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Engineering Statement

This Engineering Statement has been prepared on behalf of Western Communications, Inc., in support of a Form 302-FM application for modification of license for FM station KCVI, which operates on Channel 268C at Blackfoot, Idaho.

This application is being filed to reflect the replacement of the transmitting antenna used for this station.

The new antenna is a half-wave-spaced Shively model 6814-14D-SS with 1 degree of electrical beam tilt. A copy of the vertical plane pattern for the antenna is attached. ERP in the horizontal plane is 95 kW. ERP at beam tilt is 100 kW, which is the authorized ERP for this station. There is no change in the station's coverage contours.

The new antenna is shared with FM station KLCE. Intermodulation measurements on the combiner system were made by Carl Watkins, the chief engineer for Simmons Media Group, the parent company of Western Communications. His report is attached.

The antenna is mounted on an existing 55 meter tower. The tower does not exceed 60.96 meters (200 feet) above ground and does not require notification to the Federal Aviation Administration. Therefore, this structure does not require an Antenna Structure Registration Number

NIER Analysis

OET Bulletin 65 Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields (Edition 97-01) states in part that:

> When performing an evaluation for compliance with the FCC's RF guidelines all significant contributors to the ambient RF environment should be considered. . .For purposes of such consideration, significance can be taken to mean any transmitter producing more than 5% of the applicable exposure limit (in terms of power density or the square of the electric or magnetic field strength) at accessible locations.

As will be demonstrated below, the proposed operation of KCVI will produce less than 5% of the applicable exposure limit for both controlled and uncontrolled environments. Thus, the proposed facility is categorically excluded from the requirement of further study. Therefore, pursuant to §1.1307(b)(3) of the Commission's Rules no calculations are required for the other FM and TV facilities in the vicinity, and precise calculations are made only with regard to the levels from this proposal.

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. The equation shown below was used to calculate the ground level power density figures from the antenna.

$$S(\mu W / cm^2) = \frac{33.40981 \times AdjERP(Watts)}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

D is the distance in meters from the center of radiation to the calculation point.

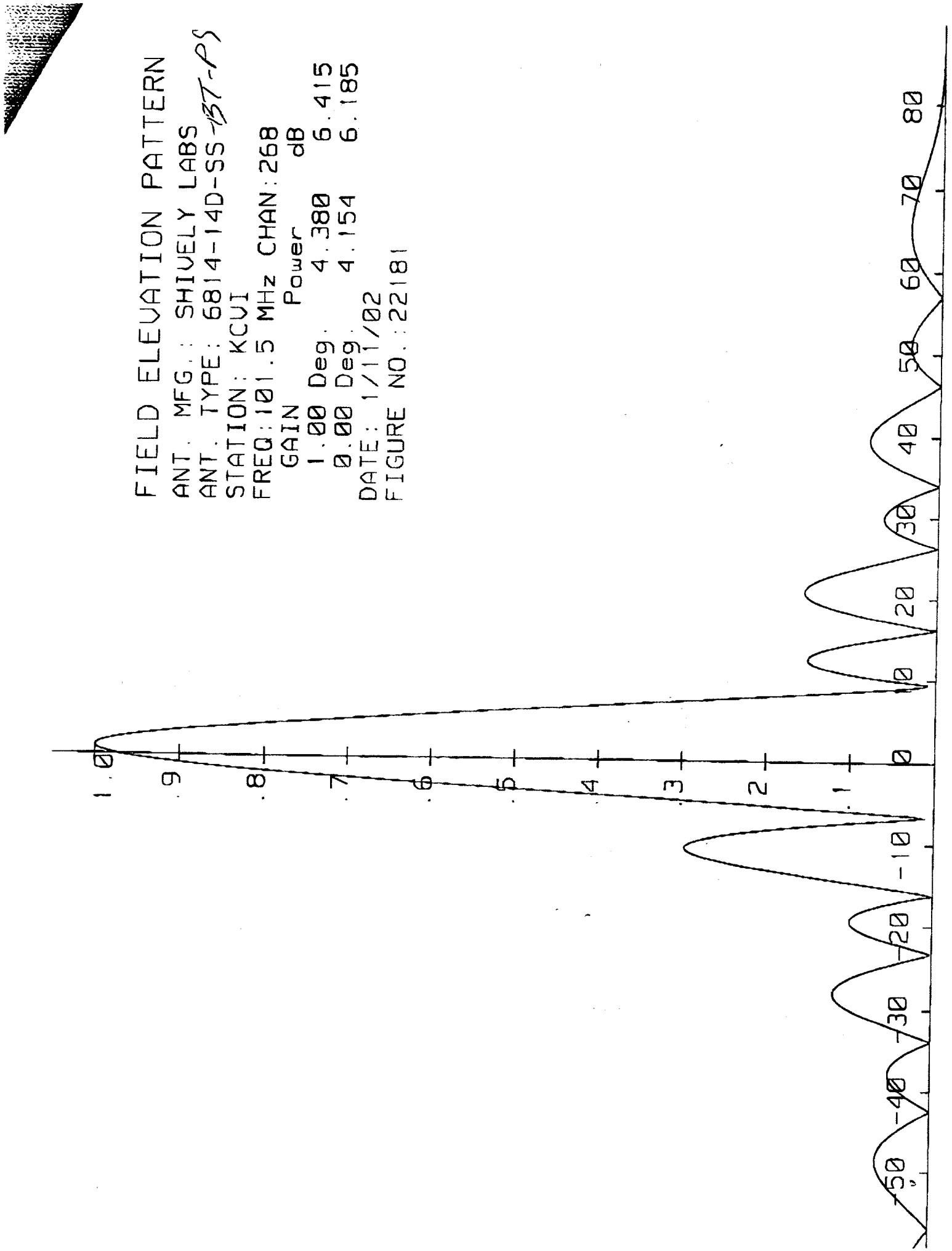
Calculations of the power density produced by the KCVI antenna system assume a Type 6 element pattern, which is the appropriate element pattern for the Shively 6814 antenna used by KCVI. Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

The highest calculated ground level power density from KCVI occurs at a distance of 587 meters from the base of the antenna support structure. At this point the power density is calculated to be 7.7 FW/cm², which is 0.8% of 1000 FW/cm^2 (the FCC standard for controlled environments) and 3.9% of 200 FW/cm^2 (the FCC standard for uncontrolled environments).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of KCVI alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 1000 meters from the base of the antenna support structure. Section 1.1307(b)(3) of the Commission's Rules excludes applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the calculated emissions from the applicants proposed facility are predicted to be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 et seq and no further analysis of non-ionizing radiation at this site is required in this application.

Public access to the site is restricted by a locked gate and the antenna tower is posted with warning signs. Pursuant to OST Bulletin No. 65, all station personnel and contractors are required to follow appropriate safety procedures before any work is commenced on the antenna tower, including reduction in power or discontinuance of operation before any maintenance work is undertaken.

The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency radiation in excess of FCC guidelines.


FIELD ELEVATION PATTERN
ANT. MFG.: SHIVELY LABS
ANT. TYPE: 6814-14D-SS-BT-PS
STATION: KCUI
FREQ:101.5 MHz CHAN:268
GAIN Power dB
1.00 Deg. 4.380 6.415
0.00 Deg. 4.154 6.185
DATE: 1/11/02
FIGURE NO.: 22181
1.0
.9
.8
.7
.6
.5
.4
.3
.2
.1
0
10
20
30
40
50
60
70
80
-10
-20
-30
-40
-50

KLCE – KCVI
Test for Intermodulation

This test was conducted August 6, 2003 with KLCE and KCVI transmitters operating within the legal limits of licensed power output and frequency using the following equipment:
IFR COM-120A Spectrum Analyzer
4 tunable notch filters - Microwave Filter Co., Type 6367
10 db pad
20 db pad

All readings were measured in db. from the sample output of the 6" directional coupler on the output of the combiner through the appropriate pads and/or notch filters to the antenna input of the spectrum analyzer.

In order to measure intermodulation without inducing products within spectrum analyzer, carriers of 97.3 Mhz. and 101.5 Mhz. were measured using 10 db + 20 db pads, and intermodulation products were measured using a 4-cavity carrier notch filter network + 20 db pad.

The attenuation of the 20 db pad was essentially flat throughout the spectrum. The attenuation of the 10 db pad was measured at 9.5 db at both carrier frequencies and charted. The 4-cavity notch filter network insertion attenuations at all measured frequencies were measured and charted. Attenuation measurements of the 20 db pad, the 10 db pad, and the 4-cavity notch filter network were made using the spectrum analyzer internal signal generator and the spectrum analyzer antenna input.

Adjusted readings were calculated.

Then intermodulation products below carrier levels were calculated.

Freq	Read Port	Filter Att	Calculated Adjustment	Read Port	Pad Att	Calculated Adjustment	Calculated Below 97.3	Calculated Below 101.5
93.1	-92	-1.7	-90	***	***	***	-84.7	-85.5
97.3	***	-30.5	***	-14.8	-9.5	-5.3	0.0	***
101.5	***	-24.9	***	-14.0	-9.5	-4.5	***	0.0
105.7	-87	-1.0	-86	***	***	***	-80.7	-81.5
190.4	-91	-0.6	-90	***	***	***	-84.7	-85.5
207.2	-98	-0.8	-97	***	***	***	-91.7	-92.5

In summary, all intermodulation products of 93.1 Mhz., 105.7 Mhz., 190.4 Mhz., and 207.2 Mhz. were found to be surpressed by at least 80 db below carrier levels of 97.3 Mhz. and 101.5 Mhz..

Carl Watkins
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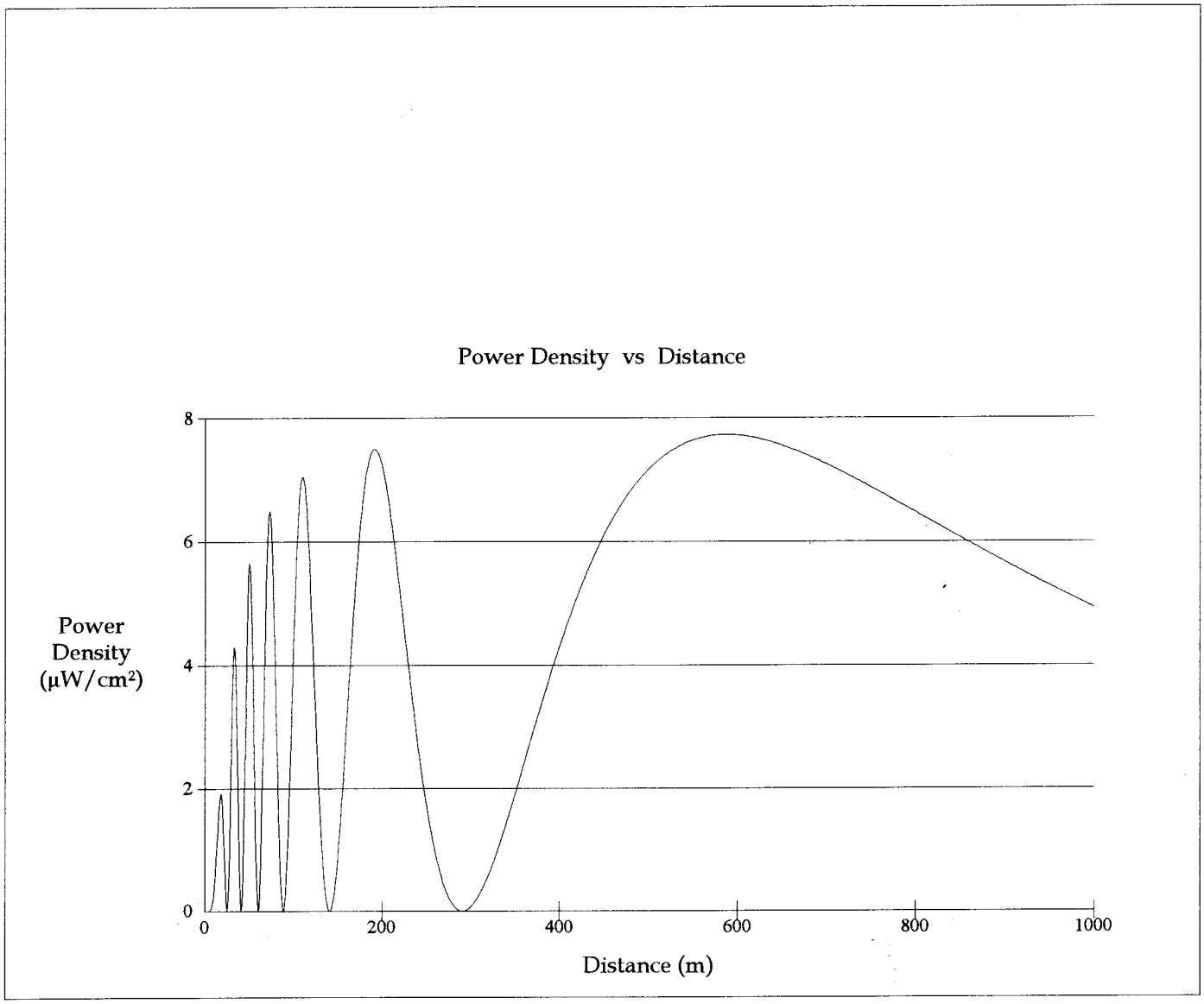
566 Nicole Drive, Blackfoot, Idaho 83221



Ground-Level NIER Analysis **OET FMModel**

Antenna Type: Shively 6814-14D-SS
Number of Elements: 14
Element Spacing: 0.5 wavelength

Distance: 1000 meters
Horizontal ERP: 100 kW
Vertical ERP: 100 kW

Antenna Height: 44 meters AGL

Maximum Power Density is 7.7 μW/cm^2 at 587 meters from the antenna structure.