Engineering Exhibit

Application for Minor Change of Construction Permit Roger L. Hoppe, II KLIM(AM), 1120 KHz Security, Colorado

June 2004

Prepared by:

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ENGINEERING STATEMENT

APPLICATION TO MODIFY CONSTRUCTION PERMIT
BMJP-20001023AEG
ROGER L. HOPPE, II
KLIM(AM), SECURITY, COLORADO

1120 KHz 17.5 KW-D/3 W-N DA-2

This Engineering Statement and attached exhibits have been prepared on behalf of Roger L. Hoppe, II, licensee of KLIM(AM), 1120 KHz, in Limon, Colorado (250 watts ND-D). KLIM holds a construction permit to change the city of license to Security, change the transmitter location, construct a directional antenna and increase power. The purpose of this FCC Form 301 application is to modify the construction permit to change the antenna radiation pattern, increase the authorized power, and slightly revise the transmitter site.

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PROPOSED FACILITIES

The proposed antenna array, as revised herein, consists of three uniform cross section guyed radiating towers arranged more or less on an east-west line (see attached Figure 2). All towers will be 79.9 degrees in radiating height, and 198 feet overall AGL.

The operating power will be 17.5 kilowatts daytime, and 3 watts nighttime. The nighttime operation will use the daytime directional antenna system parameters.

TRANSMITTER SITE REVISION

It is proposed herein to slightly change the site of the transmitter to a location about 0.5 kilometer west of the authorized site. Figure 6 is a 7.5-minute topographic map showing the revised site.

SIGNAL COVERAGE

The proposed predicted 5 mV/m daytime contour extends well beyond Security, the community of license (see Figure 8-B).

DAYTIME ALLOCATIONS

The proposed KLIM daytime operation will protect all pertinent daytime operations, both existing and proposed, within 30 KHz of 1120 KHz from interference in accordance with §73.37 of the FCC Rules. All daytime contours shown in the attachments have been determined using M-3 conductivities.

CRITICAL HOURS PROTECTION

The proposed KLIM daytime operation will protect the 0.1 mV/m groundwave contour of the U.S. Class A station on 1120 KHz, KMOX, St. Louis, MO, during critical hours, as required under §73.187 of the FCC Rules (see Figure 5).

NIGHTTIME ALLOCATIONS

The proposed KLIM nighttime operation, at 3 watts, will not cause prohibited skywave interference to the service area of KMOX or any other co- or adjacent-channel station, either existing or proposed (see Figure 10).

TOWER FENCES

Fences will be erected around each tower to prevent persons from traveling or standing in areas where the RF radiation levels may exceed the FCC maximum exposure limits. The distances to these fences will comply with Supplement A of OET Bulletin 65, Edition 97-01, dated August 1997, or RFR measurements will be taken on the constructed facility to demonstrate that smaller-radius fences would be adequate.

ENVIRONMENTAL AND AERONAUTICAL MATTERS

The proposed facility is not deemed to be a major environmental action as defined in §1.1306 of the FCC Rules. The proposed site is not in any area described in §1.1307(a)(1) through (7) of the FCC Rules. The tower fences as described above will assure that the levels of RF exposure in areas accessible to the public will be below FCC guidelines. Therefore, this proposal is excluded from environmental processing.

The proposed towers, at 198 feet AGL, do not require notification to the FAA, nor do they need to be registered with the FCC.

This statement and attached figures are true and accurate to the best of my knowledge and belief.

B. Benjamin Evans, P.E.
Consulting Engineer for Roger L. Hoppe, II

June 1, 2004

ATTACHED FIGURES:

Figure 1 - - - Vertical Plan Tower Sketch
Figure 2 - - - Tower Layout & Ground System Sketch
Figure 3 - - - Daytime Directional Standard Pattern Polar Plot
Figure 4 - - - Daytime Allocation Study
Figure 5 - - - Critical Hours Study – KMOX, St. Louis, MO
Figure 6 - - - Topographic Map Showing Proposed Site
Figure 7 - - - Specifications of Proposed Daytime Pattern
Figure 8 - - - Maps Showing Proposed Daytime Contours
Figure 9 - - - Distances to Proposed Daytime Contours
Figure 10 - - Nighttime Radiation Limit Calculations

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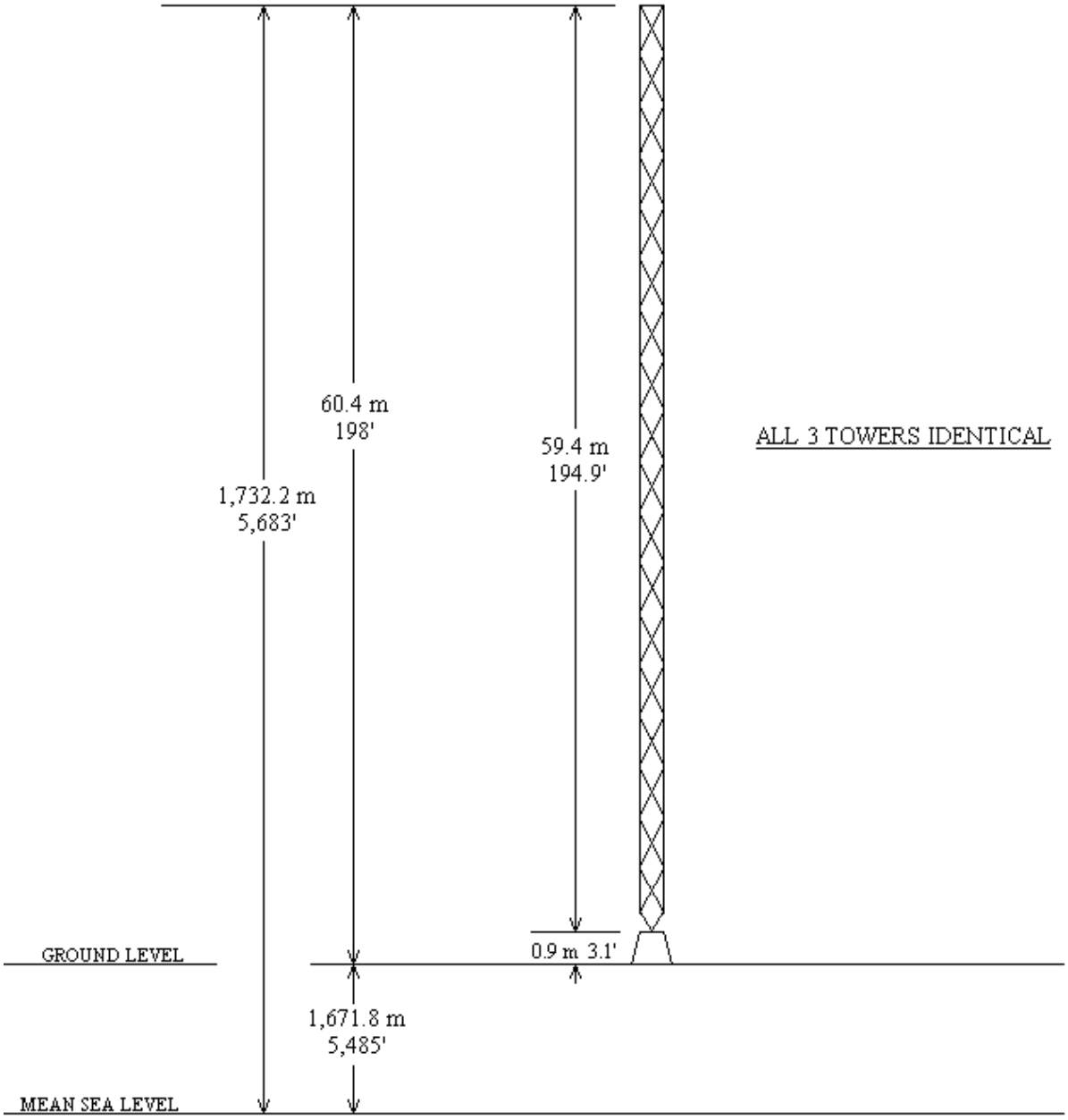
FIGURE 1

Drawing Not to Scale - Not to be used for Construction.

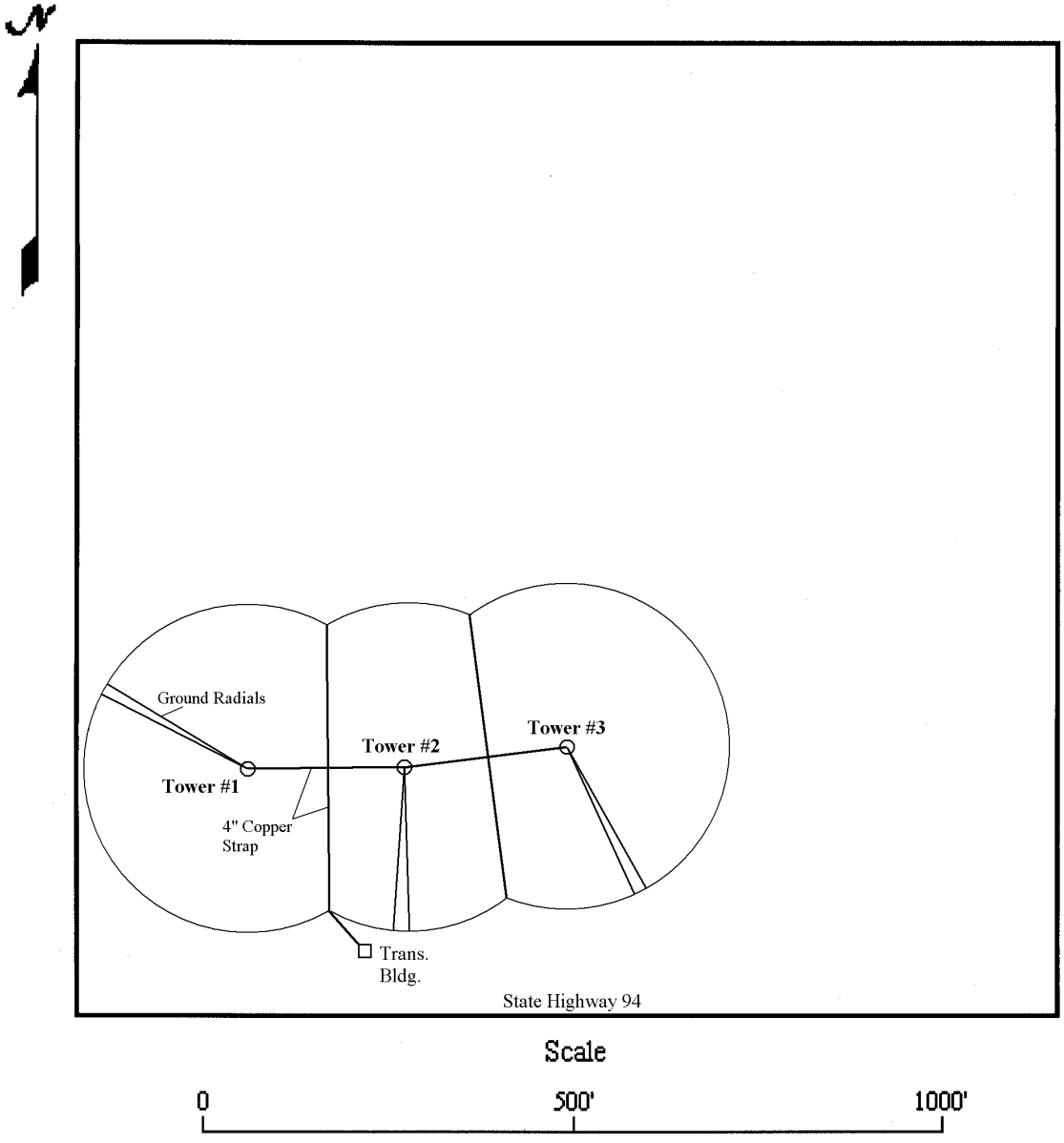


VERTICAL PLAN SKETCH OF ANTENNA STRUCTURE

KLIM(AM), 1120 KHz
Security, Colorado

Figure 2

Proposed Tower Layout
& Ground System



Ground Radials:

240 #10 bare copper wires, extending at least 220' or to intersecting strap, around each tower, buried 4-6. Outer ends of radials should be bonded to a ground strap along the perimeter.

<u>This is a plan drawing only, and not to be used for construction.</u>

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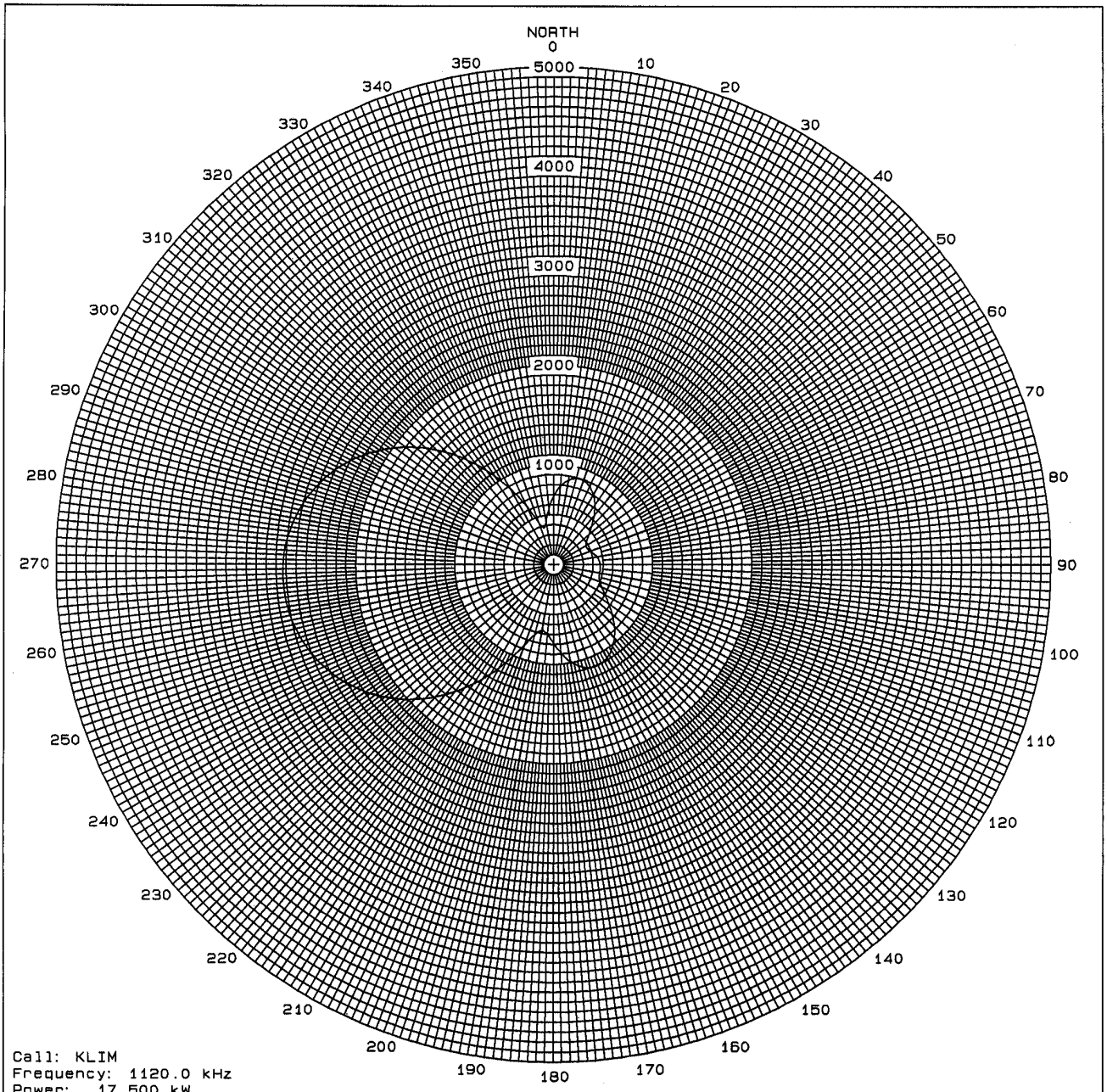
Figure 3

Proposed Daytime Standard Pattern
KLIM(AM), Security, CO



Call: KLIM
Frequency: 1120.0 kHz
Power: 17.500 kW

ERSS: 2179.99 mV/m at 1 km

Q Factor at 0 degrees:
54.50 mV/m at 1 km

Theoretical Pattern RMS:
1346.49 mV/m at 1 km

Standard Pattern RMS:
1414.97 mV/m at 1 km

TOWER PARAMETERS

##	Field Ratio	Phase (degs.)	Spac. (degs.)	Bear. (degs.)	TL SW	HT (degs.)	TLA (degs.)	TLB (degs.)	TLC (degs.)	TLD (degs.)
1	.744	-166.1	.0	.0	0	79.9	.0	.0	.0	.0
2	1.000	.0	86.8	90.1	0	79.9	.0	.0	.0	.0
3	.762	129.4	176.9	86.3	0	79.9	.0	.0	.0	.0

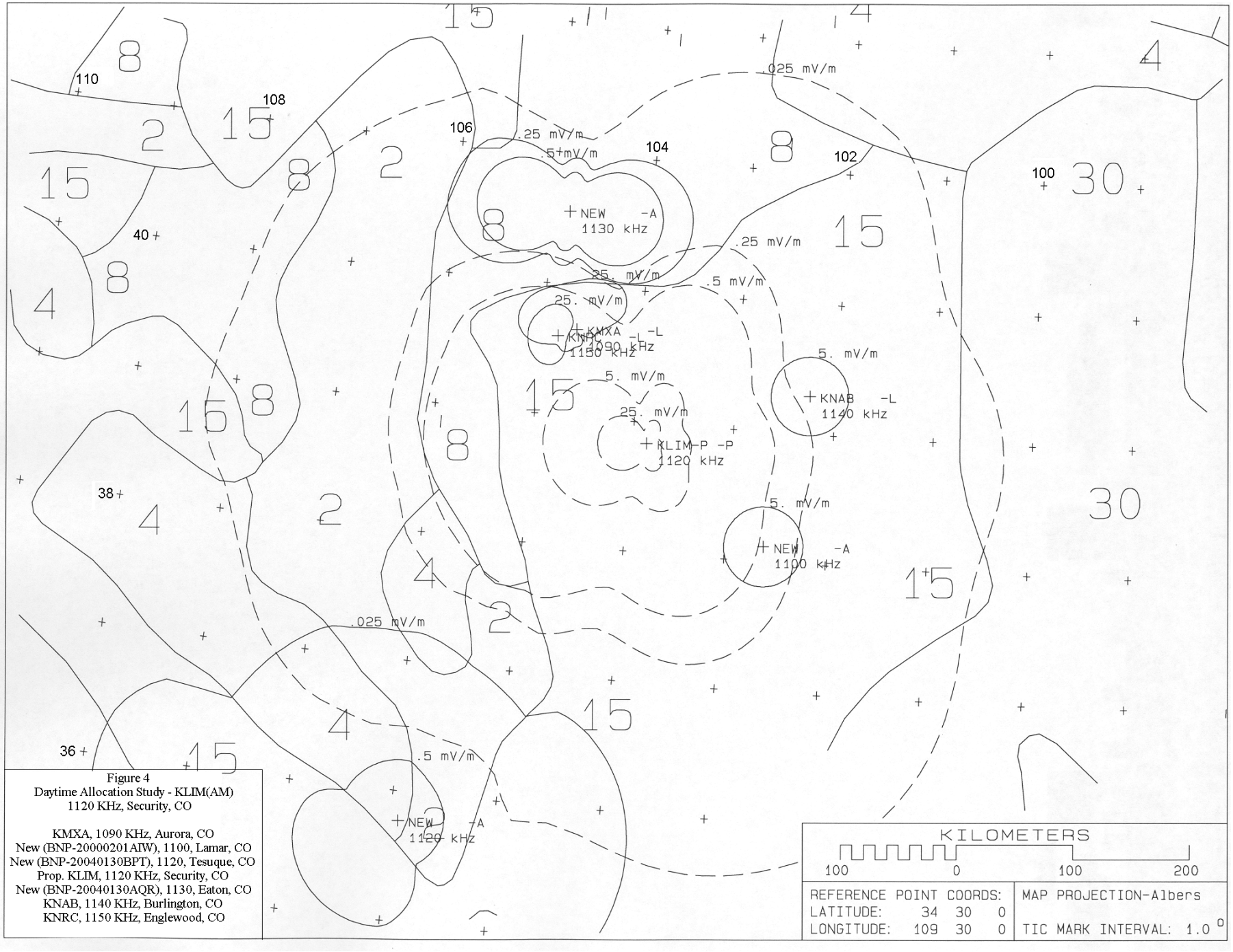


Figure 4
Daytime Allocation Study - KLIM(AM)
1120 KHz, Security, CO

KMXA, 1090 KHz, Aurora, CO
New (BNP-20000201AIW), 1100, Lamar, CO
New (BNP-20040130BPT), 1120, Tesuque, CO
Prop. KLIM, 1120 KHz, Security, CO
New (BNP-20040130AQR), 1130, Eaton, CO
KNAB, 1140 KHz, Burlington, CO
KNRC, 1150 KHz, Englewood, CO

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Figure 5

CALCULATION OF CRITICAL HOURS RADIATION LIMITS TO 0.1 MV/M DAYTIME CONTOUR OF CLASS A STATION

PROPOSED KLIM, SECURITY, CO TO KMOX, ST. LOUIS, MO

KMOX Point #	Az.(°T) from KMOX to 0.1 mv/m	Dist.(km) to 0.1 mv/m from KMOX	Coords. of Point on KMOX 0.1 mv/m	Dist.(mi) from KLIM to KMOX Point	Az.(°T) from KLIM to KMOX Point
1	230.0	290.4	37-00-59; 92-33-39	627.5	98.1
2	240.0	290.4	37-22-54; 92-54-07	603.2	96.2
3	250.0	290.2	37-47-19; 93-09-33	583.7	93.8
4	260.0	289.6	38-13-29; 93-19-15	570.3	91.0
5	270.0	297.4	38-40-21; 93-28-55	558.4	87.9
6	280.0	302.1	39-08-38; 93-30-22	555.5	84.6
7	290.0	304.1	39-36-39; 93-23-31	561.9	81.3
8	300.0	304.6	40-03-06; 93-09-18	576.3	78.3
9	310.0	305.3	40-27-20; 92-49-10	596.9	75.7

KMOX Point #	Dist.(km) from KLIM to KMOX Point	Az.(°T) from KLIM to KMOX Point	Rad.(mv/m@ 1mi) from Fig. 10	Rad.(mv/m@ 1mi) from Fig. 11	Rad. Limit[1] (mv/m@ 1 km)	Vert. Angle (Curve 2 of Fig. 6a)	Prop. KLIM Rad.[2] (mv/m @ 1 km)
9	960.4	75.7	420	148	588.3	11.9	425.3
8	927.3	78.3	410	144	574.1	12.4	438.3
7	904.1	81.3	405	142	567.0	12.8	451.2
6	893.8	84.6	400	139	559.6	13.0	462.0
5	898.5	87.9	402	138	561.9	12.9	468.9
4	917.6	91.0	410	140	572.8	12.6	472.1
3	939.2	93.8	413	142	577.3	12.2	472.9
2	970.5	96.2	422	147	590.5	11.7	472.6
1	1009.6	98.1	438	152	612.7	11.1	472.3

[1] Calculated by the following: 1.609 x (0.8 x $Rad._{Fig.\ 10}$ + 0.2 x $Rad._{Fig.\ 11}$)
[2] Maximum radiation occurs at 0° vertical angle for all above entries.

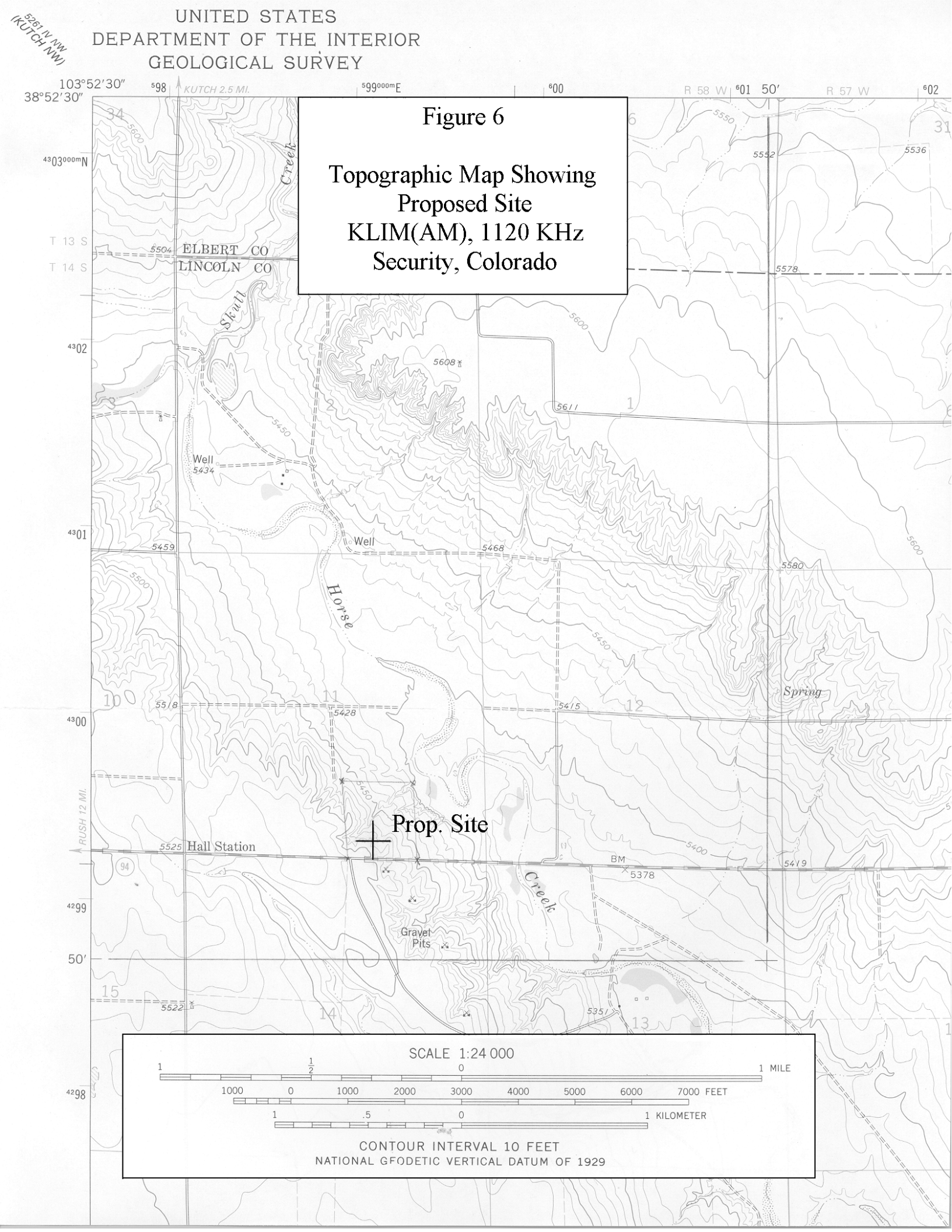

Figure 6

Topographic Map Showing
Proposed Site
KLIM(AM), 1120 KHz
Security, Colorado

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Figure 7

SPECIFICATIONS OF PROPOSED DAYTIME PATTERN
KLIM(AM), 1120 KHz
SECURITY, COLORADO

Power: 17.500 kW

ERSS: 2179.99 mV/m at 1 km
Multiplying Constant (K factor): 1492.24 mV/m at 1 km
Q Factor (elevation angle = 0 degrees): 54.50

Theoretical Pattern RMS: 1346.49 mV/m at 1 km
Standard Pattern RMS: 1414.97 mV/m at 1 km

ANTENNA ARRAY PARAMETERS:

##	Field Ratio	Phase (degs.)	Spac. (degs.)	Bear. (degs.)	TL SW	HT (degs.)	TLA (degs.)	TLB (degs.)	TLC (degs.)	TLD (degs.)
1	0.744	-166.1	0.0	0.0	0	79.9	0.0	0.0	0.0	0.0
2	1.000	0.0	86.8	90.1	0	79.9	0.0	0.0	0.0	0.0
3	0.762	129.4	176.9	86.3	0	79.9	0.0	0.0	0.0	0.0

CALCULATED STANDARD PATTERN RADIATIONS (in mV/m at 1 km)

Elevation Angle = 0°

Az.(°T)	Rad.(mV/m)	Az.(°T)	Rad.(mV/m)	Az.(°T)	Rad.(mV/m)	Az.(°T)	Rad.(mV/m)
0.0	681.64	90.0	471.33	180.0	790.49	270.0	2729.98
5.0	784.78	95.0	472.79	185.0	703.79	275.0	2702.89
10.0	855.71	100.0	472.34	190.0	671.81	280.0	2651.91
15.0	891.17	105.0	477.61	195.0	725.69	285.0	2576.45
20.0	891.74	110.0	497.26	200.0	861.67	290.0	2475.88
25.0	860.69	115.0	537.82	205.0	1051.11	295.0	2349.73
30.0	803.31	120.0	600.67	210.0	1266.47	300.0	2197.96
35.0	726.49	125.0	681.81	215.0	1488.85	305.0	2021.18
40.0	638.48	130.0	773.86	220.0	1705.93	310.0	1821.02
45.0	548.77	135.0	868.16	225.0	1909.65	315.0	1600.34
50.0	468.21	140.0	956.05	230.0	2094.77	320.0	1363.65
55.0	408.19	145.0	1029.42	235.0	2258.06	325.0	1117.51
60.0	377.47	150.0	1081.12	240.0	2397.75	330.0	871.63
65.0	376.26	155.0	1105.36	245.0	2513.10	335.0	641.75
70.0	395.13	160.0	1098.26	250.0	2604.04	340.0	458.59
75.0	421.56	165.0	1058.47	255.0	2670.85	345.0	380.14
80.0	445.93	170.0	988.04	260.0	2713.93	350.0	435.27
85.0	463.00	175.0	893.90	265.0	2733.61	355.0	556.43

Figure 8-A: Proposed KLIM(AM) 1000 mV/m Day Contour

KLIM-P
Latitude: 38-50-21 N
Longitude: 103-51-28 W
ERP: 17.50 kW
Frequency: 1.12 MHz
Horiz. Pattern: DA
Prop Model: FCC
Soil Cond.: M-3

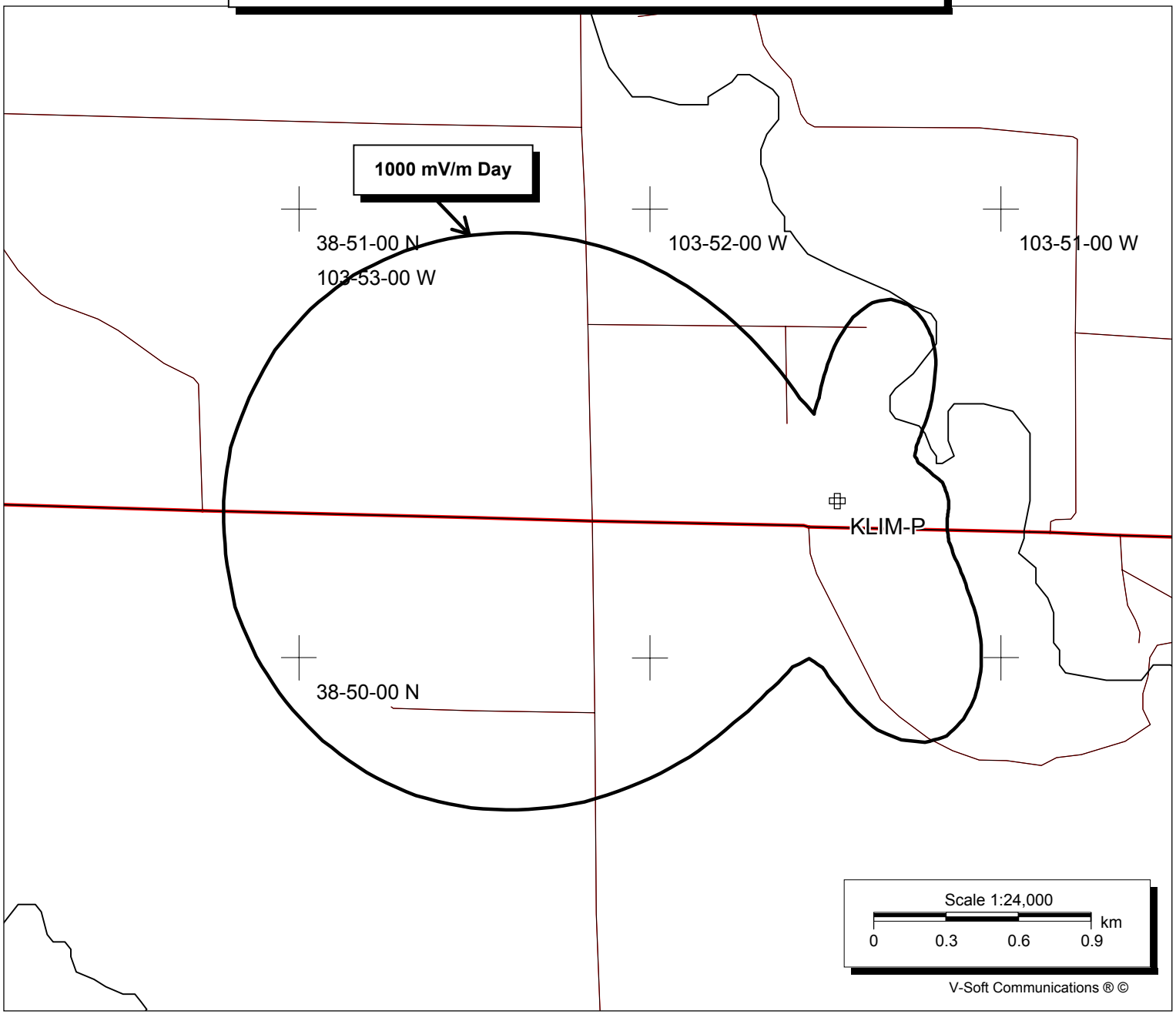

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Figure 8-B: Proposed KLIM(AM) 25 & 5 mV/m Day Contours

KLIM-P
Latitude: 38-50-21 N
Longitude: 103-51-28 W
ERP: 17.50 kW
Frequency: 1.12 MHz
Horiz. Pattern: DA
Prop Model: FCC
Soil Cond.: M-3

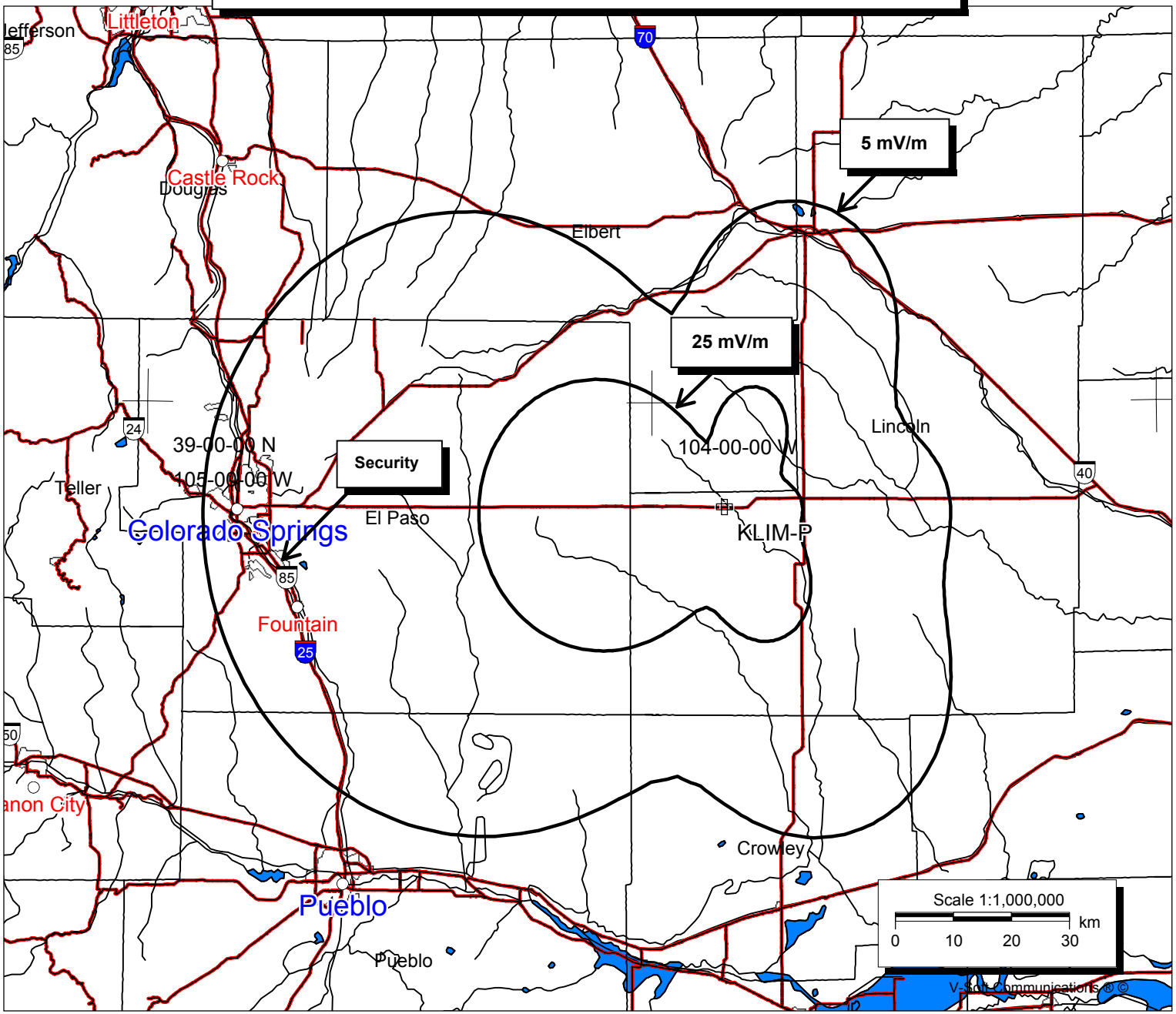

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Figure 8-C: Proposed KLIM(AM) 2 & 0.5 mV/m Day Contours

KLIM-P
Latitude: 38-50-21 N
Longitude: 103-51-28 W
ERP: 17.50 kW
Frequency: 1.12 MHz
Horiz. Pattern: DA
Prop Model: FCC
Soil Cond.: M-3

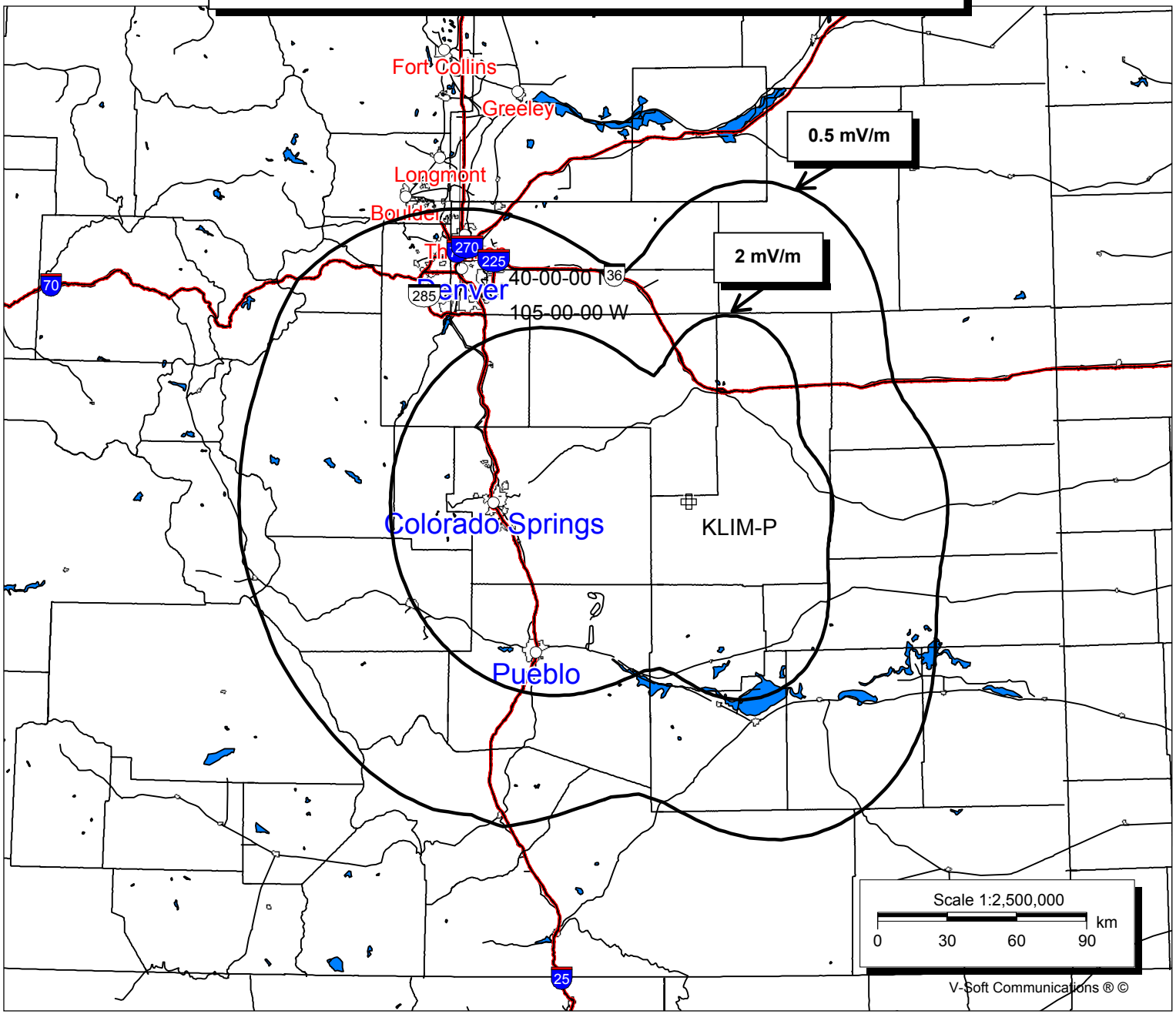

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Figure 9

DISTANCES TO PROPOSED DAYTIME CONTOURS
KLIM(AM), 1120 KHz, SECURITY, CO

Coordinates: N 38°-50'-21" Lat.; W 103°-51'-28" Long.

Azimuth	Radiation (mV/m at one km)	Distances to Contours in Kilometers : Contour levels in mV/m. 1000.000	25.000	5.000	2.000	.500	.250
.0	681.64	.66	17.70	47.39	73.26	128.13	158.34
5.0	784.78	.76	19.55	50.93	77.89	135.04	165.76
10.0	855.71	.83	20.76	53.18	80.86	139.42	172.09
15.0	891.17	.86	21.34	54.25	82.26	141.52	178.87
20.0	891.74	.86	21.35	54.26	82.29	141.55	181.26
25.0	860.69	.83	20.84	53.33	81.07	139.72	179.06
30.0	803.31	.78	19.87	51.53	78.68	136.21	174.81
35.0	726.49	.71	18.52	48.98	75.34	131.22	168.75
40.0	638.48	.62	16.88	45.82	71.18	125.03	161.19
45.0	548.77	.54	15.10	42.27	66.50	118.04	152.67
50.0	468.21	.46	13.40	38.74	61.81	111.03	144.13
55.0	408.19	.40	12.05	35.85	57.92	105.24	137.02
60.0	377.47	.37	11.32	34.27	55.79	102.04	133.12
65.0	376.26	.37	11.30	34.20	55.70	101.91	132.96
70.0	395.13	.39	11.74	35.18	57.03	103.90	135.39
75.0	421.56	.41	12.35	36.52	58.82	106.58	138.66
80.0	445.93	.44	12.90	37.70	60.42	108.96	141.56
85.0	463.00	.45	13.28	38.50	61.49	110.55	143.54
90.0	471.33	.46	13.46	38.89	62.00	111.32	144.48
95.0	472.79	.46	13.50	38.95	62.09	111.45	144.64
100.0	472.34	.46	13.49	38.93	62.06	111.41	144.59
105.0	477.61	.47	13.60	39.18	62.38	111.89	145.18
110.0	497.26	.49	14.02	40.06	63.56	113.65	147.31
115.0	537.82	.53	14.88	41.81	65.90	117.14	151.56
120.0	600.67	.59	16.14	44.36	69.27	122.16	157.72
125.0	681.81	.66	17.70	47.40	73.27	128.14	165.01
130.0	773.86	.75	19.36	50.57	77.42	134.35	172.53
135.0	868.16	.84	20.96	53.56	81.37	140.16	179.60
140.0	956.05	.92	22.38	56.15	84.72	145.22	185.66
145.0	1029.42	.99	23.51	58.16	87.39	149.17	190.44
150.0	1081.12	1.04	24.27	59.54	89.17	151.84	193.65
155.0	1105.36	1.07	24.63	60.17	89.98	153.06	195.10
160.0	1098.26	1.06	24.52	59.99	89.75	152.71	194.68
165.0	1058.47	1.02	23.94	58.94	88.40	150.68	192.27
170.0	988.04	.96	22.87	57.04	85.90	146.96	187.77
175.0	893.90	.87	21.38	54.33	82.37	141.68	181.41
180.0	790.49	.77	19.65	51.11	78.14	135.40	173.82
185.0	703.79	.69	18.10	48.18	74.30	129.67	166.88

Azimuth	Radiation (mV/m at one km)	Distances to Contours in Kilometers : Contour levels in mV/m. 1000.000	25.000	5.000	2.000	.500	.250
190.0	671.81	.66	17.51	47.04	72.79	127.43	164.14
195.0	725.69	.71	18.50	48.95	75.30	131.17	168.69
200.0	861.67	.84	20.86	53.36	81.11	139.78	179.14
205.0	1051.11	1.01	23.83	58.75	88.14	150.30	187.05
210.0	1266.47	1.22	26.88	64.11	95.11	160.72	187.37
215.0	1488.85	1.42	29.74	69.00	101.48	163.82	187.25
220.0	1705.93	1.62	32.28	73.29	107.07	171.75	196.45
225.0	1909.65	1.80	34.50	76.99	111.87	176.44	202.78
230.0	2094.77	1.97	36.39	80.13	115.94	179.49	212.55
235.0	2258.06	2.12	37.97	82.73	119.31	181.67	215.49
240.0	2397.75	2.24	39.26	84.84	122.07	183.88	218.33
245.0	2513.10	2.34	40.29	86.53	124.26	186.33	221.30
250.0	2604.04	2.42	41.08	87.82	125.94	188.58	219.56
255.0	2670.85	2.48	41.66	88.73	127.14	189.57	218.53
260.0	2713.93	2.52	42.02	89.32	127.87	191.50	220.62
265.0	2733.61	2.53	42.19	89.58	127.97	192.96	222.41
270.0	2729.98	2.53	42.16	89.53	128.00	192.96	223.82
275.0	2702.89	2.51	41.93	89.17	127.71	192.88	224.08
280.0	2651.91	2.46	41.50	88.48	126.80	192.54	224.00
285.0	2576.45	2.40	40.85	87.43	125.44	191.90	224.19
290.0	2475.88	2.31	39.97	85.99	123.56	191.88	225.93
295.0	2349.73	2.20	38.82	84.12	121.13	193.16	229.14
300.0	2197.96	2.06	37.40	81.80	118.09	192.87	232.01
305.0	2021.18	1.90	35.65	78.90	114.35	187.72	228.22
310.0	1821.02	1.72	33.55	75.42	109.83	181.15	220.50
315.0	1600.34	1.52	31.07	71.26	104.41	173.24	211.21
320.0	1363.65	1.31	28.16	66.32	97.98	164.37	200.60
325.0	1117.51	1.08	24.80	60.49	90.39	153.67	188.22
330.0	871.63	.85	21.02	53.66	81.50	140.37	173.94
335.0	641.75	.63	16.94	45.94	71.34	125.27	158.27
340.0	458.59	.45	13.18	38.29	61.22	110.14	142.65
345.0	380.14	.37	11.39	34.41	55.98	102.33	133.47
350.0	435.27	.43	12.66	37.19	59.72	107.94	139.20
355.0	556.43	.54	15.26	42.59	66.92	118.66	149.18

Figure 9 – Distances to Proposed KLIM(AM) Day Contours – Page 2

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Figure 10

NIGHTTIME SKYWAVE RADIATION LIMITS
KLIM(AM), 1120 KHz, SECURITY, CO
3.0 WATTS USING DAYTIME PATTERN

Coordinates: 38°-50'-21" N., 103°-51'-28" W.

Point	Distance (km)	Bearing (degs)	Theta Min. (degs)	Theta Max. (degs)	RSS Limit (mV/m)	Reqd. Prot. (mV/m)	Skywv. Mult. (uV/m)	Allowed Radiation (mV/m @ 1 km)	Prop. Radiation (mV/m @ 1 km)
NEW	731.2	230.7	9.5	16.4	10.33	2.58	71.51	180.6	28.6
NEW	509.2	210.9	14.6	24.0	11.79	2.90	117.27	123.5	18.6
NEW	387.0	208.8	19.5	30.8	13.15	3.29	163.22	100.7	16.7
KMOX235	769.7	143.3	8.9	15.5	24.76	.50	66.22	37.8	
KMOX240	682.2	143.0	10.4	17.8	23.86	.50	78.68	31.8	
KMOX245	596.4	141.8	12.2	20.5	24.06	.50	94.71	26.4	
KMOX250	513.6	139.4	14.5	23.8	24.26	.50	115.32	21.7	15.7
KMOX255	435.9	135.2	17.3	27.7	24.47	.50	141.37	17.7	14.8
KMOX260	366.9	128.3	20.6	32.2	25.63	.50	172.42	14.5	13.6
KMOX265	312.1	117.6	24.0	36.7	26.10	.50	204.34	12.2	12.0
KMOX270	279.4	102.9	26.6	39.9	26.62	.50	227.14	11.0	10.8
KMOX275	275.9	86.1	26.9	40.3	27.13	.50	229.33	10.9	10.3
KMOX280	301.6	71.0	24.8	37.7	27.59	.50	209.93	11.9	10.4
KMOX285	349.3	59.8	21.6	33.6	28.00	.50	179.34	13.9	10.9
KMOX290	410.4	52.4	18.4	29.3	28.33	.50	148.10	16.9	11.5
KMOX295	478.7	47.7	15.7	25.4	28.64	.50	121.26	20.6	12.1
KMOX300	550.6	44.8	13.4	22.2	29.00	.50	99.68	25.1	
KMOX305	624.0	43.2	11.6	19.5	29.41	.50	82.69	30.2	
KMOX310	697.8	42.5	10.1	17.3	29.79	.50	69.34	36.1	
KMOX315	771.2	42.3	8.8	15.5	29.97	.50	58.79	42.5	
KMOX320	843.7	42.5	7.8	13.9	29.66	.50	50.38	49.6	
KANN	741.8	292.0	9.3	16.2	7.03	1.71	66.37	128.6	32.4