

TECHNICAL STATEMENT
MINOR CHANGE APPLICATION
K256CT DENVER, CO
MOUNTAIN COMMUNITY TRANSLATORS, LLC
SEPTEMBER 2022

This Technical Statement is made in support of a minor change application for FM translator station K256CT Denver, Colorado, facility ID 155203. K256CT is a fill-in translator for KGNU(AM) Denver, Colorado, facility ID 31349. K256CT seeks to remain at its existing communications site located on Lookout Mountain near Denver, Colorado with the same antenna height. K256CT seeks to increase to 250 watts Effective Radiated Power (“ERP”) with a directional composite antenna system comprised a Nicom BLK 8-E (slant 45) yagi type antennas with dual polarization. The antenna will be oriented at 84 degrees. The center of radiation will be 12.8 meters above the ground and 2256 meters Above Mean Sea Level.

Figure 1 is a detailed channel interference study conducted on channel 256D with these new proposed facilities. It shows that the new operation of K256CT will not cause any interference to any existing or proposed FM stations on any of the pertinent same channel or adjacent channels to channel 256 with the exception of 2nd adjacent channel station KQMT(FM) Denver, CO, facility ID 26929 on channel 258C, and 3rd adjacent channel station KYGO-FM Denver, CO, facility ID 30829 operating on channel 253C0.

Figure 2 shows that KQMT(FM) places a 144.6 dBμ contour at the new K256CT site. Figure 3 shows that KYGO-FM places a 102.7 dBμ contour at the new K256CT site. Since KYGO-FM produces a lower signal at the proposed site, it was studied further. The calculated worst case interference contour for K256CT would be 142.7 dBμ. This contour would only extend 5.1 meters from the antenna in any direction. Thus, with a COR of 12.8 meters above ground, it would not reach the ground at any point. This was also verified by a Vertical Pattern

study conducted utilizing the proposed Nicom BLK 8-E antenna systems vertical pattern. Figure 5 shows the results of that study. It shows that the interference contour will be no less than 12 meters about the ground in any azimuth. Lastly, figure 4 shows the predicted worst case 142.7 dB μ contour showing there will be no population within this contour.

The Mountain Community Translators, LLC, respectfully requests a waiver of C.F.R. 74.1204(d) of the Commission's rules based on the fact that there is no population within the area of predicted interference. There are no homes nearby the proposed existing tower site, which is a privately owned with private gated access applicant. K256CT will be located at a communications site known as "Lookout Mountain". The transmitter building is uninhabited and does not have indoor plumbing. Should any unforeseen actual interference be caused, the licensee will immediately cease broadcasting with K256CT until such interference can be eliminated.

Figure 6 shows a detailed contour study with KKMFG(FM) Pueblo, Colorado, facility ID 11229 on Channel 255C.

Figure 7 shows a detailed contour study with KUAD-FM Windsor, Colorado, facility ID 49538 on Channel 256C1.

Figure 8 is the directional antenna data for the proposed Nicom antenna system to be used.

Since no change in tower site is being proposed, it can be assumed that the present and proposed 60 dB μ will overlap.

The proposed operation of K256CT Denver will remain a "Fill-In" operation for Class D AM station KGNU Denver, Colorado. KGNU(AM) is licensed to operate with 5 kilowatts

daytime with a non-directional antenna system on 1390 kHz. Figure 9 shows that the proposed 60 dB μ contour for the proposed K256CT will not extend beyond the 2 mv/m daytime contour of KGNU(AM). Since this is a “Fill-In” translator, the maximum ERP will not exceed the maximum permissible ERP of 250 watts in any azimuth.

It was found that the new proposed operation of K256CT on channel 256D, will satisfy all the required commission rules and regulations for an FM translator station.

Figure 1 - Detailed Channel Interference Study

K256CT Denver, CO, CH. 256D											
CH# 256D - 99.1 MHz, Pwr= 0.25 kW DA, HAAT= 205.7 M, COR= 2256 M											
Average Protected F(50-50)= 18.79 km											
Standard Directional											
DISPLAY DATES											
DATA 09-18-22											
SEARCH 09-18-22											
CH CITY	CALL	TYPE STATE	ANT AZI <--	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*	
256C1 Windsor	KUAD-FM	LIC _CN CO	19.2 199.4	107.39 BLH20031223ACH	40 38 30.90 104 49 04.90	100.000 255	170.7 1816	71.4 Townsquare Media Of Fort C	-77.6*	0.9	
258C Denver	KQMT *	LIC DCN CO	177.9 357.9	0.06 BLH20150622AFQ	39 43 43.90 105 14 09.90	100.000 513	7.4 2280	63.8 Audacity License, LLC	-8.3*	-63.7*	
253C0 Denver	KYGO-FM *	LIC DCN CO	166.0 346.0	6.41 BLH20180912ABA	39 40 24.30 105 13 04.50	100.000 341	7.7 2364	61.9 Bonneville International C	-10.6*	-55.5*	
255C Pueblo	KKMG	LIC _CN CO	163.5 343.7	113.93 BLH19951005KA	38 44 42.90 104 51 42.90	72.000 695	146.6 2946	96.7 Radio License Holding Cbc,	-41.2*	1.1	
256D Denver	K256CT	LIC DCN CO	0.0 0.0	0.00 0000198609	39 43 46.00 105 14 10.00	0.099	2256	---Reference---			
203A Boulder	KGNU-FM	LIC DCN CO	13.3 193.3	30.01 BLED20100528ADY	39 59 32.90 105 09 17.90	4.000 65	1.6 1732	40.8 Boulder Community Broadcas	9.5R	20.5M	
203C2 Boulder	KGNU-FM	CP DCN CO	34.7 214.9	50.06 0000157412	40 05 57.00 104 54 03.20	6.500 339	1.6 1860	40.8 Boulder Community Broadcas	14.5R	35.6M	
202C3 Winter Park	KFFR	LIC DHN CO	303.2 122.8	56.89 0000161226	40 00 28.00 105 47 40.00	10.000 -171	1.6 2754	40.8 Fraser Valley Community Me	11.5R	45.4M	
256D Dillon	K256BM	LIC _CN CO	260.0 79.5	72.50 BMLFT20131217DOV	39 36 49.90 106 04 04.00	0.082	17.5 2861	5.4 Alwaysmountaintime, LLC	53.0	62.8	
258D Breckenridge	K258AS	LIC DCN CO	249.3 68.8	72.91 BLFT20071009ALB	39 29 43.90 106 01 46.00	0.099 -58	0.1 3225	2.2 Krayon's Wild Basin, LLC	71.0	67.1	
257D Colorado Springs	K257FO	LIC DCN CO	163.5 343.7	114.02 BLFT20150112AAM	38 44 40.00 104 51 42.90	0.072	32.1 2910	12.2 Hope Media Group	74.3	88.9	
254D Fort Collins	K254CH	APP DCN CO	2.0 182.0	90.76 0000199721	40 32 46.90 105 11 54.80	0.010	0.1 2188	5.7 Boulder Community Broadcas	82.5	82.7	
254D Laporte	K254CH	LIC DCN CO	2.0 182.0	90.76 BLFT20150813ACD	40 32 46.90 105 11 54.90	0.007	0.0 2188	2.8 Boulder Community Broadcas	82.6	86.8	
202A Fort Collins	KVXO	LIC _CN CO	355.5 175.5	98.81 BLED20140731AQY	40 36 59.90 105 19 37.90	0.140 374	1.6 2545	40.8 Public Broadcasting Of Col	9.5R	89.3M	
203A Vail	KVQI	LIC _CN CO	263.4 82.7	104.89 0000197064	39 36 55.90 106 26 59.10	0.500 -241	1.6 2730	40.8 Public Broadcasting Of Col	9.5R	95.4M	
256C3 Glenwood Springs	KMTS	LIC _CN CO	263.7 82.4	182.14 BMLH20170313ABE	39 31 56.90 107 20 32.20	10.000 -69	80.3 2295	18.1 Colorado West Broadcasting	99.8	129.4	
255C2 Steamboat Springs	KCOQ	LIC NCN CO	302.6 121.7	151.66 BLH20181210ABR	40 27 15.90 106 44 36.10	2.100 543	49.6 3186	33.0 Radio Partners LLC	100.2	116.8	
253D Colorado Springs	K253AH	LIC DCN CO	162.8 343.1	111.36 BMLFT20120312AAD	38 46 14.90 104 51 21.90	0.180 -85	0.1 2142	2.4 Power 98.5, LLC	102.3	104.7	
257C1 Fowler	DKPCR	RSV-A ____ CO	151.4 332.2	229.18	37 54 43.04 103 59 03.85	100.000 299	107.9 1693	73.9 From CDBS	107.4	148.9	
256C Taos	KXMT	LIC NCN NM	192.2 11.7	325.71 BLH20041126AAC	36 51 32.10 106 00 30.10	60.000 651	195.3 3237	91.8 L.M.N.O.C. Broadcasting LL	125.7	232.0	

Terrain database is GLOBE 30 Sec , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference zone= west Zone, Co to 3rd adjacent.
All separation margins (if shown) include rounding.

Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)

"*"affixed to 'IN' or 'OUT' values = site inside restricted contour.

< = Station meets FCC minimum distance spacing for its class.

* No actual Interference will be caused to KQMT(FM) or KYGO-FM since the worst case 142.7 dBu contour will not cover any population. See the Technical Statement for more details.

K256CT

BLFT20180109ABW

Latitude: 39-43-46 N

Longitude: 105-14-10 W

ERP: 0.099 kW

Channel: 256

Frequency: 99.1 MHz

AMSL Height: 1691.0 m

Elevation: 1631.0 m

Horiz. Pattern: Directional

Vert. Pattern: No

Prop Model: Longley/Rice

Climate: Cont temperate

Conductivity: 0.0050

Dielec Const: 15.0

Refractivity: 311.0

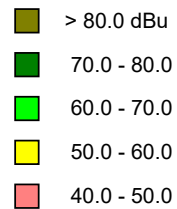
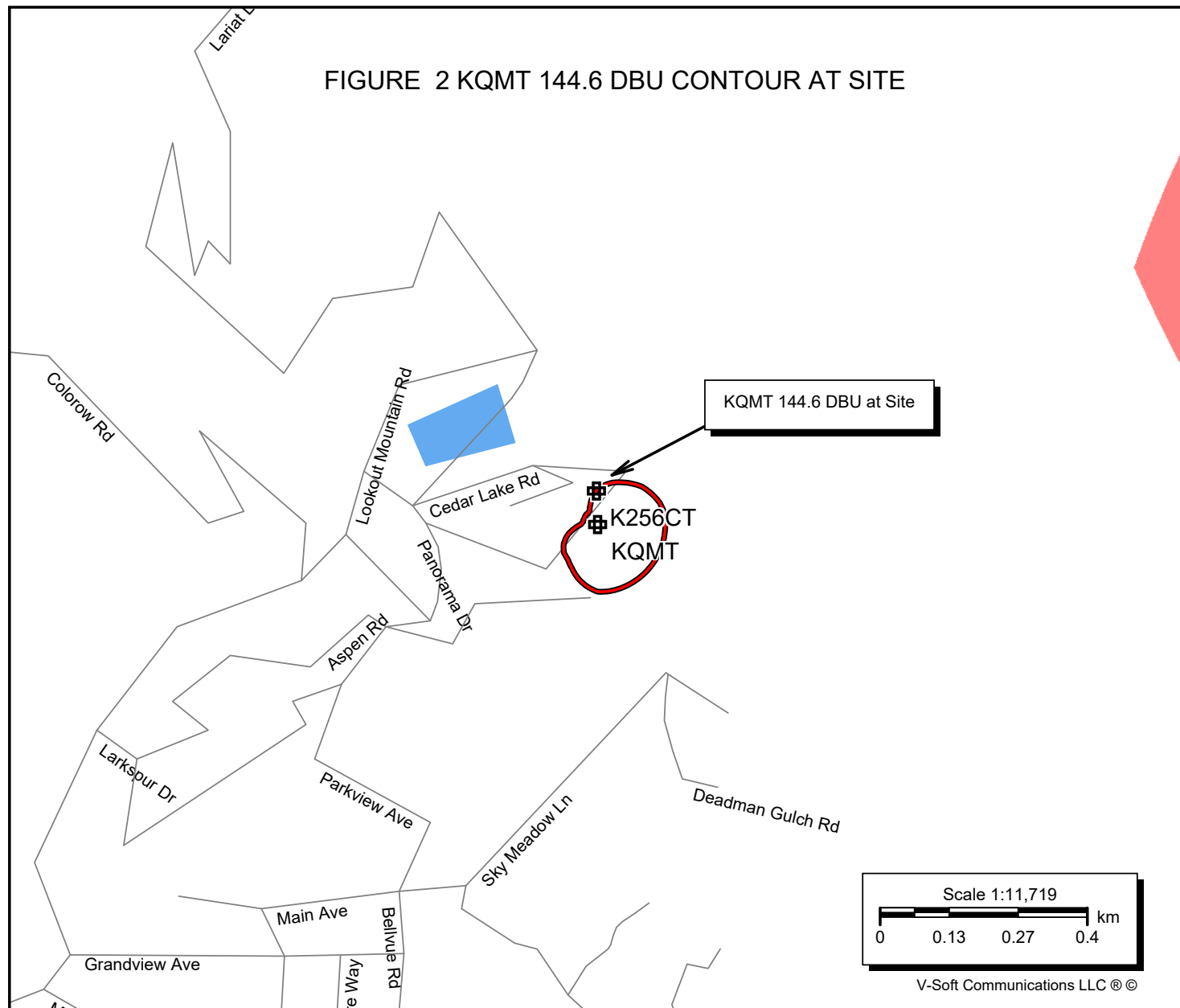
Receiver Ht AG: 9.1 m

Receiver Gain: 0 dB

Time Variability: 50.0%

Sit. Variability: 50.0%

ITM Mode: Broadcast

**FIGURE 2 KQMT 144.6 DBU CONTOUR AT SITE**

K256CT

BLFT20180109ABW

Latitude: 39-43-46 N

Longitude: 105-14-10 W

ERP: 0.099 kW

Channel: 256

Frequency: 99.1 MHz

AMSL Height: 2256.0 m

Elevation: 2177.206 m

Horiz. Pattern: Directional

Vert. Pattern: No

Prop Model: Longley/Rice

Climate: Cont temperate

Conductivity: 0.0050

Dielec Const: 15.0

Refractivity: 311.0

Receiver Ht AG: 9.1 m

Receiver Gain: 0 dB

Time Variability: 50.0%

Sit. Variability: 50.0%

ITM Mode: Broadcast

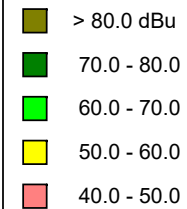
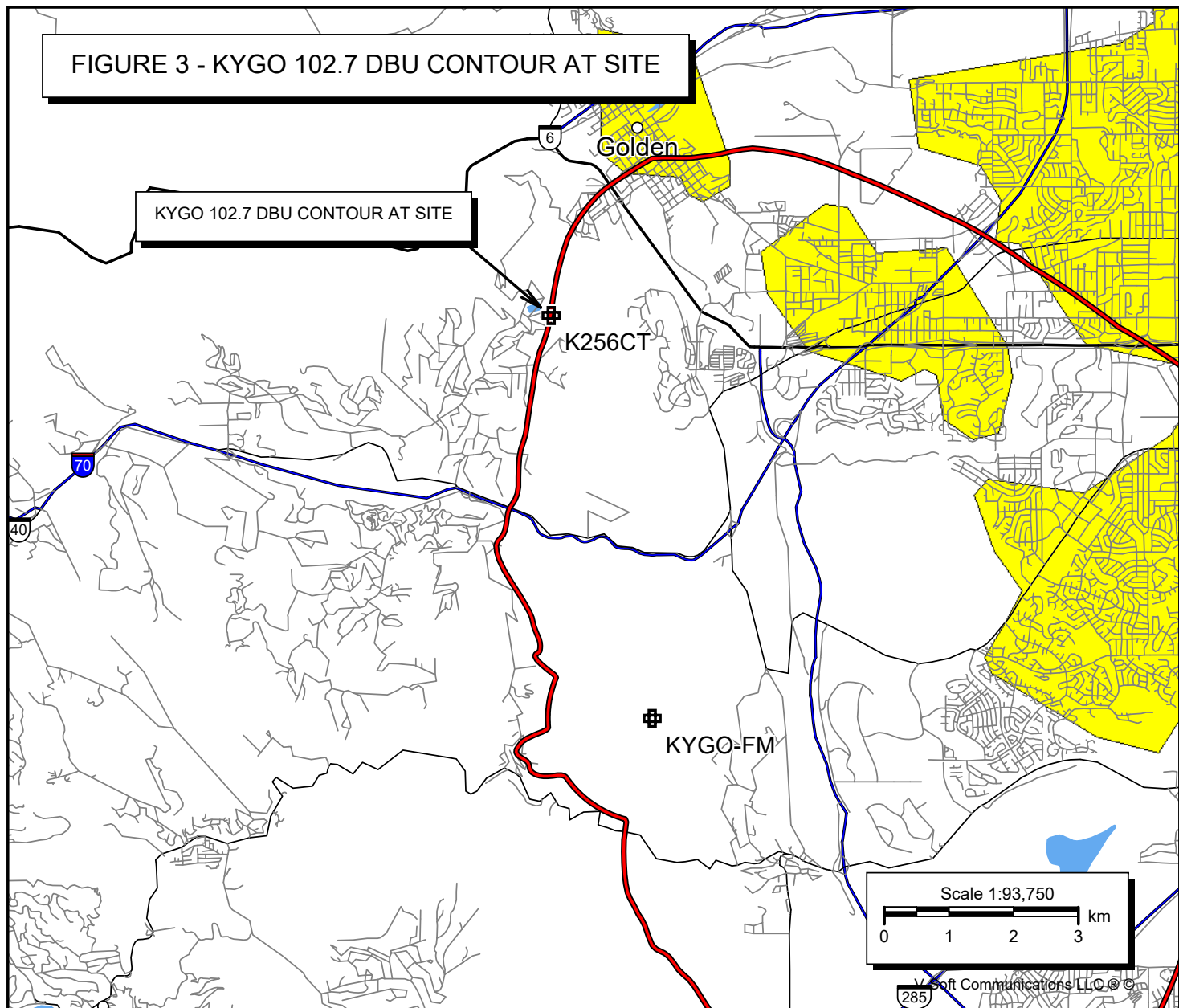
**FIGURE 3 - KYGO 102.7 DBU CONTOUR AT SITE**

Figure 4 - Predicted 142.7 dBu interference contour
K256CT Denver, CO, CH. 256D

Coverage Study - GLOBE 30 Sec
09-18-2022

K256CT CH256 D , 0.25 kW, 205.7m HAAT, 2256.0m COR AMSL
Interference Contour = 143 dBu. Population = 0

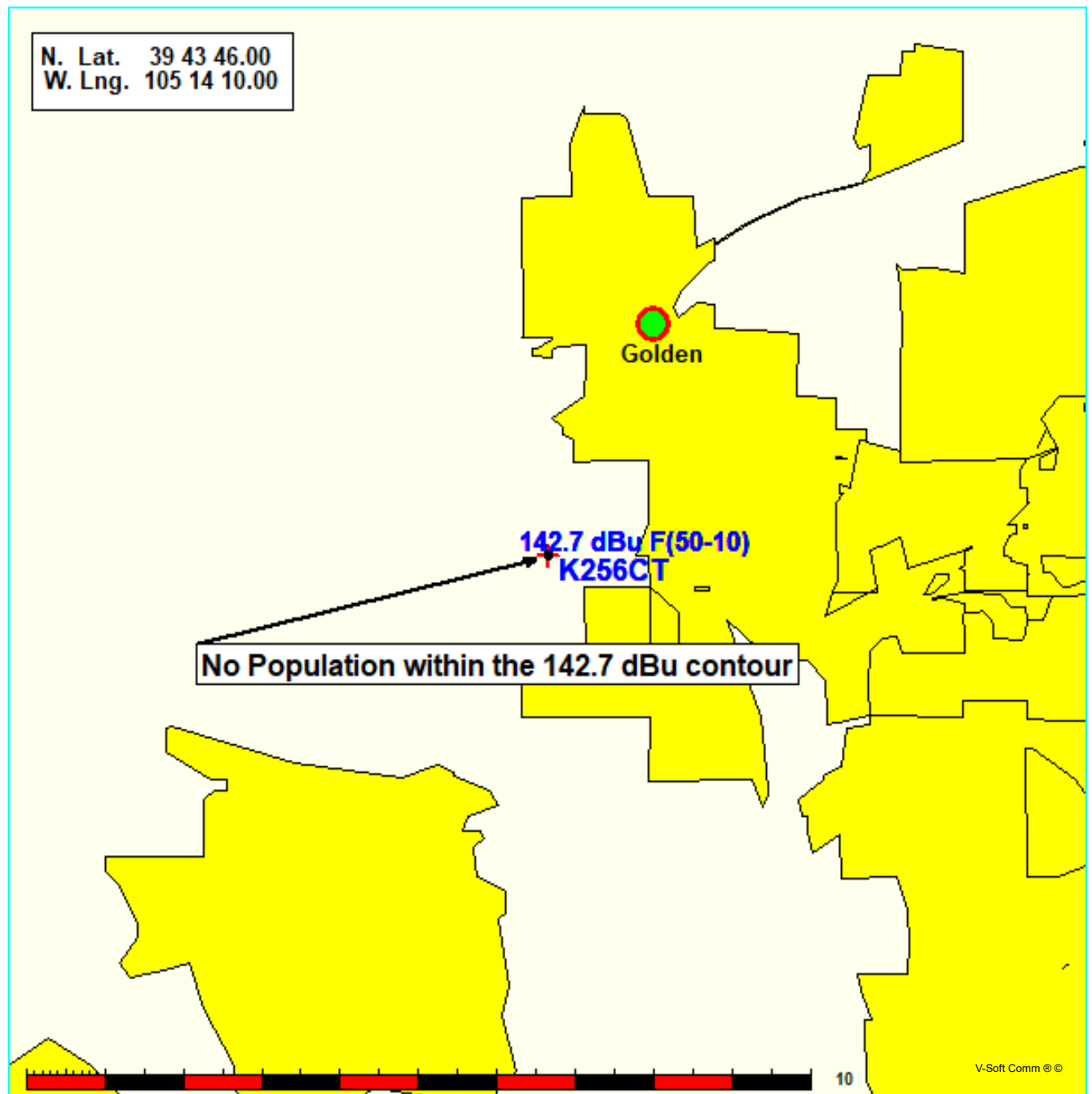


FIGURE 5 - VERTICAL PATTERN STUDY

K256CT Denver, CO, Showing Protection to KYGO-FM , Channel: 253
 Geographic Coordinates: N. 39 43 46.00 W. 105 14 10.00
 74.1204(d) Study - Using NGDC 30 SEC Terrain Database
 Translator or LPFM Maximum Licensed ERP = 0.25 kW, Channel: 256
 Translator or LPFM Antenna Height AG = 12.8 meters
 K256CT Antenna Azimuth Model = Vertical Model Name = NICOMBLK8-E Slant 45

Protected Station's Contour = 102.7324 dBu
 Translator's or LPFM's full Interference contour 142.7324

Review Azimuth = 0 Degrees True
 Horizontal Relative Field at Review Azimuth = 0.009
 Translator/LPFM ERP on the horizontal at Review Azimuth = 0.0 kW
 Distance between stations = 6.4 km
 Protected Station= KYGO-FM, 100 kW, 2364 M meters COR AMSL

Depression Angle From Degree(Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle(m)	Dist to IX Contour From Tower Base(m)	Height IX Above Ground (m)
00.00	1.0	0.01	0.0022	000.6847	000.6847	012.800
05.00	0.99	0.01	0.0022	000.6778	000.6752	012.741
10.00	0.979	0.01	0.0022	000.6704	000.6602	012.684
15.00	0.953	0.01	0.0020	000.6521	000.6299	012.631
20.00	0.92	0.01	0.0019	000.6299	000.5919	012.585
25.00	0.877	0.01	0.0017	000.6002	000.5440	012.546
30.00	0.829	0.01	0.0015	000.5677	000.4917	012.516
35.00	0.772	0.01	0.0013	000.5283	000.4328	012.497
40.00	0.715	0.01	0.0012	000.4895	000.3750	012.485
45.00	0.647	0.01	0.0009	000.4428	000.3131	012.487
50.00	0.57	0.01	0.0007	000.3903	000.2508	012.501
55.00	0.487	0.01	0.0005	000.3332	000.1911	012.527
60.00	0.388	0.01	0.0003	000.2659	000.1329	012.570
65.00	0.292	0.01	0.0002	000.1997	000.0844	012.619
70.00	0.187	0.01	0.0001	000.1278	000.0437	012.680
75.00	0.095	0.01	0.0000	000.0650	000.0168	012.737
80.00	0.045	0.01	0.0000	000.0308	000.0054	012.770
85.00	0.032	0.01	0.0000	000.0217	000.0019	012.778
90.00	0.03	0.01	0.0000	000.0205	000.0000	012.779

Figure 6 - Detailed contour study with KKMGM(FM)
K256CT Denver, CO, CH. 256D

FMCommander Single Allocation Study - 09-18-2022 - GLOBE 30 Sec
K256CT's Overlaps (In= -41.15 km, Out= 1.11 km)

K256CT CH 256 D DA
Lat= 39 43 46.00, Lng= 105 14 10.00
0.25 kW 205.7 m HAAT, 2256 m COR
Prot.= 60 dBu, Intef.= 54 dBu

KKMG CH 255 C BLH19951005KA
Lat= 38 44 42.90, Lng= 104 51 42.90
72.0 kW 695 m HAAT, 2946 m COR
Prot.= 60 dBu, Intef.= 54 dBu

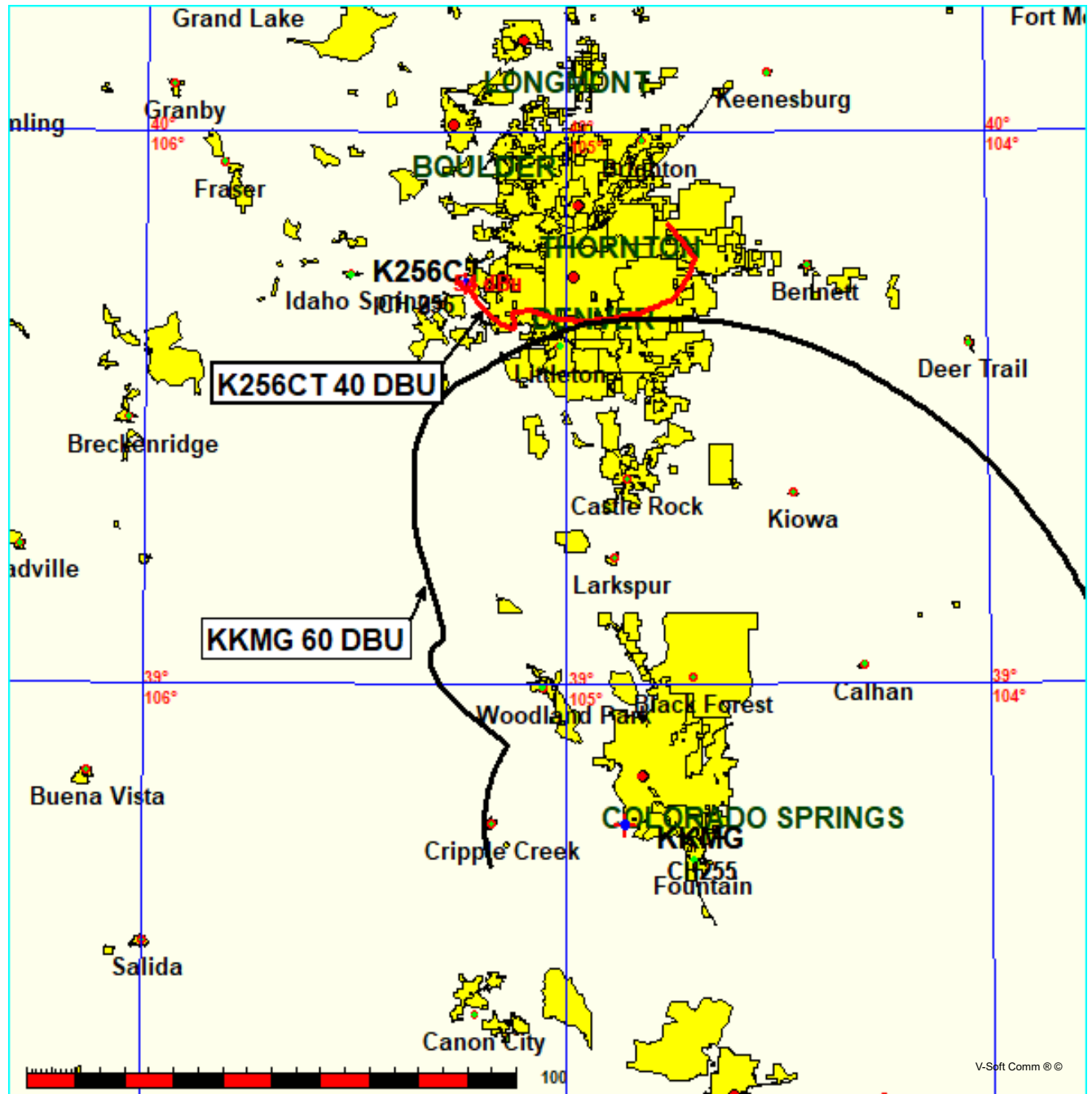


Figure 7 - Detailed Contour Study with KUAD-FM
K256CT Denver, CO, CH. 256D

FMCommander Single Allocation Study - 09-18-2022 - GLOBE 30 Sec
K256CT's Overlaps (In= -77.6 km, Out= 0.89 km)

K256CT CH 256 D DA
Lat= 39 43 46.00, Lng= 105 14 10.00
0.25 kW 205.7 m HAAT, 2256 m COR
Prot.= 60 dBu, Intef.= 40 dBu

KUAD-FM CH 256 C1 BLH20031223ACH
Lat= 40 38 30.90, Lng= 104 49 04.90
100.0 kW 255 m HAAT, 1816 m COR
Prot.= 60 dBu, Intef.= 40 dBu

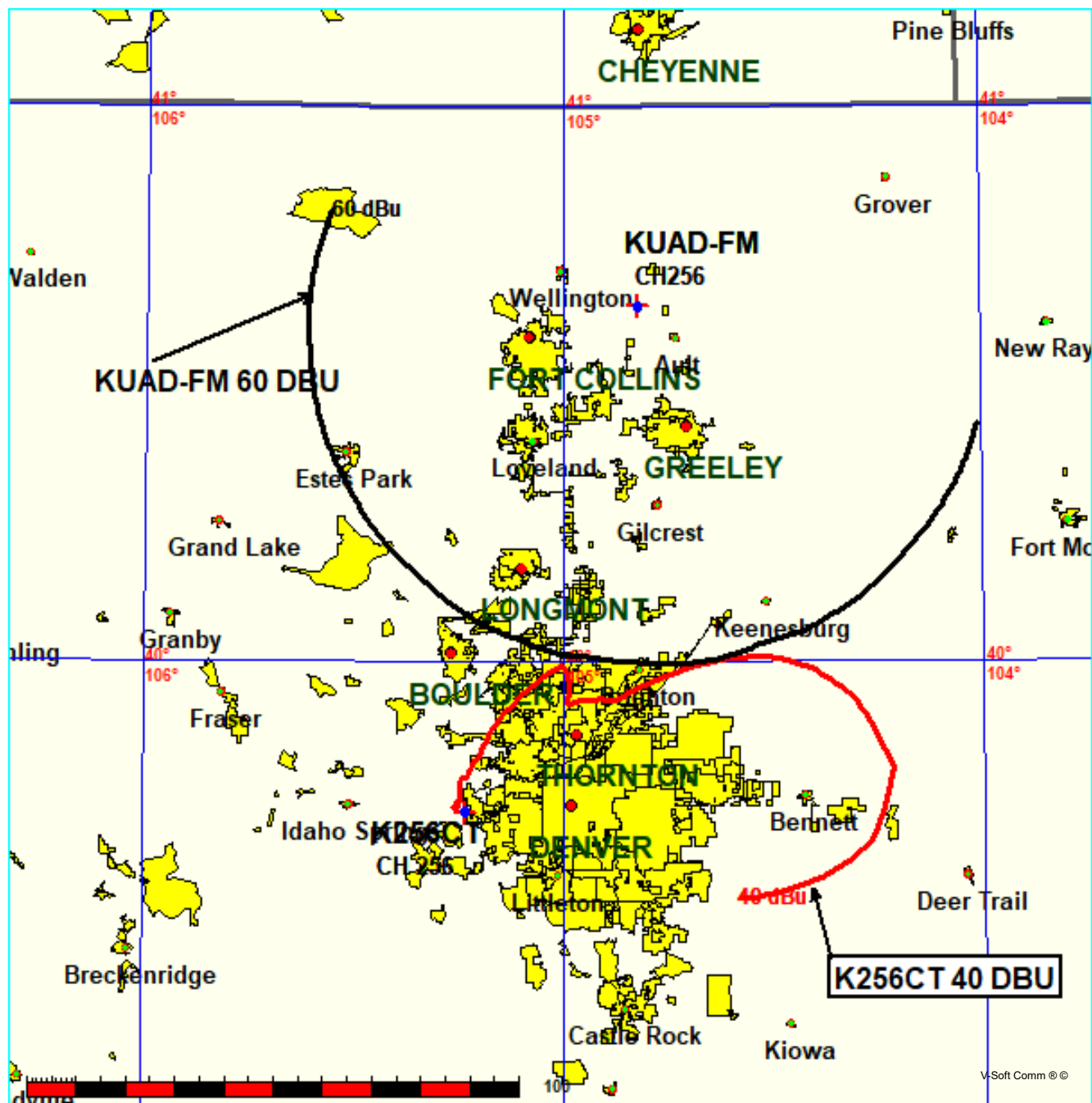


FIGURE 8 - Directional antenna data

K256CT

09-18-2022

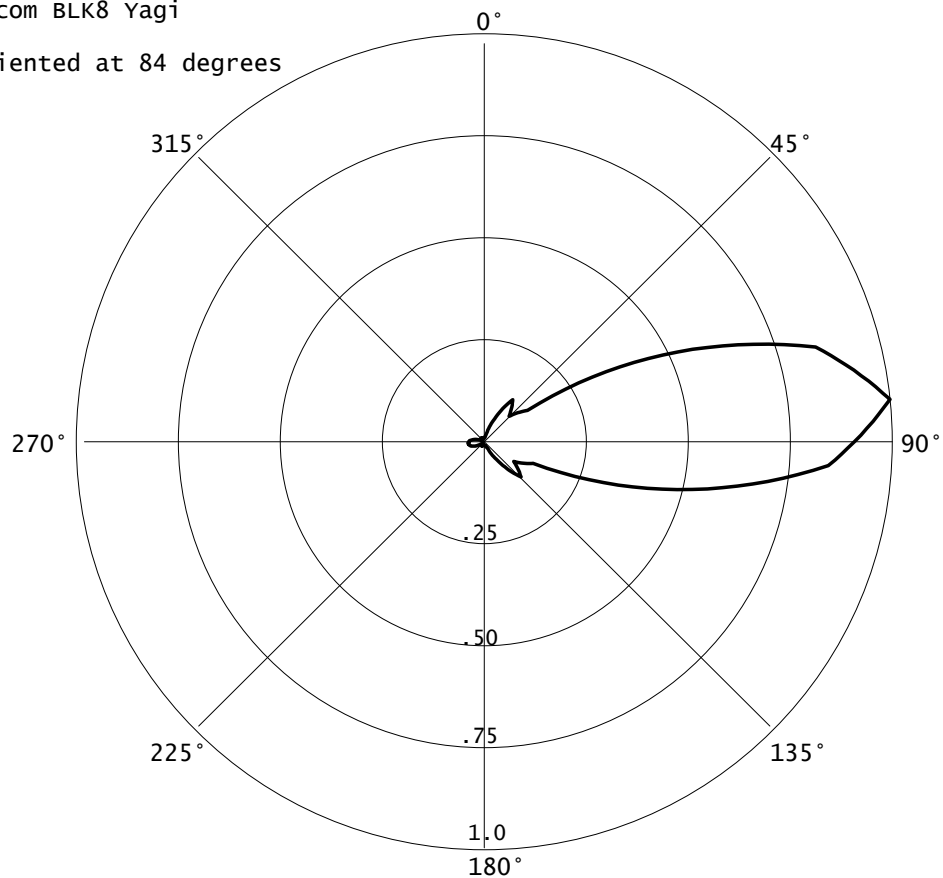
RMS(V)= .284

Graph is Relative Field

Azi	Field	dbk	kw
000	0.009	-46.936	0.000
010	0.014	-43.098	0.000
020	0.043	-33.351	0.000
030	0.099	-26.108	0.002
040	0.102	-25.849	0.003
050	0.113	-24.959	0.003
060	0.345	-15.264	0.030
070	0.702	-09.094	0.123
080	0.938	-06.577	0.220
090	0.907	-06.868	0.206
100	0.630	-10.034	0.099
110	0.273	-17.297	0.019
120	0.105	-25.597	0.003
130	0.110	-25.193	0.003
140	0.087	-27.230	0.002
150	0.035	-35.139	0.000
160	0.012	-44.437	0.000
170	0.009	-46.936	0.000
180	0.009	-46.936	0.000
190	0.008	-47.959	0.000
200	0.010	-46.021	0.000
210	0.012	-44.437	0.000
220	0.008	-47.959	0.000
230	0.007	-49.119	0.000
240	0.018	-40.915	0.000
250	0.031	-36.193	0.000
260	0.038	-34.425	0.000
270	0.038	-34.425	0.000
280	0.029	-36.773	0.000
290	0.014	-43.098	0.000
300	0.007	-49.119	0.000
310	0.010	-46.021	0.000
320	0.011	-45.193	0.000
330	0.009	-46.936	0.000
340	0.009	-46.936	0.000
350	0.009	-46.936	0.000

Nicom BLK8 Yagi

oriented at 84 degrees



84	1.000	0.250
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Figure 9 - Fill-In Map with KGNU(AM)
K256CT Denver, CO, CH. 256D

Coverage Study - GLOBE 30 Sec
09-18-2022

K256CT CH256 D , 0.25 kW, 205.7m HAAT, 2256.0m COR AMSL
Service Contour = 60 dBu.

