ACCEPTED/FILED

OCT 18 2013

Federal Communications Commission
Office of the Secretary

Federal Communications Commission
Washington, D. C. 20554

Approved by OMB
3060-0627
Expires 01/31/98

FOR FCC USE ONLY

FCC 302-AM
APPLICATION FOR AM BROADCAST STATION LICENSE

(Please read instructions before filling out form.

FOR COMMISSION USE ONLY
FILE NO. BMML-20131018AIX

SECTION I - APPLICANT FEE INFORMATION

1. PAYOR NAME (Last, First, Middle Initial)

SALEM MEDIA OF NEW YORK, LLC

MAILING ADDRESS (Line 1) (Maximum 35 characters)
4880 SANTA ROSA ROAD

MAILING ADDRESS (Line 2) (Maximum 35 characters)
SUITE 300

CITY	STATE OR COUNTRY (if foreign address)	ZIP CODE
CAMARILLO	CA	93012

TELEPHONE NUMBER (include area code)	CALL LETTERS	OTHER FCC IDENTIFIER (If applicable)
(805) 987-0400	WMCA	58626

2. A. Is a fee submitted with this application? ☑ Yes ☐ No

B. If No, indicate reason for fee exemption (see 47 C.F.R. Section

☐ Governmental Entity ☐ Noncommercial educational licensee ☐ Other (Please explain):

C. If Yes, provide the following information:

Enter in Column (A) the correct Fee Type Code for the service you are applying for. Fee Type Codes may be found in the "Mass Media Services Fee Filing Guide." Column (B) lists the Fee Multiple applicable for this application. Enter fee amount due in Column (C).

(A) FEE TYPE CODE	(B) FEE MULTIPLE	(C) FEE DUE FOR FEE TYPE CODE IN COLUMN (A)	FOR FCC USE ONLY
MMR	0001	$ 635.00	

To be used only when you are requesting concurrent actions which result in a requirement to list more than one Fee Type Code.

(A)	(B)	(C)	FOR FCC USE ONLY
MOR	0001	$ 730.00	

	TOTAL AMOUNT REMITTED WITH THIS APPLICATION	FOR FCC USE ONLY
ADD ALL AMOUNTS SHOWN IN COLUMN C, AND ENTER THE TOTAL HERE. THIS AMOUNT SHOULD EQUAL YOUR ENCLOSED REMITTANCE.	$ 1,365.00	

SECTION II - APPLICANT INFORMATION		
1. NAME OF APPLICANT SALEM MEDIA OF NEW YORK, LLC		
MAILING ADDRESS 4880 SANTA ROSA ROAD, SUITE 300		
CITY CAMARILLO	STATE CA	ZIP CODE 93012

2. This application is for:

☑ Commercial ☐ Noncommercial

☑ AM Directional ☐ AM Non-Directional

Call letters	Community of License	Construction Permit File No.	Modification of Construction Permit File No(s).	Expiration Date of Last Construction Permit
WMCA	NEW YORK, NY	N/A	N/A	N/A

3. Is the station now operating pursuant to automatic program test authority in accordance with 47 C.F.R. Section 73.1620? ☐ Yes ☑ No

If No, explain in an Exhibit. Exhibit No. N/A

The station is currently operating with Moment Method Computer Modeling under STA (BSTA-20130816ADD).

4. Have all the terms, conditions, and obligations set forth in the above described construction permit been fully met? ☐ Yes ☐ No

NOT APPLICABLE

If No, state exceptions in an Exhibit. Exhibit No. N/A

5. Apart from the changes already reported, has any cause or circumstance arisen since the grant of the underlying construction permit which would result in any statement or representation contained in the construction permit application to be now incorrect? ☐ Yes ☐ No

If Yes, explain in an Exhibit. Exhibit No. N/A

NOT APPLICABLE

6. Has the permittee filed its Ownership Report (FCC Form 323) or ownership certification in accordance with 47 C.F.R. Section 73.3615(b)? ☐ Yes ☐ No ☑ Does not apply

If No, explain in an Exhibit. Exhibit No. N/A

7. Has an adverse finding been made or an adverse final action been taken by any court or administrative body with respect to the applicant or parties to the application in a civil or criminal proceeding, brought under the provisions of any law relating to the following: any felony; mass media related antitrust or unfair competition; fraudulent statements to another governmental unit; or discrimination? ☐ Yes ☑ No

If the answer is Yes, attach as an Exhibit a full disclosure of the persons and matters involved, including an identification of the court or administrative body and the proceeding (by dates and file numbers), and the disposition of the litigation. Where the requisite information has been earlier disclosed in connection with another application or as required by 47 U.S.C. Section 1.65(c), the applicant need only provide: (i) an identification of that previous submission by reference to the file number in the case of an application, the call letters of the station regarding which the application or Section 1.65 information was filed, and the date of filing; and (ii) the disposition of the previously reported matter. Exhibit No. +N/A

8. Does the applicant, or any party to the application, have a petition on file to migrate to the expanded band (1605-1705 kHz) or a permit or license either in the existing band or expanded band that is held in combination (pursuant to the 5 year holding period allowed) with the AM facility proposed to be modified herein?

☐ Yes ☑ No

If Yes, provide particulars as an Exhibit.

Exhibit No. N/A

The APPLICANT hereby waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because use of the same, whether by license or otherwise, and requests and authorization in accordance with this application. (See Section 304 of the Communications Act of 1934, as amended).

The APPLICANT acknowledges that all the statements made in this application and attached exhibits are considered material representations and that all the exhibits are a material part hereof and are incorporated herein as set out in full in

CERTIFICATION

1. By checking Yes, the applicant certifies, that, in the case of an individual applicant, he or she is not subject to a denial of federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. Section 862, or, in the case of a non-individual applicant (e.g., corporation, partnership or other unincorporated association), no party to the application is subject to a denial of federal benefits that includes FCC benefits pursuant to that section. For the definition of a "party" for these purposes, see 47 C.F.R. Section 1.2002(b).

☑ Yes ☐ No

2. I certify that the statements in this application are true, complete, and correct to the best of my knowledge and belief, and are made in good faith.

Name	Signature	
CHRISTOPHER J. HENDERSON		
Title	Date	Telephone Number
SENIOR VICE PRESIDENT & SECRETARY	10/18/2013	(805) 987-0400

WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND/OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION

FCC NOTICE TO INDIVIDUALS REQUIRED BY THE PRIVACY ACT AND THE PAPERWORK REDUCTION ACT

The solicitation of personal information requested in this application is authorized by the Communications Act of 1934, as amended. The Commission will use the information provided in this form to determine whether grant of the application is in the public interest. In reaching that determination, or for law enforcement purposes, it may become necessary to refer personal information contained in this form to another government agency. In addition, all information provided in this form will be available for public inspection. If information requested on the form is not provided, the application may be returned without action having been taken upon it or its processing may be delayed while a request is made to provide the missing information. Your response is required to obtain the requested authorization.

Public reporting burden for this collection of information is estimated to average 639 hours and 53 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, can be sent to the Federal Communications Commission, Records Management Branch, Paperwork Reduction Project (3060-0627), Washington, D. C. 20554. Do NOT send completed forms to this address.

THE FOREGOING NOTICE IS REQUIRED BY THE PRIVACY ACT OF 1974, P.L. 93-579, DECEMBER 31, 1974, 5 U.S.C. 552a(e)(3), AND THE PAPERWORK REDUCTION ACT OF 1980, P.L. 96-511, DECEMBER 11, 1980, 44 U.S.C. 3507.

SECTION III - LICENSE APPLICATION ENGINEERING DATA

Name of Applicant

Salem Media of New York, LLC

PURPOSE OF AUTHORIZATION APPLIED FOR: (check one)

☒ Station License
BMML-

☐ Direct Measurement of Power

1. Facilities authorized in construction permit

Call Sign	File No. of Construction Permit (if applicable)	Frequency (kHz)	Hours of Operation	Power in kilowatts	
				Night	Day
WMCA		570	Unlimited	5	5

2. Station location

State	City or Town
New York	New York

3. Transmitter location

State	County	City or Town	Street address (or other identification)
NJ	Hudson	Kearny	949 Belleville Turnpike

4. Main studio location

State	County	City or Town	Street address (or other identification)
NJ	Bergen	Hasbrouck Heights	777 Terrace Avenue

5. Remote control point location (specify only if authorized directional antenna)

State	County	City or Town	Street address (or other identification)
NJ	Bergen	Hasbrouck Heights	777 Terrace Avenue

6. Has type-approved stereo generating equipment been installed? ☐ Yes ☒ No

7. Does the sampling system meet the requirements of 47 C.F.R. Section 73.68? ☒ Yes ☐ No ☐ Not Applicable

Attach as an Exhibit a detailed description of the sampling system as installed. Exhibit No. Eng Stmt

8. Operating constants:

RF common point or antenna current (in amperes) without modulation for night system	RF common point or antenna current (in amperes) without modulation for day system
10.39	10.39

Measured antenna or common point resistance (in ohms) at operating frequency		Measured antenna or common point reactance (in ohms) at operating frequency	
Night	Day	Night	Day
50	50	+j0	+j0

Antenna indications for directional operation

Towers	Antenna monitor Phase reading(s) in degrees		Antenna monitor sample current ratio(s)		Antenna base currents	
	Night	Day	Night	Day	Night	Day
1	+82.2	+82.2	0.652	0.652	----	----
2	0.0	0.0	1.000	1.000	----	----
3	-95.5	-95.5	0.594	0.594	----	----

Manufacturer and type of antenna monitor: Potomac Instruments, Model 1901-3, S/N 414

SECTION III - Page 2

9. Description of antenna system (If directional antenna is used, the information requested below should be given for each element of the array. Use separate sheets if necessary.)

Type Radiator	Overall height in meters of radiator above base insulator, or above base, if grounded.	Overall height in meters above ground (without obstruction lighting)	Overall height in meters above ground (include obstruction lighting)	If antenna is either top loaded or sectionalized, describe fully in an Exhibit.
Vertical, tapered, triangular, wide based, self-supporting, steel tower	99.1	101.2	102.1	Exhibit No. N/A

Excitation ☒ Series ☐ Shunt

Geographic coordinates to nearest second. For directional antenna give coordinates of center of array. For single vertical radiator give tower location.

North Latitude				West Longitude			
	40 °	45 '	10 "		74 °	06 '	15 "

If not fully described above, attach as an Exhibit further details and dimensions including any other antenna mounted on tower and associated isolation circuits. Exhibit No. N/A

Also, if necessary for a complete description, attach as an Exhibit a sketch of the details and dimensions of ground system. Exhibit No. On File

10. In what respect, if any, does the apparatus constructed differ from that described in the application for construction permit or in the permit?

N/A

11. Give reasons for the change in antenna or common point resistance.

N/A

I certify that I represent the applicant in the capacity indicated below and that I have examined the foregoing statement of technical information and that it is true to the best of my knowledge and belief.

Name (Please Print or Type)	Signature (check appropriate box below)
James D. Sadler	
Address (include ZIP Code)	Date
Carl T. Jones Corporation 7901 Yarnwood Court Springfield, VA 22153	September 26, 2013
	Telephone No. (Include Area Code)
	(703) 569-7704

☐ Technical Director ☐ Registered Professional Engineer

☐ Chief Operator ☒ Technical Consultant

☐ Other (specify)

Consulting Engineers
CTJC
CARL T. JONES CORPORATION

ENGINEERING EXHIBIT
IN SUPPORT OF AN
APPLICATION FOR STATION LICENSE
STATION WMCA – NEW YORK, NEW YORK
570 kHz - 5 kW, U, DA-1
FACILITY ID: 58626

Applicant: Salem Media of New York, LLC

SEPTEMBER, 2013

7901 Yarnwood Court
Springfield, VA 22153-2899

tel: (703) 569-7704
fax: (703) 569-6417

email: info@ctjc.com
www.ctjc.com

TABLE OF CONTENTS

SECTION III OF FCC FORM 302-AM

ENGINEERING STATEMENT OF JAMES D. SADLER

FIGURE

Consulting Engineers
CTJC
CARL T. JONES CORPORATION

ENGINEERING STATEMENT OF JAMES D. SADLER
IN SUPPORT OF AN
APPLICATION FOR STATION LICENSE
STATION WMCA – NEW YORK, NEW YORK
570 kHz - 5 kW, U, DA-1
FACILITY ID: 58626

Applicant: Salem Media of New York, LLC

I am a Technical Consultant, an employee in the firm of Carl T. Jones Corporation, with offices located in Springfield, Virginia. My education and experience are a matter of record with the Federal Communications Commission.

1.0 GENERAL

This office has been authorized by Salem Media of New York, LLC ("Salem Media"), licensee of AM Station WMCA, to prepare this engineering statement and the associated figures and appendices in support of an Application for License. Station WMCA is licensed for operation on 570 kilohertz at a power of 5 kilowatts during both daytime and nighttime hours using the same directional pattern for daytime and nighttime operation (DA-1). The transmitter site is shared with Station WNYC, New York, New York. WNYC is licensed for operation on 820 kilohertz. Both facilities were severely damaged by Hurricane Sandy and have been reconstructed. The rebuilt directional antenna system antenna pattern performance has been verified using computer modeling and sample system verification techniques, as described in Section

7901 Yarnwood Court
Springfield, VA 22153-2899
tel: (703) 569-7704
fax: (703) 569-6417
email: info@ctjc.com
www.ctjc.com

47 CFR 73.151(c) of the Commission's Rules and Regulations. The specific measurement and modeling techniques used in performing the proof of performance on the WMCA directional pattern are described in detail in this engineering statement. Impedance measurement data, sample system verification measurement data and model derived operating parameters are tabulated in the figures attached to this engineering statement. Finally, all pertinent computer model input and output files are contained in the attached Appendices A, and B.

The reconstruction of the WMCA facilities included: 1) purchase and installation of a new type accepted Nautel XR6 transmitter; 2) purchase and installation of a new phasing and coupling system and diplexer circuitry; 3) purchase and installation of a new control and switching system; 4) purchase and installation of new transmission lines, sample lines and control wiring; 5) complete replacement of the catwalks providing access to the towers; and 6) raising and restoration of the equipment buildings at the base of the towers above the recently updated 100 year flood plane. A schematic diagram of the new phasing and coupling system and diplexer circuitry is contained in Figure 8.

2.0 IMPEDANCE MEASUREMENTS, COMPUTER MODELING AND SAMPLE SYSTEM VERIFICATION

The proof of performance contained herein is based on the computer modeling and sample system verification procedures described in Section 47 CFR 73.151(c) of the FCC's Rules and Regulations. The WMCA antenna array consists of three

identical, vertical, tapered, triangular, self-supporting, steel, series-fed towers. All towers have an electrical height of 67.8 degrees (99.06 meters). The sampling system employs identical toroidal current transformers located at the output of the antenna matching network and prior to the input to the diplexer filter networks at the base of each tower.

A detailed description of the impedance and sample system measurements, the computer models employed, and the sample system verification measurements, is contained below.

2.1 INDIVIDUAL TOWER IMPEDANCE MEASUREMENTS

Impedance measurements were performed at the base of each tower, by Mr. Carl T. Jones, Jr., president of this firm, at the output J-Plug of the antenna matching network. This measurement location corresponds to the input to the diplexer filter networks and the location of the sampling system toroidal current transformer. The impedance measurements were performed using a Hewlett-Packard Model 4396A network analyzer; an Amplifier Research Model 5W1000 power amplifier; and a Tunwall Radio directional coupler. The impedance of each tower was measured with the other two towers open-circuited at the corresponding J-Plug location. The measured impedances are tabulated in Figure 3.

2.2 INDIVIDUAL TOWER COMPUTER MODELS

A Method of Moments ("MoM") computer model was developed to model each element in the array using Expert MiniNEC Broadcast Professional (Version 12.5). This version of the software has been found to handle complex tower models better than the newer versions. The WMCA towers are equal height, tapered, wide-based, self-supporting structures with base insulators. Each tower was modeled using multiple wires to represent the legs and connecting members. Structural drawings of the actual towers were used to faithfully reproduce the geometry of each individual tower in the model. Included in the model were only a few of the horizontal and none of the diagonal cross members. A scale drawing of the wire frame model based on the actual physical height of the structure is shown in Figure 1.

Each tower is constructed on elevated piers such that the bases of the towers are above the former 100 year flood plane. The model has accounted for this by elevating the bases of the towers an equivalent height above the ground plane and extending ground connections from the base of the tower insulators to the ground plane. Capacitive loads of 15 picofarads were included in each of the three tower legs to represent the high impedance tower base insulators.

To replicate the individual measured base impedances to within FCC specified tolerances, it was necessary to adjust the physical height of the three towers in the MiniNEC model and, in a separate circuit model, to add a small amount of series inductance and shunt capacitance with the model derived base impedance of each tower. Details of the modeled individual tower adjusted heights are contained in Figure

2. The values of the lumped series inductances and capacitances used in the circuit model are contained in Figure 3. A comparison of the measured individual tower impedances, the modeled individual tower impedances, and the adjusted modeled (circuit model) individual tower impedances is also contained in Figure 3. The percentage difference between the adjusted modeled tower height and the actual physical tower height and the magnitudes of the lumped series inductances and the shunt capacitances that were used in the circuit models are all within the tolerances set forth in the Rules.

As demonstrated by the data contained in Figure 3, the adjusted modeled individual tower resistance and reactance for each tower is well within ± 2 ohms and ± 4 percent tolerance of the corresponding measured individual tower resistance and reactance. The text files containing all pertinent input and output data associated with the individual tower models are contained in Appendix A.

2.3 DIRECTIONAL ANTENNA COMPUTER MODEL AND ANTENNA MONITOR PARAMETERS

The theoretical directional field parameters and the licensed tower spacings and orientations were used in combination with the adjusted individual tower models to produce the directional antenna computer model. From the directional computer model, tower currents were derived for each wire segment of each antenna. Each segment current was multiplied by the segment length and numerically integrated and normalized

to the appropriate reference tower to verify that the modeled current moments are essentially identical to the authorized relative directional field parameters.

The new directional array operating parameters were determined from the modeled base currents and are tabulated in Figure 4. The text files containing all pertinent input and output data associated with the directional antenna computer model are contained in Appendix B.

2.4 SAMPLE SYSTEM DESCRIPTION AND VERIFICATION MEASUREMENTS

The WMCA antenna sampling is comprised of: 1) Delta Electronics, Model TCT-1, toroidal current transformers mounted in an identical manner in the output branch of each tower's impedance matching network; 2) equal lengths of Radio Frequency Systems, Type LCF12-50J, phase stabilized, 1/2-inch, foam dielectric, coaxial cable between each toroidal current transformer and the transmitter building; 3) three foot jumper cables of Andrew Corporation, Type FSJ4-50B, 1/2-inch, superflex, foam dielectric, coaxial cable between the LCF12-50J sample cables and the antenna monitor; and 4) a Potomac Instruments, Model 1901-3, antenna monitor. Each sample line between the ATU building and the transmitter building, including excess lengths, is fastened to the handrail on the catwalk running between the towers; therefore, each sample line is subjected to the same environmental conditions.

The sample lines, including the superflex jumper cables, were verified to be equal in length by measuring the open-circuit series resonate frequency closest to the carrier frequency. The characteristic impedance was verified by measuring the

impedance at frequencies corresponding to odd multiples of 1/8 wavelength immediately above and below the open circuit series resonant frequency closest to the carrier frequency, while the line was open-circuited at the sample element end of the line. The characteristic impedance was calculated by the following formula:

$$Z = \sqrt{\sqrt{R_1^{\,2} + X_1^{\,2}} \times \sqrt{R_2^{\,2} + X_2^{\,2}}}$$

where:

Z = *Characteristic impedance and*

$R_1 + jX_1$ *and* $R_2 + jX_2$ *are the measured impedances at* ± 45 *degrees offset frequencies.*

A tabulation of the measured sample line lengths and the characteristic impedance of each line is contained in Figure 5. All sample line verification measurements were performed by the Mr. Carl T. Jones, Jr., using a Hewlett-Packard, Model 4396A, network analyzer; an Amplifier Research, Model 5W1000, power amplifier; and a Tunwall Radio directional coupler. As demonstrated by the measured values in Figure 5, the measured sample line lengths are within 1 electrical degree with respect to each other and the measured characteristic impedances are well within 2 ohms of each other, as required by Section 47 CFR 73.151(c)(2)(I) of the FCC Rules and Regulations.

An impedance measurement was performed at the input to each sample line, at the antenna monitor end of the line, with the toroidal current transformer connected. The measurement was performed at the WMCA operating frequency of 570 kilohertz.

The measured sample line impedances with the current transformers connected are tabulated in Figure 5 under the heading "Reference Impedance Sample Transformer Connected." The performance of the toroidal current transformers was verified by driving a common reference current through all three transformers and comparing the relative outputs as observed on the network analyzer. The test confirmed that the performance of all three of the WMCA current transformers is well within the manufacturer's stated accuracy. A tabulation of the toroidal current transformer measurement data and the serial number of each toroidal current transformer is contained in Figure 6.

The antenna monitor that is employed at WMCA is a Potomac Instruments, Model 1901-3, Serial Number 414. The performance of the antenna monitor was verified, by Mr. Carl T. Jones, Jr., president of this firm, to be well within the manufacturer's stated accuracy. The verification was performed by comparison of the measured relative directional operating parameters, as observed on the antenna monitor, with those measured using the network analyzer when the phasing and coupling system common point was driven with the network analyzer swept source through a power amplifier.

3.0 COMMON POINT IMPEDANCE AND COMMON POINT CURRENT

The networks associated with the directional antenna system were adjusted for proper impedance transformation and the common point impedance matching network

was set for Z = 50 +j 0 Ohms. The transmitter output power level was adjusted for a common point current of 10.39 amperes.

4.0 REFERENCE FIELD STRENGTH MEASUREMENTS

Reference field strength measurements were performed on the WMCA directional antenna pattern on the 102° radial bearing, corresponding to the major lobe of the pattern. Additional field strength measurements were performed on the 234°, and 330°, corresponding to the directional pattern minima. Three reference field strength measurements were performed on each of the selected radial bearings.

The measurements were performed by Mr. Mark Olkowski, a contract engineer to Salem Communications Corporation, parent company of Salem Media. The meter that was employed to perform the measurements is a Potomac Instruments, Model FIM-41, Serial Number 1459, last calibrated by the manufacturer in June, 2010. The performance of the field intensity meter was recently verified, by the undersigned, by comparing field strength values with those measured with Potomac Instruments Model FIM-41, Serial Number 989, most recently calibrated on March 30, 2012. The field strength value comparisons were performed at several full scale settings and the difference in readings between the two meters was determined to be within the manufacturers stated accuracy.

The measured field strength value for each established reference point location is tabulated in Figure 7, Sheets 1 and 2. The tabulations contained in Figure 7 also

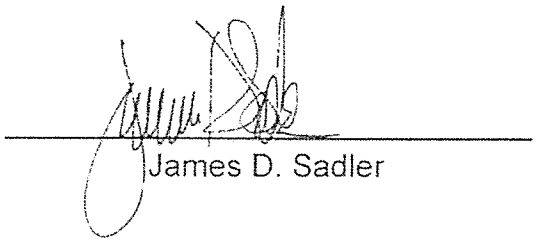
include for each reference location; GPS coordinates (NAD83), distance from the WMCA array center, and a description of measurement location.

SUMMARY

It is submitted that the WMCA directional pattern performance has been verified using computer modeling and sample system verification procedures in accordance with Section 47 CFR 73.151(c) of the Commission's Rules and Regulations. It is believed that the directional antenna system, as adjusted, fully complies with the terms of the station's FCC Authorization and all applicable FCC Rules and Regulations. It is requested that a superseding license be issued to Salem Media reflecting the new MoM model derived operating parameters as contained herein.

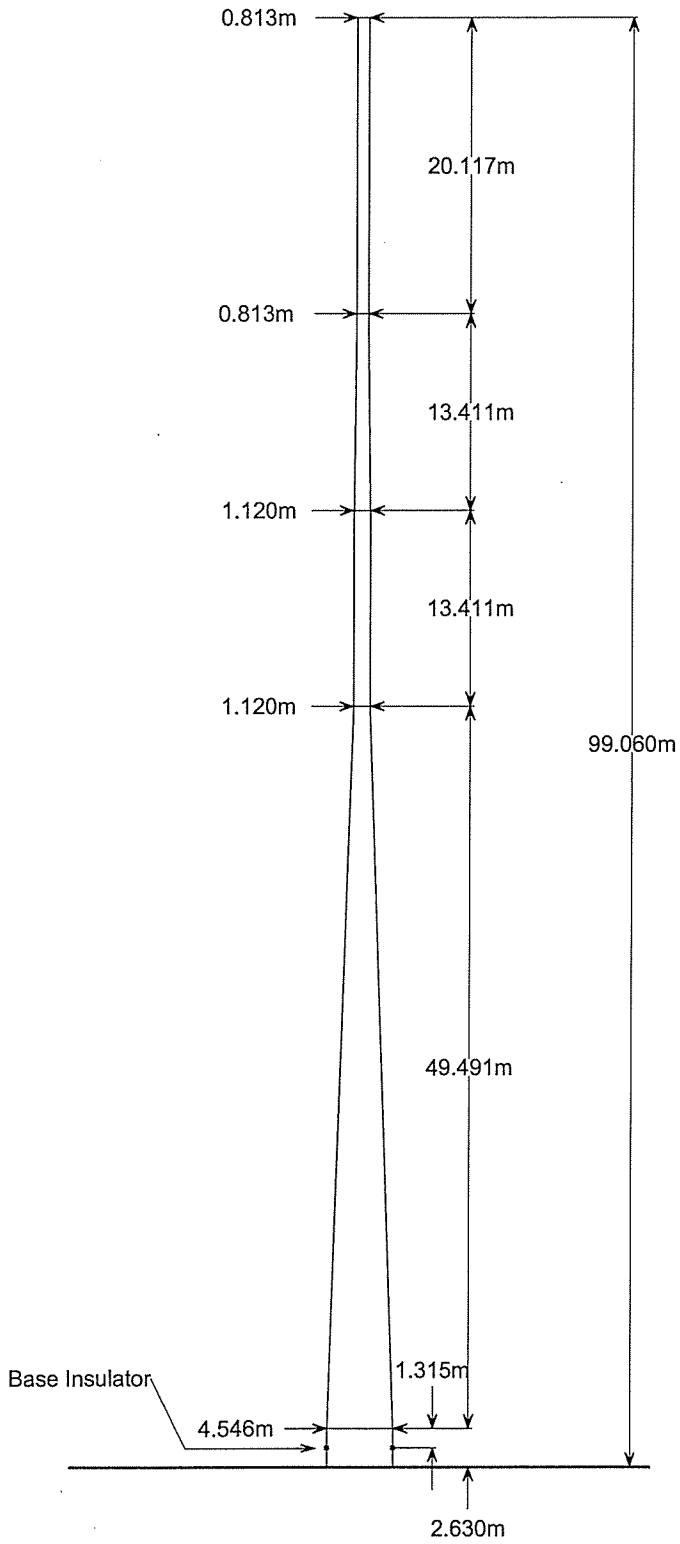
This engineering statement and the attached figures and appendices were prepared by the undersigned or under the direct supervision of the undersigned and are believed to be true and correct.

Dated: September 26, 2013



James D. Sadler

Figure 1



WIREFRAME TOWER MODEL
STATION WMCA - NEW YORK, NEW YORK
570 kHz - 5 kW, U, DA-1
SEPTEMBER 2013

Consulting Engineers
CTJC
CARL T. JONES CORPORATION

TOWER MODEL HEIGHT AND RADIUS

STATION WMCA - NEW YORK, NEW YORK
570 kHz - 5 kW, U, DA-1
SEPTEMBER, 2013

Tower	Physical Height (degrees)	Modeled Height (degrees)	Percent of Physical Height	Modeled Radius (meters)	Percent of Equivalent Radius
1	67.8	66.1	97.5	See Note	See Note
2	67.8	66.1	97.5	See Note	See Note
3	67.8	66.1	97.5	See Note	See Note

Note: The complete structure of the wide-based self-supporting towers was modeled using thin wires of a radius typically found in such construction. The actual width of the triangular, tapered tower as determined from structural drawings was used in the model. A scale drawing of the wireframe model based on the actual physical height and width is contained in Figure 1.

MEASURED AND MODELED IMPEDANCES

STATION WMCA - NEW YORK, NEW YORK
570 kHz - 5 kW, U, DA-1
SEPTEMBER, 2013

Tower	Measured Tower Base Impedance[1]	Modeled Tower Base Impedance	Shunt Capacitance (pF)	Modeled plus Shunt Reactance	Lumped Series Inductance (uH)	Adjusted Tower Base Impedance
1	11.9 -j 65.1	13.4 -j 103.8	150.0	12.0 -j 98.4	9.3	12.0 -j 65.1
2	12.3 -j 64.1	13.1 -j 103.6	80.0	12.3 -j 100.7	10.0	12.3 -j 64.9
3	12.2 -j 65.8	13.4 -j 103.4	130.0	12.2 -j 98.7	9.2	12.2 -j 65.8

[1] Measured at output of matching network with other towers open-circuited

ANTENNA MONITOR PARAMETERS AND COMMON POINT DATA

STATION WMCA - NEW YORK, NEW YORK
570 kHz - 5 kW, U, DA-1
SEPTEMBER, 2013

UNLIMITED		
	Modeled Parameters	
Tower	**Ratio**	**Phase (deg)**
1	0.652	82.2
2	1.000	0.0
3	0.594	-95.5
Common Point Impedance = 50 +j 0 ohms Common Point Current = 10.39 amperes Antenna Input Power = 5,400 Watts		

SAMPLE LINE VERIFICATION MEASUREMENTS

STATION WMCA - NEW YORK, NEW YORK
570 kHz - 5 kW, U, DA-1
SEPTEMBER, 2013

Tower	Open Circuit Series Resonant Frequency[1] (kHz)	Open Circuit Measured Line Length[2] (degrees)	Resonant Frequency -45 degree Offset Frequency (kHz)	Resonant Frequency -45 degree Offset Impedance (Ohms)	Resonant Frequency +45 degree Offset Frequency (kHz)	Resonant Frequency +45 degree Offset Impedance (Ohms)	Calculated Characteristic Impedance (Ohms)	Reference Impedance Sample Toroid Connected[2] (Ohms)
1	448.300	343.297	373.583	6.00 -j 48.95	523.017	8.45 +j 48.37	49.21	47.80 +j 0.29
2	448.050	343.488	373.375	6.13 -j 48.77	522.725	8.45 +j 48.26	49.07	47.75 +j 0.45
3	448.030	343.504	373.358	5.90 -j 48.76	522.702	8.44 +j 48.41	49.13	48.04 +j 0.11

[1] At this frequency, the sample line electrical length is equal to 270°.
[2] At carrier frequency (570 kHz)

Figure 5

SAMPLE DEVICE VERIFICATION MEASUREMENTS

STATION WMCA - NEW YORK, NEW YORK
570 kHz - 5 kW, U, DA-1
SEPTEMBER, 2013

Reference Sample Toroid Number	Measured Sample Toroid Number	Measured	
		Field Ratio	Phase (degrees)
1	2	0.998	-8.7
3	2	0.998	-8.5
3	1	0.997	-8.2

Sample Toroid Number	Type	Serial Number
1	Delta Electronics, TCT-1	4935
2	Delta Electronics, TCT-1	15056
3	Delta Electronics, TCT-1	15049

Note: Additional cable length added to the Non-reference toroid so that the sample phase would be something other than zero.

REFERENCE FIELD STRENGTH MEASUREMENTS

STATION WMCA - NEW YORK, NEW YORK
570 kHz - 5 kW, U, DA-1
SEPTEMBER, 2013

102 Degree Radial

Point Number	Distance (km)	Field (mV/m)	Geographic Coordinates (NAD83)		Description
			Latitude	Longitude	
1	4.00	260	40° 44' 46"	74° 03' 27"	This point is located on the west side of JFK Boulevard at Golden Park on sidewalk in front of WW1 Golden Statue.
2	6.50	225	40° 44' 28"	74° 01' 42"	This point is located on Hudson Street (East Side) in Stevens Park next to cannon/war memorial.
3	9.72	115	40° 44' 07"	73° 59' 28"	This point is located in Union Square Park (SW Corner) off 14th Street, in front of fountain in SW corner of park.

234 Degree Radial

Point Number	Distance (km)	Daytime Field (mV/m)	Geographic Coordinates (NAD83)		Description
			Latitude	Longitude	
1	3.23	32	40° 44' 11"	74° 08' 05"	This point is located on the sidewalk across street (West Side) 34 Joseph Street, across from utility pole 82277N.
2	6.40	15.5	40° 43' 11"	74° 09' 55"	This point is located on culvert cover (in street) across from 275 South Street.
3	9.52	8.7	40° 42' 12"	74° 11' 43"	The point is located on the sidewalk in front of the entry door at # 3535 W Oregon Avenue.

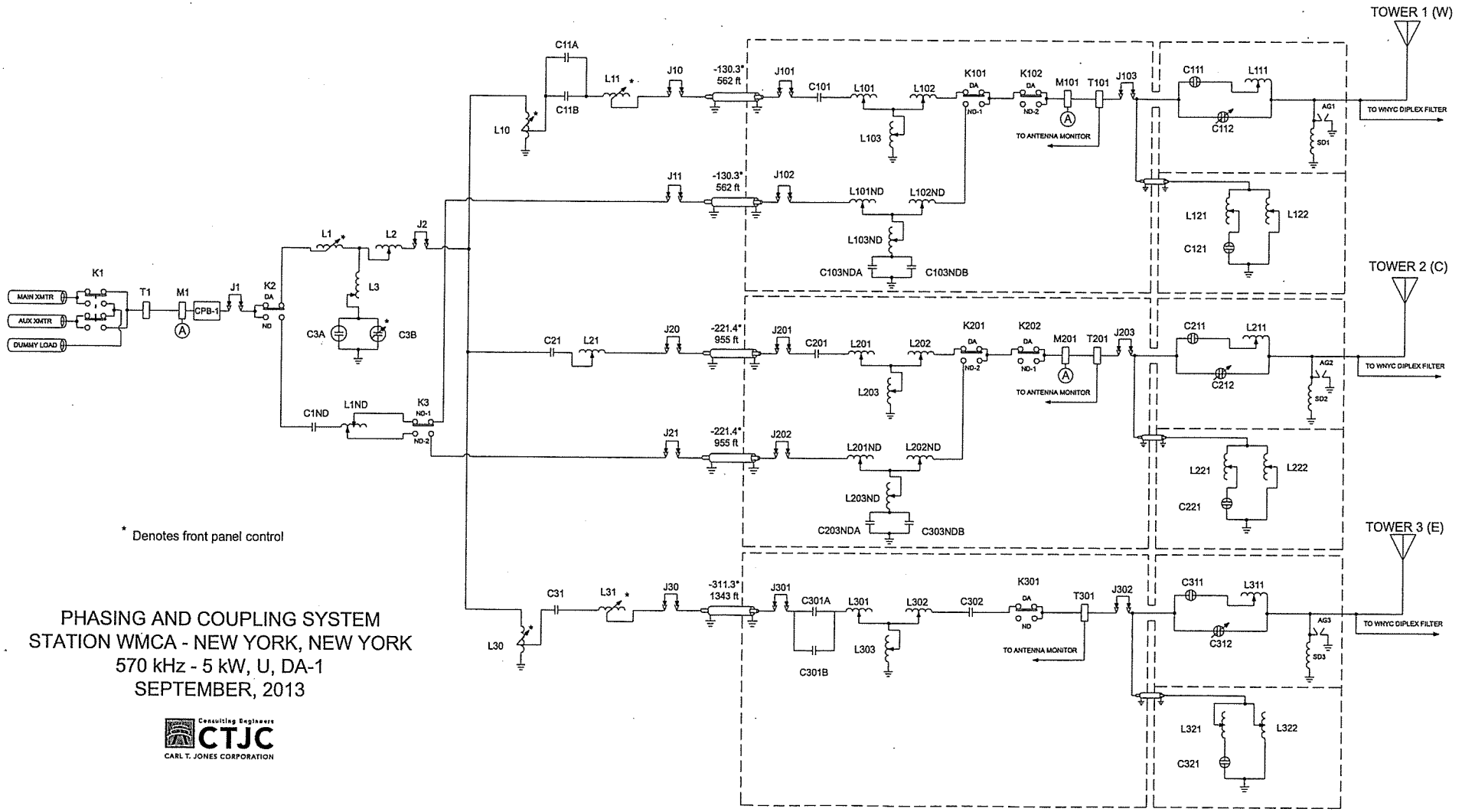
REFERENCE FIELD STRENGTH MEASUREMENTS

STATION WMCA - NEW YORK, NEW YORK
570 kHz - 5 kW, U, DA-1
SEPTEMBER, 2013

330 Degree Radial

Point Number	Distance (km)	Daytime Field (mV/m)	Geographic Coordinates (NAD83)		Description
			Latitude	Longitude	
1	3.89	45	40° 47' 02"	74° 07' 23"	The point is located in Holy Cross Cemetary (area 62) on curb in from of "Weiss" tombstone.
2	7.49	23	40° 48' 44"	74° 08' 55"	The point is located at 47 Myrtle Avenue, on storm sewer grate in front of garage on right side of house.
3	9.96	12.5	40° 49' 52"	74° 09' 47"	The point is located on High Street, in driveway of134 Alexander Street, 50 meters from Alexander Street.

Figure 8



* Denotes front panel control

PHASING AND COUPLING SYSTEM
STATION WMCA - NEW YORK, NEW YORK
570 kHz - 5 kW, U, DA-1
SEPTEMBER, 2013

Consulting Engineers
CTJC
CARL T. JONES CORPORATION

Revision 09052013JS

APPENDIX A

INDIVIDUAL TOWER MODELING

APPENDIX A – INDIVIDUAL TOWER MODEL
WMCA(AM) – NEW YORK, NEW YORK

IMPEDANCE - TOWER #1
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
.57	13.396	-103.78	104.64	277.4	20.031	-.86798	-7.4195

GEOMETRY - TOWER #1
Dimensions in meters
Environment: perfect ground

wire	caps	X	Y	Z	radius	segs
1	none	0	0	0	.0127	2
		0	0	2.5643		
2	none	2.625	0	0	.0333	2
		2.625	0	2.5643		
3	none	-1.313	2.274	0	.0333	2
		-1.313	2.274	2.5643		
4	none	-1.313	-2.274	0	.0333	2
		-1.313	-2.274	2.5643		
5	none	2.625	0	2.5643	.0127	2
		0	0	2.5643		
6	none	-1.313	2.274	2.5643	.0127	2
		0	0	2.5643		
7	none	-1.313	-2.274	2.5643	.0127	2
		0	0	2.5643		
8	none	2.625	0	2.5643	.0333	50
		.645	0	50.818		
9	none	-1.313	2.274	2.5643	.0333	50
		-.323	.559	50.818		
10	none	-1.313	-2.274	2.5643	.0333	50
		-.323	-.559	50.818		
11	none	.645	0	50.818	.0476	13
		.645	0	63.8937		
12	none	-.323	.559	50.818	.0476	13
		-.323	.559	63.8937		
13	none	-.323	-.559	50.818	.0476	13
		-.323	-.559	63.8937		
14	none	.645	0	63.8937	.0365	13
		.469	0	76.9694		
15	none	-.323	.559	63.8937	.0365	13
		-.235	.406	76.9694		
16	none	-.323	-.559	63.8937	.0365	13
		-.235	-.406	76.9694		
17	none	.469	0	76.9694	.027	20
		.469	0	96.5835		
18	none	-.235	.406	76.9694	.027	20
		-.235	.406	96.5835		
19	none	-.235	-.406	76.9694	.027	20
		-.235	-.406	96.5835		
20	none	.645	0	50.818	.0476	1
		-.323	.559	50.818		
21	none	-.323	.559	50.818	.0476	1
		-.323	-.559	50.818		
22	none	-.323	-.559	50.818	.0476	1
		.645	0	50.818		
23	none	.645	0	63.8937	.0365	1
		-.323	.559	63.8937		
24	none	-.323	.559	63.8937	.0365	1
		-.323	-.559	63.8937		
25	none	-.323	-.559	63.8937	.0365	1
		.645	0	63.8937		

26	none	.469	0	76.9694	.027	1
		-.235	.406	76.9694		
27	none	-.235	.406	76.9694	.027	1
		-.235	-.406	76.9694		
28	none	-.235	-.406	76.9694	.027	1
		.469	0	76.9694		
29	none	.469	0	96.5835	.027	1
		-.235	.406	96.5835		
30	none	-.235	.406	96.5835	.027	1
		-.235	-.406	96.5835		
31	none	-.235	-.406	96.5835	.027	1
		.469	0	96.5835		
32	none	-24.3	114.3	0	.0127	2
		-24.3	114.3	2.5643		
33	none	-21.675	114.3	0	.0333	2
		-21.675	114.3	2.5643		
34	none	-25.613	116.574	0	.0333	2
		-25.613	116.574	2.5643		
35	none	-25.613	112.026	0	.0333	2
		-25.613	112.026	2.5643		
36	none	-21.675	114.3	2.5643	.0127	2
		-24.3	114.3	2.5643		
37	none	-25.613	116.574	2.5643	.0127	2
		-24.3	114.3	2.5643		
38	none	-25.613	112.026	2.5643	.0127	2
		-24.3	114.3	2.5643		
39	none	-21.675	114.3	2.5643	.0333	50
		-23.655	114.3	50.818		
40	none	-25.613	116.574	2.5643	.0333	50
		-24.623	114.859	50.818		
41	none	-25.613	112.026	2.5643	.0333	50
		-24.623	113.741	50.818		
42	none	-23.655	114.3	50.818	.0476	13
		-23.655	114.3	63.8937		
43	none	-24.623	114.859	50.818	.0476	13
		-24.623	114.859	63.8937		
44	none	-24.623	113.741	50.818	.0476	13
		-24.623	113.741	63.8937		
45	none	-23.655	114.3	63.8937	.0365	13
		-23.831	114.3	76.9694		
46	none	-24.623	114.859	63.8937	.0365	13
		-24.535	114.706	76.9694		
47	none	-24.623	113.741	63.8937	.0365	13
		-24.535	113.894	76.9694		
48	none	-23.831	114.3	76.9694	.027	20
		-23.831	114.3	96.5835		
49	none	-24.535	114.706	76.9694	.027	20
		-24.535	114.706	96.5835		
50	none	-24.535	113.894	76.9694	.027	20
		-24.535	113.894	96.5835		
51	none	-23.655	114.3	50.818	.0476	1
		-24.623	114.859	50.818		
52	none	-24.623	114.859	50.818	.0476	1
		-24.623	113.741	50.818		
53	none	-24.623	113.741	50.818	.0476	1
		-23.655	114.3	50.818		
54	none	-23.655	114.3	63.8937	.0365	1
		-24.623	114.859	63.8937		
55	none	-24.623	114.859	63.8937	.0365	1
		-24.623	113.741	63.8937		
56	none	-24.623	113.741	63.8937	.0365	1
		-23.655	114.3	63.8937		

57	none	-23.831	114.3	76.9694	.027	1
		-24.535	114.706	76.9694		
58	none	-24.535	114.706	76.9694	.027	1
		-24.535	113.894	76.9694		
59	none	-24.535	113.894	76.9694	.027	1
		-23.831	114.3	76.9694		
60	none	-23.831	114.3	96.5835	.027	1
		-24.535	114.706	96.5835		
61	none	-24.535	114.706	96.5835	.027	1
		-24.535	113.894	96.5835		
62	none	-24.535	113.894	96.5835	.027	1
		-23.831	114.3	96.5835		
63	none	-48.6	228.6	0	.0127	2
		-48.6	228.6	2.5643		
64	none	-45.975	228.6	0	.0333	2
		-45.975	228.6	2.5643		
65	none	-49.913	230.874	0	.0333	2
		-49.913	230.874	2.5643		
66	none	-49.913	226.326	0	.0333	2
		-49.913	226.326	2.5643		
67	none	-45.975	228.6	2.5643	.0127	2
		-48.6	228.6	2.5643		
68	none	-49.913	230.874	2.5643	.0127	2
		-48.6	228.6	2.5643		
69	none	-49.913	226.326	2.5643	.0127	2
		-48.6	228.6	2.5643		
70	none	-45.975	228.6	2.5643	.0333	50
		-47.955	228.6	50.818		
71	none	-49.913	230.874	2.5643	.0333	50
		-48.923	229.159	50.818		
72	none	-49.913	226.326	2.5643	.0333	50
		-48.923	228.041	50.818		
73	none	-47.955	228.6	50.818	.0476	13
		-47.955	228.6	63.8937		
74	none	-48.923	229.159	50.818	.0476	13
		-48.923	229.159	63.8937		
75	none	-48.923	228.041	50.818	.0476	13
		-48.923	228.041	63.8937		
76	none	-47.955	228.6	63.8937	.0365	13
		-48.131	228.6	76.9694		
77	none	-48.923	229.159	63.8937	.0365	13
		-48.835	229.006	76.9694		
78	none	-48.923	228.041	63.8937	.0365	13
		-48.835	228.194	76.9694		
79	none	-48.131	228.6	76.9694	.027	20
		-48.131	228.6	96.5835		
80	none	-48.835	229.006	76.9694	.027	20
		-48.835	229.006	96.5835		
81	none	-48.835	228.194	76.9694	.027	20
		-48.835	228.194	96.5835		
82	none	-47.955	228.6	50.818	.0476	1
		-48.923	229.159	50.818		
83	none	-48.923	229.159	50.818	.0476	1
		-48.923	228.041	50.818		
84	none	-48.923	228.041	50.818	.0476	1
		-47.955	228.6	50.818		
85	none	-47.955	228.6	63.8937	.0365	1
		-48.923	229.159	63.8937		
86	none	-48.923	229.159	63.8937	.0365	1
		-48.923	228.041	63.8937		
87	none	-48.923	228.041	63.8937	.0365	1
		-47.955	228.6	63.8937		

88	none	-48.131	228.6	76.9694	.027	1
		-48.835	229.006	76.9694		
89	none	-48.835	229.006	76.9694	.027	1
		-48.835	228.194	76.9694		
90	none	-48.835	228.194	76.9694	.027	1
		-48.131	228.6	76.9694		
91	none	-48.131	228.6	96.5835	.027	1
		-48.835	229.006	96.5835		
92	none	-48.835	229.006	96.5835	.027	1
		-48.835	228.194	96.5835		
93	none	-48.835	228.194	96.5835	.027	1
		-48.131	228.6	96.5835		

Number of wires = 93
current nodes = 987

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	58	.811996	37	1.31292
segment/radius ratio	11	21.1307	37	103.38
radius	1	.0127	11	.0476

ELECTRICAL DESCRIPTION - TOWER #1
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.57	0	1	1.54E-03	2.5E-03

Sources

source	node	sector	magnitude	phase	type
1	1	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	4	0	0	0	1.5E-05	0
2	6	0	0	0	1.5E-05	0
3	8	0	0	0	1.5E-05	0
4	333	0	0	0	1.5E-05	0
5	335	0	0	0	1.5E-05	0
6	337	0	0	0	1.5E-05	0
7	662	0	0	0	1.5E-05	0
8	664	0	0	0	1.5E-05	0
9	666	0	0	0	1.5E-05	0
10	1	1.E-03	0	0	0	0
11	330	1.E-03	-3,490.24	0	0	0
12	659	1.E-03	-2,147.84	0	0	0

IMPEDANCE - TOWER #2
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 330, sector 1							
.57	13.084	-103.63	104.45	277.2	20.448	-.85022	-7.5007

GEOMETRY - TOWER #2
Dimensions in meters
Environment: perfect ground

wire	caps	X	Y	Z	radius	segs
1	none	0	0	0	.0127	2
		0	0	2.5643		
2	none	2.625	0	0	.0333	2
		2.625	0	2.5643		
3	none	-1.313	2.274	0	.0333	2
		-1.313	2.274	2.5643		
4	none	-1.313	-2.274	0	.0333	2
		-1.313	-2.274	2.5643		
5	none	2.625	0	2.5643	.0127	2
		0	0	2.5643		
6	none	-1.313	2.274	2.5643	.0127	2
		0	0	2.5643		
7	none	-1.313	-2.274	2.5643	.0127	2
		0	0	2.5643		
8	none	2.625	0	2.5643	.0333	50
		.645	0	50.818		
9	none	-1.313	2.274	2.5643	.0333	50
		-.323	.559	50.818		
10	none	-1.313	-2.274	2.5643	.0333	50
		-.323	-.559	50.818		
11	none	.645	0	50.818	.0476	13
		.645	0	63.8937		
12	none	-.323	.559	50.818	.0476	13
		-.323	.559	63.8937		
13	none	-.323	-.559	50.818	.0476	13
		-.323	-.559	63.8937		
14	none	.645	0	63.8937	.0365	13
		.469	0	76.9694		
15	none	-.323	.559	63.8937	.0365	13
		-.235	.406	76.9694		
16	none	-.323	-.559	63.8937	.0365	13
		-.235	-.406	76.9694		
17	none	.469	0	76.9694	.027	20
		.469	0	96.5835		
18	none	-.235	.406	76.9694	.027	20
		-.235	.406	96.5835		
19	none	-.235	-.406	76.9694	.027	20
		-.235	-.406	96.5835		
20	none	.645	0	50.818	.0476	1
		-.323	.559	50.818		
21	none	-.323	.559	50.818	.0476	1
		-.323	-.559	50.818		
22	none	-.323	-.559	50.818	.0476	1
		.645	0	50.818		
23	none	.645	0	63.8937	.0365	1
		-.323	.559	63.8937		
24	none	-.323	.559	63.8937	.0365	1
		-.323	-.559	63.8937		
25	none	-.323	-.559	63.8937	.0365	1
		.645	0	63.8937		

26	none	.469	0	76.9694	.027	1
		-.235	.406	76.9694		
27	none	-.235	.406	76.9694	.027	1
		-.235	-.406	76.9694		
28	none	-.235	-.406	76.9694	.027	1
		.469	0	76.9694		
29	none	.469	0	96.5835	.027	1
		-.235	.406	96.5835		
30	none	-.235	.406	96.5835	.027	1
		-.235	-.406	96.5835		
31	none	-.235	-.406	96.5835	.027	1
		.469	0	96.5835		
32	none	-24.3	114.3	0	.0127	2
		-24.3	114.3	2.5643		
33	none	-21.675	114.3	0	.0333	2
		-21.675	114.3	2.5643		
34	none	-25.613	116.574	0	.0333	2
		-25.613	116.574	2.5643		
35	none	-25.613	112.026	0	.0333	2
		-25.613	112.026	2.5643		
36	none	-21.675	114.3	2.5643	.0127	2
		-24.3	114.3	2.5643		
37	none	-25.613	116.574	2.5643	.0127	2
		-24.3	114.3	2.5643		
38	none	-25.613	112.026	2.5643	.0127	2
		-24.3	114.3	2.5643		
39	none	-21.675	114.3	2.5643	.0333	50
		-23.655	114.3	50.818		
40	none	-25.613	116.574	2.5643	.0333	50
		-24.623	114.859	50.818		
41	none	-25.613	112.026	2.5643	.0333	50
		-24.623	113.741	50.818		
42	none	-23.655	114.3	50.818	.0476	13
		-23.655	114.3	63.8937		
43	none	-24.623	114.859	50.818	.0476	13
		-24.623	114.859	63.8937		
44	none	-24.623	113.741	50.818	.0476	13
		-24.623	113.741	63.8937		
45	none	-23.655	114.3	63.8937	.0365	13
		-23.831	114.3	76.9694		
46	none	-24.623	114.859	63.8937	.0365	13
		-24.535	114.706	76.9694		
47	none	-24.623	113.741	63.8937	.0365	13
		-24.535	113.894	76.9694		
48	none	-23.831	114.3	76.9694	.027	20
		-23.831	114.3	96.5835		
49	none	-24.535	114.706	76.9694	.027	20
		-24.535	114.706	96.5835		
50	none	-24.535	113.894	76.9694	.027	20
		-24.535	113.894	96.5835		
51	none	-23.655	114.3	50.818	.0476	1
		-24.623	114.859	50.818		
52	none	-24.623	114.859	50.818	.0476	1
		-24.623	113.741	50.818		
53	none	-24.623	113.741	50.818	.0476	1
		-23.655	114.3	50.818		
54	none	-23.655	114.3	63.8937	.0365	1
		-24.623	114.859	63.8937		
55	none	-24.623	114.859	63.8937	.0365	1
		-24.623	113.741	63.8937		
56	none	-24.623	113.741	63.8937	.0365	1
		-23.655	114.3	63.8937		

57	none	-23.831	114.3	76.9694	.027	1
		-24.535	114.706	76.9694		
58	none	-24.535	114.706	76.9694	.027	1
		-24.535	113.894	76.9694		
59	none	-24.535	113.894	76.9694	.027	1
		-23.831	114.3	76.9694		
60	none	-23.831	114.3	96.5835	.027	1
		-24.535	114.706	96.5835		
61	none	-24.535	114.706	96.5835	.027	1
		-24.535	113.894	96.5835		
62	none	-24.535	113.894	96.5835	.027	1
		-23.831	114.3	96.5835		
63	none	-48.6	228.6	0	.0127	2
		-48.6	228.6	2.5643		
64	none	-45.975	228.6	0	.0333	2
		-45.975	228.6	2.5643		
65	none	-49.913	230.874	0	.0333	2
		-49.913	230.874	2.5643		
66	none	-49.913	226.326	0	.0333	2
		-49.913	226.326	2.5643		
67	none	-45.975	228.6	2.5643	.0127	2
		-48.6	228.6	2.5643		
68	none	-49.913	230.874	2.5643	.0127	2
		-48.6	228.6	2.5643		
69	none	-49.913	226.326	2.5643	.0127	2
		-48.6	228.6	2.5643		
70	none	-45.975	228.6	2.5643	.0333	50
		-47.955	228.6	50.818		
71	none	-49.913	230.874	2.5643	.0333	50
		-48.923	229.159	50.818		
72	none	-49.913	226.326	2.5643	.0333	50
		-48.923	228.041	50.818		
73	none	-47.955	228.6	50.818	.0476	13
		-47.955	228.6	63.8937		
74	none	-48.923	229.159	50.818	.0476	13
		-48.923	229.159	63.8937		
75	none	-48.923	228.041	50.818	.0476	13
		-48.923	228.041	63.8937		
76	none	-47.955	228.6	63.8937	.0365	13
		-48.131	228.6	76.9694		
77	none	-48.923	229.159	63.8937	.0365	13
		-48.835	229.006	76.9694		
78	none	-48.923	228.041	63.8937	.0365	13
		-48.835	228.194	76.9694		
79	none	-48.131	228.6	76.9694	.027	20
		-48.131	228.6	96.5835		
80	none	-48.835	229.006	76.9694	.027	20
		-48.835	229.006	96.5835		
81	none	-48.835	228.194	76.9694	.027	20
		-48.835	228.194	96.5835		
82	none	-47.955	228.6	50.818	.0476	1
		-48.923	229.159	50.818		
83	none	-48.923	229.159	50.818	.0476	1
		-48.923	228.041	50.818		
84	none	-48.923	228.041	50.818	.0476	1
		-47.955	228.6	50.818		
85	none	-47.955	228.6	63.8937	.0365	1
		-48.923	229.159	63.8937		
86	none	-48.923	229.159	63.8937	.0365	1
		-48.923	228.041	63.8937		
87	none	-48.923	228.041	63.8937	.0365	1
		-47.955	228.6	63.8937		

88	none	-48.131	228.6	76.9694	.027	1
		-48.835	229.006	76.9694		
89	none	-48.835	229.006	76.9694	.027	1
		-48.835	228.194	76.9694		
90	none	-48.835	228.194	76.9694	.027	1
		-48.131	228.6	76.9694		
91	none	-48.131	228.6	96.5835	.027	1
		-48.835	229.006	96.5835		
92	none	-48.835	229.006	96.5835	.027	1
		-48.835	228.194	96.5835		
93	none	-48.835	228.194	96.5835	.027	1
		-48.131	228.6	96.5835		

Number of wires = 93
current nodes = 987

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	58	.811996	37	1.31292
segment/radius ratio	11	21.1307	37	103.38
radius	1	.0127	11	.0476

ELECTRICAL DESCRIPTION - TOWER #2
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.57	0	1	1.54E-03	2.5E-03

Sources

source	node	sector	magnitude	phase	type
1	330	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	4	0	0	0	1.5E-05	0
2	6	0	0	0	1.5E-05	0
3	8	0	0	0	1.5E-05	0
4	333	0	0	0	1.5E-05	0
5	335	0	0	0	1.5E-05	0
6	337	0	0	0	1.5E-05	0
7	662	0	0	0	1.5E-05	0
8	664	0	0	0	1.5E-05	0
9	666	0	0	0	1.5E-05	0
10	1	1.E-03	-1,861.46	0	0	0
11	330	1.E-03	0	0	0	0
12	659	1.E-03	-2,174.84	0	0	0

IMPEDANCE - TOWER #3
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 659, sector 1							
.57	13.399	-103.4	104.26	277.4	19.907	-.87339	-7.3951

GEOMETRY - TOWER #3
Dimensions in meters
Environment: perfect ground

wire	caps	X	Y	Z	radius	segs
1	none	0	0	0	.0127	2
		0	0	2.5643		
2	none	2.625	0	0	.0333	2
		2.625	0	2.5643		
3	none	-1.313	2.274	0	.0333	2
		-1.313	2.274	2.5643		
4	none	-1.313	-2.274	0	.0333	2
		-1.313	-2.274	2.5643		
5	none	2.625	0	2.5643	.0127	2
		0	0	2.5643		
6	none	-1.313	2.274	2.5643	.0127	2
		0	0	2.5643		
7	none	-1.313	-2.274	2.5643	.0127	2
		0	0	2.5643		
8	none	2.625	0	2.5643	.0333	50
		.645	0	50.818		
9	none	-1.313	2.274	2.5643	.0333	50
		-.323	.559	50.818		
10	none	-1.313	-2.274	2.5643	.0333	50
		-.323	-.559	50.818		
11	none	.645	0	50.818	.0476	13
		.645	0	63.8937		
12	none	-.323	.559	50.818	.0476	13
		-.323	.559	63.8937		
13	none	-.323	-.559	50.818	.0476	13
		-.323	-.559	63.8937		
14	none	.645	0	63.8937	.0365	13
		.469	0	76.9694		
15	none	-.323	.559	63.8937	.0365	13
		-.235	.406	76.9694		
16	none	-.323	-.559	63.8937	.0365	13
		-.235	-.406	76.9694		
17	none	.469	0	76.9694	.027	20
		.469	0	96.5835		
18	none	-.235	.406	76.9694	.027	20
		-.235	.406	96.5835		
19	none	-.235	-.406	76.9694	.027	20
		-.235	-.406	96.5835		
20	none	.645	0	50.818	.0476	1
		-.323	.559	50.818		
21	none	-.323	.559	50.818	.0476	1
		-.323	-.559	50.818		
22	none	-.323	-.559	50.818	.0476	1
		.645	0	50.818		
23	none	.645	0	63.8937	.0365	1
		-.323	.559	63.8937		
24	none	-.323	.559	63.8937	.0365	1
		-.323	-.559	63.8937		
25	none	-.323	-.559	63.8937	.0365	1
		.645	0	63.8937		

26	none	.469	0	76.9694	.027	1
		-.235	.406	76.9694		
27	none	-.235	.406	76.9694	.027	1
		-.235	-.406	76.9694		
28	none	-.235	-.406	76.9694	.027	1
		.469	0	76.9694		
29	none	.469	0	96.5835	.027	1
		-.235	.406	96.5835		
30	none	-.235	.406	96.5835	.027	1
		-.235	-.406	96.5835		
31	none	-.235	-.406	96.5835	.027	1
		.469	0	96.5835		
32	none	-24.3	114.3	0	.0127	2
		-24.3	114.3	2.5643		
33	none	-21.675	114.3	0	.0333	2
		-21.675	114.3	2.5643		
34	none	-25.613	116.574	0	.0333	2
		-25.613	116.574	2.5643		
35	none	-25.613	112.026	0	.0333	2
		-25.613	112.026	2.5643		
36	none	-21.675	114.3	2.5643	.0127	2
		-24.3	114.3	2.5643		
37	none	-25.613	116.574	2.5643	.0127	2
		-24.3	114.3	2.5643		
38	none	-25.613	112.026	2.5643	.0127	2
		-24.3	114.3	2.5643		
39	none	-21.675	114.3	2.5643	.0333	50
		-23.655	114.3	50.818		
40	none	-25.613	116.574	2.5643	.0333	50
		-24.623	114.859	50.818		
41	none	-25.613	112.026	2.5643	.0333	50
		-24.623	113.741	50.818		
42	none	-23.655	114.3	50.818	.0476	13
		-23.655	114.3	63.8937		
43	none	-24.623	114.859	50.818	.0476	13
		-24.623	114.859	63.8937		
44	none	-24.623	113.741	50.818	.0476	13
		-24.623	113.741	63.8937		
45	none	-23.655	114.3	63.8937	.0365	13
		-23.831	114.3	76.9694		
46	none	-24.623	114.859	63.8937	.0365	13
		-24.535	114.706	76.9694		
47	none	-24.623	113.741	63.8937	.0365	13
		-24.535	113.894	76.9694		
48	none	-23.831	114.3	76.9694	.027	20
		-23.831	114.3	96.5835		
49	none	-24.535	114.706	76.9694	.027	20
		-24.535	114.706	96.5835		
50	none	-24.535	113.894	76.9694	.027	20
		-24.535	113.894	96.5835		
51	none	-23.655	114.3	50.818	.0476	1
		-24.623	114.859	50.818		
52	none	-24.623	114.859	50.818	.0476	1
		-24.623	113.741	50.818		
53	none	-24.623	113.741	50.818	.0476	1
		-23.655	114.3	50.818		
54	none	-23.655	114.3	63.8937	.0365	1
		-24.623	114.859	63.8937		
55	none	-24.623	114.859	63.8937	.0365	1
		-24.623	113.741	63.8937		
56	none	-24.623	113.741	63.8937	.0365	1
		-23.655	114.3	63.8937		

57	none	-23.831	114.3	76.9694	.027	1
		-24.535	114.706	76.9694		
58	none	-24.535	114.706	76.9694	.027	1
		-24.535	113.894	76.9694		
59	none	-24.535	113.894	76.9694	.027	1
		-23.831	114.3	76.9694		
60	none	-23.831	114.3	96.5835	.027	1
		-24.535	114.706	96.5835		
61	none	-24.535	114.706	96.5835	.027	1
		-24.535	113.894	96.5835		
62	none	-24.535	113.894	96.5835	.027	1
		-23.831	114.3	96.5835		
63	none	-48.6	228.6	0	.0127	2
		-48.6	228.6	2.5643		
64	none	-45.975	228.6	0	.0333	2
		-45.975	228.6	2.5643		
65	none	-49.913	230.874	0	.0333	2
		-49.913	230.874	2.5643		
66	none	-49.913	226.326	0	.0333	2
		-49.913	226.326	2.5643		
67	none	-45.975	228.6	2.5643	.0127	2
		-48.6	228.6	2.5643		
68	none	-49.913	230.874	2.5643	.0127	2
		-48.6	228.6	2.5643		
69	none	-49.913	226.326	2.5643	.0127	2
		-48.6	228.6	2.5643		
70	none	-45.975	228.6	2.5643	.0333	50
		-47.955	228.6	50.818		
71	none	-49.913	230.874	2.5643	.0333	50
		-48.923	229.159	50.818		
72	none	-49.913	226.326	2.5643	.0333	50
		-48.923	228.041	50.818		
73	none	-47.955	228.6	50.818	.0476	13
		-47.955	228.6	63.8937		
74	none	-48.923	229.159	50.818	.0476	13
		-48.923	229.159	63.8937		
75	none	-48.923	228.041	50.818	.0476	13
		-48.923	228.041	63.8937		
76	none	-47.955	228.6	63.8937	.0365	13
		-48.131	228.6	76.9694		
77	none	-48.923	229.159	63.8937	.0365	13
		-48.835	229.006	76.9694		
78	none	-48.923	228.041	63.8937	.0365	13
		-48.835	228.194	76.9694		
79	none	-48.131	228.6	76.9694	.027	20
		-48.131	228.6	96.5835		
80	none	-48.835	229.006	76.9694	.027	20
		-48.835	229.006	96.5835		
81	none	-48.835	228.194	76.9694	.027	20
		-48.835	228.194	96.5835		
82	none	-47.955	228.6	50.818	.0476	1
		-48.923	229.159	50.818		
83	none	-48.923	229.159	50.818	.0476	1
		-48.923	228.041	50.818		
84	none	-48.923	228.041	50.818	.0476	1
		-47.955	228.6	50.818		
85	none	-47.955	228.6	63.8937	.0365	1
		-48.923	229.159	63.8937		
86	none	-48.923	229.159	63.8937	.0365	1
		-48.923	228.041	63.8937		
87	none	-48.923	228.041	63.8937	.0365	1
		-47.955	228.6	63.8937		

88	none	-48.131	228.6	76.9694	.027	1
		-48.835	229.006	76.9694		
89	none	-48.835	229.006	76.9694	.027	1
		-48.835	228.194	76.9694		
90	none	-48.835	228.194	76.9694	.027	1
		-48.131	228.6	76.9694		
91	none	-48.131	228.6	96.5835	.027	1
		-48.835	229.006	96.5835		
92	none	-48.835	229.006	96.5835	.027	1
		-48.835	228.194	96.5835		
93	none	-48.835	228.194	96.5835	.027	1
		-48.131	228.6	96.5835		

Number of wires = 93
current nodes = 987

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	58	.811996	37	1.31292
segment/radius ratio	11	21.1307	37	103.38
radius	1	.0127	11	.0476

ELECTRICAL DESCRIPTION - TOWER #3
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.57	0	1	1.54E-03	2.5E-03

Sources

source	node	sector	magnitude	phase	type
1	659	1	1.	0	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	4	0	0	0	1.5E-05	0
2	6	0	0	0	1.5E-05	0
3	8	0	0	0	1.5E-05	0
4	333	0	0	0	1.5E-05	0
5	335	0	0	0	1.5E-05	0
6	337	0	0	0	1.5E-05	0
7	662	0	0	0	1.5E-05	0
8	664	0	0	0	1.5E-05	0
9	666	0	0	0	1.5E-05	0
10	1	1.E-03	-1,861.46	0	0	0
11	330	1.E-03	-3,490.24	0	0	0
12	659	1.E-03	0	0	0	0

APPENDIX B

DIRECTIONAL ARRAY MODEL

APPENDIX B – DAY/NIGHT UNLIMITED OPERATION
WMCA(AM) – NEW YORK, NEW YORK

IMPEDANCE
normalization = 50.

freq (MHz)	resist (ohms)	react (ohms)	imped (ohms)	phase (deg)	VSWR	S11 dB	S12 dB
source = 1; node 1, sector 1							
.57	6.9102	-111.75	111.96	273.5	43.494	-.39947	-10.561
source = 2; node 330, sector 1							
.57	13.632	-103.39	104.28	277.5	19.571	-.88842	-7.3283
source = 3; node 659, sector 1							
.57	23.144	-81.169	84.404	285.9	8.1947	-2.1305	-4.1148

GEOMETRY
Dimensions in meters
Environment: perfect ground

wire	caps	X	Y	Z	radius	segs
1	none	0	0	0	.0127	2
		0	0	2.5643		
2	none	2.625	0	0	.0333	2
		2.625	0	2.5643		
3	none	-1.313	2.274	0	.0333	2
		-1.313	2.274	2.5643		
4	none	-1.313	-2.274	0	.0333	2
		-1.313	-2.274	2.5643		
5	none	2.625	0	2.5643	.0127	2
		0	0	2.5643		
6	none	-1.313	2.274	2.5643	.0127	2
		0	0	2.5643		
7	none	-1.313	-2.274	2.5643	.0127	2
		0	0	2.5643		
8	none	2.625	0	2.5643	.0333	50
		.645	0	50.818		
9	none	-1.313	2.274	2.5643	.0333	50
		-.323	.559	50.818		
10	none	-1.313	-2.274	2.5643	.0333	50
		-.323	-.559	50.818		
11	none	.645	0	50.818	.0476	13
		.645	0	63.8937		
12	none	-.323	.559	50.818	.0476	13
		-.323	.559	63.8937		
13	none	-.323	-.559	50.818	.0476	13
		-.323	-.559	63.8937		
14	none	.645	0	63.8937	.0365	13
		.469	0	76.9694		
15	none	-.323	.559	63.8937	.0365	13
		-.235	.406	76.9694		
16	none	-.323	-.559	63.8937	.0365	13
		-.235	-.406	76.9694		
17	none	.469	0	76.9694	.027	20
		.469	0	96.5835		
18	none	-.235	.406	76.9694	.027	20
		-.235	.406	96.5835		
19	none	-.235	-.406	76.9694	.027	20
		-.235	-.406	96.5835		
20	none	.645	0	50.818	.0476	1
		-.323	.559	50.818		
21	none	-.323	.559	50.818	.0476	1
		-.323	-.559	50.818		
22	none	-.323	-.559	50.818	.0476	1
		.645	0	50.818		
23	none	.645	0	63.8937	.0365	1
		-.323	.559	63.8937		
24	none	-.323	.559	63.8937	.0365	1

		-.323	-.559	63.8937		
25	none	-.323	-.559	63.8937	.0365	1
		.645	0	63.8937		
26	none	.469	0	76.9694	.027	1
		-.235	.406	76.9694		
27	none	-.235	.406	76.9694	.027	1
		-.235	-.406	76.9694		
28	none	-.235	-.406	76.9694	.027	1
		.469	0	76.9694		
29	none	.469	0	96.5835	.027	1
		-.235	.406	96.5835		
30	none	-.235	.406	96.5835	.027	1
		-.235	-.406	96.5835		
31	none	-.235	-.406	96.5835	.027	1
		.469	0	96.5835		
32	none	-24.3	114.3	0	.0127	2
		-24.3	114.3	2.5643		
33	none	-21.675	114.3	0	.0333	2
		-21.675	114.3	2.5643		
34	none	-25.613	116.574	0	.0333	2
		-25.613	116.574	2.5643		
35	none	-25.613	112.026	0	.0333	2
		-25.613	112.026	2.5643		
36	none	-21.675	114.3	2.5643	.0127	2
		-24.3	114.3	2.5643		
37	none	-25.613	116.574	2.5643	.0127	2
		-24.3	114.3	2.5643		
38	none	-25.613	112.026	2.5643	.0127	2
		-24.3	114.3	2.5643		
39	none	-21.675	114.3	2.5643	.0333	50
		-23.655	114.3	50.818		
40	none	-25.613	116.574	2.5643	.0333	50
		-24.623	114.859	50.818		
41	none	-25.613	112.026	2.5643	.0333	50
		-24.623	113.741	50.818		
42	none	-23.655	114.3	50.818	.0476	13
		-23.655	114.3	63.8937		
43	none	-24.623	114.859	50.818	.0476	13
		-24.623	114.859	63.8937		
44	none	-24.623	113.741	50.818	.0476	13
		-24.623	113.741	63.8937		
45	none	-23.655	114.3	63.8937	.0365	13
		-23.831	114.3	76.9694		
46	none	-24.623	114.859	63.8937	.0365	13
		-24.535	114.706	76.9694		
47	none	-24.623	113.741	63.8937	.0365	13
		-24.535	113.894	76.9694		
48	none	-23.831	114.3	76.9694	.027	20
		-23.831	114.3	96.5835		
49	none	-24.535	114.706	76.9694	.027	20
		-24.535	114.706	96.5835		
50	none	-24.535	113.894	76.9694	.027	20
		-24.535	113.894	96.5835		
51	none	-23.655	114.3	50.818	.0476	1
		-24.623	114.859	50.818		
52	none	-24.623	114.859	50.818	.0476	1
		-24.623	113.741	50.818		
53	none	-24.623	113.741	50.818	.0476	1
		-23.655	114.3	50.818		
54	none	-23.655	114.3	63.8937	.0365	1
		-24.623	114.859	63.8937		
55	none	-24.623	114.859	63.8937	.0365	1
		-24.623	113.741	63.8937		

56	none	-24.623	113.741	63.8937	.0365	1
		-23.655	114.3	63.8937		
57	none	-23.831	114.3	76.9694	.027	1
		-24.535	114.706	76.9694		
58	none	-24.535	114.706	76.9694	.027	1
		-24.535	113.894	76.9694		
59	none	-24.535	113.894	76.9694	.027	1
		-23.831	114.3	76.9694		
60	none	-23.831	114.3	96.5835	.027	1
		-24.535	114.706	96.5835		
61	none	-24.535	114.706	96.5835	.027	1
		-24.535	113.894	96.5835		
62	none	-24.535	113.894	96.5835	.027	1
		-23.831	114.3	96.5835		
63	none	-48.6	228.6	0	.0127	2
		-48.6	228.6	2.5643		
64	none	-45.975	228.6	0	.0333	2
		-45.975	228.6	2.5643		
65	none	-49.913	230.874	0	.0333	2
		-49.913	230.874	2.5643		
66	none	-49.913	226.326	0	.0333	2
		-49.913	226.326	2.5643		
67	none	-45.975	228.6	2.5643	.0127	2
		-48.6	228.6	2.5643		
68	none	-49.913	230.874	2.5643	.0127	2
		-48.6	228.6	2.5643		
69	none	-49.913	226.326	2.5643	.0127	2
		-48.6	228.6	2.5643		
70	none	-45.975	228.6	2.5643	.0333	50
		-47.955	228.6	50.818		
71	none	-49.913	230.874	2.5643	.0333	50
		-48.923	229.159	50.818		
72	none	-49.913	226.326	2.5643	.0333	50
		-48.923	228.041	50.818		
73	none	-47.955	228.6	50.818	.0476	13
		-47.955	228.6	63.8937		
74	none	-48.923	229.159	50.818	.0476	13
		-48.923	229.159	63.8937		
75	none	-48.923	228.041	50.818	.0476	13
		-48.923	228.041	63.8937		
76	none	-47.955	228.6	63.8937	.0365	13
		-48.131	228.6	76.9694		
77	none	-48.923	229.159	63.8937	.0365	13
		-48.835	229.006	76.9694		
78	none	-48.923	228.041	63.8937	.0365	13
		-48.835	228.194	76.9694		
79	none	-48.131	228.6	76.9694	.027	20
		-48.131	228.6	96.5835		
80	none	-48.835	229.006	76.9694	.027	20
		-48.835	229.006	96.5835		
81	none	-48.835	228.194	76.9694	.027	20
		-48.835	228.194	96.5835		
82	none	-47.955	228.6	50.818	.0476	1
		-48.923	229.159	50.818		
83	none	-48.923	229.159	50.818	.0476	1
		-48.923	228.041	50.818		
84	none	-48.923	228.041	50.818	.0476	1
		-47.955	228.6	50.818		
85	none	-47.955	228.6	63.8937	.0365	1
		-48.923	229.159	63.8937		
86	none	-48.923	229.159	63.8937	.0365	1
		-48.923	228.041	63.8937		
87	none	-48.923	228.041	63.8937	.0365	1

		-47.955	228.6	63.8937		
88	none	-48.131	228.6	76.9694	.027	1
		-48.835	229.006	76.9694		
89	none	-48.835	229.006	76.9694	.027	1
		-48.835	228.194	76.9694		
90	none	-48.835	228.194	76.9694	.027	1
		-48.131	228.6	76.9694		
91	none	-48.131	228.6	96.5835	.027	1
		-48.835	229.006	96.5835		
92	none	-48.835	229.006	96.5835	.027	1
		-48.835	228.194	96.5835		
93	none	-48.835	228.194	96.5835	.027	1
		-48.131	228.6	96.5835		

Number of wires = 93
current nodes = 987

	minimum		maximum	
Individual wires	wire	value	wire	value
segment length	58	.811996	37	1.31292
segment/radius ratio	11	21.1307	37	103.38
radius	1	.0127	11	.0476

ELECTRICAL DESCRIPTION
Frequencies (MHz)

	frequency		no. of	segment length (wavelengths)	
no.	lowest	step	steps	minimum	maximum
1	.57	0	1	1.54E-03	2.5E-03

Sources

source	node	sector	magnitude	phase	type
1	1	1	1,435.54	4.6	voltage
2	330	1	2,110.2	286.4	voltage
3	659	1	1,005.59	198.9	voltage

Lumped loads

load	node	resistance (ohms)	reactance (ohms)	inductance (mH)	capacitance (uF)	passive circuit
1	4	0	0	0	1.5E-05	0
2	6	0	0	0	1.5E-05	0
3	8	0	0	0	1.5E-05	0
4	333	0	0	0	1.5E-05	0
5	335	0	0	0	1.5E-05	0
6	337	0	0	0	1.5E-05	0
7	662	0	0	0	1.5E-05	0
8	664	0	0	0	1.5E-05	0
9	666	0	0	0	1.5E-05	0

RMS CURRENTS
Frequency = .57 MHz
Input power = 5,000. watts
Efficiency = 100. %
coordinates in meters

current no.	X	Y	Z	mag (amps)	phase (deg)	real (amps)	imaginary (amps)
GND	0	0	0	9.06474	91.1	-.167935	9.06318
2	0	0	1.28215	9.00966	91.	-.163543	9.00818
END	0	0	2.5643	8.98061	91.	-.161287	8.97916
GND	2.625	0	0	.0748922	274.3	5.59E-03	-.0746836
4	2.625	0	1.28215	.0601699	274.3	4.47E-03	-.0600036
END	2.625	0	2.5643	.116887	274.2	8.63E-03	-.116568
GND	-1.313	2.274	0	.0749077	274.3	5.61E-03	-.074697

9.06 ∠91.3°

6	-1.313	2.274	1.28215	.0601821	274.3	4.5E-03	-.0600139
END	-1.313	2.274	2.5643	.116913	274.3	8.68E-03	-.11659
GND	-1.313	-2.274	0	.0748785	274.3	5.57E-03	-.0746708
8	-1.313	-2.274	1.28215	.0601589	274.3	4.46E-03	-.0599934
END	-1.313	-2.274	2.5643	.116864	274.2	8.6E-03	-.116547
2J2	2.625	0	2.5643	2.93233	270.9	.0453614	-2.93198
10	1.3125	0	2.5643	2.96329	270.9	.0476386	-2.96291
END	0	0	2.5643	2.99136	271.	.049725	-2.99095
2J3	-1.313	2.274	2.5643	2.94435	271.3	.0670609	-2.94359
13	-.6565	1.137	2.5643	2.97534	271.3	.0693526	-2.97453
END	0	0	2.5643	3.00343	271.4	.0714455	-3.00258
2J4	-1.313	-2.274	2.5643	2.92686	270.7	.0357599	-2.92664
16	-.6565	-1.137	2.5643	2.95783	270.7	.0380319	-2.95758
END	0	0	2.5643	2.9859	270.8	.0401167	-2.98563
2J2	2.625	0	2.5643	2.81565	90.7	-.0367333	2.81541
19	2.5854	0	3.52937	2.78522	90.7	-.0345431	2.78501
20	2.5458	0	4.49445	2.75418	90.7	-.0323496	2.75399
21	2.5062	0	5.45952	2.7242	90.6	-.0302734	2.72403
22	2.4666	0	6.4246	2.69514	90.6	-.0283039	2.69499
23	2.427	0	7.38967	2.66686	90.6	-.0264293	2.66673
24	2.3874	0	8.35474	2.63923	90.5	-.0246391	2.63911
25	2.3478	0	9.31982	2.61213	90.5	-.0229245	2.61203
26	2.3082	0	10.2849	2.58546	90.5	-.0212777	2.58538
27	2.2686	0	11.25	2.55914	90.4	-.0196923	2.55907
28	2.229	0	12.215	2.53311	90.4	-.0181626	2.53304
29	2.1894	0	13.1801	2.50729	90.4	-.0166842	2.50723
30	2.1498	0	14.1452	2.48164	90.4	-.0152531	2.4816
31	2.1102	0	15.1103	2.45614	90.3	-.0138662	2.4561
32	2.0706	0	16.0753	2.43072	90.3	-.0125207	2.43069
33	2.031	0	17.0404	2.40537	90.3	-.0112143	2.40535
34	1.9914	0	18.0055	2.38007	90.2	-9.95E-03	2.38005
35	1.9518	0	18.9706	2.3548	90.2	-8.71E-03	2.35478
36	1.9122	0	19.9356	2.32953	90.2	-7.51E-03	2.32952
37	1.8726	0	20.9007	2.30425	90.2	-6.34E-03	2.30424
38	1.833	0	21.8658	2.27896	90.1	-5.21E-03	2.27895
39	1.7934	0	22.8309	2.25363	90.1	-4.1E-03	2.25363
40	1.7538	0	23.7959	2.22826	90.1	-3.03E-03	2.22826
41	1.7142	0	24.761	2.20285	90.1	-1.98E-03	2.20285
42	1.6746	0	25.7261	2.17739	90.	-9.67E-04	2.17739
43	1.635	0	26.6912	2.15189	90.	2.19E-05	2.15189
44	1.5954	0	27.6562	2.12631	90.	9.83E-04	2.12631
45	1.5558	0	28.6213	2.10068	89.9	1.92E-03	2.10068
46	1.5162	0	29.5864	2.07498	89.9	2.82E-03	2.07498
47	1.4766	0	30.5514	2.04923	89.9	3.7E-03	2.04922
48	1.437	0	31.5165	2.02341	89.9	4.56E-03	2.0234
49	1.3974	0	32.4816	1.99753	89.8	5.39E-03	1.99752
50	1.3578	0	33.4467	1.97159	89.8	6.19E-03	1.97158
51	1.3182	0	34.4117	1.94559	89.8	6.97E-03	1.94558
52	1.2786	0	35.3768	1.91954	89.8	7.72E-03	1.91953
53	1.239	0	36.3419	1.89344	89.7	8.44E-03	1.89342
54	1.1994	0	37.307	1.86729	89.7	9.14E-03	1.86727
55	1.1598	0	38.272	1.8411	89.7	9.81E-03	1.84107
56	1.1202	0	39.2371	1.81488	89.7	.0104636	1.81485
57	1.0806	0	40.2022	1.78863	89.6	.0110872	1.78859
58	1.041	0	41.1673	1.76236	89.6	.0116855	1.76232
59	1.0014	0	42.1323	1.73608	89.6	.0122584	1.73604
60	.9618	0	43.0974	1.70981	89.6	.0128061	1.70976
61	.9222	0	44.0625	1.68356	89.5	.0133283	1.68351
62	.8826	0	45.0276	1.65735	89.5	.0138251	1.6573
63	.843	0	45.9926	1.63121	89.5	.0142962	1.63115
64	.8034	0	46.9577	1.60517	89.5	.0147414	1.6051
65	.7638	0	47.9228	1.57929	89.4	.0151601	1.57922
66	.7242	0	48.8879	1.55372	89.4	.0155507	1.55364

67	.6846	0	49.8529	1.52888	89.4	.0159075	1.5288
END	.645	0	50.818	1.50846	89.4	.0161825	1.50838
2J3	-1.313	2.274	2.5643	2.8276	91.2	-.0583763	2.827
69	-1.2932	2.2397	3.52937	2.79717	91.2	-.0561645	2.7966
70	-1.2734	2.2054	4.49445	2.76611	91.1	-.0539449	2.76558
71	-1.2536	2.1711	5.45952	2.7361	91.1	-.0518397	2.73561
72	-1.2338	2.1368	6.4246	2.70703	91.1	-.0498379	2.70657
73	-1.214	2.1025	7.38967	2.67874	91.	-.0479282	2.67831
74	-1.1942	2.0682	8.35474	2.65109	91.	-.0461	2.65069
75	-1.1744	2.0339	9.31982	2.62398	91.	-.0443446	2.6236
76	-1.1546	1.9996	10.2849	2.5973	90.9	-.0426542	2.59695
77	-1.1348	1.9653	11.25	2.57097	90.9	-.0410226	2.57064
78	-1.115	1.931	12.215	2.54492	90.9	-.0394441	2.54461
79	-1.0952	1.8967	13.1801	2.51909	90.9	-.0379144	2.51881
80	-1.0754	1.8624	14.1452	2.49343	90.8	-.0364298	2.49316
81	-1.0556	1.8281	15.1103	2.46791	90.8	-.034987	2.46766
82	-1.0358	1.7938	16.0753	2.44248	90.8	-.0335835	2.44225
83	-1.016	1.7595	17.0404	2.41712	90.8	-.0322169	2.41691
84	-.9962	1.7252	18.0055	2.3918	90.7	-.0308855	2.3916
85	-.9764	1.6909	18.9706	2.36651	90.7	-.0295876	2.36633
86	-.9566	1.6566	19.9356	2.34123	90.7	-.0283219	2.34106
87	-.9368	1.6223	20.9007	2.31594	90.7	-.0270872	2.31578
88	-.917	1.588	21.8658	2.29063	90.6	-.0258827	2.29048
89	-.8972	1.5537	22.8309	2.26529	90.6	-.0247074	2.26516
90	-.8774	1.5194	23.7959	2.23992	90.6	-.0235606	2.23979
91	-.8576	1.4851	24.761	2.2145	90.6	-.0224418	2.21438
92	-.8378	1.4508	25.7261	2.18902	90.6	-.0213504	2.18892
93	-.818	1.4165	26.6912	2.1635	90.5	-.020286	2.1634
94	-.7982	1.3822	27.6562	2.13792	90.5	-.0192482	2.13783
95	-.7784	1.3479	28.6213	2.11227	90.5	-.0182368	2.1122
96	-.7586	1.3136	29.5864	2.08657	90.5	-.0172515	2.0865
97	-.7388	1.2793	30.5514	2.06081	90.5	-.0162921	2.06075
98	-.719	1.245	31.5165	2.03498	90.4	-.0153584	2.03492
99	-.6992	1.2107	32.4816	2.00909	90.4	-.0144503	2.00904
100	-.6794	1.1764	33.4467	1.98315	90.4	-.0135678	1.9831
101	-.6596	1.1421	34.4117	1.95714	90.4	-.0127106	1.9571
102	-.6398	1.1078	35.3768	1.93108	90.4	-.011879	1.93104
103	-.62	1.0735	36.3419	1.90497	90.3	-.0110727	1.90493
104	-.6002	1.0392	37.307	1.87881	90.3	-.0102918	1.87878
105	-.5804	1.0049	38.272	1.85261	90.3	-9.54E-03	1.85258
106	-.5606	.9706	39.2371	1.82637	90.3	-8.81E-03	1.82635
107	-.5408	.9363	40.2022	1.80012	90.3	-8.1E-03	1.8001
108	-.521	.902	41.1673	1.77384	90.2	-7.42E-03	1.77382
109	-.5012	.8677	42.1323	1.74755	90.2	-6.77E-03	1.74754
110	-.4814	.8334	43.0974	1.72127	90.2	-6.14E-03	1.72126
111	-.4616	.7991	44.0625	1.69501	90.2	-5.54E-03	1.695
112	-.4418	.7648	45.0276	1.66879	90.2	-4.97E-03	1.66878
113	-.422	.7305	45.9926	1.64263	90.2	-4.42E-03	1.64262
114	-.4022	.6962	46.9577	1.61656	90.1	-3.9E-03	1.61656
115	-.3824	.6619	47.9228	1.59067	90.1	-3.4E-03	1.59067
116	-.3626	.6276	48.8879	1.56509	90.1	-2.93E-03	1.56508
117	-.3428	.5933	49.8529	1.54024	90.1	-2.5E-03	1.54024
END	-.323	.559	50.818	1.51981	90.1	-2.16E-03	1.51981
2J4	-1.313	-2.274	2.5643	2.81022	90.6	-.0271564	2.81009
119	-1.2932	-2.2397	3.52937	2.77981	90.5	-.0249756	2.7797
120	-1.2734	-2.2054	4.49445	2.74879	90.5	-.0227934	2.74869
121	-1.2536	-2.1711	5.45952	2.71881	90.4	-.0207301	2.71873
122	-1.2338	-2.1368	6.4246	2.68976	90.4	-.0187745	2.68969
123	-1.214	-2.1025	7.38967	2.66149	90.4	-.0169152	2.66144
124	-1.1942	-2.0682	8.35474	2.63387	90.3	-.0151418	2.63383
125	-1.1744	-2.0339	9.31982	2.60678	90.3	-.0134451	2.60675
126	-1.1546	-1.9996	10.2849	2.58013	90.3	-.0118175	2.5801
127	-1.1348	-1.9653	11.25	2.55382	90.2	-.0102523	2.5538

128	-1.115	-1.931	12.215	2.52779	90.2	-8.74E-03	2.52778
129	-1.0952	-1.8967	13.1801	2.50199	90.2	-7.29E-03	2.50198
130	-1.0754	-1.8624	14.1452	2.47636	90.1	-5.88E-03	2.47635
131	-1.0556	-1.8281	15.1103	2.45085	90.1	-4.52E-03	2.45085
132	-1.0358	-1.7938	16.0753	2.42545	90.1	-3.2E-03	2.42545
133	-1.016	-1.7595	17.0404	2.40011	90.	-1.92E-03	2.40011
134	-.9962	-1.7252	18.0055	2.37482	90.	-6.77E-04	2.37482
135	-.9764	-1.6909	18.9706	2.34955	90.	5.28E-04	2.34955
136	-.9566	-1.6566	19.9356	2.32429	90.	1.7E-03	2.32428
137	-.9368	-1.6223	20.9007	2.29902	89.9	2.84E-03	2.29902
138	-.917	-1.588	21.8658	2.27373	89.9	3.94E-03	2.27373
139	-.8972	-1.5537	22.8309	2.24841	89.9	5.01E-03	2.2484
140	-.8774	-1.5194	23.7959	2.22305	89.8	6.06E-03	2.22304
141	-.8576	-1.4851	24.761	2.19765	89.8	7.07E-03	2.19764
142	-.8378	-1.4508	25.7261	2.1722	89.8	8.05E-03	2.17218
143	-.818	-1.4165	26.6912	2.14669	89.8	9.01E-03	2.14667
144	-.7982	-1.3822	27.6562	2.12113	89.7	9.93E-03	2.1211
145	-.7784	-1.3479	28.6213	2.0955	89.7	.0108342	2.09547
146	-.7586	-1.3136	29.5864	2.06981	89.7	.0117062	2.06978
147	-.7388	-1.2793	30.5514	2.04406	89.6	.0125512	2.04402
148	-.719	-1.245	31.5165	2.01825	89.6	.0133696	2.0182
149	-.6992	-1.2107	32.4816	1.99237	89.6	.0141616	1.99232
150	-.6794	-1.1764	33.4467	1.96643	89.6	.0149274	1.96637
151	-.6596	-1.1421	34.4117	1.94044	89.5	.0156673	1.94038
152	-.6398	-1.1078	35.3768	1.91439	89.5	.0163814	1.91432
153	-.62	-1.0735	36.3419	1.88829	89.5	.0170699	1.88821
154	-.6002	-1.0392	37.307	1.86215	89.5	.0177329	1.86207
155	-.5804	-1.0049	38.272	1.83597	89.4	.0183705	1.83588
156	-.5606	-.9706	39.2371	1.80975	89.4	.0189827	1.80965
157	-.5408	-.9363	40.2022	1.78351	89.4	.0195698	1.7834
158	-.521	-.902	41.1673	1.75725	89.3	.0201317	1.75713
159	-.5012	-.8677	42.1323	1.73098	89.3	.0206683	1.73086
160	-.4814	-.8334	43.0974	1.70472	89.3	.0211799	1.70459
161	-.4616	-.7991	44.0625	1.67848	89.3	.0216663	1.67834
162	-.4418	-.7648	45.0276	1.65227	89.2	.0221275	1.65212
163	-.422	-.7305	45.9926	1.62613	89.2	.0225634	1.62598
164	-.4022	-.6962	46.9577	1.6001	89.2	.0229736	1.59993
165	-.3824	-.6619	47.9228	1.57423	89.1	.0233578	1.57406
166	-.3626	-.6276	48.8879	1.54866	89.1	.0237143	1.54848
167	-.3428	-.5933	49.8529	1.52384	89.1	.0240376	1.52365
END	-.323	-.559	50.818	1.50343	89.1	.0242815	1.50323
2J8	.645	0	50.818	1.49454	89.4	.0147648	1.49446
169	.645	0	51.8238	1.4709	89.4	.0150565	1.47082
170	.645	0	52.8296	1.44313	89.4	.0153758	1.44305
171	.645	0	53.8355	1.41477	89.4	.0156763	1.41468
172	.645	0	54.8413	1.38606	89.3	.0159541	1.38597
173	.645	0	55.8471	1.35706	89.3	.0162081	1.35697
174	.645	0	56.8529	1.32781	89.3	.0164375	1.32771
175	.645	0	57.8588	1.29831	89.3	.016642	1.2982
176	.645	0	58.8646	1.26856	89.2	.0168211	1.26845
177	.645	0	59.8704	1.23857	89.2	.0169745	1.23845
178	.645	0	60.8762	1.20837	89.2	.0171017	1.20825
179	.645	0	61.8821	1.17798	89.2	.0172021	1.17786
180	.645	0	62.8879	1.14769	89.1	.0172751	1.14756
END	.645	0	63.8937	1.12101	89.1	.0173146	1.12088
2J9	-.323	.559	50.818	1.49994	89.8	4.9E-03	1.49993
182	-.323	.559	51.8238	1.47629	89.8	5.27E-03	1.47628
183	-.323	.559	52.8296	1.44851	89.8	5.68E-03	1.4485
184	-.323	.559	53.8355	1.42013	89.8	6.07E-03	1.42012
185	-.323	.559	54.8413	1.39141	89.7	6.43E-03	1.39139
186	-.323	.559	55.8471	1.36239	89.7	6.77E-03	1.36238
187	-.323	.559	56.8529	1.33313	89.7	7.09E-03	1.33311
188	-.323	.559	57.8588	1.3036	89.7	7.39E-03	1.30358

189	-.323	.559	58.8646	1.27384	89.7	7.66E-03	1.27382
190	-.323	.559	59.8704	1.24384	89.6	7.9E-03	1.24381
191	-.323	.559	60.8762	1.21362	89.6	8.12E-03	1.21359
192	-.323	.559	61.8821	1.18322	89.6	8.32E-03	1.18319
193	-.323	.559	62.8879	1.1529	89.6	8.48E-03	1.15287
END	-.323	.559	63.8937	1.12621	89.6	8.62E-03	1.12618
2J10	-.323	-.559	50.818	1.49182	89.3	.0192496	1.4917
195	-.323	-.559	51.8238	1.46819	89.2	.0195046	1.46806
196	-.323	-.559	52.8296	1.44043	89.2	.019785	1.44029
197	-.323	-.559	53.8355	1.41206	89.2	.0200461	1.41192
198	-.323	-.559	54.8413	1.38336	89.2	.020284	1.38321
199	-.323	-.559	55.8471	1.35437	89.1	.0204977	1.35422
200	-.323	-.559	56.8529	1.32512	89.1	.0206865	1.32496
201	-.323	-.559	57.8588	1.29563	89.1	.0208499	1.29546
202	-.323	-.559	58.8646	1.26588	89.1	.0209876	1.26571
203	-.323	-.559	59.8704	1.23591	89.	.0210992	1.23573
204	-.323	-.559	60.8762	1.2057	89.	.0211842	1.20552
205	-.323	-.559	61.8821	1.17533	89.	.0212422	1.17514
206	-.323	-.559	62.8879	1.14504	88.9	.0212725	1.14484
END	-.323	-.559	63.8937	1.11837	88.9	.0212703	1.11816
2J11	.645	0	63.8937	1.10631	89.1	.0170448	1.10618
208	.631462	0	64.8995	1.08142	89.1	.0170558	1.08128
209	.617923	0	65.9053	1.05183	89.1	.0170447	1.0517
210	.604385	0	66.9112	1.02163	89.	.0170078	1.02149
211	.590846	0	67.917	.99116	89.	.016944	.991016
212	.577308	0	68.9228	.96053	89.	.016853	.960382
213	.563769	0	69.9286	.929778	89.	.0167347	.929628
214	.550231	0	70.9345	.898914	88.9	.0165887	.89876
215	.536692	0	71.9403	.867957	88.9	.0164152	.867801
216	.523154	0	72.9461	.836915	88.9	.016214	.836758
217	.509615	0	73.9519	.805801	88.9	.0159849	.805643
218	.496077	0	74.9578	.774653	88.8	.0157282	.774493
219	.482538	0	75.9636	.743574	88.8	.0154448	.743414
END	.469	0	76.9694	.715306	88.8	.0151623	.715145
2J12	-.323	.559	63.8937	1.11032	89.5	.0100233	1.11027
221	-.316231	.547231	64.8995	1.08542	89.5	.0101174	1.08537
222	-.309462	.535462	65.9053	1.05582	89.4	.0101934	1.05577
223	-.302692	.523692	66.9112	1.02559	89.4	.0102427	1.02554
224	-.295923	.511923	67.917	.995112	89.4	.010264	.99506
225	-.289154	.500154	68.9228	.964473	89.4	.0102571	.964419
226	-.282385	.488385	69.9286	.933699	89.4	.0102219	.933643
227	-.275615	.476615	70.9345	.902826	89.4	.010158	.902769
228	-.268846	.464846	71.9403	.871861	89.3	.0100653	.871803
229	-.262077	.453077	72.9461	.840804	89.3	9.94E-03	.840745
230	-.255308	.441308	73.9519	.809682	89.3	9.79E-03	.809623
231	-.248538	.429538	74.9578	.778526	89.3	9.61E-03	.778466
232	-.241769	.417769	75.9636	.747439	89.3	9.41E-03	.74738
END	-.235	.406	76.9694	.719173	89.3	9.2E-03	.719114
2J13	-.323	-.559	63.8937	1.10229	88.9	.0202051	1.1021
234	-.316231	-.547231	64.8995	1.07741	88.9	.0201782	1.07722
235	-.309462	-.535462	65.9053	1.04783	88.9	.0201276	1.04764
236	-.302692	-.523692	66.9112	1.01763	88.9	.0200514	1.01744
237	-.295923	-.511923	67.917	.987173	88.8	.0199489	.986972
238	-.289154	-.500154	68.9228	.95655	88.8	.0198195	.956345
239	-.282385	-.488385	69.9286	.925807	88.8	.0196634	.925598
240	-.275615	-.476615	70.9345	.89495	88.8	.0194801	.894738
241	-.268846	-.464846	71.9403	.864001	88.7	.0192697	.863786
242	-.262077	-.453077	72.9461	.832973	88.7	.0190321	.832756
243	-.255308	-.441308	73.9519	.801868	88.7	.0187673	.801648
244	-.248538	-.429538	74.9578	.770734	88.6	.0184753	.770513
245	-.241769	-.417769	75.9636	.73967	88.6	.0181573	.739447
END	-.235	-.406	76.9694	.711417	88.6	.0178413	.711194
2J14	.469	0	76.9694	.704137	88.8	.0148371	.703981

247	.469	0	77.9501	.678523	88.8	.0145563	.678366
248	.469	0	78.9308	.649024	88.7	.0142096	.648868
249	.469	0	79.9115	.618925	88.7	.0138305	.618771
250	.469	0	80.8922	.588437	88.7	.0134204	.588284
251	.469	0	81.8729	.557617	88.7	.0129795	.557465
252	.469	0	82.8536	.526481	88.6	.0125071	.526333
253	.469	0	83.8343	.495031	88.6	.0120028	.494886
254	.469	0	84.815	.463259	88.6	.0114656	.463117
255	.469	0	85.7957	.431148	88.6	.0108947	.431011
256	.469	0	86.7765	.398676	88.5	.010289	.398543
257	.469	0	87.7572	.365811	88.5	9.65E-03	.365684
258	.469	0	88.7379	.33251	88.5	8.97E-03	.332389
259	.469	0	89.7186	.298717	88.4	8.25E-03	.298603
260	.469	0	90.6993	.26435	88.4	7.48E-03	.264244
261	.469	0	91.68	.229302	88.3	6.67E-03	.229205
262	.469	0	92.6607	.193403	88.3	5.81E-03	.193316
263	.469	0	93.6414	.156389	88.2	4.89E-03	.156313
264	.469	0	94.6221	.117791	88.1	3.89E-03	.117726
265	.469	0	95.6028	.0766489	87.9	2.79E-03	.0765981
END	.469	0	96.5835	.0325098	87.2	1.57E-03	.0324721
2J15	-.235	.406	76.9694	.707598	89.2	.0100065	.707527
267	-.235	.406	77.9501	.681976	89.2	9.79E-03	.681906
268	-.235	.406	78.9308	.652472	89.2	9.51E-03	.652402
269	-.235	.406	79.9115	.622367	89.2	9.2E-03	.622299
270	-.235	.406	80.8922	.591874	89.1	8.85E-03	.591808
271	-.235	.406	81.8729	.561048	89.1	8.48E-03	.560984
272	-.235	.406	82.8536	.529906	89.1	8.08E-03	.529845
273	-.235	.406	83.8343	.498452	89.1	7.64E-03	.498393
274	-.235	.406	84.815	.466673	89.1	7.17E-03	.466618
275	-.235	.406	85.7957	.434557	89.1	6.66E-03	.434506
276	-.235	.406	86.7765	.40208	89.1	6.13E-03	.402033
277	-.235	.406	87.7572	.36921	89.1	5.55E-03	.369168
278	-.235	.406	88.7379	.335904	89.2	4.94E-03	.335867
279	-.235	.406	89.7186	.302105	89.2	4.28E-03	.302075
280	-.235	.406	90.6993	.267736	89.2	3.59E-03	.267711
281	-.235	.406	91.68	.232683	89.3	2.84E-03	.232666
282	-.235	.406	92.6607	.196782	89.4	2.05E-03	.196771
283	-.235	.406	93.6414	.159767	89.6	1.19E-03	.159763
284	-.235	.406	94.6221	.121171	89.9	2.6E-04	.121171
285	-.235	.406	95.6028	.0800413	90.6	-7.75E-04	.0800376
END	-.235	.406	96.5835	.0359593	93.1	-1.93E-03	.0359073
2J16	-.235	-.406	76.9694	.702124	88.6	.0170352	.701917
287	-.235	-.406	77.9501	.676522	88.6	.0167254	.676315
288	-.235	-.406	78.9308	.647036	88.6	.0163482	.64683
289	-.235	-.406	79.9115	.616951	88.5	.0159387	.616745
290	-.235	-.406	80.8922	.586477	88.5	.0154983	.586273
291	-.235	-.406	81.8729	.555672	88.5	.0150269	.555468
292	-.235	-.406	82.8536	.52455	88.4	.014524	.524349
293	-.235	-.406	83.8343	.493114	88.4	.0139893	.492916
294	-.235	-.406	84.815	.461357	88.3	.0134217	.461162
295	-.235	-.406	85.7957	.429261	88.3	.0128204	.429069
296	-.235	-.406	86.7765	.396803	88.2	.0121843	.396616
297	-.235	-.406	87.7572	.363954	88.2	.011512	.363772
298	-.235	-.406	88.7379	.330668	88.1	.0108018	.330491
299	-.235	-.406	89.7186	.296889	88.1	.0100516	.296719
300	-.235	-.406	90.6993	.26254	88.	9.26E-03	.262377
301	-.235	-.406	91.68	.227507	87.9	8.42E-03	.227352
302	-.235	-.406	92.6607	.191627	87.7	7.53E-03	.191479
303	-.235	-.406	93.6414	.154631	87.6	6.58E-03	.154491
304	-.235	-.406	94.6221	.116054	87.3	5.55E-03	.115922
305	-.235	-.406	95.6028	.0749403	86.6	4.42E-03	.0748101
END	-.235	-.406	96.5835	.0308656	84.1	3.16E-03	.0307034
2J8	.645	0	50.818	6.27E-03	64.5	2.7E-03	5.66E-03

END	-.323	.559	50.818	9.89E-03	287.2	2.93E-03	-9.45E-03
2J9	-.323	.559	50.818	.0112129	111.6	-4.13E-03	.0104233
END	-.323	-.559	50.818	6.11E-03	230.1	-3.92E-03	-4.69E-03
2J10	-.323	-.559	50.818	6.94E-03	80.8	1.11E-03	6.85E-03
END	.645	0	50.818	8.35E-03	278.8	1.28E-03	-8.25E-03
2J11	.645	0	63.8937	7.56E-03	86.	5.26E-04	7.54E-03
END	-.323	.559	63.8937	8.04E-03	274.1	5.79E-04	-8.02E-03
2J12	-.323	.559	63.8937	7.93E-03	96.	-8.28E-04	7.89E-03
END	-.323	-.559	63.8937	7.71E-03	264.1	-7.96E-04	-7.67E-03
2J13	-.323	-.559	63.8937	8.39E-03	88.2	2.69E-04	8.39E-03
END	.645	0	63.8937	7.17E-03	272.	2.56E-04	-7.16E-03
2J14	.469	0	76.9694	5.05E-03	85.3	4.18E-04	5.04E-03
END	-.235	.406	76.9694	5.66E-03	273.3	3.27E-04	-5.65E-03
2J15	-.235	.406	76.9694	5.96E-03	94.6	-4.82E-04	5.94E-03
END	-.235	-.406	76.9694	4.76E-03	262.9	-5.85E-04	-4.73E-03
2J16	-.235	-.406	76.9694	4.55E-03	87.2	2.21E-04	4.55E-03
END	.469	0	76.9694	6.13E-03	270.9	9.3E-05	-6.13E-03
2J17	.469	0	96.5835	.0155457	84.	1.62E-03	.0154615
END	-.235	.406	96.5835	.017595	272.3	7.04E-04	-.0175809
2J18	-.235	.406	96.5835	.0183676	93.8	-1.23E-03	.0183264
END	-.235	-.406	96.5835	.0148393	261.7	-2.15E-03	-.0146821
2J19	-.235	-.406	96.5835	.0160528	86.4	1.01E-03	.0160212
END	.469	0	96.5835	.0170107	270.2	5.E-05	-.0170106
GND	-24.3	114.3	0	14.3064	8.9	14.1346	2.21047
331	-24.3	114.3	1.28215	14.2259	8.8	14.0567	2.18768
END	-24.3	114.3	2.5643	14.1834	8.8	14.0155	2.17585
GND	-21.675	114.3	0	.110777	195.7	-.106654	-.0299422
333	-21.675	114.3	1.28215	.0890211	195.6	-.0857253	-.0239985
END	-21.675	114.3	2.5643	.173004	195.6	-.166659	-.046423
GND	-25.613	116.574	0	.111358	195.7	-.107219	-.0300777
335	-25.613	116.574	1.28215	.0895166	195.6	-.0862075	-.0241142
END	-25.613	116.574	2.5643	.174051	195.6	-.167677	-.0466712
GND	-25.613	112.026	0	.11129	195.6	-.107171	-.0299985
337	-25.613	112.026	1.28215	.0894618	195.6	-.0861693	-.024047
END	-25.613	112.026	2.5643	.17395	195.5	-.167613	-.0465263
2J33	-21.675	114.3	2.5643	4.66896	188.6	-4.61614	-.700325
339	-22.9875	114.3	2.5643	4.71454	188.7	-4.66038	-.712582
END	-24.3	114.3	2.5643	4.75578	188.8	-4.70038	-.723745
2J34	-25.613	116.574	2.5643	4.64539	189.	-4.58784	-.728927
342	-24.9565	115.437	2.5643	4.69141	189.1	-4.63248	-.741264
END	-24.3	114.3	2.5643	4.73264	189.1	-4.67244	-.752435
2J35	-25.613	112.026	2.5643	4.608	188.4	-4.55812	-.676211
345	-24.9565	113.163	2.5643	4.65395	188.5	-4.60274	-.688519
END	-24.3	114.3	2.5643	4.69513	188.6	-4.6427	-.699674
2J33	-21.675	114.3	2.5643	4.49727	8.4	4.44948	.653902
348	-21.7146	114.3	3.52937	4.45242	8.3	4.40589	.641999
349	-21.7542	114.3	4.49445	4.40657	8.2	4.36131	.629988
350	-21.7938	114.3	5.45952	4.36222	8.2	4.31814	.618524
351	-21.8334	114.3	6.4246	4.31915	8.1	4.27621	.60755
352	-21.873	114.3	7.38967	4.27716	8.	4.23529	.597006
353	-21.9126	114.3	8.35474	4.23604	8.	4.1952	.586836
354	-21.9522	114.3	9.31982	4.19564	7.9	4.15578	.576992
355	-21.9918	114.3	10.2849	4.1558	7.8	4.11688	.567433
356	-22.0314	114.3	11.25	4.11639	7.8	4.07838	.558124
357	-22.071	114.3	12.215	4.07733	7.7	4.0402	.549038
358	-22.1106	114.3	13.1801	4.03852	7.7	4.00224	.540148
359	-22.1502	114.3	14.1452	3.99989	7.6	3.96443	.531436
360	-22.1898	114.3	15.1103	3.96138	7.6	3.92672	.522882
361	-22.2294	114.3	16.0753	3.92293	7.5	3.88905	.514473
362	-22.269	114.3	17.0404	3.88452	7.5	3.8514	.506197
363	-22.3086	114.3	18.0055	3.8461	7.4	3.81371	.498042
364	-22.3482	114.3	18.9706	3.80764	7.4	3.77598	.49
365	-22.3878	114.3	19.9356	3.76912	7.3	3.73816	.482062

366	-22.4274	114.3	20.9007	3.73052	7.3	3.70026	.474222
367	-22.467	114.3	21.8658	3.69182	7.3	3.66223	.466475
368	-22.5066	114.3	22.8309	3.65301	7.2	3.62408	.458814
369	-22.5462	114.3	23.7959	3.61407	7.2	3.58579	.451237
370	-22.5858	114.3	24.761	3.57499	7.1	3.54735	.443738
371	-22.6254	114.3	25.7261	3.53578	7.1	3.50875	.436314
372	-22.665	114.3	26.6912	3.49641	7.	3.47	.428964
373	-22.7046	114.3	27.6562	3.45689	7.	3.43108	.421683
374	-22.7442	114.3	28.6213	3.41722	7.	3.39199	.414471
375	-22.7838	114.3	29.5864	3.37739	6.9	3.35274	.407324
376	-22.8234	114.3	30.5514	3.33741	6.9	3.31332	.400242
377	-22.863	114.3	31.5165	3.29726	6.8	3.27373	.393224
378	-22.9026	114.3	32.4816	3.25697	6.8	3.23398	.386267
379	-22.9422	114.3	33.4467	3.21652	6.8	3.19407	.379372
380	-22.9818	114.3	34.4117	3.17593	6.7	3.154	.372538
381	-23.0214	114.3	35.3768	3.1352	6.7	3.11379	.365763
382	-23.061	114.3	36.3419	3.09433	6.7	3.07343	.359049
383	-23.1006	114.3	37.307	3.05335	6.6	3.03294	.352395
384	-23.1402	114.3	38.272	3.01225	6.6	2.99233	.345801
385	-23.1798	114.3	39.2371	2.97104	6.6	2.9516	.339268
386	-23.2194	114.3	40.2022	2.92974	6.5	2.91077	.332796
387	-23.259	114.3	41.1673	2.88836	6.5	2.86986	.326386
388	-23.2986	114.3	42.1323	2.84692	6.5	2.82888	.320039
389	-23.3382	114.3	43.0974	2.80544	6.4	2.78784	.313758
390	-23.3778	114.3	44.0625	2.76395	6.4	2.74678	.307545
391	-23.4174	114.3	45.0276	2.72247	6.4	2.70573	.301402
392	-23.457	114.3	45.9926	2.68104	6.3	2.66473	.295334
393	-23.4966	114.3	46.9577	2.63974	6.3	2.62384	.289349
394	-23.5362	114.3	47.9228	2.59865	6.3	2.58315	.283458
395	-23.5758	114.3	48.8879	2.558	6.2	2.54289	.277693
396	-23.6154	114.3	49.8529	2.51851	6.2	2.50376	.272148
END	-23.655	114.3	50.818	2.48599	6.2	2.47154	.267629
2J34	-25.613	116.574	2.5643	4.47251	8.8	4.42016	.682256
398	-25.5932	116.54	3.52937	4.42728	8.7	4.37624	.670273
399	-25.5734	116.505	4.49445	4.38104	8.6	4.33132	.658171
400	-25.5536	116.471	5.45952	4.3363	8.6	4.28781	.646613
401	-25.5338	116.437	6.4246	4.29286	8.5	4.24555	.635545
402	-25.514	116.403	7.38967	4.25049	8.5	4.2043	.624902
403	-25.4942	116.368	8.35474	4.20902	8.4	4.1639	.614631
404	-25.4744	116.334	9.31982	4.16826	8.3	4.12417	.604685
405	-25.4546	116.3	10.2849	4.12807	8.3	4.08496	.595022
406	-25.4348	116.265	11.25	4.08833	8.2	4.04617	.585607
407	-25.415	116.231	12.215	4.04894	8.2	4.0077	.576411
408	-25.3952	116.197	13.1801	4.00981	8.1	3.96946	.567411
409	-25.3754	116.162	14.1452	3.97086	8.1	3.93137	.558586
410	-25.3556	116.128	15.1103	3.93204	8.	3.89339	.549918
411	-25.3358	116.094	16.0753	3.8933	8.	3.85547	.541394
412	-25.316	116.06	17.0404	3.85459	7.9	3.81756	.533
413	-25.2962	116.025	18.0055	3.81588	7.9	3.77963	.524726
414	-25.2764	115.991	18.9706	3.77715	7.9	3.74166	.516564
415	-25.2566	115.957	19.9356	3.73835	7.8	3.70361	.508505
416	-25.2368	115.922	20.9007	3.69949	7.8	3.66547	.500544
417	-25.217	115.888	21.8658	3.66054	7.7	3.62723	.492673
418	-25.1972	115.854	22.8309	3.62147	7.7	3.58886	.484889
419	-25.1774	115.819	23.7959	3.58229	7.7	3.55037	.477187
420	-25.1576	115.785	24.761	3.54298	7.6	3.51173	.469563
421	-25.1378	115.751	25.7261	3.50354	7.6	3.47294	.462014
422	-25.118	115.717	26.6912	3.46396	7.5	3.434	.454537
423	-25.0982	115.682	27.6562	3.42422	7.5	3.3949	.447131
424	-25.0784	115.648	28.6213	3.38435	7.5	3.35565	.439791
425	-25.0586	115.614	29.5864	3.34431	7.4	3.31623	.432519
426	-25.0388	115.579	30.5514	3.30414	7.4	3.27665	.42531
427	-25.019	115.545	31.5165	3.26381	7.4	3.23691	.418166

428	-24.9992	115.511	32.4816	3.22333	7.3	3.19701	.411083
429	-24.9794	115.476	33.4467	3.18272	7.3	3.15696	.404062
430	-24.9596	115.442	34.4117	3.14197	7.3	3.11677	.397103
431	-24.9398	115.408	35.3768	3.10108	7.2	3.07643	.390205
432	-24.92	115.374	36.3419	3.06006	7.2	3.03595	.383367
433	-24.9002	115.339	37.307	3.01893	7.2	2.99535	.376589
434	-24.8804	115.305	38.272	2.97769	7.1	2.95463	.369873
435	-24.8606	115.271	39.2371	2.93635	7.1	2.9138	.363219
436	-24.8408	115.236	40.2022	2.89492	7.1	2.87287	.356627
437	-24.821	115.202	41.1673	2.85343	7.	2.83187	.350098
438	-24.8012	115.168	42.1323	2.81188	7.	2.79081	.343634
439	-24.7814	115.133	43.0974	2.7703	7.	2.74969	.337236
440	-24.7616	115.099	44.0625	2.7287	7.	2.70856	.330908
441	-24.7418	115.065	45.0276	2.68713	6.9	2.66745	.324652
442	-24.722	115.031	45.9926	2.64563	6.9	2.62639	.318473
443	-24.7022	114.996	46.9577	2.60424	6.9	2.58544	.312378
444	-24.6824	114.962	47.9228	2.56309	6.9	2.54471	.306381
445	-24.6626	114.928	48.8879	2.52238	6.8	2.50442	.30051
446	-24.6428	114.893	49.8529	2.48284	6.8	2.46527	.294863
END	-24.623	114.859	50.818	2.45027	6.8	2.43302	.290249
2J35	-25.613	112.026	2.5643	4.43543	8.2	4.3905	.629685
448	-25.5932	112.06	3.52937	4.39029	8.1	4.34661	.61775
449	-25.5734	112.095	4.49445	4.34413	8.	4.3017	.605706
450	-25.5536	112.129	5.45952	4.29947	7.9	4.25821	.594211
451	-25.5338	112.163	6.4246	4.25611	7.9	4.21596	.583209
452	-25.514	112.198	7.38967	4.21382	7.8	4.17473	.57264
453	-25.4942	112.232	8.35474	4.17242	7.7	4.13434	.562447
454	-25.4744	112.266	9.31982	4.13174	7.7	4.09462	.552582
455	-25.4546	112.3	10.2849	4.09163	7.6	4.05543	.543006
456	-25.4348	112.335	11.25	4.05195	7.6	4.01666	.533682
457	-25.415	112.369	12.215	4.01263	7.5	3.97819	.524583
458	-25.3952	112.403	13.1801	3.97355	7.5	3.93995	.515683
459	-25.3754	112.438	14.1452	3.93467	7.4	3.90188	.506962
460	-25.3556	112.472	15.1103	3.89591	7.3	3.8639	.498402
461	-25.3358	112.506	16.0753	3.85723	7.3	3.82598	.489989
462	-25.316	112.541	17.0404	3.81858	7.2	3.78807	.48171
463	-25.2962	112.575	18.0055	3.77993	7.2	3.75015	.473555
464	-25.2764	112.609	18.9706	3.74125	7.1	3.71218	.465515
465	-25.2566	112.643	19.9356	3.70252	7.1	3.67413	.457581
466	-25.2368	112.678	20.9007	3.6637	7.1	3.63599	.449748
467	-25.217	112.712	21.8658	3.6248	7.	3.59775	.442008
468	-25.1972	112.746	22.8309	3.58579	7.	3.55938	.434357
469	-25.1774	112.781	23.7959	3.54666	6.9	3.52089	.426791
470	-25.1576	112.815	24.761	3.5074	6.9	3.48225	.419306
471	-25.1378	112.849	25.7261	3.46801	6.8	3.44346	.411898
472	-25.118	112.883	26.6912	3.42848	6.8	3.40452	.404564
473	-25.0982	112.918	27.6562	3.3888	6.7	3.36543	.397303
474	-25.0784	112.952	28.6213	3.34897	6.7	3.32617	.39011
475	-25.0586	112.986	29.5864	3.30899	6.6	3.28675	.382985
476	-25.0388	113.021	30.5514	3.26887	6.6	3.24718	.375927
477	-25.019	113.055	31.5165	3.22859	6.6	3.20744	.368933
478	-24.9992	113.089	32.4816	3.18817	6.5	3.16755	.362003
479	-24.9794	113.124	33.4467	3.14761	6.5	3.12751	.355136
480	-24.9596	113.158	34.4117	3.10691	6.4	3.08732	.34833
481	-24.9398	113.192	35.3768	3.06608	6.4	3.04699	.341586
482	-24.92	113.227	36.3419	3.02512	6.4	3.00652	.334904
483	-24.9002	113.261	37.307	2.98404	6.3	2.96593	.328282
484	-24.8804	113.295	38.272	2.94285	6.3	2.92521	.321722
485	-24.8606	113.329	39.2371	2.90157	6.2	2.8844	.315224
486	-24.8408	113.364	40.2022	2.8602	6.2	2.84348	.308788
487	-24.821	113.398	41.1673	2.81876	6.2	2.80249	.302414
488	-24.8012	113.432	42.1323	2.77727	6.1	2.76144	.296106
489	-24.7814	113.467	43.0974	2.73574	6.1	2.72034	.289863

490	-24.7616	113.501	44.0625	2.69421	6.	2.67923	.283689
491	-24.7418	113.535	45.0276	2.6527	6.	2.63813	.277586
492	-24.722	113.57	45.9926	2.61124	6.	2.59708	.27156
493	-24.7022	113.604	46.9577	2.56992	5.9	2.55616	.265616
494	-24.6824	113.638	47.9228	2.52883	5.9	2.51545	.259768
495	-24.6626	113.672	48.8879	2.48817	5.9	2.47517	.254046
496	-24.6428	113.707	49.8529	2.44868	5.8	2.43603	.248545
END	-24.623	113.741	50.818	2.41617	5.8	2.40381	.244068
2J39	-23.655	114.3	50.818	2.42776	6.2	2.41367	.261227
498	-23.655	114.3	51.8238	2.39008	6.2	2.37632	.256057
499	-23.655	114.3	52.8296	2.34578	6.1	2.33242	.25004
500	-23.655	114.3	53.8355	2.30047	6.1	2.2875	.243952
501	-23.655	114.3	54.8413	2.25458	6.1	2.242	.23785
502	-23.655	114.3	55.8471	2.20819	6.	2.19599	.231747
503	-23.655	114.3	56.8529	2.16135	6.	2.14954	.225648
504	-23.655	114.3	57.8588	2.11406	6.	2.10263	.219557
505	-23.655	114.3	58.8646	2.06635	5.9	2.0553	.213474
506	-23.655	114.3	59.8704	2.01822	5.9	2.00754	.207401
507	-23.655	114.3	60.8762	1.9697	5.9	1.95938	.201341
508	-23.655	114.3	61.8821	1.92085	5.8	1.91089	.195303
509	-23.655	114.3	62.8879	1.8721	5.8	1.8625	.189339
END	-23.655	114.3	63.8937	1.82915	5.8	1.81986	.184137
2J40	-24.623	114.859	50.818	2.43601	6.6	2.42007	.278211
511	-24.623	114.859	51.8238	2.39828	6.5	2.3827	.27293
512	-24.623	114.859	52.8296	2.35394	6.5	2.33877	.266796
513	-24.623	114.859	53.8355	2.30859	6.5	2.29383	.260589
514	-24.623	114.859	54.8413	2.26266	6.5	2.24831	.254366
515	-24.623	114.859	55.8471	2.21623	6.4	2.20229	.248141
516	-24.623	114.859	56.8529	2.16935	6.4	2.15582	.24192
517	-24.623	114.859	57.8588	2.12202	6.4	2.10889	.235704
518	-24.623	114.859	58.8646	2.07427	6.4	2.06153	.229495
519	-24.623	114.859	59.8704	2.0261	6.3	2.01375	.223295
520	-24.623	114.859	60.8762	1.97753	6.3	1.96557	.217107
521	-24.623	114.859	61.8821	1.92864	6.3	1.91707	.210941
522	-24.623	114.859	62.8879	1.87985	6.3	1.86866	.204847
END	-24.623	114.859	63.8937	1.83686	6.2	1.82599	.199518
2J41	-24.623	113.741	50.818	2.41632	6.	2.40309	.252499
524	-24.623	113.741	51.8238	2.37864	6.	2.36574	.247379
525	-24.623	113.741	52.8296	2.33436	5.9	2.32184	.241416
526	-24.623	113.741	53.8355	2.28906	5.9	2.27692	.235382
527	-24.623	113.741	54.8413	2.24318	5.9	2.23142	.229335
528	-24.623	113.741	55.8471	2.19681	5.8	2.18543	.223288
529	-24.623	113.741	56.8529	2.14998	5.8	2.13898	.217246
530	-24.623	113.741	57.8588	2.10271	5.8	2.09207	.211211
531	-24.623	113.741	58.8646	2.05501	5.7	2.04474	.205185
532	-24.623	113.741	59.8704	2.0069	5.7	1.99699	.19917
533	-24.623	113.741	60.8762	1.95839	5.7	1.94884	.193169
534	-24.623	113.741	61.8821	1.90956	5.6	1.90036	.18719
535	-24.623	113.741	62.8879	1.86082	5.6	1.85197	.181285
END	-24.623	113.741	63.8937	1.81789	5.6	1.80934	.176141
2J42	-23.655	114.3	63.8937	1.80202	5.8	1.79287	.181356
537	-23.6685	114.3	64.8995	1.76191	5.8	1.75304	.176557
538	-23.6821	114.3	65.9053	1.7142	5.7	1.70566	.170901
539	-23.6956	114.3	66.9112	1.66545	5.7	1.65724	.165176
540	-23.7092	114.3	67.917	1.61624	5.7	1.60836	.159456
541	-23.7227	114.3	68.9228	1.56674	5.6	1.55918	.153758
542	-23.7362	114.3	69.9286	1.51701	5.6	1.50976	.148087
543	-23.7498	114.3	70.9345	1.46706	5.6	1.46012	.14245
544	-23.7633	114.3	71.9403	1.41693	5.5	1.4103	.136846
545	-23.7768	114.3	72.9461	1.36662	5.5	1.3603	.131279
546	-23.7904	114.3	73.9519	1.31617	5.5	1.31015	.12575
547	-23.8039	114.3	74.9578	1.26562	5.5	1.2599	.120265
548	-23.8175	114.3	75.9636	1.21516	5.4	1.20972	.114842

END	-23.831	114.3	76.9694	1.16923	5.4	1.16405	.109954
2J43	-24.623	114.859	63.8937	1.81056	6.2	1.80013	.194068
550	-24.6162	114.847	64.8995	1.77042	6.1	1.76028	.189153
551	-24.6095	114.835	65.9053	1.72268	6.1	1.71289	.183376
552	-24.6027	114.824	66.9112	1.67388	6.1	1.66444	.177533
553	-24.5959	114.812	67.917	1.62464	6.1	1.61554	.171694
554	-24.5892	114.8	68.9228	1.57511	6.	1.56635	.165879
555	-24.5824	114.788	69.9286	1.52533	6.	1.51691	.160094
556	-24.5756	114.777	70.9345	1.47536	6.	1.46727	.154343
557	-24.5688	114.765	71.9403	1.42519	6.	1.41742	.148628
558	-24.5621	114.753	72.9461	1.37486	6.	1.36741	.14295
559	-24.5553	114.741	73.9519	1.32438	6.	1.31724	.137312
560	-24.5485	114.73	74.9578	1.27381	5.9	1.26698	.131719
561	-24.5418	114.718	75.9636	1.22333	5.9	1.2168	.126191
END	-24.535	114.706	76.9694	1.17739	5.9	1.17113	.121202
2J44	-24.623	113.741	63.8937	1.79613	5.6	1.78756	.175285
563	-24.6162	113.753	64.8995	1.75604	5.6	1.74774	.170539
564	-24.6095	113.765	65.9053	1.70835	5.5	1.70037	.164938
565	-24.6027	113.776	66.9112	1.65961	5.5	1.65195	.159268
566	-24.5959	113.788	67.917	1.61043	5.5	1.60308	.153603
567	-24.5892	113.8	68.9228	1.56094	5.4	1.55391	.147958
568	-24.5824	113.812	69.9286	1.51122	5.4	1.5045	.142342
569	-24.5756	113.823	70.9345	1.46129	5.4	1.45488	.136757
570	-24.5688	113.835	71.9403	1.41118	5.3	1.40506	.131206
571	-24.5621	113.847	72.9461	1.36089	5.3	1.35507	.125691
572	-24.5553	113.859	73.9519	1.31047	5.3	1.30494	.120213
573	-24.5485	113.87	74.9578	1.25994	5.2	1.2547	.114778
574	-24.5418	113.882	75.9636	1.20951	5.2	1.20455	.109405
END	-24.535	113.894	76.9694	1.16361	5.2	1.1589	.104566
2J45	-23.831	114.3	76.9694	1.15131	5.4	1.14619	.108408
576	-23.831	114.3	77.9501	1.10966	5.4	1.10478	.104023
577	-23.831	114.3	78.9308	1.06168	5.4	1.05705	.0990146
578	-23.831	114.3	79.9115	1.01268	5.3	1.00832	.093949
579	-23.831	114.3	80.8922	.96302	5.3	.958911	.0888636
580	-23.831	114.3	81.8729	.912793	5.3	.908941	.0837684
581	-23.831	114.3	82.8536	.862024	5.2	.858427	.0786667
582	-23.831	114.3	83.8343	.810705	5.2	.807361	.0735594
583	-23.831	114.3	84.815	.758837	5.2	.755744	.0684471
584	-23.831	114.3	85.7957	.706383	5.1	.703539	.0633268
585	-23.831	114.3	86.7765	.653308	5.1	.650711	.0581961
586	-23.831	114.3	87.7572	.599561	5.1	.597209	.0530507
587	-23.831	114.3	88.7379	.54507	5.	.542962	.0478853
588	-23.831	114.3	89.7186	.489742	5.	.487877	.042692
589	-23.831	114.3	90.6993	.433445	5.	.431823	.0374603
590	-23.831	114.3	91.68	.375997	4.9	.374618	.0321749
591	-23.831	114.3	92.6607	.317123	4.9	.315988	.0268129
592	-23.831	114.3	93.6414	.256386	4.8	.255496	.0213377
593	-23.831	114.3	94.6221	.193012	4.7	.192374	.0156839
594	-23.831	114.3	95.6028	.125425	4.4	.125048	9.72E-03
END	-23.831	114.3	96.5835	.0528729	3.7	.0527645	3.38E-03
2J46	-24.535	114.706	76.9694	1.15866	5.8	1.15268	.117607
596	-24.535	114.706	77.9501	1.117	5.8	1.11125	.113134
597	-24.535	114.706	78.9308	1.06899	5.8	1.06352	.108033
598	-24.535	114.706	79.9115	1.01998	5.8	1.01478	.102874
599	-24.535	114.706	80.8922	.970304	5.8	.965373	.0976954
600	-24.535	114.706	81.8729	.920058	5.8	.915396	.0925068
601	-24.535	114.706	82.8536	.869271	5.8	.864874	.0873118
602	-24.535	114.706	83.8343	.817941	5.8	.813809	.0821119
603	-24.535	114.706	84.815	.766054	5.8	.762184	.0769056
604	-24.535	114.706	85.7957	.713584	5.8	.709973	.0716923
605	-24.535	114.706	86.7765	.660498	5.8	.657145	.066468
606	-24.535	114.706	87.7572	.606736	5.8	.603638	.0612293
607	-24.535	114.706	88.7379	.552231	5.8	.549387	.0559705

608	-24.535	114.706	89.7186	.496889	5.9	.494297	.0506839
609	-24.535	114.706	90.6993	.440581	5.9	.43824	.045359
610	-24.535	114.706	91.68	.383122	6.	.38103	.0399805
611	-24.535	114.706	92.6607	.324239	6.1	.322396	.0345256
612	-24.535	114.706	93.6414	.263497	6.3	.261901	.0289575
613	-24.535	114.706	94.6221	.200127	6.7	.198776	.023211
614	-24.535	114.706	95.6028	.132563	7.4	.131448	.0171518
END	-24.535	114.706	96.5835	.0601283	10.3	.0591645	.0107224
2J47	-24.535	113.894	76.9694	1.14819	5.2	1.14345	.104178
616	-24.535	113.894	77.9501	1.10656	5.2	1.10205	.0998361
617	-24.535	113.894	78.9308	1.05859	5.1	1.05433	.0948723
618	-24.535	113.894	79.9115	1.00963	5.1	1.00562	.0898513
619	-24.535	113.894	80.8922	.959999	5.1	.956246	.0848105
620	-24.535	113.894	81.8729	.909793	5.	.90629	.0797597
621	-24.535	113.894	82.8536	.859051	5.	.855797	.0747034
622	-24.535	113.894	83.8343	.80776	4.9	.804752	.0696414
623	-24.535	113.894	84.815	.755919	4.9	.753156	.0645737
624	-24.535	113.894	85.7957	.703493	4.9	.700972	.0594985
625	-24.535	113.894	86.7765	.650447	4.8	.648167	.0544127
626	-24.535	113.894	87.7572	.596728	4.7	.594687	.0493125
627	-24.535	113.894	88.7379	.542266	4.7	.540462	.044192
628	-24.535	113.894	89.7186	.486967	4.6	.485399	.0390437
629	-24.535	113.894	90.6993	.430701	4.5	.429368	.033857
630	-24.535	113.894	91.68	.373284	4.4	.372185	.0286165
631	-24.535	113.894	92.6607	.314443	4.2	.313579	.0232994
632	-24.535	113.894	93.6414	.253741	4.	.253111	.0178691
633	-24.535	113.894	94.6221	.190409	3.7	.190014	.0122602
634	-24.535	113.894	95.6028	.122877	3.	.122713	6.34E-03
END	-24.535	113.894	96.5835	.0504577	.1	.0504577	5.07E-05
2J39	-23.655	114.3	50.818	.0276214	359.8	.0276212	-8.49E-05
END	-24.623	114.859	50.818	5.12E-03	317.5	3.77E-03	-3.46E-03
2J40	-24.623	114.859	50.818	.0187977	27.2	.0167263	8.58E-03
END	-24.623	113.741	50.818	8.84E-03	143.7	-7.13E-03	5.23E-03
2J41	-24.623	113.741	50.818	7.16E-03	206.5	-6.41E-03	-3.2E-03
END	-23.655	114.3	50.818	.0309364	192.1	-.0302487	-6.49E-03
2J42	-23.655	114.3	63.8937	.013612	3.1	.0135921	7.37E-04
END	-24.623	114.859	63.8937	.0115286	191.7	-.0112902	-2.33E-03
2J43	-24.623	114.859	63.8937	.0149039	12.1	.0145742	3.12E-03
END	-24.623	113.741	63.8937	.010311	179.6	-.0103107	7.72E-05
2J44	-24.623	113.741	63.8937	.0115068	4.7	.0114689	9.33E-04
END	-23.655	114.3	63.8937	.013556	188.7	-.0134011	-2.04E-03
2J45	-23.831	114.3	76.9694	9.26E-03	2.1	9.25E-03	3.36E-04
END	-24.535	114.706	76.9694	8.16E-03	190.8	-8.01E-03	-1.53E-03
2J46	-24.535	114.706	76.9694	.0106431	11.2	.0104409	2.06E-03
END	-24.535	113.894	76.9694	6.8E-03	178.2	-6.8E-03	2.17E-04
2J47	-24.535	113.894	76.9694	8.67E-03	4.	8.65E-03	6.05E-04
END	-23.831	114.3	76.9694	8.69E-03	188.	-8.61E-03	-1.21E-03
2J48	-23.831	114.3	96.5835	.0250725	359.9	.0250724	-6.E-05
END	-24.535	114.706	96.5835	.0294752	189.4	-.0290803	-4.81E-03
2J49	-24.535	114.706	96.5835	.0306599	11.1	.0300842	5.91E-03
END	-24.535	113.894	96.5835	.0240422	177.2	-.0240128	1.19E-03
2J50	-24.535	113.894	96.5835	.026474	2.7	.0264449	1.24E-03
END	-23.831	114.3	96.5835	.0279053	187.1	-.0276921	-3.44E-03
GND	-48.6	228.6	0	8.42305	273.	.438693	-8.41162
660	-48.6	228.6	1.28215	8.38577	272.9	.426279	-8.37493
END	-48.6	228.6	2.5643	8.36588	272.9	.419926	-8.35533
GND	-45.975	228.6	0	.0537988	107.1	-.0157999	.0514264
662	-45.975	228.6	1.28215	.0432822	107.	-.0126323	.0413978
END	-45.975	228.6	2.5643	.0842835	106.8	-.0243289	.0806958
GND	-49.913	230.874	0	.0541252	107.1	-.015874	.0517451
664	-49.913	230.874	1.28215	.0435593	106.9	-.0126943	.0416686
END	-49.913	230.874	2.5643	.0848621	106.8	-.0244576	.0812613
GND	-49.913	226.326	0	.0540689	107.	-.0157845	.0517136

666	-49.913	226.326	1.28215	.0435149	106.9	-.01262	.0416447
END	-49.913	226.326	2.5643	.0847845	106.7	-.0243049	.0812261
2J64	-45.975	228.6	2.5643	2.76206	92.5	-.121604	2.75938
668	-47.2875	228.6	2.5643	2.78381	92.6	-.127993	2.78087
END	-48.6	228.6	2.5643	2.80342	92.7	-.133844	2.80022
2J65	-49.913	230.874	2.5643	2.75052	93.3	-.160043	2.74586
671	-49.2565	229.737	2.5643	2.77256	93.4	-.166467	2.76756
END	-48.6	228.6	2.5643	2.79222	93.5	-.172327	2.7869
2J66	-49.913	226.326	2.5643	2.72907	92.1	-.101515	2.72718
674	-49.2565	227.463	2.5643	2.75099	92.2	-.107905	2.74887
END	-48.6	228.6	2.5643	2.77055	92.4	-.113754	2.76821
2J64	-45.975	228.6	2.5643	2.68045	272.1	.0972747	-2.67868
677	-46.0146	228.6	3.52937	2.65892	272.	.0911472	-2.65736
678	-46.0542	228.6	4.49445	2.63677	271.8	.0850374	-2.6354
679	-46.0938	228.6	5.45952	2.61518	271.7	.0792846	-2.61398
680	-46.1334	228.6	6.4246	2.59407	271.6	.073855	-2.59302
681	-46.173	228.6	7.38967	2.57334	271.5	.0687156	-2.57242
682	-46.2126	228.6	8.35474	2.5529	271.4	.0638366	-2.5521
683	-46.2522	228.6	9.31982	2.53266	271.3	.059192	-2.53196
684	-46.2918	228.6	10.2849	2.51255	271.2	.0547594	-2.51196
685	-46.3314	228.6	11.25	2.49254	271.2	.0505198	-2.49203
686	-46.371	228.6	12.215	2.47255	271.1	.0464572	-2.47212
687	-46.4106	228.6	13.1801	2.45256	271.	.0425582	-2.45219
688	-46.4502	228.6	14.1452	2.43252	270.9	.0388114	-2.43221
689	-46.4898	228.6	15.1103	2.41243	270.8	.035207	-2.41217
690	-46.5294	228.6	16.0753	2.39224	270.8	.0317368	-2.39203
691	-46.569	228.6	17.0404	2.37194	270.7	.0283935	-2.37177
692	-46.6086	228.6	18.0055	2.35152	270.6	.0251711	-2.35138
693	-46.6482	228.6	18.9706	2.33096	270.5	.0220641	-2.33085
694	-46.6878	228.6	19.9356	2.31025	270.5	.0190677	-2.31017
695	-46.7274	228.6	20.9007	2.28939	270.4	.0161778	-2.28933
696	-46.767	228.6	21.8658	2.26836	270.3	.0133905	-2.26832
697	-46.8066	228.6	22.8309	2.24716	270.3	.0107026	-2.24714
698	-46.8462	228.6	23.7959	2.22579	270.2	8.11E-03	-2.22577
699	-46.8858	228.6	24.761	2.20424	270.1	5.61E-03	-2.20423
700	-46.9254	228.6	25.7261	2.18251	270.1	3.21E-03	-2.18251
701	-46.965	228.6	26.6912	2.1606	270.	8.88E-04	-2.1606
702	-47.0046	228.6	27.6562	2.1385	270.	-1.34E-03	-2.1385
703	-47.0442	228.6	28.6213	2.11623	269.9	-3.49E-03	-2.11622
704	-47.0838	228.6	29.5864	2.09377	269.8	-5.55E-03	-2.09376
705	-47.1234	228.6	30.5514	2.07113	269.8	-7.54E-03	-2.07112
706	-47.163	228.6	31.5165	2.04832	269.7	-9.44E-03	-2.0483
707	-47.2026	228.6	32.4816	2.02533	269.7	-.011265	-2.0253
708	-47.2422	228.6	33.4467	2.00217	269.6	-.0130133	-2.00213
709	-47.2818	228.6	34.4117	1.97884	269.6	-.0146864	-1.97879
710	-47.3214	228.6	35.3768	1.95535	269.5	-.0162856	-1.95529
711	-47.361	228.6	36.3419	1.9317	269.5	-.017812	-1.93162
712	-47.4006	228.6	37.307	1.9079	269.4	-.0192668	-1.9078
713	-47.4402	228.6	38.272	1.88396	269.4	-.0206513	-1.88384
714	-47.4798	228.6	39.2371	1.85987	269.3	-.0219664	-1.85974
715	-47.5194	228.6	40.2022	1.83565	269.3	-.0232134	-1.83551
716	-47.559	228.6	41.1673	1.81132	269.2	-.0243932	-1.81116
717	-47.5986	228.6	42.1323	1.78689	269.2	-.0255068	-1.7867
718	-47.6382	228.6	43.0974	1.76235	269.1	-.0265551	-1.76215
719	-47.6778	228.6	44.0625	1.73774	269.1	-.0275392	-1.73752
720	-47.7174	228.6	45.0276	1.71306	269.	-.0284598	-1.71282
721	-47.757	228.6	45.9926	1.68835	269.	-.0293177	-1.6881
722	-47.7966	228.6	46.9577	1.66366	269.	-.0301134	-1.66338
723	-47.8362	228.6	47.9228	1.63903	268.9	-.0308471	-1.63874
724	-47.8758	228.6	48.8879	1.6146	268.9	-.0315172	-1.61429
725	-47.9154	228.6	49.8529	1.5908	268.8	-.0321159	-1.59048
END	-47.955	228.6	50.818	1.57117	268.8	-.032567	-1.57083
2J65	-49.913	230.874	2.5643	2.66804	272.9	.135586	-2.66459

727	-49.8932	230.84	3.52937	2.64625	272.8	.129418	-2.64309
728	-49.8734	230.805	4.49445	2.62384	272.7	.123264	-2.62094
729	-49.8536	230.771	5.45952	2.602	272.6	.117463	-2.59935
730	-49.8338	230.737	6.4246	2.58065	272.5	.111984	-2.57821
731	-49.814	230.703	7.38967	2.55968	272.4	.106793	-2.55745
732	-49.7942	230.668	8.35474	2.53901	272.3	.10186	-2.53696
733	-49.7744	230.634	9.31982	2.51855	272.2	.0971588	-2.51667
734	-49.7546	230.6	10.2849	2.49823	272.1	.0926672	-2.49651
735	-49.7348	230.565	11.25	2.47801	272.	.0883673	-2.47644
736	-49.715	230.531	12.215	2.45783	272.	.0842421	-2.45639
737	-49.6952	230.497	13.1801	2.43764	271.9	.080278	-2.43632
738	-49.6754	230.462	14.1452	2.41743	271.8	.0764645	-2.41622
739	-49.6556	230.428	15.1103	2.39715	271.7	.0727916	-2.39604
740	-49.6358	230.394	16.0753	2.37679	271.7	.0692509	-2.37578
741	-49.616	230.36	17.0404	2.35633	271.6	.0658353	-2.35541
742	-49.5962	230.325	18.0055	2.33574	271.5	.0625388	-2.3349
743	-49.5764	230.291	18.9706	2.31502	271.5	.0593561	-2.31426
744	-49.5566	230.257	19.9356	2.29416	271.4	.0562824	-2.29347
745	-49.5368	230.222	20.9007	2.27315	271.3	.0533137	-2.27253
746	-49.517	230.188	21.8658	2.25198	271.3	.0504463	-2.25142
747	-49.4972	230.154	22.8309	2.23064	271.2	.0476768	-2.23013
748	-49.4774	230.119	23.7959	2.20914	271.2	.0450024	-2.20868
749	-49.4576	230.085	24.761	2.18746	271.1	.0424204	-2.18704
750	-49.4378	230.051	25.7261	2.1656	271.1	.0399283	-2.16523
751	-49.418	230.017	26.6912	2.14357	271.	.037524	-2.14324
752	-49.3982	229.982	27.6562	2.12136	271.	.0352054	-2.12107
753	-49.3784	229.948	28.6213	2.09898	270.9	.0329706	-2.09872
754	-49.3586	229.914	29.5864	2.07642	270.9	.0308179	-2.07619
755	-49.3388	229.879	30.5514	2.05368	270.8	.0287456	-2.05348
756	-49.319	229.845	31.5165	2.03077	270.8	.0267523	-2.03059
757	-49.2992	229.811	32.4816	2.00769	270.7	.0248364	-2.00753
758	-49.2794	229.776	33.4467	1.98444	270.7	.0229967	-1.98431
759	-49.2596	229.742	34.4117	1.96103	270.6	.0212317	-1.96091
760	-49.2398	229.708	35.3768	1.93746	270.6	.0195404	-1.93736
761	-49.22	229.674	36.3419	1.91373	270.5	.0179215	-1.91364
762	-49.2002	229.639	37.307	1.88985	270.5	.016374	-1.88978
763	-49.1804	229.605	38.272	1.86584	270.5	.0148968	-1.86578
764	-49.1606	229.571	39.2371	1.84169	270.4	.0134887	-1.84164
765	-49.1408	229.536	40.2022	1.81742	270.4	.0121487	-1.81738
766	-49.121	229.502	41.1673	1.79303	270.3	.010876	-1.793
767	-49.1012	229.468	42.1323	1.76854	270.3	9.67E-03	-1.76851
768	-49.0814	229.433	43.0974	1.74396	270.3	8.53E-03	-1.74394
769	-49.0616	229.399	44.0625	1.7193	270.2	7.45E-03	-1.71929
770	-49.0418	229.365	45.0276	1.69459	270.2	6.44E-03	-1.69458
771	-49.022	229.331	45.9926	1.66985	270.2	5.49E-03	-1.66984
772	-49.0022	229.296	46.9577	1.64511	270.2	4.6E-03	-1.64511
773	-48.9824	229.262	47.9228	1.62046	270.1	3.78E-03	-1.62046
774	-48.9626	229.228	48.8879	1.596	270.1	3.02E-03	-1.596
775	-48.9428	229.193	49.8529	1.57219	270.1	2.33E-03	-1.57219
END	-48.923	229.159	50.818	1.55255	270.1	1.8E-03	-1.55255
2J66	-49.913	226.326	2.5643	2.64708	271.7	.0772103	-2.64595
777	-49.8932	226.36	3.52937	2.62541	271.6	.0710899	-2.62445
778	-49.8734	226.395	4.49445	2.60312	271.4	.0649896	-2.60231
779	-49.8536	226.429	5.45952	2.5814	271.3	.0592466	-2.58072
780	-49.8338	226.463	6.4246	2.56015	271.2	.0538288	-2.55959
781	-49.814	226.497	7.38967	2.53928	271.1	.0487027	-2.53881
782	-49.7942	226.532	8.35474	2.5187	271.	.0438383	-2.51832
783	-49.7744	226.566	9.31982	2.49833	270.9	.0392095	-2.49802
784	-49.7546	226.6	10.2849	2.47809	270.8	.034794	-2.47785
785	-49.7348	226.635	11.25	2.45795	270.7	.0305727	-2.45776
786	-49.715	226.669	12.215	2.43783	270.6	.0265298	-2.43769
787	-49.6952	226.703	13.1801	2.41771	270.5	.0226516	-2.41761
788	-49.6754	226.738	14.1452	2.39756	270.5	.0189267	-2.39749

789	-49.6556	226.772	15.1103	2.37734	270.4	.0153456	-2.37729
790	-49.6358	226.806	16.0753	2.35703	270.3	.0118996	-2.357
791	-49.616	226.84	17.0404	2.33662	270.2	8.58E-03	-2.3366
792	-49.5962	226.875	18.0055	2.31608	270.1	5.39E-03	-2.31608
793	-49.5764	226.909	18.9706	2.29541	270.1	2.31E-03	-2.29541
794	-49.5566	226.943	19.9356	2.2746	270.	-6.62E-04	-2.2746
795	-49.5368	226.978	20.9007	2.25362	269.9	-3.52E-03	-2.25362
796	-49.517	227.012	21.8658	2.23249	269.8	-6.28E-03	-2.23248
797	-49.4972	227.046	22.8309	2.2112	269.8	-8.94E-03	-2.21118
798	-49.4774	227.081	23.7959	2.18973	269.7	-.0114969	-2.1897
799	-49.4576	227.115	24.761	2.16809	269.6	-.0139623	-2.16804
800	-49.4378	227.149	25.7261	2.14626	269.6	-.0163359	-2.1462
801	-49.418	227.184	26.6912	2.12427	269.5	-.01862	-2.12419
802	-49.3982	227.218	27.6562	2.10209	269.4	-.0208167	-2.10199
803	-49.3784	227.252	28.6213	2.07973	269.4	-.0229282	-2.0796
804	-49.3586	227.286	29.5864	2.0572	269.3	-.0249561	-2.05705
805	-49.3388	227.321	30.5514	2.03449	269.2	-.0269023	-2.03431
806	-49.319	227.355	31.5165	2.01161	269.2	-.0287684	-2.0114
807	-49.2992	227.389	32.4816	1.98854	269.1	-.0305559	-1.98831
808	-49.2794	227.424	33.4467	1.96532	269.1	-.0322662	-1.96506
809	-49.2596	227.458	34.4117	1.94193	269.	-.0339009	-1.94163
810	-49.2398	227.492	35.3768	1.91838	268.9	-.0354612	-1.91806
811	-49.22	227.527	36.3419	1.89468	268.9	-.0369484	-1.89432
812	-49.2002	227.561	37.307	1.87082	268.8	-.0383637	-1.87043
813	-49.1804	227.595	38.272	1.84683	268.8	-.0397082	-1.8464
814	-49.1606	227.629	39.2371	1.8227	268.7	-.0409833	-1.82224
815	-49.1408	227.664	40.2022	1.79844	268.7	-.0421898	-1.79795
816	-49.121	227.698	41.1673	1.77407	268.6	-.0433289	-1.77354
817	-49.1012	227.732	42.1323	1.7496	268.5	-.0444017	-1.74904
818	-49.0814	227.767	43.0974	1.72503	268.5	-.045409	-1.72443
819	-49.0616	227.801	44.0625	1.70039	268.4	-.046352	-1.69976
820	-49.0418	227.835	45.0276	1.67569	268.4	-.0472313	-1.67503
821	-49.022	227.87	45.9926	1.65097	268.3	-.0480479	-1.65027
822	-49.0022	227.904	46.9577	1.62626	268.3	-.0488022	-1.62552
823	-48.9824	227.938	47.9228	1.60162	268.2	-.0494944	-1.60085
824	-48.9626	227.972	48.8879	1.57718	268.2	-.0501231	-1.57638
825	-48.9428	228.007	49.8529	1.55338	268.1	-.0506805	-1.55256
END	-48.923	228.041	50.818	1.53375	268.1	-.0510928	-1.5329
2J70	-47.955	228.6	50.818	1.53743	268.8	-.031201	-1.53711
827	-47.955	228.6	51.8238	1.5146	268.8	-.0316634	-1.51427
828	-47.955	228.6	52.8296	1.48771	268.8	-.0321526	-1.48736
829	-47.955	228.6	53.8355	1.46015	268.7	-.0325957	-1.45978
830	-47.955	228.6	54.8413	1.43216	268.7	-.032987	-1.43178
831	-47.955	228.6	55.8471	1.40381	268.6	-.0333254	-1.40342
832	-47.955	228.6	56.8529	1.37512	268.6	-.0336104	-1.37471
833	-47.955	228.6	57.8588	1.3461	268.6	-.0338422	-1.34568
834	-47.955	228.6	58.8646	1.31675	268.5	-.0340206	-1.31631
835	-47.955	228.6	59.8704	1.28708	268.5	-.0341459	-1.28662
836	-47.955	228.6	60.8762	1.2571	268.4	-.034218	-1.25664
837	-47.955	228.6	61.8821	1.22687	268.4	-.0342373	-1.22639
838	-47.955	228.6	62.8879	1.19664	268.4	-.0342046	-1.19615
END	-47.955	228.6	63.8937	1.16995	268.3	-.03413	-1.16945
2J71	-48.923	229.159	50.818	1.54303	269.6	-.0109925	-1.54299
840	-48.923	229.159	51.8238	1.5202	269.6	-.0115543	-1.52015
841	-48.923	229.159	52.8296	1.4933	269.5	-.0121489	-1.49325
842	-48.923	229.159	53.8355	1.46574	269.5	-.0126989	-1.46568
843	-48.923	229.159	54.8413	1.43775	269.5	-.0131984	-1.43768
844	-48.923	229.159	55.8471	1.40939	269.4	-.0136463	-1.40933
845	-48.923	229.159	56.8529	1.3807	269.4	-.0140421	-1.38063
846	-48.923	229.159	57.8588	1.35167	269.4	-.0143858	-1.35159
847	-48.923	229.159	58.8646	1.32232	269.4	-.0146772	-1.32224
848	-48.923	229.159	59.8704	1.29265	269.3	-.0149167	-1.29256
849	-48.923	229.159	60.8762	1.26267	269.3	-.0151041	-1.26258

850	-48.923	229.159	61.8821	1.23243	269.3	-.0152397	-1.23234
851	-48.923	229.159	62.8879	1.2022	269.3	-.0153241	-1.2021
END	-48.923	229.159	63.8937	1.17551	269.3	-.0153643	-1.17541
2J72	-48.923	228.041	50.818	1.53304	268.5	-.0406518	-1.5325
853	-48.923	228.041	51.8238	1.51021	268.4	-.0410678	-1.50966
854	-48.923	228.041	52.8296	1.48332	268.4	-.0415078	-1.48274
855	-48.923	228.041	53.8355	1.45576	268.4	-.0419011	-1.45515
856	-48.923	228.041	54.8413	1.42778	268.3	-.0422418	-1.42715
857	-48.923	228.041	55.8471	1.39943	268.3	-.0425291	-1.39878
858	-48.923	228.041	56.8529	1.37073	268.2	-.0427624	-1.37006
859	-48.923	228.041	57.8588	1.34171	268.2	-.0429419	-1.34102
860	-48.923	228.041	58.8646	1.31236	268.1	-.0430675	-1.31165
861	-48.923	228.041	59.8704	1.28268	268.1	-.0431394	-1.28196
862	-48.923	228.041	60.8762	1.2527	268.	-.0431578	-1.25196
863	-48.923	228.041	61.8821	1.22247	268.	-.0431226	-1.22171
864	-48.923	228.041	62.8879	1.19224	267.9	-.0430352	-1.19146
END	-48.923	228.041	63.8937	1.16554	267.9	-.0429069	-1.16475
2J73	-47.955	228.6	63.8937	1.15501	268.3	-.0334938	-1.15453
866	-47.9685	228.6	64.8995	1.13003	268.3	-.0333758	-1.12954
867	-47.9821	228.6	65.9053	1.10027	268.3	-.0331908	-1.09976
868	-47.9956	228.6	66.9112	1.06979	268.2	-.0329555	-1.06928
869	-48.0092	228.6	67.917	1.03898	268.2	-.0326711	-1.03846
870	-48.0227	228.6	68.9228	1.00792	268.2	-.0323383	-1.0074
871	-48.0362	228.6	69.9286	.976663	268.1	-.0319577	-.97614
872	-48.0498	228.6	70.9345	.94522	268.1	-.0315298	-.944694
873	-48.0633	228.6	71.9403	.913605	268.1	-.0310554	-.913077
874	-48.0768	228.6	72.9461	.881827	268.	-.030535	-.881298
875	-48.0904	228.6	73.9519	.849906	268.	-.0299691	-.849377
876	-48.1039	228.6	74.9578	.817871	267.9	-.0293592	-.817344
877	-48.1175	228.6	75.9636	.785834	267.9	-.0287078	-.78531
END	-48.131	228.6	76.9694	.756632	267.9	-.0280774	-.756111
2J74	-48.923	229.159	63.8937	1.15858	269.1	-.0182837	-1.15844
879	-48.9162	229.147	64.8995	1.13361	269.1	-.01827	-1.13346
880	-48.9095	229.135	65.9053	1.10384	269.1	-.0181947	-1.10369
881	-48.9027	229.124	66.9112	1.07336	269.	-.0180682	-1.07321
882	-48.8959	229.112	67.917	1.04255	269.	-.0178914	-1.0424
883	-48.8892	229.1	68.9228	1.0115	269.	-.017665	-1.01135
884	-48.8824	229.088	69.9286	.980247	269.	-.0173897	-.980093
885	-48.8756	229.077	70.9345	.948813	269.	-.0170659	-.94866
886	-48.8688	229.065	71.9403	.917202	269.	-.0166944	-.91705
887	-48.8621	229.053	72.9461	.885428	268.9	-.0162756	-.885278
888	-48.8553	229.041	73.9519	.853518	268.9	-.0158102	-.853372
889	-48.8485	229.03	74.9578	.821495	268.9	-.0152993	-.821352
890	-48.8418	229.018	75.9636	.78947	268.9	-.0147458	-.789333
END	-48.835	229.006	76.9694	.760285	268.9	-.0142098	-.760152
2J75	-48.923	228.041	63.8937	1.15059	268.	-.0404821	-1.14988
892	-48.9162	228.053	64.8995	1.12561	267.9	-.0403153	-1.12488
893	-48.9095	228.065	65.9053	1.09584	267.9	-.040079	-1.09511
894	-48.9027	228.076	66.9112	1.06536	267.9	-.0397929	-1.06462
895	-48.8959	228.088	67.917	1.03455	267.8	-.0394582	-1.0338
896	-48.8892	228.1	68.9228	1.0035	267.8	-.0390757	-1.00274
897	-48.8824	228.112	69.9286	.972236	267.7	-.038646	-.971467
898	-48.8756	228.123	70.9345	.940795	267.7	-.0381696	-.94002
899	-48.8688	228.135	71.9403	.909184	267.6	-.0376473	-.908404
900	-48.8621	228.147	72.9461	.877409	267.6	-.0370796	-.876625
901	-48.8553	228.159	73.9519	.845491	267.5	-.0364672	-.844704
902	-48.8485	228.17	74.9578	.813466	267.5	-.0358112	-.812677
903	-48.8418	228.182	75.9636	.78144	267.4	-.0351147	-.780651
END	-48.835	228.194	76.9694	.75225	267.4	-.0344402	-.751461
2J76	-48.131	228.6	76.9694	.744517	267.9	-.0273348	-.744015
905	-48.131	228.6	77.9501	.717993	267.9	-.0267258	-.717496
906	-48.131	228.6	78.9308	.687386	267.8	-.0259891	-.686894
907	-48.131	228.6	79.9115	.656089	267.8	-.0252002	-.655605

908	-48.131	228.6	80.8922	.624322	267.8	-.0243632	-.623847
909	-48.131	228.6	81.8729	.592144	267.7	-.023479	-.591678
910	-48.131	228.6	82.8536	.559569	267.7	-.0225477	-.559115
911	-48.131	228.6	83.8343	.5266	267.7	-.0215688	-.526158
912	-48.131	228.6	84.815	.493226	267.6	-.0205419	-.492798
913	-48.131	228.6	85.7957	.459428	267.6	-.0194658	-.459016
914	-48.131	228.6	86.7765	.425183	267.5	-.0183395	-.424788
915	-48.131	228.6	87.7572	.390456	267.5	-.017161	-.390079
916	-48.131	228.6	88.7379	.355199	267.4	-.0159284	-.354842
917	-48.131	228.6	89.7186	.319351	267.4	-.0146387	-.319016
918	-48.131	228.6	90.6993	.282827	267.3	-.0132879	-.282514
919	-48.131	228.6	91.68	.245504	267.2	-.0118706	-.245217
920	-48.131	228.6	92.6607	.207204	267.1	-.0103782	-.206944
921	-48.131	228.6	93.6414	.167638	267.	-8.8E-03	-.167407
922	-48.131	228.6	94.6221	.126299	266.8	-7.11E-03	-.126099
923	-48.131	228.6	95.6028	.082153	266.3	-5.26E-03	-.0819846
END	-48.131	228.6	96.5835	.0347108	264.7	-3.22E-03	-.034561
2J77	-48.835	229.006	76.9694	.74884	268.8	-.0161209	-.748667
925	-48.835	229.006	77.9501	.722323	268.8	-.0155944	-.722155
926	-48.835	229.006	78.9308	.691726	268.8	-.0149448	-.691565
927	-48.835	229.006	79.9115	.660442	268.8	-.0142432	-.660288
928	-48.835	229.006	80.8922	.628687	268.8	-.0134937	-.628542
929	-48.835	229.006	81.8729	.59652	268.8	-.0126974	-.596385
930	-48.835	229.006	82.8536	.563959	268.8	-.011854	-.563834
931	-48.835	229.006	83.8343	.531002	268.8	-.0109634	-.530889
932	-48.835	229.006	84.815	.497642	268.8	-.0100248	-.497541
933	-48.835	229.006	85.7957	.46386	268.9	-9.04E-03	-.463772
934	-48.835	229.006	86.7765	.429631	268.9	-8.E-03	-.429556
935	-48.835	229.006	87.7572	.39492	269.	-6.91E-03	-.39486
936	-48.835	229.006	88.7379	.359682	269.1	-5.77E-03	-.359636
937	-48.835	229.006	89.7186	.323855	269.2	-4.56E-03	-.323822
938	-48.835	229.006	90.6993	.287353	269.3	-3.3E-03	-.287334
939	-48.835	229.006	91.68	.250057	269.5	-1.97E-03	-.25005
940	-48.835	229.006	92.6607	.21179	269.8	-5.71E-04	-.211789
941	-48.835	229.006	93.6414	.172268	270.3	9.21E-04	-.172266
942	-48.835	229.006	94.6221	.130996	271.1	2.52E-03	-.130971
943	-48.835	229.006	95.6028	.0869769	272.8	4.28E-03	-.0868713
END	-48.835	229.006	96.5835	.0399524	279.	6.23E-03	-.039464
2J78	-48.835	228.194	76.9694	.742636	267.5	-.0325512	-.741922
945	-48.835	228.194	77.9501	.716114	267.4	-.031904	-.715403
946	-48.835	228.194	78.9308	.685513	267.4	-.0311271	-.684806
947	-48.835	228.194	79.9115	.654223	267.3	-.0302978	-.653521
948	-48.835	228.194	80.8922	.622465	267.3	-.0294202	-.621769
949	-48.835	228.194	81.8729	.590293	267.2	-.0284955	-.589605
950	-48.835	228.194	82.8536	.557728	267.2	-.0275235	-.557048
951	-48.835	228.194	83.8343	.524767	267.1	-.0265041	-.524098
952	-48.835	228.194	84.815	.491403	267.	-.0254364	-.490744
953	-48.835	228.194	85.7957	.457616	267.	-.0243197	-.456969
954	-48.835	228.194	86.7765	.423381	266.9	-.0231525	-.422748
955	-48.835	228.194	87.7572	.388665	266.8	-.0219333	-.388046
956	-48.835	228.194	88.7379	.35342	266.6	-.0206599	-.352816
957	-48.835	228.194	89.7186	.317586	266.5	-.0193294	-.316997
958	-48.835	228.194	90.6993	.281077	266.3	-.0179377	-.280504
959	-48.835	228.194	91.68	.243772	266.1	-.0164795	-.243214
960	-48.835	228.194	92.6607	.205493	265.8	-.0149463	-.204949
961	-48.835	228.194	93.6414	.165955	265.4	-.0133251	-.165419
962	-48.835	228.194	94.6221	.12466	264.7	-.0115926	-.12412
963	-48.835	228.194	95.6028	.080601	263.1	-9.7E-03	-.080015
END	-48.835	228.194	96.5835	.0334823	256.8	-7.62E-03	-.0326028
2J70	-47.955	228.6	50.818	.0157789	253.5	-4.49E-03	-.0151275
END	-48.923	229.159	50.818	4.88E-03	186.7	-4.85E-03	-5.71E-04
2J71	-48.923	229.159	50.818	.0128682	308.1	7.94E-03	-.0101279
END	-48.923	228.041	50.818	8.8E-03	30.3	7.6E-03	4.43E-03

2J72	-48.923	228.041	50.818	4.93E-03	125.2	-2.84E-03	4.03E-03
END	-47.955	228.6	50.818	.0188535	99.5	-3.12E-03	.0185933
2J73	-47.955	228.6	63.8937	7.79E-03	261.2	-1.2E-03	-7.69E-03
END	-48.923	229.159	63.8937	7.98E-03	98.5	-1.19E-03	7.9E-03
2J74	-48.923	229.159	63.8937	9.24E-03	280.8	1.73E-03	-9.08E-03
END	-48.923	228.041	63.8937	6.75E-03	74.8	1.77E-03	6.51E-03
2J75	-48.923	228.041	63.8937	8.39E-03	265.5	-6.55E-04	-8.36E-03
END	-47.955	228.6	63.8937	7.25E-03	94.4	-5.61E-04	7.23E-03
2J76	-48.131	228.6	76.9694	4.49E-03	257.7	-9.57E-04	-4.39E-03
END	-48.835	229.006	76.9694	6.69E-03	96.3	-7.37E-04	6.65E-03
2J77	-48.835	229.006	76.9694	4.97E-03	283.7	1.17E-03	-4.83E-03
END	-48.835	228.194	76.9694	6.36E-03	77.2	1.41E-03	6.2E-03
2J78	-48.835	228.194	76.9694	3.38E-03	261.8	-4.81E-04	-3.34E-03
END	-48.131	228.6	76.9694	7.71E-03	91.6	-2.14E-04	7.71E-03
2J79	-48.131	228.6	96.5835	.0166536	256.4	-3.91E-03	-.0161886
END	-48.835	229.006	96.5835	.0195113	97.1	-2.4E-03	.0193637
2J80	-48.835	229.006	96.5835	.0204625	280.8	3.83E-03	-.0201003
END	-48.835	228.194	96.5835	.0163264	70.8	5.36E-03	.0154204
2J81	-48.835	228.194	96.5835	.0173305	262.5	-2.26E-03	-.0171824
END	-48.131	228.6	96.5835	.0183852	92.1	-6.87E-04	.0183724