

The HIARC Bulletin

March 2017 Edition

The Official Bulletin of the Harris-Intersil Amateur Radio Club

Club Meetings: Second Thursday of Every Month at Meemaw's Barbecue on Babcock Street between Palm Bay Road and Port Malabar Road. Supper is at 6:00 PM, and a short business meeting is at 7:00 PM. Our programs start around 7:45 PM. Exception: In December, the HIARC Christmas Dinner may be held at someplace fancy TBD.

Club Station: The club station is K4HRS in Building 15, Room 321. E-mail [Butch](#) to sign up.

Nets: The South Brevard Emergency Net meets every Thursday at 7:00 PM local on the 146.85 Mc repeater.

HIARC Website: <http://qsl.net/hiarc>

Repeaters: 145.47 MHz, tone 107.2 cycles, elevation 170 feet, Melbourne

HIARC Web Site: www.qsl.net/hiarc. Website administrator; Jim , KC7SSW

Officers: President: Francis ("Butch"), WA4AQV

Treasurer: Bill WA4EMU

Secretary: Jim , KC7SSW

Repeater Chairmen: Bud W4HXP

Program Chairman: Eric N4SCS

Field Day Chairman: TBD

Sunshine Officer: Open

Club Jester: Ken N8KH

Membership:

Dues are \$12.00 per year to:

Bill WA4EMU

Annual Events: Annual swap-fest at the September meeting. Field Day (always the fourth full weekend in June) at Grant Community Center Fairgrounds, Field Day web site link

<https://sites.google.com/site/hiarcfieldday2013/>

Selected Upcoming Hamfests:

March 18, Stewart FL. Friendly free Hamfest, attachment:

The Martin County Amateur Radio Association presents the
42nd annual Stuart Hamfest
*Florida's largest **FREE** Hamfest*
Saturday, March 18, 2017 at the Martin County Fairgrounds
2616 SE Dixie Hwy (A1A), Stuart, Florida 34996

FREE Admission **FREE** Parking **FREE** Tailgating

Commercial Vendors (10'x10' space, 2-8' tables, 2 chairs - \$25)

Everyone at the hamfest will pass your booth at least twice during the day!

Inside Swap tables (10' space, 1-8' table, 2 chairs - \$20)

Good Food Forums ARRL VE License Exam Session

Acres of FREE tailgate space available.

Stunning Prizes Available

Grand Prize – Icom IC-7300 HF/6M Transceiver

Second Prize – Kenwood TM-V71A VHF/UHF Mobile Transceiver

Third Prize – Yaesu FT-60R VHF/UHF Handheld Transceiver

Plus hourly prize drawings - Only **1800** Prize tickets are available.

You do not have to be present to win the major prizes. Major prizes will be shipped anywhere in the lower 48 US States if you are not at the hamfest.

Prize tickets are available for a donation at <http://www.stuarthamfest.com>



Talk-in on 147.060 MHz, +600 offset, no PL.

Driving directions at www.stuarthamfest.com

Club information is available at www.mcaraweb.com

For more information contact:

MCARA Hamfest Chairman

PO Box 1901, Stuart, FL 34995

hamfest@mcara-web.com

Phone: 772-349-7820

Self-contained RV parking is available – no hookups.

Check the web site for any deals on local lodging.

Ham Radio Lunches:

Every Friday, 10:30 AM till 12:30 PM, Golden Corral on Palm Bay Road in Palm Bay.

Every Friday, 9:00 AM till 11:00AM, Umpas in Rockledge-Cocoa.

President's Message

The next HIARC club meeting is this Thursday March 9 at Meemaw's Barbecue on Babcock Street. Supper starts at 6:00 PM, the meeting is at 7:00 PM. The program will be about 7:45 PM on "Grid Dip Meters" with hands on show and tell of a vintage unit, slides of how the technology evolved, and how useful these really are. Simple means to do grid dipping with your amateur radio transceiver will also be shown. You already own a grid dip meter and don't know it!

Good food and friends as usual.

73's
Butch WA4AQV

Vehicular Dragwire Antennas

Whip antennas do not radiate much straight up. However an easy way of getting straight up, near vertical incidence radiation (NVIS) is by dragging a wire antenna behind your car. This is not crazy, it was successfully done by the US military in the 1992 Gulf War.

Here's the how too steps: 1) Run a coax cable from your radio; 2) connect the coax cable braid to the car bumper and; 3) connect the coax center conductor to the wire you will drag. For 40 meters with a full size pickup truck use a 21 foot dragwire for resonance. The antenna formed is a dipole with the car body being one half and the dragwire the other half. On 40 meters you will get a nice driving impedance of about $Z = 90 + j0$ ohms and a VSWR under 2 to 1. The gain straight up is about -11 dBi which is much better than the typical whip antenna.

Of course you can just remove your HF whip and tie on the dragwire there, but others will drive over your wire at traffic lights. Its best to drag the wire from the center of your car. The best dragwire is brass for strength and conductivity. No one seems to notice it if you use small gauge.

Dragwires are a good trick for emergency communications, practice by checking into the 7051 kc Southcars morning net.

Here is a NEC4.1 analysis attached.

Maybe MFJ could come out with an automatic reel system to deploy the right amount for autotuning?

Butch WA4AQV

Video: 7 years of sunspots

<http://www.Space.com/35720-seven-years-of-sunspots-nasa-video.html>

73,
Ken N8KH

vehicle dragwire in.txt

CE 20 foot long vehicle dragging a 21 foot longwire behind
 CE vehicle chassis is 1.5 feet above the ground
 CE wire outer diameter is 60 mils and wire centerline is 0.120 inches above the soil
 CE e.g. the wire is insulated and not in conductive contact with the road
 CE the vehicle does not have a whip antenna
 CE the vehicle is not very tall, here we used a skeletal plane approximation
 CE standard soil of relative permittivity 13, conductivity 5 millimhos/meter
 CE
 CE All coordinates in feet
 CE Dragwire segments follow
 GW,1,33,0.0,-5.0,0.02,0.0,-21.0,0.02,0.01
 GW,2,11,0.0,-5.0,0.02,0.0,0.0,1.5,0.01
 CE Chassis skeleton segments follow
 GW,3,33,0.0,0.0,1.5,-4.0,0.0,1.5,0.01
 GW,4,33,0.0,0.0,1.5,4.0,0.0,1.5,0.01
 GW,5,33,0.0,0.0,1.5,0.0,20.0,1.5,0.01
 GW,6,33,0.0,20.0,1.5,-4.0,20.0,1.5,0.01
 GW,7,33,0.0,20.0,1.5,4.0,20.0,1.5,0.01
 GW,8,33,-4.0,0.0,1.5,-4.0,20.0,1.5,0.01
 GW,9,33,4.0,0.0,1.5,4.0,20.0,1.5,0.01
 GS,0,0,0.305,
 GE,
 FR,1,0,0,0,7.15,0.0,
 CE Y PLane Dipole Drive Card
 EX,0,2,11,0,1.0,0.0,
 GN,2,0,0,0,13.0,0.005
 CE 10 degree take off angle Conical Cut (Theta = 30 Degrees)
 RP,0,1,36,0000,10.0,0.0,0.0,10.0,0.0,0.0,
 CE 60 degree take off angle Conical Cut (Theta = 30 Degrees)
 RP,0,1,36,0000,30.0,0.0,0.0,10.0,0.0,0.0,
 CE 10 degree take off angle Conical Cut (Theta = 80 Degrees)
 RP,0,1,36,0000,80.0,0.0,0.0,10.0,0.0,0.0,
 CE XY plane elevation Cut Follows
 CE Theta 0 Degrees Is Overhead, Theta 90 degrees is on Horizon
 RP,0,182,1,0000,-90.0,0.0,2.0,0.0,0.0,0.0,
 CE YZ Plane elevation Pattern Cut Follows
 CE vehicle is driving in the Y direction
 CE 0 Degrees Is Overhead, 90 degrees is on Horizon
 RP,0,360,1,0000,-90.0,90.0,1.0,0.0,0.0,0.0,
 XQ,
 EN,

 *
 * NUMERICAL ELECTROMAGNETICS CODE (NEC-4.1) *
 *

20 foot long vehicle dragging a 21 foot longwire behind
 vehicle chassis is 1.5 feet above the ground
 wire outer diameter is 60 mils and wire centerline is 0.120 inches above the
 e.g. the wire is insulated and not in conductive contact with the road
 the vehicle does not have a whip antenna
 the vehicle is not very tall, here we used a skeletal plane approximation
 standard soil of relative permittivity 13, conductivity 5 millimhos/meter

All coordinates in feet
 Dragwire segments follow

- - - STRUCTURE SPECIFICATION - - -

COORDINATES MUST BE INPUT IN
 METERS OR BE SCALED TO METERS
 BEFORE STRUCTURE INPUT IS ENDED

WIRE NO.	X1	Y1	Z1	X2	Y2	Z2	RADIUS	NO. OF SEG.	FIRST SEG.	LAST SEG.	TAG NO.
1	.00000	-5.00000	.02000	.00000	-21.00000	.02000	.01000	33	1	33	1
2	.00000	-5.00000	.02000	.00000	.00000	1.50000	.01000	11	34	44	2

Chassis skeleton segments follow

3	.00000	.00000	1.50000	-4.00000	.00000	1.50000	.01000	33	45	77	3
4	.00000	.00000	1.50000	4.00000	.00000	1.50000	.01000	33	78	110	4
5	.00000	.00000	1.50000	.00000	20.00000	1.50000	.01000	33	111	143	5
6	.00000	20.00000	1.50000	-4.00000	20.00000	1.50000	.01000	33	144	176	6
7	.00000	20.00000	1.50000	4.00000	20.00000	1.50000	.01000	33	177	209	7
8	-4.00000	.00000	1.50000	-4.00000	20.00000	1.50000	.01000	33	210	242	8
9	4.00000	.00000	1.50000	4.00000	20.00000	1.50000	.01000	33	243	275	9

STRUCTURE SCALED BY FACTOR .30500

TOTAL SEGMENTS USED= 275 NO. SEG. IN A SYMMETRIC CELL= 275 SYMMETRY FLAG= 0

- MULTIPLE WIRE JUNCTIONS -

JUNCTION	SEGMENTS (- FOR END 1, + FOR END 2)
1	44 -45 -78 -111
2	143 -144 -177

- - - SEGMENTATION DATA - - -

COORDINATES IN METERS

I+ AND I- INDICATE THE SEGMENTS BEFORE AND AFTER I

SEG. NO.	COORDINATES OF SEG. CENTER			SEG. LENGTH	ORIENTATION ANGLES		WIRE RADIUS	CONNECTION DATA			TAG NO.
	X	Y	Z		ALPHA	BETA		I-	I	I+	
1	.00000	-1.59894	.00610	.14788	.00000	-90.00000	.00305	-34	1	2	1
2	.00000	-1.74682	.00610	.14788	.00000	-90.00000	.00305	1	2	3	1
3	.00000	-1.89470	.00610	.14788	.00000	-90.00000	.00305	2	3	4	1
4	.00000	-2.04258	.00610	.14788	.00000	-90.00000	.00305	3	4	5	1
5	.00000	-2.19045	.00610	.14788	.00000	-90.00000	.00305	4	5	6	1
6	.00000	-2.33833	.00610	.14788	.00000	-90.00000	.00305	5	6	7	1
7	.00000	-2.48621	.00610	.14788	.00000	-90.00000	.00305	6	7	8	1
8	.00000	-2.63409	.00610	.14788	.00000	-90.00000	.00305	7	8	9	1
9	.00000	-2.78197	.00610	.14788	.00000	-90.00000	.00305	8	9	10	1
10	.00000	-2.92985	.00610	.14788	.00000	-90.00000	.00305	9	10	11	1
11	.00000	-3.07773	.00610	.14788	.00000	-90.00000	.00305	10	11	12	1
12	.00000	-3.22561	.00610	.14788	.00000	-90.00000	.00305	11	12	13	1
13	.00000	-3.37348	.00610	.14788	.00000	-90.00000	.00305	12	13	14	1
14	.00000	-3.52136	.00610	.14788	.00000	-90.00000	.00305	13	14	15	1
15	.00000	-3.66924	.00610	.14788	.00000	-90.00000	.00305	14	15	16	1
16	.00000	-3.81712	.00610	.14788	.00000	-90.00000	.00305	15	16	17	1
17	.00000	-3.96500	.00610	.14788	.00000	-90.00000	.00305	16	17	18	1
18	.00000	-4.11288	.00610	.14788	.00000	-90.00000	.00305	17	18	19	1
19	.00000	-4.26076	.00610	.14788	.00000	-90.00000	.00305	18	19	20	1
20	.00000	-4.40864	.00610	.14788	.00000	-90.00000	.00305	19	20	21	1

21	.00000	-4.55652	.00610	.14788	.00000	-90.00000	.00305
22	.00000	-4.70439	.00610	.14788	.00000	-90.00000	.00305
23	.00000	-4.85227	.00610	.14788	.00000	-90.00000	.00305
24	.00000	-5.00015	.00610	.14788	.00000	-90.00000	.00305
25	.00000	-5.14803	.00610	.14788	.00000	-90.00000	.00305
26	.00000	-5.29591	.00610	.14788	.00000	-90.00000	.00305
27	.00000	-5.44379	.00610	.14788	.00000	-90.00000	.00305
28	.00000	-5.59167	.00610	.14788	.00000	-90.00000	.00305
29	.00000	-5.73955	.00610	.14788	.00000	-90.00000	.00305
30	.00000	-5.88742	.00610	.14788	.00000	-90.00000	.00305
31	.00000	-6.03530	.00610	.14788	.00000	-90.00000	.00305
32	.00000	-6.18318	.00610	.14788	.00000	-90.00000	.00305
33	.00000	-6.33106	.00610	.14788	.00000	-90.00000	.00305
34	.00000	-1.45568	.02662	.14458	16.48875	90.00000	.00305
35	.00000	-1.31705	.06765	.14458	16.48875	90.00000	.00305
36	.00000	-1.17841	.10869	.14458	16.48875	90.00000	.00305
37	.00000	-1.03977	.14973	.14458	16.48875	90.00000	.00305
38	.00000	-.90114	.19076	.14458	16.48875	90.00000	.00305
39	.00000	-.76250	.23180	.14458	16.48875	90.00000	.00305
40	.00000	-.62386	.27284	.14458	16.48875	90.00000	.00305
41	.00000	-.48523	.31387	.14458	16.48875	90.00000	.00305
42	.00000	-.34659	.35491	.14458	16.48875	90.00000	.00305
43	.00000	-.20795	.39595	.14458	16.48875	90.00000	.00305
44	.00000	-.06932	.43698	.14458	16.48875	90.00000	.00305
45	-.01848	.00000	.45750	.03697	.00000	180.00000	.00305
46	-.05545	.00000	.45750	.03697	.00000	180.00000	.00305
47	-.09242	.00000	.45750	.03697	.00000	180.00000	.00305
48	-.12939	.00000	.45750	.03697	.00000	180.00000	.00305
49	-.16636	.00000	.45750	.03697	.00000	180.00000	.00305
50	-.20333	.00000	.45750	.03697	.00000	180.00000	.00305
51	-.24030	.00000	.45750	.03697	.00000	180.00000	.00305
52	-.27727	.00000	.45750	.03697	.00000	180.00000	.00305
53	-.31424	.00000	.45750	.03697	.00000	180.00000	.00305
54	-.35121	.00000	.45750	.03697	.00000	180.00000	.00305
55	-.38818	.00000	.45750	.03697	.00000	180.00000	.00305
56	-.42515	.00000	.45750	.03697	.00000	180.00000	.00305
57	-.46212	.00000	.45750	.03697	.00000	180.00000	.00305
58	-.49909	.00000	.45750	.03697	.00000	180.00000	.00305
59	-.53606	.00000	.45750	.03697	.00000	180.00000	.00305
60	-.57303	.00000	.45750	.03697	.00000	180.00000	.00305
61	-.61000	.00000	.45750	.03697	.00000	180.00000	.00305
62	-.64697	.00000	.45750	.03697	.00000	180.00000	.00305
63	-.68394	.00000	.45750	.03697	.00000	180.00000	.00305
64	-.72091	.00000	.45750	.03697	.00000	180.00000	.00305
65	-.75788	.00000	.45750	.03697	.00000	180.00000	.00305
66	-.79485	.00000	.45750	.03697	.00000	180.00000	.00305
67	-.83182	.00000	.45750	.03697	.00000	180.00000	.00305
68	-.86879	.00000	.45750	.03697	.00000	180.00000	.00305
69	-.90576	.00000	.45750	.03697	.00000	180.00000	.00305
70	-.94273	.00000	.45750	.03697	.00000	180.00000	.00305
71	-.97970	.00000	.45750	.03697	.00000	180.00000	.00305
72	-1.01667	.00000	.45750	.03697	.00000	180.00000	.00305
73	-1.05364	.00000	.45750	.03697	.00000	180.00000	.00305
74	-1.09061	.00000	.45750	.03697	.00000	180.00000	.00305
75	-1.12758	.00000	.45750	.03697	.00000	180.00000	.00305
76	-1.16455	.00000	.45750	.03697	.00000	180.00000	.00305
77	-1.20152	.00000	.45750	.03697	.00000	180.00000	.00305
78	.01848	.00000	.45750	.03697	.00000	.00000	.00305
79	.05545	.00000	.45750	.03697	.00000	.00000	.00305
80	.09242	.00000	.45750	.03697	.00000	.00000	.00305
81	.12939	.00000	.45750	.03697	.00000	.00000	.00305
82	.16636	.00000	.45750	.03697	.00000	.00000	.00305
83	.20333	.00000	.45750	.03697	.00000	.00000	.00305
84	.24030	.00000	.45750	.03697	.00000	.00000	.00305
85	.27727	.00000	.45750	.03697	.00000	.00000	.00305
86	.31424	.00000	.45750	.03697	.00000	.00000	.00305
87	.35121	.00000	.45750	.03697	.00000	.00000	.00305
88	.38818	.00000	.45750	.03697	.00000	.00000	.00305
89	.42515	.00000	.45750	.03697	.00000	.00000	.00305
90	.46212	.00000	.45750	.03697	.00000	.00000	.00305
91	.49909	.00000	.45750	.03697	.00000	.00000	.00305
92	.53606	.00000	.45750	.03697	.00000	.00000	.00305
93	.57303	.00000	.45750	.03697	.00000	.00000	.00305
94	.61000	.00000	.45750	.03697	.00000	.00000	.00305
95	.64697	.00000	.45750	.03697	.00000	.00000	.00305
96	.68394	.00000	.45750	.03697	.00000	.00000	.00305
97	.72091	.00000	.45750	.03697	.00000	.00000	.00305
98	.75788	.00000	.45750	.03697	.00000	.00000	.00305
99	.79485	.00000	.45750	.03697	.00000	.00000	.00305
100	.83182	.00000	.45750	.03697	.00000	.00000	.00305
101	.86879	.00000	.45750	.03697	.00000	.00000	.00305
102	.90576	.00000	.45750	.03697	.00000	.00000	.00305
103	.94273	.00000	.45750	.03697	.00000	.00000	.00305
104	.97970	.00000	.45750	.03697	.00000	.00000	.00305
105	1.01667	.00000	.45750	.03697	.00000	.00000	.00305
106	1.05364	.00000	.45750	.03697	.00000	.00000	.00305
107	1.09061	.00000	.45750	.03697	.00000	.00000	.00305
108	1.12758	.00000	.45750	.03697	.00000	.00000	.00305
109	1.16455	.00000	.45750	.03697	.00000	.00000	.00305
110	1.20152	.00000	.45750	.03697	.00000	.00000	.00305
111	.00000	.09242	.45750	.18485	.00000	90.00000	.00305
112	.00000	.27727	.45750	.18485	.00000	90.00000	.00305
113	.00000	.46212	.45750	.18485	.00000	90.00000	.00305
114	.00000	.64697	.45750	.18485	.00000	90.00000	.00305
115	.00000	.83182	.45750	.18485	.00000	90.00000	.00305
116	.00000	1.01667	.45750	.18485	.00000	90.00000	.00305
117	.00000	1.20152	.45750	.18485	.00000	90.00000	.00305
118	.00000	1.38636	.45750	.18485	.00000	90.00000	.00305
119	.00000	1.57121	.45750	.18485	.00000	90.00000	.00305

20	21	22	1
21	22	23	1
22	23	24	1
23	24	25	1
24	25	26	1
25	26	27	1
26	27	28	1
27	28	29	1
28	29	30	1
29	30	31	1
30	31	32	1
31	32	33	1
32	33	0	1
-1	34	35	2
34	35	36	2
35	36	37	2
36	37	38	2
37	38	39	2
38	39	40	2
39	40	41	2
40	41	42	2
41	42	43	2
42	43	44	2
43	44	45	2
-78	45	46	3
45	46	47	3
46	47	48	3
47	48	49	3
48	49	50	3
49	50	51	3
50	51	52	3
51	52	53	3
52	53	54	3
53	54	55	3
54	55	56	3
55	56	57	3
56	57	58	3
57	58	59	3
58	59	60	3
59	60	61	3
60	61	62	3
61	62	63	3
62	63	64	3
63	64	65	3
64	65	66	3
65	66	67	3
66	67	68	3
67	68	69	3
68	69	70	3
69	70	71	3
70	71	72	3
71	72	73	3
72	73	74	3
73	74	75	3
74	75	76	3
75	76	77	3
76	77	210	3
-111	78	79	4
78	79	80	4
79	80	81	4
80	81	82	4
81	82	83	4
82	83	84	4
83	84	85	4
84	85	86	4
85	86	87	4
86	87	88	4
87	88	89	4
88	89	90	4
89	90	91	4
90	91	92	4
91	92	93	4
92	93	94	4
93	94	95	4
94	95	96	4
95	96	97	4
96	97	98	4
97	98	99	4
98	99	100	4
99	100	101	4
100	101	102	4
101	102	103	4
102	103	104	4
103	104	105	4
104	105	106	4
105	106	107	4
106	107	108	4
107	108	109	4
108	109	110	4
109	110	243	4
44	111	112	5
111	112	113	5
112	113	114	5
113	114	115	5
114	115	116	5
115	116	117	5
116	117	118	5
117	118	119	5
118	119	120	5

120	.00000	1.75606	.45750	.18485	.00000	90.00000	.00305	119	120	121	5
121	.00000	1.94091	.45750	.18485	.00000	90.00000	.00305	120	121	122	5
122	.00000	2.12576	.45750	.18485	.00000	90.00000	.00305	121	122	123	5
123	.00000	2.31061	.45750	.18485	.00000	90.00000	.00305	122	123	124	5
124	.00000	2.49545	.45750	.18485	.00000	90.00000	.00305	123	124	125	5
125	.00000	2.68030	.45750	.18485	.00000	90.00000	.00305	124	125	126	5
126	.00000	2.86515	.45750	.18485	.00000	90.00000	.00305	125	126	127	5
127	.00000	3.05000	.45750	.18485	.00000	90.00000	.00305	126	127	128	5
128	.00000	3.23485	.45750	.18485	.00000	90.00000	.00305	127	128	129	5
129	.00000	3.41970	.45750	.18485	.00000	90.00000	.00305	128	129	130	5
130	.00000	3.60455	.45750	.18485	.00000	90.00000	.00305	129	130	131	5
131	.00000	3.78939	.45750	.18485	.00000	90.00000	.00305	130	131	132	5
132	.00000	3.97424	.45750	.18485	.00000	90.00000	.00305	131	132	133	5
133	.00000	4.15909	.45750	.18485	.00000	90.00000	.00305	132	133	134	5
134	.00000	4.34394	.45750	.18485	.00000	90.00000	.00305	133	134	135	5
135	.00000	4.52879	.45750	.18485	.00000	90.00000	.00305	134	135	136	5
136	.00000	4.71364	.45750	.18485	.00000	90.00000	.00305	135	136	137	5
137	.00000	4.89848	.45750	.18485	.00000	90.00000	.00305	136	137	138	5
138	.00000	5.08333	.45750	.18485	.00000	90.00000	.00305	137	138	139	5
139	.00000	5.26818	.45750	.18485	.00000	90.00000	.00305	138	139	140	5
140	.00000	5.45303	.45750	.18485	.00000	90.00000	.00305	139	140	141	5
141	.00000	5.63788	.45750	.18485	.00000	90.00000	.00305	140	141	142	5
142	.00000	5.82273	.45750	.18485	.00000	90.00000	.00305	141	142	143	5
143	.00000	6.00758	.45750	.18485	.00000	90.00000	.00305	142	143	144	5
144	-.01848	6.10000	.45750	.03697	.00000	180.00000	.00305	-177	144	145	6
145	-.05545	6.10000	.45750	.03697	.00000	180.00000	.00305	144	145	146	6
146	-.09242	6.10000	.45750	.03697	.00000	180.00000	.00305	145	146	147	6
147	-.12939	6.10000	.45750	.03697	.00000	180.00000	.00305	146	147	148	6
148	-.16636	6.10000	.45750	.03697	.00000	180.00000	.00305	147	148	149	6
149	-.20333	6.10000	.45750	.03697	.00000	180.00000	.00305	148	149	150	6
150	-.24030	6.10000	.45750	.03697	.00000	180.00000	.00305	149	150	151	6
151	-.27727	6.10000	.45750	.03697	.00000	180.00000	.00305	150	151	152	6
152	-.31424	6.10000	.45750	.03697	.00000	180.00000	.00305	151	152	153	6
153	-.35121	6.10000	.45750	.03697	.00000	180.00000	.00305	152	153	154	6
154	-.38818	6.10000	.45750	.03697	.00000	180.00000	.00305	153	154	155	6
155	-.42515	6.10000	.45750	.03697	.00000	180.00000	.00305	154	155	156	6
156	-.46212	6.10000	.45750	.03697	.00000	180.00000	.00305	155	156	157	6
157	-.49909	6.10000	.45750	.03697	.00000	180.00000	.00305	156	157	158	6
158	-.53606	6.10000	.45750	.03697	.00000	180.00000	.00305	157	158	159	6
159	-.57303	6.10000	.45750	.03697	.00000	180.00000	.00305	158	159	160	6
160	-.61000	6.10000	.45750	.03697	.00000	180.00000	.00305	159	160	161	6
161	-.64697	6.10000	.45750	.03697	.00000	180.00000	.00305	160	161	162	6
162	-.68394	6.10000	.45750	.03697	.00000	180.00000	.00305	161	162	163	6
163	-.72091	6.10000	.45750	.03697	.00000	180.00000	.00305	162	163	164	6
164	-.75788	6.10000	.45750	.03697	.00000	180.00000	.00305	163	164	165	6
165	-.79485	6.10000	.45750	.03697	.00000	180.00000	.00305	164	165	166	6
166	-.83182	6.10000	.45750	.03697	.00000	180.00000	.00305	165	166	167	6
167	-.86879	6.10000	.45750	.03697	.00000	180.00000	.00305	166	167	168	6
168	-.90576	6.10000	.45750	.03697	.00000	180.00000	.00305	167	168	169	6
169	-.94273	6.10000	.45750	.03697	.00000	180.00000	.00305	168	169	170	6
170	-.97970	6.10000	.45750	.03697	.00000	180.00000	.00305	169	170	171	6
171	-1.01667	6.10000	.45750	.03697	.00000	180.00000	.00305	170	171	172	6
172	-1.05364	6.10000	.45750	.03697	.00000	180.00000	.00305	171	172	173	6
173	-1.09061	6.10000	.45750	.03697	.00000	180.00000	.00305	172	173	174	6
174	-1.12758	6.10000	.45750	.03697	.00000	180.00000	.00305	173	174	175	6
175	-1.16455	6.10000	.45750	.03697	.00000	180.00000	.00305	174	175	176	6
176	-1.20152	6.10000	.45750	.03697	.00000	180.00000	.00305	175	176	-242	6
177	.01848	6.10000	.45750	.03697	.00000	.00000	.00305	143	177	178	7
178	.05545	6.10000	.45750	.03697	.00000	.00000	.00305	177	178	179	7
179	.09242	6.10000	.45750	.03697	.00000	.00000	.00305	178	179	180	7
180	.12939	6.10000	.45750	.03697	.00000	.00000	.00305	179	180	181	7
181	.16636	6.10000	.45750	.03697	.00000	.00000	.00305	180	181	182	7
182	.20333	6.10000	.45750	.03697	.00000	.00000	.00305	181	182	183	7
183	.24030	6.10000	.45750	.03697	.00000	.00000	.00305	182	183	184	7
184	.27727	6.10000	.45750	.03697	.00000	.00000	.00305	183	184	185	7
185	.31424	6.10000	.45750	.03697	.00000	.00000	.00305	184	185	186	7
186	.35121	6.10000	.45750	.03697	.00000	.00000	.00305	185	186	187	7
187	.38818	6.10000	.45750	.03697	.00000	.00000	.00305	186	187	188	7
188	.42515	6.10000	.45750	.03697	.00000	.00000	.00305	187	188	189	7
189	.46212	6.10000	.45750	.03697	.00000	.00000	.00305	188	189	190	7
190	.49909	6.10000	.45750	.03697	.00000	.00000	.00305	189	190	191	7
191	.53606	6.10000	.45750	.03697	.00000	.00000	.00305	190	191	192	7
192	.57303	6.10000	.45750	.03697	.00000	.00000	.00305	191	192	193	7
193	.61000	6.10000	.45750	.03697	.00000	.00000	.00305	192	193	194	7
194	.64697	6.10000	.45750	.03697	.00000	.00000	.00305	193	194	195	7
195	.68394	6.10000	.45750	.03697	.00000	.00000	.00305	194	195	196	7
196	.72091	6.10000	.45750	.03697	.00000	.00000	.00305	195	196	197	7
197	.75788	6.10000	.45750	.03697	.00000	.00000	.00305	196	197	198	7
198	.79485	6.10000	.45750	.03697	.00000	.00000	.00305	197	198	199	7
199	.83182	6.10000	.45750	.03697	.00000	.00000	.00305	198	199	200	7
200	.86879	6.10000	.45750	.03697	.00000	.00000	.00305	199	200	201	7
201	.90576	6.10000	.45750	.03697	.00000	.00000	.00305	200	201	202	7
202	.94273	6.10000	.45750	.03697	.00000	.00000	.00305	201	202	203	7
203	.97970	6.10000	.45750	.03697	.00000	.00000	.00305	202	203	204	7
204	1.01667	6.10000	.45750	.03697	.00000	.00000	.00305	203	204	205	7
205	1.05364	6.10000	.45750	.03697	.00000	.00000	.00305	204	205	206	7
206	1.09061	6.10000	.45750	.03697	.00000	.00000	.00305	205	206	207	7
207	1.12758	6.10000	.45750	.03697	.00000	.00000	.00305	206	207	208	7
208	1.16455	6.10000	.45750	.03697	.00000	.00000	.00305	207	208	209	7
209	1.20152	6.10000	.45750	.03697	.00000	.00000	.00305	208	209	-275	7
210	-1.22000	.09242	.45750	.18485	.00000	90.00000	.00305	77	210	211	8
211	-1.22000	.27727	.45750	.18485	.00000	90.00000	.00305	210	211	212	8
212	-1.22000	.46212	.45750	.18485	.00000	90.00000	.00305	211	212	213	8
213	-1.22000	.64697	.45750	.18485	.00000	90.00000	.00305	212	213	214	8
214	-1.22000	.83182	.45750	.18485	.00000	90.00000	.00305	213	214	215	8
215	-1.22000	1.01667	.45750	.18485	.00000	90.00000	.00305	214	215	216	8
216	-1.22000	1.20152	.45750	.18485	.00000	90.00000	.00305	215	216	217	8
217	-1.22000	1.38636	.45750	.18485	.00000	90.00000	.00305	216	217	218	8
218	-1.22000	1.57121	.45750	.18485	.00000	90.00000	.00305	217	218	219	8

219	-1.22000	1.75606	.45750	.18485	.00000	90.00000	.00305	218	219	220	8
220	-1.22000	1.94091	.45750	.18485	.00000	90.00000	.00305	219	220	221	8
221	-1.22000	2.12576	.45750	.18485	.00000	90.00000	.00305	220	221	222	8
222	-1.22000	2.31061	.45750	.18485	.00000	90.00000	.00305	221	222	223	8
223	-1.22000	2.49545	.45750	.18485	.00000	90.00000	.00305	222	223	224	8
224	-1.22000	2.68030	.45750	.18485	.00000	90.00000	.00305	223	224	225	8
225	-1.22000	2.86515	.45750	.18485	.00000	90.00000	.00305	224	225	226	8
226	-1.22000	3.05000	.45750	.18485	.00000	90.00000	.00305	225	226	227	8
227	-1.22000	3.23485	.45750	.18485	.00000	90.00000	.00305	226	227	228	8
228	-1.22000	3.41970	.45750	.18485	.00000	90.00000	.00305	227	228	229	8
229	-1.22000	3.60455	.45750	.18485	.00000	90.00000	.00305	228	229	230	8
230	-1.22000	3.78939	.45750	.18485	.00000	90.00000	.00305	229	230	231	8
231	-1.22000	3.97424	.45750	.18485	.00000	90.00000	.00305	230	231	232	8
232	-1.22000	4.15909	.45750	.18485	.00000	90.00000	.00305	231	232	233	8
233	-1.22000	4.34394	.45750	.18485	.00000	90.00000	.00305	232	233	234	8
234	-1.22000	4.52879	.45750	.18485	.00000	90.00000	.00305	233	234	235	8
235	-1.22000	4.71364	.45750	.18485	.00000	90.00000	.00305	234	235	236	8
236	-1.22000	4.89848	.45750	.18485	.00000	90.00000	.00305	235	236	237	8
237	-1.22000	5.08333	.45750	.18485	.00000	90.00000	.00305	236	237	238	8
238	-1.22000	5.26818	.45750	.18485	.00000	90.00000	.00305	237	238	239	8
239	-1.22000	5.45303	.45750	.18485	.00000	90.00000	.00305	238	239	240	8
240	-1.22000	5.63788	.45750	.18485	.00000	90.00000	.00305	239	240	241	8
241	-1.22000	5.82273	.45750	.18485	.00000	90.00000	.00305	240	241	242	8
242	-1.22000	6.00758	.45750	.18485	.00000	90.00000	.00305	241	242	-176	8
243	1.22000	.09242	.45750	.18485	.00000	90.00000	.00305	110	243	244	9
244	1.22000	.27727	.45750	.18485	.00000	90.00000	.00305	243	244	245	9
245	1.22000	.46212	.45750	.18485	.00000	90.00000	.00305	244	245	246	9
246	1.22000	.64697	.45750	.18485	.00000	90.00000	.00305	245	246	247	9
247	1.22000	.83182	.45750	.18485	.00000	90.00000	.00305	246	247	248	9
248	1.22000	1.01667	.45750	.18485	.00000	90.00000	.00305	247	248	249	9
249	1.22000	1.20152	.45750	.18485	.00000	90.00000	.00305	248	249	250	9
250	1.22000	1.38636	.45750	.18485	.00000	90.00000	.00305	249	250	251	9
251	1.22000	1.57121	.45750	.18485	.00000	90.00000	.00305	250	251	252	9
252	1.22000	1.75606	.45750	.18485	.00000	90.00000	.00305	251	252	253	9
253	1.22000	1.94091	.45750	.18485	.00000	90.00000	.00305	252	253	254	9
254	1.22000	2.12576	.45750	.18485	.00000	90.00000	.00305	253	254	255	9
255	1.22000	2.31061	.45750	.18485	.00000	90.00000	.00305	254	255	256	9
256	1.22000	2.49545	.45750	.18485	.00000	90.00000	.00305	255	256	257	9
257	1.22000	2.68030	.45750	.18485	.00000	90.00000	.00305	256	257	258	9
258	1.22000	2.86515	.45750	.18485	.00000	90.00000	.00305	257	258	259	9
259	1.22000	3.05000	.45750	.18485	.00000	90.00000	.00305	258	259	260	9
260	1.22000	3.23485	.45750	.18485	.00000	90.00000	.00305	259	260	261	9
261	1.22000	3.41970	.45750	.18485	.00000	90.00000	.00305	260	261	262	9
262	1.22000	3.60455	.45750	.18485	.00000	90.00000	.00305	261	262	263	9
263	1.22000	3.78939	.45750	.18485	.00000	90.00000	.00305	262	263	264	9
264	1.22000	3.97424	.45750	.18485	.00000	90.00000	.00305	263	264	265	9
265	1.22000	4.15909	.45750	.18485	.00000	90.00000	.00305	264	265	266	9
266	1.22000	4.34394	.45750	.18485	.00000	90.00000	.00305	265	266	267	9
267	1.22000	4.52879	.45750	.18485	.00000	90.00000	.00305	266	267	268	9
268	1.22000	4.71364	.45750	.18485	.00000	90.00000	.00305	267	268	269	9
269	1.22000	4.89848	.45750	.18485	.00000	90.00000	.00305	268	269	270	9
270	1.22000	5.08333	.45750	.18485	.00000	90.00000	.00305	269	270	271	9
271	1.22000	5.26818	.45750	.18485	.00000	90.00000	.00305	270	271	272	9
272	1.22000	5.45303	.45750	.18485	.00000	90.00000	.00305	271	272	273	9
273	1.22000	5.63788	.45750	.18485	.00000	90.00000	.00305	272	273	274	9
274	1.22000	5.82273	.45750	.18485	.00000	90.00000	.00305	273	274	275	9
275	1.22000	6.00758	.45750	.18485	.00000	90.00000	.00305	274	275	-209	9

***** INPUT LINE 1 FR 1 0 0 0 7.15000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

Y PLane Dipole Drive Card

***** INPUT LINE 2 EX 0 2 11 0 1.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00
***** INPUT LINE 3 GN 2 0 0 0 1.30000E+01 5.00000E-03 0.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

10 degree take off angle Conical Cut (Theta = 30 Degrees)

***** INPUT LINE 4 RP 0 1 36 0 1.00000E+01 0.00000E+00 0.00000E+00 1.00000E+01 0.00000E+00 0.00000E+00

- - - - - FREQUENCY - - - - -

FREQUENCY= 7.1500E+00 MHZ
WAVELENGTH= 4.1930E+01 METERS

- - - ANTENNA ENVIRONMENT - - -

FINITE GROUND. SOMMERFELD SOLUTION
RELATIVE DIELECTRIC CONST.= 13.000
CONDUCTIVITY= 5.000E-03 MHOS/METER

COMPLEX DIELECTRIC CONSTANT= 1.30000E+01-1.25703E+01

- - - STRUCTURE IMPEDANCE LOADING - - -

THIS STRUCTURE IS NOT LOADED

- - - MATRIX TIMING - - -

FILL= 1.070 SEC., FACTOR= .240 SEC.

- - - ANTENNA INPUT PARAMETERS - - -

TAG NO.	SEG. NO.	VOLTAGE (VOLTS) REAL	IMAG.	CURRENT (AMPS) REAL	IMAG.	IMPEDANCE (OHMS) REAL	IMAG.	ADMITTANCE (MHOS) REAL	IMAG.	POWER (WATTS)
2	44	1.00000E+00	0.00000E+00	1.02667E-02	5.67298E-04	9.71060E+01	-5.36572E+00	1.02667E-02	5.67298E-04	5.13334E-03

- - - CURRENTS AND LOCATION - - -

LENGTHS NORMALIZED BY WAVELENGTH (OR 2.*PI/CABS(K))

SEG. NO.	TAG NO.	COORD. OF X	Y	Z	SEG. LENGTH	CURRENT (AMPS) REAL	IMAG.	PHASE
1	1	.0000	-.0381	.0001	.00353	-1.0064E-02	6.3260E-05	179.640
2	1	.0000	-.0417	.0001	.00353	-9.9514E-03	1.4636E-04	179.157
3	1	.0000	-.0452	.0001	.00353	-9.8232E-03	2.2262E-04	178.702
4	1	.0000	-.0487	.0001	.00353	-9.6791E-03	2.9223E-04	178.271
5	1	.0000	-.0522	.0001	.00353	-9.5193E-03	3.5529E-04	177.863
6	1	.0000	-.0558	.0001	.00353	-9.3440E-03	4.1189E-04	177.476
7	1	.0000	-.0593	.0001	.00353	-9.1536E-03	4.6207E-04	177.110
8	1	.0000	-.0628	.0001	.00353	-8.9483E-03	5.0592E-04	176.764
9	1	.0000	-.0663	.0001	.00353	-8.7285E-03	5.4350E-04	176.437
10	1	.0000	-.0699	.0001	.00353	-8.4946E-03	5.7490E-04	176.128
11	1	.0000	-.0734	.0001	.00353	-8.2469E-03	6.0022E-04	175.837
12	1	.0000	-.0769	.0001	.00353	-7.9858E-03	6.1959E-04	175.563
13	1	.0000	-.0805	.0001	.00353	-7.7117E-03	6.3313E-04	175.307
14	1	.0000	-.0840	.0001	.00353	-7.4252E-03	6.4098E-04	175.066
15	1	.0000	-.0875	.0001	.00353	-7.1265E-03	6.4331E-04	174.842
16	1	.0000	-.0910	.0001	.00353	-6.8163E-03	6.4028E-04	174.634
17	1	.0000	-.0946	.0001	.00353	-6.4950E-03	6.3210E-04	174.441
18	1	.0000	-.0981	.0001	.00353	-6.1631E-03	6.1896E-04	174.265
19	1	.0000	-.1016	.0001	.00353	-5.8211E-03	6.0108E-04	174.105
20	1	.0000	-.1051	.0001	.00353	-5.4694E-03	5.7870E-04	173.960
21	1	.0000	-.1087	.0001	.00353	-5.1088E-03	5.5206E-04	173.832
22	1	.0000	-.1122	.0001	.00353	-4.7395E-03	5.2142E-04	173.722
23	1	.0000	-.1157	.0001	.00353	-4.3623E-03	4.8706E-04	173.629
24	1	.0000	-.1192	.0001	.00353	-3.9775E-03	4.4927E-04	173.556
25	1	.0000	-.1228	.0001	.00353	-3.5858E-03	4.0835E-04	173.503
26	1	.0000	-.1263	.0001	.00353	-3.1875E-03	3.6464E-04	173.474
27	1	.0000	-.1298	.0001	.00353	-2.7832E-03	3.1848E-04	173.472
28	1	.0000	-.1334	.0001	.00353	-2.3732E-03	2.7024E-04	173.503
29	1	.0000	-.1369	.0001	.00353	-1.9578E-03	2.2038E-04	173.578
30	1	.0000	-.1404	.0001	.00353	-1.5373E-03	1.6938E-04	173.712
31	1	.0000	-.1439	.0001	.00353	-1.1114E-03	1.1792E-04	173.943
32	1	.0000	-.1475	.0001	.00353	-6.7916E-04	6.7064E-05	174.361
33	1	.0000	-.1510	.0001	.00353	-2.3600E-04	1.9755E-05	175.215
34	2	.0000	-.0347	.0006	.00345	1.0154E-02	2.1357E-05	.121
35	2	.0000	-.0314	.0016	.00345	1.0205E-02	8.3435E-05	.468
36	2	.0000	-.0281	.0026	.00345	1.0240E-02	1.3781E-04	.771
37	2	.0000	-.0248	.0036	.00345	1.0264E-02	1.8984E-04	1.060
38	2	.0000	-.0215	.0045	.00345	1.0281E-02	2.4086E-04	1.342
39	2	.0000	-.0182	.0055	.00345	1.0291E-02	2.9160E-04	1.623
40	2	.0000	-.0149	.0065	.00345	1.0296E-02	3.4265E-04	1.906
41	2	.0000	-.0116	.0075	.00345	1.0295E-02	3.9469E-04	2.196
42	2	.0000	-.0083	.0085	.00345	1.0289E-02	4.4885E-04	2.498
43	2	.0000	-.0050	.0094	.00345	1.0279E-02	5.0803E-04	2.830
44	2	.0000	-.0017	.0104	.00345	1.0267E-02	5.6730E-04	3.163
45	3	-.0004	.0000	.0109	.00088	3.5322E-03	2.1104E-04	3.419
46	3	-.0013	.0000	.0109	.00088	3.5281E-03	2.0568E-04	3.336
47	3	-.0022	.0000	.0109	.00088	3.5233E-03	2.0010E-04	3.250
48	3	-.0031	.0000	.0109	.00088	3.5181E-03	1.9466E-04	3.167
49	3	-.0040	.0000	.0109	.00088	3.5126E-03	1.8939E-04	3.086
50	3	-.0048	.0000	.0109	.00088	3.5069E-03	1.8426E-04	3.008
51	3	-.0057	.0000	.0109	.00088	3.5009E-03	1.7926E-04	2.931
52	3	-.0066	.0000	.0109	.00088	3.4947E-03	1.7437E-04	2.857
53	3	-.0075	.0000	.0109	.00088	3.4882E-03	1.6957E-04	2.783
54	3	-.0084	.0000	.0109	.00088	3.4817E-03	1.6486E-04	2.711
55	3	-.0093	.0000	.0109	.00088	3.4749E-03	1.6021E-04	2.640
56	3	-.0101	.0000	.0109	.00088	3.4680E-03	1.5562E-04	2.569
57	3	-.0110	.0000	.0109	.00088	3.4609E-03	1.5108E-04	2.500
58	3	-.0119	.0000	.0109	.00088	3.4537E-03	1.4659E-04	2.430
59	3	-.0128	.0000	.0109	.00088	3.4463E-03	1.4214E-04	2.362
60	3	-.0137	.0000	.0109	.00088	3.4388E-03	1.3773E-04	2.294
61	3	-.0145	.0000	.0109	.00088	3.4312E-03	1.3335E-04	2.226
62	3	-.0154	.0000	.0109	.00088	3.4235E-03	1.2900E-04	2.158
63	3	-.0163	.0000	.0109	.00088	3.4156E-03	1.2467E-04	2.090
64	3	-.0172	.0000	.0109	.00088	3.4076E-03	1.2037E-04	2.023
65	3	-.0181	.0000	.0109	.00088	3.3995E-03	1.1609E-04	1.956
66	3	-.0190	.0000	.0109	.00088	3.3913E-03	1.1183E-04	1.889
67	3	-.0198	.0000	.0109	.00088	3.3829E-03	1.0759E-04	1.822
68	3	-.0207	.0000	.0109	.00088	3.3745E-03	1.0337E-04	1.755
69	3	-.0216	.0000	.0109	.00088	3.3659E-03	9.9160E-05	1.687

70	3	- .0225	.0000	.0109	.00088	3.3573E-03	9.4970E-05	3.3587E-03	1.620
71	3	- .0234	.0000	.0109	.00088	3.3486E-03	9.0796E-05	3.3498E-03	1.553
72	3	- .0242	.0000	.0109	.00088	3.3398E-03	8.6637E-05	3.3409E-03	1.486
73	3	- .0251	.0000	.0109	.00088	3.3309E-03	8.2494E-05	3.3319E-03	1.419
74	3	- .0260	.0000	.0109	.00088	3.3219E-03	7.8366E-05	3.3228E-03	1.351
75	3	- .0269	.0000	.0109	.00088	3.3128E-03	7.4254E-05	3.3136E-03	1.284
76	3	- .0278	.0000	.0109	.00088	3.3037E-03	7.0158E-05	3.3044E-03	1.217
77	3	- .0287	.0000	.0109	.00088	3.2945E-03	6.6079E-05	3.2951E-03	1.149
78	4	.0004	.0000	.0109	.00088	3.5322E-03	2.1104E-04	3.5385E-03	3.419
79	4	.0013	.0000	.0109	.00088	3.5281E-03	2.0568E-04	3.5341E-03	3.336
80	4	.0022	.0000	.0109	.00088	3.5233E-03	2.0010E-04	3.5290E-03	3.250
81	4	.0031	.0000	.0109	.00088	3.5181E-03	1.9466E-04	3.5235E-03	3.167
82	4	.0040	.0000	.0109	.00088	3.5126E-03	1.8939E-04	3.5177E-03	3.086
83	4	.0048	.0000	.0109	.00088	3.5069E-03	1.8426E-04	3.5117E-03	3.008
84	4	.0057	.0000	.0109	.00088	3.5009E-03	1.7926E-04	3.5055E-03	2.931
85	4	.0066	.0000	.0109	.00088	3.4947E-03	1.7437E-04	3.4990E-03	2.857
86	4	.0075	.0000	.0109	.00088	3.4882E-03	1.6957E-04	3.4924E-03	2.783
87	4	.0084	.0000	.0109	.00088	3.4817E-03	1.6486E-04	3.4856E-03	2.711
88	4	.0093	.0000	.0109	.00088	3.4749E-03	1.6021E-04	3.4786E-03	2.640
89	4	.0101	.0000	.0109	.00088	3.4680E-03	1.5562E-04	3.4715E-03	2.569
90	4	.0110	.0000	.0109	.00088	3.4609E-03	1.5108E-04	3.4642E-03	2.500
91	4	.0119	.0000	.0109	.00088	3.4537E-03	1.4659E-04	3.4568E-03	2.430
92	4	.0128	.0000	.0109	.00088	3.4463E-03	1.4214E-04	3.4493E-03	2.362
93	4	.0137	.0000	.0109	.00088	3.4388E-03	1.3773E-04	3.4416E-03	2.294
94	4	.0145	.0000	.0109	.00088	3.4312E-03	1.3335E-04	3.4338E-03	2.226
95	4	.0154	.0000	.0109	.00088	3.4235E-03	1.2900E-04	3.4259E-03	2.158
96	4	.0163	.0000	.0109	.00088	3.4156E-03	1.2467E-04	3.4179E-03	2.090
97	4	.0172	.0000	.0109	.00088	3.4076E-03	1.2037E-04	3.4097E-03	2.023
98	4	.0181	.0000	.0109	.00088	3.3995E-03	1.1609E-04	3.4015E-03	1.956
99	4	.0190	.0000	.0109	.00088	3.3913E-03	1.1183E-04	3.3931E-03	1.889
100	4	.0198	.0000	.0109	.00088	3.3829E-03	1.0759E-04	3.3846E-03	1.822
101	4	.0207	.0000	.0109	.00088	3.3745E-03	1.0337E-04	3.3761E-03	1.755
102	4	.0216	.0000	.0109	.00088	3.3659E-03	9.9160E-05	3.3674E-03	1.687
103	4	.0225	.0000	.0109	.00088	3.3573E-03	9.4970E-05	3.3587E-03	1.620
104	4	.0234	.0000	.0109	.00088	3.3486E-03	9.0796E-05	3.3498E-03	1.553
105	4	.0242	.0000	.0109	.00088	3.3398E-03	8.6637E-05	3.3409E-03	1.486
106	4	.0251	.0000	.0109	.00088	3.3309E-03	8.2494E-05	3.3319E-03	1.419
107	4	.0260	.0000	.0109	.00088	3.3219E-03	7.8366E-05	3.3228E-03	1.351
108	4	.0269	.0000	.0109	.00088	3.3128E-03	7.4254E-05	3.3136E-03	1.284
109	4	.0278	.0000	.0109	.00088	3.3037E-03	7.0158E-05	3.3044E-03	1.217
110	4	.0287	.0000	.0109	.00088	3.2945E-03	6.6079E-05	3.2951E-03	1.149
111	5	.0000	.0022	.0109	.00441	3.1874E-03	1.3484E-04	3.1902E-03	2.422
112	5	.0000	.0066	.0109	.00441	3.1614E-03	1.1612E-04	3.1636E-03	2.104
113	5	.0000	.0110	.0109	.00441	3.1281E-03	9.9084E-05	3.1296E-03	1.814
114	5	.0000	.0154	.0109	.00441	3.0896E-03	8.3408E-05	3.0908E-03	1.546
115	5	.0000	.0198	.0109	.00441	3.0470E-03	6.8962E-05	3.0478E-03	1.297
116	5	.0000	.0242	.0109	.00441	3.0005E-03	5.5697E-05	3.0010E-03	1.063
117	5	.0000	.0287	.0109	.00441	2.9505E-03	4.3583E-05	2.9508E-03	.846
118	5	.0000	.0331	.0109	.00441	2.8972E-03	3.2595E-05	2.8974E-03	.645
119	5	.0000	.0375	.0109	.00441	2.8407E-03	2.2708E-05	2.8408E-03	.458
120	5	.0000	.0419	.0109	.00441	2.7811E-03	1.3899E-05	2.7811E-03	.286
121	5	.0000	.0463	.0109	.00441	2.7185E-03	6.1399E-06	2.7185E-03	.129
122	5	.0000	.0507	.0109	.00441	2.6531E-03	-5.9451E-07	2.6531E-03	-.013
123	5	.0000	.0551	.0109	.00441	2.5848E-03	-6.3318E-06	2.5848E-03	-.140
124	5	.0000	.0595	.0109	.00441	2.5139E-03	-1.1100E-05	2.5139E-03	-.253
125	5	.0000	.0639	.0109	.00441	2.4402E-03	-1.4927E-05	2.4403E-03	-.350
126	5	.0000	.0683	.0109	.00441	2.3641E-03	-1.7842E-05	2.3642E-03	-.432
127	5	.0000	.0727	.0109	.00441	2.2855E-03	-1.9876E-05	2.2856E-03	-.498
128	5	.0000	.0771	.0109	.00441	2.2045E-03	-2.1060E-05	2.2046E-03	-.547
129	5	.0000	.0816	.0109	.00441	2.1212E-03	-2.1426E-05	2.1213E-03	-.579
130	5	.0000	.0860	.0109	.00441	2.0357E-03	-2.1006E-05	2.0358E-03	-.591
131	5	.0000	.0904	.0109	.00441	1.9481E-03	-1.9835E-05	1.9482E-03	-.583
132	5	.0000	.0948	.0109	.00441	1.8586E-03	-1.7948E-05	1.8586E-03	-.553
133	5	.0000	.0992	.0109	.00441	1.7670E-03	-1.5380E-05	1.7671E-03	-.499
134	5	.0000	.1036	.0109	.00441	1.6737E-03	-1.2168E-05	1.6738E-03	-.417
135	5	.0000	.1080	.0109	.00441	1.5788E-03	-8.3520E-06	1.5788E-03	-.303
136	5	.0000	.1124	.0109	.00441	1.4822E-03	-3.9709E-06	1.4822E-03	-.153
137	5	.0000	.1168	.0109	.00441	1.3844E-03	9.3125E-07	1.3844E-03	.039
138	5	.0000	.1212	.0109	.00441	1.2853E-03	6.3058E-06	1.2854E-03	.281
139	5	.0000	.1256	.0109	.00441	1.1856E-03	1.2095E-05	1.1856E-03	.584
140	5	.0000	.1301	.0109	.00441	1.0856E-03	1.8223E-05	1.0857E-03	.962
141	5	.0000	.1345	.0109	.00441	9.8633E-04	2.4584E-05	9.8663E-04	1.428
142	5	.0000	.1389	.0109	.00441	8.8961E-04	3.1001E-05	8.9015E-04	1.996
143	5	.0000	.1433	.0109	.00441	8.0104E-04	3.7028E-05	8.0190E-04	2.647
144	6	- .0004	.1455	.0109	.00088	3.7606E-04	2.0204E-05	3.7660E-04	3.075
145	6	- .0013	.1455	.0109	.00088	3.5816E-04	2.1444E-05	3.5881E-04	3.426
146	6	- .0022	.1455	.0109	.00088	3.3860E-04	2.2797E-05	3.3936E-04	3.852
147	6	- .0031	.1455	.0109	.00088	3.1834E-04	2.4195E-05	3.1925E-04	4.346
148	6	- .0040	.1455	.0109	.00088	2.9760E-04	2.5624E-05	2.9870E-04	4.921
149	6	- .0048	.1455	.0109	.00088	2.7649E-04	2.7075E-05	2.7782E-04	5.593
150	6	- .0057	.1455	.0109	.00088	2.5511E-04	2.8542E-05	2.5670E-04	6.384
151	6	- .0066	.1455	.0109	.00088	2.3348E-04	3.0023E-05	2.3540E-04	7.327
152	6	- .0075	.1455	.0109	.00088	2.1166E-04	3.1513E-05	2.1399E-04	8.468
153	6	- .0084	.1455	.0109	.00088	1.8967E-04	3.3011E-05	1.9252E-04	9.873
154	6	- .0093	.1455	.0109	.00088	1.6754E-04	3.4515E-05	1.7106E-04	11.641
155	6	- .0101	.1455	.0109	.00088	1.4529E-04	3.6023E-05	1.4969E-04	13.925
156	6	- .0110	.1455	.0109	.00088	1.2294E-04	3.7534E-05	1.2854E-04	16.978
157	6	- .0119	.1455	.0109	.00088	1.0049E-04	3.9046E-05	1.0781E-04	21.234
158	6	- .0128	.1455	.0109	.00088	7.7971E-05	4.0559E-05	8.7889E-05	27.483
159	6	- .0137	.1455	.0109	.00088	5.5387E-05	4.2072E-05	6.9554E-05	37.220
160	6	- .0145	.1455	.0109	.00088	3.2750E-05	4.3583E-05	5.4516E-05	53.077
161	6	- .0154	.1455	.0109	.00088	1.0070E-05	4.5091E-05	4.6202E-05	77.411
162	6	- .0163	.1455	.0109	.00088	-1.2645E-05	4.6597E-05	4.8282E-05	105.182
163	6	- .0172	.1455	.0109	.00088	-3.5385E-05	4.8099E-05	5.9712E-05	126.341
164	6	- .0181	.1455	.0109	.00088	-5.8142E-05	4.9596E-05	7.6422E-05	139.535
165	6	- .0190	.1455	.0109	.00088	-8.0908E-05	5.1088E-05	9.5688E-05	147.730
166	6	- .0198	.1455	.0109	.00088	-1.0368E-04	5.2574E-05	1.1624E-04	153.111
167	6	- .0207	.1455	.0109	.00088	-1.2644E-04	5.4053E-05	1.3751E-04	156.853
168	6	- .0216	.1455	.0109	.00088	-1.4919E-04	5.5525E-05	1.5919E-04	159.586

169	6	- .0225	.1455	.0109	.00088	-1.7192E-04	5.6988E-05	1.8112E-04	161.660
170	6	- .0234	.1455	.0109	.00088	-1.9462E-04	5.8443E-05	2.0320E-04	163.285
171	6	- .0242	.1455	.0109	.00088	-2.1728E-04	5.9888E-05	2.2539E-04	164.591
172	6	- .0251	.1455	.0109	.00088	-2.3991E-04	6.1322E-05	2.4762E-04	165.662
173	6	- .0260	.1455	.0109	.00088	-2.6248E-04	6.2744E-05	2.6987E-04	166.556
174	6	- .0269	.1455	.0109	.00088	-2.8499E-04	6.4155E-05	2.9212E-04	167.314
175	6	- .0278	.1455	.0109	.00088	-3.0744E-04	6.5551E-05	3.1435E-04	167.964
176	6	- .0287	.1455	.0109	.00088	-3.2980E-04	6.6933E-05	3.3653E-04	168.528
177	7	.0004	.1455	.0109	.00088	3.7606E-04	2.0204E-05	3.7660E-04	3.075
178	7	.0013	.1455	.0109	.00088	3.5816E-04	2.1444E-05	3.5881E-04	3.426
179	7	.0022	.1455	.0109	.00088	3.3860E-04	2.2797E-05	3.3936E-04	3.852
180	7	.0031	.1455	.0109	.00088	3.1834E-04	2.4195E-05	3.1925E-04	4.346
181	7	.0040	.1455	.0109	.00088	2.9760E-04	2.5624E-05	2.9870E-04	4.921
182	7	.0048	.1455	.0109	.00088	2.7649E-04	2.7075E-05	2.7782E-04	5.593
183	7	.0057	.1455	.0109	.00088	2.5511E-04	2.8542E-05	2.5670E-04	6.384
184	7	.0066	.1455	.0109	.00088	2.3348E-04	3.0023E-05	2.3540E-04	7.327
185	7	.0075	.1455	.0109	.00088	2.1166E-04	3.1513E-05	2.1399E-04	8.468
186	7	.0084	.1455	.0109	.00088	1.8967E-04	3.3011E-05	1.9252E-04	9.873
187	7	.0093	.1455	.0109	.00088	1.6754E-04	3.4515E-05	1.7106E-04	11.641
188	7	.0101	.1455	.0109	.00088	1.4529E-04	3.6023E-05	1.4969E-04	13.925
189	7	.0110	.1455	.0109	.00088	1.2294E-04	3.7534E-05	1.2854E-04	16.978
190	7	.0119	.1455	.0109	.00088	1.0049E-04	3.9046E-05	1.0781E-04	21.234
191	7	.0128	.1455	.0109	.00088	7.7971E-05	4.0559E-05	8.7889E-05	27.483
192	7	.0137	.1455	.0109	.00088	5.5387E-05	4.2072E-05	6.9554E-05	37.220
193	7	.0145	.1455	.0109	.00088	3.2750E-05	4.3583E-05	5.4516E-05	53.077
194	7	.0154	.1455	.0109	.00088	1.0070E-05	4.5091E-05	4.6202E-05	77.411
195	7	.0163	.1455	.0109	.00088	-1.2645E-05	4.6597E-05	4.8282E-05	105.182
196	7	.0172	.1455	.0109	.00088	-3.5385E-05	4.8099E-05	5.9712E-05	126.341
197	7	.0181	.1455	.0109	.00088	-5.8142E-05	4.9596E-05	7.6422E-05	139.535
198	7	.0190	.1455	.0109	.00088	-8.0908E-05	5.1088E-05	9.5688E-05	147.730
199	7	.0198	.1455	.0109	.00088	-1.0368E-04	5.2574E-05	1.1624E-04	153.111
200	7	.0207	.1455	.0109	.00088	-1.2644E-04	5.4053E-05	1.3751E-04	156.853
201	7	.0216	.1455	.0109	.00088	-1.4919E-04	5.5525E-05	1.5919E-04	159.586
202	7	.0225	.1455	.0109	.00088	-1.7192E-04	5.6988E-05	1.8112E-04	161.660
203	7	.0234	.1455	.0109	.00088	-1.9462E-04	5.8443E-05	2.0320E-04	163.285
204	7	.0242	.1455	.0109	.00088	-2.1728E-04	5.9888E-05	2.2539E-04	164.591
205	7	.0251	.1455	.0109	.00088	-2.3991E-04	6.1322E-05	2.4762E-04	165.662
206	7	.0260	.1455	.0109	.00088	-2.6248E-04	6.2744E-05	2.6987E-04	166.556
207	7	.0269	.1455	.0109	.00088	-2.8499E-04	6.4155E-05	2.9212E-04	167.314
208	7	.0278	.1455	.0109	.00088	-3.0744E-04	6.5551E-05	3.1435E-04	167.964
209	7	.0287	.1455	.0109	.00088	-3.2980E-04	6.6933E-05	3.3653E-04	168.528
210	8	- .0291	.0022	.0109	.00441	3.2663E-03	5.4106E-05	3.2668E-03	.949
211	8	- .0291	.0066	.0109	.00441	3.2161E-03	3.5078E-05	3.2163E-03	.625
212	8	- .0291	.0110	.0109	.00441	3.1623E-03	1.7183E-05	3.1623E-03	.311
213	8	- .0291	.0154	.0109	.00441	3.1049E-03	4.3071E-07	3.1049E-03	.008
214	8	- .0291	.0198	.0109	.00441	3.0442E-03	-1.5171E-05	3.0443E-03	-.286
215	8	- .0291	.0242	.0109	.00441	2.9804E-03	-2.9626E-05	2.9805E-03	-.570
216	8	- .0291	.0287	.0109	.00441	2.9135E-03	-4.2945E-05	2.9138E-03	-.844
217	8	- .0291	.0331	.0109	.00441	2.8436E-03	-5.5144E-05	2.8442E-03	-1.111
218	8	- .0291	.0375	.0109	.00441	2.7709E-03	-6.6242E-05	2.7717E-03	-1.369
219	8	- .0291	.0419	.0109	.00441	2.6954E-03	-7.6262E-05	2.6965E-03	-1.621
220	8	- .0291	.0463	.0109	.00441	2.6172E-03	-8.5224E-05	2.6186E-03	-1.865
221	8	- .0291	.0507	.0109	.00441	2.5363E-03	-9.3152E-05	2.5380E-03	-2.103
222	8	- .0291	.0551	.0109	.00441	2.4529E-03	-1.0007E-04	2.4550E-03	-2.336
223	8	- .0291	.0595	.0109	.00441	2.3671E-03	-1.0600E-04	2.3694E-03	-2.564
224	8	- .0291	.0639	.0109	.00441	2.2788E-03	-1.1096E-04	2.2815E-03	-2.788
225	8	- .0291	.0683	.0109	.00441	2.1883E-03	-1.1500E-04	2.1913E-03	-3.008
226	8	- .0291	.0727	.0109	.00441	2.0956E-03	-1.1812E-04	2.0989E-03	-3.226
227	8	- .0291	.0771	.0109	.00441	2.0008E-03	-1.2036E-04	2.0044E-03	-3.443
228	8	- .0291	.0816	.0109	.00441	1.9040E-03	-1.2175E-04	1.9078E-03	-3.659
229	8	- .0291	.0860	.0109	.00441	1.8052E-03	-1.2232E-04	1.8093E-03	-3.876
230	8	- .0291	.0904	.0109	.00441	1.7046E-03	-1.2210E-04	1.7090E-03	-4.097
231	8	- .0291	.0948	.0109	.00441	1.6023E-03	-1.2111E-04	1.6068E-03	-4.323
232	8	- .0291	.0992	.0109	.00441	1.4983E-03	-1.1941E-04	1.5030E-03	-4.557
233	8	- .0291	.1036	.0109	.00441	1.3928E-03	-1.1701E-04	1.3977E-03	-4.802
234	8	- .0291	.1080	.0109	.00441	1.2858E-03	-1.1395E-04	1.2909E-03	-5.064
235	8	- .0291	.1124	.0109	.00441	1.1776E-03	-1.1028E-04	1.1827E-03	-5.350
236	8	- .0291	.1168	.0109	.00441	1.0681E-03	-1.0602E-04	1.0733E-03	-5.669
237	8	- .0291	.1212	.0109	.00441	9.5753E-04	-1.0123E-04	9.6287E-04	-6.035
238	8	- .0291	.1256	.0109	.00441	8.4605E-04	-9.5936E-05	8.5147E-04	-6.469
239	8	- .0291	.1301	.0109	.00441	7.3385E-04	-9.0199E-05	7.3937E-04	-7.007
240	8	- .0291	.1345	.0109	.00441	6.2122E-04	-8.4077E-05	6.2688E-04	-7.708
241	8	- .0291	.1389	.0109	.00441	5.0856E-04	-7.7644E-05	5.1445E-04	-8.681
242	8	- .0291	.1433	.0109	.00441	3.9647E-04	-7.0990E-05	4.0277E-04	-10.152
243	9	.0291	.0022	.0109	.00441	3.2663E-03	5.4106E-05	3.2668E-03	.949
244	9	.0291	.0066	.0109	.00441	3.2161E-03	3.5078E-05	3.2163E-03	.625
245	9	.0291	.0110	.0109	.00441	3.1623E-03	1.7183E-05	3.1623E-03	.311
246	9	.0291	.0154	.0109	.00441	3.1049E-03	4.3071E-07	3.1049E-03	.008
247	9	.0291	.0198	.0109	.00441	3.0442E-03	-1.5171E-05	3.0443E-03	-.286
248	9	.0291	.0242	.0109	.00441	2.9804E-03	-2.9626E-05	2.9805E-03	-.570
249	9	.0291	.0287	.0109	.00441	2.9135E-03	-4.2945E-05	2.9138E-03	-.844
250	9	.0291	.0331	.0109	.00441	2.8436E-03	-5.5144E-05	2.8442E-03	-1.111
251	9	.0291	.0375	.0109	.00441	2.7709E-03	-6.6242E-05	2.7717E-03	-1.369
252	9	.0291	.0419	.0109	.00441	2.6954E-03	-7.6262E-05	2.6965E-03	-1.621
253	9	.0291	.0463	.0109	.00441	2.6172E-03	-8.5224E-05	2.6186E-03	-1.865
254	9	.0291	.0507	.0109	.00441	2.5363E-03	-9.3152E-05	2.5380E-03	-2.103
255	9	.0291	.0551	.0109	.00441	2.4529E-03	-1.0007E-04	2.4550E-03	-2.336
256	9	.0291	.0595	.0109	.00441	2.3671E-03	-1.0600E-04	2.3694E-03	-2.564
257	9	.0291	.0639	.0109	.00441	2.2788E-03	-1.1096E-04	2.2815E-03	-2.788
258	9	.0291	.0683	.0109	.00441	2.1883E-03	-1.1500E-04	2.1913E-03	-3.008
259	9	.0291	.0727	.0109	.00441	2.0956E-03	-1.1812E-04	2.0989E-03	-3.226
260	9	.0291	.0771	.0109	.00441	2.0008E-03	-1.2036E-04	2.0044E-03	-3.443
261	9	.0291	.0816	.0109	.00441	1.9040E-03	-1.2175E-04	1.9078E-03	-3.659
262	9	.0291	.0860	.0109	.00441	1.8052E-03	-1.2232E-04	1.8093E-03	-3.876
263	9	.0291	.0904	.0109	.00441	1.7046E-03	-1.2210E-04	1.7090E-03	-4.097
264	9	.0291	.0948	.0109	.00441	1.6023E-03	-1.2111E-04	1.6068E-03	-4.323
265	9	.0291	.0992	.0109	.00441	1.4983E-03	-1.1941E-04	1.5030E-03	-4.557
266	9	.0291	.1036	.0109	.00441	1.3928E-03	-1.1701E-04	1.3977E-03	-4.802
267	9	.0291	.1080	.0109	.00441	1.2858E-03	-1.1395E-04	1.2909E-03	-5.064

268	9	.0291	.1124	.0109	.00441	1.1776E-03	-1.1028E-04	1.1827E-03	-5.350
269	9	.0291	.1168	.0109	.00441	1.0681E-03	-1.0602E-04	1.0733E-03	-5.669
270	9	.0291	.1212	.0109	.00441	9.5753E-04	-1.0123E-04	9.6287E-04	-6.035
271	9	.0291	.1256	.0109	.00441	8.4605E-04	-9.5936E-05	8.5147E-04	-6.469
272	9	.0291	.1301	.0109	.00441	7.3385E-04	-9.0199E-05	7.3937E-04	-7.007
273	9	.0291	.1345	.0109	.00441	6.2122E-04	-8.4077E-05	6.2688E-04	-7.708
274	9	.0291	.1389	.0109	.00441	5.0856E-04	-7.7644E-05	5.1445E-04	-8.681
275	9	.0291	.1433	.0109	.00441	3.9647E-04	-7.0990E-05	4.0277E-04	-10.152

- - - POWER BUDGET - - -

INPUT POWER = 5.1333E-03 WATTS
RADIATED POWER= 5.1333E-03 WATTS
WIRE LOSS = 0.0000E+00 WATTS
EFFICIENCY = 100.00 PERCENT

- - - RADIATION PATTERNS - - -

- - ANGLES - -		- POWER GAINS -			- - - POLARIZATION - - -			- - - E(THETA) - - -		- - - E(PHI) - - -	
THETA	PHI	MAJOR	MINOR	TOTAL	AXIAL	TILT	SENSE	MAGNITUDE	PHASE	MAGNITUDE	PHASE
DEGREES	DEGREES	DB	DB	DB	RATIO	DEG.		VOLTS	DEGREES	VOLTS	DEGREES
10.00	.00	-11.29	-45.73	-11.29	.01899	-87.99	RIGHT	6.03048E-03	85.97	1.51048E-01	-65.60
10.00	10.00	-11.36	-46.29	-11.36	.01792	81.93	RIGHT	2.12388E-02	-58.29	1.48545E-01	-65.63
10.00	20.00	-11.42	-47.15	-11.42	.01634	71.79	RIGHT	4.66246E-02	-62.51	1.41526E-01	-65.67
10.00	30.00	-11.47	-48.32	-11.47	.01438	61.60	RIGHT	7.04333E-02	-63.73	1.30230E-01	-65.70
10.00	40.00	-11.52	-49.83	-11.52	.01216	51.38	RIGHT	9.18923E-02	-64.30	1.15021E-01	-65.72
10.00	50.00	-11.56	-51.76	-11.56	.00978	41.13	RIGHT	1.10359E-01	-64.62	9.63803E-02	-65.75
10.00	60.00	-11.60	-54.29	-11.60	.00733	30.86	RIGHT	1.25296E-01	-64.81	7.48819E-02	-65.77
10.00	70.00	-11.62	-57.86	-11.62	.00488	20.58	RIGHT	1.36274E-01	-64.93	5.11758E-02	-65.78
10.00	80.00	-11.64	-63.92	-11.64	.00243	10.29	RIGHT	1.42986E-01	-65.00	2.59679E-02	-65.79
10.00	90.00	-11.64	-999.99	-11.64	.00000	.00	LINEAR	1.45245E-01	-65.02	1.81928E-09	-65.79
10.00	100.00	-11.64	-63.92	-11.64	.00243	-10.29	LEFT	1.42986E-01	-65.00	2.59679E-02	114.21
10.00	110.00	-11.62	-57.86	-11.62	.00488	-20.58	LEFT	1.36274E-01	-64.93	5.11758E-02	114.22
10.00	120.00	-11.60	-54.29	-11.60	.00733	-30.86	LEFT	1.25296E-01	-64.81	7.48818E-02	114.23
10.00	130.00	-11.56	-51.76	-11.56	.00978	-41.13	LEFT	1.10359E-01	-64.62	9.63803E-02	114.25
10.00	140.00	-11.52	-49.83	-11.52	.01216	-51.38	LEFT	9.18923E-02	-64.30	1.15021E-01	114.28
10.00	150.00	-11.47	-48.32	-11.47	.01438	-61.60	LEFT	7.04333E-02	-63.73	1.30230E-01	114.30
10.00	160.00	-11.42	-47.15	-11.42	.01634	-71.79	LEFT	4.66246E-02	-62.51	1.41526E-01	114.33
10.00	170.00	-11.36	-46.29	-11.36	.01792	-81.93	LEFT	2.12388E-02	-58.29	1.48545E-01	114.37
10.00	180.00	-11.29	-45.73	-11.29	.01899	87.99	LEFT	6.03048E-03	85.97	1.51048E-01	114.40
10.00	190.00	-11.23	-45.46	-11.23	.01944	77.97	LEFT	3.18829E-02	108.99	1.48939E-01	114.44
10.00	200.00	-11.16	-45.50	-11.16	.01920	68.01	LEFT	5.75132E-02	111.31	1.42267E-01	114.47
10.00	210.00	-11.10	-45.89	-11.10	.01822	58.13	LEFT	8.16322E-02	112.18	1.31228E-01	114.51
10.00	220.00	-11.05	-46.68	-11.04	.01652	48.31	LEFT	1.03464E-01	112.63	1.16156E-01	114.54
10.00	230.00	-11.00	-47.99	-11.00	.01414	38.56	LEFT	1.22326E-01	112.90	9.75147E-02	114.56
10.00	240.00	-10.96	-50.00	-10.96	.01117	28.86	LEFT	1.37632E-01	113.07	7.58792E-02	114.59
10.00	250.00	-10.93	-53.17	-10.93	.00772	19.22	LEFT	1.48913E-01	113.18	5.19159E-02	114.60
10.00	260.00	-10.91	-58.99	-10.91	.00395	9.60	LEFT	1.55821E-01	113.24	2.63616E-02	114.61
10.00	270.00	-10.90	-192.51	-10.90	.00000	.00	LINEAR	1.58148E-01	113.26	5.54189E-09	114.62
10.00	280.00	-10.91	-58.99	-10.91	.00395	-9.60	RIGHT	1.55821E-01	113.24	2.63616E-02	-65.39
10.00	290.00	-10.93	-53.17	-10.93	.00772	-19.22	RIGHT	1.48913E-01	113.18	5.19159E-02	-65.40
10.00	300.00	-10.96	-50.00	-10.96	.01117	-28.86	RIGHT	1.37632E-01	113.07	7.58792E-02	-65.41
10.00	310.00	-11.00	-47.99	-11.00	.01414	-38.56	RIGHT	1.22326E-01	112.90	9.75147E-02	-65.44
10.00	320.00	-11.05	-46.68	-11.04	.01652	-48.31	RIGHT	1.03464E-01	112.63	1.16156E-01	-65.46
10.00	330.00	-11.10	-45.89	-11.10	.01822	-58.13	RIGHT	8.16322E-02	112.18	1.31228E-01	-65.49
10.00	340.00	-11.16	-45.50	-11.16	.01920	-68.01	RIGHT	5.75132E-02	111.31	1.42267E-01	-65.53
10.00	350.00	-11.23	-45.46	-11.23	.01944	-77.97	RIGHT	3.18829E-02	108.99	1.48939E-01	-65.56

60 degree take off angle Conical Cut (Theta = 30 Degrees)

***** INPUT LINE 5 RP 0 1 36 0 3.00000E+01 0.00000E+00 0.00000E+00 1.00000E+01 0.00000E+00 0.00000E+00

- - - RADIATION PATTERNS - - -

- - ANGLES - -		- POWER GAINS -			- - - POLARIZATION - - -			- - - E(THETA) - - -		- - - E(PHI) - - -	
THETA	PHI	MAJOR	MINOR	TOTAL	AXIAL	TILT	SENSE	MAGNITUDE	PHASE	MAGNITUDE	PHASE
DEGREES	DEGREES	DB	DB	DB	RATIO	DEG.		VOLTS	DEGREES	VOLTS	DEGREES
30.00	.00	-12.15	-36.56	-12.13	.06016	-83.81	RIGHT	1.69037E-02	85.58	1.36231E-01	-65.05
30.00	10.00	-12.34	-38.03	-12.33	.05195	85.53	RIGHT	1.25368E-02	-31.31	1.33568E-01	-65.15
30.00	20.00	-12.51	-40.08	-12.50	.04183	74.72	RIGHT	3.50197E-02	-55.88	1.26745E-01	-65.24
30.00	30.00	-12.65	-42.79	-12.65	.03113	63.85	RIGHT	5.70881E-02	-60.82	1.16075E-01	-65.33
30.00	40.00	-12.76	-46.25	-12.76	.02115	53.00	RIGHT	7.68921E-02	-62.88	1.01997E-01	-65.40
30.00	50.00	-12.84	-50.62	-12.84	.01290	42.21	RIGHT	9.37606E-02	-63.97	8.50363E-02	-65.46
30.00	60.00	-12.89	-56.12	-12.89	.00690	31.52	RIGHT	1.07252E-01	-64.62	6.57699E-02	-65.50
30.00	70.00	-12.92	-63.05	-12.92	.00311	20.94	RIGHT	1.17068E-01	-65.00	4.47877E-02	-65.54
30.00	80.00	-12.94	-72.26	-12.94	.00108	10.44	RIGHT	1.23024E-01	-65.21	2.26742E-02	-65.56
30.00	90.00	-12.94	-999.99	-12.94	.00000	.00	LINEAR	1.25020E-01	-65.27	1.58727E-09	-65.56
30.00	100.00	-12.94	-72.26	-12.94	.00108	-10.44	LEFT	1.23024E-01	-65.21	2.26742E-02	114.44
30.00	110.00	-12.92	-63.05	-12.92	.00311	-20.94	LEFT	1.17068E-01	-65.00	4.47877E-02	114.46
30.00	120.00	-12.89	-56.12	-12.89	.00690	-31.52	LEFT	1.07252E-01	-64.62	6.57699E-02	114.50
30.00	130.00	-12.84	-50.62	-12.84	.01290	-42.21	LEFT	9.37606E-02	-63.97	8.50363E-02	114.54

30.00	140.00	-12.76	-46.25	-12.76	.02115	-53.00	LEFT	7.68921E-02	-62.88	1.01997E-01	114.60
30.00	150.00	-12.65	-42.79	-12.65	.03113	-63.85	LEFT	5.70881E-02	-60.82	1.16075E-01	114.67
30.00	160.00	-12.51	-40.08	-12.50	.04183	-74.72	LEFT	3.50197E-02	-55.88	1.26745E-01	114.76
30.00	170.00	-12.34	-38.03	-12.33	.05195	-85.53	LEFT	1.25368E-02	-31.31	1.33568E-01	114.85
30.00	180.00	-12.15	-36.56	-12.13	.06016	83.81	LEFT	1.69037E-02	85.58	1.36231E-01	114.95
30.00	190.00	-11.93	-35.62	-11.91	.06538	73.36	LEFT	4.11601E-02	101.60	1.34586E-01	115.06
30.00	200.00	-11.71	-35.19	-11.69	.06701	63.20	LEFT	6.55147E-02	105.67	1.28656E-01	115.16
30.00	210.00	-11.50	-35.25	-11.48	.06491	53.36	LEFT	8.84677E-02	107.51	1.18645E-01	115.27
30.00	220.00	-11.29	-35.82	-11.28	.05937	43.85	LEFT	1.09168E-01	108.56	1.04913E-01	115.36
30.00	230.00	-11.12	-36.99	-11.11	.05088	34.66	LEFT	1.26945E-01	109.22	8.79462E-02	115.45
30.00	240.00	-10.98	-38.91	-10.97	.04009	25.74	LEFT	1.41273E-01	109.66	6.83235E-02	115.52
30.00	250.00	-10.87	-42.05	-10.87	.02762	17.03	LEFT	1.51765E-01	109.94	4.66798E-02	115.57
30.00	260.00	-10.81	-47.84	-10.80	.01407	8.48	LEFT	1.58159E-01	110.09	2.36799E-02	115.61
30.00	270.00	-10.78	-181.35	-10.78	.00000	.00	LINEAR	1.60306E-01	110.14	4.97640E-09	115.62
30.00	280.00	-10.81	-47.84	-10.80	.01407	-8.48	RIGHT	1.58159E-01	110.09	2.36798E-02	-64.39
30.00	290.00	-10.87	-42.05	-10.87	.02762	-17.03	RIGHT	1.51765E-01	109.94	4.66798E-02	-64.43
30.00	300.00	-10.98	-38.91	-10.97	.04009	-25.74	RIGHT	1.41273E-01	109.66	6.83235E-02	-64.48
30.00	310.00	-11.12	-36.99	-11.11	.05088	-34.66	RIGHT	1.26945E-01	109.22	8.79462E-02	-64.55
30.00	320.00	-11.29	-35.82	-11.28	.05937	-43.85	RIGHT	1.09168E-01	108.56	1.04913E-01	-64.64
30.00	330.00	-11.50	-35.25	-11.48	.06491	-53.36	RIGHT	8.84678E-02	107.51	1.18645E-01	-64.73
30.00	340.00	-11.71	-35.19	-11.69	.06701	-63.20	RIGHT	6.55147E-02	105.67	1.28656E-01	-64.84
30.00	350.00	-11.93	-35.62	-11.91	.06538	-73.36	RIGHT	4.11601E-02	101.60	1.34586E-01	-64.94

10 degree take off angle Conical Cut (Theta = 80 Degrees)

***** INPUT LINE 6 RP 0 1 36 0 8.00000E+01 0.00000E+00 0.00000E+00 1.00000E+01 0.00000E+00 0.00000E+00

- - - RADIATION PATTERNS - - -

- - ANGLES - -		- POWER GAINS -			- - - POLARIZATION - - -			- - - E(THETA) - - -		- - - E(PHI) - - -	
THETA DEGREES	PHI DEGREES	MAJOR DB	MINOR DB	TOTAL DB	AXIAL RATIO	TILT DEG.	SENSE	MAGNITUDE VOLTS	PHASE DEGREES	MAGNITUDE VOLTS	PHASE DEGREES
80.00	.00	-24.01	-34.37	-23.63	.30356	-63.88	RIGHT	1.81025E-02	78.20	3.17387E-02	-61.57
80.00	10.00	-25.06	-37.68	-24.83	.23377	-86.89	RIGHT	7.42790E-03	40.59	3.09508E-02	-61.78
80.00	20.00	-25.11	-46.02	-25.07	.09000	70.80	RIGHT	1.04636E-02	-45.67	2.91126E-02	-61.96
80.00	30.00	-24.39	-56.27	-24.39	.02547	51.94	LEFT	2.06417E-02	-65.12	2.63566E-02	-62.11
80.00	40.00	-23.35	-45.90	-23.33	.07458	37.10	LEFT	3.01288E-02	-71.10	2.28566E-02	-62.23
80.00	50.00	-22.35	-44.28	-22.32	.08007	26.00	LEFT	3.80699E-02	-73.89	1.87997E-02	-62.33
80.00	60.00	-21.55	-45.09	-21.53	.06651	17.63	LEFT	4.42495E-02	-75.43	1.43598E-02	-62.40
80.00	70.00	-20.99	-47.73	-20.98	.04603	10.96	LEFT	4.86245E-02	-76.32	9.68053E-03	-62.44
80.00	80.00	-20.66	-53.30	-20.65	.02332	5.26	LEFT	5.12221E-02	-76.79	4.86884E-03	-62.47
80.00	90.00	-20.55	-196.30	-20.55	.00000	.00	LINEAR	5.20821E-02	-76.94	3.40062E-10	-62.48
80.00	100.00	-20.66	-53.30	-20.65	.02332	-5.26	RIGHT	5.12221E-02	-76.79	4.86884E-03	117.53
80.00	110.00	-20.99	-47.73	-20.98	.04603	-10.96	RIGHT	4.86245E-02	-76.32	9.68053E-03	117.56
80.00	120.00	-21.55	-45.09	-21.53	.06651	-17.63	RIGHT	4.42495E-02	-75.43	1.43598E-02	117.60
80.00	130.00	-22.35	-44.28	-22.32	.08007	-26.00	RIGHT	3.80699E-02	-73.89	1.87997E-02	117.67
80.00	140.00	-23.35	-45.90	-23.33	.07458	-37.10	RIGHT	3.01288E-02	-71.10	2.28566E-02	117.77
80.00	150.00	-24.39	-56.27	-24.39	.02547	-51.94	RIGHT	2.06417E-02	-65.12	2.63566E-02	117.89
80.00	160.00	-25.11	-46.02	-25.07	.09000	-70.80	LEFT	1.04636E-02	-45.67	2.91126E-02	118.04
80.00	170.00	-25.06	-37.68	-24.83	.23377	86.89	LEFT	7.42789E-03	40.59	3.09508E-02	118.22
80.00	180.00	-24.01	-34.37	-23.63	.30356	63.88	LEFT	1.81025E-02	78.20	3.17387E-02	118.43
80.00	190.00	-22.37	-33.35	-22.04	.28257	45.83	LEFT	3.06417E-02	87.08	3.14086E-02	118.65
80.00	200.00	-20.73	-33.43	-20.51	.23189	33.73	LEFT	4.29099E-02	90.93	2.99692E-02	118.88
80.00	210.00	-19.35	-34.11	-19.21	.18278	25.43	LEFT	5.42018E-02	93.12	2.75030E-02	119.11
80.00	220.00	-18.26	-35.27	-18.17	.14112	19.29	LEFT	6.40720E-02	94.54	2.41498E-02	119.33
80.00	230.00	-17.43	-36.92	-17.38	.10608	14.41	LEFT	7.22473E-02	95.54	2.00817E-02	119.53
80.00	240.00	-16.83	-39.23	-16.81	.07589	10.30	LEFT	7.85971E-02	96.24	1.54780E-02	119.70
80.00	250.00	-16.43	-42.64	-16.42	.04895	6.65	LEFT	8.30939E-02	96.72	1.05050E-02	119.83
80.00	260.00	-16.20	-48.60	-16.20	.02401	3.26	LEFT	8.57659E-02	96.99	5.30564E-03	119.90
80.00	270.00	-16.13	-182.17	-16.13	.00000	.00	LINEAR	8.66510E-02	97.08	1.11328E-09	119.93
80.00	280.00	-16.20	-48.60	-16.20	.02401	-3.26	RIGHT	8.57659E-02	96.99	5.30563E-03	-60.10
80.00	290.00	-16.43	-42.64	-16.42	.04895	-6.65	RIGHT	8.30939E-02	96.72	1.05050E-02	-60.17
80.00	300.00	-16.83	-39.23	-16.81	.07589	-10.30	RIGHT	7.85971E-02	96.24	1.54780E-02	-60.30
80.00	310.00	-17.43	-36.92	-17.38	.10608	-14.41	RIGHT	7.22473E-02	95.54	2.00817E-02	-60.47
80.00	320.00	-18.26	-35.27	-18.17	.14112	-19.29	RIGHT	6.40720E-02	94.54	2.41498E-02	-60.67
80.00	330.00	-19.35	-34.11	-19.21	.18278	-25.43	RIGHT	5.42018E-02	93.12	2.75030E-02	-60.89
80.00	340.00	-20.73	-33.43	-20.51	.23189	-33.73	RIGHT	4.29099E-02	90.93	2.99692E-02	-61.12
80.00	350.00	-22.37	-33.35	-22.04	.28257	-45.83	RIGHT	3.06417E-02	87.08	3.14086E-02	-61.35

XY plane elevation Cut Follows

Theta 0 Degrees Is Overhead, Theta 90 degrees is on Horizon

***** INPUT LINE 7 RP 0 182 1 0 -9.00000E+01 0.00000E+00 2.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

- - - RADIATION PATTERNS - - -

- - ANGLES - -		- POWER GAINS -			- - - POLARIZATION - - -			- - - E(THETA) - - -		- - - E(PHI) - - -	
THETA	PHI	MAJOR	MINOR	TOTAL	AXIAL	TILT	SENSE	MAGNITUDE	PHASE	MAGNITUDE	PHASE
DEGREES	DEGREES	DB	DB		RATIO	DEG.		VOLTS	DEGREES	VOLTS	DEGREES
-90.00	.00	-165.62	-172.24	-164.76	.46668	46.75	LEFT	2.22161E-09	-110.73	2.31063E-09	-60.64
-88.00	.00	-36.90	-44.27	-36.17	.42822	51.88	LEFT	5.57260E-03	-108.02	6.57643E-03	-60.83
-86.00	.00	-31.23	-39.37	-30.61	.39189	55.87	LEFT	9.86965E-03	-105.93	1.30443E-02	-61.02
-84.00	.00	-27.99	-36.89	-27.47	.35895	59.07	LEFT	1.32465E-02	-104.27	1.93976E-02	-61.20
-82.00	.00	-25.74	-35.38	-25.29	.32959	61.69	LEFT	1.59377E-02	-102.92	2.56308E-02	-61.39
-80.00	.00	-24.01	-34.37	-23.63	.30356	63.88	LEFT	1.81025E-02	-101.80	3.17387E-02	-61.57
-78.00	.00	-22.62	-33.66	-22.29	.28048	65.76	LEFT	1.98523E-02	-100.87	3.77168E-02	-61.75
-76.00	.00	-21.46	-33.16	-21.17	.25997	67.38	LEFT	2.12672E-02	-100.08	4.35606E-02	-61.93
-74.00	.00	-20.46	-32.80	-20.21	.24165	68.81	LEFT	2.24060E-02	-99.40	4.92665E-02	-62.11
-72.00	.00	-19.60	-32.54	-19.38	.22522	70.09	LEFT	2.33128E-02	-98.82	5.48311E-02	-62.28
-70.00	.00	-18.83	-32.37	-18.64	.21039	71.23	LEFT	2.40213E-02	-98.30	6.02512E-02	-62.46
-68.00	.00	-18.15	-32.26	-17.98	.19694	72.27	LEFT	2.45581E-02	-97.86	6.55242E-02	-62.62
-66.00	.00	-17.54	-32.21	-17.39	.18469	73.22	LEFT	2.49438E-02	-97.46	7.06479E-02	-62.79
-64.00	.00	-16.98	-32.20	-16.85	.17346	74.10	LEFT	2.51954E-02	-97.11	7.56201E-02	-62.95
-62.00	.00	-16.48	-32.23	-16.36	.16312	74.91	LEFT	2.53264E-02	-96.80	8.04393E-02	-63.11
-60.00	.00	-16.02	-32.29	-15.91	.15356	75.67	LEFT	2.53483E-02	-96.52	8.51040E-02	-63.26
-58.00	.00	-15.59	-32.39	-15.50	.14467	76.38	LEFT	2.52706E-02	-96.27	8.96131E-02	-63.41
-56.00	.00	-15.20	-32.51	-15.12	.13638	77.06	LEFT	2.51014E-02	-96.04	9.39656E-02	-63.56
-54.00	.00	-14.85	-32.66	-14.77	.12861	77.69	LEFT	2.48476E-02	-95.83	9.81610E-02	-63.70
-52.00	.00	-14.51	-32.84	-14.45	.12130	78.30	LEFT	2.45152E-02	-95.65	1.02199E-01	-63.84
-50.00	.00	-14.21	-33.04	-14.15	.11441	78.89	LEFT	2.41096E-02	-95.48	1.06079E-01	-63.98
-48.00	.00	-13.92	-33.27	-13.87	.10787	79.45	LEFT	2.36357E-02	-95.32	1.09800E-01	-64.11
-46.00	.00	-13.66	-33.52	-13.62	.10166	79.98	LEFT	2.30976E-02	-95.18	1.13364E-01	-64.23
-44.00	.00	-13.42	-33.80	-13.38	.09574	80.51	LEFT	2.24993E-02	-95.06	1.16770E-01	-64.35
-42.00	.00	-13.19	-34.10	-13.16	.09007	81.01	LEFT	2.18445E-02	-94.94	1.20019E-01	-64.46
-40.00	.00	-12.98	-34.43	-12.95	.08464	81.50	LEFT	2.11364E-02	-94.83	1.23111E-01	-64.57
-38.00	.00	-12.79	-34.79	-12.76	.07941	81.98	LEFT	2.03783E-02	-94.74	1.26046E-01	-64.68
-36.00	.00	-12.61	-35.18	-12.58	.07436	82.45	LEFT	1.95732E-02	-94.65	1.28825E-01	-64.78
-34.00	.00	-12.44	-35.60	-12.42	.06949	82.91	LEFT	1.87239E-02	-94.57	1.31448E-01	-64.87
-32.00	.00	-12.29	-36.06	-12.27	.06476	83.36	LEFT	1.78332E-02	-94.49	1.33917E-01	-64.96
-30.00	.00	-12.15	-36.56	-12.13	.06016	83.81	LEFT	1.69037E-02	-94.42	1.36231E-01	-65.05
-28.00	.00	-12.02	-37.10	-12.00	.05568	84.24	LEFT	1.59381E-02	-94.36	1.38393E-01	-65.13
-26.00	.00	-11.90	-37.69	-11.89	.05131	84.67	LEFT	1.49390E-02	-94.31	1.40401E-01	-65.20
-24.00	.00	-11.79	-38.34	-11.78	.04703	85.10	LEFT	1.39087E-02	-94.26	1.42258E-01	-65.27
-22.00	.00	-11.69	-39.05	-11.68	.04284	85.52	LEFT	1.28498E-02	-94.21	1.43963E-01	-65.33
-20.00	.00	-11.60	-39.84	-11.60	.03873	85.94	LEFT	1.17647E-02	-94.17	1.45517E-01	-65.39
-18.00	.00	-11.52	-40.72	-11.52	.03468	86.36	LEFT	1.06558E-02	-94.13	1.46921E-01	-65.44
-16.00	.00	-11.45	-41.71	-11.45	.03069	86.77	LEFT	9.52557E-03	-94.10	1.48176E-01	-65.49
-14.00	.00	-11.39	-42.85	-11.39	.02675	87.18	LEFT	8.37634E-03	-94.07	1.49282E-01	-65.53
-12.00	.00	-11.34	-44.16	-11.34	.02285	87.58	LEFT	7.21052E-03	-94.05	1.50239E-01	-65.57
-10.00	.00	-11.29	-45.73	-11.29	.01899	87.99	LEFT	6.03048E-03	-94.03	1.51048E-01	-65.60
-8.00	.00	-11.26	-47.65	-11.26	.01515	88.39	LEFT	4.83860E-03	-94.01	1.51710E-01	-65.62
-6.00	.00	-11.23	-50.13	-11.23	.01135	88.80	LEFT	3.63724E-03	-94.00	1.52224E-01	-65.64
-4.00	.00	-11.21	-53.65	-11.21	.00755	89.20	LEFT	2.42877E-03	-93.99	1.52591E-01	-65.65
-2.00	.00	-11.20	-59.66	-11.20	.00377	89.60	LEFT	1.21557E-03	-93.99	1.52812E-01	-65.66
.00	.00	-11.20	-999.99	-11.20	.00000	-90.00	LINEAR	8.69437E-16	121.09	1.52885E-01	-65.67
2.00	.00	-11.20	-59.66	-11.20	.00377	-89.60	RIGHT	1.21557E-03	86.01	1.52812E-01	-65.66
4.00	.00	-11.21	-53.65	-11.21	.00755	-89.20	RIGHT	2.42877E-03	86.01	1.52591E-01	-65.65
6.00	.00	-11.23	-50.13	-11.23	.01135	-88.80	RIGHT	3.63724E-03	86.00	1.52224E-01	-65.64
8.00	.00	-11.26	-47.65	-11.26	.01515	-88.39	RIGHT	4.83860E-03	85.99	1.51710E-01	-65.62
10.00	.00	-11.29	-45.73	-11.29	.01899	-87.99	RIGHT	6.03048E-03	85.97	1.51048E-01	-65.60
12.00	.00	-11.34	-44.16	-11.34	.02285	-87.58	RIGHT	7.21052E-03	85.95	1.50239E-01	-65.57
14.00	.00	-11.39	-42.85	-11.39	.02675	-87.18	RIGHT	8.37634E-03	85.93	1.49282E-01	-65.53
16.00	.00	-11.45	-41.71	-11.45	.03069	-86.77	RIGHT	9.52557E-03	85.90	1.48176E-01	-65.49
18.00	.00	-11.52	-40.72	-11.52	.03468	-86.36	RIGHT	1.06558E-02	85.87	1.46921E-01	-65.44
20.00	.00	-11.60	-39.84	-11.60	.03873	-85.94	RIGHT	1.17647E-02	85.83	1.45517E-01	-65.39
22.00	.00	-11.69	-39.05	-11.68	.04284	-85.52	RIGHT	1.28498E-02	85.79	1.43963E-01	-65.33
24.00	.00	-11.79	-38.34	-11.78	.04703	-85.10	RIGHT	1.39087E-02	85.74	1.42258E-01	-65.27
26.00	.00	-11.90	-37.69	-11.89	.05131	-84.67	RIGHT	1.49390E-02	85.69	1.40401E-01	-65.20
28.00	.00	-12.02	-37.10	-12.00	.05568	-84.24	RIGHT	1.59381E-02	85.64	1.38393E-01	-65.13
30.00	.00	-12.15	-36.56	-12.13	.06016	-83.81	RIGHT	1.69037E-02	85.58	1.36231E-01	-65.05
32.00	.00	-12.29	-36.06	-12.27	.06476	-83.36	RIGHT	1.78332E-02	85.51	1.33917E-01	-64.96
34.00	.00	-12.44	-35.60	-12.42	.06949	-82.91	RIGHT	1.87239E-02	85.43	1.31448E-01	-64.87
36.00	.00	-12.61	-35.18	-12.58	.07436	-82.45	RIGHT	1.95732E-02	85.35	1.28825E-01	-64.78
38.00	.00	-12.79	-34.79	-12.76	.07941	-81.98	RIGHT	2.03783E-02	85.26	1.26046E-01	-64.68
40.00	.00	-12.98	-34.43	-12.95	.08464	-81.50	RIGHT	2.11364E-02	85.17	1.23111E-01	-64.57
42.00	.00	-13.19	-34.10	-13.16	.09007	-81.01	RIGHT	2.18445E-02	85.06	1.20019E-01	-64.46
44.00	.00	-13.42	-33.80	-13.38	.09574	-80.51	RIGHT	2.24993E-02	84.94	1.16770E-01	-64.35
46.00	.00	-13.66	-33.52	-13.62	.10166	-79.98	RIGHT	2.30976E-02	84.82	1.13364E-01	-64.23
48.00	.00	-13.92	-33.27	-13.87	.10787	-79.45	RIGHT	2.36357E-02	84.68	1.09800E-01	-64.11
50.00	.00	-14.21	-33.04	-14.15	.11441	-78.89	RIGHT	2.41096E-02	84.52	1.06079E-01	-63.98
52.00	.00	-14.51	-32.84	-14.45	.12130	-78.30	RIGHT	2.45152E-02	84.35	1.02199E-01	-63.84
54.00	.00	-14.85	-32.66	-14.77	.12861	-77.69	RIGHT	2.48476E-02	84.17	9.81610E-02	-63.70
56.00	.00	-15.20	-32.51	-15.12	.13638	-77.06	RIGHT	2.51014E-02	83.96	9.39656E-02	-63.56
58.00	.00	-15.59	-32.39	-15.50	.14467	-76.38	RIGHT	2.52706E-02	83.73	8.96131E-02	-63.41
60.00	.00	-16.02	-32.29	-15.91	.15356	-75.67	RIGHT	2.53483E-02	83.48	8.51040E-02	-63.26
62.00	.00	-16.48	-32.23	-16.36	.16312	-74.91	RIGHT	2.53264E-02	83.20	8.04393E-02	-63.11
64.00	.00	-16.98	-32.20	-16.85	.17346	-74.10	RIGHT	2.51954E-02	82.89	7.56201E-02	-62.95
66.00	.00	-17.54	-32.21	-17.39	.18469	-73.22	RIGHT	2.49438E-02	82.54	7.06479E-02	-62.79
68.00	.00	-18.15	-32.26	-17.98	.19694	-72.27	RIGHT	2.45581E-02	82.14	6.55242E-02	-62.62
70.00	.00	-18.83	-32.37	-18.64	.21039	-71.23	RIGHT	2.40213E-02	81.70	6.02512E-02	-62.46
72.00	.00	-19.60	-32.54	-19.38	.22522	-70.09	RIGHT	2.33128E-02	81.18	5.48311E-02	-62.28
74.00	.00	-20.46	-32.80	-20.21	.24165	-68.81	RIGHT	2.24060E-02	80.60	4.92665E-02	-62.11
76.00	.00	-21.46	-33.16	-21.17	.25997	-67.38	RIGHT	2.12672E-02	79.92	4.35606E-02	-61.93
78.00	.00	-22.62	-33.66	-22.29	.28048	-65.76	RIGHT	1.98523E-02	79.13	3.77168E-02	-61.75
80.00	.00	-24.01	-34.37	-23.63	.30356	-63.88	RIGHT	1.81025E-02	78.20	3.17387E-02	-61.57
82.00	.00	-25.74	-35.38	-25.29	.32959	-61.69	RIGHT	1.59377E-02	77.08	2.56308E-02	-61.39
84.00	.00	-27.99	-36.89	-27.47	.35895	-59.07	RIGHT	1.32465E-02	75.73	1.93976E-02	-61.20
86.00	.00	-31.23	-39.37	-30.61	.39189	-55.87	RIGHT	9.86965E-03	74.07	1.30443E-02	-61.02
88.00	.00	-36.90	-44.27	-36.17	.42822	-51.88	RIGHT	5.57260E-03	71.98	6.57643E-03	-60.83
90.00	.00	-165.62	-172.24	-164.76	.46668	-46.75	RIGHT	2.22161E-09	69.27	2.31063E-09	-60.64

[illegible]

YZ Plane elevation Pattern Cut Follows
vehicle is driving in the Y direction
0 Degrees Is Overhead, 90 degrees is on Horizon

***** INPUT LINE 8 RP 0 360 1 0 -9.00000E+01 9.00000E+01 1.00000E+00 0.00000E+00 0.00000E+00 0.00000E+00

- - - RADIATION PATTERNS - - -

- - ANGLES - -		- POWER GAINS -			- - - POLARIZATION - - -			- - - E(THETA) - - -		- - - E(PHI) - - -	
THETA DEGREES	PHI DEGREES	MAJOR DB	MINOR DB	TOTAL DB	AXIAL RATIO	TILT DEG.	SENSE	MAGNITUDE VOLTS	PHASE DEGREES	MAGNITUDE VOLTS	PHASE DEGREES
-90.00	90.00	-154.49	-999.99	-154.49	.000000	.00	LINEAR	1.04577E-08	-92.05	2.46079E-17	-55.41
-89.00	90.00	-31.96	-999.99	-31.96	.000000	.00	LINEAR	1.40042E-02	-90.61	3.85261E-11	-59.20
-88.00	90.00	-26.50	-999.99	-26.50	.000000	.00	LINEAR	2.62493E-02	-89.34	7.67493E-11	-59.30
-87.00	90.00	-23.51	-999.99	-23.51	.000000	.00	LINEAR	3.70303E-02	-88.22	1.14665E-10	-59.39
-86.00	90.00	-21.52	-197.88	-21.52	.000000	.00	LINEAR	4.65835E-02	-87.22	1.52268E-10	-59.49
-85.00	90.00	-20.06	-196.27	-20.06	.000000	.00	LINEAR	5.50989E-02	-86.32	1.89554E-10	-59.59
-84.00	90.00	-18.93	-195.00	-18.93	.000000	.00	LINEAR	6.27313E-02	-85.51	2.26520E-10	-59.68
-83.00	90.00	-18.03	-193.96	-18.03	.000000	.00	LINEAR	6.96069E-02	-84.78	2.63160E-10	-59.78
-82.00	90.00	-17.29	-193.09	-17.29	.000000	.00	LINEAR	7.58301E-02	-84.10	2.99472E-10	-59.87
-81.00	90.00	-16.66	-192.35	-16.66	.000000	.00	LINEAR	8.14874E-02	-83.49	3.35451E-10	-59.97
-80.00	90.00	-16.13	-191.71	-16.13	.000000	.00	LINEAR	8.66510E-02	-82.92	3.71095E-10	-60.07
-79.00	90.00	-15.67	-191.15	-15.67	.000000	.00	LINEAR	9.13818E-02	-82.39	4.06399E-10	-60.17
-78.00	90.00	-15.26	-190.66	-15.26	.000000	.00	LINEAR	9.57313E-02	-81.89	4.41361E-10	-60.26
-77.00	90.00	-14.90	-190.22	-14.90	.000000	.00	LINEAR	9.97433E-02	-81.43	4.75977E-10	-60.36
-76.00	90.00	-14.59	-189.83	-14.59	.000000	.00	LINEAR	1.03455E-01	-81.00	5.10245E-10	-60.46
-75.00	90.00	-14.30	-189.47	-14.30	.000000	.00	LINEAR	1.06899E-01	-80.58	5.44162E-10	-60.55
-74.00	90.00	-14.05	-189.16	-14.05	.000000	.00	LINEAR	1.10104E-01	-80.20	5.77724E-10	-60.65
-73.00	90.00	-13.81	-188.88	-13.81	.000000	.00	LINEAR	1.13092E-01	-79.83	6.10929E-10	-60.75
-72.00	90.00	-13.60	-188.62	-13.60	.000000	.00	LINEAR	1.15885E-01	-79.47	6.43774E-10	-60.85
-71.00	90.00	-13.41	-188.39	-13.41	.000000	.00	LINEAR	1.18502E-01	-79.14	6.76256E-10	-60.94
-70.00	90.00	-13.23	-188.18	-13.23	.000000	.00	LINEAR	1.20959E-01	-78.81	7.08373E-10	-61.04
-69.00	90.00	-13.07	-188.00	-13.07	.000000	.00	LINEAR	1.23270E-01	-78.50	7.40122E-10	-61.14
-68.00	90.00	-12.91	-187.83	-12.91	.000000	.00	LINEAR	1.25447E-01	-78.20	7.71500E-10	-61.23
-67.00	90.00	-12.77	-187.69	-12.77	.000000	.00	LINEAR	1.27502E-01	-77.91	8.02505E-10	-61.33
-66.00	90.00	-12.64	-187.56	-12.64	.000000	.00	LINEAR	1.29444E-01	-77.62	8.33134E-10	-61.42
-65.00	90.00	-12.52	-187.44	-12.52	.000000	.00	LINEAR	1.31282E-01	-77.35	8.63384E-10	-61.52
-64.00	90.00	-12.40	-187.34	-12.40	.000000	.00	LINEAR	1.33024E-01	-77.08	8.93252E-10	-61.61
-63.00	90.00	-12.30	-187.26	-12.30	.000000	.00	LINEAR	1.34676E-01	-76.82	9.22736E-10	-61.71
-62.00	90.00	-12.20	-187.19	-12.20	.000000	.00	LINEAR	1.36246E-01	-76.56	9.51832E-10	-61.80
-61.00	90.00	-12.10	-187.13	-12.10	.000000	.00	LINEAR	1.37739E-01	-76.31	9.80539E-10	-61.89
-60.00	90.00	-12.01	-187.08	-12.01	.000000	.00	LINEAR	1.39159E-01	-76.07	1.00885E-09	-61.99
-59.00	90.00	-11.93	-187.05	-11.93	.000000	.00	LINEAR	1.40512E-01	-75.82	1.03677E-09	-62.08
-58.00	90.00	-11.85	-187.03	-11.85	.000000	.00	LINEAR	1.41800E-01	-75.59	1.06429E-09	-62.17
-57.00	90.00	-11.77	-187.02	-11.77	.000000	.00	LINEAR	1.43029E-01	-75.35	1.09140E-09	-62.26
-56.00	90.00	-11.70	-187.02	-11.70	.000000	.00	LINEAR	1.44200E-01	-75.12	1.11811E-09	-62.35
-55.00	90.00	-11.64	-187.04	-11.64	.000000	.00	LINEAR	1.45318E-01	-74.89	1.14442E-09	-62.44
-54.00	90.00	-11.57	-187.06	-11.57	.000000	.00	LINEAR	1.46384E-01	-74.67	1.17031E-09	-62.53
-53.00	90.00	-11.51	-187.09	-11.51	.000000	.00	LINEAR	1.47401E-01	-74.45	1.19578E-09	-62.62
-52.00	90.00	-11.46	-187.14	-11.46	.000000	.00	LINEAR	1.48371E-01	-74.23	1.22084E-09	-62.71
-51.00	90.00	-11.40	-187.19	-11.40	.000000	.00	LINEAR	1.49297E-01	-74.01	1.24548E-09	-62.79
-50.00	90.00	-11.35	-187.26	-11.35	.000000	.00	LINEAR	1.50179E-01	-73.80	1.26968E-09	-62.88
-49.00	90.00	-11.30	-187.34	-11.30	.000000	.00	LINEAR	1.51020E-01	-73.58	1.29347E-09	-62.96
-48.00	90.00	-11.26	-187.42	-11.26	.000000	.00	LINEAR	1.51821E-01	-73.37	1.31681E-09	-63.05
-47.00	90.00	-11.21	-187.52	-11.21	.000000	.00	LINEAR	1.52582E-01	-73.16	1.33973E-09	-63.13
-46.00	90.00	-11.17	-187.63	-11.17	.000000	.00	LINEAR	1.53306E-01	-72.95	1.36220E-09	-63.21
-45.00	90.00	-11.13	-187.75	-11.13	.000000	.00	LINEAR	1.53993E-01	-72.75	1.38423E-09	-63.29
-44.00	90.00	-11.10	-187.88	-11.10	.000000	.00	LINEAR	1.54644E-01	-72.54	1.40581E-09	-63.37
-43.00	90.00	-11.06	-188.02	-11.06	.000000	.00	LINEAR	1.55260E-01	-72.34	1.42694E-09	-63.45
-42.00	90.00	-11.03	-188.17	-11.03	.000000	.00	LINEAR	1.55841E-01	-72.14	1.44761E-09	-63.53
-41.00	90.00	-11.00	-188.33	-11.00	.000000	.00	LINEAR	1.56389E-01	-71.94	1.46782E-09	-63.61
-40.00	90.00	-10.97	-188.50	-10.97	.000000	.00	LINEAR	1.56904E-01	-71.74	1.48758E-09	-63.68
-39.00	90.00	-10.94	-188.68	-10.94	.000000	.00	LINEAR	1.57386E-01	-71.55	1.50686E-09	-63.76
-38.00	90.00	-10.92	-188.88	-10.92	.000000	.00	LINEAR	1.57835E-01	-71.35	1.52568E-09	-63.83
-37.00	90.00	-10.90	-189.08	-10.90	.000000	.00	LINEAR	1.58253E-01	-71.16	1.54402E-09	-63.91
-36.00	90.00	-10.87	-189.30	-10.87	.000000	.00	LINEAR	1.58639E-01	-70.97	1.56188E-09	-63.98
-35.00	90.00	-10.85	-189.54	-10.85	.000000	.00	LINEAR	1.58994E-01	-70.78	1.57926E-09	-64.05
-34.00	90.00	-10.84	-189.78	-10.84	.000000	.00	LINEAR	1.59317E-01	-70.59	1.59616E-09	-64.12
-33.00	90.00	-10.82	-190.04	-10.82	.000000	.00	LINEAR	1.59610E-01	-70.40	1.61256E-09	-64.19
-32.00	90.00	-10.81	-190.31	-10.81	.000000	.00	LINEAR	1.59873E-01	-70.22	1.62847E-09	-64.25
-31.00	90.00	-10.79	-190.60	-10.79	.000000	.00	LINEAR	1.60105E-01	-70.04	1.64389E-09	-64.32
-30.00	90.00	-10.78	-190.90	-10.78	.000000	.00	LINEAR	1.60306E-01	-69.86	1.65880E-09	-64.38
-29.00	90.00	-10.77	-191.21	-10.77	.000000	.00	LINEAR	1.60478E-01	-69.68	1.67321E-09	-64.45
-28.00	90.00	-10.77	-191.54	-10.77	.000000	.00	LINEAR	1.60619E-01	-69.50	1.68711E-09	-64.51
-27.00	90.00	-10.76	-191.89	-10.76	.000000	.00	LINEAR	1.60731E-01	-69.33	1.70050E-09	-64.57
-26.00	90.00	-10.76	-192.26	-10.76	.000000	.00	LINEAR	1.60813E-01	-69.15	1.71338E-09	-64.63
-25.00	90.00	-10.75	-192.65	-10.75	.000000	.00	LINEAR	1.60865E-01	-68.98	1.72574E-09	-64.68
-24.00	90.00	-10.75	-193.05	-10.75	.000000	.00	LINEAR	1.60887E-01	-68.82	1.73758E-09	-64.74
-23.00	90.00	-10.75	-193.48	-10.75	.000000	.00	LINEAR	1.60880E-01	-68.65	1.74889E-09	-64.80
-22.00	90.00	-10.75	-193.93	-10.75	.000000	.00	LINEAR	1.60843E-01	-68.49	1.75968E-09	-64.85
-21.00	90.00	-10.76	-194.40	-10.76	.000000	.00	LINEAR	1.60777E-01	-68.33	1.76994E-09	-64.90
-20.00	90.00	-10.76	-194.90	-10.76	.000000	.00	LINEAR	1.60682E-01	-68.17	1.77967E-09	-64.95
-19.00	90.00	-10.77	-195.43	-10.77	.000000	.00	LINEAR	1.60558E-01	-68.01	1.78887E-09	-65.00
-18.00	90.00	-10.78	-195.99	-10.78	.000000	.00	LINEAR	1.60404E-01	-67.86	1.79753E-09	-65.05
-17.00	90.00	-10.79	-196.58	-10.79	.000000	.00	LINEAR	1.60222E-01	-67.71	1.80565E-09	-65.10
-16.00	90.00	-10.80	-197.21	-10.80	.000000	.00	LINEAR	1.60010E-01	-67.56	1.81323E-09	-65.14
-15.00	90.00	-10.81	-197.88	-10.81	.000000	.00	LINEAR	1.59771E-01	-67.42	1.82027E-09	-65.19
-14.00	90.00	-10.83	-198.59	-10.83	.000000	.00	LINEAR	1.59502E-01	-67.28	1.82677E-09	-65.23
-13.00	90.00	-10.84	-199.36	-10.84	.000000	.00	LINEAR	1.59206E-01	-67.14	1.83272E-09	-65.27
-12.00	90.00	-10.86	-999.99	-10.86	.000000	.00	LINEAR	1.58881E-01	-67.00	1.83813E-09	-65.31
-11.00	90.00	-10.88	-999.99	-10.88	.000000	.00	LINEAR	1.58528E-01	-66.87	1.84299E-09	-65.35
-10.00	90.00	-10.90	-999.99	-10.90	.000000	.00	LINEAR	1.58148E-01	-66.74	1.84730E-09	-65.38

-9.00	90.00	-10.92	-999.99	-10.92	.000000	.00	LINEAR	1.57740E-01	-66.62	1.85106E-09	-65.42
-8.00	90.00	-10.95	-999.99	-10.95	.000000	.00	LINEAR	1.57305E-01	-66.50	1.85428E-09	-65.45
-7.00	90.00	-10.97	-999.99	-10.97	.000000	.00	LINEAR	1.56843E-01	-66.38	1.85695E-09	-65.48
-6.00	90.00	-11.00	-999.99	-11.00	.000000	.00	LINEAR	1.56355E-01	-66.27	1.85907E-09	-65.52
-5.00	90.00	-11.03	-999.99	-11.03	.000000	.00	LINEAR	1.55840E-01	-66.16	1.86064E-09	-65.54
-4.00	90.00	-11.06	-999.99	-11.06	.000000	.00	LINEAR	1.55299E-01	-66.05	1.86166E-09	-65.57
-3.00	90.00	-11.09	-999.99	-11.09	.000000	.00	LINEAR	1.54733E-01	-65.95	1.86214E-09	-65.60
-2.00	90.00	-11.12	-999.99	-11.12	.000000	.00	LINEAR	1.54142E-01	-65.85	1.86207E-09	-65.62
-1.00	90.00	-11.16	-999.99	-11.16	.000000	.00	LINEAR	1.53526E-01	-65.76	1.86146E-09	-65.64
.00	90.00	-11.20	-999.99	-11.20	.000000	.00	LINEAR	1.52885E-01	-65.67	1.86030E-09	-65.67
1.00	90.00	-11.23	-999.99	-11.23	.000000	.00	LINEAR	1.52221E-01	-65.58	1.85860E-09	-65.69
2.00	90.00	-11.27	-999.99	-11.27	.000000	.00	LINEAR	1.51533E-01	-65.50	1.85636E-09	-65.70
3.00	90.00	-11.31	-999.99	-11.31	.000000	.00	LINEAR	1.50822E-01	-65.42	1.85359E-09	-65.72
4.00	90.00	-11.36	-999.99	-11.36	.000000	.00	LINEAR	1.50088E-01	-65.35	1.85027E-09	-65.73
5.00	90.00	-11.40	-999.99	-11.40	.000000	.00	LINEAR	1.49333E-01	-65.28	1.84643E-09	-65.75
6.00	90.00	-11.44	-999.99	-11.44	.000000	.00	LINEAR	1.48556E-01	-65.22	1.84205E-09	-65.76
7.00	90.00	-11.49	-999.99	-11.49	.000000	.00	LINEAR	1.47758E-01	-65.16	1.83714E-09	-65.77
8.00	90.00	-11.54	-999.99	-11.54	.000000	.00	LINEAR	1.46940E-01	-65.11	1.83171E-09	-65.78
9.00	90.00	-11.59	-999.99	-11.59	.000000	.00	LINEAR	1.46102E-01	-65.06	1.82576E-09	-65.79
10.00	90.00	-11.64	-999.99	-11.64	.000000	.00	LINEAR	1.45245E-01	-65.02	1.81928E-09	-65.79
11.00	90.00	-11.69	-999.99	-11.69	.000000	.00	LINEAR	1.44369E-01	-64.98	1.81230E-09	-65.79
12.00	90.00	-11.75	-999.99	-11.75	.000000	.00	LINEAR	1.43475E-01	-64.94	1.80480E-09	-65.80
13.00	90.00	-11.80	-999.99	-11.80	.000000	.00	LINEAR	1.42564E-01	-64.92	1.79679E-09	-65.80
14.00	90.00	-11.86	-999.99	-11.86	.000000	.00	LINEAR	1.41636E-01	-64.89	1.78828E-09	-65.80
15.00	90.00	-11.92	-999.99	-11.92	.000000	.00	LINEAR	1.40692E-01	-64.88	1.77927E-09	-65.79
16.00	90.00	-11.98	-999.99	-11.98	.000000	.00	LINEAR	1.39732E-01	-64.86	1.76976E-09	-65.79
17.00	90.00	-12.04	-999.99	-12.04	.000000	.00	LINEAR	1.38757E-01	-64.86	1.75976E-09	-65.78
18.00	90.00	-12.10	-999.99	-12.10	.000000	.00	LINEAR	1.37769E-01	-64.85	1.74928E-09	-65.78
19.00	90.00	-12.16	-999.99	-12.16	.000000	.00	LINEAR	1.36766E-01	-64.86	1.73831E-09	-65.77
20.00	90.00	-12.23	-999.99	-12.23	.000000	.00	LINEAR	1.35751E-01	-64.87	1.72687E-09	-65.76
21.00	90.00	-12.29	-999.99	-12.29	.000000	.00	LINEAR	1.34723E-01	-64.88	1.71495E-09	-65.74
22.00	90.00	-12.36	-999.99	-12.36	.000000	.00	LINEAR	1.33684E-01	-64.90	1.70257E-09	-65.73
23.00	90.00	-12.43	-999.99	-12.43	.000000	.00	LINEAR	1.32633E-01	-64.93	1.68972E-09	-65.72
24.00	90.00	-12.50	-999.99	-12.50	.000000	.00	LINEAR	1.31572E-01	-64.96	1.67642E-09	-65.70
25.00	90.00	-12.57	-999.99	-12.57	.000000	.00	LINEAR	1.30501E-01	-65.00	1.66266E-09	-65.68
26.00	90.00	-12.64	-999.99	-12.64	.000000	.00	LINEAR	1.29421E-01	-65.04	1.64846E-09	-65.66
27.00	90.00	-12.72	-999.99	-12.72	.000000	.00	LINEAR	1.28332E-01	-65.09	1.63381E-09	-65.64
28.00	90.00	-12.79	-999.99	-12.79	.000000	.00	LINEAR	1.27236E-01	-65.15	1.61873E-09	-65.61
29.00	90.00	-12.87	-999.99	-12.87	.000000	.00	LINEAR	1.26131E-01	-65.21	1.60321E-09	-65.59
30.00	90.00	-12.94	-999.99	-12.94	.000000	.00	LINEAR	1.25020E-01	-65.27	1.58727E-09	-65.56
31.00	90.00	-13.02	-999.99	-13.02	.000000	.00	LINEAR	1.23901E-01	-65.35	1.57091E-09	-65.54
32.00	90.00	-13.10	-999.99	-13.10	.000000	.00	LINEAR	1.22777E-01	-65.43	1.55413E-09	-65.51
33.00	90.00	-13.18	-999.99	-13.18	.000000	.00	LINEAR	1.21647E-01	-65.51	1.53694E-09	-65.47
34.00	90.00	-13.26	-999.99	-13.26	.000000	.00	LINEAR	1.20512E-01	-65.60	1.51934E-09	-65.44
35.00	90.00	-13.34	-999.99	-13.34	.000000	.00	LINEAR	1.19372E-01	-65.69	1.50135E-09	-65.41
36.00	90.00	-13.43	-999.99	-13.43	.000000	.00	LINEAR	1.18228E-01	-65.80	1.48295E-09	-65.37
37.00	90.00	-13.51	-999.99	-13.51	.000000	.00	LINEAR	1.17080E-01	-65.90	1.46417E-09	-65.33
38.00	90.00	-13.60	-999.99	-13.60	.000000	.00	LINEAR	1.15927E-01	-66.01	1.44500E-09	-65.30
39.00	90.00	-13.69	-999.99	-13.69	.000000	.00	LINEAR	1.14771E-01	-66.13	1.42545E-09	-65.26
40.00	90.00	-13.77	-999.99	-13.77	.000000	.00	LINEAR	1.13611E-01	-66.26	1.40552E-09	-65.21
41.00	90.00	-13.86	-999.99	-13.86	.000000	.00	LINEAR	1.12448E-01	-66.39	1.38523E-09	-65.17
42.00	90.00	-13.95	-999.99	-13.95	.000000	.00	LINEAR	1.11282E-01	-66.52	1.36456E-09	-65.13
43.00	90.00	-14.05	-999.99	-14.05	.000000	.00	LINEAR	1.10112E-01	-66.66	1.34353E-09	-65.08
44.00	90.00	-14.14	-999.99	-14.14	.000000	.00	LINEAR	1.08939E-01	-66.81	1.32215E-09	-65.03
45.00	90.00	-14.23	-999.99	-14.23	.000000	.00	LINEAR	1.07763E-01	-66.96	1.30041E-09	-64.98
46.00	90.00	-14.33	-999.99	-14.33	.000000	.00	LINEAR	1.06583E-01	-67.12	1.27832E-09	-64.93
47.00	90.00	-14.43	-999.99	-14.43	.000000	.00	LINEAR	1.05399E-01	-67.28	1.25589E-09	-64.88
48.00	90.00	-14.52	-199.85	-14.52	.000000	.00	LINEAR	1.04211E-01	-67.45	1.23311E-09	-64.83
49.00	90.00	-14.62	-199.29	-14.62	.000000	.00	LINEAR	1.03018E-01	-67.63	1.21000E-09	-64.77
50.00	90.00	-14.73	-198.77	-14.73	.000000	.00	LINEAR	1.01820E-01	-67.81	1.18656E-09	-64.72
51.00	90.00	-14.83	-198.29	-14.83	.000000	.00	LINEAR	1.00615E-01	-67.99	1.16278E-09	-64.66
52.00	90.00	-14.93	-197.84	-14.93	.000000	.00	LINEAR	9.94046E-02	-68.18	1.13867E-09	-64.60
53.00	90.00	-15.04	-197.43	-15.04	.000000	.00	LINEAR	9.81863E-02	-68.38	1.11424E-09	-64.54
54.00	90.00	-15.15	-197.05	-15.15	.000000	.00	LINEAR	9.69594E-02	-68.58	1.08949E-09	-64.48
55.00	90.00	-15.26	-196.70	-15.26	.000000	.00	LINEAR	9.57228E-02	-68.79	1.06443E-09	-64.41
56.00	90.00	-15.38	-196.37	-15.38	.000000	.00	LINEAR	9.44752E-02	-69.00	1.03904E-09	-64.35
57.00	90.00	-15.49	-196.08	-15.49	.000000	.00	LINEAR	9.32151E-02	-69.22	1.01335E-09	-64.29
58.00	90.00	-15.61	-195.80	-15.61	.000000	.00	LINEAR	9.19407E-02	-69.44	9.87342E-10	-64.22
59.00	90.00	-15.74	-195.56	-15.74	.000000	.00	LINEAR	9.06503E-02	-69.68	9.61028E-10	-64.15
60.00	90.00	-15.86	-195.33	-15.86	.000000	.00	LINEAR	8.93416E-02	-69.91	9.34408E-10	-64.08
61.00	90.00	-15.99	-195.13	-15.99	.000000	.00	LINEAR	8.80123E-02	-70.16	9.07485E-10	-64.01
62.00	90.00	-16.13	-194.95	-16.13	.000000	.00	LINEAR	8.66598E-02	-70.41	8.80260E-10	-63.94
63.00	90.00	-16.27	-194.80	-16.27	.000000	.00	LINEAR	8.52809E-02	-70.67	8.52734E-10	-63.87
64.00	90.00	-16.41	-194.67	-16.41	.000000	.00	LINEAR	8.38725E-02	-70.93	8.24911E-10	-63.79
65.00	90.00	-16.56	-194.56	-16.56	.000000	.00	LINEAR	8.24307E-02	-71.21	7.96790E-10	-63.72
66.00	90.00	-16.72	-194.47	-16.72	.000000	.00	LINEAR	8.09514E-02	-71.49	7.68374E-10	-63.64
67.00	90.00	-16.88	-194.40	-16.88	.000000	.00	LINEAR	7.94298E-02	-71.78	7.39664E-10	-63.56
68.00	90.00	-17.06	-194.36	-17.06	.000000	.00	LINEAR	7.78607E-02	-72.08	7.10660E-10	-63.49
69.00	90.00	-17.24	-194.34	-17.24	.000000	.00	LINEAR	7.62381E-02	-72.39	6.81364E-10	-63.41
70.00	90.00	-17.43	-194.35	-17.43	.000000	.00	LINEAR	7.45552E-02	-72.71	6.51778E-10	-63.33
71.00	90.00	-17.64	-194.39	-17.64	.000000	.00	LINEAR	7.28046E-02	-73.05	6.21901E-10	-63.25
72.00	90.00	-17.86	-194.45	-17.86	.000000	.00	LINEAR	7.09776E-02	-73.40	5.91734E-10	-63.16
73.00	90.00	-18.10	-194.54	-18.10	.000000	.00	LINEAR	6.90644E-02	-73.76	5.61279E-10	-63.08
74.00	90.00	-18.35	-194.66	-18.35	.000000	.00	LINEAR	6.70539E-02	-74.15	5.30536E-10	-63.00
75.00	90.00	-18.63	-194.82	-18.63	.000000	.00	LINEAR	6.49335E-02	-74.55	4.99505E-10	-62.91
76.00	90.00	-18.94	-195.01	-18.94	.000000	.00	LINEAR	6.26884E-02	-74.97	4.68188E-10	-62.83
77.00	90.00	-19.28	-195.25	-19.28	.000000	.00	LINEAR	6.03019E-02	-75.42	4.36584E-10	-62.74
78.00	90.00	-19.65	-195.54	-19.65	.000000	.00	LINEAR	5.77544E-02	-75.89	4.04695E-10	-62.65
79.00	90.00	-20.07	-195.89	-20.07	.000000	.00	LINEAR	5.50233E-02	-76.40	3.72521E-10	-62.56
80.00	90.00	-20.55	-196.30	-20.55	.000000	.00	LINEAR	5.20821E-02	-76.94	3.40062E-10	-62.48
81.00	90.00	-21.10	-196.80	-21.10	.000000	.00	LINEAR	4.88997E-02	-77.52	3.07319E-10	-62.39
82.00	90.00	-21.73	-197.39	-21.73	.000000	.00	LINEAR	4.54393E-02	-78.15	2.74294E-10	-62.30
83.00	90.00	-22.49	-198.11	-22.49	.000000	.00	LINEAR	4.16571E-02	-78.83	2.40985E-10	-62.21
84.00	90.00	-23.40	-199.01	-23.40	.000000	.00	LINEAR	3.75008E-02	-79.57</		

[illegible]

```

***** INPUT LINE 9  XQ  0      0      0      0  0.00000E+00  0.00000E+00  0.00000E+00  0.00000E+00  0.00000E+00  0.00000E+00
***** INPUT LINE 10 EN   0      0      0      0  0.00000E+00  0.00000E+00  0.00000E+00  0.00000E+00  0.00000E+00  0.00000E+00

RUN TIME =      2.490

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RUN TIME = 2.490