

TECHNICAL STATEMENT
K225BS DENVER, COLORADO
4 K'S, LLLP
FCC FORM 349
April 2018

This technical statement is made on behalf of 4 K's, LLLP, licensee of K225BS Denver, Colorado facility ID 140244. This application seeks to modify its licensed operation. It proposes to relocate K225BS to an existing 93.9 meter FCC registered tower, ASR # 1227704, located at N39° 46' 20", W104° 58' 56", NAD 27.

K225BS proposes to operate with an Effective Radiated Power of 99 watts (0.099 kw) with circular polarization utilizing a Nicom BKG77/2L-D two bay directional antenna. The antenna will be mounted at the 83 meter level on the 93.9 meter overall tower, with a Center of Radiation at 1655 Meters Above Mean Sea Level.

Figure 1 shows a detailed channel interference study conducted from the proposed site for K225BS. It shows that the only pertinent stations concerned for interference that required more study is 2nd adjacent station KTCL Wheat Ridge, Colorado, facility ID 68684, operating on channel 227C1 and 2nd adjacent station KWOE Broomfield, Colorado, facility 59972, operating on channel 223C1.

The proposed operation of K225BS is located within the protected 60 dBu contour of second adjacent channel stations KTCL and KWOE. Figure 2 documents that KTCL places a 90.2 dBμ contour at the proposed K225BS tower site. Figure 3 documents that KWOE places a 75.7 dBμ contour at the proposed K225BS tower site with its currently licensed operation, and 75.5 dBμ with a pending application for

KWOF, BPH-20180403AAC. Thus the worst case interference contour would be calculated by adding 40 dB μ to the lessor KWOF contour at the site, or 115.5 dB μ .

Figure 4 shows the “worst case” predicted 115.5 dB μ interference contour (F50-10). There is no population located with the 115.5 dB μ contour, thus there will be no “real life” interference caused to either KTCL or KWOF. The applicant, 4 K’s, LLLP, respectfully requests a waiver of C.F.R. 74.1204(d) of the commission rules based on there is no population within the area of predicted interference. The transmitter building is un-habited.

Figure 5 shows the directional antenna data for the proposed antenna to be utilized by K225BS.

Figure 6 shows that the 60 dB μ contour of the currently licensed K225BS Denver and the proposed 60 dB μ contour for this application. The map shows that the two 60 dB μ contours overlap as required.

Figure 7 shows that the proposed 60 dB μ of K225BS will be completely contained inside of the proposed fill-in station 2 mV/m daytime contour to be rebroadcast, KDCO(AM) Denver, Colorado, facility ID 34585, operating on channel 1340 Khz.

It was concluded that the new proposed operation of K225BS Denver, Colorado on channel 225D will not cause any harmful interference to any existing stations, and will be in full compliance of the commission rules.

FIGURE 1 - DETAILED CHANNEL INTERFERENCE STUDY

K225BS DENVER, CO, CH. 225D

REFERENCE
39 46 20.0 N.
104 58 56.1 W.

CH# 225D - 92.9 MHz, Pwr= 0.099 kW DA, HAAT= 27.7 M, COR= 1655 M
Average Protected F(50-50)= 5.62 km
Standard Directional

DISPLAY DATES
DATA 04-20-18
SEARCH 04-22-18

CH CITY	CALL	TYPE ANT STATE	AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
225C Colorado Springs	KKPK	LIC _C_ CO	174.8 354.8	114.45 BLH19990311KE	38 44 44.0 104 51 42.0	79.000 670	216.2 2922	101.9 Radio License Holding Cbc,	-105.2*	0.4
227C1 Wheat Ridge	KTCL	LIC DCX CO	258.7 78.6	22.18 BLH20070621AQR	39 43 59.0 105 14 10.0	71.000 346	11.7 2256	85.8 Citicasters Licenses, Inc.	5.4	-64.1*
225D Longmont	K225BS	LIC DC_ CO	258.8 78.6	22.23 BLFT20170209AAT	39 43 59.0 105 14 12.0	0.099	22.23 2239	22.23 4-k's Lllp	64.5R	-42.3M
223C1 Broomfield	KWOF	LIC DEN CO	10.8 190.9	36.65 BLH20010501AAA	40 05 47.0 104 54 04.0	57.000 377	9.2 1895	69.5 Kse Radio Ventures, Lic	18.2	-33.5*
223C1 Broomfield	KWOF	APP ZCY CO	10.8 190.9	36.66 BPH20180403AAC	40 05 47.4 104 54 04.0	94.200 307	9.3 1826	68.7 Kse Radio Ventures, Lic	18.0	-32.7*
225C2 Warren Afb	KPAW	LIC _CX WY	352.7 172.6	146.02 BLH20070131ABW	41 04 35.0 105 12 10.0	33.000 185	143.9 2404	60.1 Citicasters Licenses, Inc.	-6.0	63.6
225D Boulder	1777771	APP DC_ CO	326.7 146.6	31.89 BNPFT20180130AFG	40 00 43.0 105 11 16.0	0.250	27.5 1673	4.2 Hunt Broadcasting Lic	0.3	5.7
226D Breckenridge	K226CI	LIC DC_ CO	256.4 75.7	100.09 BLFT20151215AFJ	39 33 22.0 106 06 53.0	0.130	39.1 3550	24.3 Krystal Broadcasting	56.4	64.7
224C Glenwood Springs	KKCH	LIC NC_ CO	259.9 78.4	208.68 BMLH20031125AEC	39 25 07.0 107 22 06.0	56.000 763	146.7 3212	101.1 Alwaymountaintime, Lic	56.8	99.9
222D Graymont	K222BQ	LIC DH_ CO	262.2 81.6	80.62 BLFT20110518AAP	39 40 14.0 105 54 48.0	0.070 255	0.6 3668	15.2 Krystal Broadcasting	74.9	61.1
222D Pueblo West	DK222CR	APP _C_ CO	180.4 0.4	110.96 BLSTA20161007ABI	38 46 22.0 104 59 32.0	0.250	1.1 3773	41.0 Way Media, Inc.	105.7	68.3
226C3 Log Lane Village	KRJN	LIC _CX CO	63.5 244.3	127.26 BLH20150325ACL	40 16 30.0 103 38 33.0	11.000 62	42.0 1376	26.7 Northeast Colorado Broadca	76.5	88.3
228D Fort Collins	K228EZ	LIC DV_ CO	348.0 167.9	87.90 BLFT20111005AJG	40 32 47.0 105 11 53.0	0.009 379	0.0 2198	3.1 Fireside Educational Group	80.1	84.1
228D Colorado Springs	K228EM	CP _C_ CO	175.3 355.4	107.14 BPFT20180117ACU	38 48 37.0 104 52 54.0	0.250	1.1 2179	9.5 Cheyenne Mountain Public B	102.0	88.1
223D Colorado Springs	K223CU	LIC DC_ CO	174.7 354.8	114.43 BLFT20170201ACV	38 44 45.0 104 51 37.0	0.070	0.3 2898	19.5 Npg Licenses, Lic	110.1	89.5
228D Colorado Springs	K228EM	LIC DC_ CO	175.3 355.4	107.14 BLFT20171120AAU	38 48 37.0 104 52 54.0	0.170	0.9 2179	8.5 Cheyenne Mountain Public B	102.2	90.1
226D Frisco	K226AH	LIC DVN CO	263.5 82.6	126.49 BLFT19980717TD	39 38 05.0 106 26 47.0	0.150 72	26.9 2978	18.1 Krystal Broadcasting, Inc.	94.6	101.0
222D Pueblo West	DK222CR	LIC DC_ CO	180.4 0.4	110.96 BLFT20151104EHG	38 46 22.0 104 59 32.0	0.250	0.2 3773	14.8 Way Media, Inc.	106.6	94.7
228D Leadville	K228AG	LIC DHN CO	241.7 60.9	117.51 BLFT19790511IC	39 15 54.0 106 10 54.0	0.107 546	0.1 4011	6.9 Carbondale Community Acces	112.7	108.8
226A Walden	1501452	VAC ____ CO	312.0 131.1	159.07	40 43 14.0 106 23 01.0	6.000 100	41.2 2583	26.7 Christopher Falletti	112.3	124.2
224D Edwards And Eagle	KKCH-FM2	LIC DV_ CO	265.4 84.3	145.94 BLFTB20070320AAP	39 39 20.0 106 40 39.0	1.100	18.9 2536	11.0 Alwaymountaintime, Lic	123.5	113.2
222A Hugo	DKKHG	VAC ____ CO	123.0 303.9	134.69	39 06 20.0 103 40 30.0	6.000 100	1.8 1764	17.1 Kona Coast Radio, Lic	128.0	114.2
222D Vail	K222AJ	LIC DCN CO	262.6 81.7	127.01 BLFT19980626TF	39 36 58.0 106 26 57.0	0.099 -219	0.7 2721	5.5 Alwaymountaintime, Lic	121.2	120.9
222C3 Salida	KVRH-FM	LIC _CX CO	211.7 31.0	171.63 BLH20090917ABD	38 27 11.0 106 01 02.0	0.220 895	1.0 3578	42.9 Three Eagles Communication	166.5	127.3
228C3 Aspen	KTND	LIC _C_ CO	254.0 72.7	177.31 BLH20100816ABF	39 18 56.0 106 57 32.0	21.000 109	2.2 2682	21.8 Bs&t Wi rel ess, Inc.	170.1	143.7

CH CI TY	CALL	TYPE STATE	ANT	AZI <--	DI ST FI LE #	LAT LNG	PWR(kW) HAAT (M)	INT(km) COR (M)	PRO(km) LI CENSEE	Page # 2 *IN* (Overl ap in km)	*OUT*
222C3 Hi l l sda l e	KY0Y	LIC NCX WY		14. 8 195. 1	169. 75 BLH20111005AJF	41 14 55. 0 104 27 46. 0	12. 000 44	2. 1 1772	20. 5 Proshop	158. 1 Radi o	144. 7 Broadcasting
226C0 Grand Junction	KMGJ	LIC _CX CO		257. 6 75. 2	333. 34 BLH20021115AAD	39 03 59. 0 108 44 41. 0	100. 000 437	144. 3 2214	98. 1 Mbc	184. 0 Grand	227. 9 Broadcasting, In
227C0 Gering	KMOR	LIC NCX NE		22. 6 203. 3	249. 44 BLH20070827AED	41 50 23. 0 103 49 36. 0	100. 000 311	7. 8 1598	61. 8 Legacy	231. 9 Communi cations, LI c	187. 0
228C1 Lamar	KLMR-FM	LIC _CX CO		132. 4 313. 9	282. 60 BMLH20130425AAI	38 02 10. 0 102 35 58. 0	100. 000 146	7. 6 1292	61. 0 Ccr-lamar Iv, LI c	270. 6	221. 1
222A Hol yoke	KSTH	LIC _CX CO		67. 5 249. 2	243. 88 BLH20050713AAW	40 34 49. 0 102 19 11. 0	1. 000 64	1. 6 1217	11. 8 Armada Media - Mccook, Inc	233. 7	231. 1
223C1 Tri ni dad	KCRT-FM	LIC _CY CO		171. 7 352. 0	311. 74 BMLH19990301KC	36 59 33. 0 104 28 24. 0	50. 000 311	9. 4 2625	71. 4 Phillips	298. 3 Broadcasting, Inc	233. 3
222C Grand Junction	KMOZ-FM	LIC _CN CO		257. 6 75. 2	333. 33 BLH19891219KD	39 04 00. 0 108 44 41. 0	100. 000 420	15. 9 2213	98. 1 Mbc	312. 3 Grand	234. 4 Broadcasting, In
223D Wal senburg	KCRT-FM1	CP DV_ CO		175. 7 355. 8	239. 57 BNPFTB20141222ABF	37 37 12. 0 104 46 41. 0	0. 100	0. 0 1898	1. 6 Phillips	235. 5 Broadcasting, inc.	236. 7
228A Al amosa	KALQ-FM	LIC _CN CO		196. 8 16. 2	266. 35 BLH4443	37 28 20. 0 105 51 13. 0	2. 800 40	1. 8 2341	17. 8 Wolf Creek	260. 4 Broadcasting, L	248. 3
224A Rawl ins	KIQZ	LIC _CN WY		320. 2 138. 7	292. 44 BLH19811119AI	41 46 16. 0 107 14 15. 0	3. 000 91	27. 6 2237	18. 1 Mt. Rushmore	259. 7 Broadcasting,	258. 0
228C1 Paxton	KZTL	LIC _CX NE		63. 9 246. 2	340. 95 BLH20071031AAY	41 03 50. 0 101 20 16. 0	100. 000 230	8. 1 1199	63. 3 Legacy	324. 0 Communi cations, LI c	276. 8
225C2 Bayfi el d	KPTE	LIC _CX CO		223. 3 41. 5	366. 45 BLH20140528AEV	37 20 21. 0 107 49 25. 0	9. 200 344	78. 5 2757	17. 7 Winton Road	283. 7 Broadcasting C	298. 2
228C1 Casper	KWYX	LIC _CX WY		341. 9 161. 0	347. 95 BMLH20100607AFR	42 44 28. 0 106 18 31. 0	3. 800 530	3. 0 2497	33. 9 Cochi se	337. 6 Broadcasting LI c	311. 2
223C2 Bar Nunn	KMXW	LIC _CX WY		341. 9 161. 0	347. 95 BLH20110811ABT	42 44 30. 0 106 18 23. 0	3. 100 521	2. 8 2489	31. 4 Breck Medi a Group	337. 9 Wyomi ng,	312. 2
228A Taos	KNCE	LIC NCX NM		188. 2 7. 8	379. 18 BLH20150515AAD	36 23 22. 0 105 35 09. 0	3. 000 -192	1. 6 2145	13. 2 Taos Adventures, LI c	373. 4	365. 8

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.
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.
Reference station has protected zone issue: AM tower

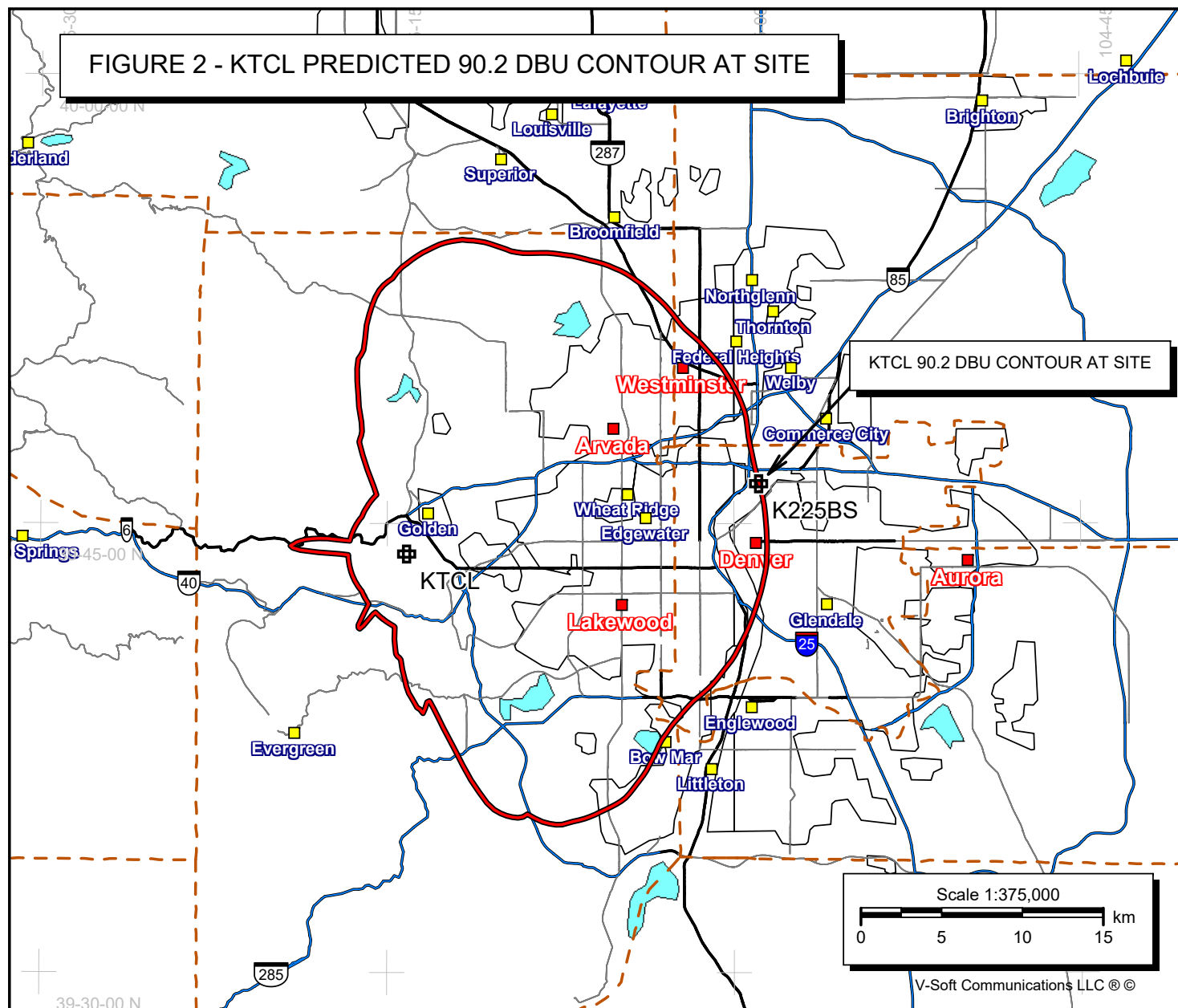
* No actual interference will be caused to either KWOE or KTCL since the worse case 115.5 DBU interference contour will not cover any population. See the Technical Statement for more details.

K225BS

BLL20160527ABO
Latitude: 39-46-20 N
Longitude: 104-58-56 W
ERP: 0.099 kW
Channel: 225
Frequency: 92.9 MHz
AMSL Height: 1655.0 m
Elevation: 1581.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

KTCL

BLH20070621AQR
Latitude: 39-43-59 N
Longitude: 105-14-10 W
ERP: 71.00 kW
Channel: 227
Frequency: 93.3 MHz
AMSL Height: 2256.0 m
Elevation: 2207.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None



K225BS

BLL20160527ABO
Latitude: 39-46-20 N
Longitude: 104-58-56 W
ERP: 0.099 kW
Channel: 225
Frequency: 92.9 MHz
AMSL Height: 1655.0 m
Elevation: 1581.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

FIGURE 3 - KWOE PREDICTED 75.5 DBU AND 75.7 DBU CONTOUR AT SITE

KWOE 75.7 DBU CONTOUR (LIC.)

KWOE 75.5 DBU AT SITE (APP.)

KWOE

BLH20010501AAA
Latitude: 40-05-47 N
Longitude: 104-54-04 W
ERP: 57.00 kW
Channel: 223
Frequency: 92.5 MHz
AMSL Height: 1895.0 m
Elevation: 1550.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

KWOE.A

BPH20180403AAC
Latitude: 40-05-47.40 N
Longitude: 104-54-04 W
ERP: 94.20 kW
Channel: 223
Frequency: 92.5 MHz
AMSL Height: 1826.0 m
Elevation: 1551.0 m
Horiz. Pattern: Directional
Vert. Pattern: No
Prop Model: None

KWOE 75.5 DBU AND 75.7 DBU CONTOURS AT SITE

Scale 1:375,000

0 5 10 15 km

V-Soft Communications LLC ©

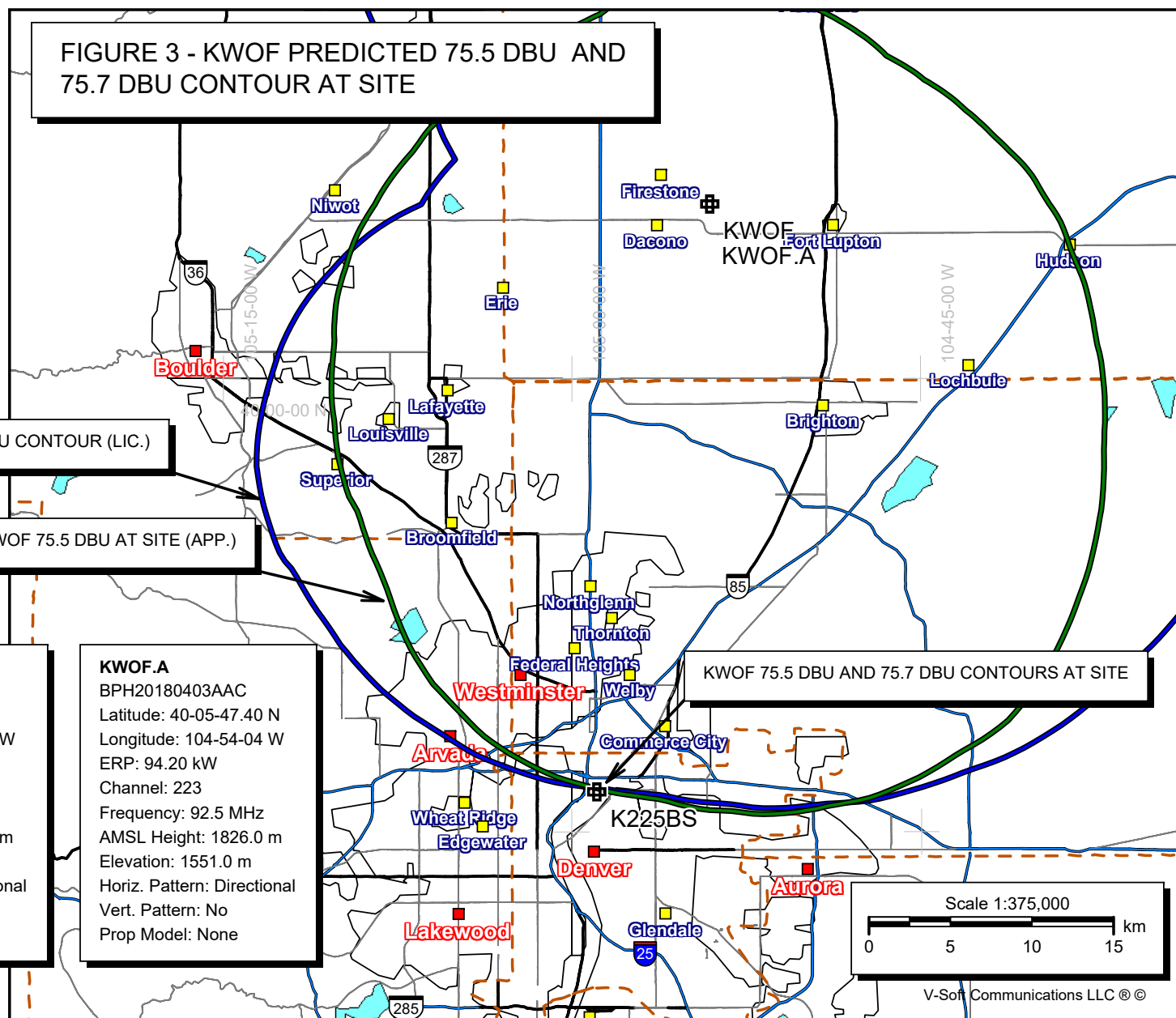


FIGURE 4 - PREDICTED 115.5 DBU INTEFERENCE CONTOUR
K225BS DENVER, CO, CH. 225D

Coverage Study - NGDC 30 SEC
04-22-2018

K225BS CH225 D , 0.099 kW, 27.7m HAAT, 1655.0m COR AMSL
Interference Contour = 115.5 dBu. Population = 0

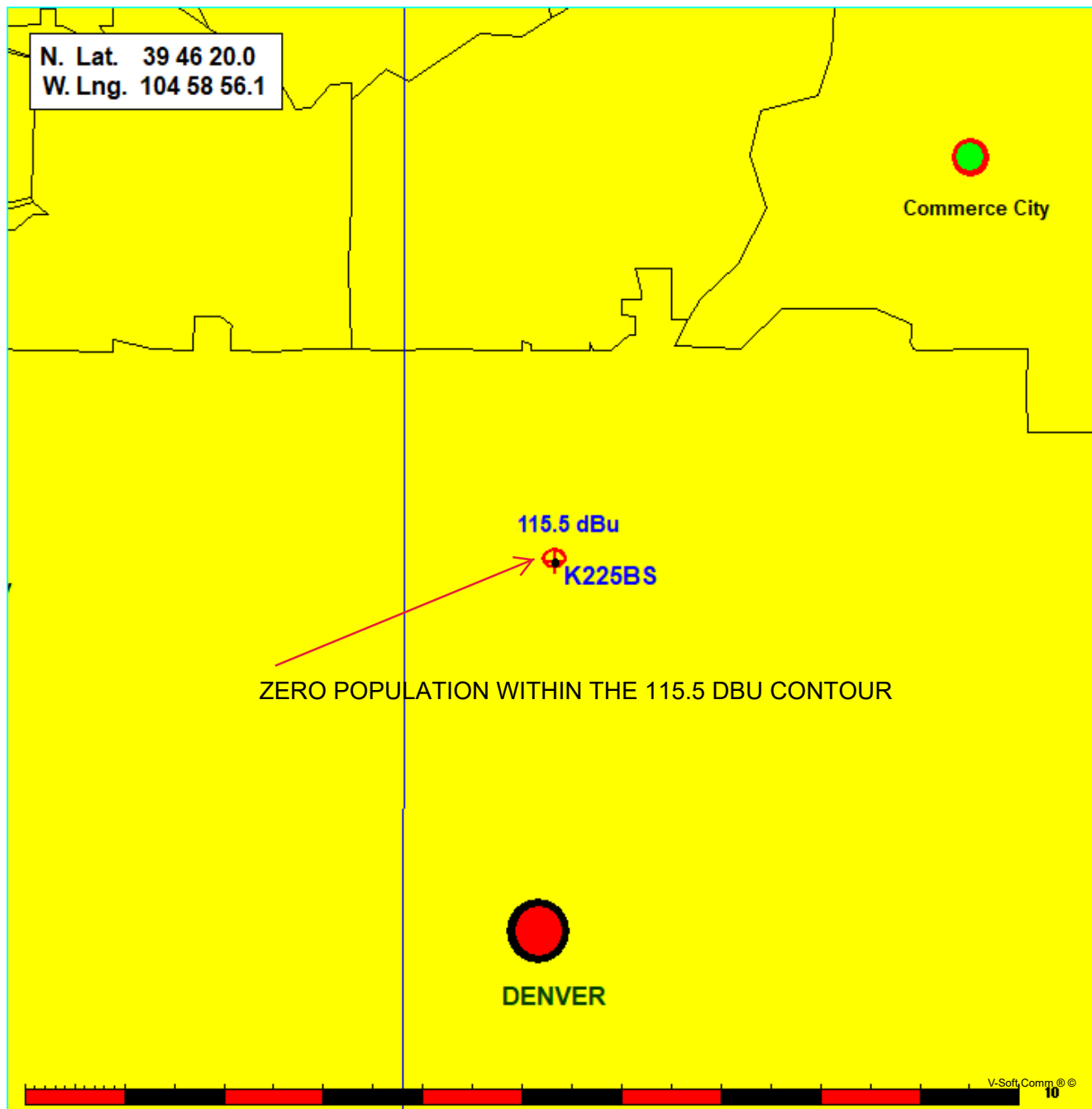


FIGURE 5 - DIRECTIONAL ANTENNA DATA

K225BS

04-22-2018

RMS(V) = .792

Graph is Relative Field

Azi	Field	dBk	kW
000	0.966	-10.344	0.092
010	0.940	-10.581	0.087
020	0.880	-11.154	0.077
030	0.940	-10.581	0.087
040	0.970	-10.308	0.093
050	0.982	-10.201	0.095
060	1.000	-10.044	0.099
070	0.982	-10.201	0.095
080	0.927	-10.702	0.085
090	0.852	-11.435	0.072
100	0.780	-12.202	0.060
110	0.710	-13.018	0.050
120	0.630	-14.057	0.039
130	0.580	-14.775	0.033
140	0.536	-15.460	0.028
150	0.480	-16.419	0.023
160	0.400	-18.002	0.016
170	0.330	-19.673	0.011
180	0.320	-19.941	0.010
190	0.330	-19.673	0.011
200	0.400	-18.002	0.016
210	0.480	-16.419	0.023
220	0.536	-15.460	0.028
230	0.580	-14.775	0.033
240	0.630	-14.057	0.039
250	0.710	-13.018	0.050
260	0.780	-12.202	0.060
270	0.852	-11.435	0.072
280	0.927	-10.702	0.085
290	0.982	-10.201	0.095
300	1.000	-10.044	0.099
310	0.984	-10.184	0.096
320	0.976	-10.255	0.094
330	0.976	-10.255	0.094
340	0.966	-10.344	0.092
350	0.966	-10.344	0.092

NICOM BKG77/2L-D

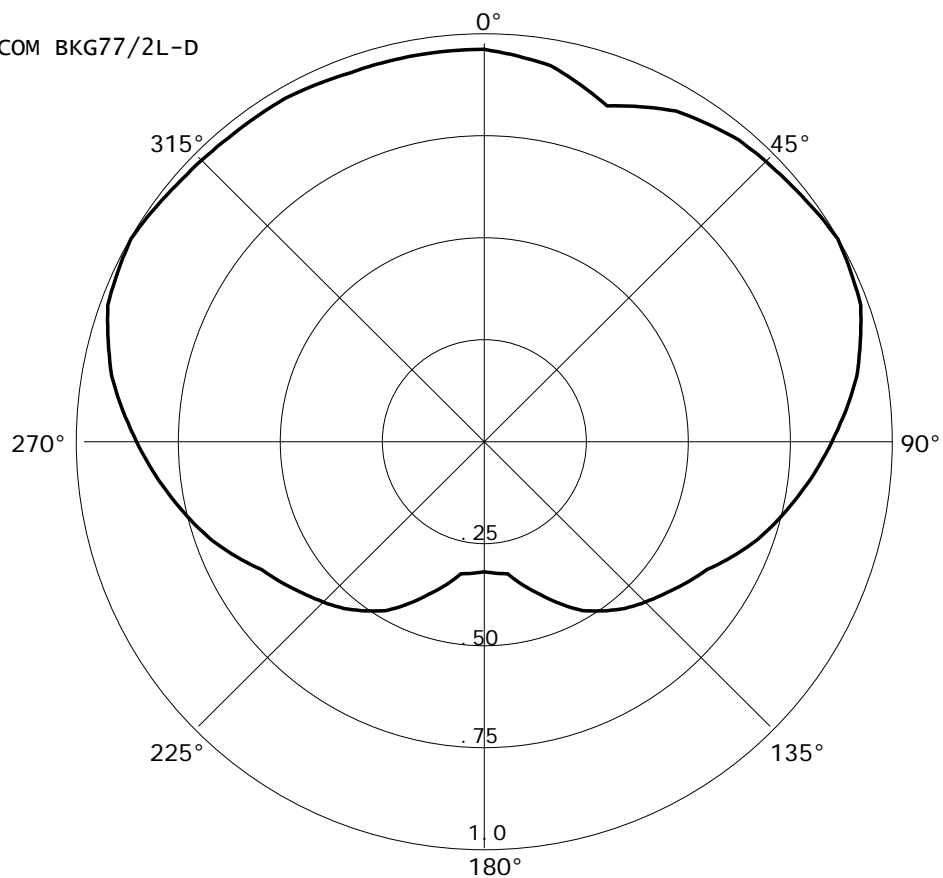


FIGURE 6 - PRESENT AND PROPOSED 60 DBU CONTOURS
K225BS DENVER, CO, CH. 225D

Coverage Study - NGDC 30 SEC
04-22-2018

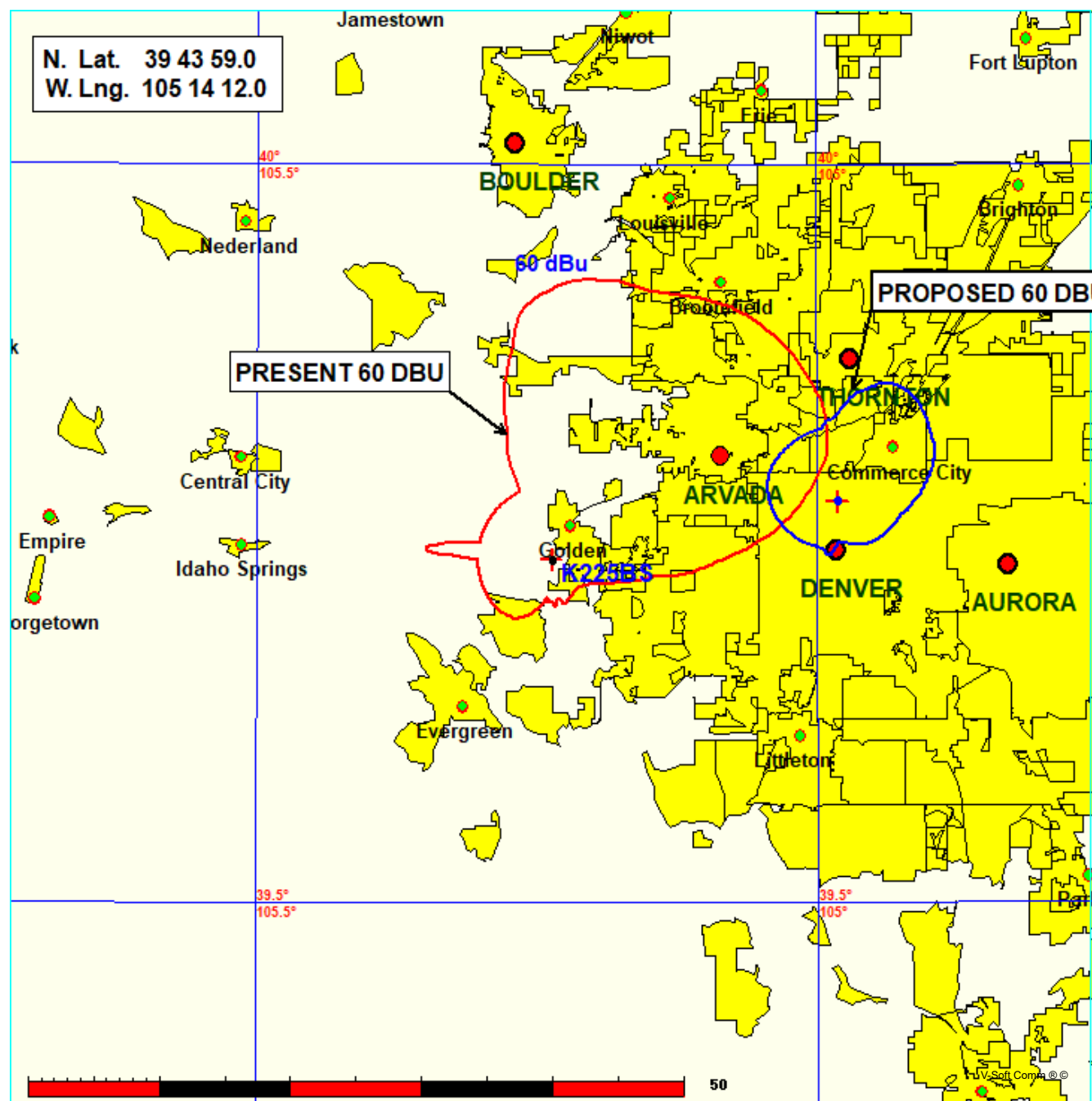


FIGURE 7 - FILL-IN MAP WITH KDCO(AM)
K225BS DENVER, CO, CH. 225D

Coverage Study - NGDC 30 SEC
04-22-2018

K225BS CH225 D , 0.099 kW, 27.7m HAAT, 1655.0m COR AMSL
Service Contour = 60 dBu. Population = 132,014

