ROCKY MOUNTAIN PBS

TECHNICAL EXHIBIT
APPLICATION FOR MODIFICATION OF
CONSTRUCTION PERMIT
TELEVISION STATION KRMJ-DT
GRAND JUNCTION, COLORADO

May 24, 2006

CHANNEL 17 17.7 KW (MAX-DA) 409M

The following pages were prepared as an exhibit for a low power STA for the subject station. The STA was granted on 12/01/2005, FCC File Number BEDSTA-20051004ABB.

The applicant hereby applies to modify the construction permit for the station to conform to the STA parameters.

TECHNICAL EXHIBIT
REQUEST FOR SPECIAL TEMPORARY
AUTHORITY
TELEVISION STATION KRMJ-DT (STA)
GRAND JUNCTION, COLORADO

March 31, 2005

CHANNEL 17 17.7 KW (MAX-DA) 409 M

TECHNICAL EXHIBIT
REQUEST FOR SPECIAL TEMPORARY AUTHORITY
TELEVISION STATION KRMJ-DT (STA)
GRAND JUNCTION, COLORADO
CHANNEL 17 17.7 KW (MAX-DA) 409 M

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REQUEST FOR SPECIAL TEMPORARY AUTHORITY
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GRAND JUNCTION, COLORADO
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Technical Statement

This Technical Statement was prepared on behalf of KRMJ-DT, Grand Junction, Colorado (Channel 17) concerning a request for Special Temporary Authority (STA). KRMJ-DT holds a construction permit for a digital television operation with a effective radiated power (ERP) of 65 kW and an antenna height above average terrain (HAAT) of 409 m.[*] This request is made pursuant to the DTV STA provisions outlined in the FCC *Memorandum Opinion and Order on Reconsideration, In the Matter of Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television*, MM Docket No. 00-39, Released: November 15, 2001.

The proposed KRMJ-DT STA facility is to operate at the authorized KRMJ-DT site using a lower maximum directional effective radiated power of 17.7 kW. The specifications of the proposed KRMJ-DT STA operation are summarized in the attached Figure 1 and Appendix 2. There will be no change in the overall height of the existing antenna structure as a result of the proposed operation.

The 41 dBu, f(50,90) noise limited contour of the proposed KRMJ-DT STA facility is located entirely within the predicted 41 dBu, f(50,90) noise limited

[*] See FCC File No. BMPEDT-20040227AAH.

contour of the KRMJ-DT construction permit facility. Figure 2 is a map illustrating the predicted coverage contours for the proposed KRMJ-DT STA operation and the KRMJ-DT construction permit facility. Also as indicated in Figure 2, the predicted 48 dBu, f(50,90) contour fully encompasses the city limits of Grand Junction, as required.

There are other broadcast and non-broadcast facilities to be located in proximity to the proposed facility. No adverse electromagnetic impact is expected with respect to these facilities. However, the applicant recognizes its responsibility to correct objectionable electromagnetic interference problems that result from its proposed operation.

An evaluation was conducted for the proposed facility concerning compliance with Section 1.1307(b) of the FCC Rules regarding human exposure to radio frequency (RF) energy.[†]

There are other broadcast facilities to be located on the tower or within close proximity of the tower site. Preliminary calculations indicate that the proposed facility may exceed the 5% MPE exclusion level for certain points on the ground in the vicinity of the proposed transmitter site. Therefore, the applicant shall conduct RF power density measurements throughout the transmitter site area to confirm compliance with the FCC specified guidelines for human exposure to RF energy.

The transmitter site is to be restricted from access. In the event that personnel are required to enter the restricted area or climb the tower structure, the

[†] See FCC Office of Engineering and Technology Bulletin No. 56 for background information on non-ionizing RF energy of the type discussed here. Internet web reference: http://www.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet56/oet56e4.pdf

proposed KRMJ-DT transmissions shall be reduced or terminated as necessary to prevent RF exposure above the FCC recommended limits.

Louis Robert du Treil, Jr.

du Treil, Lundin & Rackley, Inc.
201 Fletcher Ave.
Sarasota, FL 34237

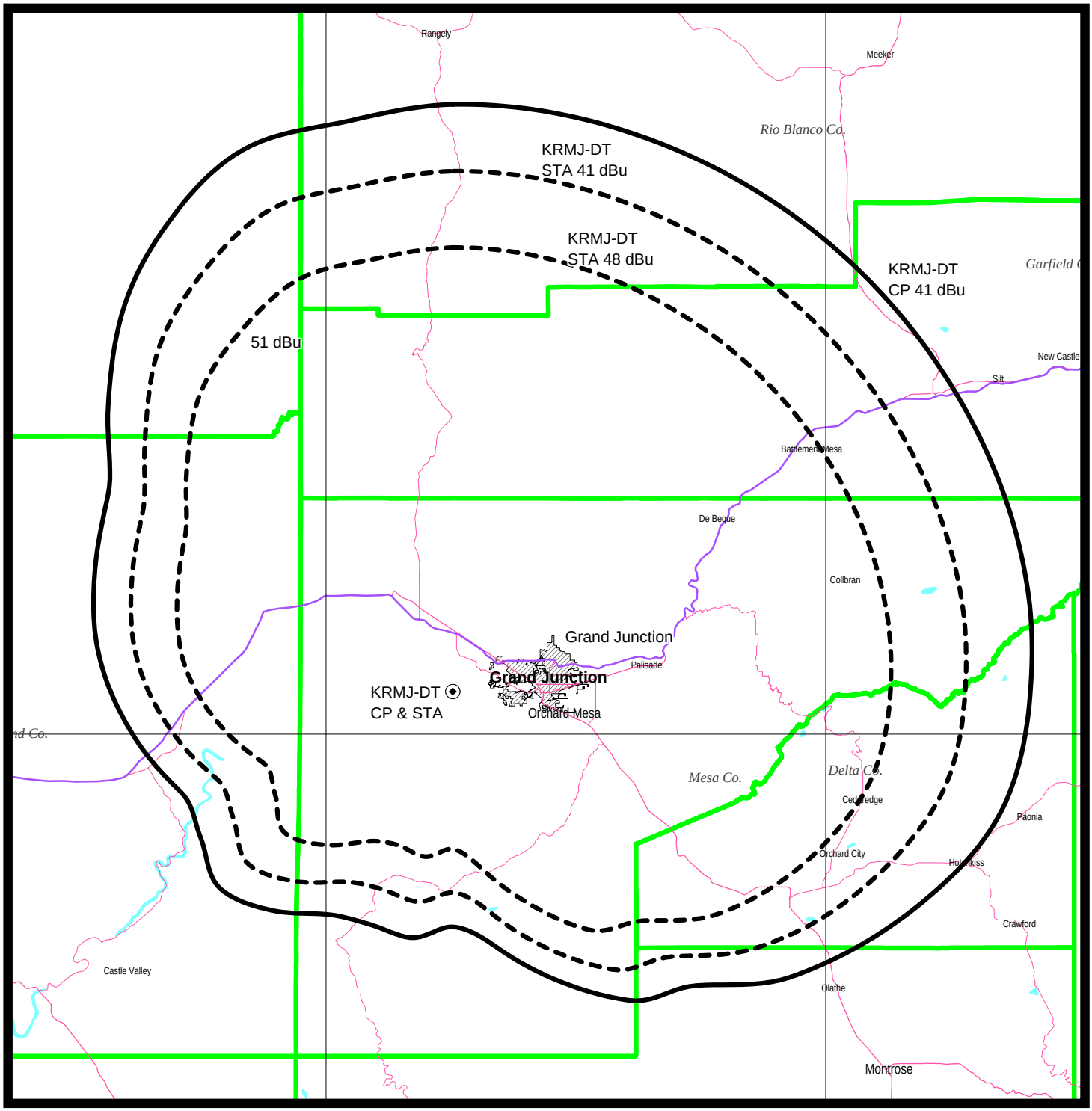
March 31, 2005

TECHNICAL EXHIBIT
REQUEST FOR SPECIAL TEMPORARY AUTHORITY
TELEVISION STATION KRMJ-DT (STA)
GRAND JUNCTION, COLORADO
CHANNEL 17 17.7 KW (MAX-DA) 409 M

Technical Specifications

Channel / Frequency Band	17 / 488-494 MHz
Site Coordinates (NAD 27)	39°03'58" North Latitude 108°44'43" West Longitude
Site elevation	2158 m AMSL
Average elevation of standard eight radials, 3 to 16 km	1,795 m AMSL
Overall height of existing structure	49 m AGL / 2,207 m AMSL
Height of antenna radiation center	46 m AGL / 2,204 m AMSL
Antenna radiation center HAAT	409 m
ASRN	not required

Proposed Operation	
Parameter	DTV
Transmitter power output	1.78 dBk (1.5 kW)
Combiner loss (Dielectric, 2003-147-24A)	0.40 dB
Transmission line loss (Andrew, model HJ11-50 4-inch 50-ohm flexible coaxial, line, 76 meter, 250-ft)	0.70 dB
Antenna input power	0.68 dBk
Antenna gain (Dielectric, model TFU-8DSB-M DC)	11.82 dB
Effective radiated power (ERP)	12.5 dBk (17.7 kW)



PREDICTED COVERAGE CONTOURS

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

Appendix 2

TECHNICAL EXHIBIT
REQUEST FOR SPECIAL TEMPORARY AUTHORITY
TELEVISION STATION KRMJ-DT (STA)
GRAND JUNCTION, COLORADO
CHANNEL 17 17.7 KW (MAX-DA) 409 M

FCC Form 301, Section III-D, Tech Box

(two pages follow)

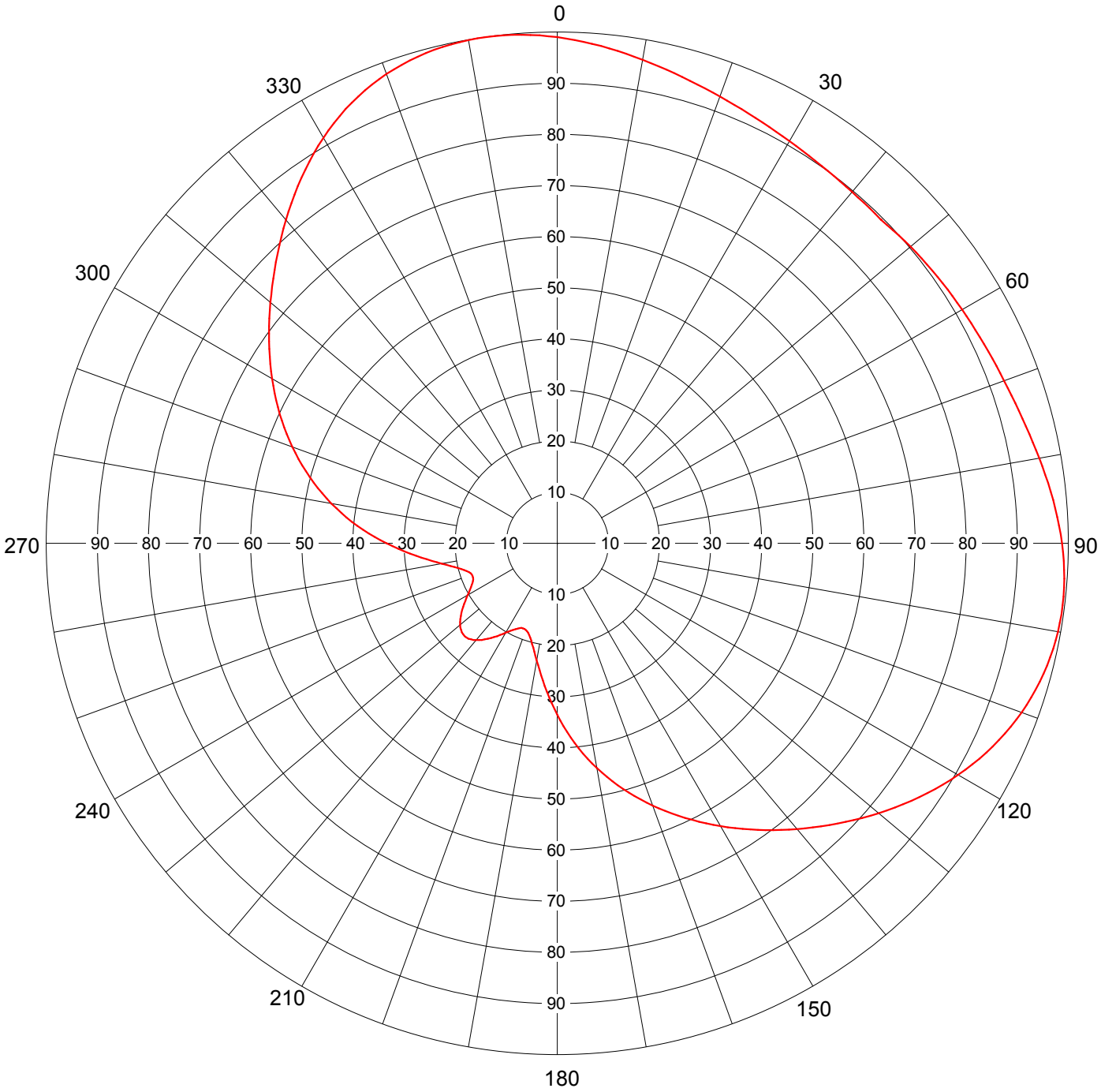
Exhibit No.

Dielectric

Date	**16 Feb 2004**		
Call Letters		Channel	**17**
Location	**Grand Junction, CO**		
Customer			
Antenna Type	**TFU-8DSB-M**		

AZIMUTH PATTERN

Gain	**1.90 (2.79 dB)**	Frequency	**491 MHz**
Calculated / Measured	**Calculated**	Drawing #	**DSB-M**



Remarks:

Exhibit No.

Dielectric

Date **16 Feb 2004**
Call Letters Channel **17**
Location **Grand Junction, CO**
Customer
Antenna Type **TFU-8DSB-M**

TABULATION OF AZIMUTH PATTERN

Azimuth Pattern Drawing # **DSB-M**

Angle	Field	ERP (kW)	ERP (dBk)
0	0.990	63.7	18.04
10	0.960	59.9	17.77
20	0.930	56.2	17.50
30	0.908	53.6	17.29
40	0.897	52.3	17.18
50	0.902	52.9	17.23
60	0.914	54.3	17.35
70	0.930	56.2	17.50
80	0.958	59.7	17.76
90	0.988	63.4	18.02
100	0.995	64.4	18.09
110	0.967	60.8	17.84
120	0.906	53.4	17.27
130	0.821	43.8	16.42
140	0.730	34.6	15.40
150	0.639	26.5	14.24
160	0.546	19.4	12.87
170	0.446	12.9	11.12
180	0.335	7.3	8.63
190	0.232	3.5	5.44
200	0.180	2.1	3.23
210	0.202	2.7	4.24
220	0.247	4.0	5.98
230	0.248	4.0	6.02
240	0.202	2.7	4.24
250	0.178	2.1	3.14
260	0.229	3.4	5.33
270	0.334	7.3	8.60
280	0.449	13.1	11.17
290	0.552	19.8	12.97
300	0.644	27.0	14.31
310	0.733	34.9	15.43
320	0.826	44.3	16.47
330	0.916	54.5	17.37
340	0.977	62.0	17.93
350	1.000	65.0	18.13

Maxima

Angle	Field	ERP (kW)	ERP (dBk)
0	0.990	63.7	18.04
97	0.996	64.5	18.09
225	0.257	4.3	6.33
352	1.000	65.0	18.13

Minima

Angle	Field	ERP (kW)	ERP (dBk)
45	0.895	52.1	17.17
201	0.179	2.1	3.19
249	0.178	2.1	3.14

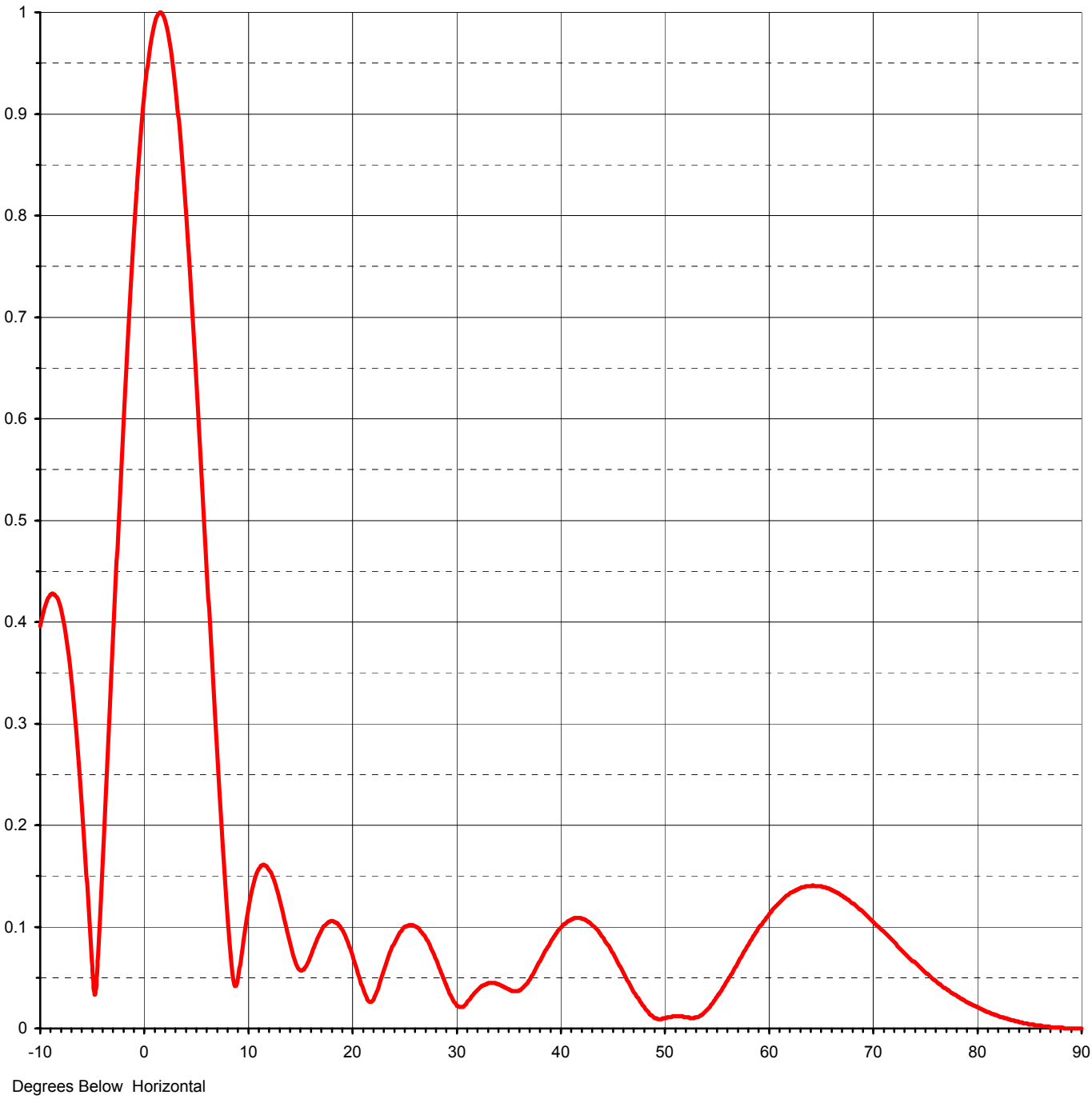
Remarks:

Dielectric

Proposal Number	**1046:6:153701**		
Date	**9-May-03**		
Call Letters	**KRMJ-DT**	Channel	**17**
Location	**Grand Junction , CO**		
Customer			
Antenna Type	**TFU-8DSB-M DC**		

ELEVATION PATTERN

RMS Gain at Main Lobe	**8.00**	**(9.03 dB)**	Beam Tilt	**1.50 deg**
RMS Gain at Horizontal	**6.70**	**(8.26 dB)**	Frequency	**491.00 MHz**
Calculated / Measured	**Calculated**		Drawing #	**08B080150-90**



Dielectric

Proposal Number **1046:6:153701**
Date **9-May-03**
Call Letters **KRMJ-DT** Channel **17**
Location **Grand Junction , CO**
Customer
Antenna Type **TFU-8DSB-M DC**

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **08B080150-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.396	2.4	0.973	10.6	0.143	30.5	0.021	51.0	0.012	71.5	0.090
-9.5	0.416	2.6	0.960	10.8	0.150	31.0	0.024	51.5	0.012	72.0	0.085
-9.0	0.427	2.8	0.944	11.0	0.155	31.5	0.031	52.0	0.011	72.5	0.079
-8.5	0.425	3.0	0.926	11.5	0.161	32.0	0.037	52.5	0.010	73.0	0.074
-8.0	0.412	3.2	0.905	12.0	0.157	32.5	0.042	53.0	0.011	73.5	0.069
-7.5	0.384	3.4	0.882	12.5	0.147	33.0	0.044	53.5	0.013	74.0	0.065
-7.0	0.343	3.6	0.857	13.0	0.130	33.5	0.045	54.0	0.017	74.5	0.060
-6.5	0.289	3.8	0.830	13.5	0.109	34.0	0.044	54.5	0.023	75.0	0.055
-6.0	0.221	4.0	0.802	14.0	0.088	34.5	0.042	55.0	0.030	75.5	0.051
-5.5	0.142	4.2	0.771	14.5	0.069	35.0	0.039	55.5	0.037	76.0	0.047
-5.0	0.057	4.4	0.740	15.0	0.058	35.5	0.037	56.0	0.046	76.5	0.043
-4.5	0.062	4.6	0.706	15.5	0.060	36.0	0.037	56.5	0.054	77.0	0.039
-4.0	0.163	4.8	0.672	16.0	0.070	36.5	0.041	57.0	0.063	77.5	0.035
-3.5	0.272	5.0	0.637	16.5	0.083	37.0	0.047	57.5	0.072	78.0	0.032
-3.0	0.383	5.2	0.601	17.0	0.094	37.5	0.055	58.0	0.081	78.5	0.029
-2.8	0.427	5.4	0.564	17.5	0.102	38.0	0.065	58.5	0.089	79.0	0.026
-2.6	0.471	5.6	0.527	18.0	0.106	38.5	0.074	59.0	0.097	79.5	0.023
-2.4	0.514	5.8	0.489	18.5	0.104	39.0	0.083	59.5	0.105	80.0	0.021
-2.2	0.556	6.0	0.452	19.0	0.098	39.5	0.091	60.0	0.111	80.5	0.018
-2.0	0.598	6.2	0.414	19.5	0.088	40.0	0.098	60.5	0.118	81.0	0.016
-1.8	0.638	6.4	0.377	20.0	0.075	40.5	0.103	61.0	0.123	81.5	0.014
-1.6	0.677	6.6	0.340	20.5	0.059	41.0	0.107	61.5	0.128	82.0	0.012
-1.4	0.714	6.8	0.304	21.0	0.042	41.5	0.109	62.0	0.132	82.5	0.011
-1.2	0.749	7.0	0.269	21.5	0.028	42.0	0.109	62.5	0.135	83.0	0.009
-1.0	0.783	7.2	0.234	22.0	0.027	42.5	0.107	63.0	0.138	83.5	0.008
-0.8	0.814	7.4	0.201	22.5	0.038	43.0	0.103	63.5	0.139	84.0	0.006
-0.6	0.844	7.6	0.169	23.0	0.054	43.5	0.098	64.0	0.140	84.5	0.005
-0.4	0.871	7.8	0.138	23.5	0.069	44.0	0.091	64.5	0.140	85.0	0.004
-0.2	0.896	8.0	0.109	24.0	0.082	44.5	0.084	65.0	0.140	85.5	0.003
0.0	0.918	8.2	0.083	24.5	0.092	45.0	0.075	65.5	0.138	86.0	0.003
0.2	0.938	8.4	0.061	25.0	0.099	45.5	0.066	66.0	0.136	86.5	0.002
0.4	0.955	8.6	0.046	25.5	0.102	46.0	0.057	66.5	0.134	87.0	0.001
0.6	0.970	8.8	0.042	26.0	0.101	46.5	0.047	67.0	0.131	87.5	0.001
0.8	0.981	9.0	0.049	26.5	0.098	47.0	0.038	67.5	0.127	88.0	0.001
1.0	0.990	9.2	0.063	27.0	0.091	47.5	0.030	68.0	0.123	88.5	0.000
1.2	0.996	9.4	0.078	27.5	0.082	48.0	0.022	68.5	0.119	89.0	0.000
1.4	0.999	9.6	0.093	28.0	0.070	48.5	0.016	69.0	0.115	89.5	0.000
1.6	1.000	9.8	0.100	28.5	0.058	49.0	0.011	69.5	0.110	90.0	0.000
1.8	0.997	10.0	0.113	29.0	0.045	49.5	0.009	70.0	0.105		
2.0	0.992	10.2	0.125	29.5	0.033	50.0	0.010	70.5	0.100		
2.2	0.984	10.4	0.135	30.0	0.024	50.5	0.011	71.0	0.095		

Appendix 2

TECHNICAL EXHIBIT
REQUEST FOR SPECIAL TEMPORARY AUTHORITY
TELEVISION STATION KRMJ-DT (STA)
GRAND JUNCTION, COLORADO
CHANNEL 17 17.7 KW (MAX-DA) 409 M

FCC Form 301, Section III-D, Tech Box

(two pages follow)

SECTION III-D DTV Engineering

TECHNICAL SPECIFICATIONS

Ensure that the specifications below are accurate. Contradicting data found elsewhere in this application will be disregarded. All items must be completed. The response "on file" is not acceptable.

TECH BOX

1. Channel Number: DTV 17 Analog TV, if any 18

2. Zone: ☐ I ☒ II ☐ III

3. Antenna Location Coordinates: (NAD 27)

   39 ° 03 ' 58 " ☒ N ☐ S Latitude

   108 ° 44 ' 43 " ☐ E ☒ W Longitude

4. Antenna Structure Registration Number: _____

   ☒ Not applicable ☐ FAA Notification Filed with FAA

5. Antenna Location Site Elevation Above Mean Sea Level: 2,158 meters

6. Overall Tower Height Above Ground Level: 49 meters

7. Height of Radiation Center Above Ground Level: 46 meters

8. Height of Radiation Center Above Average Terrain: 409 meters

9. Maximum Effective Radiated Power (average power): 17.7 kW

10. Antenna Specifications:

	Manufacturer	Model
a.	DIE	TFU-8DSB-M DC

b. Electrical Beam Tilt: 1.5 degrees ☐ Not Applicable

c. Mechanical Beam Tilt: _____ degrees toward azimuth _____ degrees True ☒ Not Applicable

Attach as an Exhibit all data specified in 47 C.F.R. Section 73.625(c). Exhibit No.

d. Polarization: ☒ Horizontal ☐ Circular ☐ Elliptical

TECH BOX

e. Directional Antenna Relative Field Values: ☐ Not applicable (Nondirectional)

Rotation: _____ ° ☒ No rotation

Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value	Degree	Value
0	0.990	60	0.914	120	0.906	180	0.335	240	0.202	300	0.644
10	0.960	70	0.930	130	0.821	190	0.232	250	0.178	310	0.733
20	0.930	80	0.958	140	0.730	200	0.180	260	0.229	320	0.826
30	0.908	90	0.988	150	0.639	210	0.202	270	0.334	330	0.916
40	0.897	100	0.995	160	0.546	220	0.247	280	0.449	340	0.977
50	0.902	110	0.967	170	0.446	230	0.248	290	0.552	350	1.000
Additional Azimuths											

If a directional antenna is proposed, the requirements of 47 C.F.R. Section 73.625(c) must be satisfied. **Exhibit required.**

Exhibit No. Tech. Exhibit

11. Does the proposed facility satisfy the interference protection provisions of 47 C.F.R. Section 73.623(a)? (Applicable only if **Certification Checklist** Items 1(a), (b), or (c) are answered "No.") ☐ Yes ☐ No

If "No," attach as an Exhibit justification therefor, including a summary of any related previously granted waivers. Exhibit No.

12. If the proposed facility will not satisfy the coverage requirement of 47 C.F.R. Section 73.625, attach as an Exhibit justification therefor. (Applicable only if **Certification Checklist** Item 3 is answered "No.") Exhibit No.

13. **Environmental Protection Act. Submit in an Exhibit** the following: Exhibit No. Tech. Exhibit

a. If **Certification Checklist** Item 2 is answered "Yes," a brief explanation of why an Environmental Assessment is not required. Also describe in the Exhibit the steps that will be taken to limit RF radiation exposure to the public and to persons authorized access to the tower site.

By checking "Yes" to **Certification Checklist** Item 2, the applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.

If **Certification Checklist** Item 2 is answered "No," an Environmental Assessment as required by 47 C.F.R. Section 1.1311.

PREPARER'S CERTIFICATION IN SECTION III MUST BE COMPLETED AND SIGNED.