

PROPOSED AM  
JNE INVESTMENTS, INC.  
1120 kHz 0.25 kW/0.22kW DA-2  
MANOR, TEXAS  
JANUARY 2005

## ENGINEERING STATEMENT

Concerning an application for Construction Permit for new AM to serve Manor, Texas.

JNE INVESTMENTS, INC. requested this new AM station in Auction 84 and has been declared a singleton. This application requests 250 Watts daytime with directional antenna and 220 Watts nighttime using directional antenna (DA-2).

## PROPOSED OPERATION

The proposed Manor operation will use six towers at a site near Manor, Texas. The new towers will not require paint or lights since they are all under 61 m in height overall and not near an airport.

## GROUND SYSTEM

The proposed ground system will be composed of 120 ground radials around each tower averaging 65 m in length.

## CITY GRADE COVERAGE

The Proposed Manor fully encompasses the community of Manor in the 5 mV/m contour daytime. The nighttime operation will provide Night Limit coverage over the community of license.

## DAYTIME ALLOCATIONS

All stations on 1120 kHz and adjacent channels were considered as required for a complete allocations study. The coverage and interference contours are shown on Exhibit E-6E.

The distances to all field strength contours shown herein were determined per Sec. 73.183, using ground conductivity values shown by the FCC Map M-3 in conjunction with the appropriate field strength versus distance chart. Available conductivity measurements for the licensed KTMR were used from FCC file BP-19810705AD.

The proposed Manor operation is mutually exclusive with the KTMR, Edna, Texas Construction Permit for a minor change. However, a representative of the licensee has informed us that the KTMR Edna, Texas construction permit will be surrendered for cancellation upon the issuance of the KTMR Bulverde, Texas major change construction permit. The KTMR Bulverde major change application was filed during the Auction 84 filing window and, like the proposed Manor facility, was found to be a "singleton". Notwithstanding the foregoing, should the Commission's staff determine that a temporary waiver of Section 73.37 of the Rules is necessary in order to continue the processing of this Manor, Texas application while the KTMR Bulverde major change application is pending, then such a waiver is hereby requested.

#### ENVIRONMENTAL CONSIDERATIONS

The proposed Manor operation is not located in a critical area and will involve only minimal change in the surface characteristics of the site. The RF exposure will comply with OET65 recommended levels at all locations outside of the standard protective tower base fences. No employee will be allowed to climb the towers when energized.

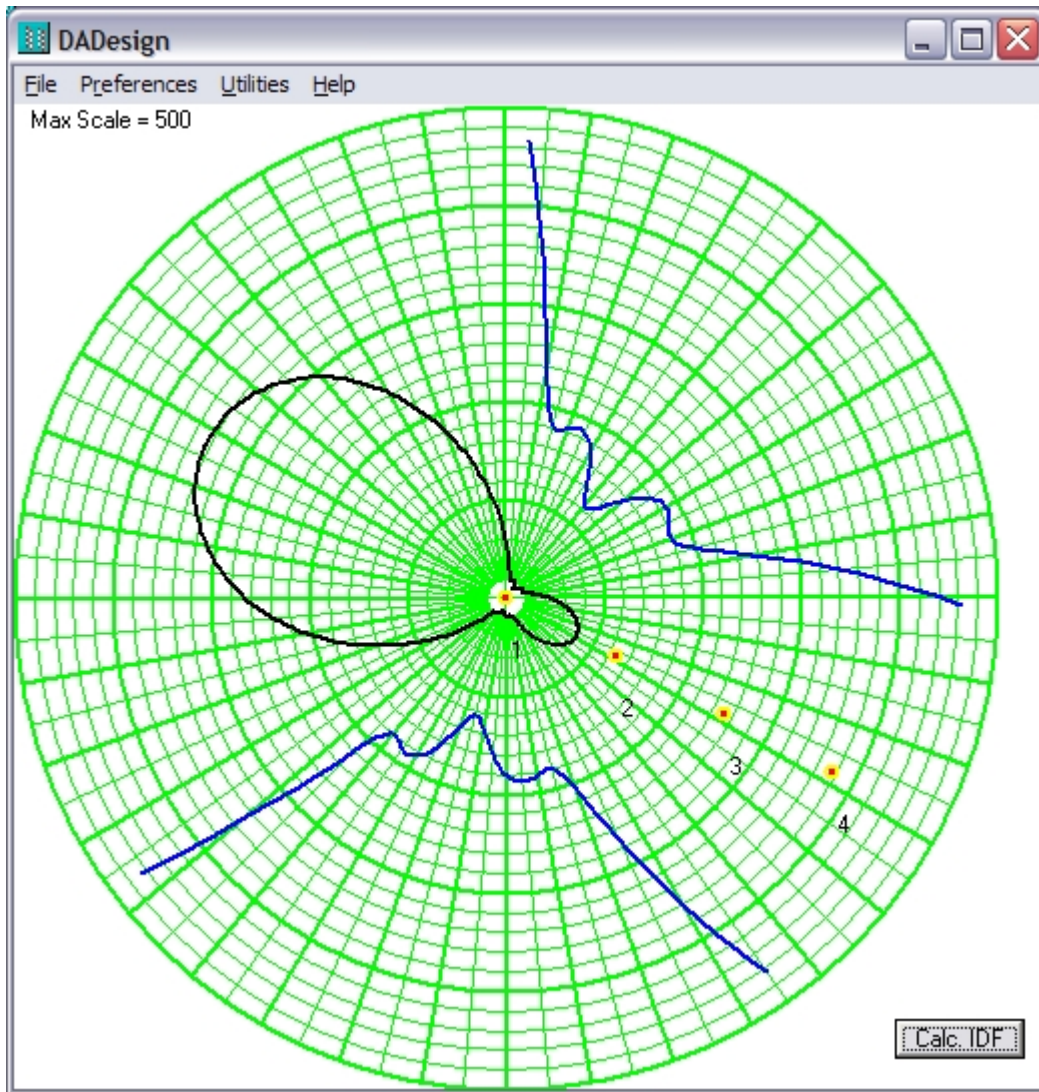
#### SUMMARY

The proposed Manor operation meets all interference and coverage standards for grant and will provide a desirable service to the community of Manor and to its market area.

Respectfully submitted,

A handwritten signature in black ink that reads "Timothy C. Cutforth". The signature is written in a cursive, flowing style.

Timothy C. Cutforth P.E.  
14 January 2005



manor-d 30-20-51 N 97-31-23 W  
 Frequency:1120 kHz Class:B  
 Nominal Power= 0.2500 kW  
 RSS/RMS= 3.03498

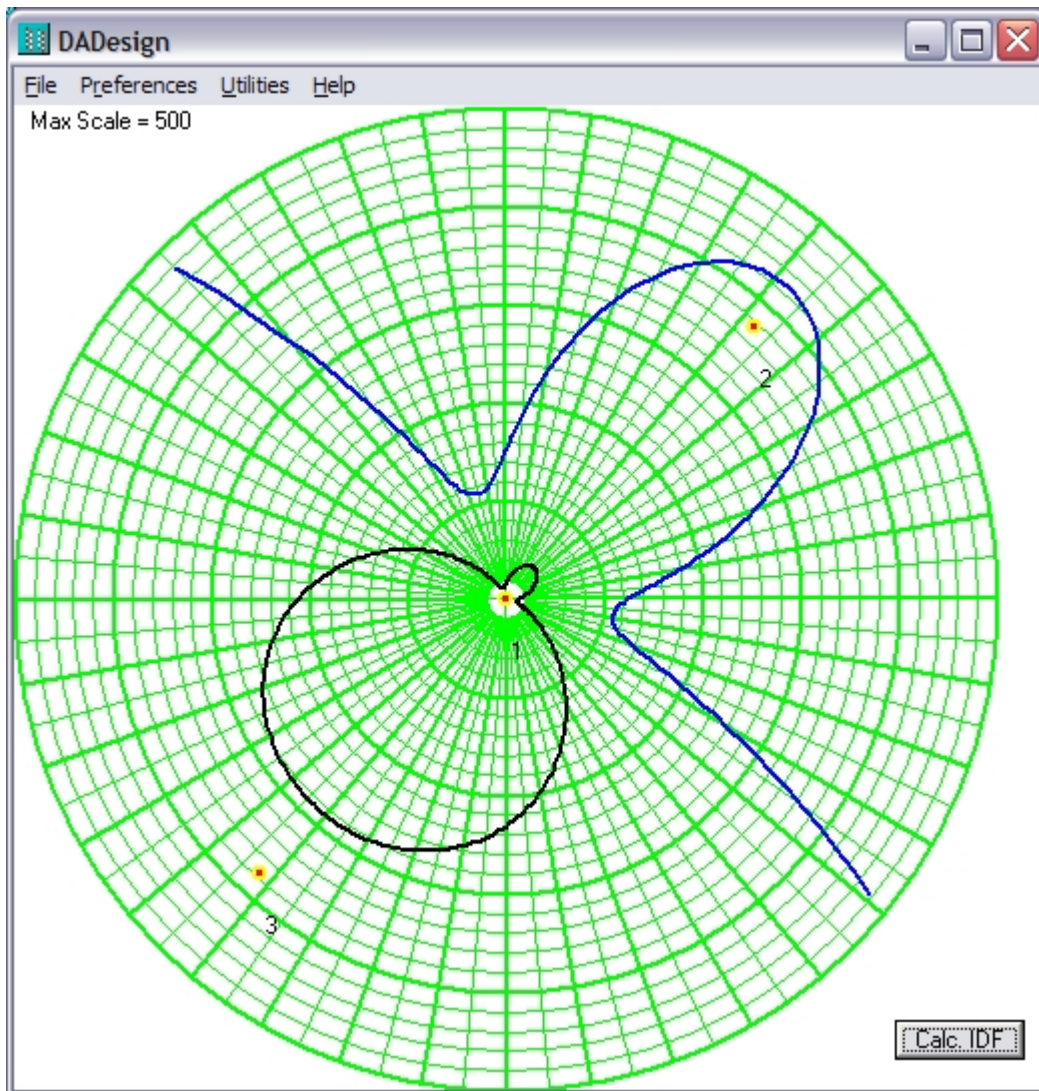
FCC RMS 1 OHM= 141.91 mV/m/km  
 Std RMS 1 OHM= 149.43 mV/m/km  
 Antenna RSS= 430.68 mV/m/km  
 STANDARD Q = 10.77 mV/m/km

Twr.No.	Field	Phasing	Spacing	Azimuth	Height
1	0.290	+0.0	0.0	0.0	70.0
2	0.860	+161.0	81.0	118.0	70.0
3	1.000	+322.0	162.0	118.0	70.0
4	0.450	+483.0	243.0	118.0	70.0



	manor-d	30-20-51 N	97-31-23 W		
Twr.No.	Field	Phasing	Spacing	Azimuth	Height
1	0.290	+0.0	0.0	0.0	70.0
2	0.860	+161.0	81.0	118.0	70.0
3	1.000	+322.0	162.0	118.0	70.0
4	0.450	+483.0	243.0	118.0	70.0
Theo. RMS=	141.91	mV/m/km	RSS=	430.68	Q= 10.77

STANDARD HORIZONTAL PLANE PATTERN			
Azimuth	mV/m/km	Azimuth	mV/m/km
0	60.3	180	18.5
5	38.9	185	16.5
10	24.4	190	14.0
15	18.7	195	13.0
20	18.8	200	14.6
25	19.2	205	17.3
30	17.7	210	19.0
35	15.1	215	19.0
40	13.1	220	18.4
45	13.6	225	22.6
50	16.0	230	35.4
55	18.2	235	55.6
60	19.2	240	81.1
65	18.8	245	110.3
70	18.4	250	141.8
75	20.1	255	174.3
80	25.7	260	206.4
85	34.3	265	236.9
90	44.5	270	264.8
95	54.8	275	289.3
100	64.3	280	309.7
105	72.2	285	325.5
110	77.8	290	336.4
115	80.9	295	342.1
120	81.2	300	342.7
125	78.7	305	337.9
130	73.5	310	328.1
135	66.0	315	313.2
140	56.8	320	293.7
145	46.6	325	270.0
150	36.3	330	242.7
155	27.2	335	212.7
160	20.9	340	180.8
165	18.5	345	148.3
170	18.7	350	116.5
175	19.2	355	86.7



manor-n	30-20-51 N	97-31-23 W	FCC RMS 1 OHM=	146.12		
mV/m/km						
Frequency:1120 kHz	Class:B		Std RMS 1 OHM=	153.78		
mV/m/km						
Nominal Power=	0.2200 kW		Antenna RSS=	201.95		
mV/m/km						
RSS/RMS=	1.38208		STANDARD Q =	10.00		
mV/m/km						
	Twr.No.	Field	Phasing	Spacing	Azimuth	Height
	1	1.020	+0.0	0.0	0.0	70.0
	2	0.500	+134.0	85.0	42.0	57.0
	3	0.500	-134.0	85.0	222.0	57.0

	manor-N	30-20-51 N	97-31-23 W		
Twr.No.	Field	Phasing	Spacing	Azimuth	Height
1	1.020	+0.0	0.0	0.0	70.0
2	0.500	+134.0	85.0	42.0	57.0
3	0.500	-134.0	85.0	222.0	57.0
Theo. RMS=	146.12	mV/m/km	RSS=	201.95	Q= 10.00

STANDARD HORIZONTAL PLANE PATTERN			
Azimuth	mV/m/km	Azimuth	mV/m/km
0	15.2	180	230.6
5	18.9	185	243.7
10	23.3	190	254.9
15	28.0	195	264.3
20	32.4	200	272.0
25	36.4	205	278.0
30	39.5	210	282.3
35	41.7	215	285.1
40	42.7	220	286.4
45	42.6	225	286.3
50	41.3	230	284.7
55	38.9	235	281.6
60	35.6	240	276.9
65	31.6	245	270.6
70	27.0	250	262.6
75	22.4	255	252.8
80	18.1	260	241.2
85	14.6	265	227.8
90	12.3	270	212.6
95	11.3	275	195.8
100	11.0	280	177.7
105	11.6	285	158.5
110	13.6	290	138.7
115	18.2	295	118.7
120	26.1	300	99.1
125	36.9	305	80.3
130	50.5	310	63.0
135	66.3	315	47.6
140	84.0	320	34.5
145	102.9	325	24.3
150	122.7	330	17.1
155	142.7	335	13.0
160	162.4	340	11.4
165	181.4	345	11.0
170	199.3	350	11.4
175	215.8	355	12.7

manor-N

Standard Vertical Pattern  
(mV/m at one kilometer)

Azimuth	VA= 5	VA= 10	VA= 15	VA= 20	VA= 25	VA= 30
0	15.0	14.2	13.1	11.8	10.5	9.3
5	18.5	17.5	15.8	13.9	11.9	10.1
10	22.8	21.5	19.3	16.7	13.9	11.4
15	27.4	25.7	23.1	19.9	16.4	13.0
20	31.8	29.9	26.9	23.1	19.0	14.9
25	35.6	33.5	30.2	26.0	21.3	16.6
30	38.7	36.4	32.9	28.4	23.3	18.1
35	40.8	38.5	34.7	30.0	24.6	19.2
40	41.9	39.4	35.6	30.8	25.3	19.7
45	41.8	39.3	35.5	30.7	25.2	19.6
50	40.5	38.1	34.4	29.7	24.4	19.0
55	38.2	35.9	32.4	27.9	22.9	17.9
60	34.9	32.8	29.6	25.5	20.9	16.3
65	30.9	29.1	26.2	22.5	18.5	14.5
70	26.5	24.9	22.4	19.3	15.9	12.7
75	21.9	20.6	18.6	16.1	13.5	11.1
80	17.8	16.7	15.2	13.4	11.5	9.9
85	14.4	13.7	12.7	11.5	10.3	9.2
90	12.2	11.8	11.1	10.4	9.7	9.0
95	11.2	10.9	10.5	10.1	9.5	9.0
100	11.0	10.8	10.5	10.1	9.7	9.2
105	11.5	11.4	11.1	10.8	10.4	10.0
110	13.5	13.4	13.2	12.9	12.7	12.3
115	18.2	18.1	17.8	17.5	17.1	16.7
120	26.0	25.7	25.3	24.7	24.0	23.2
125	36.8	36.3	35.5	34.5	33.2	31.6
130	50.2	49.4	48.2	46.4	44.3	41.7
135	65.9	64.7	62.8	60.2	57.0	53.3
140	83.4	81.8	79.1	75.5	71.2	66.1
145	102.2	100.1	96.6	92.0	86.3	79.7
150	121.8	119.1	114.9	109.1	102.0	93.9
155	141.6	138.4	133.3	126.4	117.9	108.2
160	161.2	157.5	151.6	143.5	133.7	122.5
165	180.0	175.9	169.2	160.1	149.0	136.3
170	197.8	193.2	185.8	175.8	163.6	149.5
175	214.1	209.2	201.2	190.3	177.1	161.8



manor-N

Standard Vertical Pattern  
(mV/m at one kilometer)

Azimuth	VA= 5	VA= 10	VA= 15	VA= 20	VA= 25	VA= 30
180	228.8	223.6	215.1	203.5	189.4	173.0
185	241.8	236.3	227.4	215.2	200.3	183.1
190	253.0	247.3	238.0	225.4	209.9	191.9
195	262.4	256.5	247.0	234.0	217.9	199.4
200	270.0	264.0	254.3	241.0	224.6	205.6
205	275.9	269.9	260.0	246.5	229.8	210.5
210	280.3	274.2	264.2	250.6	233.7	214.1
215	283.1	276.9	266.9	253.2	236.2	216.4
220	284.4	278.2	268.1	254.4	237.4	217.5
225	284.2	278.1	268.0	254.3	237.2	217.4
230	282.6	276.5	266.4	252.8	235.8	216.1
235	279.5	273.4	263.4	249.9	233.0	213.5
240	274.9	268.8	259.0	245.5	228.9	209.6
245	268.6	262.7	252.9	239.7	223.4	204.4
250	260.6	254.8	245.3	232.4	216.4	198.0
255	250.9	245.2	236.0	223.5	208.1	190.2
260	239.4	233.9	225.0	213.0	198.2	181.2
265	226.0	220.8	212.4	201.0	187.0	170.9
270	211.0	206.1	198.2	187.5	174.5	159.4
275	194.3	189.8	182.6	172.8	160.7	146.9
280	176.3	172.3	165.7	156.9	146.0	133.6
285	157.3	153.7	147.9	140.1	130.6	119.7
290	137.6	134.6	129.6	122.9	114.7	105.4
295	117.8	115.3	111.2	105.6	98.8	91.0
300	98.4	96.3	93.1	88.6	83.2	76.9
305	79.8	78.3	75.8	72.4	68.2	63.4
310	62.6	61.5	59.7	57.3	54.4	50.9
315	47.3	46.6	45.5	43.9	41.9	39.6
320	34.4	34.0	33.3	32.3	31.2	29.8
325	24.2	24.0	23.6	23.1	22.5	21.7
330	17.0	16.9	16.7	16.4	16.0	15.7
335	12.9	12.8	12.6	12.3	12.0	11.7
340	11.3	11.2	10.9	10.6	10.2	9.8
345	11.0	10.8	10.5	10.1	9.6	9.1
350	11.3	11.0	10.6	10.1	9.5	9.0
355	12.5	12.1	11.4	10.6	9.8	9.0

manor-N

Standard Vertical Pattern  
(mV/m at one kilometer)

Azimuth	VA= 35	VA= 40	VA= 45	VA= 50	VA= 55	VA= 60
0	8.4	7.8	7.1	6.4	5.7	5.1
5	8.7	7.8	7.1	6.5	5.7	4.9
10	9.3	7.9	7.1	6.5	5.7	4.9
15	10.2	8.2	7.1	6.5	5.8	4.9
20	11.3	8.7	7.2	6.4	5.8	5.0
25	12.5	9.3	7.3	6.4	5.8	5.0
30	13.5	9.8	7.5	6.4	5.8	5.0
35	14.2	10.2	7.6	6.4	5.8	5.0
40	14.5	10.4	7.7	6.4	5.8	5.1
45	14.5	10.4	7.7	6.4	5.8	5.1
50	14.1	10.1	7.6	6.4	5.8	5.0
55	13.3	9.7	7.5	6.4	5.8	5.0
60	12.2	9.1	7.3	6.4	5.8	5.0
65	11.1	8.6	7.2	6.4	5.8	5.0
70	10.0	8.2	7.1	6.5	5.8	4.9
75	9.1	7.9	7.1	6.5	5.7	4.9
80	8.6	7.8	7.1	6.5	5.7	5.0
85	8.4	7.8	7.1	6.4	5.7	5.1
90	8.4	7.8	7.1	6.4	5.8	5.5
95	8.4	7.8	7.2	6.7	6.3	6.2
100	8.7	8.2	7.7	7.4	7.2	7.2
105	9.6	9.3	9.1	8.9	8.8	8.7
110	12.1	11.8	11.5	11.3	11.0	10.7
115	16.3	15.8	15.2	14.6	13.9	13.0
120	22.2	21.2	20.0	18.7	17.3	15.7
125	29.9	27.9	25.9	23.6	21.3	18.8
130	38.9	35.9	32.6	29.2	25.7	22.2
135	49.2	44.8	40.1	35.4	30.6	25.9
140	60.5	54.5	48.3	42.0	35.8	29.7
145	72.5	64.8	56.9	49.0	41.3	33.8
150	85.0	75.5	65.9	56.3	46.9	38.0
155	97.6	86.4	75.0	63.6	52.6	42.2
160	110.2	97.2	84.0	70.9	58.2	46.3
165	122.4	107.8	92.8	78.0	63.8	50.4
170	134.1	117.9	101.3	84.9	69.2	54.4
175	145.1	127.4	109.3	91.4	74.2	58.2

manor-N

Standard Vertical Pattern  
(mV/m at one kilometer)

Azimuth	VA= 35	VA= 40	VA= 45	VA= 50	VA= 55	VA= 60
180	155.1	136.1	116.7	97.5	79.0	61.7
185	164.1	144.0	123.4	103.0	83.3	64.9
190	172.1	151.0	129.4	107.9	87.2	67.8
195	178.9	157.0	134.5	112.2	90.5	70.3
200	184.5	162.0	138.9	115.7	93.4	72.4
205	189.0	166.0	142.3	118.6	95.7	74.2
210	192.3	169.0	144.9	120.7	97.4	75.5
215	194.4	170.9	146.5	122.1	98.5	76.3
220	195.5	171.8	147.3	122.8	99.0	76.7
225	195.3	171.7	147.3	122.7	99.0	76.7
230	194.1	170.6	146.3	121.9	98.3	76.2
235	191.7	168.5	144.4	120.4	97.1	75.2
240	188.2	165.3	141.7	118.1	95.2	73.9
245	183.5	161.1	138.1	115.1	92.8	72.1
250	177.6	155.9	133.6	111.4	89.9	69.8
255	170.6	149.7	128.3	107.0	86.4	67.2
260	162.4	142.5	122.2	101.9	82.5	64.3
265	153.2	134.4	115.3	96.3	78.0	61.0
270	142.9	125.5	107.8	90.2	73.2	57.4
275	131.8	115.9	99.7	83.6	68.1	53.6
280	120.0	105.7	91.1	76.6	62.7	49.6
285	107.7	95.1	82.2	69.4	57.1	45.5
290	95.1	84.2	73.1	62.1	51.4	41.3
295	82.4	73.4	64.1	54.8	45.8	37.1
300	70.0	62.7	55.2	47.6	40.2	33.0
305	58.1	52.5	46.6	40.7	34.7	29.0
310	47.1	42.9	38.6	34.1	29.6	25.1
315	37.0	34.2	31.2	28.1	24.8	21.5
320	28.2	26.5	24.6	22.6	20.5	18.2
325	20.9	20.0	19.0	17.8	16.6	15.1
330	15.3	14.8	14.4	13.9	13.3	12.5
335	11.4	11.2	10.9	10.7	10.5	10.2
340	9.4	9.0	8.7	8.5	8.4	8.4
345	8.6	8.0	7.6	7.2	7.0	7.0
350	8.4	7.8	7.2	6.6	6.2	6.0
355	8.4	7.8	7.1	6.4	5.8	5.4

Station: MANOR-D		Frequency 1120 kHz		30-20-51		97-31-23	
Azim	Inverse	25 mV	5 mV	2.0 mV	0.5 mV	.250 mV	.025 mV
(deg)	(mV/m)	(km)	(km)	(km)	(km)	(km)	(km)
0	60.3	2.3	9.6	21.9	59.0	78.6	172.0
5	38.9	1.5	6.5	14.9	44.4	68.4	161.0
10	24.4	0.9	4.3	9.6	31.7	51.4	148.2
15	18.7	0.7	3.4	7.6	25.6	42.9	143.5
20	18.8	0.7	3.4	7.7	25.4	42.8	143.4
25	19.2	0.7	3.5	7.8	25.5	43.0	140.4
30	17.7	0.7	3.2	7.3	23.4	40.2	134.3
35	15.1	0.6	2.8	6.4	19.4	34.9	125.6
40	13.1	0.5	2.4	5.6	17.2	29.8	118.0
45	13.6	0.5	2.5	5.8	17.7	28.2	109.7
50	16.0	0.6	2.9	6.7	19.8	31.1	95.6
55	18.2	0.7	3.3	7.5	21.7	33.6	100.7
60	19.2	0.7	3.5	7.8	22.4	34.6	103.0
65	18.8	0.7	3.4	7.7	22.2	34.2	102.2
70	18.4	0.7	3.3	7.5	21.8	33.8	101.1
75	20.1	0.8	3.6	8.1	23.2	35.6	105.0
80	25.7	1.0	4.5	10.0	27.2	40.9	113.5
85	34.3	1.3	5.9	12.5	32.5	47.7	123.7
90	44.5	1.7	7.3	15.3	37.7	54.3	134.5
95	54.8	2.1	8.7	17.8	42.3	60.0	145.8
100	64.3	2.4	10.0	19.9	46.0	64.7	162.0
105	72.2	2.7	10.9	21.5	48.8	68.2	168.6
110	77.8	2.9	11.6	22.7	50.8	70.4	173.2
115	80.9	3.0	12.0	23.3	51.8	71.7	175.5
120	81.2	3.0	12.0	23.3	51.9	71.8	175.7
125	78.7	2.9	11.7	22.8	51.1	70.8	173.9
130	73.5	2.7	11.1	21.8	49.3	68.7	187.2
135	66.0	2.5	10.2	20.3	46.7	65.4	179.6
140	56.8	2.1	9.0	18.2	43.1	61.0	166.4
145	46.6	1.8	7.6	15.8	38.7	55.5	150.3
150	36.3	1.4	6.2	13.1	33.5	49.0	131.4
155	27.2	1.1	4.8	10.4	28.2	42.1	117.8
160	20.9	0.8	3.8	8.4	23.8	36.4	106.5
165	18.5	0.7	3.4	7.6	21.9	33.9	101.3
170	18.7	0.7	3.4	7.7	22.1	34.1	101.9
175	19.2	0.7	3.5	7.8	22.5	34.7	103.0

Station: MANOR-D		Frequency 1120 kHz		30-20-51		97-31-23	
Azim	Inverse	25 mV	5 mV	2.0 mV	0.5 mV	.250 mV	.025 mV
(deg)	(mV/m)	(km)	(km)	(km)	(km)	(km)	(km)
180	18.5	0.7	3.4	7.6	21.9	33.9	101.5
185	16.5	0.6	3.0	6.9	20.2	31.6	96.8
190	14.0	0.5	2.6	6.0	18.1	28.7	90.6
195	13.0	0.5	2.4	5.6	17.1	27.3	87.8
200	14.6	0.6	2.7	6.2	18.6	29.4	92.1
205	17.3	0.7	3.2	7.1	20.9	32.6	98.6
210	19.0	0.7	3.4	7.8	22.3	34.4	102.6
215	19.0	0.7	3.4	7.7	22.2	34.4	102.5
220	18.4	0.7	3.3	7.6	21.8	33.8	90.1
225	22.6	0.9	4.0	9.0	25.0	38.0	90.0
230	35.4	1.4	6.0	12.8	33.1	45.0	102.4
235	55.6	2.1	8.8	18.0	39.3	51.1	118.7
240	81.1	3.0	12.0	23.3	44.1	57.4	135.0
245	110.3	3.9	15.2	27.5	48.7	63.5	149.9
250	141.8	5.0	18.2	30.0	53.0	69.1	163.5
255	174.3	5.9	21.0	32.2	56.8	74.1	175.4
260	206.4	6.9	22.7	34.4	60.3	78.7	185.8
265	236.9	7.7	24.1	36.3	63.5	82.9	194.5
270	264.8	8.5	25.2	37.9	66.1	86.3	201.9
275	289.3	9.1	26.2	39.3	68.3	89.3	207.8
280	309.7	9.7	27.0	40.4	70.0	91.4	212.1
285	325.5	10.1	27.9	41.5	71.8	93.6	216.3
290	336.4	10.3	28.7	42.5	73.1	95.2	219.0
295	342.1	10.5	29.2	43.0	73.8	96.1	220.5
300	342.7	10.5	29.5	43.3	74.1	96.4	220.8
305	337.9	10.4	29.6	43.4	74.0	96.2	220.2
310	328.1	10.1	29.5	43.2	73.6	95.4	218.4
315	313.2	9.8	29.4	42.8	72.6	94.1	215.3
320	293.7	9.3	29.1	42.3	71.5	92.5	218.2
325	270.0	8.6	28.7	41.5	69.9	90.3	217.3
330	242.7	7.9	28.3	40.6	68.1	87.6	214.2
335	212.7	7.1	27.9	39.6	65.8	84.3	208.5
340	180.8	6.1	25.5	39.2	64.0	81.5	202.1
345	148.3	5.2	21.7	39.4	62.7	79.0	194.4
350	116.5	4.1	17.7	36.5	62.5	77.6	186.4
355	86.7	3.2	13.6	29.3	64.6	78.2	180.0

Station: MANOR-N      Frequency 1120 kHz      30-20-51      97-31-23						
Azim	Inverse	1000 mV	25 mV	18.7 mV	5.0 mV	2.00 mV
(deg)	(mV/m)	(km)	(km)	(km)	(km)	(km)
<hr/>						
0	15.2	0.02	0.6	0.8	2.8	6.4
5	18.9	0.02	0.7	1.0	3.4	7.7
10	23.3	0.02	0.9	1.2	4.2	9.2
15	28.0	0.03	1.1	1.4	4.9	10.7
20	32.4	0.03	1.2	1.6	5.6	12.0
25	36.4	0.04	1.4	1.8	6.2	13.1
30	39.5	0.04	1.5	2.0	6.6	14.0
35	41.7	0.04	1.6	2.1	6.9	14.5
40	42.7	0.04	1.6	2.1	7.1	14.8
45	42.6	0.04	1.6	2.1	7.1	14.8
50	41.3	0.04	1.6	2.1	6.9	14.4
55	38.9	0.04	1.5	2.0	6.5	13.8
60	35.6	0.04	1.4	1.8	6.1	12.9
65	31.6	0.03	1.2	1.6	5.4	11.7
70	27.0	0.03	1.0	1.4	4.7	10.4
75	22.4	0.02	0.9	1.2	4.0	8.9
80	18.1	0.02	0.7	0.9	3.3	7.4
85	14.6	0.01	0.6	0.8	2.7	6.2
90	12.3	0.01	0.5	0.6	2.3	5.3
95	11.3	0.01	0.4	0.6	2.1	4.9
100	11.0	0.01	0.4	0.6	2.1	4.8
105	11.6	0.01	0.5	0.6	2.2	5.0
110	13.6	0.01	0.5	0.7	2.5	5.8
115	18.2	0.02	0.7	0.9	3.3	7.5
120	26.1	0.03	1.0	1.3	4.6	10.1
125	36.9	0.04	1.4	1.9	6.3	13.3
130	50.5	0.05	1.9	2.5	8.2	16.7
135	66.3	0.07	2.5	3.2	10.2	20.3
140	84.0	0.08	3.1	4.0	12.3	23.8
145	102.9	0.10	3.7	4.8	14.4	27.2
150	122.7	0.12	4.4	5.6	16.4	30.3
155	142.7	0.14	5.0	6.4	18.3	33.2
160	162.4	0.16	5.6	7.2	20.1	35.8
165	181.4	0.18	6.2	7.9	21.6	38.1
170	199.3	0.20	6.7	8.5	23.0	40.1
175	215.8	0.21	7.1	9.1	24.3	41.9

Station: MANOR-N		Frequency 1120 kHz			30-20-51	97-31-23
Azim	Inverse	1000 mV	25 mV	18.7 mV	5.0 mV	2.00 mV
(deg)	(mV/m)	(km)	(km)	(km)	(km)	(km)
-----						
180	230.6	0.23	7.6	9.6	25.3	43.5
185	243.7	0.24	7.9	10.1	26.3	44.8
190	254.9	0.25	8.2	10.5	27.0	45.8
195	264.3	0.26	8.5	10.8	27.6	46.7
200	272.0	0.27	8.7	11.0	28.1	47.4
205	278.0	0.27	8.8	11.2	28.5	48.0
210	282.3	0.28	9.0	11.3	28.8	48.3
215	285.1	0.28	9.0	11.4	29.0	48.6
220	286.4	0.28	9.1	11.5	29.1	48.7
225	286.3	0.28	9.1	11.5	29.1	48.0
230	284.7	0.28	9.0	11.4	29.0	45.1
235	281.6	0.28	8.9	11.3	28.8	43.0
240	276.9	0.27	8.8	11.2	28.5	41.4
245	270.6	0.27	8.7	11.0	27.3	40.1
250	262.6	0.26	8.4	10.7	26.2	38.9
255	252.8	0.25	8.2	10.4	25.3	37.8
260	241.2	0.24	7.9	10.0	24.4	36.8
265	227.8	0.23	7.5	9.5	23.6	35.7
270	212.6	0.21	7.1	9.0	22.7	34.5
275	195.8	0.19	6.6	8.4	21.7	33.2
280	177.7	0.18	6.0	7.8	20.7	31.7
285	158.5	0.16	5.5	7.0	19.9	30.5
290	138.7	0.14	4.9	6.3	19.0	29.1
295	118.7	0.12	4.2	5.5	16.9	27.4
300	99.1	0.10	3.6	4.7	14.6	25.5
305	80.3	0.08	2.9	3.9	12.2	23.5
310	63.0	0.06	2.3	3.1	9.8	21.4
315	47.6	0.05	1.8	2.4	7.8	17.8
320	34.5	0.03	1.3	1.7	5.9	13.4
325	24.3	0.02	0.9	1.2	4.3	9.7
330	17.1	0.02	0.7	0.9	3.1	7.1
335	13.0	0.01	0.5	0.7	2.4	5.6
340	11.4	0.01	0.4	0.6	2.1	5.0
345	11.0	0.01	0.4	0.6	2.1	4.8
350	11.4	0.01	0.4	0.6	2.1	5.0
355	12.7	0.01	0.5	0.7	2.4	5.5

Station: MANOR 1120 kHz 30-20-51 97-31-23								
Distances are from Site to Conductivity Breaks								
AZIMUTH	mS/m	KM	mS/m	KM	mS/m	KM	mS/m	KM
0	15	8.9	30	72.2	8	82.7	15	345.7
	30	450.0						
5	15	9.4	30	92.6	15	348.0	30	450.0
10	15	10.1	30	117.8	15	302.9	30	380.6
	15	450.0						
15	15	10.9	30	137.2	15	220.1	30	376.9
	15	450.0						
20	15	11.9	30	136.4	15	217.4	30	395.9
	15	450.0						
25	15	13.3	30	126.1	15	216.8	30	432.3
	15	450.0						
30	15	15.2	30	119.2	15	218.3	30	391.3
	4	450.0						
35	15	17.9	30	113.9	15	199.2	4	224.3
	8	397.7	4	450.0				
40	15	21.9	30	109.8	15	132.3	4	234.0
	8	429.0	4	450.0				
45	15	28.6	30	95.1	15	106.9	4	247.2
	8	456.7						
50	15	104.9	4	266.2	8	450.0		
55	15	103.8	4	292.4	8	429.1	15	450.0
60	15	103.5	4	328.0	8	429.0	15	450.0
65	15	104.0	4	346.2	8	426.1	15	450.0
70	15	105.3	4	248.2	8	423.8	15	450.0
75	15	107.5	4	241.0	8	420.4	15	450.0
80	15	111.3	4	237.7	8	421.7	15	450.0
85	15	117.3	4	236.3	8	433.9	15	450.0
90	15	125.0	4	236.7	8	450.0		
95	15	135.3	4	230.7	15	238.6	30	405.2
	50	411.7	30	450.0				
100	15	242.0	30	365.5	50	450.0		
105	15	225.7	30	243.2	50	248.5	30	267.5
	50	283.4	30	319.1	50	450.0		
110	15	213.6	30	269.1	50	288.7	30	292.8
	50	450.0						
115	15	220.8	30	274.4	50	450.0		
120	15	234.1	30	267.1	50	450.0		
125	15	253.9	30	267.3	50	450.0		
130	15	120.5	30	143.0	15	144.6	30	183.8
	15	248.7	30	259.9	50	450.0		
135	15	122.0	30	252.1	50	450.0		
140	15	124.4	30	240.2	50	450.0		
145	15	127.9	30	223.1	50	226.2	30	235.2
	50	450.0						
150	15	132.7	30	220.5	50			



AZIMUTH	Station: MANOR-D		1120 kHz		30-20-51		97-31-23	
	mS/m	KM	mS/m	KM	mS/m	KM	mS/m	KM
155	15	139.0	30	199.7	50	205.6	30	210.5
	50	215.4	30	238.0	50	450.0		
160	15	145.5	30	229.8	50	234.2	30	237.5
	50	450.0						
165	15	152.9	30	249.0	50	450.0		
170	15	163.3	30	247.3	50	254.8	30	264.0
	50	450.0						
175	15	176.6	30	274.1	50	295.0	30	295.5
	50	450.0						
180	15	193.8	30	319.1	50	325.3	30	329.3
	50	335.9	30	339.0	50	345.9	30	372.3
	50	391.2	30	450.0				
185	15	224.2	30	450.0				
190	15	269.8	30	365.2	15	453.0		
195	15	450.0						
200	15	450.0						
205	15	420.5	3	450.0				
210	15	389.6	3	450.0				
215	15	354.1	8	364.7	3	450.0		
220	15	65.5	8	98.0	15	310.8	8	360.4
	3	450.0						
225	15	46.7	8	120.7	15	284.4	8	350.5
	3	450.0						
230	15	38.3	8	139.0	15	269.1	8	352.0
	3	450.0						
235	15	32.7	8	165.3	15	257.2	8	342.5
	3	450.0						
240	15	28.7	8	197.3	15	245.1	8	339.4
	3	450.0						
245	15	25.7	8	335.9	3	450.0		
250	15	23.5	8	339.5	3	450.0		
255	15	21.8	8	354.6	3	450.0		
260	15	20.8	8	378.0	3	450.0		
265	15	20.2	8	450.0				
270	15	19.7	8	450.0				
275	15	19.4	8	450.0				
280	15	19.3	8	450.0				
285	15	16.7	30	19.1	8	450.0		
290	15	14.5	30	19.0	8	450.0		
295	15	12.9	30	19.1	8	413.6	15	450.0
300	15	11.7	30	19.3	8	389.3	15	450.0
305	15	10.8	30	19.7	8	364.1	15	450.0
310	15	10.1	30	20.2	8	363.4	15	450.0
315	15	9.5	30	21.0	8	382.8	15	388.6
	30	450.0						
320	15	9.1	30	21.9	8	173.8	15	319.5
	8	370.6	30	450.0				

Vir James Engineers									
Station: MANOR-D			1120 kHz		30-20-51		97-31-23		
AZIMUTH	mS/m	KM	mS/m	KM	mS/m	KM	mS/m	KM	
325	15	8.7	30	23.2	8	148.6	15	321.8	
	8	358.8	30	450.0					
330	15	8.5	30	24.8	8	130.7	15	324.1	
	8	338.9	30	450.0					
335	15	8.3	30	26.8	8	117.4	15	328.7	
	30	450.0							
340	15	8.2	30	30.6	8	107.3	15	335.7	
	30	446.2	15	450.0					
345	15	8.2	30	36.2	8	99.0	15	345.7	
	30	435.0	15	450.0					
350	15	8.3	30	44.6	8	92.2	15	352.5	
	30	433.8	15	436.9	30	450.0			
355	15	8.6	30	58.1	8	86.9	15	348.2	
	30	450.0							

Tabulated 50 mS/m represents 5000 mS/m

Station: KJSA		Frequency 1120 kHz		32-47-12	98-05-53		
Azim (deg)	Inverse (mV/m)	25 mV (km)	5 mV (km)	2.0 mV (km)	0.5 mV (km)	.250 mV (km)	.025 mV (km)
0	151.0	5.2	19.0	34.3	69.5	101.8	263.5
5	151.0	5.2	19.0	34.3	69.5	101.8	266.8
10	151.0	5.2	19.0	34.3	69.5	101.4	269.7
15	151.0	5.2	19.0	34.3	69.5	100.7	269.0
20	151.0	5.2	19.0	34.3	69.5	99.6	268.0
25	151.0	5.2	19.0	34.3	69.5	98.3	266.3
30	151.0	5.2	19.0	34.3	69.5	96.2	258.7
35	151.0	5.2	19.0	34.3	69.5	93.9	248.7
40	151.0	5.2	19.0	34.3	69.5	93.4	232.7
45	151.0	5.2	19.0	34.3	69.5	93.4	230.6
50	151.0	5.2	19.0	34.3	69.5	93.4	229.5
55	151.0	5.2	19.0	34.3	69.5	93.4	231.4
60	151.0	5.2	19.0	34.3	69.5	93.4	237.0
65	151.0	5.2	19.0	34.3	69.5	93.4	251.8
70	151.0	5.2	19.0	34.3	69.5	93.4	252.8
75	151.0	5.2	19.0	34.3	69.5	93.4	253.4
80	151.0	5.2	19.0	34.3	69.5	93.4	249.3
85	151.0	5.2	19.0	34.3	69.5	93.4	244.9
90	151.0	5.2	19.0	34.3	69.5	93.4	241.2
95	151.0	5.2	19.0	34.3	69.5	93.4	238.4
100	151.0	5.2	19.0	34.3	69.5	93.4	235.9
105	151.0	5.2	19.0	34.3	69.5	93.4	234.6
110	151.0	5.2	19.0	34.3	69.5	93.4	233.4
115	151.0	5.2	19.0	34.3	69.5	93.4	225.9
120	151.0	5.2	19.0	34.3	69.5	93.4	210.7
125	151.0	5.2	19.0	34.3	69.5	93.4	211.8
130	151.0	5.2	19.0	34.3	69.5	93.4	212.9
135	151.0	5.2	19.0	34.3	69.5	93.4	215.0
140	151.0	5.2	19.0	34.3	69.5	93.4	216.9
145	151.0	5.2	19.0	34.3	69.5	93.4	220.1
150	151.0	5.2	19.0	34.3	69.5	93.4	231.0
155	151.0	5.2	19.0	34.3	69.5	93.4	228.7
160	151.0	5.2	19.0	34.3	69.5	93.4	224.8
165	151.0	5.2	19.0	34.3	69.5	93.4	214.8
170	151.0	5.2	19.0	34.3	69.5	93.4	209.9
175	151.0	5.2	19.0	34.3	69.5	93.4	208.2

Station: KJSA		Frequency 1120 kHz		32-47-12	98-05-53		
Azim (deg)	Inverse (mV/m)	25 mV (km)	5 mV (km)	2.0 mV (km)	0.5 mV (km)	.250 mV (km)	.025 mV (km)
180	151.0	5.2	19.0	34.3	69.5	93.4	207.1
185	151.0	5.2	19.0	34.3	69.5	93.4	205.6
190	151.0	5.2	19.0	34.3	69.5	93.4	205.1
195	151.0	5.2	19.0	34.3	69.5	93.4	204.7
200	151.0	5.2	19.0	34.3	69.5	93.4	204.3
205	151.0	5.2	19.0	34.3	69.5	93.4	204.3
210	151.0	5.2	19.0	34.3	69.5	93.4	204.6
215	151.0	5.2	19.0	34.3	69.5	93.4	205.0
220	151.0	5.2	19.0	34.3	69.5	93.4	205.0
225	151.0	5.2	19.0	34.3	69.5	93.4	204.8
230	151.0	5.2	19.0	34.3	69.5	93.4	204.4
235	151.0	5.2	19.0	34.3	69.5	93.4	204.4
240	151.0	5.2	19.0	34.3	69.5	93.4	204.6
245	151.0	5.2	19.0	34.3	69.5	93.4	205.1
250	151.0	5.2	19.0	34.3	69.5	93.4	205.3
255	151.0	5.2	19.0	34.3	69.5	93.4	206.3
260	151.0	5.2	19.0	34.3	69.5	93.4	205.2
265	151.0	5.2	19.0	34.3	69.5	93.4	201.8
270	151.0	5.2	19.0	34.3	69.5	93.4	197.8
275	151.0	5.2	19.0	34.3	69.5	93.4	202.9
280	151.0	5.2	19.0	34.3	69.5	93.4	226.9
285	151.0	5.2	19.0	34.3	69.5	93.7	262.0
290	151.0	5.2	19.0	34.3	69.5	96.7	263.3
295	151.0	5.2	19.0	34.3	69.5	99.1	265.6
300	151.0	5.2	19.0	34.3	69.5	101.0	268.7
305	151.0	5.2	19.0	34.3	69.5	102.5	270.8
310	151.0	5.2	19.0	34.3	69.5	103.3	271.6
315	151.0	5.2	19.0	34.3	69.5	104.0	272.3
320	151.0	5.2	19.0	34.3	69.5	104.4	269.6
325	151.0	5.2	19.0	34.3	69.5	104.5	260.7
330	151.0	5.2	19.0	34.3	69.5	104.3	249.8
335	151.0	5.2	19.0	34.3	69.5	103.7	247.3
340	151.0	5.2	19.0	34.3	69.5	103.1	244.2
345	151.0	5.2	19.0	34.3	69.5	102.6	243.1
350	151.0	5.2	19.0	34.3	69.5	102.1	243.1
355	151.0	5.2	19.0	34.3	69.5	102.0	260.0

Station: KJSA 1120 kHz 32-47-12 98-05-53								
Distances are from Site to Conductivity Breaks								
AZIMUTH	mS/m	KM	mS/m	KM	mS/m	KM	mS/m	KM
0	15	77.8	30	236.9	15	290.6	30	450.0
5	15	77.9	30	252.9	15	284.8	30	450.0
10	15	78.5	30	273.3	15	283.7	30	312.9
	15	333.5	30	450.0				
15	15	79.8	30	281.4	15	338.3	8	356.3
	30	450.0						
20	15	81.8	30	279.1	15	325.6	8	435.0
	30	450.0						
25	15	84.5	30	265.6	15	326.8	8	434.6
	15	443.3	30	450.0				
30	15	88.1	30	236.0	15	450.0		
35	15	92.7	30	198.7	15	445.7	8	450.0
40	15	99.6	30	149.3	15	411.8	8	450.0
45	15	108.8	30	154.6	15	413.8	8	450.0
50	15	118.0	30	161.5	15	469.7		
55	15	120.6	30	170.5	15	450.0		
60	15	117.2	30	189.0	15	450.0		
65	15	114.3	30	299.4	4	357.1	15	397.6
	4	450.0						
70	15	111.7	30	276.2	4	450.0		
75	15	110.1	30	255.9	4	450.0		
80	15	109.3	30	240.0	8	347.0	4	450.0
85	15	109.4	30	227.5	8	413.5	4	432.5
	15	450.0						
90	15	110.3	30	217.8	8	394.4	15	450.0
95	15	111.6	30	210.4	8	416.3	15	450.0
100	15	112.3	30	205.0	8	442.8	15	450.0
105	15	112.0	30	200.7	8	450.0		
110	15	112.1	30	197.2	8	290.3	4	391.5
	8	450.0						
115	15	115.9	30	197.0	8	202.2	4	356.3
	8	450.0						
120	15	198.2	4	338.7	8	450.0		
125	15	200.9	4	350.8	8	450.0		
130	15	205.1	4	378.9	8	449.9	30	450.2
135	15	211.3	4	407.2	15	414.3	30	450.0
140	15	218.1	4	375.1	15	426.6	30	450.0
145	15	167.7	30	182.3	15	226.2	4	356.5
	15	446.5	30	450.0				
150	15	166.1	30	238.1	15	450.0		
155	15	172.6	30	247.4	15	402.4	30	450.0
160	15	186.6	30	255.4	15	390.9	30	450.0
165	15	191.0	8	207.8	30	262.6	15	417.6
	30	450.0						
170	15	178.0	8	250.2	30	267.7	15	445.3
	30	450.0						

Station: KJSA		1120 kHz		32-47-12		98-05-53	
AZIMUTH	mS/m KM	mS/m KM	mS/m KM	mS/m KM	mS/m KM	mS/m KM	mS/m KM
175	15 168.6	8 296.2	15 450.0				
180	15 161.7	8 337.4	15 450.0				
185	15 156.5	8 357.1	15 450.0				
190	15 152.8	8 367.7	15 450.0				
195	15 150.3	8 380.7	15 450.0				
200	15 149.0	8 396.3	15 450.2				
205	15 148.9	8 450.0					
210	15 149.9	8 450.0					
215	15 151.3	8 450.0					
220	15 151.4	8 450.0					
225	15 150.9	8 450.0					
230	15 149.5	8 450.0					
235	15 149.3	8 450.0					
240	15 150.2	8 450.0					
245	15 152.2	8 450.0					
250	15 155.6	8 450.0					
255	15 158.9	8 261.5	15 281.7	8 285.2			
	15 373.3	8 450.0					
260	15 154.3	8 228.7	15 400.9	8 450.0			
265	15 137.6	8 220.6	15 438.9	8 450.0			
270	15 121.5	8 216.7	15 450.0				
275	15 109.5	8 177.9	30 297.4	15 450.0			
280	15 100.3	30 106.2	8 140.9	30 288.1			
	15 450.0						
285	15 93.0	30 269.2	15 450.0				
290	15 87.2	30 258.0	15 450.0				
295	15 82.8	30 259.2	15 362.7	30 450.0			
300	15 79.3	30 266.8	15 295.2	30 450.0			
305	15 76.7	30 450.0					
310	15 74.8	30 450.0					
315	15 73.5	30 450.0					
320	15 72.9	30 256.4	15 393.7	30 450.0			
325	15 72.7	30 215.1	15 375.2	30 450.0			
330	15 73.1	30 175.4	15 374.0	30 450.0			
335	15 74.1	30 167.6	15 395.5	30 450.0			
340	15 75.4	30 158.6	15 450.0				
345	15 76.5	30 155.5	15 428.2	30 450.0			
350	15 77.4	30 157.0	15 369.9	30 450.0			
355	15 77.6	30 220.4	15 322.0	30 450.0			

Station: KTMR-LIC		Frequency 1130 kHz				29-01-40		96-40-05	
Azim	Inverse	25 mV	5 mV	2.0 mV	0.5 mV	.250 mV	.025 mV		
(deg)	(mV/m)	(km)	(km)	(km)	(km)	(km)	(km)		
0	118.5	4.5	19.8	33.8	49.9	67.2	164.4		
5	110.8	4.3	18.7	38.9	60.3	82.2	191.8		
10	106.8	4.1	18.1	37.9	59.3	80.9	183.2		
15	105.7	4.1	17.9	33.8	68.3	70.8	192.3		
20	106.3	4.1	18.0	33.8	68.4	70.8	192.6		
25	106.9	4.1	18.1	35.2	82.0	94.6	158.4		
30	106.6	4.1	18.1	35.1	82.0	94.5	158.2		
35	105.9	4.1	18.0	34.9	82.0	94.2	157.8		
40	106.1	4.0	17.2	35.0	74.3	95.8	192.0		
45	108.8	4.1	17.6	35.6	75.1	96.8	197.0		
50	115.0	4.3	18.4	37.0	77.0	99.2	207.7		
55	124.8	4.7	19.7	39.2	79.9	102.5	225.7		
60	138.1	5.2	21.3	42.0	83.2	106.5	252.5		
65	157.2	5.8	23.6	45.8	87.6	111.8	274.7		
70	188.0	6.9	27.2	51.4	94.1	119.6	310.2		
75	238.5	8.6	32.4	59.6	103.3	134.2	391.6		
80	315.2	11.0	39.5	70.0	114.7	154.2	493.7		
85	420.1	14.1	47.9	80.2	128.3	214.5	640.5		
90	551.6	17.8	56.8	90.3	163.4	283.5	714.0		
95	704.4	21.7	65.6	100.3	244.1	367.0	798.3		
100	871.2	25.6	74.1	113.8	331.2	454.8	893.4		
105	1042.5	29.3	81.6	158.6	391.0	516.6	952.4		
110	1207.7	32.7	88.2	210.0	445.9	572.3	1012.7		
115	1356.4	35.6	108.3	243.0	480.6	607.8	1050.2		
120	1479.1	37.8	125.2	261.8	502.7	628.7	1071.1		
125	1568.6	39.3	145.1	283.8	525.3	652.4	1092.9		
130	1620.4	40.2	158.4	298.0	539.7	667.4	1107.0		
135	1633.5	40.5	171.3	311.2	552.9	680.8	1120.1		
140	1609.8	40.1	178.7	318.1	559.8	687.4	1127.1		
145	1554.1	39.1	185.4	323.8	565.2	692.2	1133.0		
150	1473.1	37.7	168.8	305.3	546.1	672.0	1114.5		
155	1374.4	35.9	163.6	298.7	536.7	663.6	1106.1		
160	1266.0	33.8	148.4	280.1	517.2	644.2	1085.4		
165	1155.0	31.6	122.3	251.3	486.1	611.8	1051.4		
170	1047.6	29.4	113.5	239.1	471.6	597.2	1032.9		
175	948.6	27.3	87.0	208.8	438.9	564.1	1001.3		

Station: KTMR-LIC		Frequency 1130 kHz			29-01-40	96-40-05	
Azim	Inverse	25 mV	5 mV	2.0 mV	0.5 mV	.250 mV	.025 mV
(deg)	(mV/m)	(km)	(km)	(km)	(km)	(km)	(km)
180	861.4	25.4	73.7	182.5	410.2	533.6	972.1
185	788.1	23.7	71.3	185.7	410.7	534.6	970.1
190	730.1	22.3	67.1	140.2	343.2	386.8	775.9
195	687.7	21.3	64.8	112.1	311.1	359.8	516.0
200	661.0	20.6	63.4	110.5	264.5	314.7	488.3
205	650.1	20.3	62.7	102.4	202.6	261.9	459.4
210	654.8	20.4	63.0	102.7	189.2	240.4	422.9
215	675.1	20.9	64.1	104.3	186.4	236.7	410.6
220	711.2	21.8	66.0	106.8	189.9	241.1	404.7
225	763.1	23.1	68.8	110.4	194.6	237.7	398.7
230	830.3	24.7	72.2	114.8	186.2	224.9	390.2
235	912.1	26.5	76.0	119.7	179.4	219.7	382.8
240	1006.7	28.6	80.2	115.7	177.3	218.4	381.3
245	1111.3	30.8	82.5	112.4	175.7	217.9	384.5
250	1221.5	33.0	80.7	111.2	176.5	219.8	387.4
255	1331.8	35.1	80.1	111.7	178.4	222.2	392.5
260	1435.3	37.0	80.3	112.4	180.5	225.7	397.9
265	1524.3	38.6	80.5	113.4	182.7	228.3	403.1
270	1591.0	39.7	80.7	114.0	184.0	229.9	407.6
275	1628.2	40.0	80.5	114.0	184.4	230.5	412.0
280	1630.2	39.3	79.8	113.3	183.7	229.8	408.3
285	1594.0	38.3	78.5	111.9	181.9	225.2	396.8
290	1519.2	37.0	76.5	109.4	178.6	216.5	386.9
295	1409.1	35.3	74.0	105.9	172.0	208.6	377.2
300	1269.7	33.2	70.6	101.6	165.6	201.3	366.2
305	1109.9	30.8	66.6	96.5	159.4	193.2	355.3
310	939.7	27.1	62.0	90.6	150.6	184.8	341.8
315	770.0	23.3	56.9	83.9	140.6	175.1	326.0
320	610.5	19.3	51.4	76.4	129.7	165.5	309.8
325	469.8	15.5	45.7	68.8	118.3	151.2	291.9
330	353.8	12.2	40.3	61.3	106.7	137.4	276.5
335	265.8	9.4	35.1	54.5	96.4	124.3	264.8
340	205.4	7.1	25.9	33.5	63.4	105.8	209.4
345	167.7	6.0	22.4	30.1	58.2	97.5	188.6
350	144.8	5.2	20.1	27.8	54.6	73.0	177.7
355	129.6	4.9	21.3	33.8	52.0	69.7	169.8



Station: KTMR-LIC 1130 kHz 29-01-40 96-40-05

Distances are from Site to Conductivity Breaks

AZIMUTH	mS/m	KM	mS/m	KM	mS/m	KM	mS/m	KM
0	-40	33.8	-10	99.7	-15	159.3	-10	199.5
	15	210.9	4	240.8	15	347.2	30	450.0
5	-40	40.2	-30	48.3	-20	58.7	-15	164.0
	15	184.1	4	292.3	15	335.6	30	450.0
10	-40	40.2	-30	48.3	-20	58.7	-15	164.0
	15	165.8	4	332.0	8	380.7	30	450.0
15	-40	33.8	-20	70.8	-10	115.8	-15	198.0
	4	332.4	8	450.0				
20	-40	33.8	-20	70.8	-10	115.8	-15	198.0
	4	337.3	8	450.0				
25	-40	26.5	-30	82.0	-20	133.5	-10	182.0
	-8	204.0	4	345.4	8	450.0		
30	-40	26.5	-30	82.0	-20	133.5	-10	182.0
	-8	204.0	4	358.7	8	450.0		
35	-40	26.5	-30	82.0	-20	133.5	-10	182.0
	-8	204.0	4	262.9	8	316.8	4	373.0
	8	450.0						
40	30	59.1	15	164.7	4	237.4	8	348.0
	4	360.4	8	458.5				
45	30	59.6	15	174.3	4	217.9	8	439.2
	15	450.0						
50	30	60.7	15	194.0	4	202.8	8	419.3
	15	450.0						
55	30	61.8	15	189.3	30	221.0	8	402.0
	15	450.0						
60	30	62.6	15	135.8	30	176.8	15	182.1
	30	246.0	8	394.3	15	450.0		
65	30	64.0	15	129.5	30	174.9	50	178.1
	30	287.1	8	395.3	15	450.0		
70	30	66.0	15	125.4	30	171.1	50	202.9
	30	342.5	50	344.8	30	382.9	8	391.4
	30	403.9	8	450.0				
75	30	68.6	15	123.2	30	177.9	50	207.2
	30	227.1	50	330.8	30	331.6	50	335.6
	30	421.0	15	450.0				
80	30	72.0	15	123.4	30	169.2	50	395.5
	30	430.6	15	445.9	50	450.0		
85	30	76.7	15	127.3	30	148.5	50	450.0
90	30	83.0	15	125.8	30	141.1	50	450.0
95	30	89.6	15	115.1	30	132.2	50	450.0
100	30	98.1	15	104.2	30	119.8	50	450.0
105	30	109.4	50	450.0				
110	30	93.3	50	450.0				
115	30	85.1	50	450.0				
120	30	81.8	50	450.0				

Station: KTMR-LIC			1130 kHz		29-01-40		96-40-05	
AZIMUTH	mS/m	KM	mS/m	KM	mS/m	KM	mS/m	KM
125	30	57.6	50	58.5	30	75.3	50	450.0
130	30	58.2	50	60.8	30	71.6	50	450.0
135	30	56.1	50	63.8	30	68.7	50	450.0
140	30	54.5	50	450.0				
145	30	42.6	50	51.2	30	53.4	50	450.0
150	30	52.9	50	450.0				
155	30	49.7	50	450.0				
160	30	47.4	50	65.0	30	70.5	50	450.0
165	30	46.7	50	55.1	30	71.7	50	450.0
170	30	36.6	50	50.4	30	73.5	50	450.0
175	30	35.7	50	41.0	30	76.1	50	450.0
180	30	35.2	50	35.5	30	79.4	50	450.0
185	30	69.3	50	450.0				
190	30	70.2	50	75.0	30	94.5	50	330.6
	30	347.0	20	413.7	50	450.0		
195	30	70.0	50	71.2	30	102.2	50	296.7
	30	352.3	20	413.8	50	419.0	20	423.1
	5	428.8	50	429.4	5	450.0		
200	30	98.9	50	110.4	30	131.5	50	226.3
	30	226.7	50	234.5	30	239.3	50	251.8
	30	351.0	20	437.7	5	450.0		
205	30	112.5	50	118.9	30	140.1	50	158.0
	30	192.4	50	197.7	30	202.9	50	218.1
	30	362.0	20	471.7				
210	30	147.3	50	154.9	30	206.0	50	207.8
	30	275.5	15	358.7	20	428.7	3	450.0
215	30	258.8	15	363.6	20	395.5	3	450.0
220	30	243.4	15	375.6	20	376.9	3	450.0
225	30	211.3	15	360.1	3	450.0		
230	30	153.4	15	353.5	3	450.0		
235	30	119.4	15	336.6	3	450.0		
240	30	98.3	15	324.7	3	450.0		
245	30	78.7	15	316.3	8	335.7	3	450.0
250	30	66.0	15	302.7	8	338.7	3	450.0
255	30	57.2	15	293.8	8	351.7	3	450.0
260	30	50.8	15	289.5	8	364.4	3	450.0
265	30	46.0	15	290.5	8	375.8	3	450.0
270	30	42.3	15	293.8	8	385.8	3	450.0
275	30	39.2	15	296.3	8	407.6	3	450.0
280	30	36.8	15	273.3	8	450.0		
285	30	35.0	15	212.2	8	450.0		
290	30	33.5	15	179.8	8	450.0		
295	30	32.4	15	165.1	8	450.0		
300	30	31.6	15	159.4	8	450.0		
305	30	31.5	15	157.1	8	450.0		
310	30	31.6	15	158.5	8	450.0		

Vir James Engineers								
Station: KTMR-LIC			1130 kHz		29-01-40		96-40-05	
AZIMUTH	mS/m	KM	mS/m	KM	mS/m	KM	mS/m	KM
315	30	32.0	15	162.3	8	450.0		
320	30	32.6	15	168.6	8	450.0		
325	30	33.5	15	177.8	8	344.8	15	450.0
330	30	34.7	15	176.9	30	190.6	8	302.6
	15	450.0						
335	30	36.3	15	175.9	30	211.2	8	271.4
	15	450.0						
340	-20	27.4	-10	74.0	-15	148.0	-10	172.0
	15	177.6	30	235.4	8	244.9	15	450.0
345	-20	27.4	-10	74.0	-15	148.0	-10	172.0
	15	183.8	30	260.3	15	450.0		
350	-20	27.4	-10	74.0	-15	148.0	-10	172.0
	15	192.8	30	280.9	15	450.0		
355	-40	33.8	-10	99.7	-15	159.3	-10	199.5
	15	209.0	30	250.1	15	450.0		

Negative mS/m are MEASURED Conductivity Values  
 Found in BP-19810705AD  
 Tabulated 50 mS/m represents 5000 mS/m

Station: KTMR-APP		Frequency 1130 kHz			29-54-34	98-36-01	
Azim	Inverse	25 mV	5 mV	2.0 mV	0.5 mV	.250 mV	.025 mV
(deg)	(mV/m)	(km)	(km)	(km)	(km)	(km)	(km)
0	388.5	9.7	25.8	40.3	72.4	95.8	231.9
5	296.4	7.9	22.4	35.6	64.9	86.0	211.2
10	212.6	6.2	18.5	30.3	56.5	75.0	186.1
15	138.7	4.4	14.3	24.4	47.2	63.2	156.8
20	77.1	2.6	9.6	17.5	36.2	49.3	125.4
25	36.7	1.3	5.5	10.8	25.1	35.4	93.5
30	42.8	1.5	6.2	12.1	27.2	38.1	99.5
35	66.5	2.3	8.6	16.0	33.8	46.3	118.5
40	83.0	2.8	10.1	18.3	37.5	51.0	129.2
45	88.6	3.0	10.6	19.0	38.7	52.4	132.4
50	83.0	2.8	10.1	18.3	37.5	51.0	134.4
55	66.5	2.3	8.6	16.0	33.8	46.3	126.2
60	42.8	1.5	6.2	12.1	27.2	38.1	100.6
65	36.7	1.3	5.5	10.8	25.1	35.4	95.3
70	77.1	2.6	9.6	17.5	36.2	49.3	138.5
75	138.7	4.4	14.3	24.4	47.2	63.2	178.7
80	212.6	6.2	18.5	30.3	56.5	76.9	211.8
85	296.4	7.9	22.4	35.6	64.9	93.3	239.4
90	388.5	9.7	25.8	40.3	76.5	107.8	262.7
95	487.1	11.3	29.0	44.6	87.3	120.7	282.7
100	590.2	12.9	31.9	48.4	97.0	132.2	304.0
105	695.6	14.3	34.5	52.0	105.9	142.8	327.1
110	801.0	15.6	36.9	56.4	114.0	152.6	376.9
115	903.8	16.8	39.0	61.4	121.0	161.0	435.7
120	1001.5	17.9	40.9	65.5	127.0	168.1	482.1
125	1091.7	18.8	42.4	69.5	132.5	174.3	546.0
130	1172.3	19.6	43.9	73.1	137.2	181.6	532.7
135	1241.4	20.3	45.1	75.9	141.4	187.3	560.4
140	1297.6	20.8	46.9	78.3	144.5	191.6	569.4
145	1340.1	21.2	48.2	79.8	146.6	193.9	571.4
150	1368.5	21.4	49.0	80.8	147.9	193.3	565.8
155	1383.3	21.5	49.9	81.8	149.1	193.7	527.4
160	1385.1	21.6	50.4	82.2	149.5	194.2	501.8
165	1375.2	21.5	50.4	82.2	149.4	193.9	408.0
170	1355.4	21.3	50.0	81.7	148.7	192.9	402.6
175	1327.6	21.0	49.2	80.8	147.4	191.1	379.7

Station: KTMR-APP		Frequency 1130 kHz			29-54-34	98-36-01	
Azim	Inverse	25 mV	5 mV	2.0 mV	0.5 mV	.250 mV	.025 mV
(deg)	(mV/m)	(km)	(km)	(km)	(km)	(km)	(km)
180	1294.0	20.7	48.2	79.4	145.6	189.3	377.2
185	1256.8	20.4	46.8	77.7	143.5	186.9	374.3
190	1218.2	20.1	45.5	76.0	141.2	184.5	369.1
195	1180.2	19.7	44.0	74.0	138.3	181.4	357.3
200	1144.7	19.3	43.4	71.9	135.5	178.3	340.8
205	1113.3	19.0	42.8	69.5	132.7	175.0	332.0
210	1087.5	18.8	42.4	66.8	129.7	171.5	322.1
215	1068.3	18.6	42.0	64.0	126.7	168.1	315.5
220	1056.4	18.5	41.8	61.9	123.6	164.1	310.6
225	1052.4	18.4	41.8	61.8	120.6	159.6	305.8
230	1056.4	18.5	41.8	61.9	117.6	155.9	301.4
235	1068.3	18.6	42.0	62.2	114.2	151.2	297.4
240	1087.5	18.8	42.4	62.7	109.4	143.2	290.7
245	1113.3	19.0	42.8	63.3	110.5	144.3	291.4
250	1144.7	19.3	43.4	64.0	111.8	146.0	294.5
255	1180.2	19.7	44.0	64.7	113.2	147.8	298.6
260	1218.2	20.1	44.6	65.5	114.5	149.6	304.1
265	1256.8	20.4	45.2	66.4	115.8	151.4	309.5
270	1294.0	20.7	45.7	67.3	117.1	153.0	318.6
275	1327.6	21.0	46.3	68.0	118.4	154.3	321.1
280	1355.4	21.3	46.7	68.5	119.4	155.4	323.0
285	1375.2	21.5	47.0	68.9	120.1	156.3	324.3
290	1385.1	21.6	47.2	69.1	120.5	156.7	324.9
295	1383.3	21.5	47.1	69.1	120.4	156.6	324.8
300	1368.5	21.4	46.9	68.8	119.9	156.0	323.8
305	1340.1	21.2	46.5	68.2	118.9	154.8	321.9
310	1297.6	20.8	45.8	67.3	117.2	153.1	318.9
315	1241.4	20.3	45.0	66.0	115.3	150.7	315.0
320	1172.3	19.6	43.9	64.6	112.9	147.4	310.7
325	1091.7	18.8	42.4	62.8	109.6	143.4	304.9
330	1001.5	17.9	40.9	60.5	106.0	139.0	297.3
335	903.8	16.8	39.0	58.1	101.8	133.3	289.5
340	801.0	15.6	36.9	55.2	97.0	127.4	280.5
345	695.6	14.3	34.5	52.0	91.7	120.7	275.8
350	590.2	12.9	31.9	48.4	85.8	113.2	264.6
355	487.1	11.3	29.0	44.6	79.5	104.9	249.6

Station: KTMR-APP 1130 kHz 29-54-34 98-36-01

Distances are from Site to Conductivity Breaks

AZIMUTH	mS/m	KM	mS/m	KM	mS/m	KM	mS/m	KM
0	8	177.0	15	374.1	30	450.0		
5	8	171.4	15	396.3	30	450.0		
10	8	167.4	15	401.7	30	450.0		
15	8	164.7	15	408.7	30	450.0		
20	8	163.4	15	417.1	30	450.0		
25	8	163.3	15	367.3	30	450.0		
30	8	163.7	15	308.2	30	450.0		
35	8	165.3	15	309.2	30	450.0		
40	8	161.0	30	231.5	15	315.9	30	406.7
	8	450.0						
45	8	135.5	30	224.2	15	308.7	4	329.9
	8	450.0						
50	8	121.1	30	220.0	15	253.3	4	352.2
	8	450.0						
55	8	107.1	30	209.0	15	217.7	4	385.0
	8	450.0						
60	8	96.6	15	111.1	30	153.8	15	217.3
	4	433.5	8	450.0				
65	8	88.3	15	218.5	4	450.0		
70	8	80.8	15	221.4	4	356.5	8	450.0
75	8	74.9	15	228.7	4	349.1	8	450.0
80	8	70.4	15	238.9	4	344.7	8	450.0
85	8	66.5	15	321.8	4	323.5	15	342.6
	30	373.1	8	450.0				
90	8	62.8	15	343.7	30	450.0		
95	8	59.9	15	305.3	30	351.0	50	374.2
	30	385.0	50	399.3	30	404.1	50	450.0
100	8	57.7	15	195.0	30	213.0	15	309.8
	30	360.6	50	450.0				
105	8	54.8	15	188.4	30	251.2	15	326.3
	30	342.8	50	450.0				
110	8	52.6	15	183.5	30	293.2	15	316.0
	30	329.1	50	450.0				
115	8	50.9	15	180.2	30	301.6	50	450.0
120	8	49.7	15	176.9	30	267.0	50	271.1
	30	281.7	50	450.0				
125	8	48.1	15	174.3	30	230.9	50	243.9
	30	245.4	50	450.0				
130	8	46.2	15	173.6	30	262.3	50	450.0
135	8	44.7	15	174.3	30	249.8	50	450.0
140	8	43.7	15	176.3	30	249.4	50	252.5
	30	254.3	50	450.0				
145	8	43.0	15	179.8	30	244.2	50	252.2
	30	260.7	50	450.0				
150	8	42.4	15	187.4	30	258.5	50	450.0

Station: KTMR-APP 1130 kHz 29-54-34 98-36-01									
AZIMUTH	mS/m KM		mS/m KM		mS/m KM		mS/m KM		
155	8	41.3	15	197.1	30	294.2	50	450.0	
160	8	40.6	15	209.7	30	301.1	50	306.6	
	30	306.9	50	315.6	30	330.4	50	450.0	
165	8	40.2	15	225.7	30	450.0			
170	8	40.1	15	247.4	30	434.4	20	450.0	
175	8	40.4	15	395.2	30	427.6	20	450.0	
180	8	40.9	15	405.2	20	450.0			
185	8	41.8	15	393.3	20	417.8	3	450.0	
190	8	43.0	15	360.3	3	450.0			
195	8	44.7	15	324.0	3	450.0			
200	8	46.9	15	273.0	3	450.0			
205	8	49.7	15	224.5	8	268.5	3	450.0	
210	8	53.4	15	190.5	8	255.1	3	447.7	
	1.5	450.0							
215	8	58.0	15	171.7	8	246.6	3	428.4	
	1.5	450.0							
220	8	63.7	15	158.8	8	244.9	3	410.1	
	1.5	450.0							
225	8	70.3	15	148.7	8	239.6	3	390.9	
	1.5	450.0							
230	8	79.0	15	140.9	8	230.1	3	376.5	
	1.5	450.0							
235	8	90.9	15	131.6	8	228.4	3	367.2	
	1.5	450.0							
240	8	224.3	3	362.3	1.5	450.0			
245	8	221.2	3	362.2	1.5	450.0			
250	8	225.3	3	370.1	1.5	450.0			
255	8	235.3	3	385.6	1.5	450.0			
260	8	249.5	3	414.6	1.5	431.7	8	450.0	
265	8	268.1	3	408.3	8	450.0			
270	8	355.3	3	359.4	8	450.0			
275	8	450.0							
280	8	450.0							
285	8	450.0							
290	8	450.0							
295	8	450.0							
300	8	450.0							
305	8	371.5	15	375.1	8	450.0			
310	8	348.3	15	450.0					
315	8	338.0	15	450.0					
320	8	323.6	15	450.0					
325	8	324.1	15	409.8	30	434.1	15	450.0	
330	8	345.4	15	370.1	30	440.3	15	450.0	
335	8	360.0	30	450.0					
340	8	274.7	15	308.4	8	357.4	30	450.0	
345	8	214.5	15	322.0	8	354.4	30	450.0	

Vir James Engineers

Station: KTMR-APP			1130 kHz		29-54-34		98-36-01	
AZIMUTH	mS/m	KM	mS/m	KM	mS/m	KM	mS/m	KM
350	8	194.5	15	335.6	8	342.5	30	450.0
355	8	184.5	15	352.5	30	450.0		

Tabulated 50 mS/m represents 5000 mS/m



Station: KTEK		Frequency 1110 kHz		29-22-51	95-14-15		
Azim	Inverse	25 mV	5 mV	2.0 mV	0.5 mV	.250 mV	.025 mV
(deg)	(mV/m)	(km)	(km)	(km)	(km)	(km)	(km)
0	931.7	27.0	66.6	88.3	121.1	146.0	278.8
5	843.5	25.0	64.2	87.9	119.2	143.1	279.0
10	753.6	22.9	61.6	87.6	123.0	152.8	293.8
15	664.8	20.7	58.9	91.4	130.4	158.9	297.4
20	579.4	18.5	57.9	94.1	131.2	158.3	294.0
25	499.2	16.4	55.4	91.8	129.5	155.2	292.5
30	425.2	14.3	50.1	84.4	125.1	149.3	281.2
35	358.0	12.3	44.0	76.1	122.0	144.7	270.6
40	297.6	10.5	40.6	72.0	121.6	142.7	262.1
45	243.8	8.7	33.0	63.9	121.4	141.0	253.4
50	196.2	7.2	28.0	74.3	131.3	149.4	254.4
55	154.8	5.8	23.4	60.8	117.3	147.9	245.3
60	120.1	4.5	19.1	45.0	103.1	137.8	235.9
65	93.7	3.6	15.5	32.0	88.1	120.3	229.1
70	78.1	3.0	13.3	27.9	77.4	108.0	259.9
75	74.3	2.9	12.7	26.9	90.0	126.8	285.4
80	78.7	3.0	13.3	28.1	99.5	182.5	336.3
85	85.4	3.3	14.3	29.9	117.5	202.9	397.8
90	90.3	3.4	15.0	31.1	124.4	212.0	468.2
95	91.1	3.5	15.1	31.3	130.3	218.1	604.2
100	87.0	3.3	14.5	30.3	125.7	211.9	595.3
105	78.3	3.0	13.3	28.0	114.5	197.3	577.3
110	66.0	2.5	11.5	24.6	101.5	178.2	548.7
115	51.8	2.0	9.2	20.3	81.6	149.5	507.1
120	38.3	1.5	7.0	15.8	60.5	117.2	454.3
125	28.5	1.1	5.3	12.3	44.3	90.4	404.0
130	25.4	1.0	4.8	11.1	38.9	81.2	384.2
135	27.1	1.1	5.1	11.7	42.1	86.5	395.6
140	29.1	1.1	5.4	12.5	45.6	92.4	407.6
145	29.1	1.1	5.4	12.5	45.3	92.1	407.3
150	26.8	1.1	5.0	11.6	41.2	85.2	393.5
155	23.5	0.9	4.4	10.3	37.8	77.6	373.8
160	21.2	0.8	4.0	9.4	35.2	71.8	358.0
165	21.7	0.9	4.1	9.6	30.2	63.3	351.5
170	24.4	1.0	4.6	10.7	33.0	73.2	373.1
175	27.4	1.1	5.1	11.8	36.1	79.7	389.8

Station: KTEK		Frequency 1110 kHz		29-22-51	95-14-15		
Azim	Inverse	25 mV	5 mV	2.0 mV	0.5 mV	.250 mV	.025 mV
(deg)	(mV/m)	(km)	(km)	(km)	(km)	(km)	(km)
180	29.1	1.1	5.4	12.4	37.3	77.9	392.8
185	28.8	1.1	5.4	12.4	37.1	70.2	384.6
190	26.9	1.1	5.0	11.6	35.3	59.5	367.9
195	23.9	0.9	4.5	10.5	32.4	51.3	339.7
200	20.8	0.8	3.9	9.2	29.2	42.9	295.5
205	18.4	0.7	3.5	8.3	26.8	39.8	247.3
210	17.3	0.7	3.3	7.8	25.4	38.0	202.2
215	16.9	0.7	3.2	7.7	25.0	37.1	177.1
220	16.9	0.7	3.2	7.7	25.1	36.9	152.3
225	17.2	0.7	3.3	7.8	25.3	37.0	123.3
230	17.6	0.7	3.4	8.0	25.3	37.0	122.7
235	18.0	0.7	3.4	8.1	25.4	37.2	123.0
240	20.0	0.8	3.8	8.9	26.7	39.1	128.5
245	28.8	1.1	5.4	12.4	32.7	47.0	150.7
250	49.5	1.9	8.8	19.5	43.4	60.6	187.4
255	83.6	3.2	14.1	27.2	56.0	76.2	219.8
260	132.1	5.0	20.6	35.0	68.8	98.1	241.6
265	195.4	7.1	26.0	43.0	81.3	118.3	263.5
270	273.2	9.7	31.5	50.8	93.5	135.8	283.6
275	364.2	12.5	37.0	58.3	104.1	147.0	299.9
280	466.1	15.4	42.1	65.2	114.5	153.4	309.2
285	575.7	18.4	47.0	71.6	124.0	159.0	318.9
290	689.1	21.3	51.5	77.4	132.6	169.5	332.6
295	801.9	23.8	55.5	82.8	140.4	179.0	344.5
300	909.6	25.9	59.1	87.4	147.1	187.3	358.7
305	1007.9	27.9	62.4	91.4	153.0	194.1	371.6
310	1092.9	29.7	65.1	94.9	157.9	199.8	388.8
315	1161.2	31.3	67.5	97.9	161.8	204.8	401.4
320	1210.7	32.8	69.7	100.2	141.1	168.6	357.1
325	1239.6	33.4	71.2	102.0	141.1	168.9	327.4
330	1247.6	33.5	72.5	102.8	139.8	167.6	322.5
335	1235.0	33.3	72.9	100.5	137.3	165.1	315.2
340	1203.1	32.6	72.8	97.7	134.1	161.4	304.1
345	1154.0	31.6	71.8	95.0	130.8	157.9	297.4
350	1090.3	30.3	70.5	92.3	127.3	153.9	291.7
355	1015.1	28.8	68.7	90.1	123.9	149.8	285.6

Station: KTEK 1110 kHz 29-22-51 95-14-15								
Distances are from Site to Conductivity Breaks								
AZIMUTH	mS/m	KM	mS/m	KM	mS/m	KM	mS/m	KM
<hr/>								
0	30	47.1	15	82.4	4	274.3	8	428.7
	4	479.5						
5	30	47.9	15	84.3	4	168.0	8	198.2
	4	273.0	8	433.9	4	450.0		
10	30	48.7	15	87.0	4	100.7	8	218.9
	4	274.0	8	438.1	4	450.0		
15	30	49.9	15	68.2	30	89.6	8	230.2
	4	275.9	8	439.8	4	450.0		
20	30	43.4	50	47.1	30	51.6	15	56.7
	30	92.6	8	239.3	4	273.5	8	382.0
	15	422.3	8	428.6	4	450.0		
25	30	40.9	50	44.8	30	96.4	8	358.1
	15	450.0						
30	30	39.3	50	43.1	30	97.9	8	334.6
	15	426.6	4	450.0				
35	30	40.0	50	42.0	30	101.9	8	313.3
	15	385.7	4	450.0				
40	30	35.0	50	43.6	30	107.6	8	290.0
	15	354.6	4	454.4				
45	30	34.3	50	41.7	30	116.8	8	271.9
	15	333.6	4	411.2	8	450.0		
50	30	29.8	50	65.4	30	66.9	50	74.1
	30	129.7	8	260.8	15	319.0	8	344.3
	4	386.1	8	450.0				
55	30	29.0	50	64.6	30	142.5	8	255.3
	15	312.5	8	450.0				
60	30	30.4	50	61.2	30	153.9	8	253.9
	15	314.0	8	450.0				
65	30	32.2	50	54.4	30	171.0	8	255.6
	15	320.8	8	450.0				
70	30	33.0	50	48.9	30	195.3	50	200.9
	30	263.1	8	438.6	4	450.0		
75	30	31.0	50	74.4	30	113.4	50	123.8
	30	143.0	50	164.5	30	189.3	50	192.5
	30	274.1	15	326.3	8	419.7	4	445.3
	15	450.0						
80	30	33.7	50	57.4	30	70.1	50	222.1
	30	283.9	15	450.0				
85	30	33.8	50	49.4	30	55.4	50	267.4
	30	287.1	15	310.8	50	358.1	15	450.0
90	30	33.7	50	44.6	30	50.1	50	398.8
	15	407.8	50	419.1	15	455.0		
95	30	33.9	50	45.3	30	46.0	50	450.0
100	30	34.3	50	450.0				
105	30	34.4	50	450.0				

Station: KTEK 1110 kHz 29-22-51 95-14-15									
AZIMUTH	mS/m KM		mS/m KM		mS/m KM		mS/m KM		
110	30	30.3	50	450.0					
115	30	29.2	50	450.0					
120	30	28.4	50	450.0					
125	30	27.8	50	450.0					
130	30	27.5	50	450.0					
135	30	27.4	50	450.0					
140	30	27.5	50	450.0					
145	30	27.9	50	450.0					
150	30	28.0	50	450.0					
155	30	24.1	50	450.0					
160	30	21.3	50	450.0					
165	30	35.3	50	450.0					
170	30	33.8	50	450.0					
175	30	32.6	50	33.2	30	37.3	50	450.0	
180	30	43.4	50	450.0					
185	30	49.3	50	450.0					
190	30	53.2	50	450.0					
195	30	36.1	15	37.5	30	58.2	50	450.0	
200	30	32.9	15	44.0	30	64.8	50	450.0	
205	30	30.5	15	53.2	30	73.0	50	450.0	
210	30	28.6	15	62.2	30	83.5	50	410.5	
	30	446.5	20	450.0					
215	30	27.1	15	71.7	30	86.9	50	379.4	
	30	447.8	20	450.0					
220	30	26.0	15	70.0	30	98.5	50	107.7	
	30	110.5	50	354.5	30	450.0			
225	30	25.1	15	69.0	30	120.1	50	293.7	
	30	312.9	50	331.7	30	333.4	50	334.6	
	30	393.7	15	450.0					
230	30	23.8	15	68.5	30	121.7	50	154.3	
	30	183.0	50	198.7	30	202.5	50	229.6	
	30	257.9	50	274.0	30	380.5	15	450.0	
235	30	22.9	15	68.6	30	135.9	50	138.9	
	30	145.2	50	156.0	30	181.1	50	182.7	
	30	186.4	50	190.2	30	365.2	15	450.0	
240	30	22.2	15	69.8	30	151.1	50	157.6	
	30	314.6	15	450.0					
245	30	21.6	15	71.7	30	268.0	15	450.0	
250	30	21.3	15	73.8	30	232.8	15	453.6	
255	30	21.1	15	76.7	30	201.0	15	438.7	
	8	450.0							
260	30	21.0	15	80.4	30	177.4	15	433.0	
	8	450.0							
265	30	20.8	15	85.1	30	161.3	15	434.0	
	8	450.0							
270	30	20.8	15	92.1	30	150.5	15	429.5	
	8	450.0							

Vir James Engineers								
Station: KTEK			1110 kHz		29-22-51		95-14-15	
AZIMUTH	mS/m	KM	mS/m	KM	mS/m	KM	mS/m	KM
275	30	20.9	15	104.5	30	142.1	15	303.4
	8	450.0						
280	30	21.2	15	117.7	30	135.5	15	275.5
	8	450.0						
285	30	21.7	15	130.4	30	130.6	15	265.8
	8	450.0						
290	30	22.4	15	262.8	8	450.0		
295	30	23.3	15	263.3	8	450.0		
300	30	24.4	15	244.2	30	266.1	8	450.0
305	30	25.9	15	233.6	30	275.0	8	450.0
310	30	27.9	15	229.3	30	283.9	8	322.5
	15	450.0						
315	30	30.3	15	228.8	30	292.4	15	450.0
320	30	33.2	15	109.0	4	185.3	15	232.5
	30	299.5	15	450.0				
325	30	36.0	15	106.6	4	241.9	15	450.0
330	30	39.6	15	102.4	4	252.5	15	450.0
335	30	41.9	15	97.3	4	269.6	15	347.2
	30	381.5	15	450.0				
340	30	43.9	15	92.1	4	291.8	15	315.5
	30	450.0						
345	30	44.5	15	88.0	4	298.1	8	321.1
	30	450.0						
350	30	45.6	15	85.0	4	286.3	8	355.2
	30	450.0						
355	30	46.3	15	82.9	4	279.0	8	406.3
	30	450.0						

Tabulated 50 mS/m represents 5000 mS/m