

TECHNICAL STATEMENT  
K284CI DENVER, COLORADO, CH 284D  
MOUNTAIN COMMUNITY TRANSLATORS, LLC  
FCC FORM 349  
MARCH 2016

This Technical Statement is made in support of a minor change application for FM translator station, K284CI licensed to Denver, Colorado, facility ID 33475.

K284CI seeks to remain a fill-in translator for KDCO(AM) Denver, Colorado, facility ID 34585. K284CI will remain at its current tower site with the same antenna, Scala CA-2/CP at the same height. K284CI seeks to increase its Effective Radiated Power from 99 watts, to 140 watts and rotate the directional pattern by 1 degrees (180° to 179°). The following will show that the new proposed operation of K284CI will meet all of the Commissions technical requirements for an FM translator station.

The new proposed operation of K284CI specifies a maximum Effective Radiated Power of 140 watts. It will operate with a directional antenna using a Scala CA-2CP, dual polarized, custom directional. The antenna is mounted on an existing tower with an overall height of 18 meters above the ground. The antenna is mounted with a Center of Radiation of 14 meters above the ground, and 2259 meters Above Mean Sea Level. The coordinates of this tower are located at N 39° 43' 45", W 105° 14' 08" (NAD 27).

Figure 1 is a detailed interference study conducted on channel 284D with these new proposed facilities. It shows that the new operation of K284CI will not cause any interference to any existing or proposed FM stations, LPFM or other FM translators on any of the pertinent same channel or adjacent channels to channel 284, with the exception of KXKL-FM Denver, CO, facility ID 59959, on channel 286C, and KKFN(FM)

Longmont, Colorado operating on channel 282C1, facility ID 71767. The proposed operation of K284CI on 284D is located within the protected 60 dB $\mu$  contour of 2<sup>nd</sup> adjacent channel stations of KXKL-FM and KKFN(FM).

Figure 2 shows the predicted F(50-50) field strength of KXKL-FM(FM) at the proposed K284CI transmitter site is 94.1 dB $\mu$ . Therefore, the respective predicted interfering contour F(50-10) generated by the proposed K284CI on channel 284D is an additional 40 dB $\mu$  or 134.1 dB $\mu$ .

Figure 3 show the predicted F(50-50) field strength of KKFN(FM) at the proposed K284CI transmitter site is 86.0 dB $\mu$ . Therefore, the respective predicted interfering contour F(50-10) generated by the proposed K284CI on channel 284D is an additional 40 dB $\mu$  or 126.0 dB $\mu$ .

Figure 4 shows the coverage area for the worse case 100 dB $\mu$  interference contour F(50-10) and shows that there is no population in the area of interference.

The applicant, 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 3/4 acre square wooded area, with private access. The transmitter building is uninhabited and does not have indoor plumbing. Should any unforeseen actual interference be caused, the licensee will immediately reduce power or even cease broadcasting with K284CI until such interference can be eliminated.

Figure 5 is the directional antenna data for the proposed Scala CA-2/CP composite directional antenna system.

Figure 6 shows the proposed 60 db $\mu$  of K284CI will be completely contained inside of the current 2mv/m daytime predicted coverage contour of the station being rebroadcast, KDCO(AM) Denver, Colorado on 1340 KHz and a 25 mile radius from the KDCO transmitter site. The proposed operation of K284CI will be considered a “fill-in” translator for KDCO(AM) Denver, Colorado, facility 34585, thus some of the maximum allowable ERP limits on some of the pertinent radials will be exceeded. However, the maximum ERP on any radial will not exceed 140 watts, thus this proposal is compliance with MERP’s rules, or with 74.1235(a).

Since no change in transmitter site is being proposed, it can be assumed that the current operation of K284CI and the new proposed operation will overlap as required.

It was found that the new proposed operation of K284CI Denver, Colorado on channel 284D, will satisfy all of the required commission rules and regulations for an FM translator station.

FIGURE 1 - DETAILED CHANNEL INTERFERENCE STUDY

K284CI DENVER, CO, CH. 284D

REFERENCE  
39 43 45.0 N.  
105 14 08.0 W.

CH# 284D - 104.7 MHz, Pwr= 0.14 kW DA, HAAT= 0.0 M, COR= 2259 M  
Average Protected F(50-50)= 6.13 km  
Standard Directional

DISPLAY DATES  
DATA 03-19-16  
SEARCH 03-19-16

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*
284C1 Vail	KKVM	LIC _C_ CO	264.6 83.8	104.40 BMLH20031119AII	39 38 05.0 106 26 47.0	100.000 102	171.0 3015	71.9 Cool Radio, Lic	-70.1*	28.0
286C Denver	KXKL-FM	LIC _CN CO	171.2 351.3	14.51 BLH19901023KB	39 36 00.0 105 12 35.0	100.000 356	10.4 2448	73.8 Kse Radio Ventures, Lic	-14.3	-60.1*
284D Denver	K284CI	APP DC_ CO	0.0 0.0	0.00 BPFT20160307ACS	39 43 45.0 105 14 08.0	0.150	40.6 2259	11.7 Mountain Community Transla	-52.1*	-51.6*
284D Denver	K284CI	LIC DC_ CO	0.0 0.0	0.00 BLFT20160219ACE	39 43 45.0 105 14 08.0	0.099	36.7 2259	10.5 Mountain Community Transla	-48.3*	-50.4*
284D Denver	K284CI	APP DC_ CO	0.0 0.0	0.00 BPFT20160307ACS	39 43 45.0 105 14 08.0	0.099	36.6 2259	10.5 Mountain Community Transla	-48.1*	-50.4*
282C1 Longmont	KKFN	LIC NC_ CO	121.5 301.6	7.09 BLH19991214ABH	39 41 45.0 105 09 54.0	100.000 206	3.2 2081	31.0 Bonneville International C	-11.2*	-24.2*
284L1 Denver	KOMF-LP	CP _ CO	77.4 257.6	22.23 BMPL20150625ACE	39 46 20.0 104 58 56.1	0.100 30	1659	Open Media Foundation	-4.3	0.3
284D Masonville	K284BY	LIC DH_ CO	357.6 177.6	70.81 BLFT20150421AAI	40 21 59.0 105 16 13.0	0.050	54.7 2238	16.2 Mary Medicus	4.9	14.0
284D Masonville	K284BY	CP DC_ CO	5.8 185.9	55.74 BPFT20151221CEH	40 13 43.0 105 10 08.0	0.049	27.7 1692	8.0 Mary Medicus	16.7	5.5
286D Boulder	KXKL-FM1	LIC DC_ CO	4.3 184.3	25.73 BLFTB20030502ABA	39 57 37.0 105 12 46.0	1.500	0.1 1762	2.0 Kse Radio Ventures, Lic	14.0	23.4
284A Calhan	KKCS	LIC NCX CO	135.4 316.0	113.53 BMLH20131204AJQ	38 59 57.0 104 18 47.0	1.550 198	72.9 2192	24.3 United States Cp, Lic	20.6	24.7
284L1 Loveland	KMKZ-LP	LIC _ CO	11.1 191.2	76.31 BLL20140827ACQ	40 24 12.1 105 03 41.1	0.035 49	1592	Protecting America's Futur	45.1	29.2
284L1 Grealey	KELS-LP	LIC _ CO	30.1 210.4	84.33 BLL20100524ACP	40 23 05.0 104 44 11.0	0.061 38	1489	Plymouth Gathering Inc.	51.5	38.3
284C1 Sterling	KNNG	LIC _CN CO	62.4 243.8	210.28 BLH19810402AB	40 34 57.0 103 01 56.0	100.000 198	162.4 1508	64.0 Media Logic Lic	39.0	125.4
284L1 Estes Park	KREV-LP	LIC _ CO	342.4 162.2	74.68 BLL20141014ABN	40 22 11.0 105 30 10.0	0.100	2355	United Methodist Church Of	45.3	43.6
284D Dillon	KKVM-FM3	LIC DV_ CO	261.3 80.8	70.41 BLFTB20090115AFD	39 37 51.0 106 02 47.0	0.175	15.4 2786	4.8 Cool Radio, Lic	50.4	60.6
283C3 Canon City	KSTY	LIC _CX CO	179.2 359.2	157.00 BLH20071003ABD	38 18 54.0 105 12 40.0	8.600 14	84.4 2138	56.2 Royal Gorge Broadcasting,	54.3	82.6
230A Frisco	KYSL	LIC _CN CO	255.9 75.4	77.87 BLH19940808KA	39 33 22.0 106 06 53.0	0.560 324	17.9 3549	9.8 Krystal Broadcasting, Inco	9.5R	68.4M
230A Loveland	KCWA	LIC ZCX CO	3.1 183.1	85.00 BLH20101214ACL	40 29 37.0 105 10 53.0	0.580 319	17.9 2098	9.8 Way Media, Inc.	9.5R	75.5M
283D Colorado Springs	KSTY-FM1	LIC _C_ CO	163.4 343.7	113.92 BLFTB20050815ABU	38 44 43.0 104 51 39.0	0.003	17.9 2957	9.8 Royal Gorge Broadcasting L	75.9	76.7
285C3 Rye	KRYE	LIC _CX CO	174.0 354.2	199.18 BLH20080307ADA	37 56 40.0 104 59 56.0	25.000 55	93.0 2597	61.4 United States Cp, Lic	87.4	107.7
281C3 Buena Vista	KBVC	LIC NCN CO	217.5 36.9	137.22 BLH19961127KB	38 44 45.0 106 11 55.0	0.600 362	1.7 3335	46.2 Three Eagles Communication	126.1	90.3
281D Vail	K281AM	LIC _C_ CO	263.5 82.7	104.88 BLFT20111003ASF	39 36 58.0 106 26 57.0	0.050 -226	0.5 2727	4.7 Alwaymountaintime, Lic	99.9	100.1
283C2 Centennial	KYAP	CP NCX WY	354.2 174.1	173.67 BPH20130124ACV	41 17 06.0 105 26 41.0	13.500 284	56.7 2702	37.3 White Park Broadcasting, I	105.5	117.6
285C2 Cheyenne	KRRR	LIC NCX WY	16.2 196.6	162.71 BLH20031125AIV	41 08 04.0 104 41 32.0	25.500 35	35.8 1859	22.8 Brahmin Broadcasting Corpo	115.3	122.8

CH CI TY	CALL	TYPE STATE	ANT	AZI <--	DI ST FI LE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	Page # 2 *IN* (Overlap in km)	*OUT*
281C3 Oak Creek	KFMU-FM	LIC NCN CO		292.5 111.4	150.92 BLH19940111KC	40 14 10.0 106 52 30.0	1.400 327	2.1 2831	26.1 Alwaymountaintime, Lic	143.9	120.4
285C1 Olney Springs	KRYE	RSV-A CO	___	139.6 320.7	245.91	38 01 54.0 103 24 53.0	100.000 299	104.3 1555	71.8 United States Cp, Lic	120.8	143.1
285C1 Olney Springs	KRYE	CP NCX CO		147.6 328.4	219.33 BPH20130429AEO	38 03 20.0 103 53 31.0	100.000 81	76.9 1418	47.2 United States Cp, Lic	121.5	140.0
231C2 Phippsburg	KEZZ	LIC NCX CO		300.3 119.3	143.00 BLH20090522ACV	40 22 03.0 106 41 28.0	1.750 380	17.9 3107	9.8 Blizzard Broadcasting li c	14.5R	128.5M
287C Rifle	KZKS	LIC _HN CO		263.3 81.5	250.80 BLH19940928KB	39 25 57.0 108 07 46.0	60.000 743	13.4 2690	97.6 Western Slope Communicatio	232.8	152.3
287D Carbondale	KZKS-FM2	LIC DVN CO		260.3 78.9	187.27 BLFTB19951204TB	39 25 30.0 107 22 46.0	0.060 798	0.5 3248	29.6 Western Slope Communicatio	181.9	157.2
287A Pine Bluffs	DKMGQ	VAC WY	___	31.2 212.0	187.40	41 09 55.0 104 04 31.0	6.000 100	2.8 1689	28.8 Tracy Broadcasting Corpora	173.5	158.4
283A Centennial	KYAP	LIC _CX WY		336.6 156.0	190.20 BLH20121126ACD	41 17 49.0 106 08 23.0	0.500 33	12.0 2455	8.6 White Park Broadcasting, I	167.7	172.7
287D Glenwood Springs	KZKS-FM3	LIC _C_ CO		264.7 83.3	179.58 BLFTB20000918AKW	39 33 40.0 107 18 59.0	0.250	1.1 2219	7.1 Western Slope Communicatio	174.1	172.4
282C3 Albin	DKKAW	VAC WY	___	28.1 208.9	213.65	41 25 05.0 104 01 36.0	25.000 100	3.7 1692	35.9 Chisholm Trail Broadcastin	198.8	176.1
285C1 Norwood	KRYD	LIC _C_ CO		239.4 57.5	300.73 BLH20080519AAS	38 18 59.0 108 11 55.0	24.000 512	105.1 3074	71.3 Rocky lli Investments, Inc	189.2	222.7
282C0 Grand Junction	KMXY	LIC _CX CO		257.4 75.1	311.39 BLH20110209ADG	39 03 56.0 108 44 52.0	100.000 446	16.2 2245	99.1 Townsquare Media Grand Jun	290.1	211.9
284C1 Casper	KTRS-FM	LIC _CX WY		345.4 164.7	346.60 BLH20060927ANT	42 44 37.0 106 18 24.0	18.000 554	122.9 2524	49.1 Townsquare Media Casper Li	212.6	264.2
281C1 Burlington	KNAB-FM	LIC _CN CO		99.8 281.7	260.38 BLH19900222KD	39 17 41.0 102 15 37.0	51.000 110	4.5 1367	42.5 Knab, Inc.	240.3	217.5
231C Montrose	KKXK	LIC _CY CO		234.1 52.6	259.21 BLH19961009KC	38 20 16.0 107 38 23.0	100.000 574	17.9 3094	9.8 Ccr-montrose Iv, Lic	28.5R	230.7M
287D Grand Junction	KZKS-FM1	LIC DCN CO		257.4 75.1	311.22 BLFTB19980514TE	39 03 57.0 108 44 45.0	20.000 354	7.8 2150	77.9 Western Slope Communicatio	298.3	233.0
231C1 Scottsbluff	KNEB-FM	LIC _CN NE		30.4 211.4	255.38 BLH19810904AB	41 42 04.0 103 40 49.0	100.000 207	17.9 1512	9.8 Nebraska Rural Radio Assoc	21.5R	233.9M
281C2 Guernsey	KANT	LIC _CX WY		3.3 183.4	291.12 BLH20080304AAR	42 20 46.6 105 02 03.9	36.000 172	6.2 1675	53.8 Peak Radio Lic	273.3	237.1
231A Idalia	KWDI	LIC _CX CO		89.7 271.6	252.40 BMLH20080806ABJ	39 42 10.0 102 17 32.0	0.100 58	17.9 1216	9.8 Conundrum Communications I	9.5R	242.9M
286A Wheatland	KLLM	CP NCX WY		5.2 185.3	259.03 BNPH20130724AGQ	42 03 07.0 104 57 13.0	0.100 6	0.7 1462	5.6 Kona Coast Radio, Lic	246.7	253.2
287C Des Moines	R13666	VAC NM	___	158.8 339.6	339.35	36 52 21.0 103 51 13.0	100.000 600	13.4 2576	90.7 Caroline Smith	305.4	247.3
281A Silverton	KRDS	LIC _CX CO		225.4 43.9	299.88 BLH20140902ACF	37 48 39.0 107 39 54.0	0.100 -620	0.7 2853	5.6 Mt Communications	291.4	293.7
287C3 Durango	KXRC	LIC _CX CO		221.0 39.4	359.11 BLH20130614ACF	37 15 46.0 107 53 58.0	16.500 123	2.1 2398	20.5 Krj Company	348.0	307.0
285L1 Alliance	1595425	APP NE	___	35.9 217.4	327.21 BNPL20131115APC	42 05 24.0 102 54 42.0	0.064 38	1259	309.2 Alliance Hi spanic Educatio		307.8
230C1 Raton	KRTN-FM	LIC _C_ NM		167.8 348.3	345.68 BLH20010418AAG	36 40 59.0 104 24 50.0	26.000 441	17.9 2389	9.8 Enchanted Air, Inc.	21.5R	324.2M

Terrain database is NGDC 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. Call signs with strikeout need not be protected.  
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.

\* No actual interference will be caused to either KXKL-FM and KKFN since the 100 dBu interference contour will not cover any population.  
See the Technical Statement for more details.

**K284CI**

BLFT20160219ACE

Latitude: 39-43-45 N

Longitude: 105-14-08 W

ERP: 0.14 kW

Channel: 284

Frequency: 104.7 MHz

AMSL Height: 2259.0 m

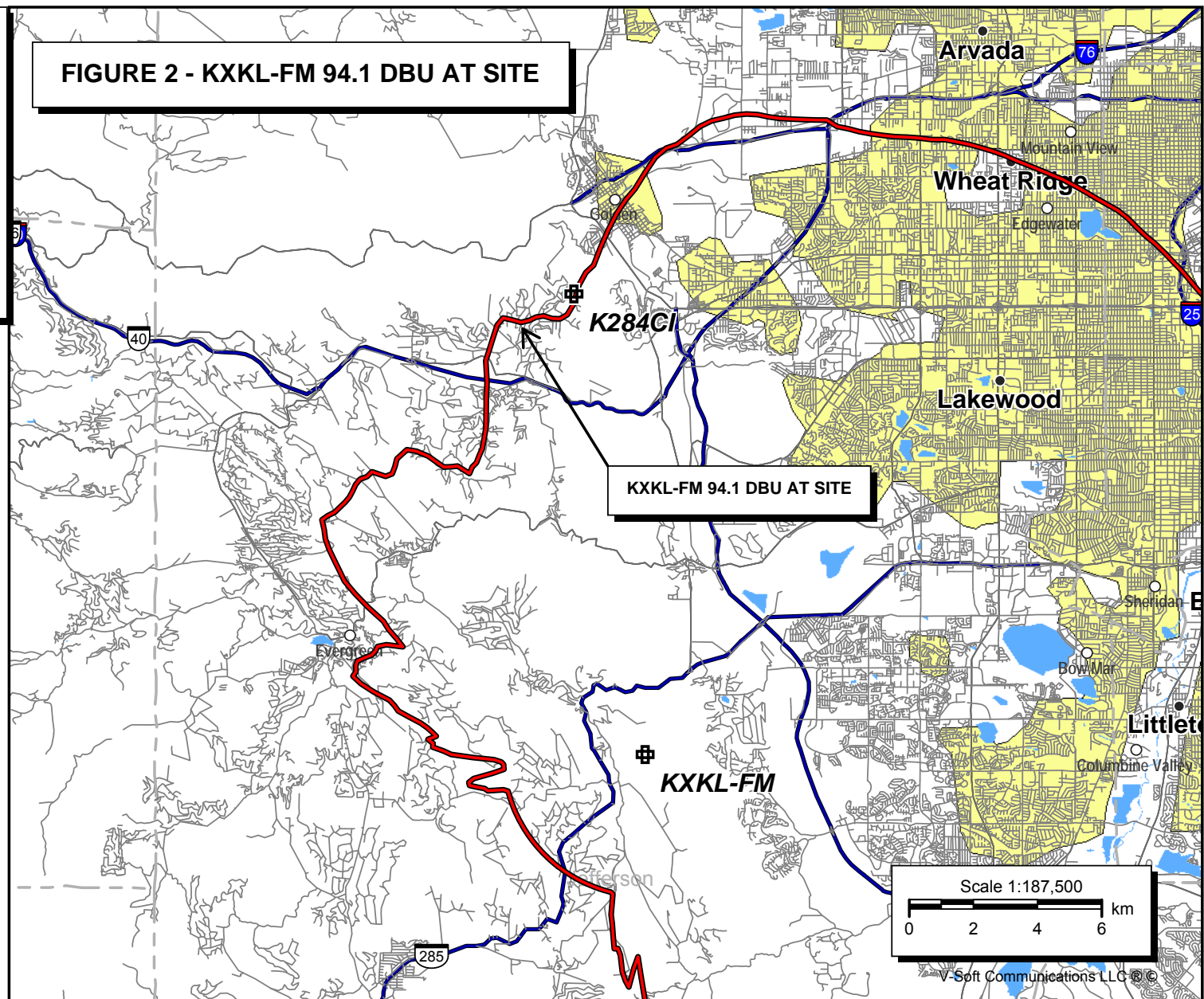
Elevation: 2245.0 m

Horiz. Pattern: Directional

Vert. Pattern: No

Prop Model:

**FIGURE 2 - KXKL-FM 94.1 DBU AT SITE**



**K284CI**

BLFT20160219ACE

Latitude: 39-43-45 N

Longitude: 105-14-08 W

ERP: 0.14 kW

Channel: 284

Frequency: 104.7 MHz

AMSL Height: 2259.0 m

Elevation: 2245.0 m

Horiz. Pattern: Directional

Vert. Pattern: No

Prop Model:

**FIGURE 3 - KKFN 86.0 DBU CONTOUR AT SITE**

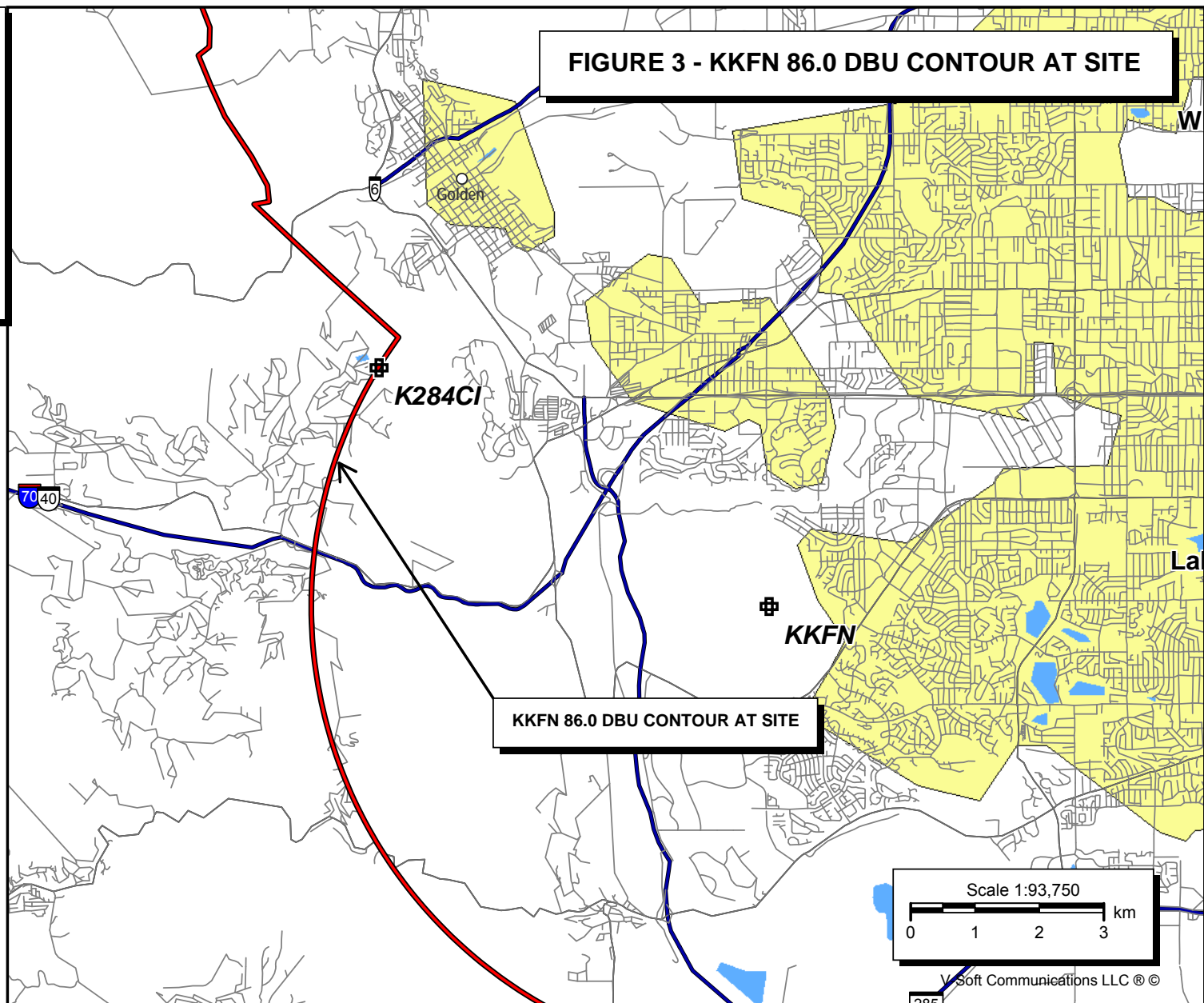




FIGURE 4 - PREDICTED 100 DBU CONTOUR  
K284CI DENVER, CO, CH. 284D

Coverage Study - NGDC 30 SEC  
03-19-2016

K284CI CH284 D , 0.14 kW, 0.0m HAAT, 2259.0m COR AMSL  
Interference Contour = 100 dBu. Population = 0

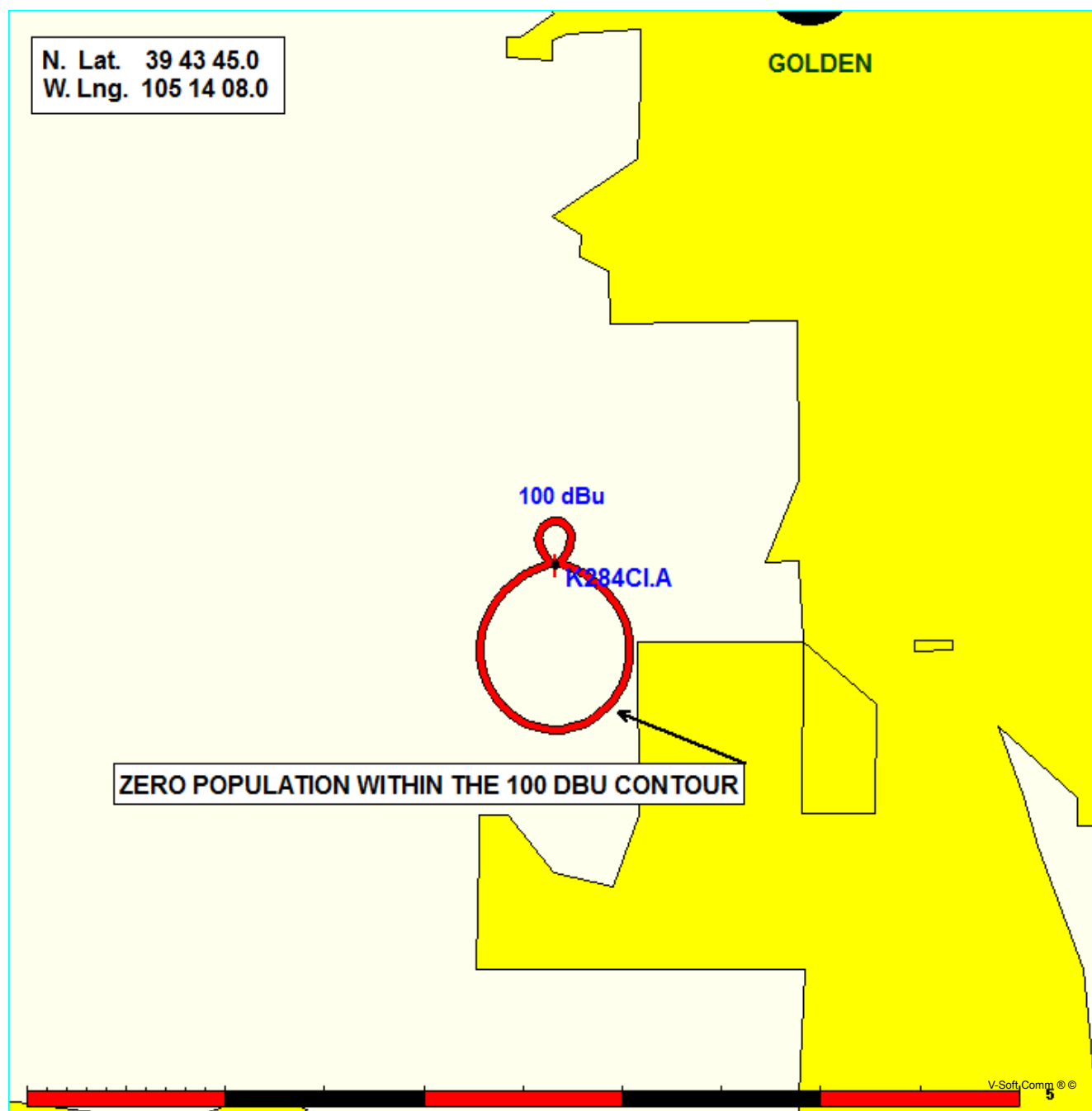




FIGURE 5 - DIRECTIONAL ANTENNA DATA

K284CI.A

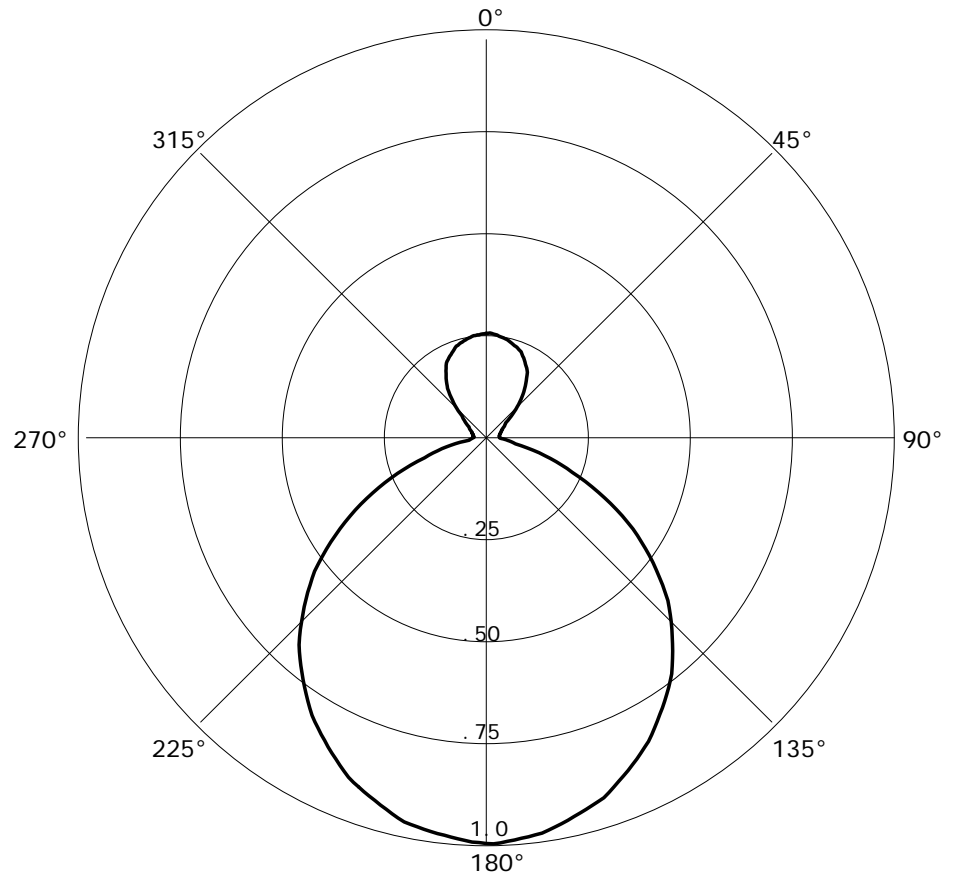
03-17-2016

RMS(V)= .483

SCALA CA-2, ORIENTED AT 179 DEGREES

Graph is Relative Field

Azi	Field	dBk	kW
000	0.257	-20.040	0.010
010	0.249	-20.315	0.009
020	0.232	-20.929	0.008
030	0.198	-22.306	0.006
040	0.140	-25.317	0.003
050	0.074	-30.854	0.001
060	0.047	-34.797	0.000
070	0.038	-36.643	0.000
080	0.033	-37.869	0.000
090	0.033	-37.869	0.000
100	0.065	-31.981	0.001
110	0.196	-22.394	0.006
120	0.385	-16.530	0.022
130	0.564	-13.214	0.048
140	0.710	-11.214	0.076
150	0.825	-9.910	0.102
160	0.915	-9.011	0.126
170	0.973	-8.477	0.142
180	0.999	-8.248	0.150
190	0.973	-8.477	0.142
200	0.915	-9.011	0.126
210	0.825	-9.910	0.102
220	0.710	-11.214	0.076
230	0.564	-13.214	0.048
240	0.385	-16.530	0.022
250	0.197	-22.350	0.006
260	0.065	-31.981	0.001
270	0.032	-38.136	0.000
280	0.032	-38.136	0.000
290	0.038	-36.643	0.000
300	0.048	-34.614	0.000
310	0.074	-30.854	0.001
320	0.139	-25.379	0.003
330	0.197	-22.350	0.006
340	0.231	-20.967	0.008
350	0.249	-20.315	0.009



**K284CI**

BPFT20160307ACS

Latitude: 39-43-45 N

Longitude: 105-14-08 W

ERP: 0.14 kW

Channel: 284

Frequency: 104.7 MHz

AMSL Height: 2259.0 m

Elevation: 2245.0 m

Horiz. Pattern: Directional

Vert. Pattern: No

Prop Model:

**FIGURE 6 - FILL-IN MAP  
KDCO DENVER, CO**