

TECHNICAL EXHIBIT
MINOR MODIFICATION OF CONSTRUCTION PERMIT
STATION KXRM-DT (FACILITY ID 35991)
COLORADO SPRINGS, COLORADO

AUGUST 27, 2002

CH 22 51 KW (MAX-DA) 641 M

TECHNICAL EXHIBIT
MINOR MODIFICATION OF CONSTRUCTION PERMIT
STATION KXRM-DT (FACILITY ID 35991)
COLORADO SPRINGS, COLORADO
CH 22 51 KW (MAX-DA) 641 M

Table of Contents

	Technical Narrative
Figure 1	Antenna and Supporting Structure
Figure 2	Antenna Patterns
Figure 3	Predicted F(50,90) Coverage Contours
Figure 4	Class A (OET-69) Output

TECHNICAL EXHIBIT
MINOR MODIFICATION OF CONSTRUCTION PERMIT
STATION KXRM-DT (FACILITY ID 35991)
COLORADO SPRINGS, COLORADO
CH 22 51 KW (MAX-DA) 641 M

Technical Narrative

This Technical Exhibit was prepared on behalf of digital television broadcast station KXRM-DT at Colorado Springs, Colorado. Station KXRM-DT is authorized to operation on channel 22 with a directional antenna maximum effective radiated power (ERP) of 850 kW and an antenna height above average terrain (HAAT) of 665 meters (BPCDT-19991029AIC). This minor modification application proposes to change the directional antenna, reduce antenna HAAT and reduce ERP. There is no proposed change in transmitter site, channel (22) or city of license (Colorado Springs).

Proposed Facilities

The proposed site remains at the following coordinates (NAD27): 38-44-43 N, 104-51-40 W. A directional antenna maximum ERP of 51 kW and antenna HAAT of 641 meters are proposed. There will be no change in the overall height of the existing structure. The existing 164 foot structure does not require FCC antenna structure registration.

There are no AM stations within 5 kilometers of the KXRM transmitter site. The proposed site is a multi-user tower where various other FM and TV broadcasters operate. Although no adverse electromagnetic impact is expected, the applicant recognizes its responsibility to correct problems that result from its proposed operation.

The proposed antenna system will incorporate an electrical beam tilt of 1.0 degree with a mechanical beam tilt of 2.0 degrees at 67 degrees True. Therefore, the main vertical lobe will actually radiate above the horizon at certain azimuths. It is noted that there is rising terrain (i.e., negative HAAT's) at these azimuths, the antenna is in its "null" region and it is away from the desired service area of Colorado Springs. If a waiver is necessary it is respectfully requested. However, it is believed that a waiver is justified in this case.

Allocation Considerations

Interference calculations have been made using the procedures outlined in the FCC's OET-69 bulletin, using a 2 kilometer grid spacing. The proposed KXRM-DT operation does not cause excessive (greater than 2%, up to 10% total) calculated interference to any analog or DTV assignment. Below is the list of stations considered in the OET-69 analysis.

Stations Potentially Affected by Proposed KXRM-DT					
Chan	Call	City/State	Dist (km)	Status	Application Ref. No.
14	KTVJ	BOULDER CO	107.5	APP	BMPCT-19960716KL
14	KTVJ	BOULDER CO	107.5	CP MOD	BMPCT-19920612KG
20	KTVD	DENVER CO	114.1	APP	BMPCT-20020813ABA
20	KTVD	DENVER CO	114.0	CP	BPCT-19980827KG
20	KTVD	DENVER CO	107.5	LIC	BLCT-19881219KP
21	KXRM-TV	COLORADO SPRINGS CO	0.0	CP MOD	BMPCT-19981109KG
21	KXRM-TV	COLORADO SPRINGS CO	0.0	LIC	BLCT-19981109KH
21	KFCT	FORT COLLINS CO	210.9	CP	BPCDT-19990830AAH
21	KFCT-DT	FORT COLLINS CO	210.9	PLN	DTVPLN-DTVP0408
22	KFCT	FORT COLLINS CO	210.9	LIC	BLCT-19950628KF
23	KUPN(TV)	FORT MORGAN CO	151.6	ADD	BPRM-20020620ABM
23	KREG-DT	GLENWOOD SPRINGS CO	228.8	PLN	DTVPLN-DTVP0487
26	960920YN	PUEBLO CO	50.5	APP	BPCT-19960920YN

From the above list of stations considered, the table below shows the calculated interference caused to each station. Only stations that are predicted to receive interference from the proposed KXRM-DT operation are shown in the interference table.

Study Station	Baseline	Net Population Change/Interference
22 KFCT FORT COLLINS CO (LIC)	452,796	854 (0.2%) New Interference

The proposed KXRM-DT operation does not cause calculated interference to any other analog or DTV station. Therefore, it is believed the proposal complies with the FCC's "de minimis" interference policy.

Class A Consideration

The FCC's list of low power television (LPTV) assignments eligible for Class A status and the FCC CDBS system have been reviewed for potential Class A impact. Station K38DM is the only station that receives contour overlap from the proposed KXRM-DT operation. However, K38DM has not filed a Class A application with the FCC and therefore, it is not believed that interference protection from KXRM-DT is required. Furthermore, the OET-69 results (Figure 4) indicate that no interference will be caused to K38DM by the proposed KXRM-DT operation.

The proposed KXRM-DT operation will not cause any prohibited contour overlap to any other Class A station.

Radiofrequency Electromagnetic Field Exposure

The proposed KXRM-DT facilities were evaluated in terms of potential radio frequency (RF) energy exposure at ground level to workers and the general public. The radiation center for the proposed antenna is located 27.7 meters above ground level with an ERP of 51 kW. A relative field value of 0.098 was assumed for the worse-case downward angle of 69 degrees (see Sheet 3 of Figure 2). The calculated power density at a point 2 meters (6.6 feet) above ground level and 69 degrees down from horizontal is 0.0186 mW/cm². This is 5.3% of the FCC's recommended limit of 0.35 mW/cm² for channel 22 for an "uncontrolled" environment.

Access to the transmitting site will be restricted and appropriately marked with warning signs. As this will be a multi-user site, an agreement will control access to the site. In the event that workers or other authorized personnel enter restricted areas or climb the tower, appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the stations are at reduced power or shut down. The proposed KXRM-DT operation appears to be otherwise categorically excluded from environmental processing.

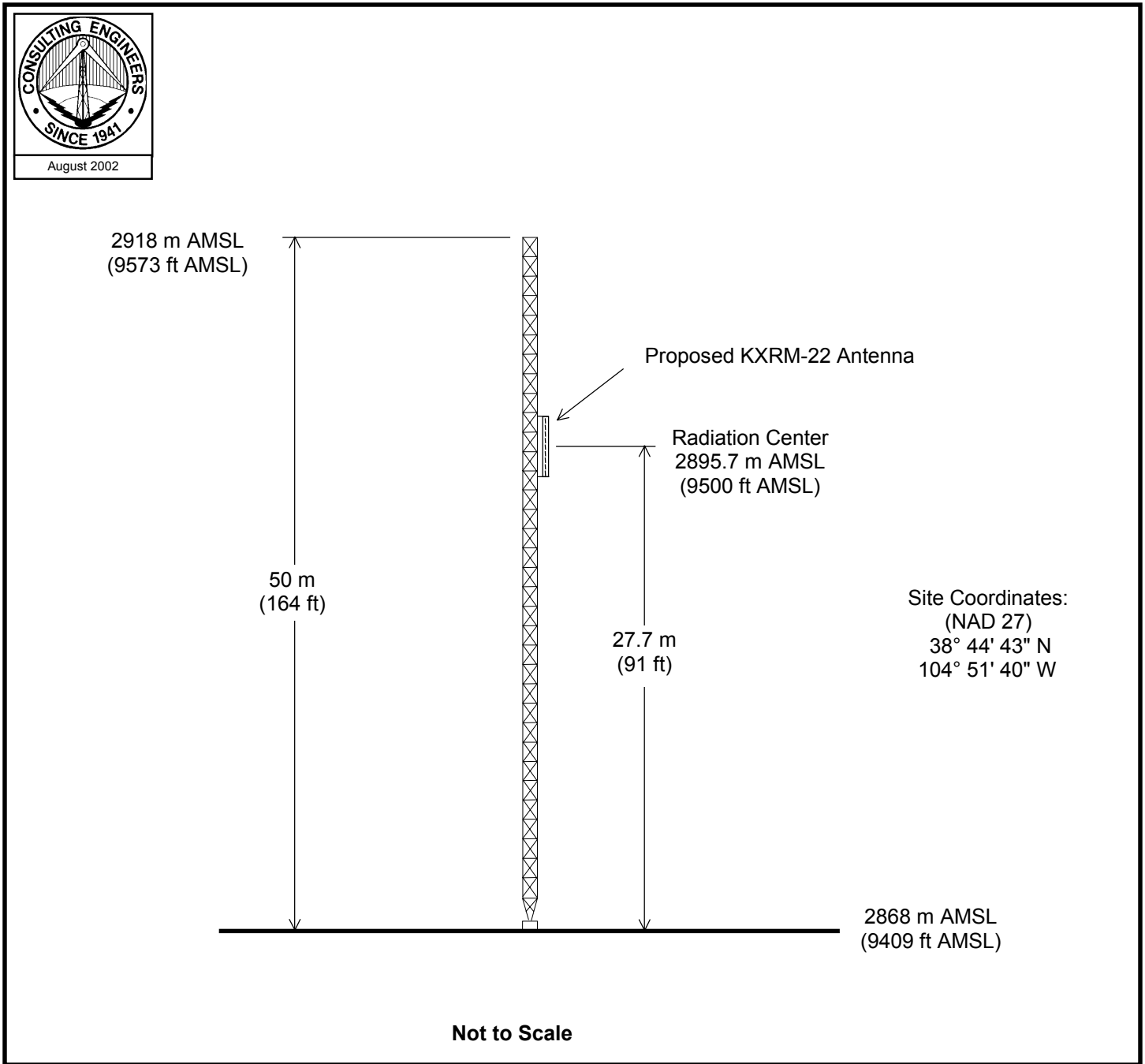


Jonathan N. Edwards

du Treil, Lundin & Rackley, Inc.
201 Fletcher Avenue
Sarasota, Florida 34237
(941) 329-6000

August 27, 2002

Figure 1



ANTENNA AND SUPPORTING STRUCTURE

STATION KXRM-DT

COLORADO SPRINGS, COLORADO

CH 22 51 KW (MAX-DA) 641 M

du Treil, Lundin & Rackley, Inc. Sarasota, Florida



Specification Number
Date
Call Letters
Channel
Location
Antenna Type
Customer

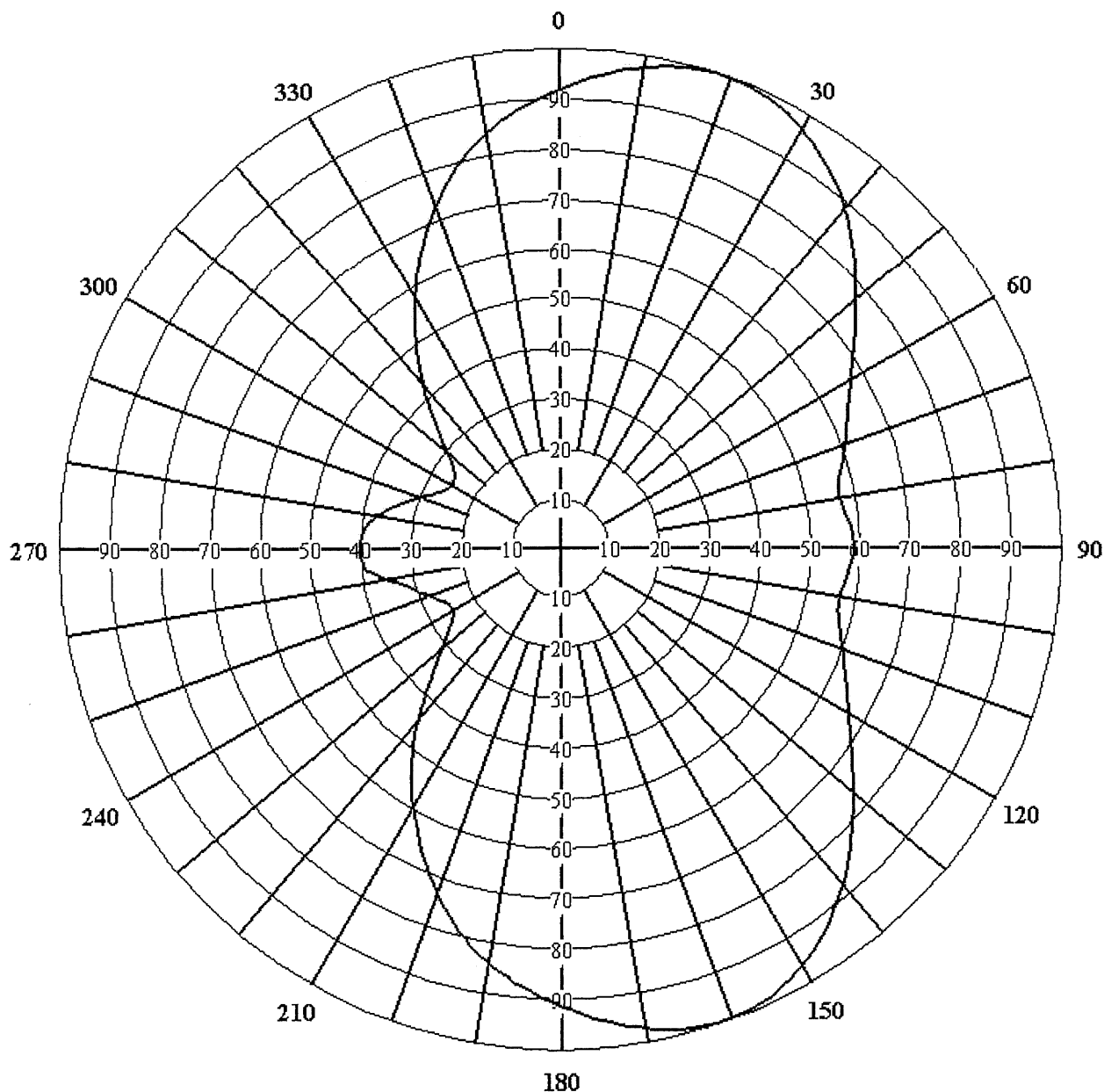
964:3:133755
August 20, 2002
KXRM
DT22
Colorado Springs, CO
TFU-12DSB-J
Raycom Media Inc.

Azimuth Pattern

Gain
Calculated / measured
2.0
Calculated

(3.01dB)

Frequency
Drawing#
521 MHz
DSB-J



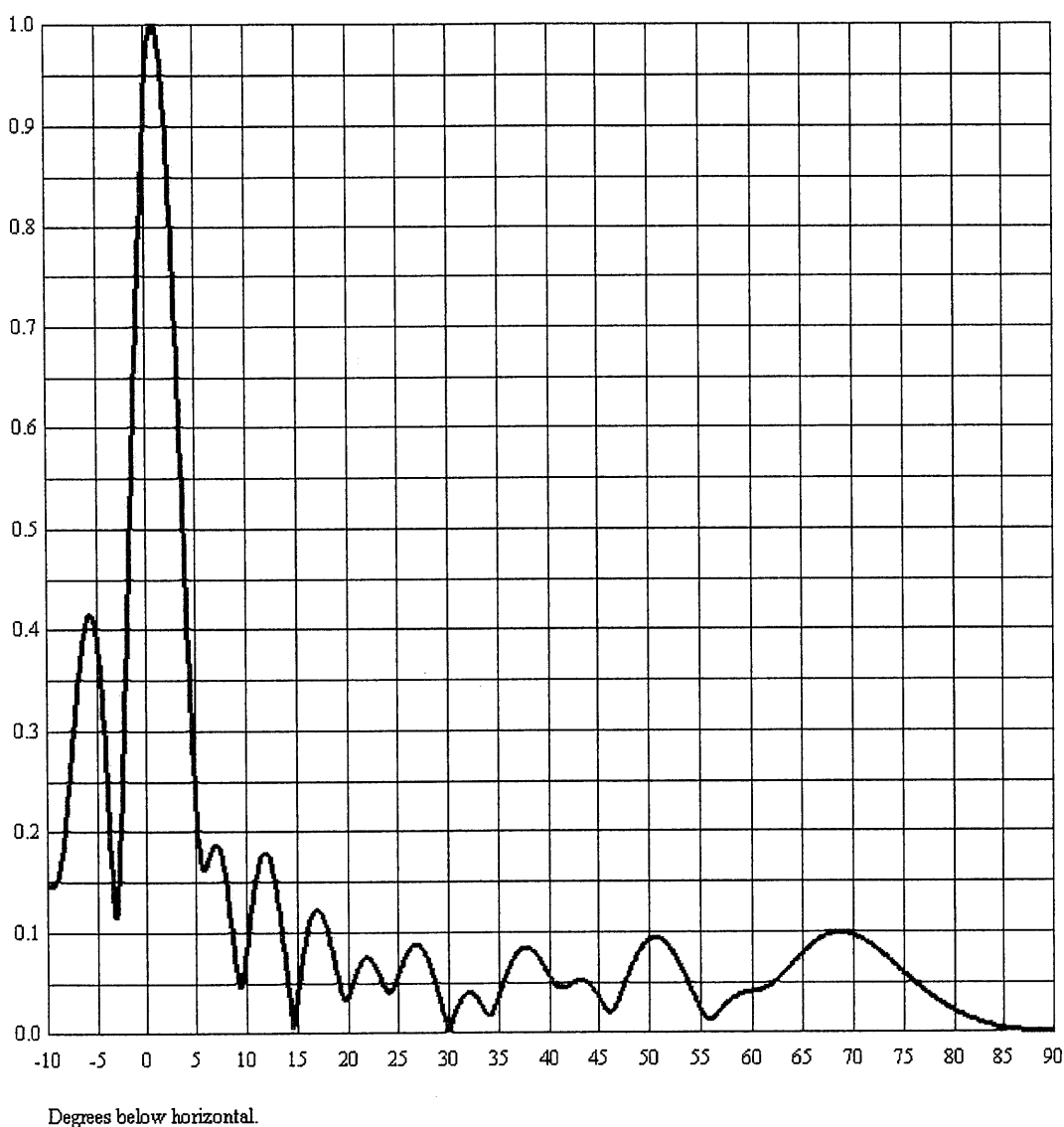


Specification Number
Date
Call Letters
Channel
Location
Antenna Type
Customer

964:3:133755
August 20, 2002
KXRM
DT22
Colorado Springs, CO
TFU-12DSB-J
Raycom Media Inc.

Elevation Pattern

RMS Gain at Main Lobe	11.5	10.61 dB	Beam Tilt	1 degrees
RMS Gain at Horizontal	9.7	9.87 dB	Frequency	521 MHz
Calculated / Measured	Calculated		Drawing#	12B115100-90

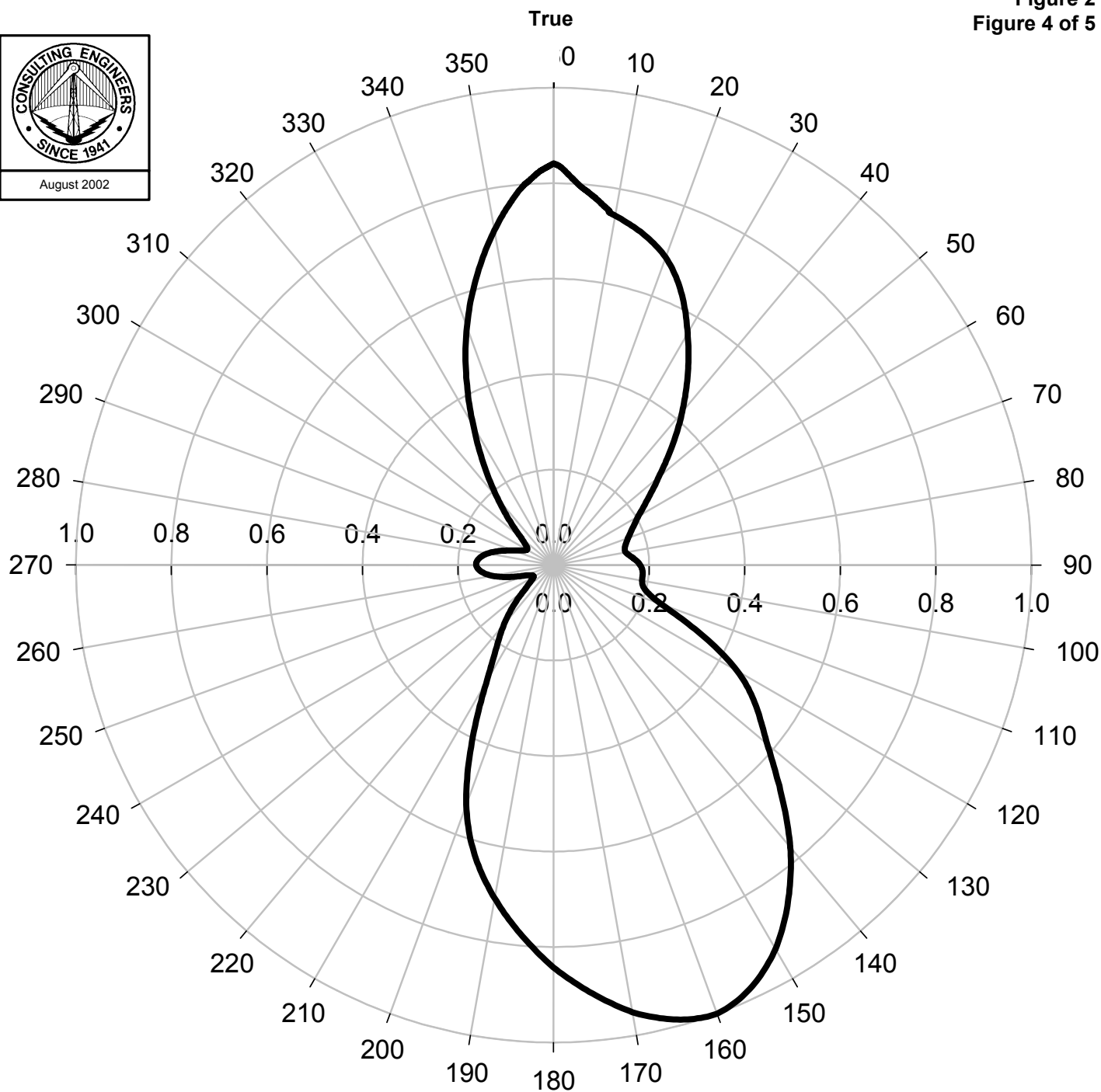
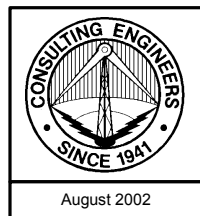


TECHNICAL EXHIBIT
MINOR MODIFICATION OF CONSTRUCTION PERMIT
STATION KXRM-DT (FACILITY ID 35991)
COLORADO SPRINGS, COLORADO
CH 22 51 KW (MAX-DA) 641 M

TABULATION OF VERTICAL ANGLE RELATIVE FIELD VALUES USED IN
OET-69 INTERFERENCE CALCULATIONS FOR PROPOSED KXRM-DT OPERATION*

<u>Vertical Angle</u>	<u>Relative Field</u>	<u>Vertical Angle</u>	<u>Relative Field</u>
-2.0	0.388	3.0	0.718
-1.0	0.696	4.0	0.455
0.0	0.920	5.0	0.228
0.5	0.979	6.0	0.163
1.0	1.000	7.0	0.187
1.5	0.979	8.0	0.151
2.0	0.923	9.0	0.064
2.5	0.832	10.0	0.081

* An additional 2.0 degrees of mechanical tilt is employed at 67° True (for a total combined electrical & mechanical tilt of 3.0 degrees at 67° True)



See Tabulation in Figure 2 Sheet 5

ACTUAL AZIMUTH PATTERN AT RADIO HORIZON CONSIDERING ELECTRICAL AND MECHANICAL TILT (RELATIVE FIELD)

STATION KXRM-DT
COLORADO SPRINGS, COLORADO
CH 22 51 KW (MAX-DA) 641 M

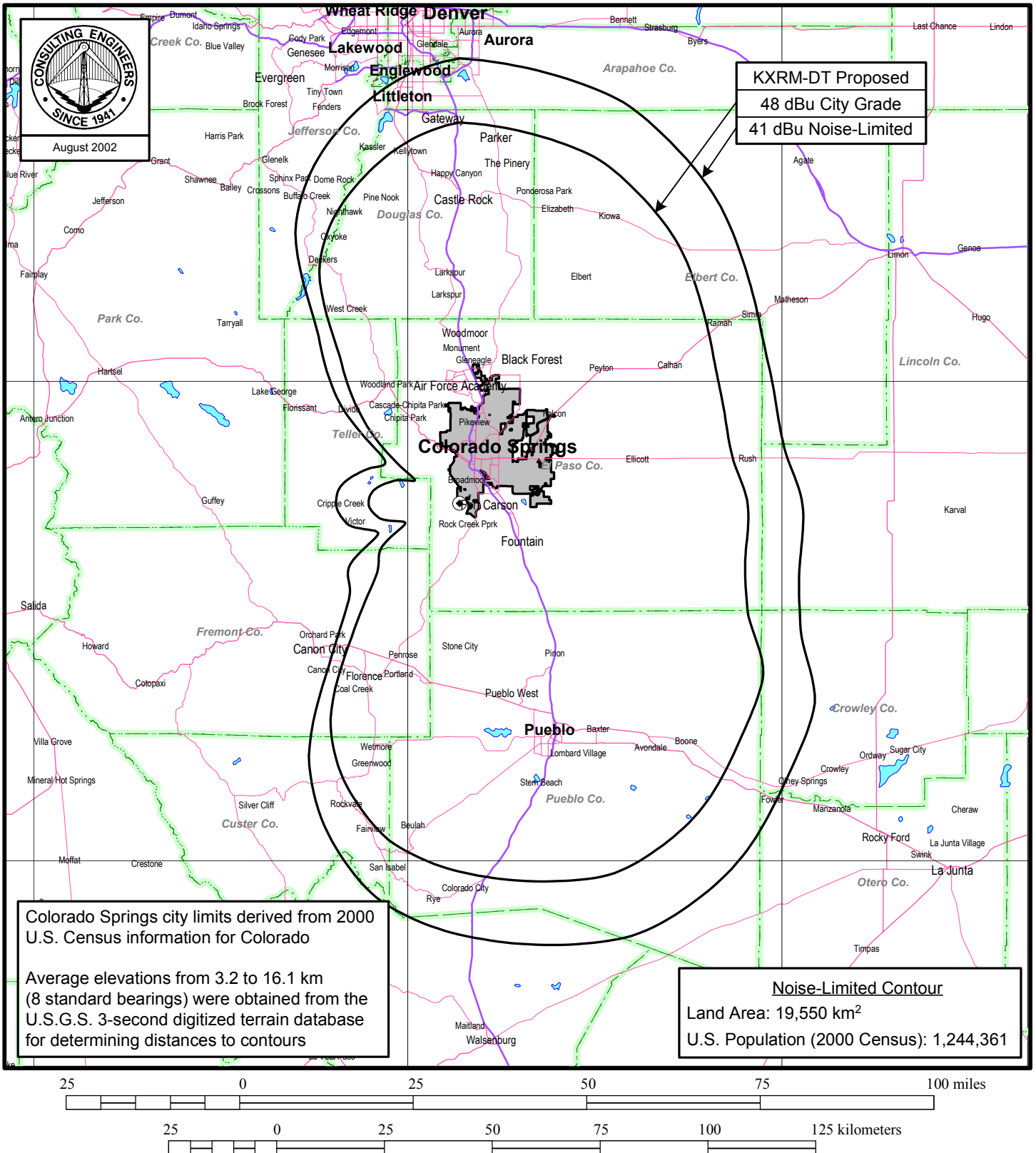
du Treil, Lundin & Rackley, Inc Sarasota, Florida

TECHNICAL EXHIBIT
MINOR MODIFICATION OF CONSTRUCTION PERMIT
STATION KXRM-DT (FACILITY ID 35991)
COLORADO SPRINGS, COLORADO
CH 22 51 KW (MAX-DA) 641 M

TABULATION OF PATTERN AT RADIO HORIZON
INCORPORATING ELECTRICAL & MECHANICAL BEAM TILT

<u>Azimuth(° T)</u>	<u>Relative Field</u>	<u>Azimuth (° T)</u>	<u>Relative Field</u>
0	0.841	180	0.843
10	0.743	190	0.709
20	0.686	200	0.534
30	0.561	210	0.278
40	0.419	220	0.160
50	0.288	230	0.076
60	0.205	240	0.048
70	0.166	250	0.065
80	0.153	260	0.130
90	0.181	270	0.162
100	0.188	280	0.140
110	0.240	290	0.089
120	0.444	300	0.064
130	0.584	310	0.088
140	0.771	320	0.182
150	0.929	330	0.335
160	1.000	340	0.530
170	0.951	350	0.712

Figure 3



PREDICTED F(50,90) COVERAGE CONTOURS

STATION KXRM-DT

COLORADO SPRINGS, COLORADO

CH 22 51 KW (MAX-DA) 641 M

du Treil, Lundin & Rackley, Inc Sarasota, Florida

TECHNICAL EXHIBIT
 MINOR MODIFICATION OF CONSTRUCTION PERMIT
 STATION KXRM-DT (FACILITY ID 35991)
 COLORADO SPRINGS, COLORADO
 CH 22 51 KW (MAX-DA) 641 M

INTERFERENCE CAUSED TO K38DM

CELL SIZE : 2.00
 Using offset in determining thresholds
 Per 6th Report & Order and FCC OET-69 Bulletin

K38DM 38-44-41 104-51-48 23(Z) 50.0 kW-DA 2916.7 m AMSL 50.0 % 72.6 dBu
 COLORADO SPRINGS CO
 CP MOD BMPTTL20010820AAS

0.27	0.20	0.17	0.15	0.14	0.15	0.17	0.21	0.27	0.36	0.46	0.56
0.66	0.72	0.79	0.84	0.86	0.99	1.00	0.98	0.90	0.80	0.63	0.47
0.31	0.20	0.18	0.17	0.16	0.14	0.10	0.12	0.15	0.20	0.24	0.25

Ref Az: 0.0

Using DEFAULT vertical antenna pattern

	Area	Pop
within Noise Limited Contour	3718.477	380391
not affected by terrain losses	3529.742	379252

KXRMDP 38-44-43 104-51-40 22(N) 51.0 kW-DA 2985.7 m AMSL 10.0 % 39.5
 COLORADO SPRING CO 18914 559 DTVSERVICE: 559000 NTSCSERVICE: 549000

0.34	0.19	0.10	0.16	0.23	0.25	0.25	0.23	0.21	0.12	0.12	0.07
0.09	0.23	0.43	0.65	0.83	0.95	1.00	0.98	0.86	0.68	0.47	0.32
0.27	0.31	0.44	0.48	0.44	0.35	0.32	0.40	0.51	0.58	0.57	0.48

Ref Az: 0.0

-2.000	0.388
-1.000	0.696
0.000	0.920
0.500	0.979
1.000	1.000
1.500	0.979
2.000	0.923
2.500	0.832
3.000	0.718
4.000	0.455
5.000	0.228
6.000	0.163
7.000	0.187
8.000	0.151
9.000	0.064
10.000	0.081

D/U Baseline: -14.00

	Area	Pop
Interference	12.05	0 (0.0%)