	4.60e+01
2.26120e-05	2.00e-01	5.00e+01	5.87750e-05	2.50e-01	4.73e+01	1.54009e-04	3.33e-01	4.88e+01	4.30436e-04	4.44e-01	4.85e+01	1.88178e-03	6.67e-01	4.53e+01
2.29795e-05	2.00e-01	4.98e+01	5.97302e-05	2.50e-01	4.70e+01	1.55883e-04	3.33e-01	4.85e+01	4.37432e-04	4.44e-01	4.83e+01	1.94344e-03	6.67e-01	4.45e+01
2.32590e-05	2.00e-01	4.95e+01	6.02136e-05	2.50e-01	4.68e+01	1.57144e-04	3.33e-01	4.83e+01	4.44541e-04	4.44e-01	4.80e+01	2.00713e-03	6.67e-01	4.38e+01
2.35420e-05	2.00e-01	4.93e+01	6.09461e-05	2.50e-01	4.65e+01	1.60343e-04	3.33e-01	4.80e+01	4.49949e-04	4.44e-01	4.78e+01	2.04799e-03	7.14e-01	4.78e+01
2.39246e-05	2.00e-01	4.90e+01	6.19367e-05	2.50e-01	4.63e+01	1.62949e-04	3.33e-01	4.78e+01	4.57262e-04	4.44e-01	4.75e+01	2.08968e-03	7.14e-01	4.73e+01
2.42156e-05	2.00e-01	4.88e+01	6.21868e-05	2.67e-01	5.05e+01	1.63608e-04	3.33e-01	4.75e+01	4.64694e-04	4.44e-01	4.70e+01	2.14083e-03	7.14e-01	4.68e+01
2.45102e-05	2.00e-01	4.85e+01	6.31975e-05	2.67e-01	5.03e+01	1.66938e-04	3.33e-01	4.73e+01	4.76068e-04	4.44e-01	4.68e+01	2.19324e-03	7.14e-01	4.63e+01
2.49086e-05	2.00e-01	4.83e+01	6.37090e-05	2.67e-01	5.00e+01	1.68289e-04	3.33e-01	4.70e+01	4.77991e-04	4.44e-01	4.65e+01	2.24692e-03	7.14e-01	4.58e+01
2.52116e-05	2.00e-01	4.80e+01	6.50060e-05	2.67e-01	4.98e+01	1.71024e-04	3.33e-01	4.68e+01	4.89691e-04	4.44e-01	4.60e+01	2.29266e-03	7.14e-01	4.53e+01
2.55183e-05	2.00e-01	4.78e+01	6.57968e-05	2.67e-01	4.95e+01	1.73105e-04	3.33e-01	4.65e+01	5.01678e-04	4.44e-01	4.55e+01	2.34878e-03	7.14e-01	4.50e+01
2.56214e-05	2.11e-01	5.13e+01	6.68661e-05	2.67e-01	4.93e+01	1.75211e-04	3.33e-01	4.63e+01	5.07781e-04	4.44e-01	4.53e+01	2.39660e-03	7.14e-01	4.45e+01
2.57248e-05	2.11e-01	5.10e+01	6.76796e-05	2.67e-01	4.90e+01	1.77342e-04	3.33e-01	4.60e+01	5.20210e-04	4.44e-01	4.48e+01	2.43555e-03	7.14e-01	4.43e+01
2.61429e-05	2.11e-01	5.08e+01	6.85029e-05	2.67e-01	4.88e+01	1.80225e-04	3.33e-01	4.58e+01	5.30800e-04	4.44e-01	4.45e+01	2.44538e-03	7.14e-01	4.40e+01
2.64610e-05	2.11e-01	5.05e+01	6.96163e-05	2.67e-01	4.85e+01	1.81683e-04	3.33e-01	4.55e+01	5.37258e-04	4.44e-01	4.40e+01	2.53572e-03	7.14e-01	4.30e+01
2.68910e-05	2.11e-01	5.03e+01	7.04631e-05	2.67e-01	4.83e+01	1.84636e-04	3.33e-01	4.53e+01	5.48195e-04	4.44e-01	4.38e+01	2.57693e-03	7.69e-01	4.70e+01
2.72182e-05	2.11e-01	5.00e+01	7.13203e-05	2.67e-01	4.80e+01	1.86130e-04	3.33e-01							

B	S_{opt}	Ω_{opt}	B	S_{opt}	Ω_{opt}
4.77441e-03	9.09e-01	4.30e+01	1.78366e-02	1.00e+00	1.53e+01
4.93087e-03	9.09e-01	4.25e+01	1.80536e-02	1.00e+00	1.50e+01
5.09245e-03	9.09e-01	4.15e+01	1.81997e-02	1.00e+00	1.48e+01
5.25933e-03	9.09e-01	4.10e+01	1.84211e-02	1.00e+00	1.45e+01
5.40983e-03	9.09e-01	4.03e+01	1.85702e-02	1.00e+00	1.43e+01
5.49775e-03	1.00e+00	4.50e+01	1.87961e-02	1.00e+00	1.40e+01
5.60967e-03	1.00e+00	4.40e+01	1.89483e-02	1.00e+00	1.38e+01
5.79350e-03	1.00e+00	4.33e+01	1.91788e-02	1.00e+00	1.35e+01
6.17942e-03	1.00e+00	4.18e+01	1.94121e-02	1.00e+00	1.33e+01
6.43357e-03	1.00e+00	4.13e+01	1.96482e-02	1.00e+00	1.30e+01
6.69817e-03	1.00e+00	4.03e+01	1.98073e-02	1.00e+00	1.28e+01
6.94561e-03	1.00e+00	3.98e+01	2.00482e-02	1.00e+00	1.25e+01
7.17322e-03	1.00e+00	3.88e+01	2.02921e-02	1.00e+00	1.23e+01
7.37848e-03	1.00e+00	3.83e+01	2.05389e-02	1.00e+00	1.20e+01
7.58962e-03	1.00e+00	3.75e+01	2.07888e-02	1.00e+00	1.18e+01
7.80680e-03	1.00e+00	3.70e+01	2.09571e-02	1.00e+00	1.15e+01
7.99790e-03	1.00e+00	3.63e+01	2.12120e-02	1.00e+00	1.13e+01
8.19367e-03	1.00e+00	3.58e+01	2.14700e-02	1.00e+00	1.10e+01
8.39423e-03	1.00e+00	3.50e+01	2.17312e-02	1.00e+00	1.08e+01
8.73948e-03	1.00e+00	3.40e+01	2.20844e-02	1.00e+00	1.05e+01
9.06232e-03	1.00e+00	3.30e+01	2.22632e-02	1.00e+00	1.03e+01
9.35929e-03	1.00e+00	3.25e+01	2.26250e-02	1.00e+00	1.00e+01
9.39709e-03	1.00e+00	3.23e+01	2.29002e-02	1.00e+00	9.75e+00
9.66599e-03	1.00e+00	3.13e+01	2.31788e-02	1.00e+00	9.50e+00
9.94259e-03	1.00e+00	3.08e+01	2.34608e-02	1.00e+00	9.25e+00
1.02271e-02	1.00e+00	3.00e+01	2.38421e-02	1.00e+00	9.00e+00
1.04774e-02	1.00e+00	2.93e+01	2.41321e-02	1.00e+00	8.75e+00
1.07339e-02	1.00e+00	2.90e+01	2.45243e-02	1.00e+00	8.50e+00
1.08645e-02	1.00e+00	2.85e+01	2.48227e-02	1.00e+00	8.25e+00
1.09524e-02	1.00e+00	2.83e+01	2.52261e-02	1.00e+00	8.00e+00
1.11754e-02	1.00e+00	2.78e+01	2.56361e-02	1.00e+00	7.75e+00
1.14029e-02	1.00e+00	2.70e+01	2.59480e-02	1.00e+00	7.50e+00
1.16350e-02	1.00e+00	2.68e+01	2.64762e-02	1.00e+00	7.25e+00
1.18241e-02	1.00e+00	2.60e+01	2.69065e-02	1.00e+00	7.00e+00
1.20163e-02	1.00e+00	2.58e+01	2.73438e-02	1.00e+00	6.75e+00
1.22116e-02	1.00e+00	2.53e+01	2.77882e-02	1.00e+00	6.50e+00
1.23601e-02	1.00e+00	2.50e+01	2.82399e-02	1.00e+00	6.25e+00
1.25610e-02	1.00e+00	2.45e+01	2.88148e-02	1.00e+00	6.00e+00
1.27138e-02	1.00e+00	2.43e+01	2.94013e-02	1.00e+00	5.75e+00
1.28685e-02	1.00e+00	2.40e+01	2.99999e-02	1.00e+00	5.50e+00
1.29205e-02	1.00e+00	2.38e+01	3.06106e-02	1.00e+00	5.25e+00
1.30776e-02	1.00e+00	2.35e+01	3.12337e-02	1.00e+00	5.00e+00
1.32367e-02	1.00e+00	2.33e+01	3.19983e-02	1.00e+00	4.75e+00
1.33439e-02	1.00e+00	2.30e+01	3.27815e-02	1.00e+00	4.50e+00
1.33977e-02	1.00e+00	2.28e+01	3.35839e-02	1.00e+00	4.25e+00
1.35062e-02	1.00e+00	2.25e+01	3.44060e-02	1.00e+00	4.00e+00
1.36705e-02	1.00e+00	2.23e+01	3.53905e-02	1.00e+00	3.75e+00
1.37811e-02	1.00e+00	2.20e+01	3.65503e-02	1.00e+00	3.50e+00
1.39488e-02	1.00e+00	2.18e+01	3.77480e-02	1.00e+00	3.25e+00
1.40617e-02	1.00e+00	2.15e+01	3.89850e-02	1.00e+00	3.00e+00
1.42327e-02	1.00e+00	2.13e+01	4.05884e-02	1.00e+00	2.75e+00
1.43479e-02	1.00e+00	2.10e+01	4.22578e-02	1.00e+00	2.50e+00
1.44641e-02	1.00e+00	2.08e+01	4.41734e-02	1.00e+00	2.25e+00
1.45811e-02	1.00e+00	2.05e+01	4.65497e-02	1.00e+00	2.00e+00
1.46991e-02	1.00e+00	2.03e+01	4.92519e-02	1.00e+00	1.75e+00
1.48181e-02	1.00e+00	2.00e+01	5.25327e-02	1.00e+00	1.50e+00
1.49380e-02	1.00e+00	1.98e+01	5.69428e-02	1.00e+00	1.25e+00
1.51808e-02	1.00e+00	1.95e+01	6.24739e-02	1.00e+00	1.00e+00
1.53037e-02	1.00e+00	1.93e+01			
1.54276e-02	1.00e+00	1.90e+01			
1.56152e-02	1.00e+00	1.88e+01			
1.57416e-02	1.00e+00	1.85e+01			
1.59331e-02	1.00e+00	1.83e+01			
1.59975e-02	1.00e+00	1.80e+01			
1.61269e-02	1.00e+00	1.78e+01			
1.63890e-02	1.00e+00	1.75e+01			
1.64552e-02	1.00e+00	1.73e+01			
1.66554e-02	1.00e+00	1.70e+01			
1.68580e-02	1.00e+00	1.68e+01			
1.69945e-02	1.00e+00	1.65e+01			
1.70631e-02	1.00e+00	1.63e+01			
1.73404e-02	1.00e+00	1.60e+01			
1.75514e-02	1.00e+00	1.58e+01			
1.76223e-02	1.00e+00	1.55e+01			

