

MULLANEY ENGINEERING, INC.

9049 SHADY GROVE COURT
GAITHERSBURG, MD 20877

ENGINEERING EXHIBIT EE-1:

**APPLICATION FOR MODIFICATION OF
CONSTRUCTION PERMIT
BPCDT-20080617ACZ**

DIGITAL TELEVISION PERMIT

**PMCM TV, LLC
KVVN-DT
DIGITAL TELEVISION CHANNEL 3
ELY, NEVADA**

FCC FACILITY NUMBER 86537

MAY 2009

**ENGINEERING EXHIBIT
IN SUPPORT OF
APPLICATION FOR MODIFICATION OF
CONSTRUCTION PERMIT FOR
DIGITAL TELEVISION FACILITY

DIGITAL TELEVISION STATION KVVN-DT
ELY, NEVADA**

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TABLE OF CONTENTS:

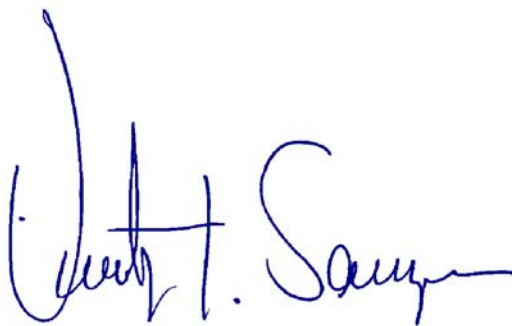
1. F.C.C. Form 301, Section III-D (DTV Engineering)
2. F.C.C. Form 301, Section III (Preparer's Certification)
3. Declaration of Engineer
4. Narrative Statement
5. Figure 1, Proposed Directional Antenna Details
6. Figure 2, Proposed Digital Service Contours
7. Figure 3, Interference Study - OET Bulletin No. 69 Study

DECLARATION

I, Timothy Z. Sawyer, declare and that I have provided engineering services in the area of telecommunications since 1969. My qualifications are a matter of record with the Federal Communications Commission. I am a senior engineer with the firm of Mullaney Engineering, Inc., consulting radio telecommunications engineers with offices in Gaithersburg, Maryland.

The firm of Mullaney Engineering, Inc., has been retained by PMCM TV, LLC, to prepare the instant engineering exhibit in support of **an Application for Modification of Construction Permit - Digital Television Broadcast Station - KVVV-DT, Ely, Nevada, FCC FACILITY ID NUMBER: 86537.**

All facts contained herein are true of my own knowledge except those stated to be on information and belief, and as to those facts, I believe them to be true. I declare under the penalty of perjury that the foregoing is true and correct.



Timothy Z. Sawyer

Executed on the 1st day of May 2009

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BPCDT-20080617ACZ

DIGITAL TELEVISION PERMIT

PMCM TV, LLC

KVNV-DT

DIGITAL TELEVISION CHANNEL 3

ELY, NEVADA

FCC FACILITY NUMBER 86537

ENGINEERING STATEMENT

The technical exhibit, of which this narrative is part, was prepared on behalf of PMCM TV, LLC, in support of an application TO MODIFY the construction permit of Digital Television Station KVNV-DT, Ely, Nevada BPCDT-20080617ACZ. The FCC facility identification number is 86537.

The proposed station will operate on Digital TV Channel 3 with an effective radiated power (ERP) of 1.2 kilowatts and an antenna height above average terrain (HAAT) of 276.8 meters utilizing a directional antenna.

The request to modify the current digital facility is a result of the Commission's lifting of the August 3, 2004 "freeze" concerning expansion of service area.¹

KVNV-DT currently holds a permit to "flash-cut" on its analog channel 3 as a digital television facility with an effective radiated power of 1.0-kilowatts and a height above average terrain of 276.8 meters. That permit authorizes the use of a directional antenna. The supporting structure is the current licensed structure upon which no changes are to be made. FCC tower registration is not required as the overall height of this existing structure is only 24 meters and passes the FCC/FAA tower/slope program. The FAA has not been notified as no changes to the overall height of the supporting structure will occur.

KVNV-DT proposes to modify its digital construction permit by increasing the authorized effective radiated power from 1.0-kilowatts to 1.2-kilowatts, and make minor changes to the authorized directional antenna radiation pattern. No other changes are proposed.

The proposal would not be subject to environmental processing in accordance with 47 C.F.R. §1.1306. This proposal does not involve a site location specified under 47 C.F.R. §1.1307 (a)(1)-(7), or involve high intensity lighting under 47 C.F.R. §1.1307(a)(8) or result in human exposure to radiofrequency radiation in excess of the applicable safety standards specified in 47 C.F.R. §1.1307(b).

This is an existing structure with no additional construction to occur at the site, and is excluded from Section 106 Environmental notice.

¹

Public Notice "*Commission Lifts the Freeze On the Filing of Maximization Applications and Petitions for Digital Channel Substitutions, Effective Immediately*" DA 08-1213, released May 30, 2008.

This application conforms with all applicable rules and regulations of the Federal Communications Commission.

The proposed transmitting facility will use a Scala Model 2CL-24/HV antenna, mounted on the existing guyed, uniform cross-section, steel tower. No increase in tower height will occur.

DIRECTIONAL ANTENNA DETAILS (FIGURE 1)

Figures 1 and 1A contains the details of the proposed antenna as required by the Commission's rules.

The proposed directional antenna employs horizontal polarization. No electrical or physical beam tilt will be employed.

The antenna is a composite antenna consisting of two (2) Scala CL-24 log-periodic antennas "stacked & skewed" to form the required directional antenna pattern.

Equal power division is employed between the antenna elements with one element oriented at 35 degrees true and the other at 80 degrees true. The elements are stacked one-half wavelength apart and the manufacturer has determined the gain of the antenna system to be 8.6 dBd.

Figure 1 contains the relative field horizontal graphical radiation plot of the pattern while Figure 1A contains a numerical tabulation of the horizontal relative field values of the pattern, both figures were supplied by the antenna manufacturer.

FCC F(50,90) COVERAGE CONTOURS (FIGURE 2)

The predicted 28 and 35 dBu f(50,90) coverage contours were calculated in accordance with the provisions of 47 C.F.R. §73.313. In accordance with current FCC practice, no consideration was given to terrain roughness correction factors.

The average terrain elevations from 3 to 16 kilometers from the proposed site were obtained from the N.G.D.C. 3-second terrain database. 360 radials, evenly spaced at 1-degree intervals were used for determining the average terrain elevations and the distance to the service contours.

The antenna radiation center heights above average terrain in the individual radial directions and the effective radiated power in the appropriate directions were used in conjunction with the appropriate F(50,90) curve contained with the Commission's rules.

The proposed digital service contours have been drawn on the map in Figure 2. As the map in Figure 2 shows, the 35 dBu (City Grade) contour from this proposal completely encompasses the city of license, Ely, Nevada.

POPULATION AND AREA

The population to be served within the predicted digital service contour was determined by a computer program that adds the population of census districts whose centroids lie within the contour as defined in OET Bulletin 69. The 2000 U.S. Census data was employed. The area within the digital service contour was calculated by a computer program using a root mean square algorithm.

Post-Transition Population Summary

Population Summary (2000 Census) OET Bulletin 69 Method	Appendix B	Proposed
Within Noise Limited Contour	8000	8693
Service Match to Appendix B	100%	108.7%

INTERFERENCE STUDY

Figure 3, contains a detailed interference study using the procedures outlined in OET Bulletin Number 69 ² and complies with the 0.5 percent limit of new interference caused to Appendix B facilities and/or current post-transition authorizations of nearby stations of concern. Protection requirements to Class A television stations were also considered in this study if applicable.

ENVIRONMENTAL CONSIDERATIONS

The proposed facilities were evaluated in terms of potential radiofrequency radiation exposure at ground level in accordance with OET Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields."

Power density contribution from the proposed operation was computed using the appropriate equations of the OET Bulletin 65. The maximum radiated power is 1.2 kilowatts. Using a "worst-case" relative field pattern of 0.5 for all values 65 degrees and greater below the horizon, the power density was computed at a level of 2 meters above ground to be 0.0085 mW/cm² or 0.85 % of the recommended limit of 1.0 mW/cm² for a controlled area at the base of the tower and 4.25 % of the recommended limit of

²

The implementation of OET Bulletin number 69 for this study followed the guidelines of the bulletin as specified therein. A standard cell size of 2-kilometers was employed. Comparisons of various results of this computer program to the Commission's implementation of the bulletin shows excellent correlation.

2.0 mW/cm² for an uncontrolled area. As this is less than 1% of the controlled limit and 5% of the public limit no further study is required

Therefore, at ground level (and 2 meters above), at the base of the tower, the potential for radiofrequency radiation exposure will be well within the FCC guidelines.

The "worst-case" minimum distance from the antenna using a relative field value of 1.0 was computed to be 4.0 meters for a controlled environment. As the minimum distance is more than 11 meters above ground level, no exposure in excess of the guidelines to workers is predicted to occur from this proposal at ground level.

The permittee/licensee/applicant will coordinate with other users of the site and will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic fields in excess of the FCC guidelines.

Suitable warning signs and a fence or other devices have been placed at the base of the tower to prevent unauthorized access. If work is required on the tower, the power to the antenna will be terminated or reduced as required. The applicant will fully comply with the provisions contained within the OET bulletin.

The tower has been in service for a number of years and as no new tower construction will occur this proposal is fully exempt from further environmental processing or notification.

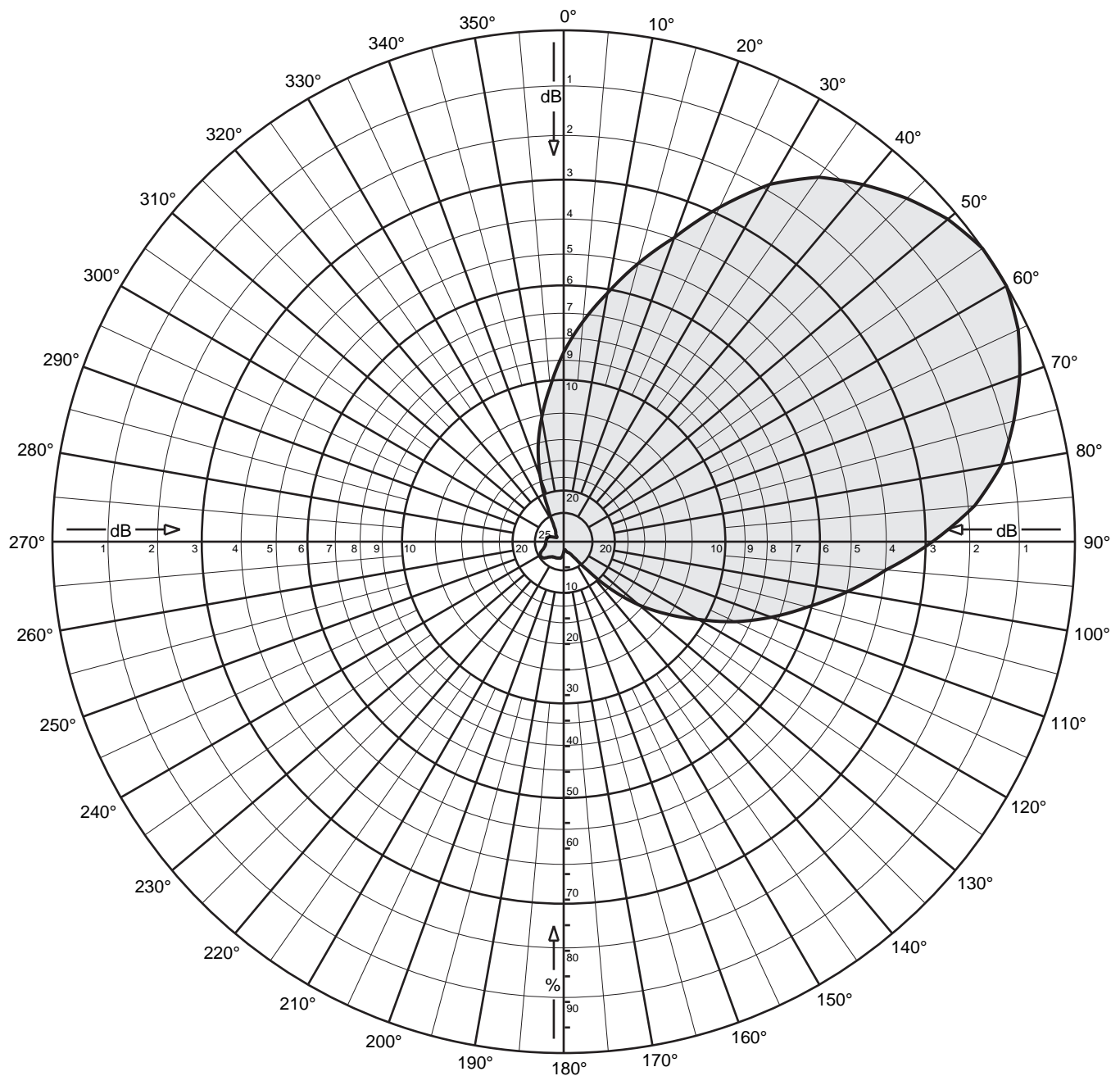
Inquiries concerning the technical portion of this application should be directed to the office of the undersigned.

May 1, 2009

A handwritten signature in blue ink, reading "Timothy Z. Sawyer". The signature is written in a cursive style with a large initial "T" and "S".

Timothy Z Sawyer

Mullaney Engineering, Inc.



Two CL-24 Log-periodic Antennas

Oriented at 35 and 80 degrees

Gain: 8.6 dBd.

Horizontal Polarization

Vertical Stacked

Horizontal plane Pattern



Two CL-24 Log-periodic Antennas
 Oriented at 35 and 80 degrees
 Gain: 8.6 dBd.
 Horizontal Polarization

Vertical Stacked
 Horizontal plane Pattern

Mullaney Engineering, Inc.

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	0.370	-8.63	-0.03	0.99	180	0.021	-33.74	-25.14	0.00
5	0.432	-7.29	1.31	1.35	185	0.028	-30.91	-22.31	0.01
10	0.494	-6.13	2.47	1.77	190	0.032	-29.82	-21.22	0.01
15	0.563	-4.99	3.61	2.30	195	0.034	-29.49	-20.89	0.01
20	0.633	-3.97	4.63	2.90	200	0.034	-29.33	-20.73	0.01
25	0.722	-2.84	5.76	3.77	205	0.035	-29.17	-20.57	0.01
30	0.807	-1.86	6.74	4.72	210	0.035	-29.01	-20.41	0.01
35	0.870	-1.21	7.39	5.49	215	0.036	-28.86	-20.26	0.01
40	0.911	-0.81	7.79	6.02	220	0.039	-28.27	-19.67	0.01
45	0.949	-0.45	8.15	6.53	225	0.043	-27.39	-18.79	0.01
50	0.981	-0.17	8.43	6.97	230	0.050	-26.02	-17.42	0.02
55	1.000	0.00	8.60	7.24	235	0.053	-25.49	-16.89	0.02
60	1.000	0.00	8.60	7.24	240	0.053	-25.49	-16.89	0.02
65	0.981	-0.17	8.43	6.97	245	0.050	-26.02	-17.42	0.02
70	0.949	-0.45	8.15	6.53	250	0.043	-27.39	-18.79	0.01
75	0.911	-0.81	7.79	6.02	255	0.039	-28.27	-19.67	0.01
80	0.870	-1.21	7.39	5.49	260	0.036	-28.86	-20.26	0.01
85	0.807	-1.86	6.74	4.72	265	0.035	-29.01	-20.41	0.01
90	0.722	-2.84	5.76	3.77	270	0.035	-29.17	-20.57	0.01
95	0.633	-3.97	4.63	2.90	275	0.034	-29.33	-20.73	0.01
100	0.563	-4.99	3.61	2.30	280	0.034	-29.49	-20.89	0.01
105	0.494	-6.13	2.47	1.77	285	0.032	-29.82	-21.22	0.01
110	0.432	-7.29	1.31	1.35	290	0.028	-30.91	-22.31	0.01
115	0.370	-8.63	-0.03	0.99	295	0.021	-33.74	-25.14	0.00
120	0.304	-10.35	-1.75	0.67	300	0.016	-36.01	-27.41	0.00
125	0.247	-12.15	-3.55	0.44	305	0.016	-36.01	-27.41	0.00
130	0.193	-14.29	-5.69	0.27	310	0.019	-34.43	-25.83	0.00
135	0.133	-17.53	-8.93	0.13	315	0.022	-33.09	-24.49	0.00
140	0.073	-22.76	-14.16	0.04	320	0.024	-32.49	-23.89	0.00
145	0.041	-27.71	-19.11	0.01	325	0.028	-30.91	-22.31	0.01
150	0.028	-30.91	-22.31	0.01	330	0.041	-27.71	-19.11	0.01
155	0.024	-32.49	-23.89	0.00	335	0.073	-22.76	-14.16	0.04
160	0.022	-33.09	-24.49	0.00	340	0.133	-17.53	-8.93	0.13
165	0.019	-34.43	-25.83	0.00	345	0.193	-14.29	-5.69	0.27
170	0.016	-36.01	-27.41	0.00	350	0.247	-12.15	-3.55	0.44
175	0.016	-36.01	-27.41	0.00	355	0.304	-10.35	-1.75	0.67



FIGURE 1A - ANTENNA PATTERN

KVNV-DT - Ely, NV

April 2009

KVNV-DT (CP)

MODIFICATION OF CONSTRUCTION PERMIT

BPCDT20080617ACZ

Latitude: 39-14-46 N

Longitude: 114-55-36 W

Channel: 03

Frequency: 63.0 MHz

ERP: 1.20 kW

Antenna HAAT: 276.8 m

Antenna AMSL Height: 2426.0 m

Antenna AGL Height: 15.0 m

Site Elevation AMSL: 2411.0 m

Horiz. Pattern: Directional

SERVICE GAIN AREA (OLIVE COLOR)**PRESENT AND PROPOSED DIGITAL SERVICE CONTOURS**

KVNV-DT CHANNEL 3, ELY NEVADA

SOLID LINE - PRESENT SERVICE

DASHED LINE - PROPOSED SERVICE

NO LOSS IN SERVICE AREA OR POPULATION

FIGURE 2

COMMUNITY OF LICENSE - ELY, NV

White Pine

KVNV-D.C

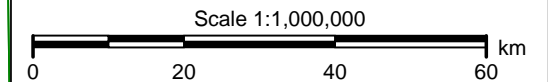
FCC 35 DBU

F50,90 SERVICE CONTOUR

CITY SERVICE CONTOUR

FCC 28 DBU

F50,90 SERVICE CONTOUR

**2000 US CENSUS AND SERVICE AREA**

	PRESENT	PROPOSED	GAIN / LOSS
POPULATION	8,631	8,693	+62 PERSONS
SERVICE AREA 28 DBU	8,638	11,239	+2,601 SQ KM

Mullaney
Engineering, Inc.

APRIL 2009

FIGURE 3 - OET BULLETIN NO. 69 INTERFERENCE STUDY

Outgoing Interference Population Report

KVNV-DT (CP MOD) (03) Ely, NV - BPCDT20080617ACZ
 Broadcast Type: Digital Service: T
 Lat: 39-14-46 N Lng: 114-55-36 W ERP: 1.2 kW AMSL: 2426.0 m
 TV Outgoing Interference Study
 Signal Resolution: 1.0 km
 Consider NTSC Taboo: Yes
 KWX error points are considered to
 be interference free coverage.
 Default # of radials computed for contours: 360
 Contours calculated using 8 radial HAAT.
 LR Profile Spacing Increment: 1.0 km
 Masked interference points are being counted
 as interference free.
 Pop Centroid DB: 2000 US Census (SF1)

Study Date: 4/30/2009
 TV Database Date: 4/30/2009

Primary Terrain: NED 3 Second US Terrain
 Secondary Terrain: V-Soft 30 Second World Terrain

Population Database: 2000 US Census (SF1)

----- Stations Considered:

Call Letters	City	State	Dist	Bear
KCBU-D (03)	Price	UT	343.3	79.3
KVBC (03Z)	Las Vegas	NV	359.3	181.1

Call	Area	HUnits	Contour	Masked Ix	Unmasked Ix	%
KCBU-D (03)	0.0	0	712,551	0	0	0.0
KVBC (03Z)	0.0	0	1,424,288	0	0	0.0

-----NO PROBLEMS FOUND-----