

Construction Permit Special Operating Conditions

Construction Permit



United States of America
**FEDERAL COMMUNICATIONS COMMISSION
FM BROADCAST STATION CONSTRUCTION PERMIT**

Official Mailing Address:

FAMILY STATIONS, INC.
4135 NORTHGATE BLVD
SUITE 1
SACRAMENTO CA 95834

Authorizing Official:

Rodolfo F. Bonacci

Rodolfo F. Bonacci
Supervisory Engineer
Audio Division
Media Bureau

Facility ID: 87300

Call Sign: 970626ME

Permit File Number: BPED-19970626ME

Grant Date: JUL 31 2002

This permit expires 3:00 a.m.
local time, 36 months after the
grant date specified above.

Subject to the provisions of the Communications Act of 1934, as amended, subsequent acts and treaties, and all regulations heretofore or hereafter made by this Commission, and further subject to the conditions set forth in this permit, the permittee is hereby authorized to construct the radio transmitting apparatus herein described. Installation and adjustment of equipment not specifically set forth herein shall be in accordance with representations contained in the permittee's application for construction permit except for such modifications as are presently permitted, without application, by the Commission's Rules.

Commission rules which became effective on February 16, 1999, have a bearing on this construction permit. See Report & Order, Streamlining of Mass Media Applications, MM Docket No. 98-43, 13 FCC RCD 23056, Para. 77-90 (November 25, 1998); 63 Fed. Reg. 70039 (December 18, 1998). Pursuant to these rules, this construction permit will be subject to automatic forfeiture unless construction is complete and an application for license to cover is filed prior to expiration. See Section 73.3598.

Equipment and program tests shall be conducted only pursuant to Sections 73.1610 and 73.1620 of the Commission's Rules.

Name of Permittee: FAMILY STATIONS, INC.

Station Location: CA-SANTA MARIA

Frequency (MHz): 89.7

Channel: 209

Class: B

Hours of Operation: Unlimited

Construction Permit Special Operating Conditions

Construction Permit

Call sign: 970626ME

Permit No.: BPED-19970626ME

Transmitter: Type Accepted. See Sections 73.1660, 73.1665 and 73.1670 of the Commission's Rules.

Transmitter output power: As required to achieve authorized ERP.

Antenna type: (directional or non-directional): Directional

Antenna Coordinates: North Latitude: 34 deg 54 min 37 sec
West Longitude: 120 deg 11 min 08 sec

	Horizontally Polarized Antenna	Vertically Polarized Antenna
Effective radiated power in the Horizontal Plane (kW):		2.45
Height of radiation center above ground (Meters):		15
Height of radiation center above mean sea level (Meters):		1005
Height of radiation center above average terrain (Meters):		569

Antenna structure registration number: Not Required

Overall height of antenna structure above ground: 28 Meters

Obstruction marking and lighting specifications for antenna structure:

It is to be expressly understood that the issuance of these specifications is in no way to be considered as precluding additional or modified marking or lighting as may hereafter be required under the provisions of Section 303(q) of the Communications Act of 1934, as amended.

None Required

Special operating conditions or restrictions:

- 1 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 electromagnetic fields in excess of FCC guidelines.
- 2 BEFORE PROGRAM TESTS ARE AUTHORIZED, permittee shall submit the results of a complete proof-of-performance to establish the horizontal plane radiation patterns for both the horizontally and vertically polarized radiation components. This proof-of-performance may be accomplished using the complete full size antenna, or individual bays therefrom, mounted on a supporting structure of identical dimensions and configuration as the proposed structure, including all braces, ladders, conduits, coaxial lines, and other appurtenances; or using a carefully manufactured scale model of the entire antenna, or individual bays therefrom, mounted on an equally scaled model of the proposed supporting structure, including all appurtenances. Engineering exhibits should include a description of the antenna testing facilities and equipment employed, including appropriate photographs or sketches and a description of the testing procedures, including scale factor, measurements frequency, and equipment calibration.

Construction Permit Special Operating Conditions

Construction Permit

Callsign: 970626ME

Permit No.: BPED-19970626ME

Special operating conditions or restrictions:

- 3 BEFORE PROGRAM TESTS ARE AUTHORIZED, permittee shall submit an affidavit from a licensed surveyor to establish that the directional antenna has been oriented at the proper azimuth.
- 4 BEFORE PROGRAM TESTS ARE AUTHORIZED, permittee/licensee shall submit an affidavit that the installation of the directional antenna system was overseen by a qualified engineer. This affidavit shall include a certification by the engineer that the antenna was installed pursuant to the manufacturer's instructions and list the qualifications of the certifying engineer.
- 5 The relative field strength of neither the measured horizontally nor vertically polarized radiation component shall exceed at any azimuth the value indicated on the composite radiation pattern authorized by this construction permit.

A relative field strength of 1.0 on the composite radiation pattern herein authorized corresponds to the following effective radiated power:

2.45 kilowatts.

Principal minima and their associated field strength limits:

150 to 170 degrees True: 0.25 kilowatts
- 6 THE AUTOMATIC PROGRAM TEST PROVISIONS OF 47 C.F.R. SECTION 73.1620 DO NOT APPLY IN THIS CASE. A FORMAL REQUEST FOR PROGRAM TEST AUTHORITY MUST BE FILED IN CONJUNCTION WITH FCC FORM 302-FM, APPLICATION FOR LICENSE, BEFORE PROGRAM TESTS WILL BE AUTHORIZED. This request should be submitted at least 10 days prior to the date on which program tests are desired to commence. This request must contain documentation which demonstrates compliance with the following special operating condition(s):
- 7 The permittee/licensee shall, upon completion of construction and during the equipment test period, make proper radiofrequency electromagnetic (RF) field strength measurements throughout the transmitter site area to determine if there are any areas that exceed the FCC guidelines for human exposure to RF fields. If necessary, a fence must be erected at such distances and in such a manner as to prevent the exposure of humans to RF fields in excess of the FCC Guidelines (OET Bulletin No. 65, Edition 97-01, August 1997). The fence must be a type which will preclude casual or inadvertent access, and must include warning signs at appropriate intervals which describe the nature of the hazard. Any areas within the fence found to exceed the recommended guidelines must be clearly marked with appropriate visual warning signs.
- 8 Documentation demonstrating compliance with the special operating condition(s) may be submitted in advance of the filing of FCC Form 302-FM. The Commission's staff will review it for compliance and respond by letter stating whether automatic PTA has been reinstated.

*** END OF AUTHORIZATION ***

**Family Stations, Inc.
KHFR (CP), Santa Maria, CA
302-FM License Application
BPED-19970626ME
Facility ID 87300**

**Exhibit 10
June 2005**

Construction Permit Special Operating Conditions

Special Operating Condition 1

The permittee/licensee 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 fields in excess of FCC guidelines. RF radiation hazard warning signs are posted at the site, along with KHFR contact representative information.

Construction Permit Special Operating Conditions

Special Operating Conditions 2 & 5

Shively Labs

a division of Howell Laboratories, Inc.

- An Employee-Owned Company -

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S.O. 23352

Report of Test 6513-2-DA

for

FAMILY STATIONS, INC.

KHFR 89.7 MHz SANTA MARIA, CA

OBJECTIVE:

The objective of this test was to demonstrate the directional characteristics of a 6513-2-DA to meet the needs of KHFR and to comply with the requirements of the FCC construction permit, file number BPED-19970626ME.

RESULTS:

The measured azimuth pattern for the 6513-2-DA is shown in Figure 1. Figure 1A shows the Tabulation of the Vertical Polarization. The calculated elevation pattern of the antenna is shown in Figure 3. Construction permit file number BPED-19970626ME indicates that the Vertical radiation component shall not exceed 2.45 kW at any azimuth and is restricted to the following values at the azimuths specified:

150 to 170 Degrees T: 0.25 kW

From Figure 1, the maximum radiation of the Vertical component occurs at 024 Degrees T to 072 Degrees T. At the restricted azimuth of 150 to 170 Degrees T the Vertical component is 11.373 dB down from the maximum of 2.45 kW, or 0.18 kW.

Construction Permit Special Operating Conditions

Special Operating Conditions 2 & 5

Test Report 6513-2-DA
KHFR
Page Two

The R.M.S. of the Vertical component is 0.64. The total Vertical power gain is 4.83. See Figure 4 for calculations. The R.M.S. of the FCC composite pattern is 0.754. Therefore this Pattern complies with the FCC requirement of 73.316(c)(2)(ix)(A).

METHOD OF DIRECTIONALIZATION:

One bay of the 6513-2-DA was mounted on a tower of exact scale to a Central self-supporting tower. The spacing of the antenna to the tower was varied to achieve the vertical pattern shown in Figure 1. See Figure 2 for mechanical details.

METHOD OF MEASUREMENT:

As allowed by the construction permit, file number BPED-19970626ME, a single level of the 6513-2-DA was set up on the Howell Laboratories scale model antenna pattern measuring range. A scale of 4.5:1 was used.

SUPERVISION:

Mr. Surette was graduated from Lowell Technological Institute, Lowell, Massachusetts in 1973 with the degree of Bachelor of Science in Electrical Engineering. He has been directly involved with design and development of broadcast antennas, filter systems and RF transmission components since 1974, as an RF Engineer for six years with the original Shively Labs in Raymond, ME and for a short period of time with Dielectric Communications. He is currently an Associate Member of the AFCCE and a Senior Member of IEEE. He has authored a chapter on filters and combining systems for the latest edition of the CRC Electronics Handbook and for the 9th Edition of the NAB Handbook.

Construction Permit Special Operating Conditions

Special Operating Conditions 2 & 5

Test Report 6513-2-DA
KHFR
Page Three

EQUIPMENT:

The scale model pattern range consists of a wooden rotating pedestal equipped with a position indicator. The scale model bay is placed on the top of this pedestal and is used in the transmission mode at approximately 20 feet above ground level. The receiving corner reflector is spaced 50 feet away from the rotating pedestal at the same level above ground as the transmitting model. The transmitting and receiving signals are carried to a control building by means of RG-9/U double shielded coax cable.

The control building is equipped with:

Hewlett Packard Model 8753 Network Analyzer

PC Based Controller

Hewlett Packard 7550A Graphics Plotter

The test equipment is calibrated to ANSI/NCSL Z540-1-1994.

TEST PROCEDURES:

The corner reflector is mounted so that the horizontal and vertical azimuth patterns are measured independently by rotating the corner reflector by 90 degrees. The network analyzer was set to 403.65 MHz. Calibrated pads are used to check the linearity of the measuring system. For example, 6 dB padding yields a scale reading of 50 from an unpadded reading of 100 in voltage. From the recorded patterns, the R.M.S. values are calculated and recorded as shown in Figure 1.

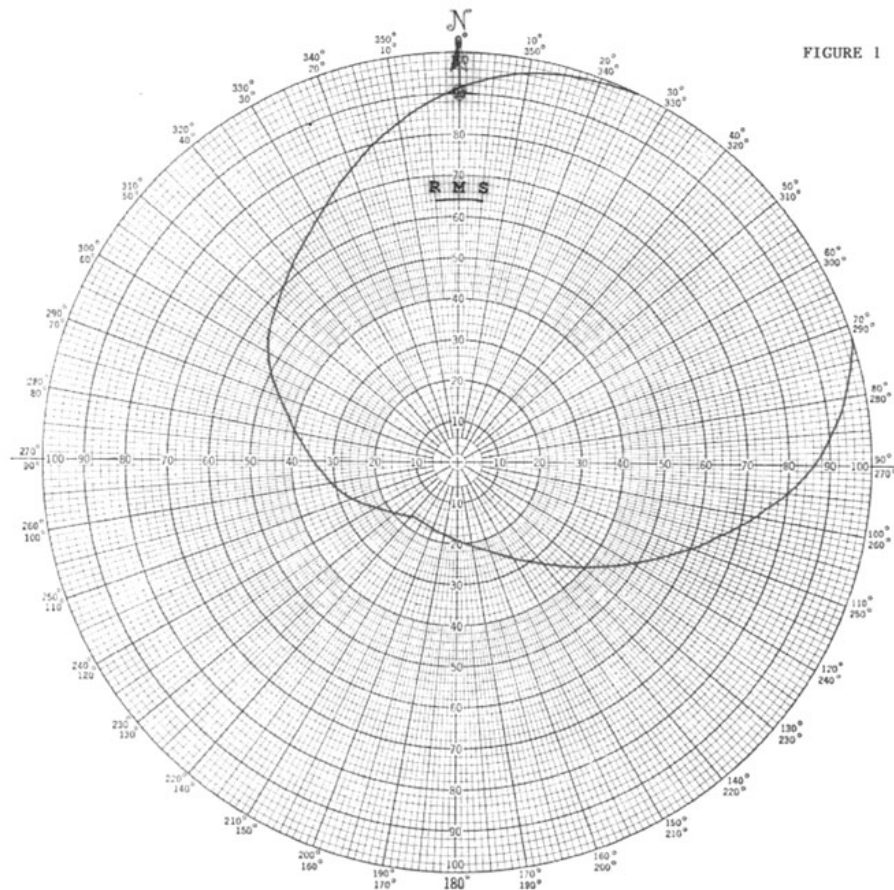
Respectfully submitted by:



Robert A. Surette
Manager of RF Engineering
S/O 23352
March 24, 2004

Construction Permit Special Operating Conditions

Special Operating Conditions 2 & 5



Shively Labs

PROJECT NAME	KHFR SANTA MARIA, CA	ANTENNA TYPE	6513-2-DA
PROJECT NUMBER	23352	DATE	3/10/04
MODEL	<input checked="" type="checkbox"/> FULL SCALE	FREQUENCY	403.65/89.7 MHz
POLARIZATION	VERTICAL	REMARKS	SEE FIGURE 2 FOR MECHANICAL DETAILS
CURVE PLOTTED IN	VOLTAGE <input checked="" type="checkbox"/> POWER <input type="checkbox"/> DB <input type="checkbox"/>		
OBSERVER	RAS		

SHIVELY LABS, A DIVISION OF HOWELL LABORATORIES, INC. BRIDGTON, ME 04009 (207) 647-3327

Construction Permit Special Operating Conditions

Special Operating Conditions 2 & 5

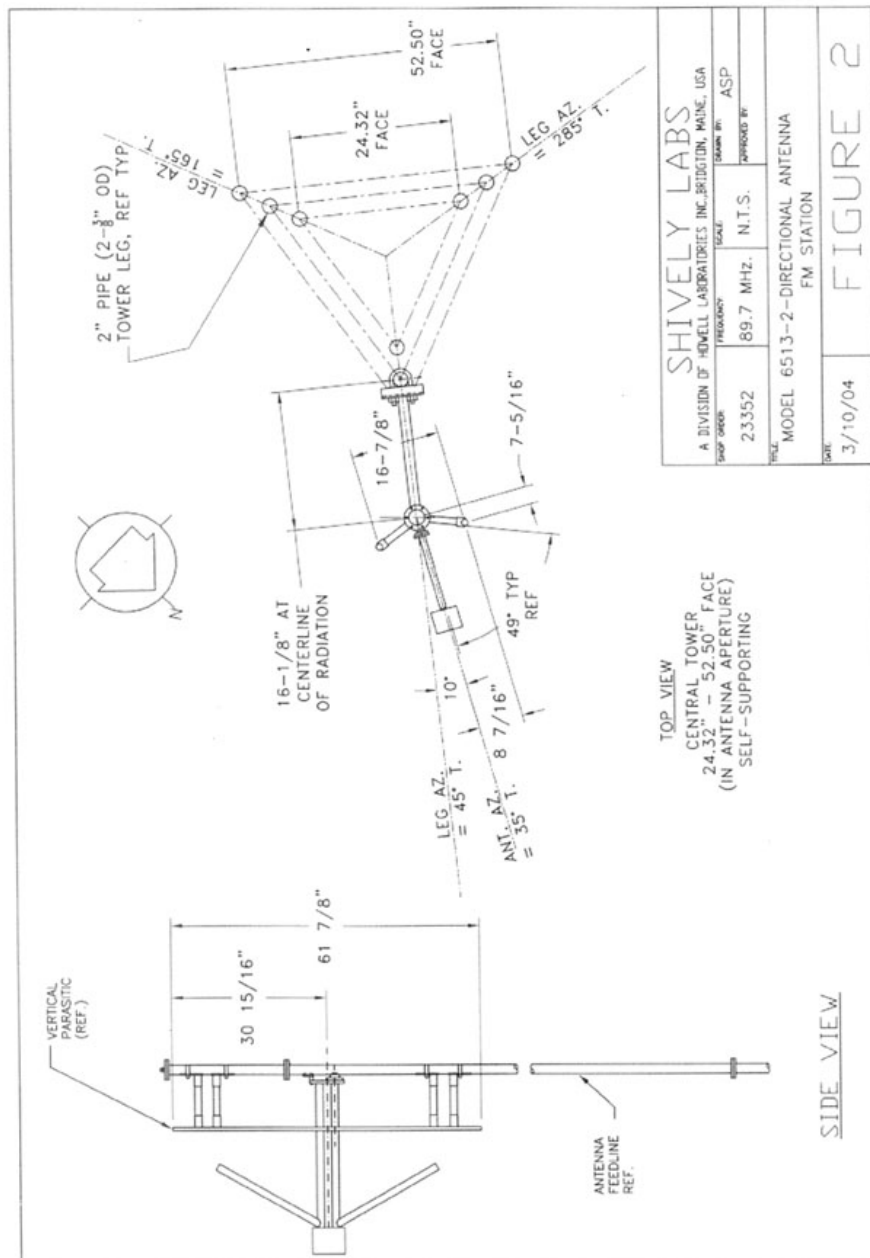
Figure 1A

S/O 23352
TABULATION OF VERTICAL POLARIZATION
KHFR SANTA MARIA, CA

DEGREE	RELATIVE FIELD	DEGREE	RELATIVE FIELD
0	0.910	180	0.190
10	0.965	190	0.180
20	0.990	200	0.175
30	1.000	210	0.170
40	1.000	220	0.175
45	1.000	225	0.185
50	1.000	230	0.200
60	1.000	240	0.225
70	1.000	250	0.270
80	0.950	260	0.310
90	0.860	270	0.350
100	0.730	280	0.395
110	0.605	290	0.460
120	0.490	300	0.530
130	0.400	310	0.575
135	0.360	315	0.600
140	0.325	320	0.625
150	0.270	330	0.680
160	0.235	340	0.755
170	0.210	350	0.840

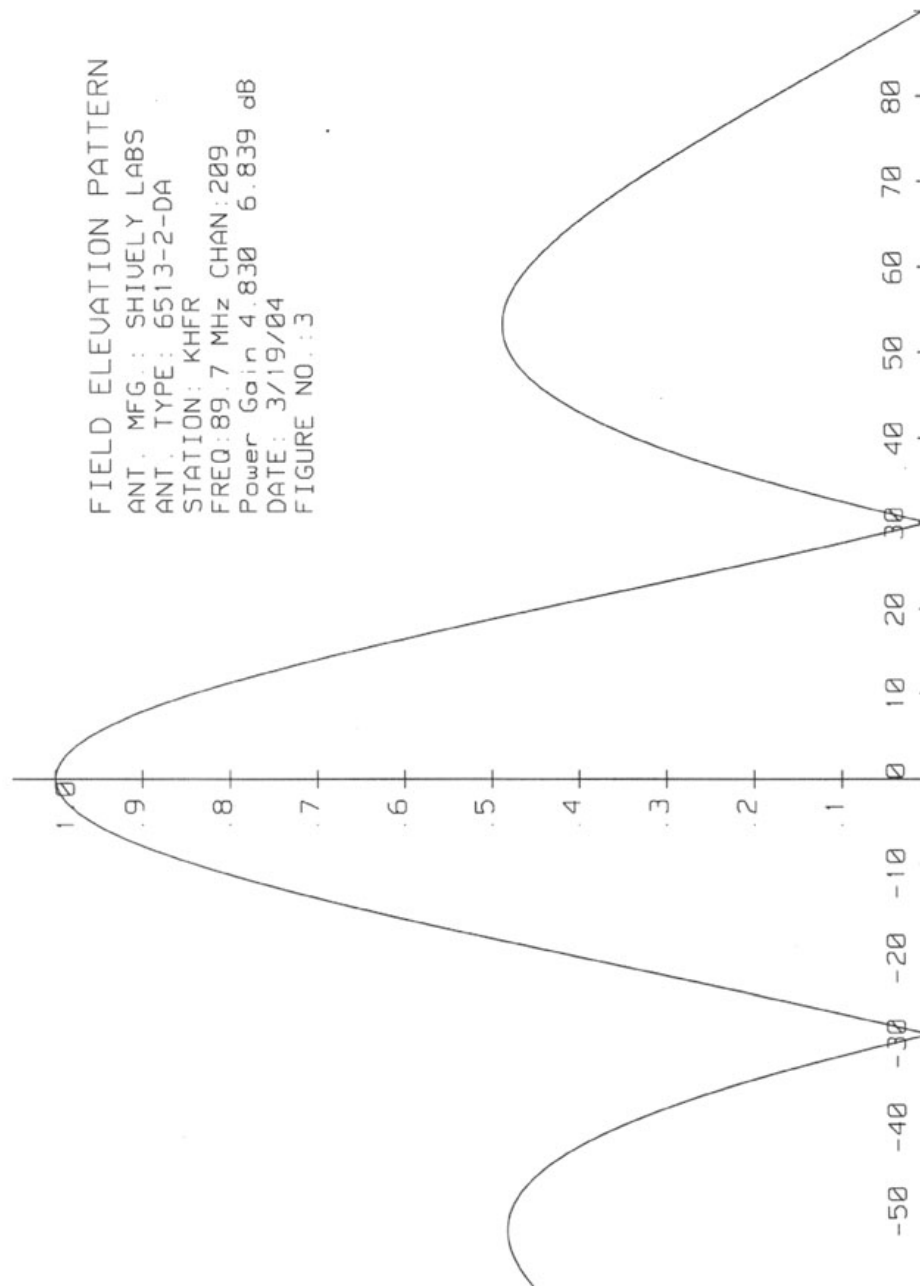
Construction Permit Special Operating Conditions

Special Operating Conditions 2 & 5



Construction Permit Special Operating Conditions

Special Operating Conditions 2 & 5



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Special Operating Conditions 2 & 5

FIGURE 4

S.O. 23352

VALIDATION OF GAIN CALCULATION

KHFR SANTA MARIA, CA

MODEL 6513-2-DA

Elevation Gain of 6513-2-DA equals 1.98

The RMS values are calculated utilizing the data of a planimeter.

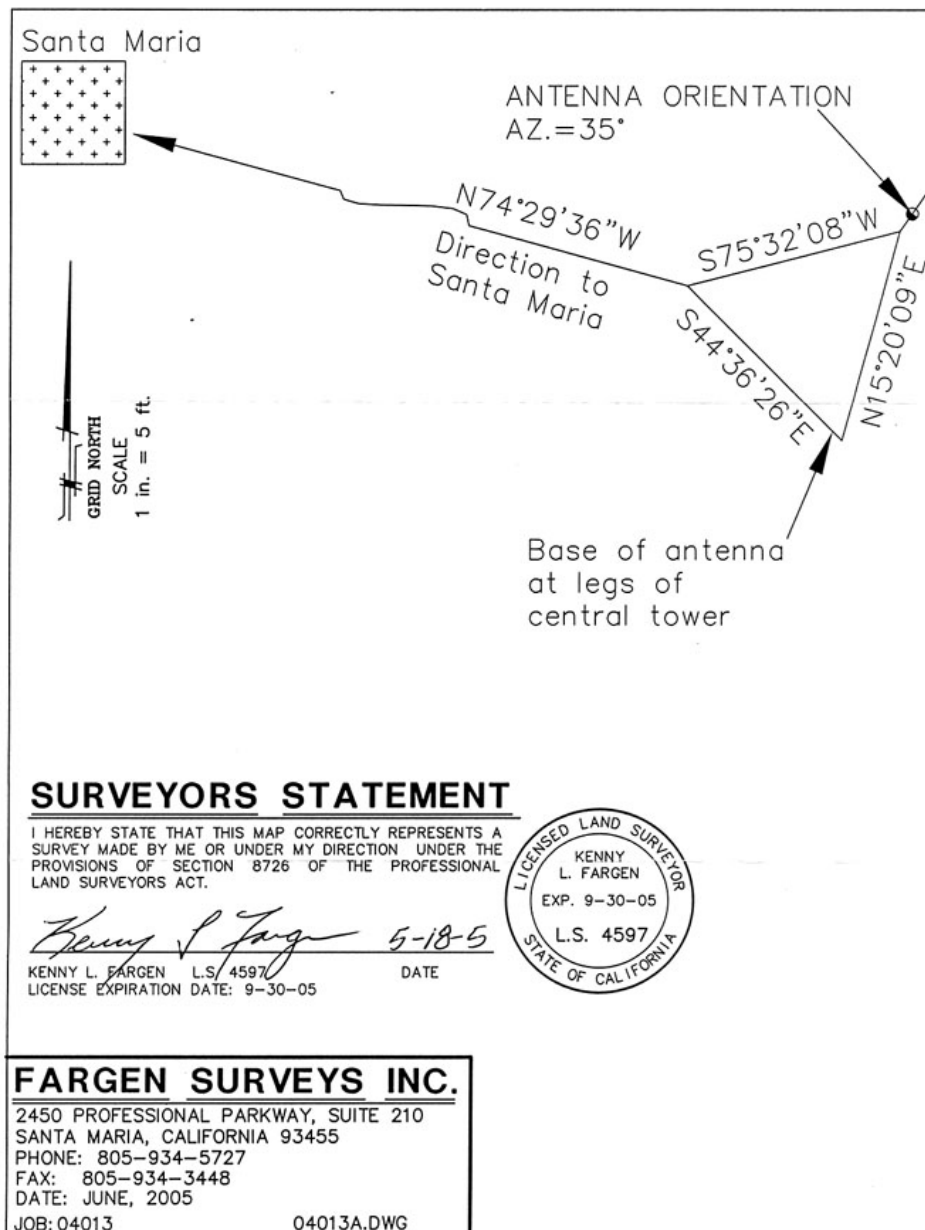
Vertical Azimuth Gain equals $1/(\text{RMS})^2$
 $1/(0.64)^2 = 2.44$

* Total Vertical Gain is Elevation Gain times Azimuth Gain
 $2.44 \times 1.98 = 4.83$

ERP divided by Vertical Gain equals Antenna Input Power
 $2.45 \text{ kW} \div 4.83 = 0.51 \text{ kW}$

Construction Permit Special Operating Conditions

Special Operating Condition 3



Construction Permit Special Operating Conditions

Special Operating Condition 4



**Family Stations, Inc.
4135 Northgate Blvd., Suite 1
Sacramento, CA 95834**

May 31, 2005

On April 19, 2005, I served as the on-site representative for Family Stations, Inc. for the construction of KHFR, 89.7 MHz, licensed to Santa Maria, CA, including the antenna installation.

The antenna is a Shively 6513 2-bay full wave spaced vertically polarized directional designed and manufactured by Shively specifically for this installation. Shively provided site-specific installation documentation, which was followed in all detail. No on-site revisions or alterations were needed or made, either electrically or mechanically.

On the same day as the antenna installation, the orientation of the antenna system was surveyed and verified to be in accordance with the antenna manufacturer's installation instructions by the registered surveying company of Fargen Surveys, Inc. The results of the surveyor have been supplied to Family Stations, Inc. separately.

I, James E. Latendorf, have been a broadcast engineer for Family Stations, Inc. for over 10 years, with experience in the maintenance and installation of AM and FM broadcast facilities, and have held a General Amateur Radio License WB6KVD for over 25 years, and therefore I am qualified to certify that KHFR has been constructed in accordance with all pertinent specifications.

James E. Latendorf
Chief Engineer, KHFR

Construction Permit Special Operating Conditions

Special Operating Conditions 6 - 8

**KHFR, Santa Maria, CA
Family Stations, Inc.
R.F.R. Measurements**

On the 19 April, 2005, radiated field measurements using a Narda Model 8718-B R.F. field intensity meter, Serial Number 01314, was made with the antenna radiating at full licensed power of 2.45 kilowatts as defined in the construction permit. The station was turned on for the purpose of RFR measurement and was turned off after measurements were made. A walking tour was made of the site to check the radiation levels at various locations. The entire area around the tower and transmitter building was traversed and the meter was observed. Inside the transmitter building, all equipment enclosures and transmission lines were checked.

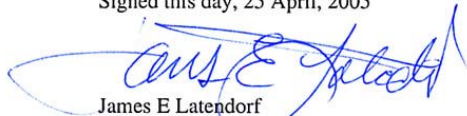
Results of the measurements showed that there were no areas on the ground or in the transmitter building that exceeded 34.6% of the MPE for General Population as described in OET Bulletin 97-01, by the FCC Office of Engineering and Technology.

Access to the KHFR transmitter tower site is restricted by a single access road secured by three gates that are locked at all times.

The permittee/licensee 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 radio frequency electromagnetic fields in excess of FCC guidelines.

I declare under penalty of perjury that the contents of this report are true and accurate to the best of my knowledge and belief.

Signed this day, 25 April, 2005


James E Latendorf
Chief Engineer, KHFR