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International Agreement Report

Assessment of RELAP5/MOD3.1 for Gravity-Driven Injection Experiment in the Core Makeup Tank of the CARR Passive Reactor (CP-1300)

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Office of Nuclear Regulatory Research
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Prepared as part of
The Agreement on Research Participation and Technical Exchange
under the International Thermal-Hydraulic Code Assessment
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Assessment of RELAP5/MOD3.1 for Gravity-Driven Injection Experiment in the Core Makeup Tank of the CARR Next Generation Reactor

Abstract

The objective of the present work is to improve the analysis capability of RELAP5/MOD3.1 on the direct contact condensation in the core makeup tank(CMT) of passive high-pressure injection system(PHPIS) in the CARR Passvie Reactor(CP-1300). The gravity-driven injection experiment is conducted by using a small scale test facility to identify the parameters having significant effects on the gravity-driven injection and the major condensation modes. It turns out that the larger the water subcooling is, the more the initiation of injection is delayed, and the sparger and the natural circulation of the hot water from the steam generator accelerate the gravity-driven injection. The condensation modes are divided into three modes: sonic jet, subsonic jet, and steam cavity. RELAP5/MOD3.1 is chosen to evaluate the code predictability on the direct contact condensation in the CMT. It is found that the predictions of MOD3.1 are in better agreement with the experimental data than those of MOD3.0. From the nodalization study of the test section, the 1- node model shows better agreement with the experimental data than the multi- node models. RELAP5/MOD3.1 identifies the flow regime of the test section as vertical stratification. However, the flow regime observed in the experiment is the subsonic jet with the bubble having the vertical cone shape. To accurately predict the direct contact condensation in the CMT with RELAP5/MOD3.1, it is essential that a new set of the interfacial heat transfer coefficients and a new flow regime map for direct contact condensation in the CMT be developed.

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Executive Summary

At Center for Advanced Reactor Research(CARR) in Korea a passive PWR concept named CARR Passive Reactor(CP-1300) has been developed by adopting a passive engineered-safety-feature-system. The CP-1300 passive safety injection system consists of passive high-pressure injection system(PHPIS), accumulator , and in-containment refueling water storage tank(IRWST), which are used to supply emergency core cooling water at high, intermediate, and low pressure, respectively. The PHPIS consists of the core makeup tanks(CMTs) with a sparger and the pressurizer-pressure balancing line. The PHPIS can provide cold water at any RCS pressure by gravity force because the pressure of the CMT is equilibrated with the RCS through lines connecting the inlet of the CMT to the pressurizer.

RELAP5 code has been developed as one of the best-estimate codes. The code is based on a non-homogeneous and non-equilibrium model for one dimensional, two-phase flow. Recently, RELAP5 code development program has been initiated to develop a code version suitable for the safety analysis of passive advanced reactors like the CP-1300. However, there is no model in RELAP5 that can deal with the direct contact condensation of steam in the pool like the CMT of the PHPIS.

The objective of the present work is to improve the analysis capability of the RELAP5/MOD3.1 on the direct contact condensation in the CMT of the PHPIS. The gravity-driven injection experiment is conducted by using a small scale test facility to identify the parameter governing the gravity-driven injection

and the major phenomena. To evaluate the code predictability on the direct contact condensation in the CMT, the base case studies are performed on the experiments. Also, a sensitivity study is performed on two code versions (MOD3.0 vs MOD3.1). Finally, the effect of the node number of the test section on the gravity driven injection is investigated. From the present study, the following conclusions are obtained:

- The experimental results show that the lower the water temperature is, the longer the initiation time of injection is delayed, and the sparger and the natural circulation from the hot water in the steam generator accelerate the gravity-driven injection. The condensation modes identified through the experiments are divided into three modes: sonic jet, subsonic jet, and steam cavity. The steam cavity is the unique mode of downward injection with a solid surface directly connected to the pipe exit not seen in other experiments.

- RELAP5/MOD3.1 better predicts the experiment data of the water level at 4 bar than that at 1.5 bar. However, the calculated results are not in good agreement with the other measurement parameters, such as the pressures of the steam generator and the test section, the pool temperature, the flow rate of steam and injection, the test section water level.

- The overall prediction capabilities of RELAP5/MOD3.0 and MOD3.1 are poor. However, the predictions of RELAP5/MOD3.1 are in better agreement with the experimental data than those of RELAP5/MOD3.0. MOD3.0 and MOD3.1 identify the flow regime of the test section as vertical stratification, and they have the same heat transfer correlation of the vertical stratification. It is not clear the reason why MOD3.1 better predicts the experimental data than MOD3.0.

- From the nodalization study of RELAP5/MOD3.1, the 1-node model shows better agreement with the experimental data than multi-node models. However, considering the penetration depth of the jetting, the proper node number of the CMT must be determined.

- To accurately predict the direct contact condensation in the CMT by the RELAP5/MOD3.1, it is necessary that a new set of the interfacial heat transfer coefficients and a new flow regime map for the direct contact condensation in the CMT be developed. The new set of the interfacial heat transfer coefficients and the flow regime map should capture the physical process of the direct contact condensation in the CMT.

Acknowledgment

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Chapter 1

Introduction

1.1 Background

At Center for Advanced Reactor Research(CARR) in Korea, a passive PWR concept named CARR Next Generation Reactor(CP-1300) has been developed by adopting a passive engineered-safety-feature-system as shown in Figure 1.1 The CP-1300 is a large passive PWR with the power of 1300MWe because of limitations on plant site size and a decrease of construction costs per power. The CP-1300 adopts the core of Korea Standard Nuclear Power Plant(KSNPP) such as YGN units 3 and 4 PWRs and Ulchin units 3 and 4 PWRs. However, the number of fuel assembly is increased to reduce power density. The RCS of the CP-1300 consists of 2 hot legs and 4 cold legs (2 loop), which is the same as those of KSNPP and System 80+. Instead of canned motor pumps used in AP600, sealed pumps are used. A natural circulation loop is installed in the secondary side of each S/G to achieve passive residual heat removal system(PRHRS). In addition, 2 natural circulation loops serve as passive containment cooling system(PCCS). The CP-1300 passive safety injection system consists of Passive High-Pressure Injection System(PHPIS), accumulators, and In-Containment Refueling Water Storage Tank(IRWST), which are used to supply emergency core cooling water

at high, intermediate, and low pressure, respectively. In order to provide RCS with IRWST water at low pressure, automatic depressurization system(ADS) is installed.

The PHPIS consists of the core makeup tanks(CMTs) with a sparger and the pressurizer balancing line. The PHPIS can provide cold water at any RCS pressure by gravity force because the pressure of the CMT is equilibrated with the reactor coolant system through lines connecting the inlet of the CMT to the pressurizer. The major merit of the PHPIS is that it is considered to have a potential to establish a more reliable means to replenish the reactor coolant inventory without operator's intervention. Despite such a potential of the gravity-driven injection system, there are few published experimental data showing its thermal-hydraulic characteristics, especially the direct contact condensation phenomena of steam in the CMT. A rigorous study of the effect of direct contact condensation on the injection of the CMT is required for the design of passive safety injection system.

RELAP5/MOD3.1 [1] developed at Idaho National Engineering Laboratory (IN-EL) is a highly generic code to calculate the behavior of a reactor coolant system during a transient. The application of this code includes analysis required to support licensing audit calculation, evaluation of accident mitigation strategies, and experiment planning and analysis. However, there is no model in RELAP5 that can deal with the direct contact condensation of steam in the pool like the CMT. To simulate the licensing accidents of Passive Advanced Reactors like the CP-1300 by using RELAP5, it is essential to develop the condensation regime map and the model for the interfacial heat transfer coefficients of the direct contact condensation of steam in the pool. Since the interfacial heat transfer coefficient for direct contact condensation in the pool is strongly dependent on flow regime, if the regime can not be identified correctly, it is unlikely that we will produce

correct predictions for the associated heat transfer rate. Table 1.1 shows the summary of the condensation regime map related in this study. There is no existing experimental data concerning the transition criteria between the condensation regimes when steam is condensed out of the steam pipe exit in the CMT. Unlike the vent pipe in the BWR suppression pool, the steam pipe is connected to the CMT, and there is a solid boundary directly connected to the pipe exit which inhibits the steam bubble moving upwardly along the tubes.

1.2 Objectives and report organization

The present study aims at assessing and improving the analysis capability of the RELAP5/MOD3.1 on the direct contact condensation in the CMT of the PHPIS. For this purpose, first the gravity-driven injection experiment is conducted by using a small scale test facility named KARD-I(KAIST Experiments for Advanced Reactor Development-I) to investigate the effect of the direct contact condensation on the gravity-driven injection and the major condensation modes.

Secondly, the gravity injection experiment is simulated by RELAP5/MOD3.1 to evaluate whether or not it can describe the direct contact condensation occurring in the top of the test section.

The following material is contained in this report. Chapter 2 includes a description of experimental facility and conditions and results. In Chapter 3, a code description and modeling of the test facility are described. The calculated results of base cases are discussed in detail with the experimental data. Also, the calculated results of sensitivity studies , nodalization study and run statistics are described in this chapter. Chapter 4 summarizes the conclusions through the present study. Finally, the RELAP5 input deck and the experimental data are attached as a Appendix A and B, respectively.

Table 1.1: Summary of condensation regime map

author	steam pipe diameter(mm)	water temp.(C)	steam mass flux (Kg/sec m^2)	direction pipe exit shape	regime
Fukuda [5]	8 16.1 27.6	25-90	0 - 350	downward vent pipe	type A : chugging type B : transition type C : subsonic jet type D : osillatory bubble type E : sonic jet
Chan Lee [6]	51	40 - 90	1 - 175	downward vent pipe	chugging oscillatory bubble ellipsoidal oscillatory bubble ellipsoidal jet oscillatory cone jet
I. Aya H. Nariai [7]	9 - 38	0 -100	40	downward vent pipe	chugging condensation oscillation bubbling
Liang [8]	19.1 10.9	50-100	0-50	upward rectangular channel	chugging bubbling subsonic jet soinc jet

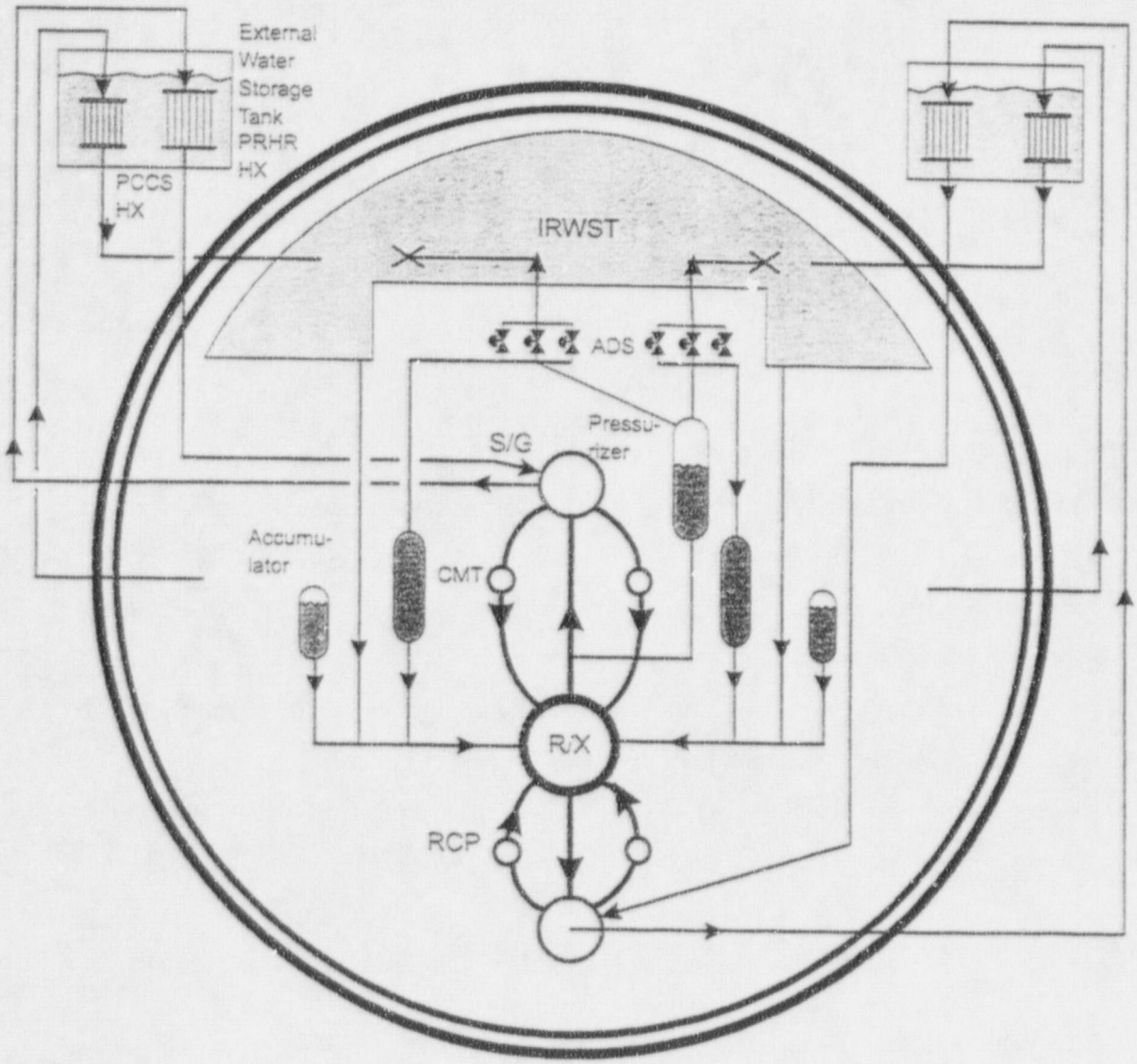


Figure 1.1: A schematic diagram of CARR Next Generation Reactor

Chapter 2

Gravity-Driven Injection Experiment

One of the safety concerns is the prevention of the gravity-driven injection because of a large pressure drop in the top of the CMT resulting from the direct contact condensation. The direct contact condensation in the top of the CMT is mainly governed by condensation modes. The objectives of the present experiment are to identify the condensation modes to answer which phenomena are dominant, and investigate the major parameters governing the gravity-driven injection. To these ends, a small scale test facility named KARD-I(KAIST Experiments for Advanced Reactor Development-I) has been constructed, and the experimental work is in progress.

2.1 Experimental setup and instrumentation

A diagram of the KARD-I is shown in Figure 2.1. It consists of three major parts: test section simulating the CMT, steam generator simulating the pressurizer, and the measuring system.

The test section includes a heater, a heater controller controlling the water

temperature, front and back visual windows, and drain line as shown in Figure 2.2. The test section is a tank with 85cm height and 65cm diameter. The scaling ratios of the test section relative to the CMT of AP600 are $\frac{1}{7}$(height ratio) and $\frac{1}{36}$(area ratio), respectively. The visual windows are reinforced glass with 30cm diameter. Through the visual windows, the phenomena occurring at the exit of the steam pipe can be observed and recorded by using a high speed camera. To investigate the vertical temperature distribution of the test section, ten RTDs are installed along the wall of the tank. The heater has a heating capacity of 8 KW to control the test condition of water temperature. Filtered water is used as the working liquid.

The steam generator which functions as a pressurizer is 2 m high, 1 m dia., 10 mm thick cylindrical stainless steel pipe which is connected to the 12-mm-thick stainless steel hemisphere. The total volume is 1.332 m^3. The capacity of the heater is 108 KW. It is located in the lower part of the steam generator in the horizontal direction to prevent uncovery of the heater. Filtered water is supplied to the steam generator and the test section by a pump.

The associated piping lines are the steam feed line and the natural circulation line for hot water from the steam generator. The diameters of these piping lines are 0.015 m and 0.032 m, respectively. The steam feed line is insulated by an asbestos to minimize the heat loss. The injection line from the bottom of the test section has a check valve to prevent air ingress due to a rapid pressure drop.

To measure the chugging boundary, beyond which subcooled water in the tank rushes periodically into the steam path, a thermocouple is installed at the exit of the steam feed line. Ten resistance temperature detectors(RTD) are used for measurement of the vertical distribution of water in the test section. Three vortex flowmeters made by Omega Co. are used to measure the steam flow rates from the steam generator, the drain water flow rate from the bottom of the test

section, and the natural circulation flow of the hot water from the steam generator. The measurement ranges of the flowmeters are $10-90kg/m^2sec$, $0-8GPM$, $0-25GPM$, respectively. The pressure of the steam generator is measured by the pressure transducer made by Foxboro Co. The pressure of the test section is measured by two types of pressure transducers made by Foxboro Co. and Omega Co. The PX176 pressure transducer made by Omega Co. has a frequency response of $10KHz$, which is sufficient to measure the pressure oscillation of the test section. The water level of the test section can be measured by visual observation because there is a scale on the visual window.

A high speed camera system is used to record the process of the direct contact condensation in the top of the test section, and after the experiment, it can be used to analyze the recorded data.

The data acquisition system consists of HP3852A control unit, 10 channel I-V converter, 8 channel power supply, GPIB card, IBM-PC/AT. The three vortex flowmeters and the three pressure transducers generate DC current signals which vary from 4 to 20mA. The DC current signals are changed into the voltage signals by the I-V converter with 1-5VDC output. The voltage signals from 3 pressure transducers, 1 thermocouple, 3 vortex flowmeter are read by the HP3852A control unit through HP44708H multiplexer. The 10 RTDs are read by the HP3852A control unit through HP44711A high speed multiplexer. Through the GPIB interface card, these readings are transferred to a IBM-PC/AT and displayed on the monitor screen dynamically, and restored in the hard disk.

Table 2.1 shows the tag list for the KARD-I instrumentation. This tag list includes the model number, the measurement range, and the uncertainties of measuring parts(RTDs, pressure transducers, flowmeters). The uncertainties of the data acquisition system and I-V converter is 0.1% and 0.1% respectively. These valves are negligible compared with those of the measuring parts.

2.2 Test procedure

The test matrix is listed in Table 2.2. In the first part, three tests(GI021, GI022, GI023) are conducted to determine the condensation regimes and the effect of water subcooling on the gravity-driven injection. The forth and fifth tests(GN021, GS021) investigated the effects of natural circulation of the hot water from the steam generator on the gravity-driven injection and the effects of the sparger on gravity-driven injection, respectively. In the second part, three tests investigated the effects of the high pressure on the gravity injection.

The test procedure is as follows:

Step1: The filtered water is filled up to valve V_3.

Step2: The air in the system is initially driven out by the steam generated in the steam generator. Then valves V_1, V_2, V_4 are opened, while valve V_3 remains closed(Figure 2.1). To ensure the total purging of the air in the system, this process is normally continued for two hours. Then the steam generator remains at atmospheric pressure.

Step3: Valve V_4 is closed, and valve V_3 is opened. Opening valve V_3 allows the test section and the steam generator to be the same pressure. The water in the test section is heated to the desired temperature, and simultaneously the steam generator heater is turned on until the steam generator temperature reaches the desired value.

Step4: After the test conditions reach the desired point, the data acquisition system and the high speed camera are started to record the data and the interface motion at the pipe exit. After 10 sec, valve V_6 is opened within a second. During the test, the power of the steam generator remains at 8KW to compensate the heat loss of the overall system.

Step5: When the water level drops below the visual windows, the experiment is

terminated.

2.3 Experimental results

2.3.1 Effects of water subcooling on gravity-driven injection

Figure 2.3 shows the pressure trend of the top of the test section for test GI021. As soon as the valve V_6 is opened, the pressure of the test section suddenly drops below atmospheric pressure because the condensation rate is much larger than the steam supply rate.

Figure 2.4 shows the effects of water subcooling on injection flow rates. At $T_w = 31°C$ and $T_w = 61°C$, the test section begins to drain at 1400sec and 2250sec, respectively. At $T_w = 91°C$, after the valve V_6 is open, the injection begins immediately due to the fast recovery of the pressure drop between the test section and the steam generator caused by the high water temperature. The result shows that the lower the water temperature is, the more the initiation of injection is delayed.

Figure 2.5 shows a transient of the temperature distribution of the test section for test GI021. As the condensation proceeds, thermal stratification begins to occur at 1250sec. In the early stage of test GI021, the water temperature measured at all RTDs increases. After 1250sec, the temperatures of the upper four RTDs begin to increase, and the rest of RTDs are the constant temperature. It is observed that before 1250sec, the size of the steam bubble is smaller than 2 cm, and the pressure oscillation is vigorous. However, after 1250sec, the transition of the condensation mode begins to occur. At this time, the size of the steam bubble is larger than 4 cm, and the pressure oscillation disappears. It can be therefore stated that the momentum of the steam jet induces circulation of the cold water,

and as a result, the interaction between the cold water and the steam bubble promotes the condensation resulting in the pressure drop as shown in Figure 2.3. When the water begins to inject, the temperatures of the upper four RTDs are about $80°C$. It is certain that the thermal stratification exists between 4th RTD and 5th RTD because the temperature difference between 4th RTD and 5th RTD is approximately $30°C$.

2.3.2 Effects of natural circulation on gravity-driven injection

Recently, the AP600 integral system tests were conducted by using SPES-2 in Italy [10]. In those experiments, the valves in the CMT balancing line and the CMT injection line were simultaneously opened after the S-signal. The results show that the CMT begins to drain, changing from natural circulation operation to steam displacement. This result also shows that there may be a means to enhance the CMT injection performance.

To understand the mechanism of natural circulation in the CMT, the experiment(GN021) was conducted. In this experiment, at the same time of *Step 4*, valve V_5 is opened, which allows a flow between the top of the test section and the midpart of the steam generator, i.e. natural circulation between two tanks. Figure 2.6 shows the effects of natural circulation on the injection flow rate. The result shows that the natural circulation of the hot water from the steam generator accelerates the injection of the test section.

Figure 2.7 shows a comparison between the natural circulation flow rate and the injection flow rate. It is observed that the hot water from the steam generator is jetted into the test section. This is why the trend of natural circulation flow is oscillatory. Until 650s, the water level does not decrease and the injected water is compensated by the natural circulation flow from the steam generator.

After 650s, the water level of the test section begins to decrease, which means a transition from natural circulation to steam displacement.
Figure 2.8 shows the temperature distribution in the test section for test GN021. Thermal stratification does not occur because of the mixing of the hot water. This result shows that the mixing process of the hot water inhibits the thermal stratification and promotes the gravity-driven injection.

2.3.3 Effects of the sparger on gravity-driven injection

To investigate the effect of the sparger on the gravity-driven injection, as shown in Figure 2.2, the sparger is installed 3 cm beneath the exit of the steam feed line. The sparger is the circular disk with 5 mm thickness and 15 mm diameter. Figure 2.9 shows the effects of the sparger on the injection flow rate. This result shows that the sparger promotes the injection of the water in the test section.
Figure 2.10 shows the temperature distributions in the test section for test GS021. It is observed that the thermal stratification occurs between 80cm and 76cm, and the momentum of the steam bubble does not reach the region below 76cm because the sparger changes the vertical direction of the momentum of the steam jet to the horizontal direction. As a result, all the energy of the steam is transferred to the upper hot water layer. Thus, the sparger tends to prohibit the energy of the steam jet from being transfered to the water below the sparger.

The mechanism of the gravity-driven injection with the sparger is different from that from the natural circulation. The former is that the sparger reduces the region affected by the momentum of the steam jet, and all the steam injected into the tank is used to increase the temperature of the upper hot water layer. When the temperature of the upper hot layer is about $80°C$, the water begins to inject.The hot water from the steam generator tends to promote circulation of all of water in the test section, and the energy of the hot water and the steam jet

is used to increase the temperature of the bulk water in the test section because the large amount of the hot water from the steam generator is supplied by the pressure difference.

2.3.4 Effects of the pressure on gravity-driven injection

To investigate the effects of the high pressure on the gravity-driven injection, experiments(PI041, PN041, PS041) were conducted at 4 bar. Figure 2.11 shows the effects of the high pressure on the gravity-driven injection. The results show that the gravity-driven injection at 4 bar is initiated much earlier than that at 1.5 bar because the pressure difference between the test section and the steam generator at 4 bar is much larger than at 1.5 bar as shown in Figures 2.3 and 2.12. This causes the large steam flow rate and the high increase of the pool water temperature at 4 bar.

Figure 2.13 shows the effects of the sparger and the natural circulation on the gravity-driven injection at 4 bar. In the case of the natural circulation, before 500sec, the water level in the test section does not drop because the hot water from the steam generator compensates the injection flow rate. After 500sec, the water level begins to drop because the natural circulation flow rate begins to decrease.

2.3.5 Identification of condensation modes

The condensation identified through the experiments are divided into three modes: sonic jet, subsonic jet, steam cavity. The sonic jet can be observed at early stage of GI021 and GI022. Figure 2.14 is the sonic jet having the shape of the inverted cone. If the water temperature increases and the steam velocity decreases, the interface of the sonic jet will start to oscillate and collapse at the tip of the cone. After that, as shown in Figure 2.15, the condensation mode is the subsonic jet in

which the bubble grows, is broken into two parts and collapes.

In test GI021, after 1380s, the cylindrical bubble attached to the exit of the steam feed line as shown in Figure 2.16. This bubble does not collapse but oscillate vertically. After this mode, the water level begins to decrease. To the author's knowledge, there has been no research performed to investigate this mode of condensation. Based on the regime map presented by Chan and Lee [6], the ranges of the water temperature and steam flow rate including this mode correspond to oscillatory bubble regime. The characteristics of oscillatory bubble are that the steam region has expanded to encapsulate part of the pipe and detachment occurs above the vent exit. The geometry of present experiment has the solid boundary to inhibit the steam bubble separating from the steam nozzle. It is believed that this mode may result from the effect of this geometry. This mode is called steam cavity here.

Table 3 shows the time of the initiation of the water injection and the transition between subsonic jet and steam cavity. When the water injection begins, the major regime is the steam cavity. When the water in the test section is injected, the steam cavity mode persists. In the steam cavity mode, the steam injection rate is larger than the condensation rate through the interface because of the high water temperature. Then the pressure in the test section builds up to the steam generator pressure, and after that, the steam begins to displace the water in the test section during the water injection period. With respect to the condensation mode, the sparger and the natural circulation cause the reduction of the initiation time of the steam cavity by 1000sec and 600sec at 1.5bar and 4 bar, respectively. In these experiments, the chugging mode is not observed. The chugging mode is known to be observed at low steam mass flux and low water temperature.

Before the condensation mode enters the chugging mode, the water temperature increases beyond the chugging boundary.

Table 2.1: Tag list for the KARD-I instrument

Experiment parameters	Model no.	Measurement ranges	Units	Instrument uncertainty	Calculated parameters
S/G pressure	Foxboro E11AH	0 - 230	PSIS	1%	P-100100000
T/S pressure	OMEGA PX176-100S5V	0 - 100	PSIS	1%	P-160010000
Steam flow rate	OMEGA FV-505G	10 - 90	kg/m^2 sec	5%	mflowj-131000000
Injection flow rate	OMEGA FV-505L	0 - 8	GPM	3.6%	mflowj-161000000
Natural circulation flow rate	OMEGA FL-505L	0 - 25	GPM	3.6%	mflowj-325000000
T/S temperature	Type 92 RTD	-200 - 500	^oC	1%	tempf-160100000
Water level		70 - 85	cm	6%	cntrlvav 130

Table 2.2: Test matrix

test no	$P_{sg}(bar)$	$T_s(°C)$	$T_w(°C)$	$\Delta T(°C)$	parameter effect
					subcooling effect
GI021	1.5	111.4	31	80	
GI022	1.5	111.4	61	50	
GI023	1.5	111.4	91	20	
GN021	1.5	111.4	31	80	natural circulation
GS021	1.5	111.4	31	80	sparger
					high pressure effect
PI041	4.0	144	31	113	
PN041	4.0	144	31	113	natural circulation
PS041	4.0	144	31	113	sparger

Table 2.3: Transition time between subsonic jet and steam cavity, and injection time

	Transition time (sec)	Injection time (sec)
GI021	1380	2250
GI022	432	1400
GI023	15	40
NI021	285	600
SP021	134	750
PI041	1064	1300
PN041	300	470
PS041	240	600

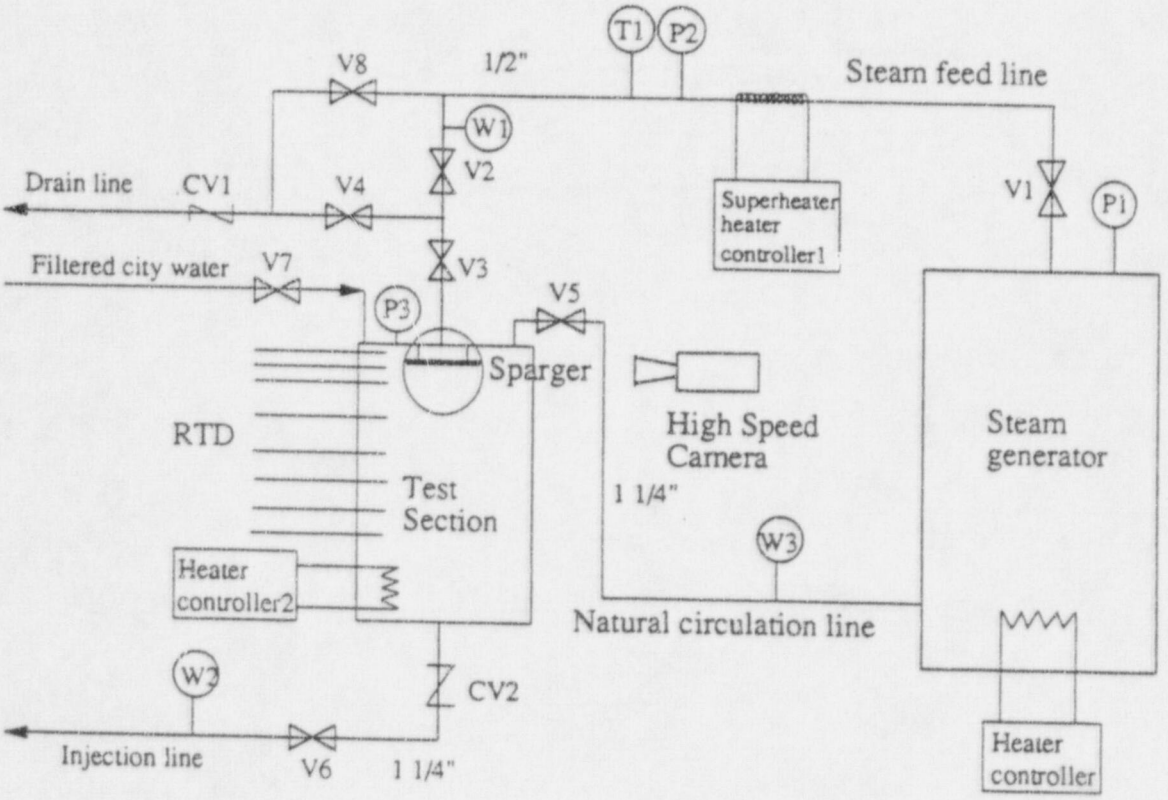


Figure 2.1: A systematic diagram of test facility

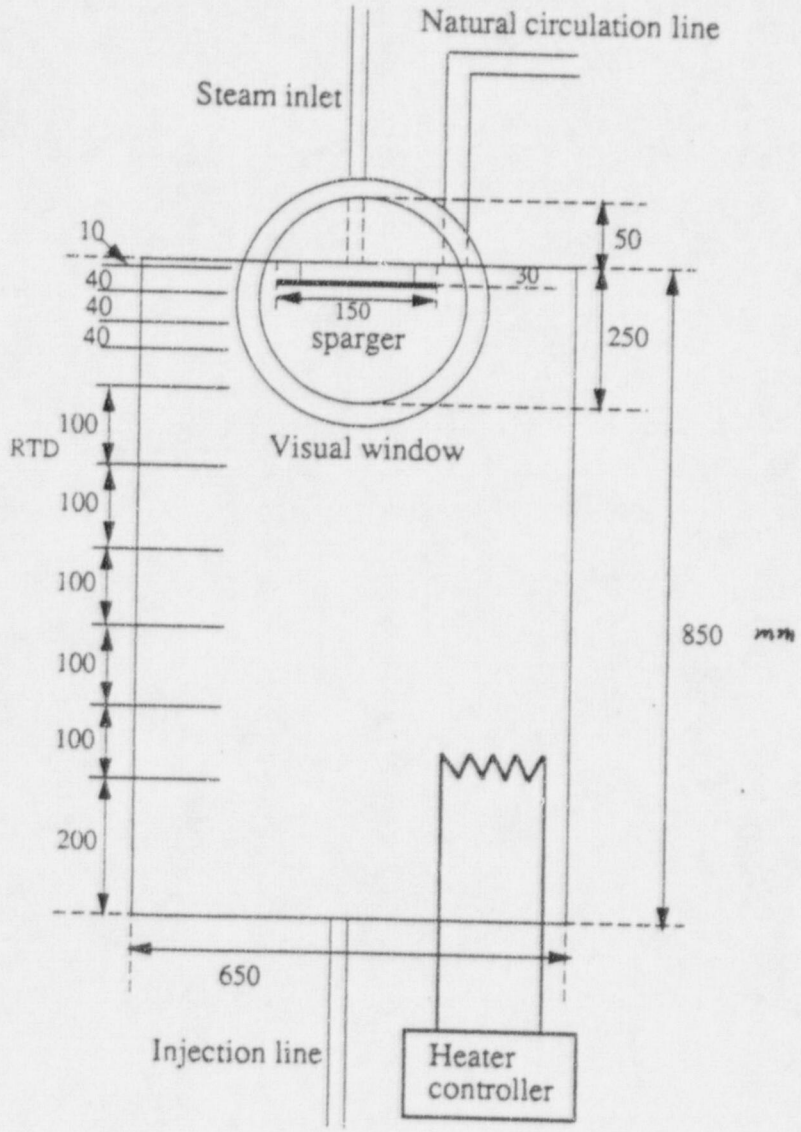


Figure 2.2: A systematic diagram of test section

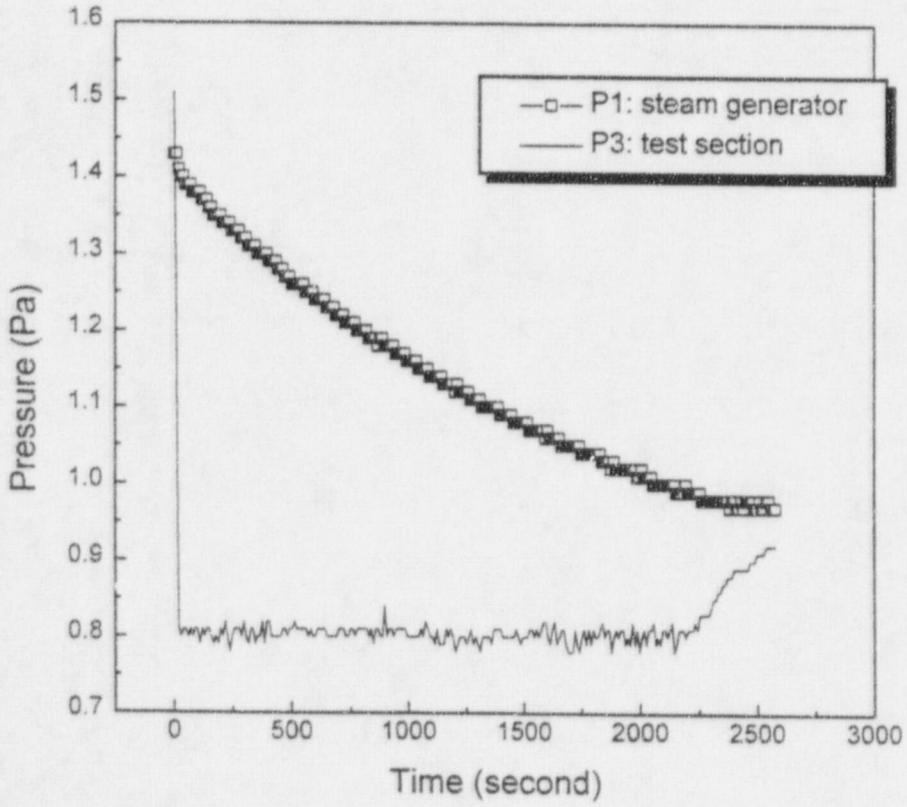


Figure 2.3: The pressure trend for test GI021

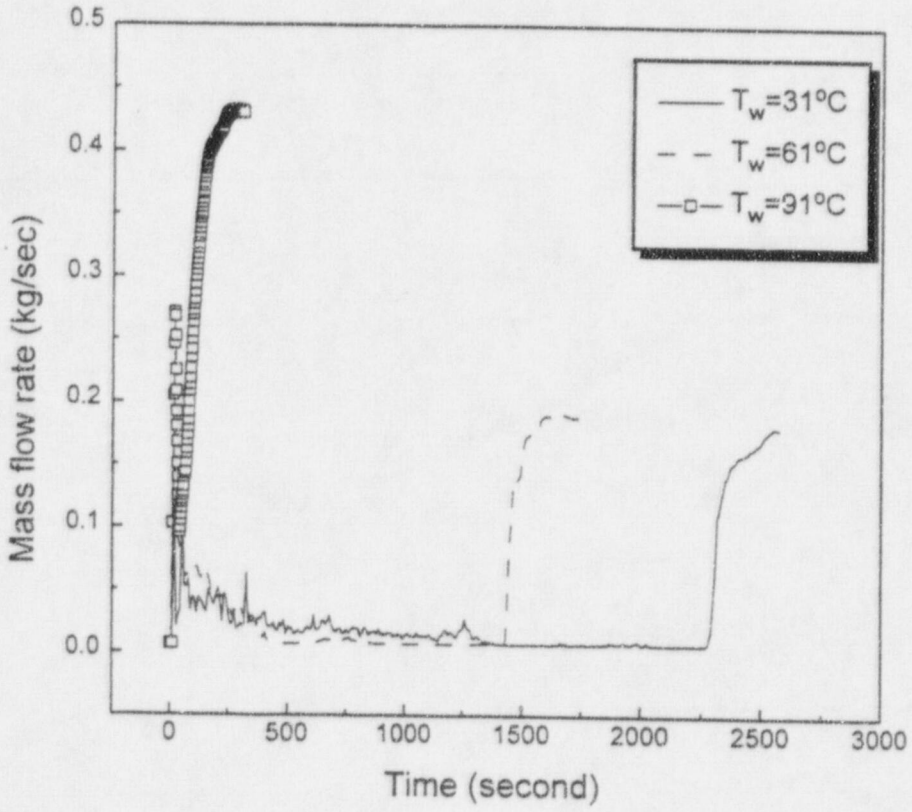


Figure 2.4: The effect of water subcooling on the injection flow rate for test GI021, GI022, and GI023

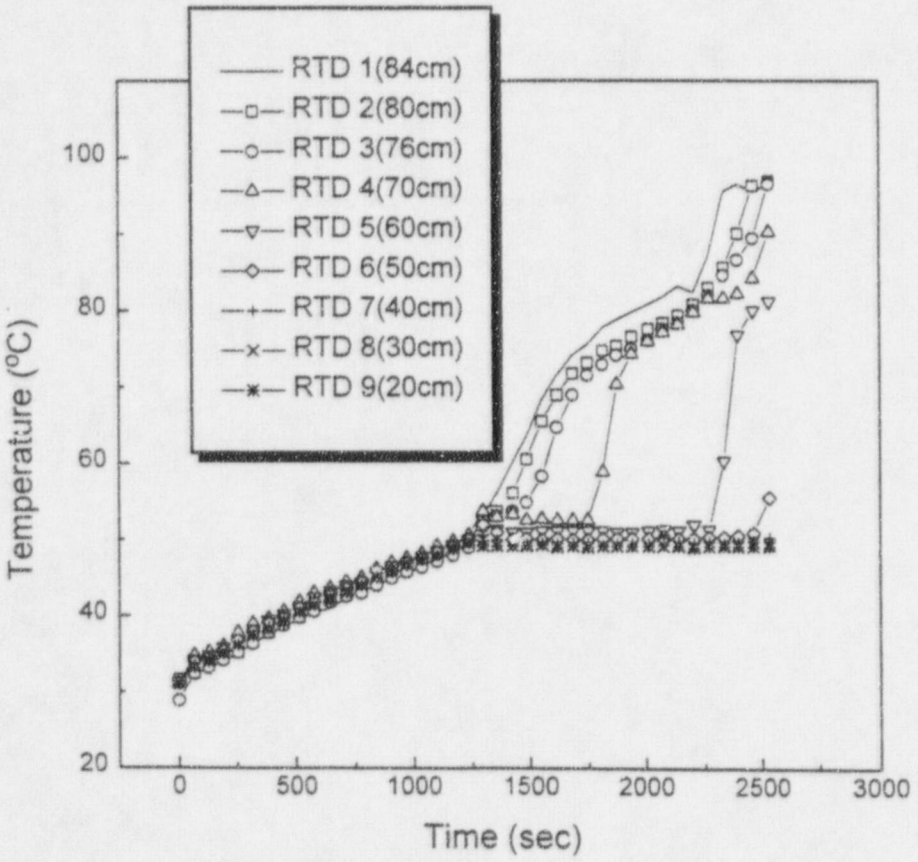


Figure 2.5: The temperature distribution of test section for test GI021

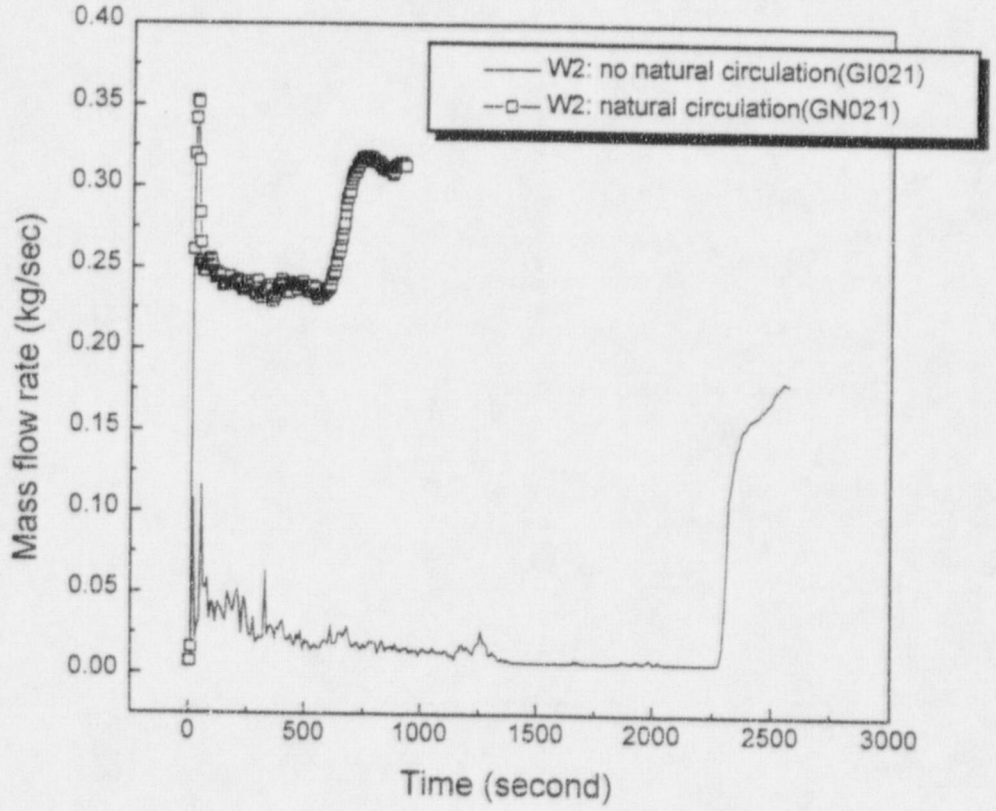


Figure 2.6: The effect of the natural circulation on the injection flow rate for test GI021 and GN021

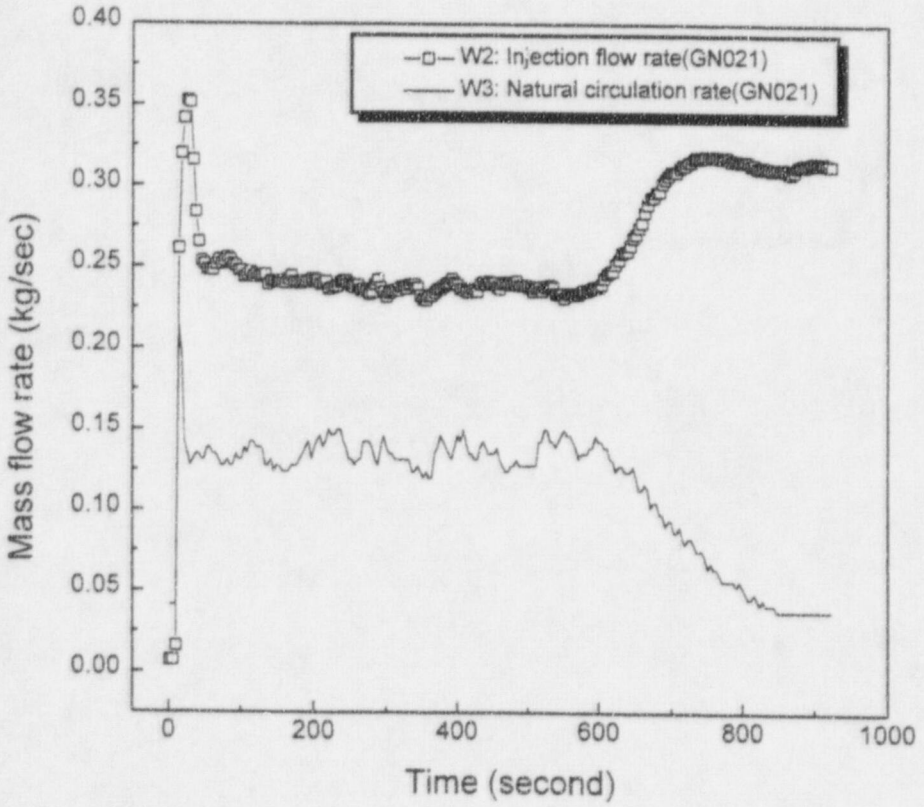


Figure 2.7: The comparison of the natural ciculation flow with the injection flow rate for test GN021

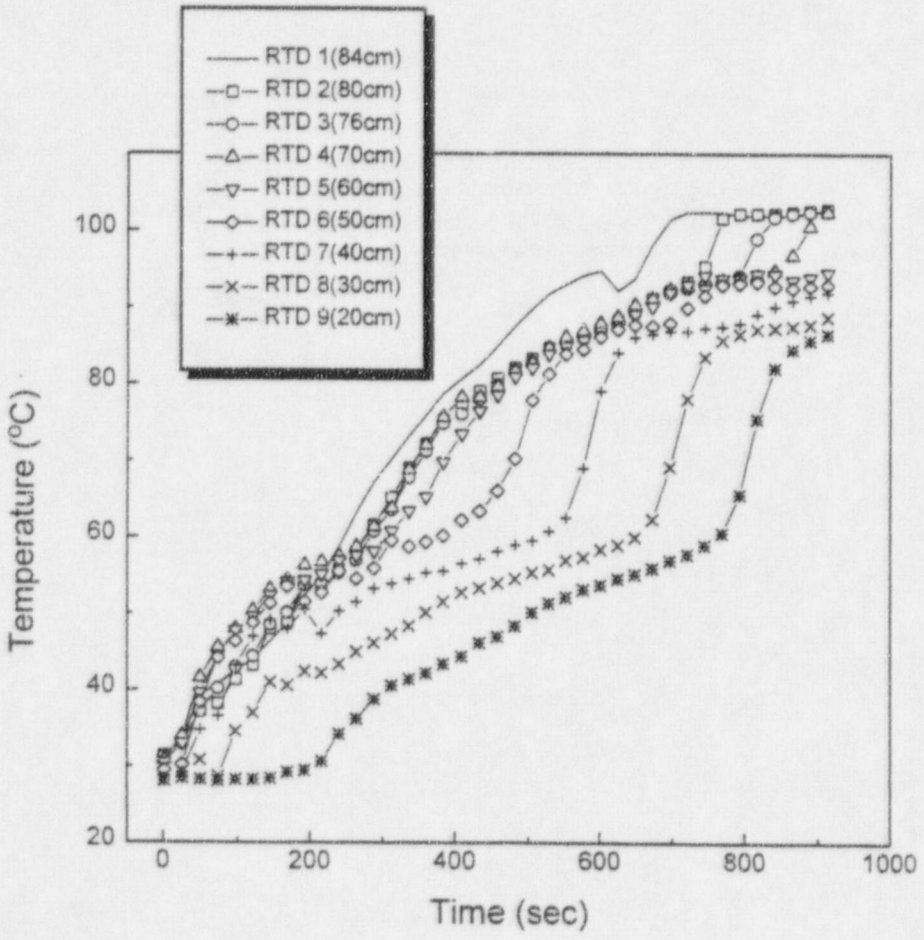


Figure 2.8: The temperature distribution of test section for test GN021

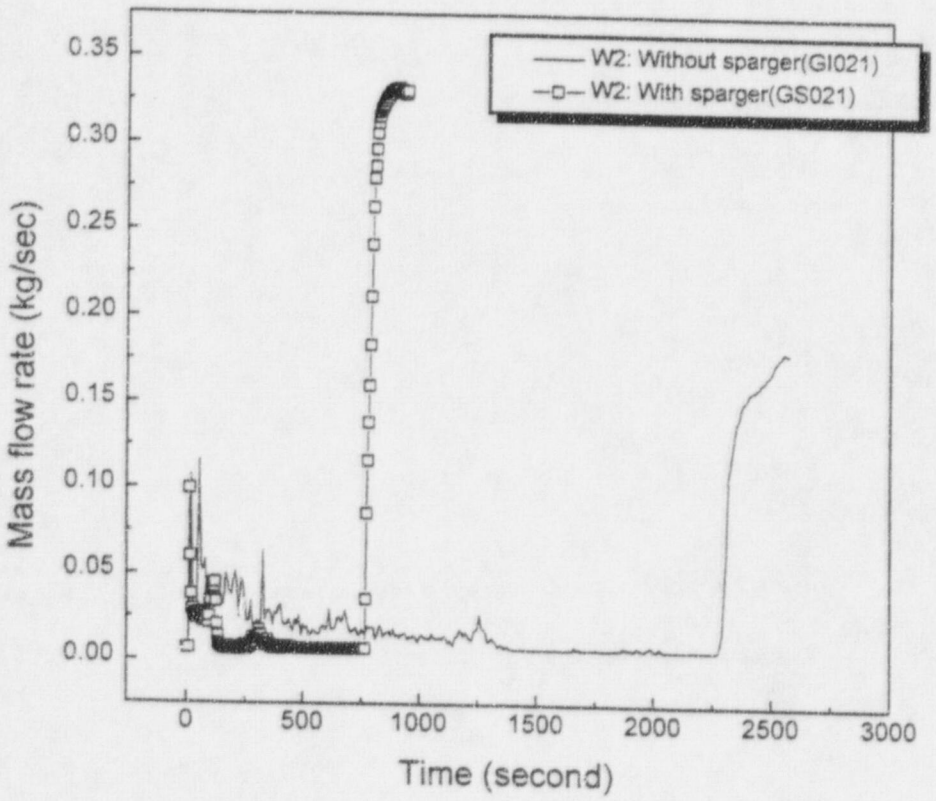


Figure 2.9: The effect of the sparger on the injection flow rate for test GI021 and GS021

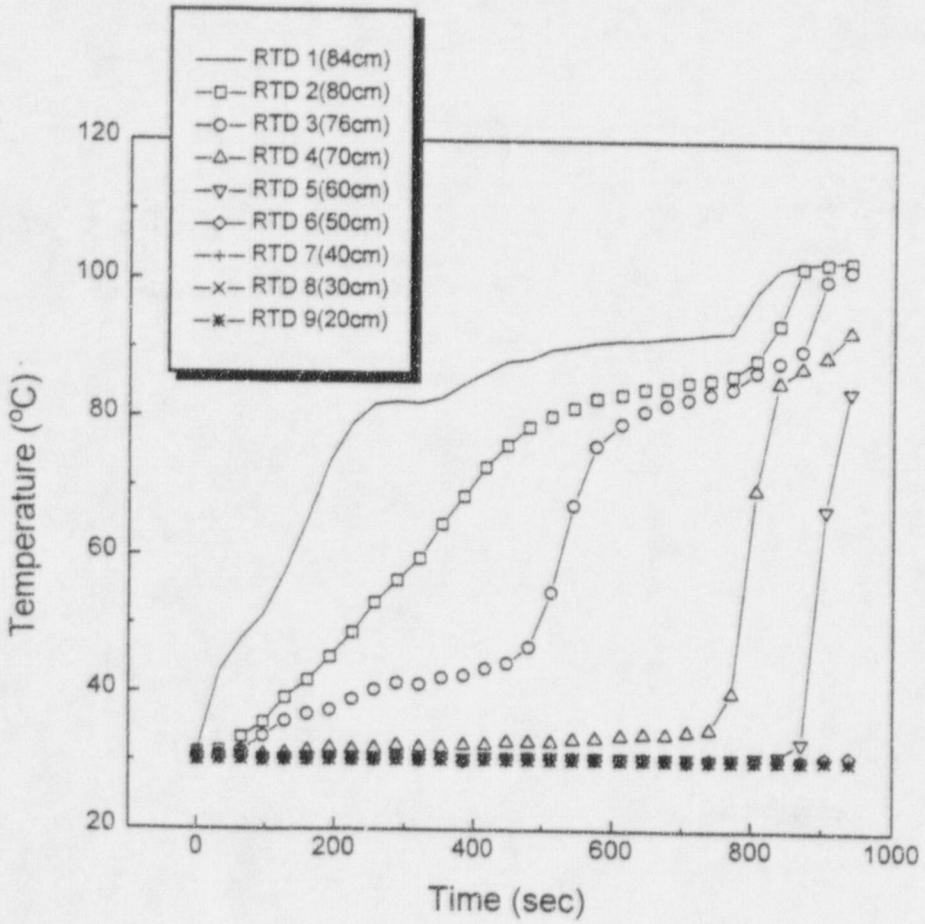


Figure 2.10: The temperature distribution of test section for test GS021

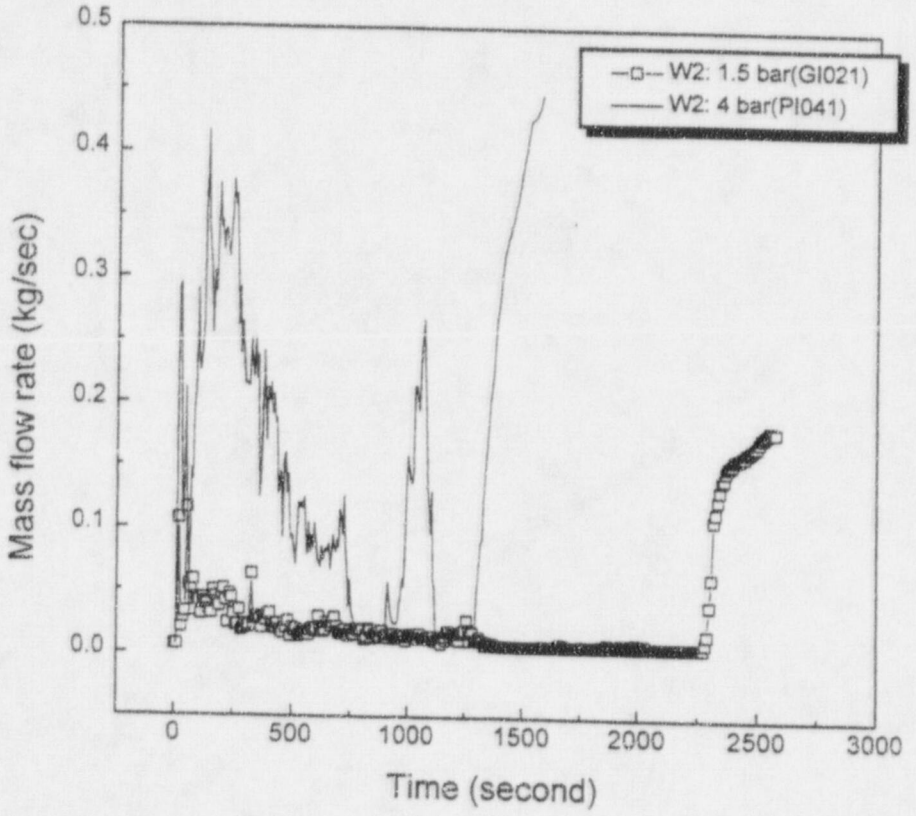


Figure 2.11: The effect of the high pressure on the injection flow rate for test GI021 and PI021

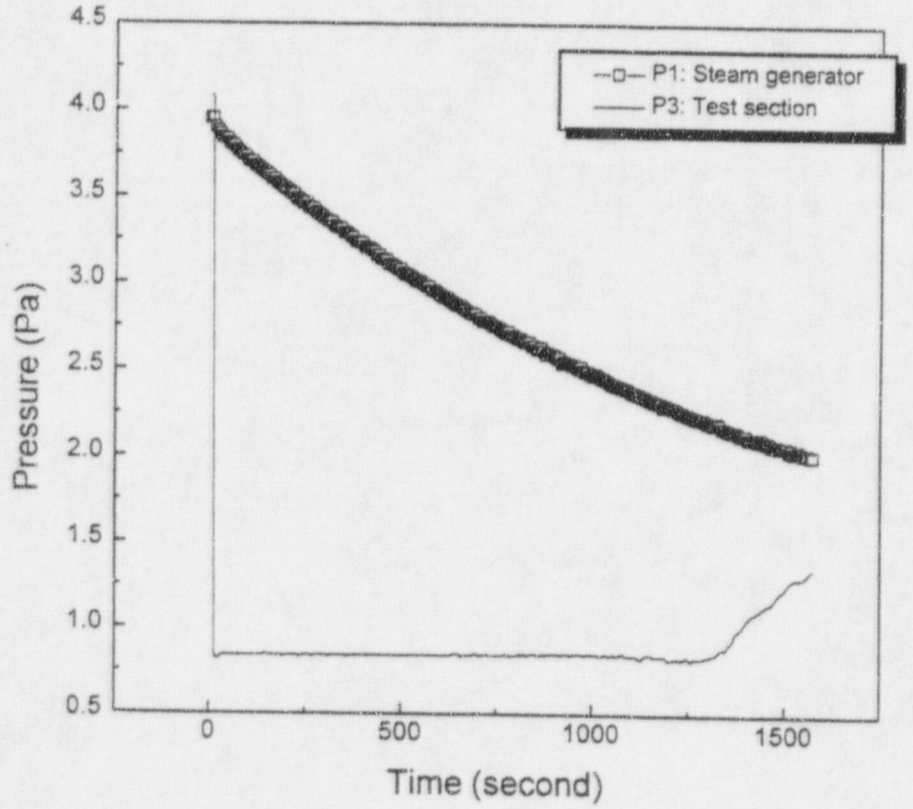


Figure 2.12: The pressure trend for test PI041

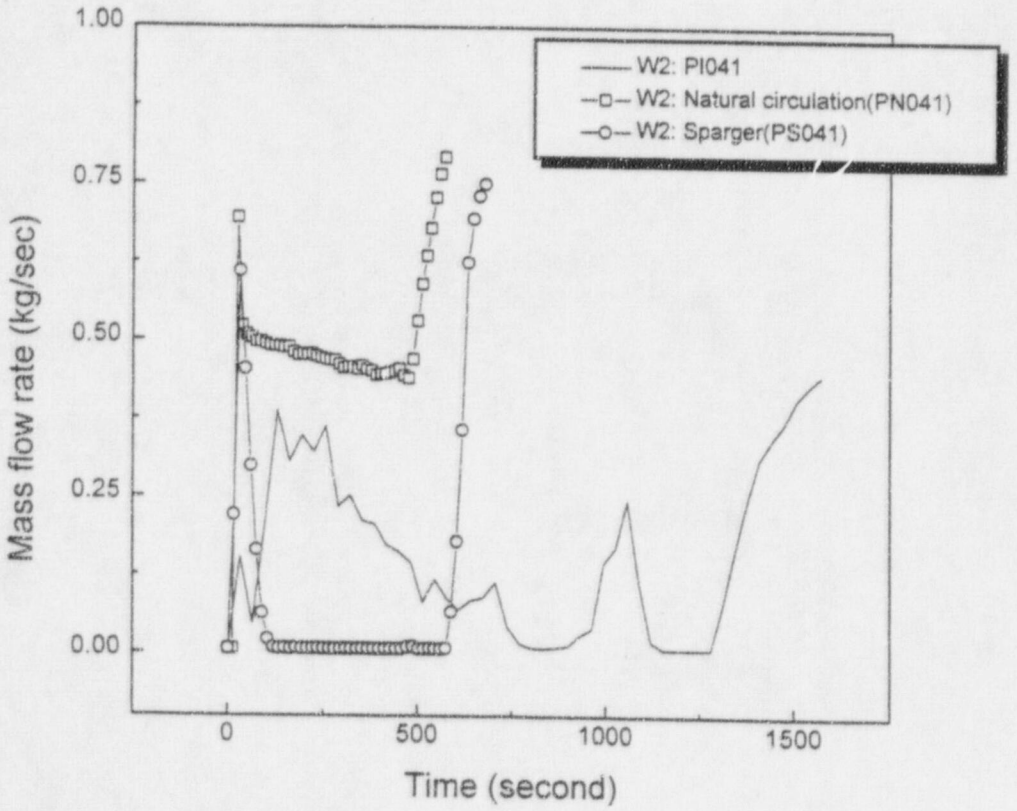


Figure 2.13: The injection flow rate at 4bar for test PI041, PN041, and PS041

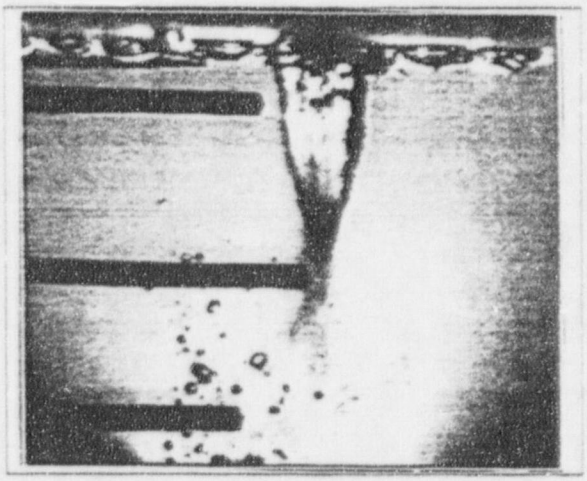


Figure 2.14: Sonic jet

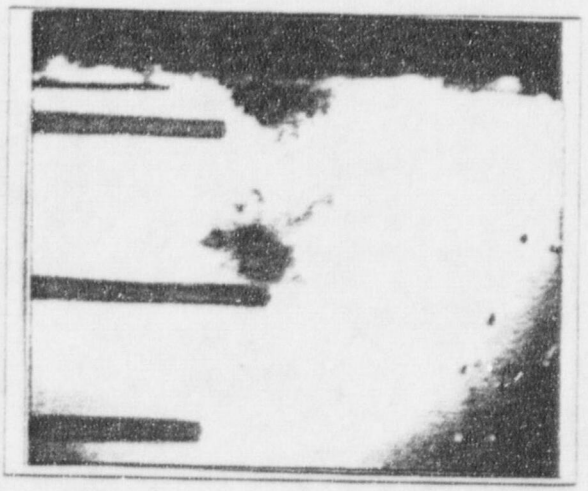


Figure 2.15: Subsonic jet

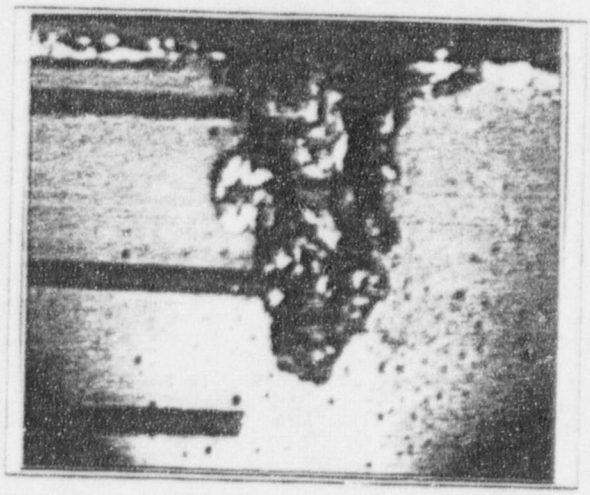


Figure 2.16: Steam cavity

Chapter 3

Assessment of RELAP5/MOD3.1

3.1 Description of code and modeling

The RELAP5 code has been developed as one of the best-estimate codes. The code is based on a non-homogeneous and non-equilibrium model for one dimensional, two-phase system that is solved by the semi-implicit numerical scheme to permit efficient evaluation of system transients. Recently, RELAP5/MOD3.1 code development program has been initiated to develop a code version suitable for the analysis of new safety system of passive advanced reactors like the CMT in the CNGR. However, there is no model in RELAP5/MOD3.1 that can deal with the direct contact condensation of steam in the pool like the CMT. To simulate the accidents of passive advanced reactors like the CNGR using RELAP5/MOD3.1 , it is essential to develop the condensation regime and the model for the interfacial heat transfer coefficients of the direct contact condensation of steam in the pool. In this code assessment, RELAP5/MOD3.1 is mainly used, and standard RELAP5/MOD3.0 without any modification is used to compare with the results of the released version of RELAP5/MOD3.1.

RELAP5 nodalization used to simulate the gravity-driven injection experiment is represented in Figure 3.1. The model is based on 43 volumes connected

by 43 junctions and 3 heat structures for the electric heater. For other volumes except the electric heater, the heat structure are not installed because the power of the steam generator remains at 8KW to compensate the heat loss of the whole system during the test. The steam generator is modeled by pipe component (100) having 10 volumes. The heaters in the steam generator are modeled by heat structure having the power of 100 kw. The steam feed line between the test section and the steam generator is modeled as a single volume component (101), pipe components (110,120,130). The natural circulation line between the test section and the hot water of the steam generator is modeled as a branch component (310), pipe components (320, 330, 340). The injection valve is modeled as a servo valve component (161). At 10 sec, this valve is opened within 1 sec. The water injection line is modeled by pipe components (170,180). When the injection valve is opened, the water drains to the atmosphere which is model as a time dependent volume(200). If the large pressure drop occurs in the test section, there exists the possibility for air to enter the test section through the injection line. To prevent this, We installed a very large backward form loss coefficient as check valve in SJ171.

3.2 Analysis results and discussion

3.2.1 Base case

For base case calculations, tests GI021, GN021, PI041 and PN041 are simulated by RELAP5/MOD3.1 to determine whether or not it can describe the direct contact condensation occurring in the top of the test section. In addition, the results simulated by RELAP5 show different trends for different nodalization. The results show that the 1-node model of the test section predicts better the experimental data than the multi-node models [3]. In the base case calculations,

the 1-node model of the test section is used. The transient was initiated at 10 sec by opening the valve V101. The results of the simulation are compared with the experimental data in Figures 3.2 through 3.7. The following main characteristics are found:

- The calculated steam generator pressure is lower than that of the experimental data as shown in Figure 3.2. However, the code predicts the steam generator pressure transient for natural circulation(GN021 and PN041) relatively better than those for no natural circulation test(GI021 and PI021). These results show the code better represents the depressurization due to the steam condensation with natural circulation than that without natural circulation.

- As shown in Figure 3.3, in the case of no natural circulation(test GI021 and PI021), the calculated test section pressures overpredict the experimental data. However, the code underpredicts the experimental data of the natural circulation(test GN021 and PN021). Those results show that RELAP5/MOD3.1 overpredicts the pressure variations without natural circulation but underpredicts the pressure variation with natural circulation.

- As shown in Figure 3.4, the water temperature of the test section is overpredicted for the experiment with no natural circulation(GI021 and PI021).However, for the experiments with natural circulation, an underprediction is found. These results show that in the case of no natural circulation, RELAP5/MOD3.1 overpredicts the amount of the steam condensation without the hot water mixing, and in the case of natural circulation, it underpredicts the amount of the steam condensation with the hot water mixing. It is consistent with the results of the steam generator pressure.

- RELAP5/MOD3.1 underpredicts the experimental data of the steam flow rates due to the underpredictions of pressure difference between the steam generator and the test section. In the case of natural circulation(GN021) as shown in Figure 3.5, after 600sec the experimental steam flow rapidly decreases, but the predictions smoothly decrease because an increase of the water temperature due to the steam condensation and the hot water mixing make the pressure of the test section increase.

- As shown in Figure 3.6, RELAP5/MOD3.1 well predicts the time of the injection initiation, but it does not well predict the amount of the injection flow. In the case of test GN021, RELAP5/MOD3.1 shows high oscillation in the injection flow rate because the predictions of the test section pressure and the natural circulation flow rate show highly oscillatory behavior.

- The comparison of the water level between the experimental data and the calculated results shows that at 4 bar the code better predicts the experimental data than those at 1.5 bar as shown in Figure 3.7.

3.2.2 Sensitivity study

Sensitivity studies were performed with two RELAP5 code versions (MOD3.0 vs MOD3.1). The results of the sensitivity studies are compared with the experimental data as shown in Figures 3.8 through 3.12. The following main characteristics are found:

- As shown in Figure 3.8, MOD3.1 better predicts the experimental pressure than does MOD3. Figure 3.8(b) shows that MOD3.0 don't predict the pressure drop in the test section at all. Since the pressure difference between the steam generator and the test section predicted by MOD3.0 is smaller than that of MOD3.1, the steam flow rate and the test section water temperature

of MOD3.0 are lower than those of MOD3.1. These results show that the amount of the condensation in the test section predicted by MOD3.0 is less than that of MOD3.1.

- The comparison of the water level between the experimental data and the calculated results shows that although the predictions are in poor agreement with experimental data, MOD3.1 better predicts the experimental data than does MOD3.0. Both MOD3.0 and MOD3.1 predict the flow regime of the test section as vertical stratification. Both codes use the same interfacial heat transfer correlation for the vertical stratification regime. The reason MOD3.1 shows better agreement with the experimental data than does MOD3.0 is currently unknown. The flow regime observed in the experiment is the subsonic jet having the vertical cone shape. This is why the results of RELAP5/MOD3.1 is in poor agreement with the experimental date. For better prediction of the direct contact condensation in the CMT , it is essential that a new correlation for the interfacial heat transfer coefficient be developed.

3.2.3 Nodalization study

A nodalization study was performed to investigate the effect of the number of nodes in the test section(1 node, 2 nodes, 3 nodes). The results from the nodalization study are compared with the experimental data in Figures 3.13 through 3.17. The following main characteristics are found:

- The calculated pressures of the steam generator and the test section are in poor agreement with the experimental data for all nodalization schemes. These results show that the current models of RELAP5 can not produce sufficiently accurate predictions for the pressures of the steam generator

and the test section. The basic reason for such an inaccuracy is considered to results from the poor predictions of the amount of condensation by RELAP5/MOD3.1.

- As shown in Figure 3.14, the results of the 1-node model well agree with the experimental data until 1500sec. After 1500sec, the experimental tank temperature increases because of a decrease in the water level. It is shown that the larger the number of nodes, the higher the water temperature. Since RELAP5/MOD3.1 calculates the node average temperature, the component having the small volume reaches the saturation temperature faster than that of the large volume. In the 1-node model, a higher amount of condensation is predicted than in other models.

- The comparisons of the steam flow rate and the injection flow rate between the experimental data and the calculated results show that all the models underpredict the steam flow rate, but the 1-node and 2-node models have trends similar to the experimental data.

- Figure 3.17 shows the comparison of the water level between the different models and the experimental data. The results show that 1-node and 2-node models have trend similar to the experimental data. In the nodalization study, the results of the 1-node model are in better agreement with the experimental data than those of the other models.

3.2.4 Run statistics

The primary computer used in the calculation is a SUN SPARC 10 with SunOS 4.1.3-KL operating system. The random access memory is 32 Mbyte. The calculation speed is 86.1 MIPS. The clock speed of CPU is 36 MHz.

Figures 3.18 shows the required CPU time and time step size with respect to the real transient time for the base case run. As shown in the figure, the slope of the CPU time become steep as the injection valve is opened, and the time step size is reduced down to 0.00075. Table 3.1 shows the grind time of each calculation. The grind time of GI021-MOD3.0 has the lowest value because the transient is mild due to a decrease in the interaction between steam and water resulting from a rapid decrease in the water level of the test section. The grind times of natural circulation experiments, such as GN021 and PN041, have larger values than the other calculations because of the oscillatory natural circulation flow and the coexistence of steam, cold water, and hot water. In the cases of GI021-3-node, GI021-MOD3.0 and GN021, the transients are terminated by the generation of thermodynamic property error. This error is an inherent weakness of RELAP5 which occurs when the steam exists in the subcooled water at the low pressure. In the case of test GI021, the grind time is as follow:

CPU time = 58333.9 sec

Number of time steps = 914360

Number of volumes = 28

Grind time = 2.2785

Table 3.1: Grind time

test	Real time (second)	CPU time (second)	Number of time step	Number of volume	Grind time	Termination stutus
GI021-1node	2600	58333.9	914360	28	2.2785	time control card
GI021-2node	2600	60692.2	908476	29	2.3037	time control card
GI021-3node	1950	56751.6	779543	30	2.4267	failure
GI021-MOD3.0	458.6	3402.32	72822	28	1.6686	failure
GN021	753	46887.7	449086	43	2.428	failure
PI041	1600	121665	2002225	28	2.1702	time control card
PN041	660	87906.9	847921	43	2.411	time control card

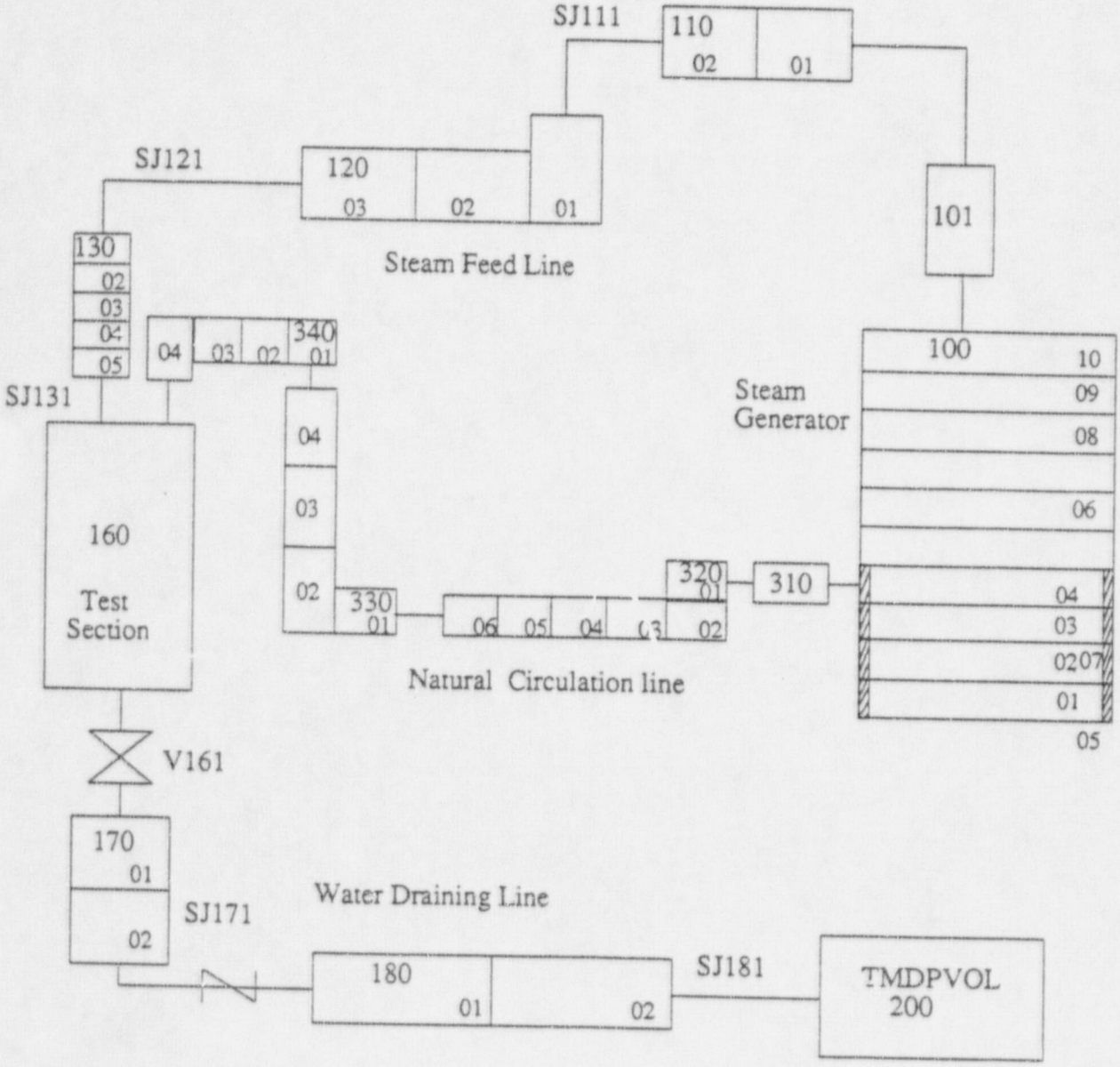


Figure 3.1: A systematic diagram of RELAP5 nodalization

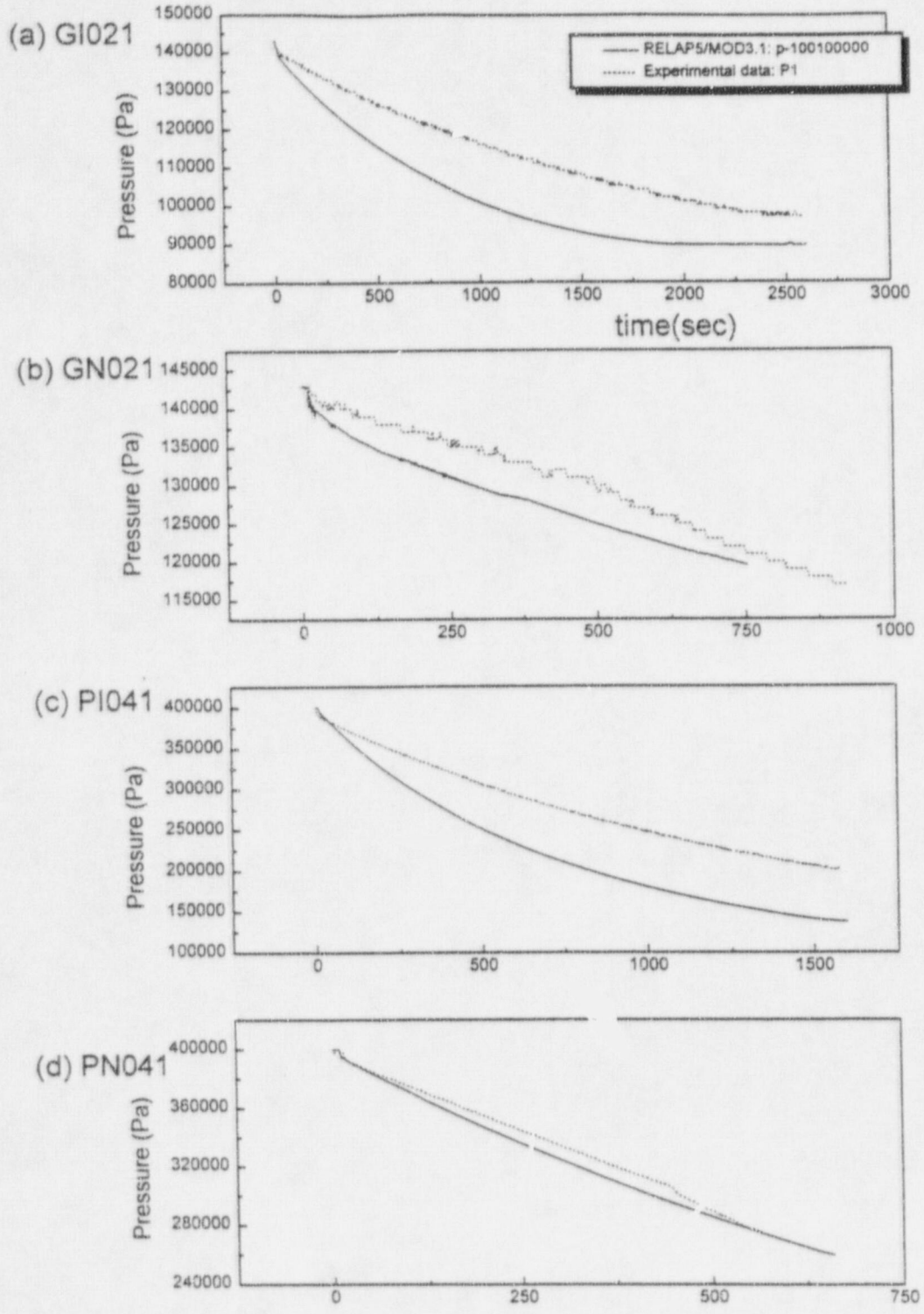


Figure 3.2: Comparison of the steam generator pressure between experiments and calculation

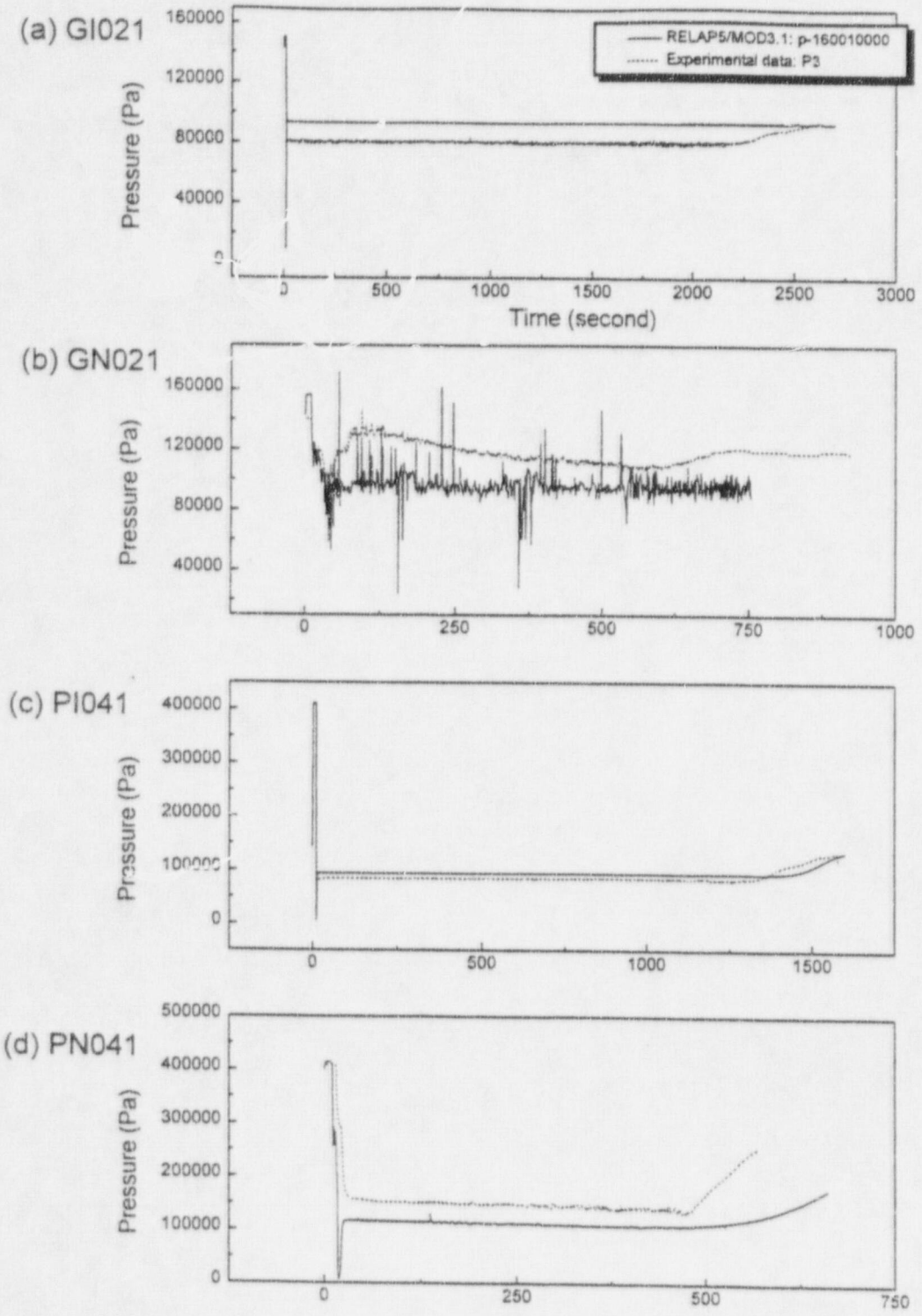


Figure 3.3: Comparison of the test section pressure between experiments and calculation

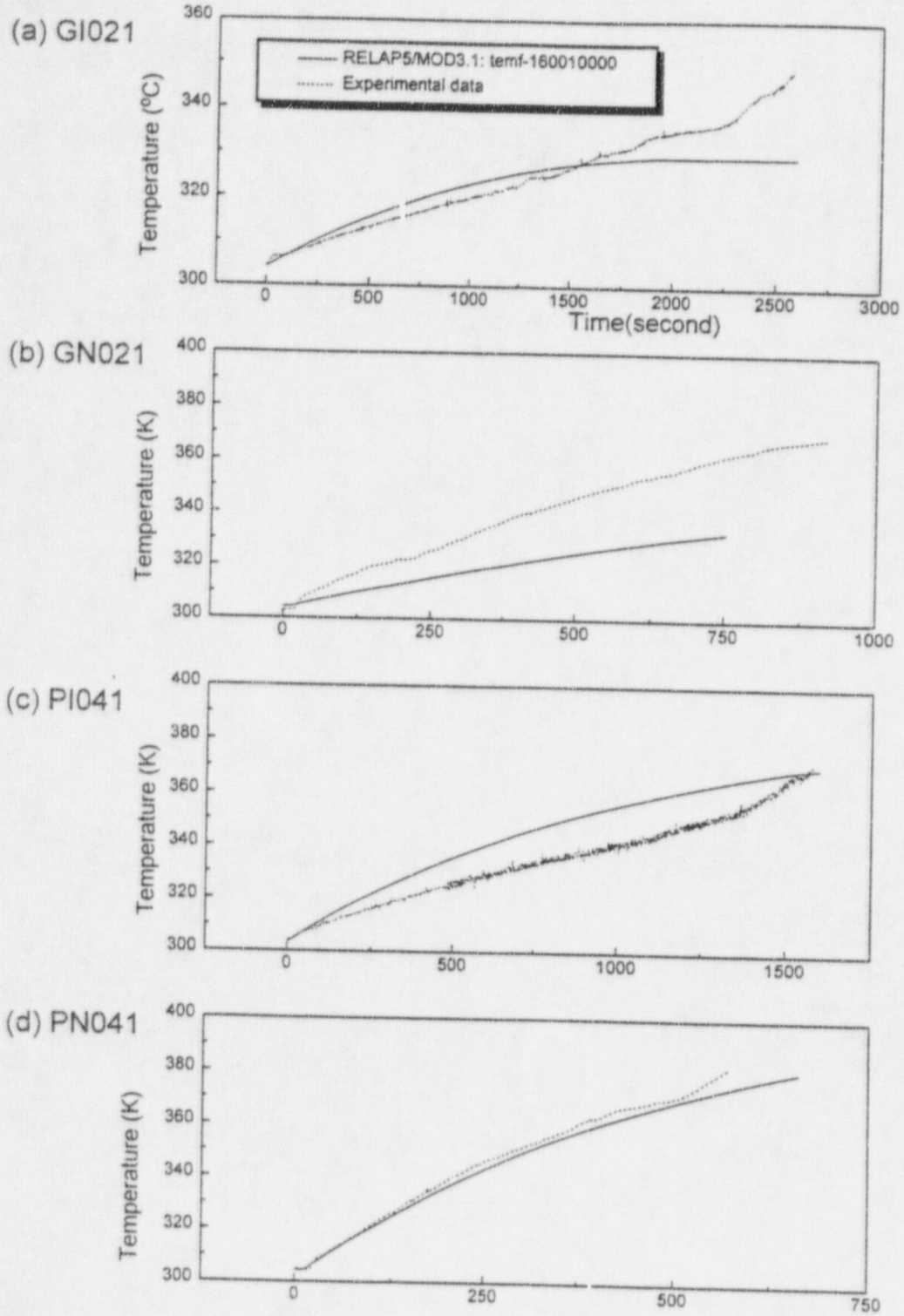


Figure 3.4: Comparison of the pool water temperature between experiments and calculation

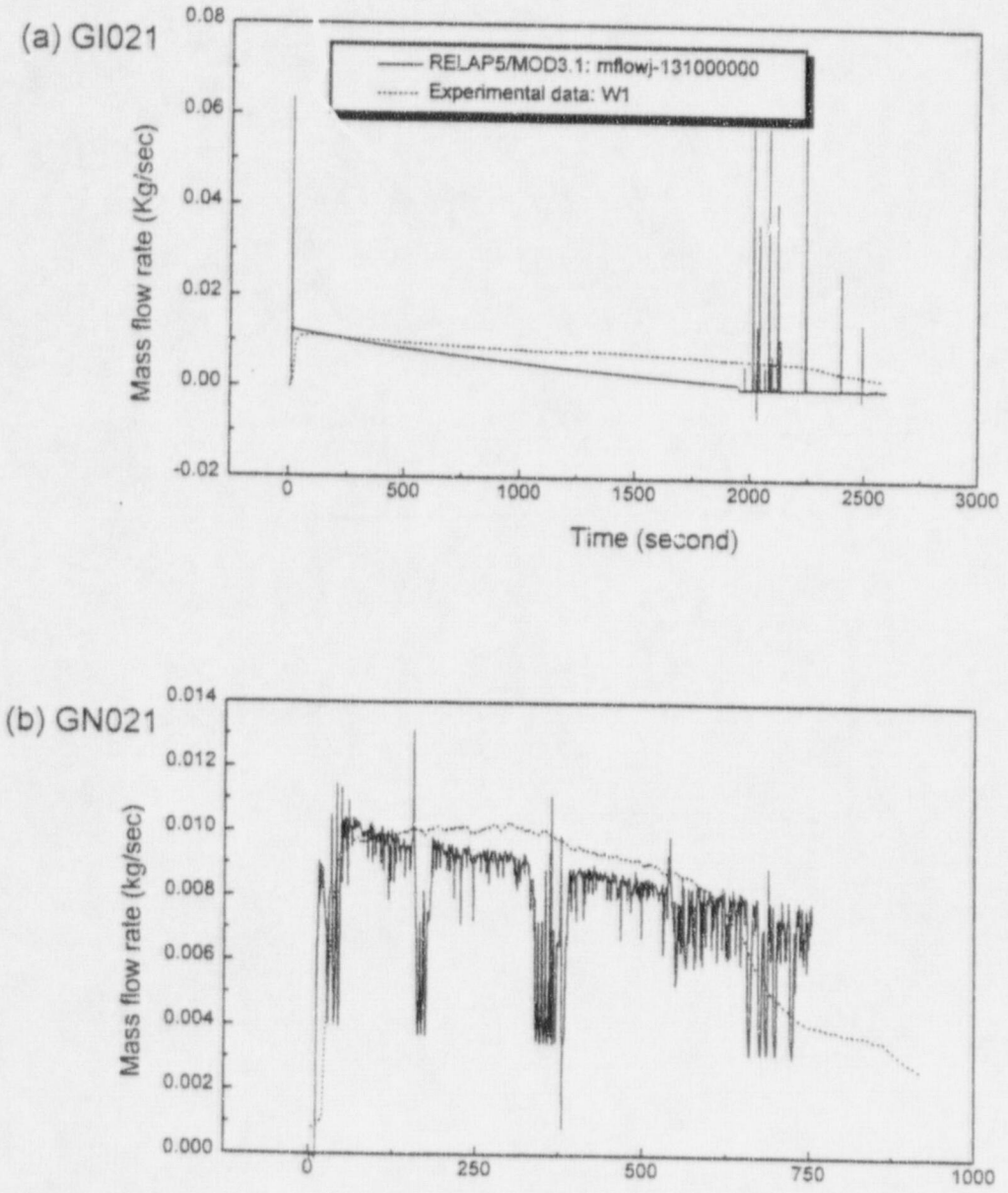


Figure 3.5: Comparison of the steam flow rate between experiments and calculation

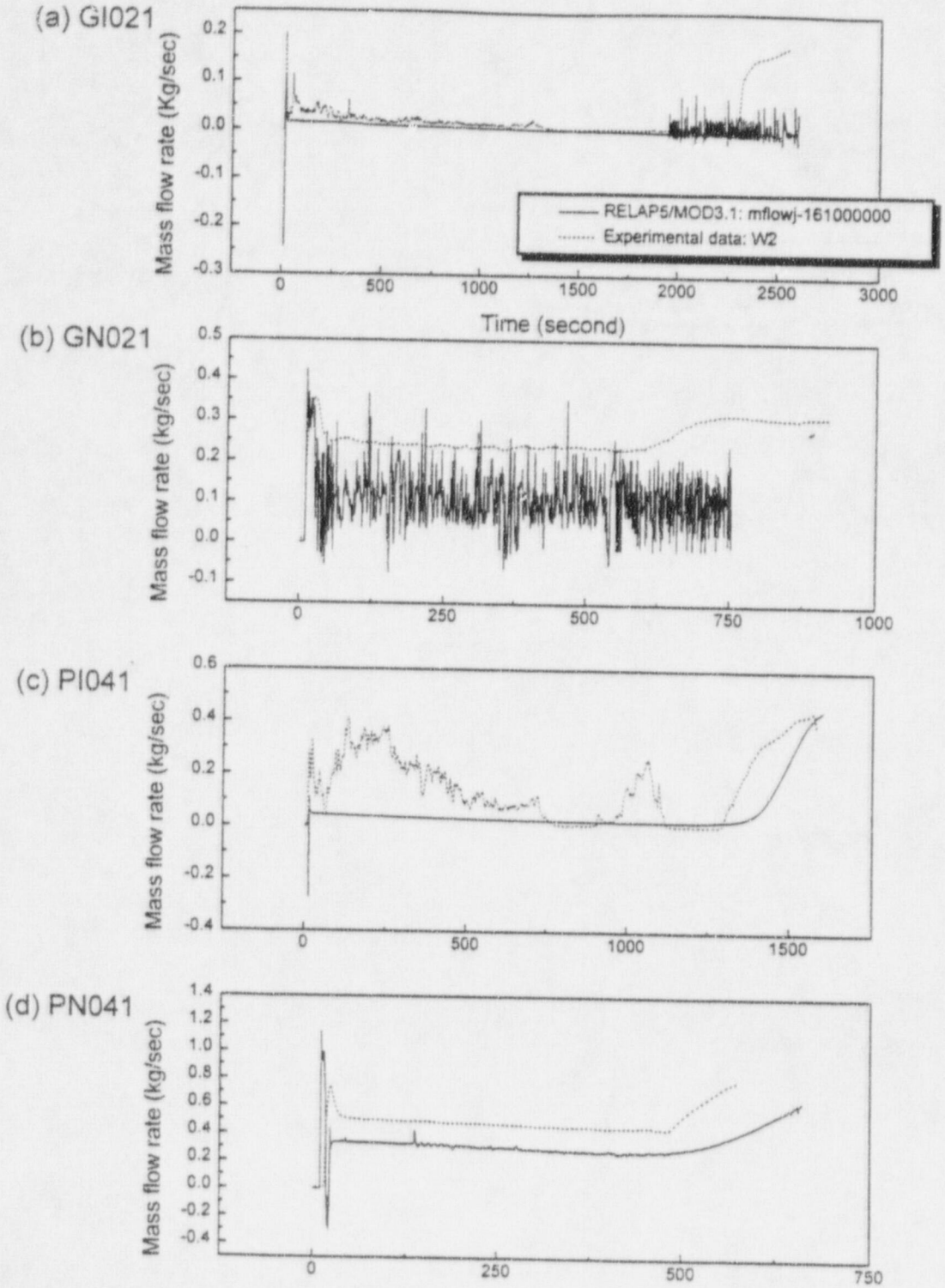


Figure 3.6: Comparison of the injection flow rate between experiments and calculation

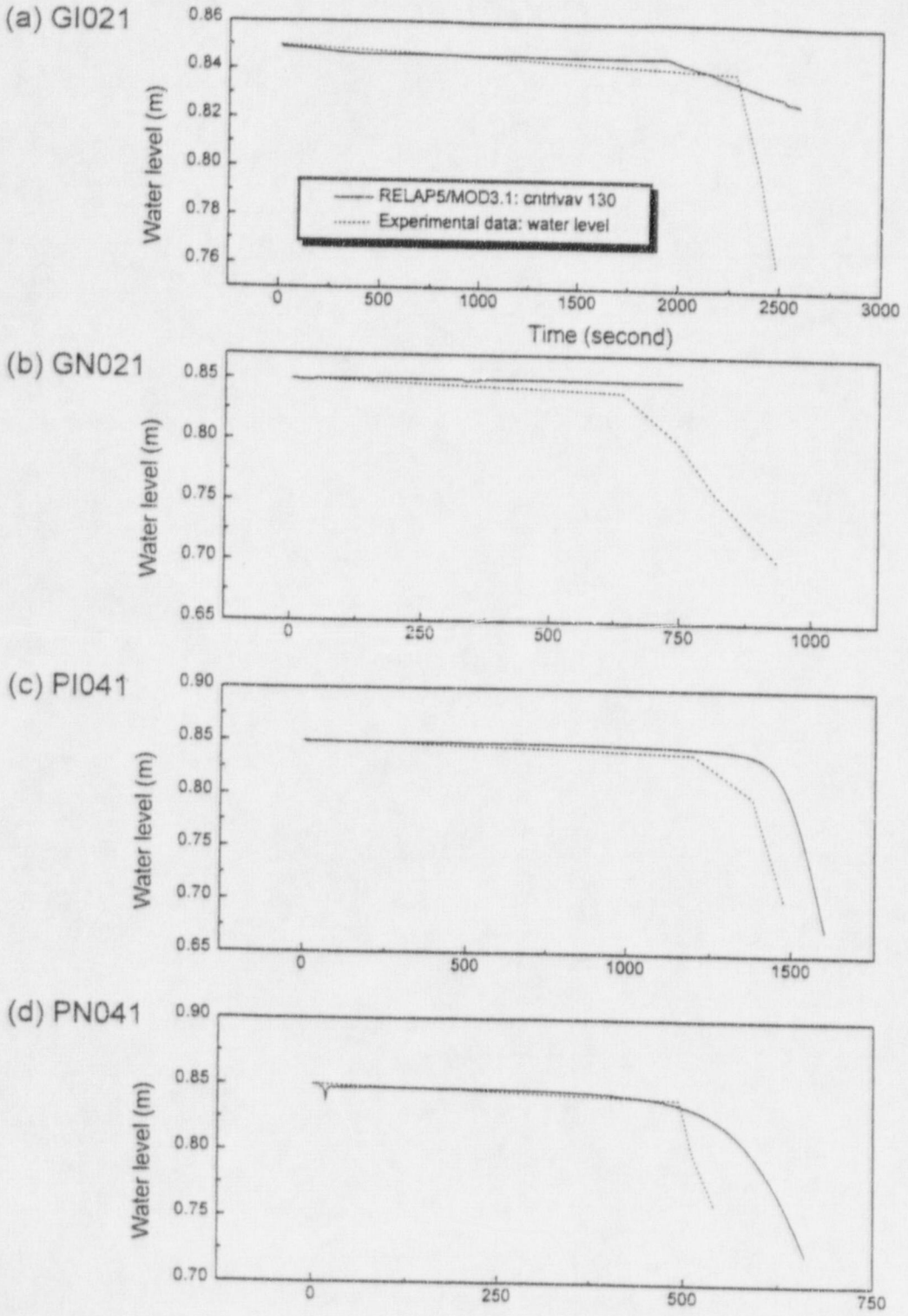


Figure 3.7: Comparison of the water level between experiments and calculation

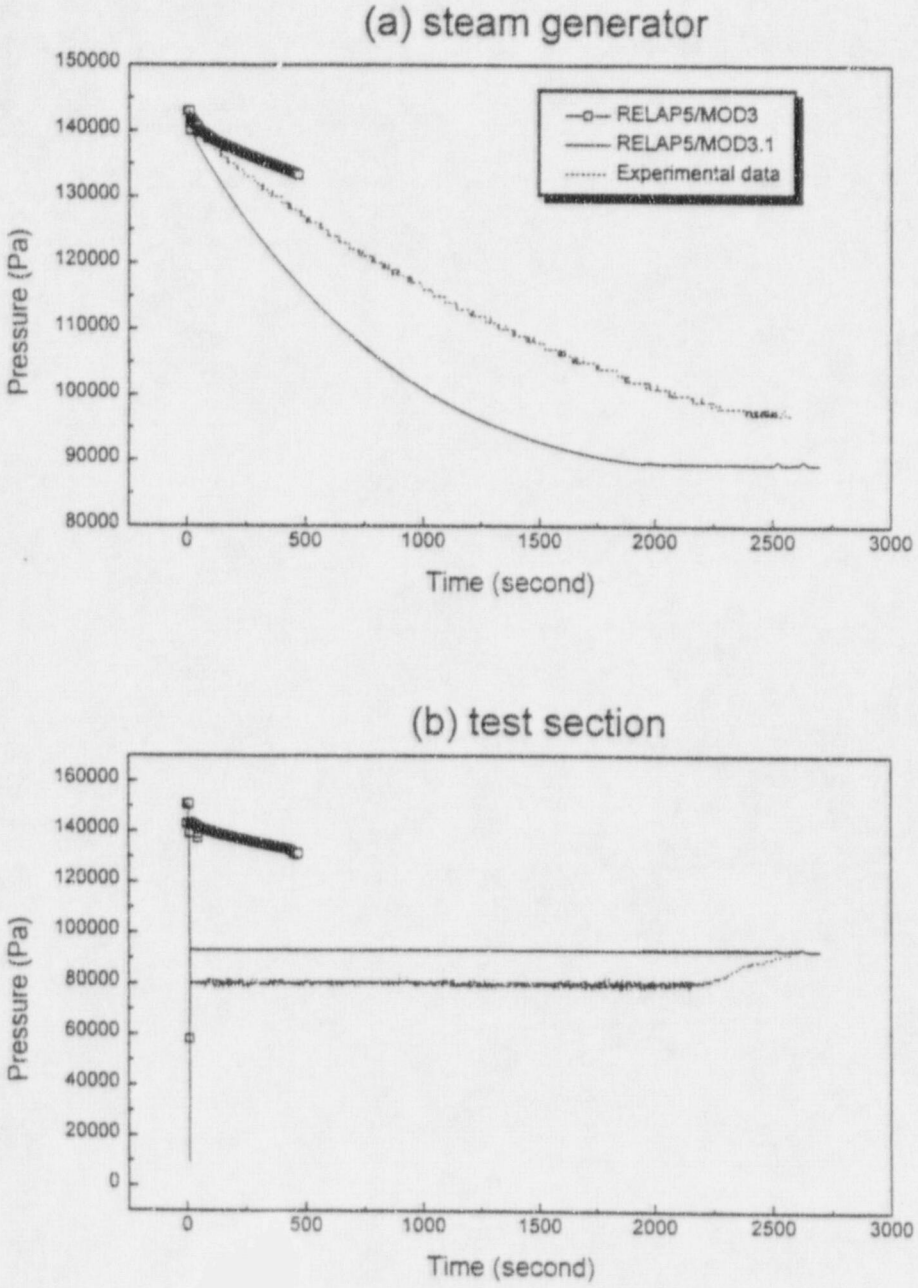


Figure 3.8: Comparison of the pressure of the steam generator and the test section between test GI021 and calculation(MOD3.0 vs MOD3.1)

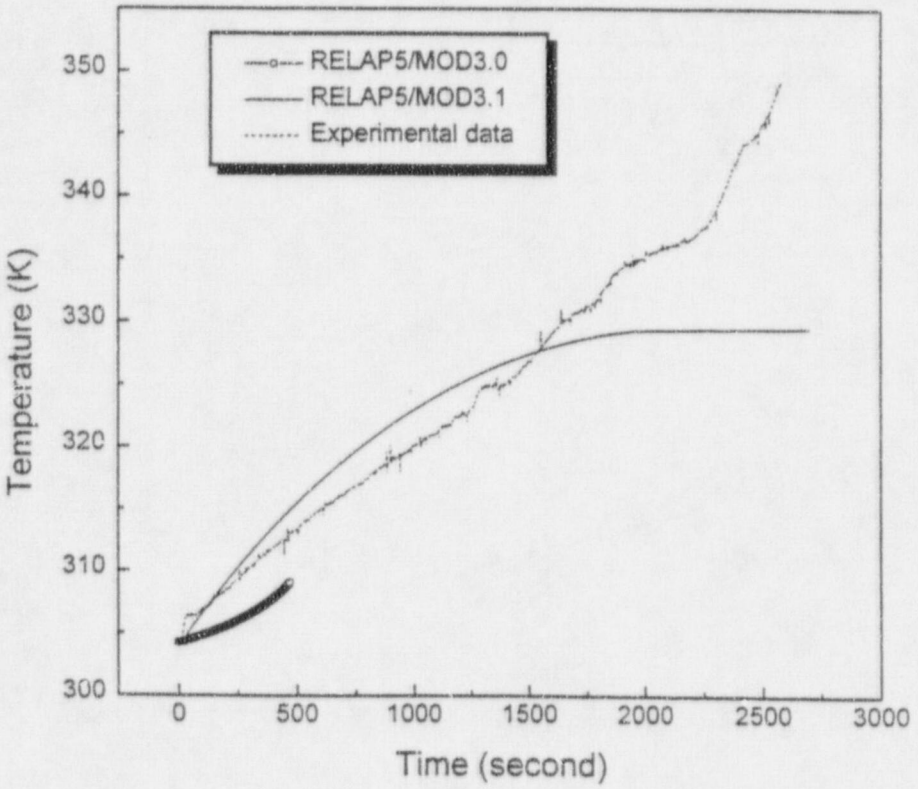


Figure 3.9: Comparison of the pool water temperature between test GI021 and calculation(MOD3.0 vs MOD3.1)

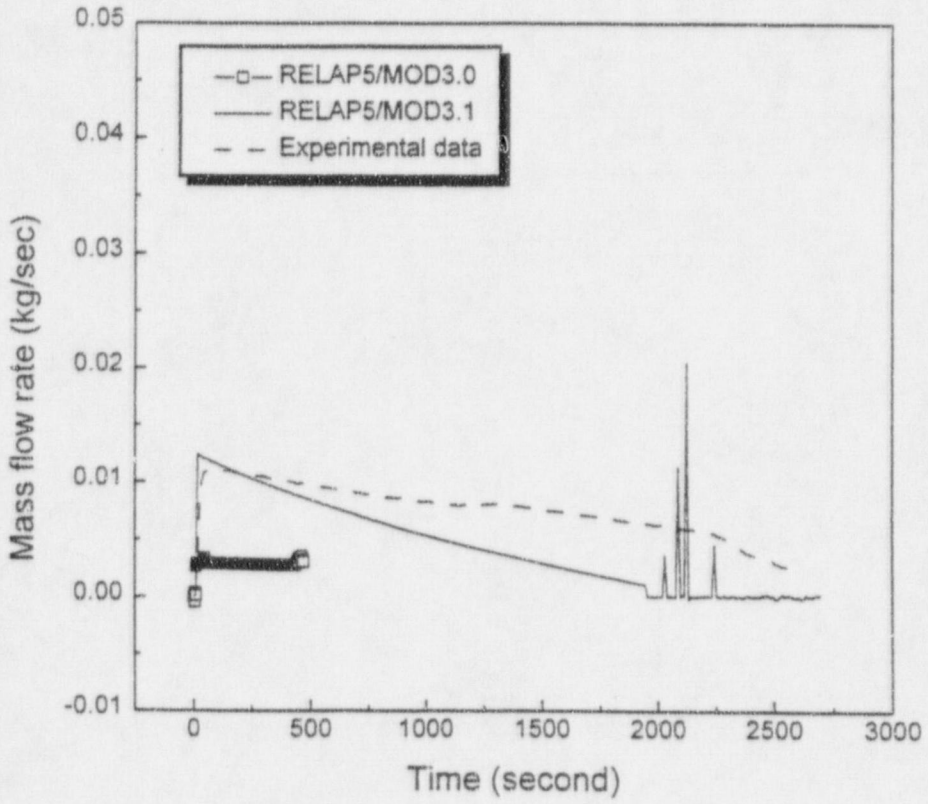


Figure 3.10: Comparison of the steam flow rate between test GI021 and calculation(MOD3.0 vs MOD3.1)

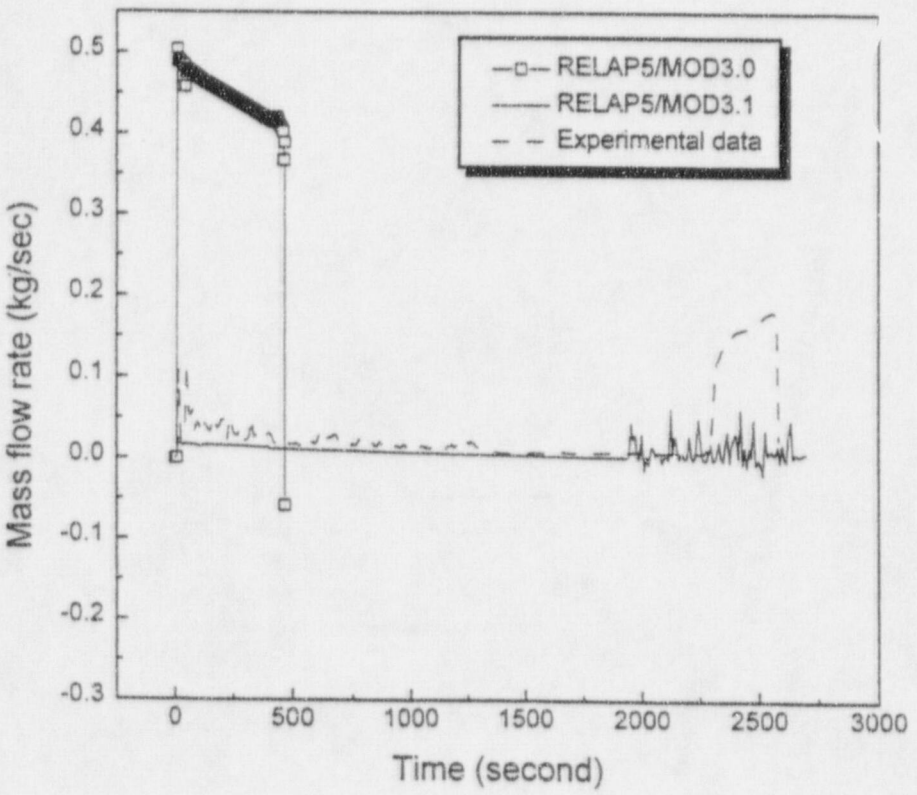


Figure 3.11: Comparison of the injection flow rate between test GI021 and calculation(MOD3.0 vs MOD3.1)

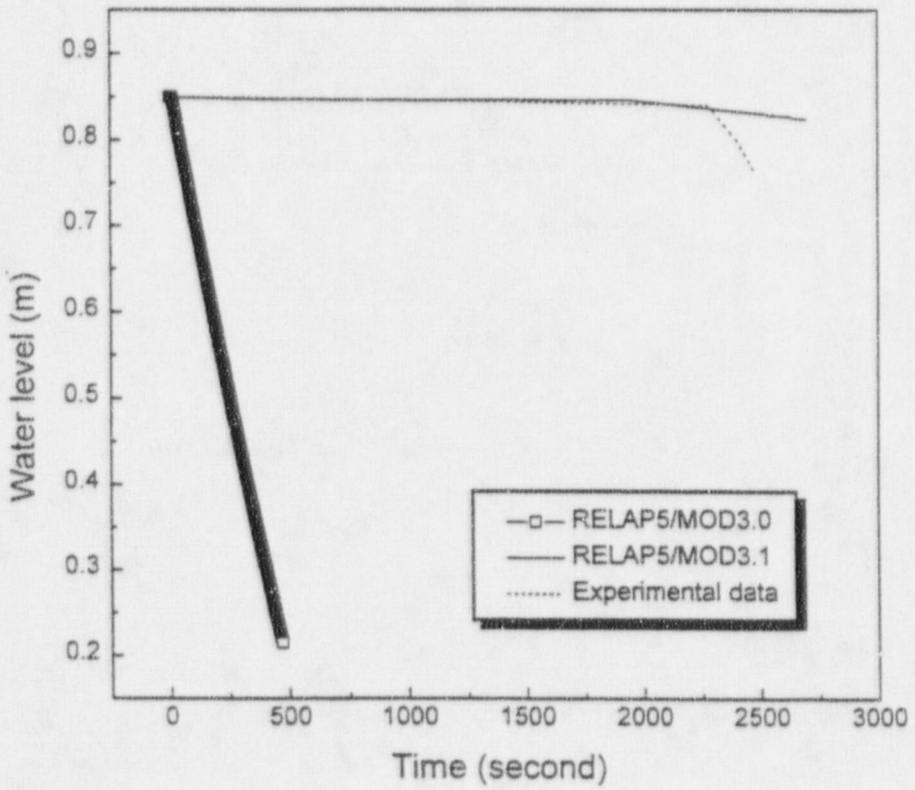
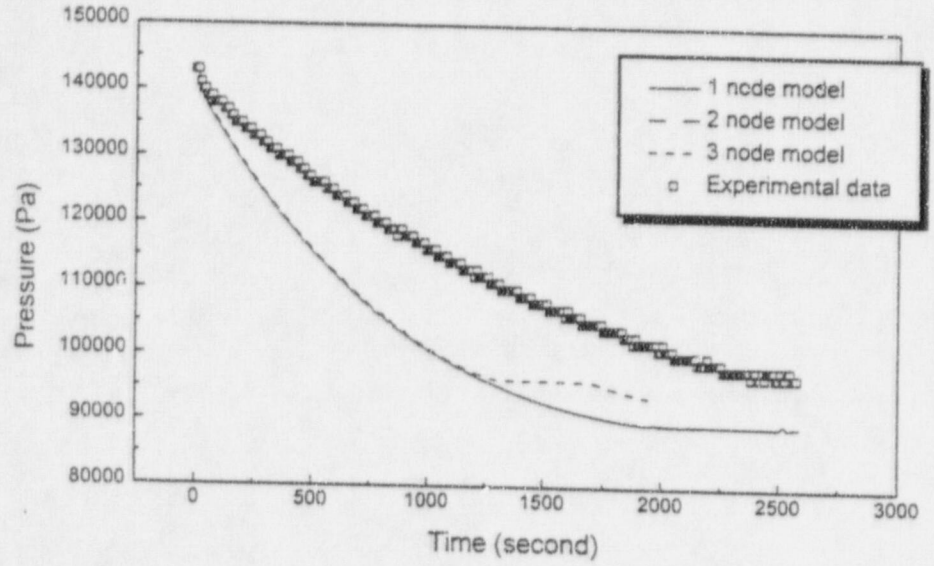


Figure 3.12: Comparison of the water level between test GI021 and calculation(MOD3.0 vs MOD3.1)



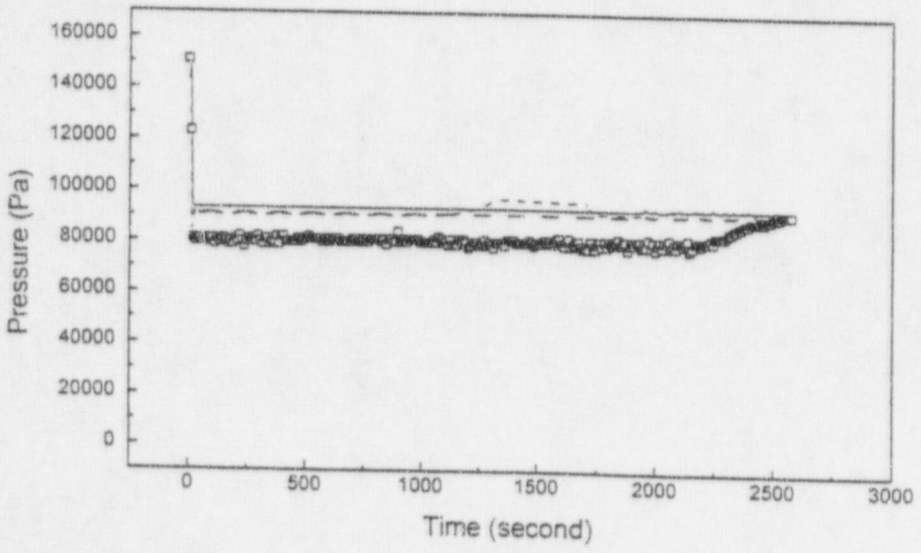


Figure 3.13: Comparison of the pressure of the steam generator and the test section between test GI021 and calculation(Nodalization study)

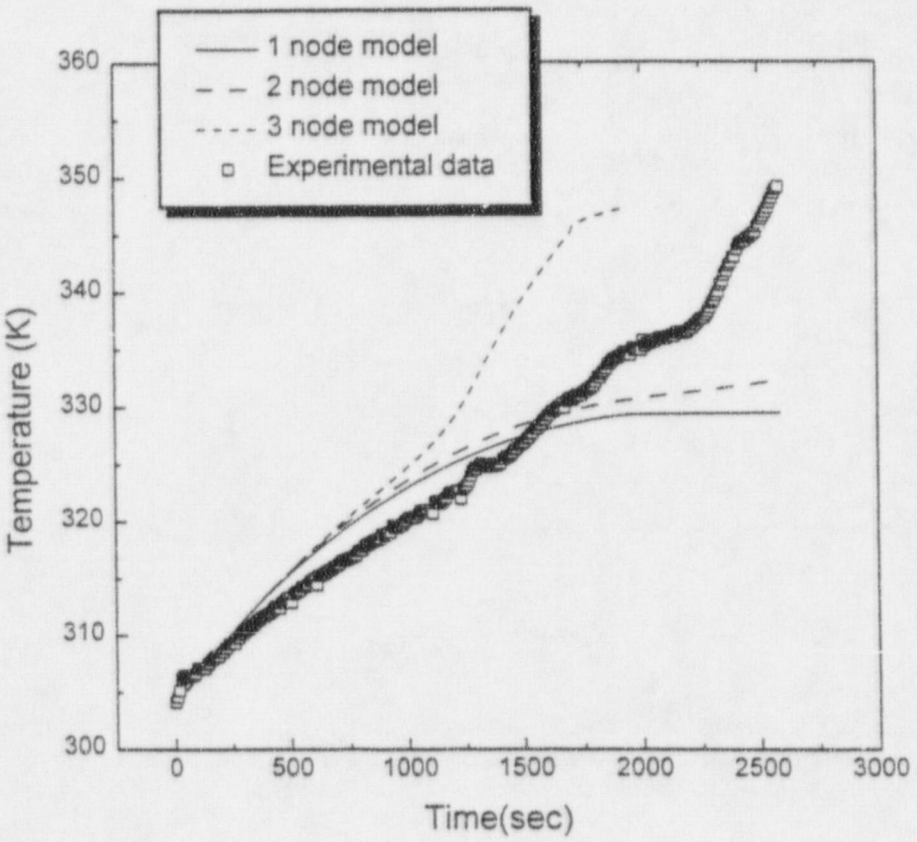


Figure 3.14: Comparison of the pool water temperature between test GI021 and calculation(Nodalization study)

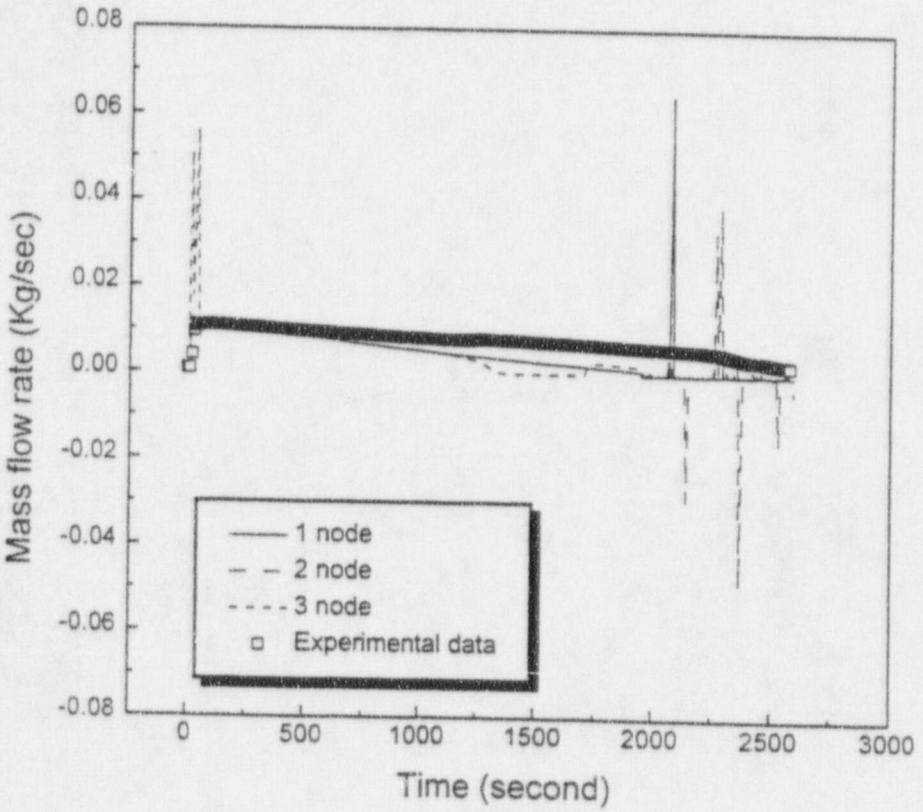


Figure 3.15: Comparison of the steam flow rate between test GI021 and calculation(Nodalization study)

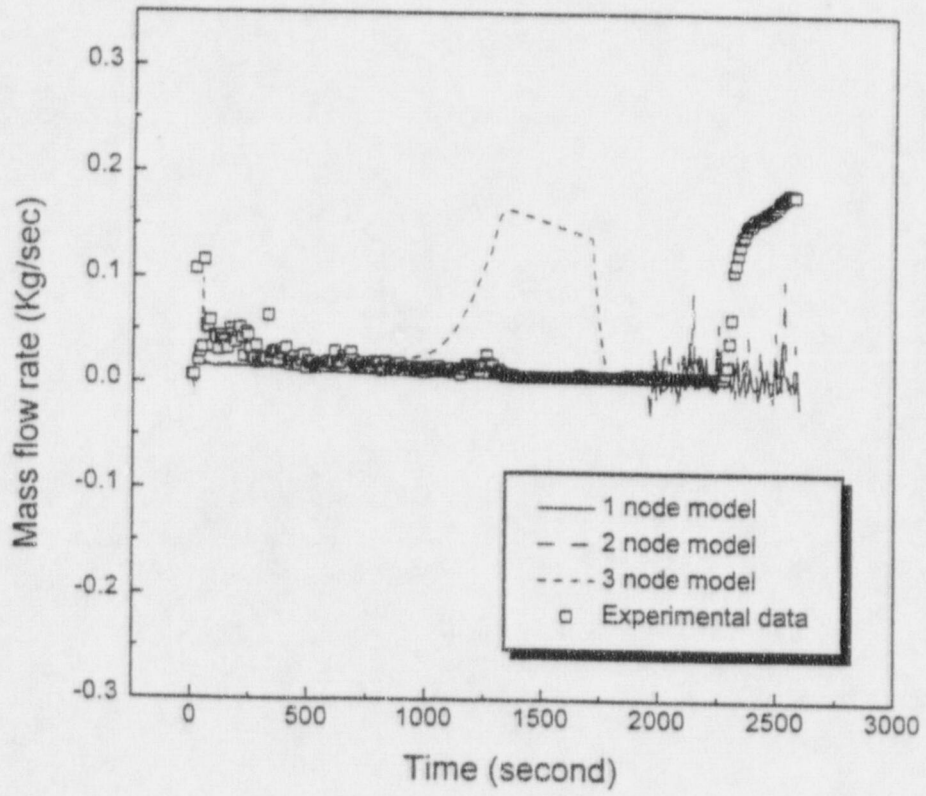


Figure 3.16: Comparison of the injection flow rate between test GI021 and calculation(Nodalization study)

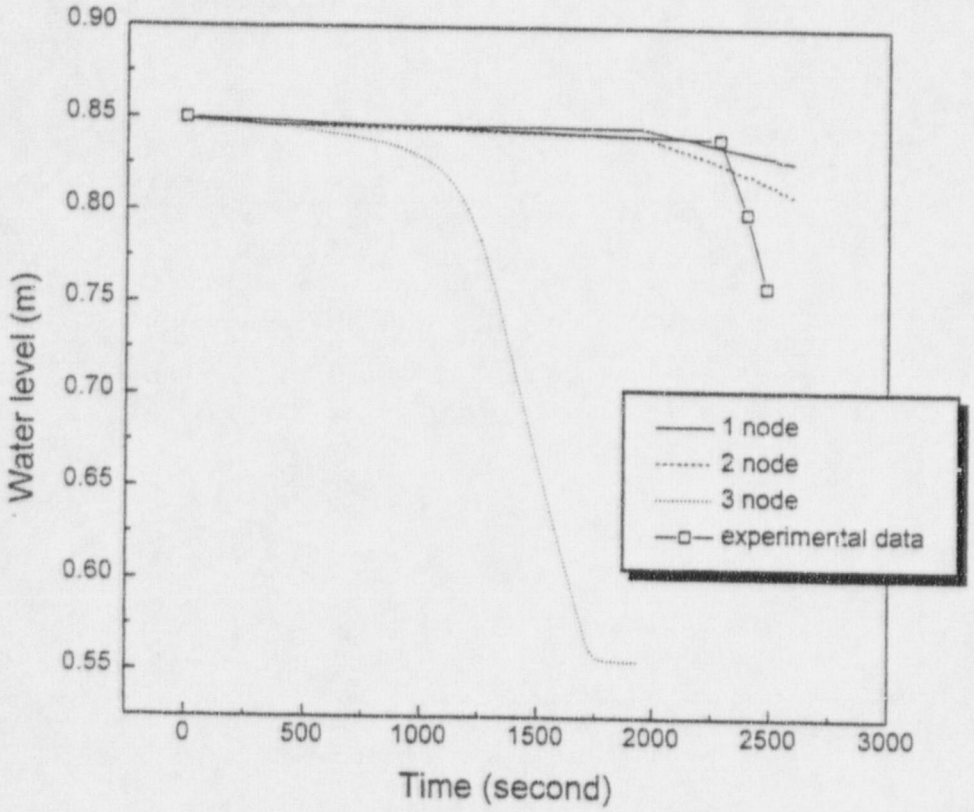


Figure 3.17: Comparison of the water level between test GI021 and calculation(Nodalization study)

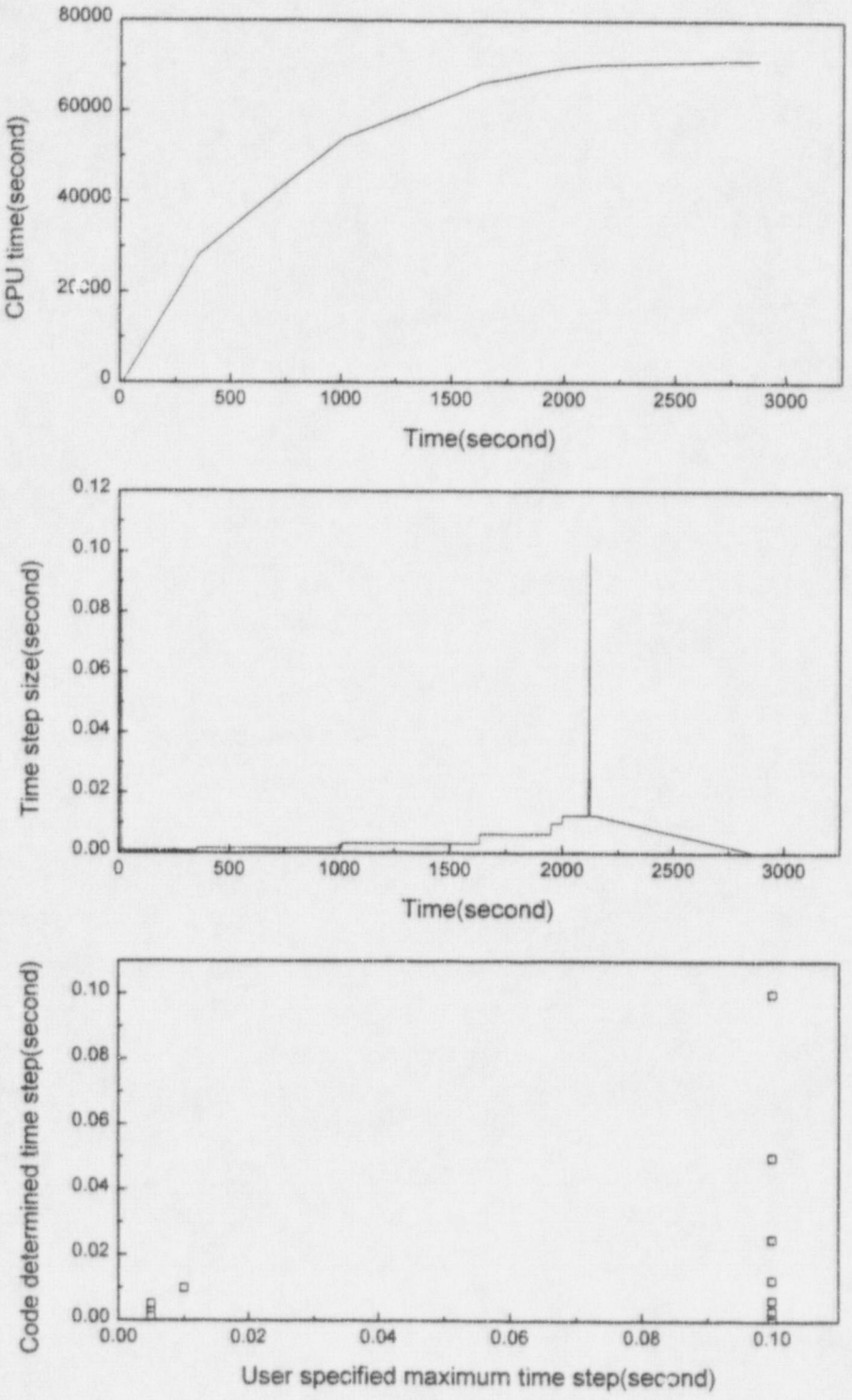


Figure 3.18: CPU time, time step size versus transient time and code determined time step versus user specified maximum time step

Chapter 4

Conclusions

The RELAP5/MOD3.1 was assessed using the small scale gravity injection experiment simulating direct contact condensation in the CMT of the PHPIS. For this assessment, a gravity injection experiment was conducted in the small scale test facility, KARD-I to identify the parameters governing the gravity injection and the major phenomena. To evaluate the code predictability of the direct contact condensation in the CMT, the calculated results were assessed and compared with the experimental data. From the present study, the following conclusions were obtained:

- The lower the water temperature, the longer the initiation time of injection is delayed. The results show that the sparger and the natural circulation from the hot water in the steam generator accelerate the injection of the test section. The condensation modes identified through the experiments are divided into three modes: sonic jet, subsonic jet, and steam cavity. The steam cavity is a unique mode of downward injection with a solid surface directly connected to the pipe exit not seen in other experiments.

- In the base case study, RELAP5/MOD3.1 predicts better the experimental water level at 4 bar than those at 1.5 bar. However, the calculated results

are not in good agreement with other experimental data, such as the pressures of the steam generator and the test section, the pool temperature, the flow rate of steam and injection, the test section water level.

- Sensitivity studies were performed with two RELAP5 code versions(MOD3.0 and MOD3.1). Although both codes do not predict precisely the experimental data, the results from RELAP5/MOD3.1 are in better agreement with the experimental data than those of RELAP5/MOD3.0. Both MOD3.0 and MOD3.1 identify the flow regime of the test section as vertical stratification, whereas the experimental flow regimes were sonic jet or subsoinc jet according to steam flow.

- From a nodalization study of RELAP5/MOD3.1, the 1-node model shows better agreement with the experimental data than other multi-node models. However, considering the penetration depth of the jetting, the proper number of nodes of the CMT still remains to be determined.

- To reproduce direct contact condensation in the CMT with RELAP5/MOD3.1, it is necessary that new correlations for the interfacial heat transfer coefficients be developed. They should have a capability to capture the physical process of the direct contact condensation in the CMT.

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Appendix A : Input Decks

1) GI021-1 node model

```
=RELAP5/MOD3.1 CMT 1 Nodes
*test GI021 simulation
*CMT node : 1 node
*water valve: 10sec. opened
*
*job cards
100 new   transnt
101 run
*
110 air
*
*time step cards
201 10.0   1.0e-12 0.1      3    10    100   100
202 20.0   1.0e-12 0.005     3    200   1000  1000
203 1950.  1.0e-12 0.1      3    10    2500  2500
204 2000.  1.0e-12 0.01     3    100   5000  5000
205 2600.  1.0e-12 0.1      3    10    2500  2500
*
*minor editor cards
*
*
301   tempf     160010000     * CMT - node 1
311   p         100100000
312   p         130050000
313   p         160010000
*
*
314 tempf    130020000
315 tempf    120010000
316 tempf    120020000
317 tempf    100050000
318 tempf    100010000
*
319 voidg    160010000     * CMT - node 1
322 voidg    130010000
323 voidg    130020000
324 voidg    120010000
325 voidg    110010000
326 voidg    100100000
327 voidg    100050000
*
328 mflowj   130040000
329 mflowj   111000000
330 mflowj   121000000
331 mflowj   131000000
332 mflowj   161000000
334 mflowj   170010000
335 mflowj   171000000
336 mflowj   181000000
*
*
*
355 vapgen        160010000     * CMT - node 1
358 vapgen        170010000
359 vapgen        180010000
360 vapgen        110010000
361 vapgen        120010000
362 vapgen        130010000
363 vapgen        130020000
*
364 floreg   110010000
365 floreg   120010000
366 floreg   120020000
367 floreg   130010000
368 floreg   130020000
369 floreg   160010000
372 floreg   170010000
373 floreg   180010000
*
374 tempg    160010000
377 tempg    100100000
378 tempg    110010000
379 tempg    120010000
380 tempg    130010000
*
383 sattemp   160010000
386 sattemp   100100000
387 sattemp   110010000
388 sattemp   120010000
389 sattemp   130010000
*
392 cntrlvar 130          * condensate level, frac.
*
20800001 hif      160010000     * CMT - node 1
20800002 hif      170010000
20800003 hif      180010000
20800004 hif      110010000
20800005 hif      120010000
20800006 hif      130010000
20800007 hif      130020000
*
20800008 hig        160010000     * CMT - node
1
20800009 hig        170010000
20800010 hig        180010000
20800011 hig        110010000
20800012 hig        120010000
20800013 hig        130010000
```

```
20800014 hig          130020000
*
*condensate level,fraction
*
20513000  con-lvl    sum    1.0      0.0    1
20513001  0.0       0.85      voidf    160010000
*
*******************************************
*hydrodynamic data
*******************************************
*
*component 100 : pipe ( steam generator )
*
1000000 sgtank      pipe
1000001 10
1000101 0.0             1
1000102 0.78540         9
1000103 0.0             10
1000301 0.205           10
1000401 0.02197          1
1000402 0.0             9
1000403 0.02197         10
1000601 90.0            10
1000801 0.000046    0.0    10
1001001 00000       10
1001101 000000      9
1001201 002    1.430e5    0.0      0.0    0.0    0.0    4
1001202 002    1.430e5    0.5      0.0    0.0    0.0    5
1001203 002    1.430e5    1.0      0.0    0.0    0.0    10
1001300 1
1001301 0.0    0.0    0.0    9
*
*branch 101 : branch (from S/G to horizontal pipe)
*
1010000 sg_up branch
1010001 2  1
1010101 0.00126    0.34    0.  0.  90.  0.34  0.000046
1010102 0.0  00000
1010200 002  1.4300e5  1.0
1011101  100100002    101010001    0.00126    0.49920
0.49920   000100
1011201 0.0  0.0  0.0
1012101 101010002   110010001   0.00126   0.57   0.57
000100
1012201 0.0  0.0  0.0
*
*component 110 : pipe (horizontal pipe above SG)
*
1100000 horzp1       pipe
1100001 3
1100101 0.00126    1
1100102 0.00049    3
*1100201 0.00049   2
1100301 0.22          1
1100302 0.90          3
1100401 0.0           3
1100601 0.0           3
1100801 0.000046    0.0        3
1100901 0.30469     0.30469   2
1101001 00000       3
1101101 000100      1
1101102 000000      2
1101201 002    1.4300e5    1.0      0.0    0.0    0.0    3
1101300 1
1101301 0.0    0.0    0.0    2
*
*junction 111 : single junction
*
1110000 vortexm     sngljun
1110101  110030002      120010001 0.0      0.75    0.75
000100
1110201 1    0.0    0.0    0.0
*
*component 120 : pipe (horizontal pipe above SG)
*
1200000 horzp2       pipe
1200001 3
1200101 0.00015  3
1200301 0.17          1
1200302 0.84          3
*1200501 90.0         1
*1200502 0.0          3
1200601 0.0           3
1200801 0.000046    0.0    3
1200901 0.75   0.75   1
1200902 0.0    0.0    2
1201001 00000         3
1201101 000000        2
1201201 002    1.4300e5    1.0      0.0    0.0    0.0    3
1201300 1
1201301 0.0    0.0    0.0    2
*

*junction 121 : single junction
*
1210000 pip1         sngljun
1210101 120030002    130010001 0.00015   0.75   0.75
000000
1210201 1    0.0    0.0    0.0
*
*component 130 : pipe (vertical pipe above CMT)
*
```

```
1300000 vertpip     pipe
1300001 5
1300101 0.00015     5
1300301 0.204       5
1300401 0.0         5
1300601 -90.0       5
1300801 0.000046    0.0   5
1301001 00000       5
1301101 000000      4
1301201 003    1.4300e5    304.0     0.0    0.0    0.0
5
*1301202 002    1.4300e5    0.66     0.0    0.0    0.0
4
*1301203 003    1.4300e5    304.     0.0    0.0    0.0
5
1301300 1
1301301 0.0    0.0    0.0    4 *
*
*junction 131 : junction from vertical pipe to the
cmt
*
1310000 cmtjun    sngljun
1310101 130050002    160010001    0.00015    0.99945
 0.99945
1310102 000100
1310201 1    0.0    0.0    0.0
*
*
*volume 160 : single volume
*
1600000 cmt       snglvol
1600101 0.32170      0.85    0.0    0.0   -90.   -0.85
0.000046
1600102 0.0   00000
1600200 003   1.4300e5     304.27
*
*component 160 : pipe (cmt)
*
*1600000 cmttank   pipe
*1600001 2
*1600101 0.32170   2
*1600301 0.425   1
*1600302 0.425   2
*1600401 0.0   2
*1600601 -90.0   2
*1600801 0.000046   0.0   2
*1601001 00000   2
*1601101 000000   1
*1601201 003   1.4300e5   304.0   0.0   0.0   0.0   2
*1601300 1
*1601301 0.0   0.0   0.0   1
*
*junction 161 : valve junction (valve below CMT)
*
1610000 dowvv    valve
1610101 160010002      170010001     0.00071     1.75
1.75   000100
1610201 1    0.0    0.0    0.0
1610300 srvvlv
1610301 120
*
*component 170 : vertical pipe below CMT
*
1700000 belopip1      pipe
1700001 2
1700101 0.00071   1
1700102 0.00015   2
1700301 0.30          1
1700302 0.12          2
1700401 0.0           2
1700601 -90.0         2
1700801 0.000046    0.0    2
1700901 0.3750   0.3750    1
1701001 00000       2
1701101 000100      1
1701201 003    1.013e5    293.    0.0    0.0    0.0    1
1701202 003    1.013e5    293.    0.0    0.0    0.0    2
1701300 1
1701301 0.0    0.0    0.0    1
*

*junction 171 : junction between vertical and
horizontal pipes
*
1710000 beljun    sngljun
1710101 170020002      180010001      0.00015    0.75
1000.75
1710102 000100
1710201 1    0.0    0.0    0.0
*

*component 180 : horizontal pipe below CMT
*
1800000 belopip2      pipe
1800001 2
1800101 0.00015   2
1800301 1.0           2
1800401 0.0           2
1800601 0.0           2
1800801 0.000046    0.0    2
1801001 00000       2
1801101 000000      1
```

```
1801201 004    1.013e5    293.    0.0    0.0    0.0    1
1801202 004    1.013e5    293.    0.0    0.0    0.0    2
1801300 1
1801301 0.0    0.0    0.0    1
*

*junction 181 : junction to atmosphere
*
1810000 atmjun    sngljun
1810101 180020002      200000000      0.00015    1.75
1.75
1810102 000100
1810201 1    0.0    0.0    0.0
*
*component 200 : atmosphere
*
2000000 air    tmdpvol
2000101 0.0    100.0    1000.0    0.0  0. 0.
2000102 0.0       0.0      00
2000200 004
2000201 0.0      1.013e5      293.0  0.0
*
**

*******************************************
*valve control
*******************************************
*
20512000 vlvarea    function      1.0    0.0    0
20512001 time        0              003
*
*

*******************************************
*valve table
*******************************************
*
20200300 normarea
20200301 0.0    0.0
20200302 10.    0.0
20200303 10.01    1.0
20200306 10000. 1.0
*

*******************************************
* heat structure input
*******************************************
*
* cmt (1160)
*
*11600000     1  3  1  1  0.0
*11600100     0       2
*11600101     0.0225 2
*11600201     5       2
*11600301     0.0     2
*11600400     0
**11600401     288.0  3
*11600501     160010000  1  1  0  0.32170    1
*11600601     0           0       0     1     0.32170
   1
*11600701     0           0.0     0.0  0.0  1
*11600801     0.0    10.0  10.0  10.0  10.0    0.0  0.0
1.0  1
*11600901     0.0    10.0  10.0  10.0  10.0    0.0  0.0
1.0  1
*
* cmt (1160-1)
*
*11601000     10  3  2  1  0.32
*11601100     0       2
*11601101     0.0025 2
*11601201     5       2
*11601301     0.0     2
**11601400     0
*11601401     288.0  3
*11601501     160010000  10000  1  1  0.085    10
*11601601     0           0       0  1  0.085    10
*11601701     0           0.0     0.0     0.0     10
*11601801     0.0    10.0  10.0  10.0  10.0    0.0  0.0
1.0  10
*11601901     0.0    10.0  10.0  10.0  10.0    0.0  0.0
1.0  10
*
* SG  (1100)
*
*11000000     10  3  2  1  0.5
*11000100     0       2
*11000101     0.006  2
*11000201     5       2
*11000301     0.0     2
*11000400     0
**11000401     373.14 3
*11000501     100010000  10000  1  1  0.205  10
*11000601     0           0       0  1  0.205  10
*11000701     0           0.0     0.0     0.0     10
*11000801     0.0    10.0  10.0  10.0  10.0    0.0  0.0
1.0  10
*11000901     0.0    10.0  10.0  10.0  10.0    0.0  0.0
1.0  10
*


*
```

```
*********************************************
*   heat structure input for electric heater
*********************************************
11005000 3   4   2   1   0.0
11005100 0   2
11005101 0.0015   2   0.001   3
11005201 11    2    5    3
11005301 1.0   2   0.0   3
11005400 0
11005401 384.4    4
11005501 0   0   0   1   36.0   3
11005601 100010000   10000   1   1   36.0   3
11005701 10212   1.0   0.0   0.0   3
11005901 0.0   10.0   10.0   10.0   10.0   0.0   0.0   1.0
3
*
* power table
*
*20221200 power   501   1.   100000.0
*20221201    -1.    0.0
*20221202     0.   1.0
*20221203     100.  1.0
*20221204     1000.   1.0
*

20100500     tbl/fctn    1    1     * s - steel
20101100     tbl/fctn    1    1* PZR heater (MgO)
*********************************************
*   MgO (011)
*********************************************
*                temp (k)    volumetric heat capacity
(j/m3.k)
20101151          0.293e+03     .26000000e+07
20101152          0.450e+03     .28350000e+07
20101153          0.800e+03     .34020000e+07
20101154          1.120e+03     .37260000e+07
20101155          1.922038e+03      .37260000e+07
*
*          temp (k)     thermal conductivity (w/m.k)
*
20101101        0.29320e+03        81.40
20101102        1.27320e+03        100.47
20101102        1.9220389e+03       100.47          *
*
*********************************************
*   stainless steel (005)  18cr-8ni
*********************************************
*                temp (k)    volumetric heat capacity
(j/m3.k)
20100551      .2742611e+03      .3831330e+07
*20100551      .2942611e+03      .3831330e+07
20100552      .3109278e+03      .3831330e+07
20100553      .3664834e+03      .3985580e+07
20100554      .4220389e+03      .4105300e+07
20100555      .4775945e+03      .4224090e+07
20100556      .5331500e+03      .4308800e+07
20100557      .5887056e+03      .4359790e+07
20100558      .6442611e+03      .4410320e+07
20100559      .8109278e+03      .4561910e+07
20100560      .9220389e+03      .4625250e+07
20100561    1.9220389e+03       .4625250e+07          *
*
*                temp (k)     thermal conductivity
(w/m.k)
20100501      .2732611e+03      .1489124e+02
20100502      .2942611e+03      .1489124e+02
20100503      .3109278e+03      .1505739e+02
20100504      .3664834e+03      .1609584e+02
20100505      .4220389e+03      .1696813e+02
20100506      .4775945e+03      .1800657e+02
20100507      .5331500e+03      .1885809e+02
20100508      .5887056e+03      .1956423e+02
20100509      .6442611e+03      .2041575e+02
20100510      .8109278e+03      .2297030e+02
20100511      .9220389e+03      .2423029e+02
20100512    1.9220389e+03       .2423029e+02          *
*

*
*********************************************
* heater control
*********************************************
*
20521200 heater    constant    0.0
*
*
. end of file
```

2) GI021- 2 node model modification

```
*component 160 : pipe (cmt)
*
1600000 cmttank  pipe
1600001 2
1600101 0.32170  2
1600301 0.425  1
1600302 0.425  2
1600401 0.0  2
1600601 -90.0  2
1600801 0.000046  0.0  2
1601001 00000  2
1601101 000000  1
1601201 003  1.4300e5  304.27  0.0  0.0  0.0  2
1601300 1
1601301 0.0  0.0  0.0  1
*
```

3) GI021- 3 node model modification

```
*
*component 160 : pipe (cmt)
*
1600000 cmttank  pipe
1600001 3
1600101 0.32170  3
1600301 0.2833  1
1600302 0.2833  2
1600303 0.2833  3
1600401 0.0  3
1600601 -90.0  3
1600801 0.000046  0.0  3
1601001 00000  3
1601101 000000  2
1601201 003  1.4300e5  304.27  0.0  0.0  0.0  3
1601300 1
1601301 0.0  0.0  0.0  2
*
```

4) GN021

```
=RELAP5/MOD3.1 CMT 1 Nodes
* GN021 simulation
* CMT node : 1 node
* water valve: 10sec. opened
* natural circulation line v/v : 10sec. opened
*
*job cards
100 new   transnt
101 run
*
110 air
*
*time step cards
201 10.0   1.0e-12 0.1     3    10    100   100
202 20.0   1.0e-12 0.005   3    100   500   500
203 40.0   1.0e-12 0.1     3    10    100   100
204 60.0   1.0e-12 0.005   3    100   500   500
205 1000.0  1.0e-12 0.1    3    10    2500  2500
*
*minor editor cards
*
*
301    tempf 160010000      * CMT - node 1
311    p     100100000
312    p     130050000
313    p     160010000
*
*
314 tempf    130020000
315 tempf    120010000
316 tempf    120020000
317 tempf    100050000
318 tempf    100010000
319 tempf    320010000
*
320 voidg    160010000      * CMT - node 1
321 voidg    130010000
322 voidg    130020000
323 voidg    120010000
324 voidg    110010000
325 voidg    100100000
326 voidg    100050000
*
328 mflowj   130040000
329 mflowj   111000000
330 mflowj   121000000
331 mflowj   131000000
332 mflowj   161000000
334 mflowj   170010000
335 mflowj   171000000
336 mflowj   181000000
337 mflowj   310020000
338 mflowj   325000000
339 mflowj   345000000
*
*

-      vapgen      160010000
358 vapgen         170010000
359 vapgen         180010000
360 vapgen         110010000
361 vapgen         120010000
362 vapgen         130010000
363 vapgen         130020000
*
364 floreg   110010000
365 floreg   120010000
366 floreg   120020000
367 floreg   130010000
368 floreg   130020000
369 floreg   160010000
372 floreg   170010000
373 floreg   180010000
373 floreg   330030000
*
374 tempg    160010000
377 tempg    100100000
378 tempg    110010000
379 tempg    120010000
380 tempg    130010000
*
383 sattemp    160010000
386 sattemp    100100000
387 sattemp    110010000
388 sattemp    120010000
389 sattemp    130010000
*
392 cntrlvar 130          * condensate level, frac.
*
20800001 hif      160010000
20800002 hif      170010000
20800003 hif      180010000
20800004 hif      110010000
20800005 hif      120010000
20800006 hif      130010000
20800007 hif      130020000
*
20800008 hig        160010000
20800009 hig        170010000
20800010 hig        180010000
```

```
20800011 hig          110010000
20800012 hig          120010000
20800013 hig          130010000
20800014 hig          130020000
*
*condensate level,fraction
*
20513000  con-lvl   sum    1.0     0.0    1
20513001  0.0      0.85              voidf    160010000
*
****************************************
* hydrodynamic data
****************************************
*
*component 100 : pipe ( steam generator )
*
1000000 sgtank      pipe
1000001 10
1000101 0.0             1
1000102 0.78540         9
1000103 0.0             10
1000301 0.205           10
1000401 0.02197          1
1000402 0.0             9
1000403 0.02197         10
1000601 90.0            10
1000801 0.000046    0.0    10
1001001 00000       10
1001101 000000      9
1001201 002   1.430e5   0.0    0.0   0.0    0.0    6
1001202 002   1.430e5   0.8    0.0   0.0    0.0    7
1001203 002   1.430e5   1.0    0.0   0.0    0.0    10
1001300 1
1001301 0.0    0.0    0.0    9
*
*branch 101 : branch (from S/G to horizontal pipe)
*
1010000 sg_up branch
1010001 2  1
1010101 0.00126    0.34    0.  0.  90.  0.34  0.000046
1010102 0.0  00000
1010200 002   1.4300e5   1.0
1011101  100100002   101010001   0.00126   0.5   0.5
000100
1011201 0.0   0.0   0.0
1012101  101010002   110010001   0.00126   0.63   0.63
000100
1012201 0.0   0.0   0.0
*
*component 110 : pipe (horizontal pipe above SG)
*
1100000 horzp1       pipe
1100001 3
1100101 0.00126   1
1100102 0.00049   3
*1100201 0.00049   2
1100301 0.22          1
1100302 0.90          3
1100401 0.0           3
1100601 0.0           3
1100801 0.000046    0.0    3
1100901 0.43   0.43   1
1100902 0.0   0.0   2
1101001 00000       3
1101101 000100      1
1101102 000000      2
1101201 002    1.4300e5    1.0      0.0    0.0    0.0    3
*1102001 boron concentration should be considered
in future job
1101300 1
1101301 0.0    0.0    0.0    2
*
*junction 111 : single junction
*
1110000 vortexm     sngljun
1110101  110030002      120010001  0.0      1.26    1.26
000100
1110201 1    0.0    0.0    0.0
*
*component 120 : pipe (horizontal pipe above SG)
*
1200000 horzp2       pipe
1200001 3
1200101 0.00015   3
1200301 0.17          1
1200302 0.84          3
*1200501 90.0         1
*1200502 0.0          3
1200601 0.0           3
1200801 0.000046    0.0    3
1200901 0.81   0.81   1
1200902 0.0    0.0    2
1201001 00000       3
1201101 000000      2
1201201 002   1.4300e5   1.0   0.0   0.0    0.0    3
1201300 1
1201301 0.0    0.0    0.0    2
*

*junction 121 : single junction
*
1210000 pip1         sngljun
```

```
1210101 120030002    130010001 0.00015   1.62   1.62
000000
1210201 1    0.0    0.0    0.0
*
*component 130 : pipe (vertical pipe above CMT)
*
1300000 vertpip     pipe
1300001 5
1300101 0.00015     5
1300301 0.204       5
1300401 0.0         5
1300601 -90.0       5
1300801 0.000046    0.0    5
1300901 0.0    0.0    1
1300902 0.54    0.54    2
1300903 0.0    0.0    4
1301001 00000       5
1301101 000000      4
1301201 003    1.4300e5    304.0      0.0     0.0     0.0
5
1301300 1
1301301 0.0    0.0    0.0    4 *
*
*junction 131 : junction from vertical pipe to the
cmt
*
1310000 cmtjun    sngljun
1310101 130050002      160010001      0.00015      1.0
1.0
1310102 000100
1310201 1    0.0    0.0    0.0
*
*
*volume 160 : single volume
*
1600000 cmt       snglvol
1600101 0.32170      0.85     0.0     0.0   -90.   -0.85
0.000046
1600102 0.0   00000
1600200 003   1.4300e5     304.27
*
*component 160 : pipe (cmt)
*
*1600000 cmttank   pipe
*1600001 2
*1600101 0.32170   2
*1600301 0.425   1
*1600302 0.425   2
*1600401 0.0   2
*1600601 -90.0   2
*1600801 0.000046   0.0   2
*1601001 00000   2
*1601101 000000   1
*1601201 003   1.4300e5   304.0   0.0   0.0   0.0   2
*1601300 1
*1601301 0.0   0.0   0.0   1
*
*junction 161 : valve junction (valve below CMT)
*
1610000 dowvv     valve
1610101 160010002      170010001      0.00071      1.75
1.75   000100
1610201 1    0.0    0.0    0.0
1610300 srvvlv
1610301 120
*
*component 170 : vertical pipe below CMT
*
1700000 belopip1      pipe
1700001 2
1700101 0.00071   1
1700102 0.00015   2
1700301 0.30          1
1700302 0.12          2
1700401 0.0           2
1700601 -90.0         2
1700801 0.000046    0.0    2
1700901 0.394   0.394    1
1701001 00000       2
1701101 000100      1
1701201 003    1.013e5    293.    0.0     0.0     0.0     1
1701202 003    1.013e5    293.    0.0     0.0     0.0     2
1701300 1
1701301 0.0    0.0    0.0    1
*

*junction 171 : junction between vertical and
horizontal pipes
*
1710000 beljun    sngljun
1710101 170020002      180010001      0.00015      0.5
1000.75
1710102 000100
1710201 1    0.0    0.0    0.0
*
*component 180 : horizontal pipe below CMT
*
1800000 belopip2      pipe
1800001 2
1800101 0.00015   2
1800301 1.0           2
1800401 0.0           2
```

```
1800601 0.0          2
1800801 0.000046   0.0   2
1801001 00000      2
1801101 000000     1
1801201 004   1.013e5   293.   0.0   0.0   0.0   1
1801202 004   1.013e5   293.   0.0   0.0   0.0   2
1801300 1
1801301 0.0   0.0   0.0   1
*
*junction 181 : junction to atmosphere
*
1810000 atmjun    sngljun
1810101  180020002      200000000      0.00015   1.75
1.75
1810102 000100
1810201 1   0.0   0.0   0.0
*
*component 200 : atmosphere
*
2000000 air    tmdpvol
2000101 0.0   100.0   1000.0   0.0  0. 0.
2000102 0.0       0.0     00
2000200 004
2000201 0.0     1.013e5     293.0  0.0
*
**************************************
* Natural circulation line
**************************************
*
*branch 310 : branch (from S/G to circulation line
inlet)
*
3100000 nc_in branch
3100001 2  1
3100101 0.00049   0.17   0.  0.  0.  0.0  0.000046
3100102 0.0  00000
3100200 003  1.4300e5  300.0
3101101  100040004   310010001   0.00049   0.5   0.5
000120
3101201 0.0  0.0  0.0
3102101 310010002  320010001  0.00015  1.12  1.12
000100
3102201 0.0  0.0  0.0
*
*component 320 : natural circulation line
*
3200000 nc_hp1    pipe
3200001 6
3200101 0.00015  6
3200301 0.13        1
3200302 0.436       6
3200401 0.0         6
3200601 -90.0       1
3200602 0.0         6
3200801 0.000046   0.0   6
3200901 0.81   0.81   1
3200902 0.0   0.0   5
3201001 00000      6
3201101 000000     5
3201201 003  1.4300e5  300.  0.0  0.0  0.0   6
3201300 1
3201301 0.0   0.0   0.0   5
*
*junction 325
*
3250000 hp_jun1    sngljun
3250101  320060002      330010001      0.00015   0.739
0.739
3250102 000100
3250201 1   0.0   0.0   0.0
*
*component 330 : natural circulation line
*
3300000 nc_hp2     pipe
3300001 4
3300101 0.00126  4
3300301 0.14        1
3300302 0.23        3
3300303 0.4225      4
3300401 0.0         4
3300601 0.0       1
3300602 90.0        4
3300801 0.000046   0.0   4
3300901 0.63   0.63   1
3300902 0.0   0.0   3
3301001 00000      4
3301101 000000     3
3301201 003   1.4300e5   300.   0.0   0.0   0.0   4
3301300 1
3301301 0.0   0.0   0.0   3
*
*
*junction 335 : natural circulation valve junction
*
3350000 dowvv    valve
3350101  330040002      340010001      0.00126   1.75
1.75  000100
3350201 1   0.0   0.0   0.0
3350300 srvvlv
3350301 120
*
*component 340 : natural circulation line
```

```
*
3400000 nc_hp3      pipe
3400001 4
3400101 0.00126   4
3400301 0.223     3
3400302 0.1       4
3400401 0.0           4
3400601 0.0         3
3400602 -90.0           4
3400801 0.000046    0.0    4
3400901 0.0    0.0    1
3400902 0.63    0.63    3
3401001 00000       4
3401101 000000      3
3401201 003    1.4300e5    300.    0.0    0.0    0.0    4
3401300 1
3401301 0.0    0.0    0.0    3
*
*junction 345 : junction from natural circulation
*                  pipe to the cmt
*
3450000 cmtjun    sngljun
3450101  340040002      160010001      0.00126      0.1
0.1
3450102 000100
3450201 1    0.0    0.0    0.0
*
**************************************
*valve control
**************************************
*
20512000 vlvarea    function      1.0    0.0    0
20512001 time        0              003
*
*


**************************************
*valve table
**************************************
*
20200300 normarea
20200301 0.0    0.0
20200302 10.    0.0
20200303 10.01    1.0
20200306 10000. 1.0
*


**************************************
* heat structure input
**************************************
*
* cmt (1160)
*
*11600000     1  3  1  1  0.0
*11600100     0       2
*11600101     0.0225 2
*11600201     5       2
*11600301     0.0     2
*11600400     0
**11600401     288.0  3
*11600501     160010000  1  1  0  0.32170    1
*11600601     0            0       0     1     0.32170
   1
*11600701     0            0.0     0.0   0.0   1
*11600801     0.0    10.0   10.0   10.0   10.0    0.0   0.0
1.0   1
*11600901     0.0    10.0   10.0   10.0   10.0    0.0   0.0
1.0   1
*
* cmt (1160-1)
*
*11601000     10  3  2  1  0.32
*11601100     0       2
*11601101     0.0025 2
*11601201     5       2
*11601301     0.0     2
**11601400     0
*11601401     288.0  3
*11601501     160010000  10000  1  1  0.085    10
*11601601     0            0       0  1  0.085    10
*11601701     0            0.0     0.0     0.0     10
*11601801     0.0    10.0   10.0   10.0   10.0    0.0   0.0
1.0   10
*11601901     0.0    10.0   10.0   10.0   10.0    0.0   0.0
1.0   10
*
* SG   (1100)
*
*11000000     10  3  2  1  0.5
*11000100     0       2
*11000101     0.006  2
*11000201     5       2
*11000301     0.0     2
*11000400     0
**11000401     373.14 3
*11000501     100010000  10000  1  1  0.205  10
*11000601     0            0       0  1  0.205  10
*11000701     0            0.0     0.0   0.0    10
*11000801     0.0    10.0   10.0   10.0   10.0    0.0   0.0
1.0   10
*11000901     0.0    10.0   10.0   10.0   10.0    0.0   0.0
1.0   10
```

```
*
*
****************************************
* heat structure input for electric heater
****************************************
11005000 3  4  2  1  0.0
11005100 0  2
11005101 0.0015  2  0.001  3
11005201 11  2  5  3
11005301 1.0  2  0.0  3
11005400 0
11005401 384.4  4
11005501 0  0  0  1  36.0  3
11005601 100010000  10000  1  1  36.0  3
11005701 10212  1.0  0.0  0.0  3
11005901 0.0  10.0  10.0  10.0  10.0  0.0  0.0  1.0
3
*
* power table
*
*20221200 power  501  1.  100000.0
*20221201  -1.  0.0
*20221202  0.  1.0
*20221203  100.  1.0
*20221204  1000.  1.0
*

20100500  tbl/fctn  1  1  * s - steel
20101100  tbl/fctn  1  1  * PZR
heater (MgO)
****************************************
*  MgO(011)
****************************************
*  temp (k)  volumetric heat capacity
                (j/m3.k)
20101151  0.293e+03  .26000000e+07
20101152  0.450e+03  .28350000e+07
20101153  0.800e+03  .34020000e+07
20101154  1.120e+03  .37260000e+07
20101155  1.922038e+03  .37260000e+07
*
*  temp (k)  thermal conductivity
                (w/m.k)
20101101  0.29320e+03  81.40
20101102  1.27320e+03  100.47
20101102  1.9220389e+03  100.47  *
*
****************************************
*  stainless steel (005)  18cr-8ni
****************************************
*  temp (k)  volumetric heat capacity
                (j/m3.k)
20100551  .2742611e+03  .3831330e+07
*20100551  .2942611e+03  .3831330e+07
20100552  .3109278e+03  .3831330e+07
20100553  .3664834e+03  .3985580e+07
20100554  .4220389e+03  .4105300e+07
20100555  .4775945e+03  .4224090e+07
20100556  .5331500e+03  .4308800e+07
20100557  .5887056e+03  .4359790e+07
20100558  .6442611e+03  .4410320e+07
20100559  .8109278e+03  .4561910e+07
20100560  .9220389e+03  .4625250e+07
20100561  1.9220389e+03  .4625250e+07  *
*
*  temp (k)  thermal conductivity
(w/m.k)
20100501  .2732611e+03  .1489124e+02
20100502  .2942611e+03  .1489124e+02
20100503  .3109278e+03  .1505739e+02
20100504  .3664834e+03  .1609584e+02
20100505  .4220389e+03  .1696813e+02
20100506  .4775945e+03  .1800657e+02
20100507  .5331500e+03  .1885809e+02
20100508  .5887056e+03  .1956423e+02
20100509  .6442611e+03  .2041575e+02
20100510  .8109278e+03  .2297030e+02
20100511  .9220389e+03  .2423029e+02
20100512  1.9220389e+03  .2423029e+02  *
*

*
****************************************
* heater control
****************************************
*
20521200 heater  constant  0.0
*
*
. end of file
```

5) PI041

```
=RELAP5/MOD3.1 CMT 1 Nodes
*PI041 simulation
*CMT node : 1 node
*water valve: 10sec. opened
*
*job cards
100 new   transnt
101 run
*
110 air
*
*time step cards
201 10.0   1.0e-12 0.1      3    10    100   100
*202 20.0   1.0e-12 0.005      3    100    500   500
202 20.0   1.0e-12 0.005      3    200    1000   1000
203 1600.   1.0e-12 0.1      3    10     2500   2500
*205 2600.   1.0e-12 0.1      3    10     2500   2500
*
*minor editor cards
*
*
301    tempf      160010000      * CMT - node 1
311    p      100100000
312    p      130050000
313    p      160010000
*
*
314 tempf    130020000
315 tempf    120010000
316 tempf    120020000
317 tempf    100050000
318 tempf    100010000
*
319 voidg    160010000      * CMT - node 1
322 voidg    130010000
323 voidg    130020000
324 voidg    120010000
325 voidg    110010000
326 voidg    100100000
327 voidg    100050000
*
328 mflowj   130040000
329 mflowj   111000000
330 mflowj   121000000
331 mflowj   131000000
332 mflowj   161000000
334 mflowj   170010000
335 mflowj   171000000
336 mflowj   181000000
*
*
*
355 vapgen       160010000      * CMT - node 1
358 vapgen       170010000
359 vapgen       180010000
360 vapgen       110010000
361 vapgen       120010000
362 vapgen       130010000
363 vapgen       130020000
*
364 floreg    110010000
365 floreg    120010000
366 floreg    120020000
367 floreg    130010000
368 floreg    130020000
369 floreg    160010000
372 floreg    170010000
373 floreg    180010000
*
374 tempg    160010000
377 tempg    100100000
378 tempg    110010000
379 tempg    120010000
380 tempg    130010000
*
383 sattemp    160010000
386 sattemp    100100000
387 sattemp    110010000
388 sattemp    120010000
389 sattemp    130010000
*
392 cntrlvar 130          * condensate level, frac.
20800001 hif      160010000      * CMT - node 1
20800002 hif      170010000
20800003 hif      180010000
20800004 hif      110010000
20800005 hif      120010000
20800006 hif      130010000
20800007 hif      130020000
*
20800008 hig      160010000      * CMT - node 1
20800009 hig      170010000
20800010 hig      180010000
20800011 hig      110010000
20800012 hig      120010000
20800013 hig      130010000
20800014 hig      130020000
*
*condensate level,fraction
*
```

```
20513000  con-lvl   sum   1.0     0.0   1
20513001  0.0      0.85            voidf   160010000
*
*****************************************
* hydrodynamic data
*****************************************
*
*component 100 : pipe ( steam generator )
*
1000000 sgtank     pipe
1000001 10
1000101 0.0          1
1000102 0.78540      9
1000103 0.0          10
1000301 0.205        10
1000401 0.02197      1
1000402 0.0          9
1000403 0.02197      10
1000601 90.0         10
1000801 0.000046   0.0   10
1001001 00000      10
1001101 000000     9
1001201 002   4.0e5   0.0     0.0   0.0   0.0   4
1001202 002   4.0e5   0.5     0.0   0.0   0.0   5
1001203 002   4.0e5   1.0     0.0   0.0   0.0   10
1001300 1
1001301 0.0   0.0   0.0   9
*
*branch 101 : branch (from S/G to horizontal pipe)
*
1010000 sg_up branch
1010001 2  1
1010101 0.00126   0.34   0.  0.  90.  0.34  0.000046
1010102 0.0  00000
1010200 002  4.00e5  1.0
1011101  100100002   101010001   0.00126   0.5   0.5
000100
1011201 0.0  0.0  0.0
1012101 101010002   110010001   0.00126   0.63   0.63
000100
1012201 0.0  0.0  0.0
*
*component 110 : pipe (horizontal pipe above SG)
*
1100000 horzp1      pipe
1100001 3
1100101 0.00126  1
1100102 0.00049  3
*1100201 0.00049  2
1100301 0.22         1
1100302 0.90         3
1100401 0.0          3
1100601 0.0          3
1100801 0.000046   0.0   3
1100901 0.43  0.43  1
1100902 0.0   0.0   2
1101001 00000      3
1101101 000100     1
1101102 000000     2
1101201 002   4.0e5   1.0     0.0   0.0   0.0   3
1101300 1
1101301 0.0   0.0   0.0   2
*
*junction 111 : single junction
*
1110000 vortexm    sngljun
1110101  110030002     120010001  0.0     1.26   1.26
000100
1110201 1   0.0   0.0   0.0
*
*component 120 : pipe (horizontal pipe above SG)
*
1200000 horzp2      pipe
1200001 3
1200101 0.00015  3
1200301 0.17         1
1200302 0.84         3
*1200501 90.0        1
*1200502 0.0         3
1200601 0.0          3
1200801 0.000046   0.0   3
1200901 0.81  0.81  1
1200902 0.0   0.0   2
1201001 00000      3
1201101 000000     2
1201201 002   4.0e5   1.0     0.0   0.0   0.0   3
1201300 1
1201301 0.0   0.0   0.0   2
*

*junction 121 : single junction
*
1210000 pipl        sngljun
1210101  120030002   130010001  0.00015   1.62   1.62
000000
1210201 1   0.0   0.0   0.0
*
*component 130 : pipe (vertical pipe above CMT)
*
1300000 vertpip     pipe
1300001 5
1300101 0.00015     5
```

```
1300301 0.204       5
1300401 0.0         5
1300601 -90.0       5
1300801 0.000046    0.0   5
1300901 0.0   0.0   1
1300902 0.54  0.54  2
1300903 0.0   0.0   4
1301001 00000       5
1301101 000000      4
1301201 003   4.00e5   304.0    0.0   0.0   0.0   5
1301300 1
1301301 0.0   0.0   0.0   4 *
*
*junction 131 : junction from vertical pipe to the
test section
*
1310000 testse    sngljun
1310101 130050002     160010001     0.00015     1.0
1.0
1310102 000100
1310201 1   0.0   0.0   0.0
*
*
*volume 160 : single volume
*
1600000 cmt       sngl vol
1600101 0.32170     0.85    0.0    0.0   -90.   -0.85
0.000046
1600102 0.0  00000
1600200 003  1.4300e5     304.1
*
*component 160 : pipe (cmt)
*
*1600000 cmttank   pipe
*1600001 2
*1600101 0.32170   2
*1600301 0.425   1
*1600302 0.425   2
*1600401 0.0   2
*1600601 -90.0   2
*1600801 0.000046   0.0   2
*1601001 00000   2
*1601101 000000   1
*1601201 003   1.4300e5   304.0   0.0   0.0   0.0   2
*1601300 1
*1601301 0.0   0.0   0.0   1
*
*junction 161 : valve junction (valve below test
section)
*
1610000 dowvv     valve
1610101 160010002     170010001     0.00071     1.75
1.75  000100
1610201 1   0.0   0.0   0.0
1610300 srvvlv
1610301 120
*
*component 170 : vertical pipe below CMT
*
1700000 belopip1      pipe
1700001 2
1700101 0.00071   1
1700102 0.00015   2
1700301 0.30        1
1700302 0.12        2
1700401 0.0         2
1700601 -90.0       2
1700801 0.000046    0.0   2
1700901 0.3750  0.3750    1
1701001 00000       2
1701101 000100      1
1701201 003   1.013e5   293.    0.0   0.0   0.0   1
1701202 003   1.013e5   293.    0.0   0.0   0.0   2
1701300 1
1701301 0.0   0.0   0.0   1
*

*junction 171 : junction between vertical and
horizontal pipes
*
1710000 beljun    sngljun
1710101 170020002     180010001     0.00015     0.5
1000.75
1710102 000100
1710201 1   0.0   0.0   0.0
*

*component 180 : horizontal pipe below CMT
*
1800000 belopip2      pipe
1800001 2
1800101 0.00015   2
1800301 1.0         2
1800401 0.0         2
1800601 0.0         2
1800801 0.000046    0.0   2
1801001 00000       2
1801101 000000      1
1801201 004   1.013e5   293.    0.0   0.0   0.0   1
1801202 004   1.013e5   293.    0.0   0.0   0.0   2
1801300 1
1801301 0.0   0.0   0.0   1
```

```
*

*junction 181 : junction to atmosphere
*
1810000 atmjun    sngljun
1810101 180020002      200000000      0.00015    1.75
1.75
1810102 000100
1810201 1    0.0    0.0    0.0
*
*component 200 : atmosphere
*
2000000 air    tmdpvol
2000101 0.0    100.0    1000.0    0.0   0.  0.
2000102 0.0        0.0      00
2000200 004
2000201 0.0      1.013e5      293.0   0.0
*
**

*******************************************
*valve control
*******************************************
*
20512000 vlvarea    function      1.0    0.0    0
20512001 time        0              003
*
*

*******************************************
*valve table
*******************************************
*
20200300 normarea
20200301 0.0    0.0
20200302 10.    0.0
20200303 10.01    1.0
20200306 10000. 1.0
*

*******************************************
* heat structure input
*******************************************
*
* cmt (1160)
*
*11600000     1   3   1   1   0.0
*11600100     0        2
*11600101     0.0225 2
*11600201     5        2
*11600301     0.0      2
*11600400     0
**11600401     288.0   3
*11600501     160010000   1   1   0   0.32170    1
*11600601     0            0       0     1     0.32170
   1
*11600701     0            0.0     0.0   0.0   1
*11600801     0.0    10.0   10.0   10.0   10.0    0.0   0.0
1.0   1
*11600901     0.0    10.0   10.0   10.0   10.0    0.0   0.0
1.0   1
*
* cmt (1160-1)
*
*11601000     10   3   2   1   0.32
*11601100     0        2
*11601101     0.0025 2
*11601201     5        2
*11601301     0.0      2
**11601400     0
*11601401     288.0   3
*11601501     160010000   10000   1   1   0.085    10
*11601601     0            0       0   1   0.085    10
*11601701     0            0.0     0.0     0.0      10
*11601801     0.0    10.0   10.0   10.0   10.0    0.0   0.0
1.0   10
*11601901     0.0    10.0   10.0   10.0   10.0    0.0   0.0
1.0   10
*
* SG   (1100)
*
*11000000     10   3   2   1   0.5
*11000100     0        2
*11000101     0.006   2
*11000201     5        2
*11000301     0.0      2
*11000400     0
**11000401     373.14 3
*11000501     100010000   10000   1   1   0.205   10
*11000601     0            0       0   1   0.205   10
*11000701     0            0.0     0.0   0.0     10
*11000801     0.0    10.0   10.0   10.0   10.0    0.0   0.0
1.0   10
*11000901     0.0    10.0   10.0   10.0   10.0    0.0   0.0
1.0   10
*

*
*******************************************
* heat structure input for electric heater
*******************************************
11005000 3   4   2   1   0.0
```

```
11005100 0  2
11005101 0.0015  2  0.001  3
11005201 11  2  5  3
11005301 1.0  2  0.0  3
11005400 0
11005401 384.4  4
11005501 0  0  0  1  36.0  3
11005601 100010000  10000  1  1  36.0  3
11005701 10212  1.0  0.0  0.0  3
11005901 0.0  10.0  10.0  10.0  10.0  0.0  0.0  1.0
3
*
* power table
*
*20221200 power  501  1.  100000.0
*20221201   -1.   0.0
*20221202    0.  1.0
*20221203    100. 1.0
*20221204    1000.  1.0
*


20100500    tbl/fctn   1  1    * s - steel
20101100    tbl/fctn   1  1    * PZR heater (MgO)
*******************************************
*  MgO  (011)
*******************************************
*              temp (k)   volumetric heat capacity
                                (j/m3.k)
20101151        0.293e+03     .26000000e+07
20101152        0.450e+03     .28350000e+07
20101153        0.800e+03     .34020000e+07
20101154        1.120e+03     .37260000e+07
20101155        1.922038e+03     .37260000e+07
*
*               temp (k)      thermal conductivity
(w/m.k)
*
20101101      0.29320e+03      81.40
20101102      1.27320e+03      100.47
20101102      1.9220389e+03      100.47        *
*
***********************************************
******************
*   stainless steel (005)  18cr-8ni
*
*              temp (k)   volumetric heat capacity
(j/m3.k)
20100551     .2742611e+03     .3831330e+07
*20100551     .2942611e+03     .3831330e+07
20100552     .3109278e+03     .3831330e+07
20100553     .3664834e+03     .3985580e+07
20100554     .4220389e+03     .4105300e+07
20100555     .4775945e+03     .4224090e+07
20100556     .5331500e+03     .4308800e+07
20100557     .5887056e+03     .4359790e+07
20100558     .6442611e+03     .4410320e+07
20100559     .8109278e+03     .4561910e+07
20100560     .9220389e+03     .4625250e+07
20100561    1.9220389e+03     .4625250e+07        *
*
              temp (k)      thermal conductivity
                                (w/m.k)
20100501     .2732611e+03     .1489124e+02
20100502     .2942611e+03     .1489124e+02
20100503     .3109278e+03     .1505739e+02
20100504     .3664834e+03     .1609584e+02
20100505     .4220389e+03     .1696813e+02
20100506     .4775945e+03     .1800657e+02
20100507     .5331500e+03     .1885809e+02
20100508     .5887056e+03     .1956423e+02
20100509     .6442611e+03     .2041575e+02
20100510     .8109278e+03     .2297030e+02
20100511     .9220389e+03     .2423029e+02
20100512    1.9220389e+03     .2423029e+02        *
*

*
*******************************************
* heater control
*******************************************
*
20521200 heater    constant    0.0
*
. end of file
```

6) PN041

```
=RELAP5/MOD3.1 CMT 1 Nodes
* PN041 simulation
* CMT node : 1 node
* water valve: 10sec. opened
* natural circulation line v/v : 10sec. opened
*
*job cards
100 new   transnt
101 run
*
110 air
*
*time step cards
201 10.0   1.0e-12 0.1      3    10    100   100
202 20.0   1.0e-12 0.005    3    100   500   500
203 40.0   1.0e-12 0.1      3    10    100   100
204 60.0   1.0e-12 0.005    3    100   500   500
205 1000.0 1.0e-12 0.1      3    10    2500  2500
*
*minor editor cards
*
301   tempf     160010000     * CMT - node 1
311   p         100100000
312   p         130050000
313   p         160010000
*
*
314 tempf     130020000
315 tempf     120010000
316 tempf     120020000
317 tempf     100050000
318 tempf     100010000
319 tempf     320010000
*
320 voidg     160010000     * CMT - node 1
321 voidg     130010000
322 voidg     130020000
323 voidg     120010000
324 voidg     110010000
325 voidg     100100000
326 voidg     100050000
*
328 mflowj    130040000
329 mflowj    111000000
330 mflowj    121000000
331 mflowj    131000000
332 mflowj    161000000
334 mflowj    170010000
335 mflowj    171000000
336 mflowj    181000000
337 mflowj    310020000
338 mflowj    325000000
339 mflowj    345000000
*
355 vapgen        160010000     * CMT - node 1
358 vapgen        170010000
359 vapgen        180010000
360 vapgen        110010000
361 vapgen        120010000
362 vapgen        130010000
363 vapgen        130020000
*
364 floreg    110010000
365 floreg    120010000
366 floreg    120020000
367 floreg    130010000
368 floreg    130020000
369 floreg    160010000
372 floreg    170010000
373 floreg    180010000
373 floreg    330030000
*
374 tempg     160010000
377 tempg     100100000
378 tempg     110010000
379 tempg     120010000
380 tempg     130010000
*
383 sattemp    160010000
386 sattemp    100100000
387 sattemp    110010000
388 sattemp    120010000
389 sattemp    130010000
*
392 cntrlvar 130          * condensate level, frac.
*
20800001 hif      160010000     * CMT - node 1
20800002 hif      170010000
20800003 hif      180010000
20800004 hif      110010000
20800005 hif      120010000
20800006 hif      130010000
20800007 hif      130020000
*
20800008 hig        160010000
20800009 hig        170010000
20800010 hig        180010000
20800011 hig        110010000
20800012 hig        120010000
20800013 hig        130010000
```

```
20800014 hig          130020000
*
*condensate level,fraction
*
20513000  con-lvl    sum    1.0     0.0    1
20513001  0.0      0.85              voidf    160010000
*
*******************************************
* hydrodynamic data
*******************************************
*
*component 100 : pipe ( steam generator )
*
1000000 sgtank      pipe
1000001 10
1000101 0.0             1
1000102 0.78540         9
1000103 0.0            10
1000301 0.205          10
1000401 0.02197         1
1000402 0.0             9
1000403 0.02197        10
1000601 90.0           10
1000801 0.000046    0.0    10
1001001 00000       10
1001101 000000      9
1001201 002    4.0e5    0.0      0.0    0.0    0.0    6
1001202 002    4.0e5    0.8      0.0    0.0    0.0    7
1001203 002    4.0e5    1.0      0.0    0.0    0.0    10
1001300 1
1001301 0.0    0.0    0.0    9
*
*branch 101 : branch (from S/G to horizontal pipe)
*
1010000 sg_up branch
1010001 2  1
1010101 0.00126    0.34    0.  0.  90.  0.34  0.000046
1010102 0.0  00000
1010200 002  4.0e5  1.0
1011101 100100002   101010001   0.00126   0.5   0.5
000100
1011201 0.0  0.0  0.0
1012101 101010002   110010001   0.00126   0.63   0.63
000100
1012201 0.0  0.0  0.0
*
*component 110 : pipe (horizontal pipe above SG)
*
1100000 horzp1       pipe
1100001 3
1100101 0.00126  1
1100102 0.00049  3
*1100201 0.00049  2
1100301 0.22          1
1100302 0.90          3
1100401 0.0           3
1100601 0.0           3
1100801 0.000046    0.0    3
1100901 0.43  0.43  1
1100902 0.0  0.0  2
1101001 00000       3
1101101 000100      1
1101102 000000      2
1101201 002    4.0e5    1.0      0.0    0.0    0.0    3
1101300 1
1101301 0.0    0.0    0.0    2
*
*junction 111 : single junction
*
1110000 vortexin    sngljun
1110101  110030002      120010001 0.0      1.26    1.26
000100
1110201 1    0.0    0.0    0.0
*
*component 120 : pipe (horizontal pipe above SG)
*
1200000 horzp2       pipe
1200001 3
1200101 0.00015  3
1200301 0.17          1
1200302 0.84          3
*1200501 90.0         1
*1200502 0.0           3
1200601 0.0           3
1200801 0.000046    0.0    3
1200901 0.81  0.81  1
1200902 0.0  0.0  2
1201001 00000       3
1201101 000000      2
1201201 002    4.0e5    1.0      0.0    0.0    0.0    3
1201300 1
1201301 0.0    0.0    0.0    2
*

*junction 121 : single junction
*
1210000 pipl         sngljun
1210101 120030002     130010001 0.00015   1.62   1.62
000000
1210201 1    0.0    0.0    0.0
*
*component 130 : pipe (vertical pipe above CMT)
```

```
*
1300000 vertpip     pipe
1300001 5
1300101 0.00015     5
1300301 0.204       5
1300401 0.0         5
1300601 -90.0       5
1300801 0.000046    0.0   5
1300901 0.0    0.0   1
1300902 0.54   0.54   2
1300903 0.0    0.0   4
1301001 00000       5
1301101 000000      4
1301201 003    4.0e5    304.0     0.0    0.0    0.0    5
1301300 1
1301301 0.0    0.0    0.0    4 *
*
*junction 131 : junction from vertical pipe to the
cmt
*
1310000 cmtjun    sngljun
1310101  130050002      160010001      0.00015      1.0
1.0
1310102 000100
1310201 1    0.0    0.0    0.0
*
*
*volume 160 : single volume
*
1600000 cmt       snglvol
1600101 0.32170       0.85     0.0     0.0   -90.   -0.85
0.000046
1600102 0.0   00000
1600200 003   4.0e5      304.3
*
*component 160 : pipe (cmt)
*
*1600000 cmttank   pipe
*1600001 2
*1600101 0.32170   2
*1600301 0.425   1
*1600302 0.425   2
*1600401 0.0   2
*1600601 -90.0   2
*1600801 0.000046   0.0   2
*1601001 00000   2
*1601101 000000   1
*1601201 003   1.4300e5   304.0   0.0   0.0   0.0   2
*1601300 1
*1601301 0.0   0.0   0.0   1
*
*junction 161 : valve junction (valve below CMT)
*
1610000 dowvv     valve
1610101  160010002      170010001      0.00071      1.75
1.75   000100
1610201 1    0.0    0.0    0.0
1610300 srvvlv
1610301 120
*
*component 170 : vertical pipe below CMT
*
1700000 belopip1      pipe
1700001 2
1700101 0.00071   1
1700102 0.00015   2
1700301 0.30          1
1700302 0.12          2
1700401 0.0           2
1700601 -90.0         2
1700801 0.000046    0.0    2
1700901 0.394   0.394    1
1701001 00000       2
1701101 000100      1
1701201 003    1.013e5    293.    0.0    0.0    0.0    1
1701202 003    1.013e5    293.    0.0    0.0    0.0    2
1701300 1
1701301 0.0    0.0    0.0    1
*

*junction 171 : junction between vertical and
horizontal pipes
*
1710000 beljun    sngljun
1710101  170020002      180010001      0.00015      0.5
1000.75
1710102 000100
1710201 1    0.0    0.0    0.0
*
*component 180 : horizontal pipe below CMT
*
1800000 belopip2      pipe
1800001 2
1800101 0.00015   2
1800301 1.0           2
1800401 0.0           2
1800601 0.0           2
1800801 0.000046    0.0    2
1801001 00000       2
1801101 000000      1
1801201 004    1.013e5    293.    0.0    0.0    0.0    1
1801202 004    1.013e5    293.    0.0    0.0    0.0    2
```

```
1801300 1
1801301 0.0    0.0    0.0    1
*
*junction 181 : junction to atmosphere
*
1810000 atmjun    sngljun
1810101  180020002      200000000      0.00015    1.75
1.75
1810102 000100
1810201 1    0.0    0.0    0.0
*
*component 200 : atmosphere
*
2000000 air    tmdpvol
2000101 0.0    100.0    1000.0    0.0   0. 0.
2000102 0.0        0.0      00
2000200 004
2000201 0.0      1.013e5      293.0   0.0
*
*********************************************
* Natural circulation line
*********************************************
*
*branch 310 : branch (from S/G to circulation line
inlet)
*
3100000 nc_in branch
3100001 2   1
3100101 0.00049    0.17    0.   0.   0.   0.0   0.000046
3100102 0.0   00000
3100200 003   4.0e5   300.0
3101101  100040004    310010001    0.00049    0.5    0.5
000120
3101201 0.0   0.0   0.0
3102101 310010002   320010001   0.00015   1.12   1.12
000100
3102201 0.0   0.0   0.0
*
*component 320 : natural circulation line
*
3200000 nc_hp1    pipe
3200001 6
3200101 0.00015   6
3200301 0.13          1
3200302 0.436         6
3200401 0.0           6
3200601 -90.0         1
3200602 0.0           6
3200801 0.000046    0.0    6
3200901 0.81    0.81    1
3200902 0.0    0.0    5
3201001 00000       6
3201101 000000      5
3201201 003    4.0e5    300.    0.0    0.0    0.0    6
3201300 1
3201301 0.0    0.0    0.0    5
*
*junction 325
*
3250000 hp_jun1    sngljun
3250101  320060002      330010001      0.00015    0.739
0.739
3250102 000100
3250201 1    0.0    0.0    0.0
*
*component 330 : natural circulation line
*
3300000 nc_hp2     pipe
3300001 4
3300101 0.00126   4
3300301 0.14          1
3300302 0.23          3
3300303 0.4225        4
3300401 0.0           4
3300601 0.0         1
3300602 90.0          4
3300801 0.000046    0.0    4
3300901 0.63    0.63    1
3300902 0.0    0.0    3
3301001 00000       4
3301101 000000      3
3301201 003    4.0e5    300.    0.0    0.0    0.0    4
3301300 1
3301301 0.0    0.0    0.0    3
*
*
*junction 335 : natural circulation valve junction
*
3350000 dowvv    valve
3350101  330040002      340010001      0.00126    1.75
1.75   000100
3350201 1    0.0    0.0    0.0
3350300 srvvlv
3350301 120
*
*component 340 : natural circulation line
*
3400000 nc_hp3     pipe
3400001 4
3400101 0.00126   4
3400301 0.223     3
3400302 0.1       4
```

```
3400401 0.0          4
3400601 0.0        3
3400602 -90.0          4
3400801 0.000046    0.0    4
3400901 0.0    0.0    1
3400902 0.63    0.63    3
3401001 00000       4
3401101 000000      3
3401201 003    4.0e5    300.    0.0    0.0    0.0    4
3401300 1
3401301 0.0    0.0    0.0    3
*
*junction 345 : junction from natural circulation
*                pipe to the cmt
*
3450000 cmtjun    sngljun
3450101  340040002      160010001      0.00126      1.0
1.0
3450102 000100
3450201 1    0.0    0.0    0.0
*
**********************************************
*valve control
**********************************************
*
20512000 vlvarea    function      1.0    0.0    0
20512001 time         0              003
*
*

**********************************************
*valve table
**********************************************
*
20200300 normarea
20200301 0.0    0.0
20200302 10.    0.0
20200303 10.01    1.0
20200306 10000. 1.0
*

**********************************************
* heat structure input
**********************************************
*
* cmt (1160)
*
*11600000      1  3  1  1  0.0
*11600100      0        2
*11600101      0.0225 2
*11600201      5        2
*11600301      0.0     2
*11600400      0
**11600401      288.0  3
*11600501      160010000  1  1  0  0.32170    1
*11600601      0            0        0     1     0.32170
   1
*11600701      0            0.0     0.0  0.0  1
*11600801      0.0    10.0  10.0  10.0  10.0    0.0  0.0
1.0  1
*11600901      0.0    10.0  10.0  10.0  10.0    0.0  0.0
1.0  1
*
* cmt (1160-1)
*
*11601000      10  3  2  1  0.32
*11601100      0        2
*11601101      0.0025 2
*11601201      5        2
*11601301      0.0     2
**11601400      0
*11601401      288.0  3
*11601501      160010000  10000  1  1  0.085    10
*11601601      0            0        0  1  0.085    10
*11601701      0            0.0     0.0     0.0     10
*11601801      0.0    10.0  10.0  10.0  10.0    0.0  0.0
1.0  10
*11601901      0.0    10.0  10.0  10.0  10.0    0.0  0.0
1.0  10
*
* SG  (1100)
*
*11000000      10  3  2  1  0.5
*11000100      0        2
*11000101      0.006  2
*11000201      5        2
*11000301      0.0     2
*11000400      0
**11000401      373.14 3
*11000501      100010000  10000  1  1  0.205  10
*11000601      0            0        0  1  0.205  10
*11000701      0            0.0     0.0    0.0    10
*11000801      0.0    10.0  10.0  10.0  10.0    0.0  0.0
1.0  10
*11000901      0.0    10.0  10.0  10.0  10.0    0.0  0.0
1.0  10
*

*
**********************************************
*  heat structure input for electric heater
**********************************************
```

```
11005000 3  4  2  1  0.0
11005100 0  2
11005101 0.0015  2  0.001  3
11005201 11  2  5  3
11005301 1.0  2  0.0  3
11005400 0
11005401 384.4  4
11005501 0  0  0  1  36.0  3
11005601 100010000  10000  1  1  36.0  3
11005701 10212  1.0  0.0  0.0  3
11005901 0.0  10.0  10.0  10.0  10.0  0.0  0.0  1.0
3
*
* power table
*
*20221200 power  501  1.  100000.0
*20221201  -1.  0.0
*20221202  0.  1.0
*20221203  100.  1.0
*20221204  1000.  1.0
*

20100500  tbl/fctn  1  1  * s - steel
20101100  tbl/fctn  1  1  * PZR
heater (MgO)
**********************************************
*  MgO  (011)
**********************************************
*  temp (k)  volumetric heat capacity
(j/m3.k)
20101151  0.293e+03  .26000000e+07
20101152  0.450e+03  .28350000e+07
20101153  0.800e+03  .34020000e+07
20101154  1.120e+03  .37260000e+07
20101155  1.922038e+03  .37260000e+07
*
*  temp (k)  thermal conductivity
(w/m.k)
*
20101101  0.29320e+03  81.40
20101102  1.27320e+03  100.47
20101102  1.9220389e+03  100.47  *
*
**********************************************
**********
*  stainless steel (005)  18cr-8ni
*
*  temp (k)  volumetric heat capacity
(j/m3.k)
20100551  .2742611e+03  .3831330e+07
*20100551  .2942611e+03  .3831330e+07
20100552  .3109278e+03  .3831330e+07
20100553  .3664834e+03  .3985580e+07
20100554  .4220389e+03  .4105300e+07
20100555  .4775945e+03  .4224090e+07
20100556  .5331500e+03  .4308800e+07
20100557  .5887056e+03  .4359790e+07
20100558  .6442611e+03  .4410320e+07
20100559  .8109278e+03  .4561910e+07
20100560  .9220389e+03  .4625250e+07
20100561  1.9220389e+03  .4625250e+07  *
*
*  temp (k)  thermal conductivity
(w/m.k)
20100501  .2732611e+03  .1489124e+02
20100502  .2942611e+03  .1489124e+02
20100503  .3109278e+03  .1505739e+02
20100504  .3664834e+03  .1609584e+02
20100505  .4220389e+03  .1696813e+02
20100506  .4775945e+03  .1800657e+02
20100507  .5331500e+03  .1885809e+02
20100508  .5887056e+03  .1956423e+02
20100509  .6442611e+03  .2041575e+02
20100510  .8109278e+03  .2297030e+02
20100511  .9220389e+03  .2423029e+02
20100512  1.9220389e+03  .2423029e+02  *
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**********************************************
* heater control
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*
20521200 heater  constant  0.0
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Appendix B : Experimental Data

1) GI021

Psg : Pressure at steam generator(bar or Pa)

Pts : Pressure at test section(bar or Pa)

Tts : Temperature at test section(c)

Ws : steam flow rate(kg/sec)

Winj : injection flow rate(kg/sec)

Wnat : natural circulation flow(kg/sec)

Time	Tts	Psg(bar)	Pts(bar)	Ws	Winj
1.4300	31.01	1.43000	1.51000	0.00082	0.00694
2.6410	31.47	1.43000	1.51000	0.00082	0.00694
3.7890	31.42	1.43000	1.51000	0.00082	0.00694
4.9380	31.36	1.43000	1.51000	0.00082	0.00694
6.3200	31.42	1.43000	1.51000	0.00082	0.00694
7.5230	31.25	1.43000	1.51000	0.00082	0.00694
8.7340	31.40	1.43000	1.51000	0.00082	0.00694
10.0470	31.44	1.43000	1.51000	0.00082	0.00694
11.2580	31.33	1.43000	1.23000	0.00084	0.06476
12.4690	31.36	1.42000	1.15000	0.00104	0.14034
13.6800	31.55	1.41000	1.04000	0.00143	0.18740
14.9920	31.51	1.41000	0.94000	0.00131	0.20267
16.1480	31.69	1.41000	0.85000	0.00133	0.19573
17.2970	31.80	1.41000	0.80000	0.00170	0.15192
18.6720	32.02	1.41000	0.80000	0.00264	0.10745
19.8830	32.31	1.41000	0.81000	0.00318	0.07974
21.0940	32.33	1.41000	0.81000	0.00410	0.05912
22.4140	32.57	1.41000	0.79000	0.00528	0.04484
23.5630	32.66	1.41000	0.81000	0.00621	0.03509
24.8280	32.79	1.41000	0.81000	0.00706	0.02786
25.9840	32.92	1.41000	0.80000	0.00775	0.02354
27.3520	33.05	1.40000	0.80000	0.00838	0.02061
28.5080	32.99	1.40000	0.81000	0.00884	0.03103
29.6640	33.06	1.40000	0.81000	0.00920	0.03450
31.0310	33.19	1.40000	0.80000	0.00951	0.02872
32.2420	33.12	1.40000	0.81000	0.00968	0.02570
33.4530	33.12	1.40000	0.82000	0.00981	0.02201
34.7730	33.25	1.39000	0.81000	0.00990	0.02285
35.9840	33.34	1.39000	0.81000	0.00999	0.02836
37.1800	33.25	1.39000	0.81000	0.01012	0.03461
38.3440	33.32	1.40000	0.79000	0.01023	0.04464
39.6640	33.27	1.40000	0.81000	0.01039	0.03871
40.8590	33.19	1.40000	0.81000	0.01051	0.03945
42.0700	33.32	1.40000	0.81000	0.01061	0.04098
43.4530	33.21	1.40000	0.80000	0.01073	0.03790
44.6020	33.21	1.39000	0.81000	0.01076	0.03306
45.8130	33.25	1.39000	0.80000	0.01082	0.02875
46.9610	33.23	1.39000	0.80000	0.01081	0.04347
48.3280	33.30	1.39000	0.80000	0.01080	0.04296
49.4920	33.21	1.39000	0.80000	0.01083	0.04504
50.6410	33.36	1.39000	0.81000	0.01085	0.04765
52.0080	33.29	1.39000	0.80000	0.01089	0.10350
53.2190	33.30	1.39000	0.81000	0.01087	0.11621
54.3830	33.34	1.39000	0.81000	0.01092	0.08745
55.6880	33.18	1.39000	0.80000	0.01096	0.07002
56.8520	33.27	1.39000	0.79000	0.01099	0.06912
58.0000	33.27	1.39000	0.80000	0.01100	0.06410
59.2110	33.34	1.39000	0.80000	0.01098	0.06481
60.5310	33.30	1.39000	0.80000	0.01097	0.06268
61.7420	33.29	1.39000	0.80000	0.01098	0.05418
62.8910	33.38	1.39000	0.81000	0.01100	0.05622
64.2110	33.29	1.39000	0.80000	0.01098	0.05417
65.3590	33.36	1.39000	0.81000	0.01099	0.06521
66.5700	33.34	1.38000	0.80000	0.01099	0.06988
67.8910	33.21	1.39000	0.81000	0.01097	0.05807
69.1020	33.32	1.39000	0.79000	0.01096	0.05829
70.2970	33.36	1.39000	0.81000	0.01100	0.05204
71.4610	33.23	1.38000	0.80000	0.01104	0.05830
72.7810	33.30	1.39000	0.81000	0.01101	0.05599
74.0390	33.36	1.39000	0.81000	0.01103	0.05507
75.1880	33.25	1.39000	0.81000	0.01105	0.05618
76.5700	33.29	1.38000	0.78000	0.01108	0.05312
77.7190	33.32	1.38000	0.80000	0.01108	0.05556
78.8670	33.32	1.38000	0.80000	0.01110	0.05853
80.0780	33.45	1.38000	0.80000	0.01109	0.05328
81.4530	33.38	1.38000	0.79000	0.01109	0.05079
82.6640	33.38	1.38000	0.81000	0.01108	0.04872
83.8200	33.34	1.38000	0.82000	0.01109	0.04711
85.1880	33.54	1.38000	0.80000	0.01106	0.04338
86.3440	33.54	1.38000	0.79000	0.01109	0.03853
87.5470	33.52	1.38000	0.82000	0.01107	0.03355
88.8670	33.43	1.38000	0.82000	0.01108	0.03536
90.0780	33.50	1.38000	0.81000	0.01109	0.04057
91.2340	33.49	1.38000	0.81000	0.01107	0.04188
92.4380	33.56	1.38000	0.81000	0.01107	0.03675
93.7580	33.61	1.38000	0.80000	0.01112	0.04119
95.0230	33.65	1.38000	0.80000	0.01109	0.04012
96.1720	33.92	1.38000	0.81000	0.01110	0.04422
97.5470	33.67	1.38000	0.82000	0.01109	0.04408
98.7030	33.74	1.38000	0.81000	0.01110	0.04237
99.9610	33.76	1.38000	0.81000	0.01110	0.04067
101.2810	33.78	1.38000	0.81000	0.01111	0.03714
102.4920	33.78	1.38000	0.81000	0.01109	0.03288
103.6410	33.85	1.38000	0.81000	0.01108	0.03960
104.9140	33.92	1.38000	0.80000	0.01104	0.04199
106.1720	33.96	1.38000	0.80000	0.01102	0.04753
107.3830	33.92	1.38000	0.79000	0.01104	0.04497
108.5940	33.87	1.38000	0.81000	0.01104	0.03942
109.9610	33.90	1.38000	0.79000	0.01101	0.03812
111.1090	33.94	1.38000	0.82000	0.01105	0.03759
112.3200	33.98	1.37000	0.81000	0.01106	0.03292
113.6410	33.89	1.37000	0.80000	0.01105	0.03123
114.7890	33.96	1.37000	0.80000	0.01107	0.03730
116.0000	33.91	1.37000	0.78000	0.01105	0.04037
117.1640	33.91	1.37000	0.79000	0.01106	0.03857
118.5310	33.91	1.37000	0.78000	0.01108	0.03349
119.6800	33.96	1.37000	0.81000	0.01106	0.03496
120.8910	33.85	1.37000	0.82000	0.01106	0.03841
122.2110	33.91	1.37000	0.82000	0.01100	0.04400
123.4220	33.96	1.37000	0.80000	0.01100	0.04118
124.6170	33.87	1.37000	0.79000	0.01103	0.03841
125.7810	33.94	1.37000	0.80000	0.01104	0.03247
127.1020	33.98	1.37000	0.81000	0.01098	0.03477
128.2500	34.02	1.37000	0.80000	0.01095	0.04123
129.4610	34.14	1.37000	0.80000	0.01095	0.03883
130.7810	33.96	1.37000	0.80000	0.01096	0.04101
131.9840	34.09	1.37000	0.81000	0.01095	0.03932
133.1410	34.16	1.37000	0.82000	0.01091	0.03652
134.4610	34.05	1.37000	0.80000	0.01093	0.03628
135.6090	34.11	1.37000	0.78000	0.01095	0.03891
136.8200	34.18	1.37000	0.80000	0.01095	0.03362
137.9690	34.27	1.36000	0.81000	0.01092	0.03792

139.2890	34.27	1.37000	0.81000	0.01093	0.03917
140.5000	34.34	1.36000	0.81000	0.01095	0.03639
141.6480	34.33	1.37000	0.80000	0.01097	0.03407
143.0230	34.27	1.37000	0.81000	0.01094	0.03516
144.1800	34.27	1.37000	[illegible]0000	0.01099	0.03172
145.3910	34.42	1.37000	0.79000	0.01097	0.03280
146.7030	34.40	1.37000	0.75000	0.01100	0.03485
147.9140	34.40	1.37000	0.81000	0.01101	0.03422
149.0700	34.51	1.36000	0.81000	0.01097	0.03740
150.2190	34.40	1.36000	0.80000	0.01096	0.03378
151.5940	34.58	1.36000	0.78000	0.01087	0.04344
152.7500	34.56	1.36000	0.81000	0.01088	0.04451
153.9610	34.53	1.36000	0.79000	0.01093	0.03842
155.2730	34.53	1.36000	0.81000	0.01095	0.03157
156.4840	34.67	1.36000	0.81000	0.01095	0.03204
157.6410	34.73	1.36000	0.79000	0.01090	0.03573
158.8440	34.76	1.36000	0.80000	0.01090	0.03432
160.1640	34.58	1.36000	0.80000	0.01090	0.03672
161.3670	34.71	1.36000	0.82000	0.01085	0.04689
162.5230	34.87	1.36000	0.81000	0.01083	0.04819
163.8440	34.82	1.36000	0.81000	0.01085	0.04463
165.0470	34.80	1.36000	0.81000	0.01086	0.05026
166.2580	34.89	1.35000	0.79000	0.01085	0.05546
167.5780	34.82	1.35000	0.80000	0.01082	0.05812
168.7810	34.87	1.35000	0.79000	0.01081	0.05401
169.9380	34.95	1.35000	0.82000	0.01083	0.05324
171.1480	35.02	1.36000	0.81000	0.01081	0.05422
172.4610	34.87	1.35000	0.81000	0.01080	0.04968
173.6170	34.98	1.36000	0.78000	0.01079	0.04518
174.8280	35.07	1.36000	0.80000	0.01080	0.04765
176.1480	35.00	1.35000	0.82000	0.01081	0.05554
177.3520	35.07	1.35000	0.80000	0.01084	0.05837
178.5080	35.04	1.35000	0.80000	0.01080	0.05392
179.8280	35.00	1.35000	0.82000	0.01080	0.04298
181.0310	35.02	1.35000	0.79000	0.01080	0.03998
182.1880	37.08	1.35000	0.79000	0.01079	0.04040
183.3980	34.95	1.35000	0.80000	0.01081	0.03583
184.7110	35.20	1.35000	0.81000	0.01081	0.03217
185.9220	35.02	1.35000	0.79000	0.01078	0.03210
187.0780	35.04	1.35000	0.82000	0.01077	0.03126
188.4530	35.15	1.35000	0.79000	0.01077	0.03055
189.6640	35.02	1.35000	0.81000	0.01074	0.03482
190.8130	34.98	1.35000	0.80000	0.01071	0.03770
192.1800	35.04	1.35000	0.79000	0.01068	0.03924
193.3440	35.20	1.35000	0.79000	0.01071	0.03703
194.5470	35.13	1.35000	0.81000	0.01075	0.03216
195.7030	35.20	1.35000	0.80000	0.01077	0.04369
197.0700	35.24	1.35000	0.79000	0.01077	0.03942
198.2810	35.22	1.35000	0.81000	0.01074	0.04635
199.4300	35.35	1.35000	0.81000	0.01075	0.04754
200.8130	35.31	1.35000	0.80000	0.01076	0.04672
201.9610	35.35	1.35000	0.79000	0.01076	0.04511
203.1720	35.44	1.35000	0.81000	0.01076	0.04538
204.3200	35.44	1.35000	0.79000	0.01076	0.04556
205.6880	35.38	1.35000	0.80000	0.01069	0.04587
206.8520	35.48	1.35000	0.80000	0.01069	0.04833
208.0000	35.44	1.34000	0.80000	0.01073	0.05179
209.3670	35.40	1.34000	0.80000	0.01072	0.04740
210.5310	35.33	1.34000	0.81000	0.01072	0.05154
211.7420	35.40	1.35000	0.80000	0.01071	0.05014
213.0470	35.38	1.34000	0.81000	0.01073	0.04755
214.2580	35.49	1.34000	0.80000	0.01074	0.04144
215.4220	35.51	1.34000	0.80000	0.01074	0.03617
216.6330	35.51	1.34000	0.80000	0.01068	0.04202
217.8910	35.66	1.34000	0.82000	0.01066	0.03540
219.1020	35.35	1.34000	0.79000	0.01067	0.03092
220.2500	35.79	1.34000	0.81000	0.01066	0.02680
221.5700	35.64	1.34000	0.82000	0.01065	0.02686
222.7810	35.73	1.34000	0.80000	0.01063	0.02716
223.9300	35.73	1.34000	0.81000	0.01063	0.02388
225.2970	35.71	1.34000	0.80000	0.01067	0.02441
226.4610	35.77	1.34000	0.80000	0.01071	0.02174
227.6720	35.91	1.34000	0.80000	0.01066	0.02923
228.8200	35.75	1.34000	0.80000	0.01066	0.03092
230.1410	35.91	1.34000	0.80000	0.01069	0.04086
231.2890	35.91	1.34000	0.81000	0.01069	0.03759
232.4380	35.97	1.34000	0.82000	0.01064	0.04438
233.8200	36.00	1.34000	0.82000	0.01065	0.04717
234.9690	36.04	1.34000	0.80000	0.01065	0.05036
236.1800	35.93	1.34000	0.81000	0.01066	0.05395
237.3910	36.04	1.34000	0.78000	0.01062	0.05105
238.7580	35.93	1.34000	0.79000	0.01057	0.04837
239.9140	36.04	1.34000	0.81000	0.01054	0.04881
241.1170	36.08	1.34000	0.81000	0.01056	0.04351
242.4380	36.15	1.33000	0.81000	0.01057	0.04451
243.5940	36.11	1.33000	0.80000	0.01057	0.04107
244.7970	36.13	1.33000	0.80000	0.01059	0.03434
246.1800	36.17	1.33000	0.79000	0.01058	0.02977
247.3280	36.11	1.33000	0.80000	0.01061	0.02661
248.5390	36.17	1.33000	0.79000	0.01057	0.03184
249.7500	36.19	1.33000	0.80000	0.01054	0.03706
251.1170	36.15	1.33000	0.79000	0.01054	0.03152
252.2730	36.24	1.33000	0.81000	0.01057	0.03005
253.4840	36.15	1.33000	0.81000	0.01055	0.02938
254.7970	36.97	1.33000	0.79000	0.01056	0.02444
256.0080	36.04	1.33000	0.80000	0.01061	0.02424
257.1640	36.19	1.33000	0.81000	0.01056	0.02496
258.5310	36.35	1.33000	0.78000	0.01050	0.02529
259.6880	36.26	1.33000	0.80000	0.01050	0.02256
260.8980	36.13	1.33000	0.79000	0.01050	0.02874
262.0470	36.33	1.33000	0.80000	0.01051	0.02628
263.4220	36.48	1.33000	0.81000	0.01051	0.02453
264.5780	36.48	1.33000	0.81000	0.01053	0.02115
265.7810	36.48	1.33000	0.79000	0.01052	0.02354
267.1020	36.52	1.33000	0.81000	0.01052	0.02165
268.3130	36.50	1.33000	0.82000	0.01051	0.02258
269.5230	36.57	1.33000	0.79000	0.01051	0.02670
270.8440	36.52	1.33000	0.79000	0.01051	0.02945
272.0390	36.57	1.33000	0.80000	0.01048	0.03672
273.2500	36.57	1.33000	0.81000	0.01047	0.03597
274.4140	36.52	1.33000	0.81000	0.01048	0.03944
275.7190	36.53	1.33000	0.81000	0.01047	0.03804
276.9300	36.61	1.33000	0.81000	0.01048	0.03471
278.1410	36.64	1.33000	0.82000	0.01044	0.03555
279.4610	36.59	1.33000	0.80000	0.01047	0.03161
280.6090	36.68	1.33000	0.79000	0.01050	0.03043
281.8830	37.14	1.33000	0.81000	0.01052	0.02894
283.0310	36.66	1.33000	0.81000	0.01050	0.02729
284.3520	36.88	1.33000	0.81000	0.01048	0.02224
285.5630	36.86	1.33000	0.80000	0.01052	0.01867
286.7580	36.90	1.32000	0.80000	0.01055	0.02275
288.1880	36.83	1.32000	0.80000	0.01054	0.01873
289.3520	36.90	1.32000	0.81000	0.01053	0.01626
290.5470	36.81	1.32000	0.80000	0.01048	0.01956
291.8670	36.90	1.32000	0.81000	0.01048	0.01988
293.0310	36.99	1.32000	0.80000	0.01044	0.01967
294.2340	36.99	1.32000	0.81000	0.01043	0.02006
295.4380	37.01	1.32000	0.80000	0.01047	0.01984
296.7110	36.97	1.32000	0.82000	0.01050	0.02697
297.9140	37.06	1.32000	0.81000	0.01047	0.03171
299.0700	37.06	1.32000	0.81000	0.01051	0.02565
300.3910	37.10	1.32000	0.81000	0.01050	0.02079

301.5940	37.19	1.32000	0.81000	0.01046	0.02322
302.7500	37.10	1.32000	0.82000	0.01046	0.02321
304.1170	37.21	1.32000	0.81000	0.01045	0.02280
305.2730	37.10	1.32000	0.80000	0.01039	0.02193
306.4840	37.30	1.32000	0.80000	0.01039	0.02450
307.6410	37.26	1.32000	0.80000	0.01038	0.02213
309.0080	37.32	1.32000	0.80000	0.01039	0.02506
310.2190	37.28	1.32000	0.79000	0.01038	0.02145
311.4300	37.25	1.32000	0.81000	0.01036	0.02089
312.7970	37.34	1.31000	0.81000	0.01040	0.02243
313.9530	37.28	1.31000	0.80000	0.01038	0.02529
315.1640	37.26	1.31000	0.81000	0.01039	0.02372
316.3670	37.43	1.31000	0.79000	0.01039	0.02741
317.7420	37.39	1.31000	0.79000	0.01038	0.02961
318.9530	37.48	1.31000	0.80000	0.01033	0.02525
320.1020	37.12	1.31000	0.82000	0.01035	0.02243
321.4220	37.43	1.32000	0.81000	0.01033	0.02747
322.6330	37.54	1.31000	0.81000	0.01032	0.02387
323.8440	37.48	1.31000	0.80000	0.01031	0.03405
325.1640	37.56	1.31000	0.80000	0.01032	0.03446
326.3130	37.48	1.31000	0.81000	0.01027	0.04190
327.5230	37.56	1.31000	0.80000	0.01026	0.05909
328.7340	37.63	1.31000	0.80000	0.01023	0.06353
330.0470	37.63	1.31000	0.79000	0.01024	0.04926
331.2500	37.74	1.31000	0.81000	0.01025	0.03836
332.4610	37.67	1.31000	0.81000	0.01022	0.03581
333.7810	37.74	1.31000	0.82000	0.01021	0.03194
334.9920	37.67	1.31000	0.82000	0.01023	0.03015
336.1410	37.74	1.31000	0.81000	0.01028	0.02578
337.4610	38.21	1.31000	0.80000	0.01027	0.02335
338.6720	37.76	1.31000	0.80000	0.01029	0.02500
339.8200	37.85	1.31000	0.79000	0.01029	0.02770
341.0940	37.94	1.31000	0.80000	0.01031	0.03219
342.3980	37.76	1.31000	0.81000	0.01028	0.03281
343.6090	37.85	1.31000	0.81000	0.01029	0.03183
344.7730	37.85	1.31000	0.81000	0.01027	0.02977
346.0780	37.92	1.21000	0.79000	0.01021	0.02782
347.2420	37.90	1.30000	0.81000	0.01025	0.02827
348.3910	37.90	1.30000	0.80000	0.01023	0.03201
349.7580	37.90	1.30000	0.81000	0.01021	0.03445
350.9220	38.03	1.30000	0.82000	0.01019	0.03187
352.1800	38.01	1.30000	0.81000	0.01014	0.03268
353.3280	37.96	1.30000	0.82000	0.01016	0.02908
354.7110	38.01	1.30000	0.81000	0.01022	0.02952
355.8590	38.07	1.30000	0.80000	0.01020	0.02504
357.1170	37.99	1.30000	0.80000	0.01021	0.02665
358.4380	38.01	1.30000	0.80000	0.01016	0.03028
359.6480	38.21	1.31000	0.81000	0.01018	0.02858
360.7970	38.07	1.30000	0.81000	0.01019	0.03022
361.9610	38.14	1.30000	0.79000	0.01018	0.03127
363.3280	38.16	1.30000	0.81000	0.01020	0.02721
364.5390	38.23	1.30000	0.80000	0.01022	0.02312
365.7500	38.18	1.30000	0.80000	0.01019	0.02016
367.0700	38.23	1.30000	0.80000	0.01017	0.02067
368.2190	38.05	1.30000	0.82000	0.01017	0.01961
369.4300	38.21	1.30000	0.80000	0.01013	0.02103
370.7500	38.21	1.30000	0.79000	0.01011	0.02218
371.8980	38.32	1.30000	0.80000	0.01011	0.02054
373.1640	38.38	1.30000	0.80000	0.01015	0.01981
374.3200	38.63	1.30000	0.80000	0.01014	0.02339
375.6880	38.27	1.30000	0.82000	0.01012	0.02270
376.8440	38.32	1.30000	0.81000	0.01012	0.02339
378.1090	38.34	1.30000	0.80000	0.01016	0.02623
379.4220	38.29	1.30000	0.80000	0.01016	0.02658
380.6330	38.30	1.30000	0.79000	0.01017	0.02790
381.7890	38.45	1.30000	0.81000	0.01015	0.02483
383.1640	38.45	1.30000	0.81000	0.01015	0.02763
384.3130	38.51	1.30000	0.81000	0.01015	0.02817
385.5230	38.43	1.30000	0.79000	0.01012	0.02570
386.6720	38.56	1.30000	0.79000	0.01011	0.02196
387.9920	34.87	1.30000	0.81000	0.01006	0.02188
389.2030	38.52	1.30000	0.82000	0.01010	0.02668
390.4140	38.56	1.30000	0.81000	0.01006	0.02757
391.7340	38.56	1.30000	0.80000	0.01006	0.02807
392.9380	38.60	1.30000	0.82000	0.01005	0.02469
394.0940	38.65	1.30000	0.81000	0.01008	0.02175
395.3520	38.69	1.30000	0.82000	0.01009	0.01981
396.6720	38.71	1.30000	0.80000	0.01006	0.02377
397.8200	38.65	1.30000	0.81000	0.01003	0.03093
398.9840	38.63	1.30000	0.80000	0.01007	0.03226
400.3520	38.69	1.29000	0.81000	0.01008	0.02968
401.5000	38.78	1.29000	0.81000	0.01009	0.02641
402.7730	38.71	1.29000	0.81000	0.01007	0.02558
404.0940	38.80	1.29000	0.80000	0.01004	0.03008
405.2890	38.83	1.29000	0.82000	0.01006	0.03188
406.4530	38.85	1.29000	0.81000	0.01003	0.03252
407.7110	38.80	1.29000	0.79000	0.01006	0.03352
408.9690	38.80	1.29000	0.81000	0.01007	0.03022
410.1800	38.76	1.29000	0.81000	0.01005	0.03039
411.3440	38.91	1.29000	0.79000	0.01007	0.02612
412.7110	38.83	1.29000	0.80000	0.01006	0.02509
413.8590	38.94	1.29000	0.80000	0.01004	0.02393
415.0230	38.91	1.29000	0.80000	0.01004	0.02211
416.3280	39.00	1.29000	0.80000	0.01004	0.02095
417.4920	38.89	1.29000	0.81000	0.00999	0.02476
418.7030	39.05	1.29000	0.81000	0.01001	0.02351
419.8520	38.96	1.29000	0.81000	0.00998	0.01947
421.1720	39.02	1.29000	0.80000	0.00998	0.02111
422.3200	39.18	1.29000	0.81000	0.00997	0.02104
423.5310	39.09	1.28000	0.80000	0.00997	0.02039
424.8520	39.07	1.29000	0.80000	0.00996	0.02015
426.0630	36.38	1.29000	0.80000	0.00994	0.01946
427.2110	39.14	1.29000	0.81000	0.00995	0.01657
428.5780	39.18	1.28000	0.80000	0.00994	0.01888
429.7420	39.16	1.28000	0.80000	0.00994	0.01740
430.8910	39.14	1.29000	0.81000	0.00991	0.01691
432.1020	39.29	1.29000	0.80000	0.00995	0.02080
433.4690	39.22	1.28000	0.80000	0.00996	0.01967
434.6800	39.34	1.29000	0.80000	0.00996	0.02054
435.8280	39.38	1.28000	0.82000	0.00993	0.02032
437.2110	39.45	1.28000	0.81000	0.00985	0.02074
438.3590	39.36	1.28000	0.81000	0.00986	0.01951
439.5700	39.31	1.28000	0.80000	0.00986	0.02234
440.7190	39.49	1.28000	0.79000	0.00984	0.02396
442.0940	39.31	1.28000	0.81000	0.00983	0.02365
443.2970	39.29	1.28000	0.80000	0.00984	0.02312
444.4610	39.31	1.28000	0.80000	0.00981	0.02243
445.7730	39.29	1.28000	0.80000	0.00980	0.02257
446.9300	39.40	1.28000	0.80000	0.00982	0.02117
448.1410	38.16	1.28000	0.82000	0.00983	0.01931
449.5080	39.33	1.28000	0.81000	0.00981	0.01894
450.6640	39.42	1.28000	0.81000	0.00984	0.02212
451.8200	39.49	1.28000	0.81000	0.00987	0.01986
453.0230	39.42	1.28000	0.79000	0.00984	0.01798
454.3440	39.22	1.28000	0.80000	0.00985	0.01968
455.5470	39.49	1.28000	0.81000	0.00983	0.01949
456.7030	39.62	1.28000	0.81000	0.00986	0.01858
458.0780	39.53	1.28000	0.80000	0.00987	0.01662
459.2340	39.62	1.28000	0.80000	0.00986	0.01557
460.4380	39.75	1.28000	0.81000	0.00989	0.01753
461.7580	40.29	1.28000	0.79000	0.00990	0.01889
462.9690	39.67	1.28000	0.79000	0.00992	0.01679

464.1170	39.58	1.28000	0.81000	0.00990	0.02033
465.3280	39.18	1.28000	0.82000	0.00986	0.02090
466.6480	39.82	1.28000	0.81000	0.00988	0.02374
467.8520	39.80	1.28000	0.81000	0.00986	0.02741
469.0080	39.89	1.28000	0.79000	0.00985	0.02360
470.3280	39.80	1.28000	0.81000	0.00983	0.02054
471.5310	39.84	1.28000	0.81000	0.00982	0.02278
472.6880	39.84	1.27000	0.80000	0.00981	0.02064
473.8440	39.91	1.27000	0.81000	0.00979	0.02105
475.1640	39.84	1.27000	0.81000	0.00974	0.02056
476.3670	39.91	1.27000	0.80000	0.00973	0.01937
477.5230	39.91	1.27000	0.79000	0.00976	0.02003
478.8910	39.98	1.27000	0.81000	0.00977	0.01922
480.0470	40.02	1.27000	0.80000	0.00975	0.01991
481.2580	39.95	1.27000	0.81000	0.00975	0.02678
482.5700	40.06	1.28000	0.80000	0.00972	0.02618
483.7810	40.04	1.27000	0.80000	0.00972	0.02611
484.9380	40.11	1.27000	0.80000	0.00972	0.02393
486.2030	40.00	1.27000	0.81000	0.00975	0.01943
487.5230	40.13	1.27000	0.79000	0.00973	0.01753
488.7340	40.15	1.27000	0.79000	0.00971	0.01908
489.8830	40.05	1.27000	0.80000	0.00975	0.01705
491.2030	40.09	1.27000	0.79000	0.00975	0.01546
492.4140	40.13	1.27000	0.81000	0.00976	0.01408
493.6090	40.15	1.27000	0.81000	0.00975	0.01553
494.9300	40.13	1.27000	0.79000	0.00973	0.01646
496.1410	40.15	1.27000	0.81000	0.00974	0.01585
497.2890	40.18	1.27000	0.82000	0.00971	0.02199
498.5000	40.20	1.27000	0.81000	0.00971	0.01950
499.8200	40.24	1.26000	0.81000	0.00966	0.02292
501.0310	40.20	1.26000	0.81000	0.00963	0.02079
502.1800	40.17	1.27000	0.79000	0.00963	0.02052
503.5630	40.29	1.26000	0.81000	0.00963	0.01795
504.7110	40.00	1.26000	0.80000	0.00964	0.01711
505.9220	39.71	1.26000	0.81000	0.00963	0.01807
507.2420	40.35	1.26000	0.80000	0.00962	0.01681
508.4380	40.29	1.27000	0.81000	0.00963	0.01790
509.6480	40.42	1.26000	0.81000	0.00963	0.01838
510.8130	40.44	1.27000	0.81000	0.00965	0.01891
512.1800	40.46	1.26000	0.80000	0.00964	0.02139
513.3280	40.33	1.26000	0.82000	0.00963	0.01878
514.6020	40.48	1.27000	0.80000	0.00968	0.02040
515.8590	40.53	1.26000	0.80000	0.00965	0.01969
517.1170	40.44	1.26000	0.81000	0.00971	0.01852
518.2810	40.60	1.26000	0.81000	0.00970	0.01941
519.4300	40.53	1.26000	0.80000	0.00965	0.01709
520.7970	40.62	1.26000	0.79000	0.00965	0.01490
522.0080	40.60	1.26000	0.79000	0.00970	0.01782
523.2190	40.60	1.26000	0.81000	0.00970	0.01700
524.5390	40.62	1.26000	0.79000	0.00966	0.01771
525.7500	40.59	1.26000	0.81000	0.00961	0.01690
526.9530	40.66	1.26000	0.81000	0.00960	0.01416
528.2730	40.68	1.26000	0.79000	0.00964	0.01339
529.4840	40.73	1.26000	0.81000	0.00960	0.01325
530.6330	40.79	1.26000	0.80000	0.00961	0.01318
531.7890	40.71	1.26000	0.79000	0.00963	0.01419
533.1640	40.75	1.26000	0.81000	0.00961	0.01605
534.3670	40.73	1.26000	0.81000	0.00963	0.01723
535.5780	41.01	1.26000	0.81000	0.00962	0.01586
536.8980	40.66	1.26000	0.81000	0.00962	0.01930
538.1020	40.64	1.26000	0.81000	0.00960	0.01956
539.3130	40.88	1.26000	0.81000	0.00958	0.02164
540.5780	40.82	1.26000	0.80000	0.00958	0.02212
541.7340	40.86	1.26000	0.81000	0.00959	0.02292
542.9920	40.88	1.26000	0.81000	0.00960	0.01860
544.1480	40.86	1.26000	0.80000	0.00960	0.01771
545.5230	40.82	1.26000	0.81000	0.00958	0.01721
546.6720	40.88	1.26000	0.81000	0.00953	0.01691
547.8830	40.86	1.26000	0.81000	0.00954	0.01600
549.1410	41.10	1.26000	0.81000	0.00953	0.02004
550.3520	40.88	1.26000	0.80000	0.00951	0.01955
551.5080	40.99	1.26000	0.80000	0.00956	0.01798
552.7110	40.93	1.26000	0.81000	0.00957	0.01620
554.0310	40.97	1.26000	0.81000	0.00957	0.01523
555.2420	40.90	1.26000	0.81000	0.00956	0.01300
556.3910	41.08	1.26000	0.81000	0.00955	0.01540
557.7110	41.10	1.26000	0.81000	0.00955	0.01827
558.8670	41.10	1.25000	0.81000	0.00958	0.01704
560.0230	41.08	1.26000	0.80000	0.00954	0.01520
561.3910	41.17	1.25000	0.80000	0.00950	0.01551
562.4920	41.13	1.25000	0.81000	0.00949	0.01406
563.7030	41.17	1.25000	0.80000	0.00950	0.01463
564.8520	41.17	1.26000	0.79000	0.00954	0.01589
566.1720	41.17	1.25000	0.80000	0.00953	0.01708
567.3830	41.15	1.26000	0.81000	0.00956	0.01431
568.5940	41.24	1.26000	0.81000	0.00956	0.01589
569.9140	41.19	1.26000	0.81000	0.00961	0.01515
571.1090	41.24	1.25000	0.80000	0.00957	0.01712
572.2730	41.35	1.25000	0.80000	0.00952	0.01867
573.6410	41.35	1.25000	0.81000	0.00951	0.01799
574.7890	41.32	1.25000	0.81000	0.00953	0.01610
576.0000	41.41	1.25000	0.81000	0.00954	0.01785
577.1640	41.44	1.25000	0.81000	0.00950	0.01660
578.4690	41.48	1.25000	0.81000	0.00944	0.01911
579.6800	41.46	1.25000	0.80000	0.00945	0.02546
580.8440	41.50	1.25000	0.81000	0.00949	0.02220
582.2110	44.70	1.25000	0.81000	0.00946	0.02349
583.3590	41.52	1.25000	0.81000	0.00942	0.02105
584.5700	41.57	1.25000	0.80000	0.00941	0.01998
585.8910	41.48	1.25000	0.80000	0.00943	0.02101
587.1020	41.55	1.25000	0.81000	0.00941	0.02044
588.3130	39.36	1.25000	0.81000	0.00942	0.02302
589.5080	41.57	1.25000	0.80000	0.00943	0.02310
590.8280	41.55	1.25000	0.81000	0.00941	0.02157
591.9920	41.52	1.25000	0.80000	0.00941	0.01880
593.2500	41.61	1.24000	0.81000	0.00941	0.01607
594.5700	41.72	1.25000	0.81000	0.00941	0.01687
595.7810	41.64	1.24000	0.80000	0.00944	0.01794
596.9300	41.61	1.24000	0.81000	0.00946	0.01767
598.1880	41.72	1.24000	0.81000	0.00941	0.01801
599.5080	41.72	1.24000	0.81000	0.00940	0.01901
600.6640	39.89	1.24000	0.79000	0.00941	0.01978
601.8200	41.81	1.24000	0.80000	0.00941	0.02222
603.1880	41.79	1.24000	0.80000	0.00941	0.02032
604.3440	41.84	1.24000	0.81000	0.00939	0.01961
605.5000	41.81	1.24000	0.80000	0.00935	0.02109
606.8670	41.81	1.24000	0.81000	0.00931	0.01974
608.0780	41.97	1.24000	0.79000	0.00932	0.01901
609.2890	41.86	1.24000	0.81000	0.00931	0.02126
610.4380	41.94	1.24000	0.82000	0.00930	0.02702
611.7580	41.97	1.24000	0.81000	0.00931	0.02957
612.9140	41.26	1.24000	0.81000	0.00933	0.02987
614.1170	41.79	1.24000	0.80000	0.00933	0.02863
615.4920	41.92	1.24000	0.81000	0.00935	0.02520
616.6480	41.94	1.24000	0.80000	0.00934	0.02850
617.7970	41.97	1.24000	0.79000	0.00933	0.02795
619.1720	42.03	1.24000	0.79000	0.00933	0.02451
620.3830	42.30	1.24000	0.81000	0.00933	0.02098
621.5390	42.10	1.24000	0.81000	0.00928	0.01821
622.7420	42.08	1.24000	0.81000	0.00928	0.01853
624.0630	42.08	1.24000	0.81000	0.00928	0.01795
625.2730	41.92	1.24000	0.80000	0.00928	0.01715

626.4220	42.19	1.24000	0.81000	0.00926	0.01787
627.7970	42.10	1.24000	0.81000	0.00927	0.01775
629.0080	42.17	1.24000	0.81000	0.00925	0.01869
630.1640	42.10	1.24000	0.81000	0.00926	0.01803
631.3670	42.17	1.24000	0.81000	0.00925	0.01801
632.6880	42.30	1.24000	0.80000	0.00929	0.01611
633.8910	42.19	1.24000	0.81000	0.00926	0.01912
635.0470	42.21	1.24000	0.79000	0.00924	0.01994
636.4220	42.21	1.24000	0.81000	0.00926	0.02088
637.6330	42.23	1.24000	0.81000	0.00925	0.01871
638.7810	42.25	1.24000	0.80000	0.00928	0.01937
640.1640	42.23	1.23000	0.81000	0.00923	0.02309
641.3130	42.30	1.24000	0.81000	0.00924	0.02803
642.5700	42.30	1.24000	0.80000	0.00921	0.02489
643.7340	42.30	1.24000	0.80000	0.00919	0.02274
645.1020	42.39	1.23000	0.81000	0.00918	0.02483
646.2500	42.32	1.23000	0.80000	0.00921	0.02485
647.4140	42.30	1.23000	0.81000	0.00922	0.02505
648.7190	42.34	1.23000	0.81000	0.00920	0.02103
649.8830	42.25	1.23000	0.80000	0.00916	0.02315
651.0940	42.41	1.23000	0.80000	0.00916	0.02195
652.3980	42.41	1.23000	0.81000	0.00915	0.02585
653.6090	42.45	1.23000	0.79000	0.00913	0.02359
654.7730	42.28	1.23000	0.80000	0.00916	0.02562
655.9690	42.48	1.23000	0.80000	0.00917	0.02517
657.2420	42.25	1.23000	0.80000	0.00916	0.02341
658.5000	42.52	1.23000	0.80000	0.00914	0.02593
659.6480	42.39	1.23000	0.81000	0.00912	0.02647
660.9690	42.50	1.23000	0.80000	0.00914	0.02421
662.1800	42.48	1.23000	0.81000	0.00915	0.02351
663.3910	42.52	1.23000	0.80000	0.00913	0.02565
664.7110	42.54	1.23000	0.81000	0.00918	0.02211
665.9220	42.54	1.23000	0.81000	0.00919	0.02077
667.0700	42.63	1.23000	0.80000	0.00918	0.02045
668.2810	42.50	1.23000	0.81000	0.00919	0.02850
669.6020	42.63	1.23000	0.81000	0.00920	0.02839
670.7500	42.65	1.23000	0.80000	0.00919	0.03109
672.0080	42.85	1.23000	0.80000	0.00916	0.02945
673.3280	42.65	1.23000	0.81000	0.00917	0.02490
674.5390	42.65	1.23000	0.80000	0.00920	0.02348
675.6880	42.67	1.23000	0.80000	0.00922	0.02235
676.8980	42.81	1.23000	0.81000	0.00922	0.02180
678.2190	42.70	1.23000	0.81000	0.00923	0.01945
679.4300	42.98	1.23000	0.80000	0.00921	0.01865
680.5780	44.16	1.23000	0.80000	0.00920	0.01910
681.8980	42.85	1.23000	0.80000	0.00917	0.02917
683.1090	42.81	1.22000	0.81000	0.00921	0.02518
684.2580	42.76	1.23000	0.80000	0.00920	0.02468
685.6330	42.85	1.23000	0.81000	0.00915	0.02216
686.7890	42.83	1.22000	0.81000	0.00914	0.02367
688.0000	42.83	1.22000	0.81000	0.00907	0.02282
689.1480	42.78	1.22000	0.81000	0.00906	0.02320
690.5230	42.98	1.22000	0.80000	0.00908	0.02172
691.7340	42.87	1.22000	0.81000	0.00908	0.02312
692.8830	42.81	1.22000	0.81000	0.00907	0.02272
694.2580	42.89	1.22000	0.80000	0.00907	0.02226
695.4140	42.85	1.22000	0.80000	0.00910	0.02091
696.6170	42.98	1.22000	0.81000	0.00906	0.01984
697.9380	42.92	1.22000	0.82000	0.00908	0.01869
699.1480	42.98	1.22000	0.80000	0.00905	0.01756
700.3520	43.03	1.22000	0.81000	0.00902	0.01699
701.6170	43.05	1.22000	0.81000	0.00904	0.01791
702.8830	42.92	1.22000	0.81000	0.00902	0.01798
704.0940	42.89	1.22000	0.79000	0.00903	0.02018
705.2420	43.05	1.22000	0.80000	0.00902	0.02060
706.6170	43.01	1.22000	0.81000	0.00903	0.01755
707.7730	42.94	1.22000	0.81000	0.00905	0.01623
708.9840	43.14	1.22000	0.80000	0.00905	0.01886
710.1330	43.18	1.22000	0.81000	0.00909	0.01361
711.5000	43.18	1.22000	0.81000	0.00910	0.01643
712.6020	43.18	1.22000	0.81000	0.00910	0.01729
713.8130	43.18	1.22000	0.79000	0.00908	0.01856
715.1330	43.36	1.22000	0.81000	0.00905	0.01616
716.3440	43.40	1.22000	0.80000	0.00905	0.01774
717.4920	41.48	1.22000	0.81000	0.00906	0.02052
718.8130	43.38	1.22000	0.80000	0.00903	0.01808
720.0230	43.32	1.22000	0.81000	0.00901	0.01745
721.1720	43.29	1.21000	0.81000	0.00901	0.02063
722.4300	43.40	1.22000	0.81000	0.00899	0.01912
723.7500	43.36	1.22000	0.81000	0.00897	0.01706
724.9610	43.32	1.21000	0.81000	0.00896	0.01928
726.1090	43.40	1.22000	0.79000	0.00898	0.01856
727.4920	43.38	1.22000	0.81000	0.00898	0.01876
728.7030	43.45	1.22000	0.81000	0.00897	0.01638
729.8520	43.54	1.21000	0.80000	0.00895	0.01853
731.1720	43.54	1.21000	0.80000	0.00895	0.01811
732.3830	43.52	1.21000	0.81000	0.00894	0.01709
733.5310	43.54	1.21000	0.80000	0.00893	0.01565
734.7420	43.56	1.21000	0.80000	0.00892	0.01482
736.1090	43.47	1.21000	0.81000	0.00893	0.01481
737.2580	43.56	1.21000	0.81000	0.00890	0.01477
738.4220	43.54	1.21000	0.81000	0.00893	0.01608
739.7890	43.58	1.21000	0.80000	0.00894	0.01669
740.9380	43.45	1.22000	0.81000	0.00896	0.01487
742.1480	43.58	1.21000	0.81000	0.00894	0.01459
743.4690	43.60	1.21000	0.81000	0.00894	0.01483
744.6800	43.49	1.21000	0.80000	0.00889	0.01550
745.8280	43.56	1.21000	0.80000	0.00889	0.01623
747.0390	43.54	1.21000	0.80000	0.00890	0.01688
748.3590	43.54	1.21000	0.81000	0.00886	0.01826
749.5700	43.65	1.21000	0.81000	0.00892	0.01729
750.7190	43.63	1.21000	0.81000	0.00894	0.01805
752.0940	43.63	1.21000	0.80000	0.00895	0.01806
753.2970	43.63	1.21000	0.80000	0.00893	0.01752
754.4610	43.65	1.21000	0.81000	0.00889	0.01667
755.6640	43.69	1.21000	0.81000	0.00891	0.01848
756.9840	43.67	1.21000	0.80000	0.00895	0.01677
758.1880	43.69	1.21000	0.80000	0.00894	0.01692
759.3440	43.76	1.21000	0.81000	0.00893	0.01577
760.7190	43.71	1.21000	0.81000	0.00893	0.01534
761.9300	43.67	1.21000	0.81000	0.00892	0.01377
763.1880	43.85	1.21000	0.80000	0.00888	0.01475
764.5080	43.74	1.21000	0.81000	0.00888	0.01507
765.7190	43.85	1.21000	0.81000	0.00884	0.01577
766.8670	43.87	1.21000	0.81000	0.00885	0.01688
768.0780	43.85	1.21000	0.81000	0.00885	0.01602
769.3980	43.82	1.21000	0.80000	0.00882	0.01668
770.6020	43.78	1.21000	0.81000	0.00883	0.01638
771.7580	43.80	1.21000	0.81000	0.00885	0.01675
773.0780	43.87	1.21000	0.81000	0.00881	0.01886
774.2810	43.83	1.21000	0.80000	0.00882	0.01884
775.4380	43.94	1.21000	0.82000	0.00877	0.01757
776.8130	43.85	1.21000	0.80000	0.00878	0.01998
777.9610	43.85	1.20000	0.81000	0.00878	0.02371
779.1720	43.89	1.20000	0.81000	0.00885	0.02133
780.3280	44.02	1.20000	0.81000	0.00883	0.02088
781.6410	44.02	1.20000	0.81000	0.00883	0.02078
782.8520	43.91	1.21000	0.79000	0.00881	0.02067
784.0080	44.07	1.21000	0.81000	0.00879	0.01930
785.3830	44.13	1.20000	0.80000	0.00880	0.01906
786.5940	44.18	1.20000	0.81000	0.00879	0.01591
787.7970	44.20	1.21000	0.80000	0.00876	0.02132

788.9530	44.18	1.20000	0.81000	0.00876	0.02225
790.2730	44.20	1.21000	0.80000	0.00880	0.02144
791.4840	44.09	1.20000	0.81000	0.00879	0.02147
792.6330	44.22	1.20000	0.80000	0.00883	0.01912
794.0000	44.27	1.20000	0.80000	0.00880	0.01933
795.1640	44.27	1.20000	0.81000	0.00880	0.01654
796.3590	44.27	1.20000	0.80000	0.00885	0.01910
797.6800	44.40	1.20000	0.81000	0.00881	0.01618
798.8440	44.31	1.20000	0.81000	0.00883	0.01625
800.0390	44.29	1.20000	0.80000	0.00882	0.01764
801.2030	44.33	1.20000	0.81000	0.00881	0.02063
802.5700	44.31	1.20000	0.81000	0.00881	0.01895
803.7190	44.38	1.20000	0.81000	0.00880	0.01685
804.9300	44.31	1.20000	0.81000	0.00878	0.01443
806.2030	44.53	1.20000	0.81000	0.00877	0.01557
807.3980	44.53	1.20000	0.81000	0.00875	0.01418
808.5630	44.51	1.20000	0.81000	0.00874	0.01330
809.9300	44.53	1.20000	0.80000	0.00873	0.01328
811.0780	44.56	1.20000	0.81000	0.00874	0.01211
812.2420	44.73	1.20000	0.81000	0.00872	0.01500
813.4530	44.58	1.20000	0.81000	0.00873	0.01307
814.7580	44.56	1.20000	0.82000	0.00872	0.01307
815.9690	44.55	1.20000	0.81000	0.00869	0.01610
817.1330	44.58	1.20000	0.81000	0.00863	0.01665
818.5000	44.67	1.20000	0.81000	0.00865	0.01574
819.7110	44.73	1.20000	0.80000	0.00867	0.01499
820.8590	44.71	1.20000	0.81000	0.00871	0.01462
822.2340	44.78	1.20000	0.81000	0.00874	0.01406
823.3910	44.82	1.19000	0.80000	0.00873	0.01532
824.6020	44.82	1.20000	0.79000	0.00871	0.01898
825.7500	44.80	1.20000	0.80000	0.00874	0.02109
827.1170	44.84	1.20000	0.81000	0.00869	0.01929
828.3280	44.80	1.19000	0.80000	0.00869	0.02049
829.5390	44.75	1.19000	0.81000	0.00864	0.01842
830.8590	44.84	1.19000	0.80000	0.00863	0.01768
832.0700	44.55	1.19000	0.80000	0.00863	0.01874
833.2190	44.82	1.19000	0.80000	0.00867	0.01817
834.3670	44.89	1.20000	0.80000	0.00864	0.01985
835.7500	45.04	1.20000	0.80000	0.00871	0.02006
836.8980	44.64	1.20000	0.80000	0.00872	0.01893
838.1090	44.95	1.19000	0.81000	0.00871	0.01867
839.4300	44.95	1.19000	0.80000	0.00871	0.01940
840.6880	44.98	1.19000	0.81000	0.00868	0.01727
841.8980	44.91	1.19000	0.81000	0.00871	0.01772
843.2730	45.00	1.19000	0.81000	0.00867	0.01743
844.4220	45.04	1.19000	0.81000	0.00864	0.01573
845.6330	45.04	1.19000	0.81000	0.00864	0.01367
846.8440	45.00	1.19000	0.81000	0.00863	0.01391
848.1640	45.04	1.19000	0.79000	0.00865	0.01561
849.3130	45.11	1.19000	0.80000	0.00863	0.01458
850.4690	45.02	1.20000	0.81000	0.00863	0.01428
851.8440	45.00	1.19000	0.81000	0.00864	0.01443
852.9920	45.00	1.19000	0.80000	0.00864	0.01580
854.2580	45.17	1.19000	0.81000	0.00862	0.01628
855.5700	45.06	1.19000	0.80000	0.00860	0.01462
856.7810	45.13	1.19000	0.81000	0.00861	0.01424
857.9380	45.20	1.19000	0.81000	0.00859	0.01530
859.1410	45.11	1.19000	0.81000	0.00858	0.01604
860.5230	45.06	1.19000	0.80000	0.00855	0.01522
861.6720	45.24	1.19000	0.81000	0.00855	0.01457
862.8830	45.20	1.19000	0.81000	0.00861	0.01630
864.2030	45.15	1.18000	0.80000	0.00862	0.02067
865.3520	45.22	1.18000	0.81000	0.00860	0.02047
866.5630	45.35	1.19000	0.80000	0.00863	0.02238
867.7110	45.31	1.18000	0.81000	0.00862	0.02101
869.0940	45.28	1.18000	0.80000	0.00860	0.02001
870.2890	45.40	1.19000	0.80000	0.00857	0.01738
871.4530	45.20	1.19000	0.81000	0.00858	0.01707
872.8200	45.31	1.19000	0.79000	0.00858	0.01849
873.9690	45.24	1.19000	0.80000	0.00860	0.01921
875.1800	45.44	1.19000	0.79000	0.00862	0.02227
876.5000	45.40	1.19000	0.81000	0.00860	0.01981
877.7110	45.42	1.19000	0.80000	0.00860	0.01716
878.9220	45.46	1.19000	0.80000	0.00857	0.01505
880.0700	45.46	1.19000	0.80000	0.00858	0.01460
881.4380	45.26	1.19000	0.80000	0.00859	0.01493
882.6020	45.37	1.19000	0.81000	0.00855	0.01822
883.8130	46.48	1.18000	0.81000	0.00857	0.01874
885.1170	44.71	1.18000	0.81000	0.00858	0.02040
886.3280	45.31	1.19000	0.80000	0.00859	0.02005
887.4920	45.57	1.19000	0.80000	0.00857	0.01722
888.7970	45.51	1.19000	0.81000	0.00860	0.01880
890.0080	45.51	1.18000	0.81000	0.00856	0.01606
891.1720	45.68	1.18000	0.81000	0.00856	0.01626
892.3670	45.53	1.18000	0.79000	0.00856	0.01917
893.6880	45.60	1.18000	0.81000	0.00853	0.01773
894.9530	45.66	1.19000	0.81000	0.00854	0.01742
896.1090	45.62	1.18000	0.80000	0.00853	0.01573
897.4840	45.62	1.18000	0.84000	0.00854	0.01416
898.6330	45.68	1.18000	0.80000	0.00852	0.01388
899.7890	47.04	1.18000	0.80000	0.00858	0.01394
901.1640	45.59	1.18000	0.81000	0.00857	0.01244
902.3670	45.59	1.18000	0.81000	0.00856	0.01291
903.5230	45.66	1.18000	0.80000	0.00851	0.01310
904.6800	45.66	1.18000	0.81000	0.00853	0.01512
906.0470	45.73	1.18000	0.81000	0.00854	0.01536
907.2030	45.57	1.18000	0.80000	0.00851	0.01763
908.4140	45.68	1.18000	0.80000	0.00849	0.01903
909.7340	45.79	1.18000	0.81000	0.00851	0.01827
910.9380	45.75	1.18000	0.80000	0.00848	0.01824
912.0940	46.13	1.18000	0.80000	0.00845	0.01600
913.2970	45.71	1.18000	0.80000	0.00844	0.01473
914.6170	45.73	1.18000	0.81000	0.00845	0.01322
915.8280	45.86	1.18000	0.81000	0.00846	0.01747
916.9840	45.88	1.18000	0.81000	0.00844	0.01582
918.3520	45.86	1.18000	0.81000	0.00841	0.01553
919.5080	45.79	1.18000	0.80000	0.00845	0.01530
920.7110	45.86	1.18000	0.80000	0.00851	0.01597
921.9840	45.86	1.18000	0.80000	0.00848	0.01518
923.2420	45.97	1.18000	0.80000	0.00846	0.01577
924.3910	45.90	1.18000	0.80000	0.00844	0.01458
925.5470	45.97	1.18000	0.81000	0.00843	0.01249
926.9220	45.88	1.18000	0.81000	0.00837	0.01507
928.1330	45.95	1.18000	0.81000	0.00838	0.01526
929.2810	45.93	1.18000	0.83000	0.00839	0.01359
930.6020	45.95	1.18000	0.81000	0.00841	0.01484
931.8130	46.02	1.17000	0.81000	0.00839	0.01542
932.9610	45.99	1.17000	0.81000	0.00836	0.01549
934.3440	46.02	1.18000	0.80000	0.00833	0.01421
935.4920	46.46	1.17000	0.81000	0.00834	0.01408
936.7030	46.10	1.18000	0.80000	0.00834	0.01477
937.8520	46.21	1.18000	0.80000	0.00839	0.01641
939.1720	46.15	1.18000	0.80000	0.00838	0.01789
940.4300	44.78	1.18000	0.80000	0.00840	0.01627
941.5940	46.15	1.18000	0.81000	0.00839	0.01575
942.9610	46.13	1.18000	0.80000	0.00840	0.01440
944.1090	46.28	1.18000	0.81000	0.00833	0.01378
945.3200	46.21	1.17000	0.81000	0.00834	0.01366
946.4840	46.28	1.17000	0.81000	0.00834	0.01292
947.7890	46.23	1.18000	0.80000	0.00835	0.01301
949.0630	46.26	1.17000	0.81000	0.00832	0.01251
950.2110	46.13	1.17000	0.80000	0.00830	0.01290

951.5780	46.30	1.17000	0.80000	0.00837	0.01542
952.7420	46.30	1.17000	0.80000	0.00834	0.01421
953.9380	46.21	1.17000	0.80000	0.00831	0.01394
955.2580	46.32	1.17000	0.80000	0.00831	0.01559
956.4220	46.37	1.17000	0.81000	0.00833	0.01639
957.6170	46.30	1.17000	0.81000	0.00833	0.01438
958.7810	46.35	1.17000	0.80000	0.00832	0.01357
960.1480	46.30	1.17000	0.81000	0.00834	0.01259
961.2970	46.37	1.17000	0.80000	0.00833	0.01265
962.5080	46.32	1.17000	0.79000	0.00834	0.01280
963.8280	46.28	1.17000	0.80000	0.00835	0.01208
965.0390	46.52	1.17000	0.80000	0.00835	0.01337
966.1880	46.37	1.17000	0.81000	0.00832	0.01352
967.5700	46.39	1.17000	0.81000	0.00833	0.01784
968.7730	46.39	1.17000	0.80000	0.00836	0.01793
969.9840	46.48	1.17000	0.79000	0.00832	0.02034
971.1410	46.41	1.17000	0.81000	0.00833	0.01755
972.4530	46.39	1.17000	0.80000	0.00833	0.01692
973.6640	46.48	1.17000	0.79000	0.00832	0.01730
974.8200	46.50	1.17000	0.80000	0.00829	0.01516
976.1880	46.52	1.17000	0.81000	0.00830	0.01606
977.3440	46.55	1.17000	0.81000	0.00828	0.01381
978.5470	46.57	1.17000	0.81000	0.00826	0.01425
979.8670	46.61	1.17000	0.81000	0.00823	0.01266
981.0780	46.55	1.17000	0.80000	0.00831	0.01601
982.2340	46.68	1.17000	0.79000	0.00831	0.01351
983.4380	46.70	1.17000	0.81000	0.00827	0.01378
984.7030	46.66	1.17000	0.81000	0.00825	0.01206
985.9140	46.61	1.17000	0.81000	0.00825	0.01260
987.1170	46.79	1.17000	0.81000	0.00826	0.01158
988.4380	46.77	1.17000	0.81000	0.00830	0.01047
989.6480	46.32	1.17000	0.81000	0.00829	0.01168
990.8520	46.63	1.17000	0.81000	0.00822	0.01061
992.0630	46.83	1.16000	0.80000	0.00822	0.01084
993.3830	46.81	1.16000	0.80000	0.00824	0.01233
994.5940	46.94	1.16000	0.81000	0.00826	0.01465
995.7420	46.88	1.16000	0.80000	0.00824	0.01348
997.0630	47.06	1.16000	0.80000	0.00828	0.01413
998.2110	46.92	1.16000	0.81000	0.00828	0.01368
999.4220	46.92	1.16000	0.81000	0.00824	0.01455
1000.7420	46.86	1.16000	0.79000	0.00826	0.01401
1001.9530	46.94	1.16000	0.79000	0.00830	0.01453
1003.1020	46.97	1.16000	0.81000	0.00826	0.01274
1004.3130	47.14	1.16000	0.81000	0.00822	0.01392
1005.6330	46.92	1.16000	0.80000	0.00829	0.01587
1006.7810	46.94	1.16000	0.81000	0.00831	0.01692
1007.9920	46.94	1.16000	0.81000	0.00835	0.01765
1009.3130	47.08	1.16000	0.81000	0.00830	0.01573
1010.5230	46.99	1.16000	0.81000	0.00832	0.01553
1011.6720	47.12	1.16000	0.79000	0.00829	0.01738
1013.0390	47.14	1.16000	0.79000	0.00832	0.01552
1014.2030	47.01	1.16000	0.81000	0.00827	0.01592
1015.4140	47.14	1.16000	0.80000	0.00824	0.01530
1016.5630	47.03	1.16000	0.80000	0.00827	0.01587
1017.8830	47.10	1.16000	0.81000	0.00828	0.01439
1019.0310	47.12	1.16000	0.81000	0.00831	0.01459
1020.1880	47.06	1.16000	0.81000	0.00830	0.01538
1021.5630	47.12	1.16000	0.80000	0.00829	0.01352
1022.7110	47.14	1.16000	0.80000	0.00830	0.01558
1023.9220	47.14	1.16000	0.81000	0.00822	0.01485
1025.0699	47.19	1.16000	0.80000	0.00820	0.01451
1026.4530	47.70	1.16000	0.80000	0.00820	0.01344
1027.6021	47.19	1.16000	0.81000	0.00818	0.01165
1028.8130	47.19	1.16000	0.80000	0.00821	0.01744
1030.1331	47.19	1.16000	0.80000	0.00816	0.01568
1031.2810	46.88	1.16000	0.80000	0.00813	0.01614
1032.4919	47.23	1.16000	0.81000	0.00812	0.01417
1033.8590	47.21	1.16000	0.82000	0.00813	0.01297
1035.0699	47.21	1.16000	0.80000	0.00815	0.01341
1036.2190	47.25	1.16000	0.81000	0.00815	0.01381
1037.4301	47.28	1.16000	0.80000	0.00814	0.01327
1038.7500	47.21	1.15000	0.81000	0.00811	0.01305
1040.0081	47.25	1.15000	0.79000	0.00818	0.01355
1041.1720	47.25	1.15000	0.81000	0.00818	0.01235
1042.5389	47.52	1.15000	0.81000	0.00813	0.01312
1043.6880	47.34	1.15000	0.80000	0.00812	0.01266
1044.8979	47.30	1.15000	0.80000	0.00816	0.01488
1046.2190	47.39	1.15000	0.79000	0.00818	0.01459
1047.4301	47.45	1.15000	0.80000	0.00815	0.01593
1048.5780	47.41	1.15000	0.80000	0.00811	0.01555
1049.7340	47.52	1.15000	0.81000	0.00810	0.01728
1051.1090	47.54	1.15000	0.79000	0.00811	0.01644
1052.2581	47.52	1.15000	0.79000	0.00810	0.01634
1053.4690	47.61	1.15000	0.80000	0.00813	0.01584
1054.7889	46.95	1.15000	0.81000	0.00815	0.01560
1056.0000	47.67	1.15000	0.80000	0.00813	0.01666
1057.1479	47.59	1.15000	0.81000	0.00810	0.01493
1058.4139	47.59	1.15000	0.80000	0.00811	0.01495
1059.6169	47.67	1.15000	0.81000	0.00813	0.01466
1060.7729	47.70	1.15000	0.81000	0.00810	0.01337
1061.9840	47.74	1.15000	0.81000	0.00811	0.01247
1063.2970	47.65	1.15000	0.81000	0.00809	0.01238
1064.5081	47.76	1.15000	0.80000	0.00810	0.01317
1065.7190	47.74	1.15000	0.81000	0.00814	0.01424
1067.0389	47.70	1.15000	0.80000	0.00810	0.01311
1068.2419	47.67	1.15000	0.81000	0.00804	0.01427
1069.3979	47.74	1.15000	0.81000	0.00805	0.01343
1070.5470	47.67	1.15000	0.80000	0.00809	0.01539
1071.8669	47.59	1.15000	0.80000	0.00810	0.01567
1073.0780	47.70	1.15000	0.81000	0.00813	0.01537
1074.2340	47.63	1.15000	0.82000	0.00814	0.01472
1075.6021	47.59	1.15000	0.81000	0.00812	0.01506
1076.8130	47.67	1.15000	0.80000	0.00810	0.01402
1077.9690	47.67	1.15000	0.80000	0.00809	0.01300
1079.3440	47.67	1.15000	0.80000	0.00802	0.01122
1080.4919	47.81	1.15000	0.79000	0.00803	0.01125
1081.7030	47.81	1.15000	0.80000	0.00804	0.01185
1082.8590	47.76	1.15000	0.81000	0.00804	0.01174
1084.1720	47.85	1.15000	0.81000	0.00802	0.01300
1085.3280	47.83	1.15000	0.82000	0.00801	0.01170
1086.4840	47.81	1.15000	0.79000	0.00806	0.01367
1087.8521	50.27	1.15000	0.80000	0.00812	0.01271
1089.0630	47.94	1.15000	0.80000	0.00808	0.01265
1090.2190	47.94	1.15000	0.82000	0.00804	0.01166
1091.5310	47.81	1.15000	0.81000	0.00801	0.01339
1092.7419	47.79	1.15000	0.82000	0.00809	0.01255
1093.8979	47.81	1.14000	0.80000	0.00809	0.01215
1095.1021	47.85	1.14000	0.81000	0.00806	0.01238
1096.4220	47.92	1.14000	0.80000	0.00806	0.01410
1097.6331	47.85	1.14000	0.80000	0.00808	0.01372
1098.8440	47.90	1.14000	0.80000	0.00807	0.01602
1100.1639	47.83	1.14000	0.81000	0.00804	0.01504
1101.3590	47.92	1.14000	0.82000	0.00802	0.01365
1102.5699	47.94	1.14000	0.80000	0.00803	0.01565
1103.7819	47.96	1.14000	0.80000	0.00805	0.01446
1105.1021	48.25	1.14000	0.81000	0.00807	0.01338
1106.3130	48.03	1.14000	0.80000	0.00803	0.01342
1107.4611	48.05	1.14000	0.80000	0.00803	0.01284
1108.7810	47.50	1.14000	0.80000	0.00800	0.01544
1109.9301	48.16	1.14000	0.80000	0.00798	0.01312
1111.1410	48.25	1.14000	0.80000	0.00800	0.01486
1112.4611	48.25	1.14000	0.80000	0.00801	0.01424

1113.6720	48.21	1.14000	0.79000	0.00798	0.01437
1114.8831	48.27	1.14000	0.79000	0.00797	0.01383
1116.1410	48.21	1.14000	0.82000	0.00799	0.01273
1117.4611	48.49	1.14000	0.80000	0.00795	0.01099
1118.6090	48.47	1.14000	0.79000	0.00794	0.01052
1119.8199	48.32	1.14000	0.81000	0.00795	0.01606
1121.1880	48.36	1.14000	0.79000	0.00795	0.01080
1122.3521	48.49	1.14000	0.80000	0.00796	0.01037
1123.5470	48.32	1.14000	0.81000	0.00799	0.01063
1124.8669	48.38	1.14000	0.82000	0.00800	0.01173
1126.0780	48.58	1.14000	0.80000	0.00804	0.01181
1127.2340	48.38	1.14000	0.80000	0.00803	0.01079
1128.3910	48.43	1.14000	0.80000	0.00801	0.01025
1129.7581	48.45	1.14000	0.80000	0.00809	0.01215
1130.9690	48.40	1.14000	0.79000	0.00808	0.01102
1132.1801	48.51	1.14000	0.82000	0.00804	0.01093
1133.5000	48.51	1.14000	0.79000	0.00799	0.01055
1134.7030	48.49	1.14000	0.80000	0.00796	0.00985
1135.8590	48.43	1.14000	0.80000	0.00798	0.00958
1137.2340	48.47	1.14000	0.80000	0.00800	0.01013
1138.3831	48.43	1.14000	0.80000	0.00794	0.01062
1139.5940	48.63	1.14000	0.79000	0.00793	0.01100
1140.7500	48.45	1.14000	0.80000	0.00791	0.01141
1142.1169	48.58	1.13000	0.78000	0.00791	0.01077
1143.2729	48.38	1.14000	0.79000	0.00790	0.01002
1144.4301	48.51	1.13000	0.79000	0.00792	0.00918
1145.7970	48.56	1.13000	0.79000	0.00793	0.00852
1146.9530	48.58	1.13000	0.81000	0.00794	0.00881
1148.1639	48.60	1.13000	0.81000	0.00789	0.00890
1149.3130	48.56	1.13000	0.80000	0.00791	0.00896
1150.6880	48.60	1.13000	0.79000	0.00795	0.01102
1151.8440	48.56	1.13000	0.79000	0.00801	0.01565
1153.0470	48.60	1.13000	0.79000	0.00801	0.01536
1154.3669	48.58	1.13000	0.80000	0.00797	0.01421
1155.5229	48.56	1.13000	0.80000	0.00796	0.01419
1156.6720	48.60	1.13000	0.79000	0.00798	0.01537
1157.9919	48.65	1.13000	0.80000	0.00795	0.01468
1159.2030	48.51	1.13000	0.80000	0.00796	0.01437
1160.3521	48.74	1.13000	0.79000	0.00804	0.01517
1161.5630	48.62	1.13000	0.79000	0.00807	0.01663
1162.8831	48.47	1.13000	0.81000	0.00804	0.01481
1164.0940	48.71	1.13000	0.81000	0.00810	0.01424
1165.2970	48.62	1.13000	0.79000	0.00811	0.01560
1166.6169	48.74	1.13000	0.80000	0.00804	0.01629
1167.8199	48.87	1.13000	0.81000	0.00799	0.01741
1169.0310	48.89	1.13000	0.79000	0.00796	0.01870
1170.3521	48.82	1.13000	0.79000	0.00790	0.01840
1171.5630	48.89	1.13000	0.79000	0.00792	0.01829
1172.7111	48.94	1.13000	0.80000	0.00793	0.01821
1173.9220	49.07	1.13000	0.81000	0.00793	0.01738
1175.2419	49.02	1.13000	0.79000	0.00793	0.01767
1176.4530	49.09	1.13000	0.80000	0.00794	0.01566
1177.6021	49.27	1.13000	0.80000	0.00800	0.01760
1178.9690	49.24	1.13000	0.79000	0.00800	0.01765
1180.1331	49.18	1.13000	0.80000	0.00800	0.01724
1181.2810	49.25	1.13000	0.80000	0.00797	0.01801
1182.4919	49.22	1.13000	0.81000	0.00796	0.01657
1183.8590	49.13	1.13000	0.79000	0.00791	0.01575
1185.0229	49.27	1.13000	0.80000	0.00794	0.01337
1186.1720	49.33	1.13000	0.79000	0.00794	0.01310
1187.5389	49.27	1.13000	0.80000	0.00793	0.01214
1188.7500	49.18	1.13000	0.79000	0.00791	0.01321
1189.8979	49.24	1.13000	0.81000	0.00798	0.01466
1191.2810	47.26	1.13000	0.79000	0.00797	0.01261
1192.4919	49.24	1.13000	0.80000	0.00802	0.01322
1193.6410	49.13	1.13000	0.80000	0.00805	0.01356
1194.7889	49.24	1.13000	0.79000	0.00801	0.01346
1196.1720	49.29	1.13000	0.79000	0.00802	0.01435
1197.3199	49.15	1.13000	0.79000	0.00805	0.01607
1198.5310	49.27	1.13000	0.82000	0.00804	0.01704
1199.8979	49.35	1.13000	0.78000	0.00802	0.01613
1201.1090	49.36	1.12000	0.81000	0.00807	0.01747
1202.3199	49.35	1.12000	0.78000	0.00803	0.01773
1203.5780	49.24	1.12000	0.79000	0.00802	0.01762
1204.7889	49.33	1.12000	0.80000	0.00796	0.01582
1205.9380	49.49	1.12000	0.80000	0.00794	0.01550
1207.1479	49.33	1.12000	0.82000	0.00790	0.01508
1208.4690	49.53	1.13000	0.79000	0.00790	0.01613
1209.6169	49.47	1.12000	0.79000	0.00788	0.01617
1210.7810	49.38	1.12000	0.80000	0.00788	0.01534
1212.0940	49.78	1.13000	0.79000	0.00790	0.01541
1213.2970	49.49	1.12000	0.80000	0.00785	0.01458
1214.4611	49.47	1.13000	0.80000	0.00780	0.01277
1215.8280	49.60	1.13000	0.79000	0.00782	0.01338
1216.9840	49.58	1.13000	0.80000	0.00779	0.01264
1218.1880	54.84	1.12000	0.81000	0.00782	0.01107
1219.3440	49.44	1.12000	0.80000	0.00783	0.01197
1220.7190	49.51	1.12000	0.82000	0.00783	0.01154
1221.8669	49.51	1.12000	0.80000	0.00781	0.01040
1223.0229	49.51	1.12000	0.80000	0.00787	0.01203
1224.3979	49.51	1.12000	0.80000	0.00787	0.01194
1225.6090	49.55	1.12000	0.79000	0.00782	0.01111
1226.7581	49.47	1.12000	0.79000	0.00781	0.01262
1227.9690	49.58	1.12000	0.80000	0.00782	0.01294
1229.2889	49.49	1.12000	0.81000	0.00787	0.01547
1230.4380	49.47	1.12000	0.79000	0.00784	0.01673
1231.6479	48.78	1.12000	0.80000	0.00787	0.01669
1232.9690	49.53	1.12000	0.79000	0.00793	0.01703
1234.3169	49.53	1.12000	0.79000	0.00793	0.01869
1235.3280	49.51	1.12000	0.80000	0.00791	0.01699
1236.7030	49.60	1.12000	0.80000	0.00785	0.01743
1237.8521	49.67	1.12000	0.81000	0.00790	0.01657
1239.0630	49.67	1.12000	0.79000	0.00798	0.01673
1240.2190	49.60	1.12000	0.79000	0.00805	0.01878
1241.5310	49.64	1.12000	0.80000	0.00801	0.01839
1242.7419	49.82	1.12000	0.79000	0.00799	0.01728
1243.8979	49.82	1.12000	0.80000	0.00800	0.01956
1245.2111	49.73	1.12000	0.80000	0.00802	0.02164
1246.4220	49.73	1.12000	0.80000	0.00804	0.02048
1247.6331	49.69	1.12000	0.81000	0.00807	0.01946
1248.9530	49.80	1.12000	0.80000	0.00813	0.01879
1250.1639	49.78	1.12000	0.79000	0.00813	0.01936
1251.3130	49.84	1.12000	0.79000	0.00806	0.01723
1252.4611	49.89	1.12000	0.80000	0.00808	0.02009
1253.7810	49.93	1.12000	0.79000	0.00803	0.02020
1254.9380	49.95	1.12000	0.80000	0.00804	0.01645
1256.1410	50.00	1.12000	0.80000	0.00807	0.02185
1257.4611	50.00	1.12000	0.80000	0.00810	0.02467
1258.6720	50.04	1.12000	0.79000	0.00814	0.02726
1259.8199	50.09	1.12000	0.80000	0.00816	0.02373
1261.0310	50.11	1.12000	0.80000	0.00817	0.02719
1262.2970	50.24	1.12000	0.79000	0.00812	0.02419
1263.5000	50.17	1.12000	0.81000	0.00809	0.02169
1264.7111	50.31	1.12000	0.82000	0.00807	0.02229
1266.0310	50.33	1.12000	0.80000	0.00802	0.02047
1267.1880	50.31	1.12000	0.81000	0.00802	0.01985
1268.3440	50.40	1.12000	0.79000	0.00805	0.01858
1269.7111	50.37	1.11000	0.79000	0.00803	0.01992
1270.9220	50.59	1.11000	0.81000	0.00804	0.01875
1272.1331	50.66	1.11000	0.79000	0.00800	0.01886
1273.2810	50.77	1.11000	0.79000	0.00799	0.01937
1274.6479	50.79	1.11000	0.79000	0.00795	0.01958

1275.8130	50.93	1.11000	0.78000	0.00797	0.01870
1277.0229	51.02	1.11000	0.79000	0.00797	0.01801
1278.3280	50.97	1.11000	0.79000	0.00801	0.01603
1279.5389	51.10	1.11000	0.80000	0.00799	0.01629
1280.7030	51.17	1.11000	0.79000	0.00802	0.01767
1282.0081	51.26	1.11000	0.82000	0.00799	0.01654
1283.2190	51.21	1.11000	0.79000	0.00800	0.01723
1284.3831	51.21	1.11000	0.80000	0.00798	0.01772
1285.5940	51.24	1.11000	0.81000	0.00801	0.01740
1286.8979	51.32	1.11000	0.79000	0.00802	0.01566
1288.1720	51.26	1.11000	0.81000	0.00804	0.01319
1289.3199	51.41	1.12000	0.80000	0.00808	0.01391
1290.6880	51.41	1.11000	0.80000	0.00806	0.01316
1291.8521	51.50	1.11000	0.80000	0.00808	0.01148
1293.0470	51.55	1.11000	0.79000	0.00810	0.01145
1294.3199	51.68	1.11000	0.80000	0.00808	0.01303
1295.4690	51.59	1.11000	0.79000	0.00804	0.01331
1296.6331	51.46	1.11000	0.78000	0.00801	0.01390
1297.7810	51.61	1.11000	0.80000	0.00803	0.01305
1299.1479	51.66	1.11000	0.79000	0.00809	0.01292
1300.3130	51.41	1.11000	0.79000	0.00810	0.01293
1301.5081	51.66	1.11000	0.80000	0.00808	0.01199
1302.8280	51.66	1.11000	0.82000	0.00805	0.01308
1304.0389	51.61	1.11000	0.80000	0.00804	0.01534
1305.1880	51.68	1.11000	0.80000	0.00806	0.01354
1306.3521	51.66	1.11000	0.79000	0.00806	0.01247
1307.7190	51.66	1.11000	0.80000	0.00805	0.01267
1308.8669	51.66	1.11000	0.80000	0.00802	0.01418
1310.0780	51.63	1.11000	0.78000	0.00801	0.01397
1311.3979	51.70	1.11000	0.79000	0.00804	0.01248
1312.6639	51.75	1.11000	0.79000	0.00804	0.01238
1313.8199	51.70	1.11000	0.78000	0.00800	0.01240
1315.1880	51.70	1.11000	0.79000	0.00801	0.01186
1316.3440	51.70	1.11000	0.80000	0.00803	0.01246
1317.5000	51.88	1.11000	0.81000	0.00803	0.01181
1318.7111	51.61	1.10000	0.81000	0.00803	0.01174
1319.9690	51.57	1.10000	0.80000	0.00800	0.01061
1321.1801	51.72	1.10000	0.81000	0.00800	0.00964
1322.3280	51.64	1.10000	0.82000	0.00800	0.01122
1323.7030	51.66	1.10000	0.80000	0.00799	0.01074
1324.8590	51.72	1.10000	0.80000	0.00800	0.00972
1326.0699	51.79	1.11000	0.79000	0.00803	0.01039
1327.3831	51.75	1.10000	0.79000	0.00802	0.01077
1328.5389	51.79	1.10000	0.80000	0.00799	0.01026
1329.7500	51.79	1.10000	0.80000	0.00800	0.01024
1330.8979	51.79	1.10000	0.80000	0.00801	0.00967
1332.2729	51.70	1.10000	0.80000	0.00801	0.00886
1333.4840	51.70	1.10000	0.80000	0.00802	0.00835
1334.6331	51.68	1.10000	0.80000	0.00802	0.00798
1335.9530	51.66	1.10000	0.79000	0.00802	0.00796
1337.1639	51.59	1.10000	0.79000	0.00799	0.00770
1338.3130	51.59	1.10000	0.81000	0.00797	0.00882
1339.5229	51.52	1.10000	0.80000	0.00798	0.00899
1340.8440	51.55	1.10000	0.80000	0.00797	0.00837
1341.9919	51.59	1.10000	0.80000	0.00796	0.00799
1343.2030	51.59	1.10000	0.80000	0.00798	0.00773
1344.5229	51.63	1.10000	0.80000	0.00798	0.00972
1345.7340	51.66	1.10000	0.80000	0.00799	0.00894
1346.8831	51.86	1.10000	0.79000	0.00802	0.00903
1348.2030	51.77	1.10000	0.80000	0.00797	0.00841
1349.4139	51.68	1.10000	0.80000	0.00794	0.00802
1350.5630	51.83	1.10000	0.80000	0.00796	0.00834
1351.7729	51.83	1.10000	0.80000	0.00800	0.00797
1353.0940	51.90	1.11000	0.81000	0.00804	0.00920
1354.2970	51.90	1.10000	0.80000	0.00802	0.00858
1355.4530	51.99	1.10000	0.81000	0.00802	0.00814
1356.7729	51.90	1.10000	0.80000	0.00803	0.00779
1357.9220	51.86	1.10000	0.79000	0.00804	0.00758
1359.0780	51.79	1.10000	0.79000	0.00801	0.00742
1360.3910	51.66	1.10000	0.79000	0.00802	0.00764
1361.5470	52.41	1.10000	0.79000	0.00800	0.00748
1362.7581	51.64	1.10000	0.80000	0.00800	0.00943
1363.9139	51.55	1.10000	0.80000	0.00797	0.00931
1365.2810	51.66	1.10000	0.81000	0.00797	0.00859
1366.4380	51.48	1.10000	0.81000	0.00797	0.00909
1367.6410	51.48	1.10000	0.79000	0.00797	0.00912
1368.9611	51.64	1.10000	0.81000	0.00792	0.00871
1370.1720	51.61	1.10000	0.80000	0.00790	0.00904
1371.3199	56.57	1.10000	0.80000	0.00790	0.00874
1372.7030	51.61	1.10000	0.79000	0.00794	0.00820
1373.8521	50.91	1.10000	0.81000	0.00794	0.00876
1375.0630	51.84	1.10000	0.81000	0.00793	0.00826
1376.2111	51.70	1.10000	0.80000	0.00794	0.00791
1377.5940	51.79	1.10000	0.80000	0.00796	0.00825
1378.7419	51.88	1.10000	0.81000	0.00795	0.00789
1379.8910	51.79	1.10000	0.80000	0.00796	0.00795
1381.2729	51.75	1.10000	0.80000	0.00797	0.00766
1382.4220	51.86	1.09000	0.80000	0.00795	0.00783
1383.6331	51.66	1.09000	0.80000	0.00793	0.00759
1384.7810	51.70	1.09000	0.80000	0.00790	0.00742
1386.1479	51.68	1.09000	0.81000	0.00788	0.00729
1387.3130	51.68	1.10000	0.79000	0.00789	0.00752
1388.5229	51.97	1.10000	0.81000	0.00791	0.00769
1389.8280	51.57	1.10000	0.81000	0.00790	0.00747
1391.0389	51.70	1.10000	0.80000	0.00790	0.00734
1392.2030	51.75	1.09000	0.80000	0.00791	0.00724
1393.5699	51.75	1.10000	0.81000	0.00790	0.00716
1394.7190	51.73	1.09000	0.79000	0.00791	0.00711
1395.8831	51.77	1.09000	0.79000	0.00790	0.00708
1397.1410	51.73	1.09000	0.80000	0.00788	0.00705
1398.4611	51.82	1.09000	0.81000	0.00787	0.00703
1399.6720	51.73	1.09000	0.79000	0.00786	0.00701
1400.8199	51.86	1.09000	0.80000	0.00786	0.00700
1402.1880	51.93	1.09000	0.79000	0.00787	0.00699
1403.3521	51.84	1.09000	0.81000	0.00785	0.00698
1404.5000	51.88	1.09000	0.81000	0.00784	0.00724
1405.8669	51.93	1.09000	0.81000	0.00786	0.00716
1407.0310	51.97	1.09000	0.80000	0.00785	0.00711
1408.2340	51.97	1.09000	0.80000	0.00785	0.00708
1409.3910	51.97	1.09000	0.81000	0.00785	0.00705
1410.7111	51.97	1.09000	0.80000	0.00786	0.00703
1411.8590	52.02	1.09000	0.81000	0.00787	0.00702
1413.0699	52.24	1.09000	0.80000	0.00787	0.00701
1414.3910	52.08	1.09000	0.80000	0.00788	0.00700
1415.5389	52.13	1.09000	0.81000	0.00788	0.00700
1416.7970	52.15	1.09000	0.80000	0.00787	0.00699
1417.9611	52.17	1.09000	0.80000	0.00786	0.00699
1419.3280	52.15	1.09000	0.79000	0.00785	0.00700
1420.4840	51.73	1.09000	0.81000	0.00782	0.00700
1421.6880	52.24	1.09000	0.81000	0.00781	0.00699
1423.0081	52.32	1.09000	0.80000	0.00780	0.00699
1424.2190	47.66	1.09000	0.80000	0.00780	0.00698
1425.4301	52.35	1.09000	0.80000	0.00780	0.00698
1426.7419	52.39	1.09000	0.79000	0.00780	0.00698
1427.9530	52.39	1.09000	0.80000	0.00779	0.00698
1429.1090	52.46	1.09000	0.80000	0.00778	0.00698
1430.3669	52.44	1.09000	0.80000	0.00779	0.00729
1431.6880	52.50	1.09000	0.81000	0.00781	0.00718
1432.8979	52.39	1.09000	0.79000	0.00780	0.00713
1434.0470	52.48	1.09000	0.81000	0.00778	0.00708
1435.4220	52.44	1.09000	0.81000	0.00778	0.00705
1436.5780	52.44	1.09000	0.81000	0.00777	0.00703

1437.7810	52.50	1.09000	0.80000	0.00777	0.00701
1439.1021	52.37	1.09000	0.80000	0.00778	0.00700
1440.3130	52.46	1.09000	0.80000	0.00778	0.00699
1441.4611	52.55	1.09000	0.80000	0.00777	0.00698
1442.6720	52.48	1.08000	0.79000	0.00776	0.00698
1443.9919	52.51	1.09000	0.79000	0.00776	0.00698
1445.2030	52.53	1.09000	0.80000	0.00776	0.00697
1446.3521	52.53	1.08000	0.81000	0.00775	0.00697
1447.7340	52.57	1.09000	0.80000	0.00775	0.00697
1448.8831	52.62	1.09000	0.80000	0.00774	0.00697
1450.0940	52.55	1.09000	0.79000	0.00773	0.00696
1451.4139	52.59	1.09000	0.81000	0.00772	0.00696
1452.6090	52.66	1.08000	0.80000	0.00771	0.00697
1453.8199	52.73	1.09000	0.80000	0.00772	0.00696
1454.9840	52.66	1.08000	0.80000	0.00772	0.00696
1456.3521	52.79	1.08000	0.80000	0.00768	0.00696
1457.5000	52.82	1.08000	0.80000	0.00768	0.00696
1458.7111	52.75	1.08000	0.80000	0.00768	0.00696
1460.0310	52.88	1.08000	0.79000	0.00769	0.00696
1461.2419	52.80	1.08000	0.80000	0.00766	0.00697
1462.3910	52.93	1.08000	0.80000	0.00766	0.00697
1463.6021	52.99	1.08000	0.79000	0.00767	0.00697
1464.9220	53.02	1.08000	0.81000	0.00767	0.00697
1466.0699	53.06	1.08000	0.80000	0.00766	0.00696
1467.2810	53.11	1.08000	0.81000	0.00768	0.00697
1468.6021	53.13	1.08000	0.80000	0.00769	0.00697
1469.8590	53.22	1.09000	0.80000	0.00771	0.00697
1470.9611	53.26	1.09000	0.80000	0.00772	0.00697
1472.3280	53.17	1.09000	0.80000	0.00773	0.00696
1473.4919	53.24	1.09000	0.80000	0.00773	0.00697
1474.6880	53.19	1.09000	0.79000	0.00774	0.00696
1475.8521	53.24	1.08000	0.81000	0.00773	0.00696
1477.1720	53.30	1.08000	0.80000	0.00769	0.00696
1478.3669	53.30	1.08000	0.80000	0.00769	0.00696
1479.5780	53.28	1.08000	0.79000	0.00769	0.00696
1480.8521	53.39	1.08000	0.81000	0.00766	0.00696
1482.0470	53.42	1.08000	0.80000	0.00763	0.00696
1483.2111	53.44	1.08000	0.81000	0.00763	0.00696
1484.5310	53.15	1.08000	0.80000	0.00764	0.00696
1485.7340	53.46	1.08000	0.80000	0.00765	0.00696
1486.8910	53.35	1.08000	0.79000	0.00766	0.00696
1488.1021	53.37	1.08000	0.80000	0.00766	0.00696
1489.4139	53.28	1.08000	0.81000	0.00765	0.00696
1490.6169	53.46	1.08000	0.79000	0.00766	0.00696
1491.7810	53.57	1.08000	0.80000	0.00768	0.00696
1493.0940	53.53	1.08000	0.81000	0.00764	0.00697
1494.2500	53.48	1.08000	0.81000	0.00760	0.00697
1495.4611	53.95	1.08000	0.79000	0.00760	0.00697
1496.6090	53.55	1.08000	0.80000	0.00762	0.00697
1497.9840	53.55	1.08000	0.81000	0.00760	0.00696
1499.1880	53.68	1.08000	0.80000	0.00759	0.00696
1500.3440	53.62	1.08000	0.79000	0.00756	0.00696
1501.6639	53.66	1.08000	0.80000	0.00756	0.00696
1502.8669	53.66	1.08000	0.79000	0.00756	0.00696
1504.0780	53.71	1.08000	0.81000	0.00756	0.00696
1505.3979	53.75	1.08000	0.81000	0.00755	0.00696
1506.6090	53.71	1.08000	0.80000	0.00755	0.00696
1507.7581	53.71	1.08000	0.80000	0.00756	0.00696
1508.9690	53.77	1.08000	0.80000	0.00757	0.00697
1510.2889	53.53	1.08000	0.80000	0.00756	0.00697
1511.4919	53.84	1.08000	0.80000	0.00757	0.00697
1512.6479	53.84	1.08000	0.81000	0.00757	0.00697
1513.9690	53.73	1.08000	0.81000	0.00757	0.00697
1515.1720	53.91	1.08000	0.80000	0.00757	0.00697
1516.3210	53.91	1.08000	0.80000	0.00757	0.00697
1517.6479	54.04	1.08000	0.79000	0.00757	0.00696
1518.7970	54.06	1.07000	0.80000	0.00755	0.00696
1520.0081	53.97	1.07000	0.81000	0.00754	0.00696
1521.1639	54.13	1.07000	0.80000	0.00755	0.00696
1522.5310	54.13	1.07000	0.80000	0.00753	0.00696
1523.6880	54.17	1.07000	0.79000	0.00752	0.00696
1524.8979	54.15	1.07000	0.79000	0.00751	0.00696
1526.1639	54.18	1.07000	0.81000	0.00752	0.00696
1527.3669	54.37	1.07000	0.80000	0.00752	0.00696
1528.5229	54.17	1.07000	0.80000	0.00748	0.00696
1529.8910	54.09	1.07000	0.79000	0.00747	0.00696
1531.0470	54.42	1.07000	0.80000	0.00749	0.00696
1532.2581	54.35	1.07000	0.81000	0.00748	0.00696
1533.4139	54.44	1.07000	0.80000	0.00749	0.00696
1534.7340	54.42	1.07000	0.80000	0.00747	0.00696
1535.9919	54.44	1.07000	0.81000	0.00746	0.00697
1537.1410	54.40	1.07000	0.80000	0.00747	0.00697
1538.5229	54.33	1.07000	0.80000	0.00747	0.00697
1539.6720	54.53	1.07000	0.79000	0.00746	0.00697
1540.9301	54.53	1.07000	0.81000	0.00745	0.00697
1542.1410	54.60	1.07000	0.81000	0.00746	0.00697
1543.5229	54.55	1.07000	0.80000	0.00744	0.00697
1544.6720	54.62	1.07000	0.79000	0.00748	0.00697
1545.8831	54.71	1.07000	0.80000	0.00749	0.00697
1547.2030	54.64	1.07000	0.80000	0.00748	0.00696
1548.3979	54.60	1.07000	0.81000	0.00745	0.00697
1549.5630	54.82	1.07000	0.79000	0.00747	0.00697
1550.9301	54.75	1.07000	0.80000	0.00747	0.00697
1552.1410	56.15	1.07000	0.79000	0.00747	0.00697
1553.2889	54.89	1.07000	0.79000	0.00746	0.00696
1554.4530	54.77	1.07000	0.81000	0.00744	0.00696
1555.8199	54.80	1.07000	0.81000	0.00744	0.00696
1557.0310	54.91	1.07000	0.79000	0.00743	0.00696
1558.2419	54.80	1.07000	0.80000	0.00742	0.00696
1559.5470	54.98	1.07000	0.78000	0.00744	0.00696
1560.7581	54.95	1.07000	0.80000	0.00746	0.00696
1561.9690	54.93	1.07000	0.81000	0.00743	0.00696
1563.2340	55.04	1.07000	0.81000	0.00742	0.00696
1564.4380	55.02	1.07000	0.80000	0.00741	0.00696
1565.6021	55.11	1.07000	0.80000	0.00743	0.00697
1566.7500	55.06	1.07000	0.79000	0.00745	0.00696
1568.1169	55.04	1.07000	0.80000	0.00744	0.00696
1569.2810	55.18	1.07000	0.81000	0.00743	0.00696
1570.4840	55.18	1.07000	0.79000	0.00742	0.00696
1571.7970	55.31	1.07000	0.79000	0.00742	0.00696
1572.9611	55.18	1.07000	0.80000	0.00743	0.00696
1574.1639	55.33	1.07000	0.80000	0.00743	0.00696
1575.3199	55.33	1.07000	0.81000	0.00741	0.00696
1576.6410	55.29	1.07000	0.81000	0.00737	0.00696
1577.7889	55.35	1.07000	0.81000	0.00738	0.00696
1579.0000	55.33	1.06000	0.81000	0.00737	0.00696
1580.3199	55.42	1.06000	0.80000	0.00732	0.00696
1581.5229	55.49	1.07000	0.78000	0.00738	0.00696
1582.6801	55.40	1.07000	0.79000	0.00739	0.00780
1584.0000	55.55	1.06000	0.80000	0.00741	0.00754
1585.2030	55.55	1.07000	0.82000	0.00738	0.00739
1586.3590	55.49	1.07000	0.79000	0.00735	0.00728
1587.5699	55.62	1.07000	0.80000	0.00735	0.00720
1588.8831	55.73	1.06000	0.80000	0.00736	0.00713
1590.0389	55.60	1.07000	0.80000	0.00736	0.00709
1591.2500	55.67	1.07000	0.81000	0.00737	0.00706
1592.6169	55.75	1.07000	0.80000	0.00736	0.00704
1593.7729	55.64	1.06000	0.82000	0.00732	0.00702
1594.9301	55.87	1.06000	0.82000	0.00729	0.00701
1596.2419	55.75	1.06000	0.79000	0.00734	0.00700
1597.3979	55.78	1.06000	0.79000	0.00734	0.00699
1598.6090	55.84	1.06000	0.81000	0.00731	0.00699

1599.7581	55.84	1.06000	0.81000	0.00730	0.00699
1601.1331	55.95	1.06000	0.79000	0.00732	0.00699
1602.2889	55.89	1.07000	0.81000	0.00734	0.00699
1603.4380	55.93	1.07000	0.79000	0.00732	0.00699
1604.8130	56.04	1.07000	0.80000	0.00734	0.00698
1605.9690	56.02	1.07000	0.80000	0.00734	0.00698
1607.1720	56.04	1.06000	0.79000	0.00733	0.00698
1608.4919	56.00	1.07000	0.79000	0.00734	0.00698
1609.7030	55.91	1.07000	0.81000	0.00735	0.00698
1610.8521	56.18	1.07000	0.79000	0.00734	0.00698
1612.0630	56.13	1.07000	0.80000	0.00734	0.00698
1613.3831	56.15	1.06000	0.80000	0.00733	0.00698
1614.5940	59.81	1.06000	0.79000	0.00733	0.00698
1615.7419	56.31	1.06000	0.82000	0.00732	0.00698
1617.0630	56.27	1.06000	0.80000	0.00730	0.00698
1618.3199	56.22	1.06000	0.79000	0.00727	0.00698
1619.4840	56.29	1.06000	0.81000	0.00727	0.00698
1620.6880	56.31	1.06000	0.80000	0.00728	0.00698
1622.0000	56.47	1.06000	0.80000	0.00728	0.00698
1623.2111	56.42	1.06000	0.81000	0.00728	0.00697
1624.3669	56.44	1.06000	0.81000	0.00727	0.00698
1625.6801	56.36	1.06000	0.82000	0.00722	0.00698
1626.8440	56.38	1.06000	0.79000	0.00724	0.00698
1627.9919	56.44	1.06000	0.81000	0.00723	0.00698
1629.3590	56.33	1.06000	0.79000	0.00719	0.00699
1630.5229	56.56	1.06000	0.78000	0.00719	0.00699
1631.7340	56.44	1.06000	0.80000	0.00719	0.00699
1632.8831	56.60	1.06000	0.81000	0.00719	0.00699
1634.2500	56.64	1.06000	0.82000	0.00715	0.00700
1635.4139	56.62	1.06000	0.79000	0.00713	0.00699
1636.6090	56.89	1.06000	0.80000	0.00719	0.00699
1637.9301	56.76	1.06000	0.78000	0.00721	0.00803
1639.1410	57.87	1.06000	0.80000	0.00722	0.00831
1640.3521	56.71	1.05000	0.79000	0.00719	0.00793
1641.6720	56.65	1.05000	0.80000	0.00716	0.00764
1642.8199	57.61	1.06000	0.81000	0.00716	0.00746
1643.9690	56.80	1.06000	0.79000	0.00716	0.00734
1645.1801	56.71	1.05000	0.81000	0.00716	0.00725
1646.5000	56.76	1.05000	0.79000	0.00715	0.00717
1647.7581	56.87	1.05000	0.81000	0.00714	0.00712
1648.9220	56.82	1.05000	0.81000	0.00714	0.00708
1650.2889	56.85	1.05000	0.79000	0.00716	0.00706
1651.4380	56.89	1.05000	0.81000	0.00715	0.00704
1652.6479	56.96	1.05000	0.79000	0.00713	0.00703
1653.8130	56.98	1.06000	0.80000	0.00713	0.00702
1655.1801	56.85	1.05000	0.80000	0.00713	0.00701
1656.3910	56.94	1.05000	0.79000	0.00708	0.00701
1657.5389	57.00	1.05000	0.81000	0.00705	0.00700
1658.9139	56.85	1.05000	0.79000	0.00708	0.00700
1660.1169	57.07	1.05000	0.78000	0.00717	0.01003
1661.2810	57.02	1.05000	0.79000	0.00718	0.01013
1662.5940	57.02	1.06000	0.79000	0.00718	0.00915
1663.7970	56.98	1.05000	0.81000	0.00716	0.00921
1664.9611	57.16	1.05000	0.81000	0.00714	0.00858
1666.1639	57.11	1.05000	0.79000	0.00712	0.00815
1667.4840	57.09	1.05000	0.80000	0.00711	0.00779
1668.7500	57.11	1.05000	0.80000	0.00710	0.00757
1669.9530	57.16	1.05000	0.81000	0.00711	0.00741
1671.3280	57.13	1.05000	0.80000	0.00711	0.00728
1672.4840	57.16	1.05000	0.79000	0.00710	0.00720
1673.6880	57.13	1.05000	0.81000	0.00708	0.00714
1675.0081	57.22	1.05000	0.80000	0.00703	0.00709
1676.2190	56.73	1.05000	0.81000	0.00711	0.00877
1677.3669	57.27	1.05000	0.80000	0.00714	0.00824
1678.6331	57.27	1.05000	0.80000	0.00714	0.00865
1679.9530	57.33	1.05000	0.80000	0.00711	0.00812
1681.1639	57.31	1.05000	0.81000	0.00711	0.00782
1682.3130	56.47	1.05000	0.81000	0.00707	0.00758
1683.6331	57.31	1.05000	0.79000	0.00708	0.00740
1684.8440	57.33	1.05000	0.79000	0.00709	0.00728
1685.9919	57.33	1.05000	0.80000	0.00710	0.00720
1687.3669	57.40	1.05000	0.82000	0.00709	0.00713
1688.5229	57.31	1.06000	0.80000	0.00707	0.00709
1689.7340	57.47	1.05000	0.81000	0.00711	0.00706
1690.8831	57.54	1.05000	0.81000	0.00710	0.00704
1692.2500	57.47	1.05000	0.79000	0.00709	0.00703
1693.4139	57.47	1.05000	0.78000	0.00708	0.00701
1694.5630	57.47	1.05000	0.78000	0.00710	0.00700
1695.9301	57.45	1.05000	0.80000	0.00710	0.00699
1697.1410	57.51	1.05000	0.82000	0.00707	0.00699
1698.2419	57.54	1.05000	0.81000	0.00706	0.00698
1699.4530	57.49	1.05000	0.82000	0.00705	0.00698
1700.7729	57.56	1.05000	0.81000	0.00705	0.00698
1701.9220	57.58	1.05000	0.80000	0.00705	0.00699
1703.1331	57.58	1.05000	0.78000	0.00708	0.00698
1704.4530	57.71	1.05000	0.79000	0.00704	0.00698
1705.6639	57.67	1.05000	0.80000	0.00707	0.00698
1706.8130	57.63	1.05000	0.82000	0.00708	0.00698
1708.1801	57.56	1.05000	0.80000	0.00705	0.00698
1709.3910	57.65	1.05000	0.81000	0.00701	0.00698
1710.5389	57.58	1.05000	0.81000	0.00698	0.00698
1711.7030	57.43	1.05000	0.80000	0.00700	0.00698
1713.0699	57.67	1.05000	0.78000	0.00702	0.00697
1714.2190	57.71	1.05000	0.78000	0.00703	0.00697
1715.4301	57.71	1.05000	0.79000	0.00702	0.00803
1716.7500	57.74	1.05000	0.81000	0.00699	0.00770
1717.9611	57.63	1.05000	0.81000	0.00700	0.00750
1719.1090	57.71	1.05000	0.81000	0.00699	0.00735
1720.4301	57.67	1.05000	0.81000	0.00697	0.00724
1721.6410	57.74	1.05000	0.81000	0.00697	0.00717
1722.7889	57.78	1.05000	0.81000	0.00698	0.00712
1724.0000	57.80	1.05000	0.79000	0.00699	0.00708
1725.3199	57.85	1.05000	0.80000	0.00696	0.00705
1726.4690	57.74	1.05000	0.80000	0.00696	0.00704
1727.6801	57.74	1.05000	0.78000	0.00700	0.00702
1729.0000	57.87	1.05000	0.78000	0.00701	0.00756
1730.2111	57.74	1.05000	0.78000	0.00702	0.00739
1731.3590	57.85	1.05000	0.80000	0.00699	0.00728
1732.5699	57.85	1.05000	0.79000	0.00699	0.00719
1733.8910	57.76	1.05000	0.81000	0.00698	0.00713
1735.1021	57.74	1.05000	0.80000	0.00698	0.00709
1736.2500	57.83	1.05000	0.78000	0.00698	0.00706
1737.5699	57.78	1.05000	0.79000	0.00693	0.00703
1738.7190	57.80	1.05000	0.80000	0.00693	0.00702
1739.9840	57.89	1.05000	0.80000	0.00695	0.00701
1741.2970	57.47	1.05000	0.81000	0.00697	0.00700
1742.5081	58.00	1.05000	0.78000	0.00699	0.00699
1743.6639	57.91	1.05000	0.79000	0.00703	0.00766
1744.8199	58.20	1.04000	0.82000	0.00701	0.00746
1746.1880	57.83	1.04000	0.80000	0.00697	0.00731
1747.3440	53.03	1.04000	0.78000	0.00691	0.00722
1748.6090	58.02	1.05000	0.79000	0.00688	0.00715
1749.9301	57.91	1.05000	0.80000	0.00690	0.00710
1751.1331	58.14	1.04000	0.80000	0.00693	0.00707
1752.2889	58.03	1.04000	0.80000	0.00697	0.00844
1753.6090	57.98	1.04000	0.79000	0.00697	0.00893
1754.8130	58.05	1.05000	0.81000	0.00695	0.00837
1756.0229	58.09	1.04000	0.81000	0.00694	0.00798
1757.1801	57.96	1.04000	0.80000	0.00692	0.00771
1758.5470	58.12	1.04000	0.81000	0.00691	0.00749
1759.7030	58.14	1.04000	0.82000	0.00688	0.00735
1760.9139	58.05	1.04000	0.81000	0.00688	0.00725

1762.2340	58.18	1.04000	0.81000	0.00682	0.00717
1763.4380	58.16	1.04000	0.78000	0.00684	0.00711
1764.5940	58.14	1.04000	0.78000	0.00687	0.00708
1765.9139	58.18	1.04000	0.81000	0.00686	0.00705
1767.1169	58.12	1.04000	0.81000	0.00685	0.00703
1768.2729	57.56	1.04000	0.80000	0.00686	0.00702
1769.4840	58.18	1.04000	0.80000	0.00685	0.00701
1770.7970	58.18	1.04000	0.81000	0.00685	0.00700
1771.9530	58.25	1.04000	0.79000	0.00684	0.00699
1773.1639	58.34	1.04000	0.81000	0.00682	0.00699
1774.4840	58.27	1.04000	0.82000	0.00678	0.00698
1775.6880	58.14	1.04000	0.79000	0.00674	0.00698
1776.8440	58.36	1.04000	0.81000	0.00678	0.00698
1778.0470	58.23	1.04000	0.81000	0.00680	0.00698
1779.3669	58.38	1.04000	0.81000	0.00680	0.00698
1780.5699	58.40	1.04000	0.82000	0.00680	0.00698
1781.7340	58.34	1.04000	0.81000	0.00680	0.00698
1783.0470	58.40	1.04000	0.80000	0.00681	0.00698
1784.2500	58.38	1.04000	0.79000	0.00681	0.00698
1785.4611	58.36	1.04000	0.79000	0.00677	0.00698
1786.7810	58.40	1.04000	0.80000	0.00679	0.00698
1787.9919	57.99	1.04000	0.83000	0.00674	0.00698
1789.1410	58.52	1.04000	0.79000	0.00671	0.00697
1790.3521	58.56	1.04000	0.79000	0.00673	0.00698
1791.6720	58.58	1.04000	0.79000	0.00678	0.00698
1792.8199	58.50	1.04000	0.79000	0.00680	0.00753
1794.0310	58.58	1.04000	0.80000	0.00679	0.00737
1795.3521	58.50	1.04000	0.79000	0.00678	0.00725
1796.5630	58.58	1.04000	0.79000	0.00677	0.00718
1797.7111	58.63	1.04000	0.80000	0.00674	0.00712
1799.0780	58.67	1.04000	0.79000	0.00679	0.00708
1800.2419	58.67	1.04000	0.80000	0.00681	0.00705
1801.4530	58.76	1.04000	0.81000	0.00681	0.00703
1802.6021	58.81	1.04000	0.81000	0.00679	0.00702
1803.9690	58.83	1.04000	0.82000	0.00676	0.00701
1805.1331	58.94	1.04000	0.83000	0.00673	0.00700
1806.2810	59.03	1.04000	0.81000	0.00671	0.00700
1807.6479	58.98	1.04000	0.81000	0.00677	0.00699
1808.8130	58.98	1.04000	0.80000	0.00680	0.00699
1810.0081	59.01	1.04000	0.81000	0.00678	0.00698
1811.1720	59.10	1.04000	0.80000	0.00673	0.00698
1812.4919	58.30	1.04000	0.79000	0.00675	0.00698
1813.6410	59.19	1.04000	0.80000	0.00677	0.00698
1814.7889	59.23	1.04000	0.79000	0.00676	0.00698
1816.1720	59.39	1.04000	0.80000	0.00671	0.00697
1817.3199	59.16	1.04000	0.81000	0.00670	0.00697
1818.5310	59.27	1.04000	0.82000	0.00668	0.00697
1819.8521	59.34	1.04000	0.78000	0.00671	0.00697
1821.0470	59.41	1.04000	0.83000	0.00677	0.00849
1822.2111	59.52	1.04000	0.81000	0.00677	0.00805
1823.3590	59.45	1.04000	0.79000	0.00677	0.00774
1824.6801	59.32	1.04000	0.80000	0.00676	0.00751
1825.8280	59.45	1.04000	0.79000	0.00673	0.00736
1827.0389	59.54	1.04000	0.81000	0.00669	0.00726
1828.3590	59.56	1.04000	0.81000	0.00671	0.00716
1829.5699	59.59	1.04000	0.80000	0.00674	0.00710
1830.7190	59.68	1.04000	0.81000	0.00675	0.00706
1832.0389	59.63	1.04000	0.79000	0.00674	0.00703
1833.1880	59.65	1.04000	0.82000	0.00670	0.00701
1834.3979	59.65	1.04000	0.81000	0.00670	0.00700
1835.5470	59.56	1.04000	0.79000	0.00667	0.00698
1836.9301	59.76	1.03000	0.82000	0.00665	0.00699
1838.1410	59.85	1.03000	0.79000	0.00671	0.00804
1839.2889	59.74	1.03000	0.80000	0.00673	0.00772
1840.6639	59.79	1.03000	0.82000	0.00671	0.00749
1841.8669	59.88	1.03000	0.80000	0.00665	0.00735
1843.0780	59.79	1.03000	0.80000	0.00661	0.00724
1844.3979	59.88	1.03000	0.82000	0.00660	0.00717
1845.5470	59.72	1.03000	0.79000	0.00666	0.00812
1846.7030	59.99	1.03000	0.78000	0.00667	0.00950
1847.9139	60.05	1.03000	0.81000	0.00667	0.00879
1849.2340	60.08	1.03000	0.81000	0.00666	0.00823
1850.4380	60.12	1.03000	0.80000	0.00660	0.00788
1851.5940	60.30	1.03000	0.78000	0.00666	0.00763
1852.9690	60.28	1.03000	0.80000	0.00664	0.00743
1854.1169	60.39	1.03000	0.82000	0.00658	0.00730
1855.2729	59.81	1.03000	0.80000	0.00663	0.00721
1856.4840	60.39	1.03000	0.78000	0.00662	0.00715
1857.7970	60.46	1.03000	0.82000	0.00657	0.00709
1858.9530	60.50	1.03000	0.78000	0.00652	0.00706
1860.1090	60.48	1.03000	0.81000	0.00651	0.00704
1861.4840	60.52	1.03000	0.81000	0.00657	0.00701
1862.6331	60.59	1.03000	0.83000	0.00659	0.00864
1863.8440	60.70	1.03000	0.80000	0.00656	0.00816
1865.1021	60.66	1.03000	0.81000	0.00649	0.00780
1866.3669	60.77	1.03000	0.80000	0.00651	0.00756
1867.5229	60.57	1.03000	0.78000	0.00650	0.00740
1868.7340	60.63	1.02000	0.78000	0.00655	0.00916
1870.0470	60.79	1.03000	0.81000	0.00655	0.00846
1871.2581	60.63	1.03000	0.79000	0.00647	0.00805
1872.4139	60.72	1.02000	0.79000	0.00648	0.00775
1873.7340	60.77	1.02000	0.79000	0.00656	0.00972
1874.9919	60.83	1.02000	0.80000	0.00657	0.00891
1876.1410	60.81	1.02000	0.82000	0.00653	0.00837
1877.5229	60.81	1.03000	0.81000	0.00648	0.00795
1878.6720	60.79	1.02000	0.80000	0.00651	0.00768
1879.8831	60.88	1.02000	0.78000	0.00653	0.00843
1881.0310	60.88	1.02000	0.82000	0.00653	0.00802
1882.3521	60.61	1.03000	0.79000	0.00648	0.00770
1883.6090	60.74	1.03000	0.80000	0.00646	0.00749
1884.7729	60.97	1.03000	0.79000	0.00653	0.00734
1886.1410	60.97	1.03000	0.80000	0.00655	0.00822
1887.2889	60.97	1.03000	0.80000	0.00653	0.00786
1888.5000	61.08	1.03000	0.82000	0.00648	0.00761
1889.6639	60.97	1.03000	0.80000	0.00650	0.00744
1890.9690	61.03	1.02000	0.80000	0.00656	0.00851
1892.2419	61.12	1.02000	0.82000	0.00655	0.00806
1893.3910	61.03	1.02000	0.81000	0.00652	0.00775
1894.7581	61.17	1.02000	0.80000	0.00649	0.00751
1895.9220	61.17	1.02000	0.81000	0.00644	0.00736
1897.0699	61.12	1.02000	0.78000	0.00649	0.00726
1898.4380	61.12	1.02000	0.81000	0.00648	0.00718
1899.6479	61.17	1.02000	0.81000	0.00640	0.00712
1900.8590	61.10	1.02000	0.82000	0.00637	0.00708
1902.0081	61.10	1.02000	0.80000	0.00642	0.00705
1903.3910	61.23	1.02000	0.78000	0.00646	0.00785
1904.5389	61.28	1.02000	0.81000	0.00646	0.00760
1905.6880	61.21	1.02000	0.81000	0.00643	0.00743
1907.0699	61.15	1.02000	0.81000	0.00646	0.00729
1908.2810	61.26	1.02000	0.79000	0.00646	0.00721
1909.4301	61.19	1.02000	0.80000	0.00645	0.00714
1910.7500	61.21	1.02000	0.82000	0.00644	0.00709
1911.9611	61.26	1.02000	0.81000	0.00643	0.00706
1913.1090	61.28	1.02000	0.80000	0.00642	0.00704
1914.3199	61.86	1.02000	0.82000	0.00634	0.00704
1915.6410	61.37	1.02000	0.80000	0.00634	0.00701
1916.8440	61.32	1.02000	0.80000	0.00636	0.00700
1918.0000	61.26	1.02000	0.81000	0.00641	0.00842
1919.3669	61.41	1.02000	0.81000	0.00641	0.00794
1920.5229	61.30	1.02000	0.80000	0.00637	0.00766
1921.7340	61.33	1.02000	0.81000	0.00636	0.00748
1923.0470	61.44	1.02000	0.80000	0.00642	0.00733

1924.2581	61.35	1.02000	0.81000	0.00647	0.00852
1925.4139	61.41	1.02000	0.81000	0.00644	0.00809
1926.5699	61.48	1.02000	0.79000	0.00638	0.00777
1927.8831	61.59	1.02000	0.79000	0.00641	0.00753
1929.0389	61.53	1.02000	0.81000	0.00646	0.00927
1930.2500	61.57	1.02000	0.79000	0.00644	0.00861
1931.5630	61.50	1.02000	0.82000	0.00637	0.00810
1932.7729	61.46	1.02000	0.79000	0.00637	0.00778
1933.9840	61.35	1.02000	0.78000	0.00643	0.00952
1935.1880	61.55	1.02000	0.82000	0.00642	0.00877
1936.5081	61.50	1.02000	0.80000	0.00636	0.00822
1937.7190	61.53	1.02000	0.80000	0.00635	0.00787
1938.9220	61.46	1.02000	0.79000	0.00637	0.00761
1940.2419	61.13	1.02000	0.81000	0.00639	0.00742
1941.3979	61.57	1.02000	0.82000	0.00636	0.00730
1942.5470	61.59	1.02000	0.78000	0.00637	0.00721
1943.9220	61.64	1.02000	0.79000	0.00640	0.00895
1945.0780	61.53	1.02000	0.78000	0.00640	0.00838
1946.2810	61.46	1.02000	0.81000	0.00641	0.00798
1947.4380	61.48	1.02000	0.80000	0.00640	0.00770
1948.8130	63.14	1.02000	0.80000	0.00634	0.00748
1950.0229	62.26	1.02000	0.81000	0.00631	0.00733
1951.2810	61.64	1.02000	0.81000	0.00636	0.00722
1952.5470	61.62	1.02000	0.79000	0.00633	0.00714
1953.7500	61.62	1.02000	0.80000	0.00629	0.00709
1954.9611	61.31	1.02000	0.81000	0.00628	0.00705
1956.3440	61.68	1.02000	0.78000	0.00635	0.00829
1957.4919	61.71	1.02000	0.81000	0.00635	0.00791
1958.7030	61.77	1.02000	0.79000	0.00634	0.00764
1959.9139	61.73	1.02000	0.78000	0.00633	0.00745
1961.2190	61.71	1.01000	0.82000	0.00632	0.00730
1962.4301	61.64	1.02000	0.81000	0.00628	0.00720
1963.6410	61.93	1.02000	0.81000	0.00627	0.00714
1964.9611	61.73	1.02000	0.81000	0.00626	0.00708
1966.1720	61.75	1.02000	0.80000	0.00633	0.00916
1967.3199	61.42	1.02000	0.78000	0.00634	0.00851
1968.5310	61.79	1.02000	0.82000	0.00628	0.00807
1969.8521	61.73	1.02000	0.79000	0.00628	0.00773
1971.0630	61.84	1.02000	0.81000	0.00634	0.00894
1972.2581	61.73	1.02000	0.81000	0.00629	0.00834
1973.5780	61.86	1.02000	0.80000	0.00626	0.00791
1974.7889	61.79	1.02000	0.79000	0.00631	0.00765
1976.0000	61.82	1.01000	0.81000	0.00634	0.00908
1977.3199	61.82	1.02000	0.82000	0.00629	0.00841
1978.5310	61.79	1.02000	0.79000	0.00629	0.00801
1979.6801	61.82	1.01000	0.80000	0.00635	0.00970
1980.8910	61.80	1.01000	0.79000	0.00635	0.00891
1982.2111	61.75	1.01000	0.81000	0.00628	0.00832
1983.4139	61.66	1.01000	0.80000	0.00624	0.00794
1984.5699	60.44	1.01000	0.78000	0.00631	0.00962
1985.9380	61.88	1.01000	0.79000	0.00632	0.00878
1987.0940	61.91	1.01000	0.82000	0.00627	0.00827
1988.2500	61.88	1.01000	0.81000	0.00624	0.00791
1989.6169	61.93	1.01000	0.79000	0.00631	0.00967
1990.7729	61.88	1.01000	0.81000	0.00632	0.00889
1991.9840	61.88	1.01000	0.82000	0.00625	0.00835
1993.1410	61.95	1.01000	0.78000	0.00626	0.00797
1994.5061	61.88	1.01000	0.80000	0.00632	0.00890
1995.7190	61.95	1.01000	0.80000	0.00633	0.00833
1996.8669	61.93	1.01000	0.82000	0.00629	0.00795
1998.2419	61.86	1.01000	0.78000	0.00632	0.00765
1999.3979	61.73	1.01000	0.81000	0.00633	0.00746
2000.6090	61.91	1.01000	0.81000	0.00631	0.00733
2001.9220	61.84	1.01000	0.80000	0.00624	0.00722
2003.1331	61.95	1.01000	0.79000	0.00625	0.00715
2004.2889	62.00	1.01000	0.81000	0.00628	0.00710
2005.4380	62.09	1.01000	0.79000	0.00630	0.00706
2006.8130	62.15	1.01000	0.80000	0.00629	0.00703
2007.9690	62.62	1.02000	0.80000	0.00628	0.00701
2009.1169	62.15	1.01000	0.80000	0.00629	0.00700
2010.4380	62.13	1.01000	0.81000	0.00628	0.00699
2011.6479	62.13	1.01000	0.81000	0.00624	0.00698
2012.7970	62.15	1.01000	0.80000	0.00620	0.00698
2014.0081	62.15	1.01000	0.80000	0.00625	0.00697
2015.3280	62.15	1.01000	0.80000	0.00624	0.00697
2016.5310	62.11	1.01000	0.81000	0.00617	0.00697
2017.7419	62.20	1.01000	0.81000	0.00618	0.00697
2019.0630	62.29	1.01000	0.80000	0.00624	0.00830
2020.2111	62.15	1.01000	0.81000	0.00623	0.00791
2021.3669	62.29	1.01000	0.81000	0.00617	0.00764
2022.7419	62.24	1.01000	0.81000	0.00614	0.00744
2023.8910	62.46	1.01000	0.80000	0.00621	0.00927
2025.1021	62.35	1.01000	0.81000	0.00622	0.00860
2026.2581	62.27	1.01000	0.82000	0.00617	0.00815
2027.6331	62.35	1.01000	0.79000	0.00615	0.00778
2028.7810	62.35	1.01000	0.80000	0.00621	0.00960
2029.9919	62.27	1.01000	0.83000	0.00619	0.00885
2031.3130	62.27	1.01000	0.81000	0.00615	0.00826
2032.5229	62.42	1.01000	0.79000	0.00620	0.00790
2033.6720	62.33	1.01000	0.81000	0.00619	0.00765
2035.0389	62.40	1.01000	0.81000	0.00620	0.00744
2036.2500	62.31	1.01000	0.81000	0.00618	0.00730
2037.4139	62.35	1.01000	0.81000	0.00618	0.00721
2038.6090	62.35	1.01000	0.82000	0.00616	0.00715
2039.9301	62.40	1.01000	0.82000	0.00614	0.00709
2041.2030	62.35	1.01000	0.79000	0.00613	0.00705
2042.3521	62.42	1.01000	0.80000	0.00615	0.00703
2043.7190	62.60	1.01000	0.80000	0.00617	0.00701
2044.8831	62.35	1.01000	0.81000	0.00613	0.00700
2046.0780	62.42	1.01000	0.80000	0.00612	0.00698
2047.2419	62.40	1.01000	0.81000	0.00611	0.00698
2048.5630	62.35	1.01000	0.79000	0.00611	0.00697
2049.8201	62.53	1.01000	0.81000	0.00610	0.00697
2050.9690	62.49	1.01000	0.79000	0.00610	0.00695
2052.3440	62.49	1.01000	0.80000	0.00609	0.00696
2053.5000	62.51	1.01000	0.79000	0.00608	0.00696
2054.7109	62.58	1.01000	0.82000	0.00606	0.00696
2056.0229	62.60	1.01000	0.81000	0.00607	0.00696
2057.2339	62.62	1.00000	0.82000	0.00606	0.00696
2058.3911	62.67	1.01000	0.80000	0.00608	0.00695
2059.6021	62.58	1.01000	0.79000	0.00613	0.00879
2060.9141	62.58	1.01000	0.82000	0.00610	0.00821
2062.0701	62.56	1.01000	0.80000	0.00609	0.00785
2063.2810	62.51	1.01000	0.80000	0.00606	0.00761
2064.5940	62.71	1.01000	0.81000	0.00608	0.00740
2065.7971	62.60	1.00000	0.79000	0.00606	0.00728
2066.9609	62.65	1.00000	0.79000	0.00605	0.00719
2068.2729	62.65	1.00000	0.82000	0.00605	0.00712
2069.4839	62.69	1.00000	0.81000	0.00605	0.00707
2070.6411	62.69	1.00000	0.80000	0.00605	0.00704
2071.8440	62.69	1.00000	0.82000	0.00605	0.00701
2073.1641	62.58	1.00000	0.82000	0.00604	0.00700
2074.3201	62.69	1.00000	0.81000	0.00606	0.00699
2075.5229	63.11	1.00000	0.81000	0.00604	0.00698
2076.8440	62.82	1.00000	0.80000	0.00602	0.00697
2078.0471	62.69	1.00000	0.80000	0.00600	0.00697
2079.2029	62.65	1.00000	0.79000	0.00600	0.00696
2080.5779	62.74	1.00000	0.79000	0.00600	0.00696
2081.7339	62.78	1.01000	0.81000	0.00600	0.00696
2082.9380	62.67	1.01000	0.82000	0.00601	0.00696
2084.0940	62.65	1.00000	0.81000	0.00601	0.00696
2085.4141	62.74	1.00000	0.79000	0.00601	0.00695

2086.6169	62.65	1.00000	0.79000	0.00604	0.00695
2087.8831	62.74	1.00000	0.81000	0.00601	0.00695
2089.1479	62.67	1.00000	0.81000	0.00600	0.00695
2090.3521	62.71	1.00000	0.81000	0.00600	0.00695
2091.5630	62.76	1.00000	0.81000	0.00600	0.00695
2092.7190	62.78	1.00000	0.80000	0.00598	0.00695
2094.0940	62.76	1.00000	0.81000	0.00598	0.00695
2095.2419	62.80	1.00000	0.82000	0.00597	0.00695
2096.4529	62.80	1.00000	0.81000	0.00597	0.00695
2097.7729	62.98	1.00000	0.80000	0.00598	0.00695
2098.9839	62.65	1.00000	0.81000	0.00599	0.00695
2100.1880	62.80	1.00000	0.80000	0.00599	0.00695
2101.5000	62.78	1.00000	0.81000	0.00598	0.00696
2102.7109	62.74	1.00000	0.81000	0.00598	0.00695
2103.9221	62.91	1.00000	0.79000	0.00599	0.00695
2105.1331	62.83	1.00000	0.79000	0.00598	0.00695
2106.5000	62.87	1.00000	0.81000	0.00596	0.00696
2107.6479	62.78	1.00000	0.82000	0.00595	0.00696
2108.8589	62.83	1.00000	0.79000	0.00594	0.00697
2110.1799	62.89	1.00000	0.82000	0.00592	0.00697
2111.3279	62.94	1.00000	0.80000	0.00592	0.00697
2112.5391	62.91	1.00000	0.80000	0.00592	0.00697
2113.8589	62.98	1.00000	0.82000	0.00590	0.00696
2115.0081	62.98	1.00000	0.80000	0.00592	0.00697
2116.2190	62.94	1.00000	0.80000	0.00590	0.00696
2117.3831	62.89	1.00000	0.82000	0.00591	0.00696
2118.6880	62.94	1.00000	0.80000	0.00590	0.00696
2119.8979	62.96	1.00000	0.81000	0.00590	0.00696
2121.0630	61.30	1.00000	0.80000	0.00591	0.00696
2122.4299	63.00	1.00000	0.81000	0.00590	0.00695
2123.5779	62.98	1.00000	0.82000	0.00590	0.00695
2124.7419	62.96	1.00000	0.79000	0.00590	0.00695
2125.9529	63.05	1.00000	0.81000	0.00592	0.00695
2127.2581	62.96	1.00000	0.80000	0.00589	0.00695
2128.4690	62.96	1.00000	0.80000	0.00590	0.00695
2129.6331	63.05	1.00000	0.81000	0.00590	0.00695
2131.0000	63.07	1.00000	0.78000	0.00588	0.00695
2132.1479	63.11	1.00000	0.82000	0.00586	0.00695
2133.3589	63.07	1.00000	0.82000	0.00581	0.00695
2134.6799	63.03	1.00000	0.81000	0.00578	0.00695
2135.8911	62.94	1.00000	0.82000	0.00576	0.00694
2137.0391	63.25	1.00000	0.81000	0.00577	0.00694
2138.2971	62.98	1.00000	0.80000	0.00582	0.00694
2139.6169	63.09	1.00000	0.82000	0.00587	0.00695
2140.8279	63.09	1.00000	0.79000	0.00588	0.00695
2142.0391	63.16	1.00000	0.82000	0.00588	0.00696
2143.3589	63.14	1.00000	0.80000	0.00587	0.00695
2144.5630	63.16	1.00000	0.82000	0.00588	0.00694
2145.7190	63.14	1.00000	0.78000	0.00589	0.00694
2147.0391	63.25	1.00000	0.82000	0.00590	0.00695
2148.2419	63.16	1.00000	0.79000	0.00590	0.00695
2149.4529	63.18	1.00000	0.82000	0.00586	0.00694
2150.6089	62.92	1.00000	0.79000	0.00582	0.00694
2151.9221	63.25	1.00000	0.82000	0.00584	0.00694
2153.1331	63.23	0.99000	0.81000	0.00585	0.00694
2154.3979	63.25	0.99000	0.81000	0.00587	0.00694
2155.7109	63.30	0.99000	0.79000	0.00586	0.00694
2156.9221	63.25	0.99000	0.80000	0.00586	0.00694
2158.0779	63.36	0.99000	0.81000	0.00584	0.00694
2159.3911	63.34	0.99000	0.82000	0.00584	0.00694
2160.6021	63.39	0.99000	0.80000	0.00584	0.00694
2161.8130	63.25	1.00000	0.82000	0.00582	0.00694
2162.9609	63.45	0.99000	0.81000	0.00582	0.00694
2164.2810	63.27	0.99000	0.80000	0.00575	0.00693
2165.4919	63.21	0.99000	0.81000	0.00576	0.00694
2166.6411	63.27	0.99000	0.81000	0.00575	0.00694
2167.9609	63.41	0.99000	0.82000	0.00573	0.00694
2169.1169	63.23	0.99000	0.81000	0.00572	0.00694
2170.3201	63.30	0.99000	0.81000	0.00572	0.00694
2171.4839	63.70	0.99000	0.81000	0.00572	0.00696
2172.7971	63.36	0.99000	0.80000	0.00574	0.00694
2173.9529	63.34	0.99000	0.81000	0.00575	0.00694
2175.1641	63.38	0.99000	0.81000	0.00575	0.00693
2176.4839	63.36	0.99000	0.81000	0.00575	0.00694
2177.6799	63.25	0.99000	0.81000	0.00576	0.00694
2178.8440	63.36	0.99000	0.81000	0.00577	0.00694
2180.1641	63.34	0.99000	0.81000	0.00577	0.00695
2181.3589	63.27	0.99000	0.80000	0.00579	0.00695
2182.5701	63.34	0.99000	0.81000	0.00579	0.00695
2183.7339	63.30	0.99000	0.80000	0.00579	0.00695
2185.1021	63.43	0.99000	0.81000	0.00577	0.00695
2186.2500	63.38	0.99000	0.80000	0.00577	0.00695
2187.4609	63.30	0.99000	0.81000	0.00576	0.00696
2188.7810	63.38	0.99000	0.82000	0.00576	0.00695
2189.9919	63.32	0.99000	0.81000	0.00575	0.00695
2191.1411	63.34	0.99000	0.81000	0.00577	0.00694
2192.4609	63.43	0.99000	0.81000	0.00577	0.00694
2193.6721	63.30	0.99000	0.80000	0.00580	0.00694
2194.8201	63.43	1.00000	0.80000	0.00581	0.00694
2196.0310	63.50	0.99000	0.81000	0.00582	0.00694
2197.3521	63.36	1.00000	0.81000	0.00580	0.00696
2198.5000	63.45	0.99000	0.81000	0.00578	0.00695
2199.6641	63.52	1.00000	0.81000	0.00578	0.00694
2201.0310	63.48	0.99000	0.81000	0.00580	0.00694
2202.2419	63.39	0.99000	0.81000	0.00580	0.00694
2203.4380	63.63	0.99000	0.81000	0.00579	0.00695
2204.6021	63.48	0.99000	0.81000	0.00576	0.00694
2205.9221	63.61	0.99000	0.80000	0.00575	0.00696
2207.0701	63.68	0.99000	0.82000	0.00574	0.00696
2208.2810	63.59	0.99000	0.81000	0.00574	0.00695
2209.6021	63.68	0.99000	0.81000	0.00573	0.00694
2210.7500	63.50	0.99000	0.82000	0.00569	0.00694
2211.9609	63.61	0.99000	0.81000	0.00569	0.00693
2213.3279	63.68	0.99000	0.81000	0.00569	0.00693
2214.4839	63.74	0.99000	0.81000	0.00568	0.00693
2215.6411	63.68	0.99000	0.82000	0.00566	0.00693
2216.8521	63.68	0.99000	0.81000	0.00567	0.00695
2218.1641	63.81	0.99000	0.81000	0.00568	0.00695
2219.3669	63.79	0.99000	0.81000	0.00569	0.00696
2220.5779	63.83	0.99000	0.82000	0.00564	0.00696
2221.8440	63.90	0.99000	0.81000	0.00563	0.00696
2223.0471	63.81	0.99000	0.81000	0.00564	0.00696
2224.2109	63.92	0.99000	0.81000	0.00563	0.00697
2225.5310	63.79	0.99000	0.81000	0.00563	0.00697
2226.7339	63.81	0.99000	0.81000	0.00564	0.00697
2227.8911	63.85	0.99000	0.81000	0.00561	0.00697
2229.1021	63.94	0.99000	0.81000	0.00558	0.00697
2230.4141	63.99	0.99000	0.81000	0.00556	0.00696
2231.6169	64.10	0.99000	0.81000	0.00556	0.00697
2232.7810	64.04	0.99000	0.82000	0.00555	0.00697
2234.1479	64.06	0.99000	0.82000	0.00553	0.00696
2235.2971	64.12	0.99000	0.81000	0.00554	0.00696
2236.5081	64.15	0.99000	0.81000	0.00558	0.00696
2237.8279	64.06	0.99000	0.81000	0.00556	0.00696
2239.0391	64.17	0.98000	0.82000	0.00553	0.00696
2240.1880	64.17	0.99000	0.82000	0.00551	0.00696
2241.3979	64.28	0.99000	0.81000	0.00551	0.00696
2242.7190	64.24	0.99000	0.82000	0.00551	0.00696
2243.9299	64.26	0.99000	0.81000	0.00551	0.00696
2245.0779	64.19	0.99000	0.81000	0.00552	0.00696
2246.4529	64.28	0.99000	0.82000	0.00551	0.00696
2247.6089	64.30	0.99000	0.82000	0.00549	0.00696

2248.8130	64.26	0.99000	0.83000	0.00545	0.00696
2249.9690	64.46	0.99000	0.82000	0.00541	0.00696
2251.3440	64.30	0.99000	0.82000	0.00540	0.00696
2252.4919	64.37	0.99000	0.82000	0.00539	0.00696
2253.7029	64.39	0.99000	0.83000	0.00537	0.00696
2255.0229	64.50	0.99000	0.82000	0.00534	0.00696
2256.1721	64.37	0.99000	0.83000	0.00533	0.00696
2257.3831	64.44	0.99000	0.82000	0.00533	0.00696
2258.7029	64.53	0.99000	0.83000	0.00532	0.00696
2259.9141	64.55	0.98000	0.82000	0.00531	0.00696
2261.0630	64.31	0.98000	0.82000	0.00530	0.00696
2262.2729	64.55	0.98000	0.82000	0.00529	0.00696
2263.5940	62.41	0.98000	0.83000	0.00527	0.00696
2264.7419	64.53	0.98000	0.83000	0.00525	0.00695
2265.9529	64.71	0.98000	0.82000	0.00525	0.00695
2267.3201	64.66	0.98000	0.82000	0.00526	0.00695
2268.4839	64.57	0.98000	0.82000	0.00527	0.00695
2269.6331	64.39	0.98000	0.82000	0.00528	0.00695
2271.0000	64.82	0.98000	0.82000	0.00529	0.00695
2272.1641	64.71	0.98000	0.82000	0.00528	0.00695
2273.3669	64.91	0.98000	0.83000	0.00526	0.00695
2274.5229	64.86	0.99000	0.83000	0.00524	0.00724
2275.8440	65.04	0.98000	0.83000	0.00521	0.00838
2276.9919	64.84	0.98000	0.83000	0.00517	0.01219
2278.2029	64.98	0.98000	0.83000	0.00517	0.01280
2279.5229	64.93	0.98000	0.83000	0.00515	0.01160
2280.7339	65.00	0.98000	0.83000	0.00516	0.01032
2281.8831	65.00	0.98000	0.83000	0.00515	0.01111
2283.0940	65.04	0.98000	0.83000	0.00513	0.01711
2284.4141	65.00	0.98000	0.83000	0.00513	0.01611
2285.6089	65.11	0.98000	0.83000	0.00513	0.01354
2286.7729	65.07	0.98000	0.83000	0.00511	0.01482
2288.1411	65.18	0.98000	0.83000	0.00509	0.02060
2289.3521	65.24	0.98000	0.83000	0.00509	0.01818
2290.6089	65.31	0.98000	0.83000	0.00509	0.01766
2291.9299	65.40	0.98000	0.83000	0.00507	0.01662
2293.1411	65.31	0.98000	0.83000	0.00507	0.01831
2294.3979	65.47	0.98000	0.83000	0.00508	0.01542
2295.6089	65.40	0.98000	0.83000	0.00507	0.01952
2296.9299	65.56	0.98000	0.84000	0.00505	0.02037
2298.1880	65.54	0.98000	0.84000	0.00502	0.02904
2299.3979	65.65	0.98000	0.84000	0.00500	0.04095
2300.7190	65.67	0.98000	0.83000	0.00500	0.04027
2301.9839	65.74	0.98000	0.83000	0.00501	0.03456
2303.1880	65.87	0.98000	0.84000	0.00498	0.03339
2304.5630	65.89	0.98000	0.84000	0.00495	0.04947
2305.7729	65.03	0.98000	0.84000	0.00493	0.05468
2306.9839	65.98	0.98000	0.84000	0.00492	0.05410
2308.2419	65.96	0.98000	0.84000	0.00490	0.06308
2309.6169	66.09	0.98000	0.84000	0.00488	0.06961
2310.7729	66.05	0.98000	0.84000	0.00486	0.07723
2312.0310	66.14	0.98000	0.84000	0.00485	0.08302
2313.3521	66.23	0.98000	0.85000	0.00482	0.08831
2314.5630	66.25	0.98000	0.85000	0.00476	0.09706
2315.8201	66.18	0.98000	0.85000	0.00472	0.10325
2317.2029	66.30	0.98000	0.85000	0.00468	0.10908
2318.3979	66.41	0.98000	0.85000	0.00463	0.11264
2319.6721	66.45	0.98000	0.85000	0.00460	0.11487
2320.8831	66.54	0.98000	0.85000	0.00459	0.11639
2322.2500	66.56	0.98000	0.85000	0.00458	0.11807
2323.4609	66.56	0.98000	0.85000	0.00456	0.11933
2324.7190	66.70	0.98000	0.85000	0.00455	0.11952
2326.0940	66.65	0.98000	0.85000	0.00455	0.11541
2327.3589	66.81	0.98000	0.85000	0.00454	0.11893
2328.5701	66.76	0.98000	0.86000	0.00452	0.12180
2329.8279	66.85	0.98000	0.85000	0.00452	0.12286
2331.1479	67.01	0.98000	0.86000	0.00450	0.12264
2332.4141	67.16	0.98000	0.86000	0.00449	0.12430
2333.6169	67.05	0.98000	0.86000	0.00448	0.12523
2334.9919	67.19	0.98000	0.86000	0.00447	0.12540
2336.2500	67.32	0.98000	0.86000	0.00445	0.12762
2337.4609	67.28	0.98000	0.86000	0.00443	0.12913
2338.8440	67.45	0.98000	0.86000	0.00441	0.13174
2340.0391	67.43	0.98000	0.86000	0.00441	0.13271
2341.3130	67.50	0.98000	0.86000	0.00441	0.13306
2342.5229	67.52	0.98000	0.86000	0.00442	0.13278
2343.9380	67.66	0.98000	0.86000	0.00441	0.13288
2345.1479	67.68	0.98000	0.86000	0.00440	0.13206
2346.4221	67.74	0.98000	0.86000	0.00437	0.13281
2347.7891	67.74	0.98000	0.86000	0.00433	0.13489
2349.0471	67.81	0.98000	0.86000	0.00431	0.13628
2350.2109	68.01	0.98000	0.87000	0.00429	0.13762
2351.5779	68.06	0.98000	0.87000	0.00424	0.13941
2352.8440	68.01	0.98000	0.87000	0.00422	0.14069
2354.0471	68.08	0.98000	0.87000	0.00421	0.14112
2355.3130	68.21	0.98000	0.87000	0.00420	0.14097
2356.6331	68.30	0.98000	0.87000	0.00419	0.14063
2357.7891	68.37	0.98000	0.87000	0.00419	0.14051
2358.9380	68.50	0.98000	0.87000	0.00418	0.14097
2360.3130	68.57	0.98000	0.87000	0.00417	0.14167
2361.4690	68.55	0.98000	0.87000	0.00417	0.14233
2362.6169	68.70	0.98000	0.87000	0.00415	0.14215
2363.8279	68.64	0.98000	0.87000	0.00412	0.14329
2365.2029	68.66	0.98000	0.87000	0.00409	0.14460
2366.3521	68.77	0.98000	0.87000	0.00407	0.14480
2367.5630	68.93	0.98000	0.87000	0.00405	0.14595
2368.8279	68.93	0.98000	0.88000	0.00403	0.14698
2369.9839	68.95	0.98000	0.88000	0.00400	0.14848
2371.1880	69.01	0.98000	0.88000	0.00399	0.14864
2372.5081	69.01	0.98000	0.88000	0.00398	0.14968
2373.6641	69.13	0.98000	0.88000	0.00396	0.15034
2374.8669	69.22	0.98000	0.88000	0.00395	0.15102
2376.0229	69.19	0.98000	0.88000	0.00393	0.15163
2377.3911	69.22	0.98000	0.88000	0.00391	0.15172
2378.5471	69.24	0.98000	0.88000	0.00390	0.15187
2379.7029	69.33	0.98000	0.88000	0.00388	0.15218
2381.0701	66.63	0.98000	0.88000	0.00387	0.15229
2382.2339	69.44	0.98000	0.88000	0.00385	0.15209
2383.4380	69.39	0.97000	0.88000	0.00383	0.15256
2384.7500	69.53	0.97000	0.88000	0.00382	0.15261
2385.9609	69.53	0.97000	0.88000	0.00381	0.15237
2387.1169	69.13	0.97000	0.88000	0.00381	0.15248
2388.3201	69.55	0.98000	0.88000	0.00381	0.15272
2389.6411	69.71	0.97000	0.88000	0.00379	0.15365
2390.7971	69.77	0.97000	0.88000	0.00379	0.15355
2392.0000	69.82	0.98000	0.88000	0.00378	0.15318
2393.3201	69.84	0.98000	0.88000	0.00377	0.15403
2394.5310	69.93	0.98000	0.88000	0.00377	0.15436
2395.7419	69.86	0.98000	0.88000	0.00377	0.15437
2397.0000	70.00	0.98000	0.88000	0.00376	0.15517
2398.2109	70.07	0.98000	0.88000	0.00374	0.15567
2399.3589	70.09	0.98000	0.88000	0.00374	0.15519
2400.5701	69.89	0.98000	0.88000	0.00373	0.15565
2401.8911	70.07	0.98000	0.89000	0.00372	0.15648
2403.0391	70.62	0.98000	0.89000	0.00370	0.15679
2404.2500	70.27	0.98000	0.89000	0.00368	0.15716
2405.6331	70.27	0.97000	0.88000	0.00366	0.15749
2406.7810	70.40	0.97000	0.88000	0.00365	0.15744
2407.9299	74.23	0.98000	0.89000	0.00365	0.15737
2409.1411	70.38	0.98000	0.88000	0.00365	0.15744
2410.4609	70.54	0.97000	0.88000	0.00363	0.15778
2411.6721	70.61	0.97000	0.89000	0.00362	0.15771

2412.8831	70.63	0.97000	0.89000	0.00361	0.15797
2414.1880	70.83	0.97000	0.89000	0.00360	0.15840
2415.3521	70.74	0.97000	0.89000	0.00360	0.15850
2416.5630	70.90	0.97000	0.89000	0.00359	0.15822
2417.8669	70.96	0.97000	0.89000	0.00359	0.15834
2419.0310	70.96	0.97000	0.89000	0.00360	0.15833
2420.1799	70.87	0.97000	0.89000	0.00360	0.15874
2421.3911	71.05	0.97000	0.89000	0.00360	0.15863
2422.6479	71.12	0.97000	0.89000	0.00360	0.15862
2423.8589	71.01	0.98000	0.89000	0.00360	0.15880
2425.0081	71.12	0.97000	0.89000	0.00360	0.15815
2426.3279	71.12	0.98000	0.89000	0.00359	0.15899
2427.4919	71.12	0.97000	0.89000	0.00358	0.15882
2428.6411	71.12	0.97000	0.89000	0.00358	0.15875
2429.9609	71.17	0.97000	0.89000	0.00358	0.15915
2431.1089	71.10	0.97000	0.89000	0.00357	0.15904
2432.3201	71.14	0.98000	0.89000	0.00356	0.15919
2433.4221	71.21	0.97000	0.89000	0.00356	0.15930
2434.7891	71.25	0.98000	0.89000	0.00356	0.15899
2435.9380	71.25	0.98000	0.89000	0.00356	0.15963
2437.1479	71.14	0.97000	0.89000	0.00355	0.15962
2438.4690	71.23	0.97000	0.89000	0.00355	0.16039
2439.6799	68.47	0.97000	0.89000	0.00354	0.16049
2440.8279	71.23	0.97000	0.89000	0.00353	0.16028
2442.0391	71.34	0.97000	0.89000	0.00353	0.16081
2443.3589	71.30	0.97000	0.89000	0.00352	0.16079
2444.5081	71.23	0.97000	0.89000	0.00350	0.16094
2445.7190	71.27	0.97000	0.89000	0.00350	0.16075
2447.0391	71.32	0.97000	0.89000	0.00348	0.16067
2448.2500	71.39	0.97000	0.89000	0.00347	0.16056
2449.3979	71.37	0.98000	0.89000	0.00347	0.16111
2450.7729	71.39	0.98000	0.89000	0.00346	0.16161
2451.9299	71.41	0.98000	0.89000	0.00346	0.16208
2453.0779	71.43	0.97000	0.89000	0.00345	0.16286
2454.2891	71.52	0.98000	0.89000	0.00346	0.16288
2455.6089	71.50	0.97000	0.89000	0.00345	0.16336
2456.7581	71.48	0.98000	0.89000	0.00344	0.16299
2457.9141	71.50	0.98000	0.89000	0.00344	0.16289
2459.2891	71.52	0.98000	0.89000	0.00344	0.16322
2460.4380	71.48	0.98000	0.89000	0.00344	0.16328
2461.6479	71.63	0.98000	0.89000	0.00343	0.16359
2462.9690	71.57	0.98000	0.89000	0.00342	0.16369
2464.1799	71.61	0.98000	0.89000	0.00342	0.16381
2465.3279	71.61	0.98000	0.89000	0.00342	0.16386
2466.5391	71.68	0.97000	0.89000	0.00340	0.16355
2467.7971	71.68	0.98000	0.90000	0.00340	0.16408
2469.0081	71.77	0.98000	0.90000	0.00338	0.16419
2470.1641	71.52	0.97000	0.90000	0.00338	0.16440
2471.4839	71.79	0.98000	0.90000	0.00337	0.16483
2472.6880	71.77	0.97000	0.90000	0.00335	0.16501
2473.8979	71.97	0.97000	0.90000	0.00335	0.16490
2475.1641	71.79	0.97000	0.90000	0.00333	0.16463
2476.3669	71.79	0.97000	0.90000	0.00332	0.16495
2477.5229	71.88	0.98000	0.90000	0.00332	0.16546
2478.6799	71.95	0.98000	0.90000	0.00331	0.16561
2479.9919	71.93	0.98000	0.90000	0.00331	0.16636
2481.1479	71.97	0.98000	0.90000	0.00330	0.16688
2482.3589	71.04	0.98000	0.90000	0.00330	0.16683
2483.6721	72.08	0.98000	0.90000	0.00329	0.16699
2484.8279	71.97	0.98000	0.90000	0.00328	0.16708
2485.9839	72.19	0.97000	0.90000	0.00326	0.16772
2487.1880	72.19	0.97000	0.90000	0.00325	0.16747
2488.5630	72.06	0.97000	0.90000	0.00323	0.16729
2489.7190	72.37	0.97000	0.90000	0.00321	0.16772
2490.9221	72.44	0.97000	0.90000	0.00318	0.16807
2492.1880	72.26	0.97000	0.90000	0.00318	0.16867
2493.3440	72.46	0.97000	0.90000	0.00317	0.16876
2494.5471	72.73	0.97000	0.90000	0.00315	0.16892
2495.8669	72.48	0.97000	0.90000	0.00312	0.16905
2497.0229	72.51	0.97000	0.90000	0.00311	0.16907
2498.1799	72.53	0.98000	0.90000	0.00309	0.16893
2499.3831	72.62	0.97000	0.90000	0.00307	0.16964
2500.6479	72.73	0.97000	0.91000	0.00306	0.16986
2501.8589	72.69	0.97000	0.91000	0.00304	0.17036
2503.0081	72.82	0.97000	0.91000	0.00303	0.17128
2504.3831	72.80	0.97000	0.91000	0.00301	0.17127
2505.5391	72.78	0.97000	0.91000	0.00299	0.17234
2506.7419	72.78	0.98000	0.91000	0.00298	0.17216
2508.0630	72.91	0.97000	0.91000	0.00296	0.17238
2509.2190	72.98	0.98000	0.91000	0.00295	0.17309
2510.4221	73.05	0.98000	0.91000	0.00294	0.17345
2511.6331	72.34	0.97000	0.91000	0.00293	0.17425
2512.9529	73.09	0.97000	0.91000	0.00290	0.17456
2514.1641	73.20	0.97000	0.91000	0.00289	0.17474
2515.3130	73.16	0.98000	0.91000	0.00288	0.17521
2516.6331	72.56	0.97000	0.91000	0.00286	0.17452
2517.7810	73.83	0.97000	0.91000	0.00285	0.17462
2518.9919	73.32	0.97000	0.91000	0.00284	0.17534
2520.1479	73.29	0.97000	0.91000	0.00283	0.17541
2521.5229	73.49	0.97000	0.91000	0.00282	0.17559
2522.6721	73.47	0.97000	0.91000	0.00281	0.17609
2523.8831	73.45	0.97000	0.91000	0.00280	0.17617
2525.2029	73.47	0.97000	0.91000	0.00278	0.17680
2526.4141	73.58	0.97000	0.91000	0.00278	0.17736
2527.5630	73.65	0.97000	0.91000	0.00277	0.17709
2528.8831	72.77	0.97000	0.91000	0.00277	0.17685
2530.0940	73.72	0.97000	0.91000	0.00276	0.17697
2531.2971	73.78	0.97000	0.91000	0.00275	0.17766
2532.3911	73.81	0.97000	0.91000	0.00274	0.17785
2533.7109	73.78	0.97000	0.91000	0.00272	0.17831
2534.9221	73.98	0.97000	0.91000	0.00271	0.17852
2536.0701	74.01	0.97000	0.92000	0.00271	0.17896
2537.4529	74.03	0.97000	0.92000	0.00270	0.17888
2538.6021	74.12	0.97000	0.92000	0.00269	0.17881
2539.7500	74.16	0.98000	0.92000	0.00271	0.17887
2541.1331	74.27	0.98000	0.92000	0.00271	0.17918
2542.2810	74.25	0.98000	0.92000	0.00270	0.17951
2543.4919	74.36	0.98000	0.92000	0.00270	0.17993
2544.6411	74.36	0.98000	0.92000	0.00269	0.18020
2545.9609	74.43	0.98000	0.92000	0.00269	0.18095
2547.1721	74.56	0.98000	0.92000	0.00269	0.18069
2548.3831	74.63	0.98000	0.92000	0.00268	0.18079
2549.6411	74.61	0.98000	0.92000	0.00267	0.18156
2550.8521	74.61	0.98000	0.92000	0.00267	0.18124
2552.0000	74.70	0.98000	0.92000	0.00267	0.18147
2553.3201	74.81	0.98000	0.92000	0.00266	0.18152
2554.5310	74.97	0.98000	0.92000	0.00265	0.18132
2555.6799	74.94	0.97000	0.92000	0.00262	0.18160
2556.8911	74.99	0.97000	0.92000	0.00259	0.18129
2558.2109	75.03	0.97000	0.92000	0.00257	0.18105
2559.4221	75.10	0.97000	0.92000	0.00256	0.18143
2560.5701	75.19	0.97000	0.92000	0.00254	0.18093
2561.9380	75.81	0.97000	0.92000	0.00253	0.18074
2563.1021	75.14	0.97000	0.92000	0.00253	0.18048
2564.2500	75.30	0.97000	0.92000	0.00253	0.18012
2565.4609	75.46	0.97000	0.92000	0.00253	0.17988
2566.7810	75.39	0.97000	0.92000	0.00255	0.18037
2567.9299	75.52	0.97000	0.92000	0.00255	0.18033
2569.0779	75.54	0.97000	0.92000	0.00255	0.18040
2570.4609	75.57	0.97000	0.92000	0.00255	0.18105
2571.6089	75.68	0.97000	0.92000	0.00254	0.18107
2572.8201	75.77	0.97000	0.92000	0.00252	0.18068

2574.1411	75.79	0.97000	0.92000	0.00251	0.18023
2575.3521	75.74	0.97000	0.92000	0.00250	0.18014
2576.5000	75.86	0.97000	0.92000	0.00250	0.16521
2577.6479	76.10	0.97000	0.92000	0.00247	0.12215
2579.0310	75.88	0.97000	0.92000	0.00244	0.08717
2580.1799	76.13	0.97000	0.92000	0.00242	0.06537
2581.3911	76.06	0.97000	0.92000	0.00238	0.04998
2582.6479	76.01	0.97000	0.92000	0.00232	0.03758
2583.8589	76.03	0.97000	0.92000	0.00228	0.02967
2585.0081	76.15	0.97000	0.92000	0.00224	0.02376

2) GN021

Time	Tts	Ps&(Pa)	Pts(Pa)	Ws	Winj	Wnat
1.5900	29.88	143000.0	140579.0	0.00083	0.00710	0.04125
2.8520	29.93	143000.0	140579.0	0.00083	0.00710	0.04125
4.1210	29.93	143000.0	140579.0	0.00083	0.00710	0.04125
5.3790	29.86	143000.0	140579.0	0.00083	0.00710	0.04125
6.8590	29.86	143000.0	140579.0	0.00083	0.00710	0.04125
8.1210	29.88	143000.0	140579.0	0.00083	0.00710	0.04125
9.3910	29.86	143000.0	140579.0	0.00083	0.01580	0.04125
10.8200	29.91	143000.0	125246.0	0.00089	0.14470	0.10125
12.1290	29.84	142000.0	123852.0	0.00094	0.21520	0.16500
13.3980	29.84	143000.0	121065.0	0.00099	0.26100	0.21375
14.6090	29.93	143000.0	119671.0	0.00101	0.28860	0.24750
16.0310	30.06	142000.0	118277.0	0.00102	0.30910	0.22875
17.3520	30.04	142000.0	116883.0	0.00105	0.31990	0.19500
18.6210	30.17	142000.0	116883.0	0.00112	0.32800	0.17250
20.0390	30.35	142000.0	116883.0	0.00142	0.33630	0.15750
21.3090	30.41	142000.0	118277.0	0.00247	0.34160	0.14250
22.6290	30.72	142000.0	122458.0	0.00337	0.34650	0.13875
24.0510	31.16	142000.0	118277.0	0.00414	0.35010	0.13500
25.3710	31.51	141000.0	119671.0	0.00465	0.35260	0.13500
26.6910	32.20	141000.0	118277.0	0.00502	0.35390	0.13125
27.9490	32.86	141000.0	118277.0	0.00531	0.35540	0.12750
29.3280	33.39	141000.0	111307.0	0.00572	0.35140	0.12750
30.5900	34.03	141000.0	111307.0	0.00613	0.34330	0.12750
31.9100	34.35	141000.0	108520.0	0.00662	0.33120	0.12750
33.3910	34.48	141000.0	104338.0	0.00713	0.31590	0.13125
34.6480	34.63	140000.0	102944.0	0.00754	0.30350	0.13500
35.8590	34.81	140000.0	102944.0	0.00786	0.29480	0.13500
37.2890	35.14	141000.0	101550.0	0.00812	0.28360	0.13500
38.5510	35.23	141000.0	101550.0	0.00844	0.27620	0.13500
39.8710	35.16	141000.0	98763.0	0.00863	0.27180	0.13500
41.1410	35.54	141000.0	101550.0	0.00886	0.26530	0.13500
42.5590	35.64	140000.0	109914.0	0.00909	0.25980	0.13500
43.8280	35.73	140000.0	105732.0	0.00918	0.25670	0.13125
45.0900	35.93	140000.0	100157.0	0.00934	0.25340	0.13125
46.5700	36.13	141000.0	109914.0	0.00955	0.25160	0.12750
47.8400	36.20	140000.0	100157.0	0.00974	0.25060	0.13125
49.1020	36.33	140000.0	109914.0	0.00974	0.25140	0.13125
50.5310	36.55	141000.0	112701.0	0.00975	0.24950	0.13500
51.8520	36.73	140000.0	114095.0	0.00974	0.24900	0.13500
53.1090	36.77	140000.0	119671.0	0.00970	0.24810	0.13875
54.4300	36.75	140000.0	116883.0	0.00974	0.24680	0.13500
55.9100	36.97	141000.0	112701.0	0.00991	0.24730	0.13500
57.2300	37.22	141000.0	119671.0	0.00993	0.24820	0.13875
58.5510	37.44	141000.0	118277.0	0.00990	0.24880	0.13875
59.9690	37.70	141000.0	118277.0	0.00987	0.24820	0.14250
61.2380	37.75	141000.0	116883.0	0.00984	0.24770	0.13500
62.5000	37.88	141000.0	119671.0	0.00982	0.24920	0.13500
63.9800	37.90	141000.0	121065.0	0.00976	0.25070	0.13875
65.2500	37.93	140000.0	121065.0	0.00966	0.25120	0.13500
66.5120	37.97	140000.0	121065.0	0.00968	0.25300	0.13125
67.7190	37.99	140000.0	116883.0	0.00972	0.25390	0.13125
69.1480	38.04	140000.0	122458.0	0.00972	0.25420	0.13125
70.4690	38.15	140000.0	123852.0	0.00974	0.25430	0.12750
71.7300	38.39	140000.0	118277.0	0.00981	0.25220	0.12750
73.1600	38.50	141000.0	128034.0	0.00976	0.25170	0.12750
74.4220	38.77	140000.0	129428.0	0.00971	0.25350	0.12750
75.7380	38.85	140000.0	132216.0	0.00964	0.25280	0.13125
77.1720	39.12	140000.0	126640.0	0.00969	0.25330	0.12750
78.4300	39.36	140000.0	128034.0	0.00969	0.25790	0.12750
79.6910	39.63	140000.0	130822.0	0.00963	0.25580	0.13125
81.0120	39.83	140000.0	135003.0	0.00967	0.25550	0.13125
82.4880	39.87	140000.0	129428.0	0.00969	0.25560	0.13125
83.8090	39.94	140000.0	129428.0	0.00971	0.25330	0.12750
85.1290	40.25	139000.0	135003.0	0.00964	0.25410	

0.12750
86.5590 40.49 139000.0 125246.0 0.00963 0.25380
0.12750
87.8200 40.49 139000.0 129428.0 0.00964 0.25290
0.12750
89.1410 40.67 139000.0 130822.0 0.00963 0.25150
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90.6210 40.76 140000.0 128034.0 0.00974 0.25230
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91.8280 41.09 140000.0 130822.0 0.00978 0.25050
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93.1480 41.35 139000.0 129428.0 0.00977 0.25010
0.13500
94.4690 41.48 140000.0 147548.0 0.00976 0.24970
0.13125
95.8980 41.62 139000.0 133609.0 0.00973 0.24810
0.13500
97.1600 41.64 129000.0 135003.0 0.00975 0.24770
0.13125
98.4220 41.62 139000.0 129428.0 0.00979 0.24850
0.13125
99.8010 41.84 139000.0 129428.0 0.00985 0.24970
0.13125
101.1090 41.93 139000.0 136397.0 0.00986 0.24730
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102.4300 42.01 139000.0 128034.0 0.00979 0.24720
0.13125
103.8590 42.12 139000.0 130822.0 0.00995 0.24440
0.13875
105.1210 42.21 139000.0 130822.0 0.00999 0.24360
0.13875
106.4410 42.50 139000.0 130822.0 0.01004 0.24360
0.14250
107.6990 42.68 139000.0 133609.0 0.00996 0.24430
0.13500
109.1290 42.99 139000.0 132216.0 0.00990 0.24490
0.13500
110.4490 42.92 139000.0 137791.0 0.00985 0.24490
0.13875
111.7110 42.92 139000.0 133609.0 0.00984 0.24670
0.14250
113.1410 42.90 139000.0 130822.0 0.00987 0.24640
0.14250
114.4100 43.03 139000.0 126640.0 0.00989 0.24640
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115.7190 43.08 139000.0 130822.0 0.00999 0.24510
0.14625
117.0390 43.21 139000.0 130822.0 0.01002 0.24360
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118.4220 43.36 139000.0 132216.0 0.00999 0.24450
0.14250
119.7890 43.50 139000.0 136397.0 0.00985 0.24310
0.14250
121.1090 43.56 139000.0 132216.0 0.00974 0.24500
0.13875
122.5310 43.65 139000.0 132216.0 0.00981 0.24450
0.13875
123.8010 43.67 139000.0 135003.0 0.00983 0.24390
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125.1210 43.98 138000.0 129428.0 0.00987 0.24360
0.13875
126.5390 44.27 138000.0 126640.0 0.00989 0.24530
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127.8090 44.40 138000.0 132216.0 0.00991 0.24630
0.13500
129.0700 44.62 138000.0 132216.0 0.00993 0.24430
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130.3280 44.74 138000.0 136397.0 0.00988 0.24330
0.13875
131.8200 44.96 138000.0 130822.0 0.00988 0.24450
0.13875
133.0780 45.05 138000.0 128034.0 0.00987 0.24510
0.12750
134.3980 45.24 138000.0 132216.0 0.00995 0.24240
0.12750
135.8280 45.29 138000.0 130822.0 0.00996 0.24060
0.12750
137.0900 45.29 138000.0 130822.0 0.00994 0.23900
0.12750
138.3520 45.44 138000.0 128034.0 0.00995 0.24090
0.12750
139.7810 45.69 138000.0 130822.0 0.00995 0.24310
0.12375
140.9880 45.93 138000.0 129428.0 0.00994 0.24110
0.13125
142.3090 46.26 138000.0 129428.0 0.00995 0.24150
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143.6290 46.24 138000.0 129428.0 0.01001 0.24200
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145.0510 46.44 138000.0 129428.0 0.00994 0.24080
0.12375
146.3200 46.39 138000.0 130822.0 0.00994 0.24070
0.12750
147.5310 46.55 138000.0 129428.0 0.00997 0.24000
0.12750
148.9490 46.64 138000.0 129428.0 0.01004 0.24040
0.12750
150.1600 46.75 138000.0 129428.0 0.01002 0.24210
0.12750
151.4800 46.75 138000.0 130822.0 0.01004 0.24170
0.13125
152.9100 46.97 138000.0 128034.0 0.01009 0.24070
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154.2300 46.79 138000.0 128034.0 0.01012 0.24040
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155.4880 46.79 138000.0 129428.0 0.01010 0.23960
0.12750
156.7500 46.81 138000.0 129428.0 0.01009 0.24090
0.12375
158.2380 46.88 138000.0 129428.0 0.01005 0.24090
0.12375
159.5510 46.97 138000.0 129428.0 0.01006 0.23960
0.12375
160.8200 46.99 138000.0 128034.0 0.01004 0.23980
0.12375
162.2500 47.08 138000.0 132216.0 0.01006 0.24170
0.12375
163.5120 47.28 138000.0 125246.0 0.01005 0.24240
0.12375
164.8280 47.32 138000.0 126640.0 0.00999 0.24220
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166.2620 47.41 138000.0 126640.0 0.01002 0.24180
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167.5700 47.39 137000.0 125246.0 0.01003 0.24270
0.12750
168.8400 47.48 137000.0 125246.0 0.01007 0.24420
0.12750
170.1600 47.37 137000.0 130822.0 0.00993 0.24360
0.12750
171.5310 47.52 137000.0 126640.0 0.00984 0.24250
0.12750
172.8520 47.59 137000.0 125246.0 0.00986 0.24040

0.12750						
174.1090	47.68	137000.0	126640.0	0.00990	0.24190	
0.12750						
175.5390	47.70	137000.0	128034.0	0.00999	0.24000	
0.13125						
176.8590	47.74	137000.0	126640.0	0.01001	0.23990	
0.12750						
178.0590	47.85	137000.0	128034.0	0.01002	0.23910	
0.12375						
179.5510	47.96	137000.0	125246.0	0.01007	0.23860	
0.13125						
180.8090	48.10	137000.0	125246.0	0.01009	0.23970	
0.13125						
182.0700	48.12	137000.0	126640.0	0.01007	0.24110	
0.12750						
183.2810	48.19	137000.0	128034.0	0.01004	0.24140	
0.13125						
184.7110	48.28	137000.0	128034.0	0.01006	0.24090	
0.13500						
185.9690	48.56	137000.0	126640.0	0.01010	0.23990	
0.13875						
187.2380	48.72	138000.0	128034.0	0.01015	0.23960	
0.14250						
188.7190	48.92	137000.0	126640.0	0.01017	0.24030	
0.13875						
189.9800	49.16	137000.0	126640.0	0.01015	0.24080	
0.13875						
191.3010	49.21	137000.0	123852.0	0.01018	0.23980	
0.14250						
192.6720	49.34	137000.0	123852.0	0.01016	0.24060	
0.14250						
193.9880	49.32	137000.0	126640.0	0.01015	0.23990	
0.13875						
195.2620	49.29	137000.0	126640.0	0.01013	0.24170	
0.13500						
196.5200	49.23	137000.0	126640.0	0.01010	0.24220	
0.13125						
197.8910	49.12	137000.0	125246.0	0.01009	0.24270	
0.13125						
199.2110	49.14	137000.0	125246.0	0.01010	0.24240	
0.13500						
200.5310	49.09	137000.0	123852.0	0.01003	0.24250	
0.13875						
201.9610	49.09	137000.0	126640.0	0.01003	0.24250	
0.13875						
203.1720	49.01	137000.0	125246.0	0.01000	0.24200	
0.13875						
204.4300	49.10	137000.0	126640.0	0.01003	0.24120	
0.14250						
205.8010	49.18	137000.0	123852.0	0.01005	0.24070	
0.14250						
207.1210	49.29	137000.0	125246.0	0.01008	0.24010	
0.14250						
208.4410	49.41	137000.0	123852.0	0.01013	0.23900	
0.14625						
209.6990	49.41	137000.0	125246.0	0.01011	0.23840	
0.14625						
211.1800	49.47	137000.0	125246.0	0.01012	0.23910	
0.14250						
212.4490	49.41	136000.0	125246.0	0.01009	0.23940	
0.13875						
213.7110	49.56	136000.0	123852.0	0.01006	0.24080	
0.13500						
215.1410	49.56	136000.0	123852.0	0.01002	0.24140	
0.13500						
216.4610	49.61	136000.0	123852.0	0.01007	0.24070	
0.14250						
217.7190	49.58	136000.0	122458.0	0.01010	0.23950	
0.14250						
219.1990	49.63	137000.0	122458.0	0.01015	0.23710	
0.14625						
220.4100	49.80	137000.0	123852.0	0.01018	0.23620	
0.15000						
221.7300	49.87	136000.0	123852.0	0.01017	0.23620	
0.15000						
223.0510	50.00	136000.0	122458.0	0.01015	0.23620	
0.15000						
224.4800	50.18	136000.0	122458.0	0.01016	0.23670	
0.14625						
225.7380	50.36	136000.0	123852.0	0.01007	0.23750	
0.14250						
227.0590	50.49	136000.0	125246.0	0.01008	0.23720	
0.14625						
228.4880	50.76	136000.0	123852.0	0.01013	0.23730	
0.14625						
229.8010	50.92	136000.0	122458.0	0.01015	0.23760	
0.14250						
231.1210	51.05	137000.0	121065.0	0.01017	0.23690	
0.14625						
232.4410	51.14	136000.0	123852.0	0.01018	0.23810	
0.15000						
233.9220	51.27	137000.0	123852.0	0.01016	0.23780	
0.14625						
235.1910	51.47	136000.0	121065.0	0.01016	0.23860	
0.14250						
236.5120	51.63	136000.0	121065.0	0.01013	0.24020	
0.15000						
237.9880	51.67	136000.0	121065.0	0.01012	0.23960	
0.15000						
239.2500	51.83	135000.0	123852.0	0.01006	0.24010	
0.15000						
240.4610	51.94	136000.0	121065.0	0.00998	0.24130	
0.14250						
241.8910	52.00	136000.0	121065.0	0.00997	0.24170	
0.14250						
243.1480	52.27	136000.0	122458.0	0.00994	0.24160	
0.13875						
244.4100	52.38	136000.0	122458.0	0.00996	0.24130	
0.13875						
245.7300	52.40	136000.0	122458.0	0.01000	0.23950	
0.13500						
247.1600	52.51	135000.0	122458.0	0.00998	0.23870	
0.13500						
248.4800	52.71	135000.0	122458.0	0.00994	0.23950	
0.13125						
249.8010	52.78	135000.0	119671.0	0.00992	0.24030	
0.13125						
251.1720	52.67	135000.0	119671.0	0.00996	0.23890	
0.13125						
252.4300	52.78	136000.0	118277.0	0.01002	0.23810	
0.13125						
253.7500	52.89	135000.0	121065.0	0.01001	0.23870	
0.13125						
255.1800	52.85	135000.0	121065.0	0.01000	0.23770	
0.13125						
256.5000	52.94	136000.0	119671.0	0.01007	0.23720	
0.12750						
257.7620	53.05	136000.0	118277.0	0.01009	0.23720	
0.13500						
259.0200	53.09	135000.0	118277.0	0.01005	0.23810	
0.13125						
260.5120	53.25	135000.0	121065.0	0.00999	0.23870	

0.13125
261.7700 53.25 136000.0 119671.0 0.01007 0.23830
0.13500
263.0310 53.40 135000.0 119671.0 0.01012 0.23630
0.13500
264.4100 53.49 135000.0 121065.0 0.01014 0.23540
0.13125
265.7300 53.53 136000.0 119671.0 0.01015 0.23570
0.14250
267.0390 53.73 135000.0 118277.0 0.01015 0.23600
0.14250
268.4690 53.87 135000.0 119671.0 0.01016 0.23610
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0.14625
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0.14250
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0.14250
275.0590 54.87 135000.0 118277.0 0.01022 0.23350
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279.0200 55.40 135000.0 118277.0 0.01021 0.23390
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0.13875
281.8200 55.58 135000.0 121065.0 0.01018 0.23480
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284.3520 55.58 135000.0 119671.0 0.01003 0.23900
0.13125
285.6600 55.67 135000.0 118277.0 0.01003 0.24110
0.13125
287.0900 55.89 135000.0 118277.0 0.01002 0.24260
0.13125
288.3520 55.87 135000.0 116883.0 0.01005 0.24180
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289.6210 56.07 135000.0 116883.0 0.01011 0.24040
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290.9880 56.25 135000.0 118277.0 0.01013 0.23850
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292.3090 56.47 135000.0 118277.0 0.01015 0.23710
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293.6290 56.45 135000.0 115489.0 0.01023 0.23590
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295.0590 56.56 135000.0 118277.0 0.01027 0.23430
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0.13500
305.6020 57.36 135000.0 118277.0 0.01020 0.23430
0.13500
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308.3980 57.69 134000.0 118277.0 0.01016 0.23490
0.13500
309.7190 57.82 134000.0 115489.0 0.01014 0.23540
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311.0390 57.98 134000.0 116883.0 0.01013 0.23460
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312.3590 58.27 134000.0 116883.0 0.01012 0.23520
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313.8400 58.34 134000.0 118277.0 0.01008 0.23690
0.13500
315.2110 58.31 134000.0 115489.0 0.01010 0.23630
0.13500
316.5310 58.49 134000.0 115489.0 0.01014 0.23540
0.13125
317.8980 58.65 134000.0 115489.0 0.01017 0.23490
0.13125
319.1720 58.76 134000.0 115489.0 0.01009 0.23680
0.13125
320.4880 58.91 134000.0 118277.0 0.01008 0.23750
0.13125
321.9690 59.00 134000.0 116883.0 0.01003 0.23850
0.13500
323.2300 59.29 134000.0 118277.0 0.01001 0.23850
0.13500
324.4410 59.54 134000.0 118277.0 0.01005 0.23770
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325.6990 59.56 134000.0 115489.0 0.01002 0.23780
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327.0780 59.81 135000.0 114095.0 0.01008 0.23740
0.13125
328.3400 59.90 134000.0 115489.0 0.01009 0.23650
0.13125
329.6600 60.01 135000.0 116883.0 0.01007 0.23690
0.12750
331.0310 60.12 135000.0 116883.0 0.01005 0.23830
0.12750
332.3520 60.01 134000.0 116883.0 0.01004 0.23870
0.13125
333.6090 60.16 134000.0 118277.0 0.01002 0.23840
0.12750
335.0390 60.36 134000.0 116883.0 0.01001 0.23820
0.12750
336.3010 60.52 134000.0 115489.0 0.00996 0.23900
0.12375
337.6210 60.54 134000.0 114095.0 0.00995 0.23930
0.12375
338.8910 60.70 134000.0 116883.0 0.00993 0.23890
0.12375
340.3090 60.90 134000.0 116883.0 0.00993 0.23910
0.12375
341.5200 61.07 134000.0 115489.0 0.00992 0.23870
0.12000
342.8400 61.16 133000.0 116883.0 0.00989 0.23890
0.12375
344.2110 61.34 134000.0 114095.0 0.00992 0.23700
0.12750
345.5310 61.43 133000.0 115489.0 0.00996 0.23600
0.12000
346.8010 61.45 133000.0 115489.0 0.00996 0.23480
0.12375
348.0590 61.67 133000.0 115489.0 0.01005 0.23230

0.12375					
349.4300	61.74	133000.0	114095.0	0.01008	0.23020
0.12000					
350.6990	61.85	133000.0	112701.0	0.01005	0.23070
0.12000					
351.8980	61.87	133000.0	115489.0	0.01004	0.23000
0.12000					
353.3280	62.10	133000.0	112701.0	0.01006	0.22990
0.12375					
354.6480	62.19	133000.0	115489.0	0.01007	0.22910
0.12750					
355.9100	62.30	133000.0	116883.0	0.01002	0.22940
0.12375					
357.3400	62.39	133000.0	116883.0	0.00999	0.23060
0.12000					
358.6600	62.50	133000.0	115489.0	0.00999	0.23090
0.11625					
359.9800	62.54	133000.0	112701.0	0.00994	0.23170
0.12000					
361.2380	62.61	133000.0	114095.0	0.00995	0.23180
0.12000					
362.6720	62.77	133000.0	114095.0	0.00992	0.23160
0.12000					
363.9300	62.92	133000.0	114095.0	0.00990	0.23220
0.12000					
365.2500	63.03	133000.0	114095.0	0.00990	0.23230
0.12000					
366.6800	63.05	133000.0	114095.0	0.00990	0.23270
0.12375					
368.0000	63.21	133000.0	112701.0	0.00985	0.23410
0.13500					
369.3090	63.32	133000.0	114095.0	0.00981	0.23560
0.13875					
370.7380	63.50	133000.0	114095.0	0.00976	0.23690
0.13875					
372.0120	63.59	133000.0	112701.0	0.00979	0.23580
0.13875					
373.2700	63.81	133000.0	115489.0	0.00976	0.23610
0.13875					
374.5900	63.97	133000.0	112701.0	0.00980	0.23540
0.14625					
376.0200	64.10	133000.0	116883.0	0.00973	0.23650
0.14625					
377.2810	64.30	133000.0	115489.0	0.00974	0.23710
0.14250					
378.6020	64.37	133000.0	115489.0	0.00972	0.23810
0.13875					
379.9690	64.48	133000.0	114095.0	0.00973	0.23780
0.14250					
381.2890	64.64	133000.0	112701.0	0.00974	0.23730
0.13875					
382.6090	64.80	133000.0	114095.0	0.00970	0.23850
0.14250					
384.0900	64.91	133000.0	115489.0	0.00967	0.23930
0.13875					
385.3520	64.95	133000.0	114095.0	0.00967	0.23960
0.13875					
386.6210	65.13	133000.0	115489.0	0.00963	0.24080
0.13875					
387.8790	65.46	133000.0	115489.0	0.00961	0.24000
0.13500					
389.3590	65.19	133000.0	116883.0	0.00961	0.23990
0.13500					
390.6290	65.33	133000.0	115489.0	0.00956	0.24120
0.13125					
391.9410	65.55	132000.0	115489.0	0.00950	0.24250
0.13125					
393.4300	65.66	132000.0	114095.0	0.00951	0.24110
0.13875					
394.6910	65.69	132000.0	114095.0	0.00952	0.23980
0.13875					
395.9490	65.80	132000.0	114095.0	0.00947	0.24030
0.13875					
397.4410	65.95	132000.0	114095.0	0.00947	0.23970
0.14250					
398.6990	65.91	132000.0	112701.0	0.00950	0.23920
0.15000					
399.9610	66.11	132000.0	111307.0	0.00949	0.23880
0.14625					
401.2300	66.20	132000.0	112701.0	0.00955	0.23630
0.13875					
402.6480	66.33	132000.0	114095.0	0.00958	0.23660
0.13875					
403.9690	66.62	132000.0	111307.0	0.00957	0.23640
0.14250					
405.2380	66.65	132000.0	114095.0	0.00956	0.23630
0.14250					
406.6090	66.76	132000.0	115489.0	0.00953	0.23640
0.14625					
407.9300	66.74	131000.0	115489.0	0.00948	0.23640
0.15000					
409.2500	66.76	131000.0	114095.0	0.00946	0.23590
0.14625					
410.6720	66.85	131000.0	112701.0	0.00945	0.23570
0.14250					
411.9410	66.98	131000.0	111307.0	0.00951	0.23480
0.14250					
413.1480	67.07	131000.0	114095.0	0.00950	0.23450
0.13875					
414.4610	67.09	131000.0	111307.0	0.00950	0.23410
0.13500					
415.9490	67.11	131000.0	114095.0	0.00946	0.23450
0.13500					
417.2110	67.22	131000.0	114095.0	0.00946	0.23500
0.13875					
418.4690	67.27	131000.0	114095.0	0.00941	0.23580
0.13875					
419.9610	67.36	132000.0	115489.0	0.00941	0.23630
0.13500					
421.3280	67.29	131000.0	112701.0	0.00941	0.23520
0.14250					
422.6480	67.45	131000.0	111307.0	0.00941	0.23510
0.13500					
424.0780	67.54	131000.0	114095.0	0.00938	0.23620
0.13125					
425.3400	67.60	132000.0	114095.0	0.00940	0.23520
0.13125					
426.5510	67.63	132000.0	114095.0	0.00939	0.23570
0.13125					
427.8090	67.85	132000.0	114095.0	0.00943	0.23490
0.13125					
429.1800	67.94	132000.0	114095.0	0.00938	0.23640
0.13500					
430.5000	68.01	132000.0	116883.0	0.00932	0.23810
0.13875					
431.7700	68.07	132000.0	114095.0	0.00931	0.23930
0.13875					
433.3010	68.19	132000.0	115489.0	0.00930	0.23930
0.13500					
434.6210	68.36	132000.0	114095.0	0.00927	0.24120
0.13875					
435.8790	68.39	132000.0	114095.0	0.00932	0.24040

0.14250					
437.2620	68.48	132000.0	111307.0	0.00929	0.24040
0.13875					
438.5780	68.59	132000.0	114095.0	0.00932	0.23990
0.13875					
439.8910	68.70	132000.0	111307.0	0.00939	0.23920
0.13875					
441.1600	68.77	132000.0	114095.0	0.00939	0.23950
0.13875					
442.5900	68.92	132000.0	114095.0	0.00935	0.24110
0.13500					
443.7890	68.92	132000.0	111307.0	0.00932	0.24090
0.13500					
445.0590	68.90	132000.0	114095.0	0.00926	0.24220
0.14250					
446.4300	69.10	132000.0	111307.0	0.00927	0.24140
0.13875					
447.7500	69.19	132000.0	112701.0	0.00930	0.24000
0.13500					
449.0700	69.23	131000.0	114095.0	0.00926	0.24040
0.13500					
450.5510	69.37	131000.0	112701.0	0.00925	0.24080
0.13125					
451.8710	69.46	131000.0	111307.0	0.00923	0.24010
0.13500					
453.1290	69.52	131000.0	111307.0	0.00928	0.23910
0.13500					
454.3910	69.57	131000.0	114095.0	0.00924	0.23890
0.13125					
455.7700	69.77	131000.0	109914.0	0.00928	0.23770
0.13875					
457.0900	69.77	131000.0	111307.0	0.00931	0.23590
0.13875					
458.3980	69.97	131000.0	109914.0	0.00932	0.23590
0.13500					
459.8280	70.15	131000.0	112701.0	0.00930	0.23650
0.13125					
461.1480	70.11	131000.0	112701.0	0.00931	0.23670
0.13125					
462.4690	70.35	131000.0	114095.0	0.00920	0.23800
0.12750					
463.7300	70.38	131000.0	114095.0	0.00920	0.23950
0.12750					
465.1020	70.49	131000.0	112701.0	0.00919	0.24070
0.13125					
466.4220	70.53	131000.0	111307.0	0.00918	0.24090
0.13125					
467.7380	70.69	131000.0	109914.0	0.00921	0.24050
0.12375					
469.1720	70.73	131000.0	111307.0	0.00921	0.23940
0.12750					
470.4880	70.82	131000.0	114095.0	0.00918	0.23960
0.12375					
471.8090	70.93	131000.0	114095.0	0.00918	0.23960
0.12375					
473.1800	71.13	131000.0	111307.0	0.00921	0.23890
0.12375					
474.4410	71.13	131000.0	112701.0	0.00918	0.23990
0.12375					
475.7620	71.34	131000.0	114095.0	0.00920	0.23930
0.12750					
477.0780	71.34	131000.0	111307.0	0.00918	0.24020
0.12375					
478.5120	71.49	131000.0	111307.0	0.00920	0.23890
0.12000					
479.8200	71.60	131000.0	111307.0	0.00918	0.24040
0.12750					
481.1410	71.69	131000.0	111307.0	0.00912	0.24170
0.12750					
482.5700	71.85	131000.0	114095.0	0.00912	0.24110
0.12750					
483.8280	71.89	131000.0	109914.0	0.00911	0.24120
0.13125					
485.1020	71.94	130000.0	112701.0	0.00913	0.23940
0.13125					
486.5310	72.05	130000.0	109914.0	0.00914	0.23850
0.12750					
487.7890	72.14	131000.0	112701.0	0.00912	0.23870
0.12750					
489.1600	72.32	131000.0	112701.0	0.00911	0.23890
0.12750					
490.4800	72.32	131000.0	111307.0	0.00917	0.23800
0.12750					
491.8520	72.54	131000.0	109914.0	0.00915	0.23880
0.12750					
493.1210	72.63	131000.0	112701.0	0.00917	0.23860
0.12000					
494.4410	72.63	131000.0	111307.0	0.00917	0.23850
0.12375					
495.8590	72.76	130000.0	114095.0	0.00911	0.23860
0.12750					
497.1800	72.88	130000.0	111307.0	0.00908	0.23840
0.13125					
498.3910	73.05	130000.0	112701.0	0.00904	0.23830
0.13125					
499.8200	73.28	130000.0	108520.0	0.00903	0.23800
0.12750					
501.1410	73.30	129000.0	112701.0	0.00898	0.23790
0.12750					
502.4490	73.30	129000.0	109914.0	0.00899	0.23720
0.12750					
503.7190	73.59	129000.0	111307.0	0.00897	0.23670
0.12750					
505.0900	73.66	129000.0	111307.0	0.00902	0.23500
0.12750					
506.3520	73.84	129000.0	109914.0	0.00901	0.23540
0.12750					
507.6720	73.95	130000.0	109914.0	0.00903	0.23510
0.12750					
509.0510	73.93	130000.0	108520.0	0.00911	0.23380
0.12375					
510.3590	74.04	130000.0	112701.0	0.00907	0.23480
0.12375					
511.6290	74.13	130000.0	109914.0	0.00905	0.23680
0.12750					
513.0510	74.26	130000.0	111307.0	0.00907	0.23650
0.13500					
514.2620	74.15	130000.0	111307.0	0.00903	0.23660
0.13875					
515.5310	74.31	130000.0	112701.0	0.00898	0.23750
0.14250					
516.7300	74.39	130000.0	111307.0	0.00896	0.23800
0.13875					
518.2190	74.44	129000.0	111307.0	0.00899	0.23660
0.13875					
519.5390	74.60	129000.0	109914.0	0.00902	0.23520
0.14250					
520.8010	74.53	129000.0	109914.0	0.00902	0.23470
0.14250					
522.1720	74.69	129000.0	111307.0	0.00894	0.23720
0.14250					
523.4880	74.89	130000.0	111307.0	0.00893	0.23790

0.15000
524.8090 75.04 129000.0 109914.0 0.00895 0.23680
0.15000
526.1800 75.09 129000.0 108520.0 0.00893 0.23660
0.15375
527.5000 75.25 129000.0 112701.0 0.00886 0.23730
0.15000
528.7620 75.31 129000.0 111307.0 0.00882 0.23750
0.14250
530.0780 75.43 129000.0 112701.0 0.00880 0.23820
0.13875
531.5120 75.47 129000.0 112701.0 0.00874 0.23860
0.14250
532.7700 75.56 129000.0 111307.0 0.00872 0.23940
0.13875
534.0390 75.56 129000.0 107126.0 0.00874 0.23990
0.13875
535.5200 75.65 129000.0 107126.0 0.00878 0.23750
0.14250
536.7810 75.94 129000.0 111307.0 0.00883 0.23580
0.13875
538.1020 75.83 129000.0 109914.0 0.00889 0.23360
0.14250
539.5780 75.83 128000.0 111307.0 0.00887 0.23360
0.13875
540.8520 76.01 128000.0 111307.0 0.00884 0.23430
0.14250
542.1720 76.03 128000.0 108520.0 0.00885 0.23380
0.14250
543.4800 76.12 128000.0 109914.0 0.00884 0.23330
0.14250
544.8590 76.23 128000.0 108520.0 0.00884 0.23350
0.14250
546.1210 76.27 128000.0 109914.0 0.00882 0.23320
0.14250
547.4410 76.30 128000.0 105732.0 0.00881 0.23340
0.14625
548.8710 76.30 128000.0 109914.0 0.00883 0.23230
0.15000
550.1800 76.54 128000.0 109914.0 0.00881 0.23210
0.14250
551.3910 76.50 128000.0 108520.0 0.00884 0.23080
0.15000
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0.15000
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0.14625
556.6720 77.03 127000.0 109914.0 0.00863 0.23490
0.14250
558.0900 77.03 127000.0 108520.0 0.00865 0.23400
0.14625
559.3590 77.26 128000.0 108520.0 0.00867 0.23310
0.14625
560.6800 77.26 128000.0 107126.0 0.00863 0.23410
0.14250
562.1020 77.35 128000.0 109914.0 0.00861 0.23340
0.15000
563.3710 77.39 127000.0 109914.0 0.00864 0.23320
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564.6800 77.41 127000.0 108520.0 0.00867 0.23250
0.14625
566.1720 77.46 127000.0 108520.0 0.00869 0.23170
0.14250
567.4300 77.53 127000.0 109914.0 0.00864 0.23290
0.13875
568.6910 77.64 127000.0 109914.0 0.00861 0.23360
0.13500
570.0120 77.68 127000.0 105732.0 0.00865 0.23260
0.13500
571.4410 77.70 127000.0 108520.0 0.00862 0.23300
0.13125
572.6990 77.77 127000.0 107126.0 0.00862 0.23280
0.13125
574.0200 77.93 127000.0 109914.0 0.00859 0.23340
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575.5120 77.90 127000.0 107126.0 0.00854 0.23470
0.13500
576.7700 78.04 127000.0 109914.0 0.00850 0.23430
0.13500
577.9800 78.04 127000.0 108520.0 0.00849 0.23510
0.13125
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0.13125
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0.13875
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584.6800 78.64 127000.0 111307.0 0.00839 0.23630
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586.0000 78.73 127000.0 109914.0 0.00840 0.23570
0.14250
587.3090 78.82 127000.0 111307.0 0.00837 0.23600
0.13875
588.7380 79.02 127000.0 108520.0 0.00834 0.23710
0.13500
589.9490 79.09 127000.0 109914.0 0.00836 0.23730
0.13500
591.2700 79.29 127000.0 109914.0 0.00834 0.23700
0.13875
592.5900 79.46 126000.0 109914.0 0.00831 0.23720
0.14250
594.0200 79.51 126000.0 108520.0 0.00830 0.23790
0.14250
595.3280 79.67 127000.0 109914.0 0.00825 0.23770
0.14625
596.6480 79.71 126000.0 109914.0 0.00823 0.23810
0.14625
598.0780 79.78 126000.0 109914.0 0.00824 0.23730
0.14625
599.3980 79.87 126000.0 109914.0 0.00823 0.23760
0.14250
600.6600 80.03 126000.0 108520.0 0.00826 0.23640
0.14625
602.0900 80.14 126000.0 107126.0 0.00824 0.23780
0.14250
603.3520 80.14 126000.0 109914.0 0.00818 0.23920
0.14250
604.6210 80.18 126000.0 109914.0 0.00813 0.24030
0.13500
605.8200 80.20 126000.0 109914.0 0.00804 0.24210
0.13875
607.2500 80.36 126000.0 109914.0 0.00800 0.24310
0.13875
608.5200 80.41 126000.0 109914.0 0.00796 0.24470
0.13875
609.8280 80.43 126000.0 109914.0 0.00796 0.24510
0.13500
611.2620 80.50 126000.0 111307.0 0.00788 0.24570

0.13875					
612.5780	80.67	126000.0	108520.0	0.00791	0.24530
0.13125					
613.8980	80.68	126000.0	109914.0	0.00785	0.24590
0.13500					
615.3280	80.72	126000.0	109914.0	0.00781	0.24700
0.13125					
616.6410	80.70	126000.0	109914.0	0.00778	0.24730
0.13125					
617.9610	80.63	126000.0	109914.0	0.00776	0.24680
0.12750					
619.2300	80.74	126000.0	111307.0	0.00771	0.24740
0.13125					
620.6020	80.74	126000.0	111307.0	0.00763	0.24950
0.12750					
621.8590	80.83	126000.0	111307.0	0.00762	0.25010
0.12375					
623.1800	80.83	126000.0	111307.0	0.00756	0.25160
0.12375					
624.6600	80.97	126000.0	111307.0	0.00753	0.25270
0.12375					
625.9800	80.99	126000.0	111307.0	0.00751	0.25310
0.13125					
627.3010	81.10	126000.0	111307.0	0.00747	0.25450
0.12750					
628.6720	81.37	126000.0	112701.0	0.00741	0.25550
0.12750					
630.0510	81.35	126000.0	112701.0	0.00734	0.25680
0.12750					
631.3090	81.48	126000.0	112701.0	0.00727	0.25840
0.12750					
632.5700	81.59	125000.0	111307.0	0.00724	0.25920
0.13125					
634.0000	81.62	126000.0	111307.0	0.00724	0.25940
0.13125					
635.3200	81.62	126000.0	111307.0	0.00724	0.25950
0.12375					
636.5310	81.84	126000.0	112701.0	0.00725	0.25880
0.12000					
638.0120	81.86	125000.0	111307.0	0.00722	0.25980
0.12375					
639.2700	82.08	125000.0	112701.0	0.00720	0.25990
0.12375					
640.5390	82.00	125000.0	112701.0	0.00716	0.26060
0.11625					
641.9100	82.06	125000.0	112701.0	0.00708	0.26210
0.12000					
643.2300	82.04	125000.0	112701.0	0.00705	0.26320
0.12375					
644.5510	82.13	125000.0	112701.0	0.00701	0.26460
0.12750					
645.8090	82.22	125000.0	114095.0	0.00694	0.26590
0.12375					
647.2380	82.29	125000.0	112701.0	0.00687	0.26780
0.12750					
648.5000	82.29	125000.0	112701.0	0.00684	0.26820
0.12375					
649.8200	82.31	125000.0	112701.0	0.00685	0.26810
0.12000					
651.2500	82.42	125000.0	114095.0	0.00676	0.27000
0.12000					
652.5120	82.51	125000.0	114095.0	0.00669	0.27160
0.12000					
653.7700	82.56	125000.0	114095.0	0.00662	0.27280
0.11625					
655.1990	82.62	125000.0	114095.0	0.00656	0.27420
0.11250					
656.5200	82.65	125000.0	114095.0	0.00649	0.27490
0.11625					
657.7810	82.69	125000.0	114095.0	0.00645	0.27560
0.10875					
659.0510	82.82	125000.0	115489.0	0.00637	0.27720
0.11250					
660.5310	82.85	125000.0	115489.0	0.00623	0.28020
0.11250					
661.7890	82.89	124000.0	115489.0	0.00618	0.28220
0.11250					
663.0590	82.98	124000.0	116883.0	0.00612	0.28360
0.11625					
664.4300	82.98	124000.0	115489.0	0.00606	0.28540
0.11250					
665.7500	83.03	124000.0	116883.0	0.00598	0.28710
0.11250					
667.0700	83.23	124000.0	116883.0	0.00593	0.28870
0.11250					
668.4880	83.27	124000.0	116883.0	0.00588	0.29010
0.10875					
669.8090	83.34	124000.0	116883.0	0.00582	0.29090
0.10500					
671.1290	83.54	124000.0	115489.0	0.00576	0.29290
0.10125					
672.3910	83.68	124000.0	116883.0	0.00573	0.29330
0.10500					
673.7700	83.72	124000.0	116883.0	0.00571	0.29250
0.10500					
675.0310	84.03	124000.0	116883.0	0.00567	0.29330
0.10500					
676.3520	84.08	124000.0	116883.0	0.00563	0.29360
0.10500					
677.8280	84.12	124000.0	116883.0	0.00558	0.29470
0.10500					
679.0900	84.19	124000.0	116883.0	0.00554	0.29620
0.10500					
680.3590	84.35	124000.0	116883.0	0.00553	0.29620
0.10500					
681.6800	84.48	124000.0	116883.0	0.00552	0.29620
0.10125					
683.1020	84.50	124000.0	116883.0	0.00547	0.29690
0.09750					
684.4220	84.55	123000.0	118277.0	0.00541	0.29790
0.09750					
685.7380	84.57	123000.0	119671.0	0.00532	0.29990
0.09750					
687.1720	84.73	123000.0	118277.0	0.00524	0.30180
0.09750					
688.4880	84.79	123000.0	118277.0	0.00521	0.30330
0.09375					
689.8090	84.95	123000.0	119671.0	0.00516	0.30350
0.09000					
691.2300	85.06	123000.0	119671.0	0.00510	0.30440
0.09000					
692.5510	85.06	123000.0	119671.0	0.00505	0.30560
0.09000					
693.8090	85.26	123000.0	119671.0	0.00502	0.30570
0.09375					
695.0780	85.40	123000.0	119671.0	0.00497	0.30660
0.09375					
696.5120	85.58	123000.0	119671.0	0.00494	0.30800
0.09375					
697.8200	85.64	123000.0	119671.0	0.00490	0.30900
0.09375					
699.14..	85.78	123000.0	119671.0	0.00489	0.30890

0.09375						
700.5700	86.00	123000.0	119671.0	0.00489	0.30840	
0.09000						
701.8910	86.00	123000.0	119671.0	0.00487	0.30890	
0.08625						
703.1480	86.11	123000.0	119671.0	0.00486	0.30890	
0.08625						
704.5780	86.20	123000.0	119671.0	0.00485	0.30890	
0.08625						
705.8980	86.31	123000.0	119671.0	0.00483	0.30920	
0.09000						
707.2190	86.47	123000.0	119671.0	0.00481	0.30880	
0.08625						
708.4800	86.65	123000.0	119671.0	0.00477	0.31010	
0.08625						
709.9610	86.67	123000.0	121065.0	0.00470	0.31120	
0.08625						
711.2810	86.76	123000.0	121065.0	0.00468	0.31150	
0.09000						
712.5390	86.76	123000.0	121065.0	0.00464	0.31210	
0.08250						
713.9220	86.87	122000.0	121065.0	0.00462	0.31240	
0.08250						
715.1800	86.98	122000.0	119671.0	0.00460	0.31320	
0.08250						
716.5000	87.05	122000.0	119671.0	0.00459	0.31240	
0.08625						
717.9800	87.10	122000.0	121065.0	0.00457	0.31280	
0.08625						
719.2500	87.32	122000.0	121065.0	0.00454	0.31290	
0.07875						
720.5120	87.34	122000.0	121065.0	0.00451	0.31320	
0.08250						
721.8280	87.54	122000.0	121065.0	0.00447	0.31350	
0.08250						
723.2500	87.63	122000.0	121065.0	0.00445	0.31490	
0.08250						
724.5700	87.50	122000.0	121065.0	0.00443	0.31580	
0.07875						
725.8910	87.70	122000.0	121065.0	0.00440	0.31560	
0.07875						
727.3200	87.81	122000.0	121065.0	0.00437	0.31520	
0.08250						
728.5780	87.88	122000.0	121065.0	0.00435	0.31630	
0.07875						
729.8520	88.06	122000.0	121065.0	0.00432	0.31630	
0.07875						
731.3280	88.04	122000.0	121065.0	0.00429	0.31700	
0.07875						
732.5900	87.99	122000.0	121065.0	0.00427	0.31750	
0.07875						
733.9100	88.19	122000.0	121065.0	0.00425	0.31730	
0.07875						
735.2300	88.26	122000.0	121065.0	0.00423	0.31810	
0.07500						
736.6600	88.37	122000.0	121065.0	0.00422	0.31750	
0.07125						
737.9220	88.48	122000.0	121065.0	0.00421	0.31700	
0.07125						
739.1800	88.58	122000.0	121065.0	0.00420	0.31740	
0.07500						
740.6720	88.58	122000.0	121065.0	0.00417	0.31760	
0.07500						
741.9300	88.73	122000.0	121065.0	0.00416	0.31800	
0.07500						
743.2500	88.73	122000.0	121065.0	0.00414	0.31790	
0.07500						
744.7300	88.80	122000.0	121065.0	0.00412	0.31890	
0.07125						
745.9880	88.98	122000.0	121065.0	0.00411	0.31930	
0.06750						
747.2620	88.98	122000.0	121065.0	0.00409	0.31870	
0.07125						
748.5780	89.11	122000.0	121065.0	0.00408	0.31900	
0.06750						
750.0000	89.20	121000.0	121065.0	0.00407	0.31810	
0.06375						
751.3200	89.34	121000.0	119671.0	0.00407	0.31820	
0.06375						
752.6410	89.36	121000.0	119671.0	0.00407	0.31850	
0.06375						
754.0700	89.43	121000.0	119671.0	0.00406	0.31840	
0.06750						
755.3910	89.56	121000.0	119671.0	0.00406	0.31840	
0.06750						
756.6990	89.65	121000.0	119671.0	0.00404	0.31880	
0.06750						
758.1290	89.70	121000.0	119671.0	0.00404	0.31860	
0.06750						
759.4490	89.77	121000.0	119671.0	0.00404	0.31870	
0.06375						
760.7700	89.83	121000.0	119671.0	0.00403	0.31890	
0.06750						
762.0310	89.83	121000.0	119671.0	0.00402	0.31830	
0.06375						
763.4100	89.94	121000.0	119671.0	0.00402	0.31820	
0.06375						
764.7190	89.88	121000.0	119671.0	0.00401	0.31810	
0.06375						
766.0390	89.94	121000.0	119671.0	0.00401	0.31810	
0.06375						
767.4690	90.04	121000.0	119671.0	0.00401	0.31790	
0.06000						
768.7890	90.10	121000.0	119671.0	0.00401	0.31740	
0.06000						
770.1090	90.01	121000.0	119671.0	0.00400	0.31770	
0.06000						
771.5310	90.19	121000.0	119671.0	0.00399	0.31740	
0.05625						
772.8520	90.26	121000.0	119671.0	0.00397	0.31730	
0.05625						
774.1720	90.31	121000.0	119671.0	0.00396	0.31750	
0.05625						
775.4300	90.31	121000.0	119671.0	0.00393	0.31820	
0.05625						
776.9220	90.42	121000.0	119671.0	0.00392	0.31750	
0.06000						
778.1800	90.53	121000.0	119671.0	0.00392	0.31700	
0.05625						
779.5000	90.55	121000.0	119671.0	0.00391	0.31740	
0.05625						
780.8710	90.59	121000.0	119671.0	0.00391	0.31650	
0.05625						
782.1290	90.59	121000.0	119671.0	0.00391	0.31630	
0.05625						
783.3980	90.80	121000.0	119671.0	0.00392	0.31570	
0.05625						
784.8280	90.73	121000.0	119671.0	0.00392	0.31550	
0.05625						
786.1410	90.82	120000.0	119671.0	0.00392	0.31580	
0.05625						
787.4100	90.82	120000.0	119671.0	0.00392	0.31610	

0.05625					
788.6720	90.86	120000.0	119671.0	0.00391	0.31560
0.05625					
790.1480	90.95	120000.0	119671.0	0.00390	0.31520
0.05625					
791.4220	90.99	120000.0	119671.0	0.00390	0.31560
0.05250					
792.7380	90.95	120000.0	119671.0	0.00389	0.31590
0.05250					
794.1600	90.97	120000.0	119671.0	0.00387	0.31580
0.05250					
795.4800	91.17	120000.0	119671.0	0.00385	0.31510
0.05625					
796.7500	91.26	120000.0	119671.0	0.00385	0.31520
0.05625					
798.0120	91.37	120000.0	119671.0	0.00384	0.31520
0.05250					
799.4880	91.35	120000.0	119671.0	0.00384	0.31540
0.05250					
800.7500	91.51	120000.0	119671.0	0.00383	0.31370
0.04875					
802.0700	91.62	120000.0	119671.0	0.00382	0.31480
0.04875					
803.4490	91.69	120000.0	119671.0	0.00381	0.31540
0.04875					
804.7620	91.89	120000.0	119671.0	0.00380	0.31550
0.04875					
806.0780	92.00	120000.0	119671.0	0.00380	0.31550
0.04875					
807.4610	92.25	120000.0	119671.0	0.00380	0.31490
0.04500					
808.7700	92.20	120000.0	119671.0	0.00380	0.31540
0.04500					
810.0900	92.34	120000.0	119671.0	0.00380	0.31380
0.04500					
811.3010	92.49	120000.0	119671.0	0.00380	0.31310
0.04500					
812.7810	92.60	120000.0	119671.0	0.00380	0.31330
0.04500					
814.1020	92.65	120000.0	119671.0	0.00380	0.31300
0.04875					
815.3590	92.72	120000.0	119671.0	0.00379	0.31340
0.04875					
816.7890	92.92	120000.0	118277.0	0.00378	0.31300
0.04500					
818.0590	92.94	119000.0	118277.0	0.00378	0.31200
0.04500					
819.3710	93.03	120000.0	118277.0	0.00378	0.31160
0.04500					
820.6010	93.21	119000.0	118277.0	0.00376	0.31220
0.04500					
822.1210	93.39	119000.0	118277.0	0.00376	0.31220
0.04125					
823.4410	93.37	119000.0	118277.0	0.00376	0.31100
0.04125					
824.6990	93.46	119000.0	118277.0	0.00376	0.31120
0.04125					
826.1290	93.39	119000.0	118277.0	0.00376	0.31230
0.04125					
827.3910	93.59	119000.0	118277.0	0.00376	0.31230
0.04500					
828.7110	93.54	119000.0	118277.0	0.00375	0.31300
0.04500					
830.1410	93.68	119000.0	118277.0	0.00375	0.31210
0.04125					
831.4610	93.75	119000.0	118277.0	0.00375	0.31150
0.04125					
832.7810	93.88	119000.0	118277.0	0.00376	0.31070
0.04125					
834.1990	93.79	119000.0	118277.0	0.00375	0.31150
0.04125					
835.4690	93.91	119000.0	118277.0	0.00375	0.31150
0.04125					
836.7300	94.04	119000.0	118277.0	0.00374	0.31060
0.04125					
838.0510	94.00	119000.0	118277.0	0.00373	0.31070
0.04125					
839.4800	94.18	119000.0	118277.0	0.00372	0.31030
0.04125					
840.7380	94.11	119000.0	118277.0	0.00370	0.31090
0.04125					
842.0590	94.20	119000.0	118277.0	0.00368	0.31030
0.04125					
843.4880	94.13	119000.0	118277.0	0.00366	0.31070
0.04125					
844.8010	94.13	119000.0	118277.0	0.00365	0.31030
0.03750					
846.0700	94.24	119000.0	118277.0	0.00363	0.31060
0.03750					
847.5510	94.22	119000.0	118277.0	0.00362	0.31100
0.03750					
848.8710	94.31	119000.0	118277.0	0.00362	0.31030
0.03750					
850.1290	94.35	119000.0	118277.0	0.00361	0.31070
0.04125					
851.4490	94.33	119000.0	118277.0	0.00361	0.31030
0.03750					
852.8790	94.40	119000.0	118277.0	0.00361	0.31080
0.03750					
854.1410	94.40	119000.0	118277.0	0.00360	0.31090
0.03750					
855.4100	94.47	119000.0	118277.0	0.00360	0.31100
0.03750					
856.7810	94.56	118000.0	118277.0	0.00361	0.31010
0.03750					
858.0390	94.51	118000.0	118277.0	0.00360	0.30990
0.03750					
859.3590	94.58	118000.0	118277.0	0.00360	0.30980
0.03750					
860.8400	94.58	118000.0	118277.0	0.00360	0.30940
0.03750					
862.1090	94.67	118000.0	118277.0	0.00359	0.30870
0.03750					
863.4220	94.58	118000.0	118277.0	0.00357	0.30890
0.03750					
864.6910	94.67	118000.0	118277.0	0.00356	0.30840
0.03750					
866.1210	94.76	118000.0	118277.0	0.00354	0.30870
0.03750					
867.4880	94.65	118000.0	118277.0	0.00352	0.30790
0.03750					
868.7500	94.69	118000.0	118277.0	0.00349	0.30810
0.03750					
870.1800	94.76	118000.0	118277.0	0.00345	0.30870
0.03750					
871.3910	94.85	118000.0	118277.0	0.00342	0.30950
0.03750					
872.7620	94.92	118000.0	119671.0	0.00339	0.31080
0.03750					
874.1910	94.94	118000.0	119671.0	0.00337	0.31200
0.03750					
875.4490	94.92	118000.0	119671.0	0.00334	0.31200

0.03750
876.7190 95.03 118000.0 119671.0 0.00333 0.31230
0.03750
878.0310 95.12 118000.0 119671.0 0.00329 0.31230
0.03750
879.4610 95.17 118000.0 119671.0 0.00327 0.31260
0.03750
880.7300 95.17 118000.0 119671.0 0.00324 0.31380
0.03750
881.9880 95.19 118000.0 119671.0 0.00321 0.31420
0.03750
883.4690 95.23 118000.0 119671.0 0.00319 0.31370
0.03750
884.7890 95.43 118000.0 119671.0 0.00317 0.31300
0.03750
886.0510 95.37 118000.0 119671.0 0.00315 0.31320
0.03750
887.4300 95.41 118000.0 119671.0 0.00312 0.31270
0.03750
888.7500 95.48 118000.0 119671.0 0.00310 0.31340
0.03750
890.0590 95.55 118000.0 119671.0 0.00307 0.31380
0.03750
891.4410 95.50 118000.0 119671.0 0.00305 0.31340
0.03750
892.8090 95.64 118000.0 119671.0 0.00303 0.31420
0.03750
894.1290 95.66 118000.0 119671.0 0.00302 0.31420
0.03750
895.4490 95.70 118000.0 119671.0 0.00300 0.31450
0.03750
896.9300 95.68 118000.0 119671.0 0.00299 0.31470
0.03750
898.1910 95.82 117000.0 119671.0 0.00296 0.31460
0.03750
899.5120 95.73 117000.0 119671.0 0.00294 0.31500
0.03750
900.9410 95.77 117000.0 119671.0 0.00292 0.31460
0.03750
902.2620 95.93 117000.0 119671.0 0.00290 0.31410
0.03750
903.4690 95.79 117000.0 119671.0 0.00289 0.31390
0.03750
904.7300 96.04 117000.0 119671.0 0.00287 0.31370
0.03750
906.1020 95.99 117000.0 119671.0 0.00286 0.31400
0.03750
907.4220 95.97 117000.0 119671.0 0.00286 0.31430
0.03750
908.7380 96.00 117000.0 119671.0 0.00283 0.31400
0.03750
910.1090 96.02 117000.0 119671.0 0.00281 0.31400
0.03750
911.3710 96.15 117000.0 119671.0 0.00279 0.31480
0.03750
912.7500 96.09 117000.0 119671.0 0.00278 0.31450
0.03750
914.0120 95.97 117000.0 119671.0 0.00276 0.31390
0.03750
915.4410 96.24 117000.0 119671.0 0.00274 0.31380
0.03750
916.7620 96.13 117000.0 118277.0 0.00272 0.31350
0.03750
918.0780 96.09 117000.0 118277.0 0.00271 0.31330
0.03750
919.5000 96.26 117000.0 118277.0 0.00270 0.31330
0.03750
920.8200 96.31 117000.0 118277.0 0.00269 0.31290
0.03750
922.1410 96.22 117000.0 118277.0 0.00268 0.31300
0.03750
923.6210 96.29 117000.0 118277.0 0.00266 0.31310
0.03750
924.9410 96.35 117000.0 118277.0 0.00266 0.31290
0.03750

3) PI041

Time	Tts	Psg(Pa)	Pts(Pa)	Ws	Winj
1.4920	30.83	395000.0	408000.0	0.00082	0.00694
2.7500	30.81	395000.0	408000.0	0.00082	0.00694
4.0120	29.88	395000.0	408000.0	0.00082	0.00686
5.2810	30.94	395000.0	408000.0	0.00082	0.00694
6.6520	30.68	395000.0	408000.0	0.00082	0.00694
7.9100	30.90	395000.0	408000.0	0.00082	0.00694
9.1800	31.12	395000.0	408000.0	0.00082	0.00694
10.5000	31.01	395000.0	315000.0	0.00084	0.05149
11.6990	31.01	390000.0	151000.0	0.00135	0.24878
12.9730	30.96	389000.0	98000.0	0.00147	0.28331
14.2930	31.29	390000.0	83000.0	0.00186	0.29070
15.6600	31.14	389000.0	81000.0	0.00216	0.22539
16.8130	31.95	389000.0	82000.0	0.00250	0.18784
18.0200	31.80	389000.0	82000.0	0.00284	0.17999
19.3400	32.28	388000.0	82000.0	0.00351	0.24783
20.5510	32.66	388000.0	82000.0	0.00378	0.29481
21.7620	32.15	387000.0	82000.0	0.00411	0.33220
23.1330	32.30	387000.0	82000.0	0.00456	0.31012
24.3910	32.57	388000.0	82000.0	0.00594	0.28859
25.5430	32.46	387000.0	82000.0	0.00718	0.25482
26.6990	32.65	386000.0	82000.0	0.00818	0.21187
28.0200	32.48	386000.0	81000.0	0.00906	0.17231
29.1720	32.52	385000.0	82000.0	0.00960	0.16668
30.3830	33.01	385000.0	83000.0	0.01000	0.15039
31.6990	32.99	385000.0	83000.0	0.01026	0.13567
32.8520	33.10	384000.0	84000.0	0.01038	0.10789
34.0630	34.60	386000.0	84000.0	0.01044	0.15183
35.3830	33.23	385000.0	84000.0	0.01043	0.11644
36.5820	32.75	384000.0	84000.0	0.01041	0.12982
37.7420	33.32	384000.0	84000.0	0.01037	0.14459
38.9490	33.25	384000.0	84000.0	0.01034	0.11529
40.2620	33.43	382000.0	84000.0	0.01032	0.12715
41.4730	33.54	383000.0	84000.0	0.01030	0.17097
42.6330	33.47	383000.0	84000.0	0.01030	0.17192
44.0000	33.76	382000.0	84000.0	0.01029	0.15334
45.2110	33.54	383000.0	84000.0	0.01029	0.21171
46.3590	34.56	382000.0	84000.0	0.01029	0.17737
47.5700	34.00	382000.0	84000.0	0.01028	0.17760
48.8910	33.91	382000.0	84000.0	0.01027	0.18026
50.1020	34.11	381000.0	84000.0	0.01026	0.16272
51.2500	34.03	381000.0	84000.0	0.01025	0.12846
52.5700	34.25	380000.0	84000.0	0.01026	0.11974
53.8320	34.16	382000.0	84000.0	0.01026	0.10617
54.9800	34.25	381000.0	84000.0	0.01025	0.10480
56.3010	34.16	380000.0	84000.0	0.01024	0.13253
57.4610	34.62	380000.0	84000.0	0.01025	0.10837
58.6090	34.58	380000.0	84000.0	0.01025	0.09919
59.8200	34.71	379000.0	84000.0	0.01025	0.07938
61.1410	34.82	379000.0	84000.0	0.01025	0.05851
62.3520	34.62	379000.0	84000.0	0.01025	0.04529
63.5000	34.87	379000.0	84000.0	0.01025	0.03847
64.8200	35.00	379000.0	84000.0	0.01025	0.04319
65.9730	35.07	378000.0	84000.0	0.01024	0.04598
67.2300	34.89	378000.0	84000.0	0.01024	0.07890
68.5510	35.18	378000.0	84000.0	0.01024	0.13509
69.7620	35.33	377000.0	84000.0	0.01024	0.14756
70.9100	35.09	377000.0	84000.0	0.01024	0.13434
72.1800	35.13	377000.0	84000.0	0.01024	0.12504
73.4410	35.42	377000.0	84000.0	0.01024	0.12020
74.6520	35.40	376000.0	84000.0	0.01025	0.13083
75.8010	34.98	376000.0	84000.0	0.01026	0.13792
77.1720	35.44	375000.0	84000.0	0.01026	0.14434
78.3320	35.22	376000.0	84000.0	0.01025	0.15597
79.5430	35.53	376000.0	84000.0	0.01025	0.17569
80.6910	35.42	375000.0	84000.0	0.01026	0.18748
81.9490	35.48	375000.0	84000.0	0.01026	0.19270
83.1600	35.51	374000.0	84000.0	0.01026	0.18355
84.3200	36.02	375000.0	84000.0	0.01027	0.19782
85.6330	35.77	374000.0	84000.0	0.01027	0.19159
86.7930	36.28	374000.0	84000.0	0.01027	0.21334
88.0000	36.17	374000.0	84000.0	0.01027	0.21525
89.3130	36.15	374000.0	84000.0	0.01028	0.19719
90.5200	34.89	374000.0	84000.0	0.01028	0.21246
91.7300	35.91	374000.0	84000.0	0.01029	0.24915
92.9410	36.39	373000.0	84000.0	0.01029	0.28049
94.3130	36.44	373000.0	84000.0	0.01030	0.29058
95.5200	36.17	373000.0	84000.0	0.01030	0.26237
96.6720	36.42	373000.0	84000.0	0.01031	0.23556
97.9920	36.59	372000.0	84000.0	0.01031	0.20585
99.1990	36.35	372000.0	84000.0	0.01032	0.20734
100.3010	36.13	371000.0	84000.0	0.01032	0.23284
101.6720	36.64	371000.0	84000.0	0.01032	0.29258
102.8830	36.90	371000.0	84000.0	0.01033	0.28678
104.0900	36.81	371000.0	85000.0	0.01033	0.26805
105.3010	36.81	371000.0	84000.0	0.01034	0.24311
106.6090	37.03	370000.0	84000.0	0.01036	0.22539
107.8200	36.70	370000.0	84000.0	0.01036	0.21872
109.0310	36.94	370000.0	84000.0	0.01038	0.20894
110.2930	36.94	370000.0	84000.0	0.01038	0.23198
111.5000	34.61	370000.0	84000.0	0.01038	0.21606
112.6020	37.06	370000.0	84000.0	0.01039	0.24122
113.9730	37.32	370000.0	84000.0	0.01039	0.25959
115.1800	37.14	369000.0	84000.0	0.01040	0.25901
116.3910	37.28	369000.0	84000.0	0.01041	0.26815
117.5510	37.12	368000.0	84000.0	0.01042	0.25741
118.8590	37.54	368000.0	84000.0	0.01043	0.26049
120.0200	37.21	368000.0	84000.0	0.01044	0.26757
121.2300	37.90	368000.0	84000.0	0.01044	0.30353
122.5430	37.63	368000.0	84000.0	0.01045	0.33691
123.7500	37.41	367000.0	84000.0	0.01045	0.37312
124.9100	37.70	367000.0	84000.0	0.01045	0.35563
126.1090	37.54	367000.0	84000.0	0.01046	0.33823
127.4300	37.70	367000.0	84000.0	0.01047	0.34698
128.6410	37.59	367000.0	84000.0	0.01048	0.36658
129.7930	37.50	366000.0	84000.0	0.01049	0.38809
131.1090	37.76	366000.0	84000.0	0.01050	0.41679
132.2700	37.72	366000.0	84000.0	0.01051	0.41842
133.5310	37.94	366000.0	84000.0	0.01051	0.40481
134.8520	38.14	366000.0	84000.0	0.01053	0.40801
136.0630	38.14	365000.0	84000.0	0.01054	0.37713
137.2620	38.12	365000.0	84000.0	0.01055	0.34329
138.5310	72.47	365000.0	84000.0	0.01055	0.31988
139.9020	38.60	365000.0	84000.0	0.01056	0.30511
141.1090	38.05	364000.0	85000.0	0.01057	0.28850
142.3710	38.36	364000.0	84000.0	0.01058	0.31274
143.8010	38.58	364000.0	84000.0	0.01059	0.32069
145.0120	38.43	363000.0	84000.0	0.01059	0.31959
146.2700	38.47	363000.0	84000.0	0.01060	0.31414
147.6410	38.76	363000.0	84000.0	0.01061	0.30159
148.8520	38.80	363000.0	84000.0	0.01062	0.29540
150.0120	38.71	363000.0	85000.0	0.01063	0.29943
151.2110	39.02	363000.0	85000.0	0.01064	0.28935
152.5900	39.00	363000.0	84000.0	0.01064	0.28984
153.8520	39.14	362000.0	84000.0	0.01065	0.30192
155.0000	39.22	363000.0	84000.0	0.01065	0.27892
156.3830	39.47	362000.0	84000.0	0.01066	0.25571
157.5900	39.62	362000.0	84000.0	0.01067	0.26242
158.7930	39.29	361000.0	84000.0	0.01068	0.25693

160.0000	39.20	361000.0	84000.0	0.01069	0.27050
161.3830	39.31	361000.0	84000.0	0.01070	0.30385
162.5820	39.31	360000.0	84000.0	0.01071	0.30525
163.8520	40.99	360000.0	84000.0	0.01072	0.31233
165.2230	39.36	360000.0	84000.0	0.01072	0.28914
166.4800	39.42	360000.0	85000.0	0.01073	0.29950
167.6910	39.60	360000.0	84000.0	0.01074	0.29238
169.0700	39.69	360000.0	84000.0	0.01075	0.28863
170.2700	39.80	359000.0	84000.0	0.01076	0.32104
171.4300	39.78	359000.0	84000.0	0.01077	0.34570
172.6910	39.73	358000.0	84000.0	0.01078	0.34302
173.9490	39.71	358000.0	84000.0	0.01078	0.32683
175.1600	40.06	358000.0	84000.0	0.01079	0.33666
176.3710	40.00	358000.0	84000.0	0.01081	0.33860
177.7420	39.96	358000.0	84000.0	0.01081	0.33556
178.9020	40.18	357000.0	85000.0	0.01082	0.34029
180.1090	40.26	357000.0	84000.0	0.01083	0.35871
181.4220	40.17	357000.0	84000.0	0.01083	0.37441
182.6330	40.44	357000.0	84000.0	0.01085	0.37209
183.7930	40.11	357000.0	84000.0	0.01086	0.36717
184.9920	40.29	357000.0	84000.0	0.01087	0.34493
186.3130	40.71	356000.0	84000.0	0.01088	0.34357
187.5200	40.55	356000.0	84000.0	0.01089	0.33939
188.6720	40.49	356000.0	84000.0	0.01089	0.32729
190.0510	40.53	356000.0	84000.0	0.01091	0.28303
191.2620	41.06	356000.0	84000.0	0.01091	0.29639
192.4610	40.77	355000.0	84000.0	0.01092	0.32344
193.7810	40.73	355000.0	83000.0	0.01093	0.34514
194.9410	40.97	355000.0	84000.0	0.01094	0.34678
196.1410	40.99	354000.0	84000.0	0.01094	0.34731
197.3010	40.68	355000.0	84000.0	0.01095	0.33959
198.6720	41.30	354000.0	84000.0	0.01095	0.31201
199.8830	41.06	354000.0	84000.0	0.01096	0.32165
201.0900	41.08	354000.0	84000.0	0.01097	0.33413
202.4100	41.10	353000.0	84000.0	0.01098	0.33882
203.6090	41.15	354000.0	84000.0	0.01099	0.35238
204.7700	41.06	353000.0	84000.0	0.01099	0.36307
205.9800	40.97	353000.0	84000.0	0.01100	0.33598
207.3520	41.26	353000.0	84000.0	0.01101	0.31770
208.5630	41.57	352000.0	84000.0	0.01101	0.30897
209.7700	41.39	352000.0	84000.0	0.01101	0.30622
211.1910	41.37	352000.0	85000.0	0.01101	0.31901
212.3520	41.30	352000.0	84000.0	0.01101	0.33865
213.5510	41.48	351000.0	84000.0	0.01102	0.35466
214.8710	41.39	351000.0	84000.0	0.01103	0.35166
216.0820	41.86	351000.0	85000.0	0.01103	0.34492
217.2930	41.88	351000.0	84000.0	0.01103	0.32341
218.4410	41.81	351000.0	84000.0	0.01104	0.32659
219.8200	41.90	350000.0	84000.0	0.01104	0.32577
221.0200	41.66	350000.0	84000.0	0.01104	0.34045
222.2300	42.14	349000.0	84000.0	0.01104	0.34025
223.6600	41.88	350000.0	84000.0	0.01105	0.31998
224.8710	41.92	349000.0	84000.0	0.01106	0.31639
226.1330	42.17	349000.0	84000.0	0.01106	0.31830
227.5120	42.25	350000.0	83000.0	0.01106	0.32060
228.6600	42.19	349000.0	84000.0	0.01106	0.33389
229.8130	42.50	349000.0	84000.0	0.01106	0.33812
231.0200	42.45	348000.0	84000.0	0.01106	0.33751
232.3400	42.37	348000.0	84000.0	0.01107	0.34120
233.5510	42.61	347000.0	84000.0	0.01107	0.33796
234.6990	42.74	347000.0	84000.0	0.01107	0.34132
236.0200	42.43	347000.0	83000.0	0.01107	0.34781
237.1720	42.48	347000.0	83000.0	0.01109	0.35062
238.3830	42.76	347000.0	83000.0	0.01109	0.35843
239.5310	42.85	347000.0	83000.0	0.01110	0.36678
240.8520	42.79	347000.0	83000.0	0.01110	0.37897
242.0120	42.76	347000.0	84000.0	0.01111	0.37449
243.1600	43.14	346000.0	84000.0	0.01111	0.37753
244.5310	42.94	346000.0	83000.0	0.01111	0.37780
245.7420	42.92	346000.0	84000.0	0.01110	0.37510
246.8910	43.01	345000.0	84000.0	0.01111	0.36420
248.2110	42.99	345000.0	84000.0	0.01111	0.35777
249.4220	43.05	346000.0	84000.0	0.01111	0.35748
250.5700	43.16	345000.0	84000.0	0.01112	0.36136
251.7810	42.87	344000.0	84000.0	0.01112	0.35311
253.1020	43.14	344000.0	84000.0	0.01112	0.36862
254.3130	43.32	344000.0	84000.0	0.01114	0.36146
255.4610	43.29	344000.0	84000.0	0.01114	0.36643
256.8400	43.76	344000.0	84000.0	0.01114	0.37325
257.9920	43.54	343000.0	83000.0	0.01114	0.38480
259.1410	43.23	343000.0	84000.0	0.01115	0.36305
260.5200	43.60	343000.0	84000.0	0.01115	0.33230
261.7230	43.45	343000.0	84000.0	0.01115	0.31582
262.9920	44.80	343000.0	83000.0	0.01116	0.31153
264.1990	43.63	342000.0	83000.0	0.01116	0.31656
265.6210	43.56	342000.0	84000.0	0.01117	0.27509
266.7810	44.18	342000.0	84000.0	0.01118	0.27725
267.9920	43.74	343000.0	83000.0	0.01119	0.26161
269.3010	43.87	342000.0	84000.0	0.01117	0.25878
270.4610	44.07	342000.0	83000.0	0.01118	0.25630
271.6720	43.87	342000.0	84000.0	0.01119	0.27308
273.0430	44.07	341000.0	84000.0	0.01119	0.27495
274.2500	44.42	341000.0	84000.0	0.01119	0.29231
275.4610	44.00	341000.0	83000.0	0.01119	0.30412
276.6600	42.98	342000.0	83000.0	0.01119	0.29195
278.0430	44.27	341000.0	83000.0	0.01118	0.27446
279.1910	44.49	341000.0	84000.0	0.01119	0.24941
280.4020	44.49	340000.0	84000.0	0.01119	0.23924
281.7230	44.56	340000.0	84000.0	0.01120	0.24807
282.9800	44.38	340000.0	84000.0	0.01120	0.26444
284.1910	44.71	340000.0	83000.0	0.01120	0.27082
285.4490	44.51	339000.0	83000.0	0.01121	0.26935
286.8320	44.89	339000.0	84000.0	0.01121	0.26472
288.0900	44.64	339000.0	84000.0	0.01121	0.26331
289.2420	44.69	338000.0	83000.0	0.01121	0.25583
290.5630	44.64	338000.0	83000.0	0.01122	0.24932
291.7110	44.73	338000.0	83000.0	0.01122	0.23307
292.8710	57.17	338000.0	84000.0	0.01122	0.23537
294.1910	44.98	337000.0	84000.0	0.01123	0.23970
295.3400	44.69	338000.0	84000.0	0.01123	0.24803
296.5510	45.00	338000.0	85000.0	0.01123	0.21948
297.6990	44.80	338000.0	84000.0	0.01124	0.21463
299.0200	45.26	337000.0	84000.0	0.01122	0.21549
300.2300	45.06	337000.0	85000.0	0.01122	0.23256
301.4410	45.13	337000.0	83000.0	0.01123	0.22757
302.7500	45.42	337000.0	84000.0	0.01124	0.21775
303.9610	45.11	336000.0	85000.0	0.01124	0.20479
305.1720	44.51	336000.0	84000.0	0.01125	0.21604
306.4920	45.31	337000.0	83000.0	0.01126	0.22499
307.6410	45.40	335000.0	84000.0	0.01126	0.23037
308.8520	45.66	336000.0	83000.0	0.01126	0.24705
310.0000	45.81	335000.0	84000.0	0.01125	0.23215
311.3830	47.61	335000.0	83000.0	0.01127	0.21446
312.5310	45.57	335000.0	84000.0	0.01127	0.19723
313.7420	45.82	335000.0	84000.0	0.01127	0.19569
315.0630	45.88	335000.0	84000.0	0.01126	0.19640
316.2700	45.79	334000.0	84000.0	0.01127	0.20088
317.4220	45.97	335000.0	84000.0	0.01127	0.21321
318.6330	46.10	334000.0	84000.0	0.01127	0.20951
319.9490	49.78	334000.0	84000.0	0.01128	0.22270
321.1020	45.81	333000.0	84000.0	0.01128	0.22218
322.3130	46.17	333000.0	84000.0	0.01128	0.23235

323.6330	46.15	333000.0	84000.0	0.01129	0.25123
324.8320	46.06	333000.0	84000.0	0.01129	0.23498
325.9920	33.48	333000.0	83000.0	0.01129	0.22703
327.3590	46.06	333000.0	84000.0	0.01130	0.23545
328.5120	36.93	333000.0	84000.0	0.01130	0.23475
329.6720	46.46	332000.0	84000.0	0.01130	0.23355
330.8830	46.37	332000.0	84000.0	0.01131	0.23836
332.1910	46.43	332000.0	84000.0	0.01130	0.23653
333.4020	46.74	332000.0	84000.0	0.01131	0.23005
334.5630	46.48	332000.0	84000.0	0.01130	0.23096
335.9300	46.44	332000.0	84000.0	0.01130	0.23091
337.0820	46.46	331000.0	84000.0	0.01131	0.21442
338.2930	46.70	331000.0	84000.0	0.01132	0.21505
339.6090	50.58	331000.0	84000.0	0.01132	0.22019
340.8200	47.01	331000.0	84000.0	0.01131	0.23207
341.9730	47.72	331000.0	84000.0	0.01133	0.25164
343.2300	46.81	330000.0	84000.0	0.01133	0.27620
344.5510	46.10	330000.0	84000.0	0.01133	0.25200
345.7110	46.95	329000.0	84000.0	0.01132	0.22919
346.8590	47.12	329000.0	84000.0	0.01132	0.22256
348.2300	46.75	329000.0	84000.0	0.01133	0.21861
349.3910	47.10	329000.0	84000.0	0.01133	0.22964
350.5430	47.19	329000.0	84000.0	0.01133	0.24052
351.9100	46.32	329000.0	84000.0	0.01133	0.24324
353.0700	47.17	329000.0	84000.0	0.01133	0.24284
354.2700	47.45	329000.0	84000.0	0.01134	0.23841
355.4300	47.28	328000.0	83000.0	0.01133	0.21077
356.8010	47.56	328000.0	84000.0	0.01134	0.17319
357.9490	47.54	328000.0	84000.0	0.01134	0.15930
359.1600	47.67	327000.0	84000.0	0.01135	0.13844
360.4800	47.81	328000.0	83000.0	0.01135	0.12444
361.6330	47.65	328000.0	84000.0	0.01135	0.12765
362.8400	47.47	328000.0	84000.0	0.01135	0.12043
364.0510	47.54	327000.0	84000.0	0.01136	0.11581
365.3130	48.01	326000.0	84000.0	0.01136	0.11845
366.5200	47.54	327000.0	84000.0	0.01137	0.13412
367.5800	47.76	326000.0	84000.0	0.01136	0.13227
369.0510	47.98	327000.0	84000.0	0.01137	0.16169
370.1990	47.94	326000.0	84000.0	0.01137	0.17610
371.3590	47.83	326000.0	83000.0	0.01137	0.17964
372.7300	48.12	326000.0	84000.0	0.01137	0.18212
373.8830	48.12	326000.0	84000.0	0.01137	0.20557
375.0430	47.83	325000.0	84000.0	0.01136	0.21868
376.2420	48.38	325000.0	84000.0	0.01137	0.23150
377.6210	48.29	325000.0	84000.0	0.01137	0.23428
378.7700	48.34	324000.0	84000.0	0.01138	0.24162
379.9220	71.73	325000.0	84000.0	0.01138	0.24324
381.3010	48.54	324000.0	84000.0	0.01138	0.23744
382.4490	48.25	324000.0	84000.0	0.01138	0.22290
383.6600	48.45	324000.0	84000.0	0.01138	0.22081
384.9800	48.82	324000.0	84000.0	0.01138	0.21264
386.1910	48.31	323000.0	84000.0	0.01138	0.22311
387.3400	48.56	323000.0	84000.0	0.01139	0.20559
388.4920	48.34	324000.0	84000.0	0.01140	0.19328
389.8130	48.69	323000.0	84000.0	0.01140	0.17430
390.9610	48.89	323000.0	84000.0	0.01140	0.16985
392.1720	48.78	323000.0	84000.0	0.01140	0.17663
393.4920	46.52	323000.0	84000.0	0.01141	0.18386
394.6990	49.02	323000.0	84000.0	0.01141	0.20672
395.8520	53.58	323000.0	84000.0	0.01141	0.23038
397.0630	48.78	323000.0	84000.0	0.01141	0.21252
398.3830	48.80	321000.0	84000.0	0.01141	0.20616
399.5310	49.00	321000.0	84000.0	0.01141	0.20305
400.7420	48.98	322000.0	84000.0	0.01140	0.20482
402.0630	49.00	321000.0	84000.0	0.01141	0.21082
403.2700	49.73	321000.0	84000.0	0.01140	0.20205
404.4220	49.22	321000.0	85000.0	0.01141	0.20262
405.7930	49.18	321000.0	83000.0	0.01141	0.21221
406.9490	49.38	321000.0	84000.0	0.01141	0.22364
408.1600	49.27	320000.0	84000.0	0.01141	0.20621
409.3130	49.53	320000.0	84000.0	0.01141	0.21612
410.6330	49.26	320000.0	84000.0	0.01142	0.23455
411.8400	49.40	320000.0	84000.0	0.01142	0.22280
413.0430	49.71	320000.0	84000.0	0.01142	0.21995
414.3130	49.69	320000.0	84000.0	0.01143	0.20524
415.5200	49.64	320000.0	84000.0	0.01143	0.19124
416.7230	49.49	319000.0	85000.0	0.01144	0.17852
418.0430	50.18	319000.0	84000.0	0.01144	0.16359
419.2500	51.47	319000.0	84000.0	0.01143	0.17239
420.4020	46.84	319000.0	84000.0	0.01144	0.19677
421.6090	50.07	319000.0	84000.0	0.01144	0.20727
422.9300	50.06	318000.0	84000.0	0.01143	0.18240
424.1410	50.00	319000.0	84000.0	0.01144	0.20380
425.2930	49.75	318000.0	84000.0	0.01144	0.19387
426.6720	50.20	318000.0	84000.0	0.01145	0.18305
427.8200	50.20	318000.0	84000.0	0.01145	0.18388
429.0310	50.00	317000.0	84000.0	0.01144	0.18967
430.3520	50.09	318000.0	84000.0	0.01144	0.19913
431.5510	50.15	317000.0	84000.0	0.01144	0.21441
432.7110	50.06	317000.0	84000.0	0.01145	0.21084
433.8590	50.33	316000.0	84000.0	0.01145	0.18763
435.2300	50.40	316000.0	84000.0	0.01146	0.17911
436.3910	50.64	316000.0	84000.0	0.01146	0.16909
437.6020	50.73	315000.0	84000.0	0.01146	0.14936
438.9100	50.68	316000.0	84000.0	0.01147	0.13041
440.1210	50.51	316000.0	84000.0	0.01147	0.12768
441.2810	46.49	315000.0	84000.0	0.01147	0.12157
442.4800	50.80	316000.0	84000.0	0.01148	0.12605
443.8010	50.82	315000.0	84000.0	0.01147	0.13716
445.0120	50.88	315000.0	84000.0	0.01147	0.13229
446.1600	50.93	314000.0	84000.0	0.01148	0.13489
447.4800	51.06	315000.0	84000.0	0.01147	0.17144
448.6410	50.84	316000.0	84000.0	0.01148	0.18619
449.8400	51.20	314000.0	84000.0	0.01149	0.16771
451.1600	51.15	314000.0	84000.0	0.01149	0.16153
452.3710	51.37	314000.0	84000.0	0.01148	0.14485
453.5200	51.11	313000.0	84000.0	0.01148	0.13027
454.7300	51.17	314000.0	84000.0	0.01148	0.11447
456.0510	51.28	313000.0	84000.0	0.01147	0.12286
457.1990	51.48	312000.0	84000.0	0.01148	0.10569
458.4100	51.22	313000.0	84000.0	0.01147	0.09286
459.7300	51.37	312000.0	84000.0	0.01148	0.10422
460.9410	51.30	312000.0	84000.0	0.01148	0.12436
462.0900	51.28	311000.0	84000.0	0.01149	0.16838
463.4730	51.55	311000.0	84000.0	0.01149	0.15753
464.6210	51.55	311000.0	84000.0	0.01149	0.15370
465.8320	51.43	311000.0	84000.0	0.01149	0.15271
466.9800	51.68	311000.0	84000.0	0.01149	0.16195
468.3010	51.68	311000.0	84000.0	0.01149	0.15090
469.5120	51.92	311000.0	84000.0	0.01149	0.16818
470.6600	51.68	311000.0	84000.0	0.01149	0.16019
471.9800	51.77	311000.0	85000.0	0.01149	0.15344
473.1330	51.72	311000.0	84000.0	0.01149	0.16431
474.3400	51.70	310000.0	84000.0	0.01150	0.15745
475.4920	51.97	310000.0	84000.0	0.01150	0.14003
476.8710	51.99	310000.0	84000.0	0.01150	0.12763
478.0200	51.75	310000.0	84000.0	0.01151	0.14948
479.2300	51.46	310000.0	84000.0	0.01150	0.15006
480.5510	50.93	309000.0	84000.0	0.01150	0.15207
481.7620	57.87	309000.0	84000.0	0.01150	0.14684
482.9100	52.15	309000.0	84000.0	0.01151	0.14347
484.2810	51.44	310000.0	84000.0	0.01151	0.11693

485.4410	53.45	309000.0	84000.0	0.01151	0.11510
486.6410	53.99	308000.0	84000.0	0.01151	0.12409
487.8010	50.31	308000.0	84000.0	0.01151	0.11787
489.1210	51.61	308000.0	84000.0	0.01151	0.10056
490.3200	50.46	308000.0	84000.0	0.01152	0.09265
491.4800	51.02	308000.0	84000.0	0.01152	0.09504
492.8520	53.78	307000.0	84000.0	0.01152	0.09877
494.0000	51.99	308000.0	84000.0	0.01151	0.10058
495.2110	53.58	308000.0	84000.0	0.01152	0.09136
496.5310	54.10	307000.0	84000.0	0.01152	0.08493
497.7420	54.12	307000.0	84000.0	0.01153	0.08651
498.8910	51.70	307000.0	84000.0	0.01154	0.09619
500.1020	51.77	307000.0	84000.0	0.01154	0.09349
501.4220	51.24	306000.0	84000.0	0.01153	0.09425
502.5700	53.10	307000.0	84000.0	0.01154	0.10884
503.7810	53.90	305000.0	84000.0	0.01154	0.09938
505.1020	53.81	306000.0	84000.0	0.01154	0.08709
506.3130	54.43	306000.0	84000.0	0.01153	0.08513
507.4610	53.43	305000.0	84000.0	0.01153	0.08330
508.8320	52.57	305000.0	84000.0	0.01153	0.08357
509.9920	51.11	305000.0	84000.0	0.01154	0.08742
511.1990	52.61	305000.0	84000.0	0.01155	0.07737
512.3520	53.72	305000.0	84000.0	0.01155	0.06650
513.7230	54.43	305000.0	84000.0	0.01155	0.07104
514.9300	54.30	305000.0	84000.0	0.01156	0.08046
516.1910	54.48	304000.0	84000.0	0.01155	0.08819
517.5120	52.21	304000.0	84000.0	0.01155	0.09178
518.6720	59.02	304000.0	84000.0	0.01155	0.08821
519.8710	54.00	304000.0	84000.0	0.01156	0.09524
521.0310	52.32	304000.0	84000.0	0.01155	0.11130
522.3520	53.05	303000.0	84000.0	0.01155	0.12892
523.5000	54.83	302000.0	84000.0	0.01155	0.10844
524.7110	52.04	303000.0	84000.0	0.01155	0.11591
526.0310	52.90	303000.0	84000.0	0.01156	0.12078
527.2300	52.61	303000.0	84000.0	0.01156	0.11425
528.3910	55.14	303000.0	84000.0	0.01157	0.10655
529.7620	52.17	303000.0	84000.0	0.01157	0.09604
530.9730	52.85	302000.0	84000.0	0.01157	0.10162
532.1210	53.05	302000.0	84000.0	0.01157	0.11600
533.3320	54.54	303000.0	84000.0	0.01157	0.12863
534.6520	54.83	302000.0	84000.0	0.01157	0.13938
535.8590	58.62	302000.0	84000.0	0.01157	0.14789
536.9610	55.05	302000.0	84000.0	0.01157	0.12973
538.3320	53.80	301000.0	84000.0	0.01157	0.12054
539.4800	53.03	301000.0	84000.0	0.01158	0.11376
540.6910	54.78	301000.0	84000.0	0.01158	0.11471
542.0120	54.43	301000.0	84000.0	0.01158	0.13191
543.1600	55.21	301000.0	84000.0	0.01159	0.12284
544.3200	53.89	301000.0	84000.0	0.01160	0.11552
545.5200	53.56	301000.0	84000.0	0.01159	0.11775
546.8400	53.72	300000.0	84000.0	0.01160	0.11759
548.0510	56.21	300000.0	84000.0	0.01160	0.12031
549.1990	55.54	300000.0	84000.0	0.01159	0.13341
550.5820	55.30	300000.0	84000.0	0.01160	0.12501
551.7300	55.70	299000.0	84000.0	0.01160	0.12739
552.9410	55.54	300000.0	84000.0	0.01160	0.13978
554.0900	56.90	299000.0	84000.0	0.01161	0.12497
555.4100	53.92	299000.0	84000.0	0.01162	0.11280
556.6210	55.50	299000.0	84000.0	0.01162	0.09743
557.7700	55.68	299000.0	84000.0	0.01161	0.09412
559.0900	55.32	298000.0	84000.0	0.01161	0.08045
560.3010	55.50	298000.0	84000.0	0.01161	0.08955
561.5120	55.16	298000.0	84000.0	0.01161	0.08515
562.8320	54.76	298000.0	84000.0	0.01161	0.07912
564.0310	55.16	298000.0	84000.0	0.01162	0.08854
565.1910	54.27	297000.0	84000.0	0.01163	0.10698
566.3400	53.85	298000.0	84000.0	0.01164	0.09647
567.7110	51.02	297000.0	84000.0	0.01164	0.09467
568.8710	53.74	298000.0	84000.0	0.01164	0.10450
570.1330	55.90	297000.0	84000.0	0.01163	0.09594
571.4490	54.25	297000.0	84000.0	0.01163	0.08690
572.6600	54.18	297000.0	84000.0	0.01162	0.08387
573.8130	56.54	297000.0	84000.0	0.01163	0.08695
575.1330	56.08	296000.0	84000.0	0.01164	0.08130
576.2810	55.39	296000.0	84000.0	0.01164	0.08639
577.4920	55.03	296000.0	84000.0	0.01164	0.09040
578.6410	54.83	296000.0	84000.0	0.01164	0.08690
580.0200	54.81	296000.0	84000.0	0.01164	0.09346
581.1720	56.41	296000.0	84000.0	0.01166	0.09454
582.3830	54.54	294000.0	84000.0	0.01164	0.08440
583.6990	54.63	295000.0	84000.0	0.01164	0.07577
584.9100	56.21	295000.0	84000.0	0.01164	0.07442
586.0630	54.65	295000.0	84000.0	0.01165	0.07704
587.3830	55.18	295000.0	84000.0	0.01164	0.08446
588.5310	54.87	294000.0	84000.0	0.01164	0.08469
589.6800	56.48	295000.0	84000.0	0.01164	0.09311
590.8910	55.83	295000.0	84000.0	0.01164	0.11513
592.1600	56.17	294000.0	84000.0	0.01164	0.11474
593.3590	55.12	294000.0	84000.0	0.01164	0.10461
594.5200	58.37	294000.0	84000.0	0.01164	0.09924
595.8910	56.90	293000.0	84000.0	0.01165	0.10186
597.0430	57.39	294000.0	84000.0	0.01165	0.09303
598.2500	56.30	293000.0	84000.0	0.01165	0.08868
599.4100	56.46	293000.0	84000.0	0.01165	0.09258
600.7230	56.90	293000.0	84000.0	0.01165	0.08488
601.9300	55.43	293000.0	84000.0	0.01166	0.07601
603.1410	55.12	293000.0	84000.0	0.01166	0.06901
604.4610	55.83	293000.0	84000.0	0.01165	0.06829
605.6720	56.26	292000.0	84000.0	0.01166	0.07548
606.8200	56.95	292000.0	84000.0	0.01166	0.07567
608.1450	56.28	292000.0	84000.0	0.01166	0.06984
609.3480	54.37	292000.0	84000.0	0.01166	0.06861
610.5590	57.23	292000.0	84000.0	0.01166	0.06878
611.7150	58.08	292000.0	84000.0	0.01166	0.07264
613.0270	56.72	291000.0	84000.0	0.01167	0.06529
614.2380	55.72	291000.0	84000.0	0.01167	0.06381
615.3950	57.01	291000.0	84000.0	0.01167	0.07291
616.7620	55.25	290000.0	84000.0	0.01167	0.06964
617.9180	56.70	291000.0	84000.0	0.01167	0.06917
619.0740	56.72	291000.0	84000.0	0.01168	0.08313
620.4410	56.97	290000.0	84000.0	0.01168	0.08255
621.5980	55.76	290000.0	84000.0	0.01167	0.08203
622.8010	56.37	290000.0	84000.0	0.01168	0.08581
623.9650	57.06	290000.0	84000.0	0.01169	0.08589
625.3320	56.48	290000.0	84000.0	0.01169	0.08620
626.4800	57.74	289000.0	84000.0	0.01168	0.08260
627.6450	56.88	290000.0	84000.0	0.01167	0.08728
629.0120	57.35	289000.0	84000.0	0.01168	0.08151
630.1600	57.86	289000.0	84000.0	0.01169	0.07485
631.3710	56.37	289000.0	84000.0	0.01168	0.06637
632.5270	58.97	289000.0	84000.0	0.01168	0.07637
633.9020	58.55	289000.0	84000.0	0.01169	0.08045
635.0510	57.21	289000.0	84000.0	0.01168	0.07501
636.2620	56.46	288000.0	85000.0	0.01169	0.08081
637.5820	57.19	288000.0	85000.0	0.01169	0.07565
639.8950	58.06	288000.0	85000.0	0.01170	0.08018
641.2620	56.50	287000.0	85000.0	0.01170	0.08372
642.4100	57.95	287000.0	85000.0	0.01170	0.07673
643.5740	57.39	287000.0	85000.0	0.01169	0.08428
644.7700	57.32	287000.0	85000.0	0.01170	0.08416
646.1520	56.92	287000.0	85000.0	0.01171	0.08263
647.3010	56.34	287000.0	85000.0	0.01171	0.07866

648.4490	57.99	287000.0	85000.0	0.01171	0.08808
649.8320	58.77	287000.0	85000.0	0.01171	0.08171
650.9340	56.61	287000.0	85000.0	0.01171	0.08055
652.1290	57.66	287000.0	85000.0	0.01170	0.07574
653.4020	58.68	286000.0	84000.0	0.01171	0.08300
654.6130	53.14	287000.0	84000.0	0.01171	0.08844
655.7620	57.32	286000.0	83000.0	0.01172	0.08776
656.9100	57.50	286000.0	83000.0	0.01172	0.08799
658.2930	57.28	286000.0	82000.0	0.01171	0.07591
659.4410	58.86	286000.0	83000.0	0.01171	0.07409
660.6520	59.21	285000.0	82000.0	0.01171	0.06832
661.9730	58.77	285000.0	84000.0	0.01172	0.06695
663.2300	58.37	285000.0	84000.0	0.01172	0.07339
664.3790	57.83	286000.0	84000.0	0.01172	0.07917
665.7620	56.94	284000.0	84000.0	0.01173	0.07773
666.9100	57.72	285000.0	85000.0	0.01172	0.07891
668.0590	59.75	284000.0	84000.0	0.01173	0.07775
669.2700	91.10	284000.0	84000.0	0.01172	0.07733
670.5900	59.37	284000.0	84000.0	0.01173	0.08282
671.8010	59.23	284000.0	84000.0	0.01174	0.09103
672.9490	59.64	283000.0	84000.0	0.01173	0.09046
674.3240	59.59	283000.0	84000.0	0.01173	0.09486
675.5270	57.63	283000.0	84000.0	0.01173	0.08857
676.7380	61.42	283000.0	84000.0	0.01173	0.09074
677.9020	58.37	282000.0	84000.0	0.01173	0.08668
679.2150	59.46	283000.0	85000.0	0.01173	0.08475
680.4800	58.12	283000.0	84000.0	0.01172	0.08420
681.6290	57.86	282000.0	84000.0	0.01172	0.08650
683.0040	58.68	283000.0	84000.0	0.01172	0.08832
684.1600	60.13	282000.0	84000.0	0.01172	0.08237
685.3630	62.30	282000.0	84000.0	0.01172	0.08143
686.6840	60.35	282000.0	84000.0	0.01173	0.08121
687.8950	58.92	282000.0	84000.0	0.01173	0.08227
689.0980	57.97	282000.0	84000.0	0.01173	0.08842
690.3090	58.99	281000.0	84000.0	0.01173	0.09441
691.6290	59.72	281000.0	84000.0	0.01173	0.08835
692.8320	58.59	282000.0	85000.0	0.01173	0.09130
693.9880	58.08	281000.0	84000.0	0.01174	0.08906
695.3630	58.10	281000.0	84000.0	0.01174	0.08388
696.5120	57.94	279000.0	84000.0	0.01174	0.08494
697.7230	58.41	280000.0	84000.0	0.01174	0.08212
699.0430	58.75	280000.0	84000.0	0.01175	0.08489
700.1910	58.37	280000.0	84000.0	0.01175	0.09418
701.4650	60.24	280000.0	83000.0	0.01174	0.10552
702.6130	58.21	280000.0	84000.0	0.01174	0.10244
703.9800	60.28	280000.0	84000.0	0.01175	0.10379
705.1450	58.35	280000.0	84000.0	0.01174	0.11504
706.3480	59.17	279000.0	83000.0	0.01174	0.11276
707.6600	57.95	280000.0	84000.0	0.01175	0.11246
708.8710	59.19	279000.0	84000.0	0.01175	0.11702
710.0270	60.04	279000.0	84000.0	0.01176	0.10733
711.2930	61.09	278000.0	84000.0	0.01175	0.10820
712.5040	60.15	278000.0	84000.0	0.01175	0.09110
713.6520	60.66	279000.0	84000.0	0.01174	0.08273
714.8630	58.81	278000.0	84000.0	0.01174	0.08706
716.1840	59.55	278000.0	84000.0	0.01175	0.09553
717.3950	60.80	278000.0	84000.0	0.01175	0.09519
718.5430	61.24	278000.0	84000.0	0.01176	0.09515
719.8630	59.73	278000.0	84000.0	0.01176	0.11354
721.0120	59.06	278000.0	84000.0	0.01176	0.11284
722.1600	59.97	278000.0	84000.0	0.01177	0.12035
723.3710	61.13	278000.0	85000.0	0.01177	0.12669
724.6910	58.86	278000.0	84000.0	0.01176	0.12247
725.8400	58.99	278000.0	84000.0	0.01177	0.12252
727.0040	61.62	277000.0	84000.0	0.01178	0.11498
728.3710	59.39	277000.0	84000.0	0.01178	0.09925
729.5200	59.68	277000.0	84000.0	0.01177	0.08353
730.7300	61.62	276000.0	84000.0	0.01177	0.07455
732.0510	59.75	276000.0	84000.0	0.01178	0.06455
733.1990	59.12	276000.0	85000.0	0.01177	0.06351
734.3630	59.70	276000.0	84000.0	0.01178	0.06650
735.5740	60.79	276000.0	84000.0	0.01178	0.06766
736.8790	61.22	276000.0	84000.0	0.01177	0.05800
738.0900	61.15	276000.0	84000.0	0.01177	0.04497
739.2540	59.30	275000.0	84000.0	0.01178	0.04237
740.5590	59.66	276000.0	84000.0	0.01178	0.04027
741.7700	60.06	2 3000.0	84000.0	0.01177	0.03768
742.9340	61.49	274000.0	84000.0	0.01178	0.04065
744.3010	62.15	274000.0	84000.0	0.01178	0.03981
745.4490	58.86	275000.0	84000.0	0.01177	0.04903
746.6130	60.28	275000.0	84000.0	0.01177	0.05059
747.7620	61.29	275000.0	84000.0	0.01178	0.05975
749.0820	59.97	274000.0	85000.0	0.01177	0.05101
750.2930	61.09	274000.0	84000.0	0.01178	0.03983
751.4410	62.00	275000.0	84000.0	0.01177	0.03229
752.8090	59.68	273000.0	84000.0	0.01178	0.03423
753.9730	60.13	274000.0	84000.0	0.01179	0.03545
755.1840	65.46	274000.0	84000.0	0.01179	0.03636
756.3320	60.53	273000.0	84000.0	0.01179	0.03377
757.6520	62.35	272000.0	84000.0	0.01178	0.03307
758.8010	59.10	273000.0	83000.0	0.01179	0.03233
759.9490	60.60	273000.0	84000.0	0.01179	0.03006
761.2700	61.24	273000.0	84000.0	0.01179	0.02580
762.4340	60.19	273000.0	85000.0	0.01178	0.02610
763.6290	60.17	272000.0	86000.0	0.01178	0.02811
764.9490	59.88	272000.0	85000.0	0.01178	0.02568
766.1600	60.60	272000.0	84000.0	0.01178	0.02302
767.3710	70.64	271000.0	85000.0	0.01178	0.02261
768.5200	61.09	272000.0	84000.0	0.01178	0.01951
769.9020	61.49	272000.0	84000.0	0.01178	0.01772
771.0510	62.02	272000.0	84000.0	0.01179	0.01516
772.2620	61.00	271000.0	85000.0	0.01179	0.01606
773.5820	61.42	272000.0	84000.0	0.01180	0.01463
774.7770	62.87	271000.0	84000.0	0.01180	0.01500
775.8790	65.23	271000.0	85000.0	0.01180	0.01498
777.1990	60.40	270000.0	84000.0	0.01180	0.01322
778.4650	61.44	272000.0	84000.0	0.01181	0.01334
779.6210	62.80	270000.0	84000.0	0.01181	0.01226
780.8320	63.31	271000.0	84000.0	0.01181	0.01082
782.1450	63.33	270000.0	84000.0	0.01181	0.01032
783.4100	61.15	270000.0	84000.0	0.01180	0.01273
784.6210	62.31	270000.0	84000.0	0.01180	0.01100
785.9340	63.22	271000.0	84000.0	0.01181	0.01164
787.0900	61.80	270000.0	84000.0	0.01181	0.01105
788.3480	63.76	270000.0	84000.0	0.01181	0.00992
789.6680	63.27	270000.0	85000.0	0.01180	0.01029
790.8240	62.40	270000.0	84000.0	0.01180	0.01209
792.0270	61.75	270000.0	84000.0	0.01181	0.01129
793.1840	61.13	269000.0	84000.0	0.01181	0.01012
794.5040	63.04	269000.0	84000.0	0.01181	0.00993
795.6600	62.80	269000.0	84000.0	0.01181	0.01216
796.8630	61.93	269000.0	84000.0	0.01182	0.01072
798.1840	61.75	268000.0	85000.0	0.01183	0.01020
799.3950	61.51	269000.0	84000.0	0.01182	0.00935
800.5430	63.76	268000.0	84000.0	0.01183	0.00994
801.6990	62.15	268000.0	84000.0	0.01183	0.00915
803.1290	63.64	268000.0	84000.0	0.01183	0.00849
804.2770	63.91	268000.0	84000.0	0.01182	0.00801
805.4880	62.04	268000.0	84000.0	0.01181	0.00782
806.7540	62.40	267000.0	84000.0	0.01182	0.00827
807.9650	63.82	267000.0	84000.0	0.01182	0.00850
809.1680	62.91	268000.0	85000.0	0.01182	0.00811

810.5430	60.66	267000.0	84000.0	0.01183	0.00771
811.7540	62.82	267000.0	84000.0	0.01183	0.00828
812.9020	61.71	267000.0	85000.0	0.01183	0.00793
814.1130	62.67	267000.0	84000.0	0.01183	0.00881
815.4340	64.07	267000.0	84000.0	0.01183	0.00870
816.5820	62.04	266000.0	84000.0	0.01183	0.00960
817.7930	62.07	267000.0	85000.0	0.01182	0.00953
819.1600	63.55	266000.0	84000.0	0.01183	0.01187
820.3240	62.98	266000.0	84000.0	0.01184	0.01052
821.4730	62.22	266000.0	85000.0	0.01184	0.00958
822.8400	64.69	266000.0	84000.0	0.01185	0.00878
824.0040	64.13	266000.0	84000.0	0.01185	0.00831
825.1520	64.38	266000.0	85000.0	0.01185	0.00789
826.3010	62.85	266000.0	84000.0	0.01185	0.00772
827.6210	63.20	266000.0	84000.0	0.01185	0.00752
828.8320	62.27	267000.0	84000.0	0.01184	0.00736
829.9800	63.18	265000.0	84000.0	0.01184	0.00906
831.3630	62.31	265000.0	85000.0	0.01183	0.00908
832.5120	62.64	264000.0	84000.0	0.01183	0.00902
833.6600	63.31	266000.0	84000.0	0.01183	0.00856
834.8240	62.98	266000.0	84000.0	0.01184	0.00814
836.1910	62.22	265000.0	84000.0	0.01184	0.00780
837.3400	62.47	265000.0	85000.0	0.01183	0.00759
838.5510	62.29	264000.0	85000.0	0.01184	0.00808
839.8240	63.04	264000.0	85000.0	0.01185	0.00777
841.0200	64.02	264000.0	84000.0	0.01185	0.01008
842.2300	62.35	264000.0	85000.0	0.01185	0.01041
843.5510	63.82	263000.0	84000.0	0.01185	0.01002
844.6990	65.11	264000.0	84000.0	0.01185	0.01123
845.8630	64.16	264000.0	85000.0	0.01185	0.01149
847.0740	62.60	262000.0	85000.0	0.01185	0.01082
848.3790	65.34	263000.0	85000.0	0.01186	0.01212
849.6520	64.53	263000.0	85000.0	0.01186	0.01271
850.8010	64.80	263000.0	85000.0	0.01185	0.01114
852.1680	62.78	262000.0	85000.0	0.01186	0.00986
853.3320	62.98	262000.0	85000.0	0.01187	0.00969
854.4800	64.58	263000.0	85000.0	0.01186	0.00959
855.8010	65.38	262000.0	85000.0	0.01187	0.00877
857.0590	63.93	262000.0	84000.0	0.01187	0.00822
858.2230	62.95	262000.0	84000.0	0.01188	0.00787
859.3090	65.29	261000.0	85000.0	0.01187	0.00771
860.6910	64.69	261000.0	85000.0	0.01187	0.00811
861.8400	64.11	262000.0	84000.0	0.01187	0.00846
863.0510	62.84	261000.0	85000.0	0.01187	0.00869
864.3710	63.11	263000.0	84000.0	0.01188	0.00870
865.5820	65.76	261000.0	85000.0	0.01188	0.00953
866.7300	63.71	261000.0	84000.0	0.01187	0.00948
868.0510	65.27	261000.0	85000.0	0.01187	0.00872
869.1990	65.22	261000.0	84000.0	0.01186	0.00825
870.4650	64.47	261000.0	85000.0	0.01187	0.00923
871.6210	62.93	260000.0	85000.0	0.01187	0.00927
872.9880	65.83	260000.0	85000.0	0.01187	0.00857
874.1450	65.27	260000.0	85000.0	0.01188	0.00813
875.3010	65.76	260000.0	84000.0	0.01189	0.00782
876.6210	65.34	259000.0	84000.0	0.01189	0.00897
877.7700	65.60	261000.0	85000.0	0.01188	0.00840
878.9800	65.09	260000.0	85000.0	0.01189	0.01054
880.1290	64.27	260000.0	85000.0	0.01189	0.00950
881.4490	64.21	260000.0	85000.0	0.01189	0.00935
882.5980	64.02	260000.0	85000.0	0.01190	0.00871
883.8090	64.58	260000.0	85000.0	0.01189	0.00814
885.1290	65.05	259000.0	85000.0	0.01189	0.00786
886.3400	60.63	260000.0	85000.0	0.01189	0.00760
887.5510	67.88	259000.0	84000.0	0.01189	0.01141
888.8630	64.91	259000.0	85000.0	0.01190	0.01221
890.0740	65.38	259000.0	85000.0	0.01190	0.01142
891.2300	64.89	259000.0	85000.0	0.01190	0.01019
892.4340	63.76	259000.0	85000.0	0.01190	0.00924
893.7540	65.22	259000.0	85000.0	0.01190	0.01082
894.9650	63.78	259000.0	85000.0	0.01190	0.01554
896.1130	63.78	258000.0	85000.0	0.01189	0.01467
897.4880	64.91	258000.0	85000.0	0.01189	0.01459
898.6450	66.25	258000.0	85000.0	0.01189	0.01246
899.9020	65.53	258000.0	85000.0	0.01191	0.01216
901.1680	66.56	258000.0	85000.0	0.01191	0.01219
902.3240	62.00	258000.0	85000.0	0.01190	0.01079
903.5820	65.22	257000.0	85000.0	0.01191	0.00972
904.7930	65.69	258000.0	85000.0	0.01191	0.00893
906.1680	66.52	257000.0	85000.0	0.01191	0.01256
907.3240	64.67	257000.0	85000.0	0.01191	0.03729
908.5270	65.80	257000.0	85000.0	0.01190	0.05144
909.8480	64.04	257000.0	85000.0	0.01191	0.05374
911.0510	65.38	257000.0	85000.0	0.01190	0.05216
912.2150	65.49	256000.0	85000.0	0.01191	0.06212
913.3630	65.40	257000.0	85000.0	0.01190	0.05751
914.7300	66.76	256000.0	85000.0	0.01190	0.04589
915.9410	66.83	256000.0	85000.0	0.01190	0.04089
917.0980	64.18	256000.0	85000.0	0.01190	0.03682
918.4100	64.29	256000.0	85000.0	0.01191	0.04045
919.6210	65.60	254000.0	84000.0	0.01191	0.04500
920.7770	64.47	256000.0	85000.0	0.01190	0.03812
922.1520	65.11	255000.0	85000.0	0.01192	0.03575
923.3010	65.20	255000.0	85000.0	0.01192	0.03898
924.5120	66.47	255000.0	85000.0	0.01192	0.03737
925.6600	65.27	255000.0	85000.0	0.01193	0.03377
927.0430	67.45	255000.0	85000.0	0.01192	0.03374
928.1910	65.07	255000.0	85000.0	0.01191	0.03269
929.4020	65.31	255000.0	85000.0	0.01191	0.03335
930.7230	66.32	254000.0	85000.0	0.01191	0.02910
931.9800	64.71	254000.0	85000.0	0.01191	0.02689
933.1290	66.92	254000.0	85000.0	0.01191	0.02718
934.4490	65.05	254000.0	85000.0	0.01191	0.02437
935.6600	66.45	254000.0	85000.0	0.01191	0.02379
936.8090	67.67	255000.0	85000.0	0.01192	0.02100
938.0200	66.47	254000.0	85000.0	0.01192	0.02478
939.3400	67.85	254000.0	85000.0	0.01192	0.02537
940.5980	67.07	254000.0	85000.0	0.01191	0.02234
941.8090	63.18	253000.0	85000.0	0.01192	0.02131
943.1290	67.61	253000.0	85000.0	0.01192	0.02584
944.3400	65.49	253000.0	84000.0	0.01192	0.02459
945.5510	65.58	254000.0	84000.0	0.01193	0.03010
946.8090	65.63	253000.0	85000.0	0.01192	0.02776
948.0200	67.94	253000.0	85000.0	0.01192	0.02505
949.2300	65.54	253000.0	85000.0	0.01192	0.02787
950.3790	67.85	253000.0	85000.0	0.01192	0.02431
951.7540	67.50	252000.0	84000.0	0.01192	0.02547
952.9100	66.61	252000.0	84000.0	0.01192	0.02579
954.1210	67.36	252000.0	84000.0	0.01193	0.02876
955.4340	65.45	252000.0	85000.0	0.01193	0.03214
956.6450	67.32	252000.0	85000.0	0.01193	0.02677
957.8480	65.71	252000.0	85000.0	0.01193	0.02467
959.1130	65.87	252000.0	85000.0	0.01194	0.02563
960.4340	67.63	252000.0	85000.0	0.01193	0.03709
961.6450	66.07	251000.0	84000.0	0.01194	0.04074
962.7930	65.94	251000.0	85000.0	0.01194	0.03962
964.1130	66.81	251000.0	85000.0	0.01194	0.03877
965.2700	66.34	251000.0	85000.0	0.01194	0.05027
966.4180	66.18	250000.0	85000.0	0.01195	0.05243
967.7930	66.09	251000.0	85000.0	0.01195	0.05487
968.9490	66.61	252000.0	85000.0	0.01195	0.04717
970.1520	68.23	251000.0	85000.0	0.01193	0.04662
971.3090	67.34	250000.0	85000.0	0.01194	0.04749

972.6840	69.95	250000.0	84000.0	0.01194	0.05323
973.7770	68.54	250000.0	85000.0	0.01194	0.05822
974.9880	67.14	250000.0	85000.0	0.01194	0.06076
976.2540	68.85	250000.0	85000.0	0.01193	0.06266
977.4650	66.09	250000.0	85000.0	0.01193	0.05994
978.6680	67.36	250000.0	85000.0	0.01193	0.05612
979.9880	68.81	249000.0	85000.0	0.01194	0.05340
981.1910	66.79	249000.0	84000.0	0.01194	0.05374
982.3480	69.30	249000.0	85000.0	0.01194	0.05223
983.5590	67.14	249000.0	84000.0	0.01194	0.04802
984.8240	69.42	248000.0	85000.0	0.01193	0.05206
986.0820	66.34	249000.0	85000.0	0.01194	0.06171
987.2380	68.59	249000.0	85000.0	0.01195	0.08243
988.6130	69.01	248000.0	84000.0	0.01195	0.10710
989.7620	67.83	248000.0	84000.0	0.01195	0.11392
990.9730	66.50	248000.0	84000.0	0.01195	0.12062
992.1210	69.23	248000.0	84000.0	0.01195	0.12811
993.5040	69.34	247000.0	85000.0	0.01195	0.13527
994.6520	69.34	249000.0	85000.0	0.01195	0.14437
995.8630	67.87	249000.0	84000.0	0.01195	0.15335
997.1840	69.32	248000.0	84000.0	0.01194	0.15748
999.5430	67.76	248000.0	85000.0	0.01194	0.15892
1000.8010	68.76	248000.0	84000.0	0.01195	0.15052
1002.0120	69.19	247000.0	84000.0	0.01194	0.15747
1003.1600	68.23	247000.0	84000.0	0.01195	0.15137
1004.3710	65.46	247000.0	84000.0	0.01195	0.15225
1005.6910	68.45	248000.0	85000.0	0.01195	0.14758
1006.9020	69.14	247000.0	84000.0	0.01195	0.13971
1008.1130	69.68	247000.0	84000.0	0.01195	0.13121
1009.4800	67.12	247000.0	84000.0	0.01196	0.13183
1010.6290	69.68	247000.0	85000.0	0.01196	0.14020
1011.8400	67.96	247000.0	85000.0	0.01197	0.13966
1013.1600	68.46	247000.0	84000.0	0.01196	0.13380
1014.3710	69.34	247000.0	84000.0	0.01196	0.12602
1015.5200	69.76	246000.0	84000.0	0.01196	0.12041
1016.6840	67.99	246000.0	84000.0	0.01197	0.13230
1018.0510	69.16	246000.0	84000.0	0.01195	0.13620
1019.1990	67.39	246000.0	84000.0	0.01195	0.12882
1020.3630	67.68	246000.0	85000.0	0.01196	0.13278
1021.7300	67.56	246000.0	85000.0	0.01196	0.13255
1022.9410	68.16	246000.0	85000.0	0.01196	0.14184
1024.0900	68.85	245000.0	84000.0	0.01196	0.14663
1025.4100	69.97	245000.0	85000.0	0.01196	0.15887
1026.6210	69.23	245000.0	85000.0	0.01196	0.16782
1027.7700	68.74	245000.0	84000.0	0.01196	0.18629
1028.9180	68.85	244000.0	84000.0	0.01197	0.20512
1030.2380	66.56	245000.0	85000.0	0.01198	0.21392
1031.4490	69.92	245000.0	84000.0	0.01197	0.21964
1032.5980	68.08	245000.0	84000.0	0.01197	0.20958
1033.9180	68.56	244000.0	85000.0	0.01197	0.21000
1035.0820	68.56	244000.0	85000.0	0.01196	0.20862
1036.2770	67.85	244000.0	85000.0	0.01196	0.21460
1037.4410	67.72	244000.0	84000.0	0.01196	0.20569
1038.7620	68.70	243000.0	85000.0	0.01196	0.20573
1039.9100	69.25	244000.0	84000.0	0.01197	0.20327
1041.0590	70.92	243000.0	85000.0	0.01196	0.19824
1042.4410	69.65	243000.0	84000.0	0.01197	0.20371
1043.6450	70.99	243000.0	85000.0	0.01197	0.20722
1044.8010	68.54	243000.0	84000.0	0.01197	0.20318
1046.1210	70.86	243000.0	84000.0	0.01197	0.19116
1047.3240	68.83	243000.0	84000.0	0.01197	0.19088
1048.5270	70.61	242000.0	84000.0	0.01198	0.19500
1049.6910	68.56	242000.0	84000.0	0.01198	0.20336
1051.0040	70.14	244000.0	84000.0	0.01198	0.21782
1052.2150	69.08	242000.0	84000.0	0.01198	0.22330
1053.3710	71.08	241000.0	84000.0	0.01198	0.22141
1054.7380	68.76	242000.0	85000.0	0.01198	0.23028
1055.8950	68.76	242000.0	85000.0	0.01198	0.22594
1057.1600	69.54	242000.0	85000.0	0.01198	0.23597
1058.4180	68.41	242000.0	84000.0	0.01197	0.24490
1059.6290	69.34	241000.0	84000.0	0.01198	0.25383
1060.7770	70.08	241000.0	84000.0	0.01199	0.25809
1061.9880	70.32	241000.0	84000.0	0.01198	0.26196
1063.3630	70.30	241000.0	84000.0	0.01198	0.26449
1064.5740	71.52	241000.0	85000.0	0.01199	0.26311
1065.7770	69.99	241000.0	85000.0	0.01199	0.25288
1067.0980	70.97	241000.0	84000.0	0.01198	0.26818
1068.3090	70.94	241000.0	85000.0	0.01199	0.26400
1069.4650	69.01	241000.0	86000.0	0.01199	0.25677
1070.6680	70.39	240000.0	84000.0	0.01198	0.23533
1071.9880	68.85	240000.0	85000.0	0.01198	0.22009
1073.1910	70.65	240000.0	85000.0	0.01198	0.22009
1074.3480	72.94	240000.0	84000.0	0.01197	0.20746
1075.6680	71.61	240000.0	85000.0	0.01197	0.20888
1076.8710	70.99	240000.0	84000.0	0.01198	0.19608
1078.0270	66.92	240000.0	84000.0	0.01198	0.20432
1079.4020	71.55	240000.0	86000.0	0.01198	0.18936
1080.5510	65.62	241000.0	84000.0	0.01198	0.16276
1081.7150	69.65	240000.0	84000.0	0.01199	0.14639
1082.9180	70.25	240000.0	85000.0	0.01198	0.13467
1084.2930	71.46	240000.0	85000.0	0.01199	0.13465
1085.4410	69.61	239000.0	84000.0	0.01198	0.13199
1086.6520	70.99	239000.0	84000.0	0.01199	0.12700
1087.9100	71.37	240000.0	84000.0	0.01200	0.11621
1089.0740	71.70	239000.0	85000.0	0.01199	0.12436
1090.2770	72.00	239000.0	85000.0	0.01199	0.11278
1091.5900	71.57	239000.0	84000.0	0.01199	0.11931
1092.7540	69.37	240000.0	84000.0	0.01199	0.11381
1093.9020	70.63	239000.0	85000.0	0.01199	0.10967
1095.1130	71.03	238000.0	86000.0	0.01199	0.09909
1096.4800	69.79	238000.0	84000.0	0.01199	0.08399
1097.6910	72.17	238000.0	84000.0	0.01198	0.09672
1098.8400	72.08	238000.0	85000.0	0.01200	0.13902
1100.1600	69.79	238000.0	85000.0	0.01200	0.18057
1101.3240	71.88	238000.0	85000.0	0.01199	0.17293
1102.5200	71.79	238000.0	84000.0	0.01199	0.14442
1103.8400	70.25	237000.0	84000.0	0.01199	0.13020
1105.0510	70.23	237000.0	85000.0	0.01199	0.11260
1106.1990	70.41	237000.0	84000.0	0.01199	0.09283
1107.4100	72.73	237000.0	84000.0	0.01199	0.09020
1108.6840	70.43	236000.0	84000.0	0.01199	0.07428
1109.8790	71.86	237000.0	84000.0	0.01199	0.05929
1111.0430	113.30	237000.0	84000.0	0.01199	0.06178
1112.4100	70.25	237000.0	84000.0	0.01199	0.05112
1113.5590	71.19	237000.0	84000.0	0.01198	0.05640
1114.7700	73.24	236000.0	84000.0	0.01199	0.06028
1115.9340	70.34	236000.0	84000.0	0.01199	0.05382
1117.3010	72.84	236000.0	86000.0	0.01198	0.03981
1118.4490	73.29	235000.0	84000.0	0.01198	0.03102
1119.6130	72.42	236000.0	84000.0	0.01199	0.02474
1120.9800	73.53	236000.0	83000.0	0.01200	0.02222
1122.1290	70.85	236000.0	83000.0	0.01200	0.01928
1123.3400	71.57	236000.0	83000.0	0.01200	0.01665
1124.6600	71.43	236000.0	81000.0	0.01199	0.01387
1125.8710	72.44	236000.0	82000.0	0.01200	0.01210
1127.0200	73.25	236000.0	83000.0	0.01201	0.01083
1128.1680	73.67	235000.0	82000.0	0.01200	0.00993
1129.4880	72.80	235000.0	82000.0	0.01200	0.00917
1130.6520	72.04	235000.0	82000.0	0.01199	0.00868
1131.9100	71.35	235000.0	82000.0	0.01199	0.00819
1133.2300	74.40	236000.0	83000.0	0.01199	0.01084
1134.4410	71.66	235000.0	84000.0	0.01199	0.01116

1135.5900	71.91	235000.0	83000.0	0.01199	0.01191
1136.9650	74.27	234000.0	85000.0	0.01200	0.01043
1138.1210	72.29	234000.0	84000.0	0.01199	0.00956
1139.3240	72.69	234000.0	85000.0	0.01200	0.00892
1140.5270	73.13	234000.0	85000.0	0.01200	0.00844
1141.8480	74.72	234000.0	85000.0	0.01201	0.00807
1143.0040	71.97	234000.0	84000.0	0.01201	0.00784
1144.2700	74.27	235000.0	84000.0	0.01201	0.00766
1145.5900	74.25	234000.0	85000.0	0.01201	0.00751
1146.7930	72.42	233000.0	85000.0	0.01200	0.00733
1147.9490	72.77	233000.0	84000.0	0.01200	0.00736
1149.1600	74.20	233000.0	84000.0	0.01200	0.00729
1150.4730	75.03	233000.0	85000.0	0.01200	0.00725
1151.6840	74.94	233000.0	86000.0	0.01201	0.00719
1152.8950	75.30	233000.0	85000.0	0.01201	0.00718
1154.2150	74.29	233000.0	85000.0	0.01201	0.00710
1155.4180	73.22	233000.0	85000.0	0.01201	0.00716
1156.5740	72.95	233000.0	85000.0	0.01201	0.00715
1157.8950	74.38	232000.0	85000.0	0.01200	0.00714
1159.0430	74.09	232000.0	84000.0	0.01200	0.00713
1160.3090	73.18	232000.0	84000.0	0.01200	0.00713
1161.5120	72.78	232000.0	85000.0	0.01200	0.00712
1162.8950	72.51	233000.0	84000.0	0.01201	0.00711
1164.0430	73.40	232000.0	85000.0	0.01201	0.00711
1165.2540	73.91	232000.0	84000.0	0.01200	0.00705
1166.5120	73.16	232000.0	85000.0	0.01200	0.00708
1167.7230	75.17	232000.0	85000.0	0.01200	0.00710
1168.9340	74.52	232000.0	85000.0	0.01200	0.00708
1170.2540	75.55	232000.0	85000.0	0.01200	0.00709
1171.4020	73.31	231000.0	84000.0	0.01200	0.00708
1172.6130	73.49	231000.0	84000.0	0.01200	0.00708
1173.8710	75.23	231000.0	85000.0	0.01200	0.00709
1175.1450	77.79	231000.0	85000.0	0.01200	0.00708
1176.3400	73.40	231000.0	84000.0	0.01200	0.00707
1177.5040	75.12	231000.0	84000.0	0.01200	0.00696
1178.8710	73.72	231000.0	84000.0	0.01199	0.00708
1180.0200	75.17	231000.0	85000.0	0.01200	0.00702
1181.1840	74.79	230000.0	84000.0	0.01200	0.00706
1182.5040	73.40	230000.0	84000.0	0.01201	0.00703
1183.7620	74.50	229000.0	84000.0	0.01201	0.00706
1184.9100	75.31	230000.0	85000.0	0.01201	0.00707
1186.0740	76.35	230000.0	85000.0	0.01201	0.00702
1187.4410	74.97	230000.0	84000.0	0.01201	0.00707
1188.5900	76.31	230000.0	84000.0	0.01201	0.00698
1189.8010	75.01	230000.0	84000.0	0.01200	0.00978
1191.0590	76.02	230000.0	84000.0	0.01200	0.01053
1192.2700	75.01	230000.0	83000.0	0.01201	0.00957
1193.4340	74.27	229000.0	84000.0	0.01200	0.00878
1194.5820	76.02	229000.0	82000.0	0.01201	0.00839
1195.9020	75.42	229000.0	82000.0	0.01201	0.00798
1197.0510	76.64	229000.0	82000.0	0.01201	0.00761
1198.2620	69.88	229000.0	82000.0	0.01200	0.00754
1199.5820	75.46	229000.0	82000.0	0.01200	0.00739
1200.7300	73.99	229000.0	82000.0	0.01200	0.00730
1201.8790	76.38	229000.0	82000.0	0.01200	0.00712
1203.2620	75.17	229000.0	83000.0	0.01201	0.00716
1204.4100	76.49	228000.0	82000.0	0.01200	0.00704
1205.6210	77.29	228000.0	82000.0	0.01201	0.00711
1206.7700	76.56	228000.0	82000.0	0.01201	0.00709
1208.1520	74.68	228000.0	82000.0	0.01200	0.00707
1209.3010	76.15	228000.0	82000.0	0.01200	0.00706
1210.5120	77.61	228000.0	82000.0	0.01200	0.00705
1211.8320	75.69	229000.0	82000.0	0.01200	0.00705
1213.0270	74.57	228000.0	82000.0	0.01199	0.00698
1214.1910	77.52	228000.0	83000.0	0.01200	0.00704
1215.5120	74.50	228000.0	82000.0	0.01200	0.00706
1216.7150	74.86	228000.0	83000.0	0.01201	0.00703
1217.9180	76.96	227000.0	82000.0	0.01201	0.00703
1219.1910	77.23	227000.0	83000.0	0.01202	0.00703
1220.4490	76.74	227000.0	83000.0	0.01202	0.00703
1221.6600	74.88	227000.0	83000.0	0.01201	0.00704
1222.8090	75.33	228000.0	82000.0	0.01200	0.00694
1224.1290	76.27	227000.0	82000.0	0.01200	0.00699
1225.3400	77.99	225000.0	82000.0	0.01200	0.00698
1226.4880	75.19	226000.0	82000.0	0.01200	0.00699
1227.6990	77.68	227000.0	83000.0	0.01202	0.00702
1229.0200	77.67	226000.0	82000.0	0.01201	0.00701
1230.2300	76.06	226000.0	82000.0	0.01201	0.00703
1231.3790	76.09	226000.0	83000.0	0.01201	0.00698
1232.6990	75.37	226000.0	83000.0	0.01201	0.00701
1233.9100	77.34	227000.0	82000.0	0.01201	0.00702
1235.0590	76.00	225000.0	83000.0	0.01202	0.00697
1236.3790	78.41	226000.0	82000.0	0.01202	0.00703
1237.5270	78.37	226000.0	82000.0	0.01201	0.00701
1238.7380	76.31	225000.0	82000.0	0.01201	0.00701
1239.9490	78.01	225000.0	83000.0	0.01201	0.00692
1241.2700	75.62	225000.0	82000.0	0.01202	0.00701
1242.4730	77.92	225000.0	83000.0	0.01202	0.00701
1243.6290	75.89	224000.0	83000.0	0.01201	0.00702
1244.9490	76.78	225000.0	84000.0	0.01201	0.00702
1246.0980	76.90	225000.0	83000.0	0.01201	0.00701
1247.3090	75.44	223000.0	83000.0	0.01200	0.00692
1248.6290	77.85	224000.0	83000.0	0.01201	0.00701
1249.7770	75.56	224000.0	83000.0	0.01200	0.00701
1251.0430	77.90	224000.0	83000.0	0.01201	0.00693
1252.1990	78.44	224000.0	83000.0	0.01202	0.00701
1253.5740	76.98	224000.0	82000.0	0.01202	0.00701
1254.7230	78.57	224000.0	82000.0	0.01203	0.00701
1256.9340	75.96	223000.0	83000.0	0.01203	0.00701
1258.2540	78.35	224000.0	81000.0	0.01202	0.00702
1259.4650	78.50	224000.0	83000.0	0.01202	0.00698
1260.6680	76.94	224000.0	83000.0	0.01202	0.00701
1261.9800	78.68	224000.0	84000.0	0.01201	0.00700
1262.1910	76.76	223000.0	83000.0	0.01201	0.00700
1263.4020	78.80	223000.0	83000.0	0.01201	0.00700
1264.5510	78.55	223000.0	84000.0	0.01201	0.00700
1265.8710	82.32	223000.0	83000.0	0.01201	0.00690
1267.0820	77.12	223000.0	82000.0	0.01201	0.00702
1268.2300	80.03	223000.0	83000.0	0.01202	0.00694
1269.5510	78.73	223000.0	83000.0	0.01202	0.00702
1270.7150	76.47	223000.0	83000.0	0.01202	0.00698
1271.9100	76.61	223000.0	83000.0	0.01202	0.00700
1273.0740	77.81	223000.0	83000.0	0.01201	0.00701
1274.3950	79.22	223000.0	83000.0	0.01202	0.00697
1275.5430	76.72	222000.0	83000.0	0.01203	0.00700
1276.7540	78.50	223000.0	83000.0	0.01202	0.00695
1278.0740	79.38	222000.0	83000.0	0.01202	0.00702
1279.2700	78.95	221000.0	83000.0	0.01201	0.00700
1280.4340	79.17	222000.0	83000.0	0.01201	0.00701
1281.7540	73.70	222000.0	83000.0	0.01201	0.00695
1282.9490	77.73	222000.0	83000.0	0.01201	0.00700
1284.1600	79.33	222000.0	84000.0	0.01201	0.00698
1285.3710	77.41	222000.0	83000.0	0.01201	0.00731
1286.6910	79.11	222000.0	85000.0	0.01201	0.00817
1287.8400	79.47	222000.0	83000.0	0.01201	0.01003
1289.1130	79.62	222000.0	85000.0	0.01201	0.01153
1290.4180	78.93	222000.0	83000.0	0.01200	0.01160
1291.5820	77.63	222000.0	83000.0	0.01201	0.01033
1292.7930	77.48	221000.0	84000.0	0.01201	0.00965
1294.0980	78.17	221000.0	84000.0	0.01201	0.01045
1295.2620	77.44	221000.0	84000.0	0.01201	0.01967
1296.4730	79.54	221000.0	84000.0	0.01200	0.02358

1297.6210	79.45	221000.0	84000.0	0.01200	0.02456
1298.9880	83.53	221000.0	84000.0	0.01200	0.03159
1300.1520	79.92	220000.0	84000.0	0.01201	0.04824
1301.3010	80.47	221000.0	84000.0	0.01200	0.04922
1302.6680	78.22	220000.0	84000.0	0.01200	0.04172
1303.8320	78.73	220000.0	84000.0	0.01201	0.03926
1305.0270	79.78	220000.0	85000.0	0.01202	0.04792
1306.1910	80.68	220000.0	84000.0	0.01201	0.05912
1307.5590	80.32	220000.0	85000.0	0.01202	0.07524
1308.7150	79.83	220000.0	84000.0	0.01201	0.08035
1309.9180	78.29	220000.0	84000.0	0.01200	0.06398
1311.2380	80.81	220000.0	85000.0	0.01200	0.07474
1312.4490	80.52	219000.0	85000.0	0.01201	0.07537
1313.5980	80.03	219000.0	85000.0	0.01201	0.07892
1314.9180	78.09	219000.0	86000.0	0.01201	0.09296
1316.1290	79.80	220000.0	86000.0	0.01201	0.08845
1317.3400	80.57	219000.0	85000.0	0.01201	0.08890
1318.5510	79.58	220000.0	85000.0	0.01201	0.09002
1319.9180	81.28	219000.0	85000.0	0.01200	0.10184
1321.0740	80.88	218000.0	85000.0	0.01200	0.10708
1322.2770	80.43	219000.0	85000.0	0.01199	0.10545
1323.5980	80.39	219000.0	85000.0	0.01199	0.09628
1324.8090	83.11	220000.0	86000.0	0.01199	0.09253
1325.9050	78.69	219000.0	85000.0	0.01200	0.09786
1327.2770	80.10	220000.0	86000.0	0.01199	0.09781
1328.4340	80.88	220000.0	87000.0	0.01200	0.10575
1329.5900	81.53	218000.0	86000.0	0.01200	0.11849
1330.7930	81.33	219000.0	87000.0	0.01200	0.12333
1332.1680	81.19	218000.0	86000.0	0.01199	0.13032
1333.3240	81.46	217000.0	86000.0	0.01199	0.12960
1334.5270	79.65	218000.0	88000.0	0.01200	0.13290
1335.8480	81.19	219000.0	86000.0	0.01200	0.13441
1337.1130	80.75	217000.0	88000.0	0.01199	0.13592
1338.3240	80.72	218000.0	86000.0	0.01198	0.14072
1339.6450	78.83	217000.0	88000.0	0.01198	0.14293
1340.8480	80.03	217000.0	87000.0	0.01198	0.14851
1342.0040	79.27	217000.0	87000.0	0.01197	0.15099
1343.2150	79.54	217000.0	89000.0	0.01198	0.15618
1344.5270	79.69	216000.0	89000.0	0.01197	0.16381
1345.7300	80.37	216000.0	90000.0	0.01198	0.16520
1346.8950	81.73	216000.0	90000.0	0.01197	0.16735
1348.2150	79.67	216000.0	89000.0	0.01198	0.17123
1349.4100	82.51	216000.0	88000.0	0.01198	0.17006
1350.5740	79.97	216000.0	90000.0	0.01197	0.16997
1351.7770	81.51	216000.0	92000.0	0.01197	0.17647
1353.0900	79.61	216000.0	91000.0	0.01196	0.18239
1354.2540	82.18	216000.0	91000.0	0.01196	0.18700
1355.4650	79.74	216000.0	91000.0	0.01195	0.18767
1356.7700	82.51	215000.0	92000.0	0.01195	0.19077
1358.0430	79.84	216000.0	92000.0	0.01195	0.19313
1359.1910	79.79	216000.0	93000.0	0.01194	0.19893
1360.5120	80.15	215000.0	92000.0	0.01193	0.20285
1361.7230	80.26	215000.0	92000.0	0.01193	0.20281
1362.8710	82.85	215000.0	92000.0	0.01193	0.20320
1364.0820	82.81	215000.0	92000.0	0.01193	0.20560
1365.4020	80.01	215000.0	93000.0	0.01193	0.20622
1366.5510	84.78	215000.0	95000.0	0.01192	0.21048
1367.6990	80.91	215000.0	94000.0	0.01191	0.21472
1369.0820	83.03	215000.0	94000.0	0.01191	0.21834
1370.2300	85.31	215000.0	94000.0	0.01191	0.21860
1371.4410	81.06	215000.0	94000.0	0.01192	0.21723
1372.7620	83.01	215000.0	95000.0	0.01190	0.22111
1373.9100	83.57	215000.0	98000.0	0.01189	0.22705
1375.1210	81.51	215000.0	97000.0	0.01186	0.23596
1376.3320	79.73	215000.0	98000.0	0.01185	0.23962
1377.6520	80.97	214000.0	96000.0	0.01184	0.24320
1378.8480	83.50	214000.0	97000.0	0.01183	0.24657
1380.0120	83.88	214000.0	99000.0	0.01182	0.24891
1381.3320	82.16	214000.0	100000.0	0.01180	0.25414
1382.5270	82.02	214000.0	100000.0	0.01178	0.25880
1383.8010	83.19	214000.0	101000.0	0.01176	0.26330
1385.0590	82.12	213000.0	100000.0	0.01174	0.26636
1386.3790	80.91	213000.0	100000.0	0.01174	0.26795
1387.6450	84.28	213000.0	101000.0	0.01174	0.26942
1388.9100	84.20	213000.0	102000.0	0.01172	0.27200
1390.2770	82.70	213000.0	103000.0	0.01171	0.27593
1391.5430	83.95	213000.0	101000.0	0.01169	0.27778
1392.7540	84.51	213000.0	102000.0	0.01169	0.27790
1394.1210	83.75	212000.0	103000.0	0.01167	0.28163
1395.3320	84.35	213000.0	103000.0	0.01167	0.28404
1396.5430	83.12	213000.0	103000.0	0.01165	0.28514
1397.7540	82.61	213000.0	103000.0	0.01164	0.28708
1399.1210	83.86	213000.0	104000.0	0.01163	0.28948
1400.3320	85.45	213000.0	104000.0	0.01161	0.29127
1401.6520	83.39	213000.0	105000.0	0.01160	0.29448
1402.9730	85.40	212000.0	105000.0	0.01158	0.29774
1404.2300	73.78	212000.0	105000.0	0.01157	0.30047
1405.4410	84.34	211000.0	106000.0	0.01154	0.30287
1406.8710	83.84	212000.0	106000.0	0.01151	0.30538
1408.1290	85.09	212000.0	106000.0	0.01150	0.30691
1409.3400	85.41	212000.0	107000.0	0.01149	0.30919
1410.5980	83.57	211000.0	107000.0	0.01146	0.31153
1411.9180	83.46	211000.0	107000.0	0.01145	0.31398
1413.0740	83.66	212000.0	108000.0	0.01142	0.31487
1414.2770	86.02	211000.0	108000.0	0.01141	0.31662
1415.5980	84.22	211000.0	108000.0	0.01140	0.31900
1416.8090	84.56	211000.0	109000.0	0.01138	0.32059
1417.9650	87.27	211000.0	109000.0	0.01137	0.32275
1419.2770	84.43	212000.0	109000.0	0.01136	0.32436
1420.4880	87.11	211000.0	109000.0	0.01134	0.32619
1421.6990	87.16	211000.0	109000.0	0.01133	0.32649
1422.9020	85.88	211000.0	109000.0	0.01132	0.32704
1424.2770	86.89	211000.0	109000.0	0.01131	0.32754
1425.4340	87.43	211000.0	109000.0	0.01130	0.32899
1426.6450	84.74	211000.0	109000.0	0.01129	0.32996
1427.9650	86.69	211000.0	110000.0	0.01127	0.33002
1429.1130	85.91	210000.0	110000.0	0.01126	0.33141
1430.3240	85.55	210000.0	110000.0	0.01126	0.33302
1431.4730	86.55	210000.0	110000.0	0.01125	0.33342
1432.8480	85.21	210000.0	111000.0	0.01124	0.33437
1434.0040	87.99	211000.0	111000.0	0.01123	0.33499
1435.2620	86.35	210000.0	111000.0	0.01121	0.33557
1436.5820	87.05	211000.0	111000.0	0.01120	0.33618
1437.7930	87.83	210000.0	111000.0	0.01119	0.33693
1438.9410	86.06	210000.0	111000.0	0.01118	0.33820
1440.2620	83.47	210000.0	112000.0	0.01118	0.33968
1441.4730	88.29	210000.0	112000.0	0.01117	0.34082
1442.6210	87.12	210000.0	112000.0	0.01116	0.34246
1443.8320	87.83	210000.0	112000.0	0.01115	0.34440
1445.1520	88.13	209000.0	112000.0	0.01114	0.34524
1446.3630	88.93	209000.0	112000.0	0.01112	0.34483
1447.5740	87.14	208000.0	112000.0	0.01110	0.34577
1448.8790	88.76	209000.0	113000.0	0.01108	0.34551
1450.0430	88.26	209000.0	113000.0	0.01108	0.34672
1451.3010	89.39	208000.0	113000.0	0.01107	0.34726
1452.5590	88.58	209000.0	114000.0	0.01104	0.34808
1453.7700	87.60	208000.0	114000.0	0.01103	0.34938
1454.9340	86.92	209000.0	114000.0	0.01101	0.35091
1456.0820	87.23	209000.0	114000.0	0.01099	0.35200
1457.4490	87.61	208000.0	114000.0	0.01098	0.35286
1458.6130	87.30	208000.0	114000.0	0.01096	0.35466
1459.8090	89.90	209000.0	115000.0	0.01095	0.35635

1461.1290	82.94	208000.0	115000.0	0.01093	0.35843
1462.2930	89.90	208000.0	115000.0	0.01092	0.35916
1463.4880	89.61	208000.0	115000.0	0.01091	0.35953
1464.6520	90.06	208000.0	115000.0	0.01089	0.36023
1465.9730	87.75	208000.0	116000.0	0.01087	0.36071
1467.1680	89.27	207000.0	115000.0	0.01085	0.36103
1468.3790	88.29	207000.0	116000.0	0.01084	0.36217
1469.6990	89.75	207000.0	116000.0	0.01082	0.36354
1470.9100	87.99	207000.0	117000.0	0.01080	0.36564
1472.0590	88.31	208000.0	117000.0	0.01078	0.36644
1473.3790	89.52	207000.0	117000.0	0.01075	0.36742
1474.5900	88.50	207000.0	117000.0	0.01073	0.36937
1475.8010	88.76	207000.0	118000.0	0.01071	0.37073
1477.0120	88.47	207000.0	119000.0	0.01069	0.37266
1478.3240	90.53	207000.0	119000.0	0.01066	0.37422
1479.4800	89.68	207000.0	119000.0	0.01065	0.37542
1480.6910	91.84	206000.0	119000.0	0.01063	0.37725
1482.0040	91.61	206000.0	120000.0	0.01059	0.37817
1483.1600	91.63	206000.0	120000.0	0.01056	0.37946
1485.6840	90.53	206000.0	121000.0	0.01052	0.38426
1486.8950	91.45	207000.0	121000.0	0.01050	0.38502
1488.0510	90.11	206000.0	121000.0	0.01048	0.38733
1489.1990	92.51	206000.0	121000.0	0.01046	0.38807
1490.5740	89.50	206000.0	122000.0	0.01044	0.38962
1491.7770	92.02	206000.0	122000.0	0.01042	0.39132
1492.9880	93.21	207000.0	123000.0	0.01039	0.39303
1494.3090	91.27	206000.0	122000.0	0.01036	0.39418
1495.5200	93.27	206000.0	123000.0	0.01034	0.39555
1496.6680	93.61	206000.0	123000.0	0.01032	0.39724
1499.1450	91.68	206000.0	124000.0	0.01027	0.39935
1500.2930	93.68	206000.0	124000.0	0.01025	0.40130
1501.5040	91.91	205000.0	124000.0	0.01022	0.40276
1502.8240	92.58	206000.0	125000.0	0.01020	0.40284
1503.9730	93.52	206000.0	125000.0	0.01017	0.40368
1505.1290	91.32	205000.0	125000.0	0.01014	0.40536
1506.5040	95.05	207000.0	126000.0	0.01011	0.40679
1507.6520	94.80	205000.0	126000.0	0.01008	0.40933
1508.8630	94.33	205000.0	126000.0	0.01004	0.41101
1510.0200	93.29	204000.0	127000.0	0.01001	0.41254
1511.3950	94.26	204000.0	127000.0	0.00997	0.41472
1512.5430	95.23	205000.0	127000.0	0.00995	0.41518
1513.6990	95.05	205000.0	128000.0	0.00992	0.41722
1515.0740	94.80	204000.0	128000.0	0.00989	0.41792
1516.2770	93.45	205000.0	128000.0	0.00987	0.41954
1517.4880	95.07	204000.0	128000.0	0.00984	0.42107
1518.8010	93.07	204000.0	129000.0	0.00982	0.42267
1520.0120	95.38	204000.0	129000.0	0.00979	0.42381
1521.1680	93.23	205000.0	129000.0	0.00977	0.42439
1522.3710	92.78	203000.0	129000.0	0.00975	0.42600
1523.6910	92.98	204000.0	129000.0	0.00973	0.42597
1524.9650	94.80	204000.0	129000.0	0.00972	0.42546
1526.1600	94.65	203000.0	129000.0	0.00970	0.42610
1527.5430	95.36	203000.0	130000.0	0.00968	0.42634
1528.6910	95.86	203000.0	130000.0	0.00966	0.42748
1529.9020	96.15	203000.0	130000.0	0.00964	0.42751
1531.2230	94.98	203000.0	130000.0	0.00963	0.42817
1532.4340	96.17	204000.0	130000.0	0.00963	0.42821
1533.5200	94.51	203000.0	130000.0	0.00963	0.42831
1534.6840	95.47	204000.0	129000.0	0.00963	0.42815
1536.0510	95.38	203000.0	130000.0	0.00962	0.42822
1537.1990	95.92	203000.0	129000.0	0.00961	0.42833
1538.4100	96.15	204000.0	130000.0	0.00961	0.42882
1539.6840	93.68	203000.0	130000.0	0.00960	0.42854
1540.8320	92.55	203000.0	130000.0	0.00959	0.42957
1542.0430	94.36	203000.0	130000.0	0.00957	0.42992
1543.3630	96.38	203000.0	130000.0	0.00956	0.43009
1544.5590	94.20	203000.0	130000.0	0.00955	0.43031
1545.7230	96.22	202000.0	130000.0	0.00953	0.43080
1546.9340	93.99	202000.0	130000.0	0.00953	0.43103
1548.2380	96.26	202000.0	131000.0	0.00951	0.43131
1549.4490	94.58	202000.0	131000.0	0.00950	0.43228
1550.6600	96.29	202000.0	131000.0	0.00948	0.43235
1552.0270	94.37	202000.0	131000.0	0.00947	0.43311
1553.1910	94.96	202000.0	131000.0	0.00945	0.43443
1554.4020	94.62	202000.0	131000.0	0.00943	0.43546
1555.5510	97.14	202000.0	131000.0	0.00941	0.43605
1556.8710	97.05	201000.0	132000.0	0.00938	0.43614
1558.0820	95.14	201000.0	132000.0	0.00935	0.43609
1559.2770	95.52	202000.0	132000.0	0.00933	0.43621
1560.6600	97.61	201000.0	133000.0	0.00930	0.43673
1561.8090	95.34	201000.0	133000.0	0.00927	0.43677
1563.0200	98.06	201000.0	133000.0	0.00925	0.43753
1564.3400	98.00	201000.0	133000.0	0.00922	0.43848
1565.4880	96.44	201000.0	134000.0	0.00920	0.43973
1566.6990	96.04	201000.0	134000.0	0.00917	0.44156
1567.8480	96.71	201000.0	134000.0	0.00916	0.44270
1569.2300	98.04	201000.0	134000.0	0.00913	0.44353
1570.3790	96.67	201000.0	135000.0	0.00911	0.44540
1571.6450	97.88	200000.0	135000.0	0.00908	0.44671
1572.9100	96.89	201000.0	135000.0	0.00867	0.44784
1574.1130	96.98	202000.0	127000.0	0.00572	0.44307
1575.3240	99.45	203000.0	125000.0	0.00419	0.43239
1576.6990	98.62	203000.0	123000.0	0.00321	0.42186
1577.9020	98.71	203000.0	122000.0	0.00265	0.41246
1579.1130	98.26	202000.0	121000.0	0.00225	0.40455
1580.3790	98.71	203000.0	120000.0	0.00195	0.39670
1581.7540	97.47	203000.0	118000.0	0.00171	0.38987

4) PN041

Time	Tts	Psg(Pa)	Pts(Pa)	Ws	Winj	Wnat
1.5390	31.36	398000.0	409000.0	0.00082	0.00690	0.03500
2.8590	32.59	398000.0	409000.0	0.00082	0.00690	0.03460
4.2300	31.36	398000.0	409000.0	0.00082	0.00690	0.03470
5.4880	31.42	398000.0	409000.0	0.00082	0.00690	0.03470
6.9800	31.31	398000.0	409000.0	0.00082	0.00690	0.03470
8.3010	31.33	398000.0	409000.0	0.00082	0.00690	0.03480
9.6090	31.38	398000.0	409000.0	0.00082	0.00690	0.03490
11.1020	31.40	398000.0	409000.0	0.00082	0.00690	0.03500
12.4690	31.33	398000.0	409000.0	0.00082	0.00690	0.03490
13.7300	31.42	398000.0	409000.0	0.00082	0.00690	0.03500
15.2700	31.38	398000.0	403000.0	0.00083	0.00770	0.03780
16.5900	31.49	395000.0	332000.0	0.00095	0.27790	0.20700
17.9100	31.42	393000.0	302000.0	0.00105	0.46170	0.28320
19.1680	31.31	393000.0	299000.0	0.00116	0.57720	0.24470
20.5390	31.71	393000.0	290000.0	0.00131	0.66670	0.22270
21.8090	32.15	393000.0	295000.0	0.00146	0.71900	0.21600
23.1290	32.92	392000.0	253000.0	0.00179	0.74670	0.21250
24.6090	33.87	391000.0	203000.0	0.00269	0.72930	0.20230
25.8710	34.65	391000.0	184000.0	0.00333	0.69530	0.19940
27.1290	35.16	391000.0	172000.0	0.00383	0.66040	0.19090
28.6210	35.66	391000.0	165000.0	0.00531	0.62460	0.18610
29.9410	36.04	390000.0	163000.0	0.00698	0.59760	0.19060
31.2500	36.35	390000.0	161000.0	0.00843	0.57580	0.19430
32.6800	36.55	390000.0	159000.0	0.00977	0.55830	0.19370
34.0000	39.45	389000.0	158000.0	0.01068	0.54640	0.19080
35.3200	36.66	389000.0	157000.0	0.01136	0.53610	0.19550
36.5780	36.72	389000.0	158000.0	0.01185	0.52940	0.19980
38.0080	36.79	388000.0	158000.0	0.01226	0.52350	0.20870
39.3280	36.94	388000.0	157000.0	0.01250	0.52140	0.20700
40.6990	37.39	388000.0	158000.0	0.01267	0.51880	0.21520
42.1290	37.72	387000.0	156000.0	0.01282	0.51660	0.21360
43.3910	37.92	387000.0	157000.0	0.01291	0.51350	0.21990
44.6600	38.34	387000.0	156000.0	0.01299	0.51180	0.21940
46.1410	38.76	386000.0	156000.0	0.01304	0.50960	0.21690
47.4610	39.00	386000.0	156000.0	0.01307	0.50970	0.22410
48.6680	39.18	386000.0	156000.0	0.01311	0.50910	0.22480
49.9800	39.47	385000.0	157000.0	0.01313	0.50920	0.22440
51.4100	39.69	385000.0	155000.0	0.01314	0.50750	0.23910
52.7300	39.82	385000.0	155000.0	0.01315	0.50690	0.23560
53.9880	40.11	385000.0	155000.0	0.01316	0.50670	0.24390
55.4800	40.33	384000.0	155000.0	0.01318	0.50680	0.24470
56.7890	40.48	384000.0	154000.0	0.01318	0.50590	0.25160
58.1090	40.73	384000.0	154000.0	0.01319	0.50500	0.25870
59.6020	40.97	383000.0	155000.0	0.01320	0.50560	0.25760
60.9100	41.24	383000.0	155000.0	0.01320	0.50500	0.26080
62.2300	41.41	382000.0	153000.0	0.01320	0.50370	0.26260
63.6600	41.66	382000.0	153000.0	0.01322	0.50330	0.27460
64.9180	41.79	382000.0	153000.0	0.01324	0.50160	0.27970
66.2380	42.14	382000.0	153000.0	0.01323	0.49950	0.27990
67.5590	42.43	382000.0	153000.0	0.01325	0.49900	0.27530
68.9880	42.76	382000.0	152000.0	0.01326	0.49940	0.27190
70.3090	43.12	381000.0	153000.0	0.01328	0.49870	0.27110
71.5700	43.29	381000.0	152000.0	0.01329	0.49850	0.27270
73.0510	43.63	380000.0	151000.0	0.01330	0.49880	0.27780
74.3200	43.69	380000.0	152000.0	0.01331	0.49760	0.28050
75.6290	43.89	380000.0	152000.0	0.01332	0.49580	0.28070
77.1210	44.31	380000.0	153000.0	0.01333	0.49710	0.28380
78.3790	44.42	380000.0	152000.0	0.01335	0.49740	0.27810
79.6990	44.64	380000.0	151000.0	0.01336	0.49770	0.28830
80.9610	44.91	379000.0	152000.0	0.01337	0.49810	0.29440
82.4410	45.28	379000.0	152000.0	0.01337	0.49850	0.28400
83.7580	45.37	379000.0	152000.0	0.01338	0.49900	0.29190
85.0780	45.66	378000.0	153000.0	0.01340	0.49850	0.28900
86.5590	46.01	378000.0	152000.0	0.01341	0.49790	

0.28270
87.7280 46.32 377000.0 152000.0 0.01342 0.49790
0.27680
89.1480 51.04 377000.0 152000.0 0.01343 0.41780
0.30410
90.5290 46.92 377000.0 153000.0 0.01345 0.49800
0.30840
91.9450 47.08 377000.0 151000.0 0.01346 0.49660
0.31360
93.2700 47.30 376000.0 152000.0 0.01348 0.49600
0.31130
94.6910 47.70 376000.0 152000.0 0.01348 0.49600
0.30950
96.0080 47.96 376000.0 151000.0 0.01350 0.49500
0.31510
97.3280 48.25 375000.0 153000.0 0.01350 0.49370
0.31400
98.6480 48.54 375000.0 151000.0 0.01352 0.49440
0.32190
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0.32200
101.3910 48.78 375000.0 152000.0 0.01354 0.49320
0.32020
102.7110 49.05 375000.0 152000.0 0.01355 0.49390
0.32440
104.1990 49.40 374000.0 151000.0 0.01355 0.49390
0.31890
105.5080 49.62 374000.0 154000.0 0.01356 0.49520
0.32270
106.8280 54.03 374000.0 150000.0 0.01357 0.49450
0.32400
108.2580 50.15 373000.0 151000.0 0.01358 0.49350
0.33150
109.5780 50.48 373000.0 150000.0 0.01359 0.49320
0.32880
110.8980 50.79 373000.0 151000.0 0.01359 0.49180
0.32860
112.1600 50.99 372000.0 151000.0 0.01360 0.49150
0.33310
113.6410 51.12 372000.0 150000.0 0.01360 0.49160
0.33060
114.9610 51.43 372000.0 149000.0 0.01361 0.49170
0.32970
116.2810 51.70 372000.0 151000.0 0.01363 0.49130
0.33080
117.7580 51.81 372000.0 152000.0 0.01364 0.49050
0.33300
119.0780 52.08 371000.0 152000.0 0.01364 0.49080
0.33310
120.3980 52.28 371000.0 151000.0 0.01364 0.49170
0.33200
121.8790 52.61 370000.0 151000.0 0.01364 0.49220
0.33290
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0.33090
124.4610 53.01 370000.0 150000.0 0.01366 0.49120
0.32060
125.8910 53.06 369000.0 151000.0 0.01368 0.49060
0.32600
127.2110 53.30 369000.0 149000.0 0.01368 0.48890
0.32710
128.5310 53.45 369000.0 152000.0 0.01369 0.48920
0.32110
129.8520 53.66 368000.0 152000.0 0.01370 0.48910
0.32760
131.3280 53.92 368000.0 153000.0 0.01369 0.48920
0.33150
132.5900 54.30 368000.0 149000.0 0.01371 0.49020
0.34180
133.9100 54.50 368000.0 152000.0 0.01370 0.49100
0.33350
135.3910 54.72 367000.0 153000.0 0.01371 0.49110
0.32230
136.6600 55.14 367000.0 153000.0 0.01372 0.49210
0.32190
137.9180 55.41 367000.0 150000.0 0.01371 0.49130
0.31760
139.3980 56.10 367000.0 150000.0 0.01373 0.49070
0.31370
140.7810 55.94 366000.0 152000.0 0.01374 0.49040
0.29820
142.0900 56.25 366000.0 151000.0 0.01375 0.49040
0.28410
143.4100 56.59 366000.0 151000.0 0.01375 0.49010
0.28330
144.8980 56.94 366000.0 150000.0 0.01375 0.48970
0.29170
146.2110 57.37 366000.0 152000.0 0.01376 0.48920
0.29930
147.5310 57.54 365000.0 152000.0 0.01376 0.48870
0.29170
148.9610 57.72 365000.0 152000.0 0.01377 0.49020
0.29690
150.2810 57.82 365000.0 151000.0 0.01377 0.49090
0.29480
151.6020 57.97 365000.0 154000.0 0.01377 0.49130
0.30320
153.0200 58.06 364000.0 151000.0 0.01379 0.49160
0.29760
154.3400 58.26 364000.0 149000.0 0.01379 0.49160
0.29510
155.6600 57.70 364000.0 151000.0 0.01380 0.49080
0.30410
157.0900 58.84 364000.0 153000.0 0.01381 0.49000
0.30520
158.4100 58.95 364000.0 150000.0 0.01382 0.48870
0.30780
159.6680 59.26 363000.0 148000.0 0.01384 0.48920
0.31170
161.0390 59.44 363000.0 150000.0 0.01384 0.48820
0.29830
162.5310 59.64 362000.0 150000.0 0.01386 0.48730
0.30580
163.8400 59.97 362000.0 149000.0 0.01387 0.48460
0.30680
165.1600 60.06 362000.0 151000.0 0.01389 0.48430
0.30730
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0.30570
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0.30200
169.2300 60.68 360000.0 150000.0 0.01390 0.48180
0.30540
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0.30950
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0.30900
173.2890 62.82 360000.0 150000.0 0.01395 0.48020
0.31270
174.6090 61.42 359000.0 148000.0 0.01395 0.47920
0.31480
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0.31870
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0.32160
178.7300 62.22 359000.0 150000.0 0.01397 0.47870
0.31580
180.1600 62.35 359000.0 147000.0 0.01398 0.47770
0.31870
181.4800 62.53 358000.0 150000.0 0.01399 0.47740
0.30830
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0.31080
184.2190 63.00 358000.0 148000.0 0.01399 0.47650
0.31440
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0.30740
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0.32240
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0.31980
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0.32790
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0.31780
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0.31650
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0.31210
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0.31330
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0.31600
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0.31480
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0.32430
203.1210 66.25 354000.0 149000.0 0.01405 0.47760
0.33020
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0.32470
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0.31950
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0.31790
208.5000 67.03 353000.0 151000.0 0.01406 0.47660
0.31030
209.8200 67.16 353000.0 149000.0 0.01407 0.47660
0.31230
211.3010 67.39 352000.0 149000.0 0.01406 0.47690
0.31210
212.5590 67.56 352000.0 149000.0 0.01407 0.47600
0.31050
213.8790 67.83 352000.0 148000.0 0.01407 0.47630
0.31370
215.3590 67.99 351000.0 148000.0 0.01406 0.47590
0.32110
216.6290 68.14 351000.0 146000.0 0.01407 0.47630
0.32460
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0.31710
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0.31920
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0.32410
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0.32070
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0.32470
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0.32300
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0.32000
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0.33370
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0.34080
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0.33680
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0.33890
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0.32500
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0.33320
256.0080 74.02 343000.0 147000.0 0.01417 0.47110
0.32940
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0.31960
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0.32480
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0.32900
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0.32500
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0.33520
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0.33370
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0.33180
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0.33280
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0.32720
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0.32920
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0.33180
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0.32480
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0.32240
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0.33050
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0.33340
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0.32540
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0.33120
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0.33310
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0.33490
334.2810 82.22 328000.0 148000.0 0.01421 0.45630
0.33830
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0.32510
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0.32620
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0.33230
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0.32710
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0.31550
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0.31730
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0.32380
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0.31920
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0.32620
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0.32520
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0.31910
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0.32090
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0.31950
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0.32010
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0.33180
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S. Smith, NRC Project Manager

11. ABSTRACT *(200 words or less)*

The objective of the present work is to improve the analysis capability of RELAP5/MOD3.1 on the direct contact condensation in the core makeup tank (CMT) of passive high-pressure injection system (PHIS) in the CARR Passive Reactor (CP-1300). The gravity-driven injection experiment is conducted by using a small scale test facility to identify the parameters having significant effects on the gravity-driven injection and the major condensation modes. The condensation modes are divided into three modes: sonic jet, subsonic jet, and steam cavity. RELAP5/MOD3.1 is chosen to evaluate the code predictability on the direct contact condensation in the CMT. It is found that the predictions of MOD3.1 are in better agreement with the experimental data than those of MOD3.0. From the nodalization study of the test section, the 1-node model shows better agreement with the experimental data than the multi-node models. RELAP5/MOD3.1 identifies the flow regime of the test section as vertical stratification. However, the flow regime observed in the experiment is the subsonic jet with the bubble having the vertical cone shape. To accurately predict the direct contact condensation in the CMT with RELAP5/MOD3.1, it is essential that a new set of the interfacial heat transfer coefficients and a new flow regime map for direct contact in the CMT be developed.

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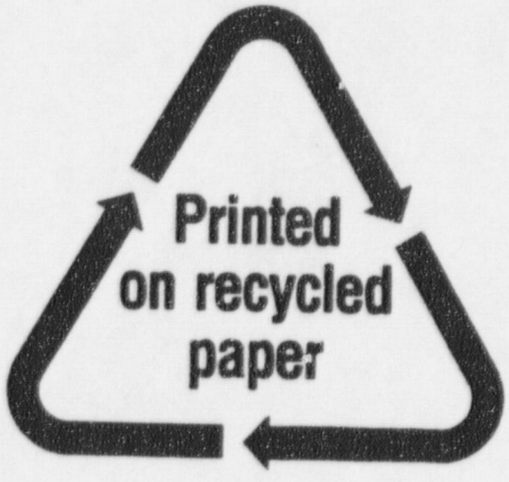

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