行政院原子能委員會

委託研究計畫研究報告

儲能併網對電力系統影響之研究

Studies on Impact of Energy Storage System on Power Systems

計畫編號：108B015

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研究期程：中華民國 109 年 6 月至 109 年 3 月

研究經費：新臺幣 70 萬元

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日期：109 年 3 月 10 日

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中文摘要

政府設定 2025 年再生能源推廣目標為 27.423GW，其中太陽光電裝置容量 20GW，離岸及陸域風電裝置容量分別為 5.5GW 及 1.2GW，占發電總量的 20%。 另一方面，儲能技術可以應用到電力系統的各個運轉層次中，儲能技術可以讓電網對新能源有更強的接納能力，可以提高電能的品質以及可靠度，在未來的市場中有著廣泛的應用前景。當電力系統有高佔比再生能源發電時，儲能的調節以增進電力系統可靠度就變得很重要。本計畫透過馬可夫模型及蒙地卡羅模擬方法，探討不同再生能源發電占比及不同容量之化學儲能併網，對 2025 年台電發輸電系統對可靠度之影響。

本報告內容涵蓋蒐集國外先進國家化學儲能技術相關資料、探討馬可夫理論與模糊理論、整理風速、日照及負載資料、建構風速、日照及負載之馬可夫模型、合併馬可夫鏈、蒙地卡羅模擬分析方法、驗證馬可夫模型可行性。最後探討不同再生能源占比對 2025 年台電發輸電系統對電力系統可靠度之影響與不同容量之化學儲能對電力系統可靠度之影響。

Abstract

The government set a target of 27.423 GW for renewable energy in 2025, of which solar photovoltaic units have a capacity of 20 GW, and offshore and land-based wind power installations have capacities of 5.5 GW and 1.2 GW, respectively, accounting for 20% of total power generation. On the other hand, energy storage technology can be applied to all levels of operation of the power system. Energy storage technology can make the power grid more capable of accommodating new energy, improve the quality and reliability of electric energy, and have a wide application prospect in the future market. When the power system has a high penetration of renewable energy generation, it is important to consider the energy storage to improve the reliability of the power system. Through the Markov model and the Monte Carlo Simulation method, this project explores the reliability of bulk power system in Taiwan in 2025 by considering different renewable energy generation levels and different chemical storage capacities.

This report covers the collection of information on chemical storage technology in advanced countries, discussions of Markovian theory and fuzzy theory, studies on wind speed, irradiance and load data, the Markov chain of wind speed, irradiance, load data. The work of integrating each Markov chain is given using 2025 dataset. This project presents the steps of Monte Carlo simulation and ensures that Markov model is applicable. Finally, the impacts of different renewable energy generation levels and different capacities of energy storage systems on power system reliability are investigated.

壹、 計畫緣起與目的

一、 研究背景

政府設定 2025 年再生能源推廣目標為 27.423GW，其中太陽光電裝置容量 20GW，離岸及陸域風電裝置容量分別為 5.7GW 及 1.2GW，占發電總量的 20%。台灣電力公司未來亦將配合政府政策，將加速新設或擴建天然氣電廠，積極進行燃煤電廠汰舊換新。另外，依據目前政策規劃及公投結果，核電將於 2025 年後陸續除役，2025 年大潭電廠已擴建為 10 部複循環機組，總裝置容量 10.488GW。台灣電力公司電力調度部門有鑑於未來核能機組陸續除役，低成本之基載電力將嚴重短缺，且風力及太陽光電等大量間歇性再生能源可能衝擊系統營運。

另一方面，因為新能源發電正在逐漸被利用和推廣，電力公司以及產學研界逐漸瞭解到儲能技術的重要。儲能方式不是單一種技術，其類型非常豐富，可以應用到電力系統的各個運轉層次中，性能上也存在著差異。現今儲能技術處於開發及試運轉階段，國內對儲能技術的應用還沒有完全普及，儲能技術可以讓電網對新能源有更強的接納能力，可以提高電能的品質以及可靠性，在未來的市場中有著廣泛的應用前景。儲能技術包括抽水蓄能、壓縮空氣儲能、飛輪儲能及化學儲能。能用在發輸電系統的是抽水蓄能及化學儲能。抽水蓄能在平衡核能發電扮演重要腳色，化學電池儲能系統(Battery Energy Storage System, BESS)近年來技術逐漸成熟。2017 年 12 月 1 日，100MW/129MWh 特斯拉鋰電池儲能電站在澳大利亞南澳州投運，並於 2017 年 12 月 14 日和 2018 年 1 月 18 日維多利亞州的 LoyYang 發電廠機組跳機事故中跨區支援整個電網調頻[1]。

二、 研究目標

在電力系統，一次調頻為就地機組調速器自發吸收電網高頻低幅負載波動以減少頻率變化，時間尺度為秒級至分鐘級。二次調頻即自動發電控制(Automatic Generation Control, AGC)調頻，由被指定機組跟蹤AGC指令，以減少區域控制偏差，時間尺度為分鐘級。因此儲能系統提供頻率調節服務時，充放時間短且次數多，對迴圈壽命及短時功率充放能力要求較高，因此電池類儲能需考慮高倍率特性、儲能安全性、功率密度、成本、轉換效率等特點[2]。常見化學儲能有磷酸鐵鋰電池、鈦酸鋰電池、三元鋰離子電池、鈉硫電池及全釩液流電池等。

當電力系統有高佔比再生能源發電時，儲能的調節以增進電力系統可靠度就變得很重要[3, 4]。電力系統可靠度描述了電力系統執行其功能的整體能力。通常電力系統可靠度討論分為兩個獨立的方面，即充足性(Adequacy)和安全性(Security)[5]。充足性可以定義為滿足需求的足夠設施的存在。電力系統的充足性與靜態條件有關，通常通過潮流模擬研究進行分析。安全性反映了對干擾作出響應的能力，因此，電力系統的安全性與系統動態響應有關，可以通過動態研究進行分析[6]。通常使用可靠度這個詞而不是充足性，這導致可靠度和安全性之間的區別（而不是安全性是可靠性的一部分）。在可靠度分析中，電力系統通常分為三個部分來定義可靠度評估的邊界，這些部分稱為層級。層級 II 級（Hierarchical level, HL II）屬於電力系統可靠度領域，通常被稱為“大容量電力系統”(Bulk Power System)，包括發電和輸電。因此，HL II 的可靠性研究評估了提供系統負載的發電和輸電容量（分佈在散裝負載點）。可靠度分析可以通過分析(Analytical)或數值(Numerical)方式進行。在分析方法中，系統由數學模型表示，其通常基於馬可夫模型(Markov Model)，通過求解方程系

統來計算可靠度指標的期望值。最常見的數值方法是蒙地卡羅模擬(Monte Carlo Simulation, MCS)方法，該方法通過模擬物理關係來分析系統的隨機行為。蒙地卡羅模擬的結果是可靠度指數的期望值概率分佈，即不僅是分析方法中的平均值。該方法提供了應用更複雜的組件模型的可能性，例如包括組件老化的影響。

Pu 等人提出了一種的能量存儲模型，該模型可以包括使用 MCS 方法進行可靠度評估的能量存儲運轉限制約束。該模型是為充足性研究而開發的，並非用於安全評估；該模型包含在充足性方面重要的各種系統運轉和穩定度限制約束。藉由評估儲能的可靠度效益和可儲存的風能量，提出並比較了風電場和儲能運轉的可能策略[7]。Stanojevic 等人通過使用 DIgSILENT Power Factory 軟體，進行發電充足性分析和暫態穩定度研究來分析 BESS 的影響。Stanojevic 使用 MCS 模擬技術進行發電充足性分析，計算典型因素，例如負載損失概率（Loss of Load Probability，LOLP）和未提供的預期需求（Expected Demand Not Supplied，EDNS）；此外，確定了涵蓋再生能源間歇性所需的 BESS 的大小[8]。Singh 和 Fernandez 提出了一種可用於 MCS 模擬的光伏發電和蓄電池存儲的實際評估模型。在建模時結合了太陽輻射的高度間歇性，電池存儲的充電/放電限制約束以及能量存儲和系統之間的運轉協調。

所開發的模型用於基於諸如部落案例區域的 LOLP 的可靠度標準來計算光伏系統的容量[9]。Milad 等人使用低溫 BESS，其以液體形式儲存空氣並在需要時回收動力，等人使用 Copula 理論產生相關隨機變量以確定不同位置的風速。此外，為了計算風電場和 BESS 的可用性，此研究採用馬可夫方法，實現 MCS 模擬以獲得系統的可靠性指標[10]。

三、 國外先進國家化學儲能技術相關資料蒐集

目前儲能系統的發展之種類十分多樣，且技術分類也非常繁多，廣泛應用的技術超過十餘種，表 1 整理出了每種技術其各自之優缺點與適合應用的地方[11]。儲能系統要應用的首要條件即是其安全性，接著便是儲能系統的耐用性、供電的穩定性、反應速度...等等，基本上儲能系統依照儲能的方式不同大致可分類為以下幾種，包括化學儲能、機械儲能、電子儲能、熱儲能...等[12]。

表 1 電網儲能技術應用適用性評估[11]

應用	壓縮空氣	水力抽蓄	飛輪	鉛酸電池	鈉硫電池	鋰離子電池	液流電池
全系統負載調配	O	O	X	V	V	V	V
再生能源併網管理	X	O	O	V	V	V	V
輔助服務	O	O	O	O	O	O	O
全黑啟動	O	O	X	V	V	V	V
延緩輸電	X	X	X	V	V	V	V
延緩配電	X	X	X	V	V	V	V
可移動式分布電力	X	X	X	O	V	V	V
用戶端負載調配	X	X	X	V	V	V	V
整合發電	X	X	X	V	O	O	O
時間電價管理	O	O	X	O	O	O	O
用戶端不斷電設備	X	X	O	V	V	V	V
孤島應用	X	X	X	V	V	V	V

註: **V**=完全適用, **O**=可能適用, **X**=完全不適用

部分常見儲能技術之基本特性如表 2[11]，由此表可見與其他儲能比起來化學儲能要比其他儲能方式有較廣泛的應用，且依照目前發展的技術，電化學儲能系統較容易生產，並且有不受地理環境限制的特點，此一特點使用化學之方式充電，將電能轉化成化學能儲存，並於需要時將其載轉換為電能發出，基於以上化學儲能各方面之優點，本計劃將重點探討化學儲能。

表 2 部分儲能技術應用及一般特性[11]

儲能技術	主要應用	優點	挑戰
壓縮空氣儲能	能量管理 季節備用電力 再生能源整合	較天然氣機發電廠 啟動快 技術成熟	地理性限制 轉換效率低 比飛輪或電池反應 慢 環境衝擊
水力抽蓄	能量管理 季節備用電力 可經由變速泵浦達 到調節服務	已開發成熟技術 目前最具成本效應 儲能技術	地理性限制 環境衝擊 總設置經費高
飛輪	負荷跟蹤 頻率調節 削峰填谷 傳輸穩定性	模組技術 使用週期長 高負載輸出功率無 過熱問題 反應速率快 能量效率高	轉子強度限制 因磨擦損失造成儲 能時間短

先進鉛酸電池	負荷跟蹤及調節 電網穩定	成熟電池技術 成本低 高回收比例 電池壽命可	放電深度限制 低能量密度 佔用空間大 電極腐蝕影響使用 壽命
鈉硫電池	功率品質 紓緩電力壅塞 再生能源整合	高能量密度 放電週期長 反應快 規模放大潛力好	操作溫度高 250-300℃ 液體汙染造成玻璃 密封材料腐蝕及脆 化
鋰離子電池	功率品質 頻率調節	能量密度高 充電/放電效率高 使用次數好	製造成本高 溫度、過充及內部 壓力累積等問題 深度放電容忍度差
液流電池	良好升降載率 削峰填谷 時間平移 功率品質 頻率調節	充放電次數長 壽命長 充放電效率可	發展中技術 設計複雜 能量密度低
超導儲能	功率品質 頻率調節	高放電效率	低能量密度 材料及製造成本限 制
電化學電容器	功率品質 頻率調節	壽命非常長 高可逆性及快速放 電	目前受成本限制

熱化學儲能	負荷跟蹤及調節 穩定電網運行	相當高能量密度	目前受成本限制

常見的化學儲能包括鋰電池、鈉硫電池、液流電池…等，其主要特性之整理比較如表 3 所示[11]，目前的數據顯示液流電池不只在安全性上高於其它種化學儲能，在壽命及成本上也皆優於其他方式，雖然目前發展技術較成熟之化學儲能系統為鋰電池，但液流電池可能是最具應用潛力的化學儲能方式。

表 3 部分儲能系統基本特性比較[11]

	鋰離子電池	鈉硫電池	液流電池
能量密度	190	150~240	18~28
充放電效率(%)	85~95	75~85	75
生命週期(次)	1000	5000	15000
功率設置成本($/kW)	400	3000	1600
能量設置成本($/kWh)	1200	500	470
均一化能量成本($/cycle/kWh)	1.2	0.1	0.03

因為能源危機，許多先進國家十分注重儲能系統之發展，儲能系統可搭配再生能源、電網使用，而亞洲在這方面也日益注重，新增儲能系統國家漸增，政府也大力支持與增加建造儲能系統的經費，下述所列 9 間儲能系統公司:Tesla, Sk Innovation, CATL, Funeng Technology, Guoxuan High-Tech, Eve Energy, Samsung SDI, TerraE Holding, LG

Chem，就有 4 間是亞洲公司[13]。

南韓儲能系統在電力系統上的應用，將儲能系統融入發電、輸電、配電，發展鋰電池、鈉電池、液流電池，其中又以鋰電池為研究發展的重點，不僅限於工業用途也包含平常住家的使用[14]

鋰電池的發展逐漸成熟，成本從 2015 到 2017 年從$400kWh^{-1}降到了$209kWh^{-1}。大洋洲儲能系統的發展近況以澳洲與紐西蘭為主，其中最為亮眼的例子為特斯拉在南澳建立的儲能系統，能夠提供 30000 戶住家在尖峰時的用電近一小時，並且有增加電網安全性、可靠度、調頻等功能，而特斯拉在 2018 年時也在紐西蘭新建了第一個併網的儲能系統[15]。

除了韓國與澳洲，其他各國之處能系統發展也日益蓬勃，如圖 1 所示[16]，清楚說明了在 2017 與 2018 年間各國所設置儲能系統之裝置容量，在短短的一年內成長許多，特別是韓國，2018 年之儲能裝置容量與 2017 年相比將近多了 4 倍。

圖 1 2017~2018 年各國儲能裝置容量[16]

隨著各國的重視，儲能系統的新建在未來是一個趨勢，圖 2 預測了在未來 5 年內全世界儲能系統的新建容量[16]，於 2024 年時將高達 15GW，根據統計從 2019 年至 2024 年，每年將成長 38%的設置裝置容量，並且注重在發展大型的儲能系統來取代傳統的燃油與燃氣發電場[16]。

圖 2 2013~2024 年預測新增儲能系統之裝置容量

貳、 研究方法與過程

一、 模糊理論

(一)、模糊理論介紹

應用於分類分析(Cluster Analysis)方面上研究，首先是由 Ruspini 將模糊 C 分割的觀念放入分類分析中，提出所謂的模糊分類。Fuzzy-C-Means (FCM) 分類於 1974 年由 Dunn 首先定義出 Fuzzy ISODATA，隨後 Bezdek 於 1981 年發展出 FCM 演算法。

(二)、模糊理論在本計畫中的應用:

本計畫使用模糊-c-均值(FCM)演算法以獲得馬可夫狀態。風場發電、太陽能發電與負載運轉狀態必須做離散化的處理。風場發電、太陽能功率或負載的每個數據集(向量)與 FCM 演算法所得的每一個分群(cluster)中心，有一個相關度(即隸屬函數)。透過(9)式目標函數最小化可計算隸屬函數$\mu_c(n)$：

$$\mathrm{J(U,V)} = \sum_{\zeta=1}^{N}\sum_{c=1}^{C}\mu_c(n)^{\alpha}\left\|X_\zeta - V_c\right\|^2,\ 1 \le \alpha \le \infty$$

其中N為已知數據集的數量；C為給定的分群數；$\mu_c(n)$表示V_c與X_ζ相關聯的隸屬函數的值；X_ζ是第ζ個已知的數據集，V_c是第 c 個分群的未知中心向量。當 FCM 收斂時，N個數據集被分為C個分群。在本計畫中，分群 c 的中心V_c為該分群的代表向量，並被視為馬可夫模型中的狀態。X_ζ與V_c的維度 1×1 以及$n = 8760$。

二、馬可夫理論

(一)、馬可夫模型

馬可夫模型是在隨機模型中計算狀態機率和事件頻率的數學方法，在馬可夫模型中使用 λ 失效率和 μ 修理率的概念對系統進行分析，如圖 3 所示，能求得穩態與暫態間的轉移並計算出週期、頻率、發生次數…等各種狀態參數。如右圖所示，為一個一分為二的兩狀態馬可夫模型，狀態 1 表示健全，狀態 2 表示非健全，轉移率為上述所提之

λ失效率與μ修理率，在馬可夫鏈的每一步中，系統根據不同的機率分布，可從一個狀態轉移成另一個狀態，也可以保持原始狀態。

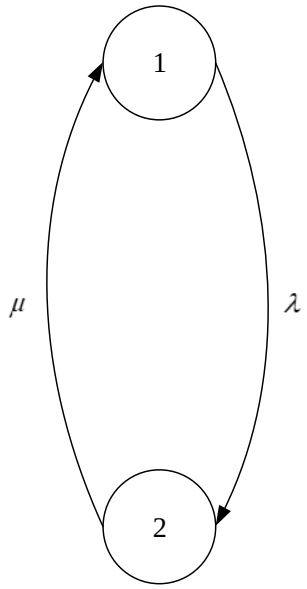


圖 3 馬可夫模型示意圖

(二)、多狀態馬可夫模型

在三狀態馬可夫模型中，如圖 4 所示，狀態一轉移至狀態二的機率為λ_2，轉移至狀態三的機率為λ_1，故狀態一的變化率為轉移至狀態二或狀態三的變化率之和，表 4 為三狀態馬可夫模型之狀態變化率整理。

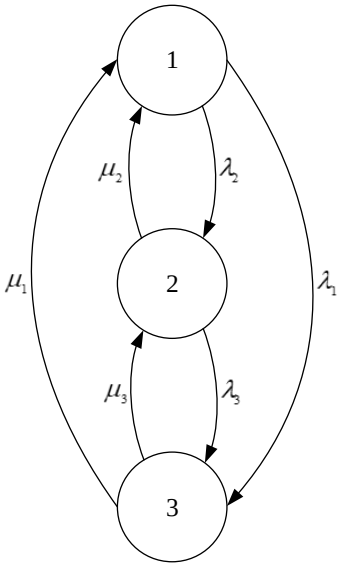


圖 4 三狀態馬可夫模型

表 4 三狀態馬可夫模型之狀態變化

初始狀態 / 變化狀態	狀態一	狀態二	狀態三
狀態一		μ_2	μ_1
狀態二	λ_1		μ_3
狀態三	λ_2	λ_3	
變化率(Rate of Departure)	$\lambda_1 + \lambda_2$	$\mu_2 + \lambda_3$	$\mu_1 + \mu_3$

(三)、馬可夫模型在本計畫中的應用

在本計畫中，這個按時間順序排列的問題被轉換為基於馬可夫模型的問題，考慮風力、太陽能出力功率與負載的機率、持續時間與頻率。傳統的時間序列，依順序從$h = 1$增加到$h = 8760$。當使用馬可夫模型時，依據兩個過渡率(故障率(λ, Failure Rate)與修復率(μ, Repair Rate)，電力系統的狀況在各種數據集，風力發電、太陽能

發電與負載需求指定的情境之間變化。每個時間順序參數都以其自身的機率、持續時間與頻率轉換為其對應的狀態。整合所有狀態產生情境，馬可夫模型因此大幅減少變數與限制式的數量。將風力發電分為 13 個狀態、太陽能發電分為 8 個狀態和負載分為 15 個狀態，原始狀態數為 8760 個，使用馬可夫理論簡化後模擬狀態數將減少為為 1560 個狀態，與原本的 8760 個想比，減少了總共 7200 個狀態，在不減少精準度的前提下，縮短模擬與運算時間。

(四)馬可夫收斂理論

假設有一個 3*3 之轉移矩陣 T 如表 5 所示

表 5　3*3 轉移機率矩陣

轉移機率	A	B	C
A	0.6	0.2	0.2
B	0.1	0.7	0.2
C	0.1	0.1	0.8

其中表格內之數字為由狀態起始狀態 A、B、C 時，轉移到下一個狀態 A、B、C 之機率，此轉移矩陣必須符合兩項條件:

1.每個轉移機率必為正數

2.每一列相加必須為 1

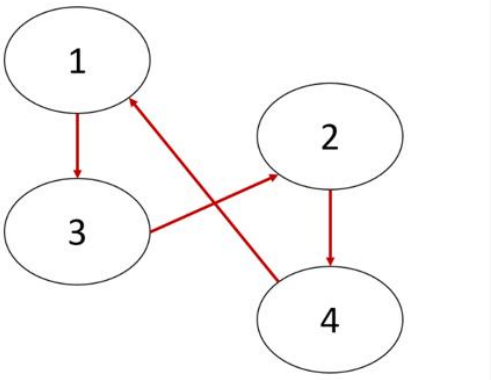
滿足上述兩個條件之矩陣稱為轉移矩陣，又稱為馬可夫矩陣，而通常來說馬可夫矩陣是可以收斂的，也就是將其本身之矩陣相乘，乘以 n 次後會產生一個穩定狀態，而 n 的次數取決於容忍度(Tolerance)值的

設定，與轉移矩陣 T 的階層大小，不過滿足上述兩樣條件後仍然需要滿足下方兩項條件才能確定轉移矩陣是會達到一個穩定的狀態收斂:

1.任意狀態能夠轉移到任意其他的狀態(狀態之間不一定要可以直接轉移，但必須要有路徑達到那個狀態)

2.狀態之轉移不是固定的週期(Ex:A->B->A->C->B->C->A)

若只滿足條件一，那麼最終不會收斂，而是卡再重複的週期中，如圖 5 所示




```
array([[0, 0, 1, 0],
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       [0, 1, 0, 0],
       [1, 0, 0, 0]])

array([[0, 1, 0, 0],
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       [0, 0, 0, 1],
       [0, 0, 1, 0]])

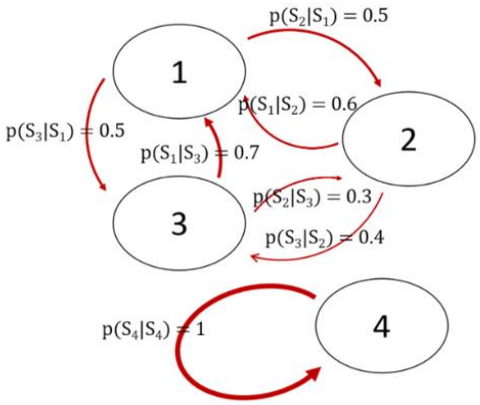
array([[0, 0, 0, 1],
       [0, 0, 1, 0],
       [1, 0, 0, 0],
       [0, 1, 0, 0]])

array([[1, 0, 0, 0],
       [0, 1, 0, 0],
       [0, 0, 1, 0],
       [0, 0, 0, 1]])

array([[0, 0, 1, 0],
       [0, 0, 0, 1],
       [0, 1, 0, 0],
       [1, 0, 0, 0]])
```

圖 5 滿足條件一之收斂結果

若只滿足條件二，那最終只會在連通的地方收斂，如圖 6 所示




```
Initial steps:
 [[0.  0.5 0.5 0. ]
 [0.6 0.  0.4 0. ]
 [0.7 0.3 0.  0. ]
 [0.  0.  0.  1. ]]

After 3 steps:
 [[0.23  0.385 0.385 0.   ]
 [0.462 0.23  0.308 0.   ]
 [0.539 0.231 0.23  0.   ]
 [0.    0.    0.    1.   ]]

After 10 steps:
 [[0.40201735 0.28714809 0.31083456 0.        ]
 [0.39195065 0.29305958 0.31498977 0.        ]
 [0.38779545 0.2954585  0.31674605 0.        ]
 [0.         0.         0.         1.        ]]

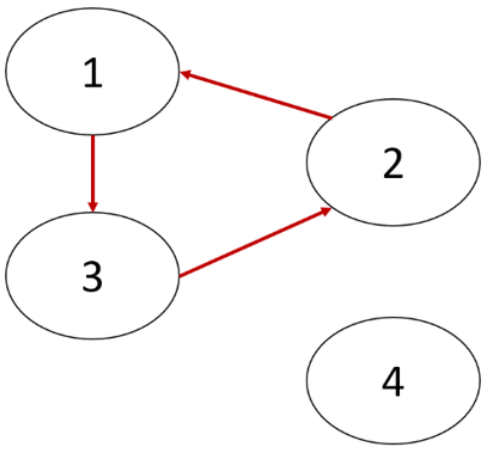
After 30 steps:
 [[0.39461986 0.29147922 0.31390092 0.        ]
 [0.39461846 0.29148004 0.3139015  0.        ]
 [0.39461789 0.29148038 0.31390174 0.        ]
 [0.         0.         0.         1.        ]]

After 100 steps:
 [[0.39461883 0.29147982 0.31390135 0.        ]
 [0.39461883 0.29147982 0.31390135 0.        ]
 [0.39461883 0.29147982 0.31390135 0.        ]
 [0.         0.         0.         1.        ]]

After 300 steps:
 [[0.39461883 0.29147982 0.31390135 0.        ]
 [0.39461883 0.29147982 0.31390135 0.        ]
 [0.39461883 0.29147982 0.31390135 0.        ]
 [0.         0.         0.         1.        ]]
```

圖 6 滿足條件二之收斂結果

若兩條件皆不滿足，則會在連通的狀態中出現重複週期，如圖 7 所示。

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       [0, 1, 0, 0],
       [0, 0, 0, 0]])

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       [1, 0, 0, 0],
       [0, 0, 0, 0]])

array([[1, 0, 0, 0],
       [0, 1, 0, 0],
       [0, 0, 1, 0],
       [0, 0, 0, 0]])

array([[0, 0, 1, 0],
       [1, 0, 0, 0],
       [0, 1, 0, 0],
       [0, 0, 0, 0]])
```

圖 7 條件一與二皆不滿足之收斂結果

上述所舉例之 3*3 矩陣，皆滿足以上所有條件，可知道此矩陣必

定會收斂，此轉移矩陣之機率到小數第二位，為了達到較精準之收斂條件，將 Tolerance 設定在 0.0001，迭代之方法按照下面規則:

$$Delta = |(MaxT^{n}) - (MaxT^{n+1})|$$

若$Delta$小於所設之 Tolerance 時，則停止迭代，運算結果如圖 8 所示在經歷過 21 次迭代之後，$Delta$小於所設之 Tolerance，馬可夫矩陣收斂，來到了一個穩定狀態。

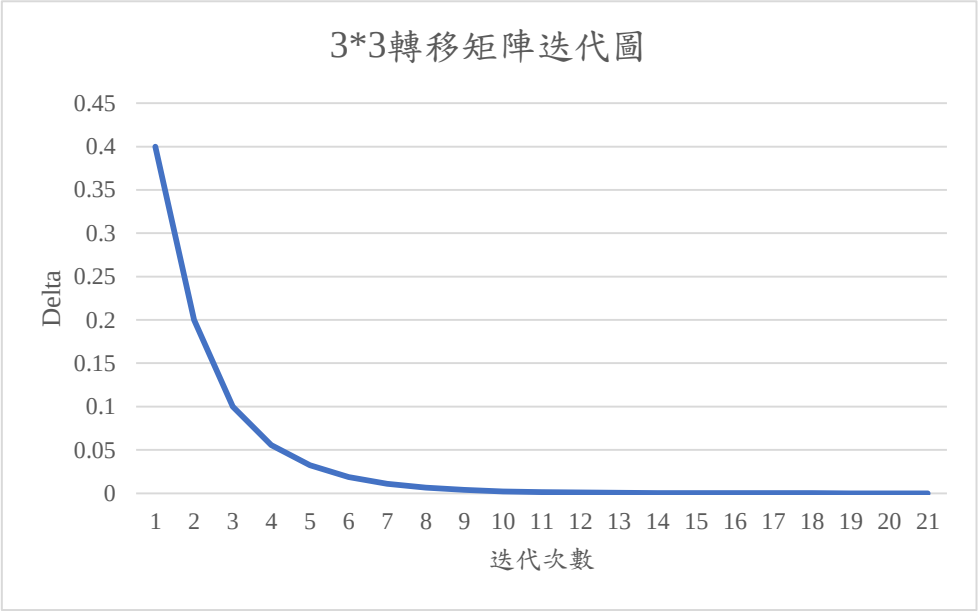

圖 8 3*3 轉移矩陣迭代圖

如表 6 所示，觀察最後得到的穩定狀態的矩陣來看，可以發現最後收斂的數字為各個狀態發生之機率，可以得到結論，在經過 21 次迭代，轉移矩陣收斂後，A 發生的機率為 20%，B 發生的機率為 30%，C 發生的機率為 50%，而機率分布的狀況，則和最初在決定轉移矩陣 T 設定各個狀態間之轉移機率有關，得到此結論後再加上先前所提到之模糊聚合分類與馬可夫分群等方法結合運用，便可完成蒙地卡羅模

擬方法之環境。

表 6 收斂之轉移矩陣

收斂後轉移機率	A	B	C
A	0.2	0.3	0.5
B	0.2	0.3	0.5
C	0.2	0.3	0.5

三、整理風速、日照與負載資料

(一)風速資料

使用中央氣象局彰濱外海 10 公尺高之海風資料為基準換算，海上風速比陸上風速高約 20%，則海上風機之發電量將比陸域風機高 70%，本計劃所使用之海上風機規格為 135 公尺高，單機裝置容量 4.2MW，陸域風機為 122 公尺高單機裝置容量 3MW，程式會自動將 10 公尺風速換算成符合風機高度之風速。使用中央氣象局之 8760 個小時風速作為基礎資料，再配合台電所提供 2025 年海上風機裝置容量 5738MW 與陸域風機裝置容量 1200MW，可推得 2025 年風力發電 8760 個小時的海上與陸上風機發電情形如圖 9、圖 10 所示。

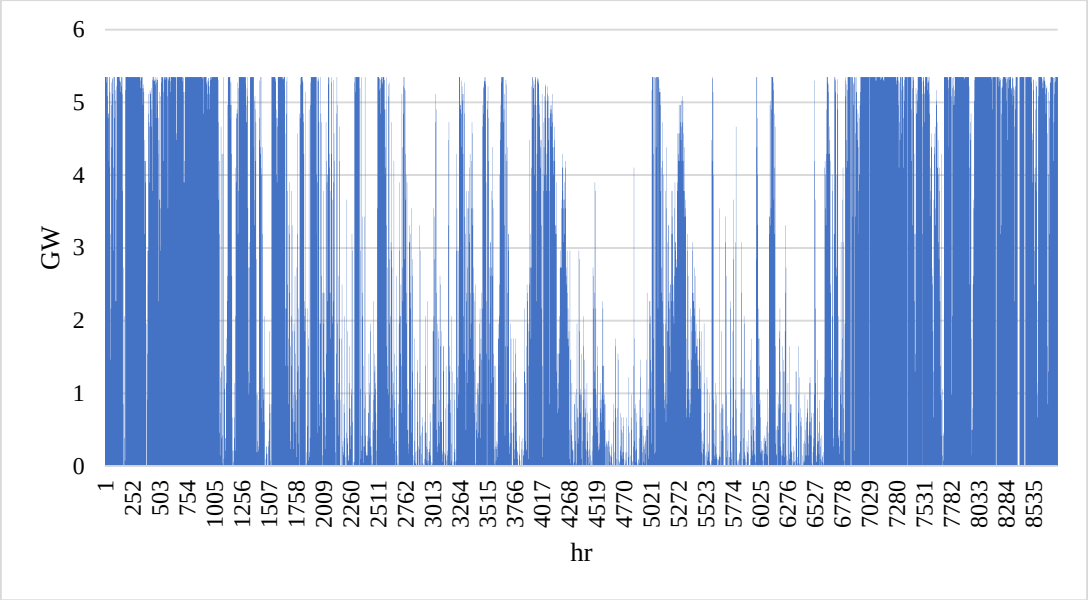

圖 9 2025 年海上風機 8760 個小時發電量曲線

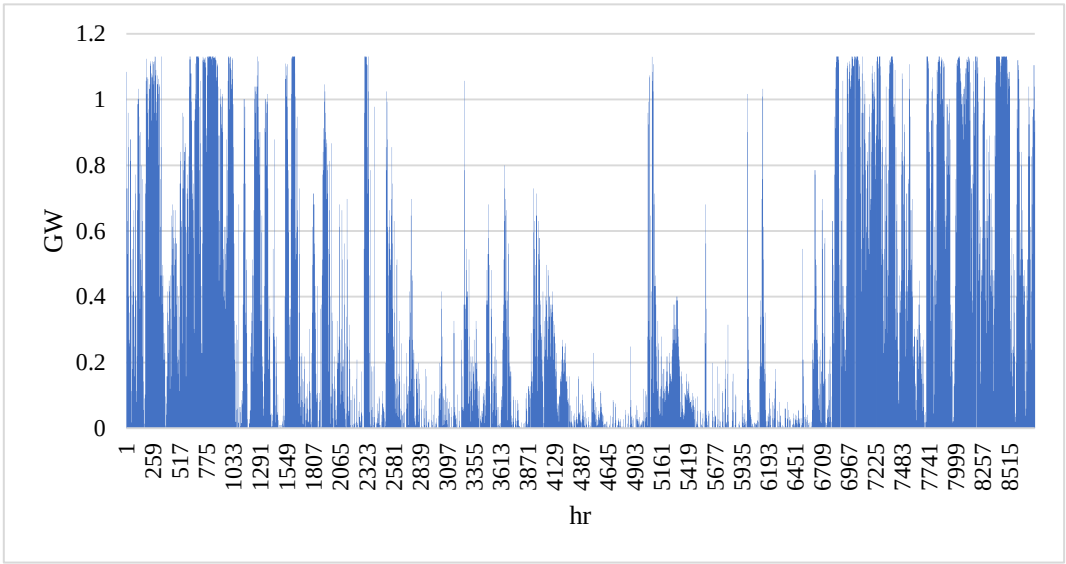

圖 10 2025 年陸上風機 8760 個小時發電量曲線

(二)日照資料

使用中央氣象局之日照資料，分成北中南三個部分，並且依照台電提供之北中南太陽能發電佔比，計算出北中南太陽能發電量比例作為基準，再使用台電 2025 年太陽發電約 20GW，可得到 2025 年太陽能發電 8760 個小時北中南太陽能發電之發電情形如圖 11、圖 12、圖

13 所示。

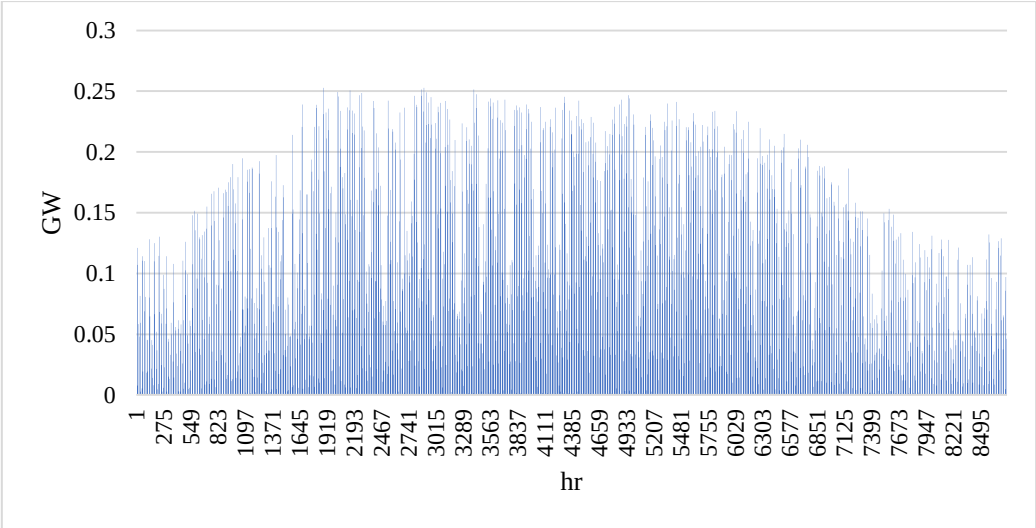

圖 11 2025 年北部太陽能 8760 個小時發電曲線

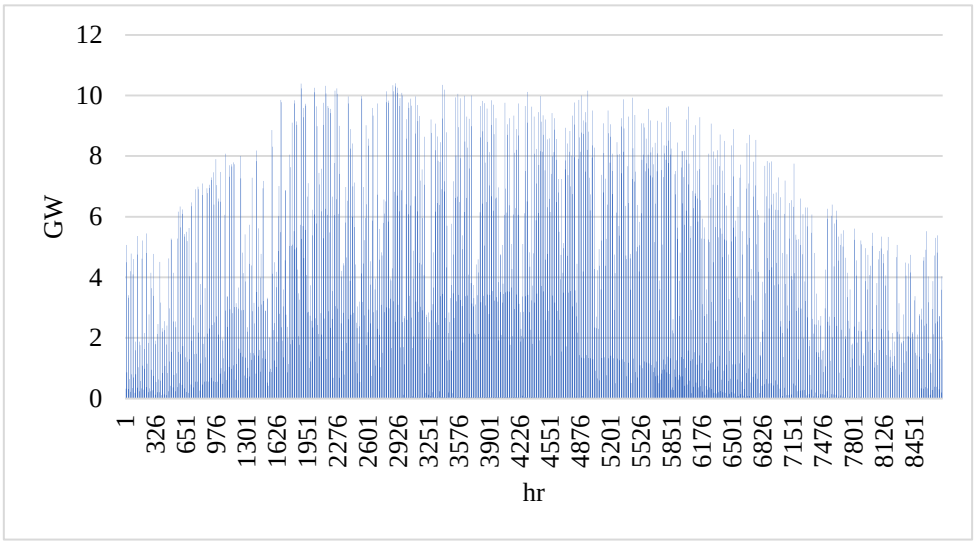

圖 12 2025 年中部太陽能 8760 個小時發電曲線

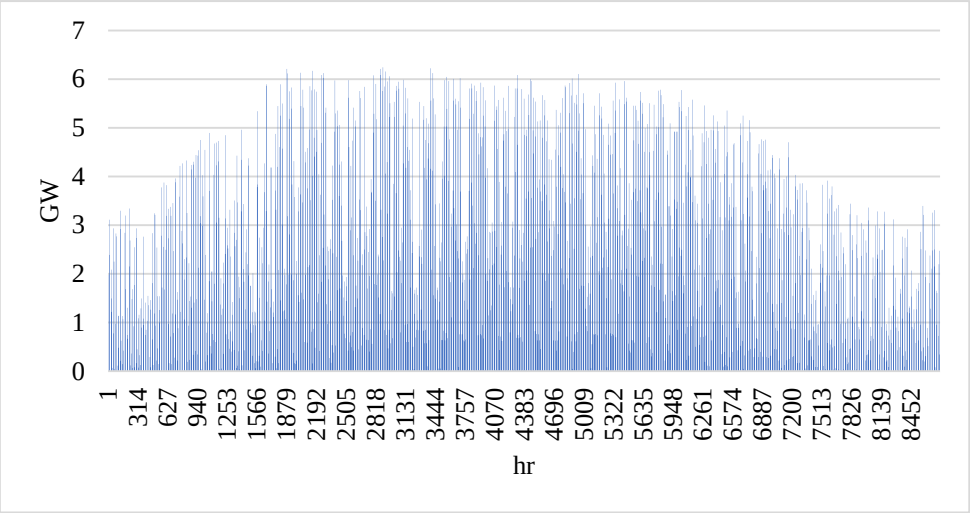

圖 13 2025 年南部太陽能 8760 個小時發電曲線

(三)負載資料

以台電提供之 2025 年夏季預測尖峰 24 小時負載預測之資料為基準，再使用台電各月份發電量比計算出每個月發電量，並考慮平日與假日負載之差距，計算出 2025 年 8760 個小時年度負載，如圖 14 所示。

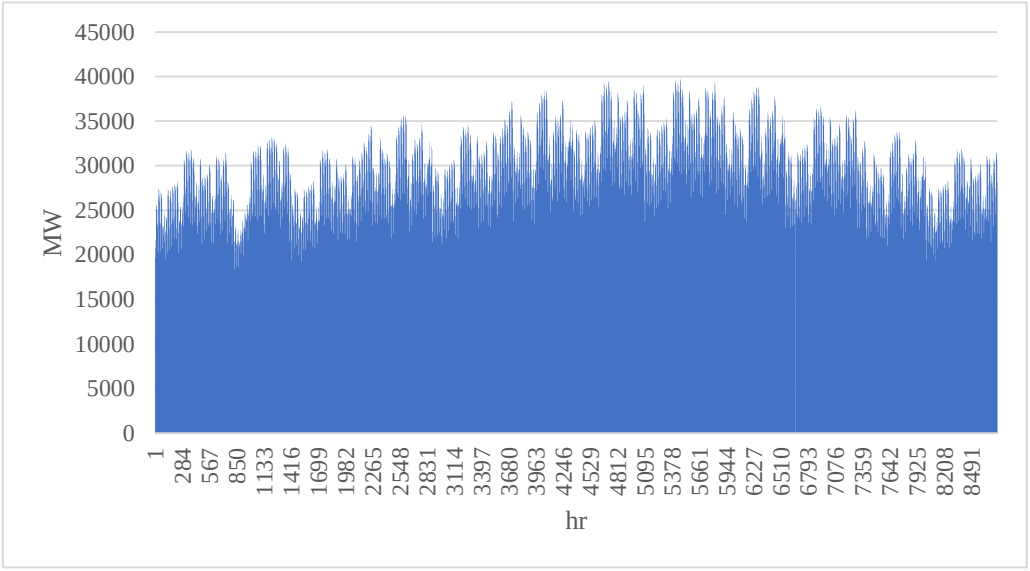

圖 14 2025 年 8760 個小時負載曲線

四、 建構風速、太陽能及負載馬可夫模型

建構馬可夫模型時，先使用 FCM 演算法，求出各個狀態發生的機率與轉移率，接著再計算出其頻率(機率乘以轉移率)、週期(機率乘以轉移率之倒數)、持續時間(轉移率之倒數)，完成完整的馬可夫模型之建立，以下為建立風速、太陽能與負載之馬可夫模型，之細節說明。

(一)建構風速之馬可夫模型

本計劃討論之風機包含離岸風機與陸上風機兩者，但若兩者皆建立馬可夫模型，則會使得發生之情境過多，失去了使用馬可夫理論減少組合數的意義，因此以離岸風機為主，陸域風機則是使用離岸風機之馬可夫數據。

風速之馬可夫模型之建構，根據風速之速度，配合風機可啟動之運轉風速，每 1m/s 為一個單位由最低至最高，總共 13 個，因此本計劃使用 FCM 演算法，將一整年 8760 小時的離岸風機之發電量做馬可夫分群，總共分為 13 群，下表 7 與表 8 為離岸風機與陸域風機分為 13 群之機率、轉移率、頻率、週期、持續時間。

表 7 離岸風機發電量之馬可夫模型

狀態	發電量（MW)	機率	轉移率	頻率（次/h）	週期 (h)	持續時間 (h)
1	6.86	0.28	0.52	0.15	6.88	1.91
2	221.27	0.08	0.61	0.05	20.18	1.65
3	508.34	0.05	0.69	0.04	26.38	1.44
4	875.49	0.05	0.68	0.03	30.00	1.48
5	1298.81	0.04	0.79	0.03	36.05	1.27

6	1756.53	0.03	0.76	0.03	37.92	1.31
7	2220.71	0.03	0.79	0.02	45.38	1.27
8	2721.19	0.03	0.79	0.02	41.71	1.27
9	3221.95	0.02	0.80	0.02	58.01	1.25
10	3764.67	0.03	0.76	0.02	40.55	1.31
11	4274.70	0.03	0.72	0.02	42.11	1.39
12	4861.05	0.06	0.60	0.03	30.31	1.67
13	5326.93	0.27	0.24	0.06	15.78	4.21

表 8 陸上風機發電量之馬可夫模型

狀態	發電量（MW)	機率	轉移率	頻率（次/h）	週期 (h)	持續時間 (h)
1	2.46	0.28	0.52	0.15	6.88	1.91
2	45.34	0.08	0.61	0.05	20.18	1.65
3	104.58	0.05	0.69	0.04	26.38	1.44
4	176.61	0.05	0.68	0.03	30.00	1.48
5	258.97	0.04	0.79	0.03	36.05	1.27
6	354.67	0.03	0.76	0.03	37.92	1.31
7	451.34	0.03	0.79	0.02	45.38	1.27
8	543.04	0.03	0.79	0.02	41.71	1.27
9	658.99	0.02	0.80	0.02	58.01	1.25
10	778.11	0.03	0.76	0.02	40.55	1.31
11	901.24	0.03	0.72	0.02	42.11	1.39
12	1018.40	0.06	0.60	0.03	30.31	1.67
13	1117.30	0.27	0.24	0.06	15.78	4.21

(二)建構太陽能之馬可夫模型

本計劃討論之太陽能將其分為北、中、南三個部份，但若三個地區皆建立馬可夫模型，則會使得發生之情境過多，失去了使用馬可夫理論減少組合數的意義，因此以南部太陽能為主，而北部與中部之太陽能則是以南部的馬可夫數據為基準。

太陽能之馬可夫模型之建構，配合太陽能可運轉之照度，每 100W/m^2 為一個單位由最低 300W/m^2 至 1000W/m^2，總共 8 個，因此本計劃使用 FCM 演算法，將一整年 8760 小時的之太陽能發電量做馬可夫分群，總共分為 8 群。表 9、表 10 與表 11，南部、中部及北部太陽能發電量分為 8 群之機率、轉移率、頻率、週期、持續時間。

表 9 南部太陽能發電量之馬可夫模型

狀態	發電量（MW)	機率	轉移率	頻率（次/h）	週期 (h)	持續時間 (h)
1	11.05	0.58	0.07	0.04	23.93	13.79
2	695.86	0.10	0.77	0.08	12.98	1.29
3	1416.52	0.08	0.65	0.05	19.95	1.53
4	2143.62	0.06	0.81	0.05	19.08	1.23
5	2905.55	0.05	0.76	0.04	24.06	1.32
6	3752.14	0.05	0.80	0.04	25.69	1.24
7	4667.87	0.04	0.70	0.03	32.44	1.42
8	5589.34	0.04	0.39	0.01	71.80	2.57

表 10 中部太陽能發電量之馬可夫模型

狀態	發電量（MW)	機率	轉移率	頻率（次/h）	週期 (h)	持續時間 (h)
1	20.34525	0.58	0.07	0.04	23.93	13.79
2	1198.98	0.10	0.77	0.08	12.98	1.29
3	2345.018	0.08	0.65	0.05	19.95	1.53
4	3552.044	0.06	0.81	0.05	19.08	1.23
5	4815.925	0.05	0.76	0.04	24.06	1.32
6	6237.054	0.05	0.80	0.04	25.69	1.24
7	7767.298	0.04	0.70	0.03	32.44	1.42
8	9308.608	0.04	0.39	0.01	71.80	2.57

表 11 北部太陽能發電量之馬可夫模型

狀態	發電量（MW)	機率	轉移率	頻率（次/h）	週期 (h)	持續時間 (h)

1	0.516183	0.58	0.07	0.04	23.93	13.79
2	29.08021	0.10	0.77	0.08	12.98	1.29
3	56.61099	0.08	0.65	0.05	19.95	1.53
4	86.35234	0.06	0.81	0.05	19.08	1.23
5	117.2833	0.05	0.76	0.04	24.06	1.32
6	152.4139	0.05	0.80	0.04	25.69	1.24
7	189.1968	0.04	0.70	0.03	32.44	1.42
8	226.2803	0.04	0.39	0.01	71.80	2.57

(三)建構負載之馬可夫模型

負載之馬可夫模型，本計劃使用 FCM 演算法，將負載資料分群成約 1000MW 為一個單位，從離峰慢慢加至尖峰，經過多次嘗試後，因為分類成 15 群會讓機率較為平均分布，故總共分為 15 群。表 12 為 2025 年 8760 小時負載之馬可夫模型。

表 12 負載之馬可夫模型

狀態	負載量(MW)	機率	轉移率	頻率（次/h）	週期 (h)	持續時間 (h)
1	20060.46	0.03	0.28	0.01	122.25	3.59
2	21726.07	0.05	0.43	0.02	44.91	2.33
3	23226.15	0.08	0.44	0.04	27.94	2.29
4	24520.35	0.09	0.56	0.05	20.33	1.79
5	25678.88	0.08	0.66	0.05	18.36	1.51
6	26726.74	0.09	0.65	0.06	16.66	1.53
7	27795.25	0.09	0.64	0.06	17.14	1.56
8	28847.09	0.08	0.67	0.06	18.06	1.49
9	29902.93	0.08	0.69	0.06	17.70	1.46
10	30888.40	0.08	0.62	0.05	19.37	1.60
11	32095.95	0.07	0.60	0.04	25.15	1.68
12	33239.37	0.06	0.57	0.03	29.45	1.74
13	34638.06	0.05	0.43	0.02	43.88	2.32
14	36245.59	0.03	0.58	0.02	60.53	1.74

15	37937.95	0.03	0.29	0.01	121.90	3.47

五、 依據馬可夫模型，建構模擬之情境

由 FCM 求得風力、太陽能、負載之馬可夫模型後，可以將三個馬可夫模型合併，得到所有可能發生之狀態，風力有 13 種狀態，太陽能有 8 種，負載有 15 種狀態，總共合併後狀態為 1560 種結果列於附錄表 18，附錄顯示各個狀態之負載量、機率、轉移率、頻率、週期、一年發生次數、持續時間。

本計畫將發電量分類成五個 Case，面對不同負載情形時使用不同的發機組排程，Case1~Case5 分別應付負載由高至低，將當時負載扣掉太陽光伏、離岸風機與陸域風機之發電量，計算出其淨負載，若淨負載>36000MW，按照排程 Case1 發電機發電，若 36000 MW >淨負載> 32000 MW，按照排程 Case2 發電機發電，若 32000 MW >淨負載 > 28000 MW，按照排程 Case3 發電機發電，如果 28000 MW >淨負載 > 24000 MW，按照排程 Case4 發電機發電，若淨負載< 24000 MW，按照排程 Case5 發電機發電。

另外考慮明潭與大觀之水力抽蓄機組合計約 2400MW，有別於傳統抽蓄方式，因應再生能源占比增加，抽蓄水力將在太陽光伏發電達到尖峰時抽水充電(抽水)，而在太陽光伏發電離峰時發電，可以解決出現負載鴨子曲線之問題，而在本計畫中將抽蓄水力機組之充放電與

5 個 Case 合併，Case1 時發電 2400MW、Case2 時發電 1200MW、Case3 抽蓄機組維持當前狀態、Case4 充電 1200MW、Case5 充電 2400MW。

六、蒙地卡羅模擬的發輸電系統可靠度分析

(一) 蒙地卡羅模擬的發輸電系統可靠度分析步驟

考慮不同機組的強制停機率(Forced Outage Rate, FOR)，利用基於蒙地卡羅模擬方法來計算電力系統可靠度以獲得失載期望值(Loss of Load Expectation, LOLE)的算法步驟可以如下實現，而蒙地卡羅模擬之次數皆設定在 10000 次：

步驟 1: 令 IT=迭代指標、t=供電不足次數、s=目前狀態。

步驟 2: Load(s)-PV_Total(s)-Wind_Total(s)= Net load(s)。

步驟 3: 如果 net load(s)>36000MW，按照排程 1 發電機發電，如果 36000 MW > net load(s) > 32000 MW，按照排程 2 發電機發電，如果 32000 MW > net load(s) > 28000 MW，按照排程 3 發電機發電，如果 28000 MW > net load(s) > 24000 MW，按照排程 4 發電機發電，如果 net load(s) < 24000 MW，按照排程 5 發電機發電。

步驟 4：g = 1(第一部燃氣機組)。

步驟 5：在[0,1]內產生均勻隨機數 u1。

步驟 6: 如果 u1 < FOR(g)，則 P(g,s)=0 MW，否則 P(g,s) = 排定出力。

步驟 7：如果 g > G(總燃氣機組數)，則令 c=1 (第一部燃煤機組)，到步驟 8，否則 g=g+1，回到步驟 5。

步驟 8：在[0,1]內產生均勻隨機數 u2。

步驟 9：如果 u2 <FOR(c)，則 P(c,s)=0 MW，否則 P(c,s) = 排定出力。

步驟 10：若 c > C (總燃煤機組數)，則 h=1 (第一部水力機組)，到步驟 13，否則 c=c+1，回到步驟 8。

步驟 11：在[0,1]內產生均勻隨機數 u3。

步驟 12：如果 u3 <FOR(h)，則 P(h,s)=0 MW，否則 P(h,s) = 排定出力。

步驟 13：如果 h > H (總水力機組數)，則令 pv=1(第一座太陽光伏場)，到步驟 14，否則 h=h+1，回到步驟 11。

步驟 14：在[0,1]內產生均勻隨機數 u4。

步驟 15：如果 u4 <FOR(pv)，則 P(pv,s)=0 MW，否則 P(pv,s) = 排定出力。

步驟 16：若 pv > PV (總太陽光伏場)，則 w=1 (第一座風場)，到步驟 17，否則回到步驟 14。

步驟 17：在[0,1]內產生均勻隨機數 u5。

步驟 18：如果 u5 <FOR (w)，則 P(w,s)=0 MW，否則 P(w,s) = 排定出力。

步驟 19：若 w > W (總風場)，則到步驟 20，否則 w=w+1，到步驟 17。

步驟 20： 執行電力潮流計算。如果任一 AGC 備轉機組之出力收斂值超過其上限，則 t = t + 1。

步驟 21：產生一個亂數 u6，若亂數小於 s 發生之機率則維持狀態 s，若亂數大於 s 之發生機率，則狀態 s 轉移至對應的狀態。若轉移機率矩陣收斂，則到步驟 22，否則到步驟 2。

步驟 22：IT = IT + 1。

步驟 23:如果 IT = IT_MAX,則停止,計算 LOLP = t / (IT×收斂次數)、LOLE=LOLP×8760（小時/年）。

(二)144 狀態與 1560 狀態馬可夫收斂結果

本計畫使用蒙地卡羅演算法求得系統之可靠度，其中每次實驗之蒙地卡羅次數接設定在 10000 次，144 狀態馬可夫轉移矩陣為 144*144 之方陣，用來模擬一週之馬可夫模型，而 1560 狀態馬可夫轉移矩陣為 1560*1560 之方陣，用來模擬一年之馬可夫模型，基於兩矩陣之階層不同，因此索設定之收斂 Tolerance 也不同，一周之馬可夫模型,轉移矩陣為 144*144 之方陣,機率分配約到小數點後第四位，因此將 Tolerance 設定在小數點後第五位，而一年之馬可夫模型，轉移矩陣為 1560*1560 之方陣，因為比 144*144 之矩陣大上許多，收斂後機率分配約到小數點後第五位，因此將 Tolerance 設定在小數點後

第六位，由圖 15、16 可知，144 狀態之馬可夫轉移矩陣在迭代 72 次收斂，而 1560 狀態之馬可夫矩陣在迭代 159 次後收斂。

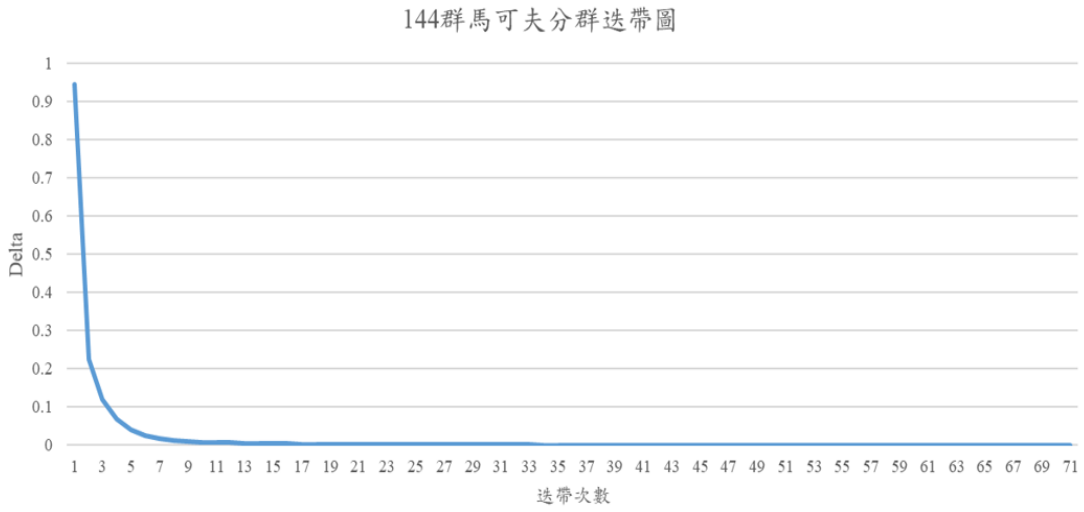

圖 15 144 狀態馬可夫轉移矩陣迭代圖

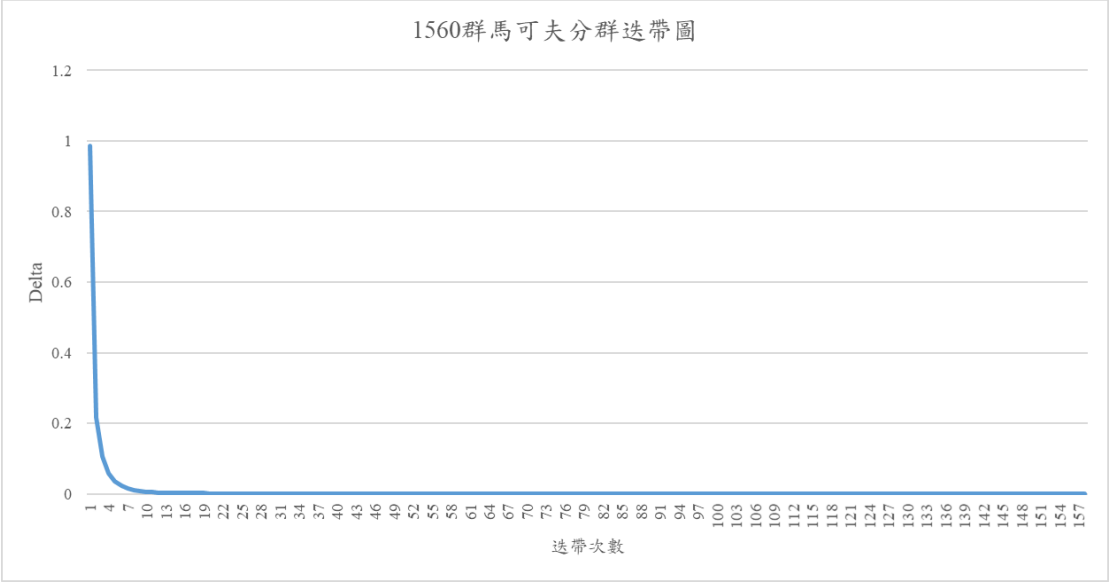

圖 16 1560 狀態馬可夫轉移矩陣迭代圖

(三)驗證馬可夫模型之可行性

為驗證馬可夫模型方法之可行性，將取樣台電系統一週之數據，分別作時間順序法之模擬與馬可夫模型方法模擬做比較。比較兩者結

果便可得知馬可夫方法之可行性，並且將其運用在簡化一年 8760 小時之負載、太陽能、風力數據。

一週 168 小時之時間順序法與馬可夫模型方法模擬結果之比較，因模擬小時數較少，所以將馬可夫之分類也做減少的動作，負載從原本 1000MW 為一個單位分為 15 群，增加成 2000MW 為一個單位分為 7 群，太陽能發電從原本的每 100W/m^2 為一個單位分為 8 群，增加成 200 W/m^2 為一個單位分為 4 群，風力發電從原本的 1m/s 為一個單位分為 13 群，增加到 2m/s 為一個單位分為 6 群，總狀態數從原本的負載 15 群、太陽能發電 8 群、風力發電 13 群，共 15*8*13=1560 種狀態，縮減為負載 7 群、太陽能發電 4 群、風力發電 6 群，共 7*4*6=144 種狀態。

表 13 為模擬之結果，同樣做 10000 次的蒙地卡羅模擬，可見使用馬可夫模型之方法所花費的時間，比時間順序法節省了約 10%的時間，計算出來之 LOLP 與 LOLE 也與時間順序法之結果相近，證明馬可夫模型之簡化，除了節省模擬時間，再準確度上也和時間順序法相似，因此接下來，將利用此方法模擬 2025 年之台電系統可靠度分析。

表 13 一週之時間順序法與馬可夫模型方法之比較

方法	LOLP	LOLE(小時/年)
時間順序法	0.00129	11.304
144 狀態 馬可夫模型方法	0.00129	11.304

(四)馬可夫模型方法模擬 2025 年台電系統發輸電系統可靠度分析

使用 1560 種狀態馬可夫模型方法，模擬 2025 年輸發電系統可靠度分析，同樣做 10000 次的蒙地卡羅分析。觀察表 14 可以發現，計算出之 LOLP 與 LOLE 值略小於一週之模擬結果，原因為一週模擬實驗所取之數據為 2025 年夏季最尖峰的一週，所以發生缺電的機率相對較高，此外可以看到 1560 狀態之馬可夫模型方法，雖然比 144 狀態馬可夫模型花的時間還要多，但比時間順序法模擬一週所花的時間更少。

1560 狀態馬可夫分組搭配為負載分為 15 群，太陽能發電分為 8 群，風力發電分為 13 群，共 15*8*13=1560 種狀態。接下來將實驗各種負載不同的分群數，對 LOLP 與 LOLE 之影響，目前所用分群為以 1000MW 為單位分為 15 群，將試驗以 2000MW 為單位分為 9 群，與以 500MW 為單位分為 25 群。

表 15 所示，由實驗結果可得知，以下三種實驗狀態數分別為 2600 種狀態、1560 種狀態、936 種狀態。分成之狀態數越多則所花費在運算上之時間越長，至於精準度的部分，分成的狀態越多，準確度會越貼近於現實。表 13 為負載分為 15 群與 9 群結果比較，發現所計算出來之 LOLP 與 LOLE 相差近兩倍，可見減少分群數會對結果有影響，

因為類的組數減少，所以面對的狀況也大大的減少，因此計算出的 LOLP 與 LOLE 會相較於分成 15 組的結果小很多。

另外負載狀態分為 25 群與 15 群兩種方法，可見負載分為 15 組之結果已經非常貼近於現實，和負載分成 25 群所的結果計算出來的 LOLP 與 LOLE 數據非常相近。得到相似的結果，所需要之計算時間負載分為 15 群比負載分為 25 群負載還要少，因此負載分為 15 群之方法，在不犧牲 LOLP 與 LOLE 精準度上，還能節省一定的時間，為較適合之分組方法。

表 14 負載分為不同狀態數之 LOLP 及 LOLE 比較

方法	LOLP	LOLE(小時/年)
25*8*13 狀態 馬可夫模型方法	0.00115	10.074
15*8*13 狀態 馬可夫模型方法	0.00122	10.687
9*8*13 狀態 馬可夫模型方法	0.00046	4.029

七 、探討不同再生能源發電占比對 2025 年台電發輸電系統可靠度之衝擊

上述所做之模擬為 100%達成政府設定 2025 年再生能源推廣目標為 27.423GW，其中太陽光電裝置容量 20GW，離岸及陸域風電裝置容量分別為 5.7GW 及 1.2GW，占發電總量的 20%。

考慮到政府目前達成之百分比，本計劃設計兩項模擬實驗，分別為達成政府目標 75%之再生能源容量與達成政府目標 50%之再生能

源容量。其中再生能源達成 75%總容量為 20.57GW，其中太陽光電裝置容量15GW,離岸及陸域風機裝置容量分別為4.125GW及0.9GW。而達成政府設定目標 50%之再生能源總容量為 13.712GW，其中太陽光電裝置容量 10GW，離岸及陸域風機裝置容量分別為 2.75GW 及 0.6GW。

如下表16所示為不同政府再生能源裝置目標完成度100%、75%、50%分別對系統可靠度衝擊，所計算出之 LOLP 與 LOLE 與比較。

表 15 不同再生能源目標完成度對 2025 年台電輸發電系統可靠度之衝擊

方法	LOLP	LOLE(小時/年)
再生能源 完成度 100%	0.00122	10.687
再生能源 完成度 75%	0.00161	14.103
再生能源 完成度 50%	0.00206	18.045

由上述實驗結果可知，再生能源完成度越高，LOLP 與 LOLE 的數值越低，因此再生能源的容量越高，系統的可靠度越高，從 FOR 角度來看，燃氣機組的 FOR 為 0.00414，太陽光伏與風機之 FOR 皆為 0.004，兩者的 FOR 相差不多，因此可以得知兩者的 FOR 相似，但一般燃氣機組一部容量約落在 200MW 至 800MW，而一座太陽光伏或風場之容量約落在 100MW 左右，相似的 FOR，但故障發生停機時對系統衝擊的容量卻相差了好幾倍，若將再生能源的比例降低，相對的對燃氣機組的依賴便會越高，模擬中亂數小於燃氣 FOR 的機率

便會增加，系統損失的容量也會跟著提高，也間接地影響到電力系統的可靠度。

八、探討化學儲能併網對電力系統可靠度之影響

(一)電池充放電策略

根據台電儲能系統設置的規劃將於 2025 年前設置總裝置容量 590MW 之儲能系統，其中 160MW 由台電本身建立，其餘的 430MW 則透過電力市場採購輔助服務方式來補足剩下的缺口，由於並未確定安置儲能系統之位置，因此本計畫模擬之結果將儲能系統分為 59 個，每個容量為 10MW，並平均分配至北中南地區。

充放電策略則根據太陽光伏之發電量，以 500MW 為一個分隔線，若是太陽光伏發電總量低於 500MW 時，則儲能系統會放電輔助整個電力系統，放電直至電池設定之最小容量，若太陽光伏發電總量高於 500MW 時，則儲能系統會進入充電模式，直至充滿電能。

詳細儲能系統的 SOC(State of charge)是根據下列公式執行充放電的策略:

$$E_b^{min} \le E_b^s \le E_b^{Max}$$
$$0 \le P_b^{dis} \le P_b^r$$
$$0 \le P_b^{ch} \le P_b^r$$
$$E_b^s = E_b^{s-1} + (\eta \times P_b^{ch}) \times d_{(s-1)} - (P_b^{dis}) \times d_{(s-1)}$$

其中

E_b^{min}為儲能系統最小剩餘能量

E_b^S為電池目前能量

E_b^{Max}為系統最大能量

P_b^{dis}、P_b^{ch}為儲能系統充放電量

P_b^r為儲能系統最大充放電能力

d為狀態持續時間

η為儲能系統充電效率

模擬初始化之設定，將儲能系統設定為全部充滿電能狀態，每個儲能系統放電能量E_b^{Max}設為 10MWh、放電量P_b^r設為 10MW、η設為 85%。

(二)馬可夫 1560 種狀態模擬結果與可靠度比較

(1) 馬可夫 1560 種狀態模擬儲能系統充放電結果

由圖 17 電池能量變圖之模擬結果可知電池的充放電情形，初始狀態將各個儲能系統設定為 100%，接著再按照太陽能的發電量來進行充放電。由圖 17 可發現，模擬結果按照上述所設計之充放電策略，可以觀察到儲能系統總容量在 90MW 與 590MW 之間作充放電的動作。

圖 17 為馬可夫迭代 159 次收斂後，能量的變化圖，此為一次的蒙地卡羅模擬，按照上述所設計的實驗，將進行 10000 次的蒙地卡羅模擬，因為 10000 次的儲能系統容量變化不方便看出能量變化，因此

用一次蒙地卡羅的結果圖來表示，儲能系統充放電的狀態，與電池總能量處存的變化量。

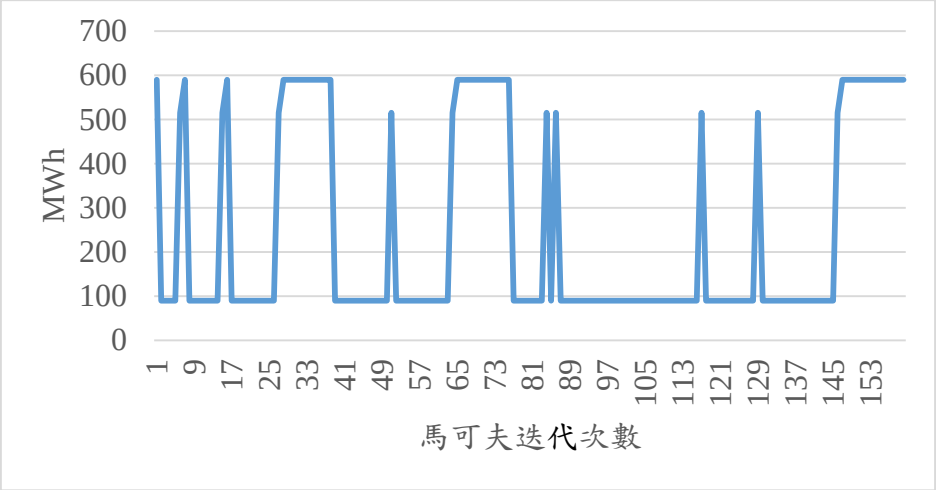

圖 17 再生能源達成 100%加上儲能系統之儲能能量變化圖

而圖 18、19 則為再生能源裝置容量達成度 75%與 50%，加上儲能系統後，儲能系統能量變化圖，與上述情形相同，此為一次蒙地卡羅模擬，模擬呈現之結果 LOLP 與 LOLE 為進行 10000 次蒙地卡羅之結果。

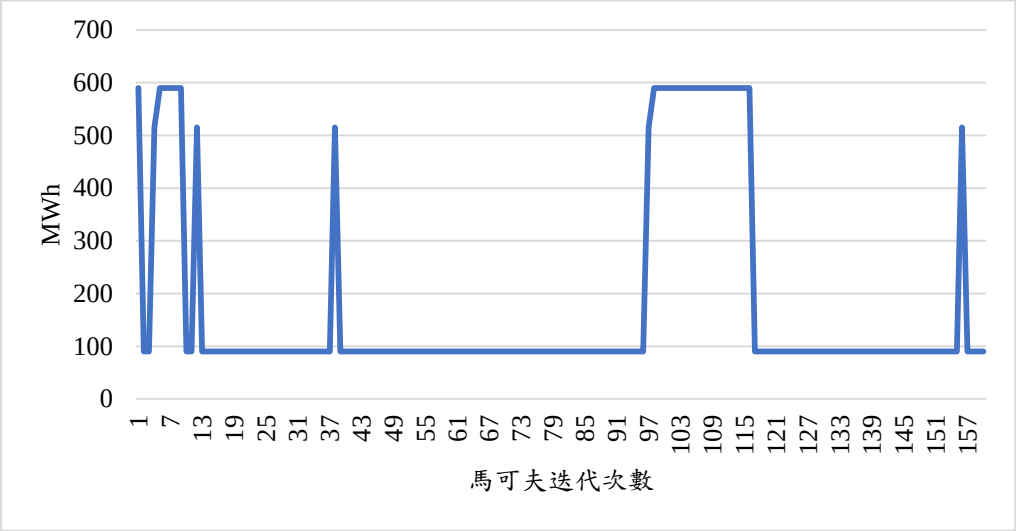

圖 18 再生能源達成 75%加上儲能系統之儲能能量變化圖

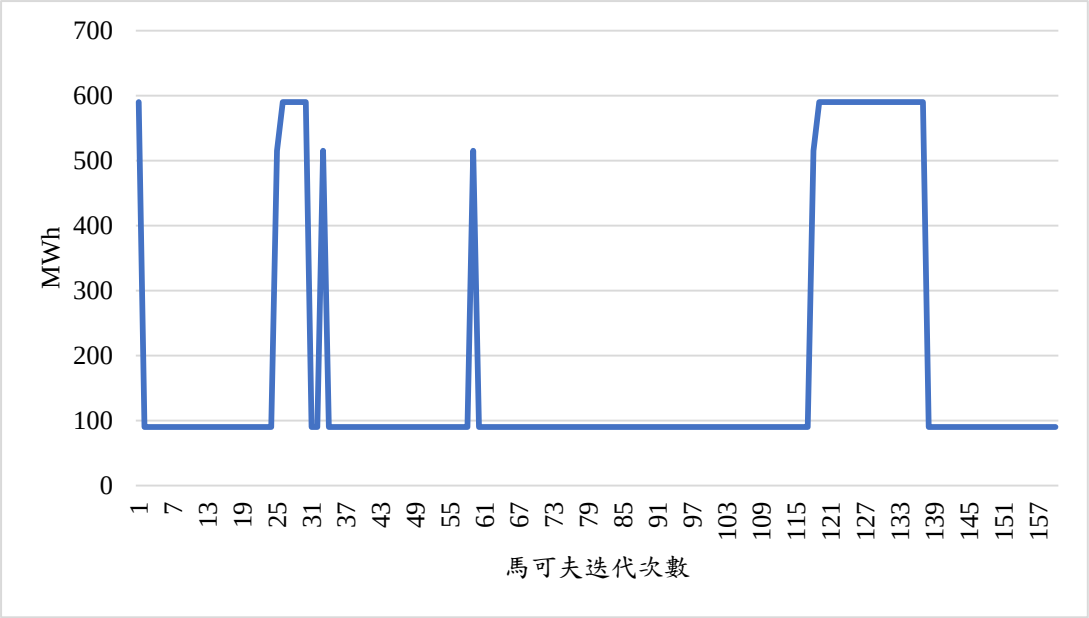

圖 19 再生能源達成 50%加上儲能系統之儲能能量變化圖

(2) 馬可夫 1560 種狀態不同再生能源達成率之可靠度比較

由表 16 可發現加上儲能系統後，不管再生能源達成之比例多寡 100%、75%、50%，電力系統的可靠度 LOLP 皆增加約 0.0001，而 LOLE 降低約 1 個小時，新增約 590MW 的儲能系統對大電力系統來說雖然占比並不算多，但由此模擬結果可以發現新增儲能系統還是能夠用來增加電力系統的可靠度，並且穩定太陽光伏發電的不穩定因素。

表 16 儲能系統對再生能源目標達成度不同之可靠度比較

新增儲能系統	LOLP	LOLE(小時/年)
100%再生能源達成	0.00104	9.110
75%再生能源達成	0.00142	12.439
50%再生能源達成	0.00167	14.629

(3)馬可夫 1560 種狀態不同儲能系統容量之可靠度比較

本計畫所設定之儲能目標總裝置容量為 590MW，因此在針對不同儲能系統對可靠度的影響這個題目時有兩個方向，其一為針對 590MW 分別模擬，完成 75%約 440MW 與完成 50%約 295MW，其二為針對 590MW，增加其容量為兩倍與三倍，1180MW 與 1770MW，但因為原本設定之儲能裝置容量 590MW，對電力系統之影響已經相當有限，若再削減其裝置容量，可能無法發覺其對電力可靠度造成之影響，因此選擇第二項方法，模擬新增儲能系統 1180MW 與 1770M 分別對系統可靠度之影響。

而圖 20、21 則為儲能裝置容量 1180MW 與 1770MW，儲能系統能量變化圖，與上述情形相同，此為一次蒙地卡羅模擬，模擬呈現之結果 LOLP 與 LOLE 為進行 10000 次蒙地卡羅之結果。

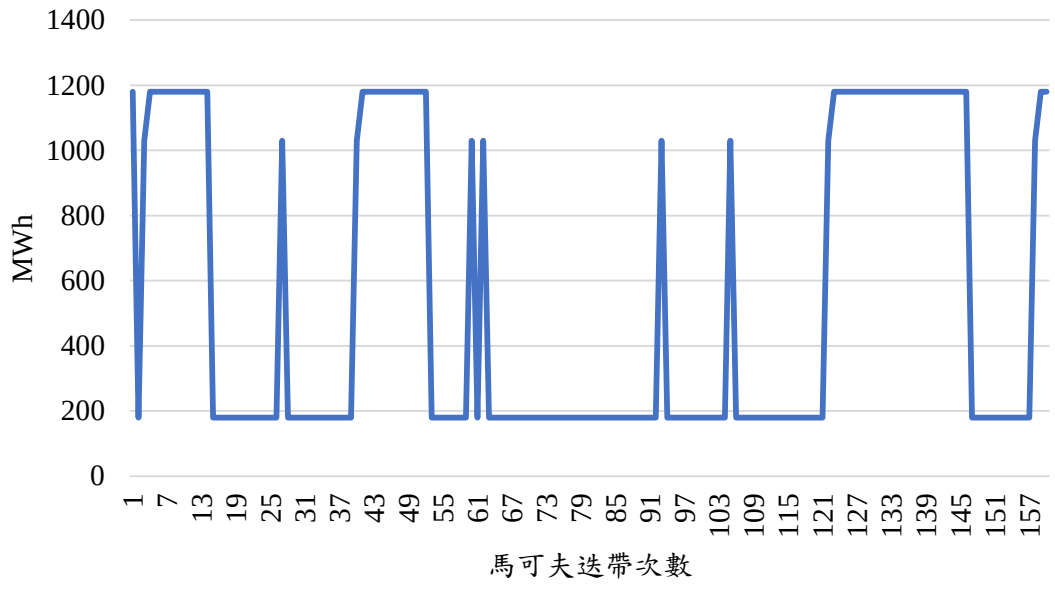

圖 20 1180MW 儲能容量變化

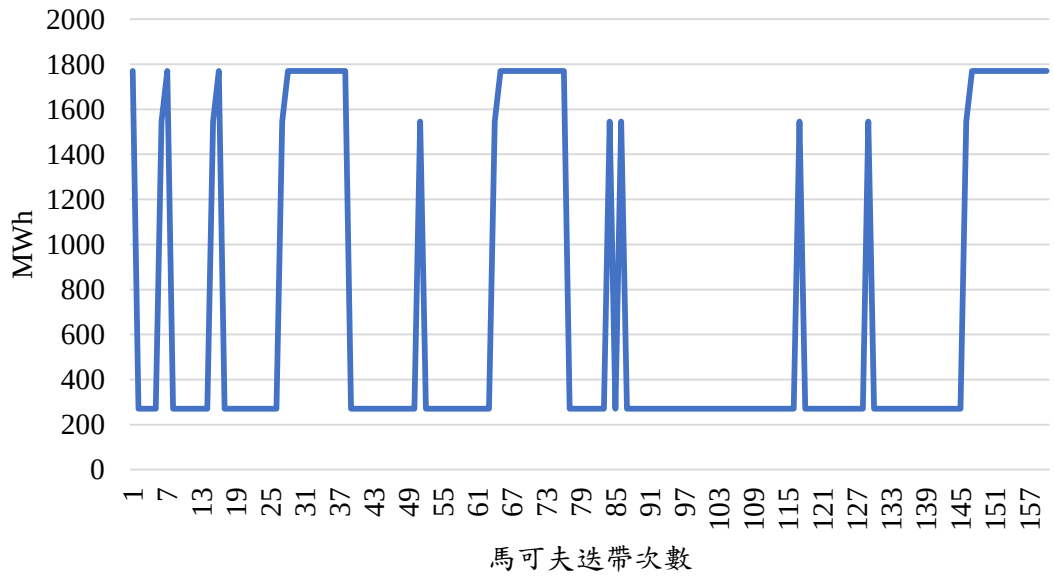

圖 21 1770MW 儲能容量變化圖

由表 17 可發現，儲能系統容量越大，LOLP 和 LOLE 越低，電力系統之可靠度增加。裝置容量 590MW 之儲能與 1170MW 儲能相比，LOLE 減少了將近 1.3 小時，但 590MW 之儲能與 1880MW 相比卻只減少了約 1.8 小時。

表 17 不同儲能系統容量對系統可靠度之影響

100%再生能源達成新增不同容量儲能系統	LOLP	LOLE(小時/年)
590MW	0.00104	9.110
1180MW	0.00098	8.585
1770MW	0.00096	8.409

參、結論

本報告完成國外先進國家化學儲能技術相關資料蒐集、利用台灣風速、日照歷史資料及台電負載資料，分別建構風速、太陽日照及負載馬可夫模型，也合併各個馬可夫模型，建構完整馬可夫鏈模擬情境。

本計畫完成基於蒙地卡羅模擬的發輸電系統可靠度分析方法，並且驗證馬可夫模型方法之可行性。本計畫探討了不同再生能源發電占比對2025年台電發輸電系統可靠度之衝擊，在所設定的假設條件下，由模擬結果可發現 2025 年若達成再生能源發電占比目標，則 LOLP=0.00129 及 LOLE=11.382 小時/年；若達不到預定再生能源發電占比目標，因火力機組每次故障將使系統失載量增加且 FOR 亦較大，而造成 LOLP 及 LOLE 升高，即可靠度變差。然而再生能源發電占比越高，因系統慣量變小，會造成暫態穩定度變差。

本計畫也探討預計儲能系統規劃容量對 2025 年台電發輸電系統可靠度之衝擊，由模擬結果可發現預計儲能系統規劃容量對可靠度改善的有限。若可增加預計儲能系統規劃容量，將有助於提升 2025 年台電發輸電系統可靠度。

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附 錄

表 18 馬可夫模型之模擬情境

情境	負載	風機	太陽能	機率	轉移率	頻率	週期	一年次數	持續時間
1	20060.45868	9.314287892	31.9084488	4.70E-03	8.75E-01	4.11E-03	1.14E+00	35.99008397	41.13061637
2	21726.06947	266.6094153	1923.916632	1.38E-03	9.59E-01	1.32E-03	1.04E+00	11.59185637	12.0902343
3	23226.15269	612.9242294	3818.151626	9.26E-04	1.04E+00	9.67E-04	9.58E-01	8.468287276	8.111029037
4	24520.35292	1052.100163	5782.015176	8.33E-04	1.03E+00	8.57E-04	9.72E-01	7.505736006	7.298250148

5	25678.87812	1557.776506	7838.75545	5.97E-04	1.14E+00	6.79E-04	8.79E-01	5.950963827	5.232338259
6	26726.74316	2111.201131	10141.60288	5.86E-04	1.11E+00	6.52E-04	8.98E-01	5.71211322	5.130740898
7	27795.24733	2672.040965	12624.36315	4.74E-04	1.14E+00	5.39E-04	8.78E-01	4.723952511	4.148583634
8	28847.08722	3264.226306	15124.22569	5.16E-04	1.14E+00	5.87E-04	8.79E-01	5.142599621	4.521156731
9	29902.93375	3880.934633	31.9084488	3.65E-04	1.15E+00	4.20E-04	8.70E-01	3.680056472	3.200391036
10	30888.39815	4542.77585	1923.916632	5.49E-04	1.11E+00	6.10E-04	9.00E-01	5.345242492	4.809040641
11	32095.94852	5175.945625	3818.151626	5.61E-04	1.07E+00	5.99E-04	9.36E-01	5.245429164	4.910638002
12	33239.36512	5879.44785	5782.015176	9.36E-04	9.48E-01	8.87E-04	1.05E+00	7.769750821	8.195569907
13	34638.06248	6444.225407	7838.75545	4.51E-03	5.89E-01	2.66E-03	1.70E+00	23.27347936	39.53887494
14	36245.59475	9.314287892	10141.60288	8.13E-04	1.57E+00	1.28E-03	6.35E-01	11.21476206	7.121267997
15	37937.95129	266.6094153	12624.36315	2.39E-04	1.66E+00	3.96E-04	6.03E-01	3.471880368	2.093277616
16	20060.45868	612.9242294	15124.22569	1.60E-04	1.74E+00	2.80E-04	5.73E-01	2.448939179	1.404326427
17	21726.06947	1052.100163	31.9084488	1.44E-04	1.73E+00	2.49E-04	5.79E-01	2.183806237	1.263603607
18	23226.15269	1557.776506	1923.916632	1.03E-04	1.84E+00	1.90E-04	5.44E-01	1.664303878	0.905915989
19	24520.35292	2111.201131	3818.151626	1.01E-04	1.81E+00	1.84E-04	5.52E-01	1.610639933	0.888325636
20	25678.87812	2672.040965	5782.015176	8.20E-05	1.84E+00	1.51E-04	5.44E-01	1.32055061	0.718277003
21	26726.74316	3264.226306	7838.75545	8.94E-05	1.84E+00	1.64E-04	5.44E-01	1.438176415	0.782783522
22	27795.24733	3880.934633	10141.60288	6.33E-05	1.85E+00	1.17E-04	5.41E-01	1.024926655	0.554108941
23	28847.08722	4542.77585	12624.36315	9.50E-05	1.81E+00	1.72E-04	5.52E-01	1.508142494	0.832627134
24	29902.93375	5175.945625	15124.22569	9.71E-05	1.77E+00	1.72E-04	5.66E-01	1.503170882	0.850217486
25	30888.39815	5879.44785	31.9084488	1.62E-04	1.65E+00	2.67E-04	6.07E-01	2.338239291	1.418963654
26	32095.94852	6444.225407	1923.916632	7.81E-04	1.29E+00	1.01E-03	7.76E-01	8.82017561	6.84567725
27	33239.36512	9.314287892	3818.151626	6.25E-04	1.46E+00	9.10E-04	6.87E-01	7.971012893	5.475389616
28	34638.06248	266.6094153	5782.015176	1.84E-04	1.54E+00	2.83E-04	6.50E-01	2.477866199	1.609476083
29	36245.59475	612.9242294	7838.75545	1.23E-04	1.62E+00	2.00E-04	6.15E-01	1.754405208	1.079756349
30	37937.95129	1052.100163	10141.60288	1.11E-04	1.61E+00	1.78E-04	6.21E-01	1.563429896	0.971557604
31	20060.45868	1557.776506	12624.36315	7.95E-05	1.72E+00	1.37E-04	5.82E-01	1.196733185	0.696539296
32	21726.06947	2111.201131	15124.22569	7.80E-05	1.69E+00	1.32E-04	5.90E-01	1.157082095	0.683014453
33	23226.15269	2672.040965	31.9084488	6.30E-05	1.72E+00	1.08E-04	5.82E-01	0.949602412	0.552267721
34	24520.35292	3264.226306	1923.916632	6.87E-05	1.72E+00	1.18E-04	5.82E-01	1.034138383	0.601865394
35	25678.87812	3880.934633	3818.151626	4.86E-05	1.73E+00	8.42E-05	5.78E-01	0.73732905	0.426042432
36	26726.74316	4542.77585	5782.015176	7.31E-05	1.69E+00	1.24E-04	5.91E-01	1.083371843	0.640189073
37	27795.24733	5175.945625	7838.75545	7.46E-05	1.65E+00	1.23E-04	6.06E-01	1.077939315	0.653713917
38	28847.08722	5879.44785	10141.60288	1.25E-04	1.53E+00	1.90E-04	6.54E-01	1.667950772	1.091010598
39	29902.93375	6444.225407	12624.36315	6.01E-04	1.17E+00	7.03E-04	8.55E-01	6.15509046	5.263493824
40	30888.39815	9.314287892	15124.22569	5.26E-04	1.61E+00	8.49E-04	6.20E-01	7.440836216	4.611699555
41	32095.94852	266.6094153	31.9084488	1.55E-04	1.70E+00	2.63E-04	5.89E-01	2.300757467	1.355596707

42	33239.36512	612.9242294	1923.916632	1.04E-04	1.78E+00	1.85E-04	5.61E-01	1.621064625	0.909435168
43	34638.06248	1052.100163	3818.151626	9.34E-05	1.77E+00	1.65E-04	5.66E-01	1.445844205	0.818303734
44	36245.59475	1557.776506	5782.015176	6.70E-05	1.88E+00	1.26E-04	5.33E-01	1.100465821	0.58666692
45	37937.95129	2111.201131	7838.75545	6.57E-05	1.85E+00	1.22E-04	5.40E-01	1.065273106	0.575275491
46	20060.45868	2672.040965	10141.60288	5.31E-05	1.88E+00	9.97E-05	5.33E-01	0.873157174	0.465152798
47	21726.06947	3264.226306	12624.36315	5.79E-05	1.88E+00	1.09E-04	5.33E-01	0.950945362	0.506926915
48	23226.15269	3880.934633	15124.22569	4.10E-05	1.89E+00	7.74E-05	5.30E-01	0.677604202	0.358838335
49	24520.35292	4542.77585	31.9084488	6.16E-05	1.85E+00	1.14E-04	5.41E-01	0.997502398	0.539205403
50	25678.87812	5175.945625	1923.916632	6.29E-05	1.81E+00	1.14E-04	5.54E-01	0.994723002	0.550596832
51	26726.74316	5879.44785	3818.151626	1.05E-04	1.69E+00	1.77E-04	5.93E-01	1.549742196	0.918914167
52	27795.24733	6444.225407	5782.015176	5.06E-04	1.33E+00	6.72E-04	7.54E-01	5.88321669	4.433228287
53	28847.08722	9.314287892	7838.75545	4.46E-04	1.56E+00	6.96E-04	6.40E-01	6.097979449	3.902877073
54	29902.93375	266.6094153	10141.60288	1.31E-04	1.65E+00	2.16E-04	6.07E-01	1.888576563	1.147240241
55	30888.39815	612.9242294	12624.36315	8.79E-05	1.73E+00	1.52E-04	5.78E-01	1.332624217	0.769654142
56	32095.94852	1052.100163	15124.22569	7.91E-05	1.72E+00	1.36E-04	5.83E-01	1.188271581	0.692529694
57	33239.36512	1557.776506	31.9084488	5.67E-05	1.82E+00	1.03E-04	5.48E-01	0.905983275	0.496495672
58	34638.06248	2111.201131	1923.916632	5.56E-05	1.80E+00	1.00E-04	5.55E-01	0.876691743	0.486855116
59	36245.59475	2672.040965	3818.151626	4.49E-05	1.83E+00	8.21E-05	5.48E-01	0.718860742	0.393658383
60	37937.95129	3264.226306	5782.015176	4.90E-05	1.82E+00	8.94E-05	5.48E-01	0.782888462	0.42901178
61	20060.45868	3880.934633	7838.75545	3.47E-05	1.84E+00	6.37E-05	5.44E-01	0.557956488	0.303684552
62	21726.06947	4542.77585	10141.60288	5.21E-05	1.80E+00	9.37E-05	5.56E-01	0.820895432	0.456329035
63	23226.15269	5175.945625	12624.36315	5.32E-05	1.76E+00	9.34E-05	5.70E-01	0.818051202	0.465969591
64	24520.35292	5879.44785	15124.22569	8.88E-05	1.64E+00	1.45E-04	6.11E-01	1.271854684	0.777676211
65	25678.87812	6444.225407	31.9084488	4.28E-04	1.28E+00	5.47E-04	7.84E-01	4.787476202	3.751837004
66	26726.74316	9.314287892	1923.916632	3.94E-04	1.61E+00	6.34E-04	6.22E-01	5.55085811	3.454688874
67	27795.24733	266.6094153	3818.151626	1.16E-04	1.69E+00	1.96E-04	5.92E-01	1.716716972	1.015496523
68	28847.08722	612.9242294	5782.015176	7.78E-05	1.78E+00	1.38E-04	5.63E-01	1.209791771	0.681270651
69	29902.93375	1052.100163	7838.75545	7.00E-05	1.76E+00	1.23E-04	5.68E-01	1.078989688	0.613002814
70	30888.39815	1557.776506	10141.60288	5.02E-05	1.87E+00	9.38E-05	5.35E-01	0.821426017	0.439480425
71	32095.94852	2111.201131	12624.36315	4.92E-05	1.85E+00	9.08E-05	5.42E-01	0.795119909	0.430946946
72	33239.36512	2672.040965	15124.22569	3.98E-05	1.87E+00	7.44E-05	5.35E-01	0.651756605	0.348452491
73	34638.06248	3264.226306	31.9084488	4.34E-05	1.87E+00	8.10E-05	5.35E-01	0.709818886	0.379746068
74	36245.59475	3880.934633	1923.916632	3.07E-05	1.88E+00	5.77E-05	5.31E-01	0.505799427	0.268810834
75	37937.95129	4542.77585	3818.151626	4.61E-05	1.84E+00	8.50E-05	5.43E-01	0.744533195	0.403926337
76	20060.45868	5175.945625	5782.015176	4.71E-05	1.80E+00	8.47E-05	5.56E-01	0.742393862	0.412459816
77	21726.06947	5879.44785	7838.75545	7.86E-05	1.68E+00	1.32E-04	5.95E-01	1.1563155	0.688371502
78	23226.15269	6444.225407	10141.60288	3.79E-04	1.32E+00	5.01E-04	7.57E-01	4.38492039	3.320993542

79	24520.35292	9.314287892	12624.36315	3.56E-04	1.51E+00	5.37E-04	6.63E-01	4.704256417	3.120617384
80	25678.87812	266.6094153	15124.22569	1.05E-04	1.59E+00	1.67E-04	6.28E-01	1.459635576	0.917297105
81	26726.74316	612.9242294	31.9084488	7.03E-05	1.68E+00	1.18E-04	5.96E-01	1.031705058	0.615391172
82	27795.24733	1052.100163	1923.916632	6.32E-05	1.66E+00	1.05E-04	6.02E-01	0.919674155	0.553724896
83	28847.08722	1557.776506	3818.151626	4.53E-05	1.77E+00	8.02E-05	5.65E-01	0.702579224	0.396982277
84	29902.93375	2111.201131	5782.015176	4.44E-05	1.75E+00	7.76E-05	5.73E-01	0.679582253	0.389273992
85	30888.39815	2672.040965	7838.75545	3.59E-05	1.77E+00	6.36E-05	5.65E-01	0.557480704	0.314756825
86	32095.94852	3264.226306	10141.60288	3.92E-05	1.77E+00	6.93E-05	5.65E-01	0.607121792	0.343024285
87	33239.36512	3880.934633	12624.36315	2.77E-05	1.78E+00	4.94E-05	5.61E-01	0.432780261	0.242816587
88	34638.06248	4542.77585	15124.22569	4.17E-05	1.74E+00	7.26E-05	5.73E-01	0.636310624	0.3648663
89	36245.59475	5175.945625	31.9084488	4.25E-05	1.70E+00	7.23E-05	5.88E-01	0.633612853	0.372574585
90	37937.95129	5879.44785	1923.916632	7.10E-05	1.58E+00	1.12E-04	6.33E-01	0.98276316	0.621805365
91	20060.45868	6444.225407	3818.151626	3.42E-04	1.22E+00	4.18E-04	8.19E-01	3.663056186	2.99985051
92	21726.06947	9.314287892	5782.015176	2.91E-04	1.19E+00	3.47E-04	8.39E-01	3.040724589	2.550319312
93	23226.15269	266.6094153	7838.75545	8.56E-05	1.28E+00	1.09E-04	7.84E-01	0.956603678	0.749659517
94	24520.35292	612.9242294	10141.60288	5.74E-05	1.36E+00	7.82E-05	7.35E-01	0.684644314	0.502927401
95	25678.87812	1052.100163	12624.36315	5.17E-05	1.35E+00	6.95E-05	7.43E-01	0.608971492	0.452530741
96	26726.74316	1557.776506	15124.22569	3.70E-05	1.45E+00	5.39E-05	6.87E-01	0.471925413	0.324433098
97	27795.24733	2111.201131	31.9084488	3.63E-05	1.43E+00	5.20E-05	6.99E-01	0.455116708	0.318133516
98	28847.08722	2672.040965	1923.916632	2.94E-05	1.46E+00	4.28E-05	6.87E-01	0.374523851	0.257234486
99	29902.93375	3264.226306	3818.151626	3.20E-05	1.45E+00	4.66E-05	6.87E-01	0.407811701	0.280336021
100	30888.39815	3880.934633	5782.015176	2.27E-05	1.47E+00	3.32E-05	6.82E-01	0.291143277	0.198441448
101	32095.94852	4542.77585	7838.75545	3.40E-05	1.43E+00	4.86E-05	7.00E-01	0.426040072	0.298186371
102	33239.36512	5175.945625	10141.60288	3.48E-05	1.39E+00	4.82E-05	7.22E-01	0.421849793	0.304485953
103	34638.06248	5879.44785	12624.36315	5.80E-05	1.27E+00	7.34E-05	7.90E-01	0.642994437	0.508169389
104	36245.59475	6444.225407	15124.22569	2.80E-04	9.06E-01	2.54E-04	1.10E+00	2.220913062	2.451622787
105	37937.95129	9.314287892	31.9084488	8.28E-03	1.03E+00	8.50E-03	9.74E-01	74.43793842	72.52105853
106	20060.45868	266.6094153	1923.916632	2.43E-03	1.11E+00	2.70E-03	9.01E-01	23.6663571	21.31737053
107	21726.06947	612.9242294	3818.151626	1.63E-03	1.20E+00	1.95E-03	8.36E-01	17.09658825	14.30127879
108	23226.15269	1052.100163	5782.015176	1.47E-03	1.18E+00	1.73E-03	8.48E-01	15.18244125	12.86819583
109	24520.35292	1557.776506	7838.75545	1.05E-03	1.29E+00	1.36E-03	7.76E-01	11.88954873	9.225602304
110	25678.87812	2111.201131	10141.60288	1.03E-03	1.26E+00	1.31E-03	7.91E-01	11.44128654	9.046466934
111	26726.74316	2672.040965	12624.36315	8.35E-04	1.29E+00	1.08E-03	7.75E-01	9.436766436	7.314737855
112	27795.24733	3264.226306	15124.22569	9.10E-04	1.29E+00	1.17E-03	7.76E-01	10.27438607	7.971654715
113	28847.08722	3880.934633	31.9084488	6.44E-04	1.30E+00	8.38E-04	7.68E-01	7.343041917	5.642894907
114	29902.93375	4542.77585	1923.916632	9.68E-04	1.26E+00	1.22E-03	7.92E-01	10.70853995	8.479248515
115	30888.39815	5175.945625	3818.151626	9.88E-04	1.22E+00	1.21E-03	8.20E-01	10.55967354	8.658383885

116	32095.94852	5879.44785	5782.015176	1.65E-03	1.10E+00	1.81E-03	9.10E-01	15.88750613	14.45034034
117	33239.36512	6444.225407	7838.75545	7.96E-03	7.40E-01	5.89E-03	1.35E+00	51.59121246	69.71451724
118	34638.06248	9.314287892	10141.60288	1.43E-03	1.73E+00	2.47E-03	5.79E-01	21.67490713	12.55614282
119	36245.59475	266.6094153	12624.36315	4.21E-04	1.81E+00	7.63E-04	5.52E-01	6.680422786	3.690844483
120	37937.95129	612.9242294	15124.22569	2.83E-04	1.90E+00	5.36E-04	5.28E-01	4.692855126	2.476093187
121	20060.45868	1052.100163	31.9084488	2.54E-04	1.88E+00	4.78E-04	5.32E-01	4.187806916	2.227972232
122	21726.06947	1557.776506	1923.916632	1.82E-04	1.99E+00	3.63E-04	5.03E-01	3.176334363	1.597301286
123	23226.15269	2111.201131	3818.151626	1.79E-04	1.96E+00	3.51E-04	5.09E-01	3.07701859	1.566286167
124	24520.35292	2672.040965	5782.015176	1.45E-04	1.99E+00	2.88E-04	5.03E-01	2.520138467	1.266458254
125	25678.87812	3264.226306	7838.75545	1.58E-04	1.99E+00	3.13E-04	5.03E-01	2.744756275	1.380195451
126	26726.74316	3880.934633	10141.60288	1.12E-04	2.00E+00	2.23E-04	5.00E-01	1.955069673	0.976998899
127	27795.24733	4542.77585	12624.36315	1.68E-04	1.96E+00	3.29E-04	5.09E-01	2.881426424	1.468079169
128	28847.08722	5175.945625	15124.22569	1.71E-04	1.92E+00	3.28E-04	5.21E-01	2.877356614	1.499094288
129	29902.93375	5879.44785	31.9084488	2.86E-04	1.80E+00	5.14E-04	5.56E-01	4.50157797	2.501901389
130	30888.39815	6444.225407	1923.916632	1.38E-03	1.44E+00	1.98E-03	6.95E-01	17.3792239	12.07022419
131	32095.94852	9.314287892	3818.151626	1.10E-03	1.61E+00	1.77E-03	6.22E-01	15.51616467	9.65414783
132	33239.36512	266.6094153	5782.015176	3.24E-04	1.69E+00	5.48E-04	5.91E-01	4.798627592	2.837810845
133	34638.06248	612.9242294	7838.75545	2.17E-04	1.78E+00	3.86E-04	5.63E-01	3.38161009	1.903814732
134	36245.59475	1052.100163	10141.60288	1.96E-04	1.76E+00	3.44E-04	5.68E-01	3.015998741	1.713039873
135	37937.95129	1557.776506	12624.36315	1.40E-04	1.87E+00	2.62E-04	5.35E-01	2.29602162	1.228130563
136	20060.45868	2111.201131	15124.22569	1.37E-04	1.85E+00	2.54E-04	5.42E-01	2.222498529	1.204283706
137	21726.06947	2672.040965	31.9084488	1.11E-04	1.87E+00	2.08E-04	5.35E-01	1.821767233	0.97375248
138	23226.15269	3264.226306	1923.916632	1.21E-04	1.87E+00	2.26E-04	5.35E-01	1.984061198	1.061202561
139	24520.35292	3880.934633	3818.151626	8.58E-05	1.88E+00	1.61E-04	5.31E-01	1.413790859	0.751193415
140	25678.87812	4542.77585	5782.015176	1.29E-04	1.84E+00	2.38E-04	5.42E-01	2.081100349	1.12877446
141	26726.74316	5175.945625	7838.75545	1.32E-04	1.80E+00	2.37E-04	5.55E-01	2.075132492	1.152621317
142	27795.24733	5879.44785	10141.60288	2.20E-04	1.68E+00	3.69E-04	5.95E-01	3.232179101	1.923658102
143	28847.08722	6444.225407	12624.36315	1.06E-03	1.32E+00	1.40E-03	7.57E-01	12.25778018	9.28053546
144	29902.93375	9.314287892	15124.22569	9.28E-04	1.76E+00	1.64E-03	5.67E-01	14.35078416	8.131298845
145	30888.39815	266.6094153	31.9084488	2.73E-04	1.85E+00	5.04E-04	5.41E-01	4.418573394	2.390173473
146	32095.94852	612.9242294	1923.916632	1.83E-04	1.93E+00	3.54E-04	5.17E-01	3.101034891	1.603506265
147	33239.36512	1052.100163	3818.151626	1.65E-04	1.92E+00	3.16E-04	5.21E-01	2.767758845	1.442824305
148	34638.06248	1557.776506	5782.015176	1.18E-04	2.03E+00	2.39E-04	4.93E-01	2.096951496	1.034404777
149	36245.59475	2111.201131	7838.75545	1.16E-04	2.00E+00	2.32E-04	4.99E-01	2.031858919	1.014319532
150	37937.95129	2672.040965	10141.60288	9.36E-05	2.03E+00	1.90E-04	4.93E-01	1.663722807	0.82015239
151	20060.45868	3264.226306	12624.36315	1.02E-04	2.03E+00	2.07E-04	4.93E-01	1.812030505	0.893808062
152	21726.06947	3880.934633	15124.22569	7.22E-05	2.04E+00	1.47E-04	4.90E-01	1.290543223	0.632699877

153	23226.15269	4542.77585	31.9084488	1.09E-04	2.00E+00	2.17E-04	5.00E-01	1.902736733	0.950721143
154	24520.35292	5175.945625	1923.916632	1.11E-04	1.96E+00	2.17E-04	5.11E-01	1.900877294	0.970806388
155	25678.87812	5879.44785	3818.151626	1.85E-04	1.84E+00	3.40E-04	5.44E-01	2.977810556	1.620219535
156	26726.74316	6444.225407	5782.015176	8.92E-04	1.48E+00	1.32E-03	6.76E-01	11.55675989	7.816620233
157	27795.24733	9.314287892	7838.75545	7.86E-04	1.71E+00	1.35E-03	5.83E-01	11.79383979	6.8815107
158	28847.08722	266.6094153	10141.60288	2.31E-04	1.80E+00	4.15E-04	5.56E-01	3.6361957	2.022801602
159	29902.93375	612.9242294	12624.36315	1.55E-04	1.88E+00	2.92E-04	5.31E-01	2.555142639	1.357045871
160	30888.39815	1052.100163	15124.22569	1.39E-04	1.87E+00	2.60E-04	5.36E-01	2.280031772	1.221060877
161	32095.94852	1557.776506	31.9084488	9.99E-05	1.98E+00	1.97E-04	5.06E-01	1.729969018	0.875415807
162	33239.36512	2111.201131	1923.916632	9.80E-05	1.95E+00	1.91E-04	5.12E-01	1.675748773	0.858417683
163	34638.06248	2672.040965	3818.151626	7.92E-05	1.98E+00	1.57E-04	5.06E-01	1.372582192	0.69409421
164	36245.59475	3264.226306	5782.015176	8.64E-05	1.98E+00	1.71E-04	5.06E-01	1.494913447	0.756428937
165	37937.95129	3880.934633	7838.75545	6.11E-05	1.99E+00	1.22E-04	5.03E-01	1.0648573	0.535453322
166	20060.45868	4542.77585	10141.60288	9.18E-05	1.95E+00	1.79E-04	5.13E-01	1.569219794	0.804594425
167	21726.06947	5175.945625	12624.36315	9.38E-05	1.91E+00	1.79E-04	5.24E-01	1.56677861	0.821592549
168	23226.15269	5879.44785	15124.22569	1.57E-04	1.79E+00	2.80E-04	5.60E-01	2.4501361	1.371190295
169	24520.35292	6444.225407	31.9084488	7.55E-04	1.43E+00	1.08E-03	7.01E-01	9.442851558	6.615198481
170	25678.87812	9.314287892	1923.916632	6.95E-04	1.76E+00	1.22E-03	5.69E-01	10.70950887	6.091270109
171	26726.74316	266.6094153	3818.151626	2.04E-04	1.84E+00	3.76E-04	5.43E-01	3.298003199	1.790512501
172	27795.24733	612.9242294	5782.015176	1.37E-04	1.93E+00	2.64E-04	5.19E-01	2.31497012	1.201209053
173	28847.08722	1052.100163	7838.75545	1.23E-04	1.91E+00	2.36E-04	5.23E-01	2.066115885	1.080839941
174	29902.93375	1557.776506	10141.60288	8.85E-05	2.02E+00	1.79E-04	4.95E-01	1.565657254	0.774887139
175	30888.39815	2111.201131	12624.36315	8.67E-05	2.00E+00	1.73E-04	5.01E-01	1.516996432	0.759841
176	32095.94852	2672.040965	15124.22569	7.01E-05	2.02E+00	1.42E-04	4.95E-01	1.242196317	0.614387668
177	33239.36512	3264.226306	31.9084488	7.64E-05	2.02E+00	1.54E-04	4.95E-01	1.352925529	0.669564166
178	34638.06248	3880.934633	1923.916632	5.41E-05	2.03E+00	1.10E-04	4.92E-01	0.963584321	0.47396436
179	36245.59475	4542.77585	3818.151626	8.13E-05	1.99E+00	1.62E-04	5.01E-01	1.420588812	0.712198554
180	37937.95129	5175.945625	5782.015176	8.30E-05	1.95E+00	1.62E-04	5.12E-01	1.419094939	0.727244693
181	20060.45868	5879.44785	7838.75545	1.39E-04	1.83E+00	2.54E-04	5.46E-01	2.222577046	1.213729198
182	21726.06947	6444.225407	10141.60288	6.68E-04	1.47E+00	9.84E-04	6.79E-01	8.61804753	5.855539944
183	23226.15269	9.314287892	12624.36315	6.28E-04	1.66E+00	1.04E-03	6.03E-01	9.127603084	5.502238866
184	24520.35292	266.6094153	15124.22569	1.85E-04	1.74E+00	3.22E-04	5.74E-01	2.818503832	1.617368348
185	25678.87812	612.9242294	31.9084488	1.24E-04	1.83E+00	2.26E-04	5.47E-01	1.983381753	1.085051068
186	26726.74316	1052.100163	1923.916632	1.11E-04	1.81E+00	2.02E-04	5.52E-01	1.769387074	0.976321756
187	27795.24733	1557.776506	3818.151626	7.99E-05	1.92E+00	1.54E-04	5.21E-01	1.344762172	0.699954863
188	28847.08722	2111.201131	5782.015176	7.84E-05	1.90E+00	1.49E-04	5.27E-01	1.302156286	0.686363699
189	29902.93375	2672.040965	7838.75545	6.34E-05	1.92E+00	1.22E-04	5.20E-01	1.066974359	0.554975834

190	30888.39815	3264.226306	10141.60288	6.90E-05	1.92E+00	1.33E-04	5.20E-01	1.162047532	0.604816715
191	32095.94852	3880.934633	12624.36315	4.89E-05	1.93E+00	9.45E-05	5.17E-01	0.827898052	0.428131584
192	33239.36512	4542.77585	15124.22569	7.34E-05	1.90E+00	1.39E-04	5.28E-01	1.219344113	0.64332832
193	34638.06248	5175.945625	31.9084488	7.50E-05	1.85E+00	1.39E-04	5.40E-01	1.216645308	0.656919484
194	36245.59475	5879.44785	1923.916632	1.25E-04	1.73E+00	2.17E-04	5.77E-01	1.89880032	1.096360503
195	37937.95129	6444.225407	3818.151626	6.04E-04	1.37E+00	8.29E-04	7.29E-01	7.259529036	5.289304017
196	20060.45868	9.314287892	5782.015176	5.13E-04	1.34E+00	6.90E-04	7.44E-01	6.042229665	4.496695464
197	21726.06947	266.6094153	7838.75545	1.51E-04	1.43E+00	2.15E-04	7.01E-01	1.886809335	1.321791564
198	23226.15269	612.9242294	10141.60288	1.01E-04	1.51E+00	1.53E-04	6.61E-01	1.341423626	0.886756161
199	24520.35292	1052.100163	12624.36315	9.11E-05	1.50E+00	1.36E-04	6.68E-01	1.194543763	0.797897314
200	25678.87812	1557.776506	15124.22569	6.53E-05	1.61E+00	1.05E-04	6.23E-01	0.918707462	0.572036935
201	26726.74316	2111.201131	31.9084488	6.40E-05	1.58E+00	1.01E-04	6.32E-01	0.88738874	0.560929579
202	27795.24733	2672.040965	1923.916632	5.18E-05	1.61E+00	8.32E-05	6.22E-01	0.729030114	0.453553067
203	28847.08722	3264.226306	3818.151626	5.64E-05	1.61E+00	9.06E-05	6.23E-01	0.793890293	0.494285444
204	29902.93375	3880.934633	5782.015176	3.99E-05	1.62E+00	6.46E-05	6.18E-01	0.566318452	0.349889817
205	30888.39815	4542.77585	7838.75545	6.00E-05	1.58E+00	9.48E-05	6.33E-01	0.830795854	0.525758988
206	32095.94852	5175.945625	10141.60288	6.13E-05	1.54E+00	9.42E-05	6.51E-01	0.825089394	0.536866344
207	33239.36512	5879.44785	12624.36315	1.02E-04	1.42E+00	1.45E-04	7.06E-01	1.269386463	0.895998779
208	34638.06248	6444.225407	15124.22569	4.93E-04	1.06E+00	5.22E-04	9.46E-01	4.570397896	4.322674817
209	36245.59475	9.314287892	31.9084488	1.31E-02	1.03E+00	1.35E-02	9.67E-01	118.4187939	114.5054992
210	37937.95129	266.6094153	1923.916632	3.84E-03	1.12E+00	4.30E-03	8.95E-01	37.62810113	33.65858418
211	20060.45868	612.9242294	3818.151626	2.58E-03	1.20E+00	3.10E-03	8.31E-01	27.16912953	22.58068346
212	21726.06947	1052.100163	5782.015176	2.32E-03	1.19E+00	2.75E-03	8.42E-01	24.12930843	20.31794926
213	23226.15269	1557.776506	7838.75545	1.66E-03	1.30E+00	2.16E-03	7.71E-01	18.88553337	14.56655789
214	24520.35292	2111.201131	10141.60288	1.63E-03	1.27E+00	2.07E-03	7.86E-01	18.17556964	14.28371611
215	25678.87812	2672.040965	12624.36315	1.32E-03	1.30E+00	1.71E-03	7.71E-01	14.98940455	11.54944131
216	26726.74316	3264.226306	15124.22569	1.44E-03	1.30E+00	1.86E-03	7.71E-01	16.31997709	12.58666546
217	27795.24733	3880.934633	31.9084488	1.02E-03	1.31E+00	1.33E-03	7.64E-01	11.66312435	8.909722379
218	28847.08722	4542.77585	1923.916632	1.53E-03	1.27E+00	1.94E-03	7.87E-01	17.01168074	13.38811931
219	29902.93375	5175.945625	3818.151626	1.56E-03	1.23E+00	1.92E-03	8.15E-01	16.77882166	13.67096108
220	30888.39815	5879.44785	5782.015176	2.60E-03	1.11E+00	2.88E-03	9.03E-01	25.26189894	22.81604085
221	32095.94852	6444.225407	7838.75545	1.26E-02	7.48E-01	9.40E-03	1.34E+00	82.31115402	110.0741737
222	33239.36512	9.314287892	10141.60288	2.26E-03	1.73E+00	3.92E-03	5.77E-01	34.37662653	19.82524014
223	34638.06248	266.6094153	12624.36315	6.65E-04	1.82E+00	1.21E-03	5.50E-01	10.59302994	5.827576134
224	36245.59475	612.9242294	15124.22569	4.46E-04	1.90E+00	8.49E-04	5.25E-01	7.439952375	3.909571815
225	37937.95129	1052.100163	31.9084488	4.02E-04	1.89E+00	7.58E-04	5.30E-01	6.639484173	3.517806797
226	20060.45868	1557.776506	1923.916632	2.88E-04	2.00E+00	5.75E-04	5.01E-01	5.034731354	2.522023049

227	21726.06947	2111.201131	3818.151626	2.82E-04	1.97E+00	5.57E-04	5.07E-01	4.877539735	2.473052422
228	23226.15269	2672.040965	5782.015176	2.28E-04	2.00E+00	4.56E-04	5.01E-01	3.9946005	1.999645861
229	24520.35292	3264.226306	7838.75545	2.49E-04	2.00E+00	4.97E-04	5.01E-01	4.350646361	2.179228658
230	25678.87812	3880.934633	10141.60288	1.76E-04	2.01E+00	3.54E-04	4.98E-01	3.098858718	1.542610504
231	26726.74316	4542.77585	12624.36315	2.65E-04	1.97E+00	5.21E-04	5.07E-01	4.56751314	2.317990684
232	27795.24733	5175.945625	15124.22569	2.70E-04	1.93E+00	5.21E-04	5.19E-01	4.561466413	2.366961311
233	28847.08722	5879.44785	31.9084488	4.51E-04	1.81E+00	8.15E-04	5.53E-01	7.138255143	3.950321096
234	29902.93375	6444.225407	1923.916632	2.18E-03	1.45E+00	3.15E-03	6.91E-01	27.58811272	19.05800982
235	30888.39815	9.314287892	3818.151626	1.74E-03	1.61E+00	2.81E-03	6.19E-01	24.61693691	15.24320024
236	32095.94852	266.6094153	5782.015176	5.11E-04	1.70E+00	8.69E-04	5.89E-01	7.611381987	4.4806978
237	33239.36512	612.9242294	7838.75545	3.43E-04	1.78E+00	6.12E-04	5.61E-01	5.362594454	3.005985581
238	34638.06248	1052.100163	10141.60288	3.09E-04	1.77E+00	5.46E-04	5.65E-01	4.7829881	2.704765894
239	36245.59475	1557.776506	12624.36315	2.21E-04	1.88E+00	4.16E-04	5.33E-01	3.640267616	1.939129214
240	37937.95129	2111.201131	15124.22569	2.17E-04	1.85E+00	4.02E-04	5.40E-01	3.523888416	1.901476753
241	20060.45868	2672.040965	31.9084488	1.76E-04	1.88E+00	3.30E-04	5.32E-01	2.888344127	1.537484643
242	21726.06947	3264.226306	1923.916632	1.91E-04	1.88E+00	3.59E-04	5.33E-01	3.145663754	1.675561988
243	23226.15269	3880.934633	3818.151626	1.35E-04	1.89E+00	2.56E-04	5.29E-01	2.241457855	1.186079998
244	24520.35292	4542.77585	5782.015176	2.03E-04	1.85E+00	3.77E-04	5.40E-01	3.299707715	1.782253122
245	25678.87812	5175.945625	7838.75545	2.08E-04	1.81E+00	3.76E-04	5.53E-01	3.290576465	1.819905582
246	26726.74316	5879.44785	10141.60288	3.47E-04	1.69E+00	5.85E-04	5.92E-01	5.126896359	3.037316825
247	27795.24733	6444.225407	12624.36315	1.67E-03	1.33E+00	2.22E-03	7.53E-01	19.46761581	14.65329336
248	28847.08722	9.314287892	15124.22569	1.47E-03	1.77E+00	2.60E-03	5.64E-01	22.75826635	12.83873198
249	29902.93375	266.6094153	31.9084488	4.31E-04	1.86E+00	8.00E-04	5.39E-01	7.005830884	3.773910809
250	30888.39815	612.9242294	1923.916632	2.89E-04	1.94E+00	5.61E-04	5.15E-01	4.915914807	2.531820261
251	32095.94852	1052.100163	3818.151626	2.60E-04	1.93E+00	5.01E-04	5.19E-01	4.387731485	2.278115084
252	33239.36512	1557.776506	5782.015176	1.86E-04	2.03E+00	3.79E-04	4.91E-01	3.323581715	1.633250227
253	34638.06248	2111.201131	7838.75545	1.83E-04	2.01E+00	3.68E-04	4.97E-01	3.220559677	1.60153708
254	36245.59475	2672.040965	10141.60288	1.48E-04	2.04E+00	3.01E-04	4.91E-01	2.63692543	1.294961225
255	37937.95129	3264.226306	12624.36315	1.61E-04	2.04E+00	3.28E-04	4.91E-01	2.871993096	1.411258197
256	20060.45868	3880.934633	15124.22569	1.14E-04	2.05E+00	2.33E-04	4.88E-01	2.045410001	0.998987284
257	21726.06947	4542.77585	31.9084488	1.71E-04	2.01E+00	3.44E-04	4.98E-01	3.015907509	1.50111983
258	23226.15269	5175.945625	1923.916632	1.75E-04	1.97E+00	3.44E-04	5.09E-01	3.013217163	1.532832977
259	24520.35292	5879.44785	3818.151626	2.92E-04	1.85E+00	5.39E-04	5.42E-01	4.721556851	2.558209303
260	25678.87812	6444.225407	5782.015176	1.41E-03	1.49E+00	2.09E-03	6.73E-01	18.34285695	12.34187724
261	26726.74316	9.314287892	7838.75545	1.24E-03	1.72E+00	2.14E-03	5.81E-01	18.7057558	10.86540701
262	27795.24733	266.6094153	10141.60288	3.65E-04	1.81E+00	6.58E-04	5.54E-01	5.76602149	3.193857231
263	28847.08722	612.9242294	12624.36315	2.45E-04	1.89E+00	4.62E-04	5.29E-01	4.050977123	2.142677148

264	29902.93375	1052.100163	15124.22569	2.20E-04	1.87E+00	4.13E-04	5.33E-01	3.614934366	1.927966691
265	30888.39815	1557.776506	31.9084488	1.58E-04	1.98E+00	3.13E-04	5.04E-01	2.742199077	1.382218158
266	32095.94852	2111.201131	1923.916632	1.55E-04	1.96E+00	3.03E-04	5.10E-01	2.65638141	1.355379351
267	33239.36512	2672.040965	3818.151626	1.25E-04	1.99E+00	2.48E-04	5.04E-01	2.175694231	1.095924488
268	34638.06248	3264.226306	5782.015176	1.36E-04	1.98E+00	2.71E-04	5.04E-01	2.369608559	1.194346508
269	36245.59475	3880.934633	7838.75545	9.65E-05	2.00E+00	1.93E-04	5.01E-01	1.687879287	0.845442015
270	37937.95129	4542.77585	10141.60288	1.45E-04	1.96E+00	2.84E-04	5.11E-01	2.487521796	1.270396325
271	20060.45868	5175.945625	12624.36315	1.48E-04	1.91E+00	2.84E-04	5.22E-01	2.483875171	1.297235132
272	21726.06947	5879.44785	15124.22569	2.47E-04	1.79E+00	4.44E-04	5.57E-01	3.885352341	2.16501017
273	23226.15269	6444.225407	31.9084488	1.19E-03	1.44E+00	1.71E-03	6.97E-01	14.99045958	10.44491931
274	24520.35292	9.314287892	1923.916632	1.10E-03	1.77E+00	1.94E-03	5.66E-01	16.98401392	9.61767435
275	25678.87812	266.6094153	3818.151626	3.23E-04	1.85E+00	5.97E-04	5.41E-01	5.229199936	2.827089564
276	26726.74316	612.9242294	5782.015176	2.17E-04	1.93E+00	4.19E-04	5.17E-01	3.669856768	1.896622098
277	27795.24733	1052.100163	7838.75545	1.95E-04	1.92E+00	3.74E-04	5.21E-01	3.275462258	1.706567989
278	28847.08722	1557.776506	10141.60288	1.40E-04	2.03E+00	2.83E-04	4.93E-01	2.481533587	1.223490672
279	29902.93375	2111.201131	12624.36315	1.37E-04	2.00E+00	2.74E-04	4.99E-01	2.404517711	1.199733908
280	30888.39815	2672.040965	15124.22569	1.11E-04	2.03E+00	2.25E-04	4.93E-01	1.968849844	0.970073632
281	32095.94852	3264.226306	31.9084488	1.21E-04	2.03E+00	2.45E-04	4.93E-01	2.144357866	1.057193326
282	33239.36512	3880.934633	1923.916632	8.54E-05	2.04E+00	1.74E-04	4.90E-01	1.527224792	0.748355398
283	34638.06248	4542.77585	3818.151626	1.28E-04	2.00E+00	2.57E-04	4.99E-01	2.25171456	1.124509937
284	36245.59475	5175.945625	5782.015176	1.31E-04	1.96E+00	2.57E-04	5.10E-01	2.249539806	1.148266701
285	37937.95129	5879.44785	7838.75545	2.19E-04	1.84E+00	4.02E-04	5.44E-01	3.524127873	1.9163905
286	20060.45868	6444.225407	10141.60288	1.06E-03	1.48E+00	1.56E-03	6.76E-01	13.67886578	9.245473491
287	21726.06947	9.314287892	12624.36315	9.92E-04	1.67E+00	1.65E-03	6.00E-01	14.47909745	8.687636677
288	23226.15269	266.6094153	15124.22569	2.92E-04	1.75E+00	5.10E-04	5.71E-01	4.469988211	2.553707486
289	24520.35292	612.9242294	31.9084488	1.96E-04	1.84E+00	3.59E-04	5.45E-01	3.144882543	1.713217053
290	25678.87812	1052.100163	1923.916632	1.76E-04	1.82E+00	3.20E-04	5.49E-01	2.805671062	1.541541345
291	26726.74316	1557.776506	3818.151626	1.26E-04	1.93E+00	2.43E-04	5.18E-01	2.13184009	1.105178035
292	27795.24733	2111.201131	5782.015176	1.24E-04	1.90E+00	2.36E-04	5.25E-01	2.064402309	1.083718571
293	28847.08722	2672.040965	7838.75545	1.00E-04	1.93E+00	1.93E-04	5.18E-01	1.691460662	0.876266648
294	29902.93375	3264.226306	10141.60288	1.09E-04	1.93E+00	2.10E-04	5.18E-01	1.842183698	0.95496179
295	30888.39815	3880.934633	12624.36315	7.72E-05	1.94E+00	1.50E-04	5.15E-01	1.312425624	0.675988764
296	32095.94852	4542.77585	15124.22569	1.16E-04	1.90E+00	2.21E-04	5.25E-01	1.933121712	1.015768825
297	33239.36512	5175.945625	31.9084488	1.18E-04	1.86E+00	2.20E-04	5.38E-01	1.929026666	1.037228288
298	34638.06248	5879.44785	1923.916632	1.98E-04	1.74E+00	3.44E-04	5.75E-01	3.011472862	1.731073833
299	36245.59475	6444.225407	3818.151626	9.53E-04	1.38E+00	1.32E-03	7.25E-01	11.52694037	8.351427973
300	37937.95129	9.314287892	5782.015176	8.10E-04	1.35E+00	1.10E-03	7.40E-01	9.59522198	7.099956471

301	20060.45868	266.6094153	7838.75545	2.38E-04	1.44E+00	3.42E-04	6.97E-01	2.995296201	2.08701315
302	21726.06947	612.9242294	10141.60288	1.60E-04	1.52E+00	2.43E-04	6.58E-01	2.128852697	1.400123757
303	23226.15269	1052.100163	12624.36315	1.44E-04	1.50E+00	2.16E-04	6.65E-01	1.895853597	1.259822073
304	24520.35292	1557.776506	15124.22569	1.03E-04	1.61E+00	1.66E-04	6.20E-01	1.457566568	0.903204891
305	25678.87812	2111.201131	31.9084488	1.01E-04	1.59E+00	1.61E-04	6.29E-01	1.407980769	0.885667181
306	26726.74316	2672.040965	1923.916632	8.17E-05	1.62E+00	1.32E-04	6.19E-01	1.156631128	0.716127445
307	27795.24733	3264.226306	3818.151626	8.91E-05	1.61E+00	1.44E-04	6.20E-01	1.259538667	0.780440918
308	28847.08722	3880.934633	5782.015176	6.31E-05	1.63E+00	1.03E-04	6.15E-01	0.898453756	0.552450681
309	29902.93375	4542.77585	7838.75545	9.48E-05	1.59E+00	1.50E-04	6.30E-01	1.318194688	0.830135365
310	30888.39815	5175.945625	10141.60288	9.68E-05	1.54E+00	1.49E-04	6.47E-01	1.309320405	0.847673075
311	32095.94852	5879.44785	12624.36315	1.61E-04	1.42E+00	2.30E-04	7.02E-01	2.015224238	1.41471718
312	33239.36512	6444.225407	15124.22569	7.79E-04	1.07E+00	8.30E-04	9.39E-01	7.269178545	6.825190473
313	34638.06248	9.314287892	31.9084488	1.40E-02	1.16E+00	1.62E-02	8.65E-01	142.2784712	123.0267763
314	36245.59475	266.6094153	1923.916632	4.13E-03	1.24E+00	5.12E-03	8.06E-01	44.85138972	36.1633907
315	37937.95129	612.9242294	3818.151626	2.77E-03	1.33E+00	3.67E-03	7.54E-01	32.15833358	24.26109411
316	20060.45868	1052.100163	5782.015176	2.49E-03	1.31E+00	3.26E-03	7.63E-01	28.59494873	21.82997162
317	21726.06947	1557.776506	7838.75545	1.79E-03	1.42E+00	2.53E-03	7.05E-01	22.20515112	15.65057286
318	23226.15269	2111.201131	10141.60288	1.75E-03	1.39E+00	2.44E-03	7.17E-01	21.405185	15.34668255
319	24520.35292	2672.040965	12624.36315	1.42E-03	1.42E+00	2.01E-03	7.04E-01	17.62260033	12.40892833
320	25678.87812	3264.226306	15124.22569	1.54E-03	1.42E+00	2.19E-03	7.05E-01	19.18849324	13.52334068
321	26726.74316	3880.934633	31.9084488	1.09E-03	1.43E+00	1.56E-03	6.99E-01	13.70189905	9.57276663
322	27795.24733	4542.77585	1923.916632	1.64E-03	1.39E+00	2.29E-03	7.18E-01	20.03699127	14.38443717
323	28847.08722	5175.945625	3818.151626	1.68E-03	1.35E+00	2.26E-03	7.41E-01	19.82397154	14.68832748
324	29902.93375	5879.44785	5782.015176	2.80E-03	1.23E+00	3.44E-03	8.13E-01	30.14009892	24.51396634
325	30888.39815	6444.225407	7838.75545	1.35E-02	8.70E-01	1.17E-02	1.15E+00	102.9014499	118.2656802
326	32095.94852	9.314287892	10141.60288	2.43E-03	1.86E+00	4.51E-03	5.39E-01	39.5401054	21.30059605
327	33239.36512	266.6094153	12624.36315	7.15E-04	1.94E+00	1.39E-03	5.15E-01	12.14714511	6.261253042
328	34638.06248	612.9242294	15124.22569	4.80E-04	2.03E+00	9.71E-04	4.94E-01	8.507376464	4.200514563
329	36245.59475	1052.100163	31.9084488	4.31E-04	2.01E+00	8.67E-04	4.98E-01	7.595857087	3.779595152
330	37937.95129	1557.776506	1923.916632	3.09E-04	2.12E+00	6.55E-04	4.72E-01	5.740825623	2.709707111
331	20060.45868	2111.201131	3818.151626	3.03E-04	2.09E+00	6.35E-04	4.77E-01	5.565500873	2.657092184
332	21726.06947	2672.040965	5782.015176	2.45E-04	2.12E+00	5.20E-04	4.72E-01	4.554644605	2.148455626
333	23226.15269	3264.226306	7838.75545	2.67E-04	2.12E+00	5.66E-04	4.72E-01	4.960785704	2.341402626
334	24520.35292	3880.934633	10141.60288	1.89E-04	2.13E+00	4.03E-04	4.69E-01	3.53218439	1.657408584
335	25678.87812	4542.77585	12624.36315	2.84E-04	2.09E+00	5.95E-04	4.78E-01	5.212026021	2.490491053
336	26726.74316	5175.945625	15124.22569	2.90E-04	2.05E+00	5.95E-04	4.88E-01	5.211964543	2.543105979
337	27795.24733	5879.44785	31.9084488	4.85E-04	1.93E+00	9.35E-04	5.18E-01	8.188582377	4.244296327

338	28847.08722	6444.225407	1923.916632	2.34E-03	1.57E+00	3.67E-03	6.37E-01	32.14558174	20.47626993
339	29902.93375	9.314287892	3818.151626	1.87E-03	1.74E+00	3.25E-03	5.76E-01	28.45199224	16.37756962
340	30888.39815	266.6094153	5782.015176	5.50E-04	1.82E+00	1.00E-03	5.49E-01	8.766615265	4.814142636
341	32095.94852	612.9242294	7838.75545	3.69E-04	1.91E+00	7.03E-04	5.25E-01	6.15668523	3.229685195
342	33239.36512	1052.100163	10141.60288	3.32E-04	1.89E+00	6.27E-04	5.29E-01	5.494362383	2.906049324
343	34638.06248	1557.776506	12624.36315	2.38E-04	2.00E+00	4.76E-04	5.00E-01	4.165990455	2.083435447
344	36245.59475	2111.201131	15124.22569	2.33E-04	1.98E+00	4.61E-04	5.06E-01	4.036002627	2.042980963
345	37937.95129	2672.040965	31.9084488	1.89E-04	2.00E+00	3.77E-04	5.00E-01	3.305330121	1.651901267
346	20060.45868	3264.226306	1923.916632	2.06E-04	2.00E+00	4.11E-04	5.00E-01	3.599943735	1.80025406
347	21726.06947	3880.934633	3818.151626	1.45E-04	2.01E+00	2.93E-04	4.97E-01	2.564125705	1.27434577
348	23226.15269	4542.77585	5782.015176	2.19E-04	1.97E+00	4.31E-04	5.07E-01	3.779471643	1.914884941
349	24520.35292	5175.945625	7838.75545	2.23E-04	1.93E+00	4.31E-04	5.18E-01	3.774608777	1.955339425
350	25678.87812	5879.44785	10141.60288	3.73E-04	1.81E+00	6.74E-04	5.52E-01	5.907564182	3.26334805
351	26726.74316	6444.225407	12624.36315	1.80E-03	1.45E+00	2.61E-03	6.89E-01	22.84194893	15.74376302
352	27795.24733	9.314287892	15124.22569	1.57E-03	1.89E+00	2.98E-03	5.28E-01	26.13903158	13.7941655
353	28847.08722	266.6094153	31.9084488	4.63E-04	1.98E+00	9.16E-04	5.05E-01	8.023121267	4.054757928
354	29902.93375	612.9242294	1923.916632	3.11E-04	2.06E+00	6.41E-04	4.85E-01	5.614454433	2.720233412
355	30888.39815	1052.100163	3818.151626	2.79E-04	2.05E+00	5.72E-04	4.88E-01	5.013625307	2.447647988
356	32095.94852	1557.776506	5782.015176	2.00E-04	2.16E+00	4.32E-04	4.64E-01	3.785541812	1.75479354
357	33239.36512	2111.201131	7838.75545	1.96E-04	2.13E+00	4.19E-04	4.69E-01	3.670685647	1.720720362
358	34638.06248	2672.040965	10141.60288	1.59E-04	2.16E+00	3.43E-04	4.63E-01	3.003331303	1.391329727
359	36245.59475	3264.226306	12624.36315	1.73E-04	2.16E+00	3.73E-04	4.64E-01	3.271174848	1.516281294
360	37937.95129	3880.934633	15124.22569	1.23E-04	2.17E+00	2.66E-04	4.61E-01	2.328902476	1.073329979
361	20060.45868	4542.77585	31.9084488	1.84E-04	2.13E+00	3.92E-04	4.69E-01	3.437607819	1.612830255
362	21726.06947	5175.945625	1923.916632	1.88E-04	2.09E+00	3.93E-04	4.79E-01	3.438884691	1.646903433
363	23226.15269	5879.44785	3818.151626	3.14E-04	1.97E+00	6.17E-04	5.08E-01	5.409100522	2.748586275
364	24520.35292	6444.225407	5782.015176	1.51E-03	1.61E+00	2.43E-03	6.22E-01	21.32974425	13.2603358
365	25678.87812	9.314287892	7838.75545	1.33E-03	1.84E+00	2.46E-03	5.42E-01	21.52562621	11.67398952
366	26726.74316	266.6094153	10141.60288	3.92E-04	1.93E+00	7.55E-04	5.19E-01	6.614822757	3.431537888
367	27795.24733	612.9242294	12624.36315	2.63E-04	2.01E+00	5.29E-04	4.97E-01	4.634012424	2.302131023
368	28847.08722	1052.100163	15124.22569	2.36E-04	2.00E+00	4.72E-04	5.01E-01	4.137305086	2.071442231
369	29902.93375	1557.776506	31.9084488	1.70E-04	2.11E+00	3.57E-04	4.75E-01	3.127905655	1.485080151
370	30888.39815	2111.201131	1923.916632	1.66E-04	2.08E+00	3.46E-04	4.80E-01	3.032174712	1.456244052
371	32095.94852	2672.040965	3818.151626	1.34E-04	2.11E+00	2.83E-04	4.74E-01	2.481620734	1.177481062
372	33239.36512	3264.226306	5782.015176	1.46E-04	2.11E+00	3.09E-04	4.75E-01	2.702899439	1.283227458
373	34638.06248	3880.934633	7838.75545	1.04E-04	2.12E+00	2.20E-04	4.72E-01	1.924587619	0.90835817
374	36245.59475	4542.77585	10141.60288	1.56E-04	2.08E+00	3.24E-04	4.81E-01	2.839581265	1.364936755

375	37937.95129	5175.945625	12624.36315	1.59E-04	2.04E+00	3.24E-04	4.91E-01	2.839190156	1.393772854
376	20060.45868	5879.44785	15124.22569	2.66E-04	1.92E+00	5.09E-04	5.22E-01	4.458996952	2.326126026
377	21726.06947	6444.225407	31.9084488	1.28E-03	1.56E+00	2.00E-03	6.42E-01	17.47858851	11.22220993
378	23226.15269	9.314287892	1923.916632	1.18E-03	1.89E+00	2.23E-03	5.30E-01	19.51179095	10.33340301
379	24520.35292	266.6094153	3818.151626	3.47E-04	1.97E+00	6.84E-04	5.07E-01	5.989855005	3.037476083
380	25678.87812	612.9242294	5782.015176	2.33E-04	2.06E+00	4.79E-04	4.86E-01	4.19219571	2.037765035
381	26726.74316	1052.100163	7838.75545	2.09E-04	2.04E+00	4.27E-04	4.90E-01	3.743476095	1.833567467
382	27795.24733	1557.776506	10141.60288	1.50E-04	2.15E+00	3.23E-04	4.65E-01	2.826983548	1.314540474
383	28847.08722	2111.201131	12624.36315	1.47E-04	2.13E+00	3.13E-04	4.70E-01	2.741114421	1.289015778
384	29902.93375	2672.040965	15124.22569	1.19E-04	2.15E+00	2.56E-04	4.65E-01	2.242845314	1.042264629
385	30888.39815	3264.226306	31.9084488	1.30E-04	2.15E+00	2.79E-04	4.65E-01	2.442862711	1.135867602
386	32095.94852	3880.934633	1923.916632	9.18E-05	2.16E+00	1.99E-04	4.62E-01	1.739219365	0.804046554
387	33239.36512	4542.77585	3818.151626	1.38E-04	2.12E+00	2.93E-04	4.71E-01	2.567054766	1.208193784
388	34638.06248	5175.945625	5782.015176	1.41E-04	2.08E+00	2.93E-04	4.80E-01	2.567840049	1.23371848
389	36245.59475	5879.44785	7838.75545	2.35E-04	1.96E+00	4.61E-04	5.10E-01	4.038219721	2.059004563
390	37937.95129	6444.225407	10141.60288	1.13E-03	1.60E+00	1.82E-03	6.24E-01	15.91176913	9.933503689
391	20060.45868	9.314287892	12624.36315	1.07E-03	1.79E+00	1.91E-03	5.59E-01	16.6982471	9.334153741
392	21726.06947	266.6094153	15124.22569	3.13E-04	1.87E+00	5.87E-04	5.34E-01	5.138219047	2.743749442
393	23226.15269	612.9242294	31.9084488	2.10E-04	1.96E+00	4.11E-04	5.11E-01	3.604052645	1.840711341
394	24520.35292	1052.100163	1923.916632	1.89E-04	1.94E+00	3.67E-04	5.15E-01	3.217037779	1.65625986
395	25678.87812	1557.776506	3818.151626	1.36E-04	2.05E+00	2.78E-04	4.88E-01	2.435719062	1.18742324
396	26726.74316	2111.201131	5782.015176	1.33E-04	2.03E+00	2.69E-04	4.93E-01	2.360442702	1.164366804
397	27795.24733	2672.040965	7838.75545	1.07E-04	2.05E+00	2.21E-04	4.87E-01	1.932486181	0.941476712
398	28847.08722	3264.226306	10141.60288	1.17E-04	2.05E+00	2.40E-04	4.87E-01	2.10476707	1.026028194
399	29902.93375	3880.934633	12624.36315	8.29E-05	2.06E+00	1.71E-04	4.85E-01	1.498925552	0.726294537
400	30888.39815	4542.77585	15124.22569	1.25E-04	2.03E+00	2.52E-04	4.94E-01	2.210463173	1.09136037
401	32095.94852	5175.945625	31.9084488	1.27E-04	1.98E+00	2.52E-04	5.05E-01	2.208883373	1.114416805
402	33239.36512	5879.44785	1923.916632	2.12E-04	1.86E+00	3.95E-04	5.37E-01	3.463061435	1.859896988
403	34638.06248	6444.225407	3818.151626	1.02E-03	1.50E+00	1.54E-03	6.66E-01	13.48221499	8.972925038
404	36245.59475	9.314287892	5782.015176	8.71E-04	1.47E+00	1.28E-03	6.79E-01	11.24228586	7.628321455
405	37937.95129	266.6094153	7838.75545	2.56E-04	1.56E+00	3.99E-04	6.42E-01	3.492454965	2.242324619
406	20060.45868	612.9242294	10141.60288	1.72E-04	1.64E+00	2.82E-04	6.09E-01	2.471268204	1.50431825
407	21726.06947	1052.100163	12624.36315	1.55E-04	1.63E+00	2.51E-04	6.15E-01	2.202492702	1.353575587
408	23226.15269	1557.776506	15124.22569	1.11E-04	1.74E+00	1.92E-04	5.76E-01	1.684726099	0.970419647
409	24520.35292	2111.201131	31.9084488	1.09E-04	1.71E+00	1.86E-04	5.84E-01	1.629145589	0.951576814
410	25678.87812	2672.040965	1923.916632	8.78E-05	1.74E+00	1.53E-04	5.76E-01	1.33681176	0.76942026
411	26726.74316	3264.226306	3818.151626	9.57E-05	1.74E+00	1.66E-04	5.76E-01	1.455828919	0.838519817

412	27795.24733	3880.934633	5782.015176	6.78E-05	1.75E+00	1.18E-04	5.72E-01	1.037912547	0.593562989
413	28847.08722	4542.77585	7838.75545	1.02E-04	1.71E+00	1.74E-04	5.85E-01	1.52538036	0.891912428
414	29902.93375	5175.945625	10141.60288	1.04E-04	1.67E+00	1.73E-04	6.00E-01	1.518150303	0.91075526
415	30888.39815	5879.44785	12624.36315	1.74E-04	1.55E+00	2.68E-04	6.47E-01	2.351101459	1.519997687
416	32095.94852	6444.225407	15124.22569	8.37E-04	1.19E+00	9.94E-04	8.42E-01	8.707035753	7.333107904
417	33239.36512	9.314287892	31.9084488	1.32E-02	1.26E+00	1.66E-02	7.95E-01	145.0338507	115.2737359
418	34638.06248	266.6094153	1923.916632	3.87E-03	1.34E+00	5.19E-03	7.45E-01	45.47044024	33.88440531
419	36245.59475	612.9242294	3818.151626	2.59E-03	1.43E+00	3.70E-03	7.01E-01	32.44327214	22.73218108
420	37937.95129	1052.100163	5782.015176	2.33E-03	1.41E+00	3.30E-03	7.08E-01	28.8728182	20.45426581
421	20060.45868	1557.776506	7838.75545	1.67E-03	1.52E+00	2.55E-03	6.58E-01	22.29694435	14.66428739
422	21726.06947	2111.201131	10141.60288	1.64E-03	1.50E+00	2.46E-03	6.68E-01	21.51843759	14.37954798
423	23226.15269	2672.040965	12624.36315	1.33E-03	1.52E+00	2.02E-03	6.57E-01	17.69432715	11.62692847
424	24520.35292	3264.226306	15124.22569	1.45E-03	1.52E+00	2.20E-03	6.58E-01	19.26771693	12.67111152
425	25678.87812	3880.934633	31.9084488	1.02E-03	1.53E+00	1.57E-03	6.52E-01	13.75048355	8.969499212
426	26726.74316	4542.77585	1923.916632	1.54E-03	1.49E+00	2.30E-03	6.69E-01	20.1447862	13.47794246
427	27795.24733	5175.945625	3818.151626	1.57E-03	1.45E+00	2.28E-03	6.89E-01	19.97414461	13.76268187
428	28847.08722	5879.44785	5782.015176	2.62E-03	1.33E+00	3.49E-03	7.51E-01	30.57631783	22.96911752
429	29902.93375	6444.225407	7838.75545	1.26E-02	9.72E-01	1.23E-02	1.03E+00	107.6847112	110.81268
430	30888.39815	9.314287892	10141.60288	2.28E-03	1.96E+00	4.46E-03	5.11E-01	39.07778321	19.95825103
431	32095.94852	266.6094153	12624.36315	6.70E-04	2.04E+00	1.37E-03	4.90E-01	11.97819716	5.866674327
432	33239.36512	612.9242294	15124.22569	4.49E-04	2.13E+00	9.56E-04	4.70E-01	8.371462209	3.935801793
433	34638.06248	1052.100163	31.9084488	4.04E-04	2.11E+00	8.54E-04	4.74E-01	7.477281973	3.541408357
434	36245.59475	1557.776506	1923.916632	2.90E-04	2.22E+00	6.44E-04	4.50E-01	5.637217056	2.538943728
435	37937.95129	2111.201131	3818.151626	2.84E-04	2.20E+00	6.24E-04	4.55E-01	5.467928117	2.489644548
436	20060.45868	2672.040965	5782.015176	2.30E-04	2.22E+00	5.11E-04	4.50E-01	4.472313671	2.013061824
437	21726.06947	3264.226306	7838.75545	2.50E-04	2.22E+00	5.56E-04	4.50E-01	4.871243559	2.193849471
438	23226.15269	3880.934633	10141.60288	1.77E-04	2.23E+00	3.96E-04	4.48E-01	3.467502429	1.552960138
439	24520.35292	4542.77585	12624.36315	2.66E-04	2.19E+00	5.85E-04	4.56E-01	5.120855655	2.333542475
440	25678.87812	5175.945625	15124.22569	2.72E-04	2.15E+00	5.85E-04	4.65E-01	5.125811054	2.382841654
441	26726.74316	5879.44785	31.9084488	4.54E-04	2.03E+00	9.22E-04	4.92E-01	8.076929651	3.976824468
442	27795.24733	6444.225407	1923.916632	2.19E-03	1.67E+00	3.66E-03	5.98E-01	32.07071652	19.18587323
443	28847.08722	9.314287892	3818.151626	1.75E-03	1.84E+00	3.22E-03	5.44E-01	28.21938119	15.34546944
444	29902.93375	266.6094153	5782.015176	5.15E-04	1.92E+00	9.90E-04	5.20E-01	8.672828761	4.510759559
445	30888.39815	612.9242294	7838.75545	3.45E-04	2.01E+00	6.94E-04	4.98E-01	6.0764116	3.026153246
446	32095.94852	1052.100163	10141.60288	3.11E-04	1.99E+00	6.19E-04	5.02E-01	5.424992648	2.722912626
447	33239.36512	1557.776506	12624.36315	2.23E-04	2.10E+00	4.68E-04	4.76E-01	4.101957228	1.952139159
448	34638.06248	2111.201131	15124.22569	2.19E-04	2.08E+00	4.54E-04	4.81E-01	3.97630673	1.914234082

449	36245.59475	2672.040965	31.9084488	1.77E-04	2.10E+00	3.72E-04	4.76E-01	3.254419597	1.547799887
450	37937.95129	3264.226306	1923.916632	1.93E-04	2.10E+00	4.05E-04	4.76E-01	3.544601554	1.686803617
451	20060.45868	3880.934633	3818.151626	1.36E-04	2.11E+00	2.88E-04	4.73E-01	2.523952813	1.194037609
452	21726.06947	4542.77585	5782.015176	2.05E-04	2.08E+00	4.25E-04	4.82E-01	3.723737477	1.794210559
453	23226.15269	5175.945625	7838.75545	2.09E-04	2.03E+00	4.25E-04	4.92E-01	3.723035454	1.832115637
454	24520.35292	5879.44785	10141.60288	3.49E-04	1.91E+00	6.67E-04	5.23E-01	5.846197246	3.057694697
455	25678.87812	6444.225407	12624.36315	1.68E-03	1.55E+00	2.61E-03	6.44E-01	22.90249061	14.75160478
456	26726.74316	9.314287892	15124.22569	1.48E-03	2.00E+00	2.95E-03	5.01E-01	25.80604182	12.9248692
457	27795.24733	266.6094153	31.9084488	4.34E-04	2.08E+00	9.02E-04	4.81E-01	7.90383707	3.799230614
458	28847.08722	612.9242294	1923.916632	2.91E-04	2.17E+00	6.30E-04	4.62E-01	5.519812584	2.548806671
459	29902.93375	1052.100163	3818.151626	2.62E-04	2.15E+00	5.63E-04	4.65E-01	4.930876015	2.293399343
460	30888.39815	1557.776506	5782.015176	1.88E-04	2.26E+00	4.24E-04	4.43E-01	3.714172052	1.644207979
461	32095.94852	2111.201131	7838.75545	1.84E-04	2.23E+00	4.11E-04	4.47E-01	3.603307625	1.612282063
462	33239.36512	2672.040965	10141.60288	1.49E-04	2.26E+00	3.36E-04	4.42E-01	2.946625959	1.303649339
463	34638.06248	3264.226306	12624.36315	1.62E-04	2.26E+00	3.66E-04	4.43E-01	3.20949527	1.420726567
464	36245.59475	3880.934633	15124.22569	1.15E-04	2.27E+00	2.61E-04	4.40E-01	2.284400928	1.005689658
465	37937.95129	4542.77585	31.9084488	1.73E-04	2.23E+00	3.85E-04	4.48E-01	3.374638693	1.511191097
466	20060.45868	5175.945625	1923.916632	1.76E-04	2.19E+00	3.86E-04	4.57E-01	3.379081494	1.543117013
467	21726.06947	5879.44785	3818.151626	2.94E-04	2.07E+00	6.08E-04	4.83E-01	5.330101279	2.575372762
468	23226.15269	6444.225407	5782.015176	1.42E-03	1.71E+00	2.43E-03	5.85E-01	21.2489698	12.42468098
469	24520.35292	9.314287892	7838.75545	1.25E-03	1.95E+00	2.43E-03	5.14E-01	21.28136484	10.93830486
470	25678.87812	266.6094153	10141.60288	3.67E-04	2.03E+00	7.45E-04	4.93E-01	6.524909656	3.215285359
471	26726.74316	612.9242294	12624.36315	2.46E-04	2.11E+00	5.21E-04	4.73E-01	4.561321558	2.157052731
472	27795.24733	1052.100163	15124.22569	2.22E-04	2.10E+00	4.65E-04	4.76E-01	4.073936905	1.940901745
473	28847.08722	1557.776506	31.9084488	1.59E-04	2.21E+00	3.51E-04	4.53E-01	3.07228202	1.391491693
474	29902.93375	2111.201131	1923.916632	1.56E-04	2.18E+00	3.40E-04	4.58E-01	2.979836536	1.36447282
475	30888.39815	2672.040965	3818.151626	1.26E-04	2.21E+00	2.78E-04	4.53E-01	2.437418237	1.103277231
476	32095.94852	3264.226306	5782.015176	1.37E-04	2.21E+00	3.03E-04	4.53E-01	2.654827369	1.202359581
477	33239.36512	3880.934633	7838.75545	9.72E-05	2.22E+00	2.16E-04	4.50E-01	1.889847592	0.851114229
478	34638.06248	4542.77585	10141.60288	1.46E-04	2.18E+00	3.19E-04	4.58E-01	2.790680657	1.278919629
479	36245.59475	5175.945625	12624.36315	1.49E-04	2.14E+00	3.19E-04	4.68E-01	2.793061618	1.305938502
480	37937.95129	5879.44785	15124.22569	2.49E-04	2.02E+00	5.02E-04	4.95E-01	4.399621585	2.179535589
481	20060.45868	6444.225407	31.9084488	1.20E-03	1.66E+00	1.99E-03	6.03E-01	17.44632365	10.51499603
482	21726.06947	9.314287892	1923.916632	1.11E-03	1.99E+00	2.20E-03	5.03E-01	19.26671242	9.682200953
483	23226.15269	266.6094153	3818.151626	3.25E-04	2.07E+00	6.74E-04	4.82E-01	5.901781728	2.846056985
484	24520.35292	612.9242294	5782.015176	2.18E-04	2.16E+00	4.71E-04	4.63E-01	4.122159702	1.909346856
485	25678.87812	1052.100163	7838.75545	1.96E-04	2.14E+00	4.20E-04	4.67E-01	3.682262637	1.718017642

486	26726.74316	1557.776506	10141.60288	1.41E-04	2.25E+00	3.17E-04	4.44E-01	2.774075221	1.231699278
487	27795.24733	2111.201131	12624.36315	1.38E-04	2.23E+00	3.07E-04	4.49E-01	2.691185571	1.207783126
488	28847.08722	2672.040965	15124.22569	1.11E-04	2.25E+00	2.51E-04	4.44E-01	2.200807195	0.97658202
489	29902.93375	3264.226306	31.9084488	1.21E-04	2.25E+00	2.74E-04	4.44E-01	2.397137897	1.064286215
490	30888.39815	3880.934633	1923.916632	8.60E-05	2.26E+00	1.95E-04	4.42E-01	1.706222567	0.753376241
491	32095.94852	4542.77585	3818.151626	1.29E-04	2.23E+00	2.88E-04	4.49E-01	2.520394512	1.132054464
492	33239.36512	5175.945625	5782.015176	1.32E-04	2.18E+00	2.88E-04	4.58E-01	2.523562228	1.155970616
493	34638.06248	5879.44785	7838.75545	2.20E-04	2.06E+00	4.54E-04	4.85E-01	3.979910789	1.929247888
494	36245.59475	6444.225407	10141.60288	1.06E-03	1.70E+00	1.81E-03	5.87E-01	15.85545956	9.307502936
495	37937.95129	9.314287892	12624.36315	9.98E-04	1.89E+00	1.89E-03	5.29E-01	16.53527	8.7459235
496	20060.45868	266.6094153	15124.22569	2.93E-04	1.97E+00	5.79E-04	5.06E-01	5.075829679	2.570840741
497	21726.06947	612.9242294	31.9084488	1.97E-04	2.06E+00	4.06E-04	4.86E-01	3.55230618	1.724711315
498	23226.15269	1052.100163	1923.916632	1.77E-04	2.04E+00	3.62E-04	4.89E-01	3.172106636	1.551883806
499	24520.35292	1557.776506	3818.151626	1.27E-04	2.15E+00	2.73E-04	4.64E-01	2.395356511	1.112592861
500	25678.87812	2111.201131	5782.015176	1.25E-04	2.13E+00	2.65E-04	4.70E-01	2.322627249	1.090989422
501	26726.74316	2672.040965	7838.75545	1.01E-04	2.15E+00	2.17E-04	4.64E-01	1.900403835	0.882145669
502	27795.24733	3264.226306	10141.60288	1.10E-04	2.15E+00	2.36E-04	4.64E-01	2.06988356	0.96136879
503	28847.08722	3880.934633	12624.36315	7.77E-05	2.17E+00	1.68E-04	4.62E-01	1.473663868	0.680524087
504	29902.93375	4542.77585	15124.22569	1.17E-04	2.13E+00	2.48E-04	4.70E-01	2.175143452	1.022583789
505	30888.39815	5175.945625	31.9084488	1.19E-04	2.08E+00	2.48E-04	4.80E-01	2.175859962	1.044187228
506	32095.94852	5879.44785	1923.916632	1.99E-04	1.96E+00	3.91E-04	5.09E-01	3.422028067	1.742687899
507	33239.36512	6444.225407	3818.151626	9.60E-04	1.60E+00	1.54E-03	6.23E-01	13.48749258	8.407459115
508	34638.06248	9.314287892	5782.015176	8.16E-04	1.58E+00	1.29E-03	6.35E-01	11.26061178	7.147591279
509	36245.59475	266.6094153	7838.75545	2.40E-04	1.66E+00	3.98E-04	6.03E-01	3.48600587	2.101015274
510	37937.95129	612.9242294	10141.60288	1.61E-04	1.74E+00	2.81E-04	5.73E-01	2.458858241	1.409517423
511	20060.45868	1052.100163	12624.36315	1.45E-04	1.73E+00	2.50E-04	5.78E-01	2.192658401	1.268274432
512	21726.06947	1557.776506	15124.22569	1.04E-04	1.84E+00	1.91E-04	5.44E-01	1.671014979	0.909264645
513	23226.15269	2111.201131	31.9084488	1.02E-04	1.81E+00	1.85E-04	5.51E-01	1.617141812	0.891609271
514	24520.35292	2672.040965	1923.916632	8.23E-05	1.84E+00	1.51E-04	5.44E-01	1.325875243	0.720932065
515	25678.87812	3264.226306	3818.151626	8.97E-05	1.84E+00	1.65E-04	5.44E-01	1.443975656	0.785677028
516	26726.74316	3880.934633	5782.015176	6.35E-05	1.85E+00	1.17E-04	5.40E-01	1.029057212	0.556157166
517	27795.24733	4542.77585	7838.75545	9.54E-05	1.81E+00	1.73E-04	5.52E-01	1.514231123	0.835704883
518	28847.08722	5175.945625	10141.60288	9.74E-05	1.77E+00	1.72E-04	5.65E-01	1.50925199	0.853360257
519	29902.93375	5879.44785	12624.36315	1.63E-04	1.65E+00	2.68E-04	6.07E-01	2.347758192	1.424208756
520	30888.39815	6444.225407	15124.22569	7.84E-04	1.29E+00	1.01E-03	7.76E-01	8.857003817	6.870981829
521	32095.94852	9.314287892	31.9084488	1.47E-02	1.25E+00	1.84E-02	8.01E-01	160.8870656	128.8317159
522	33239.36512	266.6094153	1923.916632	4.32E-03	1.33E+00	5.76E-03	7.50E-01	50.46425823	37.86973714

523	34638.06248	612.9242294	3818.151626	2.90E-03	1.42E+00	4.11E-03	7.05E-01	36.02147303	25.4058383
524	36245.59475	1052.100163	5782.015176	2.61E-03	1.40E+00	3.66E-03	7.13E-01	32.05489053	22.86000485
525	37937.95129	1557.776506	7838.75545	1.87E-03	1.51E+00	2.83E-03	6.62E-01	24.76611755	16.38903512
526	20060.45868	2111.201131	10141.60288	1.83E-03	1.49E+00	2.73E-03	6.72E-01	23.89902284	16.07080594
527	21726.06947	2672.040965	12624.36315	1.48E-03	1.51E+00	2.24E-03	6.61E-01	19.65391225	12.99443566
528	23226.15269	3264.226306	15124.22569	1.62E-03	1.51E+00	2.44E-03	6.62E-01	21.40144168	14.16143085
529	24520.35292	3880.934633	31.9084488	1.14E-03	1.52E+00	1.74E-03	6.56E-01	15.27399093	10.02445149
530	25678.87812	4542.77585	1923.916632	1.72E-03	1.49E+00	2.55E-03	6.73E-01	22.37323369	15.06315763
531	26726.74316	5175.945625	3818.151626	1.76E-03	1.44E+00	2.53E-03	6.93E-01	22.17954546	15.38138681
532	27795.24733	5879.44785	5782.015176	2.93E-03	1.32E+00	3.87E-03	7.57E-01	33.9324591	25.67064215
533	28847.08722	6444.225407	7838.75545	1.41E-02	9.62E-01	1.36E-02	1.04E+00	119.1917215	123.8459706
534	29902.93375	9.314287892	10141.60288	2.55E-03	1.95E+00	4.96E-03	5.13E-01	43.46530287	22.30565104
535	30888.39815	266.6094153	12624.36315	7.48E-04	2.03E+00	1.52E-03	4.92E-01	13.32569161	6.556686259
536	32095.94852	612.9242294	15124.22569	5.02E-04	2.12E+00	1.06E-03	4.72E-01	9.314933075	4.398713153
537	33239.36512	1052.100163	31.9084488	4.52E-04	2.10E+00	9.50E-04	4.76E-01	8.319706169	3.95793293
538	34638.06248	1557.776506	1923.916632	3.24E-04	2.21E+00	7.16E-04	4.52E-01	6.273700351	2.837562906
539	36245.59475	2111.201131	3818.151626	3.18E-04	2.19E+00	6.95E-04	4.57E-01	6.085015756	2.782465378
540	37937.95129	2672.040965	5782.015176	2.57E-04	2.21E+00	5.68E-04	4.52E-01	4.97728357	2.24982913
541	20060.45868	3264.226306	7838.75545	2.80E-04	2.21E+00	6.19E-04	4.52E-01	5.421243935	2.45188021
542	21726.06947	3880.934633	10141.60288	1.98E-04	2.22E+00	4.41E-04	4.50E-01	3.859100617	1.735612347
543	23226.15269	4542.77585	12624.36315	2.98E-04	2.19E+00	6.51E-04	4.58E-01	5.698754004	2.608003278
544	24520.35292	5175.945625	15124.22569	3.04E-04	2.14E+00	6.51E-04	4.67E-01	5.703776884	2.663100806
545	25678.87812	5879.44785	31.9084488	5.07E-04	2.02E+00	1.03E-03	4.95E-01	8.985330087	4.444560731
546	26726.74316	6444.225407	1923.916632	2.45E-03	1.66E+00	4.07E-03	6.02E-01	35.64217049	21.44242962
547	27795.24733	9.314287892	3818.151626	1.96E-03	1.83E+00	3.58E-03	5.47E-01	31.3780041	17.15033476
548	28847.08722	266.6094153	5782.015176	5.75E-04	1.91E+00	1.10E-03	5.23E-01	9.645734678	5.041294874
549	29902.93375	612.9242294	7838.75545	3.86E-04	2.00E+00	7.72E-04	5.00E-01	6.759457934	3.382075823
550	30888.39815	1052.100163	10141.60288	3.47E-04	1.98E+00	6.89E-04	5.04E-01	6.034591937	3.043169401
551	32095.94852	1557.776506	12624.36315	2.49E-04	2.09E+00	5.21E-04	4.78E-01	4.564004319	2.181741015
552	33239.36512	2111.201131	15124.22569	2.44E-04	2.07E+00	5.05E-04	4.84E-01	4.423971615	2.139377712
553	34638.06248	2672.040965	31.9084488	1.97E-04	2.09E+00	4.13E-04	4.78E-01	3.621009881	1.729845171
554	36245.59475	3264.226306	1923.916632	2.15E-04	2.09E+00	4.50E-04	4.78E-01	3.943868661	1.885197896
555	37937.95129	3880.934633	3818.151626	1.52E-04	2.10E+00	3.21E-04	4.75E-01	2.80832693	1.334474959
556	20060.45868	4542.77585	5782.015176	2.29E-04	2.07E+00	4.73E-04	4.84E-01	4.142950967	2.005237561
557	21726.06947	5175.945625	7838.75545	2.34E-04	2.02E+00	4.73E-04	4.94E-01	4.141770133	2.047600864
558	23226.15269	5879.44785	10141.60288	3.90E-04	1.90E+00	7.42E-04	5.26E-01	6.50183708	3.417327038
559	24520.35292	6444.225407	12624.36315	1.88E-03	1.54E+00	2.90E-03	6.48E-01	25.44197267	16.4866224

560	25678.87812	9.314287892	15124.22569	1.65E-03	1.99E+00	3.28E-03	5.03E-01	28.70612237	14.44503437
561	26726.74316	266.6094153	31.9084488	4.85E-04	2.07E+00	1.00E-03	4.83E-01	8.793735614	4.246079085
562	27795.24733	612.9242294	1923.916632	3.25E-04	2.16E+00	7.01E-04	4.64E-01	6.142384189	2.848585884
563	28847.08722	1052.100163	3818.151626	2.93E-04	2.14E+00	6.26E-04	4.67E-01	5.486849447	2.563138691
564	29902.93375	1557.776506	5782.015176	2.10E-04	2.25E+00	4.72E-04	4.45E-01	4.133828554	1.837592349
565	30888.39815	2111.201131	7838.75545	2.06E-04	2.23E+00	4.58E-04	4.49E-01	4.010258489	1.80191145
566	32095.94852	2672.040965	10141.60288	1.66E-04	2.25E+00	3.74E-04	4.44E-01	3.279567168	1.456978729
567	33239.36512	3264.226306	12624.36315	1.81E-04	2.25E+00	4.08E-04	4.45E-01	3.572130119	1.587826056
568	34638.06248	3880.934633	15124.22569	1.28E-04	2.26E+00	2.90E-04	4.42E-01	2.542568926	1.123974367
569	36245.59475	4542.77585	31.9084488	1.93E-04	2.22E+00	4.29E-04	4.50E-01	3.755751299	1.688930618
570	37937.95129	5175.945625	1923.916632	1.97E-04	2.18E+00	4.29E-04	4.59E-01	3.760382904	1.724611517
571	20060.45868	5879.44785	3818.151626	3.29E-04	2.06E+00	6.77E-04	4.85E-01	5.930082182	2.878276559
572	21726.06947	6444.225407	5782.015176	1.59E-03	1.70E+00	2.70E-03	5.88E-01	23.6182967	13.88601625
573	23226.15269	9.314287892	7838.75545	1.40E-03	1.94E+00	2.70E-03	5.16E-01	23.67003976	12.22481924
574	24520.35292	266.6094153	10141.60288	4.10E-04	2.02E+00	8.29E-04	4.95E-01	7.258729223	3.593452807
575	25678.87812	612.9242294	12624.36315	2.75E-04	2.11E+00	5.79E-04	4.75E-01	5.075254954	2.410755602
576	26726.74316	1052.100163	15124.22569	2.48E-04	2.09E+00	5.17E-04	4.79E-01	4.532805842	2.169181906
577	27795.24733	1557.776506	31.9084488	1.78E-04	2.20E+00	3.90E-04	4.55E-01	3.419084069	1.555152708
578	28847.08722	2111.201131	1923.916632	1.74E-04	2.17E+00	3.79E-04	4.60E-01	3.316048004	1.524955996
579	29902.93375	2672.040965	3818.151626	1.41E-04	2.20E+00	3.10E-04	4.55E-01	2.71256331	1.233039752
580	30888.39815	3264.226306	5782.015176	1.53E-04	2.20E+00	3.37E-04	4.55E-01	2.954507371	1.343775724
581	32095.94852	3880.934633	7838.75545	1.09E-04	2.21E+00	2.40E-04	4.52E-01	2.103225853	0.951218468
582	33239.36512	4542.77585	10141.60288	1.63E-04	2.17E+00	3.55E-04	4.60E-01	3.105538791	1.429340422
583	34638.06248	5175.945625	12624.36315	1.67E-04	2.13E+00	3.55E-04	4.70E-01	3.107917348	1.459537134
584	36245.59475	5879.44785	15124.22569	2.78E-04	2.01E+00	5.59E-04	4.98E-01	4.894301531	2.435882793
585	37937.95129	6444.225407	31.9084488	1.34E-03	1.65E+00	2.21E-03	6.06E-01	19.38836329	11.75172272
586	20060.45868	9.314287892	1923.916632	1.24E-03	1.98E+00	2.45E-03	5.05E-01	21.43156366	10.82097802
587	21726.06947	266.6094153	3818.151626	3.63E-04	2.06E+00	7.50E-04	4.84E-01	6.566171519	3.180797448
588	23226.15269	612.9242294	5782.015176	2.44E-04	2.15E+00	5.24E-04	4.65E-01	4.587030248	2.133915673
589	24520.35292	1052.100163	7838.75545	2.19E-04	2.13E+00	4.68E-04	4.69E-01	4.097394526	1.920083174
590	25678.87812	1557.776506	10141.60288	1.57E-04	2.24E+00	3.52E-04	4.46E-01	3.087473918	1.376566225
591	26726.74316	2111.201131	12624.36315	1.54E-04	2.22E+00	3.42E-04	4.51E-01	2.995085167	1.349837162
592	27795.24733	2672.040965	15124.22569	1.25E-04	2.24E+00	2.80E-04	4.46E-01	2.449447549	1.091443219
593	28847.08722	3264.226306	31.9084488	1.36E-04	2.24E+00	3.05E-04	4.46E-01	2.667952971	1.189462788
594	29902.93375	3880.934633	1923.916632	9.61E-05	2.26E+00	2.17E-04	4.43E-01	1.899025381	0.841984976
595	30888.39815	4542.77585	3818.151626	1.44E-04	2.22E+00	3.20E-04	4.51E-01	2.804998059	1.265201635
596	32095.94852	5175.945625	5782.015176	1.47E-04	2.17E+00	3.21E-04	4.60E-01	2.80828834	1.291930697

597	33239.36512	5879.44785	7838.75545	2.46E-04	2.05E+00	5.05E-04	4.87E-01	4.427842619	2.156157375
598	34638.06248	6444.225407	10141.60288	1.19E-03	1.69E+00	2.01E-03	5.90E-01	17.62301146	10.4022097
599	36245.59475	9.314287892	12624.36315	1.12E-03	1.88E+00	2.10E-03	5.32E-01	18.38864863	9.77457981
600	37937.95129	266.6094153	15124.22569	3.28E-04	1.97E+00	6.45E-04	5.09E-01	5.645951671	2.873211502
601	20060.45868	612.9242294	31.9084488	2.20E-04	2.05E+00	4.51E-04	4.88E-01	3.9520832	1.927564128
602	21726.06947	1052.100163	1923.916632	1.98E-04	2.03E+00	4.03E-04	4.91E-01	3.528972947	1.734409421
603	23226.15269	1557.776506	3818.151626	1.42E-04	2.14E+00	3.04E-04	4.67E-01	2.665457092	1.243451045
604	24520.35292	2111.201131	5782.015176	1.39E-04	2.12E+00	2.95E-04	4.72E-01	2.584399572	1.219306707
605	25678.87812	2672.040965	7838.75545	1.13E-04	2.14E+00	2.41E-04	4.66E-01	2.114699285	0.985899688
606	26726.74316	3264.226306	10141.60288	1.23E-04	2.14E+00	2.63E-04	4.66E-01	2.303284295	1.074440677
607	27795.24733	3880.934633	12624.36315	8.68E-05	2.16E+00	1.87E-04	4.64E-01	1.639875732	0.760564279
608	28847.08722	4542.77585	15124.22569	1.30E-04	2.12E+00	2.76E-04	4.72E-01	2.420284472	1.14285551
609	29902.93375	5175.945625	31.9084488	1.33E-04	2.07E+00	2.76E-04	4.82E-01	2.420859423	1.166999848
610	30888.39815	5879.44785	1923.916632	2.22E-04	1.95E+00	4.35E-04	5.12E-01	3.806294442	1.947655037
611	32095.94852	6444.225407	3818.151626	1.07E-03	1.59E+00	1.71E-03	6.27E-01	14.98594344	9.396306761
612	33239.36512	9.314287892	5782.015176	9.12E-04	1.57E+00	1.43E-03	6.39E-01	12.51031696	7.988258919
613	34638.06248	266.6094153	7838.75545	2.68E-04	1.65E+00	4.42E-04	6.06E-01	3.874051245	2.348127271
614	36245.59475	612.9242294	10141.60288	1.80E-04	1.74E+00	3.12E-04	5.76E-01	2.733323703	1.575298543
615	37937.95129	1052.100163	12624.36315	1.62E-04	1.72E+00	2.78E-04	5.82E-01	2.437291119	1.417443184
616	20060.45868	1557.776506	15124.22569	1.16E-04	1.83E+00	2.12E-04	5.47E-01	1.858047253	1.016208276
617	21726.06947	2111.201131	31.9084488	1.14E-04	1.80E+00	2.05E-04	5.54E-01	1.798022326	0.996476356
618	23226.15269	2672.040965	1923.916632	9.20E-05	1.83E+00	1.68E-04	5.47E-01	1.474282466	0.805724862
619	24520.35292	3264.226306	3818.151626	1.00E-04	1.83E+00	1.83E-04	5.47E-01	1.605596508	0.878084837
620	25678.87812	3880.934633	5782.015176	7.10E-05	1.84E+00	1.31E-04	5.43E-01	1.144276508	0.621569879
621	26726.74316	4542.77585	7838.75545	1.07E-04	1.80E+00	1.92E-04	5.55E-01	1.68359214	0.933996744
622	27795.24733	5175.945625	10141.60288	1.09E-04	1.76E+00	1.92E-04	5.68E-01	1.677842823	0.953728664
623	28847.08722	5879.44785	12624.36315	1.82E-04	1.64E+00	2.98E-04	6.10E-01	2.609002989	1.591717805
624	29902.93375	6444.225407	15124.22569	8.77E-04	1.28E+00	1.12E-03	7.81E-01	9.826898945	7.679115906
625	30888.39815	9.314287892	31.9084488	1.46E-02	1.24E+00	1.80E-02	8.09E-01	157.8808816	127.7571564
626	32095.94852	266.6094153	1923.916632	4.29E-03	1.32E+00	5.66E-03	7.58E-01	49.55414202	37.55387325
627	33239.36512	612.9242294	3818.151626	2.88E-03	1.40E+00	4.04E-03	7.12E-01	35.39283072	25.19393329
628	34638.06248	1052.100163	5782.015176	2.59E-03	1.39E+00	3.60E-03	7.20E-01	31.49221996	22.66933413
629	36245.59475	1557.776506	7838.75545	1.86E-03	1.50E+00	2.78E-03	6.68E-01	24.34783361	16.25233746
630	37937.95129	2111.201131	10141.60288	1.82E-03	1.47E+00	2.68E-03	6.78E-01	23.49208207	15.93676257
631	20060.45868	2672.040965	12624.36315	1.47E-03	1.50E+00	2.21E-03	6.67E-01	19.32211986	12.88605168
632	21726.06947	3264.226306	15124.22569	1.60E-03	1.50E+00	2.40E-03	6.67E-01	21.03999818	14.04331319
633	23226.15269	3880.934633	31.9084488	1.13E-03	1.51E+00	1.71E-03	6.62E-01	15.01709706	9.940839553

634	24520.35292	4542.77585	1923.916632	1.71E-03	1.47E+00	2.51E-03	6.79E-01	21.99203609	14.93751885
635	25678.87812	5175.945625	3818.151626	1.74E-03	1.43E+00	2.49E-03	7.00E-01	21.79585248	15.25309374
636	26726.74316	5879.44785	5782.015176	2.91E-03	1.31E+00	3.80E-03	7.64E-01	33.31782009	25.45652846
637	27795.24733	6444.225407	7838.75545	1.40E-02	9.49E-01	1.33E-02	1.05E+00	116.5977162	122.8129961
638	28847.08722	9.314287892	10141.60288	2.53E-03	1.94E+00	4.89E-03	5.17E-01	42.81462151	22.11960407
639	29902.93375	266.6094153	12624.36315	7.42E-04	2.02E+00	1.50E-03	4.95E-01	13.12984495	6.501998252
640	30888.39815	612.9242294	15124.22569	4.98E-04	2.10E+00	1.05E-03	4.75E-01	9.180416197	4.362024368
641	32095.94852	1052.100163	31.9084488	4.48E-04	2.09E+00	9.36E-04	4.79E-01	8.199184309	3.924920604
642	33239.36512	1557.776506	1923.916632	3.21E-04	2.20E+00	7.06E-04	4.55E-01	6.184716835	2.813895362
643	34638.06248	2111.201131	3818.151626	3.15E-04	2.17E+00	6.85E-04	4.60E-01	5.998317774	2.759257392
644	36245.59475	2672.040965	5782.015176	2.55E-04	2.20E+00	5.60E-04	4.55E-01	4.906705593	2.231063756
645	37937.95129	3264.226306	7838.75545	2.78E-04	2.20E+00	6.10E-04	4.55E-01	5.344352864	2.431429569
646	20060.45868	3880.934633	10141.60288	1.96E-04	2.21E+00	4.34E-04	4.52E-01	3.804491869	1.721135952
647	21726.06947	4542.77585	12624.36315	2.95E-04	2.17E+00	6.41E-04	4.60E-01	5.617531468	2.586250446
648	23226.15269	5175.945625	15124.22569	3.01E-04	2.13E+00	6.42E-04	4.70E-01	5.621800699	2.640888416
649	24520.35292	5879.44785	31.9084488	5.03E-04	2.01E+00	1.01E-03	4.98E-01	8.852970099	4.407489541
650	25678.87812	6444.225407	1923.916632	2.43E-03	1.65E+00	4.00E-03	6.06E-01	35.06789147	21.26358261
651	26726.74316	9.314287892	3818.151626	1.94E-03	1.82E+00	3.53E-03	5.50E-01	30.89473722	17.00728725
652	27795.24733	266.6094153	5782.015176	5.71E-04	1.90E+00	1.08E-03	5.26E-01	9.500157733	4.999246444
653	28847.08722	612.9242294	7838.75545	3.83E-04	1.99E+00	7.60E-04	5.04E-01	6.659388754	3.353866606
654	29902.93375	1052.100163	10141.60288	3.44E-04	1.97E+00	6.79E-04	5.08E-01	5.944946737	3.017786935
655	30888.39815	1557.776506	12624.36315	2.47E-04	2.08E+00	5.13E-04	4.81E-01	4.497752989	2.16354355
656	32095.94852	2111.201131	15124.22569	2.42E-04	2.05E+00	4.98E-04	4.87E-01	4.359435521	2.121533591
657	33239.36512	2672.040965	31.9084488	1.96E-04	2.08E+00	4.07E-04	4.81E-01	3.568461501	1.715416879
658	34638.06248	3264.226306	1923.916632	2.13E-04	2.08E+00	4.44E-04	4.81E-01	3.886620522	1.869473838
659	36245.59475	3880.934633	3818.151626	1.51E-04	2.09E+00	3.16E-04	4.78E-01	2.767664396	1.323344371
660	37937.95129	4542.77585	5782.015176	2.27E-04	2.05E+00	4.66E-04	4.87E-01	4.082491642	1.988512276
661	20060.45868	5175.945625	7838.75545	2.32E-04	2.01E+00	4.66E-04	4.98E-01	4.080773406	2.030522235
662	21726.06947	5879.44785	10141.60288	3.87E-04	1.89E+00	7.31E-04	5.29E-01	6.403461287	3.388823798
663	23226.15269	6444.225407	12624.36315	1.87E-03	1.53E+00	2.86E-03	6.54E-01	25.01679092	16.34911078
664	24520.35292	9.314287892	15124.22569	1.64E-03	1.97E+00	3.23E-03	5.07E-01	28.28008838	14.32455123
665	25678.87812	266.6094153	31.9084488	4.81E-04	2.06E+00	9.89E-04	4.86E-01	8.665537677	4.21066339
666	26726.74316	612.9242294	1923.916632	3.22E-04	2.14E+00	6.91E-04	4.67E-01	6.054353559	2.8248264
667	27795.24733	1052.100163	3818.151626	2.90E-04	2.13E+00	6.17E-04	4.70E-01	5.407973928	2.541760065
668	28847.08722	1557.776506	5782.015176	2.08E-04	2.24E+00	4.65E-04	4.47E-01	4.07561097	1.82226536
669	29902.93375	2111.201131	7838.75545	2.04E-04	2.21E+00	4.51E-04	4.52E-01	3.953532507	1.786882068
670	30888.39815	2672.040965	10141.60288	1.65E-04	2.24E+00	3.69E-04	4.47E-01	3.233391601	1.444826361

671	32095.94852	3264.226306	12624.36315	1.80E-04	2.24E+00	4.02E-04	4.47E-01	3.521824048	1.574582317
672	33239.36512	3880.934633	15124.22569	1.27E-04	2.25E+00	2.86E-04	4.45E-01	2.506842287	1.114599522
673	34638.06248	4542.77585	31.9084488	1.91E-04	2.21E+00	4.23E-04	4.52E-01	3.702607605	1.674843586
674	36245.59475	5175.945625	1923.916632	1.95E-04	2.17E+00	4.23E-04	4.61E-01	3.70673965	1.710226878
675	37937.95129	5879.44785	3818.151626	3.26E-04	2.05E+00	6.67E-04	4.88E-01	5.843438774	2.854269431
676	20060.45868	6444.225407	5782.015176	1.57E-03	1.69E+00	2.65E-03	5.92E-01	23.24192068	13.77019577
677	21726.06947	9.314287892	7838.75545	1.38E-03	1.92E+00	2.66E-03	5.20E-01	23.31469162	12.12285447
678	23226.15269	266.6094153	10141.60288	4.07E-04	2.01E+00	8.16E-04	4.98E-01	7.15176514	3.563480537
679	24520.35292	612.9242294	12624.36315	2.73E-04	2.09E+00	5.71E-04	4.78E-01	5.001780958	2.390647972
680	25678.87812	1052.100163	15124.22569	2.46E-04	2.08E+00	5.10E-04	4.82E-01	4.466976972	2.151089194
681	26726.74316	1557.776506	31.9084488	1.76E-04	2.19E+00	3.85E-04	4.58E-01	3.370476601	1.54218149
682	27795.24733	2111.201131	1923.916632	1.73E-04	2.16E+00	3.73E-04	4.63E-01	3.268690023	1.512236643
683	28847.08722	2672.040965	3818.151626	1.40E-04	2.19E+00	3.05E-04	4.57E-01	2.674009869	1.222755215
684	29902.93375	3264.226306	5782.015176	1.52E-04	2.19E+00	3.32E-04	4.58E-01	2.912505427	1.33256756
685	30888.39815	3880.934633	7838.75545	1.08E-04	2.20E+00	2.37E-04	4.55E-01	2.07339536	0.943284546
686	32095.94852	4542.77585	10141.60288	1.62E-04	2.16E+00	3.49E-04	4.63E-01	3.061171794	1.417418579
687	33239.36512	5175.945625	12624.36315	1.65E-04	2.12E+00	3.50E-04	4.73E-01	3.063140428	1.447363427
688	34638.06248	5879.44785	15124.22569	2.76E-04	2.00E+00	5.50E-04	5.01E-01	4.822012236	2.415565582
689	36245.59475	6444.225407	31.9084488	1.33E-03	1.64E+00	2.18E-03	6.11E-01	19.07483925	11.65370396
690	37937.95129	9.314287892	1923.916632	1.22E-03	1.97E+00	2.41E-03	5.08E-01	21.11302113	10.73072241
691	20060.45868	266.6094153	3818.151626	3.60E-04	2.05E+00	7.39E-04	4.87E-01	6.470314631	3.154267053
692	21726.06947	612.9242294	5782.015176	2.42E-04	2.14E+00	5.16E-04	4.68E-01	4.521204674	2.11611711
693	23226.15269	1052.100163	7838.75545	2.17E-04	2.12E+00	4.61E-04	4.71E-01	4.038415209	1.904068145
694	24520.35292	1557.776506	10141.60288	1.56E-04	2.23E+00	3.47E-04	4.48E-01	3.043939336	1.365084561
695	25678.87812	2111.201131	12624.36315	1.53E-04	2.21E+00	3.37E-04	4.53E-01	2.952666469	1.338578441
696	26726.74316	2672.040965	15124.22569	1.24E-04	2.23E+00	2.76E-04	4.48E-01	2.414917857	1.082339709
697	27795.24733	3264.226306	31.9084488	1.35E-04	2.23E+00	3.00E-04	4.48E-01	2.630334546	1.179541717
698	28847.08722	3880.934633	1923.916632	9.53E-05	2.24E+00	2.14E-04	4.46E-01	1.872309169	0.834962148
699	29902.93375	4542.77585	3818.151626	1.43E-04	2.20E+00	3.16E-04	4.54E-01	2.765258168	1.254648841
700	30888.39815	5175.945625	5782.015176	1.46E-04	2.16E+00	3.16E-04	4.63E-01	2.768175718	1.281154962
701	32095.94852	5879.44785	7838.75545	2.44E-04	2.04E+00	4.98E-04	4.90E-01	4.363057477	2.138173298
702	33239.36512	6444.225407	10141.60288	1.18E-03	1.68E+00	1.98E-03	5.95E-01	17.34164497	10.31544695
703	34638.06248	9.314287892	12624.36315	1.11E-03	1.87E+00	2.07E-03	5.35E-01	18.10900388	9.693051998
704	36245.59475	266.6094153	15124.22569	3.25E-04	1.95E+00	6.35E-04	5.12E-01	5.56174357	2.849246621
705	37937.95129	612.9242294	31.9084488	2.18E-04	2.04E+00	4.45E-04	4.91E-01	3.894219257	1.911486701
706	20060.45868	1052.100163	1923.916632	1.96E-04	2.02E+00	3.97E-04	4.95E-01	3.477133267	1.71994306
707	21726.06947	1557.776506	3818.151626	1.41E-04	2.13E+00	3.00E-04	4.69E-01	2.627162059	1.233079669

708	23226.15269	2111.201131	5782.015176	1.38E-04	2.11E+00	2.91E-04	4.75E-01	2.547092523	1.209136714
709	24520.35292	2672.040965	7838.75545	1.12E-04	2.13E+00	2.38E-04	4.69E-01	2.08432508	0.977676496
710	25678.87812	3264.226306	10141.60288	1.22E-04	2.13E+00	2.59E-04	4.69E-01	2.270193362	1.065478983
711	26726.74316	3880.934633	12624.36315	8.61E-05	2.14E+00	1.85E-04	4.67E-01	1.616372834	0.754220565
712	27795.24733	4542.77585	15124.22569	1.29E-04	2.10E+00	2.72E-04	4.75E-01	2.385333876	1.133323181
713	28847.08722	5175.945625	31.9084488	1.32E-04	2.06E+00	2.72E-04	4.85E-01	2.385592133	1.157266136
714	29902.93375	5879.44785	1923.916632	2.20E-04	1.94E+00	4.28E-04	5.15E-01	3.749386957	1.931410036
715	30888.39815	6444.225407	3818.151626	1.06E-03	1.58E+00	1.68E-03	6.32E-01	14.73956653	9.317934049
716	32095.94852	9.314287892	5782.015176	9.04E-04	1.55E+00	1.40E-03	6.44E-01	12.30277802	7.921630452
717	33239.36512	266.6094153	7838.75545	2.66E-04	1.64E+00	4.35E-04	6.11E-01	3.811405286	2.328542012
718	34638.06248	612.9242294	10141.60288	1.78E-04	1.72E+00	3.07E-04	5.81E-01	2.69017578	1.562159294
719	36245.59475	1052.100163	12624.36315	1.60E-04	1.71E+00	2.74E-04	5.86E-01	2.398651531	1.405620575
720	37937.95129	1557.776506	15124.22569	1.15E-04	1.82E+00	2.09E-04	5.51E-01	1.829422202	1.007732287
721	20060.45868	2111.201131	31.9084488	1.13E-04	1.79E+00	2.02E-04	5.58E-01	1.77015283	0.988164947
722	21726.06947	2672.040965	1923.916632	9.12E-05	1.82E+00	1.66E-04	5.50E-01	1.451577361	0.799004473
723	23226.15269	3264.226306	3818.151626	9.94E-05	1.82E+00	1.80E-04	5.51E-01	1.580861387	0.870760908
724	24520.35292	3880.934633	5782.015176	7.04E-05	1.83E+00	1.29E-04	5.47E-01	1.126702843	0.616385489
725	25678.87812	4542.77585	7838.75545	1.06E-04	1.79E+00	1.89E-04	5.59E-01	1.6574842	0.926206465
726	26726.74316	5175.945625	10141.60288	1.08E-04	1.75E+00	1.89E-04	5.73E-01	1.651527938	0.945773805
727	27795.24733	5879.44785	12624.36315	1.80E-04	1.63E+00	2.93E-04	6.15E-01	2.566679895	1.578441606
728	28847.08722	6444.225407	15124.22569	8.69E-04	1.27E+00	1.10E-03	7.89E-01	9.645735388	7.615065939
729	29902.93375	9.314287892	31.9084488	1.32E-02	1.27E+00	1.67E-02	7.89E-01	146.4238676	115.489109
730	30888.39815	266.6094153	1923.916632	3.88E-03	1.35E+00	5.24E-03	7.40E-01	45.88433461	33.94771365
731	32095.94852	612.9242294	3818.151626	2.60E-03	1.44E+00	3.74E-03	6.96E-01	32.72456476	22.77465303
732	33239.36512	1052.100163	5782.015176	2.34E-03	1.42E+00	3.32E-03	7.04E-01	29.12532664	20.49248179
733	34638.06248	1557.776506	7838.75545	1.68E-03	1.53E+00	2.57E-03	6.54E-01	22.4809594	14.69168558
734	36245.59475	2111.201131	10141.60288	1.64E-03	1.51E+00	2.48E-03	6.64E-01	21.69823394	14.40641418
735	37937.95129	2672.040965	12624.36315	1.33E-03	1.53E+00	2.04E-03	6.53E-01	17.84025712	11.64865178
736	20060.45868	3264.226306	15124.22569	1.45E-03	1.53E+00	2.22E-03	6.53E-01	19.42672316	12.69478575
737	21726.06947	3880.934633	31.9084488	1.03E-03	1.54E+00	1.58E-03	6.48E-01	13.86324751	8.986257484
738	23226.15269	4542.77585	1923.916632	1.54E-03	1.50E+00	2.32E-03	6.65E-01	20.31326357	13.50312414
739	24520.35292	5175.945625	3818.151626	1.57E-03	1.46E+00	2.30E-03	6.84E-01	20.14506732	13.78839554
740	25678.87812	5879.44785	5782.015176	2.63E-03	1.34E+00	3.52E-03	7.46E-01	30.85642241	23.01203215
741	26726.74316	6444.225407	7838.75545	1.27E-02	9.81E-01	1.24E-02	1.02E+00	108.9616398	111.0197182
742	27795.24733	9.314287892	10141.60288	2.28E-03	1.97E+00	4.49E-03	5.08E-01	39.34454306	19.99554027
743	28847.08722	266.6094153	12624.36315	6.71E-04	2.05E+00	1.38E-03	4.87E-01	12.0575286	5.877635399
744	29902.93375	612.9242294	15124.22569	4.50E-04	2.14E+00	9.62E-04	4.68E-01	8.425310654	3.943155296

745	30888.39815	1052.100163	31.9084488	4.05E-04	2.12E+00	8.59E-04	4.71E-01	7.525631119	3.54802499
746	32095.94852	1557.776506	1923.916632	2.90E-04	2.23E+00	6.48E-04	4.48E-01	5.672396684	2.543687394
747	33239.36512	2111.201131	3818.151626	2.85E-04	2.21E+00	6.28E-04	4.53E-01	5.502312871	2.494296106
748	34638.06248	2672.040965	5782.015176	2.30E-04	2.23E+00	5.14E-04	4.48E-01	4.500211742	2.016822952
749	36245.59475	3264.226306	7838.75545	2.51E-04	2.23E+00	5.60E-04	4.48E-01	4.901642004	2.197948377
750	37937.95129	3880.934633	10141.60288	1.78E-04	2.24E+00	3.98E-04	4.46E-01	3.489056626	1.55586163
751	20060.45868	4542.77585	12624.36315	2.67E-04	2.20E+00	5.88E-04	4.54E-01	5.153076562	2.337902377
752	21726.06947	5175.945625	15124.22569	2.73E-04	2.16E+00	5.89E-04	4.63E-01	5.1585198	2.387293665
753	23226.15269	5879.44785	31.9084488	4.55E-04	2.04E+00	9.28E-04	4.90E-01	8.130626038	3.984254616
754	24520.35292	6444.225407	1923.916632	2.19E-03	1.68E+00	3.69E-03	5.95E-01	32.31688664	19.22171939
755	25678.87812	9.314287892	3818.151626	1.76E-03	1.85E+00	3.24E-03	5.41E-01	28.42107419	15.37414034
756	26726.74316	266.6094153	5782.015176	5.16E-04	1.93E+00	9.97E-04	5.17E-01	8.732821777	4.519187291
757	27795.24733	612.9242294	7838.75545	3.46E-04	2.02E+00	6.98E-04	4.96E-01	6.117141479	3.031807196
758	28847.08722	1052.100163	10141.60288	3.11E-04	2.00E+00	6.23E-04	4.99E-01	5.461561675	2.728000013
759	29902.93375	1557.776506	12624.36315	2.23E-04	2.11E+00	4.71E-04	4.74E-01	4.128571921	1.955786462
760	30888.39815	2111.201131	15124.22569	2.19E-04	2.09E+00	4.57E-04	4.79E-01	4.002318692	1.917810564
761	32095.94852	2672.040965	31.9084488	1.77E-04	2.11E+00	3.74E-04	4.73E-01	3.275525585	1.550691738
762	33239.36512	3264.226306	1923.916632	1.93E-04	2.11E+00	4.07E-04	4.74E-01	3.567599111	1.689955177
763	34638.06248	3880.934633	3818.151626	1.37E-04	2.12E+00	2.90E-04	4.71E-01	2.540259812	1.196268504
764	36245.59475	4542.77585	5782.015176	2.05E-04	2.09E+00	4.28E-04	4.80E-01	3.748112397	1.797562794
765	37937.95129	5175.945625	7838.75545	2.10E-04	2.04E+00	4.28E-04	4.90E-01	3.747777033	1.835538692
766	20060.45868	5879.44785	10141.60288	3.50E-04	1.92E+00	6.72E-04	5.20E-01	5.886803195	3.063407578
767	21726.06947	6444.225407	12624.36315	1.69E-03	1.56E+00	2.64E-03	6.40E-01	23.08848468	14.77916612
768	23226.15269	9.314287892	15124.22569	1.48E-03	2.01E+00	2.97E-03	4.98E-01	25.97972741	12.94901754
769	24520.35292	266.6094153	31.9084488	4.35E-04	2.09E+00	9.08E-04	4.78E-01	7.955486033	3.806328953
770	25678.87812	612.9242294	1923.916632	2.92E-04	2.18E+00	6.34E-04	4.60E-01	5.554868604	2.553568765
771	26726.74316	1052.100163	3818.151626	2.62E-04	2.16E+00	5.66E-04	4.63E-01	4.962352275	2.297684243
772	27795.24733	1557.776506	5782.015176	1.88E-04	2.27E+00	4.27E-04	4.41E-01	3.737072923	1.647279955
773	28847.08722	2111.201131	7838.75545	1.84E-04	2.24E+00	4.14E-04	4.46E-01	3.625691434	1.615294389
774	29902.93375	2672.040965	10141.60288	1.49E-04	2.27E+00	3.38E-04	4.41E-01	2.96478674	1.306085028
775	30888.39815	3264.226306	12624.36315	1.62E-04	2.27E+00	3.69E-04	4.41E-01	3.229283735	1.423380998
776	32095.94852	3880.934633	15124.22569	1.15E-04	2.28E+00	2.62E-04	4.38E-01	2.298431934	1.007568651
777	33239.36512	4542.77585	31.9084488	1.73E-04	2.24E+00	3.88E-04	4.46E-01	3.395613907	1.514014549
778	34638.06248	5175.945625	1923.916632	1.76E-04	2.20E+00	3.88E-04	4.55E-01	3.400374936	1.546000114
779	36245.59475	5879.44785	3818.151626	2.95E-04	2.08E+00	6.12E-04	4.81E-01	5.365060745	2.580184491
780	37937.95129	6444.225407	5782.015176	1.42E-03	1.72E+00	2.44E-03	5.81E-01	21.40928545	12.44789478
781	20060.45868	9.314287892	7838.75545	1.25E-03	1.96E+00	2.45E-03	5.11E-01	21.42731175	10.95874158

782	21726.06947	266.6094153	10141.60288	3.68E-04	2.04E+00	7.50E-04	4.90E-01	6.568313526	3.221292676
783	23226.15269	612.9242294	12624.36315	2.47E-04	2.12E+00	5.24E-04	4.71E-01	4.590783747	2.161082886
784	24520.35292	1052.100163	15124.22569	2.22E-04	2.11E+00	4.68E-04	4.74E-01	4.100390157	1.944528052
785	25678.87812	1557.776506	31.9084488	1.59E-04	2.22E+00	3.53E-04	4.51E-01	3.091530318	1.394091504
786	26726.74316	2111.201131	1923.916632	1.56E-04	2.19E+00	3.42E-04	4.56E-01	2.998649821	1.367022149
787	27795.24733	2672.040965	3818.151626	1.26E-04	2.22E+00	2.80E-04	4.51E-01	2.452682484	1.105338552
788	28847.08722	3264.226306	5782.015176	1.38E-04	2.22E+00	3.05E-04	4.51E-01	2.671459676	1.204606024
789	29902.93375	3880.934633	7838.75545	9.73E-05	2.23E+00	2.17E-04	4.48E-01	1.90164086	0.852704418
790	30888.39815	4542.77585	10141.60288	1.46E-04	2.19E+00	3.21E-04	4.56E-01	2.808310008	1.281309114
791	32095.94852	5175.945625	12624.36315	1.49E-04	2.15E+00	3.21E-04	4.65E-01	2.810957707	1.308378468
792	33239.36512	5879.44785	15124.22569	2.49E-04	2.03E+00	5.06E-04	4.93E-01	4.428999916	2.183607751
793	34638.06248	6444.225407	31.9084488	1.20E-03	1.67E+00	2.01E-03	5.99E-01	17.58099597	10.53464185
794	36245.59475	9.314287892	1923.916632	1.11E-03	2.00E+00	2.21E-03	5.00E-01	19.39670137	9.70029081
795	37937.95129	266.6094153	3818.151626	3.25E-04	2.08E+00	6.78E-04	4.80E-01	5.940437017	2.85137445
796	20060.45868	612.9242294	5782.015176	2.18E-04	2.17E+00	4.74E-04	4.61E-01	4.148396726	1.912914208
797	21726.06947	1052.100163	7838.75545	1.96E-04	2.15E+00	4.23E-04	4.64E-01	3.70582041	1.721227521
798	23226.15269	1557.776506	10141.60288	1.41E-04	2.26E+00	3.19E-04	4.42E-01	2.791215147	1.234000538
799	24520.35292	2111.201131	12624.36315	1.38E-04	2.24E+00	3.09E-04	4.47E-01	2.707938458	1.210039702
800	25678.87812	2672.040965	15124.22569	1.12E-04	2.26E+00	2.53E-04	4.42E-01	2.21439945	0.978406629
801	26726.74316	3264.226306	31.9084488	1.22E-04	2.26E+00	2.75E-04	4.42E-01	2.411948374	1.066274687
802	27795.24733	3880.934633	1923.916632	8.62E-05	2.27E+00	1.96E-04	4.40E-01	1.716723947	0.75478382
803	28847.08722	4542.77585	3818.151626	1.29E-04	2.24E+00	2.90E-04	4.47E-01	2.536093149	1.134169552
804	29902.93375	5175.945625	5782.015176	1.32E-04	2.19E+00	2.90E-04	4.56E-01	2.539498954	1.158130388
805	30888.39815	5879.44785	7838.75545	2.21E-04	2.07E+00	4.57E-04	4.82E-01	4.006075233	1.932852422
806	32095.94852	6444.225407	10141.60288	1.06E-03	1.71E+00	1.82E-03	5.84E-01	15.97543761	9.324892721
807	33239.36512	9.314287892	12624.36315	1.00E-03	1.90E+00	1.90E-03	5.26E-01	16.65106653	8.762264052
808	34638.06248	266.6094153	15124.22569	2.94E-04	1.98E+00	5.83E-04	5.04E-01	5.110270078	2.575644002
809	36245.59475	612.9242294	31.9084488	1.97E-04	2.07E+00	4.08E-04	4.83E-01	3.575686127	1.727933701
810	37937.95129	1052.100163	1923.916632	1.77E-04	2.05E+00	3.65E-04	4.87E-01	3.193098478	1.554783287
811	20060.45868	1557.776506	3818.151626	1.27E-04	2.16E+00	2.75E-04	4.62E-01	2.410632605	1.114671587
812	21726.06947	2111.201131	5782.015176	1.25E-04	2.14E+00	2.67E-04	4.68E-01	2.337557739	1.093027786
813	23226.15269	2672.040965	7838.75545	1.01E-04	2.16E+00	2.18E-04	4.62E-01	1.912518069	0.883793837
814	24520.35292	3264.226306	10141.60288	1.10E-04	2.16E+00	2.38E-04	4.62E-01	2.083083517	0.963164975
815	25678.87812	3880.934633	12624.36315	7.78E-05	2.18E+00	1.69E-04	4.60E-01	1.483023519	0.681795553
816	26726.74316	4542.77585	15124.22569	1.17E-04	2.14E+00	2.50E-04	4.68E-01	2.189134329	1.024494346
817	27795.24733	5175.945625	31.9084488	1.19E-04	2.09E+00	2.50E-04	4.78E-01	2.190061897	1.046138148
818	28847.08722	5879.44785	1923.916632	1.99E-04	1.97E+00	3.93E-04	5.07E-01	3.445339119	1.745943871

819	29902.93375	6444.225407	3818.151626	9.62E-04	1.61E+00	1.55E-03	6.20E-01	13.59430906	8.423167293
820	30888.39815	9.314287892	5782.015176	8.17E-04	1.59E+00	1.30E-03	6.31E-01	11.35103725	7.160945568
821	32095.94852	266.6094153	7838.75545	2.40E-04	1.67E+00	4.01E-04	5.99E-01	3.512914985	2.104940731
822	33239.36512	612.9242294	10141.60288	1.61E-04	1.75E+00	2.83E-04	5.70E-01	2.477135429	1.412150912
823	34638.06248	1052.100163	12624.36315	1.45E-04	1.74E+00	2.52E-04	5.75E-01	2.209067089	1.270644028
824	36245.59475	1557.776506	15124.22569	1.04E-04	1.85E+00	1.92E-04	5.41E-01	1.682963895	0.910963481
825	37937.95129	2111.201131	31.9084488	1.02E-04	1.82E+00	1.86E-04	5.48E-01	1.62881868	0.89327512
826	20060.45868	2672.040965	1923.916632	8.25E-05	1.85E+00	1.52E-04	5.41E-01	1.335351039	0.722279027
827	21726.06947	3264.226306	3818.151626	8.99E-05	1.85E+00	1.66E-04	5.41E-01	1.45430063	0.787144957
828	23226.15269	3880.934633	5782.015176	6.36E-05	1.86E+00	1.18E-04	5.38E-01	1.036378862	0.557196269
829	24520.35292	4542.77585	7838.75545	9.56E-05	1.82E+00	1.74E-04	5.49E-01	1.525173014	0.837266282
830	25678.87812	5175.945625	10141.60288	9.76E-05	1.78E+00	1.74E-04	5.62E-01	1.520355971	0.854954643
831	26726.74316	5879.44785	12624.36315	1.63E-04	1.66E+00	2.70E-04	6.03E-01	2.365970424	1.426869694
832	27795.24733	6444.225407	15124.22569	7.86E-04	1.30E+00	1.02E-03	7.70E-01	8.940253232	6.883819311
833	28847.08722	9.314287892	31.9084488	1.32E-02	1.28E+00	1.69E-02	7.80E-01	147.9243498	115.3299785
834	29902.93375	266.6094153	1923.916632	3.87E-03	1.37E+00	5.29E-03	7.32E-01	46.32147941	33.90093767
835	30888.39815	612.9242294	3818.151626	2.60E-03	1.45E+00	3.77E-03	6.89E-01	33.01515827	22.74327222
836	32095.94852	1052.100163	5782.015176	2.34E-03	1.44E+00	3.35E-03	6.96E-01	29.3872417	20.46424555
837	33239.36512	1557.776506	7838.75545	1.67E-03	1.54E+00	2.59E-03	6.47E-01	22.66652951	14.67144216
838	34638.06248	2111.201131	10141.60288	1.64E-03	1.52E+00	2.50E-03	6.58E-01	21.88067784	14.38656383
839	36245.59475	2672.040965	12624.36315	1.33E-03	1.55E+00	2.05E-03	6.47E-01	17.98736917	11.6326013
840	37937.95129	3264.226306	15124.22569	1.45E-03	1.55E+00	2.24E-03	6.47E-01	19.5870686	12.67729382
841	20060.45868	3880.934633	31.9084488	1.02E-03	1.56E+00	1.60E-03	6.42E-01	13.97659738	8.973875473
842	21726.06947	4542.77585	1923.916632	1.54E-03	1.52E+00	2.34E-03	6.58E-01	20.48430186	13.48451841
843	23226.15269	5175.945625	3818.151626	1.57E-03	1.48E+00	2.32E-03	6.78E-01	20.32054209	13.76939675
844	24520.35292	5879.44785	5782.015176	2.62E-03	1.36E+00	3.56E-03	7.38E-01	31.15308882	22.98032427
845	25678.87812	6444.225407	7838.75545	1.27E-02	9.96E-01	1.26E-02	1.00E+00	110.4478645	110.866746
846	26726.74316	9.314287892	10141.60288	2.28E-03	1.98E+00	4.52E-03	5.04E-01	39.58505263	19.96798876
847	27795.24733	266.6094153	12624.36315	6.70E-04	2.07E+00	1.38E-03	4.84E-01	12.1275474	5.869536705
848	28847.08722	612.9242294	15124.22569	4.50E-04	2.15E+00	9.67E-04	4.65E-01	8.471821202	3.937722089
849	29902.93375	1052.100163	31.9084488	4.04E-04	2.14E+00	8.64E-04	4.68E-01	7.567557346	3.543136227
850	30888.39815	1557.776506	1923.916632	2.90E-04	2.24E+00	6.51E-04	4.45E-01	5.702073144	2.54018249
851	32095.94852	2111.201131	3818.151626	2.84E-04	2.22E+00	6.31E-04	4.50E-01	5.53149569	2.490859258
852	33239.36512	2672.040965	5782.015176	2.30E-04	2.25E+00	5.16E-04	4.45E-01	4.523737684	2.014044006
853	34638.06248	3264.226306	7838.75545	2.51E-04	2.24E+00	5.62E-04	4.45E-01	4.927284498	2.194919861
854	36245.59475	3880.934633	10141.60288	1.77E-04	2.26E+00	4.00E-04	4.43E-01	3.507181541	1.553717835
855	37937.95129	4542.77585	12624.36315	2.67E-04	2.22E+00	5.91E-04	4.51E-01	5.180435443	2.334681021

856	20060.45868	5175.945625	15124.22569	2.72E-04	2.18E+00	5.92E-04	4.60E-01	5.186599177	2.384004254
857	21726.06947	5879.44785	31.9084488	4.54E-04	2.06E+00	9.34E-04	4.87E-01	8.178148404	3.978764779
858	23226.15269	6444.225407	1923.916632	2.19E-03	1.70E+00	3.72E-03	5.90E-01	32.55567386	19.19523411
859	24520.35292	9.314287892	3818.151626	1.75E-03	1.86E+00	3.27E-03	5.37E-01	28.60851847	15.35295657
860	25678.87812	266.6094153	5782.015176	5.15E-04	1.95E+00	1.00E-03	5.14E-01	8.787398961	4.51296038
861	26726.74316	612.9242294	7838.75545	3.46E-04	2.03E+00	7.02E-04	4.92E-01	6.153399713	3.02762972
862	27795.24733	1052.100163	10141.60288	3.11E-04	2.02E+00	6.27E-04	4.96E-01	5.494245294	2.724241148
863	28847.08722	1557.776506	12624.36315	2.23E-04	2.13E+00	4.74E-04	4.70E-01	4.1517103	1.953091617
864	29902.93375	2111.201131	15124.22569	2.19E-04	2.10E+00	4.59E-04	4.76E-01	4.025071292	1.915168046
865	30888.39815	2672.040965	31.9084488	1.77E-04	2.13E+00	3.76E-04	4.70E-01	3.293868519	1.548555066
866	32095.94852	3264.226306	1923.916632	1.93E-04	2.13E+00	4.10E-04	4.70E-01	3.587592258	1.687626616
867	33239.36512	3880.934633	3818.151626	1.36E-04	2.14E+00	2.92E-04	4.68E-01	2.554391879	1.194620186
868	34638.06248	4542.77585	5782.015176	2.05E-04	2.10E+00	4.30E-04	4.76E-01	3.769442887	1.795085963
869	36245.59475	5175.945625	7838.75545	2.09E-04	2.06E+00	4.30E-04	4.86E-01	3.769667726	1.833009534
870	37937.95129	5879.44785	10141.60288	3.49E-04	1.94E+00	6.76E-04	5.16E-01	5.923844579	3.059186561
871	20060.45868	6444.225407	12624.36315	1.68E-03	1.58E+00	2.66E-03	6.34E-01	23.27450711	14.75880216
872	21726.06947	9.314287892	15124.22569	1.48E-03	2.02E+00	2.98E-03	4.95E-01	26.13479079	12.9311753
873	23226.15269	266.6094153	31.9084488	4.34E-04	2.10E+00	9.13E-04	4.75E-01	8.000627209	3.801084276
874	24520.35292	612.9242294	1923.916632	2.91E-04	2.19E+00	6.38E-04	4.57E-01	5.58485265	2.550050246
875	25678.87812	1052.100163	3818.151626	2.62E-04	2.17E+00	5.70E-04	4.60E-01	4.989381161	2.294518303
876	26726.74316	1557.776506	5782.015176	1.88E-04	2.28E+00	4.29E-04	4.38E-01	3.756203548	1.645010196
877	27795.24733	2111.201131	7838.75545	1.84E-04	2.26E+00	4.16E-04	4.43E-01	3.644504083	1.613068703
878	28847.08722	2672.040965	10141.60288	1.49E-04	2.28E+00	3.40E-04	4.38E-01	2.979952486	1.304285395
879	29902.93375	3264.226306	12624.36315	1.62E-04	2.28E+00	3.71E-04	4.38E-01	3.245813904	1.421419746
880	30888.39815	3880.934633	15124.22569	1.15E-04	2.30E+00	2.64E-04	4.36E-01	2.310115895	1.006180339
881	32095.94852	4542.77585	31.9084488	1.73E-04	2.26E+00	3.90E-04	4.43E-01	3.413250775	1.511928414
882	33239.36512	5175.945625	1923.916632	1.76E-04	2.21E+00	3.90E-04	4.52E-01	3.41847669	1.543869907
883	34638.06248	5879.44785	3818.151626	2.94E-04	2.09E+00	6.16E-04	4.78E-01	5.395698622	2.576629298
884	36245.59475	6444.225407	5782.015176	1.42E-03	1.73E+00	2.46E-03	5.76E-01	21.56326014	12.43074304
885	37937.95129	9.314287892	7838.75545	1.25E-03	1.97E+00	2.46E-03	5.08E-01	21.55931241	10.94364171
886	20060.45868	266.6094153	10141.60288	3.67E-04	2.05E+00	7.54E-04	4.87E-01	6.606742995	3.216854111
887	21726.06947	612.9242294	12624.36315	2.46E-04	2.14E+00	5.27E-04	4.67E-01	4.616311192	2.158105167
888	23226.15269	1052.100163	15124.22569	2.22E-04	2.12E+00	4.71E-04	4.71E-01	4.123401425	1.94184872
889	24520.35292	1557.776506	31.9084488	1.59E-04	2.23E+00	3.55E-04	4.48E-01	3.107818586	1.392170609
890	25678.87812	2111.201131	1923.916632	1.56E-04	2.21E+00	3.44E-04	4.53E-01	3.014667083	1.365138553
891	26726.74316	2672.040965	3818.151626	1.26E-04	2.23E+00	2.81E-04	4.48E-01	2.465594973	1.103815525
892	27795.24733	3264.226306	5782.015176	1.37E-04	2.23E+00	3.07E-04	4.48E-01	2.685533855	1.202946218

893	28847.08722	3880.934633	7838.75545	9.72E-05	2.24E+00	2.18E-04	4.45E-01	1.911588951	0.851529491
894	29902.93375	4542.77585	10141.60288	1.46E-04	2.21E+00	3.22E-04	4.53E-01	2.823326179	1.27954362
895	30888.39815	5175.945625	12624.36315	1.49E-04	2.16E+00	3.23E-04	4.62E-01	2.826369216	1.306575676
896	32095.94852	5879.44785	15124.22569	2.49E-04	2.04E+00	5.09E-04	4.89E-01	4.455082283	2.180598994
897	33239.36512	6444.225407	31.9084488	1.20E-03	1.68E+00	2.02E-03	5.94E-01	17.71204544	10.52012635
898	34638.06248	9.314287892	1923.916632	1.11E-03	2.01E+00	2.23E-03	4.96E-01	19.5129512	9.686924944
899	36245.59475	266.6094153	3818.151626	3.25E-04	2.10E+00	6.82E-04	4.77E-01	5.974279263	2.84744559
900	37937.95129	612.9242294	5782.015176	2.18E-04	2.18E+00	4.76E-04	4.58E-01	4.170875879	1.910278436
901	20060.45868	1052.100163	7838.75545	1.96E-04	2.17E+00	4.25E-04	4.61E-01	3.726084039	1.71885587
902	21726.06947	1557.776506	10141.60288	1.41E-04	2.28E+00	3.20E-04	4.39E-01	2.805557574	1.23230023
903	23226.15269	2111.201131	12624.36315	1.38E-04	2.25E+00	3.11E-04	4.44E-01	2.722042463	1.208372409
904	24520.35292	2672.040965	15124.22569	1.12E-04	2.28E+00	2.54E-04	4.39E-01	2.225769367	0.977058499
905	25678.87812	3264.226306	31.9084488	1.22E-04	2.28E+00	2.77E-04	4.39E-01	2.424341212	1.064805485
906	26726.74316	3880.934633	1923.916632	8.60E-05	2.29E+00	1.97E-04	4.37E-01	1.725483543	0.753743816
907	27795.24733	4542.77585	3818.151626	1.29E-04	2.25E+00	2.91E-04	4.44E-01	2.549315658	1.132606799
908	28847.08722	5175.945625	5782.015176	1.32E-04	2.21E+00	2.91E-04	4.53E-01	2.553069939	1.156534619
909	29902.93375	5879.44785	7838.75545	2.20E-04	2.09E+00	4.60E-04	4.79E-01	4.029044364	1.930189177
910	30888.39815	6444.225407	10141.60288	1.06E-03	1.73E+00	1.84E-03	5.79E-01	16.0908684	9.31204411
911	32095.94852	9.314287892	12624.36315	9.99E-04	1.92E+00	1.91E-03	5.22E-01	16.7572736	8.750190677
912	33239.36512	266.6094153	15124.22569	2.94E-04	2.00E+00	5.87E-04	5.00E-01	5.141192103	2.572095066
913	34638.06248	612.9242294	31.9084488	1.97E-04	2.08E+00	4.11E-04	4.80E-01	3.596227911	1.72555281
914	36245.59475	1052.100163	1923.916632	1.77E-04	2.07E+00	3.67E-04	4.83E-01	3.211615294	1.552640977
915	37937.95129	1557.776506	3818.151626	1.27E-04	2.18E+00	2.77E-04	4.59E-01	2.423740596	1.1131357
916	20060.45868	2111.201131	5782.015176	1.25E-04	2.15E+00	2.68E-04	4.64E-01	2.350447403	1.091521721
917	21726.06947	2672.040965	7838.75545	1.01E-04	2.18E+00	2.20E-04	4.59E-01	1.922909411	0.882576072
918	23226.15269	3264.226306	10141.60288	1.10E-04	2.18E+00	2.39E-04	4.59E-01	2.09440972	0.961837847
919	24520.35292	3880.934633	12624.36315	7.77E-05	2.19E+00	1.70E-04	4.57E-01	1.491029325	0.680856118
920	25678.87812	4542.77585	15124.22569	1.17E-04	2.15E+00	2.51E-04	4.65E-01	2.201218363	1.023082713
921	26726.74316	5175.945625	31.9084488	1.19E-04	2.11E+00	2.51E-04	4.74E-01	2.202463669	1.044696692
922	27795.24733	5879.44785	1923.916632	1.99E-04	1.99E+00	3.96E-04	5.03E-01	3.466325965	1.743538165
923	28847.08722	6444.225407	3818.151626	9.60E-04	1.63E+00	1.56E-03	6.14E-01	13.6997299	8.411561153
924	29902.93375	9.314287892	5782.015176	8.16E-04	1.60E+00	1.31E-03	6.25E-01	11.4409447	7.151078622
925	30888.39815	266.6094153	7838.75545	2.40E-04	1.68E+00	4.04E-04	5.94E-01	3.539100108	2.102040369
926	32095.94852	612.9242294	10141.60288	1.61E-04	1.77E+00	2.85E-04	5.65E-01	2.494536446	1.410205134
927	33239.36512	1052.100163	12624.36315	1.45E-04	1.75E+00	2.54E-04	5.70E-01	2.224751751	1.268893229
928	34638.06248	1557.776506	15124.22569	1.04E-04	1.86E+00	1.93E-04	5.37E-01	1.694071999	0.90970828
929	36245.59475	2111.201131	31.9084488	1.02E-04	1.84E+00	1.87E-04	5.44E-01	1.639740675	0.892044292

930	37937.95129	2672.040965	1923.916632	8.23E-05	1.86E+00	1.53E-04	5.37E-01	1.344157022	0.721283811
931	20060.45868	3264.226306	3818.151626	8.97E-05	1.86E+00	1.67E-04	5.37E-01	1.463898798	0.786060363
932	21726.06947	3880.934633	5782.015176	6.35E-05	1.87E+00	1.19E-04	5.33E-01	1.043163578	0.556428518
933	23226.15269	4542.77585	7838.75545	9.54E-05	1.84E+00	1.75E-04	5.45E-01	1.535412285	0.836112627
934	24520.35292	5175.945625	10141.60288	9.75E-05	1.79E+00	1.75E-04	5.58E-01	1.530862594	0.853776615
935	25678.87812	5879.44785	12624.36315	1.63E-04	1.67E+00	2.72E-04	5.98E-01	2.38374156	1.424903635
936	26726.74316	6444.225407	15124.22569	7.85E-04	1.31E+00	1.03E-03	7.61E-01	9.029397795	6.874334213
937	27795.24733	9.314287892	31.9084488	1.32E-02	1.22E+00	1.61E-02	8.19E-01	141.3534058	115.8107735
938	28847.08722	266.6094153	1923.916632	3.89E-03	1.30E+00	5.07E-03	7.67E-01	44.40180561	34.04226606
939	29902.93375	612.9242294	3818.151626	2.61E-03	1.39E+00	3.62E-03	7.20E-01	31.73538272	22.83808582
940	30888.39815	1052.100163	5782.015176	2.35E-03	1.37E+00	3.22E-03	7.28E-01	28.23437586	20.5495582
941	32095.94852	1557.776506	7838.75545	1.68E-03	1.48E+00	2.49E-03	6.74E-01	21.84666632	14.7326054
942	33239.36512	2111.201131	10141.60288	1.65E-03	1.46E+00	2.41E-03	6.85E-01	21.07529279	14.44653945
943	34638.06248	2672.040965	12624.36315	1.33E-03	1.48E+00	1.98E-03	6.74E-01	17.33738651	11.68109603
944	36245.59475	3264.226306	15124.22569	1.45E-03	1.48E+00	2.16E-03	6.74E-01	18.87864731	12.73014373
945	37937.95129	3880.934633	31.9084488	1.03E-03	1.50E+00	1.54E-03	6.69E-01	13.47559206	9.011286336
946	20060.45868	4542.77585	1923.916632	1.55E-03	1.46E+00	2.25E-03	6.86E-01	19.72931299	13.54073353
947	21726.06947	5175.945625	3818.151626	1.58E-03	1.41E+00	2.23E-03	7.07E-01	19.54711627	13.82679949
948	23226.15269	5879.44785	5782.015176	2.63E-03	1.29E+00	3.41E-03	7.73E-01	29.85077695	23.07612611
949	24520.35292	6444.225407	7838.75545	1.27E-02	9.34E-01	1.19E-02	1.07E+00	103.9988447	111.3289344
950	25678.87812	9.314287892	10141.60288	2.29E-03	1.92E+00	4.40E-03	5.21E-01	38.50562791	20.05123258
951	26726.74316	266.6094153	12624.36315	6.73E-04	2.00E+00	1.35E-03	4.99E-01	11.81230293	5.894006004
952	27795.24733	612.9242294	15124.22569	4.51E-04	2.09E+00	9.43E-04	4.79E-01	8.261731482	3.954137916
953	28847.08722	1052.100163	31.9084488	4.06E-04	2.07E+00	8.42E-04	4.82E-01	7.378289341	3.557907079
954	29902.93375	1557.776506	1923.916632	2.91E-04	2.18E+00	6.36E-04	4.58E-01	5.567534495	2.550772165
955	30888.39815	2111.201131	3818.151626	2.86E-04	2.16E+00	6.16E-04	4.63E-01	5.39931986	2.50124331
956	32095.94852	2672.040965	5782.015176	2.31E-04	2.18E+00	5.04E-04	4.58E-01	4.417076834	2.022440281
957	33239.36512	3264.226306	7838.75545	2.52E-04	2.18E+00	5.49E-04	4.58E-01	4.811033394	2.204070183
958	34638.06248	3880.934633	10141.60288	1.78E-04	2.20E+00	3.91E-04	4.56E-01	3.424971356	1.560195073
959	36245.59475	4542.77585	12624.36315	2.68E-04	2.16E+00	5.77E-04	4.64E-01	5.056529465	2.344413988
960	37937.95129	5175.945625	15124.22569	2.73E-04	2.11E+00	5.78E-04	4.73E-01	5.059644962	2.393942843
961	20060.45868	5879.44785	31.9084488	4.56E-04	1.99E+00	9.09E-04	5.02E-01	7.964276532	3.995351707
962	21726.06947	6444.225407	1923.916632	2.20E-03	1.63E+00	3.60E-03	6.12E-01	31.4951044	19.27525642
963	23226.15269	9.314287892	3818.151626	1.76E-03	1.80E+00	3.17E-03	5.55E-01	27.77095313	15.41696095
964	24520.35292	266.6094153	5782.015176	5.17E-04	1.89E+00	9.75E-04	5.30E-01	8.542774715	4.531774296
965	25678.87812	612.9242294	7838.75545	3.47E-04	1.97E+00	6.84E-04	5.08E-01	5.990363788	3.040251496
966	26726.74316	1052.100163	10141.60288	3.12E-04	1.95E+00	6.10E-04	5.12E-01	5.347369295	2.735598138

967	27795.24733	1557.776506	12624.36315	2.24E-04	2.06E+00	4.62E-04	4.85E-01	4.047297206	1.96123379
968	28847.08722	2111.201131	15124.22569	2.20E-04	2.04E+00	4.48E-04	4.90E-01	3.922493739	1.92315212
969	29902.93375	2672.040965	31.9084488	1.78E-04	2.06E+00	3.67E-04	4.84E-01	3.211090816	1.555010781
970	30888.39815	3264.226306	1923.916632	1.93E-04	2.06E+00	3.99E-04	4.85E-01	3.497371802	1.694662102
971	32095.94852	3880.934633	3818.151626	1.37E-04	2.08E+00	2.84E-04	4.82E-01	2.490589407	1.199600395
972	33239.36512	4542.77585	5782.015176	2.06E-04	2.04E+00	4.19E-04	4.91E-01	3.673283436	1.802569432
973	34638.06248	5175.945625	7838.75545	2.10E-04	1.99E+00	4.19E-04	5.01E-01	3.671145731	1.840651101
974	36245.59475	5879.44785	10141.60288	3.51E-04	1.87E+00	6.57E-04	5.34E-01	5.757884978	3.071939893
975	37937.95129	6444.225407	12624.36315	1.69E-03	1.51E+00	2.56E-03	6.60E-01	22.45173402	14.82032959
976	20060.45868	9.314287892	15124.22569	1.48E-03	1.96E+00	2.90E-03	5.10E-01	25.4378436	12.98508361
977	21726.06947	266.6094153	31.9084488	4.36E-04	2.04E+00	8.90E-04	4.90E-01	7.797088718	3.816930479
978	23226.15269	612.9242294	1923.916632	2.92E-04	2.13E+00	6.22E-04	4.70E-01	5.449210344	2.560681058
979	24520.35292	1052.100163	3818.151626	2.63E-04	2.11E+00	5.56E-04	4.73E-01	4.867181733	2.304083837
980	25678.87812	1557.776506	5782.015176	1.89E-04	2.22E+00	4.19E-04	4.50E-01	3.66934196	1.651868019
981	26726.74316	2111.201131	7838.75545	1.85E-04	2.20E+00	4.06E-04	4.55E-01	3.5591675	1.619793366
982	27795.24733	2672.040965	10141.60288	1.50E-04	2.22E+00	3.32E-04	4.50E-01	2.911089539	1.309722783
983	28847.08722	3264.226306	12624.36315	1.63E-04	2.22E+00	3.62E-04	4.50E-01	3.170759224	1.427345451
984	29902.93375	3880.934633	15124.22569	1.15E-04	2.23E+00	2.58E-04	4.48E-01	2.25703906	1.010374968
985	30888.39815	4542.77585	31.9084488	1.73E-04	2.20E+00	3.81E-04	4.55E-01	3.333253415	1.518231437
986	32095.94852	5175.945625	1923.916632	1.77E-04	2.15E+00	3.81E-04	4.65E-01	3.336510452	1.55030609
987	33239.36512	5879.44785	3818.151626	2.95E-04	2.03E+00	6.00E-04	4.92E-01	5.257611293	2.587370914
988	34638.06248	6444.225407	5782.015176	1.42E-03	1.67E+00	2.38E-03	5.98E-01	20.87844291	12.48256511
989	36245.59475	9.314287892	7838.75545	1.25E-03	1.91E+00	2.39E-03	5.24E-01	20.96715819	10.98926426
990	37937.95129	266.6094153	10141.60288	3.69E-04	1.99E+00	7.34E-04	5.02E-01	6.433804113	3.230264738
991	20060.45868	612.9242294	12624.36315	2.47E-04	2.08E+00	5.14E-04	4.81E-01	4.501058057	2.167102013
992	21726.06947	1052.100163	15124.22569	2.23E-04	2.06E+00	4.59E-04	4.85E-01	4.019570998	1.949944023
993	23226.15269	1557.776506	31.9084488	1.60E-04	2.17E+00	3.46E-04	4.61E-01	3.034011494	1.397974378
994	24520.35292	2111.201131	1923.916632	1.56E-04	2.15E+00	3.36E-04	4.66E-01	2.942156352	1.370829629
995	25678.87812	2672.040965	3818.151626	1.27E-04	2.17E+00	2.75E-04	4.60E-01	2.407081467	1.108417182
996	26726.74316	3264.226306	5782.015176	1.38E-04	2.17E+00	2.99E-04	4.61E-01	2.6217592	1.207961136
997	27795.24733	3880.934633	7838.75545	9.76E-05	2.18E+00	2.13E-04	4.58E-01	1.866488895	0.855079402
998	28847.08722	4542.77585	10141.60288	1.47E-04	2.14E+00	3.15E-04	4.66E-01	2.75535224	1.284877863
999	29902.93375	5175.945625	12624.36315	1.50E-04	2.10E+00	3.15E-04	4.76E-01	2.756723266	1.312022612
1000	30888.39815	5879.44785	15124.22569	2.50E-04	1.98E+00	4.95E-04	5.05E-01	4.337755141	2.189689614
1001	32095.94852	6444.225407	31.9084488	1.21E-03	1.62E+00	1.96E-03	6.17E-01	17.1302469	10.56398332
1002	33239.36512	9.314287892	1923.916632	1.11E-03	1.95E+00	2.17E-03	5.12E-01	18.99058735	9.727308414
1003	34638.06248	266.6094153	3818.151626	3.26E-04	2.04E+00	6.65E-04	4.91E-01	5.821726086	2.859316202

1004	36245.59475	612.9242294	5782.015176	2.19E-04	2.12E+00	4.65E-04	4.71E-01	4.069210896	1.918242126
1005	37937.95129	1052.100163	7838.75545	1.97E-04	2.11E+00	4.15E-04	4.75E-01	3.63449466	1.726021546
1006	20060.45868	1557.776506	10141.60288	1.41E-04	2.21E+00	3.13E-04	4.52E-01	2.740453874	1.237437521
1007	21726.06947	2111.201131	12624.36315	1.39E-04	2.19E+00	3.03E-04	4.56E-01	2.658081835	1.213409949
1008	23226.15269	2672.040965	15124.22569	1.12E-04	2.22E+00	2.48E-04	4.51E-01	2.174155841	0.981131723
1009	24520.35292	3264.226306	31.9084488	1.22E-04	2.21E+00	2.70E-04	4.52E-01	2.368086918	1.069244514
1010	25678.87812	3880.934633	1923.916632	8.64E-05	2.23E+00	1.92E-04	4.49E-01	1.68570186	0.756886072
1011	26726.74316	4542.77585	3818.151626	1.30E-04	2.19E+00	2.84E-04	4.57E-01	2.489356836	1.137328482
1012	27795.24733	5175.945625	5782.015176	1.33E-04	2.15E+00	2.84E-04	4.66E-01	2.491635533	1.161356055
1013	28847.08722	5879.44785	7838.75545	2.21E-04	2.03E+00	4.48E-04	4.94E-01	3.925547224	1.938235873
1014	29902.93375	6444.225407	10141.60288	1.07E-03	1.67E+00	1.78E-03	6.00E-01	15.57760177	9.350864753
1015	30888.39815	9.314287892	12624.36315	1.00E-03	1.85E+00	1.86E-03	5.40E-01	16.28180107	8.786669029
1016	32095.94852	266.6094153	15124.22569	2.95E-04	1.94E+00	5.71E-04	5.16E-01	5.002326355	2.58281778
1017	33239.36512	612.9242294	31.9084488	1.98E-04	2.02E+00	4.00E-04	4.95E-01	3.503679811	1.732746405
1018	34638.06248	1052.100163	1923.916632	1.78E-04	2.01E+00	3.57E-04	4.98E-01	3.128240046	1.559113726
1019	36245.59475	1557.776506	3818.151626	1.28E-04	2.12E+00	2.70E-04	4.73E-01	2.364471751	1.117776211
1020	37937.95129	2111.201131	5782.015176	1.25E-04	2.09E+00	2.62E-04	4.78E-01	2.29222004	1.096072126
1021	20060.45868	2672.040965	7838.75545	1.01E-04	2.12E+00	2.14E-04	4.72E-01	1.875921657	0.886255411
1022	21726.06947	3264.226306	10141.60288	1.10E-04	2.12E+00	2.33E-04	4.73E-01	2.043197158	0.965847617
1023	23226.15269	3880.934633	12624.36315	7.80E-05	2.13E+00	1.66E-04	4.70E-01	1.454812758	0.683694515
1024	24520.35292	4542.77585	15124.22569	1.17E-04	2.09E+00	2.45E-04	4.79E-01	2.146634155	1.027347805
1025	25678.87812	5175.945625	31.9084488	1.20E-04	2.05E+00	2.45E-04	4.89E-01	2.146537622	1.04905189
1026	26726.74316	5879.44785	1923.916632	2.00E-04	1.93E+00	3.85E-04	5.19E-01	3.372115434	1.750806738
1027	27795.24733	6444.225407	3818.151626	9.64E-04	1.57E+00	1.51E-03	6.38E-01	13.23261504	8.446627805
1028	28847.08722	9.314287892	5782.015176	8.20E-04	1.54E+00	1.26E-03	6.50E-01	11.04296933	7.180890495
1029	29902.93375	266.6094153	7838.75545	2.41E-04	1.62E+00	3.91E-04	6.17E-01	3.422850309	2.110803489
1030	30888.39815	612.9242294	10141.60288	1.62E-04	1.71E+00	2.76E-04	5.86E-01	2.417048712	1.416084087
1031	32095.94852	1052.100163	12624.36315	1.45E-04	1.69E+00	2.46E-04	5.91E-01	2.154946193	1.274183072
1032	33239.36512	1557.776506	15124.22569	1.04E-04	1.80E+00	1.88E-04	5.56E-01	1.644439313	0.91350073
1033	34638.06248	2111.201131	31.9084488	1.02E-04	1.78E+00	1.82E-04	5.63E-01	1.590982348	0.895763103
1034	36245.59475	2672.040965	1923.916632	8.27E-05	1.80E+00	1.49E-04	5.55E-01	1.30480862	0.724290745
1035	37937.95129	3264.226306	3818.151626	9.01E-05	1.80E+00	1.62E-04	5.55E-01	1.421012565	0.789337342
1036	20060.45868	3880.934633	5782.015176	6.38E-05	1.81E+00	1.16E-04	5.52E-01	1.012834523	0.558748193
1037	21726.06947	4542.77585	7838.75545	9.58E-05	1.77E+00	1.70E-04	5.64E-01	1.489704814	0.839598267
1038	23226.15269	5175.945625	10141.60288	9.79E-05	1.73E+00	1.69E-04	5.78E-01	1.484035297	0.857335894
1039	24520.35292	5879.44785	12624.36315	1.63E-04	1.61E+00	2.63E-04	6.21E-01	2.304875894	1.430843864
1040	25678.87812	6444.225407	15124.22569	7.88E-04	1.25E+00	9.86E-04	7.99E-01	8.638616346	6.902992376

1041	26726.74316	9.314287892	31.9084488	1.07E-02	1.19E+00	1.27E-02	8.39E-01	111.440374	93.47839815
1042	27795.24733	266.6094153	1923.916632	3.14E-03	1.28E+00	4.00E-03	7.84E-01	35.05910973	27.47772426
1043	28847.08722	612.9242294	3818.151626	2.10E-03	1.36E+00	2.86E-03	7.35E-01	25.09209027	18.43410259
1044	29902.93375	1052.100163	5782.015176	1.89E-03	1.35E+00	2.55E-03	7.43E-01	22.31866827	16.58688328
1045	30888.39815	1557.776506	7838.75545	1.36E-03	1.45E+00	1.97E-03	6.88E-01	17.29609564	11.89164282
1046	32095.94852	2111.201131	10141.60288	1.33E-03	1.43E+00	1.90E-03	6.99E-01	16.68002846	11.66074041
1047	33239.36512	2672.040965	12624.36315	1.08E-03	1.46E+00	1.57E-03	6.87E-01	13.72632358	9.428571388
1048	34638.06248	3264.226306	15124.22569	1.17E-03	1.45E+00	1.71E-03	6.87E-01	14.94632424	10.27532593
1049	36245.59475	3880.934633	31.9084488	8.30E-04	1.47E+00	1.22E-03	6.82E-01	10.67042796	7.273594559
1050	37937.95129	4542.77585	1923.916632	1.25E-03	1.43E+00	1.78E-03	7.00E-01	15.61436774	10.92960562
1051	20060.45868	5175.945625	3818.151626	1.27E-03	1.39E+00	1.76E-03	7.22E-01	15.46074643	11.16050803
1052	21726.06947	5879.44785	5782.015176	2.13E-03	1.27E+00	2.69E-03	7.90E-01	23.56544508	18.62624036
1053	23226.15269	6444.225407	7838.75545	1.03E-02	9.06E-01	9.29E-03	1.10E+00	81.39183436	89.86081464
1054	24520.35292	9.314287892	10141.60288	1.85E-03	1.89E+00	3.50E-03	5.29E-01	30.62068788	16.18465231
1055	25678.87812	266.6094153	12624.36315	5.43E-04	1.98E+00	1.07E-03	5.06E-01	9.399347754	4.75743511
1056	26726.74316	612.9242294	15124.22569	3.64E-04	2.06E+00	7.51E-04	4.85E-01	6.577925392	3.191641565
1057	27795.24733	1052.100163	31.9084488	3.28E-04	2.05E+00	6.71E-04	4.89E-01	5.87392606	2.871817918
1058	28847.08722	1557.776506	1923.916632	2.35E-04	2.15E+00	5.06E-04	4.64E-01	4.435438333	2.058893908
1059	29902.93375	2111.201131	3818.151626	2.30E-04	2.13E+00	4.91E-04	4.69E-01	4.3007969	2.018915952
1060	30888.39815	2672.040965	5782.015176	1.86E-04	2.16E+00	4.02E-04	4.64E-01	3.518942052	1.632442925
1061	32095.94852	3264.226306	7838.75545	2.03E-04	2.15E+00	4.38E-04	4.64E-01	3.832765835	1.779048217
1062	33239.36512	3880.934633	10141.60288	1.44E-04	2.17E+00	3.12E-04	4.62E-01	2.728746965	1.259334791
1063	34638.06248	4542.77585	12624.36315	2.16E-04	2.13E+00	4.60E-04	4.70E-01	4.027704061	1.892328819
1064	36245.59475	5175.945625	15124.22569	2.21E-04	2.09E+00	4.60E-04	4.80E-01	4.029083255	1.932306775
1065	37937.95129	5879.44785	31.9084488	3.68E-04	1.96E+00	7.23E-04	5.09E-01	6.336885289	3.224907894
1066	20060.45868	6444.225407	1923.916632	1.78E-03	1.61E+00	2.85E-03	6.23E-01	24.97982943	15.55831154
1067	21726.06947	9.314287892	3818.151626	1.42E-03	1.77E+00	2.52E-03	5.64E-01	22.06228244	12.44403064
1068	23226.15269	266.6094153	5782.015176	4.18E-04	1.86E+00	7.75E-04	5.39E-01	6.791530429	3.657889411
1069	24520.35292	612.9242294	7838.75545	2.80E-04	1.94E+00	5.44E-04	5.15E-01	4.765509248	2.453984472
1070	25678.87812	1052.100163	10141.60288	2.52E-04	1.93E+00	4.86E-04	5.19E-01	4.253491276	2.208078957
1071	26726.74316	1557.776506	12624.36315	1.81E-04	2.04E+00	3.68E-04	4.91E-01	3.221872149	1.58303919
1072	27795.24733	2111.201131	15124.22569	1.77E-04	2.01E+00	3.56E-04	4.97E-01	3.122008244	1.552301001
1073	28847.08722	2672.040965	31.9084488	1.43E-04	2.04E+00	2.92E-04	4.91E-01	2.556228946	1.255150212
1074	29902.93375	3264.226306	1923.916632	1.56E-04	2.04E+00	3.18E-04	4.91E-01	2.784103203	1.367871864
1075	30888.39815	3880.934633	3818.151626	1.11E-04	2.05E+00	2.26E-04	4.88E-01	1.982813792	0.968275402
1076	32095.94852	4542.77585	5782.015176	1.66E-04	2.01E+00	3.34E-04	4.98E-01	2.923618966	1.45497088
1077	33239.36512	5175.945625	7838.75545	1.70E-04	1.97E+00	3.33E-04	5.09E-01	2.921020404	1.485709069

1078	34638.06248	5879.44785	10141.60288	2.83E-04	1.85E+00	5.23E-04	5.42E-01	4.577133993	2.479562235
1079	36245.59475	6444.225407	12624.36315	1.37E-03	1.49E+00	2.03E-03	6.73E-01	17.78247387	11.96245072
1080	37937.95129	9.314287892	15124.22569	1.20E-03	1.93E+00	2.31E-03	5.18E-01	20.23483275	10.48110447
1081	20060.45868	266.6094153	31.9084488	3.52E-04	2.01E+00	7.08E-04	4.96E-01	6.206027728	3.08089253
1082	21726.06947	612.9242294	1923.916632	2.36E-04	2.10E+00	4.95E-04	4.76E-01	4.339704048	2.066892019
1083	23226.15269	1052.100163	3818.151626	2.12E-04	2.08E+00	4.42E-04	4.80E-01	3.875793839	1.859775734
1084	24520.35292	1557.776506	5782.015176	1.52E-04	2.19E+00	3.34E-04	4.56E-01	2.923892609	1.33332998
1085	25678.87812	2111.201131	7838.75545	1.49E-04	2.17E+00	3.24E-04	4.61E-01	2.835699007	1.307440445
1086	26726.74316	2672.040965	10141.60288	1.21E-04	2.19E+00	2.65E-04	4.56E-01	2.319702036	1.057162336
1087	27795.24733	3264.226306	12624.36315	1.32E-04	2.19E+00	2.88E-04	4.56E-01	2.526601625	1.152103231
1088	28847.08722	3880.934633	15124.22569	9.31E-05	2.21E+00	2.05E-04	4.53E-01	1.798638422	0.815539269
1089	29902.93375	4542.77585	31.9084488	1.40E-04	2.17E+00	3.03E-04	4.61E-01	2.655677539	1.225463215
1090	30888.39815	5175.945625	1923.916632	1.43E-04	2.12E+00	3.03E-04	4.71E-01	2.657571144	1.25135275
1091	32095.94852	5879.44785	3818.151626	2.38E-04	2.00E+00	4.78E-04	4.99E-01	4.184440102	2.088435136
1092	33239.36512	6444.225407	5782.015176	1.15E-03	1.64E+00	1.89E-03	6.08E-01	16.5661653	10.07548915
1093	34638.06248	9.314287892	7838.75545	1.01E-03	1.88E+00	1.90E-03	5.32E-01	16.6720094	8.87014903
1094	36245.59475	266.6094153	10141.60288	2.98E-04	1.96E+00	5.84E-04	5.09E-01	5.11908239	2.607356502
1095	37937.95129	612.9242294	12624.36315	2.00E-04	2.05E+00	4.09E-04	4.88E-01	3.583412158	1.749208806
1096	20060.45868	1052.100163	15124.22569	1.80E-04	2.03E+00	3.65E-04	4.92E-01	3.19975136	1.573926486
1097	21726.06947	1557.776506	31.9084488	1.29E-04	2.14E+00	2.76E-04	4.67E-01	2.416897026	1.128395931
1098	23226.15269	2111.201131	1923.916632	1.26E-04	2.12E+00	2.68E-04	4.72E-01	2.34337711	1.106485641
1099	24520.35292	2672.040965	3818.151626	1.02E-04	2.14E+00	2.19E-04	4.67E-01	1.917499626	0.894675508
1100	25678.87812	3264.226306	5782.015176	1.11E-04	2.14E+00	2.38E-04	4.67E-01	2.088497769	0.9750239
1101	26726.74316	3880.934633	7838.75545	7.88E-05	2.15E+00	1.70E-04	4.64E-01	1.486960407	0.69019013
1102	27795.24733	4542.77585	10141.60288	1.18E-04	2.12E+00	2.51E-04	4.73E-01	2.194565955	1.037108386
1103	28847.08722	5175.945625	12624.36315	1.21E-04	2.07E+00	2.51E-04	4.82E-01	2.195050263	1.059018676
1104	29902.93375	5879.44785	15124.22569	2.02E-04	1.95E+00	3.94E-04	5.12E-01	3.451081911	1.767440726
1105	30888.39815	6444.225407	31.9084488	9.73E-04	1.59E+00	1.55E-03	6.28E-01	13.58473929	8.526877158
1106	32095.94852	9.314287892	1923.916632	8.96E-04	1.92E+00	1.72E-03	5.20E-01	15.10552299	7.851542489
1107	33239.36512	266.6094153	3818.151626	2.63E-04	2.01E+00	5.29E-04	4.98E-01	4.633539026	2.307939843
1108	34638.06248	612.9242294	5782.015176	1.77E-04	2.09E+00	3.70E-04	4.78E-01	3.240545762	1.548337826
1109	36245.59475	1052.100163	7838.75545	1.59E-04	2.08E+00	3.30E-04	4.81E-01	2.894065005	1.393184109
1110	37937.95129	1557.776506	10141.60288	1.14E-04	2.19E+00	2.49E-04	4.57E-01	2.183628159	0.998816205
1111	20060.45868	2111.201131	12624.36315	1.12E-04	2.16E+00	2.42E-04	4.62E-01	2.117691205	0.979421991
1112	21726.06947	2672.040965	15124.22569	9.04E-05	2.19E+00	1.98E-04	4.57E-01	1.732408439	0.791935146
1113	23226.15269	3264.226306	31.9084488	9.85E-05	2.19E+00	2.15E-04	4.57E-01	1.886922686	0.863056703
1114	24520.35292	3880.934633	1923.916632	6.97E-05	2.20E+00	1.53E-04	4.55E-01	1.343286682	0.610931914

1115	25678.87812	4542.77585	3818.151626	1.05E-04	2.16E+00	2.26E-04	4.63E-01	1.983246584	0.918011697
1116	26726.74316	5175.945625	5782.015176	1.07E-04	2.12E+00	2.27E-04	4.72E-01	1.984534999	0.937405911
1117	27795.24733	5879.44785	7838.75545	1.79E-04	2.00E+00	3.57E-04	5.01E-01	3.124127093	1.564476077
1118	28847.08722	6444.225407	10141.60288	8.62E-04	1.64E+00	1.41E-03	6.11E-01	12.35931118	7.547690357
1119	29902.93375	9.314287892	12624.36315	8.10E-04	1.82E+00	1.48E-03	5.48E-01	12.94065124	7.09229134
1120	30888.39815	266.6094153	15124.22569	2.38E-04	1.91E+00	4.54E-04	5.24E-01	3.978487433	2.084760005
1121	32095.94852	612.9242294	31.9084488	1.60E-04	1.99E+00	3.18E-04	5.02E-01	2.788321665	1.398612179
1122	33239.36512	1052.100163	1923.916632	1.44E-04	1.98E+00	2.84E-04	5.06E-01	2.489260642	1.258461966
1123	34638.06248	1557.776506	3818.151626	1.03E-04	2.09E+00	2.15E-04	4.79E-01	1.882891986	0.902229789
1124	36245.59475	2111.201131	5782.015176	1.01E-04	2.06E+00	2.08E-04	4.85E-01	1.825070536	0.884711012
1125	37937.95129	2672.040965	7838.75545	8.17E-05	2.09E+00	1.71E-04	4.79E-01	1.493859443	0.715354312
1126	20060.45868	3264.226306	10141.60288	8.90E-05	2.09E+00	1.86E-04	4.79E-01	1.627053591	0.779598352
1127	21726.06947	3880.934633	12624.36315	6.30E-05	2.10E+00	1.32E-04	4.76E-01	1.15859912	0.551854254
1128	23226.15269	4542.77585	15124.22569	9.47E-05	2.06E+00	1.95E-04	4.85E-01	1.709134324	0.829239148
1129	24520.35292	5175.945625	31.9084488	9.67E-05	2.02E+00	1.95E-04	4.96E-01	1.708558805	0.846757925
1130	25678.87812	5879.44785	1923.916632	1.61E-04	1.90E+00	3.06E-04	5.27E-01	2.681713449	1.413189848
1131	26726.74316	6444.225407	3818.151626	7.78E-04	1.54E+00	1.20E-03	6.50E-01	10.4872511	6.81782198
1132	27795.24733	9.314287892	5782.015176	6.62E-04	1.51E+00	9.99E-04	6.63E-01	8.748864809	5.796163176
1133	28847.08722	266.6094153	7838.75545	1.94E-04	1.59E+00	3.10E-04	6.28E-01	2.714411377	1.70376661
1134	29902.93375	612.9242294	10141.60288	1.30E-04	1.68E+00	2.19E-04	5.96E-01	1.918491095	1.143013453
1135	30888.39815	1052.100163	12624.36315	1.17E-04	1.66E+00	1.95E-04	6.01E-01	1.710184427	1.028475926
1136	32095.94852	1557.776506	15124.22569	8.42E-05	1.77E+00	1.49E-04	5.64E-01	1.306390366	0.737345778
1137	33239.36512	2111.201131	31.9084488	8.25E-05	1.75E+00	1.44E-04	5.72E-01	1.26364844	0.723028588
1138	34638.06248	2672.040965	1923.916632	6.67E-05	1.77E+00	1.18E-04	5.64E-01	1.036590305	0.584622109
1139	36245.59475	3264.226306	3818.151626	7.27E-05	1.77E+00	1.29E-04	5.64E-01	1.128894762	0.637125443
1140	37937.95129	3880.934633	5782.015176	5.15E-05	1.78E+00	9.19E-05	5.60E-01	0.804714365	0.451001962
1141	20060.45868	4542.77585	7838.75545	7.74E-05	1.75E+00	1.35E-04	5.73E-01	1.183188429	0.6776943
1142	21726.06947	5175.945625	10141.60288	7.90E-05	1.70E+00	1.34E-04	5.87E-01	1.178205531	0.692011491
1143	23226.15269	5879.44785	12624.36315	1.32E-04	1.58E+00	2.09E-04	6.32E-01	1.827610736	1.154927027
1144	24520.35292	6444.225407	15124.22569	6.36E-04	1.22E+00	7.78E-04	8.18E-01	6.814526577	5.571853553
1145	25678.87812	9.314287892	31.9084488	9.45E-03	1.17E+00	1.11E-02	8.54E-01	96.93012499	82.7918399
1146	26726.74316	266.6094153	1923.916632	2.78E-03	1.25E+00	3.49E-03	7.97E-01	30.53074961	24.33643914
1147	27795.24733	612.9242294	3818.151626	1.86E-03	1.34E+00	2.50E-03	7.46E-01	21.87443583	16.32669473
1148	28847.08722	1052.100163	5782.015176	1.68E-03	1.32E+00	2.22E-03	7.55E-01	19.45305654	14.69065166
1149	29902.93375	1557.776506	7838.75545	1.20E-03	1.43E+00	1.72E-03	6.98E-01	15.09358681	10.53217651
1150	30888.39815	2111.201131	10141.60288	1.18E-03	1.41E+00	1.66E-03	7.10E-01	14.55232188	10.32767112
1151	32095.94852	2672.040965	12624.36315	9.53E-04	1.43E+00	1.37E-03	6.97E-01	11.97855989	8.350686237

1152	33239.36512	3264.226306	15124.22569	1.04E-03	1.43E+00	1.49E-03	6.98E-01	13.04305316	9.100638824
1153	34638.06248	3880.934633	31.9084488	7.35E-04	1.45E+00	1.06E-03	6.92E-01	9.312827876	6.442068843
1154	36245.59475	4542.77585	1923.916632	1.11E-03	1.41E+00	1.56E-03	7.11E-01	13.62233467	9.680120501
1155	37937.95129	5175.945625	3818.151626	1.13E-03	1.36E+00	1.54E-03	7.33E-01	13.48190278	9.884625885
1156	20060.45868	5879.44785	5782.015176	1.88E-03	1.24E+00	2.34E-03	8.04E-01	20.51867986	16.49686709
1157	21726.06947	6444.225407	7838.75545	9.09E-03	8.84E-01	8.03E-03	1.13E+00	70.38527744	79.58782271
1158	23226.15269	9.314287892	10141.60288	1.64E-03	1.87E+00	3.06E-03	5.35E-01	26.81359699	14.3344042
1159	24520.35292	266.6094153	12624.36315	4.81E-04	1.95E+00	9.40E-04	5.12E-01	8.234709057	4.213559643
1160	25678.87812	612.9242294	15124.22569	3.23E-04	2.04E+00	6.58E-04	4.90E-01	5.765487331	2.826769422
1161	26726.74316	1052.100163	31.9084488	2.90E-04	2.02E+00	5.88E-04	4.94E-01	5.148026709	2.543508383
1162	27795.24733	1557.776506	1923.916632	2.08E-04	2.13E+00	4.44E-04	4.69E-01	3.88938339	1.823518783
1163	28847.08722	2111.201131	3818.151626	2.04E-04	2.11E+00	4.30E-04	4.74E-01	3.770891408	1.788111153
1164	29902.93375	2672.040965	5782.015176	1.65E-04	2.13E+00	3.52E-04	4.69E-01	3.085737981	1.445820168
1165	30888.39815	3264.226306	7838.75545	1.80E-04	2.13E+00	3.84E-04	4.69E-01	3.360908715	1.575665374
1166	32095.94852	3880.934633	10141.60288	1.27E-04	2.15E+00	2.73E-04	4.66E-01	2.392944682	1.115366186
1167	33239.36512	4542.77585	12624.36315	1.91E-04	2.11E+00	4.03E-04	4.75E-01	3.531416114	1.675995607
1168	34638.06248	5175.945625	15124.22569	1.95E-04	2.06E+00	4.03E-04	4.85E-01	3.53188055	1.711403236
1169	36245.59475	5879.44785	31.9084488	3.26E-04	1.94E+00	6.34E-04	5.15E-01	5.551373226	2.856232705
1170	37937.95129	6444.225407	1923.916632	1.57E-03	1.58E+00	2.49E-03	6.31E-01	21.82946938	13.77966743
1171	20060.45868	9.314287892	3818.151626	1.26E-03	1.75E+00	2.20E-03	5.71E-01	19.30443675	11.02141471
1172	21726.06947	266.6094153	5782.015176	3.70E-04	1.84E+00	6.79E-04	5.45E-01	5.945843177	3.239715276
1173	23226.15269	612.9242294	7838.75545	2.48E-04	1.92E+00	4.77E-04	5.21E-01	4.174238149	2.173442138
1174	24520.35292	1052.100163	10141.60288	2.23E-04	1.90E+00	4.25E-04	5.25E-01	3.725411523	1.955648825
1175	25678.87812	1557.776506	12624.36315	1.60E-04	2.01E+00	3.22E-04	4.97E-01	2.82356504	1.402064325
1176	26726.74316	2111.201131	15124.22569	1.57E-04	1.99E+00	3.12E-04	5.03E-01	2.7356998	1.374840161
1177	27795.24733	2672.040965	31.9084488	1.27E-04	2.02E+00	2.56E-04	4.96E-01	2.240228368	1.111659993
1178	28847.08722	3264.226306	1923.916632	1.38E-04	2.01E+00	2.79E-04	4.97E-01	2.439917098	1.211495176
1179	29902.93375	3880.934633	3818.151626	9.79E-05	2.03E+00	1.98E-04	4.93E-01	1.737799417	0.857581042
1180	30888.39815	4542.77585	5782.015176	1.47E-04	1.99E+00	2.92E-04	5.03E-01	2.561833812	1.288636931
1181	32095.94852	5175.945625	7838.75545	1.50E-04	1.94E+00	2.92E-04	5.14E-01	2.558950213	1.315861096
1182	33239.36512	5879.44785	10141.60288	2.51E-04	1.82E+00	4.57E-04	5.48E-01	4.006913788	2.196095822
1183	34638.06248	6444.225407	12624.36315	1.21E-03	1.47E+00	1.77E-03	6.83E-01	15.5230208	10.59488956
1184	36245.59475	9.314287892	15124.22569	1.06E-03	1.91E+00	2.02E-03	5.24E-01	17.72307633	9.282892524
1185	37937.95129	266.6094153	31.9084488	3.11E-04	1.99E+00	6.21E-04	5.02E-01	5.438202759	2.728681344
1186	20060.45868	612.9242294	1923.916632	2.09E-04	2.08E+00	4.34E-04	4.81E-01	3.804442094	1.83060254
1187	21726.06947	1052.100163	3818.151626	1.88E-04	2.06E+00	3.88E-04	4.85E-01	3.397488921	1.647164028
1188	23226.15269	1557.776506	5782.015176	1.35E-04	2.17E+00	2.93E-04	4.61E-01	2.564379759	1.18090216

1189	24520.35292	2111.201131	7838.75545	1.32E-04	2.15E+00	2.84E-04	4.66E-01	2.486758837	1.157972346
1190	25678.87812	2672.040965	10141.60288	1.07E-04	2.17E+00	2.32E-04	4.60E-01	2.034490903	0.936306319
1191	26726.74316	3264.226306	12624.36315	1.16E-04	2.17E+00	2.53E-04	4.60E-01	2.215939538	1.020393462
1192	27795.24733	3880.934633	15124.22569	8.25E-05	2.18E+00	1.80E-04	4.58E-01	1.577571644	0.722305879
1193	28847.08722	4542.77585	31.9084488	1.24E-04	2.15E+00	2.66E-04	4.66E-01	2.328870083	1.085366847
1194	29902.93375	5175.945625	1923.916632	1.27E-04	2.10E+00	2.66E-04	4.76E-01	2.330056923	1.108296661
1195	30888.39815	5879.44785	3818.151626	2.11E-04	1.98E+00	4.19E-04	5.04E-01	3.666520126	1.849682823
1196	32095.94852	6444.225407	5782.015176	1.02E-03	1.62E+00	1.65E-03	6.16E-01	14.48149656	8.923647613
1197	33239.36512	9.314287892	7838.75545	8.97E-04	1.86E+00	1.67E-03	5.38E-01	14.59806669	7.856103367
1198	34638.06248	266.6094153	10141.60288	2.64E-04	1.94E+00	5.12E-04	5.15E-01	4.484485903	2.309280501
1199	36245.59475	612.9242294	12624.36315	1.77E-04	2.03E+00	3.59E-04	4.93E-01	3.140626524	1.549237239
1200	37937.95129	1052.100163	15124.22569	1.59E-04	2.01E+00	3.20E-04	4.97E-01	2.804145698	1.393993395
1201	20060.45868	1557.776506	31.9084488	1.14E-04	2.12E+00	2.42E-04	4.72E-01	2.119225456	0.999396407
1202	21726.06947	2111.201131	1923.916632	1.12E-04	2.10E+00	2.35E-04	4.77E-01	2.05452535	0.979990926
1203	23226.15269	2672.040965	3818.151626	9.05E-05	2.12E+00	1.92E-04	4.71E-01	1.681345847	0.792395173
1204	24520.35292	3264.226306	5782.015176	9.86E-05	2.12E+00	2.09E-04	4.72E-01	1.831273679	0.863558044
1205	25678.87812	3880.934633	7838.75545	6.98E-05	2.13E+00	1.49E-04	4.69E-01	1.303898831	0.611286798
1206	26726.74316	4542.77585	10141.60288	1.05E-04	2.09E+00	2.20E-04	4.77E-01	1.924040296	0.91854496
1207	27795.24733	5175.945625	12624.36315	1.07E-04	2.05E+00	2.20E-04	4.87E-01	1.924054309	0.93795044
1208	28847.08722	5879.44785	15124.22569	1.79E-04	1.93E+00	3.45E-04	5.18E-01	3.023079154	1.565384865
1209	29902.93375	6444.225407	31.9084488	8.62E-04	1.57E+00	1.36E-03	6.36E-01	11.87023761	7.55207473
1210	30888.39815	9.314287892	1923.916632	7.94E-04	1.90E+00	1.51E-03	5.26E-01	13.22995278	6.9539451
1211	32095.94852	266.6094153	3818.151626	2.33E-04	1.99E+00	4.63E-04	5.03E-01	4.060120651	2.044093499
1212	33239.36512	612.9242294	5782.015176	1.57E-04	2.07E+00	3.24E-04	4.83E-01	2.840761025	1.37133006
1213	34638.06248	1052.100163	7838.75545	1.41E-04	2.06E+00	2.90E-04	4.86E-01	2.536828587	1.233913696
1214	36245.59475	1557.776506	10141.60288	1.01E-04	2.16E+00	2.19E-04	4.62E-01	1.915078084	0.884630385
1215	37937.95129	2111.201131	12624.36315	9.90E-05	2.14E+00	2.12E-04	4.67E-01	1.857046398	0.867453339
1216	20060.45868	2672.040965	15124.22569	8.01E-05	2.17E+00	1.73E-04	4.62E-01	1.519360154	0.701400207
1217	21726.06947	3264.226306	31.9084488	8.73E-05	2.16E+00	1.89E-04	4.62E-01	1.654863283	0.764391066
1218	23226.15269	3880.934633	1923.916632	6.18E-05	2.18E+00	1.34E-04	4.59E-01	1.178151013	0.541089474
1219	24520.35292	4542.77585	3818.151626	9.28E-05	2.14E+00	1.99E-04	4.68E-01	1.739134606	0.813063541
1220	25678.87812	5175.945625	5782.015176	9.48E-05	2.10E+00	1.99E-04	4.77E-01	1.739908447	0.830240587
1221	26726.74316	5879.44785	7838.75545	1.58E-04	1.98E+00	3.12E-04	5.06E-01	2.737345852	1.385623368
1222	27795.24733	6444.225407	10141.60288	7.63E-04	1.62E+00	1.23E-03	6.19E-01	10.8034453	6.684829694
1223	28847.08722	9.314287892	12624.36315	7.17E-04	1.80E+00	1.29E-03	5.55E-01	11.32695006	6.281492417
1224	29902.93375	266.6094153	15124.22569	2.11E-04	1.89E+00	3.98E-04	5.30E-01	3.484181802	1.846427838
1225	30888.39815	612.9242294	31.9084488	1.41E-04	1.97E+00	2.79E-04	5.07E-01	2.443071153	1.238721222

1226	32095.94852	1052.100163	1923.916632	1.27E-04	1.96E+00	2.49E-04	5.11E-01	2.18085324	1.114593143
1227	33239.36512	1557.776506	3818.151626	9.12E-05	2.07E+00	1.88E-04	4.84E-01	1.650551532	0.799085839
1228	34638.06248	2111.201131	5782.015176	8.94E-05	2.04E+00	1.83E-04	4.90E-01	1.599672061	0.783569829
1229	36245.59475	2672.040965	7838.75545	7.23E-05	2.07E+00	1.49E-04	4.84E-01	1.309532612	0.633574182
1230	37937.95129	3264.226306	10141.60288	7.88E-05	2.07E+00	1.63E-04	4.84E-01	1.426283223	0.690473769
1231	20060.45868	3880.934633	12624.36315	5.58E-05	2.08E+00	1.16E-04	4.81E-01	1.015695935	0.48876564
1232	21726.06947	4542.77585	15124.22569	8.38E-05	2.04E+00	1.71E-04	4.90E-01	1.498040314	0.734439573
1233	23226.15269	5175.945625	31.9084488	8.56E-05	2.00E+00	1.71E-04	5.01E-01	1.497198826	0.749955583
1234	24520.35292	5879.44785	1923.916632	1.43E-04	1.88E+00	2.68E-04	5.33E-01	2.348374445	1.251632355
1235	25678.87812	6444.225407	3818.151626	6.89E-04	1.52E+00	1.05E-03	6.59E-01	9.159223244	6.038400711
1236	26726.74316	9.314287892	5782.015176	5.86E-04	1.49E+00	8.72E-04	6.72E-01	7.638919051	5.133539119
1237	27795.24733	266.6094153	7838.75545	1.72E-04	1.57E+00	2.71E-04	6.36E-01	2.371831481	1.508990047
1238	28847.08722	612.9242294	10141.60288	1.16E-04	1.66E+00	1.91E-04	6.03E-01	1.677521045	1.012342837
1239	29902.93375	1052.100163	12624.36315	1.04E-04	1.64E+00	1.71E-04	6.09E-01	1.495197301	0.910899372
1240	30888.39815	1557.776506	15124.22569	7.45E-05	1.75E+00	1.30E-04	5.71E-01	1.143078751	0.653051559
1241	32095.94852	2111.201131	31.9084488	7.31E-05	1.73E+00	1.26E-04	5.79E-01	1.105494264	0.640371126
1242	33239.36512	2672.040965	1923.916632	5.91E-05	1.75E+00	1.04E-04	5.71E-01	0.907014764	0.517787436
1243	34638.06248	3264.226306	3818.151626	6.44E-05	1.75E+00	1.13E-04	5.71E-01	0.987772582	0.564288527
1244	36245.59475	3880.934633	5782.015176	4.56E-05	1.76E+00	8.04E-05	5.67E-01	0.704177594	0.399442897
1245	37937.95129	4542.77585	7838.75545	6.85E-05	1.72E+00	1.18E-04	5.80E-01	1.035091057	0.600219506
1246	20060.45868	5175.945625	10141.60288	7.00E-05	1.68E+00	1.18E-04	5.95E-01	1.030406676	0.612899939
1247	21726.06947	5879.44785	12624.36315	1.17E-04	1.56E+00	1.82E-04	6.41E-01	1.596804618	1.022894438
1248	23226.15269	6444.225407	15124.22569	5.63E-04	1.20E+00	6.77E-04	8.32E-01	5.929964483	4.934872831
1249	24520.35292	9.314287892	31.9084488	8.45E-03	1.03E+00	8.68E-03	9.73E-01	76.062684	74.01812357
1250	25678.87812	266.6094153	1923.916632	2.48E-03	1.11E+00	2.76E-03	9.00E-01	24.18080561	21.75742877
1251	26726.74316	612.9242294	3818.151626	1.67E-03	1.20E+00	1.99E-03	8.36E-01	17.4668916	14.59650262
1252	27795.24733	1052.100163	5782.015176	1.50E-03	1.18E+00	1.77E-03	8.47E-01	15.51148939	13.13383627
1253	28847.08722	1557.776506	7838.75545	1.07E-03	1.29E+00	1.39E-03	7.75E-01	12.14619551	9.416048044
1254	29902.93375	2111.201131	10141.60288	1.05E-03	1.27E+00	1.33E-03	7.90E-01	11.68846212	9.233214751
1255	30888.39815	2672.040965	12624.36315	8.52E-04	1.29E+00	1.10E-03	7.74E-01	9.640458376	7.465737282
1256	32095.94852	3264.226306	15124.22569	9.29E-04	1.29E+00	1.20E-03	7.75E-01	10.49616727	8.136214993
1257	33239.36512	3880.934633	31.9084488	6.57E-04	1.30E+00	8.56E-04	7.68E-01	7.501481512	5.759382184
1258	34638.06248	4542.77585	1923.916632	9.88E-04	1.26E+00	1.25E-03	7.91E-01	10.93990017	8.654287141
1259	36245.59475	5175.945625	3818.151626	1.01E-03	1.22E+00	1.23E-03	8.19E-01	10.78817833	8.837120434
1260	37937.95129	5879.44785	5782.015176	1.68E-03	1.10E+00	1.85E-03	9.09E-01	16.23303129	14.74864127
1261	20060.45868	6444.225407	7838.75545	8.12E-03	7.41E-01	6.02E-03	1.35E+00	52.74091921	71.15364634
1262	21726.06947	9.314287892	10141.60288	1.46E-03	1.73E+00	2.53E-03	5.79E-01	22.13760126	12.81534149

1263	23226.15269	266.6094153	12624.36315	4.30E-04	1.81E+00	7.79E-04	5.52E-01	6.822812157	3.767035238
1264	24520.35292	612.9242294	15124.22569	2.88E-04	1.90E+00	5.47E-04	5.27E-01	4.792738914	2.527207616
1265	25678.87812	1052.100163	31.9084488	2.60E-04	1.88E+00	4.88E-04	5.32E-01	4.276963448	2.273964657
1266	26726.74316	1557.776506	1923.916632	1.86E-04	1.99E+00	3.70E-04	5.03E-01	3.243844649	1.630274659
1267	27795.24733	2111.201131	3818.151626	1.82E-04	1.97E+00	3.59E-04	5.09E-01	3.142441001	1.598619289
1268	28847.08722	2672.040965	5782.015176	1.48E-04	1.99E+00	2.94E-04	5.02E-01	2.573700825	1.292601976
1269	29902.93375	3264.226306	7838.75545	1.61E-04	1.99E+00	3.20E-04	5.03E-01	2.803093644	1.40868707
1270	30888.39815	3880.934633	10141.60288	1.14E-04	2.00E+00	2.28E-04	4.99E-01	1.996615535	0.99716726
1271	32095.94852	4542.77585	12624.36315	1.71E-04	1.96E+00	3.36E-04	5.09E-01	2.942691874	1.498384986
1272	33239.36512	5175.945625	15124.22569	1.75E-04	1.92E+00	3.35E-04	5.21E-01	2.938575733	1.530040356
1273	34638.06248	5879.44785	31.9084488	2.92E-04	1.80E+00	5.25E-04	5.55E-01	4.597544546	2.553548581
1274	36245.59475	6444.225407	1923.916632	1.41E-03	1.44E+00	2.03E-03	6.94E-01	17.75265112	12.31939196
1275	37937.95129	9.314287892	3818.151626	1.12E-03	1.61E+00	1.81E-03	6.22E-01	15.84819699	9.853440111
1276	20060.45868	266.6094153	5782.015176	3.31E-04	1.69E+00	5.59E-04	5.91E-01	4.901134332	2.896392276
1277	21726.06947	612.9242294	7838.75545	2.22E-04	1.78E+00	3.94E-04	5.63E-01	3.453730321	1.943115516
1278	23226.15269	1052.100163	10141.60288	2.00E-04	1.76E+00	3.52E-04	5.68E-01	3.080339809	1.748402458
1279	24520.35292	1557.776506	12624.36315	1.43E-04	1.87E+00	2.68E-04	5.35E-01	2.344910928	1.25348308
1280	25678.87812	2111.201131	15124.22569	1.40E-04	1.85E+00	2.59E-04	5.42E-01	2.269841114	1.229143947
1281	26726.74316	2672.040965	31.9084488	1.13E-04	1.87E+00	2.12E-04	5.34E-01	1.860557365	0.993853825
1282	27795.24733	3264.226306	1923.916632	1.24E-04	1.87E+00	2.31E-04	5.35E-01	2.026307841	1.083109153
1283	28847.08722	3880.934633	3818.151626	8.75E-05	1.88E+00	1.65E-04	5.31E-01	1.443888662	0.766700433
1284	29902.93375	4542.77585	5782.015176	1.32E-04	1.84E+00	2.43E-04	5.42E-01	2.125432286	1.15207595
1285	30888.39815	5175.945625	7838.75545	1.34E-04	1.80E+00	2.42E-04	5.55E-01	2.119370206	1.176415083
1286	32095.94852	5879.44785	10141.60288	2.24E-04	1.68E+00	3.77E-04	5.95E-01	3.30123871	1.963368517
1287	33239.36512	6444.225407	12624.36315	1.08E-03	1.32E+00	1.43E-03	7.56E-01	12.52209517	9.472115194
1288	34638.06248	9.314287892	15124.22569	9.47E-04	1.77E+00	1.67E-03	5.66E-01	14.65690913	8.299154684
1289	36245.59475	266.6094153	31.9084488	2.78E-04	1.85E+00	5.15E-04	5.41E-01	4.512690747	2.439514246
1290	37937.95129	612.9242294	1923.916632	1.87E-04	1.94E+00	3.62E-04	5.17E-01	3.166998296	1.636607728
1291	20060.45868	1052.100163	3818.151626	1.68E-04	1.92E+00	3.23E-04	5.21E-01	2.826647151	1.472608783
1292	21726.06947	1557.776506	5782.015176	1.21E-04	2.03E+00	2.44E-04	4.93E-01	2.141495995	1.055758177
1293	23226.15269	2111.201131	7838.75545	1.18E-04	2.00E+00	2.37E-04	4.99E-01	2.075035298	1.035258309
1294	24520.35292	2672.040965	10141.60288	9.56E-05	2.03E+00	1.94E-04	4.93E-01	1.699063782	0.837082941
1295	25678.87812	3264.226306	12624.36315	1.04E-04	2.03E+00	2.11E-04	4.93E-01	1.850522511	0.9122591
1296	26726.74316	3880.934633	15124.22569	7.37E-05	2.04E+00	1.50E-04	4.90E-01	1.317952839	0.645760813
1297	27795.24733	4542.77585	31.9084488	1.11E-04	2.00E+00	2.22E-04	4.99E-01	1.94317035	0.970347048
1298	28847.08722	5175.945625	1923.916632	1.13E-04	1.96E+00	2.22E-04	5.10E-01	1.941296929	0.990846916
1299	29902.93375	5879.44785	3818.151626	1.89E-04	1.84E+00	3.47E-04	5.44E-01	3.041250525	1.653666013

1300	30888.39815	6444.225407	5782.015176	9.11E-04	1.48E+00	1.35E-03	6.76E-01	11.804825	7.977980106
1301	32095.94852	9.314287892	7838.75545	8.02E-04	1.72E+00	1.38E-03	5.83E-01	12.04566286	7.023566942
1302	33239.36512	266.6094153	10141.60288	2.36E-04	1.80E+00	4.24E-04	5.56E-01	3.713715951	2.064558653
1303	34638.06248	612.9242294	12624.36315	1.58E-04	1.88E+00	2.98E-04	5.31E-01	2.609537654	1.385059609
1304	36245.59475	1052.100163	15124.22569	1.42E-04	1.87E+00	2.66E-04	5.35E-01	2.328582409	1.246267452
1305	37937.95129	1557.776506	31.9084488	1.02E-04	1.98E+00	2.02E-04	5.06E-01	1.766744668	0.89348717
1306	20060.45868	2111.201131	1923.916632	1.00E-04	1.95E+00	1.95E-04	5.12E-01	1.711384493	0.876138151
1307	21726.06947	2672.040965	3818.151626	8.09E-05	1.98E+00	1.60E-04	5.05E-01	1.401759945	0.708422519
1308	23226.15269	3264.226306	5782.015176	8.81E-05	1.98E+00	1.74E-04	5.06E-01	1.526692239	0.772044033
1309	24520.35292	3880.934633	7838.75545	6.24E-05	1.99E+00	1.24E-04	5.03E-01	1.087489891	0.546506779
1310	25678.87812	4542.77585	10141.60288	9.37E-05	1.95E+00	1.83E-04	5.12E-01	1.602591024	0.82120381
1311	26726.74316	5175.945625	12624.36315	9.57E-05	1.91E+00	1.83E-04	5.24E-01	1.600120098	0.838552829
1312	27795.24733	5879.44785	15124.22569	1.60E-04	1.79E+00	2.86E-04	5.59E-01	2.502380632	1.399496019
1313	28847.08722	6444.225407	31.9084488	7.71E-04	1.43E+00	1.10E-03	7.00E-01	9.645819202	6.751757193
1314	29902.93375	9.314287892	1923.916632	7.10E-04	1.76E+00	1.25E-03	5.68E-01	10.9379878	6.217013275
1315	30888.39815	266.6094153	3818.151626	2.09E-04	1.84E+00	3.85E-04	5.43E-01	3.368259861	1.827474367
1316	32095.94852	612.9242294	5782.015176	1.40E-04	1.93E+00	2.70E-04	5.19E-01	2.364217876	1.226005824
1317	33239.36512	1052.100163	7838.75545	1.26E-04	1.91E+00	2.41E-04	5.23E-01	2.110080256	1.103151911
1318	34638.06248	1557.776506	10141.60288	9.03E-05	2.02E+00	1.83E-04	4.95E-01	1.598918849	0.790883271
1319	36245.59475	2111.201131	12624.36315	8.85E-05	2.00E+00	1.77E-04	5.01E-01	1.549235233	0.775526532
1320	37937.95129	2672.040965	15124.22569	7.16E-05	2.02E+00	1.45E-04	4.94E-01	1.268585651	0.627070581
1321	20060.45868	3264.226306	31.9084488	7.80E-05	2.02E+00	1.58E-04	4.95E-01	1.381667702	0.683386098
1322	21726.06947	3880.934633	1923.916632	5.52E-05	2.03E+00	1.12E-04	4.92E-01	0.98405161	0.48374849
1323	23226.15269	4542.77585	3818.151626	8.30E-05	2.00E+00	1.66E-04	5.01E-01	1.45077957	0.726900595
1324	24520.35292	5175.945625	5782.015176	8.47E-05	1.95E+00	1.65E-04	5.12E-01	1.449273139	0.742257334
1325	25678.87812	5879.44785	7838.75545	1.41E-04	1.83E+00	2.59E-04	5.46E-01	2.269932727	1.238784424
1326	26726.74316	6444.225407	10141.60288	6.82E-04	1.47E+00	1.00E-03	6.79E-01	8.803065646	5.97641689
1327	27795.24733	9.314287892	12624.36315	6.41E-04	1.66E+00	1.06E-03	6.02E-01	9.3227108	5.615822556
1328	28847.08722	266.6094153	15124.22569	1.88E-04	1.74E+00	3.29E-04	5.73E-01	2.87865174	1.650755969
1329	29902.93375	612.9242294	31.9084488	1.26E-04	1.83E+00	2.31E-04	5.47E-01	2.025643345	1.107449969
1330	30888.39815	1052.100163	1923.916632	1.14E-04	1.81E+00	2.06E-04	5.51E-01	1.807099034	0.996476139
1331	32095.94852	1557.776506	3818.151626	8.16E-05	1.92E+00	1.57E-04	5.20E-01	1.373372751	0.714404155
1332	33239.36512	2111.201131	5782.015176	8.00E-05	1.90E+00	1.52E-04	5.27E-01	1.329870832	0.700532426
1333	34638.06248	2672.040965	7838.75545	6.47E-05	1.92E+00	1.24E-04	5.20E-01	1.089674372	0.566432298
1334	36245.59475	3264.226306	10141.60288	7.05E-05	1.92E+00	1.35E-04	5.20E-01	1.186770712	0.617302053
1335	37937.95129	3880.934633	12624.36315	4.99E-05	1.93E+00	9.65E-05	5.17E-01	0.84550866	0.43696958
1336	20060.45868	4542.77585	15124.22569	7.50E-05	1.90E+00	1.42E-04	5.27E-01	1.245296866	0.65660866

1337	21726.06947	5175.945625	31.9084488	7.65E-05	1.85E+00	1.42E-04	5.40E-01	1.242558862	0.670480389
1338	23226.15269	5879.44785	1923.916632	1.28E-04	1.73E+00	2.21E-04	5.77E-01	1.939329623	1.118992867
1339	24520.35292	6444.225407	3818.151626	6.16E-04	1.37E+00	8.47E-04	7.28E-01	7.415815062	5.398492055
1340	25678.87812	9.314287892	5782.015176	5.24E-04	1.34E+00	7.05E-04	7.44E-01	6.172423778	4.589521544
1341	26726.74316	266.6094153	7838.75545	1.54E-04	1.43E+00	2.20E-04	7.00E-01	1.927364995	1.349077541
1342	27795.24733	612.9242294	10141.60288	1.03E-04	1.51E+00	1.56E-04	6.61E-01	1.370192243	0.905061625
1343	28847.08722	1052.100163	12624.36315	9.30E-05	1.50E+00	1.39E-04	6.67E-01	1.220172353	0.81436845
1344	29902.93375	1557.776506	15124.22569	6.66E-05	1.61E+00	1.07E-04	6.22E-01	0.938367504	0.583845594
1345	30888.39815	2111.201131	31.9084488	6.54E-05	1.58E+00	1.03E-04	6.32E-01	0.906388768	0.572508947
1346	32095.94852	2672.040965	1923.916632	5.28E-05	1.61E+00	8.50E-05	6.22E-01	0.74463066	0.462915843
1347	33239.36512	3264.226306	3818.151626	5.76E-05	1.61E+00	9.26E-05	6.22E-01	0.810879247	0.504489066
1348	34638.06248	3880.934633	5782.015176	4.08E-05	1.62E+00	6.60E-05	6.17E-01	0.578434165	0.357112655
1349	36245.59475	4542.77585	7838.75545	6.13E-05	1.58E+00	9.69E-05	6.32E-01	0.848584895	0.536612324
1350	37937.95129	5175.945625	10141.60288	6.26E-05	1.54E+00	9.62E-05	6.50E-01	0.842774131	0.547948971
1351	20060.45868	5879.44785	12624.36315	1.04E-04	1.42E+00	1.48E-04	7.05E-01	1.296679233	0.91449504
1352	21726.06947	6444.225407	15124.22569	5.04E-04	1.06E+00	5.33E-04	9.45E-01	4.669997298	4.411908558
1353	23226.15269	9.314287892	31.9084488	4.59E-03	1.17E+00	5.38E-03	8.53E-01	47.11319999	40.19949842
1354	24520.35292	266.6094153	1923.916632	1.35E-03	1.26E+00	1.69E-03	7.96E-01	14.83854162	11.81653467
1355	25678.87812	612.9242294	3818.151626	9.05E-04	1.34E+00	1.21E-03	7.46E-01	10.63074874	7.927410959
1356	26726.74316	1052.100163	5782.015176	8.14E-04	1.33E+00	1.08E-03	7.54E-01	9.454084615	7.133031819
1357	27795.24733	1557.776506	7838.75545	5.84E-04	1.43E+00	8.37E-04	6.97E-01	7.334893585	5.113888197
1358	28847.08722	2111.201131	10141.60288	5.72E-04	1.41E+00	8.07E-04	7.09E-01	7.071962201	5.014590804
1359	29902.93375	2672.040965	12624.36315	4.63E-04	1.44E+00	6.65E-04	6.97E-01	5.821107547	4.05466769
1360	30888.39815	3264.226306	15124.22569	5.04E-04	1.43E+00	7.24E-04	6.97E-01	6.338413923	4.418806449
1361	32095.94852	3880.934633	31.9084488	3.57E-04	1.45E+00	5.17E-04	6.91E-01	4.525637298	3.127940346
1362	33239.36512	4542.77585	1923.916632	5.37E-04	1.41E+00	7.56E-04	7.10E-01	6.620025561	4.700173221
1363	34638.06248	5175.945625	3818.151626	5.48E-04	1.37E+00	7.48E-04	7.33E-01	6.551959709	4.799470614
1364	36245.59475	5879.44785	5782.015176	9.14E-04	1.25E+00	1.14E-03	8.03E-01	9.972563176	8.010037987
1365	37937.95129	6444.225407	7838.75545	4.41E-03	8.86E-01	3.91E-03	1.13E+00	34.22248345	38.64379095
1366	20060.45868	9.314287892	10141.60288	7.95E-04	1.87E+00	1.49E-03	5.34E-01	13.02777768	6.960056203
1367	21726.06947	266.6094153	12624.36315	2.34E-04	1.96E+00	4.57E-04	5.11E-01	4.000842284	2.045889842
1368	23226.15269	612.9242294	15124.22569	1.57E-04	2.04E+00	3.20E-04	4.90E-01	2.801095442	1.37253518
1369	24520.35292	1052.100163	31.9084488	1.41E-04	2.03E+00	2.86E-04	4.94E-01	2.501120825	1.234998055
1370	25678.87812	1557.776506	1923.916632	1.01E-04	2.13E+00	2.16E-04	4.69E-01	1.88956277	0.885407795
1371	26726.74316	2111.201131	3818.151626	9.91E-05	2.11E+00	2.09E-04	4.74E-01	1.832008201	0.868215655
1372	27795.24733	2672.040965	5782.015176	8.01E-05	2.14E+00	1.71E-04	4.68E-01	1.499130562	0.702016595
1373	28847.08722	3264.226306	7838.75545	8.73E-05	2.13E+00	1.86E-04	4.69E-01	1.632816094	0.76506281

1374	29902.93375	3880.934633	10141.60288	6.18E-05	2.15E+00	1.33E-04	4.66E-01	1.162550379	0.541564981
1375	30888.39815	4542.77585	12624.36315	9.29E-05	2.11E+00	1.96E-04	4.74E-01	1.715665022	0.813778059
1376	32095.94852	5175.945625	15124.22569	9.49E-05	2.06E+00	1.96E-04	4.84E-01	1.715911429	0.830970199
1377	33239.36512	5879.44785	31.9084488	1.58E-04	1.94E+00	3.08E-04	5.14E-01	2.697149936	1.386841049
1378	34638.06248	6444.225407	1923.916632	7.64E-04	1.59E+00	1.21E-03	6.31E-01	10.60741185	6.690704299
1379	36245.59475	9.314287892	3818.151626	6.11E-04	1.75E+00	1.07E-03	5.71E-01	9.379756519	5.351437339
1380	37937.95129	266.6094153	5782.015176	1.80E-04	1.84E+00	3.30E-04	5.45E-01	2.888910806	1.573040644
1381	20060.45868	612.9242294	7838.75545	1.20E-04	1.92E+00	2.32E-04	5.20E-01	2.028080279	1.055312744
1382	21726.06947	1052.100163	10141.60288	1.08E-04	1.91E+00	2.07E-04	5.25E-01	1.810024381	0.94956341
1383	23226.15269	1557.776506	12624.36315	7.77E-05	2.02E+00	1.57E-04	4.96E-01	1.371806914	0.680770988
1384	24520.35292	2111.201131	15124.22569	7.62E-05	1.99E+00	1.52E-04	5.02E-01	1.329127961	0.667552321
1385	25678.87812	2672.040965	31.9084488	6.16E-05	2.02E+00	1.24E-04	4.96E-01	1.088396931	0.539765443
1386	26726.74316	3264.226306	1923.916632	6.72E-05	2.02E+00	1.35E-04	4.96E-01	1.185414534	0.58824032
1387	27795.24733	3880.934633	3818.151626	4.75E-05	2.03E+00	9.64E-05	4.93E-01	0.844293057	0.416397652
1388	28847.08722	4542.77585	5782.015176	7.14E-05	1.99E+00	1.42E-04	5.03E-01	1.244656613	0.625696426
1389	29902.93375	5175.945625	7838.75545	7.29E-05	1.95E+00	1.42E-04	5.14E-01	1.243272554	0.638915092
1390	30888.39815	5879.44785	10141.60288	1.22E-04	1.83E+00	2.22E-04	5.48E-01	1.946849468	1.066312219
1391	32095.94852	6444.225407	12624.36315	5.87E-04	1.47E+00	8.61E-04	6.82E-01	7.543441861	5.14433846
1392	33239.36512	9.314287892	15124.22569	5.15E-04	1.91E+00	9.83E-04	5.23E-01	8.610902263	4.507299558
1393	34638.06248	266.6094153	31.9084488	1.51E-04	1.99E+00	3.02E-04	5.01E-01	2.642124832	1.324908608
1394	36245.59475	612.9242294	1923.916632	1.01E-04	2.08E+00	2.11E-04	4.81E-01	1.848323786	0.888847307
1395	37937.95129	1052.100163	3818.151626	9.13E-05	2.06E+00	1.88E-04	4.85E-01	1.650619783	0.799778913
1396	20060.45868	1557.776506	5782.015176	6.55E-05	2.17E+00	1.42E-04	4.60E-01	1.245829201	0.573385911
1397	21726.06947	2111.201131	7838.75545	6.42E-05	2.15E+00	1.38E-04	4.65E-01	1.208126901	0.562252361
1398	23226.15269	2672.040965	10141.60288	5.19E-05	2.17E+00	1.13E-04	4.60E-01	0.988397794	0.454622635
1399	24520.35292	3264.226306	12624.36315	5.66E-05	2.17E+00	1.23E-04	4.60E-01	1.07654964	0.495451066
1400	25678.87812	3880.934633	15124.22569	4.00E-05	2.19E+00	8.75E-05	4.58E-01	0.766414765	0.350714927
1401	26726.74316	4542.77585	31.9084488	6.02E-05	2.15E+00	1.29E-04	4.66E-01	1.13142131	0.526998831
1402	27795.24733	5175.945625	1923.916632	6.14E-05	2.10E+00	1.29E-04	4.75E-01	1.132011115	0.53813238
1403	28847.08722	5879.44785	3818.151626	1.03E-04	1.98E+00	2.03E-04	5.04E-01	1.78136717	0.89811172
1404	29902.93375	6444.225407	5782.015176	4.95E-04	1.62E+00	8.03E-04	6.16E-01	7.036744256	4.332868536
1405	30888.39815	9.314287892	7838.75545	4.35E-04	1.86E+00	8.10E-04	5.38E-01	7.092714618	3.814523452
1406	32095.94852	266.6094153	10141.60288	1.28E-04	1.94E+00	2.49E-04	5.15E-01	2.178800962	1.121268931
1407	33239.36512	612.9242294	12624.36315	8.59E-05	2.03E+00	1.74E-04	4.93E-01	1.525842687	0.752230655
1408	34638.06248	1052.100163	15124.22569	7.73E-05	2.01E+00	1.56E-04	4.97E-01	1.362373107	0.676852155
1409	36245.59475	1557.776506	31.9084488	5.54E-05	2.12E+00	1.18E-04	4.71E-01	1.029577816	0.485255966
1410	37937.95129	2111.201131	1923.916632	5.43E-05	2.10E+00	1.14E-04	4.77E-01	0.998151286	0.475833654

1411	20060.45868	2672.040965	3818.151626	4.39E-05	2.12E+00	9.32E-05	4.71E-01	0.816843602	0.384746716
1412	21726.06947	3264.226306	5782.015176	4.79E-05	2.12E+00	1.02E-04	4.71E-01	0.889682923	0.41929978
1413	23226.15269	3880.934633	7838.75545	3.39E-05	2.13E+00	7.23E-05	4.69E-01	0.63346766	0.296809718
1414	24520.35292	4542.77585	10141.60288	5.09E-05	2.10E+00	1.07E-04	4.77E-01	0.934758123	0.445998624
1415	25678.87812	5175.945625	12624.36315	5.20E-05	2.05E+00	1.07E-04	4.87E-01	0.934776382	0.455420936
1416	26726.74316	5879.44785	15124.22569	8.68E-05	1.93E+00	1.68E-04	5.17E-01	1.468777206	0.760071119
1417	27795.24733	6444.225407	31.9084488	4.19E-04	1.57E+00	6.58E-04	6.36E-01	5.768040359	3.666902639
1418	28847.08722	9.314287892	1923.916632	3.85E-04	1.90E+00	7.34E-04	5.25E-01	6.427895688	3.376481371
1419	29902.93375	266.6094153	3818.151626	1.13E-04	1.99E+00	2.25E-04	5.03E-01	1.972594285	0.992507637
1420	30888.39815	612.9242294	5782.015176	7.60E-05	2.07E+00	1.58E-04	4.82E-01	1.380138266	0.665847995
1421	32095.94852	1052.100163	7838.75545	6.84E-05	2.06E+00	1.41E-04	4.86E-01	1.232483047	0.599125611
1422	33239.36512	1557.776506	10141.60288	4.90E-05	2.17E+00	1.06E-04	4.62E-01	0.93038651	0.429531435
1423	34638.06248	2111.201131	12624.36315	4.81E-05	2.14E+00	1.03E-04	4.67E-01	0.902199142	0.421191137
1424	36245.59475	2672.040965	15124.22569	3.89E-05	2.17E+00	8.43E-05	4.61E-01	0.738137891	0.340564197
1425	37937.95129	3264.226306	31.9084488	4.24E-05	2.17E+00	9.18E-05	4.62E-01	0.803968488	0.371149349
1426	20060.45868	3880.934633	1923.916632	3.00E-05	2.18E+00	6.53E-05	4.59E-01	0.572369491	0.262725475
1427	21726.06947	4542.77585	3818.151626	4.51E-05	2.14E+00	9.65E-05	4.67E-01	0.844915079	0.394782222
1428	23226.15269	5175.945625	5782.015176	4.60E-05	2.10E+00	9.65E-05	4.77E-01	0.845300956	0.40312252
1429	24520.35292	5879.44785	7838.75545	7.68E-05	1.98E+00	1.52E-04	5.06E-01	1.329933565	0.672788097
1430	25678.87812	6444.225407	10141.60288	3.71E-04	1.62E+00	5.99E-04	6.18E-01	5.249548456	3.245812644
1431	26726.74316	9.314287892	12624.36315	3.48E-04	1.80E+00	6.28E-04	5.54E-01	5.503497607	3.049972616
1432	27795.24733	266.6094153	15124.22569	1.02E-04	1.89E+00	1.93E-04	5.30E-01	1.69283105	0.896531265
1433	28847.08722	612.9242294	31.9084488	6.87E-05	1.97E+00	1.35E-04	5.07E-01	1.186962053	0.601459901
1434	29902.93375	1052.100163	1923.916632	6.18E-05	1.96E+00	1.21E-04	5.11E-01	1.059569126	0.541189631
1435	30888.39815	1557.776506	3818.151626	4.43E-05	2.07E+00	9.15E-05	4.84E-01	0.801895401	0.387995362
1436	32095.94852	2111.201131	5782.015176	4.34E-05	2.04E+00	8.87E-05	4.90E-01	0.777181764	0.380461579
1437	33239.36512	2672.040965	7838.75545	3.51E-05	2.07E+00	7.26E-05	4.84E-01	0.636216293	0.307631336
1438	34638.06248	3264.226306	10141.60288	3.83E-05	2.07E+00	7.91E-05	4.84E-01	0.692938027	0.335258876
1439	36245.59475	3880.934633	12624.36315	2.71E-05	2.08E+00	5.63E-05	4.81E-01	0.493458698	0.237319687
1440	37937.95129	4542.77585	15124.22569	4.07E-05	2.04E+00	8.31E-05	4.90E-01	0.727805566	0.35660643
1441	20060.45868	5175.945625	31.9084488	4.16E-05	2.00E+00	8.30E-05	5.01E-01	0.727406141	0.364140214
1442	21726.06947	5879.44785	1923.916632	6.94E-05	1.88E+00	1.30E-04	5.33E-01	1.140989779	0.607728889
1443	23226.15269	6444.225407	3818.151626	3.35E-04	1.52E+00	5.08E-04	6.59E-01	4.450816437	2.931939671
1444	24520.35292	9.314287892	5782.015176	2.85E-04	1.49E+00	4.24E-04	6.71E-01	3.712100069	2.492584994
1445	25678.87812	266.6094153	7838.75545	8.36E-05	1.57E+00	1.32E-04	6.36E-01	1.152531234	0.732688669
1446	26726.74316	612.9242294	10141.60288	5.61E-05	1.66E+00	9.30E-05	6.03E-01	0.815116305	0.491542093
1447	27795.24733	1052.100163	12624.36315	5.05E-05	1.64E+00	8.29E-05	6.09E-01	0.726529306	0.442286316

1448	28847.08722	1557.776506	15124.22569	3.62E-05	1.75E+00	6.34E-05	5.71E-01	0.555406277	0.317088558
1449	29902.93375	2111.201131	31.9084488	3.55E-05	1.73E+00	6.13E-05	5.79E-01	0.537149681	0.310931586
1450	30888.39815	2672.040965	1923.916632	2.87E-05	1.75E+00	5.03E-05	5.70E-01	0.440705791	0.251411193
1451	32095.94852	3264.226306	3818.151626	3.13E-05	1.75E+00	5.48E-05	5.71E-01	0.479945121	0.273989753
1452	33239.36512	3880.934633	5782.015176	2.21E-05	1.76E+00	3.91E-05	5.67E-01	0.342148541	0.193949116
1453	34638.06248	4542.77585	7838.75545	3.33E-05	1.73E+00	5.74E-05	5.79E-01	0.50294177	0.291436005
1454	36245.59475	5175.945625	10141.60288	3.40E-05	1.68E+00	5.72E-05	5.94E-01	0.500674759	0.297592977
1455	37937.95129	5879.44785	12624.36315	5.67E-05	1.56E+00	8.86E-05	6.40E-01	0.77593075	0.496665413
1456	20060.45868	6444.225407	15124.22569	2.74E-04	1.20E+00	3.29E-04	8.31E-01	2.882201548	2.396122768
1457	21726.06947	9.314287892	31.9084488	4.55E-03	8.85E-01	4.03E-03	1.13E+00	35.27776966	39.88045483
1458	23226.15269	266.6094153	1923.916632	1.34E-03	9.68E-01	1.30E-03	1.03E+00	11.35169354	11.72275267
1459	24520.35292	612.9242294	3818.151626	8.98E-04	1.05E+00	9.46E-04	9.49E-01	8.286146833	7.864495008
1460	25678.87812	1052.100163	5782.015176	8.08E-04	1.04E+00	8.39E-04	9.63E-01	7.345311434	7.076420463
1461	26726.74316	1557.776506	7838.75545	5.79E-04	1.15E+00	6.64E-04	8.72E-01	5.818629326	5.073301788
1462	27795.24733	2111.201131	10141.60288	5.68E-04	1.12E+00	6.38E-04	8.91E-01	5.586095964	4.97479247
1463	28847.08722	2672.040965	12624.36315	4.59E-04	1.15E+00	5.27E-04	8.71E-01	4.618858067	4.022487792
1464	29902.93375	3264.226306	15124.22569	5.00E-04	1.15E+00	5.74E-04	8.72E-01	5.028237088	4.383736561
1465	30888.39815	3880.934633	31.9084488	3.54E-04	1.16E+00	4.11E-04	8.62E-01	3.597894026	3.103115426
1466	32095.94852	4542.77585	1923.916632	5.32E-04	1.12E+00	5.97E-04	8.92E-01	5.227391573	4.662870264
1467	33239.36512	5175.945625	3818.151626	5.44E-04	1.08E+00	5.86E-04	9.28E-01	5.131554662	4.761379582
1468	34638.06248	5879.44785	5782.015176	9.07E-04	9.58E-01	8.69E-04	1.04E+00	7.609626686	7.946466266
1469	36245.59475	6444.225407	7838.75545	4.38E-03	5.98E-01	2.62E-03	1.67E+00	22.93291732	38.33709424
1470	37937.95129	9.314287892	10141.60288	7.88E-04	1.58E+00	1.25E-03	6.31E-01	10.93995996	6.904817669
1471	20060.45868	266.6094153	12624.36315	2.32E-04	1.67E+00	3.87E-04	5.99E-01	3.385773852	2.029652623
1472	21726.06947	612.9242294	15124.22569	1.55E-04	1.75E+00	2.73E-04	5.70E-01	2.387532928	1.361642046
1473	23226.15269	1052.100163	31.9084488	1.40E-04	1.74E+00	2.43E-04	5.75E-01	2.129153083	1.225196484
1474	24520.35292	1557.776506	1923.916632	1.00E-04	1.85E+00	1.85E-04	5.42E-01	1.622122403	0.87838075
1475	25678.87812	2111.201131	3818.151626	9.83E-05	1.82E+00	1.79E-04	5.49E-01	1.569926369	0.861325055
1476	26726.74316	2672.040965	5782.015176	7.95E-05	1.85E+00	1.47E-04	5.41E-01	1.28707661	0.696445036
1477	27795.24733	3264.226306	7838.75545	8.66E-05	1.85E+00	1.60E-04	5.41E-01	1.401725667	0.758990884
1478	28847.08722	3880.934633	10141.60288	6.13E-05	1.86E+00	1.14E-04	5.38E-01	0.998915004	0.537266847
1479	29902.93375	4542.77585	12624.36315	9.22E-05	1.82E+00	1.68E-04	5.49E-01	1.470027572	0.807319504
1480	30888.39815	5175.945625	15124.22569	9.41E-05	1.78E+00	1.67E-04	5.63E-01	1.465370271	0.824375199
1481	32095.94852	5879.44785	31.9084488	1.57E-04	1.66E+00	2.60E-04	6.03E-01	2.280333555	1.375834376
1482	33239.36512	6444.225407	1923.916632	7.58E-04	1.30E+00	9.84E-04	7.70E-01	8.615599884	6.637603479
1483	34638.06248	9.314287892	3818.151626	6.06E-04	1.47E+00	8.88E-04	6.82E-01	7.779534154	5.30896562
1484	36245.59475	266.6094153	5782.015176	1.78E-04	1.55E+00	2.76E-04	6.46E-01	2.41748405	1.560556196

1485	37937.95129	612.9242294	7838.75545	1.20E-04	1.63E+00	1.95E-04	6.12E-01	1.711097965	1.046937248
1486	20060.45868	1052.100163	10141.60288	1.08E-04	1.62E+00	1.74E-04	6.18E-01	1.524923486	0.942027194
1487	21726.06947	1557.776506	12624.36315	7.71E-05	1.73E+00	1.33E-04	5.79E-01	1.166820927	0.675368044
1488	23226.15269	2111.201131	15124.22569	7.56E-05	1.70E+00	1.29E-04	5.87E-01	1.128249548	0.662254287
1489	24520.35292	2672.040965	31.9084488	6.11E-05	1.73E+00	1.06E-04	5.78E-01	0.925863152	0.535481591
1490	25678.87812	3264.226306	1923.916632	6.66E-05	1.73E+00	1.15E-04	5.79E-01	1.008289816	0.583571747
1491	26726.74316	3880.934633	3818.151626	4.72E-05	1.74E+00	8.21E-05	5.75E-01	0.718870729	0.413092909
1492	27795.24733	4542.77585	5782.015176	7.09E-05	1.70E+00	1.21E-04	5.88E-01	1.056382389	0.620730582
1493	28847.08722	5175.945625	7838.75545	7.24E-05	1.66E+00	1.20E-04	6.03E-01	1.051240463	0.633844338
1494	29902.93375	5879.44785	10141.60288	1.21E-04	1.54E+00	1.86E-04	6.50E-01	1.627375718	1.057849425
1495	30888.39815	6444.225407	12624.36315	5.83E-04	1.18E+00	6.87E-04	8.48E-01	6.016840602	5.103510383
1496	32095.94852	9.314287892	15124.22569	5.10E-04	1.62E+00	8.28E-04	6.16E-01	7.257459017	4.471527344
1497	33239.36512	266.6094153	31.9084488	1.50E-04	1.71E+00	2.56E-04	5.86E-01	2.243403082	1.314393462
1498	34638.06248	612.9242294	1923.916632	1.01E-04	1.79E+00	1.80E-04	5.58E-01	1.580230054	0.881792964
1499	36245.59475	1052.100163	3818.151626	9.06E-05	1.78E+00	1.61E-04	5.63E-01	1.409489944	0.793431463
1500	37937.95129	1557.776506	5782.015176	6.49E-05	1.89E+00	1.22E-04	5.30E-01	1.07246023	0.568835229
1501	20060.45868	2111.201131	7838.75545	6.37E-05	1.86E+00	1.19E-04	5.37E-01	1.038231507	0.557790042
1502	21726.06947	2672.040965	10141.60288	5.15E-05	1.89E+00	9.71E-05	5.30E-01	0.850933227	0.451014519
1503	23226.15269	3264.226306	12624.36315	5.61E-05	1.89E+00	1.06E-04	5.30E-01	0.926744621	0.491518915
1504	24520.35292	3880.934633	15124.22569	3.97E-05	1.90E+00	7.54E-05	5.27E-01	0.660337707	0.347931475
1505	25678.87812	4542.77585	31.9084488	5.97E-05	1.86E+00	1.11E-04	5.38E-01	0.972186032	0.522816301
1506	26726.74316	5175.945625	1923.916632	6.09E-05	1.82E+00	1.11E-04	5.51E-01	0.969596804	0.533861489
1507	27795.24733	5879.44785	3818.151626	1.02E-04	1.70E+00	1.73E-04	5.90E-01	1.511163407	0.89098385
1508	28847.08722	6444.225407	5782.015176	4.91E-04	1.34E+00	6.56E-04	7.48E-01	5.745527383	4.298480695
1509	29902.93375	9.314287892	7838.75545	4.32E-04	1.57E+00	6.79E-04	6.36E-01	5.94884196	3.78424946
1510	30888.39815	266.6094153	10141.60288	1.27E-04	1.66E+00	2.10E-04	6.04E-01	1.841817295	1.112369973
1511	32095.94852	612.9242294	12624.36315	8.52E-05	1.74E+00	1.48E-04	5.74E-01	1.299259908	0.746260571
1512	33239.36512	1052.100163	15124.22569	7.67E-05	1.73E+00	1.32E-04	5.80E-01	1.158579313	0.671480314
1513	34638.06248	1557.776506	31.9084488	5.50E-05	1.83E+00	1.01E-04	5.45E-01	0.883052374	0.481404729
1514	36245.59475	2111.201131	1923.916632	5.39E-05	1.81E+00	9.76E-05	5.52E-01	0.854561712	0.472057197
1515	37937.95129	2672.040965	3818.151626	4.36E-05	1.84E+00	8.00E-05	5.45E-01	0.700663312	0.381693171
1516	20060.45868	3264.226306	5782.015176	4.75E-05	1.83E+00	8.71E-05	5.45E-01	0.763072916	0.415972004
1517	21726.06947	3880.934633	7838.75545	3.36E-05	1.85E+00	6.21E-05	5.41E-01	0.54381497	0.294454086
1518	23226.15269	4542.77585	10141.60288	5.05E-05	1.81E+00	9.13E-05	5.53E-01	0.800178111	0.442458953
1519	24520.35292	5175.945625	12624.36315	5.16E-05	1.77E+00	9.10E-05	5.67E-01	0.797509774	0.451806485
1520	25678.87812	5879.44785	15124.22569	8.61E-05	1.65E+00	1.42E-04	6.08E-01	1.240411886	0.754038809
1521	26726.74316	6444.225407	31.9084488	4.15E-04	1.29E+00	5.34E-04	7.78E-01	4.676770028	3.637800241

1522	27795.24733	9.314287892	1923.916632	3.82E-04	1.62E+00	6.18E-04	6.19E-01	5.414192131	3.349683903
1523	28847.08722	266.6094153	3818.151626	1.12E-04	1.70E+00	1.91E-04	5.88E-01	1.67395907	0.984630594
1524	29902.93375	612.9242294	5782.015176	7.54E-05	1.79E+00	1.35E-04	5.60E-01	1.17934094	0.660563488
1525	30888.39815	1052.100163	7838.75545	6.79E-05	1.77E+00	1.20E-04	5.65E-01	1.051881201	0.594370646
1526	32095.94852	1557.776506	10141.60288	4.86E-05	1.88E+00	9.14E-05	5.32E-01	0.800536251	0.426122455
1527	33239.36512	2111.201131	12624.36315	4.77E-05	1.85E+00	8.85E-05	5.39E-01	0.774950543	0.41784835
1528	34638.06248	2672.040965	15124.22569	3.86E-05	1.88E+00	7.25E-05	5.32E-01	0.635179388	0.337861307
1529	36245.59475	3264.226306	31.9084488	4.20E-05	1.88E+00	7.90E-05	5.32E-01	0.691767207	0.368203719
1530	37937.95129	3880.934633	1923.916632	2.98E-05	1.89E+00	5.63E-05	5.29E-01	0.492919667	0.260640352
1531	20060.45868	4542.77585	3818.151626	4.47E-05	1.85E+00	8.28E-05	5.40E-01	0.725650716	0.39164903
1532	21726.06947	5175.945625	5782.015176	4.57E-05	1.81E+00	8.26E-05	5.53E-01	0.72365558	0.399923136
1533	23226.15269	5879.44785	7838.75545	7.62E-05	1.69E+00	1.29E-04	5.92E-01	1.127555956	0.66744851
1534	24520.35292	6444.225407	10141.60288	3.68E-04	1.33E+00	4.89E-04	7.52E-01	4.282452591	3.220052229
1535	25678.87812	9.314287892	12624.36315	3.45E-04	1.52E+00	5.24E-04	6.59E-01	4.590223379	3.025766487
1536	26726.74316	266.6094153	15124.22569	1.02E-04	1.60E+00	1.63E-04	6.25E-01	1.423780568	0.889415939
1537	27795.24733	612.9242294	31.9084488	6.81E-05	1.69E+00	1.15E-04	5.93E-01	1.006055941	0.59668641
1538	28847.08722	1052.100163	1923.916632	6.13E-05	1.67E+00	1.02E-04	5.99E-01	0.896858081	0.536894476
1539	29902.93375	1557.776506	3818.151626	4.39E-05	1.78E+00	7.82E-05	5.62E-01	0.684907507	0.384916035
1540	30888.39815	2111.201131	5782.015176	4.31E-05	1.76E+00	7.56E-05	5.70E-01	0.662538011	0.377442043
1541	32095.94852	2672.040965	7838.75545	3.48E-05	1.78E+00	6.20E-05	5.62E-01	0.543456373	0.305189818
1542	33239.36512	3264.226306	10141.60288	3.80E-05	1.78E+00	6.76E-05	5.62E-01	0.591850884	0.332598092
1543	34638.06248	3880.934633	12624.36315	2.69E-05	1.79E+00	4.82E-05	5.58E-01	0.421878744	0.235436198
1544	36245.59475	4542.77585	15124.22569	4.04E-05	1.75E+00	7.08E-05	5.70E-01	0.62035517	0.353776221
1545	37937.95129	5175.945625	31.9084488	4.12E-05	1.71E+00	7.05E-05	5.85E-01	0.617810913	0.361250212
1546	20060.45868	5879.44785	1923.916632	6.88E-05	1.59E+00	1.09E-04	6.29E-01	0.958661137	0.602905644
1547	21726.06947	6444.225407	3818.151626	3.32E-04	1.23E+00	4.09E-04	8.13E-01	3.579549889	2.908670312
1548	23226.15269	9.314287892	5782.015176	2.82E-04	1.20E+00	3.39E-04	8.32E-01	2.971963352	2.472802576
1549	24520.35292	266.6094153	7838.75545	8.30E-05	1.29E+00	1.07E-04	7.78E-01	0.934482974	0.726873681
1550	25678.87812	612.9242294	10141.60288	5.57E-05	1.37E+00	7.63E-05	7.29E-01	0.668500663	0.487640966
1551	26726.74316	1052.100163	12624.36315	5.01E-05	1.36E+00	6.79E-05	7.38E-01	0.594660341	0.438776108
1552	27795.24733	1557.776506	15124.22569	3.59E-05	1.46E+00	5.26E-05	6.83E-01	0.460591303	0.314571982
1553	28847.08722	2111.201131	31.9084488	3.52E-05	1.44E+00	5.07E-05	6.94E-01	0.44423505	0.308463875
1554	29902.93375	2672.040965	1923.916632	2.85E-05	1.47E+00	4.17E-05	6.82E-01	0.365526798	0.249415866
1555	30888.39815	3264.226306	3818.151626	3.10E-05	1.46E+00	4.54E-05	6.83E-01	0.398017198	0.271815231
1556	32095.94852	3880.934633	5782.015176	2.20E-05	1.48E+00	3.24E-05	6.77E-01	0.2841351	0.192409837
1557	33239.36512	4542.77585	7838.75545	3.30E-05	1.44E+00	4.75E-05	6.95E-01	0.415857131	0.289123022
1558	34638.06248	5175.945625	10141.60288	3.37E-05	1.40E+00	4.70E-05	7.17E-01	0.411852661	0.295231129

1559	36245.59475	5879.44785	12624.36315	5.62E-05	1.27E+00	7.17E-05	7.84E-01	0.628165365	0.492723625
1560	37937.95129	6444.225407	15124.22569	2.71E-04	9.15E-01	2.48E-04	1.09E+00	2.176154241	2.377105923