

KLEIN BROADCAST ENGINEERING, L.L.C.

dedicated to improving the science and technology of radio & television communications

**ENGINEERING EXHIBIT E-4
PREPARED IN SUPPORT
OF A FCC FORM 301 APPLICATION
(A MINOR CHANGE)
FM STATION K C U V (FM)
(FCC FACILITY ID 37028)
GREENWOOD VILLAGE, COLORADO**

Engineering Exhibit E-4, was prepared on behalf of FM Station KCUV(FM) at Greenwood Village, Colorado, in support of its qualification to provide the Commission with an exhibit that shows compliance with 47 CFR Section 73.315 of the Commission's Rules, using an alternate method of contour prediction.

The purpose of this exhibit is to provide information demonstrating that a supplemental showing is warranted based on the FCC's guidelines for considering supplemental showings in the context of compliance with the coverage of the community of license (47 CFR Section 73.315). This exhibit demonstrates the instant application for a minor change complies with the community of license coverage requirements of 47 CFR Section 73.315 based on this supplemental showing.

Station KCUV(FM) is presently licensed (FCC File No. BLH-20051110ACE) to operate on FM Channel 272 A at Greenwood Village, Colorado, with an effective radiated power (ERP) of 6kW and an antenna height above average terrain of 64 meters (HAAT). The instant application, a minor change, seeks to specify operation on FM Channel 272 A at Greenwood Village, Colorado, also but with different facilities and different location than presently authorized.

Engineering Exhibit E-4 cont'd page two: KCUV(FM)

The purpose of the instant application is to operate KCUV as a maximum Class A facility and change transmitter location. It is proposed to operate KCUV(FM) with a facility that will operate with 1.0kW ERP at 238 meters HAAT (a full Class A facility for 238 meters HAAT). The application proposes operation as a 47 CFR Section 73.207 authorized station.

Demonstration that Consideration of a Supplemental Showing is Warranted

The predicted 70dBu contour, based on the FCC's standard prediction method will not provide coverage to at least 80% of the principal community, Greenwood Village, Colorado, from the proposed 47 CFR Section 73.207 transmitter site. However, using terrain sensitive propagation modeling, the 70dBu coverage contour is predicted to encompass at least 80% of Greenwood Village, Colorado. (see Longley-Rice/Free Space Coverage) as required by the Commission's Rules. It is believed that a supplemental showing using an alternative contour prediction method is justified in this instance in accordance with 47 CFR Section 73.313(e) due to the "widely varying" terrain along the radials towards the community of license, Greenwood Village, Colorado. In this regard, it is noted that the f(50,50) curves presume average terrain with a terrain roughness or delta h of 50 meters, whereas based on the methods of 47 CFR Section 73.313, delta h was determined to be between 205.66 and 309.18 meters along several radials through Greenwood Village, Colorado, with the average being 246.76 meters.

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Specifically, delta h was determined at 114 degrees true, the direct radial bearing through the center of the Principal Community, Greenwood Village, Colorado. A reference point was also established although the reference point is not close to the geographic center of the community. That reference point was determined from the Geographic Names Information System. Delta H was determined along the radials of 110 degrees true, 112 degrees true, 114 degrees true, 116 degrees true and 118 degrees from 0 kilometers distance to 35.8kM, 36.3kM, 36.7kM, 37.3kM and 35.9kM respectively, on each of the five radials from the proposed Section 73.207 transmitter site. The actual distance to the furthest community limit boundary of Greenwood Village on each radial is: 110 degrees = 34.8 kilometers, 112 degrees = 35.3 kilometers, 114 degrees = 35.7 kilometers, 116 degrees = 36.7 kilometers and 118 degrees = 34.9 kilometers. This writer ran the radials out approximately 1 kilometer distance past the principal community boundary to insure a calculation past the most distant community of license boundary on each radial. All of the terrain data was derived from the Defense Mapping agency 3 Arc Second Terrain Datafile. (DMA 3 Arc Second Digitized Terrain Datafile) The specific delta h calculations are as follows:

110 degrees true = 205.66 meters delta h (0 to 35.8 kilometers)
112 degrees true = 216.56 meters delta h (0 to 36.3 kilometers)
114 degrees true = 237.64 meters delta h (0 to 36.7 kilometers)
116 degrees true = 264.74 meters delta h (0 to 37.3 kilometers)
118 degree true = 309.18 meters delta h (0 to 35.9 kilometers)
Average = 246.76 meters delta h

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In addition to the above radials, we have calculated the 3 to 16 kilometer delta h for the following radials:

**102 degrees true = 138.60 meters delta h (3 to 16 kilometers)
104 degrees true = 144.47 meters delta h (3 to 16 kilometers)
106 degrees true = 182.23 meters delta h (3 to 16 kilometers)
108 degrees true = 196.44 meters delta h (3 to 16 kilometers)
110 degrees true = 184.29 meters delta h (3 to 16 kilometers)
112 degrees true = 185.26 meters delta h (3 to 16 kilometers)
114 degrees true = 187.82 meters delta h (3 to 16 kilometers)
116 degrees true = 189.33 meters delta h (3 to 16 kilometers)
118 degrees true = 163.10 meters delta h (3 to 16 kilometers)
120 degrees true = 139.33 meters delta h (3 to 16 kilometers)
122 degrees true = 153.27 meters delta h (3 to 16 kilometers)
124 degrees true = 173.99 meters delta h (3 to 16 kilometers)
126 degrees true = 198.74 meters delta h (3 to 16 kilometers)
Average = 172.06 meters delta h**

The FCC considers terrain to “depart widely” from the 50 meter delta h standard where the delta h value is 20 meters or less or 100 meters or greater, as indicated above delta h was determined to be between 205.66 and 309.18 meters along the radials through Greenwood Village, Colorado with the average delta h for those radials of 246.76 meters. Furthermore, the FCC has previously accepted the use of an alternate method to determine the location of the principal community contour for more than several proposals, specifically KRFR at Shafter, California and KALF at Red Bluff, California and KSRV-FM, at Ontario, Oregon. The Commission has allowed the use of an alternate contour prediction method when the delta h was less than 20 meters or more than 100 meters on the radials toward the principal community from the proposed transmitter site as is the case herein.

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Longley-Rice / Free Space Coverage

Both the Longley-Rice prediction method (Rice, P.L., A.G. Longley, K.A. Norton and A.P. Barsis, "Transmission Loss Predictions for Tropospheric Communications Circuits," Technical Note 101 Issued May 7, 1965, Revised January 1, 1967, National Bureau of Standards, Boulder, Colorado.) see also (Longley, A.G. and P.L. Rice, "Prediction of Tropospheric Radio Transmission Loss Over Irregular Terrain; A Computer Method-1969" "ESSA Technical Report ERL-ITS 67, Institute for Telecommunications Sciences, Boulder, Colorado, July 1968.) and the Free Space Method are used for more precise alternatives to the Commission's standard contour prediction method to determine the location of the proposed KCUV(FM) 70dBu contour.

For the Longley Rice method, terrain profiles were prepared for the 110 degree T. radial , the 112 degree T. radial, the 114 degree T. radial, the 116 degree T radial, and the 118 degree T. radial. Exhibits E4-A, E4-B, E4-C, E4-D and E4-E depict the true terrain profiles for these radials. The terrain data was derived from the Defense Mapping Agency 3 Arc Second Terrain Database.

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Using these terrain elevations , calculations of field strength were made along each radial using the Longley-Rice prediction method. The following parameters were employed in the calculations:

Model:	Point to Point Irregular
Radio Climate:	Continental Temperate
Surface Refractivity:	301
Location Variability:	50%
Time Variability:	50%
Situation Variability:	50%
Frequency:	102.3mHz.
Polarization:	Horizontal
Conductivity:	0.004 m/S
Dielectric Constant:	15.0
Transmitter Antenna Height AMSL:	2256 meters
Transmitting Antenna:	Omni-Directional
Maximum Effective Radiated Power:	1.0kW
Receive Antenna Height AGL:	9 meters
Clutter Factor:	0 & 3.0dB

As indicated a zero clutter factor and a 3dB clutter factor was used to take into account field strength variations due to local clutter (e.g. trees, buildings and other structures) The use of a 3.0dB clutter factor appears conservative here. For instance , a 2 dB clutter factor was used by O.E.T. to establish that KALF-FM encompassed its main studio location with its principal community contour in the Engineering Memorandum issued by O.E.T. September 1992.

In addition Bullington indicated that the average loss for surrounding trees for horizontal polarization may be 2 to 3 dB (see Kenneth Bullington, "Radio Propagation Above 30 Megacycles, Proc IRE, October 1947)

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The calculated field strength at the respective end point for each of the five pertinent radials is tabulated here. The distance is listed from the proposed Section 73.207 transmitter site using the Longley-Rice method is as follows for each radial calculated:

**110 degrees true = 35.8 kilometers = 73.82 dBu
112 degrees true = 36.3 kilometers = 73.60 dBu
114 degrees true = 36.7 kilometers = 73.60 dBu
116 degrees true = 37.3 kilometers = 73.46 dBu
118 degrees true = 35.9 kilometers = 74.19 dBu**

The calculated distance to the 70dBu field strength level using the Longley-Rice method is as follows for the radials of concern:

**110 degrees true distance to 70dBu contour = 41.27 kM
112 degrees true distance to 70dBu contour = 41.02 kM
114 degrees true distance to 70dBu contour = 40.55 kM
116 degrees true distance to 70dBu contour = 39.98 kM
118 degrees true distance to 70dBu contour = 39.34 kM**

The distances for the 70dBu contour using the FCC Standard Prediction Method f(50,50) for the radials of concern are as follows:

**110 degrees true distance to 70dBu contour = 22.92 kM
112 degrees true distance to 70dBu contour = 22.66 kM
114 degrees true distance to 70dBu contour = 22.42 kM
116 degrees true distance to 70dBu contour = 22.08 kM
118 degrees true distance to 70dBu contour = 21.74 kM**

The preceding tabulations for the distances to the 70dBu contour using the FCC Standard Prediction Method and above that using the Longley-Rice Method shows a greater than 10% difference in predicted distances to the 70dBu contour of concern.

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The following will provide a sample of the Longley-Rice method predicted field strength at the Greenwood Village, Colorado, geographic reference location:

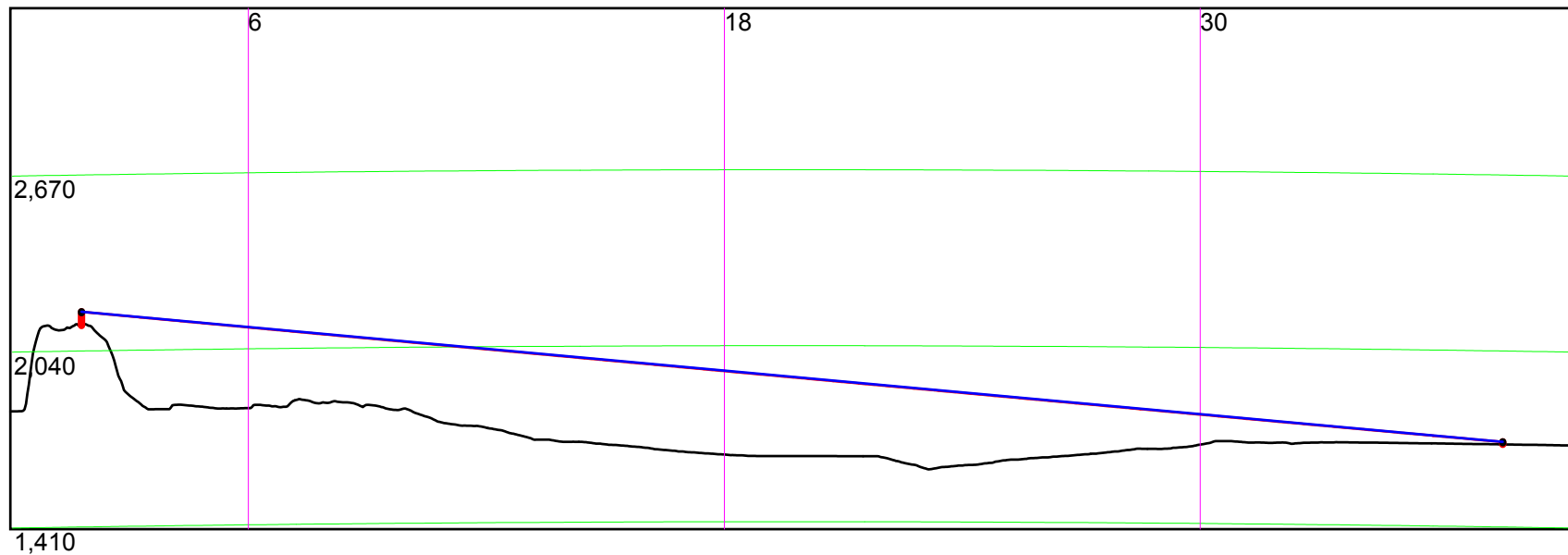
**NL: 39-37-02 / WL: 104-57-01 (NAD-27)
Distance is 27.68 kilometers from transmitter site
Free Space Field with (1.0kW / 0.0dBk) 78.06 dBu
Additional Estimated Transmission Loss -0.5 dB
Clutter Loss -5.0dB
Longley-Rice Predicted Net field strength of 72.56 dBu**

From the preceding it can be assumed that the entire principal community will receive 70dBu and greater signal strength over 100% of the community of license, Greenwood Village, Colorado.

Conclusion

As demonstrated above, use of a supplemental showing is warranted based on the FCC's guidelines for considering supplemental showings in the context compliance with coverage of the of the community of license, principal community coverage requirements of 47 CFR Section 73.315 based on the allowable supplemental showing.

Terrain Profile from +039:43:59 / -105:14:10 to +039:37:24 / -104:50:38 NAD-27



Description: PATH PROFILE to GREENWOOD VILLAGE, CO 110 DEGREES TRUE with LONGLEY-RICE PATH LOSS

Start Point Latitude: +039:43:59

Start Point Longitude: -105:14:10

Start Point AMSL: 2,131.7 meters

Start Antenna AGL: 49 meters

Range: 35.8 km

Bearing: 110 degrees

Average Height: 1,725.4 meters

Minimum Height: 1,598.1 meters

Maximum Height: 2,136.3 meters

End Point Latitude: +039:37:24

End Point Longitude: -104:50:38

End Point AMSL: 1,706.0 meters

End Antenna AGL: 9 meters

E-Curve: 1.330

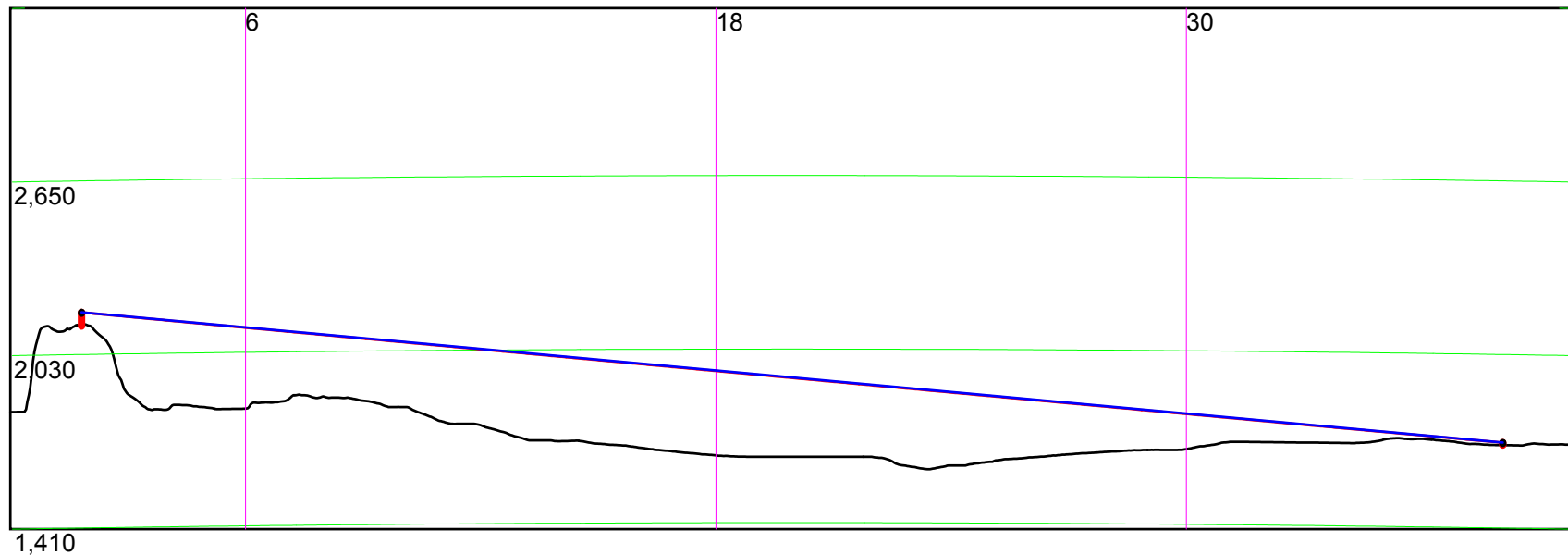
% Fresnel: 1

Frequency: 102 MHz

Free Space Path Loss: 103.5 dB

Modeled Path Loss: 103.8 dB

Terrain Profile from +039:43:59 / -105:14:10 to +039:36:45 / -104:50:38 NAD-27



Description: PATH PROFILE to GREENWOOD VILLAGE, CO 112 DEGREES TRUE with LONGLEY-RICE PATH LOSS

Start Point Latitude: +039:43:59

Start Point Longitude: -105:14:10

Start Point AMSL: 2,131.4 meters

Start Antenna AGL: 49 meters

Range: 36.3 km

Bearing: 112 degrees

Average Height: 1,729.4 meters

Minimum Height: 1,601.1 meters

Maximum Height: 2,137.0 meters

End Point Latitude: +039:36:45

End Point Longitude: -104:50:38

End Point AMSL: 1,706.0 meters

End Antenna AGL: 9 meters

E-Curve: 1.330

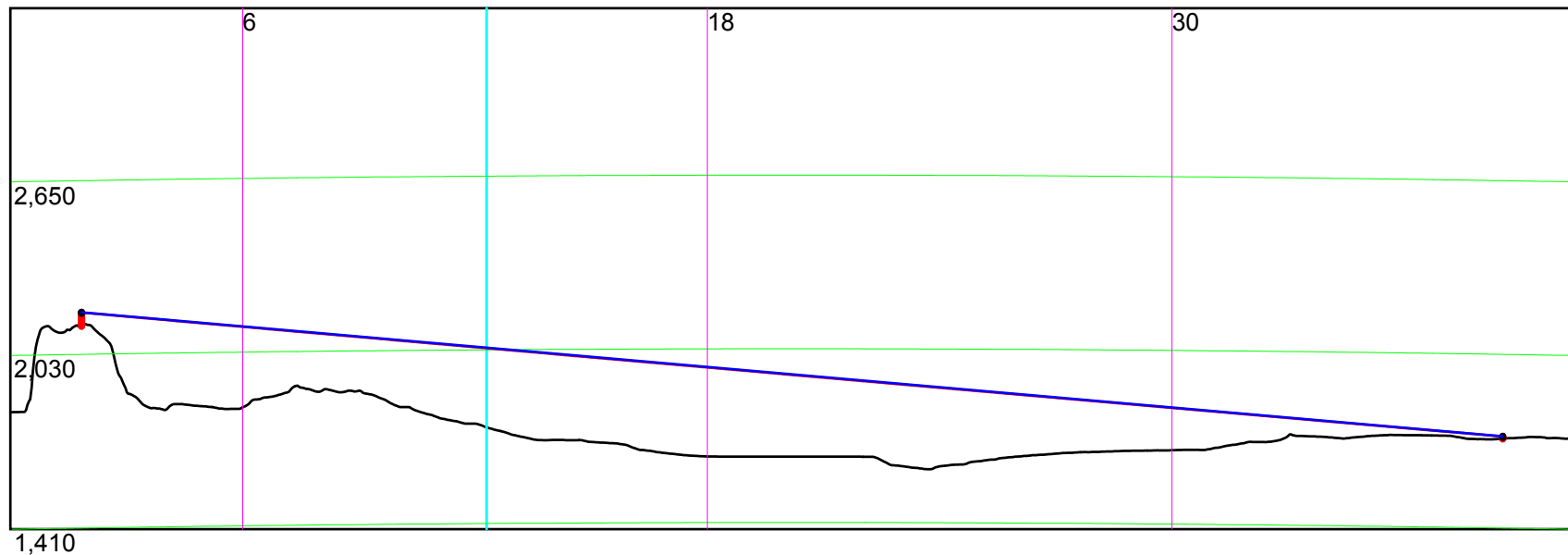
% Fresnel: 1

Frequency: 102 MHz

Free Space Path Loss: 103.6 dB

Modeled Path Loss: 105.7 dB

Terrain Profile from +039:43:59 / -105:14:10 to +039:35:58 / -104:50:44 NAD-27



Description: PATH PROFILE to GREENWOOD VILLAGE, CO 114 DEGREES TRUE with LONGLEY-RICE PATH LOSS

Start Point Latitude: +039:43:59

End Point Latitude: +039:35:58

Start Point Longitude: -105:14:10

End Point Longitude: -104:50:44

Start Point AMSL: 2,130.8 meters

End Point AMSL: 1,728.4 meters

Start Antenna AGL: 49 meters

End Antenna AGL: 9 meters

Left Marker Latitude: +039:44:16

Left Marker Longitude: -105:14:55

Left Marker AMSL: 1773.5 meters

Range: 36.7 km

E-Curve: 1.330

Bearing: 114 degrees

% Fresnel: 1

Average Height: 1,735.1 meters

Frequency: 102 MHz

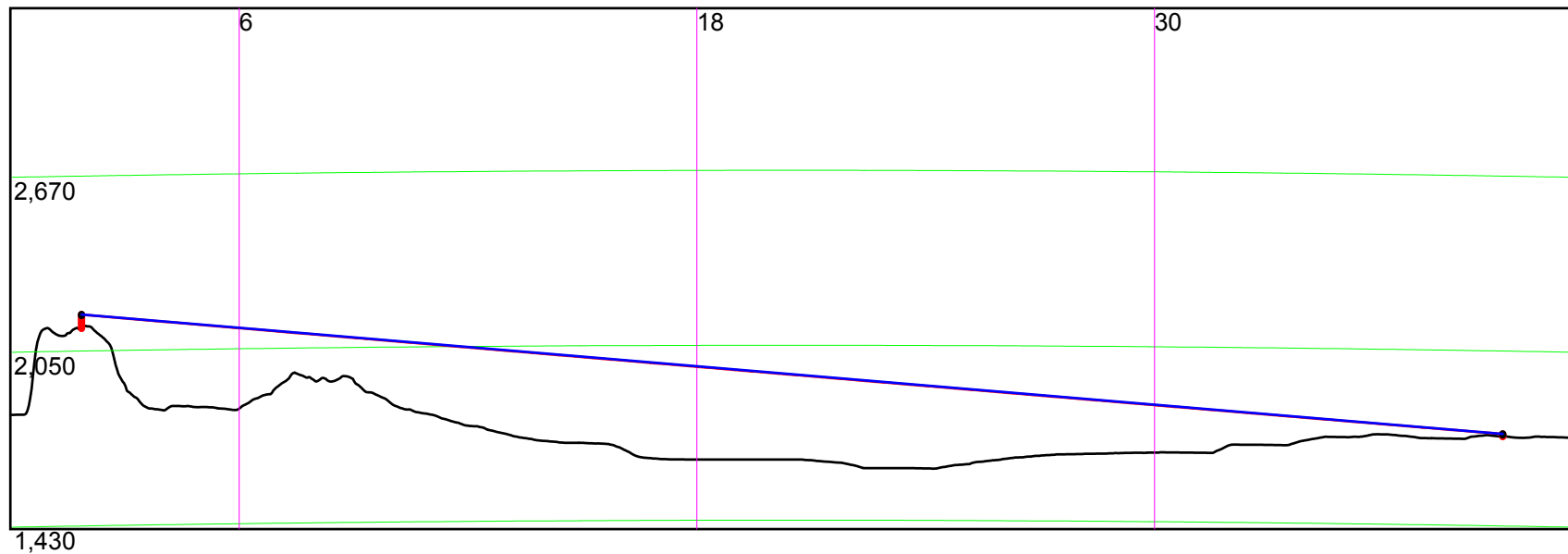
Minimum Height: 1,601.1 meters

Free Space Path Loss: 103.7 dB

Maximum Height: 2,137.8 meters

Modeled Path Loss: 105.5 dB

Terrain Profile from +039:43:59 / -105:14:10 to +039:35:06 / -104:50:49 NAD-27



Description: PATH PROFILE to GREENWOOD VILLAGE, CO 116 DEGREES TRUE with LONGLEY-RICE PATH LOSS

Start Point Latitude: +039:43:59

Start Point Longitude: -105:14:10

Start Point AMSL: 2,130.4 meters

Start Antenna AGL: 49 meters

Range: 37.3 km

Bearing: 116 degrees

Average Height: 1,740.9 meters

Minimum Height: 1,613.4 meters

Maximum Height: 2,138.8 meters

End Point Latitude: +039:35:06

End Point Longitude: -104:50:49

End Point AMSL: 1,747.1 meters

End Antenna AGL: 9 meters

E-Curve: 1.330

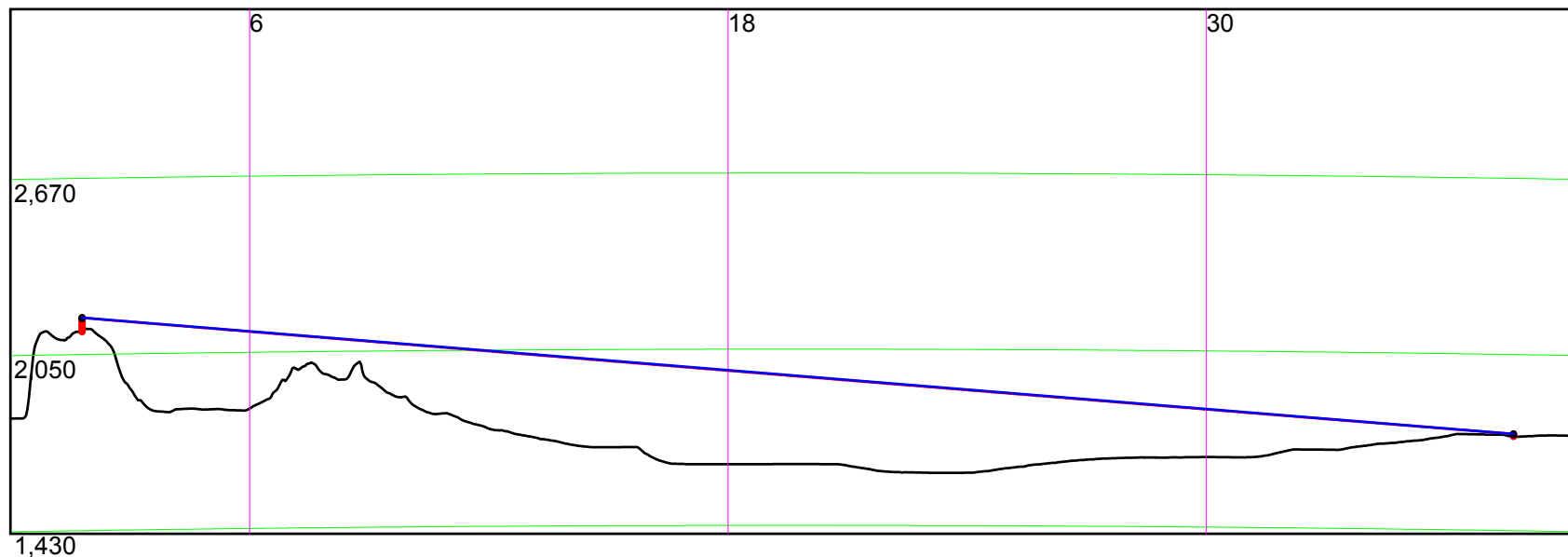
% Fresnel: 1

Frequency: 102 MHz

Free Space Path Loss: 103.8 dB

Modeled Path Loss: 105.6 dB

Terrain Profile from +039:43:59 / -105:14:10 to +039:34:53 / -104:52:02 NAD-27



Description: PATH PROFILE to GREENWOOD VILLAGE, CO 118 DEGREES TRUE with LONGLEY-RICE PATH LOSS

Start Point Latitude: +039:43:59

Start Point Longitude: -105:14:10

Start Point AMSL: 2,130.1 meters

Start Antenna AGL: 49 meters

Range: 35.9 km

Bearing: 118 degrees

Average Height: 1,747.1 meters

Minimum Height: 1,614.9 meters

Maximum Height: 2,139.8 meters

End Point Latitude: +039:34:53

End Point Longitude: -104:52:02

End Point AMSL: 1,761.1 meters

End Antenna AGL: 9 meters

E-Curve: 1.330

% Fresnel: 1

Frequency: 102 MHz

Free Space Path Loss: 103.5 dB

Modeled Path Loss: 105.1 dB

KCUV(FM)
FM CHANNEL 272A
GREENWOOD VILLAGE, CO

EXHIBIT E-4F
TABULATION of DELTA h

0km TO 35.8km
110 DEGREE RADIAL

Azimuth	Distance to Start (m)	Distance to End (m)	Roughness (m)	Max (m)	Min (m)	90th Pct (m)	10th Pct (m)	SDev	Var	Mean (m)	Count
110	0	35.8	205.66	2155.33	1599.46	1842.83	1637.16	99.79	9958.62	1725.71	138

TestPoint	Latitude	Longitude	Height AMSL (meters)
1	39.733	-105.2367	2 155.33
2	39.7322	-105.2338	2 132.16
3	39.7314	-105.2309	2 95.57
4	39.7306	-105.2281	2 27.62
5	39.7298	-105.2252	1 916.59
6	39.729	-105.2223	1 872.96
7	39.7282	-105.2195	1 840.79
8	39.7274	-105.2166	1 830.46
9	39.7266	-105.2137	1 828
10	39.7258	-105.2109	1 844.12
11	39.725	-105.208	1 842.63
12	39.7242	-105.2051	1 838.13
13	39.7234	-105.2023	1 833.44
14	39.7226	-105.1994	1 828.31
15	39.7218	-105.1966	1 827.87
16	39.721	-105.1937	1 827.84
17	39.7202	-105.1908	1 828
18	39.7194	-105.188	1 842.83
19	39.7186	-105.1851	1 841.24
20	39.7178	-105.1822	1 838.87
21	39.717	-105.1794	1 848.32
22	39.7161	-105.1765	1 863.76
23	39.7153	-105.1736	1 856.62
24	39.7145	-105.1708	1 849.66
25	39.7137	-105.1679	1 852.52
26	39.7129	-105.1651	1 851.19
27	39.7121	-105.1622	1 848.54
28	39.7113	-105.1593	1 834.53
29	39.7105	-105.1565	1 835.91
30	39.7097	-105.1536	1 827.72
31	39.7089	-105.1507	1 820.46
32	39.7081	-105.1479	1 825.18
33	39.7073	-105.145	1 811.17

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TABULATION of DELTA h

0km TO 35.8km
110 DEGREE RADIAL

34	39.7065	-105.1422	1	796.68
35	39.7057	-105.1393	1	782.3
36	39.7049	-105.1364	1	769.23
37	39.7041	-105.1336	1	762.76
38	39.7033	-105.1307	1	760.12
39	39.7025	-105.1278	1	759.67
40	39.7017	-105.125	1	751.91
41	39.7008	-105.1221	1	744.05
42	39.7	-105.1192	1	734.39
43	39.6992	-105.1164	1	724.04
44	39.6984	-105.1135	1	713.87
45	39.6976	-105.1107	1	706.12
46	39.6968	-105.1078	1	706
47	39.696	-105.1049	1	699.92
48	39.6952	-105.1021	1	698.75
49	39.6944	-105.0992	1	698.75
50	39.6936	-105.0963	1	695.03
51	39.6928	-105.0935	1	691.12
52	39.692	-105.0906	1	687.35
53	39.6912	-105.0878	1	684.88
54	39.6904	-105.0849	1	681.42
55	39.6896	-105.082	1	677.88
56	39.6888	-105.0792	1	673.01
57	39.688	-105.0763	1	668.56
58	39.6872	-105.0734	1	665.13
59	39.6864	-105.0706	1	661.7
60	39.6856	-105.0677	1	659.09
61	39.6848	-105.0649	1	655.83
62	39.6839	-105.062	1	653.39
63	39.6831	-105.0591	1	650.95
64	39.6823	-105.0563	1	648.52
65	39.6815	-105.0534	1	647.07
66	39.6807	-105.0505	1	645.57
67	39.6799	-105.0477	1	645
68	39.6791	-105.0448	1	645
69	39.6783	-105.042	1	645
70	39.6775	-105.0391	1	645

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TABULATION of DELTA h

0km TO 35.8km
110 DEGREE RADIAL

71	39.6767	-105.0362	1	645
72	39.6759	-105.0334	1	645
73	39.6751	-105.0305	1	645
74	39.6743	-105.0276	1	645
75	39.6735	-105.0248	1	645
76	39.6727	-105.0219	1	645
77	39.6719	-105.0191	1	645
78	39.6711	-105.0162	1	642.99
79	39.6703	-105.0133	1	634.32
80	39.6695	-105.0105	1	624.33
81	39.6686	-105.0076	1	615.56
82	39.6678	-105.0048	1	605.52
83	39.667	-105.0019	1	599.46
84	39.6662	-104.999	1	606.16
85	39.6654	-104.9962	1	610.09
86	39.6646	-104.9933	1	613.93
87	39.6638	-104.9904	1	615.2
88	39.663	-104.9876	1	620.2
89	39.6622	-104.9847	1	624.59
90	39.6614	-104.9819	1	632.02
91	39.6606	-104.979	1	635.06
92	39.6598	-104.9761	1	637.16
93	39.659	-104.9733	1	641.02
94	39.6582	-104.9704	1	643.18
95	39.6574	-104.9676	1	646.14
96	39.6566	-104.9647	1	649.12
97	39.6558	-104.9618	1	652.8
98	39.655	-104.959	1	655.28
99	39.6542	-104.9561	1	658.68
100	39.6534	-104.9532	1	663.08
101	39.6526	-104.9504	1	666.51
102	39.6517	-104.9475	1	671.88
103	39.6509	-104.9447	1	676
104	39.6501	-104.9418	1	676
105	39.6493	-104.9389	1	676
106	39.6485	-104.9361	1	678.48
107	39.6477	-104.9332	1	682.1

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EXHIBIT E-4F
TABULATION of DELTA h

0km TO 35.8km
110 DEGREE RADIAL

108	39.6469	-104.9304	1	686.28
109	39.6461	-104.9275	1	693.68
110	39.6453	-104.9246	1	702.22
111	39.6445	-104.9218	1	706
112	39.6437	-104.9189	1	705.87
113	39.6429	-104.9161	1	704.46
114	39.6421	-104.9132	1	703
115	39.6413	-104.9103	1	703.34
116	39.6405	-104.9075	1	702.87
117	39.6397	-104.9046	1	704.35
118	39.6389	-104.9018	1	700.74
119	39.6381	-104.8989	1	703.34
120	39.6373	-104.896	1	704
121	39.6364	-104.8932	1	705
122	39.6356	-104.8903	1	706
123	39.6348	-104.8875	1	706
124	39.634	-104.8846	1	706
125	39.6332	-104.8817	1	706
126	39.6324	-104.8789	1	706
127	39.6316	-104.876	1	706
128	39.6308	-104.8732	1	706
129	39.63	-104.8703	1	706
130	39.6292	-104.8674	1	706
131	39.6284	-104.8646	1	706
132	39.6276	-104.8617	1	706
133	39.6268	-104.8588	1	706
134	39.626	-104.856	1	706
135	39.6252	-104.8531	1	706
136	39.6244	-104.8503	1	706
137	39.6236	-104.8474	1	706
138	39.6228	-104.8446	1	706

KCUV(FM)
FM CHANNEL 272A
GREENWOOD VILLAGE, CO

EXHIBIT E-4G
TABULATION of DELTA h

0km TO 36.3km
112 DEGREE RADIAL

Azimuth	Distance to Start (m)	Distance to End (m)	Roughness (m)	Max (m)	Min (m)	90th Pct (m)	10th Pct (m)	SDev	Var	Mean (m)	Count
112	0	36.3	216.56	2155.33	1602.19	1859.71	1643.14	102.4	10486.65	1730.14	139

TestPoint	Latitude	Longitude	Height AMSL (meters)
1	39.733	-105.2367	2 155.33
2	39.7322	-105.2338	2 133.81
3	39.7313	-105.231	2 99.1
4	39.7304	-105.2281	2 31.84
5	39.7295	-105.2253	1 928.19
6	39.7286	-105.2224	1 880.2
7	39.7277	-105.2196	1 845.86
8	39.7268	-105.2167	1 834.28
9	39.7259	-105.2139	1 828
10	39.7251	-105.2111	1 846.8
11	39.7242	-105.2082	1 844.85
12	39.7233	-105.2054	1 839.58
13	39.7224	-105.2025	1 836.31
14	39.7215	-105.1997	1 829.85
15	39.7206	-105.1968	1 828
16	39.7197	-105.194	1 828
17	39.7189	-105.1911	1 834.07
18	39.718	-105.1883	1 853.65
19	39.7171	-105.1855	1 857.02
20	39.7162	-105.1826	1 859.71
21	39.7153	-105.1798	1 869.72
22	39.7144	-105.1769	1 883.51
23	39.7135	-105.1741	1 880.26
24	39.7126	-105.1712	1 871.38
25	39.7117	-105.1684	1 873.42
26	39.7109	-105.1655	1 868.81
27	39.71	-105.1627	1 870.52
28	39.7091	-105.1599	1 864.1
29	39.7082	-105.157	1 856.34
30	39.7073	-105.1542	1 845.4
31	39.7064	-105.1513	1 832.25
32	39.7055	-105.1485	1 829.18
33	39.7046	-105.1456	1 820.59

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EXHIBIT E-4G
TABULATION of DELTA h

0km TO 36.3km
112 DEGREE RADIAL

34	39.7038	-105.1428	1	805.4
35	39.7029	-105.1399	1	792.72
36	39.702	-105.1371	1	777.74
37	39.7011	-105.1343	1	770.33
38	39.7002	-105.1314	1	767
39	39.6993	-105.1286	1	767
40	39.6984	-105.1257	1	756.63
41	39.6975	-105.1229	1	745.45
42	39.6967	-105.12	1	735.09
43	39.6958	-105.1172	1	721.93
44	39.6949	-105.1144	1	711.83
45	39.694	-105.1115	1	706
46	39.6931	-105.1087	1	706
47	39.6922	-105.1058	1	704
48	39.6913	-105.103	1	704.58
49	39.6904	-105.1001	1	705.56
50	39.6896	-105.0973	1	699.51
51	39.6887	-105.0945	1	694.21
52	39.6878	-105.0916	1	690.98
53	39.6869	-105.0888	1	689.25
54	39.686	-105.0859	1	685.92
55	39.6851	-105.0831	1	678.8
56	39.6842	-105.0802	1	674.29
57	39.6833	-105.0774	1	669.88
58	39.6825	-105.0746	1	665.41
59	39.6816	-105.0717	1	660.93
60	39.6807	-105.0689	1	657.46
61	39.6798	-105.066	1	653.98
62	39.6789	-105.0632	1	650.69
63	39.678	-105.0603	1	648.25
64	39.6771	-105.0575	1	646
65	39.6762	-105.0547	1	645.29
66	39.6754	-105.0518	1	645
67	39.6745	-105.049	1	645
68	39.6736	-105.0461	1	645
69	39.6727	-105.0433	1	645
70	39.6718	-105.0404	1	645

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TABULATION of DELTA h

0km TO 36.3km
112 DEGREE RADIAL

71	39.6709	-105.0376	1	645
72	39.67	-105.0348	1	645
73	39.6691	-105.0319	1	645
74	39.6683	-105.0291	1	645
75	39.6674	-105.0262	1	645
76	39.6665	-105.0234	1	645
77	39.6656	-105.0205	1	645
78	39.6647	-105.0177	1	645
79	39.6638	-105.0149	1	643.14
80	39.6629	-105.012	1	621.6
81	39.662	-105.0092	1	613.01
82	39.6612	-105.0063	1	607.2
83	39.6603	-105.0035	1	602.19
84	39.6594	-105.0006	1	604.7
85	39.6585	-104.9978	1	612.88
86	39.6576	-104.995	1	615
87	39.6567	-104.9921	1	617.21
88	39.6558	-104.9893	1	623.86
89	39.6549	-104.9864	1	629.02
90	39.6541	-104.9836	1	634.76
91	39.6532	-104.9808	1	639.29
92	39.6523	-104.9779	1	642.13
93	39.6514	-104.9751	1	645.3
94	39.6505	-104.9722	1	648.71
95	39.6496	-104.9694	1	652.19
96	39.6487	-104.9666	1	655.07
97	39.6478	-104.9637	1	657.55
98	39.647	-104.9609	1	660.63
99	39.6461	-104.958	1	662.82
100	39.6452	-104.9552	1	665.78
101	39.6443	-104.9523	1	668.16
102	39.6434	-104.9495	1	670.55
103	39.6425	-104.9467	1	672.01
104	39.6416	-104.9438	1	673
105	39.6407	-104.941	1	673.98
106	39.6399	-104.9381	1	674.83
107	39.639	-104.9353	1	675

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TABULATION of DELTA h

0km TO 36.3km
112 DEGREE RADIAL

108	39.6381	-104.9325	1	677.07
109	39.6372	-104.9296	1	682.55
110	39.6363	-104.9268	1	686.94
111	39.6354	-104.9239	1	691.56
112	39.6345	-104.9211	1	700.51
113	39.6336	-104.9183	1	706
114	39.6328	-104.9154	1	706
115	39.6319	-104.9126	1	706
116	39.631	-104.9097	1	706
117	39.6301	-104.9069	1	706
118	39.6292	-104.904	1	706
119	39.6283	-104.9012	1	706.01
120	39.6274	-104.8984	1	706.08
121	39.6265	-104.8955	1	706
122	39.6257	-104.8927	1	706
123	39.6248	-104.8898	1	706
124	39.6239	-104.887	1	706
125	39.623	-104.8842	1	708.41
126	39.6221	-104.8813	1	713.36
127	39.6212	-104.8785	1	721.26
128	39.6203	-104.8756	1	729.81
129	39.6194	-104.8728	1	731.37
130	39.6186	-104.87	1	727.43
131	39.6177	-104.8671	1	728.14
132	39.6168	-104.8643	1	727.75
133	39.6159	-104.8614	1	725.28
134	39.615	-104.8586	1	721.64
135	39.6141	-104.8558	1	715.89
136	39.6132	-104.8529	1	712.19
137	39.6123	-104.8501	1	709.39
138	39.6115	-104.8472	1	706.69
139	39.6106	-104.8444	1	706

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EXHIBIT E-4H
TABULATION of DELTA h

0km TO 36.7km
114 DEGREE RADIAL

Azimuth	Distance to Start (m)	Distance to End (m)	Roughness (m)	Max (m)	Min (m)	90th Pct (m)	10th Pct (m)	SDev	Var	Mean (m)	Count
114	0	36.7	237.64	2155.33	1603.91	1882.04	1644.4	106.32	11304.69	1735.75	141

TestPoint	Latitude	Longitude	Height AMSL (meters)
1	39.733	-105.2367	2 155.33
2	39.7321	-105.2339	2 136.02
3	39.7311	-105.2311	2 103.66
4	39.7302	-105.2283	2 41.5
5	39.7292	-105.2255	1 940.76
6	39.7282	-105.2227	1 888.9
7	39.7273	-105.2199	1 852.91
8	39.7263	-105.2171	1 839.57
9	39.7254	-105.2143	1 832.83
10	39.7244	-105.2115	1 849.03
11	39.7234	-105.2087	1 847.27
12	39.7225	-105.2059	1 843.43
13	39.7215	-105.2031	1 840.42
14	39.7206	-105.2003	1 837.32
15	39.7196	-105.1975	1 831.08
16	39.7186	-105.1948	1 828
17	39.7177	-105.192	1 841.3
18	39.7167	-105.1892	1 864.62
19	39.7158	-105.1864	1 872.42
20	39.7148	-105.1836	1 878.73
21	39.7138	-105.1808	1 891.66
22	39.7129	-105.178	1 918.7
23	39.7119	-105.1752	1 910.61
24	39.711	-105.1724	1 894.65
25	39.71	-105.1696	1 903.48
26	39.709	-105.1668	1 892.56
27	39.7081	-105.164	1 892.68
28	39.7071	-105.1612	1 892.37
29	39.7062	-105.1585	1 882.04
30	39.7052	-105.1557	1 872.02
31	39.7042	-105.1529	1 854.63
32	39.7033	-105.1501	1 832.21
33	39.7023	-105.1473	1 828

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TABULATION of DELTA h

0km TO 36.7km
114 DEGREE RADIAL

34	39.7014	-105.1445	1	814.8
35	39.7004	-105.1417	1	803.67
36	39.6994	-105.1389	1	792.81
37	39.6985	-105.1361	1	784.41
38	39.6975	-105.1333	1	775.94
39	39.6966	-105.1305	1	767
40	39.6956	-105.1277	1	764.86
41	39.6946	-105.1249	1	751.81
42	39.6937	-105.1222	1	742.52
43	39.6927	-105.1194	1	732.68
44	39.6918	-105.1166	1	722.55
45	39.6908	-105.1138	1	714.65
46	39.6898	-105.111	1	708.39
47	39.6889	-105.1082	1	707.36
48	39.6879	-105.1054	1	707
49	39.687	-105.1026	1	706.09
50	39.686	-105.0998	1	706
51	39.685	-105.097	1	700.42
52	39.6841	-105.0942	1	698.21
53	39.6831	-105.0914	1	695.2
54	39.6821	-105.0887	1	691.77
55	39.6812	-105.0859	1	682.56
56	39.6802	-105.0831	1	669.96
57	39.6793	-105.0803	1	664.65
58	39.6783	-105.0775	1	658.93
59	39.6774	-105.0747	1	654.63
60	39.6764	-105.0719	1	651.32
61	39.6754	-105.0691	1	648.51
62	39.6745	-105.0663	1	646.73
63	39.6735	-105.0635	1	646
64	39.6725	-105.0607	1	645
65	39.6716	-105.058	1	645
66	39.6706	-105.0552	1	645
67	39.6697	-105.0524	1	645
68	39.6687	-105.0496	1	645
69	39.6677	-105.0468	1	645
70	39.6668	-105.044	1	645

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EXHIBIT E-4H
TABULATION of DELTA h

0km TO 36.7km
114 DEGREE RADIAL

71	39.6658	-105.0412	1	645
72	39.6649	-105.0384	1	645
73	39.6639	-105.0356	1	645
74	39.6629	-105.0328	1	645
75	39.662	-105.03	1	645
76	39.661	-105.0273	1	645
77	39.6601	-105.0245	1	645
78	39.6591	-105.0217	1	645
79	39.6581	-105.0189	1	644.4
80	39.6572	-105.0161	1	627.5
81	39.6562	-105.0133	1	614.96
82	39.6553	-105.0105	1	611.23
83	39.6543	-105.0077	1	607.11
84	39.6533	-105.0049	1	603.91
85	39.6524	-105.0021	1	610.93
86	39.6514	-104.9994	1	614.53
87	39.6505	-104.9966	1	618.45
88	39.6495	-104.9938	1	619.8
89	39.6485	-104.991	1	629.58
90	39.6476	-104.9882	1	633.33
91	39.6466	-104.9854	1	637.55
92	39.6457	-104.9826	1	643.08
93	39.6447	-104.9798	1	647.51
94	39.6437	-104.977	1	650.29
95	39.6428	-104.9742	1	653.62
96	39.6418	-104.9715	1	656.09
97	39.6409	-104.9687	1	659.59
98	39.6399	-104.9659	1	661.97
99	39.6389	-104.9631	1	663.3
100	39.638	-104.9603	1	665
101	39.637	-104.9575	1	666
102	39.6361	-104.9547	1	667.83
103	39.6351	-104.9519	1	669
104	39.6341	-104.9491	1	670
105	39.6332	-104.9463	1	671
106	39.6322	-104.9436	1	671.91
107	39.6313	-104.9408	1	673

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EXHIBIT E-4H
TABULATION of DELTA h

0km TO 36.7km
114 DEGREE RADIAL

108	39.6303	-104.938	1	673
109	39.6293	-104.9352	1	674.96
110	39.6284	-104.9324	1	676
111	39.6274	-104.9296	1	676
112	39.6265	-104.9268	1	677.82
113	39.6255	-104.924	1	684.27
114	39.6245	-104.9212	1	692.02
115	39.6236	-104.9184	1	698.44
116	39.6226	-104.9157	1	705.9
117	39.6216	-104.9129	1	706
118	39.6207	-104.9101	1	708.24
119	39.6197	-104.9073	1	717.89
120	39.6188	-104.9045	1	735.38
121	39.6178	-104.9017	1	732.68
122	39.6168	-104.8989	1	731.07
123	39.6159	-104.8961	1	729.6
124	39.6149	-104.8933	1	727.32
125	39.614	-104.8906	1	724.93
126	39.613	-104.8878	1	726.47
127	39.612	-104.885	1	729.56
128	39.6111	-104.8822	1	733.07
129	39.6101	-104.8794	1	734.96
130	39.6092	-104.8766	1	736.99
131	39.6082	-104.8738	1	737
132	39.6072	-104.871	1	737
133	39.6063	-104.8683	1	737
134	39.6053	-104.8655	1	737
135	39.6044	-104.8627	1	737
136	39.6034	-104.8599	1	736.73
137	39.6024	-104.8571	1	731.08
138	39.6015	-104.8543	1	728.26
139	39.6005	-104.8515	1	727.69
140	39.5996	-104.8487	1	728.6
141	39.5986	-104.8459	1	731.06

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EXHIBIT E-4I
TABULATION of DELTA h

0km TO 37.3km
116 DEGREE RADIAL

Azimuth	Distance to Start	Distance to End	Roughness (m)	Max (m)	Min (m)	90th Pct (m)	10th Pct (m)	SDev	Var	Mean (m)	Count
116	0	37.3	264.74	2155.33	1613.14	1900.74	1636	112.65	12690.08	1740.71	143

TestPoint	Latitude	Longitude	Height AMSL (meters)
1	39.733	-105.2367	2 155.33
2	39.732	-105.2339	2 137.96
3	39.731	-105.2311	2 107.96
4	39.7299	-105.2284	2 47.88
5	39.7289	-105.2256	1 952.66
6	39.7279	-105.2229	1 897.16
7	39.7268	-105.2201	1 860.87
8	39.7258	-105.2174	1 844.72
9	39.7248	-105.2146	1 840.14
10	39.7237	-105.2119	1 851.37
11	39.7227	-105.2091	1 851.08
12	39.7216	-105.2064	1 848.11
13	39.7206	-105.2036	1 847
14	39.7196	-105.2009	1 845.7
15	39.7185	-105.1981	1 840.8
16	39.7175	-105.1954	1 836.79
17	39.7165	-105.1926	1 850.27
18	39.7154	-105.1898	1 870.1
19	39.7144	-105.1871	1 885.99
20	39.7133	-105.1843	1 903.15
21	39.7123	-105.1816	1 936.97
22	39.7113	-105.1788	1 965.14
23	39.7102	-105.1761	1 956.37
24	39.7092	-105.1733	1 941.47
25	39.7082	-105.1706	1 944.11
26	39.7071	-105.1678	1 934.09
27	39.7061	-105.1651	1 953.09
28	39.705	-105.1623	1 939.21
29	39.704	-105.1596	1 900.74
30	39.703	-105.1568	1 887.07
31	39.7019	-105.1541	1 870.55
32	39.7009	-105.1513	1 846.18
33	39.6999	-105.1486	1 831.01

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TABULATION of DELTA h

0km TO 37.3km
116 DEGREE RADIAL

34	39.6988	-105.1458	1	823.21
35	39.6978	-105.143	1	814.51
36	39.6967	-105.1403	1	807.86
37	39.6957	-105.1375	1	794.36
38	39.6947	-105.1348	1	783.77
39	39.6936	-105.132	1	772.48
40	39.6926	-105.1293	1	767.24
41	39.6916	-105.1265	1	761.2
42	39.6905	-105.1238	1	749.61
43	39.6895	-105.121	1	741.17
44	39.6885	-105.1183	1	730.72
45	39.6874	-105.1155	1	724.37
46	39.6864	-105.1128	1	718.32
47	39.6853	-105.11	1	713.62
48	39.6843	-105.1073	1	710.56
49	39.6833	-105.1045	1	706.47
50	39.6822	-105.1018	1	706
51	39.6812	-105.099	1	705.38
52	39.6802	-105.0963	1	703.42
53	39.6791	-105.0935	1	702.27
54	39.6781	-105.0908	1	696.36
55	39.677	-105.088	1	681.77
56	39.676	-105.0853	1	662.87
57	39.675	-105.0825	1	652.92
58	39.6739	-105.0798	1	649.71
59	39.6729	-105.077	1	647.47
60	39.6719	-105.0742	1	646.22
61	39.6708	-105.0715	1	646
62	39.6698	-105.0687	1	645
63	39.6687	-105.066	1	645
64	39.6677	-105.0632	1	645
65	39.6667	-105.0605	1	645
66	39.6656	-105.0577	1	645
67	39.6646	-105.055	1	645
68	39.6636	-105.0522	1	645
69	39.6625	-105.0495	1	645
70	39.6615	-105.0467	1	645

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EXHIBIT E-4I
TABULATION of DELTA h

0km TO 37.3km
116 DEGREE RADIAL

71	39.6605	-105.044	1	645
72	39.6594	-105.0412	1	645
73	39.6584	-105.0385	1	644.21
74	39.6573	-105.0357	1	641.67
75	39.6563	-105.033	1	639.11
76	39.6553	-105.0302	1	636.85
77	39.6542	-105.0275	1	634.32
78	39.6532	-105.0247	1	626.76
79	39.6522	-105.022	1	618.08
80	39.6511	-105.0192	1	615
81	39.6501	-105.0165	1	615
82	39.649	-105.0137	1	615
83	39.648	-105.011	1	615
84	39.647	-105.0082	1	615
85	39.6459	-105.0055	1	614
86	39.6449	-105.0027	1	613.14
87	39.6439	-105	1	619.46
88	39.6428	-104.9972	1	625.62
89	39.6418	-104.9945	1	628.42
90	39.6407	-104.9917	1	636
91	39.6397	-104.989	1	639.6
92	39.6387	-104.9862	1	644.15
93	39.6376	-104.9835	1	648.84
94	39.6366	-104.9807	1	653.22
95	39.6356	-104.978	1	656.15
96	39.6345	-104.9752	1	659.33
97	39.6335	-104.9725	1	662.03
98	39.6324	-104.9697	1	664.42
99	39.6314	-104.967	1	666.2
100	39.6304	-104.9642	1	667
101	39.6293	-104.9615	1	668
102	39.6283	-104.9587	1	669.03
103	39.6273	-104.956	1	670
104	39.6262	-104.9532	1	671.54
105	39.6252	-104.9505	1	672.35
106	39.6242	-104.9477	1	673.03
107	39.6231	-104.945	1	674.01

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EXHIBIT E-4I
TABULATION of DELTA h

0km TO 37.3km
116 DEGREE RADIAL

108	39.6221	-104.9422	1	675
109	39.621	-104.9395	1	676
110	39.62	-104.9367	1	676
111	39.619	-104.934	1	676
112	39.6179	-104.9312	1	676
113	39.6169	-104.9285	1	676
114	39.6159	-104.9257	1	680.69
115	39.6148	-104.923	1	697.39
116	39.6138	-104.9202	1	705.86
117	39.6127	-104.9175	1	706
118	39.6117	-104.9147	1	706
119	39.6107	-104.912	1	706
120	39.6096	-104.9092	1	706
121	39.6086	-104.9065	1	708.82
122	39.6076	-104.9037	1	716.25
123	39.6065	-104.901	1	725.47
124	39.6055	-104.8982	1	731.24
125	39.6044	-104.8955	1	736.71
126	39.6034	-104.8927	1	737
127	39.6024	-104.89	1	737
128	39.6013	-104.8872	1	737.28
129	39.6003	-104.8845	1	740.27
130	39.5993	-104.8817	1	745.89
131	39.5982	-104.879	1	746.07
132	39.5972	-104.8762	1	744.05
133	39.5961	-104.8735	1	741.82
134	39.5951	-104.8707	1	738.89
135	39.5941	-104.868	1	737
136	39.593	-104.8652	1	737
137	39.592	-104.8625	1	737
138	39.591	-104.8597	1	737
139	39.5899	-104.857	1	737.66
140	39.5889	-104.8543	1	742.68
141	39.5878	-104.8515	1	747.64
142	39.5868	-104.8488	1	745.34
143	39.5858	-104.846	1	743.36

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EXHIBIT E-4J
TABULATION of DELTA h

0km TO 35.9km
118 DEGREE RADIAL

Azimuth	Distance to Start (m)	Distance to End (m)	Roughness (m)	Max (m)	Min (m)	90th Pct (m)	10th Pct (m)	SDev	Var	Mean (m)	Count
118	0	35.9	309.18	2155.33	1615	1939.71	1630.53	122.53	15014.61	1747.45	138

TestPoint	Latitude	Longitude	Height AMSL (meters)
1	39.733	-105.2367	2 155.33
2	39.7319	-105.234	2 140.05
3	39.7308	-105.2313	2 112.87
4	39.7297	-105.2286	2 55.31
5	39.7286	-105.2259	1 966.11
6	39.7275	-105.2232	1 910.3
7	39.7264	-105.2205	1 870.65
8	39.7253	-105.2178	1 849.55
9	39.7242	-105.2151	1 847.21
10	39.7231	-105.2124	1 855.56
11	39.722	-105.2097	1 856.44
12	39.7209	-105.207	1 854.96
13	39.7198	-105.2043	1 853.04
14	39.7186	-105.2016	1 853.84
15	39.7175	-105.1989	1 849.78
16	39.7164	-105.1962	1 849.28
17	39.7153	-105.1935	1 856.43
18	39.7142	-105.1908	1 874.86
19	39.7131	-105.1881	1 898.39
20	39.712	-105.1854	1 951.98
21	39.7109	-105.1827	2 5.23
22	39.7098	-105.18	2 3.66
23	39.7087	-105.1773	2 9.5
24	39.7076	-105.1746	1 981.87
25	39.7065	-105.1719	1 962.33
26	39.7053	-105.1692	1 950.15
27	39.7042	-105.1665	2 8.98
28	39.7031	-105.1638	1 954.88
29	39.702	-105.1611	1 939.71
30	39.7009	-105.1584	1 912.3
31	39.6998	-105.1557	1 889.66
32	39.6987	-105.153	1 883.58
33	39.6976	-105.1503	1 851.71

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EXHIBIT E-4J
TABULATION of DELTA h

0km TO 35.9km
118 DEGREE RADIAL

34	39.6965	-105.1476	1	834.42
35	39.6954	-105.1449	1	827.67
36	39.6943	-105.1422	1	826.58
37	39.6932	-105.1395	1	810.84
38	39.6921	-105.1368	1	795.57
39	39.6909	-105.1341	1	784.88
40	39.6898	-105.1314	1	770.83
41	39.6887	-105.1287	1	767
42	39.6876	-105.126	1	758.98
43	39.6865	-105.1233	1	750.21
44	39.6854	-105.1206	1	743.96
45	39.6843	-105.1179	1	735.76
46	39.6832	-105.1152	1	729.42
47	39.6821	-105.1125	1	720.67
48	39.681	-105.1099	1	713.12
49	39.6799	-105.1072	1	708.42
50	39.6788	-105.1045	1	706
51	39.6776	-105.1018	1	706
52	39.6765	-105.0991	1	706
53	39.6754	-105.0964	1	706
54	39.6743	-105.0937	1	704.36
55	39.6732	-105.091	1	678.97
56	39.6721	-105.0883	1	660.37
57	39.671	-105.0856	1	649.6
58	39.6699	-105.0829	1	646
59	39.6688	-105.0802	1	645
60	39.6677	-105.0775	1	645
61	39.6666	-105.0748	1	645
62	39.6655	-105.0721	1	645
63	39.6643	-105.0694	1	645
64	39.6632	-105.0667	1	645
65	39.6621	-105.064	1	645
66	39.661	-105.0613	1	645
67	39.6599	-105.0586	1	645
68	39.6588	-105.0559	1	645
69	39.6577	-105.0532	1	645
70	39.6566	-105.0505	1	645

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EXHIBIT E-4J
TABULATION of DELTA h

0km TO 35.9km
118 DEGREE RADIAL

71	39.6555	-105.0478	1	645
72	39.6544	-105.0451	1	645
73	39.6533	-105.0424	1	645
74	39.6522	-105.0397	1	640.99
75	39.6511	-105.0371	1	634.59
76	39.6499	-105.0344	1	629.18
77	39.6488	-105.0317	1	622.39
78	39.6477	-105.029	1	619.72
79	39.6466	-105.0263	1	618.24
80	39.6455	-105.0236	1	617.07
81	39.6444	-105.0209	1	616.49
82	39.6433	-105.0182	1	615
83	39.6422	-105.0155	1	615
84	39.6411	-105.0128	1	615
85	39.64	-105.0101	1	615
86	39.6389	-105.0074	1	616.37
87	39.6378	-105.0047	1	619.94
88	39.6366	-105.002	1	624.24
89	39.6355	-104.9993	1	630.53
90	39.6344	-104.9966	1	634.74
91	39.6333	-104.9939	1	638.3
92	39.6322	-104.9912	1	644.86
93	39.6311	-104.9885	1	648.43
94	39.63	-104.9858	1	652
95	39.6289	-104.9831	1	656.56
96	39.6278	-104.9805	1	660.3
97	39.6267	-104.9778	1	663.68
98	39.6256	-104.9751	1	666.24
99	39.6245	-104.9724	1	668.66
100	39.6234	-104.9697	1	669.99
101	39.6222	-104.967	1	671.2
102	39.6211	-104.9643	1	672.55
103	39.62	-104.9616	1	673
104	39.6189	-104.9589	1	673
105	39.6178	-104.9562	1	673.63
106	39.6167	-104.9535	1	674
107	39.6156	-104.9508	1	675

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EXHIBIT E-4J
TABULATION of DELTA h

0KM TO 35.9KM
118 DEGREE RADIAL

108	39.6145	-104.9481	1	675.62
109	39.6134	-104.9454	1	676
110	39.6123	-104.9427	1	676
111	39.6112	-104.94	1	676
112	39.6101	-104.9373	1	676
113	39.6089	-104.9346	1	677.58
114	39.6078	-104.932	1	681.91
115	39.6067	-104.9293	1	689.63
116	39.6056	-104.9266	1	698.5
117	39.6045	-104.9239	1	705.62
118	39.6034	-104.9212	1	706
119	39.6023	-104.9185	1	706
120	39.6012	-104.9158	1	706
121	39.6001	-104.9131	1	706
122	39.599	-104.9104	1	711.41
123	39.5979	-104.9077	1	717.94
124	39.5968	-104.905	1	723.05
125	39.5957	-104.9023	1	728.81
126	39.5945	-104.8996	1	731.59
127	39.5934	-104.8969	1	735.36
128	39.5923	-104.8942	1	739.68
129	39.5912	-104.8915	1	743.14
130	39.5901	-104.8889	1	749.75
131	39.589	-104.8862	1	755.21
132	39.5879	-104.8835	1	762.6
133	39.5868	-104.8808	1	767
134	39.5857	-104.8781	1	767
135	39.5846	-104.8754	1	767
136	39.5835	-104.8727	1	766.7
137	39.5824	-104.87	1	766.82
138	39.5812	-104.8673	1	760.79

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EXHIBIT E-4K
TABULATION of DELTA h

3.0KM TO 16.0KM
360 RADIALS

Azimuth	Roughness (meters)	Max (meters)	Min (meters)	90th Pct (meters)	10th Pct (meters)	SDev	Var	Mean (meters)	Count
0	254.07	1889.34	1585	1860.74	1606.68	104.28	10874.93	1700.52	50
1	264.62	1881.71	1585	1855.02	1590.4	108.82	11842.82	1690.47	50
2	262.73	1868.08	1580.86	1847.73	1585	111.19	12364	1681.38	50
3	264.46	1859.04	1562.05	1841.3	1576.84	110.23	12149.8	1676.2	50
4	273.6	1852.38	1554	1835.67	1562.07	110.13	12127.57	1671.71	50
5	276.4	1846.15	1554	1830.4	1554	108.87	11853.51	1669.53	50
6	276.05	1840.3	1550	1828	1551.95	107.73	11606.02	1667.41	50
7	282.99	1834.89	1541.57	1828	1545.01	107.42	11538.15	1662.9	50
8	285.42	1832.69	1533.56	1825.2	1539.78	106.41	11322.16	1661.24	50
9	284.84	1829.95	1527	1818.33	1533.48	106.41	11322.27	1661.07	50
10	282.62	1828.1	1524	1809.01	1526.39	105.26	11080.44	1662.07	50
11	271.74	1828	1524	1795.74	1524	102.72	10551.85	1661.38	50
12	257.56	1828	1524	1781.56	1524	100.29	10057.16	1658.04	50
13	244.43	1811.06	1524	1768.43	1524	97.35	9477.48	1654.37	50
14	244.4	1787.35	1522	1767	1522.6	95.72	9162.25	1649.15	50
15	245.23	1774.88	1514.33	1767	1521.77	95.66	9151.49	1644.64	50
16	243	1767.95	1507.27	1767	1524	94.37	8905.94	1641.36	50
17	243	1767	1500.79	1767	1524	94.2	8874.45	1637.37	50
18	241.71	1767	1496.09	1765.68	1523.97	95.94	9203.98	1632.21	50
19	233.57	1767	1493	1755.66	1522.09	95.1	9043.61	1627.47	50
20	243.48	1767	1493	1750.19	1506.71	93.37	8718.57	1623.24	50
21	235.76	1764.23	1493	1737.94	1502.18	88.66	7861	1619.39	50
22	235.86	1750.04	1490.8	1732.86	1497	85.79	7360.06	1614.02	50
23	231.97	1739.24	1483.05	1725.37	1493.4	84.07	7067.51	1609.72	50
24	220.27	1728.59	1484	1717.19	1496.92	82.21	6759.12	1607.59	50
25	203.61	1720.78	1490	1712.66	1509.05	78.82	6213.33	1607.38	50
26	188.78	1715.07	1495.25	1706	1517.23	75.69	5728.78	1608.59	50
27	186.16	1712.79	1489.66	1706	1519.84	74.54	5556.34	1609.31	50
28	192.25	1710.5	1495.59	1706	1513.75	73.53	5406.73	1610.98	50
29	192.76	1709.36	1508.24	1706	1513.24	69.62	4847.33	1615.24	50
30	187.91	1708.83	1501.61	1706	1518.09	67.25	4522.23	1619.36	50
31	183.98	1708.14	1509.17	1706	1522.02	65.58	4300.82	1621.56	50
32	180.94	1707.08	1518.4	1706	1525.06	62.68	3928.27	1624.28	50
33	171.26	1706	1526.37	1706	1534.74	59.22	3506.93	1625.49	50
34	160.16	1706	1537.24	1706	1545.84	55.56	3086.73	1624.1	50
35	155.5	1706	1544.82	1705.27	1549.77	53.76	2890.2	1619.7	50

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EXHIBIT E-4K
TABULATION of DELTA h

3.0KM TO 16.0KM
360 RADIALS

36	166.69	1706	1535	1703.84	1537.15	55.58	3088.69	1613.46	50
37	175.43	1706	1522.26	1701.46	1526.03	56.17	3155.02	1610.15	50
38	160.42	1706	1509.16	1698.1	1537.69	56.67	3211.35	1606.67	50
39	156.06	1706	1512.01	1693.87	1537.81	56.71	3215.64	1603.46	50
40	151.05	1706	1522.77	1689.48	1538.43	57.72	3332.1	1600.11	50
41	161	1706	1515.03	1689.12	1528.12	60.48	3657.52	1596.14	50
42	167.13	1706	1504.55	1687.9	1520.77	61.21	3746.64	1596.06	50
43	175.22	1706	1497.87	1687.22	1512	60.49	3658.95	1599.74	50
44	172.25	1706	1496	1684.25	1512.01	58.71	3447.44	1605.02	50
45	168.51	1705.52	1497	1680.27	1511.76	57.18	3269.83	1608.77	50
46	169.38	1705.99	1500	1677.14	1507.76	58.35	3404.15	1610.82	50
47	170.81	1706	1503.43	1676.81	1506	60.09	3610.77	1612.15	50
48	167.32	1704.97	1505.34	1676.32	1509	59.59	3551.11	1612.98	50
49	161	1703	1507.98	1676	1515	60.08	3610.03	1610.16	50
50	155.88	1705.41	1505.67	1676	1520.12	59.57	3548.41	1607.62	50
51	156	1706	1512.01	1676	1520	58.62	3436.16	1604.03	50
52	145.97	1698.21	1515.08	1667.97	1522	57.07	3257.21	1600.08	50
53	142.74	1682.79	1519.99	1665.74	1523	55.65	3097.08	1597.89	50
54	145.93	1677.22	1521.01	1668.93	1523	54.07	2923.22	1596.17	50
55	131.98	1674.18	1523	1658.6	1526.62	51.98	2701.91	1594.66	50
56	121.28	1675.94	1526.23	1651.51	1530.23	49.48	2447.85	1591.92	50
57	110.79	1666.33	1533.1	1645.01	1534.22	44.51	1981.45	1588.65	50
58	102.05	1665.17	1537.76	1640.09	1538.04	41.47	1719.59	1585.91	50
59	94.82	1663.53	1541.53	1637.01	1542.18	38.35	1470.72	1583.72	50
60	87.63	1662.07	1545.88	1635.48	1547.85	36.33	1320	1582.63	50
61	78.39	1659.74	1551.69	1630.86	1552.47	33.97	1154.14	1581.89	50
62	75.92	1656.41	1554	1629.92	1554	31.71	1005.43	1581.69	50
63	74.63	1653.3	1554	1628.63	1554	29.41	865.01	1582.22	50
64	71.29	1650.98	1554	1627.1	1555.81	27.67	765.44	1584.22	50
65	67.25	1649.92	1554	1626.25	1559	26.49	701.47	1586.67	50
66	65.64	1652.78	1554	1625.64	1560	25.57	653.97	1588.7	50
67	64.17	1656.69	1554	1626.7	1562.53	25.02	626.18	1590.79	50
68	65.62	1659.23	1554.43	1629.67	1564.05	24.87	618.44	1593.36	50
69	69.47	1661.85	1559.3	1635.46	1566	24.89	619.48	1596.07	50
70	73.9	1663.59	1563.05	1642.89	1568.99	25.28	638.97	1599.18	50
71	75.36	1666.43	1566	1646	1570.64	25.91	671.48	1602.38	50
72	73.03	1670.08	1570	1646	1572.97	26.22	687.24	1605.39	50

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EXHIBIT E-4K
TABULATION of DELTA h

3.0KM TO 16.0KM
360 RADIALS

73	71.53	1675.58	1573.24	1646.67	1575.13	26.33	693.27	1609.01	50
74	66.89	1681.67	1576.93	1647	1580.11	26.9	723.63	1612.41	50
75	64.76	1688.5	1580.99	1647	1582.24	26.91	724.16	1614.78	50
76	63.11	1694.6	1581	1647.04	1583.93	27.34	747.65	1617.14	50
77	64.32	1701.14	1581	1647.32	1583	28.21	795.54	1620.61	50
78	65.85	1705.88	1581	1647.85	1582	28.93	836.73	1623.27	50
79	64.12	1706	1580.99	1648	1583.88	28.49	811.52	1625.66	50
80	66.79	1706	1580.26	1654.15	1587.36	28.56	815.72	1627.87	50
81	76.23	1706	1578.56	1665.19	1588.96	29.43	865.93	1630.71	50
82	83.06	1706	1577.87	1673.12	1590.06	31.06	964.73	1633.91	50
83	86.05	1706	1573.7	1679.17	1593.12	32.28	1041.96	1636.19	50
84	96.27	1706	1570.44	1687.79	1591.52	34.38	1182.18	1639.05	50
85	96.15	1706	1571.96	1690.5	1594.35	35.7	1274.85	1641.24	50
86	94.75	1706	1574.31	1691.46	1596.71	35.46	1257.12	1642.55	50
87	94.2	1706	1578.3	1694.11	1599.92	35.4	1253.16	1644.62	50
88	96.82	1706	1584	1696.52	1599.7	34.9	1217.8	1646.48	50
89	105.06	1709.14	1582.66	1705.95	1600.89	35.07	1230.09	1648.32	50
90	98.03	1716	1582.24	1703.75	1605.71	34.87	1215.97	1650.01	50
91	92.47	1716.59	1582.34	1702	1609.53	34.47	1188.03	1651.99	50
92	94.58	1719.01	1584	1706	1611.43	34.79	1210.3	1654.47	50
93	94.81	1728.77	1584	1706	1611.19	35.54	1262.8	1657.73	50
94	95.57	1726.71	1585.64	1706	1610.43	36.54	1335.01	1661.21	50
95	96.79	1737.31	1585.32	1706	1609.21	38.46	1479.31	1664.86	50
96	99.42	1740.41	1588.51	1710.23	1610.81	39.24	1539.62	1668.09	50
97	107.38	1743.06	1593.57	1722.17	1614.79	40.84	1668.28	1672.13	50
98	120.94	1737	1599.23	1733.94	1613	42.54	1809.48	1676.11	50
99	121.56	1738	1603.58	1737	1615.44	43.27	1872.07	1679.2	50
100	119.27	1762.04	1603.74	1737	1617.73	43.59	1899.92	1681.95	50
101	123.03	1764.05	1602.66	1743.33	1620.3	45.27	2049.32	1684.69	50
102	138.6	1767	1598.96	1761.6	1623	48.46	2348.55	1688.33	50
103	140.45	1769.11	1597.02	1767	1626.55	50.23	2523.21	1690.96	50
104	144.47	1785.62	1601.9	1770.03	1625.56	53.42	2854.1	1694.93	50
105	163.84	1806.09	1608.29	1786.1	1622.26	57.08	3257.68	1698.36	50
106	182.23	1827.98	1608	1806.28	1624.05	61.32	3760.62	1702.55	50
107	201.34	1828	1607.43	1827.56	1626.22	64.5	4160.76	1707.73	50
108	196.44	1828	1606.8	1825.8	1629.37	64.17	4117.53	1709.53	50
109	186.42	1828	1604.51	1825.61	1639.2	62.15	3862.3	1709.78	50

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360 RADIALS

110	184.29	1832.8	1600.8	1824.13	1639.84	61.14	3737.76	1709.94	50
111	183.72	1842.66	1598.23	1824.09	1640.36	62.19	3867.53	1711.09	50
112	185.26	1855.01	1603.37	1827.26	1642.01	64.16	4116.29	1713.85	50
113	190.24	1863.22	1603.92	1834.27	1644.03	67.45	4549.72	1716.64	50
114	187.82	1873.68	1607.02	1832.49	1644.68	71.64	5132.44	1720.49	50
115	184.77	1889	1614	1829.57	1644.8	74.34	5527.17	1721.78	50
116	189.33	1889	1613	1826.36	1637.03	72.72	5287.48	1719.89	50
117	181.57	1888.51	1615	1812.17	1630.6	69.73	4862.67	1720.09	50
118	163.1	1868.52	1615	1794.44	1631.34	66.56	4430.55	1720.09	50
119	148.68	1828	1615	1782.04	1633.36	62.83	3947.02	1718.74	50
120	139.33	1840.39	1615	1783.87	1644.55	62.83	3947.15	1721.14	50
121	153	1851.55	1615	1798	1645	65.53	4293.86	1723.52	50
122	153.27	1850.82	1615	1798.27	1645	67.11	4503.3	1726.39	50
123	159.33	1849.19	1622.26	1804.33	1645	66.53	4426.85	1730.22	50
124	173.99	1831.95	1630.19	1818.99	1645	67.18	4513.04	1734.28	50
125	182.79	1835	1637.51	1828	1645.21	70.39	4954.94	1740.24	50
126	198.74	1853.95	1644.67	1844.74	1646	74.77	5590.06	1746.33	50
127	225.17	1889	1645	1872.18	1647	84.07	7066.96	1756.59	50
128	242.48	1890	1645	1889	1646.52	89.65	8037.38	1764.25	50
129	243.57	1893.07	1645	1889	1645.43	92.06	8474.81	1768.67	50
130	243.28	1904.52	1645	1890.04	1646.76	94.83	8992.94	1771.15	50
131	255.14	1922.17	1645	1903.14	1648	99.22	9844.15	1775.54	50
132	266.22	1941.91	1645	1915.65	1649.43	105.77	11187.46	1781.71	50
133	297.92	1950	1645	1948.74	1650.81	114.8	13179.38	1790.56	50
134	302.82	1950	1645	1950	1647.18	119.53	14288.28	1797.41	50
135	301.84	1960.1	1645	1950.97	1649.14	120.73	14575.62	1802.55	50
136	305.01	2006.18	1645	1959.57	1654.56	123.26	15194.11	1806.61	50
137	301.63	2011	1645	1965.02	1663.39	120.68	14562.78	1804.63	50
138	255.57	1950	1645	1923.75	1668.18	100.75	10150.97	1788.21	50
139	224.78	1949.66	1645	1889	1664.22	89.33	7979.2	1779.74	50
140	219.19	1954.66	1645	1888	1668.81	81.99	6722.46	1772.68	50
141	204.64	1928.12	1645	1879.06	1674.42	76.82	5901.55	1768.82	50
142	207.81	1937.69	1645	1887.51	1679.71	78.47	6157.87	1765.87	50
143	196.44	1965.91	1645.29	1876.72	1680.28	81.05	6568.77	1763.6	50
144	202.87	2011	1645.73	1880.23	1677.37	86.11	7414.61	1761.92	50
145	208.6	2011.39	1649.21	1883.53	1674.93	85.95	7387.85	1759.42	50
146	154.57	1999.45	1651.93	1834.31	1679.74	73.95	5469.27	1756.98	50

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147	143.47	1944.62	1658.7	1828.86	1685.39	63.38	4017.21	1760.06	50
148	141.83	1931.91	1667.81	1830.91	1689.08	60.11	3612.74	1768.34	50
149	154.32	1916.43	1674.06	1846.04	1691.73	59.22	3507.53	1776.02	50
150	190.13	1903.48	1681.21	1888.87	1698.74	64.32	4137.1	1785.85	50
151	186.61	1913.22	1688.93	1888.61	1702	66.06	4364.42	1789.45	50
152	184	1942.06	1698.33	1889	1705	68.1	4637.61	1793.73	50
153	186.41	1964.02	1700.95	1892.41	1706	76.57	5863.6	1804.59	50
154	188.13	1950.17	1706	1900.35	1712.22	73.71	5432.79	1815.33	50
155	218.89	2028.77	1706	1950	1731.11	83.59	6987.02	1843.47	50
156	201.75	2139.18	1706	1968.75	1767	94.22	8876.72	1884	50
157	364.51	2248.4	1706	2131.51	1767	126.12	15906.45	1900.96	50
158	406.78	2316	1708.06	2178.47	1771.69	156.13	24377.95	1936.55	50
159	398.76	2315.55	1707.65	2225.01	1826.25	164.37	27018.86	1975.44	50
160	431.26	2335.93	1742.63	2259.26	1828	177.3	31435.3	2018.48	50
161	473.26	2401.82	1792.03	2303.09	1829.83	187.84	35284.04	2041.73	50
162	509.77	2436.36	1830.96	2357.72	1847.95	199.31	39725.13	2061.38	50
163	554.63	2438	1828	2388.92	1834.29	206.61	42688.74	2077.97	50
164	560.72	2514.8	1828	2438.43	1877.71	203.9	41574.71	2112.42	50
165	506.13	2560	1834.04	2429.96	1923.83	185.98	34589.26	2160.64	50
166	437.95	2558.68	1828.05	2377.03	1939.08	161.97	26234.44	2194.77	50
167	377.04	2499	1878.25	2377	1999.96	134.93	18207.18	2205.22	50
168	381.12	2567.84	1904.26	2428.47	2047.35	140.63	19776.21	2231.52	50
169	323.15	2484.9	1950	2391.86	2068.71	119.6	14304.46	2228.32	50
170	320.58	2475.9	1950	2392.55	2071.97	128.9	16615.68	2222.09	50
171	417.8	2517.65	1889	2376.64	1958.84	159.56	25459.72	2204.14	50
172	479.4	2525.92	1889	2370.95	1891.54	169.13	28605.66	2186.83	50
173	413.82	2560	1889	2415.95	2002.13	157.33	24753.88	2184.44	50
174	411.27	2565.36	1889	2388.97	1977.71	153.25	23485.65	2172.49	50
175	403.32	2620	1950	2413.82	2010.5	159.21	25347.25	2198.67	50
176	531.25	2619.39	1950	2497.74	1966.49	176.49	31149.07	2229.85	50
177	481.59	2618.74	1950	2482.4	2000.8	167.09	27917.74	2245.59	50
178	470.3	2624.14	1954.26	2513.77	2043.46	167.29	27986.09	2254.71	50
179	383.74	2631.29	2004.75	2483.6	2099.86	150.68	22705.35	2259.6	50
180	350.9	2620	2011	2510.52	2159.62	134.99	18221.02	2289.83	50
181	367.6	2620.03	2028.19	2500.6	2133	126.41	15978.87	2307.01	50
182	339.82	2600.26	2038.55	2522.31	2182.5	127.8	16332.59	2326.26	50
183	386.42	2562.43	2011.82	2519.42	2133	141.82	20113.49	2341.64	50

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184	437.73	2740.75	2014.41	2560.05	2122.33	170.42	29043.96	2363.77	50
185	430.31	2666.66	2072	2563.63	2133.31	162.19	26304.46	2374.81	50
186	552.57	2954.65	2078.44	2696.42	2143.85	207.47	43044.41	2406.96	50
187	537.7	3143.13	2072	2713.09	2175.39	224.58	50436.35	2427.21	50
188	504.59	2958.97	2072	2697.74	2193.15	208.74	43572.56	2426.64	50
189	485.87	2742.63	2072	2679.87	2194	174.72	30527.93	2413.67	50
190	444.98	2741.53	2072	2640.85	2195.87	166.18	27615.2	2408.07	50
191	408.47	2896.72	2072	2621.22	2212.74	162.31	26345.78	2407.97	50
192	417.97	2825.64	2072	2620.48	2202.52	162.04	26258.33	2419.69	50
193	372.97	2822.09	2072	2617.4	2244.43	160.19	25660.89	2427.43	50
194	362.28	2866.46	2073.9	2614.39	2252.11	154.42	23846.1	2434.01	50
195	365.55	2977.11	2133	2620.42	2254.86	158.16	25015.05	2457.34	50
196	346.6	2930.1	2133	2601.64	2255.04	145.81	21260.16	2460.49	50
197	313.01	2839.83	2133	2592.71	2279.69	128.55	16526.2	2455.08	50
198	383.15	2987.24	2133	2620.38	2237.23	166.4	27688.11	2461.11	50
199	457.14	3097.75	2193.98	2719.76	2262.62	180.41	32547.97	2481.18	50
200	496.61	3286.66	2194	2757.14	2260.53	201.88	40755.71	2490.04	50
201	460	3243.36	2199.37	2735.05	2275.05	196.25	38514.76	2509.54	50
202	447.66	2998.5	2196.82	2717.67	2270.01	175.57	30823.25	2497.62	50
203	442.63	2956.4	2169.79	2737.69	2295.06	166.7	27788.41	2510.59	50
204	486.89	2887.32	2140.2	2781.03	2294.14	172.82	29867.91	2528.85	50
205	530.52	2949.86	2133	2811.7	2281.18	198.04	39221.05	2552.05	50
206	596.1	3150.25	2133	2870.77	2274.67	216.14	46715.89	2557.2	50
207	607.9	3164.85	2133	2879.64	2271.74	226.06	51103.18	2557.7	50
208	657.73	3131.24	2133	2908.35	2250.62	242.25	58684.24	2576.11	50
209	745.81	3397.05	2133	2990.54	2244.73	281.12	79029.33	2604	50
210	774.76	3455.62	2133	2993.65	2218.89	300.96	90579.04	2609.5	50
211	867.88	3468.19	2133	3061.88	2194	318.22	101266.1	2618.54	50
212	976.52	3442.65	2133	3170.52	2194	339.74	115423.3	2628.77	50
213	885.41	3528.53	2133	3079.41	2194	338.54	114607.6	2636.06	50
214	830.64	3394.47	2133	3024.64	2194	313.33	98172.91	2636.47	50
215	768.03	3485.42	2133	2968.54	2200.5	312.37	97575.67	2645.37	50
216	772.65	3591.65	2133	3014.82	2242.17	326.09	106334.1	2672.45	50
217	723.39	3480.2	2133	2978.39	2255.01	307.45	94524.1	2681.36	50
218	787.83	3448.56	2133	3053.15	2265.32	310.77	96577.39	2700.2	50
219	781.91	3435.26	2133	3037.85	2255.94	304.89	92955.26	2703.24	50
220	764.25	3495.61	2134.6	2998.68	2234.43	312.69	97775.28	2709.14	50

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221	778.19	3535	2154.93	3020.95	2242.76	311.25	96876.85	2709.14	50
222	785.71	3583.1	2189.89	3040.26	2254.55	312.25	97499.4	2719.24	50
223	812.4	3517.47	2194.41	3073.8	2261.4	304.8	92903.45	2723.32	50
224	863.71	3478.72	2199.72	3131.83	2268.12	312.39	97586.87	2745.12	50
225	950.92	3488.78	2212.9	3221.18	2270.26	329.64	108661.1	2771.33	50
226	959.82	3536.27	2233.26	3221.09	2261.27	340.49	115936.1	2794.03	50
227	1001.98	3390.25	2240.65	3256.98	2255	344.7	118816.4	2789.11	50
228	1010.99	3423.38	2247.57	3265.99	2255	365.8	133806.5	2798.13	50
229	1083.78	3603.05	2254.03	3339.27	2255.49	386.75	149577	2824.27	50
230	992.36	3880.21	2255	3248.63	2256.27	402.84	162281.4	2833.06	50
231	1142.08	3771.36	2255	3413.8	2271.72	418.06	174771.1	2834.6	50
232	1223.24	3864.78	2255	3516.33	2293.1	468.27	219280.7	2861.24	50
233	1156.32	3779.5	2255	3472.32	2316	486.56	236741	2893.65	50
234	1225.81	3805.7	2256.4	3541.81	2316	488.73	238860.9	2922.92	50
235	1277.92	3806.85	2280.36	3593.92	2316	492.36	242422.9	2918.69	50
236	1283.28	3722.88	2308.53	3627.61	2344.33	475.49	226086.1	2919.57	50
237	1195.23	3968.32	2314.62	3563.2	2367.97	475.29	225901.3	2938.15	50
238	1318.1	4052.06	2316	3694.04	2375.94	506.2	256240	2985.95	50
239	1274.47	3983.06	2316	3651.47	2377	485.43	235639	2964.79	50
240	1201.72	3964.19	2316	3579.35	2377.62	454.2	206296.9	2955.71	50
241	1138.28	3993.36	2328.62	3534.54	2396.26	449.78	202305.5	2984.22	50
242	1220.09	3944.93	2361.91	3618.22	2398.13	446.45	199315.8	2998.84	50
243	1256.61	3966.89	2373.21	3657.3	2400.69	450.5	202948.7	3003.57	50
244	1415.48	4107.79	2376.67	3821.03	2405.55	497.83	247830.8	3051.99	50
245	1471.46	4309.29	2377	3889.69	2418.24	522.18	272672.4	3091.57	50
246	1467.25	4110.64	2378.54	3901	2433.75	531.82	282827.8	3131.15	50
247	1444.72	4136.09	2361.96	3882.85	2438.13	529.68	280561.4	3162.39	50
248	1417.05	4080.74	2333.61	3860.57	2443.52	513.46	263641.7	3159.57	50
249	1332.64	3969.75	2309.53	3783.74	2451.1	496.42	246431.2	3157.38	50
250	1374.96	4015.53	2300.14	3812.51	2437.55	511.29	261415	3177.89	50
251	1454.38	4128.22	2294.63	3847.97	2393.6	530.51	281441.7	3186.42	50
252	1318.7	3970.67	2277.83	3689.93	2371.22	484.88	235104.4	3155.08	50
253	1420.46	4025.13	2256.12	3776.68	2356.22	490.91	240991.6	3167.86	50
254	1424.06	4013.72	2255	3771.72	2347.67	483.39	233663.9	3162.08	50
255	1357.53	3930.08	2254.65	3682.3	2324.78	466.12	217272	3156.22	50
256	1349.61	4029.32	2253.3	3682.73	2333.12	464.71	215955	3143.7	50
257	1301.74	4149.49	2249.59	3658.07	2356.33	461.41	212897	3118.65	50

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258	1248.97	3998.57	2246.78	3616.49	2367.52	442.29	195620.5	3074.04	50
259	1235.69	3826.4	2242.96	3580.92	2345.23	418.02	174741.8	3024.67	50
260	1251.88	3895.44	2212.23	3567.88	2316	415.32	172493.3	2990.15	50
261	1175.7	3894.98	2194	3488.03	2312.33	407.11	165737.9	2966.58	50
262	1147.97	3700.34	2185.74	3461.3	2313.34	385.56	148659.7	2930.46	50
263	1059.74	3550.35	2159.53	3375.99	2316.26	352.88	124525.5	2910.46	50
264	866.26	3457.75	2162.4	3185.55	2319.29	293.22	85975.71	2827.84	50
265	744.14	3432.97	2188.94	3070.01	2325.87	288.28	83103.91	2787.14	50
266	1051.56	3492.59	2254.63	3375.08	2323.52	373.67	139627.5	2849.39	50
267	1324.83	3749.39	2251.29	3630.62	2305.79	460.35	211926.7	2917.39	50
268	1402.56	3950.64	2157.07	3718	2315.44	523.3	273842.3	2929.98	50
269	1216.6	3764.37	2133	3531.05	2314.45	480.02	230421.8	2892.46	50
270	1111.81	3818.26	2133	3349.01	2237.2	453.86	205991.2	2833.67	50
271	1198.02	3932.62	2133	3392.02	2194	487.43	237583.9	2798.44	50
272	1445.71	3853.26	2133	3595.6	2149.89	517.74	268055.3	2772.44	50
273	1346.02	3725.8	2133	3507.82	2161.8	476.34	226904	2710.74	50
274	1012.37	3461.26	2133	3201.48	2189.11	360.14	129699.8	2617.73	50
275	746.66	3057.85	2133	2986.98	2240.32	266.72	71140.45	2577.49	50
276	808.96	3480.35	2133.22	3104.34	2295.38	343.48	117979.7	2646.5	50
277	1096.69	3659.3	2147.4	3405.96	2309.27	412.73	170342.9	2776.67	50
278	1188.2	3686.95	2171	3496.96	2308.77	433.48	187905.1	2844.05	50
279	1247.35	3819.82	2194	3580.02	2332.68	475.9	226484.7	2884.98	50
280	1367.76	3901.62	2207.5	3658.43	2290.67	496.06	246075.3	2898.93	50
281	1221.99	3960.83	2194.48	3529.88	2307.89	460.99	212507.3	2891.96	50
282	1197.24	3824.75	2249.46	3572.84	2375.61	452.95	205164.5	2894.36	50
283	1151.73	3813.79	2266.77	3540.06	2388.33	417.69	174466.5	2879.05	50
284	1159.17	3961.54	2343.94	3566.34	2407.18	432.63	187170.6	2922.19	50
285	1150.6	3835.5	2377.63	3564.96	2414.36	415.74	172836.7	2938.01	50
286	1063.35	3981.03	2377	3490.56	2427.22	437.03	190992	2957.56	50
287	1041.47	3774.76	2376.94	3504.2	2462.72	408.63	166982.1	2946.88	50
288	1053.06	3899.94	2375.7	3552.06	2499	416.7	173638.2	2938.5	50
289	1115.55	3875.56	2331.94	3588.79	2473.25	402.27	161821.6	2918.59	50
290	980.48	3766.19	2317.84	3496.33	2515.86	368.55	135830.4	2908.09	50
291	807.9	3664.78	2316.05	3359.76	2551.86	327.91	107524.2	2886.35	50
292	761.55	3651.06	2316.81	3337.02	2575.47	324.71	105438.5	2894.46	50
293	759.4	3595.19	2316.95	3340.13	2580.74	309.54	95812.84	2914.08	50
294	707.17	3595	2316.89	3363.85	2656.67	299.4	89643.32	2934.91	50

KLEIN
BROADCAST
ENGINEERING, L.L.C.

SEPTEMBER 2006

KCUV(FM)
FM CHANNEL 272A
GREENWOOD VILLAGE, CO

EXHIBIT E-4K
TABULATION of DELTA h

3.0KM TO 16.0KM
360 RADIALS

295	608.44	3580.8	2319.23	3289.3	2680.86	281.88	79454.88	2945.9	50
296	529.72	3596	2318.51	3242.34	2712.62	258.17	66653.48	2951.12	50
297	504.05	3595.05	2237.35	3237.68	2733.64	260.36	67789.59	2964.5	50
298	515.54	3651.81	2194	3232.92	2717.39	266.43	70983.59	2957.99	50
299	645.76	3513.73	2249.05	3286.58	2640.82	272	73982.02	2954.04	50
300	758.8	3565.34	2309.78	3355.45	2596.65	295.3	87203.57	2956.23	50
301	716.3	3656.4	2330.87	3336.93	2620.62	302.31	91392.29	2941.63	50
302	776.99	3656.82	2332.88	3300.17	2523.18	305.9	93577.61	2909.43	50
303	905.66	3717.05	2357.89	3353.79	2448.13	323.88	104896.9	2884.02	50
304	871.62	3656.96	2371	3339.14	2467.52	325.59	106010.6	2864.49	50
305	835.36	3606.4	2372.94	3311.66	2476.3	318.46	101417.6	2870.73	50
306	759.15	3771.17	2371.28	3300.84	2541.69	310.4	96346.35	2880.71	50
307	777.81	3793.83	2367.43	3342.21	2564.4	306.42	93890.49	2874.08	50
308	961.45	3743.21	2361.63	3522.49	2561.04	349.88	122417.4	2900.46	50
309	851.3	3679.24	2356.56	3449.03	2597.73	321.4	103296.1	2888.25	50
310	646.09	3596.32	2359.64	3221.61	2575.52	268.28	71976.11	2857.1	50
311	791.7	3582.19	2373.03	3352.75	2561.05	303.67	92213.98	2892.72	50
312	948.05	3928.45	2375.96	3507.08	2559.03	376.54	141782.3	2912.75	50
313	1121.71	3916.58	2381.08	3669.43	2547.72	402.26	161812	2893.93	50
314	1019.85	3766.77	2410.09	3513.66	2493.81	366.45	134287	2872.04	50
315	896.14	3779.98	2433.23	3429.72	2533.58	359.11	128960.1	2854.94	50
316	855.76	3841.09	2438	3353.08	2497.33	368.95	136125.6	2840.23	50
317	832.26	3696.91	2438	3328.96	2496.7	353.95	125278.9	2815	50
318	825.74	3639.48	2426.41	3298.6	2472.86	318.13	101209.7	2787.63	50
319	881.11	3585.04	2383.79	3321.55	2440.43	311.35	96940.74	2778.69	50
320	856.34	3592.81	2379.26	3283.94	2427.6	319.86	102308.3	2779.55	50
321	907.45	3468.38	2365.75	3343.53	2436.09	315.44	99499.58	2758.8	50
322	839.65	3449.01	2330.36	3253.03	2413.39	293.98	86421.71	2728.43	50
323	814.58	3452.79	2292.15	3184.48	2369.9	289.45	83783.14	2696.25	50
324	774.13	3330.62	2255.38	3123.65	2349.51	276.42	76408.15	2677.62	50
325	745.38	3284.32	2255.76	3089.84	2344.47	248.58	61791.47	2649.59	50
326	695.46	3197.96	2278.01	3049	2353.54	240.24	57716.62	2634.53	50
327	649.85	3112.11	2255	2995.76	2345.91	218.92	47927.69	2602.4	50
328	595.41	3051.27	2255	2918.9	2323.5	198.57	39428.66	2573.23	50
329	544.95	2925.18	2255	2863.82	2318.87	186.01	34600.57	2543.12	50
330	487.05	2826.96	2216.92	2803.05	2316	169.73	28809.94	2513.12	50
331	439.99	2794.81	2196.23	2749.19	2309.2	162.65	26454.35	2491.51	50

KLEIN
BROADCAST
ENGINEERING, L.L.C.

SEPTEMBER 2006

KCUV(FM)
FM CHANNEL 272A
GREENWOOD VILLAGE, CO

EXHIBIT E-4K
TABULATION of DELTA h

3.0KM TO 16.0KM
360 RADIALS

332	407.57	2763.69	2194.26	2713.63	2306.07	150.63	22689.81	2471.56	50
333	407.91	2707.41	2192.28	2665.41	2257.5	148.07	21924.54	2446.53	50
334	400.37	2703.57	2133.85	2654.86	2254.49	148.4	22022.59	2432.65	50
335	415.97	2726.06	2116.41	2621	2205.03	155.95	24321.66	2405.18	50
336	440.62	2672.71	2053.01	2604.27	2163.65	161.82	26185.48	2382.68	50
337	463.13	2662.93	2049.96	2596.13	2133	167.45	28039.24	2366.61	50
338	403.64	2622.76	1960.2	2569.22	2165.58	175.49	30797.86	2350.4	50
339	438.39	2682	1964.84	2573.3	2134.9	175.3	30729.6	2336.35	50
340	460.54	2621	1889.09	2572.88	2112.34	173.87	30230.87	2303.97	50
341	390.39	2558.53	1890.11	2462.98	2072.58	153.58	23587.15	2249.4	50
342	415.56	2565.47	1882.8	2390.46	1974.89	160.04	25612.78	2204.05	50
343	400.39	2499	1855.91	2383.92	1983.54	152.88	23372.56	2190.17	50
344	444.31	2471.01	1871.68	2396.46	1952.15	163.41	26703.3	2170.35	50
345	493.43	2438	1829	2382.43	1889	172.02	29589.74	2158.23	50
346	427.01	2496.98	1768	2316.02	1889.01	172.07	29607.25	2134.52	50
347	478.81	2454.71	1768	2378.63	1899.82	167.2	27955.31	2133.75	50
348	491.73	2491.07	1757.04	2384.22	1892.49	160.08	25626.64	2128.14	50
349	389.88	2411.38	1783.58	2255.1	1865.22	145.86	21275.27	2070.65	50
350	271.49	2259.21	1749.94	2115.75	1844.26	110.63	12238.98	1995.38	50
351	208.78	2177.66	1692.16	2007.53	1798.75	96.25	9263.85	1919.62	50
352	248.73	2098.27	1654.54	1949.02	1700.29	102.12	10429.21	1860.97	50
353	257.17	2070	1646	1925.94	1668.76	99.59	9919.01	1824.81	50
354	252.59	2014.05	1646	1909.97	1657.37	105.31	11089.52	1792.45	50
355	247.32	1944.51	1646	1893.32	1646	99.38	9877.27	1763.23	50
356	246.09	1901.69	1643.05	1892.09	1646	99.12	9825.13	1747.26	50
357	243.84	1903.47	1638.39	1887.84	1644	95.37	9094.89	1733.88	50
358	236.55	1894.62	1618.78	1874.79	1638.24	96.01	9217.2	1721.5	50
359	244.34	1892.17	1596.27	1866.69	1622.35	99.8	9960.74	1709.71	50

EXHIBIT E-4L

KCUV(FM) 70dBu Contour Analysis w/Alternate Methods

Klein Broadcast Engineering, L.L.C.

Job: KCUV LOOKOUT 20060929.fmj

Master Database: 2006_Sep_29.fmd

Lat: N39:36:23 Lon: W104:52:39 NAD-27(Map Center)

Scale: 1:375000

Channel: 272 Class: A

Status: Application

Terrain Database: DMA 3 Arc Second Digitized Terrain Datafile, Conus.

Contour Prediction Methods: FCC Standard f(50,50), 360 Radials, Free Space(NBS Tech Note 101), & Longley-Rice

Comments: Longley-Rice Method predicts 74.41dBu at the center of the Principal Community, Greenwood Village, Colorado

Description: EXHIBIT E-4L 70dBu CONTOUR ANALYSIS with Alternate Prediction Methods

Date: 9/29/2006

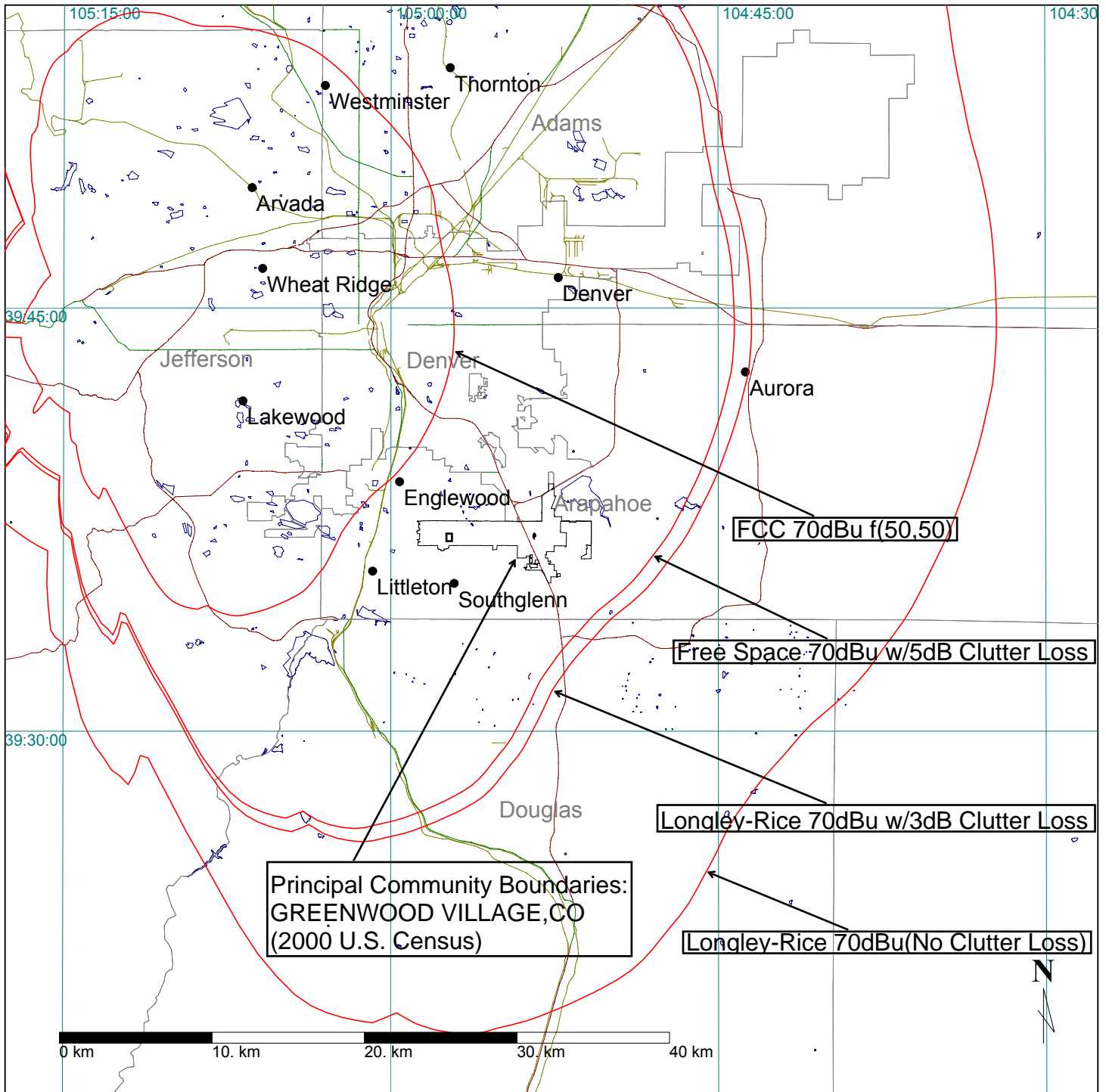


EXHIBIT E-4M
70dBu f(50,50) Contour Report: 360 Radials

Klein Broadcast Engineering, L.L.C.

Job: KCUV LOOKOUT 20060929.fmj:FCC STANDARD

N39:43:59 W105:14:10 NAD-27

Channel: 272 Class: A

Signal Level: 70dBu(3.16mV/m) [50-50]

Max ERP: 1kW(0.0dBk) HAAT: 237.7 meters

Description: EXHIBIT E-4L DISTANCE TO 70DBU CONTOUR FCC STANDARD

PREDICTION METHOD f(50,50) KCUV 20060929

Date: 9/29/2006

USGS 3-Sec DEM(DMA)

Pop in Contour: 838,516(2000 U.S. Census)

Page 1 of 2

Rad Center: 49.0 meters AGL

Distance to Contour:

Degs.	km	(miles)	Degs.	km	(miles)	Degs.	km	(miles)	Degs.	km	(miles)
000	19.745	(12.269)	048	24.298	(15.098)	096	24.119	(14.987)	144	21.758	(13.520)
001	20.013	(12.436)	049	24.269	(15.080)	097	24.053	(14.946)	145	21.665	(13.462)
002	20.258	(12.588)	050	24.236	(15.059)	098	23.981	(14.901)	146	21.573	(13.405)
003	20.489	(12.732)	051	24.239	(15.062)	099	23.911	(14.858)	147	21.465	(13.338)
004	20.697	(12.861)	052	24.289	(15.092)	100	23.839	(14.813)	148	21.338	(13.259)
005	20.913	(12.994)	053	24.362	(15.138)	101	23.763	(14.766)	149	21.214	(13.181)
006	21.119	(13.123)	054	24.439	(15.185)	102	23.689	(14.719)	150	21.105	(13.114)
007	21.283	(13.225)	055	24.500	(15.223)	103	23.608	(14.669)	151	20.930	(13.005)
008	21.415	(13.307)	056	24.550	(15.255)	104	23.515	(14.612)	152	20.674	(12.846)
009	21.538	(13.383)	057	24.601	(15.286)	105	23.417	(14.551)	153	20.360	(12.651)
010	21.650	(13.453)	058	24.664	(15.325)	106	23.331	(14.497)	154	19.965	(12.405)
011	21.672	(13.466)	059	24.733	(15.368)	107	23.250	(14.447)	155	19.448	(12.085)
012	21.735	(13.506)	060	24.778	(15.396)	108	23.168	(14.396)	156	19.441	(12.080)
013	21.770	(13.527)	061	24.812	(15.417)	109	23.060	(14.329)	157	19.427	(12.071)
014	21.790	(13.539)	062	24.836	(15.432)	110	22.922	(14.243)	158	19.219	(11.942)
015	21.779	(13.533)	063	24.852	(15.442)	111	22.786	(14.159)	159	18.987	(11.798)
016	21.759	(13.521)	064	24.860	(15.447)	112	22.669	(14.086)	160	18.707	(11.624)
017	21.742	(13.510)	065	24.861	(15.448)	113	22.549	(14.011)	161	18.353	(11.404)
018	21.733	(13.505)	066	24.849	(15.441)	114	22.416	(13.929)	162	17.822	(11.074)
019	21.710	(13.490)	067	24.827	(15.427)	115	22.257	(13.830)	163	17.028	(10.581)
020	21.743	(13.511)	068	24.787	(15.402)	116	22.082	(13.721)	164	16.073	(9.987)
021	21.825	(13.562)	069	24.713	(15.356)	117	21.904	(13.611)	165	14.921	(9.272)
022	21.954	(13.641)	070	24.612	(15.293)	118	21.740	(13.509)	166	13.815	(8.584)
023	22.110	(13.739)	071	24.503	(15.225)	119	21.629	(13.439)	167	12.884	(8.005)
024	22.278	(13.843)	072	24.423	(15.176)	120	21.552	(13.392)	168	12.127	(7.535)
025	22.456	(13.954)	073	24.362	(15.138)	121	21.478	(13.346)	169	11.350	(7.053)
026	22.614	(14.052)	074	24.324	(15.114)	122	21.403	(13.299)	170	10.706	(6.652)
027	22.756	(14.140)	075	24.294	(15.096)	123	21.341	(13.261)	171	10.122	(6.289)
028	22.877	(14.215)	076	24.267	(15.079)	124	21.315	(13.245)	172	10.034	(6.235)
029	23.032	(14.312)	077	24.254	(15.071)	125	21.316	(13.245)	173	10.415	(6.472)
030	23.179	(14.403)	078	24.273	(15.083)	126	21.310	(13.242)	174	10.695	(6.646)
031	23.292	(14.473)	079	24.311	(15.106)	127	21.331	(13.255)	175	10.451	(6.494)
032	23.401	(14.540)	080	24.342	(15.126)	128	21.409	(13.303)	176	10.297	(6.398)
033	23.530	(14.621)	081	24.362	(15.138)	129	21.503	(13.361)	177	9.976	(6.199)
034	23.668	(14.707)	082	24.385	(15.152)	130	21.596	(13.419)	178	9.708	(6.032)
035	23.791	(14.783)	083	24.398	(15.160)	131	21.683	(13.473)	179	9.364	(5.819)
036	23.899	(14.850)	084	24.398	(15.160)	132	21.784	(13.536)	180	8.964	(5.570)
037	24.001	(14.914)	085	24.394	(15.158)	133	21.878	(13.594)	181	8.316	(5.167)
038	24.091	(14.969)	086	24.389	(15.155)	134	21.938	(13.631)	182	7.743	(4.811)
039	24.154	(15.009)	087	24.387	(15.153)	135	21.969	(13.651)	183	7.113	(4.420)
040	24.203	(15.039)	088	24.383	(15.151)	136	22.021	(13.683)	184	6.997	(4.348)
041	24.240	(15.062)	089	24.380	(15.149)	137	22.080	(13.720)	185	6.920	(4.300)
042	24.266	(15.078)	090	24.371	(15.143)	138	22.122	(13.746)	186	6.761	(4.201)
043	24.283	(15.089)	091	24.351	(15.131)	139	22.127	(13.749)	187	6.273	(3.898)
044	24.298	(15.098)	092	24.331	(15.118)	140	22.083	(13.721)	188	5.805	(3.607)
045	24.314	(15.108)	093	24.303	(15.101)	141	22.010	(13.677)	189	5.062	(3.145)
046	24.323	(15.114)	094	24.241	(15.063)	142	21.934	(13.629)	190	5.032	(3.126)
047	24.316	(15.110)	095	24.177	(15.023)	143	21.844	(13.573)	191	5.003	(3.109)

EXHIBIT E-4M

70dBu f(50,50) Contour Report: 360 Radials

Klein Broadcast Engineering, L.L.C.

Job: KCUV LOOKOUT 20060929.fmj:FCC STANDARD

N39:43:59 W105:14:10 NAD-27

Channel: 272 Class: A

Signal Level: 70dBu(3.16mV/m) [50-50]

Max ERP: 1kW(0.0dBk) HAAT: 237.7 meters

Description: EXHIBIT E-4L DISTANCE TO 70DBU CONTOUR FCC STANDARD

PREDICTION METHOD f(50,50) KCUV 20060929

Date: 9/29/2006

USGS 3-Sec DEM(DMA)

Pop in Contour: 838,516(2000 U.S. Census)

Page 2 of 2

Rad Center: 49.0 meters AGL

Distance to Contour:

Degs.	km	(miles)	Degs.	km	(miles)	Degs.	km	(miles)	Degs.	km	(miles)
192	4.974	(3.091)	240	3.995	(2.483)	288	3.995	(2.483)	336	7.511	(4.667)
193	4.945	(3.073)	241	3.995	(2.483)	289	3.995	(2.483)	337	8.445	(5.247)
194	4.915	(3.054)	242	3.995	(2.483)	290	3.995	(2.483)	338	8.596	(5.341)
195	4.886	(3.036)	243	3.995	(2.483)	291	3.995	(2.483)	339	8.723	(5.420)
196	4.855	(3.017)	244	3.995	(2.483)	292	3.995	(2.483)	340	9.058	(5.628)
197	4.825	(2.998)	245	3.995	(2.483)	293	3.995	(2.483)	341	9.651	(5.997)
198	4.794	(2.979)	246	3.995	(2.483)	294	3.995	(2.483)	342	10.712	(6.656)
199	4.763	(2.959)	247	3.995	(2.483)	295	3.995	(2.483)	343	11.419	(7.095)
200	4.731	(2.940)	248	3.995	(2.483)	296	3.995	(2.483)	344	12.340	(7.668)
201	4.702	(2.922)	249	3.995	(2.483)	297	3.995	(2.483)	345	13.105	(8.143)
202	4.673	(2.904)	250	3.995	(2.483)	298	3.995	(2.483)	346	13.635	(8.472)
203	4.644	(2.886)	251	3.995	(2.483)	299	3.995	(2.483)	347	13.820	(8.587)
204	4.614	(2.867)	252	3.995	(2.483)	300	3.995	(2.483)	348	14.133	(8.782)
205	4.584	(2.848)	253	3.995	(2.483)	301	3.995	(2.483)	349	14.904	(9.261)
206	4.554	(2.830)	254	3.995	(2.483)	302	3.995	(2.483)	350	15.840	(9.843)
207	4.523	(2.811)	255	3.995	(2.483)	303	3.995	(2.483)	351	16.542	(10.279)
208	4.494	(2.792)	256	3.995	(2.483)	304	3.995	(2.483)	352	17.139	(10.650)
209	4.653	(2.891)	257	3.995	(2.483)	305	3.995	(2.483)	353	17.655	(10.970)
210	5.173	(3.214)	258	3.995	(2.483)	306	3.995	(2.483)	354	18.058	(11.221)
211	5.662	(3.518)	259	3.995	(2.483)	307	3.995	(2.483)	355	18.351	(11.403)
212	5.938	(3.690)	260	3.995	(2.483)	308	3.995	(2.483)	356	18.569	(11.539)
213	5.854	(3.638)	261	3.995	(2.483)	309	3.996	(2.483)	357	18.777	(11.667)
214	5.632	(3.500)	262	3.995	(2.483)	310	3.996	(2.483)	358	19.174	(11.914)
215	5.018	(3.118)	263	3.995	(2.483)	311	4.019	(2.498)	359	19.496	(12.114)
216	4.439	(2.758)	264	3.995	(2.483)	312	4.043	(2.512)			
217	4.289	(2.665)	265	3.995	(2.483)	313	4.066	(2.527)			
218	4.266	(2.651)	266	3.995	(2.483)	314	4.089	(2.541)			
219	4.242	(2.636)	267	3.995	(2.483)	315	4.112	(2.555)			
220	4.218	(2.621)	268	3.996	(2.483)	316	4.135	(2.569)			
221	4.197	(2.608)	269	3.996	(2.483)	317	4.157	(2.583)			
222	4.175	(2.594)	270	5.602	(3.481)	318	4.179	(2.597)			
223	4.154	(2.581)	271	6.792	(4.220)	319	4.201	(2.610)			
224	4.132	(2.567)	272	7.768	(4.827)	320	4.222	(2.624)			
225	4.110	(2.554)	273	8.161	(5.071)	321	4.246	(2.639)			
226	4.087	(2.540)	274	8.199	(5.095)	322	4.270	(2.653)			
227	4.065	(2.526)	275	7.958	(4.945)	323	4.294	(2.668)			
228	4.042	(2.511)	276	7.774	(4.830)	324	4.317	(2.682)			
229	4.019	(2.497)	277	7.287	(4.528)	325	4.340	(2.697)			
230	3.995	(2.483)	278	6.941	(4.313)	326	4.363	(2.711)			
231	3.995	(2.483)	279	6.368	(3.957)	327	4.385	(2.725)			
232	3.995	(2.483)	280	5.872	(3.649)	328	4.407	(2.738)			
233	3.995	(2.483)	281	5.084	(3.159)	329	4.429	(2.752)			
234	3.995	(2.483)	282	4.335	(2.694)	330	4.451	(2.766)			
235	3.995	(2.483)	283	3.995	(2.483)	331	4.475	(2.780)			
236	3.995	(2.483)	284	3.995	(2.483)	332	4.498	(2.795)			
237	3.995	(2.483)	285	3.995	(2.483)	333	4.529	(2.814)			
238	3.995	(2.483)	286	3.995	(2.483)	334	5.454	(3.389)			
239	3.995	(2.483)	287	3.995	(2.483)	335	6.528	(4.057)			