



## **EXHIBIT #1 ENGINEERING STATEMENT**

Concerning the Application of  
Sanpete County Broadcasting Company  
To Construct a New FM Booster  
To Rebroadcast Primary Station KLGL  
In Nephi, Utah

August 2002

CH 248

0.5 kW H & V DA

This engineering statement supports the application of Sanpete County Broadcasting Company to construct a new FM booster facility for primary station KLGL. This booster will serve the community of Nephi, Utah.

The applicant proposes to install Scala CL-FM (H) and CLFM (V) log periodic antennas at a height of 7 and 9 meters above ground, respectively. Information about this directional antenna is found on pages 2-4 of this exhibit (Exhibit #1).

The proposed facility will be located on an existing 35' tower that was previously studied by the FAA (Aeronautical Study #00-ANM-0349-OE). A copy of the FAA "Determination of No Hazard to Air Navigation" is included as pages 5 and 6.

**Exhibit #10** of this exhibit is a computer generated map of the booster's proposed one mV/m F(50-50) contour and the one mV/m contour of KLGL, the primary station, using the U.S.G.S. world map database. The land area within the contour is 221.8 square kilometers. This figure was determined using numerical calculus<sup>1</sup>. The population within this contour was determined to be 1,385, based on 2000 census block data.

A total of 36 evenly spaced radials were used to determine the antenna height above average terrain. The N.G.D.C. 30 arc second database was employed to determine the elevations along the radials that were averaged using the required four-point

---

<sup>1</sup> The distance to the one mV/m signal contour along each of the radial azimuths was squared and then the average of the sum of these distances was calculated. The resulting average radius squared was then multiplied by  $\pi$  to determine the area within the contour.

interpolation method. The resulting averaged radial antenna heights were employed using the Commission's own TVFMINT algorithm to project the distances to signal contours. A tabular listing of the distance to the one mV/m contour can be found on page #2 of Exhibit 10. Included is a table of the distances to contour for the primary station, KLGL.

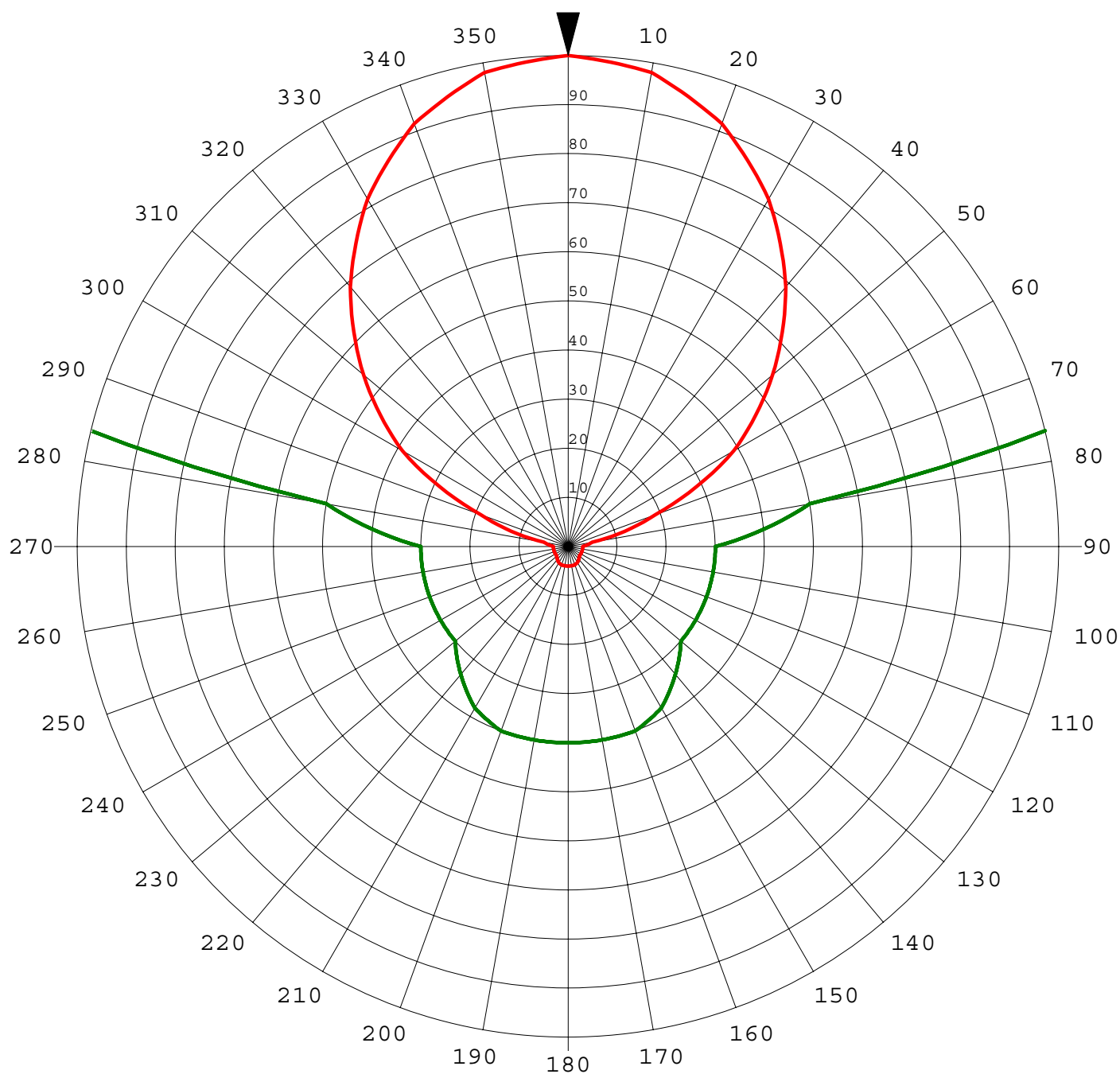
**Exhibit #12** is an Allocation Report. The first page is a computer channel study of all stations having a frequency and distance relationship. The exhibit gives current operating powers, HAAT's bearings and distances. (All distances were computed according to the method described under Section 73.208 of the Commission's Rules.) The second page is a narrative of the methods and conventions used in the report. In compliance with Section 74.1204(i), there are no pertinent first-adjacent channel relationships.

**Exhibit #16** is an R.F. hazard compliance statement.

Page #7 of **Exhibit #1** is a statement of the qualifications of the preparer.

Doug Vernier

# Proposed Nephi Booster Antenna Pattern



Sanpete County Broadcasting Corp  
Composite Pattern

Doug Vernier Telecommunications Consultants  
1600 Picturesque Dr. Cedar Falls, IA 50613

# Nephi Booster Antenna Pattern

Azi	Rel	dBk	kW	dB	Azi	Rel	dBk	kW	dB
0	1.000	-3.01	0.500	0.00	180	0.040	-30.97	0.001	-27.96
5	0.990	-3.10	0.490	-0.09	185	0.040	-30.97	0.001	-27.96
10	0.980	-3.19	0.480	-0.18	190	0.040	-30.97	0.001	-27.96
15	0.948	-3.47	0.449	-0.46	195	0.040	-30.97	0.001	-27.96
20	0.916	-3.77	0.420	-0.76	200	0.040	-30.97	0.001	-27.96
25	0.866	-4.25	0.375	-1.24	205	0.039	-31.19	0.001	-28.18
30	0.817	-4.77	0.334	-1.76	210	0.038	-31.41	0.001	-28.40
35	0.753	-5.47	0.284	-2.46	215	0.036	-31.88	0.001	-28.87
40	0.690	-6.23	0.238	-3.22	220	0.034	-32.38	0.001	-29.37
45	0.617	-7.20	0.190	-4.19	225	0.032	-32.91	0.001	-29.90
50	0.544	-8.30	0.148	-5.29	230	0.030	-33.47	0.000	-30.46
55	0.467	-9.62	0.109	-6.61	235	0.030	-33.47	0.000	-30.46
60	0.390	-11.19	0.076	-8.18	240	0.030	-33.47	0.000	-30.46
65	0.290	-13.76	0.042	-10.75	245	0.030	-33.47	0.000	-30.46
70	0.190	-17.44	0.018	-14.42	250	0.030	-33.47	0.000	-30.46
75	0.120	-21.43	0.007	-18.42	255	0.030	-33.47	0.000	-30.46
80	0.050	-29.03	0.001	-26.02	260	0.030	-33.47	0.000	-30.46
85	0.040	-30.97	0.001	-27.96	265	0.030	-33.47	0.000	-30.46
90	0.030	-33.47	0.000	-30.46	270	0.030	-33.47	0.000	-30.46
95	0.030	-33.47	0.000	-30.46	275	0.040	-30.97	0.001	-27.96
100	0.030	-33.47	0.000	-30.46	280	0.050	-29.03	0.001	-26.02
105	0.030	-33.47	0.000	-30.46	285	0.120	-21.43	0.007	-18.42
110	0.030	-33.47	0.000	-30.46	290	0.190	-17.44	0.018	-14.42
115	0.030	-33.47	0.000	-30.46	295	0.290	-13.76	0.042	-10.75
120	0.030	-33.47	0.000	-30.46	300	0.390	-11.19	0.076	-8.18
125	0.030	-33.47	0.000	-30.46	305	0.467	-9.62	0.109	-6.61
130	0.030	-33.47	0.000	-30.46	310	0.544	-8.30	0.148	-5.29
135	0.032	-32.91	0.001	-29.90	315	0.617	-7.20	0.190	-4.19
140	0.034	-32.38	0.001	-29.37	320	0.690	-6.23	0.238	-3.22
145	0.036	-31.88	0.001	-28.87	325	0.753	-5.47	0.284	-2.46
150	0.038	-31.41	0.001	-28.40	330	0.817	-4.77	0.334	-1.76
155	0.039	-31.19	0.001	-28.18	335	0.867	-4.25	0.375	-1.24
160	0.040	-30.97	0.001	-27.96	340	0.916	-3.77	0.420	-0.76
165	0.040	-30.97	0.001	-27.96	345	0.948	-3.47	0.449	-0.46
170	0.040	-30.97	0.001	-27.96	350	0.980	-3.19	0.480	-0.18
175	0.040	-30.97	0.001	-27.96	355	0.990	-3.10	0.490	-0.09

Rotation Angle = 25

Sanpete County Broadcasting Corp  
Composite Pattern

Doug Vernier Telecommunications Consultants  
1600 Picturesque Dr. Cedar Falls, IA 50613

Federal Aviation Administration  
NORTHWEST MOUNTAIN REGION, ANM-520  
1601 LIND AVENUE, S.W.  
RENTON, WA 98055-4056

AERONAUTICAL STUDY  
No: 00-ANM-0349-OR

ISSUED DATE: 05/31/00

SANPETE COUNTY BROADCASTING COMPANY  
500 NORTH 1600 WEST  
MANTI, UT 84642

**\*\* DETERMINATION OF NO HAZARD TO AIR NAVIGATION \*\***

The Federal Aviation Administration has completed an aeronautical study under the provisions of 49 U.S.C., Section 44718 and, if applicable, Title 14 of the Code of Federal Regulations, part 77, concerning:

Description: ANTENNA TOWER

FREQUENCY 102.3 MHZ @ 0.25 KW

Location: NEPHI UT

Latitude: 39-43-23.83 NAD 83

Longitude: 111-55-46.77

Heights: 35 feet above ground level (AGL)  
5800 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking and/or lighting are accomplished on a voluntary basis, we recommend it be installed and maintained in accordance with FAA Advisory Circular 70/7460-1K.

This determination expires on 11/31/01 unless:

- (a) extended, revised or terminated by the issuing office or
- (b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case the determination expires on the date prescribed by the FCC for completion of construction or on the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, frequency(ies) or use of greater power will void this determination. Any future construction or alteration,



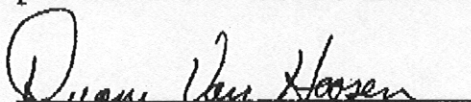
including increase in heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Communications Commission if the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at 425-227-1283. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 00-ANM-0349-OE.

  
Duane Van Hoosen  
Specialist, AIRSPACE BRANCH

(DNE)

**Declaration:**

I, Douglas L. Vernier, declare that I have received training as an engineer from the University of Michigan School of Engineering. That, I have received degrees from the University in the field of Broadcast Telecommunications. That, I have been active in broadcast consulting for over 25 years;

That, I have held a Federal Communications Commission First Class Radiotelephone License continually since 1964. In 1985, this license was reissued by the Commission as a lifetime General Radiotelephone license no. PG-16-16464;

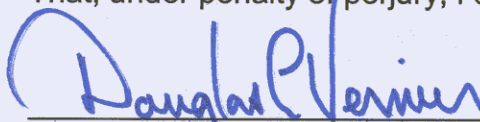
That, I am certified as a Professional Broadcast Engineer (#50258) by the Society of Broadcast Engineers, Indianapolis, Indiana. (Re-certified 10/2000.)

That, my qualifications are a matter of record with the Federal Communications Commission;

That, I have been retained by the Sanpete County Broadcast Corporation of Manti, Utah to prepare the engineering showings appended hereto;

That, I have prepared these broadcast engineering showings, the technical information contained in same and the facts stated within are true of my knowledge;


That, under penalty of perjury, I declare that the foregoing is correct.

 Douglas L. Vernier

Executed on July 31, 2002

Subscribed and sworn before me this 31st day of July 2002



  
Notary Public in and for the State of Iowa